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North Slope of Alaska ARM Facilities
Monthly Status Update
Sandia National Labs

August 2017

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1 North Slope Facilities Management Executive Summary and Major Issues

This monthly report is intended to communicate the status of North Slope ARM facilities managed by Sandia National Labs.

Operations Team

* Mark Ivey- ARM Alaska Sites Manager (SNL)
* Fred Helsel- AMF3 Site Manager (SNL)
* Dan Lucero- Barrow Site Manager (SNL)
* Darielle Dexheimer- Tethered Balloon Operations (SNL)
* Valerie Sparks- ARM Project Office (SNL)
* Martin Stuefer- Rapid Response Team (UAF)
* Randy Peppler- ARM DQ Office Manager (OU)

2 Budget

FY2017 Financials (as of September 1, 2017)

	August	YTD
Carryover funds	$3,729,525	
Funds Allocated YTD	$6,232,000	
Carryover plus YTD funds	$9,961,525	
Cost, burdened amount	$5,520,132	
Uncosted Funds	$4,441,394	
Commits, burdened total	$2,080,643	
Current fiscal year uncommitted funds	$2,360,751	
Subsequent fiscal year (SFY)commits	$571,020	
Total uncommitted funds, including SFY commits	$1,789,730	
Fully Burdened Staff Costs	$89,000	
Fully Burdened Contract Costs	$257,000	
Fully Burdened Total Costs	$346,000	$5,520,000

3 Safety

AMF3- No incident/Injury

Barrow - No Incident/Injury

4 Instrument Status – Provided by Martin Stuefer

AMF3

INFORMAL AMF3 INSTRUMENT STATUS REPORT FOR July 21 - July 28, 2017

BRIEF STATUS OF INSTRUMENTS and site IN OLIKTOK AS OF 2017/07/28:

Facilities Operational

Data Systems Operational

Vehicles Operational

Desktop Computers Operational

SKYRAD - SKY Radiometer on Stand for downwelling Operational

MFRSR - Multifilter Rotating Shadowband Radiometer Operational

GNDRAD - Ground Radiometer on Stand for Upwelling Operational

MFR3m - Multifilter Radiometer at 3m height Operational

MAWS - Automatic Weather Station Partly Operational

MET - Surface & Tower Meteorological Instruments Operational

CMH - Chilled Mirror Hygrometer Operational

AMC - Soil, up/downwelling radiation measurements Operational

ECOR - Eddy Correlation Flux System Operational

MWR3C - Three Channel Microwave Radiometer Operational

MPL - Micropulse Lidar Operational

DL - Doppler Lidar Operational

RL - Raman Lidar Not Operational

CEIL - Vaisala Ceilometer Operational

RWP - Radar Wind Profiler Operational

KAZR - Ka ARM Zenith Radar Operational as per warno.arm.gov

KaWSACR - Ka-Band Scanning ARM Cloud Radar Operational as per warno.arm.gov

BBSS - Balloon Borne Sounding System Operational

TSI - Total Sky Imager Operational

AOS - Aerosol Observing System Partly Operational

AOSMET - AOS Meteorological Measurements Operational

CO - AOS Carbon Monoxide Analyzer Partly Operational

CPC - Condensation Particle Counter Operational

CAPS - Cavity Attenuated Phase Shift Extinction Monitor Operational

ACSM - Aerosol Chemical Speciation Monitor Not Operational

HTDMA - Humidified Tandem Differential Mobility Analyzer Operational

GHG - PICARRO Operational

NEPH - Nephelometer Operational

PSAP - Particle Soot Absorption Photometer Operational

UHSAS - Ultra-High Sensitivity Aerosol Spectrometer Operational

IMPACTOR - AOS Impactor Operational

OZONE - AOS Ozone Operational

TRACEGAS - AOS CO, N2O, H2O Operational

CCN - Cloud Condensation Nuclei Particle Counter Operational

MASC - Multi Angle Snowflake Camera Operational

PIP - Precipitation Imaging Package Operational

LPM - Laser Precipitation Monitor Operational

GEONOR - Geonor Weighing Gauge Operational

SRS - Snow Depth Sensor Operational

AERI - Atmospheric Emitted Radiance Interferometer Operational

CIMEL - Cimel Sunphotometer Operational

MET-AIR - DataHawk Unmanned Aerial System Operational

TBS - Tethered Balloon System Operational

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* Oliktok Instruments in Detail: *

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INFRASTRUCTURE --- Facilities --- Operational.

2017/07/24, CM-2017-AMF3-VSN-2041: The site's power needed to be switched from the east 50 kw generator over to the west 100 kw generator due to a failing alternator in the east gen-set. Site ops powered down the instruments that were not connected to a UPS, and switched power to the west 100 kw generator. Site ops proceeded to repower the instruments that had been powered down.

INFRASTRUCTURE --- Data Systems --- Operational.

2017/07/28, CM-2017-AMF3-VSN-2043: HDD S/N NA7Q2BYJ was full; it was replaced with HDD S/N: NA75FCZL. The old disk will be shipped via USPS tracking # USPS 9114 9014 9645 0952 9752 97.

2017/07/25, CM-2017-AMF3-VSN-2042: HDD S/N NA77YQCG was full; it was replaced with HDD S/N: NA7Q2BYJ. The old disk will be shipped via USPS tracking # USPS 9114 9014 9645 0952 9752 97.

2017/07/24, CM-2017-AMF3-VSN-2040: HDD S/N NA75FERN was full; it was replaced with HDD S/N: NA77YQCG. The old disk will be shipped via USPS tracking # USPS 9114 9014 9645 0952 9753 03.

2017/07/22, CM-2017-AMF3-VSN-2039: HDD S/N NA76MA83 was full; it was replaced with HDD S/N: NA75FERN. The old disk will be shipped.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD general --- Operational.

SKYRAD --- IRT --- Operational.

SKYRAD --- PIR 1 shaded --- Operational.

SKYRAD --- PIR 2 shaded --- Operational.

SKYRAD --- SOLAR Tracker --- Operational.

SKYRAD --- B&W diffuse --- Operational.

SKYRAD --- NIP --- Operational.

SKYRAD --- PSPg --- Operational.

SKYRAD --- MFRSR --- Operational, but Data Flagging and Spiking Logger Voltage.

2017/07/14, DQPR-6185: Adam added that the head_temp2 is still occasionally flagging. The most recent DQPR status is "waiting - for spares."

TIPTWR --- GNDRAD general --- Operational.

TIPTWR --- MFR3m --- Operational.

TIPTWR --- PIRgnd --- Operational.

TIPTWR --- IRTgnd --- Operational.

TIPTWR --- PSPgnd --- Operational.

MAWS --- Automatic Weather Station --- Partly Operational.

2017/07/28, DQPR-6245: Dropouts started up again on 2017/07/20. The most recent DQPR status is "waiting - for spares."

2017/07/14, DQPR-6245: Adam asked if the cable was ever swapped out. The most recent DQPR status is "waiting - for spares."

2017/05/26, DQPR-6245: This issue looks like this was maybe resolved on 5/28, but we may want to leave the DQPR open longer to verify that data is being recorded and stored. Adam Theisen asked if the dropouts in the other variables are associated with this bad cable, or if they are due to a different issue. He posted a link to the Data Quality Explorer Metrics showing the data unavailability for that time period. The most recent DQPR status is "open - requires action."

MET --- METTOWER general --- Operational, but Potential Issue.

2017/07/14, DQPR-6265: Adam asked Jenni if she is ready to file a DQR about this issue. The most recent DQPR status is "open - requires action."

2017/06/16, DQPR-6265: Site Technicians found that the LED light on the HMT337 case was solid, so they replaced HMT337 (S/N: H2450111) with spare HMT337 (S/N: C3030027) per Jenni's instructions. When C3030027 was initially installed, it was reporting a temp malfunction and rh short circuit. Site ops confirmed the sensor chip was twisted inside the filter cap. ThE sensor was readjusted, and the errors were eliminated. Any missing data was caused by maintenance and troubleshooting. The most recent DQPR status is "open - requires action."

MET --- CMH --- Operational.

2017/07/28, DQPR-6385: The CMH dewpoint drops out and is roughly flatlined near 0 right before 04:00 UTC on 7/25. It exhibited abnormal spiking on 7/24 for ~9 hours as well. The most recent DQPR status is "open - requires action."

MET --- Barometer --- Operational.

MET --- TEMPERATURE / HUMIDITY --- Operational.

MET --- WIND INSTRUMENTS (SONIC) --- Operational.

MET --- PWD --- Operational.

MET --- AMC --- Operational.

2017/06/19, DQPR-6208: Ken will need to prepare and share data with the developer, and will ascertain the exact time ranges before submitting DQR (D170519.1). The most recent DQPR status is "in progress - assignments."

2017/05/13, DQPR-6208: Data after 20150822 for this site does follow the current DOD. The mentor will submit reformatted raw data for the period of 2014/09/14 to 2015/08/31 for the a1 level and b1 ingest so that the entire data record is based on the same DOD. Ken Reichl has been assigned DQR D170519.1. The most recent DQPR status is "in progress - assignments."

ECOR --- ECOR --- Operational.

ECOR --- SEBS --- Operational.

MW RADIOMETERS --- MWR3C --- Operational.

LIDAR --- MPL --- Operational.

2017/07/28, DQPR-6142: The latest data looks ok, so Paytsar Muradyan has been assigned a DQR assignment for missing data from 04/19 at 13:10 - 07/07 at 16:48. The most recent DQPR status is "in progress - assignments."

2017/05/12, DQPR-6142/CM-2017-AMF3-VSN-2023: The site received the replacement MPL (S/N 104) on 7/3. Technicians installed the instrument on 7/7/17, and data collection started at 22:20 UTC on 7/7. While the data collection for the instrument has been started, there is still an issue with connecting to the new computer sent with the instrument. Troubleshooting on this connectivity issue will resume on Monday 7/10/17. The most recent DQPR status is "waiting - for spares."

LIDAR --- Doppler LIDAR --- Operational.

LIDAR --- Raman LIDAR --- Not Operational.

2017/06/14, DQPR-5906: Todd Houchens and a laser tech were on-site from 6/10-11/2017 to repair the laser system, and to bring the system back up. Although the front-bench laser heads had been repaired, cracked fittings on the front bench (presumably freeze-related) prevented them from bringing up the front bench. Subsequently, it was discovered that the rear-bench heads had also been damaged, and will require repair. New fittings have been ordered for the front bench, and we are working on having the rear-bench heads repaired. The most recent DQPR status is "waiting - for spares."

LIDAR --- CEIL --- Operational.

RADAR --- RWP --- Operational.

RADAR --- KAZR --- Operational as per warno.arm.gov .

2017/06/20, DQPR-6216: Joseph Hardin says they are still waiting for a replacement part. The most recent DQPR status is "waiting - for spares."

2017/05/19, DQPR-6216: The OLI KAZR has increased spectrum width values, which was determined to be a failing PLO in the RG assembly. The mentor is planning to replace the PLO during the next site visit. The most recent DQPR status is "waiting - for spares."

RADAR --- KaWSACR --- Operational as per warno.arm.gov .

2017/07/07, Warno.arm.gov: Both Ka and W band radars have returned to operations after HVAC maintenance by radar technician Todd Houchens.

2017/06/20, DQPR-5979: During the site visit Joseph Hardin and others reinforced the waveguide. This should mitigate it some, but it is still a temporary fix. The most recent DQPR status is "in progress - assignments."

2017/01/27, DQPR-5704: An increased noise floor occurred twice on 2017/01/03. Prior to this occurrence, the last events were on 2016/12/29, when there was an increased noise floor three times.

2016/12/15, DQPR-5848: Starting on 2016/09/27 at 19:30 UTC, there looks to be an issue with how the ingest is setting the transition flag, and getting the sweeps for the HSRHI data. The number of sweeps in the HSRHI files start to shift between 1-3, when the shifting should not start until 4. Some examples of the azimuth and transition flags are posted in the DQPR.

2016/10/12, DQPR-5705: WSACR is sometimes showing some degraded/missing data. In the PPI (Plan Position Indicator) plots, there are missing data between 60-90 degrees. In the RHI (Range Height Indicator) plots, there are missing data throughout the scans. In the RHI, the background Zdr signal drops out, and the values in the echo region are high compared to bracketing scans.

Sonde --- BBSS --- Operational.

2017/07/28, CM-2017-AMF3-VSN-2044: A radiosonde launch failed and sonde parameters could not be set. Thus, launch 750728171 was terminated. The balloon launches will resume at 23:30 UTC.

2017/06/22, Biweekly Telecon: Hardware, software, and firmware were upgraded. The old sondes are being depleted.

IMG --- TSI --- Operational.

AOS --- General --- Partly Operational, Some Data Dropouts.

2017/07/28, DQPR-5858: Unless there are objections from Cindy or the PRB, Joshua King proposes that we abandon this DQPR. The most recent DQPR status is "in progress - assignments."

2017/06/23, DQPR-5858: Richard Wagener asked if anyone has looked at the VM's clock. Could it be that the time lags behind, and then jumps (resyncs), creating gaps in the time record? Richard suggests adding an assignment to Brent to look into possible system level causes for this behavior. The most recent DQPR status is "in progress - assignments."

AOS --- aosmet --- Operational, but Potential Precipitation Measurement Issue.

2017/07/28, DQPR-6386: The AOSMET had been consistently reporting similar precipitation as the MET PWD until 7/27 and 7/28, when the AOSMET began to flatline. During this time, however, the PWD continues to record precipitation. The most recent DQPR status is "open - requires action."

AOS --- CO --- Partly Operational, Internal Pump Malfunctioning.

2017/07/28, The pump and rebuild kit have been specified by the mentor and ordered through Los Gatos by Debbie Busch of ANL. When the pump arrives, please replace the failed pump and restart the instrument. At the operator's leisure, the failed pump can be rebuilt with a spares kit, OR operators can return the failed pump and spares kit to BNL for the mentor to rebuild. The most recent DQPR status is "waiting - for spares."

2017/07/20, DQPR-6364: Operator confirmed that the pump is running, but no air movement was observed. They will (try) to disconnect tubes at pump to confirm. The diaphragm is probably shot. The mentor contacted the vendor for the pump replacement and/or rebuild kit.

2017/07/19, DQPR-6364: An operator alerted the mentor that the pump pressure was out of range. The auto calibration was disconnected by LBL, so the mentor didn't immediately notice the problem. The dates of affected data will be determined as we proceed. The pump pressure reading 155 (which is railing the sensor). It should be ~

85.2 +/- 0.1. Stephen Springston suspects that the internal pump may have a problem. He tried rebooting the instrument, which has fixed the problem at ENA. This didn't work, so Stephen sent the operators an e-mail instructing them to disconnect the line between the instrument and filter, and then put a gloved (nitrile or latex) finger over the inlet to see if it is pulling a vacuum. Also, the internal pump should be audible from the back of the instrument. If the pump still doesn't work, the instrument will have to be pulled and opened on a bench to see if the pump starts. The pump is a small diaphragm pump inside the instrument. There could be a rotating piston visible. The pump pressure looks to have increased markedly to around 155 torr beginning at 08:00 UTC on 06/16. A picture of the DQO plot is posted on the DQPR. The most recent DQPR status is "open - requires action."

AOS --- CPC --- Operational.

AOS --- CAPS --- Operational, but Ingests Not On.

2017/07/27, DQPR-5816: From the raw data record, it looks like the CAPS was back in service on 2017/06/26. Joshua King asked Ken Burk if the ingests can be turned back on. Arthur Sedlacek has an assignment to write a DQR. The most recent DQPR status is "in progress - assignments."

2017/05/08, DQPR-5816: The OLI CAPS is at BNL, where one of the sample pumps was replaced, the 3- DAQ cards were mounted with screws, and optics were cleaned. The system is currently undergoing a performance test, and as part of this check, some irregularities (signal fluctuations) were observed. The mentor is in contact with the manufacturer. Once the signal fluctuations are resolved, a PSL calibration will be performed prior to shipment back to OLI. This PSL calibration is necessary due to a firmware issue. While Aerodyne is testing a new card that corrects the issue, it is not yet ready for prime time. The most recent DQPR status is "in progress - assignments."

AOS --- ACSM-- Not Operational, Instrument at AMF3.

2017/07/28, DQPR-6123: The reinstallation was started, but stopped after the decision was made to close the site, and we examined the need to align, tune, and calibrate the instrument. Right now the instrument is not operating. The most recent DQPR status is "waiting - for spares."

AOS --- GHG-Picarro --- Operational.

AOS --- HTDMA --- Operational.

2017/07/27, DQPR-6202: When Janek cleans the SEMS inlet lines, the pressure drops in the system, and this seems to have fixed the issue. The HT-DMA has been running for 5 days now without issues. The most recent DQPR status is "in progress - assignments."

2017/07/22, CM-2017-AMF3-VSN-2038: The MCPC located within the instrument was failing to show counts. Site ops shut down the instrument's software so that the flow measuring 'LFE' element inside the SEMS could be checked and cleaned. Site ops removed the LFE and cleaned with acetone. After drying the LFE, site ops installed it back into the SEMS and reconnected the cabling leading to the instrument. Power to the HTDMA was restored at 23:58 UTC.

2017/06/29, DQPR-6202: The manufacturer thinks we are still seeing issues from the previous event when water was accidentally poured into the instrument. He will try flushing the butanol valve to clean it.

AOS --- UHSAS --- Operational.

AOS --- NEPH --- Operational.

AOS --- IMPACTOR --- Operational.

AOS --- Ozone --- Operational.

AOS --- TRACEGAS --- Operational.

AOS --- PSAP --- Operational.

AOS --- IMPACTOR --- Operational.

AOS --- CCN --- Operational.

Precip --- MASC --- Operational.

Precip --- PIP --- Operational, Working on Beginning Data Ingest to DMF Archives.

Precip --- LPM --- Operational, Working on Beginning Data Ingest to DMF Archives.

Precip --- GEONOR --- Operational, Working on Beginning Data Ingest to DMF Archives.

Precip --- SRS --- Operational.

Other --- AERI --- Operational.

Other --- CIMEL --- Operational.

Other --- DataHawk Unmanned Aerial System --- Operational, not a full time instrument.

Other --- TBS --- Operational. Sensor will not be running full time.

Barrow

INFORMAL NSA INSTRUMENT STATUS REPORT FOR July 21 - July 28, 2017
BRIEF STATUS OF INSTRUMENTS IN BARROW (C1) AS OF 2017/07/28:
Facilities Operational
Data Systems Operational
Vehicles Operational
Desktop Computers Operational
SKYRAD - SKY Radiometer on Stand for Downwelling Operational
MFRSR - Multifilter Rotating Shadowband Radiometer Operational
NIMFR - Normal Incidence Multifilter Radiometer Operational
GNDRAD - Ground Radiometer on Stand for Upwelling Operational
MFR10m - Multifilter Radiometer at 10m height Operational
MET - Surface & Tower Meteorological Instruments Operational
AMC - Soil, up/downwelling radiation measurements Operational
ECOR-twr - Eddy Correlation Flux System Operational
ECOR-PtBRW - Eddy Correlation Flux System Not Operational
MWR - Microwave Radiometer Operational
MWRP - Microwave Radiometer Profiler Operational
MWRHF - Microwave Radiometer High Frequency Operational
GVR - G-band Vapor Radiometer Not Operational
HSRL - High Spectral Resolution Lidar Not Operational
MPL - Micropulse Lidar Operational
CEIL - Vaisala Ceilometer Operational
DL - Doppler LIDAR Operational
RWP - Radar Wind Profiler Operational
KAZR - Ka ARM Zenith Radar Operational as per warno.arm.gov
KaWSACR - Ka-Band Scanning ARM Cloud Radar Not Operational as per warno.arm.gov
XSAPR - X-Band Scanning ARM Precipitation Radar Not Operational as per warno.arm.gov
BBSS (Autosonde) - Balloon Borne Sounding System Operational
AOS - Aerosol Observing System Operational
CLAP - Continuous Light Absorption Photometer Operational
CPC - Condensation Particle Counter Operational
NEPH - Nephelometer Operational
IMPACTOR - AOS Impactor Operational
TOWERCAM - 40m tower camera Operational
TSI - Total Sky Imager Operational
AERI - Atmospheric Emitted Radiance Interferometer Operational
CIMEL - Cimel Sunphotometer Operational

LPM - Laser Precipitation Monitor Operational
SR50A - Snow Depth Sensor Operational
IOP - CAM Operational

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* Barrow Instruments in Detail: *
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INFRASTRUCTURE --- Facilities --- Operational.
INFRASTRUCTURE --- Data Systems --- Operational.
INFRASTRUCTURE --- Vehicles --- Operational.
INFRASTRUCTURE --- Desktop Computers --- Operational.
SKYRAD --- SKYRAD General --- Operational.
SKYRAD --- IRT --- Operational.
2017/07/18, DQPR-6339: Data was not available from 07/06/2017 at 12:12 UTC to 07/11/2017 at 21:00 UTC. The instrument appears to be collecting at present, so Victor Morris has a DQR assignment (D170718.1). The most recent DQPR status is "in progress - assignments."
SKYRAD --- PIR 1 Shaded --- Operational.
SKYRAD --- PIR 2 Shaded --- Operational.
SKYRAD --- SOLAR Tracker --- Operational.
2017/07/28, CM-2017-NSA-VSN-4366: The target on the NIP needed adjustment. Walter corrected the set time, and fine-tuned the sighting. The azimuth was adjusted so that the zenith is dead on target.
SKYRAD --- B&W diffuse --- Operational.
SKYRAD --- NIP --- Operational, but some data from April are flagged.
2017/07/28, DQPR-6213: Walter went out and checked the NIP target; it was a bit off center, but was still within the circle. Per CM-2017-NSA-VSN-4366, Walter went out and corrected the set time, and fine-tuned the sighting. The azimuth was adjusted so that the zenith is dead on target.
2017/07/18, DQPR-6213: Mentor Mark Kutchenreiter asked to check for the tracker and NIP alignment, and if the time adjustment from 6/2/17 made a difference in alignments. Walter confirmed there was a minor time adjustment, but the B&W and PIRs were shaded, and the NIP was near the outer target zone within normal.
2017/06/30, DQPR-6213: The SKYRAD data were failing tests in the QC VAP that pointed to a tracker issue. This was not readily apparent in the data, but was flagging a fair amount (up through 6/24). Adam Theisen thinks that this may be a non-issue, but he wanted the mentor to verify. Please see the DQPR page for the exact flagged dates and times. Walter checked the tracker target and time, and noted an increase of 0.07. The most recent DQPR status is "open - requires action."
SKYRAD --- PSPg --- Operational.
SKYRAD --- MFRSR --- Operational, but Shading Problems.
2017/07/28, CM-2017-NSA-VSN-4368/DQPR-6354: The MFRSR has a repeated shading problem, so Walter removed the head, checked the band shape, re-installed and leveled the head. He attempted the banding adjustment in marginal sun light conditions at solar noon.
2017/07/28, DQPR-6354: Adam Theisen posted a plot showing the shading from 2017/07/27. The most recent DQPR status is "open - requires action."
2017/07/21, DQPR-6297/6354: Christian Herrera asked to check the shading band position. Walter is awaiting a sunny day to perform the check.
2017/07/14, DQPR-6354: A new shading issue has started up between 16-22:00 UTC. The most recent DQPR status is "open - requires action."
2017/07/07, DQPR-6297: Christian Herrera has an assignment to write DQR D170707.3. Christian thinks that he narrowed the start date to 3/18 when the MFRSR first started showing a definite signal in the FFT. It increased in intensity over time, but became more intense on 5/28. The most recent DQPR status is "in progress - assignments."
SKYRAD --- NIMFR --- Operational.
TIPTWR --- GNDRAD general --- Operational.
TIPTWR --- MFR10m --- Operational.
TIPTWR --- PIRgnd --- Operational.

TIPTWR --- IRTgnd --- Operational.
TIPTWR --- PSPgnd --- Operational.
MET --- METTOWER general --- Operational.
MET --- CMH --- Operational.
MET --- Barometer --- Operational.
MET --- TEMPERATURE / HUMIDITY --- Operational.
MET --- WIND INSTRUMENTS (SONIC) --- Operational.
MET --- PWD --- Operational.
2017/07/21, CM-2017-NSA-VSN-4363: The PWD was returned from repair, Walter installed the instrument and Jenni checked the configuration and the PWD returned to service (07/21/2017, 17:50 UTC).
MET --- AMC --- Operational.
2017/06/19, DQPR-6207: Raw data needs to be prepared and shared with the developer. Over the years, some sensor cables have been switched around with inputs to the logger. The most recent DQPR status is "in progress - assignments."
2016/10/10, DQPR-5694: Joshua King adds that vmc from sensor 4 was missing from 14:30 UTC 2016/07/12- 15:30 UTC 2016/09/25. Since returning 2016/09/25, vmc has been decreasing to below 0.3. He is asking mentors if they have thoughts on what is causing this behavior. An attached image can be found on the DQPR page. IM Ken Reichl responds that this is an issue outlined in DQPR-4793 for the analogous site, OLI. The instrument reports soil data as 9999999, or a non-numerical character (for data SGP) for soil systems. The AMC systems may report missing data during warm seasons for instruments that are not sufficiently calibrated. The OLI datastream has an open-ended DQR D151023.3. Ken asks if he should make one for the NSA data as well, and is the DQR system the best way to characterize this issue?
ECOR --- ECOR-twr --- Operational.
ECOR --- ECOR-Pt. Barrow --- Not Operational, End of Season.
MW RADIOMETERS --- MWR --- Operational.
2017/07/28, DQPR-6366: Maria Cadeddu has been assigned DQR D170728.4. The most recent DQPR status is "in progress - assignments."
2017/07/23, DQPR-6366: Data is missing from 15:14 UTC on 7/10/2017 to 14:55 UTC on 7/12/17. The most recent DQPR status is "open - requires action."
MW RADIOMETERS --- MWRP --- Operational.
MW RADIOMETERS --- MWRHF --- Operational (External Noise Interference).
2016/09/30, DQPR-4165: The 150 GHz channel was showing high noise levels probably because of an external source of interference. Adam inquires if there is a path forward to solve the interference issues? The current DQPR status is "in progress- assignments", and it is open-ended. DQRs D140610.1 and D160426.3 have been reviewed and accepted by the PRB.
MW RADIOMETERS --- GVR --- Not Operational. Instrument Shipped to Prosensing for Refurbishment.
2017/07/07, DQPR-6274: The contract with Prosensing has been approved, so the mentor requests that the GVR be packed and shipped there. The most recent DQPR status is "waiting - for spares."
LIDAR --- HSRL --- Not Operational (Laser Off, Only Reduced Data Mode Running).
2017/06/23, DQPR-6201: Adam checked the data on the DMF, and it appears that we are receiving raw (00-level) data, but it is not being processed any further. Adam thinks we will just need a missing data DQR when the HSRL is back online. The most recent DQPR status is "waiting - for spares."
2017/05/22, DQPR-6201: The HSRL laser stopped to work properly. While we await the laser repair, the system will operate in a reduced data mode (housekeeping only), with the laser off since May 10th due to a seed laser failure. The rep rate of data is much less as a result, and any processed form would be empty or invalid.
LIDAR --- MPL --- Operational, but Intermittent Down Periods.
2017/07/07, DQPR-6328: During the investigation into the MPLCMASK problem, it was determined that there are potential problems with the NSA C1 and AWR M1 polarizations. From Donna Flynn: The AWR.M1 instrument polarization is off. The values for the linear depolarization ratio are too high. If you compare the water clouds at both AWR.S1 (reasonable values) and AWR.M1(high) on 20151210, this is evident. Additionally, the NSA.C1 data looks suspicious. I have only looked at a few days, but I have found poor agreement with HSRL and clear sky profiles when compared to Rayleigh, which suggests either an overly strong afterpulse or a collimation problem. The most recent DQPR status is "open - requires action."

LIDAR --- CEIL --- Operational, but a Warning is Still Flagged at 100%.
2017/07/13, DQPR-6153: The blower (SN K0810010) that apparently failed on 3/19 was tested at SGP with the following findings: Craig tested the blowers (SNs K0810010 and F0910001 [from AWR/M1]), and both of them seem to be working. The fans definitely work and they are also putting out heat; however, it's not much. According to the manual, they are only 175W heaters. The current draw was 1.6A. Victor Morris supplied this information on the open Vaisala support ticket, and they recommend returning the CL31 for repair. The most recent DQPR status is "waiting - for spares."
LIDAR --- Doppler LIDAR --- Operational.
2017/07/26, CM-2017-NSA-VSN-4364: Tim Grove requested that the computer be rebooted for software patches.
RADAR --- RWP --- Operational.
RADAR --- KAZR --- Operational as per warno.arm.gov.
2017/06/12, warno.arm.gov: The RDS1 power supply was replaced and the signal processor is operational. The system will be taken out for maintenance for a short time to replace a fan.
RADAR --- KaWSACR --- Data Transfer Problem, Not Operational as per warno.arm.gov.
2016/03/12, DQPR-4041: After much coordination with the pedestal manufacturer and while working with the instrument mentors, the azimuth DSA was re-programmed. Once a reprogrammed Azimuth DSA was installed and verified the Elevation DSA was also found to be faulty. It was replaced with another unit and the system now accepts azimuth and elevation commands. The most recent DQPR status is "waiting- for spares."
RADAR --- XSAPR --- Not Operational as per warno.arm.gov .
2017/02/16, BiWeekly Telecon: Andrei is looking at parts replacement/repairs/upgrade for June.
2016/08/04, DQPR-4841: The elevation servo amplifier failed, the radar can not scan in elevation. The radar will be upgraded sometime, and will be turned off until then. A DQR was submitted and reviewed by PRB. The DQPR status is "in progress" due to it being open-ended. Adam Theisen's DQR D160719.1 has been reviewed and accepted by the PRB.
Sonde --- BBSS (Autosonde) --- Operational.
2017/07/26, CM-2017-NSA-VSN-4365: Tim Grove requested a reboot of the computer for software patches.
AOS --- General --- Operational.
AOS --- AETH --- Operational.
AOS --- CLAP --- Operational.
2017/07/06, DQPR-6251: Per comments in connected DQPR 6252, offline discussion is ongoing with Annette and Anne offline on how best to proceed.
2017/05/31, DQPR-6251: This DQPR is being submitted as a placeholder for 2 periods of missing data identified through data review EWO 21024: 1. DQR D160927.8 covers a CLAP power supply failure from 08/25 - 09/19/2016, but we don't have ingested data again until 05:00 UTC 10/24/2016. We need another DQR for the 09/19 - 10/24/2016 time period. 2. Another missing data gap from 00:00 UTC 12/01 - 18:00 UTC 12/06/2016. Joshua King omitted start/end dates from DQPR so that DQRs can easily be assigned/filled out for these periods. The most recent DQPR status is "in progress - assignments."
AOS --- CPC --- Operational.
2017/06/30, DQPR-6252: Joshua King has reviewed the reprocessed data from Annette and Anne, and he is coordinating with them offline to determine a path forward. The most recent DQPR status is "in progress - assignments."
AOS --- NEPH --- Operational.
AOS --- IMPACTOR --- Operational.
IMG --- TOWERCAM --- Operational.
2017/07/28, CM-2017-NSA-VSN-4367: The camera lens needed cleaning, and UAF needed to check the mounting style in preparation for replacement of the camera. The tower was lowered, and the outer and inner camera lenses were removed, cleaned, and re-installed. The camera boom was raised again.
IMG --- TSI --- Operational.
Other --- AERI --- Operational.
Other --- CIMEL --- Operational.
Other --- LPM --- Operational, Logger Program Being Worked On.
Other --- SR50A --- Operational.
IOP --- CAM --- Operational.

5 North Slope Facilities

AMF3

Current and Upcoming Site Visits

Fred Helsel, Bruce Edwardson-SNL	September 18-26	Power shelter upgrade

Current and Upcoming IOPs

Black Carbon on the North Slope (Baylor)

Comparison MASC (upcoming)

Site Safety

NA

Unmet Needs

We are running on leased diesel generators while other options are explored.

Site News

AXIS camera was relocated for Chuck Longs De-Icing Comparison Experiment (DICE). This will enable Chuck to observe the AMF3 radiometers. Martin Stuefer setup a script to take a photo every 10 minutes they can be viewed at:

http://nanuna.gi.alaska.edu/media/cam/oli_psp/
http://nanuna.gi.alaska.edu/media/cam/oli_skyrad/

RWP has be pack up and is ready for shipment. RWP was in pretty rough shape from exposure to Oliktok Point's weather and proximity to the coast. Galvanic/bimetallic corrosion occurred on all of the stainless screws that were screwed into aluminum. Numerous screws were broken or non-removable. Places where the screws were broken or unable to be removed are marked with a red sharpie. Much of the aluminum panels have the power coating bubbling up, most of the outside cables need to be replaced due to corrosion, and new screws need to be purchased before reassembly. I suggest sending the RWP to the manufacturer for refurbishing. Shipping the section of the RWP that had the removable screws as one piece was discussed; however, this would have required the section to shipped as a wide load, making it cost prohibitive due to the distance it needs to be shipped.

Site Staffing Issues

Ben Bishop was promoted to Technologist II to replace Wessley King. Michael Crume has been hired as the new technologist.

Tethered Balloon Operations

Twenty-six hours of TBS flights were conducted at Oliktok Point from 8/4/17 – 8/11/17. Summary reports of each flight are included below. Flights for the JUBA (Joint UAS-Balloon Activities) IOP were conducted at the Sandia Arctic Site. Analysis of TBS-produced data is ongoing.

Date: 08/04/17

Authors: Dexheimer, Longbottom, Apple, Bendure

Platform: TBS: helikite and aerostat winch

Instruments flown:
DTS fiber through FORJ
0.5m iMet 1 with iMet XQ UAV sensor
0.5m POPS SN18 & iMet
0.5m V8
100m on Flight1, 130m on Flight 2 to iMet 3 with LWC 3

Flight pattern followed:
Flight 1: 21:50 – 22:30
Ascended to 185m, reached at 22:20. Intended to ascend higher but gusty winds and limitations of helikite prevented doing so. Descended after remaining aloft at maximum altitude at 5 minutes.
Flight 2: 22:35 – 23:50
After altering payload to reduce weight ascended to 290m, reached at 22:50. Reeled in to 235m at 23:10 to increase stability. Remained aloft until 23:40 to capture 23:30 AMF3 radiosonde launch before descending.

General Conditions: Initial cloud base at 1 km, cloud top above 3 km. Clouds broke up rapidly during Flight 1 and Flight 2 was mostly clear sky. Surface winds 5-6 m/s from southeast, 7 m/s aloft. Temperature initially 7 °C, increased to 11 °C.

Notable Events: First use of DTS with rotary joint appeared successful. Data will have to be processed and compared with 23:30 radiosonde, but initial results looked good.

First use of iMet XQ. Although GPS logging was indicated on device GPS information did not show up in file. PNNL also reported this problem with the sensor in May. We will investigate further with vendor.

Two solar balloons were launched upon retrieving TBS balloon at 00:00. The first balloon included a radiosonde that reported through 10 km altitude before terminating the sounding. The second balloon also launched with a radiosonde, but it did not record data due to a software error. Both solar balloon payloads included GPS trackers.

Figure 1: Solar Balloon 2

Figure 2: Solar Balloon 1

Failures:

- We intended to fly Flight 1 with DTS fiber not using the rotary joint, and Flight 2 with fiber using the joint. Upon preparation for flight we determined that the two fiber reels we intended to use were spooled so that only one fiber end was left exposed. To fly on the balloon we need both ends of the fiber to be exposed on the spool. We will have to spool these two fibers onto new spools in order to access both ends.

Solar balloon 1 remained aloft for 24 hours and traveled 27 km east of Oliktok Point. Solar balloon 2 remained aloft for 23 hours and traveled 17 km east of Oliktok Point. Solar balloon 2 was launched 110 minutes after Solar balloon 1.

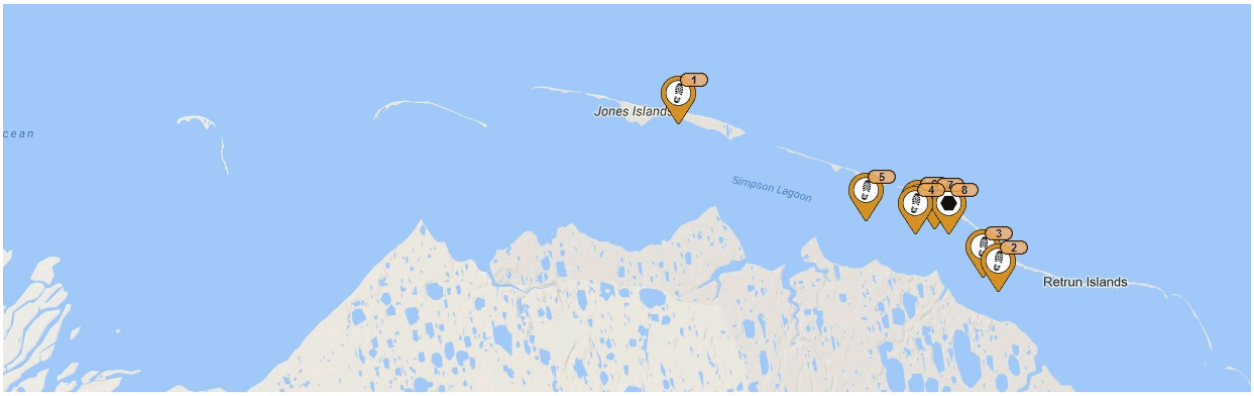

Figure 3: Solar Balloon 1 track

Figure 4: Solar Balloon 2 track

Comparisons from 08/04/17 TBS DTS through the radiosonde joint appeared to compare well. There is some excess heat in the lowest 150m of the fiber trace due to friction within the rotary joint as it spins.

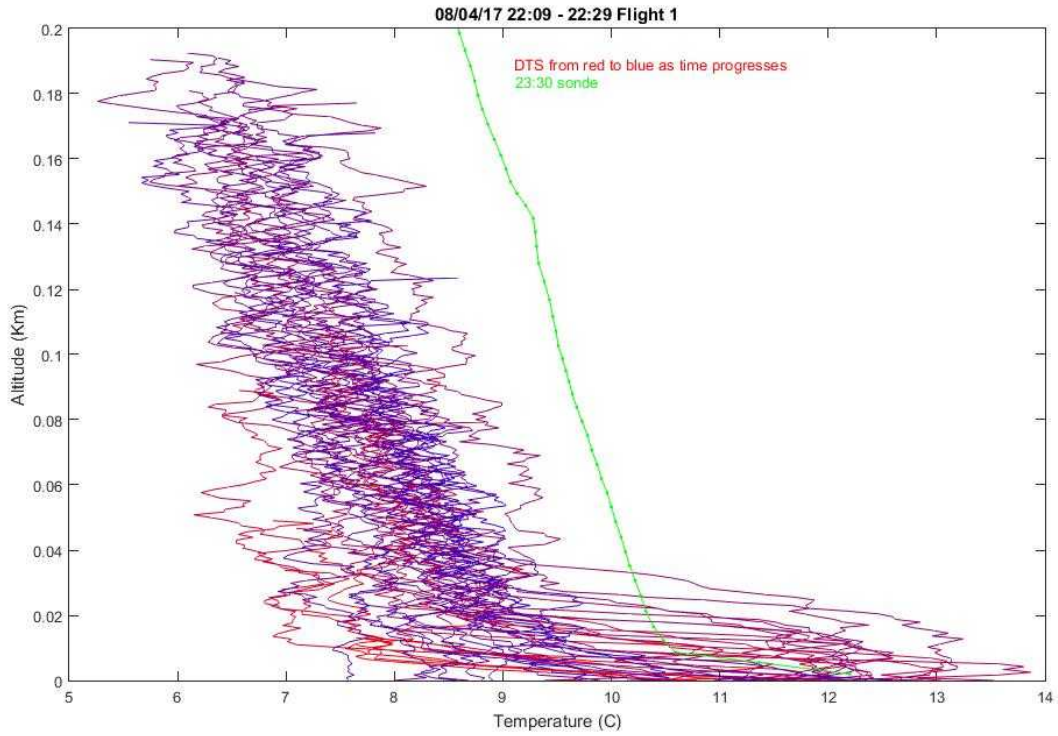

Figure 5: TBS DTS through FORJ on Flight 1 on 08/04/17

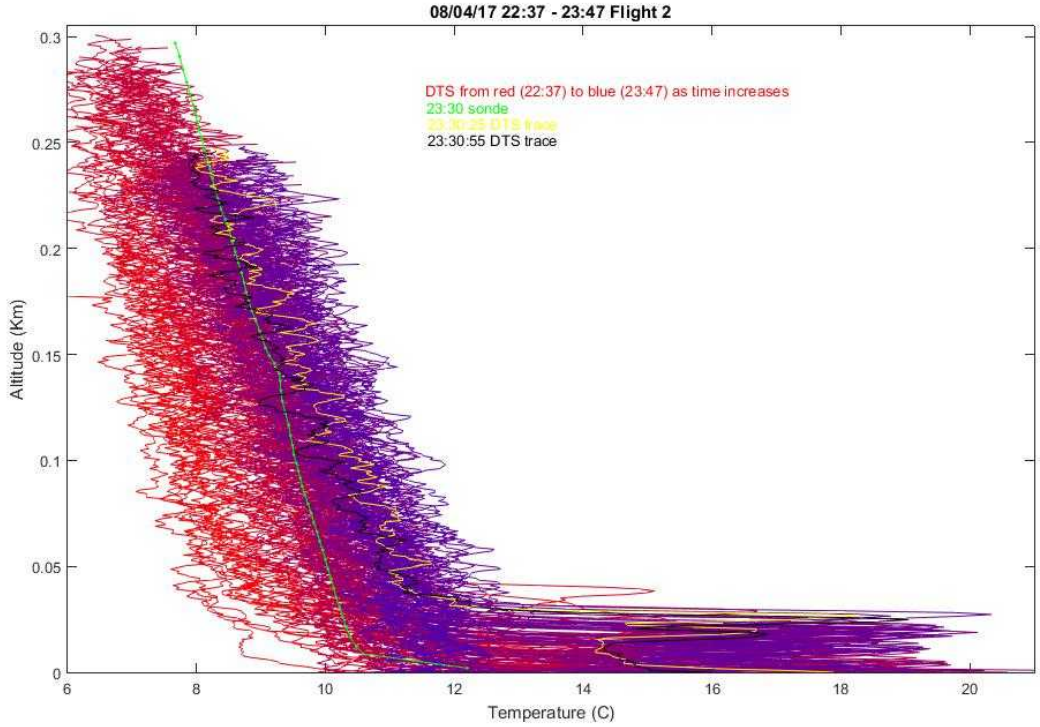

Figure 6: TBS DTS through FORJ on Flight 2 on 08/04/17

Date: 08/06/17

Platform: TBS: aerostat and aerostat winch

Instruments flown:
DTS fiber
0.2m pops sn14, iMet XQ, and pops iMet
0.2m pops sn18
0.2m cpc
0.2m iMet 4 & SLWC4
0.2m iMet 3 & LWC3
V8 tethersonde 660m from balloon

Flight pattern followed:
Flight 1: 21:30 – 01:00
Ascended to 1.425 km, reached at 23:43. Immediately began descent at 23:44.

General Conditions: Very thin cloud layer around 180m, then another thin layer near 980m. Significant clouds were above 2.5 km. Surface winds 5-7.5 m/s from southeast, 2-3 m/s aloft. Temperature 7 – 11 °C.

Notable Events: New altitude record for TBS. 1.8 km long fiber was unspooled to final 100m at maximum altitude due to tether angle. Tether itself was also unspooled to roughly maximum altitude while still maintaining three wraps on the drum. Unless winds are very light through the whole TBS operating range we will likely not be able to go much higher with our current fiber spool (1.8 km) and tether spool (2 km).

Failures: University of Reading LED cloud sensor and cloud charge sensor were prepped for deployment, but the Vaisala radiosonde they communicate through repeatedly terminated the sounding. The sounding was set to manually trigger, but it appears that the 30m/min ascent rate of the winch is insufficient to keep the sounding file open. We are discussing with the Keri Nicoll, the developer of the sensor.

Figure 7: Fiber optic rotary joint installed on motorized fiber reel for DTS

Figure 8: Sky conditions and tether at 22:46

Figure 9: New foot pedal controller configuration for winch and fiber reels

Figure 10: Sky conditions at 00:21

Date: 08/07/17

Platform: TBS: aerostat and aerostat winch

Instruments flown:
DTS fiber
0.2m pops sn14, iMet XQ, and pops sn14 iMet
0.2m V8 tethersonde
310m CPC
0.2m CPC iMet
0.2m pops sn18 iMet

Flight pattern followed:
Flight 1: 19:25 – 21:25
Ascended to 1.3 km, then began to descend due to higher winds aloft causing balloon to fly at steeper angle – using more DTS fiber. Descended to 310m AGL (POPS SN18 at surface on tether).

Flight 2: 21:39 – 22:47
Ascended to 1 km, then began to descend due to convective clouds forming offshore to north.

General Conditions: Very thin low cloud layer around 100m, then another thin layer near 1100m. Surface and aloft winds 2-4 m/s from north. Temperature 7 – 8 °C.

Notable Events: POPS SN14 has experienced intermittent problems since April, and been returned to the vendor twice for troubleshooting. On the 08/06/17 flight the POPS particle count was 0 shortly after launch. On today's flight the POPS functioned better but still had problems at altitude. Handix thinks this could be EMI-related. We have grounded the POPS backplane to the metal enclosure.

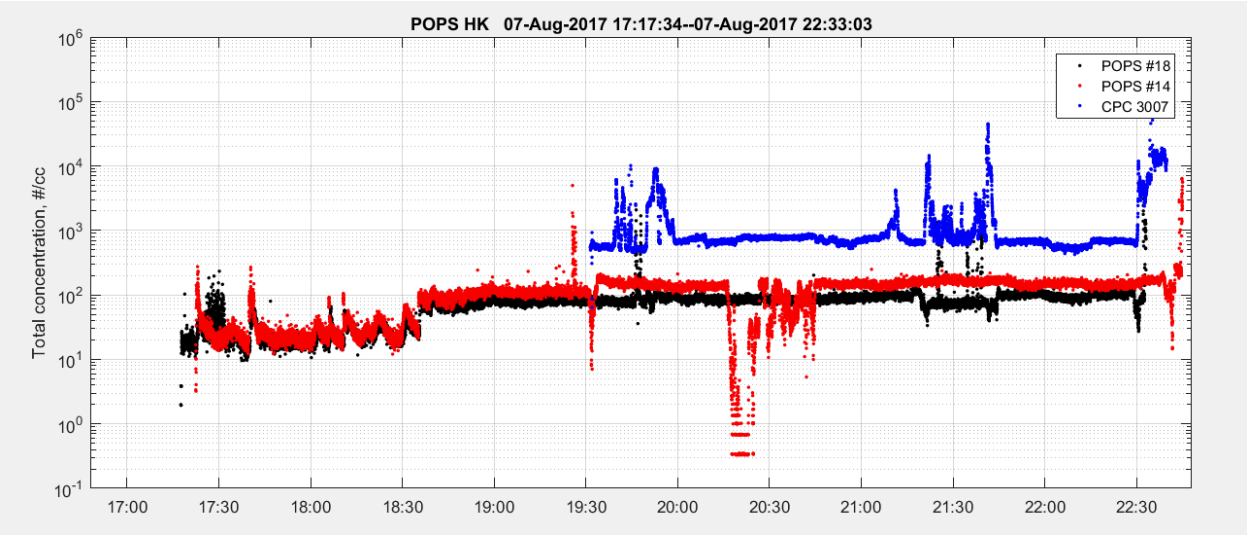

Figure 11: Fan Mei's plot of POPS and CPC data from 08/07/17, POPS SN14 anomalous at higher altitudes.

We also discovered with the DataHawk crew that the west end of the runway has much less EMI. They experienced problems over the last few days when operating on the east end of the runway, while we did not have issues on the west side. Today we flew from the east end and had EMI issues while they flew from the west end and did not.

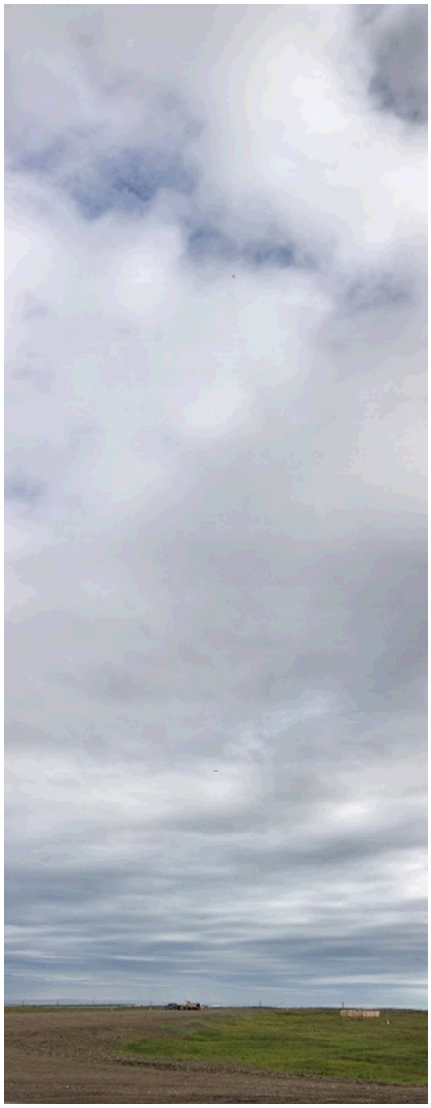

Figure 12: Balloon aloft at 1.3 km during Flight 1

JUBA IOP flights were conducted at the Sandia pad for a few hours in the evening. Initial tests with the UAS and DTS were successful. The question thus far has been identifying the surface in the DTS data. Techniques attempted today were running the fiber through a heated tray approximately 1m long. In this instance when the fiber was moving quickly it did not always spend enough time in the tray to show a heat spike. When the ascent and descent speed of the UAV were slowed the heat spike maintained a 4 °C difference from ambient temperature. A second technique was tried where the entire fiber spool was heated to ~ 40 °C. As it deployed into the atmosphere it cooled almost instantly and made the surface very evident. This data will have to be processed and compared with stationary balloon DTS data to determine how the heating affects the accuracy of the measurements.

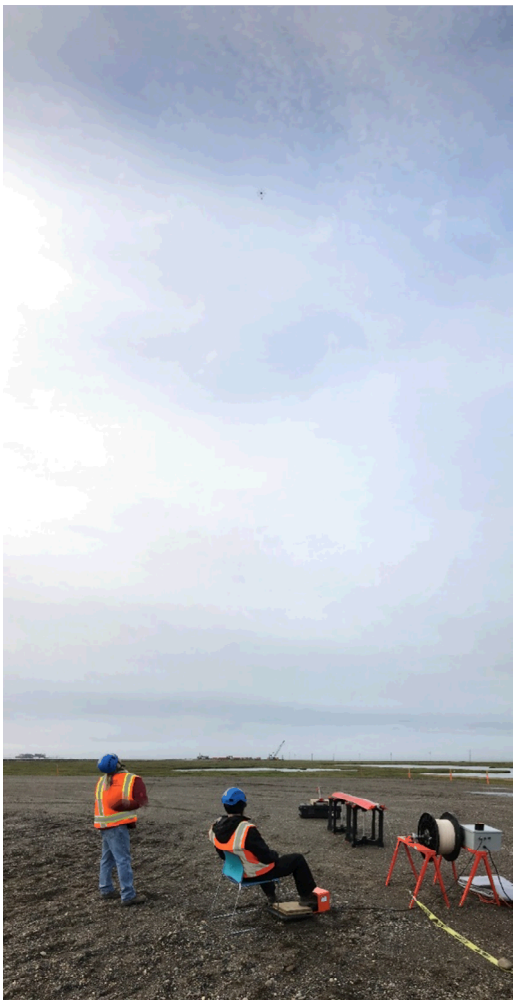

Figure 13: Octocopter in flight with DTS fiber suspended below

Date: 08/08/17

Platform: TBS: aerostat and aerostat winch

Instruments flown:
DTS fiber
0.2m pops sn18 & pops iMet
0.2m CPC
0.2m V8 tethersonde
50m iMet & SLWC

Flight pattern followed:
Flight 1: 20:00 – 01:00
Used non-FORJ DTS on TBS because motorized FORJ reel was in use at Sandia site with JUBA. Ascended to 600m. DTS collected 22:10 – 22:40. Ascended to 1km at 23:09. Attempted DTS but problem with fiber connector. Began descent at 23:36, then held at 670m at 23:51. Continued to descend at 00:30 and finished descent at 01:03.

General Conditions: High (3 km CB) clouds initially then lower clouds developing around 22:30. First layer CB around 400m, CT around 600m. Second layer CB around 1 km, CT around 1.2 km. Surface and aloft winds 2-4 m/s from east. Temperature 10-11 °C.

Notable Events: POPS SN14 again showed 0 particle count upon startup. The problem appeared to be with the EMI shielding board over the PMT. We could not get the unit working for the flight but after removing the EMI board later in the day it appears to be working fine now, and should be able to be used for the next flight.

CPC did not appear to operate for totality of flight, and only remained powered for about an hour. Maybe a bad set of batteries?

We operated very close to the DataHawk crew on the west end of the runway since it appears better for EMI. We had several unusual software issues with the iMets, which were likely due to crosstalk from the DataHawk equipment. We will test out the far east side of the runway (past the Dewline road) for EMI on the next flight and see if we can potentially operate there.

Three JUBA IOP flights were conducted at the Sandia site using an iMet radiosonde, iMet XQ sensor, and DTS with the rotary joint. There were approximately 50 minutes of flight time total. The first two flights ascended to 200m, and the last to 425m. When compared to the sounding the DTS below the octocopter was too warm, likely due to being run through a heat tray at the surface in order to identify the surface. The short nature of the octocopter flights, < 15 minutes, likely caused the fiber to remain too warm when compared to ambient. Analysis is ongoing.

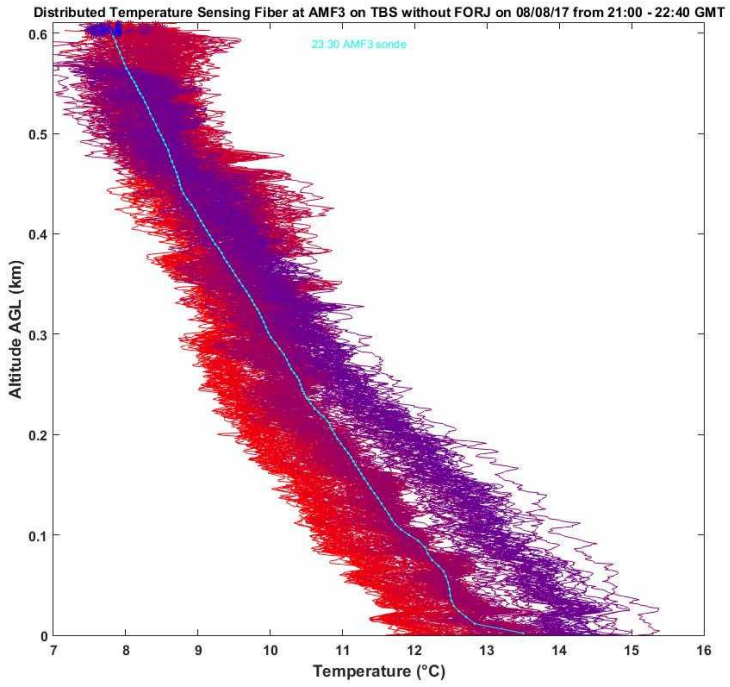

Figure 14: DTS without rotary joint on TBS on 08/08/17

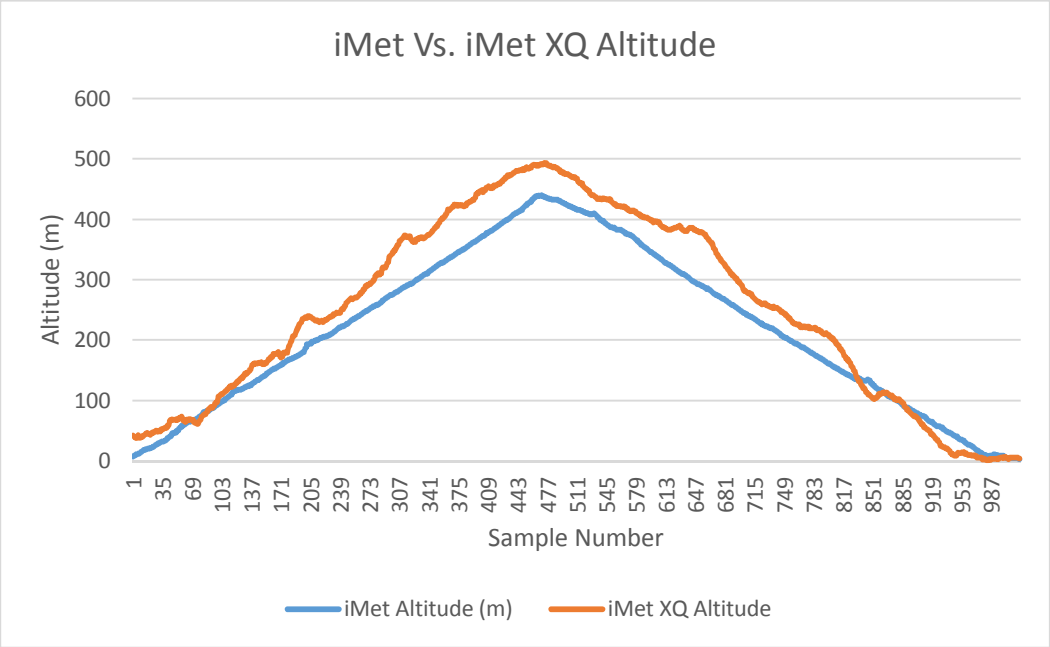

Figure 15: iMet Altitude and iMet XQ Altitude from JUBA IOP (physically within 1 m of each other)

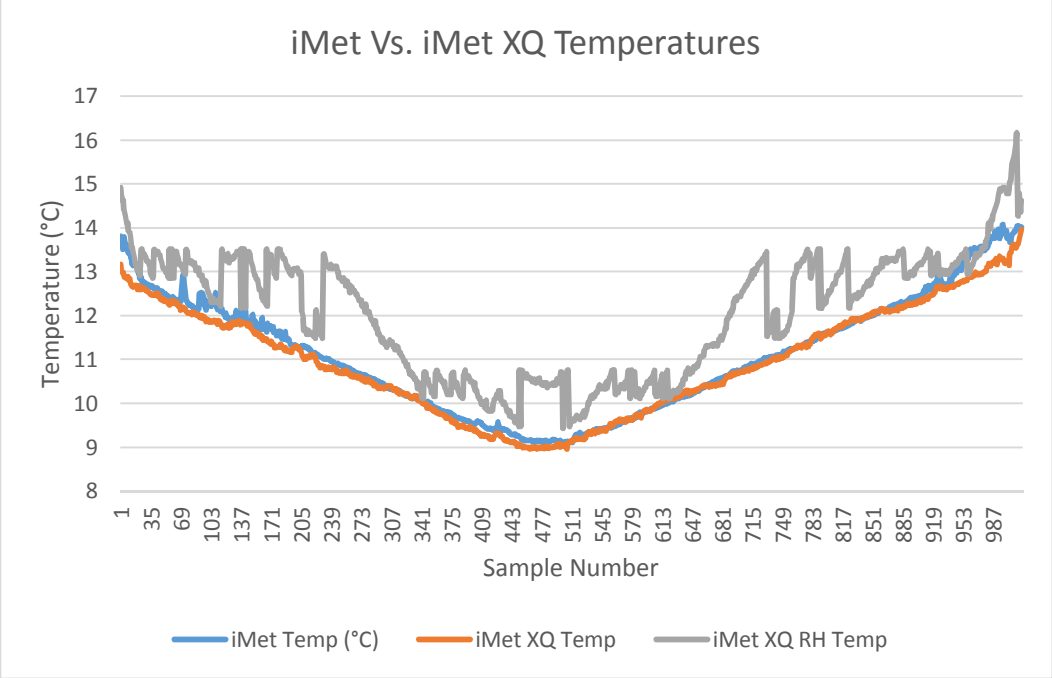

Figure 16: iMet Temperature and iMet XQ Temperature & RH Temperature from JUBA IOP

Figure 17: Placement of iMet XQ during Flight at Sandia site from 23:45-00:00 on 08/08/17

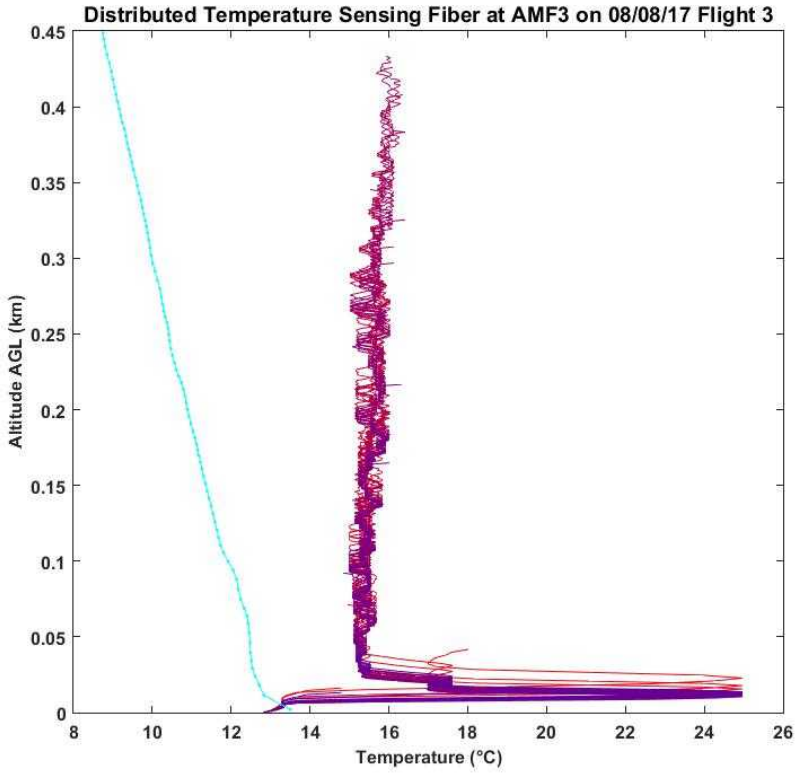

Figure 18: JUBA IOP octocopter DTS temperatures at Sandia site from 23:45-00:00 vs 23:30 AMF3 radiosonde

Date: 08/09/17

Platform: TBS: helikite and aerostat winch

Instruments flown on helikite:
DTS fiber
0.2m iMet
100m iMet

Instruments flown from octocopter:
iMet XQ on arm
DTS fiber
0.2m iMet

Flight pattern followed:
Flight 1 - 4: 22:00 – 04:00
Ascended balloon to 530m while ascent filmed from octocopter loitering aloft. Winds were fairly high, 7 m/s, and shortly after launch it appeared that the DTS fiber had a break about 200m from the surface. On the fifteen-minute flight one of the octocopter, the fiber ripped from the UAS on the descent in high winds. 30s integration time DTS data was collected until approximately 50m AGL on the descent. Flight two was a fifteen-minute flight also, but was completed successfully. Lower clouds moved in limiting the octocopter to < 200m AGL so flights were postponed for a few hours, after a test flight to determine visibility (flight three). Flight four used a 15s integration time on the DTS and a sounding balloon was launched for comparison. Again on the descent the fiber ripped at approximately 50m AGL. After landing it was determined that there was a large burr inside the tubing that the fiber was passing through on the surface.

General Conditions: Variable cloudiness with occasional precipitation. Originally higher clouds with bases around 1 km, changing around 01:00 to cloud bases around 150m with occasional precipitation. Winds increased from 4.5 – 7.5 m/s with time and were from the west. Temperature originally 10-11 °C decreasing to 6 °C.

Figure 19: Octocopter and helikite in flight at 400m at Sandia site on 08/09/17 during JUBA

Unfortunately the TBS DTS fiber suspended on the helikite for comparison purposes with the octocopter DTS broke shortly after launch. Again, when compared to the sounding the DTS below the octocopter was too warm, likely due to being run through a heat tray at the surface in order to identify the surface.

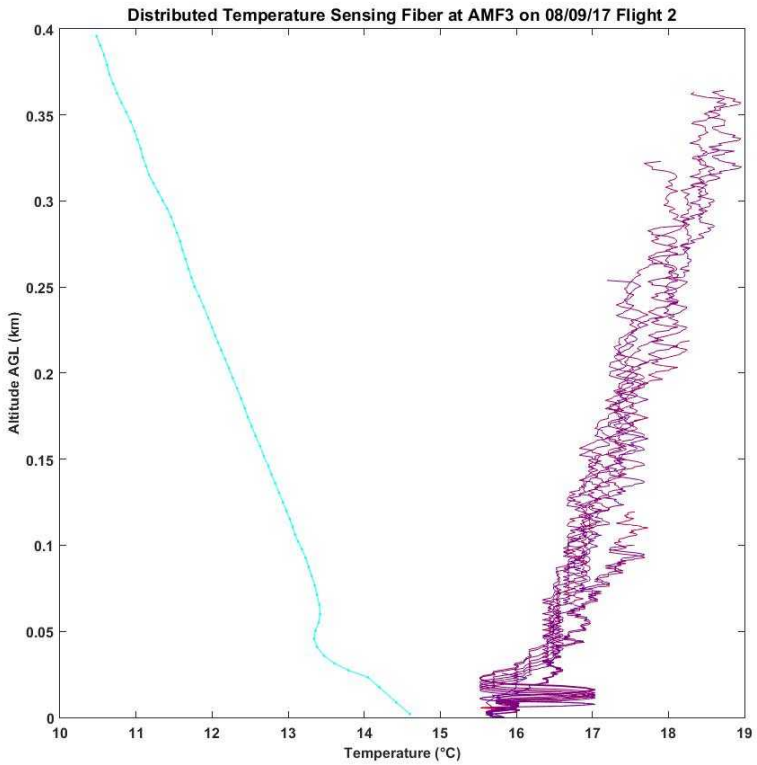

Figure 20: JUBA IOP octocopter DTS temperatures at Sandia site from 23:36:55 vs 23:30 AMF3 radiosonde

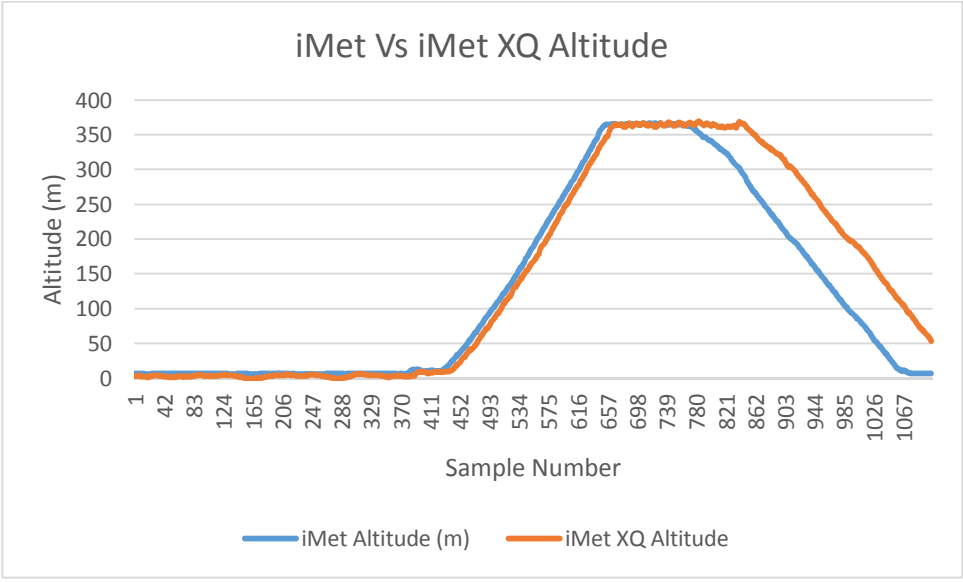

Figure 21: iMet Altitude and iMet XQ Altitude from JUBA IOP (physically within 1 m of each other)

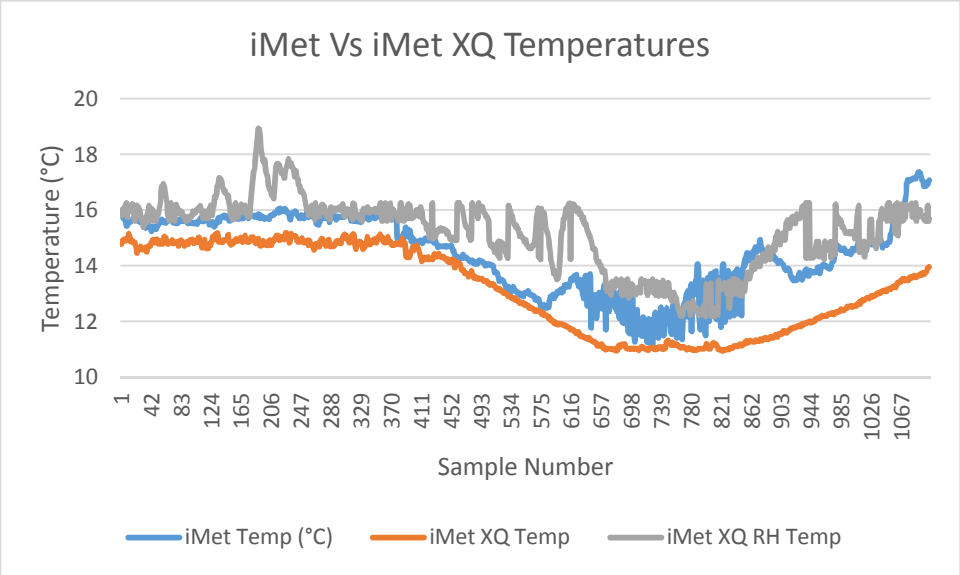

Figure 22: iMet Temperature and iMet XQ Temperature & RH Temperature from JUBA IOP

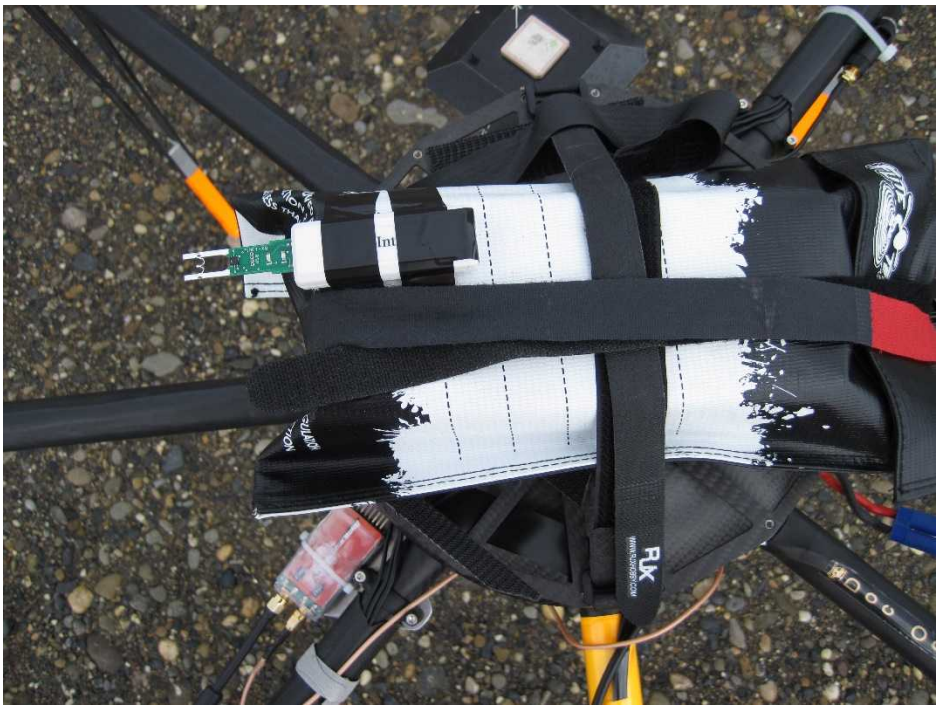

Figure 23: Placement of iMet XQ during Flight at Sandia site from 23:36-23:55 on 08/09/17

Date: 08/10/17

Platform: TBS: aerostat and aerostat winch

Instruments flown on aerostat:
DTS fiber
0.2m POPS SN18
0.1m POPS iMet

0.2m CPC
0.2m V8 tethersonde
200m to SN14

Flight pattern followed:
Flight 1: 23:40 – 02:00
Launched and reached 200m AGL, then descended because top iMet not communicating. Reascended And while ascending cloud layer dissipated around 00:20. Ascended to 700m at 01:25 and began to descend due to increasing winds.

General Conditions: Initial cloud layer from 600 to 900m, then dissipated with higher clouds around 3 km. Winds increased from 4 – 7 m/s with time and were from the north. Temperature originally 10 °C increasing to 12 °C.

Failures: Tried operating from far east end of runway and EMI was probably the worst it has been. EMI seems to progressively increase from west to east. Tomorrow if weather permits the DataHawks will move towards the beach road and we will try operating again from the west end of the runway.

We got a late start after finishing late last night and had to splice DTS fiber in the morning.

Date: 08/11/17

Platform: TBS: aerostat and aerostat winch

Instruments flown on aerostat:
DTS fiber
0.2m POPS SN18 & iMet4
0.2m CPC
0.2m V8 tethersonde
50m iMet1 & LWC
50m (100m below SN18) POPS SN14 & iMet2

Flight pattern followed:
Flight 1: 18:45 – 19:35
Low cloud moved in, CB ~240m. Ascended to 400m at 19:15. Descended at 19:20, held at 130m at 19:34.
Flight 2: 19:35 – 20:44
Reascended at 19:42. Ascended to 600m at 19:58. Observed lower pops (14) much higher particle counts. Began descent at 20:25, held at 133m at 20:44.
Flight 3: 20:45 – 22:33
Reascended at 21:10. CBs at 210m and 400m, observed POPS counts lower between clouds. SN14 ~50 particle flow rate at 430m and SN18 5 at 551, then SN14 8 at 500m. Appeared that SN14 counts generally higher (~12) than SN18 at same altitude. Ascended to 800m at 21:36. Began descent at 21:51 Precip at 21:50. DTS fiber broke ~200m above surface at 21:50, discovered this occurred at previous splice. POPS SN14 read 0 for several minutes (~21:50 - 21:57) during descent during precip, plugged inlet? Precip was partly ice at surface. LWC iMet removed at 22:33 in order to mark new end of fiber at broken splice.
Flight 4: 22:34 – 00:02
POPS SN14 reattached to tether at 22:48, switched iMets after temperature probe on previous iMet broke during flight in precip. SN14 reattached - 40m below SN18 due to no altitudes being reported near surface from EMI. Altitudes reported in iMet files bad on ascent and temperatures off, audibly

noisy signal from iMets, EMI < 150m. Second iMet temp probe broke so temp from SN14 POPS iMet bad but can probably use SN18 iMet since the two were within 40m.
Began ascent 22:55. Ascended to 600m at 23:23. Three cloud layers developing, 200m CB, ~570 next CB, ~1 km next base. Began descent 23:25. Descended 00:02.

General Conditions: Persistent cloud layer with base around 210 – 250 m for all flights. Second cloud layer with base around 400m developed during Flight 3. Winds 5 – 8 m/s from northwest to north – northeast with time. Temperature originally 7 °C decreasing to 4 °C. Intermittent precip.

Notable events: EMI better on west end of runway as expected, although it increased at low altitudes during Flight 4 where there was a competing signal that could be heard audibly on the radio.

Several iMet temperature probe wires were broken by semi-solid precip during Flights 3 and 4, as well as DTS fiber splice, and apparent possible short-term plug of POPS SN14 inlet. IMet temperature wire probes may be endangered during future October flights.

These were the fastest wind speeds the aerostat has been intentionally flown in. For retrieval the aerostat was driven into the lee of the hangar (west side) and retrieved, which worked well.

Figure 24: Sky conditions at 21:39 on 08/11/17

Figure 25: Balloon at 230m at 22:25 during Flight 3

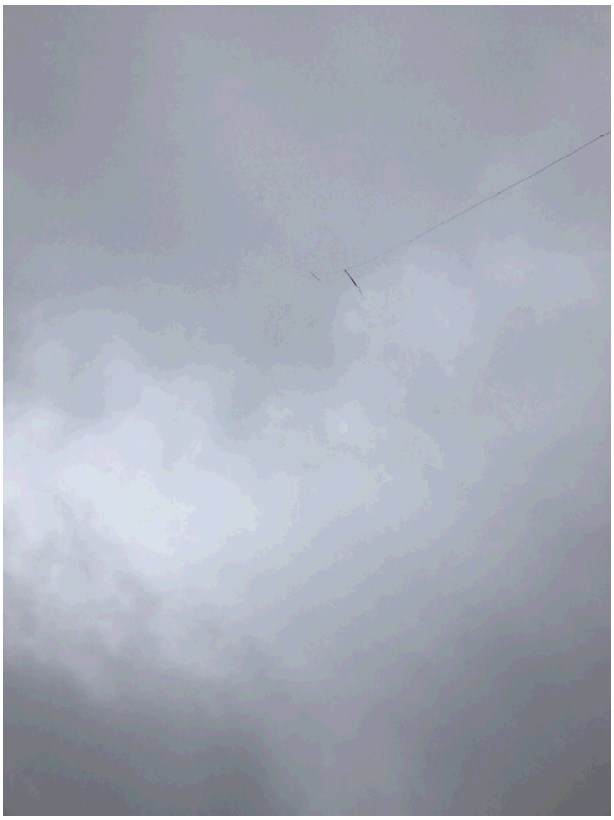

Figure 26: Tether into clouds at 23:10 during Flight 4

TBS campaign concluded two days early, departed 8/13 as opposed to 8/15, due to sustained high winds (> 25 mph sustained, gusting to 40 mph) occurring through early 8/15.

Barrow

Current and Upcoming Site Visits

Jeff Zirzow/SNL, UAF	September 10-14	Ultrasonic Met upgrade
Dan Lucero/SNL, Vaisala	September 11-15	Autolauncher upgrade

Current and Upcoming IOPs

SNPP/NPOESS Ground Truth Sonde Launch, Phase 5 – Started Oct 1, 2016
Carbon Aerosol/Methane Gas, - Task order under CPA 1260749 for labor – POP Ends – 2018
Multi-faceted Approach to Characterizing Potential Radiative Forcing on the NSA using Two Coastal Sites, Baylor – June 2016 – Sept 2017.
OYES-Electric Field Study, Texas A&M, started June 2017
Global Navigation Satellite System (GNSS) – started July 2017

Site Issues

Red Ranger still not operational, sent in for repair, needs new engine.

Unmet Needs

Need an insulated connex located by the auto-launcher to begin manual balloon launches there.

Site Upgrades

NA

Site Safety

NA

Site Staffing Issues

NA

Tower and battery controls removed from Pt. Barrow/ECOR

Distribution

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