AMP/STAR FY19 TTA

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Highlights from the Science Teams

S-NPP CrIS MWIR Failure and response

On March 26 (after several days of growing issues) CrIS MWIR ceased to be produced. STAR JPSS has been integral in the diagnosis of this issue, as well as the mitigation.

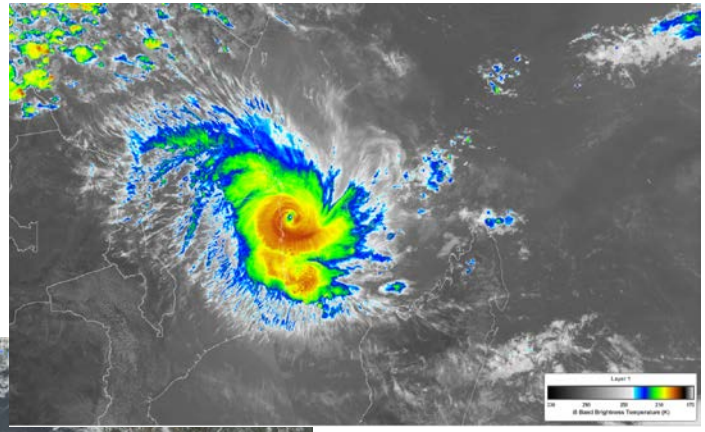
Early on, the STAR CrIS team used in house resources to fill the gaps left by the IDPS data outage from 3/26to 4/2. The team has also updated the Engineering Packets for the move to electronics Side 2 which is hoped to fix the MWIR problem.

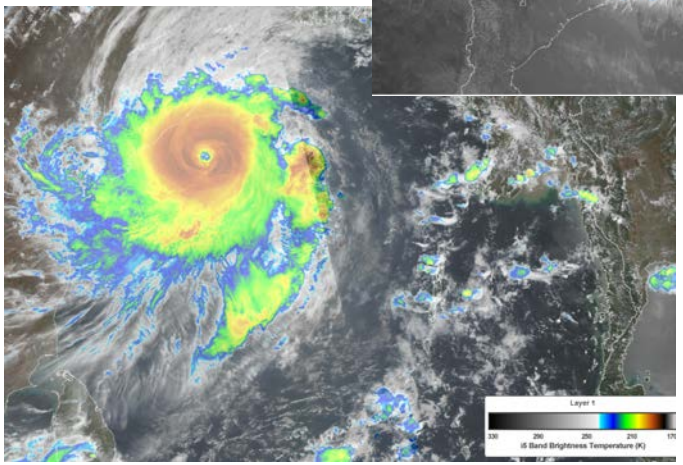
Additionally, the team has monitored the LWIR and SWIR, and found that there are some issues with the imaginary radiance in the LWIR due to missing MWIR data. This issue is being worked by the team.

Indian Ocean hurricanes captured in VIIRS Imagery

Two major tropical cyclones formed in the Indian Ocean in April. One, Kenneth, hit Mozambique – the second to strike that nation in less than two months time. The other – Cyclone Fani – impacted eastern India. VIIRS I5 band imagery of these storms near landfall is seen below.

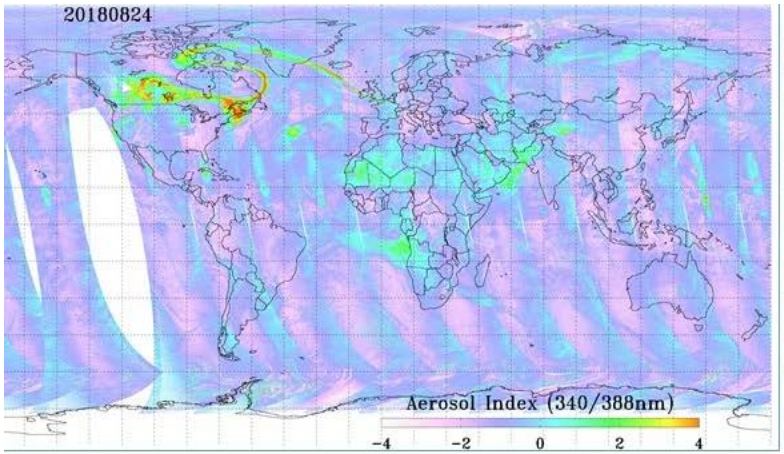
Kenneth

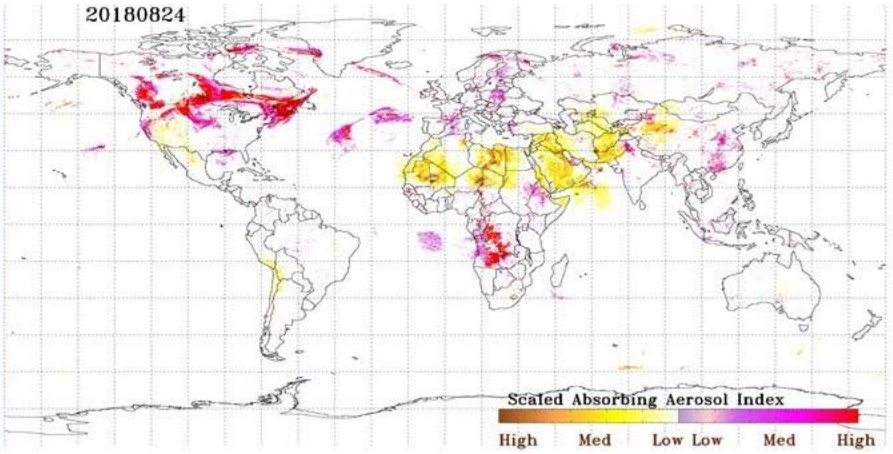




Fani

Highlights from the Science Teams





VIIRS vs TROPOMI Aerosol Index

The VIIRS Aerosol team has begun comparisons of the Aerosol Index product derived from VIIRS and from TROPOMI on Sentinal 5A. The comparisons shown above indicate a qualitative agreement, despite the difference in wavelengths used to retrieve Aerosol Index. Further quantitative improvements are ongoing.

NUCAPS inputs into VIIRS Cloud products

The VIIRS Cloud team is assessing a new technique to use NUCAPS cloud retrievals to asses cloud top height. They found that NUCAPS (which importantly has a CO2 detection capability via CrIS) clouds as *a priori* in fact substantially improve the VIIRS Cloud Top Height products via the ability to better capture thin cirrus clouds.

AI Workshop

The JCSDA hosted the 1st Workshop on Leveraging AI in the Exploitation of Satellite Earth Observations and Numerical Weather Prediction at NCWCP from April 23-25.

Several STAR JPSS teams participated and JPSS data was used by many non-STAR participants.

Highlights from the Science Teams

VIIRS Calibration Paper

STAR VIIRS SDR team members published a paper titled "Radiometric Inter-Consistency of VIIRS DNB on Suomi NPP and NOAA-20 from Observations of Reflected Lunar Lights over Deep Convective Clouds" by C. Cao, Y. Bai, W. Wang, and J. Choi. The paper was published in the journal *Remote Sensing* (https://doi.org/10.3390/rs11080934). A novel method was presented in this paper for evaluating the observation consistency and accuracy between VIIRS DNB on two or more satellites. It takes advantage of the faint reflected lunar light at night from the deep convective clouds to perform the data quality assessments. Results show that the VIIRS DNB observations are consistent within 5% between Suomi NPP and NOAA-20, which significantly outperforms the mission requirement.

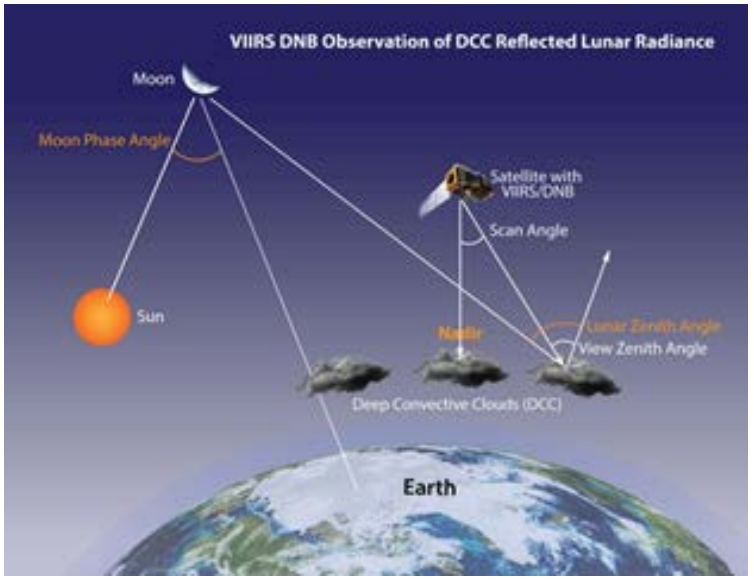


Figure. The viewing geometry used in the new technique for intercalibrating the DNB on different satellites.

IOCCG-24 Committee Meeting, IOCCG-33 Executive Committee Meeting and IOCS Science Meeting

Menghua Wang participated in the IOCCG-24 Committee Meeting, which was held from April 4-5, 2019 in Hanoi, Vietnam, and included representatives from various international space agencies, as well as scientists working on satellite ocean color remote sensing. The 33rd IOCCG Executive Committee Meeting was held on April 6, 2019 in the same venue. The IOCCG executive committee members from NOAA ,NASA, ESA, JAXA, KIOST, etc. attending and conducted business, including planning for the next IOCCG Meeting in Tokyo, Japan in March 2020. The following week, Wang and other ocean color EDR team members participated in the International Ocean Colour Science Meeting held 9-12 April in Busan, South Korea.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
    - CrIS SDR team delivered DAP (ADR8760/CCR4469, CrIS SDR Radiance Polarization Correction) to ASSISTT on 4/22/2019. ASSISTT team delivered the DAP to DPES on 5/7/2019

- DAPs - Enterprise Products:
    - New set of NVPS test data delivered to NDE on 4/3/2019
    - NVPS patch DAP (parameter.h update, script fix for version number change issue) delivered to NDE on 4/29/2019
    - NUCAPS patch DAP (make SNPP CrIS Low Resolution Data, fix production_environment/production_site) delivered to NDE on 4/26/2019
    - GAASP patch DAP (fix production_environment/production_site attributes) delivered to NDE on 5/1/2019
    - N4RT BUFR v4-8 DAP delivered to NDE on 4/3/2019

- IDPS Builds Checkouts:
    - STAR submitted Block 2.1 Mx6 SOL deploy regression review/checkout results summary report (4/11/2019).

Accomplishments – JPSS Cal Val Supports

- NOAA-20/S-NPP Operational Calibration Support:
  - S-NPP Weekly OMPS TC/NP Dark Table Updates: 04/02/19, 04/09/19, 04/16/19, 04/23/19, 04/30/19
  - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 04/02/19, 04/09/19, 04/16/19, 04/23/19, 04/30/19
  - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 04/09/19, 04/23/19
  - NOAA-20 Monthly VIIRS StrayLight LUTs Update: 04/16/19
  - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 04/10/19
  - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 04/10/19

- NOAA-20 products operational since 4/23/2019 (NDE 2.0.16 build)
  - VIIRS Surface Reflectance

Accomplishments - Transition to Operations and AMP

- SNPP/N20:
  - NDE 2.0.16 Operations Release - April 23, 2019
    - Updates to the following products:
      - CrIS BUFR, ACSPO v2.61, ACSPO BUFR, N-20 VIIRS Surface Reflectance, GOES-R Winds NB VIIRS Winds NB, DMW BUFR GOES, MiRS, GAASP, and Tropical Cyclone
  - On April 30, 2019, all but 4 IDPS Environmental Data Records (EDRs) had their distribution stopped by OSPO on PDA. The remaining 4 are expected to have their distribution stopped in July 2019.
- EPS-SG project support
  - AMP (T Ibironke and L Dunlap) participated in a meeting with NOAA representatives to review topics in preparation for a meeting with European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) on April 29, 2019. Also participated in the aforementioned meeting with EUMETSAT on May 1, 2019 where various decisions were made about data product exchanges between both agencies. Decisions were also made for composition of the JPSS Requirements Document (JRD) 12 and 12B.
  - AMP (T Ibironke) Reviewed and modified the Level 1 Requirements (L1RD) draft document that contained a listing of all data products NOAA expects to get from European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) under the Joint Polar System (JPS) agreement.
- Other
  - Ocean Color Product Generation Analysis of Alternatives results were briefed to JPSS Ground Project Management and the decision was made to recommend that Ocean Color be generated on NDE. Decision memo being prepared.
  - AMP (B Reed) provided cost estimates for AMSR-2 in support of developing a WAG for GOSAT AMSR-3 – provided Janice Smith emails from Steve Walters, Paul Chang, and Arron Layns. Also coordinated input from NDE.
  - AMP (B Guethner) co-authored a paper “Crosstalk Effect and Its Mitigation in Aqua MODIS Middle-Wave Infrared Bands” with Sun and Wang, which was published this month in Earth and Space Science, an Open on-line journal.

Upcoming Cal/Val Maturity Reviews

- April/May Maturity Review (5/16/2019):
  - Beta Maturity:
    - I-Band Active Fires
  - Provisional Maturity:
    - Cryosphere products: Snow Cover, Sea Ice, IST
    - Snow Fall Rate
  - Validated Maturity:
    - Cloud products: ECM, Cloud Phase/Type, ACHA, CBH, DCOMP, and NCOMP
    - Aerosol product: AOD, and ADP
    - Volcanic Ash (Virtual Review)
    - VIIRS Polar Winds
    - Sea Surface Temperature

- June Maturity Review:
  - Provisional Maturity:
    - OMPS Ozone (V8Pro)
  - Validated Maturity:
    - OMPS SDR (NP & TC)
    - OMPS Ozone (V8TOz)
    - Volcanic Ash (Question & Answer)

- July Maturity Review:
  - *Beta Maturity*: GST (Global Gridded Surface Type)
  - *Validated Maturity*: OMPS Ozone (V8Pro)

Upcoming Milestones/Deliveries

- JSTAR Code/LUT Deliveries:
  - DAP to DPES:
    - May-19: OMPS LUTs delivery (for validated maturity)
    - Sep-19: TC Imagery
  - NOAA-20 Algorithm DAP to NDE:
    - May-19: V8Pro – Final DAP
    - May-19: NVPS (VI & GVF) – Final DAP
    - Sep-19: NUCAPS – Final DAP
    - Sep-19: I-band Active Fires
    - Dec-19: SST - ACSPO 2.80

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	02/11/19	
CrIS SDR: Polarization correction algorithm implementation	Sep-19	Sep-19	05/07/19	
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	02/12/19: ACSPO 2.61 03/11/19: JRR, LST/LSA, & VPW	
NOAA-20 EDR Final DAPs (MIRS, NUCAPS)	Sep-19	Sep-19	03/29/19: MiRS v11.4	
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		

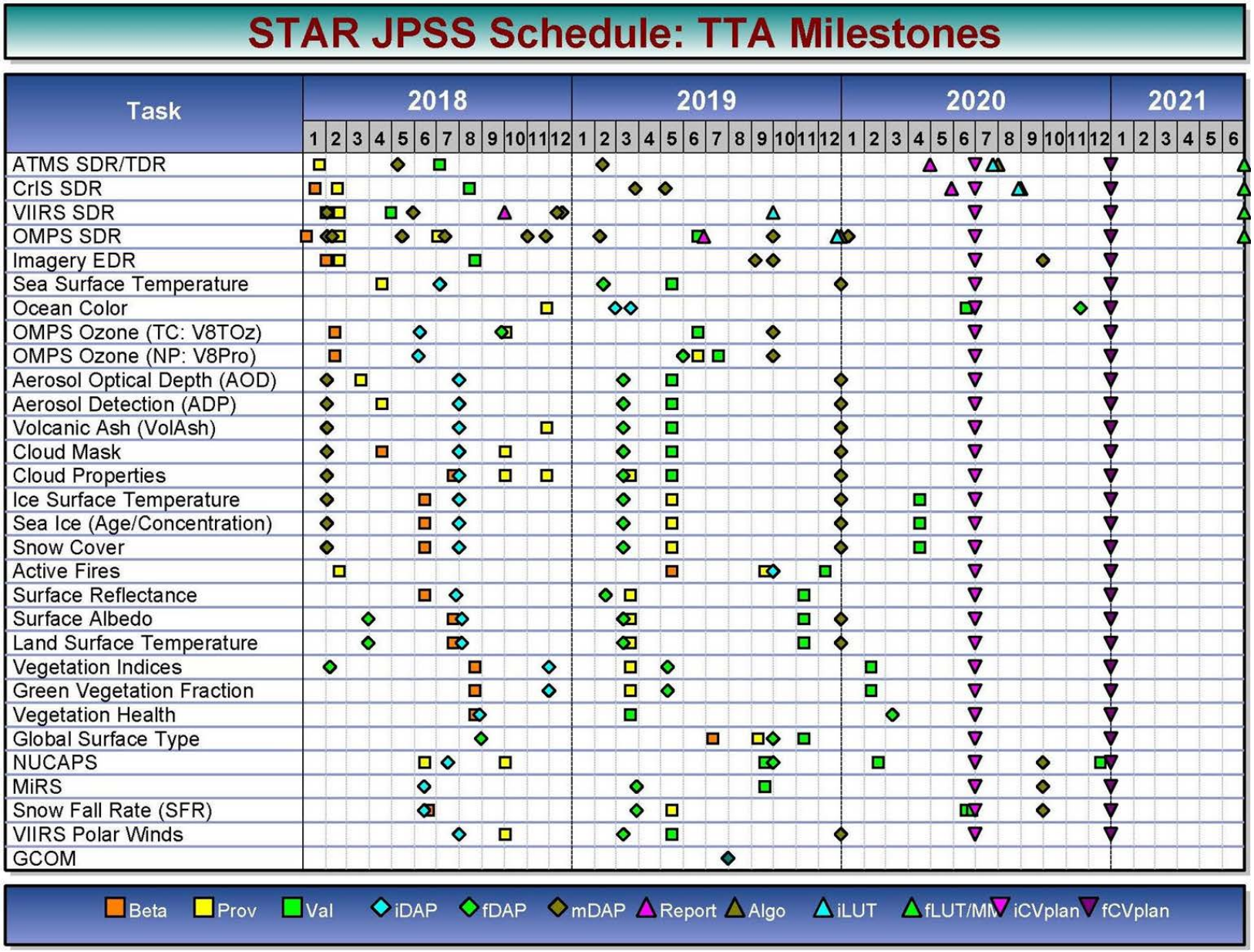
FY19 STAR JPSS TTA Milestones

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) **03/21/19: Provisional Maturity**: Nighttime Cloud Optical and Microphysical Properties (NCOMP)	
Provisional Maturity: NOAA-20 EDR Products (LST/LSA/Vegetation)	Mar-19	Mar-19	03/21/19 Provisional Maturity: LST/LSA/VI/GVF/SR Validated Maturity: Vegetation Health	
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, 02/05/19, 02/12/19, 02/20/19, 02/26/19, 03/05/19, 03/12/19, 03/19/19, 03/26/19, 04/02/19, 04/09/19, 04/16/19, 04/23/19, 04/30/19**	
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, 02/12/19, 02/26/19, 03/12/19, 03/26/19, 04/09/19, 04/23/19**	
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, 02/12/19, 03/12/19, 04/10/19**	
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, 02/05/19, 02/12/19, 02/20/19, 02/26/19, 03/05/19, 03/12/19, 03/19/19, 03/26/19, 04/02/19, 04/09/19, 04/16/19, 04/23/19, 04/30/19**	
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, 02/12/19, 03/12/19, 04/10/19**	
NOAA-20: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	**10/16/18, 11/14/18, 12/18/18, 01/15/19, 02/12/19, 03/13/19, 04/16/19**	

STAR JPSS Schedule



FY19 STAR DAP and JPSS PSDI Milestones

S-NPP Enterprise Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP: Enterprise Processing System (Aerosol, Volcanic Ash, Clouds, and Cryosphere)				
-- Final DAP	Nov-17	--	11/21/17	Completed
S-NPP: Vegetation Indices				
-- Initial DAP	Jan-18	--	6/17/18	Completed
-- Final DAP	Jan-18	--	2/6/18	Completed
-- Delta DAP	Jan-18	--	3/15/18	Completed
-- Operations	Aug-17	--	9/26/18	Completed
S-NPP: Land Surface Temperature and Land Surface Albedo				
-- Initial DAP	Feb-18	--	11/15/17	Passed Code Review: Feb-2018
-- Final DAP	Feb-18	--	4/2/18	Completed
-- ORR	May-18	--	11/9/18	Completed
-- Operations	Jul-18	May-19		OPS scheduled for 29 May
S-NPP: Vegetation Health (VH-1km)				
-- Initial DAP	Nov-17	--	11/13/17	Completed
-- Final DAP	Nov-17		11/13/17	Completed
-- ORR	Nov-17	--	10/05/18	Completed
-- Operations	Dec-17	--	01/31/19	Completed
S-NPP: Vegetation Health (VH-4km)				
-- Final DAP	Nov-17	--	11/13/17	Completed
-- ORR	Nov-17	--	10/05/18	Completed
-- Operations	Dec-17	--	01/31/19	Completed

FY19 STAR DAP and JPSS PSDI Milestones

S-NPP Enterprise Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP: ATMS Snowfall Rate				
-- Final DAP	Jun-18	--	06/14/18	Completed
-- CDR	Dec-18	--	6/20/2018	Completed
-- SCR	Jan-19	--	6/20/2018	Completed
-- ARR	Feb-19	--	6/20/2018	Completed
-- ORR	Apr-19	--	11/02/19	Completed
-- Operations	Jun-19	--	01/31/19	Completed
S-NPP: OMPS Limb Profiler Products				
-- Initial DAP	TBC	TBC		
-- Final DAP	TBC	TBC		
-- EDR and SDR ORR	Dec-16	Aug-19		
-- Operations	Mar-17	Sep-19		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: ACSPO SST				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Nov-17	--	11/16/17	Completed
-- Final DAP	Jul-18	--	7/5/18	Completed
-- SCR	Aug-18	--	Waived	Waived
-- ORR	Mar-19	--	Waived	Waived
-- Operations	Apr-19	--	11/6/18	Completed
NOAA-20: Active Fires				
-- Initial DAP	Oct-18	--	11/21/17	Completed
-- Final DAP	Oct-18	--	11/21/17	Completed
NOAA-20: OMPS Ozone: V8TOS				
-- Initial DAP	Jun-18	--	06/01/18	Completed
-- Final DAP	Jun-18	--	06/01/18	Completed
-- ORR	Jul-18	--	12/02/18	Completed
-- Operations	Aug-18	--	3/7/2017	Completed
NOAA-20: OMPS Ozone: V8TOz				
-- Initial DAP	Jun-18	--	05/04/17; 06/08/18	Completed (v3r0; v3r1)
-- Final DAP	Jun-18	--	09/27/18	Completed (LUT only)
-- ORR	Jul-18	--	12/02/18	Completed
-- Operations	Aug-18	--	3/7/2017	Completed
NOAA-20: OMPS Ozone: V8Pro				
-- Initial DAP	Jun-18	--	06/02/17	Completed (v3r0)
-- Final DAP	Apr-19	--	06/06/18	Completed (v3r2)
-- ORR	Jul-18	Jul-19		
-- Operations	Aug-18	Aug-19		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: MiRS				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Aug-18	--	06/14/18	Completed
-- SCR	Jun-18	--	6/1/18	Completed
-- ARR	Sep-18	--	4/18/18	Completed
-- Final DAP	Dec-18	--	6/14/18	Completed
-- ORR	Feb-19	--	2/5/19	Completed
-- Operations	Mar-19	--	3/7/2017	Completed
NOAA-20: NUCAPS including CrIS OLR				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Aug-18	--	07/16/18	Completed
-- SCR	Aug-18	--	01/25/19	Completed
-- Operations (Temp/H20 profiles)		--	3/7/2017	Completed
-- ARR	Sep-18	Sep-19		Dates relate to CO2 and CH4 components
-- Final DAP	Apr-19	Sep-19		Dates relate to CO2 and CH4 components
-- ORR	Jun-19	Dec-19		Dates relate to CO2 and CH4 components
-- Operations	Jul-19	Jan-20		Dates relate to CO2 and CH4 components
NOAA-20: Surface Reflectance				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Aug-18	--	07/27/18	Completed
-- SCR	Oct-18	--	3/20/19	Completed
-- ARR	Nov-18	--	3/21/19	Completed
-- ORR	Feb-19	--	4/12/2019	Completed
-- Final DAP	Apr-19	--	2/15/19	Completed
-- Operations	Jun-18	--	4/23/2019	Completed

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: VIIRS Polar Winds				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Aug-18	--	07/31/18	Completed
-- SCR	Jul-18	--	07/31/18	Completed
-- Final DAP	Aug-18	--	07/31/18	Completed
-- ARR	Nov-18	--	10/02/18	Completed
-- ORR	Dec-18	--	Waived	Waived
-- Operations	Feb-19	--	3/7/2017	Completed
NOAA-20: Enterprise Processing System :Aerosol, Volcanic Ash, Clouds, and Cryosphere				
-- Initial DAP	Aug-18	--	07/31/18	Completed
-- CDR	Oct-16	--	10/27/16	Completed
-- SCR	Mar-18	--	10/25/18	Completed
-- Operations (Clouds, Aerosols)		--	3/7/2017	Completed
-- ARR	Aug-18	May-19		Cryo scheduled for May Maturity Review
-- Final DAP	Jan-19	--	3/11/19	Completed
-- ORR	Aug-18	Jun-19		
-- Operations	Oct-18	Jul-19		
NOAA-20: Enterprise Processing System: Global Gridding LST, and LSA				
-- Initial DAP	Aug-18	--	08/04/18	Completed
-- CDR	Mar-18	--	10/22/18	Completed
-- TRR	Jul-18	--	3/12/2019	Completed
-- SCR	Sep-18	Jul-19		
-- ARR	Dec-18	Aug-19		
-- Final DAP	Jan-19	--	3/11/19	Completed
-- ORR	Mar-19	Nov-19		
-- Operations	Jun-19	Dec-19		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Vegetation Health				
-- CDR	Oct-16	--	10/27/16	Completed
-- Initial DAP	Aug-18	--		Completed
-- SCR	Oct-18	--	08/28/18	Completed
-- ARR	Feb-19	--	3/21/2019	Completed
-- Final DAP	Mar-20	Mar-20		
-- ORR	Apr-19	Jun-19		
-- Operations	May-19	Jul-19		
NOAA-20: Green Vegetation Fraction				
-- Initial DAP	Nov-18	--	11/30/2018	Completed
-- Final DAP	May-19	May-19		
-- CDR	Oct-16	-	10/27/16	Completed
-- SCR	Oct-18	--		Completed
-- ARR	Feb-19	May-19		
-- ORR	Apr-19	Aug-19		
-- Operations	Jun-19	Sep-19		
NOAA-20: Ocean Color				
-- Initial DAP	Nov-18	--	3/21/2019	Completed
-- Final DAP	Mar-19	Nov-20		
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Jan-19	Dec-19		
-- ARR	Mar-19	Mar-20		
-- SRR	Apr-19	Apr-20		
-- ORR	Apr-19	Apr-220		
-- Operations	Jun-19	Jun-20		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Vegetation Indices				
-- Initial DAP	Nov-18	--	11/30/2018	Completed
-- Final DAP	May-19	May-19		
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Dec-18	--	10/10/2016	Completed
-- ARR	Feb-19	May-19		
-- ORR	May-19	Aug-19		
-- Operations	Jun-19	Sep-19		
NOAA-20: ATMS Snowfall Rate				
-- Initial DAP	Jun-18	--	06/14/18	Completed
-- Final DAP	Dec-18	--	3/29/2019	Completed
-- CDR	Dec-18	May-19		Combining with N20 Apr/May Maturity Review
-- SCR	May-19	May-19		
-- ARR	Jun-19	May-19		
-- ORR	Aug-19	Jun-19		
-- Operations	Oct-19	Aug-19		
NOAA-20: Microwave Tropical Cyclone Products				
-- Initial DAP	TBC	Apr-19		
-- Final DAP	TBC	Jun-19		
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Apr-19	Apr-19		
-- ARR	Oct-19	Oct-19		
-- ORR	Dec-19	Dec-19		
-- Operations	Feb-20	Jan-20		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Blended Product Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Blended Products Blended Ozone				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- SCR	Aug-17	NA		SCR not required; already running in OPS
-- ORR	Jul-18	Sep-19		
-- Operations	Oct-18	Oct-19		
NOAA-20: Blended Products Blended SST				
-- Initial DAP	TBC	TBC		
-- Final DAP	TBC	TBC		
-- SCR	Aug-18	--	2/12/19	Completed
-- ORR	May-19	-	NA	NA
-- Operations	Jun-19	-	4/1/2019	Completed
NOAA-20: Blended Products Blended Biomass Burning				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- SCR	Oct-18	NA		Waiver Requested
-- ORR	Jun-19	May-19		
-- Operations	Jul-19	Jun-19		
NOAA-20: Blended Products Blended Snow and Ice				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- SCR	Aug-18	Feb-19		No update provided
-- ORR	May-19	Apr-19		
-- Operations	Jun-19	May-19		

FY19 STAR DAP and JPSS PSDI Milestones

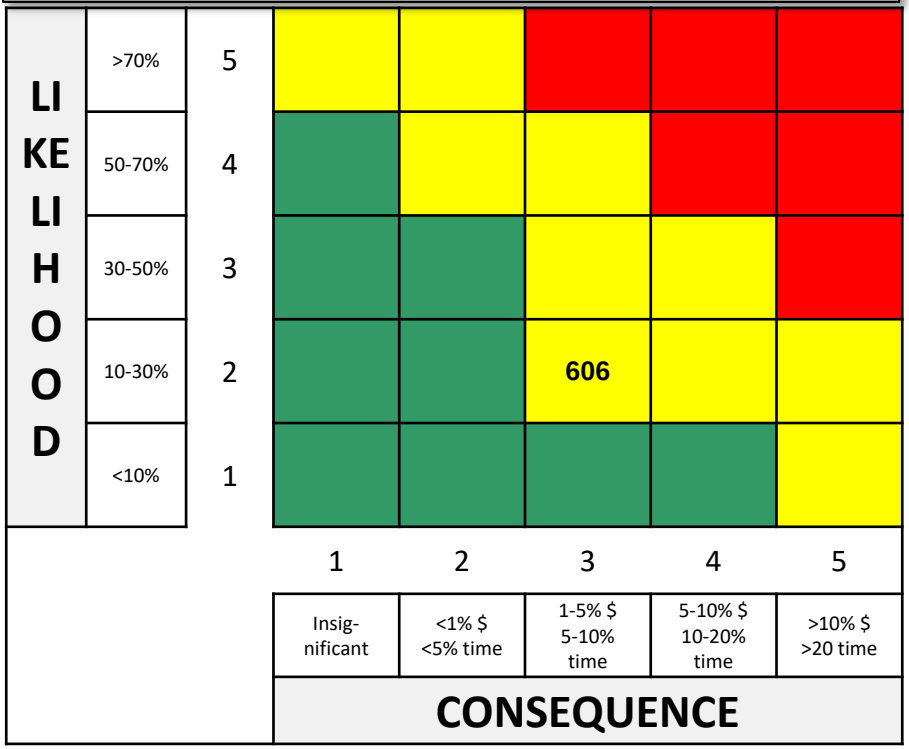
NOAA-20 Blended/Derived Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Products Blended Hydro Products				
-- Initial DAP	TBC	Jul-19		
-- Final DAP	TBC	Nov-19		
-- SCR	Jun-18	--	9/20/2018	Completed
-- ARR/ORR	Dec-18	May-19		
-- Operations	Jan-19	Jun-19		
Enhanced TOAST with S-NPP OMPS Limb Profiles				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- CDR	Jan-17	Sep-19		
-- SCR	Apr-17	Sep-19		
-- ORR	May-17	Oct-19		
-- Operations	Jun-17	Nov-19		
Upgrade to the Multi-platform Satellite Tropical Cyclone Surface Wind Analysis Product				
-- Initial DAP	TBC	Oct-19		
-- Final DAP	TBC	Feb-20		
-- PDR/CDR	Dec-17	--	1/26/2018	Completed
-- UTRR	Apr-18	--		Waived
-- SCR	May-18	Sep-19		
-- ARR	Oct-18	Nov-19		
-- ORR	Jan-19	Feb-20		
-- Operations	May-19	Mar-20		

FY19 STAR DAP and JPSS PSDI Milestones

NOAA-20 Blended/Derived/Other Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Upgrades to the ADT Product				
-- Initial DAP	TBC	Apr-19		
-- Final DAP	TBC	Jun-19		
-- PDR	Jul-17	--	8/23/2017	Completed
-- CDR	Jul-17	--	8/23/2017	Completed
-- SCR	Jun-18	--	2/25/19	Completed
-- ARR	Oct-18	May-19		
-- ORR	Apr-19	Aug-19		
-- Operations	Jun-19	Sep-19		
Microwave and Diurnal Corrected Blended SST w/ AMSR-2				
-- ORR	Nov-16	ON HOLD		
-- Operations	Nov-16	ON HOLD		
Product Monitoring Phase IV (JPSS RR, VIIRS AF)				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- SRR/ORR	Jun-18	Nov-19		
-- Operations	Jul-18	Dec-19		
Product Monitoring VI (NDE J1)				
-- Initial DAP	TBC	TBC		Need Update
-- Final DAP	TBC	TBC		Need Update
-- CDR	Dec-16	--	04/17/18	Completed
-- TRR	Sep-17	Jul-19		
-- SCR	Jun-19	Jul-19		
-- ORR	Aug-19	Nov-19		
-- Operations	Sep-19	Dec-19		
Interactive Multisensor Snow and Ice Mapping System V3				
-- dORR	Jul-17	--	Dec-18	Completed
-- Operations	Jan-18	May-19		Expect promotion May 2019 (outside CWD)

JPSS PSDI Risk and Issues Summary

Risk Matrix



Criticality

- High
- Med
- Low

L x C Trend

- Increasing (Worsening)
- Unchanged
- Decreasing (Improving)

Approach

M – Mitigate
W – Watch
A – Accept
R – Research

JPSS PSDI Risk Information

L x C Trend	Risk #	Rank	Approach	Risk Title
↓	606	1	M	Interactive Snow/Ice Product Operational Transition

JPSS PSDI Issue Summary

Issue #	Issue Title
602	Availability of NDE 2.0 development/test system accessible to STAR

JPSS PSDI Risks

As of: April 9, 2019

Y	606	Rank 1	MITIGATE	DATE	
RISK STATEMENT			**APPROACH/PLAN**	**PLANNED**	**COMPL**
If the new version of the Interactive Snow/Ice Product (IMS) does not complete user required output file reformatting development and successful transition to operations, THEN new and enhanced data products will not be realized by the Numerical Weather Prediction (NWP) community.			1. Develop and deliver the GRIB2 reformatting software for the IMS product output.	Mar 2018	2-28-2018
			2. Integrate reformatting toolkit with the IMS algorithm on the integration string of the operational system	Jul 2018	
			3. Promote IMS enhanced algorithm to operations	Apr 2019	

STATUS: OPEN

- 7/12/2017: New Risk
- 8/9/2017: No formal schedule has been provided by the project lead on the additional development required to output the ice/snow products in GRIB2. The Satellite Product Managers will reach out to the developers to help define this timeline.
- 9/27/2017: No update
- 10/17/17: STAR (Wolf) has agreed to deliver GRIB2 code that the IMS project needs and Kevin Berberich has agreed to cover the integration work under the SMOMS contract. Expect ORR in 6 months. Vacancy for this position is expected to be filed by the end of the calendar year.
- 12/04/17: Learned NIC is providing funding to previous OSPO PAL (Helfrich) to complete and deliver the IMS V3.
- 12/13/2017: Project lead is expected in a couple months (OSPO offer made to candidate). Learned NIC is providing funding to previous OSPO PAL (Helfrich) to complete and deliver the IMS V3.
- 1/17/18: NIC has hired John Woods to work on snow/ice products. Bonnie and Arron met with him and will work with him to get up to speed.
- 2/14/18: Bonnie met with John Woods late Feb, evaluating current IMS system and users. STAR/ASSISTT developed/delivered the GRIB2 converter tool software in late Feb.
- 3/14/18: John Woods is coming up to speed as the Snow/Ice PAL and Sean Helfrich has agreed to deliver delta ORR by July 2018.
- 4/18/18: John Woods and Sean Helfrich are working towards completing IMS V3 and are preparing for the required delta ORR.
- 5/11/18: Monitoring IMS progress towards delta ORR and Operations.
- 6/20/18: Delta ORR planned for Aug and Operations planned for Sep 2018.
- 7/11/18: No update
- 8/10/18: No update. Schedule from 6/20/18 update is still valid.
- 9/12/18: Spoke with PAL and STAR lead, new date for dORR will be mid-October which will push Operations to November assuming successful dORR. Will keep watching.
- 11/13/18: dORR is scheduled for end of NOV; Operations in Jan 2019
- 12/10/18: dORR occurred 12/4; expected to TTO in Jan 2019.
- 03/11/19: IMS going to SPSRB March 2019; expected to TTO by end of month.
- 04/9/19: IMS was approved for OPS by SPSRB in March - expected to TTO by end of April.
- 05/13/19: IMA expected to TTO week of 5/13/2019.

JPSS PSDI Issues

As of: Apr 9, 2019

R	# 602	Created: 13 Mar 2017		DATE	
PROBLEM/ISSUE		**PROGRAMMATIC IMPACT**	**ACTION**	**PLANNED**	**COMPL**
Availability of NDE 2.0 development/test system accessible to STAR		If there is no NDE 2.0 development/test system accessible by STAR (similar to SADIE for NDE 1.0), THEN delivery of DAPs or DAP fixes could be delayed or inefficient resulting in delays to project schedule and delays to getting products to users.	1. Confirm requirements for development/test system	Oct 2017	Nov 2017
			2. Investigate with STAR the root causes of short or long delays with integration	Jun 2018	Jun 2018
			3. Improve communication among JPSS, OSGS, STAR, OSPO.	Jun 2018	Jul 2018
			4. Investigate interim solutions to mitigate impacts of not having a SADIE-like systems	Jul 2018	In progress
			5. Gather requirements for a SADIE-like system to address STAR and OSPO needs.	Aug 2018	In progress
			6. Put together cost estimate to meet requirements	Sept 2018	
			7. Consult with OSGS, JPSS, and GOES-R if funding is available and worth funding (cost-benefit analysis)	Nov 2018	

SUMMARY ASSESSMENT

	Sep	Oct	Nov
TECHNICAL	G	G	G
COST	G	G	G
SCHEDULE	R	R	R
BUDGET	G	G	G
PRO-GRAMATIC	Y	Y	Y

CURRENT STATUS -

- 01/2018: Promoted to Issue
- 02/14/18: ESPDS agreed to provide a status and summary of functionality of the DEV system after the 30 day test is completed.
- 3/8/18: Met with OSGS, OSPO, and STAR on 2/23/2018. OSGS (Bethune) agree to draft requirements and gather ROM and work with JPSS, GOES-R, and OSGS on funding.
- 4/18/18: No update
- 5/11/18: No update
- 6/20/18: Algorithm developers provided impact assessments of the lack of a development environment.
- 7/11/18: No update
- 8/7/2018: Per Brandon Bethune, the requirements are going through the ESPDS change process now to be baselined and will be part of the development environment tech refresh (build out at NSOF) later this fall. Solers is currently holding meetings with security to define the interface to STAR for and overall security controls which may alter the design. Once this is complete we will have a better schedule for the instantiation of the NSOF dev environment including STAR's access.
- 9/12/18: No update
- 11/13/18: No update
- 12/10/18: No Update
- 03/11/19: ESPDS/NDE is proposing new requirements to address STARs need in the March ECRB cycle.
- 04/9/19: New ESPDS/NDE requirements did not pass in March - Working group to meet to determine solution.
- 05/13/19: No Update.

JPSS PSDI Risks

As of: May 13, 2019

G	449	Rank 6	MITIGATE	DATE	
RISK STATEMENT			**APPROACH/PLAN**	**PLANNED**	**COMPL**
If solution to the AWIPS DD-PDA issue drives major changes on the NESDIS production/distribution, then operational use of products by NWS will be delayed and NESDIS may be required to fund major upgrades for PDA or NDE.			1. Confirm existing PDA capabilities for Polar Data	Jun 2017	Jun 2017
			2. Fully understand & document NWS AWIPS requirements for Polar Data	Dec 2018	
			3. Determine if an upgrade to PDA or NDE is necessary to meet NWS needs.	Jun 2019	
			4. Develop new solution.	Aug 2019	
			5. If changes are required on the NESDIS side, seek funding for the approved solution.	Sep 2019	

STATUS: OPEN

- 3/1/2017: New Risk
- 4/17/2017: John Evans is continuing to work with NWS, however; progress is slow due to NWS focusing on the distribution of KPPs to AK. Continuing to stay involved in NWS AWIPS DD meetings and John has offered to lead the integrated work team to come to a resolution to the requirement issue. Bi-weekly meetings among JPSS, OSGS, and NWS are to start 6/9.
- 6/14/2017: Started bi-weekly meetings with OSGS and the NWS, goal being to update the ConOps, develop requirements, consider technical solutions, and bring results to management for decision. A timeline for this activity is additionally being developed.
- 7/12: Biweekly meetings continue with a focus on reviewing existing requirements and CONOPs documents(both approved and unapproved) and reviewing the product priority lists from NWS.
- 8/9/2017: Biweekly meetings continue. Clear plans from NWS on dissemination of Alaska KPPs has been developed. Technical subgroups are kicking-off to review product-by-product considerations. It has been noted that because some JPSS products are so small already, no specialized, dynamic tailoring may be necessary (TBC through the subgroups).
- 9/27/2017: Last IWT meeting on 9/22 demonstrated progress in analyzing individual polar products for tailoring needs. Services sub-team also stood-up to investigate possible technical solutions to meeting NWS needs.
- 10/17/17: With both AWIPS-DD development and ESPDS development tightly constrained under current contract / task commitments, progress on new operational capabilities for polar data access has been slow. However, recent technical discussions of a prototype (/ pilot / pathfinder) data service standing in for PDA for polar data have helped to expose possible new opportunities for near-term progress. These include hosting a server in a commercial cloud or the ESPC VTLab (thus not tightly coupled to the operational PDA service), and connecting AWIPS-DD to it as a new data source (to avoid encumbering the current AWIPS-DD task connecting to PDA). An assessment of benefits vs. costs, and a clear tie back to mission requirements, will be necessary for NWS and NESDIS to authorize development effort.
- 11/08/17: No update.
- 12/13/2017: At 12/1 IWT, ESPDS presented current capabilities in PG and the possibility of a web service to meet NWS needs. Work continues to understand NWS needs for polar data and documenting requirements that would then be delivered to OSGS.
- 1/17/2018: JPSS/AMP is nearly ready to submit a CCR to the JPSS Program CCB for a requirements change to meet this need for NWS. This should kick-off an engineering and cost study.
- 2/14/2018: JPSS is not fielding any Level 1 requirements changes at this point. However, JPSS will be requesting a cost estimate from OSGS on some possible short-term and long-term solutions. Once we have the cost estimate and engineering assessment, the SPM will engage with JPSS management on a path forward.
- 3/14/18: No Update
- 4/18/18: No Update
- 5/11/18: J Evans draft NESDIS service requirements at end of April. Expect to share with NWS and OSGS for input by end of June.
- 6/13/18: Interim proposal by John Evans has been discussed at IWT meeting. Will be setting-up meeting with Benjie Spencer to discuss further the long-term planning, requirements, design, and solution.
- 7/11/18: IWT meetings are continuing. Possible implementation approaches were briefed at the JPSS Director's Forum on 7/11/2018. Overall guidance was for the IWT to continue working toward a recommendation, which then needs to be provided to OSAAP for approval/allocation/funding/prioritization.
- 8/9/2018: Near-term solution agreed-to with NWS to request NDE create thinned data products for dissemination to AWIPS. Briefed PGR IPT on 87, and follow-up meeting scheduled for later in Aug.
- 9/12/18: No update
- 11/13/18: No update
- 12/10/18: No update
- 03/11/19: No Update
- 04/09/19: JPSS met with OSGS and NDE to discuss and clarify NWS data delivery assumptions and other options to provide thinned data to NWS AWIPS. Group agreed to work with NWS to submit a user request for thinned products and to understand from OSGS how PDA might be scaled to support the longer-term need.
- 05/13/19: No Update.

JPSS Risk Summary

Top Risks

Status as of: 05/01/2019

Rank Risk ID	Summary	LxC Trend	Aprch	Status
1 AMP-15-006	Continued Generation of IDPS EDRs	4x2 ⇔	M	4/4/2019: LST/LSA is now on track for the next promotion from NDE I&T to NDE Ops scheduled for May 2019. The OSPO PAL and STAR have worked together to come-up with a plan to transition low res NUCAPS to using Enterprise clouds. OSPO has also released the ESPC notification notifying users that all IDPS EDRs (except Imagery) will have their distribution stopped by PDA on April 30, 2019.

Rank Risk ID	Summary	LxC Trend	Aprch	Status
2 AMP-18-003	J2 APID Changes to Accommodate New S/C Bus	2x2 ⇔	W	3/7/19: Risk Owner has been transitioned from Cole to Tomi. The next JPSS-2 S/C Bus FSW (FSW5) is expected to be released during the Summer 2019. This FSW version is expected to be the first compatible with the instruments and will likely include a better idea of the APID to VCID map.
3 AMP-17-004	Operational Data Flow to AWIPS-II	4x1 ⇔	M	5/1/19: No change in risk status. NWS technical staff have begun making more specific test plans (Data Operations Exercises) for AWIPS-DD access to polar data from PDA.
4 AMP-18-008	Data Product Requirements for OMPS-Limb	3x1 ⇔	M	4/4/2019: No change
5 AMP-19-001	Algorithm testing & delivery impacts due to lag between IDPS and G-ADA moving to the Cloud	2x1 ⇔	W	3/6/19: Based on limited understanding from Ground Project as of February 2019, we believe that there is a real possibility that IDPS will be migrated to the Cloud prior to G-ADA being available in the Cloud (with proper training, etc).
6 AMP-18-004	NWS GFS FV3 Model Upgrade Impacts	1x1 ⇔	W	4/4/2019: Risk will be closed when FV3 goes into operations. The schedule is still TBD from NWS.
7 AMP-18-006	Impact on Testing Ability Due to Major Build Upgrades	1x1 ⇔	W	3/6/19: Risk Owner changed from Cole to Jeff.

LIKELIHOOD	1	2	3	4	5
5					
4	3	1			
3	4				
2	5	2			
1	6 7				

CONSEQUENCES

Criticality
HIGH
MED
LOW

Approach
A – Accept
M – Mitigate
W – Watch
R – Research

LxC Trend
⇩ – Decreasing (Improving)
⇧ – Increasing (Worsening)
⇔ – Unchanged
NEW – Added this month

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
1 ⇔ Continued Generation of IDPS EDRs **Expected Closure:** 10/2019	AMP-15-006	**Given that:** we are transitioning to production of EDRs on ESPC systems **There is a possibility that:** the IDPS-generated EDRs will continue running for an extended period of time **Resulting in:** additional maintenance and sustainment costs.	**Mitigate**	5/1/2019: ESPC stopped distribution of IDPS EDRs (except imagery) on April 30, 2019. 4/4/2019: LST/LSA is now on track for the next promotion from NDE I&T to NDE Ops scheduled for May 2019. The OSPO PAL and STAR have worked together to come-up with a plan to transition low res NUCAPS to using Enterprise clouds. OSPO has also released the ESPC notification notifying users that all IDPS EDRs (except Imagery) will have their distribution stopped by PDA on April 30, 2019. 3/7/19: LST/LSA may make the next promotion from NDE I&T to NDE Ops scheduled for April 2019. There remains a NUCAPS Low-Resolution Cloud product on IDPS still being used that will delay transition of all products until the September/October 2019 timeframe. This delay has no consequence on the level of this risk. The expected closure date has been changed accordingly. 2/25/19: LST/LSA products were put back on NDE I&T for testing on 2/22/19.

Risk Owner: Arron Layns

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
2 ⇔ J2 APID Changes to Accommodate New S/C Bus	AMP-18-003	**Given that:** J2 has a new S/C Bus manufacturer and some new APIDs compared to J1 and S-NPP **There is a possibility that:** the SDR algorithms will need to be updated to accommodate new RDR format/structure **Resulting in:** additional unplanned work for Ground.	**Watch**	3/7/19: Risk Owner has been transitioned from Cole to Tomi. The next JPSS-2 S/C Bus FSW (FSW5) is expected to be released during the Summer 2019. This FSW version is expected to be the first compatible with the instruments and will likely include a better idea of the APID to VCID map. 3/6/19: According to the MOST team, the S/C CTDB is still pretty immature, so the details we need to confirm APID to VCID mapping and content are not currently available. That being said, the MOST is committed to making sure the proper information gets into the S/C telemetry RDR and will ensure that it is all mapped to VC0.

Risk Owner: Tomi Ibironke

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
3 Operational Data Flow to AWIPS-II ⇔	AMP-17-004	**Given that:** AWIPS data flow issues (esp. AWIPS Data Delivery (DD) to PDA interface) are not resolved, **There is a possibility that:** Many JPSS data products will remain inaccessible to the NWS AWIPS II system for forecaster use after NWS' June 2020 target date **Resulting in:** under-utilization of JPSS data products by the NWS forecasting community.	**Mitigate**	5/1/19: No change in risk status. NWS technical staff have begun making more specific test plans (Data Operations Exercises) for AWIPS-DD access to polar data from PDA. 4/4/19: AWIPS 19.2.1 Beta release later this month promises improved AWIPS-DD access to JPSS products from PDA. Meanwhile NWS and Raytheon, with JPSS/AMP input, have successfully configured AWIPS to parse and display several new JPSS EDR products (ATMS MiRS, VIIRS Active Fires, JPSS-RR aerosol products, and GCOM AMSR-2 MBT and Ocean -- in addition to VIIRS Imagery and CrIS/ATMS NUCAPS).

Risk Owner: John Evans

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
4 ⇔ Data Product Requirements for OMPS-Limb **Expected Closure:** 10/2020	AMP-18-008	**Given that:** There are no JPSS (or NOAA) data product requirements for OMPS-L **There is a possibility that:** benefits/impacts analysis from users based on NPP data products may demonstrate the need for NOAA processing of OMPS-L from JPSS-2/3/4 **Resulting in:** Additional funding needed for delivering the algorithm, product generation/distribution/archive, and calval of the products.	**Mitigate**	5/1/2019: No change 4/4/2019: No change 3/4/19: STAR and ESPDS working through some issues with OMPS-L running on I&T. 2/7/19: OMPS-LP was promoted to NDE I&T string on Thursday 1/31.

Risk Owner: Arron Layns

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
5 ⇔ Algorithm testing & delivery impacts due to lag between IDPS and G-ADA moving to the Cloud **Expected Closure:** 12/2020	AMP-19-001	**Given that:** IDPS will be in the cloud prior to G-ADA being in the cloud, **There is a possibility that:** algorithm change testing and implementation may take longer (not sure why?) **Resulting in:** delays to implementation of algorithm changes.	**Watch**	5/1/2019: No Update 3/6/19: Based on limited understanding from Ground Project as of February 2019, we believe that there is a real possibility that IDPS will be migrated to the Cloud prior to G-ADA being available in the Cloud (with proper training, etc). From John (possible consequence?): If G-ADA is on-premise but IDPS is in the cloud, differences in computing hardware may introduce small discrepancies in algorithm results (even if all codes, inputs, ancillaries, etc. are identical). So promoting algorithms from G-ADA to the cloud-based IDPS may require additional verification steps to ensure consistency of results (& to assess / bound the differences). (It's also possible that differences in memory sizes, network bandwidths, or disk access speeds might also change algorithm outcomes (race conditions); but hopefully none of the algorithms are that fragile.)

Risk Owner: Arron Layns

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
6 ⇔ NWS GFS FV3 Model Upgrade Impacts	AMP-18-004	**Given that:** the NWS plans to upgrade the GFS FE3 Model resolution in the second quarter of FY19 **There is a possibility that:** SDR gridding granulation of the ancillary data files could change **Resulting in:** the failure of some EDR products.	**Watch**	5/1/2019: FV3 scheduled to go into operations early-mid June 2019. 4/4/2019: Risk will be closed when FV3 goes into operations. The schedule is still TBD from NWS. 3/7/19: The Risk Owner has been changed from Cole to Arron. Although all steps have been taken to mitigate this risk, the risk will remain open until the new GFS FV3 model is implemented. Implementation has been delayed until April 2019. 2/25/19: At the IDPS Splinter on 2/20/19 Raytheon relayed that they had completed further GFS FV3 Model Upgrade testing. Additionally, the AMP Team Lead confirmed that all IDPS EDRs would continue to operate without issue once the upgrade is made so no further action is required on this front.

Risk Owner: Arron Layns

JPSS Top Risks

Status as of: 05/01/2019

Rank	Risk ID	Risk Statement	Approach	Status
7 ⇔ Impact on Testing Ability Due to Major Build Upgrades	AMP-18-006	**Given that:** DPES has had issues installing major Block/Build updates in the past on G-ADA **There is a possibility that:** this could occur again in the future (Block 2.2) **Resulting in:** delays to testing of instrument code and table updates.	**Watch**	3/6/19: Risk Owner changed from Cole to Jeff.

Risk Owner: Jeff Weinrich

Color code:

Green: **Completed Milestones**

Gray: **Non-FY19 Milestones**

ATMS SDR

April, 2019

Accomplishments / Events:

- Studied the impact of 5G network interference with ATMS channels
- Reviewed and updated ATMS Algorithm Theoretic Basis Document (ATBD) update draft to reflector the lasted update in ATMS calibration algorithm
- Studied and proposed the ATMS striping mitigation algorithm
- Prepared the NPP ATMS life cycle TDR/SDR reprocessing using latest PCT and reflector emission correction algorithm
- Processed NOAA-19, NOAA-18, Metop-A, Metop-B AMSU/MHS global bias using GPS RO data and compared results with NPP and NOAA-20 operational data as well as reflector emission corrected data

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.*

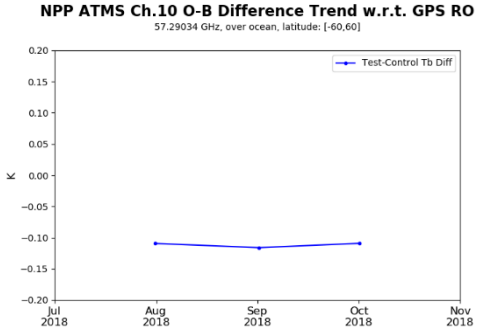
Issues/Risks:

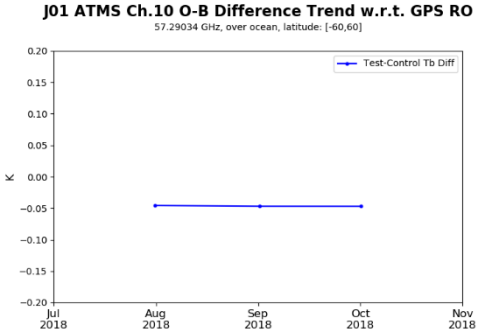
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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 ASSISTT	Feb-19	Feb-19	01/31/19	
DAP to DPES	Mar-19	Mar-19	02/11/19	
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19	02/11/19	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:

NPP/NOAA-20 reflector emission corrected data channel 10 O-B w.r.t. GPS RO





CrIS SDR

April, 2019

Accomplishments / Events:

- On April 22, 2019, a package for the CrIS SDR Radiance Polarization Correction (DR8760, CCR4469) was delivered. The package includes source codes, xml files, PCT files, test data, and a README file. Block 2.1 MX5 builder was used as baseline. Operational implementation is expected in IDPS Block 2.2 MX0,on 02/24/2020. Package contains two sets of PCT files with options to turn ON or OFF the correction algorithm.
- Three peer review manuscripts are being prepared. One is related to the improvement of the lunar intrusion (LI) algorithm. The second manuscript is dedicated to the noise performance of the NOAA-20/CrIS instrument. The third manuscripts is focus on the on-orbit performance of the NOAA-20 CrIS SDR product.
- Presented the Science Impact of the SNPP/CrIS MWIR Band Anomaly during the CrIS Engineering Out-brief to OSPO held on April 26, 2019, and organized by NASA Flight.
- After recent anomaly found in the SNPP/CrIS MWIR band, cases where the imaginary part of the LWIR exceeding the radiometric threshold have been found. However, less than 0.09% of global cases have been impacted, particularly over hot scenes, as shown in **Figure (1)**. The root source of this anomaly is related to the incorrect location of the interfergram zero path difference (ZPD). The ZPD is not properly centered due to the missing of the MWIR data, which is used to adjust the ZPD location. Evaluation results have shown that SNPP/CrIS LWIR and SWIR SDR science data are meeting the JPSS requirements, as shown in **Figure (2)** and **(3)**.

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.*

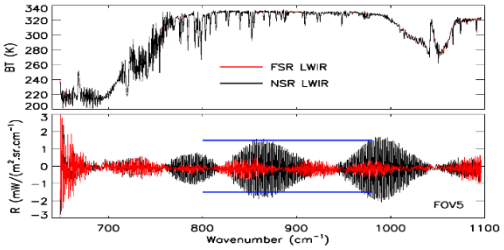
Issues/Risks:

- A Physical Scientist, at ESSIC, is expected to arrive in June 2019 to Support the CrIS SDR Cal/Val Activities.

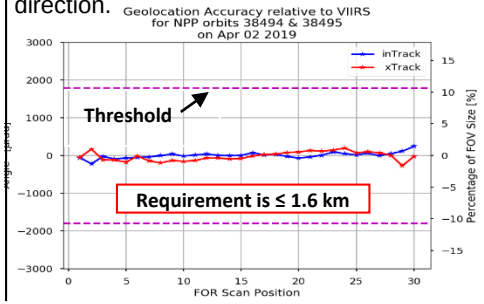
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual CrIS SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data (TVAC) review/analyze	Sep-19	Sep-19		
Polarization correction algorithm implementation DAP (ADR8760)				
Technical Interchange Meeting (TIM)	Feb-19	Feb-19	12/19/18	TIM 1
DAP to ASSISTT	Jul-19	Jul-19	04/22/19	
DAP to DPES	Aug-19	Aug-19	05/07/19	
Turn off Spike detection and Correction Algorithm due to false alarms (ADR8819/CCR4201)			12/18/18	
Refining the threshold values for CrIS lunar intrusion detection (ADR8903/CCR4451)			03/27/19	
Turn off Truncated Spectrum CrIS Data	Sep-19	Apr-20		OSPO/User
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Feb-19	Feb-19	02/13/19	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Jul-19	Jul-19		

Highlights:

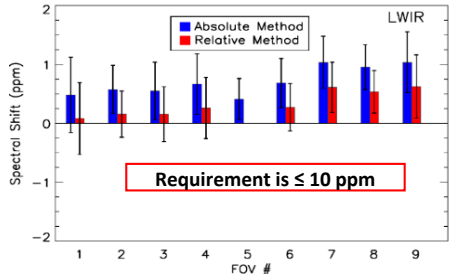
(1) Real and imaginary part of SNPP/CrIS LWIR at FSR and NSR, for FOV 5, over a hot scene. The NSR spectrum shows large imaginary part, exceeding the radiometric thresholds (blue lines). Adjustment of ZPD location is in progress to reduce the imaginary part magnitude.



(2) SNPP/CrIS Geolocation uncertainty relative to VIIRS. Uncertainty is within requirements for Cross- and In- track direction.



(3) Relative and Absolute Spectral Uncertainty in the SNPP/CrIS LWIR band. Values are well below the requirement.



VIIRS SDR

April, 2019

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 April 5, 2019
- Delivered for deployment in IDPS operations an updated NOAA-20 DNB stray light correction LUT generated from the April 2019 data
- Delivered for deployment in operations an updated S-NPP RSBAUTOCAL-H-AUTOMATE LUT that speeds up adjustment of the VIIRS SDR solar calibration after the February 24, 2019 anomaly and any potential future onboard calibrator changes
- Successfully processed data from the scheduled lunar calibration on April 15, 2019, and compared results with the RSB solar F-factors to demonstrate agreement within 1%
- Published a journal article on radiometric inter-consistency of VIIRS DNB on Suomi NPP and NOAA-20 from observations of reflected lunar light over deep convective clouds
- Derived from the pitch maneuver data NOAA-20 TEB response-vs-scan angle factors and compared them with the prelaunch LUT observing smaller differences for the MWIR bands (within 0.1%), but larger differences for the LWIR bands (up to 0.7% for M15)
- Alerted GRAVITE operators to a ~50-minute NOAA-20 VIIRS RDR gap on April 11, 2019
- Updated the NOAA-20 and S-NPP VIIRS radiometric consistency monitoring using polar SNOs, extended low latitude SNOs and desert sites

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			

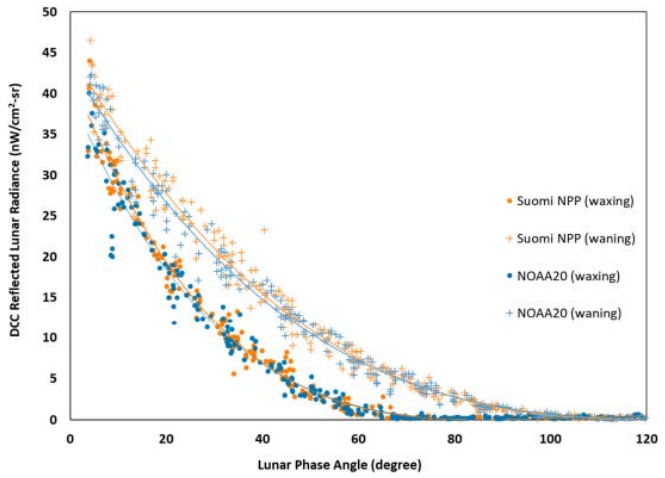
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

none

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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:



Inter-calibration of VIIRS DNB between Suomi NPP and NOAA-20 using lunar radiance reflected from DCC (November-December 2018)

OMPS SDR

April, 2019

Accomplishments / Events:

- Regular weekly dark deliveries for OMPS sensors were made.
- Regular bi-weekly OMPS-NP wavelength table deliveries were made for S-NPP.
- DR8816 Tables began in IDPS on April 10. This set of tables includes solar, wavelength, and straylight for both OMPS-NP and OMPS-TC on NOAA-20.
- Prepared for Bi-Weekly NOAA-20 OMPS-NP wavelength and solar table updates.

Overall Status:

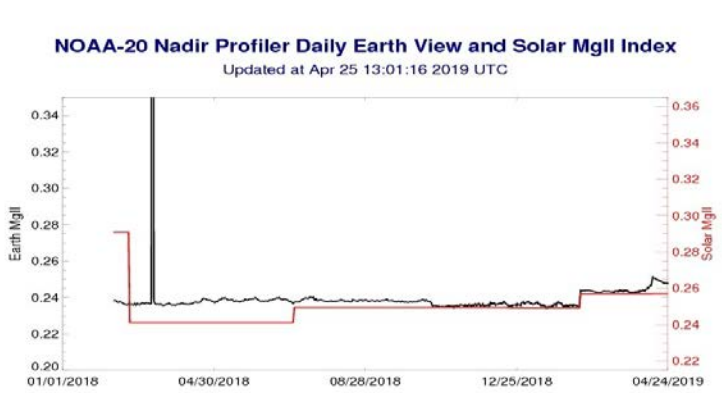
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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:

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	Aug-19		PSR changed
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	02/15/19	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



The Solar and wavelength LUTs changed on 04/10/2019, DR8816. The ICVS team noted the change in Mg-II index earthview radiances

SDR Reprocessing

April, 2019

Accomplishments / Events:

- Completed 2012 and 2016 VIIRS V2 SDR
- 2013 VIIRS V2 SDRP reprocessing is on-going, the whole reprocessing will be completed by July 2019 (on schedule)
- For VIIRS reprocessing data dissemination interface development, the OrbNAV server was integrated, which is a Python software based on two line element of satellite and VIIRS filename string database, with Apache. The python server can independently produce the granule names given the time and location as online input. Once the integration with Apache has been fully tested, we will use a php web interface to wrap the inputs and outputs
- Kick-off meetings for reprocessing maturity review preparation have been held for each SDR team, plans have been made and the tentative date for review is Sept. 13, 2019

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Finish 2016 VIIRS V2 reprocessing	Feb-19	Feb-19	Feb-19	N/A
Finish the remaining VIIRS V2 reprocessing	July-19	July-19		
Finish ATMS V2 Reprocessing	Jul-31	Jul-31		
Finish OMPS-NP V2 Reprocessing	Jul-31	Jul-31		
Develop VIIRS reprocessing data dissemination interface	Aug-31	Aug-31		
Reprocessed data maturity review	Sept-19	Sept-19		
Reprocessing paper/report	Dec-19	Dec-19		

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.*
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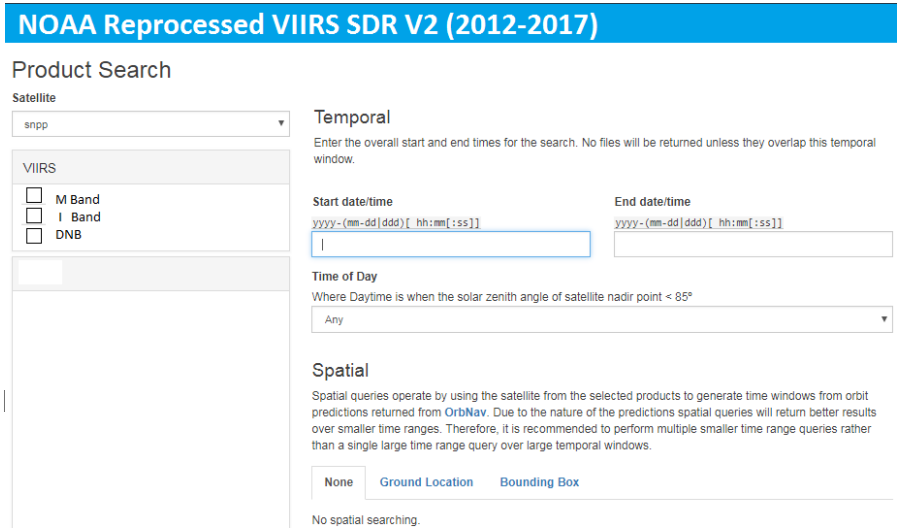
Issues/Risks:

None

Highlights:

User-friendly Graphics User Interface Protocol for VIIRS reprocessed Data Order



ICVS

April, 2019

Accomplishments / Events:

- Observed S-NPP CrIS MW anomaly and reported CrIS SDR team for further investigation
- Reprocessed S-NPP lifetime data to generate SDR relative spectral shift and FOR-to-FOR difference long term trending plots
- Added NOAA-20 and S-NPP CrIS spectral responsivity degradation plots
- Monitored S-NPP ATMS scan drive main motor and compensate motor current variation and impact on ATMS TDR/SDR/GEO data quality, as well as impact on CrIS dynamic alignment tilt error
- Developed hurricane warm core maximum temperature anomaly time series for sever weather event monitoring
- Finalized CrIS geolocation accuracy near real time monitoring package development
- Supported JPSS/SMCD weekly/monthly reports

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.*

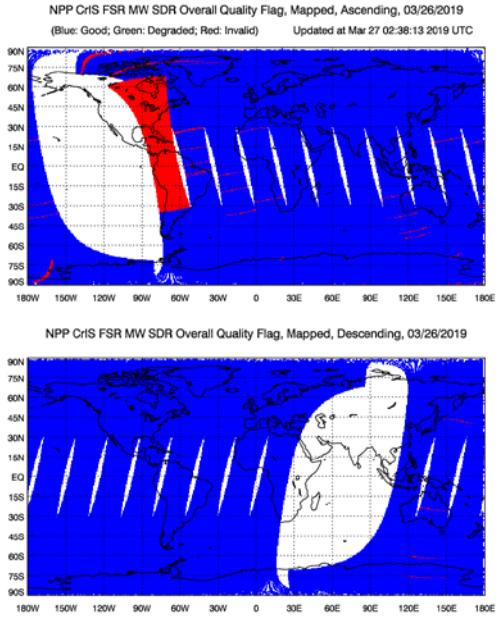
Issues/Risks:

None

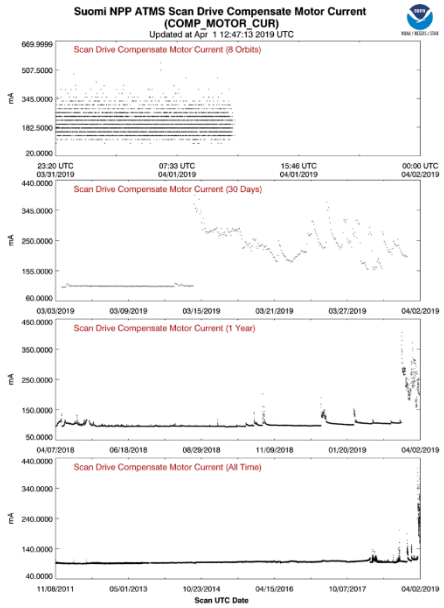
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
ICVS-Application: ICVS Severe Weather Watch (iSEW) System (Severe Weather Watch with JMAPPER) (Beta Version)	Dec-18	Dec-18	Dec-18	
ICVS User's Manual and Technical Report Version 1	Mar-19	Mar-19	Mar-19	
ICVS Module initialize and Development (each instrument on both SNPP and NOAA-20): • 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: • 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 CrIS MW SDR QF on March 26, 2019



S-NPP ATMS Scan Drive Compensate Motor Current



VIIRS Imagery

April, 2019

Accomplishments / Events:

- **Code changes for EDR Imagery Terrain Correction** are ready for ASSISTT use, having been placed on JPSS eRooms (J. Dellomo and other Imagery/Geo/ASSISTT members)
- One orbit of VIIRS EDR Imagery was confirmed as “no issues” for the **Block 2.1 MX 6 SOL Deploy Regression Test**. (S. Finley, C. Seaman)
- Work **on NCC LUT update** has been slowed by the (very long) delay in getting Aerospace back on board with the Imagery Team, so that Tom Kopp can help with this project.
- The **VIIRS EDR Imagery Users’ Guide (NOAA TR 150)** is being incorporated as Volume 9 into a **VIIRS Calibration Data Book project** led by Laura Ellen Dafoe. Other volumes (1 thru 8) are mainly works by the VIIRS SDR Team.

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			

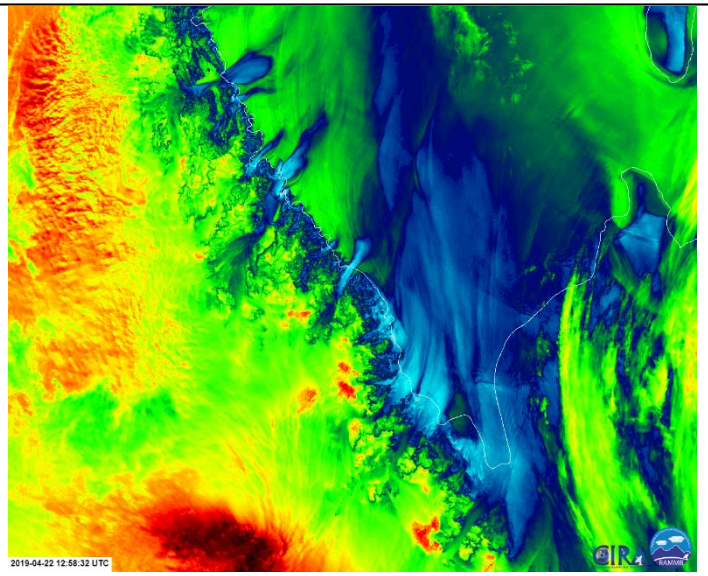
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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		
Terrain-Correction geo-locations for VIIRS Imagery EDRs (ADR8239)				
Design Review	Mar-19	Mar-19	03/14/19	
Algorithm Readiness Review (ARR)	Sep-19	Sep-19		
DAP to DPES	Sep-19	Sep-19		
Run ADL locally (@ CIRA, to allow code testing/changes)	May-19	May-19		
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Mar-19	Mar-19	02/15/19	
Mx 6 data review/checkout	May-19	May-19		
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



Color-enhanced VIIRS band I5 image of a small section of Antarctica on 22 April 2019, showing the cold air drainage (blue) as it adiabatically warms going from higher to the lower elevations.

Clouds

April, 2019

Accomplishments / Events:

- NOAA-20 Enterprise Cloud Mask (ECM) Look-up Table (LUT) created from over 1 year of NOAA-20 data co-located with NASA CALIPSO CALIOP.
- Paper resubmitted on use of NUCAPS and VIIRS Enterprise Cloud products.
- Cloud Temperature added to VIIRS Long-term Monitoring Site (see image)
- Team prepares for May 16, 2019 Operational Review.
- VIIRS CCL Cross-Sections demonstrated at JPSS Aviation Initiative.

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			

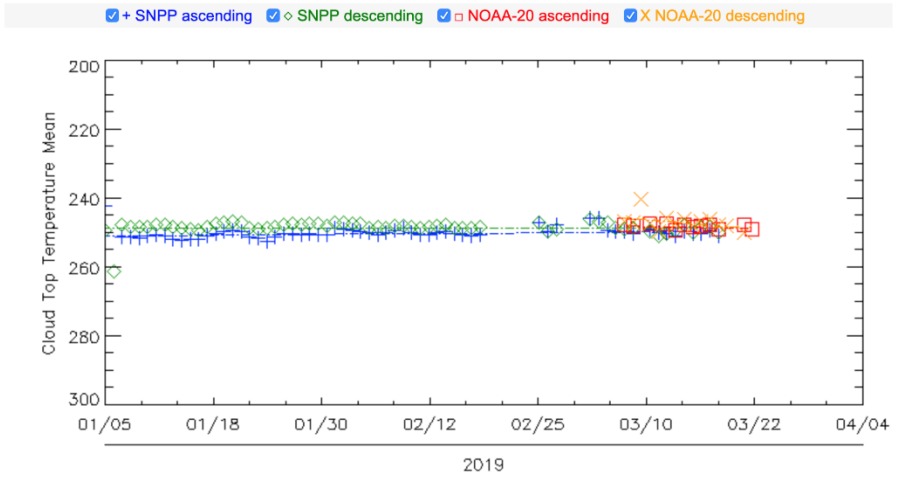
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta/Provisional Maturity: NCOMP (N20 Cal/Val)	Feb-19	Feb-19	03/21/19	ppt ready
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)	May-19	May-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	03/11/19	
Algorithm update DAP to ASSISTT: ▪ 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	Mar-19	
Algorithm update DAP to ASSISTT: ▪ 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		

Highlights: VIIRS Cloud-top Temperature Monitored



Cloud-top Temperature (CTT) from SNPP and NOAA-20 is now part of the VIIRS cloud product monitoring being done at CIMSS in support of the JPSS Cloud Team. This data is from the operational data pulled into CIMSS. At times, this feed fails.

Aerosol

April, 2019

Accomplishments / Events:

- Level 3 gridded AOD and other related parameters (e.g., absorption aerosol optical depth) data have been generated on a 1o x 1o grid for 2018 to be delivered to AEROCOM/AEROSAT working group for intercomparisons with global models
- Aerosol team is evaluating NOAA-20 by comparing with other correlative measurements. The NOAA-20 VIIRS AOD has slight positive bias compared to SNPP VIIRS over Ocean. This bias is being investigated for source
- Aerosol team has revised some matchup software to improve the processing speed. The tool can now provide matchup results for one month in 8 hours
- The aerosol team is also working with STAR IT team to revise, improve, enhance its VIIRS cal/val website. All parts of the website are being upgraded for efficiency and ease with which information can be found. The ADP product details on the website are new.
- The AOD to PM2.5 conversion algorithm has been substantially improved and the team is working with NCEP in assessing its performance.

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
Validated Maturity (N20 Cal/Val))	May-19	May-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	03/11/19	
Algorithm update DAP to ASSISTT: ▪ 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	Mar-19	
Algorithm update DAP to ASSISTT: ▪ 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		

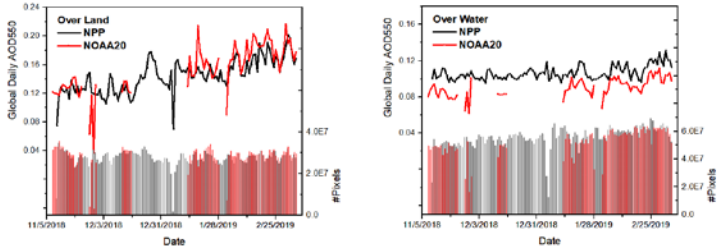


Figure 1. Global averaged high-quality AOD from S-NPP and NOAA20 VIIRS, as well as the number of daily pixels with high-quality retrievals. Left panel: over land; right panel: over water.

Volcanic Ash

April, 2019

Accomplishments / Events:

- Added to list of known NOAA-20 observations of non-trivial ash clouds
- Prepare analyses for NOAA-20 full maturity review (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.*
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.*

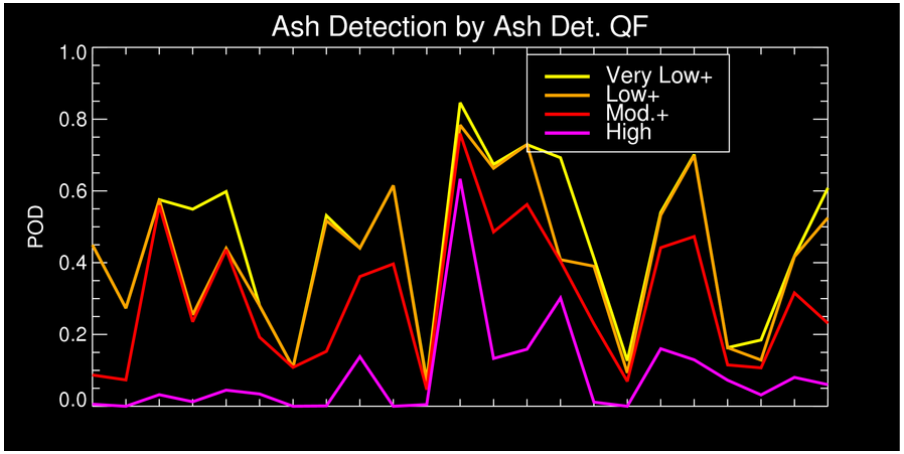
Issues/Risks:

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. Risk concern has diminished and full maturity is on track.

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)	May-19	May-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	03/11/19	
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	May-19		1-2 month delay due to shutdown

Highlights:

NOAA-20 Ash Detection Characterization



In preparation for the NOAA-20 full maturity review, we are performing a variety of analyses with the cases identified. The figure above shows probability of detection as a function of detection quality flag for a number of volcanic ash cases.

Cryosphere

April, 2019

Accomplishments / Events:

- Daily global snow fraction retrievals produced with S-NPP and NOAA-20 VIIRS data during the 2018-2019 winter season have been compared over several locations in North America and Eurasia.
- Arctic sea ice motion from VIIRS I01-band daily brightness temperature composites is showing positive results during initial testing.
- AMSR2 snow depth has been evaluated for the entire Northern Hemisphere (see figure), and improvements to snow water equivalent through blending with in situ data are being investigated.
- Jeff Key participated in the AMS Scientific Program Committee for the upcoming 2019 Joint Satellite Conference as a lead on the polar topical area.

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			

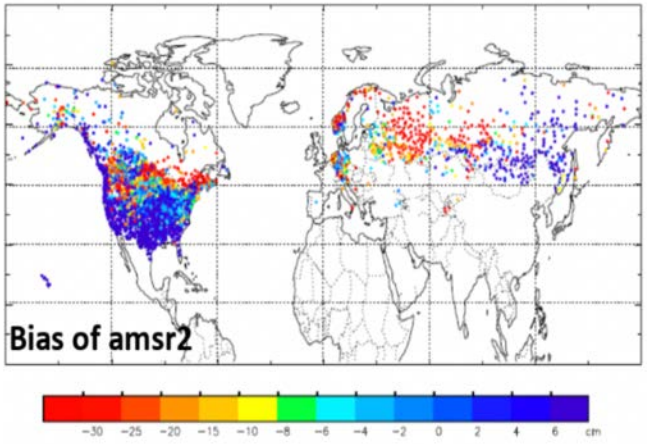
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

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)	Mar-19	Mar-19	03/11/19	
Offline Products: ▪ 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: ▪ 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: ValidateN20 ice thickness with NPP, IceBridge, CryoSat-2, SMOS, and ICESat-2 products	Sep-19			
Algorithm Updates: ▪ Modify/add quality flags if needed ▪ Ice Concentration: Improve tie-point processing for marginal ice zone ▪ **Ice Thickness**: • 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:



Map of the bias (cm) of the AMSR2 snow depth product with respect to in-situ data for the month of January 2017

Active Fires

April, 2019

Accomplishments / Events:

- Worked on the presentation of I-band Project Plan at the monthly SPSRB meeting
- Analyzed performance of the I-band product in preparation of the upcoming product maturity review
- Good consistency between Suomi NPP and NOAA-20 was found
- Relative performance between the I- and M-band products is now characterized based on 3 months of global data
- Provided input on the draft COMET training module on Satellite fire capabilities using the Rhea Fire case
- Worked on preparing test data for the dry run of the FIREX-AQ field campaign

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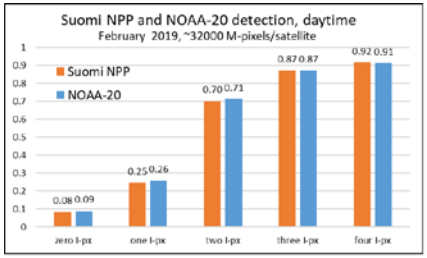
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

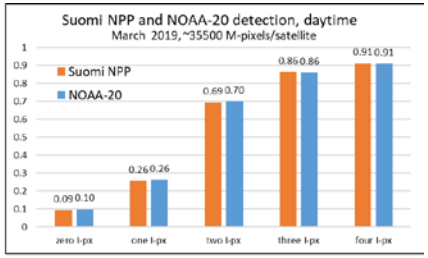
Issues/Risks:

None

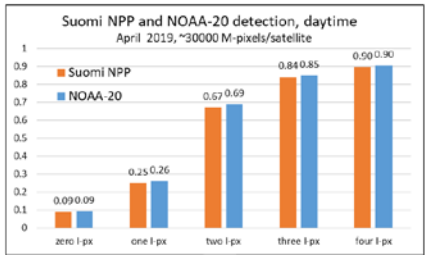
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		
I-Band Active Fires algorithm development and Cal/Val				
User request for I-Band Active Fires	Mar-19	Mar-19	Feb-19	
Delta design review for I-band AF (Beta Maturity)	Apr-19	Apr-19		05/16/19
Algorithm readiness review for I-band AF (Provisional Maturity)	Sep-19	Sep-19		
I-Band AF DAP deliver to NDE	Sep-19	Sep-19		

Highlights:





A comparison of I-band vs. M-band relative performance for February, March and April, 2019



Credit: Marina Tsidulko, IMSG@STAR

Surface Reflectance

April, 2019

Accomplishments / Events:

- Monitored the status of the transition to operations of the NOAA-20 product
- Coordinated LUT table update for the Suomi NPP product in NDE
- Update also addressed the missing granules issue
- Coordinated with the Vegetation Index team on updating the global anchor points for the Green Vegetation Fraction product
- Coordinated with the primary operational user, the NCEP High Resolution Rapid Refresh (HRRR) team to make sure their operations were not disrupted by the transition
- No issues related to the transition were reported

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.*

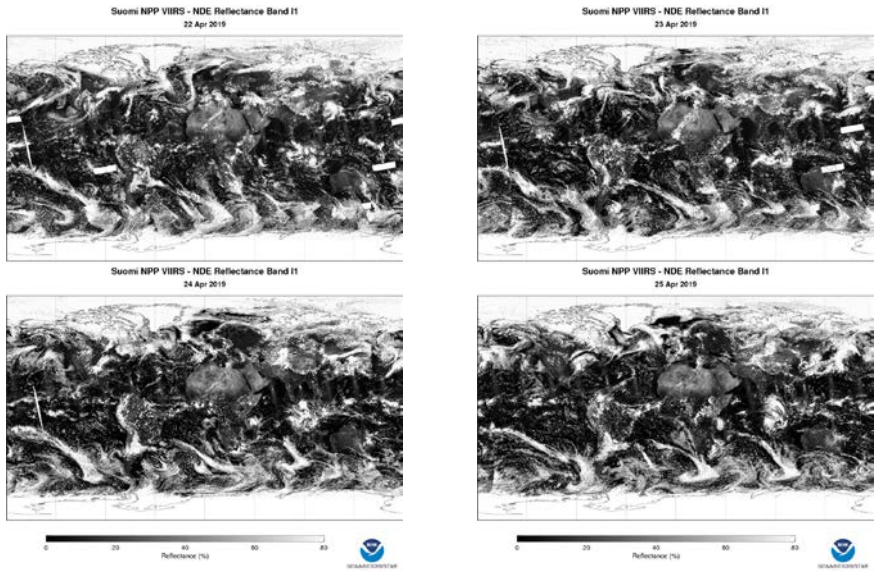
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Feb-19	Mar-19	03/21/19	Feb/Mar combined
Final DAP (N20 Algorithm Adjustment)	Apr-19	Apr-19	02/15/19	Feb patch DAP
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		
Patch delivery (fixed the Aerosol look-up tables wrong index issue)			11/21/18	
Patch delivery (fixed wrong values issue for the production_site and production_environment global attributes)			12/19/18	
Patch delivery (fixed latitude/longitude logic so that the system doesn't record -999.3 values for the last scanline global attributes)			02/15/19	

Highlights:

Credit: STAR JPSS LTM



Suomi NPP VIIRS band I1 Surface Reflectance maps for April 22-25, 2019

Surface Type

April, 2019

Accomplishments / Events:

- Downloaded and processed VIIRS observations acquired in March 2019 to create daily mosaics (up to the writing of this report)
- Completed generation of VIIRS monthly composites for 2018.
- Ongoing communications:
  - Provide assistance to the VIIRS Surface Albedo EDR team on their use of VIIRS AST
  - Work with Tom Atkins on restarting the generation of products for surface type LTM

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				

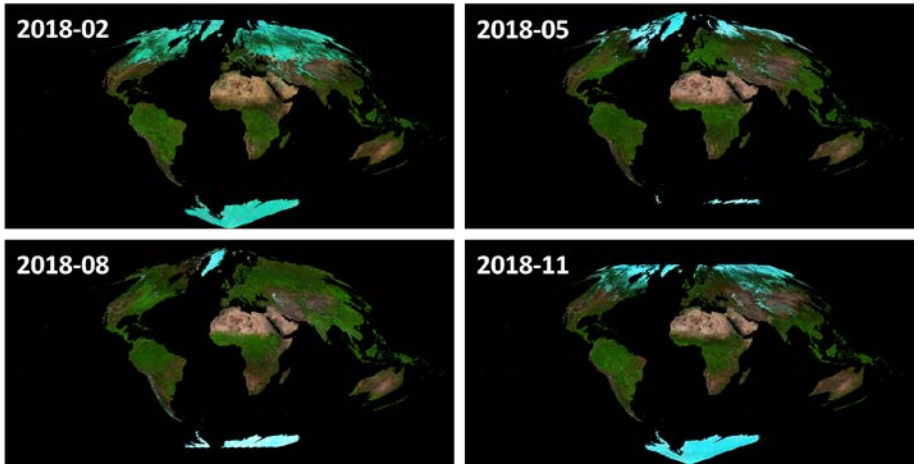
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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	Mar-19	

Highlights:



VIIRS monthly composites for selected months of 2018. Green and cyan indicate vegetation and snow/ice cover in these composites. The team has completed the generation of monthly composites for all months of 2018.

Land Surface Temperature

April, 2019

Accomplishments / Events:

- The cross comparison between SNPP and NOAA20 LST has been extended from daily results to 32-day mean LST. The comparison strategy has been determined which includes global LST map, LST difference map and scatter plot of the LST difference. In addition the data availability, sensor zenith angle difference and zonal difference statistics is also included. It demonstrated that both LSTs are consistent to each other (highlight and slide 2-4)
- The updated LST software code and readme has been delivered to ASSIST to be included in the July DAP to NDE. The framework test results have been verified and confirmed.
- Finished the software code for the local generation of the enterprise Sentinel 3 LST. The input data has been investigated and preliminary comparison has been performed between the enterprise Sentinel 3B LST and the operational Sentinel 3B LST. (slide 5 & 6)
- Provided gridded VIIRS LST to users in soil moisture group. The data covers the time period from 2017 to 2019. Provided help on the LST data interpretation and user feedback was collected.
- Further modified the manuscript titled “Enterprise LST algorithm development and its evaluation with NOAA 20 data” following internal review comments.

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.*

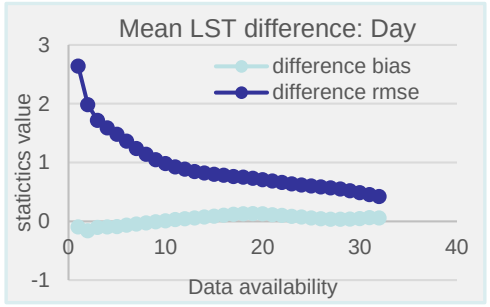
Issues/Risks:

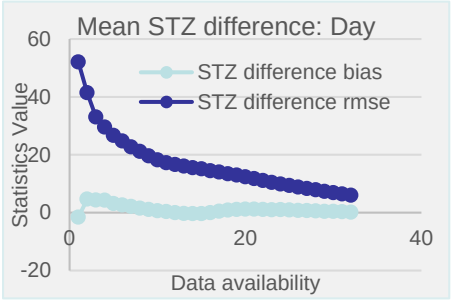
Schedule change due to the government shutdown

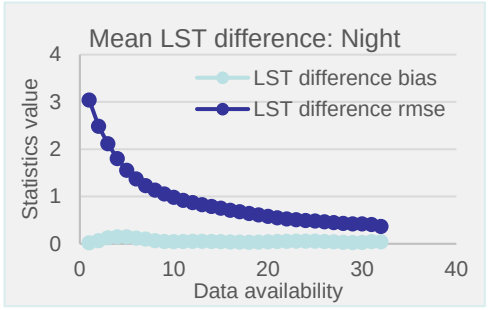
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational Readiness Review (ORR	Nov-18	Nov-18	11/16/18	
Provisional Maturity (N20 Cal/Val)	Feb-19	Feb-19	03/21/19	Impact of Shutdown
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	03/11/19	Impact of Shutdown
NOAA-20 LUT update	Apr-19	Apr-19	Apr-19	
Cal/Val tool development (SNPP & J1 comparison)	Apr-19	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	03/12/19	scheduled
Initial DAP to NDE	Mar-19	Mar-19	03/01/19	
Algorithm Readiness Review (ARR)	Jul-19	Jul-19		
Final DAP to NDE	Jul-19	Jul-19		

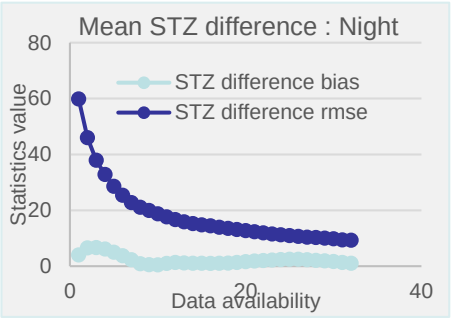
Highlights:

32-day mean LST comparison: N20 vs SNPP

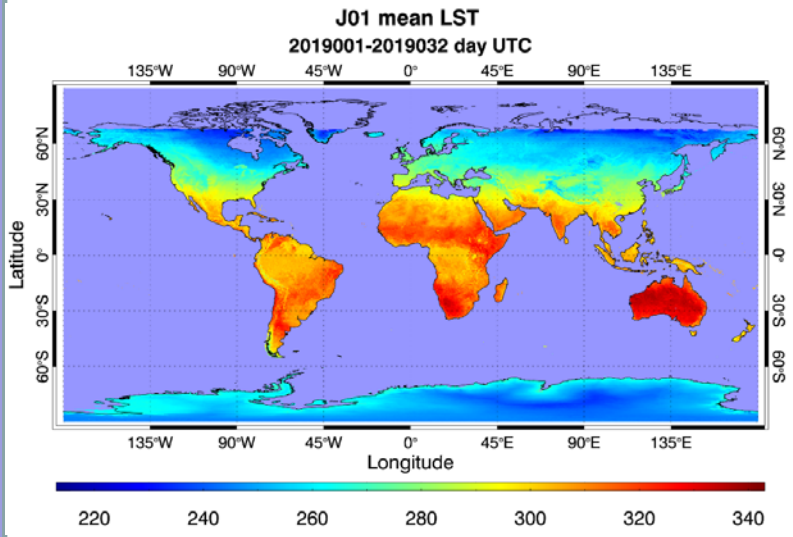


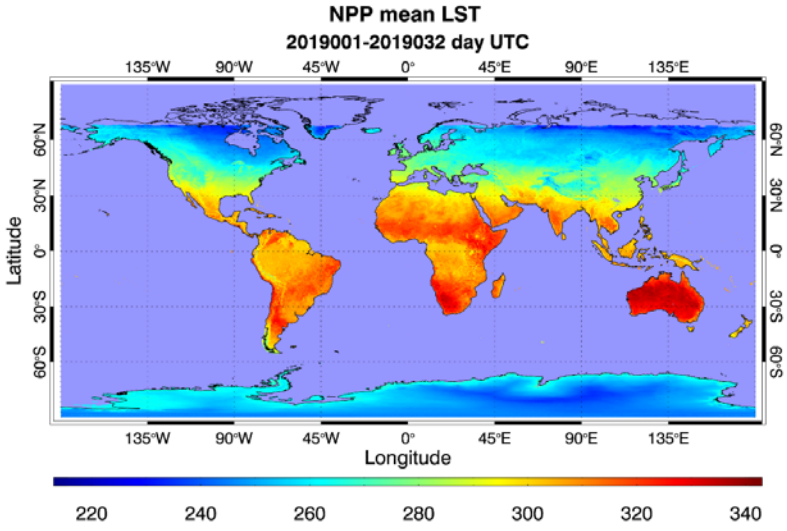


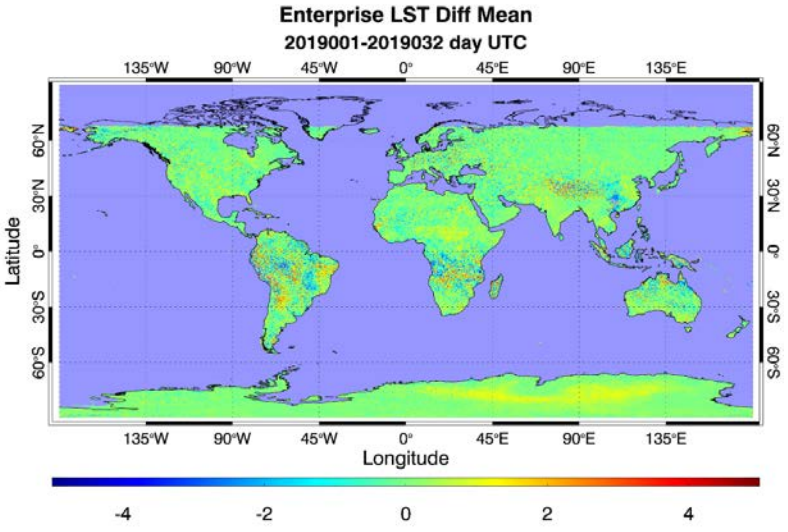


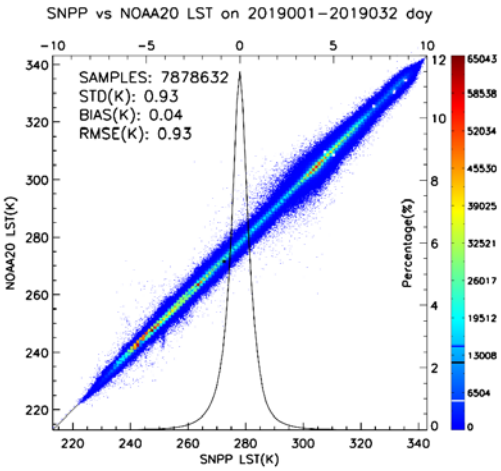


32-Day LST Diff Mean: Daytime

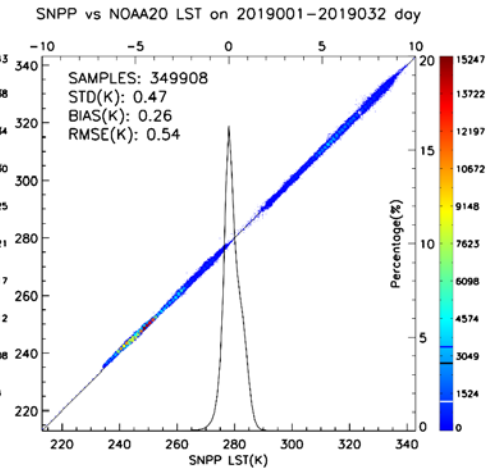






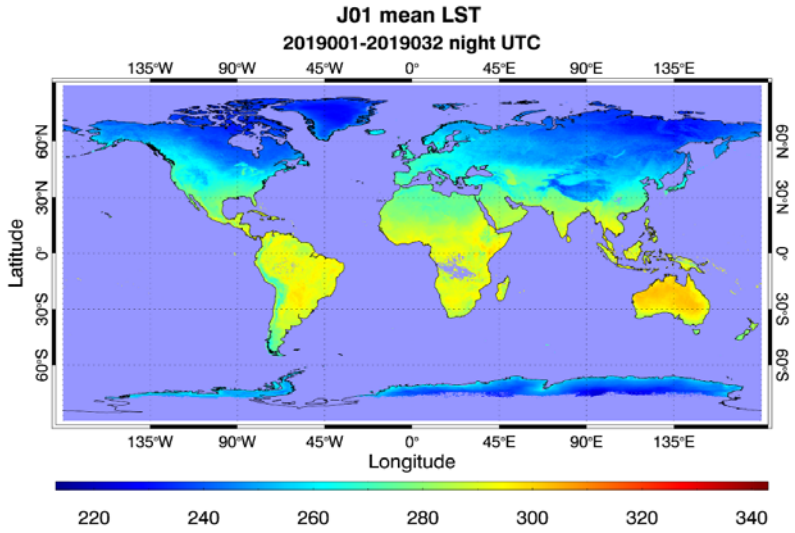


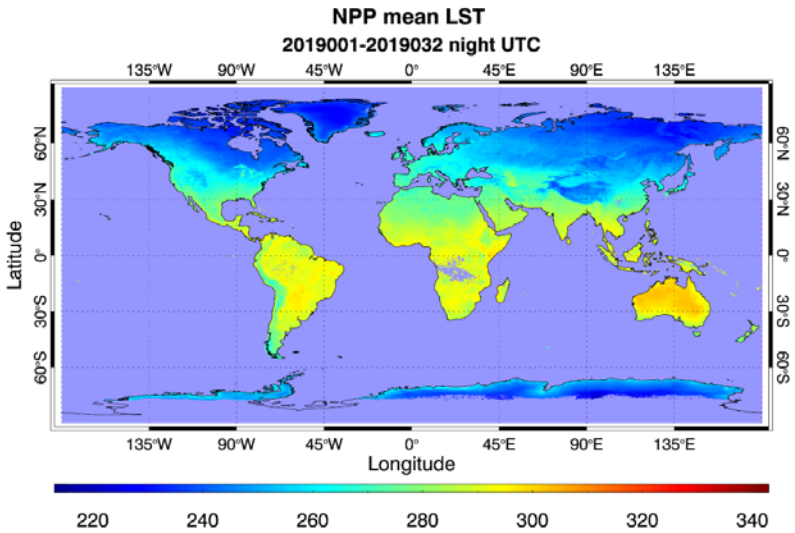
32-day average

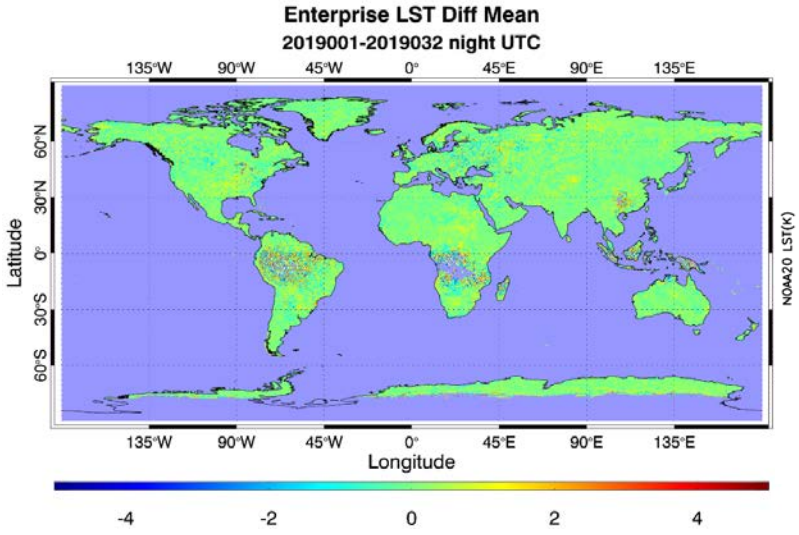


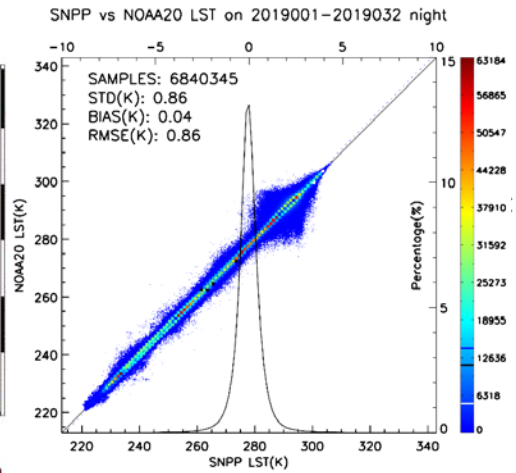
All 32-day data available

32-Day LST Diff Mean: Nighttime

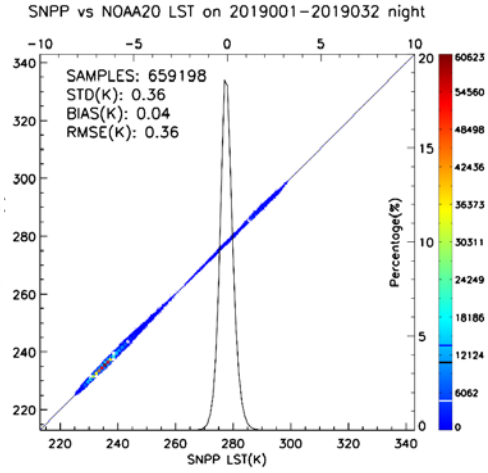








32-day average



All 32-day data available

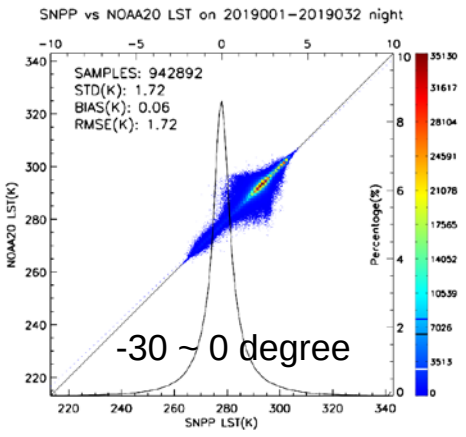
Zonal difference statistics

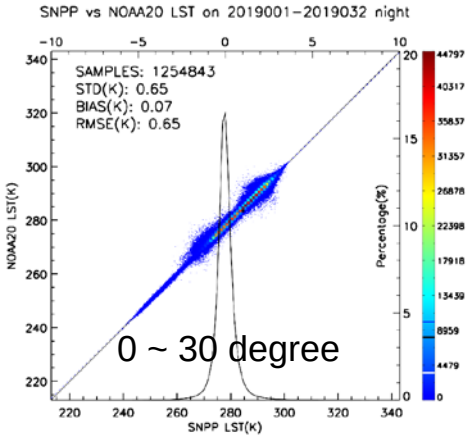
Nighttime

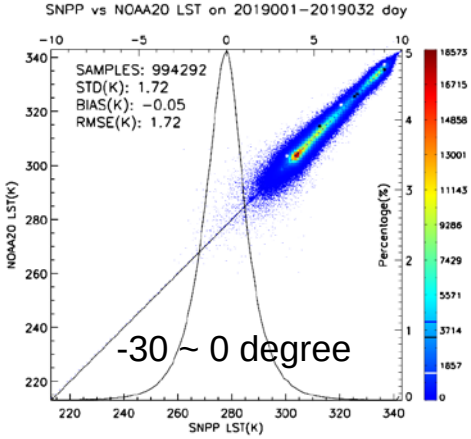
zone	Samples	Bias	Std	Rmse
-90 ~ -60	673372	0.08	0.70	0.71
-60 ~ -30	220985	0.03	0.54	0.54
-30 ~ 000	941357	0.06	1.72	1.72
000 ~ 030	1251677	0.07	0.65	0.65
030 ~ 060	2201729	0.01	0.66	0.66
060 ~ 090	1551225	0.05	0.50	0.50

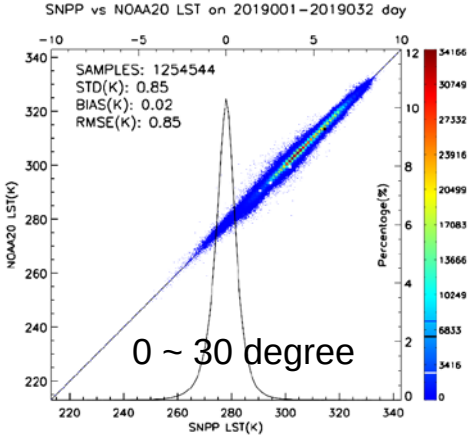
Daytime

zone	Samples	Bias	Std	Rmse
-90 ~ -60	2420478	0.17	0.47	0.50
-60 ~ -30	220924	0.06	1.07	1.07
-30 ~ 000	992747	-0.05	1.72	1.72
000 ~ 030	1251375	0.02	0.85	0.85
030 ~ 060	2201597	-0.01	0.84	0.84
060 ~ 090	791511	-0.06	0.91	0.91





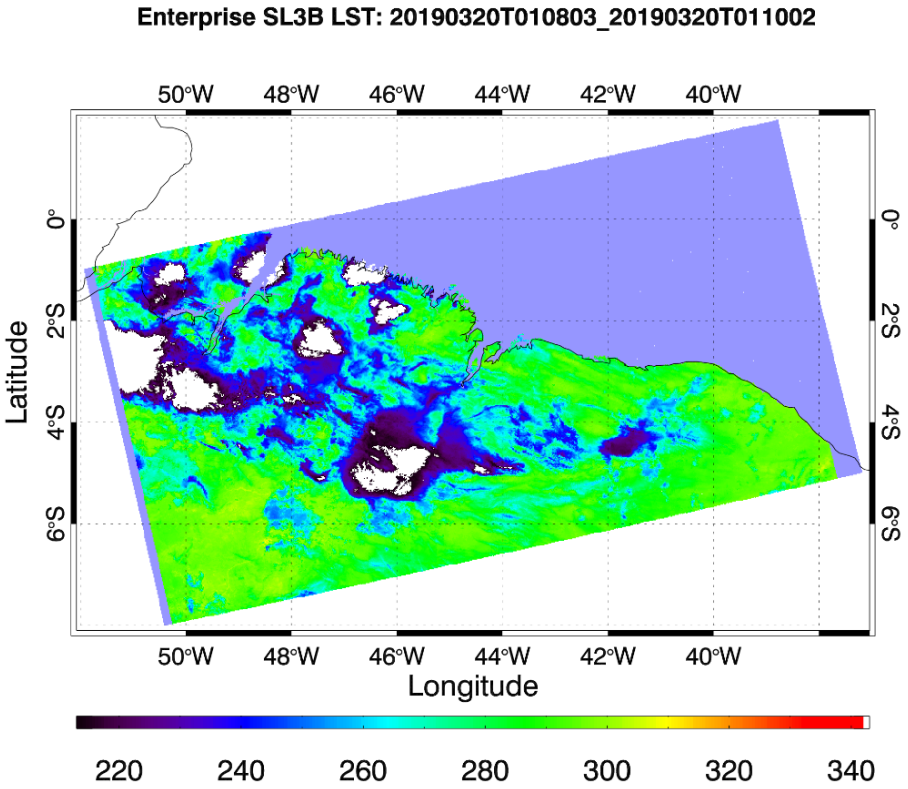




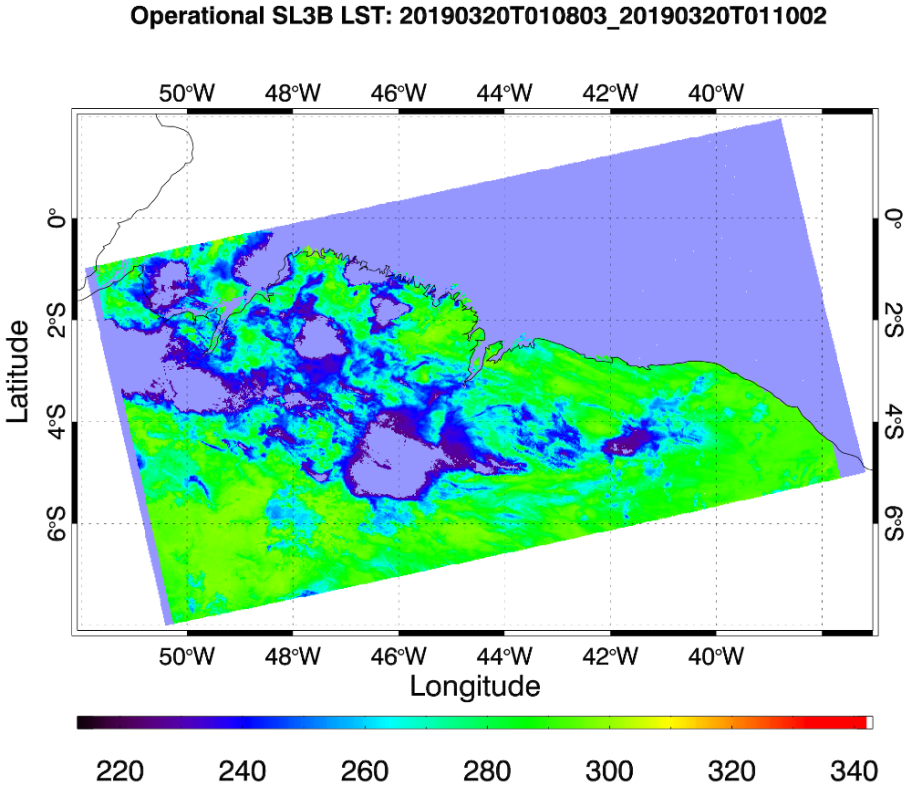
Enterprise Sentinel 3B LST Input

Input item	Source	Sds	Data type	Dimension	description
Latitude	geodetic_in.nc	latitude_in	32 signed integer	794*1500	Scaled value
Longitude		longitude_in	32 signed integer	794*1500	
BT11	S8_BT_in.nc	S8_BT_in	16 singed integer	794*1500	Sdr quality: S9_exception_in: 0 good ; not 0: not good
BT12	S9_BT_in.nc	S9_BT_in	16 singed integer	794*1500	Scaled value
Geometry	geometry_tn.nc	sat_zenith_tn	64 float	794 * 130	sat_azimuth_tn; solar_azimuth_tn. It is interpolated to the same dimension as other dataset
		solar_zenith_tn			
Cloud mask	flags_in.nc	probability_cloud_single_in	16 integer	794*1500	[-100,100], based on baysian method, it is over ocean, land is not provided.
		Cloud_in	16 unsigned int	794*1500	visible 1.37_threshold; 1.6_small_histogram ;1.6_large_histogram; 2.25_small_histogram; 2.25_large_histogram; 11_spatial_coherence; gross_cloud; thin_cirrus; medium_high; fog_low_stratus 11_12_view_difference; 3.7_11_view_difference ;thermal_histogram spare spare from 0 to bit 16
		Bayes_in	8-unsigned char	794*1500	single_low single_moderate dual_low dual_moderate
Land/sea mask	flags_in.nc	Confidence_in	16 unsigned int	794*1500	Bitwise. Coastal,ocean,land,inland_water,snow,summary_cloud is in bit 0,1,3,4,13 and 14
Snow mask	flags_in.nc	Confidence_in	16 unsigned int	794*1500	Bitwise. Bit 13 snow
Thin cirrus	flags_in.nc	cloud_in	bitwise		Bit 7, left significant same as VIIRS, 0-no cirrus; 1-cirrus
Tpw	NWP				
Emissivity	Star emissivity				
Lut	STAR local				
Config	Same as VIIRS				

An example of enterprise Sentinel 3B LST



Sentinel 3B LST derived using enterprise algorithm



Operational Sentinel 3B LST

Surface Albedo

April, 2019

Accomplishments / Events:

- Investigated the dependency of albedo difference (VIIRS vs. MODIS) on Solar zenith angle (***Highlight***)
- Tested the influence of VIIRS SDR reprocessing on albedo retrieval (***Slide #2***)
- Delivered the VIIRS granule albedo code update for Jul 2019 DAP, which include dealing with the extra-large-SZA retrievals, removing pure sea-water granules, updating the LUTs for NOAA-20 VIIRS sensor.
- Preparing a peer-review manuscript for gridded albedo product
- Completed the FY-2019 Statement of Work for Surface Albedo Algorithm Validation and Product Monitoring
- Made the plan for the ARR validation activities
- Participated in the Spring 2019 Python Workshop in NOAA
- Joined the NOAA Workshop on Leveraging AI

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			

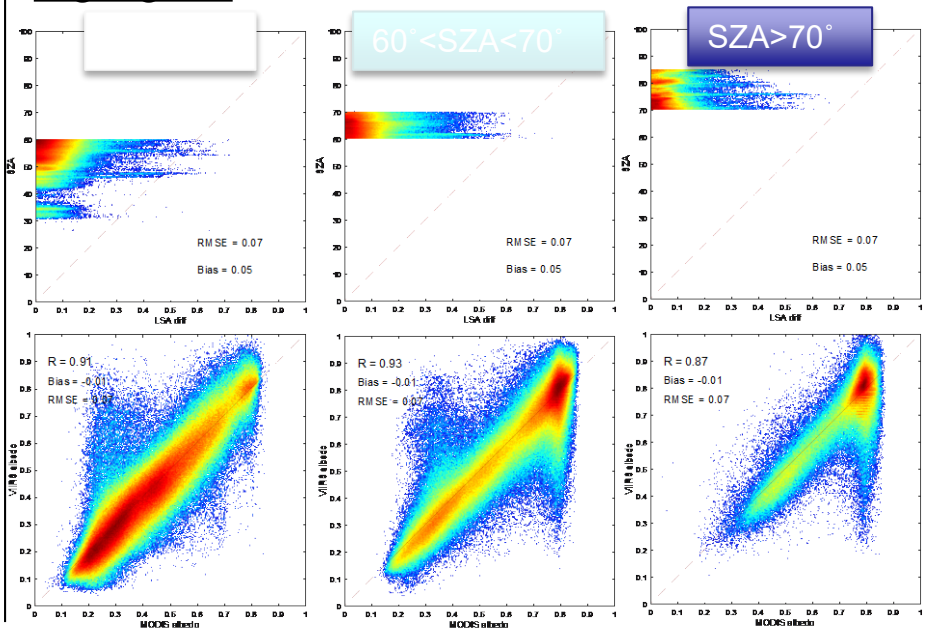
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Feb-19	Mar-21	Done	
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-21	Delivered to AIT	
NOAA-20 LUT update	Apr-19	Apr-19	Delivered	
New 1-km albedo climatology dataset delivery	Apr-19	Apr-19	Sep-18	Submitted
Cal/Val tool development (SNPP & J1 comparison)	Apr-19	Apr-19	Done	
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	Done	
Initial DAP to NDE	Mar-19	Mar-19	Delivered to AIT	
Algorithm Readiness Review (ARR)	Jul-19	Jul-19		
Final DAP to NDE	Jul-19	Jul-19		

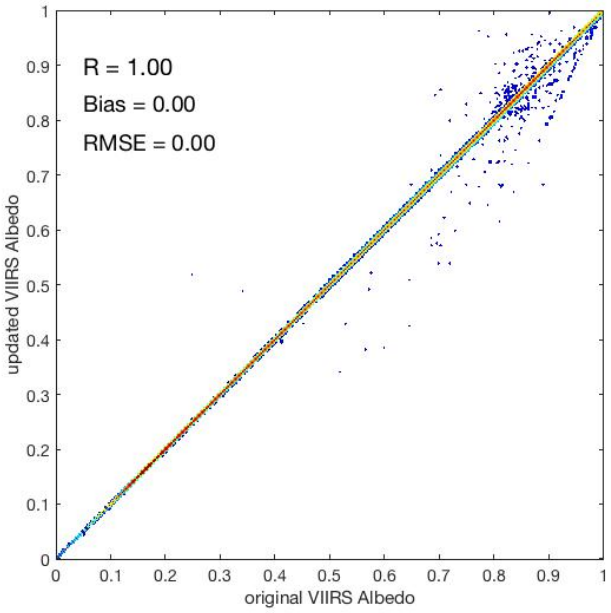
Highlights:

Albedo difference (VIIRS vs. MODIS) with SZA



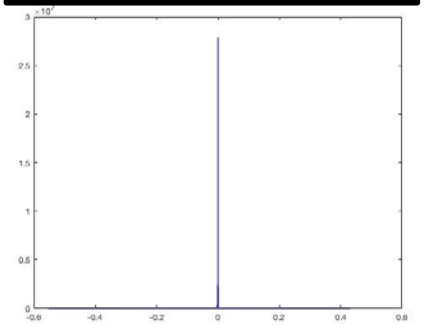
Influence of Reprocessed SDR on Surface Albedo Retrieval

- The reflectance change due to SDR reprocessing is in small order of magnitude.
- The updated reflectance has not caused additional albedo bias in overall comparison.
- The influence happened on a small fraction of pixels (around 0.1% pixels with a difference larger than 0.005) mainly distributed over snow and sea-ice surface with the observation at large zenith angles.

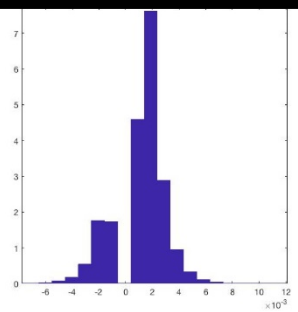


	Total	|diff|>0.01	|diff|>0.005 & |diff|<0.01	|diff|>0.001 & |diff|<0.005
snow-free land	18967787	0	0	198 (<0.01%)
snow	9252940	4010 (0.04%)	30826 (0.38%)	2053857 (22.57%)
sea-ice	5779704	4000 (0.07%)	754 (0.01%)	3448 (0.06%)
Overall	34000431	8010 (0.02%)	31580 (0.09%)	2057305 (6.05%)

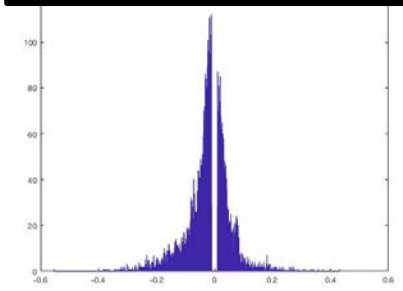
Histogram of Difference over all pixels



Histogram of Difference over pixels with |difference|>0.001.



Histogram of Difference over pixels with |difference|>0.01.



Green Vegetation Fraction

April, 2019

Accomplishments / Events:

- Adjusted the global maximum and minimum EVI values for the SNPP GVF product from the new version of SR data with the corrected look up table
- Updated the global maximum and minimum EVI parameters in the GVF code and sent the corrected code to NDE for operational run
- Compared the GVF derived from the old version of SR data and those derived from the new version of SR data and found they are consistent

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			

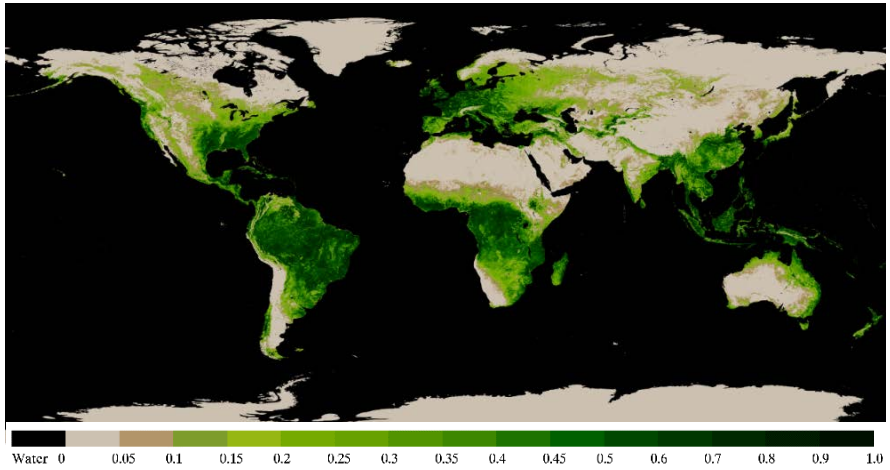
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19	03/21/19	
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:



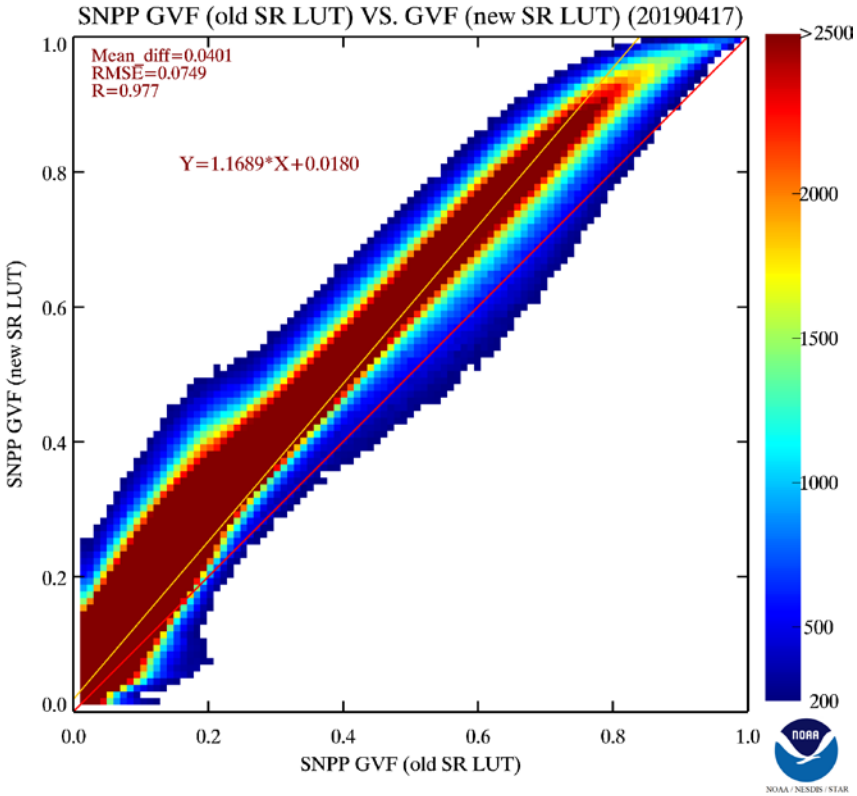
SNPP Weekly GVF (Apr 25 – May 1 2019) derived from new version of surface reflectance data (v1r1)

Adjusting the global maximum and minimum EVI parameters

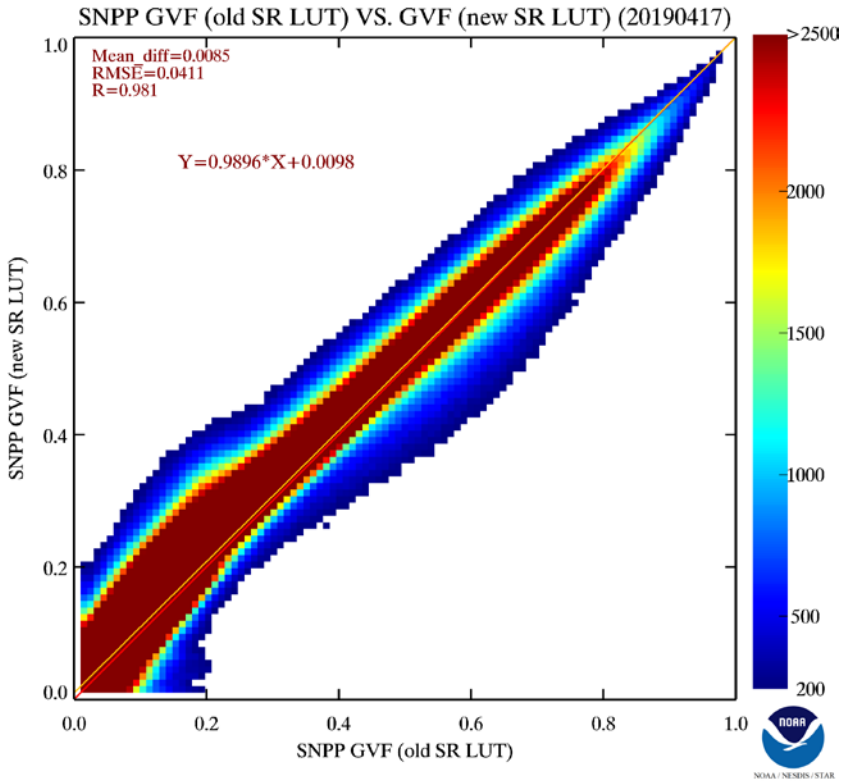
- An error in the surface reflectance look up table (LUT) has been corrected and implemented since Apr 23, 2019 in NDE, which has great impact on EVI and GVF values
  - Produced SNPP VIIRS GVF using the old version of surface reflectance (SR) data (v1r0) with the wrong LUT from Apr 4 2019 to Apr 17 2019.
  - Produced SNPP VIIRS GVF using the new version of surface reflectance (SR) data (v1r1) with the corrected LUT from Apr 4 2019 to Apr 17 2019.
  - Compared daily global EVI maps from the old version of SR data and those from the new version of SR data and produced scatter plots between them. EVI from the new version of SR is higher than that from the old version of SR due to the LUT correction, which means that the global maximum and minimum EVI values for the new version of SR data need to be adjusted.
  - Adjusted the global maximum and minimum EVI values for the GVF derivation from the new version of SR data by using the linear regression equations between EVI from the old version of SR data and those from the new version of SR data
  - The EVImax=0.5483 and EVImin=0.08 (for v1r0 SR) were adjusted to EVImax=0.6406 and EVImin=0.09 (for v1r1 SR)
  - Compared the GVF derived from the old version of SR data with the old global maximum and minimum EVI parameters and those derived from the new version of SR data with the updated parameters and found they are consistent

Adjusting the global maximum and minimum EVI parameters

Before adjustment



After adjustment



Scatter plot between GVF derived from the old SR and that derived from the new SR data

- Before adjustment, GVF *derived from the new SR is higher than that from the old SR data*
- After adjustment, GVF *derived from the new SR is consistent with that from the old SR data*

Vegetation Index

April, 2019

Accomplishments / Events:

- Redesigned data structure of NESDIS Vegetation Products System (NVPS) to reduce processing time and intermediate storage dramatically
- Resolved some issues stemming from current operational NVPS with SNPP-based inputs
- Improved further implementation of NVPS and tested the updated NVPS with NOAA-20 inputs in period from 2/3/2019 to 2/22/2019 to verify storages of final outputs by 20 percent
- Modified a plotting package used as visualization analysis on NVPS VI products

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 algorithms optimization and improvement, and it will be rescheduled a month later (June, 2019)*

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Mar-19	Mar-19	03/21/19	
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:

Redesigned NVPS VI Flowchart

Redesigned NVPS VI consists of three parts: daily, 8-day and 16-day production processes., **Daily part**: first mapping 6 sets of daily granule input files into tiles (18ºx18º), then tile by tile gridding (pixel:0.003º), finally aggregating the gridded inputs into ones at pixel sizes of 0.009º and 0.036º, meanwhile, calculating VI and setting VI quality assurance
8-day part: using the existing 8-day daily outputs to composite VI
16-day part: using the existing two 8-day outputs to composite 16-day VI

Vegetation Index

April, 2019

Progress Report

- **Redesigned data structure of NESDIS Vegetation Products System (NVPS) to reduce processing time and intermediate storage dramatically**
  - ✓ Redesigned gridding and aggregating units into multilevel structure:
    - o Dividing global into 20x10 tiles (18^o x 18^o) and using water masks to remove all the tiles with all pixels of water
    - o Further dividing the tiles with land and water into fine tiles (3^o x 3^o) , then using water masks to determine the fine tiles with all pixels of water and finally remove the fine tiles
  - ✓ Redesigned 8-day compositing units on daily VI outputs (pixel size of 0.009^o and 0.036^o instead of original size of 0.003^o). 16-day compositing on previous two 8-day results
- Improved further implementation of NVPS and tested the updated NVPS with NOAA-20 inputs in period from 2/3/2019 to 2/22/2019 to verify reduction of storages of final outputs by 20 percent
  - ✓ Changed original 2-dimensional geolocation coordinates (latitude/longitude) into 1-dimensional in outputs
  - ✓ Tested the updated NVPS codes in period from 2/3/2019 to 2/22/2019
  - ✓ Verified the tested results complied with Climate and Forecast (CF) Metadata Convention requirement
  - ✓ Verified the storages of final outputs have decreased in 20 percent
- **Resolved some issues stemming from current operational NVPS with SNPP-based inputs**
  - ➢ Issue 1: “a small bug with GVF/VI; in the "final" output NetCDF files, the global attribute "time_coverage_end" is always of the form "YYYY-MM-DDT24:00:00Z". This timestamp is not valid because of the “24” in the hour field.
  - ✓ Solved: The time coverage end attribute was changed into "YYYY-MM-DDT23:59:59Z" to match PDA requirement
  - ➢ Issue 2: VI/GVF operational jobs failed on 20190423 due to NDE 2.0.16 installation
  - ✓ Solved:
    - o Identified VI/GVF jobs failure resulted from input file names with a mixed version number.
    - o Modified two script files (pairInput.sh in VI and GVF codes) to generate base name files of all granule files. The updated base name file is independent of version (v1r1 or v1r0), platform (NOAA-20 or SNPP) and observation date.
- Modified a plotting package used as visualization analysis on NVPS VI products
  - ✓ Modified first part (coded in bash script) of the plotting package so as to have following new features:
    - o Batch processing in multiple of days
    - o Do visualization analysis on any specified group of variables from VI variable list
  - ✓ Modified second part (coded in IDL) of the plotting package so as to have the following features
    - o Adjust the original IDL plotting functions to match any group of variables specified in first part
    - o Modified original color table to represent VI properties

Vegetation Health

April, 2019

Accomplishments / Events:

- Validation: (a) NOAA/VH-NASA/GIMMS
  (b) NOAA-20/VH-NOAA/SNPP (fig)
- Submitted abstract to 17th JCSDA workshop
- NOAA-20: Users-Developers interaction
- Generation of weekly NOAA-20/VH data
- Analysis of NOAA-20 products
- Routine maintenance of VH data base

Overall Status:

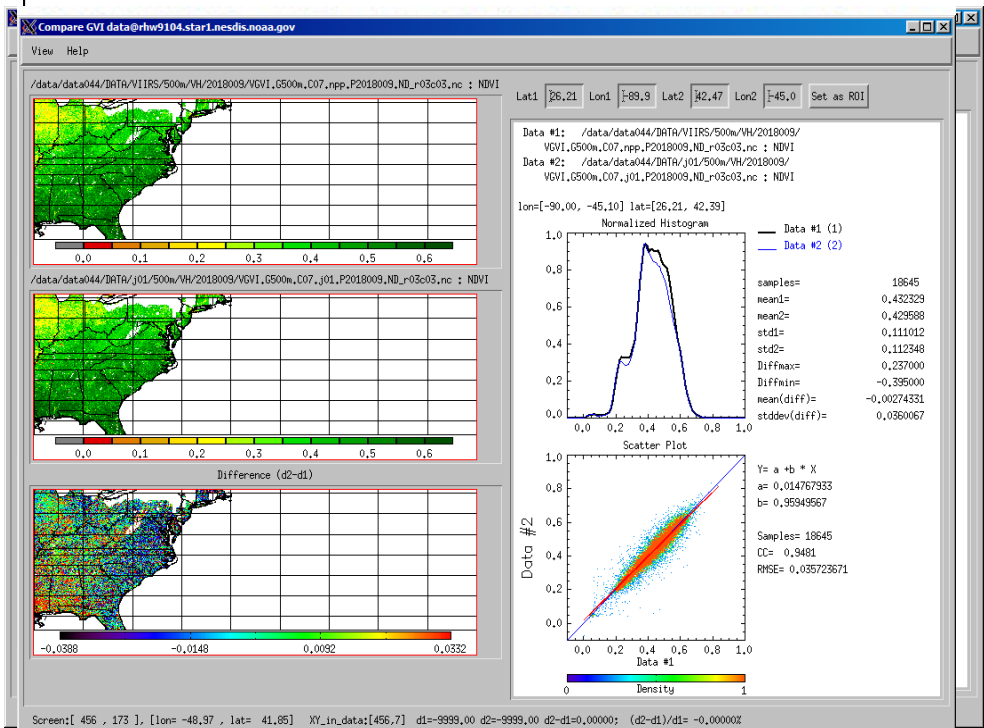
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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)	Feb-19	Mar-19	03/21/19	Feb/Mar combined
Validated Maturity (N20 Cal/Val)	Jun-20	Jun-20	03/21/19	Review Panel recommended
S-NPP / NOAA-20 data analysis	Sep-19	Sep-19		
Cal/Val tool development (SNPP & J1 comparison)	Sep-19	Sep-19		



Ocean Color

April, 2019

Accomplishments / Events:

Ocean Color Team International Activities:

- **Menghua Wang** participated in both the Committee Meeting (24th) and the Executive Committee Meeting (33rd) of the International Ocean Colour Coordinating Group (IOCCG) 4-5 April in Hanoi, Vietnam and then participated as the NOAA agency representative in the International Ocean Colour Science Meeting (IOCS) 9-12 April in Busan, South Korea.

Reports from external OC Cal/Val PIs:

- Nicholas Tufillaro, OSU, presented update and recent results on OSU and USC activities involving Platform Eureka and Grizzly Bay SeaPRISMs.
- ZhongPing Lee, UM-B, presented results on the precision of the SBA-measured Rrs and mapping suspended particulate material (SPM) concentration using SNPP VIIRS data.

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

Issues/Risks:

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

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	
Init N20 DAP to CoastWatch (data)	Feb-19	Feb-19	Feb-19	
Init N20 DAP to CoastWatch (code)	Apr-19	Apr-19	03/21/19	
Vicarious calibration for VIIRS-NOAA-20 using MOBY in situ data	Dec-18	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		

Highlights:

- **OC EDR team members presented posters and co-chaired session at IOCS**
  - V. Lance, M. Ondrusek, H. Gu, M. Wang, et al., “NOAA 2019 update: in situ validation activities for satellite ocean color products and related ocean science research”
  - Wei Shi and Menghua Wang, “Characterization of the Global Turbid Coastal and Inland Waters from VIIRS Satellite Ocean Color Observations”
  - S. Son, M. Wang, and L. Jiang, “Comparison of GOCI and VIIRS Ocean Color Products in the Western Pacific Region”
  - Lance also co-chaired a breakout session with Ewa Kwiatkowska from EUMETSAT on the topic of Research to Operations and Applications

Sea Surface Temperature

April, 2019

Accomplishments / Events:

- ACSPO v2.61 replaced v2.60 in NDE operations on 23 Apr 2019. (Updated LUTs to mitigate hi-lat biases; No code change)
- Reprocessing of complete NPP/N20 records (RAN2) continues. It will replace the incomplete, piece-meal holdings in PO.DAAC & NCEI with a consistent long-term RAN2 2.61-based record
- Currently processed are 5 years of NPP (2014-2018) and 1 year of N20 (2018). 2 years of NPP remain to be processed.
- PO.DAAC received 2018 NPP & N20 data. Working with them to transition 206-17 data. STAR throughput is slow.
- Delivery of 2.80 is pushed back to Dec-19, to allow full archival of 2.61 in PO.DAAC/NCEI. The current v2.61 is accurate and stable enough, to support current users' needs. Our priority is to fully archive the complete NPP & N20 RAN2 SST Records

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

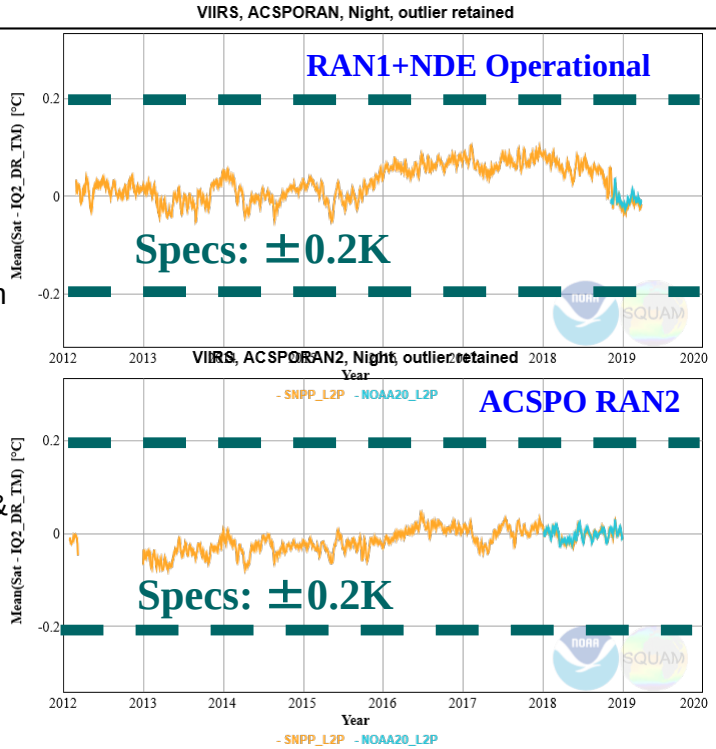
Milestones	Original Date	Forecast Date	Actual Completion Date
NOAA-20 Calibration/Validation			
Beta Maturity			04/18/18
Provisional Maturity			04/18/18
Validated Maturity	Apr-19	Apr-19	05/16/19
NOAA-20 Algorithm Adjustments			
Initial DAP (ACSPO 2.60)			07/05/18
Interim DAP (2.61) (update LUTs as needed)	Feb-19	Feb-19	02/12/19
Final DAP (ACSPO 2.80)	Aug-19	Dec-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 2.80 – Improved SST for data fusion	Aug-19	Dec-19	

Highlights:

ACSPO v2.61 in NDE operations (23 Apr 2019)

VIIRS RAN2 with ACSPO v2.61 continues

PO.DAAC archive: 2018 complete (NPP & N20). 2016/17 NPP underway



VIIRS Polar Winds

April, 2019

Accomplishments / Events:

New Statistics Show VPW Meet Requirements: A robust set of VIIRSP polar winds (VPW) validation statistics has been compiled covering the period December 2018 – March 2019 in both the Arctic and Antarctic. Comparisons to radiosonde-derived winds show that the VPW accuracy and precision metrics meet the requirements overall.

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			

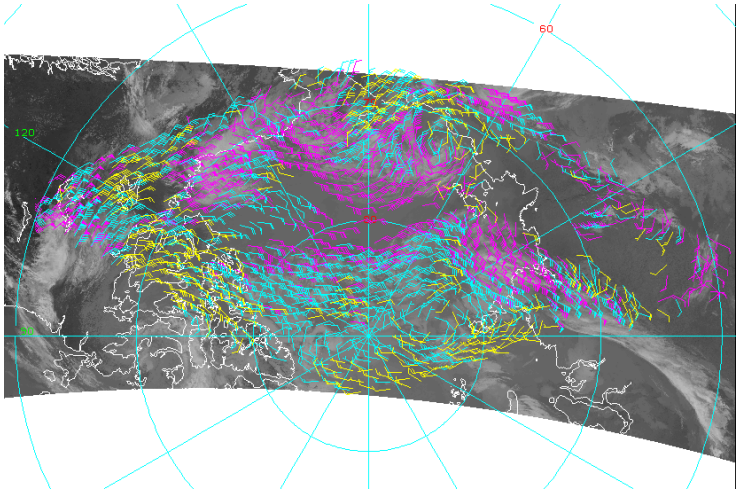
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta/Provisional Maturity			10/02/18	
Validated Maturity (N20 Cal/Val)	May-19	May-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	03/11/19	
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		

Highlights:



NOAA-20 VIIRS winds over the Arctic, 28 Jul 2018, 1942Z

NUCAPS Products

April, 2019

Accomplishments / Events

- We hired a new team member, Tong Zhu, who is going to take on the responsibility for the SARTA tuning.
- Progress was made on the evaluation of the supersaturation problem in the first guess. Few areas of improvement in the training are under investigation.
- Nick Nalli successfully concluded the 2019 AEROSE campaign.
- Progress are being made on the methane retrieval, surface emissivity and regression steps of the NUCAPS algorithm.
- A newer validation ensemble has been acquired for cal/val purposes. This consist of 27 AirCore sites.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity: Ozone, CO, OLR			10/02/18	
N20 Provisional Maturity: CH4	Apr-19	Sep-19		VPN was slow during shutdown; sources of error (forward model, upstream retrieval steps) need more investigation
SNPP & N20 Validated Maturity: CO	Sep-19	Sep-19		Same as above
Validated Maturity: S-NPP &N20 CH4	Sep-19	Mar-20		Same as above
Validated Maturity: SNPP- N20 CO2	Apr-19	Dec-20		Same as above
DAP (N20 Algorithm Adjustment)	Apr-19	Sep-19		Same as above
DAP (N20 Algorithm Adjutment)	Apr-19	Mar-20		Same as above
DAP (N20 Algorithm Adjustment)	Apr-19	Dec-20		Same as above
Generate regression coefficients (OLR)	Apr-19	SEP-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		

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			

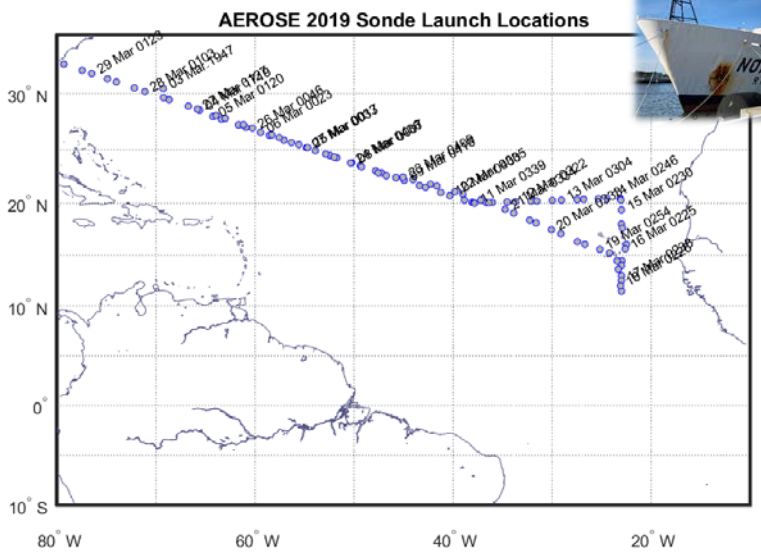
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

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

Highlights:

AEROSE 2019 JPSS Dedicated Sonde Launches



MiRS Products

April, 2019

Accomplishments / Events:

- Evaluated 5G RFI effect on MiRS retrievals.
- Two sets of sensitivity tests were performed, one is for Harvey in 2017, other is for a blizzard event in 2018. Each of the tests include two runs; one uses all channels which is the same as current operational implementation, and the other one excludes channels 1, 3, 4, and 5. the figures here show the RFI effect on TPW after Harvey was landed (August 26, 2018).
- The 5G RFI effect on TPW retrievals is observed. The RFI effect on precipitation is small because MiRS uses high frequency channels for precipitation (i.e. scattering effects).

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			

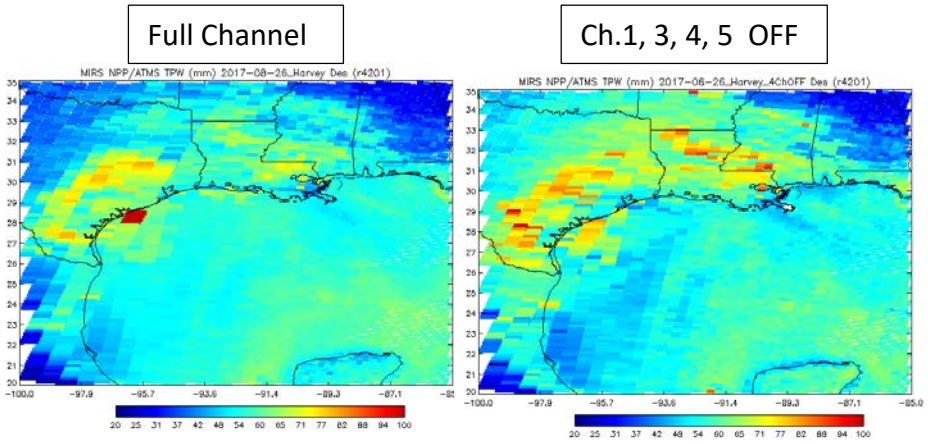
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (N20 Cal/Val)	Sep-19	Sep-19		
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	Mar-19	
Bias correction for NOAA-20	Mar-19	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		

Highlights:



MiRS TPW retrievals with full channel (left) and with turn of 24 and 50 Ghz channels (right) for August 26, 2017 after Hurricane Harvey landed.

Snowfall Rate

April, 2019

Accomplishments / Events:

- Completed the NOAA-20 Snowfall Detection (SD) algorithm validation study for the Provisional Maturity Review using in-situ snowfall observations from both CONUS and Alaska.
- Completed the NOAA-20 Snowfall Rate (SFR) algorithm validation study for the Provisional Maturity Review using the Stage IV radar and gauge combined hourly precipitation data from CONUS.
- Prepared NOAA-20 SFR Readme file.
- Prepared NOAA-20 SFR presentation for the Provisional Maturity 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			

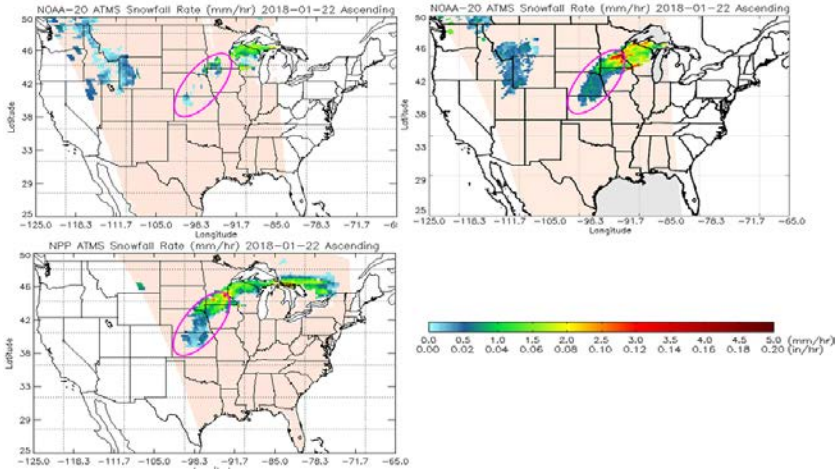
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: NOAA-20 and S-NPP SFR	Jun-20	Jun-20		
Provisional Maturity: NOAA-20 SFR	Mar-19	May-19		05/16/19
Final DAP (N20 SFR)	Mar-19	Mar-19	Mar-19	
Update radiometric bias correction coefficients	Dec-18	Dec-18	Dec-18	
Deliver updated SFR package to MiRS team (for Mar-19 DAP delivery)	Feb-19	Feb-19	Feb-19	

Highlights:



(Top left) The NOAA-20 SD shown at Beta Maturity Review; (top right) the current NOAA-20 SD; (lower left) S-NPP SD. The newly developed NOAA-20 SD captures the snow that was missed previously and is comparable with the S-NPP SD.

OMPS Ozone

April, 2019

Accomplishments / Events:

- S-NPP V8Pro CDR in validation.
- Creating new V8Pro code delivery for NDE with significant updates – Outlier filtering, consistency with SBUV/2 for reflectivity and averaging kernels, dual adjustment tables for smooth soft calibration changes and area weighted matchup nadir mapper FOVs. TIM/Review scheduled on 4/4/2019.
- V2Limb NDE at I&T in validation phase (See Figure.)
- Testing of TOAST with V2Limb.
- Testing of BUFR for V2Limb

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, code change

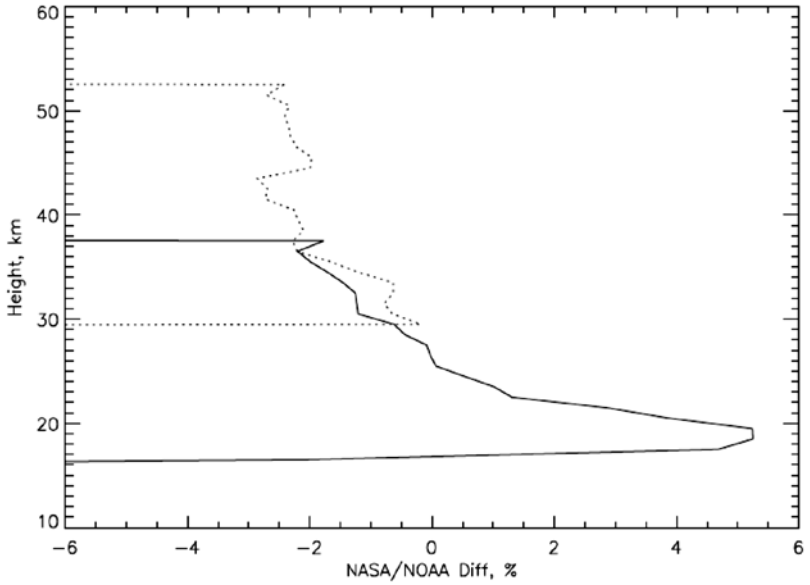
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

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	Jun-19		Requires code
Validated Maturity: V8TOz	Mar-19	Jun-19		SDR
Validated Maturity: V8Pro	Apr-19	Jul-19		SDR, code
N20 Final DAP: V8Pro	Apr-19	Apr-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		

OMPS Limb Profile Retrieval Differences, NASA/NDE for March 27, 2019 for 20N-20S zonal mean.



GCOM-W1 Products

April, 2019

Accomplishments / Events:

- Continue to provide information to NESDIS IA regarding AMSR-3 channel selections (as requested by JAXA)
- Engaging JPSS Program Office on budget needs for AMSR-3
- Continued product cal/val; all products meeting requirements
- CICS-M developing monthly product monitoring capability; details being fleshed out with EDR leads
- GAASP product upgrades/testing with OSPO continues
- Two papers (one oral, one poster) were accepted for a JPSS Session at IGARSS 2019 (Japan, July 2019)
- Reprocessing to commence in early May 2019

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
GAASP emergency update DAP (fixed some typo's in the Longitude metadata in 4 of the netCDF template files)			02/11/19	
GAASP_v2-5 DAP (update to the Ocean SSW algorithm and the Precipitation algorithm, with some other minor updates)			To NDE: 03/19/19 To CSPP: 03/20/19	
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	Apr-19*	*As stated above
Deliver updated rain rate algorithm for integration into GAASP	Apr-19	Apr-19	Apr-19	
Updated GAASP package delivered to NDE/OSPO	Jul-19	Jul-19		
Reprocessing of AMSR-2 mission	Sep-19	Sep-19		

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			

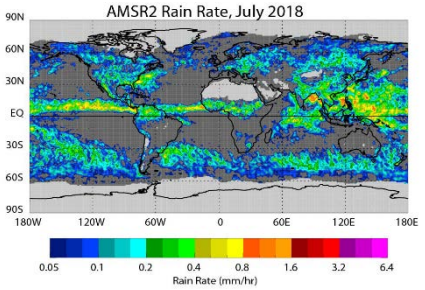
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

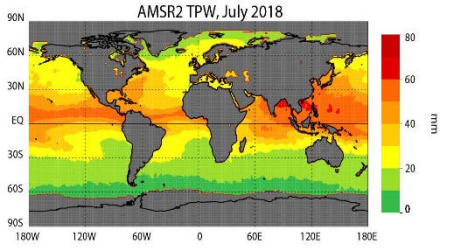
Issues/Risks:

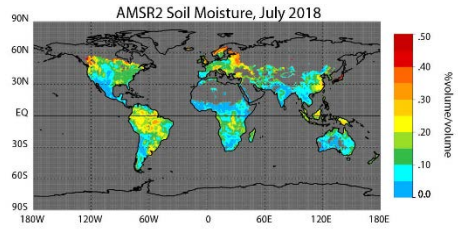
None

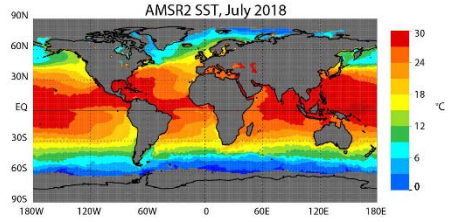
Highlights:

Monthly Monitoring Products – July 2018









NOAA Products Validation System (NPROVS) and EDR Long Term Monitoring (LTM)

April, 2019

Accomplishments / Events:

- Provided inputs on NUCAPS problem areas and proposed science maintenance plan at bi-weekly review meetings
- Initiated data collection for draft "Uncertainty" paper focused on successfully "reprocessed" NPROVS Special (GRUAN) radiosondes
- Observations from the ongoing Radiosonde Inter-comparison and VALidation (RIVAL) campaign stewarded (NPROVS)
- Transfer of AEROSE dedicated radiosonde to NPROVS underway in support Saharan Air Layer / NUCAPS analysis **(Highlight)**
- Supported NWS radiosonde inter-comparison campaign and integration of Sterling Test Site data into NPROVS (Special)
- Provided inputs at JPSS Hydrology and GSICS meetings (**Highlight)**
- An outage of a key disk forced the LTM team to create "software" backup on STAR's GitLab and reprocess thousands of lost images**.**

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			

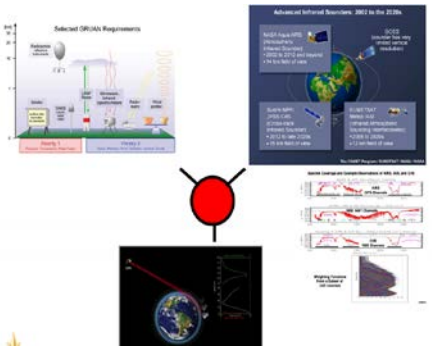
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

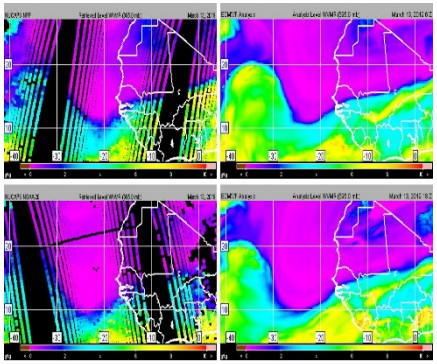
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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	March - 19	Shutdown; upgrades pending
Maintain JPSS dedicated radiosonde program including AEROSE and RIVAL observations stored in NPROVS Special	Mar-19	Mar-19	Mar-20	Program Extended
Support NWS Raob Transition Monitoring and NUCAPS AWIPS-2 users	May-19	May-19		

Highlights:



NPROVS: Illustration of Global Space-based Inter-comparison System (GSICS) (right), GRUAN (up left) and GPSRO (low left) coordination (3G) to support geo-physical and sensor data monitoring at STAR.



NPROVS: Comparison of NUCAPS (left) and ECMWF (right) H20 vapor at 700 hPa show excellent agreement and tracking of Saharan Air Layer "dry" signature (purple) west of Africa; study continues.