

PACKAGE ID - 000659IBMPC00 SERIQC1

KWIC TITLE - Solar Radiation Empirical Quality Assessment

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LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 02/01/1990 **PUBLICATION DATE** - 12/01/1993

DESCRIPTION - The SERIQC1 subroutine performs quality assessment of one, two, or three-component solar radiation data (global horizontal, direct normal, and diffuse horizontal) obtained from one-minute to one-hour integrations. Included in the package is the QCFIT tool to derive expected values from historical data, and the SERIQC1 subroutine to assess the quality of measurement data.

PACKAGE CONTENTS - Media Directory; Software Abstract; NREL/TP-463-5608; Program QCFIT; Subroutine SERIQC1; Program QAABQ; Media Includes Source Code, Executable Modules, Auxiliary Material, Object Module, Sample Problem Input, Sample Files with Expected Value Information for 42 NOAA Solar Radiation Sites;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - Evaluates two-component data as global horizontal and direct normal equivalents in k-space (percent of extraterrestrial). Expected values of data are bounded by Gompertz equation curves, and the assignment of quality flags is based on the proximity of data to the boundaries in k-space.

COMPUTER - IBM PC

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OPERATING SYSTEMS - MS-DOS Version 3 or greater

PROGRAMMING LANGUAGES - FORTRAN 77 with Lahey FORTRAN Version 4
compiler extensions (100%)

SOFTWARE LIMITATIONS - May be used only for global horizontal, direct normal or diffuse horizontal solar radiation data with one-minute to one-hour integration times; each data point must have an associated date and time stamp. Although less than three of the solar components may be present, the best results are obtained with at least two components present.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - Evaluates data based on empirical limits that accommodate natural variations in the relationship between solar components. Graphical displays may be used for trouble-shooting problem data, or for analysis of anomalous data.

RELATED SOFTWARE - Requires the user to write a calling program for the SERIQ1 quality assessment subroutine, necessitating a FORTRAN compiler and object code linker. A sample program is included on the distribution disk. The QCFIT program is included in a stand-alone executable form (QCFIT.EXE). The FORTRAN source code is also included (QCFIT.FOR), but it requires the Lahey FORTRAN Graphoria graphics library to compile and link.

OTHER PROG/OPER SYS INFO - None

HARDWARE REQS - IBM PC or compatible with 640K of RAM and a math co-processor; one megabyte of disk space plus enough disk space to hold the user's data files; VGA monitor; optional hardcopy output requires a PostScript printer or Hewlett-Packard LaserJet III or LaserJet 4, or a printer compatible with the MS-DOS GRAPHICS command.

TIME REQUIREMENTS - Processing speed varies greatly with the type of computer. Nominally evaluates 30 measurements sets per second using a 25 Mhz 386 computer.

REFERENCES - National Renewable Energy Laboratory, 'User's Manual for SERI QC Software', NREL/TP-463-5608, December 1993.

ABSTRACT STATUS - Submitted March 4, 1994.

SUBJECT CLASS CODE - OT

KEYWORDS -
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E S T S C
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SOFTWARE ABSTRACT

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SOLAR RADIATION
DATA PROCESSING
EVALUATION
SOLAR ENERGY
DATA ACQUISITION
DATA ANALYSIS
RESOURCE ASSESSMENT

EDB SUBJECT CATEGORIES -
990200 140100

SPONSOR - DOE/CE

PACKAGE TYPE - AS - IS