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

August 2018

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1 North Slope Facilities Management Executive Summary

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- Barrow and AMF3 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 August 31, 2018)

	August	YTD
Carryover funds	$5,078,053	
Funds Allocated YTD	$6,200,000	
Carryover plus YTD funds	$11,278,053	
Cost, burdened amount	$6,168,004	
Uncosted Funds	$5,110,049	
Commits, burdened total	$1,868,764	
Current fiscal year uncommitted funds	$3,241,285	
Subsequent fiscal year (SFY)commits	$1,346,863	
Total uncommitted funds, including SFY commits	$1,894,422	
Fully Burdened Staff Costs	$315,000	$3,400,000
Fully Burdened Contract Costs	$173,000	$2,768,000
Fully Burdened Total Costs	$488,000	$6,168,000

3 Summary of Current Management Issues

Management summary of current issues for August 2018

1. Radar interference at Oliktok Point.
   We are taking the following steps at AMF3/Oliktok as a consequence of severe radio frequency interference experienced there this summer:
   a. Last session of DataHawk flights (early September) are cancelled. The majority of DataHawks are disabled or broken at the moment, after RF damage from flight attempts at Oliktok.
   b. Dari has found shielding and filtering techniques that help mitigate the RF interference for some devices. She and her team will fly tethered balloons for the last TBS session scheduled for the end of September.
   c. Dale Lawrence will hold on the CU-Boulder Glidersonde flights, originally scheduled for mid-September 2018, until more is known about RF interference, and Glidersondes can be hardened against RF.
   d. Cathy Cahill and Gijs deBoer are proceeding with plans to fly SeaHunter during the big SODA campaign from mid-September through mid-October.
   e. The North Slope team will continue engagement with the Air Force unit at Elmendorf AFB Joint Frequency Office to determine what can be done to mitigate or solve the Oliktok radar interference. We will make measurements at Barrow to determine if a similar RF interference problem exists there.
2. Hope Michelsen and Ray Bambha are working with John Goldsmith on lidar mentoring tasks. A current issue is getting an uninterruptible power supply on the RAMAN lidar electronics at Oliktok for the balance of the season.
3. MASC and PIP snowflake measurement systems were moved from Oliktok to Barrow, with the goal to get these instruments installed and running by end of September.
4. Fred Helsel led an effort to reduce clutter and clean up the Barrow ARM facilities. He got a “two thumbs up” rating from our ES&H coordinator Marc Williams after a recent on-site inspection.
5. We are renewing the operations contract with Fairweather for tech support at Oliktok. Along with a renewal, we are changing the contract to Time and Materials, which we think will give us more flexibility to reduce costs by modifying operations if necessary. This renewal and other big contract renewals or placement are expected to have a noticeable impact on our 2018 carryover.
6. Todd Houchens is making plans to move to Spokane, Washington after getting approval for a “remote work assignment” from Sandia management. He plans to spend about 2 weeks per month on average at PNNL/Richland. That amount of time may vary depending on field assignments, National Guard duty, and ARM IOPs (like CACTI).
7. Mark Ivey will be making presentations about ARM facilities in Alaska and planned field campaigns in the Arctic to the US Arctic Research Commission and the NAS Polar Research Board. Presentations are planned for September and October.
8. The Capstone microturbines that we originally used for power at Oliktok have been re-installed. However, they are not proving to be reliable, as they shut down after run times of about a week. We have planned a troubleshooting trip in September to see if the problem can be identified and these microturbines used for power this winter.

4 Safety

AMF3- No incident/Injury

Barrow - No Incident/Injury

5 Tethered Balloon Operations

TBS Report for August 2018

POPEYE:

a. We have had recent problems with radio interference of GPS-sensing equipment on TBS and DataHawks at Oliktok. TBS crew has been testing and flying from stretches of runway that exhibit least interference, but this has proven more problematic for DH flights, as it interferes with navigation systems and control. Most likely, this is from the USAF Oliktok Long Range Radar operations. Both Dari and Mark have contacted the USAF Spectrum Management officers at Elmendorf AFB responsible for coordinating the site operations with us, and familiar with our previous RF interference problems. Sandia is actively working that problem now, by discussion with Elmendorf AFB personnel, conducting RF spectrum scans at and around Oliktok, and further analysis of RF spectrum data collected earlier this year (in May).
b. POPEYE Schedule:
   TBS cycle 2 just completed… DH cycle 2 just begun (**overlap day = 04 Aug**)
   i. TBS cycles: (1) 01-11 July, (2) 23July-04Aug, (3) 17-28 Aug, (4) 19Sep-01Oct
   ii. DH cycles: (1) 11-23 July, (2) 04-17 Aug, ~~(3) 06-19 Sep~~ (*cancelled due to RF damage to DHs*)
c. TBS flights for Cycle 1 (01-11 July)):
   i. >41 hrs flight; with aerostat (17.25 hrs) and helikite (24.5 hrs)
   ii. Flights at various altitudes of ~80-1300m;
   iii. Variable flight conditions with/without/through clouds, in precipitation and fog,
   iv. Collected generally low aerosol counts (POPS 0-330, generally with more particles at higher elevations (occasionally with layers) and fewer near surface), with significant count gradients occurring at inversions along with changes aloft in wind speed and direction,
   v. Conditions with ocean and tundra (N vs S) winds (max ~10m/s), and surface temps 0-7C (30s-40s(F)),
   vi. Continuous DTS temperature profiles, with frequent evident temperature inversions

vii. many instruments (CPC, POPS, iMets, anemometers, charge sensor, SLWCs (two types, for comparisons)),
viii. Issues with GPS EDD misfire (repaired, corrected), and with POPS internal temperature sensor failed periodically,
ix. Periods of high winds restricted flight hours,
x. Coordinated flights with DataHawks. On 07/10, TBS held formation at a given heights while the DataHawk made ~5 min samples at the altitudes with iMet and wind sensors. During the first flight this was at 700, 400, 100m while during the second flight this was at 1000, 700, 400m. Today we accomplished some coordinated flights with Datahawks. On 07/11, TBS held formation at a given height while the Datahawk made ~10 min samples to compare with iMet and wind sensors at 700m, then down to the surface with the Datahawk descending at nearly the same rate.
xi. There were multiple calibration activities on 07/11.
    1. Aerosol Test: POPS and the CPC were run by the base of the AOS inlet
    2. Chamber Test: two batches of sensors were run through a temperature pattern with a 5min hold at 6 different temperatures.
    3. Sprung Test: Intercomparison with the DataHawks, using 3 iMets, 2 XQs, and 2 Datahawks. All systems were set in the middle of the sprung structure with both ends open. This made the space a wind tunnel and helped to ventilate the sensors.
    4. TBS Met Station Test: Intercomparison with DataHhawks where all sensors operating at the end of the Sprung Test were moved to the top of the TBS shelter and placed next to the met sensor mounted to the shelter.

d. TBS flights for Cycle 2 (23 July – 04 Aug):
i. >44 hrs flight… with aerostat (9.5 hrs) and helikite (31.25 hrs) (*thru 08/03=44.75hrs*);
ii. Flights at altitudes of ~150-1020m;
iii. Variable flight conditions with/without/through clouds, in precipitation and fog,
iv. Collected high and low aerosol counts (POPS 0-925, at hi/low altitudes)… (*note: emissions from melt ponds NOT visible*),
v. Conditions with ocean and tundra (N vs S) winds (max >11m/s), and surface temps 0-24C (30s-70s(F)),
vi. Continuous DTS temperature profiles, with frequent evident temperature inversions
vii. many instruments (CPC, POPS, iMets, anemometers, charge sensor, SLWCs (two types, for comparisons)),
viii. Single occurrence of GPS EDD misfire (repaired and corrected)…
ix. Convective events and winds restricted periods of flight.

Figure 1: Balloon and sky conditions on 7/1/18 at 22:44.

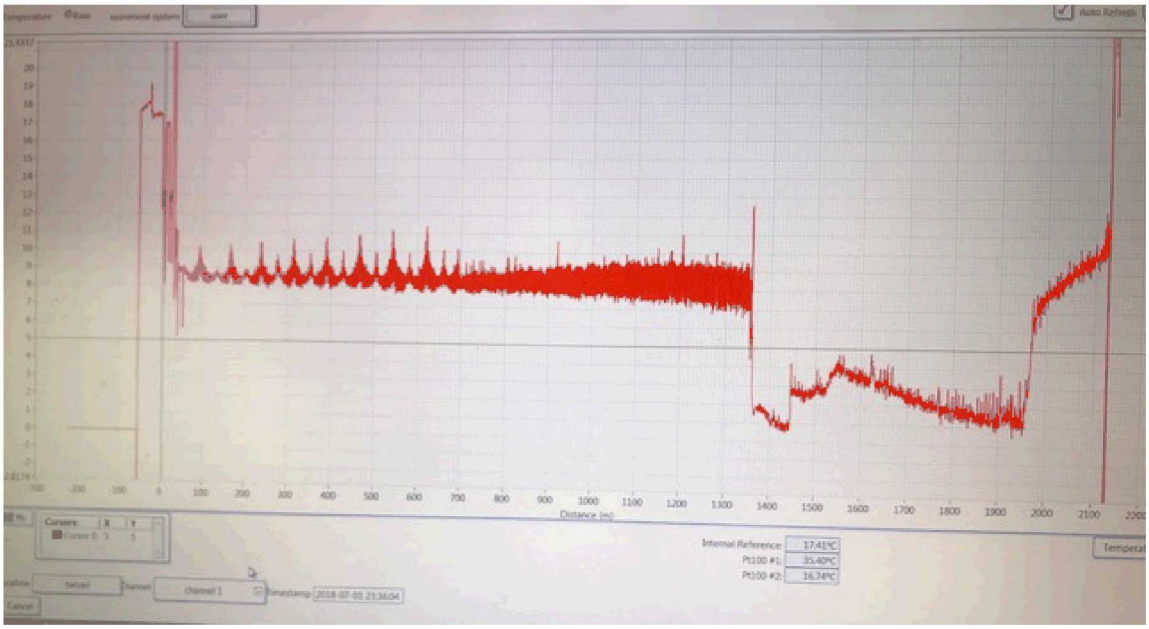

Figure 2: DTS temperature trace. Sharp jump around 1800m on the x-axis is due to the temperature increasing sharply at cloud top and above.

Figure 1: (a) Helikite aloft in clouds at ~400m on 07/07; (b) Helikite parked at 70m on 07/08

Figure 4: (a) Deploying aerostat 07/09 in blue skies, (b) setting up for SLWCs comparison

Figure 5: Sensors being compared inside the temperature controlled chamber.

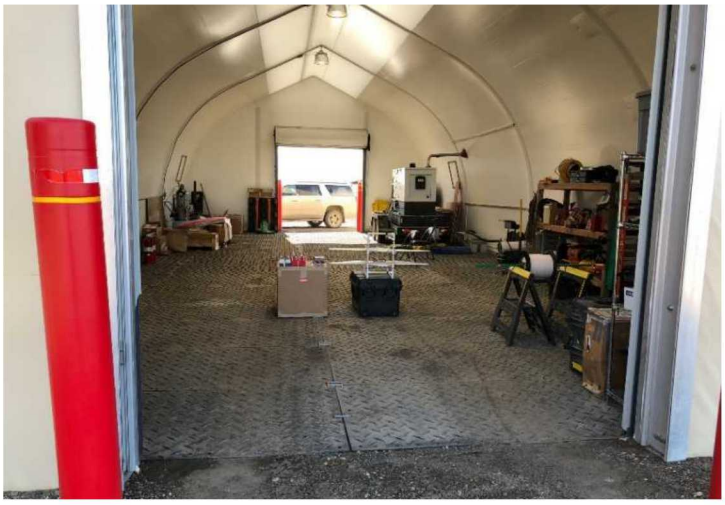

Figure 6: Sensors being compared next to each other in the sprung structure "wind tunnel"

Figure 7: Sensors operating near the TBS met station on top of the TBS lab container

Figure 8: Clouds dissipating on 07/25 (a) at 00:41, then (b) mostly clear skies at 01:19.

Figure 9: Clouds on 07/27: (a) Conditions at 19:33Z, (b) Conditions at 21:10, (c) Conditions at 23:06Z

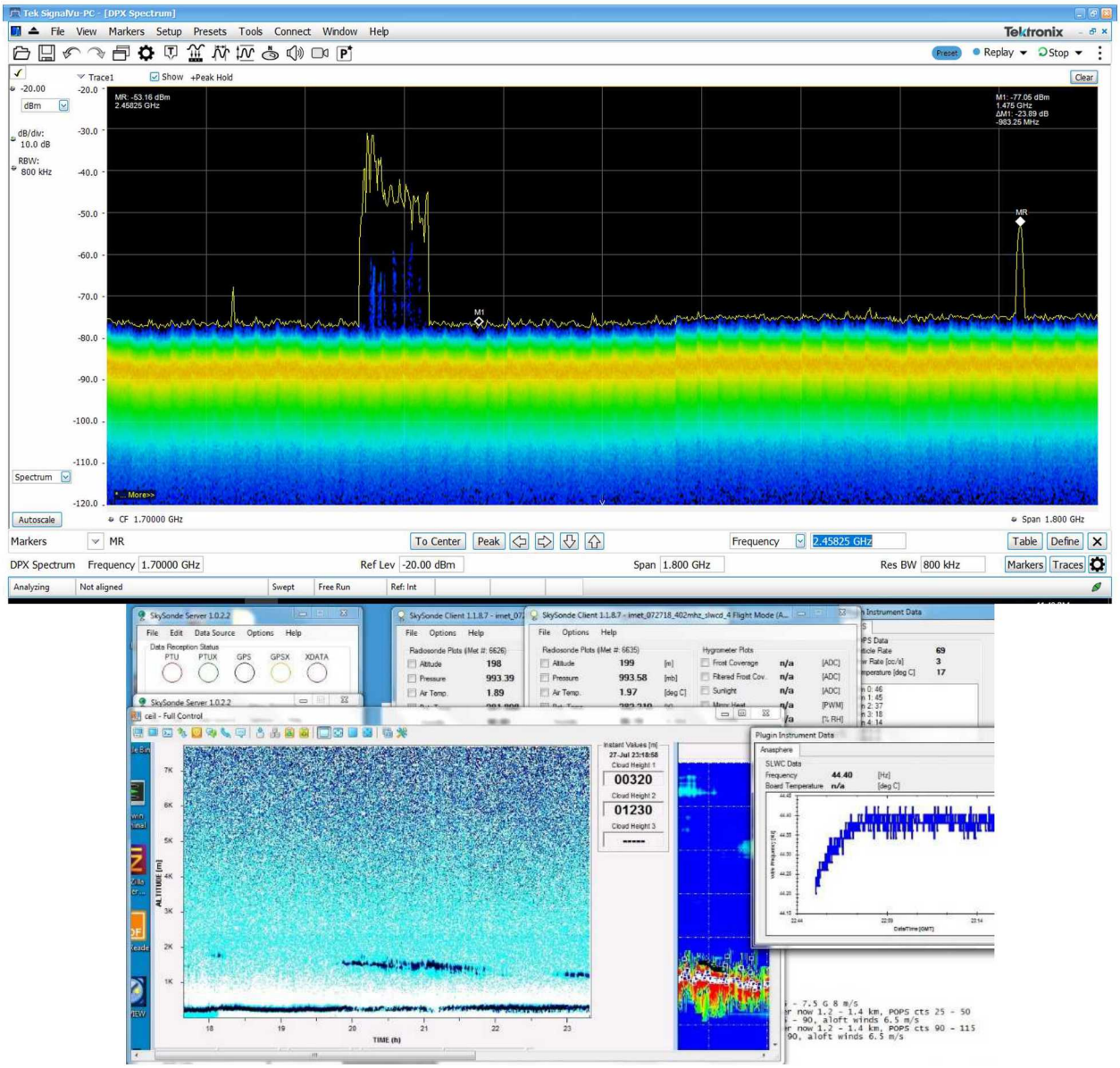

Figure 10: Ceilometer throughout 07/27 flights

6 North Slope Facilities

AMF3

Current and Upcoming Site Visits

Fred Helsel, Ben Bishop, Al Bendure/SNL	09/05 - 09/10/2018	Power transfer work
POPEYE TBS rotation/SNL	09/17 - 10/01/2018	POPEYE IOP
Fred Helsel/SNL	09/24 – 09/28/2018	Site visit
Ben Bishop, Jeff Zirzow/SNL	09/24 – 09/28/2018	Radiometer change out

Current and Upcoming IOPs

Snowflake Settling Speed Experiment: MASC
Timothy Garrett –University of Utah: Presently out for repair IOP ends 9/30/2018
Evaluate NASA PIP Instrument at Oliktok - **ENG0003203** - move to Barrow
POPEYE - July 2018 through September 2018

Site News

Sandia upper management/ES&H site visit August 7. Everything was in order and visit went well.

Site and Safety Issues

ENG0000990: RAB: SKYRAD-IRT and IRT duel collections. Completed by Vic and Telayna; issues with 1-second data, mentor working to resolve issue. New Moxas have been ordered and on the way.

Unmet Needs

NA

Site Changes/Upgrades

The PIP and MASC will be removed and relocated to Barrow in September. **ENG0003801**

Matthew Strum is upgrading the precipitation measurement systems.
ENG0003770 The LPM will be moved into the snow fence used to house the MASC. A new snow fence is on order for the MASC will be reinstall at Barrow in September.

Site Staffing - N/A

Barrow

Current and Upcoming Site Visits

Fred Helsel, Ben Bishop, Al Bendure/SNL	09/05 - 09/10/2018	Stairs installation
Fred Helsel/SNL	09/24 – 09/28/2018	Site visit
Ben Bishop, Jeff Zirzow/SNL	09/24 – 09/28/2018	Radiometer change out

Current and Upcoming IOPs

SNPP/NPOESS Ground Truth Sonde Launch, Phase 5 – start date Oct 1, 2016
Seismic Probes for NSF– POP Ends, Oct 31, 2018
Global Navigation Satellite System (GNSS) – start date July 2017
RIVAL - Sonde RS92 RS41 comparison. (Donna Holdridge)
Heated Pyrheliometer IOP requesting extension - winter 2018

Site News

Sandia upper management/ES&H site visit August 8. Everything was in order and visit went well.

Site and Safety Issues

ENG0000990: RAB: SKYRAD-IRT and IRT duel collections. Completed by Vic and Telayna; issues with 1-second data, mentor working to resolve issue. New Moxas have been ordered and on the way.

NWS sonde launches: Donna Holdridge is working with Mike Couch (NOAA Federal) to take over the Barrow NWS sonde launches. Issues: the RBL needs different software, and MW41 may only run under Windows 10 (there are security issues if it doesn't). However, there may be some bugs with the newer version of the MW41 software. Need to determine how much helium is needed to supply NWS and ARM launches until the hydrogen generator is installed next year.

Unmet Needs

NA

Site Changes/Upgrades

The (SACR I) has been picked up by Bowhead for barging to lower 48 and final shipping to SGP.

NWS has delayed install of the hydrogen generator for NWS sondes until next year.

The PIP and MASC from AMF3 will be installed at Barrow in September, hopefully before the snow begins falling. **ENG0003801**

Site Staffing Issues

NA

Appendices: Instrument Status – Provided by Martin Stuefer and Telayna Gordon

- Appendix A: AMF3

INFORMAL **AMF3 INSTRUMENT STATUS REPORT** FOR August 17 - August 24, 2018
BRIEF STATUS OF INSTRUMENTS AND SITE IN OLIKTOK AS OF 2018/08/24:

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
MFR2.5m - Multifilter Radiometer at 2.5m 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 Operational
DL - Doppler Lidar Partly Operational
RL - Raman Lidar Operational
CEIL - Vaisala Ceilometer Operational
KAZR - Ka ARM Zenith 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 Operational
CPC - Condensation Particle Counter Operational
CAPS - Cavity Attenuated Phase Shift Extinction Monitor Not Operational
ACSM - Aerosol Chemical Speciation Monitor Operational
HTD-MA - 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
CCN - Cloud Condensation Nuclei Particle Counter Not 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
IRT - Infrared Thermometer 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.
INFRASTRUCTURE --- Data Systems --- Operational.
2018/08/23, CM-2018-AMF3-VSN-2570: HDD S/N NA76M3Z5 was filled, so it was replaced with HDD S/N NA7Q2CPN. Ops will ship HDD S/N NA76M3Z5 via USPS tracking # 9114 9014 9645 0852 3622 65.
2018/08/20, CM-2018-AMF3-VSN-2564: HDD S/N NA7Q2C9B was filled, so it was replaced with HDD S/N NA76M3Z5. Ops will ship HDD S/N NA7Q2C9B via USPS tracking # 9114 9014 9645 0852 3622 65.
2018/08/18, CM-2018-AMF3-VSN-2562: HDD S/N NA77YHMS was filled, so it was replaced with HDD S/N NA7Q2C9B. Ops will ship HDD S/N NA77YHMS via USPS tracking # 9114 9014 9645 0852 3622 03.
INFRASTRUCTURE --- Vehicles --- Operational.
INFRASTRUCTURE --- Desktop Computers --- Operational.
SKYRAD --- SKYRAD general --- 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.
2018/07/13, DQPR-7179: There appears to be a slight shading problem from roughly 12:00 - 14:00 UTC. Adam Theisen posted a plot of diffuse hemispheric irradiance to show this shading. Christian Herrera requests that operators check for possible instrument shading and confirm North/South alignment. The most recent DQPR status is "open - requires action."
TIPTWR --- GNDRAD general --- Operational.
TIPTWR --- MFR2.5m --- Operational.
TIPTWR --- PIRgnd --- Operational.
TIPTWR --- PSPgnd --- Operational.
MAWS --- Automatic Weather Station --- Operational.
2018/08/17, CM-2018-AMF3-VSN-2561: The MAWS ingest was hung since 00:03 UTC on 2018/08/16 due to a bad line and missing header in the data file for 8/16/2018. The file 'LOG1_20180816.txt' was copied from the MAWS VM (.48), the line of bad data was deleted, and the missing header was added. The amended file was emailed to dmfops@arm.gov to see if that fixes the ingest.
MET --- METTOWER general --- Operational.
MET --- CMH --- Operational, but RH Data is Suspicious.
2018/08/24, DQPR-7241/CM-2018-AMF3-VSN-2571: Site ops performed the instrument's calibration procedure at 18:20 UTC, per the mentor's request. The most recent DQPR status is "open - requires action."
2018/08/21, DQPR-7241/CM-2018-AMF3-VSN-2566: Since 7/24/18, the CMH RH is suspiciously high. CMH dew point data appears to drift upward over time and is consistently much warmer than ambient temperature. Site ops found some dirt buildup on the mirror, but conditions persisted.
MET --- Barometer --- Operational.
MET --- TEMPERATURE / HUMIDITY --- Operational.
MET --- WIND INSTRUMENTS (SONIC) --- Operational.
MET --- PWD --- Operational.
2018/04/19, DQPR-7021: Jenni added that because this is expected behavior with power interruptions, and is flagged by QC, a transparent DQR might be appropriate. Jenni Kyrouac has been assigned DQR D180420.3. The most recent DQPR status is “in progress - assignments.”
2018/04/13, DQPR-7021: Adam Theisen commented that this looks to be a continuing issue, with 4/8 as the latest occurrence.

2018/04/04, DQPR-7021: The PWD has been reporting erroneously high values during the last few days. The mentor indicated that it looks like the serial number is getting reported in the 'precip' field. I think the string is getting messed up when the power is interrupted. This is kind of expected because it takes a few minutes for all the fields to populate in the output string. The issue first occurred on 2018/04/01 at 20:48 UTC.
MET --- AMC --- Operational.
ECOR --- ECOR --- Operational.
ECOR --- SEBS --- Operational.
MW RADIOMETERS --- MWR3C --- Operational.
LIDAR --- Micropulse LIDAR --- Operational.
LIDAR --- Doppler LIDAR --- Partly Operational, a Potential Issue with the Internal Computer.
LIDAR --- Raman LIDAR --- Operational.
LIDAR --- CEIL --- Operational.
RADAR --- KAZR --- Operational as per warno.arm.gov.
Sonde --- BBSS --- Operational.
2018/08/23, CM-2018-AMF3-VSN-2569: Technicians are unable to launch the 05:30 UTC balloon due to high wind conditions. Winds are >30 mph sustained, and gusting >40 mph. Launches will resume when weather conditions permit.
2018/08/21, CM-2018-AMF3-VSN-2568: Technicians are unable to launch the 23:30 UTC balloon due to high wind conditions. Winds are >30 mph sustained. Launches will resume when weather conditions permit.
2018/08/21, CM-2018-AMF3-VSN-2567: Technicians are unable to launch the 17:30 UTC balloon due to high wind conditions. Winds are >30 mph sustained. Launches will resume when weather conditions permit.
IMG --- TSI --- Operational.
2018/08/21, CM-2018-AMF3-VSN-2565: The TSI image was out of alignment, so Victor adjusted the image at 00:05 UTC.
2018/08/19, CM-2018-AMF3-VSN-2563: After a few days of substantial rain onsite, site ops noticed that there was water that had accumulated within the instrument's camera housing. Site ops removed the cover of the camera housing and cleaned out the water that had built up inside the unit. Site ops then reattached and resealed the housing's cover. This maintenance took place between 21:35 and 21:45 UTC.
AOS --- General --- Partly Operational, Some Instruments Shut Down.
AOS --- AOSMET --- Operational.
AOS --- CO - Analyzer --- Operational.
AOS --- CPC (CPCU and CPCF) --- Operational.
AOS --- CAPS --- Not Operational, Instrument at BNL.
2018/08/17, DQPR-5816: The repaired unit is back at BNL and was just used in the ARM-sanctioned PSAP filter laboratory study. One of the three pumps failed during this study and BNL is awaiting the delivery of the replacement pumps. Once replaced, the instrument can be shipped back to the site. The most recent DQPR status is "in progress - assignments."
2017/08/07, DQPR-5816: The red channel should be usable once the mentor can look at the entire OLI dataset. Related to this issue, the mentor has been informed by the manufacturer that a fix to the ongoing problem with the 3W unit regarding the need for a PSL calibration is being finalized. This fix will require swapping out the 3 DAQ cards. New cards are currently being created by a third party for the manufacturer (Aerodyne). Given this, the OLI CAPS will remain at BNL until the three new cards can be installed. The most recent DQPR status is "in progress - assignments."
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.
AOS --- ACSM --- Operational.

AOS --- HT-DMA --- Operational.
AOS --- GHG-Picarro --- Operational.
2018/08/24, DQPR-7235: Adam Theisen assigned DQR D180824.1 to Andrew Moyes. The most recent DQPR status is "in progress - assignments."
2018/08/17, DQPR-7235: From 14:55 to 21:15 UTC, the instrument was using the incorrect gas source, possibly due to an error in starting the valve sequencer. The analyzer continued to measure the calibration cylinder instead of switching to the tower inlet gas source during this period.
AOS --- UHSAS --- Operational.
AOS --- NEPH --- Operational.
AOS --- IMPACTOR --- Operational.
AOS --- Ozone --- Operational.
AOS --- PSAP --- Operational.
AOS --- IMPACTOR --- Operational.
AOS --- CCN --- Not Operational. At BNL, Waiting for Parts and Working on Performance Issues.
2018/08/13, DQPR-7136: New parts were installed, and a full flow calibration and a zero test was performed. The instrument is working well. Janek is waiting for an SMPS to become available for SS% calibration. The most recent DQPR status is "in progress - assignments."
Precip --- MASC --- Operational.
Precip --- PIP --- Operational.
Precip --- LPM --- Operational.
2018/08/14, DQPR-7008: Adam recommends a DQR (2 if Jen wants to break it out into incorrect and suspect periods). Even though the quality number does drop to 0, it would still be good to DQR for a couple reasons. There's not a handbook on the ARM website for this instrument at the moment that documents this, and it would be good for the data users to know that there was drifting around the instrument and it was buried for a portion of this time. Jen Delamere was assigned DQR D180817.4. The most recent DQPR status is "in progress - assignments."
2018/06/22, DQPR-7008: Data look to start collecting once more on 2018/05/04, but the instrument was still covered in snow at the time.
2018/04/06, DQPR-7008: Data since 3/23 are flatlined and 'control_output_laser_power_status' is flagged.
2018/03/30, DQPR-7008: The OLI LPM (Laser Precipitation Monitor) is between rings 2 and 3 in a multi-ring fence system. Since early March, snow has been sticking to the fencing and drifts, building around the perimeter. This has happened on the side in which the LPM sitS. The site operators have been sending reports, cleaning snow, and removing snow. By this time (March 30, 2018), the LPM is now buried under drifted snow. Data is questionable (to bad) since the build up of snow over the month of March. From the data record, it appears as if the LPM was buried for good around March 23, 15 GMT. Photos from March 1, March 2, and March 30 are attached. After discussion amongst the UAF team and the site operators, they decided it would be best to just let the snow accumulate and melt out naturally to prevent damaging the instruments further. Matthew Sturm plans to make a site visit in early May, and can assess what to do for next year to prevent this from happening. At a minimum, the LPM will be moved out of the DFIR fence and into its own Belfort Double Alter Shield, similar to the setup around the OLI MASC. Jennifer Delamere posted some pictures of the drifting on the DQPR.
Precip --- GEONOR --- Operational.
2018/08/17, DQPR-7007: Jen Delamere was assigned DQR D180817.5. The most recent DQPR status is "in progress - assignments."
2018/08/14, DQPR-7007: Jen Delamere posted a timeline of drifting, clearing around the Geonor orifice, and the beginning of the melt based on camera imagery. Over the next few weeks, she will assess the data quality during this period. Some of the accumulated precipitation measurements may be inaccurate (even when the orifice is clear) due to snow build up around it and a subsequent snow-chunks dropping inside the wbgeonor, falsely reflecting new precipitation.
2018/06/22, DQPR-7007: The Geonor is no longer covered by snow. Adam asked Jen Delamere for an update, and if the DQPR can be closed with a DQR documenting the period of snow covering the instrument.
2018/03/30, DQPR-7007: The OLI Geonor is in the center in a multi-ring fence system. Since early March, snow has been sticking to the fencing and drifting, building around the perimeter. The site operators have been sending reports, cleaning snow, and removing snow. By this time (March 30, 2018), the Geonor is now enveloped in snow but its orifice (~6 in in diameter) may still be snow-free. In any case, the data is questionable since the build up of

snow over the month of March. Photos from March 1, March 2, and March 30 are attached. After discussion amongst the UAF team and the site operators, they have decided it is best to let the snow accumulate and melt out naturally to prevent damaging the instruments further. Matthew Sturm plans to make a site visit in early May, and hopes to assess what to do for next year to prevent this from happening again. Jennifer Delamere posted pictures of the snow built up on the fence.
Precip --- SRS --- Operational.
2018/08/17, DQPR-6717: Adam is leaning towards an open-ended suspect DQR on the data for the time being and is escalating this up to the PRB for discussion. The most recent DQPR status is "waiting - for site visit."
2018/08/12, DQPR-6717: On September 10, 2017, the 3 Campbell Scientific SR50A transducers were replaced for typical annual maintenance (transducer model # 19486). The transducers degraded over the 2017/2018 winter season. The data quality number associated with each sensor is a good metric to judge data quality (see note below). Upon consultation with Campbell Scientific, the 3 transducers were replaced on May 3, 2018 (approximately 00:00 GMT) with a marine-grade version (transducer model # 32570). The data quality numbers returned to the normal range immediately. Jen Delamere posted a note from the Campbell Scientific SR50A manual listing information about the meaning of the data quality numbers. Jen posted that we should consider changing the problem start date for this issue, as well as the QA code and description. This problem affected all 3 sensors. Jen changed the status to open while we resolve the start/end dates as well as the QA code (changed to Questionable Data). The srs.a1 datastream does have a variable "data_quality_N" (N=1,2,3) that records the data quality numbers for the 3 sensors.
2018/03/30, DQPR-6717: Jen Delamere spoke to Campbell Scientific this week as to what was happening with these sensors. The grade of transducer currently used at Oliktok is not likely adequate for the conditions after a period of 3 to 6 months. At this point, sensor 1 is no longer able to receive a strong return signal, so it is not producing reasonable data (the quality number is reporting 0). Sensor 3 is still working some of the time, and sensor 2 is performing reasonably still. The Campbell rep has advised that we upgrade to the marine transducer first, and then consider upgrading the SR50a instrument body to the steel frame. The UAF precipitation group has planned a site visit in early May so that they may attempt a change-out if the new transducers are approved and the weather cooperates.
2017/12/12, DQPR-6717: Since 2017/11/22, there have been intermittent periods of noisy measurements/data dropouts. The 3 sensors do not exhibit the issue at the same time; instead, the sensors have sporadic problems. Jennifer Delamere plans to work with the OLI site operators to do some experiments to see if they can isolate the source of the problem.
Other --- AERI --- Operational.
Other --- CIMEL --- Operational.
Other --- DataHawk Unmanned Aerial System --- Operational, not a full time instrument.
Other --- IRT --- Operational, but Data Collection Rate is Slower Than Desired. Work in Progress.
2018/08/15, DQPR-7214: Data are still being collected, but appear to not be ingested. Victor Morris asks that the IRT, IRT200ms, and GNDIRT ingest be checked. The most recent DQPR status is "open - requires action."
2018/08/11, DQPR-7207: The sample rate of the upwelling IRT is less than optimal since 2018/06/26 at 22:05 UTC due to the conversion of the signal to fiber-optic because of the significant distance between the GNDRAD tower and the IRT data acquisition system. To improve the instantaneous samples, improved media converters have been purchased. However, the raw data are written as 1-min averages so the collected data appear to be good. The most recent DQPR status is "open - requires action."
2018/08/04, DQPR-7214: Data for the IRT and GNDIRT are not available beginning at 16:00 UTC on 2018/07/24. DS View does not indicate any issues. The most recent DQPR status is "open - requires action."
2018/07/31, DQPR-7207: This DQPR is to document the GNDIRT only receiving valid data at a rate of 13/min when the expected rate is 60/min. The mentor is working on a solution. The most recent DQPR status is "open - requires action."
Other --- TBS --- Operational.

- **Appendix B- Barrow**

INFORMAL **NSA INSTRUMENT STATUS REPORT** FOR August 17 - August 24, 2018
BRIEF STATUS OF INSTRUMENTS AND SITE IN Utqiaġvik (C1) AS OF 2018/08/24:
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
MWR - Microwave Radiometer Operational
MWRP - Microwave Radiometer Profiler Operational
MWRHF - Microwave Radiometer High Frequency Operational
GVR - G-band Vapor Radiometer Not Operational
GVRP - G-band Vapor Radiometer Profiler Partly Operational
HSRL - High Spectral Resolution Lidar Operational
MPL - Micropulse Lidar Operational
CEIL - Vaisala Ceilometer Operational
DL - Doppler LIDAR Operational
KAZR - Ka ARM Zenith Radar Operational as per warno.arm.gov
KaWSACR - Ka-Band Scanning ARM Cloud Radar Testing Mode as per warno.arm.gov
XSAPR - X-Band Scanning ARM Precipitation Radar Testing Mode 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
TSI - Total Sky Imager Operational
TOWERCAM - 40m tower camera Operational
Great White Camera Operational
LPM/LDIS - Laser Precipitation Monitor Operational
SRS - Snow Depth Sensor Partly Operational
AERI - Atmospheric Emitted Radiance Interferometer Operational
CIMEL - Cimel Sunphotometer Operational
IRT - Infrared Thermometer Operational
IOP - OYESNSA Operational
IOP - RIVAL Operational
IOP - CHP1 Operational

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

2018/08/24, CM-2018-NSA-VSN-4695: IT found a compatibility issue with the data disk storage system (the Intel Nuc hardware), so it was removed and the older data disk hardware was installed in its place (CSI0344074) between 19:35 and 20:00 UTC.
INFRASTRUCTURE --- Vehicles --- Operational.
INFRASTRUCTURE --- Desktop Computers --- Operational.
2018/08/22, CM-2018-NSA-VSN-4690: IT patched the Duplex PCs, so it was rebooted between 18:05 and 18:20 UTC.
2018/08/22, CM-2018-NSA-VSN-4693: IT patched the remote balloon launcher computer for the Autolauncher, so the computer was rebooted at 19:15 UTC on 2018/08/22.
SKYRAD --- SKYRAD General --- 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 a Shading Problem.
2018/07/07, DQPR-6995: A shading issue between 22:00 and 01:00 UTC continues. The most recent DQPR status is "open - requires action."
2018/07/23, DQPR-6995: Gary Hodges added that there continues to be significant shading problems. He reviewed the pictures that Walter sent by email on 2018/06/20 and asked if those pics were taken right at solar noon? If so, the instrument is not aligned precisely N-S, as he can see motor bracket shadow in pic IMG_2321.JPG. Gary asks if Walter has the band alignment tool shown in the picture Christian uploaded to this DQPR on 2018/05/01. If needed, the alignment tool can be sent to the site. Walter responded that he had checked the N-S alignment right at Solar Noon. He aligned the mount plate, and used the band tool to position the head and check the band shape. The most recent DQPR status is "open - requires action."
2018/06/08, DQPR-6995: Gary Hodges asked Walter to check the N-S alignment of the stand to see if that will help the MFRSR shade properly. He provides instructions on the DQPR about a couple ways to check this. Being off a degree or few can cause shadowband configuration issues. He also requests that Walter double check that the motor is set to the local latitude. When checking that, it is important to first make sure that the instrument is level.
2018/05/08, DQPR-6995/CM-2018-NSA-VSN-4603: There was adequate sunlight, so Walter worked on fixing the banding issue by powering off the instrument, loosening and swinging the band motor up, and installing the plastic band gauge to confirm the band shape. He made a minor adjustment to the head position; the instrument was powered on once more and started banding. Walter adjusted the banding 1/2 hour after Solar Noon; maintenance occurred between 22:25 and 23:10 UTC.
2018/05/01, DQPR-6995: Christian Herrera asked if the band shape/curvature has been checked with the head position template. The MFRSR head position can also be checked with this template. Walter is unable to confirm the banding and head position until there is more sunlight. Currently, better weather is forecasted for 2018/05/09. The most recent DQPR status is “open - requires action.”
2018/04/27, DQPR-6995: Walter has checked the shading and adjusted at Solar Noon a few times (CM-2018-NSA-VSN-4593, CM-2018-NSA-VSN-4588), but the problem has not been resolved. There is no spare motor or band on site, and advice is needed.
2018/04/17, DQPR-6995: Shading was requested to be checked near solar noon. The FFT plots don’t always show the shading. The MFRSR at NSA and SGP C1 both have issues with the shading algorithm. Adam Theisen is porting the code over to Python and have made a number of improvements. Testing is ongoing.
SKYRAD --- NIMFR --- Operational, but Detector Temperature Is Flagging.
2018/08/14, DQPR-7224: Detector temperature is flagged "bad" (less than valid minimum of 34°C) intermittently on most days since 2018/05/06 at 16:08 UTC. The problem usually occurs between 15:00 UTC and 02:00 UTC of the following day. The most recent DQPR status is "open - requires action."
TIPTWR --- GNDRAD general --- Operational.
TIPTWR --- MFR10m --- Operational.
TIPTWR --- PIRgnd --- Operational.
TIPTWR --- PSPgnd --- Operational.

MET --- METTOWER general --- Operational.
MET --- CMH --- Operational.
MET --- Barometer --- Operational.
MET --- TEMPERATURE / HUMIDITY --- Operational, but Noisy Data is Being Investigated.
2018/06/07, DQPR-7034: The caps can be replaced during the annual change out toward the end of summer. Walter suggests using a drop of threadlocker to keep the caps on, and perhaps buy extra caps. The most recent DQPR status is “open - requires action.”
2018/04/12, DQPR-7034: The 10m level humidity data are often spiking twice a day, around the same times. This problem was apparent prior to maintenance and is addressed in DQPR-6542. This issue has continued after swap, with a suspected start date of 2017/10/09 at 22:00 UTC. Site ops noted that caps are missing from the shield at that level, which may be causing the problem. Jenni posted a picture of the instrument with the missing cap on the DQPR.
MET --- WIND INSTRUMENTS (SONIC) --- Operational.
MET --- PWD --- Operational.
MET --- AMC --- Operational.
2018/08/17, DQPR-4612: Adam asked Ken/Brian if there's an EWO to update the ingest. The most recent DQPR status is “in progress - assignments.”
2018/04/06, DQPR-5694: Adam Theisen added that after discussions on the PRB, there was a question on how long it will be before the calibrations can be updated. The most recent DQPR status is “in progress - assignments.”
2018/02/09, DQPR-5694: Andrew Moyes thinks this DQPR can be closed with a single note documenting the range and sensitivities of the sensors. This issue is exactly the same as the OLI AMC issue covered in DQPR 6589. These are the same measurements made with the same sensors in a very similar environment (Arctic coast of Alaska). The comments from DQPR 6589 are valid here as well. The information in the AMC instrument handbook can take care of this as it already lists that the VWC range is 5-50% (bottom of page 7). 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.
MW RADIOMETERS --- MWR --- Operational.
MW RADIOMETERS --- MWRP --- Operational.
MW RADIOMETERS --- MWRHF --- Operational, but Data Still Shows Excessive Noise Conditions.
2018/02/09, DQPR-4165: Adam Theisen asked Maria Cadeddu if there has been any discussions on the future of the MWRHF. The current DQPR status is “in progress- assignments.”
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?
MW RADIOMETERS --- GVR --- Not Operational Due to Motor Issue. Shipped to ProSensing.
2018/08/21, CM-2018-NSA-VSN-4689: The mirror was not rotating, so the software was shut down and the system was disconnected for removal. It will be sent to the manufacturer. This work took place between 18:00 to 20:00 UTC.
2018/08/17, CM-2018-NSA-VSN-4688: Walter did some troubleshooting on the issue of the mirror not rotating. The blower housing was removed, and the cover was opened so that a test ethernet cable could be run from the serial converter to the white instrument controller. The ethernet connection was attempted as a bypass, but there was no change in mirror movement. The primary lens was cleaned of minor dust, and the optic lens was cleaned prior to re-installing the cover and blower housing. This check took place between 21:55 and 22:15 UTC.
2018/08/17, CM-2018-NSA-VSN-4687: The blower hose was too long, so it was trimmed back between 18:45 and 18:55 UTC.

2018/08/13, DQPR-7222: Data became erratic on 2018/07/31 at 07:00 UTC, and a red DQR is needed. Open-ended DQR D180813.2 was submitted. The most recent DQPR status is "in progress - assignments."
MW RADIOMETERS --- GVRP --- Partly Operational, Cable Being Repaired and Will Be Sent Back.
2018/08/08, DQPR-7216: The dewblower malfunctioned and had to to removed. Surface temperature and relative humidity are missing from the data as a result since 2017/07/27 at 22:00 UTC. The most recent DQPR status is "open - requires action."
LIDAR --- HSRL --- Operational.
LIDAR --- MPL --- Operational.
LIDAR --- CEIL --- Operational.
LIDAR --- Doppler LIDAR --- Operational.
2018/08/22, CM-2018-NSA-VSN-4692: The computer needed a software update, so the Doppler Lidar computer was power cycled between 18:15 and 18:55 UTC on 2018/08/22.
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 --- Testing Mode as per warno.arm.gov.
2018/07/13, Warno.arm.gov: The radar is operating in testing mode. Configuration, calibration, and testing will continue until the end of summer.
2018/06/15, Warno.arm.gov: The SACR2 was installed. The electrical work is not complete, but will be done by the week of June 24.
RADAR --- XSAPR --- Testing Mode. Mentor is visiting the site on the week of the 23rd.
2018/07/13, Warno.arm.gov: The radar is operating in test mode, and hardware modification on the control interface will be done by the end of August.
2018/05/24, Warno.arm.gov: The software upgrade to fix the bug has been completed. It is the same as what was done for SGP. There needs to be a hardware modification to resolve the scanning issues; this will be completed in July. Testing is ongoing.
Sonde --- BBSS (Autosonde or Great White Manual Launches) --- Operational.
2018/08/22, CM-2018-NSA-VSN-4691: Monthly software patches were sent to the SO2 BBSS computer (192.148.94.21), so the computer was restarted between 18:30 - 18:35 UTC on 2018/08/22.
2018/07/26, DQPR-7200: Vaisala has diagnosed that the controller module in the logic control of the Autosonde has failed, leaving the Autosonde unusable at this time. Our U.S.-based Vaisala technician is working with Vaisala in Helsinki to track down the part. We do not have an estimated time for repair at this time. Launches are being made on nsaS01 until the Autosonde (C1) is repaired. S01 operational launches began on 7-26-2018 at 05:30 GMT. The most recent DQPR status is "open - requires action."
AOS --- General --- Operational.
AOS --- AETH --- Operational.
AOS --- CLAP --- Operational, but a Possible Leak.
2018/07/19, DQPR-7189: CLAP transmittance is increasing on the replacement CLAP since 2018/07/12 at 23:23 UTC. We think there may be a leak in the instrument. The old CLAP is on its way back to NOAA for repairs. Once it's fixed we'll swap it back into the AOS system at BRW (currently, we don't have a spare CLAP). The most recent DQPR status is "waiting - for spares."
AOS --- CPC --- Operational.
AOS --- NEPH --- Operational.
AOS --- IMPACTOR --- Operational.
IMG --- TSI --- Operational.
IMG --- TOWERCAM --- Operational.
IMG --- Great White Camera --- Operational.
Precip --- LPM/LDIS --- Operational.
2018/08/17, DQPR-7023: Adam recommends that Jen submitted the assigned DQR as a data note. The data quality may be affected, but it is challenging to diagnose and further analysis is needed. The most recent DQPR status is "in progress - assignments."
2018/08/11, DQPR-7023: The NSA LPM has 3 extended heating circuits to prevent against malfunction due to icing and packing of snow (housing - top side, heads - under the stainless steel components, carriers - straight section of

the carriers at the receiver head). From the outset of the NSA LPM deployment, the extended heating capability was not functioning. However, the standard heating elements on the glass panes did appear to function normally, so there was no snow/frost obstruction on the glass panes. On May 2nd, 2018 at 22:00 UTC, the NSA LPM was replaced with the UAF LPM (on temporary loan), and the NSA LPM was brought back to UAF for repair. The NSA LPM had a fuse issue that caused the heating failures. At this time, we cannot say if the data quality is affected, and such a diagnosis would be challenging. It is possible at times that the snow grains, built up on the stainless steel arms, could have blown into the measurement pathway. As we examine the data in depth over the coming months, we can report back on the extent of the issue.
2018/06/22, DQPR-7023: The issue looks like it was resolved back on 2018/05/02 at 22:00 UTC. Jen Delamere was assigned a DQR to document this issue. However, the metadata might not be available to submit it since the data review is still in progress and the data has not been archived.
Precip --- SRS --- Partly Operational. Some Snow Sensors are Not Returning a Strong Signal.
2018/08/13, DQPR-6823: On August 11th, 2017, the 3 Campbell Scientific SR50A transducers were replaced as part of typical annual maintenance (transducer model # 19486); the transducers had degraded over the 2017/2018 winter season. The data quality number associated with each sensor is a good metric to judge data quality (see the DQPR). The 3 transducers were replaced on May 2nd, 2018 (~ 20:00 GMT). Upon consultation with Campbell Scientific, we switched to use of the marine-grade transducer (model # 32570), but we had only 2 of those available at the time of replacement. Sensor 1 and sensor 2 were replaced with a marine-grade version, (transducer model # 32570) while sensor 3 was replaced with the standard version (transducer model # 19486). The data quality numbers returned to normal range immediately. Note: We also remeasured the distance from the transducer to the tundra surface at the time of replacement, and adjusted our distance/depth calculations to reflect this new baseline measurement. Jen Delamere asks that we consider changing the problem start date for the issue, as well as the QA code and description. This problem affects all 3 sensors. Erol Cromwell commented that the srs.a1 datastream does have a variable "data_quality_N" (N=1, 2, 3) that records the data quality numbers for the three sensors. A DQR will need to be submitted, and since the sensor height has changed, we will need to reprocess the data as well as update the ingest. The most recent DQPR status is “waiting - for site visit.”
2018/03/30, DQPR-6823: Jennifer Delamere spoke to Campbell Scientific this week about the condition of the sensors. The grade of transducer currently used at NSA is likely not adequate for the conditions at NSA after a period of 3 to 6 months. At this point, sensor 2 and sensor 3 are no longer able to receive a strong return signal, and are not producing reasonable data (the quality number is reporting 0). Sensor 1 is still working some of the time. The Campbell representative has advised that we upgrade to the marine transducer first, and then consider upgrading the SR50a instrument body to the steel frame. A site visit by the UAF precipitation group is planned for early May, at which time they may attempt a change-out if they can get approval for the new transducers, have them in hand, and the weather cooperates.
2018/02/15, DQPR-6823: The spiking of the snow sensors is an ongoing issue with the SRS instruments at both OLI and NSA. In the case of NSA, the last few days have been particularly unstable. On February 5 (around 23:00 GMT), Walter checked the instruments at Jen Delamere’s request, and noted the large amount of frost on the instrument sensors. He cleaned the frost off the sensors, as frost can impair the measurements. Since that cleaning, the sensor 1 and 3 have had more drop-outs than typical - but note that the dropouts are not consistent across time. The mentors will need to talk to the manufacturer to get a better handle on what’s going on. If the instruments are frosted, the mentors would like a picture sent so they could match the photo with the sensor and see how that correlates with the data we are seeing. At this time, the instruments don’t need to be cleaned. More instructions will be sent after the mentors talk to the manufacturer. The same instructions will be given to the operators in OLI. There is a version of the snow sensors that comes with a heater, and this heater prevents ice and rime from coating the transducer. The heater may need to be added to stabilize the snow depth record.
Other --- AERI --- Operational.
2018/08/24, CM-2018-NSA-VSN-4694: The mentor requested that the instrument be checked, as the mirror was not moving. Walter power cycled the mirror controller in the instrument shelter, and stopped the program and rebooted the VM while in the Great White. These checks took place between 17:20 and 17:40 UTC. The hatch is closed, and it is currently sprinkling and snowing.
Other --- CIMEL --- Operational.
2018/08/17, 2018-NSA-VSN-4686: The mentor requested that the CIMEL be checked, so ops took the instrument out of automode to do a GOSUN-track-park procedure to see if there was a cable obstruction blocking any of the

normal operations. There were no blockages noted, so the instrument was put back in automode. This check was performed between 18:15 and 18:30 UTC.
Other --- IRT --- Operational. Data Collection Rate is Slower Than Desired, but Minute Averages are Good.
2018/08/15, DQPR-7206: The sample rate of the upwelling IRT is less than optimal (since 2018/07/01 at 00:44 UTC) due to the conversion of the signal to fiber-optic because of the significant distance between the GNDRAD tower and the IRT data acquisition system. To improve the instantaneous samples, improved media converters have been purchased. However, the raw data are written as 1-min averages, so the collected data still appear to be good. The most recent DQPR status is "open - requires action."
2018/07/31, DQPR-7206: This DQPR is to document the GNDIRT only receiving valid data at a rate of 13/min when the expected rate is 60/min. The mentor is working on a solution.
IOP --- OYESNSA --- Operational.
IOP --- RIVAL --- Operational.
IOP --- CHP1 --- Operational.

Distribution

ARM	
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