NOAA JPSS Monthly Program Office

AMP/STAR FY20 TTA

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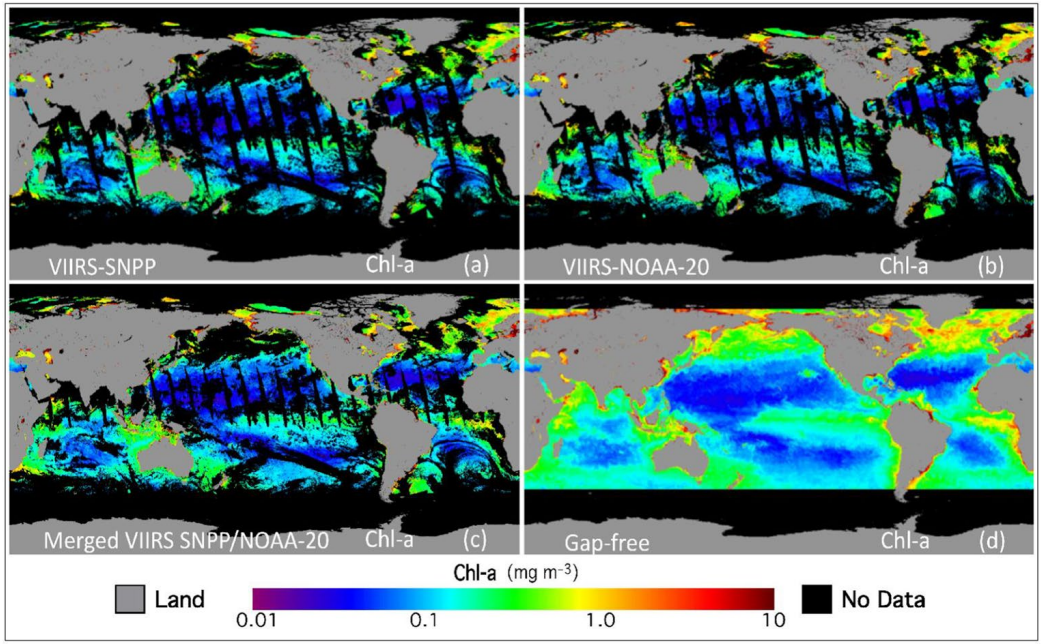
December 10, 2019

Highlights from the Science Teams

Ocean Color Team publishes EOS article

Xiaoming Liu and Menghua Wang just published an EOS article entitled “Filling the Gaps in Ocean Maps” describing NOAA’s new software application which provides gap-free, near-real-time (NRT) monitoring of the global ocean environment. Although NRT ocean color images are produced daily by the science team; cloud cover, glint, and sub-optimal data-collection angles result in data gaps in those images. By merging images from multiple VIIRS sensors (SNPP and NOAA-20), the Ocean Color team now produces gap-free daily global NRT ocean color Chl a maps that are accessible online via CoastWatch.

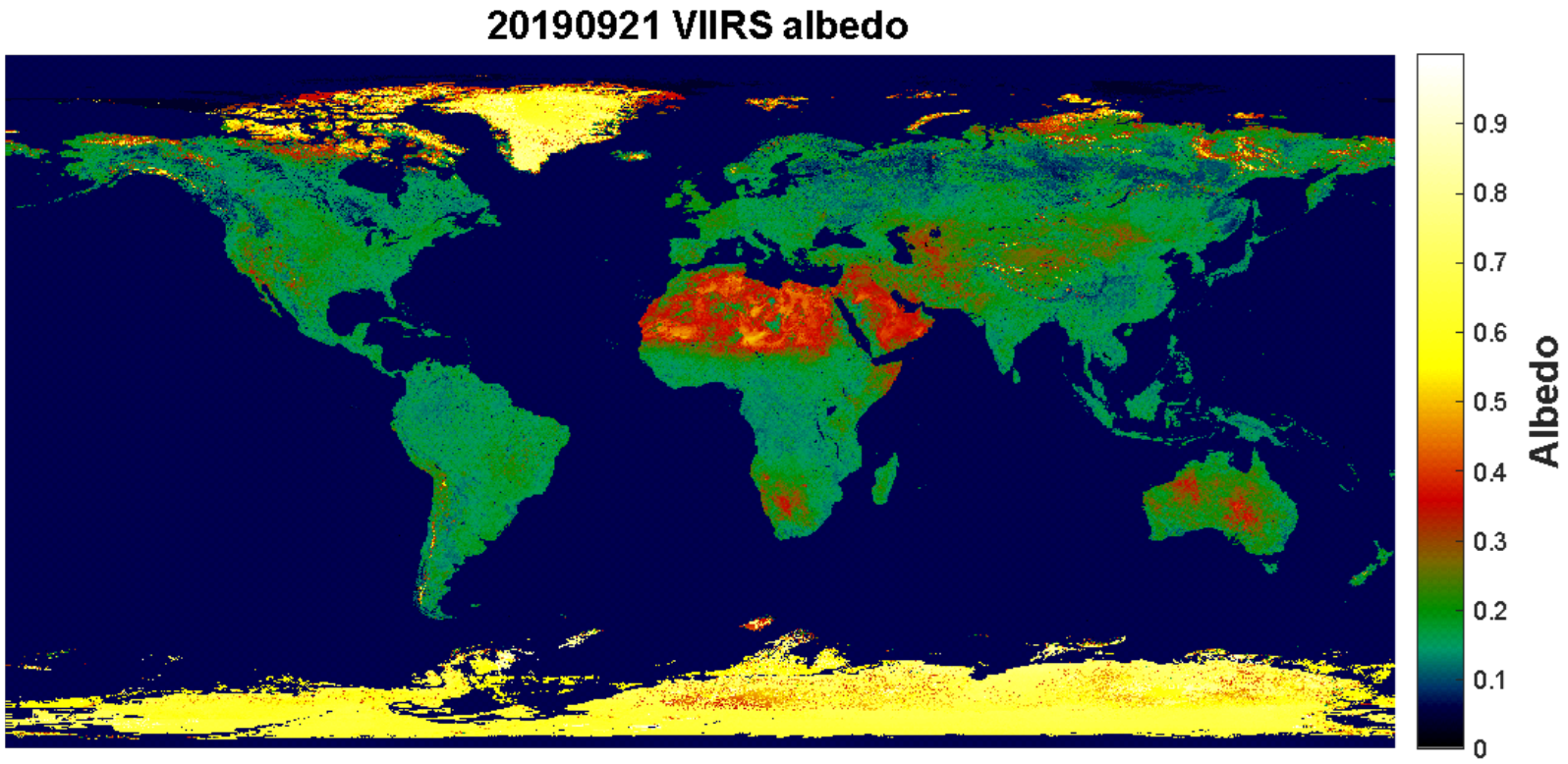


This sequence of global maps above show VIIRS-measured chlorophyll a (Chl a) concentrations on 29 July 2019 from (a) SNPP, (b) NOAA-20, (c) the merged Chl a image, and (d) the gap-free Chl a image. Chl a concentrations are in milligrams per cubic meter.

Highlights from the Science Teams

Land Surface Temperature and Land Surface Albedo Validated Maturity Review

A Validated Maturity Review was conducted on November 21, for the LST and LSA products. Overall the products were well received. The teams are awaiting the official report from the review panel.



Global map of VIIRS Albedo product on September 21, 2019.

Accomplishments

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

  OMPS SDR DAP (ADR8550/CCR4589, Remove VIIRS SnowIce and QST tile dependency for OMPS SDR) delivered to DPES on 10/28/2019

- DAPs - Enterprise Products:

  HEAP (Hyper-Spectral Enterprise Algorithm Package) final DAP (package contains CrIS subset, NUCAPS update to the Retrieval algorithm code as well as updated namelists and new lookup table files) delivered to NDE on 11/1/2019

  VIIRS Active Fires Patch DAP (adds two new postprocessors, adds the production_site and production_environment global attributes, provides static and dynamic compile options) delivered to NDE on 11/1/2019

  VIIRS Global Annual Surface Type AST-2018 is now ready for users to download from STAR FTP site (https://www.star.nesdis.noaa.gov/jpss/)

- SATR submitted Block 2.1 Mx8 I&T deploy regression review/checkout report on 11/13/2019

Accomplishments – JPSS Cal Val Supports

- NOAA-20/S-NPP Operational Calibration Support:
  - S-NPP Weekly OMPS TC/NP Dark Table Updates: 11/05/19, 11/13/19, 11/19/19, 11/26/19
  - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 11/05/19, 11/13/19, 11/19/19, 11/26/19
  - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 11/05/19, 11/19/19
  - NOAA-20 Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 11/13/19, 11/26/19
  - S-NPP Monthly VIIRS StrayLight LUTs Update: 11/06/19
  - NOAA-20 Monthly VIIRS StrayLight LUTs Update: 11/06/19
  - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 11/05/19
  - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 11/05/19

- 11/21/2019: Monthly Cal/Val Maturity Review
  - Full Validated Maturity:
    - NOAA-20 Land Surface Temperature
    - NOAA-20 Surface Albedo

Upcoming Cal/Val Maturity Reviews

- January, 2020 Maturity Review:
  - Full Validated Maturity:
    Active Fires (M-Band, and I-Band)
    OMPS NP Ozone EDR (V8Pro)
    OMPS NP SDR

- February, 2020 Maturity Review:
  - Provisional Maturity:
    NUCAPS CH2 product (S-NPP & NOAA-20)
  - Full Validated Maturity:
    NUCAPS CH4 product (S-NPP & NOAA-20)
    Green Vegetation Fraction
    Vegetation Index
    S-NPP CrIS SDR (side-2)

- April, 2020 Maturity Review:
  - Full Validated Maturity:
    Snow Cover (Binary Map & Snow Cover Fraction)
    Surface Reflectance

- June, 2020 Maturity Review:
  - Full Validated Maturity:
    Ocean Color

Upcoming Milestones/Deliveries

- JSTAR Code/LUT/Product Deliveries:

  DAP to DPES:

  NOAA-20 Algorithm DAP to NDE/CoastWatch:
  - Dec-19: V8 Total Ozone – code & LUT update
  - Mar-20: I-band Active Fires – Final DAP
  - Mar-20: Vegetation Health – Final DAP
  - Nov-20: Ocean Color – Final DAP

Accomplishments - Transition to Operations and Algorithms

- **SNPP/N20**
  - N-20 Land Surface Temperature and Land Surface Albedo reached Validated Maturity
- **EPS-SG project support**
  - Continued to support Product Working Group, Risk, and Weekly tag-up meetings
- **J2 and Beyond**

- **Satellite Product Management (Legacy Migration, non-NOAA)**
  - Legacy Migration Project
    - Briefed Pam Sullivan and Greg Mandt on the cost needs for the Legacy Migration Project
    - Worked with STAR (Walter Wolf) to develop a plan to receive Project Plans related to the Legacy Migration Project in order to develop a robust cost and schedule for the project
    - Met with OSGS (Rick Vizbulus) and discussed the need for OSGS cost estimates and got a better idea of his timeline for providing them.
  - non-NOAA Product List (from IT Summit)
    - Received Project Plans for the seven products identified as top priority for non-NOAA systems.
    - Reviewing the Project Plans and set up one-on-one meetings with each lead to go over any questions on the project plans.
- **Other**

FY20 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs				
OMPS DAP: Remove VIIRS SnowIce and QST tile dependency (ADR8550)	Oct-19	Oct-19	10/28/19	
OMPS: J2 pre-launch sensor characterization report	Dec-19	Dec-19		
ATMS: J2 pre-launch sensor characterization report	May-20	May-20		
CrIS: J2 pre-launch sensor characterization report	May-20	May-20		
J2 pre-launch Algorithm Updates Review - SDRs and Imagery	Jun-20	Jun-20		
J2 pre-launch Algorithms/PCT/LUT packages - SDRs and Imagery	Aug-20	Aug-20		
OMPS: High resolution SDR implementation (17km x 17km OMPS TC)	Aug-20	Aug-20		
Imagery: All 16 M–bands as Imagery EDRs	Aug-20	Aug-20		
N20 NUCAPS final DAP to NDE	Nov-19	Nov-19	11/01/19	
N20 Vegetation Health final DAP to NDE	Mar-20	Mar-20		
I-band Active Fires DAP to NDE	Mar-20	Mar-20		
J2 pre-launch Algorithm Updates Review - EDRs	Aug-20	Aug-20		
Initial J2-ready EDR DAPs (include NPP/N20 updates)	Sep-20	Sep-20		
AST-2019 (VIIRS Annual Surface Type)	Sep-20	Sep-20		

FY20 STAR JPSS Milestones

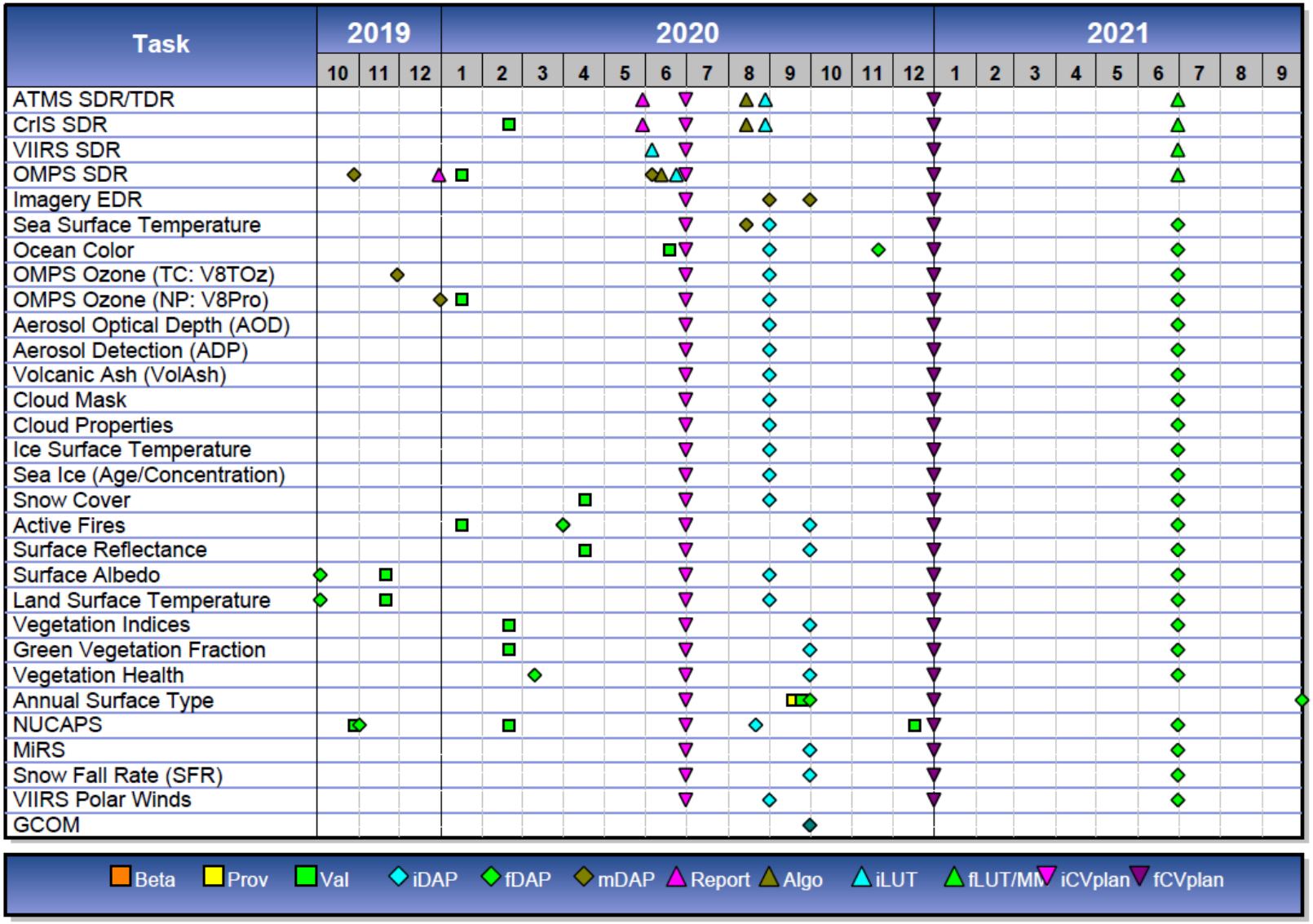
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Cal/Val				
J2 Cal Val Plans - Draft Delivery (all SDR/EDR products)	Jun-20	Jun-20		
N20 NUCAPS Full Validated Maturity (all NUCAPS products except CH4 & CO2)	Oct-19	Oct-19	10/28/19	
N20 Land Surface Temperature Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 Surface Albedo Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 OMPS NP SDR Full Validated Maturity	Jan-20	Jan-20		
N20 OMPS NP EDR (V8Pro) Full Validated Maturity	Jan-20	Jan-20		
N20 M-band and I-Band Active Fires Full Validated Maturity	Jan-20	Jan-20		
N20 Green Vegetation Fraction Full Validated Maturity	Feb-20	Feb-20		
N20 Vegetation Index Full Validated Maturity	Feb-20	Feb-20		
NUCAPS CH4 Full Validated Maturity (N20 & NPP)	Feb-20	Feb-20		
NPP side-2 CrIs SDR Full Validated Maturity	Feb-20	Feb-20		
N20 Surface reflectance Full Validated Maturity	Apr-20	Apr-20		
N20 Snow Cover Full Validated Maturity	Apr-20	Apr-20		
N20 Ocean Color Full Validated Maturity	Jun-20	Jun-20		
N20 Surface Type Full Validated Maturity	Sep-20	Sep-20		

FY20 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational/Program Support				
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/01/19, 10/08/19, 10/16/19, 10/22/19, 10/29/19, 11/05/19, 11/13/19, 11/19/19, 11/26/19	
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/08/19, 10/22/19, 11/05/19, 11/19/19	
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/08/19, 11/05/19	
S-NPP: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	10/08/19, 11/06/19	Re-use LUT after 12 months. The 12th NPP LUT will be Apr-20
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/01/19, 10/08/19, 10/16/19, 10/22/19, 10/29/19, 11/05/19, 11/13/19, 11/19/19, 11/26/19	
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/01/19, 10/16/19, 10/29/19, 11/13/19, 11/26/19	
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/08/19, 11/05/19	
NOAA-20: Monthly VIIRS Stray Light LUT Update	Monthly	Monthly	10/08/19, 11/06/19	Re-use LUT after 12 months. The 12th N20 LUT will be Dec-19
Monthly quad-chart report (all SDR/EDR products)	Monthly	Monthly	10/31/19	
IDPS Mx build SOL and I&T deploy regression verfication review (bl2.1-Mx8/bl2.2-Mx0/1)	Nov-19 Mar-20 Jun-20	Nov-19 Mar-20 Jun-20	Mx8 I&T report: 11/13/19	
IDPS Cloud Implementation Verification (Based on Nov 2020 TTO)	Sep-20	Sep-20		

STAR JPSS Schedule

STAR JPSS Schedule: TTA Milestones



FY20 JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP and N-20 Flood Mapping Product				
-- CDR	Dec-19	Dec-19		
-- TRR	Apr-20	Apr-20		
-- SCR	Jul-20	Jul-20		
-- ARR	Oct-20	Oct-20		
-- ORR	Jan-21	Jan-21		
-- Operations	Feb-21	Feb-21		
VIIRS I-Band Active Fires Product				
-- SCR	Jan-20	Jan-20		
-- ARR	Apr-20	Apr-20		
-- ORR	Aug-20	Aug-20		
-- Operations	Sep-20	Sep-20		

Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP: OMPS Limb Profiler Products				
-- EDR and SDR ORR	Dec-16	--	12/02/2019	Completed
-- Operations	Mar-17	Jan-20		
NOAA-20: OMPS Ozone: V8Pro				
-- ORR	Jul-18	Jan-20		Still Investigating why OMPS NP SDRs have too large uncertainties between the S-NPP and NOAA-20 results
-- Operations	Aug-18	Feb-20		
NOAA-20: NUCAPS including CrIS OLR				
-- CDR	Oct-16	--	10/27/16	Completed
-- SCR	Aug-18	--	01/25/19	Completed
-- Operations (Temp/H20 profiles)		--	3/7/2017	Completed
-- ARR	Sep-18	--	10/28/19	Completed
-- ORR	Jun-19	Jan-20		Dates relate to CO2 and CH4 components
-- Operations	Jul-19	Jan-20		Dates relate to CO2 and CH4 components
NOAA-20: Enterprise Processing System: Global Gridding LST, and LSA				
-- CDR	Mar-18	--	10/22/18	Completed
-- TRR	Jul-18	--	3/12/2019	Completed
-- SCR	Sep-18	--	8/30/2019	Completed
-- ARR	Dec-18	Sep-19	9/24/2019	Completed
-- ORR	Mar-19	Dec-19		
-- Operations	Jun-19	Jan-20		

Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Ocean Color				
-- 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-20		
-- Operations	Jun-19	Jun-20		
NOAA-20: Microwave Tropical Cyclone Products				
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Apr-19	--	4/2/19	Completed
-- ARR	Oct-19	Dec-19		Current testing not providing correct results
-- ORR	Dec-19	Feb-20		
-- Operations	Feb-20	Mar-20		
NOAA-20: Blended Products Blended Ozone				
-- SCR	Aug-17	NA		SCR not required; already running in OPS
-- ORR	Jul-18	Feb-20		No update received
-- Operations	Oct-18	Mar-20		
NOAA-20: Blended Products Blended Snow and Ice				
-- SCR	Aug-18	--	7/9/2019	Completed
-- ORR	May-19	--	8/28/19	Completed
-- Operations	Jun-19	--	9/18/19	Completed
Microwave and Diurnal Corrected Blended SST w/ AMSR-2				
-- ORR	Nov-16	ON HOLD		
-- Operations	Nov-16	ON HOLD		

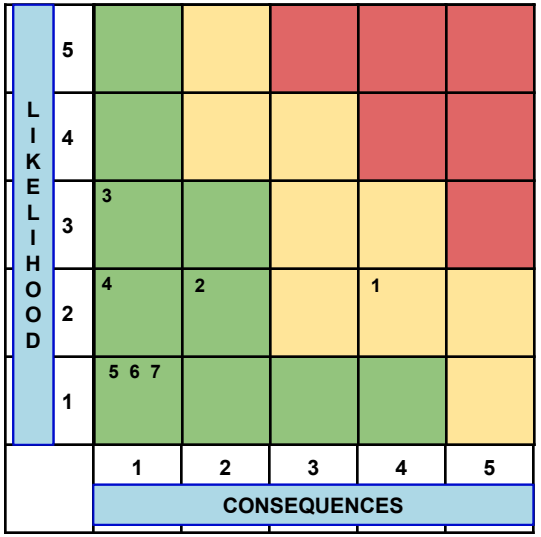
Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Enhanced TOAST with S-NPP OMPS Limb Profiles				
-- CDR	Jan-17	Jan-20		
-- SCR	Apr-17	Jan-20		
-- ORR	May-17	Jan-20		
-- Operations	Jun-17	Feb-20		
Upgrade to the Multi-platform Satellite Tropical Cyclone Surface Wind Analysis Product				
-- PDR/CDR	Dec-17	--	1/26/2018	Completed
-- UTRR	Apr-18	--		Waived
-- SCR	May-18	Dec-19		Integration time is longer than expected
-- ARR	Oct-18	Jan-20		
-- ORR	Jan-19	Apr-20		
-- Operations	May-19	May-20		
Upgrades to the ADT Product				
-- PDR	Jul-17	--	8/23/2017	Completed
-- CDR	Jul-17	--	8/23/2017	Completed
-- SCR	Jun-18	--	2/25/19	Completed
-- ARR	Oct-18	Jan-20		
-- ORR	Apr-19	Feb-20		
-- Operations	Jun-19	Mar-20		
Product Monitoring Phase IV (JPSS RR, VIIRS AF)				
-- SRR/ORR	Jun-18	Dec-19		
-- Operations	Jul-18	Jan-20		
Product Monitoring VI (NDE J1)				
-- CDR	Dec-16	--	04/17/18	Completed
-- TRR	Sep-17	--	5/14/2019	Completed
-- SCR	Jun-19	--	Waived	Waived
-- ORR	Aug-19	Dec-19		
-- Operations	Sep-19	Jan-20		

JPSS Risk Summary
Top Risks

Status as of: 12/06/2019

Rank Risk ID	Summary	LxC Trend	Aprch	Status
1 GJ-331	ATMS & CrIS J2 Algorithm Update Code Delivery	2x4 ⇔	W	12/05/19: Watch as timeline of events unfold.
2 AMP-18-003	J2 APID Changes to Accommodate New S/C Bus	2x2 ⇔	W	11/06/19: J2 APID Changes to Accommodate New S/C Bus Received and incorporated APID changes for JPSS-2 in CCR 4439 approved and being incorporated. No APID changes for JPSS-2 ATMS, CrIS, OMPS NP, OMPS TC, and VIIRS ? according to latest JPSS-2 APID to VCID mapping (June 25, 2019). These JPSS-2 products are included in CCR 4759. Very unlikely that there will be any further changes to the JPSS-2 APID to VCID mapping that will affect JPSS-2 data production
3 AMP-18-008	Data Product Requirements for OMPS-Limb	3x1 ⇔	M	12/05/2019: An OMPS Operations Readiness Review (ORR) was conducted on Dec. 2, 2019. This is the last major review before it goes into operations. Will keep risk open until the algorithm is promoted from I&T to Operations.
4 AMP-19-001	Algorithm testing & delivery impacts due to lag between IDPS and G-ADA moving to the Cloud	2x1 ⇔	W	12/05/2019: Lihang will look into whether this risk should be transferred to DPMS
5 AMP-18-006	Impact on Testing Ability Due to Major Build Upgrades	1x1 ⇔	W	12/5/2019: Monitor until Block 2.2 MX0 is ready for operations on May 11,2020.
6 AMP-19-002	Proxy data delay due to J2 10Hz Sampling Freq	1x1 ⇔	W	11/06/19: Proxy data delay due to J2 10Hz Sampling Frequency Softbench issues for JPSS-2 APID 11 are due to time issues. This risk remains until the next version of softbench is available and the JPSS-2 APID 11 is analyzed. 17 day test data currently uses JPSS-1 APID 11 data, repeated 1 HZ samples to create 10 HZ (all samples the same).
7 AMP-19-003	Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq	1x1 ⇔	M	11/06/19: Geolocation algorithm to use only 1 sample of APID 11 10HZ. The JPSS-2 test data had to utilize J1 APID 11, but converted to 10 HZ (due to time issues in softbench for J2 AP11 thus far).Raytheon will hold the Detailed design review for the JPSS-2 S/C Attitude and Ephemeris RDR on November 7th. 10hz APID11 (xDR probably won?t use all samples; decimate to one sample)



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: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
1 ATMS & CrIS SDR J2 Algorithm Update Code Delivery NEW	GJ-331	**Given that:** ATMS & CrIS TVAC and PSR have been delayed from original schedule which was: 1.ATMS TVAC: July-2019 2.ATMS PSR: Sept 2019 3.CrIS TVAC: July 2019 4.CrIS PSR: Sept 2019 5.JCT3: Feb 2021 **There is a possibility that:** ATMS & CrIS SDR JPSS-2 algorithm and PCT update package can not be delivered as scheduled **Resulting in:** Resulting in: the ATMS & CrIS JPSS-2 DAPs can not be implemented in IDPS build before JCT3 (the first E2E test event, IDPS build Code-cut-off date is about 6-7 months before TTO)	**Watch**	12/05/2019: Continue to watch as timeline of events unfold. Date of JCT3 is now 5/26/2020. 10/16/2019: New schedule: 1.ATMS TVAC: Oct-2019 2.ATMS PSR: Feb-2020 3.CrIS TVAC: Jan-2020 4.CrIS PSR: Feb-2020 5.ATMS & CrIS JPSS-2 DAPs delivery: Aug-2020 6.JCT3: Feb-2021

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
2 ⇔ J2 APID Changes to Accommodate New S/C Bus	AMP-18-003	**Given that:** J2 has a new S/C Bus manufacturer and some new APIDs compared to J1 and S-NPP **There is a possibility that:** the SDR algorithms will need to be updated to accommodate new RDR format/structure **Resulting in:** additional unplanned work for Ground.	**Watch**	11/06/19: J2 APID Changes to Accommodate New S/C Bus Received and incorporated APID changes for JPSS-2 in CCR 4439 approved and being incorporated. No APID changes for JPSS-2 ATMS, CrIS, OMPS NP, OMPS TC, and VIIRS according to latest JPSS-2 APID to VCID mapping (June 25, 2019). These JPSS-2 products are included in CCR 4759. Very unlikely that there will be any further changes to the JPSS-2 APID to VCID mapping that will affect JPSS-2 data production. 09/09/19: J2 GPS APIDs are currently not included in the J2 S/C TLM RDR, and all other Virtual Channel 0 APIDs are included in the S/C TLM RDR. Investigating the size of APID 133 and APID 144 to determine true size of J2 S/C TLM RDR (30 bytes vs. 38 bytes).

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
3 ⇔ 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**	12/05/2019: An OMPS Operations Readiness Review (ORR) was conducted on Dec. 2, 2019. This is the last major review before it goes into operations. Will keep risk open until the algorithm is promoted from I&T to Operations. 9/23/2019: The OSPO PAL and STAR PI will schedule the ORR in Oct. 2019. The science team has been busy with NOAA-20 OMPS cal val during September and now the ORR for OMPS-LP is moved to October 2019. 8/8/2019: OSPO PAL and STAR PI are working on Operational Readiness Review (ORR) slides now and planning to hold ORR in September 2019. 7/12/2019: No change. There is still some issues with ancillary data with running OMPS-L on NDE I&T. 5/1/2019: No change

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
4 ⇔ 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 **Resulting in:** delays to implementation of algorithm changes.	**Watch**	12/05/2019: Lihang will look into whether this risk should be transferred to DPMS 8/8/2019: Suggest to transfer this risk to be under DPMS risk 7/12/2019: No update. AMP and STAR teams have been engaged with the IPR reviews and provided feedback/inputs related to the algorithms/cal val. 5/1/2019: No Update 3/6/19: Based on limited understanding from Ground Project as of February 2019, we believe that there is a real possibility that IDPS will be migrated to the Cloud prior to G-ADA being available in the Cloud (with proper training, etc). From John (possible consequence?): If G-ADA is on-premise but IDPS is in the cloud, differences in computing hardware may introduce small discrepancies in algorithm results (even if all codes, inputs, ancillaries, etc. are identical). So promoting algorithms from G-ADA to the cloud-based IDPS may require additional verification steps to ensure consistency of results (& to assess / bound the differences). (It's also possible that differences in memory sizes, network bandwidths, or disk access speeds might also change algorithm outcomes (race conditions); but hopefully none of the algorithms are that fragile.)

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
5 ⇔ Impact on Testing Ability Due to Major Build Upgrades	AMP-18-006	**Given that:** DPMS 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**	12/5/2019: Monitor until Block 2.2 MX0 is ready for operations on May 11,2020. 11/7/2019: No change 10/05/2019: No change. Continue to watch until Block 2.2 9/5/2019: No issues. Continue to Watch 7/11/2019: No issues. Continue to Watch 3/6/19: Risk Owner changed from Cole to Jeff.

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
6 ⇔ Proxy data delay due to J2 10Hz Sampling Freq	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**	11/06/19: Proxy data delay due to J2 10Hz Sampling Frequency Softbench issues for JPSS-2 APID 11 are due to time issues. This risk remains until the next version of softbench is available and the JPSS-2 APID 11 is analyzed. 17 day test data currently uses JPSS-1 APID 11 data, repeated 1 HZ samples to create 10 HZ (all samples the same). 9/9/19: Data from the simulator has been received and bit busted by the SEI&T team. This includes the J2 APID 11 and J2 APID 30 and APID 37. 8/5/19: From May 15, 2019 DFWG meeting - J02 APID 11 at 10Hz (Possible DWFG topic with APID to VCID mapping) - Flight Software User Guide and Maintenance Manual (SUMM) and Draft APID to VCID (20180625) show that APID 11 is being produced at 10 Hz - Possible CGS Impacts various entities: - -- C3S: None noted as of yet (OO and/or STA can filter out additional packets) - --IDPS: ING Code and Configs and the Performance Data Repository Data: Create a way to produce 10 Hz APID 11 data using NPP and N20 Tools: SOS Tardis update to speed up swap out APID 11 data with current time APID 11 data - Currently takes 1-2 minutes per contact, could increase by 10X with 10 Hz APID 11 data

JPSS Top Risks

Status as of: 12/06/2019

Rank	Risk ID	Risk Statement	Approach	Status
7 ⇔ 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**	11/06/19: Geolocation algorithm to use only 1 sample of APID 11 10HZ. The JPSS-2 test data had to utilize J1 APID 11, but converted to 10 HZ (due to time issues in softbench for J2 AP11 thus far).Raytheon will hold the Detailed design review for the JPSS-2 S/C Attitude and Ephemeris RDR on November 7th. 10hz APID11 (xDR probably won?t use all samples; decimate to one sample) 9/9/19: The TIM to discuss the 10Hz APID 11 was held between IDPS, STAR and Raytheon personnel. It was determined that J2 simulation data is needed to make a concrete decision on the correct action to take. Another TIM will be planned for the first quarter of 2020. IDPS Geolocation algorithm is planning to use only 1 sample of the 10/Hz APID. 08/5/19: (IDPS comment) The only algorithm that reads the S/C APID 11 and S/C APID 30 is the common geolocation algorithm ? SRS Part 8. IDPS geolocation algorithm is common between S-NPP, and JPSS-1. Ideally, IDPS geolocation algorithm will remain unchanged for JPSS-2. IDPS common geolocation software would decimate the JPSS-2 S/C APID 11 ? taking only 1 sample from the 10 samples available. It is believed that the 10HZ will not produce more accurate samples. This would provide the same input as S-NPP and JPSS-1 to the common geolocation algorithm. The JPSS-2 S/C APID 30 is not used in the common geolocation processing to geolocate products, but rather as an indicator. This also will be a small IDPS common geolocation software change to only use 1 sample of the JPSS-2 S/C APID 30. The STAR science team TIM outcome should coincide with the above mitigation. There is no justification for increased geolocation accuracy on JPSS-2. 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-FY20 Milestones**

ATMS SDR

November, 2019

Accomplishments / Events:

- Started working on JPSS-2 ATMS thermal vacuum (TVAC) test procedure review and data analysis
- Read and analyzed JPSS-2 ATMS TVAC thermal cycle data to ensure JPSS-2 ATMS is ready for TVAC calibration test
- Read and analyzed JPSS-2 ATMS TVAC calibration data at different cold plate temperatures to evaluate ATMS performance at different working environment
- Reprocessed S-NPP and JPSS-1 Delta Regression TVAC calibration data using updated processing program for S-NPP/JPSS-1/JPSS-2 TVAC performance comparison
- Prepared daily TVAC data analysis report and presented findings in NASA/NOAA/MIT TVAC team tag-up 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			

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.*

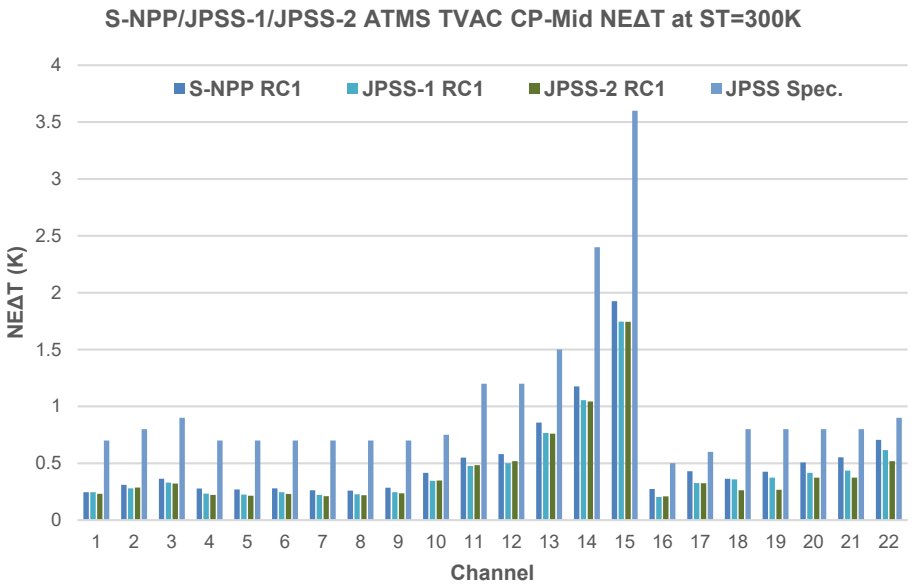
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test data (TVAC) review/analyze	Feb-20	Feb-20		TVAC: Oct-19
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Pre-launch sensor characterization report	May-20	May-20		PSR + 3m
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Aug20	Aug20		PSR + 6m
PCT update based on pre-launch test data and other changes	Aug-20	Aug-20		PSR + 6m
Algorithm Updates Review	Jun-20	Jun-20		
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Apr-20		
ATMS TDR/SDR discrepancy between ADL and IDPS over lunar intrusion regions (ADR 9035)	Aug-20	Aug-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual ATMS TDR/SDR performance report	Feb-20	Feb-20		
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/13/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20		
BL2.2 Mx 1 I&T ATMS data review/checkout	Jul-20	Jul-20		

Highlights:

NPP/J1/J2 ATMS TVAC NEdT comparison indicates an improvement in J2 ATMS G-band channels



CrIS SDR

November, 2019

Accomplishments / Events:

- A study of the Impact of the Fringe Count Error (FCE) Algorithm on the SDR processing time and product quality was performed to evaluate the consequence of enabling the FCE algorithm in the CrIS operational mode **Fig. (1)**. It was found that the FCE algorithm introduces only a small latency in the SDR processing chain for the normal RDR data (30 min delay for processing 24 hours S-NPP data on a single CPU) and that the FCE algorithm can effectively detect/correct the FCEs that occur in the spectra and produce the SDR product with good quality. Further testing and optimization is in progress.
- The final report for a detailed IDPS Block 2.1 Mx8 I&T NOAA-20/S-NPP CrIS NSR/FSR regression data review/checkout was prepared and submitted. This included major code and PCT updates for CrIS SDR algorithm in IDPS I2.1.08.00 (Mx8) for SNPP/NOAA-20 SDR Radiance Polarization Correction updates. The recommendation is to proceed with Mx8 deployment in IDPS.
- The CrIS STAR SDR team participated in a SDR Generator Tool training session with the vendor Harris to familiarize/troubleshoot the SDR team with the software used to process TVAC data.
- A study into the effects of the Doppler shift from the CrIS instrument's relative velocity to the moving earth scene on the spectral radiance and SDR data is being investigated. Doppler shifts larger than 1 ppm can be calculated for large angle FORs **(Fig. 2)**, and Doppler shift due to spacecraft velocity and a very small FOV angle (1.1°) is significant.

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.*

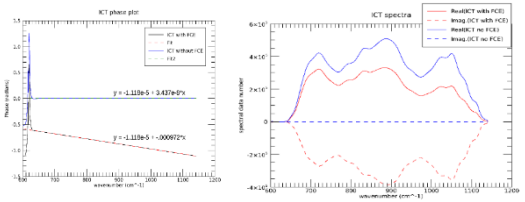
Issues/Risks:

1. Harris reported that during J2/CrIS neon lamp life testing results have indicated its potential malfunction near the end of the instrument mission. As shown in **Fig. (3)**, If neon lamp failure is observed, degradation quality of the CrIS SDR product is expected. Prediction of the metrology laser is needed if loss of J2/CrIS neon lamp occurs. A comprehensive study as well as corresponding planning of tasks and resources is in progress by CrIS SDR Team to mitigate the impact of a potential neon lamp malfunction.

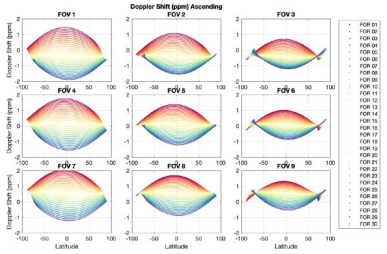
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NPP (side-2) Validated Maturity	Feb-20	Feb-20		Provisional + 6m
J2 pre-launch test data (TVAC) review/analyze	Apr-20	Apr-20		TVAC: Jan-20
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Pre-launch sensor characterization report	May-20	May-20		PSR + 3m
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Aug-20	Aug-20		PSR + 6m
PCT update based on pre-launch test data and other changes	Aug-20	Aug-20		PSR + 6m
Algorithm Updates Review	Jun-20	Jun-20		
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Apr-20		
Update Quality flag and threshold for Spike Detection algorithm (ADR8820)	Aug-20	Aug-20		
Optimize/update FCE detection and correction algorithm	Aug-20	Aug-20		
Turn off Truncated Spectrum CrIS Data (ADR8761)	Sep-20	Sep-20		OSPO & Users
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual CrIS SDR performance report	Feb-20	Feb-20		
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T CrIS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T CrIS data review/checkout	Apr-20	Apr-20		
BL2.2 Mx 1 I&T CrIS data review/checkout	Jul-20	Jul-20		

Highlights:

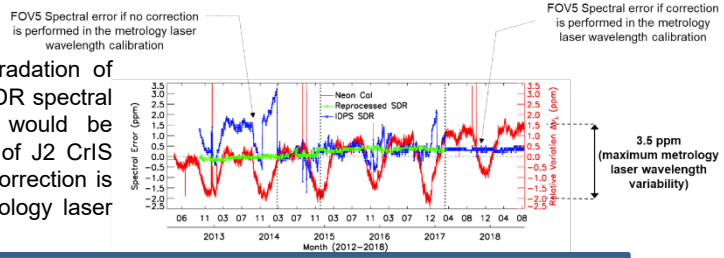
(1) Best fit of phase plot diagram used to compute the Fringe Count Error (left) and real and imaginary part of a simulated spectra affected by a Fringe Count Error (right).



(2) Spectral error introduced by Doppler shift due to earth and satellite velocities verses latitude, ascending, for All FOVs and FORs.



(3) An maximum degradation of 3.5 ppm in the CrIS SDR spectral accuracy (blue line) would be observed due to lack of J2 CrIS neon lamp and if no correction is performed in the metrology laser wavelength calibration.



VIIRS SDR

November, 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 Nov. 25 and 26, 2019
- Delivered for deployment in IDPS operations the updated NOAA-20 and S-NPP VIIRS DNB stray light correction LUTs generated from the Oct. 27-29, 2019 data
- Based on test data from the IDPS I&T processing system, verified that the VIIRS SDR products were correctly generated by the IDPS Block 2.1 release Mx8 software
- Processed lunar data collected on Nov. 7, 2019 for NOAA-20 VIIRS and compared lunar and solar calibration trends
- Tested the simulated JPSS-2 VIIRS SDR products and updated the initial GEO LUTs to ensure that the ground sampling intervals are symmetric about nadir as well as the DELTA-C LUT to extend production of the SDR to more extreme instrument temperatures
- Updated NOAA-20 and S-NPP VIIRS SNO and SNO-x based comparisons with Aqua MODIS to characterize and monitor radiometric consistency between the two VIIRS instruments
- Processed VIIRS TOA reflectance over the Saharan desert sites (Libya 4, Sudan 1, Libya 1) and the Antarctica Dome C site to characterize sensor stability and accuracy
- Coordinated and verified predictions for the NOAA-20 VIIRS lunar calibration on 12/7/19

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			

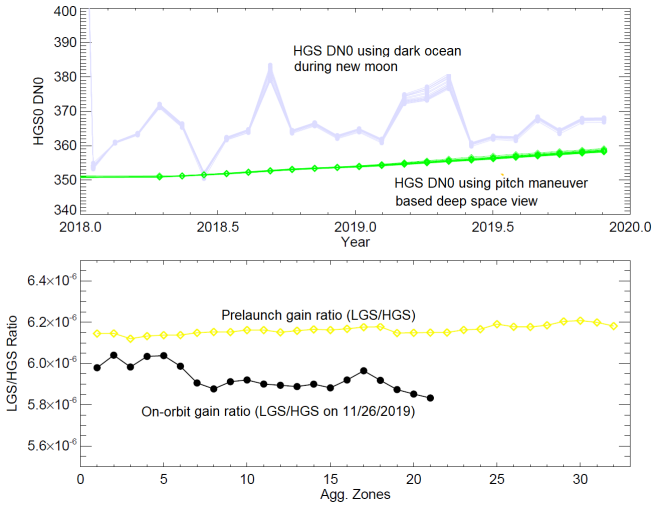
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

none

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test data (TVAC) review/analyze	Jan-20	Jan-20		
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Launch-ready LUTs (initial delivery)	Jun-20	Jun-20		
Algorithm Updates Review	Jun-20	Jun-20		
J2 SDR data (based on TVAC) available for EDRs	Jan-20	Jan-20		
DAP: Lunar contamination (code & LUT updates)	Jun-20	Jun-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual VIIRS SDR performance report	Feb-20	Feb-20		
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx8 I&T VIIRS data review/checkout	Nov-19	Nov-19	11/06/19	
BL2.2 Mx0 I&T VIIRS data review/checkout	Apr-20	Apr-20		
BL2.2 Mx1 I&T VIIRS data review/checkout	Jul-20	Jul-20		

Highlights:



Temporal trend of the NOAA-20 VIIRS DNB HGS dark offset with and without airglow (top) LGS/HGS gain ratio on 11/26/2019 compared to prelaunch values (bottom)

OMPS SDR

November, 2019

Accomplishments / Events:

- Continued to refine NOAA-20 OMPS NP day-1 calibration to improve solar calibration accuracy
- Conducted the consistency check between SNPP and NOAA-20 day-1 data
- Continued to work on the analysis of J2 TVAC for OMPS
- Further validated NOAA-20 OMPS NP data quality using TomRad simulations
- Made regular weekly/biweekly deliveries for OMPS dark table, SNPP/NOAA-20 OMPS-NP wavelength and solar flux
- Reviewed the J2 RDR/SDR OMPS requirements

Overall Status:

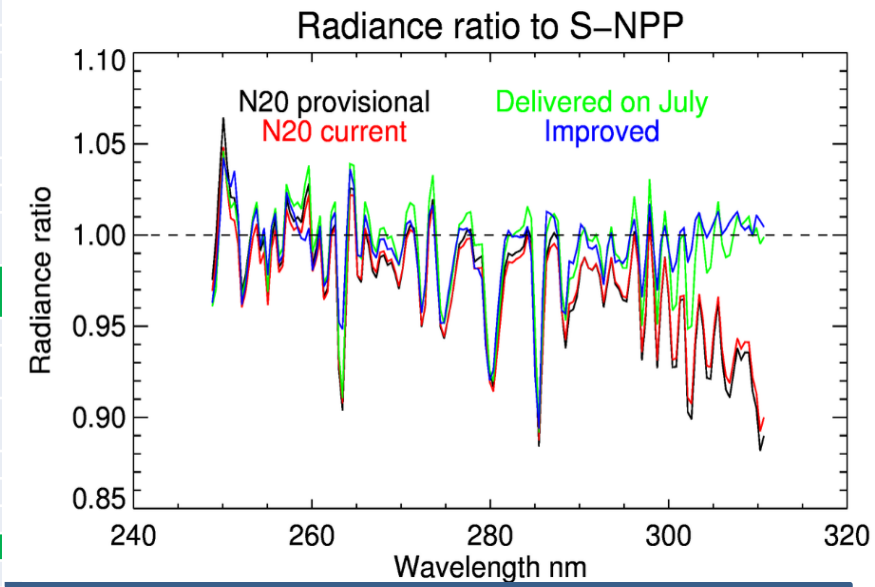
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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: OMPS-NP	Jan-20	Jan-20		
J2 pre-launch test data (TVAC) review/analyze	Feb-20	Feb-20		
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Pre-launch sensor characterization report	Dec-19	Dec-19		
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Jun-20	Jun-20		
Launch-ready LUTs (initial delivery)	Jun-20	Jun-20		
Algorithm Updates Review	Jun-20	Jun-20		
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Apr-20		
Remove VIIRS SnowIce and QST tile dependency (ADR8550/CCR4589)	Oct-19	Oct-19	10/28/19	8/1/19 to ASSISTT
NaN Values in SOMPS Products (ADR8526)	Jun-20	Jun-20		
High resolution SDR implementation (17km x 17km OMPS TC)	Aug-20	Aug-20		Jun-20 ?
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual OMPS SDR performance report	Feb-20	Feb-20		
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T OMPS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T OMPS data review/checkout	Apr-20	Apr-20		
BL2.2 Mx 1 I&T OMPS data review/checkout	Jul-20	Jul-20		

Highlights:



SDR Reprocessing

November, 2019

Accomplishments / Events:

- The development of web interface for VIIRS reprocessed data dissemination is under test
- New round of SNPP ATMS reprocessing with bi-weekly solar update is complete
- Preparation of a peer-review journal paper for SNPP SDR Reprocessing is ongoing
- Transition of the reprocessed SNPP SDR data to NCEI/CLASS is ongoing
- Cloud mask (CM) derived from the reprocessed VIIRS SDR is ongoing (highlights)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Optimize SDR reprocessing package	Sep-20	Sep-20		
Development of VIIRS reprocessed data dissemination interface	Sep-20	Sep-20		
Evaluation of impact of reprocessed VIIRS SDR data on cloud mask product	Sep-20	Sep-20		
Develop reprocessing data website	Sep-20	Sep-20		
Analyze the quality of reprocessed data in a journal paper	Sep-20	Sep-20		
Evaluate the impact of reprocessed data on weather forecast (HWRF)	Sep-20	Sep-20		
Readme for reprocessed SNPP ATMS, CrIS, OMPS and VIIRS data	Sep-20	Sep-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			

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.*

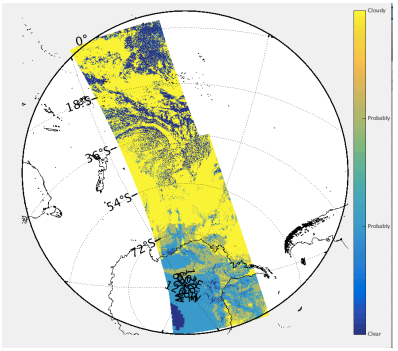
Issues/Risks:

None

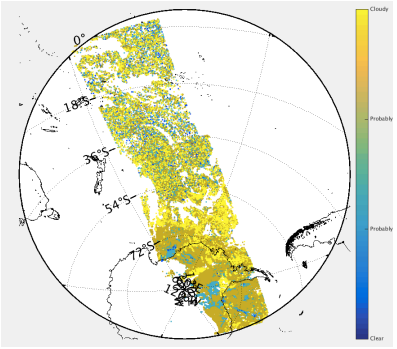
Highlights:

Cloud Mask (CM) from reprocessed VIIRS SDR

Reprocessed CM (2016-05-01)



Reprocessed CM that is different from operational CM



- The total unmatched pixels are about 0. 1% of the size of reprocessed CM
- The most unmatched pixels are mostly labeled as “probably clear” or “probably cloudy” pixels in the reprocessed CM
- Most of the changes occur between two neighbor categories, i.e. “clear” to “probably clear”, “probably clear” to “probably cloudy”, and “probably cloudy” to “cloudy”

ICVS

November, 2019

Accomplishments / Events:

- Updated CrIS-ABI SNO package development in order to provide S-NPP/NOAA-20 CrIS inter-sensor bias using double difference technique
- Updated OMPS/NM vs GOME SNO inter-sensor comparison software package and S-NPP/NOAA-20 OMPS/NP 32-day averaged inter-sensor comparison software package to built NOAA-20 and S-NPP OMPS NM/NP inter-sensor comparison trending products
- Developed S-NPP/NOAA-20 ATMS TDR 32-day averaged inter-sensor bias trending product
- Updated S-NPP/NOAA-20 VIIRS SDR inter-sensor bias trending time series using CRTM simulation as proxy for VIIRS on-orbit SDR data monitoring
- Kept developing ICVS dynamic web site by adding multiple trending products within one monitoring window

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
• ICVS Intersensor web site beta version (e.g., direct, CRTM, 3rd instrument as transfer) • ICVS-J2 prototype beta version using J1 as proxy data • ICVS-reprocessing tool prototype	Dec-19	Dec-19		
• ICVS interactive modules: beta version • OMPS geolocation error monitoring algorithm development • Cloud mask module improvement using AI-based cloud detection algorithm: beta version • IDPS cloud implementation verification task	Mar-20	Mar-20		
• ICVS intersensor and reprocessing web site improvement (operational version) • ICVS Interactive modules: operational version • ICVS Module improvements (each instrument on both SNPP and NOAA-20) (with proper QCs in particular cloud mask over snow-free land) ▪ Inter-Sensor Comparison Modules ▪ O-B and Double Difference Bias Modules • ICVS-AI modules for each instrument lifetime performance assessment: beta version • OMPS geolocation error monitoring module	Jun-20	Jun-20		
• ICVS-AI modules for each instrument lifetime performance assessment: operational version • ICVS-AI modules for each instrument SDR data quality assessment: beta version • ICVS upgrade (if new servers are ready)	Sep-20	Sep-20		
JPSS-ICVS System Standardization and ICVS Annual Performance Review	Feb-20	Feb-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			

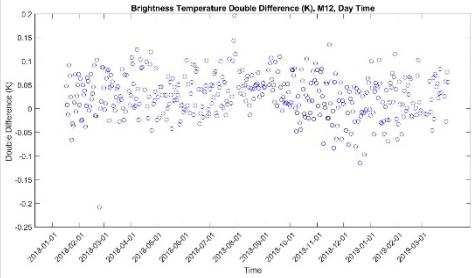
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

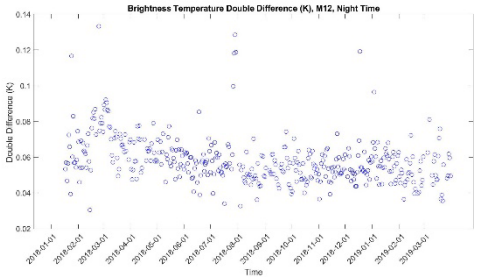
Issues/Risks:

None

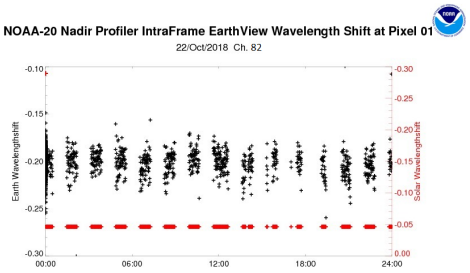
Highlights: Significantly contribute to STAR SDR Teams

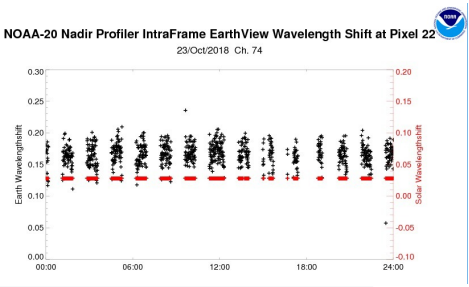
S-NPP/NOAA-20 VIIRS TEB M12 day time (left) and night time (right) inter-sensor bias using double difference through CRTM simulation





NOAA-20 OMPS NP IntraFrame EV wavelength Shift at Pixel 01 (left) and 22 (right)





VIIRS Imagery

November, 2019

Accomplishments / Events:

- **Terrain-Corrected EDR Imagery**: The terrain-correction code changes have transitioned from G-ADA to Raytheon for operational testing. The Imagery Team will likely do implementation testing as the code changes make their way through the steps into operations.(D. Stuhmer, Raytheon)
- **DNB-to-NCC LUT update:** The documents associated with the LUT change in 2013 for SNPP included associated code changes to keep the NCC product from saturating and producing unusable/fill values for dark pixels beyond 105 degrees zenith angle. That necessitated solar and lunar LUTs that extend to 180 degrees. The Imagery Team is now investigating how to generate LUTs for NOAA-20 since the tool used for the previous update was not delivered by NGAS to the JPSS Program. (D. Hillger, S. Finley, T. Kopp)

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
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Algorithm Updates Review	Jun-20	Jun-20		
N20 NCC LUT update	Sep-20	Sep-20		
All 16 M–bands as Imagery EDRs	Aug-20	Aug-20		Before J2 launch, JCT3
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization tool development/improvement (increase Polar SLIDER storage for longer archive and more imagery/combo products with multiple satellites)	Sep-20	Sep-20		
Annual VIIRS Imagery performance report	Feb-20	Feb-20		
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20		
BL2.2 Mx 1 I&T ATMS data review/checkout	Jul-20	Jul-20		

Highlights:

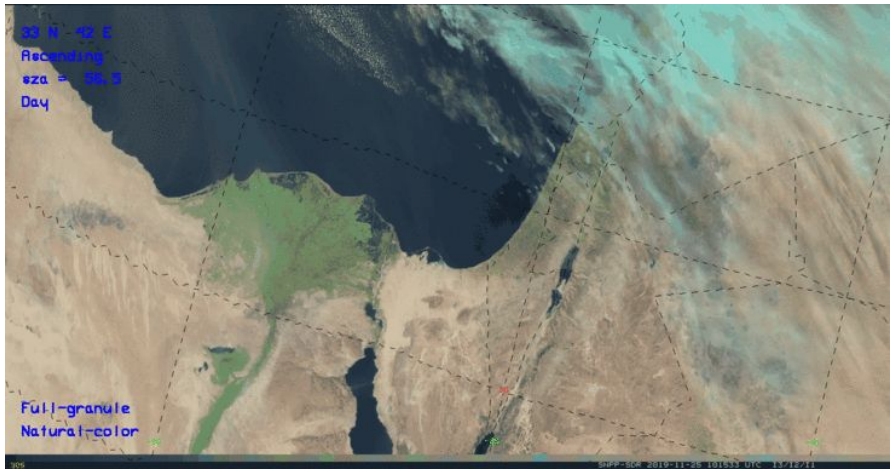


Figure: Part of a VIIRS full-granule Natural-color RGB image from 2019-11-25 at ~1015 UTC, showing the Nile Delta region. Green areas are vegetated land, brown areas are dry/barren land, and cyan colors are high/ice clouds. Note variations in dryland features across the scene.

Clouds

November, 2019

Accomplishments / Events:

- Updating Cloud Mask and Cloud Height Enterprise ATBD for next delivery.
- Continue to finalize Enterprise Cloud Mask LUTs for both GOES and VIIRS.
- Improved method of using NUCAPS EDR data for VIIRS cloud height retrievals

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
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Cloud Mask: Implement DNB ▪ Cloud Mask: Implement DNB ▪ Cloud Phase/Type: Optimize cloud phase thresholds for NOAA-20 ▪ ACHA: Improving multilayer ACHA ▪ CBH: Leverage DCOMP nighttime COD (DNB) to improve performance over IR-only ▪ CCL: Include super-cooled and convective fraction ▪ DCOMP: Incorporate improved surface reflectance for DCOMP channels ▪ NCOMP: Extend NCOMP cloud optical depth range to include larger values	Mar-20	Mar-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val Visualization tool and LTM webpage development/improvement	Sep-20	Sep-20		
Support Alaska Demo and ESRL usage	Sep-20	Sep-20		

Highlights: Use of NUCAPS for ACHA

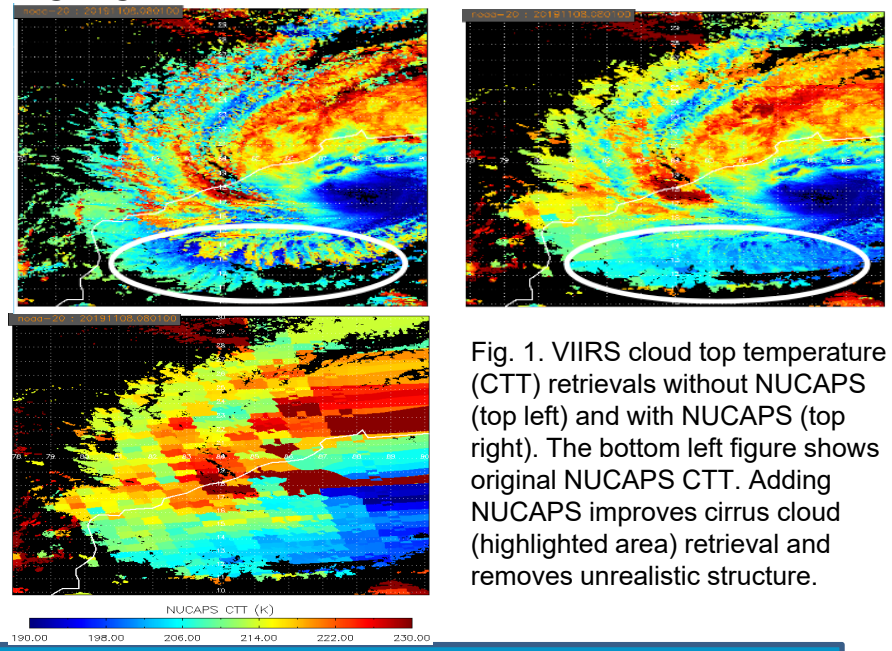


Fig. 1. VIIRS cloud top temperature (CTT) retrievals without NUCAPS (top left) and with NUCAPS (top right). The bottom left figure shows original NUCAPS CTT. Adding NUCAPS improves cirrus cloud (highlighted area) retrieval and removes unrealistic structure.

Aerosol

November, 2019

Accomplishments / Events:

- **Completed software development and collection of data (S-NPP and NOAA-20 VIIRS SDR and other data) needed for the update of AOD retrieval over bright land pixels.**
- **Evaluated the TROPOMI Aerosol Layer Height (ALH) product. Spatial coverage of aerosol plume in the ALH product was compared with that in the JPSS Enterprise of Aerosol Detection Product (ADP) and with CALIPSO Aerosol Layer Product. Results were presented at the Copernicus Sentinel-5 Precursor Validation Team Workshop in Frascati, Italy.**

Overall Status:

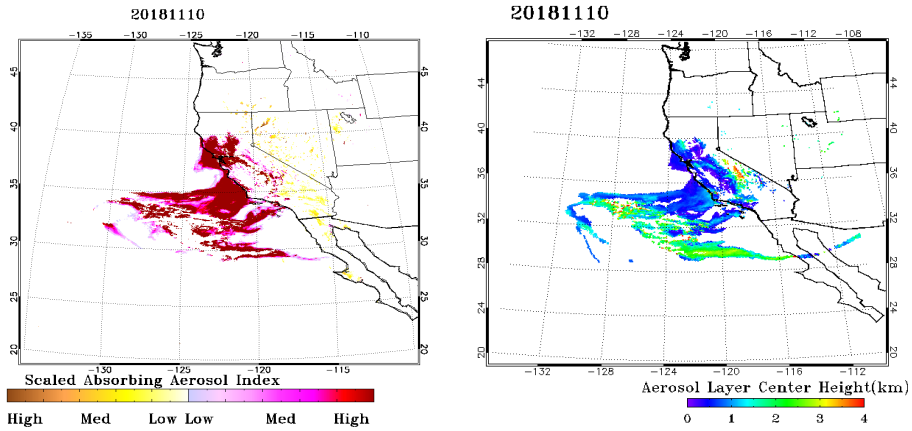
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Re-derive surface reflectance (dark and bright land) relationships ▪ Update thresholds in internal tests of sea ice and heavy aerosol over water for NOAA-20 ▪ Fix issue with misidentification of bright surface. Retrieve AOD using dark-surface relationship ▪ ADP algorithm updates to improve correct detection and minimize false detection over high latitudes	Mar-20	Mar-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement, update aerosol cal/val & AerosolWatch website	Sep-20	Sep-20		



Left: JPSS ADP smoke/dust flag showing scaled aerosol index on Nov 10 2019. *Right*: TROPOMI Aerosol Layer Height product on the same day.

Volcanic Ash

November, 2019

Accomplishments / Events:

- Added to list of known NOAA-20 observations of non-trivial ash clouds
- Began FY20 cal/val activities, including continuous assessment and comparisons to validation data
- Demonstrated how collocated geostationary satellite data can improve the VIIRS ash detection in the presence of opaque umbrella clouds generated by explosive (high impact) volcanic events (see figure). VOLCAT merges LEO and GEO data to create high level products for decision making. The VIIRS NDE EDR has limited value for operational decision making.

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.*

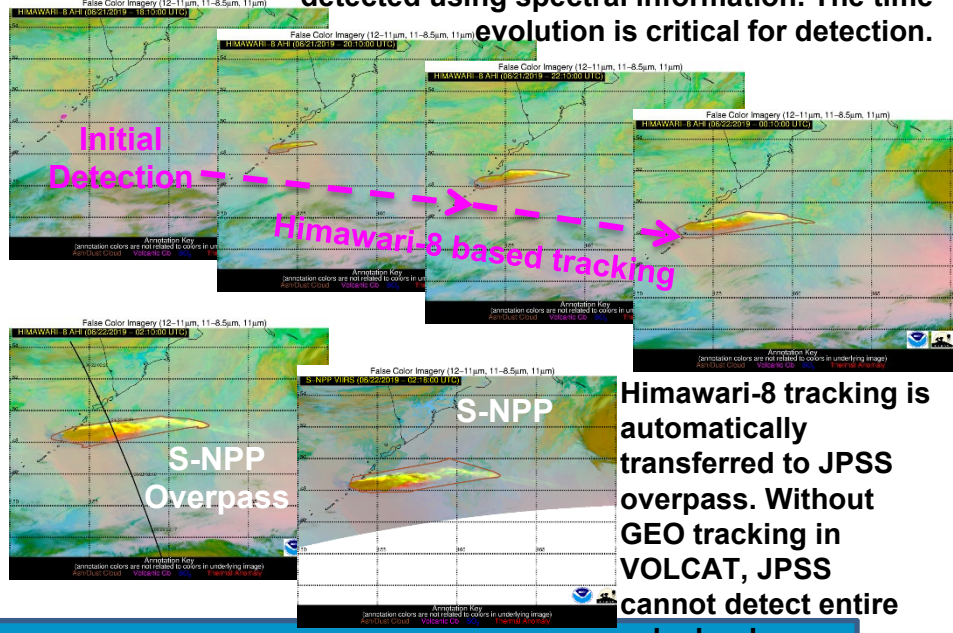
Issues/Risks:

In early 2020, STAR management will be briefed on the challenges associated with transitioning from the enterprise algorithm to the multi-sensor based VOLcanic Cloud Analysis Toolkit (VOLCAT).

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Jun-21	Jun-21		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Refine thresholds and LUT's for S-NPP and NOAA-20 as needed	Mar-20	Mar-20		
Pursue algorithm enhancements, including eventual transition to VOLCAT	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Opaque ash clouds cannot be reliably detected using spectral information. The time evolution is critical for detection.



Himawari-8 tracking is automatically transferred to JPSS overpass. Without GEO tracking in VOLCAT, JPSS cannot detect entire ash cloud.

Cryosphere

November, 2019

Accomplishments / Events:

- VIIRS NOAA-20 Sea Ice Concentration was shown to compare better to Landsat than AMSR2 in a melting ice surface temperature environment. (See figure.)
- The One-Dimensional Thermodynamic Ice Model (OTIM) that is used for ice thickness estimation with VIIRS, ABI, and AVHRR has been updated with a variety of improvements. See the November 22 weekly report for details.
- NOAA OISST fields were examined as a possible replacement ocean mask to remove erroneous ice that did not get flagged by the automated weather filters and climatological ocean mask in the AMSR2 sea ice characterization algorithm. See the November 1 weekly report for details.

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			

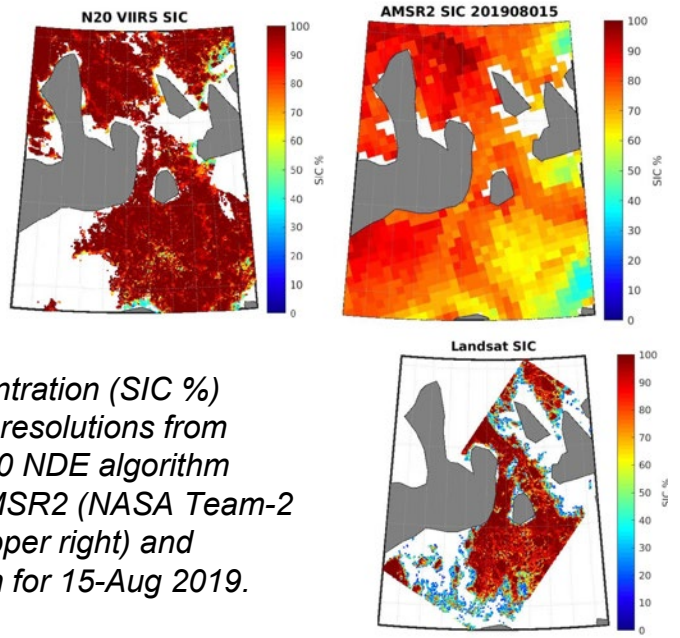
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: Snow Cover (Binary Map & Snow Cover Fraction)	Apr-20	Apr-20		Cover Winter
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Add passive microwave filters to improve ice products ▪ Implement I-band ice products ▪ Evaluation of two Enterprise snow algorithms (VIIRS and ABI) and possible replacement	Mar-20	Mar-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:



Sea Ice Concentration (SIC %) values at 1-km resolutions from VIIRS NOAA-20 NDE algorithm (upper-left), AMSR2 (NASA Team-2 interpolated; upper right) and Landsat bottom for 15-Aug 2019.

Active Fires

November, 2019

Accomplishments / Events:

- Performed verification of the I&T implementation of the emergency update of the M-band fire product; no issues were found
- Coordinated with NCEP operations regarding the operational transition, currently scheduled for December 5
- Also coordinated with the GBBEPx team regarding the product change
- Ivan Csiszar attended the NASA MODIS/VIIRS Science Team meeting and briefed on the ongoing work to flag persistent anomalies in the Level 2 product
- Worked with CIMSS to include direct broadcast VIIRS I-band fire data 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		OSPO / NDE implementation

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:

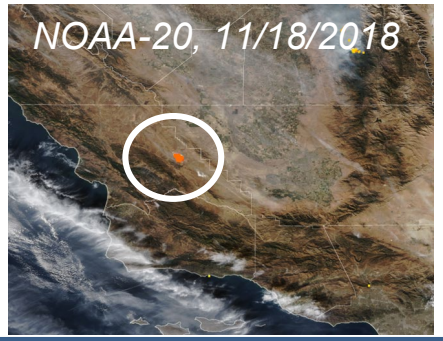
Delay in OSPO / NDE's readiness to implement I-band algorithm

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (M-Band & I-Band)	Jan-20	Jan-20		
Initial DAP (I-Band)	Mar-20	Mar-20		
Final DAP (I-Band)	Sep-20	Sep-20		With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ I-band algorithm improvements	Jun-20	Jun-20		
ATBD update	Dec-19	Dec-19		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Evidence of recurring false alarms with an 8-day repeat cycle from the Suomi NPP and NOAA-20

https://www.star.nesdis.noaa.gov/jpss/mapper/



Surface Reflectance

November, 2019

Accomplishments / Events:

- Ivan Csiszar attended the NASA MODIS/VIIRS Science Team meeting where he presented an update on the NOAA JPSS Land Products, including Surface Reflectance
- At the meeting an improvement of the high aerosol flag was reported. This will improve retrievals over bright surfaces at high view angles. This algorithm change is now also considered for the NDE product towards validated maturity.

Overall Status:

	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget			X		Temporary funding delay
Technical / Programmatic			X		Large data volume for validated analysis
Schedule			X		Delay validated review

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: delay in preparation for validated review. Low impact on product performance.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Apr-20	Apr-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Update aerosol and cloud quality information and their use ▪ Possibly adjust of some retrieval LUTs ▪ Streamline internal processing code ▪ Make product content compatible with CEOS Analysis Ready Data for Land requirements	Jun-20	Jun-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Generic flowchart of the Surface Reflectance retrieval algorithm. Highlighted are corrections considered to be added to the operational processing system. The blue arrow indicates the QC module considered to be modified.

Credit: Bob Yu (STAR), Heshun Wang (UMD)

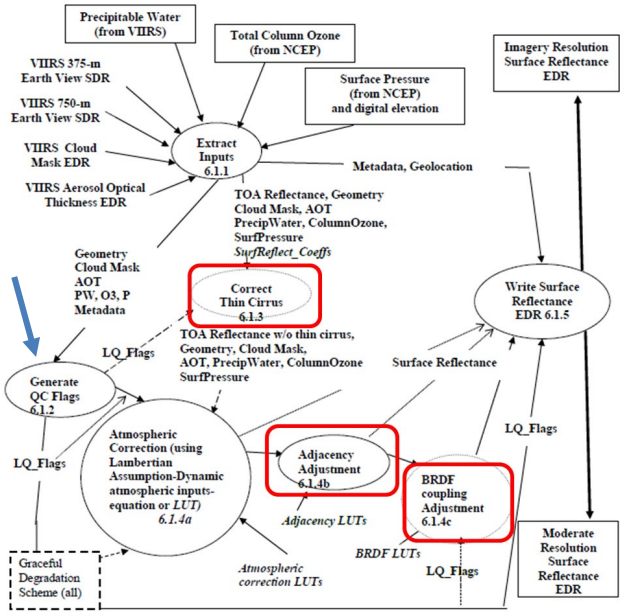


Figure 1. Surface Reflectance EDR processing architecture.

Surface Type

November, 2019

Accomplishments / Events:

- Downloaded and processed S-NPP and NOAA-20 VIIRS observations acquired in November 2019 to create daily mosaics (up to the writing of this report).
- Developed a new reference data collection tool using Python and new capabilities available for accessing high resolution data.
- This tool is being used to collect thousands of new reference samples, which will greatly enhance surface type characterization and representation for all land areas across the globe for AST 2019 development.
- Attended the NASA MODIS/VIIRS Science Team Meeting and updated all NASA MODIS/VIIRS science teams of the VIIRS surface type products produced by NOAA.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity	Sep-20	Sep-20		
Validated Maturity	Sep-20	Sep-20		
Annual performance report	Feb-20	Feb-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
AST19 (Annual Surface Type):				
Collaborate with land teams on daily and monthly product gridding and compositing for NDE Enterprise Algorithm (SR/NDVI/EVI/Temperature)	Sep-20	Sep-20		
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST19 based on 2019 VIIRS data	Aug-20	Aug-20		
Generate VIIRS AST19 based on 2019 VIIRS data using SVM algorithm	Aug-20	Aug-20		
Comparison of AST19 with surface type validation data (Accuracy statistics of the new AST19 and LWM)	Aug-20	Aug-20		
Delivery of AST19 (available for users through STAR FTP)	Sep-20	Sep-20		
AST18 NDE delivery (ASSISTT)				
▪ Download AST18 from JSTAR web ▪ Chain-run to make sure the delivery works for the down-stream products ▪ Deliver AST18 DAP to NDE	Aug-20	Aug-20		With JRR DAP

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				

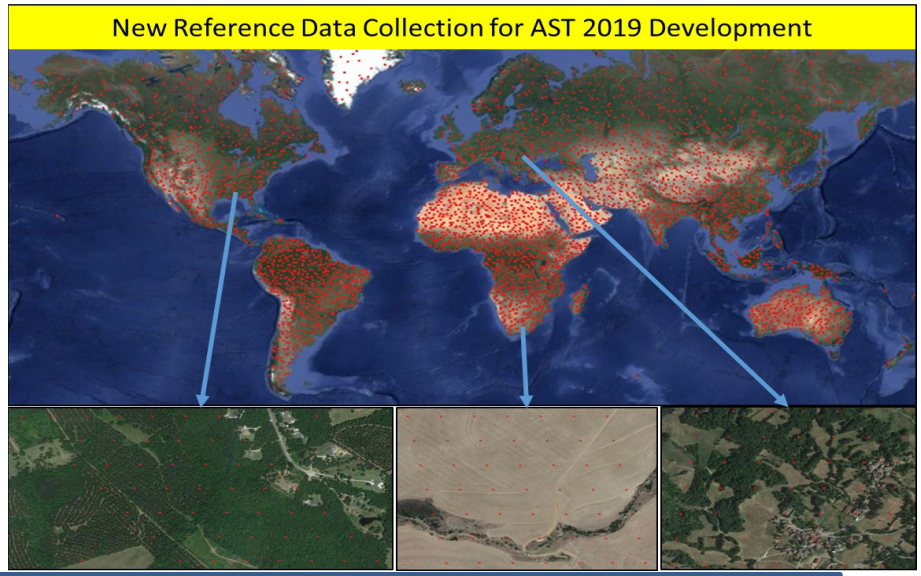
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Highlights:

New reference samples are being collected using QGIS and a newly developed Python tool to improve surface type characterization and representation across all land areas of the globe.



Land Surface Temperature

November, 2019

Accomplishments / Events:

- Extended in-situ data from 01/2018 to present (SURFRAD and BSRN sites);
- NOAA-20 LST Validated Maturity Review conducted on Nov. 21, 2019.
- Further performed the algorithm study on the split window channel selection using the simulation data.
- Poster presentation titled “Enterprise JPSS VIIRS LST Product Status and Its Readiness to Users” to CISESS annual science meeting from Nov. 12-14, 2019 at College Park
- Poster presentation titled “Status of the Enterprise VIIRS LST Production for JPSS Mission” to MODIS science meeting from Nov 18-21,2019 at College Park

Overall Status:

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

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

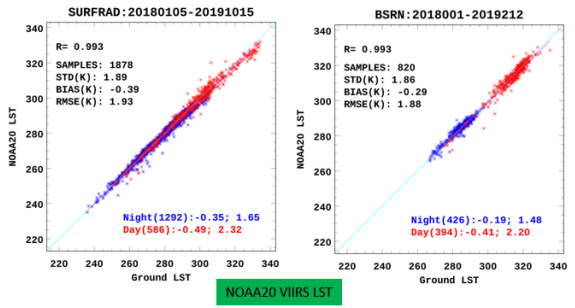
Issues/Risks:

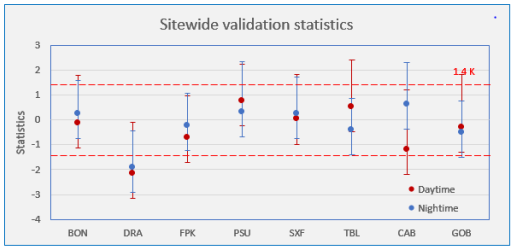
Schedule change due to the government shutdown

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded LST product (B/P/V ?)	Sep-20	Sep-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Update of coefficients with better stratification for TPW ▪ Uncertainty study of the JPSS LST product ▪ Additional cloud filtering ▪ Improved emissivity dataset ▪ LUT update	Mar-20	Mar-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Ground data validation-SURFRAD and BSRN





- Data coverage
  Six sites of SURFRAD network over continental US for time period from Jan., 2018 to Oct., 2019.
- Two sites of BSRN in Netherland and Namibia for time period from Jan. , 2018 to Jul. 2019 (due to the ground data availability).

- Validation results
- The close agreement is observed from the ground validation indicating that the VIIRS LST has a good quality with an accuracy of -0.39 K and -0.29K, precision of 1.89 K and 1.86 K for SURFRAD and BSRN, respectively
- The underestimation over DRA site is related to the site characterization and representativeness.

Surface Albedo

November, 2019

Accomplishments / Events:

- Time-series validation of reprocessed NOAA-20/SNPP albedo algorithm using SURFRAD/ARM-SGP station data
- Tested the upgraded local monitoring system for enterprise algorithm
- Cross-compared Level-3 NOAA-20 albedo with MODIS daily mean albedo over representative regions
- Summarized the influence of snow mask input on albedo
- Presented the VIIRS Enterprise albedo product in the MODIS annual science meeting.
- Validated Maturity Review on NOAA-20 Albedo product has been conducted on Nov. 21, 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:

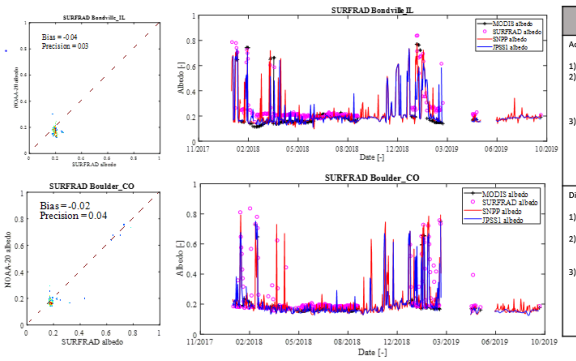
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded LST product (B/P/V ?)	Sep-20	Sep-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Improve the heterogeneity uncertainty analysis method ▪ Refining the 1-km climatology LSA	Mar-20	Mar-20		
Developing a blended albedo product	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Enterprise VIIRS albedo Algorithm performance evaluation

NOAA-20 VIIRS SURFALB has become operational since Sep 19, 2019. For long-term algorithm validation purpose, here we used locally reprocessed albedo at SURFRAD sites since Jan 07, 2018. However, the input data comes from IDPS version, which decreased the quality of the VIIRS albedo retrieval and caused larger noise. Even with this limitation, the high-quality NOAA-20 VIIRS albedo still meets the accuracy requirement. We also added MODIS daily mean albedo in the comparison for helping understanding the VIIRS albedo performance.

NOAA-20 vs. SURFRAD



VIIRS daily mean albedo	MODIS daily mean albedo
Advances 1) Near real time; 2) Spatial and temporal continuous coverage; 3) Prompt response to temporal snow	Advances 1) Higher quality over stable surface such as desert 2) Provide BRDF coefficients 3) Lower sensitivity to undetected cloud contamination
Dis-advances 1) Slight fluctuations in time series; 2) Sensitive to undetected cloud contamination; 3) Cloudy pixels quality related to climatology	Dis-advances 1) 8-day latency; 2) With data gaps and data missing; 3) Missed some snow events

NVPS
(Vegetation Index & Green Vegetation Fraction)

November, 2019

Accomplishments / Events:

- Developed Cal/Val tool for SNPP and NOAA-20 GVF comparison
- Poster presentations at MODIS/ VIIRS Science Team meeting (November 18-21)
- Data gathering and methods development for VI validated Maturity review in progress
- Refinement of quality flag scheme for VI products in progress
- Produced S-NPP and NOAA-20 GVF from Nov 1 to Nov 30, 2019 at the local computer for validation

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:

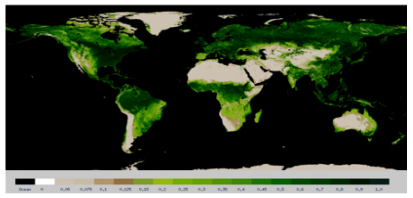
None

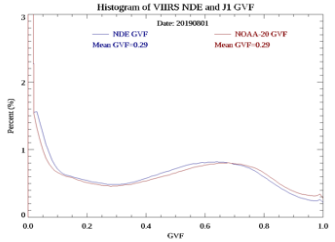
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Feb-20	Feb-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ NVPS algorithms optimization and improvement (to reduce the process time) ▪ Sensitivity analysis of the GVF/VI gridding algorithms	Jun-20	Jun-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Deep-dive analysis for the anomaly watch	Sep-20	Sep-20		

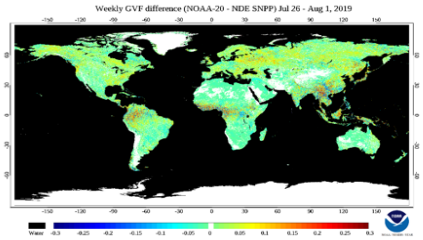
Highlights:

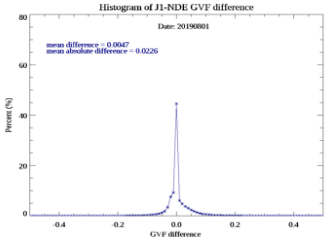
Developed Cal/Val tool for SNPP and NOAA-20 GVF comparison

- Cal/Val tool for SNPP and NOAA-20 GVF global map comparison is developed
- GVF difference (SNPP-N20) map showed small difference between them with mean difference=0.004









Vegetation Health

November, 2019

Accomplishments / Events:

- Developed web pages to display time series of seasonal products for each administration regions (country/province/global area), including SMN/SMT and VCI/TCI/VHI, for austral summer (Dec, Jan and Feb) and boreal summer (Jun, Jul, and Aug), 1982-2019;
- Built global climatology and time series for three datasets: VHP, GIMMS and MODIS-AQUA, and compared among them (highlighted)
- Delivered Vegetation Health DAP

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			

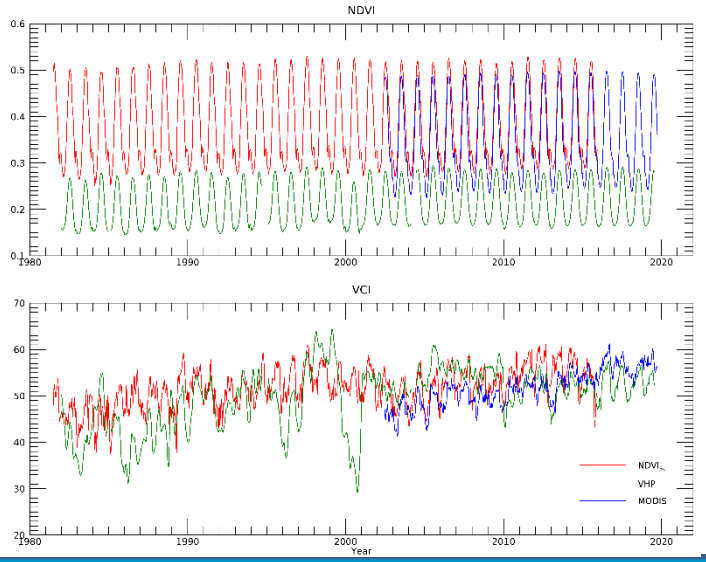
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
N20 Final DAP	Mar-20	Mar-20		Combine with init J2 ready DAP?
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		With final N20 ?
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Algorithm updates/improvements	Jun-20	Jun-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights: Globally Averaged NDVI and VCI Time Series for Three Datasets



Ocean Color

November, 2019

Accomplishments / Events:

❑ **Ocean Color Team Publishes EOS Article:**
Dr. Xiaoming Liu of SOCD's Ocean Color Science team and Team Leader Dr. Menghua Wang just published an EOS article entitled "Filling the Gaps in Ocean Maps" describing NOAA's new software application which provides gap-free, near-real-time (NRT) monitoring of the global ocean environment. Although NRT ocean color images are produced daily by the science team; cloud cover, glint, and sub-optimal data-collection angles result in data gaps in those images. By merging images from multiple VIIRS sensors (SNPP and NOAA-20), the Ocean Color Team now produces gap-free daily global NRT ocean color Chl a maps that are accessible online via CW. Gap free imagery increases scientists' understanding of the ocean and helps resolve important features that may drive ecosystem functions affecting fisheries, weather and storm events, ocean circulation, Harmful Algal Blooms (HABs) and climate change.

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Jun-20	Jun-20		
N20 Final DAP to CoastWatch	Nov-20	Nov-20		Cpmbine with init J2 DAP?
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		CoastWatch ?
Algorithm Updates Review	Sep-20	Sep-20		
Improve the merged VIIRS OC data from SNPP and NOAA-20	Sep-20	Sep-20		
Vicarious calibration for VIIRS-NOAA-20 using MOBY in situ data	Jun-20	Jun-20		
Complete the Sixth VIIRS ocean color dedicated cruise	Apr-20	Apr-20		
Complete the fifth VIIRS cruise report and in situ data analyses (e.g., improve in situ data quality)	Sep-20	Sep-20		
Routine ocean color data production for both NRT and science quality data streams	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

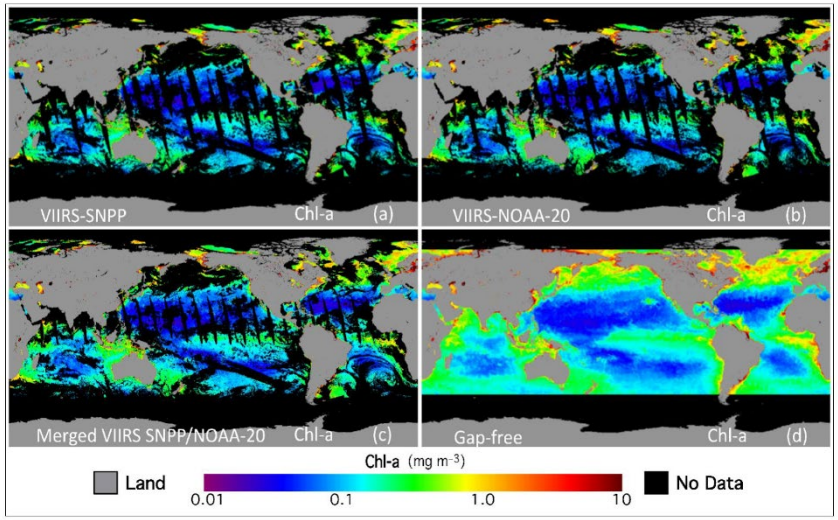


Figure: This sequence of global maps above show VIIRS-measured chlorophyll a (Chl a) concentrations on 29 July 2019 from (a) SNPP, (b) NOAA-20, (c) the merged Chl a image, and (d) the gap-free Chl a image. Chl a concentrations are in milligrams per cubic meter.

Sea Surface Temperature

November, 2019

Accomplishments / Events:

- On 17 Nov 2019, the Australian Bureau of Meteorology (BoM) started ingesting NOAA's ACSPO VIIRS L3U SSTs from both N20 and NPP into operational regional SST analysis (RAMSSA). This is the first ingestion of N20 SST into an operational BoM analysis
- Also, from 14 Nov ACSPO N20 VIIRS L3U SST started to be ingested into the BoM operational IMOS MultiSensor L3S SST composites, thereby improving spatial coverage and robustness.
- This is particularly helpful to the monitoring of coral bleaching conditions over the Great Barrier Reef. BoM Helen Beggs will be reporting on this at the upcoming Asia-Oceania Meteorological Satellite Users Conference in Melbourne on 4-6 Dec 2019.
- All project milestones and deliverables are on schedule.

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.*

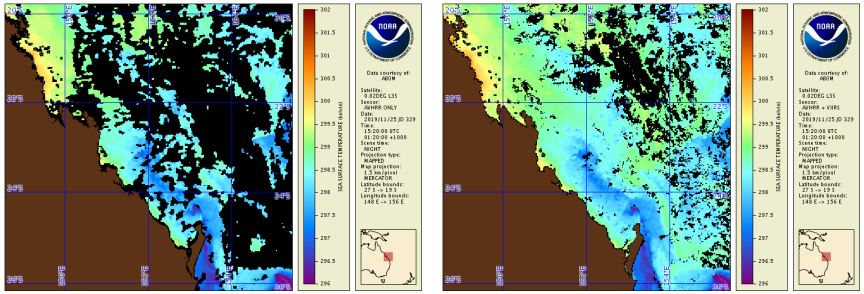
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Updated DAP (ACSPO 2.80, implement thermal fronts. improvements to support data fusion, J2 readiness)	Aug-20	Aug-20		With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		ACSPO 2.80
Algorithm Updates Review	Sep-20	Sep-20		
Complete VIIRS RAN2 archival with PO.DAAC & NCEI	Aug-20	Aug-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Maintain SQUAM/iQuam/ARMS. Resolve anomalies	Sep-20	Sep-20		

Highlights:

www.star.nesdis.noaa.gov/sod/sst/arms/



NOAA SST Team Monitors two versions of the BoM L3S (gridded super-collated) products: the one based on AVHRR LAC data only (left) and after adding both VIIRSs (right).

The coverage & image quality are dramatically improved when the two NOAA VIIRS SST products are additionally used, from both NPP and N20. Moreover, AVHRRs are at the end of their life.

VIIRS Polar Winds

November, 2019

Accomplishments / Events:

Docker container: Docker "containers" have been developed for both VIIRS and MODIS winds using the operational polar winds code. This will allow the processing to be easily ported to other computers, including at direct broadcast sites.

Overall Status:

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

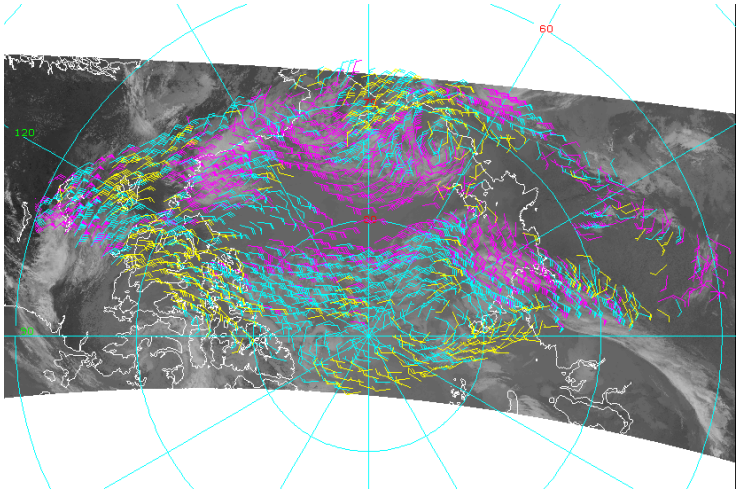
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Wind product updates/improvements: continue routine generation of combined S-NPP/NOAA-20 global winds	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:



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

NUCAPS Products

November, 2019

Accomplishments / Events

- The Validated Maturity Science Review for NOAA-20 NUCAPS Algorithms was presented and successfully completed on Monday, October 28, 2019. The review team disseminated the recommendation that NUCAPS Atmospheric Vertical Temperature Profile (AVTP), Atmospheric Vertical Moisture Profile (AVMP), Ozone, Outgoing Longwave Radiation (OLR), and NUCAPS Carbon Monoxide (CO) products have all reached Validated Maturity.
- Initiated comparison of MW-only retrievals with MiRS retrievals. As part of improving the MW-only retrieval, the NUCAPS team initiated efforts towards improving the MW-only a-priori. The MiRS a-priori based on one year of ECMWF analysis fields is being reviewed as an alternate to replace NUCAPS MW-only a-priori that was composed of NCEP and UARS upper troposphere/stratosphere zonal monthly climatology.
- Team members have formulated and itemized actions to prepare for the upcoming February 2020 maturity review that includes a validated maturity review for S-NPP/NOAA-20 CH4, and provisional maturity for S-NPP/NOAA-20 CO2 products. These actions include, (i) optimization of channels, (ii) quality flags improvements, (iii) development of a-priori for CO2, and (iv) expanding truth data sets for both CH4 and CO2.

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			

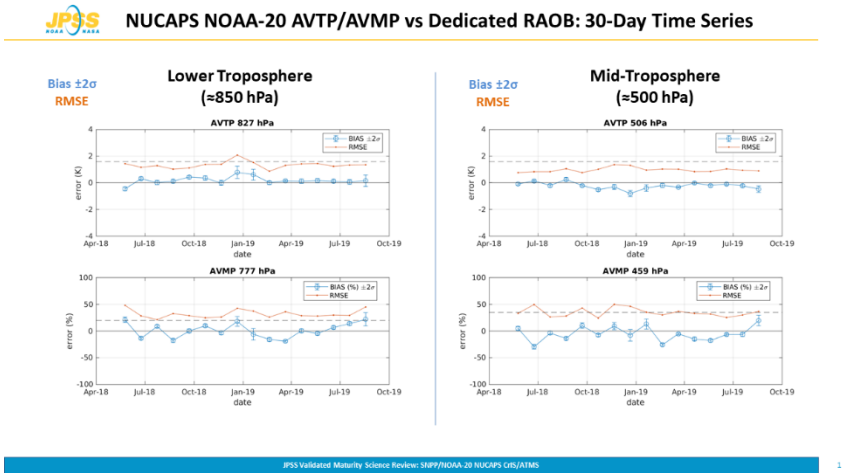
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: CH4 (S-NPP & NOAA-20)	Feb-20	Feb-20		
Provisional Maturity: CO2 (S-NPP & NOAA-20)	Feb-20	Feb-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Optimization of CO related look up tables ▪ Improve NOAA-20 CH4/CO2 algorithms ▪ J2 HEAP algorithm	Jun-20	Jun-20		
Validation against NUCAPS SNPP trace gas EDRs, other instruments (MOPITT, AIRS, IASI) and in situ measurements (TCCON, ATom, WE-CAN, KORUS)	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Peer reviewed paper on NUCAPS HEAP cal/val	Sep-20	Sep-20		

Highlights



In general, based on a 16 month time series, AVTP and AVMP products meet JPSS requirements for RMSE. This result was important for the declaration of validated maturity.

MiRS Products

November, 2019

Accomplishments / Events:

- Official notice of MiRS NOAA-20 status of validated maturity was received by review committee on 11/20/19.
- Work progressing on development of an experimental version of MiRS optimized for retrievals near tropical cyclones, allowing simultaneous retrieval of temperature anomaly structure and rainfall patterns. Retrieval experiments have been run on multiple days for the case of Hurricane Dorian. Results show a significant reduction of temperature and water vapor retrieval bias near the hurricane center in the experimental version. See highlights. Current efforts focused on updating a priori background statistics for tropical conditions.

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			

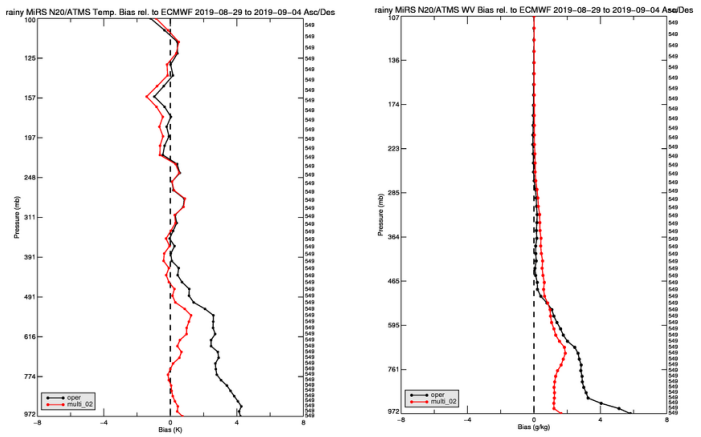
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Optimize MiRS for NOAA-20 and SNPP ▪ SRF integration; Algorithm test and verification	Jul-20	Jul-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:



Aggregate statistics of MiRS N20 temperature (left) and water vapor (right) retrieval bias with respect to the ECMWF analysis for Hurricane Dorian from 29 August – 4 September 2019. Black curves are for the operational MiRS, and red curves are for the experimental tropical cyclone version. Statistics are for all rainy FOVs within 100 km of the storm center.

Snowfall Rate

November, 2019

Accomplishments / Events:

- The SFR team has started to retrieve NOAA-19 and Metop-B/-C Alaska direct broadcast data from CIMSS. Only NOAA-20 and S-NPP data were retrieved in the past. These DB data are used to generate SFR product at near real-time. SPoRT retrieves the product, converts it to AWIPS format and sends to some NWS forecast offices. The image in the Highlights section is a sample AWIPS-like SFR image.
- The MHS (POES and Metop) SFR algorithms were re-calibrated in the last reporting period. Since then, the SFR team has been conducting case study to examine the calibration result. An issue has been identified that can cause rough transition between different calibration ranges. Research is ongoing to find solutions for this issue.
- Carl Dierking from GINA identified inconsistency in snowfall detection (SD) between the SFR produced from MiRS CSPP and from SPoRT. The SFR team and the MiRS team collaborated and identified the cause: an older version of MHS SD algorithm is being used in the CSPP. The two teams are formulating a plan to update the algorithm.

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			

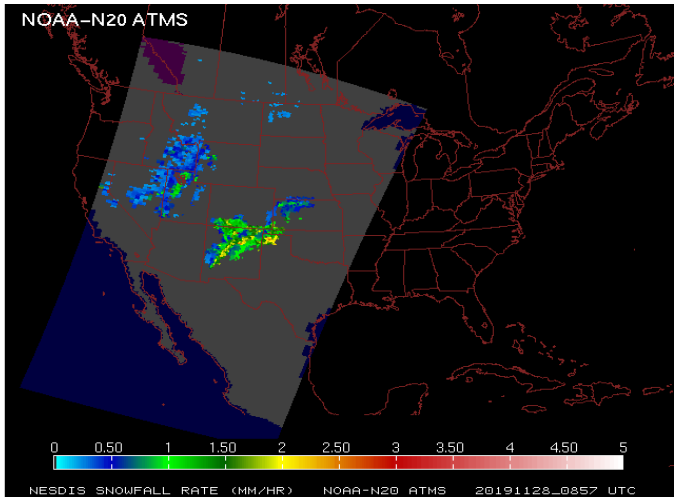
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Annual algorithms/products performance report	Feb-20	Feb-20		
Enhance the calibration method to mitigate existing issues including reducing non-convergence rate	May-20	May-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Deliver updated SFR package to MiRS team	Jun-20	Jun-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:



A NOAA-20 SFR image from the Thanksgiving Day shows widespread snowfall in the western and southwestern regions

OMPS Ozone

November, 2019

Accomplishments / Events:

- NOAA-20 S-NPP V8Pro EDRs are Provisional and V8TOz EDRs are Validated.
- ORR in preparation for V2Limb SDRs and EDRs at NDE I&T to be held December 2.
- Working on soft calibration, throughput degradation, and filtering and information concentration for V8TOz and V8Pro.
- Developing V8TOz enterprise package for GSICS.

Overall Status:

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

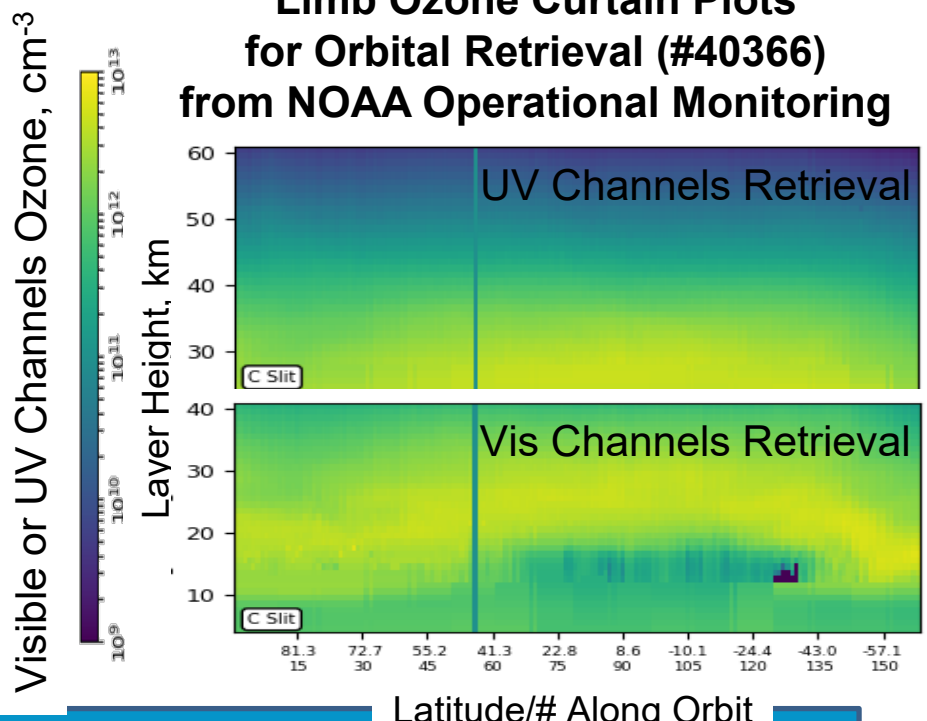
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

Code Changes for OMPS V8Pro EDR on path to maturity will not be implemented at NDE until Jan 2020. Adjustments for SDR changes TBD.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: V8Pro	Jan-20	Jan-20		
Limb SDR and EDR to operations	Feb-20	Feb-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
RT Tables with Wavelengths, Bandpasses	Mar-20	Mar-20		With Aug-20 DAP
V8TOz with Cloud top optical centroid algorithm	Aug-20	Aug-20		With Aug-20 DAP
Verification of direct readout EDRs	Sep-20	NA		DR does not include OMPS
Annual algorithms/products performance report	Feb-20	Feb-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Jun-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Limb Ozone Curtain Plots for Orbital Retrieval (#40366) from NOAA Operational Monitoring



GCOM-W1 Products

November, 2019

Accomplishments / Events:

- Activities continue with NESDIS IA and JPSS to discuss AMSR3 and AMSR2 progress/plans
- Engaging JPSS Program Office on budget needs/planning for AMSR-3
- Continued product cal/val; all products meeting requirements
- Reprocessing taking longer than anticipated; will be completed by early December 2019.
- Planning for participation in the JAXA GCOM PI meeting on January 20, 2020
- Preparing for AMS Annual Meeting, January 2020 (Boston)
- Portions of GCOM system under consideration for EPS-SG MWI

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:

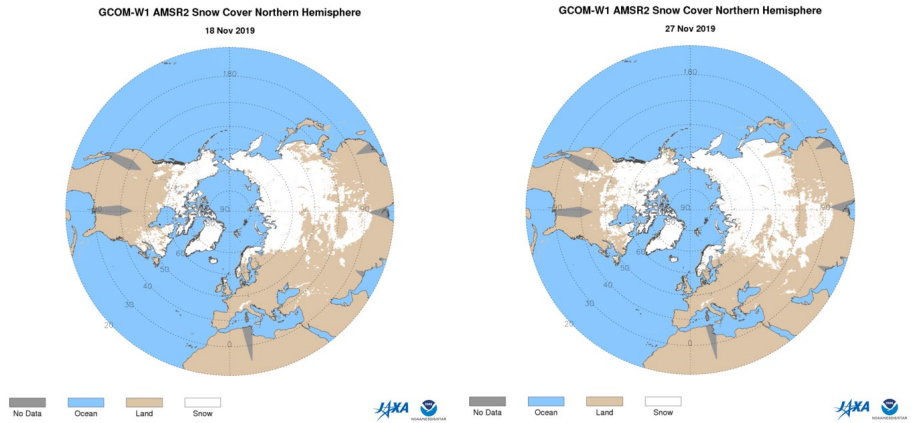
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Annual report on AMSR2 algorithms and data products performance	Feb-20	Feb-20		
Algorithm Cal/Val	Sep-20	Sep-20		
Algorithm improvement/bug fix	Sep-20	Sep-20		
Deliver updated algorithm DAP to NDE	Sep-20	Sep-20		
Long-term monitoring tool/website development/improvement	Sep-20	Sep-20		
Complete reprocessing of entire mission dataset of AMSR2	Sep-20	Sep-20		

Highlights:

Snow Cover Changes in the U.S.

A series of major weather systems began affecting the U.S. on November 23. These storms generated heavy snow in the western and central U.S. The AMSR-2 snow cover product accurately depicted the changes in the snow pack over the past week.



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

November, 2019

Accomplishments / Events:

- Continued routine compilation of NPROVS collocation datasets, approximately 30,000 individual comparisons per day **(Highlight)**.
- Processed collocated observations from the ongoing ARM / GRUAN /JPSS Radiosonde Inter-comparison VALidation (RIVAL) campaign.
- Continue to monitor and plan the execution of FY20 funds for JPSS / ARM Special radiosonde program; field supply shortage remain.
- Continued preliminary review of experimental Artificial Intelligence (AI) sounding EDR developed at STAR
- Provided inputs for pending GRUAN article on the Vaisala RS92 to RS41 radiosonde transition.
- Delivered and presented NPROVS assessment of the four (4) NWS radiosonde field campaigns conducted in 2019
- The EDR LTM team finalized the VIIRS NDE Land Surface Temperature (LST) images on LTM web site for NPP and 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			

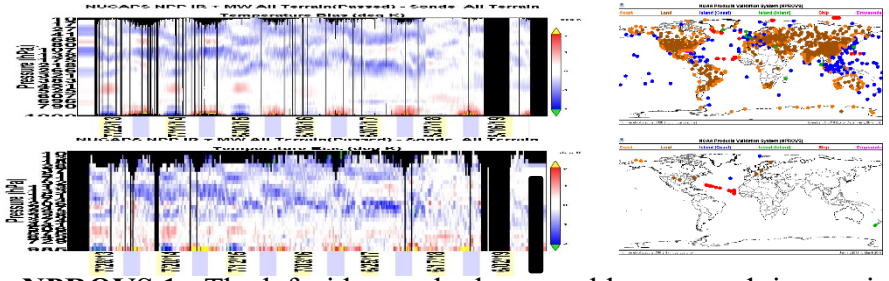
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
LTM				
Maintain / expand existing EDR LTM web pages and mappers	Sep-20	Sep-20		
NPROVS				
Support NUCAPS / MiRS EDR soundings for NPP, NOAA-20 and MetOp-C; COSMIC-2 (w/Cao) ...	Sep-20	Sep-20		
Manage JPSS dedicated radiosonde program (ARM, AEROSE, RIVAL ...), expand to store SDR (GSICS); support EUMETSAT ...	Sep-20	Sep-20		
Support NWS Raob Transition Monitoring (Sterling) and NUCAPS AWIPS-2 users	Sep-20	Sep-20		

Highlights:



NPROVS 1: The left side panels show weekly averaged time series (2013 to 2019) of NUCAPS NPP temperature bias from collocations with Conventional (top) and Special radiosondes (bottom) routinely compiled by NPROVS; associated geographic distribution are shown on right. The top consider collocations within 6 hr and the bottom within 2 hr at 100 (<1Km) and 30 (>1km) vertical layers, respectively. Despite the large differences in spatial and temporal coverage, the time series are consistent denoting the high value of conventional radiosonde to monitor and assess NUCAPS global performance.