

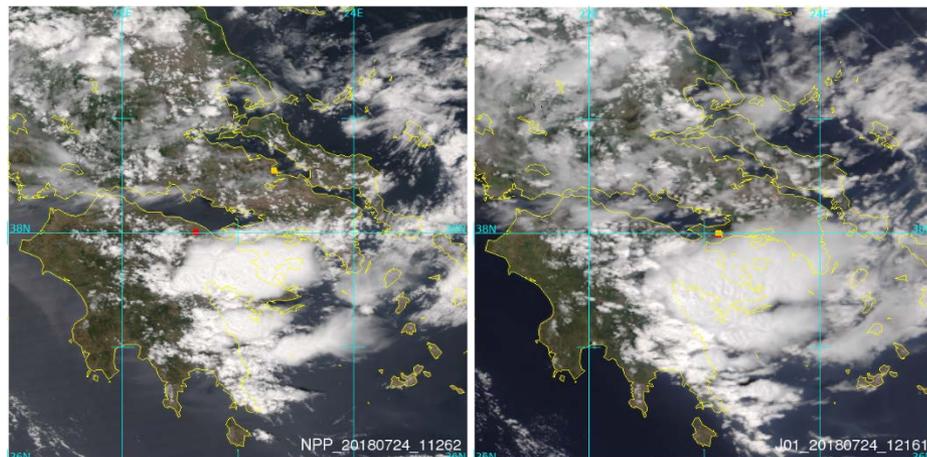
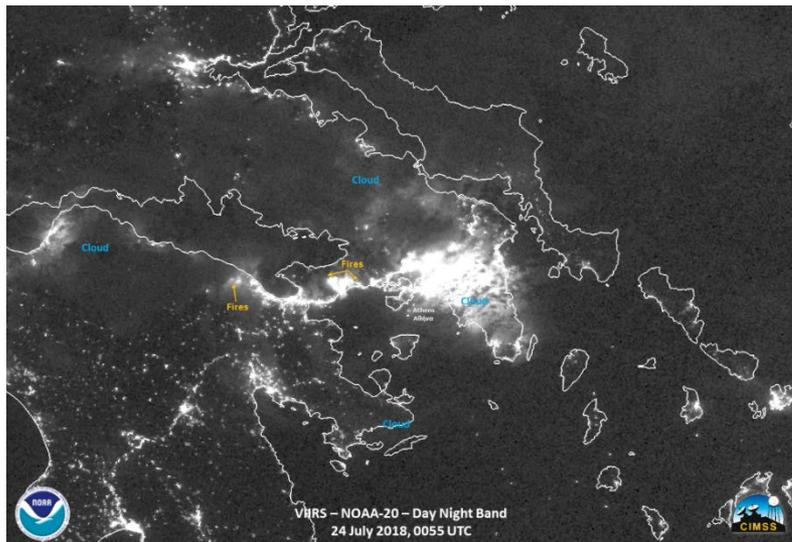


NOAA JPSS Monthly Program Office

AMP/STAR FY18 TTA

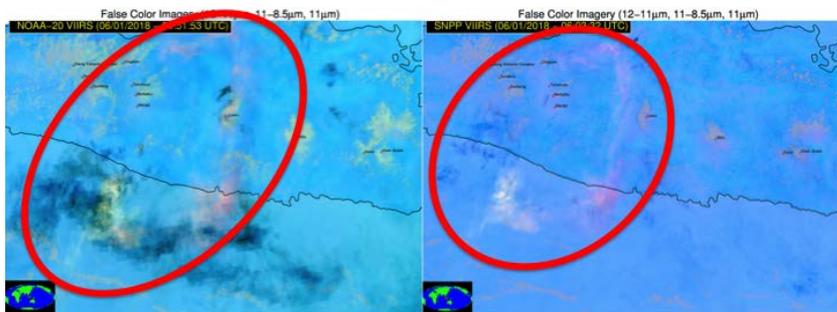
ARRON LAYNS, AMP LEAD
LIHANG ZHOU, AMP DEPUTY FOR SCIENCE
& JPSS STAR PROGRAM MANAGER

August 14, 2018



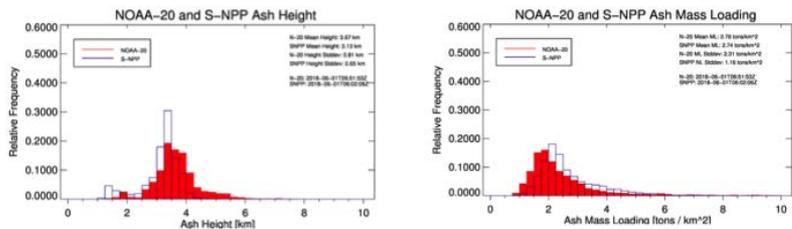
Greece Fires

Daytime observations of the major fire event in Greece by VIIRS on July 24, 2018. Suomi NPP VIIRS missed the main fire complex due to cloud obscuration (but detected another fire to the west). The colors of the fire pixels indicate detection confidence levels. The Day/Night band captured the fires as well as the bright city lights of nearby Athens.



Volcanic Ash Comparison

A qualitative comparison of NOAA-20 vs SNPP Volcanic Ash (left) analyzing the Merapi eruption in Indonesia shows that the two satellites are producing similar data.



July JPSS Virtual Validation Maturity Review

A virtual maturity review was held for several products in mid-July. These products included Cloud Properties, Cloud Height, Cloud Base Height, Land Surface Albedo, Land Surface Temperature all from VIIRS, and Snowfall Rate from ATMS. All products were being reviewed for readiness for Beta maturity, and the presentations went well with all products expected to be declared Beta maturity shortly.

IGARSS-2018

Many of the presentations at the 2018 IGARSS in Valencia, Spain, were oriented towards the theme of “observing, understanding and forecasting the dynamics of our planet”. Four sessions covered many of the JPSS related talks, presentations from STAR and NOAA/NASA scientists on JPSS program overviews, Cal/Val activities, and deep-dive science presentations. Many special sessions on sensor calibration, product validations, small satellite technology, upcoming microwave radiometer missions, sensors and applications.

Single Channel IST developed

A new study by the Cryosphere team has shown that Ice Surface Temperature can be retrieved nearly as accurately using just band I5, as with the current two-channel, split-window algorithm using bands M15 and M16. This will allow for a much higher spatial resolution product with little sacrificed in terms of accuracy.

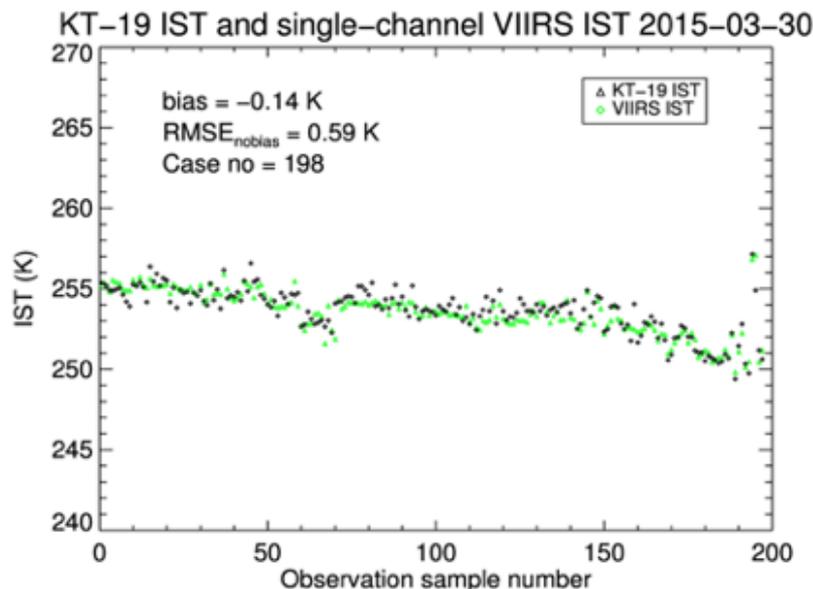


Figure. New VIIRS IST vs observations.

Accomplishments

- CrIS SDR delivered Calibration Table 5 for Engineering Package update (EP v115, ADR8654/8708) to flight side:
 - Update of the ILS parameters for the SWIR FOV 5 position
 - Update of Geolocation parameters
 - Update of the PGA gain setting for MWIR band
- OMPS DAPs to DPES (ADR8684/CCR4014 & ADR8685/CCR4015) on 7/12/2018
 - ADR8684/CCR4014: Update OMPS TC Quality Flags
 - ADR8685/CCR4015: Update OMPS NP Quality Flags
- ACSPO V2.60 delivered to NDE on 7/5/2018 (delivered to ASSISTT on 06/14/18)
- NUCAPS Emergency DAP (update to the NUCAPS codes to handle the changes to the JPSS-RR Clouds files) delivered to NDE on 7/12/2018
- NUCAPS v4-3 DAP (NOAA-20 updates, Phase-4 Part-2) delivered to NDE on 7/16/2018
- NUCAPS v4-3 DAP delivered to CIMSS for integration into CSPP for Direct Broadcast users on 7/17/2018
- N4RT Toolkit (V4.5) delivered to NDE on 7/25/2018
 - Updated the VIIRS WINDS heritage BUFR
 - Added the VIIRS WINDS new BUFR
 - Added the JPSS Risk-Reduction AOD BUFR
- VIIRS Surface Reflectance DAP (covers both S-NPP and NOAA-20) delivered to NDE on 7/27/2018
- VIIRS Polar Winds DAP (NOAA-20 updates) delivered to NDE on 7/31/2018
- Enterprise Processing Systems Algorithms (Aerosol, Volcanic Ash, Clouds, and Cryosphere) DAP (NOAA-20 updates) delivered to NDE on 7/31/2018
- VIIRS Land Product System (VLPS: LST & LSA, includes offline LSA & LSE package) DAP delivered to NDE on 8/4/2018
- STAR SDRs and Imagery teams supported IDPS Block 2.1 Mx3 SOL Deploy Regression test, provided review/checkout results report to AMP on 7/23/2018
- Algorithm checking/testing for upcoming GFS FV3 Model Upgrade (checked NUCAPS/GCOM for 0.5 degree sample data; checked enterprise algorithm framework GFS reader for 0.25/0.5/1.0-degree sample data files)

- NOAA-20/S-NPP Operational Calibration Support:
 - S-NPP Weekly OMPS TC/NP Dark Table Updates: 07/03/18, 07/10/18, 07/17/18, 07/24/18, 07/31/18
 - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 07/03/18, 07/10/18, 07/17/18, 07/24/18, 07/31/18
 - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 07/03/18, 07/17/18, 07/31/18
 - NOAA-20 Monthly VIIRS StrayLight LUTs Update: 07/24/18
 - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 07/24/18
 - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 07/24/18

- July Monthly N20 Cal Val Maturity Review (Virtual Review), Beta Maturity Readiness Review for the following:
 - Cloud Base Height
 - Cloud Height Algorithm Products:
 - Cloud Top Height
 - Cloud Top Pressure
 - Cloud Top Temperature
 - Daytime Cloud Optical and Microphysical Properties Products:
 - Cloud Optical Thickness
 - Cloud Particle Size
 - Land Surface Temperature
 - Surface Albedo
 - ATMS Snowfall Rate

Upcoming Cal/Val Maturity Reviews

August, 2018:

- Beta Maturity: Green Vegetation Fraction; Vegetation Index; Vegetation Health
- Provisional Maturity: OMPS Ozone EDRs (V8Pro & V8TOz)
- Validated Maturity: VIIRS Imagery

September, 2018:

- Provisional Maturity:
 - Polar Winds; Volcanic Ash; Clouds (all products); Cryosphere (all products)
 - NUCAPS Products (Ozone/CO/CO₂/CH₄/OLR)
- Validated Maturity: CrIS SDR (Pending upload of the v115 EP)

October, 2018:

- Beta/Provisional Maturity: Ocean Color
- Validated Maturity:
 - OMPS (TC & NP) SDR (Pending on Mx3 TTO)
 - OMPS Ozone EDRs (Pending on SDR Validated)

November, 2018:

- Provisional Maturity: Surface Reflectance

December, 2018:

- Provisional Maturity: Land Surface Temperature; Surface Albedo

- JSTAR Code/LUT Deliveries:

DAP to DPES:

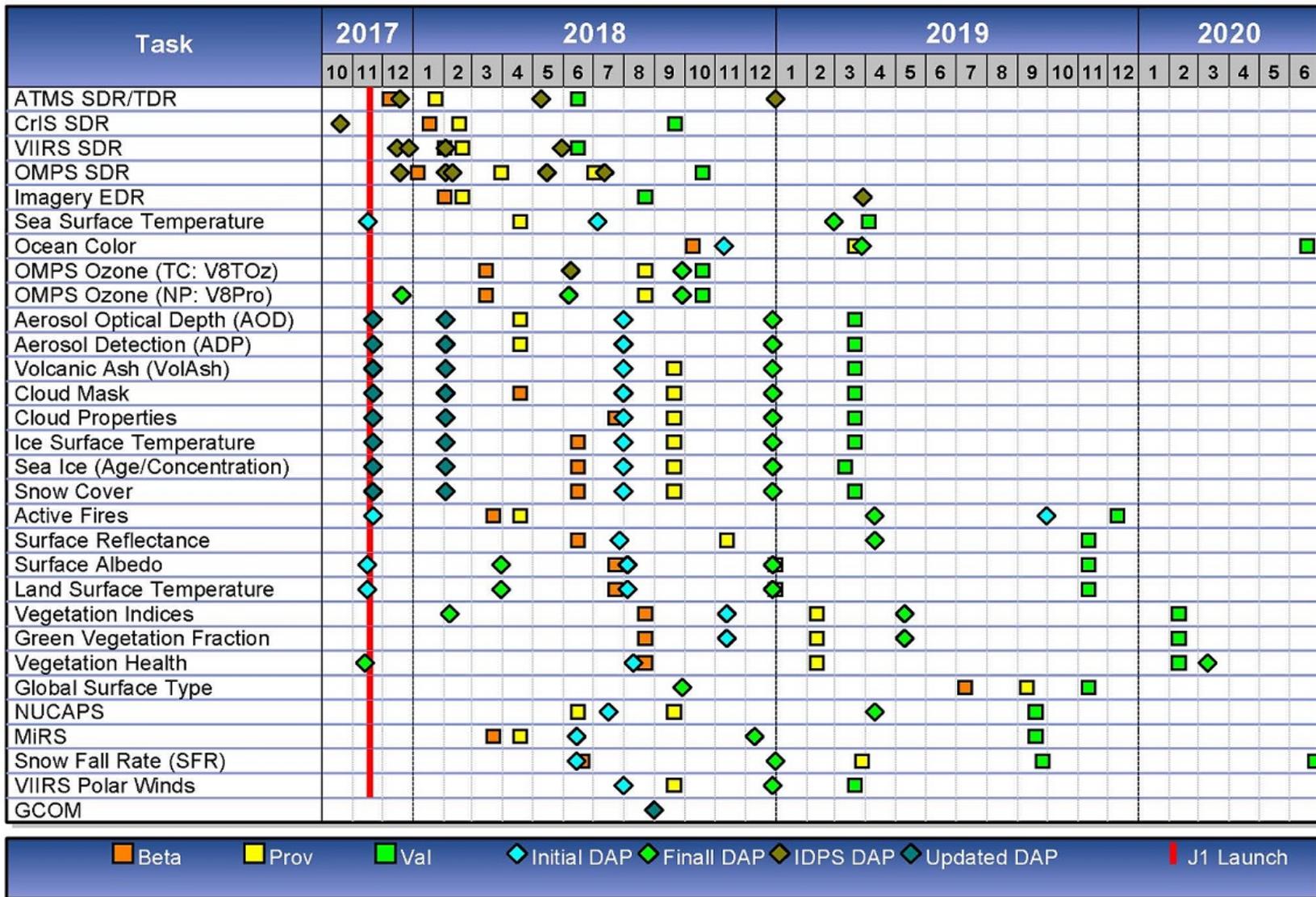
- Aug-18: VIIRS LUT update to reduce SDSM uncertainty
- Aug-18: VIIRS SDR: Blackbody Warm-up Cooldown (WUCD) correction
- Sep-18: OMPS NM/NP Mismatch for FOVs (LUTs update only, ADR8617)
- Oct-18: OMPS NP Transient Smear Correction (ADR8709)

NOAA-20 Algorithm DAP to NDE:

- Aug-18: Vegetation Health
- Sep-18: OMPS Ozone V8Pro & V8TOz – final DAP
- Nov-18: Ocean Color, Vegetation Index, Green Vegetation Fraction
- Dec-18: EPS algorithms (Clouds, Cryosphere, Aerosol, Volcanic Ash, LST/LSA) – final DAP
- Dec-18: VIIRS Polar Winds – final DAP
- Dec-18: MiRS/SFR – final DAP

JPSS Schedule

STAR JPSS Schedule: TTA Milestones



FY18 STAR JPSS TTA Milestones

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP Enterprise Algorithms Deliveries				
S-NPP: Enterprise Processing System (Aerosol, Volcanic Ash, Clouds, and Cryosphere) updated DAP to NDE	Nov-17	Nov-17	11/21/17	
S-NPP: Enterprise Algorithm DAP to NDE: Vegetation Indices (final DAP)	Jan-18	Jan-18	Init DAP: 06/26/17 Final DAP: 02/06/18 Delta DAP: 03/15/18	
S-NPP: Enterprise Algorithm DAP to NDE: Land Surface Temperature (final DAP)	Feb-18	Mar-18	Init DAP: 11/15/17 Final DAP: 04/02/18	Passed Code Review: Feb-2018
S-NPP: Enterprise Algorithm DAP to NDE: Land Surface Albedo (final DAP)	Feb-18	Mar-18	Init DAP: 11/15/17 Final Dap: 04/02/18	Passed Code Review: Feb-2018
S-NPP: Enterprise Algorithm DAP to NDE: Vegetation Health (VH-1km) final DAP Vegetation Health (VH-4km) updated DAP	Nov-17	Nov-17	11/13/17	



FY18 STAR JPSS TTA Milestones

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 Algorithm Updates DAPs				
NOAA-20 algorithm adjustments (SST): ACSPO v2.5 DAP to NDE ACSPO v2.6 DAP to NDE	Nov-17 Jul-18	Nov-17 Jul-18	11/16/17 07/05/18	
NOAA-20: Active Fires DAP (NOAA-20 algorithm adjustments) to NDE	Oct-18	Oct-18	11/21/17	
NOAA-20 algorithm adjustments (OMPS Ozone): V8TOS (v3) DAP to NDE V8TOz (v3r1) DAP to NDE V8Pro (v3r2) DAP to NDE	Jun-18	Jun-18	06/01/18 06/08/18 06/06/18	
NOAA-20: MiRS DAP (NOAA-20 algorithm adjustments) to NDE	Aug-18	Aug-18	06/14/18	
NOAA-20: NUCAPS DAP (NOAA-20 algorithm adjustments) to NDE	Aug-18	Aug-18	07/16/18	
NOAA-20: Surface Reflectance DAP (NOAA-20 algorithm adjustments) to NDE	Aug-18	Aug-18	07/27/18	
NOAA-20: VPW DAP (NOAA-20 algorithm adjustments) to NDE	Aug-18	Aug-18	07/31/18	
NOAA-20: Enterprise Processing System DAP (NOAA-20 algorithm adjustments: Aerosol, Volcanic Ash, Clouds, and Cryosphere) to NDE	Aug-18	Aug-18	07/31/18	
NOAA-20: Enterprise Processing System DAP (NOAA-20 algorithm adjustments: LST, and LSA) to NDE	Aug-18	Aug-18	08/04/18	
NOAA-20: Vegetation Health DAP (NOAA-20 algorithm adjustments) to NDE	Aug-18	Aug-18		



FY18 STAR JPSS TTA Milestones

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 Cal/Val				
NOAA-20 SDRs and KPPs reach Beta Maturity (ATMS: L+20D; CrIS: L+68D; VIIRS: L+60D; OMPS: L+68D; VIIRS Imagery: L+70D)	Jan-18	Jan-18	12/08/17: ATMS TDR/SDR Beta 01/17/18: CrIS SDR Beta 02/01/18: VIIRS SDR Beta 01/05/18: OMPS NM & NP SDR Beta 02/01/18: VIIRS Imagery Beta	01/25/18: SDRs/Imagery Beta Maturity Review
NOAA-20 SDRs and KPPs reach Provisional Maturity (ATMS: L+36D; VIIRS Imagery & other SDRs: L+90D)	Feb-18	Feb-18	01/23/18: ATMS TDR/SDR Provisional 02/16/18: CrIS SDR Provisional 02/19/18: VIIRS SDR Provisional 02/19/18: VIIRS Imagery Provisional 02/18/18: OMPS TC SDR Provisional (04/18/18 review) 07/02/18: OMPS NP SDR Provisional (Mx2 TTO)	02/20/18: SDRs/Imagery Provisional Maturity Review
NOAA-20 SDRs and KPPs reach Validated Maturity (ATMS: L+6M; CrIS: L+9M; VIIRS: L+6M; OMPS: L+9M; VIIRS Imagery: L+9M)	Sep-18	Sep-18	06/15/18: ATMS TDR/SDR Validated 06/15/18: VIIRS SDR Validated	
NOAA-20: Day 1 EDR products Maturity Review	Sep-18	Sep-18	03/22/18: Beta Review (Virtual): Active Fires, MiRS Products, OMPS Ozone V8Pro & V8TOz 04/18/18: Enterprise Cloud Mask (Beta), Aerosol Optical Depth / Detection (Provisional), Sea Surface Temperature (Provisional), Active Fires (Provisional), MiRS Products (Provisional) 06/15/18: Surface Reflectance (Beta), Cryosphere: Snow Cover, Sea Ice, IST (Beta) NUCAPS Products: AVMP, AVTP (Provisional) Ozone/OLR/CO/CO2/CH4 (Beta) 06/20/18: Snowfall Rate (CDR/ARR/SNPP-Prov/N20-Beta) 07/23/18: Beta Review (Virtual): Cloud Base Height, Cloud Top Height/Pressure/Temperature, Daytime Cloud Optical Thickness / Particle Size, Land Surface Temperature, Surface Albedo, ATMS Snowfall Rate	



FY18 STAR JPSS TTA Milestones

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Routine Cal/Val Maintenance				
SDR Reprocessing: Perform life cycle reprocessing with Block 2.0 algorithm (ATMS BUFR)	Apr-18	Apr-18	Feb-18	
Update Package for ICVS-GRAVITE For NOAA-20	Sep-18	Sep-18	1 st version: Mar-18	
EDR LTM for NOAA-20	Sep-18	Sep-18		
Images of the Month	Monthly	Monthly	Oct-17, Nov-17, Dec-17, Jan-18, Feb-18, Mar-18, Apr-18, May-18, Jun-18, Jul-18	
NOAA-20 ATMS First Light Image			11/30/17	
NOAA-20 VIIRS First Light Image (reflected solar bands (RSB))			12/14/17	
NOAA-20 VIIRS First Light Image (day/night band (DNB))			12/14/17	
NOAA-20 VIIRS First Light Image (thermal emissive bands (TEB))			01/05/18	
NOAA-20 CrIS First Light Image			01/05/18	
NOAA-20 OMPS NM First Light Image			01/05/18	
NOAA-20 OMPS NP First Light Image			01/05/18	



FY18 STAR JPSS TTA Milestones

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational Support				
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/03/17, 10/11/17, 10/17/17, 10/24/17, 10/31/17, 11/07/17, 11/14/17, 11/21/17, 11/28/17, 12/05/17, 12/12/17, 12/19/17, 01/02/18, 01/09/18, 01/16/18, 01/23/18, 01/30/18, 02/06/18, 02/13/18, 02/27/18, 03/06/18, 03/13/18, 03/20/18, 03/27/18, 04/03/18, 04/10/18, 04/17/18, 04/24/18, 05/01/18, 05/08/18, 05/15/18, 05/22/18, 05/29/18, 06/05/18, 06/12/18, 06/19/18, 06/26/18, 07/03/18, 07/10/18, 07/17/18, 07/24/18, 07/31/18	
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux Table Update	Bi-Weekly	Bi-Weekly	10/03/17, 10/17/17, 10/31/17, 11/14/17, 11/28/17, 12/12/17, 01/03/18, 01/16/18, 01/30/18, 02/13/18, 02/27/18, 03/13/18, 03/27/18, 04/10/18, 04/24/18, 05/08/18, 05/22/18, 06/05/18, 06/19/18, 07/03/18, 07/17/18, 07/31/18	
S-NPP: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	10/19/19, 11/18/17, 12/17/17, 01/15/18, 02/14/18, (12-months recycling old files)	Re-use old files
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/03/17, 10/31/17, 11/29/17, 12/27/17, 01/24/18, 02/21/18, 03/28/18, 04/24/18, 05/22/18, 06/20/18, 07/24/18	
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	After L+90	12/19/17, 01/10/18, 01/17/18, 01/23/18, 01/30/18, 02/06/18, 02/13/18, 02/27/18, 03/06/18, 03/13/18, 03/20/18, 03/27/18, 04/03/18, 04/11/18, 04/17/18, 04/24/18, 05/01/18, 05/08/18, 05/15/18, 05/22/18, 05/29/18, 06/05/18, 06/12/18, 06/19/18, 06/26/18, 07/03/18, 07/10/18, 07/17/18, 07/24/18, 07/31/18	12/19/17: 1 st Dark delivery; 01/10/18: start of weekly J1 Dark
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux Table Update	Bi-Weekly			No need now
NOAA-20: Monthly VIIRS Stray Light LUT Update	Monthly	After L+90	02/27/18, 03/29/18, 04/25/18, 05/23/18, 06/20/18, 07/24/18	
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	After L+90	02/13/18, 02/21/18, 03/29/18, 04/25/18, 05/22/18, 06/20/18, 07/24/18	
NOAA-20: VIIRS LUT update of F-PREDICTED and DNB-LGS-GAINS		After L+90	03/20/18, 04/24/18	

Color code:

Green:

Completed Milestones

Gray:

Non-FY18 Milestones

Accomplishments / Events:

- Reprocess NOAA-20 ATMS from November 29, 2017 to July 6, 2018
- Verify the integrity and consistence of reprocessed NOAA-20 ATMS TDR/SDR/GEO
- Develop NOAA-20 ATMS inter-sensor comparison package using Simultaneous Nadir Overpass (SNO) technique
- Update ADL ATMS LUT format and corresponding programs to prepare for ATMS reflector emission correction update in the future
- Update ATMS TDR minus CRTM simulation monitoring package

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			

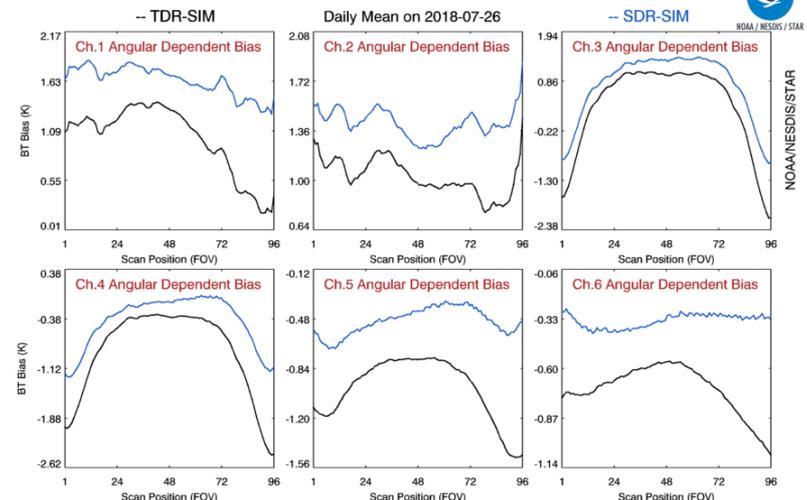
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

NOAA-20 ATMS TDR/SDR Scan Angle Dependent Bias (OBS - SIM)



NOAA-20 ATMS TDR/SDR vs CRTM simulations using ECMWF data angular dependent bias from channel 1 to channel 6

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Dec-17	Dec-17	12/08/17	L+20D
Provisional Maturity	Dec-17	Dec-17	01/23/18	V6 PCT Implemented
Validated Maturity	May-18	May-18	06/15/18	Scheduled 6/15
J1/N20 PCT updates	10/30/17 (V5, ADR8506/CCR3669) 12/18/17 (V6, ADR8521/CCR3702) 05/09/18 (V7, ADR8458/CCR3916)			
J1/N20 PCT update (based on the Pitch Maneuver)	Apr-18	Apr-18	05/01/28	To ASSISTT: 04/26/18
Planned Algorithm Update				
DAP to ASSISTT (science team to ASSISTT)	May-18	Nov-18	The code and PCT updates will change both TDR and SDR values. Any change in TDR may impact weather forecasting. Need more time to generate sample data sets for users to test and investigate the impact.	
SNPP/J1 earth scene reflector emissivity correction in IDPS (PCT & code update) (ASSISTT to DPES AIT)	Jun-18	Jan-19		

Accomplishments / Events:

- Continued the assessment and analysis of both CrIS on-orbit data and special post-launch tasks (PLT) data.
- Continued to monitor, assess, and improve NOAA-20 CrIS SDR data quality.
- Continued to work on the implementation of the polarization correction algorithm for S-NPP and NOAA-20 in ADL.
- Completed the assessment of the proposed Engineering Packet (EP) v115 using offline ADL code.
- Delivered Calibration Table 5 (EP v115) to flight side.
- Participated in the Flight Software Working Group (FSWWG) Meeting to support the delivery of the EP v115 as part of the process to reach the validated maturity level for NOAA-20 CrIS SDR. The assessment of following items were presented and discussed: a) update of the ILS parameters for the SWIR FOV 5 position, b) update of Geolocation parameters, c) update of the PGA gain setting for MWIR band.

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			

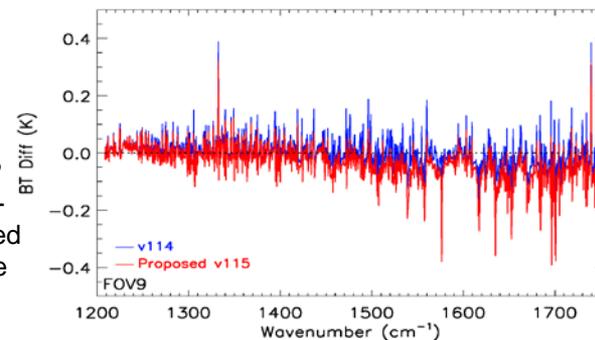
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Issues/Risks:

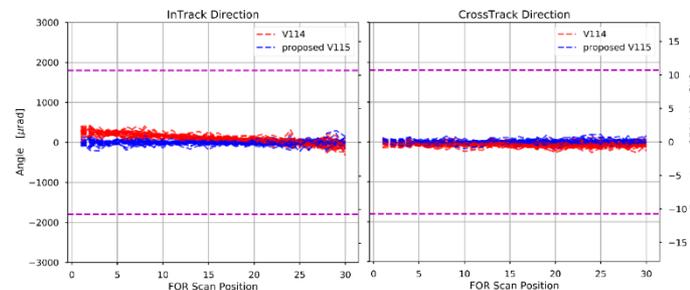
None

Highlights:

The 6% increasing of the MWIR FOV9 non-linear coefficient a2 was not supported for proposed EP v115 based on the FOV-to-FOV consistency (compared to FOV 5): larger difference at the high wavenumbers region were observed.



Intrack (left) and crosstrack (right) geolocation differences in angle as function of the scan position for EP v114 and proposed v115 using VIIRS as reference .



FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jan-18	Jan-18	01/17/18	V113 uploaded
Provisional Maturity	Feb-18	Feb-18	02/16/18	V114 uploaded
Validated Maturity	Aug-18	Sep-18	L+9M	EP v115
Engineering packet update for JPSS-1 operations	01/05/18 01/18/18 02/16/18	01/05/18 01/18/18 02/16/18	V112: 01/03/18 V113:01/17/18 V114:02/16/18	
RDR generator software package development: (1) STAR NL correction coefficient generator; (2) STAR ILS parameter generator; (3) STAR CITS unpacker to generate level 1a product; (4) STAR CITS geolocation to generate geolocation data; (5) STAR RDR generator	Mar-18	Jun-18	06/29/18	
DAP Deliveries	10/19/17 (ADR8489,8490,ADR8491/CCR3656) 02/14/18 (ADR8519/CCR3726) 03/06/18 (ADR8629/CCR3851); 03/20/18 (update) 04/05/18 (ADR8653/CCR3908) 04/20/18 (ADR8631/CCR3922)			

Accomplishments / Events:

- Generated and updated offset and gain ratio LUTs for NOAA-20 and S-NPP DNB using new moon calibration from July 13, 2018
- Generated NOAA-20 DNB stray light correction LUT from July 2018 data
- Presented VIIRS SDR reprocessing to GSICS community which is planning to use VIIRS as a community reference standard
- Analyzed NOAA-20 and S-NPP VIIRS radiometric consistency and presented to the SDR groups for feedback
- Analyzed the effects of NOAA-20 VIIRS safe mode on July 19, 2018 that resulted in data gap in SDR between 4:29 and 14:05 UTC: the instrument recovered around 15:29 UTC after the restart with nominal SDR products
- Evaluated scan-to-scan overlap in VIIRS earth observations; “underlap” between scans in NOAA-20 appears smaller than originally expected

Overall Status:

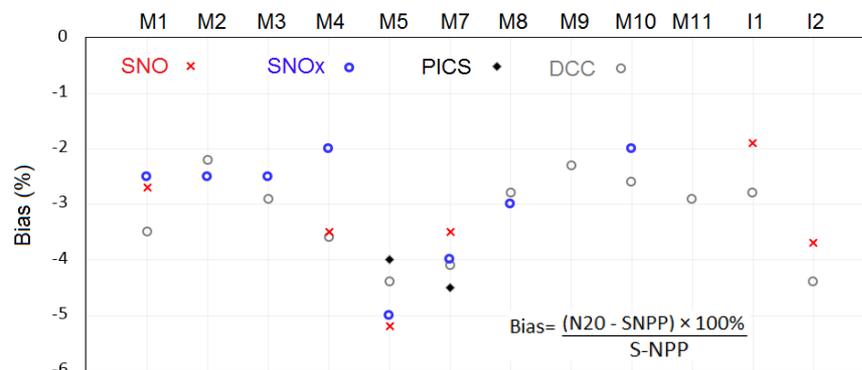
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Issues/Risks:

none

Highlights:



Radiometric consistency between NOAA-20 and S-NPP VIIRS RSB evaluated using Simultaneous Nadir Overpass (SNO), Extended SNO (SNO-x), Deep Convective Cloud (DCC) and Pseudo-invariant Calibration Site (PICS). Note: larger bias in M5 and M7 appears due to overestimated calibration in S-NPP by ~2%.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Date	Variance Explanation
N20 Post-Launch Cal/Val				
1st set of LUT updates for operations	Dec '17	Dec '17	12/27/17	CCR 3555
Beta Maturity	Jan '18	Jan '18	02/01/18	CCR 3742
2nd set of LUT updates for operations	Feb '18	Feb '18	01/30/18	CCR 3738
Provisional Maturity	Feb '18	Feb '18	02/19/18	CCR 3912
Validated Maturity	May '18	May '18	06/15/18	Review 6/15
Planned Algorithm Updates				
M6 rollover flagging correction	Sep '18	Jun '18	06/12/18	CCR 3966
LWIR FPA temperature flagging	Sep '18	Jun '18	05/30/18	CCR 3965
LUT update to reduce SDSM uncertainty	Jul '18	Aug '18		
WUCD calibration correction	Aug '18	Aug '18		
Identify algorithm updates based on JPSS-2 pre-launch test data: Pre-launch sensor characterization report	Sep '18	Sep '18		
DAP delivery	12/15/17 (ADR8528/CCR3700) 01/16/18 (ADR8559,8560,8561/CCR3742) 03/26/18 (ADR8578/CCR3857) 05/21/18 (ADR8686/CCR3963)			

Accomplishments / Events:

- Regular weekly dark deliveries for OMPS sensors were made.
- Regular bi-weekly OMPS-NP wavelength table deliveries were made for S-NPP.
- Quality Flag code changes were delivered to DPES. They are DR_8684,8685 for OMPS-TC and OMPS-NP. The quality flag calculations were inadequate needed to be updated.
- OMPS has reached provisional status in the month of July, 2018. An updated README was provided.

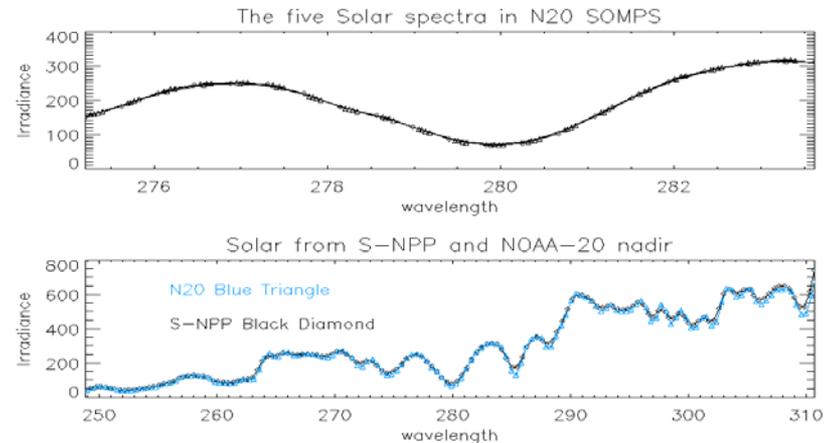
Overall Status:

	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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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:

Highlights:



The NOAA-20 OMPS-NP Solar Flux binning is correct as of MX02, a source code change was required.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jan-18	Jan-18	01/26/18	
Provisional Maturity	Feb-18	Jul-18	07/03/18	RequiredMx2 TTO
Validated Maturity	Aug-18	Oct-18	L+9M	Mx3 TTO
LUT update for JPSS-1 operations (1 st delivery)	Dec-17	Dec-17	12/18/17	L+42D
Weekly Dark Cal for JPSS-1 operations OMPS-NP-DARKS-GND-PI OMPS-TC-DARKS-GND-PI	Feb-18	Feb-18	01/08/18	Started weekly update on 1/8/2018
NOAA-20 OMPS NP OSOL & Wavelength LUT update (ADR8508/CCR3770)	Feb-18	Feb-18	02/01/18	
NOAA-20 OMPS SDR LUT updates	01/23/18 (ADR8576/CCR3760,ADR8577/CCR3761, NM & NP FAM LUTs update) 02/15/18 (ADR8594/CCR3821, TC SDR LUT and GND-PI updates)			
OMPS code update DAP	02/16/18 (ADR8615/CCR3829) 07/12/18 (ADR8684/CCR4014 & ADR8685/CCR4015)			
Update S-NPP OMPS TC Straylight Table	05/15/18 (ADR8527/CCR3906)			

Accomplishments / Events:

- Finished some preliminary assessment of OMPS reprocessing data (shown in highlights)
- Reprocessing of OMPS SDR till March 8, 2017 is ongoing

Overall Status:

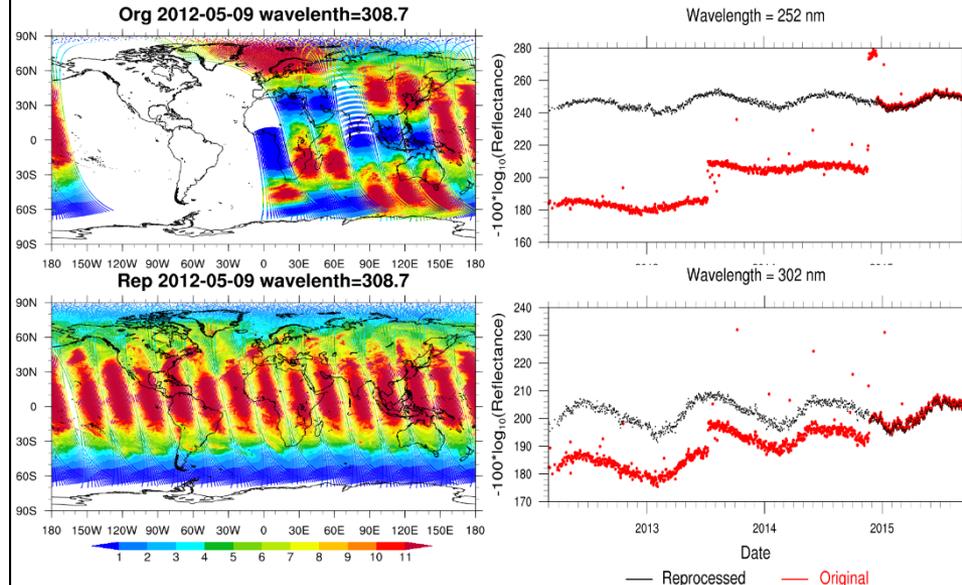
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights: Through reprocessing, some missing granules are reproduced (left) and the trend of OMPS SDR data are more consistent (right)



FY18 TTA Milestones	Original Date	Forecast Date	Actual Comp Date	Variance Explanation
Development of reprocessing data distribution website	Apr-18	Apr-18	Feb-28-18	
Analyze the quality of reprocessed data	Apr-18	Apr-18	Mar-31-18	
Prepare BUFRred reprocessed data for NWS reanalysis projects (NCEP/GMAO)	Apr-18	Apr-18	Feb-28-18	
Prepare ATMS user Manuel for using ATMS reprocessed data as pilot dataset to archive in CLASS	May-18	May-18	May-18-18	
Finalize the aggregation package to be used for producing the aggregated reprocessed ATMS data to archive in CLASS	May-18	May-18	May-18-18	
Complete the preparation of aggregated reprocessed ATMS data to be transitioned to CLASS	Jun-18	Jun-18	Jun-18	
Complete the reprocessing of OMPS SDR data	Aug-18	Aug-18		
Development of reprocessing data review website	Aug-18	Aug-18		

Accomplishments / Events:

- Provided near real time satellite instrument status/performance and SDR data quality monitoring report to support STAR SDR teams for NOAA-20 SDR data maturity review
- Delivered updated S-NPP/JPSS spacecraft health status monitoring packages to GRAVITE
- Developed and upgraded GOES-16 ABI vs CrIS and ATMS vs AMSU inter-sensor comparison modules in ICVS
- Developed machine deep learning cloud detection algorithm for VIIRS SDR data quality monitoring modules
- Kept developing near real time hurricane 3-D structure animation package for ICVS severe weather event monitoring module
- Kept developing near real time VIIRS RGB image generation software package to support ICVS EDR monitoring
- Supported JPSS/SMCD weekly 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			

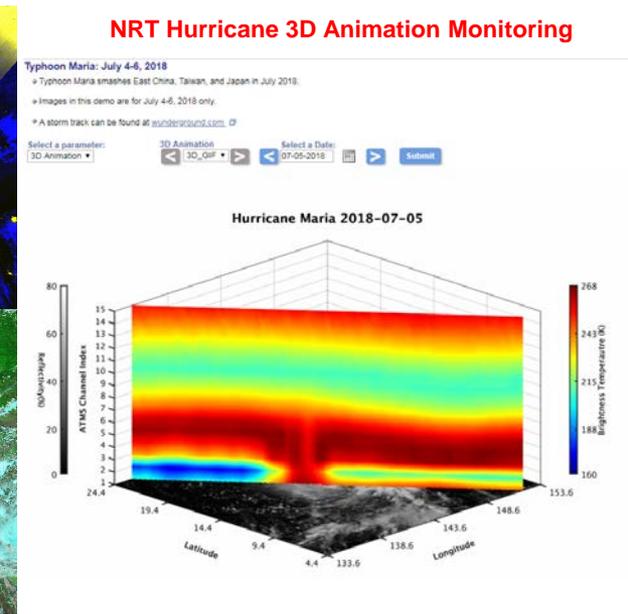
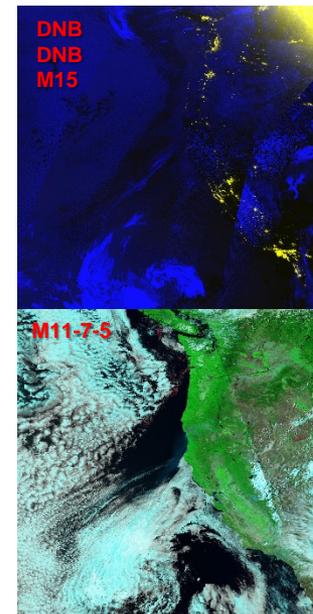
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Issues/Risks:

None

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 Post-launch Monitoring/Trending Package	Dec-17	Dec-17	Dec-18	
CrIS SDR Data Quality Trending	Dec-17	Dec-17	Dec-17	
First version of ICVS-GRAVITE package	Mar-18	Mar-18	Mar-18	
OMPS SDR Quality Trending Phase I	Jun-18	Jun-18	May-18	
SNPP/J1 cross-comparison package initialized	Dec-17	Jun-18	Jun-18	Change Personnel
Geolocation Accuracy Trending Initialized	Mar-18	Jun-18	Jun-18	Change Personnel
ICVS-Application Website (Severe Weather Watch with JMAPPER)	Mar-18	Dec-18		Initialized Module
JPSS-ICVS Monitoring/Trending Enhancement (On-going work)	Sep-18	Aug-18		
Update (2 nd version) Package for ICVS-GRAVITE	Sep-18	Sep-18		Standard schedule
ICVS System Maintenance Manuals and Technical Reports	Sep-18	Aug-18		

Highlights: VIIRS RGB Images & Hurricane 3D Animation



Accomplishments / Events:

- Imagery and Geo Teams and ASISSTT are making progress on **Terrain Correction geo-location for EDR Imagery**:
 - M-band TC Imagery working well (after fill value issue was resolved), but additional test cases will be run.
 - I-Band GRC_TC file successfully created by Geo Team. Needs to be applied to I-band Imagery now.
- **New NOAA-20 VIIRS Imagery display of random granules** for validation monitoring:
 - All (I and M bands and **now DNB**) available at: http://rammb.cira.colostate.edu/ramsd/online/noaa-20_viirs.asp
 - EDR Imagery verified OK on test data for Block 2.1 MX 3 SOL Deploy Regression Review/Checkout

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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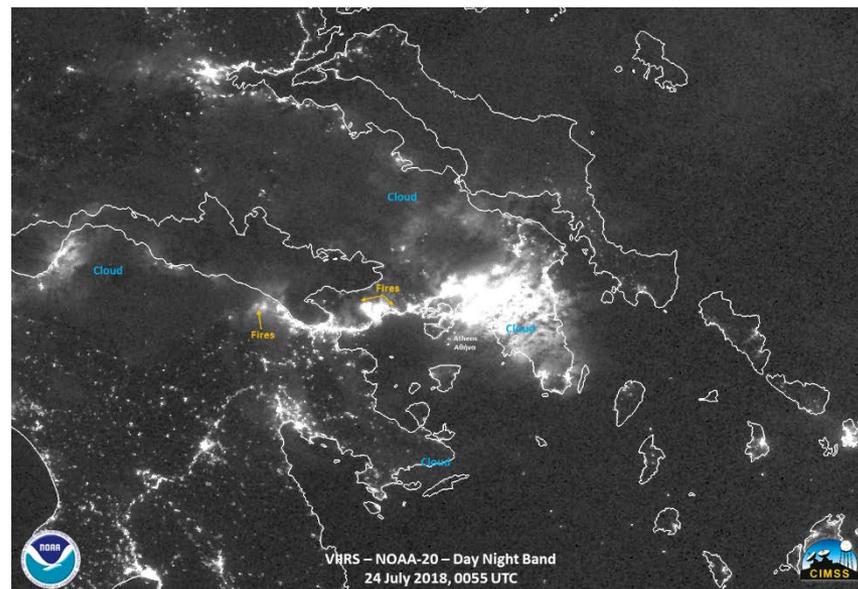
Issues/Risks:

None

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jan-18	Jan-18	02/01/18	
Provisional Maturity	Feb-18	Feb-18	02/19/18	Review: 02/20/18
Validated Maturity	Aug-18	Aug-18	L+9M	
Algorithm Update/Testing				
NCC LUT update (DAP from science team to ASSISTT)	Sep-18	Mar-19	Provisional + 1 year	
Terrain Correction for EDR Imagery	Sep 19	Sep 19		
Long Term Monitoring				
Deliver additional product(s) to LTM website; Add J1 products to EDR monitoring web	Sep-18	Sep-19		

Highlights:

“NOAA-20 nighttime DNB view of Athens fire, 24 July 2018 (W. Straka III, CIMSS/SSEC)



Accomplishments / Events:

- NOAA-20 Beta Maturity Reviews for Cloud Height, DCOMP and Cloud Base Height.
- Issue with the v1.2 NDE ECM on NOAA-20 has been resolved and the fix has been implemented at NDE (implemented 11 June 2018)
- Cloud Team is completing the evaluation of the algorithms from the upcoming (July/August) DAP to NDE
- Cloud Team is preparing for an Cloud Product Demo in the Alaska Region.

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			

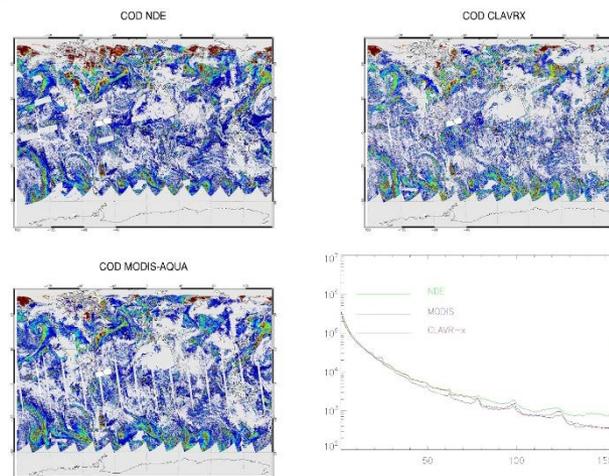
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Issues/Risks:

None

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jul-18	Jul-18	CM: 04/18/18 CBH/ACHA/DCO MP: 07/23/18	Program Request
Provisional Maturity	Sep-18	Sep-18		
Apply CALIPSO tools to NDE Mask with Lunar Reflectance	Sep-18	Sep-18		
Validate products from SAPF and begin ARM data analysis to fill CALIOP/CloudSat void	Sep-18	Sep-18		
Continue the visualization and demonstration of CCL for the Aviation Weather Center, with focus on Alaska Region and Hawaii	Sep-18	Sep-18		
Inter-sensor calibration studies by using visible reflectance and cloud optical thickness from GOES, JPSS and MODIS	Sep-18	Sep-18		
Consistency checks for day and night retrievals	Sep-18	Sep-18		
Continuous use of microwave-based LWP data for validation (DCOMP & NCOMP)	Sep-18	Sep-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	2/23/18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	7/31/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Reprocess regional data using cloud team calibration refinements	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
JPSS EPS algorithm updated DAPs	11/21/17; 02/02/18 (J1 capability); 04/30/18			

Highlights: NOAA-20 DCOMP SAPF Verification



Example of the evaluation from the upcoming SAPF delivery, demonstrating the consistency between the SAPF (NDE), science processing (CLAVRx) and MODIS. This shows the algorithms running within the upcoming DAP delivery as expected.

Accomplishments / Events:

- The locally-generated NOAA-20 ice product imagery has been added to the Cooperative Institute for Meteorological Satellite Studies (CIMSS) VIIRS Enterprise Ice Products web display (<https://stratus.ssec.wisc.edu/ice-products/anibrowser/>).
- The first version of an algorithm generating snow maps based on combined VIIRS and microwave sensors data (currently DMSP SSMIS) has been developed.
- A single-channel Ice Surface Temperature (IST) algorithm has been developed. This will allow the use of an i-band, which will provide much higher spatial resolution.

Overall Status:

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

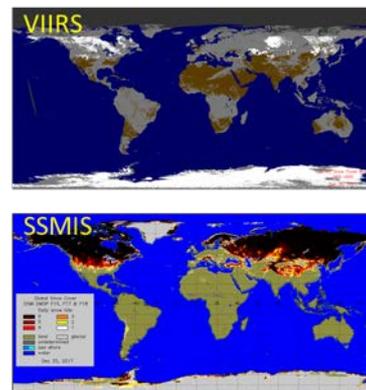
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4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

System Input



System Output

Combined VIIRS+SSMIS Binary Snow



Snow is last mapped with
■ VIIRS only ■ SSMIS only
 Assumed perennial snow

Satellite data input to the VIIRS+SSMIS snow blending system and system output product.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity: IST	May-18	May-18	06/15/18	
Beta Maturity: Snow	Jun-18	Jun-18	06/15/18	
Beta Maturity: Sealce	Jul-18	Jul-18	06/15/18	
Provisional Maturity (IST, Snow, and Sealce)	Sep-18	Sep-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	Apr-18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/31/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Improvements to snow and ice algorithms	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
JPSS EPS algorithm updated DAPs	11/21/17; 02/02/18 (J1 capability); 04/30/18			

Accomplishments / Events:

- Kondragunta gave a seminar on JPSS aerosol products to summer interns (IMSG SPARKS program)
- Laszlo submitted an abstract to AGU on VIIRS AOD algorithm
- AerosolWatch enhanced to include NOAA-20 aerosol products
- Investigations ongoing on cloud mask differences between v1r2 (I&T) and v1r1 (NDE production) for heavy aerosol cases
- Started working with TROPOMI aerosol index to compare with VIIRS absorbing aerosol index
- Ongoing work to add NOAA-20 aerosol products to STAR aerosol team long-term monitoring website
- A paper submitted to Journal of Aerosol Remote Sensing on algorithm enhancements to ADP is being revised for publication

Overall Status:

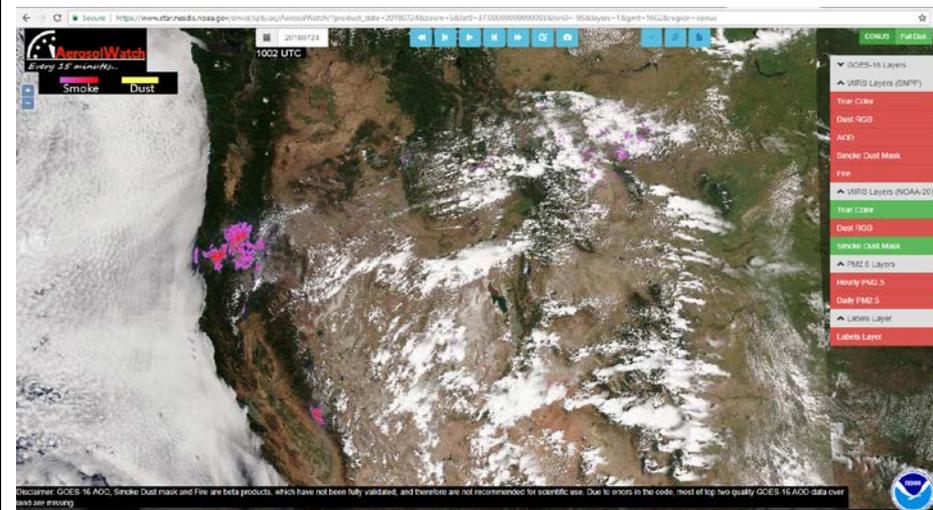
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Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Apr-18	Apr-18	04/18/18	
Provisional Maturity	Sep-18	Sep-18	04/18/18	
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	Apr-18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/31/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Validation of reprocessed SNPP VIIRS aerosol products	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
JPSS EPS algorithm updated DAPs	11/21/17; 02/02/18 (J1 capability); 04/30/18			



Screenshot of AerosolWatch for July 24, 2018 showing NOAA-20 VIIRS smoke plumes overlaid on true color RGB

Accomplishments / Events:

- Added to a list of NOAA-20 VIIRS granules that were known to contain ash.
- Quantitatively compared S-NPP and NOAA-20 volcanic ash EDRs for a new case (see highlight). The S-NPP and NOAA-20 EDRs were found to be consistent.
- Wrote validation report in support of DAP to NDE.
- 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			

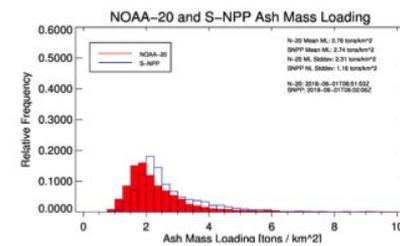
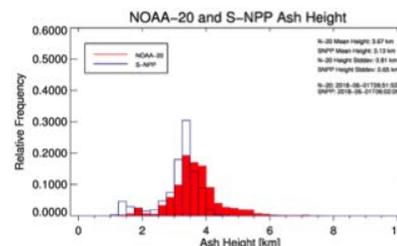
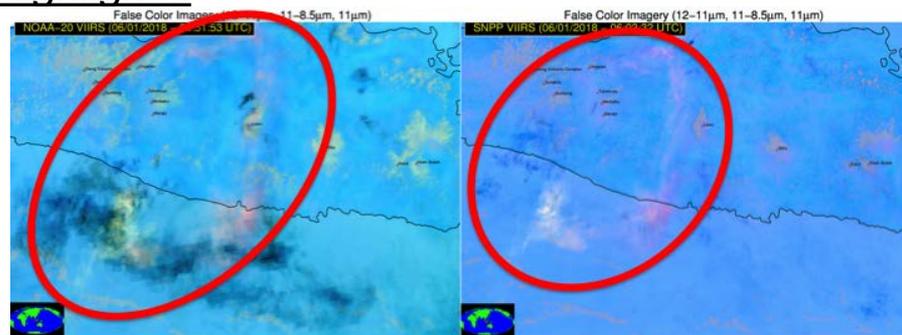
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Issues/Risks:

We have not yet been able to co-locate the NOAA-20 VIIRS volcanic ash EDR with CALIPSO overpasses of ash clouds. Other validation techniques (see below) are being used to mitigate this issue

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
JPSS-1 Cal/Val Plan	Dec-17	Dec-17	12/18/17	
Beta Maturity	Jul-18	Sep-18		Combine B & P
Provisional Maturity	Sep-18	Sep-18		
J1 algorithm adjustments:				
Complete development of Version 2 (V2) of the volcanic ash algorithm. Version 2 may utilize VIIRS + CrIS	Feb-18	Feb-18	Feb-18	While not needed to meet spec, algorithm enhancements will continue to be sought
Update LUT and thresholds for JPSS-1	Feb-18	Feb-18	Feb-18	
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	Apr-18	Other than the LUT delivery, no other changes were required thus far
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/31/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add Volcanic Ash to EDR Monitoring web (SNPP & J1)	Sep-18	Sep-18		
JPSS EPS algorithm updated DAPs	11/21/17; 02/02/18 (J1 capability); 04/30/18			

Highlights: N20 vs S-NPP: Merapi, Indonesia (1 June 2018)



Accomplishments / Events:

- Started systematic data feed of NOAA-20 and I-band fire products to HRRR-smoke group
- Analyzed product performance for the major fire event in Greece
- Demonstrated advantage of two-satellite constellation to reduce impacts of cloud obscuration
- Worked with OSPO on I-band product demonstration processing for Hazard Mapping System

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			

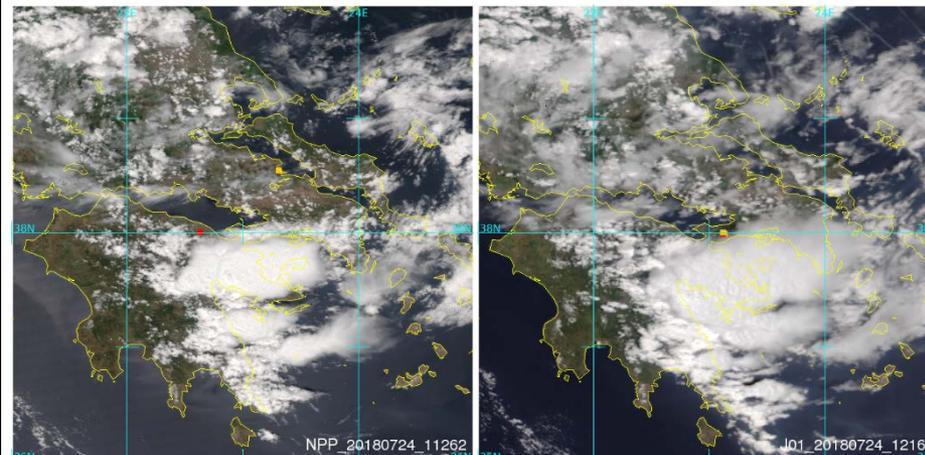
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Issues/Risks:

None

Highlights:

Credit: Marina Tsidulko, IMGS@STAR



Daytime observations of the major fire event in Greece by VIIRS on July 24, 2018. Suomi NPP VIIRS missed the main fire complex due to cloud obscuration (but detected another fire to the west). The colors of the fire pixels indicate detection confidence levels.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jun-18	Jun-18	03/22/18	Virtual Review
Provisional Maturity	Dec-18	Dec-18	04/18/18	
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Aug-18	Aug-18	Oct-17	
Preliminary DAP to NDE (ASSISTT to NDE)	Oct-18	FY19	11/21/17	
SNPP/J1 algorithm refinement (Maintenance DAP)				
J1 data analysis and feedback	Sep-18	Sep-18		
Enterprise algorithm evaluation	Sep-18	Sep-18		
Suomi NPP reprocessing analysis	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- Worked on the delivery of the code to include NOAA-20 processing capability
- Implemented code fix to handle I-band quality flag issue
- Worked on updating documentation (SMM, EUM) to reflect changes related to the new code delivery

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			

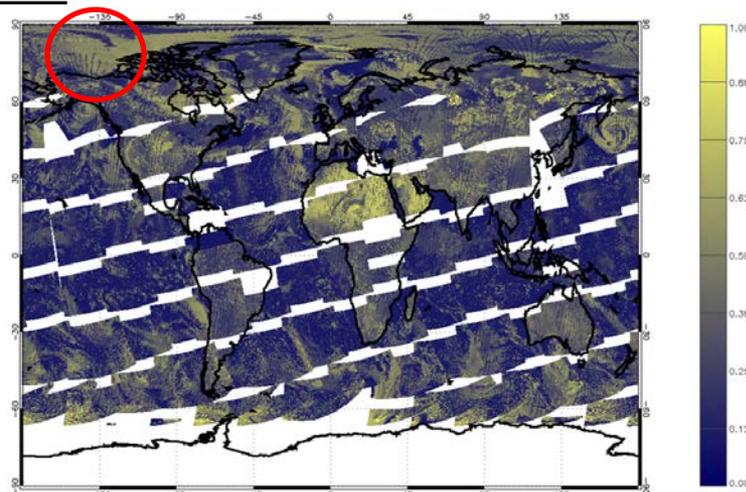
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Issues/Risks:

None

Highlights:

Mike Wilson (IMSG@STAR)



An illustration of the I3-band quality flag issue in the NDE product before the code fix. The pattern seen in the circle is caused by incorrectly processed poor quality VIIRS SDR data. Data from May 13, 2018

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	May-18	May-18	06/15/18	Scheduled 6/15
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Jun-18	Jun-18	Jun-18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/27/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add SR to EDR monitoring web (SNPP & J1)	Sep-18	Sep-18		
Enterprise algorithm testing and updates	Sep-18	Sep-18		
Patch DAPs to NDE	10/06/17 (global attribute, endianness) 12/11/17 (QF2 attribute text fix) 01/29/18 (file name change) 02/21/18 (QCAI1 flag value change)			

Accomplishments / Events:

- Have done preliminary investigation and evaluation of the NOAA-20 VIIRS LST data with in-situ ground observations and cross satellite observations (Highlight and slide 2).
- Completed delivery of NOAA-20 VIIRS LST beta review on July 19, 2018.
- Adjustment of gridded production design has been discussed and analysisCode modification has been made to the STAR common gridding tool for the use of the NDE geolocation data. A problem has been identified for exception handling.
- A draft version of gridded LST CDR slide is ready.
- A problem has been identified in the NDE LST output due to the scaling beyond the valid range. Has reported to ASSIST group for modification. (Slide 3)
- Continue the simulation studies for the LUT generation and evaluation was performed.
- Finished two abstracts for AGU fall meeting. One abstract is related to the enterprise VIIRS LST development and evaluation and the second abstract is related to the radiance based LST validation. (slide 4)
- A manuscript for summary of the enterprise LST algorithm development and evaluation is undergoing. (slide 4)
- Continue to monitor the NOAA 20 LST data at granule and global scale
- Provided support to model group for VIIRS LST assimilation studies.

Overall Status:

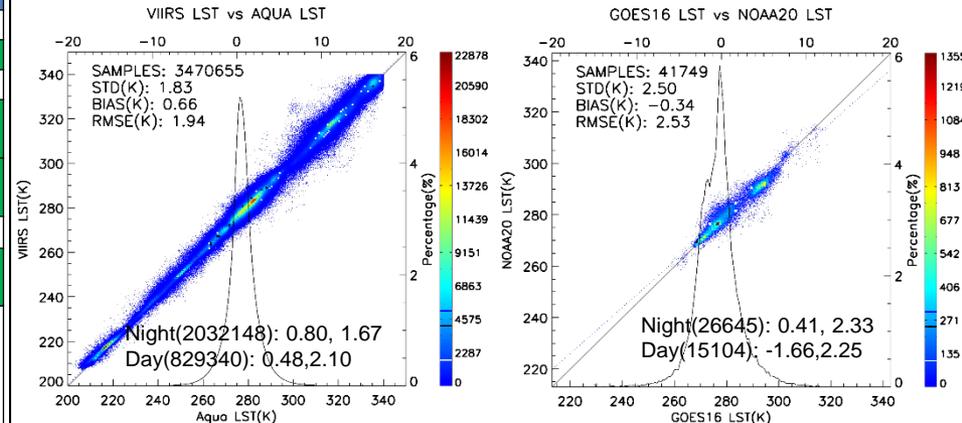
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Technical / Programmatic		X			
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Issues/Risks:

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jul-18	Jul-18	July 19	
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	03/09/18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	08/04/18	
SNPP/J1 algorithm Refinements				
Enterprise Algorithm Final DAP	Feb-18	Mar-29	Init DAP: 11/15/17 Final DAP: 4/2/18	Passed SR: Feb-18
CDR review ready for global gridded LST production	Jun-18	Jun-18		The Gridded LST production schedule has been changed due to SPSRB review procedure
Additional cloud filtering	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
Deep-dive analysis for the anomaly watch	Sep-18	Sep-18		

Highlights:



NOAA-20 VIIRS LST against the AQUA MODIS LST over multiple SNOs over US, Africa, Australia, Greenland and polar areas.

NOAA-20 VIIRS LST against the GOES 16 LST data over continental US for days on April 14, 17 and 28, 2018.



NOAA 20 VIIRS LST Validation

The ground in-situ measurements from SURFRAD were used for the NOAA-20 LST validation. The data covers the time period from Jan 5 to June 28, 2018. Original VIIRS cloud mask is applied. The text in red denotes the results beyond the L1RD requirement.

Site Name	count	bias	std	cnt(d)	bias(d)	std(d)	cnt(n)	bias(n)	std(n)
Bondville_IL	194	1.723	3.536	120	3.722	4.571	74	0.426	1.715
Boulder_CO	163	-0.063	1.892	64	0.238	2.483	99	-0.257	1.362
Desert_Rock_NV	227	-1.986	1.528	116	-1.645	1.624	111	- 2.342	1.337
Fort_Peck_MT	174	-0.171	1.973	68	0.326	2.069	106	-0.490	1.849
Goodwin_Creek_MS	130	-0.030	3.514	53	-3.559	2.436	77	2.400	1.495
Penn_State_PA	77	0.701	2.028	22	1.363	2.480	55	0.436	1.773
Sioux_Falls_SD	122	-0.270	2.355	42	-0.299	3.184	80	-0.256	1.799

Issue with the enterprise LST output

Details:

LST output is scaled value in signed integer type with the value from -32768 to 32767, in which -32768 is used for the fill value.

Since LST is scaled with a scale factor of 0.005 and offset of 200. Therefore the maximum temperature above range can represents

$$32767 * 0.005 + 200 = 363.8 \text{ K}$$

And the minimum temperature is

$$-32767 * 0.005 + 200 = 36.2 \text{ K (This is meaningless for LST)}$$

When the LST retrieval is greater than 363.8 K, fill value of -32768 should be used for the scaled LST, but it is not set it this way.

AGU abstract:

1. Yuling Liu, Yunyue Yu, Peng Yu, Heshun Wang, Yuhan Rao, Enterprise LST algorithm development and its evaluation on NOAA 20 VIIRS Data, 2018 AGU fall meeting Dec. 10-14, 2018 in Washington, D.C.
2. Heshun Wang, Yunyue Yu, Yuling Liu and Peng Yu, Radiance-based Validation for NOAA20/VIIRS and GOES16/ABI Land Surface Temperature Product, 2018 AGU fall meeting Dec. 10-14, 2018 in Washington, D.C.

Manuscript in preparation:

1. Title: Enterprise LST algorithm development and its evaluation on NOAA 20 VIIRS Data

Accomplishments / Events:

- Checked the NOAA-20 VIIRS albedo product NRT output in the framework (highlight)
- Completed delivery of NOAA-20 VIIRS Albedo beta review on July 19, 2018; revised the VIIRS Albedo ATBD according to NOAA20 albedo beta review
- Modified the gridded albedo software architecture according to the common gridding tool (Slide 2)
- Cross-compared NOAA-20 VIIRS albedo product with MODIS daily mean albedo and got clues on VIIRS albedo improving strategy (Slide 3)
- Validated the framework generated SNPP/NOAA-20 Albedo for a DAP delivery and provided feedback to ASSISTT
- Regenerated the albedo climatology data to fill 2 missing tiles in Arctic region (Slide 4)

Overall Status:

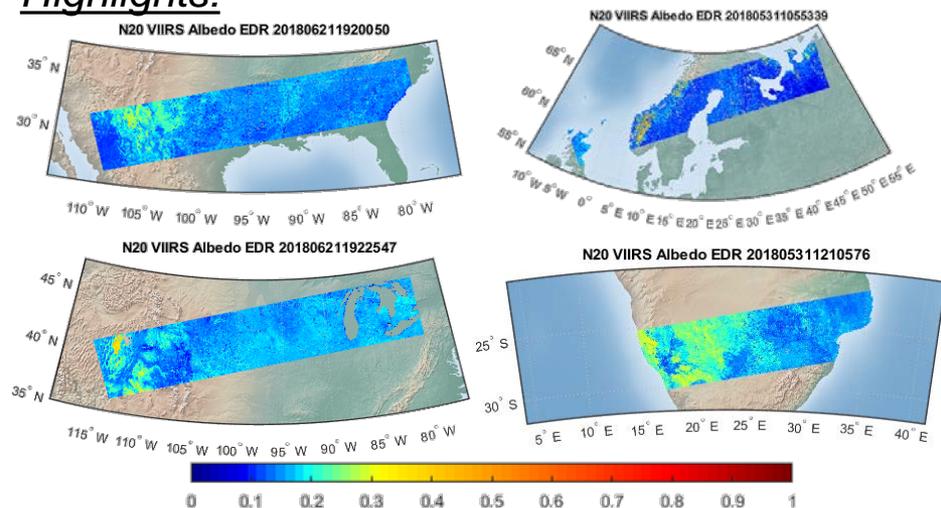
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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:

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jul-18	Jul-18	Jul-18	
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	03/09/18	Completed
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	08/04/18	
SNPP/J1 algorithm Refinements				
Enterprise Algorithm Final DAP	Feb-18	Feb-18	Init: 11/15/17; Final: 4/2/18	Passed SR: Feb-18
LUT for Sea Ice Albedo computation	Dec-17	Dec-17	03/05/18	Completed
Developing improved albedo climatology	Jul-18	Jul-18	02/23/18	Completed
Refining codes of gridded VIIRS albedo	Sep-18	Sep-18		Issue 1
Deep-dive analysis for the anomaly watch	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
Enterprise Algorithm LSA ARR			03/14/18	

Highlights:

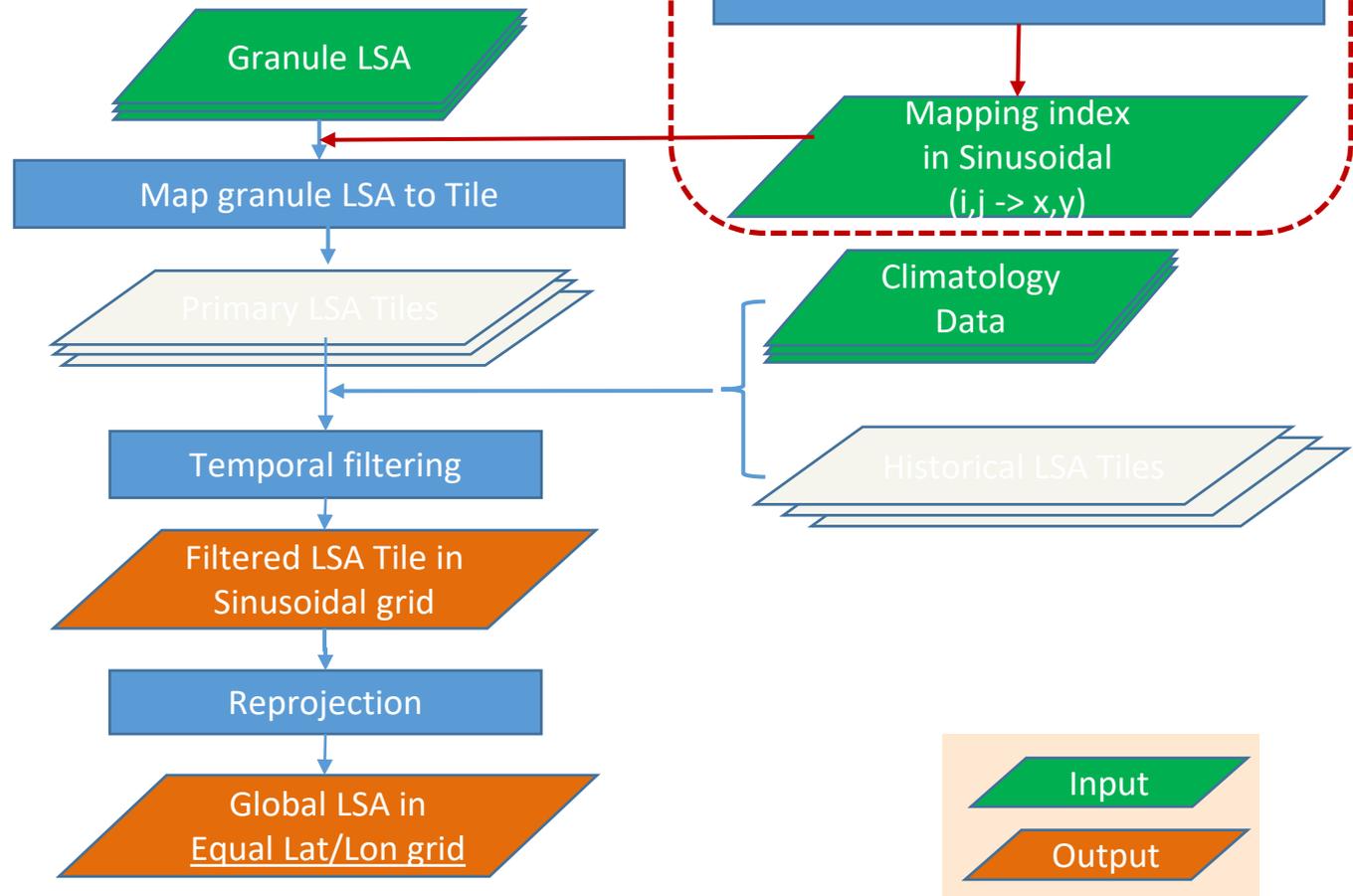


Examples of J1 enterprise granule albedo generated in the framework. Initial checking of some randomly-picked granules in different continent demonstrates the product has reasonable and continuous distribution.

Gridded Albedo (LSA) Software design

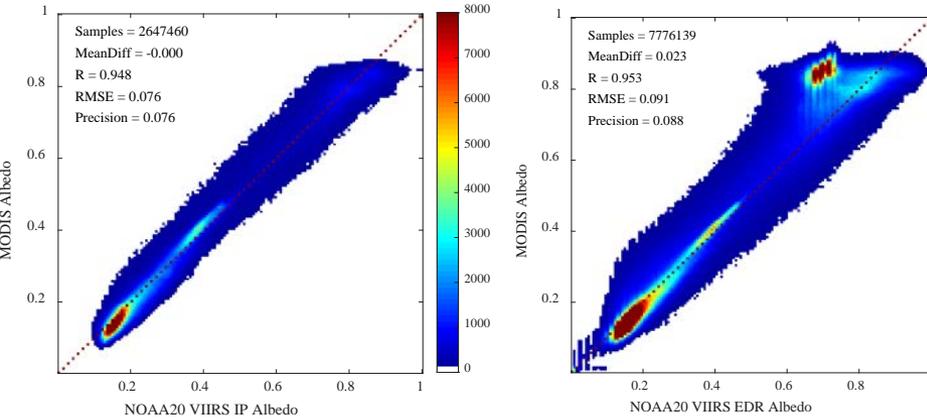
Main modifications from previous version:

- The gridding module used in albedo will be modified into a common tool.
- The albedo mapping module will be modified to digest the granule albedo product.
- The output tile system will be redesigned to fully consider the robustness and convenience of operational product.
- A mutual reprojection tool will be developed to generate the equal lat/lon grid for model team use.

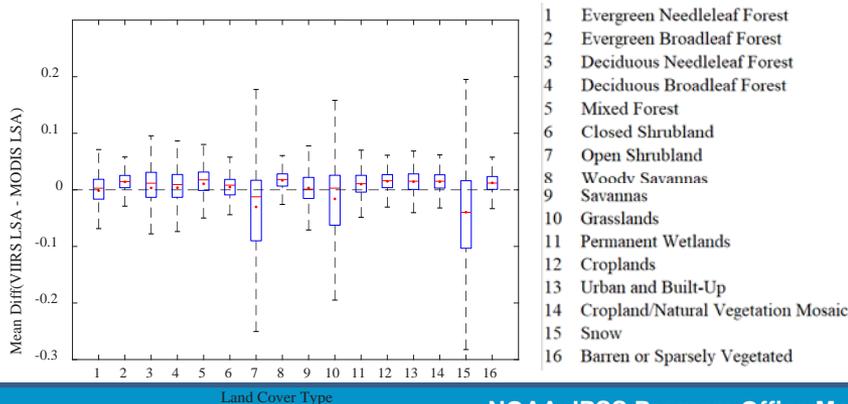


NOAA 20 VIIRS Albedo vs. MODIS daily mean albedo

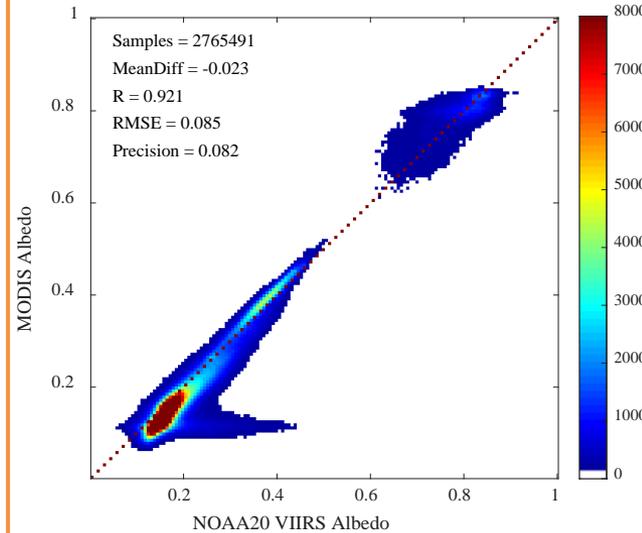
Spring Case: 20180309



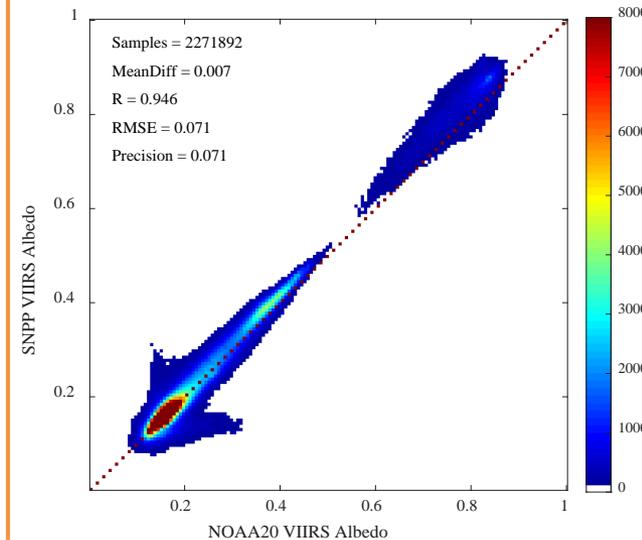
NOAA 20 and MODIS albedo agrees under most land cover types, except snow-covered regions. The filled albedo from climatology (included in VIIRS EDR layer) shows more significant difference over snow, demonstrating that the NOAA 20 albedo climatology in Antarctic region should be improved.



Summer Case: 20180609

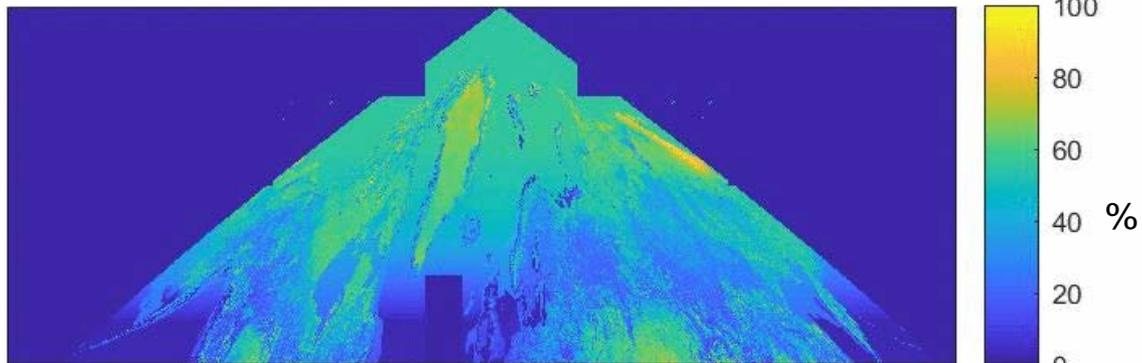


NOAA 20 and MODIS albedo agrees under most land cover types, except snow-covered and needle-leaf forest pixels.

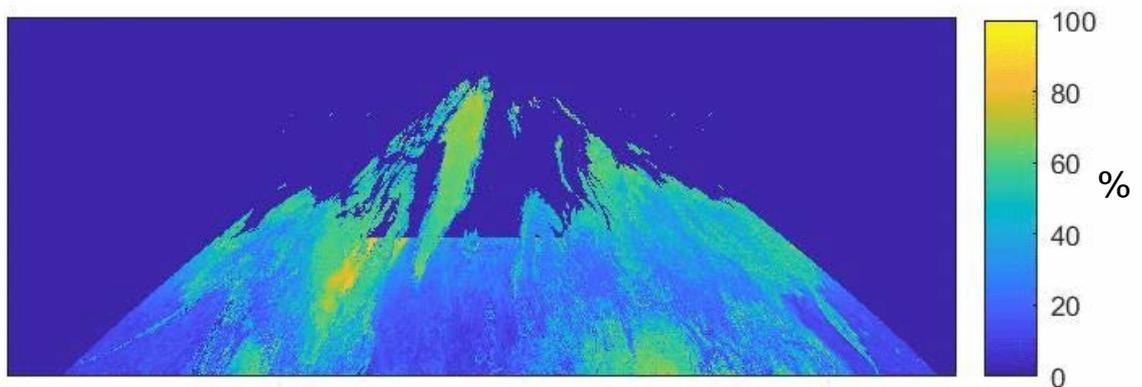


NOAA 20 VIIRS albedo and SNPP VIIRS albedo shows better agreement than NOAA 20 and MODIS albedo.

DOY: 001



Old



New

Improvements:

1. The data source used the VIIRS reprocessed sea-ice albedo instead of APP-x Sea-ice albedo
2. The spatial resolution, accuracy, and consistency are all greatly improved
3. The missed tiles were filled
4. The sea-ice albedo during polar night period was removed

Animations of Climatology data in Sinusoidal Grid

Accomplishments / Events:

- The team spent most of its effort on post-processing of the 2017 classification map, including correction of excessive snow/ice patches found during initial product evaluation. The product will be finalized and ready for delivery soon.
- The team used VIIRS daily observations to examine the progressing of the Ferguson Fire still burning in California.

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:

Ferguson Fire Tracked by VIIRS



The Ferguson fire was first reported on 7/13/2018. By 7/15 4,000 acres (16 km²) were burned. In the next 10 days, the fire grew 10 times to around 40,000 acres (160 km²), and is still burning. The fire, including smoke and burned areas, has been recorded by VIIRS on a daily basis.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Comparison of GST16 with surface type validation data	Sep-18	Sep-18		
Planned Algorithm Delivery				
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS GST17 based on VIIRS 2017 data	Sep-18	Sep-18		
Generate VIIRS GST17 based on VIIRS 2017 data using SVM algorithms	Sep-18	Sep-18		

Accomplishments / Events:

- Produced NOAA-20 vegetation index product using sample NOAA-20 input data from June 26, 2018 – July, 15, 2018
 - Conducted cross-comparison between NOAA-20 VI products and SNPP VI products
 - Refined the visualization website for providing better VIIRs VI product access to users
- https://www.star.nesdis.noaa.gov/smcd/viirs_vi_web/landwatch.php

Overall Status:

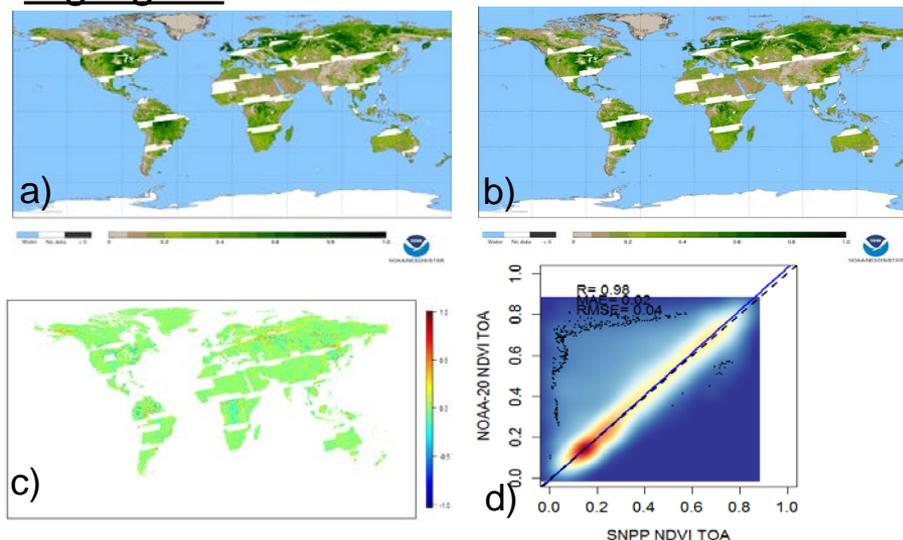
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
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Issues/Risks:

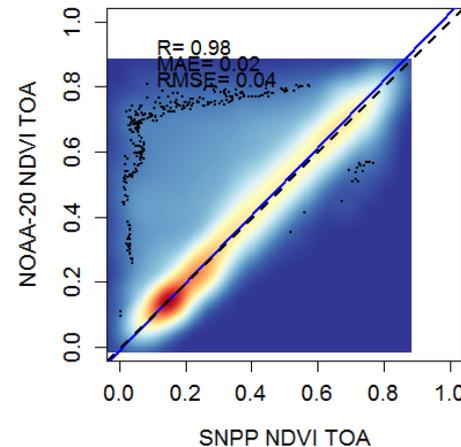
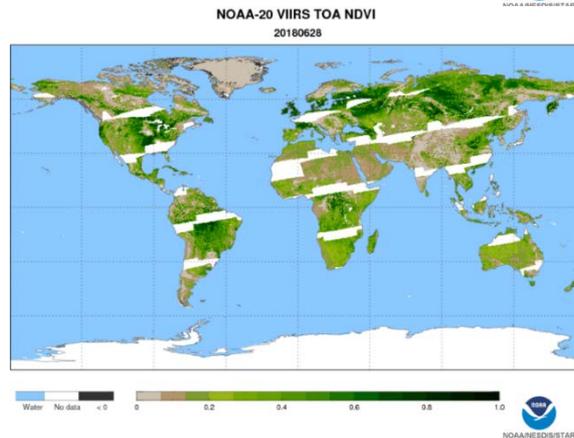
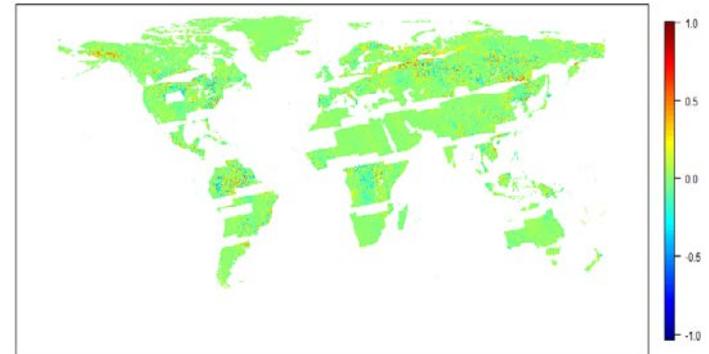
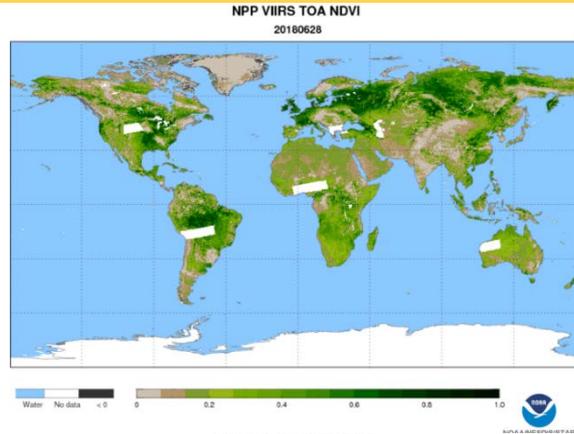
Data gap issue still exists. The bug was noticed and solution was submitted to NDE. However it is not executed in NDE yet.

Highlights:

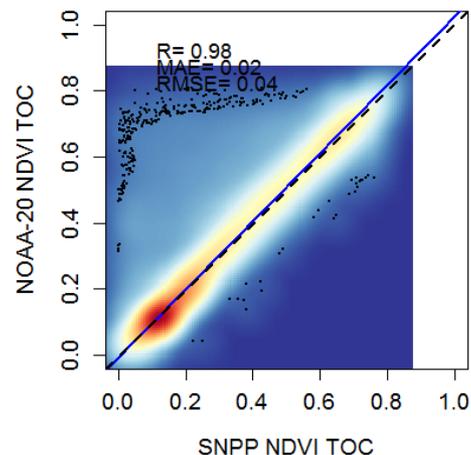
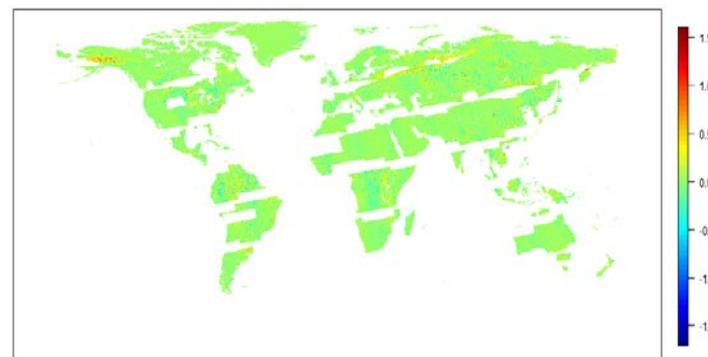
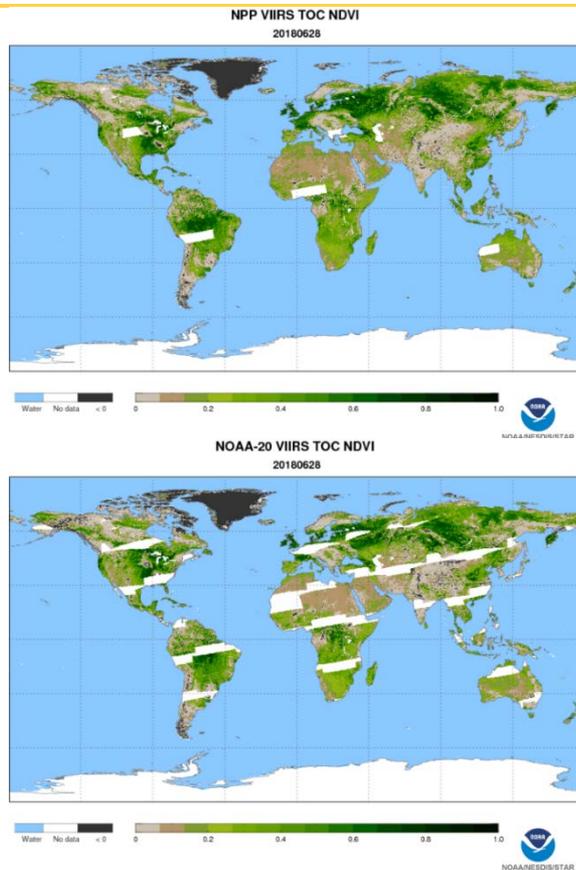


Cross-comparison between NOAA-20 TOA NDVI and SNPP TOA NDVI. a) sample SNPP TOA NDVI; b) Sample NOAA-20 TOA NDVI; c) Difference between sample SNPP and sample NOAA-20 TOA NDVI; d) Scatterplot of SNPP VI TOA NDVI and NOAA-20 TOA NDVI

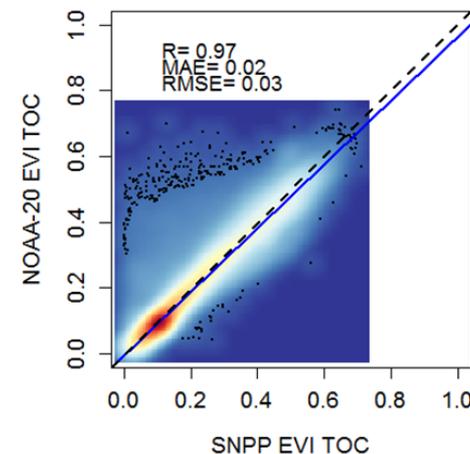
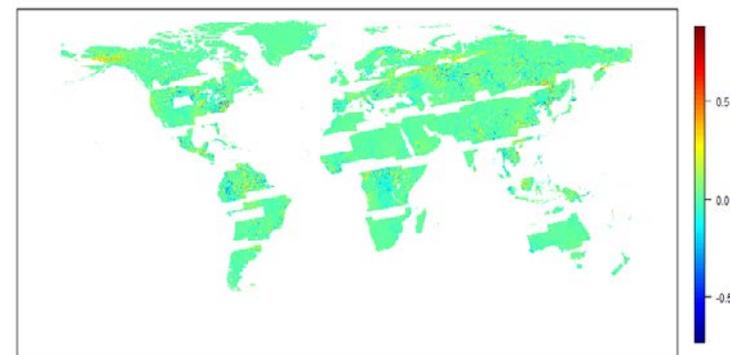
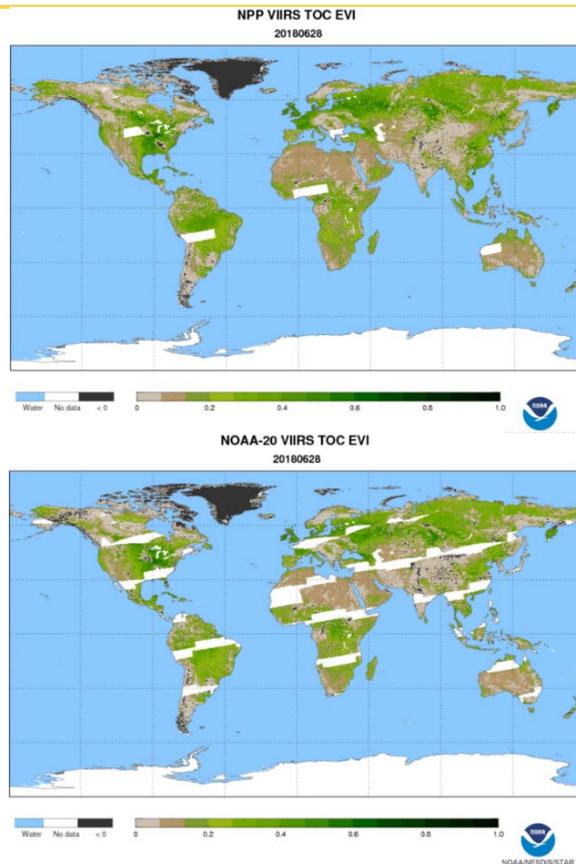
FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Aug-18	Aug-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Sep-18	Sep-18		
Preliminary DAP to NDE (ASSISTT to NDE)	Nov-18	FY19		
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
Enterprise Algorithm Final DAP	Jan-18	Jan-18	Initial DAP: 06/26/17 Final DAP: 02/06/18 Delta DAP: 03/15/18	
NVPS ARR			12/21/17	



Preparation of NOAA-20 VI beta maturity review is underway. Presented here are cross-comparison results of the NOAA-20 TOA NDVI (Lower left), SNPP TOA NDVI (Upper left), Difference between SNPP TOA NDVI and NOAA-20 TOA NDVI (Upper Right) and scatterplot of these two VI products (Lower Right). TOA NDVI produced from one day of input data on July 28, 2018.



Similarly, presented here are cross-comparison results of the NOAA-20 TOC NDVI (Lower left), SNPP TOC NDVI (Upper left), Difference between SNPP TOC NDVI and NOAA-20 TOC NDVI (Upper Right) and scatterplot of these two VI products (Lower Right). TOC NDVI produced from one day of input data on July 28, 2018.



In addition, presented here are cross-comparison results of the NOAA-20 TOC EVI (Lower left), SNPP TOC EVI (Upper left), Difference between SNPP TOC EVI and NOAA-20 TOC EVI (Upper Right) and scatterplot of these two VI products (Lower Right). TOC EVI produced from one day of input data on July 28, 2018. Further efforts are required to validate the NOAA-20 VI products

Accomplishments / Events:

- Produced NOAA-20 GVF from June 26 to July 25, 2018
- Conducted preliminary cross-comparison between NOAA-20 GVF product and SNPP GVF product
- Prepared a manuscript to provide a comprehensive description of VIIRS GVF products.
- Updated the visualization website for providing better VIIRS GVF access to users in the following website.
https://www.star.nesdis.noaa.gov/smcd/viirs_vi_web/land_watch.php

Overall Status:

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

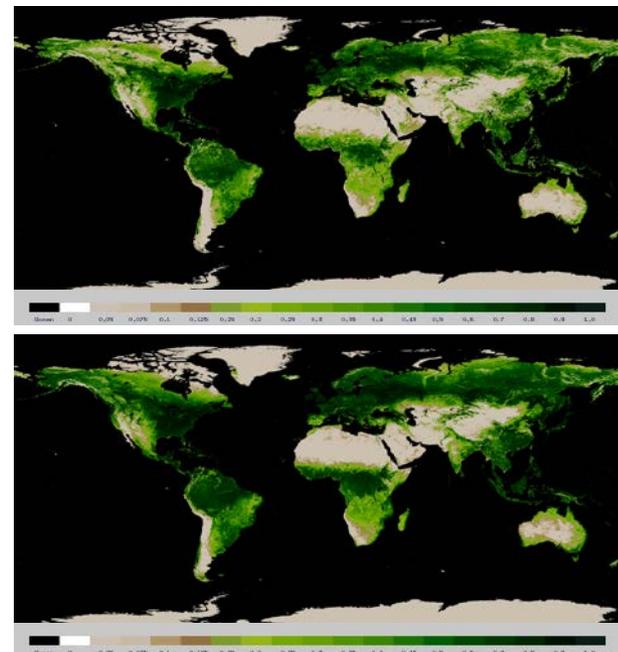
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Data gap issue still exists. The bug was noticed and solution was submitted to NDE. However it is not executed in NDE yet.

Highlights:

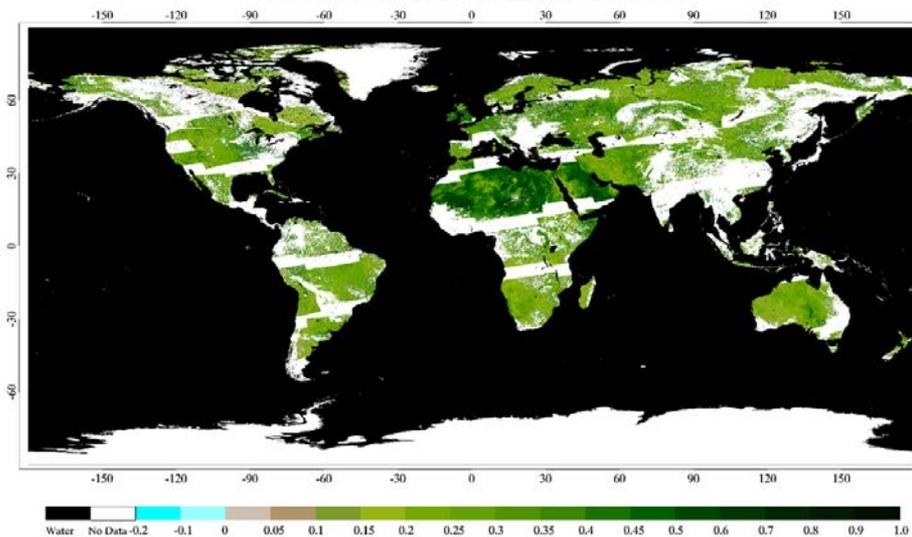
NOAA-20 GVF product vs. SNPP GVF product. **Upper:** Global weekly GVF (20180625-20180701) from NOAA-20; **Lower:** Global weekly GVF (20180625-20180701) from SNPP



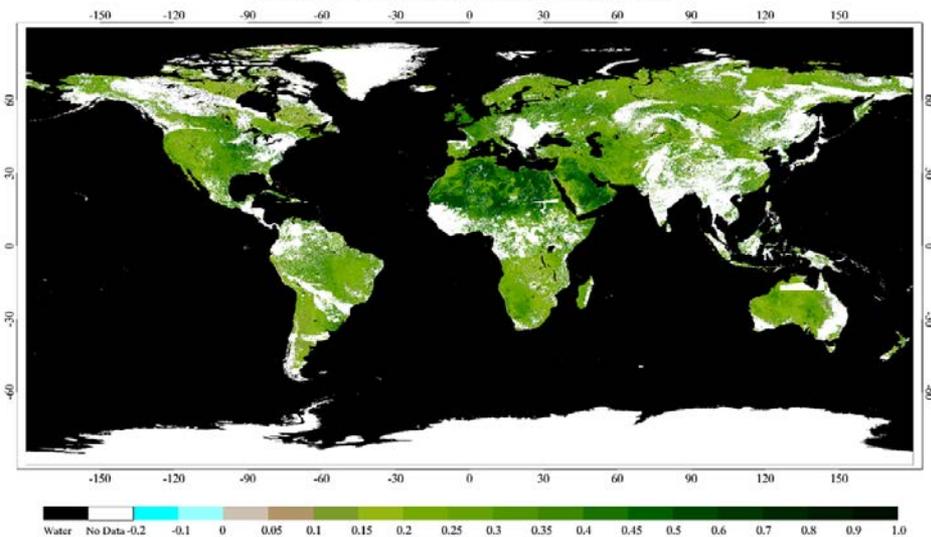
FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Aug-18	Aug-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Sep-18	Sep-18		
Preliminary DAP to NDE (ASSISTT to NDE)	Nov-18	FY19		
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

NOAA-20 vs. SNPP: NIR Surface Reflectance

NOAA-20 VIIRS Daily NIR reflectance Jun 27, 2018



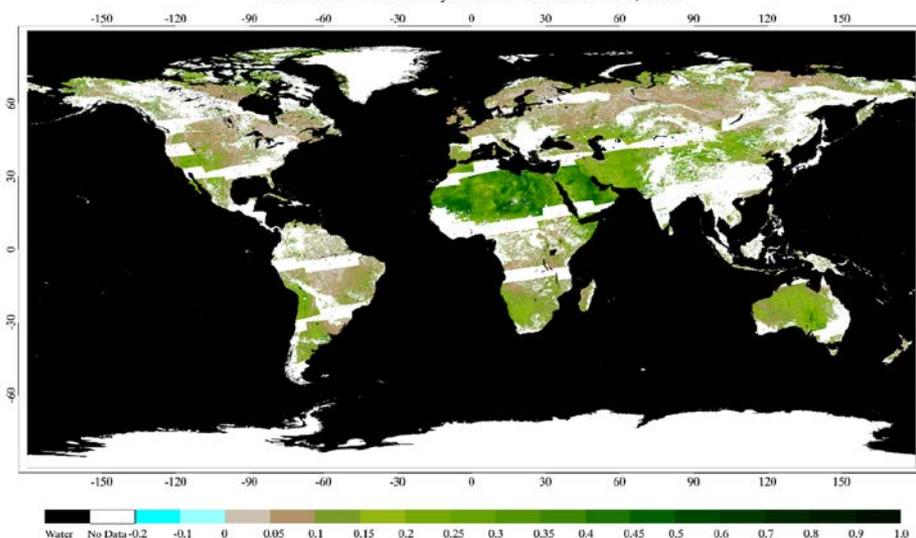
Suomi NPP VIIRS Daily NIR reflectance Jun 27, 2018



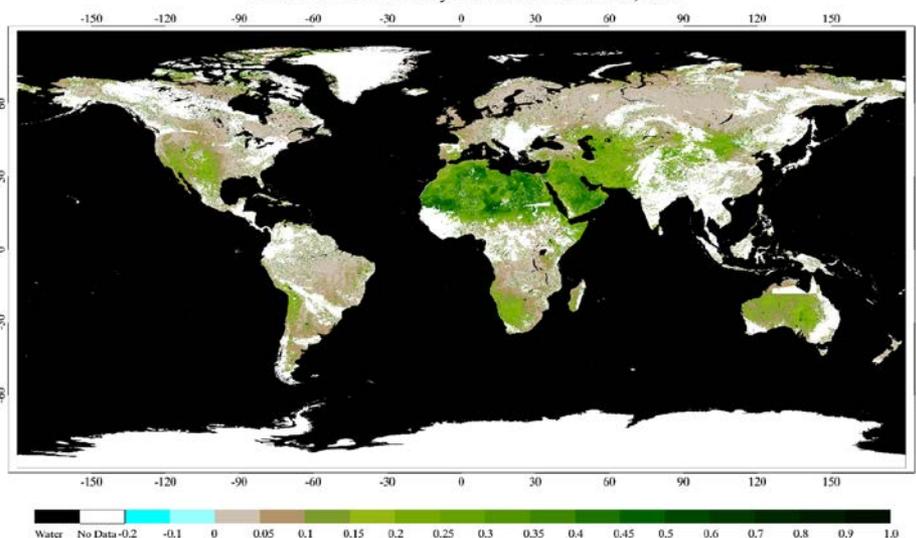
Preparation of NOAA-20 GVF beta maturity review is underway. Presented here are sample results of the NOAA-20 NIR surface reflectance (left) and SNPP NIR surface reflectance (right) data produced from one day of input data on June 27, 2018. More input data is required for this beta maturity review effort.

NOAA-20 vs. SNPP: Red Surface Reflectance

NOAA-20 VIIRS Daily Red reflectance Jun 27, 2018

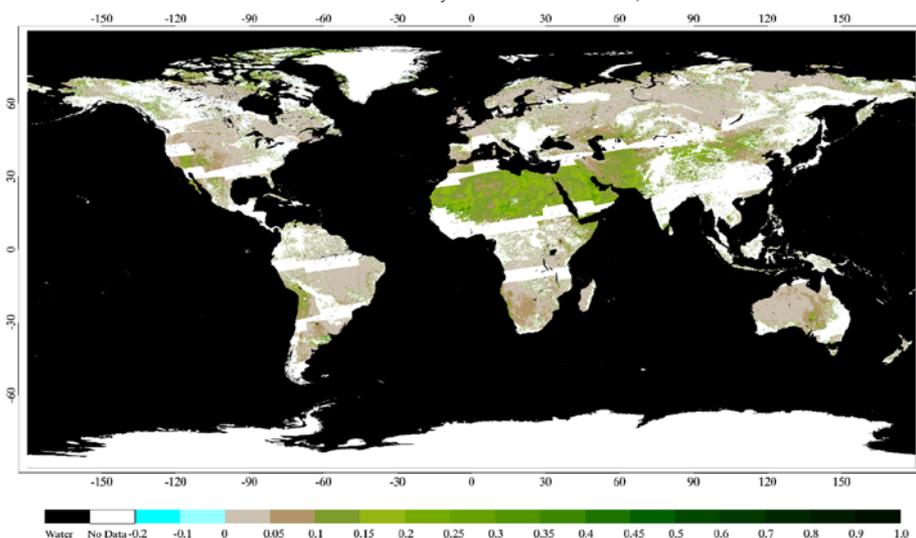


Suomi NPP VIIRS Daily Red reflectance Jun 27, 2018

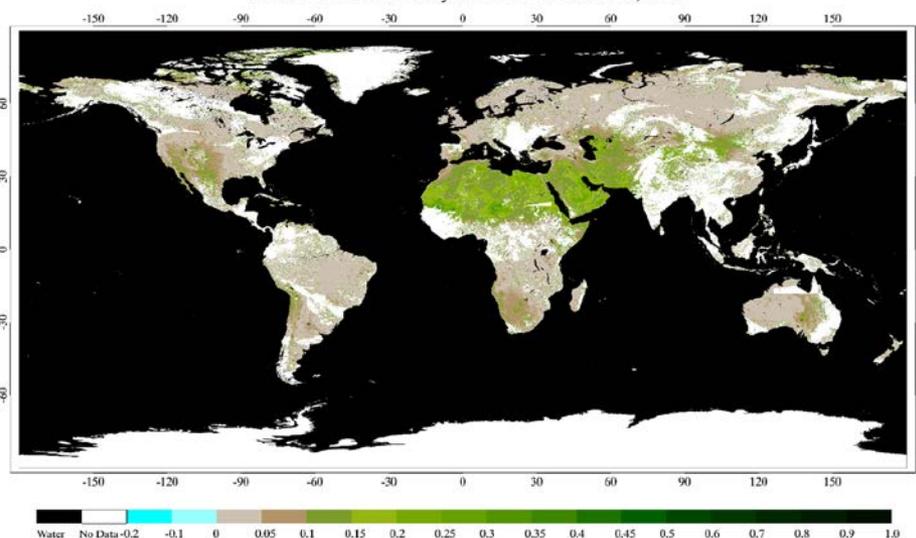


Similarly, presented here are sample results of the NOAA-20 red band surface reflectance (left) and SNPP red band surface reflectance (right) data produced from one day of input data on June 27, 2018. More input data is required for this beta maturity review effort.

NOAA-20 VIIRS Daily blue reflectance Jun 27, 2018



Suomi NPP VIIRS Daily blue reflectance Jun 27, 2018



In addition, presented here are sample results of the NOAA-20 Blue band surface reflectance (left) and SNPP blue band surface reflectance (right) data produced from one day of input data on June 27, 2018. More input data is required for this beta maturity review effort.

Accomplishments / Events:

- Developed new webpages for new ideas/products.
- Worked with OSPO people to ingest version 2 NOAA-20/VIIRS VHP into their operation system.
- Compared JPSS-1 VIIRS with NPP VIIRS products.
- Dataset of provincial averaged VH indices over crop land area only were developed
- Followed USDA Requests
 - Developed zonal VH for Argentina
 - Validated zonal VH versus crop production
 - Developing global crop mask

Overall Status:

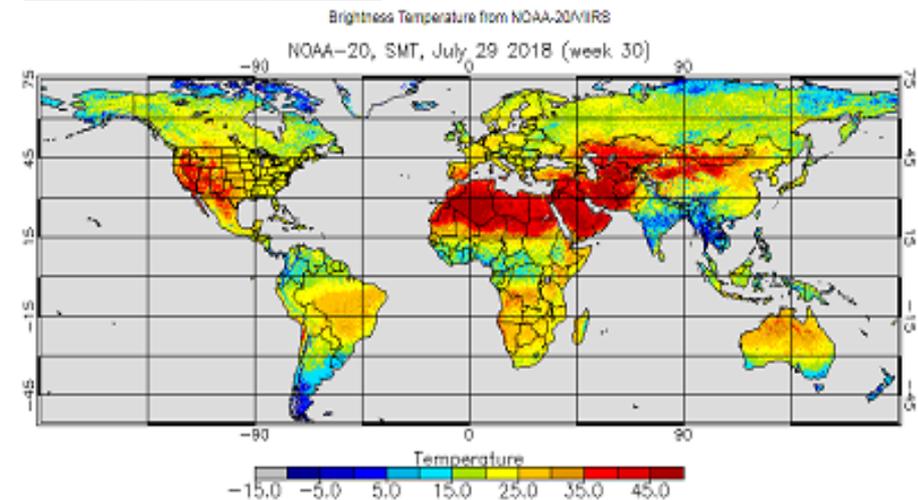
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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: Weekly BT from NOAA-20 VIIRS, Jul29, 2018



FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Aug-18	Aug-18		
J1 algorithm adjustments (1-km & 4-km VH):				
Preliminary DAP to NDE	Aug-18	Aug-18		
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
Vegetation Health (1-km) Algorithm Final DAP	Nov-17	Nov-17	11/13/17	
Updated DAP to NDE (metadata statistic update; code change to process SDR files from specific satellite only → can process J01/N20 VIIRS SDR)			12/14/17	
Vegetation Health (1-km) Algorithm Readiness Review			12/13/17	

Accomplishments / Events:

The STAR Ocean Color EDR team:

- At the International Geoscience and Remote Sensing Symposium (IGARSS) 2018, July 22–27, 2018 in Valencia, Spain, Menghua Wang gave an invited oral presentation in the JPSS Global Observations for Regional Service session on Tuesday, July 24, 2018, entitled “JPSS VIIRS Ocean Color Products and Applications.”
- Conference proceedings published by Xiaoming Liu and Menghua Wang, “Gap Filling of Missing Data for VIIRS Global Ocean Color Products Using the DINEOF Method”, IEEE Transactions on Geoscience and Remote Sensing, vol. 56, no. 8, August 2018
- Ongoing work with NOAA-20

Overall Status:

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

- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
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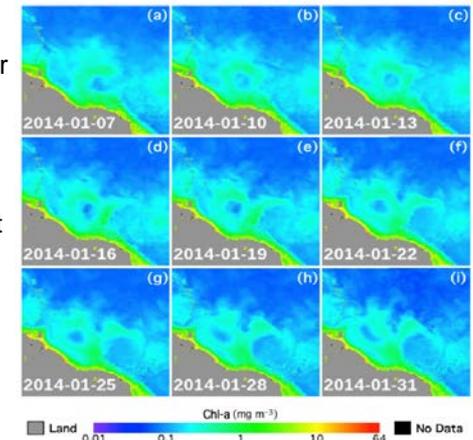
Issues/Risks:

- SDR calibration error –identify how to avoid same error in future
- Concern with 9-month funding (end in March 2018) for FY17. Continuation of funding started in April 2018 is quite important, as we plan to conduct the fourth Cal/Val cruise in Spring 2018 (for VIIRS-SNPP and particularly VIIRS-J1 OC validation), as well as work on VIIRS-J1 OC data processing.

Highlights:

Fig. 4 from Liu and Wang, “Gap Filling of Missing Data for VIIRS Global Ocean Color Products Using the DINEOF Method”, IEEE Transactions on Geoscience and Remote Sensing, vol. 56, no. 8, August 2018

Transformation progress for a super NBC ring in January 2014 using the reconstructed (gap-filled) VIIRS daily Chl-a images for nine dates in January 2014.



FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Work on J1 instrument pre-launch characterization and calibration, including addressing the out spec polarization sensitivity issue, first report	Mar-18	Mar-18	Mar-18	
Work on J1 specific lookup tables etc. and other needed modifications for VIIRS-J1 ocean color data processing system using MSL12	Aug-18	Aug-18		
Cal/Val team will finish the 2016 VIIRS dedicated cruise report (Fall 2017) and in situ data analyses (e.g., improve in situ data quality)	Mar-18	Mar-18	Cruise report published October 2017	
In situ data collections including NOAA dedicated cruise in May 2018 and continue Cal/Val for VIIRS ocean color EDR	May-18	May-18	May-18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
With significantly improved MSL12, VIIRS mission-long ocean color data products will be reprocessed (the second data reprocessing). Both NRT and science quality data streams will be going forward using the new MSL12	Dec-17	Dec-17	Dec-17	
Work with CoastWatch/NCEI for the second reprocessed ocean color data distributions	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- Following ACSPO v2.60 delivery to NDE, reprocessing (“RAN”) of SNPP & N20 SSTs from Jan 2018-on is underway.
- We use RDR-to-SDR converter, capable to correct for WUCD artifacts in VIIRS brightness temperatures (BTs) for both SNPP and N20, and for LWIR offsets in N20 during the anomaly investigation, delivered to SST by SDR Team (C. Cao, W. Wang).
- Currently reprocessed are 5 months of SNPP (Jan-May 2018) and 2+ months of N20 (see Figure). Performance of N20 and SNPP SSTs is very comparable and within the specs.
- Once ACSPO 2.60 is operational in NDE, 1e plan to start archiving the N20 SST with PO.DAAC & back-fill the full record Jan 2018-pr.
- SNPP RAN2 is also underway. Initially, it focuses on 2018, to support N20 RAN1.

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			

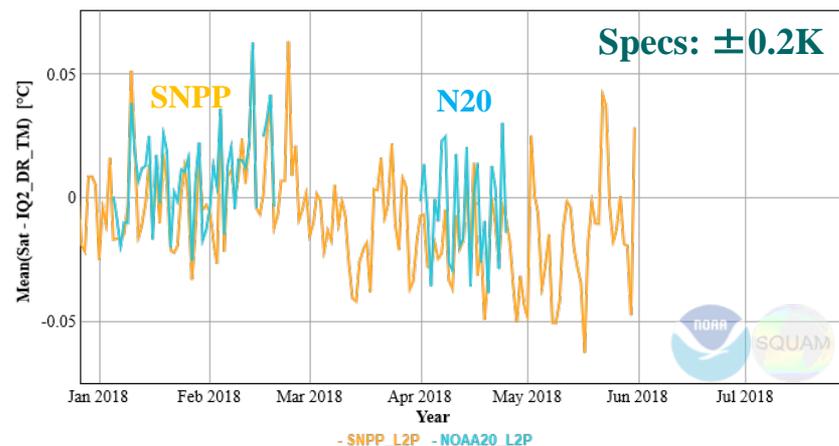
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

VIIRS, ACSPO RAN2, Night, outlier retained



N20 RAN1 now covers 2+ months in 2018 and SNPP covers 5 months. Shown are mean biases wrt. in situ SSTs (Accuracy) at night, which are well within the $\pm 0.2K$ specs.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Apr-18	Apr-18	04/18/18	
Provisional Maturity	Sep-18	Sep-18	04/18/18	
Set up RAN2 in STAR, test end-to-end	May-18	May-18	05/31/18	
J1 algorithm adjustments:				
ACSPO 2.5 (improved SST Imagery, fixed bow-tie gaps/distortions)	Nov-17	Nov-17	11/16/17	
Preliminary ACSPO 2.6 DAP to NDE (improved clear-mask in coastal/dynamic areas; ocean fronts; N20 adjustments)	Jul-18	Jul-18	06/14/18 to ASSISTT 07/05/18 to NDE	
SNPP/N20 Algorithms Refinement (Maintenance DAP), LTM				
Release updated SQUAM v2, iQuam v2, and ARMS v1.1	Sep-18	Sep-18		
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- A first comprehensive assessment of NUCAPS 2.1.12c using coarse layers statistics was performed to better assess NUCAPS retrieval skills vertical dependence.
- A more detailed validation of NOAA-20 OLR was initiated.
- A side meeting with NUCAPS collaborators is being prepared during the oncoming JPSS annual meeting.

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			

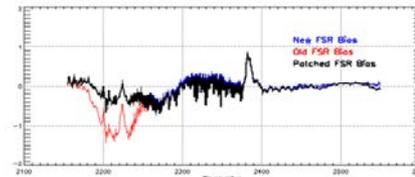
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2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

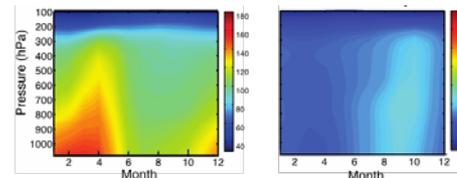
None

Highlights:

- The Delivery of Algorithm Package (DAP) for NUCAPS v2.1.12c to Direct Broadcast was successfully achieved on July 19 2018.
- An updated read me file has been routed for management approval before further distribution to NUCAPS DB users.



An improved IR RTA bias correction in the CO band, CO chn selection, CO a priori climatology and refined quality controls tailored to responding to users needs for an unbiased and stable CO product



Comparisons against the ATom ensemble shows that NUCAPS CO now meets accuracy (dash line) and precision (dot dash line) in the region where CrIS is sensitive to CO (350-750 mb)

A game changer: NUCAPS version 2.1.12c Carbon Monoxide

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jun-18	Jun-18	06/15/18	
Provisional Maturity	Sep-18	Sep-18	06/15/18 (AVTP/AVMP)	
Matchup J1 CrIS SDR with CERES data; generate regression coefficients for CrIS OLR	Jun-18	August 18		NOAA-20 OLR coefficients are being computed and analyzed.
Validation against ECMWF data and radiosondes; SNPP and J1 EDRs cross comparisons	Sep-18	Sep-18		
Validation with NPP CERES radiation products	Sep-18	Sep-18		
Validation NUCAPS trace gas EDRs against MOPPIT, AIRS, TCCON, OCO-2	Sep-18	Sep-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (team to ASSISTT)	Apr-18	Apr-18	04/27/18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/16/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		
NUCAPS Emergency DAP	07/12/18 (update to the NUCAPS codes to handle the changes to the JPSS-RR Clouds files)			

Accomplishments / Events:

- Continuing to work with NDE and with U. Wisconsin to integrate MiRS v11.3 into operations and DB/CSPP package, respectively. NDE has now successfully compiled and run v11.3 in the Dev environment.
- Validation activities continuing, with NOAA-20 rain rate quantitative validation underway. Results continue show good consistency with reference Stage IV analysis and with SNPP rain rate over an 8-month period (see highlights).

Overall Status:

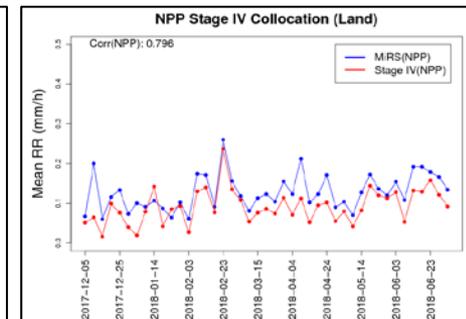
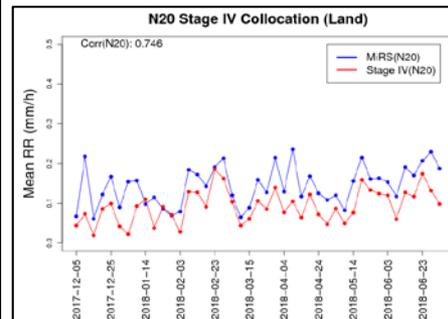
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Highlights:



MiRS N20 and SNPP rain rate comparison to Stage IV radar-gauge over CONUS for the period from December 2017 – July 2018. Mean rain rate is calculated for 5-day intervals. Correlation of N20 and SNPP 5-day average rain rate with Stage IV estimates is 0.75 and 0.80, respectively.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jun-18	Jun-18	03/22/18	Virtual Review
Provisional Maturity	Sep-18	Sep-18	04/18/18	
Validation against ECMWF data and radiosondes	Sep-18	Sep-18		
Validation against other reference data for MiRS EDRs (e.g. RR, SWE,SIC, etc.)	Sep-18	Sep-18		
J1 algorithm adjustments:				
Preliminary DAP to NDE (Extend/Optimize MiRS for J1)	Aug-18	Aug-18	06/14/18	Passed OSPO code review
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- The ground observation data required for training the NOAA-20 Snowfall Detection (SD) algorithm have been requested and acquired from NCEI. The development of the SD algorithm is ongoing.
- The Stage IV precipitation analyses data for developing NOAA-20 SFR algorithm have been collected and further collocated with the NOAA-20 ATMS measurements. The development of the SFR algorithm is ongoing.
- Besides calibrating NOAA-20 SFR following the approach adopted for the S-NPP SFR, a more advanced calibration method is also being investigated in order to achieve higher product accuracy.
- A STAR seminar was given in conjunction with C. White of NASA SPoRT about the SFR algorithm and assessment at NWS Weather Forecast Offices in winter 2017-2018.

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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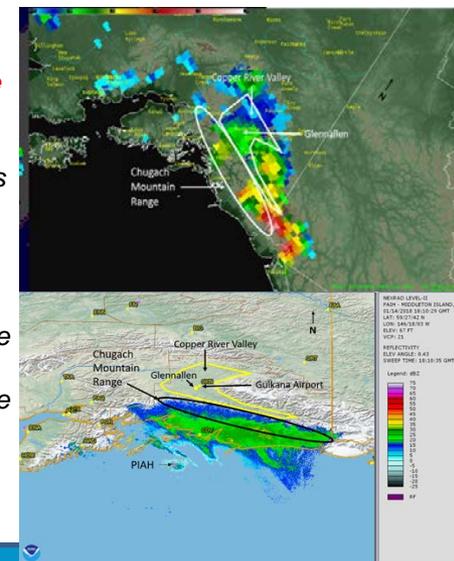
Issues/Risks:

None

Highlights:

A Snowfall Case Shown in the SFR seminar

Anchorage, AK WFO: *"This product has been especially useful in the Copper River Basin, an area where we have no radar imagery and very few surface observations (ASOS/Mesonet/Snotel). Not only does it give us an idea of where it is precipitating, but helps verify model performance in a location where they really struggle with qpf [quantitative precipitation forecasts] and where there can be wildly different model forecasts for precipitation. In this case, I was able to use the SFR product to help figure out which guidance was verifying the best and lean toward that solution for the new forecast."*



FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
SNPP/J1 calibration/validation				
Snow Fall Rate (SFR) Cal/Val plan (draft delivery)	Dec-17	Dec-17	12/30/17	
Snow Fall Rate (SFR) Cal/Val plan (final delivery)	Mar-18	Mar-18	03/28/18	
S-NPP SFR Provisional Maturity	Jun-18	Jun-18	06/20/18	
NOAA-20 SFR Beta Maturity	Jun-18	Jun-18	06/20/18	
SNPP/J1 algorithm development/adjustments:				
S-NPP/NOAA-20 SFR DAP to NDE	Aug-18	Aug-18	06/14/18	Passed OSPO code review
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add SFR to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- The VIIRS winds algorithm theoretical basis document has been updated to include NOAA-20 and an additional quality control procedure.

Overall Status:

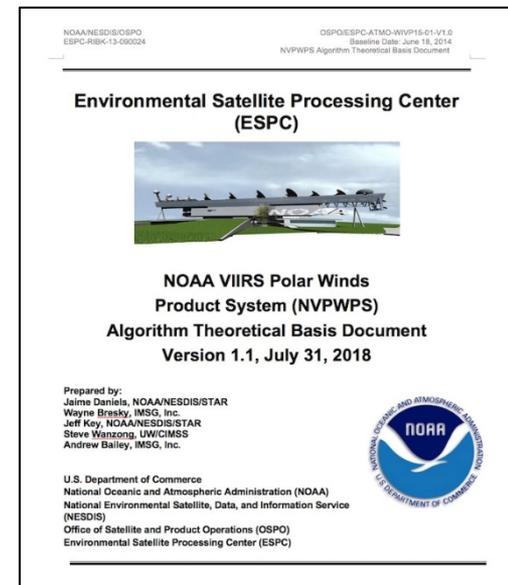
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights:



FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J1 post-launch calibration/validation				
Beta Maturity	Jun-18	Sep-18		Combine Beta & Provisional
Provisional Maturity	Sep-18	Sep-18		
J1 algorithm adjustments:				
Preliminary DAP to ASSISTT (science team to ASSISTT)	Apr-18	Apr-18	Apr-18	
Preliminary DAP to NDE (ASSISTT to NDE)	Aug-18	Aug-18	07/31/18	
SNPP/J1 algorithm Refinement (Maintenance DAP)				
Add J1 products to EDR monitoring web	Sep-18	Sep-18		

Accomplishments / Events:

- AMSR-2 poster “Validation of AMSR2 Oceanic Environmental Data Records Using Tropical Cyclone Composite Fields” was presented at IGARSS 2018
- Continued product cal/val; all products meeting requirements
- Comparing EDR’s with counterpart JAXA EDR’s
- Continue to work with IA, NJO and OSGS to respond to JAXA requests for NOAA needs for AMSR-2 follow-on and orbit preference
- Participated in relevant project meetings/discussions with NJO, OSGS and OSPO

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			

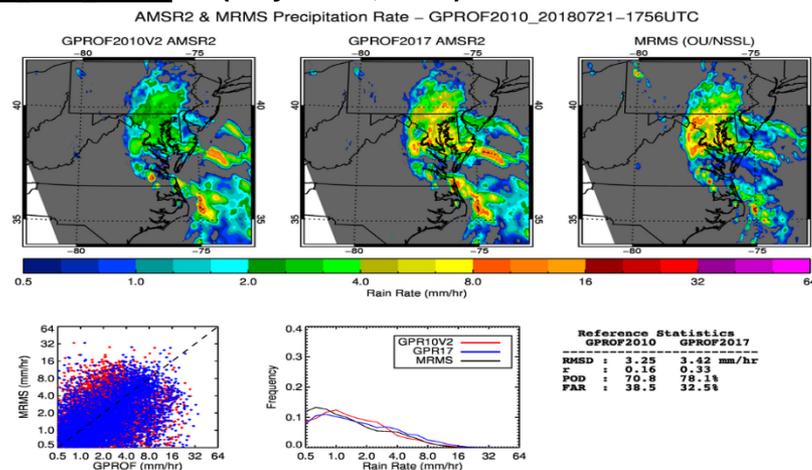
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Issues/Risks:

None

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Updated Wind Speed Product (Coastal and accuracy improvements)	Nov-17	Nov-17	Nov-17	
Conduct technical information meeting with JAXA GCOMW-1 scientists and engineers	Nov-17	Nov-17	Nov-17	
GAASP V2.1 DAP to NDE (switch SST ancillary file to CMC SST)	Jan-18	Jan-18	Jan-18	
Updated AMSR2 brightness temperature calibration analysis and corrections (V2.1)	Feb-18	Apr-18	Apr-18	Latest L1 S/W not implemented on NDE on Time
Soil Moisture, snow and precipitation product updates finalized for integration into GAASP	Jun-18	Jun-18	Jun-18	
DAP to ASSISTT (science team to ASSISTT)	Jul-18	Jul-18		
Delivery of updated GAASP Package to OSPO (ASSISTT to NDE)	Aug-18	Aug-18		
Reprocessing EDRs based upon updated GAASP package	Sep-18	Sep-18		

Highlights: Mid-Atlantic record breaking rain event (July 21-25, 2018)



GCOM AMSR-2 operational rain rate estimates (GPROF2010V2) and the potential replacement algorithm (GPROF2017). GPROF2017 out performs GPROF2010V2. AMSR-2 monitored the flow of moist tropical air that fed this rain event

Accomplishments / Events:

- OMPS Ozone EDR delta deliveries for V8TOz and V8TOS were checked by ASSIST and delivered to NDE.
- Additional codes to incorporate OMPS NM EDR products into the SO2 alert pages were provide to OSPO.
- Code capabilities for TOAST blended products tested for the use of NOAA-20 OMPS NP NV8Pro and CrIS NUCAPS EDRs.
- Monitoring site content expansion to include more NOAA-20 OMPS products continued.

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

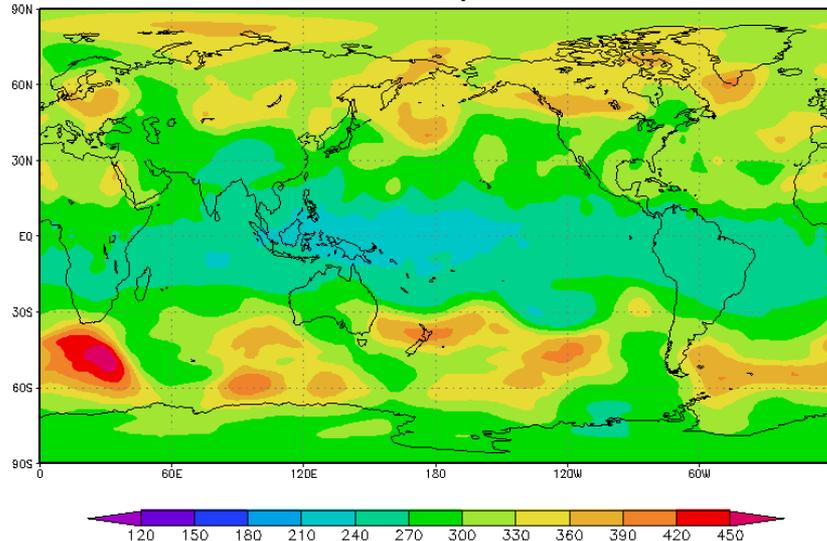
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3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Code Changes for OMPS SDR on path to maturity will not be implemented at IDPS until July and September 2018.

FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20 calibration/validation				
Beta Maturity	Feb-18	Mar-18	03/22/18	Virtual Review
Provisional Maturity	Apr-18	Aug-18		SDR Provisional , Mx2 TTO
Validated Maturity	Aug-18	Oct-18		16-Granule Fix, Mx3 TTO
Prepare, demonstrate and exercise tools for J-01	Dec-17	Dec-17	Dec-17	
Trending of ground-based comparisons	Jun-18	Jan-19		Varying SDR calibration
NOAA-20 algorithm adjustments				
DAP to ASSISTT (science team to ASSISTT)	Apr-18	May-18	5/28/2018	Combined with table delivery
Soft Calibration for J-01 (DAP) (ASSISTT to NDE)	May-18	June-18 Sep-18	06/01/18 LFSO2 06/06/18 V8Pro 06/08/18 V8TOz	Final will await SDR fixes.
SNPP/N20 algorithm refinement (Maintenance DAP)				
Algorithm improvements (outliers, EOFs, solar, Wavelengths, bandpasses)	Sep-18	Sep-18		
Add N20 products to EDR monitoring	Sep-18	Sep-18		Work is progressing well

NPP Global CrIS Analysis on 2018183



S-NPP CrIS Ozone Map. This is an intermediate product in the blended TOAST processing.

Accomplishments / Events:

- Provided NUCAPS EDR sounding (NOAA-20, NPP and MetOp) review including plan for routine scientific maintenance and corrective actions (**Highlight**)
- Completed initial phase of NPROVS “Special” radiosonde reprocessing and initiated satellite collocation phase.
- Successfully integrated Radiosonde Inter-comparison and VALidation (RIVAL) field campaign observations into NPROVS.
- Briefed Global Space-based Inter-Calibration System (GSICS) MW subgroup on use of GCOS Reference Upper Air Network (GRUAN) radiosonde to monitor satellite sensors.
- Provided NUCAPS inputs JPSS Hydrology Initiative meeting .
- Added VIIRS I-5 band to Alaska Watch site and increased Active Fire product resolution on JSTAR Mapper (**Highlight**).

Overall Status:

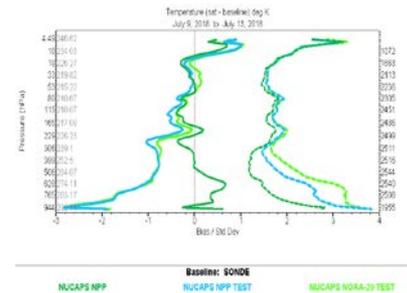
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Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights:



NPROVS: Satellite-minus-radiosonde vertical temperature statistics (Bias left, Std. Dev, right) for NUCAPS IR-only (blue, light green) versus IR+MW retrieval (dark green); IR-only shows larger than expected errors indicative of overall cloud-clearing concerns.

EDR-LTM: High resolution VIIRS Active Fire image showing CARR fire in California on August 5, 2018

Team	FY18 TTA Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
EDR LTM	Maintain / expand existing EDR LTM web pages and integrate available NOAA-20 EDR	Aug-18	Aug-18		
NPROVS	Maintain and support operational transition and algorithm upgrades for NUCAPS (and MiRS) sounding EDR from S-NPP, MetOp, and pending NOAA-20.	Aug-18	Aug-18		
	Maintain support of GRUAN, ongoing NOAA/GRUAN/ARM RIVAL Coordination and GRUAN / GSICS activities	Aug-18	Aug-18		
	Support NWS Radiosonde Transition and AWIPS-2 (NUCAPS user) programs/initiatives	Aug-18	Aug-18		