10/7-11-91 (1)

ORNL/CDIAC-42
NDP-038

ornl

OAK RIDGE
NATIONAL
LABORATORY

MARTIN MARIETTA

Atmospheric Methane Concentrations—The NOAA/CMDL Global Cooperative Flask Sampling Network, 1983–1988

L. P. Steele
P. M. Lang

Environmental Sciences Division
Publication No. 3642

DO NOT MICROFILM
COVER

CARBON DIOXIDE INFORMATION ANALYSIS CENTER
Sponsored by the U.S. DEPARTMENT OF ENERGY

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

ORNL/CDIAC--42

Environmental Sciences Division

DE91 014942

ATMOSPHERIC METHANE CONCENTRATIONS — THE NOAA/CMDL GLOBAL COOPERATIVE FLASK SAMPLING NETWORK, 1983–1988

Contributed by

L. P. Steele*
Cooperative Institute for Research in Environmental Sciences
University of Colorado/NOAA
Boulder, Colorado, U.S.A.
*Now at CSIRO Division of Atmospheric Research
Aspendale, Victoria, Australia

P. M. Lang
National Oceanic and Atmospheric Administration
Environmental Research Laboratories
Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado, U.S.A.

Prepared by R. J. Sepanski

Environmental Sciences Division
Publication No. 3642

Date Published: May 1991

Prepared for the
Carbon Dioxide Research Program
Atmospheric and Climate Research Division
Office of Health and Environmental Research
Budget Activity Number KP 05 00 00 0

Prepared by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6335
managed by
MARTIN MARIETTA ENERGY SYSTEMS,INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

TABLE OF CONTENTS

	Page
LIST OF FIGURES	v
LIST OF TABLES	vii
ABSTRACT	ix
PART 1: INFORMATION ABOUT THE NUMERIC DATA PACKAGE	1
1. NAME OF THE NUMERIC DATA PACKAGE	3
2. CONTRIBUTORS	3
3. KEYWORDS	3
4. BACKGROUND INFORMATION	3
5. SOURCE AND SCOPE OF THE DATA	4
6. APPLICATIONS OF THE DATA	16
7. LIMITATIONS AND RESTRICTIONS	17
8. REFERENCES	17
9. DATA CHECKS PERFORMED BY CDIAC	19
10. HOW TO OBTAIN THE PACKAGE	20
PART 2: INFORMATION ABOUT THE MAGNETIC TAPE	23
11. CONTENTS OF THE MAGNETIC TAPE	25
12. DESCRIPTIVE FILE ON THE TAPE	26
13. LISTING OF THE FORTRAN IV DATA RETRIEVAL PROGRAM	32
14. LISTING OF THE SAS INPUT/OUTPUT RETRIEVAL PROGRAM	34
15. VERIFICATION OF DATA TRANSPORT	35

TABLE OF CONTENTS (continued)

Page

APPENDIX. REPRINTS OF PERTINENT LITERATURE A-1

The global distribution of methane in the troposphere, by L. P. Steele, P. J. Fraser, R. A. Rasmussen, M. A. K. Khalil, T. J. Conway, A. J. Crawford, R. H. Gammon, K. A. Masarie, and K. W. Thoning. 1987. . . . . A-3

Atmospheric methane data for the period 1983–1985 from the NOAA/GMCC global cooperative flask sampling network, by P. M. Lang, L. P. Steele, R. C. Martin, and K. A. Masarie. 1990. . . . . A-50

Atmospheric methane data for the period 1986–1988 from the NOAA/CMDL global cooperative flask sampling network, by P. M. Lang, L. P. Steele, and R. C. Martin. 1990. . . . . A-145

LIST OF FIGURES

Figure		Page
1	Location of methane sampling sites in the NOAA/CMDL global cooperative flask sampling network	9

LIST OF TABLES

Table | Page

1 Methane sampling sites in the NOAA/CMDL global cooperative flask sampling network 5

2 Monthly atmospheric methane concentrations (ppbv) from the NOAA/CMDL Global Cooperative Flask Sampling Network 10

3 Partial listing of the atmospheric methane data (as formatted in File 4 on the magnetic tape or METH8388.DAT on the floppy diskette) 30

4 Characteristics of numeric variables in the atmospheric methane data file 36

ABSTRACT

STEELE, L. P., and P. M. LANG. 1991. Atmospheric methane concentrations—the NOAA/CMDL global cooperative flask sampling network, 1983–1988. ORNL/CDIAC-42, NDP-038. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee. 302 pp.

This document presents monthly averages and sampling statistics for atmospheric methane (CH_4) concentrations (mixing ratios) from the National Oceanic and Atmospheric Administration Climate Monitoring and Diagnostics Laboratory (NOAA/CMDL) global cooperative flask sampling network from 1983 to 1988. The data are derived from a network of 31 stations (27 of which were still active at the end of 1988), which collected air samples in flasks approximately once per week for measurement of both methane and carbon dioxide. The samples were analyzed for atmospheric methane on a gas chromatograph (fitted with a flame ionization detector) at the NOAA/CMDL laboratory in Boulder, Colorado. These data represent the most spatially comprehensive atmospheric methane record available in the world. They have been used to study the temporal and spatial variations in atmospheric methane concentration and have applications in modeling, projections, and global mass balance calculations.

The data consist of station identification code; year; and, for each month, mean monthly methane concentration, standard deviation, and number of samples contributing to the mean. They are available free of charge as a numeric data package (NDP) from the Carbon Dioxide Information Analysis Center. The NDP consists of this document and a magnetic tape (or a floppy diskette, upon request) containing machine-readable files. This document provides sample listings of the NOAA/CMDL atmospheric methane data as they appear on the magnetic tape, as well as a complete listing of the methane data (statistics excluded) in tabular form. This document also offers retrieval program listings (in FORTRAN and SAS[*] languages), furnishes information on sampling and analysis methods and on data selection, defines limitations and restrictions of the data, and provides reprints of pertinent literature.

---

[*]SAS is the registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000.

PART 1

INFORMATION ABOUT THE NUMERIC DATA PACKAGE

1. NAME OF THE NUMERIC DATA PACKAGE

Atmospheric Methane Concentrations—the NOAA/CMDL Global Cooperative Flask Sampling Network, 1983–1988

2. CONTRIBUTORS

L. Paul Steele*
Cooperative Institute for Research in Environmental Sciences
University of Colorado/National Oceanic and Atmospheric Administration
Boulder, Colorado, U.S.A.

*Now at CSIRO Division of Atmospheric Research, Aspendale, Victoria, Australia

Patricia M. Lang
National Oceanic and Atmospheric Administration
Environmental Research Laboratories
Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado, U.S.A.

3. KEYWORDS

Atmospheric methane, flask sampling, gas chromatograph, global distribution, trend

4. BACKGROUND INFORMATION

Methane (CH_4) is recognized as an important trace gas that affects both the chemical makeup and the radiative energy balance of the earth's atmosphere (see Cicerone and Oremland 1988). The major global sources of methane are thought to be enteric fermentation in ruminant animals, anaerobic decay of organic matter in rice paddies and natural wetlands (including marshlands, tropical swamps, and tundra), fossil fuel exploitation, biomass burning, landfills, and termites (Cicerone and Oremland 1988). Recent estimates of the average atmospheric lifetime of methane range from about 9.6 years (Prinn et al. 1987) to as long as 12 years (Vaghjiani and Ravishankara 1991). Chemical reaction of CH_4 occurs in the troposphere to produce a number of products, including carbon monoxide, formaldehyde (CH_2O), and ozone (O_3) (Logan et al. 1981). In addition, the oxidation of methane results in an increase in stratospheric water vapor, which may add to the depletion of stratospheric ozone in the polar regions (Blake and Rowland 1988). However, the reaction of methane with chlorine atoms (Cl) in the lower stratosphere sequesters chlorine atoms as HCl, and so may lessen the depletion of stratospheric ozone by chlorofluorocarbons (see Cicerone 1987). A number of atmospheric models have been used to examine the contribution of methane to the earth's radiative energy balance. At present day concentrations, additional methane is thought to have a much greater radiative effect on climate, on a per molecule basis, than additional CO_2 (Shine et al. 1990). One model calculation, that of Ramanathan et al. (1985), found an average surface warming of 0.79 K for the period 1880–1980 as a result of inferred increases in the concentrations of radiatively active gases, with the increase in methane contributing 0.12 K of the total (in comparison with the increase in CO_2, which contributed 0.52 K).

Atmospheric methane concentrations before about 1950 have been inferred primarily from air bubbles trapped in ice taken from Greenland and Antarctica (Raynaud et al. 1988; Stauffer et al. 1985; Stauffer et al. 1988; Etheridge et al. 1988; Chappellaz et al. 1990). From 1950 to about 1970, methane concentrations were measured sporadically by various investigators using infrared spectroscopy (see Blake et al. 1982). The values obtained from these measurements reflect averages over an entire atmospheric column of air. During the 1960s and 1970s sporadic measurements of atmospheric methane were also made by the technique of gas chromatography; a compilation and analysis of these results has been presented by Khalil et al. (1989). Surveys during the 1970s had found a latitudinal gradient, with higher concentrations in the Northern Hemisphere (see Wilkness et al. 1973; Lamontagne et al. 1974; Ehhalt and Schmidt 1978). More systematic measurements began in the late 1970s with air samples analyzed by gas chromatography using flame ionization detection. By the early 1980s, it was clear that atmospheric methane exhibited seasonal variations, and that there was a long-term increasing trend in global methane concentrations (Rasmussen and Khalil 1981; Fraser et al. 1981; Blake et al. 1982).

Since its inception in 1968, the Climate Monitoring and Diagnostics Laboratory (CMDL) [known before 1989 as the Geophysical Monitoring for Climatic Change (GMCC) Division] of the National Oceanic and Atmospheric Administration (NOAA) has developed a network of flask sampling sites for the analysis of atmospheric CO_2 (Komhyr et al. 1985). Beginning on an experimental basis in April 1983, NOAA/CMDL expanded its flask sample analysis to include methane as well as CO_2 (Lang et al. 1990a). The sampling network now includes 27 sites, ranging in latitude from 82° N to 90° S (Lang et al. 1990b). Collection sites are typically located in remote areas to ensure that samples are representative of a large, well-mixed volume of the atmosphere (Steele et al. 1987). This document presents monthly averages and sampling statistics for atmospheric methane concentrations (mixing ratios) measured by the NOAA/CMDL global cooperative flask sampling network from 1983 to 1988.

5. SOURCE AND SCOPE OF THE DATA

The earliest methane data from the NOAA/CMDL cooperative network is for January 1983, and comes from three of the remote sites (Amsterdam Island, Halley Bay, and Palmer Station), simply reflecting the long delay between sample collection and analysis for these sites. Over the entire period 1983–1988, 31 network stations contributed methane data, and 27 of these were still active at the end of 1988. Nineteen sites have reported data for one or more months of each year during 1983–1988. Ten other sites began reporting at some time after 1983; of these, two were discontinued before 1988. Two other sites began reporting in 1983 but were also later discontinued. Table 1 lists the locations of all stations from the NOAA/CMDL network that have contributed methane data, as well as information concerning the period and completeness of the record. A map showing the location of the stations is given in Fig. 1. The average monthly atmospheric methane concentrations (sampling statistics excluded) are provided in Table 2. Detailed descriptions of sample

Table 1. Methane sampling sites in the NOAA/CMDL global cooperative flask sampling network

Site code	Site name and location	Country	Latitude	Longitude	Elevation above sea level (m)	Period of record	Total number of monthly methane values reported
ALT	Alert, N.W.T.	Canada	82°27' N	62°31' W	6	1985–1988	43
AMS	Amsterdam Island	France	37°57' S	77°32' E	150	1983–1988	57
ASC	Ascension Island	U.K.	07°55' S	14°25' W	54	1983–1988	68
AVI	St. Croix, Virgin Islands	U.S. Territory	17°45' N	64°45' W	3	1983–1988	67
AZR	Azores (Terceira Island)	Portugal	38°45' N	27°05' W	30	1983–1988	56
BRW	Point Barrow, Alaska	U.S.A.	71°19' N	156°36' W	11	1983–1988	69
CBA	Cold Bay, Alaska	U.S.A.	55°12' N	162°43' W	25	1983–1988	68
CGO	Cape Grim, Tasmania	Australia	40°41' S	144°41' E	94	1984–1988	57
CHR	Christmas Island	Kiribati	01°42' N	157°10' W	3	1984–1988	58
CMO	Cape Meares, Oregon	U.S.A.	45°00' N	124°00' W	30	1983–1988	67
GMI	Guam (Mariana Islands)	U.S. Territory	13°26' N	144°47' E	2	1983–1988	67
HBA	Halley Bay	Antarctica	75°40' S	25°30' W	10	1983–1988	45
KEY	Key Biscayne, Florida	U.S.A.	24°40' N	80°12' W	3	1983–1988	62
KPA	Kitt Peak, Arizona	U.S.A.	32°00' N	112°00' W	2083	1983–1985	14
KUM	Cape Kumukahi, Hawaii	U.S.A.	19°31' N	154°49' W	3	1983–1988	68

Table 1. (continued)

Site code	Site name and location	Country	Cooperating agency
ALT	Alert, N.W.T.	Canada	Environment Canada / Atmospheric Environment Service
AMS	Amsterdam Island	France	Centre des Faibles Radioactivities
ASC	Ascension Island	U.K.	U. S. Air Force, Pan American World Airways
AVI	St. Croix, Virgin Islands	U.S. Territory	Fairleigh Dickinson University / West Indies Laboratory
AZR	Azores (Terceira Island)	Portugal	U. S. Air Force / 7th Weather Wing
BRW	Point Barrow, Alaska	U.S.A.	CMDL Station
CBA	Cold Bay, Alaska	U.S.A.	NOAA, National Weather Service
CGO	Cape Grim, Tasmania	Australia	CSIRO, Division of Atmospheric Research; Bureau of Meteorology
CHR	Christmas Island	Kiribati	Scripps Institute of Oceanography
CMO	Cape Meares, Oregon	U.S.A.	Oregon Graduate Institute of Science and Technology
GMI	Guam (Mariana Islands)	U.S. Territory	Marine Laboratory / University of Guam
HBA	Halley Bay	Antarctica	British Antarctic Survey
KEY	Key Biscayne, Florida	U.S.A.	NOAA / AOML / Ocean Chemistry Division
KPA	Kitt Peak, Arizona	U.S.A.	Battelle Pacific Northwest Laboratory
KUM	Cape Kumukahi, Hawaii	U.S.A.	CMDL Station

Table 1. (continued)

Site code	Site name and location	Country	Latitude	Longitude	Elevation above sea level (m)	Period of record	Total number of monthly methane values reported
MBC	Mould Bay, N.W.T.	Canada	76°14' N	119°20' W	15	1983–1988	69
MCM	McMurdo Station	Antarctica	77°50' S	166°36' E	11	1985–1987	21
MID	Midway (Sand Island)	U.S. Territory	28°13' N	177°22' W	4	1985–1988	42
MLO	Mauna Loa, Hawaii	U.S.A.	19°32' N	155°35' W	3397	1983–1988	67
NWR	Niwot Ridge, Colorado	U.S.A.	40°03' N	105°38' W	3749	1983–1988	62
NZL	Kaitorete Spit	New Zealand	43°50' S	172°38' E	3	1983–1985	6
OPW	Olympic Peninsula, Washington	U.S.A.	48°15' N	124°45' W	2 & 488	1985–1988	31
PSA	Palmer Station (Anvers Island)	Antarctica	64°55' S	64°00' W	10	1983–1988	64
RPB	Ragged Point	Barbados	13°10' N	59°26' W	3	1987–1988	14
SEY	Seychelles (Mahe Island)	Seychelles	04°40' S	55°10' E	3	1983–1988	51
SHM	Shemya Island, Alaska	U.S.A.	52°43' N	174°06' E	40	1985–1988	35
SIO	Scripps Institute, California	U.S.A.	32°50' N	117°16' W	14	1984–1986	4
SMO	American Samoa (Matatula Point)	U.S. Territory	14°15' S	170°34' W	42	1983–1988	69
SPO	South Pole (Amundsen Scott)	Antarctica	89°59' S	24°48' W	2810	1983–1988	71
STM	Ocean Station "M"	North Atlantic	66°00' N	02°00' E	4.5 - 9	1983–1988	68
SYO	Syowa	Antarctica	69°00' S	39°35' E	11	1986,1988	17

Table 1. (continued)

Site code	Site name and location	Country	Cooperating Agency
MBC	Mould Bay, N.W.T.	Canada	Environment Canada / Atmospheric Environment Service
MLO	Mauna Loa, Hawaii	U.S.A.	CMDL Station
NWR	Niwot Ridge, Colorado	U.S.A.	University of Colorado / INSTAAR
NZL	Kaitorete Spit	New Zealand	National Center for Atmospheric Research
OPW	Olympic Peninsula, Washington	U.S.A.	University of Washington
PSA	Palmer Station (Anvers Island)	Antarctica	National Science Foundation
RPB	Ragged Point	Barbados	International Science Consultants (P. G. Simmons)
SEY	Seychelles (Mahe Island)	Seychelles	New Mexico State University / Physical Science Laboratory
SHM	Shemya Island, Alaska	U.S.A.	U. S. Air Force
SIO	Scripps Institute, California	U.S.A.	Scripps Institute of Oceanography (C. D. Keeling)
SMO	American Samoa (Matatula Point)	U.S. Territory	CMDL Station
SPO	South Pole (Amundsen Scott)	Antarctica	National Science Foundation / CMDL Station
STM	Ocean Station "M"	North Atlantic	Norway Meteorological Institute
SYO	Syowa	Antarctica	Tohoku University, Sendai, Japan (T. Nakazawa)

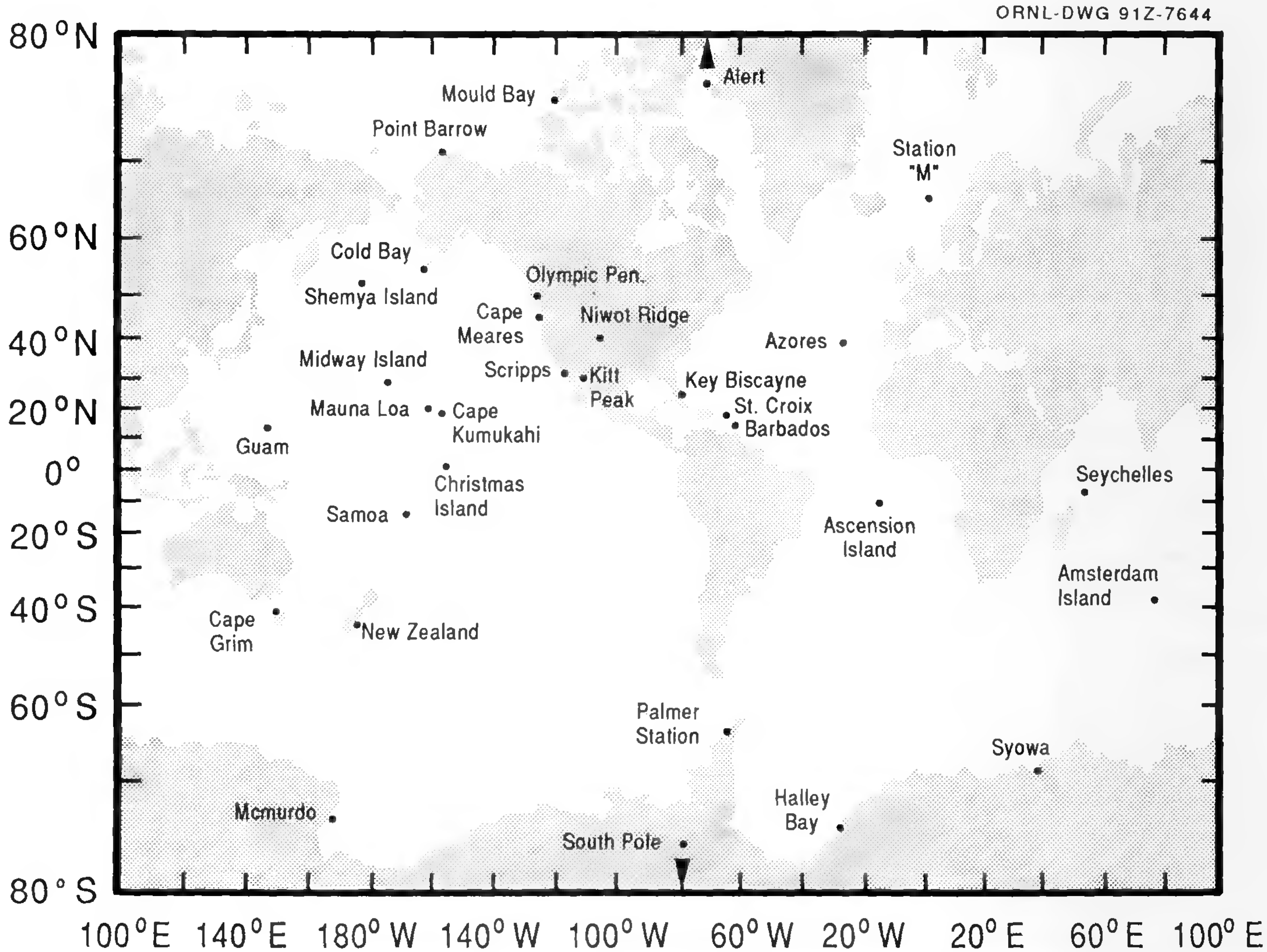


Fig. 1. Location of methane sampling sites in the NOAA/CMDL global cooperative flask sampling network.

Table 2. Monthly atmospheric methane concentrations[a] (ppbv) from the NOAA/CMDL Global Cooperative Flask Sampling Network, 1983–1988

Station	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ALT	1985	-999.9	-999.9	-999.9	-999.9	-999.9	1707.8	1697.1	1698.5	1720.6	1731.1	1750.8	1749.7
ALT	1986	1758.6	1747.0	1769.9	1752.6	1743.9	1719.7	1717.4	1718.5	1722.3	1766.3	1752.3	1737.5
ALT	1987	1754.5	1757.4	1761.3	1748.8	1751.8	1733.8	1731.2	1734.2	1751.8	1766.8	1769.1	1767.3
ALT	1988	1776.1	1776.3	1777.6	1779.1	1761.8	1749.4	1732.5	1733.7	1760.2	1780.6	1783.4	1788.6
AMS	1983	1539.3	1542.1	1540.9	1547.4	1553.4	1563.9	1569.6	1576.3	1577.4	1577.2	1578.0	1568.1
AMS	1984	1559.2	1560.7	1562.6	1571.3	1579.7	-999.9	1588.7	1588.7	1588.9	1589.8	-999.9	1581.0
AMS	1985	-999.9	-999.9	1566.3	1570.1	1588.8	1584.8	1594.1	1603.6	1610.7	1600.1	1596.2	-999.9
AMS	1986	1588.8	1581.9	1590.6	1593.1	1597.7	1604.9	1608.7	1615.2	1614.8	1612.6	1608.8	1602.4
AMS	1987	1595.8	1592.0	-999.9	-999.9	-999.9	-999.9	1622.4	-999.9	-999.9	-999.9	1629.7	1621.2
AMS	1988	1598.5	1602.2	1603.6	1613.7	-999.9	-999.9	1626.1	1633.2	1636.1	1637.5	-999.9	1621.4
ASC	1983	-999.9	-999.9	-999.9	-999.9	1575.6	1586.0	1588.2	1584.0	1586.7	1585.6	1577.2	1575.4
ASC	1984	1573.6	1568.4	1576.0	1586.2	1591.5	1595.0	1600.5	1601.5	1599.3	1593.9	1587.8	1593.6
ASC	1985	1583.5	1583.4	1592.1	1599.6	1599.4	1612.4	1608.9	1613.9	1616.0	1607.9	1602.3	1603.0
ASC	1986	1597.5	1595.6	1599.4	1613.0	1616.4	1620.8	1619.3	1621.0	1620.0	1627.4	1629.7	1621.4
ASC	1987	1611.7	1612.1	1615.5	1624.8	1635.8	1635.9	1635.2	1636.8	1636.1	1633.0	1630.3	1625.3
ASC	1988	1611.6	1614.6	1629.1	1620.9	1639.0	1637.4	1643.1	1646.0	1646.1	1652.4	1638.6	1641.3
AVI	1983	-999.9	-999.9	-999.9	-999.9	1609.9	1628.0	1632.5	1637.4	1645.5	1652.5	-999.9	1654.5
AVI	1984	1653.6	1654.5	1643.8	1653.5	1656.5	1635.0	1643.5	1646.8	1643.4	1643.4	1660.0	1684.1
AVI	1985	1669.2	1665.9	1673.6	1672.1	1661.1	1656.2	1647.9	1657.8	1654.8	1676.2	1685.0	1695.5
AVI	1986	1681.1	1686.0	1687.1	1670.7	1663.6	1665.6	1664.5	1660.6	1657.9	1671.0	1690.1	1689.2
AVI	1987	1693.2	1687.9	1699.6	1678.4	1677.8	1682.1	1677.3	1676.1	1677.1	1682.4	1699.4	1702.7
AVI	1988	1704.7	1706.9	1712.0	1693.1	1692.1	1684.8	1680.9	1689.5	1680.1	1690.8	1710.9	1717.6
AZR	1983	-999.9	-999.9	-999.9	-999.9	1678.0	1672.0	1652.5	1651.3	1670.0	1679.5	1675.0	1673.5
AZR	1984	1689.9	1699.2	1689.1	1695.0	1689.0	1681.5	1649.8	-999.9	1689.1	1685.7	1726.5	1711.5
AZR	1985	1682.7	1713.4	1703.2	1711.7	1718.1	1689.4	1683.9	-999.9	1698.9	1719.9	1690.2	1713.9
AZR	1986	1723.6	-999.9	1694.3	-999.9	1705.2	1705.8	-999.9	1708.2	-999.9	-999.9	-999.9	1726.1
AZR	1987	1742.0	1726.1	1728.1	1733.9	-999.9	1703.9	1716.3	1693.2	1733.1	1741.0	1741.3	1747.5
AZR	1988	1738.3	1728.2	1733.5	1755.3	1737.5	-999.9	1703.6	1702.1	1729.4	1750.5	-999.9	-999.9
BRW	1983	-999.9	-999.9	-999.9	1699.2	1676.4	1682.1	1678.4	1686.9	1707.0	1727.5	1710.8	1709.1
BRW	1984	1734.7	1759.9	1728.7	1716.9	1711.9	1700.3	1704.4	1708.3	1728.6	1732.1	1721.4	1739.3
BRW	1985	1741.6	1738.9	1739.7	1750.7	1733.8	1711.7	1692.4	1708.5	1721.7	1757.3	1753.0	1746.2
BRW	1986	1742.5	1768.7	1787.1	1760.3	1736.4	1730.3	1727.0	1723.4	1749.1	1804.3	1769.8	1760.2
BRW	1987	1761.6	1779.8	1775.4	1764.9	1753.3	1733.2	1733.6	1744.3	1763.8	1758.4	1767.8	1772.2
BRW	1988	1788.1	1811.3	1791.2	1773.2	1760.6	1741.7	1741.5	1741.4	1767.8	1774.4	1787.4	1804.8

Table 2. (continued)

Station	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CBA	1983	-999.9	-999.9	-999.9	-999.9	1681.7	1677.5	1662.0	1664.5	1704.0	1714.7	1704.5	1697.8
CBA	1984	1709.5	1722.3	1725.0	1712.5	1702.7	1686.6	1676.7	1690.6	1706.5	1717.2	1716.7	1717.7
CBA	1985	1717.1	1733.4	1730.3	1734.2	1723.5	1715.8	1695.0	1701.9	1733.4	1729.4	1724.4	1724.5
CBA	1986	1750.6	1734.7	1738.7	1743.6	1741.1	1728.7	1701.1	1721.5	1756.3	1756.6	1729.2	1748.6
CBA	1987	1745.9	1739.4	1748.9	1753.5	1746.0	1736.6	1731.6	1724.6	1757.4	1765.1	1754.4	1759.1
CBA	1988	1760.7	1761.7	1764.8	1763.3	1759.6	1745.9	1742.3	1751.6	1748.4	1762.4	1771.9	1766.1
CGO	1984	-999.9	-999.9	-999.9	1566.9	1570.3	1579.5	1588.8	1591.8	1591.1	1594.0	1585.9	1579.7
CGO	1985	1573.2	1567.5	1570.9	1574.6	1584.2	1591.1	1597.4	1601.3	1604.4	1603.8	1597.6	1590.6
CGO	1986	1586.4	1582.2	1581.4	1585.4	1599.6	1599.7	1609.9	1613.5	1613.7	1616.3	1612.4	1606.1
CGO	1987	1595.7	1592.2	1597.0	1599.6	1612.9	1613.7	1620.2	1623.2	1627.1	1627.5	1622.3	1617.0
CGO	1988	1609.7	1602.5	1601.5	1605.4	1617.2	1621.9	1631.2	1637.2	1636.7	1637.1	1633.3	1626.8
CHR	1984	-999.9	-999.9	1630.3	1633.0	1619.4	1598.1	1595.9	1599.3	1594.0	1602.6	1595.7	1611.1
CHR	1985	1621.6	1611.5	1628.8	1622.7	1611.8	1614.5	1605.7	1609.9	1611.1	1616.2	1611.6	1616.6
CHR	1986	1630.3	1629.3	1641.6	1650.5	1620.8	1625.3	1618.6	1623.1	1622.7	1614.5	1623.0	1630.3
CHR	1987	1641.2	1632.5	1652.2	1657.0	1652.0	1635.3	1637.9	1631.7	1628.4	1636.0	1647.3	1635.3
CHR	1988	1656.1	1663.2	1657.8	1640.9	1635.2	1636.7	1641.0	1644.8	1644.8	1646.0	1651.1	1657.4
CMO	1983	-999.9	-999.9	-999.9	-999.9	1666.4	1663.2	1657.4	1659.7	1677.7	1696.1	1689.7	1703.5
CMO	1984	1646.0	1699.3	1698.9	1707.8	1694.5	1683.7	1678.0	1665.3	1709.3	1730.9	1712.3	1724.8
CMO	1985	1715.1	1681.4	1730.5	1726.7	1708.5	-999.9	1671.0	1688.1	1709.3	1719.3	1722.3	1719.5
CMO	1986	1717.8	1712.0	1713.9	1736.3	1722.5	1715.8	1693.5	1689.8	1697.7	1744.9	1730.4	1735.1
CMO	1987	1737.1	1731.4	1740.2	1739.9	1731.3	1743.4	1708.6	1706.2	1722.6	1753.0	1743.9	1752.0
CMO	1988	1760.6	1753.8	1760.1	1755.1	1745.1	1734.9	1737.6	1724.2	1747.1	1751.1	1746.3	1751.3
GMI	1983	-999.9	-999.9	-999.9	-999.9	1618.9	1622.8	1604.7	1587.8	1610.2	1624.3	1636.5	1629.2
GMI	1984	1627.1	1635.0	1630.4	1624.8	1624.1	1614.5	1611.7	1601.9	1612.5	1630.9	1618.9	1661.1
GMI	1985	1637.9	1664.7	1661.7	1645.5	1631.1	1634.9	1636.2	1623.0	1628.4	1658.2	1671.8	1668.9
GMI	1986	1667.9	1674.9	1687.3	1680.2	1634.2	1662.7	1660.9	-999.9	1644.2	1668.9	1687.9	1684.5
GMI	1987	1683.9	1683.3	1689.2	1687.9	1696.8	1660.6	1653.2	1661.5	1664.0	1689.1	1679.5	1707.0
GMI	1988	1694.5	1709.2	1687.1	1686.2	1685.2	1662.0	1657.1	1657.0	1657.7	1667.7	1700.2	1704.0
HBA	1983	1541.1	1537.2	1537.9	1540.2	1550.2	1560.2	1573.1	-999.9	1576.8	1578.4	1574.4	1569.6
HBA	1984	1560.7	1556.7	1558.0	-999.9	-999.9	-999.9	-999.9	1589.7	-999.9	-999.9	1585.0	1580.9
HBA	1985	1567.7	1572.5	-999.9	-999.9	-999.9	1587.7	1592.9	1596.7	1604.9	-999.9	1602.6	-999.9
HBA	1986	1580.5	1569.0	1576.1	1580.5	1584.0	1592.3	1609.5	1611.0	1612.8	1614.6	1610.2	1606.4
HBA	1987	1590.2	1584.2	-999.9	1595.9	1602.8	1612.5	1621.3	1620.8	-999.9	-999.9	-999.9	-999.9
HBA	1988	1609.4	-999.9	1606.1	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9

Table 2. (continued)

Station	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KEY	1983	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1629.5	1679.7	1652.5
KEY	1984	1696.0	1676.5	1653.2	1668.0	1644.0	1668.0	-999.9	1648.0	1666.2	1690.8	1687.3	1668.6
KEY	1985	1709.8	1690.7	1662.3	1699.6	1678.5	1668.1	1644.3	1648.4	1669.4	1684.0	1689.7	1700.8
KEY	1986	1720.9	1695.0	1709.4	1731.4	1698.6	1660.4	1659.8	1657.4	1674.5	1703.3	1685.8	1719.4
KEY	1987	1701.0	1722.3	1720.9	1720.1	1693.0	1668.2	1671.7	1686.4	1695.7	1745.5	1714.1	1718.9
KEY	1988	1739.4	1700.6	1719.0	1716.8	1729.8	1705.0	1693.8	1683.0	1685.6	1757.7	1732.3	1756.1
KPA	1983	-999.9	-999.9	-999.9	1622.0	1644.9	1639.4	1604.9	-999.9	1630.5	1726.0	-999.9	-999.9
KPA	1984	-999.9	1698.5	-999.9	-999.9	1642.5	-999.9	-999.9	1645.5	1677.0	-999.9	1678.9	1699.3
KPA	1985	-999.9	-999.9	1683.4	1664.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9
KUM	1983	-999.9	-999.9	-999.9	1630.9	1647.0	1640.0	-999.9	1623.0	1667.5	1666.6	1657.2	1658.4
KUM	1984	1639.5	1668.7	1651.9	1674.9	1652.3	1669.0	1630.0	1642.0	1646.7	1671.5	1658.8	1663.1
KUM	1985	1684.2	1662.9	1680.3	1677.3	1692.5	1658.9	1650.7	1640.4	1680.9	1682.5	1678.1	1684.5
KUM	1986	1681.5	1666.8	1675.2	1690.2	1665.3	1682.8	1658.3	1664.2	1682.2	1680.9	1696.6	1701.8
KUM	1987	1716.3	1688.4	1700.1	1690.3	1692.9	1698.7	1679.2	1658.4	1680.3	1696.7	1707.6	1715.3
KUM	1988	1699.9	1697.9	1708.0	1716.0	1704.5	1687.6	1678.3	1680.4	1686.6	1696.4	1715.2	1702.7
MBC	1983	-999.9	-999.9	-999.9	1692.5	1671.4	1662.7	1664.3	1673.0	1700.6	1701.6	1713.0	1725.1
MBC	1984	1732.0	1740.5	1730.1	1711.8	1706.3	1693.0	1687.5	1690.3	1711.3	1714.1	1718.5	1729.5
MBC	1985	1742.7	1732.4	1738.6	1739.5	1729.7	1704.4	1698.4	1704.3	1722.7	1748.5	1753.5	1747.7
MBC	1986	1757.0	1755.6	1764.4	1753.4	1738.7	1723.1	1717.6	1716.2	1730.5	1769.0	1760.0	1761.6
MBC	1987	1787.4	1764.7	1774.9	1769.2	1756.9	1732.7	1735.9	1735.3	1750.7	1768.0	1769.9	1782.3
MBC	1988	1793.4	1785.2	1788.1	1781.4	1763.7	1743.6	1730.9	1738.6	1751.6	1774.8	1780.3	1798.9
MCM	1985	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1599.3
MCM	1986	1585.1	1572.4	1578.8	1583.3	1587.6	1592.3	1605.9	1603.5	1615.5	1613.6	1610.8	1603.2
MCM	1987	1599.8	1591.1	1590.8	1595.4	1605.1	1618.0	1619.1	-999.9	-999.9	1624.5	-999.9	-999.9
MID	1985	-999.9	-999.9	-999.9	-999.9	1678.7	-999.9	-999.9	1649.3	1673.3	1692.4	1702.1	1691.8
MID	1986	1702.8	1714.2	1712.5	1685.9	1714.9	1688.0	1676.2	1673.3	1694.9	1710.6	1718.0	1725.9
MID	1987	1724.6	1732.4	1718.8	1737.4	1719.9	1718.3	1689.0	1697.4	1714.2	1732.7	1728.8	1724.2
MID	1988	1731.8	1740.7	1720.0	1727.9	1710.7	1704.3	1699.6	1677.5	1716.9	1726.0	1717.4	1731.7
MLO	1983	-999.9	-999.9	-999.9	-999.9	1615.3	1614.9	1618.0	1604.5	1626.9	1651.4	1635.3	1632.4
MLO	1984	1638.8	1638.4	1631.8	1639.2	1628.0	-999.9	1609.8	1619.9	1653.7	1647.4	1662.2	1651.5
MLO	1985	1642.7	1641.7	1668.8	1644.3	1651.2	1640.6	1635.1	1635.1	1647.1	1655.9	1663.4	1655.8
MLO	1986	1653.6	1650.5	1638.2	1675.5	1663.3	1656.5	1671.7	1652.1	1653.5	1675.3	1668.0	1679.1
MLO	1987	1669.8	1674.0	1669.8	1675.5	1671.7	1671.7	1652.6	1666.5	1656.8	1681.6	1700.7	1684.3
MLO	1988	1677.0	1680.8	1679.7	1693.3	1684.9	1674.6	1668.1	1673.6	1678.0	1687.0	1701.5	1703.7

Table 2. (continued)

Station	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NWR	1983	-999.9	-999.9	-999.9	-999.9	-999.9	1603.5	1645.6	1625.7	1653.8	-999.9	-999.9	-999.9
NWR	1984	-999.9	1669.8	1688.0	1677.8	1675.6	1669.0	1660.9	1647.8	1664.1	1695.3	1679.1	1678.4
NWR	1985	1693.6	1681.2	1689.3	1676.9	1692.4	-999.9	1653.8	1659.5	1678.3	1695.3	1706.0	1700.5
NWR	1986	1677.7	1713.9	1705.3	1683.4	1704.7	1693.9	1656.9	1679.6	1669.3	1704.4	1701.2	1701.5
NWR	1987	1699.4	1714.9	1725.1	1705.9	1698.7	1699.5	1686.5	1697.8	1692.6	1714.6	1715.2	1728.7
NWR	1988	1733.5	1725.9	1730.3	1724.3	1732.0	1699.5	1708.4	1683.3	1721.6	1709.4	1734.4	1735.2
NZL	1983	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1577.1	-999.9	-999.9	1574.6	1575.6
NZL	1984	-999.9	-999.9	-999.9	-999.9	1576.6	-999.9	-999.9	-999.9	1591.0	-999.9	-999.9	-999.9
NZL	1985	-999.9	-999.9	1570.5	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9
OPW	1985	-999.9	-999.9	-999.9	1716.5	1727.4	-999.9	-999.9	-999.9	1718.6	-999.9	1712.5	-999.9
OPW	1986	1712.7	-999.9	1721.3	1737.3	1734.9	1719.9	1698.3	1690.5	1739.6	1734.1	-999.9	-999.9
OPW	1987	1729.3	1734.0	1731.2	1745.6	1737.8	1724.8	1707.3	1686.0	1731.6	-999.9	-999.9	-999.9
OPW	1988	1757.0	1750.4	1762.9	-999.9	-999.9	-999.9	1712.9	1707.3	1738.0	1760.1	1755.3	1753.7
PSA	1983	1538.1	1526.6	1538.9	1547.4	1550.9	1560.4	1565.2	1576.5	1576.1	1576.4	1575.7	1568.7
PSA	1984	1563.3	1558.7	1560.9	1564.4	-999.9	1577.1	1582.9	1592.1	-999.9	1589.1	1587.3	1574.2
PSA	1985	1569.8	1565.4	1566.5	1576.1	1582.2	1587.0	1593.1	1597.7	1607.6	1603.8	1605.3	1595.5
PSA	1986	1586.8	1577.4	1578.5	1584.8	1587.8	1603.3	-999.9	-999.9	1615.5	1615.6	1611.7	1609.5
PSA	1987	1598.6	1588.9	1593.3	1594.9	1603.8	1613.3	1616.3	1619.5	1625.5	1625.8	-999.9	1615.3
PSA	1988	1608.1	1606.0	1600.2	-999.9	1613.3	1626.5	1628.6	-999.9	1643.1	-999.9	1634.5	1624.4
RPB	1987	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1685.6	1689.6
RPB	1988	1711.9	1701.6	1692.2	1690.0	1691.0	1683.5	1681.8	1687.7	1689.0	1697.1	1696.2	1716.9
SEY	1983	-999.9	-999.9	-999.9	-999.9	1562.7	1573.8	1577.7	1573.8	1576.1	-999.9	1618.5	1611.4
SEY	1984	1628.4	1586.5	1620.0	-999.9	-999.9	1586.0	1593.0	1596.1	1599.4	1611.9	-999.9	1635.1
SEY	1985	-999.9	1653.9	1592.6	1594.4	1594.8	1601.8	1604.3	1606.9	1609.9	1595.8	-999.9	-999.9
SEY	1986	1641.5	1644.3	1655.0	1599.6	-999.9	1611.1	1622.7	1631.1	1621.5	1616.7	1611.9	1663.7
SEY	1987	1679.9	1664.1	1655.9	1641.3	-999.9	-999.9	-999.9	-999.9	-999.9	1625.0	1623.3	1663.0
SEY	1988	1684.4	1670.3	1664.9	1615.4	1620.6	-999.9	-999.9	1633.4	-999.9	-999.9	1649.9	1688.6
SHM	1985	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1731.6	1745.9	1732.9	1738.1
SHM	1986	1728.8	1733.3	1746.7	1745.7	1749.0	1717.8	1709.3	1736.3	-999.9	-999.9	1753.4	1738.9
SHM	1987	1752.4	1768.3	1740.4	1759.7	1752.6	1736.0	1720.4	1720.4	-999.9	-999.9	1765.6	1769.3
SHM	1988	-999.9	1767.4	1768.6	1773.1	1767.3	1741.2	1737.3	1738.0	1754.9	1771.8	1770.3	1776.8
SIO	1984	-999.9	1682.3	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1658.3	-999.9	-999.9	-999.9
SIO	1985	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1674.7	-999.9	-999.9	-999.9	-999.9
SIO	1986	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	-999.9	1713.4	-999.9	-999.9	-999.9

Table 2. (continued)

Station	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SMO	1983	-999.9	-999.9	-999.9	1546.1	1564.6	1569.4	1571.6	1574.3	1573.1	1580.5	1576.7	1574.6
SMO	1984	1589.5	1587.2	1563.1	1573.1	1575.4	1588.5	1591.0	1590.1	1591.0	1590.0	1586.3	1592.3
SMO	1985	1602.2	1605.4	1597.9	1590.5	1601.0	1598.1	1601.0	1602.6	1603.5	1602.3	1598.7	1599.0
SMO	1986	1605.7	1620.1	1613.2	1607.7	1602.3	1604.3	1611.0	1608.7	1615.2	1609.9	1609.3	1601.7
SMO	1987	1604.4	1621.0	1623.1	1604.4	1609.9	1617.4	1622.5	1623.5	1622.7	1623.8	1617.7	1618.1
SMO	1988	1624.3	1633.4	1614.2	1630.8	1614.4	1623.1	1630.5	1638.6	1635.1	1638.9	1639.4	1634.3
SPO	1983	-999.9	1536.1	1537.1	1543.7	1552.1	1558.4	1566.9	1572.3	1576.4	1577.4	1575.1	1567.8
SPO	1984	1562.1	1555.4	1561.5	1561.4	1571.1	1576.5	1582.1	1583.5	1592.7	1591.2	1587.2	1579.9
SPO	1985	1571.3	1571.1	1567.0	1572.9	1579.3	1585.4	1594.4	1600.9	1604.1	1604.3	1599.0	1590.2
SPO	1986	1585.4	1577.5	1583.4	1588.5	1591.2	1599.1	1608.9	1612.2	1614.6	1614.4	1611.1	1605.8
SPO	1987	1596.4	1590.8	1593.1	1598.3	1603.2	1609.5	1618.6	1621.2	1624.4	1627.2	1622.2	1615.8
SPO	1988	1605.2	1601.5	1600.2	1610.9	1611.8	1620.2	1627.8	1635.5	1636.8	1639.7	1639.5	1629.9
STM	1983	-999.9	-999.9	-999.9	1678.5	1686.1	1681.6	1669.2	1669.0	1702.0	1701.7	1713.6	1705.6
STM	1984	1711.3	1696.7	1713.6	1711.6	1699.9	1701.5	1676.1	1685.4	1729.6	1720.3	1716.0	1729.6
STM	1985	1735.7	1722.5	1735.8	1738.9	1720.3	1709.0	1698.0	1707.7	1710.4	1725.3	1726.6	1748.1
STM	1986	1753.1	1732.2	1756.4	1745.7	1740.1	1721.9	1711.3	1722.6	1736.2	1730.7	1740.5	1739.2
STM	1987	-999.9	1760.9	1774.9	1741.5	1745.3	1733.8	1725.2	1729.9	1746.4	1774.4	1758.8	1760.3
STM	1988	1764.7	1779.1	1783.1	1773.3	1753.9	1737.8	1742.0	1742.8	1761.5	1772.0	1771.7	1770.5
SYO	1986	-999.9	-999.9	-999.9	1580.7	1593.2	1602.6	1610.5	1618.8	1618.8	1617.0	1611.6	1604.5
SYO	1988	-999.9	1606.3	-999.9	1609.3	1618.3	1625.5	-999.9	-999.9	1636.8	1636.5	1634.6	1627.9

[a] Values given represent mixing ratios (volumes of methane per billion volumes of dry air). Missing values are given as -999.9.

collection, storage, and analysis methods are given in Steele et al. (1987), and Lang et al.(1990a, 1990b). Brief summaries of these methods are given below.
A variety of flask types and sample collection methods have been used in the NOAA/CMDL cooperative network. In the early years, most of the flasks used were 0.5-L cylindrical flasks fitted with two ground-glass stopcocks. As time passed, more 0.5-L cylindrical glass flasks fitted with two O-ring stopcocks were introduced. These 0.5-L flasks were prepared by first evacuating them (to check for leaks) and then filling them to slightly-greater-than-ambient pressure with dry gas (either air or nitrogen) containing a known amount of CO_2 and methane. Normally, collection involved connecting two flasks in series, flushing them with ambient air, and pressurizing them to 1.25–1.5 times ambient pressure through the use of a battery-powered suitcase sampler. For two sites, Cape Grim and Niwot Ridge, different pump systems or filling techniques were used (see Lang et al. 1990a). Cylindrical 3-L glass flasks with a single O-ring stopcock have also been used at some sites. Collection involved filling the flasks (evacuated before collection) by opening the single stopcock. At the four NOAA observatories (South Pole, American Samoa, Mauna Loa, and Point Barrow) where continuous-monitoring of CO_2 occurs, flasks are sometimes pressurized with the same pumping system used to supply air to the in-situ CO_2 analysis system (see Lang et al. 1990a). The sample collection interval was normally about 1 week. At most sites, the sampling schedule was flexible, allowing samples to be taken under preferred conditions of wind direction and speed. For coastal sites, this usually entailed waiting for onshore winds with speeds greater than 4 m/s. In cases where the preferred conditions were not met within the 1-week interval, the sample would finally be taken regardless of conditions.

The time between sample collection and analysis usually ranged from several days to about 1 month. For some sites (e.g., Amsterdam Island and all Antarctic sites), however, the storage period averaged about 6 months, with some flasks being stored for more than one year.

Methane concentrations (mixing ratios) were determined by gas chromatography using flame ionization detection. Before August 1985, analyses were performed on one of two Carle 211-M series S gas chromatographs (GCs). These were replaced by a Hach-Carle Series 400 (model 04270-A) GC. Details on the various integrators, computer interfaces, and accessories used with the GC systems are given in Steele et al. (1987), and Lang et al. (1990a, 1990b). Normally, only one member of a flask pair was analyzed for methane. Whenever possible, at least two aliquots were sampled from the selected flask to allow an estimation of the precision of the measurements. Each flask aliquot was bracketed by two aliquots of standard. The methane concentration was calculated based on chromatographic peak heights from the equation: $[CH_4]_{samp} = [CH_4]_{std} * (H_{samp}/((H_{std1}+H_{std2})/2))$, where $[CH_4]_{samp}$ is the concentration of methane in the sample, $[CH_4]_{std}$ is the methane concentration assigned to the calibration standard, H_{samp} is the height of the methane peak in the sample, and H_{std1} and H_{std2} are the heights of the methane peaks in the two bracketing runs of the calibration standard. Calibration standards consisted of dry, natural air stored in high-pressure stainless steel or aluminum cylinders. During the entire 1983–1988 period, only three different tanks of calibration gas were used (see Lang et al. 1990a, 1990b). These calibration standards were regularly compared with standards obtained from various other sources, including the U. S. National Institute of Standards and Technology, formerly the National Bureau of Standards.
To calculate monthly mean concentrations and statistics, the following guidelines were used. If a flask was analyzed on more than one occasion, the concentrations of all aliquots from that particular flask were averaged and the resulting mean was treated as a single flask measurement. If both members of a flask pair (whether the flask types were the same or

different) were analyzed or if two pairs of flasks were sampled simultaneously and then analyzed, all aliquots from the flasks were averaged and the resulting mean was again treated in all computations as a single measurement. Data from individual flask samples are given in Lang et al. (1990a, 1990b) (reprints of which are included in the Appendix). Readers interested in obtaining a digitized version of these methane measurements from individual flask samples should contact Patricia Lang or Ed Dlugokencky at the National Oceanic and Atmospheric Administration, Climate Monitoring and Diagnostics Laboratory in Boulder, Colorado.

To ensure that only those flask samples that were properly collected and analyzed would be included in the data set, all data and flask sampling information were examined for quality. For a number of reasons, samples were occasionally rejected. In some cases, flask samples were found to be contaminated in a number of ways, including collection too close to a building (or even within a building), excessive exposure to sunlight, or collection when the wind direction was such that the wind brought air from a local source. In other cases, flasks were not adequately pressurized or not adequately flushed before pressurization. Further information regarding the problems encountered in flask sampling and statistics pertaining to the number of flask samples rejected are given in Lang et al. (1990a, 1990b).

Using data from the NOAA/CMDL network, Steele et al. (1987) reported that, for the period 1983–1985, the globally averaged background concentration of methane in the marine boundary layer increased by an average of 12.8 ppbv per year, or 0.78% per year when referenced to the globally averaged concentration at the midpoint of that period. This increase in global methane concentrations has continued. Analysis of the NOAA/CMDL data over the period May 1983 – April 1987 has indicated an average global growth rate over that time of 12.9 ppbv per year (Ehhalt et al. 1990).

6. APPLICATIONS OF THE DATA

The atmospheric methane data described in this document represent the most spatially comprehensive atmospheric methane record available in the world. These data constitute an extremely useful record that will certainly become even more valuable as the duration of the record increases.

These data have been used to study the temporal variation (annual increase and seasonal cycle) and spatial variation (latitudinal variation and seasonal phase difference between hemispheres) in methane concentration (Steele et al. 1987). Time series plots of methane concentrations for each collection site are given in Lang et al. (1990a, 1990b), which are included in the Appendix of this document. Information on the temporal and spatial variations in methane concentration may also be used to provide constraints for model calculations dealing with global warming and to provide latitudinal distributions for use in developing two-dimensional models of tropospheric chemistry (Steele et al. 1987). These data may also be used to provide or refine estimates of the global sources and sinks of atmospheric methane (see, for example, Fung et al. 1991).

7. LIMITATIONS AND RESTRICTIONS

This document reports monthly atmospheric methane concentrations (mixing ratios) for air samples collected in flasks from 31 sites during the period 1983–1988. For 19 of the 31 sites, data are missing for at least 10% of all months during 1983–1988, and, for 8 of the sites, data are missing for more than half of all months in that same interval. For some sites, the interval between sample collections was quite irregular. While the sampling interval was nominally 1 week, intervals of 2 weeks or even an entire month were not uncommon. The flask sampling sites in the NOAA/CMDL network are not evenly distributed latitudinally (see Fig. 1). Of the 31 sites that have contributed air samples, 20 are located in the Northern Hemisphere. The unevenness of the distribution is especially apparent when considered in terms of 10° latitude zones; for example, one latitudinal zone, from 10° N–20° N, is represented by five sampling sites, while another zone, from 20° S–30° S, is not represented by any. Persons wishing to use these data to compile latitudinal distributions should be aware that extensive interpolations may be required.

To obtain a quantitative estimate of measurement accuracy, the standard scale used to calculate the sample methane concentrations was compared with standard reference material obtained from the National Institute of Standards and Technology and found to agree to better than 1% (Steele et al. 1987). Empirical estimates of measurement precision were made possible by carrying out duplicate analyses on each flask and, occasionally, on both members of a flask pair. Based on the analysis of two aliquots from each flask, Lang et al. (1990b) have estimated an overall precision for the analyses of about 0.3% for the entire 1983–1988 period. In cases where both members of a flask pair were analyzed for methane, agreement between measurements was generally found to be within 5 ppb (Steele et al. 1987), with results available for the period 1983–1985 only. Steele et al. (1987) have also reported that samples analyzed after November 1983 show less scatter than samples analyzed before that time because of a transition to a more precise gas chromatograph; the effect was said to be most apparent for sites in the Southern Hemisphere. For further discussion of quality and consistency regarding sample collection, storage, and analysis, the reader should consult Steele et al. (1987) and Lang et al. (1900a, 1990b).

8. REFERENCES

Blake, D. R., E. W. Mayer, S. C. Tyler, Y. Makide, D. C. Montague, and F. S. Rowland. 1982. Global increase in atmospheric methane concentrations between 1978 and 1980. Geophysical Research Letters 9:477–80.

Blake, D. R., and F. S. Rowland. 1988. Continued worldwide increase in tropospheric methane, 1978 to 1987. Science 239:1129–31.

Chappellaz, J., J. M. Barnola, D. Raynaud, Y. S. Korotkevich, and C. Lorius. 1990. Ice core record of atmospheric methane over the past 160,000 years. Nature 345:127–31.

Cicerone, R. J. 1987. Changes in stratospheric ozone. Science 237:35–42.

Cicerone, R. J., and R. S. Oremland. 1988. Biogeochemical aspects of atmospheric methane. Global Biogeochemical Cycles 2:299–327.

Ehhalt, D. H., and U. Schmidt. 1978. Sources and sinks of atmospheric methane. Pure and Applied Geophysics 116:452–63.

Ehhalt, D. H., P. J. Fraser, D. Albritton, R. J. Cicerone, M. A. K. Khalil, M. Legrand, Y. Makide, F. S. Rowland, L. P. Steele, and R. Zander. 1990. Trends in source gases, pp.543–69 in Report of the International Ozone Trends Panel — 1988. World Meteorological Organization, Global Ozone Research and Monitoring Project — Report No. 18.

Etheridge, D. M., G. I. Pearman, and F. de Silva. 1988. Atmospheric trace gas variations as revealed by air trapped in an ice core from Law Dome, Antarctica. Annals of Glaciology 10:28–33.

Fraser, P. J., M. A. K. Khalil, R. A. Rasmussen, and A. J. Crawford. 1981. Trends of atmospheric methane in the Southern Hemisphere. Geophysical Research Letters 8:1063–66.

Fung, I., J. John, J. Lerner, E. Matthews, M. Prather, L. P. Steele, and P. J. Fraser. 1991. Three-dimensional model synthesis of the global methane cycle. Journal of Geophysical Research (In press).

Khalil, M. A. K., R. A. Rasmussen, and M. J. Shearer. 1989. Trends of atmospheric methane during the 1960s and 1970s. Journal of Geophysical Research 94:18279–88.

Komhyr, W. D., R. H. Gammon, T. B. Harris, L. S. Waterman, T. J. Conway, W. R. Taylor, and K. W. Thoning. 1985. Global atmospheric CO_2 distribution and variations from 1968–82 NOAA/GMCC CO_2 flask sample data. Journal of Geophysical Research 90:5567–96.

Lamontagne, R. A., J. W. Swinnerton, and V. J. Linnenbom. 1974. C_1 - C_4 hydrocarbons in the North and South Pacific. Tellus 26:71–7.

Lang, P. M., L. P. Steele, R. C. Martin, and K. A. Masarie. 1990a. Atmospheric methane data for the period 1983–1985 from the NOAA/GMCC global cooperative flask sampling network. NOAA Technical Memorandum ERL CMDL-1.

Lang, P. M., L. P. Steele, and R. C. Martin. 1990b. Atmospheric methane data for the period 1986–1988 from the NOAA/CMDL global cooperative flask sampling network. NOAA Technical Memorandum ERL CMDL-2.

Logan, J. A., M. J. Prather, S. C. Wofsy, and M. B. McElroy. 1981. Tropospheric chemistry: A global perspective. Journal of Geophysical Research 86:7210–54.

Prinn, R., D. Cunnold, R. Rasmussen, P. Simmonds, F. Alyea, A. Crawford, P. Fraser, and R. Rosen. 1987. Atmospheric trends in methyl chloroform and the global average for the hydroxyl radical. Science 238:946–50.

Ramanathan, V., R. J. Cicerone, H. B. Singh, and J. T. Kiehl. 1985. Trace gas trends and their potential role in climate change. Journal of Geophysical Research 90:5547–66.

Rasmussen, R. A., and M. A. K. Khalil. 1981. Atmospheric methane (CH_4): trends and seasonal cycles. Journal of Geophysical Research 86:9826–32.

Raynaud, D., J. Chappellaz, J. M. Barnola, Y. S. Korotkevich, and C. Lorius. 1988. Climatic and CH_4 cycle implications of glacial-interglacial CH_4 change in the Vostok ice core. Nature 333:655–57.

Shine, K. P., R. G. Derwent, D. J. Wuebbles, and J-J. Morcrette. 1990. Radiative forcing of climate, pp. 41–68 in J. T. Houghton, G. J. Jenkins, and J. J. Ephraums (eds.), Climate Change: the IPCC Scientific Assessment. Cambridge Univ. Press, Cambridge.

Stauffer, B, G. Fischer, A. Neftel, and H. Öeschger. 1985. Increase of atmospheric methane recorded in Antarctic ice core. Science 229:1386–88.

Stauffer, B., E. Lochbronner, H. Öeschger, and J. Schwander. 1988. Methane concentration in the glacial atmosphere was only half that of the preindustrial Holocene. Nature 332:812–14.

Steele, L. P., P. J. Fraser, R. A. Rasmussen, M. A. K. Khalil, T. J. Conway, A. J. Crawford, R. H. Gammon, K. A. Masarie, and K. W. Thoning. 1987. The global distribution of methane in the troposphere. Journal of Atmospheric Chemistry 5:125–71.

Vaghjiani, G. L., and A. R. Ravishankara. 1991. New measurement of the rate coefficient for the reaction of OH with methane. Nature 350:406–9.

Wilkness, P. E., R. A. Lamontagne, R. E. Larson, J. W. Swinnerton, C. R. Dickson, and T. Thompson. 1973. Atmospheric trace gases in the Southern Hemisphere. Nature 245:45–7.

This data package includes reprints of Steele et al. (1987) and Lang et al. (1990a, 1990b) (see Appendix).

9. DATA CHECKS PERFORMED BY CDIAC

The Carbon Dioxide Information Analysis Center (CDIAC) endeavors to provide quality assurance (QA) of all data before their distribution. To ensure the highest possible quality in the data, CDIAC conducts extensive reviews for reasonableness, accuracy, completeness, and consistency of form. While having common objectives, the specific form of these reviews must be tailored to each data set; this tailoring process may involve considerable programming efforts. The entire QA process is an important part of CDIAC's effort to assure accurate, usable CO_2-related data for researchers.

The following summarizes the QA checks performed on the NOAA/CMDL atmospheric methane data by CDIAC.

1. Data were examined for gross accuracy and overall consistency. This included (1) a check for any typographic errors, numbering errors, and errors in formatting (e.g., column alignment); (2) a check for logical consistency among entries (e.g., values for standard deviation or number of flask samples must be accompanied by values for concentration); (3) a check of all sample site locations (latitudes and longitudes) for accuracy.

2. Data were plotted and examined graphically for gross outliers or anomalous patterns.

With the exception of some incorrect values for site location, no errors or inconsistencies of the types described above were found in the NOAA/CMDL atmospheric methane data and supporting documents received by CDIAC. The file distributed by CDIAC in this package is identical to the original file sent to CDIAC, except for the following alterations designed to enhance the ease of use of the data.

1. The file was reformatted to remove redundant headers and to increase the number of monthly measurements per data line from one to four.

2. The designations for missing values, given as blanks in the original file, were changed to the following: -999.9 for missing values of methane concentration; -9.9 for missing values of standard deviation; and -9 for missing values of flask number.

10. HOW TO OBTAIN THE PACKAGE

This document describes a data set consisting of monthly averages and sampling statistics for atmospheric methane concentrations (mixing ratios) measured by the NOAA/CMDL global cooperative flask sampling network from 1983 to 1988. The monthly averages (sampling statistics excluded) are provided in tabular form in the document (Table 2), and the complete data set is available upon request on nine-track magnetic tape or on floppy diskette (IBM PC format, high or low density, 5.25- or 3.5-in. diskettes) from CDIAC. Requests for magnetic tapes should include any specific instructions for transmitting the data as required by the user to access the data. Requests not accompanied by specific instructions will be filled on nine-track, 6250 BPI, standard-labeled tapes with characters written in EBCDIC (Extended Binary Codes Decimal Interchange Code) and files formatted as given in Section 11. Requests should be addressed to the following:

Carbon Dioxide Information Analysis Center
Oak Ridge National Laboratory
Post Office Box 2008
Oak Ridge, Tennessee 37831-6335
U.S.A.

The tapes and documentation can be ordered by telephone, fax, or electronic mail.

Telephone: (615) 574-0390
FTS 624-0390
Fax: (615) 574-2232
FTS 624-2232
BITNET eMail: CDP@ORNL-STC
INTERNET: TAB@STC10.CTD.ORNL.GOV

PART 2

INFORMATION ABOUT THE MAGNETIC TAPE

11. CONTENTS OF THE MAGNETIC TAPE

The following is a list of files distributed on magnetic tape by CDIAC along with this documentation.

File number and description	Number of logical records	Record format[a]	Block size	Record length
1. General descriptive information file	216	FB	8000	80
2. FORTRAN IV data retrieval code to read and print the atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network (File 4).	61	FB	8000	80
3. SAS[b] input/output routine to read and print the atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network (File 4).	28	FB	8000	80
4. Monthly atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network.	623	FB	5400	108
Total records	928			

[a] FB = fixed block.
[b] SAS is the registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000.

12. DESCRIPTIVE FILE ON THE TAPE

The following is a listing of File 1 on the magnetic tape (or NDP038.DES on the floppy diskette) distributed by CDIAC. This file is intended to complement the documentation and provide details (i.e., variable descriptions, formats, and units) about the data file on the magnetic tape or floppy diskette.

TITLE OF THE DATA SET

Atmospheric Methane Concentrations—the NOAA/CMDL Global Cooperative Flask Sampling Network, 1983–1988.

DATA CONTRIBUTORS

L. Paul Steele*
Cooperative Institute for Research in Environmental Sciences
University of Colorado/National Oceanic and Atmospheric Administration
Boulder, Colorado, U.S.A.

*Now at CSIRO Division of Atmospheric Research, Aspendale, Victoria, Australia

Patricia M. Lang
National Oceanic and Atmospheric Administration
Environmental Research Laboratories
Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado, U.S.A.

SOURCE AND SCOPE OF THE DATA

The data file included on this magnetic tape details monthly averages and sampling statistics for atmospheric methane concentrations (mixing ratios) measured by the NOAA/CMDL global cooperative flask sampling network from 1983 to 1988. The earliest methane data from the NOAA/CMDL cooperative network is for January 1983, and comes from three of the remote sites (Amsterdam Island, Halley Bay, and Palmer Station). By December 1983, methane data were available for 20 stations in the network. Over the entire period 1983–1988, 31 network stations have contributed methane data, and 27 of these were still active at the end of 1988. Nineteen sites have reported data for one or more months of each year during 1983–1988. Ten other sites began reporting at some time after 1983; of these, two were discontinued before 1988. Two other sites began reporting in 1983 but were also later discontinued. Each station collected air samples in flasks approximately once per week for measurement of both methane and CO_2. The time between sample collection and analysis usually ranged from several days to about 1 month. For some sites (e.g., Amsterdam Island and all Antarctic sites), however, the storage period averaged about 6 months. The samples were analyzed for atmospheric methane concentration (mixing ratio) on a gas chromatograph which was fitted with a flame ionization detector. All analyses were performed at the NOAA/CMDL laboratory in Boulder, Colorado.

In calculating monthly mean concentrations and statistics, the following guidelines were used. If a flask was analyzed on more than one occasion, the concentrations of all aliquots from that particular flask were averaged and the resulting mean was treated as a single flask measurement. If both members of a flask pair (whether the flask types were the same or different) were analyzed or if two pairs of flasks were sampled simultaneously and then analyzed, all aliquots from the flasks were averaged and the resulting mean was again treated in all computations as a single measurement. Data from individual flask samples are given in Lang et al. (1990a, 1990b). Readers interested in obtaining a digitized version of these methane measurements from individual flask samples should contact Patricia Lang or Ed Dlugokencky at the National Oceanic and Atmospheric Administration, Climate Monitoring and Diagnostics Laboratory in Boulder, Colorado.

To ensure that only those flask samples that were properly collected and analyzed would be included in the data set, all data and flask sampling information were examined for quality. Information regarding the problems encountered in flask sampling and statistics pertaining to the number of flask samples rejected are given in Lang et al. (1990a, 1990b). The standards used to calculate the sample methane concentrations were compared with standard reference material obtained from the U. S. National Institute of Standards and Technology and found to agree to better than 1% (Steele et al. 1987). On the basis of analyses of two aliquots from each flask, Lang et al. (1990b) have estimated an overall precision for the analyses of about 0.3% for the entire 1983–1988 period. In cases where both members of a flask pair were analyzed for methane, agreement between measurements was generally found to be within 5 ppb (Steele et al. 1987), with results available for the period 1983–1985 only. For a further discussion of quality and consistency regarding sample collection, storage, and analysis, the reader should refer to Steele et al. (1987) and Lang et al. (1990a, 1990b).

DATA FORMAT

Four files are provided on this magnetic tape, including this descriptive file, a FORTRAN IV retrieval program, a SAS input/output routine, and a file containing the monthly atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network.

Table 3 (located in the documentation that accompanies this tape) presents a partial listing of the data file containing the NOAA/CMDL atmospheric methane data (File 4 on the magnetic tape or METH8388.DAT on the floppy diskette). The data file is formatted in the following way:

```
      CHARACTER STATION*3
      INTEGER YEAR, NUMFLASK(12)
      REAL METHANE(12), STDDEV(12)
C
   10 READ(2,100,END=999) STATION, YEAR, (METHANE(I),STDDEV(I),
     1                    NUMFLASK(I), I=1,4)
C
  100 FORMAT(1X,A3,2X,I4,4(2X,F6.1,2X,F4.1,2X,I2))
C
      READ(2,200) (METHANE(I),STDDEV(I),NUMFLASK(I), I=5,8)
C
  200 FORMAT(1X,4(F6.1,2X,F4.1,2X,I2,2X))
```

```
C
      READ(2,300) (METHANE(I),STDDEV(I),NUMFLASK(I), I=9,12)
C
  300 FORMAT(1X,4(F6.1,2X,F4.1,2X,I2,2X)/)
```

where

STATION	is the three-letter site code denoting the location of the sampling site (see Table 1 in the documentation accompanying this tape);
YEAR	is the year of sampling of the data record being read;
METHANE	is the monthly mean methane concentration (mixing ratio), given as volumes of methane per billion volumes of dry air;
STDDEV	is the standard deviation among the flask samples used to calculate the monthly mean;
NUMFLASK	is the number of flask samples used to compute the monthly mean and standard deviation (in cases where two or more flasks were sampled simultaneously, results were averaged and considered as a single flask in calculating the monthly mean and standard deviation);
I	represents the month of sampling for the data being read [METHANE(1) represents the methane concentration for January, METHANE(2) the concentration for February, etc.];

Stated in tabular form, the contents include the following.

Variable	Variable type	Variable width	Line	Starting column	Ending column
STATION	Character	A3	1	2	4
YEAR	Numeric	I4	1	7	10
METHANE(1)	Numeric	F6.1	1	13	18
STDDEV(1)	Numeric	F4.1	1	21	24
NUMFLASK(1)	Numeric	I2	1	27	28
METHANE(2)	Numeric	F6.1	1	31	36
STDDEV(2)	Numeric	F4.1	1	39	42
NUMFLASK(2)	Numeric	I2	1	45	46
METHANE(3)	Numeric	F6.1	1	49	54
STDDEV(3)	Numeric	F4.1	1	57	60
NUMFLASK(3)	Numeric	I2	1	63	64
METHANE(4)	Numeric	F6.1	1	67	72
STDDEV(4)	Numeric	F4.1	1	75	78
NUMFLASK(4)	Numeric	I2	1	81	82
METHANE(5)	Numeric	F6.1	2	2	7
STDDEV(5)	Numeric	F4.1	2	10	13
NUMFLASK(5)	Numeric	I2	2	16	17
METHANE(6)	Numeric	F6.1	2	20	25
STDDEV(6)	Numeric	F4.1	2	28	31
NUMFLASK(6)	Numeric	I2	2	34	35
METHANE(7)	Numeric	F6.1	2	38	43
STDDEV(7)	Numeric	F4.1	2	46	49
NUMFLASK(7)	Numeric	I2	2	52	53
METHANE(8)	Numeric	F6.1	2	56	61
STDDEV(8)	Numeric	F4.1	2	64	67
NUMFLASK(8)	Numeric	I2	2	70	71
METHANE(9)	Numeric	F6.1	3	2	7
STDDEV(9)	Numeric	F4.1	3	10	13
NUMFLASK(9)	Numeric	I2	3	16	17
METHANE(10)	Numeric	F6.1	3	20	25
STDDEV(10)	Numeric	F4.1	3	28	31
NUMFLASK(10)	Numeric	I2	3	34	35
METHANE(11)	Numeric	F6.1	3	38	43
STDDEV(11)	Numeric	F4.1	3	46	49
NUMFLASK(11)	Numeric	I2	3	52	53
METHANE(12)	Numeric	F6.1	3	56	61
STDDEV(12)	Numeric	F4.1	3	64	67
NUMFLASK(12)	Numeric	I2	3	70	71

Missing values for methane concentration are represented by -999.9. Missing values for standard deviation are represented by -9.9. Missing values for flask number are represented by -9.

Table 3. Partial listing of the atmospheric methane data (as formatted in File 4 on the magnetic tape or METH8388.DAT on the floppy diskette)

```
ALT  1985  -999.9  -9.9  -9  -999.9  -9.9  -9  -999.9  -9.9  -9  -999.9  -9.9  -9
-999.9  -9.9  -9  1707.8   0.8   3  1697.1   4.2   4  1698.5  -9.9   1
1720.6  12.6   4  1731.1  22.1   4  1750.8  -9.9   1  1749.7  25.7   5

ALT  1986  1758.6  13.5   4  1747.0  13.3   3  1769.9  19.9   4  1752.6   8.0  18
1743.9  10.4   4  1719.7  14.1   4  1717.4   6.0   3  1718.5  20.7   4
1722.3   9.3   2  1766.3  23.3   2  1752.3  11.4   4  1737.5   4.3   5

ALT  1987  1754.5  12.5   4  1757.4   2.0   4  1761.3  11.5   5  1748.8   3.8   4
1751.8   9.2   4  1733.8   9.0   5  1731.2   5.7   4  1734.2   8.4   5
1751.8   9.0   4  1766.8   5.4   4  1769.1   9.8   5  1767.3  15.8   4

ALT  1988  1776.1  37.0   4  1776.3  17.4   5  1777.6  21.2   3  1779.1  12.8   4
1761.8   7.0   5  1749.4  10.4   4  1732.5  11.6   4  1733.7   9.9   5
1760.2   7.7   4  1780.6   4.3   4  1783.4  15.2   4  1788.6  19.8   3

AMS  1983  1539.3   3.9   2  1542.1   2.6   3  1540.9   5.9   4  1547.4   4.4   3
1553.4   5.7   3  1563.9   3.1   4  1569.6   2.7   4  1576.3   4.7   4
1577.4   2.8   3  1577.2   1.6   3  1578.0   1.8   3  1568.1   3.1   3

AMS  1984  1559.2   2.0   4  1560.7   2.9   4  1562.6   2.6   4  1571.3   8.9   4
1579.7   5.5   5  -999.9  -9.9  -9  1588.7   4.3   5  1588.7   0.8   4
1588.9   1.3   6  1589.8   2.7   2  -999.9  -9.9  -9  1581.0  -9.9   1

AMS  1985  -999.9  -9.9  -9  -999.9  -9.9  -9  1566.3   4.0   2  1570.1  -9.9   1
1588.8  -9.9   1  1584.8  -9.9   1  1594.1   2.9   2  1603.6   3.6   3
1610.7   4.8   2  1600.1  -9.9   1  1596.2  -9.9   1  -999.9  -9.9  -9

AMS  1986  1588.8  -9.9   1  1581.9  -9.9   1  1590.6  -9.9   1  1593.1   2.0   2
1597.7   7.2   4  1604.9   1.7   3  1608.7   1.6   4  1615.2   3.5   3
1614.8   3.5   3  1612.6   1.4   3  1608.8  -9.9   1  1602.4  -9.9   1

AMS  1987  1595.8   2.9   3  1592.0   3.9   3  -999.9  -9.9  -9  -999.9  -9.9  -9
-999.9  -9.9  -9  -999.9  -9.9  -9  1622.4   4.5   4  -999.9  -9.9  -9
-999.9  -9.9  -9  -999.9  -9.9  -9  1629.7  -9.9   1  1621.2   1.3   2

AMS  1988  1598.5  -9.9   1  1602.2  -9.9   1  1603.6   3.1   3  1613.7  -9.9   1
-999.9  -9.9  -9  -999.9  -9.9  -9  1626.1   4.2   2  1633.2   1.8   5
1636.1   2.0   8  1637.5   3.4   3  -999.9  -9.9  -9  1621.4  -9.9   1

ASC  1983  -999.9  -9.9  -9  -999.9  -9.9  -9  -999.9  -9.9  -9  -999.9  -9.9  -9
1575.6   4.3   3  1586.0   1.3   3  1588.2   3.2   3  1584.0   5.6   4
1586.7   9.7   5  1585.6   5.7   4  1577.2   2.7   4  1575.4   4.0   5

ASC  1984  1573.6   9.1   4  1568.4   7.6   4  1576.0   5.8   5  1586.2   5.2   4
1591.5   2.0   3  1595.0   6.5   4  1600.5   3.9   4  1601.5   3.1   5
1599.3   4.4   4  1593.9   3.4   4  1587.8   4.1   5  1593.6  10.2   4

ASC  1985  1583.5   3.6   5  1583.4   7.1   4  1592.1   8.2   4  1599.6   2.1   4
1599.4   3.6   5  1612.4   4.3   4  1608.9   3.3   4  1613.9  10.6   4
1616.0   2.8   4  1607.9   2.7   4  1602.3   5.5   4  1603.0   7.7   3

ASC  1986  1597.5   4.8   3  1595.6   6.5   3  1599.4   5.2   4  1613.0   9.3   4
1616.4   3.6   3  1620.8   8.2   4  1619.3   5.0   4  1621.0   6.3   4
1620.0   5.2   3  1627.4   6.8   5  1629.7   9.7   4  1621.4  14.4   4

ASC  1987  1611.7   3.5   5  1612.1  12.5   4  1615.5   4.5   4  1624.8   6.2   5
1635.8   6.7   4  1635.9   3.6   4  1635.2   8.9   5  1636.8   6.1   3
1636.1   4.5   2  1633.0   5.4   5  1630.3   5.5   4  1625.3   9.2   5

ASC  1988  1611.6   2.3   4  1614.6   2.1   4  1629.1   5.7   5  1620.9   6.9   3
1639.0   5.2   4  1637.4   9.3   5  1643.1   2.2   4  1646.0   8.4   2
1646.1   5.8   5  1652.4   3.0   4  1638.6   5.4   3  1641.3   6.3   5
```

REFERENCES

Lang, P. M., L. P. Steele, R. C. Martin, and K. A. Masarie. 1990a. Atmospheric methane data for the period 1983–1985 from the NOAA/GMCC global cooperative flask sampling network. NOAA Technical Memorandum ERL CMDL-1.

Lang, P. M., L. P. Steele, and R. C. Martin. 1990b. Atmospheric methane data for the period 1986–1988 from the NOAA/CMDL global cooperative flask sampling network. NOAA Technical Memorandum ERL CMDL-2.

Steele, L. P., P. J. Fraser, R. A. Rasmussen, M. A. K. Khalil, T. J. Conway, A. J. Crawford, R. H. Gammon, K. A. Masarie, and K. W. Thoning. 1987. The global distribution of methane in the troposphere. Journal of Atmospheric Chemistry 5:125–71.

13. LISTING OF THE FORTRAN IV DATA RETRIEVAL PROGRAM

The following is a listing of the FORTRAN IV data retrieval program (File 2 on the magnetic tape or RETRIEVL.FOR on the floppy diskette) provided by CDIAC to read and print the monthly atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network (File 4 on the magnetic tape or METH8388.DAT on the floppy diskette). The job control language (JCL) statements (preceded by // or /*) shown below are not provided in the file on the magnetic tape; requestors must add JCL statements themselves if required. The statements required will vary for each operating system. The JCL statements shown below are provided to illustrate the statements that an individual using an IBM mainframe (e.g., IBM 3090) at ORNL would need to read these data from a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC.

```
//UIDMETH JOB (12345,TAPE,IO20),'USER ADDRESS',TIME=(1,30)
// EXEC FORTQCLG
//FORT.SYSIN DD *

C
C*****************************************************************
C  FORTRAN PROGRAM TO READ AND PRINT THE ATMOSPHERIC METHANE DATA
C    FROM THE NOAA/CMDL GLOBAL COOPERATIVE FLASK SAMPLING NETWORK
C*****************************************************************
C
      CHARACTER STATION*3
      INTEGER YEAR, NUMFLASK(12), NREC
      REAL METHANE(12), STDDEV(12)
C
C*****************************************************************
C   INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS READ/WRITTEN.
C*****************************************************************
C
      NREC=0
C
C*****************************************************************
C   READ THE STATION INFORMATION.
C*****************************************************************
C
   10 READ(5,100,END=999) STATION, YEAR, (METHANE(I),STDDEV(I),
     1                    NUMFLASK(I), I=1,4)
C
  100 FORMAT(1X,A3,2X,I4,4(2X,F6.1,2X,F4.1,2X,I2))
C
      READ(5,200) (METHANE(I),STDDEV(I),NUMFLASK(I), I=5,8)
C
  200 FORMAT(1X,4(F6.1,2X,F4.1,2X,I2,2X))
C
      READ(5,300) (METHANE(I),STDDEV(I),NUMFLASK(I), I=9,12)
C
  300 FORMAT(1X,4(F6.1,2X,F4.1,2X,I2,2X)/)
```

```
C
C*****************************************************************
C   TEST THE RECORD COUNTER FOR THE PURPOSE OF WRITING A
C   DESCRIPTIVE HEADER AT THE TOP OF EACH PRINTER PAGE.
C*****************************************************************
C
      IF(MOD(NREC,56).EQ.0) WRITE(6,400)
C
  400 FORMAT(1H1,17X,'STATION',2X,'YEAR',5X,'JAN',5X,'FEB',5X,
     1       'MAR',5X,'APR',5X,'MAY',5X,'JUN',5X,'JUL',5X,'AUG',
     2       5X,'SEP',5X,'OCT',5X,'NOV',5X,'DEC'//)
C
      WRITE(6,500) STATION, YEAR, (METHANE(I), I=1,12)
C
  500 FORMAT (1X,'CH4 CONC (PPBV)',4X,A3,4X,I4,2X,12(1X,F6.1,1X))
C
      WRITE(6,600) (STDDEV(I), I=1,12)
C
  600 FORMAT (1X,'STANDARD DEV',20X,12(2X,F4.1,2X))
C
      WRITE(6,700) (NUMFLASK(I), I=1,12)
C
  700 FORMAT (1X,'NO. OF FLASKS',19X,12(3X,I2,3X)/)
C
      NREC=NREC+4
      GO TO 10
  999 CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPEVOL,
// DISP=(,PASS),DSN=TAB.NDP038.GMETHANE.DATA,LABEL=(4,SL)
//GO.FT06F001 DD *
//
```

14. LISTING OF THE SAS INPUT/OUTPUT RETRIEVAL PROGRAM

The following is a listing of the SAS* data retrieval program (File 3 on the magnetic tape or RETRIEVL.SAS on the floppy diskette) provided by CDIAC to read and print the monthly atmospheric methane data from the NOAA/CMDL global cooperative flask sampling network (File 4 on the magnetic tape or METH8388.DAT on the floppy diskette). The job control language (JCL) statements (preceded by // or /*) shown below are not provided in the file on the magnetic tape; requestors must add JCL statements themselves if required. The statements required will vary for each operating system. The JCL statements shown below are provided to illustrate the statements that an individual using an IBM mainframe (e.g., IBM 3090) at ORNL would need to read these data from a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC.

```
//UIDMETH JOB (12345,TAPE,IO20),'USER ADDRESS',TIME=(1,30)
//STEP1 EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPEVOL,DISP=(,PASS),
// DSN=TAB.NDP038.GMETHANE.DATA,LABEL=(4,SL)
//FT06F001 DD SYSOUT=A
//SYSIN DD *
DATA METHANE;
INFILE IN;
INPUT STATION $ 2-4 YEAR 7-10 METH1 13-18 SDEV1 21-24 NUMB1 27-28
  METH2 31-36 SDEV2 39-42 NUMB2 45-46 METH3 49-54 SDEV3 57-60
  NUMB3 63-64 METH4 67-72 SDEV4 75-78 NUMB4 81-82;
INPUT METH5 2-7 SDEV5 10-13 NUMB5 16-17 METH6 20-25 SDEV6 28-31
  NUMB6 34-35 METH7 38-43 SDEV7 46-49 NUMB7 52-53 METH8 56-61
  SDEV8 64-67 NUMB8 70-71;
INPUT METH9 2-7 SDEV9 10-13 NUMB9 16-17 METH10 20-25 SDEV10 28-31
  NUMB10 34-35 METH11 38-43 SDEV11 46-49 NUMB11 52-53
  METH12 56-61 SDEV12 64-67 NUMB12 70-71 /;
FILE PRINT NOTITLE;
IF _N_ EQ 1 THEN DO;
PUT @19 'STATION' @28 'YEAR' @37 'JAN' @45 'FEB' @53 'MAR' @61
  'APR' @69 'MAY' @77 'JUN' @85 'JUL' @93 'AUG' @101 'SEP' @109
  'OCT' @117 'NOV' @125 'DEC'//;
END;
PUT @2 'CH4 CONC (PPBV)' @21 STATION @28 YEAR @35 (METH1-
  METH12)(6.1,+2);
PUT @2 'STANDARD DEV' @36 (SDEV1-SDEV12) (4.1,+4);
PUT @2 'NO. OF FLASKS' @37 (NUMB1-NUMB12) (2.,+6) /;
IF MOD(_N_,14) EQ 0 THEN DO;
PUT _PAGE_;
PUT @19 'STATION' @28 'YEAR' @37 'JAN' @45 'FEB' @53 'MAR' @61
  'APR' @69 'MAY' @77 'JUN' @85 'JUL' @93 'AUG' @101 'SEP' @109
  'OCT' @117 'NOV' @125 'DEC'//;
END; RUN;
/*
//
```

---

*SAS is the registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000.

15. VERIFICATION OF DATA TRANSPORT

The monthly atmospheric methane concentrations from the NOAA/CMDL global cooperative flask sampling network can be read by using the FORTRAN or SAS input/output routines provided. Users should verify that the data file has been correctly transported to their systems by generating some or all of the statistics presented in Table 4. These statistics were generated in SAS (PROC MEANS) but can be duplicated in other statistical packages or languages. If the statistics generated by the user differ from those presented here, the data file may have been corrupted in transport.

These statistics are presented only as a tool to ensure proper reading of the data file. They are not to be construed as summarizing the NOAA/CMDL atmospheric methane data.

Table 4. Characteristics of numeric variables in the atmospheric methane data file

Variable	Number of observations	Mean	Minimum value	Maximum value
YEAR	156	1985.620	1983.000	1988.000
MEANMETH	156	1217.720	-785.700	1773.620
MEANSD	156	4.521	-9.900	17.950
MEANNO	156	1.444	-8.167	13.417

The following is a listing of the SAS* program used to generate the statistics described in Table 4.

```
DATA STATS;
INFILE IN;
INPUT STATION $ YEAR METH1 SD1 NO1
  METH2 SD2 NO2 METH3
  SD3 NO3 METH4 SD4 NO4;
INPUT METH5 SD5 NO5 METH6
  SD6 NO6 METH7 SD7 NO7
  METH8 SD8 NO8;
INPUT METH9 SD9 NO9 METH10
  SD10 NO10 METH11 SD11
  NO11 METH12 SD12 NO12/;
ARRAY METH(12) METH1-METH12;
ARRAY SD(12) SD1-SD12;
ARRAY NO(12) NO1-NO12;
SUMMETH=0;
SUMSD=0;
SUMNO=0;
DO I=1 TO 12;
  SUMMETH=SUMMETH+METH(I);
  SUMSD=SUMSD+SD(I);
  SUMNO=SUMNO+NO(I);
END;
MEANMETH=SUMMETH/12;
MEANSD=SUMSD/12;
MEANNO=SUMNO/12;
PROC MEANS MAXDEC=3 DATA=STATS;
  VAR YEAR MEANMETH MEANSD MEANNO;
RUN;
```

*SAS is the registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000

Appendix

Reprints of Pertinent Literature

Journal of Atmospheric Chemistry **5** (1987) 125–171

The Global Distribution of Methane in the Troposphere*

L. P. STEELE[a]**, P. J. FRASER[b‡], R. A. RASMUSSEN[c], M. A. K. KHALIL[c], T. J. CONWAY[d], A. J. CRAWFORD[c], R. H. GAMMON[d‡‡], K. A. MASARIE[b], and K. W. THONING[b]

[a] *NRC–NOAA Research Associate, Geophysical Monitoring for Climatic Change, Air Resources Laboratory/NOAA, 325 Broadway, Boulder, CO 80303, U.S.A.*

[b] *Cooperative Institute for Research in Environmental Sciences, University of Colorado/NOAA, Boulder, CO 80309, U.S.A.*

[c] *Department of Chemical, Biological, and Environmental Sciences, Oregon Graduate Center, 19600 NW Von Neumann Drive, Beaverton, OR 97006–1999, U.S.A.*

[d] *Geophysical Monitoring for Climatic Change, Air Resources Laboratory/NOAA, 325 Broadway, Boulder, CO 80303, U.S.A.*

(Received: 14 July 1986; in revised form: 10 December 1986)

Abstract. Methane has been measured in air samples collected at approximately weekly intervals at 23 globally distributed sites in the NOAA/GMCC cooperative flask sampling network. Sites range in latitude from 90° S to 76° N, and at most of these we report 2 years of data beginning in early 1983. All measurements have been made by gas chromatography with a flame ionization detector at the NOAA/GMCC laboratory in Boulder, Colorado. All air samples have been referenced to a single secondary standard of methane-in-air, ensuring a high degree of internal consistency in the data. The precision of measurements is estimated from replicate determinations on each sample as 0.2%. The latitudinal distribution of methane and the seasonal variation of this distribution in the marine boundary layer has been defined in great detail, including a remarkable uniformity in background levels of methane in the Southern Hemisphere. We report for the first time the observation of a complete seasonal cycle of methane at the South Pole. A significant vertical gradient is observed between a sea level and a high altitude site in Hawaii. Globally averaged background concentrations in the marine boundary layer have been calculated for the 2 year-period May 1983–April 1985 inclusive, from which we find an average increase of 12.8 ppb per year, or 0.78% per year when referenced to the globally averaged concentration (1625 ppb) at the mid-point of this period. We present evidence that there has been a slowing down in the methane growth rate.

Key words. Methane, troposphere, global distribution, trend, seasonal cycle, latitudinal gradient, vertical gradient.

* Presented at the Conference on the Scientific Application of Baseline Observations of Atmospheric Composition (SABOAC), Aspendale, Australia, 7–9 November 1984.
** Now with Cooperative Institute for Research in Environmental Sciences, University of Colorado/NOAA, Boulder, CO 80309, U.S.A.
‡ On Leave from CSIRO, Division of Atmospheric Research, Station Street, Aspendale, Victoria 3195, Australia.
‡‡ Now with Pacific Marine Environmental Laboratory/NOAA, 7600 Sand Point Way NE, Seattle, WA 98115, U.S.A.

1. Introduction

Methane is recognized as one of the most important radiatively active trace gases in the atmosphere with a significant potential to contribute to climatic change within the next century (Ramanathan *et al.*, 1985). Methane also plays an important role in the chemistry of both the troposphere (National Research Council, 1984) and the stratosphere (Owens *et al.*, 1982).

There is compelling evidence that the concentration of methane (CH_4) in the atmosphere is rising rapidly, and that present levels are approximately double those of a few hundred years ago. Several systematic investigations begun since 1978 have found an average increase in concentration of between one and two percent per year, with a majority being closer to the lower end of the range. Most of these measurements have been made in the troposphere using the method of gas chromatography with a flame ionization detector (Rasmussen and Khalil, 1981a; Fraser *et al.*, 1981; Blake *et al.*, 1982; Khalil and Rasmussen, 1983; Fraser *et al.*, 1984; Blake, 1984; Fraser *et al.*, 1986; Blake and Rowland, 1986). Other measurements have relied upon an optical absorption technique which uses the sun as a source of infrared radiation, and yields an average atmospheric abundance along the entire path length traversed through the atmosphere. Spectroscopic measurements of total column methane made at the Kitt Peak Observatory in Arizona since 1978 yield an average growth in concentration which is in good agreement with the gas chromatographic results cited above (D. Johnson, personal communication). Recently, Rinsland *et al.* (1985) have analyzed solar absorption spectra measured in 1951 and 1981 and found over this period an average rate of increase in atmospheric methane concentration of $1.1 \pm 0.2\%$ per year. This result is at odds with Ehhalt *et al.* (1983) who concluded that there was not a strong case for a significant increase in methane over the previous 30 years. These views may be reconciled if it is noted that the CH_4 column amount in 1951 determined by Rinsland *et al.* (1985) is 71% of that deduced from earlier, and less accurate analyses of solar spectra taken in the same year.

Air bubbles trapped in ice from both Greenland and Antarctica have been analyzed for methane (Robbins *et al.*, 1973; Craig and Chou, 1982; Rasmussen and Khalil, 1984; Stauffer *et al.*, 1985; Pearman *et al.*, 1986). Bubbles with estimated gas ages in the 1950s (Stauffer *et al.*, 1985) show good agreement in CH_4 concentration with the spectroscopic value reported for 1951 by Rinsland *et al.* (1985). If it is assumed that the trapped air bubbles accurately reflect the atmospheric levels at the time of bubble formation, these studies yield the consistent result that the atmospheric CH_4 concentration has remained relatively constant at about half of its present value for thousands of years, before beginning to increase about two centuries ago. However, this interpretation has been questioned by Ehhalt *et al.* (1983) who conclude that there is not a clear relationship between CH_4 values measured in ice samples and past atmospheric CH_4 levels.

Several attempts have been made to estimate the magnitude of sources of atmospheric methane (Ehhalt and Schmidt, 1978; Sheppard *et al.*, 1982; Khalil and Rasmussen, 1983; Blake, 1984). While there has been a tendency in recent years for estimated annual global release rates to converge in the range 500–600 teragrams ($Tg = 10^{12}$ g), there are still significant disagreements on the release rates from specific source regions.

The measured latitudinal distribution of tropospheric methane has provided a key constraint on model calculations of its average atmospheric lifetime, and the distribution of its estimated or postulated source functions (Mayer *et al.*, 1982; Khalil and Rasmussen, 1983; Blake, 1984; Fraser *et al.*, 1986). The distribution used by Khalil and Rasmussen (1983) was determined by measurements at six sites ranging in latitude from 90° S to 71° N. The seasonal variation was well determined at some of these sites but not at others. Blake (1984) used measurements ranging from 54° S to 71° N but the frequency of sample collections in this study was such that the seasonal variations were not well characterized at any location. For further refining the model calculations of the source functions of methane, it would be very desirable to define more precisely the latitudinal distribution of this gas. In particular, better knowledge of the latitude dependence of the seasonal variations would be of great value.

In this paper we present data obtained by measuring CH_4 in air samples collected at 23 globally distributed sites in the NOAA/GMCC cooperative flask sampling network. At most of these sites 2 years of data from samples collected at approximately weekly intervals have now been accumulated. The sites range in latitude from 90° S to 76° N, and all measurements are made by gas chromatography with a flame ionization detector at the NOAA/GMCC laboratory in Boulder, Colorado.

The latitudinal distribution of CH_4 and the seasonal variation of this distribution at remote surface sites has been defined in great detail. We find a remarkable uniformity in the concentration and seasonal variation of methane in the Southern Hemisphere, and report for the first time the observation of a complete seasonal cycle of atmospheric methane at the South Pole, Antarctica. We also find evidence of significant vertical gradients between surface and high altitude sites at comparable latitudes in the Northern Hemisphere. Over this 2-year period, the globally averaged background concentration of methane in the marine boundary layer has been observed to increase by an average of 12.8 parts per billion (10^9) by volume (ppb) per year, or 0.78% per year when referenced to the globally averaged concentration (1625 ppb) at the mid point of this period. Finally, there is evidence from sites in Antarctica that there has been a slowing down of the growth rate in CH_4 over a 2-year period.

2. Sampling Procedures

The flask sampling network used in this study was originally designed for the

Table I. Summary of flask sampling sites

Site Code	Site	Country	Latitude	Longitude	Elevation[a] (meters)	Cooperating Agency	Site Type	Storage Time[b] (Days)
AMS	Amsterdam Is., Indian Ocean	France	37 52'S	77 32'E	54	Centre des Faibles Radioactivities	Island seashore	296 (174-441)
ASC	Ascension Is., S. Atlantic	U.K.	7 55'S	14 25'W	54	U.S.A.F., Pan American World Airways	Island seashore	15 (6-35)
AVI	St. Croix, Virgin Islands	U.S. Territory	17 45'N	64 45'W	3	Fairleigh Dickinson University	Island seashore	15 (4-36)
AZR	Azores (Terceira Is.) N. Atlantic	Portugal	38 45'N	27 05'W	30	U.S.A.F./7th Weather Wing	Island seashore	19 (8-30)
BRW	Point Barrow, Alaska	U.S.	71 19'N	156 36'W	11	GMCC Station	Arctic coastal seashore	12 (3-29)
CBA	Cold Bay, Alaska	U.S.	55 12'N	162 43'W	25	NOAA/National Weather Service	Treeless peninsula	12 (3-29)
CGO	Cape Grim, Tasmania	Australia	40 41'S	144 41'E	94	CSIRO, Division of Atmospheric Research	Promontory seashore	47 (23-85)
CHR	Christmas Island	Kiribati	2 00'N	157 18'W	3	Scripps Inst. of Oceanography, CA	Island seashore	30 (10-72)
CMO	Cape Meares, Oregon	U.S.	45 29'N	124 00'W	30	Oregon Graduate Center	Promontory seashore	14 (4-31)
GMI	Guam (Marianas Is.), North Pacific	U.S. Territory	13 26'N	144 47'E	2	University of Guam	Island seashore	17 (4-44)
HBA	Halley Bay	Antarctica	75 40'S	27 00'W	3	British Antarctic Survey	Barren seashore	432 (227-605)
KEY	Key Biscayne, Florida	U.S.	25 40'N	80 10'W	3	NOAA/Sea-Air-Interaction Laboratory	Coastal island seashore	16 (5-29)

Table I (Continued)

Site Code	Site	Country	Latitude	Longitude	Elevation[a] (meters)	Cooperating Agency	Site Type	Storage time[b] (Days)
KPA	Kitt Peak, Arizona	U.S.	32 00'N	112 00'W	2083	Kitt Peak Observatory	Arid mountain top, scattered vegetation	14 (4-50)
KUM	Cape Kumukahi, Hawaii	U.S.	19 31'N	154 49'W	3	GMCC Site	Island seashore	10 (2-25)
MBC	Mould Bay, N.W.T.	Canada	76 14'N	119 20'W	15	Dept. of Environment/ Atmospheric Environment Service	Island tundra	41 (16-78)
MLO	Mauna Loa, Hawaii	U.S.	19 32'N	155 35'W	3397	GMCC Station	Barren, volcanic mountain slope	10 (3-35)
NWR	Niwot Ridge, Colorado	U.S.	40 03'N	105 38'W	3749	Univ. of Colorado/ INSTAAR	Alpine mountain	11 (2-25)
NZL	Kiatorete Spit, New Zealand	New Zealand	43 50'S	172 38'W	3	U.S National Center for Atmos. Research	Treeless spit	17 (5-44)
PSA	Palmer Station (Anvers Is.)	Antarctica	64 55'S	64 00'W	33	Washington State Univ. Lab. for Atmospheric Research	Barren island seashore	216 (93-355)
SEY	Seychelles (Mahe' Is.) Indian Ocean	Seychelles	4 40'S	55 10'E	3	N.M. State Univ./ Physical Science Lab.	Island seashore	38 (8-138)
SMO	American Samoa, S. Pacific	U.S. Territory	14 15'S	170 34'W	30	GMCC Station	Island rocky promontory	13 (3-51)
SPO	Amundsen Scott (South Pole)	Antarctica	89 59'S	24 48'W	2810	GMCC Station	Ice and snow covered plateau	170 (12-325)
STM	Ocean Station "M"	N. Atlantic	66 00'N	2 00'E	6	Norway Meteorological Institute	Open ocean	35 (10-96)

[a]Elevation above mean sea level
[b]Arithmetic mean duration of the time between collection and analysis of flask samples. Numbers in brackets are the minimum and maximum storage times.

collection of air samples to be analyzed only for carbon dioxide by the method of infrared absorption. Its development by NOAA/GMCC and the sites and procedures used up to the end of 1982 have been described by Komhyr *et al.* (1985a). Since then some changes have been made in the network and the 23 sites (ranging in latitude from 90° S to 76° N) which have been used for methane measurements are described in Table I. In this table the sites are listed alphabetically according to a three-letter site code which will be used subsequently in the text whenever reference is made to a particular site.

All of these site locations are shown in Figure 1 where it is apparent that many of them are very remote from large population centers. Rather than call the sites themselves by the terms 'background', 'baseline', or 'clean-air', we prefer to reserve the first two terms for the information on atmospheric composition which can be obtained from these sites. (The term 'clean-air' is not strictly applicable to any part of the Earth's atmosphere any longer since it is well documented that both carbon dioxide from the burning of fossil fuels and the entirely man-made chlorofluoromethanes are now found mixed throughout the entire atmosphere.) We interpret a background level of some atmospheric constituent to mean that concentration which is representative of a large and well-mixed volume of the atmosphere. This implies that a site may yield useful information on the background composition of the atmosphere even if it is

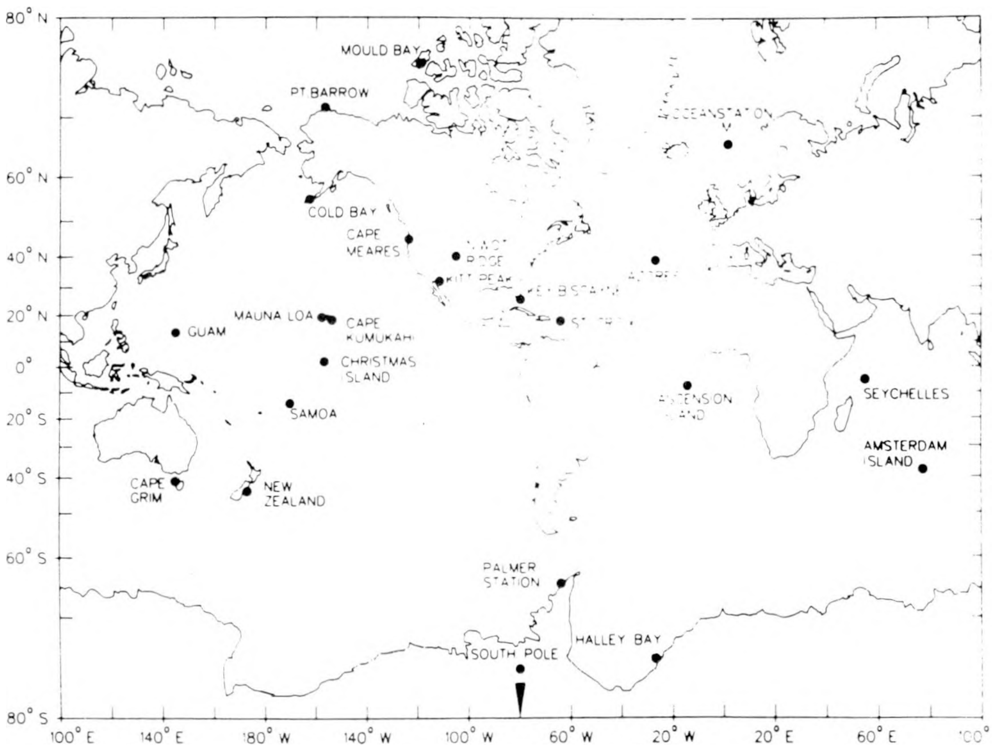


Fig. 1. Location of those sites in the NOAA/GMCC cooperative flask sampling network from which air samples are analyzed for atmospheric methane.

known to be affected by obvious pollution episodes. Important information required for the determination of the background composition at any site are the frequency of sampling, knowledge of the atmospheric transport and transformation processes which bring air to the site, and knowledge of upwind or local sources of the constituents being measured. The attractiveness of very remote sites for studies on the composition of the atmosphere is that large resources are not required for the collection of useful and interpretable data. It is their remoteness from large sources which means that the atmospheric constituents, whether they are considered pollutants or not, are well-mixed into a very large volume of the atmosphere before arriving at the site. Thus, flask sampling at a modest frequency, together with some limited knowledge of local meteorology, can provide valuable information on the large scale behavior of many long-lived constituents of the atmosphere.

Samples are normally taken at intervals of approximately 1 week. At all of the sites (except CHR) the air samples are collected in cylindrical 0.5 L glass flasks. The body of these flasks is 70 mm diameter Pyrex glass tubing, tapering at both ends to a 3 mm bore, solid-plug, ground-glass stopcock. Flasks are also fitted with a male 14/35 standard taper joint at each end. The stopcocks are lubricated with Apiezon-N grease. These flasks are normally exposed in pairs by means of a portable, battery-powered suitcase sampler, using a procedure described by Komhyr *et al.* (1985a). Features of this procedure which are pertinent to this work are that the series-connected flasks are adequately flushed with air at the time of sampling, whole air samples are collected, and flasks are normally pressurized to 1.25–1.5 times ambient atmospheric pressure. At three of the sites other procedures are also used to fill the 0.5 L flasks. At the SPO site, approximately half of the samples are collected with the portable sampler, while the other half are taken (in pairs) on alternate weeks from air drawn through a sampling stack with the inlet located 10 m or more above the surface (Komhyr, 1983). These flasks are also pressurized by using a pumping apparatus connected directly to the sampling stack (Komhyr and Harris, 1977). Two pairs of flasks are exposed at CGO each week. One pair is taken with the portable sampler, and almost simultaneously a pair is flushed (5 min) and pressurized with air taken from a sampling stack similar in design (see Baseline, 1984) to the one used at SPO. In the latter case a metal bellows pump and an all metal or glass sampling line are used. In addition, before the air reaches the flasks it is dried to a dew point estimated to be −50 °C to −60 °C by passing it through a column (1.5 cm internal diameter × 20 cm length) packed with magnesium perchlorate. At the high altitude NWR site, some samples were taken successfully with the portable sampler, but its use was discontinued in January 1984 due to problems with its performance. Since that time, flasks have been pressurized with a metal bellows pump.

Air samples have been taken at CHR in two types of evacuated Pyrex glass flasks. From the beginning of sampling until 3 June 1984 spherical 5 L flasks were used. They were fitted with a single ground-glass stopcock of 6 mm internal bore, lubricated with Apiezon-N grease. (These flasks were provided for our use by C. D. Keeling of Scripps Institution of Oceanography.) Since that time cylindrical flasks with an approximate volume of 3 L and fitted with a single greaseless high-vacuum stopcock have been used. The body of these flasks is 110 mm diameter Pyrex glass tubing closed at one end, and tapering at the other to a 10 mm bore interchangeable 'O' ring tap with a glass piston (available from J. Young Scientific Glassware Ltd., London, England). Both types of flasks terminate with a 14/35 standard taper joint, and are evacuated to a residual pressure of less than 0.013 Nm^{-2} before shipment to the sampling site. The procedure used to collect an air sample in these evacuated flasks is to face into the wind and repeatedly displace the air contained in the short section of tubing between the stopcock and the end of the standard taper joint. This is done by inserting a pencil-sized piece of wooden dowel. The stopcock is then opened and the flask allowed to fill to ambient pressure before the stopcock is closed. A pair of flasks is normally taken in this fashion in quick succession on each sampling occasion.

Prior to shipment of the 0.5 L flasks to each site from the NOAA/GMCC facility in Boulder, they are first evacuated and tested for leaks. This step of pumping the flasks to a low pressure also serves to eliminate any excessive water vapor which might remain from the previous sample. The stopcocks on those flasks which fail the leak testing procedure are reground before the flasks are tested again. When found satisfactory, the flasks are filled to a pressure slightly greater than ambient with a dry (dewpoint −70 °C) fill gas. The fill gas is either air or nitrogen containing a known concentration of carbon dioxide and methane. The carbon dioxide content is chosen to be approximately 20 parts per million by volume (ppm) less than ambient atmospheric concentrations. Thus, prior to sampling, the inside walls of the flask are being subjected to concentrations of carbon dioxide that are quite close to ambient atmospheric levels. However, the difference is sufficient to aid in the detection of those flasks which are not adequately flushed with air at the time of sampling.

At some of the network sites the flasks have been filled on a relatively fixed schedule regardless of the meteorological conditions at the time of sampling. However, at most of the sites a degree of flexibility has been exercised in the timing of the flask sampling so as to maximize the likelihood of obtaining air samples which are representative of background conditions. This flexibility generally entails waiting for preferred meteorological conditions before samples are taken, i.e. wind direction within a specified sector and a wind speed greater than some threshold value. In some cases these conditions have been determined by detailed analyses of data recorded at the site (e.g. see Bodhaine *et al.* (1981) for such an analysis of the BRW location), but for many coastal sites we have simply resorted to a specification of onshore winds greater than 4 m s^{-1}. If the specified conditions do not occur at any time during the week then usually a strategy of last resort is used and the flasks are filled regardless.

At the time of sampling, the observer completes a data sheet which indicates the site name, flask numbers, date and meteorological conditions. The data sheet is included with the exposed flasks, which are then sent to the NOAA/GMCC facility in Boulder for analysis. For most sites the elapsed time between sample collection and analysis ranges from a few days to a month (see Table I). At four of the very remote sites (AMS, HBA, PSA and SPO) the average storage time exceeds 6 months, and in one case exceeds 1 year.

It has been reported that air samples contained in a vacuum apparatus can be contaminated with methane emanating from vacuum grease used on the stopcocks and ground-glass joints (Craig and Chou, 1982). In the light of such findings we have carefully evaluated our procedures and results, but we have found absolutely no evidence of any contamination of the air samples collected in the 0.5 L flasks fitted with greased stopcocks. Firstly, we have compared the methane data obtained at the CGO site from air samples collected in a variety of different flasks and analyzed on two independent, but similar, gas chromatographic systems. It has been reported previously by Fraser *et al.* (1984) that for air samples collected at this site in both stainless steel flasks fitted with stainless steel valves, and glass flasks with greaseless stopcocks, no significant differences in methane concentrations could be found. Comparison of the data obtained from these two types of flasks to that from the 0.5 L glass flasks used in this study show no significant differences ($\Delta \leqslant 5$ ppb) in methane concentration over a 12-month period.

Secondly, we routinely carry out storage tests by filling 0.5 L flasks to a pressure similar to that achieved with the portable sampler. For each test, 12 flasks are filled simultaneously with samples of dry natural air from a compressed gas cylinder, the air having a well-calibrated concentration of methane close to ambient levels. Some of these flasks are analyzed immediately after filling, while others are set aside for periods of storage ranging up to 6 months. Whenever possible each flask is analyzed on two separate occasions. The conditions of storage are identical to those used for the regular network flasks i.e., they are kept in a cool and dark environment. The results of one such storage test lasting 4 months are shown in Figure 2. Each flask is represented by a different symbol so that repeated analysis of each flask can be identified. Clearly there is no significant systematic change in the measured CH_4 concentrations, with a mean value from 18 separate flask analyses of 1602.9 ppb and a standard deviation of 1.2 ppb. The long-term CH_4 concentration found for the compressed air tank used to fill these flasks is 1601.4 ± 0.6 ppb.

Thirdly, for some of the 0.5 L flasks returned from the sampling sites, we have analyzed air samples taken from them immediately after their arrival in Boulder, and then have repeated the analysis up to 2 months later. Again these results indicate no significant differences ($\Delta \leqslant 5$ ppb) in concentration after the extended storage period. Finally, there is compelling indirect evidence

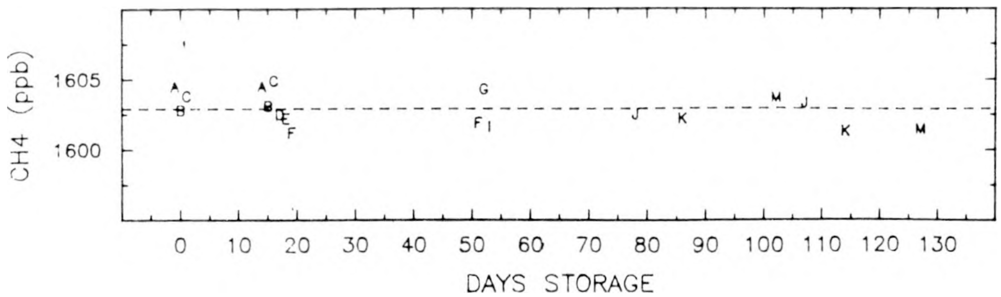


Fig. 2. Results from storage tests in which 0.5 L glass flasks with greased stopcocks (see text) were filled with dry natural air from a high pressure cylinder. All flasks were filled in an identical fashion on day zero. Each flask is represented by a different letter. Appearance of a letter more than once indicates a repeat analysis. The dashed line denotes the mean value of all the analyses shown.

that the methane content of air samples stored in these flasks is not affected by storage times exceeding 1 year. This evidence comes from those remote sites where the average storage times are long, and the range of storage times is very wide (see Table I). For example, at the SPO site there are flasks which are taken in January or early February which are shipped out just before the station closes for the austral winter. These flasks are normally analyzed within a month of being exposed. By contrast, the flasks taken in late February or March are not analyzed until almost a year later because the station does not reopen until November. Nevertheless, we find no sign in the record of any abrupt change in CH_4 concentration during February (see Section 4).

3. Measurement Procedures

The concentrations of methane are measured by gas chromatography. Two Carle 211–M (Series S) gas chromatographs each fitted with a flame ionization detector have been used. The first was used from the beginning of the program until November 1983, and the second has been used since then. The chromatographs include a hydrogenation catalyst for the efficient conversion of carbon monoxide and carbon dioxide ,to methane, allowing the measurement of the concentration of all three trace gases in each air sample. These instruments are commercially available, but have been modified for optimum performance in this application (see Rasmussen and Khalil, 1981a). Both chromatographs are fitted with a sample loop of 3 cm^3 volume, and the analysis of each air sample was completed within ten minutes. The first chromatograph was used in conjunction with a Spectra-Physics SP4100 computing integrator while the second was used with Hewlett-Packard 3390A and 3392A integrators. Since October 1984 we have used a Hewlett-Packard 85B computer interfaced to the 3392A integrator for data acquisition and initial data processing. In this way we are able to easily store all of the primary data (peak areas, peak heights, retention times, integration codes) in readily accessible files for subsequent computer analysis.

All of the methane measurements presented in this paper are expressed in units of parts per billion (10^9) by volume (ppb) in dry air. This is achieved by drying all air samples including calibration gases, before introducing them into the sample loop of the chromatograph. Initially a Nafion® drier was used to dry the air to a dew point of −30 °C (Foulger and Simmonds, 1979). Since August 1983 the samples have been dried cryogenically by passing them through a coil of copper tubing (80 cm × 0.15 cm internal diameter) immersed in an alcohol bath maintained at −70 °C. Tests in which a moist air stream was dried in turns by both methods resulted in the finding of no significant difference in methane concentration. Both types of drier are located downstream of the common outlet from a Carle Model 2026 8-stream selection valve with its associated Model 4203 electric actuator. The selection valve is configured to have four open and four closed positions arranged alternately. It is controlled from the Valve-Minder II unit on the chromatograph, advancing to an open position when an air sample is required to flush the sample loop, and then switching to the next closed position after the sample loop has been flushed and filled. Calibration gas from a pressurized cylinder is supplied to two opposing open ports on the selection valve, while flasks are connected to the other two open positions. In this way the analysis of every sample of air from a flask is bracketed by the analysis of samples of calibration gas.

The flasks are connected to the small diameter stainless steel tubing (0.16 cm outside diameter) of the stream selection valve by way of a female 14/35 standard taper joint and a glass-to-metal seal. Apiezon-L grease is used to lubricate the tapered joints, the two parts of which are clamped together by plastic clips. Before connecting a flask a suitably shaped solid Pyrex glass rod is inserted into the male tapered joint. This helps to keep to less than 10 cm^3 the total volume of tubing which has to be swept out by the air sample as it passes from the flask to the sample loop of the gas chromatograph. No pumping is used, or is necessary, to introduce air samples into the sample loop. The calibration gas is contained in a pressurized cylinder, and the 0.5 L flasks are pressurized at the time of sampling. Even though the evacuated flasks filled at the sea level site of CHR are not actively pressurized, the high elevation (1676 m) of the NOAA/GMCC laboratory in Boulder, Colorado means that these flask samples are also at a pressure significantly greater than ambient at the time of analysis. Thus, with the selection valve in the appropriate open position, simply opening the stopcock of the flask allows flow of the air sample to the sample loop, and on to a flow meter located 85 cm downstream, after which it is vented to the atmosphere. The selection valve is held in each open position for a period of 30 seconds. For the calibration gas the flow rate during these periods is set to 70 ml min^{-1} while most of the flasks yield a flow rate in excess of 80 ml min^{-1}. The number of flasks rejected on the basis of insufficient flow (less than 40 ml min^{-1}) is small and constitutes less than 2% of the total number analyzed. After the selection valve closes at the end of each open period, a delay of 5 s is allowed before the sample is injected onto the column by the automatic gas sampling valve, thus permitting the contents of the sample loop to relax to ambient atmospheric pressure before injection. The long length of tubing between the sample loop and the flowmeter ensures that there will be no diffusion of laboratory air back to the sample loop during this 5 s period.

A very high degree of internal consistency in the data set has been achieved since all of the methane measurements reported in this paper are referenced to a single secondary standard of dry natural air (0–245) and over 80% of the analyses have been carried out on a single chromatograph. The standard 0–245 is contained in a 35 L stainless steel cylinder, the internal surface of which had been electropolished by use of the SUMMA® process prior to filling. The cylinder is fitted with dual stainless steel Nupro SS–4H4 valves. Complete details on the procedures used in the preparation of such standard gases are given by Rasmussen and Lovelock (1983). At the beginning of the program the cylinder contained a pressure of ~3000 kPa, and has declined to ~1500 kPa over the 2 year period of measurements. The calibration standard contains levels of methane, carbon monoxide and carbon dioxide which are close to ambient concentrations found in remote locations in the northern hemisphere. This secondary standard has been compared regularly to other standards (0–132, 0–213, and 0–259) maintained at the Oregon Graduate Center (see Rasmussen and Khalil, 1981a), and has shown no significant change in the assigned concentrations over a period of 2.5 years, with a mean methane concentration of 1653 ± 2 ppb (95% confidence level) from 12 separate determinations over this period. In addition, since February 1984 this secondary standard has been routinely compared to samples from a cylinder of standard reference material (SRM) 1658a from the National Bureau of Standards (see Rasberry and Reed, 1984). The particular sample of this SRM has a certified concentration of 982 ± 10 ppb (95% confidence level) methane in air. The agreement between this SRM and the secondary standard in terms of absolute methane concentration is better than 1.0%. As a further test of the long-term stability of methane concentration in 0–245, this calibration gas has been compared regularly to natural air samples contained in 20 high pressure chrome-molybdenum steel cylinders which were filled at an elevation of approximately 3 km in the mountains west of Boulder, Colorado during 1977–1979. While these 20 cylinders of air were originally collected to serve as standard gases only for measurements of atmospheric CO_2 concentrations (Komhyr *et al.*, 1985b), they have also been found to function as reliable standards for atmospheric CH_4 in the concentration range 1500–1600 ppb. We have found no relative changes in CH_4 concentration between 0–245 and these 20 cylinders of natural air.

Normally only one member of each pair of flasks is analyzed for methane, and at least two aliquots are taken from that flask whenever there is sufficient pressurization to allow this. Afterwards, both members of each pair are analyzed for carbon dioxide by the method of infrared absorption (see Komhyr *et al.*, 1983). Occasionally, both members of a pair of flasks are analyzed for methane, and we almost invariably find good agreement between them ($\Delta \leqslant 5$ ppb). The agreement between members of a pair for the CO_2 analysis is also normally quite good ($\Delta \leqslant 0.3$ ppm), and the level of this agreement is used as one of the criteria for assessing whether the CO_2 concentration represents background conditions or not (Komhyr *et al.*, 1985a). Poor agreement is often an indication of a problem in the execution of the sampling procedure, or a leakage in one or both of the flasks after being filled. This information from the CO_2 analysis can then be used as a useful piece of additional evidence in assessing whether to accept the CH_4 concentration as representative of background conditions. Extensive tests have indicated that the withdrawal of small quantities of air (less than 20% of the total) from these pressurized flasks for gas chromatographic analysis does not significantly interfere with the subsequent infrared analysis.

The withdrawal of at least two samples from each flask has allowed the empirical determination of the precision level of the methane measurements by calculating the difference in concentration between the first and second aliquot. For the first of the Carle chromatographs used, the difference in concentration between the first and second aliquots from 422 flasks was found to be almost normally distributed with a mean value of 0.2 ppb and a standard deviation of 9 ppb. For the second of the chromatographs used, the corresponding figures are 0.3 ± 3 ppb from a total of 1418 flasks so that the average level of precision on an individual measurement on this chromatograph is approximately 0.2%. We have not been able to determine exactly the reasons for the poorer precision obtained with the first chromatograph. However, it may be significant that this instrument was located in a laboratory where the control over the ambient temperature was very poor compared to that achieved in the laboratory housing the second chromatograph. For those cases where three or more aliquots are taken from a flask, we have found no significant difference in concentration between the second and subsequent samples.

In the discussion of the data in the next section it should be noted that for most of the sites, both chromatographs were used for the analysis of the flask samples. Some of the records, especially for sites in the Southern Hemisphere, show a reduction in the scatter of the data after the transition to the second and more precise chromatograph. Although the actual transition occurred in November 1983, the change to less scatter in the data sometimes occurs much earlier in the records because of delays between sampling and analysis (see Table I). Thus, for PSA this change occurs during April 1983 and for AMS during February 1983. For two of the sites (SPO and HBA) the delays between sampling and analysis were sufficiently long that the second of the chromatographs was used for the entire record. Changes to less scatter in the data due to this transition from one instrument to another are much less apparent in the records at sites in the Northern Hemisphere, probably due to the larger short-term variability of background methane concentrations in the Northern Hemisphere (see Section 4).

The procedure we have used to calculate the concentration of methane in a flask sample is simple. The methane peak heights from the two bracketing samples of calibration gas are averaged, and then divided into the methane peak height found for the flask sample. This ratio is then multiplied by the methane concentration assigned to the calibration gas. The validity of this procedure has been verified by routine tests of the linearity of the response of the flame ionization detector. We have chosen to use peak heights rather than peak areas for this calculation because by doing so we find an improvement in precision by a factor of approximately three. To assure ourselves that there can be no bias introduced by use of peak heights rather than peak areas, we also use peak areas to calculate methane concentrations as described above. Examination of the results obtained by the two methods indicates that there is no significant difference in concentrations. For 1338 aliquots the mean difference (height − area) in methane concentration from the two methods is −0.2 ppb with a standard deviation of 5 ppb. However, we caution that this result is obtained only because the methane concentration in the calibration gas is very close to the ambient levels in the flask samples, resulting in a very similar chromatographic peak shape for the methane detected in both sample and calibration gas.

4. Results and Discussion

The data for all of the sites are shown in Figure 3(a)–(w). For ease of comparison the sites are arranged in order of their latitude, beginning with the South Pole. Results from individual flasks are shown. If two or more aliquots are taken from a flask, then the mean value is plotted. The only data not included in Figure 3(a)–(w) are those samples rejected because of a clear and unambiguous failure in either the sampling or analytical procedures. These rejected samples make up less than 3% of all samples analyzed. Retained data are plotted with one of two symbols. The square symbol denotes all those values thought to represent background methane concentrations, while the cross symbol is reserved for those samples considered to be non-background.

The large majority of the data points shown in Figure 3 are thought to represent background methane. For the sites NZL and KEY the values shown as non-background were determined by defining an onshore wind sector together with a threshold wind speed. Flasks taken when winds did not meet the specified wind speed and direction criteria were flagged as non-background. For each of the remaining sites where data have been flagged as non-background, the non-background values were determined by first fitting a cubic

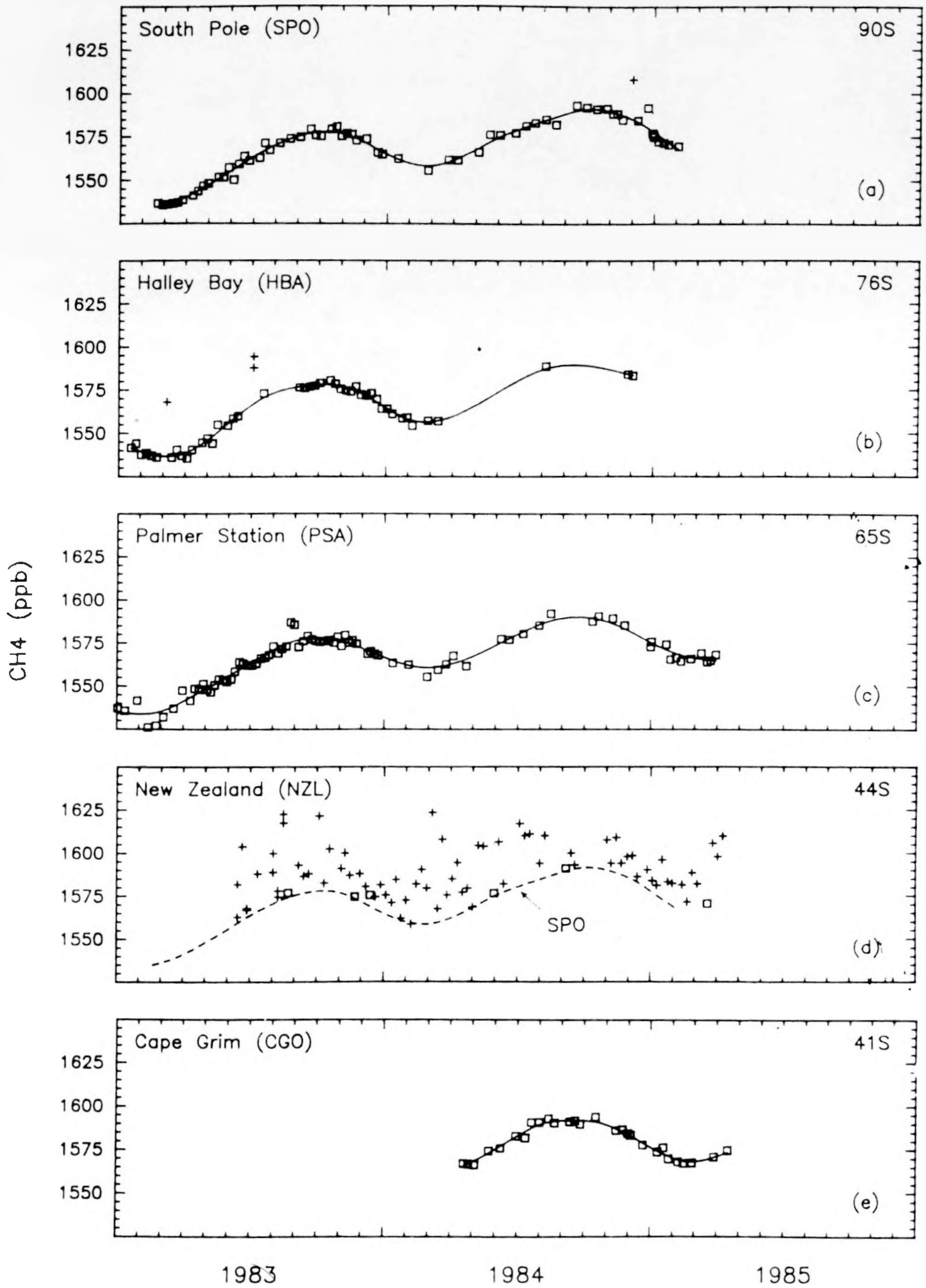

South Pole (SPO)
90S
(a)
Halley Bay (HBA)
76S
(b)
Palmer Station (PSA)
65S
(c)
New Zealand (NZL)
44S
SPO
(d)
Cape Grim (CGO)
41S
(e)
CH4 (ppb)
1625
1600
1575
1550
1983
1984
1985

Fig. 3(a)–(e)

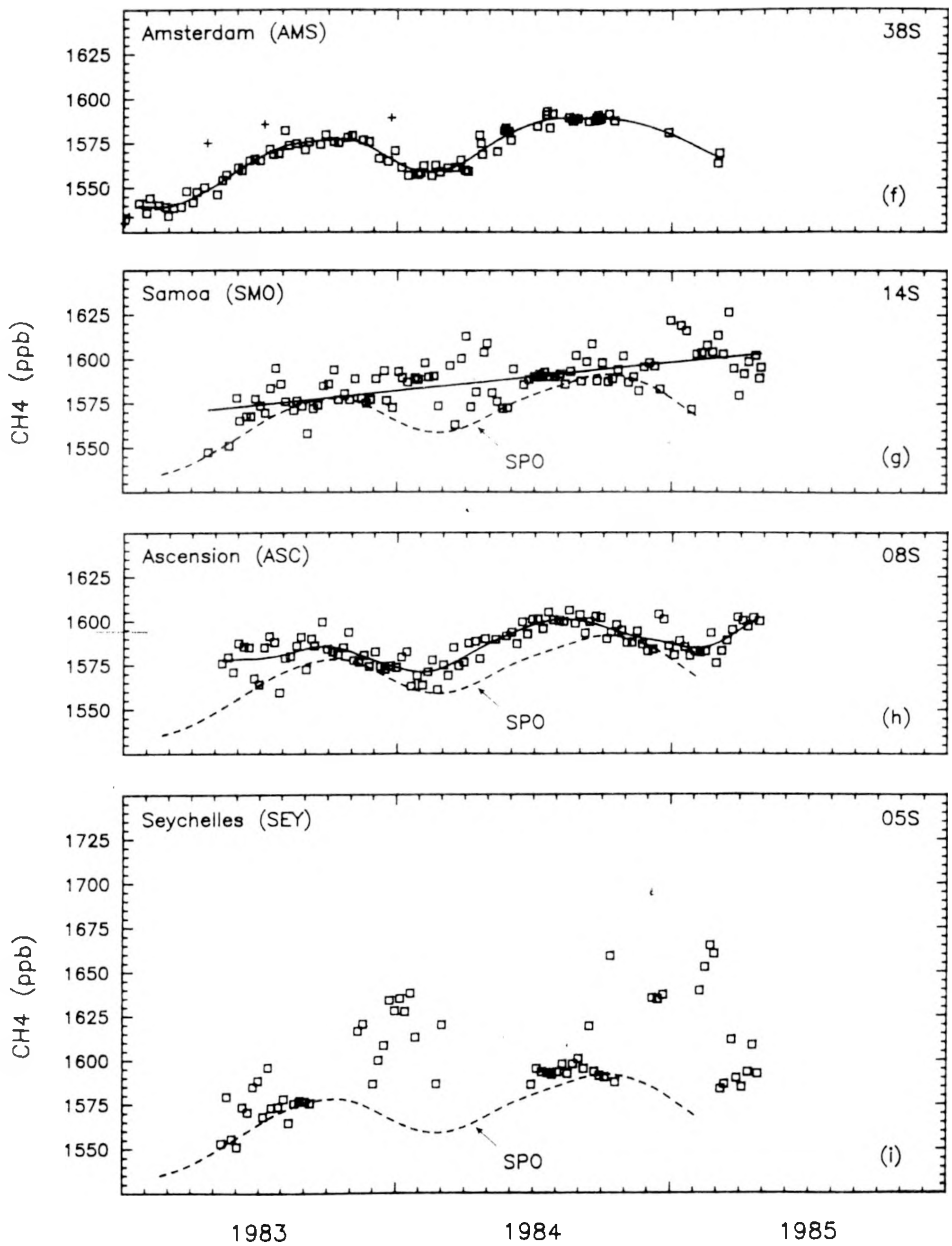

Amsterdam (AMS)
38S
(f)
Samoa (SMO)
14S
(g)
SPO
Ascension (ASC)
08S
(h)
SPO
Seychelles (SEY)
05S
(i)
SPO
CH4 (ppb)
CH4 (ppb)
1625
1600
1575
1550
1725
1700
1675
1650
1983
1984
1985

Fig. 3(f)–(i)

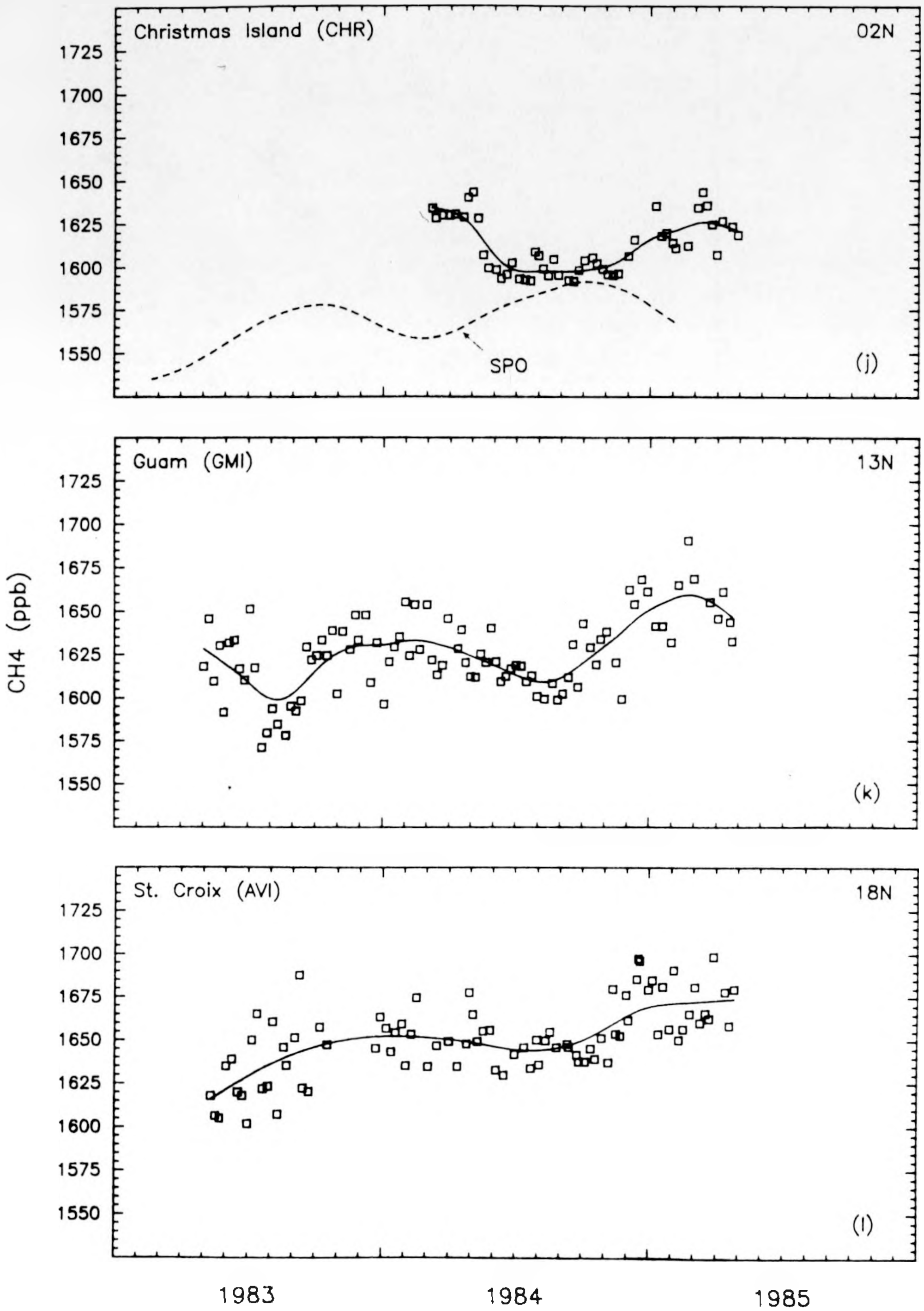

Christmas Island (CHR)
02N
SPO
(j)
Guam (GMI)
13N
(k)
St. Croix (AVI)
18N
(l)
CH4 (ppb)
1725
1700
1675
1650
1625
1600
1575
1550
1983
1984
1985

Fig. 3(j)–(l)

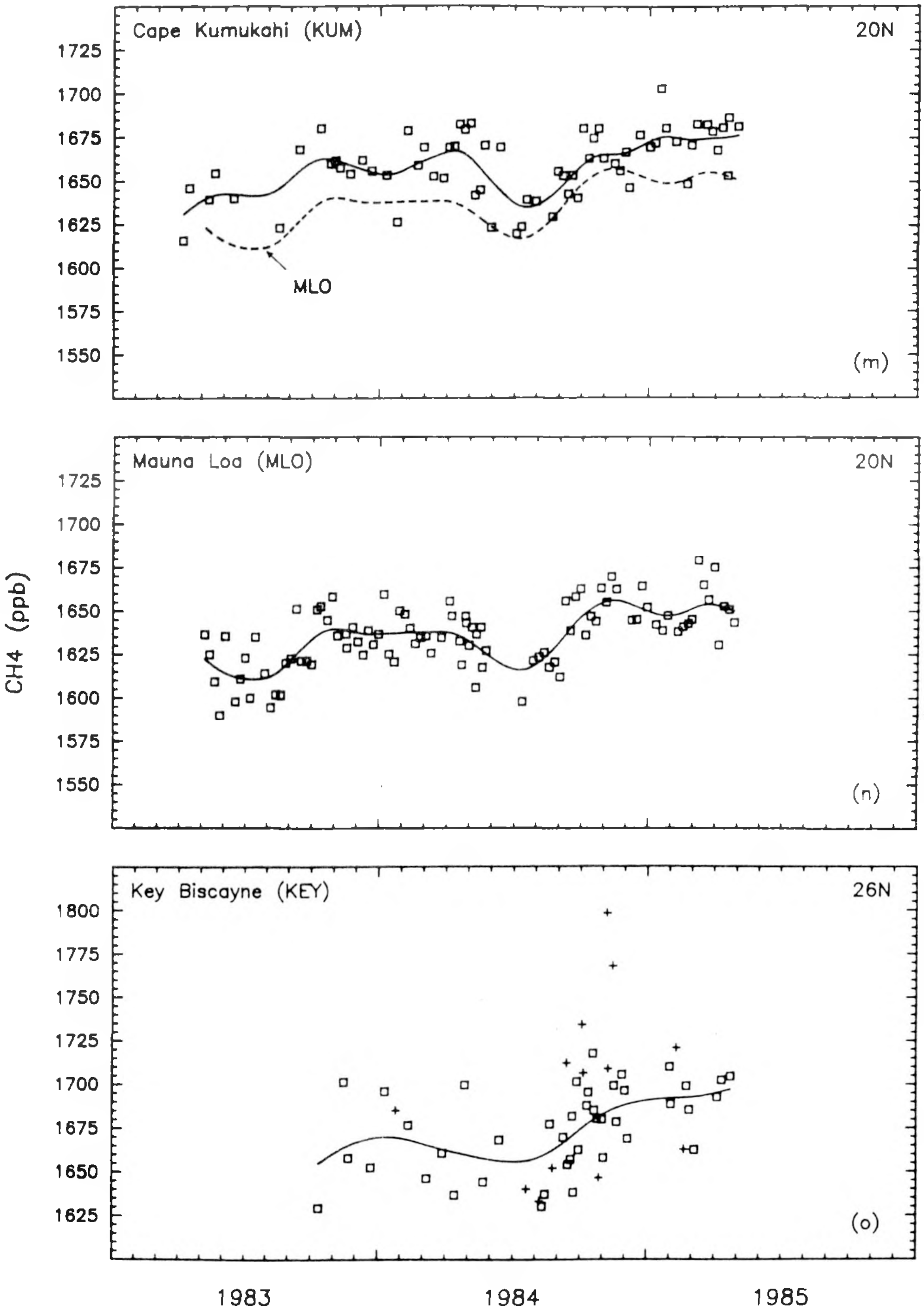

Cape Kumukahi (KUM)
20N
MLO
(m)
Mauna Loa (MLO)
20N
(n)
Key Biscayne (KEY)
26N
(o)
CH4 (ppb)
1983
1984
1985

Fig. 3(m)–(o)

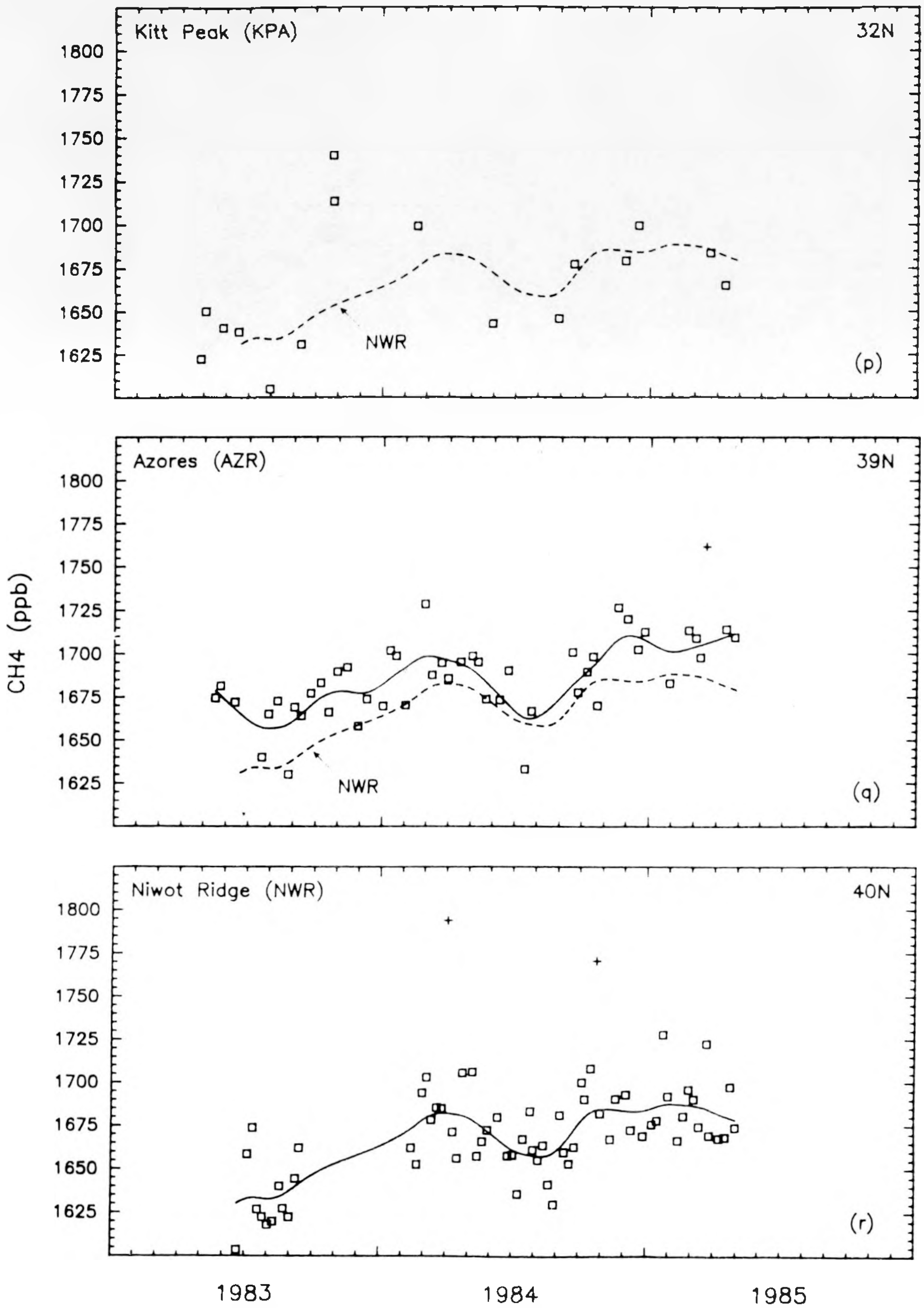

Kitt Peak (KPA)
32N
NWR
(p)
Azores (AZR)
39N
NWR
(q)
Niwot Ridge (NWR)
40N
(r)
CH4 (ppb)
1800
1775
1750
1725
1700
1675
1650
1625
1983
1984
1985

Fig. 3(p)–(r)

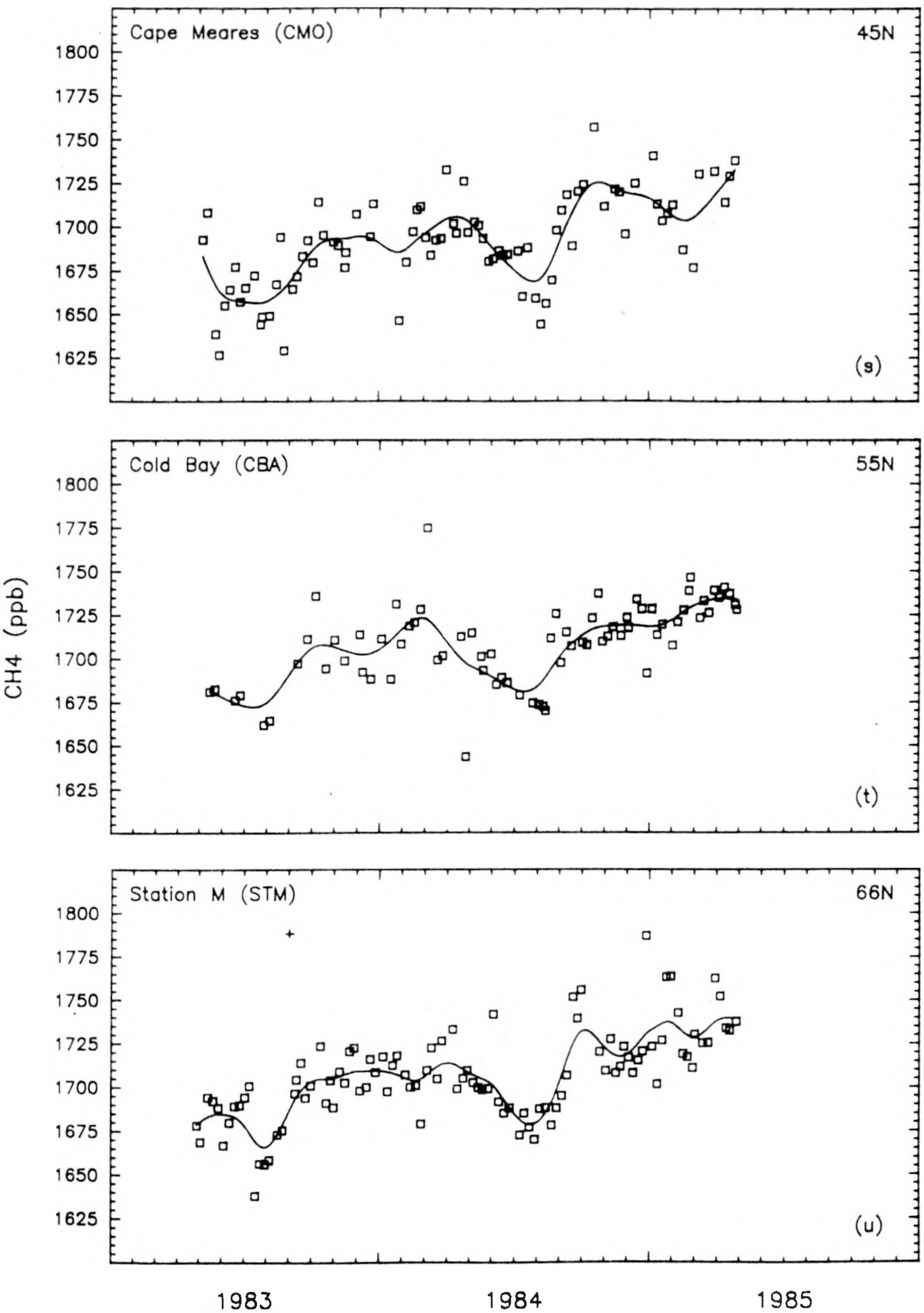

Cape Meares (CMO)
45N
(s)
Cold Bay (CBA)
55N
(t)
Station M (STM)
66N
(u)
CH4 (ppb)
1800
1775
1750
1725
1700
1675
1650
1625
1983
1984
1985

Fig. 3(s)–(u)

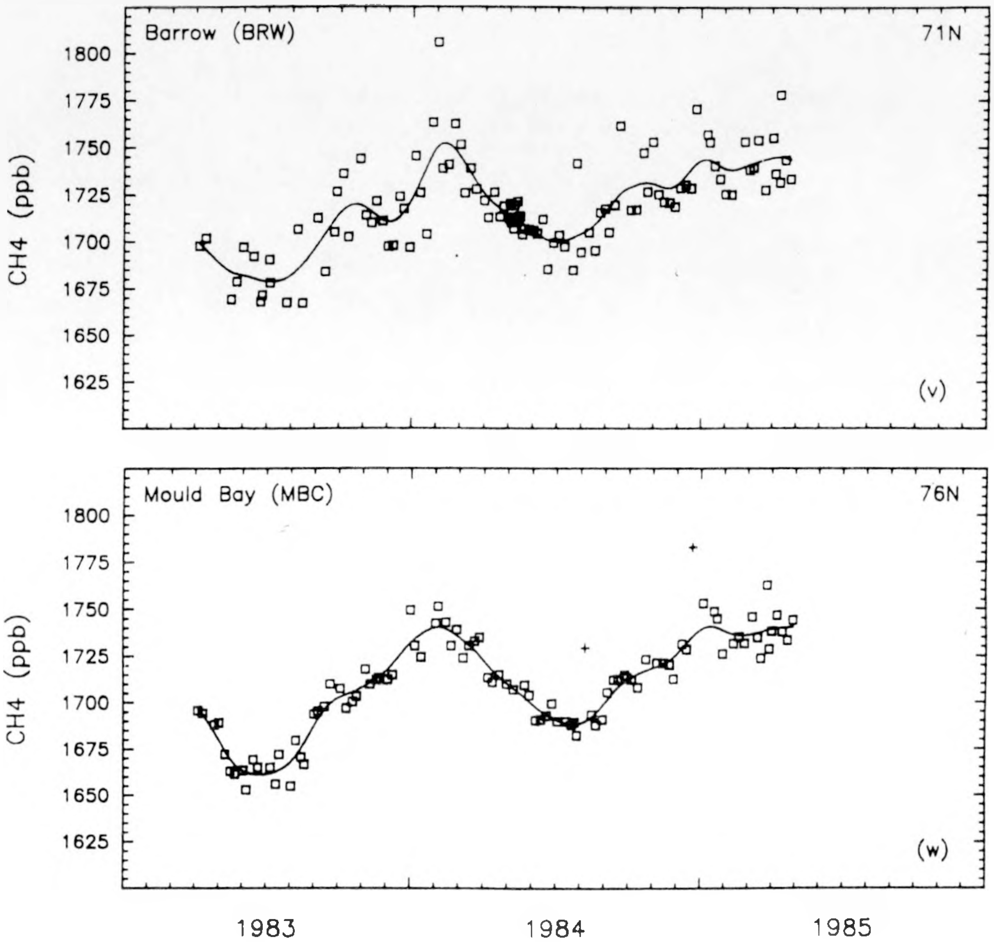


Fig. 3(a)–(w). Results of methane measurements on flask air samples from 23 sites ranging in latitude from the South Pole, Antarctica at 90 °S (a) to Mould Bay, Canada at 76 °N (w). Individual flask values are shown. If more than one aliquot from a flask is analyzed then the mean value from the total number of aliquots is plotted. The square symbol is used for those samples which we believe to be representative of background conditions. The cross symbol is reserved for those samples which are thought to be taken under non-background conditions. In all 23 panels the vertical scale has been chosen so that a unit length of axis is equivalent to the same range of concentration. For most sites a cubic spline function (see text) has been fitted to those data selected as background, and is shown as a solid line. For purposes of illustration at some sites we have included a cubic spline fitted to data at another site, and these are always shown as a dashed line. For the sites NZL (d), SMO (g), ASC (h), SEY (i), and CHR (j) the dashed line represents the cubic spline fit to the data at SPO (a). At KUM (m) the added spline is that for MLO (n). Finally, for KPA (p) and AZR (q) the added spline is that for NWR (r).

spline function to all of the data points, then flagging as non-background any points which lay more than three standard deviations from the fitted function.

For most of the sites a cubic spline function has then been fitted to the background data. The calculation of these splines requires the specification of a weighting parameter (with units of ppb) for each data point (Reinsch, 1967). We choose to weight all points equally since the weighting parameter then

Table II. Weighting parameters used in fitting cubic spline functions to the methane data at each site

Site Code[a]	Latitude (degrees)	Weighting Parameter[b] (ppb)
SPO	90S	2.5
HBA	75S	1.8
PSA	65S	3.3
CGO	41S	1.7
AMS	38S	3.2
SMO	14S	30.0
ASC	8S	6.2
CHR	2N	7.9
GMI	13N	14.9
AVI	18N	14.9
KUM	20N	12.8
MLO	20N	12.0
KEY	26N	19.0
AZR	39N	13.3
NWR	40N	16.9
CMO	45N	15.5
CBA	55N	13.9
STM	66N	13.9
BRW	71N	13.9
MBC	76N	6.9

[a] For explanation of site codes see Table I.
[b] The weighting parameter is an approximate measure of the average standard deviation of the data from the spline fit.

becomes an estimate of the standard deviation of the data from the fitted spline. The weighting parameters used at each site are shown in Table II where it can be seen that the values are correlated with the degree of scatter in CH_4 concentration shown in Figure 3. The only exception is SMO (3(g)) where we have deliberately set the value of the weighting parameter at a high level in order for the spline function to stiffen to a least squares linear fit to the data. As a further guide to the selection of appropriate weighting parameters, we allow the splines to be only flexible enough to follow those features in the data with periodicities of about 2 months or longer, which would be well determined by our weekly sampling interval.

All of the data except those for the NZL site are summarized in the form of monthly mean values in Table III. Monthly means are calculated both directly from the flask data flagged as background, and where applicable from the fitted spline functions by averaging the daily values obtained from the splines. The number of flask values used to calculate each monthly mean is also included in Table III, together with the standard deviation associated with each monthly mean calculated directly from the flask data.

Table III. Summary of monthly mean CH_4 data

		AMS[a]				ASC				AVI				AZR				BRW			
1983	JAN	1538	(4)	2																	
	FEB	1541	(3)	3	(1539)																
	MAR	1540	(6)	4	(1541)																
	APR	1547	(4)	3	(1547)													1700	(4)	4	
	MAY	1553	(6)	3	(1555)	1576	(4)	3		1610	(7)	3		1678	(5)	2		1674	(10)	6	(1685)
	JUN	1563	(3)	4	(1563)	1578	(11)	5	(1579)	1628	(11)	4	(1626)	1672	(–)	1	(1667)	1682	(14)	4	(1680)
	JUL	1569	(3)	4	(1570)	1581	(15)	4	(1580)	1633	(25)	5	(1633)	1653	(18)	2	(1658)	1678	(11)	4	(1680)
	AUG	1575	(5)	4	(1574)	1584	(6)	4	(1583)	1637	(22)	4	(1639)	1651	(30)	2	(1658)	1680	(23)	3	(1690)
	SEP	1576	(3)	3	(1576)	1586	(9)	6	(1585)	1646	(31)	4	(1644)	1669	(7)	4	(1667)	1707	(18)	4	(1707)
	OCT	1576	(2)	3	(1577)	1586	(6)	4	(1584)	1653	(7)	2	(1647)	1680	(12)	3	(1676)	1728	(22)	3	(1718)
	NOV	1577	(2)	3	(1574)	1577	(3)	4	(1580)				(1650)	1675	(24)	2	(1678)	1711	(9)	5	(1714)
	DEC	1567	(3)	3	(1568)	1575	(4)	5	(1576)	1655	(13)	2	(1652)	1674	(–)	1	(1679)	1709	(14)	4	(1716)
1984	JAN	1558	(2)	4	(1561)	1574	(9)	4	(1572)	1654	(7)	4	(1652)	1690	(18)	3	(1687)	1735	(26)	4	(1738)
	FEB	1560	(3)	4	(1559)	1570	(8)	5	(1572)	1655	(20)	3	(1652)	1699	(41)	2	(1696)	1760	(27)	5	(1749)
	MAR	1562	(3)	4	(1562)	1576	(6)	5	(1577)	1644	(8)	3	(1651)	1689	(5)	3	(1698)	1729	(7)	4	(1735)
	APR	1570	(9)	4	(1569)	1586	(5)	4	(1584)	1654	(22)	3	(1650)	1695	(–)	1	(1694)	1717	(6)	5	(1719)
	MAY	1579	(6)	5	(1577)	1592	(2)	3	(1590)	1657	(6)	4	(1648)	1689	(14)	3	(1686)	1712	(6)	15	(1710)
	JUN				(1584)	1595	(6)	4	(1596)	1635	(6)	3	(1646)	1682	(12)	2	(1673)	1700	(11)	4	(1702)
	JUL	1589	(4)	6	(1588)	1601	(4)	4	(1600)	1644	(9)	3	(1646)	1650	(24)	2	(1663)	1704	(22)	5	(1702)
	AUG	1589	(1)	4	(1589)	1602	(3)	5	(1601)	1647	(8)	4	(1647)				(1668)	1708	(10)	4	(1710)
	SEP	1589	(1)	6	(1589)	1600	(4)	5	(1598)	1643	(5)	4	(1650)	1689	(16)	2	(1681)	1729	(29)	3	(1724)
	OCT	1590	(3)	2	(1589)	1594	(3)	4	(1595)	1643	(6)	4	(1655)	1686	(14)	3	(1693)	1732	(17)	5	(1730)
	NOV				(1586)	1588	(4)	5	(1591)	1660	(18)	5	(1661)	1727	(–)	1	(1707)	1721	(3)	4	(1730)
	DEC	1581	(–)	1	(1582)	1594	(10)	4	(1588)	1684	(15)	5	(1666)	1709	(10)	4	(1709)	1739	(21)	4	(1738)
1985	JAN				(1577)	1584	(4)	5	(1586)	1669	(16)	4	(1670)	1683	(–)	1	(1703)	1742	(13)	5	(1741)
	FEB				(1570)	1583	(7)	4	(1586)	1666	(18)	4	(1671)	1713	(–)	1	(1702)	1744	(16)	3	(1739)
	MAR	1567	(5)	3		1592	(8)	4	(1591)	1672	(15)	6	(1671)	1703	(8)	2	(1706)	1740	(11)	4	(1743)
	APR					1600	(2)	4	(1598)	1672	(12)	3	(1670)	1712	(3)	2	(1711)	1749	(20)	8	(1745)

Table III. Summary of monthly mean CH_4 data – *continued*

		CBA				CGO				CHR				CMO				GMI			
1983	JAN																				
	FEB																				
	MAR																				
	APR																				
	MAY	1682	(1)	2										1666	(40)	4		1619	(20)	5	
	JUN	1678	(2)	2	(1676)									1663	(10)	4	(1659)	1623	(11)	4	(1615)
	JUL	1662	(–)	1	(1675)									1657	(13)	4	(1657)	1605	(37)	4	(1604)
	AUG	1665	(–)	1	(1684)									1660	(28)	4	(1662)	1588	(8)	4	(1600)
	SEP	1704	(10)	2	(1698)									1678	(12)	4	(1677)	1610	(18)	4	(1608)
	OCT	1715	(29)	2	(1705)									1695	(14)	4	(1690)	1624	(14)	5	(1621)
	NOV	1705	(8)	2	(1705)									1689	(13)	4	(1693)	1637	(8)	4	(1628)
	DEC	1698	(14)	3	(1705)									1704	(13)	2	(1693)	1629	(20)	3	(1630)
1984	JAN	1710	(18)	4	(1712)									1646	(–)	1	(1687)	1627	(22)	5	(1631)
	FEB	1722	(5)	3	(1720)									1699	(15)	4	(1691)	1635	(16)	3	(1633)
	MAR	1725	(43)	3	(1716)					1630	(2)	4		1699	(19)	5	(1700)	1630	(18)	5	(1631)
	APR	1678	(49)	2	(1703)	1567	(1)	4		1633	(6)	3	(1628)	1705	(14)	4	(1705)	1625	(12)	4	(1626)
	MAY	1703	(9)	4	(1693)	1570	(6)	4	(1572)	1619	(20)	4	(1615)	1694	(10)	4	(1696)	1624	(12)	4	(1621)
	JUN	1687	(2)	3	(1686)	1580	(5)	2	(1579)	1598	(4)	6	(1602)	1684	(2)	4	(1682)	1615	(5)	4	(1616)
	JUL	1677	(3)	2	(1683)	1589	(5)	4	(1587)	1598	(8)	6	(1597)	1673	(16)	4	(1671)	1612	(7)	5	(1611)
	AUG	1691	(26)	5	(1693)	1592	(2)	2	(1591)	1598	(4)	5	(1598)	1667	(23)	4	(1678)	1603	(6)	4	(1610)
	SEP	1707	(9)	3	(1707)	1591	(1)	6	(1592)	1594	(4)	3	(1598)	1709	(14)	4	(1705)	1613	(13)	4	(1615)
	OCT	1717	(13)	5	(1716)	1594	(1)	2	(1591)	1603	(3)	4	(1599)	1731	(23)	3	(1723)	1631	(10)	4	(1625)
	NOV	1717	(5)	4	(1719)	1586	(2)	6	(1587)	1596	(1)	3	(1603)	1712	(14)	3	(1722)	1619	(19)	3	(1635)
	DEC	1718	(19)	4	(1719)	1581	(4)	4	(1580)	1611	(7)	2	(1612)	1725	(–)	1	(1718)	1661	(6)	4	(1646)
1985	JAN	1717	(9)	4	(1721)	1573	(4)	5	(1573)	1622	(9)	4	(1619)	1715	(15)	5	(1711)	1638	(5)	3	(1654)
	FEB	1733	(11)	4	(1727)	1568	(1)	6	(1569)	1612	(1)	2	(1623)	1681	(7)	2	(1706)	1678	(18)	2	(1659)
	MAR	1730	(7)	4	(1732)	1571	(3)	2	(1569)	1629	(14)	5	(1626)	1731	(1)	2	(1714)	1662	(10)	2	(1657)
	APR	1733	(5)	6	(1732)	1575	(1)	2		1623	(4)	3		1727	(12)	3	(1721)	1646	(12)	4	

Table III. Summary of monthly mean CH_4 data – *continued*

		HBA				KEY				KPA			KUM				MBC			
1983	JAN	1541	(3)	3																
	FEB	1537	(1)	3	(1538)															
	MAR	1538	(2)	3	(1537)															
	APR	1540	(5)	3	(1542)					1622	(2)	2	1631	(17)	4		1693	(4)	3	
	MAY	1550	(5)	4	(1551)					1645	(3)	4	1647	(11)	4	(1641)	1671	(13)	4	(1671)
	JUN	1559	(6)	3	(1561)					1638	(6)	3	1640	(–)	1	(1643)	1663	(7)	4	(1662)
	JUL	1573	(–)	1	(1570)					1605	(3)	4				(1643)	1664	(8)	3	(1664)
	AUG				(1575)								1623	(–)	1	(1647)	1673	(14)	5	(1677)
	SEP	1577	(1)	4	(1578)					1631	(–)	1	1668	(–)	1	(1656)	1701	(8)	3	(1696)
	OCT	1578	(2)	4	(1578)	1630	(–)	1		1726	(15)	4	1667	(11)	3	(1662)	1702	(4)	4	(1705)
	NOV	1574	(2)	4	(1575)	1680	(31)	2	(1664)				1657	(4)	3	(1659)	1713	(3)	4	(1712)
	DEC	1570	(4)	4	(1569)	1653	(–)	1	(1669)				1658	(4)	2	(1655)	1725	(21)	3	(1725)
1984	JAN	1561	(2)	4	(1561)	1696	(–)	1	(1670)				1640	(19)	2	(1654)	1732	(9)	3	(1737)
	FEB	1556	(2)	2	(1557)	1677	(–)	1	(1668)	1699	(–)	1	1666	(10)	4	(1659)	1741	(9)	4	(1738)
	MAR	1557	(–)	1	(1558)	1653	(10)	2	(1664)				1652	(1)	2	(1664)	1730	(5)	4	(1729)
	APR				(1563)	1668	(45)	2	(1661)				1675	(7)	4	(1666)	1712	(2)	4	(1716)
	MAY				(1570)	1644	(–)	1	(1658)	1643	(–)	1	1652	(24)	5	(1656)	1706	(3)	3	(1704)
	JUN				(1577)	1668	(–)	1	(1656)				1669	(–)	1	(1643)	1693	(4)	4	(1694)
	JUL				(1584)				(1656)				1630	(10)	4	(1636)	1688	(3)	5	(1689)
	AUG	1589	(–)	1	(1588)	1648	(25)	3	(1660)	1646	(–)	1	1642	(18)	2	(1641)	1690	(3)	3	(1693)
	SEP				(1589)	1666	(20)	7	(1669)	1677	(–)	1	1648	(7)	5	(1652)	1711	(4)	5	(1707)
	OCT				(1588)	1691	(14)	6	(1679)				1672	(9)	5	(1662)	1714	(8)	3	(1716)
	NOV	1584	(–)	1	(1585)	1689	(18)	6	(1687)	1679	(–)	1	1659	(5)	4	(1665)	1719	(4)	4	(1721)
	DEC	1583	(–)	1		1669	(–)	1	(1691)	1699	(–)	1	1663	(16)	3	(1669)	1730	(2)	2	(1733)
1985	JAN					1710	(–)	1	(1693)				1684	(16)	3	(1674)	1743	(12)	4	(1739)
	FEB					1691	(7)	3	(1693)				1663	(13)	3	(1673)	1732	(2)	3	(1736)
	MAR					1662	(–)	1	(1690)	1683	(–)	1	1680	(2)	3	(1674)	1739	(16)	5	(1737)
	APR					1700	(6)	3	(1686)	1665	(–)	1	1679	(13)	14	(1675)	1740	(5)	5	

Table III. Summary of monthly CH_4 data – *continued*

		MLO				NWR				PSA				SEY			SMO			
1983	JAN									1538	(3)	3	(1534)							
	FEB									1527	(1)	2	(1534)							
	MAR									1539	(8)	3	(1538)							
	APR									1548	(4)	5	(1545)				1547	(5)	2	-
	MAY	1615	(20)	4						1551	(3)	6	(1552)	1563	(15)	3	1565	(19)	2	(1573)
	JUN	1615	(19)	3	(1612)	1604	(–)	1		1560	(4)	5	(1559)	1574	(15)	5	1569	(6)	4	(1574)
	JUL	1618	(15)	4	(1611)	1646	(25)	4	(1634)	1565	(3)	5	(1567)	1578	(12)	4	1582	(10)	5	(1575)
	AUG	1605	(11)	4	(1614)	1626	(9)	5	(1634)	1577	(8)	6	(1574)	1574	(6)	4	1574	(3)	4	(1577)
	SEP	1627	(14)	5	(1628)	1654	(12)	2	(1644)	1576	(2)	5	(1577)	1576	(1)	2	1575	(11)	5	(1578)
	OCT	1651	(6)	4	(1639)				(1653)	1576	(1)	5	(1577)				1583	(7)	5	(1579)
	NOV	1635	(5)	4	(1639)				(1657)	1576	(2)	6	(1574)	1619	(3)	2	1580	(6)	4	(1580)
	DEC	1632	(5)	5	(1636)				(1660)	1569	(1)	4	(1569)	1611	(20)	5	1583	(10)	4	(1582)
1984	JAN	1639	(19)	4	(1637)				(1665)	1563	(–)	1	(1564)	1628	(11)	4	1590	(2)	5	(1583)
	FEB	1638	(7)	4	(1637)	1666	(20)	4	(1673)	1559	(5)	2	(1561)	1587	(–)	1	1588	(10)	4	(1584)
	MAR	1632	(6)	3	(1638)	1688	(10)	4	(1682)	1561	(2)	2	(1561)	1620	(–)	1	1593	(21)	4	(1586)
	APR	1639	(13)	7	(1636)	1678	(25)	3	(1682)	1564	(4)	2	(1565)				1592	(17)	4	(1587)
	MAY	1628	(14)	6	(1627)	1672	(20)	5	(1676)				(1570)				1575	(4)	4	(1588)
	JUN				(1617)	1669	(16)	2	(1666)	1577	(1)	2	(1577)	1586	(–)	1	1590	(4)	4	(1589)
	JUL	1610	(17)	2	(1615)	1661	(16)	7	(1659)	1583	(3)	2	(1583)	1593	(1)	4	1591	(1)	5	(1591)
	AUG	1620	(5)	5	(1625)	1648	(15)	4	(1658)	1592	(–)	1	(1588)	1596	(4)	5	1593	(7)	4	(1592)
	SEP	1654	(11)	4	(1641)	1670	(13)	6	(1668)				(1590)	1599	(13)	4	1596	(9)	5	(1593)
	OCT	1647	(11)	4	(1653)	1695	(11)	4	(1684)	1589	(2)	2	(1589)	1612	(41)	3	1593	(7)	4	(1595)
	NOV	1662	(7)	3	(1657)	1679	(16)	2	(1685)	1587	(3)	2	(1585)				1589	(6)	4	(1596)
	DEC	1652	(9)	4	(1652)	1678	(13)	3	(1683)	1574	(2)	2	(1579)	1635	(1)	3	1600	(16)	4	(1597)
1985	JAN	1643	(4)	3	(1646)	1694	(24)	4	(1686)	1570	(6)	2	(1572)				1602	(27)	3	(1599)
	FEB	1642	(3)	4	(1648)	1681	(15)	3	(1687)	1566	(1)	4	(1568)	1654	(11)	4	1606	(3)	5	(1600)
	MAR	1666	(10)	5	(1655)	1689	(24)	4	(1686)	1567	(3)	4		1593	(13)	4	1604	(18)	5	(1601)
	APR	1644	(10)	4	(1654)	1677	(14)	4	(1686)					1594	(10)	4	1596	(8)	16	(1602)

Table III. Summary of monthly mean CH_4 data – *continued*

		SPO				STM			
1983	JAN								
	FEB	1536	(1)	2					
	MAR	1537	(1)	4	(1538)				
	APR	1544	(3)	3	(1544)	1679	(–)	1	
	MAY	1552	(4)	4	(1551)	1686	(12)	4	(1683)
	JUN	1558	(6)	4	(1559)	1682	(11)	4	(1683)
	JUL	1567	(4)	3	(1567)	1669	(27)	5	(1671)
	AUG	1572	(2)	2	(1573)	1669	(9)	3	(1674)
	SEP	1576	(2)	3	(1576)	1702	(8)	5	(1696)
	OCT	1577	(3)	4	(1577)	1702	(16)	4	(1705)
	NOV	1575	(2)	3	(1574)	1714	(10)	4	(1708)
	DEC	1568	(5)	3	(1568)	1706	(8)	4	(1709)
1984	JAN	1562	(–)	1	(1562)	1711	(10)	4	(1708)
	FEB	1555	(–)	1	(1559)	1697	(12)	4	(1705)
	MAR	1562	(–)	1	(1560)	1714	(10)	5	(1711)
	APR	1561	(–)	1	(1564)	1712	(15)	4	(1712)
	MAY	1571	(7)	2	(1571)	1700	(2)	4	(1705)
	JUN	1577	(1)	2	(1577)	1702	(27)	4	(1693)
	JUL	1582	(1)	2	(1582)	1676	(7)	4	(1680)
	AUG	1584	(2)	2	(1586)	1685	(5)	4	(1689)
	SEP	1593	(1)	3	(1590)	1730	(27)	5	(1720)
	OCT	1591	(1)	4	(1591)	1720	(–)	1	(1729)
	NOV	1587	(2)	3	(1588)	1716	(9)	5	(1719)
	DEC	1579	(7)	7	(1582)	1730	(32)	5	(1726)
1985	JAN	1571	(1)	3	(1573)	1736	(27)	5	(1736)
	FEB					1723	(14)	4	(1732)
	MAR					1736	(18)	4	(1733)
	APR					1739	(9)	4	(1738)

[a] The first column for each site gives the monthly mean value calculated directly from the background flask data. The second column (in brackets) gives the standard deviation from this mean, while the third column gives the number of background flasks in each month. For most sites there is a fourth column (in brackets) which gives the monthly mean concentration calculated from the daily values found from the cubic spline function fitted to the data (see text).

4.1. *Southern Hemisphere Sites*

Examination of the data for the six southernmost sites (SPO, HBA, PSA, NZL, CGO, and AMS) reveals a remarkably similar record at all sites except NZL. To emphasize this similarity, the results for these five sites are shown together in Figure 4. It is clear that within the limits of the measurement precision, both the absolute concentration and the phase and amplitude of the seasonal cycle are indistinguishable at these sites.

Other investigations over the past decade have indicated that the level of CH_4 in the troposphere of the Southern Hemisphere is quite uniform. However, these earlier measurements differed in certain respects from those reported here. The interhemispheric surveys made by Lamontagne *et al.* (1974) and Heidt *et al.* (1980) can be likened to snapshots of the latitudinal distribution in the troposphere over the central Pacific Ocean during November–December 1972 and April–May 1978 respectively, and hence were not designed to observe seasonal variations. In addition, in both of these studies the measurement uncertainty of approximately 3% (in contrast to the 0.2% obtained in this program) was not sufficient to capture the seasonality (~2%). In another study

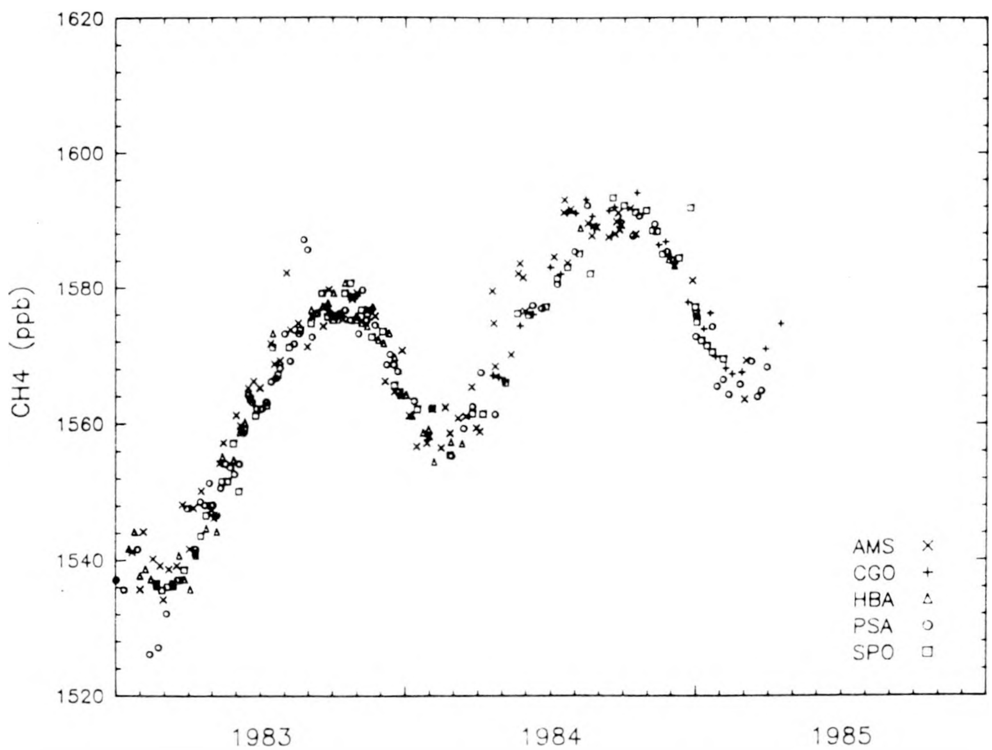


Fig. 4. Comparison of CH_4 measurements made on flask air samples collected at three sites in Antarctica (SPO, HBA, and PSA) and two sites (AMS and CGO) in the mid latitudes of the Southern Hemisphere. Only those samples thought to be background are shown. Results from individual flasks are plotted. If more than one aliquot from a flask is analyzed then the mean value from all aliquots is indicated.

Khalil and Rasmussen (1983) reported CH_4 measurements made on infrequently collected flask samples at both Cape Grim (41° S) and the South Pole (90° S) during 1979–1982. These results indicated similar concentrations at both locations, but the seasonal cycle was not characterized at the latter site. Between October 1983 and February 1984 air samples were collected more frequently at the South Pole (Khalil and Rasmussen, 1984), and analysis of these samples revealed part of a seasonal cycle in methane concentration. The measurements reported in this paper are the first to describe a complete seasonal cycle of atmospheric methane concentration at the South Pole.

More recently, Robinson *et al.* (1984) have described in situ measurements of methane at Palmer Station, Antarctica during 1982–1983. By making a direct comparison of their data for 1983 with those shown in Figure 3(c) we find that both data sets exhibit a seasonal cycle which is similar in phase and amplitude. However, the concentrations reported by these investigators are approximately 30 ppb lower than those found in this work. This may be due simply to the use of a different calibration scale. More difficult to understand is that Robinson *et al.* (1984) found no increasing trend in CH_4 concentration at this site. This is significantly at variance with the results reported by Fraser *et al.* (1986) for surface sites at Cape Grim (41° S) and Mawson, Antarctica (68° S, 63° E). From systematic measurements of CH_4 from flask samples collected at both of these sites for the period 1980–1984 Fraser *et al.* (1986) find no significant difference in either the seasonal cycle or the long-term growth in concentration. Their findings are in close agreement with those reported in this paper.

The methane data obtained at the NZL site (see Figure 3(d)) show a large degree of scatter compared to that at other locations at mid and polar latitudes in the Southern Hemisphere. We believe that this scatter arises because the meteorological conditions there are rarely suitable for obtaining samples for the measurement of the background composition of the troposphere. By defining a background sector ranging from 120°–220° (onshore winds only), and a threshold wind speed of 5 m s^{-1}, we find that only six samples satisfy both of these criteria. Not surprisingly, the CH_4 concentrations found for these six samples lie very close to the concentrations found at similar times at the other five sites in the mid to polar latitudes of the Southern Hemisphere. In fact, when the cubic spline function fitted to the SPO data is plotted as the dashed line in Figure 3(d) it can be seen that this curve defines the absolute lower bound of the entire NZL data set. Further analysis of the results from this site show that the highest CH_4 concentrations are strongly correlated with periods of low wind speed, with CH_4 concentrations occasionally exceeding background values measured at any location in the Northern Hemisphere. In addition, high CH_4 values are strongly correlated with elevated CO_2 concentrations, providing another indication that the air samples collected at this site are being significantly influenced by local sources of both CO_2 and CH_4. After review of all of these findings, flask sampling at this site was discontinued in April 1985.

The results at SMO (Figure 3(g)) show a long-term increase in CH_4, but there is an absence of any clear seasonal variation. A clue to this seemingly anomalous behavior for a site in the Southern Hemisphere is obtained by plotting the cubic spline function fitted to the SPO data (Figure 3(a)) as the dashed line in Figure 3(g). This dashed line clearly defines the lower bound of the SMO data set, and indicates the presence of only a small gradient in CH_4 concentration between SMO and SPO during the austral winter and spring. By contrast, during the austral summer and autumn at SMO there is a larger scatter in CH_4 concentration than in the other seasons, as well as a significantly larger gradient in concentration between SMO and SPO. A similar, but less pronounced pattern of behavior has been reported for CO_2 measured in flask air samples collected approximately weekly at this same site (Komhyr *et al.*, 1985a). Much insight into this behavior is provided by the detailed analysis of the short-term variability of the NOAA/GMCC continuous CO_2 measurements at this site during 1979–1981 (Halter and Harris, 1987). Briefly, these authors find compelling evidence to support the idea that SMO is influenced by significant intrusions of air from the Northern Hemisphere, and that these intrusions occur more frequently during the austral summer and autumn. Since we find that CH_4 concentrations in the Northern Hemisphere (or more precisely, north of the Intertropical Convergence Zone, ITCZ) are always higher than those in the Southern Hemisphere, these intrusions of air reaching SMO from north of the ITCZ will always have the effect of increasing the CH_4 concentrations observed at this site. Thus, the absence of any clear seasonal variation in concentration at this site is probably due to the opposing effects of seasonal transport of CH_4-rich air from north of the ITCZ during those times when the seasonal minimum in CH_4 concentration normally occurs in the Southern Hemisphere.

A pattern of behavior similar to that seen at SMO is seen in more exaggerated form at the Indian Ocean site of SEY (Figure 3(i)), where again for comparison we have included as the dashed line the cubic spline function fitted to the SPO data. These results are entirely consistent with the knowledge of the monsoon circulation in the region around the Indian Ocean, and the migration with season of the surface wind convergence zone (Webster, 1981). During the austral winter this convergence zone is normally found to the north of SEY, thus bringing southeast monsoon winds and typically Southern Hemisphere CH_4 concentrations to the site. However, during the austral summer the convergence zone has migrated far to the south of SEY, bringing the site under the predominant influence of the northwest monsoon winds and the consequent higher CH_4 concentrations. The times at which these changes in meteorological regime occurred cannot be precisely determined from the CH_4 data because of several breaks in the CH_4 record at this site. As at SMO, the CO_2 record at SEY shows a parallel seasonality to that of CH_4 (see Komhyr *et al.*, 1985a).

The last of the sites in the Southern Hemisphere that we discuss here is ASC in the Atlantic Ocean (Figure 3(h)). While in latitude it lies between SMO and SEY, we find no indication that this site is influenced in any season by air originating north of the ITCZ. A clear seasonal cycle in CH_4 concentration is apparent in the data, but the phase of this cycle is different from that observed at sites in mid and polar latitudes of the Southern Hemisphere, as can be seen in Figure 3(h) where the solid line is the cubic spline function fitted to the ASC data and the dashed line is the cubic spline fitted to the SPO data. This difference in phase, with the minimum at ASC occurring approximately 1 month earlier, and the maximum occurring 1–2 months earlier than at high and mid latitude sites, cannot be explained at this time. Note also the larger scatter in the data prior to November 1983. We believe that this is due to the improvement in the analytical precision of CH_4 measurement which occurred at this time when the gas chromatograph used for the flask analyses was replaced (see Section 3).

4.2. *Northern Hemisphere Sites*

In the central Pacific Ocean a climatology of the convergence zone of surface winds indicates that it normally lies between latitudes 4° N and 8° N (see Ramage *et al.*, 1981). This would suggest that the atmospheric CH_4 concentrations at the CHR site (2° N) should be typical of those found in southern tropical latitudes. The data for CHR are shown in Figure 3(j) together with the cubic spline function (dashed line) fitted to the SPO data. During the austral winter and spring of 1984 there is little doubt that CH_4 concentrations at CHR are strongly consistent with measurements made at similar times at several locations in the Southern Hemisphere. The elevated concentrations during March–April 1984 (when the convergence zone is expected to be closest to the equator) are almost certainly due to the influence of air from north of the convergence zone, since unpublished CH_4 measurements taken on a cruise of the NOAA research vessel DISCOVERER between latitudes 20° N and 45° S along 150° W during March 1984 are in excellent agreement with the flask data from CHR and show a relatively sharp transition to Southern Hemispheric CH_4 concentrations beginning at the equator. These trace gas measurements indicate that the convergence zone had moved significantly further south than expected from its climatology. The similarly elevated CH_4 concentrations at CHR in the first months of 1985 may also be due to southward movement of the convergence zone, or may simply be due to the type of irregular intrusion of northern air which is known to occur at the SMO site during this season.

Before we proceed to discuss individually the results at the remaining sites in the Northern Hemisphere it will be useful to make some general comments about these data. The most obvious feature of the data at most of the Northern Hemisphere locations is the significantly larger scatter when compared to measurements made in the Southern Hemisphere. It is highly improbable that this difference in the data between the 2 hemispheres can be due to any systematic difference in either the sampling or analytical procedures. Certainly we find no significant differences between the 2 hemispheres in the analytical precision estimated from replicate measurements of flask samples. Since it is generally agreed that the major source regions for atmospheric methane are in the Northern Hemisphere (see for example Ehhalt and Schmidt, 1978), we should expect to find there a greater short-term variability in CH_4 concentrations than in regions of the Southern Hemisphere which are distant from any significant sources. This idea is supported by some unpublished NOAA/GMCC in situ measurements of CH_4 made at MLO during October–December 1984 with an automated gas chromatographic system (Weiss, 1981) which analyzes six samples of ambient air each hour for methane and carbon dioxide. Not only do we find excellent agreement between the flask and in situ measurements during this period, but compelling evidence from the in situ data of short-term variability in CH_4 concentration during times when concurrent CO_2 measurements indicate the presence of background conditions. For example, during 7–11 October 1984 the CO_2 concentration did not deviate more than 0.5 parts per million (ppm) from a mean value of 341.0 ppm indicating a temporary absence of the normal upslope-downslope wind regime at this site. Such a value is consistent with background conditions at this site for this time period. During this same period, however, the CH_4 concentration was observed to increase from 1630 to 1670 ppb. Such a change in concentration over a 5-day period at such a remote site located above the trade-wind inversion must almost certainly be indicative of the behavior of CH_4 over large space scales in the atmosphere. If this type of behavior is typical of other sites in the Northern Hemisphere, then weekly flask sampling is clearly not adequate to characterize short-term variations in CH_4 concentrations, nor perhaps to adequately define the magnitude of the seasonal variations.

At surface sites in the Southern Hemisphere there is normally only one minimum and one maximum in CH_4 concentration each year, with a high degree of repeatability in the phase and amplitude of the quasi-sinusoidal cycle from year to year. The seasonal changes which occur in atmospheric CH_4 at sites in the Northern Hemisphere are more complex than those observed in mid and polar latitudes of the Southern Hemisphere. High frequency in situ measurements of CH_4 over a 3-year period at Cape Meares, Oregon (45° N) show that 2 minima and 2 maxima may occur each year, with the major minimum in the northern summer, and the maximum concentrations in spring and fall (Khalil and Rasmussen, 1983). But, while major features of this seasonal variation are seen to repeat each year, there are significant variations from year to year. Notwithstanding the potential limitations discussed in the previous paragraph of weekly flask sampling in determining short-term variability at sites in the Northern Hemisphere, it is clear from the results in Figure 3(k)–3(w) that weekly sampling still reveals significant seasonal variations.

At GMI in the western Pacific Ocean (Figure 3(k)) a pronounced minimum occurs in the late northern summer of both 1983 and 1984, but there is no evidence of a secondary minimum in either year. There are two clearly defined maxima in the record, but they are noticeably different in character. A first glance at the results for the Caribbean site of AVI (Figure 3(l)) would suggest a minimum in the northern summer of 1984 but not for the preceding year. This apparent absence of a clear seasonal minimum in 1983 may be the result of 2 months of missing data at the end of the year, and the larger scatter in the data prior to this gap. This larger scatter is at least partially due to the greater analytical uncertainty associated with the first of the gas chromatographs used (see Section 3).

It is logical to consider together the two Hawaiian Island sites of KUM and MLO both because of their close proximity, and the fact that their large separation in altitude (3.34 km) provides a unique opportunity to search for evidence of vertical gradients in CH_4 concentration. Results are shown in Figure 3(m) and Figure 3(n), where the solid line in each case is the cubic spline function fitted to the data, while the dashed line included in the KUM results is the spline fitted to the MLO data. In both cases a major seasonal minimum is clearly observed in the northern summer of 1984. In the preceding summer relatively few samples from KUM were analyzed for CH_4 so evidence for a seasonal minimum there is tenuous. More compelling is the seasonal minimum found during the 1983 northern summer in the MLO data, even though there is a larger scatter in the data prior to November 1983 corresponding to the use of a different gas chromatograph up to that time. At both sites the fitted cubic spline functions indicate evidence in the data for two minima and two maxima each year, occurring at times consistent with those reported by Khalil and Rasmussen (1983).

The most interesting feature of the data at these two sites is the indication of a significant vertical gradient in CH_4 concentration. Even though the scatter in both sets of data is large enough to allow occasional CH_4 values at MLO to be higher than those measured simultaneously at KUM, the long-term average is for concentrations at MLO to be lower than those at KUM. This is indicated clearly in Figure 3(m) where the spline fitted to the MLO data (dashed line) is always lower than the spline fitted to the KUM data. The average difference in CH_4 concentration between these 2 sites is 22 ppb (i.e. $\sim 1.5\%$), confirming the result reported by Rasmussen and Khalil (1981b) from a set of measurements made at these sites over a 20 week period in 1981. This result is seemingly inconsistent with vertical profiles of tropospheric CH_4 measured previously in the mid latitudes of the Northern Hemisphere by collection of flask samples from aircraft (Ehhalt and Heidt, 1973; Reichle and Condon, 1979). While these earlier studies concluded that CH_4 is usually uniformly distributed throughout the depth of the troposphere, their conclusions were necessarily limited by measurements which were at least an order of magnitude less precise than those obtained in this study. Further examination of Figure 3(m) indicates the possibility that the magnitude of the vertical gradient between KUM and MLO may vary with the time of the year. Evidence that a seasonal variation of the vertical gradient in CH_4 occurs in the mid latitudes of the Southern Hemisphere has been reported recently by Fraser *et al.* (1986) with no gradient during the southern winter, but an average gradient of 2.5 ppb km^{-1} in summer, and higher concentrations aloft. A final possibility that we are unable to conclusively determine at this time is whether the amplitudes of the seasonal variations at MLO are less than those at KUM. Such behavior might be expected on the basis of findings reported by Fraser *et al.* (1984) and Fraser *et al.* (1986) that in the mid latitudes of the Southern Hemisphere, the amplitude of the CH_4 seasonal cycle in the middle troposphere (3.5–5.5 km above sea level) is significantly reduced from that observed in the marine boundary layer.

The CH_4 data at KEY in southern Florida (Figure 3(o)) do not cover a full 2 year period, they exhibit a relatively large degree of scatter, and the sampling frequency changes approximately half way through the record. This and the proximity of the site to the large urban area of Miami make interpretation of the data more difficult than at other sites. Those samples taken when winds were not onshore are flagged as non-background. In spite of these difficulties the data do indicate a seasonal minimum in the northern summer of 1984, and the annual mean concentration calculated for 1984 fits neatly into the CH_4 latitudinal gradient (see Section 4.3). However, in an attempt to resolve questions about the suitability of this site for background measurements, as well as the fact that the CO_2 data from this location are seemingly anomalous when compared to measurements at other sites (Komhyr *et al.* 1985a) we have begun flask sampling at a site of comparable latitude in the mid Pacific, namely Midway Island (28° N, 177° W).

Sampling at KPA (Figure 3(p)) has been sparse when compared to our other locations, and has been carried out at this site only at those times when determinations of total column methane have been made by a group from the Battelle-Pacific Northwest Laboratory (D. Johnson, personal communication). Since both KPA and NWR (Figure 3(r)) are high altitude, continental sites in the United States, it seems logical to compare their records, and this is done in Figure 3(p) by including the cubic spline fitted to the NWR data. The sparseness of the KPA data and the 8° difference in latitude between the 2 sites limits any conclusions that may be drawn, but it seems clear that there is good agreement between the 2 records.

Due to our finding of a vertical gradient in CH_4 concentration between the 2 Hawaiian sites of KUM and MLO, it seems logical to compare the 2 sites of AZR and NWR (Figures 3(q) and 3(r) respectively), since they are close together in latitude and have a similar separation in altitude to the 2 Hawaiian sites. The comparison is shown in Figure 3(q) where the spline fitted to the NWR data is included as the dashed line, where it can be seen that the long-term average is for concentrations at the high altitude site of NWR to be lower than those at AZR. Because of several months of missing data at NWR we only compare the annual mean values for 1984, finding a difference (AZR–NWR) of 17 ppb. The corresponding figure for (KUM–MLO) is 19 ppb. Even though the 2 cases are quite different in nature, the similarity in these differences is unlikely to be coincidental.

All of the 5 northernmost sites (CMO, CBA, STM, BRW, MBC) exhibit major seasonal minima during the northern summers of both 1983 and 1984 (see Figures 3(s)–3(w)). Secondary minima are also apparent but are not so well defined. One obvious feature is that the degree of scatter in the data from MBC (Figure 3(w)) is much less than at the other 4 sites. Since MBC is the furthest north of all our sites the reduced scatter may be a reflection of greater distance between it and significant sources of CH_4. Partly to test this idea, as well as to extend the longitudinal coverage of our sampling network at high northern latitudes, we have begun flask sampling at the site of Alert (82° N, 62° W) in cooperation with the Atmospheric Environment Service of Canada.

4.3. *Global Distribution*

Having discussed features of the time series at each individual site, we now present the combined station data in the form of a 3-dimensional representation of the global distribution of CH_4 in the marine boundary layer for the 2 years May 1983 to April 1985 inclusive (Figure 5). The grid spacing is 10° in latitude and 0.5 months in time. This representation is constructed by using the CH_4 concentrations given by the cubic spline functions fitted to the flask data (see Figure 3) at a subset of 18 surface sites ranging in latitude from 76 °N to 90 °S. Because of limitations in the data from NZL, SEY and KPA these sites are not used in the construction of this surface. Data from the high altitude sites MLO and NWR are also not included in the representation because of the evidence of significant vertical gradients in the troposphere in the Northern Hemisphere. Even though the SPO site is at high elevation, the data from this site are included since at that latitude there are no sites at sea level. Also, because data are not yet available at the three Antarctic sites through to the end of April 1985, it has been assumed in Figure 5 that the measurements at CGO are a reliable indication of the behavior during the short period of missing data at these sites. Another assumption inherent in Figure 5 is that there are no variations in background CH_4 concentration with longitude. This is clearly a robust assumption over much of the Southern Hemisphere, but not in the equatorial regions where the behavior of the surface wind convergence zone is different in the Atlantic, Pacific, and Indian Oceans. The situation in the Northern Hemisphere is less clear, but from some of the preceding discussion it seems safe to say that if there are any systematic variations in background CH_4 concentration with

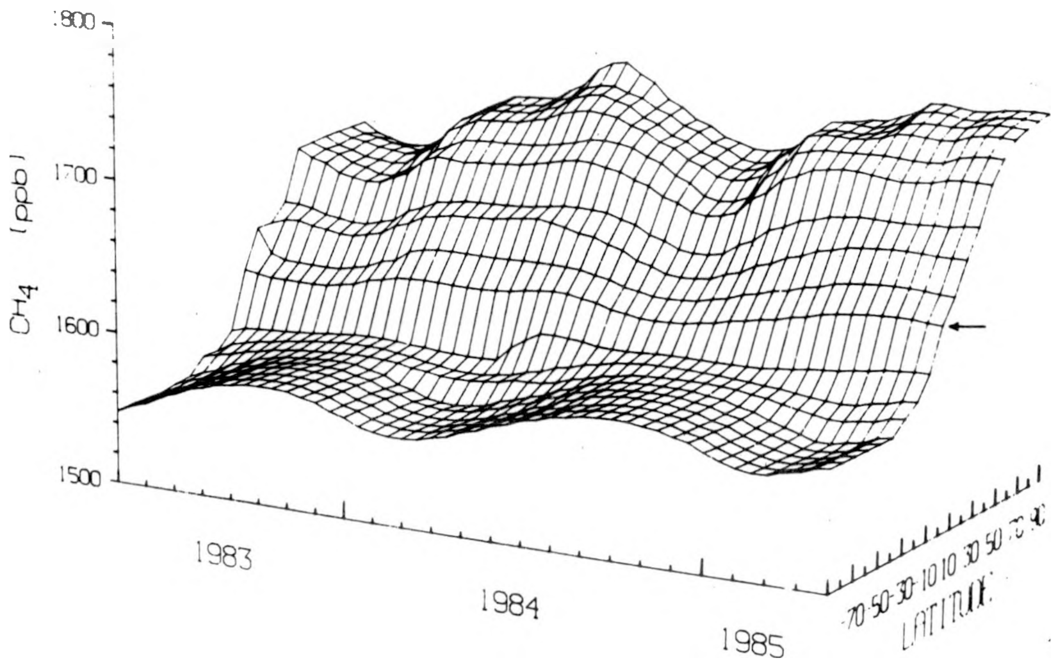


Fig. 5. Three-dimensional representation of the global distribution of the background concentration of methane in the marine boundary layer for the 2 years May 1983 to April 1985. The grid spacing in latitude is 10°, while in time it is 0.5 month. The arrow indicates the position of the equator. It has been constructed by using the CH_4 concentrations given by the cubic spline functions fitted to the background flask data at 18 sites ranging in latitude from 76 °N to 90 °S. Linear interpolation is used to obtain information at latitudes between site locations. This representation is based upon the assumption that there is no variation of background CH_4 concentrations with longitude. Data from the sites NZL, SEY, KPA, MLO, and NWR were not used in the construction of this representation (see text).

longitude then they are small ($\leqslant 1\%$) relative to the variations which occur with latitude in this hemisphere (up to 7%).

Given that Figure 5 is constructed from the cubic splines fitted to the flask data, it follows that it is a smoothed representation of the CH_4 distribution. In addition, linear interpolation is used to provide information at latitudes between sites. Even so, we believe that Figure 5 is a highly reliable representation of the major features of the background CH_4 distribution in the marine boundary layer since we find excellent agreement between it and an extensive unpublished set of CH_4 measurements made on oceanographic cruises during this period. Examination of Figure 5 indicates that the dominant feature of the CH_4 global distribution is the large difference in concentration between the two hemispheres, and the surprisingly smooth change in concentration with latitude in the Northern Hemisphere. The seasonal variations in both hemispheres are also quite evident, and since they are partially out of phase with each other, the difference in concentration between the hemispheres also undergoes a significant variation with time. This latter phenomenon has been discussed previously by Fraser (1984).

However, unlike the case found for tropospheric CO_2 where the sign of the latitudinal gradient actually reverses during each boreal summer (Komhyr *et al.*, 1985a) we find no indication of this ever occurring for CH_4 in the marine boundary layer. Smaller scale features of the distribution of methane such as the seasonal motion of the ITCZ are not well represented by Figure 5.

The latitudinal distribution of the annual mean CH_4 concentrations for 1984 is shown in Figure 6. The annual means are calculated from the flask monthly means given in Table III. If a monthly mean value cannot be calculated directly from the flask data then the corresponding value calculated from the fitted spline function is used. Four sites (HBA, NZL, SEY, KPA) are not included in Figure 6 since insufficient data are available to reliably determine an annual mean value. For the CGO site the annual mean is calculated by including the CH_4 monthly means for the first 3 months of the year reported by Fraser *et al.* (1986). The annual mean for CHR is calculated by assuming that the mean CH_4

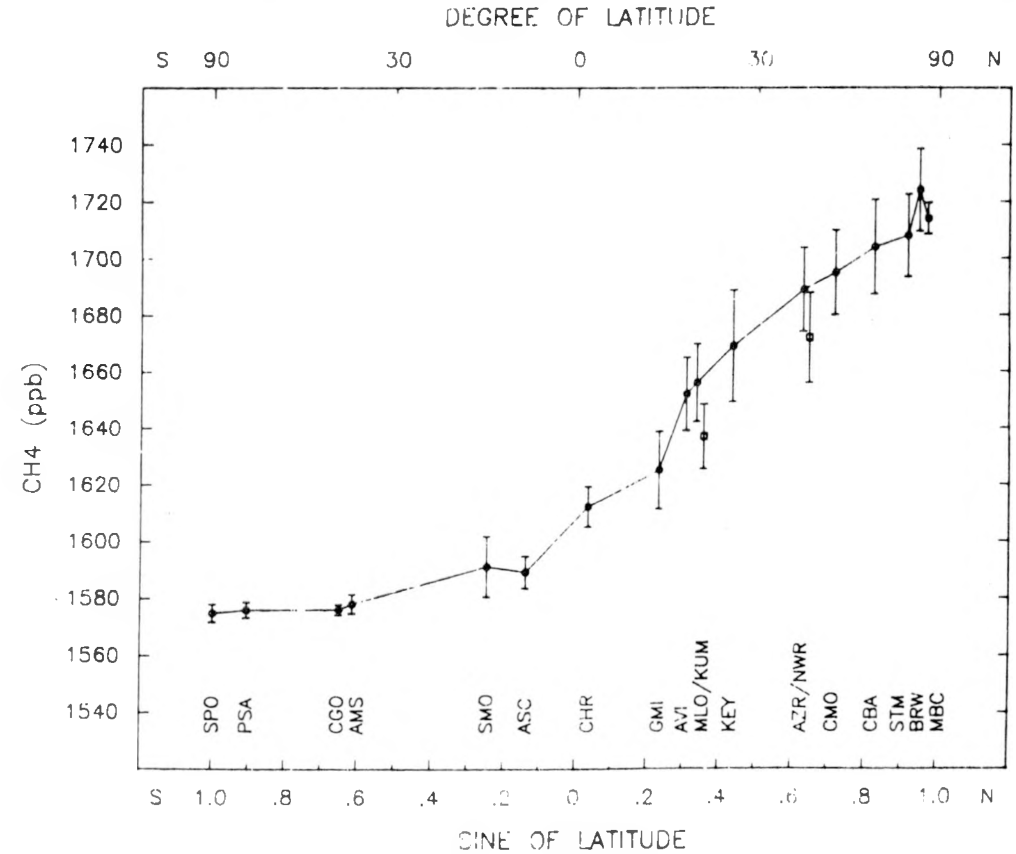


Fig. 6. Latitudinal distribution of annual mean CH_4 concentrations for 1984. Annual means are calculated where possible from the flask monthly means given in Table III (see text). The uncertainty level shown in each case is the estimated standard deviation of the residual series obtained by subtraction of the fitted cubic spline function (see Figure 3) from the flask data. Results for the two high altitude sites in the Northern Hemisphere (MLO and NWR) are plotted with a different symbol to emphasize the significantly lower concentrations found at these sites when compared to results obtained in the marine boundary layer at similar latitudes.

concentration for January and February is the same as that for March (1630 ppb). The uncertainty level shown in each case is the estimated standard deviation of the residual series obtained by subtraction of the fitted cubic spline function from the flask data. Thus, these uncertainty levels are simply a measure of the scatter of the data around the fitted spline functions shown in Figure 3, and so do not reflect variability associated with either the seasonal variations or the secular increase in CH_4. Results for the two high altitude sites in the Northern Hemisphere (MLO and NWR) are plotted with a different symbol to emphasize the significantly lower concentrations found at these sites when compared to results obtained close to sea level at similar latitudes.

The greater scatter of the CH_4 data at Northern Hemisphere sites compared to those in the Southern Hemisphere was mentioned in the previous subsection, and is clearly evident in the uncertainty levels associated with the annual mean values in Figure 6. It is suggested by Figure 6 that some of this greater scatter at Northern Hemisphere sites may be due simply to the existence of the large latitudinal gradient in CH_4 concentration within the hemisphere, where large scale movement of air to a site from a northerly or southerly direction will necessarily introduce variability into the CH_4 concentration measured there. By contrast, similar movements of air in the Southern Hemisphere can cause only minor CH_4 variability at any site because of the very small latitudinal gradient in that hemisphere.

A puzzling feature of the results in Figure 6 is that the CH_4 concentration at BRW lies so much above the quite smooth level defined by the other sites in northern temperate and polar latitudes. There are several potential sources of anthropogenic methane in the near vicinity of the BRW site (*see* Figure 4 in Bodhaine *et al.*, 1981), but these are downwind of the site during times of the prevailing easterly winds which come off the nearby Arctic Ocean. Most of the samples (75%) are collected during times of these prevailing easterlies. We have examined the wind speed and direction recorded at the time of each flask sampling but this does not lead to a conclusive resolution of the question of local anthropogenic contamination. Some samples which are taken during times of westerly winds have CH_4 levels which seem to be significantly above those flasks taken in the preceding weeks, but we find the same type of behavior during periods of sustained easterly winds. Another complicating factor in trying to make background CH_4 measurements at BRW is that the large expanse of tundra in the vicinity is known to be a source of methane, particularly during the northern summer (Sebacher *et al.*, 1986). Given that the pattern of seasonal variation, and the degree of scatter in the CH_4 data at BRW are not grossly different from those at the other Alaskan site of CBA, and given the limitations of weekly flask sampling in determining short-term variations, we have not selected as non-background any of the BRW data shown in Figure 3(v). In order to resolve these uncertainties in the CH_4 flask data from BRW, NOAA/GMCC began high frequency *in situ* measurements (60 samples per day) at this site in

January 1986. In addition, to extend the latitude range of the NOAA/GMCC flask measurements we have recently begun flask sampling at the Canadian site of Alert (82° N, 62° W) in cooperation with the Atmospheric Environment Service of Canada.

4.4. *Secular Trend*

In order to estimate long-term changes in CH_4 concentration at each site we have used 12-month running mean values in an attempt to remove the seasonal variation from the time series of monthly means. Wherever possible the monthly mean values used are those calculated directly from the flask data (first column for each site in Table III). If such a value is not available, then the monthly mean calculated from the fitted spline function is used. Only those sites which have a sufficiently complete record over 2 years are evaluated in this way for long-term changes and the results are shown in Figure 7. Each 12-month mean value is plotted at the mid-point of the appropriate interval e.g. the mean value for calendar year 1984 is plotted at the end of June 1984. Note that the period covered for the two Antarctic sites (SPO and PSA) is different from that at the other sites.

It is clear that a 12-month running mean is quite an effective method for suppressing the seasonal variation in the data at the four Southern Hemisphere sites (Figure 7, bottom panel). This is not surprising since we have noted before that, in general, the seasonal variation of CH_4 in the Southern Hemisphere is seen to repeat regularly from year to year. It is also clear from Figure 7 that even just 2 years of data show an unmistakable growth in CH_4 concentration at all four sites in the Southern Hemisphere.

The trends for the ten sites in the Northern Hemisphere (Figure 7, top and middle panels) are not so clear as those for the Southern Hemisphere sites, but nevertheless there is still a significant increase in concentration at all of the sites over the 2-year period of the data. Note that growth is observed at the high altitude site of MLO as well as at the other sites close to sea level. At first glance it would appear that there are significant changes in the growth rate of CH_4 during the 2-year period at many of these Northern Hemisphere sites. However, it is much more likely that such changes are simply a reflection of the fact that the seasonal variation in CH_4 may change markedly from year to year (Khalil and Rasmussen, 1983), that weekly flask sampling may not be able to adequately characterize the seasonal variations, and that a 12-month running mean is not an efficient method for suppressing, in a time series, seasonal variations which do not repeat with any regularity from year to year. The differences seen in the pattern of growth from site to site may be real, but it is likely that they are also largely due to the shortcomings just mentioned. Given these uncertainties, the simplest method for determining the CH_4 growth rate at each site is to fit a linear regression to the 12-month running mean values, and the results of this

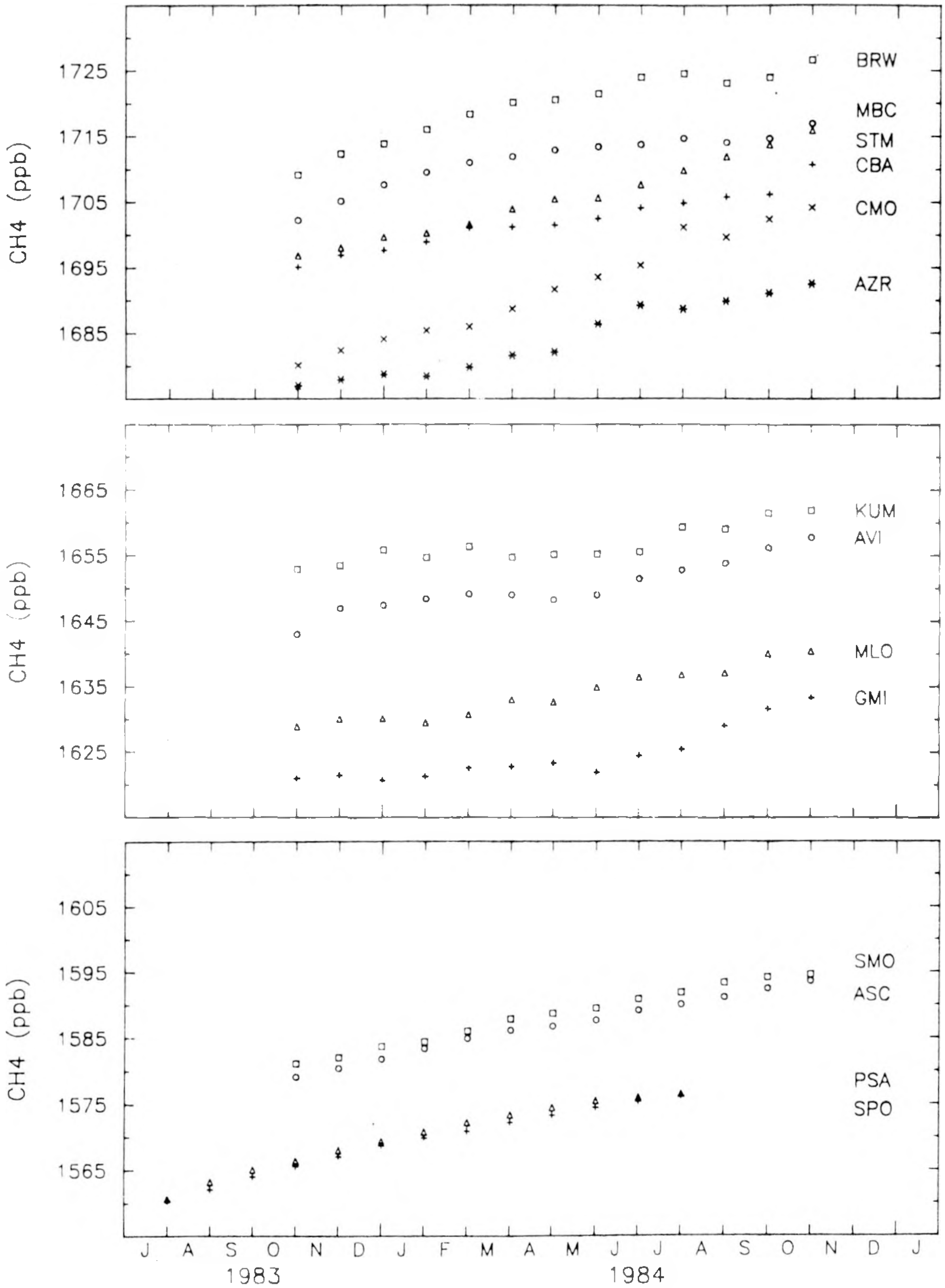


Fig. 7. The 12-month running mean CH_4 concentrations for the 14 sites having a sufficiently complete record of measurements over a 2-year period. Each 12-month mean value is plotted at the mid-point of the appropriate interval e.g. the mean value for calendar year 1984 is plotted at the end of June 1984.

exercise are shown in Table IV. In the case of the two Antarctic sites (SPO and PSA), a quadratic function was found to describe the 12-month running means significantly better than a linear function, and the results of these fits are also included in Table IV.

For the two Antarctic sites SPO and PSA, the estimated growth rates are in excellent agreement with each other. The significance of the quadratic fits to the 12-month running means at each of these sites can be appreciated by comparing the values of R^2 obtained from both the linear and quadratic fits. For SPO these values are, respectively, 0.9867 and 0.9995, while at PSA the corresponding values are 0.9743 and 0.9985. From the linear fits the estimated growth rates (and standard errors) are 15.6 $\pm$ 0.5 ppb yr^{-1} at SPO and 15.6 $\pm$ 0.8 ppb yr^{-1} at PSA. These latter values can be compared to the average growth rate of 18.2 ppb yr^{-1} reported by Fraser *et al.* (1986) for data at Cape Grim over the 7-year period, 1978–1984. A higher average growth rate over this longer period of time is consistent with the lower growth rates found at SPO and PSA in this study and the fact that there is evidence that the growth rate of CH_4 concentration has been slowing down. To further examine this possibility we have reanalyzed the

Table IV. Trends in atmospheric methane concentrations

Location	a (ppb)	b (ppb yr^{-1})	c (ppb yr^{-2})	R^2
SPO	1558.6 (0.1)	23.1 (0.5)	−0.54 (0.03)	0.9995
PSA	1558.8 (0.2)	26.0 (0.8)	−0.74 (0.06)	0.9985
SMO	1580.1 (0.2)	14.0 (0.4)		0.9931
ASC	1578.4 (0.2)	14.1 (0.3)		0.9943
GMI	1617.9 (1.2)	11.4 (1.8)		0.7843
AVI	1643.4 (0.8)	11.7 (1.2)		0.8937
MLO	1626.9 (0.6)	12.0 (0.8)		0.9490
KUM	1652.0 (0.8)	7.9 (1.3)		0.7779
AZR	1674.2 (0.8)	17.0 (1.2)		0.9514
CMO	1677.4 (0.7)	24.8 (1.1)		0.9802
CBA	1694.4 (0.5)	13.0 (0.8)		0.9574
STM	1694.4 (0.4)	18.7 (0.7)		0.9865
BRW	1710.3 (0.9)	15.7 (1.4)		0.9231
MBC	1704.3 (0.9)	12.2 (1.4)		0.8768
Global Average	1617.5 (0.1)	12.8 (0.1)		0.9987

For the sites SPO and PSA, the function $a + bt + ct^2$ is fitted to the 12-month running means found from 2 years of data (see text and Figure 7), where t is time in years and $t = 0$ at 1 June 1983. At all other sites, and for the global average (see text) the function $a + bt$ is fitted to the 12-month running means found from 2 years of data where again t is in years with $t = 0$ at 1 September 1983. Note that the 2-year period of data for SPO and PSA is not exactly the same as that for the other sites. The coefficients a, b, c are estimated by least squares methods, and the values in brackets are the estimated standard errors. R^2 is the square of the multiple correlation coefficient.

Cape Grim CH_4 data of Fraser *et al.* (1986) for the period September 1980 to December 1984 by computing 12-month running means and then fitting a quadratic function to them (see Figure 8). We obtain the following values (and standard errors) for the parameters: $a = 1501.7 \pm 0.9$ ppb, $b = 29.9 \pm 1.1$ ppb yr^{-1}, and $c = -0.21 \pm 0.03$ ppb yr^{-2} with an R^2 of 0.9937 for the fit. This result strongly supports the conclusion that over a period of several years there has been a slowing down of the CH_4 growth rate.

At the two sites in the southern tropics (SMO and ASC) we also find excellent agreement between them in the estimated growth rate of CH_4. But unlike the result for the two Antarctic sites we find no evidence of a slowing down in the growth rate. Because of the different period of data at the Antarctic and tropical sites we must be cautious in making comparisons of the growth rates. By taking only that shortened part of the record which is common to all four of these sites (see Figure 7) we can find no significant difference in the growth rates.

The wide variations in the growth rates found at the Northern Hemisphere sites (see Table IV) are not entirely unexpected since we have a relatively short

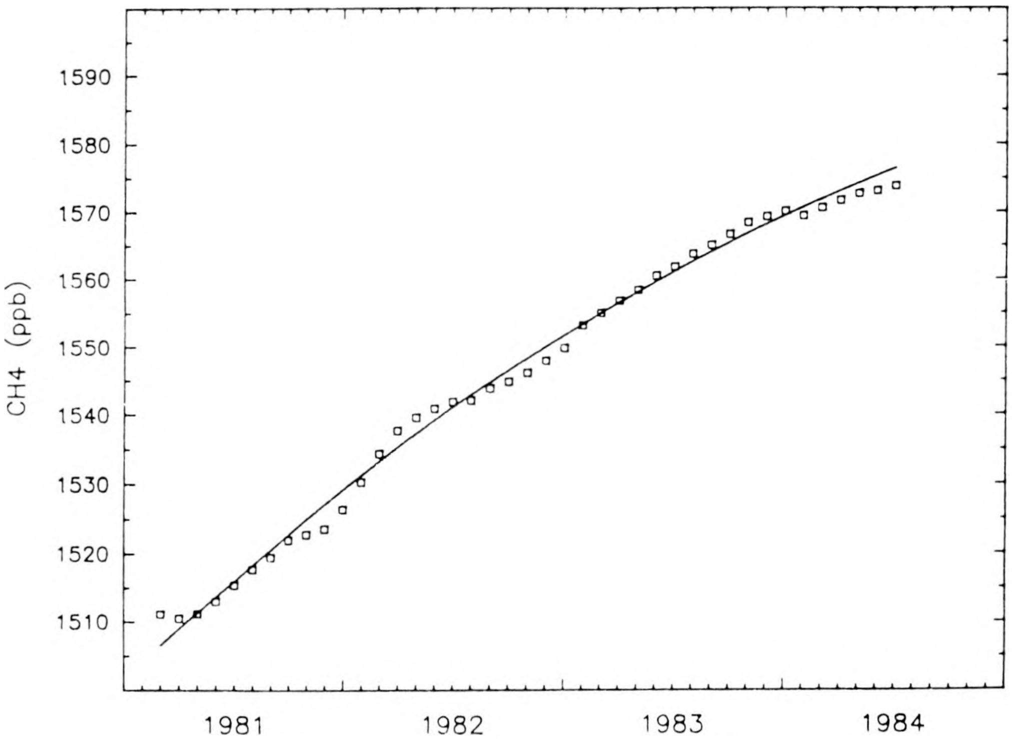


Fig. 8. The 12-month running mean CH_4 concentrations (□) at Cape Grim, Tasmania covering the period September 1980 to December 1984 inclusive. Values are calculated from the tabulated monthly means of Fraser *et al.* (1986). As in Figure 7, each 12-month mean value is plotted at the mid-point of the appropriate interval. The solid line is a quadratic function ($a + bt + ct^2$) fitted to the data by least squares methods, yielding parameter values (and standard errors) of $a = 1501.7$ (0.9) ppb, $b = 29.9$ (1.1) ppb yr^{-1}, and $c = -0.21$ (0.03) ppb yr^{-2}. Time t is in years, with $t = 0$ at the beginning of 1981.

period of data, and the annual growth in CH_4 concentration is small when compared to the magnitude of the seasonal variations in this hemisphere. Thus even small uncertainties in knowledge of the magnitude of the seasonal variations, and shortcomings in the methods used to de-seasonalize the data will lead to significant errors in the estimated growth rates. But rather than focusing on the growth rate at any particular site, we are more interested in estimating the average CH_4 growth rate for the whole troposphere. The presence of significant vertical gradients in the Northern Hemisphere and our imprecise knowledge of their full magnitude and extent makes this goal unattainable for now, but we are still able to estimate the average growth rate of CH_4 in the marine boundary layer over the entire globe. We do this by calculating globally averaged monthly mean background CH_4 concentrations for the marine boundary layer from the information in the three-dimensional representation shown in Figure 5. Each of these monthly mean values, M, is calculated according to the formula (1)

$$M = \sum_{i=1}^{19} (CH_4)_i \times (\cos \theta_i) \Big/ \sum_{i=1}^{19} (\cos \theta_i) \qquad (1)$$

which gives an average concentration from the North to the South Pole, weighted according to latitude (θ). This is equivalent to weighting the average by the appropriate surface area on a sphere. We use 10° divisions in latitude (resulting in 19 terms in the summation) because this is the grid spacing in the three-dimensional representation in Figure 5. One implication of formula (1) is that the data from SPO get no weight at all in the calculation of the global average CH_4 values. The results from the calculation are shown in the top panel of Figure 9. The pattern of variation can be understood in terms of the seasonal variation occurring in both hemispheres and their difference in phase. Thus, the rapid increase seen in the months August, September and October is due to the coincidence of the maximum in the Southern Hemisphere concentrations with the rapid rise in concentration following the major minimum occurring in the Northern Hemisphere. In the bottom panel of Figure 9 there are shown the 12-month running means for the globally averaged time series. A linear function fitted to these data gives a growth rate of 12.8 ppb yr^{-1} (see Table IV) or 0.78% per year when referenced to the globally averaged concentration (1625 ppb) at the mid point of the 2-year period. There is no evidence in this globally averaged time series of any change in the growth rate over this 2-year period.

The growth rate of 0.78% per year found in this work is lower than those of approximately 1% per year reported by other investigators (see Introduction). Whether this difference is significant or not is too early to judge, both because of the relatively short period covered by our data, and the fact that other studies have been based upon data from periods different to that used here. However, two points are worth noting. Firstly, there are indications from the results of Fraser *et al.* (1986) that the growth rate of CH_4 at Cape Grim over the past 2

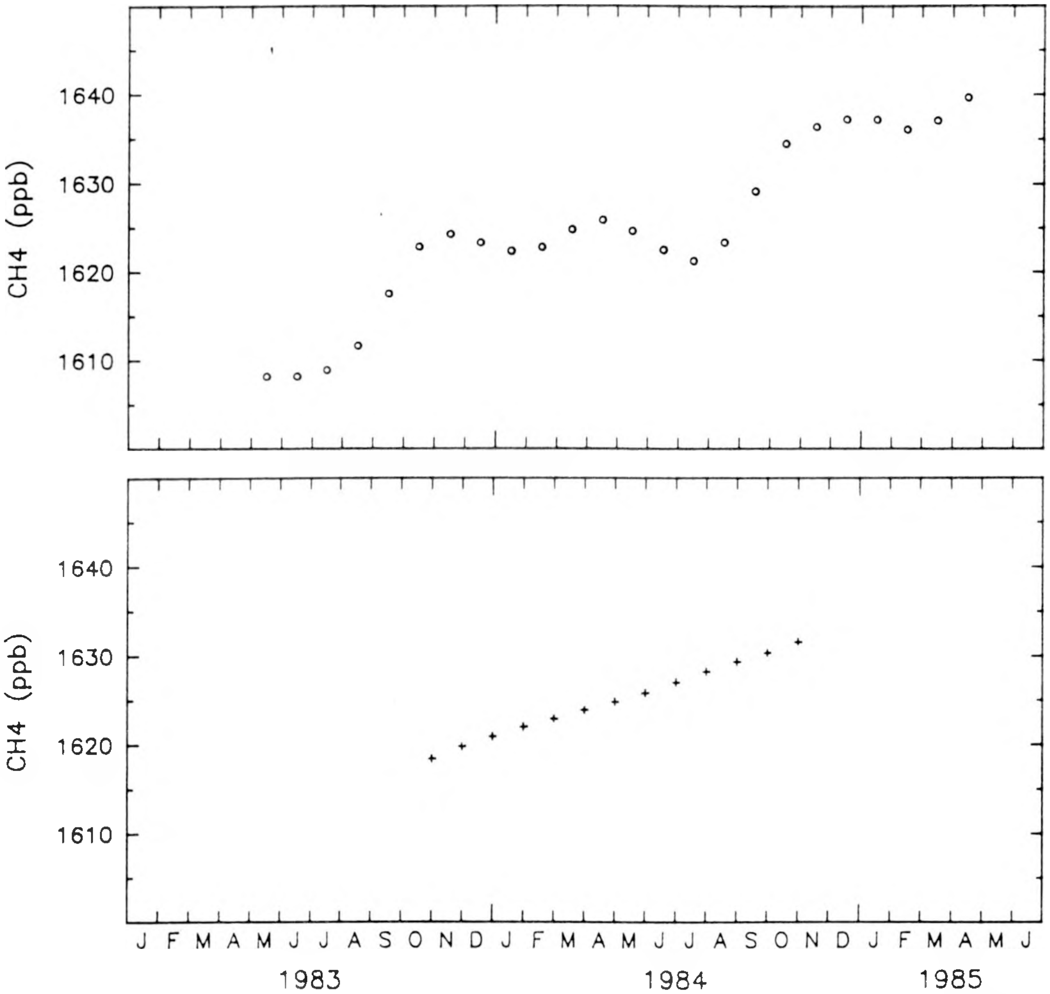


Fig. 9. Calculated monthly mean values of the globally averaged CH_4 concentration in the marine boundary layer (top panel), and the corresponding 12-month running mean values plotted at the mid-point of the appropriate interval (bottom panel). See text for details of the calculation of the global average concentration.

years has been less than the average growth rate at that site during 1978–1984 (see Figure 8). Secondly, the globally averaged growth rate calculated in this work gives greater weight to data from tropical locations than to those from temperature or polar latitudes. Thus the relatively low growth rates seen at our tropical sites such as GMI, AVI, and KUM (see Table IV) will have a significant influence on the globally averaged growth rate, emphasizing the great importance of the measurements made in tropical latitudes.

5. Conclusions

We have reported a comprehensive mapping of the global distribution of methane in the troposphere, and we find increasing concentrations wherever we have sufficiently long records. There is some evidence to suggest that the methane growth rate may be slowing down.

While the accurate determination of the rate of increase in methane is important, we believe that the data described here will prove most valuable in constraining model calculations of the geographical distribution of estimated or postulated source functions of methane. The data will also provide more realistic latitudinal distributions for use in global scale models of tropospheric chemistry (e.g. Logan *et al.*, 1981).

Acknowledgements

Much of the data reported in this paper was first presented at the Scientific Application of Baseline Observations of Atmospheric Composition (SABOAC) Conference held at the CSIRO Division of Atmospheric Research, Aspendale, Victoria, Australia during 7–9 November 1984.

We thank the personnel at all of the network sites for their diligent efforts in collecting the flask samples. The formidable logistics of the flask sampling network are capably managed by Lee Waterman of NOAA/GMCC. One of the authors (LPS) gratefully acknowledges the financial support of a Research Associateship of the U.S. National Research Council during 1982–1984. The visit of PJF to CIRES during 1983 was generously supported by NOAA/GMCC. Elmer Robinson kindly made available methane data for Palmer Station, Antarctica prior to its publication. The project was supported in part by the resources of the Biospherics Research Corporation and the Andarz Company. This work received partial support from the U.S. Department of Energy to NOAA under interagency agreement number DE-AI05-84ER60267.

References

Baseline. 1984, Monitoring report. In: *Baseline Atmospheric Program* (Australia) 1981–1982, R. J. Francey (ed.), Australian Government Dept. Science and Technology, Canberra, Australia, 1–20.

Blake, D. R., 1984, Increasing concentrations of atmospheric methane, 1979–1983, *Ph.D. Dissertation*, Univ. of California, Irvine, California, pp. 213.

Blake, D. R. and Rowland, F. S., 1986, World-wide increase in tropospheric methane, 1978–1983, *J. Atmos. Chem.* **4**, 43–62.

Blake, D. R., Mayer, E. W., Tyler, S. C., Makide, Y., Montague, D. C., and Rowland, F. S., 1982, Global increase in atmospheric methane concentrations between 1978 and 1980, *Geophys. Res. Lett.* **9**, 477–480.

Bodhaine, B. A., Harris, J. M., and Herbert, G. A., 1981, Aerosol light scattering and condensation nuclei measurements at Barrow, Alaska, *Atmos. Environ.* **15**, 1375–1389.

Craig, H. and Chou, C. C., 1982, Methane: the record in polar ice cores, *Geophys. Res. Lett.* **9**, 1221–1224.

Ehhalt, D. H. and Heidt, L. E., 1973, Vertical profiles of CH_4 in the troposphere and stratosphere, *J. Geophys. Res.* **78**, 5265–5271.

Ehhalt, D. H. and Schmidt, V., 1978, Sources and sinks of atmospheric methane, *Pure Appl.*

Geophys. **116**, 452–463.

Ehhalt, D. H., Zander, R. J., and Lamontagne, R. A., 1983, On the temporal increase of tropospheric CH_4, *J. Geophys. Res.* **88**, 8442–8446.

Foulger, B. E. and Simmonds, P. G., 1979, Drier for field use in the determination of trace atmospheric gases, *Anal. Chem.* **51**, 1089–1090.

Fraser, P. J., 1984, Atmospheric methane and carbon monoxide observations at Cape Grim, Tasmania, In: *Baseline Atmospheric Program* (Australia) 1981–1982, R. J. Francey (ed.), Australian Government Dept. Science and Technology, Canberra, Australia, 25–36.

Fraser, P. J., Khalil, M. A. K., Rasmussen, R. A., and Crawford, A. J., 1981, Trends of atmospheric methane in the southern hemisphere, *Geophys. Res. Lett.* **8**, 1063–1066.

Fraser, P. J., Khalil, M. A. K., Rasmussen, R. A., and Steele, L. P., 1984, Tropospheric methane in the mid-latitudes of the Southern Hemisphere, *J. Atmos. Chem.* **1**, 125–135.

Fraser, P. J., Hyson, P., Rasmussen, R. A., Crawford, A. J., and Khalil, M. A. K., 1986, Methane, carbon monoxide and methylchloroform in the Southern Hemisphere, *J. Atmos. Chem.* **4**, 3–42.

Halter, B. C. and Harris, J. M., 1987, A meteorological analysis of short term variability in atmospheric carbon dioxide concentration at American Samoa, *manuscript in preparation*.

Heidt, L. E., Krasnec, J. P., Lueb, R. A., Pollock, W. H., Henry, B. E., and Crutzen, P. J., 1980, Latitudinal distributions of CO and CH_4 over the Pacific, *J. Geophys. Res.* **85**, 7329–7336.

Khalil, M. A. K. and Rasmussen, R. A., 1983, Sources, sinks, and seasonal cycles of atmospheric methane, *J. Geophys. Res.* **88**, 5131–5144.

Khalil, M. A. K. and Rasmussen, R. A., 1984, Variability of methane and carbon monoxide at the South Pole, *Antarctic J. of the U.S.* **19**, 204–206.

Komhyr, W. D., 1983, An aerosol and gas sampling apparatus for remote observatory use, *J. Geophys. Res.* **88**, 3913–3918.

Komhyr, W. D. and Harris, T. B., 1977, Measurements of atmospheric CO_2 at the U.S. GMCC baseline stations, in *Air Pollution Measurement Techniques, Report and Proceedings of the WMO Air Pollution Measurement Techniques Conference (APOMET), Special Environmental Report No. 10*, WMO-No. 460, World Meteorol. Organ., Geneva, 9–19.

Komhyr, W. D., Waterman, L. S., and Taylor, W. R., 1983, Semiautomatic nondispersive infrared analyzer apparatus for CO_2 air sample analyses, *J. Geophys. Res.* **88**, 1315–1322.

Komhyr, W. D., Gammon, R. H., Harris, T. B., Waterman, L. S., Conway, T. J., Taylor, W. R., and Thoning, K. W., 1985a, Global atmospheric CO_2 distribution and variations from 1968–82 NOAA/GMCC CO_2 flask sample data, *J. Geophys. Res.* **90**, 5567–5596.

Komhyr, W. D., Harris, T. B., and Waterman, L. S., 1985b, Calibration of nondispersive infrared CO_2 analyzers with CO_2-in-air reference gases, *J. Atmos. Oceanic Technol.* **2**, 82–88.

Lamontagne, R. A., Swinnerton, J. W., and Linnenbom, V. J., 1974, C_1–C_4 hydrocarbons in the North and South Pacific, *Tellus* **26**, 71–77.

Logan, J. A., Prather, M. J., Wofsy, S. C., and McElroy, M. B., 1981, Tropospheric chemistry: a global perspective, *J. Geophys. Res.* **86**, 7210–7254.

Mayer, E. W., Blake, D. R., Tyler, S. C., Makide, Y., Montague, D. C., and Rowland, F. S., 1982, Methane: interhemispheric concentration gradient and atmospheric residence time, *Proc. Natl. Acad. Sci. USA* **79**, 1366–1370.

National Research Council, 1984, *Global Tropospheric Chemistry, a Plan for Action*, National Academy Press, Washington, D. C., pp. 194.

Owens, A. J., Steed, J. M., Filkin, D. L., Miller, C., and Jesson, J. P., 1982, The potential effects of increased methane on atmospheric ozone, *Geophys. Res. Lett.* **9**, 1105–1108.

Pearman, G. I., Etheridge, D., de Silva, F., and Fraser, P. J., 1986, Evidence of changing concentrations of atmospheric CO_2, N_2O, and CH_4 from air bubbles in Antarctic ice, *Nature* **320**, 248–250.

Ramage, C. S., Khalsa, S. J. S., and Meisner, B. N., 1981, The central Pacific near-equatorial convergence zone, *J. Geophys. Res.* **86**, 6580–6598.

Ramanathan, V., Cicerone, R. J., Singh, H. G., and Kiehl, J. T., 1985, Trace gas trends and their potential role in climate change, *J. Geophys. Res.* **90**, 5547–5566.

Rasberry, S. D. and Reed, W. P., 1984, Reference materials and environmental analysis, *Environ. Internat.* **10**, 87–90.

Rasmussen, R. A. and Khalil, M. A. K., 1981a. Atmospheric methane (CH_4): trends and seasonal cycles. *J. Geophys. Res.* **86**, 9826–9832.
Rasmussen, R. A. and Khalil, M. A. K., 1981b. Differences in the concentrations of atmospheric trace gases in and above the tropical boundary layer. *Pure Appl. Geophys.* **119**, 990–997.
Rasmussen, R. A. and Khalil, M. A. K., 1984. Atmospheric methane in the recent and ancient atmospheres: concentrations, trends, and interhemispheric gradient. *J. Geophys. Res.* **89**, 11599–11605.
Rasmussen, R. A. and Lovelock, J. E., 1983. The atmospheric lifetime experiment 2. Calibration. *J. Geophys. Res.* **88**, 8369–8378.
Reichle, H. G., Jr., and Condon, E. P., 1979. Vertical profiles of CO and CH_4 in the lower and middle troposphere over the eastern United States January 1978. *Geophys. Res. Lett.* **6**, 949–951.
Reinsch, C. H., 1967. Smoothing by spline functions. *Numerische Mathematik* **10**, 177–183.
Rinsland, C. P., Levine, J. S., and Miles, T., 1985. Concentration of methane in the troposphere deduced from 1951 infrared solar spectra. *Nature* **318**, 245–249.
Robbins, R. C., Cavanagh, L. A., Salas, L. J., and Robinson, E., 1973. Analysis of ancient atmospheres. *J. Geophys. Res.* **78**, 5341–5344.
Robinson, E., Bamesberger, W. L., Menzia, F. A., Waylett, A. S., and Waylett, S. F., 1984. Atmospheric trace gas measurements at Palmer Station, Antarctica: 1982–83. *J. Atmos. Chem.* **2**, 65–81.
Sebacher, D. I., Harriss, R. C., Bartlett, K. B., Sebacher, S. M., and Grice, S. S., 1986. Atmospheric methane sources: Alaskan tundra bogs, an alpine fen, and a subarctic boreal marsh. *Tellus* **38B**, 1–10.
Sheppard, J. C., Westberg, H., Hopper, J. F., Ganesan, K., and Zimmerman, P., 1982. Inventory of global methane sources and their production rates. *J. Geophys. Res.* **87**, 1305–1312.
Stauffer, B., Fischer, G., Neftel, A., and Oeschger, H., 1985. Increase of atmospheric methane recorded in Antarctic ice core. *Science* **229**, 1386–1388.
Webster, P. J., 1981. Monsoons. *Scientific American.* **245**, 108–118.
Weiss, R. F., 1981. Determinations of carbon dioxide and methane by dual catalyst flame ionization chromatography and nitrous oxide by electron capture chromatography. *J. Chromatographic Sci.* **19**, 611–616.

NOAA Technical Memorandum ERL CMDL-1

ATMOSPHERIC METHANE DATA FOR THE PERIOD 1983-1985 FROM THE NOAA/GMCC GLOBAL COOPERATIVE FLASK SAMPLING NETWORK

Patricia M. Lang
L. Paul Steele
Russell C. Martin
Ken A. Masarie

Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado
March 1990

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / Environmental Research Laboratories

NOAA Technical Memorandum ERL CMDL-1

ATMOSPHERIC METHANE DATA FOR THE PERIOD 1983-1985 FROM THE NOAA/GMCC GLOBAL COOPERATIVE FLASK SAMPLING NETWORK

Patricia M. Lang
L. Paul Steele
Russell C. Martin
Ken A. Masarie

Cooperative Institute for Research in Environmental Sciences
University of Colorado
Boulder, Colorado

Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado
March 1990

UNITED STATES DEPARTMENT OF COMMERCE
Robert A. Mosbacher
Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
John A. Knauss
Under Secretary for Oceans and Atmosphere/Administrator

Environmental Research Laboratories
Joseph O. Fletcher
Director

NOTICE

Mention of a commercial company or product does not constitute an endorsement by NOAA/ERL. Use of information from this publication concerning proprietary products or the tests of such products for publicity or advertising purposes is not authorized.

For sale by the National Technical Information Service, 5285 Port Royal Road
Springfield, VA 22161

FOREWORD

This Technical Memorandum supplements and extends the description of the flask sampling program operated by the Geophysical Monitoring for Climatic Change (GMCC) division of the National Oceanic and Atmospheric Administration (NOAA) for the measurement of atmospheric methane concentrations. Other details of this program can be found in the paper "The global distribution of methane in the troposphere" by L.P. Steele, P.J. Fraser, R.A. Rasmussen, M.A.K. Khalil, T.J. Conway, A.J. Crawford, R.H. Gammon, K.A. Masarie, and K.W. Thoning which was published in the *Journal of Atmospheric Chemistry*, Volume 5, 1987, pp. 125-171. The monthly average methane concentrations which are tabulated in this memorandum may be obtained as an ASCII file on a DOS formatted 5.25 inch floppy disc by writing to:

Dr. Pieter Tans
Carbon Cycle Group
NOAA/ERL/GMCC (R/E/CG1)
U.S. Department of Commerce
325 Broadway
Boulder, Colorado 80303
U.S.A.

The monthly average methane concentrations may also be obtained from:

Oak Ridge National Laboratory
Attention: Carbon Dioxide Information Analysis Center. Building 1000
P.O. Box 2008
Oak Ridge, Tennessee 37831-6335
U.S.A.

CONTENTS

Page

Foreword iii
Abstract 1
1. Introduction 1
2. Development of the Program 2
3. Details of Flask Sampling 3
4. Analytical and Calibration Procedures 3
Acknowledgments 13
References 13
Appendix A: Methane Concentrations from Individual Flask Samples 15
Appendix B: Monthly Average Methane Concentrations 69
Appendix C: Plots of Methane Concentrations from Flask Samples 80

Atmospheric Methane Data for the Period 1983 - 1985 from the NOAA/GMCC Global Cooperative Flask Sampling Network

Patricia M. Lang, L. Paul Steele, Russell C. Martin, and Ken A. Masarie

ABSTRACT. This report presents details of relevant aspects of the NOAA/GMCC program to measure atmospheric methane concentrations through its global, cooperative, flask sampling network. These aspects include the history of the development of the program; details of the sampling network; the flasks and the flask sampling methods; the analytical instrumentation and methods; and the calibration gases and methods. The data from individual flask samples are tabulated, as are the monthly average methane concentrations.

1. Introduction

Methane (CH_4) is an important trace species in the Earth's atmosphere since it is active both chemically (see *Logan et al.*, 1981) and radiatively (*Ramanathan et al.*, 1985). Over the past decade it has become recognized that the concentration of atmospheric methane is rising rapidly. This result has emerged principally through the direct analysis of air samples by the technique of gas chromatography (GC) with flame ionization detection (FID), and several investigators have published such findings (see, for example, *Blake and Rowland*, 1988; *Steele et al.*, 1987; *Fraser et al.*, 1986; *Khalil and Rasmussen*, 1983). A careful analysis of infrared solar spectra recorded at Jungfraujoch in the Swiss Alps has provided convincing evidence that the vertical column abundance of atmospheric methane gas increased at 0.7 ± 0.1% per year during the period 1951-1986 (*Zander et al.*, 1989).

By the analysis of air bubbles trapped in the ice sheets of both Greenland and Antarctica, atmospheric methane variations have been revealed on time scales extending back as far as 160,000 years before present (*Raynaud et al.*, 1988; *Stauffer et al.*, 1988; *Etheridge et al.*, 1988; *Rasmussen and Khalil*, 1984). This ice core work clearly indicates that present day concentrations of atmospheric methane are more than double those of the pre-industrial era.

The purpose of this report is to tabulate the data and to document the relevant aspects of the NOAA/GMCC program to measure atmospheric methane by global flask sampling. It is intended to supplement the information already provided in *Steele et al.* (1987). Through adequate documentation it is more likely that the full value of these methane measurements will be realized in long-term studies of the greenhouse effect and climate change.

2. Development of the Program

The NOAA/GMCC methane program had its origins with Dr. Paul Fraser of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia. Starting in November 1982 he spent a year's sabbatical from CSIRO's Division of Atmospheric Research with NOAA/GMCC laboratories as a Research Associate in the Cooperative Institute for Research in Environmental Sciences (CIRES). During that time he took delivery of a Carle model 211-M (Series S) gas chromatograph (GC) fitted with a flame ionization detector (FID). This GC system was provided to him by Dr. Rei Rasmussen of the Oregon Graduate Center (OGC) in Beaverton, Oregon.

At that time NOAA/GMCC already had an extensive global network of flask sampling sites which was being used to collect pairs of pressurized air samples for analysis of carbon dioxide (CO_2) (see *Komhyr et al.*,1985). In early 1983 the NOAA/GMCC CO_2 program came under the direction of Dr. Richard Gammon. Since a GC analysis for methane requires only a small volume of air, Dr. Fraser suggested to Dr. Gammon that an experiment be tried whereby the pressurized glass flasks would be first analyzed for methane, and then subsequently for CO_2. Dr. Gammon agreed to such an experiment. To verify that the methane analysis could be done successfully without introducing any bias or contamination for the subsequent CO_2 analysis, the experiment was tried on flasks from only a few sites, and the methane analysis was done on only one member of each flask pair. Subsequently both members of the flask pair were analyzed for CO_2. The experiment was a success, showing that both methane and CO_2 concentrations could be obtained reliably from the same flask sample. For a methane calibration scale an internally electropolished stainless steel cylinder filled to ~3000 kPa with natural air (see *Rasmussen and Lovelock*, 1983) was purchased from Dr. Rasmussen, who provided a methane concentration for this air sample. For flask samples analyzed prior to December 1983 the chromatograms were plotted and the peaks quantified with a Spectra-Physics SP4100 computing integrator made available by NOAA/GMCC. At an early stage in this development process Dr. Paul Steele became involved, writing software for the integrator, analyzing flasks, and processing the methane concentration data. At this time Dr. Steele was a National Research Council (NRC) Research Associate in NOAA/GMCC.

The methane measurements on flask samples began in April 1983. It quickly became clear that very valuable information about the global distribution of atmospheric methane could be obtained by the continuation of the program that Dr. Fraser had initiated. In November 1983 Dr. Fraser returned to Australia and took his Carle GC with him. The flask methane measurements continued without interruption when a similar model GC (Carle 211-M, Series S) was provided on loan to NOAA/GMCC by Dr. Rasmussen of OGC, together with a Hewlett-Packard (HP) model 3390A integrator. After the departure of Dr. Fraser from NOAA/GMCC, the day-to-day running of the methane program was assumed by Dr. Steele who gradually introduced improvements and modifications to this GC system. In July 1984 a newer model HP 3392A integrator was purchased by NOAA/GMCC and was used to replace the 3390A model. Then in October 1984 an HP-85B computer was interfaced to the 3392A integrator to allow automated data acquisition of all chromatogram reports. Mr. Kirk Thoning (CIRES) was responsible for developing the HP-85B software which allowed the data acquisition as well as real-time calculation of the methane concentrations during flask analysis. The 3390A integrator was returned to Dr. Rasmussen in February 1985. In August 1985 NOAA/GMCC purchased and began using a Hach-Carle Series 400 automated gas chromatograph (model number 04270-A). These newer GC's had an identical column arrangement to the earlier 211-MS models, but had a microprocessor controller rather than a drum timer for controlling the switching of the valves. The Carle 211-MS GC system was returned to Dr. Rasmussen in October 1985.

Beginning in December 1983 Mr. Thomas Conway of NOAA/GMCC contributed by both analyzing flask samples and doing repair and maintenance work on the gas chromatograph. In October 1984 Mr. Ken Masarie (CIRES) joined the program to be responsible for much of the flask analysis and data processing. This joint work culminated in a paper published in the *Journal of Atmospheric Chemistry* which describes the first 2 years of the project (*Steele et al.*, 1987).

3. Details of Flask Sampling

A comprehensive description of our flask sampling procedures has been given by *Steele et al.* (1987). Since then some modifications have been made, and the purpose of this section is to document these changes and to give some additional details. The sampling sites used during 1983-1985 are given in Table 1, and their locations are also shown in Figure 1.

Most of the flasks used in the sampling network during 1983-1985 were 0.5-L glass flasks fitted with two solid-plug, ground-glass stopcocks. Other types of flasks were also used, and for each sample the type of flask was always recorded in the data base. In Appendix A we provide a code which indicates the type of flask used for every sample. The key to this code is given in Table 2. The 5-L glass flasks (code 0) were used only at the CHR site for a brief period, and were provided to us through the courtesy of Dr. C.D. Keeling of the Scripps Institution of Oceanography. Both the 5-L (code 0) and the 3-L (code 5) flasks were covered on the outside with off-white adhesive tape (Johnson and Johnson ZONAS type) to provide some safety in the event of an accidental breakage. The 0.5-L flasks had no such covering.

A variety of methods have been used to collect the air samples. The collection method used for every flask sample is given by a code in the tabulations of Appendix A. The key to this code is provided in Table 3.

4. Analytical and Calibration Procedures

Over the period 1983-1985 we have used four different gas chromatographic systems to analyze the flask samples for methane. Some details of the first two of these systems have been presented previously by *Steele et al.* (1987). In order to document as completely as possible the record of atmospheric methane measurements, we include in the tabulations of Appendix A a code which identifies the gas chromatographic system used in the analysis of every flask sample. In Table 4 we show the salient features of the gas chromatographic systems, and their periods of use, together with the appropriate codes used in Appendix A. It is clear from Table 4 that for flask analysis none of the GC systems operated in parallel with each other. Thus the date on which any sample was analyzed (the analysis date, also given in Appendix A) uniquely determined the GC system that was used for the analysis.

The basic features of the gas chromatographic technique have been described in the appendix to *Rasmussen and Khalil* (1981). This appendix is available on microfiche from the American Geophysical Union (see *Rasmussen and Khalil*, 1981, for ordering details).

Whenever possible we analyze two aliquots from each flask sample, therefore we have an inherent measure of the precision of the methane concentrations determined. Whenever this difference in concentration between the first and second aliquot is available it is included in the tabulations of Appendix A. The summary statistics of these first aliquot minus second aliquot

Table 1.--Flask Sampling Sites Used During 1983-1985

Site Code	Site Location	Country	LST to GMT*	Latitude	Longitude	Elevation (m)+
ALT	Alert, N.W.T.	Canada	+ 9	82°27' N	62°31' W	6
AMS	Amsterdam Island	France	- 5	37°57' S	77°32' E	150
ASC	Ascension Island	U.K.	+ 1	07°55' S	14°25' W	54
AVI	St. Croix, Virgin Islands	U.S. Territory	+ 4	17°45' N	64°45' W	3
AZR	Azores (Terceira Island)	Portugal	+ 1	38°45' N	27°05' W	30
BRW	Point Barrow, Alaska	U.S.A.	+ 9	71°19' N	156°36' W	11
CBA	Cold Bay, Alaska	U.S.A.	+ 9	55°12' N	162°43' W	25
CGO	Cape Grim, Tasmania	Australia	-10	40°41' S	144°44' E	94
CHR	Christmas Island	Kiribati	+10	02°00' N	157°19' W	3
CMO	Cape Meares, Oregon	U.S.A.	+ 8	45°00' N	124°00' W	30
GMI	Guam (Mariana Islands)	U.S. Territory	-10	13°26' N	144°47' E	2
HBA	Halley Bay	Antarctica	+ 2	75°40' S	25°30' W	10
KEY	Key Biscayne, Florida	U.S.A.	+ 5	24°40' N	80°12' W	3
KPA	Kitt Peak, Arizona	U.S.A.	+ 7	32°00' N	112°00' W	2083
KUM	Cape Kumukahi, Hawaii	U.S.A.	+10	19°31' N	154°49' W	3
MBC	Mould Bay, N.W.T.	Canada	+10	76°14' N	119°20' W	15
MCM	McMurdo Station	Antarctica	-12	77°50' S	166°36' E	11
MID	Sand Island, Midway	U.S. Territory	+11	28°13' N	177°22' W	4
MLO	Mauna Loa, Hawaii	U.S.A.	+10	19°32' N	155°35' W	3397
NWR	Niwot Ridge, Colorado	U.S.A.	+ 7	40°03' N	105°38' W	3749
NZL	Kaitorete Spit	New Zealand	-12	43°50' S	112°38' E	3
OPW	Olympic Peninsula, Washington	U.S.A.	+ 8	48°15' N	124°45' W	2 & 488
PSA	Palmer Station (Anvers Island)	Antarctica	+ 3	64°55' S	64°00' W	10
SEY	Seychelles (Mahe Island)	Seychelles	- 4	04°40' S	55°10' E	3
SHM	Shemya Island, Alaska	U.S.A.	+10	52°43' N	174°06' E	40
SIO	Scripps Institution, California	U.S.A.	+ 8	32°50' N	117°16' W	14
SMO	Matatula Point, Samoa	U.S. Territory	+11	14°15' S	170°34' W	42
SPO	Amundsen Scott (South Pole)	Antarctica	-12	89°59' S	24°48' W	2810
STM	Ocean Station "M"	North Atlantic	0	66°00' N	02°00' E	4.5 - 9

* The numbers in this column give the conversion (in hours) between Local Standard Time (LST) and Greenwich Mean Time (GMT), eg. at ALT to convert from LST to GMT, add 9 hours to LST.

\+ Elevation above mean sea level

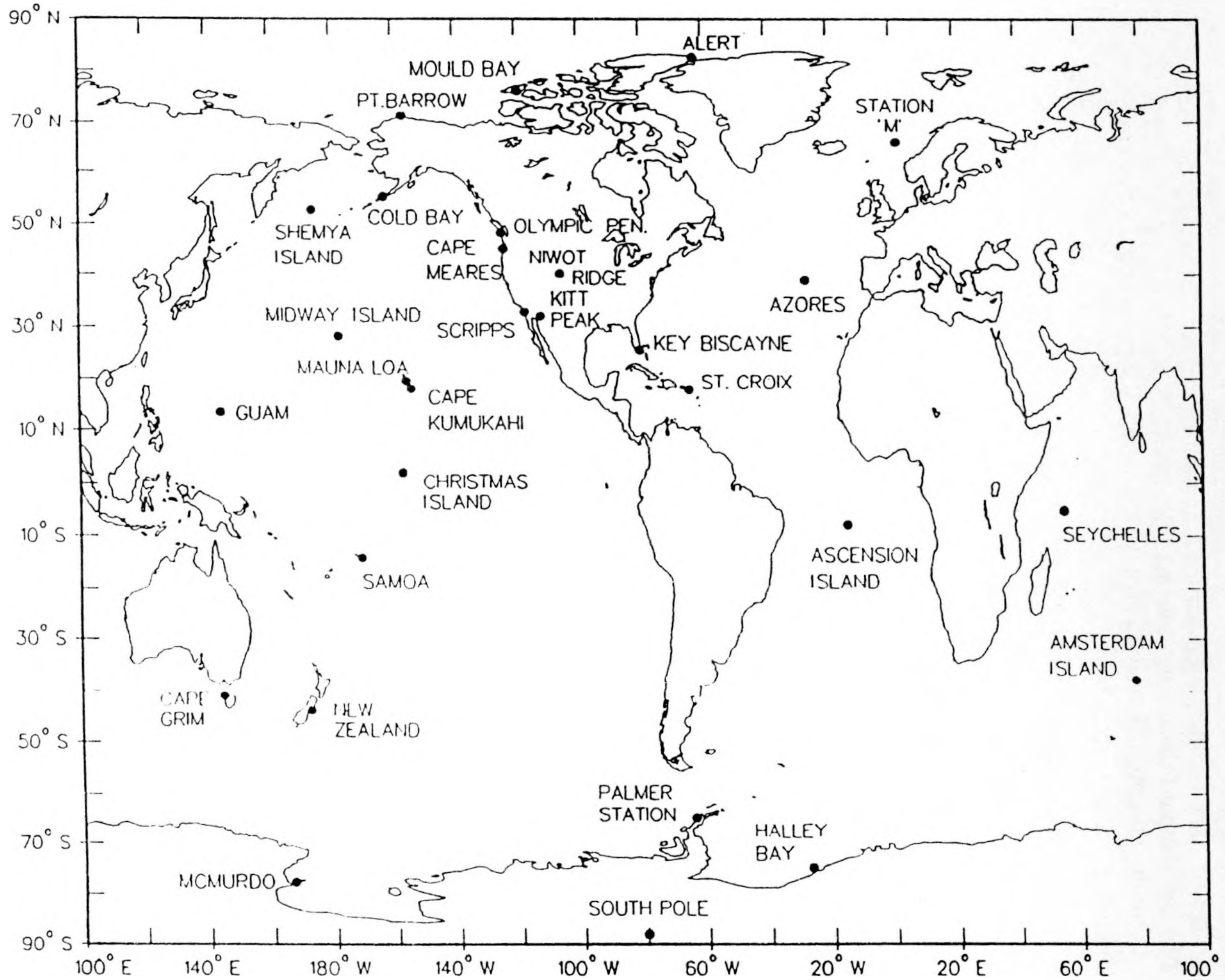


Figure 1. Map showing the location of those flask sampling sites used during 1983 - 1985 for the collection of air samples which were analyzed for atmospheric methane concentration.

values are given for each site in Table 5. From all sites, at least two aliquots were analyzed for 2271 flasks. From this we calculate a mean value of first minus second aliquot concentration of 0.3 ppb, and a standard deviation of 4.6 ppb. This corresponds to an average precision level of better than 0.3%. However, there were differences in the precision levels attained for each of the gas chromatographic systems used. These results can be summarized as follows, where N gives the number of flask samples used for the calculation, and is followed by the mean aliquot difference and the standard deviation. For the C1 system, N = 294, 0.1 ppb, 9.3 ppb; C2 system, N = 1478, 0.3 ppb, 3.6 ppb; C3 system, N = 394, 0.1 ppb, 2.4 ppb; and C4 system, N = 105, 0.8 ppb, 4.5 ppb.

Table 2.--Description of Flask Types used in the Sampling Network

Code Used For Flask Type*	Flask Material	Flask Size+	Flask Shape	Number of Stopcocks	Stopcock Type
0	Pyrex	5 L	Spherical	1	Ground glass, 6 mm glass bore lubricated with Apiezon N grease
1	Pyrex	0.5 L	Cylindrical	2	Ground glass, solid glass plug, 3 mm bore, lubricated with Apiezon N grease
5	Pyrex	3 L	Cylindrical	1	High vacuum, O-ring glass type, glass piston, 10 mm bore, black viton O-ring (from J. Young Scientific Glassware)
7	Pyrex	0.5 L	Cylindrical	2	High vacuum, O-ring glass type, glass piston, 10 mm bore, black viton O-ring (from Young Scientific Glassware)

* Code is used for tabulations given in Appendix A.
+ Flask sizes are approximate.

Another statistic that we calculate is the time between when flask samples are collected at each site and when they are analyzed for methane. This information is shown for each site in Table 6. Some sites have very short average storage times (less than 2 weeks). Others have average storage times that exceed six months because of the geographical location of the sites.

In the tabulations of Appendix A only those flask samples that were properly collected and analyzed are included. Table 7 shows the statistics on the number of unacceptable flask samples for each site. Over the 3-year period 2841 flask pairs were collected, and 402 (14.2%) were classified as unacceptable. This may seem at first glance to be a significant percentage, but closer examination reveals that of the 402 unacceptable flasks, 195 (48.5%) are from only four sites (HBA, SMO, SPO, and PSA). At HBA the flask sampling instructions were not properly followed for significant periods of time. The samples were collected from an open roof hatch,

Table 3.--Description of Sample Collection Methods used in the Sampling Network

Code Used for Collection Method*	Description of Collection Method
P	Portable, battery-powered, suitcase sampler. Two flasks normally connected in series, flushed with air, and then pressurized to 1.25-1.5 times ambient atmospheric pressure (see *Komhyr et al.*, 1985).
T	Filling of evacuated 3-L glass flask by opening the single O-ring stopcock (see *Steele et al.*, 1987, for more details).
S	Filling of 0.5-L glass flasks (in pairs) at the NOAA/GMCC observatory sites. Flasks are filled and pressurized by diverting air from the continuous in-situ CO_2 analysis system (see *Komhyr and Harris*, 1977; *Komhyr*, 1983; *Komhyr et al.*, 1989).
N	Filling and pressurizing of 0.5-L glass flasks (in pairs) by a pump system different from that supplied by NOAA/GMCC. In most cases (eg. at NWR and CGO) the pump is a Metal Bellows pump. In addition, the flasks filled by this method at the Cape Grim Baseline Air Pollution Station (site code CGO) are filled with air that has been dried chemically (see *Steele et al.*, 1987).
F	Filling of an evacuated 5-L glass flask by opening the single, ground-glass, greased stopcock (see *Steele et al.*, 1987 for more details).

* Code is used for tabulations given in Appendix A.

thus frequently contaminating them with CO_2 levels in excess of 500 ppm. At SPO the high altitude and cold temperatures contributed to a lack of adequate pressurization in many of the flasks. Samples with insufficient overpressure cannot be analyzed for CH_4 on our GC system. At SMO excessive exposure of some flasks to direct sunlight caused contamination of the samples. For PSA some samples were collected downwind of the settlement, resulting in contamination from local activities. In most cases the decision that a flask sample was unacceptable was straightforward and unambiguous, being largely based on information provided by the sample taker on the flask sampling sheet.

The number of reasons that we have identified as leading to unacceptable flask samples is large. Following is a list that includes the more common problems we have encountered. The order of appearance in the list does not indicate the frequency at which the problem occurred.

Table 4.--Description of Gas Chromatographic Systems Used for Methane Analysis

Code Used for GC System*	Period of Use	Basic Configuration of GC System
C1	27 APR 83 - 13 NOV 83	Carle 211-M, series S GC, Spectra-Physics SP4100 integrator, Carle Model 2026 8-port stream selection valve.
C2	07 DEC 83 - 05 AUG 85	Carle 211-M, series S GC, Hewlett-Packard 3390A and 3392A integrators, Carle model 2026 8-port stream selection valve. Hewlett-Packard 85-B computer (after October 1984).
C3	12 AUG 85 - 12 JAN 86	Hach-Carle series 400, model 04270-A GC, Hewlett-Packard 3392A integrator, Hach-Carle model 2026 8-port stream selection valve, Hewlett-Packard 85-B computer.
C4	24 JAN 86 - 16 SEP 86	Hach-Carle series 400 GC, basic model 04270-A but configured without a methanizer and to backflush CO_2 from the silica gel column. Hewlett-Packard 3392A integrator, Hach-Carle model 2026 8-port stream selection valve, Hewlett-Packard 85-B computer.

* Code is used for tabulations given in Appendix A.

Table 5.--Summary Statistics for the Precision of Methane Concentration

Site Code	Number of Flasks with at least 2 Aliquots	Mean Value of First-Second Aliquot Concentration (ppb)	Sample Standard Deviation of Mean (ppb)
ALT	21	.3	2.7
AMS	92	-.5	4.7
ASC	130	:8	5.0
AVI	101	0.0	4.6
AZR	60	1.0	5.0
BRW	158	.2	4.6
CBA	106	-.1	5.3
CGO	89	.3	3.0
CHR	64	-.6	3.1
CMO	104	.5	5.2
GMI	108	.5	4.8
HBA	59	1.8	3.1
KEY	83	.4	3.0
KPA	25	.8	9.7
KUM	98	.6	3.9
MBC	129	.7	3.7
MCM	1	4.5	
MID	36	.5	1.7
MLO	113	-.1	5.3
NWR	97	-.6	3.8
NZL	72	-.1	5.2
OPW	6	.3	2.1
PSA	101	-.4	5.6
SEY	82	.1	5.8
SHM	14	-.8	3.0
SIO	14	.5	1.9
SMO	99	.9	5.3
SPO	85	.4	3.9
STM	125	.7	4.4

Table 6.--Summary Statistics for the Duration Between Flask Sampling and Flask Analysis

Site Code	Mean Duration (Days)	Median Duration (Days)	Minimum and Maximum Duration (Days)
ALT	38	36	19 - 64
AMS	293	297	163-414
ASC	14	12	5 - 43
AVI	12	12	3 - 36
AZR	19	17	4 - 57
BRW	11	10	2 - 28
CBA	10	8	2 - 31
CGO	46	44	22 - 84
CHR	28	26	8 - 71
CMO	12	11	3 - 39
GMI	17	15	3 - 43
HBA	428	442	226 - 638
KEY	13	10	3 - 33
KPA	18	12	4 - 105
KUM	12	9	1 - 39
MBC	49	44	15 - 149
MCM	84		
MID	18	16	7 - 39
MLO	9	7	1 - 34
NWR	9	8	1 - 38
NZL	17	15	5 - 45
OPW	11	7	7 - 17
PSA	226	212	92 - 457
SEY	32	25	5 - 139
SHM	18	15	5 - 34
SIO	8	9	4 - 12
SMO	12	11	3 - 50
SPO	169	156	11 - 348
STM	44	37	10 - 264

Table 7.--Flask Sampling Statistics During 1983 - 1985

Site Code	Total Number of Flasks*	Number of Unacceptable Flasks	Percent of Unacceptable Flasks
ALT	25	3	12
AMS	129	25	19
ASC	142	7	5
AVI	129	15	12
AZR	68	4	6
BRW	163	5	3
CBA	122	13	11
CGO	97	8	8
CHR	82	3	4
CMO	126	19	15
GMI	118	5	4
HBA	135	73	54
KEY	102	15	15
KPA	27	1	4
KUM	113	5	4
MBC	138	4	3
MCM	1	0	0
MID	44	6	14
MLO	139	13	9
NWR	132	27	20
NZL	102	11	11
OPW	6	0	0
PSA	146	34	23
SEY	95	8	8
SHM	16	2	13
SIO	18	4	22
SMO	154	47	31
SPO	140	41	29
STM	133	4	3

* Methane analysis was attempted.

- Flask samples were collected using the portable sampler either from within a building or outside the building but too close to it.
- Flask samples were not adequately pressurized. This situation could arise in several ways: the flask leaked after pressurization, but before analysis; the flask stopcocks were closed in the wrong sequence during the collection of the sample; the flask stopcocks were not closed at all; the batteries of the portable sampler were not adequately charged; the pump of the portable sampler was beginning to fail; the standard taper joints of the flasks were not lubricated adequately; the standard taper joints were dirty so that they did not seal properly; or insufficient time was allowed for the pump to pressurize the flasks.
- Flask samples were not collected at all. In other words, flasks were returned to Boulder still containing the dry fill gas that they left Boulder with.
- Flask samples were contaminated by improper handling such as excessive exposure to sunlight.
- Flask samples were collected at a time different to that given on the sample sheet. In other words the sample sheet was deliberately falsified.
- Flask samples were contaminated by a leak in the sampling stack. This problem only applied to those sites where this type of sampling was carried out (CGO, NWR, SMO, and SPO), and the flasks were subsequently analyzed for methane.
- Flask samples were not reliable because of inadequate flushing of the flasks prior to pressurization. In other words the fill gas was not fully flushed from the flasks.
- Flask samples were contaminated during collection when the wind direction was such to bring air from a known local source.
- Flask samples were contaminated by local sources when the samples were collected during calm winds conditions.

For the period of data presented in this report only two tanks of calibration gas were used. Both were purchased from Dr. Rasmussen, and both were natural air contained in internally electropolished stainless steel cylinders (*Rasmussen and Lovelock*, 1983). These natural air standards were assigned methane concentrations by Dr. Rasmussen. The relevant details of these two standards are shown in Table 8. Over the period of this work both cylinders were frequently checked against each other, and no relative changes in concentration were found. The particular calibration tank that was used for the analysis of any flask sample can be deduced from the value appearing in the "Analysis Date" column in Appendix A, and the starting and ending dates for each calibration cylinder given in Table 8. For example, any flask analysis date falling in the period 27 APR 83 - 10 JUN 85 indicates that the flask was analyzed with O-245 as the calibration tank.

Table 8.--Calibration Standards Used for Methane Flask Analysis

Cylinder Number	CH_4 Concentration (ppb)	Starting Analysis Date	Ending Analysis Date
O-245	1653.0	27 APR 83	10 JUN 85
O-259	1676.0	11 JUN 85	24 MAR 87

Acknowledgements

The diligent efforts of the personnel at all of the flask sampling sites are greatly appreciated. The logistics of the flask sampling network have been capably managed by Lee Waterman of NOAA/GMCC. We thank the other members of the Carbon Cycle group of NOAA/GMCC for many useful comments on an earlier draft of this memorandum.

References

Blake, D.R. and F.S. Rowland, 1988. Continuing worldwide increase in tropospheric methane, 1978 to 1987. *Science*, 239:1129-1131.

Etheridge, D.M., G.I. Pearman, and F. de Silva, 1988. Atmospheric trace-gas variations as revealed by air trapped in an ice core from Law Dome, Antarctica. *Ann. Glaciol.* 10:28-33.

Fraser, P.J., P. Hyson, R.A. Rasmussen, A.J. Crawford, and M.A.Khalil, 1986. Methane, carbon monoxide and methylchloroform in the Southern Hemisphere. *J. Atmos. Chem.* 4:3-42.

Khalil, M.A.K. and R.A. Rasmussen, 1983. Sources, sinks, and seasonal cycles of atmospheric methane. *J. Geophys. Res.* 88:5131-5144.

Komhyr, W.D., 1983. An aerosol and gas sampling apparatus for remote observatory use. *J. Geophys. Res.* 88:3913-3918.

Komhyr, W.D. and T.B. Harris, 1977. Measurements of atmospheric CO_2 at the U.S. GMCC baseline stations, in Air Pollution Measurement Techniques, Report and Proceedings of the WMO Air Pollution Measurement Techniques Conference (APOMET), *Special Environmental Report No. 10*, WMO-No. 460, World Meteorol. Organ., Geneva, 9-19.

Komhyr, W.D., R.H. Gammon, T.B. Harris, L.S. Waterman, T.J. Conway, W.R. Taylor, and K.W. Thoning, 1985. Global atmospheric CO_2 distribution and variations from 1968-82 NOAA/GMCC CO_2 flask sample data. *J. Geophys. Res.* 90:5567-5596.

Komhyr, W.D., T.B. Harris, L.S. Waterman, J.F.S. Chin, and K.W. Thoning, 1989. Atmospheric carbon dioxide at Mauna Loa Observatory 1. NOAA Global Monitoring for Climatic Change measurements with a nondispersive infrafed analyzer, 1974 - 1985. *J. Geophys. Res.* 94:8533-8547.

Logan, J.A., M.J. Prather, S.C. Wofsy, and M.B. McElroy, 1981. Tropospheric chemistry: a global perspective. *J. Geophys. Res.* 86:7210-7254.

Ramanathan, V., R.J. Cicerone, H.G. Singh, and J.T. Kiehl, 1985. Trace gas trends and their potential role in climate change. *J. Geophys. Res.* 90:5547-5566.

Rasmussen, R.A. and M.A.K. Khalil, 1981. Atmospheric methane (CH_4): trends and seasonal cycles. *J. Geophys. Res.* 86:9826-9832.

Rasmussen, R.A. and M.A.K. Khalil, 1984. Atmospheric methane in the recent and ancient atmospheres: concentrations, trends, and interhemispheric gradient. *J. Geophys. Res.* 89:11599-11605.

Rasmussen, R.A. and J.E. Lovelock, 1983. The atmospheric lifetime experiment 2. calibration. *J. Geophys. Res.* 88:8369-8378.

Raynaud, D., J. Chappellaz, J.M. Barnola, Y.S. Korotkevich, and C. Lorius, 1988. Climatic and CH_4 cycle implications of glacial-interglacial CH_4 change in the Vostok ice core. *Nature* 333:655-657.

Stauffer, B., E. Lochbronner, H. Oeschger, and J. Schwander, 1988. Methane concentration in the glacial atmosphere was only half that of the preindustrial Holocene. *Nature* 332:812-814.

Steele, L.P., P.J. Fraser, R.A. Rasmussen, M.A.K. Khalil, T.J. Conway, A.J. Crawford, R.H. Gammon, K.A. Masarie, and K.W. Thoning, 1987. The global distribution of methane in the troposphere. *J. Atmos. Chem.* 5:125-171.

Zander, R., Ph. Demoulin, D.H. Ehhalt, and U. Schmidt, 1989. Secular increase of the vertical column abundance of methane derived from IR solar spectra recorded at the Jungfraujoch station. *J. Geophys. Res.* 94:11029-11039.

Appendix A
Tabulation of Methane Concentrations from Individual Flask Samples

In this appendix we tabulate the relevant details of the sampling and analysis of individual flask samples. The results are presented separately for each site. The sites are arranged alphabetically by the 3-letter site code (see Table 1 for a full listing). The column headings are largely self-explanatory, but for clarity we provide the following additional information.

For each site the data are ordered chronologically by sample date, and if necessary, sample time. For internal consistency all sample dates and all sample times are given in Greenwich Mean Time (GMT). The convention we adopt for specifying dates is "day-month-year" with the month given by the first three letters of the month's name. This avoids any possibility of ambiguity. For the year we specify only the last two digits eg. 1985 is given only as 85. The sample time is given in the 24-hour clock convention, to the nearest minute. On those occasions when a sample date was provided by the sample taker, but a sample time was not, a default value of 9999 was entered for the sample time. In general, the filling of the flasks was not instantaneous, and so the sample taker would usually provide the beginning and ending time for the sampling period. At most this sampling period was a few minutes. The convention we adopt for these tabulations in that the sample time given is the beginning of the sampling period.

For most of the flask samples, two separate aliquots are analyzed, and a methane concentration is generated for each aliquot. The number of separate aliquots analyzed is given in the fifth column. The mean methane concentration that we report for each flask sample (third column) is the arithmetic mean of the values obtained for each separate aliquot. An indication of the analytical precision is given in the fourth column, where we report, wherever possible, the difference in methane concentration between the first and second aliquots. This concentration difference is always calculated as first minus second aliquot. The mean methane concentration is given to the nearest 0.1 ppb. Prior to installation of the HP 85B computer (data acquisition system) on October 16, 1984, the (first - second) aliquot values are given only to the nearest 1 ppb. After this analysis date the (first - second) aliquot values are given to the nearest 0.1 ppb. This is done to retain enough significant digits for any further processing, or any future reprocessing, of these data.

The flask I.D. given in column 6 is the identifying number assigned to the flask. It is included here principally to aid in the future merging of these methane data with the carbon dioxide concentrations found in these same flasks by a non-dispersive infrared technique. The flask type (column 7) specifies the particular type of flask used for each air sample. It is given by a code number, as described in Table 2.

The collection method (column 8) refers to the method used to fill the flask with an air sample. It is given by a code letter, and the code is described in Table 3.

Since several different gas chromatographs have been used during the course of this work, we include a specification of the gas chromatograph used for the analysis of each sample. This is given by a code in column 9. A full description of the meaning of the code is given in Table 4.

The analysis date (column 10) is the date on which the flask sample was analyzed for its methane concentration. We use the same convention as for the sample date, except that the analysis date is based upon local time in Boulder, Colorado rather than GMT. In some instances a flask sample was analyzed on more than one occasion. When this occurred the results of each analysis occasion are included separately in the tabulation. An example of this can be seen for the ASC site, when the flask with the sample date of 16 FEB 84 was analyzed on both 05 MAR 84 and 29 MAR 84.

Finally, the column headed as "flag" (column 11) is used to identify those flask samples which we believe to be "non-background". Such non-background samples are identified with a + symbol in this column. For most sites, very few samples are identified as non-background. One of the most common criteria for considering a sample to be non-background is that the wind direction is outside some specified sector at the time of sampling.

As a final note, we point out that these tabulations do not include methane data that were judged to be unacceptable. For example, any flask sample that was not collected according to specified guidelines was classified as unacceptable. The failure of sample takers to follow specified guidelines when collecting samples accounted for the large majority of unacceptable samples. In most cases the information provided by the sample takers themselves was used as the basis for deciding whether specified guidelines were followed or not.

Sometimes a flask sample could be collected correctly, but during analysis for methane one of the individual aliquots would be classified as unacceptable because of an unscheduled interruption to the analysis cycle. An example of such an interruption was the occasional loss of communication between the 3392A integrator and the 85-B computer. In such a case the aliquots that were unaffected by the interruption were retained in the tabulation, but the affected ones were not.

Alert, Canada (ALT)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
10 JUN 85	1820	1707.2	2.5	2	388-85	1	P	C2	16 JUL 85	
17 JUN 85	1927	1707.6	4.1	2	390-85	1	P	C2	16 JUL 85	
24 JUN 85	1904	1708.7	4.3	2	391-85	1	P	C2	24 JUL 85	
01 JUL 85	1913	1703.2	2.7	2	393-85	1	P	C2	24 JUL 85	
08 JUL 85	2118	1696.4	.7	2	882-83	1	P	C3	11 SEP 85	
15 JUL 85	1905	1694.1	-.7	2	906-82	1	P	C3	11 SEP 85	
29 JUL 85	1904	1694.7	.9	2	1662-82	1	P	C3	12 SEP 85	
26 AUG 85	1922	1698.5	.8	2	1830-82	1	P	C3	02 OCT 85	
02 SEP 85	1857	1707.4	-.7	2	878-82	1	P	C3	02 OCT 85	
16 SEP 85	1941	1715.8	-2.9	2	628-82	1	P	C3	28 OCT 85	
23 SEP 85	1858	1722.0	-1.1	2	1098-82	1	P	C3	28 OCT 85	
30 SEP 85	1931	1737.3	.6	2	256-83	1	P	C3	28 OCT 85	
09 OCT 85	1858	1701.3	1.8	2	772-83	1	P	C3	28 OCT 85	
14 OCT 85	1914	1754.2	-4.2	2	577-83	1	P	C3	19 NOV 85	
21 OCT 85	1907	1738.0	3.8	2	750-82	1	P	C3	19 NOV 85	
28 OCT 85	1950	1730.9	2.1	2	734-81	1	P	C3	13 DEC 85	
25 NOV 85	1942	1750.8	-1.3	2	188-83	1	P	C3	03 JAN 86	
02 DEC 85	2003	1726.5	-1.1	2	296-82	1	P	C3	09 JAN 86	
10 DEC 85	1933	1723.5	1.5	2	1498-82	1	P	C3	09 JAN 86	
16 DEC 85	1944	1784.2		1	1552-82	1	P	C4	04 FEB 86	
23 DEC 85	1914	1749.6	-5.3	2	921-83	1	P	C4	14 FEB 86	
30 DEC 85	1932	1764.6	-3.0	2	938-83	1	P	C4	14 FEB 86	

Amsterdam Island (AMS)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 JAN 83	0855	1531.1	10.0	2	784-81	1	P	C1	05 AUG 83	+
06 JAN 83	1120	1521.6	11.0	2	642-81	1	P	C1	05 AUG 83	+
08 JAN 83	1055	1534.6	-21.0	2	640-81	1	P	C1	05 AUG 83	+
15 JAN 83	1055	1519.1	0.0	2	1160-82	1	P	C1	04 AUG 83	+
21 JAN 83	0955	1542.1	-26.0	2	1156-82	1	P	C1	28 JUL 83	
31 JAN 83	0455	1536.6	11.0	2	1152-82	1	P	C1	28 JUL 83	
04 FEB 83	1158	1545.1	-8.0	2	364-80	1	P	C1	28 JUL 83	
16 FEB 83	0550	1541.1	0.0	2	1192-82	1	P	C2	04 APR 84	
25 FEB 83	1155	1540.1	2.0	2	662-81	1	P	C2	04 APR 84	
01 MAR 83	0956	1535.1	-2.0	2	658-81	1	P	C2	04 APR 84	
08 MAR 83	1145	1539.6	3.0	2	630-81	1	P	C2	04 APR 84	
18 MAR 83	0955	1540.1		1	1246-82	1	P	C2	04 APR 84	
25 MAR 83	1045	1549.1	-2.0	2	1250-82	1	P	C2	04 APR 84	
03 APR 83	1055	1542.6	-1.0	2	1254-82	1	P	C2	04 APR 84	
08 APR 83	0457	1548.6	1.0	2	1242-82	1	P	C2	04 APR 84	
18 APR 83	0455	1551.1	-2.0	2	1196-82	1	P	C2	04 APR 84	
22 APR 83	0450	1576.1	0.0	2	1218-82	1	P	C2	05 APR 84	+
05 MAY 83	0452	1547.1	-2.0	2	1094-82	1	P	C2	05 APR 84	
12 MAY 83	0354	1555.1	-2.0	2	1200-82	1	P	C2	05 APR 84	
17 MAY 83	0545	1558.1		1	688-81	1	P	C2	05 APR 84	
02 JUN 83	0455	1562.1	4.0	2	736-81	1	P	C2	05 APR 84	
07 JUN 83	0555	1560.6	-3.0	2	732-81	1	P	C2	05 APR 84	
17 JUN 83	0450	1566.1	2.0	2	670-81	1	P	C2	05 APR 84	
24 JUN 83	0435	1567.1		1	672-81	1	P	C2	05 APR 84	
02 JUL 83	0445	1566.1	-4.0	2	768-81	1	P	C2	05 APR 84	
08 JUL 83	0350	1586.5	-3.0	2	676-81	1	P	C2	05 APR 84	+
15 JUL 83	0358	1572.6	-3.0	2	1164-82	1	P	C2	05 APR 84	
20 JUL 83	0454	1569.6	-1.0	2	1167-82	1	P	C2	05 APR 84	
27 JUL 83	0453	1570.1	0.0	2	1172-82	1	P	C2	05 APR 84	
04 AUG 83	0854	1583.0	-2.0	2	1078-82	1	P	C2	05 APR 84	
09 AUG 83	0452	1574.6	3.0	2	1104-82	1	P	C2	05 APR 84	
19 AUG 83	0451	1575.6	1.0	2	1124-82	1	P	C2	12 SEP 84	
31 AUG 83	0530	1572.1	2.0	2	1108-82	1	P	C2	12 SEP 84	
05 SEP 83	0550	1576.6	1.0	2	1110-82	1	P	C2	11 SEP 84	
20 SEP 83	1000	1575.1	0.0	2	1176-82	1	P	C2	12 SEP 84	
27 SEP 83	0600	1580.5	3.0	2	1186-82	1	P	C2	12 SEP 84	
08 OCT 83	1000	1576.6	-3.0	2	1184-82	1	P	C2	12 SEP 84	
14 OCT 83	1000	1576.1	0.0	2	1180-82	1	P	C2	12 SEP 84	
26 OCT 83	1000	1579.0	0.0	2	1208-82	1	P	C2	12 SEP 84	
01 NOV 83	1000	1580.0	0.0	2	1134-82	1	P	C2	12 SEP 84	
16 NOV 83	1030	1577.6	-1.0	2	1098-82	1	P	C2	13 SEP 84	
24 NOV 83	1100	1576.6	1.0	2	1080-82	1	P	C2	12 SEP 84	
07 DEC 83	1050	1567.1	0.0	2	1132-82	1	P	C2	12 SEP 84	
19 DEC 83	1040	1565.6	3.0	2	1148-82	1	P	C2	11 SEP 84	
23 DEC 83	0430	1590.0	2.0	2	1144-82	1	P	C2	11 SEP 84	+
28 DEC 83	1100	1571.6	-1.0	2	1128-82	1	P	C2	12 SEP 84	
06 JAN 84	0530	1562.1	-2.0	2	1229-82	1	P	C2	12 SEP 84	
15 JAN 84	0610	1557.6	1.0	2	1226-82	1	P	C2	12 SEP 84	
28 JAN 84	0930	1558.1	0.0	2	1238-82	1	P	C2	11 SEP 84	
31 JAN 84	0500	1559.1	0.0	2	1234-82	1	P	C2	12 SEP 84	
04 FEB 84	1030	1563.1	-2.0	2	546-83	1	P	C2	12 SEP 84	
15 FEB 84	0405	1557.4		1	540-83	1	P	C2	17 JAN 85	
20 FEB 84	0500	1563.3	2.3	2	538-83	1	P	C2	16 JAN 85	
26 FEB 84	0500	1559.3	-1.6	2	524-83	1	P	C2	17 JAN 85	
07 MAR 84	0500	1561.7	.7	2	544-83	1	P	C2	17 JAN 85	
17 MAR 84	0545	1562.0	.5	2	1084-82	1	P	C2	17 JAN 85	
24 MAR 84	0300	1566.3	-2.0	2	1090-82	1	P	C2	17 JAN 85	
30 MAR 84	0420	1560.3	6.9	2	1118-82	1	P	C2	17 JAN 85	
03 APR 84	0900	1559.8	6.2	2	1114-82	1	P	C2	17 JAN 85	
18 APR 84	1020	1580.4	3.5	2	1282-82	1	P	C2	16 JAN 85	
20 APR 84	.0500	1575.6	.9	2	1280-82	1	P	C2	17 JAN 85	
22 APR 84	0520	1569.3	1.5	2	1260-82	1	P	C2	17 JAN 85	
12 MAY 84	0345	1571.0	5.3	2	1256-82	1	P	C2	17 JAN 85	
21 MAY 84	0840	1583.0	-.9	2	1257-82	1	P	C2	17 JAN 85	

Amsterdam Island (AMS)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
23 MAY 84	0920	1584.5	1.1	2	1138-82	1	P	C2	17 JAN 85	
27 MAY 84	1030	1582.4	-.1	2	1140-82	1	P	C2	17 JAN 85	
30 MAY 84	0630	1577.4	-3.9	2	1272-82	1	P	C2	17 JAN 85	
04 JUL 84	0412	1584.5	-.2	2	1278-82	1	P	C3	14 AUG 85	
16 JUL 84	0920	1591.1	-3.7	2	1100-82	1	P	C3	13 AUG 85	
17 JUL 84	0945	1591.3		1	1209-82	1	P	C3	14 AUG 85	
17 JUL 84	0945	1594.6		1	1210-82	1	P	C3	14 AUG 85	
21 JUL 84	0630	1583.6	.2	2	1220-82	1	P	C3	14 AUG 85	
25 JUL 84	0520	1591.6	-4.7	2	1275-82	1	P	C3	14 AUG 85	
16 AUG 84	1030	1589.5	2.3	2	1222-82	1	P	C3	14 AUG 85	
21 AUG 84	0520	1587.6	-1.4	2	1264-82	1	P	C3	14 AUG 85	
23 AUG 84	0530	1589.0	-2.0	2	1266-82	1	P	C3	14 AUG 85	
27 AUG 84	0550	1588.9	-2.5	2	1086-82	1	P	C3	14 AUG 85	
11 SEP 84	0900	1587.4	-1.0	2	1088-82	1	P	C3	14 AUG 85	
19 SEP 84	0840	1587.9	1.7	2	1268-82	1	P	C3	14 AUG 85	
21 SEP 84	0920	1589.7	-.9	2	1270-82	1	P	C3	13 AUG 85	
23 SEP 84	0430	1591.0	-1.3	2	1204-82	1	P	C3	14 AUG 85	
25 SEP 84	1020	1588.5	-.9	2	1202-82	1	P	C3	15 AUG 85	
27 SEP 84	1015	1589.2	-.3	2	450-83	1	P	C3	14 AUG 85	
08 OCT 84	0850	1591.7	-1.7	2	452-83	1	P	C3	14 AUG 85	
15 OCT 84	0920	1587.9	3.7	2	580-83	1	P	C3	14 AUG 85	
26 DEC 84	1200	1581.0	-2.3	2	578-83	1	P	C3	14 AUG 85	
02 MAR 85	1230	1563.5	1.5	2	442-83	1	P	C3	15 AUG 85	
04 MAR 85	1100	1565.8		1	243-85	1	P	C3	16 AUG 85	
04 MAR 85	1100	1572.5		1	244-85	1	P	C3	15 AUG 85	
02 APR 85	1630	1570.1	-4.0	2	256-85	1	P	C3	04 JAN 86	
22 MAY 85	0630	1585.2		1	242-85	1	P	C3	10 JAN 86	
22 MAY 85	0630	1592.3		1	242-85	1	P	C3	10 JAN 86	
06 JUN 85	1005	1584.8	-5.4	2	196-85	1	P	C3	10 JAN 86	
17 JUN 85	0630	1565.9	-4.3	2	252-85	1	P	C3	10 JAN 86	+
24 JUN 85	1030	1606.3		1	254-85	1	P	C3	10 JAN 86	+
09 JUL 85	0455	1592.1	-2.9	2	170-85	1	P	C3	10 JAN 86	
24 JUL 85	0550	1596.2	1.5	2	194-85	1	P	C3	10 JAN 86	
05 AUG 85	0500	1600.9	-3.6	2	212-85	1	P	C4	07 JUL 86	
17 AUG 85	0420	1602.3	-2.7	2	214-85	1	P	C4	07 JUL 86	
24 AUG 85	0515	1607.7	-1.1	2	180-85	1	P	C4	07 JUL 86	
03 SEP 85	0440	1607.4	-.7	2	176-85	1	P	C4	07 JUL 86	
30 SEP 85	0430	1614.1	-4.2	2	248-85	1	P	C4	07 JUL 86	
07 OCT 85	0610	1600.1	1.5	2	250-85	1	P	C4	07 JUL 86	
15 NOV 85	0520	1596.2		1	174-85	1	P	C4	07 JUL 86	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 MAY 83	1110	1576.1	0.0	2	860-81	1	P	C1	19 MAY 83	
19 MAY 83	0935	1579.6	11.0	2	1818-82	1	P	C1	26 MAY 83	
26 MAY 83	0800	1571.1		1	170-83	1	P	C1	06 JUN 83	
02 JUN 83	0838	1587.5	5.0	2	1580-82	1	P	C1	14 JUN 83	
09 JUN 83	0922	1585.5	-3.0	2	1712-82	1	P	C1	17 JUN 83	
16 JUN 83	0833	1585.0	10.0	2	1566-82	1	P	C1	28 JUN 83	
07 JUL 83	0905	1585.1	14.0	2	788-82	1	P	C1	13 JUL 83	
14 JUL 83	0820	1591.5	7.0	2	74-83	1	P	C1	21 JUL 83	
21 JUL 83	1027	1588.0	-12.0	2	812-82	1	P	C1	28 JUL 83	
04 AUG 83	1015	1579.1	-10.0	2	1418-82	1	P	C1	18 AUG 83	
11 AUG 83	1000	1580.0	0.0	2	632-82	1	P	C1	01 SEP 83	
19 AUG 83	1400	1586.0	0.0	2	268-82	1	P	C1	02 SEP 83	
25 AUG 83	1115	1591.0	4.0	2	986-81	1	P	C1	02 SEP 83	
01 SEP 83	1000	1572.6	-5.0	2	214-83	1	P	C1	14 SEP 83	
08 SEP 83	1300	1590.0	4.0	2	1472-82	1	P	C2	28 SEP 83	
12 SEP 83	1000	1586.0	14.0	2	1160-82	1	P	C2	28 SEP 83	
22 SEP 83	1355	1599.5	11.0	2	808-83	1	P	C2	28 SEP 83	
29 SEP 83	1418	1580.0		1	780-83	1	P	C2	05 OCT 83	
29 SEP 83	1418	1588.0	24.0	2	780-83	1	P	C2	06 OCT 83	
06 OCT 83	1300	1582.5	3.0	2	758-83	1	P	C1	18 OCT 83	
13 OCT 83	1440	1581.1	-6.0	2	68-83	1	P	C1	26 OCT 83	
20 OCT 83	1550	1585.0	4.0	2	610-83	1	P	C1	28 OCT 83	
27 OCT 83	1056	1593.7	-7.0	3	704-83	1	P	C1	08 NOV 83	
03 NOV 83	1455	1577.6	3.0	2	164-83	1	P	C1	13 NOV 83	
10 NOV 83	1145	1576.6	-3.0	2	808-83	1	P	C2	07 DEC 83	
17 NOV 83	1115	1580.6	-5.0	2	758-83	1	P	C2	13 DEC 83	
24 NOV 83	1430	1574.1	0.0	2	1814-82	1	P	C2	08 DEC 83	
02 DEC 83	1015	1582.5	-3.0	2	870-81	1	P	C2	24 DEC 83	
09 DEC 83	1115	1574.1	-4.0	2	726-82	1	P	C2	27 DEC 83	
15 DEC 83	1445	1572.6	1.0	2	932-83	1	P	C2	27 DEC 83	
22 DEC 83	1130	1574.6	1.0	2	762-83	1	P	C2	04 JAN 84	
30 DEC 83	1300	1573.6	5.0	2	1150-82	1	P	C2	18 JAN 84	
06 JAN 84	1015	1579.6	-3.0	2	626-83	1	P	C2	31 JAN 84	
13 JAN 84	1315	1582.5	-7.0	2	106-83	1	P	C2	02 FEB 84	
19 JAN 84	1012	1563.1	-2.0	2	826-81	1	P	C2	02 FEB 84	
27 JAN 84	1340	1569.1	0.0	2	378-82	1	P	C2	17 FEB 84	
03 FEB 84	0930	1563.6	-1.0	2	802-83	1	P	C2	17 FEB 84	
10 FEB 84	1030	1571.1	2.0	2	1596-82	1	P	C2	04 MAR 84	
16 FEB 84	1635	1577.6	-3.0	2	484-82	1	P	C2	05 MAR 84	
16 FEB 84	1635	1578.1	0.0	2	484-82	1	P	C2	29 MAR 84	
23 FEB 84	1315	1561.1	4.0	2	840-81	1	P	C2	05 MAR 84	
02 MAR 84	1000	1575.1	0.0	2	194-83	1	P	C2	29 MAR 84	
08 MAR 84	1024	1569.1	0.0	2	12-83	1	P	C2	29 MAR 84	
15 MAR 84	1547	1585.0	-2.0	2	1714-82	1	P	C2	30 MAR 84	
22 MAR 84	1405	1574.6	3.0	2	106-83	1	P	C2	02 APR 84	
29 MAR 84	1345	1576.6	-3.0	2	972-83	1	P	C2	04 APR 84	
04 APR 84	1045	1587.5	1.0	2	1562-82	1	P	C2	12 APR 84	
13 APR 84	0930	1588.5	-1.0	2	762-83	1	P	C2	24 APR 84	
19 APR 84	1455	1578.6	-3.0	2	726-83	1	P	C2	02 MAY 84	
26 APR 84	1445	1590.0	0.0	2	402-82	1	P	C2	02 MAY 84	
10 MAY 84	1520	1589.5	-1.0	2	1696-82	1	P	C2	23 MAY 84	
17 MAY 84	0955	1702.0	6.0	2	1608-82	1	P	C2	23 MAY 84	
24 MAY 84	0943	1591.5	7.0	2	50-83	1	P	C2	31 MAY 84	
31 MAY 84	1235	1593.5	3.0	2	1192-82	1	P	C2	14 JUN 84	
07 JUN 84	0940	1587.0	0.0	2	1010-82	1	P	C2	14 JUN 84	
14 JUN 84	1000	1599.5	1.0	2	194-83	1	P	C2	10 JUL 84	
21 JUN 84	1450	1592.5	-1.0	2	724-83	1	P	C2	02 JUL 84	
28 JUN 84	1023	1601.0		1	108-84	1	P	C2	10 JUL 84	
05 JUL 84	0945	1601.0	-2.0	2	1150-82	1	P	C2	12 JUL 84	
12 JUL 84	0930	1595.5	-1.0	2	1588-82	1	P	C2	31 JUL 84	
19 JUL 84	0950	1605.0		1	104-84	1	P	C2	31 JUL 84	
26 JUL 84	1000	1600.5	3.0	2	184-82	1	P	C2	01 AUG 84	
03 AUG 84	1025	1600.0	0.0	2	1696-82	1	P	C2	07 SEP 84	
09 AUG 84	1420	1599.5	3.0	2	1664-82	1	P	C2	10 SEP 84	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
16 AUG 84	1100	1606.0	0.0	2	406-82	1	P	C2	05 SEP 84	
24 AUG 84	1600	1598.5	-5.0	2	202-83	1	P	C2	11 SEP 84	
30 AUG 84	1015	1603.5	3.0	2	1646-82	1	P	C2	10 SEP 84	
06 SEP 84	0920	1593.0	2.0	2	738-82	1	P	C2	22 SEP 84	
12 SEP 84	1600	1599.5	1.0	2	946-83	1	P	C2	21 SEP 84	
20 SEP 84	1008	1602.9	2.8	3	708-83	1	P	C2	17 OCT 84	
27 SEP 84	1545	1601.7	.6	2	726-83	1	P	C2	17 OCT 84	
05 OCT 84	1345	1589.7	.9	2	548-83	1	P	C2	18 OCT 84	
11 OCT 84	0926	1593.6	-3.9	2	1630-82	1	P	C2	17 OCT 84	
18 OCT 84	1412	1597.9	-5.9	2	362-82	1	P	C2	01 NOV 84	
25 OCT 84	1344	1594.6	-.3	2	846-81	1	P	C2	07 NOV 84	
01 NOV 84	1438	1587.6	-4.7	2	1142-82	1	P	C2	14 NOV 84	
08 NOV 84	1100	1587.6	-.1	2	1680-82	1	P	C2	15 NOV 84	
15 NOV 84	0810	1594.1	-1.6	2	1000-82	1	P	C2	27 NOV 84	
22 NOV 84	0825	1586.7	.9	2	1486-82	1	P	C2	06 DEC 84	
29 NOV 84	0915	1582.8	1.1	2	954-83	1	P	C2	11 DEC 84	
06 DEC 84	0815	1583.9	-4.5	2	266-83	1	P	C2	18 DEC 84	
13 DEC 84	0855	1603.7	2.0	2	166-83	1	P	C2	08 JAN 85	
20 DEC 84	0813	1600.8	5.0	2	1442-82	1	P	C2	08 JAN 85	
27 DEC 84	0830	1585.8	1.2	2	620-83	1	P	C2	09 JAN 85	
03 JAN 85	1025	1580.5	4.7	2	624-82	1	P	C2	09 JAN 85	
10 JAN 85	1348	1588.7	-5.5	2	730-83	1	P	C2	17 JAN 85	
17 JAN 85	0940	1585.1	-.4	2	1348-82	1	P	C2	24 JAN 85	
24 JAN 85	1000	1580.0	-1.2	2	486-82	1	P	C2	05 FEB 85	
31 JAN 85	0933	1582.9	-.5	2	1664-82	1	P	C2	14 FEB 85	
07 FEB 85	1610	1582.0	-3.7	2	1216-82	1	P	C2	20 FEB 85	
14 FEB 85	1100	1582.7	4.7	2	1010-82	1	P	C2	27 FEB 85	
21 FEB 85	0915	1593.1	1.7	2	166-83	1	P	C2	27 FEB 85	
28 FEB 85	0910	1576.0	3.0	2	1274-82	1	P	C2	25 MAR 85	
07 MAR 85	0940	1582.8	5.2	2	1198-82	1	P	C2	27 MAR 85	
14 MAR 85	0940	1588.8	3.9	2	1150-82	1	P	C2	26 MAR 85	
21 MAR 85	0955	1594.8	-1.2	2	1818-82	1	P	C2	10 APR 85	
28 MAR 85	1545	1602.0	-.6	2	932-83	1	P	C2	04 APR 85	
04 APR 85	0935	1600.1	6.1	2	628-82	1	P	C2	16 APR 85	
11 APR 85	0930	1596.7	-2.1	2	934-83	1	P	C2	24 APR 85	
18 APR 85	0940	1601.7	-3.2	2	744-83	1	P	C2	24 APR 85	
26 APR 85	1345	1599.8	-1.7	2	542-82	1	P	C2	07 MAY 85	
02 MAY 85	1630	1603.5	-1.4	2	260-83	1	P	C2	22 MAY 85	
06 MAY 85	0930	1602.4	.7	2	651-83	1	P	C2	16 MAY 85	
16 MAY 85	1515	1597.0	6.1	2	268-82	1	P	C2	22 MAY 85	
23 MAY 85	1350	1599.3	-1.3	2	900-83	1	P	C2	11 JUN 85	
30 MAY 85	1000	1594.9	-3.0	2	804-82	1	P	C2	11 JUN 85	
06 JUN 85	1410	1608.8	-.4	2	806-83	1	P	C2	13 JUN 85	
13 JUN 85	1005	1617.4	.1	2	1343-82	1	P	C2	28 JUN 85	
19 JUN 85	0915	1608.9	4.2	2	1092-82	1	P	C2	28 JUN 85	
27 JUN 85	0935	1614.6	-4.3	2	1682-82	1	P	C2	09 JUL 85	
04 JUL 85	1455	1605.1	1.3	2	636-83	1	P	C2	16 JUL 85	
11 JUL 85	1229	1607.4	-2.8	3	34-83	1	P	C2	31 JUL 85	
18 JUL 85	0932	1610.9	-1.3	2	548-83	1	P	C2	31 JUL 85	
25 JUL 85	1000	1612.3	1.0	2	496-82	1	P	C3	12 AUG 85	
01 AUG 85	1340	1608.2	-7.7	2	186-82	1	P	C3	12 AUG 85	
08 AUG 85	0950	1607.1	2.1	2	1146-82	1	P	C3	14 AUG 85	
15 AUG 85	1415	1629.6	1.3	2	502-82	1	P	C3	11 SEP 85	
29 AUG 85	0922	1610.7	2.5	2	192-83	1	P	C3	12 SEP 85	
05 SEP 85	0915	1615.4	1.1	2	1140-82	1	P	C3	14 SEP 85	
12 SEP 85	0950	1613.6		1	542-83	1	P	C3	24 SEP 85	
19 SEP 85	0910	1620.1	4.1	2	382-83	1	P	C3	02 OCT 85	
26 SEP 85	1400	1614.9	1.4	2	630-82	1	P	C3	09 OCT 85	
03 OCT 85	1520	1606.9	-5.0	2	666-83	1	P	C3	22 OCT 85	
10 OCT 85	1000	1605.1	-2.1	2	789-83	1	P	C3	24 OCT 85	
17 OCT 85	1000	1608.2		1	962-83	1	P	C3	23 OCT 85	
24 OCT 85	1000	1611.4	-1.7	2	484-82	1	P	C3	05 NOV 85	
07 NOV 85	1000	1598.4	.3	2	740-83	1	P	C3	20 NOV 85	
14 NOV 85	0915	1610.2	-1.0	2	920-82	1	P	C3	20 NOV 85	
21 NOV 85	0920	1602.2	1.2	2	560-85	1	P	C3	14 DEC 85	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
28 NOV 85	1410	1598.6	3.5	2	856-83	1	P	C3	13 DEC 85	
05 DEC 85	1435	1608.5	2.8	2	724-85	1	P	C3	13 DEC 85	
12 DEC 85	0945	1606.2	3.8	2	272-85	1	P	C3	03 JAN 86	
19 DEC 85	0905	1594.2	-2.2	2	814-83	1	P	C3	04 JAN 86	

St. Croix, Virgin Islands (AVI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
12 MAY 83	2000	1618.0	-2.0	2	814-81	1	P	C1	17 MAY 83	
18 MAY 83	1930	1606.5	-15.0	2	6-83	1	P	C1	24 MAY 83	
26 MAY 83	1300	1605.0	-4.0	2	1766-82	1	P	C1	01 JUN 83	
02 JUN 83	2030	1635.0		1	198-82	1	P	C1	08 JUN 83	
10 JUN 83	2030	1639.0	12.0	2	860-82	1	P	C1	14 JUN 83	
18 JUN 83	1800	1620.0	0.0	2	272-83	1	P	C1	28 JUN 83	
24 JUN 83	2000	1618.0	8.0	2	100-83	1	P	C1	06 JUL 83	
01 JUL 83	2015	1602.0	10.0	2	986-82	1	P	C1	13 JUL 83	
07 JUL 83	1900	1650.0		1	1522-82	1	P	C1	20 JUL 83	
14 JUL 83	1900	1665.0	0.0	2	1698-82	1	P	C1	20 JUL 83	
22 JUL 83	1830	1622.0	0.0	2	1580-82	1	P	C1	06 AUG 83	
29 JUL 83	1730	1623.5	-23.0	2	884-81	1	P	C1	06 AUG 83	
04 AUG 83	2130	1660.5	-1.0	2	1518-82	1	P	C1	18 AUG 83	
11 AUG 83	1930	1607.5	7.0	2	710-83	1	P	C1	19 AUG 83	
19 AUG 83	1800	1646.0	0.0	2	276-82	1	P	C1	31 AUG 83	
23 AUG 83	2000	1635.5	-3.0	2	196-83	1	P	C1	31 AUG 83	
03 SEP 83	2030	1651.5	5.0	2	756-83	1	P	C1	15 SEP 83	
09 SEP 83	1930	1687.5	-1.0	2	944-81	1	P	C1	15 SEP 83	
14 SEP 83	1930	1622.5	-1.0	2	752-83	1	P	C2	06 OCT 83	
22 SEP 83	1830	1620.5	9.0	2	1418-82	1	P	C2	06 OCT 83	
07 OCT 83	1830	1657.5	-3.0	2	682-82	1	P	C1	18 OCT 83	
17 OCT 83	2000	1647.5	5.0	2	100-83	1	P	C1	28 OCT 83	
22 DEC 83	1345	1645.5	3.0	2	278-82	1	P	C2	28 DEC 83	
28 DEC 83	1340	1663.5	-7.0	2	192-83	1	P	C2	04 JAN 84	
05 JAN 84	1900	1657.0	-4.0	2	906-82	1	P	C2	17 JAN 84	
12 JAN 84	1240	1643.5	-3.0	2	1562-82	1	P	C2	18 JAN 84	
18 JAN 84	1300	1654.5	-1.0	2	136-83	1	P	C2	31 JAN 84	
27 JAN 84	1220	1659.5	3.0	2	100-83	1	P	C2	03 FEB 84	
01 FEB 84	1930	1635.5	1.0	2	776-83	1	P	C2	07 FEB 84	
09 FEB 84	1845	1653.5	-5.0	2	1820-82	1	P	C2	17 FEB 84	
16 FEB 84	2025	1674.5	5.0	2	256-83	1	P	C2	04 MAR 84	
03 MAR 84	1230	1635.0	-2.0	2	1648-82	1	P	C2	29 MAR 84	
14 MAR 84	2000	1647.0	-6.0	2	948-83	1	P	C2	30 MAR 84	
31 MAR 84	1200	1649.5	5.0	2	786-83	1	P	C2	12 APR 84	
12 APR 84	1915	1635.0	0.0	2	936-82	1	P	C2	24 APR 84	
25 APR 84	1345	1648.0	2.0	2	1698-82	1	P	C2	02 MAY 84	
29 APR 84	1300	1677.5	7.0	2	184-82	1	P	C2	03 MAY 84	
04 MAY 84	1840	1665.0	-8.0	2	930-83	1	P	C2	16 MAY 84	
10 MAY 84	2100	1649.5	-3.0	2	56-82	1	P	C2	17 MAY 84	
18 MAY 84	1845	1655.5	-3.0	2	1364-82	1	P	C2	31 MAY 84	
27 MAY 84	1430	1656.0	-4.0	2	1732-82	1	P	C2	15 JUN 84	
04 JUN 84	1850	1633.0	-2.0	2	1344-82	1	P	C2	14 JUN 84	
15 JUN 84	1420	1630.0	-2.0	2	1694-82	1	P	C2	10 JUL 84	
30 JUN 84	2045	1642.0	-2.0	2	836-81	1	P	C2	11 JUL 84	
13 JUL 84	1350	1646.0	0.0	2	1754-82	1	P	C2	31 JUL 84	
22 JUL 84	1400	1634.0	4.0	2	688-81	1	P	C2	13 AUG 84	
30 JUL 84	1345	1650.5	-3.0	2	1442-82	1	P	C2	13 AUG 84	
02 AUG 84	2000	1636.0	-2.0	2	1384-82	1	P	C2	13 AUG 84	
11 AUG 84	1400	1650.0	-2.0	2	210-83	1	P	C2	10 SEP 84	
17 AUG 84	1700	1655.0		1	776-82	1	P	C2	05 SEP 84	
26 AUG 84	1700	1646.0	0.0	2	1380-82	1	P	C2	11 SEP 84	
10 SEP 84	2000	1648.0		1	1394-82	1	P	C2	22 SEP 84	
12 SEP 84	1400	1646.2	.7	2	750-82	1	P	C2	18 OCT 84	
23 SEP 84	1940	1641.6	-.4	2	1604-82	1	P	C2	16 OCT 84	
26 SEP 84	1630	1637.7	1.7	2	255-83	1	P	C2	18 OCT 84	
04 OCT 84	1900	1637.6	4.4	2	1166-82	1	P	C2	18 OCT 84	
12 OCT 84	1330	1645.3	3.2	2	188-83	1	P	C2	16 OCT 84	
18 OCT 84	1900	1639.3	2.7	2	1688-82	1	P	C2	02 NOV 84	
27 OCT 84	1330	1651.5	1.3	2	1442-82	1	P	C2	14 NOV 84	
05 NOV 84	1245	1637.3	1.0	2	1358-82	1	P	C2	14 NOV 84	
11 NOV 84	1400	1679.8	-3.2	2	1604-82	1	P	C2	23 NOV 84	
15 NOV 84	1300	1653.9	-2.2	2	1448-82	1	P	C2	27 NOV 84	
21 NOV 84	1800	1652.7	1.0	2	1094-82	1	P	C2	27 NOV 84	
29 NOV 84	1400	1676.3	-2.0	2	754-82	1	P	C2	11 DEC 84	

St. Croix, Virgin Islands (AVI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 DEC 84	1130	1661.7	-2.0	2	726-82	1	P	C2	19 DEC 84	
14 DEC 84	2000	1685.5	-2.4	2	1586-82	1	P	C2	09 JAN 85	
16 DEC 84	2050	1697.5	-5.9	2	966-83	1	P	C2	08 JAN 85	
18 DEC 84	2030	1696.1		1	1092-82	1	P	C2	08 JAN 85	
30 DEC 84	1615	1679.5	4.6	2	828-83	1	P	C2	09 JAN 85	
04 JAN 85	2030	1684.9	3.7	2	1198-82	1	P	C2	16 JAN 85	
12 JAN 85	1315	1654.0	-.3	2	1012-82	1	P	C2	17 JAN 85	
18 JAN 85	1800	1681.2	-1.6	2	854-83	1	P	C2	24 JAN 85	
27 JAN 85	1240	1656.8	1.6	2	1302-82	1	P	C2	04 FEB 85	
02 FEB 85	1330	1690.7	-3.9	2	1150-82	1	P	C2	14 FEB 85	
09 FEB 85	1400	1650.5	5.8	2	1538-82	1	P	C2	27 FEB 85	
15 FEB 85	1700	1656.8	6.9	2	1602-82	1	P	C2	20 FEB 85	
24 FEB 85	1345	1665.4	-2.9	2	968-83	1	P	C2	27 FEB 85	
03 MAR 85	1500	1681.0	-.8	2	1176-82	1	P	C2	26 MAR 85	
10 MAR 85	1225	1660.4	-.9	2	1678-82	1	P	C2	27 MAR 85	
17 MAR 85	1330	1665.7	4.8	2	808-83	1	P	C2	26 MAR 85	
22 MAR 85	1845	1662.6	-.5	2	944-83	1	P	C2	28 MAR 85	
28 MAR 85	1715	1698.5	.8	2	624-82	1	P	C2	10 APR 85	
13 APR 85	1200	1678.0	4.3	2	544-83	1	P	C2	24 APR 85	
19 APR 85	1950	1658.6	-2.1	2	1682-82	1	P	C2	01 MAY 85	
26 APR 85	1900	1679.6		1	1662-82	1	P	C2	01 MAY 85	
02 MAY 85	1920	1674.6		1	416-82	1	P	C2	22 MAY 85	
08 MAY 85	1945	1660.9		1	688-83	1	P	C2	16 MAY 85	
16 MAY 85	2015	1656.0	-1.9	2	485-82	1	P	C2	29 MAY 85	
16 MAY 85	2015	1654.5		1	2008-85	7	P	C2	29 MAY 85	
22 MAY 85	2000	1658.1	3.0	2	1742-82	1	P	C2	29 MAY 85	
28 MAY 85	1930	1656.4		1	786-83	1	P	C2	13 JUN 85	
07 JUN 85	1900	1648.3		1	1292-82	1	P	C2	13 JUN 85	
20 JUN 85	1430	1664.0	4.2	2	678-83	1	P	C2	28 JUN 85	
06 JUL 85	1800	1654.0		1	1328-82	1	P	C2	16 JUL 85	
16 JUL 85	1930	1645.1	-3.1	2	1688-82	1	P	C2	19 JUL 85	
26 JUL 85	1200	1644.5	.2	2	907-83	1	P	C3	13 AUG 85	
09 AUG 85	1600	1676.7	3.6	2	1332-82	1	P	C3	15 AUG 85	
16 AUG 85	2020	1645.6	2.2	2	739-83	1	P	C3	26 AUG 85	
29 AUG 85	2155	1651.2		1	398-85	1	P	C3	12 SEP 85	
07 SEP 85	1845	1657.6		1	1812-82	1	P	C3	24 SEP 85	
14 SEP 85	2000	1636.7	.5	2	1270-82	1	P	C3	23 SEP 85	
23 SEP 85	1715	1670.1	1.3	2	1818-82	1	P	C3	02 OCT 85	
27 SEP 85	2125	1655.0	2.2	2	554-85	1	P	C3	02 OCT 85	
04 OCT 85	2055	1656.0	1.5	2	1316-82	1	P	C3	23 OCT 85	
12 OCT 85	1255	1679.2	.6	2	620-83	1	P	C3	23 OCT 85	
22 OCT 85	1600	1693.5	-.6	2	318-83	1	P	C3	19 NOV 85	
03 NOV 85	1715	1650.9	0.0	2	726-85	1	P	C3	14 NOV 85	
08 NOV 85	2140	1699.5	3.2	2	1578-82	1	P	C3	19 NOV 85	
16 NOV 85	2050	1694.2	-.8	2	1386-82	1	P	C3	27 NOV 85	
25 NOV 85	1800	1701.6	-3.4	2	296-83	1	P	C3	14 DEC 85	
29 NOV 85	1335	1678.7	.5	2	872-83	1	P	C3	13 DEC 85	
05 DEC 85	1535	1686.5	-.8	2	906-83	1	P	C3	17 DEC 85	
12 DEC 85	1600	1696.9	-1.0	2	578-83	1	P	C3	17 DEC 85	
20 DEC 85	1545	1712.5	-7.2	3	478-82	1	P	C3	04 JAN 86	
28 DEC 85	1934	1686.1	1.0	2	544-85	1	P	C3	10 JAN 86	

Azores (AZR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 MAY 83	1000	1674.5	-19.0	2	218-83	1	P	C1	14 JUN 83	
24 MAY 83	1330	1681.5	-1.0	2	872-81	1	P	C1	12 JUN 83	
13 JUN 83	0915	1672.0	12.0	2	1716-82	1	P	C1	17 JUN 83	
20 JUL 83	1310	1640.0	20.0	2	1002-82	1	P	C1	28 JUL 83	
29 JUL 83	1610	1665.0	8.0	2	192-83	1	P	C1	19 AUG 83	
10 AUG 83	1145	1672.5	-7.0	2	842-81	1	P	C1	18 AUG 83	
25 AUG 83	1815	1630.0	6.0	2	262-83	1	P	C1	14 SEP 83	
02 SEP 83	1200	1669.0	2.0	2	230-83	1	P	C2	27 SEP 83	
11 SEP 83	1700	1661.0	2.0	2	1754-82	1	P	C2	28 SEP 83	
11 SEP 83	1700	1667.0	4.0	2	1754-82	1	P	C2	07 OCT 83	
24 SEP 83	1540	1677.0	4.0	2	804-83	1	P	C2	06 OCT 83	
08 OCT 83	1435	1683.0	0.0	2	704-82	1	P	C1	28 OCT 83	
19 OCT 83	1150	1666.0	2.0	2	720-83	1	P	C1	08 NOV 83	
31 OCT 83	1305	1689.5	-1.0	2	230-83	1	P	C1	13 NOV 83	
13 NOV 83	1800	1692.0	4.0	2	936-82	1	P	C2	13 DEC 83	
28 NOV 83	1320	1658.0	0.0	2	244-83	1	P	C2	14 DEC 83	
10 DEC 83	1200	1673.5	3.0	2	752-83	1	P	C2	28 DEC 83	
01 JAN 84	1300	1669.5	3.0	2	90-83	1	P	C2	31 JAN 84	
11 JAN 84	1810	1701.6	4.0	3	1798-82	1	P	C2	01 FEB 84	
19 JAN 84	1800	1698.5	3.0	2	402-82	1	P	C2	02 FEB 84	
01 FEB 84	1430	1670.0	4.0	2	804-82	1	P	C2	17 FEB 84	
28 FEB 84	1800	1728.5	1.0	2	1040-82	1	P	C2	08 MAR 84	
09 MAR 84	1730	1687.5	-1.0	2	730-82	1	P	C2	30 MAR 84	
22 MAR 84	1810	1694.5	3.0	2	258-83	1	P	C2	12 APR 84	
31 MAR 84	1600	1685.5	-5.0	2	716-83	1	P	C2	12 APR 84	
17 APR 84	1330	1695.0	1.0	3	1216-82	1	P	C2	03 MAY 84	
03 MAY 84	1820	1698.5	5.0	2	1006-82	1	P	C2	16 MAY 84	
11 MAY 84	1630	1695.0	-2.0	2	1194-82	1	P	C2	31 MAY 84	
22 MAY 84	2100	1673.5	1.0	2	1380-82	1	P	C2	15 JUN 84	
10 JUN 84	1000	1673.0	0.0	2	1308-82	1	P	C2	10 JUL 84	
22 JUN 84	1645	1690.0	-2.0	2	974-83	1	P	C2	10 JUL 84	
15 JUL 84	2110	1633.0	0.0	2	1688-82	1	P	C2	31 JUL 84	
24 JUL 84	1320	1666.5	1.0	2	1190-82	1	P	C2	13 AUG 84	
17 SEP 84	2000	1700.7	-.1	2	1742-82	1	P	C2	16 OCT 84	
25 SEP 84	1705	1677.4	-1.5	2	1588-82	1	P	C2	18 OCT 84	
07 OCT 84	1815	1689.3	.2	2	50-83	1	P	C2	17 OCT 84	
15 OCT 84	1830	1698.1	.9	2	524-82	1	P	C2	01 NOV 84	
21 OCT 84	1400	1669.8	-.9	2	704-82	1	P	C2	14 NOV 84	
18 NOV 84	1800	1726.5		1	1224-82	1	P	C2	04 DEC 84	
01 DEC 84	1100	1719.8	4.3	2	1742-82	1	P	C2	18 DEC 84	
15 DEC 84	1330	1697.2		1	1484-82	1	P	C2	03 JAN 85	
15 DEC 84	1330	1707.2		1	1484-82	1	P	C2	08 JAN 85	
24 DEC 84	1230	1712.4	-4.7	2	526-82	1	P	C2	05 FEB 85	
28 JAN 85	1330	1682.7	-.7	2	8-83	1	P	C2	05 FEB 85	
22 FEB 85	1430	1713.4	-.2	2	488-82	1	P	C2	26 MAR 85	
04 MAR 85	1430	1708.9	4.2	2	704-82	1	P	C2	26 MAR 85	
10 MAR 85	1805	1697.6		1	790-83	1	P	C2	26 MAR 85	
17 MAR 85	1830	1761.5	-9.4	2	210-83	1	P	C2	26 MAR 85	
13 APR 85	0930	1714.1	-.2	2	718-83	1	P	C2	24 APR 85	
25 APR 85	1620	1709.4	4.1	2	1648-82	1	P	C2	07 MAY 85	
06 MAY 85	1700	1722.1	1.5	2	58-83	1	P	C2	16 MAY 85	
13 MAY 85	1830	1698.8	-.2	2	548-83	1	P	C2	22 MAY 85	
21 MAY 85	2030	1733.4	2.8	2	1274-82	1	P	C2	29 MAY 85	
12 JUN 85	1545	1689.4	-.6	2	1310-82	1	P	C2	28 JUN 85	
08 JUL 85	1736	1686.6	-1.6	2	876-83	1	P	C2	24 JUL 85	
20 JUL 85	1709	1655.5	1.0	2	920-82	1	P	C2	31 JUL 85	
28 JUL 85	2002	1709.5	5.1	2	976-83	1	P	C3	12 AUG 85	
11 SEP 85	2035	1711.8	-2.5	2	938-83	1	P	C3	09 OCT 85	
19 SEP 85	1246	1686.0	2.4	2	804-83	1	P	C3	02 OCT 85	
26 OCT 85	2300	1718.6	2.7	2	522-83	1	P	C3	05 NOV 85	
27 OCT 85	2000	1721.2	-4.4	2	690-83	1	P	C3	19 NOV 85	
27 NOV 85	1800	1690.2	-2.8	2	1202-82	1	P	C3	03 JAN 86	
16 DEC 85	2000	1712.4	2.2	2	636-83	1	P	C4	12 FEB 86	
27 DEC 85	2000	1715.4	3.2	2	694-83	1	P	C4	12 FEB 86	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 APR 83	2145	1699.0	0.0	3	759-82	1	P	C1	27 APR 83	
06 APR 83	2145	1696.2	-18.0	4	760-82	1	P	C1	27 APR 83	
14 APR 83	2235	1698.0	25.0	3	147-82	1	P	C1	29 APR 83	
14 APR 83	2235	1705.5	-5.0	2	148-82	1	P	C1	29 APR 83	
17 MAY 83	2030	1681.0	8.0	2	148-83	1	P	C1	25 MAY 83	
17 MAY 83	2035	1659.0	2.0	2	223-83	1	P	C1	01 JUN 83	
17 MAY 83	2035	1667.5	5.0	2	224-83	1	P	C1	01 JUN 83	
24 MAY 83	2127	1687.0	-2.0	2	1002-81	1	P	C1	02 JUN 83	
24 MAY 83	2217	1678.5	1.0	2	83-83	1	P	C1	01 JUN 83	
24 MAY 83	2217	1670.5	-5.0	2	84-83	1	P	C1	01 JUN 83	
01 JUN 83	2125	1697.0	-8.0	2	798-81	1	P	C1	08 JUN 83	
14 JUN 83	2127	1692.0	-2.0	2	210-83	1	P	C1	17 JUN 83	
23 JUN 83	9999	1668.0	12.0	2	1564-82	1	P	C1	06 JUL 83	
25 JUN 83	9999	1671.5	-7.0	2	994-81	1	P	C1	06 JUL 83	
04 JUL 83	2130	1690.3	-14.0	3	46-83	1	P	C1	28 JUL 83	
05 JUL 83	2130	1671.0	0.0	2	760-82	1	P	C1	13 JUL 83	
05 JUL 83	9999	1685.0	-12.0	2	1806-82	1	P	C1	21 JUL 83	
26 JUL 83	2225	1667.5	15.0	2	216-83	1	P	C1	06 AUG 83	
08 AUG 83	2125	1706.5	-5.0	2	862-81	1	P	C1	18 AUG 83	
15 AUG 83	2230	1669.0	-4.0	2	304-82	1	P	C1	02 SEP 83	
15 AUG 83	2230	1665.5	5.0	2	912-82	1	P	C1	19 AUG 83	
02 SEP 83	2300	1712.5	-1.0	2	1709-82	1	P	C1	15 SEP 83	
12 SEP 83	2330	1684.0	0.0	2	768-83	1	P	C2	27 SEP 83	
23 SEP 83	2158	1705.0	-2.0	2	164-84	1	P	C2	28 SEP 83	
26 SEP 83	2130	1726.5	5.0	2	626-83	1	P	C2	07 OCT 83	
04 OCT 83	2130	1735.9	-2.0	2	244-83	1	P	C1	18 OCT 83	
11 OCT 83	2130	1702.5	-3.0	2	74-83	1	P	C1	18 OCT 83	
26 OCT 83	2312	1743.9	0.0	2	718-83	1	P	C1	08 NOV 83	
02 NOV 83	2130	1714.0	8.0	2	806-83	1	P	C1	08 NOV 83	
09 NOV 83	2025	1710.0	-2.0	2	814-83	1	P	C2	07 DEC 83	
15 NOV 83	2125	1721.5	3.0	2	632-82	1	P	C2	07 DEC 83	
23 NOV 83	2126	1711.0	0.0	2	926-83	1	P	C2	13 DEC 83	
30 NOV 83	2224	1697.5	-1.0	2	750-82	1	P	C2	08 DEC 83	
06 DEC 83	2326	1698.0	-2.0	2	628-82	1	P	C2	14 DEC 83	
14 DEC 83	2226	1724.0	6.0	2	1758-82	1	P	C2	24 DEC 83	
19 DEC 83	2130	1717.5	1.0	2	946-83	1	P	C2	28 DEC 83	
27 DEC 83	9999	1697.0	0.0	2	178-82	1	P	C2	03 JAN 84	
03 JAN 84	2130	1745.5	5.0	2	122-83	1	P	C2	17 JAN 84	
09 JAN 84	2130	1726.0	12.0	2	628-82	1	P	C2	17 JAN 84	
17 JAN 84	2130	1704.0	6.0	2	930-83	1	P	C2	31 JAN 84	
25 JAN 84	2130	1763.3	2.0	3	796-83	1	P	C2	02 FEB 84	
01 FEB 84	2130	1805.9	4.0	2	720-83	1	P	C2	07 FEB 84	
06 FEB 84	2130	1739.0	-4.0	2	1668-82	1	P	C2	17 FEB 84	
14 FEB 84	2130	1740.9	0.0	2	1608-82	1	P	C2	04 MAR 84	
22 FEB 84	2130	1762.4	3.0	2	100-83	1	P	C2	05 MAR 84	
28 FEB 84	2130	1751.4	-3.0	2	788-83	1	P	C2	05 MAR 84	
05 MAR 84	2130	1726.0	-2.0	2	388-82	1	P	C2	29 MAR 84	
12 MAR 84	2030	1739.0	0.0	2	780-83	1	P	C2	30 MAR 84	
19 MAR 84	2130	1728.0	-2.0	2	1820-82	1	P	C2	02 APR 84	
29 MAR 84	2125	1722.0	-2.0	2	256-83	1	P	C2	12 APR 84	
03 APR 84	2126	1713.0	-2.0	2	1056-82	1	P	C2	12 APR 84	
11 APR 84	9999	1726.5	3.0	2	1486-82	1	P	C2	17 APR 84	
18 APR 84	2125	1713.5	1.0	2	1092-82	1	P	C2	24 APR 84	
23 APR 84	2224	1719.0	2.0	2	932-83	1	P	C2	03 MAY 84	
30 APR 84	2125	1712.5	5.0	2	736-83	1	P	C2	03 MAY 84	
01 MAY 84	2310	1720.5	-3.0	2	1010-82	1	P	C2	16 MAY 84	
02 MAY 84	2300	1710.5	-1.0	2	613-83	1	P	C2	16 MAY 84	
03 MAY 84	2330	1713.0	2.0	2	614-83	1	P	C2	16 MAY 84	
04 MAY 84	2313	1834.4	1.0	2	813-83	1	P	C2	23 MAY 84	+
05 MAY 84	2343	1707.0	4.0	2	814-83	1	P	C2	23 MAY 84	
06 MAY 84	2211	1719.5	5.0	2	1349-82	1	P	C2	23 MAY 84	
07 MAY 84	2230	1712.5	-3.0	2	1350-82	1	P	C2	23 MAY 84	
10 MAY 84	0114	1721.5	1.0	2	1701-82	1	P	C2	23 MAY 84	
11 MAY 84	0038	1708.5	-5.0	2	807-83	1	P	C2	23 MAY 84	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 MAY 84	0111	1715.5	-3.0	2	808-83	1	P	C2	23 MAY 84	
13 MAY 84	0200	1716.5	-5.0	2	115-84	1	P	C2	23 MAY 84	
13 MAY 84	2205	1711.0	2.0	2	116-84	1	P	C2	23 MAY 84	
16 MAY 84	1911	1704.0	6.0	2	754-83	1	P	C2	23 MAY 84	
18 MAY 84	2242	1707.0	0.0	2	753-83	1	P	C2	23 MAY 84	
24 MAY 84	1930	1706.5	7.0	2	764-83	1	P	C2	31 MAY 84	
30 MAY 84	2026	1706.0	-4.0	2	976-83	1	P	C2	15 JUN 84	
04 JUN 84	2130	1704.5	1.0	2	806-83	1	P	C2	14 JUN 84	
11 JUN 84	2033	1712.0	4.0	2	1242-82	1	P	C2	14 JUN 84	
18 JUN 84	2126	1685.5	-3.0	2	1366-82	1	P	C2	10 JUL 84	
25 JUN 84	2130	1699.5	1.0	2	772-83	1	P	C2	02 JUL 84	
02 JUL 84	2126	1703.6	10.0	3	34-82	1	P	C2	11 JUL 84	
09 JUL 84	2126	1697.5	-1.0	2	1324-82	1	P	C2	12 JUL 84	
20 JUL 84	2240	1685.0	0.0	2	948-83	1	P	C2	01 AUG 84	
24 JUL 84	2226	1741.5	3.0	2	1540-82	1	P	C2	31 JUL 84	
30 JUL 84	2230	1694.5	1.0	2	258-82	1	P	C2	13 AUG 84	
09 AUG 84	2107	1705.0	0.0	2	1192-82	1	P	C2	07 SEP 84	
17 AUG 84	0000	1695.5	5.0	2	538-82	1	P	C2	05 SEP 84	
23 AUG 84	2128	1715.5	-1.0	2	1820-82	1	P	C2	05 SEP 84	
29 AUG 84	2305	1717.5	-3.0	2	1796-82	1	P	C2	11 SEP 84	
03 SEP 84	2115	1705.0	-2.0	2	744-83	1	P	C2	10 SEP 84	
10 SEP 84	2117	1719.5	-1.0	2	34-82	1	P	C2	22 SEP 84	
17 SEP 84	2244	1761.4	-3.0	2	1416-82	1	P	C2	21 SEP 84	
24 SEP 84	2117	1847.9	0.0	2	760-83	1	P	C2	28 SEP 84	
01 OCT 84	2115	1716.9	2.6	2	626-83	1	P	C2	17 OCT 84	
08 OCT 84	2155	1717.0	-1.8	2	1690-82	1	P	C2	18 OCT 84	
17 OCT 84	0035	1747.1	3.2	2	790-83	1	P	C2	02 NOV 84	
22 OCT 84	2125	1726.5	-2.1	2	502-82	1	P	C2	01 NOV 84	
29 OCT 84	2308	1752.9	1.7	2	1540-82	1	P	C2	14 NOV 84	
05 NOV 84	2202	1725.1	-2.8	2	926-83	1	P	C2	15 NOV 84	
12 NOV 84	2222	1721.1	1.9	2	120-84	1	P	C2	15 NOV 84	
19 NOV 84	2207	1720.7	2.8	2	90-83	1	P	C2	27 NOV 84	
26 NOV 84	2044	1718.6	-2.3	2	974-83	1	P	C2	06 DEC 84	
03 DEC 84	2212	1728.5	-2.9	2	932-82	1	P	C2	06 DEC 84	
10 DEC 84	2248	1730.1	-1.1	2	682-82	1	P	C2	18 DEC 84	
17 DEC 84	2228	1728.4	2.0	2	278-82	1	P	C2	08 JAN 85	
24 DEC 84	2249	1770.4	-.9	2	938-83	1	P	C2	08 JAN 85	
07 JAN 85	2256	1756.7	1.4	2	502-82	1	P	C2	16 JAN 85	
10 JAN 85	2250	1752.6	-5.2	2	624-83	1	P	C2	17 JAN 85	
16 JAN 85	2158	1740.2	-2.8	2	538-82	1	P	C2	24 JAN 85	
23 JAN 85	2140	1733.2	-.9	2	2-83	1	P	C2	04 FEB 85	
30 JAN 85	2041	1725.2	-.5	2	1146-82	1	P	C2	05 FEB 85	
07 FEB 85	2349	1724.9	-1.9	2	942-83	1	P	C2	13 FEB 85	
24 FEB 85	2047	1752.6	.5	2	1683-82	1	P	C2	27 FEB 85	
24 FEB 85	2047	1753.2	-.6	2	1684-82	1	P	C2	27 FEB 85	
02 MAR 85	0001	1738.1	-.1	2	470-82	1	S	C2	25 MAR 85	
07 MAR 85	0008	1739.3	.1	2	1310-82	1	P	C2	25 MAR 85	
13 MAR 85	9999	1753.8	-3.3	2	1612-82	1	P	C2	27 MAR 85	
22 MAR 85	0135	1727.5	-2.7	2	1306-82	1	P	C2	26 MAR 85	
01 APR 85	0450	1755.0	2.7	2	1146-82	1	P	C2	10 APR 85	
04 APR 85	0019	1736.0	.5	2	864-83	1	P	C2	11 APR 85	
10 APR 85	2107	1731.5	-1.4	2	232-83	1	P	C2	12 APR 85	
11 APR 85	2246	1772.8	.2	2	808-83	1	P	C2	16 APR 85	
11 APR 85	2300	1782.8	-.6	2	2006-85	7	P	C2	16 APR 85	
17 APR 85	2027	1743.3	2.8	2	860-81	1	P	C2	23 APR 85	
24 APR 85	2145	1733.1	.8	2	175-83	1	P	C2	01 MAY 85	
24 APR 85	2145	1733.5	2.1	2	2003-85	1	P	C2	01 MAY 85	
01 MAY 85	2039	1751.7	.2	2	696-82	1	P	C2	07 MAY 85	
08 MAY 85	2036	1736.3	3.5	2	828-83	1	P	C2	16 MAY 85	
15 MAY 85	1912	1738.4	1.3	2	210-83	1	P	C2	22 MAY 85	
26 MAY 85	0200	1724.6	4.1	2	886-83	1	P	C2	11 JUN 85	
29 MAY 85	1949	1718.1	-.3	2	1732-82	1	P	C2	11 JUN 85	
05 JUN 85	2040	1710.8	-2.4	2	950-83	1	P	C2	11 JUN 85	
12 JUN 85	1914	1705.3	-.8	2	932-83	1	P	C2	28 JUN 85	
19 JUN 85	2057	1717.3	-2.0	2	628-82	1	P	C2	28 JUN 85	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
26 JUN 85	2146	1713.3	-1.2	2	670-83	1	P	C2	09 JUL 85	
08 JUL 85	2115	1698.0	-3.0	2	740-83	1	P	C2	24 JUL 85	
11 JUL 85	2337	1690.9	-.8	2	812-82	1	P	C2	19 JUL 85	
18 JUL 85	2340	1693.8	.4	2	1408-82	1	P	C2	24 JUL 85	
24 JUL 85	2255	1687.0	-.2	2	700-83	1	P	C2	31 JUL 85	
05 AUG 85	2355	1717.6	-1.1	2	1538-82	1	P	C3	12 AUG 85	
13 AUG 85	2353	1695.0	.7	2	921-83	1	P	C3	26 AUG 85	
21 AUG 85	0030	1712.1	-.2	2	968-83	1	P	C3	26 AUG 85	
23 AUG 85	2336	1709.2	-.2	2	160-83	1	P	C3	11 SEP 85	
03 SEP 85	2355	1707.0	2.0	2	490-82	1	P	C3	12 SEP 85	
06 SEP 85	2355	1715.4	2.5	2	1260-82	1	P	C3	12 SEP 85	
11 SEP 85	2312	1727.6	.7	2	664-83	1	P	C3	24 SEP 85	
27 SEP 85	2350	1731.5	1.1	2	1222-82	1	P	C3	09 OCT 85	
28 SEP 85	9999	1727.4	-6.2	2	1204-82	1	S	C3	02 OCT 85	
04 OCT 85	0026	1742.0	1.0	2	1262-82	1	P	C3	09 OCT 85	
11 OCT 85	1925	1791.9	-.3	2	898-82	1	P	C3	23 OCT 85	
30 OCT 85	0155	1738.2	.3	2	1332-82	1	P	C3	19 NOV 85	
06 NOV 85	0025	1741.2	.5	2	2014-85	7	P	C3	13 NOV 85	
20 NOV 85	0102	1770.9	-.7	2	1298-82	1	P	C3	27 NOV 85	
26 NOV 85	0137	1746.9	4.9	2	2080-85	7	P	C3	14 DEC 85	
04 DEC 85	0012	1738.7	.4	2	2078-85	7	P	C3	17 DEC 85	
04 DEC 85	0012	1739.2	-.3	2	2877-85	1	P	C3	17 DEC 85	
08 DEC 85	0155	1766.2	-5.7	2	2079-85	1	P	C3	04 JAN 86	
08 DEC 85	0155	1763.3	2.7	2	2880-85	7	P	C3	13 DEC 85	
08 DEC 85	0155	1765.7	-4.4	2	2880-85	7	P	C3	03 JAN 86	
11 DEC 85	2107	1731.3	-8.1	3	2016-85	7	P	C3	04 JAN 86	
11 DEC 85	2107	1727.9	2.0	2	2815-85	1	P	C3	03 JAN 86	
31 DEC 85	0015	1750.0	-1.0	2	2039-85	1	P	C3	09 JAN 86	
31 DEC 85	0015	1751.9	1.6	2	2840-85	7	P	C3	09 JAN 86	

Cold Bay, Alaska (CBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
16 MAY 83	0015	1681.0	-14.0	2	778-82	1	P	C1	19 MAY 83	
23 MAY 83	0935	1682.5	5.0	2	784-82	1	P	C1	25 MAY 83	
19 JUN 83	1710	1676.0	2.0	2	304-82	1	P	C1	28 JUN 83	
26 JUN 83	2025	1679.0	-8.0	2	1776-82	1	P	C1	06 JUL 83	
28 JUL 83	1914	1662.0	2.0	2	400-82	1	P	C1	06 AUG 83	
05 AUG 83	1806	1664.5	3.0	2	112-83	1	P	C1	18 AUG 83	
12 SEP 83	0905	1697.0	-42.0	2	790-83	1	P	C2	27 SEP 83	
25 SEP 83	1803	1711.0	-8.0	2	1796-82	1	P	C2	06 OCT 83	
06 OCT 83	1640	1735.5	-3.0	2	730-82	1	P	C1	18 OCT 83	
20 OCT 83	1850	1694.0	-6.0	2	796-83	1	P	C1	28 OCT 83	
01 NOV 83	0935	1710.5	-3.0	2	28-83	1	P	C1	08 NOV 83	
14 NOV 83	0745	1698.5	5.0	2	1154-82	1	P	C2	07 DEC 83	
04 DEC 83	0245	1713.5	-1.0	2	1498-82	1	P	C2	14 DEC 83	
08 DEC 83	1817	1692.0	-6.0	2	258-83	1	P	C2	27 DEC 83	
19 DEC 83	0730	1688.0	-4.0	2	100-83	1	P	C2	27 DEC 83	
02 JAN 84	2145	1711.0	8.0	2	484-82	1	P	C2	18 JAN 84	
15 JAN 84	1900	1688.0	-4.0	2	1814-82	1	P	C2	18 JAN 84	
22 JAN 84	1920	1731.0	-2.0	2	934-83	1	P	C2	02 FEB 84	
29 JAN 84	1745	1708.0	4.0	2	1634-82	1	P	C2	03 FEB 84	
09 FEB 84	2030	1718.5	3.0	2	214-83	1	P	C2	17 FEB 84	
16 FEB 84	1905	1720.5	1.0	2	734-83	1	P	C2	08 MAR 84	
24 FEB 84	0740	1728.0	-4.0	2	1814-82	1	P	C2	05 MAR 84	
04 MAR 84	1800	1774.4	-3.0	2	76-83	1	P	C2	08 MAR 84	
18 MAR 84	1130	1699.0	-2.0	2	954-83	1	P	C2	31 MAR 84	
25 MAR 84	1820	1701.5	-1.0	2	1612-82	1	P	C2	02 APR 84	
19 APR 84	2103	1712.5	3.0	2	788-83	1	P	C2	24 APR 84	
04 MAY 84	0325	1714.5	-1.0	2	1154-82	1	P	C2	16 MAY 84	
17 MAY 84	1640	1701.0	0.0	2	286-83	1	P	C2	31 MAY 84	
20 MAY 84	1810	1693.0	6.0	2	24-83	1	P	C2	31 MAY 84	
31 MAY 84	2000	1702.5	3.0	2	1000-82	1	P	C2	15 JUN 84	
07 JUN 84	1745	1685.0	-2.0	2	1246-82	1	P	C2	14 JUN 84	
14 JUN 84	1730	1689.0		1	958-83	1	P	C2	11 JUL 84	
21 JUN 84	1100	1686.0·	2.0	2	106-84	1	P	C2	10 JUL 84	
08 JUL 84	1450	1679.0	2.0	2	1675-82	1	P	C2	12 JUL 84	
26 JUL 84	2115	1674.5	5.0	2	1607-82	1	P	C2	01 AUG 84	
03 AUG 84	1740	1673.5	1.0	2	106-83	1	P	C2	14 AUG 84	
09 AUG 84	0935	1672.5	3.0	2	632-82	1	P	C2	14 AUG 84	
12 AUG 84	2100	1670.0	0.0	2	1534-82	1	P	C2	10 SEP 84	
19 AUG 84	1800	1711.5	-1.0	2	968-83	1	P	C2	07 SEP 84	
26 AUG 84	1725	1725.5	5.0	2	1668-82	1	P	C2	11 SEP 84	
02 SEP 84	2116	1697.5	1.0	2	1160-82	1	P	C2	10 SEP 84	
09 SEP 84	2220	1715.0		1	166-83	1	P	C2	22 SEP 84	
16 SEP 84	1725	1707.0	-2.0	2	1686-82	1	P	C2	21 SEP 84	
01 OCT 84	0605	1709.0	3.2	2	1082-82	1	P	C2	18 OCT 84	
07 OCT 84	2230	1707.5	3.6	2	484-82	1	P	C2	30 OCT 84	
14 OCT 84	2215	1723.0	-.9	2	836-82	1	P	C2	18 OCT 84	
22 OCT 84	1735	1737.0	.1	2	1386-82	1	P	C2	14 NOV 84	
28 OCT 84	2000	1709.6	3.5	2	542-82	1	P	C2	01 NOV 84	
04 NOV 84	1915	1712.5	-.5	2	1676-82	1	P	C2	14 NOV 84	
11 NOV 84	2000	1718.0	2.4	2	10-83	1	P	C2	23 NOV 84	
22 NOV 84	2030	1712.9	0.0	2	1162-82	1	P	C2	27 NOV 84	
30 NOV 84	0030	1723.3	-5.5	2	244-83	1	P	C2	04 DEC 84	
02 DEC 84	2005	1717.4	-.1	2	1076-82	1	P	C2	18 DEC 84	
13 DEC 84	2130	1733.8	2.3	2	932-83	1	P	C2	19 DEC 84	
20 DEC 84	9999	1728.3	5.1	2	836-82	1	P	C2	09 JAN 85	
27 DEC 84	1905	1691.4	1.5	2	1485-82	1	P	C2	08 JAN 85	
03 JAN 85	1945	1728.3	2.3	2	1128-82	1	P	C2	09 JAN 85	
10 JAN 85	1700	1713.5	4.4	2	756-83	1	P	C2	17 JAN 85	
17 JAN 85	2130	1719.4	3.2	2	1652-82	1	P	C2	24 JAN 85	
31 JAN 85	2015	1707.4	.2	2	624-82	1	P	C2	05 FEB 85	
07 FEB 85	1847	1720.8	-4.3	2	776-82	1	P	C2	13 FEB 85	
15 FEB 85	2015	1727.7	3.4	2	944-83	1	P	C2	27 FEB 85	
22 FEB 85	0100	1738.7	-3.4	2	894-83	1	P	C2	27 FEB 85	
24 FEB 85	1815	1746.3	5.5	2	1740-82	1	P	C2	25 MAR 85	

Cold Bay, Alaska (CBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
09 MAR 85	1900	1723.2	-.2	2	834-83	1	P	C2	27 MAR 85	
14 MAR 85	2155	1733.1	-.6	2	490-82	1	P	C2	27 MAR 85	
21 MAR 85	1845	1726.2	1.6	2	872-81	1	P	C2	26 MAR 85	
28 MAR 85	1910	1739.0	1.7	2	628-83	1	P	C2	10 APR 85	
04 APR 85	1730	1735.0	2.2	2	268-82	1	P	C2	11 APR 85	
11 APR 85	1830	1740.7	-4.0	2	1000-82	1	P	C2	16 APR 85	
18 APR 85	1838	1737.0	-2.3	2	166-83	1	P	C2	23 APR 85	
26 APR 85	2200	1730.8	.7	2	760-83	1	P	C2	01 MAY 85	
28 APR 85	1710	1728.7	-1.7	2	652-83	1	P	C2	01 MAY 85	
28 APR 85	1710	1727.0	-4.2	2	2006-85	7	P	C2	01 MAY 85	
05 MAY 85	1710	1723.7	-1.2	2	1232-82	1	P	C2	22 MAY 85	
12 MAY 85	2215	1731.3	1.4	2	1198-82	1	P	C2	16 MAY 85	
16 MAY 85	1840	1723.6	.8	2	872-82	1	P	C2	30 MAY 85	
23 MAY 85	1550	1721.0	.5	2	1564-82	1	P	C2	29 MAY 85	
26 MAY 85	1630	1717.8	1.9	2	234-83	1	P	C2	30 MAY 85	
03 JUN 85	2150	1738.5	4.4	2	502-82	1	P	C2	13 JUN 85	
09 JUN 85	2300	1705.9	.3	2	390-82	1	P	C2	13 JUN 85	
16 JUN 85	1610	1714.7	1.1	2	1648-82	1	P	C2	28 JUN 85	
23 JUN 85	1945	1704.1	1.6	2	538-83	1	P	C2	28 JUN 85	
04 JUL 85	2130	1704.8	-1.0	2	676-83	1	P	C2	09 JUL 85	
11 JUL 85	1530	1691.2	-.1	2	488-82	1	P	C2	16 JUL 85	
18 JUL 85	1820	1693.2	-.1	2	1452-82	1	P	C2	24 JUL 85	
25 JUL 85	1910	1691.0	.9	2	898-82	1	P	C2	31 JUL 85	
01 AUG 85	1910	1685.5	-.3	2	542-82	1	P	C3	12 AUG 85	
08 AUG 85	1940	1708.3	-2.3	2	1120-82	1	P	C3	13 AUG 85	
15 AUG 85	2335	1697.3	-1.6	2	642-83	1	P	C3	26 AUG 85	
22 AUG 85	1630	1716.5	1.3	2	1128-82	1	P	C3	26 AUG 85	
08 SEP 85	1900	1736.8	2.6	2	164-83	1	P	C3	14 SEP 85	
15 SEP 85	1645	1722.9	-.2	2	740-83	1	P	C3	23 SEP 85	
22 SEP 85	1600	1731.7	2.6	2	840-81	1	P	C3	02 OCT 85	
29 SEP 85	1852	1742.1	-6.3	2	922-83	1	P	C3	22 OCT 85	
03 OCT 85	1820	1727.5	-.1	2	1216-82	1	P	C3	09 OCT 85	
06 OCT 85	1730	1718.2	-.9	2	2048-85	7	P	C3	23 OCT 85	
13 OCT 85	1610	1737.7	.9	2	1088-82	1	P	C3	24 OCT 85	
24 OCT 85	1815	1728.8	0.0	2	729-85	1	P	C3	04 NOV 85	
31 OCT 85	1845	1735.1	3.2	2	794-83	1	P	C3	05 NOV 85	
04 NOV 85	1937	1728.4	.8	2	1082-82	1	P	C3	13 NOV 85	
07 NOV 85	0000	1718.7	0.0	2	2015-85	1	P	C3	14 NOV 85	
07 NOV 85	0000	1721.8		1	2016-85	7	P	C3	14 NOV 85	
14 NOV 85	1909	1732.9	1.9	2	1608-82	1	P	C3	20 NOV 85	
24 NOV 85	1825	1716.8	-1.1	2	888-83	1	P	C3	15 DEC 85	
08 DEC 85	2000	1734.6	1.8	2	716-85	1	P	C3	17 DEC 85	
15 DEC 85	1847	1722.8	5.5	2	484-82	1	P	C3	03 JAN 86	
22 DEC 85	1700	1719.2	1.0	2	726-85	1	P	C3	08 JAN 86	
29 DEC 85	2230	1721.5	-1.3	2	840-82	1	P	C3	08 JAN 86	

Cape Grim, Tasmania (CGO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
19 APR 84	0258	1568.1	2.0	2	1750-82	1	N	C2	16 MAY 84	
19 APR 84	0327	1566.1	2.0	2	1588-82	1	P	C2	16 MAY 84	
26 APR 84	0514	1568.1	-2.0	2	738-83	1	N	C2	02 JUL 84	
26 APR 84	0528	1565.6	3.0	2	60-83	1	P	C2	02 JUL 84	
04 MAY 84	0413	1567.6	-1.0	2	178-82	1	P	C2	02 JUL 84	
04 MAY 84	0425	1565.1	0.0	2	1660-82	1	N	C2	02 JUL 84	
23 MAY 84	0245	1578.1	1.0	3	390-82	1	P	C2	15 JUN 84	
23 MAY 84	0255	1570.7	7.0	3	776-82	1	N	C2	15 JUN 84	
08 JUN 84	0537	1576.1	2.0	2	926-82	1	N	C2	13 AUG 84	
29 JUN 84	0350	1583.0	0.0	2	1104-82	1	N	C2	13 AUG 84	
12 JUL 84	0512	1582.0	-4.0	2	630-81	1	P	C2	13 AUG 84	
20 JUL 84	0145	1591.0	0.0	2	1484-82	1	N	C2	21 SEP 84	
31 JUL 84	0145	1592.0	-2.0	2	1512-82	1	N	C2	21 SEP 84	
31 JUL 84	0153	1590.0	2.0	2	1300-82	1	P	C2	21 SEP 84	
13 AUG 84	0520	1593.0	-4.0	2	100-83	1	P	C2	21 SEP 84	
21 AUG 84	0235	1590.5	3.0	2	156-82	1	P	C2	21 SEP 84	
11 SEP 84	0230	1592.2	3.7	2	1200-82	1	N	C2	30 OCT 84	
11 SEP 84	0240	1590.5	.6	2	1164-82	1	P	C2	31 OCT 84	
18 SEP 84	0511	1592.9	-1.5	2	1354-82	1	N	C2	01 NOV 84	
18 SEP 84	0525	1590.9	-3.4	2	1304-82	1	P	C2	02 NOV 84	
25 SEP 84	0032	1591.1	-.4	2	390-82	1	N	C2	31 OCT 84	
25 SEP 84	0046	1588.8	1.9	2	1446-82	1	P	C2	31 OCT 84	
16 OCT 84	0345	1594.5	0.0	2	1150-82	1	N	C2	09 JAN 85	
16 OCT 84	0350	1593.5	-1.6	3	628-82	1	P	C2	08 JAN 85	
13 NOV 84	0529	1587.7	-2.9	2	994-81	1	P	C2	19 DEC 84	
13 NOV 84	0545	1584.9	-4.4	2	772-81	1	N	C2	19 DEC 84	
22 NOV 84	0430	1587.0	9.8	2	1578-82	1	P	C2	09 JAN 85	
22 NOV 84	0452	1586.5	-4.6	2	1010-82	1	N	C2	09 JAN 85	
29 NOV 84	0127	1582.1	-4.3	2	296-83	1	N	C2	08 JAN 85	
29 NOV 84	0130	1586.8	.8	2	1474-82	1	P	C2	08 JAN 85	
03 DEC 84	0130	1585.1	1.3	2	930-83	1	P	C2	04 FEB 85	
03 DEC 84	0130	1582.0	1.9	2	1218-82	1	N	C2	04 FEB 85	
20 DEC 84	0320	1574.8	.5	2	920-82	1	N	C2	04 FEB 85	
20 DEC 84	0330	1580.8	1.2	2	1344-82	1	P	C2	30 JAN 85	
09 JAN 85	0425	1573.9	1.4	3	546-83	1	P	C2	27 MAR 85	
17 JAN 85	0225	1573.2	-1.0	2	1742-82	1	N	C2	27 MAR 85	
17 JAN 85	0240	1579.3	-5.4	3	200-83	1	P	C2	27 MAR 85	
24 JAN 85	0038	1568.3	.9	2	1812-82	1	N	C2	25 MAR 85	
24 JAN 85	0046	1571.3	2.1	2	750-83	1	P	C2	25 MAR 85	
06 FEB 85	0507	1566.9	-2.6	2	838-82	1	N	C2	25 MAR 85	
06 FEB 85	0507	1569.4	3.0	2	1688-82	1	P	C2	25 MAR 85	
14 FEB 85	0150	1567.4	1.0	2	1252-82	1	N	C2	25 MAR 85	
14 FEB 85	0202	1567.1	3.3	2	524-82	1	P	C2	25 MAR 85	
26 FEB 85	0100	1566.1	1.1	2	36-83	1	N	C2	10 APR 85	
26 FEB 85	0110	1568.9	2.4	2	226-83	1	P	C2	10 APR 85	
28 MAR 85	0600	1572.7	4.1	2	674-82	1	P	C2	16 MAY 85	
28 MAR 85	0610	1569.1	.4	2	1408-82	1	N	C2	16 MAY 85	
16 APR 85	0605	1575.4	4.9	2	1292-82	1	P	C2	16 MAY 85	
16 APR 85	0615	1573.8	-.9	2	1006-82	1	N	C2	16 MAY 85	
08 MAY 85	0320	1582.9	-2.1	2	1664-82	1	N	C2	28 JUN 85	
31 MAY 85	0225	1585.5	-9.8	3	1128-82	1	P	C2	19 JUL 85	
07 JUN 85	0435	1590.0	-1.6	3	840-81	1	N	C2	19 JUL 85	
07 JUN 85	0440	1591.7	.8	2	1660-82	1	P	C2	19 JUL 85	
14 JUN 85	0240	1588.1	.8	2	776-82	1	N	C2	19 JUL 85	
24 JUN 85	0455	1593.6	.3	2	1118-82	1	N	C2	19 JUL 85	
24 JUN 85	0500	1592.0	1.5	2	1272-82	1	P	C2	19 JUL 85	
22 JUL 85	0312	1596.6	1.2	2	688-81	1	N	C3	11 SEP 85	
22 JUL 85	0328	1599.1	3.7	2	1190-82	1	P	C3	11 SEP 85	
29 JUL 85	0335	1596.6	1.5	2	1386-82	1	N	C3	12 SEP 85	
29 JUL 85	0345	1597.3	3.7	2	1324-82	1	P	C3	12 SEP 85	
07 AUG 85	2350	1599.7	-.3	2	864-83	1	N	C3	11 SEP 85	
07 AUG 85	2357	1600.9	-1.0	2	1430-82	1	P	C3	11 SEP 85	
26 AUG 85	0355	1603.2	.6	2	1562-82	1	P	C3	24 OCT 85	
26 AUG 85	0422	1601.4	.5	2	54-83	1	N	C3	28 OCT 85	

Cape Grim, Tasmania (CGO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 SEP 85	0145	1605.9	-.5	2	1028-82	1	P	C3	22 OCT 85	
03 SEP 85	0216	1605.0	2.4	2	1448-82	1	N	C3	22 OCT 85	
16 SEP 85	0045	1606.7	-.9	2	1353-82	1	P	C3	28 OCT 85	
16 SEP 85	0145	1605.6	.7	2	508-82	1	N	C3	28 OCT 85	
18 SEP 85	0132	1604.3	-3.4	2	1280-82	1	P	C3	22 OCT 85	
18 SEP 85	0225	1601.9	.7	2	624-83	1	N	C3	22 OCT 85	
25 SEP 85	2355	1604.2	-.9	2	866-83	1	P	C3	29 OCT 85	
26 SEP 85	0030	1602.2	.5	2	392-85	1	N	C3	29 OCT 85	
02 OCT 85	0055	1604.0	.8	2	902-83	1	N	C3	04 NOV 85	
02 OCT 85	0059	1604.4	2.2	2	954-83	1	P	C3	04 NOV 85	
09 OCT 85	0245	1622.6	-1.6	2	448-83	1	P	C3	05 NOV 85	+
09 OCT 85	0320	1602.5	0.0	2	622-83	1	N	C3	05 NOV 85	
18 OCT 85	0125	1604.5	.7	2	892-82	1	N	C3	13 DEC 85	
18 OCT 85	0150	1604.4	.8	2	1218-82	1	P	C3	13 DEC 85	
31 OCT 85	0108	1603.1	2.2	2	1178-82	1	P	C3	13 DEC 85	
31 OCT 85	0135	1615.7	.7	2	800-83	1	N	C3	13 DEC 85	+
20 NOV 85	0020	1599.7	2.8	2	630-82	1	P	C3	13 DEC 85	
20 NOV 85	0029	1597.6	4.3	2	968-83	1	N	C3	17 DEC 85	
29 NOV 85	0110	1599.9	-.7	2	760-83	1	P	C3	03 JAN 86	
29 NOV 85	0150	1593.1	1.4	2	398-85	1	N	C3	03 JAN 86	
12 DEC 85	0030	1594.3	-6.4	2	286-83	1	P	C4	05 FEB 86	
12 DEC 85	0047	1590.7	-2.5	2	382-83	1	N	C4	05 FEB 86	
22 DEC 85	2334	1587.9	5.2	2	646-83	1	N	C4	05 FEB 86	
31 DEC 85	0035	1588.6	-8.6	3	1078-82	1	P	C4	11 MAR 86	
31 DEC 85	0059	1591.5	4.5	2	1212-82	1	N	C4	11 MAR 86	

Christmas Island (CHR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 MAR 84	0132	1633.7	2.0	3	I-536	0	F	C2	17 APR 84	
13 MAR 84	0139	1628.0	-4.0	3	I-537	0	F	C2	17 APR 84	
22 MAR 84	0130	1629.7	-3.0	3	I-539	0	F	C2	17 APR 84	
31 MAR 84	0118	1629.7	-5.0	3	I-541	0	F	C2	16 APR 84	
08 APR 84	0215	1630.3	4.0	3	I-544	0	F	C2	17 MAY 84	
20 APR 84	0335	1628.7	1.0	3	I-546	0	F	C2	17 MAY 84	
26 APR 84	0132	1640.0	4.0	2	I-548	0	F	C2	17 MAY 84	
02 MAY 84	4030	1643.0	-2.0	2	I-550	0	F	C2	17 MAY 84	
10 MAY 84	0126	1628.0	4.0	2	I-552	0	F	C2	14 JUN 84	
17 MAY 84	0130	1607.0	0.0	2	I-554	0	F	C2	14 JUN 84	
24 MAY 84	0137	1599.5	3.0	2	I-556	0	F	C2	14 JUN 84	
04 JUN 84	0132	1598.5	5.0	2	I-558	0	F	C2	14 JUN 84	
11 JUN 84	0225	1593.4	4.0	3	3074-83	4	T	C2	17 JUL 84	
19 JUN 84	0305	1596.5	3.0	2	3064-83	4	T	C2	14 AUG 84	
19 JUN 84	0310	1595.0		1	3024-84	4	T	C2	17 JUL 84	
26 JUN 84	0335	1603.0	-2.0	2	3042-83	4	T	C2	17 JUL 84	
26 JUN 84	0340	1602.0	-2.0	2	3050-83	4	T	C2	17 JUL 84	
06 JUL 84	0300	1591.7	6.0	3	3044-83	4	T	C2	17 JUL 84	
06 JUL 84	0304	1594.5	-5.0	2	3084-84	4	T	C2	17 JUL 84	
14 JUL 84	0310	1592.5	1.0	2	3018-83	4	T	C2	14 AUG 84	
21 JUL 84	0240	1592.0	2.0	2	3060-83	4	T	C2	14 AUG 84	
27 JUL 84	0305	1608.7	5.0	3	3056-83	4	T	C2	14 AUG 84	
01 AUG 84	0325	1606.5	-1.0	2	3078-83	4	T	C2	14 AUG 84	
07 AUG 84	0300	1599.0	2.0	2	3058-84	4	T	C2	17 OCT 84	
14 AUG 84	0255	1595.0	-1.0	2	3048-83	4	T	C2	17 OCT 84	
21 AUG 84	0255	1604.5	-3.0	2	3050-83	4	T	C2	17 OCT 84	
28 AUG 84	0240	1596.0	-2.4	2	3008-83	4	T	C2	17 OCT 84	
28 AUG 84	0245	1594.6	-5.6	2	3016-84	4	T	C2	17 OCT 84	
11 SEP 84	0255	1592.3	-1.9	2	3080-83	4	T	C2	17 OCT 84	
18 SEP 84	0245	1591.6	-2.4	2	3003-83	4	T	C2	17 OCT 84	
25 SEP 84	0250	1598.2	-3.7	2	3084-84	4	T	C2	17 OCT 84	
03 OCT 84	0300	1603.9	-2.3	2	3096-84	4	T	C2	17 OCT 84	
14 OCT 84	0338	1605.5	-5.1	2	3064-84	4	T	C2	15 NOV 84	
19 OCT 84	0245	1602.1	.6	2	3006-84	4	T	C2	15 NOV 84	
27 OCT 84	0250	1598.8	1.5	2	3068-83	4	T	C2	15 NOV 84	
03 NOV 84	0240	1595.6	-3.6	2	3028-83	4	T	C2	15 NOV 84	
10 NOV 84	0310	1595.2	1.0	2	3066-84	4	T	C2	19 DEC 84	
17 NOV 84	0300	1596.2	-1.0	2	3038-83	4	T	C2	19 DEC 84	
01 DEC 84	0400	1606.5	-4.3	2	3060-84	4	T	C2	19 DEC 84	
09 DEC 84	0305	1615.7	-4.4	2	3044-83	4	T	C2	19 DEC 84	
07 JAN 85	0135	1635.0	-4.9	2	3026-84	4	T	C2	30 JAN 85	
15 JAN 85	0255	1617.8	.2	2	3020-84	4	T	C2	14 FEB 85	
21 JAN 85	0325	1619.6	-5.1	2	3028-84	4	T	C2	14 FEB 85	
30 JAN 85	0345	1613.9	1.8	2	3046-83	4	T	C2	14 FEB 85	
03 FEB 85	0300	1610.8	0.0	2	3030-84	4	T	C2	14 FEB 85	
20 FEB 85	0155	1612.2	.4	2	3015-83	4	T	C2	27 MAR 85	
05 MAR 85	0315	1634.0	-1.4	2	3072-83	4	T	C2	27 MAR 85	
11 MAR 85	0205	1643.0	-.5	2	3106-83	4	T	C2	16 APR 85	
17 MAR 85	0235	1635.3	1.8	2	3098-83	4	T	C2	01 MAY 85	
24 MAR 85	0240	1624.5	-.7	2	3100-83	4	T	C2	16 APR 85	
31 MAR 85	0215	1607.1	-1.8	2	3014-83	4	T	C2	16 APR 85	
07 APR 85	0045	1626.4		1	3061-84	4	T	C2	16 MAY 85	
21 APR 85	0230	1623.2		1	3055-83	4	T	C2	16 MAY 85	
29 APR 85	0205	1618.4		1	3019-85	4	T	C2	16 MAY 85	
10 MAY 85	0155	1612.4		1	3040-83	4	T	C2	11 JUN 85	
17 MAY 85	0300	1608.0		1	3014-84	4	T	C2	11 JUN 85	
23 MAY 85	0325	1608.2		1	3074-83	4	T	C2	11 JUN 85	
29 MAY 85	0005	1618.6		1	3070-84	4	T	C2	11 JUN 85	
16 JUN 85	0215	1608.4		1	3087-84	4	T	C2	16 JUL 85	
16 JUN 85	0215	1608.9		1	3088-84	4	T	C2	16 JUL 85	
24 JUN 85	0235	1620.4		1	3049-84	4	T	C2	16 JUL 85	
02 JUL 85	0240	1609.6	-2.3	2	3005-83	4	T	C2	16 JUL 85	
08 JUL 85	0225	1601.8		1	3015-84	4	T	C2	16 JUL 85	
19 AUG 85	0235	1609.5	1.3	2	3076-83	4	T	C3	23 SEP 85	

Christmas Island (CHR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
26 AUG 85	0305	1609.4		1	3067-84	4	T	C3	23 SEP 85	
26 AUG 85	0305	1611.2		1	3068-84	4	T	C3	23 SEP 85	
02 SEP 85	0250	1613.8	-2.3	2	3098-84	4	T	C3	23 SEP 85	
09 SEP 85	0204	1610.0	-4.0	2	3018-85	4	T	C3	23 SEP 85	
15 SEP 85	2345	1609.8	-.7	2	3003-85	4	T	C3	13 NOV 85	
15 SEP 85	2350	1610.9	-1.7	2	3010-85	4	T	C3	13 NOV 85	
07 OCT 85	0220	1611.2	-.7	2	3050-84	4	T	C3	13 NOV 85	
14 OCT 85	0235	1619.5	-6.9	3	3006-83	4	T	C3	13 NOV 85	
21 OCT 85	0240	1617.9	-.2	2	3066-84	4	T	C3	13 NOV 85	
03 NOV 85	0045	1605.7	-1.2	2	3046-83	4	T	C3	14 DEC 85	
11 NOV 85	2315	1614.4	-4.3	2	3104-83	4	T	C3	14 DEC 85	
18 NOV 85	0120	1614.7	2.5	2	3096-83	4	T	C3	14 DEC 85	
01 DEC 85	0150	1613.8	3.6	2	3002-83	4	T	C3	14 DEC 85	
16 DEC 85	0215	1619.3	3.0	2	3088-84	4	T	C4	04 FEB 86	

Cape Meares, Oregon (CMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
07 MAY 83	1412	1692.5	9.0	2	196-83	1	P	C1	17 MAY 83	
13 MAY 83	1504	1708.0	6.0	2	752-82	1	P	C1	24 MAY 83	
25 MAY 83	1910	1638.5	15.0	2	248-83	1	P	C1	01 JUN 83	
31 MAY 83	0315	1626.5	19.0	2	196-82	1	P	C1	08 JUN 83	
07 JUN 83	0330	1655.0	10.0	2	1598-82	1	P	C1	14 JUN 83	
14 JUN 83	0400	1664.0	-22.0	2	130-83	1	P	C1	28 JUN 83	
21 JUN 83	0310	1677.0	0.0	2	134-83	1	P	C1	06 JUL 83	
28 JUN 83	0330	1657.0	-12.0	2	1490-82	1	P	C1	06 JUL 83	
05 JUL 83	0325	1665.0		1	784-82	1	P	C1	13 JUL 83	
16 JUL 83	9999	1672.0	2.0	2	244-83	1	P	C1	28 JUL 83	
26 JUL 83	0355	1644.0	2.0	2	44-83	1	P	C1	06 AUG 83	
27 JUL 83	1914	1648.5	5.0	2	1712-82	1	P	C1	18 AUG 83	
06 AUG 83	9999	1649.0	0.0	2	626-83	1	P	C1	19 AUG 83	
16 AUG 83	0325	1667.0	0.0	2	704-83	1	P	C1	01 SEP 83	
21 AUG 83	0320	1694.0	-4.0	2	866-81	1	P	C1	02 SEP 83	
27 AUG 83	0321	1629.0	8.0	2	274-82	1	P	C1	14 SEP 83	
07 SEP 83	0245	1664.3	8.0	3	1466-82	1	P	C2	27 SEP 83	
13 SEP 83	0301	1671.5	15.0	2	296-82	1	P	C2	28 SEP 83	
20 SEP 83	0250	1683.0	0.0	2	794-83	1	P	C2	28 SEP 83	
27 SEP 83	0230	1692.0	-4.0	2	1398-82	1	P	C2	06 OCT 83	
04 OCT 83	0145	1679.3	5.0	3	184-82	1	P	C1	18 OCT 83	
11 OCT 83	0140	1714.0	0.0	2	34-82	1	P	C1	26 OCT 83	
18 OCT 83	0200	1695.0	-4.0	2	186-83	1	P	C1	26 OCT 83	
01 NOV 83	0252	1691.0	-2.0	2	794-83	1	P	C1	04 NOV 83	
06 NOV 83	1830	1689.0	-6.0	2	962-81	1	P	C2	07 DEC 83	
15 NOV 83	2030	1676.5	-11.0	2	222-83	1	P	C2	08 DEC 83	
16 NOV 83	2255	1685.0	-2.0	2	728-82	1	P	C2	13 DEC 83	
30 NOV 83	2040	1707.0	0.0	2	1152-82	1	P	C2	08 DEC 83	
19 DEC 83	2330	1694.0	4.0	2	28-83	1	P	C2	28 DEC 83	
23 DEC 83	2315	1713.0	-4.0	2	760-83	1	P	C2	04 JAN 84	
28 JAN 84	2200	1646.0	0.0	2	750-83	1	P	C2	07 FEB 84	
07 FEB 84	0038	1679.5	3.0	2	758-83	1	P	C2	17 FEB 84	
15 FEB 84	1850	1697.0	4.0	2	728-82	1	P	C2	08 MAR 84	
21 FEB 84	0142	1709.5	-5.0	2	812-82	1	P	C2	04 MAR 84	
26 FEB 84	1813	1711.5	5.0	2	402-82	1	P	C2	08 MAR 84	
03 MAR 84	1720	1693.5	-3.0	2	1580-82	1	P	C2	29 MAR 84	
10 MAR 84	1700	1683.5	1.0	2	1630-82	1	P	C2	30 MAR 84	
17 MAR 84	1645	1692.0	0.0	2	1636-82	1	P	C2	30 MAR 84	
24 MAR 84	2318	1693.0	0.0	2	758-83	1	P	C2	04 APR 84	
31 MAR 84	1719	1732.5	-1.0	2	1572-82	1	P	C2	12 APR 84	
11 APR 84	0056	1701.5	5.0	2	164-83	1	P	C2	17 APR 84	
14 APR 84	1715	1696.0	-2.0	2	872-81	1	P	C2	24 APR 84	
25 APR 84	0018	1726.0		1	112-84	1	P	C2	03 MAY 84	
01 MAY 84	0342	1696.5	1.0	2	758-83	1	P	C2	16 MAY 84	
09 MAY 84	1955	1702.5	5.0	2	812-82	1	P	C2	16 MAY 84	
16 MAY 84	0219	1700.5	3.0	2	1460-82	1	P	C2	31 MAY 84	
22 MAY 84	0245	1693.0	-2.0	2	214-83	1	P	C2	31 MAY 84	
30 MAY 84	0300	1680.0	-2.0	2	860-82	1	P	C2	15 JUN 84	
05 JUN 84	0402	1681.5	-3.0	2	716-83	1	P	C2	14 JUN 84	
12 JUN 84	2251	1686.0	-2.0	2	1798-82	1	P	C2	02 JUL 84	
17 JUN 84	1923	1683.5	1.0	2	1432-82	1	P	C2	10 JUL 84	
23 JUN 84	0430	1684.0	0.0	2	50-83	1	P	C2	10 JUL 84	
07 JUL 84	1735	1686.0	-4.0	2	626-83	1	P	C2	17 JUL 84	
14 JUL 84	0250	1660.0	2.0	2	1216-82	1	P	C2	31 JUL 84	
20 JUL 84	9999	1688.0	8.0	2	972-83	1	P	C2	01 AUG 84	
01 AUG 84	0400	1659.0	0.0	2	1812-82	1	P	C2	14 AUG 84	
08 AUG 84	0244	1644.0	2.0	2	1308-82	1	P	C2	14 AUG 84	
15 AUG 84	0240	1656.0	2.0	2	1676-82	1	P	C2	07 SEP 84	
22 AUG 84	2040	1669.5	1.0	2	1330-82	1	P	C2	05 SEP 84	
29 AUG 84	0337	1698.0	0.0	2	192-83	1	P	C2	11 SEP 84	
05 SEP 84	0110	1709.5	-3.0	2	800-82	1	P	C2	11 SEP 84	
12 SEP 84	0153	1718.5	5.0	2	820-83	1	P	C2	22 SEP 84	
19 SEP 84	9999	1689.0	-2.0	2	1308-82	1	P	C2	28 SEP 84	
26 SEP 84	0314	1720.4	-2.3	2	222-83	1	P	C2	18 OCT 84	

Cape Meares, Oregon (CMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 OCT 84	0312	1724.3	4.0	2	1678-82	1	P	C2	18 OCT 84	
17 OCT 84	0111	1756.9	-.2	2	804-83	1	P	C2	02 NOV 84	
31 OCT 84	0316	1711.6	-.7	2	742-82	1	P	C2	07 NOV 84	
14 NOV 84	2000	1721.5	-2.3	2	984-81	1	P	C2	27 NOV 84	
20 NOV 84	9999	1719.8	2.9	2	1314-82	1	P	C2	27 NOV 84	
28 NOV 84	0030	1695.7	-3.4	2	800-82	1	P	C2	04 DEC 84	
11 DEC 84	0304	1724.8	-4.4	2	1200-82	1	P	C2	19 DEC 84	
04 JAN 85	0015	1740.2	4.1	2	74-83	1	P	C2	13 FEB 85	
10 JAN 85	2038	1712.8	-.6	2	704-83	1	P	C2	24 JAN 85	
17 JAN 85	2020	1703.1	-2.4	2	1818-82	1	P	C2	04 FEB 85	
24 JAN 85	2000	1707.3	-1.3	2	1806-82	1	P	C2	05 FEB 85	
31 JAN 85	2045	1712.3	-1.2	2	522-82	1	P	C2	05 FEB 85	
14 FEB 85	2000	1686.5	1.4	2	910-83	1	P	C2	20 FEB 85	
28 FEB 85	2005	1676.4	0.0	2	796-83	1	P	C2	25 MAR 85	
07 MAR 85	2032	1729.7	-.7	2	772-83	1	P	C2	28 MAR 85	
28 MAR 85	2136	1731.4	8.2	2	884-83	1	P	C2	04 APR 85	
12 APR 85	1925	1713.8	-7.7	3	1138-82	1	P	C2	24 APR 85	
18 APR 85	2016	1728.7	7.2	3	832-83	1	P	C2	23 APR 85	
25 APR 85	2132	1737.5	-4.7	2	1334-82	1	P	C2	01 MAY 85	
07 MAY 85	0100	1718.3	1.3	2	822-83	1	P	C2	17 MAY 85	
09 MAY 85	2018	1717.1	-4.2	2	976-83	1	P	C2	16 MAY 85	
16 MAY 85	2040	1710.8	4.4	2	1608-82	1	P	C2	22 MAY 85	
23 MAY 85	1938	1687.9	2.3	2	962-83	1	P	C2	29 MAY 85	
11 JUL 85	1952	1684.4	.9	2	938-83	1	P	C2	16 JUL 85	
16 JUL 85	1940	1657.6	-.2	2	1474-82	1	P	C2	19 JUL 85	
01 AUG 85	1915	1657.5	-2.4	2	1604-82	1	P	C3	13 AUG 85	
07 AUG 85	1855	1678.6	-4.0	2	1586-82	1	P	C3	13 AUG 85	
15 AUG 85	2114	1671.2	-1.4	2	1212-82	1	P	C3	26 AUG 85	
20 AUG 85	2050	1702.7	1.3	2	884-83	1	P	C3	11 SEP 85	
28 AUG 85	1916	1730.7	1.4	2	1198-82	1	P	C3	11 SEP 85	
05 SEP 85	1907	1671.5	-.3	2	558-85	1	P	C3	12 SEP 85	
12 SEP 85	2039	1720.2	2.8	2	188-83	1	P	C3	24 SEP 85	
19 SEP 85	2315	1721.6	-1.8	2	1298-82	1	P	C3	23 SEP 85	
26 SEP 85	2210	1724.1	-.9	2	920-82	1	P	C3	02 OCT 85	
04 OCT 85	0045	1734.2	.3	2	284-82	1	P	C3	09 OCT 85	
10 OCT 85	1829	1727.6	.8	2	838-82	1	P	C3	23 OCT 85	
19 OCT 85	2245	1721.3	1.9	2	688-81	1	P	C3	29 OCT 85	
24 OCT 85	2008	1694.0	-3.5	2	100-83	1	P	C3	29 OCT 85	
04 NOV 85	2155	1724.2		1	961-83	1	P	C3	14 NOV 85	
07 NOV 85	1931	1714.0	2.5	2	1306-82	1	P	C3	13 NOV 85	
14 NOV 85	2056	1728.9	1.9	2	626-83	1	P	C3	20 NOV 85	
04 DEC 85	2210	1716.6	2.4	2	1646-82	1	P	C3	17 DEC 85	
19 DEC 85	2135	1722.4	-3.3	2	622-83	1	P	C3	03 JAN 86	

Guam, Mariana Islands (GMI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 MAY 83	0605	1618.0	2.0	2	986-81	1	P	C1	17 MAY 83	
09 MAY 83	0630	1645.5	-17.0	2	864-81	1	P	C1	17 MAY 83	
16 MAY 83	0600	1609.5	-9.0	2	1760-82	1	P	C1	24 MAY 83	
24 MAY 83	0600	1630.0		1	374-82	1	P	C1	08 JUN 83	
30 MAY 83	0600	1591.5	3.0	2	252-83	1	P	C1	08 JUN 83	
06 JUN 83	0720	1631.5	-3.0	2	856-81	1	P	C1	14 JUN 83	
13 JUN 83	0745	1633.0	-4.0	2	1600-82	1	P	C1	05 JUL 83	
20 JUN 83	0600	1616.5	5.0	2	1830-82	1	P	C1	06 JUL 83	
27 JUN 83	0605	1610.0	6.0	2	252-82	1	P	C1	06 JUL 83	
04 JUL 83	0630	1651.0	25.0	3	834-81	1	P	C1	20 JUL 83	
11 JUL 83	0605	1617.0	3.0	3	174-83	1	P	C1	28 JUL 83	
21 JUL 83	0615	1571.1	-2.0	2	538-82	1	P	C1	06 AUG 83	
28 JUL 83	0600	1579.5	-1.0	2	1428-82	1	P	C1	19 AUG 83	
04 AUG 83	0600	1593.5	3.0	2	60-83	1	P	C1	01 SEP 83	
11 AUG 83	0600	1584.5	5.0	2	1288-82	1	P	C1	02 SEP 83	
22 AUG 83	0645	1578.0	-18.0	3	1806-82	1	P	C1	14 SEP 83	
29 AUG 83	0600	1595.0	0.0	2	724-83	1	P	C1	14 SEP 83	
05 SEP 83	0615	1592.0		1	860-81	1	P	C2	27 SEP 83	
12 SEP 83	0611	1598.0	0.0	2	1152-82	1	P	C2	27 SEP 83	
19 SEP 83	0600	1629.0	0.0	2	122-83	1	P	C2	28 SEP 83	
26 SEP 83	0605	1621.5	-3.0	2	1296-82	1	P	C2	06 OCT 83	
03 OCT 83	0635	1624.0	4.0	2	1498-82	1	P	C1	18 OCT 83	
10 OCT 83	0625	1633.0	8.0	2	710-83	1	P	C1	26 OCT 83	
17 OCT 83	0605	1624.0	-2.0	2	36-83	1	P	C1	26 OCT 83	
24 OCT 83	0745	1638.5	-3.0	2	746-83	1	P	C1	08 NOV 83	
31 OCT 83	0710	1602.0	-2.0	2	1714-82	1	P	C1	08 NOV 83	
07 NOV 83	0615	1638.0	-4.0	2	1150-82	1	P	C2	08 DEC 83	
17 NOV 83	0640	1627.5	-1.0	2	846-81	1	P	C2	13 DEC 83	
24 NOV 83	0620	1647.5	1.0	2	710-83	1	P	C2	08 DEC 83	
28 NOV 83	0630	1633.0	-8.0	2	390-82	1	P	C2	24 DEC 83	
08 DEC 83	0630	1647.5	3.0	2	682-82	1	P	C2	27 DEC 83	
15 DEC 83	0640	1608.5	3.0	2	938-83	1	P	C2	28 DEC 83	
23 DEC 83	0730	1631.5	7.0	2	1790-82	1	P	C2	03 JAN 84	
02 JAN 84	0700	1596.0	0.0	2	1579-82	1	P	C2	18 JAN 84	
09 JAN 84	0615	1620.5	-3.0	2	954-83	1	P	C2	31 JAN 84	
16 JAN 84	0615	1629.0	2.0	2	1048-82	1	P	C2	31 JAN 84	
23 JAN 84	0615	1635.0	-2.0	2	278-82	1	P	C2	02 FEB 84	
31 JAN 84	0643	1655.0	2.0	2	936-82	1	P	C2	07 FEB 84	
06 FEB 84	0615	1624.0	2.0	2	682-82	1	P	C2	04 MAR 84	
13 FEB 84	0610	1653.5	-3.0	2	10-83	1	P	C2	05 MAR 84	
20 FEB 84	0640	1627.5	1.0	2	1594-82	1	P	C2	04 MAR 84	
01 MAR 84	0701	1653.5	-3.0	2	1620-82	1	P	C2	29 MAR 84	
08 MAR 84	0620	1621.5	3.0	2	1644-82	1	P	C2	30 MAR 84	
15 MAR 84	0700	1613.0	-2.0	2	202-83	1	P	C2	30 MAR 84	
22 MAR 84	0635	1618.5	-3.0	2	1154-82	1	P	C2	02 APR 84	
29 MAR 84	0635	1645.5	3.0	2	808-83	1	P	C2	12 APR 84	
12 APR 84	0730	1628.0	8.0	2	944-83	1	P	C2	24 APR 84	
17 APR 84	0618	1639.0	6.0	2	258-82	1	P	C2	03 MAY 84	
23 APR 84	0610	1620.0	-4.0	2	1248-82	1	P	C2	15 MAY 84	
30 APR 84	0625	1612.0	-2.0	2	1652-82	1	P	C2	15 MAY 84	
07 MAY 84	0645	1611.5	3.0	2	1572-82	1	P	C2	23 MAY 84	
14 MAY 84	0600	1625.0	6.0	2	1670-82	1	P	C2	23 MAY 84	
21 MAY 84	0600	1620.0	2.0	2	1498-82	1	P	C2	01 JUN 84	
28 MAY 84	0610	1640.0		1	800-82	1	P	C2	01 JUN 84	
04 JUN 84	0622	1620.5	7.0	2	732-81	1	P	C2	14 JUN 84	
11 JUN 84	0607	1609.0	0.0	2	686-81	1	P	C2	10 JUL 84	
18 JUN 84	0730	1612.0	-4.0	2	612-83	1	P	C2	10 JUL 84	
25 JUN 84	0600	1616.5	1.0	2	782-83	1	P	C2	11 JUL 84	
02 JUL 84	0755	1618.5	-3.0	2	1564-82	1	P	C2	17 JUL 84	
09 JUL 84	0610	1618.0	4.0	2	1028-82	1	P	C2	17 JUL 84	
16 JUL 84	0725	1609.0	0.0	2	911-83	1	P	C2	13 AUG 84	
23 JUL 84	0639	1612.5	-1.0	2	1416-82	1	P	C2	01 AUG 84	
30 JUL 84	0650	1600.5	3.0	2	1385-82	1	P	C2	07 SEP 84	
09 AUG 84	0700	1599.0	4.0	2	1408-82	1	P	C2	05 SEP 84	

Guam, Mariana Islands (GMI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
20 AUG 84	0640	1604.5	-1.0	2	344-82	1	P	C2	11 SEP 84	
20 AUG 84	0640	1611.5	-1.0	2	344-82	1	P	C2	22 SEP 84	
27 AUG 84	0610	1598.5	1.0	2	960-83	1	P	C2	11 SEP 84	
03 SEP 84	0610	1602.0	0.0	2	1540-82	1	P	C2	10 SEP 84	
11 SEP 84	0600	1611.5	-1.0	2	682-82	1	P	C2	22 SEP 84	
17 SEP 84	0605	1630.5	1.0	2	1732-82	1	P	C2	22 SEP 84	
24 SEP 84	0600	1605.9	1.7	2	630-81	1	P	C2	18 OCT 84	
01 OCT 84	0600	1642.6	-.1	2	1190-82	1	P	C2	14 NOV 84	
11 OCT 84	0610	1628.8	5.0	2	754-82	1	P	C2	02 NOV 84	
19 OCT 84	0750	1618.9	-3.9	2	478-82	1	P	C2	31 OCT 84	
25 OCT 84	0625	1633.5	1.6	2	1250-82	1	P	C2	07 NOV 84	
02 NOV 84	0705	1637.9	-.7	2	1244-82	1	P	C2	27 NOV 84	
15 NOV 84	0715	1620.0	3.0	2	624-82	1	P	C2	27 NOV 84	
23 NOV 84	0705	1598.9	-10.0	3	750-83	1	P	C2	04 DEC 84	
03 DEC 84	0620	1662.0	1.5	2	1602-82	1	P	C2	18 DEC 84	
10 DEC 84	0650	1653.7	1.1	2	626-83	1	P	C2	08 JAN 85	
20 DEC 84	0610	1667.9	.4	2	1728-82	1	P	C2	08 JAN 85	
28 DEC 84	0725	1660.9	-2.0	2	256-83	1	P	C2	04 FEB 85	
08 JAN 85	0635	1641.1	1.3	2	470-82	1	P	C2	16 JAN 85	
17 JAN 85	0720	1641.0	.6	2	416-82	1	P	C2	04 FEB 85	
29 JAN 85	0745	1631.7	-1.1	2	682-82	1	P	C2	13 FEB 85	
08 FEB 85	0550	1664.7	-2.6	2	926-82	1	P	C2	20 FEB 85	
01 MAR 85	0620	1668.4		1	688-81	1	P	C2	26 MAR 85	
22 MAR 85	0735	1655.0	5.7	2	1376-82	1	P	C2	04 APR 85	
02 APR 85	0806	1645.5	-3.2	2	1192-82	1	P	C2	24 APR 85	
09 APR 85	0745	1660.9	3.4	2	276-82	1	P	C2	16 APR 85	
19 APR 85	0750	1643.4	-.4	2	188-83	1	P	C2	01 MAY 85	
22 APR 85	0730	1632.3		1	164-83	1	P	C2	22 MAY 85	
12 MAY 85	0820	1640.7	4.2	2	948-82	1	P	C2	11 JUN 85	
23 MAY 85	0636	1608.2	5.1	2	788-83	1	P	C2	11 JUN 85	
30 MAY 85	0812	1644.5	2.9	2	1562-82	1	P	C2	11 JUN 85	
06 JUN 85	0820	1647.3	-1.0	2	90-83	1	P	C2	28 JUN 85	
18 JUN 85	0719	1622.5	2.8	2	660-83	1	P	C2	28 JUN 85	
19 JUL 85	0620	1636.2	.9	2	668-83	1	P	C2	31 JUL 85	
01 AUG 85	0635	1619.8	-5.5	2	704-83	1	P	C3	12 AUG 85	
09 AUG 85	0700	1626.5	3.0	2	832-83	1	P	C3	16 AUG 85	
15 AUG 85	0630	1622.9	.7	2	546-83	1	P	C3	26 AUG 85	
03 SEP 85	0726	1641.1	-.1	2	718-83	1	P	C3	24 SEP 85	
14 SEP 85	0713	1606.3	2.1	2	390-85	1	P	C3	23 SEP 85	
17 SEP 85	0713	1638.0	.5	2	452-83	1	P	C3	02 OCT 85	
03 OCT 85	0735	1670.1	.9	2	1474-82	1	P	C3	22 OCT 85	
18 OCT 85	0755	1663.6	-2.5	2	856-83	1	P	C3	29 OCT 85	
26 OCT 85	0735	1641.1	1.5	2	272-85	1	P	C3	05 NOV 85	
02 NOV 85	0801	1668.2	1.4	2	1204-82	1	P	C3	19 NOV 85	
11 NOV 85	0756	1675.5	0.0	2	1474-82	1	P	C3	19 NOV 85	
18 NOV 85	0753	1671.7	1.5	2	666-83	1	P	C3	15 DEC 85	
03 DEC 85	0732	1678.7	-2.2	2	1162-82	1	P	C3	03 JAN 86	
19 DEC 85	0755	1671.6	6.0	2	128-83	1	P	C3	08 JAN 86	
26 DEC 85	0725	1656.4	-.9	2	614-83	1	P	C3	10 JAN 86	

Halley Bay, Antarctica (HBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 JAN 83	1830	1541.6	-1.0	2	898-82	1	P	C2	12 SEP 84	
24 JAN 83	1630	1544.1	2.0	2	869-82	1	P	C2	20 SEP 84	
31 JAN 83	1800	1537.6	-1.0	2	733-82	1	P	C2	20 SEP 84	
07 FEB 83	1730	1538.6	3.0	2	416-82	1	P	C2	20 SEP 84	
14 FEB 83	1800	1537.1	4.0	2	478-82	1	P	C2	13 SEP 84	
21 FEB 83	1630	1536.1	-2.0	2	480-82	1	P	C2	13 SEP 84	
07 MAR 83	1730	1568.1		1	874-82	1	P	C2	13 SEP 84	+
14 MAR 83	1730	1536.1	-2.0	2	872-82	1	P	C2	13 SEP 84	
21 MAR 83	1730	1540.6	1.0	2	878-82	1	P	C2	13 SEP 84	
28 MAR 83	1730	1537.1	2.0	2	884-82	1	P	C2	13 SEP 84	
04 APR 83	1830	1535.6	3.0	2	882-82	1	P	C2	13 SEP 84	
11 APR 83	1730	1540.6	-1.0	2	880-82	1	P	C2	13 SEP 84	
25 APR 83	1830	1544.6	3.0	2	514-82	1	P	C2	13 SEP 84	
02 MAY 83	1730	1547.1	2.0	2	516-82	1	P	C2	13 SEP 84	
09 MAY 83	1930	1544.1	2.0	2	518-82	1	P	C2	13 SEP 84	
16 MAY 83	2000	1555.1	4.0	2	512-82	1	P	C2	13 SEP 84	
30 MAY 83	1900	1554.6	5.0	2	506-82	1	P	C2	13 SEP 84	
06 JUN 83	1900	1553.1		1	695-82	1	P	C2	21 SEP 84	
06 JUN 83	1900	1564.1	2.0	2	696-82	1	P	C2	20 SEP 84	
13 JUN 83	1900	1560.1	2.0	2	48-82	1	P	C2	20 SEP 84	
04 JUL 83	1900	1588.0		1	185-82	1	P	C2	21 SEP 84	+
04 JUL 83	1900	1594.5	-1.0	2	186-82	1	P	C2	20 SEP 84	+
18 JUL 83	1900	1573.1	8.0	3	674-82	1	P	C2	20 SEP 84	
05 SEP 83	1900	1576.6	-1.0	2	670-82	1	P	C2	20 SEP 84	
12 SEP 83	1900	1576.1	0.0	2	496-82	1	P	C2	14 SEP 84	
19 SEP 83	1900	1577.1	0.0	2	504-82	1	P	C2	20 SEP 84	
26 SEP 83	1930	1577.6	3.0	2	502-82	1	P	C2	13 SEP 84	
03 OCT 83	1930	1579.0	0.0	2	494-82	1	P	C2	19 SEP 84	
17 OCT 83	1830	1580.6	5.0	2	488-82	1	P	C2	20 SEP 84	
24 OCT 83	1930	1578.6	-1.0	2	486-82	1	P	C2	20 SEP 84	
31 OCT 83	2200	1575.6	1.0	2	836-82	1	P	C2	20 SEP 84	
07 NOV 83	1930	1574.6	-3.0	2	838-82	1	P	C2	20 SEP 84	
14 NOV 83	1900	1574.1	2.0	2	834-82	1	P	C2	20 SEP 84	
21 NOV 83	1930	1577.1	2.0	2	848-82	1	P	C2	20 SEP 84	
28 NOV 83	1930	1572.1	2.0	2	840-82	1	P	C2	20 SEP 84	
05 DEC 83	1930	1571.6	3.0	2	832-82	1	P	C2	20 SEP 84	
12 DEC 83	1900	1573.1	0.0	2	850-82	1	P	C2	20 SEP 84	
19 DEC 83	1930	1569.6	1.0	2	528-82	1	P	C2	12 SEP 84	
26 DEC 83	1930	1564.1	2.0	2	526-82	1	P	C2	13 SEP 84	
02 JAN 84	2000	1564.1	2.0	2	686-82	1	P	C2	13 SEP 84	
09 JAN 84	1930	1561.1	2.0	2	524-82	1	P	C2	13 SEP 84	
23 JAN 84	1930	1558.6	1.0	2	520-82	1	P	C2	13 SEP 84	
30 JAN 84	1930	1559.1	0.0	2	692-82	1	P	C2	13 SEP 84	
06 FEB 84	1900	1555.2	-.7	2	266-82	1	P	C2	23 JUL 85	
27 FEB 84	1930	1558.2	3.0	2	828-82	1	P	C2	23 JUL 85	
12 MAR 84	2000	1558.0	.9	2	146-82	1	P	C2	23 JUL 85	
06 AUG 84	2000	1589.7	1.8	2	342-83	1	P	C2	19 JUL 85	
26 NOV 84	2000	1585.0	1.8	2	394-83	1	P	C2	23 JUL 85	
03 DEC 84	2000	1584.1	2.6	2	392-83	1	P	C2	23 JUL 85	
17 DEC 84	2300	1582.6	2.6	2	386-83	1	P	C4	16 SEP 86	
31 DEC 84	1900	1576.0	8.0	2	416-83	1	P	C4	15 SEP 86	
22 JAN 85	1900	1567.7	6.9	2	414-83	1	P	C4	16 SEP 86	
04 FEB 85	1900	1573.2	12.1	3	418-83	1	P	C4	15 SEP 86	
18 FEB 85	1900	1571.7	2.6	2	420-83	1	P	C4	15 SEP 86	
13 MAY 85	1900	1592.5	1.7	2	407-83	1	P	C4	16 SEP 86	+
10 JUN 85	1900	1587.7	10.6	2	136-85	1	P	C4	16 SEP 86	
22 JUL 85	1900	1592.9	-6.2	2	142-85	1	P	C4	15 SEP 86	
05 AUG 85	2000	1596.7	1.5	2	144-85	1	P	C4	16 SEP 86	
09 SEP 85	1900	1601.6	.1	2	302-83	1	P	C4	16 SEP 86	
30 SEP 85	1900	1608.2	-3.3	2	304-83	1	P	C4	15 SEP 86	
11 NOV 85	1900	1601.7	0.0	2	310-83	1	P	C4	16 SEP 86	
18 NOV 85	1900	1603.5	4.2	2	312-83	1	P	C4	15 SEP 86	

Key Biscayne, Florida (KEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
12 OCT 83	1545	1629.5	-5.0	2	34-83	1	P	C1	26 OCT 83	
15 NOV 83	1400	1701.5	9.0	2	1798-82	1	P	C2	07 DEC 83	
22 NOV 83	1410	1658.0	4.0	2	1818-82	1	P	C2	13 DEC 83	
22 DEC 83	1600	1652.5	5.0	2	944-81	1	P	C2	04 JAN 84	
09 JAN 84	1720	1696.0	-6.0	2	216-83	1	P	C2	18 JAN 84	
24 JAN 84	1510	1685.0	-2.0	2	248-83	1	P	C2	02 FEB 84	+
10 FEB 84	1600	1676.5	1.0	2	180-83	1	P	C2	05 MAR 84	
06 MAR 84	1612	1646.0	0.0	2	628-82	1	P	C2	29 MAR 84	
27 MAR 84	1430	1660.5	1.0	2	800-83	1	P	C2	24 APR 84	
13 APR 84	1547	1636.5	1.0	2	1000-82	1	P	C2	24 APR 84	
26 APR 84	1507	1699.5	5.0	2	726-82	1	P	C2	03 MAY 84	
22 MAY 84	1345	1644.0	0.0	2	1820-82	1	P	C2	31 MAY 84	
12 JUN 84	1345	1668.0	2.0	2	1538-82	1	P	C2	10 JUL 84	
19 JUL 84	1620	1640.0	-2.0	2	814-82	1	P	C2	31 JUL 84	+
06 AUG 84	1750	1633.0	0.0	2	1736-82	1	P	C2	14 AUG 84	+
10 AUG 84	1756	1630.0	2.0	2	930-83	1	P	C2	07 SEP 84	
14 AUG 84	1755	1637.0	0.0	2	364-82	1	P	C2	10 SEP 84	
20 AUG 84	1747	1677.0	2.0	2	1568-82	1	P	C2	07 SEP 84	
24 AUG 84	1740	1652.0	2.0	2	742-82	1	P	C2	11 SEP 84	+
07 SEP 84	1750	1669.5	1.0	2	1250-82	1	P	C2	22 SEP 84	
11 SEP 84	1740	1712.0		1	704-82	1	P	C2	22 SEP 84	+
13 SEP 84	1755	1654.0		1	1632-82	1	P	C2	22 SEP 84	
17 SEP 84	1800	1657.0	-3.7	2	624-82	1	P	C2	16 OCT 84	
19 SEP 84	1840	1681.5	-5.0	2	974-83	1	P	C2	17 OCT 84	
21 SEP 84	1800	1638.1	5.1	2	1205-82	1	P	C2	16 OCT 84	
25 SEP 84	1800	1701.1	-.9	2	546-83	1	P	C2	16 OCT 84	
28 SEP 84	1800	1662.4	-2.8	2	906-82	1	P	C2	18 OCT 84	
02 OCT 84	1800	1733.9	4.3	2	1176-82	1	P	C2	30 OCT 84	+
04 OCT 84	1815	1706.2	8.0	2	1232-82	1	P	C2	30 OCT 84	+
09 OCT 84	1820	1687.6	1.0	2	82-83	1	P	C2	18 OCT 84	
11 OCT 84	1800	1695.2	-2.0	2	416-82	1	P	C2	30 OCT 84	
17 OCT 84	1745	1717.4	-3.8	2	976-82	1	P	C2	01 NOV 84	
19 OCT 84	1815	1684.9	-.2	2	1332-82	1	P	C2	31 OCT 84	
23 OCT 84	1755	1680.0	-.5	2	752-82	1	P	C2	31 OCT 84	
26 OCT 84	1810	1646.4	-.4	2	12-83	1	P	C2	02 NOV 84	+
30 OCT 84	1915	1679.7	-.4	2	252-83	1	P	C2	14 NOV 84	
01 NOV 84	1920	1657.9	-1.3	2	490-82	1	P	C2	07 NOV 84	
05 NOV 84	1930	1798.1	2.8	2	1588-82	1	P	C2	14 NOV 84	+
07 NOV 84	1900	1708.6	-.1	2	1298-82	1	P	C2	15 NOV 84	+
13 NOV 84	1910	1767.6	-2.0	2	260-82	1	P	C2	27 NOV 84	+
15 NOV 84	1920	1697.7	2.9	2	286-83	1	P	C2	23 NOV 84	
15 NOV 84	1920	1700.2	-3.6	2	286-83	1	P	C2	06 DEC 84	
19 NOV 84	1930	1678.2	-1.3	2	82-83	1	P	C2	27 NOV 84	
26 NOV 84	1915	1705.2	-4.1	2	524-82	1	P	C2	04 DEC 84	
30 NOV 84	1925	1696.1	2.2	2	1588-82	1	P	C2	18 DEC 84	
04 DEC 84	1940	1668.6	3.1	2	704-83	1	P	C2	18 DEC 84	
30 JAN 85	1950	1709.8	3.6	2	1076-82	1	P	C2	05 FEB 85	
01 FEB 85	1920	1688.3	1.5	2	954-83	1	P	C2	13 FEB 85	
08 FEB 85	1900	1720.6	2.2	2	832-83	1	P	C2	20 FEB 85	+
19 FEB 85	1830	1662.6	-5.9	2	1734-82	1	P	C2	27 FEB 85	+
22 FEB 85	1900	1698.7	-1.6	2	882-83	1	P	C2	25 MAR 85	
26 FEB 85	1800	1685.1	2.6	2	538-82	1	P	C2	25 MAR 85	
05 MAR 85	1840	1662.3	-4.9	2	916-83	1	P	C2	27 MAR 85	
05 APR 85	1820	1692.4	5.0	2	830-82	1	P	C2	12 APR 85	
11 APR 85	2035	1702.1	5.6	2	618-83	1	P	C2	23 APR 85	
23 APR 85	1850	1704.2	-1.7	2	278-82	1	P	C2	01 MAY 85	
06 MAY 85	1830	1701.9	-4.7	2	1388-82	1	P	C2	16 MAY 85	
13 MAY 85	1835	1669.4	-2.1	2	1224-82	1	P	C2	16 MAY 85	
20 MAY 85	1730	1667.4	1.5	2	1646-82	1	P	C2	29 MAY 85	
23 MAY 85	1730	1654.1	-2.7	2	200-83	1	P	C2	29 MAY 85	
28 MAY 85	1800	1699.5	2.8	2	662-83	1	P	C2	11 JUN 85	
05 JUN 85	1750	1691.0	5.2	2	1392-82	1	P	C2	13 JUN 85	
20 JUN 85	1805	1665.5	1.9	2	750-82	1	P	C2	28 JUN 85	
26 JUN 85	1755	1647.8		1	962-83	1	P	C2	09 JUL 85	

Key Biscayne, Florida (KEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
12 JUL 85	1830	1627.2	-4.6	2	1250-82	1	P	C2	19 JUL 85	
15 JUL 85	1815	1654.1		1	622-83	1	P	C2	19 JUL 85	
15 JUL 85	1830	1652.6	1.2	2	278-82	1	P	C2	19 JUL 85	
26 JUL 85	1815	1643.5	2.1	2	1000-82	1	P	C2	31 JUL 85	
02 AUG 85	1730	1651.1	.9	2	1588-82	1	P	C3	12 AUG 85	
08 AUG 85	1825	1651.0	-1.2	2	1192-82	1	P	C3	15 AUG 85	
14 AUG 85	1740	1645.3	1.0	2	384-83	1	P	C3	26 AUG 85	
19 AUG 85	1810	1643.8	.6	2	920-82	1	P	C3	26 AUG 85	
23 AUG 85	1830	1649.0	-1.1	2	880-83	1	P	C3	11 SEP 85	
28 AUG 85	1715	1650.1	-3.5	2	976-82	1	P	C3	11 SEP 85	
05 SEP 85	1830	1646.5	1.0	2	844-83	1	P	C3	12 SEP 85	
16 SEP 85	1740	1686.2	-.9	2	846-83	1	P	C3	24 SEP 85	
23 SEP 85	1800	1667.9	.5	2	780-83	1	P	C3	02 OCT 85	
25 SEP 85	1650	1676.9	.1	2	1268-82	1	P	C3	02 OCT 85	
15 OCT 85	1800	1666.6	.1	2	704-83	1	P	C3	24 OCT 85	
17 OCT 85	1810	1692.8	1.2	2	846-83	1	P	C3	28 OCT 85	
21 OCT 85	1815	1687.0	.6	2	346-83	1	P	C3	28 OCT 85	
25 OCT 85	1815	1689.8	1.6	2	948-83	1	P	C3	04 NOV 85	
12 NOV 85	1900	1689.2	-.2	2	1486-82	1	P	C3	20 NOV 85	
18 NOV 85	1840	1690.7	-1.1	2	790-83	1	P	C3	27 NOV 85	
21 NOV 85	1930	1688.1	1.5	2	34-83	1	P	C3	27 NOV 85	
27 NOV 85	1850	1690.8	1.2	2	934-83	1	P	C3	15 DEC 85	
10 DEC 85	1850	1700.8	2.6	2	1526-82	1	P	C3	13 DEC 85	

Kitt Peak, Arizona (KPA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
28 APR 83	2055	1620.5	-3.0	2	105-83	1	P	C1	03 MAY 83	
28 APR 83	2055	1623.5	3.0	2	106-83	1	P	C1	03 MAY 83	
04 MAY 83	2335	1657.0	6.0	2	233-83	1	P	C1	01 JUN 83	
04 MAY 83	2335	1642.5	-23.0	2	234-83	1	P	C1	01 JUN 83	
28 MAY 83	2240	1642.0	22.0	2	933-81	1	P	C1	06 JUN 83	
28 MAY 83	2240	1638.0	8.0	2	934-81	1	P	C1	06 JUN 83	
18 JUN 83	2150	1636.5	-11.0	2	221-83	1	P	C1	06 JUL 83	
18 JUN 83	2150	1632.0	14.0	2	222-83	1	P	C1	06 JUL 83	
18 JUN 83	0903	1644.5	13.0	2	263-82	1	P	C1	28 JUN 83	
31 JUL 83	0757	1602.5	9.0	2	231-83	1	P	C1	06 AUG 83	
31 JUL 83	0757	1605.0	10.0	2	232-83	1	P	C1	06 AUG 83	
31 JUL 83	2034	1602.5	-9.0	2	1701-82	1	P	C1	06 AUG 83	
31 JUL 83	2034	1609.5	-15.0	2	1702-82	1	P	C1	06 AUG 83	
11 SEP 83	2033	1630.5	-7.0	2	258-83	1	P	C1	15 SEP 83	
26 OCT 83	0225	1739.0	-2.0	2	201-83	1	P	C1	08 NOV 83	
26 OCT 83	0225	1739.5	-1.0	2	202-83	1	P	C1	08 NOV 83	
26 OCT 83	2115	1713.0	2.0	2	9-83	1	P	C1	08 NOV 83	
26 OCT 83	2115	1712.5	3.0	2	10-83	1	P	C1	08 NOV 83	
17 FEB 84	2025	1698.5	5.0	2	176-83	1	P	C2	04 MAR 84	
30 MAY 84	1935	1642.5	-3.0	2	1534-82	1	P	C2	15 JUN 84	
28 AUG 84	2015	1645.5	-5.0	2	976-82	1	P	C2	22 SEP 84	
18 SEP 84	1830	1677.0		1	86-83	1	P	C2	22 SEP 84	
27 NOV 84	2130	1678.9	-3.7	2	534-82	1	P	C2	16 JAN 85	
14 DEC 84	2030	1699.3	-.1	2	948-82	1	P	C2	28 MAR 85	
22 MAR 85	9999	1683.4	6.1	2	898-82	1	P	C2	28 MAR 85	
11 APR 85	2100	1664.9	2.2	2	756-83	1	P	C2	22 MAY 85	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
05 APR 83	0005	1617.7	0.0	3	77-83	1	P	C1	29 APR 83	
05 APR 83	0005	1614.0	0.0	3	78-83	1	P	C1	29 APR 83	
13 APR 83	0010	1645.0	9.0	3	417-82	1	P	C1	29 APR 83	
13 APR 83	0010	1647.0	-3.0	3	418-82	1	P	C1	29 APR 83	
10 MAY 83	2357	1634.0	0.0	2	997-81	1	P	C1	17 MAY 83	
10 MAY 83	2357	1645.0	-6.0	2	998-81	1	P	C1	17 MAY 83	
18 MAY 83	0023	1649.5	-15.0	2	483-82	1	P	C1	24 MAY 83	
18 MAY 83	0023	1659.5	5.0	2	484-82	1	P	C1	25 MAY 83	
13 JUN 83	2337	1640.0	-10.0	2	292-83	1	P	C1	28 JUN 83	
16 AUG 83	0005	1623.0	0.0	2	624-82	1	P	C1	19 AUG 83	
12 SEP 83	2352	1667.5	5.0	2	1056-82	1	P	C2	28 SEP 83	
11 OCT 83	2352	1679.5	-7.0	2	1582-82	1	P	C1	26 OCT 83	
25 OCT 83	2301	1659.3	-3.0	3	1758-82	1	P	C1	04 NOV 83	
31 OCT 83	2353	1661.0	2.0	2	192-83	1	P	C1	04 NOV 83	
01 NOV 83	2348	1661.0	2.0	2	276-82	1	P	C1	08 NOV 83	
07 NOV 83	2348	1657.0	4.0	2	278-82	1	P	C1	13 NOV 83	
21 NOV 83	2350	1653.5	-1.0	2	1750-82	1	P	C2	13 DEC 83	
07 DEC 83	0015	1661.5	3.0	2	794-83	1	P	C2	27 DEC 83	
20 DEC 83	0002	1655.3	-1.0	3	742-83	1	P	C2	28 DEC 83	
09 JAN 84	2310	1653.0	8.0	2	920-82	1	P	C2	17 JAN 84	
23 JAN 84	2353	1626.0	2.0	2	1534-82	1	P	C2	02 FEB 84	
06 FEB 84	2342	1678.5	-1.0	2	870-81	1	P	C2	17 FEB 84	
20 FEB 84	2300	1657.0	-4.0	2	936-83	1	P	C2	05 MAR 84	
20 FEB 84	2300	1660.5	-5.0	2	936-83	1	P	C2	29 MAR 84	
28 FEB 84	0002	1669.0	0.0	2	762-83	1	P	C2	05 MAR 84	
12 MAR 84	2333	1652.5	1.0	2	284-82	1	P	C2	30 MAR 84	
26 MAR 84	2341	1651.3	3.0	3	738-82	1	P	C2	02 APR 84	
03 APR 84	0002	1669.0	0.0	2	34-82	1	P	C2	13 APR 84	
10 APR 84	0020	1669.5	1.0	2	734-81	1	P	C2	17 APR 84	
17 APR 84	0002	1682.0	4.0	2	938-83	1	P	C2	24 APR 84	
24 APR 84	0014	1679.0	0.0	2	1190-82	1	P	C2	02 MAY 84	
02 MAY 84	0000	1682.5	5.0	2	484-82	1	P	C2	15 MAY 84	
08 MAY 84	0005	1641.5	-3.0	2	768-81	1	P	C2	16 MAY 84	
15 MAY 84	0013	1644.7	9.0	3	264-82	1	P	C2	23 MAY 84	
21 MAY 84	2350	1670.0	6.0	2	104-84	1	P	C2	31 MAY 84	
30 MAY 84	0005	1623.0	-2.0	2	106-84	1	P	C2	01 JUN 84	
11 JUN 84	2344	1669.0	-2.0	2	732-83	1	P	C2	14 JUN 84	
03 JUL 84	0016	1619.5	-1.0	2	1446-82	1	P	C2	11 JUL 84	
10 JUL 84	0001	1623.5	3.0	2	1630-82	1	P	C2	12 JUL 84	
17 JUL 84	0010	1639.0	6.0	2	1322-82	1	P	C2	31 JUL 84	
30 JUL 84	2355	1638.0	4.0	2	388-82	1	P	C2	01 AUG 84	
21 AUG 84	0004	1629.0	-2.0	2	1218-82	1	P	C2	07 SEP 84	
28 AUG 84	0005	1655.0	4.0	2	734-81	1	P	C2	22 SEP 84	
04 SEP 84	2349	1652.5	-1.0	2	12-83	1	P	C2	10 SEP 84	
11 SEP 84	0007	1642.0	0.0	2	1682-82	1	P	C2	22 SEP 84	
17 SEP 84	2327	1651.5	1.0	2	1610-82	1	P	C2	21 SEP 84	
17 SEP 84	2327	1654.0	0.0	2	1750-82	1	P	C2	21 SEP 84	
24 SEP 84	2312	1639.7	-7.5	2	816-83	1	P	C2	16 OCT 84	
01 OCT 84	2317	1679.5	3.6	2	10-83	1	P	C2	18 OCT 84	
09 OCT 84	2317	1662.4	8.9	2	728-82	1	P	C2	30 OCT 84	
15 OCT 84	2310	1673.9	-2.2	2	796-83	1	P	C2	30 OCT 84	
22 OCT 84	2310	1679.4		1	1624-82	1	P	C2	31 OCT 84	
29 OCT 84	2330	1662.4	-1.4	2	112-83	1	P	C2	01 NOV 84	
13 NOV 84	2318	1659.3	-.8	2	786-83	1	P	C2	15 NOV 84	
20 NOV 84	2317	1653.2	-.1	2	734-81	1	P	C2	23 NOV 84	
20 NOV 84	2318	1656.9	-2.2	2	734-81	1	P	C2	06 DEC 84	
28 NOV 84	2310	1665.7	4.6	2	1812-82	1	P	C2	04 DEC 84	
03 DEC 84	2315	1645.5	-3.7	2	746-82	1	P	C2	06 DEC 84	
17 DEC 84	2305	1675.4	7.9	2	1362-82	1	P	C2	09 JAN 85	
31 DEC 84	2305	1668.4	.4	2	760-83	1	P	C2	09 JAN 85	
07 JAN 85	2308	1670.8	-.6	2	1682-82	1	P	C2	16 JAN 85	
15 JAN 85	2315	1702.5	-2.6	2	76-83	1	P	C2	24 JAN 85	
21 JAN 85	2310	1679.4	-2.7	2	670-82	1	P	C2	24 JAN 85	
04 FEB 85	2311	1671.6	.9	2	1660-82	1	P	C2	13 FEB 85	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
19 FEB 85	2312	1647.4	-1.6	2	1366-82	1	P	C2	27 FEB 85	
25 FEB 85	2315	1669.5	1.3	2	100-83	1	P	C2	26 MAR 85	
04 MAR 85	2320	1681.7	-8.3	2	742-83	1	P	C2	26 MAR 85	
18 MAR 85	2315	1681.6	.2	2	1338-82	1	P	C2	26 MAR 85	
25 MAR 85	2358	1677.7	3.2	2	18-83	1	P	C2	11 APR 85	
01 APR 85	2310	1666.9	4.4	2	778-83	1	P	C2	11 APR 85	
08 APR 85	2315	1680.0	1.8	2	1386-82	1	P	C2	12 APR 85	
15 APR 85	2310	1654.4	5.0	2	622-83	1	P	C2	24 APR 85	
15 APR 85	2320	1650.4	3.7	2	2008-85	7	P	C2	24 APR 85	
16 APR 85	2304	1687.6		1	413-85	1	P	C2	24 APR 85	
16 APR 85	2304	1685.9		1	414-85	1	P	C2	01 MAY 85	
16 APR 85	2314	1685.6		1	416-85	1	P	C2	01 MAY 85	
16 APR 85	2323	1684.0		1	417-85	1	P	C2	01 MAY 85	
16 APR 85	2323	1686.2		1	418-85	1	P	C2	01 MAY 85	
16 APR 85	2332	1687.5		1	419-85	1	P	C2	01 MAY 85	
16 APR 85	2332	1680.0		1	420-85	1	P	C2	01 MAY 85	
16 APR 85	2341	1693.1		1	421-85	1	P	C2	01 MAY 85	
16 APR 85	2350	1683.4		1	423-85	1	P	C2	01 MAY 85	
29 APR 85	2314	1680.7	-.7	2	1258-82	1	P	C2	07 MAY 85	
13 MAY 85	2302	1676.4	2.0	2	1604-82	1	P	C2	16 MAY 85	
20 MAY 85	2305	1708.6	-.8	2	878-82	1	P	C2	11 JUN 85	
03 JUN 85	2316	1675.4	1.9	2	942-83	1	P	C2	13 JUN 85	
10 JUN 85	2314	1658.3	.2	2	222-83	1	P	C2	13 JUN 85	
17 JUN 85	2310	1642.8	1.8	2	164-83	1	P	C2	28 JUN 85	
08 JUL 85	2307	1643.2	3.9	2	58-83	1	P	C2	24 JUL 85	
22 JUL 85	2342	1658.2	2.0	2	916-83	1	P	C2	24 JUL 85	
05 AUG 85	2300	1648.2	1.4	2	910-83	1	P	C3	12 AUG 85	
19 AUG 85	2318	1633.2	-1.5	2	949-83	1	P	C3	11 SEP 85	
26 AUG 85	2317	1639.8	0.0	2	176-83	1	P	C3	12 SEP 85	
16 SEP 85	2300	1676.7	.1	2	538-83	1	P	C3	02 OCT 85	
23 SEP 85	2312	1687.7	-.8	2	968-83	1	P	C3	09 OCT 85	
30 SEP 85	2312	1678.4	-.4	2	760-83	1	P	C3	09 OCT 85	
07 OCT 85	2313	1669.7	.3	2	2018-85	7	P	C3	24 OCT 85	
15 OCT 85	2319	1682.2	-.3	2	74-83	1	P	C3	24 OCT 85	
21 OCT 85	2312	1674.7	2.4	2	1452-82	1	P	C3	05 NOV 85	
28 OCT 85	2311	1703.5	2.3	2	128-83	1	P	C3	05 NOV 85	
04 NOV 85	2312	1676.8	2.1	2	714-85	1	P	C3	19 NOV 85	
12 NOV 85	2312	1674.0	-.1	2	716-85	1	P	C3	19 NOV 85	
26 NOV 85	0000	1683.6	5.3	2	1222-82	1	P	C3	15 DEC 85	
02 DEC 85	2321	1705.0	-2.8	2	2892-85	7	P	C3	14 DEC 85	
02 DEC 85	2322	1700.7	-1.2	2	2091-85	1	P	C3	14 DEC 85	
09 DEC 85	2314	1672.9	-.3	2	2088-85	7	P	C3	17 DEC 85	
23 DEC 85	2322	1659.3	5.9	2	2061-85	1	P	C3	08 JAN 86	
23 DEC 85	2322	1659.3	.1	2	2862-85	7	P	C3	08 JAN 86	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
05 APR 83	0120	1695.5	-3.0	2	750-82	1	P	C1	19 MAY 83	
11 APR 83	0029	1694.0	-6.0	2	1746-82	1	P	C1	19 MAY 83	
26 APR 83	1231	1688.0	0.0	2	212-83	1	P	C1	20 MAY 83	
02 MAY 83	2125	1689.0	-10.0	2	208-83	1	P	C1	09 JUN 83	
10 MAY 83	0213	1672.0	12.0	2	162-83	1	P	C1	08 JUN 83	
17 MAY 83	0045	1663.0	10.0	2	158-83	1	P	C1	08 JUN 83	
23 MAY 83	1745	1661.5	-3.0	2	152-83	1	P	C1	08 JUN 83	
02 JUN 83	0330	1663.5	19.0	2	202-83	1	P	C1	13 JUL 83	
06 JUN 83	0300	1653.0	2.0	2	200-83	1	P	C1	13 JUL 83	
15 JUN 83	0230	1669.2	-2.0	4	268-82	1	P	C1	13 JUL 83	
21 JUN 83	0240	1665.0	1.0	4	830-82	1	P	C1	13 JUL 83	
07 JUL 83	2100	1665.0	-2.0	2	288-83	1	P	C1	31 AUG 83	
15 JUL 83	0045	1656.0	10.0	2	8-83	1	P	C1	31 AUG 83	
18 JUL 83	2300	1672.0	2.0	2	34-82	1	P	C1	31 AUG 83	
02 AUG 83	0200	1655.0	-2.0	2	364-82	1	P	C1	31 AUG 83	
08 AUG 83	2300	1679.5	5.0	2	338-82	1	P	C2	07 OCT 83	
15 AUG 83	2030	1670.5	-5.0	2	82-83	1	P	C2	07 OCT 83	
19 AUG 83	0200	1666.7	0.0	3	1704-82	1	P	C2	07 OCT 83	
31 AUG 83	0730	1693.5	1.0	2	872-81	1	P	C2	07 OCT 83	
05 SEP 83	2215	1695.0	4.0	2	24-83	1	P	C1	13 NOV 83	
13 SEP 83	0230	1697.5	-7.0	2	1524-82	1	P	C1	13 NOV 83	
20 SEP 83	0300	1709.5	3.0	2	982-81	1	P	C1	13 NOV 83	
03 OCT 83	2220	1707.0	0.0	2	776-82	1	P	C1	13 NOV 83	
11 OCT 83	0300	1696.5	-5.0	2	742-83	1	P	C1	13 NOV 83	
19 OCT 83	2200	1700.0	-4.0	2	746-82	1	P	C1	13 NOV 83	
24 OCT 83	2002	1703.0	4.0	2	798-82	1	P	C2	04 JAN 84	
04 NOV 83	9999	1717.5	-3.0	2	802-83	1	P	C2	04 JAN 84	
10 NOV 83	2055	1709.5	5.0	2	1690-82	1	P	C2	24 DEC 83	
18 NOV 83	0340	1712.0	2.0	2	790-83	1	P	C2	24 DEC 83	
21 NOV 83	1725	1713.0	4.0	2	730-83	1	P	C2	24 DEC 83	
02 DEC 83	1950	1712.0		1	732-83	1	P	C2	27 DEC 83	
08 DEC 83	2330	1714.5	1.0	2	738-83	1	P	C2	13 JAN 84	
30 DEC 83	0700	1748.9	-4.0	2	610-83	1	P	C2	02 FEB 84	
05 JAN 84	0355	1730.0	2.0	2	1296-82	1	P	C2	02 FEB 84	
13 JAN 84	0220	1724.0	4.0	2	622-83	1	P	C2	05 MAR 84	
31 JAN 84	2300	1742.0	2.0	2	164-83	1	P	C2	05 MAR 84	
03 FEB 84	1500	1750.9	2.0	2	946-83	1	P	C2	08 MAR 84	
13 FEB 84	2130	1742.5	-1.0	2	34-83	1	P	C2	14 APR 84	
20 FEB 84	2220	1730.0	4.0	2	1292-82	1	P	C2	03 APR 84	
27 FEB 84	0145	1738.6	8.0	3	286-83	1	P	C2	02 APR 84	
06 MAR 84	0200	1723.5	1.0	2	184-82	1	P	C2	03 APR 84	
13 MAR 84	0145	1730.0	4.0	2	798-82	1	P	C2	02 APR 84	
20 MAR 84	0120	1732.5	-3.0	2	24-83	1	P	C2	17 APR 84	
26 MAR 84	2255	1734.5	3.0	2	922-83	1	P	C2	17 APR 84	
06 APR 84	0155	1713.0	4.0	2	748-83	1	P	C2	15 MAY 84	
12 APR 84	1715	1710.5	1.0	2	628-81	1	P	C2	15 MAY 84	
20 APR 84	0045	1714.5	-1.0	2	685-81	1	P	C2	15 MAY 84	
30 APR 84	2320	1709.5	-1.0	2	1814-82	1	P	C2	10 JUL 84	
08 MAY 84	0220	1706.5	3.0	2	660-81	1	P	C2	11 JUL 84	
22 MAY 84	0040	1709.0	2.0	2	1624-82	1	P	C2	11 JUL 84	
28 MAY 84	2355	1703.5	3.0	2	1626-82	1	P	C2	11 JUL 84	
05 JUN 84	2315	1690.0	2.0	2	1632-82	1	P	C2	11 JUL 84	
12 JUN 84	0328	1690.5	5.0	2	90-83	1	P	C2	11 JUL 84	
19 JUN 84	0533	1692.5	-3.0	2	1360-82	1	P	C2	05 SEP 84	
26 JUN 84	0045	1699.0	-2.0	2	1830-82	1	P	C2	10 SEP 84	
03 JUL 84	0107	1689.5	-1.0	2	746-83	1	P	C2	10 SEP 84	
13 JUL 84	2340	1689.5	-5.0	2	920-82	1	P	C2	05 SEP 84	
20 JUL 84	0025	1687.5	1.0	2	668-81	1	P	C2	10 SEP 84	
24 JUL 84	0425	1689.0	0.0	2	1092-82	1	P	C2	07 SEP 84	
27 JUL 84	1355	1682.0	0.0	2	1650-82	1	P	C2	05 SEP 84	
06 AUG 84	0100	1729.0		1	1818-82	1	P	C2	11 SEP 84	+
15 AUG 84	0108	1693.0	2.0	2	1240-82	1	P	C2	11 SEP 84	
20 AUG 84	2030	1687.5	-1.0	2	1790-82	1	P	C2	11 SEP 84	
28 AUG 84	1430	1690.5	.4	2	58-83	1	P	C2	16 OCT 84	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 SEP 84	2300	1705.0	-.1	2	1552-82	1	P	C2	16 OCT 84	
11 SEP 84	0120	1711.7	10.1	3	260-82	1	P	C2	16 OCT 84	
17 SEP 84	1915	1712.3	-.2	2	18-83	1	P	C2	07 NOV 84	
25 SEP 84	0520	1714.4	-1.9	2	778-83	1	P	C2	07 NOV 84	
28 SEP 84	2015	1712.9	-4.1	2	1538-82	1	P	C2	07 NOV 84	
04 OCT 84	0045	1711.9	1.5	2	802-83	1	P	C2	07 NOV 84	
12 OCT 84	0145	1707.6	-.3	2	916-83	1	P	C2	27 NOV 84	
22 OCT 84	0050	1722.9	.4	2	136-83	1	P	C2	27 NOV 84	
05 NOV 84	1515	1720.9	-4.3	2	1292-82	1	P	C2	04 DEC 84	
13 NOV 84	0100	1720.8	3.2	2	34-83	1	P	C2	04 DEC 84	
21 NOV 84	0215	1719.9	1.9	2	936-83	1	P	C2	05 FEB 85	
26 NOV 84	1415	1712.3	-2.1	2	1168-82	1	P	C2	05 FEB 85	
07 DEC 84	0210	1731.0	-1.1	2	1670-82	1	P	C2	05 FEB 85	
13 DEC 84	1255	1728.1		1	216-83	1	P	C2	05 FEB 85	
20 DEC 84	1230	1782.7	1.6	2	234-83	1	P	C2	05 FEB 85	+
03 JAN 85	1705	1752.6	-.3	2	882-82	1	P	C2	05 FEB 85	
10 JAN 85	1105	1839.5	2.5	2	1006-82	1	P	C2	20 FEB 85	+
17 JAN 85	1500	1748.2	-1.1	2	632-82	1	P	C2	20 FEB 85	
21 JAN 85	1105	1744.4	-.5	2	276-82	1	P	C2	20 FEB 85	
28 JAN 85	1600	1725.7	-.8	2	1430-82	1	P	C2	28 MAR 85	
11 FEB 85	1630	1731.2	.6	2	176-83	1	P	C2	12 APR 85	
18 FEB 85	1255	1734.8	-.3	2	786-83	1	P	C2	28 MAR 85	
25 FEB 85	1855	1731.2	3.3	2	364-82	1	P	C2	28 MAR 85	
07 MAR 85	0100	1745.3	1.2	2	1586-82	1	P	C2	11 APR 85	
14 MAR 85	0100	1734.4	-.4	2	840-83	1	P	C2	12 APR 85	
18 MAR 85	1313	1723.3	.8	2	936-82	1	P	C2	17 MAY 85	
26 MAR 85	1615	1762.2	1.1	2	708-83	1	P	C2	16 MAY 85	
29 MAR 85	1430	1728.1	-2.5	2	812-82	1	P	C2	17 MAY 85	
01 APR 85	1245	1737.8	-3.0	2	1324-82	1	P	C2	17 MAY 85	
08 APR 85	1350	1746.2	3.1	2	1256-82	1	P	C2	16 MAY 85	
15 APR 85	1400	1737.4	-1.2	2	1042-82	1	P	C2	16 MAY 85	
22 APR 85	0110	1732.8	2.0	2	196-82	1	P	C2	18 JUL 85	
29 APR 85	0114	1743.6	3.5	2	1814-82	1	P	C2	18 JUL 85	
06 MAY 85	1530	1739.9	-.9	2	28-83	1	P	C2	18 JUL 85	
15 MAY 85	1430	1733.6	-.3	2	734-83	1	P	C2	18 JUL 85	
20 MAY 85	1238	1723.9	1.2	2	1216-82	1	P	C2	19 JUL 85	
28 MAY 85	1200	1721.6	1.0	2	1048-82	1	P	C2	19 JUL 85	
05 JUN 85	0924	1700.8	4.8	2	74-83	1	P	C2	19 JUL 85	
10 JUN 85	1450	1712.6	-1.9	2	215-83	1	P	C2	31 JUL 85	
14 JUN 85	2300	1704.9	-.7	2	524-82	1	P	C2	31 JUL 85	
27 JUN 85	1800	1699.5	1.4	2	1102-82	1	P	C2	31 JUL 85	
04 JUL 85	1600	1703.5	.1	2	1456-82	1	P	C3	12 SEP 85	
11 JUL 85	2230	1700.0	1.5	2	720-83	1	P	C3	12 SEP 85	
18 JUL 85	1000	1694.7	-1.2	2	1078-82	1	P	C3	23 OCT 85	
23 JUL 85	2300	1695.9	.7	2	1082-82	1	P	C3	12 SEP 85	
26 JUL 85	0020	1698.1	.8	2	248-83	1	P	C3	12 SEP 85	
01 AUG 85	2000	1699.0	1.8	2	826-81	1	P	C3	05 NOV 85	
08 AUG 85	1345	1705.3	1.1	2	884-82	1	P	C3	23 OCT 85	
15 AUG 85	1915	1706.9	.7	2	390-82	1	P	C3	23 OCT 85	
22 AUG 85	2253	1711.4	.7	2	954-83	1	P	C3	05 NOV 85	
29 AUG 85	2330	1699.2	-.6	2	872-83	1	P	C3	05 NOV 85	
05 SEP 85	2300	1710.8	4.8	2	823-83	1	P	C3	05 NOV 85	
05 SEP 85	2300	1719.9		1	824-83	1	P	C3	04 NOV 85	
13 SEP 85	1950	1713.8	1.8	2	1256-82	1	P	C3	04 NOV 85	
20 SEP 85	0000	1724.2	2.5	2	1680-82	1	P	C3	27 NOV 85	
27 SEP 85	0045	1739.1	.7	2	756-83	1	P	C3	05 NOV 85	
05 OCT 85	0000	1752.3	-.4	2	222-83	1	P	C3	27 NOV 85	
11 OCT 85	1145	1757.2	.2	2	348-83	1	P	C3	27 NOV 85	
18 OCT 85	0425	1750.6	-2.0	2	822-83	1	P	C3	27 NOV 85	
25 OCT 85	1800	1739.4	-4.1	2	804-82	1	P	C3	27 NOV 85	
28 OCT 85	2300	1743.3	.3	2	676-83	1	P	C3	27 NOV 85	
04 NOV 85	2200	1743.4	-1.0	2	1372-82	1	P	C4	31 MAR 86	
12 NOV 85	1130	1754.9		1	326-83	1	P	C4	31 MAR 86	
18 NOV 85	1147	1755.5	-3.0	2	798-83	1	P	C4	27 FEB 86	
27 NOV 85	0000	1763.0	-7.5	2	858-83	1	P	C4	01 APR 86	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
29 NOV 85	0100	1750.5	6.8	2	1586-82	1	P	C4	11 FEB 86	
10 DEC 85	0120	1735.9	.7	2	1564-82	1	P	C4	11 FEB 86	
16 DEC 85	2216	1736.5	1.0	2	542-85	1	P	C4	11 FEB 86	
26 DEC 85	1401	1765.7	2.3	2	658-83	1	P	C4	03 FEB 86	
30 DEC 85	2000	1752.7	-2.1	2	806-83	1	P	C4	03 FEB 86	

McMurdo, Antarctica (MCM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
04 DEC 85	0430	1599.3	4.5	2	424-85	1	P	C4	27 FEB 86	

Sand Island, Midway (MID)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 MAY 85	0441	1657.5	1.6	2	910-83	1	P	C2	29 MAY 85	
09 MAY 85	0127	1667.8	.1	2	734-81	1	P	C2	29 MAY 85	
13 MAY 85	0547	1701.0	.6	2	1076-82	1	P	C2	11 JUN 85	
18 MAY 85	0352	1708.3	2.2	2	244-83	1	P	C2	13 JUN 85	
22 MAY 85	0528	1681.5	1.0	2	1460-82	1	P	C2	11 JUN 85	
29 MAY 85	0528	1655.8	1.4	2	489-82	1	P	C2	13 JUN 85	
24 AUG 85	0200	1652.4	2.5	2	1602-82	1	P	C3	12 SEP 85	
28 AUG 85	0300	1650.5	-.4	2	388-82	1	P	C3	12 SEP 85	
31 AUG 85	0300	1645.1	-3.1	2	226-83	1	P	C3	14 SEP 85	
04 SEP 85	0400	1652.4	-.1	2	896-83	1	P	C3	14 SEP 85	
07 SEP 85	0245	1677.8	1.9	2	624-82	1	P	C3	23 SEP 85	
11 SEP 85	0345	1659.2	.1	2	686-83	1	P	C3	24 SEP 85	
14 SEP 85	0310	1661.0	-.4	2	696-83	1	P	C3	02 OCT 85	
18 SEP 85	0300	1677.9	-1.9	2	1577-82	1	P	C3	02 OCT 85	
21 SEP 85	0325	1647.9	1.7	2	2-83	1	P	C3	09 OCT 85	
25 SEP 85	0400	1709.5	-.1	2	1320-82	1	P	C3	09 OCT 85	
28 SEP 85	0300	1700.9	-1.7	2	1564-82	1	P	C3	09 OCT 85	
02 OCT 85	0500	1680.4	-1.2	2	210-83	1	P	C3	09 OCT 85	
05 OCT 85	0300	1693.2	-1.4	2	330-83	1	P	C3	22 OCT 85	
09 OCT 85	0300	1707.9		1	443-83	1	P	C3	22 OCT 85	
12 OCT 85	0100	1679.6	.8	2	626-83	1	P	C3	29 OCT 85	
16 OCT 85	0300	1694.6	-.5	2	680-83	1	P	C3	28 OCT 85	
19 OCT 85	0200	1705.5	.6	2	1602-82	1	P	C3	14 NOV 85	
23 OCT 85	0200	1692.6	.9	2	916-83	1	P	C3	05 NOV 85	
26 OCT 85	2010	1688.5	4.5	2	710-85	1	P	C3	19 NOV 85	
30 OCT 85	0230	1689.4	-1.0	2	712-85	1	P	C3	13 NOV 85	
02 NOV 85	0200	1717.3	-.5	2	542-82	1	P	C3	19 NOV 85	
06 NOV 85	0300	1682.9	3.8	2	1328-82	1	P	C3	20 NOV 85	
09 NOV 85	0200	1718.9		1	2-83	1	P	C3	27 NOV 85	
13 NOV 85	0200	1691.2	2.5	2	548-85	1	P	C3	27 NOV 85	
16 NOV 85	0300	1692.9	1.7	2	352-83	1	P	C3	17 DEC 85	
20 NOV 85	0300	1714.1	3.4	2	174-83	1	P	C3	15 DEC 85	
27 NOV 85	0200	1697.8	-1.9	2	1224-82	1	P	C3	13 DEC 85	
10 DEC 85	9999	1692.6	-.7	2	1204-82	1	P	C3	04 JAN 86	
14 DEC 85	0200	1671.5	-.9	2	1578-82	1	P	C3	03 JAN 86	
18 DEC 85	0300	1669.3	1.5	2	750-82	1	P	C3	03 JAN 86	
24 DEC 85	9999	1719.3	-1.2	2	1602-82	1	P	C3	04 JAN 86	
27 DEC 85	9999	1706.3	1.0	2	1292-82	1	P	C4	05 FEB 86	

Mauna Loa, Hawaii (MLO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 MAY 83	2008	1636.5	5.0	2	1018-82	1	P	C1	16 MAY 83	
13 MAY 83	1945	1625.0	0.0	2	280-83	1	P	C1	16 MAY 83	
20 MAY 83	2001	1609.5	3.0	2	920-82	1	P	C1	26 MAY 83	
27 MAY 83	1943	1590.0		1	282-83	1	P	C1	06 JUN 83	
03 JUN 83	1942	1635.5	9.0	2	978-81	1	P	C1	12 JUN 83	
17 JUN 83	2335	1598.0	10.0	2	832-81	1	P	C1	18 JUN 83	
24 JUN 83	2038	1611.0	-6.0	2	278-83	1	P	C1	06 JUL 83	
01 JUL 83	2035	1623.0	-26.0	2	228-83	1	P	C1	06 JUL 83	
08 JUL 83	1937	1600.0	18.0	2	152-82	1	P	C1	13 JUL 83	
15 JUL 83	2040	1635.0		1	1404-82	1	P	C1	21 JUL 83	
28 JUL 83	2307	1614.0	-22.0	2	122-83	1	P	C1	06 AUG 83	
05 AUG 83	1940	1594.5	5.0	2	1478-82	1	P	C1	18 AUG 83	
12 AUG 83	2037	1602.0	-8.0	2	1818-82	1	P	C1	19 AUG 83	
19 AUG 83	2003	1601.5	5.0	2	708-83	1	P	C1	31 AUG 83	
26 AUG 83	2039	1620.0	4.0	2	728-82	1	P	C1	02 SEP 83	
02 SEP 83	2041	1622.5	-1.0	2	946-81	1	P	C1	14 SEP 83	
09 SEP 83	1940	1651.0	-4.0	2	766-83	1	P	C1	15 SEP 83	
16 SEP 83	1938	1621.0	2.0	2	622-83	1	P	C2	27 SEP 83	
23 SEP 83	1939	1621.0	-4.0	2	798-83	1	P	C2	28 SEP 83	
30 SEP 83	1938	1619.0	14.0	2	1714-82	1	P	C2	06 OCT 83	
07 OCT 83	1940	1650.5	5.0	2	404-82	1	P	C1	18 OCT 83	
12 OCT 83	2240	1652.5	-3.0	2	632-82	1	P	C1	18 OCT 83	
21 OCT 83	2050	1644.5	-3.0	2	706-83	1	P	C1	26 OCT 83	
28 OCT 83	2230	1658.0	2.0	2	250-83	1	P	C1	13 NOV 83	
04 NOV 83	2140	1635.5	-3.0	2	944-81	1	P	C1	08 NOV 83	
16 NOV 83	2331	1636.5	-3.0	2	830-82	1	P	C2	07 DEC 83	
17 NOV 83	2137	1628.5	-5.0	2	780-83	1	P	C2	08 DEC 83	
25 NOV 83	2120	1640.5	3.0	2	1564-82	1	P	C2	08 DEC 83	
02 DEC 83	2038	1632.0	8.0	2	296-82	1	P	C2	08 DEC 83	
09 DEC 83	1952	1624.5	3.0	2	188-83	1	P	C2	27 DEC 83	
16 DEC 83	2305	1638.5	-1.0	2	806-83	1	P	C2	03 JAN 84	
23 DEC 83	2148	1630.5	-1.0	2	780-83	1	P	C2	27 DEC 83	
30 DEC 83	1938	1636.5	-5.0	2	256-83	1	P	C2	04 JAN 84	
06 JAN 84	1941	1659.5	-9.0	2	184-82	1	P	C2	17 JAN 84	
13 JAN 84	2039	1625.0	2.0	2	704-83	1	P	C2	18 JAN 84	
20 JAN 84	1942	1620.5	7.0	2	706-83	1	P	C2	02 FEB 84	
27 JAN 84	2138	1650.0	0.0	2	1714-82	1	P	C2	03 FEB 84	
03 FEB 84	1942	1648.0	-6.0	2	264-82	1	P	C2	07 FEB 84	
10 FEB 84	1938	1640.0	-2.0	2	746-83	1	P	C2	04 MAR 84	
17 FEB 84	1937	1631.0	-4.0	2	798-81	1	P	C2	05 MAR 84	
24 FEB 84	2038	1634.5	-1.0	2	122-83	1	P	C2	05 MAR 84	
02 MAR 84	2044	1635.5	3.0	2	1030-82	1	P	C2	08 MAR 84	
09 MAR 84	1943	1625.5	-1.0	2	1456-82	1	P	C2	30 MAR 84	
23 MAR 84	2042	1634.5	1.0	2	736-83	1	P	C2	31 MAR 84	
03 APR 84	2130	1655.5	3.0	2	720-83	1	P	C2	13 APR 84	
06 APR 84	2300	1647.0	0.0	2	804-82	1	P	C2	13 APR 84	
17 APR 84	1721	1632.5	-3.0	2	100-83	1	P	C2	24 APR 84	
20 APR 84	1753	1619.0	-4.0	2	622-83	1	P	C2	24 APR 84	
25 APR 84	1955	1647.0	0.0	2	760-83	1	P	C2	02 MAY 84	
26 APR 84	0017	1643.0	2.0	2	1198-82	1	P	C2	01 MAY 84	
30 APR 84	2345	1630.0	0.0	2	1646-82	1	P	C2	03 MAY 84	
04 MAY 84	2037	1640.5	1.0	2	188-83	1	P	C2	16 MAY 84	
09 MAY 84	2010	1606.0	2.0	2	44-83	1	P	C2	16 MAY 84	
10 MAY 84	2055	1636.5	3.0	2	672-81	1	P	C2	23 MAY 84	
16 MAY 84	1947	1640.5	-5.0	2	948-83	1	P	C2	23 MAY 84	
18 MAY 84	1950	1617.5	-1.0	2	920-83	1	P	C2	31 MAY 84	
23 MAY 84	2000	1627.0		1	728-83	1	P	C2	31 MAY 84	
11 JUL 84	2037	1598.0		1	1248-82	1	P	C2	17 JUL 84	
26 JUL 84	2029	1621.5	3.0	2	176-82	1	P	C2	01 AUG 84	
03 AUG 84	2000	1623.5	-3.0	2	1620-82	1	P	C2	07 SEP 84	
10 AUG 84	1938	1626.0	0.0	2	742-83	1	P	C2	14 AUG 84	
17 AUG 84	1940	1617.5	-3.0	2	826-81	1	P	C2	07 SEP 84	
24 AUG 84	2035	1620.5	-3.0	2	746-82	1	P	C2	05 SEP 84	
31 AUG 84	1940	1612.0		1	1596-82	1	P	C2	11 SEP 84	

Mauna Loa, Hawaii (MLO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
07 SEP 84	1940	1655.5	-3.0	2	710-83	1	P	C2	10 SEP 84	
14 SEP 84	2043	1638.5	-5.0	2	1448-82	1	P	C2	22 SEP 84	
21 SEP 84	1942	1658.0		1	1460-82	1	P	C2	28 SEP 84	
28 SEP 84	1938	1662.6	-4.0	2	950-83	1	P	C2	18 OCT 84	
05 OCT 84	1942	1636.0	-2.0	2	1334-82	1	P	C2	18 OCT 84	
12 OCT 84	1938	1646.8	-3.3	2	914-83	1	P	C2	30 OCT 84	
19 OCT 84	2038	1643.9	-2.4	2	162-83	1	P	C2	02 NOV 84	
26 OCT 84	2038	1663.0	.2	2	198-82	1	P	C2	31 OCT 84	
02 NOV 84	1940	1654.9	1.5	2	1608-82	1	P	C2	07 NOV 84	
09 NOV 84	1939	1669.5	-4.0	2	948-83	1	P	C2	15 NOV 84	
16 NOV 84	1940	1662.3	.7	2	248-83	1	P	C2	23 NOV 84	
07 DEC 84	1935	1644.6	-2.6	2	826-81	1	P	C2	11 DEC 84	
14 DEC 84	2138	1645.1	-.3	2	1128-82	1	P	C2	19 DEC 84	
21 DEC 84	2102	1664.1	-.7	2	186-82	1	P	C2	08 JAN 85	
28 DEC 84	2310	1652.1	2.5	2	858-83	1	P	C2	09 JAN 85	
09 JAN 85	2212	1642.1	-.5	2	510-82	1	P	C2	16 JAN 85	
18 JAN 85	2001	1638.7	1.3	2	750-82	1	P	C2	24 JAN 85	
25 JAN 85	2235	1647.3	2.0	2	490-82	1	P	C2	04 FEB 85	
08 FEB 85	1937	1638.1	-1.1	2	496-82	1	P	C2	13 FEB 85	
15 FEB 85	2230	1640.9	-1.2	2	180-83	1	P	C2	20 FEB 85	
22 FEB 85	2040	1642.7	3.6	2	1094-82	1	P	C2	27 FEB 85	
27 FEB 85	2340	1645.1	-1.6	2	950-83	1	S	C2	25 MAR 85	
08 MAR 85	2037	1679.0	6.5	2	50-83	1	S	C2	28 MAR 85	
15 MAR 85	1940	1664.9	3.9	2	954-83	1	P	C2	27 MAR 85	
22 MAR 85	2031	1656.4		1	1331-82	1	P	C2	28 MAR 85	
22 MAR 85	2031	1656.3	-.2	2	1332-82	1	P	C2	27 MAR 85	
30 MAR 85	0144	1675.0	-1.1	2	1152-82	1	P	C2	12 APR 85	
05 APR 85	1940	1630.4	1.8	2	1358-82	1	P	C2	10 APR 85	
12 APR 85	1937	1652.7	4.9	2	1162-82	1	P	C2	16 APR 85	
19 APR 85	1940	1650.7	-1.3	2	830-83	1	P	C2	23 APR 85	
26 APR 85	1937	1643.4	5.7	2	856-83	1	P	C2	01 MAY 85	
03 MAY 85	1938	1656.2	-3.5	2	138-83	1	P	C2	07 MAY 85	
10 MAY 85	1940	1666.5		1	1552-82	1	P	C2	16 MAY 85	
17 MAY 85	2000	1662.6		1	1260-82	1	P	C2	22 MAY 85	
24 MAY 85	2000	1619.7	2.7	2	804-83	1	P	C2	29 MAY 85	
07 JUN 85	1940	1651.1		1	1089-82	1	P	C2	13 JUN 85	
14 JUN 85	1935	1638.5	.6	2	1830-82	1	P	C2	28 JUN 85	
21 JUN 85	1935	1635.8	2.2	2	256-83	1	P	C2	28 JUN 85	
28 JUN 85	1930	1636.9	-3.1	2	652-83	1	P	C2	09 JUL 85	
05 JUL 85	2010	1640.3	1.9	2	638-83	1	P	C2	09 JUL 85	
12 JUL 85	1935	1626.2	-5.5	2	866-83	1	P	C2	16 JUL 85	
19 JUL 85	1937	1638.8	6.6	2	854-83	1	P	C2	24 JUL 85	
03 AUG 85	0303	1628.6	-4.6	2	1410-82	1	P	C3	12 AUG 85	
09 AUG 85	1925	1631.1		1	127-83	1	P	C3	13 AUG 85	
16 AUG 85	1934	1641.5	-1.0	2	259-83	1	P	C3	11 SEP 85	
30 AUG 85	1938	1639.1	-.8	2	486-82	1	P	C3	11 SEP 85	
06 SEP 85	2320	1633.9	2.4	2	744-83	1	P	C3	12 SEP 85	
13 SEP 85	1930	1624.8	2.1	2	1814-82	1	P	C3	24 SEP 85	
20 SEP 85	1937	1656.7	.6	2	892-83	1	P	C3	23 SEP 85	
27 SEP 85	1939	1673.1	0.0	2	346-83	1	P	C3	02 OCT 85	
04 OCT 85	1937	1654.2	1.9	2	548-85	1	P	C3	09 OCT 85	
11 OCT 85	2011	1674.4	-.7	2	2020-85	7	P	C3	24 OCT 85	
18 OCT 85	1952	1639.1	1.1	2	1162-82	1	P	C3	24 OCT 85	
01 NOV 85	1950	1676.2		1	2069-85	1	P	C3	14 NOV 85	
01 NOV 85	1950	1679.7		1	2070-85	7	P	C3	14 NOV 85	
08 NOV 85	2007	1667.6	-.8	2	718-85	1	P	C3	13 NOV 85	
15 NOV 85	2004	1643.3	8.5	3	1114-82	1	P	C3	20 NOV 85	
22 NOV 85	1939	1664.9	-1.2	2	832-83	1	P	C3	27 NOV 85	
06 DEC 85	1944	1656.4	-2.3	2	2092-85	7	P	C3	17 DEC 85	
13 DEC 85	2037	1651.0	-1.0	2	2093-85	1	P	C3	17 DEC 85	
20 DEC 85	2055	1660.6	5.2	2	2094-85	7	P	C3	08 JAN 86	
20 DEC 85	2055	1659.5	-2.5	2	2893-85	1	P	C3	03 JAN 86	

Niwot Ridge, Colorado (NWR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
21 JUN 83	1630	1603.5	-9.0	2	300-83	1	P	C1	06 JUL 83	
05 JUL 83	1500	1659.0	2.0	2	20-83	1	P	C1	13 JUL 83	
12 JUL 83	1510	1674.0	-9.0	3	150-82	1	P	C1	20 JUL 83	
19 JUL 83	1520	1627.0	-18.0	2	30-83	1	P	C1	28 JUL 83	
26 JUL 83	1500	1622.5	11.0	2	308-82	1	P	C1	28 JUL 83	
02 AUG 83	1455	1618.0		1	610-83	1	P	C1	18 AUG 83	
09 AUG 83	1430	1620.0	-2.0	2	F-2	1	N	C1	19 AUG 83	
18 AUG 83	1520	1640.5	-7.0	2	722-83	1	P	C1	31 AUG 83	
23 AUG 83	1520	1627.5	-9.0	2	F-2	1	N	C1	31 AUG 83	
31 AUG 83	1435	1622.5	1.0	2	470-82	1	P	C1	14 SEP 83	
08 SEP 83	1545	1645.0	0.0	2	1696-82	1	P	C1	15 SEP 83	
13 SEP 83	1620	1662.7	5.0	3	785-83	1	P	C2	28 SEP 83	
13 FEB 84	1810	1662.5	1.0	2	718-83	1	N	C2	17 FEB 84	
21 FEB 84	1800	1650.0	-2.0	2	1564-82	1	N	C2	05 MAR 84	
21 FEB 84	1800	1656.0	-4.0	2	1564-82	1	N	C2	29 MAR 84	
28 FEB 84	1750	1694.0	-6.0	2	1646-82	1	N	C2	05 MAR 84	
05 MAR 84	1800	1703.0	0.0	2	830-82	1	N	C2	29 MAR 84	
12 MAR 84	1815	1678.5	-1.0	2	1668-82	1	N	C2	30 MAR 84	
19 MAR 84	1820	1685.5	1.0	2	774-83	1	N	C2	02 APR 84	
26 MAR 84	1800	1685.0	4.0	2	28-83	1	N	C2	04 APR 84	
02 APR 84	2000	1793.9	4.0	2	214-83	1	N	C2	12 APR 84	+
10 APR 84	1800	1671.5	5.0	2	944-81	1	N	C2	12 APR 84	
16 APR 84	1800	1656.5	1.0	2	1448-82	1	N	C2	24 APR 84	
23 APR 84	1930	1705.5	-5.0	2	974-83	1	N	C2	03 MAY 84	
07 MAY 84	1930	1706.0	4.0	2	984-81	1	N	C2	16 MAY 84	
14 MAY 84	1600	1654.5	-7.0	2	1526-82	1	N	C2	23 MAY 84	
14 MAY 84	1600	1661.0	0.0	2	1526-82	1	N	C2	31 MAY 84	
21 MAY 84	1600	1666.0	-2.0	2	1486-82	1	N	C2	31 MAY 84	
28 MAY 84	1600	1672.5	-3.0	2	1370-82	1	N	C2	01 JUN 84	
11 JUN 84	1530	1680.0	2.0	2	960-83	1	N	C2	14 JUN 84	
25 JUN 84	1509	1658.0	0.0	2	1526-82	1	N	C2	02 JUL 84	
02 JUL 84	1610	1658.5	1.0	2	825-83	1	N	C2	11 JUL 84	
09 JUL 84	1510	1636.0	0.0	2	286-83	1	N	C2	17 JUL 84	
16 JUL 84	1545	1667.5	-3.0	2	76-83	1	N	C2	01 AUG 84	
26 JUL 84	2130	1683.5	3.0	2	1646-82	1	N	C2	01 AUG 84	
30 JUL 84	1425	1653.0	0.0	2	724-83	1	N	C2	13 AUG 84	
30 JUL 84	1425	1677.0		1	ARL-071	1	N	C2	14 AUG 84	
30 JUL 84	1425	1654.0		1	ARL-072	1	N	C2	14 AUG 84	
06 AUG 84	1515	1655.5	1.0	2	764-83	1	N	C2	14 AUG 84	
13 AUG 84	1525	1664.0	-4.0	2	974-83	1	N	C2	07 SEP 84	
20 AUG 84	1600	1641.5	-3.0	2	610-83	1	N	C2	07 SEP 84	
27 AUG 84	1600	1630.0	-2.0	2	1320-82	1	N	C2	05 SEP 84	
04 SEP 84	1530	1676.0	2.0	2	1670-82	1	N	C2	10 SEP 84	
04 SEP 84	1530	1687.0		1	ARL-071	1	N	C2	11 SEP 84	
04 SEP 84	1530	1681.0		1	ARL-072	1	N	C2	11 SEP 84	
10 SEP 84	1530	1660.0	-2.0	2	1700-82	1	N	C2	22 SEP 84	
17 SEP 84	1530	1653.5	5.0	2	1376-82	1	N	C2	21 SEP 84	
24 SEP 84	1640	1663.0	2.6	2	1010-82	1	N	C2	16 OCT 84	
04 OCT 84	1830	1700.2	-2.4	2	1178-82	1	N	C2	18 OCT 84	
08 OCT 84	1545	1690.4	.1	2	138-83	1	N	C2	30 OCT 84	
16 OCT 84	1633	1708.2	1.2	2	848-82	1	N	C2	30 OCT 84	
23 OCT 84	1700	1770.4	2.1	2	486-82	1	N	C2	01 NOV 84	+
29 OCT 84	1630	1682.2	-.3	2	812-82	1	N	C2	07 NOV 84	
12 NOV 84	1745	1667.5	-.8	2	1388-82	1	N	C2	27 NOV 84	
19 NOV 84	1715	1690.6	-2.1	2	174-83	1	N	C2	23 NOV 84	
03 DEC 84	1800	1693.2	-.9	2	804-82	1	N	C2	06 DEC 84	
10 DEC 84	1830	1672.7	1.2	2	1216-82	1	N	C2	18 DEC 84	
26 DEC 84	2205	1669.2	-2.1	2	744-83	1	N	C2	09 JAN 85	
07 JAN 85	2100	1675.9	-3.7	2	1334-82	1	N	C2	16 JAN 85	
14 JAN 85	1545	1678.2	-2.5	2	908-83	1	N	C2	24 JAN 85	
22 JAN 85	1900	1728.0	-1.8	2	910-83	1	N	C2	24 JAN 85	
29 JAN 85	1615	1692.2	4.3	2	1142-82	1	N	C2	05 FEB 85	
12 FEB 85	2000	1666.7	-2.1	2	844-83	1	N	C2	20 FEB 85	
19 FEB 85	1700	1680.7	-2.6	2	826-81	1	N	C2	27 FEB 85	

Niwot Ridge, Colorado (NWR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
26 FEB 85	1900	1696.1	-7.5	3	882-82	1	N	C2	27 FEB 85	
05 MAR 85	1800	1690.5	-2.3	2	266-83	1	N	C2	25 MAR 85	
12 MAR 85	1730	1674.6	-2.9	2	1076-82	1	N	C2	27 MAR 85	
22 MAR 85	1800	1722.5	1.1	2	820-83	1	N	C2	27 MAR 85	
26 MAR 85	1800	1669.5	1.2	2	910-83	1	N	C2	28 MAR 85	
08 APR 85	2200	1667.7	-1.4	2	1497-82	1	N	C2	12 APR 85	
16 APR 85	1600	1668.4	6.6	2	892-83	1	N	C2	24 APR 85	
23 APR 85	1830	1697.5	-.3	2	2002-85	7	N	C2	24 APR 85	
30 APR 85	1800	1674.0	5.8	2	390-82	1	N	C2	01 MAY 85	
07 MAY 85	1700	1710.2		1	1678-82	1	N	C2	17 MAY 85	
14 MAY 85	1920	1712.2	-1.7	2	1344-82	1	N	C2	16 MAY 85	
23 MAY 85	1600	1686.4	.6	2	1588-82	1	N	C2	29 MAY 85	
28 MAY 85	1630	1660.9		1	936-83	1	N	C2	30 MAY 85	
02 JUL 85	1530	1661.1	-.1	2	1244-82	1	N	C2	09 JUL 85	
10 JUL 85	1530	1647.1		1	698-83	1	N	C2	16 JUL 85	
16 JUL 85	1440	1655.9	.7	2	1646-82	1	N	C2	19 JUL 85	
23 JUL 85	1425	1648.0	-2.3	2	1297-82	1	N	C2	31 JUL 85	
30 JUL 85	1530	1657.1	3.1	2	860-81	1	N	C2	31 JUL 85	
06 AUG 85	1630	1642.7	3.0	2	252-83	1	N	C3	12 AUG 85	
13 AUG 85	1550	1686.0	.1	2	1534-82	1	N	C3	15 AUG 85	
20 AUG 85	1515	1644.1	-1.6	2	2008-85	7	N	C3	11 SEP 85	
27 AUG 85	1600	1665.3	.5	2	272-85	1	N	C3	11 SEP 85	
03 SEP 85	1500	1646.9	-1.3	2	1326-82	1	N	C3	11 SEP 85	
13 SEP 85	1520	1714.4	-.7	2	1546-82	1	N	C3	23 SEP 85	
16 SEP 85	2030	1644.9	.9	2	1088-82	1	N	C3	23 SEP 85	
24 SEP 85	1600	1707.1	1.2	2	2005-85	1	N	C3	02 OCT 85	
01 OCT 85	1630	1712.3	.1	2	846-81	1	N	C3	09 OCT 85	
08 OCT 85	1645	1766.4	-1.0	2	2042-85	7	N	C3	09 OCT 85	+
15 OCT 85	1600	1676.4	1.0	2	1120-82	1	N	C3	23 OCT 85	
22 OCT 85	1645	1707.1	1.3	2	2026-85	7	N	C3	28 OCT 85	
29 OCT 85	1700	1685.6	1.4	2	880-83	1	N	C3	04 NOV 85	
05 NOV 85	1640	1697.1	1.4	2	2031-85	1	N	C3	14 NOV 85	
05 NOV 85	1640	1695.4	-1.1	2	2032-85	7	N	C3	14 NOV 85	
12 NOV 85	2200	1703.5	-1.3	2	646-83	1	N	C3	14 NOV 85	
19 NOV 85	1700	1732.3	.9	2	2060-85	7	N	C3	20 NOV 85	
26 NOV 85	1700	1692.0	-.8	2	1452-82	1	N	C3	27 NOV 85	
03 DEC 85	1830	1703.9	.4	2	2052-85	7	N	C3	15 DEC 85	
11 DEC 85	1800	1720.9	-5.4	2	2024-85	7	N	C3	17 DEC 85	
17 DEC 85	1830	1690.9	-6.8	2	2054-85	7	N	C3	08 JAN 86	
24 DEC 85	1800	1699.0	1.2	2	2046-85	7	N	C3	08 JAN 86	
31 DEC 85	1730	1687.6	2.1	2	796-83	1	N	C3	08 JAN 86	

Kaitorete Spit, New Zealand (NZL)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
14 JUN 83	2328	1582.0	-6.0	2	491-82	1	P	C1	28 JUN 83	+
14 JUN 83	2328	1563.1		1	492-82	1	P	C1	23 JUN 83	+
21 JUN 83	2320	1604.0	2.0	2	115-83	1	P	C1	06 JUL 83	+
21 JUN 83	2320	1604.0	2.0	2	116-83	1	P	C1	06 JUL 83	+
28 JUN 83	2331	1567.1	-4.0	2	377-82	1	P	C1	28 JUL 83	+
28 JUN 83	2331	1568.1	12.0	2	378-82	1	P	C1	28 JUL 83	+
12 JUL 83	2317	1588.2	-23.0	5	595-82	1	P	C1	20 JUL 83	+
02 AUG 83	2316	1589.0	-10.0	2	1397-82	1	P	C1	19 AUG 83	+
02 AUG 83	2316	1600.0	-12.0	2	1398-82	1	P	C1	19 AUG 83	+
09 AUG 83	2312	1578.1	0.0	2	1539-82	1	P	C1	19 AUG 83	+
09 AUG 83	2312	1574.6	-1.0	2	1540-82	1	P	C1	19 AUG 83	+
16 AUG 83	2316	1617.5	-3.0	2	199-83	1	P	C1	01 SEP 83	+
16 AUG 83	2316	1622.5	7.0	2	200-83	1	P	C1	01 SEP 83	+
23 AUG 83	2305	1582.5	1.0	2	717-83	1	P	C1	15 SEP 83	
23 AUG 83	2305	1571.6	5.0	2	718-83	1	P	C2	27 SEP 83	
30 AUG 83	2314	1647.5	-5.0	2	1808-82	1	P	C1	14 SEP 83	+
06 SEP 83	2312	1593.0	0.0	2	342-82	1	P	C2	27 SEP 83	+
13 SEP 83	2310	1586.5	-3.0	2	712-83	1	P	C2	27 SEP 83	+
20 SEP 83	2311	1588.0	14.0	2	196-83	1	P	C2	28 SEP 83	+
27 SEP 83	1125	1638.5	5.0	2	176-83	1	P	C1	18 OCT 83	+
27 SEP 83	1109	1658.0	2.0	2	962-81	1	P	C1	18 OCT 83	+
04 OCT 83	2317	1635.5	-5.0	2	836-81	1	P	C1	26 OCT 83	+
04 OCT 83	2305	1621.5	1.0	2	1762-82	1	P	C1	26 OCT 83	+
11 OCT 83	2300	1582.5	3.0	2	708-83	1	P	C1	28 OCT 83	+
18 OCT 83	2300	1602.5	-1.0	2	194-83	1	P	C1	28 OCT 83	+
25 OCT 83	2300	1628.0	0.0	2	804-82	1	P	C1	08 NOV 83	+
03 NOV 83	2306	1591.0	8.0	2	800-83	1	P	C2	07 DEC 83	+
08 NOV 83	2300	1600.0	-10.0	2	990-81	1	P	C2	07 DEC 83	+
15 NOV 83	2305	1587.0	4.0	2	2-83	1	P	C2	08 DEC 83	+
22 NOV 83	2306	1574.6	1.0	2	921-83	1	P	C2	08 DEC 83	
29 NOV 83	2311	1588.0	-2.0	2	106-83	1	P	C2	14 DEC 83	+
07 DEC 83	2256	1580.6	5.0	2	624-83	1	P	C2	24 DEC 83	+
13 DEC 83	2311	1575.6	-1.0	2	872-81	1	P	C2	27 DEC 83	
20 DEC 83	2305	1574.6	-1.0	2	24-83	1	P	C2	27 DEC 83	+
27 DEC 83	2256	1581.5	1.0	2	808-83	1	P	C2	04 JAN 84	+
03 JAN 84	2306	1575.6	-1.0	2	1578-82	1	P	C2	31 JAN 84	+
11 JAN 84	2312	1571.1	-2.0	2	1750-82	1	P	C2	31 JAN 84	+
17 JAN 84	2307	1584.5	1.0	2	952-83	1	P	C2	03 FEB 84	+
24 JAN 84	2310	1562.1	-2.0	2	794-83	1	P	C2	03 FEB 84	+
31 JAN 84	2307	1572.6	-1.0	2	944-81	1	P	C2	17 FEB 84	+
07 FEB 84	2258	1558.6	3.0	2	996-81	1	P	C2	17 FEB 84	+
14 FEB 84	2305	1582.0		1	1526-82	1	P	C2	29 MAR 84	-
21 FEB 84	2230	1590.5	7.0	2	806-83	1	P	C2	06 MAR 84	-
28 FEB 84	2301	1579.5	1.0	2	984-81	1	P	C2	29 MAR 84	-
06 MAR 84	2315	1623.5	-3.0	2	188-83	1	P	C2	29 MAR 84	-
14 MAR 84	2300	1567.6	-1.0	2	1798-82	1	P	C2	30 MAR 84	-
20 MAR 84	2315	1608.0	-2.0	2	778-83	1	P	C2	04 APR 84	+
27 MAR 84	2259	1575.6	1.0	2	870-81	1	P	C2	04 APR 84	+
03 APR 84	2305	1585.0	-6.0	2	1608-82	1	P	C2	13 APR 84	+
10 APR 84	2310	1594.5	-3.0	2	1030-82	1	P	C2	24 APR 84	-
17 APR 84	2310	1577.1	-2.0	2	728-82	1	P	C2	03 MAY 84	+
24 APR 84	2312	1579.5	-1.0	2	946-83	1	P	C2	02 MAY 84	-
01 MAY 84	2300	1568.6	-3.0	2	954-83	1	P	C2	16 MAY 84	+
08 MAY 84	2306	1604.5	-1.0	2	804-82	1	P	C2	16 MAY 84	+
15 MAY 84	2311	1604.0	0.0	2	1416-82	1	P	C2	31 MAY 84	+
22 MAY 84	2310	1797.9	2.0	2	210-83	1	P	C2	15 JUN 84	+
30 MAY 84	0205	1576.6	5.0	2	673-81	1	P	C2	15 JUN 84	
05 JUN 84	2310	1606.5	5.0	2	788-83	1	P	C2	14 JUN 84	+
12 JUN 84	2308	1582.0		1	950-83	1	P	C2	02 JUL 84	+
19 JUN 84	2312	1754.9		1	192-83	1	P	C2	02 JUL 84	+
26 JUN 84	2307	1685.0		1	916-83	1	P	C2	10 JUL 84	+
03 JUL 84	2311	1617.0		1	798-81	1	P	C2	17 JUL 84	+
10 JUL 84	2310	1610.0		1	800-82	1	P	C2	17 JUL 84	+
17 JUL 84	2310	1611.0		1	624-82	1	P	C2	13 AUG 84	+

Kaitorete Spit, New Zealand (NZL)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag'
24 JUL 84	2310	1691.0		1	790-83	1	P	C2	13 AUG 84	+
31 JUL 84	2300	1594.0		1	1444-82	1	P	C2	14 AUG 84	+
07 AUG 84	2255	1610.0		1	1166-82	1	P	C2	07 SEP 84	+
05 SEP 84	2159	1591.0		1	1244-82	1	P	C2	10 SEP 84	
12 SEP 84	2236	1600.0	4.0	2	716-83	1	P	C2	17 OCT 84	+
17 SEP 84	2214	1593.0		1	938-83	1	P	C2	22 SEP 84	+
31 OCT 84	2257	1607.6	.1	2	406-82	1	P	C2	07 NOV 84	+
06 NOV 84	2200	1594.0	-1.4	2	1790-82	1	P	C2	15 NOV 84	+
13 NOV 84	2113	1609.0	-1.9	2	808-83	1	P	C2	27 NOV 84	+
20 NOV 84	2121	1594.1	7.1	3	614-83	1	P	C2	04 DEC 84	+
28 NOV 84	0116	1597.9	.2	2	630-81	1	P	C2	18 DEC 84	+
05 DEC 84	2125	1598.5	-.4	2	484-82	1	P	C2	18 DEC 84	+
12 DEC 84	2255	1586.2	-4.1	2	1146-82	1	P	C2	19 DEC 84	+
26 DEC 84	2140	1590.2	-.2	2	1368-82	1	P	C2	16 JAN 85	+
02 JAN 85	2218	1583.8	3.5	2	846-81	1	P	C2	24 JAN 85	+
08 JAN 85	2206	1580.9		1	90-83	1	P	C2	04 FEB 85	+
15 JAN 85	2154	1595.9	5.0	2	800-82	1	P	C2	24 JAN 85	+
23 JAN 85	2150	1583.0	2.4	2	774-83	1	P	C2	05 FEB 85	+
29 JAN 85	2138	1582.2	-.1	2	1316-82	1	P	C2	27 FEB 85	+
12 FEB 85	2152	1581.3	-1.2	2	620-83	1	P	C2	27 FEB 85	+
19 FEB 85	2145	1571.5	-.6	2	1092-82	1	P	C2	25 MAR 85	+
26 FEB 85	2146	1588.3	-1.7	2	1594-82	1	P	C2	25 MAR 85	+
05 MAR 85	2235	1581.9		1	244-83	1	P	C2	25 MAR 85	+
19 MAR 85	2205	1570.5		1	836-82	1	P	C2	10 APR 85	
26 MAR 85	2150	1605.6		1	798-83	1	P	C2	10 APR 85	+
02 APR 85	2150	1597.8		1	1572-82	1	P	C2	11 APR 85	+
09 APR 85	2220	1609.8		1	798-82	1	P	C2	16 APR 85	+

Olympic Pen., Washington (OPW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
18 APR 85	0122	1716.5	3.9	2	3102-83	4	T	C2	01 MAY 85	
15 MAY 85	0200	1727.4	-2.1	2	3044-83	4	T	C2	22 MAY 85	
06 SEP 85	1945	1718.9	-.1	2	3080-84	4	T	C3	23 SEP 85	
06 SEP 85	2015	1718.4	.8	2	3062-84	4	T	C3	23 SEP 85	
06 NOV 85	1930	1711.0	.5	2	3090-84	4	T	C3	13 NOV 85	
06 NOV 85	2030	1714.1	-1.2	2	2028-85	4	T	C3	13 NOV 85	

Palmer Station, Antarctica (PSA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
01 JAN 83	2325	1537.1		1	880-81	1	P	C1	06 JUN 83	
11 JAN 83	2245	1535.6	-11.0	2	884-81	1	P	C1	06 JUN 83	
28 JAN 83	1348	1541.6	-21.0	2	890-81	1	P	C1	06 JUN 83	
12 FEB 83	2312	1526.1	-12.0	2	896-81	1	P	C1	06 JUN 83	
23 FEB 83	1330	1527.1	-16.0	2	902-81	1	P	C1	06 JUN 83	
05 MAR 83	1520	1532.1	20.0	2	1283-82	1	P	C1	06 JUN 83	
19 MAR 83	1105	1537.1	-20.0	2	1286-82	1	P	C1	13 JUL 83	
31 MAR 83	1246	1547.6	-3.0	2	1290-82	1	P	C1	13 JUL 83	
11 APR 83	1712	1541.6	5.0	2	1294-82	1	P	C1	13 JUL 83	
17 APR 83	1513	1548.6	3.0	2	1296-82	1	P	C2	06 APR 84	
23 APR 83	1645	1548.1		1	1298-82	1	P	C2	06 APR 84	
29 APR 83	1420	1551.6	-3.0	2	1300-82	1	P	C2	06 APR 84	
29 APR 83	1420	1551.1		1	1302-82	1	P	C2	06 APR 84	
04 MAY 83	1423	1548.1		1	1304-82	1	P	C2	06 APR 84	
09 MAY 83	1315	1546.6	-1.0	2	1306-82	1	P	C2	06 APR 84	
14 MAY 83	1307	1550.6	-1.0	2	1308-82	1	P	C2	06 APR 84	
20 MAY 83	1538	1554.1		1	1310-82	1	P	C2	06 APR 84	
26 MAY 83	1406	1553.6	3.0	2	1312-82	1	P	C2	05 APR 84	
31 MAY 83	2120	1552.6	-3.0	2	1314-82	1	P	C2	06 APR 84	
06 JUN 83	1900	1554.1		1	1316-82	1	P	C2	06 APR 84	
11 JUN 83	1622	1558.6	5.0	2	1318-82	1	P	C2	06 APR 84	
17 JUN 83	1337	1564.1	8.0	2	1320-82	1	P	C2	06 APR 84	
22 JUN 83	1728	1563.1	-6.0	2	1322-82	1	P	C2	05 APR 84	
28 JUN 83	1723	1562.1		1	1324-82	1	P	C2	06 APR 84	
04 JUL 83	2225	1562.1	4.0	2	1326-82	1	P	C2	06 APR 84	
10 JUL 83	2108	1563.1		1	1328-82	1	P	C2	06 APR 84	
16 JUL 83	1542	1566.1	2.0	2	1330-82	1	P	C2	06 APR 84	
22 JUL 83	1828	1566.6	-3.0	2	1332-82	1	P	C2	06 APR 84	
27 JUL 83	1947	1568.1	0.0	2	1334-82	1	P	C2	06 APR 84	
02 AUG 83	2131	1573.1	-6.0	2	1336-82	1	P	C2	11 APR 84	
09 AUG 83	2130	1569.1	-8.0	2	1338-82	1	P	C2	11 APR 84	
14 AUG 83	1650	1571.6	-5.0	2	1340-82	1	P	C2	11 APR 84	
20 AUG 83	1927	1573.1		1	1342-82	1	P	C2	11 APR 84	
26 AUG 83	2020	1587.0	-7.0	3	1344-82	1	P	C2	11 APR 84	
31 AUG 83	1907	1585.5	1.0	2	1346-82	1	P	C2	11 APR 84	
06 SEP 83	1124	1572.6	3.0	2	1348-82	1	P	C2	11 APR 84	
12 SEP 83	2225	1576.1	-2.0	2	1350-82	1	P	C2	11 APR 84	
18 SEP 83	1508	1579.0		1	1352-82	1	P	C2	11 APR 84	
24 SEP 83	1420	1577.1	6.0	2	1354-82	1	P	C2	11 APR 84	
29 SEP 83	2155	1576.1	2.0	2	1356-82	1	P	C2	11 APR 84	
05 OCT 83	1633	1575.6	-3.0	2	1358-82	1	P	C2	11 APR 84	
11 OCT 83	2254	1576.1	4.0	2	1360-82	1	P	C2	11 APR 84	
17 OCT 83	1923	1576.6	-1.0	2	1362-82	1	P	C2	11 APR 84	
24 OCT 83	1847	1575.1	-8.0	2	1364-82	1	P	C2	11 APR 84	
29 OCT 83	1938	1578.6	-3.0	2	1366-82	1	P	C2	11 APR 84	
03 NOV 83	1722	1573.1	2.0	2	1368-82	1	P	C2	11 APR 84	
08 NOV 83	1726	1579.5	-1.0	2	1370-82	1	P	C2	12 APR 84	
13 NOV 83	1612	1575.1	-2.0	2	1372-82	1	P	C2	12 APR 84	
18 NOV 83	1700	1576.6	-1.0	2	1374-82	1	P	C2	12 APR 84	
24 NOV 83	1512	1574.6	1.0	2	1376-82	1	P	C2	11 APR 84	
24 NOV 83	1512	1574.1	0.0	2	1378-82	1	P	C2	12 APR 84	
09 DEC 83	2345	1568.6	1.0	2	1384-82	1	P	C2	12 APR 84	
13 DEC 83	1634	1570.1	-2.0	2	1386-82	1	P	C2	11 APR 84	
18 DEC 83	1645	1568.6	-3.0	2	1388-82	1	P	C2	12 APR 84	
23 DEC 83	2058	1567.6	3.0	2	1390-82	1	P	C2	11 APR 84	
12 JAN 84	1715	1563.3	.8	2	1392-82	1	P	C2	12 APR 85	
03 FEB 84	1439	1562.2	-6.1	2	686-83	1	P	C2	12 APR 85	
28 FEB 84	1745	1555.3	-1.4	2	688-83	1	P	C2	10 APR 85	
14 MAR 84	1730	1559.3	4.1	2	690-83	1	P	C2	11 APR 85	
25 MAR 84	1545	1562.5	-1.9	2	692-83	1	P	C2	11 APR 85	
04 APR 84	2030	1567.5	-.4	2	694-83	1	P	C2	11 APR 85	
22 APR 84	1850	1561.4	.8	2	696-83	1	P	C2	10 APR 85	
08 JUN 84	1244	1577.4	-.2	2	634-83	1	P	C2	10 APR 85	
19 JUN 84	1425	1576.9	3.1	2	636-83	1	P	C2	12 APR 85	

Palmer Station, Antarctica (PSA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 JUL 84	1940	1580.5	1.5	2	630-83	1	P	C2	11 APR 85	
30 JUL 84	2136	1585.3	-.2	2	666-83	1	P	C2	05 APR 85	
15 AUG 84	2010	1592.1	5.2	2	670-83	1	P	C2	12 APR 85	
11 OCT 84	1205	1587.6	.3	2	644-83	1	P	C2	16 APR 85	
19 OCT 84	1229	1590.5	-1.2	2	682-83	1	P	C2	16 APR 85	
08 NOV 84	2002	1589.3	2.8	2	676-83	1	P	C2	12 APR 85	
24 NOV 84	2247	1585.3	-3.3	2	654-83	1	P	C2	12 APR 85	
30 DEC 84	1610	1572.7	4.9	2	278-83	1	P	C2	04 APR 85	
31 DEC 84	1630	1575.7	5.3	2	1400-82	1	P	C2	04 APR 85	
20 JAN 85	2010	1574.2	7.8	2	630-82	1	P	C2	31 JUL 85	
26 JAN 85	1915	1565.4	-4.7	2	268-85	1	P	C2	31 JUL 85	
03 FEB 85	0935	1566.4	-1.1	2	270-85	1	P	C2	31 JUL 85	
10 FEB 85	2300	1564.2	1.1	2	272-85	1	P	C2	31 JUL 85	
24 FEB 85	1845	1565.7	.5	2	274-85	1	P	C2	31 JUL 85	
10 MAR 85	1435	1569.1		1	300-85	1	P	C2	31 JUL 85	
18 MAR 85	0040	1563.9	2.4	2	302-85	1	P	C2	31 JUL 85	
23 MAR 85	1920	1564.8	2.0	2	304-85	1	P	C2	31 JUL 85	
30 MAR 85	1330	1568.2	-.3	2	306-85	1	P	C2	31 JUL 85	
29 APR 85	1310	1576.1	-.7	2	354-85	1	P	C4	15 APR 86	
05 MAY 85	1210	1583.1	2.2	2	356-85	1	P	C4	15 APR 86	
19 MAY 85	2355	1577.6	-1.6	2	360-85	1	P	C4	15 APR 86	
26 MAY 85	1940	1586.0	.5	2	362-85	1	P	C4	15 APR 86	
03 JUN 85	0030	1587.4	2.8	2	364-85	1	P	C4	16 APR 86	
10 JUN 85	1235	1585.7	2.2	2	366-85	1	P	C4	16 APR 86	
19 JUN 85	1400	1579.3	-2.5	2	368-85	1	P	C4	15 APR 86	
23 JUN 85	2034	1585.3	-4.2	2	370-85	1	P	C4	15 APR 86	
30 JUN 85	1415	1597.1	1.4	2	372-85	1	P	C4	16 APR 86	
10 JUL 85	1200	1594.7	-.2	2	374-85	1	P	C4	16 APR 86	
14 JUL 85	1310	1594.5	4.1	2	376-85	1	P	C4	15 APR 86	
21 JUL 85	1435	1592.1	10.7	3	378-85	1	P	C4	16 APR 86	
28 JUL 85	1250	1591.1	.6	2	380-85	1	P	C4	16 APR 86	
06 AUG 85	1230	1593.9	6.2	2	382-85	1	P	C4	16 APR 86	
12 AUG 85	2040	1599.0	1.4	2	384-85	1	P	C4	16 APR 86	
19 AUG 85	1020	1600.3	2.1	2	386-85	1	P	C4	16 APR 86	
25 AUG 85	1645	1613.4	5.7	2	278-85	1	P	C4	14 APR 86	+
22 SEP 85	1600	1607.6	-4.1	2	284-85	1	P	C4	15 APR 86	
06 OCT 85	0030	1600.7	.4	2	288-85	1	P	C4	15 APR 86	
13 OCT 85	1945	1608.5	3.0	2	290-85	1	P	C4	15 APR 86	
24 OCT 85	2125	1600.6	5.9	2	296-85	1	P	C4	14 APR 86	
27 OCT 85	0020	1605.6	-9.6	2	366-82	1	P	C4	15 APR 86	
01 NOV 85	2035	1612.4	-8.2	2	242-83	1	P	C4	15 APR 86	
18 NOV 85	1035	1602.9	.3	2	114-83	1	P	C4	14 APR 86	
23 NOV 85	1445	1601.4	2.8	2	1566-82	1	P	C4	14 APR 86	
26 NOV 85	1244	1604.7	-5.9	2	130-83	1	P	C4	14 APR 86	
06 DEC 85	1720	1599.4	-1.9	2	228-83	1	P	C4	14 APR 86	
09 DEC 85	1245	1595.5	-.2	2	150-83	1	P	C4	14 APR 86	
20 DEC 85	1900	1596.8	-1.4	2	328-85	1	P	C4	10 JUN 86	
31 DEC 85	1510	1590.2	.1	2	330-85	1	P	C4	10 JUN 86	

Seychelles (SEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
12 MAY 83	1030	1553.1	0.0	2	166-83	1	P	C1	18 MAY 83	
19 MAY 83	1030	1579.6	11.0	2	1752-82	1	P	C1	26 MAY 83	
26 MAY 83	1030	1555.6	-3.0	2	20-83	1	P	C1	06 JUN 83	
02 JUN 83	1045	1551.1	12.0	2	168-83	1	P	C1	08 JUN 83	
09 JUN 83	1000	1573.6	-17.0	2	730-82	1	P	C1	14 JUN 83	
16 JUN 83	1030	1570.6	-7.0	2	114-83	1	P	C1	28 JUN 83	
23 JUN 83	1120	1585.0	6.0	2	242-83	1	P	C1	06 JUL 83	
30 JUN 83	1020	1588.5	7.0	2	1714-82	1	P	C1	06 JUL 83	
07 JUL 83	1050	1568.1	-2.0	2	1018-82	1	P	C1	13 JUL 83	
14 JUL 83	1000	1596.0	0.0	3	1554-82	1	P	C1	20 JUL 83	
19 JUL 83	1130	1573.1	22.0	2	946-81	1	P	C1	28 JUL 83	
28 JUL 83	1100	1573.6	-27.0	2	1526-82	1	P	C1	06 AUG 83	
04 AUG 83	1030	1578.1	2.0	2	1700-82	1	P	C1	18 AUG 83	
11 AUG 83	1015	1564.6	3.0	2	1456-82	1	P	C1	19 AUG 83	
18 AUG 83	0500	1575.6	1.0	2	264-82	1	P	C2	13 DEC 83	
25 AUG 83	0500	1577.1	-2.0	2	700-83	1	P	C2	13 DEC 83	
01 SEP 83	0500	1576.6	-1.0	2	1698-82	1	P	C2	13 DEC 83	
08 SEP 83	1000	1575.6	3.0	2	1486-82	1	P	C2	13 DEC 83	
10 NOV 83	0800	1616.5	-1.0	2	724-83	1	P	C2	27 DEC 83	
17 NOV 83	0800	1620.5	-3.0	2	1696-82	1	P	C2	27 DEC 83	
01 DEC 83	0530	1586.6	-17.0	2	1714-82	1	P	C2	27 DEC 83	
08 DEC 83	0630	1600.0	0.0	2	12-83	1	P	C2	27 DEC 83	
15 DEC 83	0600	1608.5	1.0	2	950-83	1	P	C2	27 DEC 83	
22 DEC 83	1200	1634.0	-2.0	2	982-81	1	P	C2	02 FEB 84	
29 DEC 83	1300	1628.0	0.0	2	1152-82	1	P	C2	03 FEB 84	
05 JAN 84	9999	1635.0	-4.0	2	830-82	1	P	C2	03 FEB 84	
12 JAN 84	1200	1627.5	7.0	2	296-82	1	P	C2	07 FEB 84	
19 JAN 84	0915	1638.0	-6.0	2	738-82	1	P	C2	07 FEB 84	
26 JAN 84	1500	1613.0	-6.0	2	920-83	1	P	C2	02 APR 84	
23 FEB 84	1150	1586.5	-1.0	2	364-82	1	P	C2	10 JUL 84	
01 MAR 84	1335	1620.0		1	906-82	1	P	C2	03 APR 84	
28 JUN 84	0500	1586.0	0.0	2	760-83	1	P	C2	11 JUL 84	
05 JUL 84	1300	1595.0	0.0	2	1094-82	1	P	C2	31 JUL 84	
12 JUL 84	1400	1593.0	2.0	2	934-83	1	P	C2	31 JUL 84	
19 JUL 84	0530	1592.5	3.0	2	1196-82	1	P	C2	01 AUG 84	
26 JUL 84	1000	1591.5	1.0	2	728-83	1	P	C2	07 SEP 84	
02 AUG 84	1400	1593.0	0.0	2	1340-82	1	P	C2	05 SEP 84	
09 AUG 84	0500	1597.5	-1.0	2	484-82	1	P	C2	11 SEP 84	
16 AUG 84	0900	1592.0	-2.0	2	402-82	1	P	C2	11 SEP 84	
23 AUG 84	0700	1597.5	-3.0	2	1366-82	1	P	C2	21 SEP 84	
30 AUG 84	0900	1600.5	1.0	2	1694-82	1	P	C2	22 SEP 84	
06 SEP 84	0600	1594.8	8.3	3	8-83	1	P	C2	16 OCT 84	
13 SEP 84	0300	1619.0	4.0	2	736-83	1	P	C2	28 SEP 84	
20 SEP 84	0400	1593.0	0.0	2	1442-82	1	P	C2	28 SEP 84	
27 SEP 84	0700	1590.8	-.4	2	1076-82	1	P	C2	07 NOV 84	
04 OCT 84	0500	1590.0	6.1	2	1828-82	1	P	C2	07 NOV 84	
11 OCT 84	0500	1658.7	.2	2	128-83	1	P	C2	24 JAN 85	
18 OCT 84	0630	1587.1	2.4	2	1360-82	1	P	C2	14 NOV 84	
06 DEC 84	0430	1634.8	4.4	2	1732-82	1	P	C2	13 FEB 85	
13 DEC 84	0500	1634.0	4.8	2	848-82	1	P	C2	13 FEB 85	
20 DEC 84	0830	1636.6	-3.7	2	1554-82	1	P	C2	13 FEB 85	
07 FEB 85	0400	1638.9	.6	2	1334-82	1	P	C2	14 FEB 85	
14 FEB 85	0530	1652.3	3.5	2	618-83	1	P	C2	27 FEB 85	
21 FEB 85	0515	1664.5		1	1250-82	1	P	C2	25 MAR 85	
26 FEB 85	1330	1659.9	2.9	2	788-83	1	P	C2	28 MAR 85	
07 MAR 85	0600	1583.3	2.4	2	1478-82	1	P	C2	27 MAR 85	
12 MAR 85	0500	1586.1	-6.0	2	1486-82	1	P	C2	26 MAR 85	
21 MAR 85	0350	1611.4	3.3	2	1344-82	1	P	C2	28 MAR 85	
28 MAR 85	0305	1589.5	.2	2	704-83	1	P	C2	04 APR 85	
04 APR 85	0410	1584.4	-.6	2	1094-82	1	P	C2	16 APR 85	
12 APR 85	0500	1592.9	-3.6	2	1484-82	1	P	C2	23 APR 85	
18 APR 85	0630	1608.3	-3.4	2	938-83	1	P	C2	23 APR 85	
25 APR 85	1530	1592.0	.9	2	1602-82	1	P	C2	07 MAY 85	
02 MAY 85	0900	1590.6	-.1	2	484-82	1	P	C2	07 MAY 85	

Seychelles (SEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
16 MAY 85	1030	1595.4	.2	2	1370-82	1	P	C2	29 MAY 85	
23 MAY 85	0930	1593.1	1.4	2	1572-82	1	P	C2	29 MAY 85	
30 MAY 85	0550	1600.1	1.0	2	968-83	1	P	C2	11 JUN 85	
13 JUN 85	1130	1601.3		1	1010-82	1	P	C2	28 JUN 85	
17 JUN 85	0430	1600.6	2.2	2	846-81	1	P	C3	12 AUG 85	
18 JUN 85	0500	1603.5	1.9	2	257-83	1	P	C2	31 JUL 85	
04 JUL 85	0700	1606.7	2.5	2	406-82	1	P	C3	26 AUG 85	
11 JUL 85	0700	1605.3	1.4	2	1446-82	1	P	C3	26 AUG 85	
18 JUL 85	0900	1602.0	-1.4	2	780-83	1	P	C3	26 AUG 85	
25 JUL 85	0900	1603.3		1	885-83	1	P	C3	26 AUG 85	
01 AUG 85	0400	1601.4	.1	2	1656-82	1	P	C3	14 SEP 85	
08 AUG 85	0400	1603.2	1.7	2	705-83	1	P	C3	14 SEP 85	
15 AUG 85	0500	1612.0	0.0	2	682-83	1	P	C3	23 SEP 85	
22 AUG 85	0400	1612.4	-2.3	2	750-83	1	P	C3	23 SEP 85	
29 AUG 85	0400	1605.7	-1.9	2	834-82	1	P	C3	23 SEP 85	
05 SEP 85	0500	1614.9	1.5	2	716-83	1	P	C3	23 SEP 85	
12 SEP 85	0430	1609.3	0.0	2	1498-82	1	P	C3	09 OCT 85	
19 SEP 85	0500	1608.3	-1.6	2	798-82	1	P	C3	09 OCT 85	
26 SEP 85	0430	1607.1		1	836-82	1	P	C3	17 DEC 85	
03 OCT 85	1430	1591.7	-3.2	2	932-83	1	P	C3	17 DEC 85	
08 OCT 85	0900	1597.0	.1	2	178-82	1	P	C3	20 NOV 85	
24 OCT 85	0500	1592.6	.9	2	1210-82	1	P	C3	17 DEC 85	
31 OCT 85	0500	1602.1	1.3	2	1604-82	1	P	C3	17 DEC 85	

Shemya Island (SHM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
04 SEP 85	2306	1735.6	-1.1	2	1587-82	1	P	C3	24 SEP 85	
11 SEP 85	2330	1733.2	1.7	2	1334-82	1	P	C3	23 SEP 85	
19 SEP 85	2200	1722.8	-4.0	2	186-82	1	P	C3	09 OCT 85	
25 SEP 85	0045	1735.0	-1.2	2	1150-82	1	P	C3	09 OCT 85	
02 OCT 85	0030	1741.1	.2	2	442-83	1	P	C3	28 OCT 85	
09 OCT 85	1915	1766.1	.6	2	1608-82	1	P	C3	29 OCT 85	
16 OCT 85	1930	1747.2	-.5	2	840-81	1	P	C3	05 NOV 85	
25 OCT 85	1830	1737.5	2.7	2	696-83	1	P	C3	05 NOV 85	
31 OCT 85	1900	1737.7	.3	2	554-85	1	P	C3	13 NOV 85	
08 NOV 85	0100	1729.6	-.4	2	60-83	1	P	C3	13 NOV 85	
13 NOV 85	2330	1736.9	1.8	2	392-85	1	P	C3	17 DEC 85	
29 NOV 85	2300	1732.3	.7	2	502-82	1	P	C3	14 DEC 85	
21 DEC 85	0000	1738.0	-3.4	2	392-83	1	P	C3	04 JAN 86	
31 DEC 85	0000	1738.3	-8.8	3	642-83	1	P	C4	03 FEB 86	

Scripps, California (SIO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 FEB 84	2345	1690.5	-1.0	2	748-83	1	P	C2	07 FEB 84	
02 FEB 84	2349	1683.5	3.0	2	754-83	1	P	C2	07 FEB 84	
02 FEB 84	2353	1681.5	-1.0	2	772-83	1	P	C2	07 FEB 84	
02 FEB 84	2357	1679.0	2.0	2	774-83	1	P	C2	07 FEB 84	
03 FEB 84	0001	1680.5	3.0	2	1484-82	1	P	C2	07 FEB 84	
03 FEB 84	0005	1679.0	0.0	2	1546-82	1	P	C2	07 FEB 84	
12 SEP 84	9999	1659.5	-1.0	2	704-83	1	P	C2	21 SEP 84	
12 SEP 84	2314	1659.5	1.0	2	846-81	1	P	C2	21 SEP 84	
12 SEP 84	2322	1656.0	0.0	2	1758-82	1	P	C2	21 SEP 84	
01 AUG 85	2350	1674.8	-1.6	2	510-82	1	P	C3	13 AUG 85	
02 AUG 85	0000	1677.4	2.9	2	742-83	1	P	C3	13 AUG 85	
02 AUG 85	0005	1673.9	.9	2	1012-82	1	P	C3	13 AUG 85	
02 AUG 85	0011	1673.2	-2.8	2	1116-82	1	P	C3	13 AUG 85	
02 AUG 85	0017	1674.5	2.1	2	1390-82	1	P	C3	13 AUG 85	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
23 APR 83	0024	1543.6	13.0	4	219-83	1	S	C1	03 MAY 83	
23 APR 83	0024	1551.1	4.0	2	220-83	1	S	C1	03 MAY 83	
21 MAY 83	0030	1551.1	12.0	2	1002-82	1	P	C1	27 MAY 83	
31 MAY 83	0102	1578.1	2.0	2	244-83	1	P	C1	14 JUN 83	
04 JUN 83	0035	1565.1	-8.0	2	918-81	1	P	C1	08 JUN 83	
13 JUN 83	2333	1567.6	17.0	2	88-83	1	P	C1	17 JUN 83	
19 JUN 83	9999	1567.6	29.0	2	630-82	1	P	C1	06 JUL 83	
25 JUN 83	0028	1577.6	5.0	2	808-81	1	P	C1	06 JUL 83	
02 JUL 83	0028	1573.6	-3.0	2	350-82	1	P	C1	13 JUL 83	
09 JUL 83	0030	1569.6	13.0	2	374-82	1	P	C1	13 JUL 83	
05 AUG 83	2345	1576.1	-2.0	2	100-83	1	P	C1	18 AUG 83	
16 AUG 83	0145	1571.1	6.0	2	1776-82	1	P	C1	01 SEP 83	
20 AUG 83	2345	1576.6	-3.0	2	74-83	1	P	C1	02 SEP 83	
27 AUG 83	0052	1573.6	3.0	2	10-83	1	P	C1	02 SEP 83	
03 SEP 83	0045	1558.1	-2.0	2	746-83	1	P	C1	14 SEP 83	+
11 SEP 83	0114	1572.1	0.0	2	760-83	1	P	C2	27 SEP 83	
17 SEP 83	0045	1574.1	8.0	2	754-82	1	P	C2	06 OCT 83	
22 OCT 83	0045	1580.5	-3.0	2	744-82	1	P	C1	28 OCT 83	
14 NOV 83	0244	1578.1	2.0	2	286-83	1	P	C2	08 DEC 83	
20 NOV 83	2045	1575.1	6.0	2	260-82	1	P	C2	13 DEC 83	
26 NOV 83	0031	1577.1	8.0	2	534-82	1	P	C2	13 DEC 83	
17 DEC 83	0031	1576.6	-3.0	2	928-83	1	P	C2	28 DEC 83	
25 DEC 83	0045	1572.6	-3.0	2	804-82	1	P	C2	04 JAN 84	
02 JAN 84	2340	1593.0	10.0	2	222-83	1	P	C2	17 JAN 84	
07 JAN 84	0028	1589.5	-7.0	2	1754-82	1	P	C2	17 JAN 84	
14 JAN 84	2151	1587.0	2.0	2	1456-82	1	P	C2	31 JAN 84	
24 JAN 84	9999	1589.5	-3.0	2	1818-82	1	P	C2	02 FEB 84	
28 JAN 84	0037	1588.5	1.0	2	202-83	1	P	C2	03 FEB 84	
06 FEB 84	2324	1598.0	0.0	2	1696-82	1	P	C2	17 FEB 84	
11 FEB 84	0025	1590.0	0.0	2	1830-82	1	P	C2	04 MAR 84	
24 FEB 84	0045	1573.6	1.0	2	1150-82	1	P	C2	08 MAR 84	
17 MAR 84	0001	1563.1	6.0	2	44-83	1	P	C2	31 MAR 84	
31 MAR 84	2252	1613.0	-2.0	2	1702-82	1	P	C2	12 APR 84	+
07 APR 84	0012	1573.1	-4.0	2	740-83	1	P	C2	24 APR 84	
24 APR 84	0247	1604.0	4.0	2	82-83	1	P	C2	02 MAY 84	+
05 MAY 84	0157	1581.0	-2.0	2	1678-82	1	P	C2	16 MAY 84	
12 MAY 84	0033	1576.1	2.0	2	1028-82	1	P	C2	23 MAY 84	
19 MAY 84	0041	1572.1	-2.0	2	268-82	1	P	C2	23 MAY 84	
26 MAY 84	0024	1572.6	-1.0	2	1340-82	1	P	C2	31 MAY 84	
09 JUN 84	0025	1590.0	-6.0	2	1636-82	1	P	C2	17 JUL 84	
16 JUN 84	0021	1585.5	-7.0	2	750-82	1	P	C2	02 JUL 84	
23 JUN 84	0023	1588.5	-3.0	2	1734-82	1	P	C2	02 JUL 84	
30 JUN 84	0021	1590.0		1	1640-82	1	P	C2	11 JUL 84	
07 JUL 84	0129	1591.5	-1.0	2	632-82	1	P	C2	11 JUL 84	
14 JUL 84	0024	1592.5	1.0	2	1554-82	1	P	C2	31 JUL 84	
21 JUL 84	0024	1590.0	-2.0	2	1672-82	1	P	C2	10 SEP 84	
28 JUL 84	0024	1590.0	-8.0	2	1376-82	1	P	C2	13 AUG 84	
04 AUG 84	0007	1591.5	1.0	2	28-83	1	P	C2	14 AUG 84	
11 AUG 84	0040	1585.7	7.0	3	1194-82	1	P	C2	07 SEP 84	
18 AUG 84	0012	1593.0	-2.0	2	1246-82	1	P	C2	07 SEP 84	
01 SEP 84	2010	1587.5	-3.0	2	82-83	1	P	C2	10 SEP 84	
22 SEP 84	0021	1587.6	-.1	2	814-83	1	P	C2	16 OCT 84	
29 SEP 84	0046	1597.9	1.3	2	1314-82	1	P	C2	17 OCT 84	
07 OCT 84	0050	1587.1	-.4	2	1784-82	1	P	C2	18 OCT 84	
13 OCT 84	0040	1588.9	-.5	2	1530-82	1	P	C2	18 OCT 84	
20 OCT 84	0019	1594.0	.7	2	1730-82	1	P	C2	31 OCT 84	
03 NOV 84	0040	1586.8	-2.0	2	850-82	1	P	C2	14 NOV 84	
10 NOV 84	0034	1589.9	1.2	2	1630-82	1	P	C2	15 NOV 84	
17 NOV 84	0021	1582.0	-1.4	2	1564-82	1	P	C2	23 NOV 84	
01 DEC 84	2024	1598.0	2.9	2	1152-82	1	P	C2	11 DEC 84	
08 DEC 84	0050	1596.0	-1.7	2	2-83	1	P	C2	11 DEC 84	
15 DEC 84	2239	1583.0	-3.8	2	1142-82	1	P	C2	09 JAN 85	
12 JAN 85	0037	1619.1	-1.2	2	1678-82	1	P	C2	17 JAN 85	
19 JAN 85	0022	1616.1	-.7	2	920-83	1	P	C2	24 JAN 85	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
26 JAN 85	0020	1571.6	2.0	2	744-83	1	P	C2	04 FEB 85	
09 FEB 85	0037	1603.9	2.1	2	222-83	1	P	C2	13 FEB 85	
16 FEB 85	0024	1610.1	3.7	2	1233-82	1	P	C2	20 FEB 85	
16 FEB 85	0024	1606.2	1.1	2	1234-82	1	P	C2	20 FEB 85	
23 FEB 85	2250	1604.3	4.0	2	976-83	1	S	C2	26 MAR 85	
02 MAR 85	0050	1613.7	-.7	2	720-83	1	S	C2	28 MAR 85	
09 MAR 85	0150	1603.1	-2.1	2	1456-82	1	S	C2	27 MAR 85	
23 MAR 85	0001	1595.1	2.7	2	58-83	1	P	C2	26 MAR 85	
30 MAR 85	0015	1579.8	.5	2	878-83	1	P	C2	11 APR 85	
06 APR 85	0005	1592.1	3.1	2	854-83	1	P	C2	24 APR 85	
26 APR 85	2316	1589.5	1.6	2	30-83	1	P	C2	07 MAY 85	
28 APR 85	0057	1589.9		1	401-85	1	P	C2	07 MAY 85	
28 APR 85	0057	1587.3		1	402-85	1	P	C2	07 MAY 85	
28 APR 85	0057	1589.5		1	403-85	1	P	C2	07 MAY 85	
28 APR 85	0057	1592.2		1	407-85	1	P	C2	07 MAY 85	
28 APR 85	0057	1587.5		1	411-85	1	P	C2	07 MAY 85	
28 APR 85	0057	1592.0		1	412-85	1	P	C2	07 MAY 85	
05 MAY 85	0030	1610.6	3.7	2	2009-85	1	P	C2	22 MAY 85	
05 MAY 85	0030	1607.9	3.9	2	2010-85	7	P	C2	22 MAY 85	
05 MAY 85	0038	1610.3	-.5	2	1252-82	1	P	C2	22 MAY 85	
18 MAY 85	0019	1591.5	1.5	2	1244-82	1	P	C2	22 MAY 85	
25 MAY 85	0012	1592.9	-1.1	2	178-82	1	P	C2	29 MAY 85	
01 JUN 85	0031	1602.2	3.2	2	400-85	1	P	C2	11 JUN 85	
08 JUN 85	0021	1593.8	-4.7	2	976-82	1	P	C2	13 JUN 85	
29 JUN 85	0024	1598.2	-5.7	2	188-83	1	P	C2	09 JUL 85	
06 JUL 85	0022	1606.2	1.4	2	1368-82	1	P	C2	09 JUL 85	
13 JUL 85	0024	1596.2		1	950-83	1	P	C2	19 JUL 85	
27 JUL 85	0027	1600.7	-.4	2	1150-82	1	P	C3	12 AUG 85	
03 AUG 85	0040	1600.4	3.4	2	1812-82	1	P	C3	12 AUG 85	
08 AUG 85	2220	1602.2	1.4	2	330-83	1	P	C3	26 AUG 85	
16 AUG 85	0038	1601.7	2.7	2	348-83	1	P	C3	26 AUG 85	
23 AUG 85	0035	1603.4	-4.1	2	341-82	1	P	C3	26 AUG 85	
23 AUG 85	0035	1608.6	7.7	2	342-82	1	P	C3	26 AUG 85	
27 SEP 85	0042	1603.5	-1.2	2	1526-82	1	P	C3	02 OCT 85	
12 OCT 85	0049	1602.0	.8	2	2044-85	7	P	C3	24 OCT 85	
17 OCT 85	2325	1602.6	-1.0	2	1202-82	1	P	C3	28 OCT 85	
01 NOV 85	0034	1601.9	-3.8	2	642-83	1	P	C3	14 NOV 85	
14 NOV 85	2250	1596.8	3.2	2	1244-82	1	P	C3	20 NOV 85	
28 NOV 85	2227	1597.3	-2.2	2	2032-85	7	P	C3	15 DEC 85	
05 DEC 85	2205	1595.5	-3.0	2	2070-85	7	P	C3	15 DEC 85	
23 DEC 85	2249	1601.0	-6.0	2	1146-82	1	P	C3	04 JAN 86	
26 DEC 85	2342	1600.9	-.8	2	2015-85	1	P	C3	08 JAN 86	
26 DEC 85	2342	1600.4	-2.2	2	2816-85	7	P	C3	04 JAN 86	

South Pole, Antarctica (SPO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
20 FEB 83	0234	1536.6	7.0	2	1588-82	1	S	C2	11 JAN 84	
27 FEB 83	0047	1535.6	-1.0	2	1590-82	1	P	C2	13 JAN 84	
06 MAR 83	0124	1536.1	0.0	2	1592-82	1	S	C2	11 JAN 84	
13 MAR 83	0326	1536.6	1.0	2	1594-82	1	P	C2	13 JAN 84	
20 MAR 83	0224	1537.1	4.0	2	1608-82	1	S	C2	11 JAN 84	
27 MAR 83	0242	1538.6	3.0	2	1606-82	1	P	C2	13 JAN 84	
10 APR 83	0213	1541.1	-8.0	2	1602-82	1	P	C2	13 JAN 84	
17 APR 83	0532	1543.6	-1.0	2	1596-82	1	S	C2	11 JAN 84	
24 APR 83	0224	1546.6	-1.0	2	1610-82	1	P	C2	11 JAN 84	
01 MAY 83	0424	1548.1	-4.0	2	1612-82	1	S	C2	12 JAN 84	
15 MAY 83	0229	1551.6	7.0	2	1616-82	1	S	C2	12 JAN 84	
22 MAY 83	0530	1551.6	1.0	2	1618-82	1	P	C2	13 JAN 84	
29 MAY 83	0330	1557.1	2.0	2	1620-82	1	S	C2	12 JAN 84	
05 JUN 83	0336	1550.1	2.0	2	1622-82	1	P	C2	13 JAN 84	
12 JUN 83	1028	1559.1	4.0	2	1624-82	1	P	C2	12 JAN 84	
19 JUN 83	2329	1563.6	1.0	2	1626-82	1	S	C2	12 JAN 84	
26 JUN 83	0316	1561.1	2.0	2	1628-82	1	P	C2	12 JAN 84	
10 JUL 83	0013	1562.6	-3.0	2	1632-82	1	P	C2	13 JAN 84	
17 JUL 83	0540	1571.1		1	1634-82	1	S	C2	11 JAN 84	
24 JUL 83	0242	1567.1	-2.0	2	1636-82	1	P	C2	12 JAN 84	
07 AUG 83	0425	1571.1	-4.0	2	1640-82	1	S	C2	11 JAN 84	
21 AUG 83	0228	1573.6	-3.0	2	1644-82	1	S	C2	11 JAN 84	
04 SEP 83	0025	1574.6	-1.0	2	1648-82	1	S	C2	11 JAN 84	
18 SEP 83	0225	1579.1	-10.0	2	1652-82	1	S	C2	12 JAN 84	
25 SEP 83	0413	1575.6	-1.0	2	1654-82	1	P	C2	13 JAN 84	
02 OCT 83	0427	1575.1	-2.0	2	1656-82	1	S	C2	12 JAN 84	
16 OCT 83	0225	1579.1	-4.0	2	1660-82	1	S	C2	12 JAN 84	
23 OCT 83	0153	1580.5	-3.0	2	1662-82	1	P	C2	12 JAN 84	
30 OCT 83	0425	1575.1	0.0	2	1664-82	1	S	C2	12 JAN 84	
06 NOV 83	0328	1576.6	7.0	2	1666-82	1	S	C2	12 JAN 84	
12 NOV 83	2325	1576.1	-2.0	2	1670-82	1	S	C2	30 MAR 84	
19 NOV 83	2350	1572.6	-3.0	2	1672-82	1	P	C2	30 MAR 84	
03 DEC 83	2345	1573.4	7.0	3	1676-82	1	P	C2	30 MAR 84	
18 DEC 83	0200	1565.6	-1.0	2	1680-82	1	P	C2	30 MAR 84	
24 DEC 83	0106	1564.6	1.0	2	1682-82	1	S	C2	30 MAR 84	
15 JAN 84	0127	1562.1	0.0	2	1688-82	1	S	C2	29 MAR 84	
25 FEB 84	0125	1555.4	-.4	2	1155-82	1	S	C2	11 DEC 84	
24 MAR 84	0425	1561.5		1	756-83	1	S	C2	11 DEC 84	
06 APR 84	2325	1561.4	1.7	2	828-83	1	S	C2	06 DEC 84	
04 MAY 84	2226	1566.0	-1.2	2	835-83	1	S	C2	11 DEC 84	
19 MAY 84	0225	1576.2	-.2	2	840-83	1	S	C2	06 DEC 84	
02 JUN 84	0225	1575.9	-9.9	2	844-83	1	S	C2	06 DEC 84	
23 JUN 84	0025	1577.2	1.0	2	849-83	1	S	C2	11 DEC 84	
07 JUL 84	0125	1581.3	.7	2	853-83	1	S	C2	11 DEC 84	
20 JUL 84	2325	1583.0	1.9	2	857-83	1	S	C2	11 DEC 84	
04 AUG 84	0225	1585.0	-.7	2	909-83	1	S	C2	11 DEC 84	
18 AUG 84	0125	1582.0		1	862-83	1	S	C2	06 DEC 84	
15 SEP 84	0125	1593.2		1	870-83	1	S	C2	06 DEC 84	
29 SEP 84	0125	1591.9		1	873-83	1	S	C2	24 JAN 85	
29 SEP 84	0125	1592.2		1	874-83	1	S	C2	24 JAN 85	
13 OCT 84	0125	1592.2		1	877-83	1	S	C2	24 JAN 85	
13 OCT 84	0125	1589.9		1	878-83	1	S	C2	24 JAN 85	
27 OCT 84	0125	1591.3		1	881-83	1	S	C2	24 JAN 85	
27 OCT 84	0125	1591.3	-2.4	2	882-83	1	S	C2	24 JAN 85	
04 NOV 84	0357	1588.3	.2	2	884-83	1	P	C2	04 FEB 85	
10 NOV 84	0225	1588.2	1.6	2	886-83	1	S	C2	04 FEB 85	
17 NOV 84	0300	1584.9	2.3	2	890-83	1	P	C2	04 FEB 85	
01 DEC 84	0149	1608.1	3.1	2	894-83	1	P	C2	04 FEB 85	+
08 DEC 84	0251	1584.3		1	896-83	1	S	C2	12 APR 85	
22 DEC 84	0204	1591.7		1	1656-82	1	P	C2	16 JAN 85	
28 DEC 84	0330	1577.1	-2.4	2	248-83	1	S	C2	09 JAN 85	
29 DEC 84	0755	1576.2	8.8	3	900-83	1	S	C2	16 APR 85	
30 DEC 84	2130	1575.6	-3.8	2	741-82	1	S	C2	16 JAN 85	
30 DEC 84	2130	1573.3	-3.4	2	742-82	1	S	C2	16 JAN 85	

South Pole, Antarctica (SPO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
30 DEC 84	2140	1575.7	4.7	2	709-83	1	P	C2	16 JAN 85	
05 JAN 85	0315	1572.1	3.1	2	902-83	1	P	C2	16 APR 85	
12 JAN 85	0230	1571.4	.8	2	904-83	1	S	C2	16 APR 85	
19 JAN 85	0750	1570.4	-.7	2	906-83	1	S	C2	12 APR 85	
02 FEB 85	0750	1569.4	-2.1	2	734-81	1	S	C2	25 MAR 85	
22 FEB 85	2341	1572.9	.3	2	2-85	1	S	C4	05 FEB 86	
02 MAR 85	0046	1568.4	1.7	2	4-85	1	S	C4	05 FEB 86	
09 MAR 85	0136	1566.7	-.6	2	6-85	1	S	C4	05 FEB 86	
15 MAR 85	0650	1569.9	12.5	3	8-85	1	S	C4	05 FEB 86	
22 MAR 85	2150	1565.1	-.1	2	10-85	1	S	C4	11 FEB 86	
29 MAR 85	2253	1564.8		1	12-85	1	S	C4	05 FEB 86	
13 APR 85	0154	1570.9	1.7	2	16-85	1	S	C4	05 FEB 86	
26 APR 85	1950	1574.9	-1.5	2	20-85	1	S	C4	05 FEB 86	
10 MAY 85	2148	1580.7	1.7	2	24-85	1	S	C4	05 FEB 86	
24 MAY 85	2251	1577.9	-6.5	2	28-85	1	S	C4	05 FEB 86	
01 JUN 85	0450	1580.1	7.7	2	30-85	1	S	C4	05 FEB 86	
29 JUN 85	0750	1590.7	-1.3	2	38-85	1	S	C4	04 FEB 86	
12 JUL 85	2150	1592.4	4.0	2	42-85	1	S	C4	05 FEB 86	
26 JUL 85	1650	1596.3	4.4	2	46-85	1	S	C4	04 FEB 86	
09 AUG 85	2150	1600.6	6.4	2	50-85	1	S	C4	04 FEB 86	
23 AUG 85	2150	1601.1	-3.2	2	54-85	1	S	C4	04 FEB 86	
13 SEP 85	2140	1604.5	4.8	2	60-85	1	S	C4	26 MAR 86	
20 SEP 85	2050	1604.3	1.1	2	62-85	1	S	C4	26 MAR 86	
27 SEP 85	1950	1603.6	-.6	2	64-85	1	S	C4	26 MAR 86	
04 OCT 85	2050	1603.0	-3.6	2	66-85	1	S	C4	26 MAR 86	
11 OCT 85	2206	1607.2	4.9	2	68-85	1	S	C4	26 MAR 86	
25 OCT 85	2253	1602.6	3.8	2	72-85	1	S	C4	01 APR 86	
02 NOV 85	0206	1602.7	4.6	2	74-85	1	S	C4	26 MAR 86	
16 NOV 85	0332	1599.3		1	1318-82	1	S	C3	13 DEC 85	
30 NOV 85	0955	1595.1		1	76-85	1	S	C4	26 MAR 86	
07 DEC 85	0330	1596.0	.2	2	78-85	1	S	C4	26 MAR 86	
12 DEC 85	0340	1596.0	-4.0	2	79-85	1	P	C4	22 APR 86	
14 DEC 85	0857	1583.5	-1.3	2	82-85	1	S	C4	26 MAR 86	
21 DEC 85	0725	1591.4	6.1	2	84-85	1	S	C4	26 MAR 86	
21 DEC 85	0752	1584.3	-3.6	2	86-85	1	P	C4	14 APR 86	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
29 APR 83	1903	1678.5	-11.0	2	428-82	1	P	C1	06 JUN 83	
04 MAY 83	1805	1669.0	18.0	2	146-83	1	P	C1	06 JUN 83	
14 MAY 83	1059	1694.5	3.0	2	442-82	1	P	C1	06 JUN 83	
21 MAY 83	0800	1692.5	17.0	2	262-83	1	P	C1	05 JUL 83	
28 MAY 83	0800	1688.5	-1.0	2	268-83	1	P	C1	28 JUN 83	
04 JUN 83	0800	1667.0	8.0	2	260-83	1	P	C1	05 JUL 83	
12 JUN 83	1545	1680.0	-2.0	2	256-83	1	P	C1	05 JUL 83	
19 JUN 83	1110	1689.5	7.0	2	2002-82	7	P	C1	26 JUL 83	
26 JUN 83	1115	1690.0	-12.0	2	1798-82	1	P	C1	28 JUL 83	
03 JUL 83	1105	1694.5	-3.0	2	1794-82	1	P	C1	28 JUL 83	
09 JUL 83	1100	1701.0	4.0	2	1792-82	1	P	C1	28 JUL 83	
17 JUL 83	1900	1638.0	6.0	2	1762-82	1	P	C1	01 SEP 83	
23 JUL 83	0745	1656.5	5.0	2	36-83	1	P	C1	01 SEP 83	
30 JUL 83	0715	1656.0	0.0	2	78-82	1	P	C1	01 SEP 83	
05 AUG 83	1800	1658.5	-5.0	2	1000-82	1	P	C1	01 SEP 83	
16 AUG 83	0745	1673.0	12.0	2	744-82	1	P	C1	15 SEP 83	
23 AUG 83	0850	1675.5	-5.0	2	870-81	1	P	C1	15 SEP 83	
01 SEP 83	0910	1788.4	-3.0	2	1814-82	1	P	C1	15 SEP 83	+
05 SEP 83	0545	1696.5	-3.0	2	804-82	1	P	C1	15 SEP 83	
11 SEP 83	0645	1704.5	-1.0	2	934-81	1	P	C2	01 JUN 84	
17 SEP 83	0745	1714.0	0.0	2	1554-82	1	P	C2	02 FEB 84	
23 SEP 83	1530	1694.0	4.0	2	160-83	1	P	C2	01 FEB 84	
30 SEP 83	0815	1701.0	-4.0	2	716-83	1	P	C2	31 JAN 84	
13 OCT 83	0715	1723.5	1.0	2	1048-82	1	P	C2	13 DEC 83	
21 OCT 83	0730	1691.0	6.0	2	1572-82	1	P	C2	13 DEC 83	
27 OCT 83	1315	1704.0	6.0	2	226-83	1	P	C2	13 DEC 83	
31 OCT 83	2110	1688.5	1.0	2	1562-82	1	P	C2	13 DEC 83	
08 NOV 83	0800	1709.0	0.0	2	776-83	1	P	C2	04 JAN 84	
15 NOV 83	1000	1702.5	5.0	2	1542-82	1	P	C2	04 JAN 84	
21 NOV 83	0900	1720.5	-3.0	2	798-81	1	P	C2	04 JAN 84	
27 NOV 83	0900	1722.5	5.0	2	538-82	1	P	C2	04 JAN 84	
05 DEC 83	0945	1698.0	0.0	2	364-82	1	P	C2	18 JAN 84	
14 DEC 83	1220	1700.0	2.0	2	268-82	1	P	C2	18 JAN 84	
19 DEC 83	1600	1716.0	2.0	2	814-83	1	P	C2	18 JAN 84	
26 DEC 83	1125	1708.5	1.0	2	726-83	1	P	C2	18 JAN 84	
05 JAN 84	1345	1717.5	-1.0	2	940-83	1	P	C2	17 FEB 84	
11 JAN 84	1420	1697.5	1.0	2	944-83	1	P	C2	04 MAR 84	
18 JAN 84	1320	1712.5	-9.0	2	1540-82	1	P	C2	04 MAR 84	
24 JAN 84	1600	1718.0		1	1524-82	1	P	C2	04 MAR 84	
04 FEB 84	0830	1707.0	-4.0	2	1698-82	1	P	C2	08 MAR 84	
11 FEB 84	0845	1700.0	2.0	2	624-83	1	P	C2	08 MAR 84	
18 FEB 84	0830	1701.0	0.0	2	1704-82	1	P	C2	08 MAR 84	
25 FEB 84	0830	1679.0	-4.0	2	234-83	1	P	C2	08 MAR 84	
04 MAR 84	0915	1709.6	11.0	3	814-82	1	P	C2	04 APR 84	
10 MAR 84	0920	1722.5	7.0	2	962-81	1	P	C2	04 APR 84	
18 MAR 84	0920	1705.0		1	54-83	1	P	C2	03 APR 84	
18 MAR 84	0921	1704.5	-5.0	2	54-83	1	P	C2	04 APR 84	
24 MAR 84	0800	1726.5	3.0	2	1006-82	1	P	C2	04 APR 84	
08 APR 84	1335	1733.0	-2.0	2	970-83	1	P	C2	02 MAY 84	
14 APR 84	1540	1699.0	4.0	2	960-83	1	P	C2	02 MAY 84	
22 APR 84	1550	1705.0	-2.0	2	964-83	1	P	C2	02 MAY 84	
28 APR 84	1345	1709.5	3.0	2	1602-82	1	P	C2	01 JUN 84	
06 MAY 84	1910	1702.5	5.0	2	1664-82	1	P	C2	01 JUN 84	
13 MAY 84	1320	1699.6	-9.0	3	1604-82	1	P	C2	01 JUN 84	
19 MAY 84	1315	1698.5	3.0	2	1494-82	1	P	C2	01 JUN 84	
27 MAY 84	1445	1699.0	0.0	2	166-83	1	P	C2	11 JUL 84	
03 JUN 84	1510	1741.5	3.0	2	998-81	1	P	C2	11 JUL 84	
10 JUN 84	0930	1691.5	-3.0	2	378-82	1	P	C2	12 JUL 84	
17 JUN 84	0805	1685.0	2.0	2	266-83	1	P	C2	12 JUL 84	
24 JUN 84	1325	1688.0	4.0	2	1578-82	1	P	C2	28 SEP 84	
08 JUL 84	1310	1672.5	1.0	2	296-82	1	P	C2	28 SEP 84	
14 JUL 84	0915	1685.0	-4.0	2	252-83	1	P	C2	28 SEP 84	
21 JUL 84	0915	1677.0	0.0	2	1298-82	1	P	C2	28 SEP 84	
28 JUL 84	0750	1670.0	-2.0	2	1328-82	1	P	C2	28 SEP 84	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
04 AUG 84	9999	1687.5	1.0	2	1338-82	1	P	C2	28 SEP 84	
12 AUG 84	0820	1688.0	9.0	3	1388-82	1	P	C2	28 SEP 84	
20 AUG 84	1320	1678.1	-.8	2	984-81	1	P	C2	16 OCT 84	
27 AUG 84	1315	1688.0	2.0	2	748-83	1	P	C2	28 SEP 84	
03 SEP 84	0920	1695.0	-2.0	2	614-83	1	P	C2	28 SEP 84	
10 SEP 84	1315	1706.7	-.4	2	1662-82	1	P	C2	16 OCT 84	
18 SEP 84	0945	1751.5	2.6	2	1740-82	1	P	C2	07 NOV 84	
24 SEP 84	0755	1739.4	.6	2	278-82	1	P	C2	02 NOV 84	
29 SEP 84	0755	1755.6	.7	2	982-81	1	P	C2	14 NOV 84	
24 OCT 84	1120	1720.3	-.6	2	932-83	1	P	C2	23 NOV 84	
01 NOV 84	1330	1709.4	-1.0	2	962-83	1	P	C2	23 NOV 84	
08 NOV 84	0945	1727.6	-.4	2	824-83	1	P	C2	23 NOV 84	
15 NOV 84	0940	1708.1	-.2	2	1798-82	1	P	C2	18 DEC 84	
21 NOV 84	0830	1711.8	-.3	2	1660-82	1	P	C2	18 DEC 84	
26 NOV 84	0920	1723.2	0.0	2	1664-82	1	P	C2	18 DEC 84	
02 DEC 84	0830	1717.0	.5	2	200-83	1	P	C2	18 DEC 84	
08 DEC 84	0945	1708.1	-.2	2	798-82	1	P	C2	16 JAN 85	
15 DEC 84	1135	1715.4	1.3	2	1408-82	1	P	C2	16 JAN 85	
21 DEC 84	1125	1720.6	-4.6	2	968-83	1	P	C2	16 JAN 85	
26 DEC 84	1340	1786.8	1.0	2	1534-82	1	P	C2	16 JAN 85	
03 JAN 85	0945	1723.3	0.0	2	1048-82	1	P	C2	14 FEB 85	
10 JAN 85	0930	1701.7	1.3	2	388-82	1	P	C2	20 FEB 85	
17 JAN 85	0945	1726.9	-1.3	2	730-82	1	P	C2	20 FEB 85	
23 JAN 85	0940	1763.2	-5.1	2	1336-82	1	P	C2	14 FEB 85	
29 JAN 85	1210	1763.4	-.1	3	390-82	1	P	C2	26 MAR 85	
08 FEB 85	1210	1742.5	-4.7	2	1446-82	1	P	C2	26 MAR 85	
14 FEB 85	1010	1719.2	-1.8	2	976-82	1	P	C2	26 MAR 85	
20 FEB 85	1445	1717.4	3.7	2	622-83	1	P	C2	27 MAR 85	
27 FEB 85	1515	1711.1	-.3	2	194-83	1	P	C2	23 APR 85	
02 MAR 85	0940	1730.2	1.9	2	60-83	1	P	C2	24 APR 85	
13 MAR 85	0950	1725.2	3.7	2	962-83	1	P	C2	24 APR 85	
20 MAR 85	0915	1725.5	-3.5	2	1564-82	1	P	C2	24 APR 85	
30 MAR 85	0940	1762.4	2.5	2	908-83	1	P	C2	17 MAY 85	
06 APR 85	1135	1752.0	1.1	2	880-83	1	P	C2	17 MAY 85	
14 APR 85	1210	1733.8	.7	2	840-82	1	P	C2	17 MAY 85	
19 APR 85	1530	1732.5	0.0	2	1452-82	1	P	C2	17 MAY 85	
28 APR 85	0755	1737.5		1	824-83	1	P	C2	30 MAY 85	
18 MAY 85	1400	1723.3	-1.8	3	1790-82	1	P	C2	30 MAY 85	
25 MAY 85	2030	1717.4		1	1316-82	1	P	C3	13 AUG 85	
03 JUN 85	0720	1712.9	-1.1	2	826-83	1	P	C3	13 AUG 85	
08 JUN 85	2115	1712.0	1.4	2	1728-82	1	P	C3	12 AUG 85	
13 JUN 85	1110	1711.0	-.8	2	966-83	1	P	C3	12 AUG 85	
22 JUN 85	0940	1708.4	.1	2	1676-82	1	P	C3	12 AUG 85	
29 JUN 85	1454	1700.9	-.5	2	1233-82	1	P	C3	12 AUG 85	
06 JUL 85	0900	1710.4	-.2	2	856-83	1	P	C3	13 AUG 85	
13 JUL 85	1555	1694.6	-3.4	2	902-83	1	P	C3	12 AUG 85	
21 JUL 85	1325	1691.6	-1.0	2	690-83	1	P	C3	14 SEP 85	
28 JUL 85	1330	1695.3	-1.4	2	156-82	1	P	C3	14 SEP 85	
04 AUG 85	1315	1703.4	.7	2	1154-82	1	P	C3	14 SEP 85	
11 AUG 85	1415	1716.5	3.0	2	852-82	1	P	C3	14 SEP 85	
18 AUG 85	0815	1701.4	3.7	2	1796-82	1	P	C3	24 SEP 85	
24 AUG 85	0810	1710.9	-.4	2	934-83	1	P	C3	24 SEP 85	
31 AUG 85	0740	1706.4	-.2	2	850-83	1	P	C3	24 SEP 85	
07 SEP 85	0800	1710.4	4.1	2	484-82	1	P	C3	24 SEP 85	
11 OCT 85	1455	1731.6	4.5	2	684-83	1	P	C4	03 FEB 86	
18 OCT 85	1340	1733.1	1.8	2	120-84	1	P	C4	03 FEB 86	
25 OCT 85	1445	1717.4	-4.9	2	1630-82	1	P	C4	03 FEB 86	
30 OCT 85	1600	1719.2	5.4	2	1304-82	1	P	C4	03 FEB 86	
06 NOV 85	0900	1740.9	1.6	2	34-82	1	P	C3	03 JAN 86	
13 NOV 85	1315	1720.1	.3	2	942-83	1	P	C3	03 JAN 86	
20 NOV 85	1315	1718.9	2.1	2	678-83	1	P	C3	03 JAN 86	
04 DEC 85	0950	1751.5	7.5	2	894-83	1	P	C4	04 FEB 86	
11 DEC 85	0945	1768.0	-.7	2	882-82	1	P	C4	12 FEB 86	
18 DEC 85	0930	1731.1	2.6	2	834-83	1	P	C4	03 FEB 86	
25 DEC 85	0945	1742.0	-1.2	2	36-83	1	P	C4	04 FEB 86	

Appendix B
Tabulation of Monthly Average Methane Concentrations

In this appendix we present tabulations of monthly average methane concentrations for all of the network sites. The sites are ordered alphabetically by the 3-letter site code (see Table 1). The monthly averages are calculated as the arithmetic means of the individual, background, flask concentrations given in Appendix A.

When a flask sample was analyzed on more than one occasion, concentrations of all analyzed aliquots for that particular flask sample are averaged together to obtain a mean methane concentration. This mean value then represents an individual flask concentration. When both members of a flask pair were analyzed, all of the accepted aliquot concentrations from both flasks are averaged to obtain a mean methane concentration. If this flask pair sample is classified as background then this single value is used in the calculation of the monthly mean. If two pairs of flasks were sampled simultaneously (i.e. with two separate portable sampling units) the aliquots of all analyzed flasks are averaged and treated as a single sample in the calculation of the monthly average concentration. On rare occasions we have sampled with the flask pair made up of two different flask types. We refer to this as sampling with "mixed pairs". Both members from a "mixed pair" were usually analyzed. All accepted aliquots from both flasks of such a mixed pair are averaged together to obtain a single mean sample methane concentration for use in the calculation of the monthly average.

The number of flask samples used to calculate each monthly average and the sample standard deviation of the monthly average concentration also included in the tables. If only one background flask sample was taken at a site in any month, then the concentration of such a flask sample was taken as the monthly average and no entry was made for the standard deviation. For those months when no background flask samples were successfully collected at a particular site, the entry for the monthly average is simply left blank. Because these monthly values are based only on a few grab samples collected during the month, the standard deviation term that we include should not be interpreted as the uncertainty of the true monthly average concentration that would be obtained by a continuous measurement of methane during the entire month.

The monthly average concentrations are given to the nearest 0.1 ppb, again to retain enough significant digits for any further processing of the data. This is in contrast to the tabulations of monthly averages given in *Steele et al.* (1987) where the monthly concentrations were given to the nearest 1 ppb. For any interpretation of the data we would recommend the use of the values given in this report. In almost all cases there is agreement between the monthly values given here and in *Steele et al.* (1987). Any differences which do occur are very minor, and relate to the use of a slightly different number of flask samples to calculate the monthly average. For example, at the AVI site for MAR 85, *Steele et al.* (1987) give the monthly average as 1672 ppb, based on six flask samples, whereas in this report the corresponding value is 1673.6 ppb, based on five flask samples.

METHANE FLASK MONTHLY MEANS FOR ALT

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP			
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR			
1985	MAY			
1985	JUN	1707.8	.8	3
1985	JUL	1697.1	4.2	4
1985	AUG	1698.5		1
1985	SEP	1720.6	12.6	4
1985	OCT	1731.1	22.1	4
1985	NOV	1750.8		1
1985	DEC	1749.7	25.7	5

METHANE FLASK MONTHLY MEANS FOR AMS

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN	1539.3	3.9	2
1983	FEB	1542.1	2.6	3
1983	MAR	1540.9	5.9	4
1983	APR	1547.4	4.4	3
1983	MAY	1553.4	5.7	3
1983	JUN	1563.9	3.1	4
1983	JUL	1569.6	2.7	4
1983	AUG	1576.3	4.7	4
1983	SEP	1577.4	2.8	3
1983	OCT	1577.2	1.6	3
1983	NOV	1578.0	1.8	3
1983	DEC	1568.1	3.1	3
1984	JAN	1559.2	2.0	4
1984	FEB	1560.7	2.9	4
1984	MAR	1562.6	2.6	4
1984	APR	1571.3	8.9	4
1984	MAY	1579.7	5.5	5
1984	JUN			
1984	JUL	1588.7	4.3	5
1984	AUG	1588.7	.8	4
1984	SEP	1588.9	1.3	6
1984	OCT	1589.8	2.7	2
1984	NOV			
1984	DEC	1581.0		1
1985	JAN			
1985	FEB			
1985	MAR	1566.3	4.0	2
1985	APR	1570.1		1
1985	MAY	1588.8		1
1985	JUN	1584.8		1
1985	JUL	1594.1	2.9	2
1985	AUG	1603.6	3.6	3
1985	SEP	1610.7	4.8	2
1985	OCT	1600.1		1
1985	NOV	1596.2		1
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR ASC

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1575.6	4.3	3
1983	JUN	1586.0	1.3	3
1983	JUL	1588.2	3.2	3
1983	AUG	1584.0	5.6	4
1983	SEP	1586.7	9.7	5
1983	OCT	1585.6	5.7	4
1983	NOV	1577.2	2.7	4
1983	DEC	1575.4	4.0	5
1984	JAN	1573.6	9.1	4
1984	FEB	1568.4	7.6	4
1984	MAR	1576.0	5.8	5
1984	APR	1586.2	5.2	4
1984	MAY	1591.5	2.0	3
1984	JUN	1595.0	6.5	4
1984	JUL	1600.5	3.9	4
1984	AUG	1601.5	3.1	5
1984	SEP	1599.3	4.4	4
1984	OCT	1593.9	3.4	4
1984	NOV	1587.8	4.1	5
1984	DEC	1593.6	10.2	4
1985	JAN	1583.5	3.6	5
1985	FEB	1583.4	7.1	4
1985	MAR	1592.1	8.2	4
1985	APR	1599.6	2.1	4
1985	MAY	1599.4	3.6	5
1985	JUN	1612.4	4.3	4
1985	JUL	1608.9	3.3	4
1985	AUG	1613.9	10.6	4
1985	SEP	1616.0	2.8	4
1985	OCT	1607.9	2.7	4
1985	NOV	1602.3	5.5	4
1985	DEC	1603.0	7.7	3

METHANE FLASK MONTHLY MEANS FOR AVI

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1609.9	7.1	3
1983	JUN	1628.0	10.5	4
1983	JUL	1632.5	24.9	5
1983	AUG	1637.4	22.4	4
1983	SEP	1645.5	31.4	4
1983	OCT	1652.5	7.1	2
1983	NOV			
1983	DEC	1654.5	12.7	2
1984	JAN	1653.6	7.0	4
1984	FEB	1654.5	19.5	3
1984	MAR	1643.8	7.7	3
1984	APR	1653.5	21.8	3
1984	MAY	1656.5	6.4	4
1984	JUN	1635.0	6.2	3
1984	JUL	1643.5	8.5	3
1984	AUG	1646.8	8.1	4
1984	SEP	1643.4	4.6	4
1984	OCT	1643.4	6.3	4
1984	NOV	1660.0	17.8	5
1984	DEC	1684.1	14.6	5
1985	JAN	1669.2	16.1	4
1985	FEB	1665.9	17.7	4
1985	MAR	1673.6	16.1	5
1985	APR	1672.1	11.7	3
1985	MAY	1661.1	7.8	5
1985	JUN	1656.2	11.1	2
1985	JUL	1647.9	5.3	3
1985	AUG	1657.8	16.6	3
1985	SEP	1654.8	13.8	4
1985	OCT	1676.2	19.0	3
1985	NOV	1685.0	21.0	5
1985	DEC	1695.5	12.4	4

METHANE FLASK MONTHLY MEANS FOR AZR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1678.0	4.9	2
1983	JUN	1672.0		1
1983	JUL	1652.5	17.7	2
1983	AUG	1651.3	30.0	2
1983	SEP	1670.0	6.6	3
1983	OCT	1679.5	12.1	3
1983	NOV	1675.0	24.0	2
1983	DEC	1673.5		1
1984	JAN	1689.9	17.7	3
1984	FEB	1699.2	41.3	2
1984	MAR	1689.1	4.7	3
1984	APR	1695.0		1
1984	MAY	1689.0	13.5	3
1984	JUN	1681.5	12.0	2
1984	JUL	1649.8	23.7	2
1984	AUG			
1984	SEP	1689.1	16.5	2
1984	OCT	1685.7	14.5	3
1984	NOV	1726.5		1
1984	DEC	1711.5	8.9	3
1985	JAN	1682.7		1
1985	FEB	1713.4		1
1985	MAR	1703.2	8.0	2
1985	APR	1711.7	3.3	2
1985	MAY	1718.1	17.7	3
1985	JUN	1689.4		1
1985	JUL	1683.9	27.1	3
1985	AUG			
1985	SEP	1698.9	18.2	2
1985	OCT	1719.9	1.9	2
1985	NOV	1690.2		1
1985	DEC	1713.9	2.1	2

METHANE FLASK MONTHLY MEANS FOR BRW

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1699.2	2.5	2
1983	MAY	1676.4	10.2	4
1983	JUN	1682.1	14.5	4
1983	JUL	1678.4	10.9	4
1983	AUG	1686.9	27.7	2
1983	SEP	1707.0	17.7	4
1983	OCT	1727.5	22.0	3
1983	NOV	1710.8	8.7	5
1983	DEC	1709.1	13.7	4
1984	JAN	1734.7	25.5	4
1984	FEB	1759.9	27.4	5
1984	MAR	1728.7	7.3	4
1984	APR	1716.9	6.0	5
1984	MAY	1711.9	5.7	15
1984	JUN	1700.3	11.2	4
1984	JUL	1704.4	21.8	5
1984	AUG	1708.3	10.2	4
1984	SEP	1728.6	29.3	3
1984	OCT	1732.1	17.0	5
1984	NOV	1721.4	2.7	4
1984	DEC	1739.3	20.7	4
1985	JAN	1741.6	13.2	5
1985	FEB	1738.9	19.8	2
1985	MAR	1739.7	10.8	4
1985	APR	1750.7	20.4	7
1985	MAY	1733.8	13.1	5
1985	JUN	1711.7	5.0	4
1985	JUL	1692.4	4.6	4
1985	AUG	1708.5	9.6	4
1985	SEP	1721.7	10.2	5
1985	OCT	1757.3	30.0	3
1985	NOV	1753.0	15.8	3
1985	DEC	1746.2	15.2	4

METHANE FLASK MONTHLY MEANS FOR CBA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1681.7	1.1	2
1983	JUN	1677.5	2.1	2
1983	JUL	1662.0		1
1983	AUG	1664.5		1
1983	SEP	1704.0	9.9	2
1983	OCT	1714.7	29.3	2
1983	NOV	1704.5	8.5	2
1983	DEC	1697.8	13.7	3
1984	JAN	1709.5	17.6	4
1984	FEB	1722.3	5.0	3
1984	MAR	1725.0	42.9	3
1984	APR	1712.5		1
1984	MAY	1702.7	8.9	4
1984	JUN	1686.6	2.1	3
1984	JUL	1676.7	3.2	2
1984	AUG	1690.6	26.0	5
1984	SEP	1706.5	8.8	3
1984	OCT	1717.2	12.7	5
1984	NOV	1716.7	5.1	4
1984	DEC	1717.7	18.8	4
1985	JAN	1717.1	8.9	4
1985	FEB	1733.4	11.3	4
1985	MAR	1730.3	7.1	4
1985	APR	1734.2	5.1	5
1985	MAY	1723.5	5.0	5
1985	JUN	1715.8	15.8	4
1985	JUL	1695.0	6.6	4
1985	AUG	1701.9	13.5	4
1985	SEP	1733.4	8.2	4
1985	OCT	1729.4	7.6	5
1985	NOV	1724.4	7.5	4
1985	DEC	1724.5	6.9	4

METHANE FLASK MONTHLY MEANS FOR CGO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR	1566.9	1.3	4
1984	MAY	1570.3	5.6	4
1984	JUN	1579.5	4.9	2
1984	JUL	1588.8	4.6	4
1984	AUG	1591.8	1.8	2
1984	SEP	1591.1	1.4	6
1984	OCT	1594.0	.7	2
1984	NOV	1585.9	2.1	6
1984	DEC	1579.7	4.5	3
1985	JAN	1573.2	4.0	5
1985	FEB	1567.5	1.0	5
1985	MAR	1570.9	2.6	2
1985	APR	1574.6	1.1	2
1985	MAY	1584.2	1.9	2
1985	JUN	1591.1	2.1	5
1985	JUL	1597.4	1.2	4
1985	AUG	1601.3	1.5	4
1985	SEP	1604.4	1.7	8
1985	OCT	1603.8	.8	6
1985	NOV	1597.6	3.1	4
1985	DEC	1590.6	2.5	5

METHANE FLASK MONTHLY MEANS FOR CHR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR	1630.3	2.4	4
1984	APR	1633.0	6.1	3
1984	MAY	1619.4	19.8	4
1984	JUN	1598.1	3.8	6
1984	JUL	1595.9	7.2	5
1984	AUG	1599.3	5.1	6
1984	SEP	1594.0	3.6	3
1984	OCT	1602.6	2.9	4
1984	NOV	1595.7	.5	3
1984	DEC	1611.1	6.5	2
1985	JAN	1621.6	9.2	4
1985	FEB	1611.5	1.0	2
1985	MAR	1628.8	13.8	5
1985	APR	1622.7	4.0	3
1985	MAY	1611.8	5.0	4
1985	JUN	1614.5	8.3	2
1985	JUL	1605.7	5.5	2
1985	AUG	1609.9	.6	2
1985	SEP	1611.1	1.8	4
1985	OCT	1616.2	4.4	3
1985	NOV	1611.6	5.1	3
1985	DEC	1616.6	3.9	2

METHANE FLASK MONTHLY MEANS FOR CMO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1666.4	39.9	4
1983	JUN	1663.2	9.9	4
1983	JUL	1657.4	13.3	4
1983	AUG	1659.7	27.6	4
1983	SEP	1677.7	12.2	4
1983	OCT	1696.1	17.3	3
1983	NOV	1689.7	11.1	5
1983	DEC	1703.5	13.4	2
1984	JAN	1646.0		1
1984	FEB	1699.3	14.7	4
1984	MAR	1698.9	19.2	5
1984	APR	1707.8	16.0	3
1984	MAY	1694.5	8.9	5
1984	JUN	1683.7	1.8	4
1984	JUL	1678.0	15.6	3
1984	AUG	1665.3	20.4	5
1984	SEP	1709.3	14.4	4
1984	OCT	1730.9	23.4	3
1984	NOV	1712.3	14.4	3
1984	DEC	1724.8		1
1985	JAN	1715.1	14.6	5
1985	FEB	1681.4	7.1	2
1985	MAR	1730.5	1.2	2
1985	APR	1726.7	12.0	3
1985	MAY	1708.5	14.1	4
1985	JUN			
1985	JUL	1671.0	18.9	2
1985	AUG	1688.1	28.9	5
1985	SEP	1709.3	25.3	4
1985	OCT	1719.3	17.7	4
1985	NOV	1722.3	7.6	3
1985	DEC	1719.5	4.1	2

METHANE FLASK MONTHLY MEANS FOR GMI

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1618.9	20.4	5
1983	JUN	1622.8	11.3	4
1983	JUL	1604.7	36.8	4
1983	AUG	1587.8	8.0	4
1983	SEP	1610.2	17.9	4
1983	OCT	1624.3	13.9	5
1983	NOV	1636.5	8.5	4
1983	DEC	1629.2	19.6	3
1984	JAN	1627.1	21.5	5
1984	FEB	1635.0	16.1	3
1984	MAR	1630.4	17.9	5
1984	APR	1624.8	11.5	4
1984	MAY	1624.1	12.0	4
1984	JUN	1614.5	5.0	4
1984	JUL	1611.7	7.4	5
1984	AUG	1601.9	5.3	3
1984	SEP	1612.5	12.6	4
1984	OCT	1630.9	9.9	4
1984	NOV	1618.9	19.5	3
1984	DEC	1661.1	5.8	4
1985	JAN	1637.9	5.4	3
1985	FEB	1664.7		1
1985	MAR	1661.7	9.5	2
1985	APR	1645.5	11.8	4
1985	MAY	1631.1	19.9	3
1985	JUN	1634.9	17.5	2
1985	JUL	1636.2		1
1985	AUG	1623.0	3.4	3
1985	SEP	1628.4	19.3	3
1985	OCT	1658.2	15.2	3
1985	NOV	1671.8	3.7	3
1985	DEC	1668.9	11.4	3

METHANE FLASK MONTHLY MEANS FOR HBA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN	1541.1	3.3	3
1983	FEB	1537.2	1.3	3
1983	MAR	1537.9	2.4	3
1983	APR	1540.2	4.5	3
1983	MAY	1550.2	5.5	4
1983	JUN	1560.2	.2	2
1983	JUL	1573.1		1
1983	AUG			
1983	SEP	1576.8	.6	4
1983	OCT	1578.4	2.1	4
1983	NOV	1574.4	2.1	4
1983	DEC	1569.6	3.9	4
1984	JAN	1560.7	2.5	4
1984	FEB	1556.7	2.1	2
1984	MAR	1558.0		1
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG	1589.7		1
1984	SEP			
1984	OCT			
1984	NOV	1585.0		1
1984	DEC	1580.9	4.3	3
1985	JAN	1567.7		1
1985	FEB	1572.5	1.1	2
1985	MAR			
1985	APR			
1985	MAY			
1985	JUN	1587.7		1
1985	JUL	1592.9		1
1985	AUG	1596.7		1
1985	SEP	1604.9	4.7	2
1985	OCT			
1985	NOV	1602.6	1.3	2
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR KEY

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT	1629.5		1
1983	NOV	1679.7	30.7	2
1983	DEC	1652.5		1
1984	JAN	1696.0		1
1984	FEB	1676.5		1
1984	MAR	1653.2	10.3	2
1984	APR	1668.0	44.5	2
1984	MAY	1644.0		1
1984	JUN	1668.0		1
1984	JUL			
1984	AUG	1648.0	25.3	3
1984	SEP	1666.2	20.4	7
1984	OCT	1690.8	14.2	6
1984	NOV	1687.3	19.3	5
1984	DEC	1668.6		1
1985	JAN	1709.8		1
1985	FEB	1690.7	7.1	3
1985	MAR	1662.3		1
1985	APR	1699.6	6.3	3
1985	MAY	1678.5	21.2	5
1985	JUN	1668.1	21.7	3
1985	JUL	1644.3	12.4	4
1985	AUG	1648.4	3.1	6
1985	SEP	1669.4	17.0	4
1985	OCT	1684.0	11.9	4
1985	NOV	1689.7	1.3	4
1985	DEC	1700.8		1

METHANE FLASK MONTHLY MEANS FOR KPA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1622.0		1
1983	MAY	1644.9	6.9	2
1983	JUN	1639.4	7.2	2
1983	JUL	1604.9	1.6	2
1983	AUG			
1983	SEP	1630.5		1
1983	OCT	1726.0	18.7	2
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB	1698.5		1
1984	MAR			
1984	APR			
1984	MAY	1642.5		1
1984	JUN			
1984	JUL			
1984	AUG	1645.5		1
1984	SEP	1677.0		1
1984	OCT			
1984	NOV	1678.9		1
1984	DEC	1699.3		1
1985	JAN			
1985	FEB			
1985	MAR	1683.4		1
1985	APR	1664.9		1
1985	MAY			
1985	JUN			
1985	JUL			
1985	AUG			
1985	SEP			
1985	OCT			
1985	NOV			
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR KUM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1630.9	21.3	2
1983	MAY	1647.0	10.6	2
1983	JUN	1640.0		1
1983	JUL			
1983	AUG	1623.0		1
1983	SEP	1667.5		1
1983	OCT	1666.6	11.2	3
1983	NOV	1657.2	3.7	3
1983	DEC	1658.4	4.4	2
1984	JAN	1639.5	19.1	2
1984	FEB	1668.7	9.9	3
1984	MAR	1651.9	.8	2
1984	APR	1674.9	6.6	4
1984	MAY	1652.3	23.7	5
1984	JUN	1669.0		1
1984	JUL	1630.0	10.0	4
1984	AUG	1642.0	18.4	2
1984	SEP	1646.7	6.9	4
1984	OCT	1671.5	8.6	5
1984	NOV	1658.8	5.2	4
1984	DEC	1663.1	15.7	3
1985	JAN	1684.2	16.4	3
1985	FEB	1662.9	13.4	3
1985	MAR	1680.3	2.3	3
1985	APR	1677.3	13.9	11
1985	MAY	1692.5	22.8	2
1985	JUN	1658.9	16.3	3
1985	JUL	1650.7	10.6	2
1985	AUG	1640.4	7.5	3
1985	SEP	1680.9	5.9	3
1985	OCT	1682.5	14.9	4
1985	NOV	1678.1	4.9	3
1985	DEC	1684.5	22.0	4

METHANE FLASK MONTHLY MEANS FOR MBC

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1692.5	4.0	3
1983	MAY	1671.4	12.6	4
1983	JUN	1662.7	6.9	4
1983	JUL	1664.3	8.0	3
1983	AUG	1673.0	14.4	5
1983	SEP	1700.6	7.8	3
1983	OCT	1701.6	4.5	4
1983	NOV	1713.0	3.3	4
1983	DEC	1725.1	20.7	3
1984	JAN	1732.0	9.2	3
1984	FEB	1740.5	8.7	4
1984	MAR	1730.1	4.8	4
1984	APR	1711.8	2.3	4
1984	MAY	1706.3	2.8	3
1984	JUN	1693.0	4.1	4
1984	JUL	1687.5	3.2	5
1984	AUG	1690.3	2.8	3
1984	SEP	1711.3	3.6	5
1984	OCT	1714.1	7.9	3
1984	NOV	1718.5	4.1	4
1984	DEC	1729.5	2.1	2
1985	JAN	1742.7	11.8	4
1985	FEB	1732.4	2.1	3
1985	MAR	1738.6	15.5	5
1985	APR	1739.5	5.4	5
1985	MAY	1729.7	8.5	4
1985	JUN	1704.4	5.9	4
1985	JUL	1698.4	3.5	5
1985	AUG	1704.3	5.3	5
1985	SEP	1722.7	11.9	4
1985	OCT	1748.5	7.2	5
1985	NOV	1753.5	7.2	5
1985	DEC	1747.7	14.3	4

METHANE FLASK MONTHLY MEANS FOR MCM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP			
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR			
1985	MAY			
1985	JUN			
1985	JUL			
1985	AUG			
1985	SEP			
1985	OCT			
1985	NOV			
1985	DEC	1599.3		1

METHANE FLASK MONTHLY MEANS FOR MID

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP			
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR			
1985	MAY	1678.7	22.2	6
1985	JUN			
1985	JUL			
1985	AUG	1649.3	3.8	3
1985	SEP	1673.3	22.5	8
1985	OCT	1692.4	9.7	9
1985	NOV	1702.1	14.4	7
1985	DEC	1691.8	21.7	5

METHANE FLASK MONTHLY MEANS FOR MLO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1615.3	20.1	4
1983	JUN	1614.9	19.0	3
1983	JUL	1618.0	14.8	4
1983	AUG	1604.5	10.9	4
1983	SEP	1626.9	13.5	5
1983	OCT	1651.4	5.6	4
1983	NOV	1635.3	5.0	4
1983	DEC	1632.4	5.5	5
1984	JAN	1638.8	19.0	4
1984	FEB	1638.4	7.4	4
1984	MAR	1631.8	5.5	3
1984	APR	1639.2	12.5	7
1984	MAY	1628.0	14.0	6
1984	JUN			
1984	JUL	1609.8	16.6	2
1984	AUG	1619.9	5.4	5
1984	SEP	1653.7	10.5	4
1984	OCT	1647.4	11.3	4
1984	NOV	1662.2	7.3	3
1984	DEC	1651.5	9.1	4
1985	JAN	1642.7	4.4	3
1985	FEB	1641.7	3.0	4
1985	MAR	1668.8	10.2	4
1985	APR	1644.3	10.1	4
1985	MAY	1651.2	21.5	4
1985	JUN	1640.6	7.1	4
1985	JUL	1635.1	7.8	3
1985	AUG	1635.1	6.2	4
1985	SEP	1647.1	21.9	4
1985	OCT	1655.9	17.7	3
1985	NOV	1663.4	14.6	4
1985	DEC	1655.8	4.5	3

METHANE FLASK MONTHLY MEANS FOR NWR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN	1603.5		1
1983	JUL	1645.6	24.9	4
1983	AUG	1625.7	9.0	5
1983	SEP	1653.8	12.5	2
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB	1669.8	21.5	3
1984	MAR	1688.0	10.5	4
1984	APR	1677.8	25.1	3
1984	MAY	1675.6	21.2	4
1984	JUN	1669.0	15.5	2
1984	JUL	1660.9	17.2	5
1984	AUG	1647.8	15.0	4
1984	SEP	1664.1	11.3	4
1984	OCT	1695.3	11.3	4
1984	NOV	1679.1	16.4	2
1984	DEC	1678.4	13.0	3
1985	JAN	1693.6	24.0	4
1985	FEB	1681.2	14.7	3
1985	MAR	1689.3	23.9	4
1985	APR	1676.9	14.0	4
1985	MAY	1692.4	24.1	4
1985	JUN			
1985	JUL	1653.8	6.1	5
1985	AUG	1659.5	20.4	4
1985	SEP	1678.3	37.6	4
1985	OCT	1695.3	17.1	4
1985	NOV	1706.0	18.1	4
1985	DEC	1700.5	13.1	5

METHANE FLASK MONTHLY MEANS FOR NZL

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG	1577.1		1
1983	SEP			
1983	OCT			
1983	NOV	1574.6		1
1983	DEC	1575.6		1
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY	1576.6		1
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP	1591.0		1
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR	1570.5		1
1985	APR			
1985	MAY			
1985	JUN			
1985	JUL			
1985	AUG			
1985	SEP			
1985	OCT			
1985	NOV			
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR OPW

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP			
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR	1716.5		1
1985	MAY	1727.4		1
1985	JUN			
1985	JUL			
1985	AUG			
1985	SEP	1718.6	.3	2
1985	OCT			
1985	NOV	1712.5	2.2	2
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR PSA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN	1538.1	3.1	3
1983	FEB	1526.6	.7	2
1983	MAR	1538.9	7.9	3
1983	APR	1547.4	4.2	4
1983	MAY	1550.9	3.1	6
1983	JUN	1560.4	4.1	5
1983	JUL	1565.2	2.5	5
1983	AUG	1576.5	7.7	6
1983	SEP	1576.1	2.4	5
1983	OCT	1576.4	1.4	5
1983	NOV	1575.7	2.5	5
1983	DEC	1568.7	1.0	4
1984	JAN	1563.3		1
1984	FEB	1558.7	4.9	2
1984	MAR	1560.9	2.3	2
1984	APR	1564.4	4.3	2
1984	MAY			
1984	JUN	1577.1	.3	2
1984	JUL	1582.9	3.4	2
1984	AUG	1592.1		1
1984	SEP			
1984	OCT	1589.1	2.1	2
1984	NOV	1587.3	2.9	2
1984	DEC	1574.2	2.1	2
1985	JAN	1569.8	6.2	2
1985	FEB	1565.4	1.1	3
1985	MAR	1566.5	2.5	4
1985	APR	1576.1		1
1985	MAY	1582.2	4.2	3
1985	JUN	1587.0	6.5	5
1985	JUL	1593.1	1.8	4
1985	AUG	1597.7	3.4	3
1985	SEP	1607.6		1
1985	OCT	1603.8	3.9	4
1985	NOV	1605.3	4.9	4
1985	DEC	1595.5	3.8	4

METHANE FLASK MONTHLY MEANS FOR SEY

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY	1562.7	14.6	3
1983	JUN	1573.8	14.8	5
1983	JUL	1577.7	12.5	4
1983	AUG	1573.8	6.3	4
1983	SEP	1576.1	.7	2
1983	OCT			
1983	NOV	1618.5	2.8	2
1983	DEC	1611.4	19.6	5
1984	JAN	1628.4	11.2	4
1984	FEB	1586.5		1
1984	MAR	1620.0		1
1984	APR			
1984	MAY			
1984	JUN	1586.0		1
1984	JUL	1593.0	1.5	4
1984	AUG	1596.1	3.5	5
1984	SEP	1599.4	13.2	4
1984	OCT	1611.9	40.5	3
1984	NOV			
1984	DEC	1635.1	1.3	3
1985	JAN			
1985	FEB	1653.9	11.2	4
1985	MAR	1592.6	12.8	4
1985	APR	1594.4	10.0	4
1985	MAY	1594.8	4.0	4
1985	JUN	1601.8	1.5	3
1985	JUL	1604.3	2.1	4
1985	AUG	1606.9	5.0	5
1985	SEP	1609.9	3.4	4
1985	OCT	1595.8	4.8	4
1985	NOV			
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR SHM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB			
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP			
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR			
1985	MAY			
1985	JUN			
1985	JUL			
1985	AUG			
1985	SEP	1731.6	6.0	4
1985	OCT	1745.9	12.0	5
1985	NOV	1732.9	3.7	3
1985	DEC	1738.1	.2	2

METHANE FLASK MONTHLY MEANS FOR SIO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR			
1983	MAY			
1983	JUN			
1983	JUL			
1983	AUG			
1983	SEP			
1983	OCT			
1983	NOV			
1983	DEC			
1984	JAN			
1984	FEB	1682.3	4.3	6
1984	MAR			
1984	APR			
1984	MAY			
1984	JUN			
1984	JUL			
1984	AUG			
1984	SEP	1658.3	2.0	3
1984	OCT			
1984	NOV			
1984	DEC			
1985	JAN			
1985	FEB			
1985	MAR			
1985	APR			
1985	MAY			
1985	JUN			
1985	JUL			
1985	AUG	1674.7	1.6	5
1985	SEP			
1985	OCT			
1985	NOV			
1985	DEC			

METHANE FLASK MONTHLY MEANS FOR SMO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1546.1		1
1983	MAY	1564.6	19.1	2
1983	JUN	1569.4	5.5	4
1983	JUL	1571.6	2.8	2
1983	AUG	1574.3	2.5	4
1983	SEP	1573.1	1.4	2
1983	OCT	1580.5		1
1983	NOV	1576.7	1.5	3
1983	DEC	1574.6	2.8	2
1984	JAN	1589.5	2.2	5
1984	FEB	1587.2	12.5	3
1984	MAR	1563.1		1
1984	APR	1573.1		1
1984	MAY	1575.4	4.1	4
1984	JUN	1588.5	2.1	4
1984	JUL	1591.0	1.2	4
1984	AUG	1590.1	3.9	3
1984	SEP	1591.0	6.0	3
1984	OCT	1590.0	3.6	3
1984	NOV	1586.3	4.0	3
1984	DEC	1592.3	8.1	3
1985	JAN	1602.2	26.6	3
1985	FEB	1605.4	2.3	3
1985	MAR	1597.9	14.3	4
1985	APR	1590.5	1.4	3
1985	MAY	1601.0	10.2	4
1985	JUN	1598.1	4.2	3
1985	JUL	1601.0	5.0	3
1985	AUG	1602.6	2.4	4
1985	SEP	1603.5		1
1985	OCT	1602.3	.4	2
1985	NOV	1598.7	2.8	3
1985	DEC	1599.0	3.1	3

METHANE FLASK MONTHLY MEANS FOR SPO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB	1536.1	.7	2
1983	MAR	1537.1	1.1	4
1983	APR	1543.7	2.7	3
1983	MAY	1552.1	3.7	4
1983	JUN	1558.4	5.9	4
1983	JUL	1566.9	4.2	3
1983	AUG	1572.3	1.8	2
1983	SEP	1576.4	2.4	3
1983	OCT	1577.4	2.8	4
1983	NOV	1575.1	2.2	3
1983	DEC	1567.8	4.8	3
1984	JAN	1562.1		1
1984	FEB	1555.4		1
1984	MAR	1561.5		1
1984	APR	1561.4		1
1984	MAY	1571.1	7.2	2
1984	JUN	1576.5	.9	2
1984	JUL	1582.1	1.2	2
1984	AUG	1583.5	2.1	2
1984	SEP	1592.7	.8	2
1984	OCT	1591.2	.2	2
1984	NOV	1587.2	2.0	3
1984	DEC	1579.9	6.8	6
1985	JAN	1571.3	.9	3
1985	FEB	1571.1	2.4	2
1985	MAR	1567.0	2.2	5
1985	APR	1572.9	2.8	2
1985	MAY	1579.3	2.0	2
1985	JUN	1585.4	7.5	2
1985	JUL	1594.4	2.8	2
1985	AUG	1600.9	.4	2
1985	SEP	1604.1	.5	3
1985	OCT	1604.3	2.5	3
1985	NOV	1599.0	3.8	3
1985	DEC	1590.2	6.1	5

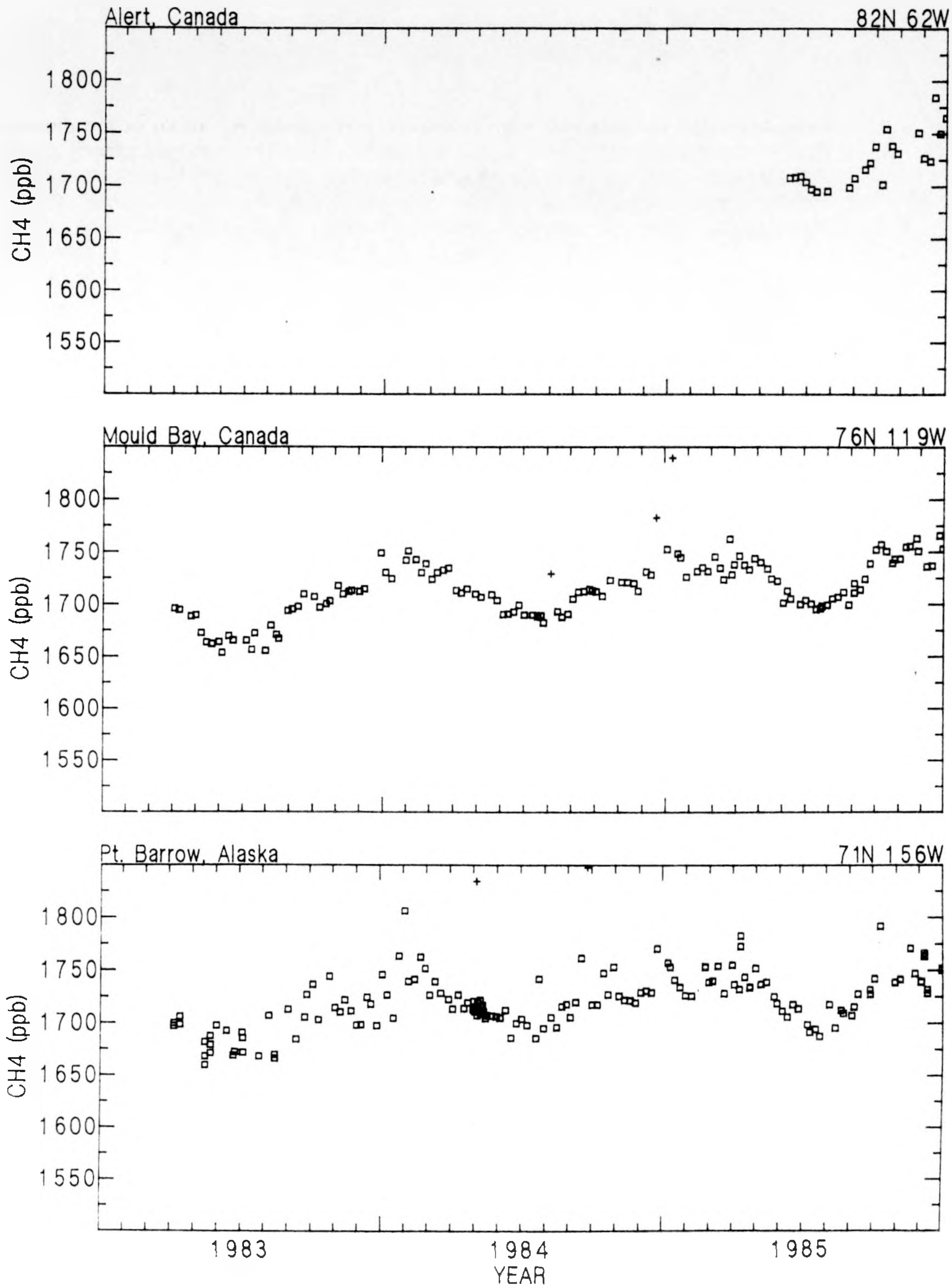
METHANE FLASK MONTHLY MEANS FOR STM

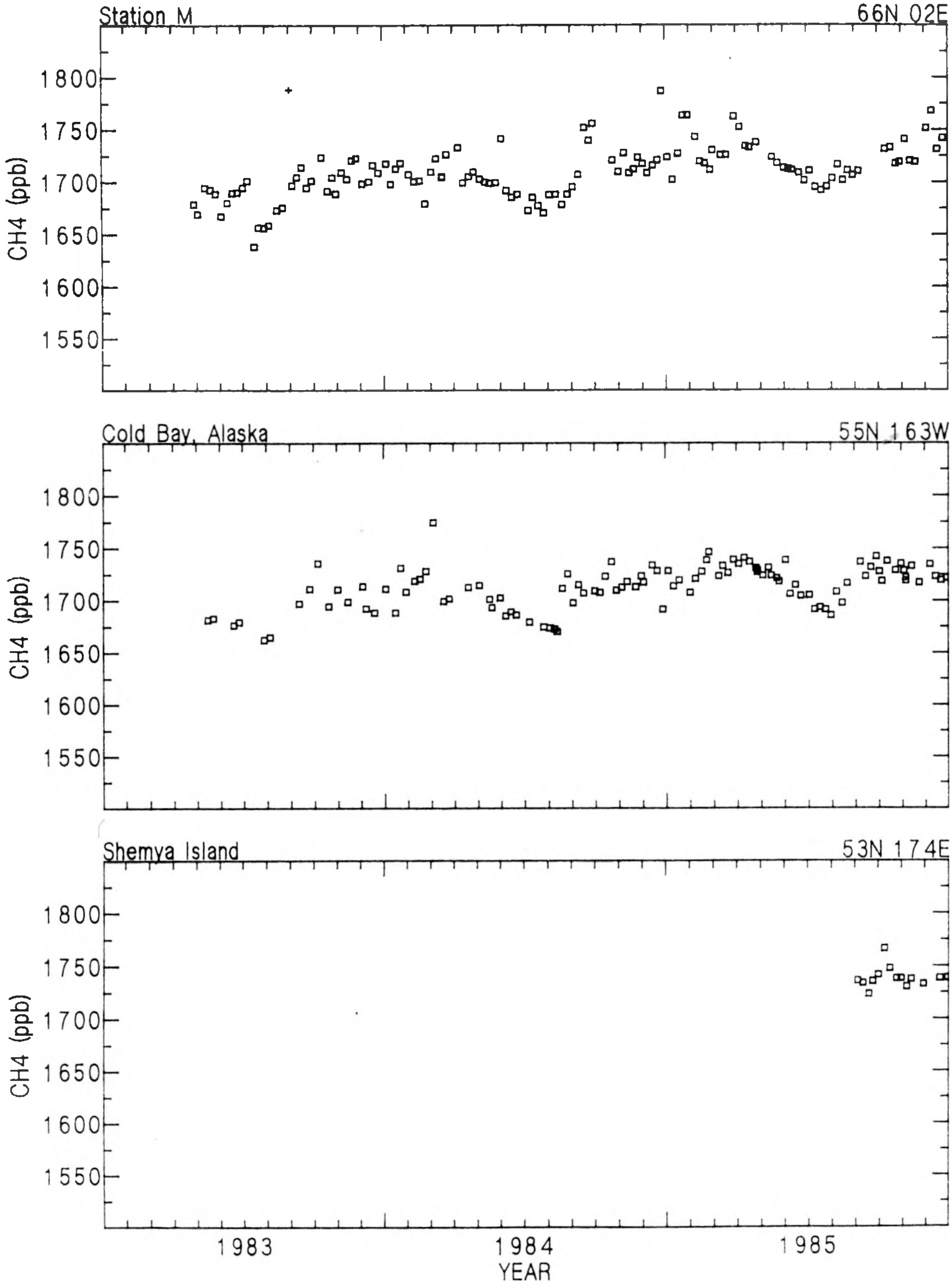
YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1983	JAN			
1983	FEB			
1983	MAR			
1983	APR	1678.5		1
1983	MAY	1686.1	11.7	4
1983	JUN	1681.6	10.8	4
1983	JUL	1669.2	27.2	5
1983	AUG	1669.0	9.2	3
1983	SEP	1702.0	7.8	5
1983	OCT	1701.7	16.0	4
1983	NOV	1713.6	9.5	4
1983	DEC	1705.6	8.3	4
1984	JAN	1711.3	9.6	4
1984	FEB	1696.7	12.2	4
1984	MAR	1713.6	10.2	5
1984	APR	1711.6	14.9	4
1984	MAY	1699.9	1.8	4
1984	JUN	1701.5	26.8	4
1984	JUL	1676.1	6.6	4
1984	AUG	1685.4	4.9	4
1984	SEP	1729.6	27.3	5
1984	OCT	1720.3		1
1984	NOV	1716.0	8.8	5
1984	DEC	1729.6	32.3	5
1985	JAN	1735.7	27.0	5
1985	FEB	1722.5	13.7	4
1985	MAR	1735.8	17.9	4
1985	APR	1738.9	9.0	4
1985	MAY	1720.3	4.2	2
1985	JUN	1709.0	4.9	5
1985	JUL	1698.0	8.4	4
1985	AUG	1707.7	6.1	5
1985	SEP	1710.4		1
1985	OCT	1725.3	8.2	4
1985	NOV	1726.6	12.4	3
1985	DEC	1748.1	15.6	4

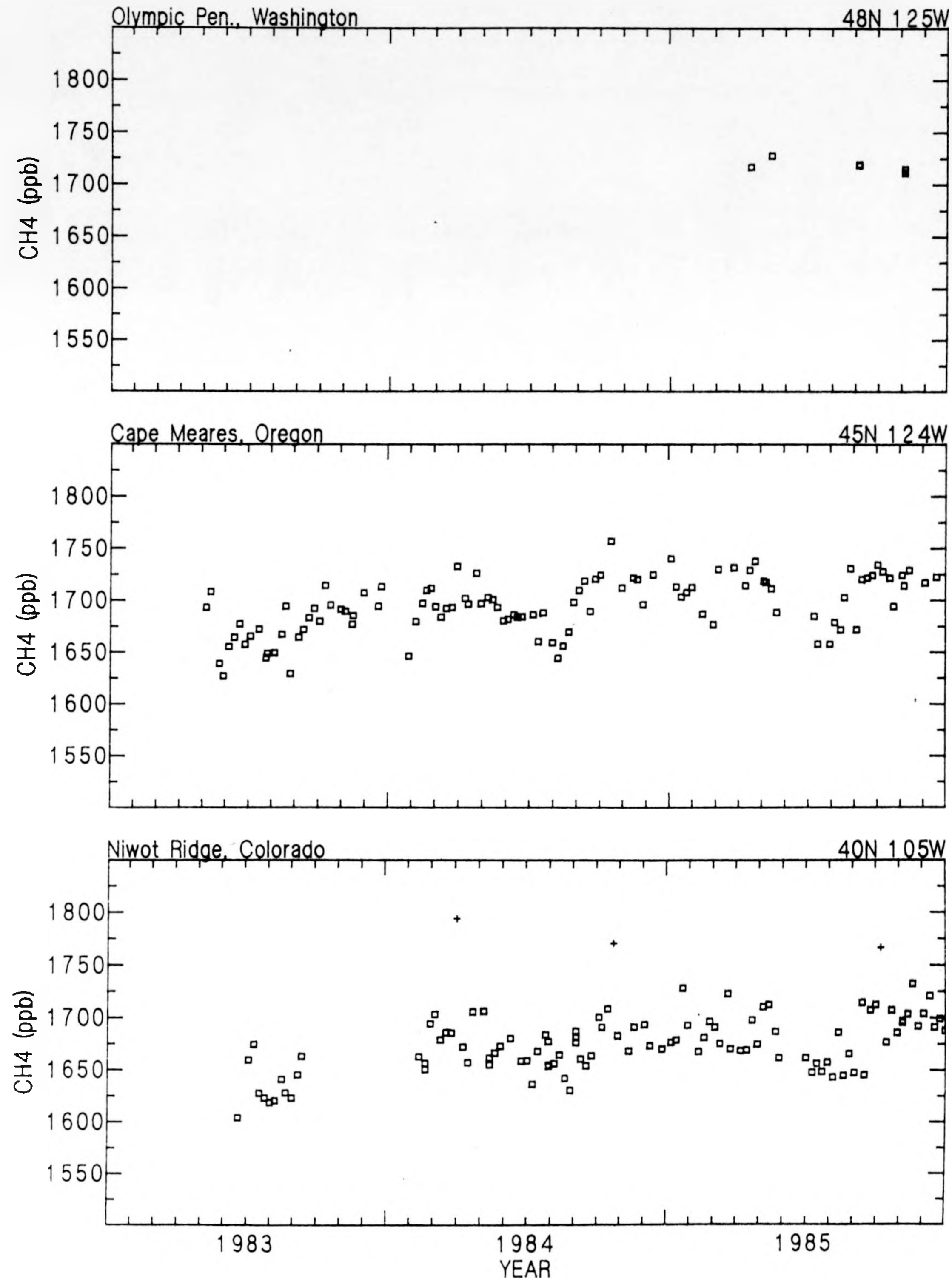
Appendix C

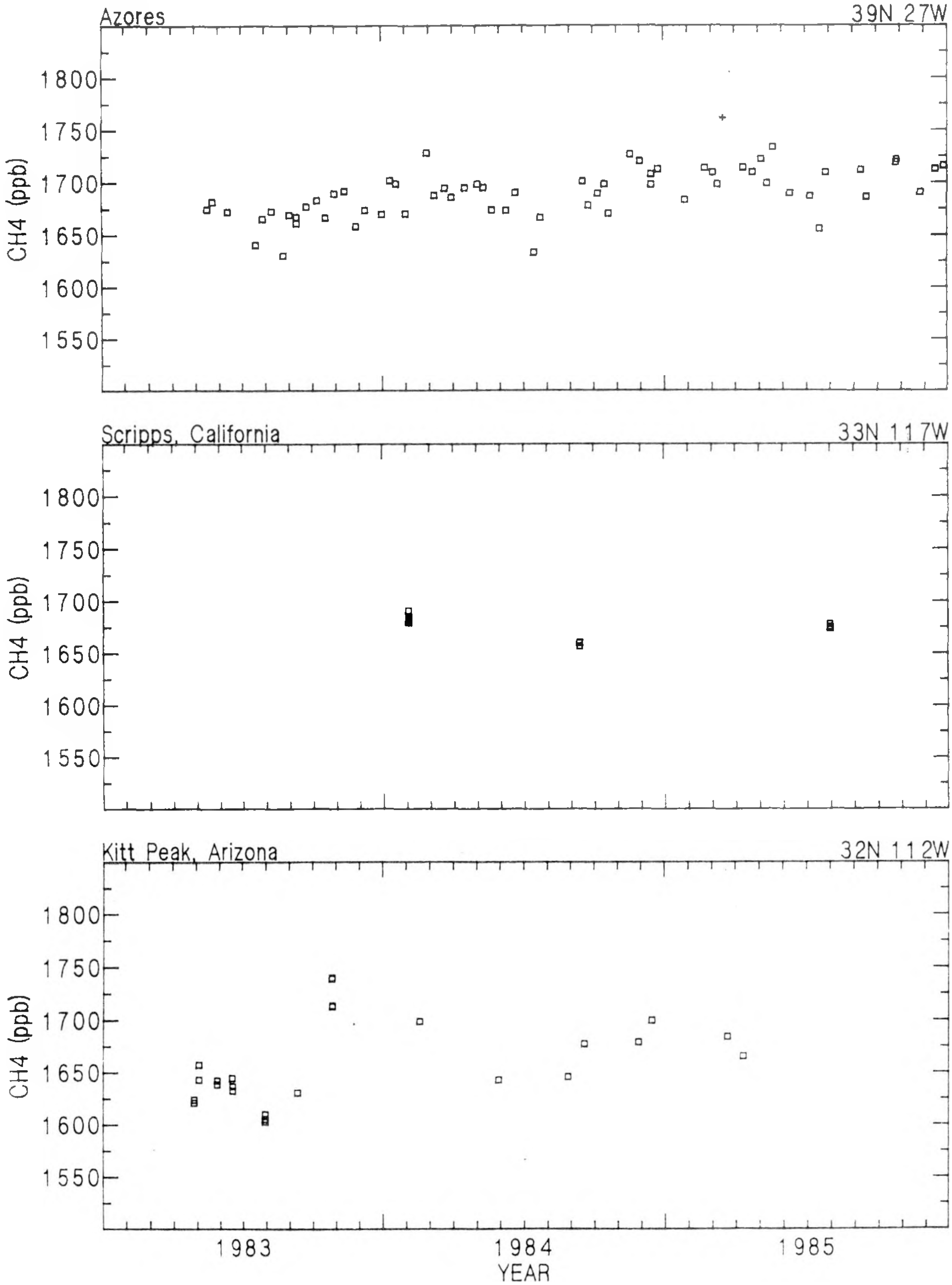
Plots of Methane Concentrations from Individual Flask Samples

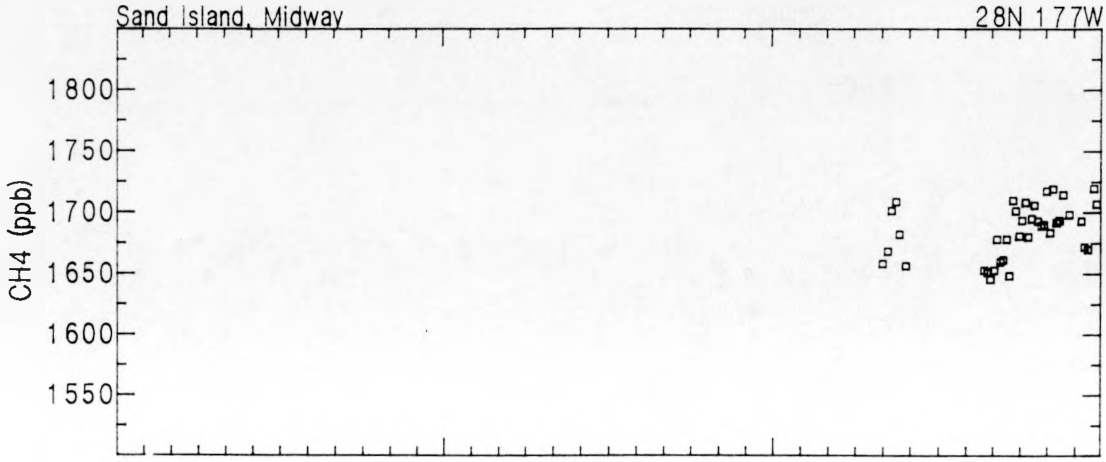
We show in this appendix a set of time series plots of the methane concentrations found from individual flask samples that were tabulated in Appendix A. In all of the plots the background flask samples are shown with a square symbol, while the non-background samples are shown with a plus (+) symbol. The plots are arranged according to the latitude of the site, starting with the northernmost site of ALT, and then moving steadily southward. For ease of comparison both the vertical scale and the horizontal scale are identical for all the sites shown.

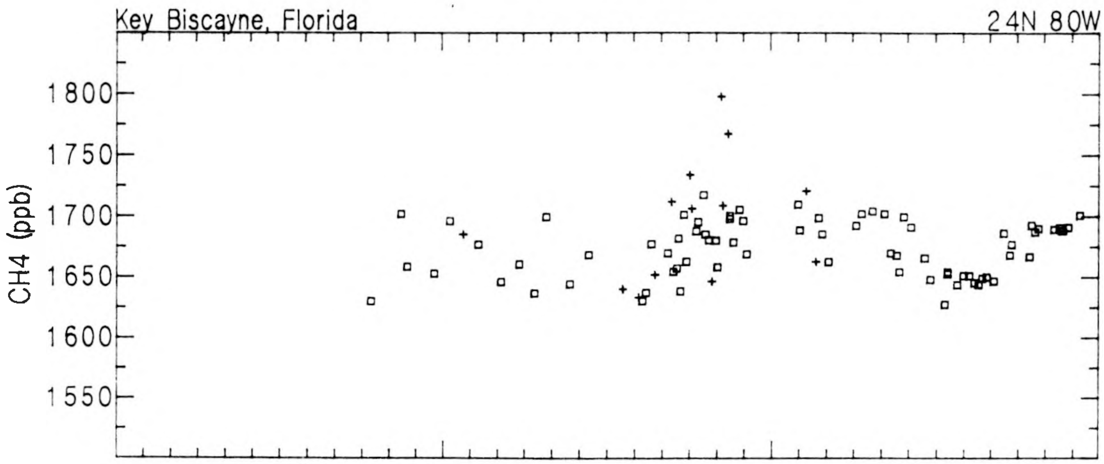

Alert, Canada
82N 62W
Mould Bay, Canada
76N 119W
Pt. Barrow, Alaska
71N 156W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR

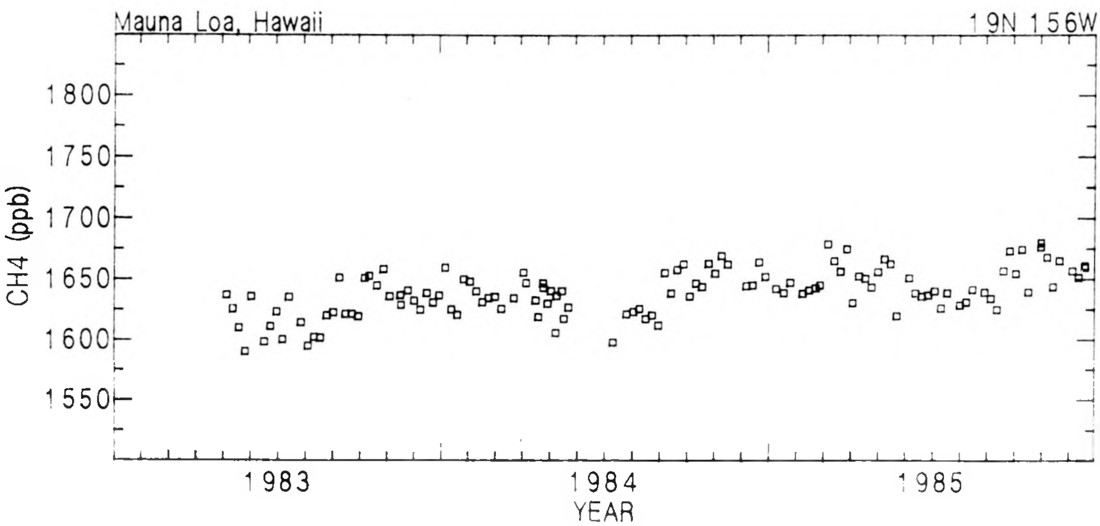

Station M
66N 02E
Cold Bay, Alaska
55N 163W
Shemya Island
53N 174E
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR

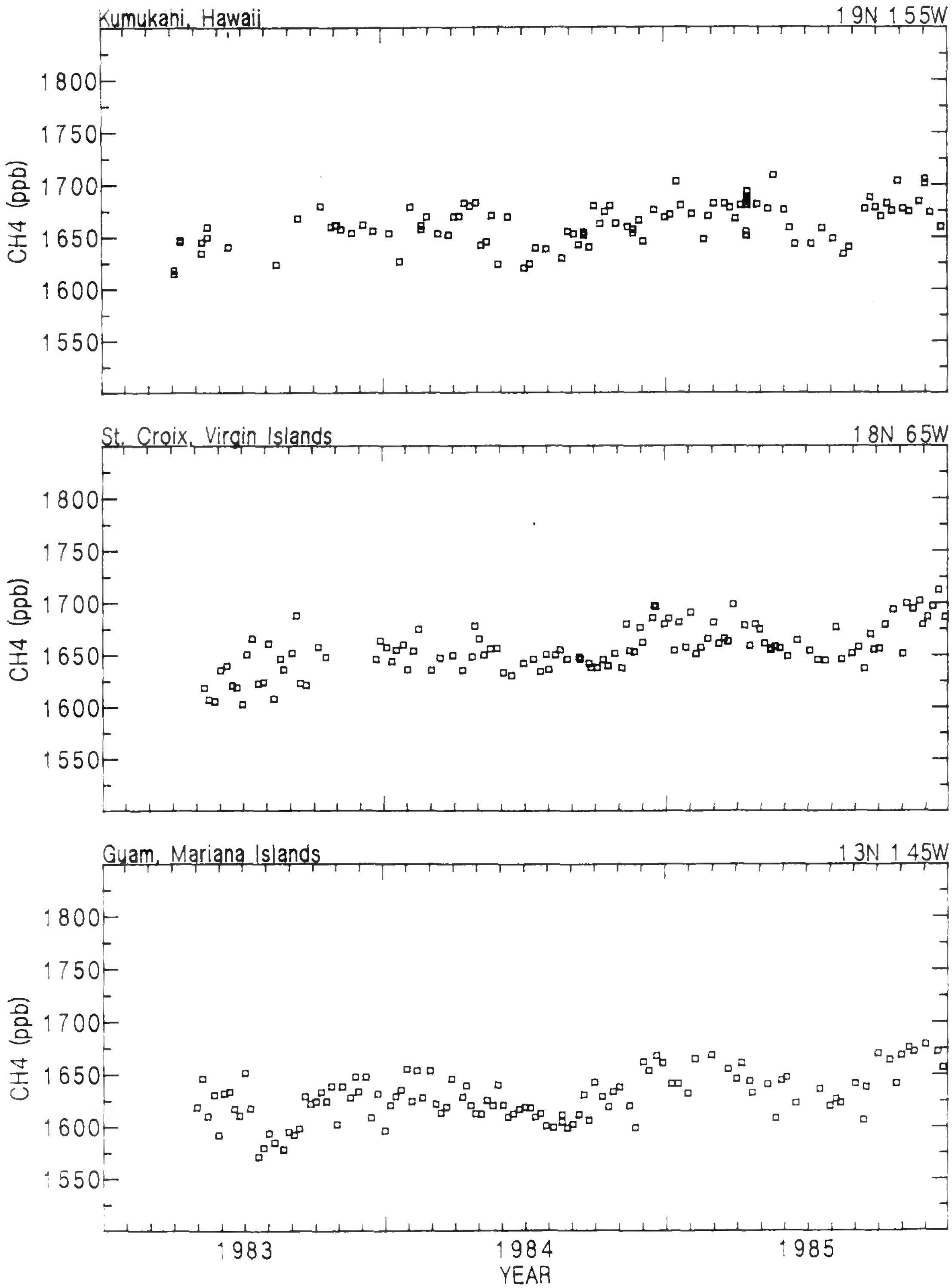

Olympic Pen., Washington
48N 125W
Cape Meares, Oregon
45N 124W
Niwot Ridge, Colorado
40N 105W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR

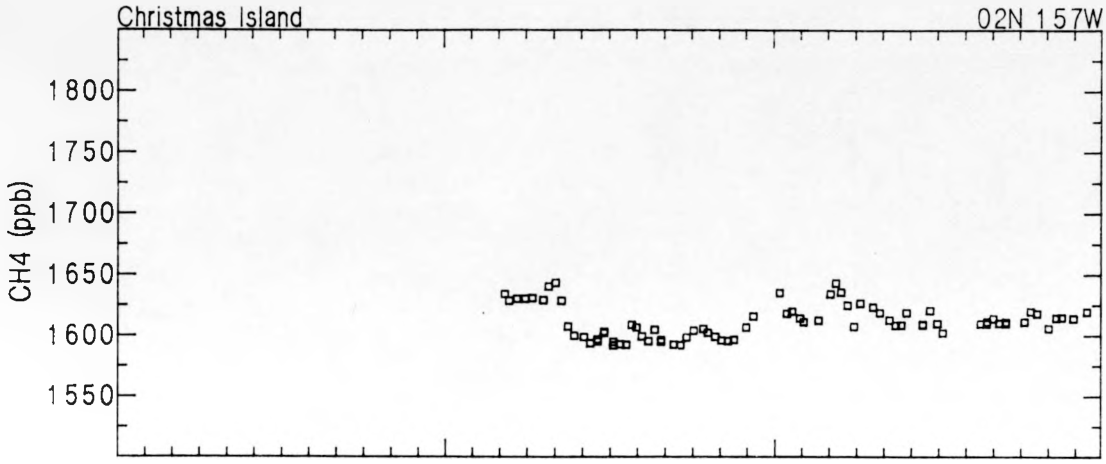

Azores
39N 27W
1800
1750
1700
1650
1600
1550
CH4 (ppb)
Scripps, California
33N 117W
1800
1750
1700
1650
1600
1550
CH4 (ppb)
Kitt Peak, Arizona
32N 112W
1800
1750
1700
1650
1600
1550
CH4 (ppb)
1983
1984
1985
YEAR

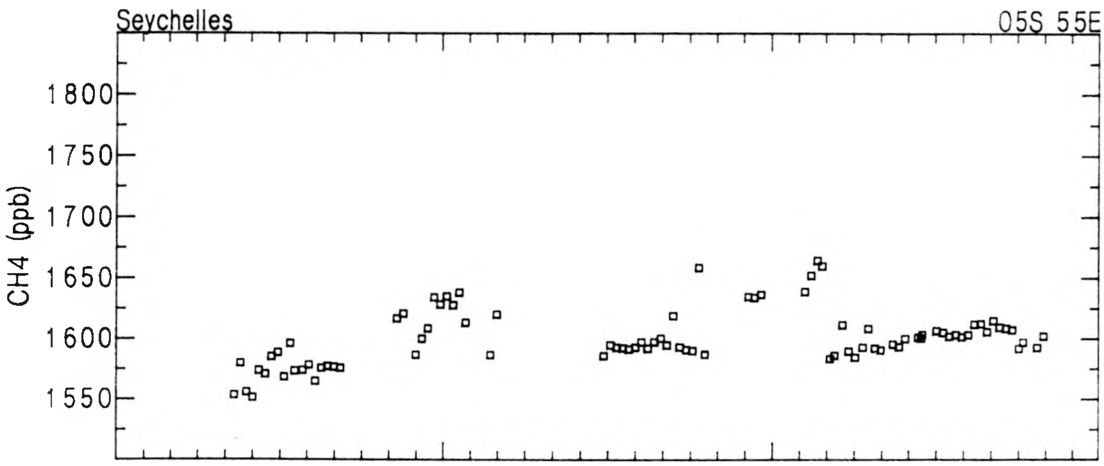

Sand Island, Midway
28N 177W
CH4 (ppb)
1800
1750
1700
1650
1600
1550

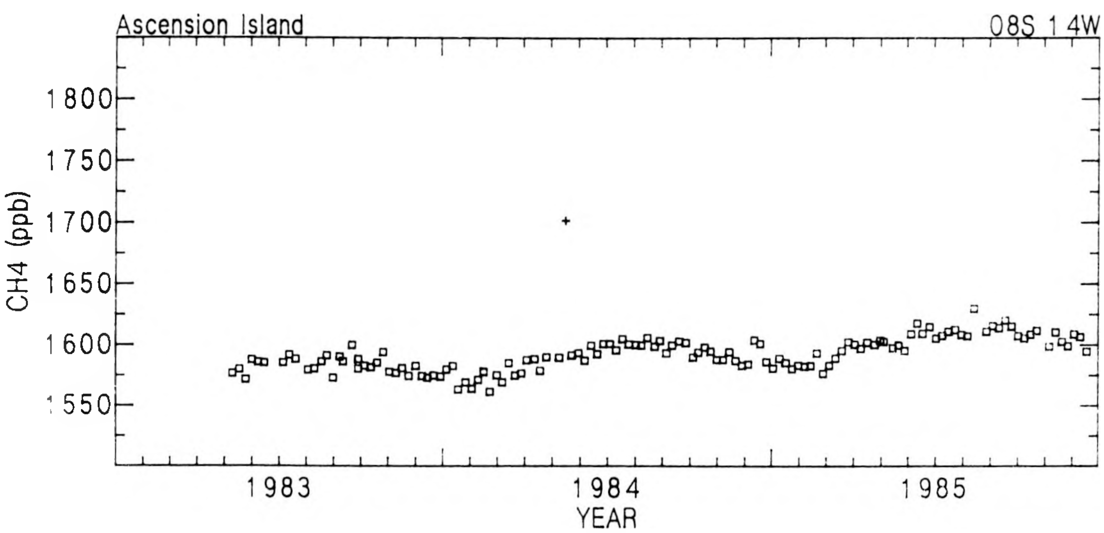

Key Biscayne, Florida
24N 80W
CH4 (ppb)
1800
1750
1700
1650
1600
1550

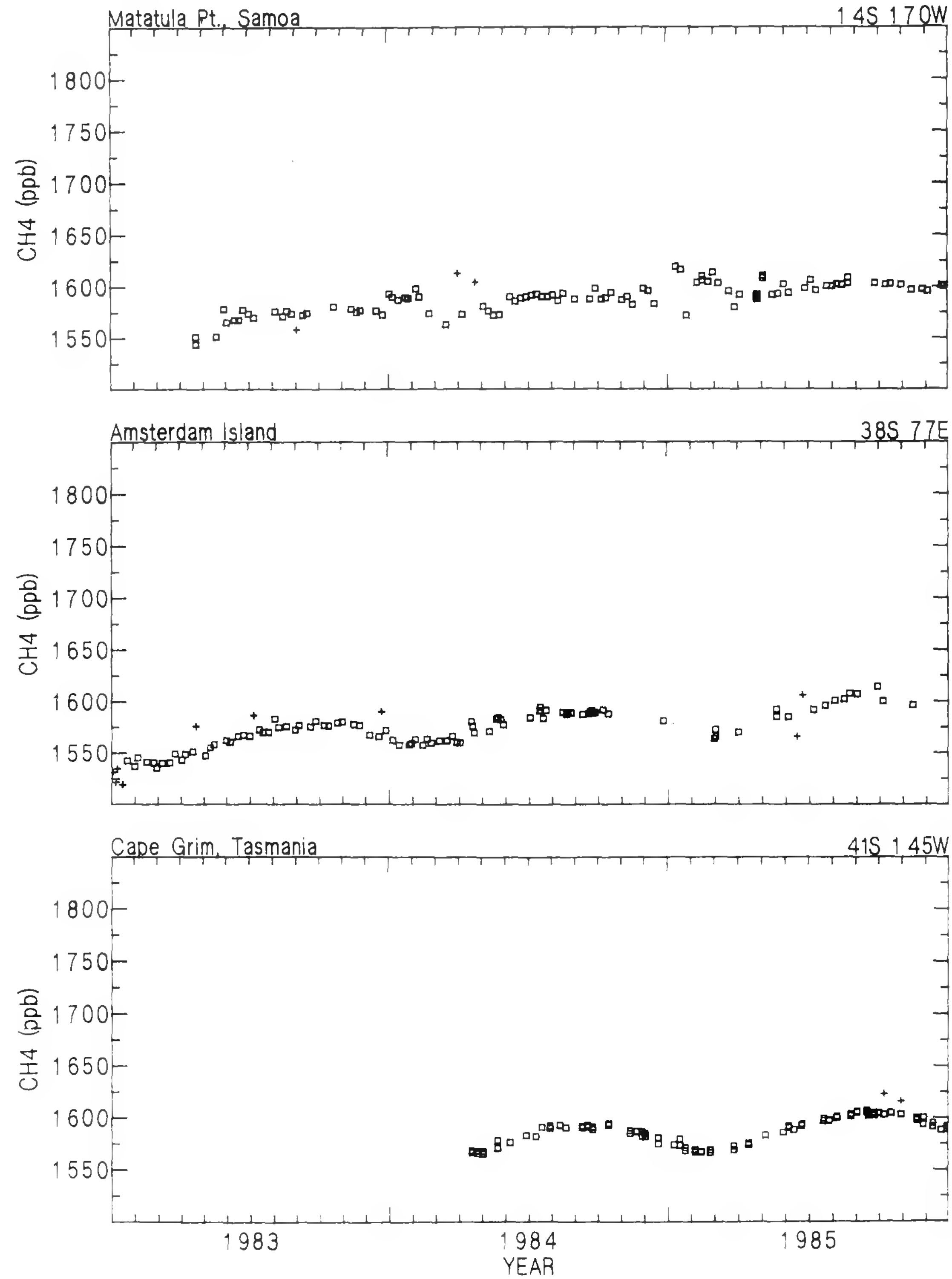

Mauna Loa, Hawaii
19N 156W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR

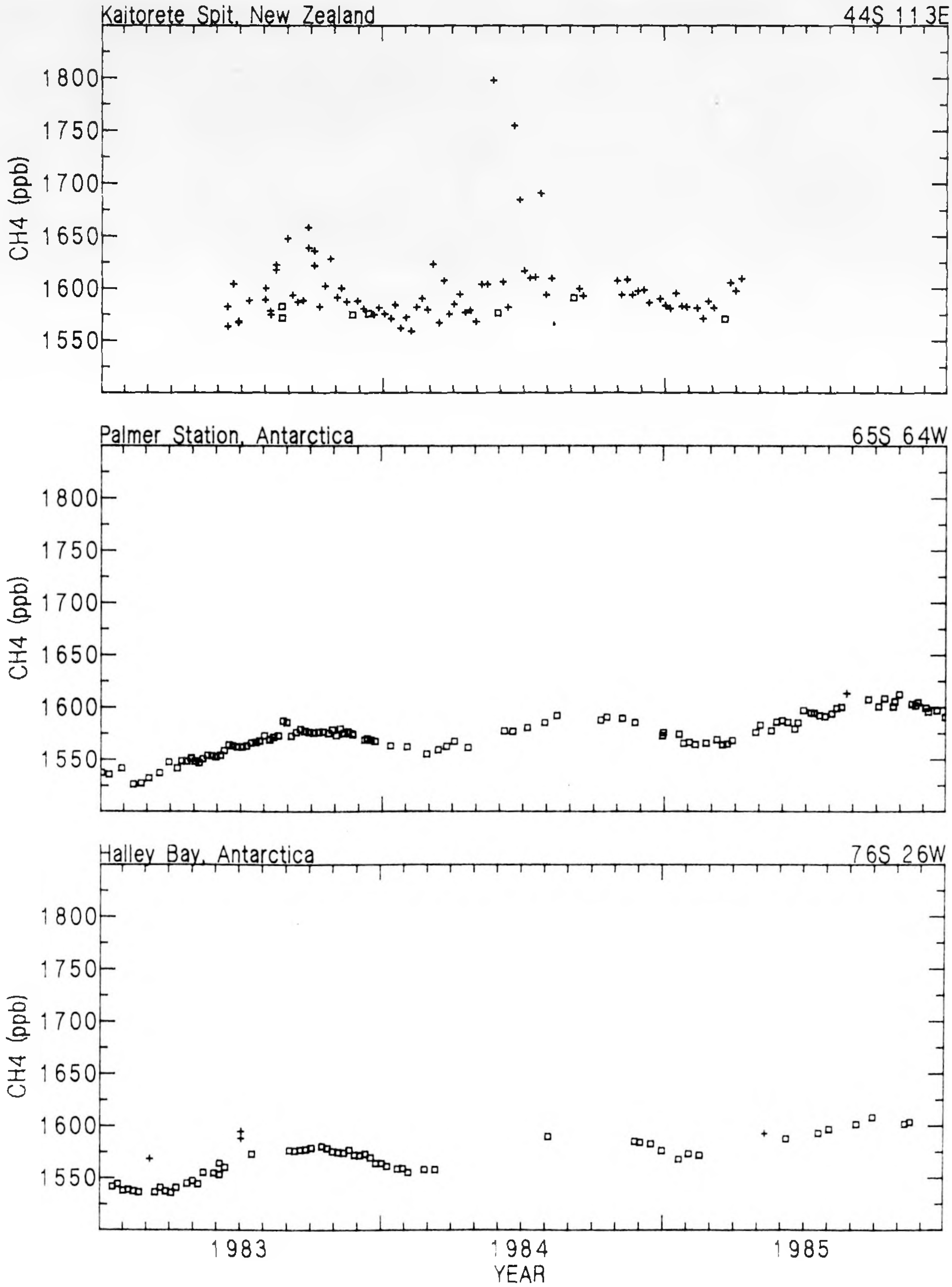

Kumukahi, Hawaii
19N 155W
St. Croix, Virgin Islands
18N 65W
Guam, Mariana Islands
13N 145W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR


Christmas Island
02N 157W
CH4 (ppb)
1800
1750
1700
1650
1600
1550

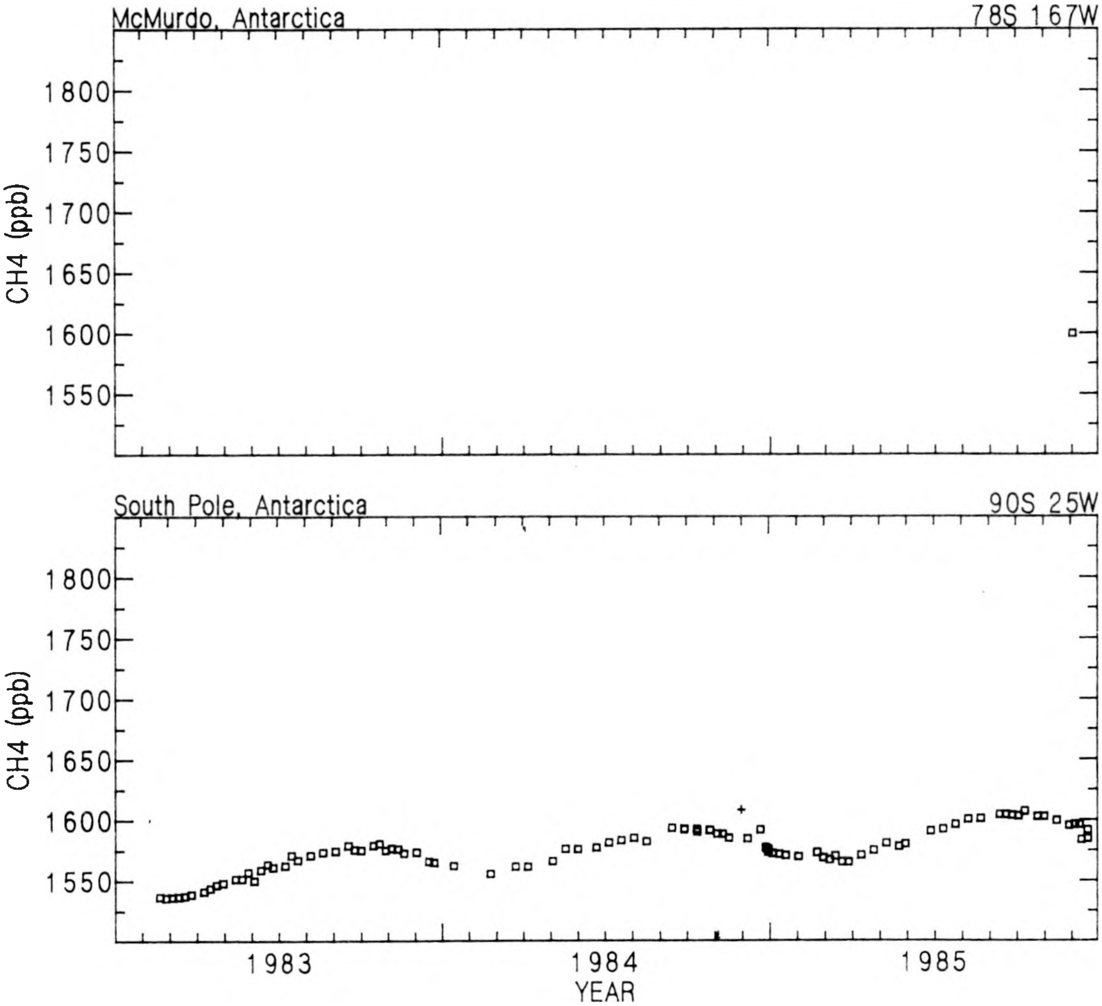

Seychelles
05S 55E
CH4 (ppb)
1800
1750
1700
1650
1600
1550


Ascension Island
08S 14W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR


Matatula Pt., Samoa
14S 170W
Amsterdam Island
38S 77E
Cape Grim, Tasmania
41S 145W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR



Kaitorete Spit, New Zealand
44S 113E
Palmer Station, Antarctica
65S 64W
Halley Bay, Antarctica
76S 26W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR


McMurdo, Antarctica
78S 167W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
South Pole, Antarctica
90S 25W
CH4 (ppb)
1800
1750
1700
1650
1600
1550
1983
1984
1985
YEAR

A-145

NOAA Technical Memorandum ERL CMDL-2

ATMOSPHERIC METHANE DATA FOR THE PERIOD 1986-1988 FROM THE NOAA/CMDL GLOBAL COOPERATIVE FLASK SAMPLING NETWORK

Patricia M. Lang
L. Paul Steele
Russell C. Martin

Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado
October 1990

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / Environmental Research Laboratories

NOAA Technical Memorandum ERL CMDL-2

ATMOSPHERIC METHANE DATA FOR THE PERIOD 1986-1988 FROM THE NOAA/CMDL GLOBAL COOPERATIVE FLASK SAMPLING NETWORK

Patricia M. Lang
Climate Monitoring and Diagnostics Laboratory

L. Paul Steele
CSIRO Division of Atmospheric Research
Aspendale, Victoria
Australia

Russell C. Martin
Cooperative Institute for Research in Environmental Sciences
University of Colorado
Boulder, Colorado

Climate Monitoring and Diagnostics Laboratory
Boulder, Colorado
October 1990

UNITED STATES DEPARTMENT OF COMMERCE

Robert A. Mosbacher
Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

John A. Knauss
Under Secretary for Oceans and Atmosphere/Administrator

Environmental Research Laboratories

Joseph O. Fletcher
Director

NOTICE

Mention of a commercial company or product does not constitute an endorsement by NOAA/ERL. Use of information from this publication concerning proprietary products or the tests of such products for publicity or advertising purposes is not authorized.

For sale by the National Technical Information Service, 5285 Port Royal Road
Springfield, VA 22161

FOREWORD

This Technical Memorandum is the second in a series describing atmospheric methane measurements made through the cooperative flask sampling program operated by the Climate Monitoring and Diagnostics Laboratory (CMDL) of the National Oceanic and Atmospheric Administration (NOAA). The CMDL now incorporates the NOAA program formerly known as Geophysical Monitoring for Climatic Change (GMCC). The first memorandum of this series described methane data for the period 1983-1985 (see NOAA Technical Memorandum ERL CMDL-1, "Atmospheric methane data for the period 1983-1985 from the NOAA/GMCC global cooperative flask sampling network", by P.M. Lang, L.P. Steele, R.C. Martin and K.A. Masarie, published in March 1990).

The monthly average methane concentrations tabulated in this memorandum may be obtained as an ASCII file on a DOS formatted 5.25 inch floppy disc by writing to:

Dr. Ed Dlugokencky
Carbon Cycle Group
NOAA/ERL/CMDL (R/E/CG1)
U.S. Department of Commerce
325 Broadway
Boulder, Colorado 80303
U.S.A.

The monthly average methane concentrations may also be obtained from:

Oak Ridge National Laboratory
Attention: Carbon Dioxide Information Analysis Center, Building 1000
P.O. Box 2008
Oak Ridge, Tennessee 37831-6335
U.S.A.

CONTENTS

Page

Foreword ... iii

Abstract ... 1

1. Introduction ... 1

2. Improvements to the Program ... 1

3. Details of Flask Sampling ... 3

4. Analytical and Calibration Procedures ... 6

Acknowledgments ... 13

References ... 13

Appendix A: Methane Concentrations from Individual Flask Samples ... 15

Appendix B: Monthly Average Methane Concentrations ... 87

Appendix C: Plots of Methane Concentrations from Flask Samples ... 98

Atmospheric Methane Data for the Period 1986 - 1988 from the NOAA/CMDL Global Cooperative Flask Sampling Network

Patricia M. Lang, L. Paul Steele, and Russell C. Martin

ABSTRACT. This memorandum builds on previous work (*Lang et al.*, 1990; *Steele et al.*, 1987) to extend by three years the record of atmospheric methane measurements made through the NOAA/CMDL cooperative flask sampling network. The format of the data presentations given here follows very closely that used by *Lang et al.* (1990). Details of the flask sampling methods and the analytical and calibration procedures are given. Results from individual flask samples are both tabulated and plotted. Monthly average methane concentrations at each site are also tabulated.

1. Introduction

The increase of atmospheric methane (CH_4) continues to be studied by a variety of techniques. A survey of the recent literature reveals that at Cape Point, South Africa, an in-situ gas chromatograph (GC) with flame ionization detection (FID) has been used to measure the variations in CH_4 concentrations since 1982 (*Brunke et al.*, 1990). Using a spectroscopic technique, *Wallace and Livingston* (1990) have documented an increase in the total column abundance of methane over Kitt Peak, Arizona, during 1979-1985. Also, GC/FID analysis of the CH_4 levels in air bubbles trapped in the Vostok ice core drilled in Antarctica has revealed CH_4 fluctuations that display a remarkable correlation with indicators of climate change (*Chapellaz et al.*, 1990).

This report is the second in a series and follows closely the form of the first (*Lang et al.*, 1990). Here we extend by 3 years the record of atmospheric methane measurements made at globally distributed sites in the NOAA/CMDL cooperative flask sampling network. The data from several thousand individual flask samples are tabulated and plotted. We also present tabulations of monthly average methane concentrations for each site. Relevant aspects of the sampling, analytical, and calibration procedures are included.

2. Improvements to the Program

The development and early years (1983-1985) of this measurement program have been described previously (*Lang et al.*, 1990; *Steele et al.*, 1987). During the 3-year period covered by this report (1986-1988) a number of improvements were introduced. These improvements have been principally in those aspects of the operation where gains in efficiency and productivity were desirable. The basic chromatographic technique and the calibration procedures have remained the same. A detailed technical description of these improvements is beyond the scope of this report, but we provide in the following paragraphs a general description of the nature of these changes.

The major improvements have been in the areas of data acquisition and automation of the flask analyses. The first of these changes was introduced on November 6, 1987, when the

Hewlett-Packard (HP) 3392A integrator was replaced by the more powerful HP 3393A model, and the HP 85-B computer was replaced by an HP model 310 workstation. A set of 24 test flask air samples, filled from a cylinder of calibrated air, was analyzed prior to and immediately after this hardware change. These analyses showed convincingly that, within the experimental precision, the methane concentrations obtained before and after were identical. The model 310 workstation was connected to a network of HP workstations and peripheral devices servicing the Carbon Cycle Group of NOAA/CMDL, and functioned as a discless node in that network. A computer program written in the BASIC language operated in the 310 workstation and performed such tasks as prompting the operator for input of flask information, calculating concentrations in real-time and displaying them on the screen, generating raw data files, and, at the end of each analysis session, updating the concentration files for each network site.

Safeguards were incorporated to protect the overall system against short-term degradation or failure of the main power and to minimize losses of data in the event of a system crash. To achieve the former, all of the electrical components in the analytical system were protected with an uninterruptible power system (Best Micro-Ferrups model M1000VA). For the latter an HP dual microfloppy disc drive (model 9122D) was interfaced to the computer, and after the analysis of every sample, the full chromatogram report and the relevant flask sampling information were written to a 3.5 inch floppy disc. As an added precaution this same information was stored in the memory of the 3393A integrator. Once a flask analysis session had been successfully completed, and all data had been transferred to a hard disc mass storage device connected to the network server, the safeguard files could be written over. For the safeguard file in the 3393A memory, the file from the previous session was usually deleted at the beginning of the next analysis session. The safeguard files on the floppy disc were written over only after the floppy disc had been filled to capacity. This provided enough of a cushion to ensure that the server's hard disc memory had been routinely backed up on 0.25 inch magnetic tape cartridges. Finally, once the 310 workstation was successfully booted up from the network server and the necessary program was loaded into the 310's memory, the flask analysis could proceed without any further interaction with or need of the network. Access to the network was then only required at the end of the analysis session.

While we were gaining experience with these initial improvements to the system, development of the next phase was taking place. This was a device called a carousel (it is circular in shape), that could hold up to eight flasks at a time. The purpose of the carousel was to supplant the role of the Hach-Carle model 2026 stream selection valve and to improve efficiency. The key components of the carousel were two multi-position valves fitted with multi-position electric actuators manufactured by the Valco Instruments Co. Inc. One of the valves was an 8-position model fitted with a 16-position actuator. The other valve was a 4-position model with a 4-position actuator. The common outlet of the 8-position valve fed into one of the inlet ports of the 4-position valve. The electric actuators indicated their position both visually, by an LED display, and electrically, by a 5-volt BCD output. The position of the actuators could also be controlled remotely through the 5-volt BCD input. The configuration of the two valves allowed us to alternate the analysis of flask air samples with the analysis of calibration samples. With suitable enhancements to the software of the HP 310 workstation, we created a system which could run unattended for approximately four hours, during which time eight flasks were analyzed, with two aliquots normally being analyzed from each flask. When the analysis of each set of flasks was complete, the system waited until the next set of flasks had been entered, after which the analysis would proceed. The analysis did not proceed blindly. The computer was programmed to evaluate the level of agreement between the concentrations obtained from the two aliquots normally analyzed from each flask. If the difference between aliquots was within 10 parts per billion by volume (ppb) for the methane concentrations, then only two aliquots were analyzed, and the carousel switched to the next flask in sequence. If the difference was greater than 10 ppb for methane, then a third aliquot was analyzed. If two of the three aliquots agreed to within 10 ppb, then the carousel proceeded to the next flask. In very rare situations a fourth or even a fifth aliquot was analyzed before the required condition was met.

Another key element in this scheme was a Tylan mass flow meter which allowed us to regulate the total volume of air sample that passed through the sample loop of the gas chromatograph. With appropriate interfacing of the mass flow meter to the computer, we were also able to recognize those flasks which were not pressurized adequately. Thus some flasks had only one aliquot analyzed before the computer decided to progress to the next flask in the sequence. In rarer situations some flasks were not analyzed at all because the criteria for flow rate and volume were not met. After exhaustive testing, the carousel and the associated software were introduced for routine flask analysis on August 26, 1988. A significant part of the testing procedures was the analysis of 36 flask samples of air using both the existing analysis system and the new fully automated system with the carousel. We concluded that the new automated system had not introduced any biases or artifacts in the analysis of methane concentrations.

Turning to another aspect of the flask analysis system, we reiterate that the chromatographic separation was accomplished with a Hach-Carle model 04270-A GC, configured without a methanizer. The carbon dioxide component of the air samples was backflushed from the silica gel column instead of passing through to the detector. This modification had the advantage of allowing shorter analysis times for methane. However, without the methanizer, the carbon monoxide component could not be quantified with the FID, even though it was separated on the molecular sieve 5A column. We solved this problem by adding a Trace Analytical Reduction Gas Detector (model RGD2) to the chromatograph. This is a very sensitive detector for carbon monoxide, that is based upon the reaction of carbon monoxide with heated mercuric oxide to produce mercury and subsequent detection of mercury atoms by ultraviolet absorption. Use of the 4-port, 2-position switching valve in the Hach-Carle GC allowed us to direct the effluent of the molecular sieve 5A column to the FID when the methane was eluting, and to the RGD2 when the carbon monoxide was eluting. This modification to the gas chromatographic system was introduced on July 20, 1986.

3. Details of Flask Sampling

The sampling sites used during 1986-1988 are given in Table 1 and their global distribution is illustrated in Figure 1. Some changes were introduced in this period, but the network coverage is still nearly the same as that described in *Lang et al.* (1990). In November 1987 we began sampling at Ragged Point, Barbados (RPB) in cooperation with the Global Atmospheric Gases Experiment (GAGE) which operates an in-situ gas chromatograph for the measurement of atmospheric trace gases at the site. In cooperation with the Japanese Antarctic Research Program we have analyzed air samples collected at Syowa Station (SYO) in Antarctica during 1986 and 1988. Two sites for which we reported data in our previous memorandum (*Lang et al.*, 1990) do not appear here. Sampling at Kaitorete Spit, New Zealand, and Kitt Peak, Arizona, was discontinued during 1985.

As in previous years, most of the flasks used in the network during 1986-1988 were 0.5-L glass flasks fitted with two solid-plug, ground glass, greased stopcocks. Other types of flasks have also been used, and descriptions of these can be found in *Lang et al.* (1990) and in

Table 1

Flask Sampling Sites Used During 1986 - 1988

Site Code	Site Location	Country	LST to GMT*	Latitude	Longitude	Elevation (m)+
ALT	Alert, N.W.T.	Canada	+ 9	82°27' N	62°31' W	6
AMS	Amsterdam Island	France	- 5	37°57' S	77°32' E	150
ASC	Ascension Island	U.K.	+ 1	07°55' S	14°25' W	54
AVI	St. Croix, Virgin Islands	U.S. Territory	+ 4	17°45' N	64°45' W	3
AZR	Azores (Terceira Island)	Portugal	+ 1	38°45' N	27°05' W	30
BRW	Point Barrow, Alaska	U.S.A.	+ 9	71°19' N	156°36' W	11
CBA	Cold Bay, Alaska	U.S.A.	+ 9	55°12' N	162°43' W	25
CGO	Cape Grim, Tasmania	Australia	-10	40°41' S	144°44' E	94
CHR	Christmas Island	Kiribati	+10	02°00' N	157°19' W	3
CMO	Cape Meares, Oregon	U.S.A.	+ 8	45°00' N	124°00' W	30
GMI	Guam (Mariana Islands)	U.S. Territory	-10	13°26' N	144°47' E	2
HBA	Halley Bay	Antarctica	+ 2	75°40' S	25°30' W	10
KEY	Key Biscayne, Florida	U.S.A.	+ 5	24°40' N	80°12' W	3
KUM	Cape Kumukahi, Hawaii	U.S.A.	+10	19°31' N	54°49' W	3
MBC	Mould Bay, N.W.T.	Canada	+10	76°14' N	119°20' W	15
MCM	McMurdo Station	Antarctica	-12	77°50' S	166°36' E	11
MID	Sand Island, Midway	U.S. Territory	+11	28°13' N	177°22' W	4
MLO	Mauna Loa, Hawaii	U.S.A.	+10	19°32' N	155°35' W	3397
NWR	Niwot Ridge, Colorado	U.S.A.	+ 7	40°03' N	105°38' W	3749
OPW	Olympic Peninsula, Washington	U.S.A.	+ 8	48°15' N	124°45' W	2 & 488
RPB	Ragged Point	Barbados	+ 4	13°10' N	59°26' W	3
PSA	Palmer Station (Anvers Island)	Antarctica	+ 3	64°55' S	64°00' W	10
SEY	Seychelles (Mahe Island)	Seychelles	- 4	04°40' S	55°10' E	3
SHM	Shemya Island, Alaska	U.S.A.	+10	52°43' N	174°06' E	40
SIO	Scripps Institution, California	U.S.A.	+ 8	32°50' N	117°16' W	14
SMO	Matatula Point, Samoa	U.S. Territory	+11	14°15' S	170°34' W	42
SPO	Amundsen Scott (South Pole)	Antarctica	-12	89°59' S	24°48' W	2810
STM	Ocean Station "M"	North Atlantic	0	66°00' N	02°00' E	4.5 - 9
SYO	Syowa	Antarctica	- 3	69°00' S	39°35' E	11

* The numbers in this column give the conversion (in hours) between Local Standard Time (LST) and Greenwich Mean Time (GMT), eg. at ALT to convert from LST to GMT, add 9 hours to LST.

\+ Elevation above mean sea level

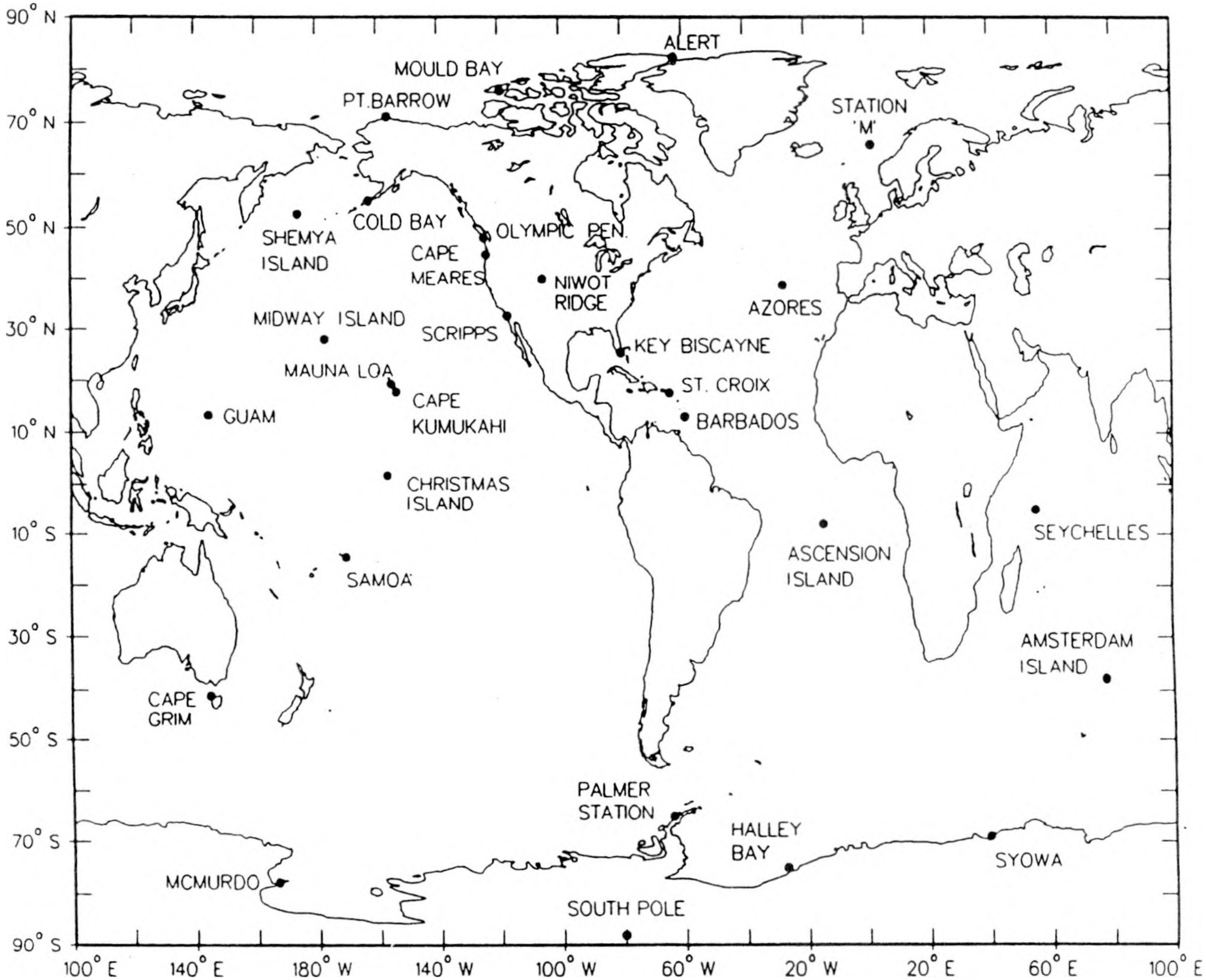


Figure 1. Map showing the location of those flask sampling sites used during 1986 - 1988 for the collection of air samples which were analyzed for atmospheric methane concentration.

Steele et al. (1987). A notable feature of this 3-year period was the concerted effort to test and introduce a variety of other flask types to the network. All types of flasks used during 1986-1988 are described in Table 2, where each type is coded with a number, allowing the identification of the flask type for every sample tabulated in Appendix A. Some flask types proved unsatisfactory and were eliminated quickly. An example is the flasks fitted with the green viton O-rings (code 6 in Table 2). Laboratory tests with dry air samples had indicated a satisfactory performance, but results from some of the network sites indicated that large losses (up to 20 parts per million) of carbon dioxide were occurring in the flask air samples. This problem was most apparent in those samples from humid, tropical sites. We surmised that the presence of water in the air samples facilitated the loss of carbon dioxide on the O-ring material.

A flask type that proved very successful was the glass 0.5-L size with two Teflon O-ring stopcocks (code 3 in Table 2). Laboratory experiments and extensive field testing at a number of network sites were carried out. An important part of the field testing was the simultaneous collection of air samples in different types of flasks, thus developing an "overlap" period in the concentration time series. Scrutiny of these overlap periods indicated that the Teflon O-ring glass flasks were providing methane concentrations that were indistinguishable from those obtained in other types of flasks. The Teflon O-ring flasks had the added advantage that we could begin to obtain valid carbon monoxide concentrations from the flask samples. None of the other flask types in Table 2 were suitable for carbon monoxide measurements.

As we have described before, a number of methods were used to collect air samples (see *Lang et al.*, 1990). In the period covered by this study the flask sampling methodology has remained essentially the same. For completeness we provide here a description of the collection methods in Table 3. Included in Table 3 is a code letter which is used to identify the collection method used for every flask sample tabulated in Appendix A.

4. Analytical and Calibration Procedures

The basic gas chromatographic techniques used during this 3-year period were the same as those used previously (see *Lang et al.*, 1990 and references therein), but some important changes were made in the areas of data acquisition and automation of flask analysis (see Section 2). As before, we report the methane concentrations here in units of parts per billion (10^9) by volume in dry air (ppb). In Table 4 we show a summary of the gas chromatographic systems used in this work, their periods of use, and a code which identifies the system used for the tabulations given in Appendix A. The Hach-Carle system identified by the C3 code was used for the analysis of only a few flask samples during this 3-year period because it was replaced during January 1986. Thus the vast majority of the flask analyses were carried out on the GC system identified by the C4 code. We have used a single code (C4) for this system throughout this period because the fundamental elements of the gas chromatographic technique (columns, FID, carrier gas, etc.) remained unchanged. There was no overlap between the periods of use of the systems described by the codes C3 and C4, meaning that the date on which any sample was analyzed (analysis date, given in Appendix A) allowed a ready determination of the system used for each analysis.

We have continued the procedure of analyzing at least two aliquots from each flask whenever the pressure in the flask allowed this to be done. Where the difference in concentration between the first and second aliquot is available, it is included in the tabulations of Appendix A. In Table 5 we summarize the statistics for these first-minus-second concentration values

Table 2.-- Description of Flask Types used in the Sampling Network

Code Used For Flask Type*	Flask Material	Flask Size+	Flask Shape	Number of Stopcocks	Stopcock Type
1	Pyrex glass	0.5 L	Cylindrical	2	Ground glass, solid glass plug, 3 mm bore, lubricated with Apiezon N grease
2	Pyrex glass	0.5 L	Cylindrical	2	High vacuum, O-ring type, glass piston, 10 mm bore, butyl O-ring (from J. Young Scientific Glassware)
3	Pyrex glass	0.5 L	Cylindrical	2	High vacuum, O-ring type, glass piston, 10 mm bore, Teflon O-ring (from J. Young Scientific Glassware)
5	Pyrex glass	3 L	Cylindrical	1	High vacuum, O-ring type, glass piston, 10 mm bore, black butyl O-ring (from J. Young Scientific Glassware)
6	Pyrex glass	0.5 L	Cylindrical	2	High vacuum, O-ring type, glass piston, 10 mm bore, green viton O-ring (from J. Young Scientific Glassware)
7	Pyrex glass	0.5 L	Cylindrical	2	High vacuum, O-ring type, glass piston, 10 mm bore, black viton O-ring (from J. Young Scientific Glassware)

*Code is used for tabulations given in Appendix A.
+Flask sizes are approximate.

Table 3.--Description of Sample Collection Methods Used in the Sampling Network

Code Used for Collection Method*	Description of Collection Method
P	Portable, battery-powered suitcase sampler. Two flasks normally connected in series, flushed with air, and then pressurized to 1.25-1.5 times ambient atmospheric pressure (see *Komhyr et al.*, 1985).
T	Filling of evacuated 3-L glass flask by opening the single O-ring stopcock (see *Steele et al.*, 1987, for more details).
S	Filling of 0.5-L glass flasks (in pairs) at the NOAA/CMDL observatory sites. Flasks are filled and pressurized by diverting air from the continuous in-situ CO_2 analysis system (see *Komhyr and Harris*, 1977; *Komhyr*, 1983; *Komhyr et al.*, 1989).
N	Filling and pressurizing of 0.5-L glass flasks (in pairs) by a pump different from that supplied by NOAA/CMDL. In most cases (eg. at NWR and CGO) the pump is a Metal Bellows pump. In addition, the flasks filled by this method at the Cape Grim Baseline Air Pollution Station (site code CGO) are filled with air that has been dried chemically (see *Steele et al.*, 1987).

*Code is used for tabulations given in Appendix A.

for each of the sampling sites. By combining the results from all of the sampling sites we find that at least two aliquots were analyzed from a total of 3309 flasks, yielding a mean first-minus-second value of -0.7 ppb, and a standard deviation of 5.1 ppb. These results indicate an overall level of precision for the analyses over this 3-year period of slightly better than 0.3%, a value almost identical to that obtained in the first three years of this program (see *Lang et al.*, 1990). We do not estimate separately the precision levels of the two GC systems (C3 and C4) because only 10 flask samples were analyzed on the C3 system during this period. With regard to this average precision level of approximately 0.3%, it is worth noting that it applies to a single determination of a methane concentration. Since we almost always analyze two aliquots from each flask, and average the two values, the estimated uncertainty of the average value is better than 0.3% (approximately 0.21%). This idea underlies our strategy of analyzing a third aliquot from those flasks where the results from the first two aliquots do not agree to within 10 ppb. In those cases where a third aliquot was analyzed from a flask, all three concentrations were averaged, thus tending to achieve a consistent level of precision throughout the entire data set of flask average concentrations.

In Table 6 we provide, for each site, information which summarizes the delay between sample collection and sample analysis. Since we have shown that the length of the delay between collection and analysis does not influence the methane concentrations of the air samples stored in the flasks (*Steele et al.*, 1987), the results of Table 6 are presented primarily as an indicator of the network logistics. A comparison of the results in Table 6 with those for the previous 3-year period (see Table 6 in *Lang et al.*, 1990) shows that for many of the sites, the average turnaround times have remained remarkably stable.

Table 4.--Description of Gas Chromatographic Systems Used for Methane Analysis

Code Used for GC System*	Period of Use	Basic Configuration of GC System
C3	12 Aug 85-23 Jan 86	Hach-Carle series 400, model 04270-A GC, Hewlett-Packard (HP) 3392A integrator, Hach-Carle model 2026 8-port stream selection valve, model HP 85-B computer.
C4	24 Jan 86-10 Jul 86	Hach-Carle series 400 GC, basic model 04270-A, but configured without a methanizer, and to backflush CO_2 from the silica gel column. HP model 3392A integrator, Hach-Carle model 2026 8-port stream selection valve, HP model 85-B computer.
C4	20 Jul 86-05 Nov 87	Same as previous configuration of C4, except that a Trace Analytical Reduction Gas Detector (model RGD2) was added to allow quantification of the carbon monoxide peak which was separated on the molecular sieve 5A column. See text, section 2. On September 8, 1987, the Hach-Carle stream selection valve was replaced by a Valco 4-port valve mounted on a Valco 8-position electric actuator.
C4	06 Nov 87-18 Aug 88	Same as previous configuration of C4, except that the data acquisition capability was upgraded. The HP3392A integrator was replaced by the HP3393A model; and the HP 85-B computer was replaced by a networked HP model 310 workstation. See text, section 2.
C4	26 Aug 88-06 Sep 89	Same as previous configuration of C4, except that the Valco 4-port stream selection valve was replaced by a fully automated, computer controlled carousel. See text, section 2.

*Code is used for tabulations given in Appendix A.

It is important to point out that the tabulations of Appendix A include only those samples which were properly collected and analyzed. This follows the procedure adopted in our previous report (*Lang et al.*, 1990). We have identified numerous causes of unacceptable flask samples, and these have been itemized previously (*Lang et al.*, 1990). In Table 7 we

Table 5.--Summary Statistics for the Precision of Methane Concentrations

Site Code	Number of Flasks with at least Two Aliquots	Mean Value of First-Second Aliquot Concentration (ppb)	Sample Standard Deviation of Mean (ppb)
ALT	157	0.0	5.2
AMS	58	.7	4.0
ASC	141	-.8	5.1
AVI	142	.8	5.1
AZR	52	-.7	5.8
BRW	137	-.1	4.7
CBA	125	0.0	5.7
CGO	180	-.1	5.0
CHR	121	-.7	5.5
CMO	132	.4	4.6
GMI	108	-.4	5.4
HBA	37	.1	3.3
KEY	79	-1.3	7.2
KUM	209	.2	4.6
MBC	143	-.1	5.4
MCM	34	0.0	5.2
MID	151	.5	5.0
MLO	151	-.2	5.1
NWR	145	.2	4.4
OPW	63	-.7	5.1
PSA	69	-.6	4.8
RPB	50	-.7	6.2
SEY	49	.3	4.3
SHM	79	-.6	5.2
SIO	5	-1.3	7.7
SMO	330	-.2	5.2
SPO	135	.4	5.4
STM	206	.1	5.4
SYO	21	-.4	3.4

have compiled summary statistics on the incidence of unacceptable flask samples at each site. At 14 of the sites the percentage of unacceptable flasks is less than 10%. Combination of these results from all of the sites reveals that, during 1986-1988, a methane analysis was attempted on a total of 3994 flasks, with 595 (14.9%) of these being classified as unacceptable. This percentage of unacceptable flasks is almost identical to the figure of 14.2% which we found for the previous 3-year period of flask sampling (*Lang et al.*, 1990). Further examination of Table 7 reveals that a relatively small number of sites contributes a disproportionate share to the total number of unacceptable flasks. Thus of the 595 unacceptable flasks, 243 (40.8%) came from only three sites (AMS, PSA, and SMO). There is a lesson in this result. For the flasks collected at AMS and PSA there are very long durations between sample collection and sample analysis (see Table 6). Thus if a problem develops in the sample collection procedure, many samples may be collected before the analysis reveals the existence of the problem and remedial action can be taken.

Table 6.--Summary Statistics for the Duration Between Flask Sampling and Flask Analysis

Site Code	Mean Duration (Days)	Median Duration (Days)	Minimum and Maximum Duration (Days)
ALT	44	42	20 - 80
AMS	289	299	114 - 432
ASC	17	13	6 - 64
AVI	14	11	2 - 58
AZR	22	18	4 - 84
BRW	13	11	1 - 57
CBA	12	9	3 - 53
CGO	42	36	14 - 116
CHR	34	29	7 - 107
CMO	13	9	3 - 52
GMI	20	16	7 - 73
HBA	449	461	238 - 649
KEY	16	14	3 - 63
KUM	12	10	2 - 37
MBC	48	44	19 - 158
MCM	113	99	38 - 227
MID	21	20	5 - 70
MLO	11	10	3 - 55
NWR	12	8	1 - 58
OPW	55	19	2 - 288
PSA	206	178	73 - 517
RPB	20	18	9 - 51
SEY	20	15	7 - 60
SHM	27	21	3 - 112
SIO	18	18	18 - 18
SMO	14	12	3 - 93
SPO	161	130	8 - 433
STM	36	29	7 - 167
SYO	294	272	152 - 477

For the 3-year period covered by this report only two tanks of calibration gas have been used. The first of these (designated as O-259) was also used for part of the previous 3-year period and has been described by *Lang et al.* (1990). The second calibration tank (designated as CC1406) was an aluminum, high-pressure cylinder fitted with a packless, brass, diaphragm valve. It was purchased from Airco Industrial Gases (Phoenix, Arizona) who treated the internal surface of the cylinder with their Spectra-Seal passivating process. We then filled this cylinder with dry, natural air at a site near Niwot Ridge, Colorado, using a RIX compressor (model SA-3). The air was dried by passing it through two columns (in series) of the drying agent Aquasorb (active ingredient phosphorus pentoxide) located on the high pressure side of the compressor. This achieved water levels in the collected air which were lower than the detection limit (one part per million) of the instrument used for the water determination (Meeco Aquamatic). Great care was taken during the filling process to prevent any particles

Table 7.--Flask Sampling Statistics During 1986 - 1988

Site Code	Total Number of Flasks*	Number of Unacceptable Flasks	Percent of Unacceptable Flasks
ALT	167	4	2
AMS	154	87	56
ASC	162	16	10
AVI	162	15	9
AZR	60	7	12
BRW	159	6	4
CBA	146	13	9
CGO	224	40	18
CHR	125	1	1
CMO	142	5	4
GMI	114	4	4
HBA	68	30	44
KEY	86	3	3
KUM	262	47	18
MBC	157	10	6
MCM	44	9	20
MID	169	13	8
MLO	171	4	2
NWR	177	23	13
OPW	66	3	5
PSA	169	96	57
RPB	60	7	12
SEY	87	34	39
SHM	105	20	19
SIO	6	0	0
SMO	337	60	18
SPO	158	16	10
STM	221	8	4
SYO	36	14	39

*Methane analysis was attempted.

of the Aquasorb drying agent from entering the cylinder. Generous filters made up of silanized glass wool were used for this purpose. Once the cylinder had been filled, it was calibrated intensively against the other two cylinders of calibration gas used for this program (O-245 and O-259). This intercalibration continued even after CC1406 was introduced as the calibration standard for flask analysis on March 25, 1987. These intercalibration experiments indicated that there were no relative changes in the methane concentrations of these calibration gases. Details of the two calibration gases used over the 3-year period of this report are given in Table 8.

Table 8.--Calibration Standards Used for Methane Flask Analysis

Cylinder Number	CH_4 Concentration (ppb)	Starting Analysis Date	Ending Analysis Date
O-259	1676.0	11 JUN 85	24 MAR 87
CC1406	1701.7	25 MAR 87	07 NOV 89

A glance at Table 8 indicates that the periods of use of the two calibration gases did not overlap. Thus the particular calibration gas that was used for the analysis of any individual flask sample can be readily deduced by examination of the entry in the "Analysis Date" column in the tabulations of Appendix A. There is only one exception to this rule, and it relates to some of the SPO flask samples. For SPO flasks with sample dates within the period February 22, 1988-October 15, 1988 (corresponding to analysis dates of December 6, 1988-December 9, 1988), the calibration tank used was O-259, not CC1406. We did this as a deliberate experiment for the SPO flasks because the bulk of the samples for any one year generally arrived in Boulder from the South Pole as a single shipment. It is then a straightforward matter to analyze SPO flasks exclusively for 2-3 days, during which time the calibration tank could be changed. This provided us with a time series record at one of the network sites where the underlying sequence of calibration tanks used was markedly different from that used for the other sites.

Acknowledgments

We continue to be indebted to the many individuals who have diligently collected the flask samples for this program. Special thanks to Lee Waterman of NOAA/CMDL for his continuing efforts in managing the daunting logistics of the flask sampling network. We thank Ed Dlugokencky (CIRES) and Thomas Conway (CMDL) for useful comments and suggestions during the preparation of this report. This research was carried out under the Radiatively Important Trace Species (RITS) component of the NOAA Climate and Global Change Program.

References

Brunke, E.G., H.E. Scheel and W. Seiler, 1990. Trends of tropospheric CO, N_2O and CH_4 as observed at Cape Point, South Africa. *Atmos. Environ.* 24A:585-595.

Chappellaz, J., J.M. Barnola, D. Raynaud, Y.S. Korotkevich and C. Lorius, 1990. Ice core record of atmospheric methane over the past 160,000 years. *Nature* 345:127-131.

Komhyr, W.D., 1983. An aerosol and gas sampling apparatus for remote observatory use. *J. Geophy. Res.* 88:3913-3918.

Komhyr, W.D. and T.B. Harris, 1977. Measurements of atmospheric CO_2 at the U.S. GMCC baseline stations, in Air Pollution Measurement Techniques, Report and Proceedings of the WMO Air Pollution Measurement Techniques Conference (APOMET), *Special Environmental Report No. 10*, WMO No. 460, World Meteorol. Organ., Geneva, 9-19.

Komhyr, W.D., R.H. Gammon, T.B. Harris, L.S. Waterman, T.J. Conway, W.R. Taylor, and K.W. Thoning, 1985. Global atmospheric CO_2 distribution and variations from 1968-82 NOAA/GMCC CO_2 flask sample data. *J. Geophys. Res.* 90:5567-5596.

Komhyr, W.D., T.B. Harris, L.S. Waterman, J.F.S. Chin, and K.W. Thoning, 1989. Atmospheric carbon dioxide at Mauna Loa Observatory 1. NOAA Global Monitoring for Climatic Change measurements with a nondispersive infrared analyzer, 1974-1985. *J. Geophys. Res.* 94:8533-8547.

Lang, P.M., L.P. Steele, R.C. Martin, and K.A. Masarie, 1990. Atmospheric methane data for the period 1983-1985 from the NOAA/GMCC global cooperative flask sampling network. NOAA Tech. Memo. ERL CMDL-1, NOAA Environmental Research Laboratories, Boulder, Colorado, 90 pp..

Steele, L.P., P.J. Fraser, R.A. Rasmussen, M.A.K. Khalil, T.J. Conway, A.J. Crawford, R.H. Gammon, K.A. Masarie, and K.W. Thoning, 1987. The global distribution of methane in the troposphere. *J. Atmos. Chem.* 5:125-171.

Wallace, L. and W. Livingston, 1990. Spectroscopic observations of atmospheric trace gases over Kitt Peak 1. Carbon dioxide and methane from 1979 to 1985. *J. Geophys. Res.* 95:9823-9827.

Appendix A
Tabulation of Methane Concentrations from Individual Flask Samples

The format of the tabulations in this appendix is the same as that used for Appendix A in *Lang et al.* (1990). For the convenience of the reader we repeat the explanations of the entries in the tabulations.

In this appendix we tabulate the relevant details of the sampling and analysis of individual flask samples. The results are presented separately for each site. The sites are arranged alphabetically by the 3-letter site code (see Table 1 for a full listing). The column headings are largely self-explanatory, but for clarity we provide the following additional information.

For each site the data are ordered chronologically by sample date and, if necessary, sample time. For internal consistency all sample dates and times are given in Greenwich Mean Time (GMT). The convention we adopt for specifying dates is "day-month-year" with the month given by the first three letters of the month's name. This avoids any possibility of ambiguity. For the year we specify only the last two digits eg. 1987 is given only as 87. The sample time is given to the nearest minute in the 24-hour clock convention. On those occasions when a sample date was provided by the sample taker, but the sample time was not, a default value of 9999 was entered for the sample time. In general, the filling of the flasks was not instantaneous, and the sample taker usually provided the beginning and ending time for the sampling period. At most, this sampling period was a few minutes. The convention we adopt for these tabulations is that the sample time listed is the beginning of the sampling period.

For most of the flask samples, two separate aliquots are analyzed, and a methane concentration is determined for each aliquot. The number of separate aliquots analyzed is given in the fifth column. The mean methane concentration that we report for each flask sample (third column) is the arithmetic mean of the values obtained for all aliquots. An indication of the analytical precision is given in the fourth column, where we report, wherever possible, the difference in methane concentration between the first and second aliquots. This concentration difference is always calculated as first minus second aliquot. The mean methane concentration is given to the nearest 0.1 ppb to retain enough significant digits for any further processing of these data.

The flask I.D. given in column 6 is the identifying number assigned to the flask. It is included here principally to aid in the future merging of these methane data with the carbon dioxide concentrations measured in these same flasks by a non-dispersive infrared technique. The flask type (column 7) specifies the particular type of flask used for each air sample. It is given by a code number, as described in Table 2.

The collection method (column 8) refers to the method used to fill the flask with an air sample. It is given by a code letter described in Table 3.

Since two different gas chromatographs have been used during the course of this work, we include a specification of the gas chromatograph used for the analysis of each sample. This is given by a code in column 9. A full description of the meaning of the code is given in Table 4.

The analysis date (column 10) is the date that the flask sample was analyzed for its methane concentration. We use the same convention as for the sample date, except that the analysis date is based on local time in Boulder, Colorado rather than GMT. In some instances a flask sample was analyzed on more than one occasion. When this occurred the results of each analysis are included separately in the tabulation. An example of this can be seen for the AVI site, when the flask with the sample date of 02 MAY 87 was analyzed on both 13 MAY 87 and 01 JUN 87.

Finally, the column headed as "flag" (column 11) is used to identify those flask samples which we believe to be "non-background". Such non-background samples are identified with a plus (+) symbol in this column. For most sites, very few samples are identified as non-background. One of the most common criteria for considering a sample to be non-background is that the wind direction is outside some specified sector at the time of sampling.

As a final note, these tabulations do not include methane data that were judged to be unacceptable. For example, any flask sample that was not collected according to specified guidelines was classified as unacceptable. The failure of sample takers to follow specified guidelines when collecting samples accounted for a large majority of unacceptable samples. In most cases the information provided by the sample takers was used as the basis for deciding whether or not specified guidelines were followed.

Occasionally a flask sample was collected correctly, but during analysis for methane one of the individual aliquots was classified as unacceptable because of an unscheduled interruption of the analysis cycle. An example of such an interruption was the occasional loss of communication between the 3392A integrator and the 85-B computer. In such a case the aliquots that were unaffected by the interruption were retained in the tabulation, but the affected ones were not.

Alert, Canada (ALT)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 JAN 86	1926	1744.7	1.6	2	900-83	1	P	C4	13 FEB 86	
14 JAN 86	1940	1775.9	0.0	2	910-83	1	P	C4	12 FEB 86	
20 JAN 86	1917	1751.9	1.3	2	846-83	1	P	C4	13 MAR 86	
27 JAN 86	1912	1761.8	-2.4	2	866-83	1	P	C4	11 MAR 86	
10 FEB 86	2035	1761.5	-.9	2	840-82	1	P	C4	18 APR 86	
17 FEB 86	1940	1744.5	1.6	2	196-85	1	P	C4	18 APR 86	
24 FEB 86	2014	1735.2	-1.1	2	244-83	1	P	C4	22 APR 86	
03 MAR 86	1948	1789.5	-.3	2	296-82	1	P	C4	22 APR 86	
17 MAR 86	1934	1781.0	6.2	2	1498-82	1	P	C4	01 MAY 86	
25 MAR 86	1951	1764.7	-2.0	2	780-83	1	P	C4	01 MAY 86	
31 MAR 86	2010	1744.2	-1.7	2	252-85	1	P	C4	10 JUN 86	
04 APR 86	0001	1741.6	-2.9	2	2003-86	5	T	C4	31 MAY 86	
05 APR 86	0000	1741.8	12.2	4	2007-86	5	T	C4	30 MAY 86	
05 APR 86	0002	1742.7	16.9	4	2008-86	5	T	C4	30 MAY 86	
05 APR 86	1204	1743.4	1.3	2	2010-86	5	T	C4	31 MAY 86	
06 APR 86	0004	1753.9	-4.4	2	2012-86	5	T	C4	31 MAY 86	
06 APR 86	1201	1742.7	-2.9	2	2013-86	5	T	C4	31 MAY 86	
07 APR 86	2120	1762.0	-3.9	2	790-83	1	P	C4	10 JUN 86	
09 APR 86	1201	1758.0	1.4	2	2025-86	5	T	C4	31 MAY 86	
10 APR 86	0003	1763.1	-.2	2	2028-86	5	T	C4	31 MAY 86	
14 APR 86	2030	1759.5	3.7	2	51-85	1	P	C4	10 JUN 86	
15 APR 86	0000	1753.1	.8	2	2056-86	5	T	C4	01 JUN 86	
16 APR 86	1201	1768.8	-2.0	2	2062-86	5	T	C4	01 JUN 86	
18 APR 86	1202	1807.5		1	2070-86	5	T	C4	01 JUN 86	+
19 APR 86	0004	1750.5	1.5	2	2072-86	5	T	C4	01 JUN 86	
19 APR 86	1202	1751.5	-2.0	2	2074-86	5	T	C4	01 JUN 86	
21 APR 86	1235	1753.7	.6	2	2078-86	5	T	C4	01 JUN 86	
21 APR 86	1649	1750.8	-4.0	2	548-83	1	P	C4	10 JUN 86	
21 APR 86	1852	1754.8	2.1	2	170-85	1	P	C4	10 JUN 86	
28 APR 86	1909	1755.3	-2.3	2	1734-82	1	P	C4	10 JUN 86	
05 MAY 86	1906	1756.7	2.7	2	906-83	1	P	C4	10 JUN 86	
12 MAY 86	2157	1748.1	0.0	2	1192-82	1	P	C4	10 JUN 86	
19 MAY 86	1943	1737.0	-.2	2	892-83	1	P	C4	30 JUL 86	
26 MAY 86	1948	1734.0	-2.9	2	522-83	1	P	C4	30 JUL 86	
09 JUN 86	2000	1740.4	-1.5	2	760-83	1	P	C4	05 AUG 86	
16 JUN 86	2016	1711.8	-.7	2	922-83	1	P	C4	04 AUG 86	
23 JUN 86	1900	1716.6	-2.6	2	1526-82	1	P	C4	04 AUG 86	
30 JUN 86	1918	1710.0	-2.6	2	8-83	1	P	C4	19 SEP 86	
07 JUL 86	1942	1722.6	.7	2	1410-82	1	P	C4	19 SEP 86	
21 JUL 86	1905	1718.9		1	872-83	1	P	C4	19 SEP 86	
28 JUL 86	1948	1710.9	4.3	2	1650-82	1	P	C4	11 SEP 86	
04 AUG 86	1956	1703.2	-6.6	2	976-83	1	P	C4	11 SEP 86	
11 AUG 86	2020	1708.4	-4.7	2	12-85	1	P	C4	30 SEP 86	
18 AUG 86	1903	1713.6	0.0	2	1498-82	1	P	C4	25 SEP 86	
25 AUG 86	2000	1748.9	-2.2	2	560-85	1	P	C4	08 OCT 86	
08 SEP 86	2258	1715.7	-8.0	2	20-85	1	P	C4	20 OCT 86	
15 SEP 86	2055	1728.9	1.3	2	756-83	1	P	C4	20 OCT 86	
20 OCT 86	1917	1749.8	5.6	2	188-83	1	P	C4	10 DEC 86	
27 OCT 86	2123	1782.8	4.5	2	550-85	1	P	C4	09 DEC 86	
03 NOV 86	2058	1768.1	-6.6	2	98-85	1	P	C4	09 DEC 86	
10 NOV 86	2103	1750.3	1.9	2	674-83	1	P	C4	10 DEC 86	
17 NOV 86	2112	1740.9	.3	2	1006-82	1	P	C4	15 JAN 87	
24 NOV 86	2049	1750.0	1.6	2	196-83	1	P	C4	15 JAN 87	
01 DEC 86	2144	1744.8	-7.4	2	34-85	1	P	C4	15 JAN 87	
08 DEC 86	1842	1734.1	-3.8	2	778-83	1	P	C4	15 JAN 87	
15 DEC 86	1751	1734.9	4.8	2	304-83	1	P	C4	22 JAN 87	
22 DEC 86	1754	1737.2	5.1	2	414-83	1	P	C4	22 JAN 87	
29 DEC 86	1852	1736.7	-3.5	2	60-85	1	P	C4	03 FEB 87	
06 JAN 87	1813	1752.8	-2.2	2	302-83	1	P	C4	03 FEB 87	
13 JAN 87	1822	1771.2	-3.4	2	178-85	1	P	C4	24 FEB 87	
19 JAN 87	2131	1752.9	1.6	2	192-85	1	P	C4	24 FEB 87	
26 JAN 87	1817	1741.1	-3.3	2	144-85	1	P	C4	04 MAR 87	
02 FEB 87	1749	1757.0	0.0	2	424-85	1	P	C4	04 MAR 87	
09 FEB 87	1804	1757.5	-1.1	2	760-83	1	P	C4	24 MAR 87	

Alert, Canada (ALT)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
16 FEB 87	1806	1755.2	8.7	2	1186-82	1	P	C4	24 MAR 87	
23 FEB 87	1754	1759.9	1.0	2	624-85	1	P	C4	22 APR 87	
02 MAR 87	1800	1743.9	5.2	2	708-83	1	P	C4	22 APR 87	
09 MAR 87	1801	1755.4	-5.0	2	68-85	1	P	C4	22 APR 87	
16 MAR 87	1801	1768.2	-.8	2	252-85	1	P	C4	22 APR 87	
23 MAR 87	1803	1771.7		1	354-83	1	P	C4	30 APR 87	
30 MAR 87	1800	1767.4	-1.2	2	708-85	1	P	C4	30 APR 87	
06 APR 87	1800	1743.7	4.3	2	303-83	1	P	C4	21 MAY 87	
13 APR 87	1802	1748.6	-4.7	2	871-83	1	P	C4	21 MAY 87	
20 APR 87	1804	1751.2	-8.9	2	12-83	1	P	C4	01 JUN 87	
27 APR 87	1802	1752.0	.2	2	228-83	1	P	C4	01 JUN 87	
04 MAY 87	1801	1753.0	-2.0	2	415-83	1	P	C4	15 JUN 87	
04 MAY 87	1801	1751.6		1	416-83	1	P	C4	15 JUN 87	
11 MAY 87	1806	1759.2	-10.0	2	508-82	1	P	C4	15 JUN 87	
18 MAY 87	1803	1757.0	-3.1	2	8-85	1	P	C4	23 JUN 87	
25 MAY 87	9999	1738.6	-4.0	2	504-83	1	P	C4	23 JUN 87	
01 JUN 87	1802	1738.0	9.4	2	414-83	1	P	C4	08 JUL 87	
08 JUN 87	1803	1745.4	-10.4	3	718-83	1	P	C4	08 JUL 87	
15 JUN 87	1802	1730.1	-2.7	2	42-85	1	P	C4	17 JUL 87	
22 JUN 87	1802	1734.2	-.5	2	556-85	1	P	C4	22 JUL 87	
22 JUN 87	9999	1721.4	3.9	2	242-83	1	P	C4	30 JUL 87	
06 JUL 87	1801	1723.0	5.2	2	816-85	1	P	C4	30 JUL 87	
13 JUL 87	1801	1732.5	.2	2	660-85	1	P	C4	02 SEP 87	
20 JUL 87	1802	1736.2	3.7	2	782-85	1	P	C4	02 SEP 87	
27 JUL 87	1803	1733.0	-.8	2	762-85	1	P	C4	15 SEP 87	
03 AUG 87	1802	1723.8	-8.5	2	818-85	1	P	C4	15 SEP 87	
10 AUG 87	1804	1728.9	2.1	2	1028-82	1	P	C4	15 SEP 87	
17 AUG 87	1802	1743.2	-6.9	2	768-85	1	P	C4	15 SEP 87	
24 AUG 87	1803	1733.1	-2.8	2	366-85	1	P	C4	06 OCT 87	
31 AUG 87	1803	1742.4	3.3	2	708-85	1	P	C4	08 OCT 87	
07 SEP 87	1805	1744.7	.9	2	932-82	1	P	C4	06 OCT 87	
14 SEP 87	1805	1750.9	7.1	2	90-83	1	P	C4	06 OCT 87	
21 SEP 87	1800	1746.9	-1.9	2	288-85	1	P	C4	27 OCT 87	
28 SEP 87	1804	1764.8	-8.9	2	800-85	1	P	C4	27 OCT 87	
05 OCT 87	1804	1771.8	7.6	2	385-85	1	P	C4	03 DEC 87	
12 OCT 87	1804	1771.0	10.4	3	110-87	1	P	C4	03 DEC 87	
17 OCT 87	1804	1763.0	-7.9	2	106-87	1	P	C4	03 DEC 87	
26 OCT 87	1909	1761.4	1.5	2	108-87	1	P	C4	03 DEC 87	
02 NOV 87	1806	1758.4	.5	2	376-85	1	P	C4	02 JAN 88	
09 NOV 87	1807	1765.2	5.0	2	746-85	1	P	C4	02 JAN 88	
16 NOV 87	1804	1784.9	6.5	2	536-83	1	P	C4	06 JAN 88	
23 NOV 87	1801	1768.0	-5.5	2	654-85	1	P	C4	06 JAN 88	
30 NOV 87	1807	1769.0	-2.3	2	1172-82	1	P	C4	26 JAN 88	
07 DEC 87	1815	1753.8	-4.4	2	514-83	1	P	C4	26 JAN 88	
14 DEC 87	1852	1778.6	6.9	2	317-83	1	P	C4	19 JAN 88	
21 DEC 87	2050	1783.2	3.2	2	932-83	1	P	C4	19 JAN 88	
28 DEC 87	1835	1753.6	11.9	3	220-85	1	P	C4	04 FEB 88	
04 JAN 88	1807	1751.3	3.5	2	592-85	1	P	C4	04 FEB 88	
11 JAN 88	2355	1762.3	.4	3	210-83	1	P	C4	19 FEB 88	
18 JAN 88	2152	1832.4	-4.3	2	79-85	1	P	C4	24 FEB 88	
18 JAN 88	2152	1828.4		1	80-85	1	P	C4	24 FEB 88	
25 JAN 88	2149	1759.8	5.3	2	74-85	1	P	C4	09 MAR 88	
01 FEB 88	1835	1775.3	5.0	2	704-85	1	P	C4	09 MAR 88	
08 FEB 88	1810	1806.4	-6.6	2	946-81	1	P	C4	10 MAR 88	
15 FEB 88	1807	1764.5	.3	2	690-83	1	P	C4	10 MAR 88	
22 FEB 88	1832	1770.6	2.9	2	230-86	1	P	C4	12 APR 88	
29 FEB 88	1825	1764.9	9.6	2	268-86	1	P	C4	12 APR 88	
07 MAR 88	1805	1781.7	-5.1	2	26-85	1	P	C4	18 APR 88	
14 MAR 88	1835	1754.6	3.9	2	792-85	1	P	C4	18 APR 88	
28 MAR 88	1750	1796.5	-1.2	2	290-86	1	P	C4	16 MAY 88	
04 APR 88	1808	1794.6	3.9	2	292-86	1	P	C4	16 MAY 88	
04 APR 88	1816	1776.5	3.7	2	170-85	1	P	C4	16 MAY 88	
18 APR 88	1802	1763.7	7.9	2	392-86	1	P	C4	16 MAY 88	
25 APR 88	1817	1781.6	2.0	2	114-85	1	P	C4	14 JUN 88	
03 MAY 88	2255	1769.5	-2.6	2	344-85	1	P	C4	14 JUN 88	

Alert, Canada (ALT)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
09 MAY 88	1814	1769.2	-3.4	2	108-85	1	P	C4	20 JUN 88	
17 MAY 88	0338	1758.6	-2.9	2	702-85	1	P	C4	20 JUN 88	
23 MAY 88	2038	1755.3	1.3	2	118-85	1	P	C4	20 JUN 88	
30 MAY 88	1800	1756.3	6.6	2	254-85	1	P	C4	20 JUN 88	
06 JUN 88	1806	1761.1	0.0	2	42-85	1	P	C4	18 JUL 88	
13 JUN 88	1812	1755.1	2.2	2	262-87	1	P	C4	18 JUL 88	
20 JUN 88	1413	1739.6	12.6	3	64-85	1	P	C4	18 AUG 88	
27 JUN 88	1824	1741.7	2.9	2	282-87	1	P	C4	18 AUG 88	
04 JUL 88	1855	1743.6	-6.3	2	196-85	1	P	C4	26 AUG 88	
11 JUL 88	1823	1739.6	7.6	2	286-85	1	P	C4	26 AUG 88	
18 JUL 88	1805	1717.7	-1.8	2	72-85	1	P	C4	30 AUG 88	
25 JUL 88	1805	1729.1	1.0	2	332-85	1	P	C4	30 AUG 88	
01 AUG 88	1804	1727.9	-2.7	2	334-86	1	P	C4	30 AUG 88	
08 AUG 88	1815	1720.5	-5.0	2	526-87	1	P	C4	30 AUG 88	
15 AUG 88	9999	1736.4	.3	2	66-85	1	P	C4	29 SEP 88	
22 AUG 88	1815	1746.3	-5.8	2	362-86	1	P	C4	28 SEP 88	
29 AUG 88	1820	1738.7	1.0	2	73-85	1	P	C4	24 OCT 88	
29 AUG 88	1820	1736.4	-14.6	2	74-85	1	P	C4	20 OCT 88	
06 SEP 88	1810	1754.4	-.2	2	538-87	1	P	C4	24 OCT 88	
13 SEP 88	1820	1753.2	-10.0	3	328-86	1	P	C4	24 OCT 88	
20 SEP 88	1435	1768.9	6.7	2	408-85	1	P	C4	24 OCT 88	
26 SEP 88	1410	1764.5	1.6	2	397-86	1	P	C4	17 NOV 88	
26 SEP 88	1410	1764.1		1	398-86	1	P	C4	17 NOV 88	
07 OCT 88	1658	1786.3	-5.3	2	522-87	1	P	C4	17 NOV 88	
14 OCT 88	1740	1778.7	-2.3	2	118-85	1	P	C4	22 NOV 88	
21 OCT 88	1627	1781.2	2.6	2	236-86	1	P	C4	22 NOV 88	
28 OCT 88	1540	1776.1	0.0	2	92-85	1	P	C4	21 DEC 88	
04 NOV 88	1655	1795.7	1.2	2	258-85	1	P	C4	21 DEC 88	
11 NOV 88	1808	1795.4	2.3	2	90-87	1	P	C4	21 DEC 88	
18 NOV 88	1540	1778.5	-8.2	2	276-85	1	P	C4	21 DEC 88	
25 NOV 88	1755	1764.0	12.8	3	370-81	1	P	C4	27 JAN 89	
02 DEC 88	1658	1805.7	2.5	2	368-81	1	P	C4	27 JAN 89	
23 DEC 88	2100	1766.9	-4.9	4	356-81	1	P	C4	22 FEB 89	
30 DEC 88	1805	1793.2	-13.6	3	358-81	1	P	C4	22 FEB 89	

Note: During the period 04 Apr 86 - 21 Apr 86, the frequency of flask sampling by the AES personnel with their own glass flasks was increased as part of their participation in the second Arctic Gas and Aerosol Sampling Program (AGASP II). A subset of these flask samples was analyzed at NOAA/CMDL, and they appear in this listing as flask type 5, and collection method T. The AES glass flasks were cylindrical in shape, with a volume of approximately 3 liters, and had a single stopcock, but unlike the NOAA/CMDL flask type 5, the AES flasks had a greased stopcock. For such a relatively small number of flasks we did not think it necessary to create a separate classification for this flask type in Table 2.

Amsterdam Island (AMS)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
01 JAN 86	0900	1588.8	4.5	2	508-85	1	P	C4	04 AUG 86	
27 FEB 86	0430	1581.9	-.9	2	560-85	1	P	C4	29 DEC 86	
21 MAR 86	0315	1590.6	-2.0	2	528-85	1	P	C4	23 DEC 86	
13 APR 86	0510	1594.5	3.8	2	514-83	1	P	C4	23 DEC 86	
26 APR 86	0505	1591.7	4.0	2	516-83	1	P	C4	23 DEC 86	
03 MAY 86	0400	1593.2	1.6	2	510-83	1	P	C4	29 DEC 86	
08 MAY 86	0345	1593.3	2.5	2	512-83	1	P	C4	29 DEC 86	
11 MAY 86	0445	1596.0	-2.2	2	506-83	1	P	C4	23 DEC 86	
27 MAY 86	0445	1608.2	-2.8	2	508-83	1	P	C4	23 DEC 86	
12 JUN 86	0355	1606.2	13.3	3	504-83	1	P	C4	11 DEC 86	
17 JUN 86	0420	1603.0	-7.9	2	490-85	1	P	C4	11 DEC 86	
25 JUN 86	0415	1605.7	-7.1	2	492-85	1	P	C4	11 DEC 86	
04 JUL 86	0540	1609.9	2.0	2	496-85	1	P	C4	10 SEP 87	
10 JUL 86	0420	1610.2	-1.4	2	494-85	1	P	C4	10 SEP 87	
15 JUL 86	0445	1608.1	5.7	2	486-85	1	P	C4	10 SEP 87	
23 JUL 86	0400	1606.7	6.8	2	488-85	1	P	C4	09 SEP 87	
14 AUG 86	0415	1615.5	1.8	2	439-83	1	P	C4	11 SEP 87	
14 AUG 86	0415	1625.2		1	440-83	1	P	C4	11 SEP 87	
27 AUG 86	0330	1611.8	-2.0	2	434-83	1	P	C4	10 SEP 87	
31 AUG 86	0350	1615.0	-3.5	2	436-83	1	P	C4	10 SEP 87	
04 SEP 86	0355	1617.7	4.9	2	430-83	1	P	C4	10 SEP 87	
18 SEP 86	0420	1615.8	-2.4	2	432-83	1	P	C4	10 SEP 87	
24 SEP 86	0445	1610.9	-1.9	2	428-83	1	P	C4	10 SEP 87	
14 OCT 86	0440	1612.4	7.3	3	466-83	1	P	C4	09 SEP 87	
23 OCT 86	0410	1614.0	-3.1	2	462-83	1	P	C4	10 SEP 87	
26 OCT 86	0415	1611.3	9.2	2	464-83	1	P	C4	11 SEP 87	
14 NOV 86	0400	1608.8	-.6	3	460-83	1	P	C4	10 SEP 87	
21 DEC 86	0355	1602.4	2.4	2	47-83	1	P	C4	10 SEP 87	
11 JAN 87	0420	1597.3	-1.6	2	238-85	1	P	C4	10 SEP 87	
27 JAN 87	1015	1592.5	2.1	2	218-85	1	P	C4	10 SEP 87	
28 JAN 87	0640	1597.7	-1.6	2	224-85	1	P	C4	10 SEP 87	
01 FEB 87	0545	1592.7	-.2	2	226-85	1	P	C4	10 SEP 87	
04 FEB 87	0540	1595.6	1.5	2	522-85	1	P	C4	10 SEP 87	
13 FEB 87	0540	1587.8	-3.9	2	164-85	1	P	C4	17 NOV 87	
08 JUL 87	1125	1618.6	2.0	2	554-85	1	P	C4	17 NOV 87	
13 JUL 87	0617	1628.3	.4	2	556-85	1	P	C4	17 NOV 87	
21 JUL 87	0545	1623.3	-1.4	2	582-85	1	P	C4	17 NOV 87	
25 JUL 87	0538	1619.3	1.1	2	562-85	1	P	C4	17 NOV 87	
22 NOV 87	0520	1629.7	-1.8	2	536-85	1	P	C4	03 AUG 88	
02 DEC 87	1025	1622.1	-1.2	2	230-85	1	P	C4	02 AUG 88	
09 DEC 87	1305	1620.3	1.2	2	227-85	1	P	C4	02 AUG 88	
11 JAN 88	0640	1598.5		1	262-85	1	P	C4	12 DEC 88	
04 FEB 88	0600	1602.2	-1.4	2	222-87	1	P	C4	09 DEC 88	
27 MAR 88	0542	1605.6	-.6	2	223-87	1	P	C4	13 DEC 88	
28 MAR 88	0600	1600.1		1	218-87	1	P	C4	13 DEC 88	
30 MAR 88	0530	1605.2	2.9	2	220-87	1	P	C4	13 DEC 88	
09 APR 88	0600	1613.7	4.6	2	216-87	1	P	C4	12 DEC 88	
04 JUL 88	0540	1623.1	2.2	2	164-87	1	P	C4	04 AUG 89	
30 JUL 88	0600	1629.1	1.5	2	148-87	1	P	C4	03 AUG 89	
01 AUG 88	0600	1634.2		1	146-87	1	P	C4	03 AUG 89	
05 AUG 88	0615	1635.2	-6.0	2	138-87	1	P	C4	04 AUG 89	
19 AUG 88	0615	1631.8		1	143-87	1	P	C4	02 AUG 89	
21 AUG 88	1120	1631.0	1.2	2	142-87	1	P	C4	02 AUG 89	
31 AUG 88	1030	1634.0		1	193-87	1	P	C4	03 AUG 89	
04 SEP 88	1030	1636.8		1	184-87	1	P	C4	03 AUG 89	
08 SEP 88	1020	1636.9	4.4	2	206-87	1	P	C4	03 AUG 89	
11 SEP 88	1130	1636.9	5.9	2	132-87	1	P	C4	02 AUG 89	
13 SEP 88	1030	1632.8		1	226-87	1	P	C4	03 AUG 89	
15 SEP 88	1115	1633.2	-6.2	2	228-87	1	P	C4	03 AUG 89	
18 SEP 88	1130	1637.8	2.0	2	232-87	1	P	C4	03 AUG 89	
20 SEP 88	0500	1638.0	.3	2	202-87	1	P	C4	02 AUG 89	
27 SEP 88	1010	1636.7	3.4	2	204-86	1	P	C4	02 AUG 89	
09 OCT 88	1045	1636.3	-1.9	2	532-85	1	P	C4	04 AUG 89	
11 OCT 88	1030	1641.4	4.6	2	538-85	1	P	C4	04 AUG 89	

Amsterdam Island (AMS)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
16 OCT 88	1115	1634.8	-.4	2	176-86	1	P	C4	03 AUG 89	
24 DEC 88	0620	1621.4	-3.3	2	12-88	1	P	C4	04 AUG 89	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JAN 86	0920	1596.4	6.6	2	630-82	1	P	C4	04 FEB 86	
07 JAN 86	0945	1602.7	-8.3	3	708-83	1	P	C4	04 FEB 86	
30 JAN 86	0915	1593.4	-4.8	2	354-83	1	P	C4	14 FEB 86	
06 FEB 86	0915	1588.6	-3.9	2	362-82	1	P	C4	18 FEB 86	
13 FEB 86	0917	1597.0	-2.5	2	1314-82	1	P	C4	14 MAR 86	
27 FEB 86	1000	1601.4	.5	2	804-82	1	P	C4	13 MAR 86	
06 MAR 86	0915	1603.2	3.3	2	894-83	1	P	C4	24 MAR 86	
13 MAR 86	1000	1603.7	4.0	2	852-83	1	P	C4	22 APR 86	
20 MAR 86	1415	1597.9	-3.2	2	28-85	1	P	C4	31 MAR 86	
27 MAR 86	1000	1592.6	8.1	3	196-83	1	P	C4	16 APR 86	
03 APR 86	1000	1601.1	2.0	2	296-83	1	P	C4	18 APR 86	
10 APR 86	1530	1623.2		1	958-83	1	P	C4	20 APR 86	
17 APR 86	0930	1611.0	-7.0	2	30-85	1	P	C4	24 APR 86	
24 APR 86	0922	1616.5	-1.8	2	882-82	1	P	C4	09 MAY 86	
01 MAY 86	0917	1617.3		1	862-83	1	P	C4	09 MAY 86	
15 MAY 86	1000	1619.5		1	848-83	1	P	C4	28 MAY 86	
29 MAY 86	1545	1612.4	.4	2	728-85	1	P	C4	10 JUN 86	
05 JUN 86	0915	1630.9	-4.3	2	478-82	1	P	C4	08 AUG 86	
12 JUN 86	1600	1611.7	-4.4	2	680-83	1	P	C4	07 JUL 86	
19 JUN 86	1025	1617.6	1.4	2	718-85	1	P	C4	07 JUL 86	
26 JUN 86	0925	1623.1	-4.1	2	1698-82	1	P	C4	30 JUL 86	
03 JUL 86	0850	1615.1	-1.6	2	1828-82	1	P	C4	30 JUL 86	
10 JUL 86	0936	1615.2	-5.5	2	730-82	1	P	C4	23 JUL 86	
17 JUL 86	0755	1621.5	1.2	2	430-85	1	P	C4	29 JUL 86	
31 JUL 86	0807	1625.4	3.5	2	806-83	1	P	C4	08 AUG 86	
07 AUG 86	0755	1628.7	-.2	2	248-85	1	P	C4	20 SEP 86	
14 AUG 86	0835	1617.4	14.7	3	708-85	1	P	C4	19 SEP 86	
21 AUG 86	0835	1623.2	4.5	2	162-83	1	P	C4	20 SEP 86	
28 AUG 86	0925	1614.6	2.8	2	270-85	1	P	C4	23 SEP 86	
04 SEP 86	0755	1615.2	0.0	2	834-83	1	P	C4	18 SEP 86	
18 SEP 86	1115	1625.5	5.2	2	70-85	1	P	C4	08 OCT 86	
25 SEP 86	1020	1619.3	7.1	2	1080-82	1	P	C4	13 OCT 86	
02 OCT 86	0914	1620.3	-5.6	2	1164-82	1	P	C4	13 OCT 86	
09 OCT 86	1025	1635.6	-9.1	2	502-82	1	P	C4	20 OCT 86	
15 OCT 86	0915	1624.1	0.0	2	422-83	1	P	C4	12 NOV 86	
23 OCT 86	0940	1623.2	-5.6	2	1220-82	1	P	C4	12 NOV 86	
30 OCT 86	0945	1633.6	1.7	2	942-83	1	P	C4	17 NOV 86	
06 NOV 86	0923	1638.5	-3.4	2	34-82	1	P	C4	29 DEC 86	
13 NOV 86	0945	1636.5	-4.4	2	354-83	1	P	C4	23 DEC 86	
21 NOV 86	0920	1625.9	-.9	2	982-81	1	P	C4	09 DEC 86	
27 NOV 86	0920	1617.8	-4.7	2	324-85	1	P	C4	10 DEC 86	
02 DEC 86	1000	1615.3	3.4	2	44-83	1	P	C4	23 DEC 86	
11 DEC 86	1425	1640.6	-.9	2	318-83	1	P	C4	22 DEC 86	
18 DEC 86	0930	1606.8	-.1	2	1172-82	1	P	C4	30 DEC 86	
26 DEC 86	1330	1622.8	-8.5	2	348-85	1	P	C4	09 JAN 87	
01 JAN 87	1115	1611.8	-5.9	2	264-83	1	P	C4	15 JAN 87	
08 JAN 87	0925	1612.0	1.0	2	72-85	1	P	C4	15 JAN 87	
15 JAN 87	0910	1606.5	-6.2	2	400-83	1	P	C4	22 JAN 87	
22 JAN 87	0930	1611.9	-3.0	2	516-83	1	P	C4	03 FEB 87	
29 JAN 87	0920	1616.5	3.5	2	657-83	1	P	C4	11 FEB 87	
04 FEB 87	1045	1627.8	7.2	2	342-85	1	P	C4	18 FEB 87	
12 FEB 87	1020	1603.0	-1.8	2	682-83	1	P	C4	24 FEB 87	
19 FEB 87	0925	1616.4	-1.5	2	50-83	1	P	C4	13 MAR 87	
26 FEB 87	0925	1601.1	-2.5	2	86-85	1	P	C4	13 MAR 87	
05 MAR 87	1000	1613.1	4.3	2	54-85	1	P	C4	13 MAR 87	
12 MAR 87	0945	1614.1	-1.4	2	701-85	1	P	C4	24 MAR 87	
19 MAR 87	1045	1612.7	-2.5	2	75-85	1	P	C4	02 APR 87	
26 MAR 87	0930	1622.2	5.3	2	816-83	1	P	C4	02 APR 87	
02 APR 87	0915	1631.7	3.7	2	46-85	1	P	C4	22 APR 87	
09 APR 87	0920	1615.7	-7.7	2	162-83	1	P	C4	21 APR 87	
16 APR 87	0930	1622.0	-7.3	2	548-83	1	P	C4	30 APR 87	
23 APR 87	0930	1628.7	.6	2	376-85	1	P	C4	30 APR 87	
30 APR 87	0913	1625.9	5.3	2	184-85	1	P	C4	13 MAY 87	
07 MAY 87	0830	1632.0	-1.1	2	780-85	1	P	C4	15 MAY 87	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
14 MAY 87	1030	1645.0	4.5	2	832-85	1	P	C4	26 MAY 87	
21 MAY 87	0938	1629.9	-10.6	3	1272-82	1	P	C4	01 JUN 87	
28 MAY 87	1050	1636.4	-7.3	2	626-85	1	P	C4	09 JUN 87	
04 JUN 87	0935	1633.2	-.3	2	8-83	1	P	C4	15 JUN 87	
11 JUN 87	1015	1633.4	1.8	2	248-83	1	P	C4	30 JUN 87	
18 JUN 87	1020	1636.3	.6	2	310-83	1	P	C4	30 JUN 87	
25 JUN 87	0900	1640.8	-11.1	3	303-83	1	P	C4	08 JUL 87	
02 JUL 87	0937	1629.1	-3.1	2	264-83	1	P	C4	13 JUL 87	
09 JUL 87	0930	1630.5	4.4	2	580-85	1	P	C4	22 JUL 87	
16 JUL 87	0930	1650.4	-2.7	2	828-85	1	P	C4	12 AUG 87	
23 JUL 87	0915	1630.0	5.1	2	228-83	1	P	C4	12 AUG 87	
30 JUL 87	0922	1636.0	-1.1	2	1762-82	1	P	C4	10 AUG 87	
13 AUG 87	0915	1635.9	1.4	2	896-83	1	P	C4	09 SEP 87	
20 AUG 87	0945	1631.2	-10.7	3	676-83	1	P	C4	03 SEP 87	
27 AUG 87	0935	1643.3	4.9	2	696-85	1	P	C4	09 SEP 87	
17 SEP 87	1145	1639.3	-3.1	2	778-83	1	P	C4	30 SEP 87	
24 SEP 87	0814	1632.9	7.3	2	152-85	1	P	C4	06 OCT 87	
01 OCT 87	0915	1629.9	2.9	2	1220-82	1	P	C4	08 OCT 87	
08 OCT 87	1135	1637.3	.9	2	764-85	1	P	C4	27 OCT 87	
15 OCT 87	0805	1639.7	3.8	2	618-85	1	P	C4	26 OCT 87	
22 OCT 87	0948	1626.7	-1.5	2	176-85	1	P	C4	09 NOV 87	
29 OCT 87	1400	1631.3	6.5	2	692-85	1	P	C4	09 NOV 87	
05 NOV 87	0830	1630.6	-.4	2	90-87	1	P	C4	18 NOV 87	
12 NOV 87	1350	1624.4	4.1	2	276-87	1	P	C4	18 NOV 87	
19 NOV 87	1400	1637.6	-7.1	2	380-85	1	P	C4	08 DEC 87	
26 NOV 87	1000	1628.6	-5.6	2	416-85	1	P	C4	08 DEC 87	
03 DEC 87	0900	1619.2	-8.9	2	276-86	1	P	C4	02 JAN 88	
12 DEC 87	0830	1623.8	-7.4	2	558-87	1	P	C4	31 DEC 87	
17 DEC 87	1300	1623.8	-2.2	2	314-85	1	P	C4	05 JAN 88	
24 DEC 87	0905	1641.2	-1.3	2	104-87	1	P	C4	07 JAN 88	
31 DEC 87	0930	1618.7	1.4	2	156-85	1	P	C4	13 JAN 88	
07 JAN 88	0800	1613.2	-.4	2	324-85	1	P	C4	19 JAN 88	
14 JAN 88	0800	1612.8	3.5	2	396-86	1	P	C4	26 JAN 88	
21 JAN 88	0800	1608.2	-5.5	2	354-86	1	P	C4	03 FEB 88	
28 JAN 88	0900	1612.3	-3.1	2	256-85	1	P	C4	24 FEB 88	
04 FEB 88	0830	1613.8	1.3	2	290-85	1	P	C4	24 FEB 88	
11 FEB 88	0800	1614.6	1.9	2	378-86	1	P	C4	24 FEB 88	
18 FEB 88	0800	1617.4	9.8	2	146-85	1	P	C4	01 MAR 88	
25 FEB 88	0800	1612.6	-6.8	2	244-87	1	P	C4	10 MAR 88	
03 MAR 88	0800	1634.8	-3.3	2	552-87	1	P	C4	23 MAR 88	
10 MAR 88	0830	1634.9	9.5	2	258-85	1	P	C4	23 MAR 88	
17 MAR 88	0900	1625.4	-3.8	2	156-85	1	P	C4	24 MAR 88	
24 MAR 88	0900	1622.1	-6.2	2	332-86	1	P	C4	11 APR 88	
31 MAR 88	0910	1628.2	1.9	2	594-87	1	P	C4	11 APR 88	
07 APR 88	0900	1613.3	1.7	2	400-86	1	P	C4	13 APR 88	
21 APR 88	0900	1622.6	1.0	2	314-85	1	P	C4	13 MAY 88	
28 APR 88	0900	1626.7	-11.0	3	530-87	1	P	C4	16 MAY 88	
05 MAY 88	0905	1645.3	-1.5	2	20-85	1	P	C4	17 MAY 88	
12 MAY 88	0900	1640.9	1.5	2	176-85	1	P	C4	23 MAY 88	
19 MAY 88	0910	1636.5	3.6	2	406-85	1	P	C4	31 MAY 88	
26 MAY 88	0900	1633.3	2.9	2	264-87	1	P	C4	14 JUN 88	
02 JUN 88	0900	1636.8	5.1	2	350-86	1	P	C4	13 JUN 88	
09 JUN 88	0900	1621.5	2.3	2	688-85	1	P	C4	22 JUN 88	
16 JUN 88	0900	1642.4	3.5	2	686-85	1	P	C4	22 JUN 88	
23 JUN 88	0900	1642.6	-3.2	2	356-86	1	P	C4	01 JUL 88	
30 JUN 88	1330	1643.8	.5	2	320-86	1	P	C4	13 JUL 88	
07 JUL 88	0900	1640.3	-5.7	2	380-85	1	P	C4	09 AUG 88	
14 JUL 88	0900	1644.1	5.6	2	530-87	1	P	C4	09 AUG 88	
21 JUL 88	0900	1642.8	1.8	2	258-87	1	P	C4	16 AUG 88	
28 JUL 88	0900	1645.4	-8.7	2	520-87	1	P	C4	10 AUG 88	
04 AUG 88	0900	1640.0	.1	2	240-86	1	P	C4	16 AUG 88	
11 AUG 88	0850	1651.9	2.2	2	798-85	1	P	C4	26 AUG 88	
18 AUG 88	0750	1666.8	-.2	2	584-87	1	P	C4	30 AUG 88	+
01 SEP 88	0800	1651.5	-9.6	2	360-85	1	P	C4	19 SEP 88	
08 SEP 88	0815	1638.9	1.2	2	568-85	1	P	C4	14 OCT 88	

Ascension Island (ASC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
15 SEP 88	0805	1643.3	-3.4	2	296-86	1	P	C4	22 SEP 88	
22 SEP 88	0800	1652.7	-7.0	2	320-86	1	P	C4	29 SEP 88	
29 SEP 88	0810	1642.7	-1.4	2	259-87	1	P	C4	14 OCT 88	
29 SEP 88	0810	1646.7		1	260-87	1	P	C4	11 OCT 88	
06 OCT 88	0800	1651.3	.6	2	262-86	1	P	C4	20 OCT 88	
13 OCT 88	0750	1654.2	7.1	2	16-81	1	P	C4	24 OCT 88	
20 OCT 88	1035	1648.7	4.4	2	107-81	1	P	C4	02 NOV 88	
27 OCT 88	0830	1655.2	-12.8	2	198-81	1	P	C4	04 NOV 88	
03 NOV 88	0800	1639.8	.4	2	302-81	1	P	C4	10 NOV 88	
10 NOV 88	0800	1632.6	-3.0	2	324-81	1	P	C4	22 NOV 88	
17 NOV 88	0930	1643.2	-6.3	2	345-81	1	P	C4	01 DEC 88	
01 DEC 88	0943	1644.4	1.7	2	519-81	1	P	C4	14 DEC 88	
08 DEC 88	0755	1650.4	.9	2	412-81	1	P	C4	21 DEC 88	
12 DEC 88	0900	1634.7	4.8	2	86-81	1	P	C4	10 JAN 89	
15 DEC 88	0830	1640.4	-7.1	2	160-81	1	P	C4	06 JAN 89	
26 DEC 88	0945	1636.5	-14.2	3	666-81	1	P	C4	24 JAN 89	

St. Croix, Virgin Islands (AVI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 JAN 86	2015	1678.3	5.2	2	624-83	1	P	C3	10 JAN 86	
10 JAN 86	2200	1676.9	2.6	2	508-82	1	P	C4	11 FEB 86	
17 JAN 86	1545	1688.3	6.7	2	1540-82	1	P	C4	03 FEB 86	
23 JAN 86	1550	1680.8		1	730-85	1	P	C4	29 JAN 86	
03 FEB 86	1900	1682.9	2.3	2	1742-82	1	P	C4	11 FEB 86	
07 FEB 86	2000	1703.1	4.8	2	240-85	1	P	C4	12 FEB 86	
14 FEB 86	1930	1672.1	-6.5	2	1630-82	1	P	C4	19 FEB 86	
08 MAR 86	2200	1693.9	-2.9	2	914-83	1	P	C4	21 MAR 86	
16 MAR 86	1920	1672.7	2.4	2	756-83	1	P	C4	21 MAR 86	
23 MAR 86	2010	1694.8	.1	2	1042-82	1	P	C4	01 APR 86	
02 APR 86	1930	1673.2		1	1552-82	1	P	C4	21 APR 86	
02 APR 86	1930	1671.8		1	1552-82	1	P	C4	22 APR 86	
11 APR 86	2050	1658.2	7.4	2	32-85	1	P	C4	18 APR 86	
25 APR 86	2130	1681.5	4.1	2	1540-82	1	P	C4	01 MAY 86	
05 MAY 86	1525	1674.6	.8	2	1376-82	1	P	C4	14 MAY 86	
12 MAY 86	2125	1655.4	.1	2	318-83	1	P	C4	31 MAY 86	
16 MAY 86	2200	1662.1	.6	2	888-83	1	P	C4	28 MAY 86	
19 MAY 86	2030	1658.4	.2	2	128-83	1	P	C4	12 JUN 86	
26 MAY 86	1500	1667.5	-4.9	2	1308-82	1	P	C4	11 JUN 86	
05 JUN 86	1550	1657.6	1.2	2	866-83	1	P	C4	12 JUN 86	
10 JUN 86	1545	1672.1	6.2	2	50-85	1	P	C4	07 AUG 86	
14 JUN 86	2230	1668.4	4.4	2	34-85	1	P	C4	09 AUG 86	
20 JUN 86	1545	1662.8	5.8	2	868-83	1	P	C4	08 AUG 86	
27 JUN 86	2230	1667.3	7.8	2	630-83	1	P	C4	08 JUL 86	
05 JUL 86	1700	1676.2	-4.1	2	136-83	1	P	C4	30 JUL 86	
14 JUL 86	1210	1662.0	1.2	2	627-85	1	P	C4	29 JUL 86	
18 JUL 86	2000	1664.1	5.4	2	622-83	1	P	C4	29 JUL 86	
26 JUL 86	1815	1655.9	4.6	2	706-85	1	P	C4	04 AUG 86	
02 AUG 86	1530	1658.0	0.0	2	316-85	1	P	C4	24 AUG 86	
09 AUG 86	1345	1668.7	-1.3	2	368-85	1	P	C4	18 SEP 86	
20 AUG 86	1815	1649.6	-3.8	2	716-85	1	P	C4	30 SEP 86	
25 AUG 86	2100	1665.0	-3.5	2	30-85	1	P	C4	11 SEP 86	
30 AUG 86	1720	1661.8	-3.9	2	922-83	1	P	C4	20 SEP 86	
14 SEP 86	1825	1654.6	-6.2	2	664-83	1	P	C4	19 SEP 86	
19 SEP 86	2045	1659.0	2.2	2	1203-82	1	P	C4	09 OCT 86	
19 SEP 86	2045	1654.5		1	1204-82	1	P	C4	08 OCT 86	
27 SEP 86	1845	1661.6	-6.8	2	842-85	1	P	C4	08 OCT 86	
03 OCT 86	2130	1668.4	3.8	2	946-83	1	P	C4	14 OCT 86	
11 OCT 86	2050	1670.9	3.4	2	178-82	1	P	C4	20 OCT 86	
17 OCT 86	2105	1680.4	-15.3	3	658-83	1	P	C4	12 NOV 86	
25 OCT 86	1925	1659.4	3.1	2	802-83	1	P	C4	12 NOV 86	
31 OCT 86	2110	1676.1	5.0	2	314-85	1	P	C4	14 NOV 86	
07 NOV 86	2110	1671.4	-3.1	2	342-85	1	P	C4	17 NOV 86	
15 NOV 86	1920	1690.9	.6	2	796-83	1	P	C4	23 DEC 86	
22 NOV 86	1545	1707.0	7.6	2	560-85	1	P	C4	08 DEC 86	
26 NOV 86	2030	1691.1	.5	2	50-85	1	P	C4	10 DEC 86	
05 DEC 86	2105	1687.8	3.9	2	780-83	1	P	C4	23 DEC 86	
12 DEC 86	2120	1692.6	-10.5	2	908-83	1	P	C4	22 DEC 86	
18 DEC 86	2001	1680.4	8.6	2	942-83	1	P	C4	29 DEC 86	
24 DEC 86	1415	1695.9	3.7	2	1546-82	1	P	C4	30 DEC 86	
07 JAN 87	1355	1730.4	-9.1	2	405-83	1	P	C4	09 JAN 87	
14 JAN 87	1750	1675.4	-.8	2	418-83	1	P	C4	22 JAN 87	
23 JAN 87	1530	1689.6	-2.6	2	38-85	1	P	C4	04 FEB 87	
29 JAN 87	1940	1677.5	2.7	2	962-83	1	P	C4	03 FEB 87	
08 FEB 87	1600	1681.7	-.1	2	385-85	1	P	C4	18 FEB 87	
13 FEB 87	1405	1673.6	-4.4	2	744-83	1	P	C4	24 FEB 87	
20 FEB 87	1545	1682.5	-2.5	2	120-84	1	P	C4	05 MAR 87	
27 FEB 87	1450	1713.9	-2.1	2	566-85	1	P	C4	13 MAR 87	
08 MAR 87	1710	1700.5	1.8	2	588-85	1	P	C4	24 MAR 87	
13 MAR 87	2105	1718.9	.4	2	368-85	1	P	C4	24 MAR 87	
20 MAR 87	2015	1662.0	5.3	2	136-85	1	P	C4	25 MAR 87	
29 MAR 87	1755	1717.1	1.0	2	642-83	1	P	C4	08 APR 87	
04 APR 87	1507	1684.2	-3.7	2	526-85	1	P	C4	22 APR 87	
09 APR 87	2055	1667.0	2.2	2	288-85	1	P	C4	21 APR 87	

St. Croix, Virgin Islands (AVI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date
19 APR 87	2305	1682.1	1.3	2	1546-82	1	P	C4	28 APR 87
26 APR 87	1345	1680.3	1.4	2	75-85	1	P	C4	05 MAY 87
02 MAY 87	1529	1684.1	-1.3	2	506-83	1	P	C4	13 MAY 87
02 MAY 87	1529	1689.0	-7.0	2	506-83	1	P	C4	01 JUN 87
10 MAY 87	2213	1687.4	1.4	2	292-85	1	P	C4	21 MAY 87
17 MAY 87	1832	1669.4	7.5	2	792-85	1	P	C4	26 MAY 87
24 MAY 87	2041	1673.0	7.7	2	820-85	1	P	C4	09 JUN 87
31 MAY 87	9999	1672.3	-3.1	2	801-85	1	P	C4	09 JUN 87
09 JUN 87	1550	1675.8	.1	2	1498-82	1	P	C4	18 JUN 87
17 JUN 87	1700	1691.3	-3.6	2	400-83	1	P	C4	23 JUN 87
25 JUN 87	1300	1679.3	-1.0	2	920-82	1	P	C4	30 JUN 87
03 JUL 87	1340	1678.4	-1.4	2	618-85	1	P	C4	08 JUL 87
10 JUL 87	1450	1664.4	.8	2	156-82	1	P	C4	13 JUL 87
17 JUL 87	1705	1679.5	5.9	2	880-83	1	P	C4	22 JUL 87
24 JUL 87	1720	1666.3	2.5	2	760-85	1	P	C4	30 JUL 87
31 JUL 87	1218	1697.8	4.4	2	906-82	1	P	C4	11 AUG 87
13 AUG 87	2025	1667.5	2.6	2	374-85	1	P	C4	02 SEP 87
20 AUG 87	1318	1685.4	-4.1	2	776-85	1	P	C4	03 SEP 87
28 AUG 87	1523	1675.4	.3	2	291-85	1	P	C4	11 SEP 87
03 SEP 87	1314	1675.7	3.0	2	876-83	1	P	C4	11 SEP 87
10 SEP 87	1437	1682.3	5.9	2	908-83	1	P	C4	15 SEP 87
14 SEP 87	1428	1680.1	-.5	2	318-86	1	P	C4	24 SEP 87
25 SEP 87	1722	1670.2	-1.7	2	122-85	1	P	C4	30 SEP 87
02 OCT 87	1831	1680.2	4.2	2	101-87	1	P	C4	26 OCT 87
08 OCT 87	1729	1687.6	-.5	2	439-83	1	P	C4	26 OCT 87
19 OCT 87	1658	1650.1	1.1	2	238-86	1	P	C4	26 OCT 87
29 OCT 87	9999	1679.5	5.1	2	262-87	1	P	C4	09 NOV 87
06 NOV 87	1918	1640.1	-9.2	2	332-85	1	P	C4	10 NOV 87
13 NOV 87	2015	1682.7	2.0	2	298-87	1	P	C4	24 NOV 87
20 NOV 87	1949	1721.7	-1.9	2	160-85	1	P	C4	08 DEC 87
27 NOV 87	2016	1693.9	2.2	2	258-85	1	P	C4	03 DEC 87
03 DEC 87	1622	1701.2	-5.3	2	538-87	1	P	C4	08 DEC 87
11 DEC 87	1608	1685.9	-.2	2	96-87	1	P	C4	04 JAN 88
18 DEC 87	2120	1701.8	3.3	2	94-87	1	P	C4	04 JAN 88
23 DEC 87	1540	1722.1	-.4	2	450-85	1	P	C4	04 JAN 88
05 JAN 88	1301	1705.3	4.4	2	550-87	1	P	C4	13 JAN 88
11 JAN 88	1320	1712.8	-3.0	2	386-85	1	P	C4	19 JAN 88
21 JAN 88	2143	1713.7	-.6	2	190-85	1	P	C4	03 FEB 88
26 JAN 88	1812	1686.8	-8.4	2	240-87	1	P	C4	03 FEB 88
02 FEB 88	1510	1715.5	-.1	2	412-86	1	P	C4	18 FEB 88
10 FEB 88	1323	1698.2	2.6	2	365-86	1	P	C4	26 FEB 88
16 FEB 88	1710	1695.3	-3.2	2	370-86	1	P	C4	26 FEB 88
22 FEB 88	1930	1697.9	-8.6	2	164-85	1	P	C4	02 MAR 88
29 FEB 88	1410	1727.7	5.9	2	144-85	1	P	C4	10 MAR 88
07 MAR 88	1445	1713.2	-1.5	2	390-86	1	P	C4	10 MAR 88
15 MAR 88	1555	1691.1	1.5	2	292-85	1	P	C4	13 APR 88
23 MAR 88	1400	1721.1	2.3	2	404-86	1	P	C4	08 APR 88
30 MAR 88	1735	1722.4	-6.5	2	120-85	1	P	C4	12 APR 88
06 APR 88	1300	1702.5	5.3	2	96-87	1	P	C4	18 APR 88
11 APR 88	2100	1676.3	-1.9	2	592-87	1	P	C4	22 APR 88
18 APR 88	1315	1693.7	10.7	2	372-85	1	P	C4	27 APR 88
25 APR 88	1815	1699.9	4.8	2	390-86	1	P	C4	04 MAY 88
02 MAY 88	1945	1698.8	10.4	3	126-87	1	P	C4	16 MAY 88
11 MAY 88	1915	1686.6	4.7	2	144-85	1	P	C4	17 MAY 88
18 MAY 88	1900	1691.6	-9.6	2	416-86	1	P	C4	01 JUN 88
24 MAY 88	1833	1691.4	-.6	2	78-87	1	P	C4	14 JUN 88
08 JUN 88	1800	1683.1	-5.5	2	356-85	1	P	C4	15 JUN 88
14 JUN 88	1734	1685.4	1.1	2	224-86	1	P	C4	22 JUN 88
28 JUN 88	1513	1685.9	-16.4	3	650-85	1	P	C4	13 JUL 88
21 JUL 88	2023	1680.9	4.8	2	292-87	1	P	C4	16 AUG 88
27 JUL 88	2200	1680.9	3.0	2	376-85	1	P	C4	10 AUG 88
02 AUG 88	1300	1677.6	-2.0	2	120-85	1	P	C4	17 AUG 88
11 AUG 88	1256	1694.1	.9	2	225-86	1	P	C4	31 AUG 88
11 AUG 88	1256	1688.9		1	226-86	1	P	C4	26 AUG 88
17 AUG 88	2208	1697.1	2.4	2	296-87	1	P	C4	30 AUG 88

St. Croix, Virgin Islands (AVI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
25 AUG 88	2300	1686.1	3.3	2	288-87	1	P	C4	31 AUG 88	
31 AUG 88	2106	1694.3	-3.7	2	84-85	1	P	C4	16 SEP 88	
08 SEP 88	2250	1686.0	-.1	2	324-86	1	P	C4	16 SEP 88	
15 SEP 88	1750	1685.7	9.1	2	412-86	1	P	C4	22 SEP 88	
21 SEP 88	2110	1680.1	-.8	2	280-87	1	P	C4	29 SEP 88	
28 SEP 88	2120	1668.4	2.3	2	264-87	1	P	C4	14 OCT 88	
06 OCT 88	2355	1693.9	3.9	2	300-86	1	P	C4	20 OCT 88	
20 OCT 88	2100	1687.1	4.7	2	78-81	1	P	C4	02 NOV 88	
26 OCT 88	2206	1691.2	3.5	2	98-81	1	P	C4	04 NOV 88	
02 NOV 88	2215	1652.5	-3.2	2	190-81	1	P	C4	17 NOV 88	+
08 NOV 88	2135	1708.4	-3.1	2	325-81	1	P	C4	22 NOV 88	
22 NOV 88	1217	1691.0	5.7	2	438-81	1	P	C4	07 DEC 88	
29 NOV 88	1306	1733.4	8.7	2	556-81	1	P	C4	14 DEC 88	
07 DEC 88	1129	1722.0	24.0	2	34-81	1	P	C4	21 DEC 88	
15 DEC 88	2100	1715.5	1.7	2	624-81	1	P	C4	04 JAN 89	
20 DEC 88	2058	1720.8	5.3	2	318-81	1	P	C4	09 JAN 89	
23 DEC 88	2215	1710.2	-2.6	2	637-81	1	P	C4	09 JAN 89	
29 DEC 88	2028	1719.5	2.4	2	636-81	1	P	C4	09 JAN 89	

Azores (AZR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
29 JAN 86	2000	1717.2	.3	2	1646-82	1	P	C4	18 FEB 86	
31 JAN 86	2000	1730.1		1	502-82	1	P	C4	19 FEB 86	
19 MAR 86	1000	1694.3	-1.2	2	1304-82	1	P	C4	12 JUN 86	
30 MAY 86	1750	1705.2	3.9	2	24-85	1	P	C4	29 JUL 86	
14 JUN 86	1855	1705.8	-4.3	2	32-85	1	P	C4	29 JUL 86	
05 AUG 86	2055	1705.6	-3.7	2	630-83	1	P	C4	18 SEP 86	
16 AUG 86	2050	1710.1	2.1	2	212-85	1	P	C4	19 SEP 86	
28 AUG 86	1955	1709.1	2.2	2	646-83	1	P	C4	19 SEP 86	
17 DEC 86	1000	1726.1	7.4	2	67-85	1	P	C4	29 DEC 86	
12 JAN 87	1030	1754.9	2.3	3	676-83	1	P	C4	03 FEB 87	
22 JAN 87	1620	1719.6	-3.2	2	548-83	1	P	C4	18 FEB 87	
26 JAN 87	1430	1751.4	-5.6	2	270-85	1	P	C4	18 FEB 87	
06 FEB 87	1115	1725.1	-.4	2	754-83	1	P	C4	24 FEB 87	
13 FEB 87	1030	1731.5	-6.2	2	717-85	1	P	C4	24 FEB 87	
21 FEB 87	1030	1723.6	-7.4	2	80-85	1	P	C4	04 MAR 87	
26 FEB 87	1030	1724.1	-1.4	2	946-81	1	P	C4	04 MAR 87	
12 MAR 87	1030	1728.1	-.4	2	106-85	1	P	C4	21 APR 87	
05 APR 87	0800	1737.8	-6.3	2	412-85	1	P	C4	13 MAY 87	
26 APR 87	1535	1730.0	-10.6	3	410-85	1	P	C4	13 MAY 87	
16 JUN 87	1400	1721.6	-5.1	2	416-85	1	P	C4	08 JUL 87	
25 JUN 87	1330	1686.2	3.5	2	414-85	1	P	C4	08 JUL 87	
03 JUL 87	1630	1718.5	-3.5	2	528-85	1	P	C4	12 AUG 87	
16 JUL 87	1030	1701.6	5.5	2	420-85	1	P	C4	30 JUL 87	
24 JUL 87	1255	1729.0	-1.7	2	417-85	1	P	C4	30 JUL 87	
06 AUG 87	1230	1685.7	8.8	2	320-85	1	P	C4	09 SEP 87	
14 AUG 87	1433	1675.4	2.8	2	56-85	1	P	C4	30 SEP 87	
31 AUG 87	1430	1718.6	-4.3	2	508-85	1	P	C4	30 SEP 87	
18 SEP 87	1427	1733.1	10.6	3	164-85	1	P	C4	30 SEP 87	
09 OCT 87	1330	1730.6	5.5	2	657-83	1	P	C4	28 OCT 87	
23 OCT 87	1350	1751.5	4.2	2	1586-82	1	P	C4	27 OCT 87	
05 NOV 87	1535	1743.1	-4.7	2	278-83	1	P	C4	18 NOV 87	
20 NOV 87	0950	1739.5	-7.1	2	556-85	1	P	C4	08 DEC 87	
04 DEC 87	1450	1750.7	-7.5	2	238-87	1	P	C4	31 DEC 87	
18 DEC 87	1545	1738.8	3.0	2	290-85	1	P	C4	02 JAN 88	
31 DEC 87	1243	1752.9	4.8	2	236-87	1	P	C4	13 JAN 88	
16 JAN 88	1230	1745.4	1.6	2	562-87	1	P	C4	04 FEB 88	
29 JAN 88	1143	1731.2	-.4	2	242-86	1	P	C4	19 FEB 88	
12 FEB 88	0953	1723.6	-11.5	3	246-87	1	P	C4	26 FEB 88	
29 FEB 88	1140	1732.7	-2.0	2	126-87	1	P	C4	10 MAR 88	
14 MAR 88	9999	1735.8	4.8	2	268-87	1	P	C4	24 MAR 88	
25 MAR 88	1600	1731.2	1.9	2	174-85	1	P	C4	12 APR 88	
08 APR 88	1120	1752.9	-.4	2	266-85	1	P	C4	18 APR 88	
29 APR 88	1430	1757.7	-5.8	2	318-86	1	P	C4	16 MAY 88	
13 MAY 88	0938	1738.4	5.5	2	346-85	1	P	C4	23 MAY 88	
27 MAY 88	1402	1736.7	-7.3	2	704-85	1	P	C4	15 JUN 88	
15 JUN 88	1108	1791.1	-9.5	2	190-85	1	P	C4	28 JUN 88	+
01 JUL 88	0913	1707.8	-4.6	2	500-85	1	P	C4	18 JUL 88	
20 JUL 88	1405	1699.5	-7.2	2	122-87	1	P	C4	11 AUG 88	
12 AUG 88	1404	1702.1	.7	2	592-85	1	P	C4	09 SEP 88	
02 SEP 88	1304	1699.6	-5.1	2	113-87	1	P	C4	16 SEP 88	
17 SEP 88	1217	1738.7	-1.4	2	118-87	1	P	C4	28 SEP 88	
30 SEP 88	1235	1749.8	3.3	2	356-85	1	P	C4	11 OCT 88	
14 OCT 88	1425	1750.5	18.0	3	288-86	1	P	C4	02 NOV 88	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
15 JAN 86	0542	1738.1	.8	2	2836-85	1	P	C4	03 FEB 86	
21 JAN 86	2335	1746.9	-1.0	2	2832-85	1	P	C4	03 FEB 86	
05 FEB 86	0059	1761.7	-1.3	2	2838-85	1	P	C4	18 FEB 86	
19 FEB 86	0050	1781.3	-2.4	2	2836-85	1	P	C4	27 FEB 86	
25 FEB 86	2142	1763.0	-4.4	2	2862-85	1	P	C4	14 MAR 86	
04 MAR 86	0345	1791.0	1.5	2	2893-85	6	P	C4	14 MAR 86	
12 MAR 86	0247	1793.1	-2.1	2	2804-85	1	P	C4	20 APR 86	
21 MAR 86	0040	1777.4	1.4	2	2888-85	1	P	C4	01 APR 86	
02 APR 86	0119	1761.1	-5.9	2	2812-85	1	P	C4	16 APR 86	
08 APR 86	2041	1774.2	1.3	2	2852-85	1	P	C4	18 APR 86	
15 APR 86	2246	1752.3	4.2	2	2864-85	1	P	C4	22 APR 86	
28 APR 86	2345	1753.8	.3	2	2818-85	1	P	C4	09 MAY 86	
04 MAY 86	2250	1743.5	-5.8	2	2846-85	1	P	C4	09 MAY 86	
28 MAY 86	0030	1729.2	3.4	2	2855-85	6	P	C4	12 JUN 86	
03 JUN 86	2220	1730.7	2.7	2	2867-85	6	P	C4	12 JUN 86	
03 JUN 86	2220	1728.2		1	2868-85	1	P	C4	12 JUN 86	
11 JUN 86	0045	1728.4		1	2803-85	6	P	C4	07 AUG 86	
11 JUN 86	0045	1729.8		1	2804-85	1	P	C4	07 AUG 86	
21 JUN 86	0023	1719.9	-3.0	2	2849-85	6	P	C4	22 JUL 86	
21 JUN 86	0023	1722.9	4.6	2	2850-85	1	P	C4	08 JUL 86	
27 JUN 86	2155	1740.8	1.3	2	2882-85	1	P	C4	08 JUL 86	
03 JUL 86	2040	1740.0	5.5	2	2865-85	6	P	C4	22 JUL 86	
03 JUL 86	2040	1744.3	-1.2	2	2866-85	1	P	C4	22 JUL 86	
16 JUL 86	0120	1714.7	1.7	2	2841-85	6	P	C4	30 JUL 86	
16 JUL 86	0120	1724.9	4.4	2	2842-85	1	P	C4	30 JUL 86	
23 JUL 86	0126	1719.2		1	2863-85	6	P	C4	07 AUG 86	
23 JUL 86	0126	1718.9		1	2864-85	1	P	C4	07 AUG 86	
05 AUG 86	2135	1714.2		1	2877-85	6	P	C4	08 AUG 86	
05 AUG 86	2135	1709.1		1	2878-85	1	P	C4	08 AUG 86	
13 AUG 86	0005	1741.5		1	2805-85	6	P	C4	24 AUG 86	
13 AUG 86	0005	1740.8		1	2806-85	1	P	C4	24 AUG 86	
20 AUG 86	0040	1717.5	-2.0	2	2816-85	1	P	C4	30 SEP 86	
02 SEP 86	2356	1724.3	5.2	2	2866-85	1	P	C4	18 SEP 86	
09 SEP 86	0105	1731.5	-3.2	2	2818-85	1	P	C4	18 SEP 86	
18 SEP 86	2030	1791.4	-2.6	2	2804-85	1	P	C4	30 SEP 86	
27 SEP 86	2110	1893.8	10.4	2	2842-85	1	P	C4	08 OCT 86	+
10 OCT 86	2350	1771.1	.7	2	2888-85	1	P	C4	20 OCT 86	
17 OCT 86	2252	1906.2	1.9	2	266-83	1	P	C4	22 OCT 86	+
24 OCT 86	2246	1824.8	-3.3	2	106-85	1	P	C4	14 NOV 86	
30 OCT 86	2330	1817.2	-3.5	2	171-83	1	P	C4	14 NOV 86	
15 NOV 86	0040	1744.8	4.0	2	1650-82	1	P	C4	29 DEC 86	
22 NOV 86	0127	1785.3	13.3	2	364-85	1	P	C4	08 DEC 86	
22 NOV 86	0128	1787.4		1	364-85	1	P	C4	09 DEC 86	
29 NOV 86	0032	1761.9	-3.3	2	848-83	1	P	C4	22 DEC 86	
05 DEC 86	0020	1766.5	10.5	2	962-83	1	P	C4	30 DEC 86	
12 DEC 86	2355	1756.3	-5.2	2	1304-82	1	P	C4	30 DEC 86	
20 DEC 86	0100	1757.9	-3.7	2	1114-82	1	P	C4	30 DEC 86	
09 JAN 87	2310	1867.4	3.9	2	292-85	1	P	C4	15 JAN 87	+
17 JAN 87	9999	1741.3	2.2	2	502-83	1	P	C4	03 FEB 87	
24 JAN 87	0052	1780.0	.1	2	12-85	1	P	C4	03 FEB 87	
29 JAN 87	2200	1763.5	-.2	2	506-83	1	P	C4	03 FEB 87	
07 FEB 87	0130	1816.2	3.9	2	398-85	1	P	C4	18 FEB 87	+
19 FEB 87	0040	1785.3	4.7	2	292-85	1	P	C4	04 MAR 87	
28 FEB 87	0220	1774.3	10.5	3	162-83	1	P	C4	13 MAR 87	
07 MAR 87	0233	1751.7	-.5	2	264-83	1	P	C4	13 MAR 87	
13 MAR 87	0123	1798.9	1.8	2	38-85	1	P	C4	24 MAR 87	
18 MAR 87	2332	1791.5	-4.7	2	506-83	1	P	C4	25 MAR 87	
27 MAR 87	2358	1759.6	-2.7	2	312-83	1	P	C4	02 APR 87	
03 APR 87	0225	1769.3	3.6	2	2-83	1	P	C4	22 APR 87	
10 APR 87	0200	1763.5	9.2	2	542-85	1	P	C4	21 APR 87	
21 APR 87	0210	1762.0	-3.5	2	1586-82	1	P	C4	28 APR 87	
02 MAY 87	0130	1756.9	-.4	2	360-85	1	P	C4	13 MAY 87	
09 MAY 87	0127	1762.2	5.0	2	62-85	1	P	C4	21 MAY 87	
09 MAY 87	0128	1760.5	-1.1	2	62-85	1	P	C4	01 JUN 87	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
19 MAY 87	0205	1744.9	5.3	2	342-82	1	P	C4	26 MAY 87	
27 MAY 87	0143	1742.3	-4.9	2	795-85	1	P	C4	09 JUN 87	
07 JUN 87	0115	1732.1	-7.8	2	942-83	1	P	C4	18 JUN 87	
16 JUN 87	0750	1733.1	-5.9	2	34-85	1	P	C4	23 JUN 87	
27 JUN 87	0115	1734.3	.4	2	162-83	1	P	C4	08 JUL 87	
01 JUL 87	2045	1718.1	.4	2	392-85	1	P	C4	08 JUL 87	
14 JUL 87	0045	1749.0	1.6	2	510-83	1	P	C4	22 JUL 87	
26 JUL 87	0140	1744.2	-.3	2	748-85	1	P	C4	12 AUG 87	+
01 AUG 87	2320	1740.5		1	40-85	1	P	C4	11 AUG 87	
07 AUG 87	2357	1738.4	6.6	2	1546-82	1	P	C4	04 SEP 87	
12 AUG 87	2315	1753.9	1.8	2	288-85	1	P	C4	02 SEP 87	
23 AUG 87	0120	1732.7	1.6	2	900-83	1	P	C4	03 SEP 87	+
29 AUG 87	2355	1747.4	7.3	2	826-83	1	P	C4	03 SEP 87	+
05 SEP 87	2250	1753.3	5.3	2	410-85	1	P	C4	15 SEP 87	
15 SEP 87	1945	1801.1	1.6	2	880-83	1	P	C4	24 SEP 87	+
19 SEP 87	1957	1762.9	-4.2	2	446-85	1	P	C4	30 SEP 87	
27 SEP 87	2325	1775.2	3.9	2	120-85	1	P	C4	06 OCT 87	
03 OCT 87	2254	1756.6	1.7	2	600-83	1	P	C4	08 OCT 87	
10 OCT 87	2250	1841.5	-5.1	2	358-85	1	P	C4	27 OCT 87	+
16 OCT 87	2346	1921.7	-3.9	2	240-86	1	P	C4	26 OCT 87	+
20 OCT 87	2333	1756.9	2.2	2	198-85	1	P	C4	27 OCT 87	
31 OCT 87	0255	1761.9	7.5	2	610-85	1	P	C4	09 NOV 87	
09 NOV 87	0418	1754.9	2.8	2	36-85	1	P	C4	17 NOV 87	
15 NOV 87	2354	1770.9	5.1	2	288-87	1	P	C4	24 NOV 87	
20 NOV 87	2350	1769.5	-6.0	2	348-85	1	P	C4	08 DEC 87	
28 NOV 87	2318	1775.8	3.0	2	140-85	1	P	C4	08 DEC 87	
07 DEC 87	0018	1776.1	6.3	2	130-85	1	P	C4	31 DEC 87	
13 DEC 87	0101	1823.2	2.5	2	164-85	1	P	C4	31 DEC 87	+
21 DEC 87	0045	1783.3	-12.0	3	420-85	1	P	C4	02 JAN 88	
30 DEC 87	0230	1757.2	-6.3	2	286-87	1	P	C4	06 JAN 88	
04 JAN 88	0130	1763.7	.4	2	264-87	1	P	C4	07 JAN 88	
09 JAN 88	2348	1770.9	3.3	2	254-85	1	P	C4	19 JAN 88	
16 JAN 88	2355	1831.2	-.9	2	364-85	1	P	C4	26 JAN 88	
22 JAN 88	2342	1786.6	8.2	2	260-87	1	P	C4	03 FEB 88	
01 FEB 88	2355	1787.8	-3.1	2	556-87	1	P	C4	19 FEB 88	
08 FEB 88	2340	1975.3	-4.0	2	418-85	1	P	C4	19 FEB 88	+
16 FEB 88	2337	1853.6		1	324-86	1	P	C4	24 FEB 88	
16 FEB 88	2337	1850.9		1	324-86	1	P	C4	24 FEB 88	
22 FEB 88	2352	1793.8	4.8	2	280-85	1	P	C4	29 FEB 88	
01 MAR 88	0205	1805.5	-.2	2	276-85	1	P	C4	10 MAR 88	
05 MAR 88	2240	1778.4	4.6	2	416-86	1	P	C4	10 MAR 88	
12 MAR 88	0002	1796.5	-4.5	2	532-87	1	P	C4	23 MAR 88	
21 MAR 88	2147	1783.4	-2.9	2	520-87	1	P	C4	24 MAR 88	
25 MAR 88	1728	1794.6	-1.7	2	562-87	1	P	C4	11 APR 88	
28 MAR 88	2155	1788.8	-3.8	2	219-85	1	P	C4	11 APR 88	
09 APR 88	1958	1844.7	1.2	2	746-85	1	P	C4	18 APR 88	+
16 APR 88	2053	1774.6	-6.0	2	146-85	1	P	C4	22 APR 88	
23 APR 88	1950	1771.9	-9.2	2	330-85	1	P	C4	04 MAY 88	
07 MAY 88	0000	1770.3	3.0	2	28-85	1	P	C4	17 MAY 88	
14 MAY 88	2202	1763.4	-2.0	2	328-86	1	P	C4	23 MAY 88	
21 MAY 88	2117	1750.2	-2.5	2	558-87	1	P	C4	01 JUN 88	
28 MAY 88	2235	1758.5	-8.4	2	798-85	1	P	C4	14 JUN 88	
04 JUN 88	2217	1750.6	2.3	2	101-87	1	P	C4	14 JUN 88	+
11 JUN 88	2149	1742.5	-6.8	2	788-85	1	P	C4	20 JUN 88	
20 JUN 88	0126	1742.0	-.9	2	152-85	1	P	C4	22 JUN 88	+
26 JUN 88	2140	1740.8	.9	2	54-85	1	P	C4	01 JUL 88	
10 JUL 88	2240	1756.4	-12.4	3	360-85	1	P	C4	18 JUL 88	
11 JUL 88	2140	1731.4	-7.3	2	346-86	1	P	C4	12 JUL 88	
17 JUL 88	2315	1732.9	4.2	2	548-87	1	P	C4	11 AUG 88	
24 JUL 88	2225	1743.4	-3.0	2	2071-87	3	P	C4	10 AUG 88	
24 JUL 88	2225	1747.4	-2.2	2	2072-87	3	P	C4	10 AUG 88	
25 JUL 88	0007	1748.1	.3	2	408-86	1	P	C4	16 AUG 88	
31 JUL 88	2350	1734.6	-1.5	2	528-87	1	P	C4	10 AUG 88	
08 AUG 88	0126	1775.9	-8.7	2	320-86	1	P	C4	17 AUG 88	+
12 AUG 88	2000	1742.3	-2.4	2	701-85	1	P	C4	18 AUG 88	

Pt. Barrow, Alaska (BRW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
21 AUG 88	2335	1738.9	-1.0	2	552-87	1	P	C4	30 AUG 88	
27 AUG 88	2340	1743.1	-3.2	2	564-87	1	P	C4	09 SEP 88	
06 SEP 88	0145	1766.4	9.0	2	41-85	1	P	C4	19 SEP 88	
06 SEP 88	0145	1763.8		1	42-85	1	P	C4	16 SEP 88	
11 SEP 88	0245	1770.1	-.8	2	546-85	1	P	C4	19 SEP 88	
17 SEP 88	2304	1929.3	2.9	2	82-81	1	P	C4	28 SEP 88	+
06 OCT 88	9999	1770.5	-.8	2	408-86	1	P	C4	20 OCT 88	
17 OCT 88	0050	1782.0	1.7	2	282-85	1	P	C4	20 OCT 88	
20 OCT 88	2257	1773.9	1.9	2	20-81	1	P	C4	27 OCT 88	
20 OCT 88	2315	1770.8	-6.8	2	2236-87	3	P	C4	27 OCT 88	
30 OCT 88	2310	1777.4	1.0	2	89-81	1	P	C4	09 NOV 88	
30 OCT 88	2320	1771.5	2.8	2	2222-87	3	P	C4	17 NOV 88	
07 NOV 88	0303	1782.8	-5.5	2	352-81	1	P	C4	17 NOV 88	
07 NOV 88	0303	1778.2	.9	2	2160-87	3	P	C4	17 NOV 88	
20 NOV 88	9999	1776.8	3.1	2	416-81	1	P	C4	01 DEC 88	
28 NOV 88	0203	1795.0	-1.3	2	68-81	1	P	C4	12 DEC 88	
28 NOV 88	0210	1796.9		1	2238-87	3	P	C4	14 DEC 88	
28 NOV 88	0210	1797.2	-5.5	3	2238-87	3	P	C4	14 DEC 88	
03 DEC 88	0047	1800.5	-8.1	2	2240-87	3	P	C4	14 DEC 88	
11 DEC 88	0044	1802.6	-3.9	2	88-81	1	P	C4	21 DEC 88	
17 DEC 88	0045	1788.4	-3.6	2	662-81	1	P	C4	05 JAN 89	
17 DEC 88	0055	1788.1	-8.4	2	2254-87	3	P	C4	05 JAN 89	
29 DEC 88	0139	1826.6	1.0	2	512-81	1	P	C4	05 JAN 89	
29 DEC 88	0150	1822.5		1	2256-87	3	P	C4	06 JAN 89	

Cold Bay, Alaska (CBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
05 JAN 86	1905	1725.1	1.8	2	628-83	1	P	C3	09 JAN 86	
19 JAN 86	1940	1753.5	-6.2	2	814-83	1	P	C4	03 FEB 86	
26 JAN 86	1945	1773.1	-2.2	2	1650-82	1	P	C4	04 FEB 86	
02 FEB 86	1830	1742.0	-1.7	2	724-85	1	P	C4	05 FEB 86	
09 FEB 86	1730	1732.5	.1	2	40-85	1	P	C4	13 FEB 86	
16 FEB 86	1900	1727.5		1	1220-82	1	P	C4	10 MAR 86	
23 FEB 86	1800	1736.9	2.9	2	834-83	1	P	C4	13 MAR 86	
03 MAR 86	1900	1751.2		1	862-83	1	P	C4	10 MAR 86	
16 MAR 86	2200	1729.8	3.0	2	1164-82	1	P	C4	21 MAR 86	
23 MAR 86	1800	1735.4	-6.1	2	850-82	1	P	C4	01 APR 86	
30 MAR 86	2030	1738.6	-14.0	3	12-85	1	P	C4	18 APR 86	
06 APR 86	1715	1746.5	-3.6	2	1178-82	1	P	C4	20 APR 86	
13 APR 86	1805	1751.4	4.0	2	210-83	1	P	C4	20 APR 86	
20 APR 86	1730	1738.1	-.1	2	794-83	1	P	C4	24 APR 86	
27 APR 86	1900	1738.3	6.4	2	1388-82	1	P	C4	01 MAY 86	
04 MAY 86	1630	1749.6	6.1	2	1242-82	1	P	C4	09 MAY 86	
12 MAY 86	1730	1741.9	2.1	2	388-85	1	P	C4	31 MAY 86	
18 MAY 86	1840	1731.8	3.8	2	1668-82	1	P	C4	28 MAY 86	
01 JUN 86	2210	1729.9	1.5	2	60-83	1	P	C4	10 JUN 86	
08 JUN 86	2000	1736.7	4.3	2	798-82	1	P	C4	12 JUN 86	
15 JUN 86	1725	1728.8	8.8	2	666-83	1	P	C4	07 AUG 86	
22 JUN 86	1700	1729.8	-.2	2	220-85	1	P	C4	05 AUG 86	
29 JUN 86	2000	1718.1	5.3	2	780-83	1	P	C4	08 JUL 86	
06 JUL 86	1915	1704.9	-9.3	2	856-83	1	P	C4	30 JUL 86	
13 JUL 86	1725	1697.4	1.7	2	1602-82	1	P	C4	23 JUL 86	
03 AUG 86	1800	1718.0	-4.3	2	192-85	1	P	C4	18 SEP 86	
10 AUG 86	1700	1722.1	-3.9	2	296-83	1	P	C4	19 SEP 86	
17 AUG 86	1741	1713.8		1	72-85	1	P	C4	19 SEP 86	
24 AUG 86	1715	1712.9		1	50-85	1	P	C4	23 SEP 86	
31 AUG 86	1900	1740.9	-4.3	2	868-83	1	P	C4	18 SEP 86	
07 SEP 86	1545	1743.4	-2.8	2	1192-82	1	P	C4	11 SEP 86	
14 SEP 86	1730	1747.3	-7.6	2	1304-82	1	P	C4	19 SEP 86	
21 SEP 86	1900	1773.4	5.9	2	114-83	1	P	C4	30 SEP 86	
28 SEP 86	1825	1761.1	-2.3	2	284-85	1	P	C4	14 OCT 86	
05 OCT 86	1845	1752.0	3.1	2	342-85	1	P	C4	08 OCT 86	
12 OCT 86	1640	1740.1	9.6	2	904-83	1	P	C4	22 OCT 86	
23 OCT 86	1600	1777.7	11.4	3	292-82	1	P	C4	12 NOV 86	
02 NOV 86	1800	1742.4	-.3	2	308-85	1	P	C4	14 NOV 86	
09 NOV 86	1730	1720.9	-.5	2	372-85	1	P	C4	14 NOV 86	
27 NOV 86	1915	1724.5	-3.9	2	316-85	1	P	C4	10 DEC 86	
04 DEC 86	1858	1755.6	2.7	2	418-83	1	P	C4	11 DEC 86	
11 DEC 86	2000	1740.4	10.8	3	342-83	1	P	C4	22 DEC 86	
25 DEC 86	1810	1749.7	-2.1	2	1322-82	1	P	C4	30 DEC 86	
02 JAN 87	2140	1742.9	4.4	2	662-83	1	P	C4	08 JAN 87	
11 JAN 87	2006	1752.2	2.1	2	908-83	1	P	C4	15 JAN 87	
18 JAN 87	1745	1740.0	-.3	2	510-85	1	P	C4	22 JAN 87	
25 JAN 87	2030	1748.5	-4.1	2	1546-82	1	P	C4	03 FEB 87	
05 FEB 87	1822	1747.9	4.3	2	348-85	1	P	C4	10 FEB 87	
08 FEB 87	1940	1726.0	-6.6	2	40-85	1	P	C4	18 FEB 87	
13 FEB 87	0000	1743.0	1.8	2	332-85	1	P	C4	18 FEB 87	
26 FEB 87	1833	1740.6	-6.7	2	174-83	1	P	C4	04 MAR 87	
12 MAR 87	1820	1727.3	-4.6	2	502-83	1	P	C4	24 MAR 87	
19 MAR 87	2015	1758.3	-4.0	2	1652-82	1	P	C4	25 MAR 87	
26 MAR 87	1746	1761.1	-2.3	2	1308-82	1	P	C4	02 APR 87	
02 APR 87	1830	1748.3	7.7	2	188-85	1	P	C4	08 APR 87	
09 APR 87	1700	1760.2	-3.1	3	558-85	1	P	C4	21 APR 87	
12 APR 87	1820	1745.0	-1.9	2	66-85	1	P	C4	21 APR 87	
30 APR 87	1930	1760.6	2.6	2	618-85	1	P	C4	05 MAY 87	
07 MAY 87	1735	1749.9	-.6	2	794-85	1	P	C4	13 MAY 87	
14 MAY 87	1730	1748.1	-2.6	2	68-85	1	P	C4	21 MAY 87	
21 MAY 87	1730	1742.3	-.7	2	380-85	1	P	C4	01 JUN 87	
28 MAY 87	1710	1743.7	8.4	2	624-85	1	P	C4	09 JUN 87	
04 JUN 87	1937	1734.9	-.6	2	796-83	1	P	C4	16 JUN 87	
11 JUN 87	1900	1748.4	-1.6	2	908-83	1	P	C4	18 JUN 87	

Cold Bay, Alaska (CBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
18 JUN 87	1845	1732.2	-2.1	2	710-85	1	P	C4	30 JUN 87	
25 JUN 87	1610	1730.9	-1.9	2	10-85	1	P	C4	08 JUL 87	
02 JUL 87	2110	1735.5	-6.8	2	26-85	1	P	C4	13 JUL 87	
12 JUL 87	9999	1727.8	-.5	2	798-82	1	P	C4	22 JUL 87	
02 AUG 87	1900	1707.9	3.0	2	736-85	1	P	C4	11 AUG 87	
09 AUG 87	1625	1720.4	-6.9	2	11-85	1	P	C4	04 SEP 87	
16 AUG 87	2210	1718.7	1.0	2	804-85	1	P	C4	03 SEP 87	
23 AUG 87	1800	1895.4	-6.6	2	822-83	1	P	C4	04 SEP 87	+
30 AUG 87	1726	1751.5	-7.5	2	967-83	1	P	C4	03 SEP 87	
07 SEP 87	1800	1755.9	7.6	2	1078-82	1	P	C4	15 SEP 87	
27 SEP 87	2130	1759.0	15.1	3	66-85	1	P	C4	06 OCT 87	
04 OCT 87	1825	1765.6	.6	2	222-86	1	P	C4	08 OCT 87	
11 OCT 87	2037	1770.7	1.3	2	126-87	1	P	C4	26 OCT 87	
18 OCT 87	1700	1765.8	.1	2	30-85	1	P	C4	28 OCT 87	
25 OCT 87	1925	1758.2	4.7	2	584-83	1	P	C4	28 OCT 87	
05 NOV 87	2100	1755.0	-5.5	2	698-85	1	P	C4	10 NOV 87	
16 NOV 87	1825	1755.0	-4.2	2	32-85	1	P	C4	24 NOV 87	
22 NOV 87	1900	1757.2	-5.1	2	121-87	1	P	C4	08 DEC 87	
22 NOV 87	1900	1745.2		1	122-87	1	P	C4	08 DEC 87	
06 DEC 87	2030	1765.3	-3.0	2	266-87	1	P	C4	02 JAN 88	
10 DEC 87	2130	1758.0	-1.1	2	545-87	1	P	C4	31 DEC 87	
10 DEC 87	2130	1765.6		1	546-87	1	P	C4	31 DEC 87	
27 DEC 87	1820	1751.4	7.8	2	36-85	1	P	C4	02 JAN 88	
07 JAN 88	2030	1763.1	5.9	2	962-83	1	P	C4	13 JAN 88	
17 JAN 88	2030	1752.8	3.4	2	294-86	1	P	C4	26 JAN 88	
23 JAN 88	2020	1784.2	-8.3	2	416-85	1	P	C4	03 FEB 88	
31 JAN 88	2130	1742.8	5.1	2	270-87	1	P	C4	04 FEB 88	
07 FEB 88	2010	1746.1	6.5	2	412-85	1	P	C4	19 FEB 88	
14 FEB 88	2055	1771.7	8.4	2	222-86	1	P	C4	26 FEB 88	
22 FEB 88	1820	1767.3	10.4	2	330-86	1	P	C4	01 MAR 88	
03 MAR 88	2135	1760.3	3.1	2	316-85	1	P	C4	10 MAR 88	
17 MAR 88	2220	1769.3	6.1	2	354-85	1	P	C4	24 MAR 88	
01 APR 88	2030	1768.0	4.8	2	454-85	1	P	C4	11 APR 88	
10 APR 88	2100	1746.5	-9.5	2	390-85	1	P	C4	13 APR 88	
17 APR 88	1745	1763.5	-2.2	2	378-86	1	P	C4	29 APR 88	
24 APR 88	2030	1775.2	2.3	2	544-85	1	P	C4	04 MAY 88	
01 MAY 88	2040	1762.9	-6.4	2	376-86	1	P	C4	13 MAY 88	
12 MAY 88	2000	1762.5	-17.3	3	76-87	1	P	C4	17 MAY 88	
15 MAY 88	2000	1764.0	-2.7	2	89-85	1	P	C4	23 MAY 88	
15 MAY 88	2000	1765.4	-12.2	2	90-85	1	P	C4	23 MAY 88	
22 MAY 88	2110	1754.5	10.6	3	88-87	1	P	C4	01 JUN 88	
29 MAY 88	2200	1753.3	-6.0	2	280-87	1	P	C4	14 JUN 88	
05 JUN 88	1800	1742.1	-1.4	2	672-85	1	P	C4	13 JUN 88	
09 JUN 88	2025	1751.9	1.8	2	174-85	1	P	C4	20 JUN 88	
19 JUN 88	2045	1743.7	-2.7	2	308-86	1	P	C4	28 JUN 88	
03 JUL 88	2040	1728.0	2.9	2	510-85	1	P	C4	13 JUL 88	
10 JUL 88	2247	1742.1	-4.6	2	412-86	1	P	C4	18 JUL 88	
21 JUL 88	2100	1756.2	2.9	2	560-87	1	P	C4	16 AUG 88	
28 JUL 88	2110	1742.9	-3.2	2	574-87	1	P	C4	10 AUG 88	
07 AUG 88	2135	1737.5	.2	2	300-87	1	P	C4	18 AUG 88	
14 AUG 88	2000	1770.2	7.0	2	124-85	1	P	C4	26 AUG 88	
21 AUG 88	2115	1747.0	.6	2	290-87	1	P	C4	30 AUG 88	
04 SEP 88	1630	1742.3	-3.1	2	108-87	1	P	C4	16 SEP 88	
15 SEP 88	2030	1744.5	-1.8	2	370-86	1	P	C4	22 SEP 88	
25 SEP 88	1800	1758.3	5.1	2	220-86	1	P	C4	29 SEP 88	
06 OCT 88	2015	1762.9	-2.3	2	274-86	1	P	C4	18 OCT 88	
14 OCT 88	2130	1775.3	-5.0	2	110-87	1	P	C4	27 OCT 88	
27 OCT 88	2045	1748.9	-2.8	2	64-81	1	P	C4	04 NOV 88	
06 NOV 88	2040	1776.6	2.9	2	110-81	1	P	C4	10 NOV 88	
17 NOV 88	2030	1777.4	10.4	2	330-81	1	P	C4	22 NOV 88	
24 NOV 88	1945	1761.7	.1	2	188-81	1	P	C4	01 DEC 88	
08 DEC 88	2210	1748.6	-2.8	2	434-81	1	P	C4	21 DEC 88	
12 DEC 88	2030	1769.7	13.0	3	436-81	1	P	C4	21 DEC 88	
15 DEC 88	2015	1780.0	-5.8	2	522-81	1	P	C4	06 JAN 89	
18 DEC 88	2045	1768.1	.1	2	510-81	1	P	C4	06 JAN 89	

Cold Bay, Alaska (CBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
22 DEC 88	2210	1773.1	-8.7	2	106-81	1	P	C4	05 JAN 89	
25 DEC 88	0100	1750.7	-6.0	2	28-81	1	P	C4	05 JAN 89	
29 DEC 88	2005	1772.4		1	639-81	1	P	C4	31 JAN 89	
29 DEC 88	2005	1773.4		1	640-81	1	P	C4	23 JAN 89	

Cape Grim, Tasmania (CGO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
09 JAN 86	0126	1588.6	1.0	2	1410-82	1	N	C4	24 MAR 86	
13 JAN 86	0336	1583.9	-5.3	2	696-83	1	P	C4	21 MAR 86	
13 JAN 86	0355	1586.7	5.5	2	902-83	1	N	C4	24 MAR 86	
03 FEB 86	0321	1581.4	7.5	3	958-83	1	P	C4	11 MAR 86	
03 FEB 86	0345	1580.0	-.1	2	754-83	1	N	C4	11 MAR 86	
05 FEB 86	0414	1581.6	4.8	2	1820-82	1	P	C4	11 MAR 86	
05 FEB 86	9999	1585.8	-2.4	2	1644-82	1	N	C4	11 MAR 86	
10 FEB 86	0152	1585.4		1	772-83	1	P	C4	10 MAR 86	
10 FEB 86	9999	1576.6	-.2	2	704-83	1	N	C4	10 MAR 86	
10 FEB 86	9999	1577.7	-.7	2	704-83	1	N	C4	21 MAR 86	
19 FEB 86	0005	1586.4	-3.8	2	128-83	1	N	C4	21 MAR 86	
19 FEB 86	0108	1579.6	4.6	2	994-81	1	P	C4	21 MAR 86	
07 MAR 86	0300	1577.7	6.2	2	613-83	1	P	C4	01 APR 86	
07 MAR 86	0345	1575.6	.7	2	543-85	1	N	C4	01 APR 86	
10 MAR 86	0242	1581.7	6.0	3	198-85	1	P	C4	18 APR 86	
10 MAR 86	0244	1581.1	-5.2	3	1146-82	1	N	C4	18 APR 86	
17 MAR 86	0234	1585.7	4.8	2	1662-82	1	P	C4	18 APR 86	
25 MAR 86	0455	1590.1	-.9	2	798-82	1	P	C4	14 MAY 86	
25 MAR 86	0455	1583.5	-.2	2	860-83	1	N	C4	14 MAY 86	
03 APR 86	0120	1587.1	-.2	2	362-83	1	P	C4	14 MAY 86	
03 APR 86	0126	1580.6		1	836-82	1	N	C4	14 MAY 86	
11 APR 86	9999	1583.2	-1.4	2	26-85	1	N	C4	14 MAY 86	
11 APR 86	9999	1585.8	.8	2	34-85	1	P	C4	14 MAY 86	
18 APR 86	0118	1586.0	1.9	2	710-85	1	N	C4	14 MAY 86	
18 APR 86	0122	1586.8	-2.9	2	508-82	1	P	C4	14 MAY 86	
24 APR 86	0208	1587.3	-1.7	2	6-85	1	P	C4	14 MAY 86	
24 APR 86	0212	1585.7	2.3	2	36-83	1	N	C4	14 MAY 86	
24 MAY 86	0432	1597.8	1.6	2	762-83	1	N	C4	23 JUL 86	
28 MAY 86	0159	1596.2	-.4	2	37-85	1	P	C4	10 AUG 86	
28 MAY 86	0200	1604.7	-10.6	3	932-83	1	N	C4	10 AUG 86	
03 JUN 86	0420	1597.8	-4.8	2	1150-82	1	P	C4	20 SEP 86	
03 JUN 86	0421	1592.5	4.5	2	1280-82	1	N	C4	20 SEP 86	
10 JUN 86	0145	1597.2	-1.5	2	44-83	1	P	C4	30 JUL 86	
10 JUN 86	0146	1596.9	1.2	2	897-83	1	N	C4	30 JUL 86	
18 JUN 86	0055	1600.2	3.2	2	636-83	1	N	C4	29 JUL 86	
18 JUN 86	0059	1600.9	-4.5	2	1312-82	1	P	C4	29 JUL 86	
23 JUN 86	0140	1607.7	-2.8	2	192-83	1	P	C4	30 JUL 86	
23 JUN 86	0150	1604.5	-4.2	2	272-85	1	N	C4	30 JUL 86	
09 JUL 86	0055	1609.8	1.4	2	1552-82	1	N	C4	18 SEP 86	
09 JUL 86	0145	1598.7	-2.5	2	844-83	1	P	C4	18 SEP 86	
18 JUL 86	0155	1608.2	5.3	2	946-83	1	P	C4	16 SEP 86	
18 JUL 86	0200	1612.6	1.4	2	60-85	1	N	C4	20 SEP 86	
24 JUL 86	0145	1609.5	2.9	2	852-83	1	P	C4	18 SEP 86	
24 JUL 86	0147	1609.9	7.1	3	1162-82	1	N	C4	18 SEP 86	
31 JUL 86	0150	1616.9	-4.8	2	1198-82	1	P	C4	16 SEP 86	
31 JUL 86	0155	1614.0	-8.7	2	630-81	1	N	C4	16 SEP 86	
17 AUG 86	0200	1614.3	1.8	2	276-82	1	P	C4	20 SEP 86	
17 AUG 86	0204	1615.1	-3.6	2	1210-82	1	N	C4	20 SEP 86	
26 AUG 86	0225	1611.5	0.0	2	348-85	1	P	C4	30 SEP 86	
26 AUG 86	0230	1613.0	11.0	4	366-82	1	N	C4	30 SEP 86	
10 SEP 86	0445	1617.4	-2.3	2	1322-82	1	P	C4	08 OCT 86	
29 SEP 86	0513	1610.0	8.9	2	628-85	1	P	C4	14 NOV 86	
07 OCT 86	0440	1617.2	-8.6	2	806-83	1	N	C4	14 NOV 86	
14 OCT 86	0215	1619.8	-3.8	2	332-85	1	P	C4	14 NOV 86	
14 OCT 86	0217	1618.9	-1.2	2	192-83	1	N	C4	14 NOV 86	
20 OCT 86	0255	1609.4	6.0	2	370-85	1	P	C4	09 DEC 86	
11 NOV 86	0419	1611.1	-1.6	2	46-85	1	N	C4	11 DEC 86	
18 NOV 86	0045	1616.8	2.1	2	522-83	1	P	C4	29 DEC 86	
18 NOV 86	0052	1611.7	-4.8	2	320-85	1	N	C4	29 DEC 86	
24 NOV 86	0050	1612.0	4.5	2	362-85	1	P	C4	11 DEC 86	
24 NOV 86	0052	1610.7	-4.9	2	1742-82	1	N	C4	11 DEC 86	
08 DEC 86	0240	1609.7	4.3	2	308-83	1	P	C4	20 JAN 87	
08 DEC 86	0246	1607.2	.3	2	402-83	1	N	C4	20 JAN 87	
17 DEC 86	0236	1605.5	1.9	2	222-85	1	P	C4	20 JAN 87	

Cape Grim, Tasmania (CGO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 DEC 86	0239	1603.3	-3.2	2	642-83	1	N	C4	20 JAN 87	
22 DEC 86	0411	1607.4	2.3	2	388-83	1	P	C4	18 FEB 87	
22 DEC 86	0415	1603.8	3.0	2	404-83	1	N	C4	18 FEB 87	
08 JAN 87	9999	1598.7	.5	2	1078-82	1	P	C4	18 FEB 87	
08 JAN 87	9999	1599.5	2.0	2	1498-82	1	N	C4	18 FEB 87	
14 JAN 87	0233	1594.5	-6.4	2	898-82	1	P	C4	18 FEB 87	
14 JAN 87	0237	1593.8	-5.4	2	698-83	1	N	C4	18 FEB 87	
19 JAN 87	0235	1595.6		1	1761-82	1	P	C4	18 FEB 87	
19 JAN 87	0238	1595.7	9.7	2	340-85	1	N	C4	18 FEB 87	
03 FEB 87	0325	1598.6	5.6	2	592-85	1	P	C4	04 MAR 87	
03 FEB 87	0335	1590.6	.3	2	46-85	1	N	C4	04 MAR 87	
11 FEB 87	0042	1593.2	.1	2	292-82	1	P	C4	04 MAR 87	
11 FEB 87	0047	1594.5	3.3	2	390-85	1	N	C4	04 MAR 87	
20 FEB 87	0338	1590.0	1.0	2	286-85	1	P	C4	13 MAR 87	
20 FEB 87	0344	1590.7	4.1	2	242-83	1	N	C4	13 MAR 87	
5 FEB 87	0040	1590.7	2.0	2	310-83	1	P	C4	25 MAR 87	
5 FEB 87	0043	1589.7	.7	2	342-82	1	N	C4	25 MAR 87	
0 MAR 87	0000	1594.9	3.9	2	798-82	1	P	C4	02 APR 87	
10 MAR 87	0004	1599.0	-1.2	2	836-85	1	N	C4	02 APR 87	
20 MAR 87	0226	1597.4	7.8	2	348-83	1	P	C4	15 MAY 87	
20 MAR 87	0230	1594.2	1.5	2	1086-82	1	N	C4	15 MAY 87	
30 MAR 87	0441	1596.3	4.3	2	90-85	1	P	C4	21 MAY 87	
30 MAR 87	0445	1600.4	-1.4	2	716-85	1	N	C4	21 MAY 87	
15 APR 87	0141	1599.6	-.1	2	682-83	1	P	C4	21 MAY 87	
18 MAY 87	0358	1609.9	-1.9	2	1241-82	1	P	C4	15 JUN 87	
18 MAY 87	0359	1616.0	-4.1	2	286-85	1	N	C4	15 JUN 87	
25 MAY 87	0133	1614.0	1.3	2	32-85	1	P	C4	09 JUN 87	
25 MAY 87	0136	1611.5	-5.4	2	30-85	1	N	C4	09 JUN 87	
02 JUN 87	0352	1613.6	-1.1	2	46-85	1	P	C4	13 JUL 87	
02 JUN 87	0355	1607.4	6.3	2	892-83	1	N	C4	13 JUL 87	
11 JUN 87	0359	1612.2	0.0	2	744-83	1	N	C4	13 JUL 87	
25 JUN 87	0440	1618.8	5.9	2	588-85	1	P	C4	22 JUL 87	
25 JUN 87	0455	1610.0	-.4	2	296-83	1	N	C4	22 JUL 87	
29 JUN 87	0235	1618.7	-5.5	2	508-83	1	P	C4	06 OCT 87	
29 JUN 87	0242	1614.8	-3.4	2	144-85	1	N	C4	06 OCT 87	
10 JUL 87	0257	1620.2	-.7	2	612-85	1	P	C4	11 SEP 87	
10 JUL 87	0259	1619.2	1.3	2	360-85	1	N	C4	11 SEP 87	
17 JUL 87	0120	1623.4	3.0	2	756-85	1	P	C4	11 SEP 87	
17 JUL 87	0123	1620.0	.5	2	176-85	1	N	C4	11 SEP 87	
31 JUL 87	0203	1620.6	-.4	2	358-85	1	P	C4	11 SEP 87	
31 JUL 87	0206	1617.9	-2.1	2	174-85	1	N	C4	11 SEP 87	
05 AUG 87	0227	1618.2	-4.3	2	192-85	1	P	C4	11 SEP 87	
05 AUG 87	0230	1623.0	-2.5	2	348-83	1	N	C4	11 SEP 87	
10 AUG 87	0226	1623.5	-3.2	2	278-83	1	N	C4	11 SEP 87	
17 AUG 87	0245	1625.7	-4.4	2	512-83	1	P	C4	11 SEP 87	
17 AUG 87	0247	1625.6	-.9	2	1652-82	1	N	C4	11 SEP 87	
02 SEP 87	0531	1626.4	3.5	2	180-85	1	N	C4	08 OCT 87	
08 SEP 87	0456	1627.6	-1.6	2	24-85	1	P	C4	08 OCT 87	
08 SEP 87	0459	1627.4	-2.1	2	356-85	1	N	C4	08 OCT 87	
01 OCT 87	0221	1627.6	2.8	2	72-87	1	N	C4	27 OCT 87	
01 OCT 87	0224	1629.5	.3	2	78-87	1	P	C4	27 OCT 87	
06 OCT 87	0233	1623.1	.5	2	84-87	1	P	C4	27 OCT 87	
06 OCT 87	0241	1629.0	-3.7	2	2-83	1	N	C4	27 OCT 87	
23 OCT 87	0353	1628.8	-3.8	2	288-86	1	P	C4	03 DEC 87	
23 OCT 87	0357	1626.9	4.2	2	418-85	1	N	C4	04 DEC 87	
04 NOV 87	9999	1623.5	6.3	2	486-85	1	N	C4	04 JAN 88	
13 NOV 87	0025	1621.9	2.9	2	620-85	1	P	C4	02 JAN 88	
13 NOV 87	0028	1623.6	-2.0	2	688-85	1	N	C4	02 JAN 88	
24 NOV 87	0331	1625.1	-7.7	2	292-85	1	P	C4	04 JAN 88	
24 NOV 87	0334	1617.2	-3.4	2	680-85	1	N	C4	04 JAN 88	
17 DEC 87	0133	1616.7	-7.0	2	76-87	1	P	C4	08 APR 88	
17 DEC 87	0135	1617.4	-1.7	2	74-87	1	N	C4	11 APR 88	
05 JAN 88	0059	1609.7	4.0	2	602-83	1	N	C4	12 APR 88	
03 FEB 88	0158	1608.4	5.0	2	598-83	1	P	C4	13 APR 88	
03 FEB 88	0159	1604.4	11.1	3	86-87	1	N	C4	13 APR 88	

Cape Grim, Tasmania (CGO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 FEB 88	0213	1600.6	-3.0	2	154-85	1	P	C4	12 APR 88	
08 FEB 88	0215	1602.9	3.3	2	114-87	1	N	C4	12 APR 88	
18 FEB 88	0439	1603.3	-.5	2	240-86	1	P	C4	13 APR 88	
18 FEB 88	0442	1595.4	-8.2	2	101-87	1	N	C4	18 APR 88	
14 MAR 88	0312	1605.4	4.2	2	122-85	1	P	C4	19 APR 88	
14 MAR 88	0318	1597.6	7.6	2	46-85	1	N	C4	19 APR 88	
13 APR 88	0614	1602.2	3.6	2	100-87	1	P	C4	23 MAY 88	
26 APR 88	0245	1602.0	-1.2	2	256-85	1	P	C4	23 MAY 88	
26 APR 88	0248	1611.9	-.8	2	510-85	1	N	C4	23 MAY 88	
10 MAY 88	0444	1614.0	-3.3	2	115-85	1	P	C4	15 JUN 88	
10 MAY 88	0450	1613.9	11.1	3	334-85	1	N	C4	15 JUN 88	
28 MAY 88	0515	1620.6	-14.4	3	108-87	1	P	C4	12 JUL 88	
28 MAY 88	0558	1620.2	7.3	2	532-87	1	N	C4	12 JUL 88	
11 JUN 88	0525	1623.7	8.1	2	236-86	1	N	C4	18 JUL 88	
24 JUN 88	0118	1627.2	2.7	2	236-85	1	P	C4	13 JUL 88	
24 JUN 88	0134	1620.4	8.5	2	70-85	1	N	C4	12 JUL 88	
28 JUN 88	0024	1616.6	7.9	2	418-86	1	P	C4	05 AUG 88	
11 JUL 88	0457	1637.3	-8.3	2	674-85	1	P	C4	10 AUG 88	
11 JUL 88	0504	1636.7	3.8	2	670-85	1	N	C4	10 AUG 88	
15 JUL 88	0316	1625.1	-4.7	2	238-86	1	P	C4	10 AUG 88	
15 JUL 88	0325	1626.1	-2.4	2	134-85	1	N	C4	10 AUG 88	
22 JUL 88	0418	1628.6	-5.4	2	592-87	1	P	C4	31 AUG 88	
22 JUL 88	0423	1634.1	-1.9	2	308-87	1	N	C4	31 AUG 88	
26 JUL 88	0449	1630.7	-.7	2	312-87	1	P	C4	31 AUG 88	
01 AUG 88	0528	1636.6	-7.6	2	365-86	1	P	C4	31 AUG 88	
09 AUG 88	0542	1638.0	-2.6	2	312-86	1	P	C4	20 OCT 88	
09 AUG 88	0550	1640.1	5.7	2	308-86	1	N	C4	20 OCT 88	
25 AUG 88	0527	1635.3	-5.8	2	532-87	1	P	C4	24 OCT 88	
25 AUG 88	0531	1636.2	-2.8	2	580-87	1	N	C4	24 OCT 88	
05 SEP 88	0224	1632.0	15.4	3	98-87	1	N	C4	24 OCT 88	
12 SEP 88	0154	1635.7	-1.2	2	420-86	1	P	C4	20 OCT 88	
12 SEP 88	0212	1636.0	.7	2	270-87	1	N	C4	19 OCT 88	
29 SEP 88	0130	1642.1	-7.4	2	368-86	1	P	C4	24 OCT 88	
29 SEP 88	0134	1637.8	7.5	2	294-87	1	N	C4	24 OCT 88	
06 OCT 88	0219	1637.3	2.0	2	348-86	1	P	C4	02 NOV 88	
06 OCT 88	0223	1635.6	-4.9	2	306-85	1	N	C4	02 NOV 88	
06 OCT 88	0456	1641.6	-6.9	2	128-87	1	P	C4	02 NOV 88	
06 OCT 88	0458	1638.7	-8.9	2	498-85	1	N	C4	02 NOV 88	
10 OCT 88	0224	1633.3		1	364-86	1	N	C4	08 NOV 88	
10 OCT 88	0224	1640.2	.4	2	364-86	1	N	C4	09 NOV 88	
12 OCT 88	0248	1638.6	-.4	2	290-85	1	P	C4	10 NOV 88	
17 OCT 88	0322	1638.9	-19.2	3	252-86	1	N	C4	09 NOV 88	
25 OCT 88	0450	1632.7	.8	2	565-87	1	N	C4	22 NOV 88	
31 OCT 88	0351	1632.6	-1.9	2	600-87	1	P	C4	06 JAN 89	
10 NOV 88	0331	1634.7	-8.4	2	105-87	1	P	C4	04 JAN 89	
10 NOV 88	0339	1633.0	2.0	2	162-85	1	N	C4	03 JAN 89	
25 NOV 88	0259	1631.2	-5.0	2	397-85	1	P	C4	04 JAN 89	
25 NOV 88	0312	1631.9	5.8	2	559-87	1	N	C4	04 JAN 89	
29 NOV 88	0109	1633.2	-3.3	2	346-85	1	P	C4	03 JAN 89	
29 NOV 88	0130	1635.7	.9	2	534-87	1	N	C4	03 JAN 89	
05 DEC 88	2314	1628.8	.7	2	154-85	1	P	C4	06 JAN 89	
05 DEC 88	2317	1631.0	-3.1	2	12-85	1	N	C4	06 JAN 89	
19 DEC 88	0159	1632.8	-1.8	2	610-81	1	N	C4	31 JAN 89	
30 DEC 88	0119	1621.8	-4.4	2	608-81	1	P	C4	01 FEB 89	
30 DEC 88	0123	1619.5	-11.7	3	200-81	1	N	C4	31 JAN 89	

Christmas Island (CHR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 JAN 86	0225	1633.8	-6.0	2	3026-85	5	T	C4	04 FEB 86	
14 JAN 86	0215	1626.7	.8	2	3038-83	5	T	C4	04 FEB 86	
23 FEB 86	0200	1629.3	-5.1	2	3034-85	5	T	C4	24 MAR 86	
09 MAR 86	0155	1629.8	3.5	2	3018-85	5	T	C4	26 MAR 86	
17 MAR 86	0210	1634.1	.3	2	3050-84	5	T	C4	24 MAR 86	
30 MAR 86	0208	1661.1		1	3090-84	5	T	C4	14 MAY 86	
08 APR 86	0120	1656.7	.5	2	3034-83	5	T	C4	14 MAY 86	
28 APR 86	0210	1644.3	4.9	2	3010-85	5	T	C4	14 MAY 86	
07 MAY 86	0140	1628.3	.6	2	3044-84	5	T	C4	14 MAY 86	
16 MAY 86	0140	1626.3	1.7	2	3076-83	5	T	C4	07 JUL 86	
22 MAY 86	0140	1622.6	-4.3	2	3008-85	5	T	C4	07 JUL 86	
30 MAY 86	0130	1606.2		1	3024-84	5	T	C4	07 JUL 86	
06 JUN 86	0142	1620.3	4.8	2	3014-83	5	T	C4	07 JUL 86	
16 JUN 86	0225	1628.1	-3.5	2	3030-85	5	T	C4	30 JUL 86	
23 JUN 86	0225	1628.8		1	3030-84	5	T	C4	30 JUL 86	
30 JUN 86	0157	1623.9	-.3	2	3002-84	5	T	C4	30 JUL 86	
07 JUL 86	0205	1611.9	-1.0	2	3008-84	5	T	C4	30 JUL 86	
14 JUL 86	0120	1620.6	-6.9	2	3082-83	5	T	C4	24 AUG 86	
23 JUL 86	0045	1617.2	.7	2	3032-85	5	T	C4	24 AUG 86	
29 JUL 86	0110	1625.0	-6.7	2	3010-83	5	T	C4	24 AUG 86	
04 AUG 86	0315	1624.0	-1.9	2	3040-83	5	T	C4	24 AUG 86	
11 AUG 86	0212	1622.9	-4.0	2	3038-83	5	T	C4	19 SEP 86	
24 AUG 86	0205	1622.4	-7.6	2	3024-85	5	T	C4	19 SEP 86	
01 SEP 86	0305	1615.6	4.6	2	3012-84	5	T	C4	19 SEP 86	
15 SEP 86	0203	1633.9	-.3	2	3050-83	5	T	C4	20 OCT 86	
22 SEP 86	0045	1623.6	1.1	2	3020-85	5	T	C4	20 OCT 86	
29 SEP 86	0115	1617.6	4.6	2	3102-83	5	T	C4	20 OCT 86	
06 OCT 86	0142	1613.2	8.5	2	3020-84	5	T	C4	20 OCT 86	
13 OCT 86	0200	1616.3	11.3	3	3104-83	5	T	C4	13 NOV 86	
21 OCT 86	0037	1622.9	.3	2	3046-83	5	T	C4	13 NOV 86	
28 OCT 86	0107	1605.4	4.4	2	3022-83	5	T	C4	13 NOV 86	
04 NOV 86	0125	1619.7	1.5	2	3088-84	5	T	C4	13 NOV 86	
10 NOV 86	0120	1628.5	-.4	2	3098-84	5	T	C4	08 JAN 87	
17 NOV 86	0205	1620.9	.5	2	3038-85	5	T	C4	08 JAN 87	
08 DEC 86	0133	1632.0	-6.5	2	3010-84	5	T	C4	08 JAN 87	
15 DEC 86	0020	1634.0	4.6	2	3026-85	5	T	C4	07 JAN 87	
23 DEC 86	0024	1634.0	-5.0	2	3030-85	5	T	C4	07 JAN 87	
29 DEC 86	0150	1621.3	-3.3	2	3028-85	5	T	C4	04 FEB 87	
05 JAN 87	0147	1627.0	.5	2	3026-83	5	T	C4	04 FEB 87	
12 JAN 87	0210	1670.3	-11.0	4	3008-84	5	T	C4	04 FEB 87	
19 JAN 87	0048	1626.5	-2.2	2	3074-83	5	T	C4	04 FEB 87	
02 FEB 87	0155	1623.4	-9.0	2	3008-85	5	T	C4	05 MAR 87	
09 FEB 87	0210	1625.4	-3.2	2	3046-84	5	T	C4	05 MAR 87	
16 FEB 87	0125	1655.7	-3.1	2	3006-85	5	T	C4	05 MAR 87	
23 FEB 87	0210	1625.5	5.4	2	3074-84	5	T	C4	05 MAR 87	
02 MAR 87	0210	1629.2	-4.2	2	3036-85	5	T	C4	02 APR 87	
09 MAR 87	0210	1668.7	4.1	2	3078-84	5	T	C4	02 APR 87	
17 MAR 87	0138	1641.5	-1.0	2	3010-83	5	T	C4	02 APR 87	
24 MAR 87	0107	1653.1	.8	2	3016-85	5	T	C4	02 APR 87	
31 MAR 87	0105	1668.7	3.0	2	3052-83	5	T	C4	05 MAY 87	
06 APR 87	0210	1655.7	-6.9	2	3058-84	5	T	C4	05 MAY 87	
13 APR 87	0155	1681.5	-16.4	3	3076-83	5	T	C4	05 MAY 87	
21 APR 87	0255	1633.9	-2.8	2	3048-84	5	T	C4	05 MAY 87	
04 MAY 87	0200	1652.1	4.4	2	3014-83	5	T	C4	30 JUN 87	
11 MAY 87	0140	1651.9	2.2	2	3102-83	5	T	C4	30 JUN 87	
07 JUN 87	0204	1631.3	1.5	2	3054-83	5	T	C4	23 JUN 87	
15 JUN 87	0210	1632.5	-3.7	2	3092-83	5	T	C4	23 JUN 87	
22 JUN 87	0150	1641.9	2.6	2	3008-85	5	T	C4	12 AUG 87	
17 JUL 87	0055	1629.1	-2.7	2	3052-84	5	T	C4	12 AUG 87	
24 JUL 87	0045	1637.8	-1.7	2	3022-83	5	T	C4	12 AUG 87	
29 JUL 87	0030	1646.7	-8.5	2	3076-84	5	T	C4	12 AUG 87	
06 AUG 87	0115	1627.5	-2.0	2	3022-84	5	T	C4	28 OCT 87	
15 AUG 87	0030	1631.1	.2	2	3016-85	5	T	C4	28 OCT 87	
22 AUG 87	0105	1639.0	2.2	2	3052-83	5	T	C4	28 OCT 87	

Christmas Island (CHR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
31 AUG 87	0145	1629.2	-4.4	2	3056-84	5	T	C4	28 OCT 87	
12 SEP 87	0050	1629.9	-1.6	2	3038-83	5	T	C4	28 OCT 87	
19 SEP 87	0045	1628.2	-1.6	2	3046-84	5	T	C4	28 OCT 87	
28 SEP 87	0100	1627.2	1.7	2	3032-84	5	T	C4	28 OCT 87	
04 OCT 87	0130	1635.6	-2.8	2	3042-84	5	T	C4	28 OCT 87	
29 OCT 87	0115	1636.3	2.7	2	3064-84	5	T	C4	08 DEC 87	
09 NOV 87	0205	1635.8	-9.1	2	3074-84	5	T	C4	08 DEC 87	
15 NOV 87	2353	1653.8	-4.4	2	3026-83	5	T	C4	08 DEC 87	
22 NOV 87	0155	1646.4	-5.5	2	3076-83	5	T	C4	08 DEC 87	
22 NOV 87	0200	1653.2	3.3	2	3012-85	5	T	C4	19 JAN 88	
01 DEC 87	0025	1629.7	-1.6	2	3080-84	5	T	C4	19 JAN 88	
14 DEC 87	0140	1642.6	4.1	2	3104-83	5	T	C4	19 JAN 88	
21 DEC 87	0150	1633.7	2.8	2	3012-84	5	T	C4	19 JAN 88	
06 JAN 88	0045	1648.5	-1.7	2	3010-83	5	T	C4	03 FEB 88	
12 JAN 88	0155	1649.5	-.1	2	3020-85	5	T	C4	03 FEB 88	
18 JAN 88	0130	1647.7	5.7	2	3038-83	5	T	C4	03 FEB 88	
24 JAN 88	0200	1678.6	-4.3	2	3086-84	5	T	C4	03 FEB 88	
01 FEB 88	0210	1661.6	2.1	2	3060-83	5	T	C4	17 MAY 88	
08 FEB 88	0200	1671.4	4.8	2	3096-84	5	T	C4	17 MAY 88	
15 FEB 88	0140	1643.7	5.8	3	3028-84	5	T	C4	17 MAY 88	
22 FEB 88	0215	1647.4	-11.5	3	3062-84	5	T	C4	17 MAY 88	
29 FEB 88	0205	1691.8	-5.7	2	3068-83	5	T	C4	17 MAY 88	
07 MAR 88	0200	1673.7	9.2	2	3066-84	5	T	C4	17 MAY 88	
14 MAR 88	0155	1662.4	-.8	2	3074-83	5	T	C4	13 MAY 88	
14 MAR 88	0155	1662.6	4.9	2	3092-83	5	T	C4	13 MAY 88	
21 MAR 88	0135	1635.6	-4.9	2	3018-84	5	T	C4	17 MAY 88	
28 MAR 88	0130	1659.6	-5.8	2	3032-84	5	T	C4	17 MAY 88	
25 APR 88	0140	1640.9	-2.8	2	3014-83	5	T	C4	07 JUL 88	
02 MAY 88	0145	1621.1	12.9	3	3078-83	5	T	C4	07 JUL 88	
09 MAY 88	0140	1644.3	2.8	2	3040-83	5	T	C4	07 JUL 88	
16 MAY 88	0240	1640.2	6.9	2	3046-84	5	T	C4	07 JUL 88	
06 JUN 88	0210	1637.1	-5.4	2	3102-83	5	T	C4	07 JUL 88	
13 JUN 88	0205	1630.8	-3.5	2	3052-84	5	T	C4	07 JUL 88	
20 JUN 88	0215	1642.8	.8	2	3028-85	5	T	C4	19 JUL 88	
27 JUN 88	0220	1636.0	-11.7	3	3032-85	5	T	C4	07 JUL 88	
04 JUL 88	0210	1628.2	-6.7	2	3060-83	5	T	C4	16 AUG 88	
11 JUL 88	0250	1638.3	-18.0	3	3096-84	5	T	C4	16 AUG 88	
18 JUL 88	0145	1648.5	-2.7	2	3018-84	5	T	C4	16 AUG 88	
25 JUL 88	0205	1648.8	.6	2	3032-84	5	T	C4	16 AUG 88	
22 AUG 88	0155	1647.6	-3.3	2	3098-83	5	T	C4	20 SEP 88	
29 AUG 88	0210	1641.9	5.8	2	3052-84	5	T	C4	20 SEP 88	
05 SEP 88	0200	1638.2	2.3	2	3011-84	5	T	C4	20 SEP 88	
13 SEP 88	0150	1655.1	-9.4	2	3046-84	5	T	C4	20 SEP 88	
18 SEP 88	0125	1640.4	-3.3	2	3078-83	5	T	C4	18 OCT 88	
26 SEP 88	0145	1645.5	3.0	2	3074-84	5	T	C4	18 OCT 88	
03 OCT 88	0245	1640.2	3.3	2	3022-83	5	T	C4	18 OCT 88	
10 OCT 88	0120	1644.6	-9.0	2	3062-83	5	T	C4	18 OCT 88	
17 OCT 88	0210	1652.0	.9	2	3056-83	5	T	C4	16 NOV 88	
24 OCT 88	0215	1643.3	-.4	2	3090-84	5	T	C4	16 NOV 88	
31 OCT 88	0228	1649.9	10.7	3	3026-83	5	T	C4	16 NOV 88	
07 NOV 88	0155	1655.5	-2.0	2	3054-83	5	T	C4	16 NOV 88	
14 NOV 88	0155	1656.2	4.4	2	3104-83	5	T	C4	21 DEC 88	
14 NOV 88	0155	1650.8	9.5	2	3104-83	5	T	C4	05 JAN 89	
20 NOV 88	0025	1647.8	5.4	2	3084-84	5	T	C4	21 DEC 88	
20 NOV 88	0025	1641.0	.7	2	3084-84	5	T	C4	05 JAN 89	
05 DEC 88	0145	1653.3	-3.4	2	3046-83	5	T	C4	21 DEC 88	
11 DEC 88	0230	1661.7	-11.7	3	3020-84	5	T	C4	21 DEC 88	
11 DEC 88	0230	1660.2	-3.3	2	3020-84	5	T	C4	05 JAN 89	
19 DEC 88	0230	1660.2	2.6	2	3050-84	5	T	C4	31 JAN 89	
28 DEC 88	0155	1655.1	9.5	2	3088-84	5	T	C4	31 JAN 89	

Cape Meares, Oregon (CMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JAN 86	2239	1731.7	-.4	2	1192-82	1	P	C3	09 JAN 86	
09 JAN 86	2325	1706.8		1	716-85	1	P	C4	11 FEB 86	
21 JAN 86	0045	1716.0	.4	2	968-83	1	P	C4	03 FEB 86	
23 JAN 86	2330	1716.9	6.7	2	1578-82	1	P	C4	03 FEB 86	
30 JAN 86	2145	1717.7	.2	2	712-85	1	P	C4	13 FEB 86	
06 FEB 86	2155	1732.7	2.6	2	242-85	1	P	C4	18 FEB 86	
14 FEB 86	2255	1708.9	3.3	2	800-83	1	P	C4	10 MAR 86	
27 FEB 86	2340	1694.4	4.2	2	8-85	1	P	C4	11 MAR 86	
06 MAR 86	2045	1686.9	-2.5	2	814-83	1	P	C4	14 MAR 86	
13 MAR 86	2138	1717.4	1.9	2	286-83	1	P	C4	21 MAR 86	
20 MAR 86	2202	1737.7		1	10-83	1	P	C4	22 APR 86	
27 MAR 86	2040	1713.9	5.9	2	1114-82	1	P	C4	22 APR 86	
03 APR 86	2315	1730.8	5.3	2	642-83	1	P	C4	18 APR 86	
10 APR 86	2115	1731.1	2.8	2	866-83	1	P	C4	18 APR 86	
17 APR 86	2115	1745.8	1.1	2	754-83	1	P	C4	22 APR 86	
23 APR 86	2315	1737.8	2.5	2	1268-82	1	P	C4	01 MAY 86	
01 MAY 86	2055	1721.8	4.4	2	200-83	1	P	C4	09 MAY 86	
08 MAY 86	1754	1728.9	3.1	2	1220-82	1	P	C4	14 MAY 86	
15 MAY 86	1736	1731.3	-.2	2	172-83	1	P	C4	28 MAY 86	
21 MAY 86	2150	1721.9	-4.1	2	946-83	1	P	C4	28 MAY 86	
30 MAY 86	0015	1708.6	3.1	2	448-83	1	P	C4	12 JUN 86	
06 JUN 86	2045	1708.0	.3	2	1662-82	1	P	C4	12 JUN 86	
14 JUN 86	0140	1725.8	-.2	2	803-83	1	P	C4	05 AUG 86	
19 JUN 86	2042	1720.4	-4.1	2	100-83	1	P	C4	08 AUG 86	
25 JUN 86	2115	1709.0	1.8	2	947-83	1	P	C4	08 JUL 86	
01 JUL 86	2030	1681.6		1	52-85	1	P	C4	08 JUL 86	
08 JUL 86	2045	1700.7	-1.7	2	48-85	1	P	C4	30 JUL 86	
16 JUL 86	2100	1698.2	5.8	2	278-83	1	P	C4	29 JUL 86	
14 AUG 86	2045	1659.7	-2.0	2	680-83	1	P	C4	19 SEP 86	
21 AUG 86	2115	1714.5	-2.6	2	942-83	1	P	C4	25 SEP 86	
29 AUG 86	2245	1695.3	8.4	3	384-85	1	P	C4	23 SEP 86	
04 SEP 86	2130	1671.2	6.7	2	1218-82	1	P	C4	11 SEP 86	
18 SEP 86	2055	1724.2	1.5	2	184-85	1	P	C4	30 SEP 86	
02 OCT 86	2015	1770.1	4.6	2	962-83	1	P	C4	09 OCT 86	
14 OCT 86	1915	1736.2	4.3	2	290-85	1	P	C4	20 OCT 86	
21 OCT 86	2245	1741.5	11.0	3	50-83	1	P	C4	12 NOV 86	
28 OCT 86	2230	1731.9	-.6	2	704-83	1	P	C4	14 NOV 86	
12 NOV 86	2104	1726.5	5.7	2	40-85	1	P	C4	17 NOV 86	
19 NOV 86	2320	1729.4	1.3	2	754-83	1	P	C4	11 DEC 86	
26 NOV 86	2138	1735.1	1.0	2	342-82	1	P	C4	09 DEC 86	
04 DEC 86	2230	1736.9	-4.6	2	42-85	1	P	C4	11 DEC 86	
16 DEC 86	2145	1737.1	4.2	2	508-82	1	P	C4	30 DEC 86	
23 DEC 86	2010	1738.3	-5.6	2	702-85	1	P	C4	07 JAN 87	
29 DEC 86	2245	1728.2	-2.3	2	626-85	1	P	C4	08 JAN 87	
06 JAN 87	2215	1727.5	-2.2	2	100-85	1	P	C4	09 JAN 87	
20 JAN 87	2215	1746.7	4.2	2	490-85	1	P	C4	04 FEB 87	
04 FEB 87	0015	1731.8	2.2	2	1304-82	1	P	C4	10 FEB 87	
12 FEB 87	2315	1719.0	-2.7	2	178-82	1	P	C4	24 FEB 87	
19 FEB 87	2245	1729.2	2.1	2	788-85	1	P	C4	04 MAR 87	
26 FEB 87	2230	1745.6	1.9	2	906-83	1	P	C4	04 MAR 87	
06 MAR 87	2215	1737.2	-8.2	2	18-85	1	P	C4	13 MAR 87	
14 MAR 87	2230	1743.6	.1	2	508-83	1	P	C4	21 APR 87	
17 MAR 87	2300	1739.7	-3.8	2	675-83	1	P	C4	21 APR 87	
01 APR 87	0116	1745.2	6.9	2	622-83	1	P	C4	08 APR 87	
07 APR 87	2330	1736.8	4.3	2	859-83	1	P	C4	22 APR 87	
21 APR 87	2321	1753.0	3.9	2	34-85	1	P	C4	28 APR 87	
28 APR 87	2145	1724.8	13.1	3	1662-82	1	P	C4	05 MAY 87	
06 MAY 87	2215	1722.5	-.6	2	611-85	1	P	C4	13 MAY 87	
12 MAY 87	2145	1728.9	-1.9	2	490-85	1	P	C4	21 MAY 87	
19 MAY 87	1945	1746.6	.2	2	830-85	1	P	C4	01 JUN 87	
26 MAY 87	2015	1727.3	.9	2	690-85	1	P	C4	01 JUN 87	
02 JUN 87	2145	1764.2	.7	2	756-83	1	P	C4	15 JUN 87	
09 JUN 87	2315	1736.0	11.6	3	368-85	1	P	C4	18 JUN 87	
24 JUN 87	2145	1730.0	-6.4	2	502-82	1	P	C4	30 JUN 87	

Cape Meares, Oregon (CMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JUL 87	2340	1699.3	-6.2	2	1572-82	1	P	C4	13 JUL 87	
10 JUL 87	2145	1704.7	-2.7	2	606-85	1	P	C4	22 JUL 87	
14 JUL 87	2115	1718.4	8.1	2	752-83	1	P	C4	22 JUL 87	
25 JUL 87	0045	1697.8		1	764-85	1	P	C4	12 AUG 87	
28 JUL 87	2155	1722.7	-.7	2	352-85	1	P	C4	12 AUG 87	
04 AUG 87	2015	1689.8	3.9	2	682-83	1	P	C4	10 AUG 87	
11 AUG 87	2315	1723.7	-6.3	2	920-82	1	P	C4	03 SEP 87	
18 AUG 87	2040	1721.7	-2.8	2	368-85	1	P	C4	09 SEP 87	
25 AUG 87	2300	1689.6	.8	2	694-85	1	P	C4	03 SEP 87	
01 SEP 87	2330	1679.2	-2.0	2	420-85	1	P	C4	09 SEP 87	
09 SEP 87	2200	1727.1	3.1	2	296-83	1	P	C4	15 SEP 87	
16 SEP 87	1945	1751.2	4.3	2	408-85	1	P	C4	24 SEP 87	
24 SEP 87	0000	1721.3	-1.5	2	948-82	1	P	C4	30 SEP 87	
28 SEP 87	0000	1734.3	5.1	2	796-85	1	P	C4	08 OCT 87	
05 OCT 87	2125	1744.7	-8.3	2	114-87	1	P	C4	08 OCT 87	
13 OCT 87	2230	1761.4	-9.0	2	466-83	1	P	C4	27 OCT 87	
20 OCT 87	1855	1763.5	3.9	2	12-85	1	P	C4	27 OCT 87	
27 OCT 87	2300	1742.6	-6.2	2	246-87	1	P	C4	09 NOV 87	
03 NOV 87	2246	1738.6	-6.4	2	451-85	1	P	C4	09 NOV 87	
10 NOV 87	2145	1741.3	2.6	2	524-85	1	P	C4	18 NOV 87	
17 NOV 87	2330	1738.2	-2.5	2	106-85	1	P	C4	24 NOV 87	
24 NOV 87	2355	1757.4	-2.1	2	264-85	1	P	C4	04 DEC 87	
04 DEC 87	0020	1745.4	-1.4	2	226-85	1	P	C4	11 DEC 87	
11 DEC 87	2345	1744.0	4.6	2	128-87	1	P	C4	22 DEC 87	
15 DEC 87	2315	1756.9	-2.9	2	158-85	1	P	C4	04 JAN 88	
22 DEC 87	2025	1761.9	-2.0	2	288-86	1	P	C4	04 JAN 88	
11 JAN 88	2345	1753.0	2.6	2	492-85	1	P	C4	19 JAN 88	
21 JAN 88	2315	1771.7	1.2	2	249-85	1	P	C4	04 FEB 88	
26 JAN 88	2345	1757.1	3.7	2	392-85	1	P	C4	03 FEB 88	
02 FEB 88	2145	1760.1	2.6	2	358-86	1	P	C4	19 FEB 88	
11 FEB 88	2115	1765.3	9.8	2	334-86	1	P	C4	24 FEB 88	
17 FEB 88	2315	1741.2	-13.8	3	86-85	1	P	C4	26 FEB 88	
23 FEB 88	2245	1748.8	-1.1	2	294-85	1	P	C4	29 FEB 88	
02 MAR 88	2340	1745.5	2.0	2	294-87	1	P	C4	10 MAR 88	
09 MAR 88	2115	1753.2	2.8	2	252-85	1	P	C4	23 MAR 88	
16 MAR 88	2100	1785.7	-.6	2	406-85	1	P	C4	24 MAR 88	
29 MAR 88	2045	1755.8	-1.1	2	414-86	1	P	C4	12 APR 88	
05 APR 88	1930	1744.8	8.1	2	696-85	1	P	C4	13 APR 88	
12 APR 88	1930	1745.4	-5.5	2	215-85	1	P	C4	18 APR 88	
19 APR 88	2015	1765.4	-2.7	2	368-86	1	P	C4	29 APR 88	
25 APR 88	2230	1764.8	-5.9	2	258-87	1	P	C4	04 MAY 88	
02 MAY 88	2055	1760.1	-2.6	2	578-87	1	P	C4	16 MAY 88	
12 MAY 88	2200	1724.6	-10.2	2	397-85	1	P	C4	01 JUN 88	
12 MAY 88	2200	1735.5		1	398-85	1	P	C4	31 MAY 88	
18 MAY 88	2200	1747.4	-1.8	2	130-85	1	P	C4	31 MAY 88	
24 MAY 88	2030	1751.9	-7.3	2	82-87	1	P	C4	01 JUN 88	
31 MAY 88	2100	1737.8	3.8	2	336-85	1	P	C4	14 JUN 88	
08 JUN 88	2100	1749.1	-2.8	2	258-86	1	P	C4	15 JUN 88	
14 JUN 88	2130	1744.3	-3.3	2	104-87	1	P	C4	22 JUN 88	
22 JUN 88	2100	1719.9	-1.3	2	668-85	1	P	C4	01 JUL 88	
28 JUN 88	2130	1726.2	-1.1	2	492-85	1	P	C4	01 JUL 88	
05 JUL 88	2215	1732.3	4.3	2	142-85	1	P	C4	13 JUL 88	
19 JUL 88	2100	1754.7	.5	2	294-86	1	P	C4	11 AUG 88	
26 JUL 88	2200	1725.9	4.3	2	258-86	1	P	C4	16 AUG 88	
02 AUG 88	2230	1717.0	-2.9	2	174-85	1	P	C4	16 AUG 88	
16 AUG 88	1545	1714.2	2.1	2	370-85	1	P	C4	26 AUG 88	
23 AUG 88	2045	1731.3	-2.6	2	666-85	1	P	C4	16 SEP 88	
29 AUG 88	2130	1734.3	-1.8	2	491-85	1	P	C4	13 SEP 88	
07 SEP 88	0015	1735.5	-2.5	2	236-85	1	P	C4	16 SEP 88	
13 SEP 88	2230	1754.6	4.6	2	80-87	1	P	C4	19 SEP 88	
20 SEP 88	2000	1748.2	2.5	2	550-87	1	P	C4	28 SEP 88	
27 SEP 88	2100	1750.0	-.4	2	174-85	1	P	C4	04 OCT 88	
04 OCT 88	2100	1730.7	-7.4	2	66-81	1	P	C4	11 OCT 88	
11 OCT 88	1945	1749.2	-1.9	2	24-81	1	P	C4	18 OCT 88	
18 OCT 88	2346	1753.9	7.1	2	160-81	1	P	C4	27 OCT 88	

Cape Meares, Oregon (CMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
25 OCT 88	2045	1770.8	-3.0	2	178-81	1	P	C4	02 NOV 88	
01 NOV 88	2230	1738.0	.2	2	316-81	1	P	C4	09 NOV 88	
15 NOV 88	2145	1749.4	-3.7	2	441-81	1	P	C4	22 NOV 88	
29 NOV 88	2215	1751.5	-2.7	2	298-81	1	P	C4	05 DEC 88	
06 DEC 88	2315	1751.1	4.9	2	534-81	1	P	C4	12 DEC 88	
13 DEC 88	2145	1750.3	-4.3	2	588-81	1	P	C4	21 DEC 88	
20 DEC 88	2015	1748.9	5.6	2	100-81	1	P	C4	09 JAN 89	
28 DEC 88	2054	1755.0	-2.3	2	324-81	1	P	C4	09 JAN 89	

Guam, Mariana Islands (GMI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 JAN 86	0740	1663.0	6.0	2	788-83	1	P	C4	11 FEB 86	
10 JAN 86	0749	1663.3	-.5	2	1318-82	1	P	C4	29 JAN 86	
20 JAN 86	0749	1676.9	-3.8	2	1546-82	1	P	C4	04 FEB 86	
29 JAN 86	0750	1668.6	-3.4	2	265-83	1	P	C4	19 FEB 86	
04 FEB 86	0750	1716.2	-7.1	2	836-82	1	P	C4	18 FEB 86	
25 FEB 86	0753	1633.7	-3.3	2	1268-82	1	P	C4	21 MAR 86	
08 MAR 86	0758	1695.0	-.8	2	1224-82	1	P	C4	24 MAR 86	
14 MAR 86	0757	1680.9		1	60-83	1	P	C4	21 APR 86	
14 MAR 86	0758	1686.0	7.0	2	60-83	1	P	C4	22 APR 86	
01 APR 86	0440	1658.2	5.3	2	1312-82	1	P	C4	22 APR 86	
07 APR 86	0533	1686.0	3.8	2	192-83	1	P	C4	23 APR 86	
15 APR 86	0517	1689.2	-.9	2	1646-82	1	P	C4	24 APR 86	
21 APR 86	0528	1680.6	-11.2	3	624-83	1	P	C4	01 MAY 86	
28 APR 86	0445	1687.2	-11.2	2	672-83	1	P	C4	28 MAY 86	
02 MAY 86	0510	1725.4	-5.2	2	612-83	1	P	C4	28 MAY 86	+
27 MAY 86	0610	1634.2	-3.7	2	902-83	1	P	C4	09 AUG 86	
03 JUN 86	0615	1661.7		1	900-83	1	P	C4	08 AUG 86	
10 JUN 86	0605	1663.7	-3.5	2	10-83	1	P	C4	30 JUL 86	
17 JUL 86	0624	1660.9	1.2	2	80-85	1	P	C4	11 SEP 86	
05 SEP 86	0603	1644.2	-.2	2	172-83	1	P	C4	13 OCT 86	
26 OCT 86	2230	1668.9	4.6	2	318-83	1	P	C4	14 NOV 86	
02 NOV 86	2230	1677.3	1.7	2	718-85	1	P	C4	11 DEC 86	
13 NOV 86	2230	1689.5	-6.1	2	448-83	1	P	C4	11 DEC 86	
20 NOV 86	2200	1696.8	.2	2	86-85	1	P	C4	07 JAN 87	
18 DEC 86	2340	1669.8	-3.3	2	106-85	1	P	C4	07 JAN 87	
29 DEC 86	2215	1699.2	-5.2	2	876-83	1	P	C4	08 JAN 87	
12 JAN 87	2245	1670.4	8.7	2	502-83	1	P	C4	20 JAN 87	
15 JAN 87	2215	1697.4	4.5	2	502-82	1	P	C4	18 FEB 87	
08 FEB 87	2230	1698.6	-2.3	2	210-83	1	P	C4	18 FEB 87	
16 FEB 87	2230	1679.8	-1.9	2	250-85	1	P	C4	24 FEB 87	
23 FEB 87	2234	1671.5	-2.1	2	278-85	1	P	C4	05 MAR 87	
09 MAR 87	0058	1671.8	-1.0	2	880-83	1	P	C4	24 MAR 87	
16 MAR 87	2238	1690.2	3.3	2	374-85	1	P	C4	25 MAR 87	
22 MAR 87	2330	1705.6	4.8	2	1546-82	1	P	C4	02 APR 87	
02 APR 87	2340	1698.1	-13.8	3	502-83	1	P	C4	22 APR 87	
09 APR 87	2235	1688.7	-3.3	2	770-85	1	P	C4	21 APR 87	
20 APR 87	2235	1673.3	11.5	3	44-83	1	P	C4	28 APR 87	
30 APR 87	2230	1691.4	5.6	2	946-81	1	P	C4	15 MAY 87	
06 MAY 87	2240	1689.3	-9.5	2	510-83	1	P	C4	21 MAY 87	
14 MAY 87	2220	1699.5	-4.8	2	84-85	1	P	C4	01 JUN 87	
21 MAY 87	2232	1701.5	.4	2	602-85	1	P	C4	09 JUN 87	
15 JUN 87	2245	1660.4	-3.0	2	66-85	1	P	C4	30 JUN 87	
22 JUN 87	2225	1660.7	4.3	2	48-85	1	P	C4	30 JUN 87	
05 JUL 87	2245	1658.4	-4.8	2	832-83	1	P	C4	22 JUL 87	
16 JUL 87	2250	1652.1	3.2	2	806-83	1	P	C4	30 JUL 87	
23 JUL 87	2250	1639.5	4.6	2	226-83	1	P	C4	11 AUG 87	
29 JUL 87	2255	1662.7	-1.6	2	750-85	1	P	C4	02 SEP 87	
03 AUG 87	2225	1671.0	.3	2	1630-82	1	P	C4	02 SEP 87	
09 AUG 87	2310	1662.5	-.4	2	192-83	1	P	C4	02 SEP 87	
16 AUG 87	2235	1667.1	.3	2	506-85	1	P	C4	03 SEP 87	
26 AUG 87	2250	1645.4	2.6	2	242-86	1	P	C4	09 SEP 87	
09 SEP 87	2230	1647.0	3.0	2	294-86	1	P	C4	24 SEP 87	
17 SEP 87	2240	1639.5	-7.3	2	342-82	1	P	C4	30 SEP 87	
24 SEP 87	2230	1705.5	-11.8	3	36-85	1	P	C4	08 OCT 87	
01 OCT 87	2215	1695.9	-8.4	2	824-85	1	P	C4	08 OCT 87	
08 OCT 87	2250	1662.6	-5.0	2	1762-82	1	P	C4	27 OCT 87	
15 OCT 87	2145	1690.4	-.6	2	558-85	1	P	C4	09 NOV 87	
22 OCT 87	2205	1706.5	4.5	2	652-85	1	P	C4	09 NOV 87	
26 OCT 87	2150	1690.1	2.5	2	419-85	1	P	C4	18 NOV 87	
05 NOV 87	2205	1688.4	8.4	2	54-85	1	P	C4	18 NOV 87	
12 NOV 87	2210	1692.8	6.1	2	248-87	1	P	C4	24 NOV 87	
19 NOV 87	2320	1644.1	-7.6	2	464-83	1	P	C4	04 DEC 87	
26 NOV 87	2250	1693.0	3.9	2	12-85	1	P	C4	04 DEC 87	
03 DEC 87	2215	1695.1	.7	2	174-85	1	P	C4	31 DEC 87	

Guam, Mariana Islands (GMI)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 JAN 86	0740	1663.0	6.0	2	788-83	1	P	C4	11 FEB 86	
10 JAN 86	0749	1663.3	-.5	2	1318-82	1	P	C4	29 JAN 86	
20 JAN 86	0749	1676.9	-3.8	2	1546-82	1	P	C4	04 FEB 86	
29 JAN 86	0750	1668.6	-3.4	2	265-83	1	P	C4	19 FEB 86	
04 FEB 86	0750	1716.2	-7.1	2	836-82	1	P	C4	18 FEB 86	
25 FEB 86	0753	1633.7	-3.3	2	1268-82	1	P	C4	21 MAR 86	
08 MAR 86	0758	1695.0	-.8	2	1224-82	1	P	C4	24 MAR 86	
14 MAR 86	0757	1680.9		1	60-83	1	P	C4	21 APR 86	
14 MAR 86	0758	1686.0	7.0	2	60-83	1	P	C4	22 APR 86	
01 APR 86	0440	1658.2	5.3	2	1312-82	1	P	C4	22 APR 86	
07 APR 86	0533	1686.0	3.8	2	192-85	1	P	C4	23 APR 86	
15 APR 86	0517	1689.2	-.9	2	1646-82	1	P	C4	24 APR 86	
21 APR 86	0528	1680.6	-11.2	3	624-83	1	P	C4	01 MAY 86	
28 APR 86	0445	1687.2	-11.2	2	672-83	1	P	C4	28 MAY 86	
02 MAY 86	0510	1725.4	-5.2	2	612-83	1	P	C4	28 MAY 86	+
27 MAY 86	0610	1634.2	-3.7	2	902-83	1	P	C4	09 AUG 86	
03 JUN 86	0615	1661.7		1	900-83	1	P	C4	08 AUG 86	
10 JUN 86	0605	1663.7	-3.5	2	10-83	1	P	C4	30 JUL 86	
17 JUL 86	0624	1660.9	1.2	2	80-85	1	P	C4	11 SEP 86	
05 SEP 86	0603	1644.2	-.2	2	172-83	1	P	C4	13 OCT 86	
26 OCT 86	2230	1668.9	4.6	2	318-83	1	P	C4	14 NOV 86	
02 NOV 86	2230	1677.3	1.7	2	718-85	1	P	C4	11 DEC 86	
13 NOV 86	2230	1689.5	-6.1	2	448-83	1	P	C4	11 DEC 86	
20 NOV 86	2200	1696.8	.2	2	86-85	1	P	C4	07 JAN 87	
18 DEC 86	2340	1669.8	-3.3	2	106-85	1	P	C4	07 JAN 87	
29 DEC 86	2215	1699.2	-5.2	2	876-83	1	P	C4	08 JAN 87	
12 JAN 87	2245	1670.4	8.7	2	502-83	1	P	C4	20 JAN 87	
15 JAN 87	2215	1697.4	4.5	2	502-82	1	P	C4	18 FEB 87	
08 FEB 87	2230	1698.6	-2.3	2	210-83	1	P	C4	18 FEB 87	
16 FEB 87	2230	1679.8	-1.9	2	250-85	1	P	C4	24 FEB 87	
23 FEB 87	2234	1671.5	-2.1	2	278-85	1	P	C4	05 MAR 87	
09 MAR 87	0058	1671.8	-1.0	2	880-83	1	P	C4	24 MAR 87	
16 MAR 87	2238	1690.2	3.3	2	374-85	1	P	C4	25 MAR 87	
22 MAR 87	2330	1705.6	4.8	2	1546-82	1	P	C4	02 APR 87	
02 APR 87	2340	1698.1	-13.8	3	502-83	1	P	C4	22 APR 87	
09 APR 87	2235	1688.7	-3.3	2	770-85	1	P	C4	21 APR 87	
20 APR 87	2235	1673.3	11.5	3	44-83	1	P	C4	28 APR 87	
30 APR 87	2230	1691.4	5.6	2	946-81	1	P	C4	15 MAY 87	
06 MAY 87	2240	1689.3	-9.5	2	510-83	1	P	C4	21 MAY 87	
14 MAY 87	2220	1699.5	-4.8	2	84-85	1	P	C4	01 JUN 87	
21 MAY 87	2232	1701.5	.4	2	602-85	1	P	C4	09 JUN 87	
15 JUN 87	2245	1660.4	-3.0	2	66-85	1	P	C4	30 JUN 87	
22 JUN 87	2225	1660.7	4.3	2	48-85	1	P	C4	30 JUN 87	
05 JUL 87	2245	1658.4	-4.8	2	832-83	1	P	C4	22 JUL 87	
16 JUL 87	2250	1652.1	3.2	2	806-83	1	P	C4	30 JUL 87	
23 JUL 87	2250	1639.5	4.6	2	226-83	1	P	C4	11 AUG 87	
29 JUL 87	2255	1662.7	-1.6	2	750-85	1	P	C4	02 SEP 87	
03 AUG 87	2225	1671.0	.3	2	1630-82	1	P	C4	02 SEP 87	
09 AUG 87	2310	1662.5	-.4	2	192-83	1	P	C4	02 SEP 87	
16 AUG 87	2235	1667.1	.3	2	506-85	1	P	C4	03 SEP 87	
26 AUG 87	2250	1645.4	2.6	2	242-86	1	P	C4	09 SEP 87	
09 SEP 87	2230	1647.0	3.0	2	294-86	1	P	C4	24 SEP 87	
17 SEP 87	2240	1639.5	-7.3	2	342-82	1	P	C4	30 SEP 87	
24 SEP 87	2230	1705.5	-11.8	3	36-85	1	P	C4	08 OCT 87	
01 OCT 87	2215	1695.9	-8.4	2	824-85	1	P	C4	08 OCT 87	
08 OCT 87	2250	1662.6	-5.0	2	1762-82	1	P	C4	27 OCT 87	
15 OCT 87	2145	1690.4	-.6	2	558-85	1	P	C4	09 NOV 87	
22 OCT 87	2205	1706.5	4.5	2	652-85	1	P	C4	09 NOV 87	
26 OCT 87	2150	1690.1	2.5	2	419-85	1	P	C4	18 NOV 87	
05 NOV 87	2205	1688.4	8.4	2	54-85	1	P	C4	18 NOV 87	
12 NOV 87	2210	1692.8	6.1	2	248-87	1	P	C4	24 NOV 87	
19 NOV 87	2320	1644.1	-7.6	2	464-83	1	P	C4	04 DEC 87	
26 NOV 87	2250	1693.0	3.9	2	12-85	1	P	C4	04 DEC 87	
03 DEC 87	2215	1695.1	.7	2	174-85	1	P	C4	31 DEC 87	

Halley Bay, Antarctica (HBA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
13 JAN 86	1923	1583.7	-1.5	2	110-85	1	P	C4	10 AUG 87	
27 JAN 86	1930	1577.2	-2.1	2	112-85	1	P	C4	10 AUG 87	
12 FEB 86	0545	1573.0	-2.7	2	113-85	1	P	C4	11 AUG 87	
24 FEB 86	1925	1565.0	4.2	2	116-85	1	P	C4	10 AUG 87	
14 MAR 86	1930	1579.7	4.6	2	118-85	1	P	C4	10 AUG 87	
24 MAR 86	1920	1572.6	-2.3	2	120-85	1	P	C4	11 AUG 87	
14 APR 86	1830	1580.5	.4	2	121-85	1	P	C4	11 AUG 87	
23 APR 86	2015	1580.6	.5	2	123-85	1	P	C4	11 AUG 87	
07 MAY 86	1700	1586.1	-6.9	2	126-85	1	P	C4	11 AUG 87	
21 MAY 86	2000	1581.9	.1	2	128-85	1	P	C4	10 AUG 87	
04 JUN 86	1935	1590.1	5.8	2	130-85	1	P	C4	11 AUG 87	
18 JUN 86	1930	1594.5	-.3	2	132-85	1	P	C4	10 AUG 87	
18 JUL 86	1930	1610.2	-.3	2	150-85	1	P	C4	10 AUG 87	
30 JUL 86	1700	1608.8	3.4	2	152-85	1	P	C4	10 AUG 87	
16 AUG 86	2115	1610.9	-.9	2	154-85	1	P	C4	10 AUG 87	
27 AUG 86	2100	1611.0	0.0	2	156-85	1	P	C4	10 AUG 87	
10 SEP 86	1940	1611.7	-3.8	2	158-85	1	P	C4	10 AUG 87	
24 SEP 86	1830	1613.9	1.5	2	160-85	1	P	C4	10 AUG 87	
08 OCT 86	2010	1612.9	1.6	2	161-85	1	P	C4	11 AUG 87	
22 OCT 86	2000	1616.3	-1.1	2	164-85	1	P	C4	11 AUG 87	
05 NOV 86	1900	1610.2	5.1	2	446-85	1	P	C4	10 AUG 87	
03 DEC 86	1905	1609.5	-5.9	2	450-85	1	P	C4	11 AUG 87	
16 DEC 86	2030	1603.2	-1.7	2	456-85	1	P	C4	11 AUG 87	
01 JAN 87	1900	1591.6	.4	2	458-85	1	P	C4	11 OCT 88	
15 JAN 87	1930	1590.9	3.0	2	460-85	1	P	C4	11 OCT 88	
28 JAN 87	1900	1587.2	-4.7	2	461-85	1	P	C4	14 OCT 88	
28 JAN 87	1900	1590.4		1	462-85	1	P	C4	11 OCT 88	
11 FEB 87	2000	1584.2	-.4	2	464-85	1	P	C4	11 OCT 88	
11 APR 87	2100	1595.1	-.5	2	468-85	1	P	C4	11 OCT 88	
22 APR 87	2050	1596.8	4.1	2	470-85	1	P	C4	11 OCT 88	
21 MAY 87	1950	1602.8	9.3	2	474-85	1	P	C4	10 OCT 88	
17 JUN 87	1950	1612.5	-.6	2	478-85	1	P	C4	10 OCT 88	
01 JUL 87	1945	1622.5	2.0	2	480-85	1	P	C4	10 OCT 88	
30 JUL 87	1930	1620.2	-2.4	2	484-85	1	P	C4	11 OCT 88	
14 AUG 87	1945	1620.8	-2.2	2	434-85	1	P	C4	11 OCT 88	
18 JAN 88	2015	1610.4	-2.0	2	64-86	1	P	C4	11 OCT 88	
18 JAN 88	2020	1608.4	-.9	2	68-86	1	P	C4	11 OCT 88	
16 MAR 88	1945	1606.1	-.2	2	46-87	1	P	C4	06 SEP 89	

Key Biscayne, Florida (KEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
09 JAN 86	1845	1720.9	1.5	2	756-83	1	P	C4	11 FEB 86	
10 FEB 86	1900	1672.9	-.9	2	836-82	1	P	C4	19 FEB 86	
14 FEB 86	1945	1717.2	1.8	2	1202-82	1	P	C4	10 MAR 86	
17 MAR 86	1820	1717.3	3.3	2	804-83	1	P	C4	18 APR 86	
28 MAR 86	1915	1701.6	1.3	2	1172-82	1	P	C4	16 APR 86	
11 APR 86	1930	1735.8	-.1	2	42-85	1	P	C4	20 APR 86	
24 APR 86	1850	1727.0	-.3	2	1094-82	1	P	C4	01 MAY 86	
07 MAY 86	1845	1702.7	-1.0	2	60-85	1	P	C4	14 MAY 86	
13 MAY 86	1905	1705.3	1.7	2	374-85	1	P	C4	31 MAY 86	
16 MAY 86	1850	1712.8	.1	3	34-82	1	P	C4	28 MAY 86	
23 MAY 86	1820	1660.0	-4.0	2	2-83	1	P	C4	10 JUN 86	
28 MAY 86	1830	1712.4	4.4	2	1114-82	1	P	C4	12 JUN 86	
05 JUN 86	1820	1654.2	-3.3	2	897-82	1	P	C4	07 AUG 86	
09 JUN 86	1825	1658.1	-2.3	2	1644-82	1	P	C4	05 AUG 86	
13 JUN 86	1815	1661.0	3.1	2	6-85	1	P	C4	05 AUG 86	
24 JUN 86	1925	1668.4	3.2	2	578-83	1	P	C4	08 JUL 86	
08 JUL 86	1810	1664.5	-3.9	2	730-85	1	P	C4	05 AUG 86	
15 JUL 86	1730	1658.1	3.5	2	240-85	1	P	C4	29 JUL 86	
23 JUL 86	1850	1657.0	-.2	2	380-85	1	P	C4	09 AUG 86	
05 AUG 86	1900	1655.8	-4.8	2	404-82	1	P	C4	24 AUG 86	
12 AUG 86	1745	1657.9	-5.5	2	290-85	1	P	C4	25 SEP 86	
22 AUG 86	1800	1658.7	-3.1	2	542-82	1	P	C4	25 SEP 86	
11 SEP 86	1815	1655.6	4.4	2	288-85	1	P	C4	19 SEP 86	
16 SEP 86	1800	1658.9	.1	2	566-85	1	P	C4	30 SEP 86	
24 SEP 86	1830	1707.2	.7	2	26-85	1	P	C4	08 OCT 86	
30 SEP 86	1800	1676.2	6.2	2	544-85	1	P	C4	09 OCT 86	
07 OCT 86	1850	1681.4	-.3	2	358-85	1	P	C4	13 OCT 86	
17 OCT 86	1800	1717.3	-5.4	2	848-83	1	P	C4	20 OCT 86	
30 OCT 86	1900	1711.3	7.7	2	664-83	1	P	C4	14 NOV 86	
07 NOV 86	1910	1703.6	-.7	2	1172-82	1	P	C4	17 NOV 86	
12 NOV 86	1930	1682.0	7.9	2	264-83	1	P	C4	17 NOV 86	
20 NOV 86	1900	1671.9	-2.8	2	56-85	1	P	C4	11 DEC 86	
08 DEC 86	1910	1705.5	.3	2	852-83	1	P	C4	23 DEC 86	
22 DEC 86	1930	1724.8	3.5	2	1564-82	1	P	C4	07 JAN 87	
31 DEC 86	1510	1728.0	2.5	2	84-85	1	P	C4	08 JAN 87	
14 JAN 87	1910	1718.2	-2.7	2	368-85	1	P	C4	20 JAN 87	
21 JAN 87	2010	1683.9	6.2	2	796-83	1	P	C4	04 FEB 87	
02 FEB 87	1950	1719.3	-8.8	2	542-83	1	P	C4	10 FEB 87	
26 FEB 87	1910	1725.3	-5.1	2	308-85	1	P	C4	04 MAR 87	
04 MAR 87	1920	1733.8	-4.8	2	28-85	1	P	C4	02 APR 87	
26 MAR 87	1915	1713.4	.4	2	24-85	1	P	C4	02 APR 87	
30 MAR 87	1900	1715.4	-5.1	2	868-83	1	P	C4	21 APR 87	
14 APR 87	1830	1712.8	-.7	2	366-82	1	P	C4	21 APR 87	
27 APR 87	1815	1727.4	2.3	2	400-83	1	P	C4	30 APR 87	
07 MAY 87	1800	1689.7	2.9	2	580-85	1	P	C4	26 MAY 87	
19 MAY 87	1744	1696.4	-1.9	2	414-85	1	P	C4	26 MAY 87	
11 JUN 87	1745	1666.7	3.5	2	136-85	1	P	C4	30 JUN 87	
22 JUN 87	1830	1669.6	1.1	2	698-83	1	P	C4	30 JUN 87	
01 JUL 87	1550	1668.4	-2.0	2	50-85	1	P	C4	13 JUL 87	
06 JUL 87	1830	1664.5	-1.1	2	388-85	1	P	C4	13 JUL 87	
10 JUL 87	1820	1682.1	-4.2	2	366-82	1	P	C4	30 JUL 87	
15 JUL 87	1800	1680.4		1	726-82	1	P	C4	30 JUL 87	
15 JUL 87	1800	1688.9	-12.5	2	726-82	1	P	C4	30 JUL 87	
21 JUL 87	1845	1689.7	8.4	2	327-85	1	P	C4	12 AUG 87	
28 JUL 87	1800	1682.8		1	12-83	1	P	C4	12 AUG 87	
05 AUG 87	1915	1658.4		1	784-85	1	P	C4	09 SEP 87	
17 AUG 87	1800	1670.4	-15.0	2	30-85	1	P	C4	09 SEP 87	
24 AUG 87	1800	1700.5	-46.7	2	501-83	1	P	C4	09 SEP 87	
31 AUG 87	1800	1716.3		1	413-85	1	P	C4	09 SEP 87	
14 SEP 87	1810	1695.7	8.2	2	172-83	1	P	C4	24 SEP 87	
05 OCT 87	9999	1745.5	.5	2	276-82	1	P	C4	26 OCT 87	
09 NOV 87	1850	1713.8	2.2	2	158-85	1	P	C4	18 NOV 87	
17 NOV 87	1910	1714.5	-7.5	2	362-82	1	P	C4	24 NOV 87	
15 DEC 87	1920	1716.1	1.1	2	272-87	1	P	C4	04 JAN 88	

Key Biscayne, Florida (KEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
24 DEC 87	1615	1707.0	-2.1	2	438-83	1	P	C4	02 JAN 88	
31 DEC 87	1620	1733.7	3.0	2	520-87	1	P	C4	19 JAN 88	
07 JAN 88	1845	1735.0	.6	2	522-87	1	P	C4	19 JAN 88	
29 JAN 88	1840	1743.7	1.2	2	198-85	1	P	C4	04 FEB 88	
19 FEB 88	1915	1700.6	2.6	2	166-85	1	P	C4	01 MAR 88	
09 MAR 88	1900	1719.0	-10.9	2	78-87	1	P	C4	23 MAR 88	
26 APR 88	1810	1716.8	-.7	2	249-85	1	P	C4	16 MAY 88	
10 MAY 88	1810	1742.5	-7.0	2	212-85	1	P	C4	23 MAY 88	
13 MAY 88	1740	1717.1	.9	2	68-85	1	P	C4	23 MAY 88	
09 JUN 88	1420	1704.2	4.6	2	564-87	1	P	C4	15 JUN 88	
23 JUN 88	1410	1705.8	-8.9	2	237-85	1	P	C4	07 JUL 88	
22 JUL 88	1910	1693.8	-2.8	2	256-86	1	P	C4	17 AUG 88	
09 AUG 88	1740	1683.0	-2.5	2	394-85	1	P	C4	17 AUG 88	
02 SEP 88	1820	1685.6	-1.5	2	125-87	1	P	C4	19 SEP 88	
14 OCT 88	1810	1757.7	-12.2	3	268-85	1	P	C4	24 OCT 88	
09 NOV 88	1945	1748.9	-9.6	2	78-87	1	P	C4	17 NOV 88	
21 NOV 88	1915	1715.8	13.7	3	500-85	1	P	C4	12 DEC 88	
07 DEC 88	1915	1754.7	-4.1	2	452-85	1	P	C4	14 DEC 88	
15 DEC 88	1930	1757.5	-1.6	2	74-81	1	P	C4	23 JAN 89	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 JAN 86	2310	1663.6	1.7	2	2074-85	1	P	C3	09 JAN 86	
06 JAN 86	2310	1669.4	-.6	2	2873-85	6	P	C3	09 JAN 86	
13 JAN 86	2316	1696.5	5.4	2	2839-85	6	P	C4	04 FEB 86	
10 FEB 86	2315	1652.1	-4.3	2	2852-85	1	P	C4	13 FEB 86	
18 FEB 86	2323	1699.2	5.9	2	2824-85	1	P	C4	27 FEB 86	
24 FEB 86	2308	1649.2		1	2822-85	1	P	C4	27 FEB 86	
03 MAR 86	2300	1667.8	3.2	2	2874-85	1	P	C4	14 MAR 86	
10 MAR 86	2328	1650.1	.5	2	2816-85	1	P	C4	13 MAR 86	
17 MAR 86	2313	1667.6	-7.1	2	2834-85	1	P	C4	21 MAR 86	
24 MAR 86	2221	1704.6	6.3	2	2878-85	1	P	C4	18 APR 86	
31 MAR 86	2310	1686.2	5.7	2	2828-85	1	P	C4	18 APR 86	
14 APR 86	2335	1700.2	-3.0	2	2850-85	1	P	C4	20 APR 86	
21 APR 86	2302	1685.5	-6.5	2	2842-85	1	P	C4	01 MAY 86	
28 APR 86	2300	1684.9	.5	2	2837-85	6	P	C4	01 MAY 86	
05 MAY 86	2309	1665.7	6.3	2	2823-85	6	P	C4	31 MAY 86	
05 MAY 86	2309	1666.9	-3.7	2	2824-85	1	P	C4	31 MAY 86	
12 MAY 86	2334	1671.9	-.9	2	2821-85	6	P	C4	31 MAY 86	
19 MAY 86	2230	1654.1	-5.1	2	2891-85	6	P	C4	11 JUN 86	
19 MAY 86	2230	1661.5	-2.7	2	2892-85	1	P	C4	11 JUN 86	
02 JUN 86	2300	1701.8	-5.3	2	2807-82	6	P	C4	12 JUN 86	
09 JUN 86	2300	1670.2	1.6	3	2809-85	6	P	C4	12 JUN 86	
09 JUN 86	2300	1671.2	-8.5	3	2810-85	1	P	C4	12 JUN 86	
16 JUN 86	2309	1670.8	-5.9	2	2839-85	6	P	C4	23 JUL 86	
16 JUN 86	2309	1681.2	-2.0	2	2840-85	1	P	C4	23 JUL 86	
01 JUL 86	2345	1656.4	-.5	2	2831-85	6	P	C4	22 JUL 86	
01 JUL 86	2345	1657.5	-2.4	2	2832-85	1	P	C4	22 JUL 86	
07 JUL 86	2301	1660.5	-2.3	2	2829-85	6	P	C4	22 JUL 86	
07 JUL 86	2301	1659.7	5.1	2	2830-85	1	P	C4	22 JUL 86	
14 JUL 86	2300	1642.3	-15.8	3	2807-85	6	P	C4	10 AUG 86	
14 JUL 86	2300	1657.3	-.3	2	2808-85	1	P	C4	10 AUG 86	
21 JUL 86	2325	1639.5	10.2	3	2893-85	6	P	C4	09 AUG 86	
21 JUL 86	2325	1642.4	-1.2	2	2894-85	1	P	C4	09 AUG 86	
28 JUL 86	2248	1685.4	.6	2	2835-85	6	P	C4	08 AUG 86	
04 AUG 86	2246	1644.5	-1.3	2	2857-85	6	P	C4	08 AUG 86	
04 AUG 86	2246	1668.9	-.6	2	2858-85	1	P	C4	08 AUG 86	
11 AUG 86	2308	1683.6	4.5	2	2895-85	6	P	C4	15 SEP 86	
18 AUG 86	2310	1644.5	4.8	2	2889-85	6	P	C4	15 SEP 86	
18 AUG 86	2310	1660.1	.1	2	2890-85	1	P	C4	15 SEP 86	
02 SEP 86	2302	1643.6	5.0	2	2832-85	1	P	C4	18 SEP 86	
22 SEP 86	2320	1681.8	-1.9	2	2868-85	1	P	C4	30 SEP 86	
24 SEP 86	2156	1721.7	-10.4	2	1680-82	1	P	C4	08 OCT 86	
29 SEP 86	2218	1681.8		1	34-85	1	P	C4	08 OCT 86	
06 OCT 86	2307	1673.7	-3.3	2	642-83	1	P	C4	20 OCT 86	
14 OCT 86	2310	1677.4	-3.8	2	222-85	1	P	C4	20 OCT 86	
20 OCT 86	2300	1691.7	-6.4	2	698-83	1	P	C4	12 NOV 86	
03 NOV 86	2320	1705.4	-2.9	2	26-85	1	P	C4	17 NOV 86	
10 NOV 86	2250	1682.3	-3.4	2	1304-82	1	P	C4	17 NOV 86	
17 NOV 86	2333	1702.3	-1.7	2	310-83	1	P	C4	09 DEC 86	
01 DEC 86	2336	1710.7	-3.7	2	1138-82	1	P	C4	23 DEC 86	
08 DEC 86	2324	1711.4		1	249-85	1	P	C4	23 DEC 86	
15 DEC 86	2323	1687.0	3.2	2	542-85	1	P	C4	30 DEC 86	
22 DEC 86	2230	1694.8	-4.5	2	508-85	1	P	C4	30 DEC 86	
29 DEC 86	2310	1704.9	1.3	2	342-85	1	P	C4	09 JAN 87	
05 JAN 87	2323	1703.3	8.3	2	192-83	1	P	C4	09 JAN 87	
12 JAN 87	2314	1712.9	2.1	2	738-85	1	P	C4	03 FEB 87	
21 JAN 87	2206	1724.2	.6	2	174-85	1	P	C4	03 FEB 87	
26 JAN 87	2322	1724.8	.5	2	566-85	1	P	C4	11 FEB 87	
02 FEB 87	2313	1704.4	7.2	2	780-83	1	P	C4	11 FEB 87	
09 FEB 87	2320	1700.3	-2.8	2	1564-82	1	P	C4	24 FEB 87	
17 FEB 87	2318	1678.4	3.6	2	522-83	1	P	C4	04 MAR 87	
23 FEB 87	2325	1670.4	6.5	2	1292-82	1	P	C4	04 MAR 87	
02 MAR 87	2327	1698.3	5.1	2	842-85	1	P	C4	13 MAR 87	
09 MAR 87	2315	1693.7	-5.6	2	306-83	1	P	C4	13 MAR 87	
16 MAR 87	2325	1690.7	-1.2	2	408-85	1	P	C4	25 MAR 87	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
23 MAR 87	2201	1703.1	-6.0	2	34-85	1	P	C4	25 MAR 87	
30 MAR 87	2307	1714.6	-6.0	3	418-83	1	P	C4	22 APR 87	
06 APR 87	2324	1698.4	0.0	2	512-83	1	P	C4	22 APR 87	
13 APR 87	2329	1678.5	4.1	2	796-83	1	P	C4	30 APR 87	
21 APR 87	2327	1694.1	-.5	2	270-85	1	P	C4	28 APR 87	
05 MAY 87	0130	1680.6	3.5	2	330-85	1	P	C4	13 MAY 87	
11 MAY 87	2324	1720.5	6.4	2	566-85	1	P	C4	01 JUN 87	
18 MAY 87	2303	1692.9	7.2	2	2002-87	3	P	C4	26 MAY 87	
18 MAY 87	2314	1687.2	-3.7	2	810-85	1	P	C4	26 MAY 87	
18 MAY 87	2325	1697.2	1.3	2	2004-87	3	P	C4	26 MAY 87	
18 MAY 87	2336	1689.3	5.2	2	2006-87	3	P	C4	26 MAY 87	
18 MAY 87	2347	1687.3	-.9	2	2008-87	3	P	C4	26 MAY 87	
18 MAY 87	2358	1695.9	1.2	2	2010-87	3	P	C4	26 MAY 87	
19 MAY 87	0010	1683.5	-4.2	3	100-85	1	P	C4	26 MAY 87	
26 MAY 87	2314	1695.0	5.3	2	560-85	1	P	C4	01 JUN 87	
01 JUN 87	2306	1691.1	2.3	2	24-85	1	P	C4	15 JUN 87	
08 JUN 87	2322	1697.9	-2.6	2	798-82	1	P	C4	15 JUN 87	
29 JUN 87	2347	1707.1	-5.5	3	822-85	1	P	C4	08 JUL 87	
06 JUL 87	2309	1668.2	2.6	2	316-83	1	P	C4	22 JUL 87	
13 JUL 87	2309	1683.0	-.6	2	774-85	1	P	C4	22 JUL 87	
27 JUL 87	2328	1686.5	3.8	2	390-85	1	P	C4	30 JUL 87	
03 AUG 87	2342	1685.1	-4.4	2	422-83	1	P	C4	04 SEP 87	
17 AUG 87	2319	1646.4	-1.8	2	2020-87	3	P	C4	02 SEP 87	
17 AUG 87	2330	1643.6	-1.2	2	2024-87	3	P	C4	02 SEP 87	
17 AUG 87	2346	1646.1	3.0	2	3028-84	5	T	C4	02 SEP 87	
17 AUG 87	2354	1644.5	-4.1	2	2022-87	3	P	C4	02 SEP 87	
24 AUG 87	2311	1660.8	-.1	2	812-85	1	P	C4	03 SEP 87	
31 AUG 87	2326	1673.2	-2.8	2	756-83	1	P	C4	03 SEP 87	
31 AUG 87	2328	1667.1	1.8	2	3068-84	5	T	C4	15 SEP 87	
08 SEP 87	2320	1701.0	.7	2	1086-82	1	P	C4	24 SEP 87	
08 SEP 87	2325	1702.9	9.6	2	3102-83	5	T	C4	15 SEP 87	
14 SEP 87	2300	1659.1	-2.1	2	310-83	1	P	C4	24 SEP 87	
14 SEP 87	2302	1661.1	2.4	2	3052-84	5	T	C4	29 SEP 87	
21 SEP 87	2255	1697.8	-4.8	2	806-83	1	P	C4	30 SEP 87	
21 SEP 87	2301	1698.5	-1.4	2	3028-83	5	T	C4	29 SEP 87	
28 SEP 87	2316	1659.3	3.6	2	716-85	1	P	C4	30 SEP 87	
28 SEP 87	2318	1663.1	-5.0	2	3004-84	5	T	C4	08 OCT 87	
05 OCT 87	2240	1692.1	2.0	2	411-85	1	P	C4	26 OCT 87	
05 OCT 87	2240	1698.4		1	412-85	1	P	C4	26 OCT 87	
05 OCT 87	2245	1688.7	-3.1	2	3062-83	5	T	C4	08 OCT 87	
13 OCT 87	2317	1685.1	2.9	2	154-85	1	P	C4	26 OCT 87	
13 OCT 87	2323	1690.3	-12.9	3	3054-83	5	T	C4	28 OCT 87	
19 OCT 87	2310	1703.0	-.9	2	676-85	1	P	C4	28 OCT 87	
19 OCT 87	2315	1703.3	1.2	2	3040-83	5	T	C4	28 OCT 87	
26 OCT 87	2317	1703.3	5.0	2	608-85	1	P	C4	28 OCT 87	
26 OCT 87	2320	1705.6	7.3	2	3102-83	5	T	C4	10 NOV 87	
02 NOV 87	2315	1694.0	3.4	2	116-87	1	P	C4	17 NOV 87	
02 NOV 87	2325	1700.6	3.1	2	3072-84	5	T	C4	10 NOV 87	
09 NOV 87	2326	1697.0	-2.3	2	119-87	1	P	C4	17 NOV 87	
09 NOV 87	2326	1696.0		1	120-87	1	P	C4	17 NOV 87	
09 NOV 87	2330	1698.2	-3.2	2	3074-83	5	T	C4	18 NOV 87	
16 NOV 87	2254	1721.3	6.8	2	3060-83	5	T	C4	18 NOV 87	
23 NOV 87	2351	1719.4	1.7	2	240-87	1	P	C4	08 DEC 87	
23 NOV 87	2352	1715.0	.1	2	3002-83	5	T	C4	08 DEC 87	
30 NOV 87	2255	1716.0	.4	2	3078-84	5	T	C4	08 DEC 87	
07 DEC 87	2315	1729.5	1.5	2	122-85	1	P	C4	15 DEC 87	
07 DEC 87	2317	1731.0	-2.1	2	3070-84	5	T	C4	22 DEC 87	
14 DEC 87	2237	1702.2	-.6	2	352-86	1	P	C4	05 JAN 88	
14 DEC 87	2241	1699.8	-7.0	2	3068-83	5	T	C4	22 DEC 87	
21 DEC 87	2251	1702.5	-8.2	2	3022-84	5	T	C4	02 JAN 88	
28 DEC 87	2304	1722.5	5.2	2	554-87	1	P	C4	06 JAN 88	
28 DEC 87	2306	1719.6	4.9	2	3078-83	5	T	C4	02 JAN 88	
04 JAN 88	2300	1731.0	-4.8	2	551-87	1	P	C4	07 JAN 88	
04 JAN 88	2305	1727.9	-.1	2	3008-83	5	T	C4	13 JAN 88	
11 JAN 88	2315	1685.6	-2.6	2	406-85	1	P	C4	26 JAN 88	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 JAN 88	2318	1685.0	6.8	2	3068-84	5	T	C4	13 JAN 88	
19 JAN 88	2322	1693.5	-7.6	2	252-85	1	P	C4	26 JAN 88	
19 JAN 88	2325	1690.0	-1.0	2	3032-85	5	T	C4	03 FEB 88	
25 JAN 88	2318	1695.4	.5	2	288-87	1	P	C4	04 FEB 88	
25 JAN 88	2326	1691.2	-5.2	2	3074-84	5	T	C4	03 FEB 88	
01 FEB 88	2320	1690.8	-2.3	2	32-85	1	P	C4	04 FEB 88	
01 FEB 88	2324	1686.0	-7.0	2	3076-83	5	T	C4	16 FEB 88	
08 FEB 88	2332	1711.9	-3.3	2	3098-83	5	T	C4	16 FEB 88	
16 FEB 88	2317	1695.2	6.4	2	322-85	1	P	C4	24 FEB 88	
16 FEB 88	2319	1693.1	4.2	2	3070-84	5	T	C4	29 FEB 88	
22 FEB 88	2314	1670.6	2.1	2	364-86	1	P	C4	02 MAR 88	
22 FEB 88	2323	1682.0	-2.4	2	3002-84	5	T	C4	29 FEB 88	
29 FEB 88	2313	1724.3	1.8	2	372-86	1	P	C4	02 MAR 88	
29 FEB 88	2315	1727.3	-8.0	2	3040-83	5	T	C4	09 MAR 88	
07 MAR 88	2323	1710.7	1.0	2	106-87	1	P	C4	23 MAR 88	
07 MAR 88	2326	1709.3	8.6	2	3046-84	5	T	C4	09 MAR 88	
14 MAR 88	2300	1709.4	3.6	2	327-86	1	P	C4	23 MAR 88	
14 MAR 88	2306	1708.6	-6.3	2	3056-84	5	T	C4	24 MAR 88	
21 MAR 88	2312	1706.3	1.0	2	126-85	1	P	C4	11 APR 88	
21 MAR 88	2314	1703.6	4.1	2	3050-83	5	T	C4	24 MAR 88	
04 APR 88	2325	1702.6	4.0	2	124-85	1	P	C4	11 APR 88	
04 APR 88	2327	1702.1	13.4	3	3064-84	5	T	C4	26 APR 88	
12 APR 88	0127	1735.8	-3.6	2	88-85	1	P	C4	21 APR 88	
12 APR 88	0130	1730.4	-.4	2	3052-84	5	T	C4	26 APR 88	
18 APR 88	2320	1704.7	1.1	2	96-85	1	P	C4	21 APR 88	
18 APR 88	2322	1704.8	-4.5	2	3034-85	5	T	C4	04 MAY 88	
25 APR 88	2315	1725.3	1.4	2	4-85	1	P	C4	13 MAY 88	
25 APR 88	2318	1722.2	3.0	2	3010-84	5	T	C4	04 MAY 88	
02 MAY 88	2315	1709.9	3.7	2	274-86	1	P	C4	13 MAY 88	
02 MAY 88	2317	1707.2	-2.0	2	3036-84	5	T	C4	13 MAY 88	
09 MAY 88	2335	1706.6	4.0	2	586-87	1	P	C4	23 MAY 88	
09 MAY 88	2337	1720.0	-1.2	2	3098-84	5	T	C4	13 MAY 88	
16 MAY 88	2320	1695.4	1.6	2	370-86	1	P	C4	23 MAY 88	
16 MAY 88	2326	1700.5	-4.8	2	3026-84	5	T	C4	01 JUN 88	
23 MAY 88	2307	1700.1	1.4	2	330-86	1	P	C4	14 JUN 88	
23 MAY 88	2310	1699.6	0.0	2	3020-85	5	T	C4	01 JUN 88	
31 MAY 88	2314	1701.7	13.9	3	3022-83	5	T	C4	15 JUN 88	
06 JUN 88	2320	1669.8	4.1	2	370-85	1	P	C4	20 JUN 88	
06 JUN 88	2323	1676.0	4.5	2	3062-83	5	T	C4	15 JUN 88	
13 JUN 88	2309	1700.9	7.8	2	126-85	1	P	C4	20 JUN 88	
13 JUN 88	2315	1694.9	4.8	3	3090-84	5	T	C4	22 JUN 88	
20 JUN 88	2326	1704.2	-3.3	2	230-86	1	P	C4	01 JUL 88	
20 JUN 88	2330	1698.2	2.6	3	3084-84	5	T	C4	22 JUN 88	
28 JUN 88	2313	1680.3	-1.9	2	358-86	1	P	C4	01 JUL 88	
28 JUN 88	2318	1676.1	0.0	2	3092-83	5	T	C4	19 JUL 88	
05 JUL 88	2323	1686.0	-4.9	2	3030-85	5	T	C4	19 JUL 88	
11 JUL 88	2257	1695.3	-5.4	2	450-85	1	P	C4	18 JUL 88	
11 JUL 88	2305	1697.2	5.2	2	3008-85	5	T	C4	09 AUG 88	
18 JUL 88	2325	1662.5	-1.1	2	3016-84	5	T	C4	09 AUG 88	
25 JUL 88	2318	1664.2	5.9	2	154-85	1	P	C4	16 AUG 88	
25 JUL 88	2319	1664.5	0.0	2	3026-84	5	T	C4	09 AUG 88	
01 AUG 88	2313	1667.6	.7	2	220-86	1	P	C4	17 AUG 88	
01 AUG 88	2317	1664.4	-.5	2	3100-83	5	T	C4	09 AUG 88	
08 AUG 88	2312	1685.3	5.3	2	324-85	1	P	C4	17 AUG 88	
08 AUG 88	2316	1685.6	-8.2	2	3022-84	5	T	C4	18 AUG 88	
15 AUG 88	2313	1675.3	-1.0	2	684-85	1	P	C4	30 AUG 88	
15 AUG 88	2315	1673.4	2.0	2	3016-85	5	T	C4	18 AUG 88	
22 AUG 88	2359	1698.3	-3.8	2	3036-84	5	T	C4	01 SEP 88	
29 AUG 88	2312	1693.5	3.9	2	3098-84	5	T	C4	01 SEP 88	
06 SEP 88	2312	1668.5	-5.4	2	230-86	1	P	C4	16 SEP 88	
06 SEP 88	2313	1665.6	7.0	2	3004-88	1	T	C4	19 SEP 88	
12 SEP 88	2304	1690.0	-5.3	2	3006-88	1	T	C4	19 SEP 88	
19 SEP 88	2327	1714.1	3.2	2	3002-84	5	T	C4	04 OCT 88	
27 SEP 88	2257	1692.5	3.8	2	21-85	1	P	C4	19 OCT 88	
27 SEP 88	2257	1689.6		1	22-85	1	P	C4	18 OCT 88	

Kumukahi, Hawaii (KUM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
27 SEP 88	2302	1689.7	1.6	2	3032-84	5	T	C4	04 OCT 88	
03 OCT 88	2326	1698.8	1.9	2	3056-84	5	T	C4	18 OCT 88	
11 OCT 88	2304	1698.4	5.9	2	654-85	1	P	C4	24 OCT 88	
11 OCT 88	2306	1688.2	1.4	2	3076-83	5	T	C4	18 OCT 88	
18 OCT 88	2248	1687.0	5.9	2	124-87	1	P	C4	24 OCT 88	
18 OCT 88	2250	1695.7	-.5	2	3006-60	5	T	C4	27 OCT 88	
24 OCT 88	2307	1681.4	.8	2	70-81	1	P	C4	04 NOV 88	
24 OCT 88	2314	1685.3	-1.2	2	3002-60	5	T	C4	27 OCT 88	
31 OCT 88	2305	1717.0	-2.7	2	72-81	1	P	C4	04 NOV 88	
31 OCT 88	2307	1716.1	3.0	2	3026-60	5	T	C4	10 NOV 88	
07 NOV 88	2253	1704.3	3.6	2	3032-60	5	T	C4	10 NOV 88	
14 NOV 88	2253	1719.5	-.3	2	92-81	1	P	C4	22 NOV 88	
14 NOV 88	2255	1714.6	-.2	2	3042-60	5	T	C4	01 DEC 88	
21 NOV 88	2231	1724.8	-3.0	2	162-81	1	P	C4	02 DEC 88	
21 NOV 88	2233	1726.6	7.4	2	3048-83	5	T	C4	01 DEC 88	
28 NOV 88	2315	1710.1	-4.5	2	124-81	1	P	C4	02 DEC 88	
28 NOV 88	2316	1706.7	-2.6	2	3134-70	5	T	C4	08 DEC 88	
05 DEC 88	2312	1674.0	-3.1	2	3132-70	5	T	C4	08 DEC 88	
12 DEC 88	2302	1725.0	-4.0	2	408-81	1	P	C4	21 DEC 88	
12 DEC 88	2306	1727.8	-.7	2	3090-60	5	T	C4	03 JAN 89	
19 DEC 88	2225	1684.0	3.8	2	3020-60	5	T	C4	03 JAN 89	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
09 JAN 86	1745	1782.7	-5.6	2	798-82	1	P	C4	03 FEB 86	+
16 JAN 86	1635	1783.4	-2.3	2	99-83	1	P	C4	27 FEB 86	+
24 JAN 86	1355	1757.0	-1.1	2	680-83	1	P	C4	27 FEB 86	
31 JAN 86	0100	1790.5	-4.9	2	8-83	1	P	C4	31 MAR 86	+
10 FEB 86	1410	1750.7		1	540-83	1	P	C4	31 MAR 86	
17 FEB 86	1405	1797.9	.3	2	714-85	1	P	C4	31 MAR 86	+
25 FEB 86	0230	1760.5	8.4	2	626-83	1	P	C4	31 MAR 86	
10 MAR 86	1610	1816.7	-.1	2	330-83	1	P	C4	31 MAR 86	+
25 MAR 86	0230	1764.2	6.2	2	1604-82	1	P	C4	24 APR 86	
31 MAR 86	2000	1764.6	-14.5	3	430-85	1	P	C4	24 APR 86	
08 APR 86	0215	1759.8		1	628-83	1	P	C4	31 MAY 86	
14 APR 86	2330	1747.5	2.0	2	1010-82	1	P	C4	31 MAY 86	
22 APR 86	2000	1745.1	7.2	2	708-85	1	P	C4	28 MAY 86	
29 APR 86	0430	1761.4	4.9	2	1478-82	1	P	C4	12 JUN 86	
05 MAY 86	9999	1740.4	-7.5	2	404-82	1	P	C4	12 JUN 86	
13 MAY 86	0238	1738.1	3.0	2	1546-82	1	P	C4	12 JUN 86	
19 MAY 86	1358	1741.1	4.8	2	1332-82	1	P	C4	30 JUL 86	
26 MAY 86	1355	1735.2	4.5	2	834-83	1	P	C4	30 JUL 86	
02 JUN 86	1340	1729.3	-2.2	2	64-85	1	P	C4	30 JUL 86	
06 JUN 86	0230	1726.1	1.0	2	68-85	1	P	C4	30 JUL 86	
13 JUN 86	1505	1720.1	-.8	2	69-85	1	P	C4	09 AUG 86	
19 JUN 86	1405	1716.0	.8	2	846-83	1	P	C4	29 JUL 86	
26 JUN 86	1325	1724.1	-7.7	2	50-83	1	P	C4	09 AUG 86	
01 JUL 86	0146	1715.4	4.1	2	1540-82	1	P	C4	29 JUL 86	
08 JUL 86	0149	1720.8	5.6	2	674-83	1	P	C4	10 AUG 86	
14 JUL 86	1310	1711.4	3.0	2	704-83	1	P	C4	10 AUG 86	
21 JUL 86	1515	1718.7	-4.5	2	1318-82	1	P	C4	10 AUG 86	
29 JUL 86	0108	1721.7	7.2	2	1172-82	1	P	C4	20 SEP 86	
05 AUG 86	1445	1715.8	-1.0	2	1094-82	1	P	C4	20 SEP 86	
19 AUG 86	1635	1714.8	3.4	3	286-83	1	P	C4	19 SEP 86	
25 AUG 86	2120	1718.1	8.2	2	750-82	1	P	C4	20 SEP 86	
01 SEP 86	0240	1713.8	0.0	2	508-85	1	P	C4	16 OCT 86	
09 SEP 86	0134	1721.6	11.0	3	1564-82	1	P	C4	16 OCT 86	
15 SEP 86	1250	1734.9	2.6	2	1742-82	1	P	C4	16 OCT 86	
22 SEP 86	2330	1736.2	-7.1	2	542-85	1	P	C4	16 OCT 86	
29 SEP 86	1240	1745.8	-2.2	2	174-83	1	P	C4	13 NOV 86	
08 OCT 86	0420	1765.2	-3.0	2	780-83	1	P	C4	13 NOV 86	
13 OCT 86	2300	1766.7	6.2	2	66-85	1	P	C4	14 NOV 86	
20 OCT 86	1340	1772.3	-3.9	2	278-85	1	P	C4	14 NOV 86	
30 OCT 86	1340	1771.9	-13.0	3	188-85	1	P	C4	10 DEC 86	
06 NOV 86	1330	1766.7	-5.9	2	120-84	1	P	C4	10 DEC 86	
13 NOV 86	1400	1768.8	-.2	2	556-85	1	P	C4	22 JAN 87	
18 NOV 86	0240	1744.4	-.6	2	1578-82	1	P	C4	22 JAN 87	
08 DEC 86	9999	1742.4	-.6	2	706-85	1	P	C4	22 JAN 87	
12 DEC 86	9999	1780.7	-6.4	2	8-85	1	P	C4	22 JAN 87	
22 DEC 86	1225	1816.5	3.9	2	860-83	1	P	C4	05 MAR 87	+
02 JAN 87	0030	1816.3	3.7	2	1332-82	1	P	C4	05 MAR 87	+
16 JAN 87	2250	1783.6	2.8	2	284-85	1	P	C4	05 MAR 87	
23 JAN 87	0200	1845.9	-3.5	2	756-83	1	P	C4	05 MAR 87	+
27 JAN 87	0200	1791.2	6.3	2	288-85	1	P	C4	05 MAR 87	
03 FEB 87	0230	1755.7	-4.8	2	384-85	1	P	C4	05 MAR 87	
09 FEB 87	1350	1767.0	.9	2	694-83	1	P	C4	04 MAR 87	
16 FEB 87	1410	1780.4	-1.6	2	1484-82	1	P	C4	21 MAY 87	
24 FEB 87	2350	1755.7	2.8	2	290-85	1	P	C4	26 MAY 87	
02 MAR 87	1219	1758.5	-3.5	2	1149-82	1	P	C4	21 MAY 87	
09 MAR 87	1341	1781.8	-2.9	2	630-83	1	P	C4	28 APR 87	
16 MAR 87	1345	1792.3	-3.5	2	899-83	1	P	C4	28 APR 87	
23 MAR 87	1339	1775.1	1.2	2	176-85	1	P	C4	28 APR 87	
30 MAR 87	1343	1766.8	.8	2	327-85	1	P	C4	28 APR 87	
07 APR 87	1220	1750.3	1.3	2	351-85	1	P	C4	26 MAY 87	
13 APR 87	1235	1788.1	-5.8	2	179-85	1	P	C4	21 MAY 87	
20 APR 87	2245	1776.6	-3.1	2	920-82	1	P	C4	21 MAY 87	
27 APR 87	1230	1761.8	7.1	2	826-83	1	P	C4	15 JUN 87	
04 MAY 87	1330	1759.4	2.9	2	4-85	1	P	C4	15 JUN 87	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 MAY 87	1400	1770.9	-3.9	2	876-83	1	P	C4	15 JUN 87	
18 MAY 87	1300	1752.2	.2	2	1078-82	1	P	C4	08 JUL 87	
25 MAY 87	1340	1745.1	-3.8	2	586-85	1	P	C4	08 JUL 87	
01 JUN 87	0045	1746.8	-1.7	2	332-85	1	P	C4	08 JUL 87	
08 JUN 87	1418	1744.7	-1.8	2	742-85	1	P	C4	12 AUG 87	
15 JUN 87	1130	1729.2	1.6	2	948-82	1	P	C4	12 AUG 87	
22 JUN 87	1300	1723.3	3.5	2	687-85	1	P	C4	12 AUG 87	
29 JUN 87	1451	1719.7	-4.1	2	786-85	1	P	C4	04 DEC 87	
20 JUL 87	1435	1737.1	7.0	2	198-85	1	P	C4	15 SEP 87	
27 JUL 87	1330	1734.8	2.1	2	108-85	1	P	C4	04 DEC 87	
03 AUG 87	1315	1742.0	.3	2	608-85	1	P	C4	15 SEP 87	
10 AUG 87	1445	1728.2	-2.4	2	270-85	1	P	C4	26 OCT 87	
17 AUG 87	2154	1730.1	-.9	2	34-82	1	P	C4	26 OCT 87	
24 AUG 87	1315	1742.6	-5.4	2	802-85	1	P	C4	26 OCT 87	
31 AUG 87	1442	1733.8	-2.4	2	794-85	1	P	C4	26 OCT 87	
07 SEP 87	1344	1740.1	-.1	2	8-85	1	P	C4	26 OCT 87	
14 SEP 87	1320	1744.6	2.9	2	416-85	1	P	C4	26 OCT 87	
21 SEP 87	1525	1749.8	4.1	2	330-85	1	P	C4	04 DEC 87	
28 SEP 87	1326	1768.5	-6.2	2	316-83	1	P	C4	28 OCT 87	
01 OCT 87	1336	1770.3	2.4	2	392-85	1	P	C4	28 OCT 87	
09 OCT 87	1350	1771.5	-1.0	2	510-83	1	P	C4	08 DEC 87	
15 OCT 87	1355	1771.1	3.2	2	806-85	1	P	C4	08 DEC 87	
19 OCT 87	1401	1767.9	2.8	2	470-83	1	P	C4	04 DEC 87	
26 OCT 87	1341	1759.1	-1.3	2	472-83	1	P	C4	04 DEC 87	
02 NOV 87	1329	1759.5	3.5	2	492-83	1	P	C4	31 DEC 87	
09 NOV 87	9999	1775.0	-1.4	2	604-83	1	P	C4	31 DEC 87	
14 NOV 87	1430	1768.9	-1.5	2	841-85	1	P	C4	13 JAN 88	
23 NOV 87	1333	1766.2	-6.0	2	384-85	1	P	C4	13 JAN 88	
30 NOV 87	1100	1780.2	.1	2	787-85	1	P	C4	13 JAN 88	
07 DEC 87	1345	1762.2	.2	2	560-85	1	P	C4	26 JAN 88	
14 DEC 87	1318	1799.9	2.1	2	104-85	1	P	C4	26 JAN 88	
21 DEC 87	1347	1786.5	-9.6	2	56-85	1	P	C4	04 FEB 88	
25 DEC 87	1103	1788.4	-6.8	2	40-85	1	P	C4	03 FEB 88	
31 DEC 87	1250	1774.3	-4.6	2	18-85	1	P	C4	04 FEB 88	
07 JAN 88	1253	1763.4	.6	2	586-87	1	P	C4	29 FEB 88	
18 JAN 88	1310	1868.5	-12.6	3	564-87	1	P	C4	29 FEB 88	+
25 JAN 88	1250	1823.3	1.5	2	572-87	1	P	C4	29 FEB 88	
01 FEB 88	1425	1779.7	6.3	2	566-87	1	P	C4	23 MAR 88	
08 FEB 88	1223	1771.3	6.0	2	576-87	1	P	C4	23 MAR 88	
15 FEB 88	1310	1794.7	-.2	2	578-87	1	P	C4	23 MAR 88	
18 FEB 88	1305	1777.7	.6	2	584-87	1	P	C4	12 APR 88	
29 FEB 88	1530	1802.5	-3.1	2	246-85	1	P	C4	11 APR 88	
07 MAR 88	1245	1792.8	4.8	2	280-87	1	P	C4	13 APR 88	
14 MAR 88	1415	1763.7	-7.7	2	150-85	1	P	C4	29 APR 88	
21 MAR 88	1015	1797.3	2.5	2	233-87	1	P	C4	29 APR 88	
28 MAR 88	1400	1798.7	1.5	2	290-87	1	P	C4	29 APR 88	
05 APR 88	1530	1804.2	-6.3	2	288-87	1	P	C4	31 MAY 88	
11 APR 88	1430	1781.8	-6.7	2	598-87	1	P	C4	31 MAY 88	
18 APR 88	1415	1765.8	-1.5	2	602-87	1	P	C4	31 MAY 88	
25 APR 88	1323	1774.0	9.8	2	606-87	1	P	C4	12 JUL 88	
02 MAY 88	1420	1782.8	-8.0	2	570-87	1	P	C4	12 JUL 88	
09 MAY 88	1340	1783.4	-2.2	2	556-87	1	P	C4	12 JUL 88	
16 MAY 88	1325	1759.0	-5.1	2	572-87	1	P	C4	12 JUL 88	
23 MAY 88	1437	1750.8	12.1	3	581-87	1	P	C4	12 JUL 88	
23 MAY 88	1437	1746.8	18.8	2	582-87	1	P	C4	12 JUL 88	
30 MAY 88	0638	1744.4	3.5	2	124-85	1	P	C4	12 JUL 88	
06 JUN 88	1107	1743.7	-20.5	2	350-85	1	P	C4	09 AUG 88	
13 JUN 88	1345	1747.0	-8.0	2	266-86	1	P	C4	09 AUG 88	
20 JUN 88	1107	1740.5	2.8	2	534-87	1	P	C4	10 AUG 88	
30 JUN 88	1103	1743.3	2.1	2	544-85	1	P	C4	30 AUG 88	
07 JUL 88	1116	1729.7	-.4	2	378-86	1	P	C4	30 AUG 88	
14 JUL 88	1110	1717.4	.5	2	238-87	1	P	C4	30 AUG 88	
21 JUL 88	1106	1737.6	6.0	2	402-85	1	P	C4	31 AUG 88	
28 JUL 88	1300	1738.9	-3.3	2	506-85	1	P	C4	31 AUG 88	
04 AUG 88	1112	1731.0	-2.8	2	160-85	1	P	C4	31 AUG 88	

Mould Bay, Canada (MBC)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 AUG 88	1345	1737.4	3.1	2	560-85	1	P	C4	22 SEP 88	
19 AUG 88	1330	1747.3	-.2	2	322-85	1	P	C4	22 SEP 88	
01 SEP 88	1500	1738.2	-2.8	2	318-85	1	P	C4	27 OCT 88	
08 SEP 88	9999	1743.8	3.5	2	82-87	1	P	C4	27 OCT 88	
15 SEP 88	1322	1750.8	1.9	2	90-85	1	P	C4	27 OCT 88	
22 SEP 88	1430	1753.8	1.9	2	250-85	1	P	C4	27 OCT 88	
29 SEP 88	1315	1771.3	.4	2	674-85	1	P	C4	22 NOV 88	
06 OCT 88	1247	1768.4	12.0	3	224-86	1	P	C4	22 NOV 88	
13 OCT 88	0132	1773.3	1.2	2	122-87	1	P	C4	22 NOV 88	
20 OCT 88	9999	1781.6	-8.9	2	4-81	1	P	C4	22 NOV 88	
27 OCT 88	1218	1775.7	-3.7	2	6-81	1	P	C4	12 DEC 88	
03 NOV 88	1330	1790.9	-1.6	2	12-81	1	P	C4	12 DEC 88	
13 NOV 88	0813	1779.3	.3	2	112-81	1	P	C4	12 DEC 88	
18 NOV 88	0410	1784.2	8.9	2	526-81	1	P	C4	04 JAN 89	
24 NOV 88	1450	1766.8	-3.4	2	545-81	1	P	C4	04 JAN 89	
02 DEC 88	1455	1807.2		1	539-81	1	P	C4	31 JAN 89	
02 DEC 88	1455	1815.4		1	540-81	1	P	C4	30 JAN 89	
05 DEC 88	1250	1786.5	7.5	2	538-81	1	P	C4	30 JAN 89	

McMurdo, Antarctica (MCM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
01 JAN 86	0800	1582.3	5.7	2	718-85	1	P	C4	14 FEB 86	
16 JAN 86	0215	1592.7	7.5	2	1082-82	1	P	C4	01 APR 86	
30 JAN 86	2330	1580.4	0.0	2	416-85	1	P	C4	01 APR 86	
18 FEB 86	0000	1572.4	5.3	2	908-83	1	P	C4	11 SEP 86	
02 MAR 86	0200	1580.0	.1	2	1830-82	1	P	C4	11 SEP 86	
16 MAR 86	2200	1577.6	1.3	2	348-83	1	P	C4	11 SEP 86	
01 APR 86	2300	1582.2	-3.1	2	702-85	1	P	C4	11 SEP 86	
16 APR 86	0300	1584.4	.4	2	904-83	1	P	C4	11 SEP 86	
02 MAY 86	0300	1587.6	9.1	2	538-83	1	P	C4	11 SEP 86	
02 JUN 86	2300	1591.6	-.4	2	676-83	1	P	C4	11 SEP 86	
16 JUN 86	2200	1593.1	5.5	2	1028-82	1	P	C4	11 SEP 86	
03 JUL 86	0400	1604.7	9.0	2	822-83	1	P	C4	11 SEP 86	
16 JUL 86	0200	1607.2	-6.7	2	34-83	1	P	C4	11 SEP 86	
03 AUG 86	2140	1603.5	-7.5	2	1680-82	1	P	C4	11 SEP 86	
01 SEP 86	0000	1618.6	4.0	2	920-82	1	P	C4	09 JAN 87	
16 SEP 86	0630	1612.4	-1.6	2	880-83	1	P	C4	09 JAN 87	
01 OCT 86	0230	1613.9	-3.6	2	390-85	1	P	C4	09 JAN 87	
16 OCT 86	0900	1613.3	1.0	2	826-83	1	P	C4	09 JAN 87	
02 NOV 86	0200	1615.6	2.2	2	222-83	1	P	C4	09 JAN 87	
16 NOV 86	0400	1607.1	-2.0	2	74-83	1	P	C4	09 JAN 87	
30 NOV 86	2140	1609.8	-4.6	2	916-83	1	P	C4	20 APR 87	
16 DEC 86	0500	1603.2	6.2	2	726-82	1	P	C4	20 APR 87	
03 JAN 87	0630	1602.4	5.4	2	446-83	1	P	C4	20 APR 87	
19 JAN 87	0800	1597.2	-1.3	2	948-82	1	P	C4	20 APR 87	
05 FEB 87	0115	1591.8	5.4	2	832-83	1	P	C4	20 APR 87	
22 FEB 87	1300	1590.5	-3.8	2	20-85	1	P	C4	06 OCT 87	
04 MAR 87	0330	1590.8	2.5	2	790-85	1	P	C4	06 OCT 87	
20 APR 87	0400	1595.4		1	312-85	1	P	C4	06 OCT 87	
04 MAY 87	1900	1605.1	3.2	2	326-85	1	P	C4	06 OCT 87	
24 JUN 87	1600	1618.0	2.5	2	98-85	1	P	C4	11 DEC 87	
23 JUL 87	9999	1619.1	-3.7	2	492-85	1	P	C4	11 DEC 87	
06 OCT 87	0745	1624.2	8.2	2	512-85	1	P	C4	11 DEC 87	
09 OCT 87	1500	1620.6	.2	2	344-85	1	P	C4	11 DEC 87	
12 OCT 87	2315	1625.8	3.4	2	370-85	1	P	C4	11 DEC 87	
15 OCT 87	1400	1627.3	-3.9	2	322-85	1	P	C4	11 DEC 87	

Sand Island, Midway (MID)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
01 JAN 86	0300	1714.2	6.4	2	1164-82	1	P	C4	11 FEB 86	
04 JAN 86	0200	1700.9	-9.3	2	1478-82	1	P	C4	04 FEB 86	
08 JAN 86	0200	1722.0	-5.4	2	850-82	1	P	C4	05 FEB 86	
11 JAN 86	0200	1688.6	8.3	2	840-81	1	P	C4	29 JAN 86	
15 JAN 86	0200	1683.9	5.6	2	804-82	1	P	C4	29 JAN 86	
18 JAN 86	0200	1727.9	1.4	2	1218-82	1	P	C4	12 FEB 86	
22 JAN 86	0300	1689.2	-.3	2	1178-82	1	P	C4	13 FEB 86	
25 JAN 86	0300	1695.8	2.4	2	948-83	1	P	C4	13 FEB 86	
01 FEB 86	0200	1716.4	-5.8	2	750-82	1	P	C4	18 FEB 86	
05 FEB 86	0300	1697.0	.1	2	622-83	1	P	C4	14 FEB 86	
08 FEB 86	0200	1685.1		1	1114-82	1	P	C4	18 FEB 86	
12 FEB 86	0200	1718.2		1	196-83	1	P	C4	18 FEB 86	
15 FEB 86	0300	1721.5	1.6	2	838-85	1	P	C4	11 MAR 86	
19 FEB 86	0200	1732.5	10.4	3	210-83	1	P	C4	13 MAR 86	
22 FEB 86	0400	1727.9	4.1	2	46-85	1	P	C4	10 MAR 86	
26 FEB 86	0300	1715.0	-11.7	3	12-85	1	P	C4	10 MAR 86	
05 MAR 86	0300	1715.6	3.6	2	838-83	1	P	C4	13 MAR 86	
08 MAR 86	0200	1729.0	4.7	2	220-85	1	P	C4	22 APR 86	
12 MAR 86	0300	1736.5	1.7	2	478-82	1	P	C4	22 APR 86	
15 MAR 86	0300	1693.7	-6.3	2	716-85	1	P	C4	01 APR 86	
19 MAR 86	0200	1719.0	1.5	2	1162-82	1	P	C4	22 APR 86	
22 MAR 86	0300	1702.0	-7.1	2	734-81	1	P	C4	01 APR 86	
26 MAR 86	0300	1691.9	2.3	2	406-82	1	P	C4	01 APR 86	
02 APR 86	0300	1699.3	2.5	2	636-83	1	P	C4	18 APR 86	
09 APR 86	0300	1657.6		1	266-83	1	P	C4	18 APR 86	
16 APR 86	0300	1705.6	7.5	2	560-85	1	P	C4	01 MAY 86	
23 APR 86	0300	1679.1	-3.1	2	750-82	1	P	C4	01 MAY 86	
30 APR 86	0300	1687.9	-3.7	2	578-83	1	P	C4	31 MAY 86	
07 MAY 86	0300	1722.3	.2	2	976-83	1	P	C4	31 MAY 86	
14 MAY 86	0230	1721.2		1	54-85	1	P	C4	11 JUN 86	
21 MAY 86	0300	1700.9	-7.6	2	8-85	1	P	C4	11 JUN 86	
28 MAY 86	0200	1715.3	1.6	2	1006-82	1	P	C4	07 AUG 86	
04 JUN 86	0230	1704.6	-1.8	2	198-82	1	P	C4	07 AUG 86	
11 JUN 86	0200	1675.4	.9	2	512-82	1	P	C4	08 JUL 86	
18 JUN 86	0200	1698.8	6.2	2	836-83	1	P	C4	23 JUL 86	
25 JUN 86	0200	1673.1	-.5	2	556-85	1	P	C4	30 JUL 86	
02 JUL 86	0200	1693.2	-2.9	2	720-85	1	P	C4	30 JUL 86	
09 JUL 86	0200	1670.2	-1.7	2	168-85	1	P	C4	29 JUL 86	
16 JUL 86	0200	1659.9	-2.3	2	662-83	1	P	C4	29 JUL 86	
30 JUL 86	0200	1681.8	2.5	2	628-83	1	P	C4	10 AUG 86	
06 AUG 86	0200	1665.2	.8	2	1652-82	1	P	C4	18 SEP 86	
13 AUG 86	0200	1652.2	1.1	2	198-85	1	P	C4	19 SEP 86	
20 AUG 86	0200	1666.7	7.6	3	362-85	1	P	C4	23 SEP 86	
27 AUG 86	0200	1709.3	1.9	2	642-83	1	P	C4	23 SEP 86	
03 SEP 86	0200	1657.2	-3.0	2	424-85	1	P	C4	18 SEP 86	
10 SEP 86	0200	1686.2	5.5	2	46-85	1	P	C4	18 SEP 86	
17 SEP 86	0200	1717.4	-6.8	2	308-85	1	P	C4	30 SEP 86	
24 SEP 86	0200	1718.7	-6.8	2	250-85	1	P	C4	30 SEP 86	
01 OCT 86	0200	1727.5	4.8	2	94-85	1	P	C4	14 OCT 86	
08 OCT 86	0200	1718.2	.7	2	320-85	1	P	C4	14 OCT 86	
15 OCT 86	0200	1698.3	-5.1	2	702-85	1	P	C4	12 NOV 86	
22 OCT 86	0200	1702.3	-1.9	2	1668-82	1	P	C4	12 NOV 86	
29 OCT 86	0200	1707.0	-6.5	2	1114-82	1	P	C4	17 NOV 86	
05 NOV 86	0200	1715.6	.6	2	1546-82	1	P	C4	17 NOV 86	
12 NOV 86	0300	1723.6	-1.0	2	278-83	1	P	C4	10 DEC 86	
19 NOV 86	0300	1697.9	-4.4	2	726-85	1	P	C4	10 DEC 86	
26 NOV 86	0300	1734.7	-4.6	2	746-82	1	P	C4	23 DEC 86	
03 DEC 86	0200	1714.4	-4.0	2	816-83	1	P	C4	22 DEC 86	
10 DEC 86	0200	1728.3	-7.2	2	252-85	1	P	C4	30 DEC 86	
17 DEC 86	0200	1709.9	1.3	2	184-85	1	P	C4	30 DEC 86	
24 DEC 86	0200	1750.6	4.5	2	398-85	1	P	C4	07 JAN 87	
31 DEC 86	0200	1726.4	-3.1	2	70-85	1	P	C4	07 JAN 87	
07 JAN 87	0300	1733.1	4.8	2	842-85	1	P	C4	03 FEB 87	
14 JAN 87	0200	1725.7	4.7	2	1192-82	1	P	C4	03 FEB 87	

Sand Island, Midway (MID)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
21 JAN 87	0200	1715.6	3.5	2	558-85	1	P	C4	11 FEB 87	
28 JAN 87	0200	1724.1	-7.1	2	508-83	1	P	C4	11 FEB 87	
04 FEB 87	0200	1736.5	2.1	2	360-85	1	P	C4	24 FEB 87	
11 FEB 87	0200	1733.5	1.6	2	802-83	1	P	C4	18 FEB 87	
18 FEB 87	0200	1711.9	1.1	2	666-83	1	P	C4	13 MAR 87	
25 FEB 87	0200	1747.9	-4.3	2	362-82	1	P	C4	13 MAR 87	
04 MAR 87	0200	1698.8	2.2	2	196-83	1	P	C4	24 MAR 87	
11 MAR 87	0200	1710.2	1.2	2	778-83	1	P	C4	24 MAR 87	
18 MAR 87	0100	1725.8	3.5	2	510-83	1	P	C4	08 APR 87	
25 MAR 87	0200	1740.3	2.6	2	578-85	1	P	C4	08 APR 87	
01 APR 87	0200	1717.3	4.0	2	830-82	1	P	C4	21 APR 87	
08 APR 87	0300	1751.9	-2.1	2	942-83	1	P	C4	21 APR 87	
15 APR 87	0300	1732.3	3.3	2	355-85	1	P	C4	26 MAY 87	
15 APR 87	0300	1728.8		1	356-85	1	P	C4	26 MAY 87	
22 APR 87	0330	1734.0	-3.9	2	392-85	1	P	C4	26 MAY 87	
29 APR 87	0200	1752.9	-1.6	2	1564-82	1	P	C4	13 MAY 87	
06 MAY 87	0300	1738.2	-5.9	2	402-83	1	P	C4	13 MAY 87	
13 MAY 87	0300	1700.3	.8	3	784-85	1	P	C4	01 JUN 87	
20 MAY 87	0300	1713.7	2.9	2	620-85	1	P	C4	09 JUN 87	
27 MAY 87	0200	1727.5	8.7	2	1546-82	1	P	C4	15 JUN 87	
03 JUN 87	0200	1729.4	9.8	3	375-85	1	P	C4	16 JUN 87	
10 JUN 87	0300	1712.0	-5.1	2	1164-82	1	P	C4	30 JUN 87	
17 JUN 87	0300	1713.7	-3.1	2	728-85	1	P	C4	30 JUN 87	
01 JUL 87	0300	1708.1	4.2	2	780-85	1	P	C4	22 JUL 87	
08 JUL 87	0300	1688.7	6.3	2	832-85	1	P	C4	30 JUL 87	
15 JUL 87	0200	1672.9	-.2	2	804-85	1	P	C4	30 JUL 87	
29 JUL 87	0200	1686.4	5.9	2	54-85	1	P	C4	11 AUG 87	
05 AUG 87	0300	1686.7	6.0	2	4-85	1	P	C4	02 SEP 87	
12 AUG 87	0100	1697.4	7.2	2	32-85	1	P	C4	02 SEP 87	
26 AUG 87	0200	1708.2	-1.5	2	630-85	1	P	C4	03 SEP 87	
02 SEP 87	0200	1700.2	-11.8	2	871-83	1	P	C4	30 SEP 87	
09 SEP 87	0100	1699.7	.1	2	506-83	1	P	C4	30 SEP 87	
16 SEP 87	0200	1684.8	3.4	2	906-83	1	P	C4	06 OCT 87	
23 SEP 87	0200	1743.7	-4.3	2	658-85	1	P	C4	06 OCT 87	
30 SEP 87	0200	1742.8	.3	2	162-85	1	P	C4	27 OCT 87	
07 OCT 87	0200	1736.3	-1.6	2	16-85	1	P	C4	27 OCT 87	
14 OCT 87	0200	1744.1	-1.9	2	612-85	1	P	C4	09 NOV 87	
21 OCT 87	0200	1713.6	7.0	2	494-85	1	P	C4	09 NOV 87	
28 OCT 87	0200	1737.0	4.2	2	342-83	1	P	C4	18 NOV 87	
04 NOV 87	0200	1736.4	7.6	2	284-85	1	P	C4	17 NOV 87	
11 NOV 87	0200	1712.4	-7.4	2	278-86	1	P	C4	24 NOV 87	
18 NOV 87	0200	1726.3	3.3	2	690-85	1	P	C4	24 NOV 87	
25 NOV 87	0200	1740.2	3.2	2	680-83	1	P	C4	02 JAN 88	
02 DEC 87	0200	1709.5	-8.7	2	682-83	1	P	C4	02 JAN 88	
09 DEC 87	0200	1745.0	.4	2	280-87	1	P	C4	04 JAN 88	
16 DEC 87	0200	1718.1	-7.2	2	278-87	1	P	C4	04 JAN 88	
23 DEC 87	0200	1714.4	5.0	2	454-85	1	P	C4	06 JAN 88	
30 DEC 87	0200	1733.8	3.2	2	500-85	1	P	C4	06 JAN 88	
06 JAN 88	0200	1725.5	5.4	2	242-87	1	P	C4	26 JAN 88	
13 JAN 88	0200	1735.5	-7.4	2	336-85	1	P	C4	26 JAN 88	
20 JAN 88	0200	1736.3	3.7	2	212-85	1	P	C4	24 FEB 88	
27 JAN 88	0200	1730.0	-9.4	2	240-85	1	P	C4	19 FEB 88	
03 FEB 88	0200	1744.9	-.4	2	408-85	1	P	C4	01 MAR 88	
10 FEB 88	0200	1722.9	-2.1	2	128-85	1	P	C4	01 MAR 88	
17 FEB 88	0200	1734.3	-4.9	2	236-85	1	P	C4	10 MAR 88	
24 FEB 88	0200	1760.8	.1	2	238-86	1	P	C4	10 MAR 88	
03 MAR 88	0200	1751.5	10.9	3	340-86	1	P	C4	23 MAR 88	
09 MAR 88	0200	1712.4	7.1	2	384-85	1	P	C4	23 MAR 88	
23 MAR 88	0200	1708.6	-6.2	2	338-86	1	P	C4	13 APR 88	
30 MAR 88	0200	1707.3	7.5	2	402-85	1	P	C4	29 APR 88	
06 APR 88	0200	1728.1	-3.0	2	238-87	1	P	C4	29 APR 88	
13 APR 88	0200	1706.9	5.4	2	392-85	1	P	C4	16 MAY 88	
20 APR 88	0200	1739.4	-4.8	2	40-85	1	P	C4	17 MAY 88	
27 APR 88	0200	1737.4	11.4	3	84-87	1	P	C4	17 MAY 88	
04 MAY 88	0200	1737.4	-9.8	2	36-85	1	P	C4	17 MAY 88	

Sand Island, Midway (MID)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
11 MAY 88	0200	1720.7	-5.9	2	420-86	1	P	C4	31 MAY 88	
18 MAY 88	0200	1695.0	8.0	2	528-87	1	P	C4	31 MAY 88	
25 MAY 88	0200	1689.7	-.9	2	86-85	1	P	C4	15 JUN 88	
01 JUN 88	0200	1712.0	5.5	2	236-87	1	P	C4	15 JUN 88	
08 JUN 88	0200	1725.8	-2.3	2	338-86	1	P	C4	22 JUN 88	
15 JUN 88	0300	1696.8	3.3	2	406-86	1	P	C4	22 JUN 88	
22 JUN 88	0200	1682.8	5.8	2	302-86	1	P	C4	07 JUL 88	
06 JUL 88	0200	1691.4	6.7	2	306-86	1	P	C4	09 AUG 88	
13 JUL 88	0200	1693.4	-2.7	2	254-86	1	P	C4	11 AUG 88	
20 JUL 88	0200	1726.9	-1.1	2	360-86	1	P	C4	10 AUG 88	
27 JUL 88	0200	1686.8	2.0	2	578-87	1	P	C4	10 AUG 88	
10 AUG 88	0200	1674.0	.5	2	278-86	1	P	C4	26 AUG 88	
17 AUG 88	0200	1664.6	-3.5	2	604-87	1	P	C4	09 SEP 88	
24 AUG 88	0200	1694.0	3.1	2	696-85	1	P	C4	09 SEP 88	
07 SEP 88	0200	1702.1	3.3	2	554-87	1	P	C4	28 SEP 88	
14 SEP 88	0200	1721.9	1.7	2	336-86	1	P	C4	18 OCT 88	
28 SEP 88	0200	1726.7	-4.9	2	316-86	1	P	C4	24 OCT 88	
05 OCT 88	0200	1723.5	.4	2	280-86	1	P	C4	24 OCT 88	
12 OCT 88	0200	1732.0	-3.9	2	164-85	1	P	C4	02 NOV 88	
26 OCT 88	0200	1722.6	5.8	2	156-81	1	P	C4	09 NOV 88	
02 NOV 88	0200	1723.5	4.4	2	158-81	1	P	C4	09 NOV 88	
09 NOV 88	0200	1724.5	6.4	2	27-85	1	P	C4	02 DEC 88	
16 NOV 88	0200	1694.8	6.4	2	350-85	1	P	C4	01 DEC 88	
23 NOV 88	0300	1726.7	6.9	2	372-81	1	P	C4	12 DEC 88	
13 DEC 88	0100	1761.0	-1.0	2	382-81	1	P	C4	06 JAN 89	
20 DEC 88	0200	1740.0	5.9	2	592-81	1	P	C4	18 JAN 89	
27 DEC 88	0200	1694.2	-1.9	2	590-81	1	P	C4	23 JAN 89	

Mauna Loa, Hawaii (MLO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JAN 86	2040	1660.7	-.6	2	2080-85	7	P	C3	09 JAN 86	
03 JAN 86	2040	1658.9	2.8	2	2879-85	1	P	C3	08 JAN 86	
17 JAN 86	1942	1650.0	5.8	2	2832-85	1	P	C4	03 FEB 86	
24 JAN 86	1941	1656.2	3.5	2	2878-85	1	P	C4	03 FEB 86	
31 JAN 86	1939	1648.4	.8	2	2864-85	1	P	C4	13 FEB 86	
07 FEB 86	1939	1658.6	2.2	2	2864-85	1	P	C4	18 FEB 86	
14 FEB 86	2000	1653.2	-6.2	2	2840-85	1	P	C4	19 FEB 86	
21 FEB 86	1937	1641.4	1.2	2	2880-85	1	P	C4	14 MAR 86	
28 FEB 86	1938	1648.6	-1.6	2	2802-85	1	P	C4	14 MAR 86	
07 MAR 86	1938	1638.2	-2.1	2	2818-85	1	P	C4	14 MAR 86	
04 APR 86	2002	1660.5	-2.6	2	2832-85	1	P	C4	16 APR 86	
11 APR 86	2000	1684.2	.9	2	2836-85	1	P	C4	18 APR 86	
18 APR 86	1940	1666.9	-3.9	2	2802-85	1	P	C4	22 APR 86	
25 APR 86	1940	1690.5	6.7	3	2874-85	1	P	C4	01 MAY 86	
02 MAY 86	1945	1663.6	1.5	2	2860-85	1	P	C4	09 MAY 86	
09 MAY 86	1935	1659.6	-1.2	2	2858-85	1	P	C4	14 MAY 86	
16 MAY 86	1935	1656.8	-1.6	2	2853-85	6	P	C4	28 MAY 86	
16 MAY 86	1935	1660.7	.4	2	2854-85	1	P	C4	28 MAY 86	
23 MAY 86	1928	1650.6	-6.6	2	2836-85	1	P	C4	28 MAY 86	
30 MAY 86	1932	1680.0	.1	2	2843-85	6	P	C4	11 JUN 86	
30 MAY 86	1932	1691.8		1	2844-85	1	P	C4	12 JUN 86	
06 JUN 86	1938	1657.8	-2.9	2	2893-85	6	P	C4	12 JUN 86	
06 JUN 86	1938	1658.5	1.9	2	2894-85	1	P	C4	12 JUN 86	
13 JUN 86	1940	1657.1		1	2811-85	6	P	C4	07 AUG 86	
13 JUN 86	1940	1658.6		1	2812-85	1	P	C4	07 AUG 86	
20 JUN 86	1935	1648.2		1	2851-85	6	P	C4	07 AUG 86	
20 JUN 86	1935	1650.6		1	2852-85	1	P	C4	07 AUG 86	
26 JUN 86	1940	1660.7	4.9	2	2860-85	1	P	C4	08 JUL 86	
03 JUL 86	2039	1690.6	5.6	2	2856-85	1	P	C4	05 AUG 86	
03 JUL 86	2057	1696.4	4.5	2	2844-85	1	P	C4	30 JUL 86	
11 JUL 86	1945	1677.1	4.6	2	2819-85	6	P	C4	22 JUL 86	
11 JUL 86	1945	1679.5	-1.1	2	2820-85	1	P	C4	22 JUL 86	
18 JUL 86	1938	1646.2	-7.4	2	2823-85	6	P	C4	22 JUL 86	
18 JUL 86	1938	1645.9	-6.7	2	2824-85	1	P	C4	22 JUL 86	
25 JUL 86	2005	1646.5		1	2867-85	6	P	C4	07 AUG 86	
25 JUL 86	2005	1648.2		1	2868-85	1	P	C4	07 AUG 86	
01 AUG 86	2209	1656.4		1	2837-85	6	P	C4	08 AUG 86	
01 AUG 86	2209	1656.6		1	2838-85	1	P	C4	08 AUG 86	
07 AUG 86	1928	1638.0	-1.2	2	2845-85	6	P	C4	24 AUG 86	
07 AUG 86	1928	1644.0	-.1	2	2846-85	1	P	C4	24 AUG 86	
15 AUG 86	2006	1643.4	-5.3	2	2826-85	1	P	C4	19 SEP 86	
22 AUG 86	2005	1670.9	-1.3	2	2820-85	1	P	C4	25 SEP 86	
29 AUG 86	2000	1648.9	-1.5	2	2802-85	1	P	C4	11 SEP 86	
05 SEP 86	2005	1660.9	-7.6	2	2814-85	1	P	C4	20 SEP 86	
12 SEP 86	2008	1645.0	11.9	3	2856-85	1	P	C4	18 SEP 86	
19 SEP 86	2007	1637.0	-7.8	2	900-83	1	P	C4	30 SEP 86	
26 SEP 86	2038	1671.3	4.4	2	362-82	1	P	C4	30 SEP 86	
10 OCT 86	1940	1684.9	-3.0	2	1484-82	1	P	C4	20 OCT 86	
17 OCT 86	1943	1687.6	4.6	2	362-85	1	P	C4	20 OCT 86	
24 OCT 86	2017	1673.1	-.2	2	348-85	1	P	C4	12 NOV 86	
31 OCT 86	1930	1655.6	-6.2	2	1630-82	1	P	C4	14 NOV 86	
07 NOV 86	2000	1654.9	4.9	2	876-83	1	P	C4	14 NOV 86	
14 NOV 86	2001	1656.7	1.5	2	710-85	1	P	C4	17 NOV 86	
21 NOV 86	1930	1675.7	8.0	2	20-85	1	P	C4	08 DEC 86	
29 NOV 86	0129	1684.6	-6.2	2	1080-82	1	P	C4	08 DEC 86	
05 DEC 86	1928	1685.1	.3	2	178-82	1	P	C4	29 DEC 86	
12 DEC 86	2001	1678.5	5.8	2	296-83	1	P	C4	30 DEC 86	
19 DEC 86	2040	1684.3	1.8	2	278-85	1	P	C4	29 DEC 86	
26 DEC 86	2241	1677.5	-1.6	2	496-82	1	P	C4	07 JAN 87	
31 DEC 86	2045	1670.1	.5	2	550-85	1	P	C4	08 JAN 87	
09 JAN 87	2002	1664.8	-11.7	3	278-83	1	P	C4	15 JAN 87	
16 JAN 87	1940	1676.2	-8.1	2	162-83	1	P	C4	20 JAN 87	
23 JAN 87	1940	1676.1	-2.5	2	942-83	1	P	C4	03 FEB 87	
30 JAN 87	1957	1662.1	1.8	2	558-85	1	P	C4	03 FEB 87	

Mauna Loa, Hawaii (MLO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
06 FEB 87	2002	1660.5	8.6	2	48-85	1	P	C4	10 FEB 87	
13 FEB 87	2005	1668.7	2.6	2	908-83	1	P	C4	24 FEB 87	
20 FEB 87	1948	1678.5	2.5	2	401-85	1	P	C4	04 MAR 87	
27 FEB 87	1948	1688.6	3.1	2	1704-82	1	P	C4	04 MAR 87	
06 MAR 87	1950	1668.2	-.4	2	558-85	1	P	C4	13 MAR 87	
13 MAR 87	1958	1661.6	5.9	2	40-85	1	P	C4	24 MAR 87	
20 MAR 87	2009	1661.5	4.7	2	178-82	1	P	C4	25 MAR 87	
27 MAR 87	2021	1688.0	1.6	2	1272-82	1	P	C4	02 APR 87	
03 APR 87	1958	1693.5	2.3	2	58-85	1	P	C4	22 APR 87	
09 APR 87	1942	1659.2	1.0	2	1292-82	1	P	C4	21 APR 87	
17 APR 87	1946	1670.2	-4.8	2	264-83	1	P	C4	21 APR 87	
24 APR 87	1958	1679.1	-7.2	2	816-83	1	P	C4	28 APR 87	
01 MAY 87	2010	1666.7	-10.1	3	774-85	1	P	C4	13 MAY 87	
08 MAY 87	2012	1696.1	.3	2	374-85	1	P	C4	13 MAY 87	
15 MAY 87	1937	1669.6	-5.0	2	692-85	1	P	C4	21 MAY 87	
22 MAY 87	1930	1669.7	10.4	3	736-85	1	P	C4	01 JUN 87	
29 MAY 87	1937	1656.3	-1.1	2	664-83	1	P	C4	09 JUN 87	
05 JUN 87	1935	1673.7	-4.4	2	327-85	1	P	C4	18 JUN 87	
12 JUN 87	1937	1680.8	-5.6	2	49-83	1	P	C4	18 JUN 87	
19 JUN 87	1937	1686.0	-1.5	2	806-83	1	P	C4	23 JUN 87	
26 JUN 87	1938	1646.4	-2.4	2	90-85	1	P	C4	08 JUL 87	
02 JUL 87	1940	1658.2	1.0	2	405-83	1	P	C4	08 JUL 87	
10 JUL 87	1957	1658.7	3.6	2	745-85	1	P	C4	22 JUL 87	
10 JUL 87	1957	1654.1	5.8	2	746-85	1	P	C4	22 JUL 87	
17 JUL 87	1950	1658.3	-2.6	2	664-83	1	P	C4	22 JUL 87	
23 JUL 87	2005	1642.0	-7.7	2	2048-86	1	P	C4	30 JUL 87	
29 JUL 87	1908	1647.9	3.2	2	2032-86	1	P	C4	11 AUG 87	
07 AUG 87	2041	1704.4	-5.0	2	654-85	1	P	C4	04 SEP 87	
14 AUG 87	1941	1652.1	-2.7	2	240-86	1	P	C4	09 SEP 87	
21 AUG 87	1946	1651.6	-.8	2	1186-82	1	P	C4	04 SEP 87	
28 AUG 87	2000	1657.7	3.6	2	676-85	1	P	C4	03 SEP 87	
04 SEP 87	1955	1642.6	6.4	2	828-85	1	P	C4	15 SEP 87	
11 SEP 87	1930	1660.2	-2.2	2	2026-86	2	S	C4	23 SEP 87	
11 SEP 87	1955	1659.2	.8	2	156-85	1	P	C4	23 SEP 87	
18 SEP 87	1950	1659.5	-5.8	2	618-85	1	P	C4	24 SEP 87	
25 SEP 87	2005	1662.4	-5.9	2	88-87	1	P	C4	30 SEP 87	
02 OCT 87	1945	1697.4	-.9	2	90-87	1	P	C4	08 OCT 87	
08 OCT 87	2004	1663.8	6.1	2	630-85	1	P	C4	26 OCT 87	
16 OCT 87	1945	1669.2	-2.0	2	174-85	1	P	C4	27 OCT 87	
23 OCT 87	1952	1691.5	3.2	2	236-85	1	P	C4	28 OCT 87	
30 OCT 87	1956	1686.2	3.6	2	264-87	1	P	C4	09 NOV 87	
06 NOV 87	2003	1709.8	2.8	2	282-87	1	P	C4	10 NOV 87	
13 NOV 87	1945	1673.5	3.0	2	270-85	1	P	C4	17 NOV 87	
20 NOV 87	1935	1702.8	4.2	2	198-85	1	P	C4	24 NOV 87	
25 NOV 87	2126	1716.7	4.6	2	264-87	1	P	C4	03 DEC 87	
01 DEC 87	2020	1702.2	5.7	2	452-85	1	P	C4	04 DEC 87	
11 DEC 87	2030	1686.1	3.7	2	250-87	1	P	C4	22 DEC 87	
18 DEC 87	2300	1667.7	-4.2	2	410-85	1	P	C4	02 JAN 88	
24 DEC 87	1807	1682.7	5.4	2	356-85	1	P	C4	02 JAN 88	
31 DEC 87	2036	1680.8		1	393-86	1	P	C4	05 JAN 88	
31 DEC 87	2036	1685.4		1	394-86	1	P	C4	05 JAN 88	
08 JAN 88	2012	1679.3	.9	2	122-87	1	P	C4	13 JAN 88	
15 JAN 88	2105	1672.0	-1.6	2	360-85	1	P	C4	26 JAN 88	
22 JAN 88	2043	1668.0	-1.2	2	98-87	1	P	C4	03 FEB 88	
29 JAN 88	1953	1688.8		1	29-85	1	P	C4	04 FEB 88	
29 JAN 88	1953	1688.7		1	30-85	1	P	C4	04 FEB 88	
12 FEB 88	1948	1679.5	-2.3	2	326-86	1	P	C4	19 FEB 88	
19 FEB 88	2010	1674.7	-1.3	2	274-85	1	P	C4	01 MAR 88	
26 FEB 88	2000	1688.2	-2.3	2	788-85	1	P	C4	02 MAR 88	
04 MAR 88	2010	1687.7	-2.1	2	92-85	1	P	C4	10 MAR 88	
11 MAR 88	1940	1680.7	6.8	2	56-85	1	P	C4	23 MAR 88	
18 MAR 88	2030	1685.0	-2.3	2	380-85	1	P	C4	24 MAR 88	
25 MAR 88	2105	1665.3	.9	2	358-86	1	P	C4	12 APR 88	
01 APR 88	2000	1700.5	5.2	2	350-86	1	P	C4	11 APR 88	
08 APR 88	1950	1687.7	-6.4	2	180-85	1	P	C4	13 APR 88	

Mauna Loa, Hawaii (MLO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
15 APR 88	2048	1702.6	12.0	3	316-85	1	P	C4	22 APR 88	
29 APR 88	1951	1682.4	1.5	2	346-86	1	P	C4	13 MAY 88	
06 MAY 88	1950	1666.2	-3.1	2	244-85	1	P	C4	17 MAY 88	
13 MAY 88	1942	1680.8	-6.4	2	696-85	1	P	C4	23 MAY 88	
20 MAY 88	2005	1684.1	-2.8	2	403-86	1	P	C4	31 MAY 88	
27 MAY 88	2001	1708.6	.2	2	286-86	1	P	C4	01 JUN 88	
03 JUN 88	1948	1666.9	5.5	2	262-86	1	P	C4	13 JUN 88	
10 JUN 88	1955	1697.5	-1.6	2	240-85	1	P	C4	15 JUN 88	
17 JUN 88	2000	1663.7	-7.7	2	322-86	1	P	C4	22 JUN 88	
24 JUN 88	1955	1670.4	4.6	2	376-86	1	P	C4	01 JUL 88	
01 JUL 88	2018	1672.3	-2.9	2	552-87	1	P	C4	13 JUL 88	
08 JUL 88	1955	1669.9	-2.8	2	74-87	1	P	C4	18 JUL 88	
15 JUL 88	2041	1668.1	6.2	2	224-86	1	P	C4	09 AUG 88	
22 JUL 88	2050	1664.8	3.5	2	672-85	1	P	C4	10 AUG 88	
29 JUL 88	1950	1665.3	13.6	3	46-85	1	P	C4	10 AUG 88	
05 AUG 88	2004	1659.1	-4.3	2	264-86	1	P	C4	16 AUG 88	
12 AUG 88	2044	1664.0	2.0	2	594-87	1	P	C4	17 AUG 88	
19 AUG 88	2043	1674.4	2.1	2	298-86	1	P	C4	30 AUG 88	
26 AUG 88	2000	1696.9	-8.2	2	286-87	1	P	C4	31 AUG 88	
02 SEP 88	2005	1659.2	-6.2	2	414-86	1	P	C4	15 SEP 88	
09 SEP 88	1943	1695.4	-4.2	2	23-85	1	P	C4	22 SEP 88	
09 SEP 88	1943	1693.1	-12.4	2	24-85	1	P	C4	19 SEP 88	
16 SEP 88	2003	1687.4	-.3	2	256-87	1	P	C4	22 SEP 88	
23 SEP 88	1953	1679.0	-2.8	2	34-81	1	P	C4	29 SEP 88	
30 SEP 88	2003	1669.8	8.7	2	30-81	1	P	C4	18 OCT 88	
07 OCT 88	2035	1681.5	5.0	2	102-81	1	P	C4	19 OCT 88	
14 OCT 88	1951	1692.5	1.0	2	194-81	1	P	C4	20 OCT 88	
21 OCT 88	2005	1663.7	.3	2	164-81	1	P	C4	02 NOV 88	
28 OCT 88	1938	1710.3	-3.7	2	348-81	1	P	C4	02 NOV 88	
09 NOV 88	1938	1699.7	.3	2	512-81	1	P	C4	17 NOV 88	
18 NOV 88	1953	1703.0	-.5	2	517-81	1	P	C4	02 DEC 88	
18 NOV 88	1953	1703.4		1	518-81	1	P	C4	01 DEC 88	
02 DEC 88	2025	1705.2	4.0	2	630-81	1	P	C4	14 DEC 88	
09 DEC 88	2014	1681.4	-21.7	2	656-81	1	P	C4	21 DEC 88	
16 DEC 88	2000	1712.4	-4.1	2	650-81	1	P	C4	04 JAN 89	
23 DEC 88	2050	1694.7	-10.0	2	852-81	1	P	C4	09 JAN 89	
30 DEC 88	2040	1724.9		1	533-81	1	P	C4	18 JAN 89	
30 DEC 88	2040	1725.2		1	534-81	1	P	C4	10 JAN 89	

Niwot Ridge, Colorado (NWR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
07 JAN 86	1800	1693.4	1.0	2	2042-85	6	N	C3	10 JAN 86	
14 JAN 86	1700	1667.5	4.1	2	2024-85	6	N	C4	13 FEB 86	
28 JAN 86	1800	1672.1	.2	2	2068-85	6	N	C4	13 FEB 86	
04 FEB 86	1800	1718.6	-1.2	2	2046-85	6	N	C4	18 FEB 86	
11 FEB 86	1830	1735.9	4.8	2	2086-85	6	N	C4	19 FEB 86	
18 FEB 86	1700	1687.1	-1.7	2	2042-85	6	N	C4	24 MAR 86	
04 MAR 86	1830	1689.1	2.4	2	2030-85	6	N	C4	14 MAR 86	
11 MAR 86	1820	1701.0	-4.8	2	2028-85	6	N	C4	13 MAR 86	
18 MAR 86	1800	1743.4	2.4	2	2049-85	6	N	C4	24 MAR 86	
25 MAR 86	1700	1687.5	6.8	2	2024-85	6	N	C4	23 APR 86	
01 APR 86	1700	1670.8	3.0	2	2058-85	6	N	C4	16 APR 86	
15 APR 86	1800	1702.7	2.7	2	2096-85	6	N	C4	22 APR 86	
22 APR 86	1800	1674.8	-.5	2	2094-85	6	N	C4	01 MAY 86	
29 APR 86	1530	1685.5	.2	2	2124-85	6	N	C4	09 MAY 86	
07 MAY 86	1700	1708.0	1.5	2	2030-85	6	N	C4	09 MAY 86	
13 MAY 86	1700	1715.3	1.0	2	2016-85	6	N	C4	28 MAY 86	
20 MAY 86	1730	1688.5	-1.2	2	2050-85	6	N	C4	28 MAY 86	
28 MAY 86	1730	1707.1	.1	2	2068-85	6	N	C4	11 JUN 86	
03 JUN 86	1900	1712.0	-.3	2	2118-85	6	N	C4	10 JUN 86	
10 JUN 86	1740	1703.5	4.6	2	2034-85	6	N	C4	07 AUG 86	
17 JUN 86	1644	1670.6	6.5	2	2026-85	6	N	C4	08 AUG 86	
25 JUN 86	1622	1689.6	-7.6	2	2040-85	6	N	C4	07 JUL 86	
08 JUL 86	1535	1644.6	-3.4	2	2050-85	6	N	C4	05 AUG 86	
16 JUL 86	1520	1665.9	-5.3	2	2016-85	6	N	C4	29 JUL 86	
22 JUL 86	1500	1664.2	2.5	2	2036-85	6	N	C4	29 JUL 86	
29 JUL 86	1537	1653.2	-3.3	2	2086-85	6	N	C4	10 AUG 86	
05 AUG 86	1511	1677.1	.6	2	2082-85	6	N	C4	08 AUG 86	
12 AUG 86	1515	1678.6	5.8	2	2040-85	6	N	C4	18 SEP 86	
19 AUG 86	1450	1663.2	-4.6	2	2012-85	6	N	C4	15 SEP 86	
26 AUG 86	2050	1686.7		1	1406-10	6	P	C4	15 OCT 86	
26 AUG 86	2050	1688.5		1	1406-20	6	P	C4	15 OCT 86	
29 AUG 86	2030	1671.4	-8.3	2	2090-85	6	N	C4	23 SEP 86	
30 AUG 86	0026	1684.9	2.1	2	5679-71	6	P	C4	15 OCT 86	
30 AUG 86	0037	1694.3	1.6	2	5679-72	6	P	C4	15 OCT 86	
02 SEP 86	1530	1681.8	-.3	2	2016-85	6	N	C4	23 SEP 86	
09 SEP 86	1530	1657.7	-11.2	2	2118-85	6	N	C4	11 SEP 86	
16 SEP 86	1500	1656.4	-2.9	2	2080-85	6	N	C4	30 SEP 86	
23 SEP 86	1530	1658.6	6.1	2	2030-85	6	N	C4	08 OCT 86	
30 SEP 86	1630	1691.9		1	2098-85	6	N	C4	08 OCT 86	
07 OCT 86	1600	1703.6	1.8	2	2070-85	6	N	C4	08 OCT 86	
14 OCT 86	1630	1706.5	-3.7	2	2126-85	6	N	C4	20 OCT 86	
21 OCT 86	1755	1703.8	2.0	2	2046-85	6	N	C4	14 NOV 86	
28 OCT 86	1730	1703.8	4.5	2	2118-85	6	N	C4	12 NOV 86	
04 NOV 86	1730	1699.1	2.8	2	2064-85	6	N	C4	17 NOV 86	
11 NOV 86	1730	1719.0	3.3	2	2092-85	6	N	C4	17 NOV 86	
18 NOV 86	1745	1685.6	8.5	2	2010-85	6	N	C4	29 DEC 86	
02 DEC 86	1730	1696.2	-2.7	2	2082-85	6	N	C4	10 DEC 86	
10 DEC 86	1800	1702.6	.3	2	2004-85	6	N	C4	29 DEC 86	
16 DEC 86	1700	1703.1	2.7	2	2002-86	2	N	C4	22 DEC 86	
30 DEC 86	1700	1704.3	2.8	2	2030-86	2	N	C4	07 JAN 87	
06 JAN 87	1700	1719.8	2.1	2	2018-86	2	N	C4	09 JAN 87	
13 JAN 87	1700	1680.1	2.5	2	2047-86	2	N	C4	15 JAN 87	
13 JAN 87	1700	1680.4		1	2048-86	2	N	C4	15 JAN 87	
20 JAN 87	1800	1724.1	-1.1	2	2058-86	2	N	C4	22 JAN 87	
27 JAN 87	1730	1673.5	-.5	2	2057-86	2	N	C4	11 FEB 87	
03 FEB 87	1730	1691.0	-.3	2	2028-86	2	N	C4	10 FEB 87	
10 FEB 87	9999	1696.8	3.0	2	2032-86	2	N	C4	18 FEB 87	
17 FEB 87	1730	1749.2	-1.6	2	2030-86	2	N	C4	04 MAR 87	
24 FEB 87	1730	1722.6	-2.4	2	2060-86	2	N	C4	04 MAR 87	
03 MAR 87	1700	1747.6		1	664-83	1	N	C4	21 APR 87	
10 MAR 87	1600	1724.3	-1.0	2	2002-86	2	N	C4	13 MAR 87	
31 MAR 87	1315	1703.3	-5.8	2	2008-86	2	N	C4	08 APR 87	
08 APR 87	2030	1718.3	7.9	2	2056-86	2	N	C4	22 APR 87	
14 APR 87	1700	1707.4	2.7	2	2026-86	2	N	C4	21 APR 87	

Niwot Ridge, Colorado (NWR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
21 APR 87	1700	1706.5	-1.8	2	2048-86	2	N	C4	28 APR 87	
28 APR 87	1600	1691.4	-.4	2	2032-86	2	N	C4	05 MAY 87	
06 MAY 87	1800	1701.4	.6	2	2050-86	2	N	C4	13 MAY 87	
12 MAY 87	1300	1706.4	-7.5	2	2034-86	2	N	C4	15 MAY 87	
19 MAY 87	1510	1664.9	-4.0	2	2040-86	2	N	C4	21 MAY 87	
27 MAY 87	1530	1722.1	.9	2	2026-86	2	N	C4	09 JUN 87	
02 JUN 87	1525	1717.4	-2.3	2	2042-86	2	N	C4	09 JUN 87	
11 JUN 87	1430	1681.4	.7	2	2031-86	2	N	C4	23 JUN 87	
16 JUN 87	1415	1668.3	2.0	2	2006-86	2	N	C4	23 JUN 87	
24 JUN 87	1500	1735.8	7.3	2	868-83	1	N	C4	30 JUN 87	
30 JUN 87	1435	1694.9	-3.9	2	2050-86	2	N	C4	08 JUL 87	
10 JUL 87	1530	1675.9	2.0	2	2054-86	2	N	C4	22 JUL 87	
14 JUL 87	1530	1725.1	-2.5	2	2062-86	2	N	C4	22 JUL 87	
22 JUL 87	1530	1664.6	3.3	2	2060-86	2	N	C4	30 JUL 87	
30 JUL 87	1500	1680.4	-.9	2	2046-86	2	N	C4	12 AUG 87	
04 AUG 87	2000	1695.2		1	2006-86	2	N	C4	10 AUG 87	
08 AUG 87	1630	1703.9	-2.4	2	2012-86	2	N	C4	15 SEP 87	
11 AUG 87	1630	1697.4	-4.0	2	2024-86	2	N	C4	04 SEP 87	
18 AUG 87	1715	1709.5	-8.8	2	2037-86	2	N	C4	04 SEP 87	
25 AUG 87	1630	1683.0	5.0	2	2042-86	2	N	C4	03 SEP 87	
02 SEP 87	1600	1694.7	-.9	2	2060-86	2	N	C4	15 SEP 87	
15 SEP 87	1530	1689.9	-1.9	2	2008-86	2	N	C4	24 SEP 87	
23 SEP 87	1600	1693.4	-3.3	2	2018-86	2	N	C4	30 SEP 87	
01 OCT 87	1545	1719.4	-8.1	2	2044-86	2	N	C4	06 OCT 87	
06 OCT 87	1620	1708.1	-7.6	2	2036-86	2	N	C4	26 OCT 87	
16 OCT 87	1700	1713.5	-3.7	2	2034-86	2	N	C4	27 OCT 87	
20 OCT 87	1620	1721.6	-2.4	2	2004-86	2	N	C4	27 OCT 87	
27 OCT 87	1700	1710.5	2.8	2	2042-86	2	N	C4	09 NOV 87	
03 NOV 87	1620	1700.8	-2.2	2	2006-86	2	N	C4	09 NOV 87	
10 NOV 87	1740	1704.6	1.6	2	2038-86	2	N	C4	17 NOV 87	
17 NOV 87	1600	1721.5	.2	2	2018-86	2	N	C4	18 NOV 87	
24 NOV 87	1740	1733.9	4.2	2	2024-86	2	N	C4	03 DEC 87	
01 DEC 87	1800	1725.1	6.5	2	2036-86	2	N	C4	04 DEC 87	
08 DEC 87	1812	1753.3	-4.3	2	2004-86	2	N	C4	31 DEC 87	
15 DEC 87	1900	1738.3	10.3	3	2062-86	2	N	C4	31 DEC 87	
22 DEC 87	1630	1707.6	1.7	2	2012-86	2	N	C4	05 JAN 88	
29 DEC 87	1750	1722.4	-.7	2	2013-86	2	N	C4	07 JAN 88	
29 DEC 87	1750	1716.1	4.5	2	2014-86	2	N	C4	07 JAN 88	
05 JAN 88	1750	1714.8	-3.9	2	2018-86	2	N	C4	13 JAN 88	
12 JAN 88	1630	1753.7	4.5	2	2036-86	2	N	C4	19 JAN 88	
20 JAN 88	1650	1744.9	-9.3	2	2056-86	2	N	C4	26 JAN 88	
26 JAN 88	1803	1720.8	2.3	2	2024-86	2	N	C4	03 FEB 88	
03 FEB 88	1920	1718.6		1	2041-86	2	N	C4	04 FEB 88	
03 FEB 88	1920	1717.5		1	2042-86	2	N	C4	04 FEB 88	
09 FEB 88	1720	1731.4		1	2014-86	2	N	C4	18 FEB 88	
09 FEB 88	1720	1727.8	-2.3	2	2014-86	2	N	C4	19 FEB 88	
19 FEB 88	2030	1734.1	2.8	2	2001-86	2	N	C4	24 FEB 88	
23 FEB 88	1740	1722.3	-.4	2	2018-86	2	N	C4	01 MAR 88	
01 MAR 88	1650	1712.1	-7.1	2	2062-86	2	N	C4	10 MAR 88	
08 MAR 88	1700	1755.5	3.4	2	2004-86	2	N	C4	10 MAR 88	
17 MAR 88	1745	1786.5	3.0	2	2056-86	2	N	C4	23 MAR 88	
22 MAR 88	1700	1716.6	1.5	2	2036-86	2	N	C4	24 MAR 88	
29 MAR 88	1715	1680.7	-9.2	2	2042-86	2	N	C4	12 APR 88	
05 APR 88	1700	1726.1	4.3	2	2025-86	2	N	C4	11 APR 88	
12 APR 88	1700	1714.4	.3	2	2026-86	2	N	C4	22 APR 88	
19 APR 88	1630	1714.7	8.3	2	2012-85	6	N	C4	22 APR 88	
26 APR 88	1650	1742.1	3.3	2	2062-86	2	N	C4	16 MAY 88	
03 MAY 88	1725	1751.4	-3.3	2	2001-86	2	N	C4	13 MAY 88	
10 MAY 88	1711	1737.1	-6.3	2	2048-86	2	N	C4	17 MAY 88	
17 MAY 88	1600	1703.9	-6.3	2	2056-86	2	N	C4	23 MAY 88	
24 MAY 88	1630	1735.7	.2	2	2008-86	2	N	C4	31 MAY 88	
02 JUN 88	1650	1694.0	5.8	2	2026-86	2	N	C4	13 JUN 88	
07 JUN 88	1450	1680.5	.6	2	2012-86	2	N	C4	13 JUN 88	
14 JUN 88	1630	1719.7	10.7	3	2044-86	2	N	C4	15 JUN 88	
28 JUN 88	1650	1703.9	-3.1	2	2046-86	2	N	C4	01 JUL 88	

Niwot Ridge, Colorado (NWR)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
05 JUL 88	1640	1687.3	4.1	2	2037-86	2	N	C4	19 JUL 88	
12 JUL 88	1700	1703.7	2.8	2	2006-86	2	N	C4	18 JUL 88	
21 JUL 88	1450	1736.6	-2.3	2	2048-86	2	N	C4	11 AUG 88	
26 JUL 88	1530	1705.8	-1.2	2	2026-86	2	N	C4	16 AUG 88	
02 AUG 88	1630	1684.7	-5.3	2	2008-86	2	N	C4	10 AUG 88	
09 AUG 88	1610	1681.7	5.8	2	2036-86	2	N	C4	18 AUG 88	
16 AUG 88	1540	1683.7	-8.9	2	2020-86	2	N	C4	30 AUG 88	
06 SEP 88	1600	1720.3	-.3	2	2004-86	2	N	C4	19 SEP 88	
15 SEP 88	1615	1751.6	-3.3	2	2008-86	2	N	C4	19 SEP 88	
20 SEP 88	1714	1714.0	7.8	2	2046-86	2	N	C4	28 SEP 88	
27 SEP 88	1730	1700.5	1.1	2	2016-86	2	N	C4	04 OCT 88	
04 OCT 88	1700	1715.6	-3.6	2	2050-86	2	N	C4	14 OCT 88	
11 OCT 88	1900	1703.5	6.0	2	2054-86	2	N	C4	20 OCT 88	
25 OCT 88	1812	1709.0	-.2	2	2014-60	2	N	C4	27 OCT 88	
01 NOV 88	1741	1718.6	1.9	2	2012-60	2	N	C4	09 NOV 88	
08 NOV 88	1820	1717.8	-2.2	2	2016-60	2	N	C4	16 NOV 88	
15 NOV 88	1843	1751.3	6.6	2	2008-60	2	N	C4	22 NOV 88	
22 NOV 88	1827	1725.1	6.0	2	2020-60	2	N	C4	01 DEC 88	
29 NOV 88	1926	1759.0	-5.6	2	2026-60	2	N	C4	02 DEC 88	
06 DEC 88	1655	1718.4	7.7	2	2018-60	2	N	C4	12 DEC 88	
13 DEC 88	1840	1712.3	2.6	2	2028-60	2	N	C4	21 DEC 88	
13 DEC 88	1840	1708.1	-3.9	2	2030-62	3	N	C4	21 DEC 88	
20 DEC 88	1906	1739.7	1.9	2	2034-60	2	N	C4	05 JAN 89	
27 DEC 88	1850	1769.4	-.1	2	2034-62	3	N	C4	05 JAN 89	
27 DEC 88	1850	1775.5	-3.2	2	2040-60	2	N	C4	05 JAN 89	

Olympic Pen., Washington (OPW)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
28 JAN 86	2300	1712.7	.2	2	3014-85	5	T	C4	13 FEB 86	
25 MAR 86	2330	1720.5	1.8	2	3074-84	5	T	C4	14 APR 86	
26 MAR 86	0030	1722.2	1.5	2	3077-84	5	T	C4	14 APR 86	
03 APR 86	1800	1724.3	-2.4	2	3056-84	5	T	C4	14 APR 86	
09 APR 86	1810	1729.6	1.9	2	3056-83	5	T	C4	20 APR 86	
22 APR 86	1500	1747.5	-.5	2	3010-83	5	T	C4	01 MAY 86	
22 APR 86	1545	1739.6	-2.5	2	3032-85	5	T	C4	01 MAY 86	
29 APR 86	2110	1745.6	5.4	2	3098-83	5	T	C4	09 MAY 86	
11 MAY 86	1540	1738.6	2.0	2	3056-84	5	T	C4	28 MAY 86	
15 MAY 86	1830	1731.2	.1	2	3006-85	5	T	C4	28 MAY 86	
02 JUN 86	2200	1725.5	-2.4	2	3080-83	5	T	C4	22 JUL 86	
13 JUN 86	0230	1714.3	-3.8	2	3020-84	5	T	C4	22 JUL 86	
16 JUL 86	1807	1700.2	-14.8	3	3008-83	5	T	C4	05 AUG 86	
16 JUL 86	1902	1696.3	2.0	2	3084-84	5	T	C4	05 AUG 86	
29 AUG 86	1746	1688.7	-.2	2	3048-83	5	T	C4	13 NOV 86	
29 AUG 86	1841	1692.2	.5	2	3014-84	5	T	C4	13 NOV 86	
26 SEP 86	2133	1737.8	-10.4	3	3010-85	5	T	C4	29 DEC 86	
26 SEP 86	2220	1741.5	-2.5	2	3040-84	5	T	C4	29 DEC 86	
30 OCT 86	2124	1730.6	-2.8	2	3098-83	5	T	C4	13 NOV 86	
30 OCT 86	2220	1737.6	2.5	2	3072-83	5	T	C4	13 NOV 86	
29 JAN 87	2000	1729.3	-3.6	2	3098-83	5	T	C4	20 APR 87	
12 FEB 87	2005	1717.5	-3.2	2	3030-84	5	T	C4	20 APR 87	
24 FEB 87	2345	1750.4	4.2	2	3040-85	5	T	C4	21 APR 87	
18 MAR 87	2350	1731.2	4.0	2	3034-83	5	T	C4	20 APR 87	
10 APR 87	0130	1744.9	-4.4	3	3070-84	5	T	C4	20 APR 87	
25 APR 87	0000	1746.3	-9.9	2	3042-84	5	T	C4	08 JUL 87	
13 MAY 87	0400	1735.6	8.2	2	3072-83	5	T	C4	08 JUL 87	
22 MAY 87	0013	1739.9	2.0	2	3002-83	5	T	C4	08 JUL 87	
09 JUN 87	2210	1724.8	-.1	2	3028-83	5	T	C4	08 JUL 87	
03 JUL 87	2330	1710.4	2.8	2	3098-84	5	T	C4	05 JAN 88	
22 JUL 87	2054	1699.5	6.5	2	3088-84	5	T	C4	29 FEB 88	
23 JUL 87	0030	1711.9	-2.5	2	3010-84	5	T	C4	29 FEB 88	
14 AUG 87	2250	1687.9	-3.2	2	3106-83	5	T	C4	29 FEB 88	
14 AUG 87	2344	1684.2	-6.9	2	3038-85	5	T	C4	29 FEB 88	
01 SEP 87	0200	1694.9	3.8	2	3010-85	5	T	C4	05 JAN 88	
16 SEP 87	0140	1749.8	1.6	2	3062-84	5	T	C4	22 DEC 87	
16 SEP 87	0301	1750.1	-11.6	3	3006-84	5	T	C4	22 DEC 87	
11 JAN 88	2015	1753.8	-6.4	2	3026-84	5	T	C4	29 FEB 88	
11 JAN 88	2250	1760.2	-4.2	2	3006-85	5	T	C4	29 FEB 88	
15 FEB 88	2050	1749.2	1.4	2	3034-85	5	T	C4	29 FEB 88	
15 FEB 88	2156	1751.7	-4.5	2	3050-84	5	T	C4	29 FEB 88	
04 MAR 88	2232	1760.1	4.8	2	3076-84	5	T	C4	27 APR 88	
18 MAR 88	0100	1787.5	-5.3	2	3025-83	5	T	C4	27 APR 88	
29 MAR 88	2050	1752.4	1.5	2	3074-84	5	T	C4	27 APR 88	
29 MAR 88	2216	1751.8	-2.9	2	3086-84	5	T	C4	27 APR 88	
15 JUL 88	2100	1709.4	-1.8	2	3038-85	5	T	C4	09 AUG 88	
16 JUL 88	0100	1716.4	-3.6	2	3006-85	5	T	C4	09 AUG 88	
04 AUG 88	0200	1711.9	5.8	2	3050-84	5	T	C4	09 AUG 88	
04 AUG 88	0224	1707.9	3.0	2	3106-83	5	T	C4	09 AUG 88	
18 AUG 88	2125	1705.9	5.2	2	3056-84	5	T	C4	31 AUG 88	
18 AUG 88	2200	1703.5	5.0	2	3136-86	5	T	C4	31 AUG 88	
14 SEP 88	1937	1735.9	-13.3	3	3038-83	5	T	C4	28 JUN 89	
14 SEP 88	2037	1740.1	4.7	2	3010-83	5	T	C4	28 JUN 89	
06 OCT 88	1601	1755.7	-2.2	2	3064-84	5	T	C4	12 OCT 88	
06 OCT 88	1643	1757.0	2.8	2	3008-84	5	T	C4	12 OCT 88	
18 OCT 88	2100	1767.6	3.6	2	3048-83	5	T	C4	24 OCT 88	
08 NOV 88	1600	1747.5	8.4	2	3034-60	5	T	C4	10 NOV 88	
08 NOV 88	1630	1746.8	-2.7	2	3044-60	5	T	C4	10 NOV 88	
21 NOV 88	2214	1755.8	7.3	2	3018-60	5	T	C4	01 DEC 88	
21 NOV 88	2240	1770.9	-4.1	2	3022-60	5	T	C4	01 DEC 88	
05 DEC 88	2044	1754.0	-2.1	2	3048-60	5	T	C4	08 DEC 88	
20 DEC 88	2050	1756.9	-5.5	2	3062-60	5	T	C4	03 JAN 89	
20 DEC 88	2206	1750.0	-5.1	2	3064-60	5	T	C4	03 JAN 89	

Palmer Station, Antarctica (PSA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
12 JAN 86	2218	1586.3	-1.1	2	331-85	1	P	C4	10 JUN 86	
17 JAN 86	1828	1588.6		1	338-85	1	P	C4	10 JUN 86	
23 JAN 86	1215	1584.9	-1.6	2	342-85	1	P	C4	10 JUN 86	
30 JAN 86	1625	1587.5	-3.0	2	346-85	1	P	C4	10 JUN 86	
14 FEB 86	1302	1578.6	-.9	2	312-85	1	P	C4	10 JUN 86	
20 FEB 86	1300	1577.0	2.0	2	318-85	1	P	C4	10 JUN 86	
27 FEB 86	1425	1576.7	-.8	2	322-85	1	P	C4	10 JUN 86	
14 MAR 86	1250	1576.2		1	625-85	1	P	C4	10 JUN 86	
14 MAR 86	1250	1574.8		1	625-86	1	P	C4	10 JUN 86	
28 MAR 86	1325	1581.5	-.1	2	592-85	1	P	C4	10 JUN 86	
11 APR 86	1910	1583.4	.4	3	604-85	1	P	C4	16 APR 87	
19 APR 86	1210	1586.1	6.1	2	606-85	1	P	C4	16 APR 87	
08 MAY 86	1855	1586.4	4.8	2	612-85	1	P	C4	20 APR 87	
17 MAY 86	1335	1589.2	5.2	2	614-85	1	P	C4	20 APR 87	
26 JUN 86	1842	1603.3	-1.0	2	622-85	1	P	C4	15 APR 87	
17 SEP 86	1330	1615.5	1.0	2	657-85	1	P	C4	20 APR 87	
31 OCT 86	2110	1615.6	1.9	2	678-85	1	P	C4	20 APR 87	
21 NOV 86	1720	1611.7	-3.9	2	646-85	1	P	C4	21 APR 88	
15 DEC 86	1716	1609.5	-5.8	2	682-85	1	P	C4	21 APR 88	
20 JAN 87	1637	1598.6	.1	3	228-86	1	P	C4	17 JUL 87	
11 FEB 87	1352	1589.8	6.2	2	276-86	1	P	C4	17 JUL 87	
18 FEB 87	1229	1588.4	3.0	2	290-86	1	P	C4	17 JUL 87	
23 FEB 87	1203	1587.5	-3.1	2	238-86	1	P	C4	17 JUL 87	
26 FEB 87	1556	1589.8	1.0	2	292-86	1	P	C4	17 JUL 87	
07 MAR 87	1429	1589.8	5.6	2	240-86	1	P	C4	17 JUL 87	
12 MAR 87	1156	1591.8	-.6	2	242-86	1	P	C4	17 JUL 87	
18 MAR 87	1728	1593.9	-.6	2	268-86	1	P	C4	17 JUL 87	
21 MAR 87	1553	1597.9	-.9	2	295-86	1	P	C4	17 JUL 87	
10 APR 87	1710	1594.8	3.6	2	266-86	1	P	C4	17 JUL 87	
17 APR 87	1245	1592.7	4.4	2	222-86	1	P	C4	17 JUL 87	
22 APR 87	1244	1596.6	-3.4	2	278-86	1	P	C4	17 JUL 87	
27 APR 87	1305	1595.5	-9.4	2	231-86	1	P	C4	17 JUL 87	
09 MAY 87	1241	1601.9	-4.8	2	220-86	1	P	C4	21 APR 88	
23 MAY 87	1745	1605.7	-4.9	2	219-86	1	P	C4	21 APR 88	
05 JUN 87	1315	1607.7	-1.3	2	280-86	1	P	C4	20 APR 88	
26 JUN 87	1330	1617.0	-8.5	2	236-86	1	P	C4	20 APR 88	
30 JUN 87	1320	1615.3	-3.0	2	638-85	1	P	C4	18 APR 88	
02 JUL 87	1730	1611.9	-.1	2	636-85	1	P	C4	18 APR 88	
07 JUL 87	1400	1614.1	-7.8	2	596-85	1	P	C4	18 APR 88	
09 JUL 87	1745	1617.8	-5.7	2	633-85	1	P	C4	18 APR 88	
15 JUL 87	1830	1618.5	-4.7	2	598-85	1	P	C4	20 APR 88	
20 JUL 87	2030	1619.3	2.8	2	594-85	1	P	C4	20 APR 88	
26 AUG 87	1800	1619.5	2.3	2	258-86	1	P	C4	19 APR 88	
15 SEP 87	0010	1624.0	-.6	2	666-85	1	P	C4	19 APR 88	
15 SEP 87	2000	1624.3	-4.2	2	664-85	1	P	C4	19 APR 88	
17 SEP 87	1745	1629.1	1.7	2	670-85	1	P	C4	20 APR 88	
23 SEP 87	1800	1624.6	.6	2	674-85	1	P	C4	20 APR 88	
05 OCT 87	1740	1627.1	-3.6	2	672-85	1	P	C4	21 APR 88	
25 OCT 87	0010	1625.5	3.6	2	306-86	1	P	C4	20 APR 88	
27 OCT 87	1110	1624.9	4.1	2	308-86	1	P	C4	20 APR 88	
26 DEC 87	1430	1615.3	1.7	2	342-87	1	P	C4	28 JUN 88	
02 JAN 88	1603	1606.8	-8.1	2	340-87	1	P	C4	28 JUN 88	
09 JAN 88	1530	1612.7	-1.0	2	334-87	1	P	C4	28 JUN 88	
31 JAN 88	1540	1605.0	5.3	2	314-87	1	P	C4	28 JUN 88	
28 FEB 88	1530	1606.0	-3.9	2	308-87	1	P	C4	28 JUN 88	
01 MAR 88	1330	1601.8	-7.6	2	408-87	1	P	C4	20 MAR 89	
06 MAR 88	1730	1602.5	-2.5	2	302-87	1	P	C4	28 JUN 88	
13 MAR 88	1530	1596.2	-5.8	2	304-87	1	P	C4	28 JUN 88	
08 MAY 88	1530	1615.4	5.8	2	406-87	1	P	C4	20 MAR 89	
15 MAY 88	1400	1611.1	-7.6	2	403-87	1	P	C4	20 MAR 89	
05 JUN 88	1730	1624.4	-7.2	2	398-87	1	P	C4	20 MAR 89	
19 JUN 88	1500	1629.6	6.0	2	348-87	1	P	C4	16 MAR 89	
26 JUN 88	1800	1625.6	-3.1	2	317-87	1	P	C4	17 MAR 89	
10 JUL 88	1400	1627.0	-1.5	2	346-87	1	P	C4	17 MAR 89	

Palmer Station, Antarctica (PSA)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 JUL 88	1800	1621.5		1	338-87	1	P	C4	17 MAR 89	
24 JUL 88	1730	1633.5	-8.9	2	344-87	1	P	C4	17 MAR 89	
31 JUL 88	1830	1632.6	9.3	2	364-87	1	P	C4	20 MAR 89	
18 SEP 88	1800	1643.1	1.9	2	332-87	1	P	C4	17 MAR 89	
27 NOV 88	1736	1634.5	-11.2	3	350-87	1	P	C4	22 MAR 89	
04 DEC 88	2048	1625.6	1.9	2	383-87	1	P	C4	22 MAR 89	
11 DEC 88	2115	1628.1	9.8	2	382-87	1	P	C4	22 MAR 89	
17 DEC 88	1535	1621.1	3.6	2	380-87	1	P	C4	22 MAR 89	
22 DEC 88	1300	1622.9	9.6	2	374-87	1	P	C4	22 MAR 89	

Ragged Point, Barbados (RPB)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
14 NOV 87	1320	1686.4		1	8-85	1	P	C4	04 JAN 88	
22 NOV 87	1215	1670.0	-5.8	2	72-87	1	P	C4	04 JAN 88	
28 NOV 87	1215	1700.4	1.1	2	292-87	1	P	C4	04 JAN 88	
05 DEC 87	1215	1691.6	1.1	2	294-87	1	P	C4	04 JAN 88	
12 DEC 87	1215	1695.3	-3.5	2	152-85	1	P	C4	07 JAN 88	
19 DEC 87	1215	1692.7	3.9	2	290-87	1	P	C4	07 JAN 88	
26 DEC 87	1215	1678.9	4.9	2	242-85	1	P	C4	13 JAN 88	
02 JAN 88	1215	1697.6	-3.5	2	280-85	1	P	C4	13 JAN 88	
09 JAN 88	1215	1725.6	1.9	2	84-87	1	P	C4	18 FEB 88	
16 JAN 88	1215	1714.8	-4.0	2	296-87	1	P	C4	18 FEB 88	
23 JAN 88	1215	1723.1	1.7	2	486-85	1	P	C4	18 FEB 88	
30 JAN 88	1215	1698.4	0.0	2	746-85	1	P	C4	18 FEB 88	
06 FEB 88	1215	1699.2	3.8	2	314-85	1	P	C4	01 MAR 88	
13 FEB 88	1215	1704.1	8.4	2	350-86	1	P	C4	01 MAR 88	
19 MAR 88	1215	1683.0	-2.1	2	270-87	1	P	C4	08 APR 88	
26 MAR 88	1215	1701.4		1	406-86	1	P	C4	08 APR 88	
02 APR 88	1215	1688.1	-3.4	2	382-85	1	P	C4	18 APR 88	
09 APR 88	1215	1685.8	13.2	3	394-85	1	P	C4	18 APR 88	
16 APR 88	1215	1692.2	-12.5	3	72-87	1	P	C4	13 MAY 88	
23 APR 88	1215	1674.2	-9.6	2	492-85	1	P	C4	13 MAY 88	
30 APR 88	1215	1709.6	4.0	2	282-85	1	P	C4	17 MAY 88	
07 MAY 88	1215	1697.6	-.6	2	784-85	1	P	C4	17 MAY 88	
21 MAY 88	1215	1681.0	-3.1	2	579-87	1	P	C4	01 JUN 88	
21 MAY 88	1215	1680.7		1	580-87	1	P	C4	01 JUN 88	
28 MAY 88	1215	1694.4	-8.4	2	246-87	1	P	C4	13 JUN 88	
04 JUN 88	1215	1676.5	-4.6	2	366-86	1	P	C4	13 JUN 88	
11 JUN 88	1215	1686.1	-8.2	2	296-86	1	P	C4	07 JUL 88	
18 JUN 88	1215	1698.1	-1.7	2	542-87	1	P	C4	07 JUL 88	
25 JUN 88	1215	1673.2	4.9	2	296-85	1	P	C4	12 JUL 88	
02 JUL 88	1215	1681.9	5.6	2	451-85	1	P	C4	13 JUL 88	
02 JUL 88	1215	1685.0	15.6	2	452-85	1	P	C4	12 JUL 88	
16 JUL 88	1215	1681.7	-1.0	2	562-87	1	P	C4	11 AUG 88	
23 JUL 88	1215	1673.7	6.1	2	26-85	1	P	C4	10 AUG 88	
30 JUL 88	1215	1688.1	5.8	2	746-85	1	P	C4	10 AUG 88	
06 AUG 88	1215	1662.9	2.4	2	82-85	1	P	C4	26 AUG 88	
13 AUG 88	1215	1695.2	-.9	2	342-85	1	P	C4	26 AUG 88	
20 AUG 88	1215	1695.4	-8.9	2	116-87	1	P	C4	28 SEP 88	
27 AUG 88	1215	1697.5	-10.9	3	680-85	1	P	C4	28 SEP 88	
03 SEP 88	1215	1693.4	5.1	2	386-86	1	P	C4	22 SEP 88	
10 SEP 88	1215	1667.4	5.9	2	450-85	1	P	C4	22 SEP 88	
17 SEP 88	1215	1696.1	-11.1	3	310-86	1	P	C4	04 OCT 88	
24 SEP 88	1215	1699.3	.3	2	416-85	1	P	C4	04 OCT 88	
01 OCT 88	1215	1680.2	-4.1	2	358-86	1	P	C4	20 OCT 88	
08 OCT 88	1215	1685.1	.4	2	590-87	1	P	C4	20 OCT 88	
22 OCT 88	1215	1687.7	-7.1	2	346-86	1	P	C4	10 NOV 88	
29 OCT 88	1215	1735.4	6.2	2	234-87	1	P	C4	17 NOV 88	
05 NOV 88	1215	1698.3	-12.4	3	321-86	1	P	C4	17 NOV 88	
12 NOV 88	1215	1687.8	-1.6	2	114-81	1	P	C4	01 DEC 88	
19 NOV 88	1215	1710.4	-3.2	2	116-81	1	P	C4	01 DEC 88	
26 NOV 88	1215	1688.2	.1	2	142-81	1	P	C4	14 DEC 88	
03 DEC 88	1215	1720.9	-4.6	2	144-81	1	P	C4	12 DEC 88	
10 DEC 88	1215	1726.3	-3.6	2	172-81	1	P	C4	03 JAN 89	
17 DEC 88	1215	1703.5	3.3	2	174-81	1	P	C4	03 JAN 89	

Seychelles (SEY)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
25 JAN 86	1220	1619.1	-.1	2	666-83	1	P	C4	12 FEB 86	
31 JAN 86	1445	1663.9	1.3	2	630-83	1	P	C4	18 FEB 86	
10 FEB 86	1415	1650.4	-1.8	2	296-83	1	P	C4	19 FEB 86	
20 FEB 86	0720	1638.2	2.5	2	226-83	1	P	C4	27 FEB 86	
04 MAR 86	1215	1655.0	.1	2	270-85	1	P	C4	01 APR 86	
10 APR 86	0650	1613.7		1	388-85	1	P	C4	18 APR 86	
20 APR 86	1135	1594.1		1	962-83	1	P	C4	09 MAY 86	
24 APR 86	1220	1591.1	-5.8	2	1698-82	1	P	C4	28 MAY 86	
10 JUN 86	0713	1609.8	1.2	2	624-83	1	P	C4	30 JUL 86	
18 JUN 86	0800	1612.4	.9	2	690-83	1	P	C4	07 JUL 86	
09 JUL 86	0845	1609.3	4.8	2	694-83	1	P	C4	29 JUL 86	
17 JUL 86	0740	1619.6	.7	2	712-85	1	P	C4	29 JUL 86	
28 JUL 86	0705	1639.3	.3	2	550-85	1	P	C4	10 AUG 86	
04 AUG 86	0700	1624.0	-8.8	3	496-82	1	P	C4	25 SEP 86	
20 AUG 86	0615	1615.1	-2.1	2	1784-82	1	P	C4	23 SEP 86	
26 AUG 86	1037	1654.2	-7.5	2	662-83	1	P	C4	13 OCT 86	
16 SEP 86	1245	1621.3		1	795-83	1	P	C4	09 OCT 86	
22 SEP 86	0630	1616.0	.2	2	626-85	1	P	C4	30 SEP 86	
24 SEP 86	0730	1627.3	2.7	2	728-85	1	P	C4	13 OCT 86	
13 OCT 86	1000	1628.5	-1.5	2	108-85	1	P	C4	12 NOV 86	
30 OCT 86	1055	1604.9	-5.4	2	416-83	1	P	C4	29 DEC 86	
18 NOV 86	0654	1611.9	-.4	2	666-83	1	P	C4	11 DEC 86	
03 DEC 86	1110	1653.7	2.1	2	558-85	1	P	C4	30 DEC 86	
16 DEC 86	1230	1652.8	1.0	2	542-83	1	P	C4	30 DEC 86	
27 DEC 86	1130	1684.6	-8.6	2	1338-82	1	P	C4	15 JAN 87	
09 JAN 87	0747	1660.4	-1.2	2	682-83	1	P	C4	21 JAN 87	
19 JAN 87	0730	1717.1	3.8	2	1086-82	1	P	C4	03 FEB 87	
29 JAN 87	1000	1662.2	-2.6	2	1572-82	1	P	C4	10 FEB 87	
10 FEB 87	0730	1666.9	3.4	2	848-83	1	P	C4	24 FEB 87	
20 FEB 87	0647	1663.6	5.7	2	276-82	1	P	C4	05 MAR 87	
24 FEB 87	0833	1661.8	-4.8	2	846-83	1	P	C4	05 MAR 87	
03 MAR 87	1130	1655.4	-.8	2	10-85	1	P	C4	25 MAR 87	
12 MAR 87	0605	1649.9	4.2	2	680-83	1	P	C4	25 MAR 87	
19 MAR 87	1100	1662.3	-1.8	2	628-85	1	P	C4	30 APR 87	
17 APR 87	0915	1641.3	1.3	2	710-85	1	P	C4	30 APR 87	
03 OCT 87	0836	1625.0	-4.4	2	174-83	1	P	C4	26 OCT 87	
25 NOV 87	1400	1623.3	1.5	2	50-85	1	P	C4	08 DEC 87	
31 DEC 87	0800	1663.0	-4.9	2	312-83	1	P	C4	13 JAN 88	
11 JAN 88	1248	1694.0	1.9	2	510-85	1	P	C4	19 JAN 88	
14 JAN 88	0907	1691.2	-3.9	2	110-87	1	P	C4	26 JAN 88	
22 JAN 88	0730	1667.5	-3.8	2	544-85	1	P	C4	03 FEB 88	
28 JAN 88	0930	1684.8	10.1	2	374-86	1	P	C4	19 FEB 88	
06 FEB 88	1242	1674.7	-.6	2	356-86	1	P	C4	24 FEB 88	
22 FEB 88	1200	1665.9	1.6	2	58-85	1	P	C4	01 MAR 88	
18 MAR 88	1630	1664.9	11.4	3	336-86	1	P	C4	13 APR 88	
21 APR 88	1045	1615.4	-2.9	2	378-85	1	P	C4	04 MAY 88	
03 MAY 88	0840	1624.1	5.8	2	104-85	1	P	C4	16 MAY 88	
29 MAY 88	0900	1617.1	5.9	2	322-85	1	P	C4	14 JUN 88	
03 AUG 88	0712	1631.1	3.2	2	396-86	1	P	C4	18 AUG 88	
11 AUG 88	0800	1635.6	-.9	2	244-87	1	P	C4	18 AUG 88	
05 NOV 88	0800	1649.9		1	51-81	1	P	C4	17 NOV 88	
10 DEC 88	1030	1696.6	6.0	2	530-81	1	P	C4	05 JAN 89	
23 DEC 88	1107	1680.5	3.4	2	182-81	1	P	C4	09 JAN 89	

Shemya Island (SHM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 JAN 86	1730	1730.9	.5	2	60-83	1	P	C4	04 FEB 86	
16 JAN 86	0300	1734.9	5.1	2	888-83	1	P	C4	14 FEB 86	
23 JAN 86	0000	1720.0	1.3	2	1526-82	1	P	C4	14 FEB 86	
30 JAN 86	2100	1729.7	2.7	2	1162-82	1	P	C4	12 FEB 86	
06 FEB 86	0000	1734.1	11.4	3	760-83	1	P	C4	12 FEB 86	
13 FEB 86	0200	1726.2	-.2	2	1204-82	1	P	C4	27 FEB 86	
20 FEB 86	0130	1729.0	2.8	2	188-83	1	P	C4	27 FEB 86	
27 FEB 86	2300	1743.9	2.2	2	934-83	1	P	C4	21 MAR 86	
12 MAR 86	2230	1743.8		1	384-83	1	P	C4	01 APR 86	
20 MAR 86	2330	1749.6	-8.2	2	982-81	1	P	C4	01 APR 86	
02 APR 86	0015	1740.9	2.7	2	892-82	1	P	C4	24 APR 86	
18 APR 86	0010	1750.5	-1.5	2	448-83	1	P	C4	24 APR 86	
01 MAY 86	0030	1749.0	1.7	2	392-85	1	P	C4	23 JUL 86	
13 JUN 86	0000	1726.1	6.9	2	819-83	1	P	C4	30 JUL 86	
25 JUN 86	1845	1709.6	-7.9	2	948-83	1	P	C4	30 JUL 86	
11 JUL 86	0030	1709.3	5.8	2	400-85	1	P	C4	30 JUL 86	
15 AUG 86	0110	1736.3	-3.0	2	982-81	1	P	C4	13 OCT 86	
07 NOV 86	1910	1761.7		1	114-83	1	P	C4	07 JAN 87	
21 NOV 86	2110	1745.1	-2.7	2	744-83	1	P	C4	07 JAN 87	
24 DEC 86	0120	1738.9	4.1	2	366-85	1	P	C4	04 FEB 87	
03 JAN 87	0145	1750.7	4.3	2	1218-82	1	P	C4	04 FEB 87	
16 JAN 87	0245	1757.2	-5.5	2	26-85	1	P	C4	24 FEB 87	
31 JAN 87	0210	1749.2	2.3	2	1668-82	1	P	C4	18 FEB 87	
14 FEB 87	0120	1768.3	2.0	2	752-83	1	P	C4	25 MAR 87	
06 MAR 87	2035	1743.0	5.3	2	1630-82	1	P	C4	25 MAR 87	
13 MAR 87	0215	1741.3	-3.3	2	892-83	1	P	C4	28 APR 87	
21 MAR 87	0140	1737.0	-3.4	2	516-83	1	P	C4	28 APR 87	
18 APR 87	2300	1759.0	-.3	2	192-83	1	P	C4	30 APR 87	
27 APR 87	0115	1760.5	8.4	2	8-83	1	P	C4	30 APR 87	
04 MAY 87	0545	1753.9	-1.9	2	1172-82	1	P	C4	01 JUN 87	
19 MAY 87	0130	1756.0	-2.1	2	514-83	1	P	C4	01 JUN 87	
31 MAY 87	0100	1748.0	1.3	2	662-85	1	P	C4	23 JUN 87	
15 JUN 87	0000	1734.9	-2.4	2	658-85	1	P	C4	23 JUN 87	
28 JUN 87	2310	1737.2	5.7	2	619-85	1	P	C4	30 JUL 87	
12 JUL 87	2305	1721.2	3.2	2	624-85	1	P	C4	30 JUL 87	
19 JUL 87	2310	1721.2	2.5	2	604-85	1	P	C4	09 NOV 87	
27 JUL 87	0200	1718.7	1.6	2	622-83	1	P	C4	09 NOV 87	
03 AUG 87	0400	1720.1	-.1	2	1572-82	1	P	C4	04 SEP 87	
10 AUG 87	0100	1726.4	-2.8	3	528-85	1	P	C4	04 SEP 87	
23 AUG 87	0100	1702.7	6.7	2	64-85	1	P	C4	10 NOV 87	
31 AUG 87	0240	1732.6	-4.5	2	586-85	1	P	C4	09 NOV 87	
01 NOV 87	2300	1763.0	0.0	2	580-85	1	P	C4	18 NOV 87	
15 NOV 87	2300	1768.3	.8	2	336-85	1	P	C4	08 DEC 87	
22 NOV 87	1100	1761.1	-3.6	2	542-85	1	P	C4	08 DEC 87	
29 NOV 87	2320	1770.1	.6	2	150-85	1	P	C4	04 JAN 88	
06 DEC 87	2300	1780.3	3.7	2	164-85	1	P	C4	04 JAN 88	
10 DEC 87	2330	1772.3	-9.4	2	284-87	1	P	C4	19 JAN 88	
13 DEC 87	2350	1760.0	-1.1	2	13-85	1	P	C4	05 JAN 88	
20 DEC 87	2255	1768.7	-.7	2	30-85	1	P	C4	05 JAN 88	
28 DEC 87	0400	1765.5	-8.4	2	358-85	1	P	C4	19 JAN 88	
01 FEB 88	0000	1757.7		1	546-87	1	P	C4	16 FEB 88	
01 FEB 88	0000	1764.7		1	546-87	1	P	C4	18 FEB 88	
08 FEB 88	0020	1775.4	3.8	2	130-85	1	P	C4	16 FEB 88	
14 FEB 88	2330	1762.7	-10.8	3	398-86	1	P	C4	01 MAR 88	
22 FEB 88	0400	1770.2	4.7	2	370-85	1	P	C4	29 FEB 88	
07 MAR 88	0030	1763.9	.1	2	548-87	1	P	C4	24 MAR 88	
13 MAR 88	1330	1773.3	2.7	2	842-85	1	P	C4	24 MAR 88	
24 APR 88	2250	1773.1	-17.1	2	418-85	1	P	C4	16 MAY 88	
01 MAY 88	2304	1792.6	5.2	2	298-87	1	P	C4	16 MAY 88	
09 MAY 88	0145	1772.8	-3.2	2	106-85	1	P	C4	23 MAY 88	
15 MAY 88	2355	1758.9	.5	2	332-86	1	P	C4	23 MAY 88	
22 MAY 88	2330	1760.1	1.7	2	678-85	1	P	C4	14 JUN 88	
29 MAY 88	2300	1752.0	-3.6	2	270-86	1	P	C4	14 JUN 88	
06 JUN 88	0629	1748.1	-.1	2	596-87	1	P	C4	20 JUN 88	

Shemya Island (SHM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
13 JUN 88	0030	1746.6	-5.6	2	226-86	1	P	C4	20 JUN 88	
20 JUN 88	2255	1733.0	-15.1	3	352-86	1	P	C4	01 JUL 88	
27 JUN 88	0100	1737.0	3.5	2	92-87	1	P	C4	01 JUL 88	
03 JUL 88	1215	1739.3	-7.4	2	250-85	1	P	C4	11 AUG 88	
10 JUL 88	2250	1741.3	-2.8	2	314-86	1	P	C4	11 AUG 88	
24 JUL 88	2300	1731.2	2.7	2	842-85	1	P	C4	16 AUG 88	
08 AUG 88	0217	1719.7	-2.7	2	535-87	1	P	C4	30 AUG 88	
08 AUG 88	0217	1723.6		1	536-87	1	P	C4	26 AUG 88	
15 AUG 88	0210	1754.9	-8.5	2	302-87	1	P	C4	26 AUG 88	
05 SEP 88	0430	1744.7	6.4	2	496-85	1	P	C4	15 SEP 88	
12 SEP 88	0000	1747.5	3.5	2	172-85	1	P	C4	20 OCT 88	
19 SEP 88	0030	1763.9	-1.7	2	168-85	1	P	C4	20 OCT 88	
25 SEP 88	1330	1763.3	-2.5	2	120-87	1	P	C4	19 OCT 88	
03 OCT 88	0000	1766.2	2.2	2	456-85	1	P	C4	19 OCT 88	
10 OCT 88	0000	1777.6	0.0	2	409-86	1	P	C4	24 OCT 88	
17 OCT 88	0300	1771.8	3.0	2	402-86	1	P	C4	24 OCT 88	
14 NOV 88	0300	1777.5	-6.6	2	792-85	1	P	C4	01 DEC 88	
20 NOV 88	0200	1763.1	-5.8	2	86-87	1	P	C4	02 DEC 88	
04 DEC 88	2225	1774.3	-10.5	3	242-87	1	P	C4	26 JAN 89	
18 DEC 88	0130	1779.3	-3.7	2	70-85	1	P	C4	31 JAN 89	

Scripps, California (SIO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
25 SEP 86	2110	1715.6		1	320-83	1	P	C4	13 OCT 86	
25 SEP 86	2115	1710.8	-9.1	2	342-83	1	P	C4	13 OCT 86	
25 SEP 86	2120	1715.5	6.4	2	356-83	1	P	C4	13 OCT 86	
25 SEP 86	2127	1711.4	.4	2	876-83	1	P	C4	13 OCT 86	
25 SEP 86	2134	1712.6	-9.6	2	1138-82	1	P	C4	13 OCT 86	
25 SEP 86	2140	1714.4	5.3	2	1176-82	1	P	C4	13 OCT 86	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JAN 86	0039	1585.6	-.1	2	2036-85	7	P	C3	09 JAN 86	
03 JAN 86	0039	1584.7	1.5	2	2835-85	1	P	C3	08 JAN 86	
16 JAN 86	2340	1619.5	8.5	2	2888-85	1	P	C4	03 FEB 86	
23 JAN 86	2311	1612.6	.6	2	2880-85	1	P	C4	13 FEB 86	
31 JAN 86	0011	1668.4		1	2874-85	1	P	C4	18 FEB 86	+
13 FEB 86	2137	1620.1		1	2820-85	1	P	C4	18 FEB 86	
06 MAR 86	2339	1622.3	-3.4	2	2860-85	1	P	C4	13 MAR 86	
17 MAR 86	0053	1618.2	1.1	2	2810-85	1	P	C4	01 APR 86	
27 MAR 86	2310	1599.2	-3.7	2	2806-85	1	P	C4	20 APR 86	
04 APR 86	0018	1611.9	2.9	2	2814-85	1	P	C4	18 APR 86	
10 APR 86	2052	1607.9	.4	2	2840-85	1	P	C4	20 APR 86	
16 APR 86	2132	1612.9	-7.6	2	2894-85	1	P	C4	22 APR 86	
25 APR 86	2132	1598.2	13.7	3	2820-85	1	P	C4	01 MAY 86	
01 MAY 86	2318	1607.1	-3.5	2	2888-85	1	P	C4	09 MAY 86	
05 MAY 86	2326	1604.4	2.4	2	2879-85	6	P	C4	07 AUG 86	
13 MAY 86	0220	1595.1	2.4	2	2833-85	6	P	C4	28 MAY 86	
15 MAY 86	2235	1599.8	3.9	2	2816-85	1	P	C4	28 MAY 86	
30 MAY 86	0033	1605.1	-4.2	2	2877-85	6	P	C4	10 JUN 86	
12 JUN 86	2249	1604.3	-1.6	2	2853-85	6	P	C4	07 AUG 86	
21 JUN 86	0020	1631.9		1	2806-85	1	P	C4	08 JUL 86	+
26 JUN 86	2323	1638.6	11.1	3	2838-85	1	P	C4	08 JUL 86	+
08 JUL 86	0317	1606.1	-8.7	2	2828-85	1	P	C4	05 AUG 86	
17 JUL 86	2131	1614.4	-6.6	2	2861-85	6	P	C4	07 AUG 86	
25 JUL 86	2251	1611.6	1.6	2	2052-85	6	S	C4	09 AUG 86	
31 JUL 86	2235	1612.1	-.5	2	2809-85	6	P	C4	10 AUG 86	
07 AUG 86	2321	1608.8	-12.4	3	2873-85	6	P	C4	19 SEP 86	
18 AUG 86	2348	1608.7	7.8	2	342-82	1	P	C4	25 SEP 86	
04 SEP 86	2131	1614.5	.3	2	694-83	1	P	C4	18 SEP 86	
25 SEP 86	2357	1615.9	-1.7	2	2120-85	6	S	C4	13 OCT 86	
02 OCT 86	2357	1610.9	2.7	2	2072-85	6	S	C4	09 OCT 86	
09 OCT 86	2058	1613.7	-1.3	2	2074-85	6	S	C4	14 OCT 86	
16 OCT 86	2258	1608.3	3.8	2	2066-85	6	S	C4	20 OCT 86	
24 OCT 86	2257	1612.8	-4.5	2	2080-85	6	S	C4	12 NOV 86	
30 OCT 86	2344	1603.9	6.8	2	2078-85	6	S	C4	14 NOV 86	
07 NOV 86	2325	1610.0		1	64-85	1	P	C4	17 NOV 86	
08 NOV 86	0057	1612.3	-3.7	2	2058-85	6	S	C4	17 NOV 86	
13 NOV 86	2307	1610.6	6.4	2	2022-85	1	P	C4	17 NOV 86	
14 NOV 86	0057	1605.5	-11.1	3	2070-85	6	S	C4	17 NOV 86	
20 NOV 86	2158	1607.9	-.6	2	2126-85	6	S	C4	10 DEC 86	
04 DEC 86	2058	1603.5	2.4	2	2120-85	6	S	C4	09 DEC 86	
15 DEC 86	2251	1600.7	10.3	2	2002-85	6	S	C4	30 DEC 86	
15 DEC 86	2315	1597.7	-4.4	2	914-83	1	P	C4	30 DEC 86	
18 DEC 86	2257	1595.2	-7.5	2	2098-85	6	S	C4	30 DEC 86	
26 DEC 86	2050	1611.5	-.6	2	2034-86	2	S	C4	08 JAN 87	
05 JAN 87	2258	1597.5	4.1	2	2016-86	2	S	C4	20 JAN 87	
08 JAN 87	2257	1610.3	-6.2	2	2050-86	2	S	C4	15 JAN 87	
15 JAN 87	2154	1627.5	4.3	3	542-85	1	P	C4	20 JAN 87	
15 JAN 87	2257	1626.8	.9	2	2026-86	2	S	C4	20 JAN 87	
22 JAN 87	2126	1594.9	4.1	2	358-85	1	P	C4	03 FEB 87	
22 JAN 87	2248	1595.4	-4.9	2	2042-86	2	S	C4	03 FEB 87	
29 JAN 87	1039	1592.2	1.2	2	587-85	1	P	C4	11 FEB 87	
29 JAN 87	1158	1590.5	4.1	2	2062-86	2	S	C4	11 FEB 87	
11 FEB 87	2358	1647.9	5.3	2	2034-86	2	S	C4	24 FEB 87	
17 FEB 87	2257	1624.7	.4	2	2018-86	2	S	C4	24 FEB 87	
19 FEB 87	2045	1621.8	-3.7	2	400-83	1	P	C4	24 FEB 87	
19 FEB 87	2050	1621.2	4.4	3	2026-86	2	S	C4	24 FEB 87	
26 FEB 87	2253	1607.1	3.8	2	172-83	1	P	C4	13 MAR 87	
26 FEB 87	2258	1603.6	2.3	2	2046-86	2	S	C4	13 MAR 87	
09 MAR 87	2029	1639.3	3.3	2	658-83	1	P	C4	13 MAR 87	
09 MAR 87	2057	1635.5	-.6	2	2058-86	2	S	C4	13 MAR 87	
12 MAR 87	2352	1613.8	-4.1	2	2032-86	2	S	C4	24 MAR 87	
19 MAR 87	2145	1618.8	3.4	2	698-83	1	P	C4	25 MAR 87	
19 MAR 87	2251	1619.8	4.8	2	2022-86	2	S	C4	25 MAR 87	
30 MAR 87	2157	1611.4	1.4	2	2054-86	2	S	C4	08 APR 87	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 APR 87	2210	1604.5	-13.5	2	94-85	1	P	C4	08 APR 87	
02 APR 87	2257	1608.5	-9.8	2	2034-86	2	S	C4	08 APR 87	
16 APR 87	2357	1597.9	-1.0	2	2030-86	2	S	C4	05 MAY 87	
27 APR 87	2058	1606.5	-.9	2	2014-86	2	S	C4	05 MAY 87	
01 MAY 87	0057	1607.6	2.8	2	2020-86	2	S	C4	13 MAY 87	
07 MAY 87	2157	1610.2	10.3	3	2002-86	2	S	C4	21 MAY 87	
07 MAY 87	2235	1605.0	-3.5	2	880-83	1	P	C4	21 MAY 87	
14 MAY 87	2257	1608.3	.6	2	2024-86	2	S	C4	26 MAY 87	
14 MAY 87	2328	1609.5	-1.8	2	778-83	1	P	C4	26 MAY 87	
22 MAY 87	0051	1609.5	5.5	2	2008-86	2	S	C4	01 JUN 87	
22 MAY 87	0056	1608.3	-2.8	2	826-85	1	P	C4	09 JUN 87	
28 MAY 87	2138	1615.7	1.9	2	226-83	1	P	C4	15 JUN 87	
28 MAY 87	2257	1614.8	6.7	2	2046-86	2	S	C4	15 JUN 87	
04 JUN 87	2057	1615.8	-.7	2	2030-86	2	S	C4	23 JUN 87	
04 JUN 87	2126	1612.4	1.8	2	629-83	1	P	C4	23 JUN 87	
11 JUN 87	2259	1616.5	-1.5	2	2048-86	2	S	C4	23 JUN 87	
18 JUN 87	2159	1617.6	1.4	2	2020-86	2	S	C4	30 JUN 87	
18 JUN 87	2253	1620.4	4.2	2	600-85	1	P	C4	30 JUN 87	
25 JUN 87	2357	1621.7	-6.8	2	2052-86	2	S	C4	08 JUL 87	
02 JUL 87	2158	1619.2	-.4	2	2004-86	2	S	C4	13 JUL 87	
02 JUL 87	2350	1621.1	-1.3	2	186-82	1	P	C4	13 JUL 87	
09 JUL 87	2117	1619.0	-.8	2	690-85	1	P	C4	13 JUL 87	
09 JUL 87	2158	1615.8	-2.2	2	2042-86	2	S	C4	13 JUL 87	
21 JUL 87	0029	1625.2	-.6	2	806-85	1	P	C4	30 JUL 87	
21 JUL 87	0058	1624.6	-2.9	2	2018-86	2	S	C4	30 JUL 87	
23 JUL 87	2207	1625.5	-1.2	2	628-85	1	P	C4	11 AUG 87	
23 JUL 87	2258	1626.9	-4.2	3	2020-86	2	S	C4	11 AUG 87	
31 JUL 87	0059	1623.5	-2.7	2	58-85	1	P	C4	11 AUG 87	
31 JUL 87	0158	1624.0	-.4	2	2002-86	2	S	C4	12 AUG 87	
06 AUG 87	2058	1623.1	-4.0	2	2030-86	2	S	C4	12 AUG 87	
06 AUG 87	2138	1626.9	-5.1	3	1164-82	1	P	C4	12 AUG 87	
14 AUG 87	1950	1621.9	0.0	2	2004-86	2	S	C4	09 SEP 87	
14 AUG 87	2018	1626.9	1.9	2	274-86	1	P	C4	09 SEP 87	
20 AUG 87	2151	1622.2	1.8	3	238-86	1	P	C4	04 SEP 87	
20 AUG 87	2250	1622.2	-.2	2	2050-86	2	S	C4	09 SEP 87	
28 AUG 87	1958	1619.5	-1.3	3	2014-86	2	S	C4	11 SEP 87	
28 AUG 87	2106	1625.2	-1.6	2	666-83	1	P	C4	11 SEP 87	
03 SEP 87	2225	1620.5	8.2	2	3060-83	5	T	C4	29 SEP 87	
03 SEP 87	2358	1621.4	4.7	2	2006-86	2	S	C4	15 SEP 87	
10 SEP 87	2204	1624.0	.6	2	3095-84	5	T	C4	29 SEP 87	
10 SEP 87	2257	1625.6	.3	2	2002-86	2	S	C4	24 SEP 87	
17 SEP 87	2214	1624.1	-3.0	2	18-85	1	P	C4	30 SEP 87	
17 SEP 87	2258	1621.9	-3.6	2	2022-86	2	S	C4	24 SEP 87	
24 SEP 87	2345	1620.7	4.1	2	3026-85	5	T	C4	14 OCT 87	
25 SEP 87	0058	1622.2	-5.6	2	2062-86	2	S	C4	08 OCT 87	
30 SEP 87	0127	1621.2	-.7	2	2012-87	3	P	C4	14 OCT 87	
30 SEP 87	0137	1621.7	-1.6	2	2010-87	3	P	C4	14 OCT 87	
30 SEP 87	0145	1624.5	1.9	2	234-87	1	P	C4	14 OCT 87	
30 SEP 87	0153	1620.5	6.6	2	2014-87	3	P	C4	14 OCT 87	
30 SEP 87	0201	1622.8	-4.2	2	3002-83	5	T	C4	14 OCT 87	
30 SEP 87	0205	1621.5	2.4	2	2006-87	3	P	C4	14 OCT 87	
30 SEP 87	0216	1628.9	7.4	3	236-87	1	P	C4	14 OCT 87	
30 SEP 87	0225	1621.6	-.5	2	2008-87	3	P	C4	14 OCT 87	
02 OCT 87	0258	1621.1	-.3	2	564-83	6	S	C4	14 OCT 87	
02 OCT 87	0323	1623.2	3.2	2	2002-87	3	P	C4	14 OCT 87	
02 OCT 87	0330	1628.1	5.4	2	3040-85	5	T	C4	14 OCT 87	
02 OCT 87	0333	1621.6	-3.4	2	2004-87	3	P	C4	14 OCT 87	
02 OCT 87	0342	1623.9	.4	2	534-83	1	P	C4	14 OCT 87	
02 OCT 87	0350	1618.1	1.2	2	2016-87	3	P	C4	14 OCT 87	
02 OCT 87	0359	1622.5	1.1	2	2018-87	3	P	C4	14 OCT 87	
02 OCT 87	0408	1617.7	-4.8	2	2020-87	3	P	C4	14 OCT 87	
08 OCT 87	2159	1622.1	-3.6	2	458-83	6	S	C4	27 OCT 87	
08 OCT 87	2217	1621.4	3.7	2	432-83	1	P	C4	27 OCT 87	
08 OCT 87	2218	1626.8	.6	2	3008-83	5	T	C4	10 NOV 87	
15 OCT 87	1959	1629.4	-8.9	2	408-85	6	S	C4	09 NOV 87	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
15 OCT 87	2234	1623.2	-4.7	2	3018-84	5	T	C4	10 NOV 87	
23 OCT 87	0046	1624.9	5.2	2	128-87	1	P	C4	09 NOV 87	
23 OCT 87	0050	1623.6	3.6	2	3084-84	5	T	C4	10 NOV 87	
23 OCT 87	0158	1629.6	.5	2	252-87	6	S	C4	09 NOV 87	
29 OCT 87	2038	1625.3	2.3	2	676-83	1	P	C4	09 NOV 87	
29 OCT 87	2038	1631.3	9.6	2	3096-84	5	T	C4	10 NOV 87	
29 OCT 87	2158	1622.7	-6.5	2	32-85	6	S	C4	09 NOV 87	
06 NOV 87	0057	1622.5	13.6	3	776-85	1	P	C4	17 NOV 87	
06 NOV 87	0101	1622.2	-9.9	2	3006-85	5	T	C4	23 NOV 87	
06 NOV 87	0158	1618.9	2.9	2	812-85	6	S	C4	17 NOV 87	
13 NOV 87	0043	1617.4	-4.4	2	496-85	1	P	C4	24 NOV 87	
13 NOV 87	0053	1614.2	-1.3	2	3076-84	5	T	C4	23 NOV 87	
13 NOV 87	0058	1612.9	7.2	2	522-85	6	S	C4	24 NOV 87	
19 NOV 87	2345	1617.6	3.4	2	3090-84	5	T	C4	22 DEC 87	
19 NOV 87	2358	1619.7	8.5	2	24-85	6	S	C4	04 DEC 87	
25 NOV 87	2140	1621.3	-9.9	2	90-85	1	P	C4	04 DEC 87	
25 NOV 87	2146	1613.9	0.0	2	3062-83	5	T	C4	08 DEC 87	
25 NOV 87	2220	1614.2	3.2	2	78-87	6	S	C4	04 DEC 87	
03 DEC 87	2216	1625.5	-2.4	2	270-87	1	P	C4	15 DEC 87	
03 DEC 87	2218	1628.3	-1.1	2	3014-83	5	T	C4	08 DEC 87	
03 DEC 87	2256	1623.2	-8.3	2	46-85	6	S	C4	15 DEC 87	
10 DEC 87	2205	1609.0	-3.8	2	542-87	1	P	C4	31 DEC 87	
10 DEC 87	2209	1613.9	-6.2	2	3008-85	5	T	C4	22 DEC 87	
10 DEC 87	2257	1610.1	1.2	2	2038-86	2	S	C4	31 DEC 87	
17 DEC 87	2148	1620.5	5.0	2	3072-83	5	T	C4	13 JAN 88	
17 DEC 87	2156	1624.5	.2	2	144-85	1	P	C4	04 JAN 88	
17 DEC 87	2257	1622.2	.2	2	2042-86	2	S	C4	04 JAN 88	
24 DEC 87	2255	1621.6	-4.6	2	3074-83	5	T	C4	05 JAN 88	
24 DEC 87	2258	1619.7	2.7	2	350-86	1	P	C4	06 JAN 88	
24 DEC 87	2358	1619.2	.5	2	2048-86	2	S	C4	06 JAN 88	
31 DEC 87	1958	1609.3	-3.5	2	2002-86	2	S	C4	06 JAN 88	
31 DEC 87	2021	1610.5	4.9	2	254-87	1	P	C4	06 JAN 88	
31 DEC 87	2025	1613.9	-3.8	2	3092-83	5	T	C4	05 JAN 88	
07 JAN 88	2214	1611.0	-6.7	2	3046-84	5	T	C4	13 JAN 88	
07 JAN 88	2219	1617.4	6.0	2	108-85	1	P	C4	13 JAN 88	
07 JAN 88	2357	1609.1	6.5	2	330-85	6	S	C4	13 JAN 88	
14 JAN 88	2031	1647.6	7.7	2	3052-84	5	T	C4	16 FEB 88	
14 JAN 88	2035	1646.8	1.2	2	422-86	1	P	C4	26 JAN 88	
14 JAN 88	2058	1642.7	3.8	2	2008-86	2	S	C4	26 JAN 88	
21 JAN 88	2144	1607.0	.6	2	3062-83	5	T	C4	03 FEB 88	
21 JAN 88	2146	1613.7	-3.9	2	408-86	1	P	C4	03 FEB 88	
21 JAN 88	2258	1607.9	2.1	2	2044-86	2	S	C4	03 FEB 88	
28 JAN 88	2158	1631.5	9.2	2	2026-86	2	S	C4	19 FEB 88	
28 JAN 88	2221	1630.5	-.6	2	3078-84	5	T	C4	03 FEB 88	
28 JAN 88	2231	1626.6	-1.3	2	2046-87	3	P	C4	04 FEB 88	
04 FEB 88	2211	1620.4	-1.8	2	3056-83	5	T	C4	16 FEB 88	
04 FEB 88	2214	1622.5	-7.2	2	2039-87	3	P	C4	18 FEB 88	
04 FEB 88	2258	1618.7	5.4	2	390-85	6	S	C4	16 FEB 88	
11 FEB 88	2058	1638.2	-10.8	3	152-85	6	S	C4	26 FEB 88	
11 FEB 88	2201	1630.5	-8.8	2	334-85	1	P	C4	26 FEB 88	
11 FEB 88	2201	1639.6	-1.4	2	2037-87	3	P	C4	26 FEB 88	
11 FEB 88	2204	1633.6	4.8	2	3080-83	5	T	C4	09 MAR 88	
25 FEB 88	2058	1644.7	1.9	2	2038-86	2	S	C4	10 MAR 88	
25 FEB 88	2134	1640.4	-.5	2	3078-83	5	T	C4	09 MAR 88	
25 FEB 88	2140	1649.0	-5.2	2	419-85	1	P	C4	10 MAR 88	
25 FEB 88	2140	1644.9	-2.5	2	2042-87	3	P	C4	10 MAR 88	
09 MAR 88	0025	1606.2	-2.7	2	3020-84	5	T	C4	24 MAR 88	
09 MAR 88	0031	1610.0	1.5	2	270-85	1	P	C4	23 MAR 88	
09 MAR 88	0031	1606.2	6.4	2	2032-87	3	P	C4	23 MAR 88	
09 MAR 88	0058	1606.7	4.2	2	2006-86	2	S	C4	23 MAR 88	
10 MAR 88	2307	1601.7	-1.2	2	3042-84	5	T	C4	24 MAR 88	
10 MAR 88	2321	1609.5	1.5	2	552-85	1	P	C4	23 MAR 88	
10 MAR 88	2321	1607.0	4.4	2	2030-87	3	P	C4	23 MAR 88	
11 MAR 88	0058	1608.2	2.0	2	2048-86	2	S	C4	23 MAR 88	
17 MAR 88	2123	1616.4	-5.0	2	3098-83	5	T	C4	22 APR 88	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 MAR 88	2129	1614.5	-6.9	2	2034-87	3	P	C4	11 APR 88	
17 MAR 88	2158	1620.3	-1.1	2	2044-86	2	S	C4	12 APR 88	
24 MAR 88	1117	1610.4	-3.2	2	3022-83	5	T	C4	22 APR 88	
24 MAR 88	2230	1618.6	11.0	3	370-85	1	P	C4	08 APR 88	
24 MAR 88	2230	1617.5	-4.0	2	2038-87	3	P	C4	08 APR 88	
24 MAR 88	2348	1619.5	-6.0	2	2008-86	2	S	C4	08 APR 88	
31 MAR 88	2127	1624.8	-7.9	2	2018-86	2	S	C4	27 APR 88	
31 MAR 88	2216	1626.4	1.2	2	3079-84	5	T	C4	26 APR 88	
31 MAR 88	2220	1625.4	-4.1	2	130-85	1	P	C4	11 APR 88	
31 MAR 88	2220	1621.4	5.0	2	2036-87	3	P	C4	11 APR 88	
16 APR 88	0058	1649.5	.9	2	3104-83	5	T	C4	26 APR 88	
16 APR 88	0103	1653.8	-9.8	2	82-85	1	P	C4	27 APR 88	
16 APR 88	0103	1649.0	4.8	2	2096-87	3	P	C4	27 APR 88	
16 APR 88	0140	1649.8	10.4	3	2014-86	2	S	C4	29 APR 88	
22 APR 88	0048	1616.2	-6.7	2	3030-85	5	T	C4	13 MAY 88	
22 APR 88	0115	1616.7	-3.6	2	2046-87	3	P	C4	16 MAY 88	
22 APR 88	0158	1613.4	-3.0	2	2004-86	2	S	C4	17 MAY 88	
28 APR 88	2256	1627.4	-4.8	2	3040-85	5	T	C4	13 MAY 88	
28 APR 88	2332	1628.7	.1	2	2040-87	3	P	C4	16 MAY 88	
29 APR 88	0010	1624.6	-7.5	2	2038-86	2	S	C4	17 MAY 88	
05 MAY 88	2131	1617.8	-7.1	2	3016-84	5	T	C4	23 MAY 88	
05 MAY 88	2134	1619.7	-2.9	2	546-87	1	P	C4	13 MAY 88	
05 MAY 88	2148	1616.3	-3.5	2	2036-87	3	P	C4	16 MAY 88	
05 MAY 88	2315	1611.8	-.2	2	2042-86	2	S	C4	31 MAY 88	
12 MAY 88	2121	1612.5	-1.2	2	3138-86	5	T	C4	23 MAY 88	
12 MAY 88	2138	1608.7	2.5	2	2042-87	3	P	C4	23 MAY 88	
12 MAY 88	2219	1612.5	-.8	2	2024-86	2	S	C4	31 MAY 88	
19 MAY 88	2333	1616.5	-1.2	2	3006-84	5	T	C4	01 JUN 88	
19 MAY 88	2346	1612.5	8.7	2	2038-87	3	P	C4	31 MAY 88	
20 MAY 88	0113	1615.5	-2.8	2	2036-86	2	S	C4	01 JUN 88	
26 MAY 88	2207	1641.2	4.6	3	3100-83	5	T	C4	01 JUN 88	+
26 MAY 88	2221	1644.3	-.1	2	194-85	1	P	C4	01 JUN 88	+
26 MAY 88	2229	1638.0	-2.5	2	2032-87	3	P	C4	01 JUN 88	+
26 MAY 88	2313	1634.8	-2.2	2	2006-86	2	S	C4	01 JUN 88	+
02 JUN 88	2104	1624.2	3.4	2	2018-86	2	S	C4	15 JUN 88	
02 JUN 88	2113	1619.3	-5.4	2	3026-85	5	T	C4	15 JUN 88	
02 JUN 88	2117	1624.2	-4.5	2	560-85	1	P	C4	13 JUN 88	
02 JUN 88	2128	1619.8	1.2	2	2034-87	3	P	C4	13 JUN 88	
09 JUN 88	2224	1618.5	5.8	2	3064-84	5	T	C4	15 JUN 88	
09 JUN 88	2239	1626.6	-10.3	2	358-85	1	P	C4	14 JUN 88	
09 JUN 88	2247	1623.2	3.6	2	2036-87	3	P	C4	15 JUN 88	
09 JUN 88	2330	1621.3	-2.8	2	2014-86	2	S	C4	15 JUN 88	
16 JUN 88	2226	1621.4	-1.3	2	3002-84	5	T	C4	28 JUN 88	
16 JUN 88	2232	1620.7	-11.4	3	300-85	1	P	C4	22 JUN 88	
16 JUN 88	2248	1621.2	-5.7	2	2030-87	3	P	C4	22 JUN 88	
16 JUN 88	2331	1620.4	-7.5	3	2002-86	2	S	C4	28 JUN 88	
23 JUN 88	2145	1622.5	0.0	2	2062-86	2	S	C4	28 JUN 88	
23 JUN 88	2240	1619.0	-2.8	2	3016-85	5	T	C4	28 JUN 88	
23 JUN 88	2243	1624.7	7.0	2	216-86	1	P	C4	28 JUN 88	
23 JUN 88	2259	1629.9	.7	2	2044-87	3	P	C4	28 JUN 88	
30 JUN 88	2149	1627.1	10.0	3	2056-86	2	S	C4	13 JUL 88	
30 JUN 88	2224	1627.8	7.8	2	3022-84	5	T	C4	07 JUL 88	
30 JUN 88	2227	1625.6	1.6	2	244-86	1	P	C4	07 JUL 88	
30 JUN 88	2238	1624.4	-7.1	2	2096-87	3	P	C4	07 JUL 88	
07 JUL 88	2120	1621.9	.5	2	2004-86	2	S	C4	13 JUL 88	
07 JUL 88	2244	1622.8	1.3	2	3020-84	5	T	C4	09 AUG 88	
07 JUL 88	2246	1631.1	-8.8	2	22-85	1	P	C4	13 JUL 88	
07 JUL 88	2255	1633.4	-7.1	2	2040-87	3	P	C4	12 JUL 88	
14 JUL 88	2328	1630.0	8.0	2	2024-86	2	S	C4	11 AUG 88	
15 JUL 88	0018	1632.2	-1.0	2	3068-84	5	T	C4	09 AUG 88	
15 JUL 88	0034	1631.4	-1.1	2	2046-87	3	P	C4	11 AUG 88	
21 JUL 88	2231	1630.3	3.8	2	2042-86	2	S	C4	11 AUG 88	
21 JUL 88	2256	1634.0	-4.4	2	3010-84	5	T	C4	09 AUG 88	
21 JUL 88	2304	1628.0	-4.2	2	2042-87	3	P	C4	11 AUG 88	
28 JUL 88	2219	1632.0	-.4	2	2018-86	2	S	C4	17 AUG 88	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
28 JUL 88	2237	1634.9	2.5	2	586-87	1	P	C4	10 AUG 88	
28 JUL 88	2243	1632.5	6.1	2	3088-84	5	T	C4	09 AUG 88	
28 JUL 88	2248	1633.1	.4	2	2032-87	3	P	C4	10 AUG 88	
04 AUG 88	2220	1631.7	-11.6	3	2044-86	2	S	C4	17 AUG 88	
04 AUG 88	2239	1628.9	.3	2	3064-84	5	T	C4	18 AUG 88	
04 AUG 88	2254	1635.9	11.5	3	2034-87	3	P	C4	17 AUG 88	
11 AUG 88	2246	1632.7	-1.6	2	2012-86	2	S	C4	26 AUG 88	
11 AUG 88	2304	1627.2	-4.6	2	3008-84	5	T	C4	18 AUG 88	
11 AUG 88	2311	1625.9	.9	2	2036-87	3	P	C4	18 AUG 88	
18 AUG 88	2143	1640.7	4.1	2	2014-86	2	S	C4	26 AUG 88	
18 AUG 88	2221	1644.1	-3.2	2	3014-83	5	T	C4	01 SEP 88	
18 AUG 88	2228	1638.6	2.3	2	306-87	1	P	C4	26 AUG 88	
18 AUG 88	2242	1641.2	3.8	2	2038-87	3	P	C4	26 AUG 88	
25 AUG 88	2230	1648.4	6.6	2	2002-86	2	S	C4	09 SEP 88	
25 AUG 88	2251	1647.0	-4.4	2	3102-83	5	T	C4	01 SEP 88	
25 AUG 88	2254	1648.0	-2.3	2	334-87	1	P	C4	01 SEP 88	
25 AUG 88	2305	1650.1	8.1	2	2044-87	3	P	C4	01 SEP 88	
01 SEP 88	1942	1626.8	.4	2	2006-86	2	S	C4	09 SEP 88	
01 SEP 88	2036	1637.8	-11.4	3	3076-84	5	T	C4	19 SEP 88	
01 SEP 88	2037	1634.9	-9.2	2	350-86	1	P	C4	09 SEP 88	
01 SEP 88	2047	1635.9	-9.2	2	2040-87	3	P	C4	09 SEP 88	
08 SEP 88	2135	1637.8	8.5	2	3034-85	5	T	C4	20 SEP 88	
08 SEP 88	2150	1634.5	-1.9	2	2030-87	3	P	C4	19 SEP 88	
15 SEP 88	2238	1630.4	-4.8	2	3068-83	5	T	C4	29 SEP 88	
15 SEP 88	2255	1628.2	4.9	2	2052-87	3	P	C4	22 SEP 88	
15 SEP 88	2330	1630.4	4.7	2	2040-86	2	S	C4	29 SEP 88	
22 SEP 88	2226	1636.6	1.6	2	3074-83	5	T	C4	29 SEP 88	
22 SEP 88	2230	1635.9	-5.4	2	584-85	1	P	C4	28 SEP 88	
22 SEP 88	2240	1634.0	-1.8	2	2007-87	3	P	C4	29 SEP 88	
22 SEP 88	2331	1635.7	-3.3	2	2028-86	2	S	C4	29 SEP 88	
29 SEP 88	2147	1641.5	-5.3	2	3036-84	5	T	C4	04 OCT 88	
29 SEP 88	2149	1638.0	2.6	2	372-86	1	P	C4	04 OCT 88	
29 SEP 88	2201	1640.4	.7	2	2041-87	3	P	C4	04 OCT 88	
29 SEP 88	2201	1637.0		1	2042-87	3	P	C4	04 OCT 88	
29 SEP 88	2209	1639.0	.4	2	2036-86	2	S	C4	04 OCT 88	
06 OCT 88	2154	1639.0	2.1	2	3068-84	5	T	C4	24 OCT 88	
06 OCT 88	2208	1640.5	-11.7	3	2046-87	3	P	C4	20 OCT 88	
06 OCT 88	2319	1639.9	1.5	2	2042-86	2	S	C4	20 OCT 88	
13 OCT 88	2225	1633.5	14.1	3	3106-83	5	T	C4	24 OCT 88	
13 OCT 88	2232	1638.1	-.3	2	264-86	1	P	C4	20 OCT 88	
13 OCT 88	2244	1637.4	-5.3	2	2038-87	3	P	C4	20 OCT 88	
13 OCT 88	2332	1630.7	4.1	2	2026-86	2	S	C4	20 OCT 88	
20 OCT 88	2240	1642.2	4.7	2	2004-60	2	S	C4	04 NOV 88	
20 OCT 88	2258	1646.0	-11.2	3	3026-85	5	T	C4	04 NOV 88	
20 OCT 88	2301	1645.7	-2.0	2	28-81	1	P	C4	31 OCT 88	
20 OCT 88	2312	1641.8	3.1	2	2010-62	3	P	C4	31 OCT 88	
27 OCT 88	2137	1636.5	-4.8	2	2006-60	2	S	C4	04 NOV 88	
27 OCT 88	2207	1635.8	1.5	2	3040-85	5	T	C4	04 NOV 88	
27 OCT 88	2224	1637.5	1.6	2	2004-62	3	P	C4	04 NOV 88	
03 NOV 88	2219	1647.6	-9.9	2	2010-60	2	S	C4	17 NOV 88	
03 NOV 88	2247	1646.5	6.7	2	3004-60	5	T	C4	16 NOV 88	
03 NOV 88	2304	1646.0	-2.4	2	2002-62	3	P	C4	09 NOV 88	
10 NOV 88	2037	1633.0	7.3	2	2002-60	2	S	C4	16 NOV 88	
10 NOV 88	2147	1634.3	.6	2	3010-60	5	T	C4	16 NOV 88	
10 NOV 88	2153	1633.8	-3.5	2	2024-62	3	P	C4	16 NOV 88	
18 NOV 88	2208	1643.4	-3.5	2	3018-84	5	T	C4	02 DEC 88	
18 NOV 88	2223	1642.5	7.6	2	2016-62	3	P	C4	02 DEC 88	
18 NOV 88	2239	1642.4	.3	2	2022-60	2	S	C4	05 DEC 88	
23 NOV 88	2139	1635.7	5.0	2	2024-60	2	S	C4	05 DEC 88	
23 NOV 88	2300	1637.8	1.9	2	3058-60	5	T	C4	02 DEC 88	
23 NOV 88	2305	1631.7	-.3	2	508-81	1	P	C4	02 DEC 88	
23 NOV 88	2316	1636.8	-11.5	3	2022-62	3	P	C4	02 DEC 88	
01 DEC 88	2139	1634.0	-3.2	2	2032-60	2	S	C4	12 DEC 88	
01 DEC 88	2210	1636.0	-4.7	2	576-81	1	P	C4	12 DEC 88	
01 DEC 88	2222	1631.8	-2.1	2	2008-62	3	P	C4	12 DEC 88	

Matatula Pt., Samoa (SMO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 DEC 88	2341	1643.9	.3	2	2030-60	2	S	C4	12 DEC 88	
09 DEC 88	0026	1642.5	-5.7	2	3008-70	5	T	C4	14 DEC 88	
09 DEC 88	0028	1636.0	-10.6	2	585-81	1	P	C4	14 DEC 88	
16 DEC 88	2230	1628.2	5.2	2	2038-60	2	S	C4	03 JAN 89	
16 DEC 88	2315	1622.9	1.8	2	3008-83	5	T	C4	03 JAN 89	
16 DEC 88	2318	1629.6	-2.3	2	548-81	1	P	C4	21 DEC 88	
16 DEC 88	2329	1629.0	-5.0	2	2020-62	3	P	C4	21 DEC 88	
22 DEC 88	2147	1631.1	4.1	2	2035-60	2	S	C4	04 JAN 89	
22 DEC 88	2207	1639.7	1.4	2	3008-60	5	T	C4	03 JAN 89	
22 DEC 88	2210	1636.3	4.8	2	614-81	1	P	C4	03 JAN 89	
22 DEC 88	2223	1639.7	11.0	3	2010-62	3	P	C4	04 JAN 89	

South Pole, Antarctica (SPO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
03 JAN 86	0235	1589.9	-2.5	2	92-85	1	P	C4	14 APR 86	
18 JAN 86	0815	1582.4	-2.8	2	104-85	1	P	C4	14 APR 86	
31 JAN 86	0237	1583.8	1.2	2	96-85	1	P	C4	14 APR 86	
08 FEB 86	2350	1578.8	-1.1	2	750-85	1	S	C4	15 APR 87	
22 FEB 86	0340	1576.3	-6.2	2	748-85	1	S	C4	15 APR 87	
08 MAR 86	0853	1583.2	5.7	2	746-85	1	S	C4	15 APR 87	
22 MAR 86	0445	1582.2	-.5	2	820-85	1	S	C4	16 APR 87	
29 MAR 86	0247	1584.6	2.1	2	767-85	1	P	C4	14 APR 87	
05 APR 86	0217	1583.3	-1.9	2	818-85	1	S	C4	16 APR 87	
12 APR 86	0428	1588.2	-8.0	2	766-85	1	P	C4	14 APR 87	
19 APR 86	0345	1590.8	-1.6	2	764-85	1	S	C4	16 APR 87	
26 APR 86	0242	1591.6	2.2	2	816-85	1	P	C4	14 APR 87	
03 MAY 86	0404	1587.2	1.8	2	743-85	1	S	C4	16 APR 87	
10 MAY 86	0334	1587.1	-3.4	2	795-85	1	P	C4	16 APR 87	
15 MAY 86	0755	1594.5	-2.5	2	793-85	1	P	C4	16 APR 87	
31 MAY 86	0754	1596.0	-2.2	2	792-85	1	S	C4	15 APR 87	
01 JUN 86	0045	1597.3	-11.3	3	739-85	1	P	C4	16 APR 87	
14 JUN 86	0852	1598.3	6.0	2	762-85	1	S	C4	16 APR 87	
15 JUN 86	0615	1600.4	3.1	2	813-85	1	P	C4	15 APR 87	
28 JUN 86	0342	1600.3	5.9	2	812-85	1	S	C4	16 APR 87	
12 JUL 86	0305	1602.8	-2.0	2	809-85	1	S	C4	16 APR 87	
26 JUL 86	0020	1614.9	.5	2	756-85	1	S	C4	15 APR 87	
15 AUG 86	0515	1611.9	1.8	2	806-85	1	P	C4	15 APR 87	
23 AUG 86	0220	1612.4	1.3	3	752-85	1	S	C4	15 APR 87	
01 SEP 86	0935	1613.4	.3	2	803-85	1	P	C4	16 APR 87	
15 SEP 86	0810	1613.0	.3	2	784-85	1	P	C4	14 APR 87	
20 SEP 86	0850	1617.3	6.3	2	830-85	1	S	C4	16 APR 87	
01 OCT 86	0952	1613.1	-8.6	2	782-85	1	P	C4	15 APR 87	
04 OCT 86	0954	1616.0	-1.3	2	786-85	1	S	C4	16 APR 87	
15 OCT 86	0915	1613.9	9.2	2	780-85	1	P	C4	14 APR 87	
18 OCT 86	0540	1614.6	2.8	2	777-85	1	S	C4	08 DEC 86	
01 NOV 86	0430	1617.2	-2.5	2	827-85	1	S	C4	08 DEC 86	
01 NOV 86	1039	1611.8	3.8	2	738-85	1	P	C4	08 DEC 86	
15 NOV 86	0516	1614.7	1.0	2	736-85	1	P	C4	08 DEC 86	
22 NOV 86	0230	1605.5	-.2	2	788-85	1	S	C4	08 DEC 86	
29 NOV 86	0149	1606.3	7.8	2	770-85	1	P	C4	15 JAN 87	
06 DEC 86	2352	1610.1	-8.9	2	100-83	1	S	C4	07 JAN 87	
15 DEC 86	0601	1600.8	-8.2	2	658-83	1	P	C4	07 JAN 87	
22 DEC 86	0859	1606.5	-4.0	2	388-85	1	S	C4	09 JAN 87	
01 JAN 87	0830	1600.5	-2.0	2	292-82	1	P	C4	09 JAN 87	
04 JAN 87	0630	1598.7	-2.5	2	772-85	1	P	C4	15 JAN 87	
08 JAN 87	0253	1597.7	-1.2	2	422-83	1	S	C4	16 APR 87	
12 JAN 87	1050	1599.3	-4.6	2	826-85	1	P	C4	15 APR 87	
15 JAN 87	0413	1595.9	.2	2	774-85	1	P	C4	15 APR 87	
16 JAN 87	0931	1598.0	-6.0	2	822-85	1	P	C4	15 APR 87	
17 JAN 87	0755	1594.9	1.6	2	824-85	1	P	C4	15 APR 87	
18 JAN 87	0453	1595.8	2.8	2	776-85	1	P	C4	15 APR 87	
19 JAN 87	0634	1595.5	-1.8	2	108-85	1	P	C4	15 APR 87	
25 JAN 87	0437	1587.8	-7.0	2	363-86	1	S	C4	09 DEC 87	
01 FEB 87	0917	1591.0	-1.2	2	408-86	1	P	C4	09 DEC 87	
07 FEB 87	2345	1591.8	5.4	2	411-86	1	S	C4	11 DEC 87	
15 FEB 87	0832	1590.2	-3.2	2	414-86	1	P	C4	09 DEC 87	
22 FEB 87	2249	1590.4	-3.3	2	370-86	1	S	C4	09 DEC 87	
01 MAR 87	0254	1592.1	-.7	2	368-86	1	P	C4	11 DEC 87	
07 MAR 87	2315	1593.4	-1.1	2	410-86	1	S	C4	11 DEC 87	
15 MAR 87	0055	1592.9	2.0	2	366-86	1	P	C4	11 DEC 87	
21 MAR 87	2310	1594.2	1.6	2	398-86	1	S	C4	11 DEC 87	
01 APR 87	0048	1598.0	-3.3	2	399-86	1	P	C4	11 DEC 87	
07 APR 87	2256	1592.9	4.6	2	406-86	1	S	C4	11 DEC 87	
22 APR 87	2257	1604.1		1	404-86	1	S	C4	11 DEC 87	
04 MAY 87	0130	1597.5	-5.7	2	360-86	1	P	C4	11 DEC 87	
07 MAY 87	2257	1599.0	-5.3	2	402-86	1	S	C4	11 DEC 87	
15 MAY 87	0055	1600.9	8.3	2	357-86	1	P	C4	11 DEC 87	
15 MAY 87	0055	1614.0	-3.0	2	358-86	1	P	C4	11 DEC 87	

South Pole, Antarctica (SPO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
22 MAY 87	2357	1608.6	.5	2	416-86	1	S	C4	09 DEC 87	
01 JUN 87	0158	1605.9	-1.1	2	372-86	1	P	C4	09 DEC 87	
07 JUN 87	2257	1611.1	-2.7	2	374-86	1	S	C4	09 DEC 87	
15 JUN 87	0050	1613.8	10.2	3	418-86	1	P	C4	09 DEC 87	
17 JUN 87	0059	1607.6	-.5	2	419-86	1	P	C4	09 DEC 87	
22 JUN 87	2259	1608.9	-2.1	2	378-86	1	S	C4	09 DEC 87	
01 JUL 87	0058	1614.9	0.0	2	376-86	1	P	C4	09 DEC 87	
07 JUL 87	2257	1617.5	4.8	2	422-86	1	S	C4	09 DEC 87	
15 JUL 87	0102	1619.4	10.3	3	392-86	1	P	C4	09 DEC 87	
22 JUL 87	2257	1622.6	7.4	2	349-86	1	S	C4	09 DEC 87	
01 AUG 87	0108	1617.5	-1.7	2	390-86	1	P	C4	09 DEC 87	
07 AUG 87	2257	1622.2	.5	2	352-86	1	S	C4	09 DEC 87	
15 AUG 87	0104	1621.0	-.9	2	396-86	1	P	C4	09 DEC 87	
22 AUG 87	2157	1624.0	-2.5	2	356-86	1	S	C4	09 DEC 87	
02 SEP 87	0054	1626.1	-3.3	2	394-86	1	P	C4	09 DEC 87	
08 SEP 87	1158	1624.5	2.9	2	354-86	1	S	C4	09 DEC 87	
15 SEP 87	0051	1622.7		1	339-86	1	P	C4	13 JAN 88	
22 SEP 87	2157	1624.2	-8.0	2	327-86	1	S	C4	13 JAN 88	
07 OCT 87	2357	1627.9	6.8	2	336-86	1	S	C4	13 JAN 88	
15 OCT 87	9999	1629.8	-1.0	2	332-86	1	P	C4	13 JAN 88	
22 OCT 87	2157	1624.1	3.8	3	326-86	1	S	C4	13 JAN 88	
01 NOV 87	0207	1621.4	-.5	2	329-86	1	P	C4	19 JAN 88	
10 NOV 87	0455	1623.0		1	338-86	1	S	C4	19 JAN 88	
01 DEC 87	9999	1616.8	-6.8	2	322-86	1	P	C4	31 DEC 87	
08 DEC 87	1355	1620.4	1.8	2	324-86	1	S	C4	05 JAN 88	
23 DEC 87	1055	1616.0	-4.9	2	334-86	1	S	C4	05 JAN 88	
27 DEC 87	0730	1610.0	5.8	2	524-87	1	P	C4	01 MAR 88	
01 JAN 88	1200	1610.5	6.3	2	526-87	1	P	C4	01 MAR 88	
10 JAN 88	1850	1606.8	-6.2	2	527-87	1	S	C4	01 MAR 88	
22 JAN 88	1159	1604.3	-1.5	2	530-87	1	S	C4	01 MAR 88	
24 JAN 88	1005	1603.2	4.5	2	9000-87	1	N	C4	09 MAR 88	
24 JAN 88	1005	1602.4	4.6	2	9001-87	6	N	C4	09 MAR 88	
27 JAN 88	0130	1601.7	-3.6	2	348-86	1	P	C4	26 FEB 88	
09 FEB 88	0600	1600.0	5.6	2	385-86	1	S	C4	26 FEB 88	
09 FEB 88	2345	1606.4	-5.0	2	346-86	1	P	C4	23 MAR 88	
22 FEB 88	0600	1602.3	5.0	2	387-86	1	S	C4	06 DEC 88	
28 FEB 88	0445	1597.5	4.4	2	342-86	1	P	C4	06 DEC 88	
08 MAR 88	0450	1600.2	.9	2	380-86	1	P	C4	06 DEC 88	
01 APR 88	0200	1609.7	1.9	2	412-87	1	P	C4	07 DEC 88	
15 APR 88	0940	1610.6	-3.1	2	413-87	1	P	C4	06 DEC 88	
25 APR 88	2355	1612.3	-5.8	2	416-87	1	S	C4	07 DEC 88	
02 MAY 88	0315	1607.9	3.5	2	417-87	1	P	C4	06 DEC 88	
02 MAY 88	0315	1612.7		1	418-87	1	P	C4	06 DEC 88	
08 MAY 88	0055	1606.6	4.2	2	419-87	1	S	C4	08 DEC 88	
15 MAY 88	1114	1613.7	-9.1	2	506-87	1	P	C4	06 DEC 88	
22 MAY 88	2259	1617.4	4.0	2	508-87	1	S	C4	06 DEC 88	
01 JUN 88	9999	1613.3	-11.8	3	510-87	1	P	C4	06 DEC 88	
08 JUN 88	0559	1622.4	-.5	2	512-87	1	S	C4	06 DEC 88	
22 JUN 88	2259	1621.7		1	515-87	1	S	C4	08 DEC 88	
22 JUN 88	2259	1628.2		1	516-87	1	S	C4	07 DEC 88	
09 JUL 88	0400	1625.3	8.5	2	489-87	1	S	C4	07 DEC 88	
17 JUL 88	0544	1627.4	4.0	2	493-87	1	P	C4	06 DEC 88	
23 JUL 88	0300	1630.6	3.7	2	495-87	1	S	C4	08 DEC 88	
08 AUG 88	0600	1637.6	5.4	2	499-87	1	S	C4	08 DEC 88	
15 AUG 88	0314	1632.4	-4.4	2	502-87	1	P	C4	07 DEC 88	
26 AUG 88	0900	1636.5	12.3	3	504-87	1	S	C4	06 DEC 88	
06 SEP 88	0847	1635.8	15.1	3	478-87	1	P	C4	07 DEC 88	
12 SEP 88	2200	1639.3	2.0	2	480-87	1	S	C4	06 DEC 88	
16 SEP 88	0834	1634.1		1	482-87	1	P	C4	07 DEC 88	
23 SEP 88	2200	1637.9	12.9	3	484-87	1	S	C4	07 DEC 88	
02 OCT 88	0229	1636.6	6.0	2	486-87	1	P	C4	07 DEC 88	
09 OCT 88	0500	1642.0	.1	2	488-87	1	S	C4	07 DEC 88	
15 OCT 88	0312	1641.0	3.7	2	492-87	1	P	C4	08 DEC 88	
25 OCT 88	2359	1640.9	7.2	2	463-87	1	S	C4	06 FEB 89	
25 OCT 88	2359	1637.5	.2	2	464-87	1	S	C4	06 FEB 89	

South Pole, Antarctica (SPO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
02 NOV 88	0540	1641.9	-1.2	2	467-87	1	P	C4	06 FEB 89	
09 NOV 88	0250	1639.3	5.8	2	470-87	1	S	C4	06 FEB 89	
22 NOV 88	1000	1637.1	-.4	2	472-87	1	S	C4	06 FEB 89	
03 DEC 88	0420	1633.8	9.8	2	476-87	1	P	C4	06 FEB 89	
06 DEC 88	0350	1630.4	8.4	2	602-81	1	P	C4	21 DEC 88	
06 DEC 88	2300	1630.5	-3.4	2	600-81	1	S	C4	21 DEC 88	
07 DEC 88	0300	1631.6	1.1	2	596-81	1	P	C4	06 JAN 89	
08 DEC 88	2200	1627.9	-7.6	2	436-87	1	S	C4	10 APR 89	
09 DEC 88	0258	1628.8	10.3	3	574-81	1	S	C4	06 JAN 89	
12 DEC 88	0000	1635.0	8.0	2	598-81	1	P	C4	06 JAN 89	
13 DEC 88	0350	1626.9	-11.5	2	606-81	1	P	C4	03 JAN 89	
17 DEC 88	9999	1632.9	-13.6	3	440-87	1	P	C4	10 APR 89	
22 DEC 88	0405	1621.6	1.4	2	437-87	1	S	C4	12 APR 89	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
08 JAN 86	1320	1730.2	3.4	2	730-82	1	P	C4	14 FEB 86	
15 JAN 86	1320	1756.7	-.8	2	1152-82	1	P	C4	14 FEB 86	
22 JAN 86	0900	1762.4	0.0	2	1376-82	1	P	C4	14 FEB 86	
30 JAN 86	1100	1763.0	-7.0	2	778-83	1	P	C4	21 MAR 86	
05 FEB 86	1500	1734.7	-4.0	2	318-83	1	P	C4	21 MAR 86	
12 FEB 86	1510	1812.2	3.1	2	34-82	1	P	C4	21 MAR 86	+
19 FEB 86	1615	1732.3	-1.5	2	692-83	1	P	C4	21 MAR 86	
26 FEB 86	1320	1729.7	-5.5	2	726-85	1	P	C4	24 APR 86	
05 MAR 86	1320	1761.6	-2.8	2	56-85	1	P	C4	24 APR 86	
19 MAR 86	1315	1741.3	6.1	2	192-85	1	P	C4	24 APR 86	
26 MAR 86	0915	1766.2	4.8	2	834-85	1	P	C4	12 JUN 86	
02 APR 86	0800	1755.2		1	698-83	1	P	C4	12 JUN 86	
09 APR 86	0940	1737.3		1	700-83	1	P	C4	12 JUN 86	
16 APR 86	0920	1746.5	-2.4	2	706-85	1	P	C4	12 JUN 86	
20 APR 86	1330	1752.7	3.0	2	240-85	1	P	C4	28 MAY 86	
30 APR 86	1310	1736.7	-3.9	2	256-85	1	P	C4	28 MAY 86	
07 MAY 86	1310	1745.9	-1.3	2	788-83	1	P	C4	28 MAY 86	
14 MAY 86	0900	1748.1	-1.1	2	1630-82	1	P	C4	28 MAY 86	
21 MAY 86	0930	1735.8	6.5	2	778-83	1	P	C4	10 AUG 86	
28 MAY 86	1530	1730.9	2.3	2	708-83	1	P	C4	04 AUG 86	
04 JUN 86	0945	1736.5	6.2	2	839-85	1	P	C4	04 AUG 86	
08 JUN 86	0955	1726.2	4.9	2	98-85	1	P	C4	10 AUG 86	
18 JUN 86	1310	1712.7	-8.3	2	1186-82	1	P	C4	04 AUG 86	
25 JUN 86	1310	1712.1	-5.6	2	804-82	1	P	C4	04 AUG 86	
02 JUL 86	1305	1713.9	5.9	2	726-83	1	P	C4	04 AUG 86	
09 JUL 86	1320	1702.4	-1.7	2	1704-82	1	P	C4	04 AUG 86	
16 JUL 86	0755	1706.1	-17.4	3	44-85	1	P	C4	23 SEP 86	
23 JUL 86	0800	1723.0	8.8	3	354-83	1	P	C4	23 SEP 86	
03 AUG 86	1500	1707.8	-.4	2	34-82	1	P	C4	23 SEP 86	
06 AUG 86	0815	1746.6	2.6	2	1630-82	1	P	C4	23 SEP 86	
13 AUG 86	1310	1731.2	-7.0	2	314-85	1	P	C4	25 SEP 86	
20 AUG 86	1315	1718.2	-3.5	2	252-85	1	P	C4	25 SEP 86	
27 AUG 86	1310	1720.4	-5.7	2	752-83	1	P	C4	25 SEP 86	
31 AUG 86	1310	1711.8	19.7	2	356-85	1	P	C4	25 SEP 86	
10 SEP 86	0945	1775.0	-11.2	3	892-83	1	P	C4	14 OCT 86	
17 SEP 86	1535	1720.6	-10.8	3	1332-82	1	P	C4	14 OCT 86	
24 SEP 86	0815	1727.5	3.6	2	1662-82	1	P	C4	14 OCT 86	
30 SEP 86	0750	1721.6	-13.6	4	324-85	1	P	C4	14 OCT 86	
22 OCT 86	1310	1730.7	5.4	2	704-85	1	P	C4	29 DEC 86	
05 NOV 86	0815	1733.5	1.8	2	162-83	1	P	C4	23 DEC 86	
12 NOV 86	0815	1743.1	3.1	2	348-83	1	P	C4	29 DEC 86	
19 NOV 86	0805	1733.9	-5.2	2	566-85	1	P	C4	23 DEC 86	
26 NOV 86	0820	1751.4	5.1	2	210-83	1	P	C4	23 DEC 86	
03 DEC 86	1320	1738.0	6.5	3	868-83	1	P	C4	22 JAN 87	
11 DEC 86	1315	1746.7	-3.3	2	716-85	1	P	C4	22 JAN 87	
17 DEC 86	1310	1743.0	6.4	2	931-83	1	P	C4	22 JAN 87	
26 DEC 86	1340	1729.0	-1.5	2	391-85	1	P	C4	22 JAN 87	
01 FEB 87	1315	1746.7	-1.2	2	526-85	1	P	C4	05 MAR 87	
08 FEB 87	1305	1767.0	-3.7	2	184-85	1	P	C4	05 MAR 87	
15 FEB 87	1310	1783.0	5.8	2	52-85	1	P	C4	05 MAR 87	
21 FEB 87	1310	1747.1	-2.5	2	318-83	1	P	C4	05 MAR 87	
01 MAR 87	0820	1798.2	3.2	2	99-85	1	P	C4	22 APR 87	
08 MAR 87	1415	1754.3	4.6	2	1006-82	1	P	C4	22 APR 87	
14 MAR 87	0800	1744.0	5.1	2	388-85	1	P	C4	22 APR 87	
21 MAR 87	0800	1805.0	.9	2	405-85	1	P	C4	22 APR 87	
29 MAR 87	1310	1772.8	4.6	2	780-83	1	P	C4	13 MAY 87	
05 APR 87	1310	1750.8	-6.0	2	1762-82	1	P	C4	15 MAY 87	
12 APR 87	1310	1736.5	.4	2	366-85	1	P	C4	15 MAY 87	
19 APR 87	1310	1743.7	-.3	2	1218-82	1	P	C4	13 MAY 87	
26 APR 87	0940	1735.1	2.5	2	666-83	1	P	C4	09 JUN 87	
03 MAY 87	0755	1753.0	4.3	2	26-85	1	P	C4	09 JUN 87	
10 MAY 87	0800	1744.9	-7.6	2	718-85	1	P	C4	09 JUN 87	
17 MAY 87	1400	1758.9	-.3	2	306-83	1	P	C4	09 JUN 87	
24 MAY 87	1305	1728.1	3.2	2	740-85	1	P	C4	30 JUN 87	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
31 MAY 87	1330	1741.9	5.4	2	512-83	1	P	C4	30 JUN 87	
07 JUN 87	1305	1739.5	2.5	2	614-85	1	P	C4	30 JUN 87	
14 JUN 87	1305	1740.8	0.0	2	770-85	1	P	C4	30 JUN 87	
23 JUN 87	0915	1732.5	2.0	2	1220-82	1	P	C4	10 AUG 87	
30 JUN 87	0915	1722.5	-.8	2	412-85	1	P	C4	10 AUG 87	
07 JUL 87	0815	1724.0	-1.9	2	164-83	1	P	C4	10 AUG 87	
14 JUL 87	0815	1725.7	-5.4	2	470-82	1	P	C4	10 AUG 87	
19 JUL 87	1315	1730.5	-4.8	2	656-85	1	P	C4	04 SEP 87	
26 JUL 87	1305	1720.6	-8.3	2	706-85	1	P	C4	04 SEP 87	
02 AUG 87	1310	1723.9	.7	2	36-85	1	P	C4	03 SEP 87	
09 AUG 87	1310	1740.7	-4.8	3	558-85	1	P	C4	03 SEP 87	
15 AUG 87	0810	1731.8	-1.3	2	702-85	1	P	C4	24 SEP 87	
18 AUG 87	0800	1726.5	-1.8	3	266-86	1	P	C4	23 SEP 87	
25 AUG 87	0815	1731.1	.1	2	54-85	1	P	C4	24 SEP 87	
29 AUG 87	0745	1725.4	-7.2	2	46-85	1	P	C4	23 SEP 87	
01 SEP 87	0720	1735.4	6.9	2	744-83	1	P	C4	23 SEP 87	
05 SEP 87	0745	1743.0	1.4	2	50-85	1	P	C4	24 SEP 87	
08 SEP 87	0745	1733.4	-3.7	2	57-85	1	P	C4	23 SEP 87	
11 SEP 87	0905	1755.8	5.8	2	27-85	1	P	C4	26 FEB 88	
14 SEP 87	1305	1750.6	-3.8	2	798-85	1	P	C4	26 FEB 88	
17 SEP 87	0845	1757.9	-10.4	3	48-85	1	P	C4	24 FEB 88	
20 SEP 87	1315	1753.9	1.8	2	832-85	1	P	C4	18 FEB 88	
23 SEP 87	1315	1747.9	2.5	2	848-83	1	P	C4	24 FEB 88	
27 SEP 87	1310	1748.6	-3.6	2	678-85	1	P	C4	19 FEB 88	
30 SEP 87	1305	1737.2	4.3	2	1260-82	1	P	C4	18 FEB 88	
03 OCT 87	0745	1786.2	13.3	3	62-85	1	P	C4	18 FEB 88	
11 OCT 87	0800	1764.5	-3.4	2	252-85	1	P	C4	10 NOV 87	
14 OCT 87	0920	1754.5	-3.7	2	826-85	1	P	C4	10 NOV 87	
17 OCT 87	0925	1843.7	.3	2	1272-82	1	P	C4	10 NOV 87	
20 OCT 87	0755	1798.6	-5.8	2	286-85	1	P	C4	10 NOV 87	
24 OCT 87	0815	1750.2	-4.7	2	306-83	1	P	C4	10 NOV 87	
27 OCT 87	0810	1743.7	-11.4	3	120-84	1	P	C4	10 NOV 87	
31 OCT 87	1515	1753.7	-4.4	2	602-85	1	P	C4	10 NOV 87	
03 NOV 87	0800	1750.9	2.9	2	718-85	1	P	C4	10 NOV 87	
08 NOV 87	1325	1744.9	-1.1	2	556-83	1	P	C4	31 DEC 87	
11 NOV 87	1305	1776.6	2.7	2	124-87	1	P	C4	31 DEC 87	
15 NOV 87	1310	1789.9		1	1680-82	1	P	C4	02 JAN 88	
18 NOV 87	1310	1768.4	-5.0	2	838-83	1	P	C4	02 JAN 88	
22 NOV 87	1310	1741.6	4.0	2	888-83	1	P	C4	02 JAN 88	
25 NOV 87	1310	1751.6	2.1	2	2-85	1	P	C4	02 JAN 88	
28 NOV 87	1310	1752.3	-3.1	2	772-83	1	P	C4	31 DEC 87	
30 NOV 87	1310	1753.4	7.7	2	1080-82	1	P	C4	31 DEC 87	
05 DEC 87	0920	1755.7	-2.7	2	526-83	1	P	C4	06 JAN 88	
08 DEC 87	0915	1753.6	2.8	2	496-83	1	P	C4	06 JAN 88	
12 DEC 87	1002	1760.8	-1.8	2	420-83	1	P	C4	05 JAN 88	
15 DEC 87	0945	1780.0	-4.0	2	6-85	1	P	C4	05 JAN 88	
19 DEC 87	0825	1755.1	-.1	2	266-83	1	P	C4	06 JAN 88	
22 DEC 87	0930	1748.1	-3.0	2	1204-82	1	P	C4	05 JAN 88	
26 DEC 87	0920	1756.5	5.0	2	946-83	1	P	C4	05 JAN 88	
28 DEC 87	1000	1772.4	2.1	2	552-85	1	P	C4	06 JAN 88	
03 JAN 88	1310	1768.8	5.0	2	486-83	1	P	C4	04 FEB 88	
06 JAN 88	1310	1753.1	-1.6	2	494-83	1	P	C4	04 FEB 88	
10 JAN 88	1310	1762.2	6.0	2	118-87	1	P	C4	04 FEB 88	
13 JAN 88	1310	1776.3	6.4	2	553-83	1	P	C4	04 FEB 88	
13 JAN 88	1310	1772.7		1	554-83	1	P	C4	04 FEB 88	
16 JAN 88	1310	1766.3	-.7	2	90-85	1	P	C4	04 FEB 88	
19 JAN 88	1310	1741.3	1.7	2	380-85	1	P	C4	04 FEB 88	
22 JAN 88	1335	1774.9	-2.8	2	4-85	1	P	C4	04 FEB 88	
25 JAN 88	1305	1775.7	4.8	2	696-85	1	P	C4	04 FEB 88	
01 FEB 88	0935	1809.4	-3.8	2	784-85	1	P	C4	01 MAR 88	
05 FEB 88	1415	1810.4	.8	2	180-85	1	P	C4	02 MAR 88	
08 FEB 88	1410	1761.6	6.4	2	540-87	1	P	C4	02 MAR 88	
12 FEB 88	1510	1781.1	-5.0	2	194-85	1	P	C4	02 MAR 88	
15 FEB 88	0810	1778.4	-8.8	2	538-87	1	P	C4	02 MAR 88	
19 FEB 88	1350	1759.6	-4.4	2	24-85	1	P	C4	02 MAR 88	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
22 FEB 88	0725	1760.3	-4.9	2	160-85	1	P	C4	02 MAR 88	
25 FEB 88	1310	1784.8	-4.5	2	184-85	1	P	C4	04 MAY 88	
28 FEB 88	1325	1766.4	7.3	2	368-85	1	P	C4	04 MAY 88	
02 MAR 88	1305	1758.6	-.5	2	92-87	1	P	C4	04 MAY 88	
06 MAR 88	1305	1773.7	5.0	2	94-87	1	P	C4	20 JUN 88	
09 MAR 88	1315	1753.8	-6.4	2	12-85	1	P	C4	04 MAY 88	
14 MAR 88	1305	1765.1	.3	2	278-87	1	P	C4	04 MAY 88	
17 MAR 88	1310	1772.0	5.9	2	680-85	1	P	C4	04 MAY 88	
21 MAR 88	1050	1794.7	2.3	2	286-87	1	P	C4	04 MAY 88	
25 MAR 88	0800	1829.4	.4	2	352-86	1	P	C4	27 APR 88	
28 MAR 88	0745	1817.6	5.6	2	322-86	1	P	C4	27 APR 88	
01 APR 88	0750	1801.7	2.4	2	358-85	1	P	C4	29 APR 88	
04 APR 88	0810	1745.5	.3	2	284-87	1	P	C4	29 APR 88	
08 APR 88	0820	1780.5	-2.4	2	110-87	1	P	C4	27 APR 88	
11 APR 88	0840	1775.9	-4.9	2	278-86	1	P	C4	27 APR 88	
15 APR 88	2020	1772.2	4.9	2	396-86	1	P	C4	29 APR 88	
18 APR 88	0750	1773.2	-6.5	2	422-86	1	P	C4	29 APR 88	
22 APR 88	1315	1786.9	8.8	2	360-85	1	P	C4	23 MAY 88	
25 APR 88	1310	1766.4	.5	2	560-87	1	P	C4	23 MAY 88	
28 APR 88	0915	1757.5	-4.3	2	222-86	1	P	C4	23 MAY 88	
19 MAY 88	0945	1757.8	.8	2	23-85	1	P	C4	22 JUN 88	
23 MAY 88	1515	1741.2	9.9	2	372-86	1	P	C4	22 JUN 88	
27 MAY 88	1420	1758.0	4.9	2	62-85	1	P	C4	22 JUN 88	
31 MAY 88	2100	1758.4	-.7	2	410-85	1	P	C4	22 JUN 88	
03 JUN 88	1515	1748.2	.3	2	6-85	1	P	C4	22 JUN 88	
06 JUN 88	0800	1738.1	-2.3	2	160-85	1	P	C4	22 JUN 88	
10 JUN 88	1525	1741.5	6.1	2	535-87	1	P	C4	22 JUN 88	
13 JUN 88	0935	1741.8	-4.0	2	552-85	1	P	C4	22 JUN 88	
18 JUN 88	0845	1738.4	6.7	2	112-87	1	P	C4	09 AUG 88	
23 JUN 88	0810	1742.3	1.0	2	354-85	1	P	C4	09 AUG 88	
26 JUN 88	1415	1721.9	-4.4	2	252-85	1	P	C4	09 AUG 88	
29 JUN 88	0820	1730.4	4.0	2	384-85	1	P	C4	09 AUG 88	
03 JUL 88	0910	1733.4	1.7	2	270-85	1	P	C4	10 AUG 88	
06 JUL 88	0840	1739.9	4.7	2	140-85	1	P	C4	10 AUG 88	
09 JUL 88	0840	1765.9	-4.7	2	248-86	1	P	C4	09 AUG 88	
12 JUL 88	1250	1750.3	-1.6	2	110-87	1	P	C4	09 AUG 88	
15 JUL 88	0755	1732.1	5.2	2	400-86	1	P	C4	17 AUG 88	
18 JUL 88	0815	1748.5	5.0	2	792-85	1	P	C4	17 AUG 88	
23 JUL 88	0715	1737.1	-8.1	2	254-87	1	P	C4	17 AUG 88	
26 JUL 88	0815	1741.8	-3.7	2	300-86	1	P	C4	17 AUG 88	
29 JUL 88	0815	1728.6	-6.5	2	653-85	1	P	C4	17 AUG 88	
29 JUL 88	0815	1729.7		1	654-85	1	P	C4	17 AUG 88	
01 AUG 88	0820	1743.2	3.6	2	234-86	1	P	C4	17 AUG 88	
05 AUG 88	0810	1734.4	-2.3	2	332-86	1	P	C4	18 AUG 88	
08 AUG 88	0810	1726.9	14.7	3	100-87	1	P	C4	18 AUG 88	
12 AUG 88	0900	1740.6	4.0	2	30-85	1	P	C4	29 SEP 88	
15 AUG 88	1255	1758.2	5.8	2	96-87	1	P	C4	29 SEP 88	
19 AUG 88	1305	1740.3	2.9	2	280-85	1	P	C4	29 SEP 88	
22 AUG 88	1310	1731.0	-6.0	2	546-87	1	P	C4	29 SEP 88	
25 AUG 88	0835	1754.0	2.7	2	256-85	1	P	C4	29 SEP 88	
28 AUG 88	1300	1755.4	-8.2	2	314-85	1	P	C4	29 SEP 88	
31 AUG 88	1300	1744.6	.2	2	244-86	1	P	C4	29 SEP 88	
03 SEP 88	1300	1814.2	-8.1	2	356-86	1	P	C4	29 SEP 88	
13 SEP 88	0714	1752.8	-4.5	2	542-87	1	P	C4	14 OCT 88	
16 SEP 88	0810	1745.5	1.1	2	212-85	1	P	C4	12 OCT 88	
20 SEP 88	0810	1744.0	7.0	2	338-86	1	P	C4	12 OCT 88	
23 SEP 88	1330	1755.4	-5.5	2	216-86	1	P	C4	12 OCT 88	
26 SEP 88	0940	1752.5	-5.8	2	246-86	1	P	C4	12 OCT 88	
30 SEP 88	0930	1766.3	-8.0	2	598-85	1	P	C4	12 OCT 88	
03 OCT 88	0800	1756.9	6.6	2	570-87	1	P	C4	12 OCT 88	
09 OCT 88	1305	1776.4	-5.0	2	46-85	1	P	C4	08 NOV 88	
14 OCT 88	1300	1799.2		1	227-85	1	P	C4	09 NOV 88	
14 OCT 88	1300	1797.0		1	228-85	1	P	C4	08 NOV 88	
19 OCT 88	1400	1768.8	-1.0	2	247-86	1	P	C4	09 NOV 88	
23 OCT 88	1300	1770.6	3.8	2	314-86	1	P	C4	08 NOV 88	

Station M (STM)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
27 OCT 88	1300	1770.6	7.1	2	222-86	1	P	C4	08 NOV 88	
31 OCT 88	0730	1762.5	-2.2	2	254-86	1	P	C4	09 NOV 88	
04 NOV 88	0820	1792.9	-4.5	2	128-81	1	P	C4	05 DEC 88	
07 NOV 88	0945	1766.8	11.8	3	126-81	1	P	C4	05 DEC 88	
11 NOV 88	1505	1762.1	8.5	2	140-81	1	P	C4	05 DEC 88	
14 NOV 88	0815	1766.1	-2.2	2	138-81	1	P	C4	05 DEC 88	
18 NOV 88	1505	1794.8	.3	2	136-81	1	P	C4	05 DEC 88	
21 NOV 88	0930	1753.1	-.5	2	134-81	1	P	C4	05 DEC 88	
25 NOV 88	0900	1769.3	-3.5	2	132-81	1	P	C4	05 DEC 88	
28 NOV 88	0820	1768.4	-4.7	2	130-81	1	P	C4	05 DEC 88	
02 DEC 88	0720	1766.2	15.9	3	570-81	1	P	C4	09 JAN 89	
05 DEC 88	0740	1789.3	-4.6	2	572-81	1	P	C4	09 JAN 89	
08 DEC 88	1305	1766.3	-5.6	2	47-81	1	P	C4	05 JAN 89	
11 DEC 88	1310	1783.6	-1.3	2	584-81	1	P	C4	05 JAN 89	
14 DEC 88	0740	1765.8	1.1	2	562-81	1	P	C4	05 JAN 89	
18 DEC 88	1300	1767.7	5.1	2	564-81	1	P	C4	05 JAN 89	
22 DEC 88	0735	1762.2	8.4	2	566-81	1	P	C4	05 JAN 89	
26 DEC 88	0650	1781.7	-2.0	2	568-81	1	P	C4	05 JAN 89	
30 DEC 88	0940	1751.5	2.4	2	504-81	1	P	C4	02 FEB 89	

Syowa, Antarctica (SYO)

Sample Date (GMT)	Sample Time (GMT)	Mean CH4 Conc (ppb)	1st-2nd Aliquot (ppb)	# of Aliquots	Flask I.D.	Flask Type	Collection Method	Analysis G.C.	Analysis Date	Flag
17 APR 86	0600	1580.7	-.5	2	248-83	1	P	C4	15 MAY 87	
15 MAY 86	0900	1593.2	-1.4	2	896-83	1	P	C4	15 MAY 87	
17 JUN 86	1000	1602.6	.6	2	164-83	1	P	C4	15 MAY 87	
15 JUL 86	1200	1610.5	-3.9	2	1260-82	1	P	C4	15 MAY 87	
17 AUG 86	0900	1618.8	-3.9	2	156-82	1	P	C4	15 MAY 87	
19 SEP 86	0900	1618.8	-2.8	2	906-82	1	P	C4	15 MAY 87	
15 OCT 86	0900	1617.0	-2.7	2	316-83	1	P	C4	15 MAY 87	
19 NOV 86	0600	1611.6	-3.9	2	932-82	1	P	C4	15 MAY 87	
15 DEC 86	1200	1604.5	-3.9	2	90-83	1	P	C4	15 MAY 87	
15 FEB 88	1920	1606.7	-3.1	2	76-85	1	P	C4	05 JUN 89	
29 FEB 88	1325	1605.9	5.1	2	810-85	1	P	C4	05 JUN 89	
19 APR 88	1045	1606.9	.2	2	110-85	1	P	C4	05 JUN 89	
30 APR 88	1230	1611.7		1	640-85	1	P	C4	05 JUN 89	
15 MAY 88	1030	1618.3	1.6	2	186-82	1	P	C4	05 JUN 89	
29 JUN 88	0830	1625.5	2.9	2	228-86	1	P	C4	05 JUN 89	
02 SEP 88	1450	1635.3	1.5	2	830-85	1	P	C4	05 JUN 89	
15 SEP 88	0800	1638.3	-2.3	2	328-85	1	P	C4	05 JUN 89	
15 OCT 88	1815	1635.8	1.2	2	10-85	1	P	C4	05 JUN 89	
29 OCT 88	1015	1637.3	-2.2	2	1218-82	1	P	C4	05 JUN 89	
14 NOV 88	1300	1636.4	9.7	2	352-85	1	P	C4	31 MAY 89	
29 NOV 88	1400	1632.8	.2	2	11-83	1	P	C4	01 JUN 89	
30 DEC 88	0730	1627.9	0.0	2	448-85	1	P	C4	05 JUN 89	

Appendix B
Tabulation of Monthly Average Methane Concentrations

The format of the tabulations in this appendix is the same as that used for Appendix B in *Lang et al.* (1990). For the convenience of the reader we repeat the explanations of the entries in the tabulations.

In this appendix, tabulations of monthly average methane concentrations for all of the network sites are provided. The sites are ordered alphabetically by the 3-letter site code (see Table 1). The monthly averages are calculated as the arithmetic means of the individual, background, flask concentrations given in Appendix A.

When a flask sample was analyzed more than once, concentrations of all analyzed aliquots for that particular flask sample are averaged together to obtain a mean methane concentration. This mean value then represents an individual flask concentration. When both members of a flask pair were analyzed, all of the accepted aliquot concentrations from both flasks are averaged to obtain a mean methane concentration. If this flask pair sample is classified as background, then this single value is used in the calculation of the monthly mean. If two pairs of flasks were sampled simultaneously (i.e. with two separate portable sampling units), the aliquots of all analyzed flasks are averaged and treated as a single sample in the calculation of the monthly average concentration. On rare occasions we have sampled with the flask pair made up of two different flask types. We refer to this as sampling with "mixed pairs". Both members from a "mixed pair" were usually analyzed. All accepted aliquots from both flasks of such a mixed pair are averaged together to obtain a single mean sample methane concentration for use in the calculation of the monthly average.

The number of flask samples used to calculate each monthly average and the sample standard deviation of the monthly average concentration are also included in the tables. If only one background flask sample was taken at a site in any month, then the concentration of such a flask sample was taken as the monthly average, and no entry was made for the standard deviation. For those months when no background flask samples were successfully collected at a particular site, the entry for the monthly average is left blank. Because these monthly values are based on only a few grab samples collected during the month, the standard deviation term that we include should not be interpreted as the uncertainty of the true monthly average concentration that would be obtained by a continuous measurement of methane during the entire month. The monthly average concentrations are given to the nearest 0.1 ppb, again to retain enough significant digits for any further processing of the data.

METHANE FLASK MONTHLY MEANS FOR ALT

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1758.6	13.5	4
1986	FEB	1747.0	13.3	3
1986	MAR	1769.9	19.9	4
1986	APR	1752.6	8.0	18
1986	MAY	1743.9	10.4	4
1986	JUN	1719.7	14.1	4
1986	JUL	1717.4	6.0	3
1986	AUG	1718.5	20.7	4
1986	SEP	1722.3	9.3	2
1986	OCT	1766.3	23.3	2
1986	NOV	1752.3	11.4	4
1986	DEC	1737.5	4.3	5
1987	JAN	1754.5	12.5	4
1987	FEB	1757.4	2.0	4
1987	MAR	1761.3	11.5	5
1987	APR	1748.8	3.8	4
1987	MAY	1751.8	9.2	4
1987	JUN	1733.8	9.0	5
1987	JUL	1731.2	5.7	4
1987	AUG	1734.2	8.4	5
1987	SEP	1751.8	9.0	4
1987	OCT	1766.8	5.4	4
1987	NOV	1769.1	9.8	5
1987	DEC	1767.3	15.8	4
1988	JAN	1776.1	37.0	4
1988	FEB	1776.3	17.4	5
1988	MAR	1777.6	21.2	3
1988	APR	1779.1	12.8	4
1988	MAY	1761.8	7.0	5
1988	JUN	1749.4	10.4	4
1988	JUL	1732.5	11.6	4
1988	AUG	1733.7	9.9	5
1988	SEP	1760.2	7.7	4
1988	OCT	1780.6	4.3	4
1988	NOV	1783.4	15.2	4
1988	DEC	1788.6	19.8	3

METHANE FLASK MONTHLY MEANS FOR AMS

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1588.8		1
1986	FEB	1581.9		1
1986	MAR	1590.6		1
1986	APR	1593.1	2.0	2
1986	MAY	1597.7	7.2	4
1986	JUN	1604.9	1.7	3
1986	JUL	1608.7	1.6	4
1986	AUG	1615.2	3.5	3
1986	SEP	1614.8	3.5	3
1986	OCT	1612.6	1.4	3
1986	NOV	1608.8		1
1986	DEC	1602.4		1
1987	JAN	1595.8	2.9	3
1987	FEB	1592.0	3.9	3
1987	MAR			
1987	APR			
1987	MAY			
1987	JUN			
1987	JUL	1622.4	4.5	4
1987	AUG			
1987	SEP			
1987	OCT			
1987	NOV	1629.7		1
1987	DEC	1621.2	1.3	2
1988	JAN	1598.5		1
1988	FEB	1602.2		1
1988	MAR	1603.6	3.1	3
1988	APR	1613.7		1
1988	MAY			
1988	JUN			
1988	JUL	1626.1	4.2	2
1988	AUG	1633.2	1.8	5
1988	SEP	1636.1	2.0	8
1988	OCT	1637.5	3.4	3
1988	NOV			
1988	DEC	1621.4		1

METHANE FLASK MONTHLY MEANS FOR ASC

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1597.5	4.8	3
1986	FEB	1595.6	6.5	3
1986	MAR	1599.4	5.2	4
1986	APR	1613.0	9.3	4
1986	MAY	1616.4	3.6	3
1986	JUN	1620.8	8.2	4
1986	JUL	1619.3	5.0	4
1986	AUG	1621.0	6.3	4
1986	SEP	1620.0	5.2	3
1986	OCT	1627.4	6.8	5
1986	NOV	1629.7	9.7	4
1986	DEC	1621.4	14.4	4
1987	JAN	1611.7	3.5	5
1987	FEB	1612.1	12.5	4
1987	MAR	1615.5	4.5	4
1987	APR	1624.8	6.2	5
1987	MAY	1635.8	6.7	4
1987	JUN	1635.9	3.6	4
1987	JUL	1635.2	8.9	5
1987	AUG	1636.8	6.1	3
1987	SEP	1636.1	4.5	2
1987	OCT	1633.0	5.4	5
1987	NOV	1630.3	5.5	4
1987	DEC	1625.3	9.2	5
1988	JAN	1611.6	2.3	4
1988	FEB	1614.6	2.1	4
1988	MAR	1629.1	5.7	5
1988	APR	1620.9	6.9	3
1988	MAY	1639.0	5.2	4
1988	JUN	1637.4	9.3	5
1988	JUL	1643.1	2.2	4
1988	AUG	1646.0	8.4	2
1988	SEP	1646.1	5.8	5
1988	OCT	1652.4	3.0	4
1988	NOV	1638.6	5.4	3
1988	DEC	1641.3	6.3	5

METHANE FLASK MONTHLY MEANS FOR AVI

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1681.1	5.1	4
1986	FEB	1686.0	15.8	3
1986	MAR	1687.1	12.5	3
1986	APR	1670.7	11.7	3
1986	MAY	1663.6	7.6	5
1986	JUN	1665.6	5.6	5
1986	JUL	1664.5	8.5	4
1986	AUG	1660.6	7.3	5
1986	SEP	1657.9	3.5	3
1986	OCT	1671.0	8.0	5
1986	NOV	1690.1	14.6	4
1986	DEC	1689.2	6.8	4
1987	JAN	1693.2	25.6	4
1987	FEB	1687.9	17.8	4
1987	MAR	1699.6	26.4	4
1987	APR	1678.4	7.8	4
1987	MAY	1677.8	8.5	5
1987	JUN	1682.1	8.1	3
1987	JUL	1677.3	13.4	5
1987	AUG	1676.1	9.0	3
1987	SEP	1677.1	5.3	4
1987	OCT	1682.4	4.5	3
1987	NOV	1699.4	20.1	3
1987	DEC	1702.7	14.8	4
1988	JAN	1704.7	12.5	4
1988	FEB	1706.9	14.1	5
1988	MAR	1712.0	14.5	4
1988	APR	1693.1	11.8	4
1988	MAY	1692.1	5.0	4
1988	JUN	1684.8	1.5	3
1988	JUL	1680.9	0.0	2
1988	AUG	1689.5	7.8	5
1988	SEP	1680.1	8.2	4
1988	OCT	1690.8	3.4	3
1988	NOV	1710.9	21.3	3
1988	DEC	1717.6	4.8	5

METHANE FLASK MONTHLY MEANS FOR AZR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1723.6	9.2	2
1986	FEB			
1986	MAR	1694.3		1
1986	APR			
1986	MAY	1705.2		1
1986	JUN	1705.8		1
1986	JUL			
1986	AUG	1708.2	2.4	3
1986	SEP			
1986	OCT			
1986	NOV			
1986	DEC	1726.1		1
1987	JAN	1742.0	19.4	3
1987	FEB	1726.1	3.7	4
1987	MAR	1728.1		1
1987	APR	1733.9	5.5	2
1987	MAY			
1987	JUN	1703.9	25.0	2
1987	JUL	1716.3	13.8	3
1987	AUG	1693.2	22.5	3
1987	SEP	1733.1		1
1987	OCT	1741.0	14.8	2
1987	NOV	1741.3	2.6	2
1987	DEC	1747.5	7.6	3
1988	JAN	1738.3	10.0	2
1988	FEB	1728.2	6.4	2
1988	MAR	1733.5	3.3	2
1988	APR	1755.3	3.4	2
1988	MAY	1737.5	1.2	2
1988	JUN			
1988	JUL	1703.6	5.8	2
1988	AUG	1702.1		1
1988	SEP	1729.4	26.4	3
1988	OCT	1750.5		1
1988	NOV			
1988	DEC			

METHANE FLASK MONTHLY MEANS FOR BRW

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1742.5	6.2	2
1986	FEB	1768.7	10.9	3
1986	MAR	1787.1	8.5	3
1986	APR	1760.3	10.0	4
1986	MAY	1736.4	10.1	2
1986	JUN	1730.3	8.0	4
1986	JUL	1727.0	13.1	3
1986	AUG	1723.4	15.6	3
1986	SEP	1749.1	36.8	3
1986	OCT	1804.3	29.1	3
1986	NOV	1769.8	20.3	4
1986	DEC	1760.2	5.5	3
1987	JAN	1761.6	19.4	3
1987	FEB	1779.8	7.7	2
1987	MAR	1775.4	23.2	4
1987	APR	1764.9	3.9	3
1987	MAY	1753.3	9.2	5
1987	JUN	1733.2	1.1	3
1987	JUL	1733.6	21.9	2
1987	AUG	1744.3	8.4	3
1987	SEP	1763.8	11.0	3
1987	OCT	1758.4	3.0	3
1987	NOV	1767.8	9.0	4
1987	DEC	1772.2	13.5	3
1988	JAN	1788.1	30.3	4
1988	FEB	1811.3	35.6	3
1988	MAR	1791.2	9.8	6
1988	APR	1773.2	1.9	2
1988	MAY	1760.6	8.4	4
1988	JUN	1741.7	1.2	2
1988	JUL	1741.5	10.1	6
1988	AUG	1741.4	2.2	3
1988	SEP	1767.8	3.2	2
1988	OCT	1774.4	4.6	6
1988	NOV	1787.4	10.2	4
1988	DEC	1804.8	16.5	6

METHANE FLASK MONTHLY MEANS FOR CBA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1750.6	24.1	3
1986	FEB	1734.7	6.2	4
1986	MAR	1738.7	9.1	4
1986	APR	1743.6	6.5	4
1986	MAY	1741.1	8.9	3
1986	JUN	1728.7	6.7	5
1986	JUL	1701.1	5.3	2
1986	AUG	1721.5	11.4	5
1986	SEP	1756.3	13.7	4
1986	OCT	1756.6	19.2	3
1986	NOV	1729.2	11.5	3
1986	DEC	1748.6	7.7	3
1987	JAN	1745.9	5.5	4
1987	FEB	1739.4	9.4	4
1987	MAR	1748.9	18.8	3
1987	APR	1753.5	8.1	4
1987	MAY	1746.0	3.6	4
1987	JUN	1736.6	8.1	4
1987	JUL	1731.6	5.5	2
1987	AUG	1724.6	18.7	4
1987	SEP	1757.4	2.2	2
1987	OCT	1765.1	5.2	4
1987	NOV	1754.4	1.0	3
1987	DEC	1759.1	7.1	3
1988	JAN	1760.7	17.7	4
1988	FEB	1761.7	13.7	3
1988	MAR	1764.8	6.3	2
1988	APR	1763.3	12.2	4
1988	MAY	1759.6	5.3	5
1988	JUN	1745.9	5.3	3
1988	JUL	1742.3	11.5	4
1988	AUG	1751.6	16.9	3
1988	SEP	1748.4	8.7	3
1988	OCT	1762.4	13.2	3
1988	NOV	1771.9	8.9	3
1988	DEC	1766.1	11.9	7

METHANE FLASK MONTHLY MEANS FOR CGO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1586.4	2.4	3
1986	FEB	1582.2	3.4	8
1986	MAR	1581.4	4.4	6
1986	APR	1585.4	2.3	7
1986	MAY	1599.6	4.5	3
1986	JUN	1599.7	4.8	8
1986	JUL	1609.9	5.4	8
1986	AUG	1613.5	1.6	4
1986	SEP	1613.7	5.2	2
1986	OCT	1616.3	4.7	4
1986	NOV	1612.4	2.5	5
1986	DEC	1606.1	2.4	6
1987	JAN	1595.7	2.0	5
1987	FEB	1592.2	3.1	8
1987	MAR	1597.0	2.4	6
1987	APR	1599.6		1
1987	MAY	1612.9	2.7	4
1987	JUN	1613.7	4.3	7
1987	JUL	1620.2	1.8	6
1987	AUG	1623.2	3.0	5
1987	SEP	1627.1	.6	3
1987	OCT	1627.5	2.4	6
1987	NOV	1622.3	3.1	5
1987	DEC	1617.0	.5	2
1988	JAN	1609.7		1
1988	FEB	1602.5	4.3	6
1988	MAR	1601.5	5.5	2
1988	APR	1605.4	5.7	3
1988	MAY	1617.2	3.8	4
1988	JUN	1621.9	4.5	4
1988	JUL	1631.2	4.9	7
1988	AUG	1637.2	1.9	5
1988	SEP	1636.7	3.7	5
1988	OCT	1637.1	3.0	9
1988	NOV	1633.3	1.7	6
1988	DEC	1626.8	5.8	5

METHANE FLASK MONTHLY MEANS FOR CHR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1630.3	5.0	2
1986	FEB	1629.3		1
1986	MAR	1641.6	17.0	3
1986	APR	1650.5	8.8	2
1986	MAY	1620.8	10.0	4
1986	JUN	1625.3	4.0	4
1986	JUL	1618.6	5.5	4
1986	AUG	1623.1	.8	3
1986	SEP	1622.7	8.2	4
1986	OCT	1614.5	7.3	4
1986	NOV	1623.0	4.8	3
1986	DEC	1630.3	6.1	4
1987	JAN	1641.2	25.1	3
1987	FEB	1632.5	15.5	4
1987	MAR	1652.2	17.3	5
1987	APR	1657.0	23.8	3
1987	MAY	1652.0	.1	2
1987	JUN	1635.3	5.8	3
1987	JUL	1637.9	8.8	3
1987	AUG	1631.7	5.1	4
1987	SEP	1628.4	1.3	3
1987	OCT	1636.0	.5	2
1987	NOV	1647.3	8.4	4
1987	DEC	1635.3	6.6	3
1988	JAN	1656.1	15.0	4
1988	FEB	1663.2	19.5	5
1988	MAR	1657.8	16.0	4
1988	APR	1640.9		1
1988	MAY	1635.2	12.4	3
1988	JUN	1636.7	4.9	4
1988	JUL	1641.0	9.8	4
1988	AUG	1644.8	4.1	2
1988	SEP	1644.8	7.5	4
1988	OCT	1646.0	4.8	5
1988	NOV	1651.1	5.9	3
1988	DEC	1657.4	3.8	4

METHANE FLASK MONTHLY MEANS FOR CMO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1717.8	8.9	5
1986	FEB	1712.0	19.3	3
1986	MAR	1713.9	20.9	4
1986	APR	1736.3	7.1	4
1986	MAY	1722.5	8.9	5
1986	JUN	1715.8	8.7	4
1986	JUL	1693.5	10.4	3
1986	AUG	1689.8	27.8	3
1986	SEP	1697.7	37.6	2
1986	OCT	1744.9	17.3	4
1986	NOV	1730.4	4.4	3
1986	DEC	1735.1	4.7	4
1987	JAN	1737.1	13.6	2
1987	FEB	1731.4	11.0	4
1987	MAR	1740.2	3.2	3
1987	APR	1739.9	12.1	4
1987	MAY	1731.3	10.6	4
1987	JUN	1743.4	18.2	3
1987	JUL	1708.6	11.3	5
1987	AUG	1706.2	19.1	4
1987	SEP	1722.6	26.7	5
1987	OCT	1753.0	10.9	4
1987	NOV	1743.9	9.1	4
1987	DEC	1752.0	8.7	4
1988	JAN	1760.6	9.8	3
1988	FEB	1753.8	10.9	4
1988	MAR	1760.1	17.7	4
1988	APR	1755.1	11.6	4
1988	MAY	1745.1	12.4	5
1988	JUN	1734.9	14.0	4
1988	JUL	1737.6	15.1	3
1988	AUG	1724.2	10.1	4
1988	SEP	1747.1	8.2	4
1988	OCT	1751.1	16.5	4
1988	NOV	1746.3	7.3	3
1988	DEC	1751.3	2.6	4

METHANE FLASK MONTHLY MEANS FOR GMI

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1667.9	6.5	4
1986	FEB	1674.9	58.3	2
1986	MAR	1687.3	7.1	3
1986	APR	1680.2	12.7	5
1986	MAY	1634.2		1
1986	JUN	1662.7	1.4	2
1986	JUL	1660.9		1
1986	AUG			
1986	SEP	1644.2		1
1986	OCT	1668.9		1
1986	NOV	1687.9	9.8	3
1986	DEC	1684.5	20.8	2
1987	JAN	1683.9	19.0	2
1987	FEB	1683.3	13.9	3
1987	MAR	1689.2	16.9	3
1987	APR	1687.9	10.5	4
1987	MAY	1696.8	6.6	3
1987	JUN	1660.6	.3	2
1987	JUL	1653.2	10.1	4
1987	AUG	1661.5	11.3	4
1987	SEP	1664.0	36.1	3
1987	OCT	1689.1	16.2	5
1987	NOV	1679.5	23.7	4
1987	DEC	1707.0	8.8	4
1988	JAN	1694.5	10.4	4
1988	FEB	1709.2	23.1	3
1988	MAR	1687.1	17.2	4
1988	APR	1686.2	9.4	4
1988	MAY	1685.2	2.8	3
1988	JUN	1662.0	5.9	4
1988	JUL	1657.1	7.4	3
1988	AUG	1657.0	8.1	4
1988	SEP	1657.7	10.8	3
1988	OCT	1667.7	16.6	4
1988	NOV	1700.2	14.8	4
1988	DEC	1704.0	6.9	3

METHANE FLASK MONTHLY MEANS FOR HBA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1580.5	4.6	2
1986	FEB	1569.0	5.7	2
1986	MAR	1576.1	5.0	2
1986	APR	1580.5	.1	2
1986	MAY	1584.0	3.0	2
1986	JUN	1592.3	3.2	2
1986	JUL	1609.5	1.0	2
1986	AUG	1611.0	0.0	2
1986	SEP	1612.8	1.6	2
1986	OCT	1614.6	2.4	2
1986	NOV	1610.2		1
1986	DEC	1606.4	4.5	2
1987	JAN	1590.2	1.8	3
1987	FEB	1584.2		1
1987	MAR			
1987	APR	1595.9	1.2	2
1987	MAY	1602.8		1
1987	JUN	1612.5		1
1987	JUL	1621.3	1.7	2
1987	AUG	1620.8		1
1987	SEP			
1987	OCT			
1987	NOV			
1987	DEC			
1988	JAN	1609.4	1.4	2
1988	FEB			
1988	MAR	1606.1		1
1988	APR			
1988	MAY			
1988	JUN			
1988	JUL			
1988	AUG			
1988	SEP			
1988	OCT			
1988	NOV			
1988	DEC			

METHANE FLASK MONTHLY MEANS FOR KEY

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1720.9		1
1986	FEB	1695.0	31.4	2
1986	MAR	1709.4	11.1	2
1986	APR	1731.4	6.2	2
1986	MAY	1698.6	22.0	5
1986	JUN	1660.4	6.0	4
1986	JUL	1659.8	4.0	3
1986	AUG	1657.4	1.5	3
1986	SEP	1674.5	23.6	4
1986	OCT	1703.3	19.3	3
1986	NOV	1685.8	16.2	3
1986	DEC	1719.4	12.2	3
1987	JAN	1701.0	24.2	2
1987	FEB	1722.3	4.2	2
1987	MAR	1720.9	11.3	3
1987	APR	1720.1	10.3	2
1987	MAY	1693.0	4.7	2
1987	JUN	1668.2	2.0	2
1987	JUL	1671.7	9.3	3
1987	AUG	1686.4		1
1987	SEP	1695.7		1
1987	OCT	1745.5		1
1987	NOV	1714.1	.5	2
1987	DEC	1718.9	13.6	3
1988	JAN	1739.4	6.2	2
1988	FEB	1700.6		1
1988	MAR	1719.0		1
1988	APR	1716.8		1
1988	MAY	1729.8	18.0	2
1988	JUN	1705.0	1.2	2
1988	JUL	1693.8		1
1988	AUG	1683.0		1
1988	SEP	1685.6		1
1988	OCT	1757.7		1
1988	NOV	1732.3	23.4	2
1988	DEC	1756.1	2.0	2

METHANE FLASK MONTHLY MEANS FOR KUM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1681.5	21.2	2
1986	FEB	1666.8	28.1	3
1986	MAR	1675.2	20.8	5
1986	APR	1690.2	8.7	3
1986	MAY	1665.3	7.1	3
1986	JUN	1682.8	16.6	3
1986	JUL	1658.3	17.0	5
1986	AUG	1664.2	16.9	3
1986	SEP	1682.2	31.9	4
1986	OCT	1680.9	9.5	3
1986	NOV	1696.6	12.6	3
1986	DEC	1701.8	10.6	5
1987	JAN	1716.3	10.3	4
1987	FEB	1688.4	16.5	4
1987	MAR	1700.1	9.4	5
1987	APR	1690.3	10.5	3
1987	MAY	1692.9	11.1	10
1987	JUN	1698.7	8.1	3
1987	JUL	1679.2	9.7	3
1987	AUG	1658.4	15.7	8
1987	SEP	1680.3	21.1	8
1987	OCT	1696.7	8.0	8
1987	NOV	1707.6	11.3	8
1987	DEC	1715.3	13.5	7
1988	JAN	1699.9	18.6	8
1988	FEB	1697.9	19.3	9
1988	MAR	1708.0	2.6	6
1988	APR	1716.0	13.9	8
1988	MAY	1704.5	7.4	9
1988	JUN	1687.6	13.4	8
1988	JUL	1678.3	16.4	6
1988	AUG	1680.4	12.2	8
1988	SEP	1686.6	17.7	6
1988	OCT	1696.4	12.9	9
1988	NOV	1715.2	8.7	7
1988	DEC	1702.7	27.7	4

METHANE FLASK MONTHLY MEANS FOR MBC

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1757.0		1
1986	FEB	1755.6	6.9	2
1986	MAR	1764.4	.3	2
1986	APR	1753.4	8.3	4
1986	MAY	1738.7	2.7	4
1986	JUN	1723.1	5.2	5
1986	JUL	1717.6	4.2	5
1986	AUG	1716.2	1.7	3
1986	SEP	1730.5	12.7	5
1986	OCT	1769.0	3.6	4
1986	NOV	1760.0	13.5	3
1986	DEC	1761.6	27.1	2
1987	JAN	1787.4	5.3	2
1987	FEB	1764.7	11.8	4
1987	MAR	1774.9	13.1	5
1987	APR	1769.2	16.6	4
1987	MAY	1756.9	11.0	4
1987	JUN	1732.7	12.4	5
1987	JUL	1735.9	1.7	2
1987	AUG	1735.3	6.7	5
1987	SEP	1750.7	12.5	4
1987	OCT	1768.0	5.2	5
1987	NOV	1769.9	8.0	5
1987	DEC	1782.3	14.4	5
1988	JAN	1793.4	42.3	2
1988	FEB	1785.2	13.0	5
1988	MAR	1788.1	16.5	4
1988	APR	1781.4	16.5	4
1988	MAY	1763.7	18.4	5
1988	JUN	1743.6	2.7	4
1988	JUL	1730.9	9.9	4
1988	AUG	1738.6	8.2	3
1988	SEP	1751.6	12.6	5
1988	OCT	1774.8	5.5	4
1988	NOV	1780.3	10.2	4
1988	DEC	1798.9	17.5	2

METHANE FLASK MONTHLY MEANS FOR MCM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1585.1	6.6	3
1986	FEB	1572.4		1
1986	MAR	1578.8	1.7	2
1986	APR	1583.3	1.6	2
1986	MAY	1587.6		1
1986	JUN	1592.3	1.0	2
1986	JUL	1605.9	1.7	2
1986	AUG	1603.5		1
1986	SEP	1615.5	4.4	2
1986	OCT	1613.6	.4	2
1986	NOV	1610.8	4.4	3
1986	DEC	1603.2		1
1987	JAN	1599.8	3.6	2
1987	FEB	1591.1	.9	2
1987	MAR	1590.8		1
1987	APR	1595.4		1
1987	MAY	1605.1		1
1987	JUN	1618.0		1
1987	JUL	1619.1		1
1987	AUG			
1987	SEP			
1987	OCT	1624.5	2.9	4
1987	NOV			
1987	DEC			
1988	JAN			
1988	FEB			
1988	MAR			
1988	APR			
1988	MAY			
1988	JUN			
1988	JUL			
1988	AUG			
1988	SEP			
1988	OCT			
1988	NOV			
1988	DEC			

METHANE FLASK MONTHLY MEANS FOR MID

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1702.8	16.6	8
1986	FEB	1714.2	15.8	8
1986	MAR	1712.5	17.3	7
1986	APR	1685.9	18.8	5
1986	MAY	1714.9	9.8	4
1986	JUN	1688.0	16.1	4
1986	JUL	1676.2	14.4	4
1986	AUG	1673.3	24.8	4
1986	SEP	1694.9	29.3	4
1986	OCT	1710.6	12.0	5
1986	NOV	1718.0	15.5	4
1986	DEC	1725.9	15.8	5
1987	JAN	1724.6	7.2	4
1987	FEB	1732.4	15.0	4
1987	MAR	1718.8	18.1	4
1987	APR	1737.4	15.0	5
1987	MAY	1719.9	16.5	4
1987	JUN	1718.3	9.6	3
1987	JUL	1689.0	14.5	4
1987	AUG	1697.4	10.7	3
1987	SEP	1714.2	27.2	5
1987	OCT	1732.7	13.2	4
1987	NOV	1728.8	12.4	4
1987	DEC	1724.2	14.8	5
1988	JAN	1731.8	5.1	4
1988	FEB	1740.7	16.1	4
1988	MAR	1720.0	21.2	4
1988	APR	1727.9	14.9	4
1988	MAY	1710.7	22.4	4
1988	JUN	1704.3	18.6	4
1988	JUL	1699.6	18.4	4
1988	AUG	1677.5	15.0	3
1988	SEP	1716.9	13.0	3
1988	OCT	1726.0	5.2	3
1988	NOV	1717.4	15.1	4
1988	DEC	1731.7	34.1	3

METHANE FLASK MONTHLY MEANS FOR MLO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1653.6	5.3	4
1986	FEB	1650.5	7.3	4
1986	MAR	1638.2		1
1986	APR	1675.5	14.1	4
1986	MAY	1663.3	12.5	5
1986	JUN	1656.5	4.9	4
1986	JUL	1671.7	23.8	5
1986	AUG	1652.1	12.1	5
1986	SEP	1653.5	15.5	4
1986	OCT	1675.3	14.6	4
1986	NOV	1668.0	14.6	4
1986	DEC	1679.1	6.1	5
1987	JAN	1669.8	7.4	4
1987	FEB	1674.0	12.1	4
1987	MAR	1669.8	12.5	4
1987	APR	1675.5	14.5	4
1987	MAY	1671.7	14.7	5
1987	JUN	1671.7	17.6	4
1987	JUL	1652.6	7.3	5
1987	AUG	1666.5	25.5	4
1987	SEP	1656.8	8.0	5
1987	OCT	1681.6	14.5	5
1987	NOV	1700.7	19.0	4
1987	DEC	1684.3	12.3	5
1988	JAN	1677.0	9.1	4
1988	FEB	1680.8	6.9	3
1988	MAR	1679.7	10.0	4
1988	APR	1693.3	9.8	4
1988	MAY	1684.9	17.6	4
1988	JUN	1674.6	15.5	4
1988	JUL	1668.1	3.2	5
1988	AUG	1673.6	16.8	4
1988	SEP	1678.0	13.9	5
1988	OCT	1687.0	19.5	4
1988	NOV	1701.5	2.4	2
1988	DEC	1703.7	16.6	5

METHANE FLASK MONTHLY MEANS FOR NWR

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1677.7	13.8	3
1986	FEB	1713.9	24.8	3
1986	MAR	1705.3	26.1	4
1986	APR	1683.4	14.2	4
1986	MAY	1704.7	11.4	4
1986	JUN	1693.9	18.1	4
1986	JUL	1656.9	10.0	4
1986	AUG	1679.6	10.4	7
1986	SEP	1669.3	16.5	5
1986	OCT	1704.4	1.4	4
1986	NOV	1701.2	16.8	3
1986	DEC	1701.5	3.6	4
1987	JAN	1699.4	26.2	4
1987	FEB	1714.9	26.7	4
1987	MAR	1725.1	22.2	3
1987	APR	1705.9	11.0	4
1987	MAY	1698.7	24.2	4
1987	JUN	1699.5	27.2	5
1987	JUL	1686.5	26.5	4
1987	AUG	1697.8	10.0	5
1987	SEP	1692.6	2.5	3
1987	OCT	1714.6	5.8	5
1987	NOV	1715.2	15.4	4
1987	DEC	1728.7	17.7	5
1988	JAN	1733.5	18.7	4
1988	FEB	1725.9	7.1	4
1988	MAR	1730.3	41.1	5
1988	APR	1724.3	13.0	4
1988	MAY	1732.0	20.0	4
1988	JUN	1699.5	16.5	4
1988	JUL	1708.4	20.6	4
1988	AUG	1683.3	1.5	3
1988	SEP	1721.6	21.6	4
1988	OCT	1709.4	6.1	3
1988	NOV	1734.4	19.4	5
1988	DEC	1735.2	27.8	4

METHANE FLASK MONTHLY MEANS FOR OPW

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1712.7		1
1986	FEB			
1986	MAR	1721.3	1.2	2
1986	APR	1737.3	10.1	5
1986	MAY	1734.9	5.3	2
1986	JUN	1719.9	7.9	2
1986	JUL	1698.3	2.8	2
1986	AUG	1690.5	2.5	2
1986	SEP	1739.6	2.7	2
1986	OCT	1734.1	4.9	2
1986	NOV			
1986	DEC			
1987	JAN	1729.3		1
1987	FEB	1734.0	23.3	2
1987	MAR	1731.2		1
1987	APR	1745.6	1.0	2
1987	MAY	1737.8	3.0	2
1987	JUN	1724.8		1
1987	JUL	1707.3	6.8	3
1987	AUG	1686.0	2.7	2
1987	SEP	1731.6	31.8	3
1987	OCT			
1987	NOV			
1987	DEC			
1988	JAN	1757.0	4.5	2
1988	FEB	1750.4	1.8	2
1988	MAR	1762.9	16.8	4
1988	APR			
1988	MAY			
1988	JUN			
1988	JUL	1712.9	4.9	2
1988	AUG	1707.3	3.6	4
1988	SEP	1738.0	2.9	2
1988	OCT	1760.1	6.5	3
1988	NOV	1755.3	11.2	4
1988	DEC	1753.7	3.5	3

METHANE FLASK MONTHLY MEANS FOR PSA

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1586.8	1.6	4
1986	FEB	1577.4	1.0	3
1986	MAR	1578.5	4.2	2
1986	APR	1584.8	1.9	2
1986	MAY	1587.8	2.0	2
1986	JUN	1603.3		1
1986	JUL			
1986	AUG			
1986	SEP	1615.5		1
1986	OCT	1615.6		1
1986	NOV	1611.7		1
1986	DEC	1609.5		1
1987	JAN	1598.6		1
1987	FEB	1588.9	1.1	4
1987	MAR	1593.3	3.5	4
1987	APR	1594.9	1.7	4
1987	MAY	1603.8	2.7	2
1987	JUN	1613.3	5.0	3
1987	JUL	1616.3	3.2	5
1987	AUG	1619.5		1
1987	SEP	1625.5	2.4	4
1987	OCT	1625.8	1.1	3
1987	NOV			
1987	DEC	1615.3		1
1988	JAN	1608.1	4.0	3
1988	FEB	1606.0		1
1988	MAR	1600.2	3.5	3
1988	APR			
1988	MAY	1613.3	3.1	2
1988	JUN	1626.5	2.7	3
1988	JUL	1628.6	5.6	4
1988	AUG			
1988	SEP	1643.1		1
1988	OCT			
1988	NOV	1634.5		1
1988	DEC	1624.4	3.1	4

METHANE FLASK MONTHLY MEANS FOR RPB

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN			
1986	FEB			
1986	MAR			
1986	APR			
1986	MAY			
1986	JUN			
1986	JUL			
1986	AUG			
1986	SEP			
1986	OCT			
1986	NOV			
1986	DEC			
1987	JAN			
1987	FEB			
1987	MAR			
1987	APR			
1987	MAY			
1987	JUN			
1987	JUL			
1987	AUG			
1987	SEP			
1987	OCT			
1987	NOV	1685.6	15.2	3
1987	DEC	1689.6	7.3	4
1988	JAN	1711.9	13.3	5
1988	FEB	1701.6	3.4	2
1988	MAR	1692.2	13.0	2
1988	APR	1690.0	12.9	5
1988	MAY	1691.0	8.9	3
1988	JUN	1683.5	11.2	4
1988	JUL	1681.8	6.0	4
1988	AUG	1687.7	16.6	4
1988	SEP	1689.0	14.7	4
1988	OCT	1697.1	25.7	4
1988	NOV	1696.2	10.6	4
1988	DEC	1716.9	11.9	3

METHANE FLASK MONTHLY MEANS FOR SEY

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1641.5	31.7	2
1986	FEB	1644.3	8.7	2
1986	MAR	1655.0		1
1986	APR	1599.6	12.3	3
1986	MAY			
1986	JUN	1611.1	1.9	2
1986	JUL	1622.7	15.2	3
1986	AUG	1631.1	20.5	3
1986	SEP	1621.5	5.6	3
1986	OCT	1616.7	16.7	2
1986	NOV	1611.9		1
1986	DEC	1663.7	18.1	3
1987	JAN	1679.9	32.2	3
1987	FEB	1664.1	2.6	3
1987	MAR	1655.9	6.2	3
1987	APR	1641.3		1
1987	MAY			
1987	JUN			
1987	JUL			
1987	AUG			
1987	SEP			
1987	OCT	1625.0		1
1987	NOV	1623.3		1
1987	DEC	1663.0		1
1988	JAN	1684.4	11.9	4
1988	FEB	1670.3	6.2	2
1988	MAR	1664.9		1
1988	APR	1615.4		1
1988	MAY	1620.6	4.9	2
1988	JUN			
1988	JUL			
1988	AUG	1633.4	3.2	2
1988	SEP			
1988	OCT			
1988	NOV	1649.9		1
1988	DEC	1688.6	11.3	2

METHANE FLASK MONTHLY MEANS FOR SHM

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1728.8	6.3	4
1986	FEB	1733.3	7.8	4
1986	MAR	1746.7	4.1	2
1986	APR	1745.7	6.7	2
1986	MAY	1749.0		1
1986	JUN	1717.8	11.7	2
1986	JUL	1709.3		1
1986	AUG	1736.3		1
1986	SEP			
1986	OCT			
1986	NOV	1753.4	11.8	2
1986	DEC	1738.9		1
1987	JAN	1752.4	4.2	3
1987	FEB	1768.3		1
1987	MAR	1740.4	3.1	3
1987	APR	1759.7	1.1	2
1987	MAY	1752.6	4.1	3
1987	JUN	1736.0	1.6	2
1987	JUL	1720.4	1.4	3
1987	AUG	1720.4	12.9	4
1987	SEP			
1987	OCT			
1987	NOV	1765.6	4.3	4
1987	DEC	1769.3	7.6	5
1988	JAN			
1988	FEB	1767.4	6.6	4
1988	MAR	1768.6	6.6	2
1988	APR	1773.1		1
1988	MAY	1767.3	16.0	5
1988	JUN	1741.2	7.4	4
1988	JUL	1737.3	5.4	3
1988	AUG	1738.0	23.9	2
1988	SEP	1754.9	10.2	4
1988	OCT	1771.8	5.7	3
1988	NOV	1770.3	10.1	2
1988	DEC	1776.8	3.5	2

METHANE FLASK MONTHLY MEANS FOR SIO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN			
1986	FEB			
1986	MAR			
1986	APR			
1986	MAY			
1986	JUN			
1986	JUL			
1986	AUG			
1986	SEP	1713.4	2.1	6
1986	OCT			
1986	NOV			
1986	DEC			
1987	JAN			
1987	FEB			
1987	MAR			
1987	APR			
1987	MAY			
1987	JUN			
1987	JUL			
1987	AUG			
1987	SEP			
1987	OCT			
1987	NOV			
1987	DEC			
1988	JAN			
1988	FEB			
1988	MAR			
1988	APR			
1988	MAY			
1988	JUN			
1988	JUL			
1988	AUG			
1988	SEP			
1988	OCT			
1988	NOV			
1988	DEC			

METHANE FLASK MONTHLY MEANS FOR SMO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1605.7	18.2	3
1986	FEB	1620.1		1
1986	MAR	1613.2	12.4	3
1986	APR	1607.7	6.7	4
1986	MAY	1602.3	4.8	5
1986	JUN	1604.3		1
1986	JUL	1611.0	3.5	4
1986	AUG	1608.7	.1	2
1986	SEP	1615.2	1.0	2
1986	OCT	1609.9	3.9	5
1986	NOV	1609.3	2.6	5
1986	DEC	1601.7	6.3	5
1987	JAN	1604.4	15.3	8
1987	FEB	1621.0	15.7	6
1987	MAR	1623.1	11.6	6
1987	APR	1604.4	4.6	4
1987	MAY	1609.9	3.4	9
1987	JUN	1617.4	3.3	6
1987	JUL	1622.5	3.6	10
1987	AUG	1623.5	2.6	8
1987	SEP	1622.7	2.3	16
1987	OCT	1623.8	3.5	18
1987	NOV	1617.7	3.5	11
1987	DEC	1618.1	6.5	15
1988	JAN	1624.3	15.4	12
1988	FEB	1633.4	10.5	9
1988	MAR	1614.2	7.7	15
1988	APR	1630.8	15.4	9
1988	MAY	1614.4	3.3	10
1988	JUN	1623.1	3.2	20
1988	JUL	1630.5	3.9	14
1988	AUG	1638.6	8.3	14
1988	SEP	1635.1	4.1	17
1988	OCT	1638.9	4.3	14
1988	NOV	1639.4	5.6	13
1988	DEC	1634.3	6.0	14

METHANE FLASK MONTHLY MEANS FOR SPO

YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1585.4	4.0	3
1986	FEB	1577.5	1.8	2
1986	MAR	1583.4	1.2	3
1986	APR	1588.5	3.7	4
1986	MAY	1591.2	4.7	4
1986	JUN	1599.1	1.5	4
1986	JUL	1608.9	8.6	2
1986	AUG	1612.2	.4	2
1986	SEP	1614.6	2.4	3
1986	OCT	1614.4	1.3	4
1986	NOV	1611.1	5.1	5
1986	DEC	1605.8	4.7	3
1987	JAN	1596.4	3.5	10
1987	FEB	1590.8	.7	4
1987	MAR	1593.1	.9	4
1987	APR	1598.3	5.6	3
1987	MAY	1603.2	5.7	4
1987	JUN	1609.5	3.1	5
1987	JUL	1618.6	3.2	4
1987	AUG	1621.2	2.7	4
1987	SEP	1624.4	1.4	4
1987	OCT	1627.2	2.9	3
1987	NOV	1622.2	1.1	2
1987	DEC	1615.8	4.3	4
1988	JAN	1605.2	3.5	5
1988	FEB	1601.5	3.8	4
1988	MAR	1600.2		1
1988	APR	1610.9	1.3	3
1988	MAY	1611.8	4.7	4
1988	JUN	1620.2	6.1	3
1988	JUL	1627.8	2.7	3
1988	AUG	1635.5	2.7	3
1988	SEP	1636.8	2.3	4
1988	OCT	1639.7	2.4	4
1988	NOV	1639.5	2.4	3
1988	DEC	1629.9	3.9	10

METHANE FLASK MONTHLY MEANS FOR STM

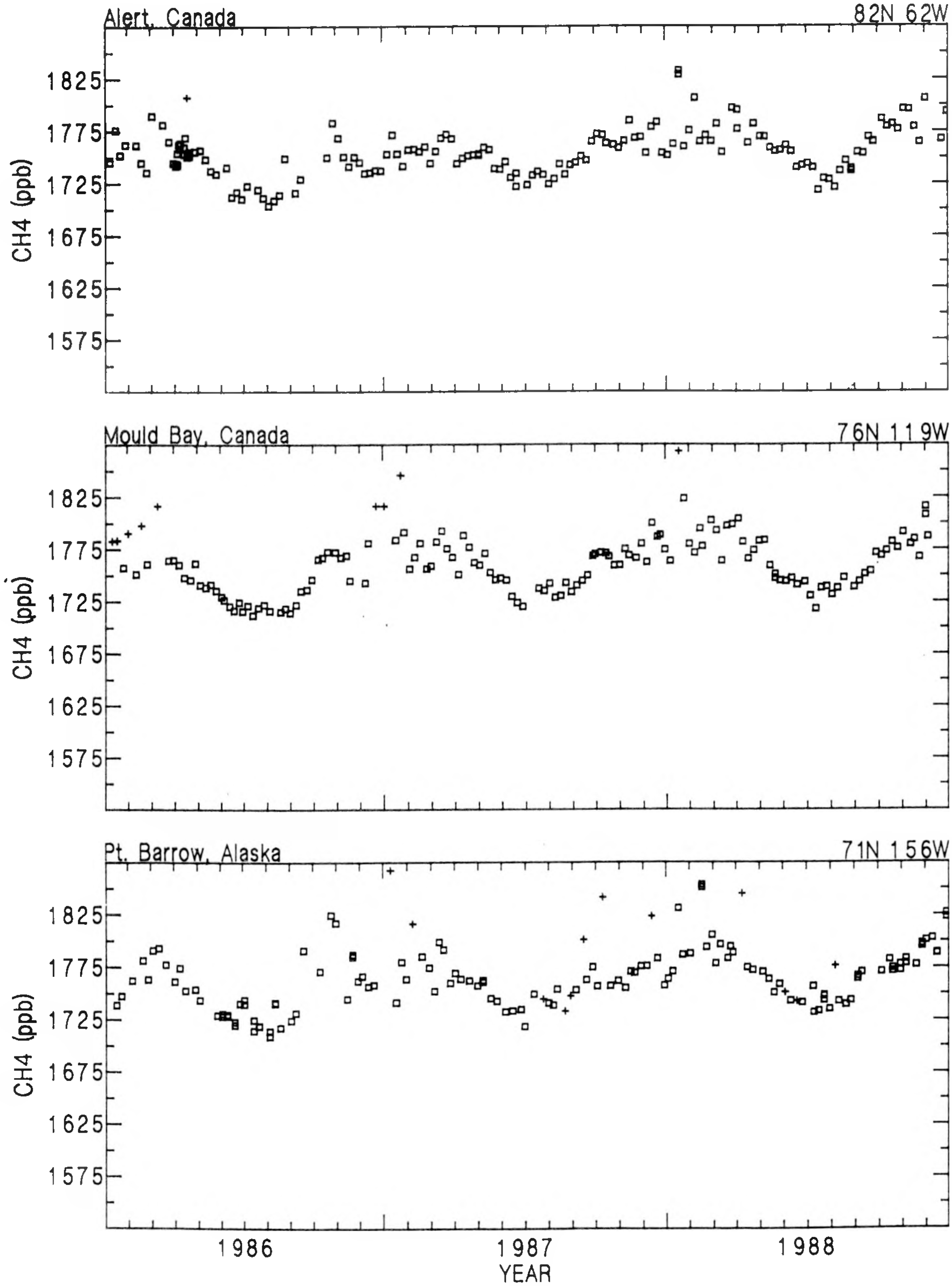
YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN	1753.1	15.5	4
1986	FEB	1732.2	2.5	3
1986	MAR	1756.4	13.3	3
1986	APR	1745.7	8.6	5
1986	MAY	1740.1	8.2	4
1986	JUN	1721.9	11.7	4
1986	JUL	1711.3	9.1	4
1986	AUG	1722.6	14.2	6
1986	SEP	1736.2	26.1	4
1986	OCT	1730.7		1
1986	NOV	1740.5	8.5	4
1986	DEC	1739.2	7.7	4
1987	JAN			
1987	FEB	1760.9	17.5	4
1987	MAR	1774.9	26.6	5
1987	APR	1741.5	7.3	4
1987	MAY	1745.3	11.7	5
1987	JUN	1733.8	8.4	4
1987	JUL	1725.2	4.1	4
1987	AUG	1729.9	6.2	6
1987	SEP	1746.4	8.8	10
1987	OCT	1774.4	33.8	8
1987	NOV	1758.8	16.0	9
1987	DEC	1760.3	10.6	8
1988	JAN	1764.7	12.2	8
1988	FEB	1779.1	19.8	9
1988	MAR	1783.1	27.9	8
1988	APR	1773.3	16.3	9
1988	MAY	1753.9	8.4	4
1988	JUN	1737.8	8.2	8
1988	JUL	1742.0	11.5	9
1988	AUG	1742.8	10.5	10
1988	SEP	1761.5	24.4	7
1988	OCT	1772.0	13.1	7
1988	NOV	1771.7	14.6	8
1988	DEC	1770.5	12.0	9

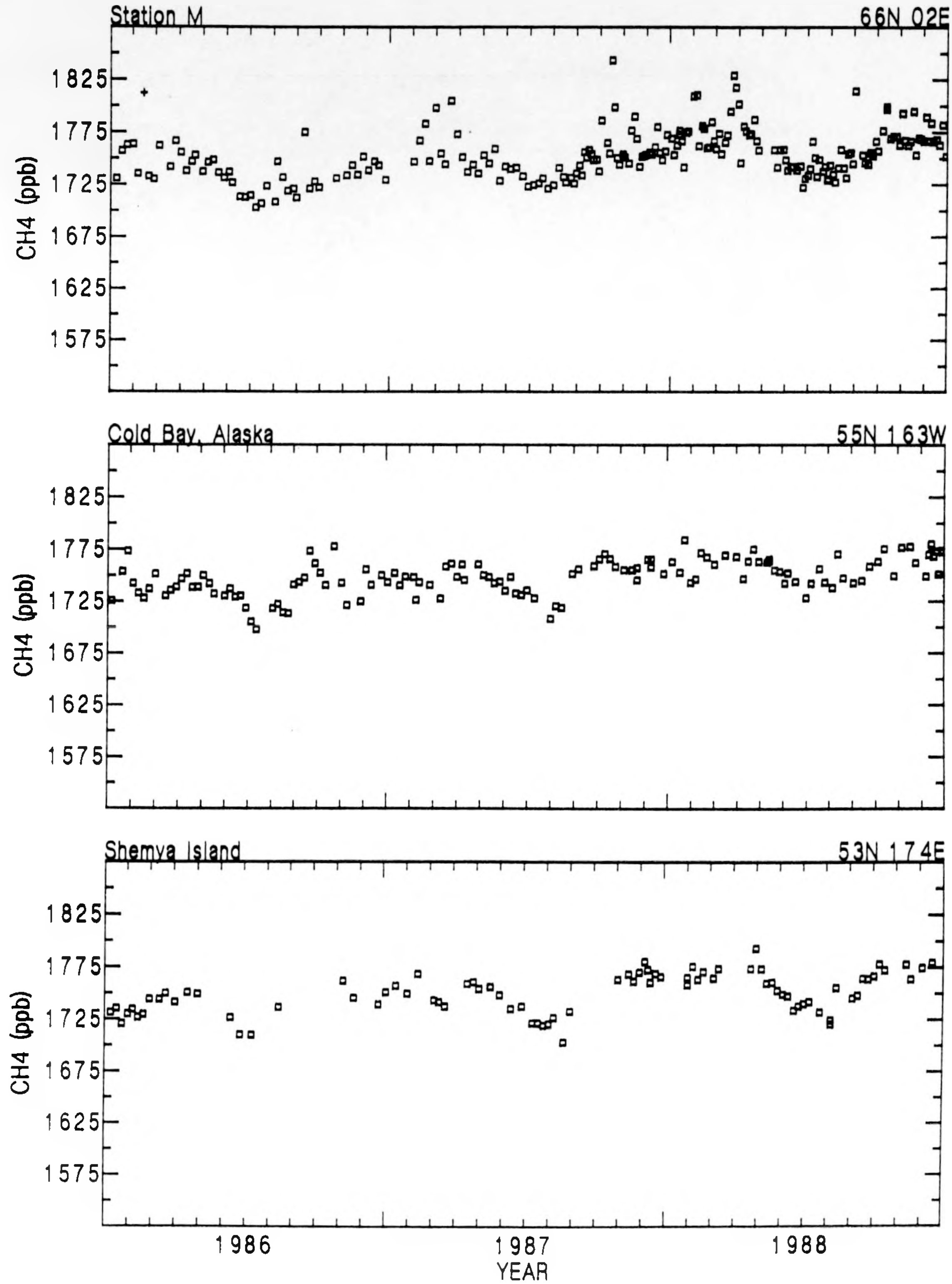
METHANE FLASK MONTHLY MEANS FOR SYO

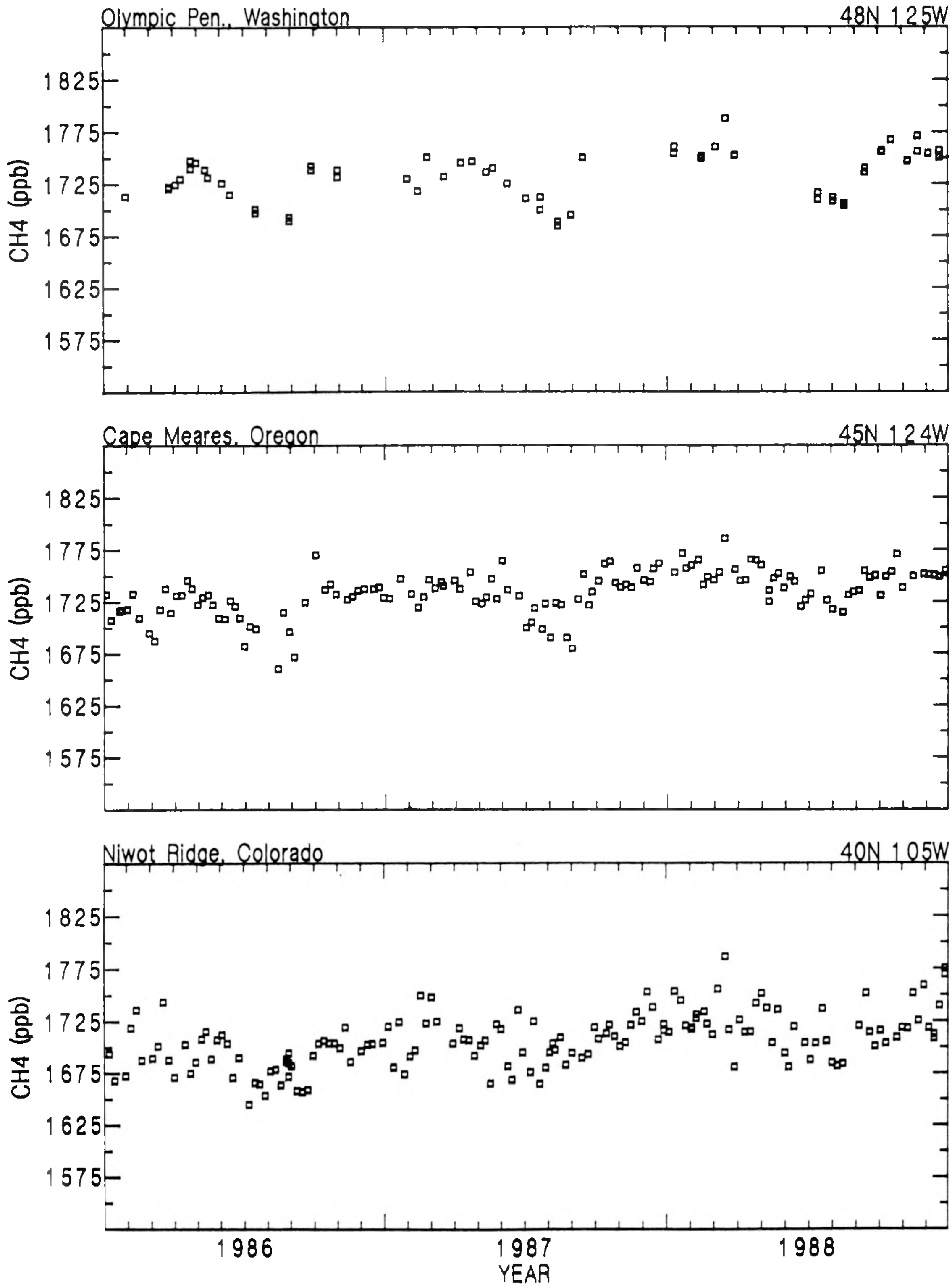
YEAR	MONTH	CH4 (ppb)	St. Dev. (ppb)	# of Flasks
1986	JAN			
1986	FEB			
1986	MAR			
1986	APR	1580.7		1
1986	MAY	1593.2		1
1986	JUN	1602.6		1
1986	JUL	1610.5		1
1986	AUG	1618.8		1
1986	SEP	1618.8		1
1986	OCT	1617.0		1
1986	NOV	1611.6		1
1986	DEC	1604.5		1
1987	JAN			
1987	FEB			
1987	MAR			
1987	APR			
1987	MAY			
1987	JUN			
1987	JUL			
1987	AUG			
1987	SEP			
1987	OCT			
1987	NOV			
1987	DEC			
1988	JAN			
1988	FEB	1606.3	.6	2
1988	MAR			
1988	APR	1609.3	3.4	2
1988	MAY	1618.3		1
1988	JUN	1625.5		1
1988	JUL			
1988	AUG			
1988	SEP	1636.8	2.1	2
1988	OCT	1636.5	1.0	2
1988	NOV	1634.6	2.6	2
1988	DEC	1627.9		1

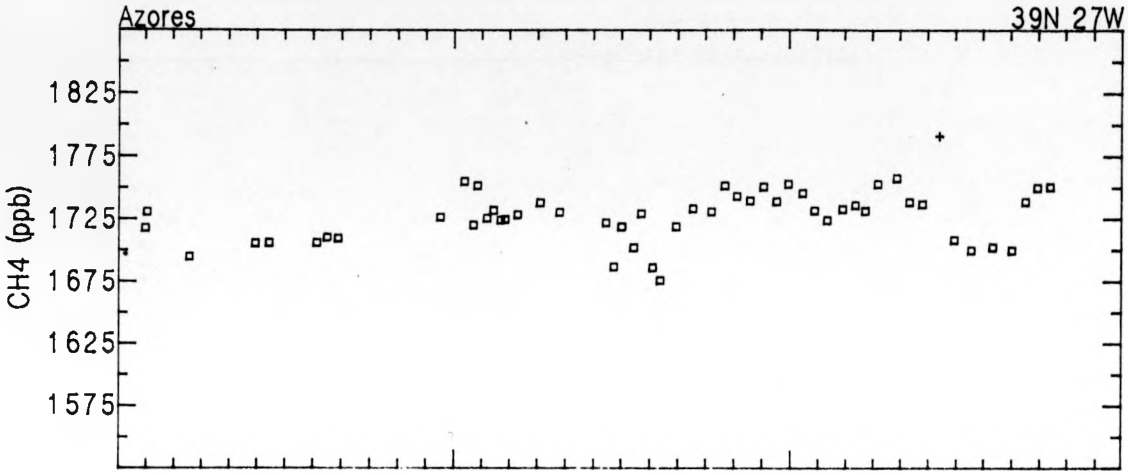
Appendix C
Plots of Methane Concentrations from Individual Flask Samples

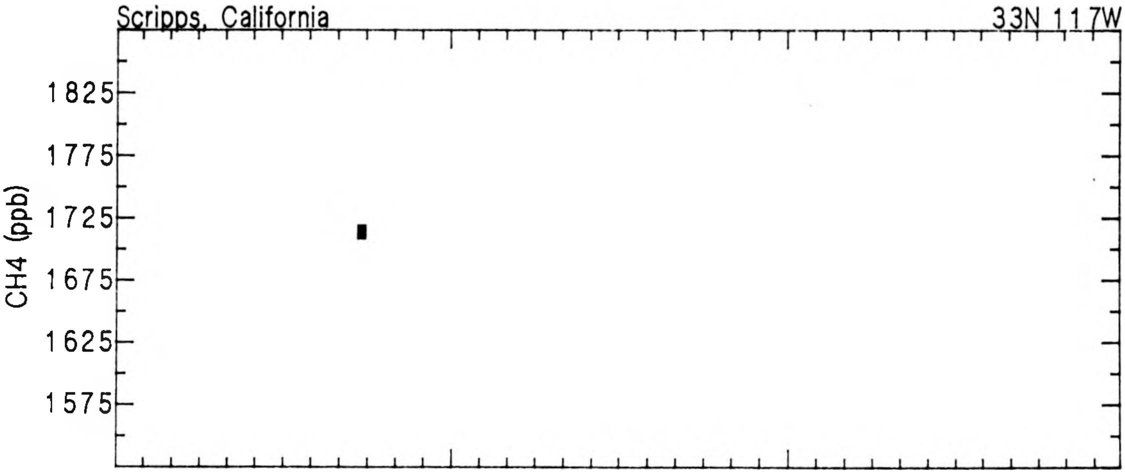
We show here a set of time series plots of the methane concentrations found from individual flask samples that were tabulated in Appendix A. In all of the plots the background flask samples are shown with a square symbol, while the non-background samples are shown with a plus (+) symbol. The plots are arranged according to the latitude of the site, starting with the northernmost site of ALT, and then moving steadily southward. For ease of comparison both the vertical scale and the horizontal scale are identical for all the sites shown.

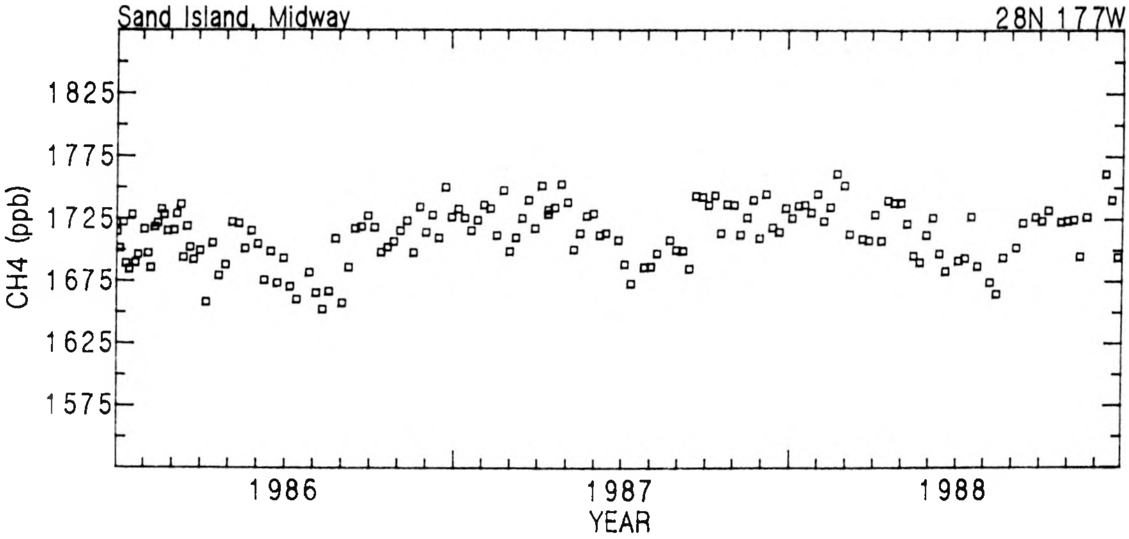

Alert, Canada
82N 62W
Mould Bay, Canada
76N 119W
Pt. Barrow, Alaska
71N 156W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
1986
1987
1988
YEAR

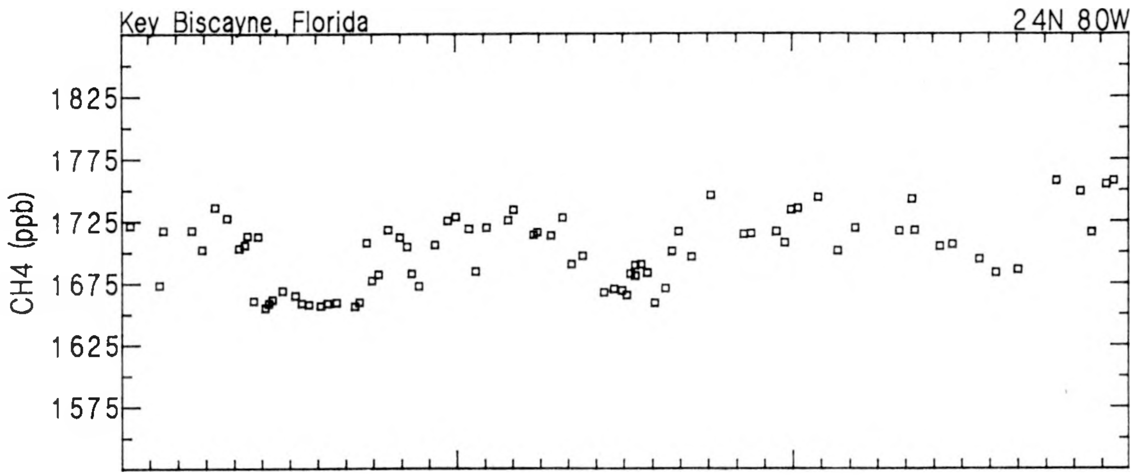

Station M
66N 02E
1825
1775
1725
1675
1625
1575
CH4 (ppb)
Cold Bay, Alaska
55N 163W
1825
1775
1725
1675
1625
1575
CH4 (ppb)
Shemya Island
53N 174E
1825
1775
1725
1675
1625
1575
CH4 (ppb)
1986
1987
1988
YEAR

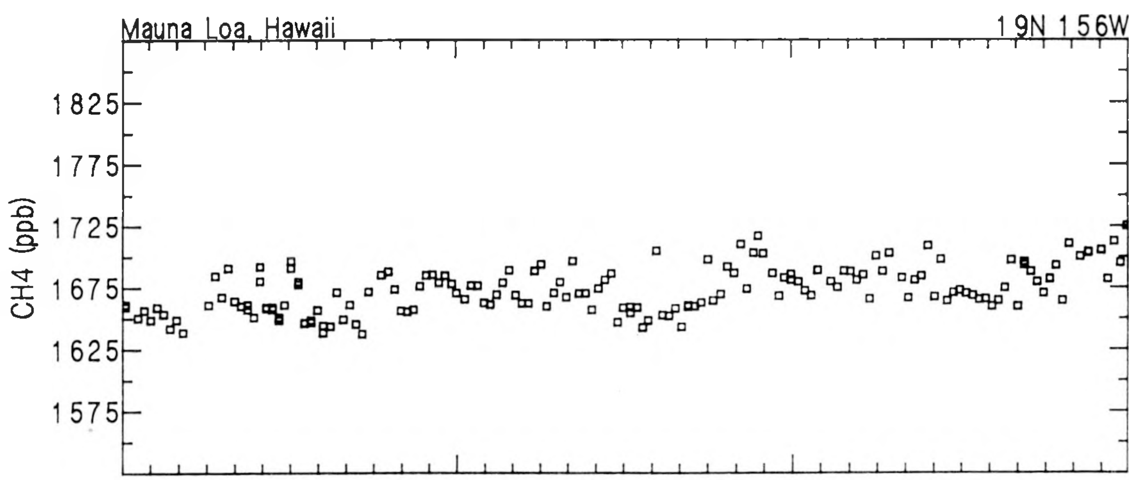

Olympic Pen., Washington
48N 125W
Cape Meares, Oregon
45N 124W
Niwot Ridge, Colorado
40N 105W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
1986
1987
1988
YEAR

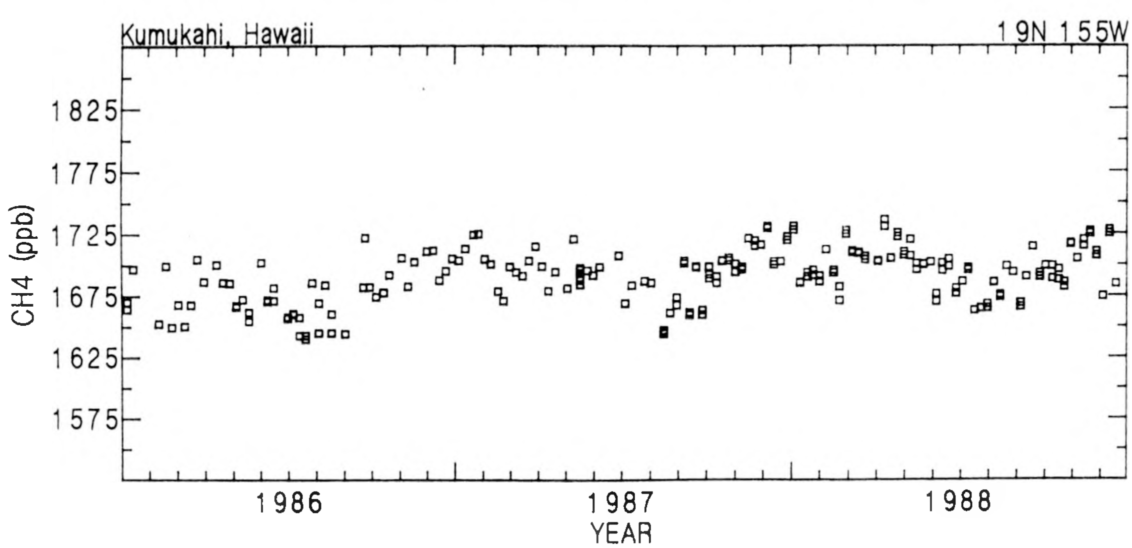

Azores
39N 27W
1825
1775
1725
1675
1625
1575
CH4 (ppb)

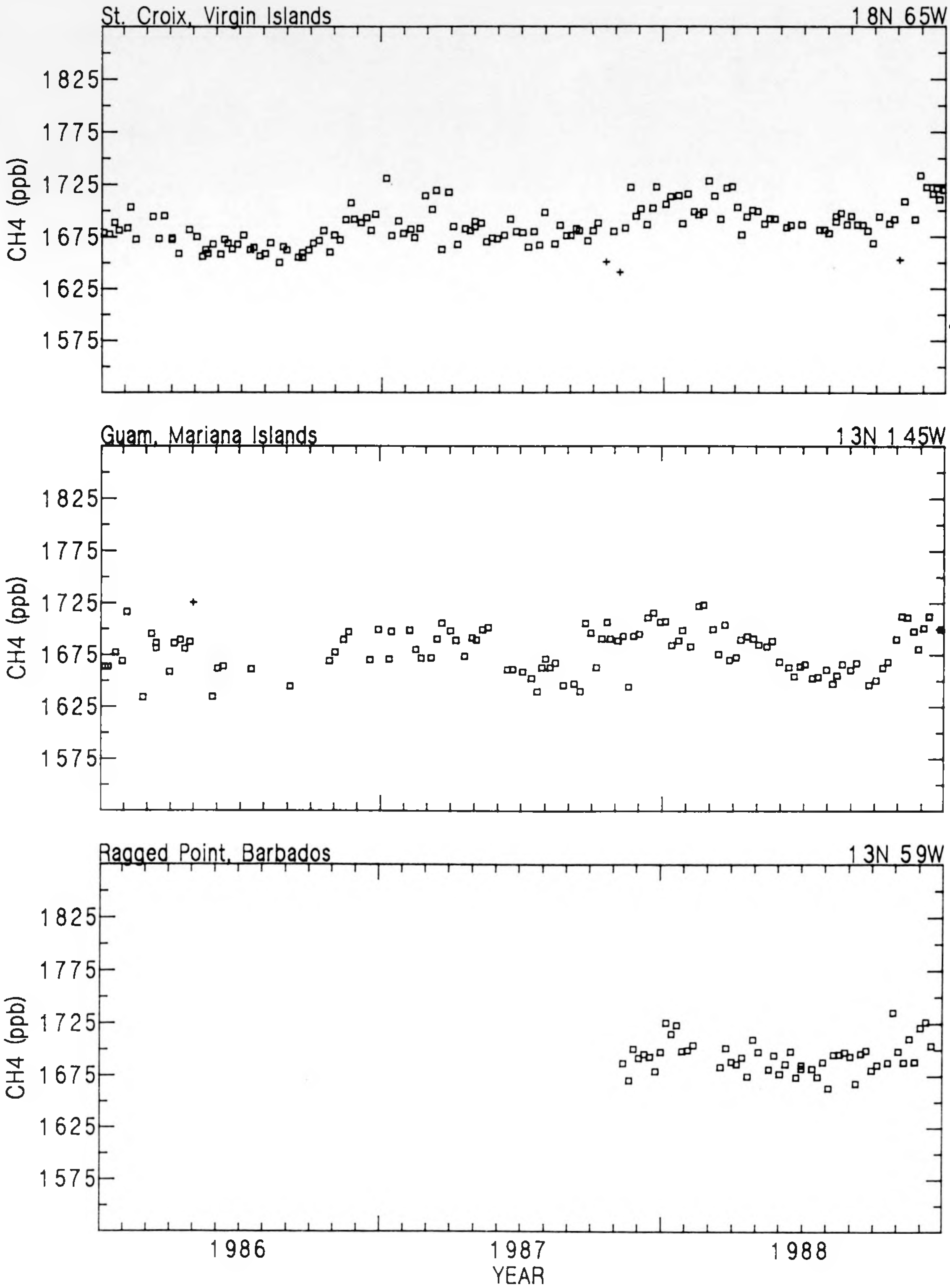

Scripps, California
33N 117W
1825
1775
1725
1675
1625
1575
CH4 (ppb)

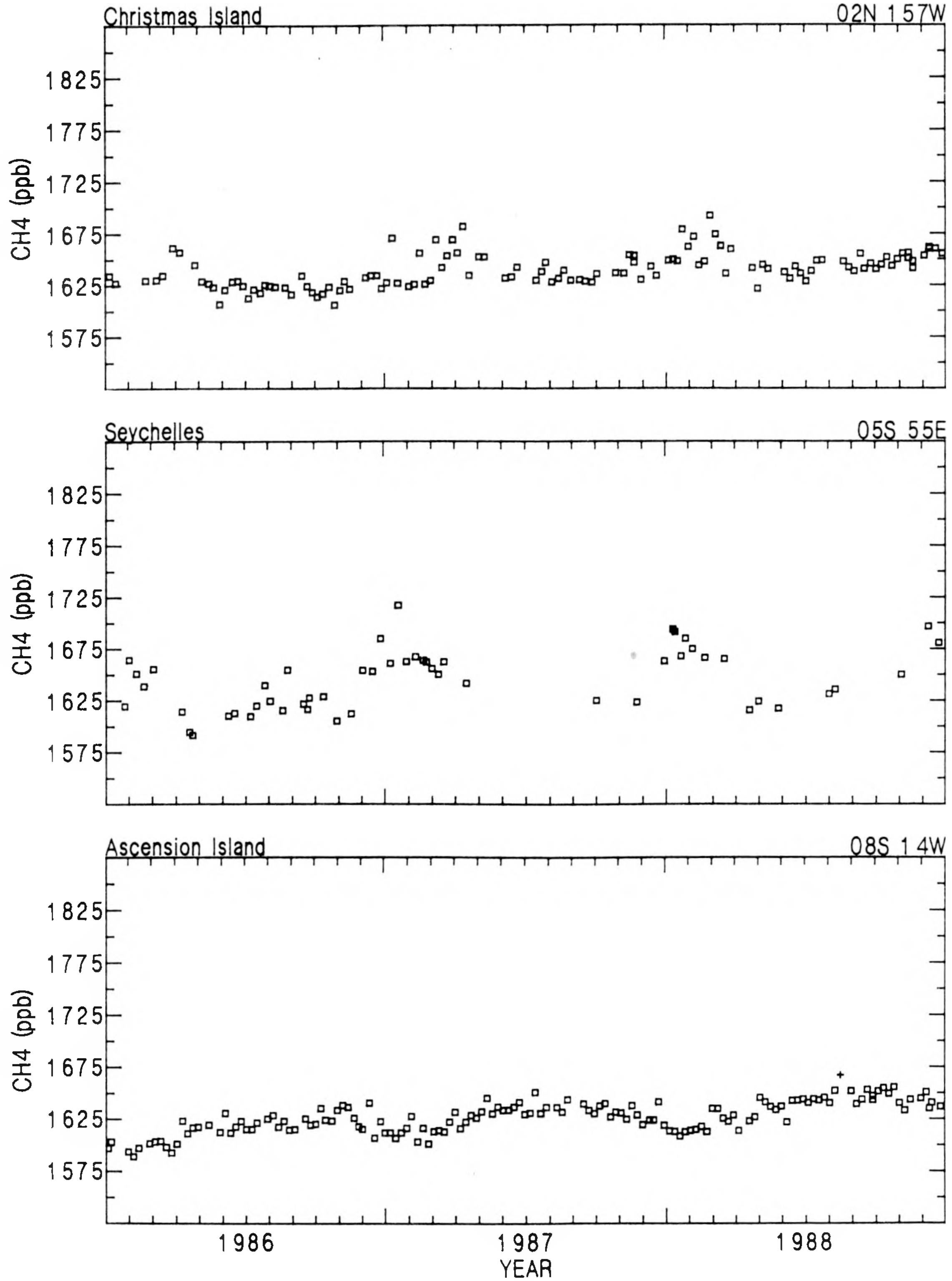

Sand Island, Midway
28N 177W
1825
1775
1725
1675
1625
1575
CH4 (ppb)
1986
1987
1988
YEAR

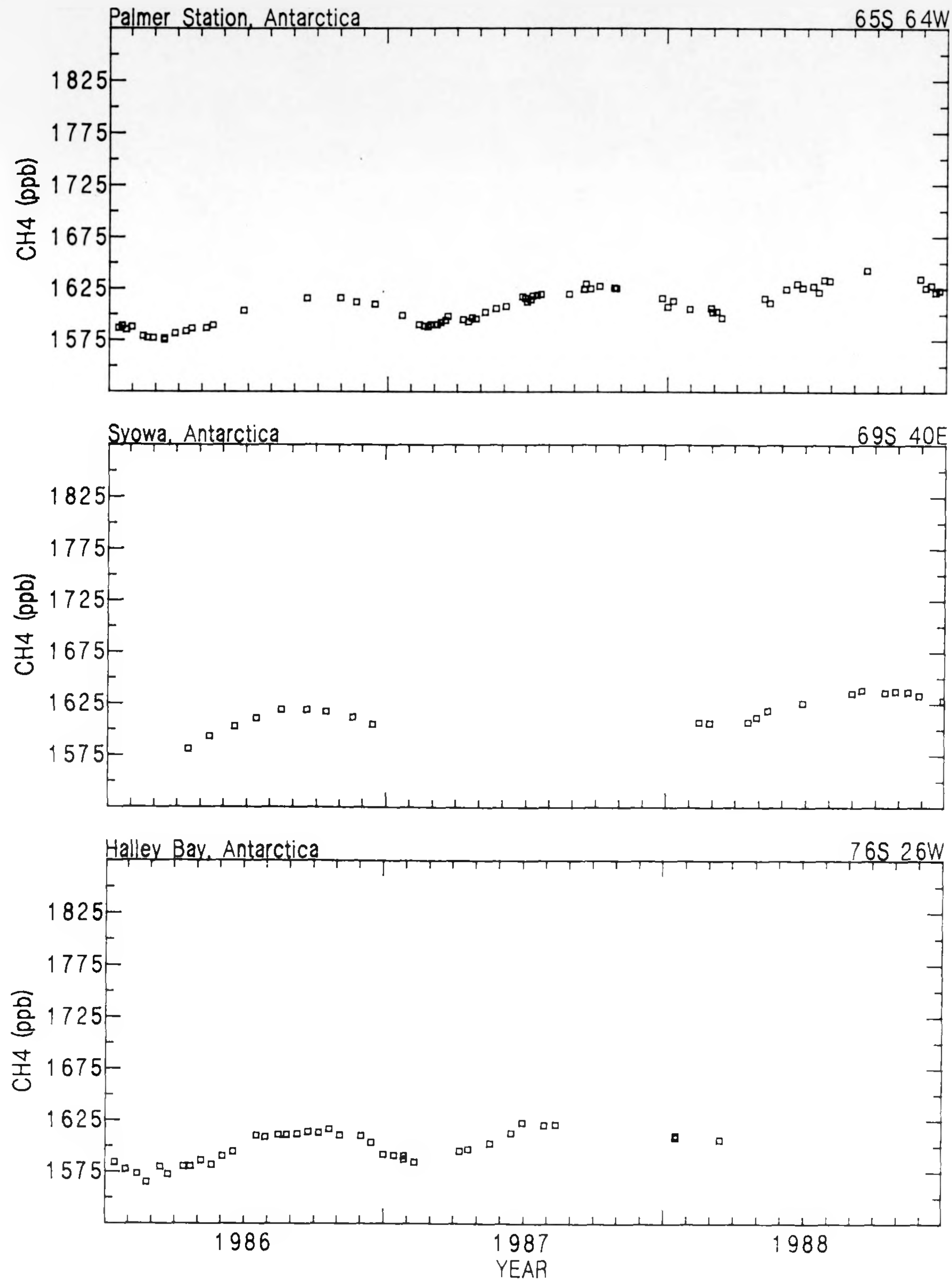

Key Biscayne, Florida
24N 80W
1825
1775
1725
1675
1625
1575
CH4 (ppb)

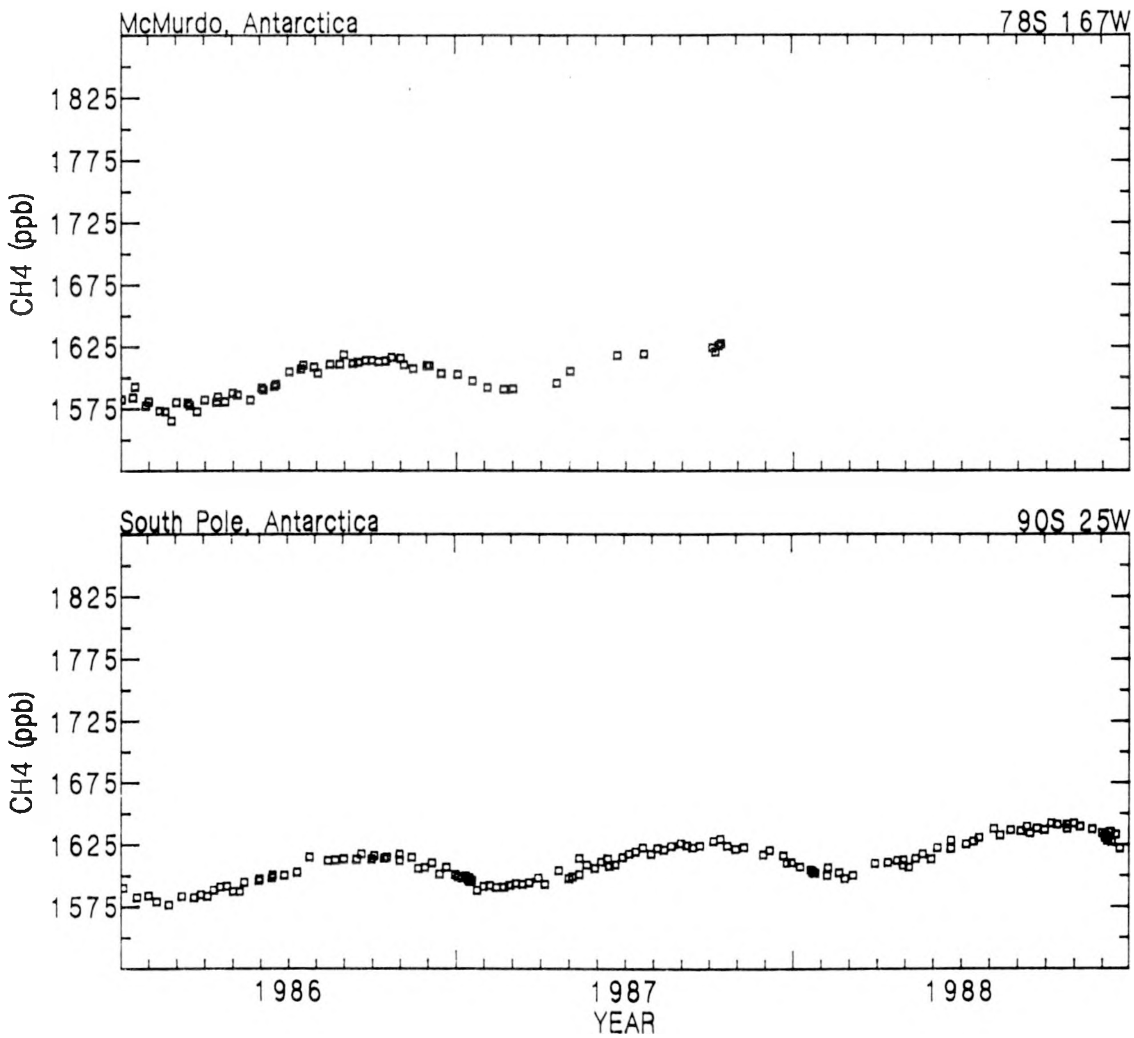

Mauna Loa, Hawaii
19N 156W
1825
1775
1725
1675
1625
1575
CH4 (ppb)


Kumukahi, Hawaii
19N 155W
1825
1775
1725
1675
1625
1575
CH4 (ppb)
1986
1987
1988
YEAR


St. Croix, Virgin Islands
18N 65W
Guam, Mariana Islands
13N 145W
Ragged Point, Barbados
13N 59W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
1986
1987
1988
YEAR


Christmas Island
02N 157W
Seychelles
05S 55E
Ascension Island
08S 14W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
1986
1987
1988
YEAR


Palmer Station, Antarctica
65S 64W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
Syowa, Antarctica
69S 40E
CH4 (ppb)
1825
1775
1725
1675
1625
1575
Halley Bay, Antarctica
76S 26W
CH4 (ppb)
1825
1775
1725
1675
1625
1575
1986
1987
1988
YEAR



☆U.S. GOVERNMENT PRINTING OFFICE: 1991-548-134/40009

ORNL/CDIAC-42
NDP-038

INTERNAL DISTRIBUTION

1. M. P. Farrell
2. P. Kanciruk
3. A. P. Malinauskas
4. D. E. Reichle
5. R. J. Sepanski
6. R. I. Van Hook
7. Biology Library
8-107. CDIAC
108. Central Research Library
109-124. ESD Library
125. Information Analysis Library
126-127. Laboratory Records Department
128. Laboratory Records, RC
129. ORNL Patent Office
130. ORNL Y-12 Technical Library

EXTERNAL DISTRIBUTION

131. T. J. Conway, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

132. Roger C. Dahlman, Carbon Dioxide Research Program, Atmospheric and Climate Research Division, Office of Health and Environmental Research, ER-76, U.S. Department of Energy, Washington, DC 20585

133. E. Dlugokencky, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

134. Jerry F. Franklin, Bloedel Professor of Ecosystem Analysis, College of Forest Resources, University of Washington, Anderson Hall (AR-10), Seattle, WA 98195

135. David J. Galas, Office of Health and Environmental Research, ER-70, U.S. Department of Energy, Washington, DC 20585

136. Thomas J. Gross, Carbon Dioxide Research Program, Atmospheric and Climate Research Division, Office of Health and Environmental Research, ER-76, U.S. Department of Energy, Washington, DC 20585

137. George M. Hornberger, Department of Environmental Sciences, Clark Hall, University of Virginia, Charlottesville, VA 22903

138. G. Y. Jordy, Director, Office of Program Analysis, Office of Energy Research, ER-30, G-226, U.S. Department of Energy, Washington, DC 20585

139-143. P. M. Lang, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

144. G. E. Likens, Director, The New York Botanical Garden, Institute of Ecosystem Studies, The Mary Flagler Cary Arboretum, Box AB, Millbrook, NY 12545

145. R. C. Martin, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

146. K. A. Masarie, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

147. H. M. McCammon, Director, Ecological Research Division, Office of Health and Environmental Research, Office of Energy Research, ER-75, U.S. Department of Energy, Washington, DC 20585

148. R. H. Olsen, Vice President for Research, University of Michigan, Medical Science Building II, #5605, 1301 East Catherine Street, Ann Arbor, MI 48109-0620

149. Ari Patrinos, Manager, Carbon Dioxide Research Program, ER-76, Atmospheric and Climate Research Division, Office of Health and Environmental Research, U.S. Department of Energy, Washington, DC 20585

150. Michael R. Riches, Carbon Dioxide Research Program, Atmospheric and Climate Research Division, Office of Health and Environmental Research, ER-76, U.S. Department of Energy, Washington, DC 20585

151-155. L. P. Steele, CSIRO, Division of Atmospheric Research, Private Bag No. 1, Mordialloc, Victoria 3195, Australia

156. K. W. Thoning, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, 325 Broadway, Boulder, Colorado 80303-3328

157. F. J. Wobber, Ecological Research Division, Office of Health and Environmental Research, Office of Energy Research, ER-75, U.S. Department of Energy, Washington, DC 20585

158. Office of Assistant Manager for Energy Research and Development, Oak Ridge Operations, P. O. Box 2001, U.S. Department of Energy, Oak Ridge, TN 37831-8600

159-168. Office of Scientific and Technical Information, P. O. Box 62, Oak Ridge, TN 37831