AMP/STAR FY19 TTA

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July 17, 2019

Highlights from the Science Teams

S-NPP CrIS MWIR Recovery Effort

In late March, it was discovered that the CrIS MWIR SDR data was no longer able to be produced. In the past three months STAR and other scientists have worked to assess the issue and develop a solution to the problem.

That solution, moving to electronics Side B was implemented successfully on June 24. Since then the STAR SDR and EDR teams have run a full suite of comparisons and found that both the SDR and downstream NUCAPS EDR products appear to be of good quality.

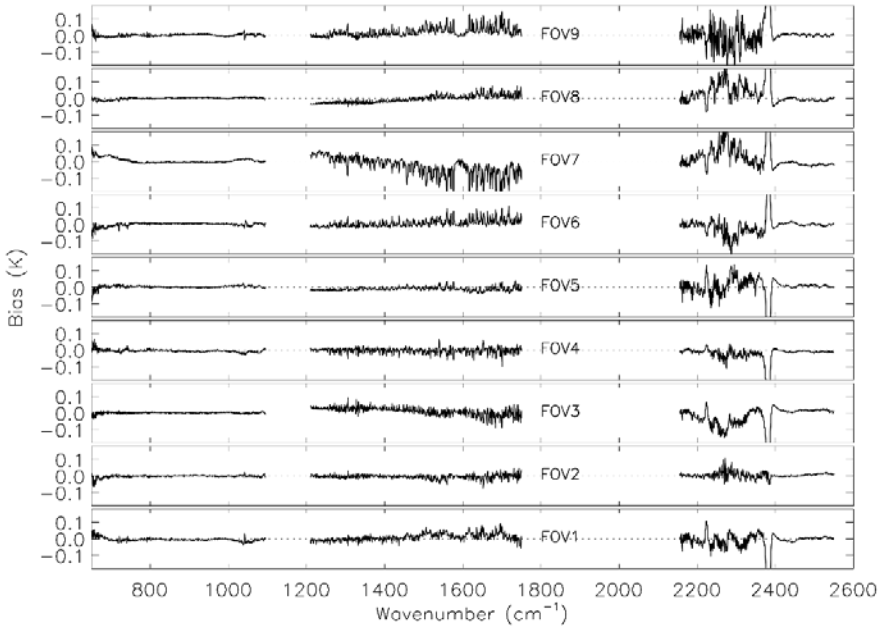


Figure. Bias for the 9 SNPP CrIS fields-of-view compared to data derived from ECMWF model fields and CRTM show little bias.

Validation of experimental VIIRS Tandem winds indicates potential to be used in operations

During April and May 2019 the new VIIRS winds product generated at CIMSS that uses cloud tracking features from S-NPP and NOAA-20 together (in tandem) was compared to radiosondes within 100 km and 1 hour collocation distance and time, respectively. The overall results for the tandem winds and the winds from the individual satellites indicate that the JPSS tandem winds have RMSE and precision values between those for NOAA-20 and S-NPP. When the RMSE is normalized (NRMS) by the average radiosonde wind speed of the collocated vectors, the tandem winds have the best quality.

Highlights from the Science Teams

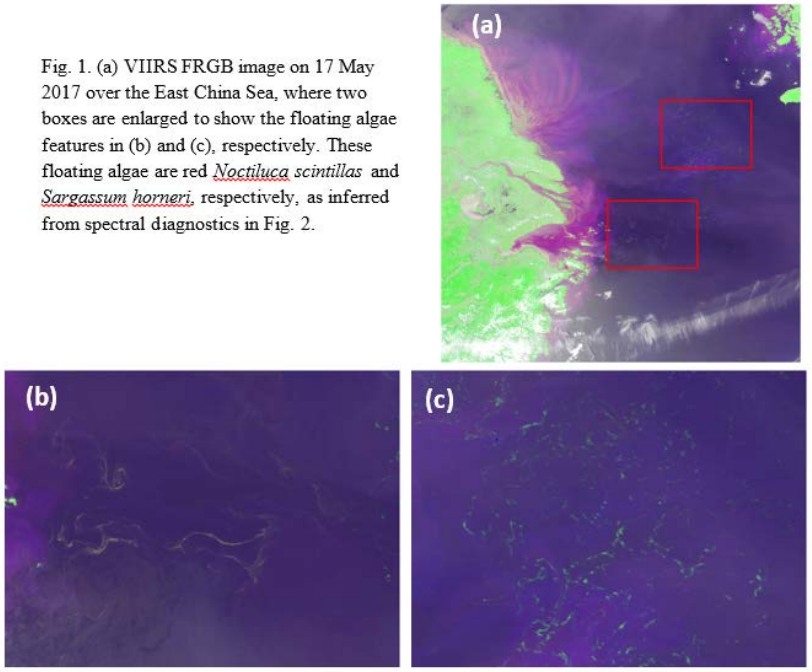


Fig. 1. (a) VIIRS FRGB image on 17 May 2017 over the East China Sea, where two boxes are enlarged to show the floating algae features in (b) and (c), respectively. These floating algae are red *Noctiluca scintillas* and *Sargassum horneri*, respectively, as inferred from spectral diagnostics in Fig. 2.

Floating Algae Detection

Large seaweed (a form of algae) mats are being reported globally, and the OC team has developed a new technique to detect them. This technique relies on the high NIR reflectance of floating algae to create an red-NIR-blue false color RGB. As seen above floating algae features stand out against the blue ocean. These maps are now available for 2018 on the OCView website.

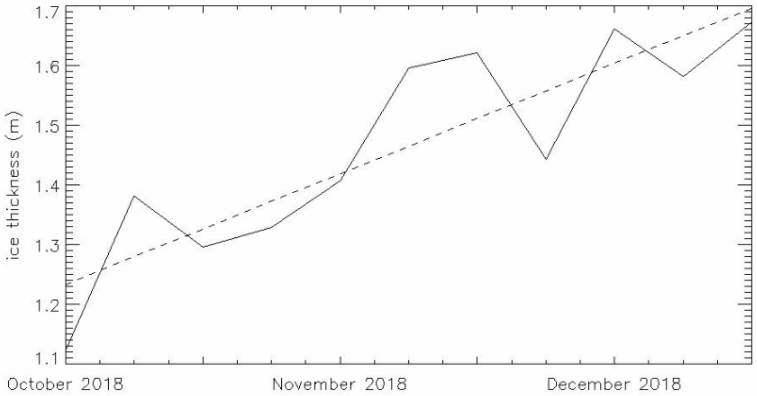
GHRSST Meeting

JPSS SST Lead, A. Ignatov, and two team members, I. Gladkova and M. Pennybacker, attended the 20th Group for Hi-Res SST (GHRSST) Meeting in Frascati, Italy, from 3-7 June 2019.

Ignatov presented two plenary updates, one on the progress with JPSS and GOES-R SST products, and the other on the progress with the NOA SST Quality Monitor (SQUAM; https://www.star.nesdis.noaa.gov/sod/sst/squam/) and in situ SST Quality Monitor (*i*Quam; https://www.star.nesdis.noaa.gov/sod/sst/iquam/). Both are designated as GHRSST community Cal/Val systems.

Irina Gladkova gave an oral plenary presentation entitled "Towards high-resolution multi-sensor gridded ACSPO SST product at NOAA" in the "Feature Resolution" session (chaired by Ignatov) and Ignatov additionally presented a poster on the fully reporcessed (w/ACSPO 2.61) NPP and N20 records which are currently being archived at PO.DAAC. Overall attendance on NOAA SST Team of this GHRSST meeting confirmed that there is a large (and growing) national and international user community for the NOAA JPSS SST products, and NOAA products and accomplishments are visible and well appreciated in the SST community.

Highlights from the Science Teams

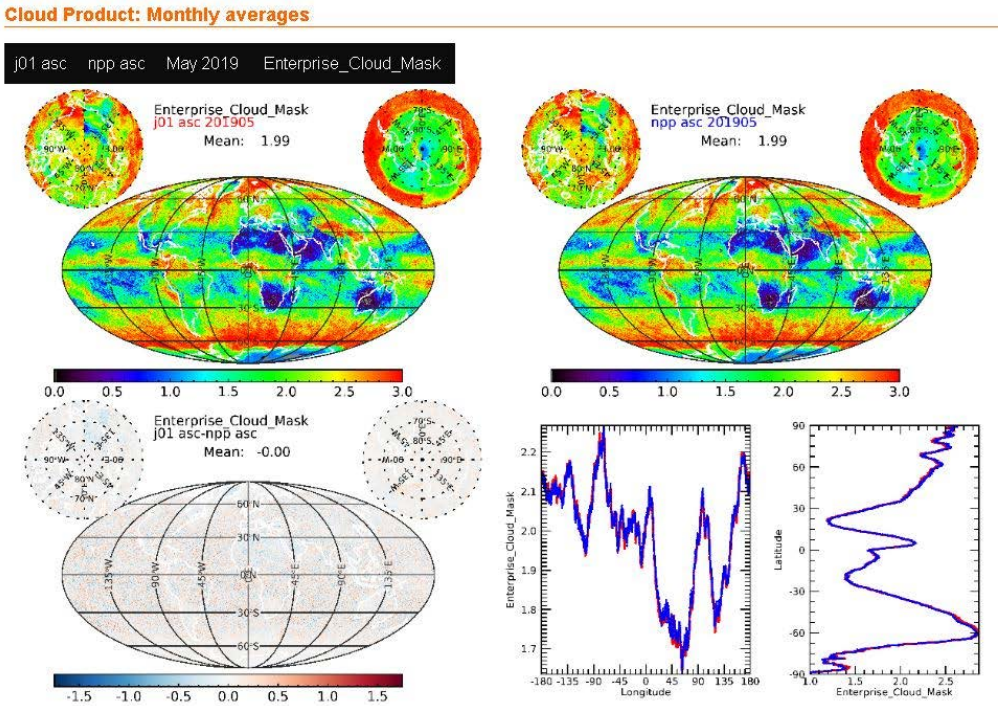


Sea Ice Thickness Product Used to Estimate Growth Rate

NOAA-20 VIIRS sea ice thickness product is "tracked" using a program that utilizes the National Snow and Ice Data Center (NSIDC) sea ice motion product to follow individual 25 km sea ice parcels as they drift in the Arctic Ocean. The NOAA-20 ice thickness product was tracked from weeks 40-52 in 2018. As expected, the method shows parcel growth. By using the (dashed) line of best fit, we compute an average ice growth of 0.39 cm/week for this parcel. Analysis of several additional parcels yields a mean ice growth in this region of 0.44 cm/week.

VIIRS Cloud Product Monthly Evaluations

The cloud product team at CIMSS has developed a new tool to monitor monthly trends in VIIRS cloud products (http://cimss.ssec.wisc.edu/clavrx/viirs_img/monthly.html). T he page was designed to help more quickly identify strengths and weaknesses in cloud products including cloud mask, height, and optical properties. The web interface was developed to help identify outlier conditions, by quickly comparing and contrasting the ascending vs descending orbit and/or the differences in S-NPP and NOAA-20.



Highlights from the Science Teams

New Ocean Color Publication

A new paper, "Optimal satellite orbit configuration for global ocean color product coverage," by Karlis Mikelsons and Menghua Wang was recently published in *Optical Express.* The authors developed a methodology to evaluate the current orbital configuration of the VIIRS onboard the S-NPP and NOAA-20 satellites and to study various orbital configurations for the next VIIRS in the JPSS series from the perspective of maximizing the global daily ocean color retrievals.

The focus was on the coverage losses due to high sensor-zenith angle and high sun glint contamination and it was found that two sensors cannot avoid gaps in daily coverage. If JPSS-2 shares the same orbit with S-NPP and NOAA-20, then phase shift of around 90° relative to S-NPP and NOAA-20 would maximize daily ocean color retrievals.

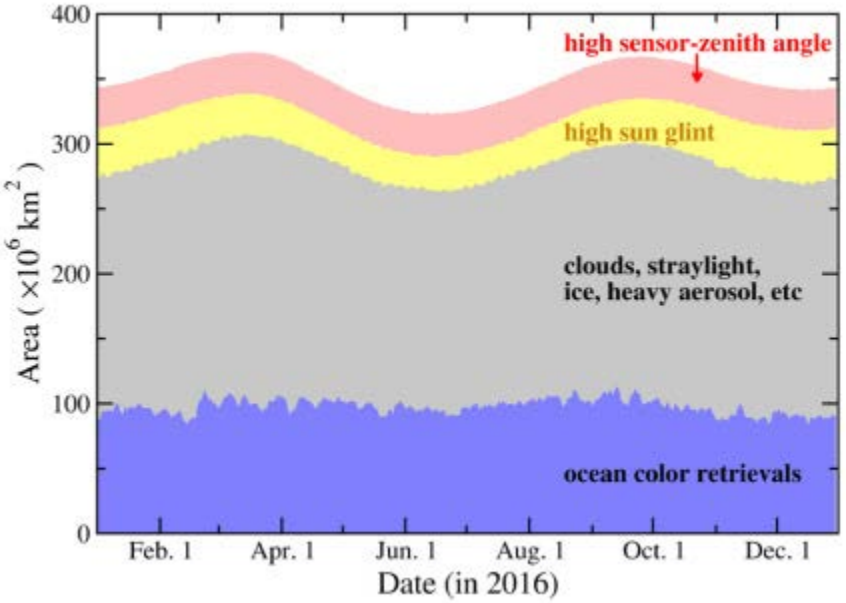


Figure. Seasonal dependence of the total water surface area illuminated by sunlight, including the area of valid ocean color retrievals (blue), the areas where clouds, straylight, ice, dust and heavy aerosols prevent ocean color retrievals (gray), the area high sun glint (yellow), and of high sensor-zenith angle (pink).

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:

  The Second TIM for the CrIS Polarization Correction Implementation on 6/7/2019

- DAPs - Enterprise Products:

  MIRS patch DAP (patch to two header files) to NDE 6/6/2019

  NVPS Minor DAP Update (1. changed the 2-dimensional coordinates to 1-dimensional coordinate to reduce the output size; 2. developed and implemented two versions of biweekly, 16-day cycle, compositing algorithm) to NDE on 7/5/2019

- IDPS Builds Checkouts:

  STAR submitted data request for Block 2.1 Mx7 SOL deploy regression review/checkout (6/6/2019)

  STAR submitted Block 2.1 Mx7 SOL deploy regression review/checkout results summary report (6/19/2019)

Accomplishments – JPSS Cal Val Supports

- NOAA-20/S-NPP Operational Calibration Support:
  - S-NPP Weekly OMPS TC/NP Dark Table Updates: 06/04/19, 06/11/19, 06/18/19, 06/25/19
  - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 06/04/19, 06/11/19, 06/18/19, 06/25/19
  - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 06/04/19, 06/18/19
  - NOAA-20 Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 06/11/19, 06/25/19
  - S-NPP Monthly VIIRS StrayLight LUTs Update: 06/11/19
  - NOAA-20 Monthly VIIRS StrayLight LUTs Update: 06/11/19
  - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 06/11/19
  - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 06/11/19

- S-NPP/NOAA-20 products operational since 6/4/2019 (NDE 2.0.17 build)
  - S-NPP Surface Albedo
  - S-NPP Land Surface Temperature
  - NOAA-20 Green Vegetation Fraction
  - NOAA-20 Vegetation Indices
  - NOAA-20 Vegetation Health Index Suite - 1KM

Accomplishments - Transition to Operations and AMP

- SNPP/N20:
  - NDE 2.0.17 build was deployed to OPS 6/4/2019
    - NOAA-20 Vegetation Health Products - 1km
    - S-NPP Land Surface Temperature/Land Surface Albedo
- EPS-SG project support
  - AMP (A Layns, T Ibironke, L Dunlap) continue working with OPPA and OSAAP on updating/refining the draft Level 1 Requirements Document (L1RD) for the EPS-SG project.
- Other
  - J Evans received Pre-CCB approval to study the changes needed in JERD to support enhanced PDA data capabilities for JPSS data.
  - AMP Team member (J Weinrich) gave presentation at the Southwest Aviation Safety Workshop in Phoenix, AZ on Proving Ground, Aviation Initiative, and Introduction to Volcanic Hazards Initiative, Overview of NOAA 20 Products including available imagery, cloud products, Day/Night Band, links to data access, cross section, and solicitation for Pilot Reports (PIREPs) and new users.
  - B Reed supported CSPP data products review by STAR Subject Matter Experts in support of the next CSPP release that included JPSS Cloud, Aerosols, and Cryosphere products.

Upcoming Cal/Val Maturity Reviews

June/July/August Maturity Review (may combine with September review):

- Beta Maturity:
  Global Gridded Surface Type (Annual offline GST product)
- Provisional Maturity:
  OMPS Ozone (V8Pro)
- Validated Maturity:
  OMPS SDR (NP & TC)
  OMPS Ozone (V8TOz)
  OMPS Ozone (V8Pro)

September Maturity Review:

- Provisional Maturity:
  NUCAPS S-NPP & NOAA-20 CH4 product
- Validated Maturity:
  NOAA-20 NUCAPS products: AVTP, AVMP, Ozone, OLR
  NUCAPS S-NPP & NOAA-20 CO product
  All MiRS products (except SFR)

November Maturity Review:

- Validated Maturity:
  Land Surface Temperature, Surface Albedo, and Surface Reflectance

Upcoming Milestones/Deliveries

- JSTAR Code/LUT Deliveries:

  DAP to DPES:
  - Jul-19: OMPS LUTs delivery (for validated maturity)
  - Sep-19: TC Imagery

  NOAA-20 Algorithm DAP to NDE:
  - Jul-19: V8Pro – 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	Sep-19		PSR: 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

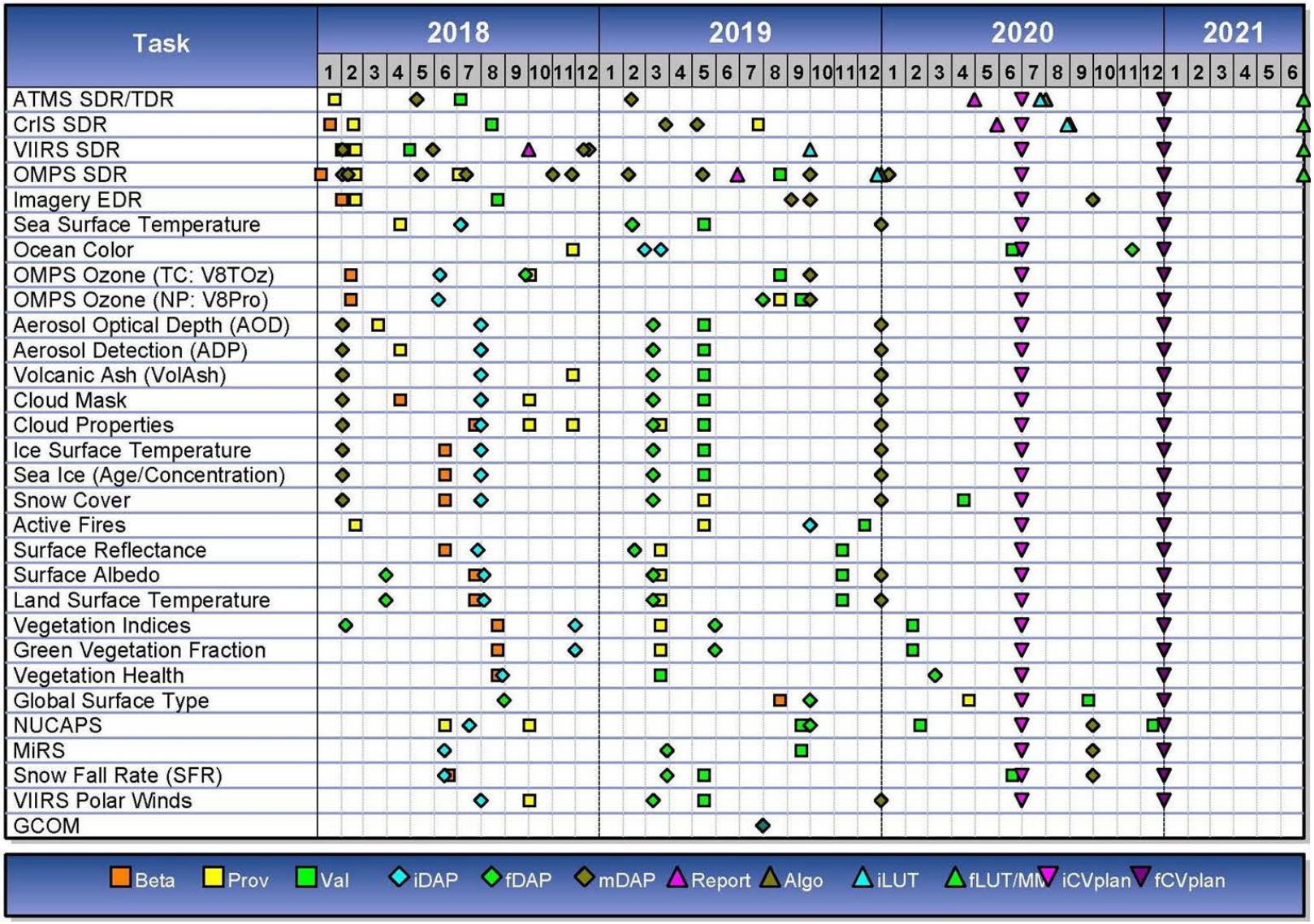
FY19 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 Cal/Val				
Validated Maturity: NOAA-20 CrIS SDR	Oct-18	Oct-18	10/02/18 (Review Date) 08/14/18 (Effective Date)	
Validated Maturity: NOAA-20 OMPS SDR	Dec-18	Aug-19		PSR: Jun-19
Provisional Maturity: NOAA-20 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	05/16/19: Validated Maturity: Cloud products (ECM, Cloud Type/Phase, CTP/CTP/CTH/CBH, CCL, DCOMP, and NCOMP), Cryosphere products (IST, Ice Concentration, and Ice Age/Thickness), Polar Winds, Aerosol products (AOD & ADP), Volcanic Ash, and SFR Provisional Maturity: I-Band Fires, and Snow Cover	
Validated Maturity: NOAA-20 EDR Products (SST)	Jun-19	Jun-19	05/16/19	
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, 05/07/19, 05/14/19, 05/21/19, 05/29/19, 06/04/19, 06/11/19, 06/18/19, 06/25/19**	
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, 05/07/19, 05/21/19, 06/04/19, 06/18/19**	
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, 05/14/19, 06/11/19**	
S-NPP: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	**05/14/19, 06/11/19**	5/14/19: started new set of S-NPP Stray Light LUT update
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, 05/07/19, 05/14/19, 05/21/19, 05/29/19, 06/04/19, 06/11/19, 06/18/19, 06/25/19**	
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	**05/14/19, 05/29/19, 06/11/19, 06/25/19**	5/14/19: started NOAA-20 bi-weekly delivery
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, 05/14/19, 06/11/19**	
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, 05/14/19, 06/11/19**	

STAR JPSS Schedule

STAR JPSS Schedule: TTA Milestones



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	--	7/4/2019	Completed
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	Sep-19		No Update Provided
-- Operations	Mar-17	Oct-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	Sep-19		No Update Provided
-- Operations	Aug-18	Oct-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	--	5/16/19	Completed
-- Final DAP	Jan-19	--	3/11/19	Completed
-- ORR	Aug-18	--	Waived	Waived
-- Operations	Oct-18	--	6/20/19	Completed
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	--	Need Date	Completed
-- SCR	Oct-18	--	08/28/18	Completed
-- ARR	Feb-19	--	3/21/2019	Completed
-- Final DAP	Mar-20	--	Need Date	Completed
-- ORR	Apr-19	--	Need Date	Completed
-- Operations	May-19	--	6/4/19	Completed
NOAA-20: Green Vegetation Fraction				
-- Initial DAP	Nov-18	--	11/30/2018	Completed
-- Final DAP	May-19	--	Need Date	Completed
-- CDR	Oct-16	-	10/27/16	Completed
-- SCR	Oct-18	--	NA	Completed
-- ARR	Feb-19	--	3/21/2019	Completed
-- ORR	Apr-19	--	3/21/2019	Completed
-- Operations	Jun-19	--	6/4/19	Completed
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	--	Need Date	Completed
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Dec-18	--	10/10/2016	Completed
-- ARR	Feb-19	--	3/21/2019	Completed
-- ORR	May-19	--	3/21/2019	Completed
-- Operations	Jun-19	--	6/4/2019	Completed
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	5/16/2019	Completed
-- SCR	May-19	May-19	5/22/2019	Completed
-- ARR	Jun-19	--	5/16/2019	Completed
-- 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	--	4/2/19	Completed
-- 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	NA		Waiver Requested
-- Operations	Jul-19	Jul-19		
NOAA-20: Blended Products Blended Snow and Ice				
-- Initial DAP	TBC	--		
-- Final DAP	TBC	--		
-- SCR	Aug-18	Aug-19		No variance explanation provided
-- ORR	May-19	ARR-19		
-- Operations	Jun-19	TBD		

FY19 STAR DAP and JPSS PSDI Milestones

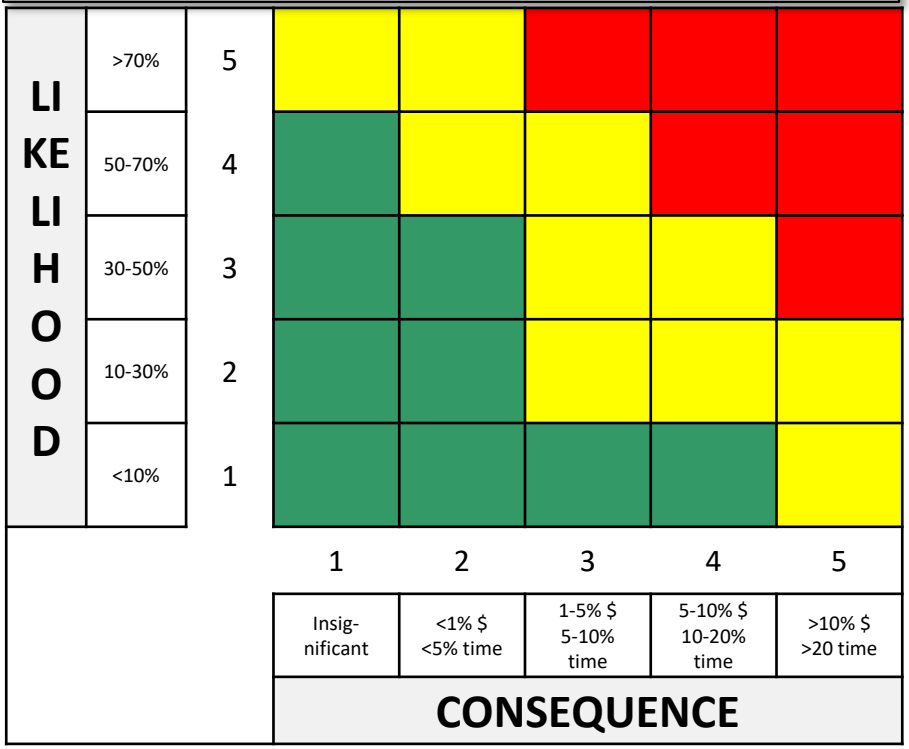
NOAA-20 Blended/Derived Algorithms	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Products Blended Hydro Products				
-- Initial DAP	TBC	Jul-19		
-- Final DAP	TBC	Nov-19		
-- SCR	Jun-18	--	9/20/2018	Completed
-- ARR/ORR	Dec-18	--	5/17/2019	Completed
-- Operations	Jan-19	--	6/3/2019	Completed
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	Sep-19		No variance explanation provided
-- ORR	Apr-19	Dec-19		
-- Operations	Jun-19	Jan-20		
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	--	5/14/2019	Completed
-- SCR	Jun-19	--	Waived	Waived
-- 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	--	5/17/19	Completed

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
⟷	449	1	Mitigate	PDA to AWIPS DD

JPSS PSDI Issue Summary

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

JPSS PSDI Issues

As of: Jun 11, 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.
- 06/11/19: No update

JPSS PSDI Risks

As of: Jul 17, 2019

G	449		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

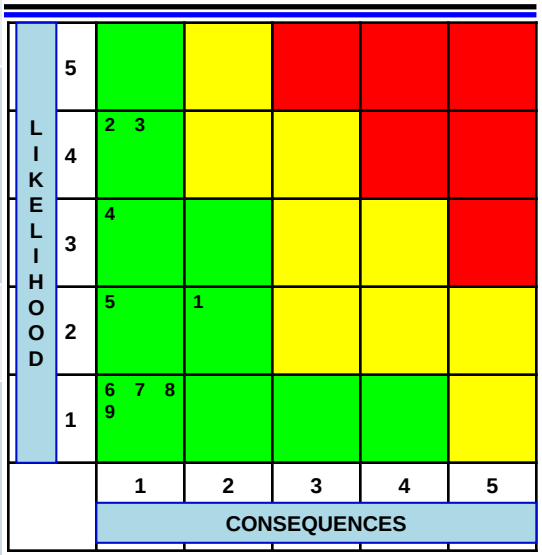
- 3/1/2017: New Risk
- 4/17/2017: John Evans is continuing to work with NWS, however; progress is slow due to NWS focusing on the distribution of KPPs to AK. Continuing to stay involved in NWS AWIPS DD meetings and John has offered to lead the integrated work team to come to a resolution to the requirement 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.
- 06/11/19: NDE opened a CR to work on thinned products for NWS: ENTR-5508 Create Thinned JPSSRR products for NWS
- 07/17/19: Need to combine this with AMP 17-004 in MIS; No Significant Update

JPSS Risk Summary

Top Risks

Status as of: 07/11/2019

Rank Risk ID	Summary	LxC Trend	Aprch	Status
1 AMP-18-003	J2 APID Changes to Accommodate New S/C Bus	2x2 ⇔	W	07/15/19: An updated version of the APID to VCID map was recently released (June 25th 2019) with a few changes to APID assignments. Additional APIDs were added and a few were reassigned. For example APID 1629 and APID 1829 have both been moved to VCID 62. This changes will require a review of relevant SRS documents to ensure JPSS-2 APIDs match what is reflected in the Map. STAR scientist will need to review the APID designations and decide appropriate steps to take.
2 AMP-15-006	Continued Generation of IDPS EDRs	4x1 ⇩	W	7/10/2019: EDR Termination letter distributed for signatures (JPSS PAL). National Ice Center should still be on track to transition to NDE products by end of July 2019.
3 AMP-17-004	Operational Data Flow to AWIPS-II	4x1 ⇔	M	2019-07-08: NWS has confirmed AWIPS-DD ability to fetch JPSS data granules on demand from PDA. The mechanism used is brittle, complex, and unique; but it works. The focus is now on improving data flow issues (by filtering & subsetting data at PDA via an industry-standard protocol; and by creating interim NDE production rules for thinned products) and on AWIPS handling (decoding and display) of data products.
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.
8 AMP-19-002	Proxy data delay due to J2 10Hz Sampling Freq	1x1 NEW	W	07/15/19: Mitigation step and improvements are being made by flight personnel to modify their system to utilize specific APIDs at 10Hz. Some CADUS and EVCDUs have have been tested to include 10Hz sampling frequency for the corresponding APIDs
9 AMP-19-003	Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq	1x1 NEW	M	07/15/19: STAR scientist will need to have a TIM to develop appropriate steps and actions for updating any algorithms that are affected by the 10Hz sampling frequency. IDPS will work with Raytheon personnel compensate for the 10hz frequency.



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: 07/11/2019

Rank	Risk ID	Risk Statement	Approach	Status
1 ⇔ 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**	07/15/19: An updated version of the APID to VCID map was recently released (June 25th 2019) with a few changes to APID assignments. Additional APIDs were added and a few were reassigned. For example APID 1629 and APID 1829 have both been moved to VCID 62. This changes will require a review of relevant SRS documents to ensure JPSS-2 APIDs match what is reflected in the Map. STAR scientist will need to review the APID designations and decide appropriate steps to take. 6/4/19: Flight software simulator version 5 should be ready by the end of June. However its very likely that it will be delayed. When the simulator software version is released it will match the APIDs to VCID map. An further updates to the simulator after the release will make it out of sync with the map. 4/4/19: 474-CCR-19-4408 for this Risk was AERB approved on 3/26/19. APID's utilized within the SRSPF are all within VCID-0. With the pending release of FSW database in June 2019, the SRSPF file might need an update if additional APID's are assigned to VCID-0. 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.

JPSS Top Risks

Status as of: 07/11/2019

Rank	Risk ID	Risk Statement	Approach	Status
 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.	**Watch**	7/10/2019: EDR Termination letter distributed for signatures (JPSS PAL). National Ice Center should still be on track to transition to NDE products by end of July 2019. 6/12/2019: Lowered both Program and FP/GP Consequences from 2 to 1 from 6/6/19 Risk Board meeting. Last two EDR's moved to NDE - all required products are running. National Ice Center will transition by July then can turn off IDPS. Memo will be sent to OSPO to turn off EDR's 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.

JPSS Top Risks

Status as of: 07/11/2019

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**	2019-07-08: NWS has confirmed AWIPS-DD ability to fetch JPSS data granules on demand from PDA. The mechanism used is brittle, complex, and unique; but it works. The focus is now on improving data flow issues (by filtering & subsetting data at PDA via an industry-standard protocol; and by creating interim NDE production rules for thinned products) and on AWIPS handling (decoding and display) of data products. 2019-06-05: No change to risk status. NWS has nearly completed software upgrades & configurations needed to test automated AWIPS-DD access to polar data from PDA. 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).

JPSS Top Risks

Status as of: 07/11/2019

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**	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.

JPSS Top Risks

Status as of: 07/11/2019

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**	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.)

JPSS Top Risks

Status as of: 07/11/2019

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 FV3 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**	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.

JPSS Top Risks

Status as of: 07/11/2019

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.

JPSS Top Risks

Status as of: 07/11/2019

Rank	Risk ID	Risk Statement	Approach	Status
8 Proxy data delay due to J2 10Hz Sampling Freq NEW	AMP-19-002	**Given that:** APID 11 (S/C Attitude and Ephemeris) and 30 (S/C Telemetry) sampling frequencies are at 10Hz on JPSS-2 **There is a possibility that:** It will affect and delay the process of getting/producing simulated J2 data (proxy data) during JCT. **Resulting in:** Test data production during JCT will be more difficult. "Instead of using NPP and J01 Proxy, Attitude and Ephemeris would be manufactured by using STK. To compensate for the sample freq at 10Hz, the APID 11 packet will need to be converted to 10Hz causing unwanted delays.	**Watch**	07/15/19: Mitigation step and improvements are being made by flight personnel to modify their system to utilize specific APIDs at 10Hz. Some CADUS and EVCDUs have have been tested to include 10Hz sampling frequency for the corresponding APIDs

JPSS Top Risks

Status as of: 07/11/2019

Rank	Risk ID	Risk Statement	Approach	Status
9 NEW Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq	AMP-19-003	**Given that:** APID 11 (S/C Attitude and Ephemeris) and 30 (S/C Telemetry) sampling frequencies are at 10Hz on JPSS-2 **There is a possibility that:** Some IDPS and STAR algorithms will not be able to use any science products that has APID 11 and 30 or any APIDs with a sampling frequency of 10Hz **Resulting in:** Delays since IDPS geolocation algorithms cannot use 10Hz APIDs. During JCT3 IDPS has to geolocate J2 RDRs with J2 S/C Diary and if the geolocation algorithm is not compatible with the 10hz freq, it will affect IDPS's ability to geolocate J2 RDRs. STAR needs to consider the effect 10Hz APIDs will have on their GEO and sensor product algorithms.	**Mitigate**	07/15/19: STAR scientist will need to have a TIM to develop appropriate steps and actions for updating any algorithms that are affected by the 10Hz sampling frequency. IDPS will work with Raytheon personnel compensate for the 10hz frequency.

Color code:

Green: **Completed Milestones**

Gray: **Non-FY19 Milestones**

ATMS SDR

June, 2019

Accomplishments / Events:

- Kept evaluating JPSS-2 ATMS antenna pointing test datasets. Results are not fully consistent with those reported by NG. Further discussion is ongoing
- Continued to study JPSS-2 ATMS antenna beam width test datasets
- Finished analyzing JPSS-2 ATMS antenna beam efficiency test datasets. It is indicated that JPSS-2 ATMS antenna beam efficiency is comparable to that of NOAA-20 ATMS. Significant improvements are observed in W/G bands
- Finished assessing JPSS-2 cold calibration Earth side lobe contamination test datasets

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.*

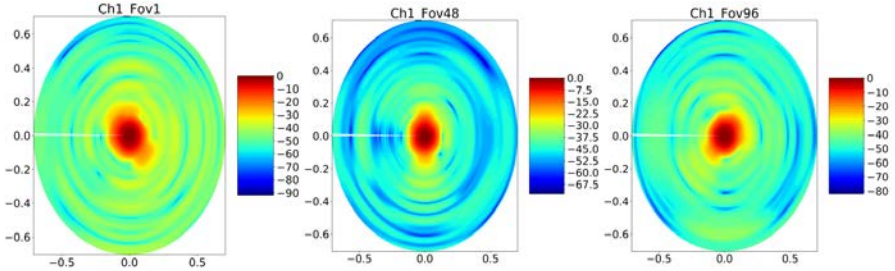
Issues/Risks:

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	05/17/19	
Mx 7 data review/checkout	Sep-19	Sep-19		

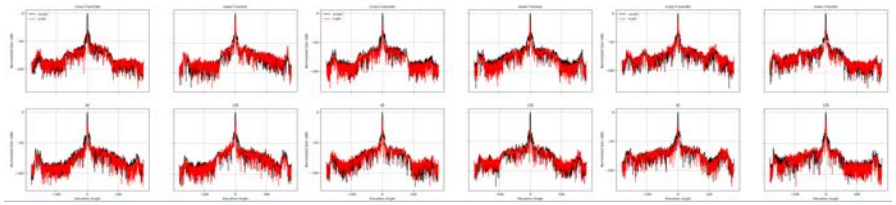
Highlights:

JPSS-2 ATMS K-band (Channel 1) Beam Efficiency



JPSS-2 ATMS G-band (Channel 17) Beam Efficiency

FOV 01 FOV 48 FOV 96



CrIS SDR

June, 2019

Accomplishments / Events:

– Derived new threshold values to optimize the spike detection and correction algorithm. Preliminary results show a false alarm reduction when the new thresholds are applied to the NOAA-20/CrIS SDR product at FSR. Further optimization is needed for the NSR product as shown in **Figure (1)**.
– Prepared tools for the Cal/Val of the SNPP/CrIS instrument in order to recover the MWIR band, using the side-2 electronics configuration (see **Figure (2)**). The Cal/Val activities are expected to initiate at the beginning of June 2019.
– The Second Technical Interchange Meeting for the CrIS Polarization Correction has been Scheduled for June 7, 2019. **Figure (3)** highlights the expected improvements in the CrIS SDR quality.
– Values to correct for the SNPP/CrS Zero Path Difference (ZPD) offset have been derived. An offset of about 108 diagnostic samples has been identified. The ZPD offset has occurred after the presence of the MWIR anomaly.
– Four ADRs were opened to address anomalies found on the CrIS SDR products:1) ADR 9018, 2) ADR 9019, and 3) ADDR 9020 open on 5/13/2019, 4) ADR 9027 open on 5/21/2019 in preparation for the recovery the MWIR band of the SNPP/CrIS instrument.
– A manuscript dedicated to the improvement of the lunar intrusion (LI) algorithm was submitted on May 7, 2019 to the IEEE TGRS Peer-review Journal.

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.*

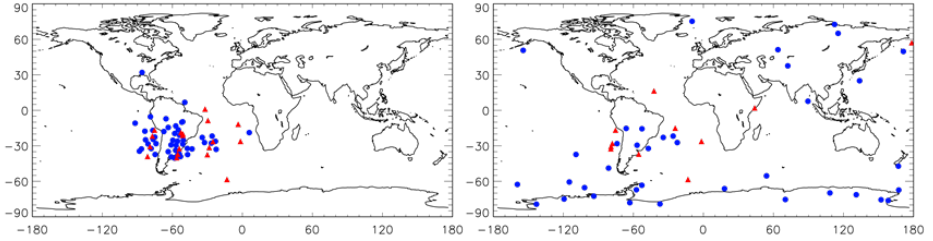
Issues/Risks:

• Loss of SNPP/CrIS MWIR band occurred on March 26, 2019. Operating the instrument under side-2 electronics configuration is expected to mitigate this anomaly. Recovery tasks are expected to initiate at the beginning of June 2019.

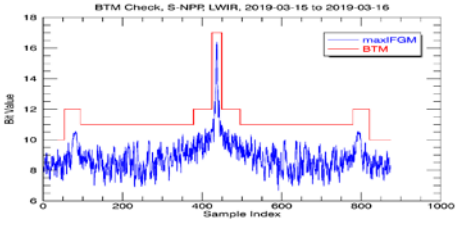
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual CrIS SDR performance report	Aug-19	Aug-19		
J2 pre-launch test data (TVAC) review/analyze	Sep-19	Sep-19		
Polarization correction algorithm implementation DAP (ADR8760)				
Technical Interchange Meeting (TIM)	Feb-19	Feb-19	12/19/18 06/07/19	TIM 1 TIM 2
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	05/17/19	
Mx 7 data review/checkout	Jul-19	Jul-19		

Highlights:

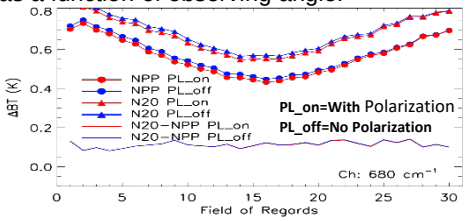
(1) Spatial distribution of spike detected pixels in both FSR SDR (left panel) and NSR SDR (right panel), after using new spike detection thresholds. Blue circles are for Earth Scenes, Red triangles are for ICT and DS views.



(2) Verification of the Bit Trim Mask Tool, in preparation for the recovery of the SNPP/CrIS MWIR band.



(3) Polarization correction slightly reduces the brightness temperature difference between real and simulated observations as a function of observing angle.



VIIRS SDR

June, 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 June 3, 2019
- Delivered for deployment in IDPS operations updated NOAA-20 and S-NPP DNB stray light correction LUTs generated from the June 2019 data
- Processed the scheduled lunar calibration data collected on June 13, 2019 for both NOAA-20 and S-NPP: derived lunar F-factors were very consistent with the solar F-factors
- Predicted NOAA-20 VIIRS lunar calibration opportunity on June 13, 2019 and provided the schedule for the VIIRS sector rotation to MOT
- Developed a new method for characterizing TEB RVS using on-orbit pitch maneuver data that minimizes both scan angle and scene temperature dependent biases in NOAA-20 LWIR bands and S-NPP M15
- Submitted a new ADR (#9032) for VIIRS TEB calibration corrections during moon intrusions into Space View and after RTA/HAM sync losses; participated in DRAT meeting on 6/5/19 to discuss the new ADR: received approval for the VIIRS SDR Cal/Val team to prepare the required IDPS code changes
- Created initial versions of several JPSS-2 VIIRS SDR LUTs: VIIRS-SDR-BB-TEMP-COEFFS-LUT, VIIRS-SDR-TELE-COEFFS-LUT, VIIRS-SDR-RADIOMETRIC-PARAM-V4-LUT, and others

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			

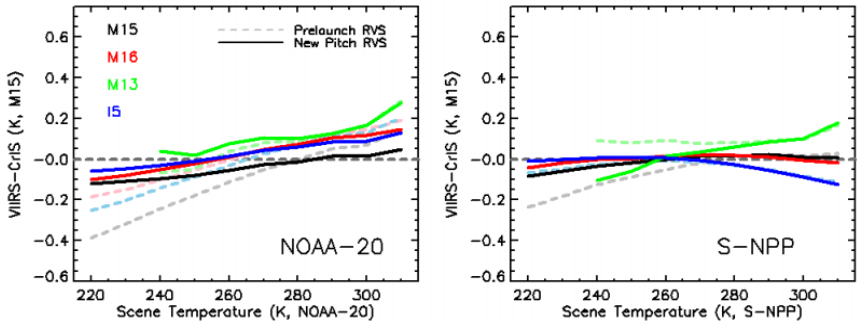
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

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	Dec-19		No RSR yet
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	05/16/19	
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



Decreased scene temperature dependent biases in NOAA-20 LWIR bands and S-NPP M15, with the newly derived TEB RVS LUTs

OMPS SDR

June, 2019

Accomplishments / Events:

- Regular weekly dark deliveries for OMPS sensors were made.
- Regular bi-weekly OMPS-NP wavelength and solar flux for OMPS sensors were made.
- The MX07 SOL checkout passed with no missing data for any of the IDPS OMPS SDR products.
- The J02 OMPS PSR was held at the vendor facility in Boulder, CO on June 12, 13 2019.

Overall Status:

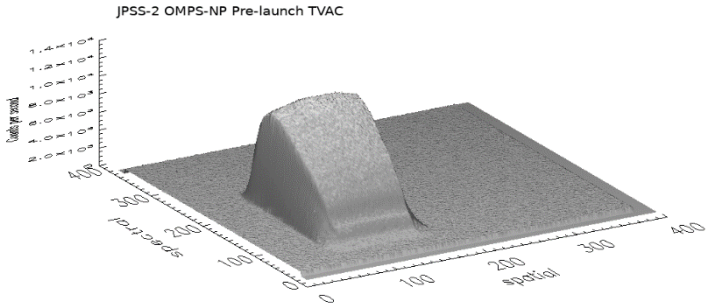
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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	Aug-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	Sep-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	
Start N20 bi-weekly FT LUT update			05/14/19	
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	05/17/19	
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



The J02 PSR was held. According to the instrument vendor the J02 OMPS Nadir instruments will perform as well as or better than the JPSS-1 OMPS Nadir.

SDR Reprocessing

June, 2019

Accomplishments / Events:

- Completed VIIRS V2 SDR to 2/28/2017
- Will examine the missing granules and preliminary check
- VIIRS reprocessing data dissemination interface is under development (highlights)
- New round of SNPP ATMS reprocessing is on-going, which will include the antenna pattern corrections that are consistent with NOAA-20
- New round of SNPP OMPS-NP reprocessing with bi-weekly solar update is on-going, and will be finished by July 2019
- Preparation of SNPP SDR Reprocessing Maturity Review is on-going
- Preparation of a peer-review journal paper for SNPP SDR Reprocessing is on-going

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:

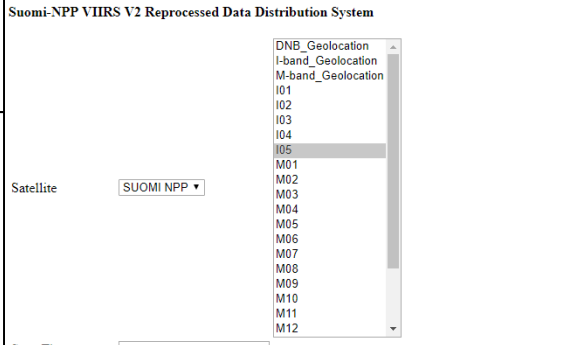
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
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: SNPP VIIRS V2 Reprocessed Data Distribution System



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.....

ICVS

June, 2019

Accomplishments / Events:

- Prepared and performed S-NPP CrIS Side-2 switch sensor health status, performance, and SDR data quality monitoring to support CrIS calibration and validation activities
- Updated S-NPP CrIS geolocation monitoring package to improve monitoring accuracy and execution efficiency
- Developed VIIRS F-/H-factor trending package using dynamic display technology to improve the user experience of ICVS customers
- Developed VIIRS vs ABI inter-sensor comparison and double difference package to improve the VIIRS SDR data quality monitoring capability
- Developed OMPS vs GOME-2 inter-sensor comparison package to improve OMPS SDR data quality monitoring capability
- Developed ICVS missing image check module to ensure all ICVS image products can be generated on time
- 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.*
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.*

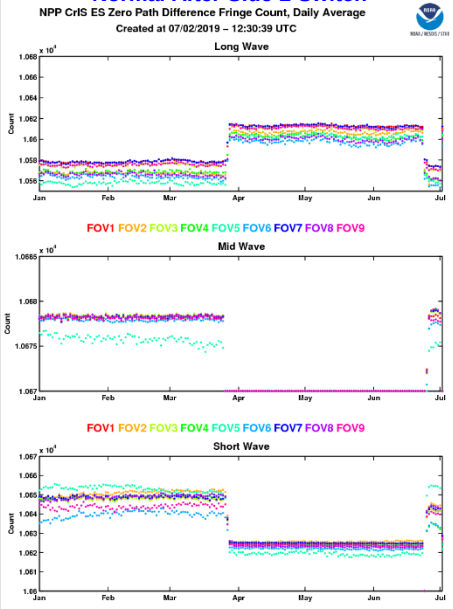
Issues/Risks:

None

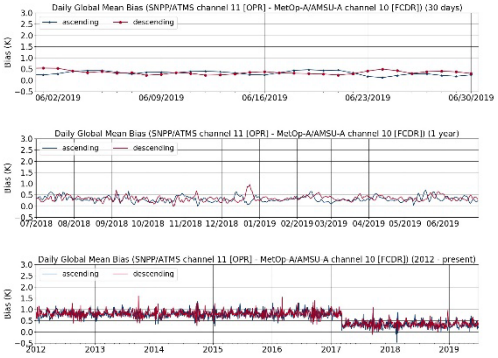
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
ICVS-Application: ICVS Severe Weather Watch (iSEW) System (Severe Weather Watch with JMAPPER) (Beta Version)	Dec-18	Dec-18	Dec-18	
ICVS User's Manual and Technical Report Version 1	Mar-19	Mar-19	Mar-19	
ICVS Module initialize 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

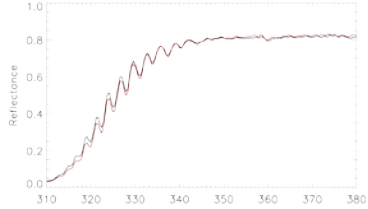
NPP CrIS ES ZPD Fringe Count Back to Normal After Side-2 Switch



S-NPP ATMS vs Metop-a AMSU-A FCDR daily mean bias time series



S-NPP OMPS vs Metop-b GOME-2 Reflectance



VIIRS Imagery

June, 2019

Accomplishments / Events:

- **Reviewed Block 2.1 MX 7 SOL Deploy VIIRS Regression Data:** The VIIRS EDR Imagery Team examined one orbit of Imagery provided for this test. Other than small differences and some different fill values encountered, the EDR Imagery checked out OK at CIRA. (C. Seaman, S. Finley, CIRA)
- **Terrain-Corrected EDR Imagery checkout**: Terrain-corrected EDR Imagery has been provided by ASSISTT based on code changes submitted. Images created from that dataset show towards-nadir terrain shifts at higher elevations and at larger zenith angles, whereas there are no terrain shifts near nadir or for larger zenith angles when at sea level. Success! (D. Hillger, StAR; W. Chen, ASSISTT; T. Kopp, Aerospace; G. Linn and J. Dellomo, NASA Geo Team; D. Stuhmer, Raytheon; S. Finley and C. Seaman, CIRA)

Overall Status:

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

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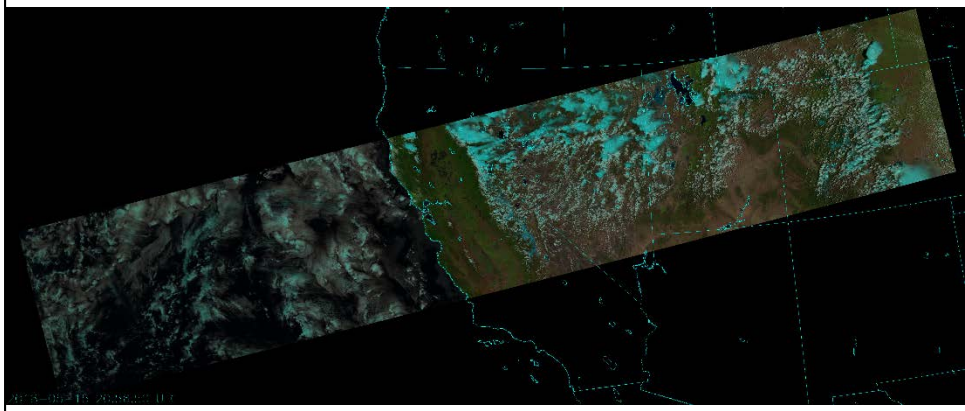
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
Annual VIIRS 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	05/17/19	
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



Terrain-correction test case from 2018-05-15 provided by the ASSISTT Team and visualized by RAMMB/CIRA researchers as a Natural-Color I-band RGB image..
Image on this page is non-Terrain Corrected.

VIIRS Imagery

June, 2019

Accomplishments / Events:

- **Reviewed Block 2.1 MX 7 SOL Deploy VIIRS Regression Data:** The VIIRS EDR Imagery Team examined one orbit of Imagery provided for this test. Other than small differences and some different fill values encountered, the EDR Imagery checked out OK at CIRA. (C. Seaman, S. Finley, CIRA)
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Overall Status:

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Schedule		X			

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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 and SNPP cross verification	Sep-19	Sep-19		
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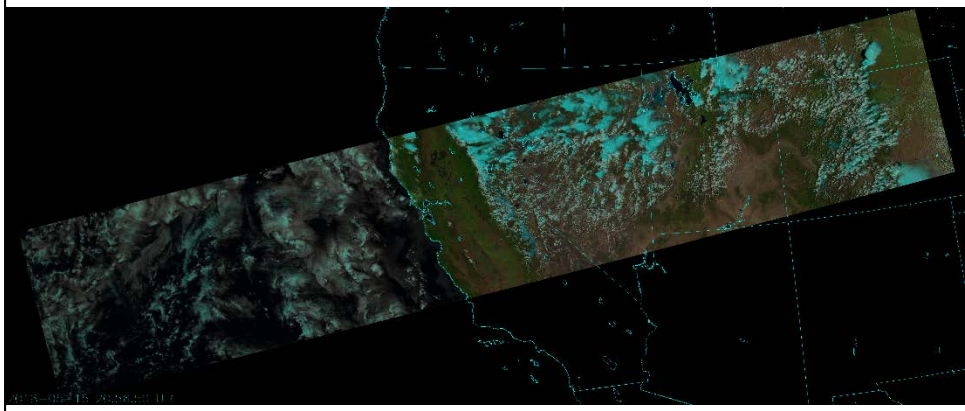
Run ADL locally (@ CIRA, to allow code testing/changes)	May-19	May-19		
IDPS Mx build I&T deploy regression support:				
Mx 5 data review/checkout	Mar-19	Mar-19	02/15/19	
Mx 6 data review/checkout	May-19	May-19	05/17/19	
Mx 7 data review/checkout	Sep-19	Sep-19		

Highlights:



Terrain-correction test case from 2018-05-15 provided by the ASSISTT Team and visualized by RAMMB/CIRA researchers as a Natural-Color I-band RGB image..
Image on this page is Terrain Corrected.
Note the shift of the right-hand-side features towards nadir, whereas other features remain stable.

Clouds

June, 2019

Accomplishments / Events:

- Cloud team is preparing for the next cloud demo in August.
- Cloud team extended the new web interface tool to visualize monthly product trends to include daytime (DCOMP) and nighttime (NCOMP) cloud optical depths (see highlights).

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			

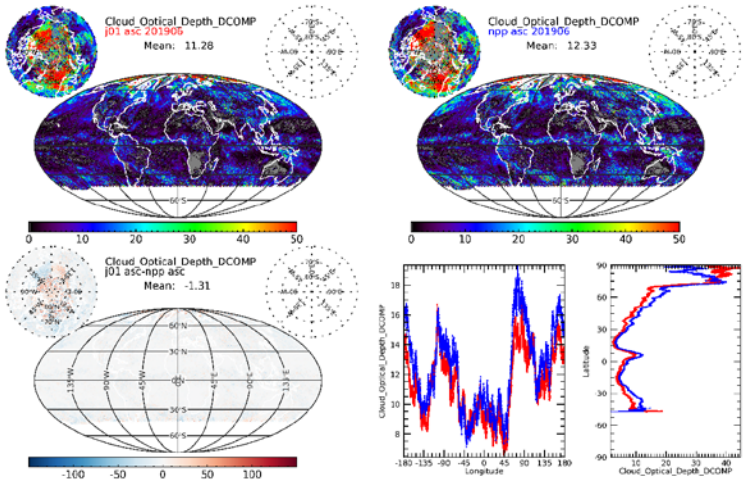
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

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	05/16/19	
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 Monthly Mean Cloud Probability



This month, we extend our monitoring to include cloud optical depth. Global cloud optical depth (DCOMP) in June 2019 from N20 (top left), NPP (top right), and differences (bottom left). Longitudinal and zonal averages are shown in bottom right, where red and blue curves correspond to N20 and NPP, respectively. ***SNPP and NOAA-20 differences are likely due to M5 calibration differences.***

Aerosol

June, 2019

Accomplishments / Events:

- Two presentations at ESA Living Planet Symposium were made by team members Amy Huff and Pubu Ciren involving VIIRS aerosol products in Milan, Italy
- Revising STAR VIIRS aerosol cal/val website:
  - ✓ Add Aerosol Detection Product information
  - ✓ Add Enterprise Processing System (EPS) Aerosol Optical Depth information
  - ✓ Keep the IDPS version of the product information but make the EPS version the focus
  - ✓ Add information on episodic heavy aerosol events for blog applications
- Hired a new web developer/programmer, Ryan Theurer, to help the aerosol team with various aspects of web development
- Began working on development of the joint retrieval of aerosol index from VIIRS and TROPOMI
- Demonstrated the GOES-17 Advanced Baseline Imager (ABI) AOD and aerosol detection products to be at provisional maturity review **using VIIRS products as one of the many correlative measurements.**

Overall Status:

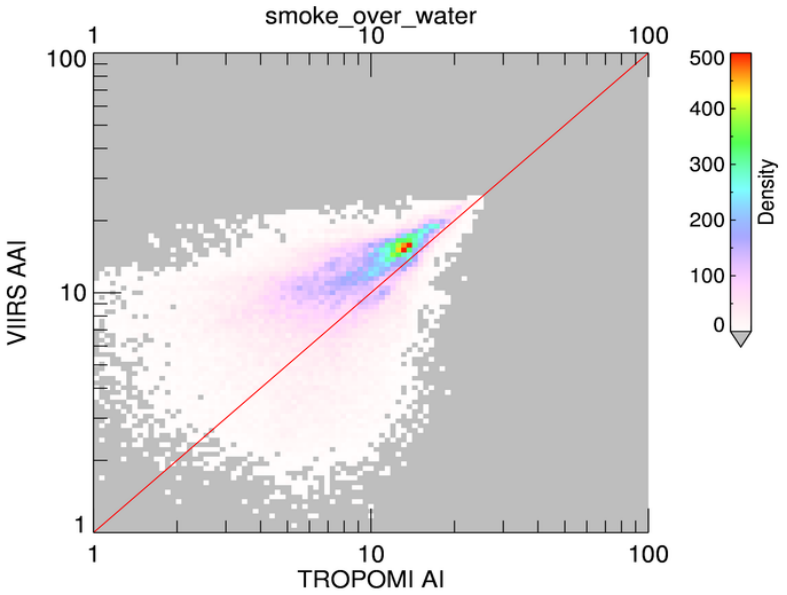
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (N20 Cal/Val))	May-19	May-19	05/16/19	
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	June-19	



Comparison of VIIRS Absorbing Aerosol Index (AAI) with TROPOMI over water. Data shown for a few days in April/May 2019

Volcanic Ash

June, 2019

Accomplishments / Events:

- Added to list of known NOAA-20 observations of non-trivial ash clouds
- Assessed product performance in wake of large stratospheric eruption (Raikoke, Russia) (see figures)
- Continued to develop and test algorithm improvements through incorporation with CrIS measurements.

Overall Status:

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

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

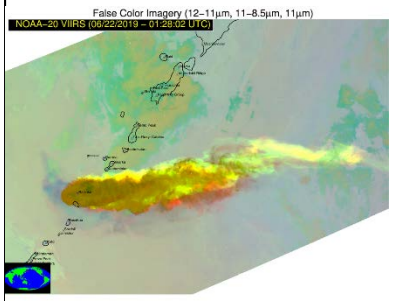
Issues/Risks:

The user request task is being worked, but will require much more time to complete since we need to completely reformulate the requirements.

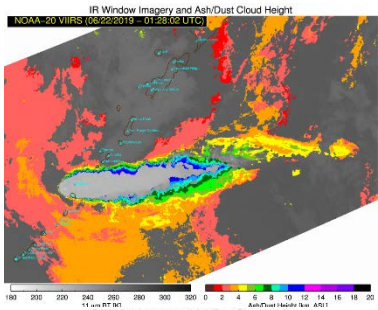
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta Maturity (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Provisional Maturity (N20 Cal/Val)	Nov-18	Nov-18	11/27/18	
Validated Maturity (N20 Cal/Val)	May-19	May-19	05/16/19	
Final DAP (N20 Algorithm Adjustment)	Mar-19	Mar-19	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	Summer 2019		1-2 month delay due to shutdown

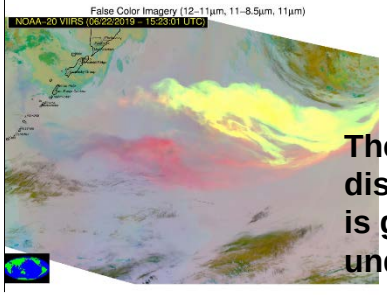
Highlights:

Raikoke eruption demonstrates that a far more sophisticated approach is needed

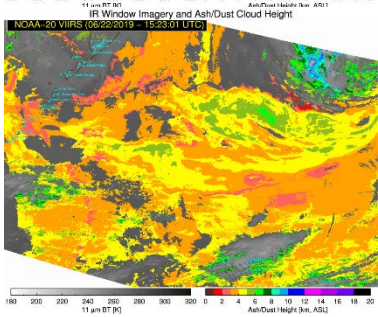


Early in eruption, most of the cloud is missed





The height of dispersed ash is greatly underestimated



Cryosphere

June, 2019

Accomplishments / Events:

Validation of AMSR2 multiyear ice concentration with the NIC ice charts: Similar to the previously-reported validation of total ice concentration with National Ice Center (NIC) ice charts, the AMSR2 multiyear ice (MYI) concentration was examined. A confusion-matrix approach was used to assess where AMSR2 and NIC agree (both MYI, neither MYI), where they disagree (MYI is only one or the other), and where they agree but the AMSR2 concentrations are outside (too high or too low) of the NIC MYI concentration range. During winter, the AMSR2 MYI concentrations agree well with the NIC estimates, with ~90% accurate identification of MYI and >80% that have concentrations within the NIC MYI concentration range. Performance during summer is much lower, as expected due to surface melt, when the AMSR2 is biased low by 40-50%.

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.*

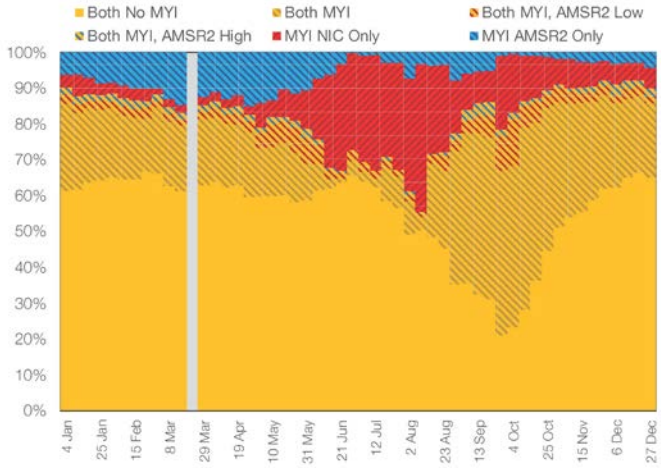
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity (N20 Cal/Val)	Apr-19	Apr-19	05/16/19	
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:

Weekly chart of MYI concentration in AMSR2 and NIC. Each bar represents one week (no NIC data during week of March 22)..



Yellow colors indicate agreement between AMSR2 and NIC. Red and blue colors indicate incorrect AMSR2 retrievals respective to NIC. Yellow/blue and yellow/red hashed regions are where AMSR2 agrees with NIC on the presence of MYI but the AMSR2 concentration is outside of the NIC range.

Active Fires

June, 2019

Accomplishments / Events:

- Continued work on the implementation of the processing code to include persistent anomaly information in the product, including a placeholder for urban areas
- Further improvement to the persistent anomaly database is worked on to include additional global volcano database
- Worked on case studies to support upcoming training workshop in South-East Asia
- Set up data feed for the STAR-generated I-band data to support the upcoming FIREX-AQ campaign
- Worked with the CSPP and RealEarth groups to ensure the incorporation of the CSPP-generated, DB-based I-band product in RealEarth

Overall Status:

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

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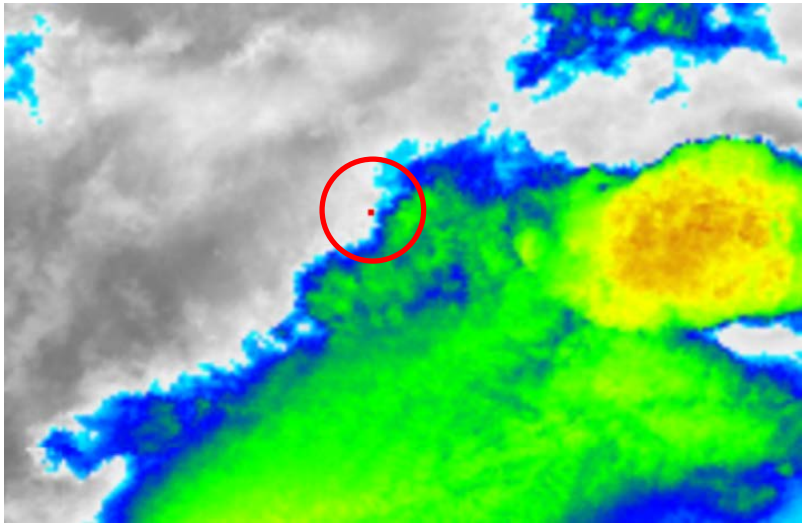
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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	05/16/19	Review panel's recommendation
I-Band AF DAP deliver to NDE	Sep-19	Sep-19		

Highlights:



Suomi NPP VIIRS I-band hot spot detection over the Semeru volcano in Indonesia on March 15, 2019 at 17:26 UTC. Such detections are to be flagged by the updated version of the algorithm.

Surface Reflectance

June, 2019

Accomplishments / Events:

- Continued product performance monitoring following operational transition and LUT updates
- The NCEP HRRR team reported no issues traceable to Green Vegetation Fraction (based on surface reflectance input)
- The team featured Surface Reflectance validation to demonstrate the validation process in the SPARKS lecture on land products
- The team continued planning for algorithm and code adjustments for better consistency with the enterprise product suite

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.*

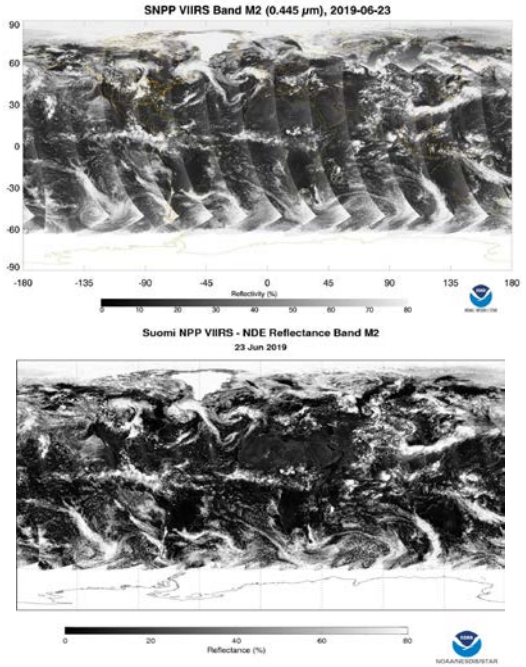
Issues/Risks:

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:

Suomi NPP VIIRS band M2 top-of-atmosphere SDR (top) and top-of-canopy Surface Reflectance (bottom) on June 06, 2019 and shown in the STAR ICVS and EDT LTM sites.



Surface Type

June, 2019

Accomplishments / Events:

- Downloaded and processed VIIRS observations acquired in June 2019 to create daily mosaics (up to the writing of this report)
- Started post-processing the initial SVM classification to generate the 2018 Annual Surface Type product.
- Started to develop capabilities for evaluating and using J1/NOAA-20 VIIRS data from NDE:
  - Previous SNPP data use HDF5 format, but NDE uses NetCDF. Modified surface type code such that it can ingest NDE data in NetCDF format.

Overall Status:

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

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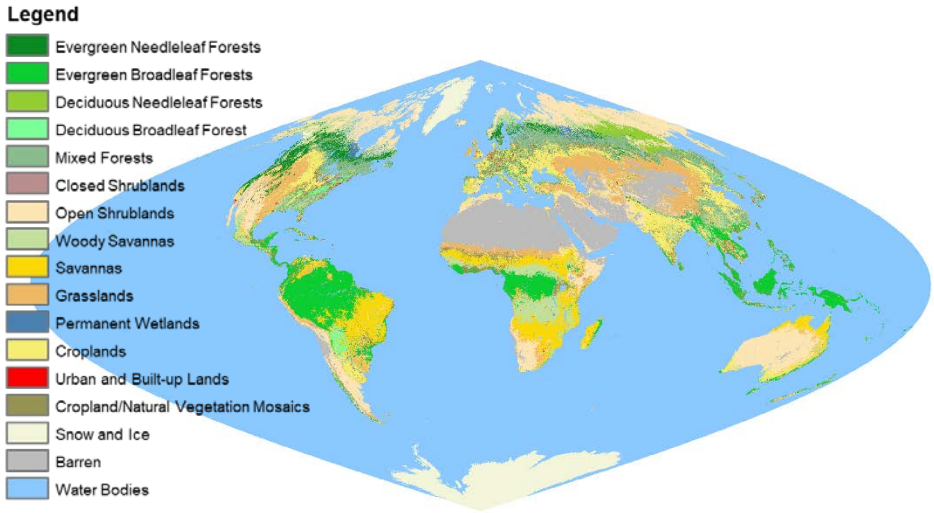
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Beta Maturity (N20 Cal/Val)	Jul-19	Jul-19		
Provisional Maturity (N20 Cal/Val)	Sep-19	Sep-19		
Annual performance report	Aug-19	Aug-19		
AST18 (Annual Surface Type):				
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST18 based on 2018 VIIRS data	May-19	May-19	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:

The team has produced a preliminary global VIIRS Annual Surface Type Map for 2018.



Land Surface Temperature

June, 2019

Accomplishments / Events:

- The enterprise SNPP VIIRS LST has been in operational at NDE. The data is available at SCDR with type name VIIRS-LST and CLASS under the family "JPSS VIIRS Products (Granule)(JPSS_GRAN)
- Attended the ECM teleconference. Attention is paid to the threshold settings for 4 tier cloud mask and planed metadata and quality flag bits update, which might affect the LST product.
- Finished the ground evaluation of the gridded VIIRS LST using in-situ measurements from SURFRAD and BSRN for the time period from Feb. to June, 2019. (Highlights)
- Conducted the cross satellite comparison between level 3 N20 VIIRS LST and level 3 AQUA MODIS LST including MYD11A1 and MYD21A1. Two months of global data in Feb. and Apr. 2019 , one day in Jan. and Mar. were selected for the evaluation. The result is shown in Slide 2, 3 and 4.
- Inter-comparison between level 3 J01 LST and SNPP LST. The code is generally done and the test is under going.
- Cross satellite comparison between level 3 SNPP VIIRS LST and NASA level 3 VIIRS LST (VNP21A1). Four days of global data on Feb. 27 and 28 and Mar. 1st and 2nd 2019 were used for the evaluation for daytime and nighttime.
- R-based validation was extended from ground sites to the granule scale. The software code is done under test.

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.*

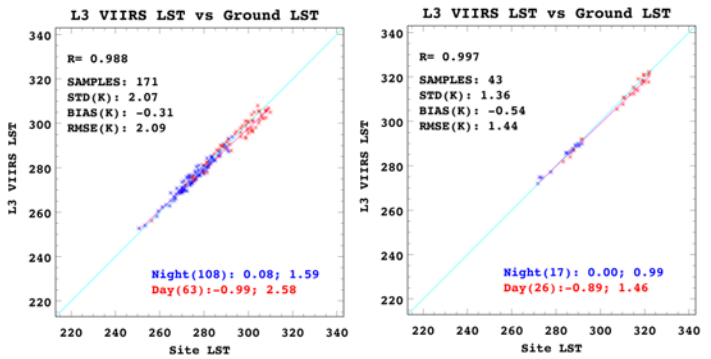
Issues/Risks:

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		

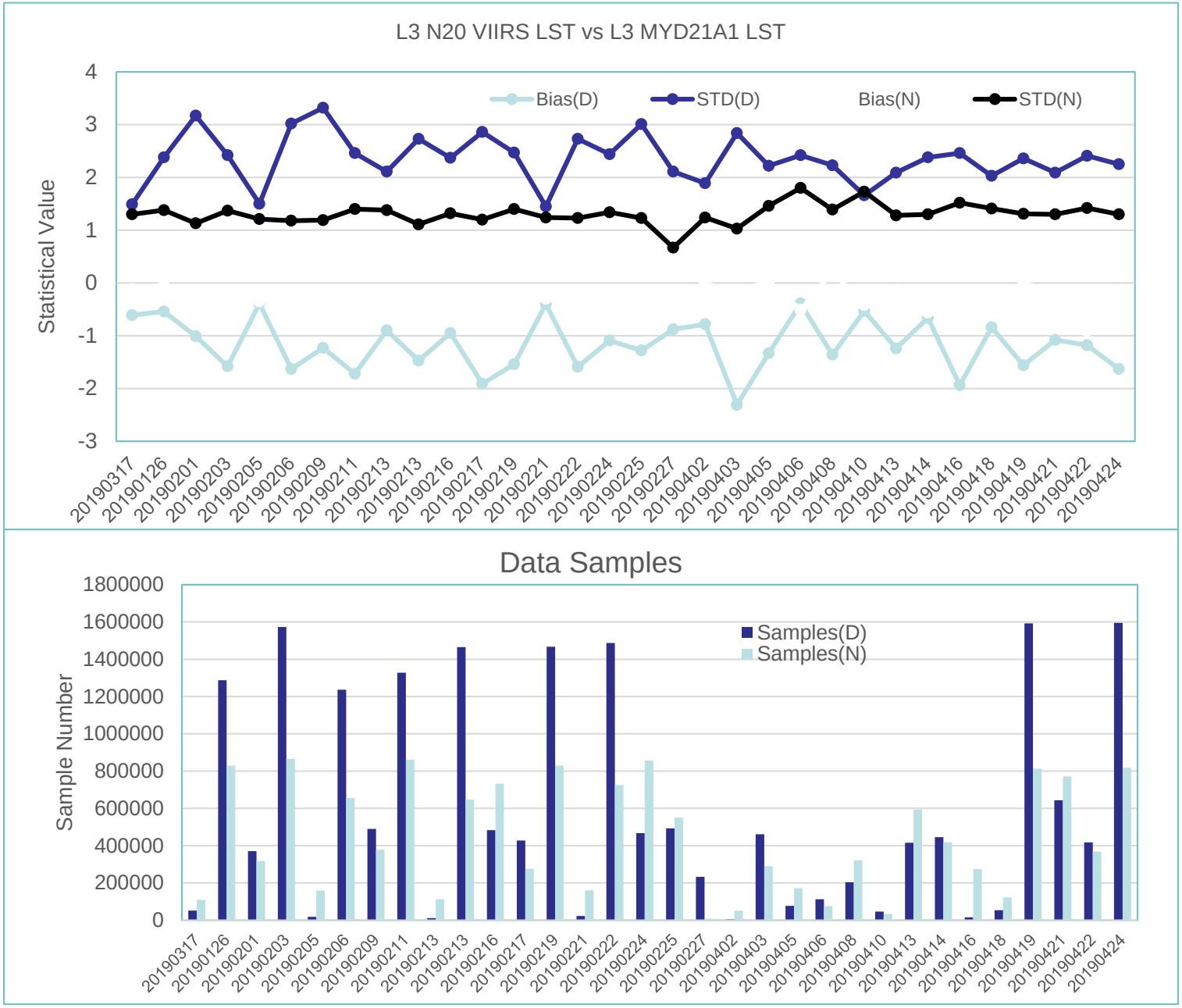
Highlights:

L3 N20 VIIRS LST vs Ground LST: SURFRAD (left) and BSRN(right)

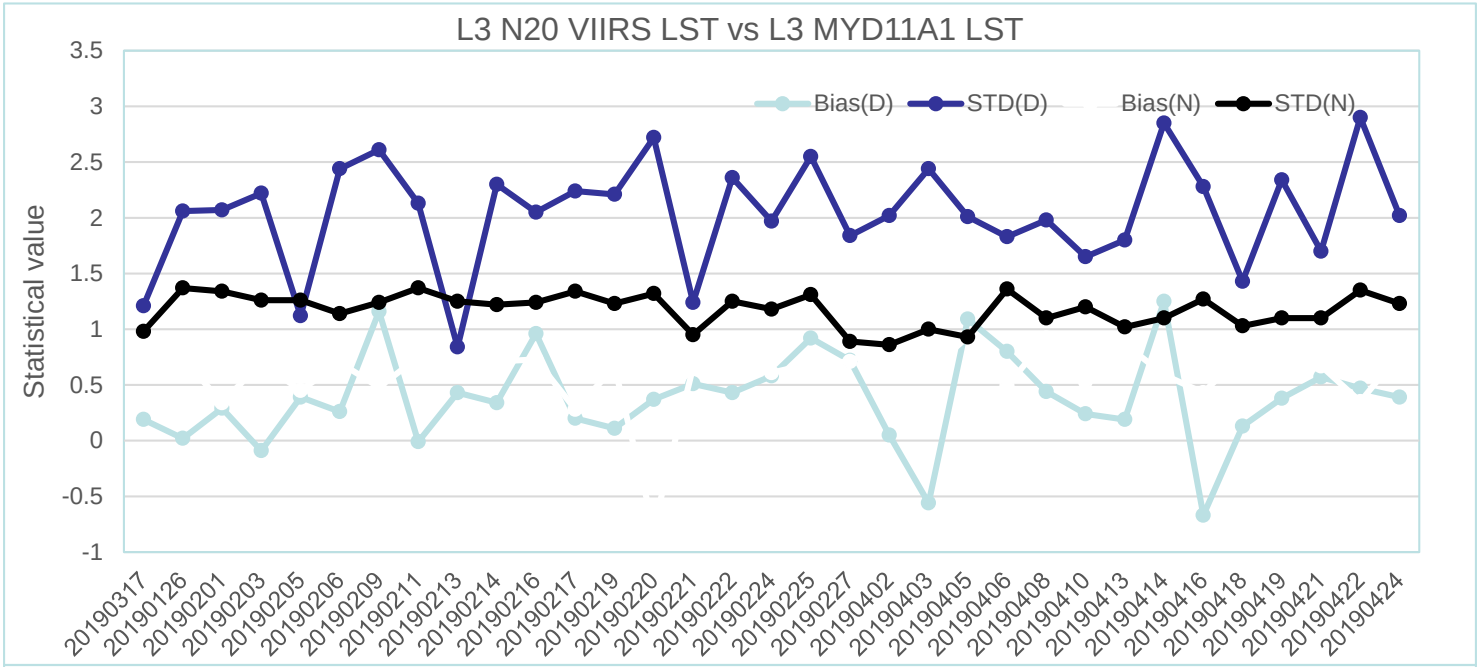


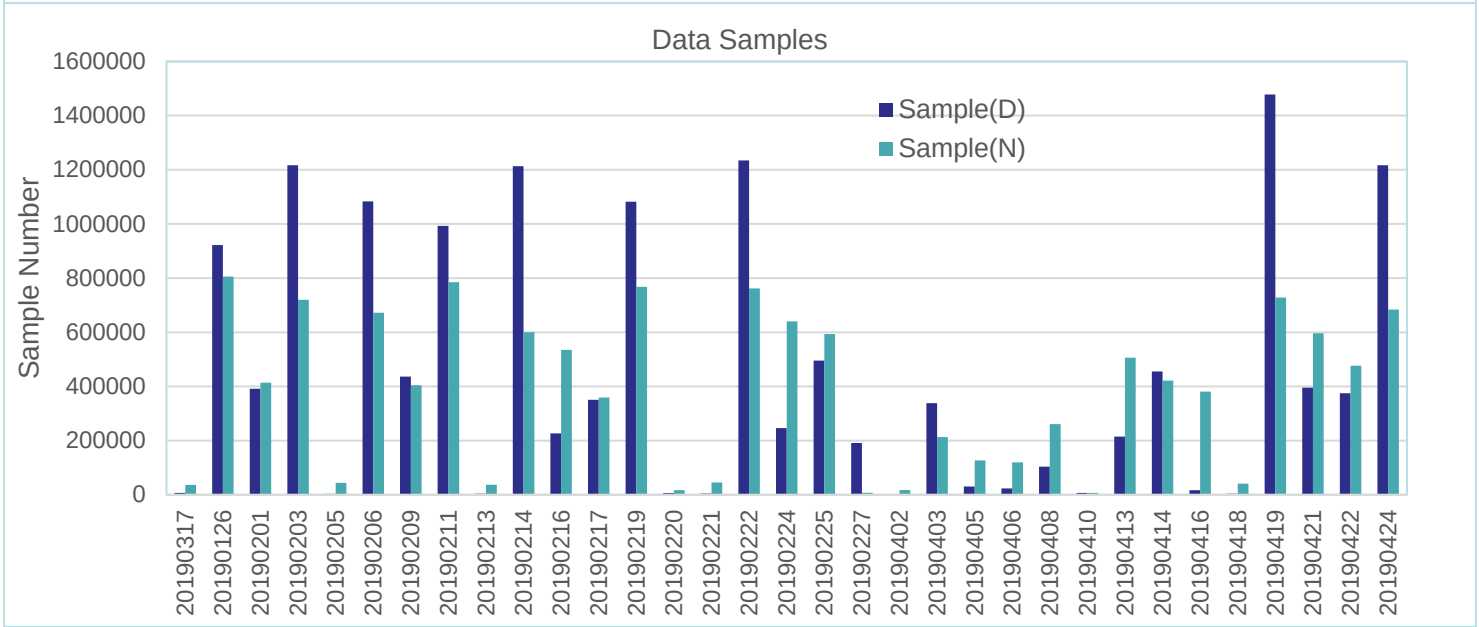
siteName	*count*	*bias*	*std*	*count(d)*	*bias(d)*	*std(d)*	*count(n)*	*bias(n)*	*std(n)*
BON	19	-0.27	1.17	6	-0.80	1.84	13	-0.03	0.67
TBL	35	-0.11	1.23	11	1.39	0.70	24	-0.80	0.67
DRA	32	-1.59	1.01	8	-2.14	1.22	24	-1.40	0.89
FPK	16	0.53	1.39	11	0.88	1.48	5	-0.24	0.87
PSU	12	0.09	0.9	3	-0.25	0.73	9	0.20	0.96
SXF	16	0.98	0.90	6	1.44	0.82	10	0.70	0.87
GWN	41	-0.45	3.45	18	-4.07	1.42	23	2.38	0.99

Cross comparison:L3 N20 VIIRS LST and MYD21A1 LST



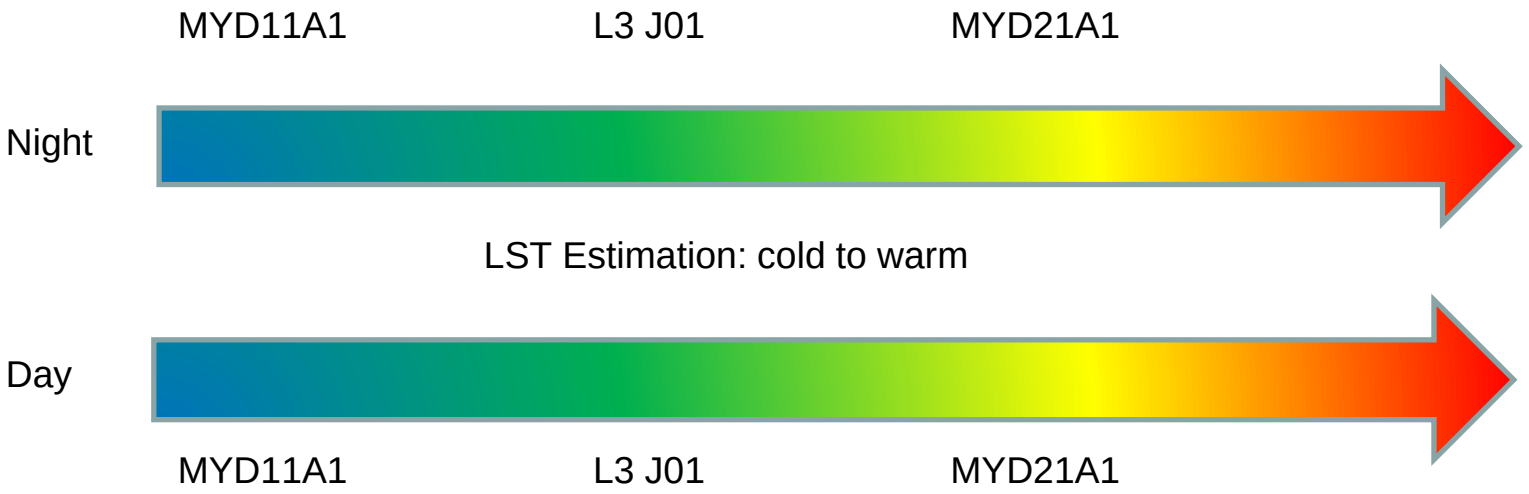
Cross comparison:L3 N20 VIIRS LST and MYD11A1 LST





Summary for Cross comparison with MYD**A1 LST Product

Mean Difference	Night		Day	
	bias	STD	Bias	STD
MYD21A1	-0.30	1.31	-1.20	2.36
MYD11A1	0.61	1.18	0.38	2.04



Surface Albedo

June, 2019

Accomplishments / Events:

- NPP VIIRS albedo has been operational and published to users in CLASS system since 06/05/2019 (***Highlights)***
- Validated the L3 VIIRS albedo against SURFRAD and PROMICE station measurements over all quality levels, with MODIS daily mean albedo together. (***Slide #2***)
- Cross-compared the L3 VIIRS albedo with the APP-x AVHRR sea-ice albedo (***Slide #3***)
- Prepared and delivered the proposal for developing Metop-SG METimage albedo product in the enterprise algorithm framework
- Initiated a plan to update the desert LUTs for SNPP and NOAA-20 VIIRS to make them more tolerant to snow-covered desert surface and to reduce the uncertainty caused by inaccurate snow cover input
- Determined the requirement of high-resolution albedo data to explain the scale effect in direct validation, since VIIRS and MODIS albedo both show similar and apparent difference to the in-situ measurements

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	Apr-19	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	Aug-19		
Final DAP to NDE	Jul-19	Aug-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:

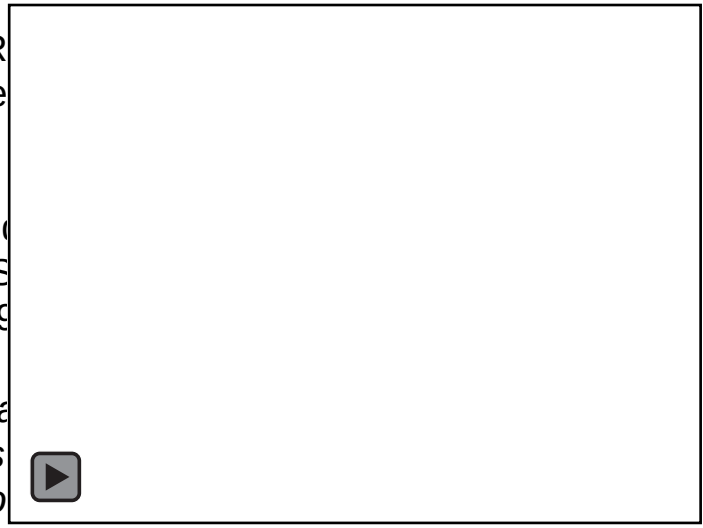
1. The science team has already validated the local generated L3 output and been ready to ARR. The schedule was set to August according to TRR plan. Framework has not started to generate L3 in NRT yet.

Highlights:

NPP VIIRS enterprise L2 albedo became operational and published to users!

The NPP VIIR
albedo has be
available in
SCDR since
6/10/2019, an
also in CLASS
since 6/5/201

⇨ *The anima*
demonstrates
06/06/2019 to

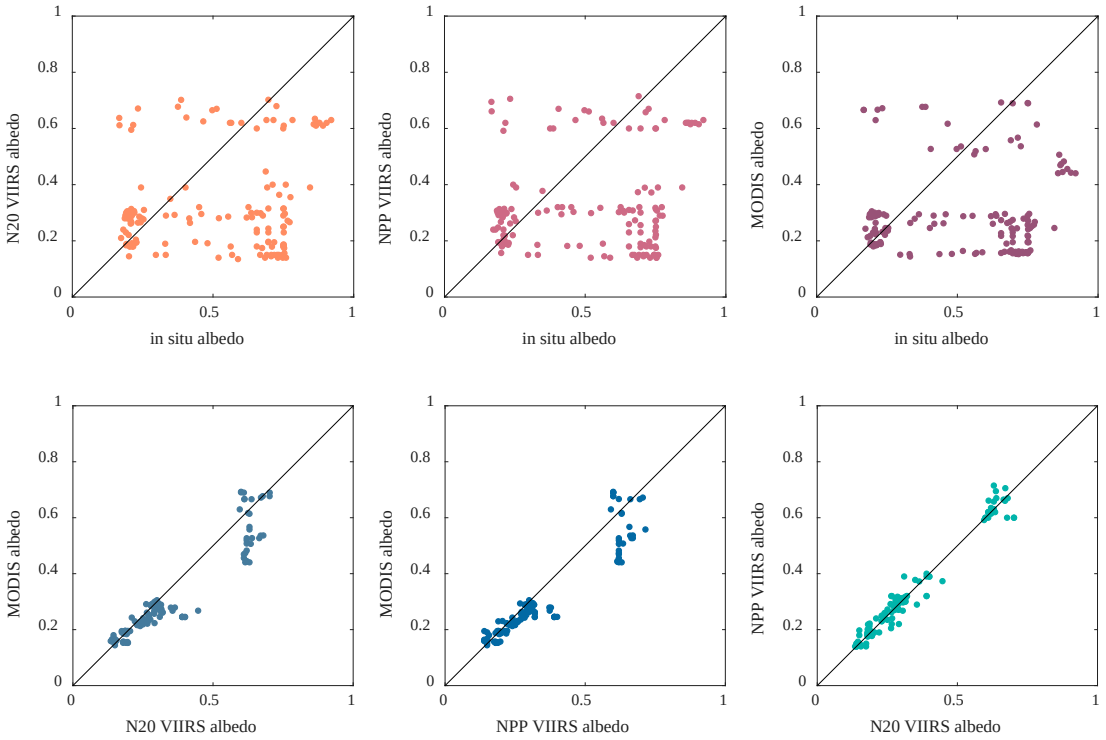


in-situ validation at SURFRAD (with MODIS)

- Match-up date: 20181221~20190216
- The retrievals include all satellite quality levels

Notes:

- ❖ The direct comparison between in situ measurements and satellite albedo suffers from inherent uncertainty caused by scale difference and surface heterogeneity.
- ❖ VIIRS Level 3 albedo and MODIS daily mean albedo have comparable accuracy.
- ❖ N20 VIIRS albedo and NPP VIIRS albedo are consistent at all quality levels.



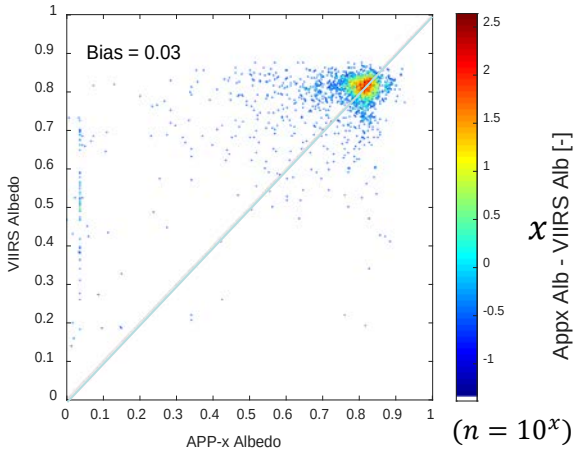
- ❖ The result reveals the influence of surface heterogeneity in the direct validation of coarse resolution satellite albedo products.
- ❖ Finer-resolution albedo data is required to quantify the sub-pixel albedo distribution and estimate the influence from the footprint difference between tower instrument and satellite sensor.

VIIRS sea ice albedo vs. APP-x sea ice albedo

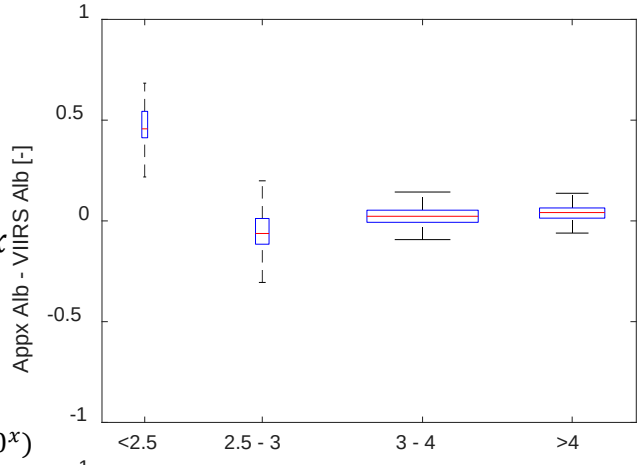
Notes:

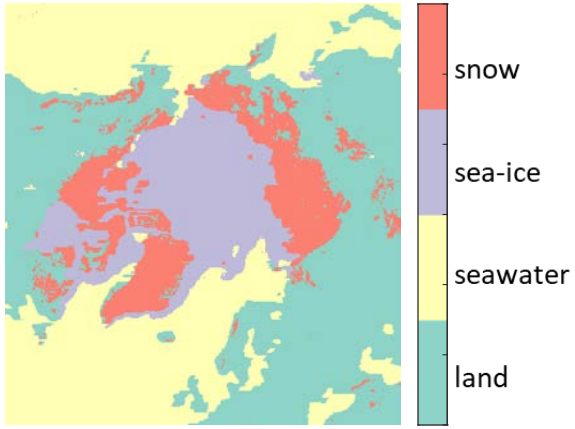
- The N20 and APP-x sea-ice albedo generally match at the comparison time phase.
- They are more consistent over multi-year ice (>3 yrs) owe to the higher surface homogeneity and stability.
- They have larger difference over the younger ice surface (<=3 yrs) mainly due to the heterogeneity from patchy and small clusters. Also, the APPx albedo include some fixed fill value.

20190524: **N20** vs. APPx

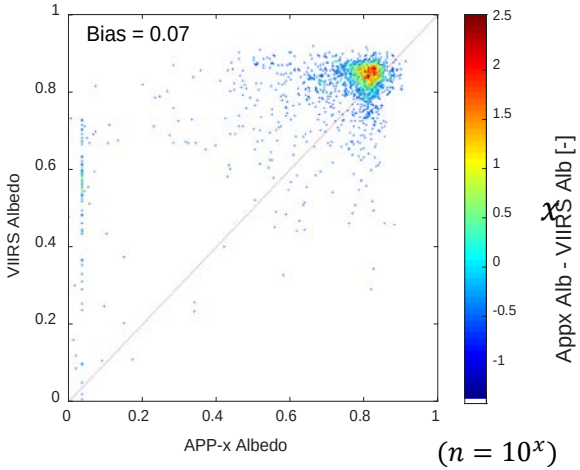


$(n = 10^x)$

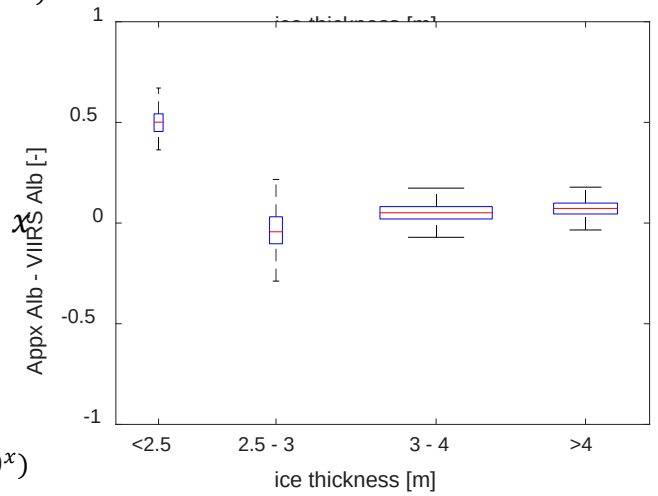


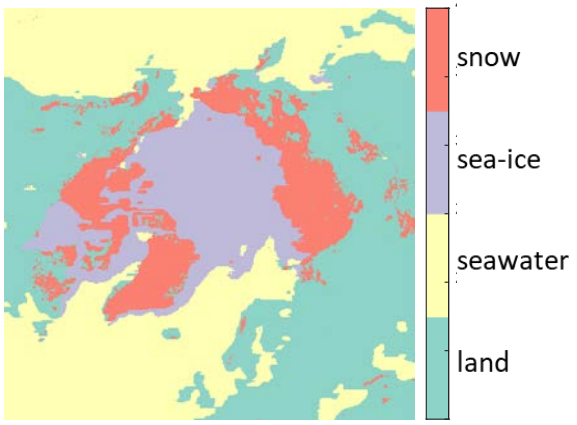


20190519: **NPP** vs. APPx



$(n = 10^x)$





Green Vegetation Fraction

June, 2019

Accomplishments / Events:

- Modified shell script code to download NOAA-20 surface reflectance data and GITCO data from SCDR and delete duplicated granules as input of the NOAA-20 GVF system
- Produced NOAA-20 GVF from June 1 to June 30, 2019 at the local computer for validation
- Evaluated the operational SNPP VIIRS GVF with updated global maximum and minimum EVI values on 6/4/2019
- Prepared and sent regional GVF data in 2018 (not available on CLASS) to an external user at South coast air quality management district (Eric Praske)

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			

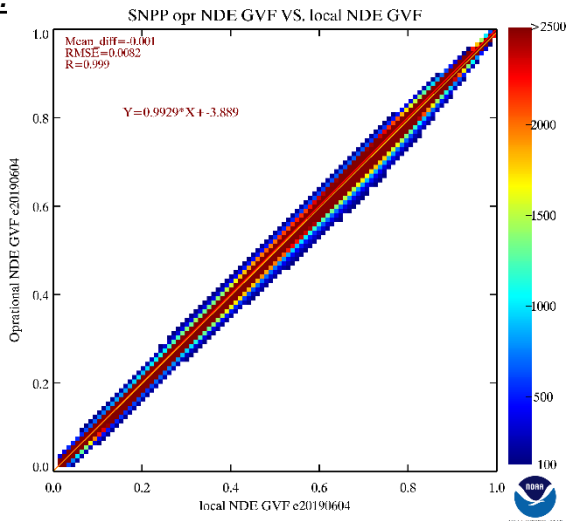
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

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	05/30/19	On time
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:

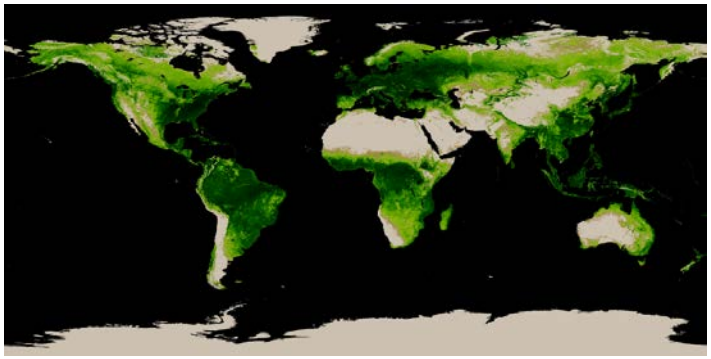


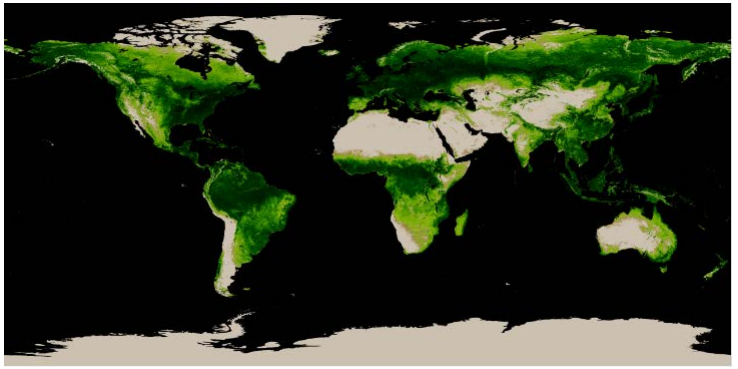
The operational SNPP GVF was compared with GVF at local run on 6/4/2019 and confirmed the update of new parameters in GVF

Production of NOAA-20 VIIRS GVF at local run

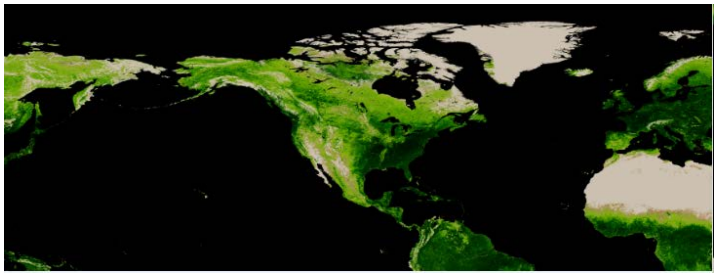
- NOAA-20 GVF data were produced daily from June 1 to June 30, 2019, which will be used for the validation of the NOAA-20 GVF product

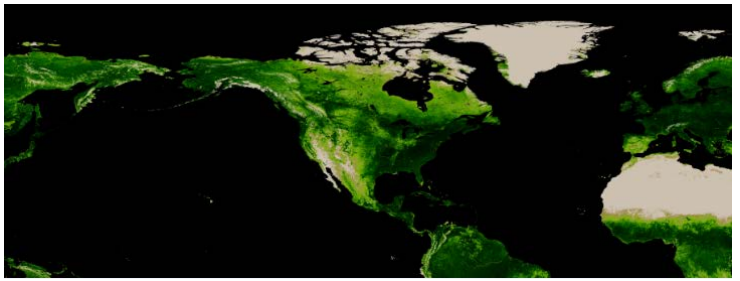
Global GVF

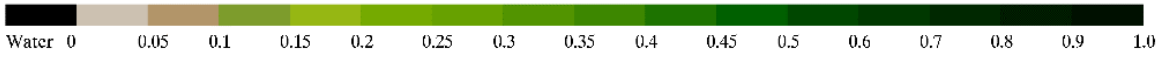




Regional GVF





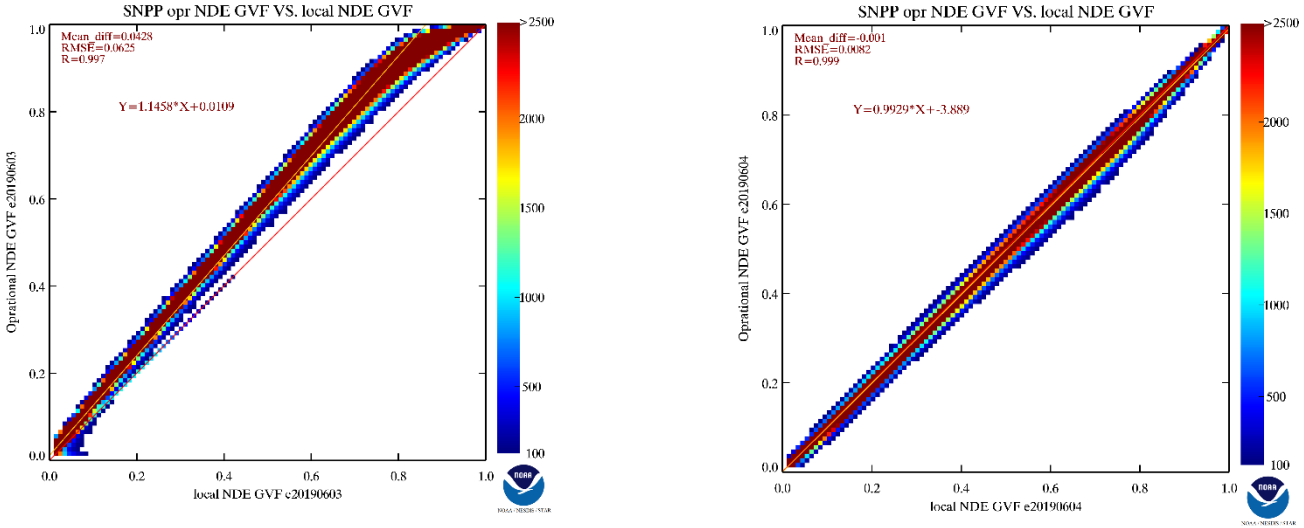


NOAA-20 Weekly GVF (June 1-7, 2019)

NOAA-20 Weekly GVF (June 24 – 30, 2019)

Evaluating the operational SNPP VIIRS GVF

- Evaluated the operational SNPP VIIRS GVF with updated global maximum and minimum EVI values on 6/4/2019
  - The new global maximum and minimum EVI values for the SNPP GVF system, adjusted for the new SR data, have been implemented in the operational GVF production since 6/4/2019
  - The operational SNPP GVF were downloaded and compared with SNPP GVF at local run
  - The operational SNPP GVF was found higher than that at local run before 6/4/2019 (using old parameters)
  - The operational SNPP GVF was consistent with GVF at local run on 6/4/2019



Scatter plot between the operational SNPP GVF and local run GVF

Vegetation Index

June, 2019

Accomplishments / Events:

- Finished coding, debugging, and testing (refer to highlights and additional slides) of the redesigned NVPS in daily case
- In order to solve memory limit in 8-day daily rolling composite algorithm in global and regional cases, developed an extracting algorithm to divide daily global and regional outputs into multiple blocks of outputs.
- Developed and implemented multi-thread compositing algorithm to generate the best Vegetation Index (VI) results in 8-day or 16-day cycle in the multiple blocks
- Developed and implemented mosaic algorithm to merge the blocks of VI results into global and regional VI results

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			

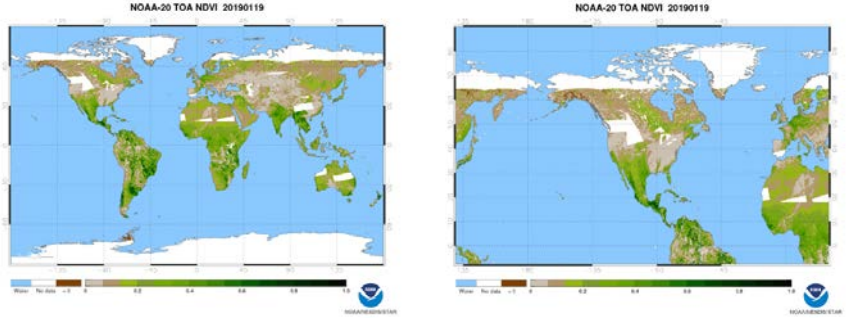
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks: *The government shutdown seriously impacted the NOAA-20 VIIRS VI algorithms optimization and improvement, and it will be rescheduled a month later (July, 2019)*

Milestoes	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	05/30/19	On time
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:

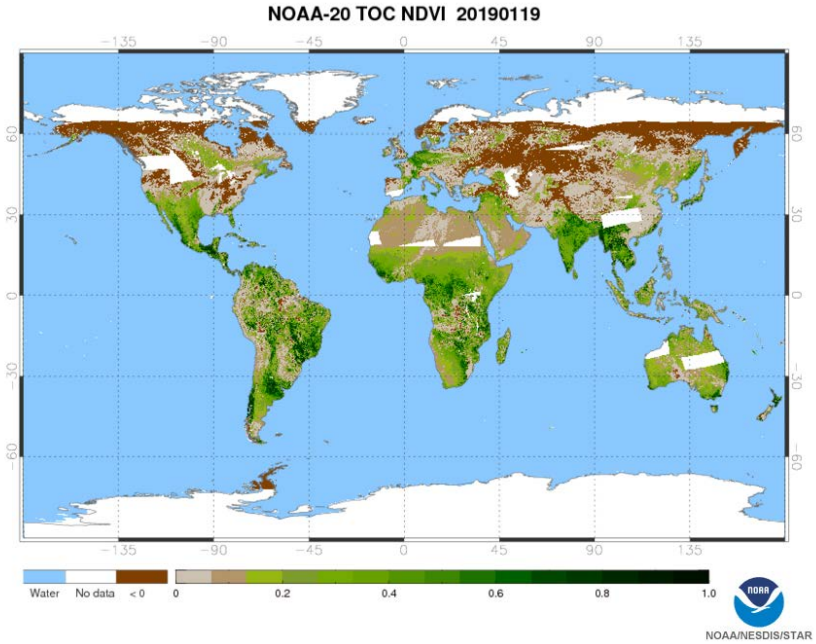
Daily Vegetation Index on Top of Atmosphere

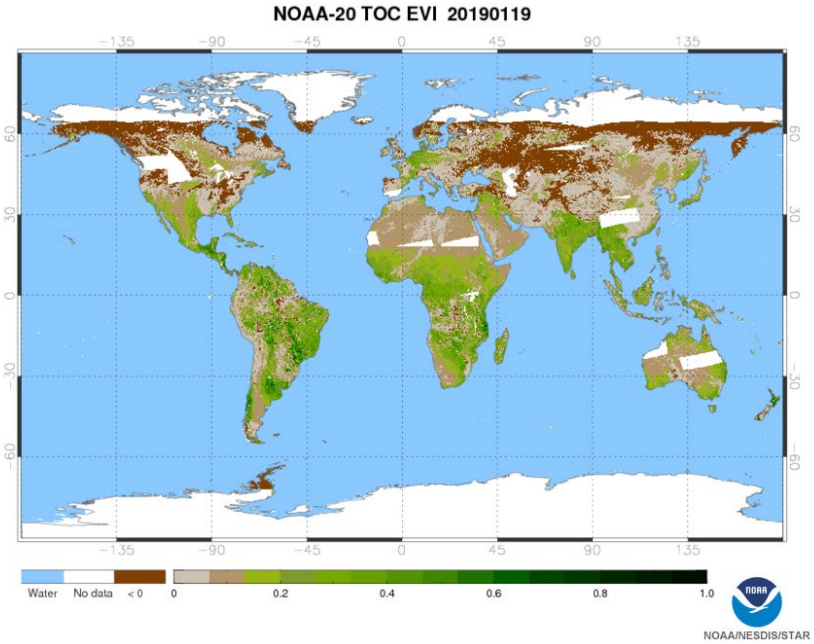


Redesign of the VI computation is on the way. Code for daily VI component has been tested. Above is one of the regional dataset results. Some more results are shown in the following slides.

Daily Global Vegetation Index on Top of Canopy

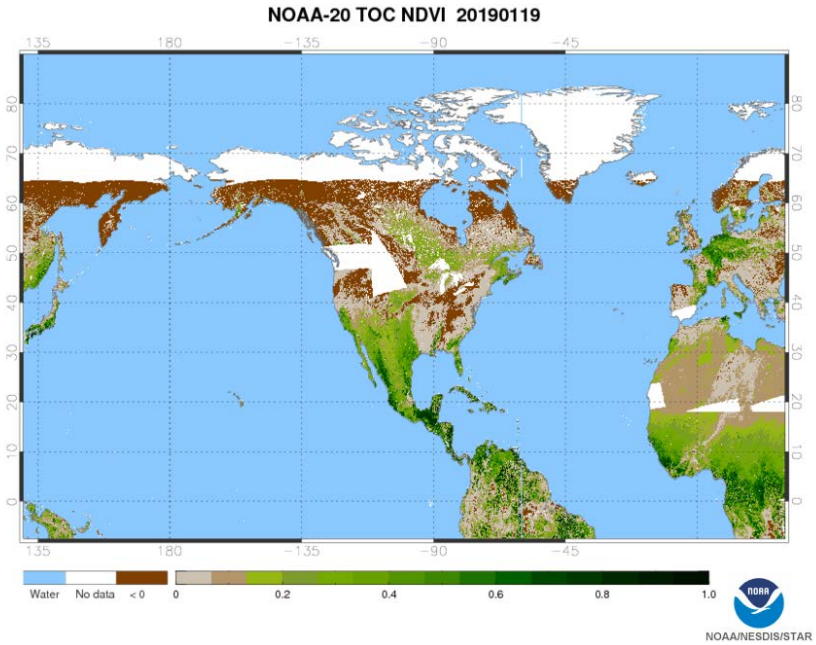
June, 2019

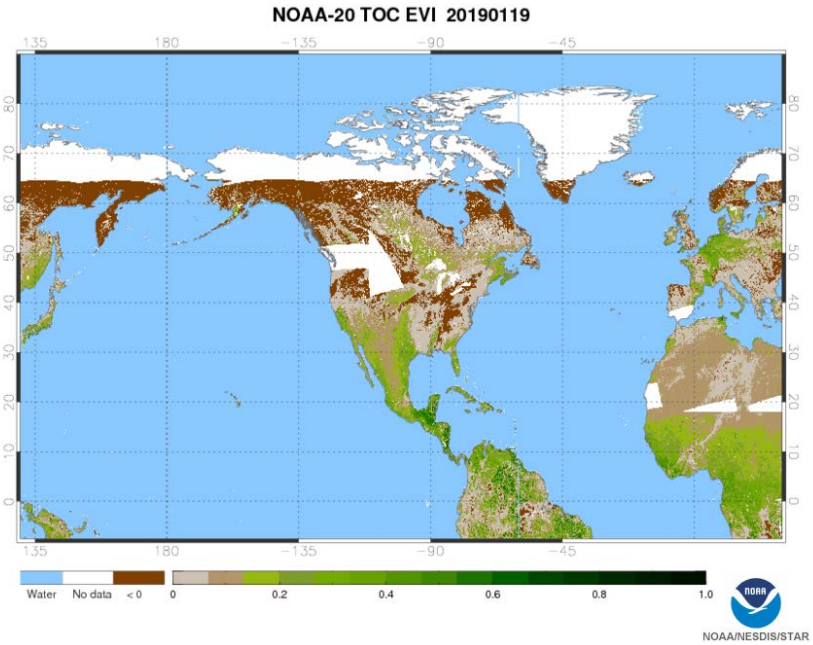




Daily Regional Vegetation Index n Top of Canopy

June, 2019





Vegetation Health

June, 2019

Accomplishments / Events:

- User-Developers Interaction (preparation)
- USDA-seminar
- Admin. regions VH mean from NOAA-20:
- Developing desert mask
- Developing snow mask
- Development IDL code for crop area
- Routine maintenance of VH data base

Overall Status:

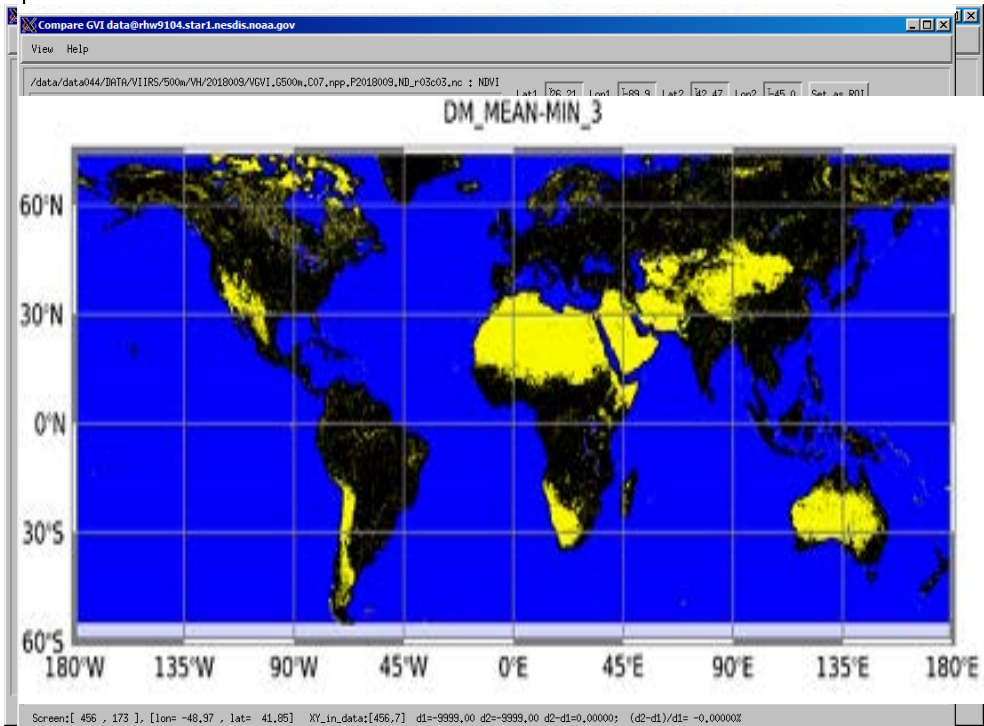
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

June, 2019

Accomplishments / Events:

- ❑ **Cruise report for May 2018 dedicated VIIRS ocean color cal/val cruise has been published at** NOAA Library.
- ❑ **Reports from external OC Cal/Val PI's:**

- NIST reported results on controlled rooftop experiments testing various geometries of observations relating to hand-held radiometers used on the cruises and the development of the "blue tile" reference plaque
- USF and NOAA/STAR collaborators reported on a new false color VIIRS product in development which has potential to show floating algae.
- UMB reported on results of SNPP and NOAA-20 VIIRS L2 products in Massachusetts Bay and on the impacts of the absorption of water component of the derived (from QAA) IOPs *(NOTE: this will be included in the next JPSS/STAR weekly).*

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	May-19	Published at NOAA Library in June 2019
In situ data collections including NOAA dedicated cruise in May 2018 and continue Cal/Val for VIIRS ocean color EDR, report	Aug-19	Sep-19		May 2019 Cruise has been postponed to September 2019 due to urgent ship repairs

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.*

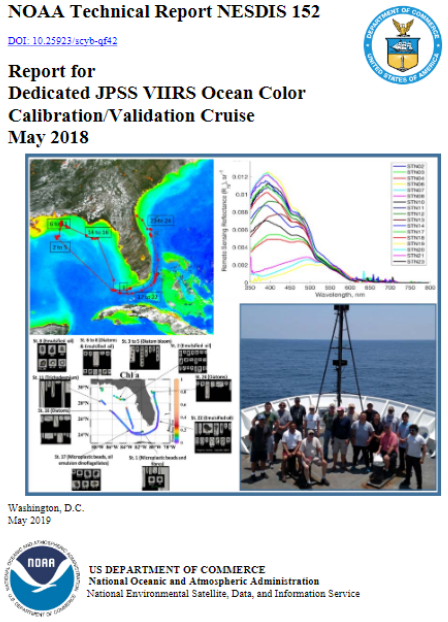
Issues/Risks:

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

Highlights:

VIIRS Ocean Color May 2018 Cruise Report (NOAA Technical Report NESDIS #152) was published at NOAA Library

https://repository.library.noaa.gov/view/noaa/20267


NOAA Technical Report NESDIS 152

DOI: 10.25923/scyb-qf42

Report for
Dedicated JPSS VIIRS Ocean Color
Calibration/Validation Cruise
May 2018

Washington, D.C.
May 2019

US DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Sea Surface Temperature

June, 2019

Accomplishments / Events:

- Reprocessing of the full NPP/N20 records ("VIIRS RAN2") continues to replace piece-meal ACSPO versions in PO.DAAC & NCEI with a consistent long-term RAN2 v2.61-based record.
- Today, STAR processed 7yrs NPP (2013-2018) + 1yr N20 (2018). Remaining 1yr NPP (2012) is being processed.
- PO.DAAC archived 2016-pr NPP data. Working to transition 2014-15 NPP & 1 Jan-22 Apr 2019 N20.
- v2.70 was expected to be "final DAP". However, interim DAP v2.61 in Feb 2019 turned out to be good enough (and currently used in RAN2 archived at PO.DAAC). No final DAP was required. The 2.70 was released in May 2019, with only geostationary updates.
- v2.80 is planned for delivery in Aug-20, with thermal fronts.

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.*

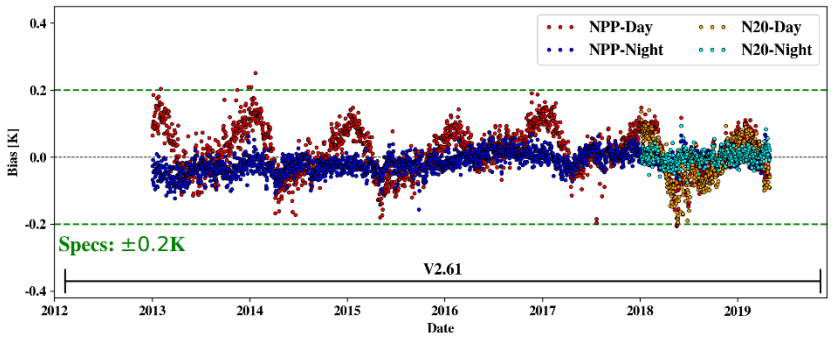
Issues/Risks:

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
ACSPO 2.70 – was not needed for N20; delivered for geo	Aug-19	May-19	05/15/2019
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	06/20/2019
VIIRS RAN2 NPP archived PO.DAAC/NCEI	Dec-19	FY20	On track
ACSPO 2.80 – Improved SST for data fusion	Aug-20	Aug-20	On track

Highlights:

- N20 RAN2 archived in PO.DAAC from 5 Jan – 31 Dec 2018, 23 Apr 2019 – on. Data from 1 Jan – 22 Apr 2019 are being filled.
- NPP RAN2: 1 Jan 2016 - pr + half of 2015; 2014/15 underway
- Time series are stable & within specs. NPP and N20 are consistent.
- Daytime biases wrt. in situ data are larger compared to nighttime biases are due to skin-bulk differences and do not indicate degraded performance



VIIRS Polar Winds

June, 2019

Accomplishments / Events:

Nothing to report this month.

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	05/16/19	
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:

Nothing to report this month.

NUCAPS Products

June, 2019

Accomplishments / Events

- First land surface emissivity tests were resumed.
- Progress has been made on the regression module and SARTA bias correction codes.
- Metop C first glance results completed.
- Tests on polarization correction was completed.
- New methane and nitrous oxide a priori has been developed.
- First analysis of NUCAPS CO, CH4 and CO2 has been completed by the use of AirCore data.
- GFS upgrade has been fully tested and results have been delivered to senior management.
- Progress are being made on ocean surface emissivity.
- A first draft of NUCAPS FY 2020 – 2025 has been developed.

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.*

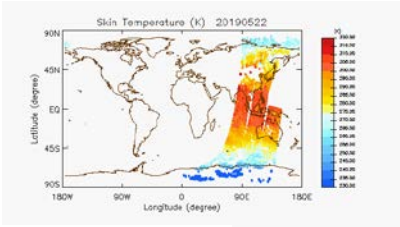
Issues/Risks:

Metop C NUCAPS delivery has been postponed to FY2020, TBD.

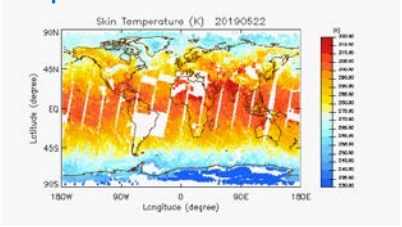
Highlights:

NUCAPS Metop C first glance results show consistent results with Metop A and Metop B.

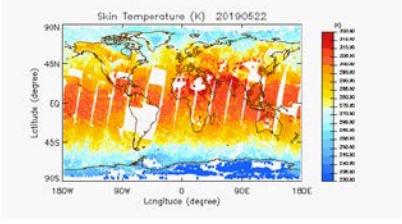
Metop C



Metop A



Metop B



MiRS Products

June, 2019

Accomplishments / Events:

- Extended MiRS validation to cloud liquid water (CLW) using JAXA AMSR2 product as reference data (see figures).
- Continued temperature and water vapor profile validation using ECMWF, GDAS, and radiosondes as reference data.
- Continued validation of rain rate using both Stage IV and MRMS as reference data.
- Migrated MiRS project software repository from subversion to Git and to the STAR-hosted GitLab server. This will facilitate code development and testing for the project.

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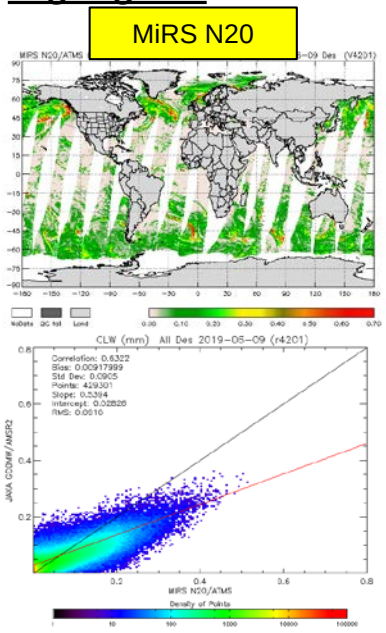
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

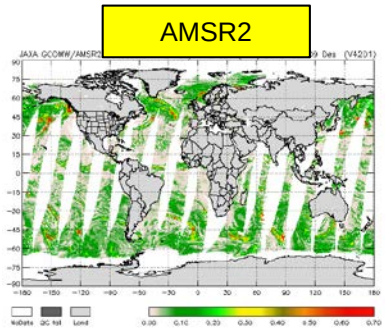
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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:





Comparison of MiRS N20 and JAXA AMSR2 CLW (mm) on 2019-06-09, along with corresponding scatterplot.

Snowfall Rate

June, 2019

Accomplishments / Events:

- Continued to refine the calibration technique and improved the NOAA-20 SFR product. The lower right figures compare the SFR calibration results from an earlier version (early May 2019) with the most up-to-date technique. There is clear improvement with both light snow and heavy snow as well as higher correlation coefficient and lower RMS.
- The team is re-evaluating the Snowfall Detection (SD) algorithm due to the change in SFR calibration.
- The CPC CMORPH team has requested SFR data to be reprocessed from April 2017 to present for testing the CMORPH2 global precipitation analysis. Once the SD algorithm is optimized, NOAA-20 SFR will be reprocessed to meet the CPC users' need.

Overall Status:

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

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Issues/Risks:

None

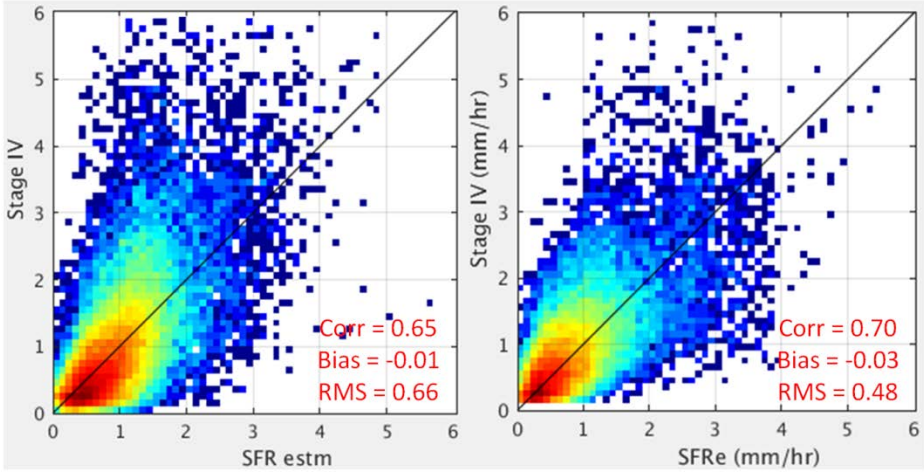
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: NOAA-20 and S-NPP SFR	Jun-20	Jun-20	05/16/201	
Provisional Maturity: NOAA-20 SFR	Mar-19	May-19	05/16/19	
Final DAP (N20 SFR)	Mar-19	Mar-19	Mar-19	
Update radiometric bias correction coefficients	Dec-18	Dec-18	Dec-18	
Deliver updated SFR package to MiRS team (for Mar-19 DAP delivery)	Feb-19	Feb-19	Feb-19	

Highlights:

NOAA-20 SFR Calibration Result

Calibration from Early May

Improved Calibration



OMPS Ozone

June, 2019

Accomplishments / Events:

- S-NPP V8Pro and V8TOz CDRs 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.
- V2Limb NDE with Mini-DAP at I&T in validation phase.
- SO_2 Validation leads to possible code changes.
- 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

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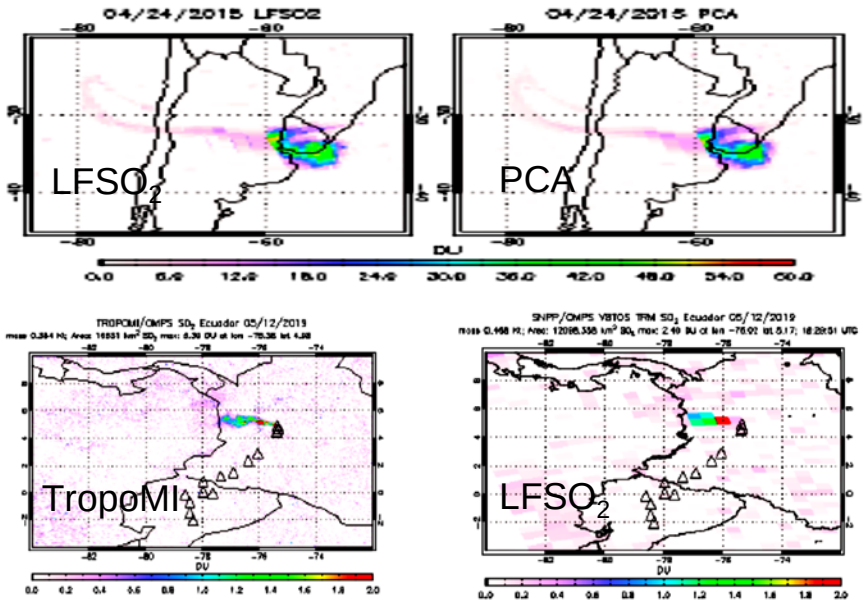
Issues/Risks:

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	Jul-19		SDR
Validated Maturity: V8TOz	Mar-19	Jul-19		SDR
Validated Maturity: V8Pro	Apr-19	Aug19		V8Pro Code
N20 Final DAP: V8Pro	Apr-19	Jul-19		
Trending of ground-based comparisons	Mar-19	Aug-19		
Algorithm improvements (solar, Wavelengths, bandpasses)	Sep-19	May-20		Other V8Pro corrections
RT Tables for NOAA-20	Sep-19	Aug-19		If needed

Modified $LFSO_2$ comparisons with NASA PCA and TROPOMI



GCOM-W1 Products

June, 2019

Accomplishments / Events:

- Working with NESDIS IA and JPSS to plan a JAXA meeting (June 26) prior to IGARSS in Japan to discuss AMSR3 and AMSR2 progress and plans
- Continue to provide information to NESDIS IA regarding AMSR-3 channel selections (as requested by JAXA)
- Engaging JPSS Program Office on budget needs/planning for AMSR-3
- Continued product cal/val; all products meeting requirements
- Reprocessing continuing and on track for completion by September 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			

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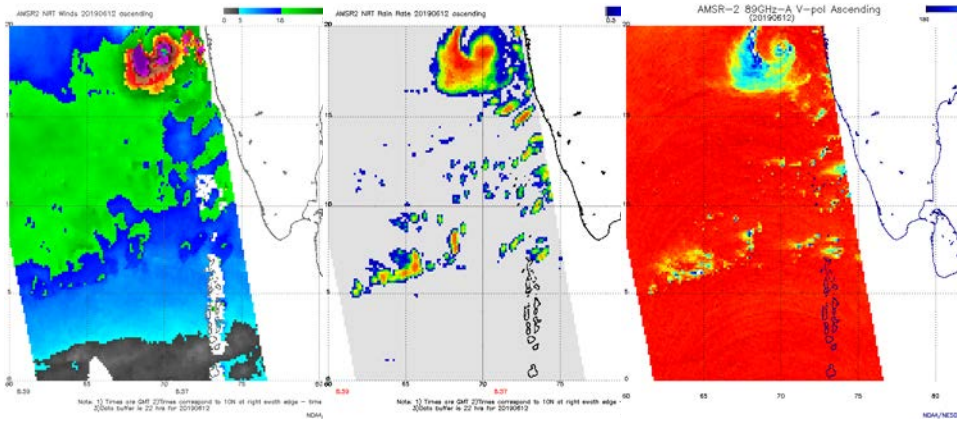
Issues/Risks:

None

Highlights:

Tropical Cyclone Vayu as it approaches India's Gujurat coastline:
AMSR-2 Wind Speeds, Rain Rate and Brightness Temperature (V-pol) 12 June 2019

Ocean Wind Speed **Rain Rates** **V-pol Brightness**



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

June, 2019

Accomplishments / Events:

- Attended 11th GCOS Reference Upper Air Network (GRUAN) International Coordination Meeting (ICM-11)) **(Highlight)**
- Attended NUCAPS bi-weekly status meetings and proposed re-start of Parallel test systems to analyze first guess regression upgrade
- Continued data collection and review of NPROVS Special (GRUAN) radiosondes for inclusion in pending "Uncertainty" paper
- Observations from the ongoing Radiosonde Inter-comparison and VALidation (RIVAL) campaign stewarded (NPROVS)
- Created AEROSE campaign "unified" dedicated radiosonde file and initiated NUCAPS collocation process for NPROVS Special
- Provided inputs at AWIPS User meeting highlighting SAL analysis**)**
- The EDR LTM team has been testing RabbitMQ, a message-broker software to more efficiently process EDR LTM and JSTAR Mapper images. **(Highlight)**

Overall Status:

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

1. *Project has completed.*
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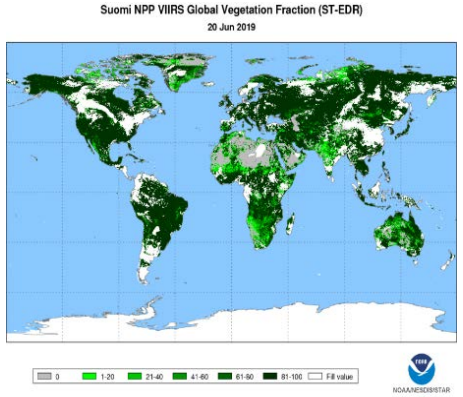
Issues/Risks:

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	March-19		Program Extended
Support NWS Raob Transition Monitoring and NUCAPS AWIPS-2 users	Sept-19	Sept -19		

Highlights:

NPROVS: The GRUAN ICM-11 was attended by over 60 international scientists with the goal to establish and maintain a network of reference geophysical observations. STAR contribution and benefit to/from GRUAN are highlighted in A. Reale Trip Report.



LTM: New VIIRS Surface Type Global Vegetation Fraction images as seen on the EDR LTM website. These images are now produced under the direct control of the EDR LTM team.