**NOAA JPSS Monthly Program Office**

AMP/STAR
FY20 TTA

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

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Highlights from the Science Teams

JPSS Data used in Washington Post Siberian Smoke Article

Washington Post (WaPo) reporter Lauren Tierney contacted JPSS program office for satellite imagery of smoke and land surface temperature for an article on extreme heat and fires in Siberia and the transport of smoke to the Alaska and Canada. The STAR aerosol and land teams uploaded the data which allowed the Post to make the map shown at left. This topic has drawn a lot of attention due to 2020 being a second year in row with extreme heat in the Arctic and its possible connections to climate change The URL for the WaPo article is:
https://www.washingtonpost.com/weather/2020/08/14/record-arctic-fires/?arc404=true
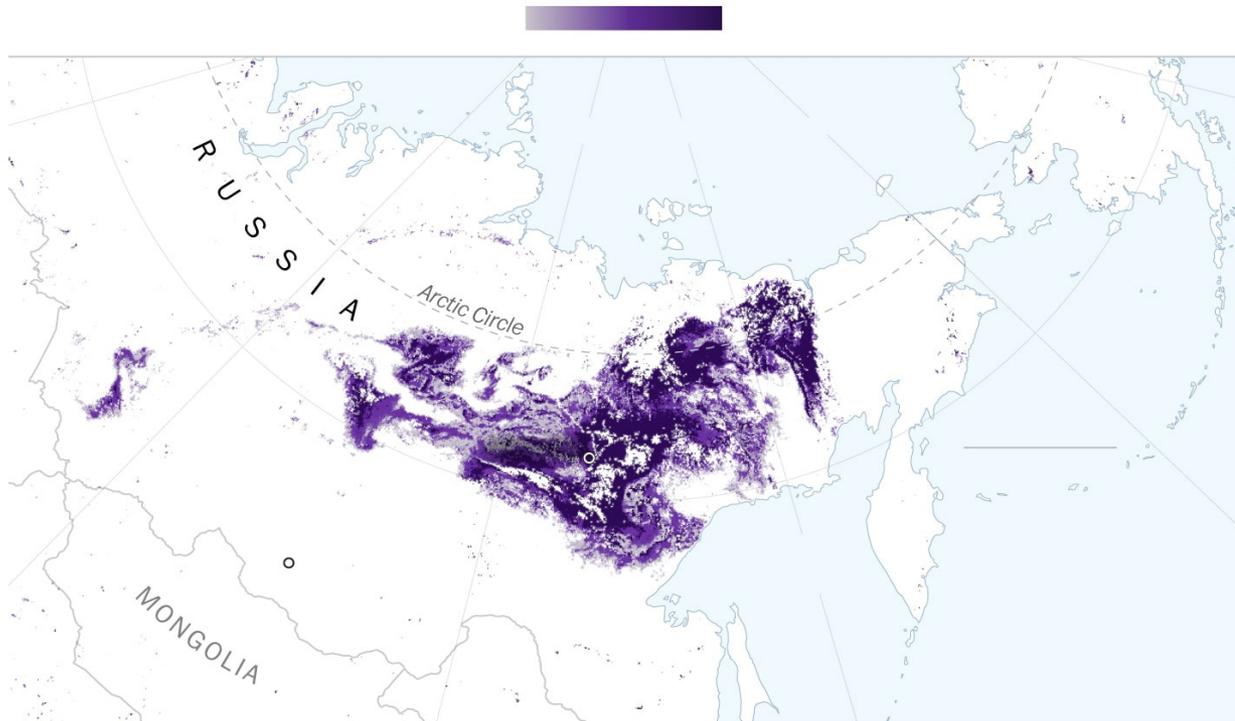
Figure. Smoke detected from fires on August 6. Darker purple indicates more smoke. This graphic was created by the *Washington Post*.

California Fires cause large Smoke Plumes

Large forest fires in the state of California created smoke plumes that spanned the continent. The Ultraviolet Absorbing Aerosol Index values from the total ozone retrieval product from OMPS track the progress of large amounts of smoke as they are transported away from forest fires in California. The elevated aerosol levels off the coast of the western US in the figure below are smoke from fires. Daily figures are provided at https://www.star.nesdis.noaa.gov/jpss/EDRs/products_ozone_N20.php .

Figure. Smoke detected from fires on September 3 as detected by OMPS. In the prior weeks, smoke had crossed all the way to the West Coast.

Hurricane Isaias Causes Heavy Rain on East Coast

AMSR2 & MRMS Precipitation Rate – GPROF2010_20200804–1750UTC
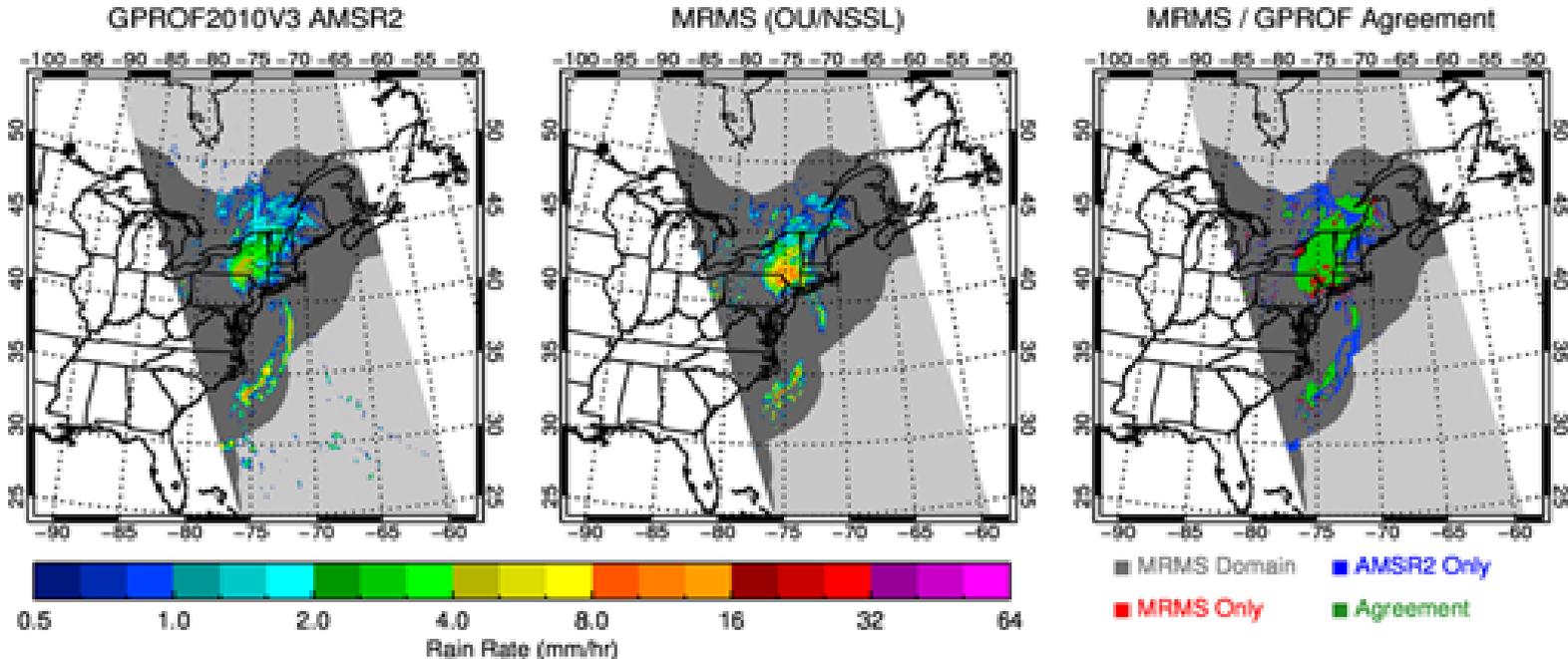
The GCOM-W1 satellite captured several overpasses of Hurricane Isiais as it made its trip up the US east coast. These are shown below, where the current retrieval algorithm – GPROV2010V3 (left) – is compared to ground radar (MRMS) (middle). Although the retrieval from AMSR-2 was fairly reliable (right panel), it was noted some convective areas within the storm core were apparently missed (red regions). Note that the blue regions off-shore are likely due to missing radar data. This will be improved upon through an algorithm upgrade currently in progress – GPROF2017 – which has shown to be vastly better than the current V2010V3 through testing over the past year.

Highlights from the Science Teams

VIIRS Fire RGBs on RealEarth
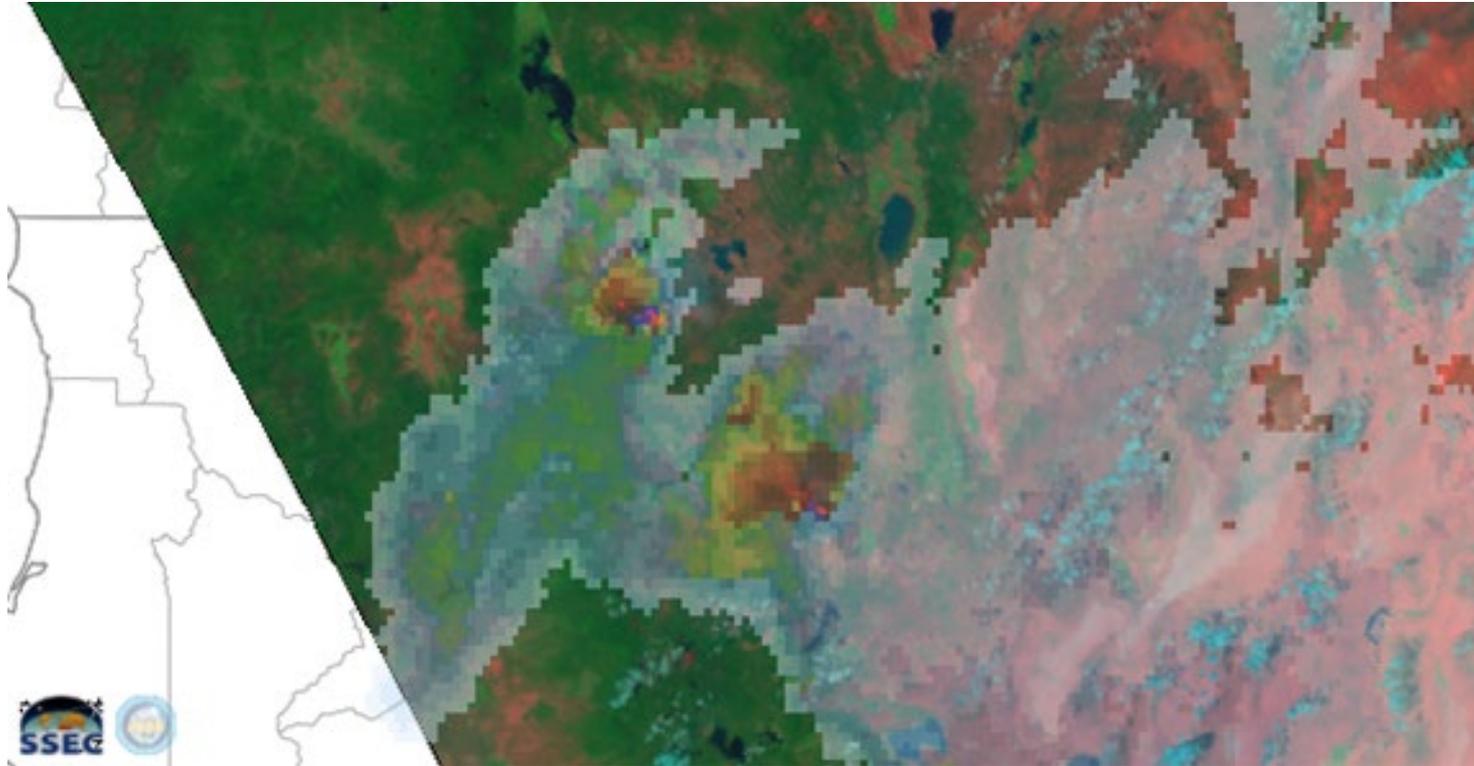
The VIIRS Fire Temperature RGB and Natural Fire Color RGB made from University of Wisconsin Direct Broadcast data are now available on RealEarth. These RGBs were developed at CIRA to aid fire detection and monitoring efforts. The CIRA-produced geoTIFF images are now being delivered to CIMSS for display on RealEarth where they may be blended with or compared against a variety of other products (examples are shown in the figures below). Similar RGBs made from the Alaska Direct Broadcast data, providing coverage of the Alaska Region, have already been made available on RealEarth by GINA. (C. Seaman, CIRA, William Straka III and Sam Batzli, CIMSS, Jay Cable, GINA)

Highlights from the Science Teams

Improvement in VIIRS cloud masking over partially snow-covered land scenes
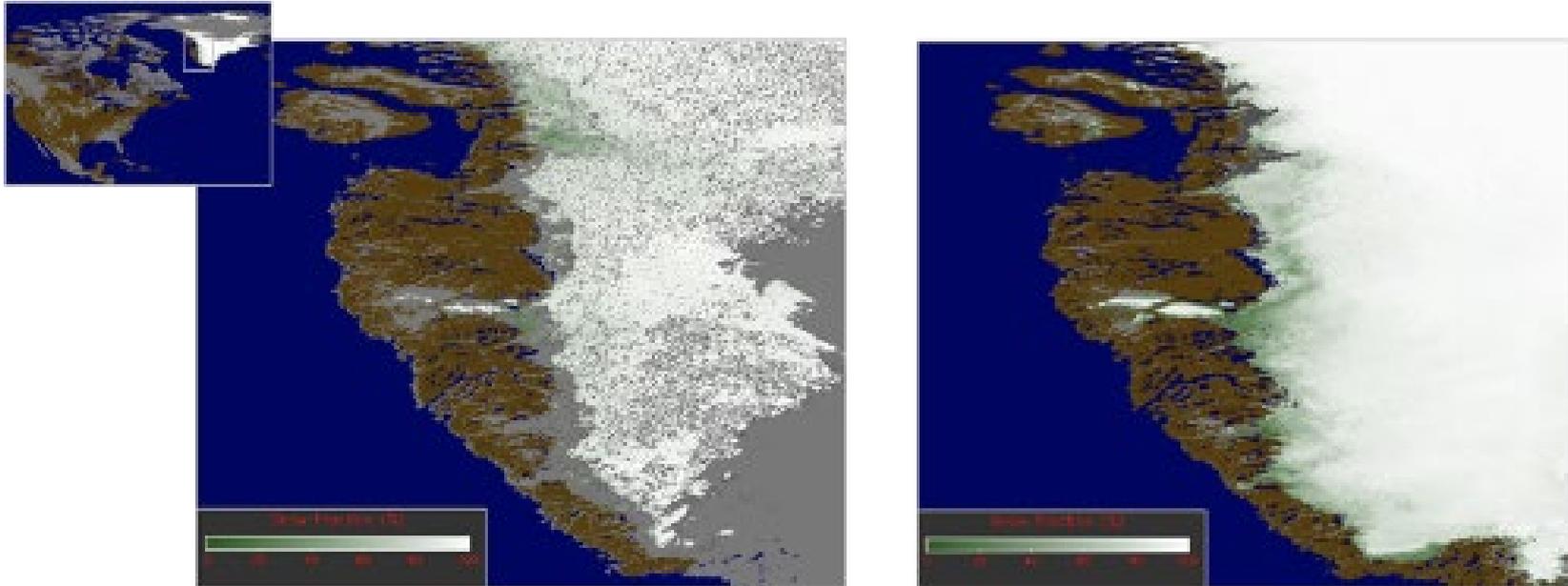
Aug 23, 2019, NOAA-20 VIIRS

Aug 20, 2020, NOAA-20 VIIRS

The new corrected version of the VIIRS cloud mask (v2r3) became operational at the beginning of August. The new cloud mask's initial analysis indicates that it provides a more realistic cloud identification over partially snow-covered areas. Particularly it does not interpret partially snow-covered scenes as cloudy as the previous version of the cloud mask did. This improves the snow cover product's quality correctly and allows for a more accurate delineation of the snow cover boundary and better characterization of the snow fraction in the transition snow to the no-snow zone. The figure shows a scene in Greenland demonstrating the change from the previous version of the cloud mask a year ago (with most of the transition zone labeled as "cloudy") to the current cloud mask, which properly labels the transition zone cloud-clear.

Analysis of September 2019 Sudden Stratospheric Warming
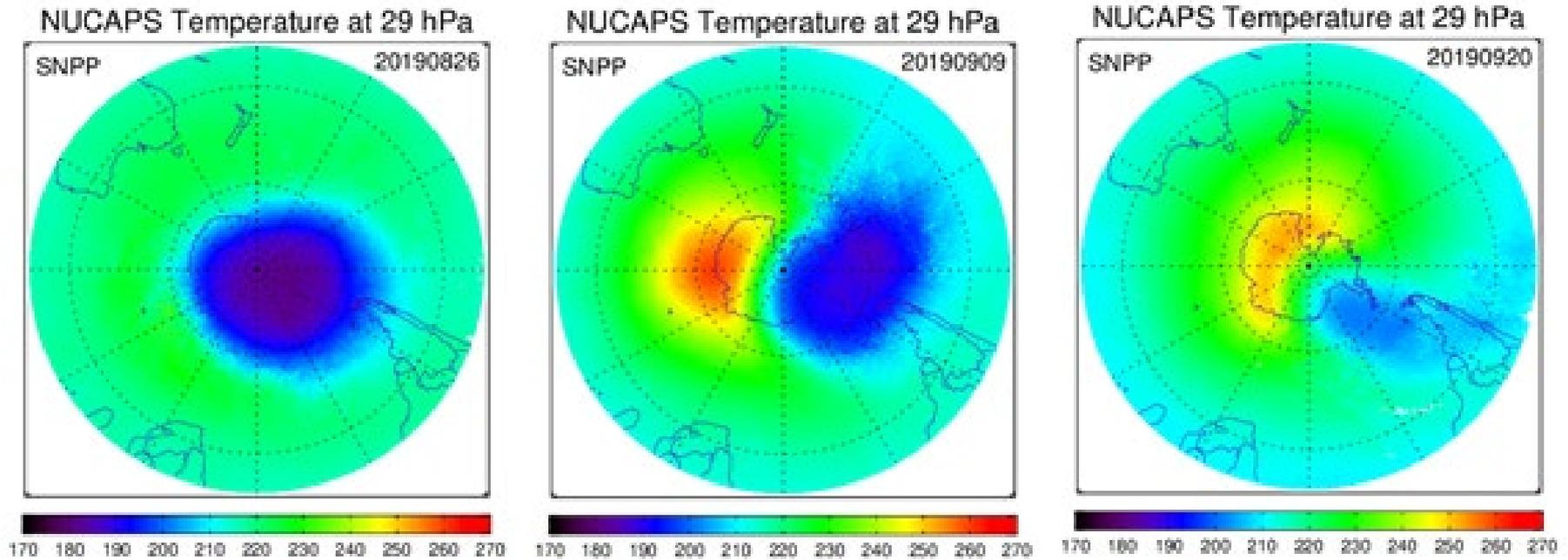
In response to JPSS Program request, NUCAPS team started analysis of the Antarctica warming event that happened during the period August 26-September 30, 2019. The event started around the end of August and formed a strong local center by September 09, and the warming area covered most of the Antarctic region by September 30 (Figure 1). The NUCAPS team is currently evaluating time series plots of this event with associated RAOBs and other correlative data sets.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
  - 8/11/2020: VIIRS SDR DAP (ADR9222/CCR4861, Initial J02 VIIRS SDR LUTs Based on Prelaunch Test Data, including 44 LUT files) delivered to DPES
  - 8/13/2020: ATMS SDR team delivered JPSS-2 CrIS Pre-launch Characterization Report
  - 8/14/2020: OMPS SDR team delivered JPSS-2 CrIS Pre-launch Characterization Report
  - 8/14/2020: VIIRS SDR team updated simulated J2 SDR for EDRs/ASSISTT J2 DAP integration/testing (added the N_GEO_Ref attribute to the HDF5 files)
  - 8/21/2020: VIIRS SDR DAP (ADR9032/CCR5165, VIIRS TEB Calibration Corrections during Moon Intrusions and after Sync Losses) delivered to DPES
  - 8/31/2020: OMPS SDR team delivered DAP (ADR9095/CCR5172, high resolution OMPS NM SDR) to ASSISTT team

- DAPs – Enterprise Products:
  - 8/10/2020: JRRPS V2R3 Patch DAP is delivered to NDE. The patch fixes a bug where some output products have an incorrect timestamp for granules that cross over two days
  - 8/11/2020: redelivered JPSSRR V2R3 Patch DAP with corrected test case for the LAND_MASK fix to NDE
  - 8/12/2020: delivered updated JPSSRR V2R3 Patch DAP to NDE. This version includes a fix for LST that allows for multiple LSE files to be listed in the PCF
  - 8/20/2020: JPSSRR Patch to NDE (addressing issue with LSA PCF file error). This DAP was deployed as an emergency fix to OPS on the same day (8/20/2020)
  - 8/28/2020: ACSPO SST delivered DAP (v2.80, init J2 DAP, with N20/NPP updates, two new functionalities added: data fusion & thermal fronts) to ASSISTT team
  - 8/10/2020: Aerosol team delivered draft ADP Cal/Val plan
  - Aug-2020: MiRS team delivered MiRS v11.6 DAP (initial J2 DAP, with N20/NPP updates: bias correction, static coefficient files, global attributes metadata, issues with output filename) to CSPP

- IDPS Builds Checkouts:
  - STAR submitted Block 2.3 Mx0 SOL deploy regression review/checkout data request to DPMS/RTN on 8/31/2020

Accomplishments – JPSS Cal Val Supports

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

S-NPP	Weekly OMPS TC/NP Dark Table Updates	08/04/20, 08/11/20, 08/18/20, 08/25/20
NOAA-20	Weekly OMPS TC/NP Dark Table Updates	08/04/20, 08/11/20, 08/18/20, 08/25/20
S-NPP	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	08/11/20, 08/25/20
NOAA-20	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	08/04/20, 08/21/20 (out-of-cycle CCR-5026)
S-NPP	Monthly VIIRS LUT Update of DNB Offsets and Gains	08/26/20
NOAA-20	Monthly VIIRS LUT Update of DNB Offsets and Gains	08/26/20

- 8/6/2020: NDE 2.0.24 Operational
  - JPSSRR v2.3 (Enterprise Cloud Mask LUT update)

- 8/18/2020: EDR Algorithm Update Reviews for JPSS-2
  - Global Vegetation Fraction & Vegetation Indices
  - ACSPO SST
  - OMPS Ozone
  - Land Surface Temperature
  - Land Surface Albedo
  - Active Fires
  - Surface Reflectance
  - Vegetation Health
  - Aerosols Optical Depth & Aerosol Detection

- Aug-2020: FY21 Program Management Review for most of the JPSS teams

- 9/3/2020: I-Band Active Fires Operational Readiness Review (ORR)

Upcoming Cal/Val Maturity Reviews

- September, 2020 Maturity Review (9/17/2020 10:00am – 12:00pm):
  - Provisional/Validated Maturity:
    GST (Global Gridded Surface Type)
  - Full Validated Maturity:
    OMPS NP Ozone EDR (V8Pro)

- December, 2020 Maturity Review:
  - Full Validated Maturity:
    NUCAPS CO_2 product (S-NPP & NOAA-20)

- JSTAR Code/LUT/Product Deliveries:

DAP to DPES:
  - Sep-20: Initial J2 PCT (ATMS SDR)
  - Oct-20: Initial J2 PCT/LUTs (CrIS & OMPS SDRs)

NOAA-20 Algorithm DAP to NDE/CoastWatch:
  - Sep-20: Initial J2 DAP (JRR/VPW/LST/LSA, include NPP/N20 updates)
  - Oct-20: Initial J2 DAP (Surface Reflectance, include NPP/N20 updates)
  - Nov-20: Initial J2 DAP (SST/NUCAPS/MiRS, include NPP/N20 updates)
  - Dec-20: Initial J2 DAP (VI/GVF/Ozone, include NPP/N20 updates)
  - Dec-20: Vegetation Health – Final N20 DAP, and initial J2 DAP
  - Dec-20: Ocean Color – Final N20 DAP, and initial J2 DAP

FY20 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs				
OMPS DAP: Remove VIIRS SnowIce and QST tile dependency (ADR8550)	Oct-19	Oct-19	10/28/19	
OMPS: J2 pre-launch sensor characterization report	Dec-19	Aug-20	08/14/20	Need NASA sharepoint access permission
ATMS: J2 pre-launch sensor characterization report	May-20	Aug-20	08/13/20	PSR changed
CrIS: J2 pre-launch sensor characterization report	May-20	Jul-20	07/30/20	PSR changed
J2 pre-launch Algorithm Updates Review - SDRs and Imagery	Jun-20	Jun-20	06/16/20	
J2 pre-launch Algorithms/PCT/LUT packages - SDRs and Imagery	Aug-20	Oct-20	08/11/20 VIIRS LUTs	PSR changed
OMPS: High resolution SDR implementation (17km x 17km OMPS TC)	Aug-20	Aug-20	08/31/20 to ASSISTT	
Imagery: All 16 M–bands as Imagery EDRs	Sep-21	Sep-21	RTN will work on this	Work_under_PCR
N20 NUCAPS final DAP to NDE	Nov-19	Nov-19	11/01/19	
N20 Vegetation Health final DAP to NDE	Mar-20	Dec-20		With init J2 DAP To ASSISTT: Jul-20
I-band Active Fires DAP to NDE	Mar-20	Jun-20	06/24/20	With init J2 DAP Need J2 test data
J2 pre-launch Algorithm Updates Review - EDRs	Sep-20	Sep-20	07/21/20: Part A 08/18/20: Part B	
Initial J2-ready EDR DAPs (include NPP/N20 updates)	Sep-20	Dec-20	06/24/20: Active Fires	
AST-2019 (VIIRS Annual Surface Type)	Sep-20	Sep-20		

FY20 STAR JPSS Milestones

| Milestones	Original Date	Forecast Date	Actual Date	Variance Explanation
Algorithm Cal/Val				
J2 Cal Val Plans - Draft Delivery (all SDR/EDR products)	Jun-20	Jun-20	06/30/20	
N20 NUCAPS Full Validated Maturity (all NUCAPS products except CH4 & CO2)	Oct-19	Oct-19	10/28/19	
N20 Land Surface Temperature Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 Surface Albedo Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 OMPS NP SDR Full Validated Maturity	Jan-20	Apr-20	04/23/20	
N20 OMPS NP EDR (V8Pro) Full Validated Maturity	Jan-20	Sep-20		More Complex characterization effort than expected
N20 M-band and I-Band Active Fires Full Validated Maturity	Jan-20	Jan-20	02/06/20	Combined Jan/Feb review
N20 Green Vegetation Fraction Full Validated Maturity	Feb-20	Apr-20	04/23/20	
N20 Vegetation Index Full Validated Maturity	Feb-20	Apr-20	04/23/20	
NUCAPS CH4 Full Validated Maturity (N20 & NPP)	Feb-20	Apr-20	04/23/20	
NPP side-2 Crls SDR Full Validated Maturity	Feb-20	Feb-20	02/06/20	
N20 Surface reflectance Full Validated Maturity	Apr-20	Jun-20	06/18/20	
N20 Snow Cover Full Validated Maturity	Apr-20	Jun-20	06/18/20	
N20 Ocean Color Full Validated Maturity	Jun-20	Jul-20	07/17/20	
N20 Surface Type Full Validated Maturity	Sep-20	Sep-20		

FY20 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Operational/Program Support				
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/01/19, 10/08/19, 10/16/19, 10/22/19, 10/29/19, 11/05/19, 11/13/19, 11/19/19, 11/26/19, 12/03/19, 12/11/19, 12/17/19, 12/30/19, 01/07/20, 01/14/20, 01/22/20, 01/28/20, 02/04/20, 02/11/20, 02/18/20, 02/25/20, 03/03/20, 03/10/20, 03/17/20, 03/24/20, 03/31/20, 04/07/20, 04/14/20, 04/21/20, 04/28/20, 05/05/20, 05/12/20, 05/19/20, 05/27/20, 06/02/20, 06/09/20, 06/16/20, 06/23/20, 06/30/20, 07/07/20, 07/14/20, 07/21/20, 07/28/20, 08/04/20, 08/11/20, 08/18/20, 08/25/20	
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/08/19, 10/22/19, 11/05/19, 11/19/19, 12/03/19, 12/17/19, 12/30/19, 01/14/20, 01/28/20, 02/11/20, 02/25/20, 03/10/20, 03/24/2, 04/07/20, 04/21/20, 05/05/20, 05/19/20, 06/02/20, 06/16/20, 06/30/20, 07/14/20, 07/28/20, 08/11/20, 08/25/20	
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/08/19, 11/05/19, 12/10/19, 01/07/20 (Jan), 01/28/20 (Feb), 03/03/20, 04/01/20, 05/05/20, 06/30/20, 07/28/20, 08/26/20	
S-NPP: Monthly VIIRS Stray Light LUT Update	**Monthly**	**Monthly**	**10/08/19, 11/06/19, 12/10/19, 01/07/20 (Jan), 01/29/20 (Feb), 02/12/20 (Feb updated), 03/03/20, 04/01/20**	**Re-use LUT after 12 months. The 12th NPP LUT will be Apr-20**
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/01/19, 10/08/19, 10/16/19, 10/22/19, 10/29/19, 11/05/19, 11/13/19, 11/19/19, 11/26/19, 12/03/19, 12/11/19, 12/17/19, 12/30/19, 01/07/20, 01/14/20, 01/22/20, 01/28/20, 02/04/20, 02/11/20, 02/18/20, 02/25/20, 03/03/20, 03/10/20, 03/17/20, 03/24/20, 03/31/20, 04/07/20, 04/14/20, 04/21/20, 04/28/20, 05/05/20, 05/12/20, 05/19/20, 05/27/20, 06/02/20, 06/09/20, 06/16/20, 06/23/20, 06/30/20, 07/07/20, 07/14/20, 07/21/20, 07/28/20, 08/04/20, 08/11/20, 08/18/20, 08/25/20	
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/01/19, 10/16/19, 10/29/19, 11/13/19, 11/26/19, 12/11/19, 01/07/20, 01/22/20, 02/04/20, 02/18/20, 03/03/20, 03/17/20, 03/31/20, 04/14/20, 04/28/20, 05/12/20, 05/27/20, 06/09/20, 06/23/20, 07/07/20, 07/21/20, 08/04/20, 08/21/20 (out-of-cycle CCR-5026)	
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/08/19, 11/05/19, 12/10/19, 01/07/20 (Jan), 01/28/20 (Feb), 03/03/20, 04/01/20, 05/05/20, 06/30/20, 07/28/20, 08/26/20	
NOAA-20: Monthly VIIRS Stray Light LUT Update	**Monthly**	**Monthly**	**10/08/19, 11/06/19, 12/10/19**	**Re-use LUT after 12 months. The 12th N20 LUT will be Dec-19**
Monthly quad-chart report (all SDR/EDR products)	Monthly	Monthly	10/31/19, 11/30/19, 12/31/19, 01/31/20, 02/29/20, 03/31/20, 04/30/20, 05/31/20, 06/30/20, 07/31/20, 08/31/20	
IDPS Mx build SOL and I&T deploy regression verfication review (bl2.1-Mx8/bl2.2-Mx0/1)	**Nov-19 Mar-20 Jun-20**	**Nov-19 Mar-20 Jun-20**	**Block 2.1 Mx8 I&T report: 11/13/2019 Block 2.2 Mx0 SOL report: 02/14/2020 Block 2.2 Mx0 I&T report: 04/07/2020 Block 2.2 Mx1 SOL report: 05/22/2020 Block 2.2 Mx1 I&T report: 06/24/2020**	
IDPS Cloud Implementation Verification (Based on Nov 2020 TTO)	Sep-20	Dec-20		**TTO: Dec-20**

STAR JPSS Schedule

STAR JPSS Schedule: TTA Milestones

Task	2019			2020												2021								
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
ATMS SDR/TDR							◆		▽		△	△△			▼							△		
CrIS SDR					■		◆	▽		△		△△			▼							△		
VIIRS SDR						◆		▼	◈	△					▼							△		
OMPS SDR		◆■					■		◆▽	◆	△▲		△		▼							△		
Imagery EDR								▽							▼						◆			
Sea Surface Temperature									▽					◈	▼									◆
Ocean Color								▽	◈						◈									◆
OMPS Ozone (TC: V8TOz)			◆					▽							▼									◆
OMPS Ozone (NP: V8Pro)	◆						◆	▽				■			▼									◆
Aerosol Optical Depth (AOD)			◆				◆	▽				◆			▼							◆		
Aerosol Detection (ADP)			◆				◆			▽		◆			▼							◆		
Volcanic Ash (VolAsh)			◆				◆		▽			◆			▼							◆		
Cloud Mask			◆				◆	▽				◆			▼							◆		
Cloud Properties			◆				◆	▽				◆			▼							◆		
Ice Surface Temperature			◆				◆		▽			◆			▼							◆		
Sea Ice (Age/Concentration)			◆				◆		▽			◆			▼							◆		
Snow Cover			◆				◆		■▽			◆			▼							◆		
Active Fires					■				◈						▼						◆			
Surface Reflectance									■▽				◆		▼							◆		
Surface Albedo	◆	■	◆				◆	▽				◆			▼							◆		
Land Surface Temperature	◆	■	◆				◆	▽				◆			▼							◆		
Vegetation Indices							■	▽						◈	▼									◆
Green Vegetation Fraction							■	▽						◈	▼									◆
Vegetation Health									▽					◈◈	▼									◆
Annual Surface Type									▽			■■◆			▼									◆
NUCAPS		◈◆				◆	■		▽					◈	■▼							◆		
MiRS							◆	▽						◈	▼							◆		
Snow Fall Rate (SFR)							◆		▽					◈	▼							◆		
VIIRS Polar Winds			◆						▽				◈		▼						◆			
GCOM												◆												

Legend: ■ Beta ■ Prov ■ Val ◆ iDAP ◆ fDAP ◆ mDAP △ Report △ Algo △ iLUT △ fLUT/MM ▼ iCVplan ▼ fCVplan

Color code:
Green: **Completed Milestones**
Gray: **Non-FY20 Milestones**

ATMS SDR

Accomplishments / Events:

- Update JPSS-2 ATMS processing coefficient table (PCT) using pre-launch TVAC data and analysis results from calibration data book
- Analyze and discuss JPSS-2 ATMS spectral response function (SRF) data and generate coefficients for PCT and validation tools
- Participate JPSS DPMS cloud ADA migration training meeting to learn how to update ATMS operational calibration code in ADL under cloud environment
- Discuss the optimal solution to notify cal/val team members any anomaly event in near real time
- Discuss the ATMS ATBD and Users' Guide document development and review plan

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 pre-launch test data (TVAC) review/analyze	Apr-20	Apr-20	Apr-20	TVAC: Dec-19
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/30/20	
Pre-launch sensor characterization report	Jun-20	Aug-20	08/13/20	PSR + 3m
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Sep-20	Sep-20	Not needed	PSR + 6m
PCT update based on pre-launch test data and other changes	Sep-20	Sep-20		PSR + 6m 8/26/20: DRAT
Algorithm Updates Review	Jun-20	Jun-20	06/16/20	
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Apr-20	03/25/20	Proxy Data
ATMS TDR/SDR discrepancy between ADL and IDPS over lunar intrusion regions (ADR 9035)	Sep-20	Sep-20	04/27/20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual ATMS TDR/SDR performance report	Feb-20	Feb-20	Feb-20	
Verification of cloud implementation	Sep-20	Q1 FY21		B2.3 TTO
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/13/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T ATMS data review/checkout	Jun-20	Jun-20	06/19/20	

Highlights:

ATMS science data quality flag setting under different scenario

CrIS SDR

Accomplishments / Events:

- CrIS/IASI intercomparisons performed for the reprocessed S-NPP CrIS SDR data show a reduction in the LWIR bias shift due to the CrIS nonlinearity update compared to the operational product **(Fig. 1)**. The reprocessed SDR uses consistent calibration algorithms/coefficients throughout the record, resulting in a more consistent performance with respect to IASI.
- Processed J3 PETVAC data in preparation of J3 TVAC activities. In particular, processed and reviewed Discretionary NEdN noise test data for Side 1 and Side 2 J3/CrIS **(Fig. 2)**. Determined that these results meet the CrIS Noise Specifications, and are consistent with results reported by L3 Harris. Gaps in the data have been identified and are suspected to be due to the Harris SDR Generator software (currently under investigation).
- Performed an assessment of the spike detection and correction algorithm in the CrIS reprocessed v2 SDR data **(Fig. 3)**. There is no single false alarm case, all detected spikes are corrected by the algorithm and the ES spectra are valid. The ring pattern in the real spectra and larger imaginary spectra for the uncorrected spike are significantly reduced after the spike correction. These results strongly support that the thresholds for detecting the spikes are optimal and ready for the operational implementation. Further testing using the latest ADL based on IDPS Block 2.2 Mx1 will be performed for the delivery package.
- Computed nonlinearity coefficients based on minimizing the RMS of the ECT Residuals **(Fig 4)**. Courtesy of Dan Mooney (MIT LL) determined root source of nonlinearity is likely the electronic preamplifiers. This and previous analysis based on J2 TVAC data have help to conclude that no update in the nonlinear correction algorithm is needed for the J2 CrIS.

Overall Status:

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

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Issues/Risks:

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NPP (side-2) Validated Maturity	Feb-20	Feb-20	02/06/20	Prov + 6m
J2 pre-launch test data (TVAC) review/analyze	Apr-20	Apr-20	Apr-20	TVAC: Jan-20
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/29/20	
Pre-launch sensor characterization report	Jul-20	Jul-20	07/30/20	PSR + 3m
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Oct-20	Oct-20	Not needed	PSR + 6m
PCT update based on pre-launch test data and other changes	Oct-20	Oct-20		PSR + 6m
Algorithm Updates Review	Jun-20	Jun-20	06/16/20	
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Apr-20	03/26/20	Proxy Data
Update Quality flag and threshold for Spike Detection algorithm (ADR8820)	Aug-20	Sep-20		8/26/20: DRAT
Optimize/update FCE detection and correction algorithm	Aug-20	Aug-20	05/05/20	
Turn off Truncated Spectrum CrIS Data (ADR8761)	Sep-20	Sep-20	Sep-20	5/1/20 CCR Approved
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual CrIS SDR performance report	Feb-20	Feb-20	02/26/20	
Verification of cloud implementation	Sep-20	Q1 FY21		B2.3 TTO
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T CrIS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T CrIS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T CrIS data review/checkout	Jun-20	Jun-20	06/18/20	

Highlights:

(1) Top, Mean Brightness Temperature time series of IASI A, Operational, and Reprocessed CrIS. Bottom: Bias between Operational/Reprocessed CrIS and IASI A.
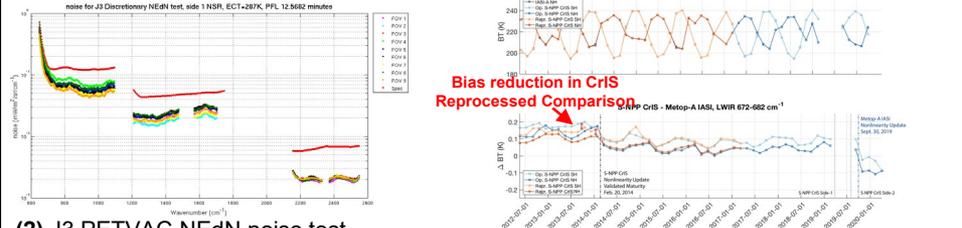
**(2)** J3 PETVAC NEdN noise test results for a 287K ECT Scene
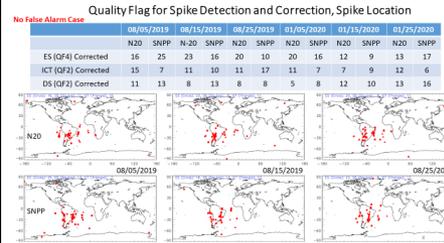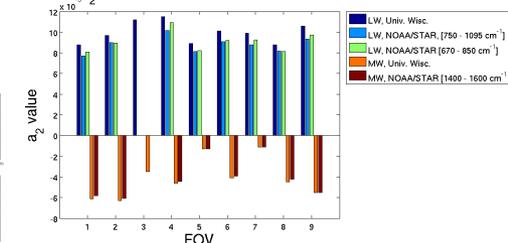
(3) Table with summary of the spike related quality flag for 6 test days as well as the location of detected spikes after using new spike thresholds.

(4) Derived J2 TVAC Nonlinearity Coefficients

Accomplishments / Events:

- Delivered for deployment in IDPS operations updated NOAA-20 and S-NPP DNB offset and gain ratio LUTs generated using new moon calibration data from 8/19/2020

- Developed, tested, and provided for deployment in IDPS a code change and a LUT update that improve handling of lunar intrusions into VIIRS Space View and resolve brief calibration anomalies around the lunar intrusions for dual-gain bands as well as after sync-loss and sector rotation events

- Reviewed within the NASA/NOAA VIIRS SDR Science Team the MOT proposal for changes in conducting the roll maneuvers for VIIRS lunar calibration and concluded that the changes can be implemented as proposed without affecting quality of the lunar measurements

Overall Status:

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

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

Issues/Risks:

Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test data (TVAC) review/analyze	Jan-20	Jan-20	01/31/20	
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/29/20	
Launch-ready LUTs (initial delivery)	Aug-20	Aug-20	08/11/20	
Algorithm Updates Review	Jun-20	Jun-20	06/16/20	
Simulated J2 SDR data available for EDRs	Jan-20	Jan-20	01/31/20	
DAP: Lunar contamination (code & LUT updates, ADR9032/CCR5165)	Jun-20	Aug-20	08/21/20	
S-NPP VIIRS Geolocation LUTs Update (ADR9254)			03/25/20	
DAP (ADR9171/CCR4846, VIIRS SDR Geolocation Algorithm Correction)			05/29/20	
DAP (ADR9340/CCR5113, NOAA-20 VIIRS RSBAUTOCAL LUTs Update)			07/15/20	
NOAA-20 and S-NPP cross-calibration/ comparison	Sep-20	Sep-20		
Annual VIIRS SDR performance report	Feb-20	Feb-20	02/28/20	
Verification of cloud implementation	Sep-20	Q1 FY21		B2.3 TTO
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx8 I&T VIIRS data review/checkout	Nov-19	Nov-19	11/06/19	
BL2.2 Mx0 I&T VIIRS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx1 I&T VIIRS data review/checkout	Jun-20	Jun-20	06/17/20	

Highlights:

Comparison of Suomi NPP VIIRS M13 radiance images before (left) and after (right) the code change (June 28, 2020, 03:14 - 03:18 UTC): similar improvement also applies to NOAA-20

OMPS SDR

August, 2020

Accomplishments / Events:

- Delivered SNPP/NOAA-20 OMPS weekly Dark tables and NP solar irradiance bi-weekly LUTs to GRAVITE
- Completed seven J2 OMPS LUTs (initial version).
- Derived LUTs to re-process NOAA-20 OMPS NM/NP to support a urgent action from management (verification are to be done).
- Performed SNPP NP solar data and earth view data analyses for solar activity correction to support EDR team needs
- Verified ADL results with the NOAA-20 NP out-of-cycle LUTs.
- Improved the PCA-based SNR method
- Completed the initial version of J2 OMPS NM high resolution code, but an error is identified in implementation of the code into ADL Blk2.2 MX1.0.
- Completed major code deliveries due to the leave of a contractor
- Accomplished the PMR for OMPS SDR

Overall Status:

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

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

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

Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: OMPS-NP	Jan-20	Apr-20	04/23/20	See Issues/Risks
J2 pre-launch test data (TVAC) review/analyze	Apr-20	Aug-20	08/14/20	
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/19/20	
Pre-launch sensor characterization report	Dec-19	Aug-20	08/14/20	See Issues/Risks
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Aug-20	Sep-20		10x10 km TC 8/31 to ASSISTT
Launch-ready LUTs (initial delivery)	Aug-20	Oct-20		
Algorithm Updates Review	Jun-20	Jun-20	06/16/20	
J2 SDR data (based on TVAC) available for EDRs	Apr-20	Jun-20	05/22/20	See Issues/Risks
Remove VIIRS SnowIce and QST tile dependency (ADR8550/CCR4589)	Oct-19	Oct-19	10/28/19	8/1/19 to ASSISTT
ADR9172/CCR5018, Error in OMPS Nadir Mapper Dark Count Correction			06/08/20	
ADR9066/CCR5026, N20 OMPS-NP SDR Wavelength Scale Accuracy			07/13/20	
High resolution SDR implementation (10km x 10km OMPS TC)	Aug-20	Sep-20		8/31 to ASSISTT
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20	May-20	Support NOAA-20 NP Validated
Annual OMPS SDR performance report	Feb-20	Feb-20	Feb-20	
Verification of cloud implementation	Sep-20	Q1 FY21		B2.3 TTO
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T OMPS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T OMPS data review/checkout	Apr-20	Apr-20	04/07/20	
BL2.2 Mx 1 I&T OMPS data review/checkout	Jul-20	Jul-20	06/23/20	

Highlights:

Improvement of MG-II estimation inconsistency between EV radiance and solar flux data

Figure Comparison of MG-II relative changes (%) using solar flux data and EV radiance data with/without the correction. After correction, Solar and Earth science observations of MG-II are consistent

SDR Reprocessing

Accomplishments / Events:

– The manuscript of "The Reprocessing Suomi NPP Satellite Observations" was submitted to Remote Sensing and is in revision

– Provided the information for transition of the reprocessed SNPP SDR data at ftp://jlrdata.umd.edu/pub/SNPP_Reprocessing to Cloud requested by the COVID-19 study (CEOS ACC, Shobha)

– Held the discussion of resuming the transition the reprocessed SNPP data to NCEI/CLASS

– Completed the release note of reprocessed SNPP ATMS/CrIS/VIIRS/OMPS SDR data (examples shown in highlights)

– Extending the reprocessing of SNPP VIIRS data to 2019 is ongoing

– SNPP CrIS V2 SDR reprocessing is ongoing

Overall Status:

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

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: Release Notes for reprocessed SNPP Data

Release Note of S-NPP Reprocessed SDR Data – ATMS Baseline Version, 08/26/2020

The NOAA Center for Satellite Applications and Research (STAR) is now announcing the release of the Baseline Version of the S-NPP ATMS reprocessed TDR/SDR data for user applications. This Baseline Version of the S-NPP ATMS reprocessed TDR/SDR data is defined as those generated using the operational calibration algorithm dated on 15 October 2019. The operational calibration of the Suomi NPP ATMS instrument has gone through a series of updates after the S-NPP launch. The ATMS life cycle reprocessing used a fixed calibration algorithm taken from the operational calibration after the update on 15 October 2019. The Suomi NPP recalibrated and reprocessed ATMS TDR/SDR data covers the time period from 11/09/2011 to 10/15/2019. A detailed description on the S-NPP reprocessing for ATMS including instrument and calibration principles, data characteristics, calibration algorithms, and validation results can be found in "The Reprocessed Suomi NPP Satellite Observations" by Zou et al. (2020).

The following list is a brief summary of the updates and improvements of the S-NPP ATMS operational calibration:

- 19 April 2012: Update of calibration coefficients at a post-launch instrument evaluation time after the initial implementation at the S-NPP launch time on 28 October 2011.
- 20 February 2014: Update of lunar intrusion correction.
- 8 March 2017: Update of calibration algorithm, which involved calibration algorithm changes from using the transfer function in its brightness-temperature form before to using the same transfer function but in its radiance form after 8 March 2017, and update of coefficient table. The change from brightness temperature to radiance forms in using the transfer function resulted in a better handling of and more accurate bias corrections in the cold space views owing to antenna emission.
- 15 October 2019: Update of reflector emission correction and antenna pattern correction coefficients.

For any questions, please contact Dr. Cheng-Zhi Zou (cheng-zhi.zou@noaa.gov).

Reference

Zou et al., 2020: The Reprocessed Suomi NPP Satellite Observations, Submitted to Remote Sensing.

Release Note of S-NPP Reprocessed SDR Data – CrIS Baseline Version, 08/26/2020

The NOAA Center for Satellite Applications and Research (STAR) is now announcing the release of the Baseline Version of the S-NPP CrIS reprocessed SDR data for user applications. This Baseline Version of the S-NPP CrIS reprocessed SDR data is defined as those generated using the operational calibration algorithm dated on 29 January 2020. The operational calibration of the Suomi NPP CrIS instrument has gone through a series of updates after the S-NPP launch. The CrIS life cycle reprocessing used the consistent calibration algorithm taken from the operational calibration after the update on 29 January 2020. The Suomi NPP recalibrated and reprocessed CrIS SDR data covers the time period from 11/08/2011 to 01/29/2020. A detailed description on the S-NPP reprocessing for CrIS, including instrument and calibration principles, data characteristics, calibration algorithms, and validation results can be found in "The Reprocessed Suomi NPP Satellite Observations" by Zou et al. (2020).

The following list is a brief summary of the updates and improvements of the S-NPP CrIS operational calibration:

- 11 April 2012: Update of the processing calibration coefficients.
- 20 February 2014: Implementation of updates of non-linearity coefficients and instrument line shape parameters, as part of the operational processing system.
- 4 December 2014: Transition to full spectral interferogram mode implemented in the Raw Data Record (RDR).
- 8 March 2017: IDPS Block 2.0 Mx0 update with the fringe count error detection and correction algorithm, change of the calibration algorithm to include both NSR and FSR SDR data as part of the operational processing system. Separation of the CMO and engineering packet output. Recalculating the resampling matrix using the latest metrology laser wavelength.
- 10 April 2017: IDPS Block 2.0 MX1 update in calibration equation and CrIS SDR FOV remapping.
- 2 October 2018: IDPS Block 2.1 Mx3 update with the spike detection and correction algorithm.
- 17 December 2018: IDPS Block 2.1 Mx4 update with the lunar intrusion detection algorithm.
- 24 June 2019: Using the latest fine-tuning of calibration coefficients to replace the coefficients in the Engineering Packet (EP) from RDR data stream.
- 29 January 2020: IDPS Block 2.1 Mx8 update with the polarization correction algorithm.

For any questions, please contact Dr. Cheng-Zhi Zou (cheng-zhi.zou@noaa.gov).

Reference

Zou et al., 2020: The Reprocessed Suomi NPP Satellite Observations, Submitted to Remote Sensing

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Development of VIIRS reprocessed data dissemination interface	Sep-20	Sep-20	Feb-20	
Optimize SDR reprocessing package	Sep-20	Sep-20	Jul-20	
Evaluation of impact of reprocessed VIIRS SDR data on cloud mask product	Sep-20	Sep-20	Dec-19	
Extend SNPP VIIRS reprocessing to 2019	Sep-20	Sep-20		
Finish V2 SNPP CrIS reprocessing	Sep-20	Sep-20		
Develop reprocessing data website	Sep-20	Sep-20	Jul-20	
Analyze the quality of reprocessed data in a journal paper	Sep-20	Sep-20	Jul-20	
Readme for reprocessed SNPP ATMS, CrIS, OMPS and VIIRS data	Sep-20	Sep-20	Aug-20	
Transition of reprocessed SNPP SDR data to CLOUD	Sep-20	Sep-20		

Accomplishments / Events:

- Developed the ICVS interactive modules under the beta ICVS-Vector web page (https://www.star.nesdis.noaa.gov/icvs-beta/index_icvs_vector.php)
- Provided near real time hurricane or tropical storm warm core 3-D structure watch to estimate the intensity using ATMS and VIIRS data
- Discussed ICVS team FY20 deliverables and current progress to ensure planned task can be delivered on time
- Discussed ICVS team FY21 working plan to upgrade current ICVS to better support JPSS cal/val team activities
- Upgraded the ICVS with one additional server and 3 data servers to re-distribute code processing, data usage, and running frequency.
- Observed N20 CrIS LW FOV2 noise increasing trend and provide preliminary data impact study.
- Discussed with X. Liang for the use of the improved AI-based VIIRS cloud mask algorithm code for future implementation into the ICVS (A joint effort).
- Started developing OMPS NM geolocation accuracy monitoring package.

Overall Status:

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

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

Issues/Risks:

Large ICVS Intersensor task relatively new and original schedule overly optimistic, pushed back ICVS interactive module task schedule due to resource constraints; ICVS-reprocessing tool prototype is removed from the scope of the project

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
ICVS Intersensor web site beta version (e.g., direct, CRTM, 3rd instrument as transfer)	Dec-19	Jun-20	Jun-20	
ICVS-J2 prototype beta version using J1 as proxy data	Dec-19	Dec-20		Lower priority
ICVS interactive modules (via beta ICVS-Vector web page)	Mar-20	Sep-20	Aug-20	
ICVS upgrade (if new servers are ready)	Sep-20	Sep-20	Aug-20	
VIIRS cloud mask module improvement using AI-based cloud detection algorithm: An article about the algorithm was published led by X. Liang (B. Yan and N. Sun are co-authors)	Mar-20	Sep-20	Aug-20	The improved algorithm code needs testing
Develop a LEO-GEO GSICS portal final version	Ma-20	Apr-20	Apr-20	
ICVS intersensor web site improvement	Jun-20	Jul-20	Jul-20	ABI sub-satellite point location issue
ICVS Module improvements (each instrument on both SNPP and NOAA-20) (QCs and other improvements)	Jun-20	Jun-20	Jun-20	
ICVS-AI modules for each instrument and SDR data lifetime performance assessment: OMPS geolocation error monitoring module	Jun-20	Sep-20		Low priority and schedule conflict with the new task (GSICS Portal)
JPSS-ICVS System Standardization and ICVS Annual Performance Review	Feb-20	Feb-20	Feb-20	

Highlights: Significantly contribute to STAR SDR Teams

N20 CrIS FOV5 ICT increasing trend shown in all FOVs ICT monitoring plot

N20 CrIS FSR ICT Spectral Stability, Long Wave, Daily Average
Created at 08/21/2020 – 12:17:34 UTC

FOV1 FOV2 FOV3 FOV4 FOV5 FOV6 FOV7 FOV8 FOV9
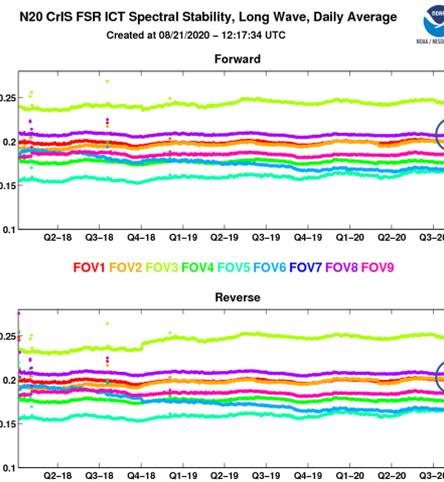
ICVS-HWCS Hurricane Watch product is used in JPSS Tweet (Courtesy of S. Kalluri)

Joint Polar Satellite System (JPSS) @JPSSProgram

As now-Tropical Storm #Laura moves northward into Arkansas, JPSS satellites are providing unique views into the rainfall rates, structure, and temperature of the storm that hammered the Louisiana and Texas coasts this morning. Read more: go.usa.gov/xGCag

LAURA 25 August 2020

6:42 PM · Aug 27, 2020 · Twitter Media Studio

VIIRS Imagery

Accomplishments / Events:

- **VIIRS EDR Terrain Correction code changes:** EDR Terrain-corrected images should be in production now (**Now verified!**).
- **VIIRS NOAA-20 DNB-to-NCC LUT update:** Still making progress deciphering and updating the outdated ASF tool, having it output DNB statistics by zenith angle bin, to be able to determine why there are significant LUT changes in the day-night terminator region.
- **VIIRS Imagery continues to be automatically captured and displayed online:** See image provided in lower-right.
- **VIIRS EDR Imagery Program Management Review presentation** outlining proposed budget for FY21 and beyond.
- **Monthly and Quarterly reports to StAR leadership include JPSS/VIIRS Imagery activities** as reported by StAR Imagery Lead (Hillger).

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 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/16/20	
Algorithm Updates Review	Jun-20	Jun-20	06/16/20	
N20 NCC LUT update	Sep-20	Jun-21		ASF tool update
All 16 M–bands as Imagery EDRs	Sep-21	Sep-21		Work-under-pcr
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization tool development/improvement (increase Polar SLIDER storage for longer archive and more imagery/combo products with multiple satellites)	Sep-20	Sep-20		
Annual VIIRS Imagery performance report	Feb-20	Feb-20	Feb-20	
Verification of cloud implementation	Sep-20	Q1 FY21		B2.3 TTO
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T ATMS data review/checkout	Jun-20	Jun-20	06/17/20	

Highlights: Image of the Month
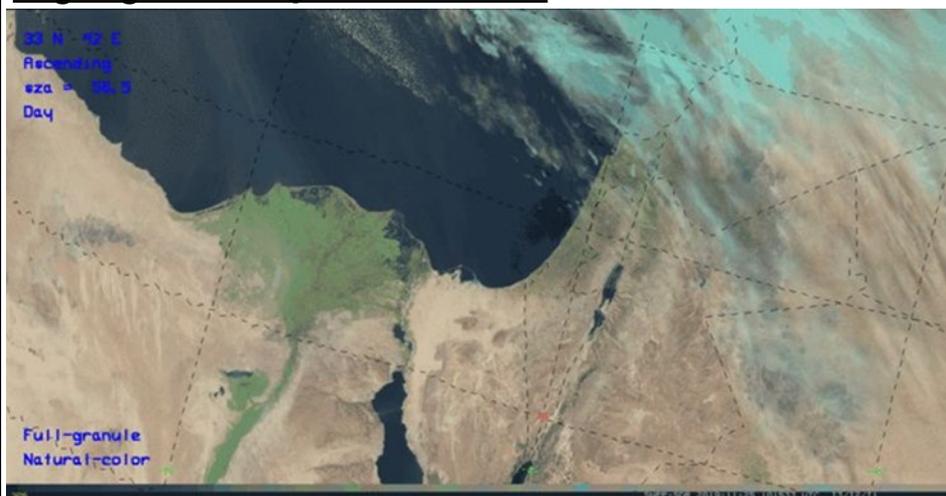
VIIRS natural-color RGB image, showing the Nile delta region (in green) and otherwise dry surrounding terrain (in tan/brown), with a few ice-phase clouds (in cyan) in the upper-right. This image was part of a VIIRS granule that was automatically captured and displayed online for validation checking.

Accomplishments / Events:

- The Cloud Team completed the FY21 milestone review. This review sets the tasks for the upcoming year.
- The v2r3 went operational in early Aug. 2020. This fixes the issue brought up by USAF and Snow cover team.
- Cloud height team rewrote ACHA module to different smaller codes for easier maintenance and improvement purposes. This includes the usage of the opaque cloud height/temperature/pressure (used by the ECM). In addition, the kd-tree method was applied within ACHA to improve lower level cloud height retrievals.
- Work on the new ECM LUT continued with work on the new CALIOP prior being done. Information contained in the new prior table will also be used in ACHA
- DCOMP team provided an initial analysis of the M5 impacts to be provided on September 4, 2020.
- It is anticipated there will be a delay for J2 proxy data testing due to delays in getting sample data from CWG. In addition, due to the schedule from NDE, the initial J2 DAP has been delayed.

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 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/10/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm update DAP to ASSISTT: ▪ Cloud Mask: Implement DNB ▪ Cloud Mask: Implement DNB ▪ Cloud Phase/Type: Optimize cloud phase thresholds for NOAA-20 ▪ ACHA: Improving multilayer ACHA ▪ CBH: Leverage DCOMP nighttime COD (DNB) to improve performance over IR-only ▪ CCL: Include super-cooled and convective fraction ▪ DCOMP: Incorporate improved surface reflectance for DCOMP channels ▪ NCOMP: Extend NCOMP cloud optical depth range to include larger values	Apr-20	Apr-20	Apr-20	With initial J1 DAP
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20	Sep-20	
Cal/Val Visualization tool and LTM webpage development/improvement	Sep-20	Sep-20		
Support Alaska Demo and ESRL usage	Sep-20	Sep-20		

Highlights:
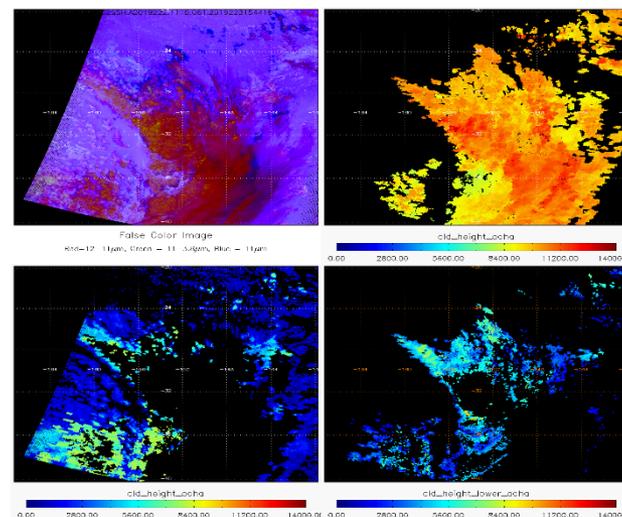
Figure 1. Example image of work on the lower level cloud height under overlapped conditions. MODIS data are used for demonstration purpose. Top panel shows a RGB image and high cloud height, and bottom shows unobscured low cloud (left) and obscured lower level cloud height (right). Unit for the cloud height color bar is meter.

Aerosol

Accomplishments / Events:

- J2 Algorithm CalVal Plan Delivered for Aerosol Detection Product

- J2 Algorithm Update Review held for stakeholders

- Aerosol teamwork featured in WaPo article on Arctic heat and fires.

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
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/15/20, 08/10/20	ADP Cal/Val more complexr than expected
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: • Re-derive surface reflectance (dark and bright land) relationships • Update thresholds in internal tests of sea ice and heavy aerosol over water for NOAA-20 • Fix issue with misidentification of bright surface. Retrieve AOD using dark-surface relationship • ADP algorithm updates to improve correct detection and minimize false detection over high latitudes	Apr-20	Apr-20	Apr-20	With initial J2 DAP
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool	Sep-20	Sep-20		

Highlights: Aerosol team contributions to Washington Post Article "Record Arctic blazes may herald new 'fire regime' decades sooner than anticipated"

Smoke detected from fires, August 6 2020

Figure from
https://www.washingtonpost.com/weather/2020/08/14/record-arctic-fires/?arc404=true

Volcanic Ash

Accomplishments / Events:

- Completed JSTAR project management review for volcanic ash EDR

- First (of many) VOLCAT workflow components successfully demonstrated in the NESDIS Cloud

Overall Status:

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

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

Issues/Risks:

None

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/29/20	
J2 Cal/Val Plan - final delivery	Dec-20	Dec-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Final J2 ready DAP to NDE (include NPP/N20 updates)	Jul-21	Jul-21		DAP to ASSISTT: Dec-20
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm update DAP to ASSISTT: ▪ Refine thresholds and LUT's for S-NPP and NOAA-20 as needed	Apr-20	Apr-20	Apr-20	With initial J2 DAP
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Pursue algorithm enhancements, including eventual transition to VOLCAT	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	User Summit
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Proposed schedule for moving from Volcanic Ash EDR to VOLCAT, presented at August PMR

	S-NPP	NOAA-20	NOAA-21
FY20	. Maintain and monitor quality of volcanic ash EDR	. Maintain and monitor quality of volcanic ash EDR	. Submit first draft of Enterprise validation plan
FY21	. Maintain and monitor quality of volcanic ash EDR	. Maintain and monitor quality of volcanic ash EDR	. Submit final draft of Enterprise validation plan
FY22	. Maintain and monitor quality of volcanic ash EDR and/or maintain S-NPP support in VOLCAT	. Maintain and monitor quality of volcanic ash EDR and/or maintain NOAA-20 support in VOLCAT	. Initial assessment of NOAA-21 volcanic ash EDR and/or NOAA-21 VOLCAT products

Cryosphere

Accomplishments / Events:

- *Yinghui Liu (CoRP/ASPB) has taken over as the JPSS cryosphere cal/val lead (not AMSR2).*

- *Improvement in VIIRS cloud masking over partially snow-covered land scenes. The new corrected version of the VIIRS cloud mask (v2r3) became operational at the beginning of August. The new cloud mask's initial analysis indicates that it provides a more realistic cloud identification over partially snow-covered areas. Particularly it does not interpret partially snow-covered scenes as cloudy as the previous version of the cloud mask did.*

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
Validated Maturity: Snow Cover (Binary Map & Snow Cover Fraction)	Apr-20	Jun-20	06/18/20	CM LUT
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Algorithm update DAP to ASSISTT: ▪ Add passive microwave filters to improve ice products ▪ Implement I-band ice products ▪ Evaluation of two Enterprise snow algorithms (VIIRS and ABI) and possible replacement	Apr-20	Apr-20	Apr-20	With initial J2 DAP
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Aug 23, 2019, NOAA-20 VIIRS   Aug 20, 2020, NOAA-20 VIIRS

Figure 1. Gridded NOAA-20 VIIRS Snow Fraction product over Greenland was produced with the previous version of the cloud mask a year ago (left) and the current version v2r3 (right). Clouds are shown in gray. Note a considerable improvement in the cloud masking over the partially snow-covered areas in the transition, snow to no-snow, zone.

Active Fires

Accomplishments / Events:

- Analyzed the NDE I&T data for the VIIRS I-band active fire product. Attribution of observed differences between the STAR and NDE I&T data is ongoing
- Generated slide sets for the upcoming ORR and SPSRB briefing for the VIIRS I-band product
- Worked with the CSPP team on the evaluation of data anomalies and a potential fix
- Delivered to ASSIST the initial DAP for eFire (Enterprise Fire) product capable of processing VIIRS data
- Worked with HRRR-smoke team to ensure stable VIIRS fire data input during the Aqua MODIS data outage period
- Continued production of VIIRS I-band data, also displayed in JSTAR Mapper

Overall Status:

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

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

## Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (M-Band & I-Band)	Jan-20	Jan-20	02/06/20	Scheduled: 2/6/20
Initial/Final DAP (I-Band)	May-20	Jun-20	06/24/20	With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/29/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	May-20	May-20	06/24/20	With I-Band DAP
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: ▪ I-band algorithm improvements	Jun-20	Jun-20	Feb-20	
ATBD update	Dec-19	Jan-20	01/29/20 06/15/20	M-band I-Band
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:
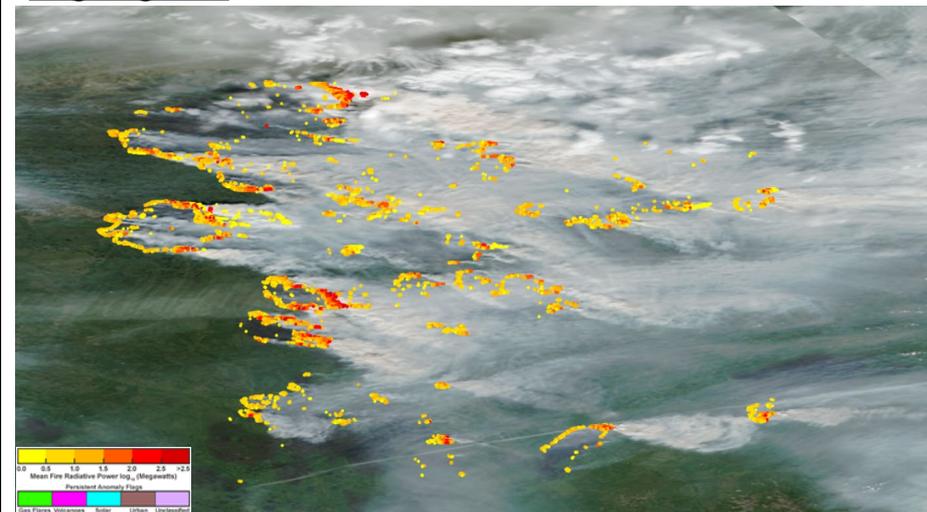
Suomi NPP VIIRS I-band fire detections and fire radiative power (FRP) over an area of intense biomass burning in Siberia on August 6, 2020, as displayed by the JSTAR Mapper system

Surface Reflectance

Accomplishments / Events:

- The surface reflectance team developed an approach to ensure that all pixels impacted by the NOAA-20 VIIRS I3 bad detector are properly assigned a missing value and flagged as invalid retrievals.

- The change, which affects less than 1.5% of the pixels, is implemented in the code package update that also includes readiness for the JPSS-2 satellite.

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		Delay in J2 initial DAP delivery

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: J2 initial DAP delivery is now scheduled for August 2020. Low impact on schedule and performance.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Apr-20	Jun-20	06/18/20	
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/29/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Oct-20	Oct-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: ■ Update aerosol and cloud quality information and their use ■ Possibly adjust of some retrieval LUTs ■ Streamline internal processing code ■ Make product content compatible with CEOS Analysis Ready Data for Land requirements	Jun-20	Jun-20	With initial J2 DAP No code delivery from team, instead work with ASSISTT team for N20 code fix for Iband3 & J2 capability	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

An example of NOAA-20 VIIRS I3 surface reflectance retrievals before (top) and after (bottom) of the code change, where spurious retrievals are replaced by missing values. The data are from the spatial window 18-19 N, 24-27 E on August 1, 2020 at 11:14 UTC and represent a case with higher-than-typical impact.

Mike Wilson, IMSG@STAR

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 August 2020.

– The team has completed post-processing of the 2019 Global Surface Type (GST) product. Other related products and accuracy estimates will be produced next.

– The team continues to explore methods for combining S-NPP and NOAA-20 data to improve surface type monitoring by reducing cloud/shadow contamination.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Provisional Maturity	Sep-20	Sep-20		
Validated Maturity	Sep-20	Sep-20		
Annual performance report	Feb-20	Feb-20	Feb-20	
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/29/20	
Algorithm Updates Review			07/21/20	
AST19 (Annual Surface Type):				
Collaborate with land teams on daily and monthly product gridding and compositing for NDE Enterprise Algorithm (SR/NDVI/EVI/Temperature)	Sep-20	Sep-20	Mar-20	Land team completed the effort early
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST19 based on 2019 VIIRS data	Aug-20	Aug-20	Mar-20	Completed early for each month of 2019
Generate VIIRS AST19 based on 2019 VIIRS data using SVM algorithm	Aug-20	Aug-20	Aug-20	
Comparison of AST19 with surface type validation data (Accuracy statistics of the new AST19 and LWM)	Sep-20	Sep-20		
Delivery of AST19 (available for users through STAR FTP)	Sep-20	Sep-20		
AST18 NDE delivery (ASSISTT)				
• Download AST18 from JSTAR web • Chain-run to make sure the delivery works for the down-stream products • Deliver AST18 DAP to NDE	Sep-20	Sep-20		With JRR DAP

Highlights:

Final Global Surface Type (GST) Map Derived Using 2019 VIIRS Data

Surface Types
- Evergreen Needleleaf Forests
- Evergreen Broadleaf Forests
- Deciduous Needleleaf Forests
- Deciduous Broadleaf Forests
- Mixed Forests
- Closed Shrublands
- Open Shrublands
- Woody Savannas
- Savannas
- Grasslands
- Permanent Wetlands
- Croplands
- Urban and Built-up Lands
- Cropland/Natural Vegetation Mosaics
- Snow and Ice
- Barren
- Water Bodies

Land Surface Temperature

August, 2020

Accomplishments / Events:

- The methodology for VIIRS LST uncertainty estimation at pixel level (first version) is determined. The LST uncertainty attributed to the total precomputable water vapor uncertainty needs further improvement. (slide 1)
- Finished the software code for each component and overall LST uncertainty estimation.
- Finished the LST uncertainty test at granule scale. Day/night separated granules were selected for the test.
- Finished the LST uncertainty test at global scale. One representative day in each season is selected for the test.
- Heatwave monitoring in death valley area based on the daily gridded VIIRS LST which indicates the heatwave occurrence. (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:

Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded LST product	Sep-20	Sep-20		report
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: • Update of coefficients with better stratification for TPW • Uncertainty study of the JPSS LST product • Additional cloud filtering • Improved emissivity dataset • LUT update	Mar-20	Apr-20	Apr-20	
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights: Hot temperature monitoring over death valley, CA

J01 LST on 20200815 Day

N20 LST on 20200815 over Death Valley

LST uncertainty estimation method
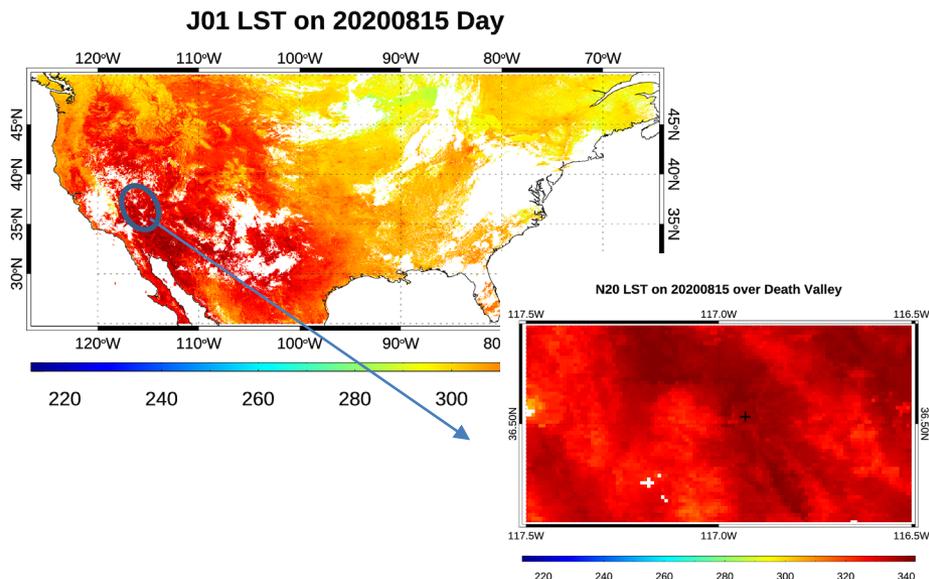
$$s_{lst} = \sqrt{S_{tpw}{}^2 + S_{noise}{}^2 + S_{emi}{}^2}$$

Three input accuracy are considered: forecast total precomputable water vapor uncertainty (Stpw), sensor noise impact (Snoise) and emissivity uncertainty(Semi).

- Emissivity uncertainty

$$S_{\varepsilon}{}^2 = S_{\varepsilon_{11}}{}^2 + S_{\varepsilon_{12}}{}^2$$

$$S_{\varepsilon_{11}} = (\frac{c_3}{2} + \frac{c_4}{2}(T_{11} - T_{12}) + \frac{c_5}{2})\delta\varepsilon_{11} \qquad S_{\varepsilon_{12}} = (\frac{c_3}{2} + \frac{c_4}{2}(T_{11} - T_{12}) - \frac{c_5}{2})\delta\varepsilon_{12}$$

- Sensor noise

$$\delta T_s = \sqrt{\delta T_1{}^2 + \delta T_2{}^2}$$

$$\delta T_1 = (C_1 + C_2 + C_4 * \varepsilon)\delta BT_{11} \qquad \delta T_2 = (-C_2 - C_4 * \varepsilon)\delta BT_{12}$$

Where δBT_{11} is set as 0.070 and δBT_{12} is set as 0.072

- Tpw uncertainty

$$S_{tpw}{}^2 = \sum_k \left(LST_j - \widehat{LST_j} \right)^2 P(\widehat{W_j}|W) \Big)$$

Where
LST_j is the LST value calculated with coefficient for the class W
$\widehat{LST_j}$ is the LST value calculated with coefficient for the class $\widehat{W}$
P denotes the probability that Wj belongs to the water vapor content class $\widehat{W}$ given the true class of W.

LST Uncertainty estimation at granule scale
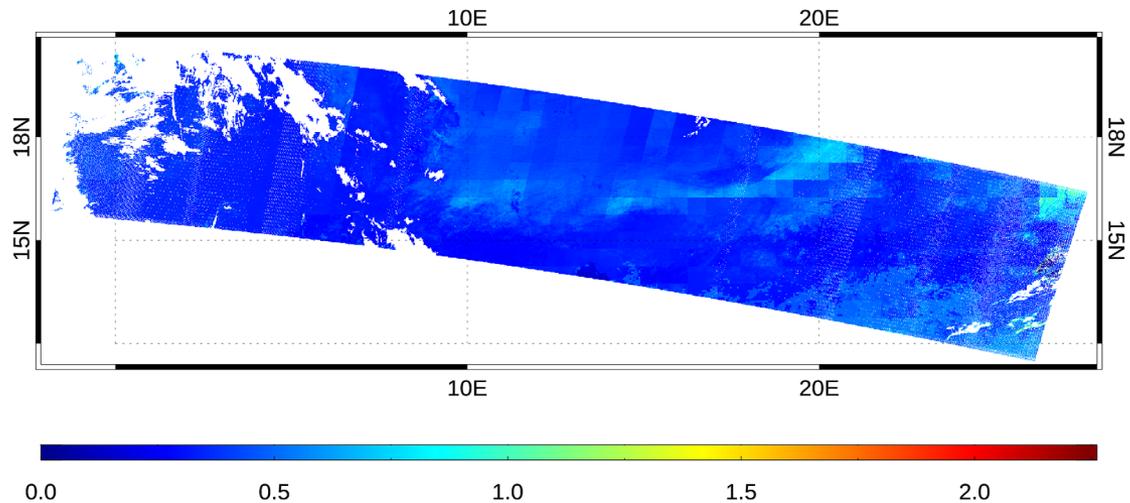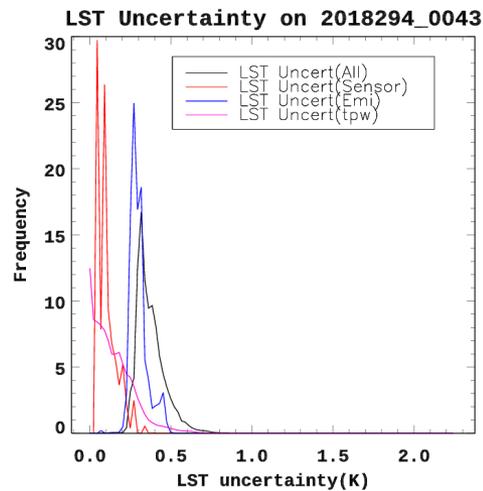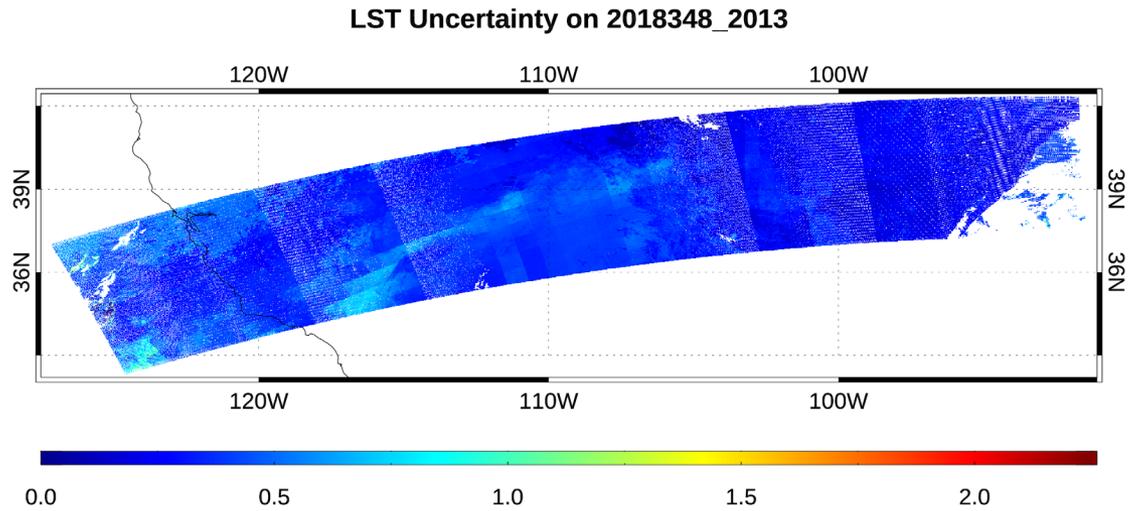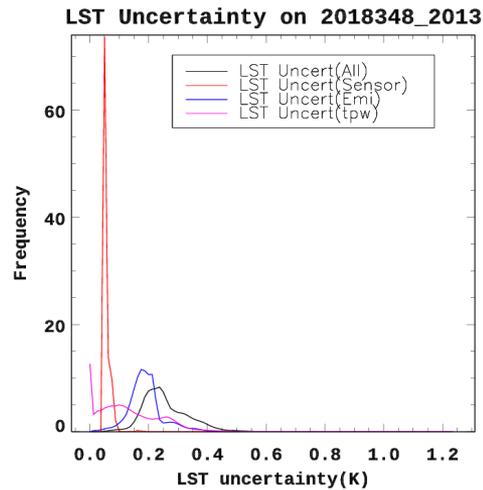
Two granules were selected for the test. Left figures show the histogram of the overall LST uncertainty and its three components i.e LST uncertainty attributed to sensor noise, emissivity uncertainty and tpw uncertainty. Right figure shows the overall LST uncertainty map.

LST Uncertainty estimation at global scale

Daytime

LST Uncertainty on 20191001
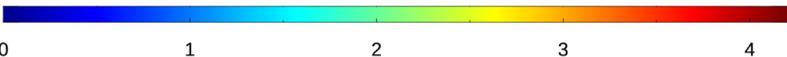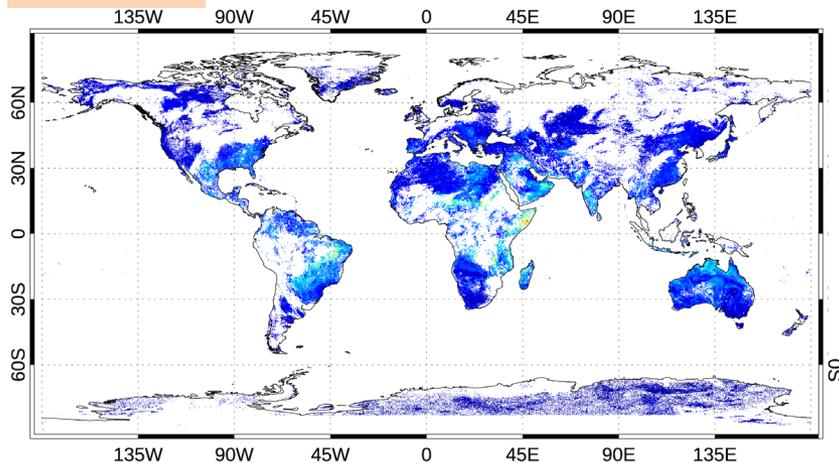
Nighttime

LST Uncertainty on 20191001

LST Uncertainty on 20191001
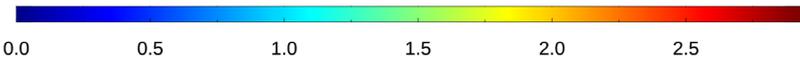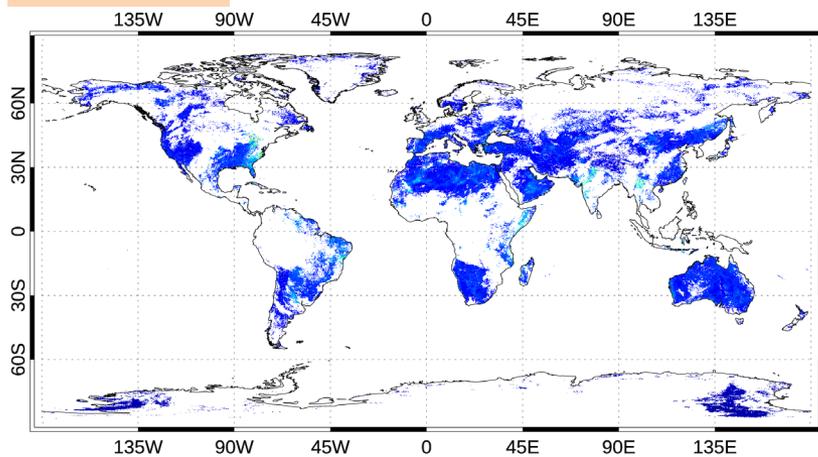
LST Uncertainty on 20191001
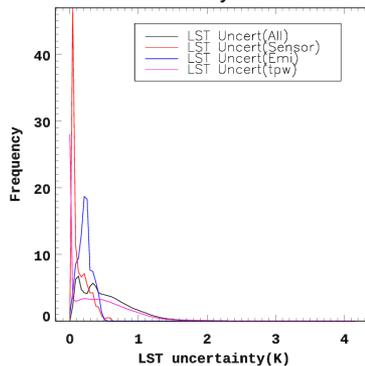
The overall LST uncertainty map and histogram for daytime (top left and middle) and nighttime(bottom left and middle); Right figures show the daytime overall LST uncertainty with its components(middle and bottom right) and LST and tpw values (top right)

34
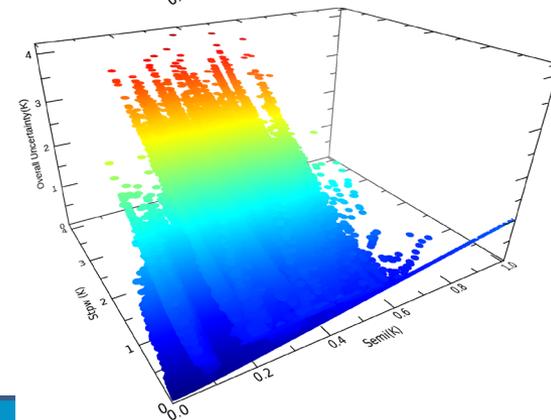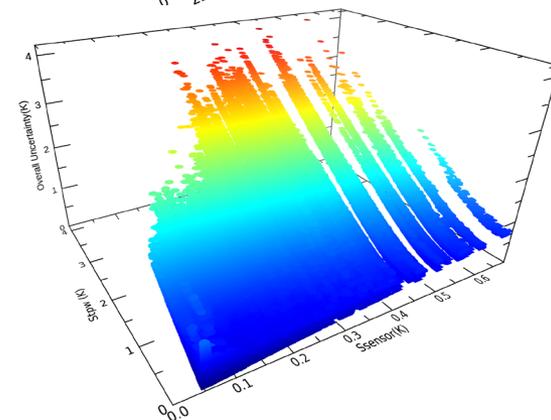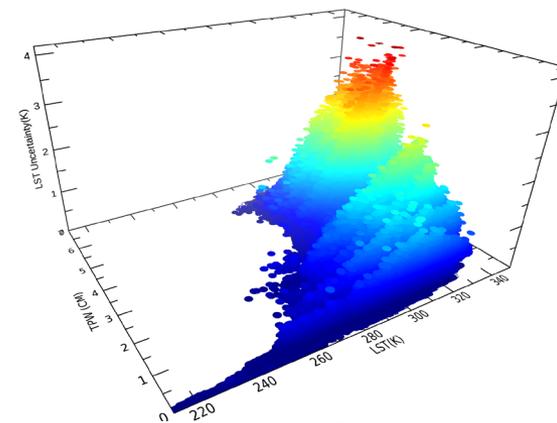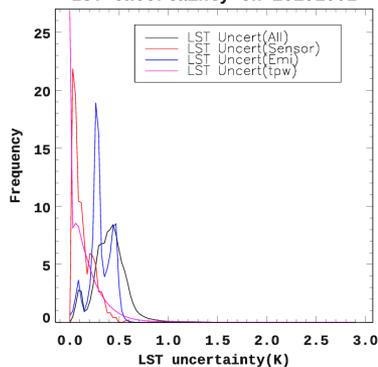
Accomplishments / Events:

- Cooperated with the ASSISTT group and NDE team to solve the L3 operational albedo data missing over Antarctic area. The issue is related to system library and solved through static compilation.

- Support the integration of LSA update in the 2020 v2r0 DAP, mainly including the VIIRS surface type adaptation, snow/ice mask switch, and climatology update.

- Developed a ground-based cloud filtering algorithm using in situ downward shortwave radiation and used SURFRAD site data for the test. The minute-level cloud mask would support deep validation of LSA (or LST) product.

- Found a data gap issue in L2 operational albedo product and reported to the NDE team. Diagnosed the L2 product and identified that the data gap exists in cloudy pixels and is caused by not correctly using offline output in the online run.

Overall Status:

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

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

Issues/Risks:

Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded SURFALB product	Sep-20	Sep-20		report
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: • Improve the heterogeneity uncertainty analysis method • Refining the 1-km climatology LSA	Mar-20	Apr-20	Apr-20	
Developing a blended albedo product	Sep-20	Sep-20	Feb-20	
JRR v2.3 Patch DAP delivered to NDE			04/29/20 08/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

Enhanced ground-based cloud filtering algorithm using in situ downward shortwave radiation, which would support the validation of satellite land products.

bon_20180101

n =0.64631
n0 =2.3
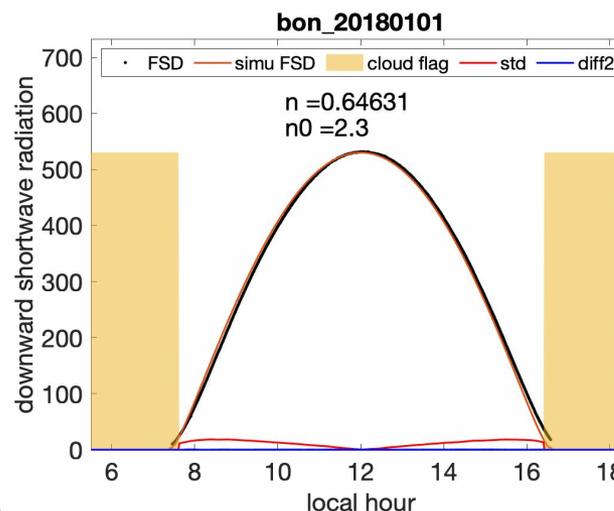
Animation of the minute-level cloud mask at Bondville site using SURFRAD data.

# Resolution of the L3 albedo data missing issue

SNPP 08/16/2020

SNPP VIIRS Global Albedo (L3 NDE): Aug 16 2020

OPS

SNPP VIIRS Global Albedo (L3 NDE): Aug 16 2020

IT
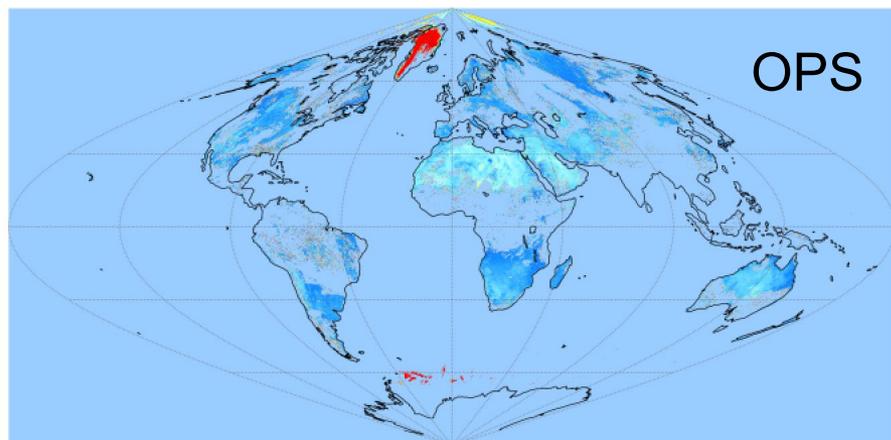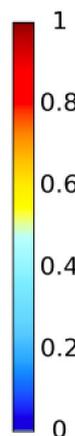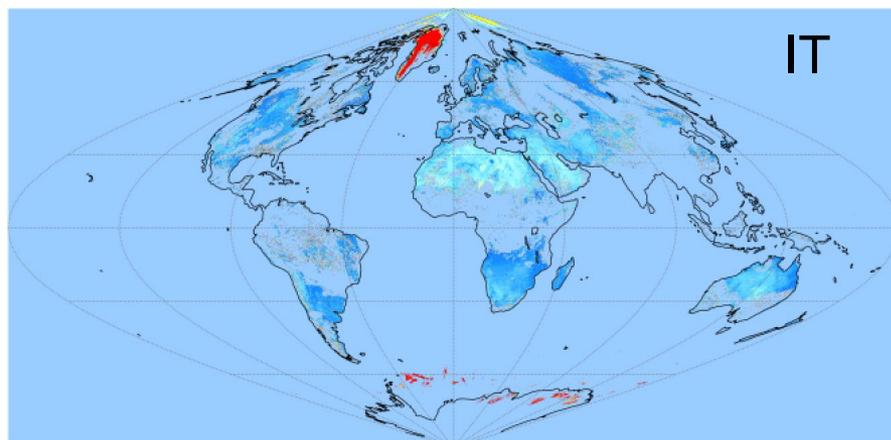
- The IT data has fixed the previous data missing issue over Antarctic region in VIIRS_albedo_1km, ProductQualityInformation, and metadata.

- The updated result was supposed to be beautiful with complete global coverage; however, the L2 operational data is suffering from another data missing issue due to a system update.

- Results show that the updated version has more data coverage and different value over Antarctic region and adjacent sea-ice area while the valid_number_retrievals from in metadata has increased, which is as expected.

SNPP VIIRS Albedo Diff 08/16/2020

2020 DAP integration verification
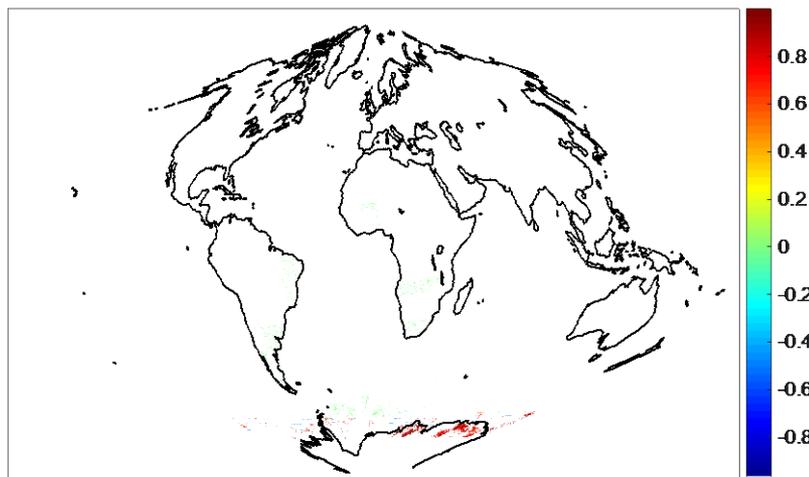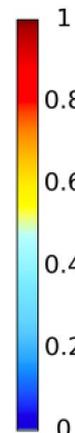
		SURFALB_IMS			
		generic	Bare soil	snow	ice
SURFALB_JRR	generic	PASS ✓	--	PASS ✓*	--
	Bare soil	--	PASS ✓	PASS ✓*	--
	snow	PASS ○ (Figure)	--	PASS ✓	--
	ice	--	--	--	--

1. The code update has generated expected output with improved albedo over snow, ice, and bare soil surface.

2. The cleanup in the framework is successful and generates consistent result as delivered.

		SURFALB_IMS_cleanup			
		generic	Bare soil	snow	ice
SURFALB_IMS	generic	PASS ✓	--	--	--
	Bare soil	--	PASS ✓	--	--
	snow	--	--	PASS ✓	--
	ice	--	--	--	--

-- None sample   ○ Difference as expected   ✓ Consistent

Update about snow/ice mask in 2020 DAP

- The production rule:
  Prefer the newest IMS/SSMI as soon as possible no more than 1 day old.
  If unavailable, then use the newest SNOW_MASK_NWP no more than 1 day old.
  If also not ready, then use the JRR snow and ice products.
- The related data source:
  Normally, the latency for IMS and SNOW_MASK_NWP is no more than 1 day.
  "SNOW_MASK_NWP" is a mashup of GFS and our ancillary SST+Ice (OISST or CMCSST).
  JRR products means the VIIRS snow mask EDR and ice concentration EDR.
- Snow/ice data suggestion and test from the ASSISTT team is greatly appreciated.

Similar of when SNOW_MASK_NWP uses CMC (same day) where green is snow and white is ice:
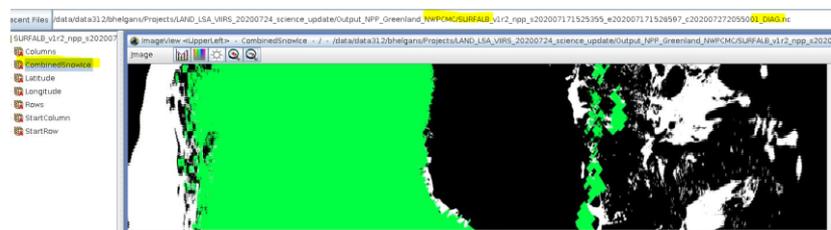
NWP (CMC)
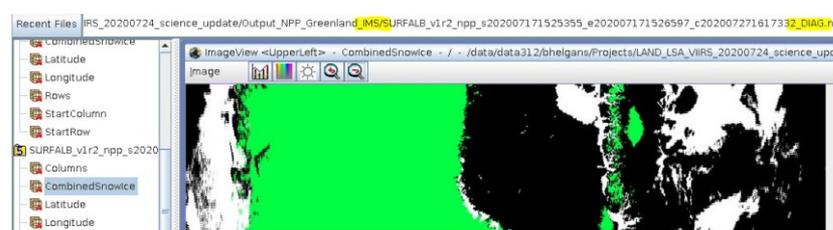
IMS

For your convenience the JRR composite is below:
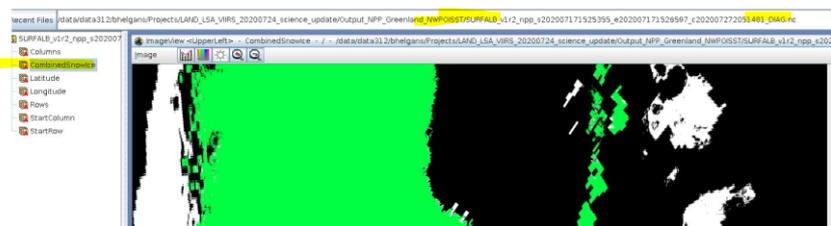
NWP (OISST)

JRR

Downward shortwave irradiance and cloud

In a dry and clean atmospheric condition, solar irradiance is attenuated by permanent atmospheric of which containing gases, air molecules and ozone, varying aerosol particles and water vapor. Cloud detection can be conducted through comparing the actual downward shortwave radiation (DSR) with simulated DSR under clear-sky condition.

# NDE OPS L2 albedo data missing issue

➢ The data missing within granules

Before Aug 06, 2020

JPSS1 VIIRS Global Albedo (Daily Composite): Aug 05, 2020
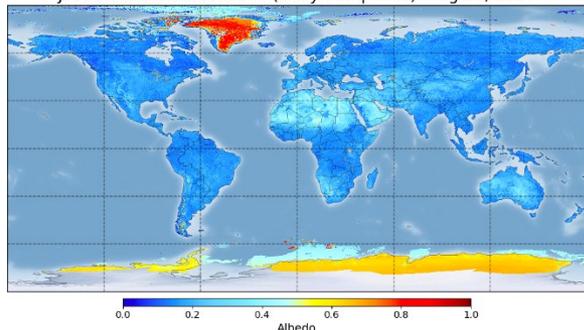
VIIRS-Albedo-IP

VIIRS-Albedo-EDR
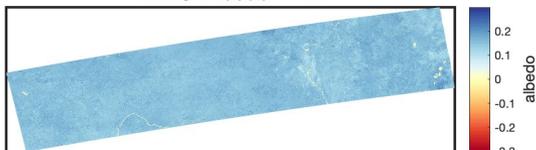
LSA: EDR-IP
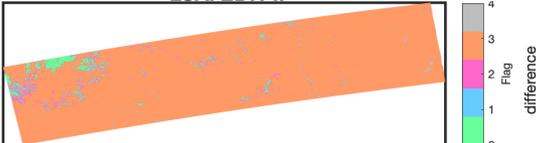
SURFALB_v1r2_j01_s202008051136565_e2
02008051138211_c202008051220550.nc

Animation in timeline

JPSS1 VIIRS Global Albedo (Daily Composite): Aug 01, 2020
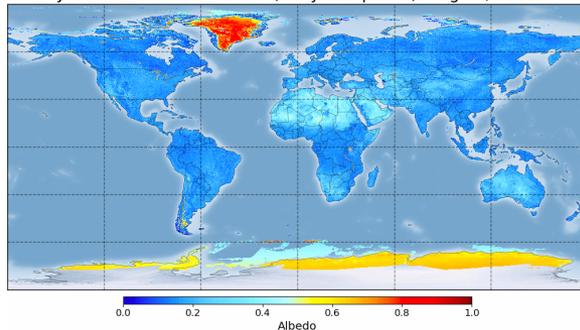
- In global composition data, we can observe the normal data on Aug 05 has complete coverage over globe, but the data since Aug 06 has gaps.

- In granules, we can observe the Aug 05 sample has complete albedo coverage in EDR over all-sky conditions, but the Aug 13 sample shows data gap over cloudy pixels, as the EDR layer is directly from IP without using offline data to generate value for cloudy-pixels.

- The issue is under investigation

After Aug 06, 2020

JPSS1 VIIRS Global Albedo (Daily Composite): Aug 07, 2020
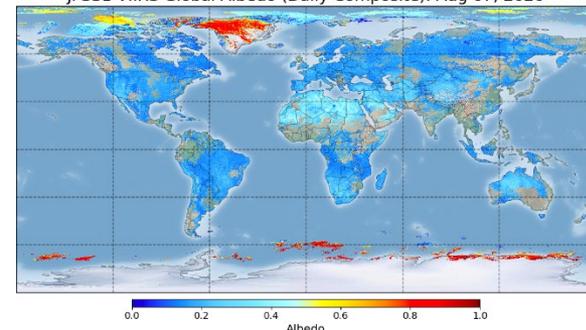
VIIRS-Albedo-IP
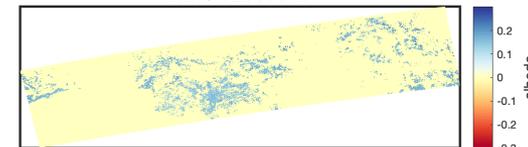
VIIRS-Albedo-EDR
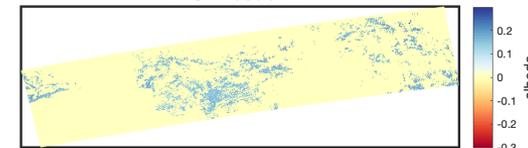
LSA: EDR-IP
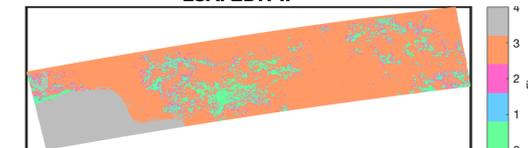
SURFALB_v1r4_j01_s202008131227341_e2
02008131228568_c202008131259130.nc

NVPS
(Vegetation Index & Green Vegetation Fraction)

August, 2020

Accomplishments / Events:

- Verified NPP 8-day and 16-day compositing in v2 VI
- Compared NPP VIs of v2 to ones of v1.4
- Compared VIs of v2 from NPP to ones from NOAA20
- Resolved CF Compliance issues in VI v2:
    - Added metadata- geolocation information, and quality information variables of VIs to comply with new NDE standard checker 1.6
    - Modified properties of some attributes in quality flags (QF1, QF2) to comply with CF 1.5 compliance checker

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:

See attached slides

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Feb-20	Apr-20	04/23/20	Combine review
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: ▪ NVPS algorithms optimization and improvement (to reduce the process time) ▪ Sensitivity analysis of the GVF/VI gridding algorithms	Jul-20	Jul-20	07/10/20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Deep-dive analysis for the anomaly watch	Sep-20	Sep-20		

Verify NPP 8-day and biweekly VI compositing (ARM-SGP)

Daily VI							
Year	Month	Day	SAVI	Max_SAVI	c	VA-SAVI	signed VZA
2020	4	1	0.5989	0.6390	0.000076	0.2866	-6405
2020	4	2	0.0845	0.6390	0.000076	-0.1130	-5093
2020	4	3	0.0645	0.6390	0.000076	-0.0050	-3021
2020	4	4	0.0846	0.6390	0.000076	0.0846	-35
2020	4	5	0.5675	0.6390	0.000076	0.5019	2936
2020	4	6	0.0782	0.6390	0.000076	-0.1106	4979
2020	4	7	0.6390	0.6390	0.000076	0.4006	-5596
2020	4	8	0.5907	0.6390	0.000076	0.4796	-3821
2020	4	9	0.4014	0.6431	0.000076	0.3922	-1099
2020	4	10	0.5961	0.6431	0.000076	0.5648	2031
2020	4	11	0.6431	0.6431	0.000076	0.4960	4402
2020	4	12	0.1025	0.6431	0.000076	-0.1615	5898
2020	4	13	0.0979	0.6431	0.000076	-0.0563	-4508
2020	4	14	0.3261	0.6431	0.000076	0.2924	-2109
2020	4	15	0.5810	0.6431	0.000076	0.5730	1027
2020	4	16	0.6364	0.6431	0.000076	0.5311	3726

8-day composite VI							
Year	Month	Day					
2020	4	8	0.5675	0.5810	0.000079	0.4997	2936
2020	4	16	0.5810	0.5810	0.000079	0.5727	1027

Verified:
8-day composite VI data are selected correctly from the input daily VI data

16-day composite VI data are selected correctly from the input 8-day composite VI data
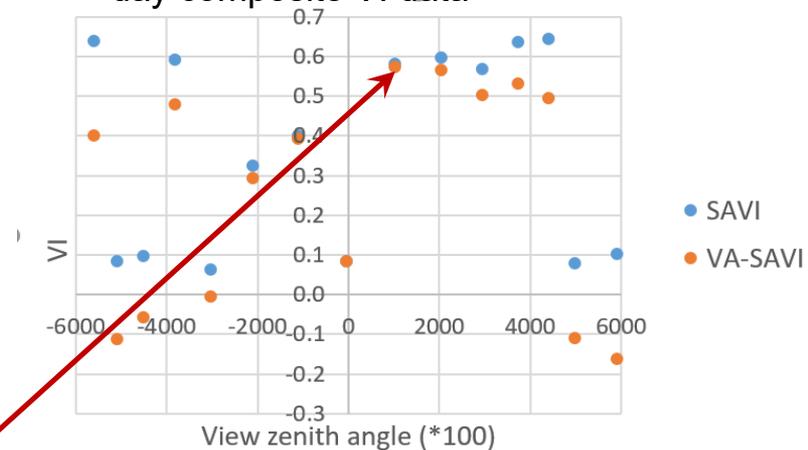
Verify NPP 8-day and biweekly VI compositing (Bondville)

Daily VI							
Year	Month	Day	SAVI	Max_SAVI	c	VA-SAVI	signed VZA
2020	4	1	0.1661	0.3045	0.000072	0.1645	471
2020	4	2	0.2340	0.3045	0.000072	0.1598	3203
2020	4	3	0.1052	0.3045	0.000072	-0.0805	5066
2020	4	4	0.0505	0.3045	0.000072	-0.1452	-5200
2020	4	5	0.2942	0.3045	0.000072	0.2153	-3303
2020	4	6	0.0691	0.3045	0.000072	0.0669	-548
2020	4	7	0.2010	0.3045	0.000072	0.1600	2380
2020	4	8	0.3045	0.3045	0.000072	0.1557	4534
2020	4	9	0.0992	0.3176	0.000073	-0.1578	5919
2020	4	10	0.3176	0.3176	0.000073	0.1984	-4031
2020	4	11	0.1118	0.3176	0.000073	0.0943	-1545
2020	4	12	0.0649	0.3176	0.000073	0.0492	1461
2020	4	13	0.1853	0.3176	0.000073	0.0728	3917
2020	4	14	0.2053	0.3176	0.000073	-0.0653	-6073
2020	4	15	0.2329	0.3176	0.000073	0.0736	-4659
2020	4	16	0.1576	0.3176	0.000073	0.1128	-2471

8-day composite VI							
Year	Month	Day					
2020	4	8	0.2942	0.3176	0.000073	0.2142	-3303
2020	4	16	0.3176	0.3176	0.000073	0.1984	-4031

Verified:
8-day composite VI data are selected correctly from the input daily VI data

16-day composite VI data are selected correctly from the input 8-day composite VI data

Apr 1-16, 2020
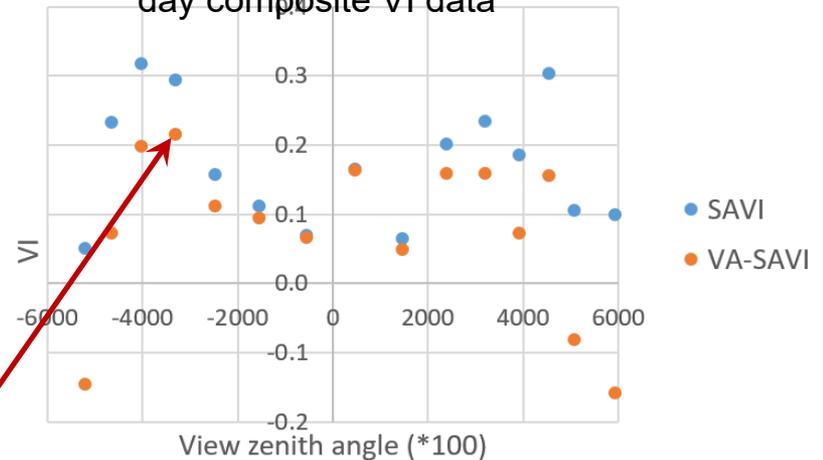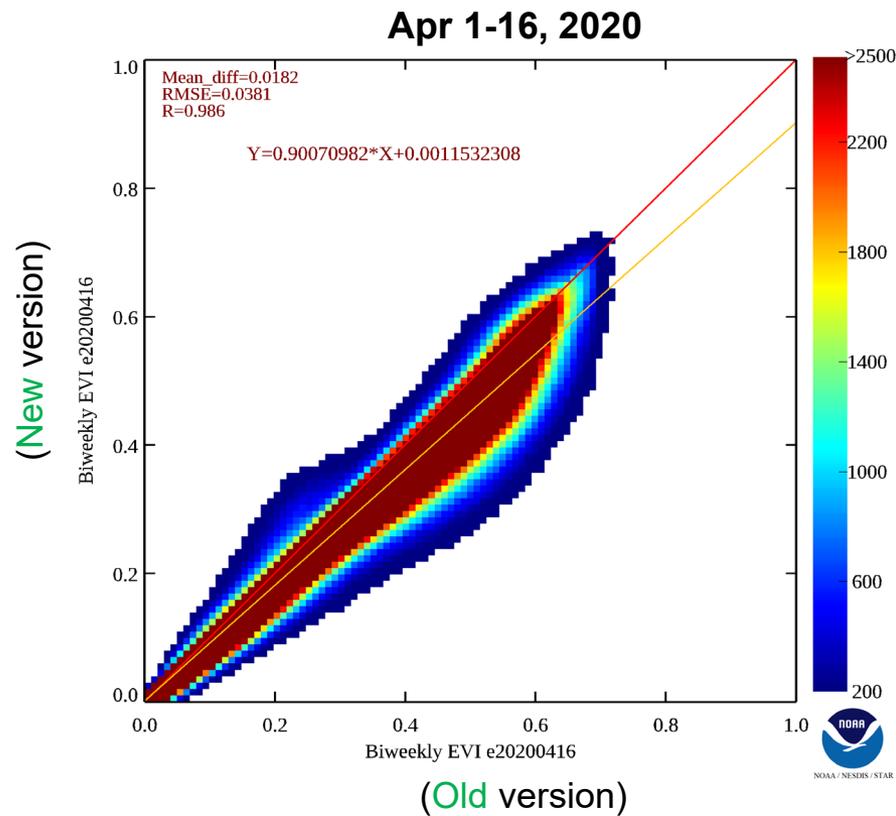
New version EVI is slightly lower than the old version EVI Bias=0.018

VI v2, NPP vs. NOAA20
# Biweekly, overall (one 16 day period starting
1 April 2020)

	GLOBAL		
Biweekly			
	Accuracy	Precision	Uncertainty
TOA NDVI	0.0038	0.0197	0.0201
TOC NDVI	0.0017	0.0198	0.0198
TOC EVI	0.0064	0.0211	0.0220

	REGIONAL		
Biweekly			
	Accuracy	Precision	Uncertainty
TOA NDVI	0.0022	0.0245	0.0246
TOC NDVI	0.0003	0.0258	0.0258
TOC EVI	0.0075	0.0285	0.0295
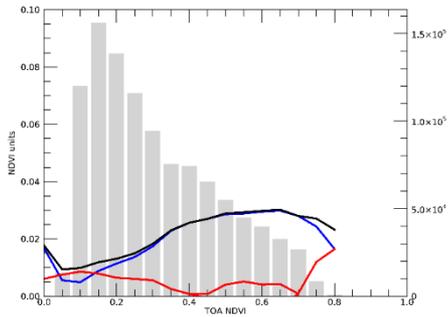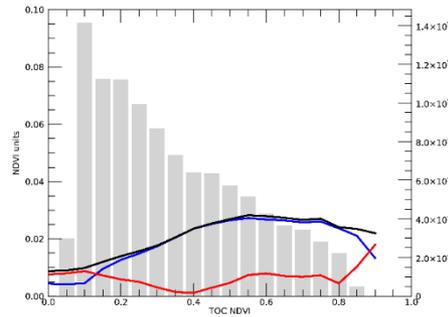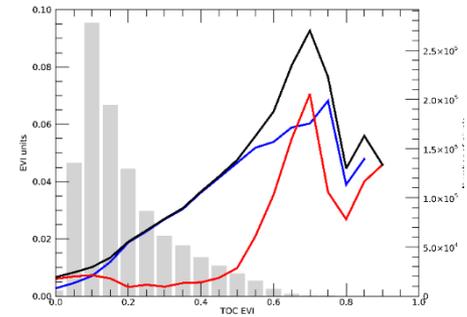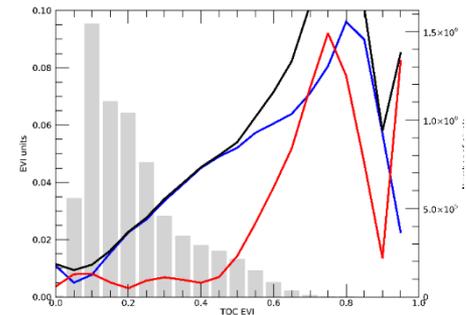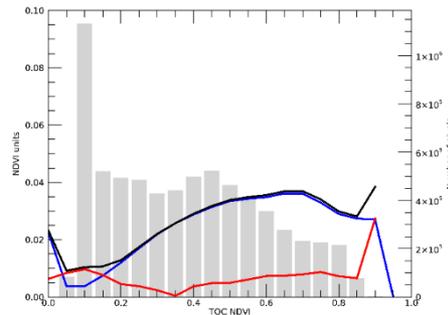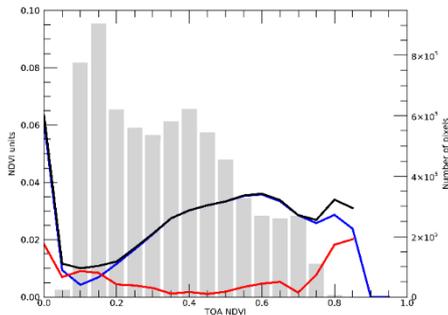
V2r1 VI data CF 1.5 Compliance Checking

File name: VI-DLY-GLB_v2r1_j01_s20200401_e20200401_c202008171925490.nc

Output of CF-Checker follows...

```
CHECKING NetCDF FILE: /tmp/13135.nc
=====================
Using CF Checker Version 3.1.1
Checking against CF Version CF-1.5
Using Standard Name Table Version 74 (2020-08-04T14:43:55Z)
Using Area Type Table Version 10 (23 June 2020)
Using Standardized Region Name Table Version 4 (18 December 2018)
```

```
ERRORS detected: 0
WARNINGS given: 0
INFORMATION messages: 0
```

No errors detected!

File name: VI-DLY-REG_v2r1_j01_s20200401_e20200401_c202008131801230.nc

Output of CF-Checker follows...

```
CHECKING NetCDF FILE: /tmp/13135.nc
=====================
Using CF Checker Version 3.1.1
Checking against CF Version CF-1.5
Using Standard Name Table Version 74 (2020-08-04T14:43:55Z)
Using Area Type Table Version 10 (23 June 2020)
Using Standardized Region Name Table Version 4 (18 December 2018)
```

```
ERRORS detected: 0
WARNINGS given: 0
INFORMATION messages: 0
```

No errors detected!

Vegetation Health

Accomplishments / Events:

- Updated DAP code to fit J02 requirements and feedbacks from ASSISTT/NDE, mainly on metadata;

- Migrated large volume of mapTile and other web directories to new storage, and modified webpage links to make sure they run well;

- Finished Algorithm Update Review slides (highlighted);

- Replied to internal review comments of two manuscripts;

- Generated a series of data and figures of VIIRS/VHP-1 and -4, -16 km resolution products, covering August 2020.

Overall Status:

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

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

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
N20 Final DAP (to NDE)	Dec-20	Dec-20		Combine with initial J2 ready DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/23/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		With final N20
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Algorithm update DAP to ASSISTT: ▪ Algorithm updates/improvements	Jul-20	Jul-20	Jul-20	With initial J2 & final N20 DAP
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20	Jun-20	

Highlights: Algorithm Update Review Slides

J2 Requirements – Vegetation Health

- For J2, the Vegetation Health algorithm developers shall update the driver scripts to handle the J2 file name patterns from IDPS, to meet ASSISTT/NDE requirements.

- For J2, the Vegetation Health algorithm developers shall evaluate sensor differences (S-NPP and J1 VIIRS versus J2 VIIRS) and make adjustments to LUTs accordingly. This characterization will involve testing 5-day versus 7-day composites.

- For J2, the Vegetation Health algorithm developers shall develop a VIIRS climatology to be used within the algorithm. The climatology will be compared against standard VH products.

- Calculate VIIRS-based VH indices (VCI, TCI and VHI). Test VH indices with standard VH products

- For J2, the Vegetation Health algorithm developers shall validate VIIRS Vegetation Health against in situ data.

- For J2, the Vegetation Health algorithm developers shall update the ATBD, SMM, EUM, and Validation Plan as needed.

9

Accomplishments / Events:

Successful validated maturity review

A paper was published in *Water Research* showing water properties derived from VIIRS for high-altitude Lake Tahoe. This is first time for remote sensing of water properties for high altitude lake.

Overall Status:

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

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

Issues/Risks:

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Jun-20	Jul-20	07/17/20	Complex N20 SDR analysis
Updated N20 DAP to CoastWatch	Nov-20	Nov-20	07/17/20	
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/23/20	
Initial J2 ready DAP delivery (include NPP/N20 updates)	Dec-20	Dec-20		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Improve the merged VIIRS OC data from SNPP and NOAA-20	Sep-20	Sep-20		
Vicarious calibration for VIIRS-NOAA-20 using MOBY in situ data	Jun-20	Jun-20	04/17/20	
Complete the Sixth VIIRS ocean color dedicated cruise	Apr-20		cancelled	Due to the virus
Complete the fifth VIIRS cruise report and in situ data analyses (e.g., improve in situ data quality)	Oct-20	Oct-20		
Routine ocean color data production for both NRT and science quality data streams	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

A New Paper: The Great Lakes Water Properties from VIIRS Measurements
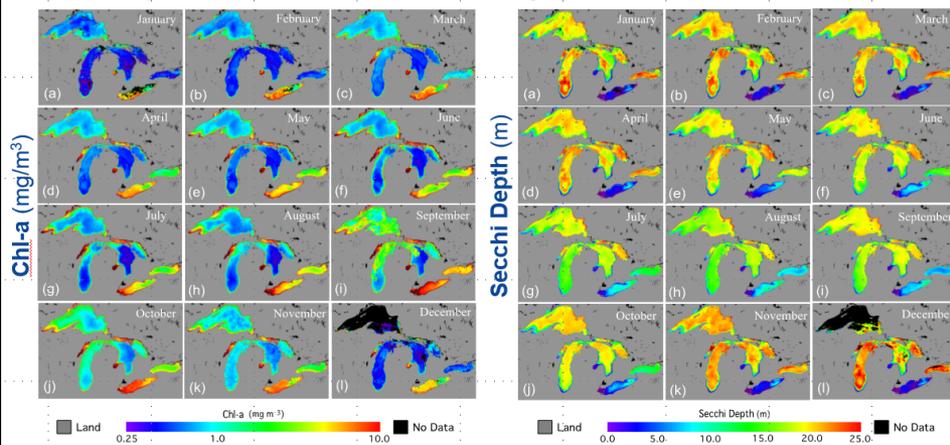
- Chlorophyll-a (Chl-a) and Secchi depth (SD) algorithms for the Great Lakes have been developed using the VIIRS observations. VIIRS-derived data are used for quantitatively characterizing water property in the Great Lakes.
- The left panel shows VIIRS-derived climatology (2012-2019) monthly chlorophyll-a images for January to December (a-l).
- The right panel shows VIIRS-derived climatology (2012-2019) monthly Secchi depth images for January to December (a-l).

Sea Surface Temperature

Accomplishments / Events:

- ACSPO V2.80 Delivered Algorithm Package (DAP) delivered to ASSISTT. It is comprised of 6 individual DAPs: VIIRS; AVHRR (FRAC and GAC); MODIS; ABI; AHI; and L3S-LEO codes. The 2.80 is J2-ready, and MTG-ready.
- Two new functionalities added in v2.80: (1) it is capable of producing super-collated gridded L3S-LEO product (data fusion from multiple overpasses of available VIIRS instruments; currently two); and (2) thermal fronts. See example in Figure below. This delivery closes two milestones (see below).
- The J2 pre-launch test/proxy data review/analysis conducted on 18 Aug 2020. This closes another milestone (see below).
- Work commences on ACSPO 2.90 due for delivery to ASSISTT in Jul 2021, with improved algorithms for mask, SST, fronts, fusion.

Overall Status:

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

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

Issues/Risks:

None

| Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Updated DAP (ACSPO 2.80, implement thermal fronts. improvements to support data fusion, J2 readiness) to ASSISTT	Aug-20	Aug-20	08/28/20	With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20	Aug-20	
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	07/16/20	
Initial J2 ready DAP from ASSISTT to NDE (include NPP/N20 updates)	Nov-20	Nov-20		With ACSPO 2.80
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
Complete VIIRS RAN2 archival with PO.DAAC & NCEI	Aug-20	Aug-20	Jul 2020	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb 2020	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20	Jul 2020	
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Maintain SQUAM/iQuam/ARMS. Resolve anomalies	Sep-20	Sep-20		

L3S-PM (day) 22 Jun 2020
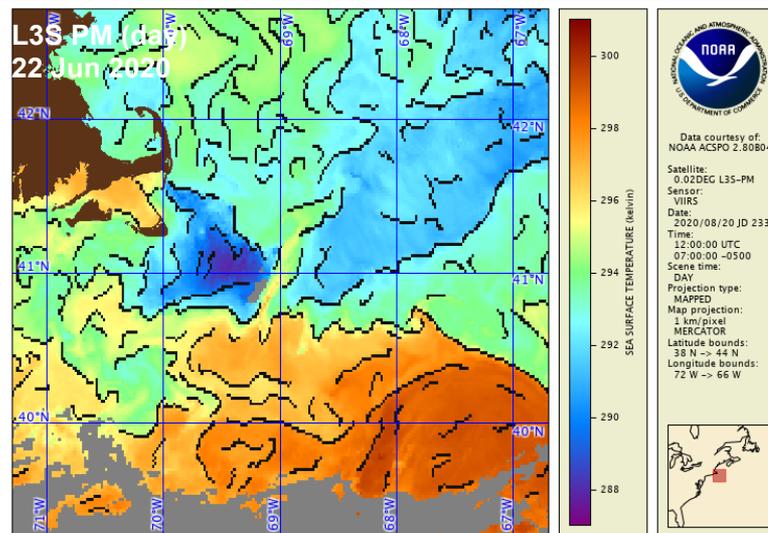
Georges Bank/Nantucket Shoals on 20 Aug 2020. Shown is L3S-PM day product produced from 2 NPP and 2 N20 daytime overpasses. Thermal fronts reported in ACSPO v2.80 are overlaid. The 2.80 makes progress towards one multi-sensor SST, and oceanic fronts.

VIIRS Polar Winds

Accomplishments / Events:

- Expanded real-time monitoring tools to include plots and statistics of comparisons between co-located AMVs from different polar-orbiting platforms.

- Multiple comparisons of NOAA-20 operational polar winds to radiosondes consistently showed high quality, meeting requirement. Specifically, VIIRS polar winds from NOAA-20 have been compared to rawinsonde winds in terms of individual U and V components over a one-year period, from June 2019 through July 2020.

Overall Status:

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

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

Polar wind validation with Rawinsondes have good results. Specifically - The mean differences (bias) are small, and the linear correlations are high. However, there are "lobes" in the plots, which are under investigation.
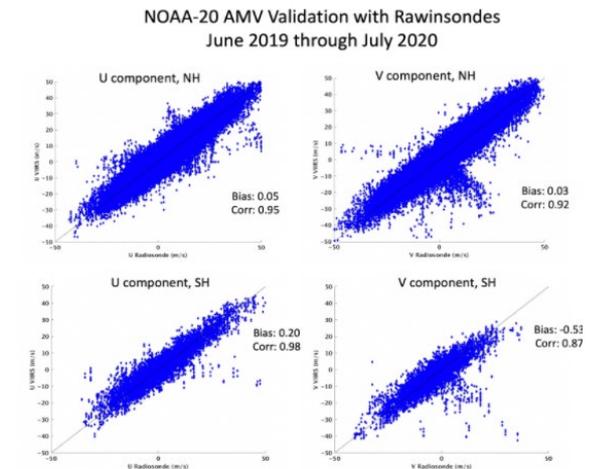

Figure: Comparison of U and V components of the wind in the polar regions from NOAA-20 VIIRS and rawinsondes for a one-year period. The bias is the mean difference between the satellite-derived and rawinsonde winds, in m/s. "Corr" is the linear correlation between them.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/28/20	
Initial J2 ready DAP to ASSISTT	Apr-20	Apr-20	Apr-20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20	07/21/20	
Wind product updates/improvements: continue routine generation of combined S-NPP/NOAA-20 global winds	Sep-20	Sep-20	Aug-20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20	Jan-20	
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

NUCAPS Products

Accomplishments / Events

Team members submitted three abstracts to the AMS-2021 virtual conference.

NUCAPS team participated in the PMR meeting (8/21) and presented PMR slides

NUCAPS Team continued discussions with the ASSISTT team members and finalized running both the NUCAPS versions v2.7.2 (clipped RH to 100% in the NUCAPS first guess) and v2.8b (no-clipping of RH) for ten days. This provides uninterrupted S-NPP/NOAA-20 product runs to evaluate clipping vs. no-clipping scenarios. A meeting with the NPROVS team is scheduled for September 1 for further coordination.

Overall Status:

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

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

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: CH4 (S-NPP & NOAA-20)	Feb-20	Apr-20	04/23/20	Combine review
Provisional Maturity: CO2 (S-NPP & NOAA-20)	Feb-20	Apr-20	04/23/20	Combine review
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/05/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Nov-20	Nov-20		
Algorithm Updates Review	Sep-20	Sep-20		09/15/20
Algorithm update DAP to ASSISTT: ▪ Optimization of CO related look up tables ▪ Improve NOAA-20 CH4/CO2 algorithms ▪ J2 HEAP algorithm	Jul-20	Jul-20	07/28/20	With initial J2 DAP
Validation against NUCAPS SNPP trace gas EDRs, other instruments (MOPITT, AIRS, IASI) and in situ measurements (TCCON, ATom, WE-CAN, KORUS)	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		
Peer reviewed paper on NUCAPS HEAP cal/val	Sep-20	Sep-20		

*Highlights* NUCAPS use to estimate wildfire potential
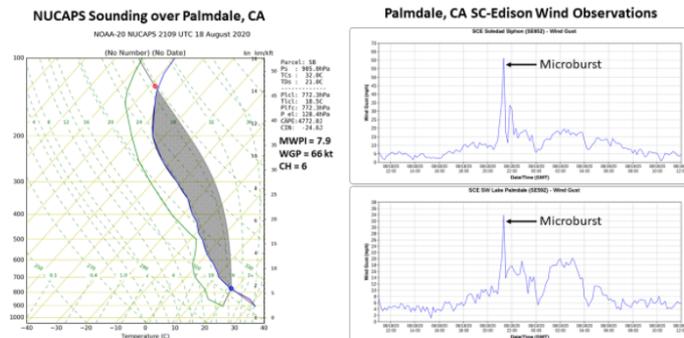
Figure 3. NOAA-20 NUCAPS sounding profile over Palmdale, California during the afternoon of August 18, 2020, near the Lake wildfire, that indicated high thunderstorm potential (large CAPE > 4000), high severe wind potential (> 65 knots), and high wildfire potential (C-Haines index (CH) = 6). About 10 minutes after the retrieval, a microburst wind gust of 53 knots (61 mph) was recorded at an SC-Edison station near Palmdale.

MiRS Products

Accomplishments / Events:

- Hurricane Laura and Tropical Storm Marco products (see highlights)
- The latest MiRS software package (v11.6) was delivered to the University of Wisconsin/Space Science and Engineering Center for integration into the direct broadcast software system CSPP (Community Satellite Processing Package). Initial standalone testing in the Wisconsin computing environment has been completed with the MiRS system fully built and tested with benchmark data. The remaining step is integration into CSPP, which is currently underway.
- JPSS performance intercomparisons have been made between N20 and SNPP ATMS retrieval products. Agreement is very good.

Overall Status:

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

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Issues/Risks:

None

Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/08/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Nov-20	Nov-20		MiRS v11.6
Algorithm Updates Review	Sep-20	Sep-20		09/15/20
Algorithm update DAP to ASSISTT: • Optimize MiRS for NOAA-20 and SNPP • SFR integration; Algorithm test and verification	Jul-20	Jul-20	07/31/20	With initial J2 DAP MiRS v11.6
MiRS v11.5 DAP to OSPO/NDE/ASSISTT			04/20/20	
MiRS v11.6 DAP to CSPP			Aug-20	
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20	Aug-20	
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights:

MIRS Monitors Hurricane Laura and Tropical Storm Marco
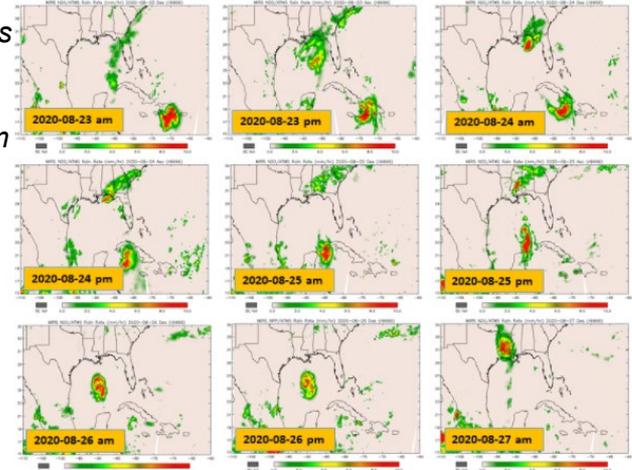

Figure: Sequence of MiRS retrieved rain rates from NOAA-20/ATMS from 23-27 August 2020. Both Hurricane Laura and Tropical Storm Marco are depicted with microwave precipitation rates exceeding 10-15 mm/hour.

Snowfall Rate

Accomplishments / Events:

– The SFR team has started to review the J2 pre-launch proxy data. The team successfully ran the proxy data through the unified SFR system which now includes J2 capabilities. The images in the Highlights section are the retrieved 'J2 SFR' from March 20, 2020 0Z-12Z. The retrievals resemble those from NOAA-20 (not shown) and the pattens and magnitudes appear reasonable.

– The GPM/GMI SFR is an experimental product and was developed with the support of the JPSS PGRR program. GMI has the highest resolution (4.4 km x 7.3 km) among all sensors used to retrieve SFR. It also has dual polarizations at several frequencies which provides additional information content for snowfall retrieval. The SFR team is refining the GMI SFR algorithm including retraining the Snowfall Detection model with the objective of transitioning this product to operation. With GPM's non-sun-synchronous orbit, it collocates with other satellites in the SFR suite. Our ultimate goal is to use GMI SFR as the reference to cross-calibrate SFR from all satellites including JPSS and S-NPP.

Overall Status:

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

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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Annual algorithms/products performance report	Feb-20	Feb-20	Feb-20	
Enhance the calibration method to mitigate existing issues including reducing non-convergence rate	May-20	May-20	May-20	
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/06/20	
Deliver updated SFR package to MiRS team	Jun-20	Jun-20	7/10/20	Extensive bias correction study for six satellites
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
Initial J2 ready DAP to ASSISTT	Jul-20	Jul-20	07/31/20	MiRS delivery
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Nov-20	Nov-20		ASSISTT delivery
Algorithm Updates Review	Sep-20	Sep-20		09/15/20
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights: *SFR generated from J2 proxy data*

2020-03-20, 0Z – 12Z
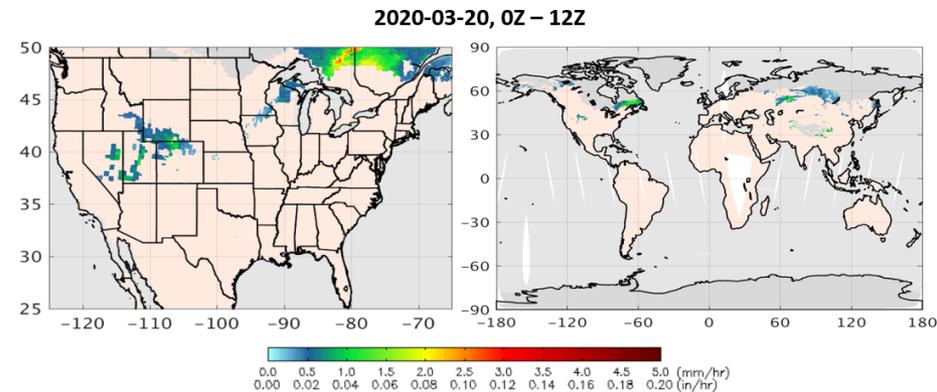
Composite SFR generated from J2 proxy data on March 20, 2020 from 00:00Z to 12:00Z. The image on the left is over CONUS and the one on the right is over the entire globe.

OMPS Ozone

Accomplishments / Events:

Preparing for EDR Validated Milestone for V8Pro Iterating on soft calibration adjustments.

DAP for V8PRo with better forward model fidelity and J02 adaptations moving from ASSISTT to NDE.

Version 3 NOAA-20 OMPS NP SDR changes moving to operations.

Tracking NASA development of correction for In-Band Stray Light contamination.

Overall Status:

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

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: V8Pro	Jan-20	Sep-20		Bandpass differences
Limb SDR and EDR to operations	Feb-20	Jun-20	06/16/20	NDE errors
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/21/20	
Initial J2 ready DAP to ASSISTT	Jul-20	Sep-20	7/7/20 V8Pro	With NPP/N20 updates
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		
Algorithm Updates Review	Sep-20	Sep-20	08/18/20	08/18/20
RT Tables with Wavelengths, Bandpasses	Jul-20	Jul-20	07/07/20	SDR Bandpass
V8TOz with Cloud top optical centroid algorithm	Aug-20	Dec-20		Priorities
Annual algorithms / products performance report	Feb-20	Feb-20	Feb-20	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

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

NOAA-20 OMPS V8 Aerosol Index
22 Aug 2020
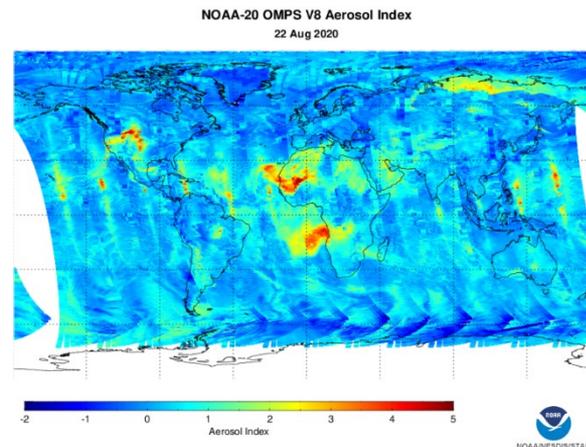
Accomplishments / Events:

- Completed annual cal/val report
- Activities continue with NESDIS IA and JPSS to discuss AMSR3 and AMSR2 progress/plans; have engaged JAXA regarding preferred AMSR3 data formats, as per their request
- Continued product cal/val; all products meeting requirements
- Finalizing FY21 and beyond budget requests; had to schedule annual program review due to P. Chang/hurricane flights
- Portions of GCOM system under consideration for EPS-SG MWI and presented at EPS-SG PDR; EDR formulation underway

Overall Status:

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

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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Annual report on AMSR2 algorithms and data products performance	Feb-20	Jun-20	Feb-20 Jun-20	Feb-20: SJASTM Jun-20: Report
Algorithm Cal/Val	Sep-20	Sep-20		
Algorithm improvement/updates implemented in new DAP for NDE	Sep-20	Sep-20		
Complete reprocessing of entire mission dataset of AMSR2	Sep-20	Sep-20	Mar-20	

Highlights:

Hurricane Laura

The GCOM-W1 AMSR-2 captured Laura; shown is a sequence of rain rate products as Laura intensified and move onshore, and then inland. The rain rates corresponded relatively well with in-situ data, although some of the banding features were missed. This will be improved upon with an updated algorithm being finalized at CISESS.

GPROF2010V3 AMSR2 — 1852 UTC 26 Aug 2020
GPROF2010V3 AMSR2 — 0830 UTC 27 Aug 2020
GPROF2010V3 AMSR2 — 1936 UTC 27 Aug 2020

Rain Rate (mm/hr): 0.5 1.0 2.0 4.0 8.0 16 32 64
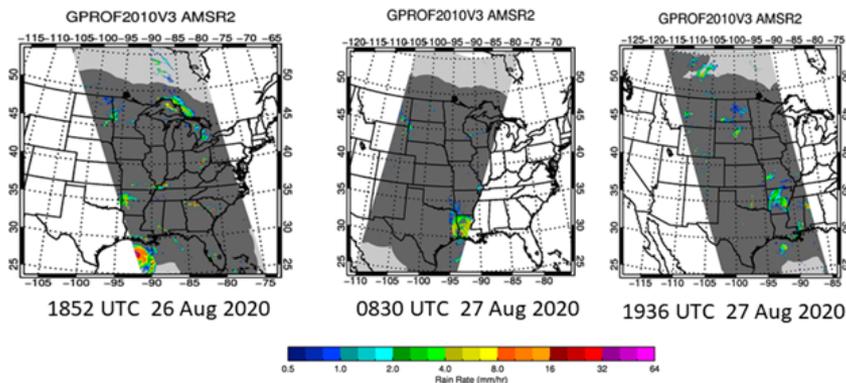
Accomplishments / Events:

- Maintained daily compilation/archive of NPROVS collocated radiosonde and satellite sounding dataset and EDR monitoring
- Latest NUCAPS v2.7.2 assessed with surprising results. **(Highlight)**
- Completed preliminary COSMIC-C2 assessment **(Highlight)**
- Joint ARM/GRUAN/JPSS Radiosonde Inter-comparison VALidation (RIVAL) campaign completed (May); assessment ongoing
- FY20 funds for JPSS / DOE-ARM dedicated radiosonde program received (finally) by DOE restoring field supplies; launches resume
- Initiated NUCAPS sounding task to investigate seasonal bias differences in sounding products
- Supported NUCAPS during "Epic" Saharan Air Layer (June 2020)
- The EDR LTM team added Polar Winds which was converted from using McIDAS imagery to direct use of SCDR database

| IDAS	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
LTM				
Maintain / expand existing EDR LTM web pages and mappers and provide monthly reports	Sep-20	Sep-20		
NPROVS				
Provide COSMIC (C2) geophysical profiles (T, H20) assessment	June 20	June 20	June 20	
Provide NPROVS User Guide final / approved document/manual [Q4]	Sept 20	Sept-20		
Facilitate and provide assessment report supporting R2O transition of NUCAPS for v2.5.2 (Q3).	June 20	June 20	June 2020	

Overall Status:

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Technical / Programmatic		X			
Schedule		X			

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Highlights:
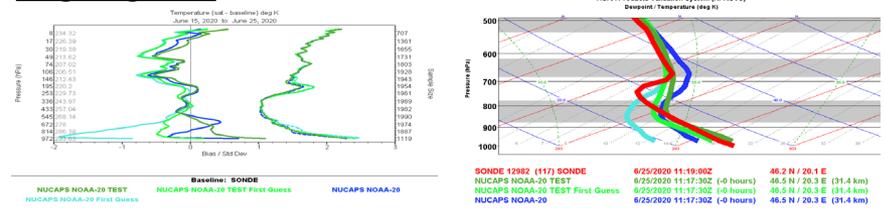
Left panel shows vertical statistics (bias, stand. Dev.) of NUCAPS (IR pass QC) – Radiosonde Temperature for NOAA-20 Operation (**Blue**) and Test (**Green**) for 10-day period June; lighter shades are associated first guess. Bias shows more consistent profile (lapse rate) particularly below 500 hPa and strongly influenced by the first guess. Right side panel shows example for an individual collocation demonstrating expected improvement in NWS AWIPS-2 user context
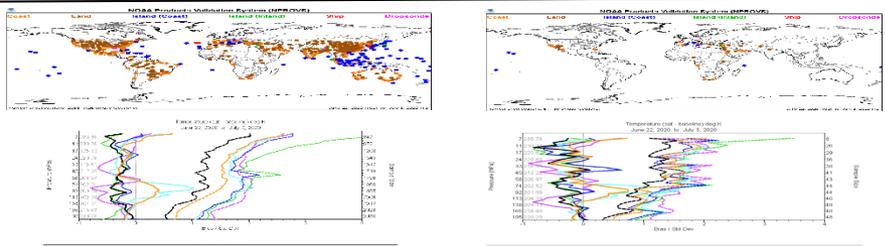
The access of operational COSMIC-C2 geophysical profiles was integrated into NPROVS late in 2019; monitoring is ongoing. Examples are shown of (Satellite–Radiosonde) vertical statistics (bias, st. dev.) above 200 hPa (stratosphere) for sets of collocated **C2**, **NUCAPS (NOAA-20)**, **ECMWF Analysis** and **GFS 6-hr forecast** observations within 6-hr (left) and 2-hr (right); C2 includes **GFS based first guess** and **Tdry (a candidate reference stratospheric temperature).** Points of interest include 1) expected reduction in Sdev using smaller time window, 2) anomalies in GFS Temperature in vicinity of 90 hPa and 3) elevated Tdry sdev aloft; monitoring continues.