

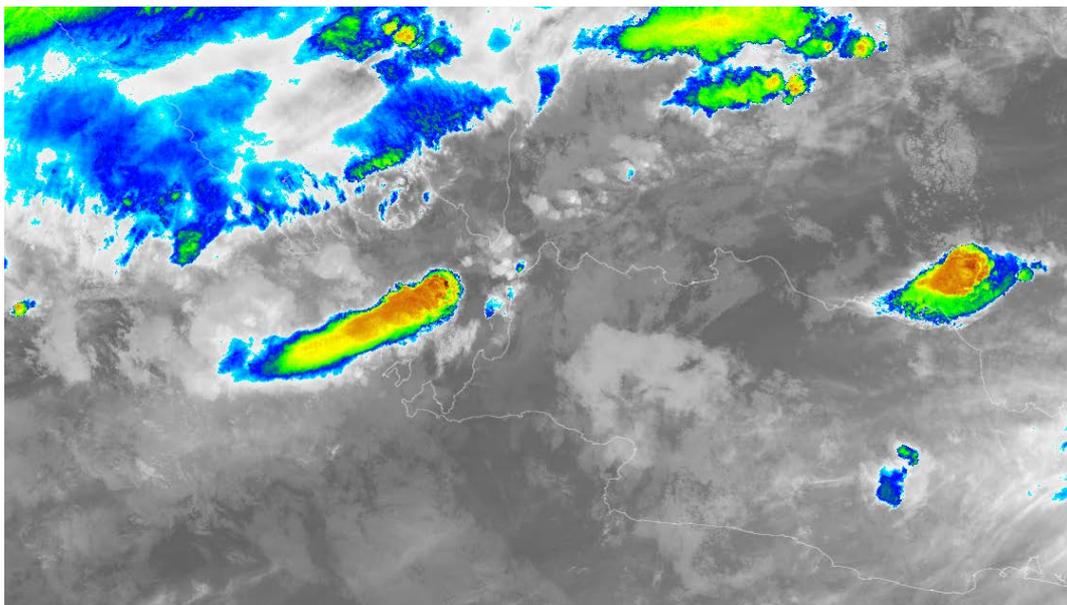


NOAA JPSS Monthly Program Office

AMP/STAR FY19 TTA

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February, 2019



VIIRS Captures Anak Krakatau eruption

On December 22 the volcano Anak Krakatau had a major eruption which spawned a tsunami that killed over 400 people on nearby islands.

VIIRS was able to see the large ash plume. The 15 band image shown at right shows the plume shortly after the eruption.

JPSS Blended Product Workshop Report

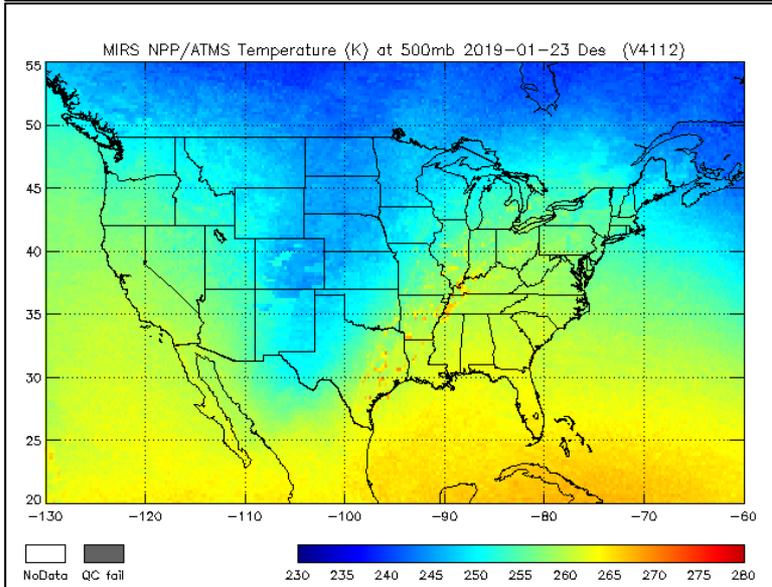
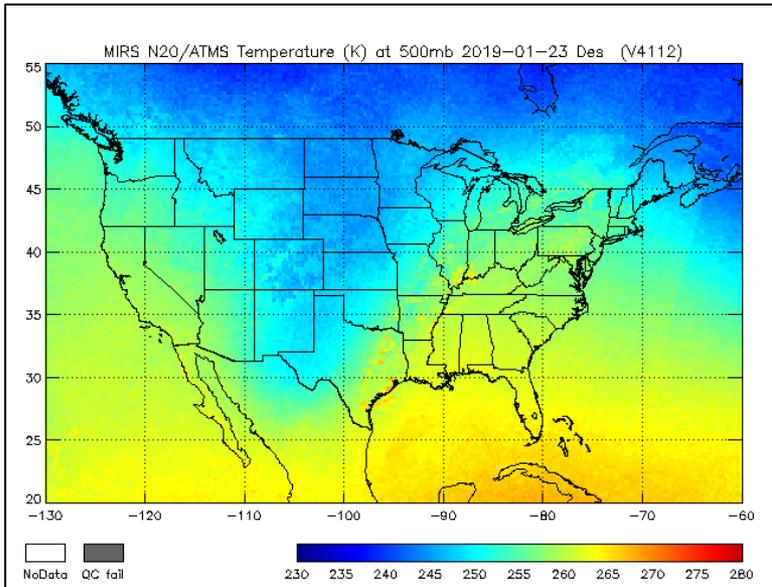
The report is now available online: A productive, informative and useful one-day workshop on JPSS Blended Products was held on August 30, 2018. The workshop provided an opportunity to review the current and emerging methods that are used to combine multiple satellite data sources to provide improved L3 products to a variety of users. A report summarizes all the 6 sessions of the workshop as well as the brown bag seminar and discussions is now available online:

https://www.star.nesdis.noaa.gov/jpss/documents/meetings/2018/SJASTM/BlendedWorkshop_Report.pdf

Highlights from the Science Teams

MIRS captures record breaking Polar Vortex

In late December, weather forecasters observed a sudden stratospheric warming event of the Arctic. These events often lead to a weakening of the tropospheric polar jet, and incursions of bone-chilling air into the contiguous US. In the last week of January extremely cold air flowed down into the Great Lakes region, breaking all time low temperature records in the area. The MIRS retrievals at right display the progress of the cold air during January 23-30 at 500 mb.



AMS 2019

Despite the partial government shutdown, STAR JPSS was well represented at the 2019 AMS Annual Meeting (in Phoenix, Jan 6-10) by contractors and cooperative institutes.

These dedicated employees were able to fill in for furloughed federal employees during the JPSS Workshop on Sunday, and for talks throughout the week, in addition to in most cases, presenting their own material.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
 - ATMS SDR DAP (ATMS SNPP/J1 earth scene reflector emissivity correction in IDPS, ADR8632/CCR3971) delivered to ASSISTT on 1/31/2019
 - OMPS SDR DAP (Update NOAA-20 OMPS Calibration Tables, ADR8816/CCR4303) delivered to DPES on 2/7/2019
 - CrIS SDR team hold the first Technical Interchange Meeting (TIM) for CrIS Polarization Correction Implementation on 12/19/2018.
 - VIIRS SDR DAP (Remove COEFF-A and COEFF-B LUTs, ADR8785/CCR4148) delivered to DPES on 12/18/2018
 - VIIRS SDR DAP (Comprehensive solution for VIIRS Geo SCE SideB HAM mirror LUT Missing, ADR8788/CCR4185) delivered to DPES on 12/11/2018
- DAPs - Enterprise Products:
 - NVPS DAP (GVF v2.2; VI v1.3) redelivered to NDE on 1/30/2019
 - N4RT Toolkit (V4.6) delivered to NDE on 1/11/2019. This DAP added the VIIRS WINDS NB (the New BUFR sequence 3-10-077) BUFR
 - VIIRS Surface Reflectance Patch (fixed wrong values issue for the production_site and production_environment global attributes) delivered to NDE on 12/19/2018
- IDPS Builds Checkouts:
 - JSTAR submitted summary report for Block 2.1 Mx5 SOL deploy regression review/checkout to AMP & Raytheon on 1/17/2019, updated report (include VIIRS Imagery results) on 1/23/2019.
 - Submitted Mx5 I&T VIIRS SDR evaluation results on 2/7/2019

- NOAA-20/S-NPP Operational Calibration Support:
 - S-NPP Weekly OMPS TC/NP Dark Table Updates: 01/02/19, 01/08/19, 01/15/19, 01/23/19, 01/29/19
 - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 01/02/19, 01/08/19, 01/15/19, 01/23/19, 01/29/19
 - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 01/02/19, 01/15/19, 01/29/19
 - NOAA-20 Monthly VIIRS StrayLight LUTs Update: 01/15/19
 - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 01/15/19
 - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 01/15/19

Upcoming Cal/Val Maturity Reviews

- February 21, 2019:
 - Beta/Provisional Maturity:
 - Nighttime Cloud Optical and Microphysical Properties (NCOMP)
 - Provisional Maturity:
 - Land Surface Temperature
 - Surface Albedo
 - Surface Reflectance



FY19 STAR JPSS TTA Milestones

FY19 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs/LTM				
ATMS TDR/SDR: Reflector emissivity correction (code & PCT update)	Sep-19	Sep-19		
CrIS SDR: Polarization correction algorithm implementation	Sep-19	Sep-19		
VIIRS SDR: J2 Pre-launch sensor characterization report	Oct-18	Oct-18	10/01/18	
VIIRS SDR: GEO parameter side dependence	Mar-19	Mar-19	12/11/18	
OMPS SDR: J2 Pre-launch sensor characterization report	Jun-19	Jun-19		
NOAA-20 EDR Final DAPs (JRR, SST)	Jun-19	Jun-19		
NOAA-20 EDR Final DAPs (MIRS, NUCAPS)	Sep-19	Sep-19		
AST18 (Annual Surface Type)	Sep-19	Sep-19		
Updated GCOM/AMSR-2 GAASP package deliver to NDE	Jul-19	Jul-19		
ICVS-Application Website (Severe Weather Watch with JMAPPER)	Sep-19	Sep-19		



FY19 STAR JPSS TTA Milestones

FY19 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 Cal/Val				
Validated Maturity: NOAA-20 CrIS SDR	Oct-18	Oct-18	10/02/18 (Review Date) 08/14/18 (Effective Date)	
Validated Maturity: NOAA-20 OMPS SDR	Dec-18	Jun-19		
Provisional Maturity: NOAA-20 EDR Products (JRR/VPW/Trace Gas)	Oct-18	Oct-18	10/02/18: Provisional Maturity: Cloud Mask, Cloud Phase/Type, Cloud Height (CTT/CTP/CTH), Cloud Base Height, Polar Winds, NUCAPS (Ozone/CO/OLR), OMPS Ozone (V8TOz) 11/27/18: Provisional Maturity: Volcanic Ash, Daytime Cloud Optical and Microphysical Properties (DCOMP)	
Provisional Maturity: NOAA-20 EDR Products (LST/LSA/Vegetation)	Mar-19	Mar-19		
Provisional Maturity: NOAA-20 EDR Products (OC)	Apr-19	Apr-19	11/27/18: Ocean Color Beta/Provisional Maturity	
Validated Maturity: NOAA-20 EDR Products (JRR/VPW)	Jun-19	Jun-19		
Validated Maturity: NOAA-20 EDR Products (SST)	Jun-19	Jun-19		
Validated Maturity: NOAA-20 EDR Products (MIRS, NUCAPS)	Sep-19	Sep-19		



FY19 STAR JPSS TTA Milestones

FY19 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational Support				
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/02/18, 10/10/18, 10/16.18, 10/23/18, 10/30/18, 11/06/18, 11/14/18, 11/20/18, 11/27/18, 12/04/18, 12/11/18, 12/18/18, 01/02/19, 01/08/19, 01/15/19, 01/23/19, 01/29/19	
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/10/18, 10/23/18, 11/06/18, 11/20/18, 12/04/18, 12/18/18, 01/02/19, 01/15/19, 01/29/19	
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/16/18, 11/14/18, 12/13/18, 01/15/19	
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/02/18, 10/10/18, 10/16.18, 10/23/18, 10/30/18, 11/06/18, 11/14/18, 11/20/18, 11/27/18, 12/04/18, 12/11/18, 12/18/18, 01/02/19, 01/08/19, 01/15/19, 01/23/19, 01/29/19	
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/16/18, 11/14/18, 12/18/18, 01/15/19	
NOAA-20: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	10/16/18, 11/14/18, 12/18/18, 01/15/19	

Color code:

Green: Completed Milestones

Gray: Non-FY19 Milestones

Accomplishments / Events:

- Updated ATMS SDR calibration Algorithm Theoretical Basis Document (ATBD) to reflect the recent calibration algorithm update in operational code
- Studied the impact of VIIRS lunar roll maneuver on ATMS TDR/SDR data
- Generated NOAA-20 and S-NPP ATMS TDR/SDR/GEO data using updated ADL package for MiRS group to evaluate the product impact
- Updated ATMS bias monitoring package using RO data to improve the package execution efficiency and developed the operational document
- Discussed the NWP impact using reflector emission corrected ATMS TDR/SDR
- Submitted reflector emission correction ADL package to ASSIST for pre-operational testing

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

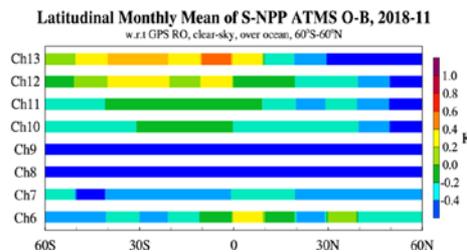
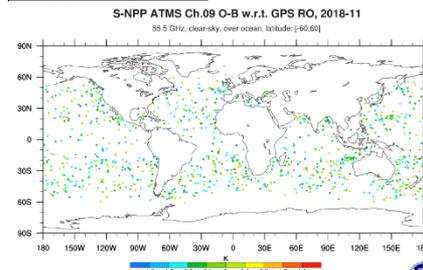
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Issues/Risks:

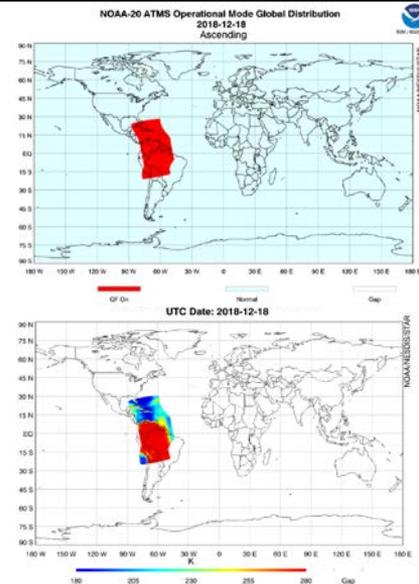
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual ATMS TDR/SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data (TVAC) review/analyze	Sep-19	Sep-19		
Reflector emissivity correction DAP (PCT and code update, ADR8632/CCR3971)				
Technical Interchange Meeting (TIM)	Feb-19	Feb-19		
DAP to ASSIST	Feb-19	Feb-19	01/31/19	
DAP to DPES	Mar-19	Mar-19		
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19		
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



Updated ATMS RO bias monitoring plots



NOAA-20 VIIRS roll maneuver QF (upper) and ATMS TDR data during the maneuver (lower)

Accomplishments / Events:

- During Government shutdown, SNPP/NOAA-20 CrIS instruments were monitored and operated nominally with few minor outages.
- A new set of threshold values for SNPP/NOAA-20 CrIS have been generated as part of the optimization of the Lunar Intrusion Algorithm. This threshold values continue to be optimized and tested. Figure (a) shows that when applied to NOAA-20/CrIS at FSR, the new threshold values help to reduce the number of false alarms over the three CrIS spectral bands.
- A partial solar eclipse event impacted CrIS observations on Jan 06, 2019. The impact is presented Figure (b) in the form of brightness temperature differences between CrIS observations and simulations (based on CRTM).
- As part of the Activities for the Evaluation of the Polarization Correction: 1) the ADL Package with CrIS Polarization Correction was delivered by STAR to University of Wisconsin (UW) on Dec 21, 2018, and 2) the ADL package was successfully installed and tested on the UW Linux machine "bora16".
- The NOAA-20 performed a pitch maneuver on January 30, 2018. Analysis of the impact on CrIS radiances is presented on Figure (c).

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

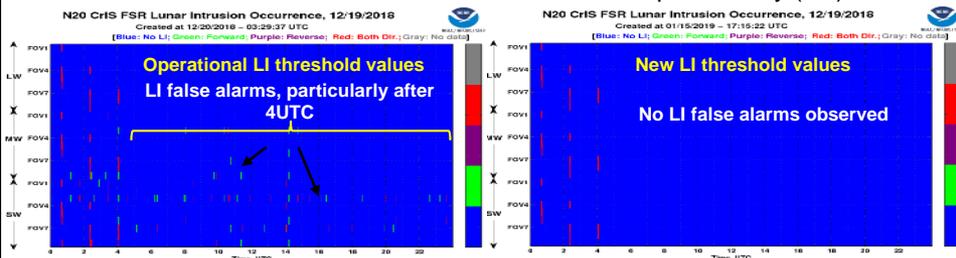
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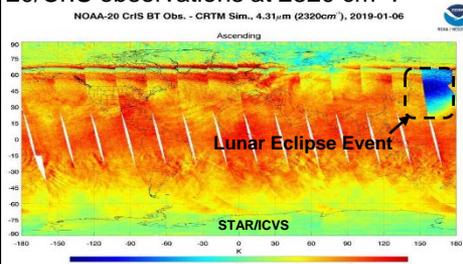
- JSTAR CrIS Team has requested computer resources to perform its activities. A new server and disk space is expected to be provided by February 2019.
- Two FTE positions will be available at ESSIC due to the transition of Yong Chen from ESSIC to GST on February 11, 2019. Those positions will be advertised.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual CrIS SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data (TVAC) review/analyze	Sep-19	Sep-19		
Polarization correction algorithm implementation DAP (ADR8760)				
Technical Interchange Meeting (TIM)	Feb-19	Feb-19	12/19/18	TIM 1
DAP to ASSISTT	Jul-19	Jul-19		
DAP to DPES	Aug-19	Aug-19		
Turn off Spike detection and Correction Algorithm due to false alarms (ADR8819/CCR4201)			12/18/18	
Turn off Truncated Spectrum CrIS Data (ADR8761)	Sep-19	Sep-19		OSPO/User
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19		
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Jul-19	Jul-19		

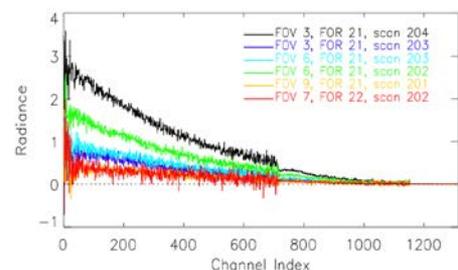
Highlights: (a) Impact of new set of LI threshold values (right) on the reduction of LI false alarms found operationally (left).



(b) Impact of a partial Solar Eclipse event on Jan 06, 2019 on the NOAA-20/CrIS observations at 2320 cm⁻¹.



(c) CrIS NOAA-20 radiances during the 1/30/2018 pitch maneuver.



Accomplishments / Events:

- Delivered for deployment in IDPS operations updated NOAA-20 and S-NPP DNB offset and gain ratio LUTs generated using new moon calibration data from Jan. 5, 2019
- Delivered for deployment in IDPS operations an updated NOAA-20 DNB stray light correction LUT generated from Jan. 2019 data
- Calculated lunar F-factors using data collected during the NOAA-20 and S-NPP roll maneuvers on Jan. 17, 2019 and observed satisfactory agreement with the solar F-factors
- Verified that the previously delivered VIIRS SDR code and LUT changes have been implemented as planned in the IDPS Block 2.1 revision Mx5
- Analyzed calibration status and data gaps after the S-NPP VIIRS onboard computer lockup on Jan. 21, 2019 to ensure no loss of solar calibration data and to understand timeline of the DNB recovery
- Completed creating simulated JPSS-2 VIIRS RDR files based on data from the instrument TVAC testing with operational settings

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

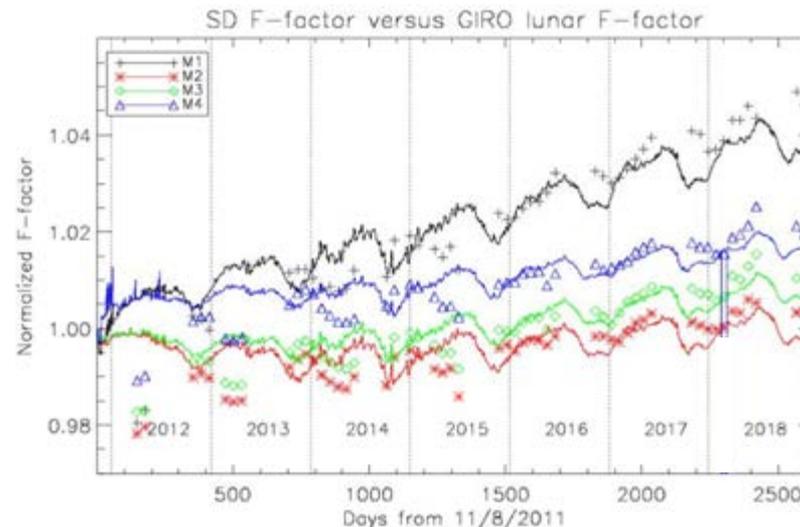
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Issues/Risks:

none

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual VIIRS SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data (TVAC) review/analyze	Sep-19	Sep-19		
J2 Pre-launch sensor characterization report			10/01/18	
J2 Launch-ready LUTs (initial delivery)	Sep-19	Sep-19		
Comprehensive solution for VIIRS Geo SCE SideB HAM mirror LUT Missing (code and LUTs, ADR8788/CCR4185)	Dec-18	Dec-18	12/11/18	
Remove COEFF-A and COEFF-B LUTs (ADR8785/CCR4148)	Mar-19	Mar-19	12/18/18	
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19	02/07/19	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



S-NPP lunar F-factors compared to solar F-factors applied in IDPS

Accomplishments / Events:

- Regular weekly dark deliveries for OMPS sensors were made.
- Regular bi-weekly OMPS-NP wavelength table deliveries were made for S-NPP.
- The Blk2.1 MX05 SOL checkout was completed for OMPS.
- The government shutdown affected the quantity of work the SDR team was able to do in January.

Overall Status:

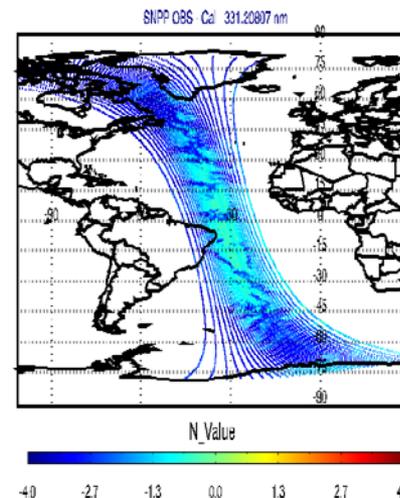
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Technical / Programmatic			X		
Schedule			X		

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Issues/Risks:

Problem with OMPS-NP non-linearity. Continuing problem with OMPS-TC and OMPS-NP Sample tables.

Highlights:



A radiative transfer simulation for S-NPP OMPS TC at 331nm. The normalized radiance at this wavelength is within the expected 2% error.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Jun-19	Jun-19		
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual OMPS SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data review/analyze	Sep-19	Sep-19		
J2 Pre-launch sensor characterization report	Jun-19	Jun-19		
OMPS NM/NP Mismatch for FOVs (ADR8617/CCR4137)			11/01/18	
Update NOAA-20 OMPS Calibration Tables (ADR8816)	Dec-18	Dec-18	02/07/19	Govt. shutdown
OMPS NP Transient Smear Correction (ADR8709/CCR4138)	Dec-18	Dec-18	11/26/18	
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19	Jan-19 (SOL)	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Accomplishments / Events:

- Double-checked the S-NPP reprocessed ATMS SDR data, made up a missing day (Feb. 29, 2012), and put on a FTP site for users from EUMETSAT for their validation of an ATMS FCDR within the framework of EUMETSAT SAF on climate monitoring
- Assisted users from UMD on accessing and reading S-NPP reprocessed FSR CrIS data for refining NUCAPS composition products
- Responded to SST and aerosols teams requests, continue running S-NPP VIIRS V2 reprocessing for 2016 first, and then for the whole period of 01/2012-03/2017 (details are provided in Highlights)

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Cost / Budget		X			
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Issues/Risks:

None

Highlights:

S-NPP VIIRS V2 Reprocessing Updates

- updated the BLK2 ADL parallel script so that it can quickly produce VIIRS SDRs using bamboo, about one month per day, comparable to using ADL4.2, though processing a single granule of VIIRS SDR in serial mode takes more than 4 times for ADL BLK2 than ADL4.2
- finished a few months (2016) VIIRS reprocessed results, and being verified by VIIRS group, and will need a few more days to verify while the reprocessing of 2016 is ongoing
- finished DCC reprocessing, which will be used to produce the Kalman filter coefficient to be inserted into the reprocessed SDRs
- the 2016 reprocessed data can be completed by the end of February
- VIIRS SDRs of other years will be reprocessed with a speed about two years VIIRS SDR/month, so it can still be finished by end of July

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Finish 2016 VIIRS V2 reprocessing	Feb-19	Feb-19		
Upgrade the reprocessing dissemination interface	Mar-19	Mar-19		
Finish the remaining VIIRS V2 reprocessing	July-19	July-19		
Reprocessed data maturity review	Aug-19	Aug-19		
Reprocessing paper/report	Sep-19	Sep-19		
Engineering assessment of transitioning reprocessed ATMS data from STAR to NCEI	Sep-19	Sep-19		

Accomplishments / Events:

- Updated CrIS geolocation accuracy monitoring package execution efficiency
- Added near real time S-NPP/JPSS operational granule data missing monitoring plots to ICVS web site
- Developed PCA-based CrIS spectral NEdN monitoring modules to monitor CrIS instrument stability
- Generated winter storm vortex temperature 3D animation using MiRS products for severe weather watch
- Updated automatic NOAA-20/S-NPP VIIRS RSB F-factor and other VIIRS LUTs download from Field Terminal Support (FTS) website to better support near real time VIIRS data quality monitoring and anomaly notification
- Set up NOAA-20 and S-NPP ATMS vs Metop-C AMSU-A/MHS inter-sensor comparison product using Simultaneous Nadir Overpass technique
- Updated CrIS vs ABI inter-sensor comparison bias monitoring package
- Prepared ICVS related talks and posters for AMS conference in Phoenix AZ
- Supported JPSS/SMCD weekly/monthly reports

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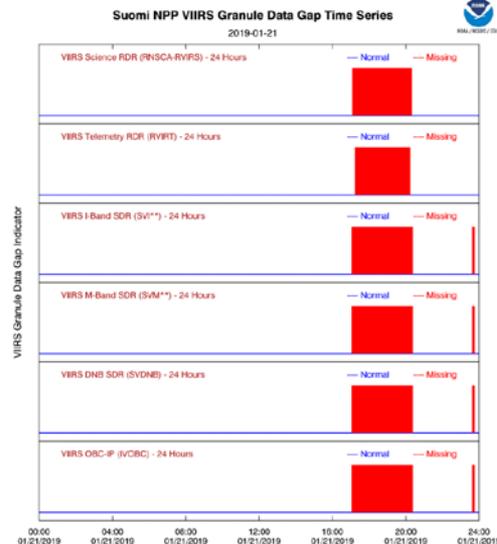
Issues/Risks:

None

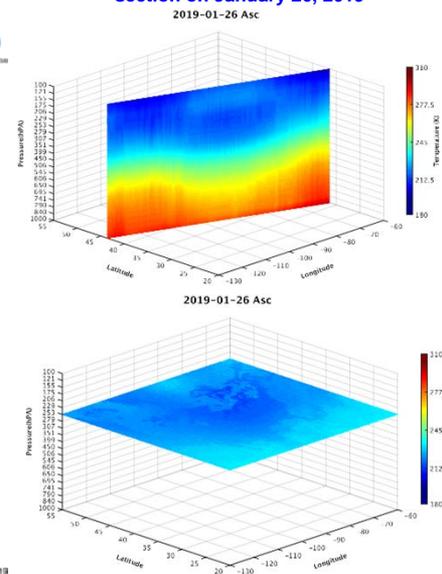
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
ICVS-Application: ICVS Severe Weather Watch (iSEW) System (Severe Weather Watch with JMAPPER) (Beta Version)	Dec-18	Dec-18	Dec-18	
ICVS User's Manual and Technical Report Version 1	Mar-19	Mar-19		
ICVS Module initialize and Development (each instrument on both SNPP and NOAA-20): <ul style="list-style-type: none"> Global (POES) Inter-Sensor Comparison Modules VIIRS/CrIS & GOES ABI Comparison Module Global O-B and Double Difference Bias Modules RDR/SDR Operational Data Missing Granule Modules CrIS/VIIRS geolocation monitoring module implementation and improvement CrIS FOV(R)-To-FOV(R) Difference modules CrIS Relative (Absolute) Spectral Difference Modules 	Jun-19	Jun-19		
ICVS Module development and update: <ul style="list-style-type: none"> Inter-Sensor Comparison Module update O-B and DD Bias Module Update ICVS Geolocation Accuracy Trending Modules Enterprise ICVS Cloud/Clear Flag Modules ICVS SDR Spectral Analysis Modules ICVS Severe Weather Watch (iSEW) Update 	Sep-19	Sep-19		
JPSS-ICVS System Standardization and ICVS Annual Performance Review	Sep-19	Sep-19		

Highlights: Significantly contribute to STAR SDR Teams

S-NPP VIIRS Operational Granule Data Gap Monitoring Plot on January 21, 2019 Gap is Caused by the SBC lockup event



Winter vortex horizontal and vertical cross section on January 26, 2019



Accomplishments / Events:

- The **Imagery and Geo Teams** continue to meet regularly (the third Tuesday of each month) primarily to work towards Terrain Correction (TC) implementation for EDR Imagery:
 - The ADL experts are finalizing the set of code changes needed for TC implementation, with the intent to switch away from ellipsoid geo-locations to TC geo-locations.
 - Any work towards eliminating non-TC geo-locations for SDRs, to simplify and reduce file sizes, will be delayed until after TC implementation for EDR Imagery.
- **New VIIRS Imagery Team Blog Post:** The VIIRS Imagery and Visualization Team Blog has been updated with a new post titled, "Ice, Ice, Baby" (see image in lower-right)
- <http://rammb.cira.colostate.edu/projects/npp/blog/index.php/uncategorized/ice-ice-baby/>

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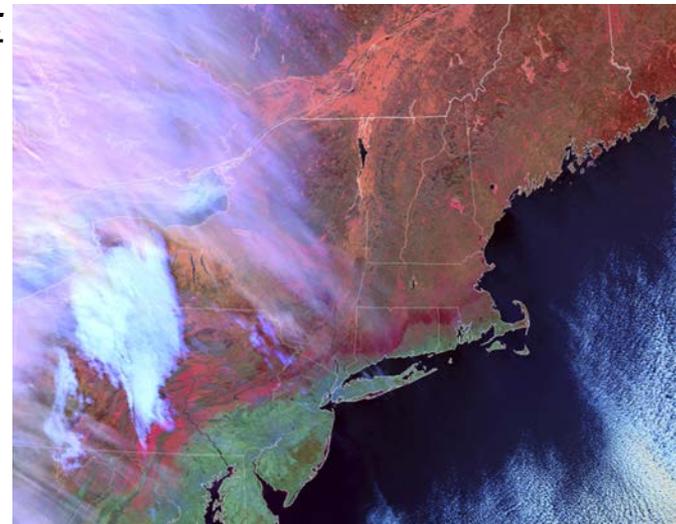
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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual VIIRS Imagery performance report	Aug-19	Aug-19		
N20 NCC LUT update	Sep-19	Sep-19		
<i>Terrain-Correction geo-locations for VIIRS Imagery EDRs (ADR8239)</i>				
Design Review	Mar-19	Mar-19		
Algorithm Readiness Review (ARR)	Sep-19	Sep-19		
DAP to DPES	Sep-19	Sep-19		
Run ADL locally (@ CIRA, to allow code testing/changes)	Feb-19	Feb-19		
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Mar-19	Mar-19		
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



VIIRS Day Snow/Fog RGB image of the Northeast U.S. from NOAA-20 (17:09 UTC, 22 January 2019). The band of darkest red stretching from northern New Jersey into northern Rhode Island is where the most significant ice accumulations occurred.

Accomplishments / Events:

- Enterprise Cloud Mask training with CALIOP/CALIPSO for NOAA-20 continues.
- More modes and combinations of channels are supported in ACHA, including the use of 3.75µm.
- A kd-tree nearest neighbor search method is integrated and under test to support ACHA development.

Overall Status:

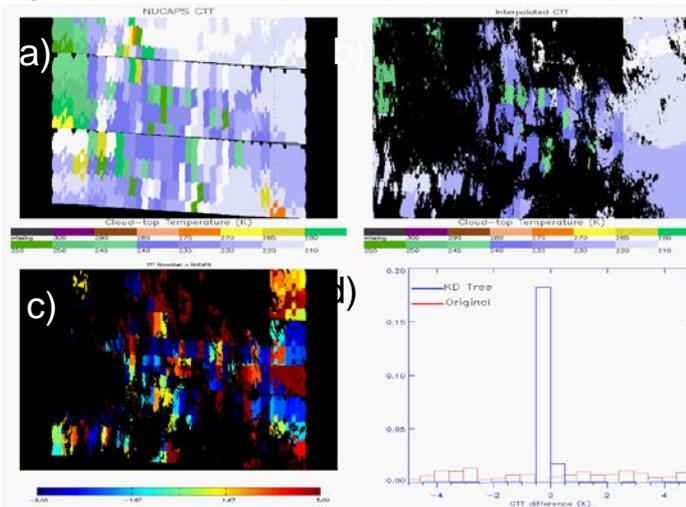
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights: Cloud Top Temperature Interpolation



- a) NUCAPS CTP data mapped to VIIRS footprint and converted to CTT; b) Interpolation of CTT to cirrus pixels using KD-tree method. Note that values outside boundary can be derived; c) Difference between original interpolation and NUCAPS; d) Histogram of differences using original interpolation and KD-tree method.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta/Provisional Maturity: NCOMP (N20 Cal/Val)	Feb-19	Feb-19		
Provisional Maturity: DCOMP (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Provisional Maturity: Cloud Mask, Cloud Phase (Beta & Provisional), ACHA (CTT/CTP/CTH), CBH			10/02/18	
Validated Maturity (N20 Cal/val)	Mar-19	Mar-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Cloud Mask: Develop new LUTs that support multi-dimension classifiers and provide full meta-data Cloud Phase/Type: Optimize cloud phase thresholds for NOAA-20 ACHA: improving multilayer ACHA by analysis of calipso observed cloud behavior to support Polar Winds CCL: Separate CCL from ACHA processing 	Mar-19	Mar-19		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Cloud Mask: Implement DNB ACHA: Work on surface emissivity issues that are impacting 8.5 micron clear-sky BT CBH: Leverage GOES-RR to target characterization of overlapping cloud assess CBH performance for multi-layer cloud systems DCOMP9: Incorporate improved surface reflectance for DCOMP channels DCOMP: Implement gross phase correction for DCOMP pixels that fail (thin cirrus over stratus is a common issue) NCOMP: extend NCOMP cloud optical depth range to include larger values by including a neural net approach 	Sep-19	Sep-19		

Accomplishments / Events:

- Generated scripts and analytical programs for comparing AOD trends from both NOAA 20 and NPP satellites. There are a total of four different products to consider: both EPS and IDPS products from NPP and NOAA 20. By comparing the trends from these outputs we can investigate NOAA 20 aerosol products. The datasets currently being used are those produced by the long monitoring tool, which collects the data from various AERONET stations around the world, and measures average AOD near these stations. Even though EPS AOD data has no public access, the data from I&T stream is being used.
- One year worth of NOAA-20 aerosol detection product was generated by running the algorithm off-line and compared to CALIPSO and AERONET to prepare for provisional/validated maturity reviews
- NOAA-20 I&T EPS AOD product is continuously being evaluated to prepare for provisional/validated maturity reviews. Gaps in data have been found and reported to ASSIST. ASSIST is investigating the source of data dropouts

Overall Status:

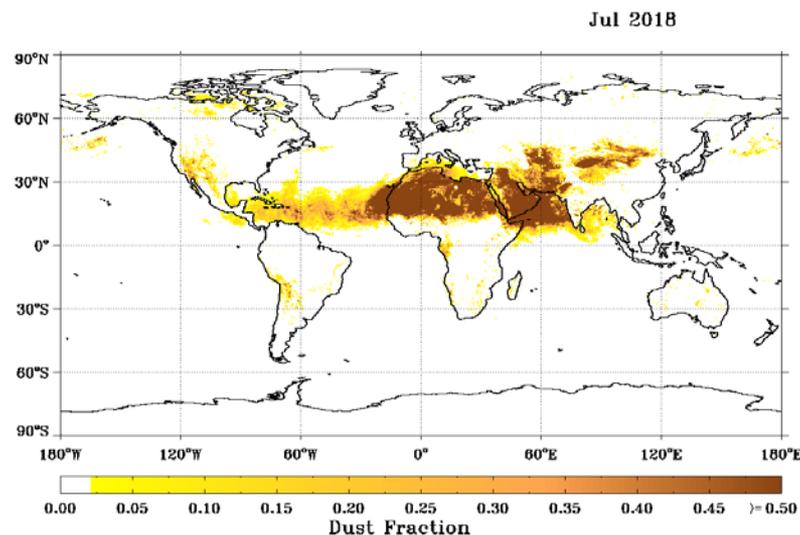
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (N20 Cal/Val))	Mar-19	Mar-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Revise the output quality flags (grouped based on the retrieval quality) AOD: Update internal tests (e.g., sea ice, heavy aerosol etc.) for SNPP and NOAA-20 ADP: algorithm updates to the IR-visible path (thresholds and quality flag determination) 	Mar-19	Mar-19		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Algorithm update for heavy aerosol retrievals over dark land surface (high reflectance might trigger the retrieval over bright land) AOD: Update the bright surface reflectance database ADP: algorithm updates to improve (improve correct detection and minimize false detection) over bright surfaces using spectral surface reflectance data base 	Sep-19	Sep-19		
Enhancements to AerosolWatch website to add NOAA-20 data	Jun-19	Jun-19		



NOAA-20 Dust distribution for July 2018 based on off-line algorithm

Accomplishments / Events:

- Added to list of known NOAA-20 observations of non-trivial ash clouds
- Continue to perform validation of NOAA-20 ash observations (see Figure)
- Continued to develop and test algorithm improvements through incorporation with CrIS measurements.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
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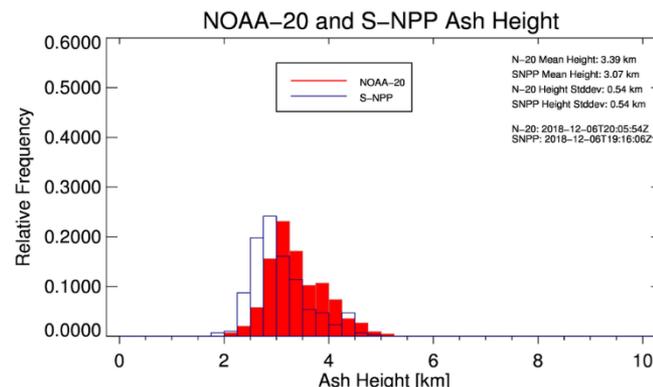
Issues/Risks:

Validated maturity risk is related to number volcanic ash cases observed by NOAA-20 that can be validated using wind advection approach and/or CALIPSO co-locations.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta Maturity (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Provisional Maturity (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Validated Maturity (N20 Cal/Val)	Mar-19	Mar-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
Incorporation of CrIS	Sep-19	Sep-19		
Comparison of volcanic ash products with validation data	Sep-19	Sep-19		
Submit user request for the VOLCAT capability (implementation)	Mar-19	Mar-19		May slip 1-2 months due to shutdown

Highlights:

SNPP/NOAA-20 Comparisons



Comparisons between SNPP (which are fully validated) and NOAA-20 ash observations are part of the validation plan.

The figure (left) shows excellent agreement between SNPP (blue) and NOAA-20 (red) ash heights from an ash cloud from the Fuego volcano in December 2018.

Accomplishments / Events:

Ongoing JPSS Arctic Initiative Freeze-Up Demo: The ongoing JPSS Arctic Initiative "Freeze-Up Demo" follows the first demonstration completed in May 2018 and plans on familiarizing NWS Alaska Sea Ice Program (ASIP) analysts and the National Ice Center (NIC) with ice products derived from satellites. ASIP analysts have already utilized VIIRS and AMSR2 ice concentration, ice thickness, and ice surface temperature products to verify a thinner-ice feature in the pack ice north of Prudhoe Bay, which was ambiguous in the infrared and Day-Night Band imagery. Recently, an ASIP analyst responded to an American mariner that was avoiding drifting ice floes in the Bering Sea. The combined VIIRS+AMSR2 sea ice motion product, in this case, was helpful in assessing the direction and speed of the drifting ice.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

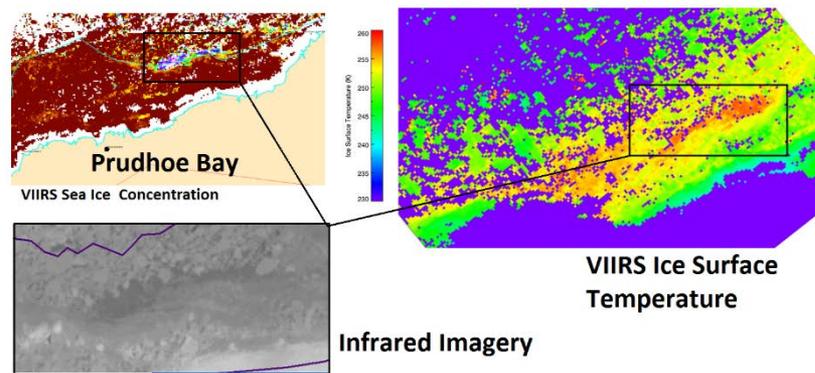
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Apr-19	Apr-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
Offline Products:				
<ul style="list-style-type: none"> Snow: Establish routine generation of global gridded binary and fractional snow cover products on a daily basis IST: Begin routine production of I-band IST algorithm using only the 11 um I-band channel Ice Concentration: Start generating an I-band resolution product with available I-band IST 	Sep-19			
Algorithm Cal/Val:				
<ul style="list-style-type: none"> Snow: Compare N20 Snow with SNPP, MODIS, and IMS snow data. Provide an in-depth evaluation of the Binary Snow product over different surface cover types, topography and geographical regions IST: Compare N20 IST with SNPP, MODIS, IceBridge, and IABP IST Ice Concentration: Compare N20 ice concentration with NPP, MODIS, SAR, Landsat, SENTINEL-1&2, and IceBridge data Ice Thickness: Validate N20 ice thickness with NPP, IceBridge, CryoSat-2, SMOS, and ICESat-2 products 	Sep-19			
Algorithm Updates:				
<ul style="list-style-type: none"> Modify/add quality flags if needed Ice Concentration: Improve tie-point processing for marginal ice zone Ice Thickness: <ul style="list-style-type: none"> Ice growing/melting and dynamic adjustment factors Snow depth climatology and interface temperature between ice and snow Use weekly or bi-weekly running mean temperature 	Sep-19			

Highlights:



VIIRS sea ice concentration (top left) showing an area of reduced ice concentration on November 24, 2018. Infrared imagery (bottom left) showed patterns consistent with open water, but VIIRS ice surface temperature (right) confirmed that skin temperatures in the area were well below the freezing point.

Accomplishments / Events:

- Worked on streamlining the processing code for the combined 375 m/750 m (“I-band”) algorithm
- Implemented code changes to use netCDF library for output, inclusion of all metadata required by NDE and inclusion of variables used by the OSPO monitoring system.
- Now the updated output is compatible with that of the current operational 750-m “M-band” product, making it easy for the users to transition to the new product
- Also investigated differences between land-water masks between outputs of the NASA and NOAA implementations of the code.

Overall Status:

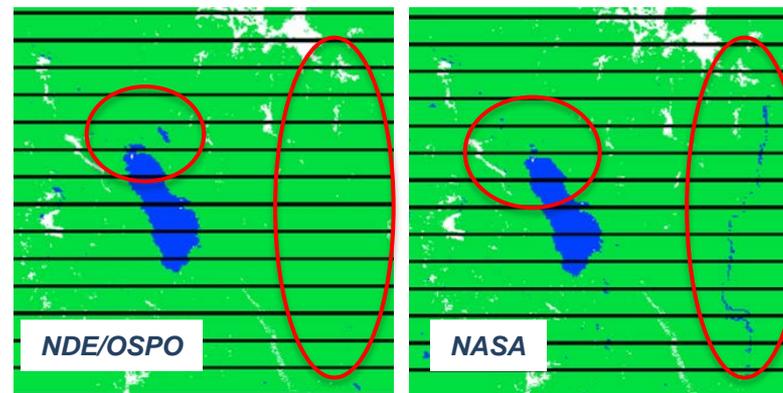
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights:



An example of the differences in the classification mask between the NOAA (left) and NASA (right) versions of the I-band VIIRS active fire code. Green: clear land; blue: water; white: cloud; black: bow-tie deletion.
Credit: Marina Tsidulko, IMSG@STAR

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		
<i>I-Band Active Fires algorithm development and Cal/Val</i>				
User request for I-Band Active Fires	Mar-19	Mar-19		
Delta design review for I-band AF (Beta Maturity)	Apr-19	Apr-19		
Algorithm readiness review for I-band AF (Provisional Maturity)	Sep-19	Sep-19		
I-Band AF DAP deliver to NDE	Sep-19	Sep-19		

Accomplishments / Events:

- The team worked on generating test data with the corrected LUT to enable validation of the NOAA-generated product using in-situ AERONET data.
- Approximately four weeks of data are available from December 2018 and January 2019.
- These data have been transferred to the NASA team to derive APU statistics.
- Worked with the VI team on evaluating impacts on vegetation indices. Statistically, the observed changes are consistent with expectations.
- Results are expected to be presented at the February Provisional review.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

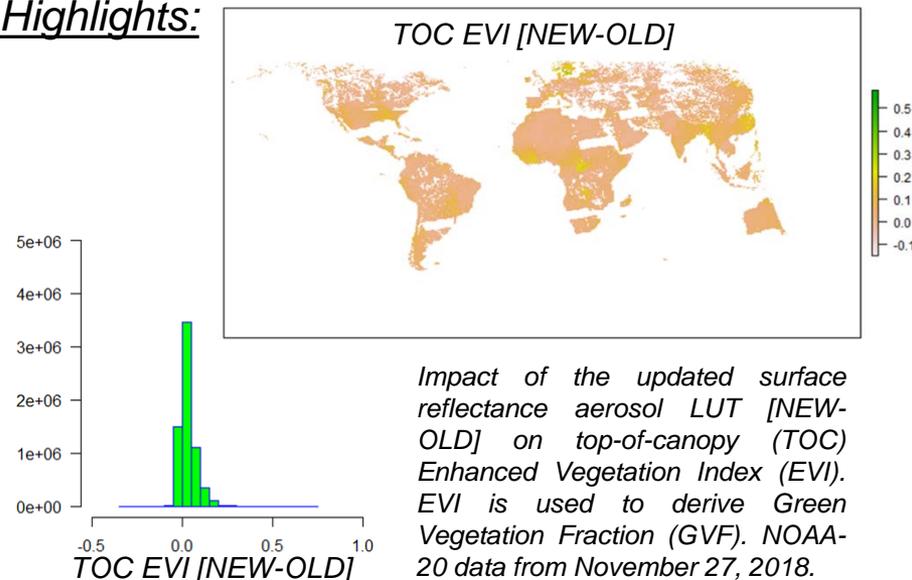
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4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Feb-19	Feb-19		
Final DAP (N20 Algorithm Adjustment)	Apr-19	Apr-19		
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		

Highlights:



Credit: Zhangyan Jiang (IMSG@STAR) and the STAR JPSS Vegetation Index team

Accomplishments / Events:

- Downloaded and processed VIIRS observations acquired in November to create daily mosaics (up to the writing of this report)
- Continue to evaluate the 2017 AST product against the MODIS C6 product and ESA's Climate Change Initiative (CCI) global land cover product
 - Downloaded the entire CCI dataset
 - Reprojected from the original lat/long coordinates to the VIIRS sinusoidal projection
 - Compared the class definitions and recoded the CCI classes to match those of the VIIRS AST product

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule	X				

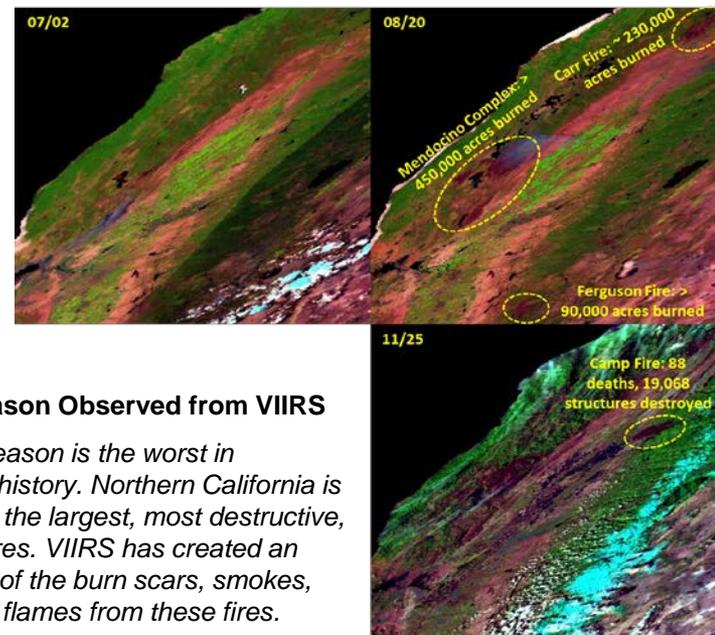
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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta Maturity (N20 Cal/Val)	Jul-19	Jul-19		
Provisional Maturity (N20 Cal/Val)	Sep-19	Sep-19		
Annual performance report	Aug-19	Aug-19		
AST18 (Annual Surface Type):				
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST18 based on 2018 VIIRS data	May-19	May-19		
Generate VIIRS AST18 based on 2018 VIIRS data using SVM algorithm	Aug-19	Aug-19		
Comparison of AST18 with surface type validation data (Accuracy statistics of the new AST18 and LWM)	Sep-19	Sep-19		
Delivery of AST18 (available for users through STAR FTP)	Sep-19	Sep-19		
Communicate with EDRs and ASSISTT teams on switching to use VIIRS AST	Mar-19	Mar-19		

Highlights:



Worst Fire Season Observed from VIIRS

The 2018 fire season is the worst in California's fire history. Northern California is the epicenter of the largest, most destructive, and deadliest fires. VIIRS has created an imagery record of the burn scars, smokes, and even some flames from these fires.

Accomplishments / Events:

- Completed definition of metadata for the gridded LST production.
- Completed draft version of the gridded daily global LST product ATBD, which will be merged into a complete set of the LST and LSA gridded product ATBD document.
- Draft code of the gridded LST algorithm has been completed and tested.
- A draft version of the NOAA-20 LST provisional review ppt file has been completed.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

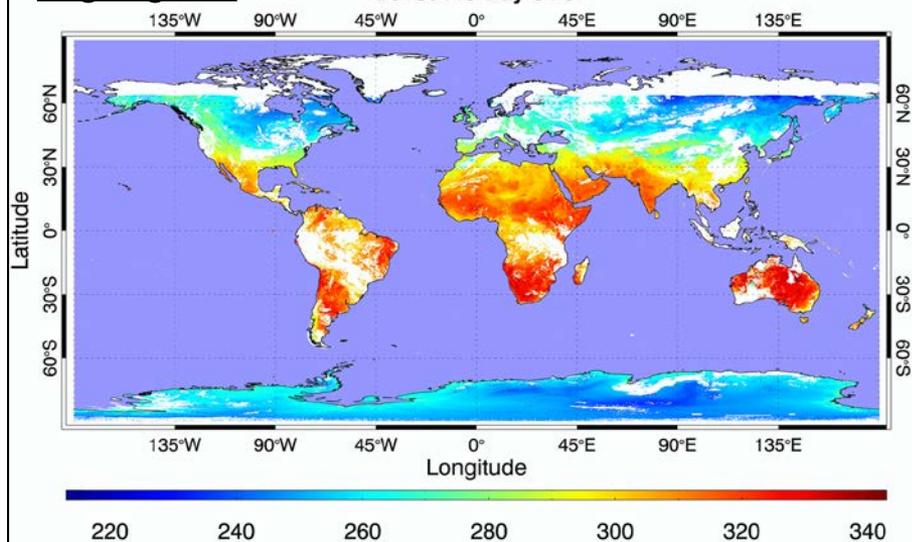
1. Project has completed.
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3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Schedule change due to the government shutdown

Highlights:

NOAA20 Enterprise LST
20180115 Day UTC



Evaluation of NOAA-20 LST for Provisional Review

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational Readiness Review (ORR)	Nov-18	Nov-18	11/16/18	
Provisional Maturity (N20 Cal/Val)	Feb-19	Feb-19		Impact of Shutdown
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		Impact of Shutdown
NOAA-20 LUT update	Apr-19	Apr-19		
Cal/Val tool development (SNPP & J1 comparison)	Apr-19	Apr-19		
Deep-dive analysis software package for the anomaly watch	Sep-19	Sep-19		
Global gridded LST				
Critical Design Review (CDR)			10/23/18	
Unit Test Readiness Review (UTRR)	Feb-19	Feb-19		
Initial DAP to NDE	Mar-19	Mar-19		
Algorithm Readiness Review (ARR)	Jul-19	Jul-19		
Final DAP to NDE	Jul-19	Jul-19		

Accomplishments / Events:

- Resolved the NOAA-20 LSA NRT processing failure issue in ASSISTT framework (**Highlight**)
- Investigated and gave suggestions to ASSISTT on solving the issue of missing granules due to input data
- Polished the Level 3 Gridded albedo code: 1) Added the granule info as input to exclude sea-water tiles; 2) Modified the composition method from mean to median according to CDR; 3) Combined the L3 tiles to a global file; 4) Added in the metadata. We will further review the code package within the group and then submit to ASSISTT for integration (**Slide #2**)
- Inter-compared S-NPP & NOAA-20 VIIRS albedo for consistency checking (**Slide #3**)
- Conducted cross-comparison between VIIRS & MODIS albedo for the upcoming J1 provisional maturity review (**Slide #4**)

Overall Status:

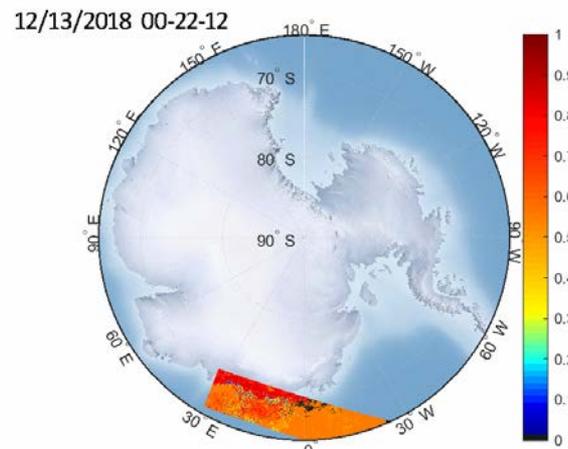
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

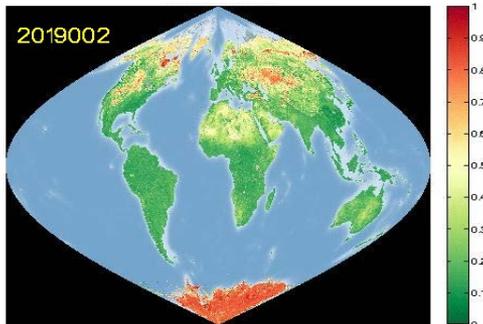
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Feb-19	Feb-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
NOAA-20 LUT update	Apr-19	Apr-19		
New 1-km albedo climatology dataset delivery	Apr-19	Apr-19	Sep-18	Submitted to AIT for Jan 2019 DAP
Cal/Val tool development (SNPP & J1 comparison)	Apr-19	Apr-19		
Deep-dive analysis software package for the anomaly watch	Sep-19	Sep-19		
Global gridded LSA				
Critical Design Review (CDR)			10/23/18	
Unit Test Readiness Review (UTRR)	Mar-19	Mar-19		
Initial DAP to NDE	Mar-19	Mar-19		
Algorithm Readiness Review (ARR)	Jul-19	Jul-19		
Final DAP to NDE	Jul-19	Jul-19		

Highlights: NOAA-20 VIIRS L2 LSA Dynamic Animation



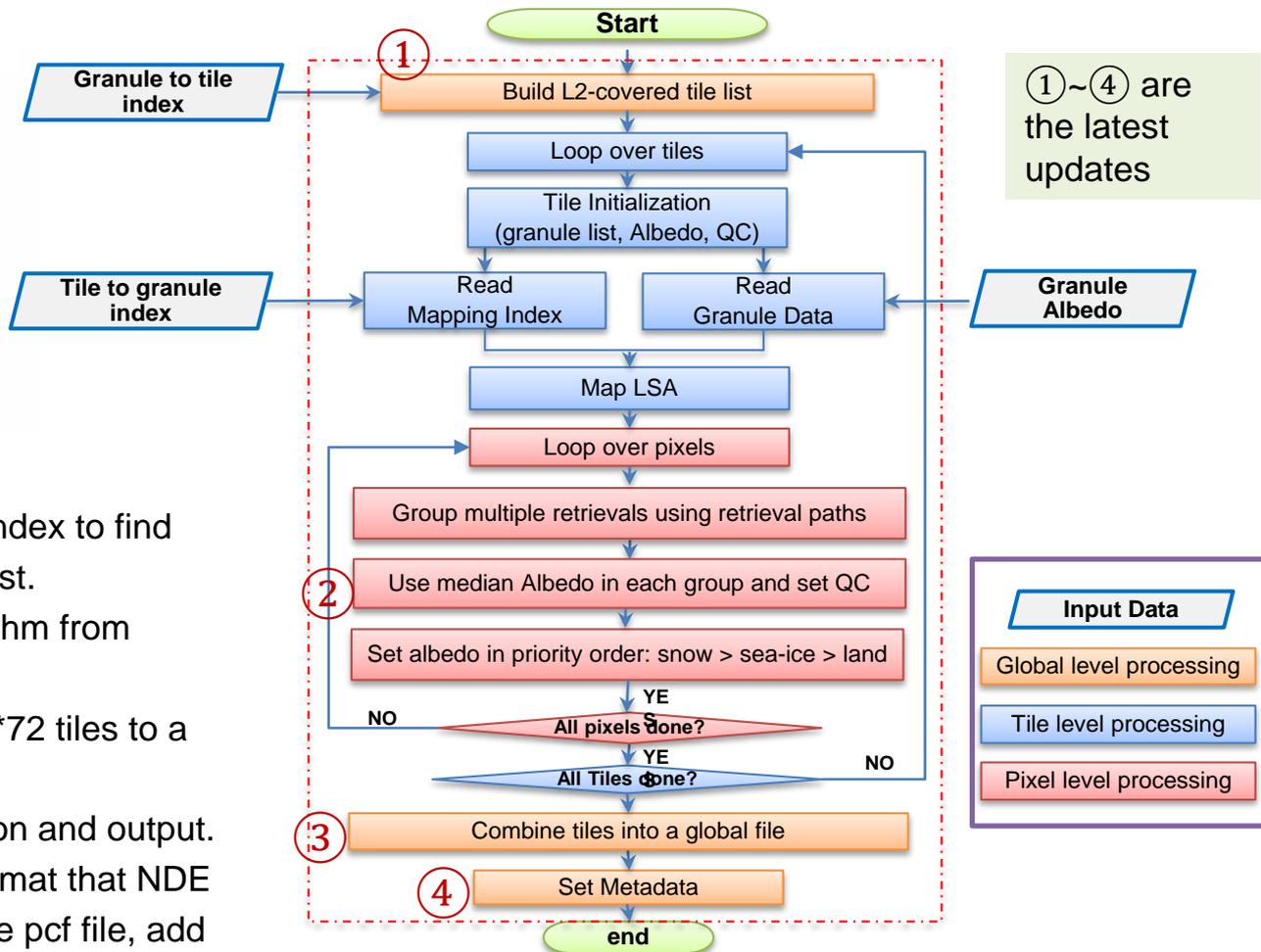
NOAA-20 VIIRS LSA product example, generated by the ASSISTT framework after we solved the online gap-filling issue. The current result satisfies the provisional maturity review requirements.

Example Output
Dynamic Animation

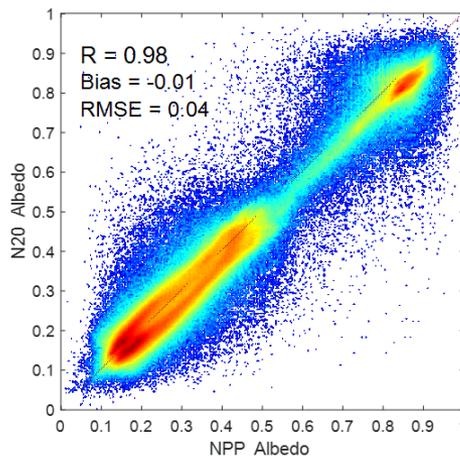
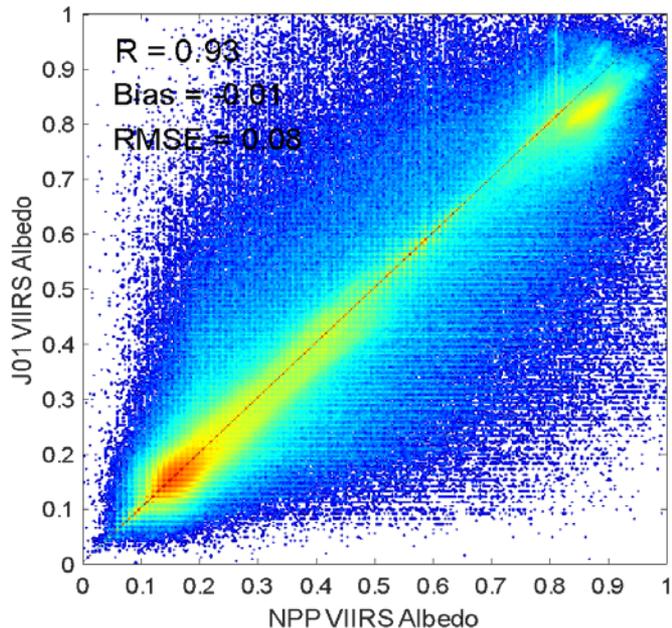


Updates:

1. Digest the granule-to-grid index to find the actually covered tiles first.
2. Change composition algorithm from mean to median.
3. Change the output from 72*72 tiles to a global map.
4. Add the metadata calculation and output.
5. Modify the code into the format that NDE requires, such as design the pcf file, add in static metadata.

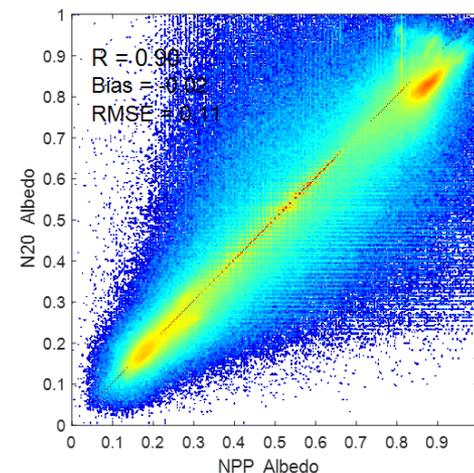


Global Comparison

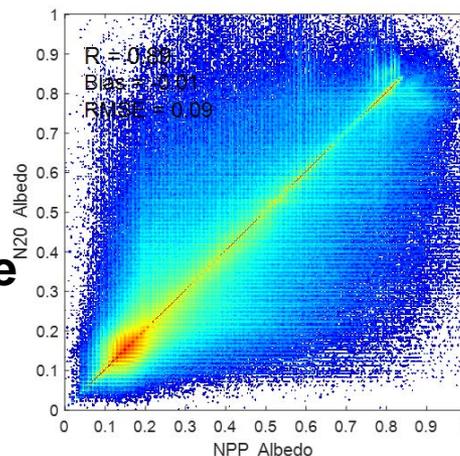


high-quality retrievals

medium-quality retrievals

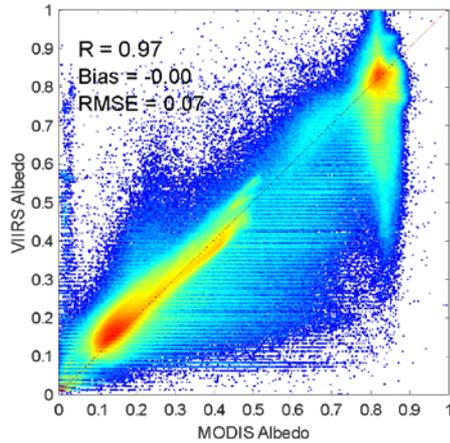


low-quality retrievals

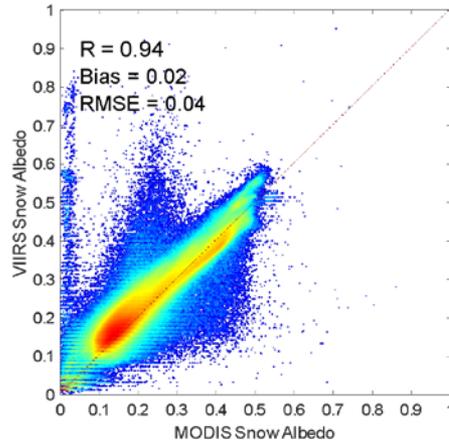


Comparing the NOAA-20 and SNPP VIIRS LSA, the result is generally consistent in high-quality retrievals, but has some difference in medium and low quality retrievals, which are filled values.

Global Comparison



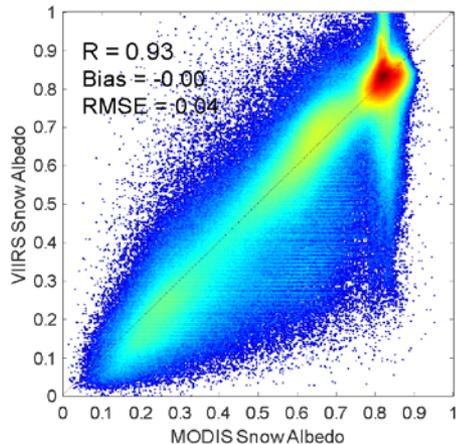
Snow-free pixels only



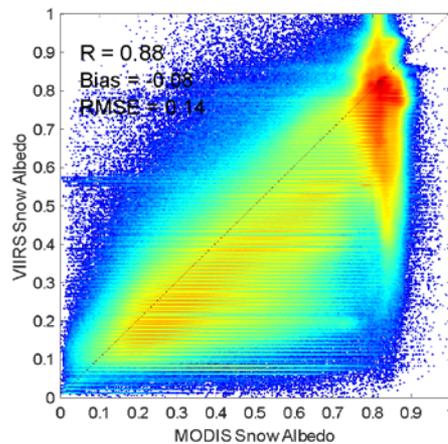
Snow-covered surfaces contribute most to the overall differences (shown as strips and scattered tails in the scatterplot) between two albedo products.

The snow mask difference mainly caused the different retrieval path and thus the difference. We categorized the snow pixels into three groups, 1) both remarked as snow; 2) only MODIS treated as snow; 3) only VIIRS retrieved as snow.

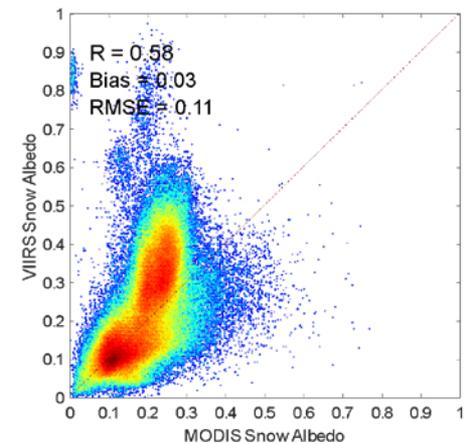
MODIS snow vs. VIIRS snow



MODIS snow vs. VIIRS snow-free



MODIS snow-free vs. VIIRS snow



Accomplishments / Events:

- Delivered Initial DAP (NOAA-20 VIIRS GVF) to NDE on January 25th
- Evaluated and Compared NOAA-20 VIIRS GVF maps from the old SR with those from the new SR and major difference was found between them due to the SR LUT correction
- Produced NOAA-20 VIIRS GVF test data from 20181120 to 20181130 for the provisional maturity review
- Updated the visualization website for providing better VIIRS GVF access to users in the following website.
https://www.star.nesdis.noaa.gov/smcd/viirs_vi_web/land_watch.php

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

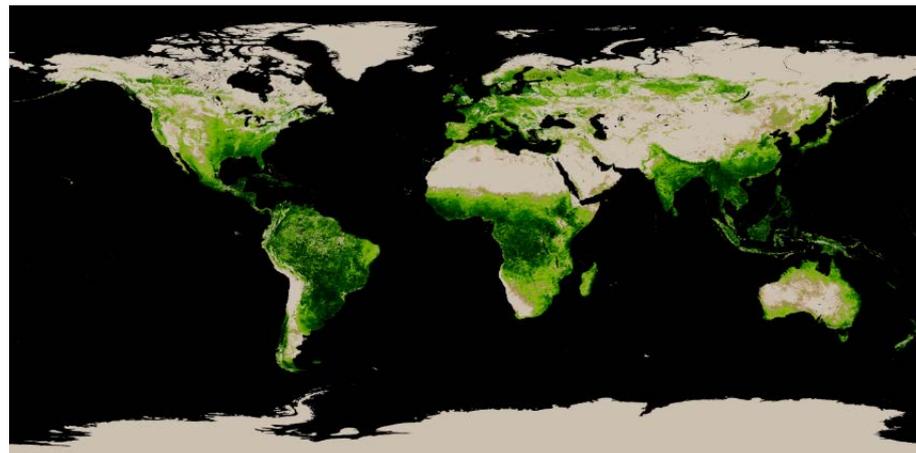
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

The government shutdown seriously impacted the NOAA-20 VIIRS GVF provisional review, and it will be rescheduled to March 19, 2019

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19		
Initial DAP (N20 Algorithm Adjustment)	Nov-18	Nov-18	11/30/18	11/15/18 to ASSISTT
Final DAP (N20 Algorithm Adjustment)	May-19	May-19		
NVPS algorithms optimization and improvement	Apr-19	Apr-19		
Cal/Val tool development (SNPP & J1 comparison)	Jun-19	Jun-19		
Deep-dive analysis software package for the anomaly watch	Sep-19	Sep-19		

Highlights:



NOAA-20 Weekly GVF Nov 24-30, 2018

Accomplishments / Events:

- Processed and transferred surface reflectance (SR) granules covering AERONET site for SR validation to SR team
- Delivered initial DAP (NOAA-20 VIIRS VI) to NDE on January 28th.
- Testing the impact of Look-Up-Table update on NOAA-20 VIIRS VI product
- Validating NOAA-20 VIIRS VI product using MODIS & NEON VI product
- Updated the visualization website to provide better VIIRS VI historical products preview for users, and also produced SNPP products for website user from May 1st, 2018 to present

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

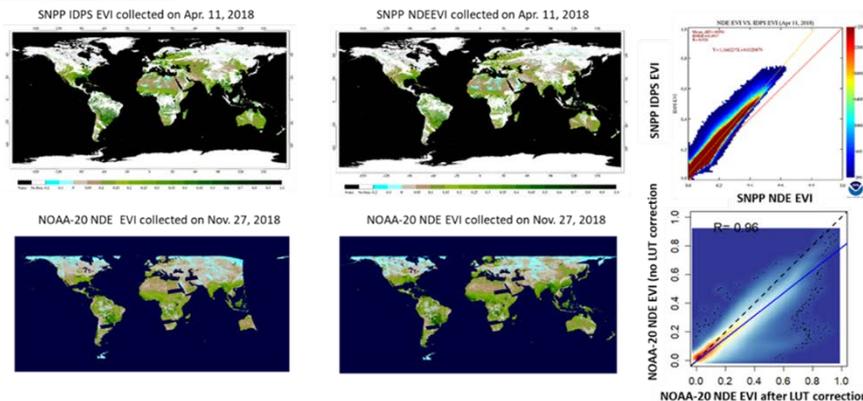
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

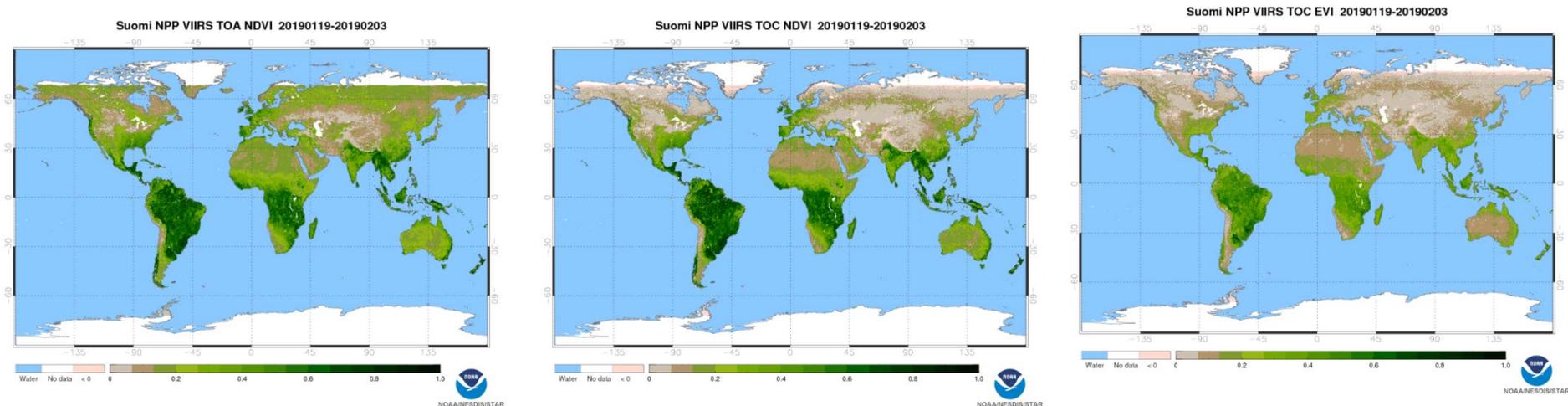
The government shutdown seriously impacted the NOAA-20 VIIRS VI provisional review, and it will be rescheduled a month later (March 19, 2019)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19		
Initial DAP (N20 Algorithm Adjustment)	Nov-18	Nov-18	11/30/18	11/15/18 to ASSISTT
Final DAP (N20 Algorithm Adjustment)	May-19	May-19		
NVPS algorithms optimization and improvement	Apr-19	Apr-19		
Cal/Val tool development (SNPP & J1 comparison)	Jun-19	Jun-19		
Deep-dive analysis software package for the anomaly watch	Sep-19	Sep-19		

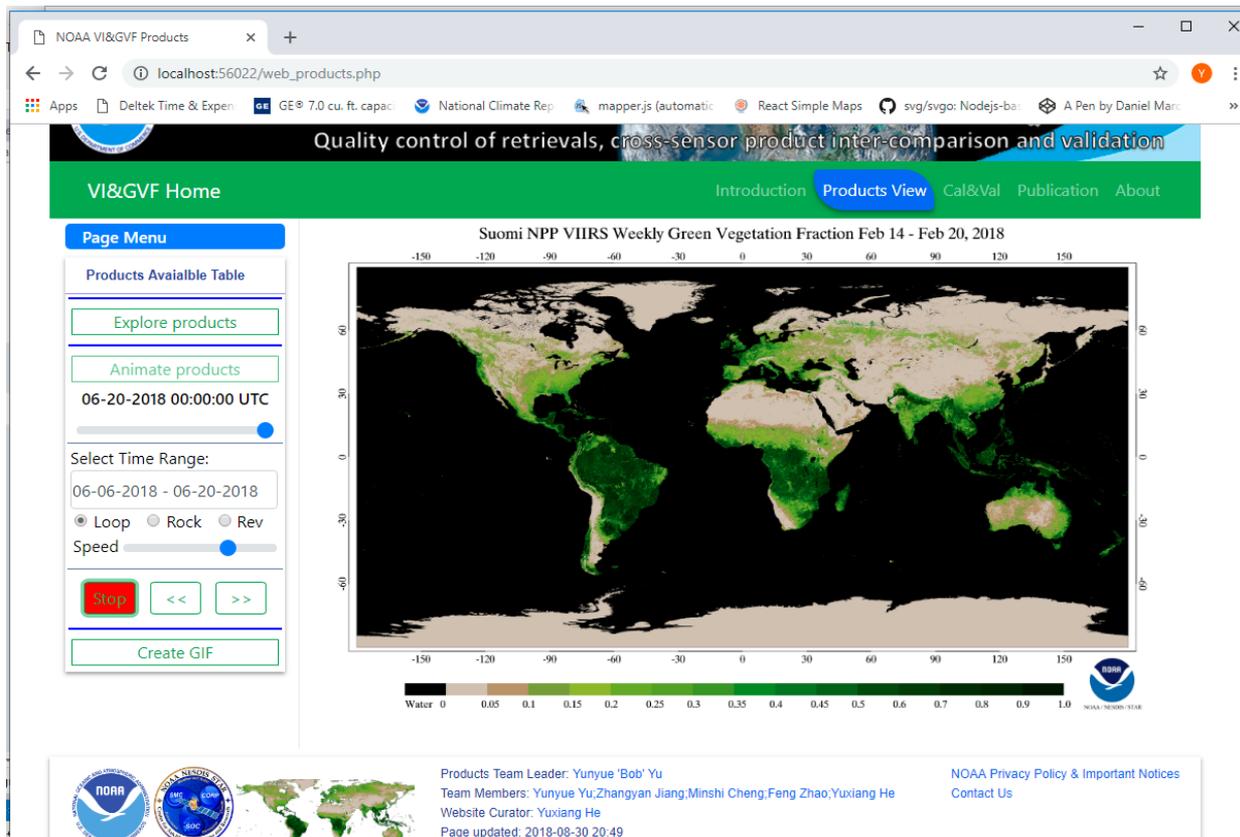
Highlights:



A bug in surface reflectance operational algorithm (i.e., disorder in Look-up-table (LUT)) was found during SNPP operational review, which leads to lower estimate of VIIRS VI values (right figure in upper row). After NOAA-20 beta maturity review, this bug was fixed, and the resultant EVI reverses the lower estimates of VIIRS VI values (right figure in lower row). As a result, it is expected that the NDE VIIRS VI product is more consistent with IDPS VIIRS VI product.



The figures are three sample SNPP weekly VIIRS NDVI products. The VIIRS VI team has been monitoring the SNPP VIIRS VI product consistently to ensure the quality of SNPP VIIRS VI product



VIIRS VI/GVF group has been building a visualization website to promote the use of VIIRS VI/GVF product. The figure above is a screenshot of the website. This website will be open to external users soon. It provide unique tools such as searching data, browsing data, and animating VI data, and also a detailed introduction of VIIRS VI/GVF product.

Accomplishments / Events:

- Publication: "Drought and food security prediction from NOAA new generation of operational satellites" by Felix Kogan, Wei Guo and Wenze Yang, in "Geomatics, Natural Hazards and Risk";
- Helped OSPO to set up 1 km VH data.
- Developed mean VH data images: world, country, states, county
- Routine generation of NOAA-20 and SNPP VIIRS 500m, 1km, 4km, 16km weekly composite VH data & products;
- Communicated with users

Overall Status:

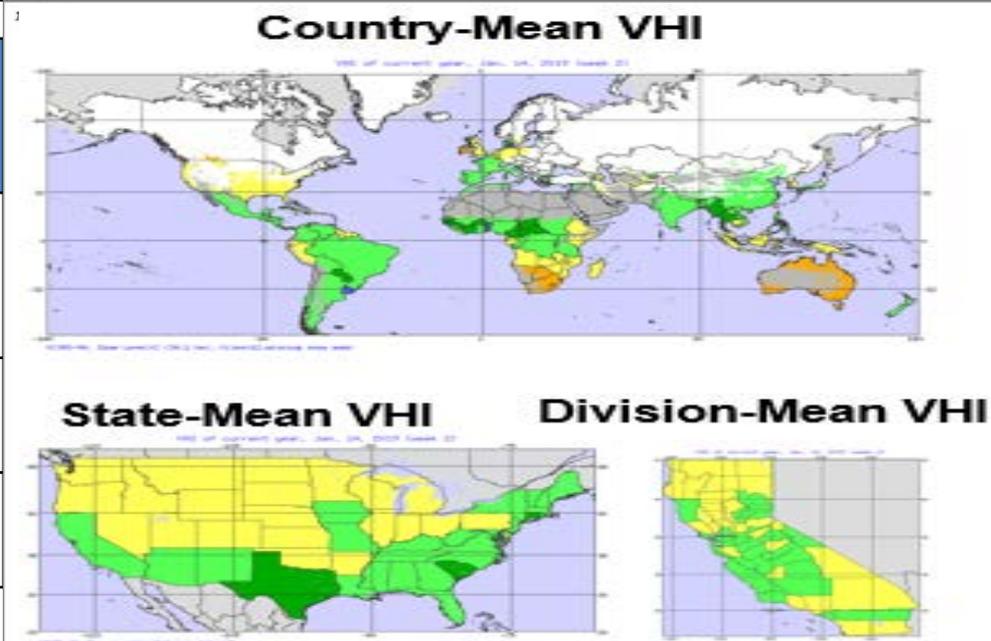
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19		
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		
Cal/Val tool development (SNPP & J1 comparison)	Sep-19	Sep-19		



Accomplishments / Events:

- **“Double the Coverage”**: VIIRS OC Cal/Val external team member Dr. Chuanmin Hu of Univ. of South Florida presented, “MODIS and NPP/VIIRS valid observations over global oceans” at recent bi-weekly telecon showing MLS12 approximately double the coverage compared with NASA L2gen processing. See highlight for more.
- Milestone update: VIIRS NOAA-20 Ocean Color NOAA-MSL12 processing system was given “Scientific Provisional” maturity status (skipping over the “beta” maturity status) in Dec. 2018.
- Recent peer-reviewed publication from external VIIRS OC Cal/Val team featuring LISCO Aeronet-OC data (from JPSS support): C. Carrizo, A. Gilerson, R. Foster, A. Golovin, Ahmed El-Habashi, “Characterization of radiance from the ocean surface by hyperspectral imaging,” Optics Express, 27, 1750-1768, 2019.

Overall Status:

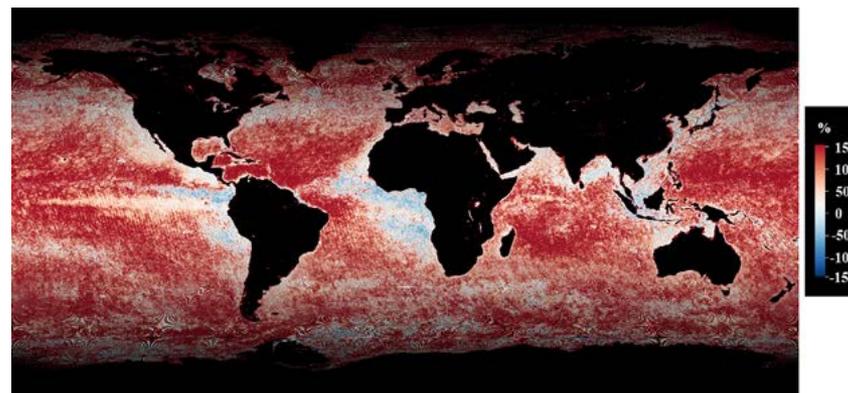
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

Big jumps in NOAA-20 SDR have impacted the schedule for validation of NOAA-20 MSL12 ocean color EDR

Highlights:



Results (Chuanmin Hu et al. presentation) of a quantitative study that, compared to the NASA L2gen processing, **NOAA MSL12 processing led to significantly increased daily percentage of valid observations (generally much improved, more than double in some areas, daily global coverage)**. Color bar is percentage, dark red is 100% percent increase. VIIRS SNPP is show here.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta Maturity (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19	11/27/18	
Initial N20 DAP to CoastWatch	Dec-18	Dec-18		
Final N20 DAP to CoastWatch	Mar-19	Mar-19		
Vicarious calibration for VIIRS-NOAA-20 using MOBY in situ data	Dec-18	Dec-18		
NOAA-20 polarization effect correction validation, evaluation, and analysis	Jun-19	Jun-19		
Cal/Val team complete the fourth VIIRS cruise report and in situ data analyses (e.g., improve in situ data quality)	Jun-19	Jun-19		
In situ data collections including NOAA dedicated cruise in May 2018 and continue Cal/Val for VIIRS ocean color EDR, report	Aug-19	Aug-19		

Accomplishments / Events:

- ACSPO 2.60 has been operational in NDE since 6 Nov 2018
- Extensive validation has shown unusually large biases in hi-lat
- SST LUTs have been recalculated & implemented in ACSPO 2.61. The hi-lat biases have been significantly reduced (but still present)
- No code change in 2.61, only two LUTs and two config files should be replaced (for NPP & N20)
- SST Team initiated a process of updating 2.60 to 2.61 in NDE
- The 2.61 mitigates the hi-lat biases but does not remove them fully
- Work is underway on 2.80 to more fundamentally address the issues with the SST retrieval algorithm. (In interim, 2.70 will be released which mostly aims at adding Metop-C and G17, and extensive code optimization)

Overall Status:

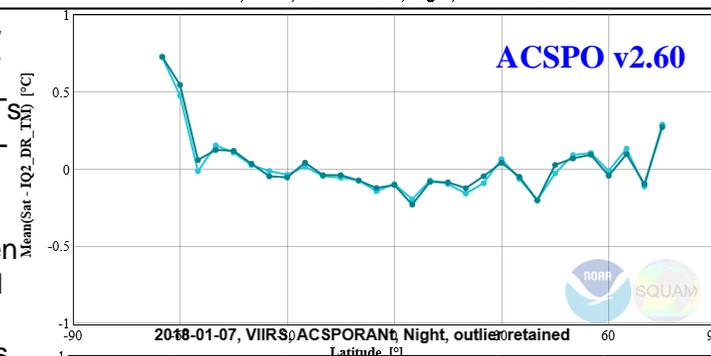
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

2018-01-07, VIIRS, ACSPO RAN2, Night, outlier retained



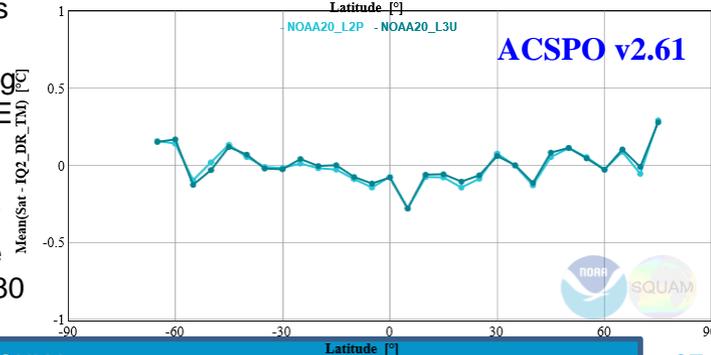
Highlights:

NPP & N20 SSTs in 2.60 reveal hi-lat biases

Those have been mitigated in 2.61 by replacing 2 LUTs/config files

The 2.61 is being delivered to NDE

Fundamentally, issues with SST algorithm will be addressed in 2.80



Milestones	Original Date	Forecast Date	Actual Completion Date
NOAA-20 Calibration/Validation			
Beta Maturity			04/18/18
Provisional Maturity			04/18/18
Validated Maturity	Apr-19	Apr-19	
NOAA-20 Algorithm Adjustments			
Initial DAP (ACSPO 2.60)			07/05/18
Interim DAP (2.61) (update LUTs as needed)	Feb-19	Feb-19	
Final DAP (ACSPO 2.70)	Aug-19	Aug-19	
JPSS-2 Schedule			
J2 Cal/Val Plan - draft delivery	Jun-20	FY20	
J2 Cal/Val Plan - final delivery	Dec-20	FY21	
Planned Algorithm Updates/Cal-Val			
VIIRS RAN2 N20 archived PO.DAAC/NCEI	Jun-19	Jun-19	
VIIRS RAN2 NPP archived PO.DAAC/NCEI	Dec-19	FY20	
ACSPO 2.70 – Improved SST for data fusion	Aug-19	Aug-19	

Accomplishments / Events:

- No progress in January due to the shutdown.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta/Provisional Maturity			10/02/18	
Validated Maturity (N20 Cal/Val)	Mar-19	Mar-19		
Final DAP (N20 Algorithm Adjustment)	Feb-19	Feb-19		
Introduce and evaluate a parallax correction in the winds algorithm (it is needed for the mixed-satellite product)	Sep-19	Sep-19		
Finalize development and begin routine processing of combined (mixed-satellite) S-NPP/NOAA-20 global winds	Sep-19	Sep-19		
Implementation of the shortwave IR (2.25 μm) band winds	Sep-19	Sep-19		

Accomplishments / Events

- Works continue towards the improvement of the CH4 product.
- A follow up exchange has been initiated with Larrabee Strow concerning the next SARTA delivery for IASI and CrIS FSR.
- Antonia Gambacorta and Nick Nalli participated and presented in the 2019 AMS meeting on the status of NUCAPS algorithm and validation.
- A new hire was brought on board, Tianyuan Wang and the team has started providing training on a number of subjects: OLR, forward model, retrieval concepts.
- A first round of tests was conducted to assess the status of the NUCAPS IASI Metop B system. Results show that the system currently meets specifications.

Overall Status:

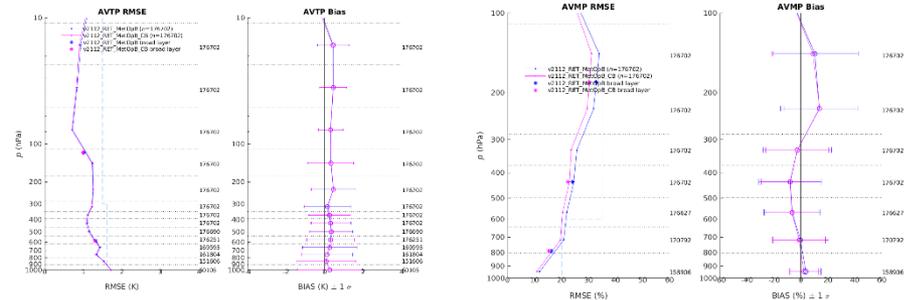
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Disk space: we are running out of disk space needed to store training ensembles and validation data sets.

Highlights:



Temperature and Water vapor RMS and BIAS statistics using the current IASI NUCAPS system. The analysis indicates that the current system meets spec. This study was conducted in preparation for Metop C operations.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity: Ozone, CO, OLR			10/02/18	
N20 Provisional Maturity: CO2, CH4	Apr-19	Apr-19		VPN was slow during shutdown; a significant bias has been found in the forward model; we need to get an update from L. Strow
N20 Validated Maturity	Sep-19	Sep-19		Same as above
Validated Maturity: S-NPP Trace Gas (CO/CO2/CH4)	Sep-19	Sep-19		Same as above
Final DAP (N20 Algorithm Adjustment)	Apr-19	Sep-19		Same as above
Generate regression coefficients (OLR)	Apr-19	Apr-19		VPN was slow during shutdown; Task was transferred to new hire. Need more time for training on IDL programming and OLR codes
Validation with NPP CERES radiation products (OLR)	Sep-19	Sep-19		Same as above
Improve NOAA-20 CO, CH4 and CO2 retrieval algorithm	Dec-18	Dec-18		
Validation against NUCAPS SNPP trace gas EDRs, other instruments (MOPITT, AIRS, IASI) and in situ measurements (TCCON, ATom, WE-CAN, KORUS)	Sep-19	Sep-19		
Optimize NOAA-20 AVMP/AVTP/O3 retrieval algorithm	Dec-18	Dec-18		
Validation against model data and radiosondes; SNPP and J1 EDRs cross comparisons	Sep-19	Sep-19		

Accomplishments / Events:

- Developed initial updated radiometric bias corrections for N20/ATMS based on data selected from previous 12 months. Testing is underway to determine impact on retrievals. If results are satisfactory, these will be included in final DAP delivery.
- MiRS v11.3 based on preliminary DAP was promoted to operations on January 31, 2019. Promotion to operations was delayed due to Federal Government shutdown.

Overall Status:

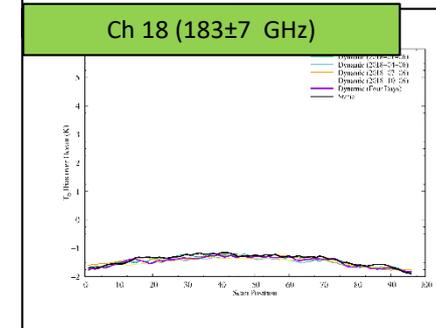
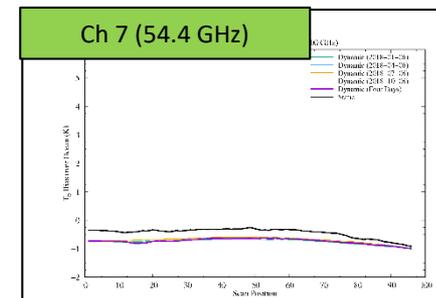
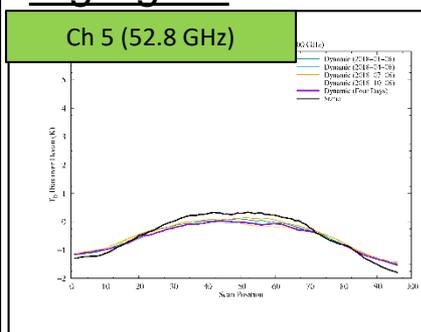
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:



Examples of NOAA-20/ATMS preliminary bias corrections for 4 individual days (green, blue, orange, yellow) and all 4 days combined (magenta). Static bias corrections for SNPP/ATMS are also shown in black.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (N20 Cal/Val)	Sep-19	Sep-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19		
Bias correction for NOAA-20	Mar-19	Mar-19		
Validation against ECMWF data and radiosondes	Sep-19	Sep-19		
Validation against other reference data for other EDRs	Sep-19	Sep-19		

Accomplishments / Events:

- Radiometric bias correction coefficients were derived for NOAA-20 and implemented in the SFR algorithm.
- A new approach has been developed for the calibration of the NOAA-20 SFR. Preliminary results show significant performance improvement compared to the previous method.
- The ATMS SFR system is being modified to process both S-NPP and NOAA-20. Eventually, this unified system will also be used to produce SFR from Metop-C and other satellites at NDE.
- The S-NPP SFR product has passed all tests at NDE and will be implemented into operational within the MiRS v11.3 system at the end of February.
- The government shutdown may delay the delivery of the NOAA-20 SFR package to the MiRS team and the final DAP delivery to NDE.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

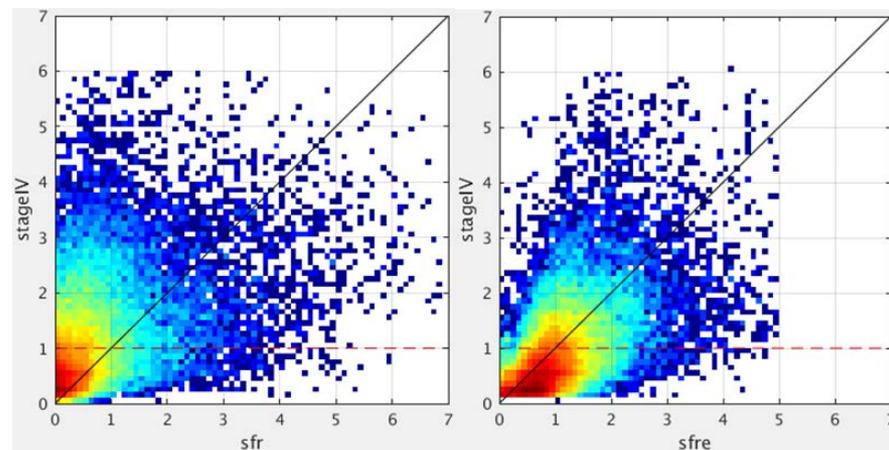
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3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity: NOAA-20 SFR	Mar-19	Mar-19		
Validated Maturity: S-NPP SFR	Sep-19	Sep-19		
Final DAP (N20 SFR)	Mar-19	Mar-19		
Update radiometric bias correction coefficients	Dec-18	Dec-18		
Deliver updated SFR package to MiRS team (for Mar-19 DAP delivery)	Feb-19	Feb-19		
Validation against in-situ, Stage IV, and MRMS data	Jul-19	Jul-19		

Highlights:



Preliminary NOAA-20 SFR calibration results against Stage IV radar and gauge combined precipitation analysis, (left) before calibration; (right) after calibration

Accomplishments / Events:

- Limb Toast prepared for OSDPD.
- Working on V8Pro Adjustment Tables.
- V2Limb NDE I&T script problems resolved
- Converged on outlier filter approach (See figure.)
- Monitoring site content expansion to include more reprocessed products is ongoing.

<https://www.star.nesdis.noaa.gov/smcd/spb/OMPSSDemo>

Overall Status:

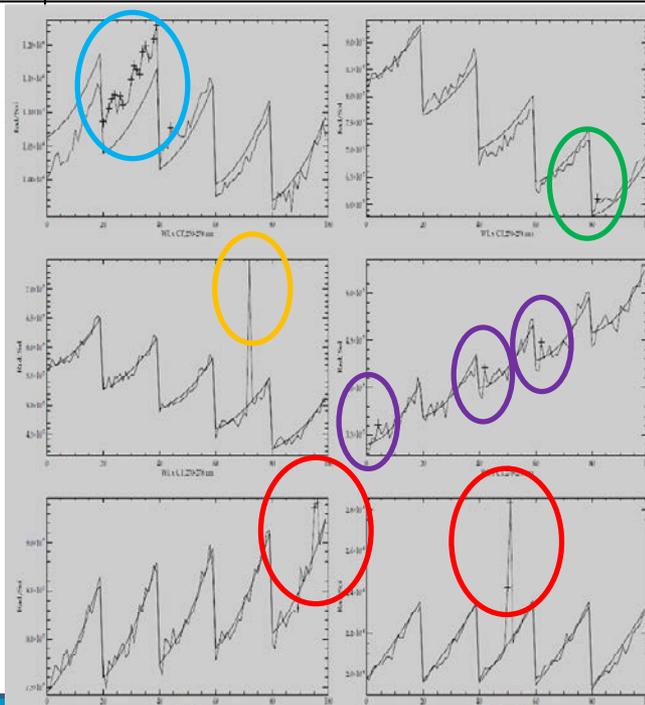
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule			X		# SDR Schedule

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Code Changes for OMPS V8Pro EDR on path to maturity will not be implemented at NDE until May 2019.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity: V8TOz			10/03/18	
Provisional Maturity: V8Pro	Feb-19	May-19		Requires code
Validated Maturity: V8TOz	Mar-19	Mar-19		
Validated Maturity: V8Pro	Apr-19	May-19		
N20 Final DAP: V8Pro	Apr-19	Mar-19		
Trending of ground-based comparisons	Mar-19	May-19		
Algorithm improvements (EOFs, solar, Wavelengths, bandpasses)	Sep-19	Aug-19		
RT Tables for NOAA-20	Sep-19	Aug-19		



4% threshold. A “+” indicates a bad value. Orange - a single spike. Red - two spikes. Purple - three spikes for the same spectral row. These all occurred in the SAA. Blue - high latitude, summer hemisphere, Polar Mesospheric Clouds (PMCs) are present in FOVs. Green - marginal case due to PMCs, or noise, or a charged particle hit in the auroral oval.

Accomplishments / Events:

- Check product quality monitoring for anomalies during the government shutdown

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

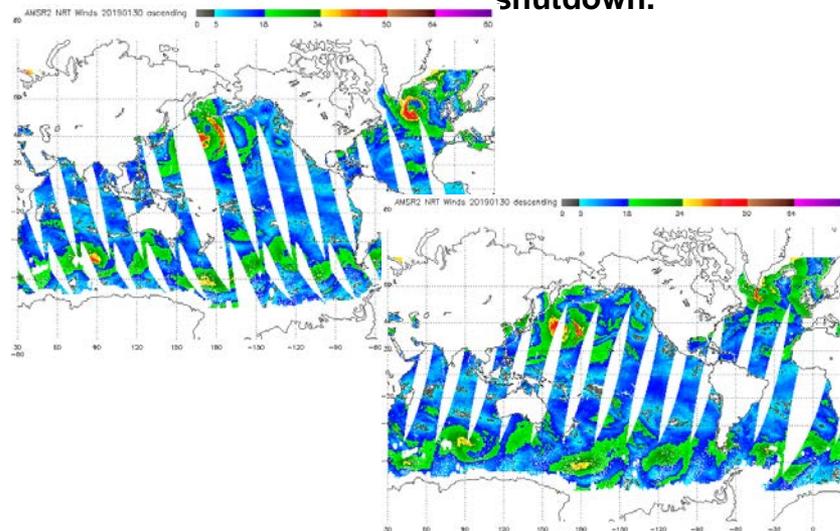
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Deliver updated TPW algorithm for integration into GAASP	Dec-18	Dec-18	Dec-18*	*Validation results did not warrant an update
Deliver updated CLW algorithm for integration into GAASP	Apr-19	Apr-19		
Deliver updated rain rate algorithm for integration into GAASP	Apr-19	Apr-19		
Updated GAASP package delivered to NDE/OSPO	Jul-19	Jul-19		
Reprocessing of AMSR-2 mission	Sep-19	Sep-19		

Highlights: GCOM-W1/AMSR2 and product processing maintained nominal operations during the shutdown.



Accomplishments / Events:

- Provided inputs on NUCAPS problem areas at newly established bi-weekly NUCAPS review meetings; super-saturation and bias rooted in first guess were noted.
- Final dataset of “reprocessed” NPROVS Special radiosondes established and collocation with satellites initiated (**Highlight**)
- Observations from the ongoing Radiosonde Inter-comparison and VALidation (RIVAL) campaign processed into NPROVS
- Provided STAR seminar “Enterprise EDR Validation at STAR”
- Actions taken to insure continuance of JPSS/ARM and AEROSE dedicated radiosonde programs
- The EDR-LTM team created new capability for Alaska Watch allowing transparency viewing and user display of geopolitical boundaries, latitude / longitude grids and city markers.

Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

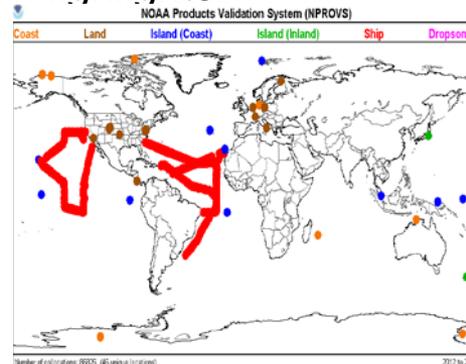
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Issues/Risks:

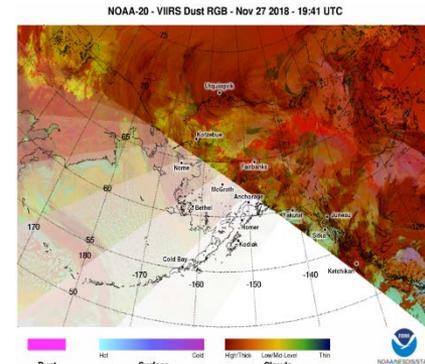
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
LTM				
Complete NOAA-20 JMAPPER/EDR-LTM	Sep-19	Sep-19		
NPROVS				
Maintain NPROVS and support R2O transition of NOAA-20 and NUCAPS upgrades to correct identified problems for IR+MW and MW sounding	Jan-19	Jan-19		
Maintain JPSS dedicated radiosonde program including AEROSE and RIVAL observations stored in NPROVS Special	Mar-19	Mar-19		
Support NWS Raob Transition Monitoring and NUCAPS AWIPS-2 users	May-19	May-19		

Highlights:



NPROVS: Reprocessed “special” radiosondes provide expanded global coverage and better assures the radiosonde integrity; collocation with NUCAPS soundings facilitates “enterprise” validation in support of algorithm development



EDR-LTM: Figure 1: Image of VIIRS Dust RGB on Alaska Watch web page with new transparency features (newer orbits darker) and user defined geographical features