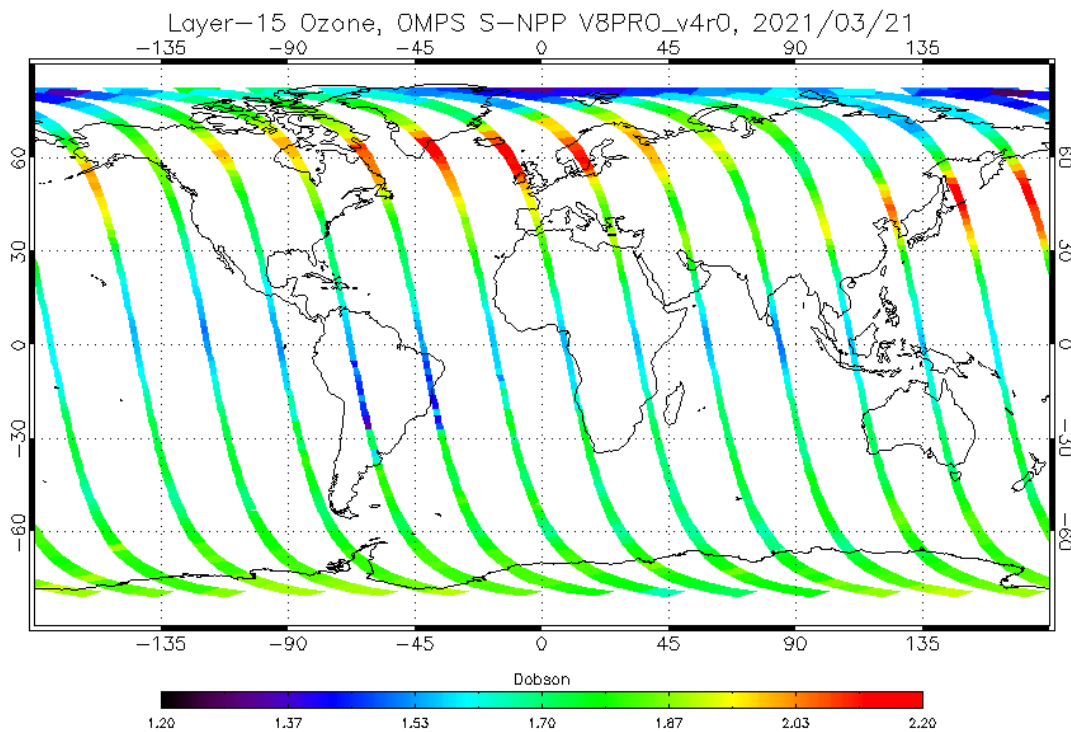**NOAA JPSS Monthly Program Office**

AMP/STAR
FY21 TTA

Lihang Zhou, DPMS Deputy
Bonnie Reed, Algorithm Sustainment Lead
Alisa Young, AMP Deputy for Science
& JPSS STAR Program Manager

June 28, 2021

Ozone Profiler algorithm reaches validated maturity

Figure 1. False color map for Layer 15 (~42 to 45 km altitude) ozone amounts from the orbital tracks for S-NPP V8Pro and NOAA-20 V8pro for 3/21/2021. Every other orbit switches the product source.

The validated maturity review for the NOAA-20 V8Pro Ozone Profile EDRs was conducted on May 27, 2021, and the review board provided their decision to advance the EDRs to validated maturity on June 1, 2021. The board found that the EDRs meet the performance requirements and agreed well with S-NPP V8Pro Ozone Profile EDRs. There are two remaining improvements which must be placed into the operational processing systems to meet the requirements. First, a wavelength scale code correction and adjustment table, are expected Transfer To Operations (TTO) at NDE on June 7, 2021. Second, the Sensor Data Record (SDR) solar intrusion correction is expected to TTO on July 17, 2021. The review presentation, readme and other documents will be available at

https://www.star.nesdis.noaa.gov/jpss/AlgorithmMaturity.php

Tandem polar winds now produced regular at CIMSS

"Tandem" NOAA-20/S-NPP atmospheric motion vector (AMV) product provides cloud motion wind observations over both the Arctic and Antarctic in near real-time.


Tandem VIIRS Polar Winds

❑ Use of tandem polar imagery to derive winds is becoming more common place

❑ Enterprise cloud (mask, type, height) and winds algorithm are used

❑ Improved AMV geographic and temporal coverage; Global coverage is possible

❑ AMV quality control considerations

❑ AMVs can also be derived from VIIRS 2.25um and Day/Night

❑ S-NPP/N20 tandem VIIRS winds have been available AMVs can also be derived from VIIRS 2.25um and Day/Night
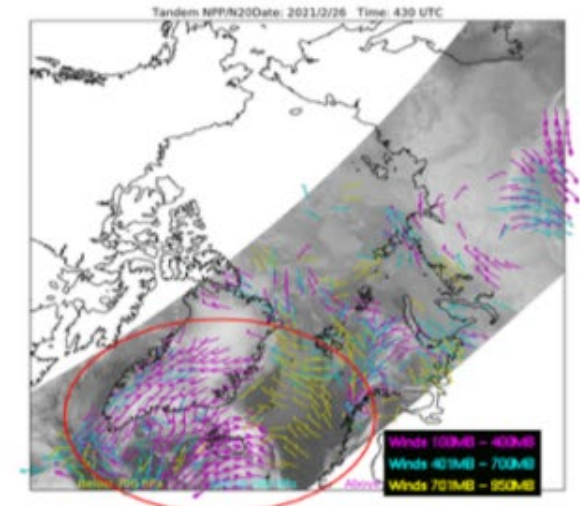
Jeff Key (STAR), Rich Dworak and Dave Santak (CIMSS)

VIIRS Polar Winds
26 February 2021 at 0430 UTC
over the Arctic & North Atlantic.

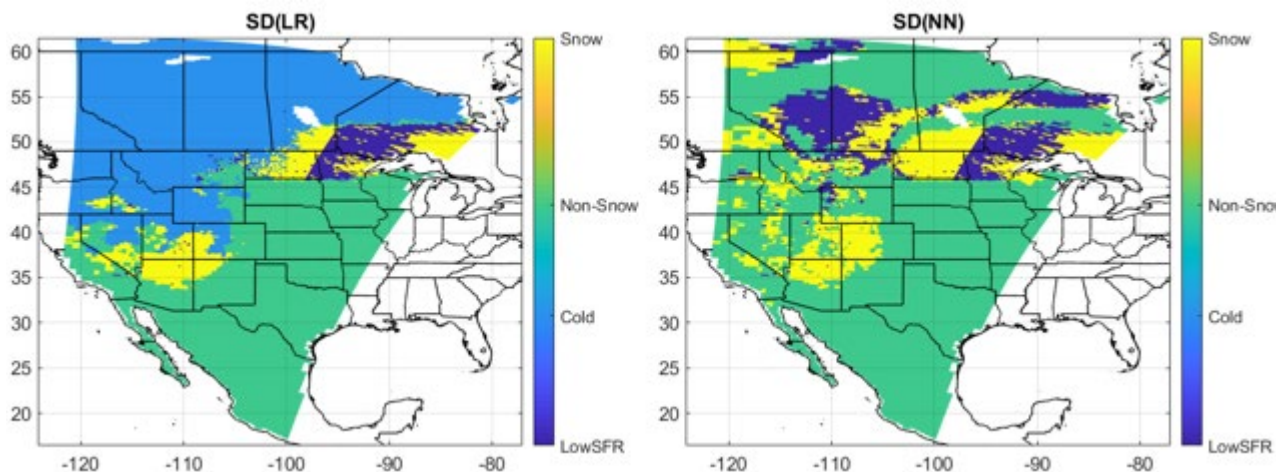AMVs derived from successive NOAA-20 M15 band overpasses.
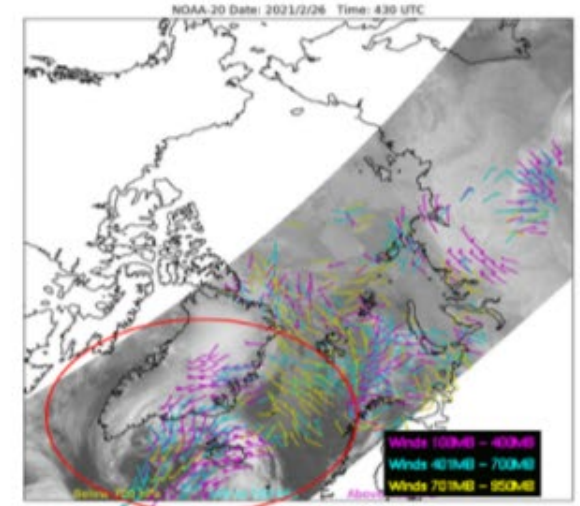
AMVs from successive NOAA-20 **and** S-NPP M15 band overpasses.

https://stratus.ssec.wisc.edu/aspb/weeklies/archive/21/03-05/index.html

Machine learning based snowfall rate improves on current product

• A new S-NPP Snowfall Detection (SD) model has been developed using machine learning (ML). The training dataset consists of over one million records of collocated ATMS measurements, ground observations, and GFS parameters.

The ML model significantly outperforms the current model. The SFR team is developing an NOAA-20 ML SD algorithm and will update the J2 SD model based on this effort. The ML SD algorithms, along with other updates, will be implemented in the enterprise SFR system and delivered to the MiRS team in June 2021.
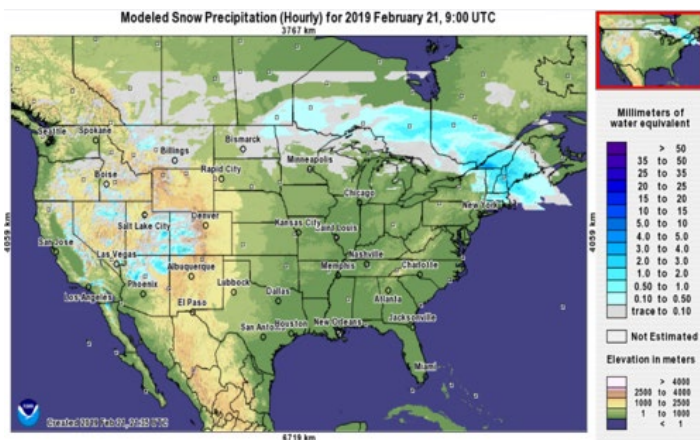
The new S-NPP ML SD (top right) can detect snowfall in cold region where the current SD model (top left) does not apply (areas in blue). The snowing areas detected by the ML SD agree well with those shown in the SNODAS (lower left) image.

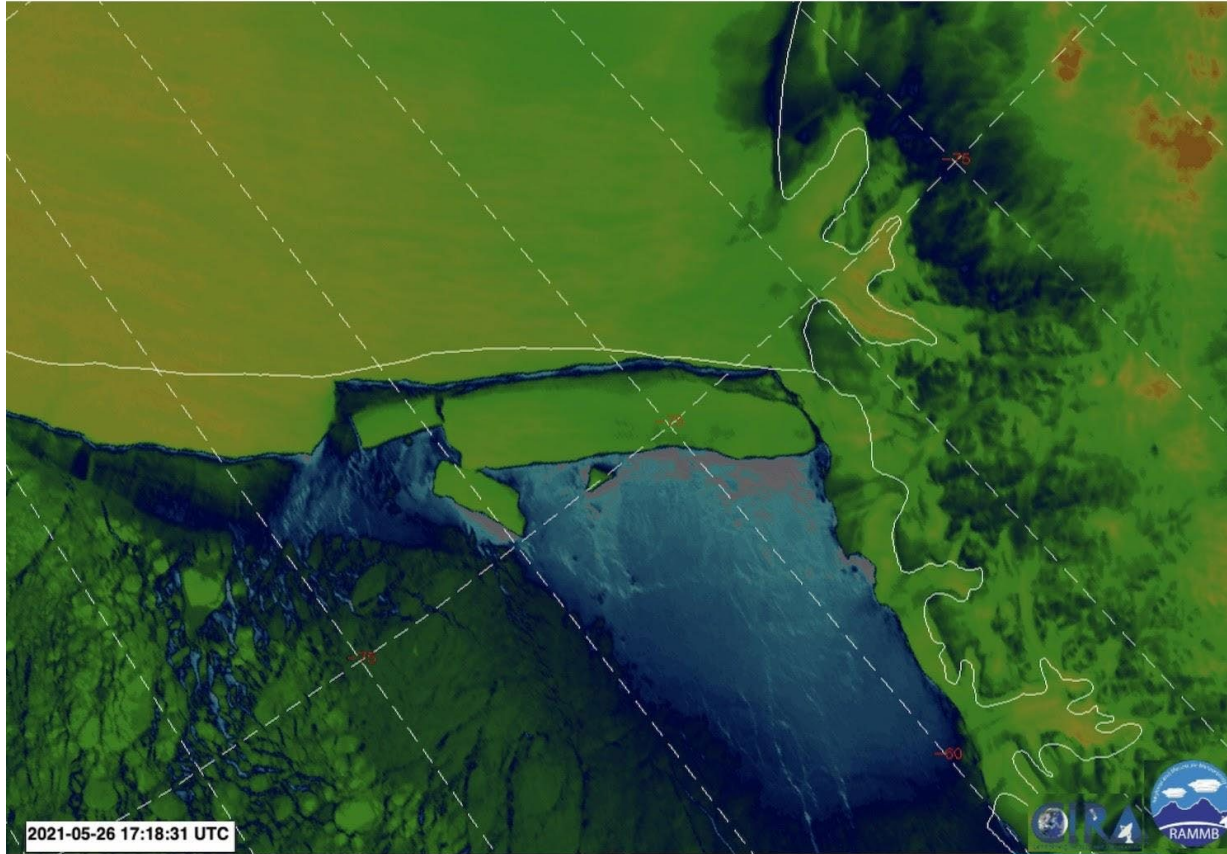**VIIRS Sees A-76 Iceberg Break-off and Partial Breakup**:

Figure: The Antarctic iceberg A-76 as viewed by the VIIRS I5 band. Image courtesy of CIRA.

VIIRS provided a clear view of the A-76 iceberg that broke off the Ronne Ice Shelf in West Antarctica in early May. A-76, named by the US National Ice Center, is one of the largest icebergs to break off from Antarctica in the recent past and currently the largest in the world. This finger-shaped block of ice is considerably larger than Rhode Island, and larger than the Spanish island of Majorca. While A-76 is very large, it is only about one-third the size of the biggest iceberg in recorded history. That record belongs to an iceberg named B-15, which calved off the Ross Ice Shelf 21 years ago. A-76 is not thought to be a direct result of climate change. Calving of ice shelves is a natural process, part of the hydrological cycle. For more information and an animation of VIIRS imagery, visit https://bit.ly/2RRToJ4.

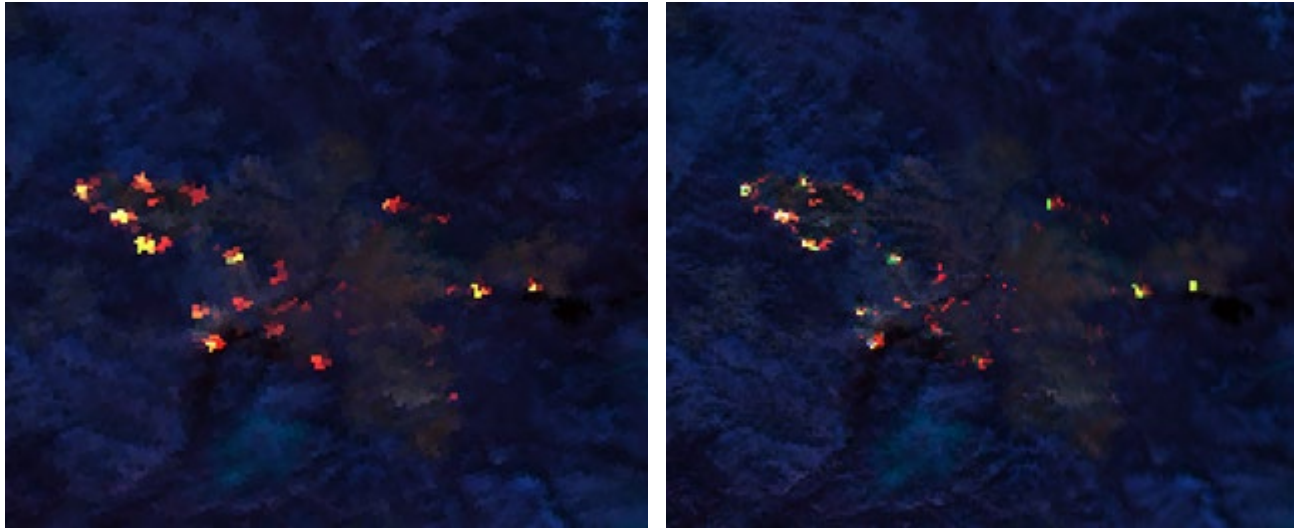**VIIRS Fire Temperature RGB at I-band resolution**

Figure: VIIRS Fire Temperature RGB made with moderate resolution bands (M-10, M-11, M-12), top, and made with imagery resolution bands (I-3, I-4) and the new downscaled version of M-11, bottom. These images are from NOAA-20 VIIRS at 22:12 UTC, 9 September 2019.

An algorithm has been developed to downscale the VIIRS moderate resolution 2.25 μm band (M-11) to imagery band resolution, allowing for the production of the Fire Temperature RGB at 375 m resolution, instead of the normal 750 m resolution. This algorithm also makes use of the 375 m resolution I-band Active Fire product logic to account for saturation and radiance foldover issues that are prevalent in the 375 m midwave IR channel on VIIRS (I-4). A comparison between the new I-band Fire Temperature RGB and the original version (using only moderate resolution VIIRS bands) is shown in the figure below for fires observed in central Yukon Territory, Canada in 2019. The improved resolution in the I-band Fire Temperature RGB will help pinpoint the locations of active fires with increased accuracy, and is expected to benefit the detection of small fires that might not be apparent in the 750 m resolution imagery. The Active Fire product developers have already shown that the I-band version of the Active Fire product detects more fires than its moderate resolution counterpart.

Highlights from the Science Teams (June 16-30)

New 3D Cloud Profile site unveiled
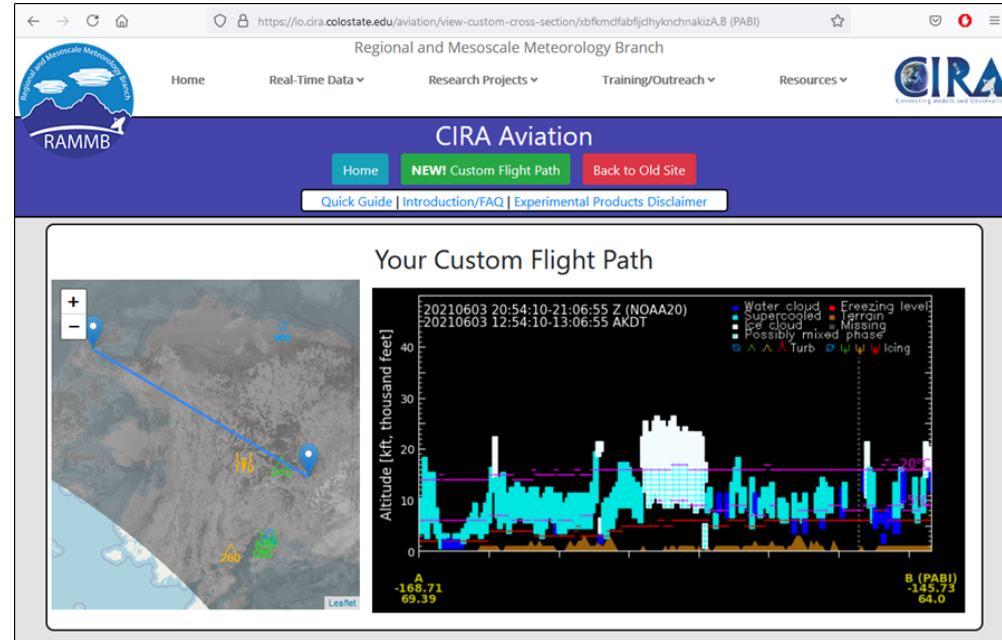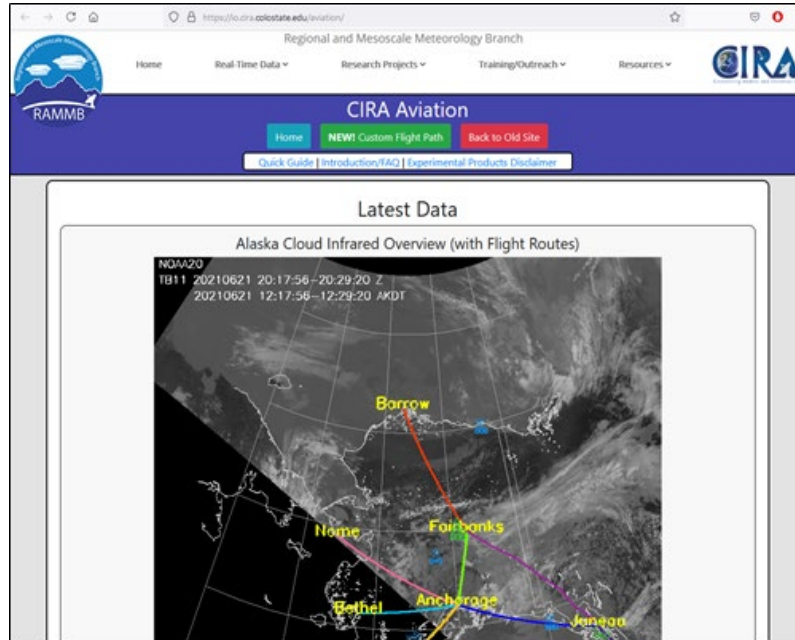
The Cloud Base Height team can now generate gridded 3-D cloud data from the Enterprise cloud products and finished the first version of a new aviation website (introduced at a JPSS aviation initiative telecon in June). This website includes user-interactive capabilities to create random cross-sections. Gridded 3-D cloud fields from the Enterprise cloud products and ancillary data (NUCAPS and PIREPs) are newly generated with 16-bit integer information (NetCDF) for the website and future AWIPS implementations. The website is currently being tested locally at CIRA for further refinements and will be released for AK users next month, supporting the AK cloud demo.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
  - 6/21/2021: VIIRS SDR team delivered DAP package (ADR-9599/CCR-5511 NOAA-20 VIIRS Post-VIGMU Geolocation LUTs Update) to ASSISTT team. Following LUTs will be updated:
    - VIIRS-SDR-GEO-DNB-PARAM-V2-LUT
    - VIIRS-SDR-GEO-IMG-PARAM-V2-LUT
    - VIIRS-SDR-GEO-MOD-PARAM-V2-LUT

- DAPs – Enterprise Products:
  - 6/11/2021: STAR delivered MiRS v11.6 DAP (J01/NPP Maintenance and Preliminary J02 DAP) to CSPP
  - 6/15/2021: L3 LST science code delivered to ASSISTT
  - 6/16/2021: science team delivered Gridding Tool to ASSISTT
  - 6/21/2021: an updated SFR (Snow Fall Rate) package was delivered to the MiRS team for integrating the SFR updates into MiRS algorithm package. The major updates are: (1) final JPSS-2 ready SFR algorithms; (2) radiometric bias correction for all satellites (JPSS, POES, and Metop); (3) cloud temperature initialization for all satellites; (4) Machine Learning-enhanced algorithms for NOAA-20 and S-NPP Snowfall Detection algorithms over CONUS, SFR bias correction for all satellites, and Ice Water Path initialization for all satellites.
  - 6/21/2021: VIIRS Clouds/Aerosols CCAP Delivery (CCAP_VIIRS_CloudsAerosols_v1.0)
    This is an initial CCAP delivery for VIIRS Clouds and Aerosols for the S-NPP and NOAA-20 satellites (as part of the JPSS reprocessing project). This will be used for reprocessing JPSS data using the NCCF in the NESDIS Cloud-sandbox Infrastructure Services (NCIS) environment. The package produces clouds and aerosols products (Cloud Mask, Cloud Phase, Cloud Height, Cloud Base, Cloud Cover Layers, Cloud NCOMP, Cloud DCOMP, Volcanic Ash, Aerosol Optical Depth, and Aerosol Detection) from the JPSS RR Production System (JRRPS) for the S-NPP and NOAA-20 satellites.

- IDPS Builds Checkouts:
  - 6/16/2021: JSTAR submitted summary report for Block 2.3 Mx 3 SOL Deploy Regression Review/Checkout to DPMS/RTN/OSPO

Accomplishments – JPSS Cal Val Supports

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

S-NPP	Weekly OMPS TC/NP Dark Table Updates	06/02/21, 06/08/21, 06/15/21, 06/22/21, (06/29/21)
NOAA-20	Weekly OMPS TC/NP Dark Table Updates	06/02/21, 06/08/21, 06/15/21, 06/22/21, (06/29/21)
S-NPP	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	06/08/21, 06/22/21
NOAA-20	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	06/02/21, 06/15/21, (06/29/21)
S-NPP	Monthly VIIRS LUT Update of DNB Offsets and Gains	06/16/21
NOAA-20	Monthly VIIRS LUT Update of DNB Offsets and Gains	06/16/21

Upcoming Milestones/Deliveries

- JSTAR Code/LUT/Product Deliveries:

  DAP to DPMS:

  NOAA-20 Algorithm DAP to NDE/CoastWatch:
  - Jul-21:   Vegetation Health – Final N20 / initial J2 DAP
  - Jul-21:   Initial J2 DAP (SST, include NPP/N20 updates)

FY21 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs				
CrIS: Initial J2 PCT DAP	Oct-20	Oct-20	10/16/20 02/08/21 (re-delivery, B2.3 Mx0)	
ATMS: Final J2 PCT/MM-coef DAP	Sep-21	FY22	All SDR J2 MM-coef updates pending on J2 instrument alignment measurement summary report from flight team, which may available to STAR by mid- to-late-September, 2021	
CrIS: Final J2 PCT/MM-coef DAP	Jul-21	FY22		
VIIRS: Final J2 Launch-ready LUTs/MM-coef DAP	Sep-21	FY22		
OMPS: Initial J2 Launch-ready LUTs DAP (combined code & LUT DAPs, ADR9095 & ADR9501)	Jan-21	Mar-21	03/10/21	12/28/20 DAP to ASSISTT
Imagery: N20 NCC LUT update DAP	Jul-21	FY22	NCC Banding Anomaly, ASF tool update	
Initial J2 ready DAP (include NPP/N20 updates), Clouds/Aerosol/VolcanicAsh/Cryosphere/LST/LSA/VPW	Jan-21	Mar-21	04/01/21 (to NDE) 05/26/21 (to CSPP)	downstream data testing
Initial J2 ready Active Fires DAP (include NPP/N20 updates, I-Band)	Jun-21	Jun-21	06/24/20	J2 I-Band AF
Surface Reflectance: Initial J2 ready DAP	Jan-21	Apr-21	04/19/21 (to NDE) 04/22/21 (to CSPP)	downstream data testing
NVPS (VI & GVF): Initial J2 ready DAP	Feb-21	Apr-21	04/19/21	Data testing
Vegetation Health: Initial J2 ready/final N20 DAP	Apr-21	Jul-21		Cloud deliveries
SST: Initial J2 ready DAP (ACSPO 2.80)	Apr-21	Jul-21		Cloud deliveries
NUCAPS: Initial J2 ready DAP	Apr-21	Apr-21	02/26/21 04/13/21 patch delivery 04/27/21 (to CSPP)	
MiRS & SFR: Initial J2 ready DAP	Mar-21	May-21	05/18/21 (v11.6, to NDE) **06/11/21 (v11.6, to CSPP)**	documentation update
OMPS Ozone V8Pro: Initial J2 ready DAP	Dec-20	Dec-20	12/31/20 04/15/21 patch delivery	
OMPS Ozone V8TOz: Initial J2 ready DAP	Mar-21	May-21	05/27/21	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) Updated Cal/Val plans (address DPMS review comments)	Dec-20	Dec-20	12/31/20 04/30/21	
GCOM: AMSR-3 Cal/Val Plan - draft delivery	Sep-21	Sep-21		
Updated JPSS-2 OMPS SDRs Pre-launch Characterization Report	May-21	Aug-21		
JCT2 - Data System Event (SDR teams, test/run through RDRs from JCT2-DSE, generate J2 SDRs)	Aug-21	Aug-21		
NUCAPS CO2 Full Validated Maturity (N20 & NPP)	Dec-20	Dec-20	12/17/20	
N20 OMPS NP EDR (V8Pro) Full Validated Maturity	May-21	May-21	05/27/21	Dry run: 05/12/21
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
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, 12/01/20, 12/08/20, 12/15/20, 12/22/20, 01/05/21, 01/12/21, 01/19/21, 01/26/21, 02/02/21, 02/09/21, 02/16/21, 02/23/21, 03/02/21, 03/09/21, 03/16/21, 03/23/21, 03/30/21, 04/06/21, 04/13/21, 04/20/21, 04/27/21, 05/04/21, 05/11/21, 05/18/21, 05/25/21, **06/02/21, 06/08/21, 06/15/21, 06/22/21, (06/29/21)**
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, 12/01/20, 12/15/20, 01/12/21, 01/26/21, 02/09/21, 02/23/21, 03/16/21, 03/30/21, 04/13/21, 04/27/21, 05/12/21, 05/25/21, **06/08/21, 06/22/21**
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/21/20, 11/24/20, 12/22/20, 01/19/21, 02/17/21, 03/23/21, 04/20/21, 05/18/21, **06/16/21**
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, 12/01/20, 12/08/20, 12/15/20, 12/22/20, 01/05/21, 01/12/21, 01/19/21, 01/26/21, 02/02/21, 02/09/21, 02/16/21, 02/23/21, 03/02/21, 03/09/21, 03/16/21, 03/23/21, 03/30/21, 04/06/21, 04/13/21, 04/20/21, 04/27/21, 05/04/21, 05/11/21, 05/18/21, 05/25/21, 06/02/21, **06/08/21, 06/15/21, 06/22/21, (06/29/21)**
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, 12/08/20, 12/22/20, 01/05/21, 01/19/21, 02/02/21, 02/16/21, 03/02/21, 03/23/21, 04/06/21, 04/20/21, 05/04/21, 05/18/21, **06/02/21, 06/15/21, (06/29/21)**
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/21/20, 11/24/20, 12/22/20, 01/19/21, 02/17/21, 03/23/21, 04/20/21, 05/18/21, **06/16/21**
Block 2.3 Mx builds I&T deploy regression data review/checkout (**Nov-20 Mx0**; **Mar-21 Mx1**; **May-21 Mx2**; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/24/20 Mx0 I&T review/checkout report; 12/10/20 updated Mx0 I&T review/checkout report 02/26/21: Mx1 SOL review/checkout report; 03/11/21: Mx1 I&T review/checkout report 05/20/21: Mx2 I&T review/checkout report **06/16/21: Mx3 SOL review/checkout report**
Parallel OPS support	Dec-20 Jan-21	Dec-20 Jan-21	11/6/2020 - 12/4/2020: daily POC support, weekly/monthly DAP deliveries (to both OPS & Cloud); 1/11/2021 – 1/21/2021 daily reportts
Verification of cloud implementation	Dec-20	Dec-20	11/06/20 - 12/04/20 daily reports 12/10/20 Mx0 I&T review/checkout report

STAR JPSS Schedule: TTA Milestones

DPMS Algorithms & PSDI FY21

Lihang Zhou, DPMS Deputy
Bonnie Reed, DPMS Algorithm Sustainment

June 2021

Accomplishments - Transition to Operations and Algorithms

- **SNPP/N20**
  - Ozone V8Pro EDR Validated Maturity Review - 5/27
  - Blended Hydro ORR occurred (passed) 14 May 2021.
  - HEAP Updates have been delivered and promoted to NDE I&T for checkout by PAL; CrIS LW failure is prolonging the checkout of the updates. Plan to promote to OPS with the 2.0.26 promotion on 7/14/21
  - CRIS NPP ADR 9621 - evaluate switching to side 1. On 5/21, IDPS stopped producing SDR data for NPP CrIS. Cause determined to be loss of CrIS long wave on side 2. June 2019, NPP CrIS switched to side 2, due to the loss on Mid-wave. On 5/27, data bagan to flow again due to IDPS changes WR update to reduce threshold from 97% to 60% and WR to suppress notification of loss of data. Multiple meetings to gather information about switching to side 2 vs staying on side 1
- **ADL and CommonCM Migration**
  - Drafted JPSS Jira ADR Project description doc and provided to JPSS Jira POCs for documentation.
  - Completed two twice-weekly exports from the JPSS Jira ADR Project for sync to RTX Jira
  - Installed ADL 5.3 / I2.3.02.00 (Block 2.3 Mx 2) for users on GRAVITE ICF
  - Coordinated with GRAVITE OPS to get ADL 5.3 / I2.3.02.00 uploaded to DPMS FTS
  - Verified ADL 5.3_I2.3.02.00 distribution from OSPO FTS.
  - Initiated pre-release checkout of Block 2.3 Mx 3 ADL distribution.
- **EPS-SG project support**
  - Nothing Significant to report
- **J2 and Beyond**
  - Working with Ground SEIT to update requirements documents for GOSAT AMSR-3
- **Satellite Product Management (Legacy Migration, non-NOAA, MetOp-C) DACS PPM**
  - Worked with OSAAP on outlining the process for new products and product requirements

JPSS Project Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Product Monitoring Phase V				
-- CDR	Dec-16	May-17	May 2017	Completed
-- SRR	Jun-19	Jul-21		
-- ORR	Aug-19	Jul-21		
-- Operations	Sep-21	Sep-21		
NOAA-20: Microwave Tropical Cyclone Products				
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Apr-19	--	4/2/19	Completed
-- ARR	Oct-19	Jul-21		
-- ORR	Dec-19	Oct-21		
-- Operations	Feb-20	Nov-21		
Enhanced TOAST with S-NPP OMPS Limb Profiles				
-- CDR	Jan-17	NA		No longer required
-- SCR	Apr-17	NA		No longer required
-- ORR	NA	NA		
-- Operations	Jun-17		2/2021	Completed
S-NPP and N-20 Flood Mapping Product				
-- CDR	Dec-19	Dec-19	Dec 2019	Completed
-- ARR	Mar-21	Feb-21	2/26/2021	Completed
-- ORR	May-21	Jun-21		Additional metadata and product file content updates being added
-- Operations	Jun-21	Jul-21		

JPSS Project Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP/N20 SST - ACSPO L3SST				
-- CDR	Dec-21	Dec-21		
-- ARR	Dec-22	Dec-22		
-- ORR	Jun-23	Jun-23		
-- Operations	Aug-23	Aug-23		
Advected Layer Precipitable Water (Blended TPW)				
-- CDR	Dec-21	Oct-21		
-- ARR	Oct-22	Oct-22		
-- ORR	Feb-23	Feb-23		
-- Operations	May-23	May-23		
Global Biomass Burning Emissions with VIIRS I-Band Fire (GBBEPx V5)				
-- CDR	Jan-21	-	1/27/21	Completed
-- ARR	Dec-22	Dec-22		
-- ORR	Apr-23	Apr-23		
-- Operations	Oct-22	May-23		
Ocean Color - OKEANOS SNPP and N-20 Legacy Migration				
-- CDR	Oct-20	-	1/27/21	Completed
-- ARR	Dec-21	Mar-22		
-- ORR	Mar-22	Mar-22		
-- Operations	Apr-22	Apr-22		
J2 Algorithm Updates Completed				
Delivered to IDPS and NDE	Nov-21	Nov-21		
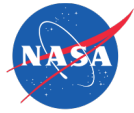
Rank Risk ID	Summary	LxC Trend	Aprch	Status
1 AMP-19-003	Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq	3x2 ⇔	M	06/03/2021: IDPS expected to provide all sensor RDR data during JCT-2 DSE event, which will occur towards the end of August. The analysis performed on this data should provide the final results needed to confirm the geolocaton data which will influence the closure of this risk.

LIKELIHOOD / CONSEQUENCES matrix

LIKELIHOOD	1	2	3	4	5
5					
4					
3		1			
2					
1					

CONSEQUENCES
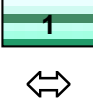
Criticality		Approach
HIGH		A – Accept
MED		M – Mitigate
LOW		W – Watch
		R – Research

LxC Trend

⇩ – Decreasing (Improving)

⇧ – Increasing (Worsening)

⇔ – Unchanged

NEW – Added this month

JPSS Top Risks

Rank	Risk ID	Risk Statement	Approach	Status
1 ⟷	AMP-19-003	**Given that:** APID 11 (S/C Attitude and Ephemeris) and 30 (S/C Telemetry) sampling frequencies are at 10Hz on JPSS-2 **There is a possibility that:** Some IDPS and STAR algorithms will not be able to use any science products that has APID 11 and 30 or any APIDs with a sampling frequency of 10Hz **Resulting in:** Delays since IDPS geolocation algorithms cannot use 10Hz APIDs. During JCT3 IDPS has to geolocate J2 RDRs with J2 S/C Diary and if the geolocation algorithm is not compatible with the 10hz freq, it will affect IDPS's ability to geolocate J2 RDRs. STAR needs to consider the effect 10Hz APIDs will have on their GEO and sensor product algorithms.	**Mitigate**	06/03/2021: IDPS expected to provide all sensor RDR data during JCT-2 DSE event, which will occur towards the end of August. The analysis performed on this data should provide the final results needed to confirm the geolocaton data which will influence the closure of this risk. 06/02/2021: Observe copied update from Murty relating to the JCT-2A data. "The VIIRS SDR team got access to JCT-2A VIIRS science RDR files in the GIP. These are created with the Real-Time Software Telemetry Processing System (RT-STPS) software using the JCT-2A data. The VIIRS SDR team processed a couple of RDRs with the ADL and were able to generate SDRs. Radiometric products are all fill values (as expected) , but geolocation data derived from the spacecraft diary are good. The SDR team plans to process 500+ RDR files from JCT-2A and provide a data analysis report (for VIIRS) soon. The upcoming TDWG meeting (6/2) may also lay out plans on producing all of the sensor RDRs in coordination with the DSE, and will be communicated to the team". Additional updates received from IDPS: - The Test Data Working Group is working STAR Data Request 9768. - TDWG collected Extended Application Packets from JCT2A, May 18-21, 2021. - TDWG in process of transferring to IDPS factory environment. The EAP Data is not expected to generate ephemeris needed to create good SDRs/EDRs. But IDPS factory will create S/C Diary and S/C Telemetry RDRs from the EAP data. Plan to create the HDF RDRs and deliver to STAR in the next 2 weeks. 05/05/2021: Actual JPSS-2 S/C RDRs will be available during JCT-2 A test event and it will be provided to J-STAR manually. After the data is provided to J-STAR they will have 1 month to perform analysis on the data and provide their findings. <See Previous slides for earlier status updates>

| | Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq | | | |

Color code:

Green: **Completed Milestones**

Gray: **Non-FY21 Milestones**

ATMS SDR

Accomplishments / Events:

- Built JPSS ATMS SDR team calibration/validation document library and drafted the library maintenance manual
- Updated JPSS-2 ATMS TVAC data reader programs to correct the PRT counts to temperature conversion coefficients error to improve the data analysis accuracy
- Initiated the team discussion about the ATMS calibration challenges and future plans in order to prioritize the ATMS SDR team working schedule
- Discussed the ATMS antenna pattern on the TVAC Calibration Test Equipment (CTE) targets and the internal calibration targets
- Kept developing spacecraft telemetry data reader program to support upcoming spacecraft level TVAC test
- Kept updating ATMS SDR User's Guide document
- Discussed the ATMS science data quality journal article manuscript

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:

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/31/20	
Updated Cal/Val plan (DPMS comments)			04/30/21	
Initial J2 PCT update: re-delivery			02/05/21	
Final J2 PCT update, including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Aug-21	FY22		SER + 6w (to ASSISTT)
Final J2 PCT/MM-coef delivery	Sep-21	FY22		To DPMS
JCT2 - Data System Event	Aug-21	Aug-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	Dec-20 Jan-21	11/6-12/4/20 1/11-21/21
Verification of cloud implementation	Dec-20	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; Mar-21 Mx1; May-21 Mx2; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/09/20 Mx0 I&T 02/16/21 Mx1 SOL 03/03/21 Mx1 I&T 05/17/21 Mx2 I&T	Report

ATMS total EM-filed distribution on target face plane at 23.8 GHz (upper) and 183.31 GHz (lower)
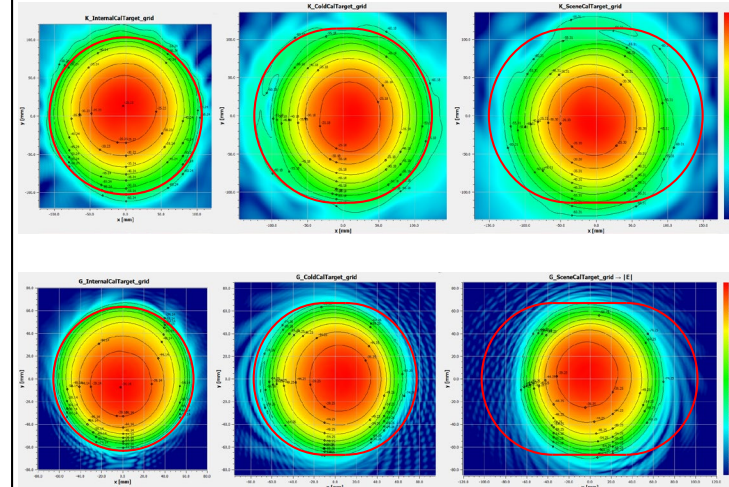
JPSS-2 ATMS KAV band ICT temperature using original conversion coefficients (upper) and corrected coefficients (lower)
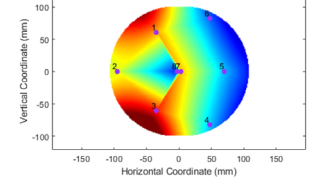
Original KAV Target from 2019
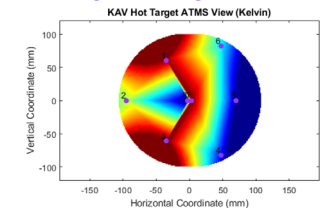
Mean = 273.0936 K
Max – Min = 0.2091 K
Reprocessed with Corrected Coefficients

Mean = 273.0355 K
Max – Min = 0.1405 K

CrIS SDR

Accomplishments / Events:

- Continued monitoring the SNPP CrIS Instrument and assessing the quality of the IDPS OPS MWIR and SWIR data following the May 2021 LWIR anomaly. **Fig. 1** shows the long term radiometric assessment. This work involved updates to a variety of the monitoring and assessment tools to accommodate for the recent LWIR outage The SNPP CrIS Side-2 MWIR/SWIR SDR products from IDPS are nominal and meet the JPSS Level-1 requirements. The Generation of SNPP CrIS OPS data has been resumed since May 27, 2021 at about 1840 UTC.
- Because the LWIR band is most critical for NWP, the NWP impact after the loss of the SNPP CrIS Side-2 LWIR Observations have been analyzed **(Fig. 2)**. When both SNPP and NOAA-20 CrIS are operating, they combine to have a positive impact on NWP greater than a single instrument alone. However, the two instruments also provide robustness such that in the absence of SNPP CrIS, the impact of the NOAA-20 observation increases and only minimal degradation in forecast skill is observed after the loss of the SNPP CrIS Side-2 LWIR observations. The fraction Forecast Sensitivity and Observation Impact of NOAA-20 CrIS observations has increased to compensate the loss of SNPP CrIS observations following the anomaly.
- Monitoring of the ZPD Location on SNPP has shown an improvement in the ICT ZPD Location offset between sweep directions following the recent power cycle reset on May 25 **(Fig. 3)**. Monitoring of the phase of the spectral radiance has also shown a phase shift for the same reason. It is believed that is due to the Auto-ZPD Correction System being activated following the reset, and correcting for any ZPD offset between sweep directions.
- A noise event #9 for NOAA-20 MW FOV5 occurred from June 14-16 and returned to its nominal levels. The noise performance is actively being monitored.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/23/20	
Updated Cal/Val plan (DPMD comments)			04/27/21	
Initial J2 PCT update based on pre-launch test data and other changes	Oct-20	Oct-20	10/16/20	
Initial J2 PCT update: re-delivery			02/08/21	
Verification of operational CrIS SDR data at FSR after the termination of NSR data			11/06/20	
Final J2 PCT update, including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Jun-21	FY22		SER + 6w (to ASSISTT)
Final J2 PCT/MM-coef delivery	Jul-21	FY22		To DPMS
JCT2 - Data System Event	Aug-21	Aug-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	Dec-20 Jan-21	11/6-12/4/20 1/11-21/21
Verification of cloud implementation	Dec-20	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; Mar-21 Mx1; May-21 Mx2; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/23/20 Mx0 I&T 02/24/21 Mx1 SOL 03/08/21 Mx1 I&T 05/19/21 Mx2 I&T	Report

Highlights:
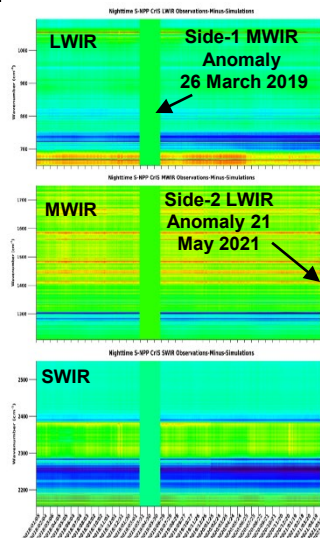
(1) Long-term radiometric observations-minus-simulations trending for SNPP from January 2018 to June 2021
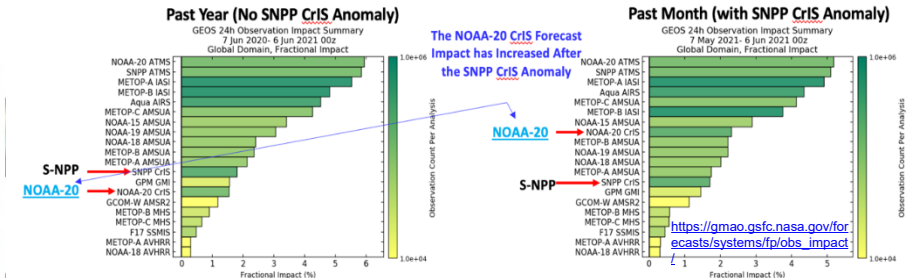
(2) The fractional Forecast Sensitivity and Observation Impact (FSOI) of satellite sensor observations assimilated by the NASA's GMAO model over the period of (a) 7 June 2020 to 6 June 2021 (past year) and (b) 7 May 2021 to 6 June 2021 (past month).

https://gmao.gsfc.nasa.gov/forecasts/systems/fp/obs_impact/

(3) Change in ZPD Location which has occurred following the Power cycle reset on May 25. Red and black dash-lines represents the new and previous ZPD location, respectively.
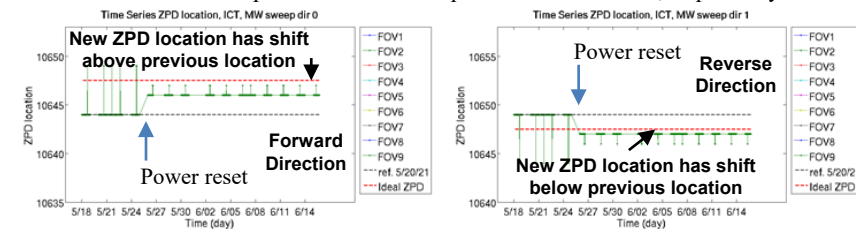
Accomplishments / Events:

- Created and delivered for deployment in the IDPS operations updated NOAA-20 and Suomi NPP DNB offset and gain ratios LUTs generated using new moon calibration data from June 10, 2021
- Improved the NOAA-20 DNB gain ratios analysis to reduce banding in the NCC images
- Processed with ADL the JPSS-2 VIIRS RDR files (500+ granules) created from the data acquired during JCT-2A: verified the initial prelaunch SDR LUTs worked as expected and the geolocation code worked well with the 10 Hz sample rate of the spacecraft diary data
- Prepared and submitted the NOAA-20 VIIRS SDR geolocation LUT update with improvements needed after the VIGMU deployment in IDPS, including the DNB realignment with band I1
- Submitted a new ADR for the Suomi NPP VIIRS RSB striping correction and after an approval from DRAT began analysis of the problem and its mitigation for bands M1-M4

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:

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/23/20	
Updated Cal/Val plan (address DPMS comments)			04/28/21	
Initial J2 LUTs: re-delivery			02/10/21	
Launch-ready J2 LUTs (final delivery), including Mounting Matrix Coefficients update based on the pre-launch mounting measurement report	Sep-21	FY22		SER + 6w (to ASSISTT)
Launch-ready J2 LUTs (final delivery)/MM-coeff.	Oct-21	FY22		To DPMS
JCT2 - Data System Event	Aug-21	Aug-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	Jan-21	01/31/21	Hardware failure/repair
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		
N20 DNB LGS-GAINS LUT #6 update (ADR9526)			01/28/21	
VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	On schedule	NPP & N20
Parallel OPS support	Dec-20	Dec-20	Dec-20 Jan-21	11/6-12/4/20 1/11-21/21
Verification of cloud implementation	Dec-20	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; Mar-21 Mx1; May-21 Mx2; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/20/20 Mx0 I&T 02/17/21 Mx1 SOL 03/08/21 Mx1 I&T 05/14/21 Mx2 I&T	Report
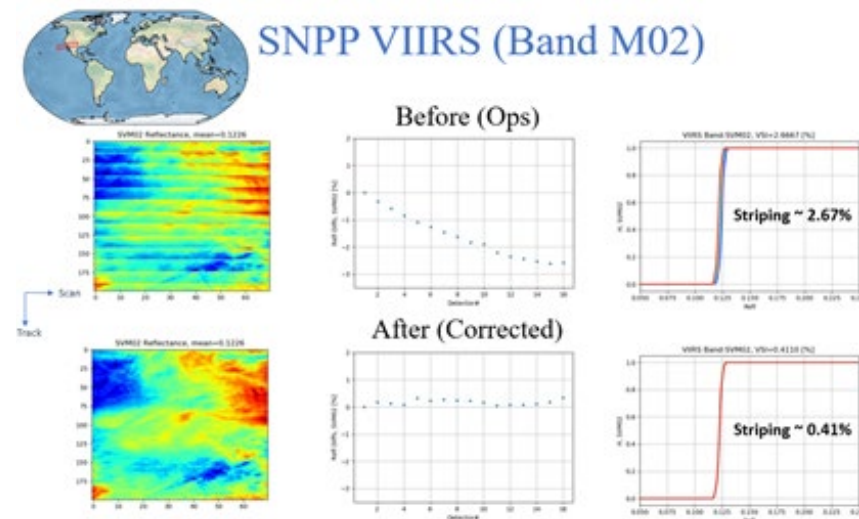
An example of striping observed in the Suomi NPP VIIRS band M2 TOA reflectance operational product from IDPS (upper panel) and the striping correction in a reprocessed product from ADL (lower panel) for the data acquired on 21 May 2021 over the Gulf of California

OMPS SDR

Accomplishments / Events:

- Delivered OMPS weekly Dark tables and NP solar irradiance bi-weekly LUTs.
- Drafted the J02 PLT data collection plan for OMPS Nadir system.
- Resolved the ADL code issue associated with OMPS SDR reprocessing on Bamboo and produced one month of SNPP OMPS data sets for the CLASS testing.
- Developed the OMPS dark count autocal code package to automatically generate orbital level dark count products. Further analysis is needed to validate the quality of the data.
- Continued the interface coding development for V-CRTM for global OMPS NM/NP simulations [see Fig.(a)]
- Assessed the performance of the unit vector code change for OMPS NM geolocation accuracy. A DR9633 is open and approved to proceed the code change [see Fig. (b)]
- Worked on the JPSS-02 OMPS NM backup resolution stray light LUT.
- Worked on replacing the blackbox process for AUTOCAL for L1A and L1B processes to support the autocal dark and solar processing.
- Continue the SNR analysis using the current algorithm.
- Presented the OMPS solar irradiance calibration at the STAR SDR leads bi-weekly meeting.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/18/20	
Updated Cal/Val plan (address DPMS comments)			04/29/21	
Updated JPSS-2 OMPS SDRs Pre-launch Characterization Report	May-21	Aug-21		
Launch-ready J2 LUTs (initial delivery), to ASSISTT	Dec-20	Dec-20	12/28/20	To ASSISTT
Launch-ready J2 LUTs (initial delivery), to DPMS	Jan-21	Mar-21	03/10/21	B2.3 Mx0 TTO
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	Aug-21	Aug-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	02/08/21	1/14/21 to ASSISTT
SNPP/NOAA-20 NM off-nadir geolocation error correction LUTs (ADR9361)	Mar-21	Apr-21	04/16/21 (to ASSISTT) 04/30/21 (to DPMS)	NM FAM LUTs might include nadir geolocation adjustment due to a possible corner issue. Then, NP geolocation should be adjusted too.
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	Dec-20 Jan-21	11/6-12/4/20 1/11-21/21
Verification of cloud implementation	Dec-20	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; Mar-21 Mx1; May-21 Mx2; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/20/20 Mx0 I&T 02/24/21 Mx1 SOL 03/08/21 Mx1 I&T 05/19/21 Mx2 I&T 06/15/21 Mx3 SOL	Report

(a) VCRTM Simulations and NOAA-20 NM Observations (one granule)
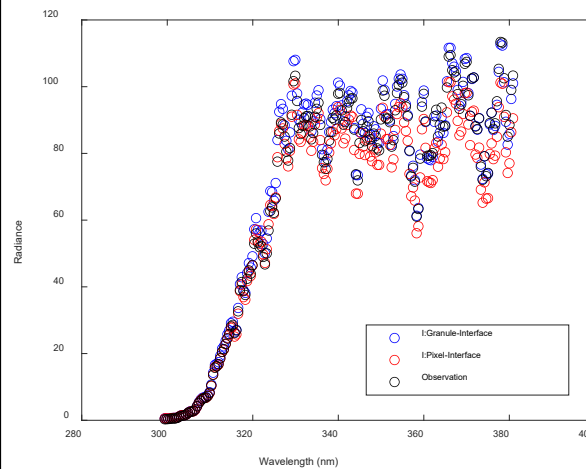
(b) NOAA-20 OMPS NM radiance against VIIRS radiance at 412 nm
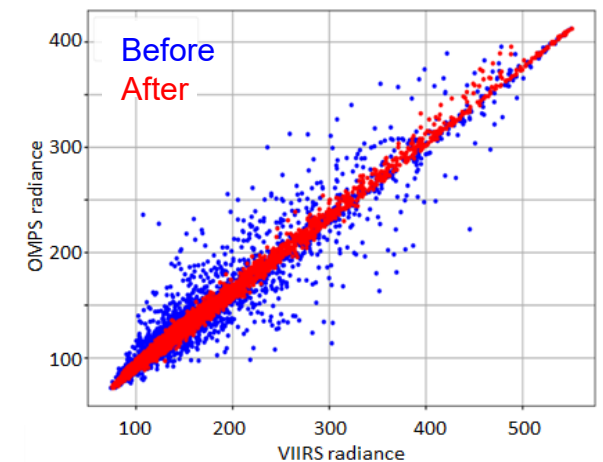
Fig. (a) Two interface processing are developed in the V-CRTM for OMPS Simulations, showing some discrepancies against OMPS observations. Further investigation is needed to understand the root cause. (b) The NOAA-20 OMPS NM displays a much better agreement with VIIRS radiance after the code change of geolocation unit vector is applied.

SDR Reprocessing

Accomplishments / Events:

- The implementation details in CLASS for the transition of the reprocessed SNPP SDR data has been finalized
- Discussion is ongoing to finalize the implementation details in CLASS for the transition of the reprocessed SNPP SDR data
- Completed the preparation of the data (ATMS_V1, ATMS_V2, OMPS_V1, CrIS_V2 and VIIRS) for test transition to CLASS (Highlights)
- Preparation of the OMPS-V2 data for test transition is ongoing (as of 6/24/2021)
- The version 2 SNPP OMPS SDR reprocessing is on going, NP of 01/02/2018~12/13/2019 is completed as of 6/24/2021)
- A journal letter entitled "Assessment of the reprocessed Suomi NPP VIIRS enterprise cloud mask product" has been reviewed and is under review
- A survey on future EDR reprocessing planning has been initiated

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:

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	Jan-21	Jan-21	The short delay was caused by one hard drive on UMD server Bamboo was down in Dec. 2020
ECM reprocessing for 2018-04-01 to 2020-03-11	Dec-20	Jan-21	Jan-21	Same as above
Present validation results on the reprocessed S-NPP SDR data at the AMS Meeting	Jan-21	Jan-21	Jan-21	
Transition of SNPP RDR and reprocessed SDR data to CLOUD	Jun-21	Jun-21	May-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-22		
Transition of reprocessed SNPP SDR data to CLASS/NCEI	Sep-21	Sep-22		

Data for Test Transition to CLASS

Sensor (Version)	Included Data Type	Period	Data Size	# of Files
ATMS_V1	GATMO, SATMS, TATMS	11/08/2011-03/08/2017	~0.91 T	1,048,356
ATMS_V2	GATMO, SATMS, TATMS	11/08/2011-10/15/2019	~1.36 T	1,565,125
OMPS_V1 NP	GONPO, SOMPS	01/25/2012-03/08/2017	~0.1 T	47,587
OMPS_V1 TC	GOTCO, SOMTC	01/30/2012-09/30/2018	~1.2 T	65,311
CrIS_V2	GCRSO, SCRIS, SCRIF	01/01/2015-01/31/2015	~2.0 T	16,789
VIIRS SDR	GDNBO, GIMGO, GMODO, GITCO, GMTCO, SVDNB, SVI01,SVI02,SVI03,SVI04,SVI05, SVM01, SVM02, SVM03, SVM04, SVM05, SVM06, SVM07, SVM08, SVM09, SVM10, SVM11, SVM12, SVM13, SVM14, SVM15, SVM16, IVOBC, ICDBG, IVCDB	Two days (04/01/2018, 04/02/2018)	~1.04 T	15,480

ICVS

Accomplishments / Events:

- Monitored S-NPP and NOAA-20 CrIS instrument health status/performance and generated near real time anomaly report to support CrIS SDR team on instrument troubleshooting.
- Developed a beta version of the ICVS vector webpage development within STAR IT web master (https://www.star.nesdis.noaa.gov/icvs-beta/index_icvs_vector_sc.php)
- Introduced Python programing language and its applications in ICVS instrument/data quality anomaly detection for JPSS instruments
- Added ATMS O-B time series interactive display web pages in icvs-beta pre-release site to support the improvement of ICVS static web page to vector page.
- Started developing VIIRS reprocessing SDR data quality checking toolkit to support VIIRS SDR team reprocessing data evaluation
- Kept developing OMPS/NM and GOME-2 comparison modules using SNO technique to support OMPS/NM LTM data quality monitoring task
- Fixed VIIRS operational RDR/SDR data gap checking and warning messaging script to handle the different data type keywords in SCDR inquiry and datasets
- Worked on the OMPS geolocation accuracy monitoring package based on research version developed by L. Wang (OMPS SDR team).

Overall Status:

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

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

Issues/Risks:

None

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Develop JPSS-2 ICVS prototype RDR portion (beta) (SNPP or N20 as proxy)	Jan-21	Jan-21	Jan-21	
Develop JPSS-2 ICVS prototype SDR portion (beta)	Apr-21	Apr-21	Apr-21	
Develop ICVS-Vector code prototype (beta)	Jun-21	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*

N20 CrIS MWIR FOV5 NEdT Anomaly
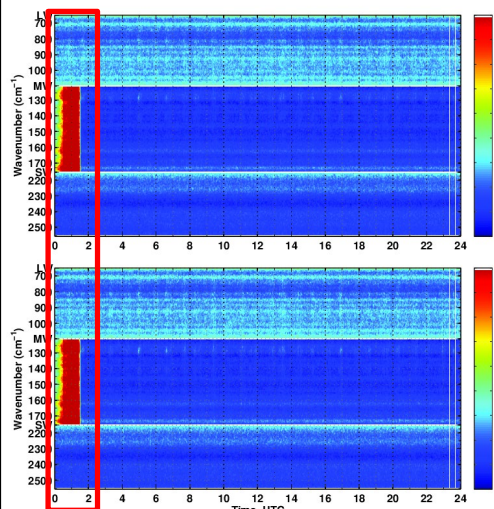
NPP ATMS K/KA-Band Shelf Temperature Observations (Blue) and Reconstructed Values (Orange) using Deep Learning Technique

VIIRS Imagery
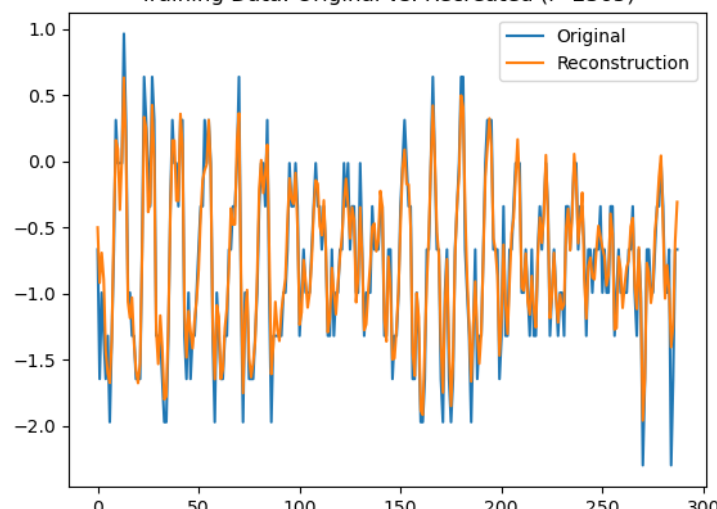
Accomplishments / Events:

- **NCC banding anomaly**: Work is progressing towards operations. The code changes will be in either Mx5 (SOL review/checkout: Aug-2021; I&T review/checkout: Sep-2021) or Mx6 (SOL review/checkout: Sep-2021; I&T review/checkout: Oct-2021) build; therefore, the review/checkout for the NCC updates will occur around Aug-Oct time frame.

- The Imagery Team did a review/checkout of EDR Imagery for the **Block 2.3 Mx 3 SOL Deploy Regression**.

- Feedback on **SNPP future status** was provided to S. Kalluri and the JPSS Program, suggesting that once J2 is launched, SNPP might be best moved to a new local time, to provide imagery in the large temporal gap between the current local equator crossing times.

- An updated **Program Management Review (PMR)** was submitted to the JPSS Program. The PMR includes a slight budget increase in FY22 for imagery tool updates, some of which are related to the change from 6 to 16 M-band EDRs, and some of which are related to increased imagery storage for VIIRS bands and products on CIRA's SLIDER display.

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

Issues/Risks:

Code-change solution for NCC banding over Antarctica and Greenland for both NPP and J01 will be followed thru into operations.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/22/20	
Updated Cal/Val plan (address DPMS review comments)			04/22/21	
DAP (ADR9466/CCR5415 VIIRS NCC Banding Anomaly) to DPMS			05/12/21	
N20 NCC LUT update DAP	Jun-21	Dec-21		To ASSISTT
N20 NCC LUT update DAP	Jul-21	Dec-21		To DPMS
Images of the Month to STAR JPSS Program/website and interesting Imagery to Social Media	Monthly	Monthly	ongoing	
Annual VIIRS Imagery performance report	Sep-21	Sep-21		Report
Verification of cloud implementation	Dec-20	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**; **Mar-21 Mx1**; **May-21 Mx2**; Jul-21 Mx3; Aug-21 Mx4; Sep-21 Mx5)	Sep-21	Sep-21	11/15/20 Mx0 I&T 02/17/21 Mx1 SOL 03/05/21 Mx1 I&T 05/18/21 Mx2 I&T **06/09/21 Mx3 SOL**	

Highlights: Image of the Month

Figure: Thunderstorms over Texas, 1956 UTC 14 June 2021, comparison

ABI band-14

VIIRS band-I5
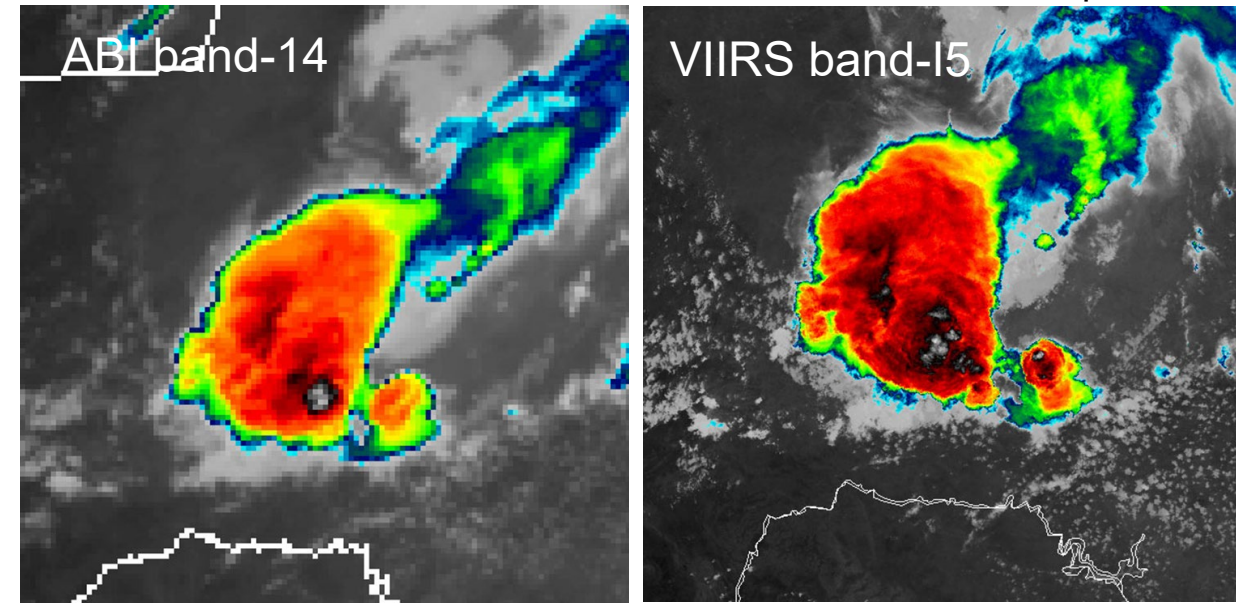
Clouds

Accomplishments / Events:

- The ECM team added a filter to ECM2 phase calc to remove ring of water phase pixels surrounding ice cloud - this issues bothers AMVs and is also seen in the Enterprise phase.
- The DCOMP team analyzed the impact of phase on COD and REF. It was found that incorrect Cloud Phase can lead to huge errors in DOMP products particular for effective radius. A possible solution would be to look into using the phase probability from ECM2.
- The Cloud team has trained Enterprise Cloud Mask (ECM) on VGAC. VGAC is a method of subsampling VIIRS data so it can be utilized or quick generation and assessment of proposed calibration or algorithm modifications as well as cloud climatological analysis
- A method was developed to correct erroneous detection of water clouds at the edge of cirrus clouds, and positive impact on ACHA performance was observed.
- The CBH team completed coding to generate new gridded 3-D cloud data (NetCDF) from the Enterprise cloud products and finished the first version of a new aviation website (introduced at a JPSS aviation initiative telecon in June). A manuscript on improved multilayer clouds using machine learning (trained with ABI and CloudSat/CALIPSO) was submitted to *JTECH*.

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

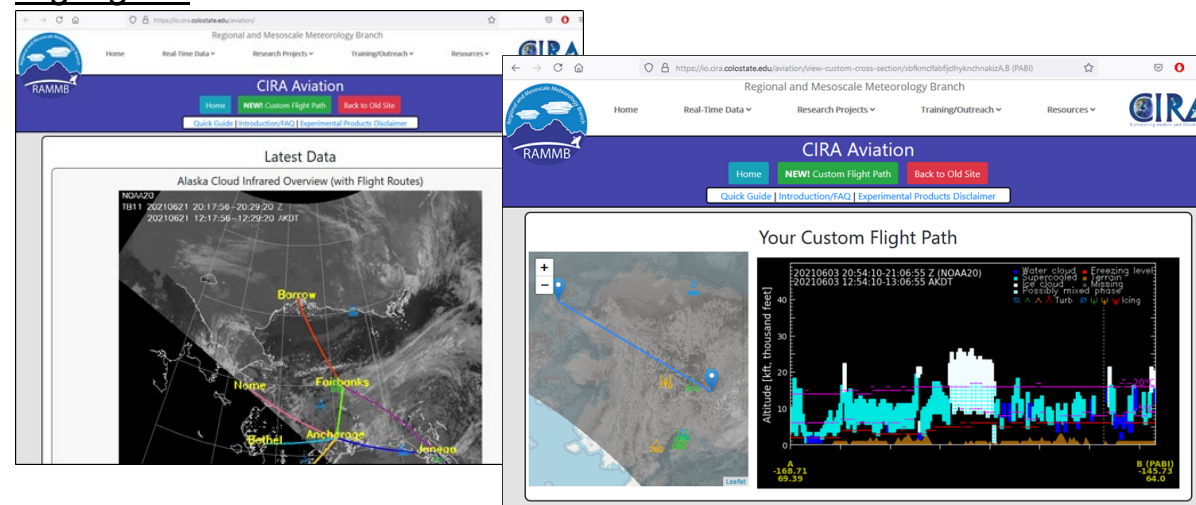## Milestones:

- ***See next slides***

Highlights:

Figure 1. A new aviation website including user-interactive capabilities to create random cross-sections has been developed. Gridded 3-D cloud fields from the Enterprise cloud products and ancillary data (NUCAPS and PIREPs) are newly generated with 16-bit integer information (NetCDF) for the website and future AWIPS implementations. The website is currently being tested locally at CIRA for further refinements and will be released for AK users next month, supporting the AK cloud demo.

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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/23/21	
Initial J1 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		
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	Feb-21	
Work with NCEP on ASR assimilation. Adjust mask as necessary	Mar-21	Sep-21		Waiting for ASR team assessment of new LUT
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	May-21	
Develop collaboration wtith 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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/23/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	Feb-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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/27/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	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	Sep-21		This is an ongoing assessment requiring large subset of data. Task is on track
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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			05/11/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			05/11/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	Jun-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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/23/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	Oct-21		Model dev and performance ready for VIIRS assessment Implementation to take several months
leverage DCOMP nighttime COD (DNB) to improve performance over IR-only	Sep-21	Sep-21	Feb-21	To ASSISTT
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	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/27/21	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream data testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	Feb-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:

- Completed the validation of NOAA-20/SNPP VIIRS merged AOD product
- Generated annual mean global maps of SNPP VIIRS AOD using reprocessed data on the Cloud
- Analyzed the impact of second lockdown in India on SNPP VIIRS AOD and found that there was no impact because smoke from fires dominated the aerosol signal
- Worked on multiple tasks related to ADP algorithm updates to improve dust and smoke dust mask (see next slide on milestone updates)
- Kondragunta led the aerosols and air quality working group session at the CEOS AC-VC annual meeting.
- Laszlo and Kondragunta provided material to JPSS program office on how to work with NASA PACE data so a 5-year plan can be built
- Collaborators at UCLA (Pablo Saide and his student) presented their analysis of SNPP VIIRS AOD and the feedback was positive. In fact, their work shed light on some weaknesses in NASA MAIAC AOD product that were addressed by NASA PI.

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	12/15/20	AOD
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/31/20	ADP
Updated Cal/Val plan (address DPMS review comments)			04/28/21	AOD
			05/10/21	ADP
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	
Algorithm Updates/Cal-Val Activities				
Details in next slides				

Number = 49995
Bias = 0.0109
StdDev = 0.1103
RMSE = 0.1108

Number = 60579
Bias = 0.0250
StdDev = 0.1211
RMSE = 0.1236

Merged SNPP and NOAA-20 VIIRS validation using AERONET as reference data

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	May 2021	
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	June 2021	
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	Jul-21		Work ongoing. 50% completed. Will be completed in July
Develop surface type-dependent thresholds over land	Jun-21	Jun-21	June 2021	
Exploring the use of trace gases product from TROPOMI to separate smog from smoke	Jun-21	Jun-21	June 2021	
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	June 2021	
Exploring the angular dependence of ADP by combing NOAA-20 with SNPP	Jun-21	Aug-21	TBD	Work ongoing. Will be completed in August
Annual algorithms/products performance report	Sep-21	Sep-21		

Volcanic Ash

Accomplishments / Events:

- Maintained and verified quality of S-NPP and NOAA-20 Volcanic Ash products (JPSS EDR and Volcat)

Overall Status:

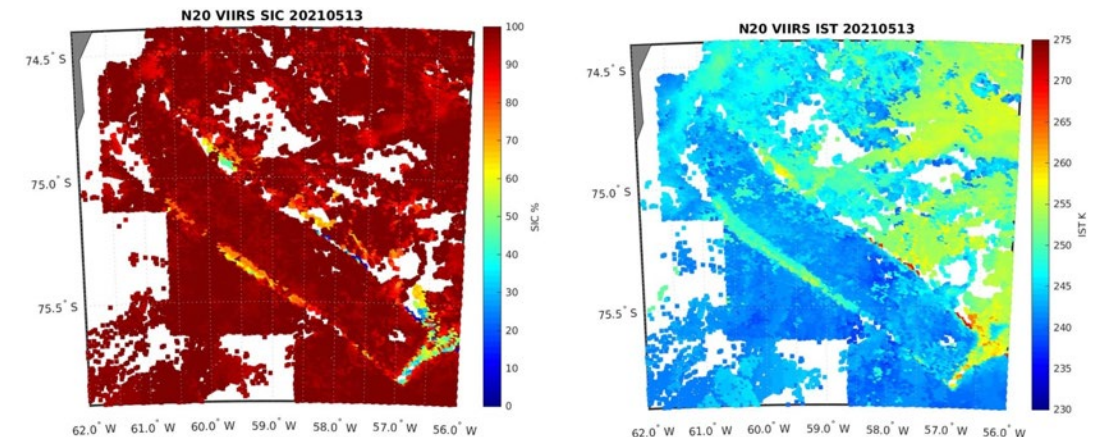|	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/15/20	
Updated Cal/Val plan (address DPMS review comments)			04/29/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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: *Volcanic Cloud Monitoring NRT imagery from CIMSS*

Cryosphere
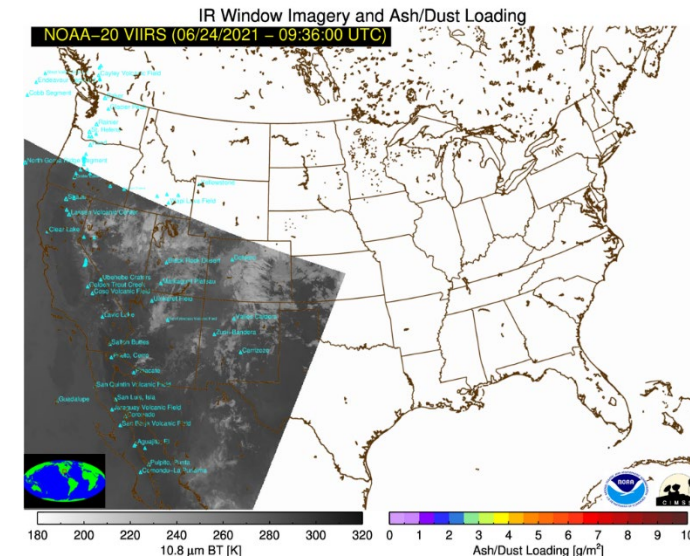
Accomplishments / Events:

- VIIRS Ice Concentration and Ice Surface Temperature Products Observe Iceberg A-76. Even though the JPSS ice products were developed for sea ice, not ice shelves, the iceberg can be observed in the ice concentration and ice surface temperature products. See figure.
- The list of offline VIIRS-based gridded global snow products has been complemented with a **daily map of snow cover anomalies**. The new product identifies areas where the snow cover was substantially more or less extensive compared to its mean state on a given day of the year.

Overall Status:

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

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

Issues/Risks:

None

Highlights:

NOAA-20 ice concentration (SIC, left) and ice surface temperature (IST, right) on 13 May 2021, showing the A-76 iceberg in Antarctica.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation/Comments
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/30/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-21		
Preparation for JPSS-2	Sep-21	Sep-21		
Transition VIIRS Enterprise snow algorithms to operations for ABI	Mar-21	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:

- Delivered code fix for Timestamp related bug reported in AF Mband and Iband to ASSISTT
- Evaluated the performance of the I-band Active Fire product during the Camp Fire event, including omissions due to heavy smoke
- Provided feedback on the new White Paper on Satellite Fire Detection and Smoke Capabilities for CONUS Users

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/30/20	
Updated Cal/Val plan (address DPMS review comments)			04/27/21	
Initial J2 Active Fires DAP (I-Band) to NDE			06/24/20	
Final J2 updates DAP to ASSISTT	Aug-21	Aug-21	Jun-21	
Final J2 Active 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		
Active Fires Patch DAP to NDE			12/01/20	

Highlights:
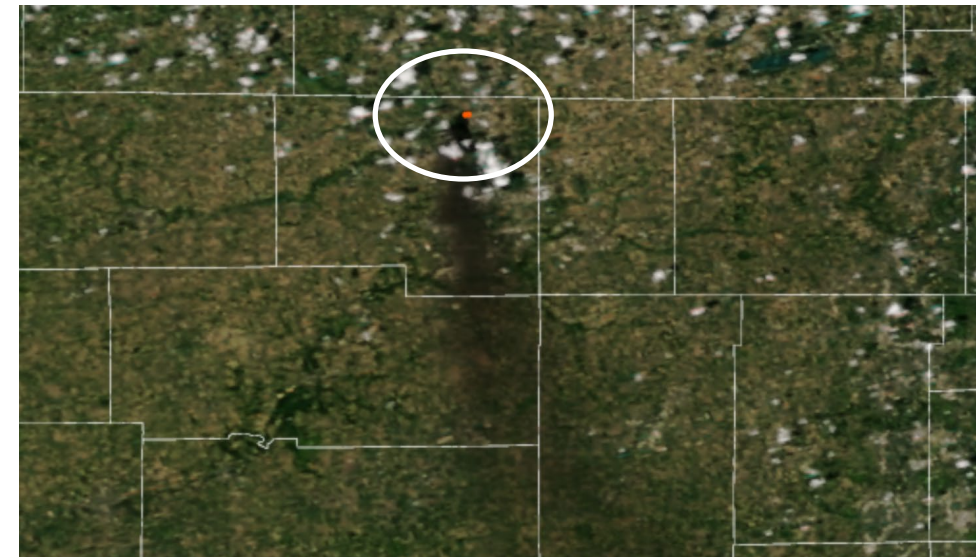
NOAA-20 VIIRS I-band detection of the Chemtool facility fire in Rockton, Illinois and the associated smoke plume on June 14, 2021 as show by JSTAR Mapper (https://www.star.nesdis.noaa.gov/jpss/mapper/)

Surface Type

Accomplishments / Events:

– STAR-UMD VIIRS Surface Type team has downloaded and processed S-NPP and NOAA-20 VIIRS granule surface reflectance data acquired in June 2021.

– The team is refining the 2020 global surface type map through postprocessing. An intermediate product is highlighted.

– The team has collaborated with the NOAA National Centers for Environmental Information (NCEI) and developed a data submission agreement for archiving the surface type product.

– The team is processing VIIRS fire products to produce global monthly and annual composites, which will be used to support fire related surface type change detection, i.e. burned area mapping.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/24/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
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. Generate global annual classification metrics	May-21	May-21	May-21	
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	Mar-21	04/01/21	10/1/20: SCR
Deliver AST-2019 to NDE	Nov-21	Nov-21		
Annual performance report	Sep-21	Sep-21		

Highlights:
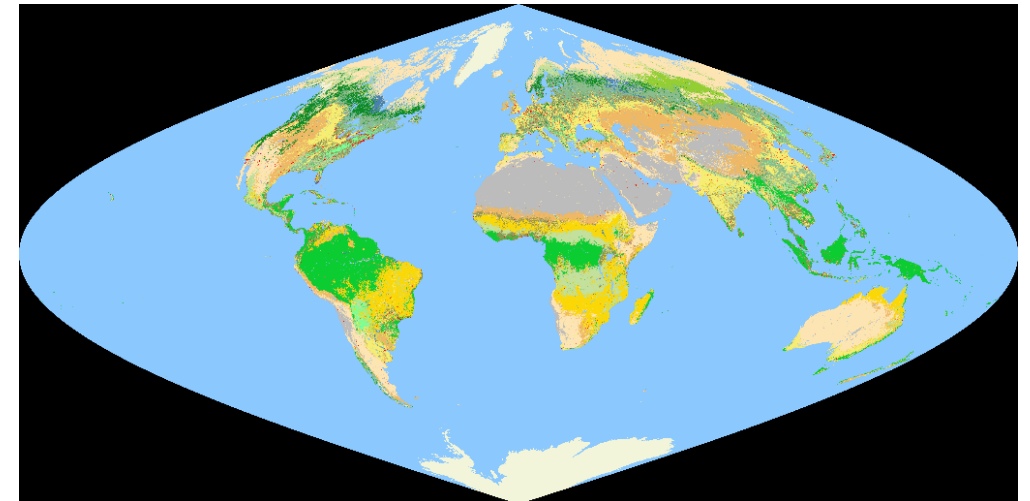
An intermediate global surface type product derived through postprocessing of an initial classification map derived using VIIRS observations acquired between January 1, 2020 to December 31, 2020

Surface Reflectance

Accomplishments / Events:

- Expanded the new developed netCDF version gridding tool for VIIRS Image band to generate the gridding indices for 500m resolution mapping.
- Referring to MODIS SR compositing algorithm, generated the experimental global gridded SR, and the true color daily image for the monitoring purpose.
- Performed the NOAA VIIRS SR and NASA VIIRS SR (VNP09) intercomparison, based on L2 test data and long-term L3 final data, respectively.
- Continue to optimize the AEROENT SR validation tool, and generated some preliminary validation results.
- Learned the update in the new delivered DAP from NASA team.
- Final J2 ready DAP to ASSISTT (by NASA team).

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/30/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Apr-21	04/19/21	downstream testing
Initial J2 ready DAP to CSPP			04/22/21	
Final J2 ready DAP to ASSISTT	May-21	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	04/19/21	
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		

Highlights:
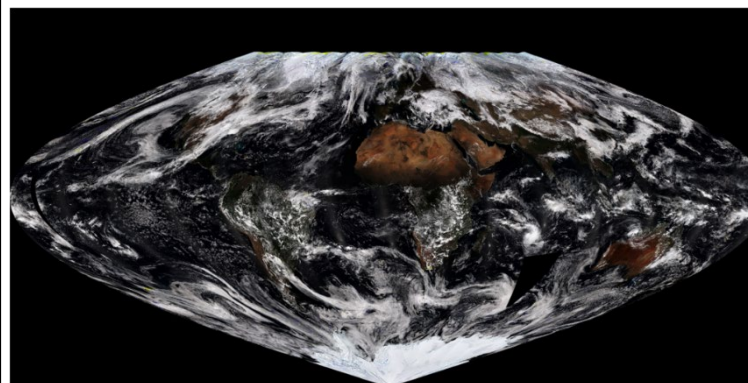
S-NPP VIIRS SR Ture color composition: M5 (R), M4 (G), M3 (B), Feb 5, 2020
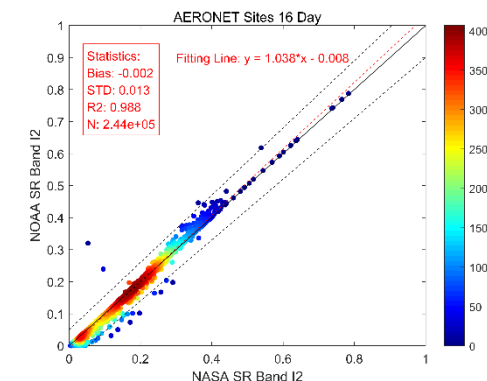
NOAA and NASA SR product Inter-comparison at selected AERONET sites for the confidently clear condition (20200205-20200221)

- NC version gridding tool routinely run for SR
  - For SR, a global map would be easier for checking issues like missing granules, abnormal pattern et. al.
  - NC version Gridding tool for VIIRS Image Band at 500m resolution has been developed.
  - The new gridding tool support parallel computing, significantly improve the time consuming and storage.
  - For multiple observations, MODIS SR compositing algorithm is used to select the best one.
  - Experimental L3 SR is routinely generated along with the global true color image.

- NOAA and NASA VIIRS SR Intercomparison
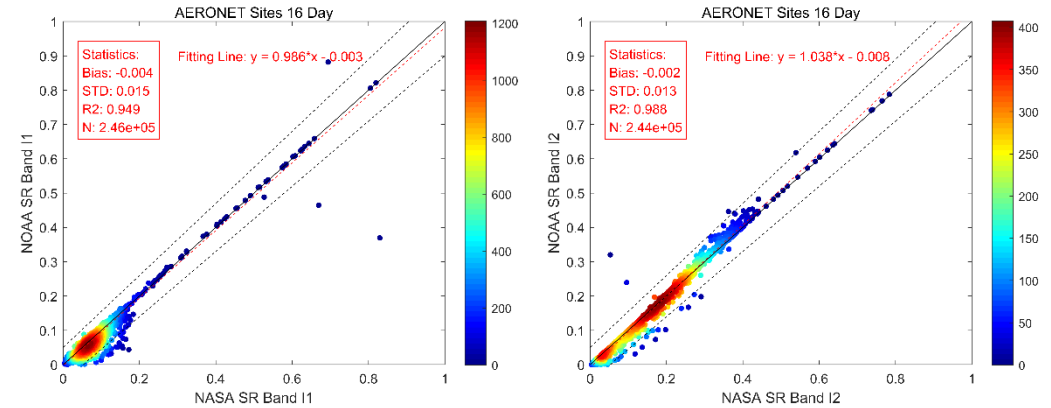
Data source: L2 test data from 20200205 – 20200221 at 80 AEROENT sites; Only confidently clear land pixels are selected.
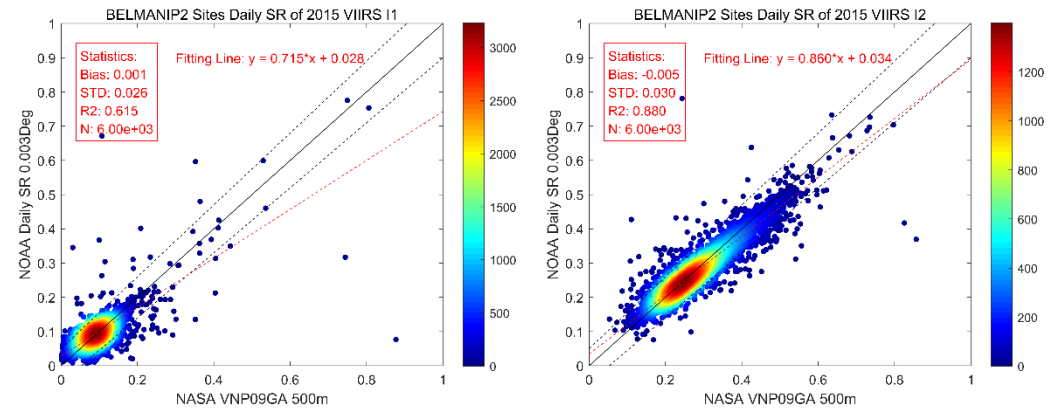
Data source: VNP09GA product from NASA, NOAA SR are composting using MA-SAVI algorithm. From 2015 Feb. to December, at 445 BELMANIP2 sites. Compared with the L2 test data, larger difference is found for the L3 data, deep dive analysis is on going.

VIIRS observation number count for each grid according to the gridding indices.
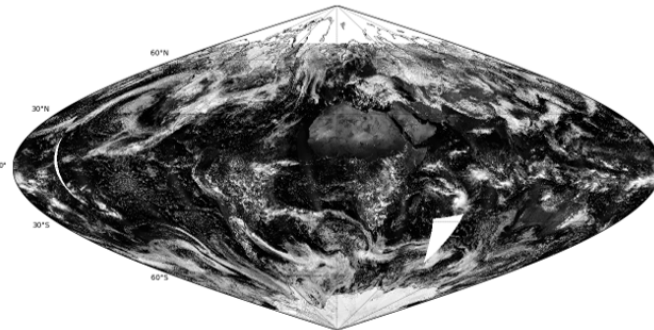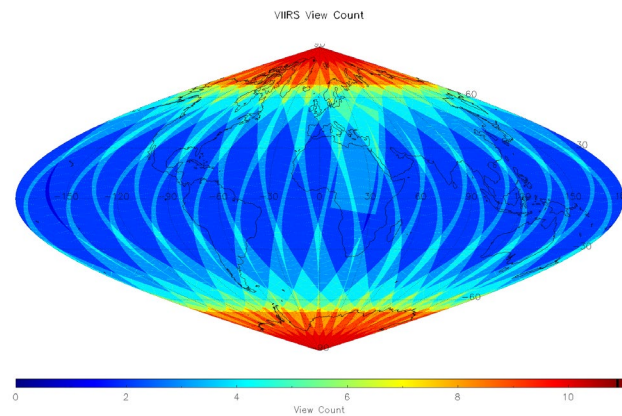
Global gridding VIIRS SR, I1 band, 20200205.

Land Surface Temperature

Accomplishments / Events:

- Updated the L3 gridded VIIRS LST composition method by taking into consideration of the pixel view zenith angle. (slide 2)
- Conducted the global test and evaluation of the updated composition method. (slide 3-4)
- Updated the L3 VIIRS LST science code to accommodate the format change of the tile to granule input.
- Prepared and delivered the L3 VIIRS LST DAP package to ASSISTT for the integration (Highlights).
- Investigated the LST uncertainty discontinuity issue through the analysis of the LST LUT.
- Conducted the regression tests by adding the noise to profile total water vapor contents.
- Finalized the manuscript for the book chapter.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
CalVal report on current SNPP and N-20 Product	Dec-20	Dec-20	Dec-20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/31/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates, ASSISTT delivery)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	May-21	May-21	
Experimental error estimate dataset	May-21	May-21	May-21	
Validation and improvement of L3 LST product	Jul-21	Jul-21	May 21	Delivered together with J2 ready 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)	Nov-21	Nov-21		

Highlights: L3 VIIRS LST DAP Package

Configuration file

```
config.ini
gridded_lst_config.pcf
gridded_lst_static.cfg
```

Readme

Test data with Input and Output

```
drwxr-sr-x. 2 yuling.liu smcd 1015 Jun  4 20:59 LST
drwxr-sr-x. 4 yuling.liu smcd    4 Jun  4 20:51 NOAA-20_20210505
drwxr-sr-x. 4 yuling.liu smcd    4 Jun  5 01:03 Results
(base) [yuling.liu@rhw1203 20210129]$ ls -ll
total 661
drwxr-sr-x. 2 yuling.liu smcd   2 Mar  3 20:25 Log
drwxr-sr-x. 2 yuling.liu smcd 962 Mar  3 18:18 LST
drwxr-sr-x. 6 yuling.liu smcd   6 May 27 00:10 NOAA-20_20210129
drwxr-sr-x. 12 yuling.liu smcd  18 Jun  4 18:19 Results
```

Output

```
GRIDDED-VIIRS-LST-D_v1r0_n20_s20210129_e20210129_c202106041757380.nc
GRIDDED-VIIRS-LST-N_v1r0_n20_s20210129_e20210129_c202106041757380.nc

GRIDDED-VIIRS-LST-D_v1r0_n20_s20210505_e20210505_c202106042113270.nc
GRIDDED-VIIRS-LST-N_v1r0_n20_s20210505_e20210505_c202106042113270.nc
```

The DAP package delivery:

The package is for the update of the L3 VIIRS LST science code.

It includes the following update:
1) added the associated pixel view zenith angle into the L3 LST output
2) added the handling of the tile to granule input in NetCDF format in replace of the binary format
3) moved some of the variables to the configuration file
4) modifed the LST composition method

The file updated:
1. configuration file: configure.ini
2. science code updates include:
    get_config_module.f90
    lst_composition_netcdf_module.f90
    lst_output_module.f90
    read_config_file_module.f90
    set_metadata_module.f90
    vlst_para_mod.f90

Two days of global data were provided for the test. They are located at /data/smcd7/yliu/L3_VIIRS_LST/NOAA20/20210129 and /data/smcd7/yliu/L3_VIIRS_LST/NOAA20/20210505 with the same directory structure.
1) LST folder:
    It contains the L2 granule VIIRS LST for the date.
2) NOAA-20_2021****
    It includes the Granule_info and Tiles_info, where Tiles_info file is in NetCDF format
3) Results:
    The output is located in this folder.

Update for the input and output:

Output update:
1) note that the view zenith angle is added to the L3 VIIRS LST output.

Science Code

```
get_config_module.f90
init_all_granule_netcdf_module.f90
julday_module.f90
lst_composition_netcdf_module.f90
lst_output_module.f90
main_vlst_l3.f90
nf90_handle_error_module.f90
read_config_file_module.f90
set_metadata_module.f90
type_kinds.f90
vlst_para_mod.f90
```

# L3 VIIRS LST Composition method flow chart
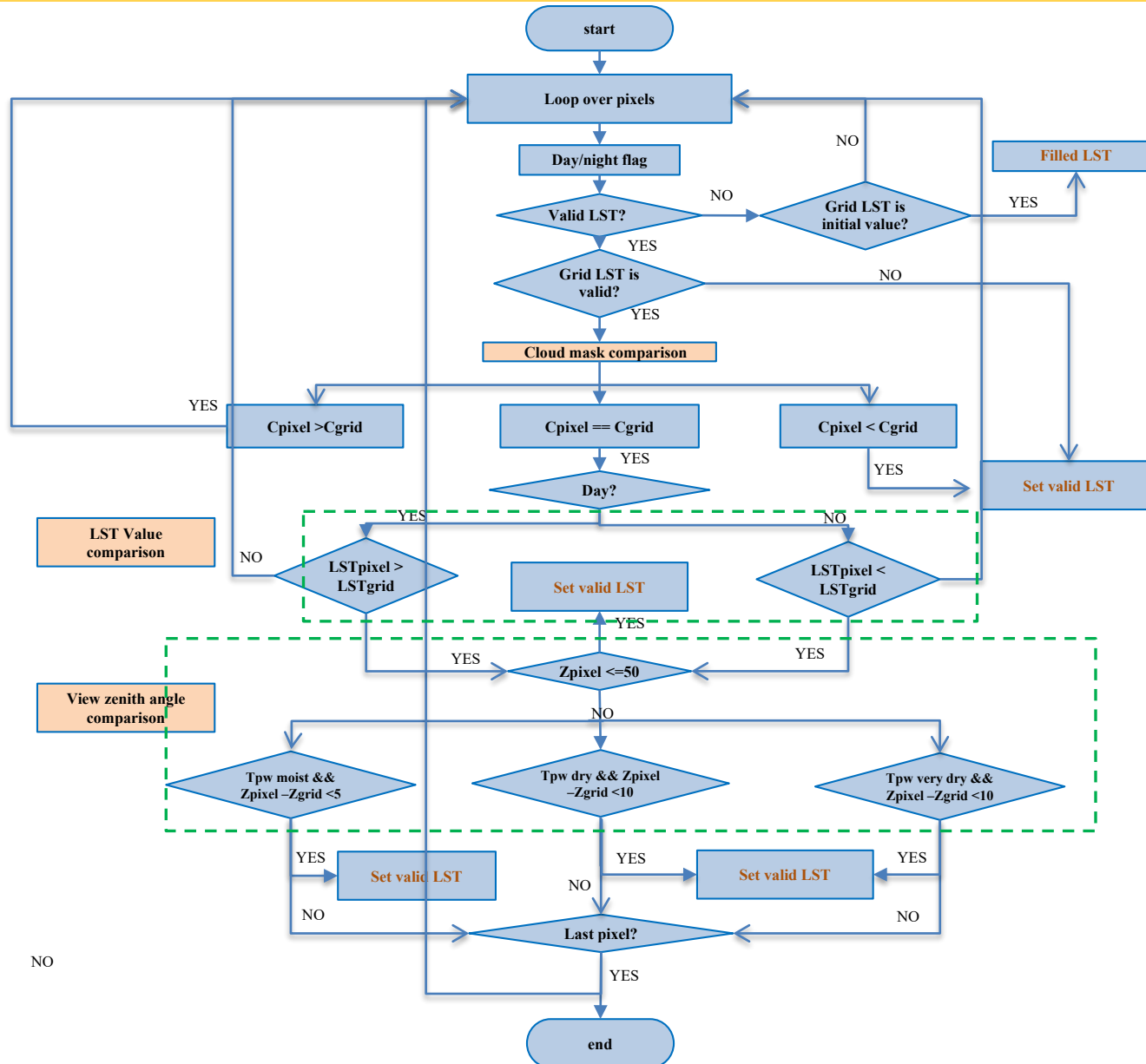
Criteria:

1. Less Cloud
2. Warmer LST at daytime and colder LST at nighttime
3. View angle within a certain range

L3 LST data is used to monitor the extreme weather conditions such as frost, heatwave, urban heat island etc.
For those applications, the maximum LST value at daytime and minimum LST value at nighttime are important criteria.
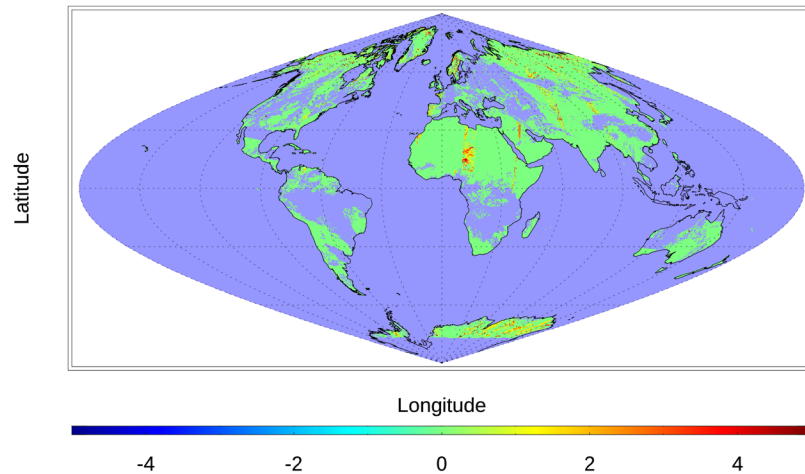
Gridded LST Image(test)
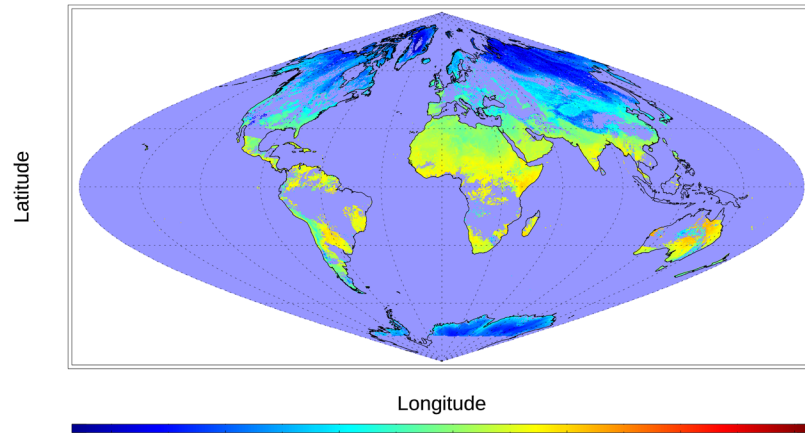
LST Difference Image (Test-Ops) on 20210129 Night

20210129-Nighttime
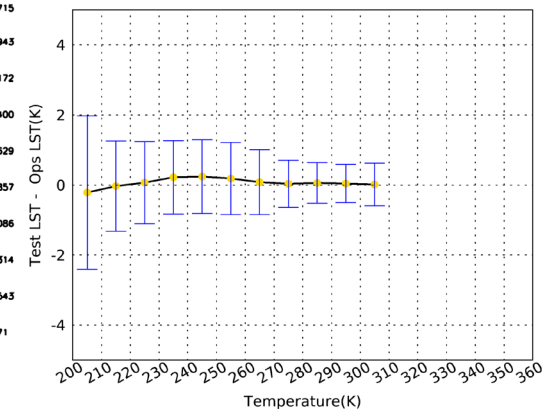
- The updated LST composition method was tested and evaluated against the current L3 data in operational for both daytime and nighttime. The data of Jan. 29, 2021 was used in the test.
- The LST value change due to the composition method update is statistically minor with a bias about 0.12 K
- The impact is mainly over polar region and areas with overlap in adjacent overpasses where the pixels with smaller angle were selected

Gridded LST Image(test)
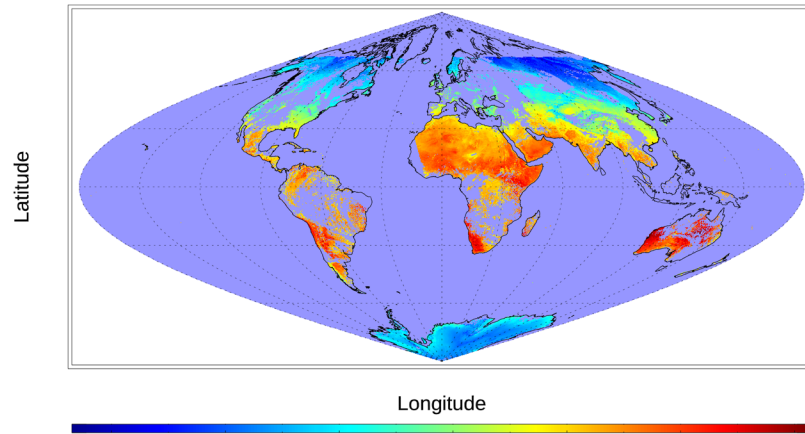
LST Difference Image (Test-Ops) on 20210129 Day
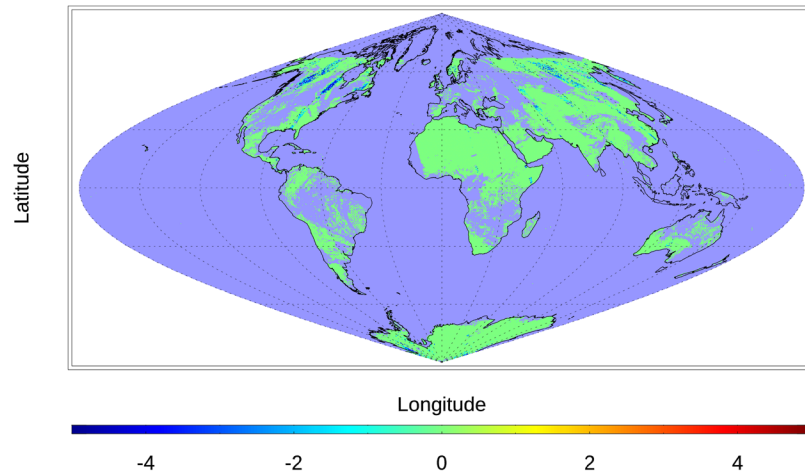
20210129-Daytime

20210129:Day LST Error over STZ
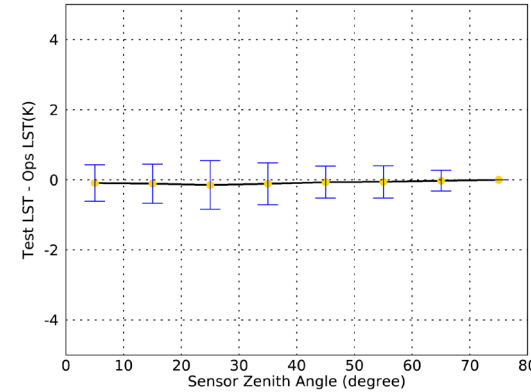
20210129:Day Error Bar over Latitude

20210129:Day

SAMPLES: 3978290
STD(K): 0.523
BIAS(K): −0.087
RMSE(K): 0.531
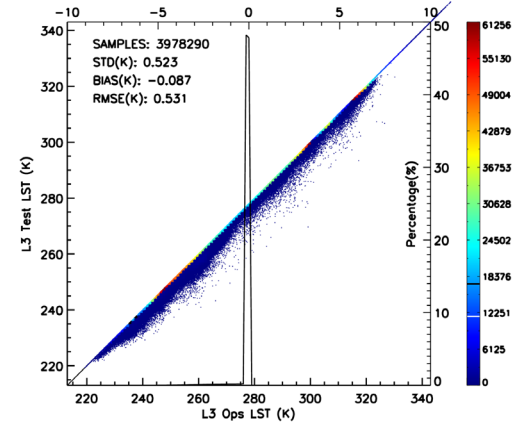
20210129:Day Error Bar over temp
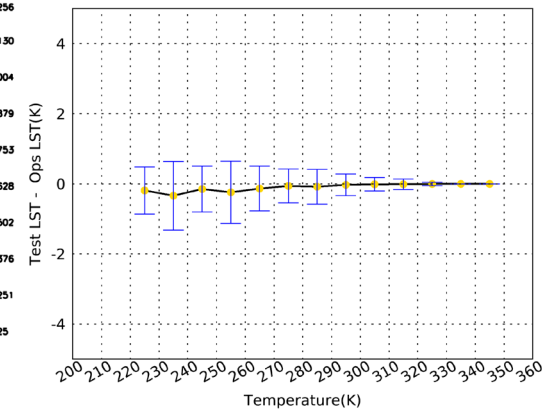
- The updated LST composition method was tested and evaluated against the current L3 data in operational for both daytime and nighttime. The data of Jan. 29, 2021 was used in the test.
- The LST value change due to the composition method update is statistically minor with a bias about 0.1 K
- The impact is mainly over polar region and areas with overlap in adjacent overpasses where the pixels with smaller angle were selected

Surface Albedo

Accomplishments / Events:

- Delivered the DAP package to ASSISTT including both L2 and L3 algorithms
- Developing VIIRS BRDF climatology: Testing on representative tiles to determine the data source, frequency, quality control, calculation method. The climatology data which will serve in the VIIRS BRDF backup algorithm
  - Compared the MODIS BRDF (longer history) and VIIRS BRDF (SRF match) counterpart to choose the climatology data source
  - Finding an optimal temporal frequency to reach balance between sufficient sample size and the ability to detect seasonal change
  - Analyzed the influence of retrieval Quality Level thresholds in the climatology generation for a compromise between the data quality and data coverage
  - Investigated the daily climatology, composited climatology, and aggregated climatology and shared the incremental climatology algorithm
- Finalizing the in-situ cloud detection algorithm

Overall Status:

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

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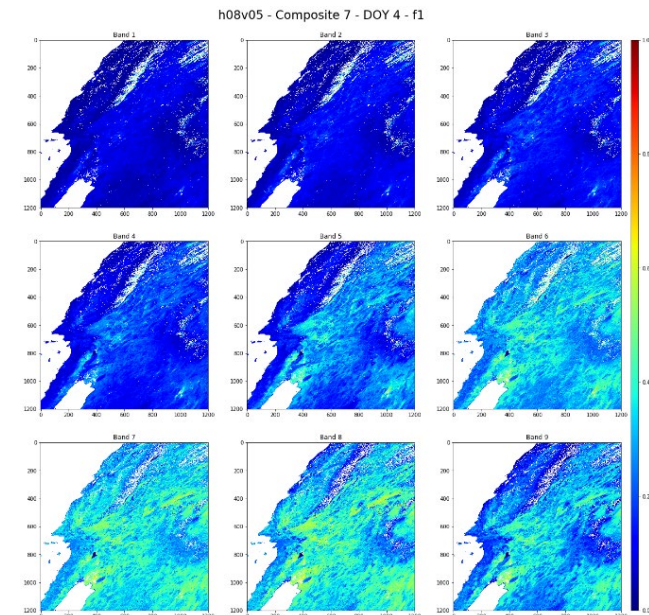
Issues/Risks:

None

Highlights:
- VIIRS BRDF climatology test result (h08v05, f1)

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
CalVal Report on current SNPP and N-20 data	Dec-20	Dec-20	Dec 20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/23/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates, ASSISTT delivery)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Code developed for BRDF computation	Mar-21	Mar-21	Mar-21	
Snow albedo LUT and update	Apr-21	Apr-21	Apr-21	
Sample BRDF data evaluation comparing to MODIS data	Jun-21	Jun-21	May-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)	Nov-21	Nov-21		

h08v05 - Composite 7 - DOY 4 - f1

Compare NASA MODIS and NASA VIIRS BRDF products from the same algorithm

- Select tile h08v05 as the study area
- Compare 4 days from 2012-2020: Mar 1st , Jun 1st , Sep 1st , Dec 1st
- Show RMSE and BIAS in three averaged parameters (fiso, fvol, fgeo)
- Mainly reveals the influence from the spectral function difference
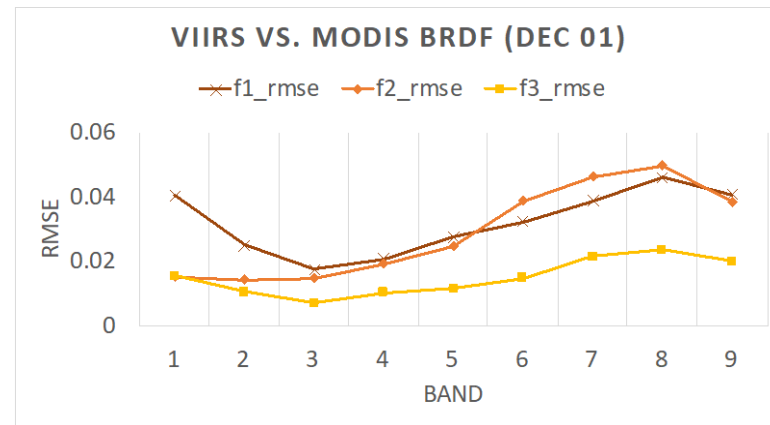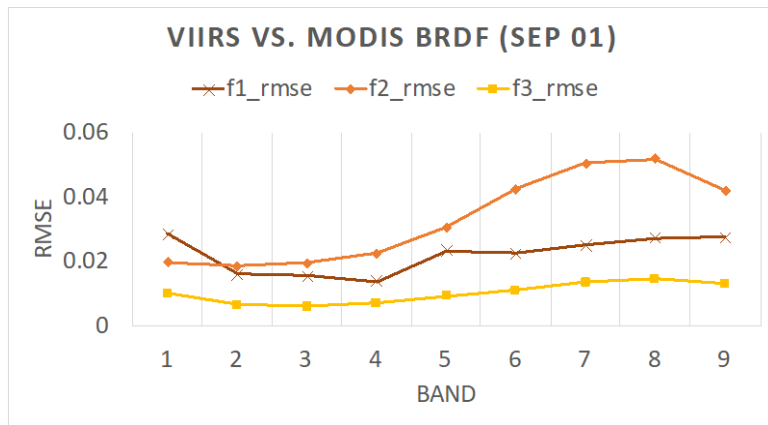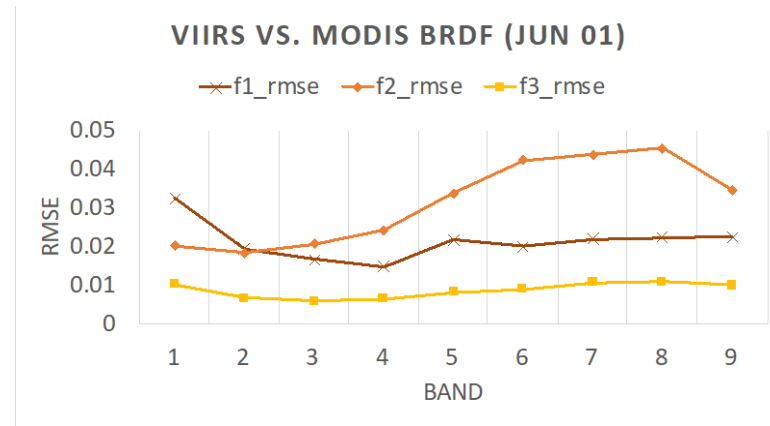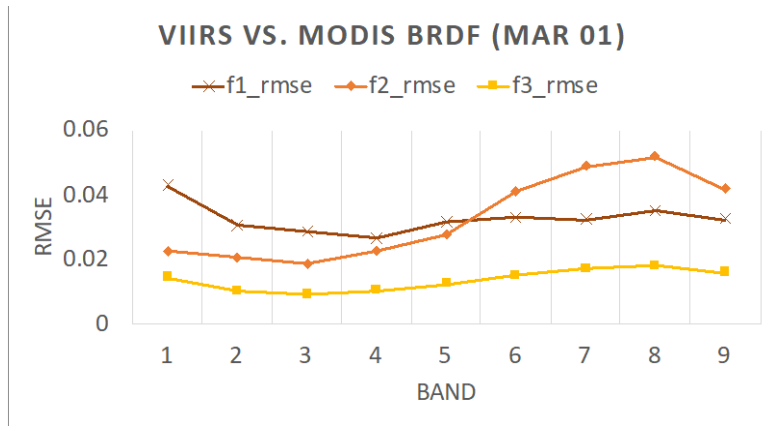

- BRDF climatology is needed in our backup algorithm to derive VIIRS BRDF
- We are choosing the data source between VIIRS BRDF and MODIS BRDF. The benefit of MODIS data include a longer historical record and easy access from GEE
- From this comparison, we determine to develop VIIRS BRDF climatology using VIIRS BRDF data although it has a shorter history because the spectral difference is non-negligible.

Figures show the percentage of pixels with valid observations when selecting different quality levels. The statistics has scanned 9 years' data and counted in daily frequency. Three sub-plots correspond to three representative tiles with different influence from cloud.

Therefore, for some heavy cloudy regions like Amazon (h10v09), the only choice is accepting the pixels with QF==3. Otherwise, the tile would have severe gaps in the winter and spring.
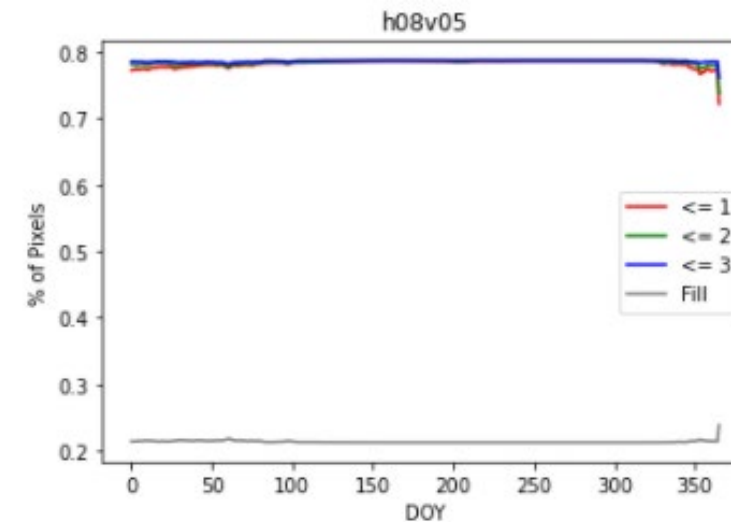
Note: The quality flag 0 means the best, 1 is good, 2 is degraded and then 3.
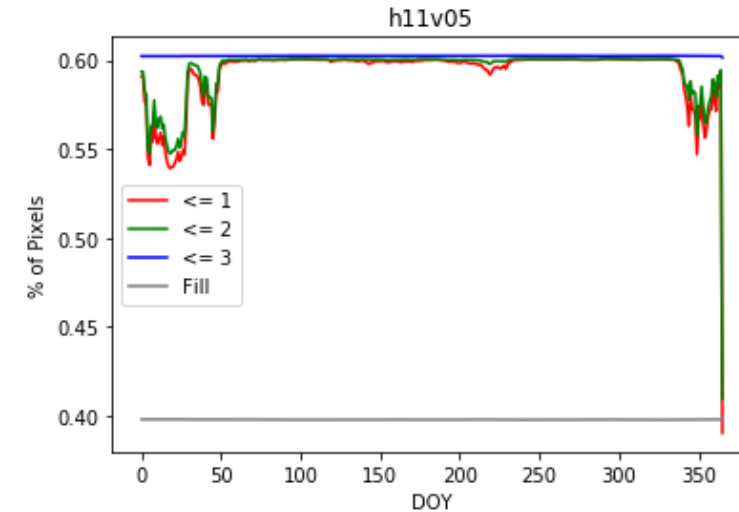
Eastern US
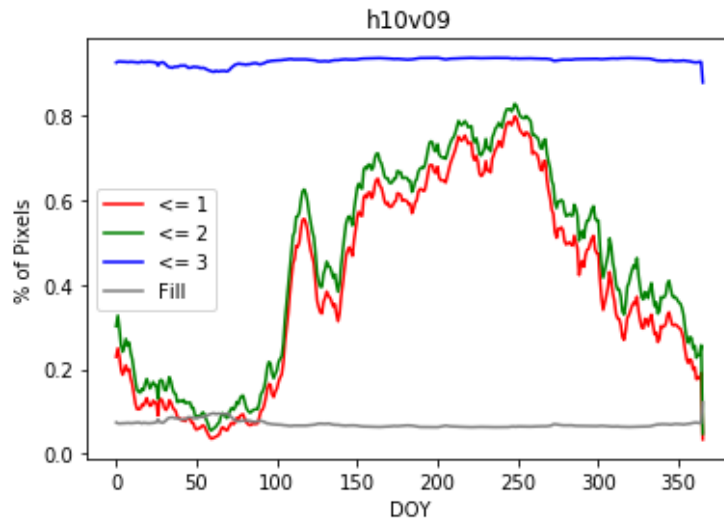
Amazon

Western US

- Composition period: The BRDF during this period could be is assumed to be stable, and all the retrievals are all used in calculating the center day's climatology.
- Increased sample number would improve the significance of statistics
- The incremental online algorithm is used in calculating the climatology
- Composited BRDF climatology is more spatially continuous and shows less gaps.

Daily

Weekly Composited
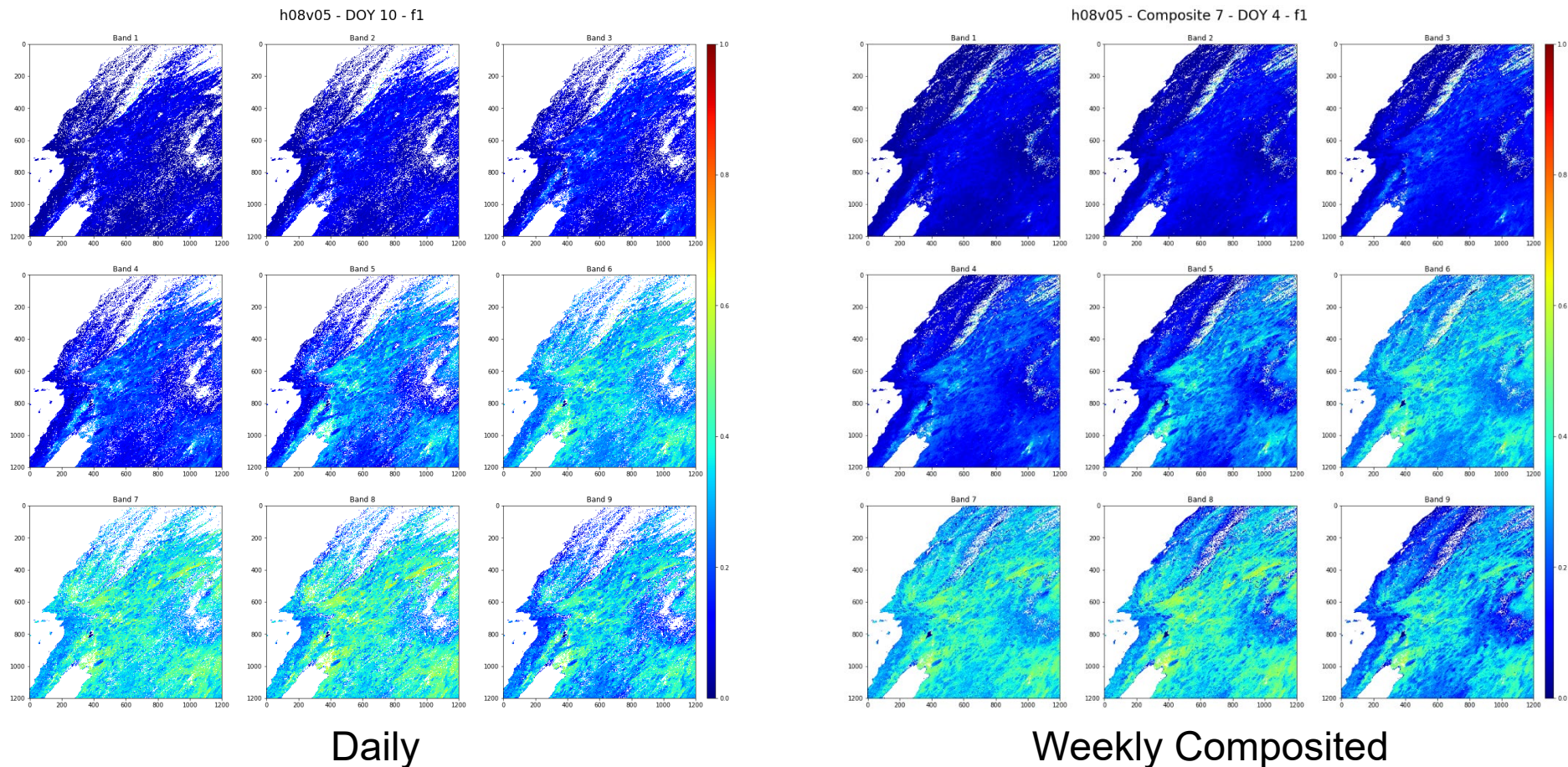
Using composite method in climatology generation

Pixel-level time series comparison: Center pixel in h08v05

Sample number of each band
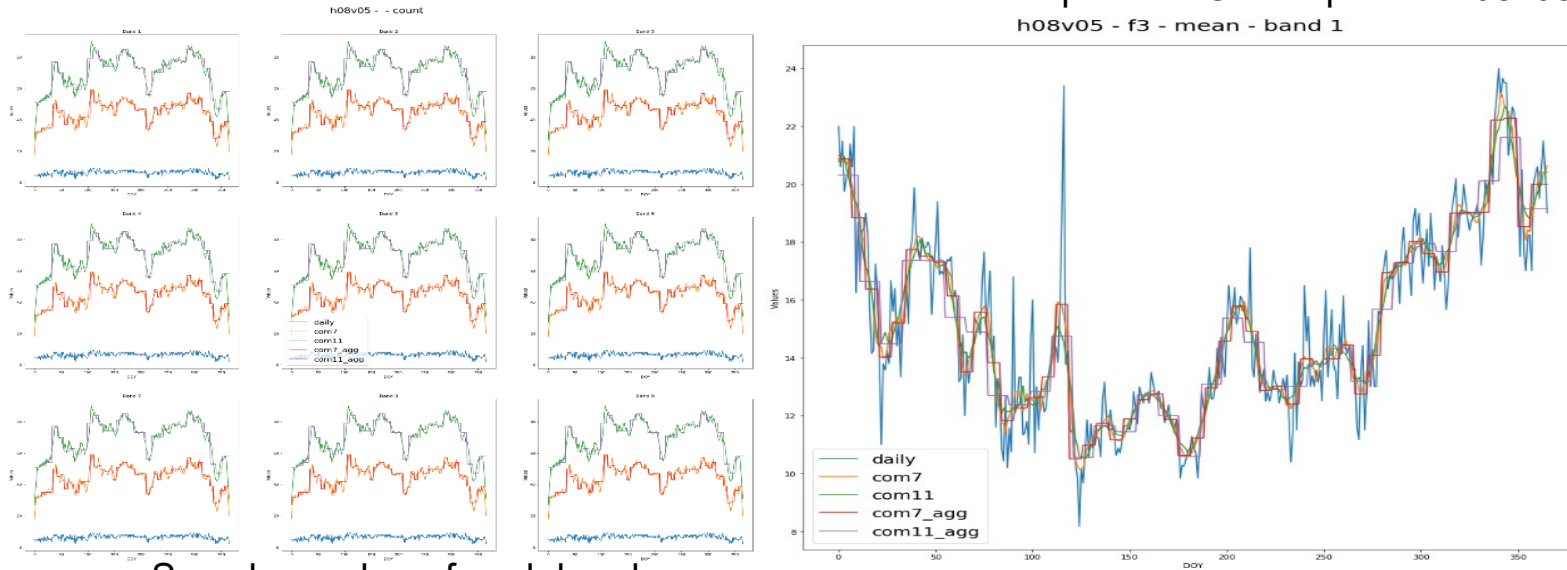
Composited climatology has reduced the daily fluctuation but could capture the seasonal variation trend. We aim to achieve a balance between the sufficient sample number (>20) and capability of capturing the seasonal variance features. 7-day composite is the final choice.
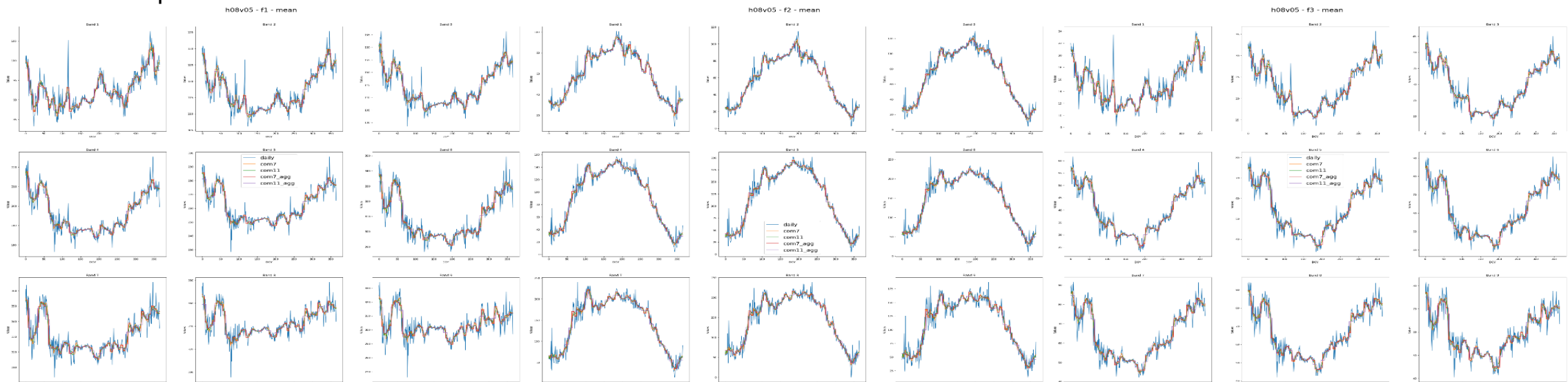
f1 of each band

f2 of each band

f3 of each band

in situ cloud detection algorithm improvement

- Improvement : the cloud detection accuracy and completeness
- What have been modified
  - Separate the parameter simulation and final cloud detection process
  - Adjust the post-processing thresholds
- Application:
  - Support the in-situ daily land parameter validations
  - Generating standardized in situ dataset including SURFRAD, ARM, BSRN, NEON with cloud mask included

bon_20180117 (Old)

bon_20180117 (New)
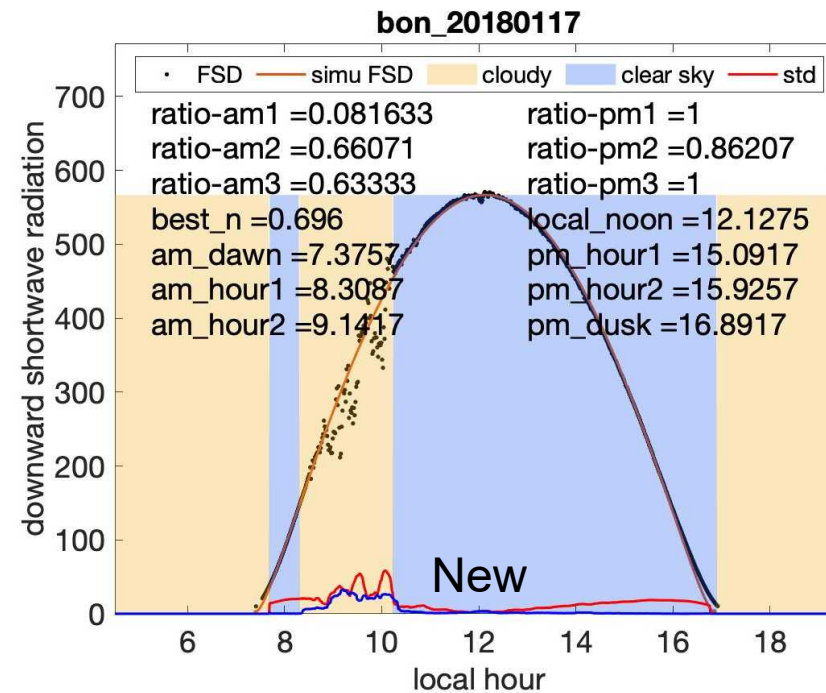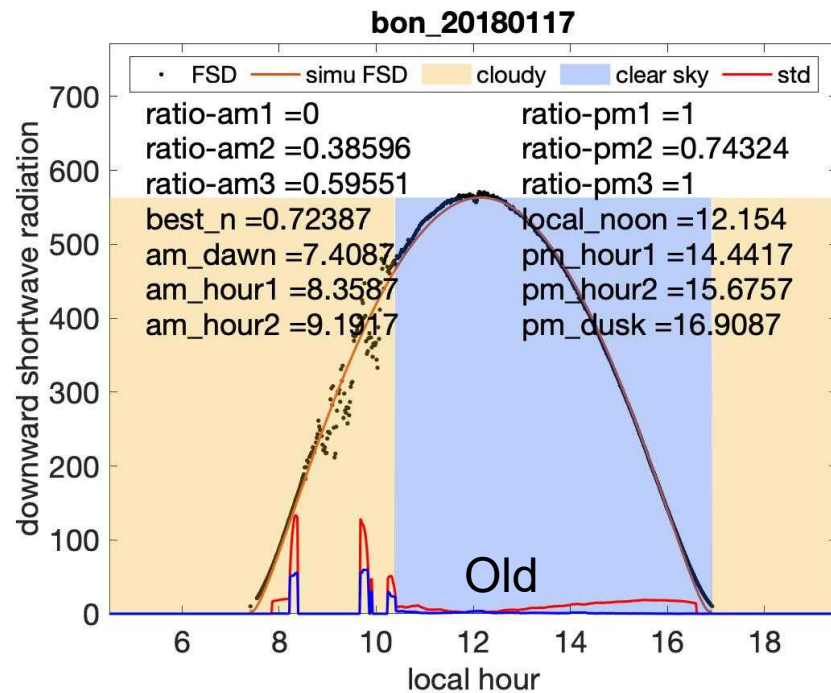
Accomplishments / Events:

- Produced VI using 7 and 16 days of GOES-R input. Compared GOES-R VI to VIIRS VI.
- Verified that intermediate EVIs are very similar between v3.0 and v2.3 GVF
- Troubleshooting discrepancies found between weekly surface reflectances in v3.0 and v2.3 GVF
- Final J2 DAP ready to ASSISTT
- Resolved issue of missing 2021 GVF browse images.
- Lapenta intern is making plots and finding correlation coefficients between GVF and PhenoCam GCC as part of GVF validation.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Evaluation of the V2.1 VI algorithms	Dec-20	Dec-20	Dec-20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	01/13/21	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	VI
			05/04/21	GVF
ATBD update, Detail Design Document Development	Jan-21	Jan-21	01/31/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Feb-21	Feb-21	04/19/21	
Software optimization update	Apr-21	Apr-21	05/17/21	Additional testing
Final J2 ready DAP to ASSISTT	Jun-21	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		

Highlights:

GOESR

VIIRS

Comparison of 16 day (20200401-20200416) GOES-R and VIIRS VI
- GOESR data are maximum clear or probably clear NDVI composite over 16 days.
- VIIRS data are from operational global VI product, clear or probably clear
- GOESR has more complete coverage of clear or probably clear data

- GOESR data are maximum clear or probably clear NDVI composite over 16 days.
- VIIRS data are from biweekly operational global VI product, clear or probably clear
- GOESR has more complete coverage of clear or probably clear data
- Some of the difference in frequency distribution may be due to differences in area considered

GOESR

VIIRS

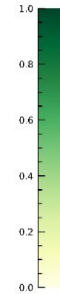NDVI histogram
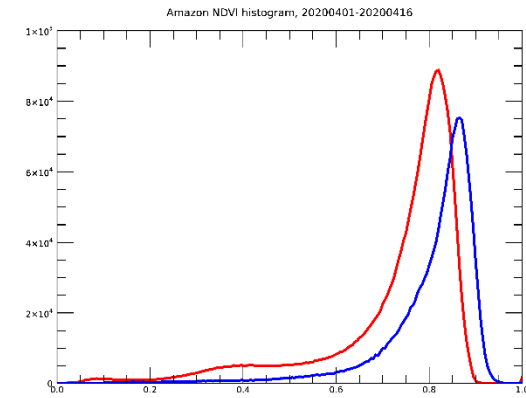
GOES-R
VIIRS * 5

- GOESR data are maximum clear or probably clear NDVI composite over 16 days.
- VIIRS data are from biweekly operational regional VI product, clear or probably clear
- GOESR has more complete coverage of clear or probably clear data
- Some of the difference in frequency distribution may be due to differences in area considered

GOESR   VIIRS   NDVI histogram

CONUS NDVI histogram, 20200401-20200416
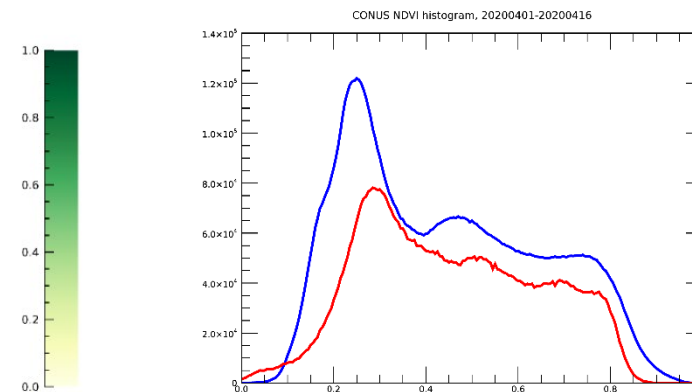
GOES-R * 5
VIIRS

Comparison over grids where both old (v2.3) and new (v3.0) weekly EVI have valid values

1 day of input data
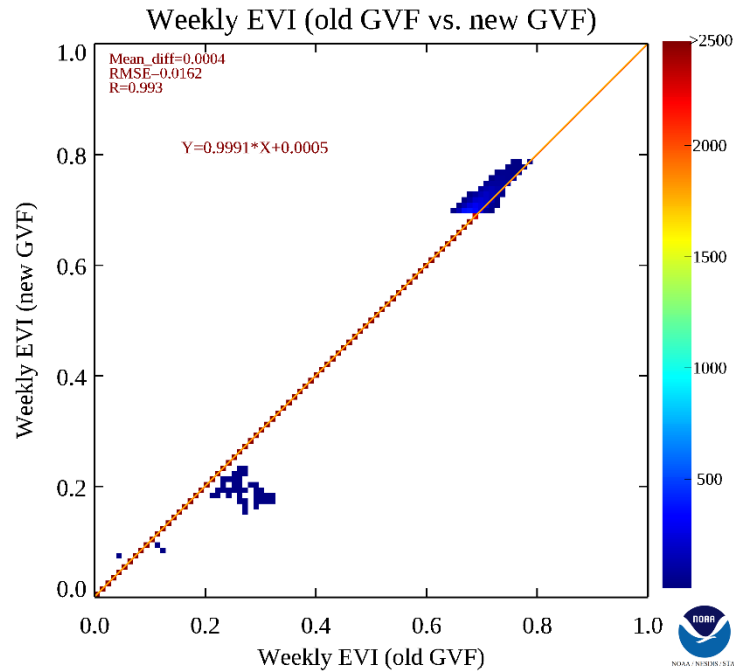
3 days of input data
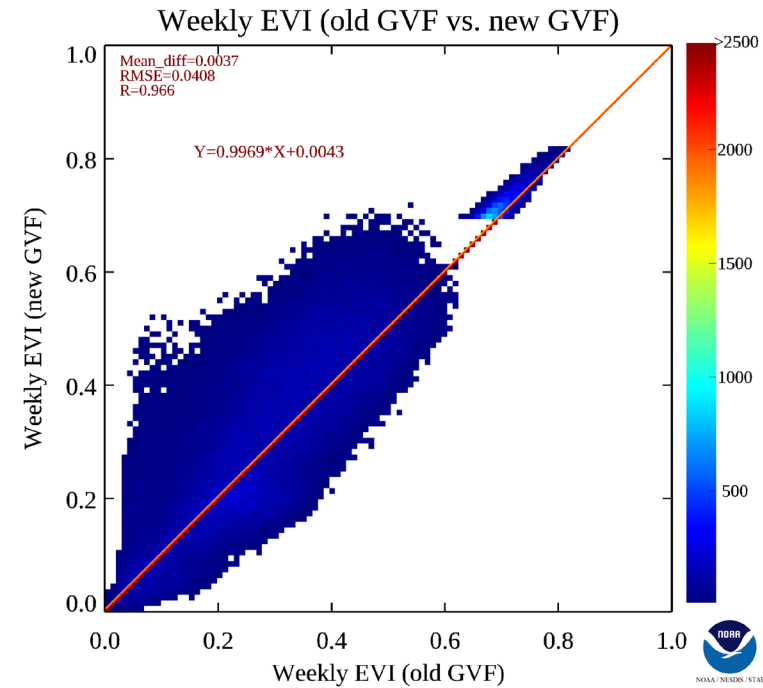
20200401

20200403

The V3.0 GVF daily EVI is very close to the V2r3 GVF daily EVI (RMSE=0.01, R=0.99)

Comparison over grids where both old (v2.3) and new (v3.0) weekly EVI have valid values

7 days of input data
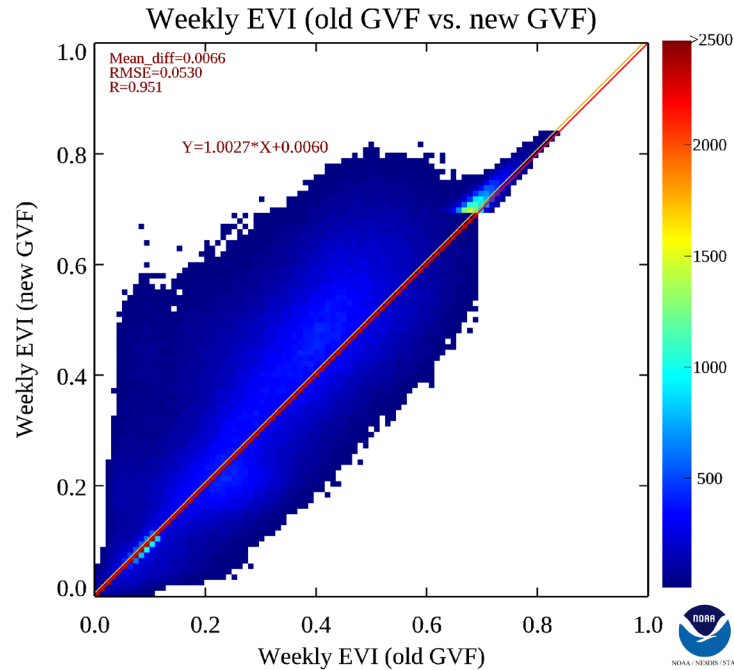
16 days of input data
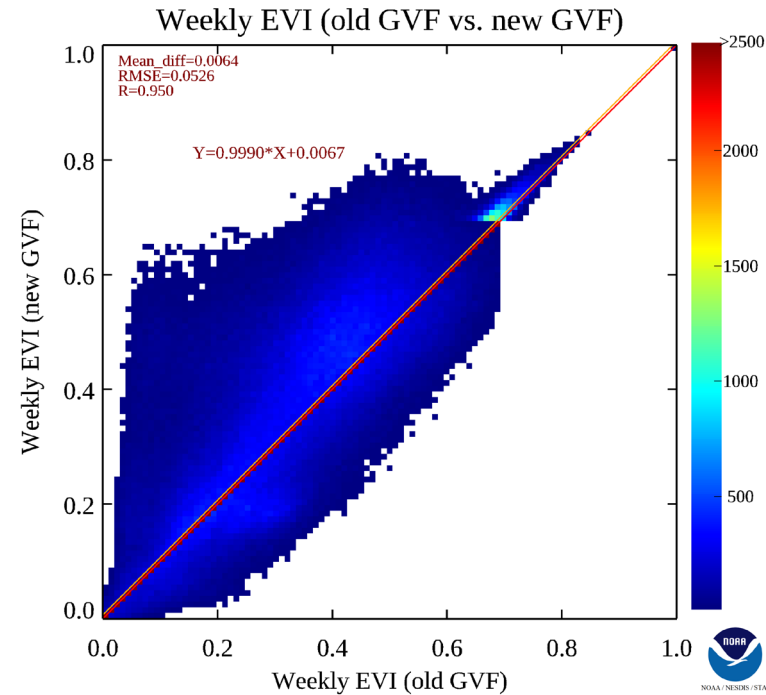
20200407

20200416

The mean difference between the V3.0 GVF weekly EVI and the V2r3 GVF weekly EVI is very small (0.006)
RMSE between the V3.0 GVF weekly EVI and the V2r3 GVF weekly EVI is relatively high (RMSE=0.05, R=0.95)

GVF browse images at JPSS EDR LTM

SNPP

NOAA-20
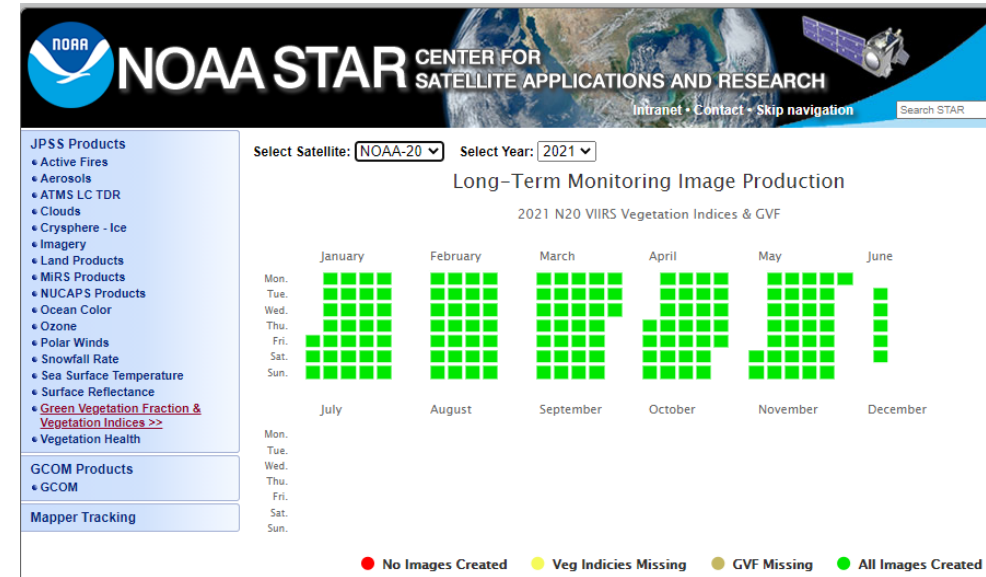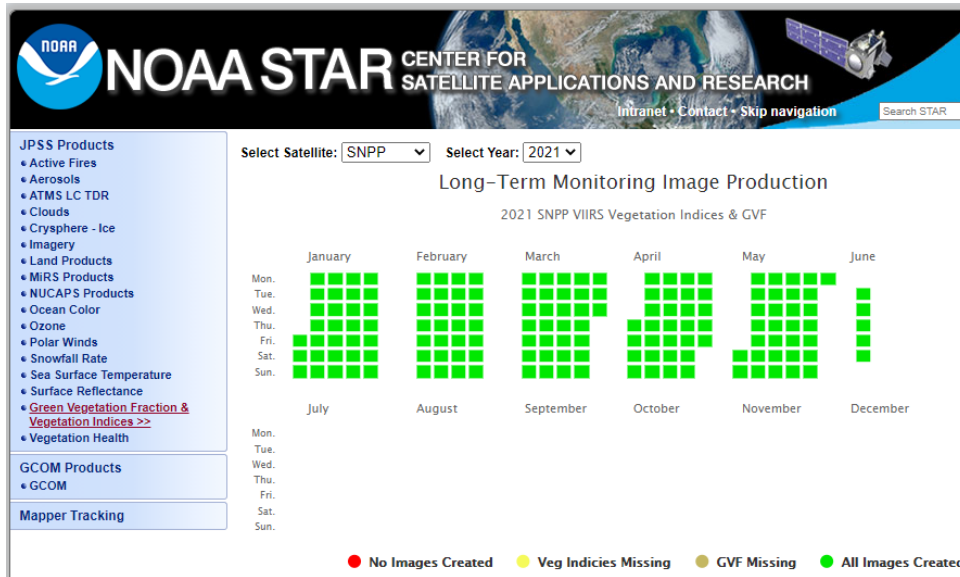
- Produced missing SNPP and J01 GVF browse images in 2021
- Reasons of missing images
  1. No input data available at SCDR when GVF data is not sent to SCDR on time
  2. The cron job didn't run when the Linux system is down for maintenance
- Solution: daily check if there are missing GVF browse images in the past 6 days in cron job

Vegetation Health

Accomplishments / Events:

- Checked to confirm current J2 DAP is still up-to-date with regards to system requirement and if we need to update the climatology. Through investigation, we confirmed 9-year climatology is not mature enough, and current climatology is still the best solution; Therefore we have no plan to update J2 DAP;
- The re-compositing paper entitled "A novel re-compositing approach to create continuous and consistent cross-sensor/cross-production global NDVI datasets" has been published (Highlighted);
- Worked on drafting a new manuscript on locust activity vs VH indices;
- Generated a series of data and figures of VIIRS/VHP-1 and -4, -16 km resolution products, covering June 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			

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/29/20	
Updated Cal/Val plan (DPMS comments)			04/23/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Apr-21	Jul-21		N20 final DAP
Final J2 ready DAP to ASSISTT	Jul-21	Sep-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Feb-22		
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		
NDVImax/min & BTmax/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		

Highlights: Re-Compositing Paper Published

A novel re-compositing approach to create continuous and consistent cross-sensor/cross-production global NDVI datasets

Wenze Yang [ID][a], Felix Kogan[b], Wei Guo[a] and Yong Chen[b]

[a]IMSG, NOAA/NESDIS/STAR, College Park, USA; [b]Center for Satellite Applications and Research, National Environmental Satellite Data and Information Services (NESDIS, National Oceanic and Atmospheric Administration (NOAA), College Park, MD, USA

ABSTRACT
The longest Normalized Difference Vegetation Index (NDVI) time series produced from the National Oceanic and Atmospheric Administration (NOAA) Advanced Very High Resolution Radiometer (AVHRR) has ended in 2017. At some point in the near future, all AVHRR sensors will be retired. To maintain continuity and consistency of this global data set, it is imperative to extend NDVI from other sensors, especially the operational Visible Infrared Imaging Radiometer Suite (VIIRS),

Ocean Color

Accomplishments / Events:

- Ocean Color team presented SDR Calibration methodology and status to JSTAR program management and VIIRS SDR Calibration team at a collaboration meeting on 8 June 2021 as part of an effort to ensure there is no duplication of effort across the teams and to increase sharing of lessons learned.
- OC Team at NRL continues to work Aeronet-Ocean Color operations and monitor SNPP and NOAA-20 performance at WavCIS. They also provided the OC NOAA Team with an overview of their 2021 NOAA Cal/Val Cruise support from earlier this year. They are currently troubleshooting issues discovered at the WavCIS site.
- OC Team at CCNY continues to compare VIIRS OC with in-situ reflectance data for several type of water conditions. They report that in many cases the 671 nm band on SNPP-VIIRS looks biased high in comparison with GER and WaveCIS data for coastal waters. This is being investigated.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	01/19/21	
Updated Cal/Val plan (DPMS comments)			04/29/21	
Update MSL12 LUTs and various coefficients for J-2	Jun-21	Jun-21	Jun-21	
Complete testing/verification of J-2 OC data processing	Sep-21	Sep-21		
Final J2 ready DAP delivery (include NPP/N20 updates) to CW	Dec-21	Dec-21		cc ASSISTT
Complete MSL12 v1.40 preparation and implementation	Jun-21	Jun-21	Jun-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	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		

Highlights: Capabilities for Ocean Color Cal/Val Cruise Planning from NRL supporting 2021 cruise.
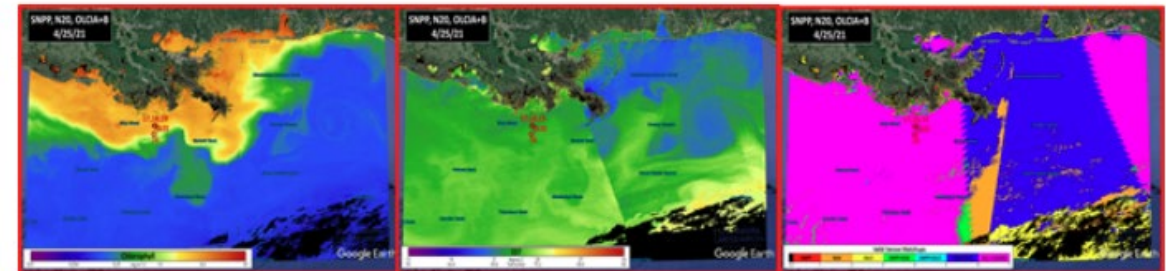
Daily near-real-time merged SNPP, N20, OLCIA and OLCIB satellite images from April 25, 2021 provided to ship for planning (chlorophyll-left, Sea Surface Temperature-middle, valid sensor matchups-right). Images were displayed in Google Earth and stations for the day were overlaid.

Sea Surface Temperature

Accomplishments / Events:

– Following delivery of ACSPO v2.80 to ASSISTT in Sep'20, ASSISTT plans to deliver it to NDE in Jul'21. It is expected that NDE will go operational with 2.80 in Oct'21.

– Getting ready for its operational implementation, JPSS SST Team started reprocessing (reanalysis, RAN) of full-mission NPP and N20 SST records, and negotiations with PO.DAAC to archive

– The plan is to have full VIIRS SST RAN3 ready by Oct'21, so that users will have access to consistent, seamless record of VIIRS SSTs

– The major improvements in v2.80 include 1) adding thermal fronts; 2) mitigating hi-lat warm biases of several tenths of a degree observed in ACSPO 2.61; 3) factor of 3 reduced file size (typical 2.61 L2P data size is ~10TB/yr/platform; now reduced to ~4TB/yr/sensor); and 4) improved cloud screening, to minimize false-alarms in dynamic areas of the ocean

– The 2.80 will serve as initial and at the same time final J2/N21-ready ACSPO DAP. It will be employed to initially process N20 data. Tweaks after analyses of several months of N21 data are expected to be included in ACSPO v2.90 planned for delivery from SST to ASSISTT in Aug'22

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:

CAC badges of 4 main SST developers were let expired by the STAR Resource Management Division. Two are badged 3 weeks later, two remain without badges/VPN access. This delays deliverables by at least a month

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/15/20	
Updated Cal/Val plan (address DPMS review comments)			04/21/21	
Initial (same as Final) J2 ready DAP to NDE (include NPP/N20 updates)	Apr-21	Jul-21		ACSPO 2.80
ACSPO 2.90 DAP to ASSISTT	Aug-21	Aug-22		ACSPO 2.90
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Dec-21		Will be omitted because 2.80 is initial and at the same time final J2-ready DAP
Improved clear-sky mask, SST fronts) to support data fusion (ACSPO 2.90)	Aug-21	Aug-22		Next ACSPO version will be J2-tweaked
J2 ACSPO and Cal/Val Readiness	Sep-21	Oct-21		Delayed by expired CAC cards
Support N20/NPP SST Cal/Val & fixes	Sep-21	Oct-21		Delayed by expired CAC cards
Continue archival w/PO.DAAC/NCEI. Work w/NCEI to complete holdings	Sep-21	Oct-21		Delayed by expired CAC cards
Maintain SQUAM, iQuam, ARMS, match-up codes, RAN infrastructure. Improve and optimize	Sep-21	Oct-21		Delayed by expired CAC cards
NOAA SST Cal/Val Tools ready to monitor N21 SST	Sep-21	Oct-21		Delayed by expired CAC cards
Annual algorithms/products performance report	Sep-21	Oct-21		Delayed by expired CAC cards

Highlights:

– Thermal fronts have been added in ACSPO v2.80 by multiple users' requests, particularly Fisheries

– Thermal fronts are reported as two extra layers: 1-bit fronts flag (yes/no), and front intensity (K/km)

– Despite adding two extra layers, data size is reduced by a factor of ~3, which is critically important for data archives (PO.DAAC and NCE), data users, and data producers

VIIRS Polar Winds
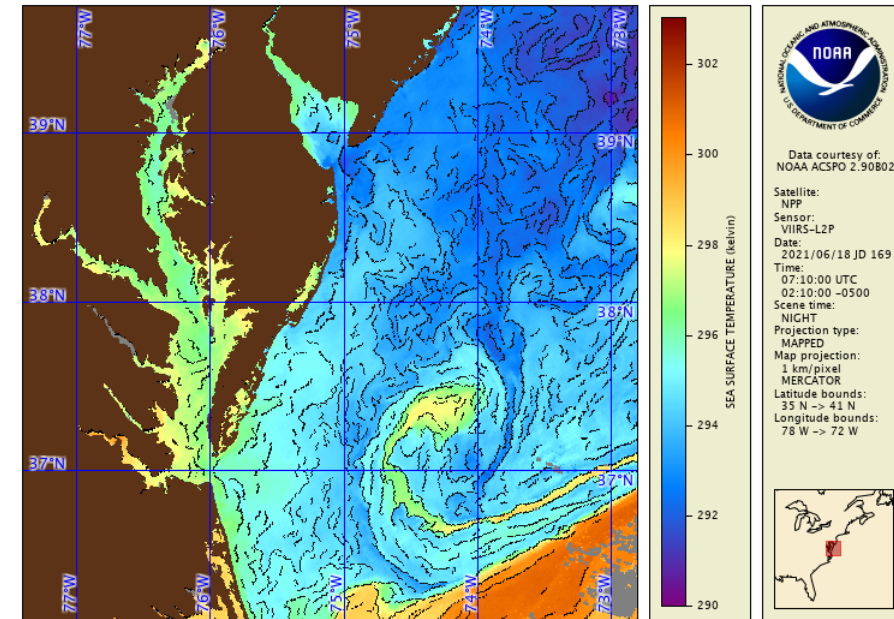
Accomplishments / Events:

- Since early 2021, CIMSS has been producing Atmospheric Motion Vectors (AMV) from the use of the VIIRS shortwave infrared (SWIR) band at 2.2 μm (M11) with the heritage winds algorithm. This month we have performed extensive validation studies. Overall, the results show good agreement with rawinsondes, and slightly better than the Aqua MODIS SWIR winds.

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:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/30/20	
Updated Cal/Val plan (DPMS comments)			04/23/21	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Jan-21	Mar-21	04/01/21	downstream testing
Initial J2 ready DAP to CSPP			05/26/21	
Final J2 ready DAP to ASSISTT	Mar-21	Mar-21	Mar-21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Nov-21	Nov-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	Jun-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		

Shortwave infrared (SWIR) winds from NPP-VIIRS on 15 June 2021, 09:41 GMT.
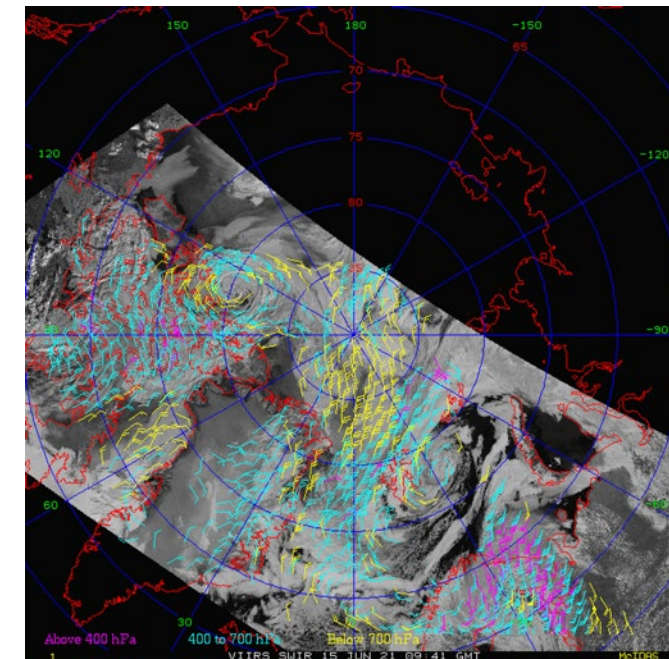
Accomplishments / Events

- Continued work on (1) NUCAPS algorithm changes and implementation of LW/SW radiance use (no MW) following IDPS plans on switching from side 2 to side 1 (expected to be on June 21), (2) completed regeneration of FG all-sky and clear regressions steps and the CAMEL emissivity LUT implementation, (3) Evaluation of NUCAPS and CLIMCAPS total ozone over the South Pole and Boulder, Colorado, (4) GML-NESDIS trace gas Theme 1 activities, staged 4 focus days of NUCAPS global orbital products, (5) a set of rigorous comparison tests to verify the NPROVS temperature profile agree with those obtained from the NUCAPS "SIMSTAT" code, (6) the NUCAPS versions for mission-long reprocessing, (7) the SARTA RTA updates for implementing Ammonia retrievals, and (8) the microwave fast forward model for the IASI-NG augmentation.

- Participated and presented at the NESDIS-GML Quarterly Workshops held on June 17 (Theme 2, Ozone, WV) and June 21 (Theme 1, Trace gases).

- Team members also worked on the *BAMS* manuscript revisions based on reviewers' recommendations, "Utility of Satellite Retrievals of Atmospheric Profiles in Detecting and Monitoring Severe Weather Events at NOAA" *(Kalluri et al.)*.

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:

Figure. Comparison of NUCAPS and CLIMCAPS global O3 product for two contrasting seasonal environments. NUCAPS system uses McPeters (2007) a-priori (figures on the left column), and the physical retrieval produces an ozone product as expected (middle column). The spatial patterns match well with the CLIMCAPS retrieval. The NUCAPS team provided collocated NUCAPS and CLIMCAPS matches for 8 days to NOAA-GML for ozone product validations with O3SNDS for 2020 Antarctic spring to summer transition time period. Further improvements to ozone a-priori (climatology using data through 2015) is in progress.

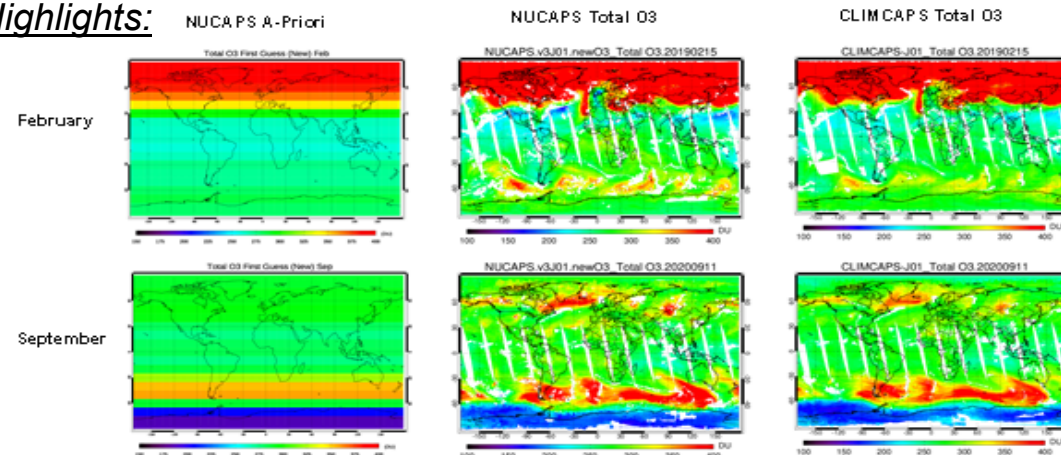| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: CO2 (S-NPP & NOAA-20)	Dec-20	Dec-20	12/17/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/30/20	
Updated Cal/Val plan (address DPMS review comments)			04/28/21	
NUCAPS3.0/HEAP2.3 to ASSISTT			12/14/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Apr-21	Apr-21	02/26/21 04/13/21 patch	
Initial J2 ready DAP to CSPP			04/27/21	
Final J2 ready DAP to ASSISTT	May-21	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		

MiRS Products

June, 2021

Accomplishments / Events:

- The effort to test a machine learning approach to estimate MiRS sea surface temperature (Tskin) retrieval error is continuing. Previous work used GPM/GMI data. Latest work is using ATMS data. A deep neural network was trained to predict the MiRS-ECMWF difference in SST. This estimated error can be used to correct the original retrieval. Training data was from 2021-05-10, independent testing data were on 2021-05-27. Three experiments were run: operational retrieval, neural network corrected using MiRS retrieval inputs, and neural network using measured brightness temperature inputs. Results show significant improvement of the corrected SST retrievals when MiRS retrievals are used as inputs compared to both the original retrievals and the neural network corrected retrievals using brightness temperature inputs. The error standard deviation is reduced from 3.0 K to 1.2 K. Scan-dependent artifacts are also reduced. See highlights.

Overall Status:

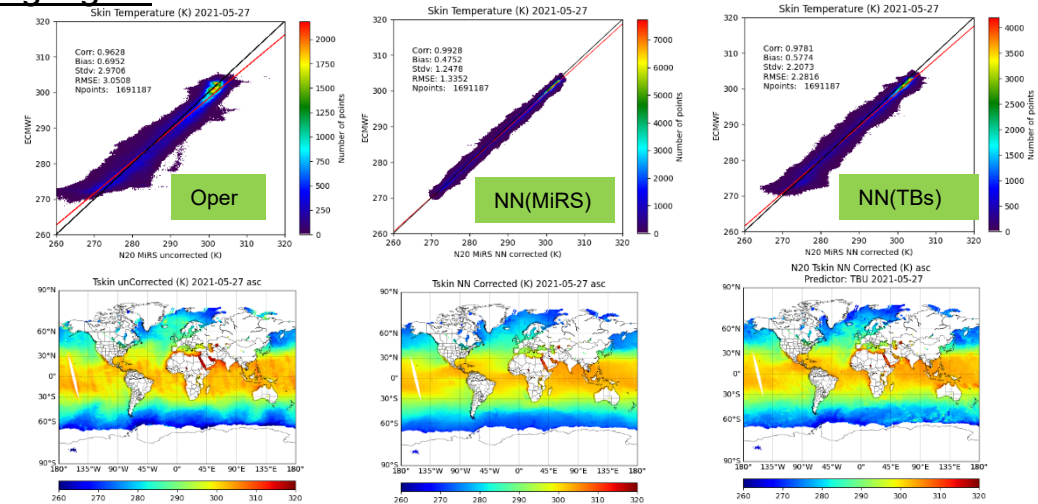|	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/21/20	
Updated Cal/Val plan (address DPMS review comments)			04/21/21	
MiRS v11.7 to ASSISTT			12/21/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Mar-21	May-21	05/18/21	documentation update
Initial J2 ready DAP to CSPP			06/11/21	
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Jan-22		
Integrate SFR updates	Jun-21	Jul-21		Received SFR code package
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		

Highlights:

Results from a neural network trained to predict MiRS N20/ATMS SST (Tskin) retrieval errors, which are then used to correct the original operational retrieval. Top row shows scatterplot comparison with ECMWF analysis for 3 experiments. Bottom row shows retrieval maps. Experiments are operational (left), NN corrected using MiRS input (center), and NN corrected using TB inputs (right)

Snowfall Rate

Accomplishments / Events:

An SFR update package was delivered to the MiRS team. The major updates are:

- final JPSS-2 ready SFR algorithms
- radiometric bias correction for all satellites (JPSS, POES, and Metop)
- cloud temperature initialization for all satellites
- Machine Learning-enhanced algorithms including
  - NOAA-20 and S-NPP Snowfall Detection algorithms over CONUS
  - SFR bias correction for all satellites
  - Ice Water Path initialization for all satellites

The updated algorithms not only can capture snowfall over CONUS in cold conditions under which the current operational version does not apply, they also show improved performance with rate estimation.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20	12/15/20	
Updated Cal/Val plan (address DPMS review comments)			04/22/21	
MiRS v11.7 to ASSISTT			12/21/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Mar-21	May-21	05/18/21	ASSISTT delivery
Initial J2 ready DAP to CSPP			06/11/21	
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		MiRS delivery
Final J2 ready DAP to NDE (include NPP/N20 updates)	Dec-21	Jan-22		ASSISTT delivery
Updated SFR algorithms for JPSS-2	Jun-21	Jun-21	Jun-21	
Deliver updated SFR package (for JPSS-2, NOAA-20, and S-NPP) to MiRS team for integration	Jun-21	Jun-21	06/21/21	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: *Updated SFR Algorithm Improves Performance*
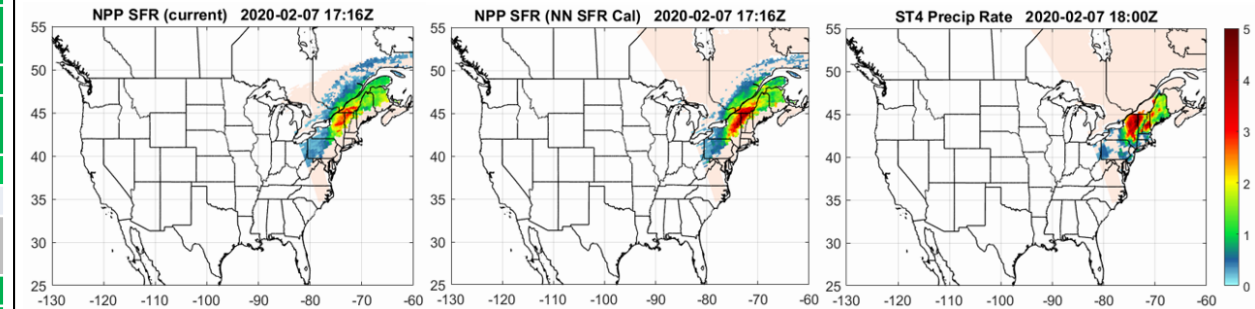
The SFR algorithms have been updated recently using Machine Learning and other techniques. The images are from a snowstorm on February 7, 2020, (left) the current operational SFR, (middle) updated SFR, and (right) Stage IV radar and gauge combined precipitation product (including both rain and snow). The updated SFR agrees better with Stage IV in magnitude than the operational version.

Accomplishments / Events:

- The DPMS Ozone validated maturity review panel recommended the OMPS NP EDR product be designated at Validated Maturity, pending implementation of two algorithm updates in operations anticipated for July 2021.

- Reviewed need for S-NPP OMPS-LP after J2 launch. Recommend at a minimum that NOAA should keep producing S-NPP OMPS-LP products at NDE until J2 products are available and validated. The estimate for this is 1-1.5 years after J2 launch. NOAA-20 does not have the OMPS-LP instrument. See Highlight fro example of OMPS-LP NDE Product.

- Reviewed and concurred with CCR to Update OMPS Limb Profiler Data Dictionary for Diagnostic Calibration RDR format (ERB).

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 * NOAA-20 has been achieved. See below.

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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	12/30/20	
Updated Cal/Val plan (address DPMS review comments)			04/23/21	
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	12/31/20 04/15/21 patch	V8Pro
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Apr-21	May-21	05/27/21	V8TOz: v4r2 V8TOS: v5r0
Final J2 ready DAP to ASSISTT	Jul-21	Jul-21		V8Pro
Final J2 ready DAP to ASSISTT	Jun-21	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				
Details in next slides				

Highlights: OMPS-LP NDE product

https://www.ospo.noaa.gov/Products/atmosphere/omps-lp.html
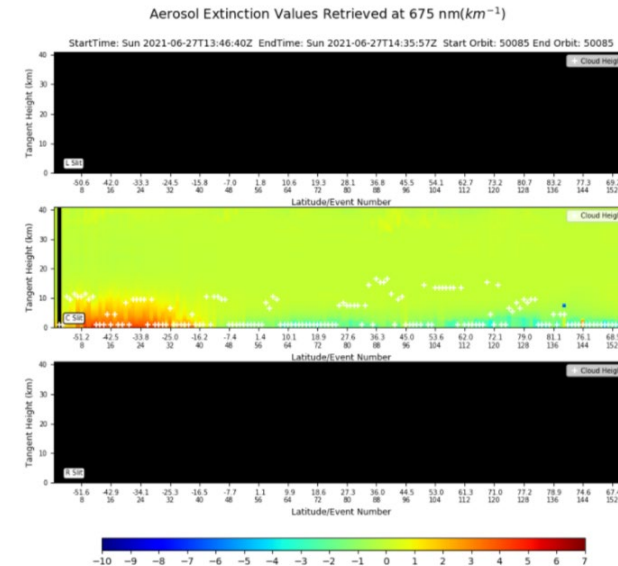
OMPS Ozone (V8Pro, V2Limb & V8TOz) Milestones

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 One-Line V8Pro Code fix and New NOAA-20 Adjustment Table as a Patch Delivery to NDE with CC to ASSISTT to progress to validated maturity.	Jan-21 Apr-21	04/15/21
Complete work with NDE to resolve two OMPS V2Lmb issues -- Latency / TIme Out and Ancillary File errors.	Feb-21	Patch DAP to NDE 2/11/21 V2Limb.
Demonstrate V8TOz and V8Pro processing of J02 test data as provided by the OMPS SDR team.	Sep-21	SDR Data sets will not be available until at least September
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	

GCOM-W1 Products

Accomplishments / Events:

- Provided additional information for the annual PMR slide deck held, which included FY22 ramp up request and justification for GOSAT-2 AMSR3.
- STAR GCOM NRT development processing system suffered a system disk failure that required an operating system rebuild. This took the development GAASP system offline for a few weeks. STAR CAC renewal process failures hindered this effort.
- Algorithm updates to ASSISTT for planned GAASP updates in FY21
  - RR and SSW in progress
- Continued product O&M, keeping abreast of GOSAT-2 AMSR3 activities so plans can be developed for use at STAR
- Ralph Ferraro retiring from STAR on June 30; Huan Meng will take over as AMSR precipitation EDR lead; Jeff Key will assume project deputy role.

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

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				
GAASP patch DAP to NDE			01/07/21	
GAASP patch DAP to CSPP			01/19/21	
Improved SSW and RR algorithms	Mar-21	May-21	May-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: All Weather Wind Speed Retrieval Advancement

Linear combination of C-band and X-band channels provides a more robust signal that can be utilized to the retrieve winds in the tropical cyclone environment than the linear combination of polarizations at the same frequency as seen below.

Rain Rate   AV-H   C-BX
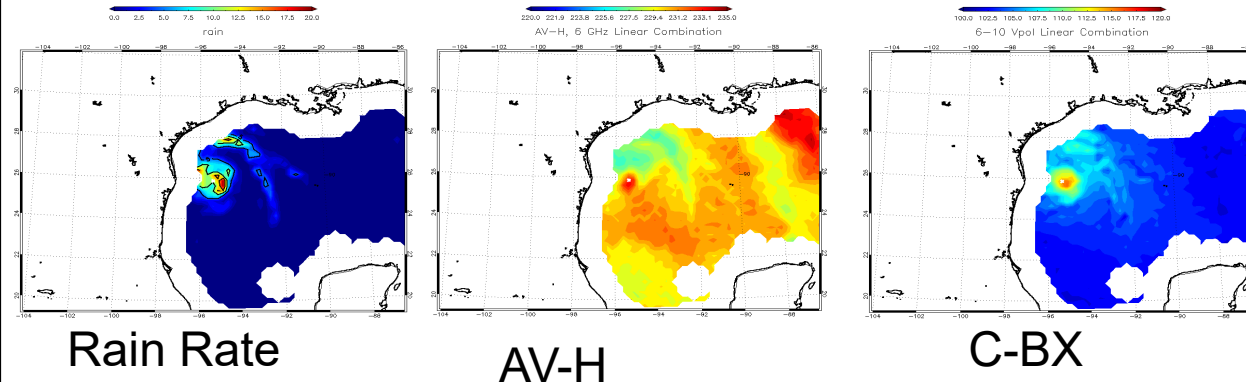
Accomplishments / Events:

- Participated in the NOAA-GML quarterly workshop (June 15, 2021) and presented results on the inter-comparison of NUCAPS and CLIMCAPS analysis.
- Assessed NUCAPS performance in AWIPS-2 for NWS forecast applications during the February 10 Ice Storm event in the upper Midwest as requested by the JPSS NUCAPS Initiative working group.
- Ms Cassandra Calderella, a NOAA Center for Earth Science and Remote Sensing Technologies (CESSRST) graduate student at UMBC is conducting an assessment of combined NUCAPS, radiosonde and available ancillary (lidar …) observations at the DOE-ARM / GRUAN sites at Lamont (OK) and Beltsville (MD) in the context of boundary layer and atmospheric stability parameters; the time period is Summer, 2020. Initial comparisons have begun, and work is now underway to finalize the CAPE calculation consistent with recommendations from ongoing JPSS NUCAPS User initiatives. (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			

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
LTM				
Maintain / expand existing EDR LTM web pages and mappers	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		

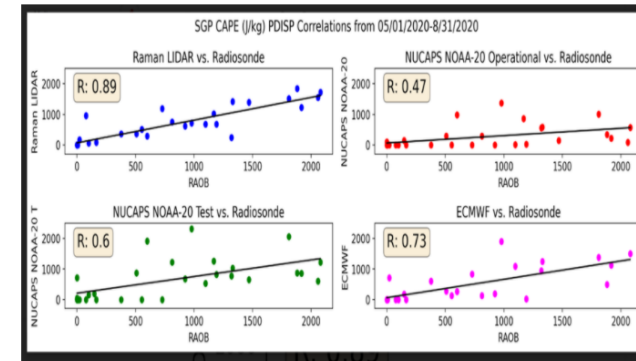## Highlights: NPROVS and EDR/LTM Study – Summer 2020 – initial results

Figure 1: "Preliminary" scatter plots of Convective Available Potential Energy (CAPE) calculations based on collocated Radiosonde, NUCAPS and Lidar observations from the ARM / GRUAN site at Lamont (OK) during Summer, 2020; all collocations are within 2-hours. The NUCAPS include current operation v2.5 (Red) and the candidate v3 (Green) upgrade. Results indicate better agreement with the radiosonde for v3 (r = 0.60) compared to v2.5 (r =.047) with lidar showing the highest correlation (0.89).