



NOAA JPSS Monthly Program Office

AMP/STAR FY20 TTA

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November 27, 2020

First Community Meeting on NOAA Satellites Participation

The first Community Meeting on NOAA Satellites was held virtually via WebEx between September 29 and October 2, 2020. More than one thousand people registered for the meeting from more than 250 organizations across 33 countries. The meeting focused on operational space-based environmental observing system planning developments out to the 2030-2050 time frame. It emphasized the needs for user-driven data source agnostic environmental products, and disaggregated satellite observing systems and enterprise ground segment solutions that can deliver those products. Many non-legacy NOAA- and partner-hosted satellite payloads and orbital constellation configurations were presented. These included instrument hosting on small satellite and commercial platforms, and commercial data purchase agreements. It also included non-legacy satellite orbits such as the Tundra high-earth orbit.



MIRS Machine Learning Article Published

The following article has recently been published: Zhou, Y.; Grassotti, C. Development of a Machine Learning-Based Radiometric Bias Correction for NOAA’s Microwave Integrated Retrieval System (MiRS). Remote Sens. 2020, 12, 3160. <https://doi.org/10.3390/rs12193160>.

Essentially, using a machine learning-based radiometric bias correction effectively eliminates the scan dependence of TPW retrievals seen in the operational version. Other positive impacts were also seen in MiRS retrievals, such as a general reduction of temperature and water vapor retrieval bias and error standard deviation, particularly in situations with heavy clouds and/or light rain.

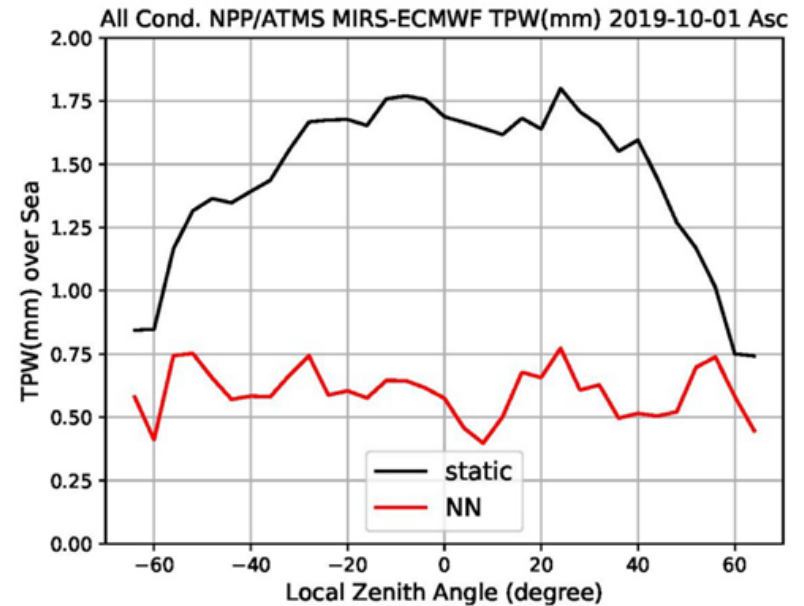


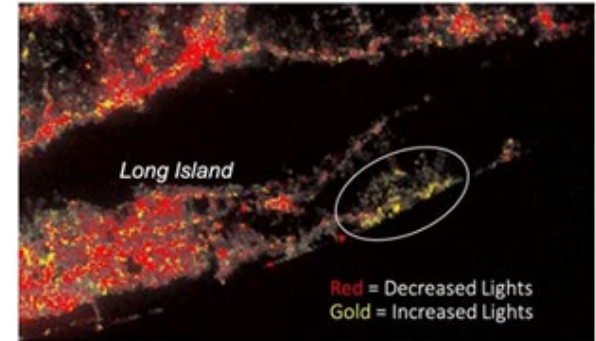
Figure: MiRS total precipitable water (mm) bias local zenith angle dependence of SNPP ATMS on 1 October 2019 over ocean, ascending node. The black line is the result using an operational static bias correction and red line is the result using the neural network bias correction.

COVID VIIRS Nighttime Light Project

Interpretation of Nighttime Light Changes During the COVID-19 Pandemic

TEAM LEADS

Steve Miller (CSU/CIRA)
 Chris Elvidge (EOG/Mines)
 William Straka, III (CIMSS)
 Harvey Cutler (CSU)
 Melinda Laituri (CSU)
 Anita Pena (CSU)
 Bandana Kar (Oak Ridge National Laboratory)

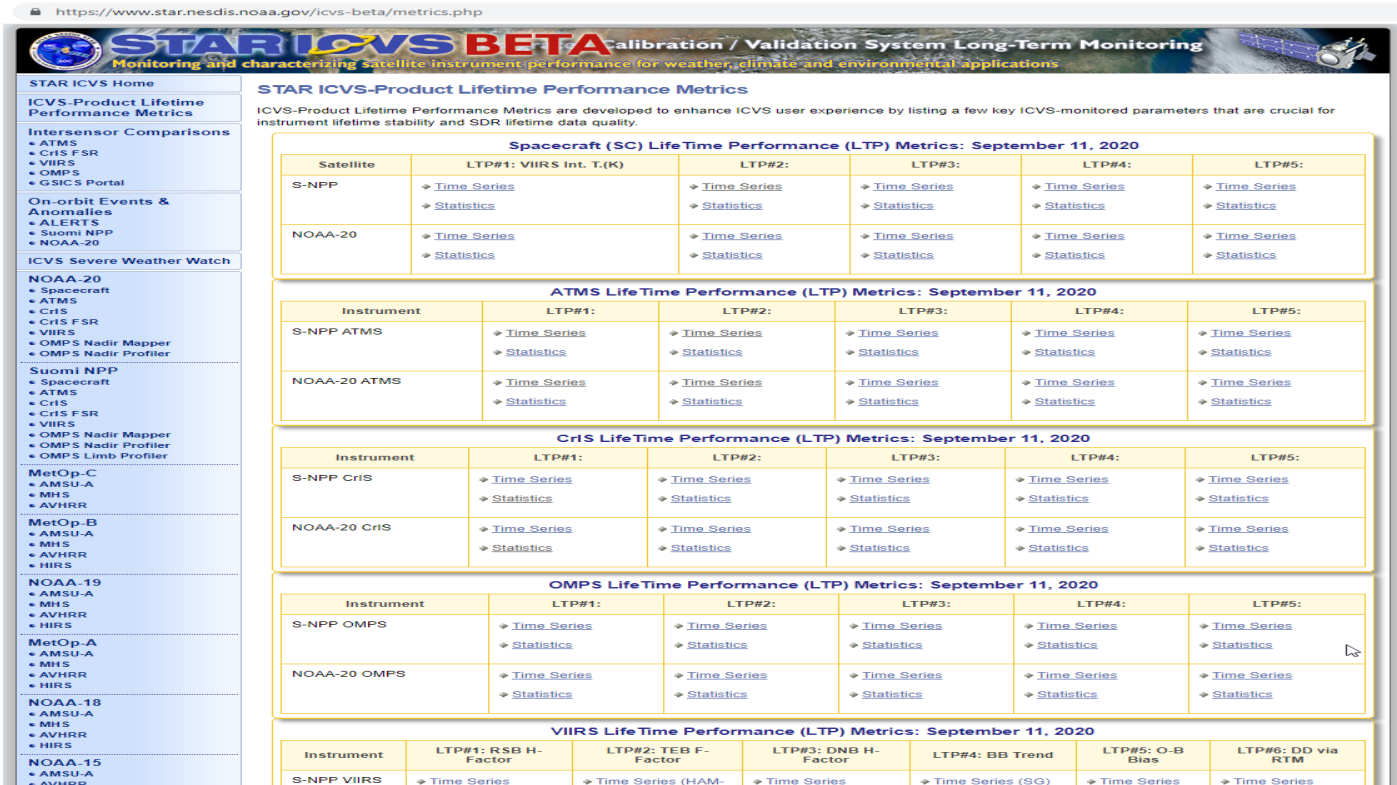


Above: VIIRS Day/Night Band differences in nighttime lights (March minus February 2020), showing widespread light decreases (red), and an apparent increase of lights (yellow) along the Hampton Shores of Long Island, NY.

[What accounts for these non-uniform changes, and what can we learn from the “first wave” of COVID-19 lockdowns?](#)

Steve Miller, PI of the “VIIRS Nighttime Light Changes During the COVID-19 Pandemic” project, organized a project group meeting on 28 October 2020. Project team members from CIRA, CSU Economics Department, Colorado School of Mines, University of Wisconsin/CIMSS, and Oak Ridge National Laboratory participated in this meeting. The objective of this project is to associate DNB-observed light changes to social behavior and economic activities based on a perspective before, during and after COVID-19. During the meeting the Team took a first look at an image which depicts the March-February nighttime lights difference for Houston (produced by the Colorado School of Mines Team) to see if there are any features of particular interest. Nighttime lights difference for other US cities will be looked at as well. In addition, Steve Miller prepared a set of eight slides for Mitch Goldberg for his ESA presentation in the week of October 26th.

A Prototype of the ICVS-LTM SNPP and NOAA-20 instrument and SDR key performance product Metrics



A prototype of the NRT ICVS-LTM product Metrics has been developed by the JPSS ICVS-LTM team to provide key instrument and SDR parameter performance for SNPP/NOAA-20 spacecraft, ATMS, VIIRS, CrIS, and OMPS. The screenshot of the ICVS product metrics is shown in Fig. 1, where five tables are included respectively for spacecraft, ATMS, CrIS, OMPS and VIIRS. By selecting one of the key parameters in the tables, the lifetime series of the parameter is given in a dynamic visual way, along with the statistical information. The parameters in the Metrics are still in further updated, but the current metric prototype is offering the user community with a quick approach to understand instrument healthy and SDR data status for SNPP/NOAA-20 ATMS, CrIS, OMPS and VIIRS.

Accomplishments

- **Delivery Algorithm Packages (DAPs) - Mission Unique Products:**
 - CrIS J2 Sensor Characteristic PCT initial DAP (ADR9415/CCR5213):
 - 9/22/2020: CrIS SDR team delivered the DAP to ASSISTT team
 - 10/16/2020: ASSISTT team delivered the DAP to DPMS AIT
 - OMPS J2 Algorithm update DAP (ADR9095/CCR5172, high resolution OMPS NM SDR):
 - 8/31/2020: OMPS SDR team delivered the DAP to ASSISTT team
 - 9/29/2020: ASSISTT team delivered the DAP to DPMS AIT
 - 10/16/2020: ASSISTT team re-delivered the DAP to DPMS AIT

- **DAPs – Enterprise Products:**
 - 10/1/2020: JPSSRR Super DAP V3R0 (includes JRR & VPW, initial J2 DAP & NPP/N20 updates) delivered to NDE and OSPO for SCR (software code review)
 - 10/30/2020: VIIRS Flood Mapping prelim DAP delivered to NDE and OSPO for SCR (software code review)
 - 11/20/2020: BUFR Toolkit DAP delivered to NDE (update to library)
 - 11/25/2020: OMPS Ozone V8TOZ v4r2 (initial J2 DAP, include NPP/N20 updates) delivered to ASSISTT
 - 10/7/2020: Land team submitted NOAA-20/S-NPP VIIRS L3 Global Gridded Validation Reports for:
 - Land Surface Temperature
 - Surface Albedo

- **Cloud Implementation Support / IDPS Builds Checkouts:**
 - STAR submitted Report for Block 2.3 Mx0 I&T deploy regression review/checkout to DPMS/RTN/OSPO on 11/24/2020
 - STAR supported DPMS Run For Record testing event (10/19/2020 - 10/30/2020)
 - STAR supported IDPS 30-day parallel ops testing event, provided daily evaluation reports (11/6/2020 - 12/2/2020)
 - Daily reports available at google folder:
 - https://drive.google.com/drive/folders/1PL_cMP5TFNgrFn75mYpGOAGlwCe_PrU

Accomplishments – JPSS Cal Val Supports

- NOAA-20/S-NPP Operational Calibration Support:

S-NPP	Weekly OMPS TC/NP Dark Table Updates	10/06/20, 10/13/20, 10/20/20, 10/27/20, 11/03/20, 11/10/20, 11/17/20, 11/24/20
NOAA-20	Weekly OMPS TC/NP Dark Table Updates	10/06/20, 10/13/20, 10/20/20, 10/27/20, 11/03/20, 11/10/20, 11/17/20, 11/24/20
S-NPP	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	10/06/20, 10/20/20, 11/03/20, 11/17/20
NOAA-20	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	10/13/20, 10/27/20, 11/10/20, 11/24/20
S-NPP	Monthly VIIRS LUT Update of DNB Offsets and Gains	10/21/20, 11/24/20
NOAA-20	Monthly VIIRS LUT Update of DNB Offsets and Gains	10/21/20, 11/24/20

- **VIIRS Surface Type team delivered VIIRS 2019 Global Gridded Annual Surface Type product.** The new product is ready for users to download at STAR JPSS website: <https://www.star.nesdis.noaa.gov/jpss/>. There are three product packages (each package includes three files: Readme; 8-bit binary file for the global map; ENVI header providing important meta data info):
 - [2019 AST IGBP types in Sinusoidal projection](#)
 - [2019 AST IGBP types in Lat/Long](#)
 - [2019 AST 20 types in Lat/Long](#)

Upcoming Cal/Val Maturity Reviews

- December, 2020 Maturity Review (12/17/2020 9:30-11:00am):
 - Full Validated Maturity:
NUCAPS CO₂ product (S-NPP & NOAA-20)
- April, 2021 Maturity Review:
 - Full Validated Maturity:
OMPS NP Ozone EDR (V8Pro)

Upcoming Milestones/Deliveries

- JSTAR Code/LUT/Product Deliveries:

Dec-20: Final J2/Enterprise Cal/Val Plan delivery (all SDR/EDR products)

DAP to DPES:

- Jan-21: Initial J2 LUTs (OMPS SDR. Dec-20 to ASSISTT; Jan-21 to DPMS)

NOAA-20 Algorithm DAP to NDE/CoastWatch:

- Dec-20: Initial J2 DAP (V8Pro, include NPP/N20 updates)
- Jan-21: Initial J2 DAP (JRR/VPW/LST/LSA, include NPP/N20 updates)
- Jan-21: Initial J2 DAP (Surface Reflectance, include NPP/N20 updates)
- Jan-21: Initial J2 DAP (NUCAPS/MiRS/SFR, include NPP/N20 updates)
- Feb-21: Initial J2 DAP (NVPS: VI/GVF, include NPP/N20 updates)
- Feb-20: Vegetation Health – Final N20 DAP, and initial J2 DAP
- Feb-21: Initial J2 DAP (SST, include NPP/N20 updates)
- Mar-21: Initial J2 DAP (V8TOz, include NPP/N20 updates)



FY21 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs				
ATMS: Final J2 PCT/MM-coef DAP	Sep-21	Sep-21		
CrIS: Initial J2 PCT DAP	Oct-20	Oct-20	10/16/20	
CrIS: Final J2 PCT/MM-coef DAP	Jul-21	Jul-21		
VIIRS: Final J2 Launch-ready LUTs/MM-coef DAP	Sep-21	Sep-21		To ASSISTT
OMPS: Initial J2 Launch-ready LUTs DAP	Jan-21	Jan-21		
Imagery: N20 NCC LUT update DAP	Jul-21	Jul-21		
Initial J2 ready DAP (include NPP/N20 updates), Clouds/Aerosol/VolcanicAsh/Cryosphere/LST/LSA/VPW	Jan-21	Jan-21		
Final J2 ready DAP (include NPP/N20 updates), Clouds/Aerosol/VolcanicAsh/Cryosphere/LST/LSA/VPW	Sep-21	Sep-21		
Initial Enterprise Fires DAP (NPP/N20/J2, I/M-Band)	Jun-21	Jun-21		
Surface Reflectance: Initial J2 ready DAP	Jan-21	Jan-21		
NVPS (VI & GVF): Initial J2 ready DAP	Feb-21	Feb-21		
Vegetation Health: Initial J2 ready/final N20 DAP	Feb-21	Feb-21		
Ocean Color: Initial J2 ready DAP	Jun-21	Jun-21		To OSPO
SST: Initial J2 ready DAP (ACSPO 2.80)	Feb-21	Feb-21		
NUCAPS: Initial J2 ready DAP	Jan-21	Jan-21		
MiRS & SFR: Initial J2 ready DAP	Jan-21	Jan-21		
OMPS Ozone V8Pro: Initial J2 ready DAP	Dec-20	Dec-20		
OMPS Ozone V8TOz: Initial J2 ready DAP	Mar-21	Mar-21		11/25/20 DAP to ASSISTT



FY21 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Date	Variance Explanation
Algorithm Cal/Val/LTM				
J2/Enterprise Cal/Val Plan - final delivery (all SDR/EDR products)	Dec-20	Dec-20		
GCOM: AMSR-3 Cal/Val Plan - draft delivery	Sep-21	Sep-21		
Updated JPSS-2 OMPS SDRs Pre-launch Characterization Report	May-21	May-21		
JCT2 - Data System Event (SDR teams, test/run through RDRs from JCT2-DSE, generate J2 SDRs)	Jun-21	Jun-21		
NUCAPS CO2 Full Validated Maturity (N20 & NPP)	Dec-20	Dec-20		12/17/20
N20 OMPS NP EDR (V8Pro) Full Validated Maturity	Apr-21	Apr-21		
Transition of reprocessed SNPP SDR data to CLASS/NCEI	Sep-21	Sep-21		
JPSS-2 ICVS-LTM Test Readiness Review	Sep-21	Sep-21		
ICVS-J2 prototype Website (ready for JCT-3 test run)	Sep-21	Sep-21		
Maintain / expand existing EDR LTM web pages and mappers	Sep-21	Sep-21		
Delivery of JPSS Product Monitoring Phase 9 DAP to OSPO	Sep-21	Sep-21		
AST-2020 (VIIRS Annual Surface Type)	Sep-21	Sep-21		

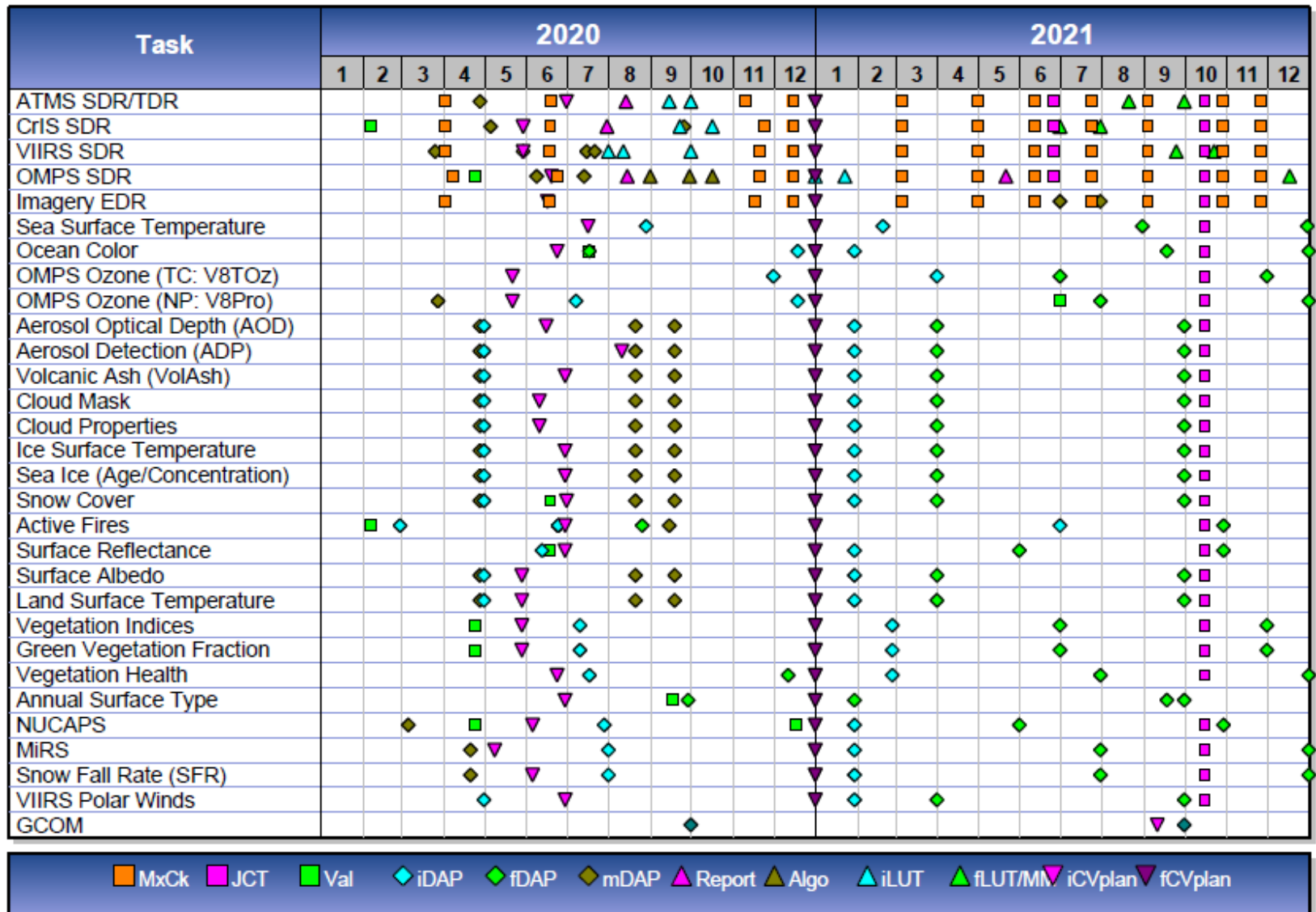


FY21 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational/Program Support				
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/06/20, 10/13/20, 10/20/20, 10/27/20, 11/03/20, 11/10/20, 11/17/20, 11/24/20	
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/06/20, 10/20/20, 11/03/20, 11/17/20	
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/21/20, 11/24/20	
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/06/20, 10/13/20, 10/20/20, 10/27/20, 11/03/20, 11/10/20, 11/17/20, 11/24/20	
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/13/20, 10/27/20, 11/10/20, 11/24/20	
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/21/20, 11/24/20	
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/24/2020 Mx0 I&T review/checkout report	
Parallel OPS support	Dec-20	Dec-20	11/6/2020 - 12/2/2020 daily POC support, weekly/monthly DAP deliveries (to both OPS & Cloud), Out of Cycle CrIS DAP delivery	
Verification of cloud implementation	Dec-20	Dec-20	11/6/2020 - 12/2/2020 daily reports	

STAR JPSS Schedule

STAR JPSS Schedule: TTA Milestones



■ MxCk ■ JCT ■ Val ◆ iDAP ◆ fDAP ◆ mDAP ▲ Report ▲ Algo ▲ iLUT ▲ fLUT/MM ▼ iCVplan ▼ fCVplan

Color code:

Green:

Completed Milestones

Gray:

Non-FY21 Milestones

Accomplishments / Events:

- Analyzed JPSS-2 spectral response function data provided by NASA and converted data for radiative transfer applications
- Analyzed JPSS-3 ATMS ambient testing data sets to discuss the potential increase of G-band NEDT and comparable inter-channel correlation against NPP, NOAA-20, and JPSS-2
- Analyzed and discussed the current NEDT calculation method in IDPS operation system. Proposed updated algorithm to include both thermal and 1/f noises and reduce the scan number dependent variations.
- Derived new set of NPP and NOAA-20 ATMS nonlinearity coefficients after TVAC CTE thermal gradient adjustment. Generated three months of data sets to evaluate the impact on ATMS science data
- Updated ATMS vs. AMSU/MHS SNO inter-sensor bias monitoring package quality control setting to improve the bias accuracy
- Kept updating ATMS SDR ATBD and Users' Guide documents
- Attend MicroRad virtual meeting and present ATMS SDR related findings

Overall Status:

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

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

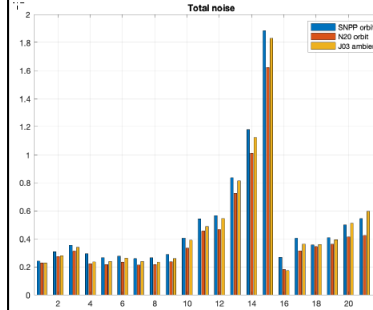
Issues/Risks:

None

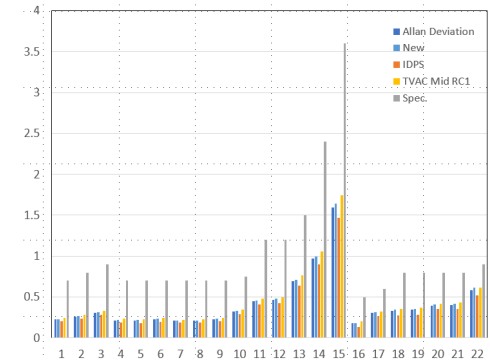
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Final PCT update, including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Aug-21	Aug-21		SER + 6w (to ASSISTT)
Final PCT/MM-coef delivery	Sep-21	Sep-21		To DPMS
JCT2 - Data System Event	Jun-21	Jun-21		
Update ATMS TDR antenna pattern correction coefficients to improve SDR data quality	Jun-21	Jun-21		
Evaluate JPSS-2 ATMS spacecraft pre-launch testing data	Sep-21	Sep-21		
Support NASA SNPP ATMS scan motor current anomaly analysis	May-21	May-21		
Reprocess NPP/NOAA-20 ATMS science data using latest calibration algorithm	Sep-21	Sep-21		
Annual ATMS TDR/SDR performance report	Sep-21	Sep-21		
Parallel OPS support	Dec-20	Dec-20		11/6-12/2/20
Verification of cloud implementation	Dec-20	Dec-20		Report
IDPS Mx build I&T deploy support:				
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/09/20 Mx0	Report

Highlights:

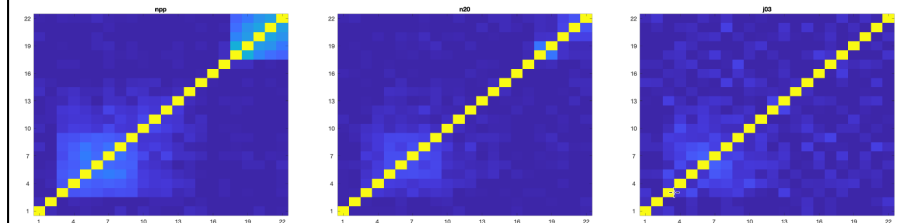
NPP/N20/J3 Ambient NEDT



N20 ATMS NEDT by Different Methods



NPP/N20/J3 Ambient Inter-channel Correlation





Accomplishments / Events:

- Verified and evaluated of the operational SNPP and NOAA-20 CrIS SDR data products at FSR after the termination of the operational CrIS SDR data products at NSR (Fig. 1)
- On October 28, the SNPP CrIS Scene Selection Module (SSM) went into safehold mode at 11:40:40 (Fig.2). The SSM portion of the CrIS instrument was power cycled and recovered to preface the recovery time at 15:00:26. The SNPP CrIS instrument is back to normal mode. The instrument and the quality of the calibrated observations are closely being monitored.
- Studying the Responsivity of the different CrIS instruments. Results have shown that the J2 CrIS instrument has a larger measured responsivity compared to SNPP and NOAA-20 CrIS (Fig. 3).
- Attended and provided 3 presentations at IEEE IGARSS 2020 conference and organized the Invited Session entitled "Next Generation of LEO/GEO Microwave and Infrared Sounders". This session consisted of 7 major presentations.
- Currently upgrading the CrIS SDR Cal/Val tools with CRTM v2.3.0 and measuring its impact.
- The NOAA-20 CrIS instrument has shown a sixth event of noise increase at MWIR FOV5 since September 2019. Provided further assessment of the 5th noise event & showed the noise appears random, is Gaussian shaped, and has a wider distribution of counts when the noise was at its peak as compared to when the noise stabilized (Fig. 4). The performance is being closely monitored.
- Continuing to make progress on the intercomparison between CrIS and GOES-R ABI. Evaluated the ABI-CrIS brightness temperature (B.T.) difference as a function of B.T. and further tuned the data selection criterion for best observation (Fig. 5).
- Participated in the 30-Day Parallel OPS Cloud Test as CrIS Team POC. prepared the daily report for the results of monitoring the Cloud IDPS SDR data quality. No issue was found for the Cloud IDPS SDR product between 11/08/2020 and 11/23/2020.

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			

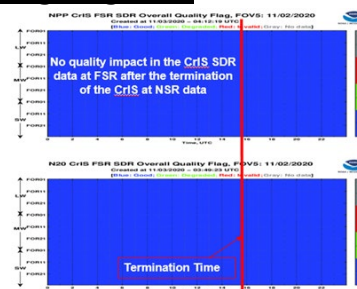
1. Project has completed.
2. Project is within budget, scope and on schedule.
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4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

The GST contractor, Yong Chen, left the CrIS Team on September 27, 2020. The Team is re-organizing to cover the large experience and the support that Yong provided to the CrIS Team in the CrIS Cal/Val activities.

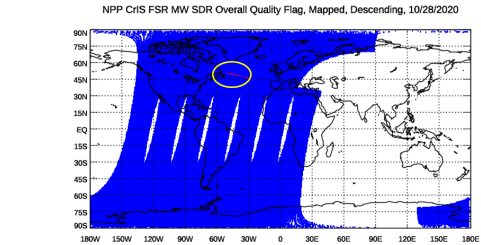
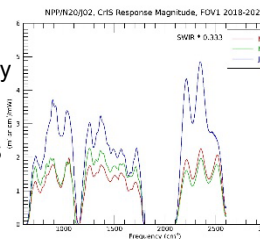
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
PCT update based on pre-launch test data and other changes	Oct-20	Oct-20	10/16/20	
Verification of operational CrIS SDR data at FSR after the termination of NSR data			11/06/20	
Final PCT update, including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Jun-21	Jun-21		SER + 6w (to ASSISTT)
Final PCT/MM-coef delivery	Jul-21	Jul-21		To DPMS
JCT2 - Data System Event	Jun-21	Jun-21		
Inter-sensor comparison: S-NPP and NOAA-20 CrIS SDR data against other IR observations, including MetOp/IASI, AQUA/AIRS and GOES/ABI	Sep-21	Sep-21		Report
Annual CrIS SDR performance report	Sep-21	Sep-21		
Parallel OPS support	Dec-20	Dec-20		11/6-12/2/20
Verification of cloud implementation	Dec-20	Dec-20		Report
IDPS Mx build I&T deploy support:				
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/23/20 Mx0	Report

Highlights:



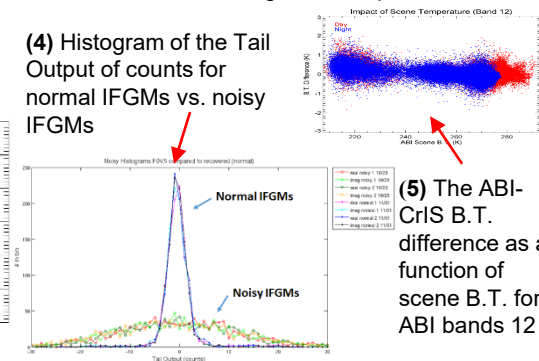
(1) Time series of impact of SDR data quality at FSR after the termination of the CrIS at NSR data.

(3) Plot of Responsivity for SNPP, NOAA-20 and J2 CrIS instruments for FOV1.



(2) SDR Quality Flag Map indicating the occurrence of the SNPP CrIS SSM Single-event upset.

(4) Histogram of the Tail Output of counts for normal IFGMs vs. noisy IFGMs



(5) The ABI-CrIS B.T. difference as a function of scene B.T. for ABI bands 12

Accomplishments / Events:

- Completed checkout of IDPS Block 2.3 Release Mx0 using NOAA-20 and S-NPP VIIRS SDR radiometric and geolocation products generated on the DP-TE (I&T) system in the Cloud: confirmed correct implementation of the VIGMU code change, reported findings to the STAR JPSS project and recommended proceeding with the TTO
- 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 10/16/2020 and 11/15/2020
- Participated in the 3rd Joint GSICS/CEOS-IVOS Lunar Calibration Workshop organized by EUMETSAT, USGS, CMA, and NOAA: presented STAR results when using moon for evaluating VIIRS radiometric calibration, band-to-band registration, and spatial resolution

Overall Status:

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Technical / Programmatic		X			
Schedule		X			

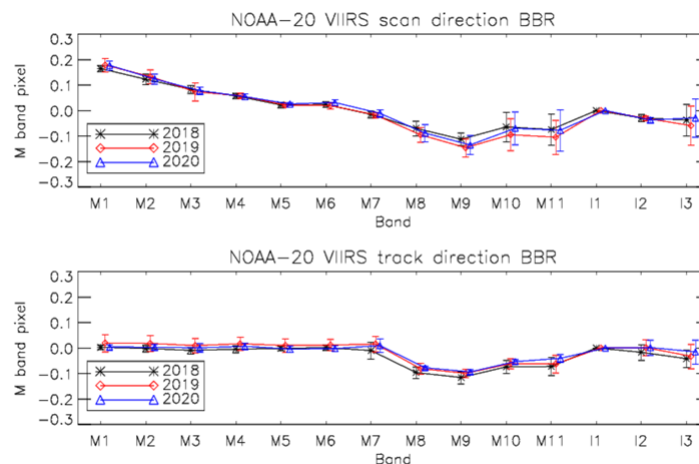
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Issues/Risks:

none

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Launch-ready LUTs (final delivery), including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Sep-21	Sep-21		SER + 6w (to ASSISTT)
Launch-ready LUTs (final delivery)/MM-coef	Oct-21	Oct-21		To DPMS
JCT2 - Data System Event	Jun-21	Jun-21		
Cal/val tool testing/upgrade in the cloud computing environment	Sep-21	Sep-21		
Generate Science Quality (SQv2.0) Suomi NPP VIIRS SDR from 2017 onward to meet user needs (COVID-19, TROPOMI)	Dec-20	Dec-20		
Initial NOAA-20 VIIRS recalibration & reprocessing	Sep-21	Sep-21		
Cross-calibration and monitoring between NOAA-20 and SNPP VIIRS	Sep-21	Sep-21		
Annual VIIRS SDR performance report	Sep-21	Sep-21		
VIIRS LUT update of DNB Offsets and Gains (NPP & N20)	Monthly	Monthly	On schedule	
Parallel OPS support	Dec-20	Dec-20		
Verification of cloud implementation	Dec-20	Dec-20		Report
IDPS Mx build I&T deploy support:				
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/20/20 Mx0	Report

Highlights:



NOAA-20 VIIRS Reflective Solar Band (RSB) Band-to-Band Registration (BBR) estimates based on moon measurements collected during the last 3 years on orbit

Accomplishments / Events:

- Delivered SNPP/NOAA-20 OMPS weekly Dark tables and NP solar irradiance bi-weekly LUTs to GRAVITE (see the graphs next slide)
- Initialized the off-nadir geolocation error correction LUTs (Field of angle map) for SNPP and NOAA-20 NM. The validation is still in progress.
- Completed the assessment of NASA OMPS NP solar intrusion correction code and updated it into NOAA IDPS environment. The implementation into the ADL is in progress. A briefed was given at the DRAT meeting.
- Delivered the high resolution of J2 OMPS code to DPMS. Briefed the details in the J2 high resolution code package in the TIM hosted by L. Dunlap.
- Initialized J2 OMPS FAM and wavelength registration LUTs
- Provided daily report about IDPS OMPS cloud checkout.
- Recovered the NASA raw flux package due to the STAR linux OS change in preparation for J2.
- Initiated the impact analysis of neglecting polarization on OMPS EV radiance using the vectorized CRTM v. 3.0.

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- EDR team requested additional analysis to better understand difference between SNPP and NOAA-20 as part of validation review – review completed 4/23/20, 3 months delayed compared to plan - DRs generated and need to be resolved – resources diverted so lower priority milestones had schedule slip.
- 2- Unable to access OMPS TVAC data – working with AMP to resolve (this issue is resolved)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Updated JPSS-2 OMPS SDRs Pre-launch Characterization Report	May-21	May-21		
Launch-ready LUTs (initial delivery)	Dec-20	Dec-20		To ASSISTT
Launch-ready LUTs (initial delivery)	Jan-21	Jan-21		To DPMS
Launch-ready LUTs (final delivery), including Mounting Matrix Coefficients (PCT) updates based on the pre-launch mounting measurement report	FY22	FY22		Dec-21 To ASSISTT; Jan-22 to DPMS
J2 NM/NP dark and solar raw flux processing package preparation	Sep-21	Sep-21		
J2 NM backup spatial resolution code development	Sep-21	Sep-21		
JCT2 - Data System Event	Jun-21	Jun-21		
OMPS RDR to Level 1B processing code in preparation for J2	Sep-21	Sep-21		
NOAA-20 OMPS NP In-Band Stray Light (ADR9309)	Mar-21	Mar-21		
SNPP/NOAA-20 NM off-nadir geolocation error correction LUTs (ADR9361)	Feb-21	Feb-21		
Annual OMPS SDR performance report	Sep-21	Sep-21		
Weekly updates darks for NM and NP (NPP & N20)	Weekly	Weekly	on schedule	
Bi-weekly update NP Wavelength and solar flux (SNPP & N20)	Bi-Weekly	Bi-Weekly	on schedule	
Parallel OPS support	Dec-20	Dec-20		
Verification of cloud implementation	Dec-20	Dec-20		Report
IDPS Mx build I&T deploy support:				
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/20/20 Mx0	Report

Highlights:

J2 OMPS NP wavelength registration map

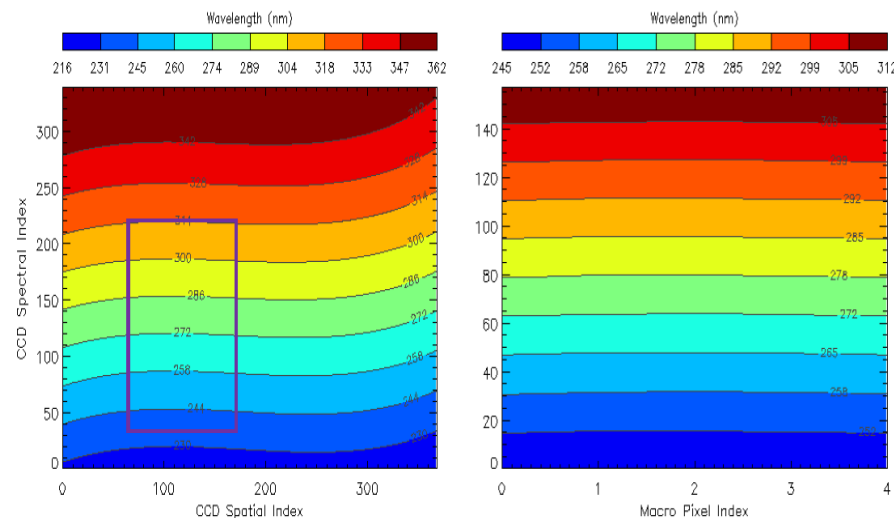
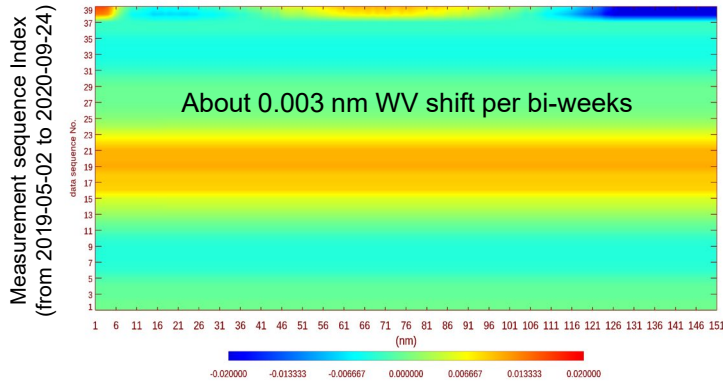


Figure J2 OMPS NP wavelength registration and IDPS LUTs

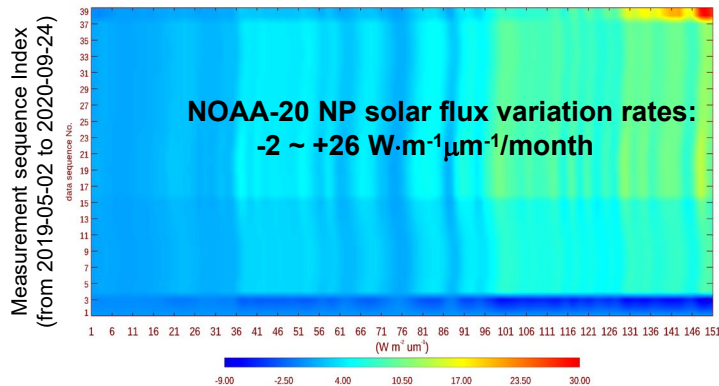
Impact of OMPS NM/NP Dark and Solar Irradiance/Wavelength Shift Tables

- Delivered regular OMPS NM/NP weekly-dark and bi-weekly solar rad./wavel. shift tables to the IDPS via ASSISTT, thus providing a timely correction for non-negligible degradation of dark count (about 0.2% per day), solar flux and wavelength shift with time.

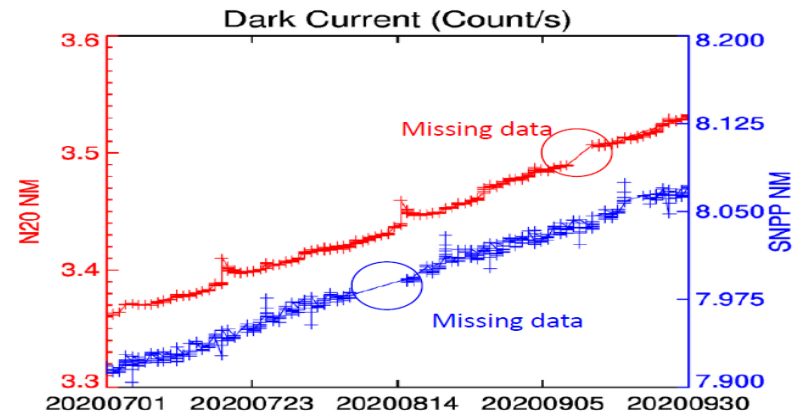
NOAA-20 NP Solar WV Time Shift vs. Spectral Index
(Animation from Spatial Index #1 to #5)



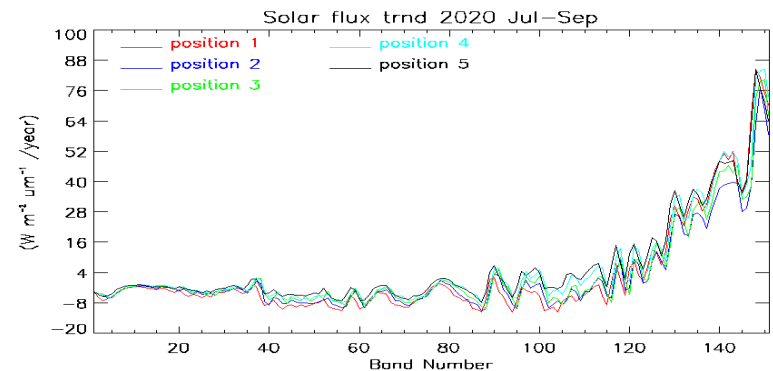
NOAA-20 NP Solar Flux trend vs. Spectral Index
(Animation from Spatial Index #1 to #5)



NOAA-20 NP degrading rate: ~0.20% per day
SNPP NP degrading rate : ~0.23% per day



3 months trending



Accomplishments / Events:

- Completed SNPP VIIRS RDR data transition to the Cloud
- Transition of the reprocessed SNPP SDR data to the Cloud is ongoing (170Tb have been transitioned)
- Transition of SNPP ATMS/CrIS/OMPS RDR data to the Cloud is ongoing
- Per ESA's request, VIIRS SDR reprocessing for the period of 2018-04-01 to 2020-03-11 is ongoing
- Per ESA's request, VIIRS Enterprise Cloud Mask (ECM) reprocessing for the period of 2018-04-01 to 2020-03-11 is ongoing (highlights)
- Completed NOAA-20 CrIS V2 SDR reprocessing for the period of 2018-02-18 to 2019-06-23

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			

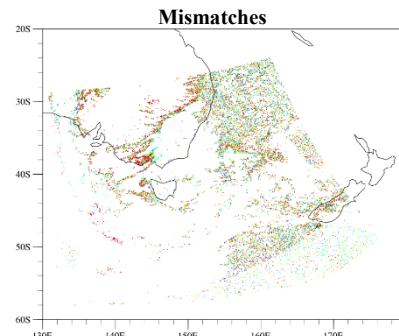
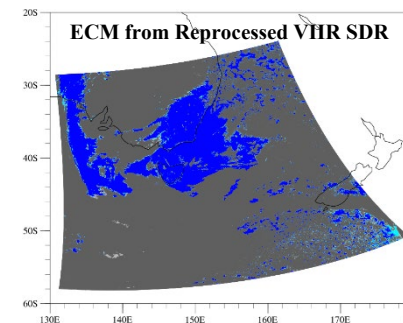
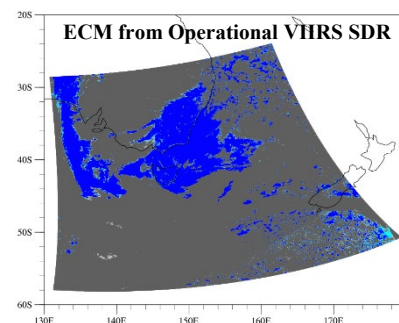
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights: ECMs generated from operational/reprocessed VIIRS SDR (6-granules on 2018-05-01)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Reprocessing of N20 CrIS for 2018-04-01 to 2019-06-23	Nov-20	Nov-20	Nov-20	
Extend SNPP VIIRS reprocessing to 2020	Dec-20	Dec-20		
ECM reprocessing for 2018-04-01 to 2020-03-11	Dec-20	Dec-20		
Present validation results on the reprocessed S-NPP SDR data at the AMS Meeting	Jan-21	Jan-21		
Transition of SNPP RDR and reprocessed SDR data to CLOUD	Mar-21	Mar-21		
Complete planning and testing on transition of S-NPP reprocessed SDR data to CLASS	Sep-21	Sep-21		
Deliver preliminary evaluation results on radiometric stability of reprocessed CrIS SDR data	Sep-21	Sep-21		
Transition of reprocessed SNPP SDR data to CLASS/NCEI	Sep-21	Sep-21		



Opr / Rep	Clear	Prob clear	Prob cloudy	cloudy
Clear	4,227,726	10,150	0	0
Prob Clear	1,935	380,084	9,156	0
Prob Cloudy	3	2,049	515,177	8,617
Cloudy	4	2	2,435	9,588,262

Accomplishments / Events:

- Started designing ICVS-LTM JPSS-2 web pages to support upcoming JPSS-2 pre-launch testing tasks
- Monitored and reported multiple NOAA-20 CrIS MW FOV5 spectral noise anomaly events. Worked with CrIS SDR team to provide additional detailed info and analyze the possible cause of it.
- Updated ATMS 32-day NPP vs NOAA-20 inter-satellite direct comparison quality control setting to improve the inter-satellite bias accuracy
- Compared VIIRS SDR inter-satellite bias results derived from different methods including 32-day direct comparison, double difference through RTM bias and VIIRS-ABI inter-sensor bias trending statistic results
- Finished developing spacecraft and ATMS selected key parameter near real time life time statistic outputs for ICVS sensor performance and science data quality long term interactive trending demonstration matrix (<https://www.star.nesdis.noaa.gov/icvs-beta/metrics.php>)

Overall Status:

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

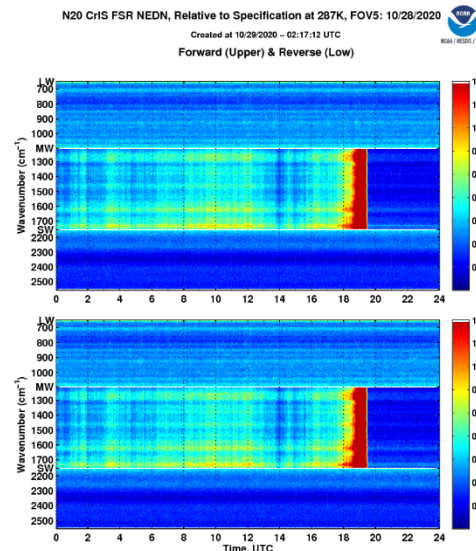
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

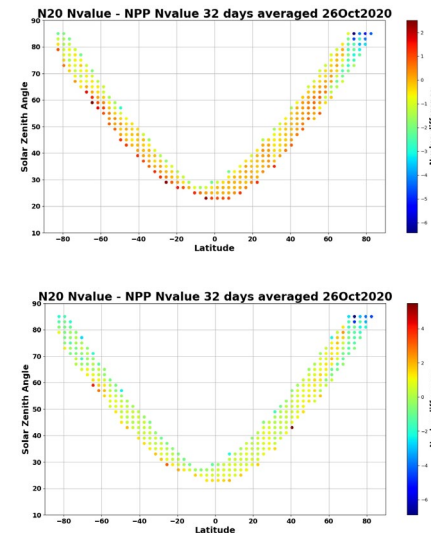
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Develop JPSS-2 ICVS prototype RDR portion (beta) (SNPP or N20 as proxy)	Jan-21	Jan-21		
Develop JPSS-2 ICVS prototype SDR portion (beta)	Apr-21	Apr-21		
Develop ICVS-Vector code prototype (beta)	Jun-21	Jun-21		
Develop ICVS anomaly impact watch portal prototype (beta)	Jul-21	Jul-21		
Develop ICVS testbed code (beta)	Aug-21	Aug-21		
Support JPSS-2 ICVS-LTM Test Readiness Review	Sep-21	Sep-21		
Implement the Git repository for ICVS (beta)	Set-21	Set-21		
Promote the ICVS top product matrices for operation	Sep-21	Sep-21		
Maintenance and update of SNPP/NOAA-20 ICVS monitoring tool	Sep-21	Sep-21		Daily as needed
Provide Instrument Performance Weekly, Monthly, Quarterly and Annual Reports	Sep-21	Sep-21		Monthly, quarterly and annual
Support SDR Team, NASA Flight Project, and OSPO Anomaly Analysis	Sep-21	Sep-21		Ad hoc

Highlights: Significantly contribute to STAR SDR Teams

NOAA-20 CrIS MW NEDN at FOV5
Indicating a sudden increase event



OMPS NP Nvalue NPP vs. N20 inter-satellite bias at 283.01 nm (upper) and 297.55nm (lower)



Accomplishments / Events:

- **VIIRS NOAA-20 DNB-to-NCC LUT update:** Continue to use LUT tool to extracting **DNB statistics** behind smoothed LUT values. Significant differences around day/night terminator are a concern!
- **Generated new Imagery product loops and case study blogs.**
- VIIRS Imagery continues to be automatically captured and displayed online, for both **RAMSDIS Online** and **SLIDER** (now with more-detailed lat/long grids and city county overlays)
- **Monthly and Quarterly reports** to StAR leadership include JPSS/VIIRS (along with all StAR Imagery activities), for which **FY21 JPSS Imagery Team milestones** will be tracked.
- **Evaluation of Block 2.3 Mx0 resulted in discovery of banding in certain operational NCC granules over Antarctica!** (Not a problem with just the test data.) **Banding affects NCC for both NPP and J01. See NCC Imagery example over Antarctica in lower-right quadrant.**

Overall Status:

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

1. Project has completed.
2. Project is within budget, scope and on schedule.
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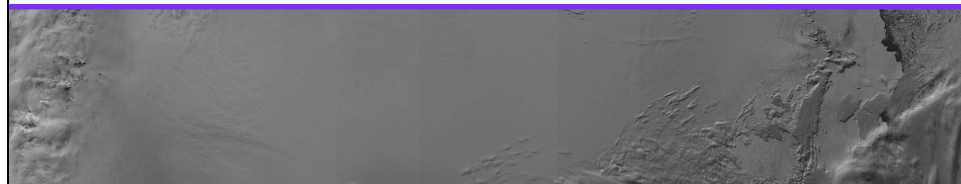
Issues/Risks:

Newly-discovered NCC banding over Antarctica for both NPP and J01 needs detailed analysis and potential solution.

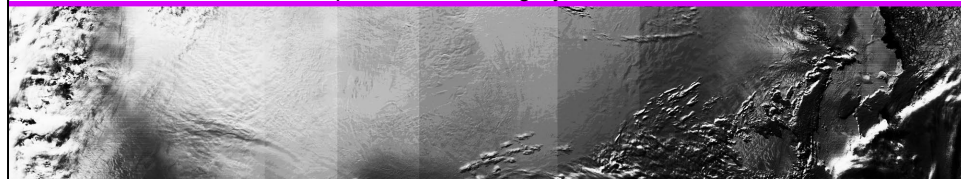
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
N20 NCC LUT update DAP (to ASSISTT)	Jun-21	Jun-21		ASF tool update
N20 NCC LUT update DAP (to DPMS)	Jul-21	Jul-21		
Images of the Month to STAR JPSS Program/website and interesting Imagery to Social Media outlets	Monthly	Monthly		
Annual VIIRS Imagery performance report	Sep-21	Sep-21		Report
Verification of cloud implementation	Dec-20	Dec-20		Report
IDPS Mx build I&T deploy regression support:				
Block 2.3 Mx builds I&T deploy regression data review/checkout (Nov-20 Mx0 ; Jan-21 Mx1; Feb-21 Mx2; Apr-21 Mx3; May-21 Mx4; Jun-21 Mx5; Jul-21 Mx6; Aug-21 Mx7; Sep-21 Mx9)	Sep-21	Sep-21	11/15/20 Mx0	

Highlights: Image of the Month

Example of NCC banding anomaly



Near Constant Contrast granule displayed with normal scaling. A form of vertical (along track) striping (banding) is apparent, suggesting possible discontinuities at boundaries of DNB aggregation zones. Purple stripe is nominal area of VDNE fill present in all Imagery EDRs.



Same granule displayed using histogram equalization to exaggerate this along-track striping. (banding)

Accomplishments / Events:

- The ECM team re-processed the JPSS training dataset to include DNB. A study is ongoing to evaluate the ability to use the lunar reflectances over land where there are no city lights.
- The Enterprise Cloud products are being used for the JPSS Cloud Alaska Demonstration as part of the JPSS Aviation Initiative. User feedback and flight reports from local pilots were obtained for product evaluation and improvement (such as user-interactive display tools and icing information especially for lower levels)
- The Enterprise Cloud ATBDs were delivered.
- The figure shown is an analysis of the NUCAPS/ACHA cloud product. As shown, the addition of NUCAPS helps with phase misinterpretation. And when phase is correct, VIIRS retrieval is actually better against CALIPSO true top

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:

- **See slides after November highlights.**

Highlights:

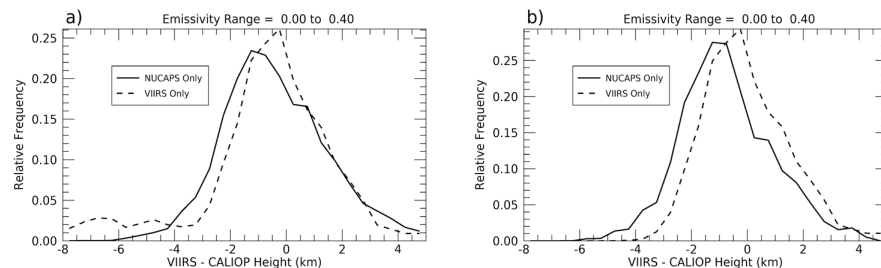


Figure 1. Figure on the left shows VIIRS only retrieval and NUCAPS top level product compared against CALIPSO/CALIOP true top height without phase matching, and figure on the right applies phase matching. Used 4 days of NOAA-20 data from January 2020. It can be seen that NUCAPS helps with phase misinterpretation. And when phase is correct, VIIRS retrieval is actually better against CALIPSO true top

Accomplishments / Events:

- The ECM Team looked into the utilization of the Day Night Band for cloud masking. To do this, a city light mask is going to be generated to help with knowing where cities are over land.
- The CIRA team participated in the FAA C&V (Ceiling and Visibility) monthly meeting (11/18) and gave a talk on VIIRS and ABI cloud cross-section products obtained from the NOAA Enterprise Cloud Products along flight routes and recent user-engaged improvements.
- The cloud height team is addressing issues reported by GOES-R winds team when the recent deliveries are tested and degradation of some wind products are observed. The Cloud team will follow up with the VIIRS winds team regarding this issue.

Overall Status:

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

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

Issues/Risks:

None

Milestones:

- See next 7 slides for details.**

Highlight

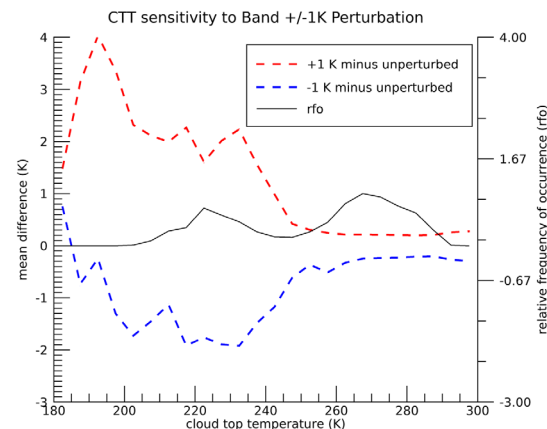


Figure 2. Cloud top temperature sensitivity to perturbations in the infrared VIIRS channels were performed using NOAA-20 ACHA retrievals. It was found that significant changes might be seen in very cold clouds but these constituted less than 1% of the seven million ACHA retrievals assessed. The retrievals showed little sensitivity to perturbations for clouds warmer than 250 K.

Clouds (Cloud Mask)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/10/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J1 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		Note that NDE has delayed all J2 DAPs
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Add in DNB into ECM2 LUTs	Mar-21	Mar-21		
Work with NCEP on ASR assimilation. Adjust mask as necessary	Mar-21	Mar-21		
Verify ECM LUT against J2 simulated data	Aug-21	Aug-21		
Support Alaska Demo and ESRL usage and reviews	Aug-21	Aug-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Apply CALIPSO tools to NDE Mask with Lunar Ref	Sep-21	Sep-21		
Develop collaboration with OAR/ESRL/GML on use of RadFlux Cloud Fraction for Verification including high-latitude sites	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (Cloud Phase/Type)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	07/29/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Optimize cloud phase thresholds for NOAA-21 and maintain code consistency with GOES-R deliveries	Mar-21	Mar-21		To ASSISTT
Modify phase as needed based on height/winds interaction and development from GOES-R	Aug-21	Aug-21		
Support S-NPP and NOAA-20 EDR monitoring	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (ACHA)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/10/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Support NCEPs use for ASR assimilation	Mar-21	Mar-21		To ASSISTT
Continue improving multilayer ACHA by analysis of CALIPSO and AEOLUS lidars and extend to level of best fit of Polar Winds	Mar-21	Mar-21		To ASSISTT
Extend the treatment of scattering to support 3.75 micron	Aug-21	Aug-21		
Continue working with FAA for them to use ACHA products	Sep-21	Sep-21		
Continue support of Alaska Demo CTH requests	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (DCOMP)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/10/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Develop a method that includes IR measurements to improve the performance of potentially thin clouds using ACHA technique	Aug-21	Aug-21		
Inter-sensor calibration studies by using visible reflectance and cloud optical thickness from GOES, JPSS and MODIS. Adjust VIIRS M5 and M7 as needed	Sep-21	Sep-21		
Develop collaboration with OAR/ESRL/GML on use of RadFlux Cloud Optical Depth for Verification	Sep-21	Sep-21		
Support Alaska Demo, primarily during AK rainy season	Sep-21	Sep-21		
Consistency checks for day and night retrievals	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (NCOMP)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	07/29/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Extend NCOMP with JPSS-2 LUT	Jul-21	Jul-21		
Adding improved unit test tools to science code	Sep-21	Sep-21		
Consistency checks for day and night retrievals	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (Cloud Base)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/10/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Leverage GOES-RR to target characterization of overlapping cloud assess CBH performance for multi-layer cloud systems	Jun-21	Jun-21		
leverage DCOMP nighttime COD (DNB) to improve performance over IR-only	Sep-21	Sep-21		
Validate products from SAPF and begin ARM data analysis to fill CALIOP/CloudSat void	Sep-21	Sep-21		
Support Alaska Demo and necessary reviews	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Clouds (CCL)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	07/31/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm Updates/Cal-Val Activities				
Include super-cooled and convective probability	Mar-21	Mar-21		To ASSISTT
Continue the visualization and demonstration of CCL for the Aviation Weather Center, with focus on Alaska Region and Hawaii	Sep-21	Sep-21		
Support Alaska Demo and necessary reviews	Sep-21	Sep-21		
Support consistency validation of products from CSPP	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
LTM: Implement a warning-based monitoring system	Sep-21	Sep-21		

Accomplishments / Events:

- Aerosol team supported the community forum on crop burning in India experiment in October
 - Provided near real time VIIRS AOD and ADP products covering the Indian sub-continent region.
 - Gave two presentations on the AOD and ADP algorithms and participated in weekly 2-hr meeting virtually
- Provided analysis of SNPP and NOAA-20 VIIRS AOD performance metrics to NWS and ECMWF for assimilation studies
- Gave a presentation on impact of COVID-19 shutdown on AOD at AeroSat/AeroCom 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.

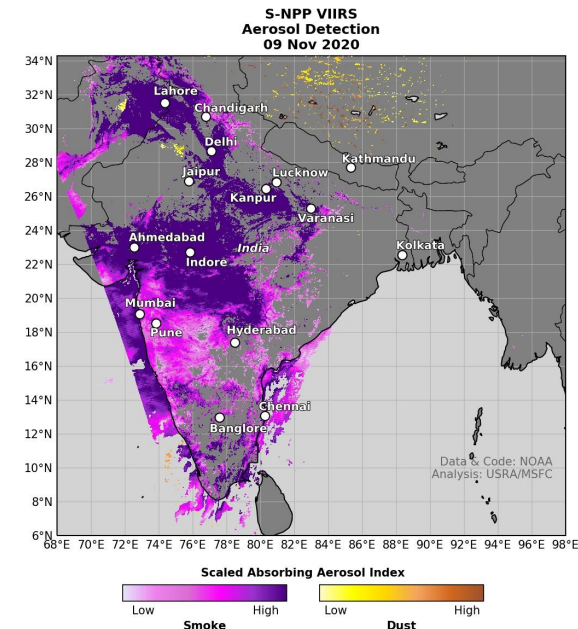
Issues/Risks:

No risks

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/15/20	AOD
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	08/10/20	ADP
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	
Algorithm Updates/Cal-Val Activities				
<u>Details in next slides</u>				

Highlights:

- ### Key takeaways
- Indian researchers (government and academia) are well versed in using NOAA satellite products
 - STAR aerosol team introduced the SNPP VIIRS smoke mask product to the Indian research community by participating in this forum
 - STAR aerosol team distributed python code through this community forum. Code allows users read and display VIIRS fire and aerosol products including the generation of composite maps etc.



Aerosol (AOD & ADP) Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates/Cal-Val Activities				
Aerosol Optical Depth (AOD):				
Update surface reflectance relationships using current functional relationship with extended S-NPP, NOAA-20 and AERONET data	May-21	May-21		
Improve angular and seasonal representation of surface reflectance relationships	Jul-21	Jul-21		
Update preliminary LUT and gas-absorption parameterization for J2 if needed	Sep-21	Sep-21		
Evaluate merged S-NPP/NOAA-20 AOD product	Jun-21	Jun-21		
Evaluate gridded AOD products	Jul-21	Jul-21		
Continue individual AOD product (S-NPP, NOAA-20) validation and cross-validation	Aug-21	Aug-21		
Maintain satellite-ground AOD matchups used for products evaluation	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		
Aerosol Detection (ADP):				
Improve dust detection over the vegetated surface	Jun-21	Jun-21		
Develop surface type-dependent thresholds over land	Jun-21	Jun-21		
Exploring the use of trace gases product from TROPOMI to separate smog from smoke	Jun-21	Jun-21		
Exploratory research on an approach to combine CO/CO2 absorption bands with AAI to expand smoke detection for thick/brownish smoke plumes even over clouds	Sep-21	Sep-21		
Continue long-term validation of SNPP and NOAA-20 VIIRS ADP by comparisons with AERONET, CALIPSO, MISR, and IMPROVE	Jun-21	Jun-21		
Exploring the angular dependence of ADP by combining NOAA-20 with SNPP	Jun-21	Jun-21		Report
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

- Continued developing new volcanic cloud detection and characterization capabilities in support of changing ICAO requirements (e.g. lightning based eruption detection, an SO₂ information product for aviation, and satellite/model integration)
- Continued to provide experimental products and services in support of VAAC and volcano observatory operations, while supporting early NESDIS Common Cloud Framework transition activities
- Supported JSTAR volcanic ash EDR cal/val activities

Overall Status:

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

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Issues/Risks:

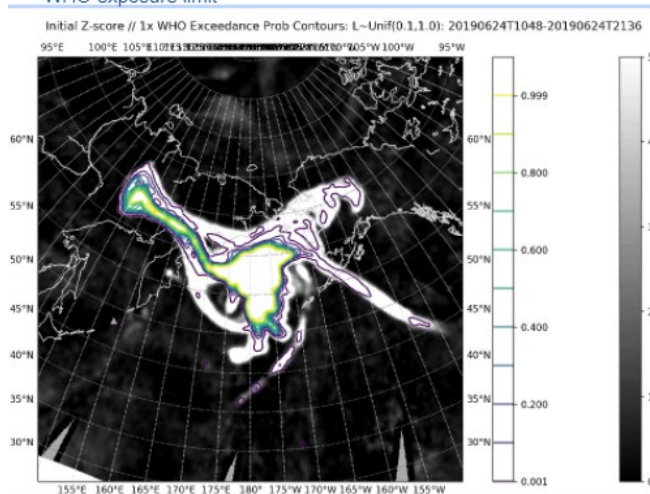
None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Software and LUT updates in preparation for J2	Sep-21	Sep-21		
Refine thresholds and LUT's for S-NPP and NOAA-20 as needed	Sep-21	Sep-21		
Development activities that support transition to VOLCAT	Sep-21	Sep-21		
Routinely validate volcanic ash products	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Highlights:

Direct Support for Decision Making

Probability SO₂ concentration, at cruising altitude, exceeds WHO exposure limit



- For many applications, core geophysical parameters (SO₂ loading and height in this case) require further processing to be of direct value for decision making

Accomplishments / Events:

- Performed a comparison of enterprise ice concentration with in-situ data collected from an aircraft flying a camera during the IceBridge experiment (see Highlight).

Overall Status:

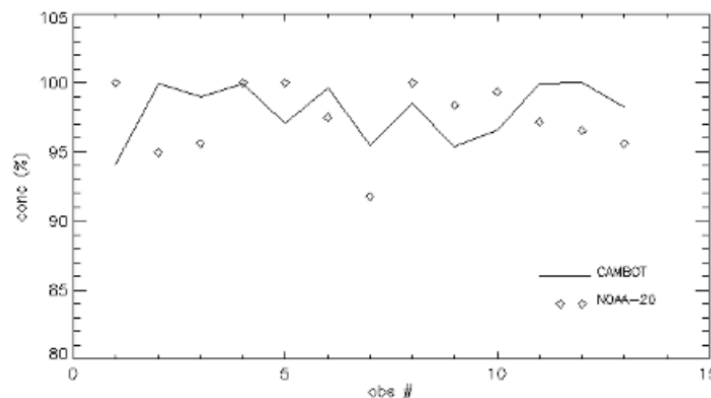
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights: Enterprise Ice Concentration performs well compared to in-situ IceBridge data



Sea ice concentration at select points along the IceBridge flight track on Sept 9, 2019, as computed from camera (“CAMBOT”) imagery and from the NOAA-20 sea ice concentration product. The agreement is very good, with a mean bias of ~3%.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Preparation for JPSS-2	Sep-21	Sep-21		
Transition VIIRS Enterprise snow algorithms to operations for ABI	Mar-21	Mar-21		
Continued validation of NOAA-20 and S-NPP products: Product error assessments and improvements/updates	Sep-21	Sep-21		
Continuous monitoring of S-NPP and NOAA-20 products	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

- Discovered that the solar farm flags are not set in the operational product due to a bug in the operational version of the code
 - The impact on overall product quality is minimal, but a fix was developed and delivered to avoid occasional false alarms
- Worked with the CSPP team on the evaluation of two types of data anomalies discovered in the DB product
 - The fire team developed a fix for one of the root causes
 - The other issue was related to the SDR code and the STAR VIIRS team developed a solution
- Performed analysis of M-band vs. I-band FRP during the 2020 Western US fire event
 - A ~10-30% increase in total FRP was observed from the I-band, consistent with the lower detection limit

Overall Status:

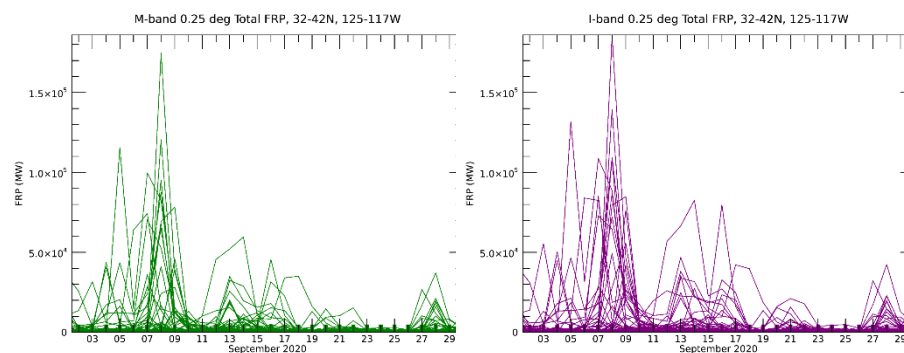
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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- Project is within budget, scope and on schedule.
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Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Enterprise Active Fires DAP to ASSISTT	Aug-20	Aug-20	08/25/20	
Initial Enterprise Fires DAP to NDE	Jun-21	Jun-21		
Final Enterprise Fires DAP to NDE	Oct-21	Oct-21		
I-band algorithm improvements	Sep-21	Sep-21		
J2 readiness and sensor performance evaluation	Sep-21	Sep-21		
ASSIST, NDE and DB integration and testing support	Sep-21	Sep-21		
Suomi NPP / NOAA-20 data analysis and feedback	Sep-21	Sep-21		
Persistent anomaly data files updates	Quarterly	Quarterly		
Annual algorithms/products performance report	Sep-21	Sep-21		

Highlights:



Time series of total fire radiative power (FRP) output from 0.25 degree grid cells in the Western US in September 2020. Left: VIIRS M-band product. Right: VIIRS I-band product. An increase of the FRP output from the I-band product is observed and needs to be taken into account in emission models.

Accomplishments / Events:

- The surface reflectance code, enabled to process JPSS-2 data, and also including the proper handling of the NOAA-20 VIIRS I3 bad detector was delivered to T4
- The science team is engaged in discussions with the VIIRS SDR team and the NASA Land Science Team on the implications of the observed calibration differences for shortwave bands between Suomi NPP and NOAA-20 VIIRS

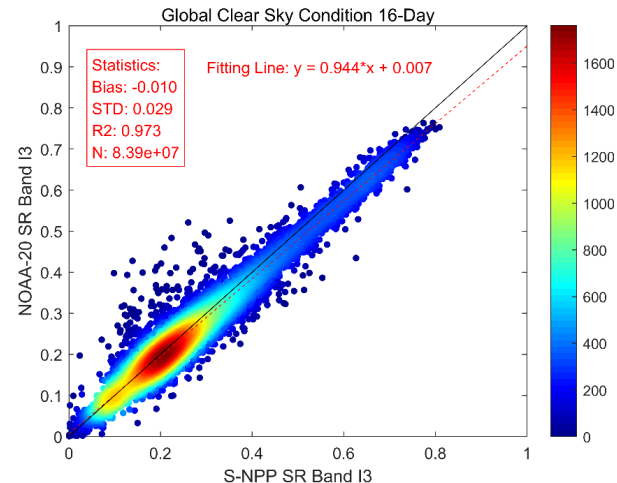
Overall Status:

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Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

Highlights:



Suomi NPP vs. NOAA-20 VIIRS I3 Surface Reflectances for February 6-21, 2020, based on 16-day averages of global gridded data. The biases are due to calibration differences. The science community has expressed concerns regarding data compatibility and continuity between the two sensors. Figure from the NOAA-20 Validated Maturity Review presentation.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		
Final J2 ready DAP to ASSISTT	May-21	May-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Oct-21	Oct-21		
NOAA-20 algorithm adjustments (I3 bad detector)	May-21	May-21		
Algorithm testing and updates (ECM, QF)	Sep-21	Sep-21		
ASSIST integration and testing support of updated code delivery	Sep-21	Sep-21		
Continuing LTM and extension to NOAA SR products	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

- STAR-UMD VIIRS Surface Type team has downloaded and processed S-NPP and NOAA-20 VIIRS granule surface reflectance data acquired in October and November 2020.
- The team has developed a method for integrating annual surface type maps to create a stable product for EMC models. This method can:
 - Capture recent surface type changes
 - Reduce speckles and other noises
 - Create three tundra classes required by EMC models
 - Reclassify savanna classes in high latitude regions according to EMC requirements
- The final multi-year product has been delivered to EMC
- a multi-year (2012-2019) surface type product for use in EMC climate models:

Overall Status:

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

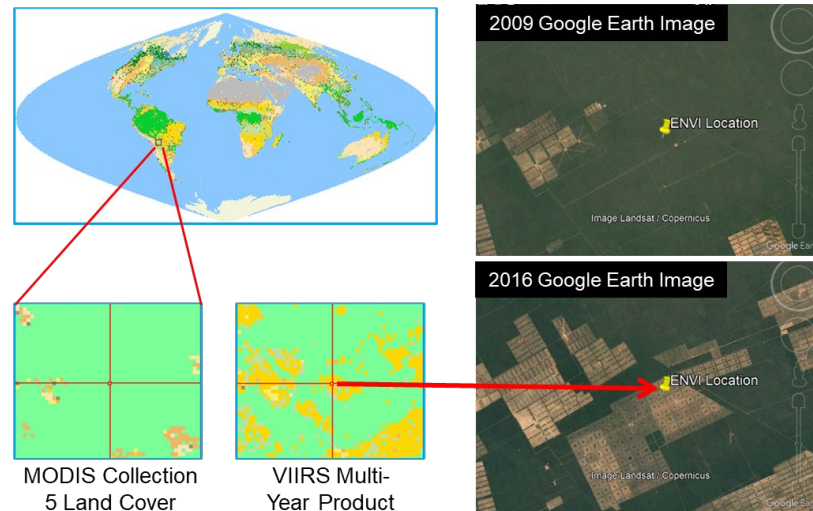
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Issues/Risks:

None

Highlights:

Recent large scale forest clearings in central South America are captured by the VIIRS multi-year surface type product but not by the MODIS Collection 5 product.



Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
AST2020 (Annual Surface Type):				
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST20 based on 2020 VIIRS data.	May-21	May-21		
Generate global annual classification metrics				
Generate VIIRS AST20 based on 2020 VIIRS data using SVM algorithm	Aug-21	Aug-21		
Comparison of AST20 with surface type validation data	Sep-21	Sep-21		
Delivery of AST20 (available for users through STAR FTP)	Sep-21	Sep-21		
AST DAP NDE delivery (ASSISTT, with JRR DAP)				
Deliver AST-2018 to NDE	Jan-21	Jan-21		10/1/20: SCR
Deliver AST-2019 to NDE	Sep-21	Sep-21		
Annual performance report	Sep-21	Sep-21		

Accomplishments / Events:

- Learned how to run the VIIRS LST product in the framework. Built up the local environment for the test. Compared the local LST output with the operational LST output. Some differences were observed under investigation.
- Conducted the site heterogeneity analysis for ARM sites based on the high resolution Landsat 8 data. (slide 2)
- Generated the Sentinel 3A and 3B LST based on the enterprise LST algorithm. The geometry related SDR preprocessing and cloud mask scheme has been preliminarily determined. Finished the software code for data back processing. (Highlight & slide 3)

Overall Status:

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

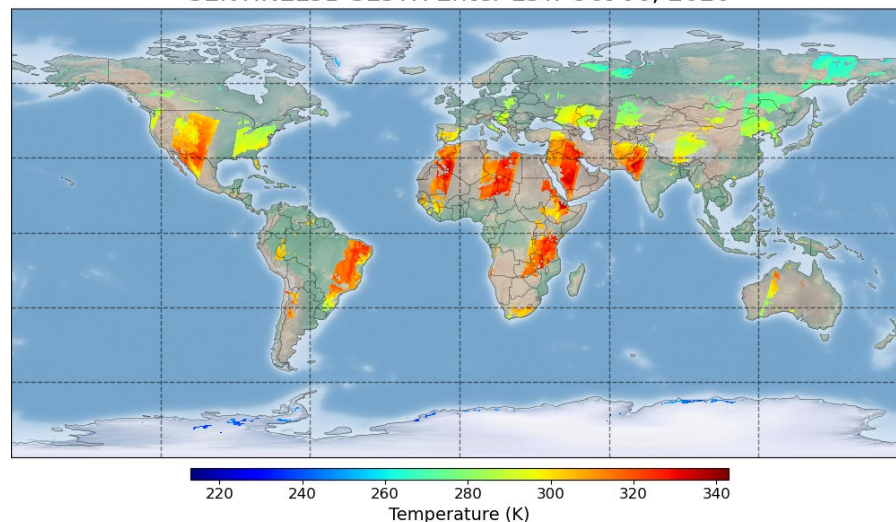
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Issues/Risks:

Highlights:

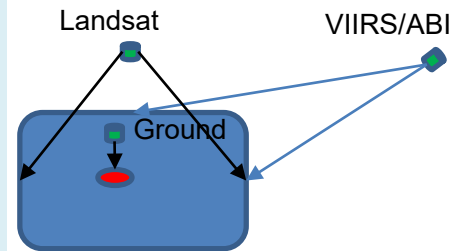
Sentinel 3B LST

SENTINEL3B SLSTR Enter LST: Oct 06, 2020



Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
CalVal report on current SNPP and N-20 Product	Dec-20	Dec-20		
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates, ASSISTT delivery)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Experimental error estimate dataset	May-21	May-21		
Validation and improvement of L3 LST product	Jul-21	Jul-21		DAP
Annual algorithms/products performance report	Aug-21	Aug-21		
Validation tool update; Validation with extended data set	Sep-21	Sep-21		
Routine Validation of L2 LST & gridded LST products	Sep-21	Sep-21		
Final J2 ready DAP to NDE (include NPP/N20 updates, ASSISTT delivery)	Sep-21	Sep-21		

ARM Site Heterogeneity Analysis(E31, E34 & E41)



Two years of Landsat 8 data in 2018 and 2019 was used in this analysis.

Average difference between satellite footprint and site FOV:
 E31: -0.11K (VIIRS), -0.14K (G16 ABI);
 E34: 0.05K, -0.05K;
 E41: 0.06K, -0.18K

- The average difference indicates no obvious heterogeneity over the three sites
- Occurrence of warm bias is observed sometime in Summer

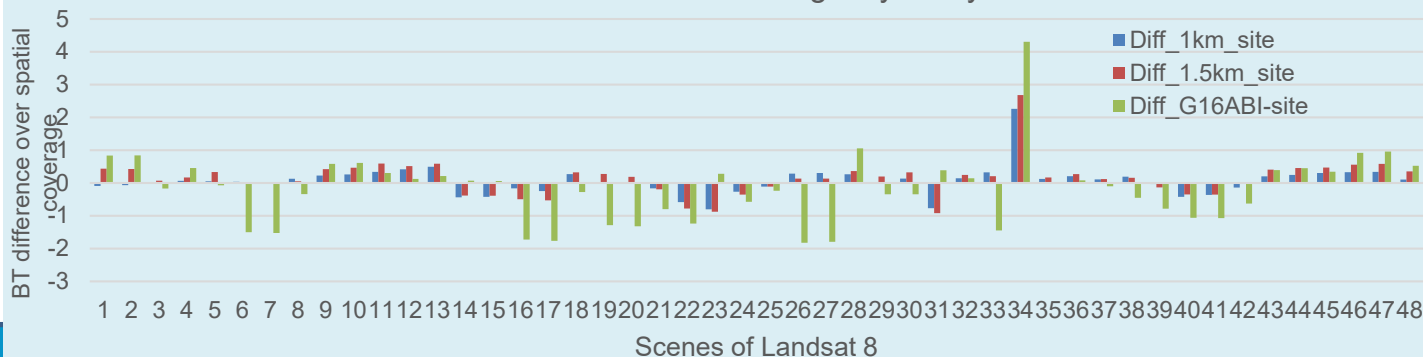
ARM site E31 Site Heterogeneity Analysis

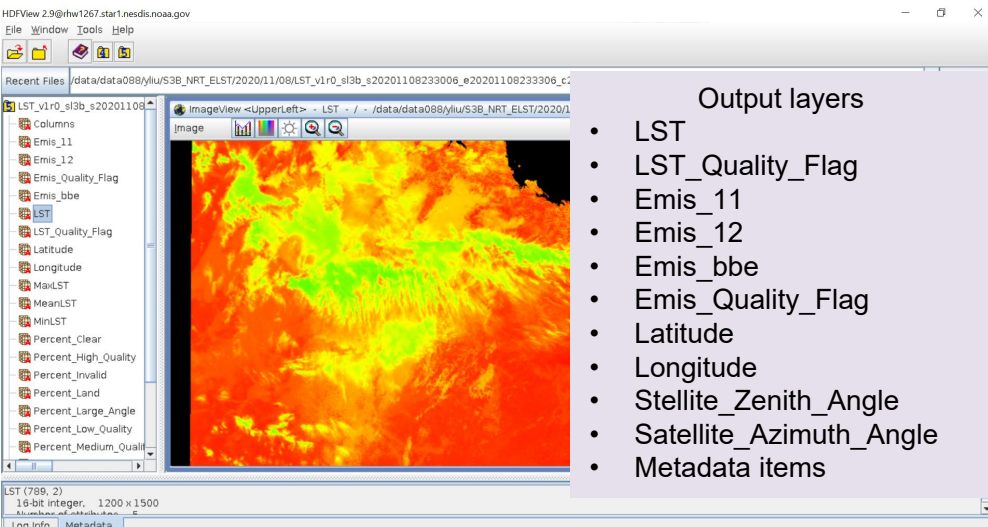


ARM Site E34 Site Heterogeneity Analysis



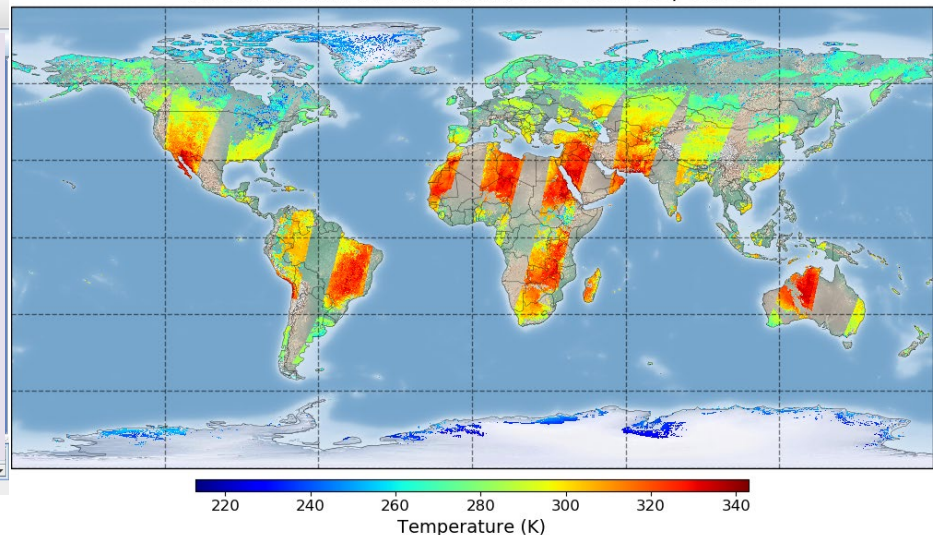
ARM Site E41 Site Heterogeneity Analysis



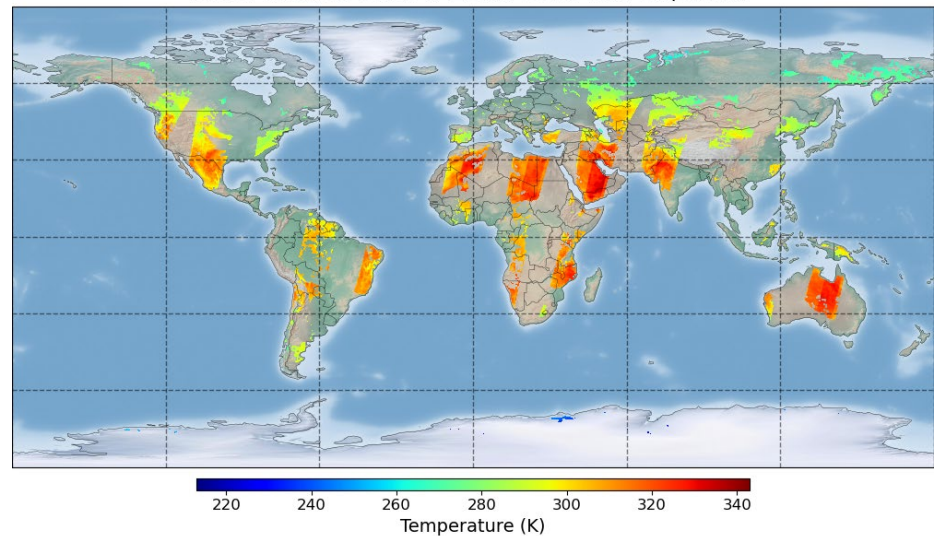


- Generated based on the enterprise LST algorithm
- Input from Sentinel L1b data package
- Interpolation applied in the geometry related input data
- Cloud mask based on the multiple cloud tests
- VIIRS Emissivity is used in the LST calculation
- LUT was generated based on SRF of Sentinel 3A & 3B

SENTINEL3A SLSTR Enter LST: Oct 03, 2020



SENTINEL3B SLSTR Enter LST: Oct 03, 2020



Accomplishments / Events:

- Prepared the VIIRS global albedo over 2019-2020 for soil moisture team upon user request (**Highlight and Slide #2**).
- VIIRS albedo climatology update module has been built and can integrate real-time VIIRS albedo into daily/monthly climatology
- A new version of blue-sky albedo climatology has been generated by using Google Earth Engine (GEE) from MODIS data over the recent two decades (**Slide #3**).
- Studied the VIIRS BRDF user requirement and drafted the VIIRS BRDF development plan (**Slide #4**)
- Mapped the Surface Reflectance from granule to tiles in preparation for BRDF retrieving (**Slide #5**)
- Drafted the iposter for 2020 Fall AGU presentation

Overall Status:

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

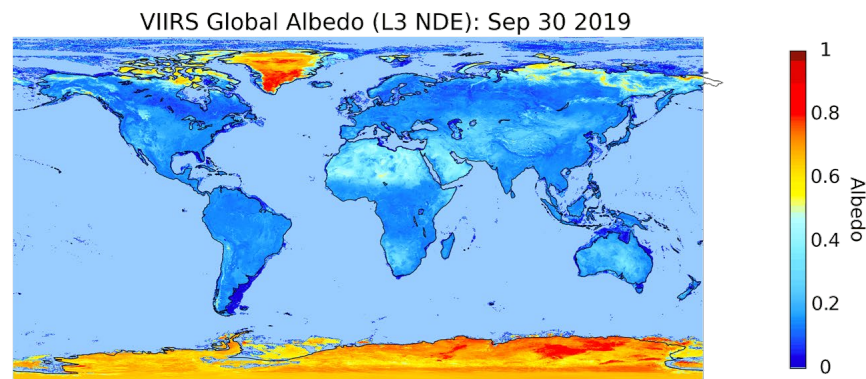
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
CalVal Report on current SNPP and N-20 data	Dec-20	Dec-20		
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates, ASSISTT delivery)	Jan-21	Jan-21		10/1/20: SCR
Final J2 DAP to ASSISTT	Mar-21	Mar-21		
Code developed for BRDF computation	Mar-21	Mar-21		
Snow albedo LUT and update	Apr-21	Apr-21		
Sample BRDF data evaluation comparing to MODIS data	Jun-21	Jun-21		
Annual algorithms/products performance report	Aug-21	Aug-21		
BRDF component code integration done	Sep-21	Sep-21		
Support to the NDE and STAR ASSIST requests	Sep-21	Sep-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		

Highlights:

The VIIRS global albedo animation snippet from data prepared for soil moisture team



Delivered the 2019-2020 VIIRS LSA to user in support of the soil moisture downscaling applications through S4 server

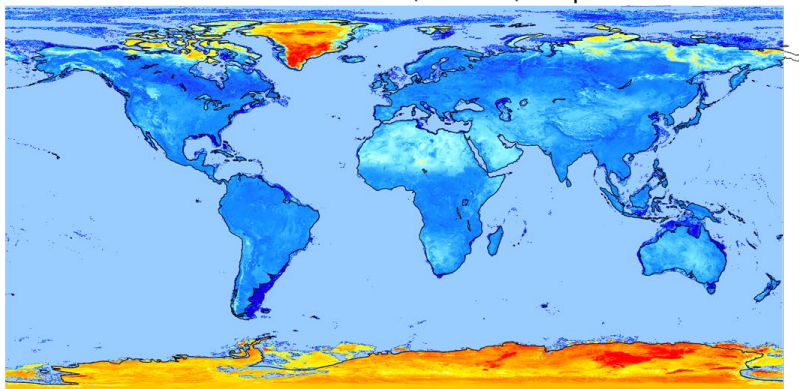
According to the user requirements, the dataset has gone through specific post-processing including:

- Combined SNPP and NOAA-20 to obtain one single albedo dataset for more high-quality retrievals
- Reprojected the global albedo map from Sinusoidal projection to equal Lat/Lon grid with 0.009 degrees resolution

Noted that some days before Sep 2019 (when VIIRS albedo became operational) suffer from some spatial gaps in South America and Africa due to the data missing in data transfer to UMD server

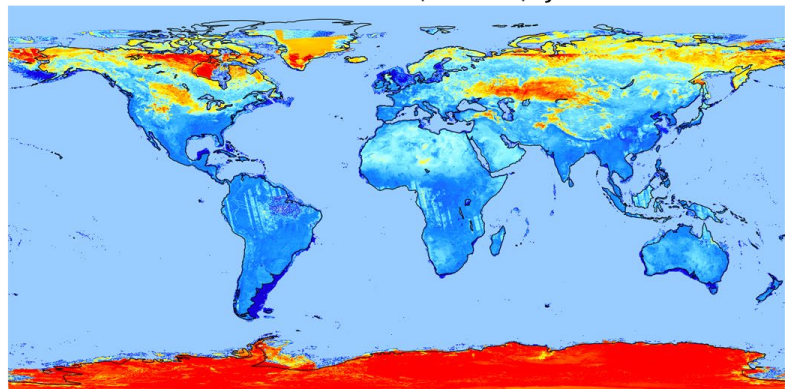
Animations

VIIRS Global Albedo (L3 NDE): Sep 30 2019

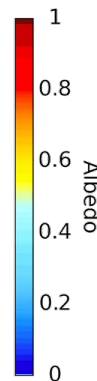


Operational data since Sep 2019

VIIRS Global Albedo (L3 NDE): Jan 31 2019



Before operational local processing



Summary:

- **Background:** The previous version used for albedo production has several issues, such as wrong annual variation and temporal discontinuity over the polar regions. Besides, the temporal resolution is 8 days. We would like to use the latest version of MCD43 albedo to generate new version of blue-sky albedo climatology.
- **Conclusion:** By using the GEE, we generated spatial temporally continuous blue-sky albedo climatology and made a comparison with the previous version. The results show that the new version show clear strengths: (1) captured the snow and non-snow season variation and (2) corrected the wrong annual pattern over the polar region.

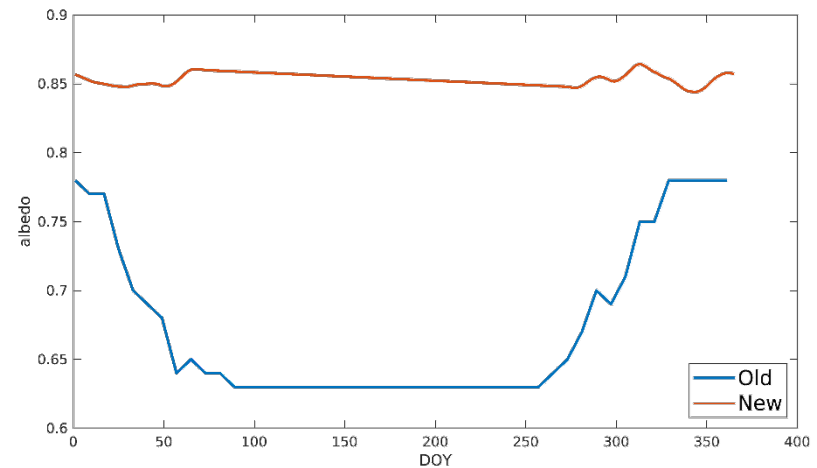
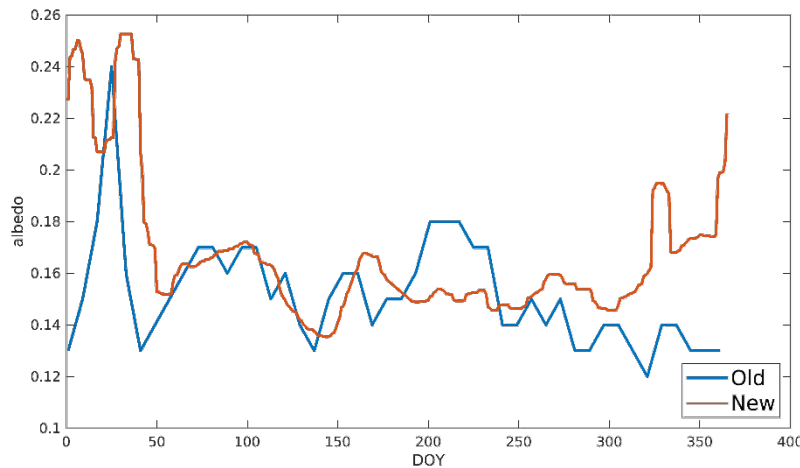


Figure. Temporal variation of albedo climatology over (1) Canadian boreal forest and (2) the Antarctica.

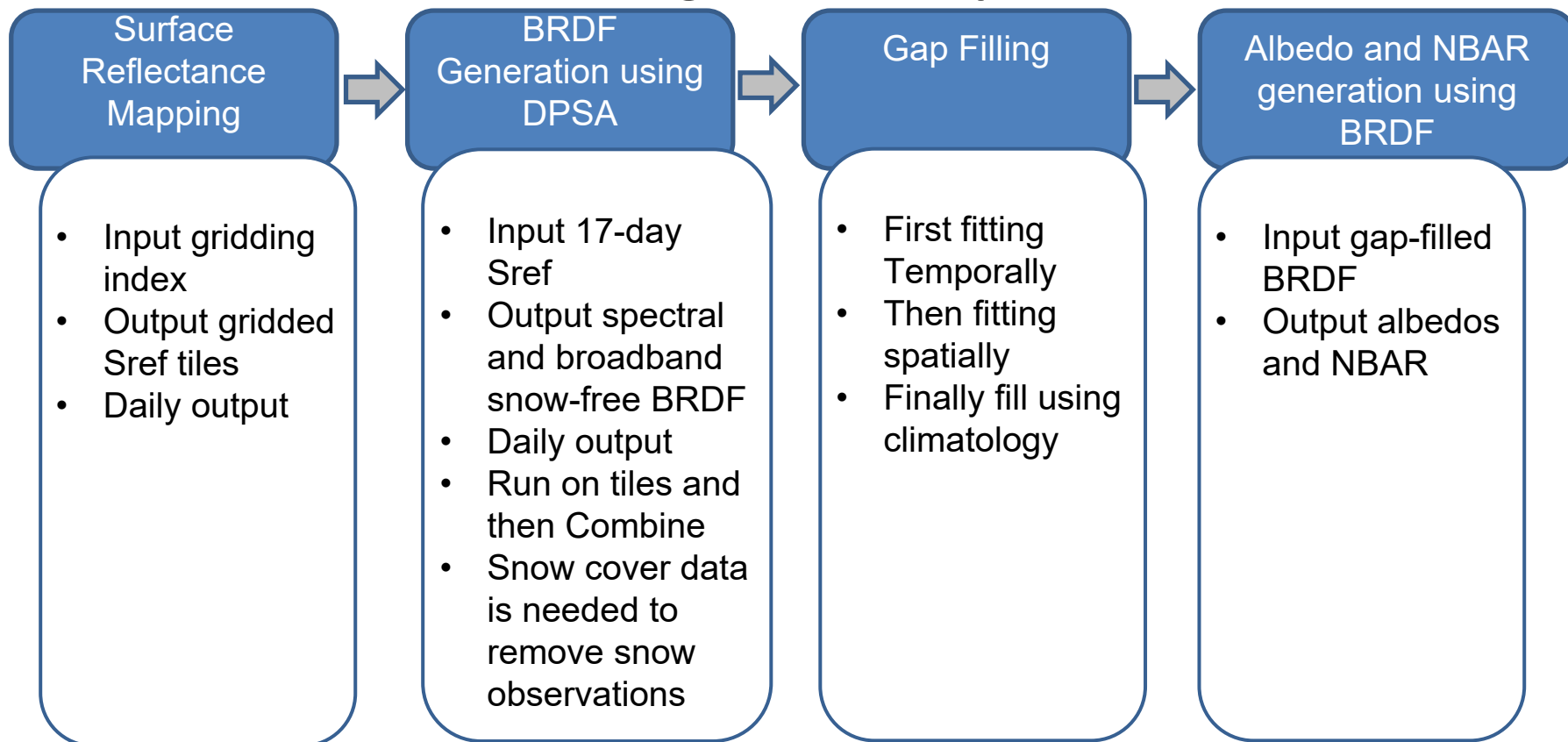
	Name	Size
new version (daily)	MCD.BF.Daily.h10v04.001	13,621 KB
	MCD.BF.Daily.h10v04.002	13,603 KB
	MCD.BF.Daily.h10v04.003	13,620 KB
new version (8-day)	MCD.BF.8days.h10v04.001	13,282 KB
	MCD.BF.8days.h10v04.009	13,293 KB
	MCD.BF.8days.h10v04.017	13,275 KB

- At this time, nc file format is used to compress the size.

old version (8-day)

Name	Size
MCD.BF.h10v04.001	37,969 KB
MCD.BF.h10v04.009	37,969 KB
MCD.BF.h10v04.017	37,969 KB

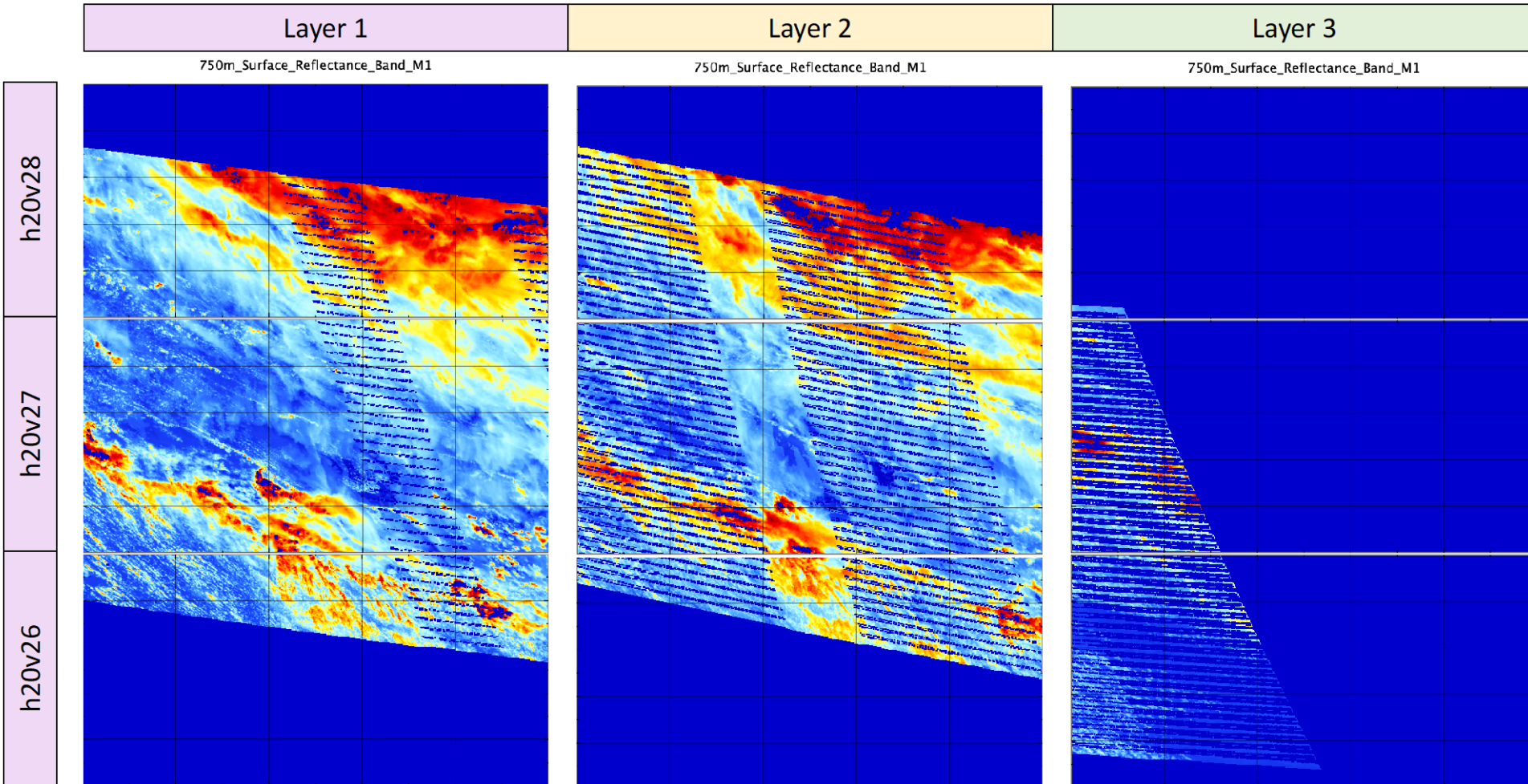
VIIRS BRDF/Albedo/NBAR algorithm components



- **Background:** We plan to remount the DPSA algorithm to retrieve BRDF, and doing gap filling and composition to the global BRDF product under requested resolution, and further derive albedos and NBAR. [The user has demonstrated the applicability of satellite BRDF and albedo products in NWS models;](#)
- **Status:** Plan and schedule has been drafted toward the target. The goal has high priority in VIIRS albedo project

Mapping VIIRS SR (Surface Reflectance) granule to tiles, which would serve as the main input of the BRDF code.

Multi-layers in tiles demonstration; Neighboring tiles connect well



Accomplishments / Events:

- Completed NPP vs. NOAA20 evaluation for VI and GVF products
- Developed C++ programs to use VI outputs as GVF inputs to improve the speed of operational GVF production
- Investigated the VIIRS VI changes over a Colorado wildfire area
- Investigated GVF response to fire
- Investigated potential improvement of VI quality when low quality observations are now used
- Investigated the monthly GVF climatology over very high latitude areas
- Developed a python VI_GVF package to analyze VI and GVF products

Overall Status:

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

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

Issues/Risks:

None

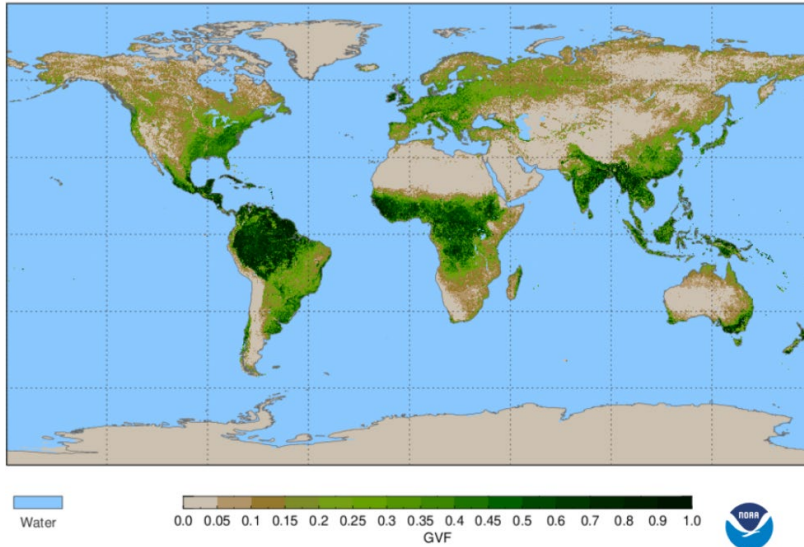
Highlights:

See attached slides

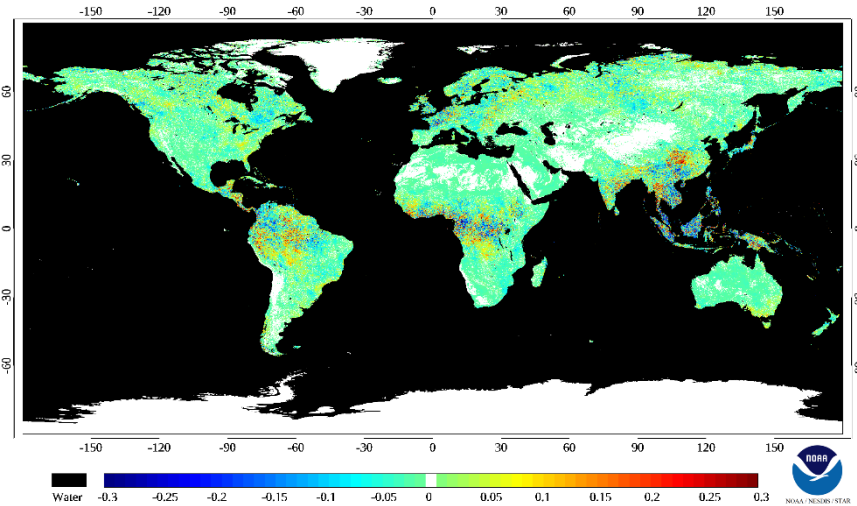
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Evaluation of the V2.1 VI algorithms	Dec-20	Dec-20		
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
ATBD update, Detail Design Document Development	Jan-21	Jan-21		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Feb-21	Feb-21		
Software optimization update	Apr-21	Apr-21		
Final J2 ready DAP to ASSISTT	Jun-21	Jun-21		
Annual algorithms/products performance report	Aug-21	Aug-21		
SNPP and NOAA-20 product calibration and validation	Sep-21	Sep-21		
Experimental blended data developed	Sep-21	Sep-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		

NOAA-20 and SNPP GVF comparison

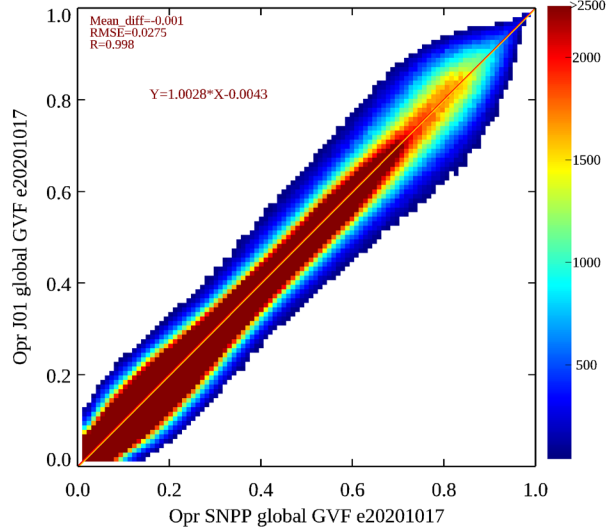
NOAA-20 VIIRS Green Vegetation Fraction
11 Oct 2020 - 17 Oct 2020



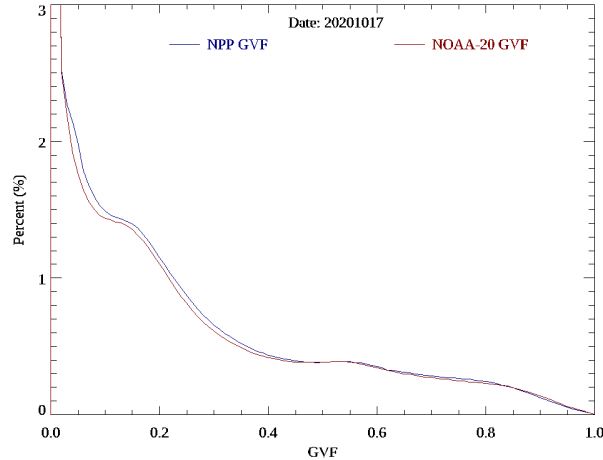
Weekly GVF difference (NOAA-20 - NDE SNPP) Oct 11 - Oct 17, 2020



NPP GVF Vs. J01 GVF



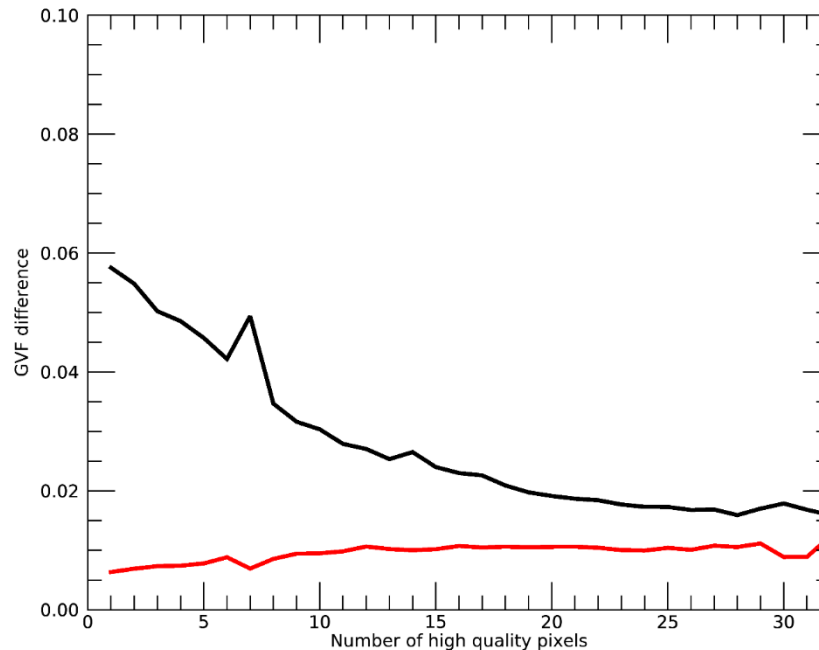
Histogram of VIIRS NDE and J1 GVF



- NOAA-20 GVF matched NPP GVF very well
- Small differences occur in rain forests

SNPP vs. NOAA20 GVF statistics by number of high-quality observations

- Mean pixel difference (bias) and RMS pixel difference were calculated as a function of the number of high quality pixels available
- Good consistency was seen between SNPP and NOAA20 GVF, especially as the available pixels reached 16 (one orbit cycle) or 32 (two orbit cycles). Bias and RMS difference are both below 2% when 32 high quality observations are available.



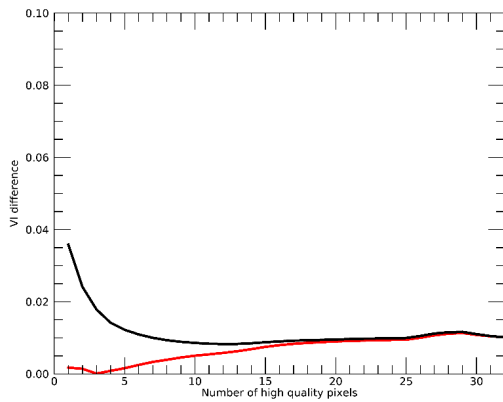
Bias
RMS difference

SNPP vs. NOAA20 daily global VI difference statistics by number of high quality observations

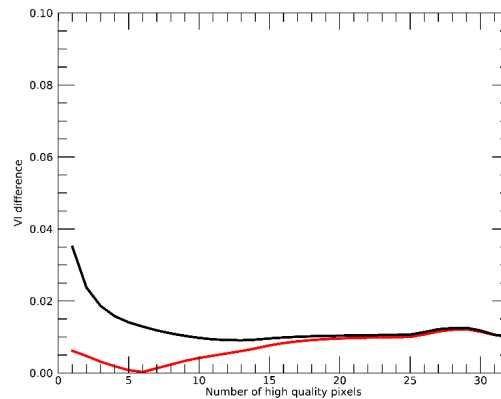
SNPP vs. NOAA20 bias and RMS difference were also calculated as a function of number of pixels for daily global VI data

Good consistency was seen between SNPP and NOAA20 VI. Bias and RMS difference are both below 0.01 when 32 high quality observations are available.

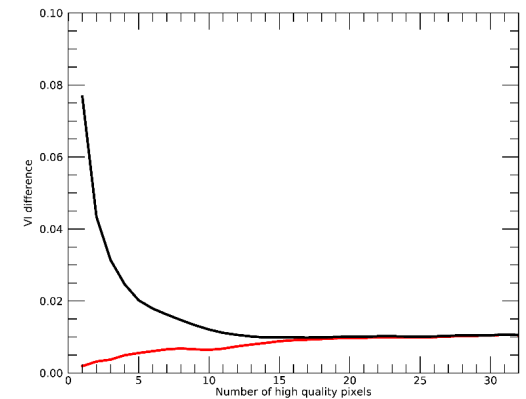
TOA NDVI



TOC NDVI



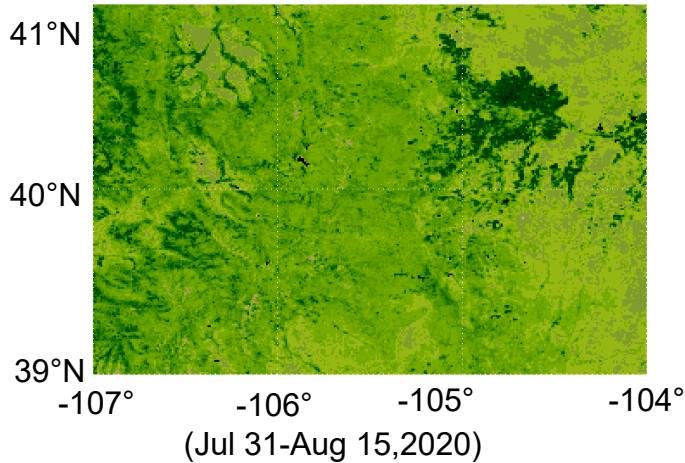
TOC EVI



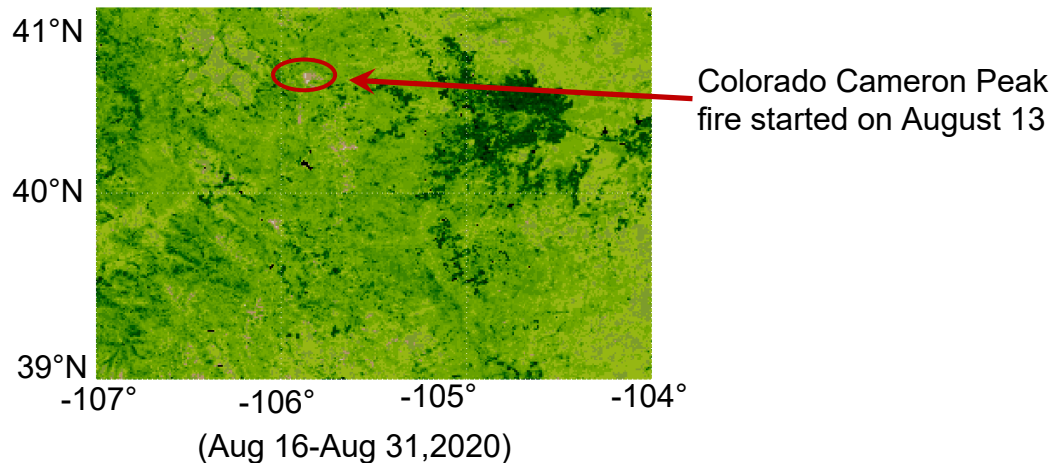
Bias
RMS difference

Investigated the VIIRS VI changes over a Colorado wildfire area

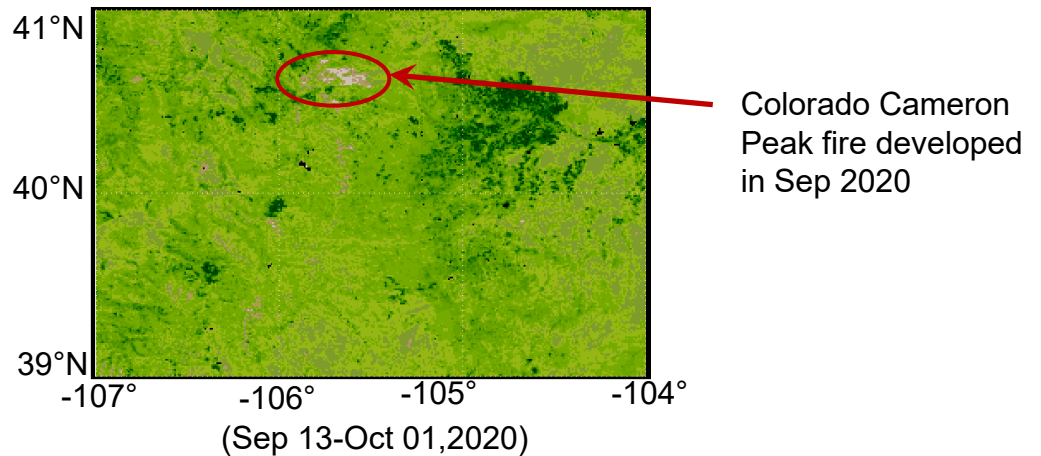
Biweekly VI map **before** wildfire



Biweekly VI map **after** wildfire



- S-NPP VIIRS VI map in early August 2020 showed no burned scar in Cameron Peak, Colorado
- S-NPP VIIRS VI map in late August 2020 showed a small burned scar compared with VI map in early August
- The burned scar expanded to a large area in September 2020 when the Colorado Cameron Peak fire developed



GVF response to fire example

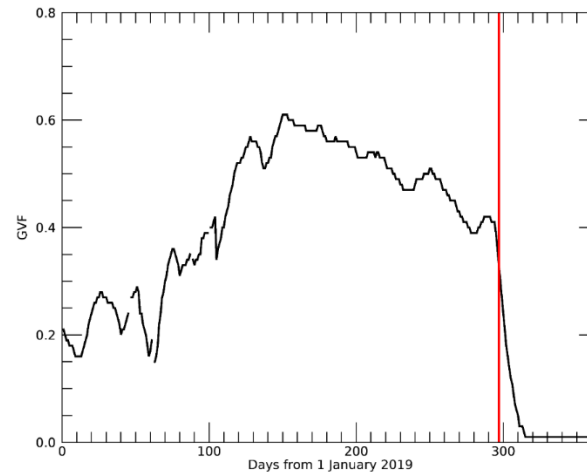
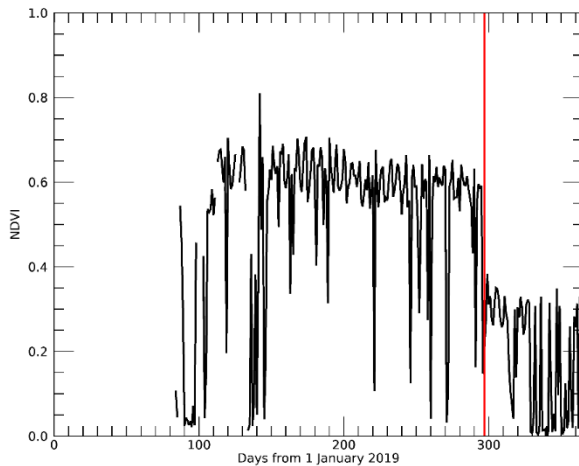
2019 California Kincadee fire

Burn date: 2019298 (red line - from MODIS Burned Area product)

Daily VI (left) demonstrates immediate drop at burn date, but high variability

GVF (right) shows dropoff over 10-day period from burn date

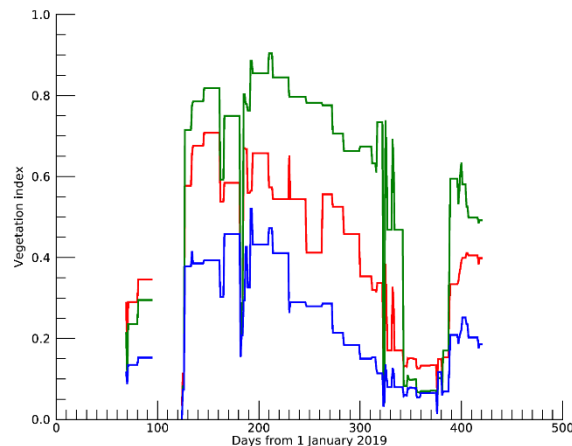
It may be possible to improve GVF to capture disturbances more quickly



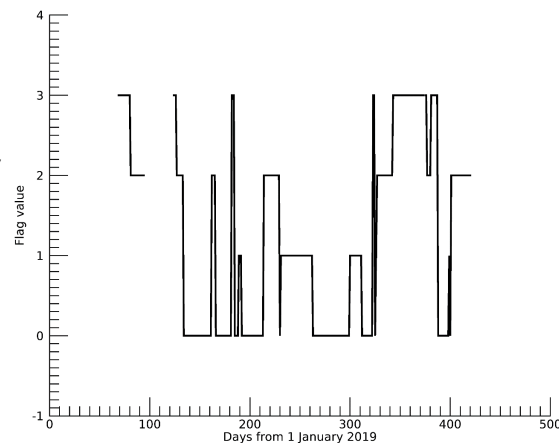
Example time series of VI and cloud flag Olympic (evergreen), biweekly regional

- When cloudy observations are used in VI composites, unrealistic drops in VI appear to occur
- Use of older clear or probably clear observations may be preferable to using more recent probably cloudy or cloudy observations
 - VI time series generated in this manner are being compared to original VI time series and validation data sets
- VI climatology may also be used in place of cloudy observations
 - VI climatology would have to be developed

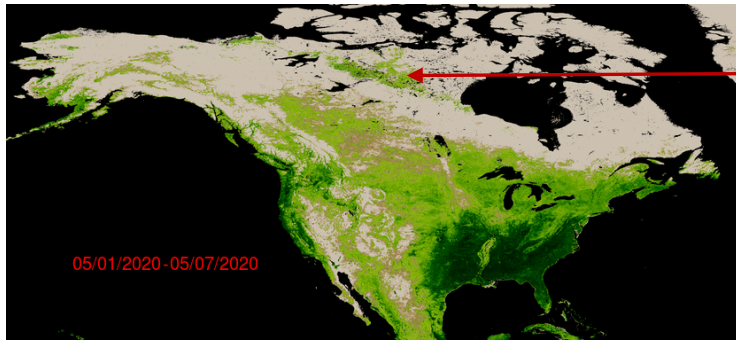
TOA NDVI
TOC NDVI
TOC EVI



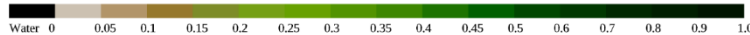
0 Confident clear
1 Probably clear
2 Probably cloudy
3 Confident cloudy



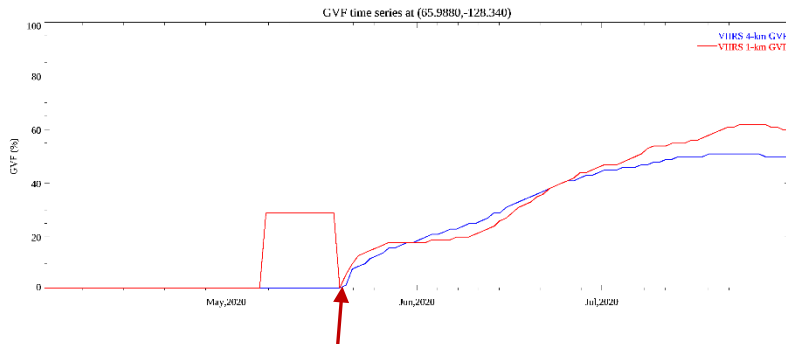
Investigated the monthly GVF climatology over very high areas



Antarctic Circle
Filled by monthly GVF climatology

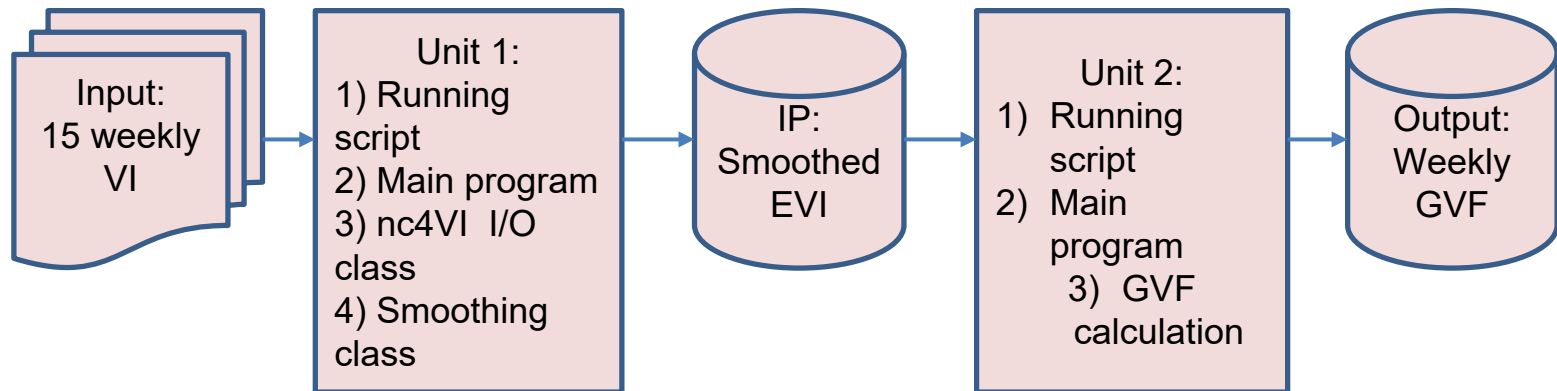


- GVF at very high latitude (near Antarctic circle) areas are filled values by the monthly GVF climatology due to no observations in winter and early spring
- The filled value at a pixel keep the same for the whole month (monthly climatology)
- GVF time series at very high latitude areas are not smooth when it turns from filled values to real observation values in Spring
- Improvement is needed to smooth GVF time series in the transition period in spring



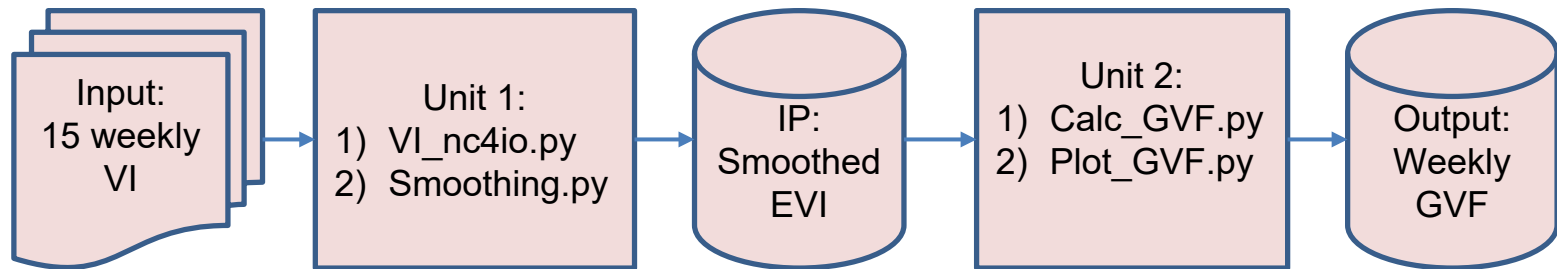
Real GVF values started from 5/21/2020

- Reconfiguration is expected to result in substantial savings to GVF run time.
- Unit 1 will be run within VI module.
- Unit 2 will be run within GVF module.



VI_GVF Python Package

- This VI_GVF python package aims to analyze conveniently VI and GVF products
- This VI_GVF consists of two python modules: VI and GVF
- VI module is used to extract any variable from nc4-formated VI data and do smoothing on VI products
- GVF module is used to calculate GVF on smoothed VI and plot GVF in images and figures (e.g., histogram, scatter, line)



Accomplishments / Events:

- Finished producing more than 4 years of Locust-VH figures (highlighted);
- Installed a series of R packages relating to Species Distribution Models (SDM), searched and followed some SDM cases, aiming to deepen the research on the relationship between vegetation health and locust activities;
- Submitted the re-compositing approach manuscript by Wenze Yang, Felix Kogan, Wei Guo and Yong Chen to International Journal of Remote Sensing;
- Submitted a manuscript entitled "A blended long-term vegetation health product for monitoring global food security" by Wenze Yang, Felix Kogan and Wei Guo to Agronomy;

Overall Status:

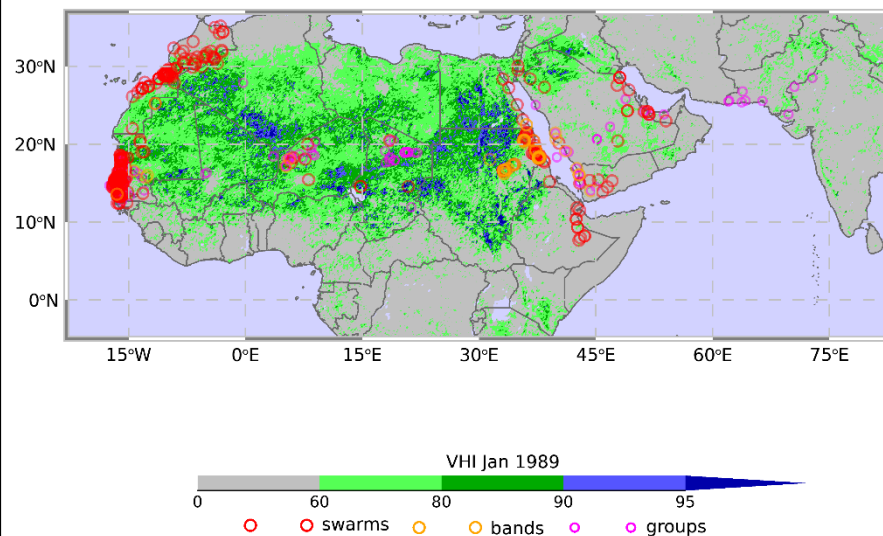
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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: Locust Activity w.r.t. VHI Distribution



Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Feb-21	Feb-21		
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		N20 final DAP
Update 1 km VH data for OSPO, USDA, NIDIS	Sep-21	Sep-21		
VIIRS-0.5 km SMN & SMT (8-year Max-Min Climatology)	Sep-21	Sep-21		
40-year Vegetation Greenness (MDVI) & Global warming	Sep-21	Sep-21		
Climate warming & temperature (SMT) in agricultural regions	Sep-21	Sep-21		
FAO locust activity vs VHindices in 2021	Sep-21	Sep-21		
NDVI _{max/min} & BT _{max/min} : 0.5 and 1 km correlation	Sep-21	Sep-21		
Regional drought and global warming trends	Sep-21	Sep-21		
Algorithm: VHindices-Locust (Africa, Arabia & India)	Sep-21	Sep-21		
Algorithm: VHindices-Malaria (South America)	Sep-21	Sep-21		
VHindices vs Locust (Africa, Arabia & India) 2020 & 2019	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

Routinely producing global ocean color products from VIIRS SNPP and NOAA-20.

Continued the work for the improvement of the MSL12 ocean color data processing system.

Continued the work for the improvement of the OCView tool and ocean color product routine data monitoring system functions well.

Global Chl-a Anomaly products being used by the Blue Planet project in support of UN Environment on Sustainable Development Goals (SDG). See Story Map at <https://storymaps.arcgis.com/stories/d7c55ba3ea0e4215b624454a3115dae4>

Overall Status:

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

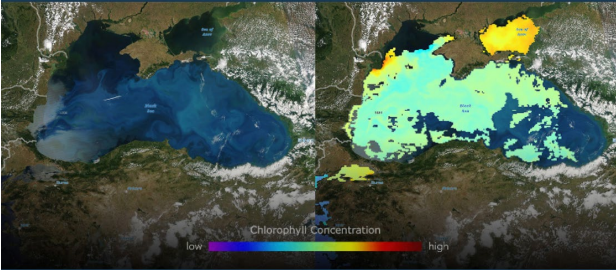
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Issues/Risks:

Highlights: Global CHl-a Anomaly Products being used by the Blue Planet project in support of UN Environment on Sustainable Development Goals for the coastal ocean.

Improving Our Coastal Ocean

Merging Open Data with GIS to tackle Sustainable Development Goals



Visible satellite image of the Black Sea (L) compared to measurements of chlorophyll concentration (R) for the same time. Areas with any clouds are removed from the measurements.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP delivery (include NPP/N20 updates) to CW	Dec-20	Dec-20		
Initial J2 ready DAP delivery to OSPO (from ASSISTT)	Jun-21	Jun-21		
Final J2 ready DAP delivery (include NPP/N20 updates) to CW	Sep-21	Sep-21		
Final J2 ready DAP delivery to OSPO (from ASSISTT)	Dec-21	Dec-21		
Complete MSL12 v1.40 preparation and implementation	Jun-21	Jun-21		
Update MSL12 LUTs and various coefficients for J-2	Jun-21	Jun-21		
Complete testing/verification of J-2 OC data processing	Sep-21	Sep-21		
Working on improvement of the ocean color data processing system (MSL12), particularly over global coastal and inland water regions	Sep-21	Sep-21		
Improve the merged VIIRS OC data from SNPP and NOAA-20, and gap-free global Chl-a data	Sep-21	Sep-21		
Continue VIIRS Cal/Val data analysis (SNPP & NOAA-20 comparison)	Mar-21	Mar-21		
In situ data collections from OC Cal/Val team including NOAA dedicated cruise and other opportunities, and continue Cal/Val for ocean color EDR	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

- JPSS PGRR briefed on L3S-LEO readiness for OPS on 11/20/20 & approved
- L3S-PM (from 2 VIIRS) & -AM (3 Metop-FG) products are continuously produced in STAR since 1 Mar 2020, in best effort mode with several hours latency.
- Match-ups w/in situ data, & monitoring in SQUAM and ARMS fully enabled.
- CW page created, L3S-LEO data available for download in near-real time
- L3S-LEO code delivered to ASSISTT in Aug'2020 as part of ACSPO 2.80
- NOS Users' Request submitted in Oct'2020
- Required resources are being identified by STAR SST/ASSISTT, OSPO, OSGS
- Proposed way forward: push STAR best effort product to PDA (initiate pull to NOS, PO.DAAC & other interested users)
- Once OSPO L3S-AM from 3 Metop-FGs (and Metop-SG later) Cloud feed is enabled/tested, the switch will be flipped from STAR to OSPO feed
- Once the NDE L3S-PM from two VIIRSs (soon to be 3) in NDE/Cloud is enabled/tested, the switch will be flipped from STAR to NDE feed
- Transition from STAR to NDE/OSPO feeds will be seamless for users & archives

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Feb-21	Feb-21		ACSPO 2.80
Final J2 ready DAP to ASSISTT	Aug-21	Aug-21		ACSPO 2.90
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		
Algorithms improvements (clear-sky mask, SST thermal fronts) to support data fusion (ACSPO 2.90)	Aug-21	Aug-21		
J2 ACSPO and Cal/Val Readiness	Sep-21	Sep-21		
Support N20/NPP SST Cal/Val & fixes	Sep-21	Sep-21		
Continue archival w/PO.DAAC/NCEI. Work w/NCEI to complete holdings	Sep-21	Sep-21		
Maintain SQUAM, iQuam, ARMS, match-up codes, RAN infrastructure. Improve & optimize	Sep-21	Sep-21		
NOAA SST Cal/Val Tools ready to monitor N21 SST	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Highlights:

ACSPO Global 0.02° Gridded Super-collated L3S-LEO product released on Coast Watch website: <https://coastwatch.noaa.gov/cw/satellite-data-products/sea-surface-temperature/noaa-acspo/l3s-leo.html>



The National Oceanic and Atmospheric Administration

NOAA CoastWatch • OceanWatch

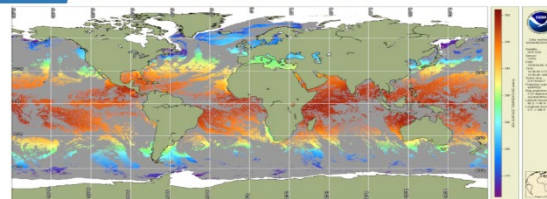
CoastWatch NOAA Submit
Need Help? Contact the Help Desk
Email: (301) 683-3335

ACSPO Global 0.02° Gridded Super-collated SST from Low-Earth-Orbiting Platforms (L3S-LEO)

Satellite Data Products / Sea Surface Temperature / NOAA ACSPO / ACSPO Global 0.02° Gridded Super-collated SST from Low-Earth-Orbiting Platforms (L3S-LEO)

Updated: June 11, 2020

Data Access Description Information Documentation Data Citation



Near real-time (NRT) data available through NOAA CoastWatch

Product	Resource Locator
PM L3S (FTP)	ftp://ftp.star.needs.noaa.gov/pub/socd2/coastwatch/sst/nrt/l3s/pm
AM L3S (FTP)	ftp://ftp.star.needs.noaa.gov/pub/socd2/coastwatch/sst/nrt/l3s/am

README: <ftp://ftp.star.needs.noaa.gov/pub/socd2/coastwatch/sst/nrt/l3s/README.txt>
Data content description: ftp://ftp.star.needs.noaa.gov/pub/socd2/coastwatch/sst/nrt/l3s/data_description.txt

Please acknowledge "NOAA CoastWatch/OceanWatch" when you use data from our site and cite the particular dataset DOI as appropriate.

Recent News

- New Job Opportunity with CoastWatch
Oct. 09, 2020
- Interruption and Delays in OC VIIRS products
Sep. 14, 2020
- NOAA-18/-19 AVHRR SST (legacy) Product degradation -- Resolved
Sep. 01, 2020
- Release of version 3.6.0 of CoastWatch Utilities
Sep. 01, 2020
- Planned discontinuation of NOAA-18 and NOAA-19 AVHRR SST products
Aug. 19, 2020

More News >

Accomplishments / Events:

- Progress in analysis of the impact of VIIRS Polar Wind timestamp (first, middle or last image used) on quality of polar winds.
 - Typically middle timestamp is used however if the last image timestamp is used then more winds would be assimilated into NWP. If quality is similar this could be a relatively simple methodology to increase the positive impact from polar winds on NWP.

Overall Status:

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

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

Issues/Risks:

None

Highlights:

Adjusting timestamp methodologies has potential to increase positive impact of VIIRS Polar Winds on NWP.

	Mid(700 – 400 hPa)	
Image Time stamp	Middle	Last
Accuracy	3.34	3.08
Precision	4.56	3.81
Speed Bias	0.41	0.57
NRMS	0.48	0.46
Samples	10084	9921

Table: Initial analyses show that quality statistics (m/s) are comparable for mid-level winds whether using timestamp of middle image or timestamp of last image when deriving the VIIRS motion vectors. Lower quality values in red, higher quality in green.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		10/1/20: SCR
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Sep-21	Sep-21		
Prototype the derivation of winds with the DNB using the heritage windco algorithm	Sep-21	Sep-21		
Implementation of the shortwave IR (2.25 μm) band winds	Sep-21	Sep-21		
Adapt QC method designed for winds derived using optical flow from image pairs to VIIRS tandem winds	Sep-21	Sep-21		
Assess the use of cloud heights derived from LEO hyperspectral sounders (CrIS, IASI)	Sep-21	Sep-21		
Collaborate with NWP community on model assimilation and impact studies	Sep-21	Sep-21		
Continue to improve products monitoring capability	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events

NUCAPS team continued the evaluation of NUCAPS version 2.9.1 and four different versions to study the impact of RH clipping fixes in the first guess, and super-saturation flag activation in the final retrieval (103% vs. 110%). The team zeroed down with a consensus to use the version 2.9.1(c) as the baseline version for the December CO2 validated maturity review. Evaluation of trace gas products with improved QC/QA is in progress with TCCON data sets.

Continued work in numerous areas - SO2 flag into the NUCAPS operations and validation plans, averaging kernels, and collaborative support activities with the STAR CrIS and OMPS SDR teams.

NUCAPS team continued collaborations with NOAA-GML on the 2020 Ozone hole discussion and collocations of O3SND and NUCAPS ozone products to study the progression and cover up ozone hole.

Team members published the trace gas validation paper in Remote Sensing (<https://www.mdpi.com/2072-4292/12/19/3245>) and finalized the OLR paper for routing through STAR review panel approval process.

Overall Status:

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

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

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: CO2 (S-NPP & NOAA-20)	Dec-20	Dec-20		12/17/20
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		
Final J2 ready DAP to ASSISTT	May-21	May-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Oct-21	Oct-21		
NUCAPS averaging kernels for T/H2O/O3/CO/CH4/CO2	Sep-21	Sep-21		
Improve trace gas retrievals	Sep-21	Sep-21		
Explore the use of alternate technologies for certain NUCAPS modules such as AI-based bias tuning and regression	Sep-21	Sep-21		
Collection of validation data sets and collocated matches of satellite radiances and ancillary data sets for product validations and monitoring	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Highlights

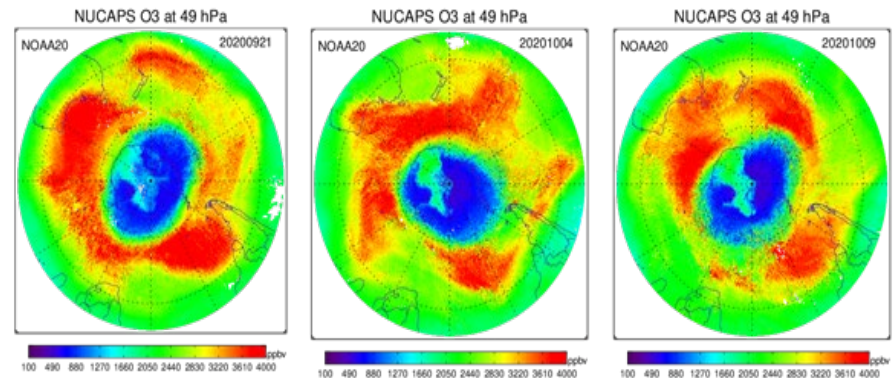


Figure 1. Depiction of NUCAPS O3 product and progression of Antarctica Ozone hole. The NUCAPS team is currently exploring the available O3SND data sets from the GML FTP site to produce time series of NUCAPS O3 products with the ground based measurements.

Accomplishments / Events:

- Fixed MetopA data dropouts and patch delivered. OSPO highlighted issue with MiRS MetopA products featuring frequent data (scanline) dropouts. Science team rapidly identified source as handling of quality flags in MetopA L1B data. Patch was created and quickly delivered to both OSPO and to U. Wisconsin/SSEC for direct broadcast/CSPP users.(see highlights).
- MiRS spurious rainfall over SE Alaska source identified. From direct broadcast user community (Carl Dierking GINA, U. Alaska): identified spurious rain on 2020-10-23 over SE Alaska. Source was determined to be lack of complete convergence in difficult scenes (e.g. small coastal islands with topography and snow cover) combined with anomalously low TPW (< 5 mm). Allowing increased number of iterations almost completely eliminated problem and only increased processing time by 4%. Will be strongly considered as modification in next version of MiRS.

Overall Status:

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

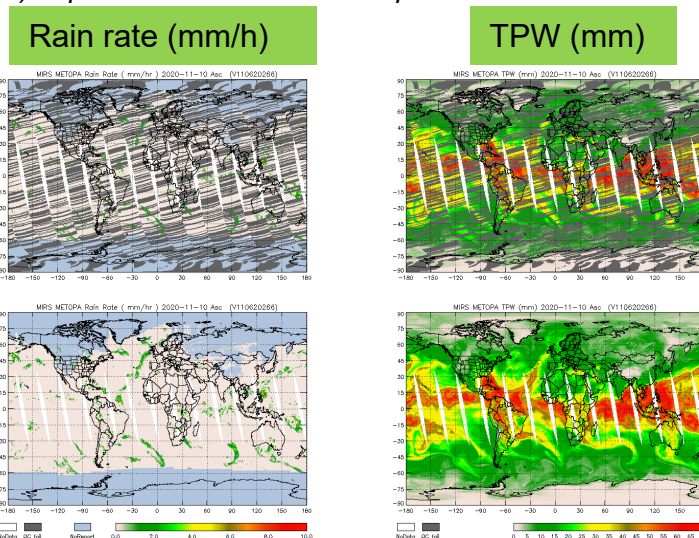
- Project has completed.
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Issues/Risks:

None

Highlights:

Example of MiRS MetopA retrieval products before (top) and after (bottom) implementation of software patch.



Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		MiRS v11.6
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		
Integrate SFR updates	Jun-21	Jun-21		
AI based radiometric bias correction	Aug-21	Aug-21		
Explore AI application for improved first guess for all weather temperature and water vapor retrievals in particular the enhancement under hurricane conditions	Sep-21	Sep-21		
ATMS SDR reprocessing data verification	Sep-21	Sep-21		
Algorithm maintenance and monitoring	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Accomplishments / Events:

- The SFR team completed a NOAA-20 and S-NPP SFR intercomparison study. Overall, the two satellites showed good agreement.
- A SFR package was delivered to MiRS on November 20th. Main updates include:
 - Updated JPSS-2 algorithm
 - Updated NOAA-20 and S-NPP Snowfall Detection algorithms
 - Updated emissivity initialization for NOAA-20 and S-NPP SFR
 - Updated SFR bias correction for NOAA-20 and S-NPP to improve consistency
 - Implemented a 2-stream scattering correction in the 1DVAR
 - Recovered Metop-A capability

Overall Status:

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

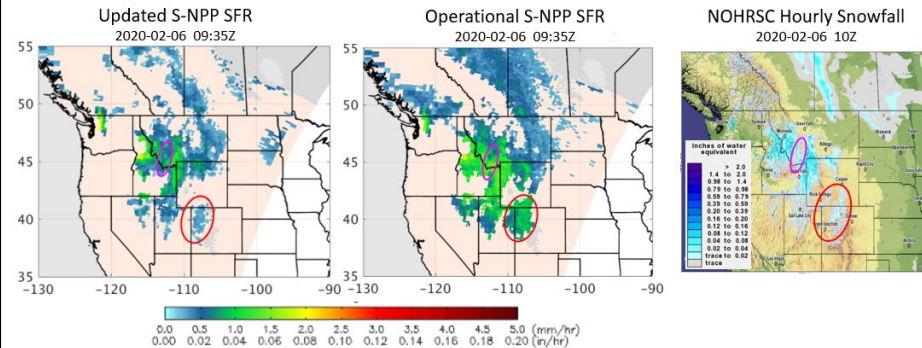
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2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Jan-21		ASSISTT delivery
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		MiRS delivery
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		ASSISTT delivery
Updated SFR algorithms for JPSS-2	May-21	May-21		
Deliver updated SFR package (for JPSS-2, NOAA-20, and S-NPP) to MiRS team for integration	May-21	May-21		11/20/20 SFR package to MiRS
Explore AI-based snowfall detection	Sep-21	Sep-21		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-21	Sep-21		
Algorithm maintenance and monitoring	Sep-21	Sep-21		
Annual algorithms/products performance report	Sep-21	Sep-21		

Highlights: Enhanced ATMS SFR with Latest Update



Left: S-NPP SFR with the latest update; middle: operational S-NPP SFR; right: NOHRSC modeled hourly snowfall on February 6, 2020 9:35Z/10Z. The update enhances the SFR product as demonstrated by the improved agreement between the updated SFR and the NOHRSC product, e.g. in the areas in the magenta and red ovals.

Accomplishments / Events:

Dry run for Semi-Validated Review for OMPS V8Pro EDR Validated. Working with JPSS management to establish path forward. SDR Team will implement correction for Solar In-Band Stray Light contamination.

DAP for V8PRO with better forward model fidelity and J02 adaptations moving from ASSISTT to NDE.

Preparing V8TOS (LFSO2) algorithms to match V8TOz refinements for J02. Both algorithms will be delivered to ASSISTT in a single DAP.

All three contractors took three weeks of vacation due to 1880 hour rule.

Overall Status:

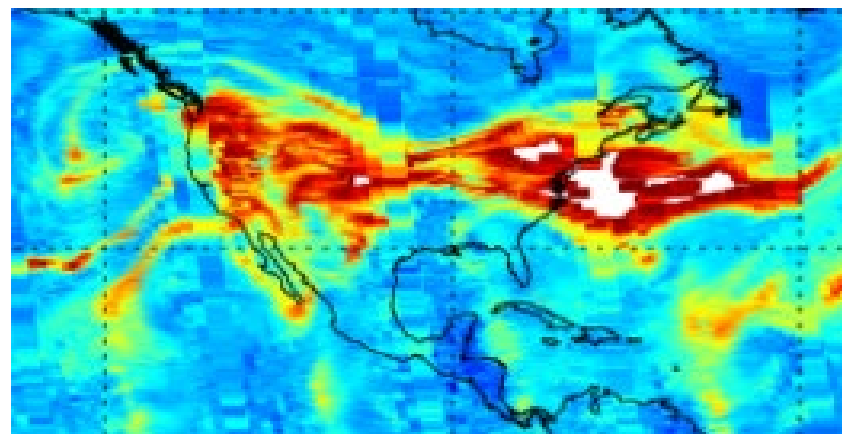
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule			X		# SDR Schedule, code change

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:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/21/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Jul-20	Jul-20	v4r0: 07/07/20	V8Pro
Initial J2 ready DAP to ASSISTT	Nov-20	Nov-20		V8TOz
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		V8Pro
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Mar-21	Mar-21		V8TOz
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		V8Pro
Final J2 ready DAP to ASSISTT	Jun-21	Jun-21		V8TOz
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		V8Pro
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		V8TOz
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	
Algorithm Updates/Cal-Val Activities				
<u>Details in next slides</u>				

Highlights: The Ultraviolet Absorbing Aerosol Index values from the total ozone retrieval product for the Ozone Mapping and Profiler Suite track the progress of large amount smoke as they are transported away from fires in California. Figure for September 16, 2020



Accomplishments / Events:

Completed testing of broad bandpass retrievals for J02-ready V8TOz.. Delivery to ASSISTT by 11/30/2020.

Assisting OMPS SDR team with testing of In-band Stray Light Corrections. CCR for code changes has been approved. Sample day of data is in testing with V8Pro.

Assisted with script changes to manage ancillary file names for the V2Limb. A solution has been implemented in operations.

Collecting ozone product files for April 30, 2020 focus day study comparing ground-based and satellite ozone records. Generating overpass matchups from V2Limb for GML ground stations.

Participated in Korean GEMS Calibration/Validation Team workshop. BATC has approved the release w/o restriction of GEMS key calibration tables.

Created V2.0 of the J02 Ozone Calibration & Validation Plan incorporating changes from JPSS review.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
JPSS-2 Schedule				
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/21/20	
J2 Cal/Val Plan – V2.0 delivery	Dec-20	Dec-20		
Initial J2 ready DAP to ASSISTT	Jul-20	Jul-20	v4r0: 07/07/20	V8Pro
Initial J2 ready DAP to ASSISTT	Nov-20	Nov-20	v4r2: 11/25/20	V8TOz
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		V8Pro
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Ma-21	Mar-21		V8TOz
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		V8Pro
Final J2 ready DAP to ASSISTT	Jun-21	Jun-21		V8TOz
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		V8Pro
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		V8TOz
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	
Algorithm Updates/Cal-Val Activities				
<u>Details in next slides</u>				

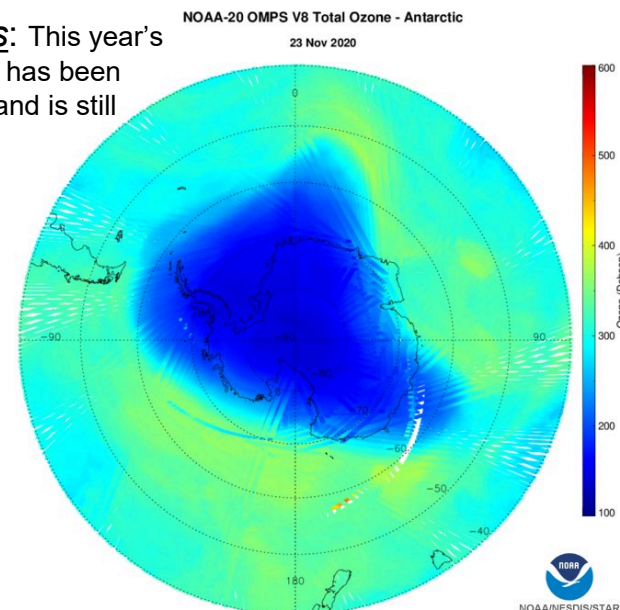
Overall Status:

	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule			X		Ozone Profile agreement between S-NPP and NOAA-20 is elusive.

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:

Highlights: This year's Ozone Hole has been very stable and is still present.



OMPS Ozone (V8Pro, V2Limb & V8TOz) Milestones

Milestones	Scheduled Date	Actual Completion Date
Provide V8TOz and V8TOS DAP to ASSISTT with new code and tables for broad bandpasses, and updated capability to handle 30x241 FOVs SDR Granules in preparation for J02.	Nov-20	11/25/20 v4r2 V8TOz
Provide DAP to ASSISTT with new V8Pro code and tables to implement improved channel interpolation and latitude-dependent soft calibration adjustments.	Jan-21	
Complete work with NDE to resolve two OMPS V2Lmb issues -- Latency / Time Out and Ancillary File errors.	Feb-21	
Demonstrate V8TOz and V8Pro processing of J02 test data as provided by the OMPS SDR team.	Jun-21	
Complete evaluation of NDE resource needs for three-slit processing of the S-NPP OMPS Limb with V2Limb and make a decision on whether to switch from 1 slit to 3 slits.	Jul-21	
Complete rehosting of CloudRR algorithm at STAR	Aug-21	

Accomplishments / Events:

- All FY20 funds were executed by September 2020.
- Prepared for and held GCOM Program review on October 27; addressed review questions in an updated set of slides provided on November 9. The plan included a ramp of funding request for GOSAT-2 AMSR-3 system and algorithm development starting in FY22.
- Continued product O&M
- Work continues on testing algorithm updates for SSW and RR, which are on track and to be completed by March 2021

Overall Status:

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

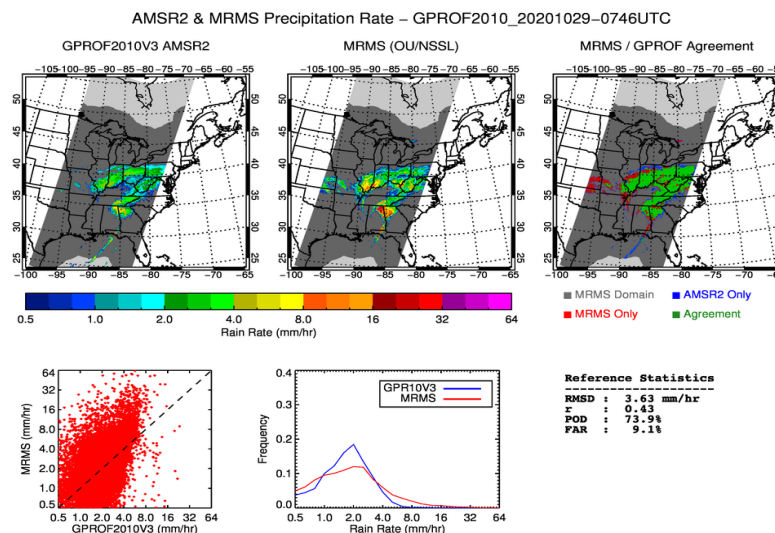
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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
AMSR-3 Schedule (launch: Apr-2023)				
AMSR-3 Cal/Val Plan - draft delivery	Sep-21	Sep-21		
AMSR-3 Cal/Val Plan - final delivery	Mar-22	Mar-22		
Initial AMSR-3 ready DAP to ASSISTT	FY22	FY22		
Initial AMSR-3 ready DAP to NDE (include AMSR-2 updates)	FY22	FY22		
Final AMSR-3 ready DAP to ASSISTT	FY22	FY22		
Final AMSR-3 ready DAP to NDE (include AMSR-2 updates)	FY22	FY22		
Algorithm Updates Review	FY22	FY22		
Algorithm Updates/Cal-Val Activities				
Improved SSW and RR algorithms	Mar-21	Mar-21		
Transition algorithm updates to operations	Aug-21	Aug-21		
Reprocess mission data set	Sep-21	Sep-21		
Technical Information Meeting between NOAA and JAXA	Sep-21	Sep-21		
Annual report on AMSR2 algorithms and data product performance	Sep-21	Sep-21		

Highlights: Rain product performance from the remnants of Hurricane Zeta.



Accomplishments / Events:

- Monitoring of the NUCAPS v2.8.2, currently available via the HEAP “Test” data stream, against the NUCAPS operational (Oper) version 2.5.2 is underway
- A. Reale and Bomin Sun attended and presented at the (virtual) 12th Global Climate Observing System (GCOS) Reference Upper Air Network (GRUAN) Implementation and Coordination Meeting, November 16-20 (www.gruan.org)

Overall Status:

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

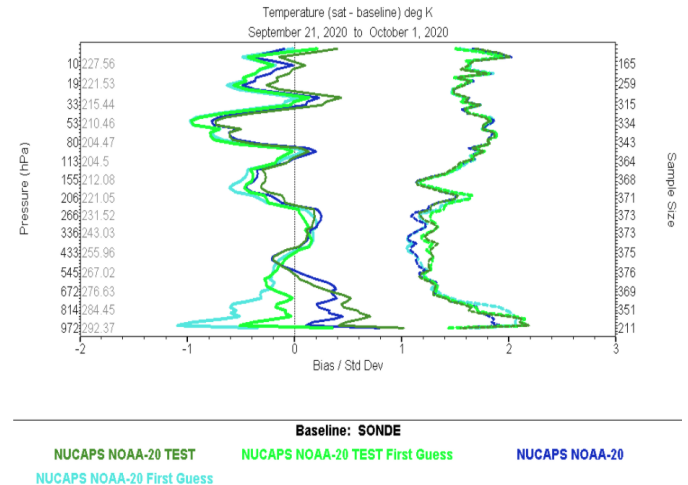
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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
LTM				
Maintain / expand existing EDR LTM web pages and mappers	Aug-21	Aug-21		
NPROVS				
Support NUCAPS / MiRS EDR soundings for NPP, NOAA-20 and MetOp-C; COSMIC-2, ...	Aug-21	Aug-21		
Manage JPSS dedicated radiosonde program (ARM, AEROSE, ...), expand to store SDR (GSICS)	Aug-21	Aug-21		
Support AWIPS- NUCAPS initiatives and case studied demonstrating NUCAPS value to users	Aug-21	Aug-21		

Highlights: NPROVS assists with NUCAPS/HEAPS test data stream check-out



Conventional radiosonde and NUCAPS Operational (v2.5) and Test (v2.8) profiles within +/- 6-hours as routinely compiled by NPROVS. Vertical statistics for Temperature bias (solid) and standard deviation (dash) with **Blue** indicating v2.5.2 (Oper) and **Green** v2.8.2 (Test) sounding products (the lighter shades show corresponding first guess profiles) indicate the Test v2.8.2 have an improved first guess (bias) particularly below 500 hPa but the final retrieval appears to increase the (warm) bias relative to operational 2.5.2. The cause of this is being investigated.