SAND2017-12260R

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

June 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 June 23, 2017)

	June	YTD
Carryover funds	$3,729,525	
Funds Allocated YTD	$5,469,000	
Carryover plus YTD funds	$9,198,525	
Cost, burdened amount	$4,995,375	
Uncosted Funds	$4,203,151	
Commits, burdened total	$2,337,194	
Current fiscal year uncommitted funds	$1,865,957	
Subsequent fiscal year (SFY)commits	$545,016	
Total uncommitted funds, including SFY commits	$1,320,941	
Fully Burdened Staff Costs	$	
Fully Burdened Contract Costs	$	
Fully Burdened Total Costs	$	$

3 Safety

AMF3- No incident/Injury

Barrow - No Incident/Injury

4 Instrument Status – Provided by Martin Stuefer

AMF3

INFORMAL AMF3 INSTRUMENT STATUS REPORT FOR June 16 - June 23, 2017
BRIEF STATUS OF INSTRUMENTS and site IN OLIKTOK AS OF 2017/06/23:

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 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 Not Operational
DL - Doppler Lidar Operational
RL - Raman Lidar Not Operational
CEIL - Vaisala Ceilometer Operational
RWP - Radar Wind Profiler Operational
KAZR - Ka ARM Zenith Radar Not Operational as per warno.arm.gov
KaSACR - Ka-Band Scanning ARM Cloud Radar Not Operational as per warno.arm.gov
WSACR - W-Band Scanning ARM Cloud Radar Not Operational as per warno.arm.gov
TSI - Total Sky Imager Operational
AOS - Aerosol Observing System Partly Operational
AOSMET - AOS Meteorological Measurements Operational
CPC - Condensation Particle Counter Operational
CAPS - Cavity Attenuated Phase Shift Extinction Monitor Not Operational
ACSM - Aerosol Chemical Speciation Monitor Not Operational
HTDMA - Humidified Tandem Differential Mobility Analyzer Partly 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
AERI - Atmospheric Emitted Radiance Interferometer Not Operational
BBSS - Balloon Borne Sounding System Operational
CIMEL - Cimel Sunphotometer Operational
MASC - Multi Angle Snowflake Camera Operational
PIP - Precipitation Imaging Package Operational
LPM - Laser Precipitation Monitor Operational
GEONOR - Geonor Weighing Gauge Operational
SR50A - Snow Depth Sensor Operational
MET-AIR - DataHawk Unmanned Aerial System Operational
TBS - Tethered Balloon System Operational
CCN - Cloud Condensation Nuclei Particle Counter Operational

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* Oliktok Instruments in Detail: *
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INFRASTRUCTURE --- Facilities --- Operational.
2017/06/23, CM-2017-AMF3-VSN-2010/2013: There was scheduled maintenance due on the MagTec generator WEST. Operators started the MagTec Generator (EAST), then shut down the HT-DMA in AOS shelter. Then, they switched the line power from the WEST generator to the EAST generator, and restarted the HT-DMA. Later on in the day, the EAST generator failed to provide stable power to the site. Quick, intermittent drops began about an hour after maintenance was completed on the WEST generator. In response, site ops switched line power back to the WEST generator, and notified the Delta mechanic. Fuel and engine trouble were ruled out as possible causes, and Delta's troubleshooting efforts are ongoing. The WEST generator is out of commission until repairs are made, or the generator is replaced.

INFRASTRUCTURE --- Data Systems --- Operational.
2017/06/20, CM-2017-AMF3-VSN-2008: HDD S/N NA76ME2Z was full, so it was replaced with HDD S/N NA76LKKK. HDD S/N NA76ME2Z will be shipped via USPS tracking # 9114 9014 9645 0952 9751 05.
2017/06/17, CM-2017-AMF3-VSN-2006: HDD S/N NA7JSC67 was full, so it was replaced with HDD S/N NA76ME2Z. HDD S/N NA7JSC67 will be shipped via USPS tracking # 9114 9014 9645 0952 9750 75.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.
2017/06/21, CM-2017-AMF3-VSN-2009: AMF3 operators requested changes to the Daily Rounds database via email to make daily rounds easier/more accurate. Telayna added new checks, removed checks that were not useful, improved organization of checks, and added 2 new buttons for downloading and emailing logs from the 'Vehicles' and 'AOS General' pages. The revamped daily rounds file was transferred to the desktop of the FileMaker computer on site. Earlier this morning, operators acknowledged receipt of the new Daily Rounds file and synced it to their iPad. They offloaded the daily rounds file they had been using to the computer for backup. That file will be backed up on Telayna's computer at UAF, as well as the UAF server. The operators will test out the new daily rounds features and will provide feedback for additional changes via email or phone call. These features are still in the development/testing phase.

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.
2017/06/16, DQPR-6185: Christian said that the pin is not broken off in the connector. The card was made that way for proper fitting, and it is recommended that the heater board be replaced. Site ops needs a new heater board sent to AMF3. The most recent DQPR status is "waiting - for spares."
2017/05/05, DQPR-6185: Head temperature 2 is consistently flagging since 4/18/2017. The logger voltage is also spiking at times.

TIPTWR --- GNDRAD general --- Operational.
TIPTWR --- MFR3m --- Operational.
TIPTWR --- PIRgnd --- Operational.
TIPTWR --- IRTgnd --- Operational.
TIPTWR --- PSPgnd --- Operational.
MAWS --- Automatic Weather Station --- Operational, but Intermittent Wind Sensor Dropouts.
2017/06/09, DQPR-6245: Donna Holdridge (assigned DQR D170609.5) added that the latest data looks ok, and that the issue appeared to correct itself. She has not yet sent a cable to OLI. OLI ops informed Donna that they may be dropping the tower when Fred Helsel is onsite to check cables and other connections. The most recent DQPR status is "in progress - assignments."
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."
2017/05/26, DQPR-6245: Wind sensor data dropouts began intermittently on 05/24/2017 at 08:00 GMT. Full wind data loss began at 05/25/2017 on 01:00GMT. Site ops is troubleshooting. Donna Holdridge will send them a replacement data/power cable for the WMT703 on Tuesday (05/30/2017) after the holiday weekend. The most recent DQPR status is "open - requires action."

MET --- METTOWER general --- Operational, but Potential Issue.
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. Th 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."
2017/06/09, DQPR-6265: The MET RH looks to be routinely above 100% and maxing out at 110%. Note, the MAWS data was more closely aligning with the CMH RH. The most recent DQPR status is "open - requires action."

MET --- CMH --- Operational.
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 this DQR. The most recent DQPR status is "in progress - assignments."
2017/05/19, DQPR-6208: Ken Reichl has an assignment to write a DQR (D170519.1).
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 --- Not Operational, Shipped for Repair.
2017/05/12, DQPR-6142: Paytsar Muradyan submitted DQR D170512.7 on the incorrect data. The most recent DQPR status is "waiting - for spares."
2017/04/10, DQPR-6142: The Dqplots indicate that polarization is no longer working. Technicians uninstalled the instrument, and boxed it up in its shipping case to be sent to Sigma Space for repair. The start time of unavailable data is 4/19 @ 13:10.
2017/04/07, DQPR-6142: The co and cross-pol channels are nearly equal. This normally should not happen for clouds, and this issue looks to have occurred after coming back on 03/09 from the outage.
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.
2017/06/16, DQPR-6264: Due to size of the data, some of this set is transferred via disk, and processing is delayed. Looks like the DMF received data and processed it on 6/12 and 6/13. As of right now, all data received to date has been processed. There are no issues with the ingest. The missing wind data had been stored in the wrong data files due to a device update on 04/21. Paytsar performed the other firmware upgrade that was available, and now the wind files are being saved. Paytsar submitted DQR D170623.6. The most recent DQPR status is "in progress - assignments."

RADAR --- KAZR --- Not Operational as per warno.arm.gov .
2017/06/23, warno.arm.gov: The shelter overheated and the radar shut down. The MCC software is not working as designed.
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 --- KASACR --- Not Operational as per warno.arm.gov .
2017/06/23, warno.arm.gov: The shelter overheated and the radar shut down. The PDU to turn the system on is not working, so the spare on-site will need to be programmed and installed.
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."
2017/03/10, DQPR-5979: The W-band will be operated only sporadically for trouble shooting, and the KaSACR will be down for extended periods as technicians work to help diagnose the issue. 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 below.

RADAR --- WSACR --- Not Operational as per warno.arm.gov .
2017/06/23, warno.arm.gov: The shelter overheated and the radar shut down. The PDU to turn the system on is not working, so the spare on-site will need to be programmed and installed.

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."
2017/03/10, DQPR-5979: The W-band will be operated only sporadically for trouble shooting, and the KaSACR will be down for extended periods as technicians work to help diagnose the issue.
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.

IMG --- TSI --- Operational.

AOS --- General --- Partly Operational, Some Data Dropouts.
2017/06/23, CM-2017-AMF3-VSN-2011: Site technicians switched generators from WEST to EAST generators for scheduled maintenance. AOS UPS units did NOT carry the load for the momentary power loss from switching line power. Site technicians restarted all systems, and it is recommended that all AOS mentors log onto their instrument to verify proper operation.
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.
AOS --- CPC --- Operational.

AOS --- CAPS --- Not Operational. Being Fixed and Calibrated at BNL.
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 Aerodyne.
2017/06/09, DQPR-6123: The ACSM is at Aerodyne, and the new pre-amplifier has been installed. The instrument is undergoing testing, and the plan is to ship it to Oliktok at the end of the week of 2017/06/12.

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

AOS --- HTDMA --- Partly Operational (Some Data Dropouts Related to Butanol Issue).
2017/06/22, DQPR-6202: Janek added that the in-line butanol filter was cleaned, and signal dropouts are still occurring, so she is talking to the manufacturer. The most recent DQPR status is "open - requires action."
2017/06/18, DQPR-6290: Data is missing on the OLI HTDMA for the period of 2017/03/30 - 2017/04/2 at 20:30 UTC. This looks to be associated with a MCPC problem/outage documented at the end of DQPR 5805. While we have DQR D161208.2 to document the zero counts from November 2016 - January 2017 linked from DQPR 5805, there is not yet a DQR to cover this later outage period. Janek has submitted assigned DQR D170619.4. The most recent DQPR status is "in progress - assignments."

AOS --- UHSAS --- Operational.
AOS --- NEPH --- Operational.
AOS --- IMPACTOR --- Operational.
AOS --- OZONE --- Operational.
AOS --- TRACEGAS --- Operational.
AOS --- PSAP --- Operational.

AOS --- IMPACTOR --- Operational.
AOS --- TRACEGAS --- Operational.
Other --- AERI --- Not Operational Due to Laser Failure.
2017/06/23, DQPR-6292: The laser failed on the AERI on June 17, 2017 at 14:45 UTC. No data was collected for the rest of the 17th and 18th, but data was collected on June 19th with the AERI in open loop mode. That data is not usable. Adam Theisen added that we will probably need 2 DQRs once this is resolved. One for the bad data, and another for the missing data. The most recent DQPR status is "waiting - for spares."

Other --- BBSS --- Operational.
2017/06/23, CM-2017-AMF3-VSN-2012: A radiosonde failed immediately following the launch, so the sounding was terminated. There was no morning launch for 750623171. Launches will resume this afternoon.
2017/06/22, Biweekly Telecon: Hardware, software, and firmware were upgraded. The old sondes are being depleted.
2017/06/17, CM-2017-AMF3-VSN-2007: The sonde instrument failed immediately following the launch, so the operator terminated the sounding (launch 750617171). The cause of the failure was unknown, and the instrument performed as it should on the ground. Launches will resume this afternoon.

Other --- CIMEL --- 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.
Other --- SR50A --- Operational.
Other --- DataHawk Unmanned Aerial System --- Operational, not a full time instrument.
Other --- TBS --- Operational. Sensor will not be running full time.
Other --- CCN --- Operational.

Barrow

INFORMAL NSA INSTRUMENT STATUS REPORT FOR June 16, 2017 - June 23, 2017
BRIEF STATUS OF INSTRUMENTS IN BARROW (C1) AS OF 2017/06/23:

Facilities Operational
Data Systems Operational
Vehicles Partly 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 Partly 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 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
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
LPM - Laser Precipitation Monitor Operational
SR50A - Snow Depth Sensor Operational
AERI - Atmospheric Emitted Radiance Interferometer Operational
BBSS (Autosonde) - Balloon Borne Sounding System Not Operational
CIMEL - Cimel Sunphotometer Operational
IOP - CAM Operational

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* Barrow Instruments in Detail: *
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INFRASTRUCTURE --- Facilities --- Operational.

INFRASTRUCTURE --- Data Systems --- Operational.
2017/06/23, CM-2017-NSA-VSN-4345/4344/4343: IT patches were available, so Walter rebooted the various computers as requested.
2017/06/19, CM-2017-NSA-VSN-4339: A data disk was removed, replaced, and mailed a data disk.

INFRASTRUCTURE --- Vehicles --- Partly Operational.
2017/06/22, BiWeekly Telecon: The Polaris Ranger is in the shop.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD General --- Operational.
2017/06/02, 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. 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 --- IRT --- Operational.
2017/06/16, DQPR-6286: Data are not available for the time period of 2017/03/16 at 12:23 UTC - 2017/03/20 at 13:17 UTC. Victor Morris has a DQR (D170623.4) assignment. The most recent DQPR status is "in progress - assignments."

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.
2017/06/22, DQPR-6297: There looks to be a reoccurring shading problem between 02:00 - 03:00 UTC, and a quick look at the data shows that this problem goes back into May. The most recent DQPR status is "open - requires action."

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 --- Not Operational.
2017/05/12, DQPR-6203: The PWD began reporting a hardware error. Diagnostic checking revealed a problem with the DRD rain sensor. The same error had previously been resolved by reseating raincap connections inside unit, as advised by the manufacturer. This time the problem was not resolved with a cable reseat. Site ops noted a very loose connection on the raincap cable, so the instrument will be sent away for repair. There is no spare at the moment, so data will be missing. The most recent DQPR status is "waiting - for spares."

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."
2017/06/17, DQPR-6178: As of 2017/06/16 at 00:00 GMT PAR sensors are confirmed to be back in working condition. The issue was caused by the PAR sensor signal saturating the logger channels due to channels being set to a setting too sensitive for the PAR sensors installed in Nov. 2016. Auto-range has been established in logger code to prevent this from happening in the future. A DQR will be submitted shortly for hours around solar noon for all appropriate dates. Ken has been assigned DQR D170619.2. The most recent DQPR status is "in progress - assignments."
2017/05/16, DQPR-6178: The period of missing data appears to be increasing slightly as the length of the solar day increases. Ken Reichl has never seen this behavior from the PAR sensors at NSA. He posted a time series of the entire record of PAR sensor data since deployment in August 2012 on the DQPR. Compared with previous years, the sensors, both upward facing (incident) and downward facing (reflected) are not functioning normally. One possibility is that during the fall of 2016 - January 2017, foxes were eating cables, causing the logger to short. Something could have damaged the PAR sensors at this time. Or, there could be dirt or ice accumulated on both sensors.
2017/05/13, DQPR-6207: The raw data for the period of 2012/08/08 at 02:00 UTC to 2015/08/22 at 23:59 UTC will be submitted by the mentor for re-ingest and re-processing to follow DOD v3.2. NSA data after 20150822 does follow the current DOD. The mentor will submit this period of reformatted raw data for a1 level and b1 ingest so that the entire data record is based on the same DOD. Ken Reichl has an assignment to write DQR D170519.2.
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?

2016/10/09, DQPR-5694: Vwc (volumetric water content) 4 is missing for the entire period starting 16/07/12 to 16/09/25.

ECOR --- ECOR-twr --- Operational.
2017/06/22, DQPR-6298: The virtual hosts that support the ECOR at E10 had to be shut down for data system maintenance. When they came back up, the virtual computer for the E10 ECOR was missing a symbolic link on one of the file systems. This prevented the Moxa kernel module from loading, which prevented the serial ports for the SONIC and IRGA from working. This has been resolved. David Cook has an assignment to write a DQR (D170623.1). The most recent DQPR status is "in progress - assignments."

ECOR --- ECOR-Pt. Barrow --- Not Operational, End of Season.

MW RADIOMETERS --- MWR --- Operational.
2017/06/22, CM-2017-NSA-VSN-4341: Telayna saw a collection warning on DS View. She remoted logged onto the MWR computer and found the following error message: "program terminated with exit code 0." She hit yes to exit the window, and restarted the program. The program appears to be running now.

MW RADIOMETERS --- MWRP --- Operational, but Questionable and Unreliable Data.
2017/04/13, Biweekly Telecon: Maria is monitoring issues and determining if the MWRP needs to go back to the factory. The most recent DQPR status is "waiting - for spares."
2017/03/27, DQPR-6119: The MWRP data are questionable and unreliable. It is possible that there is a strong uncorrected temperature dependence of the calibration. Maria plans that operators will collect one more month of data to have enough calibration points to try to develop a correction. However, because of the likely non-linear temperature dependence, it is possible that a recalibration will not be necessary. The most recent DQPR status is "open - requires action."

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 --- Operational, but Some Data Dropouts.
2017/06/23, DQPR-6274: The missing variables problem looks to have settled down on 6/9, although we have not received date since 12:00 UTC on 06/22.
2017/06/23, CM-2017-NSA-VSN-4342: The software crashed, so it was restarted (just the vapor program, not the graphical display).

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 seed laser in the HSRL no longer functions 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.
2017/06/23, DQPR-6300: Starting 6/16, the MPL looks to have been going down intermittently. The only period to be flagged as missing is 6/17-6/19. The most recent DQPR status is "open - requires action."
2017/06/16, DQPR-6259: The interesting artifact that Adam mentioned is not due to the data, but due to how the plots are generated by code. The most recent DQPR status is "in progress - assignments."

LIDAR --- CEIL --- Operational, but a Warning is Still Flagged at 100%.

2017/06/09, DQPR-6153: The blower was replaced on 05/22, but we are still seeing a warning flagged 100%. THe most recent DQPR status is "waiting - for spares."

LIDAR --- Doppler LIDAR --- Operational.
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 --- Not Operational as per warno.arm.gov .
2017/06/15, warno.arm.gov: Refurbished DSAs were installed, the azimuth axis is still not functional, and the chillers have been replaced/received.
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 by the end of this year, 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.

AOS --- General --- Operational.
AOS --- AETH --- Operational.

AOS --- CLAP --- Operational.
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 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.
2017/06/22, DQPR-6252: Anne Jefferson is waiting for Derek to return from vacation to see if her can regenerate the data files in the new format.The most recent DQPR status is "in progress - assignments."
2017/05/31, DQPR-6252: Similar to the CLAP issue covered in DQPR 6251, this DQPR is being submitted as a placeholder for 2 periods of missing data identified through data review EWO 21024: 1. DQR D160927.7 covers a power outage from 09/15 - 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. There is another missing data period from 00:00 UTC 12/01 - 18:00 UTC 12/06/2016. Joshua King omitted the start/end dates from the DQPR so that DQRs can easily be assigned/filled out for these periods. This DQPR has been linked to DQPR 6251, and Anne Jefferson has been assigned DQR periods. Anne commented that she has the data, and is not sure why the data is not at the DMF. She posted the clap3w csv files for these time periods at ftp://aftp.cmdl.noaa.gov/aerosol/etc/ARM/NSA/2017. The most recent DQPR status is "in progress - assignments."

AOS --- NEPH --- Operational.
AOS --- IMPACTOR --- Operational.
IMG --- TOWERCAM --- Operational.

IMG --- TSI --- Operational.
Precip --- LPM --- Operational, Logger Program Being Worked On.
Other --- SR50A --- Operational.
Other --- AERI --- Operational.
Other --- BBSS (Autosonde) --- Not Operational. Manual Launches.
2017/06/22, BiWeekly Telecon: The onboard CPU inside the logic controller has failed. A part is being shipped from Helsinki to Barrow.
2017/06/16, CM-2017-NSA-VSN-4338: The BBSS computer was returned from SGP and installed. However, the issues continue, and Walter will be monitoring the system. The shelter/logic controller is operating on a UPS.

Other --- CIMEL --- Operational.
IOP --- CAM --- Operational.

5 North Slope Facilities

AMF3

Current and Upcoming Site Visits

Fred Helsel, Bruce Edwardson-SNL	July 6-13	Site overview, Sprung Structure
Todd Houchens/SNL	July 6-11	Radar repair, Sprung Structure
Bryan Hopkins/Rader Awning	July 6-10	Repair to Sprung Structure

Current and Upcoming IOPs

Black Carbon on the North Slope (Baylor)

Comparison MASC (upcoming)

Site News/Issues

Unmet Needs

We are running on leased diesel generators while other options are investigated and evaluated.

Site Upgrades

Site cleaned up after fire.

Site Safety

NA

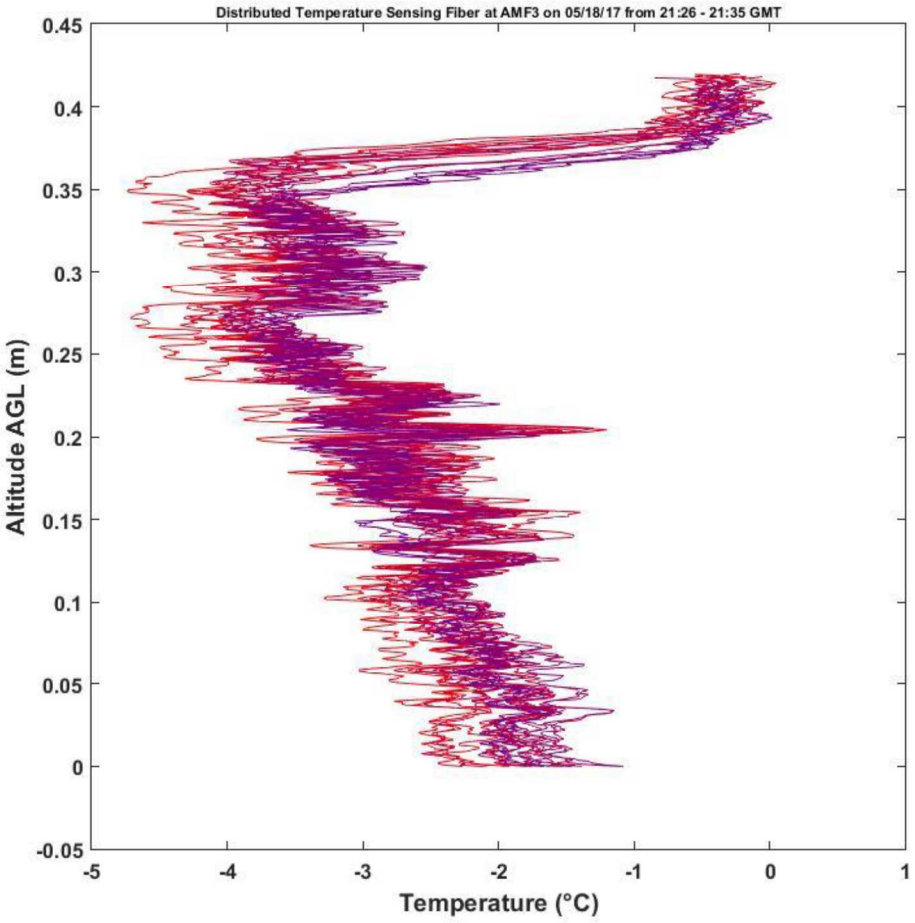
Site Staffing Issues

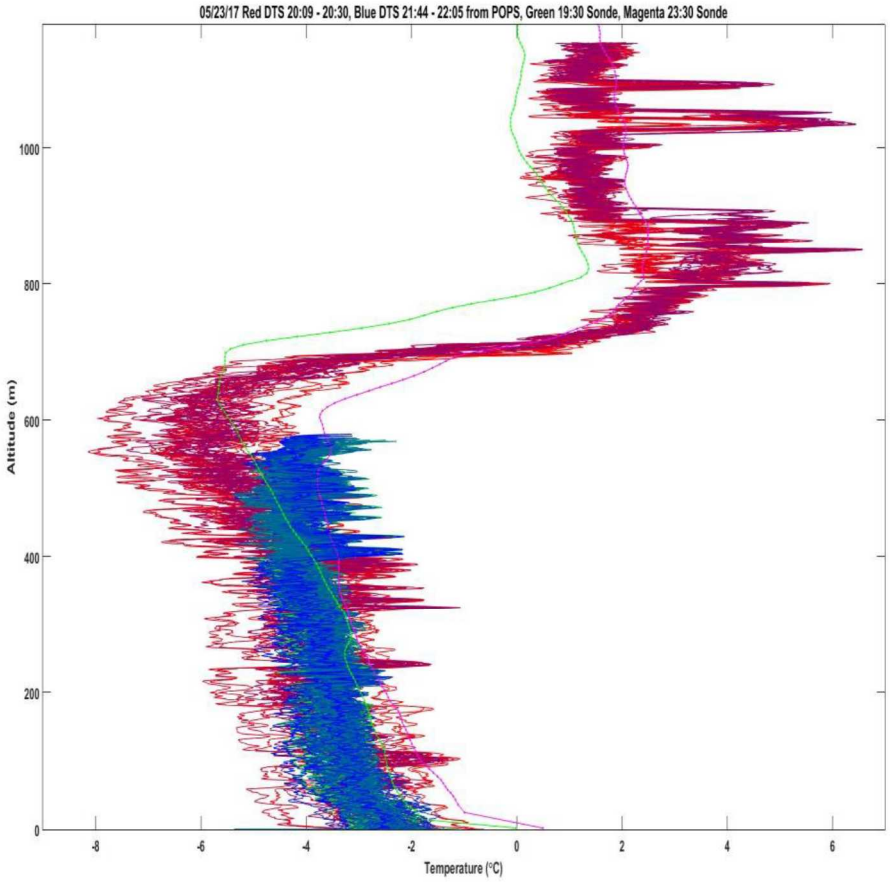
NA

Tethered Balloon Operations

TBS Report for June 2017

DTS data were analyzed from the May 2017 TBS campaign. It was determined that the silicon oil used in the DTS calibration baths for the first time in May 2017 did not perform as well as the ice and water baths previously used. Much of the May 2017 DTS data was invalid due to poor calibration. It was also noted that the internal DTS battery was dead. The manufacturer requires the unit to be returned in order for this battery to be changed. An increase in noise in the DTS data was also noted in the May 2017 campaign. The DTS unit was returned to the UK for warranty service and maintenance to address these issues. It will be returned by 8/1 for the next scheduled TBS campaign at the AMF3.





DTS measurements were attempted through the fiber optic rotary joint in May 2017. Although measurements were successful when tested in Albuquerque, the temperature measurements through the rotary joint were obviously incorrect in Oliktok. After discussions with the manufacturer the supposed cause is a buildup of the fluid within the fiber optic rotary joint on the internal optics, caused by the relatively high power of the DTS laser. The rotary joint has been returned for exchange to a model that does not use fluid, which will be used in August.

DMF ingests and collections for iMet and DTS data are in process under EWO0021225.

Supercooled liquid water sonde analysis from May 2017 is ongoing. Quicklooks for the SLWC are in progress. New housings have been 3D printed for the iMet radiosondes and supercooled liquid water sondes at SNL. These housings will be lined with RF-reducing foam in order to try to prevent some of the EMI problems encountered at Oliktok. The housings will be a great improvement over the previous cardboard housings, which fell apart after operating in clouds and were time consuming to prepare for flight.

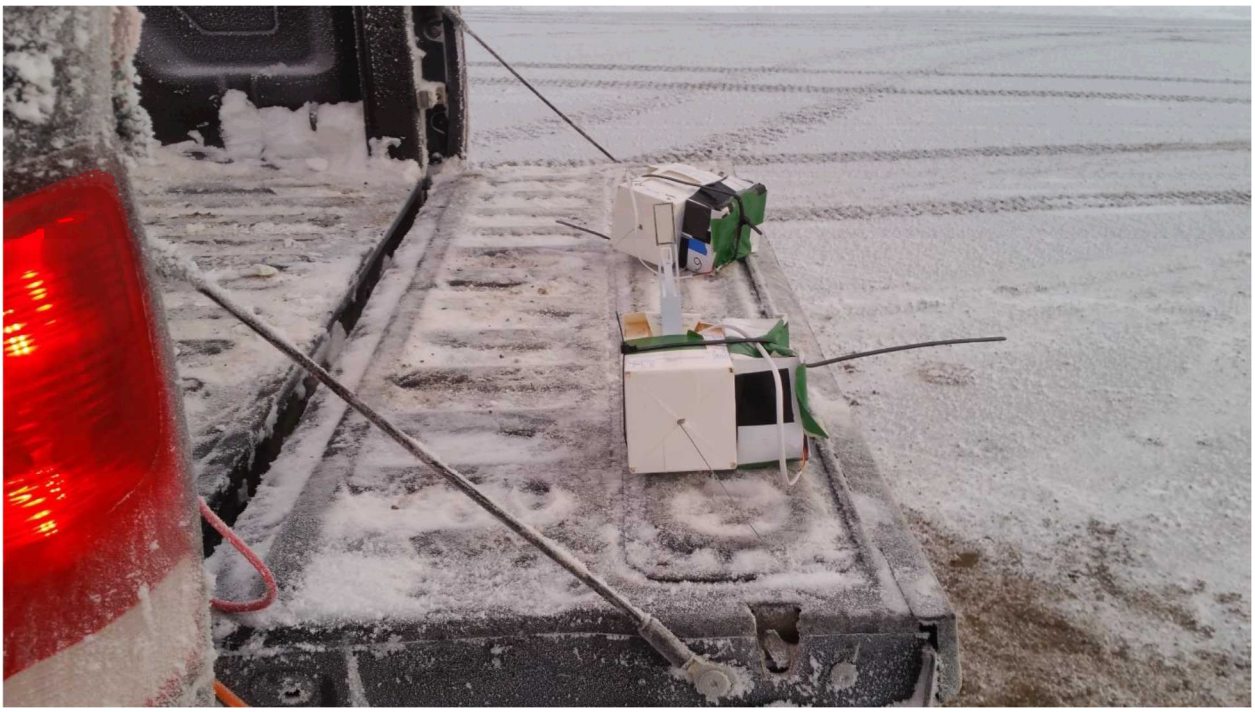


Figure 1: Previously used cardboard iMet radiosonde and SLWC housings

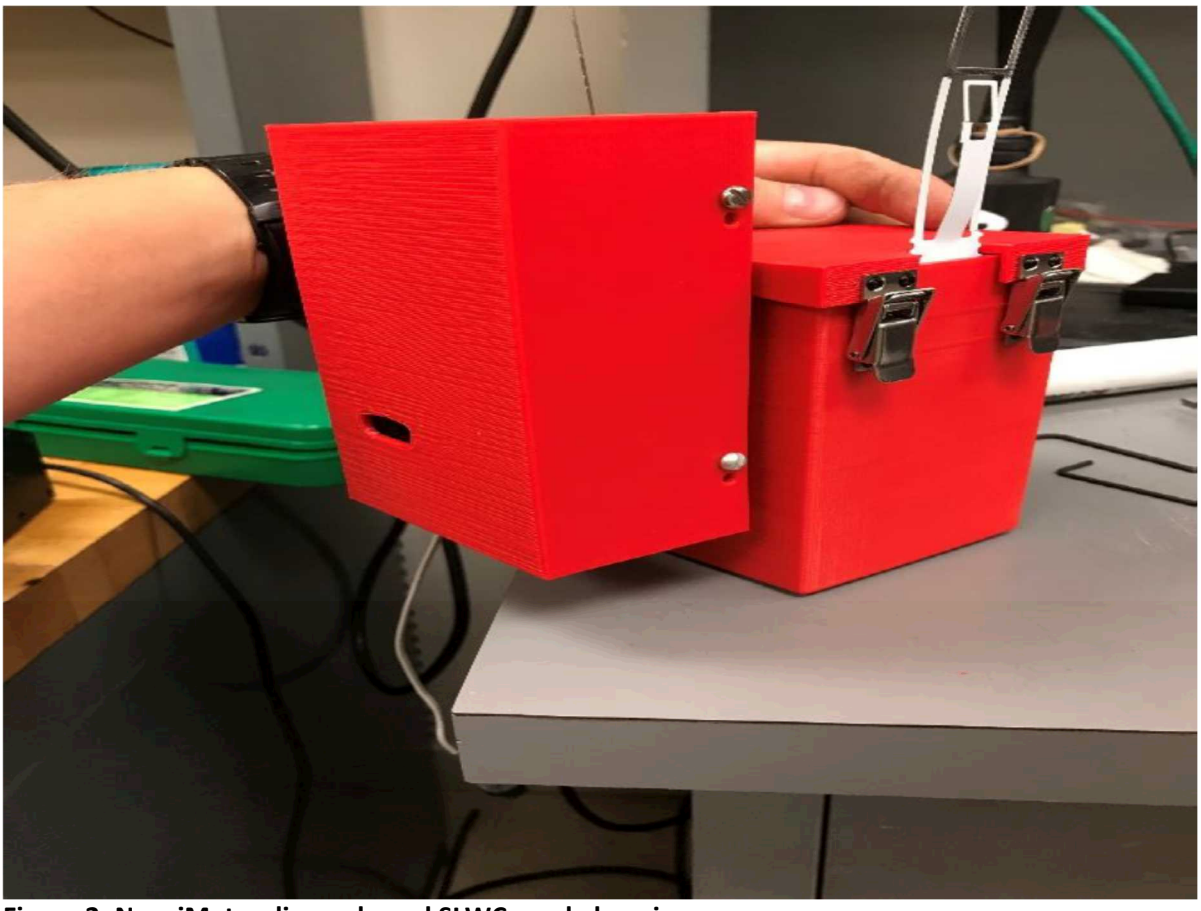


Figure 2: New iMet radiosonde and SLWC sonde housings

To date, communications between the runway TBS launch site and TBS desktop at the AMF3 have been impossible. ANL has provided two different antenna types and both types have been tested using different frequencies. The lack of sustained connection between the runway and TBS desktop has meant that instrument software operating on the TBS desktop during flight can't be viewed unless TBS operators physically return to the AMF3. Attempts to procure a third antenna type for testing in August are underway. The TBS needs to begin operating further from the AMF3 to prevent conflict with AMF3 radars and other UASs, increasing the difficulty for TBS operators to return to the AMF3 during flights.

Barrow

Current and Upcoming Site Visits

Dan Lucero/SNL	June 12-23	IOP support
Chuntao Lui, Thomas Lavigne/TX A&M	June 12-23	Electric Field Study IOP
Todd Houchens/SNL	June 13-14	Radar support

Current and Upcoming IOPs

SNPP/NPOESS Ground Truth Sonde Launch, Phase 5 – Started Oct 1, 2016
Seismic Probes for NSF– POP Ends, Oct 31, 2018
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

Site Issues

The Auto Balloon Launcher still not operational, problem with control board on UPS power, a new board has been ordered.

Unmet Needs

The ECOR Pt Barrow system is scheduled to be removed in July.

Site Upgrades

NA

Site Safety

NA

Site Staffing Issues

NA

Distribution

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