



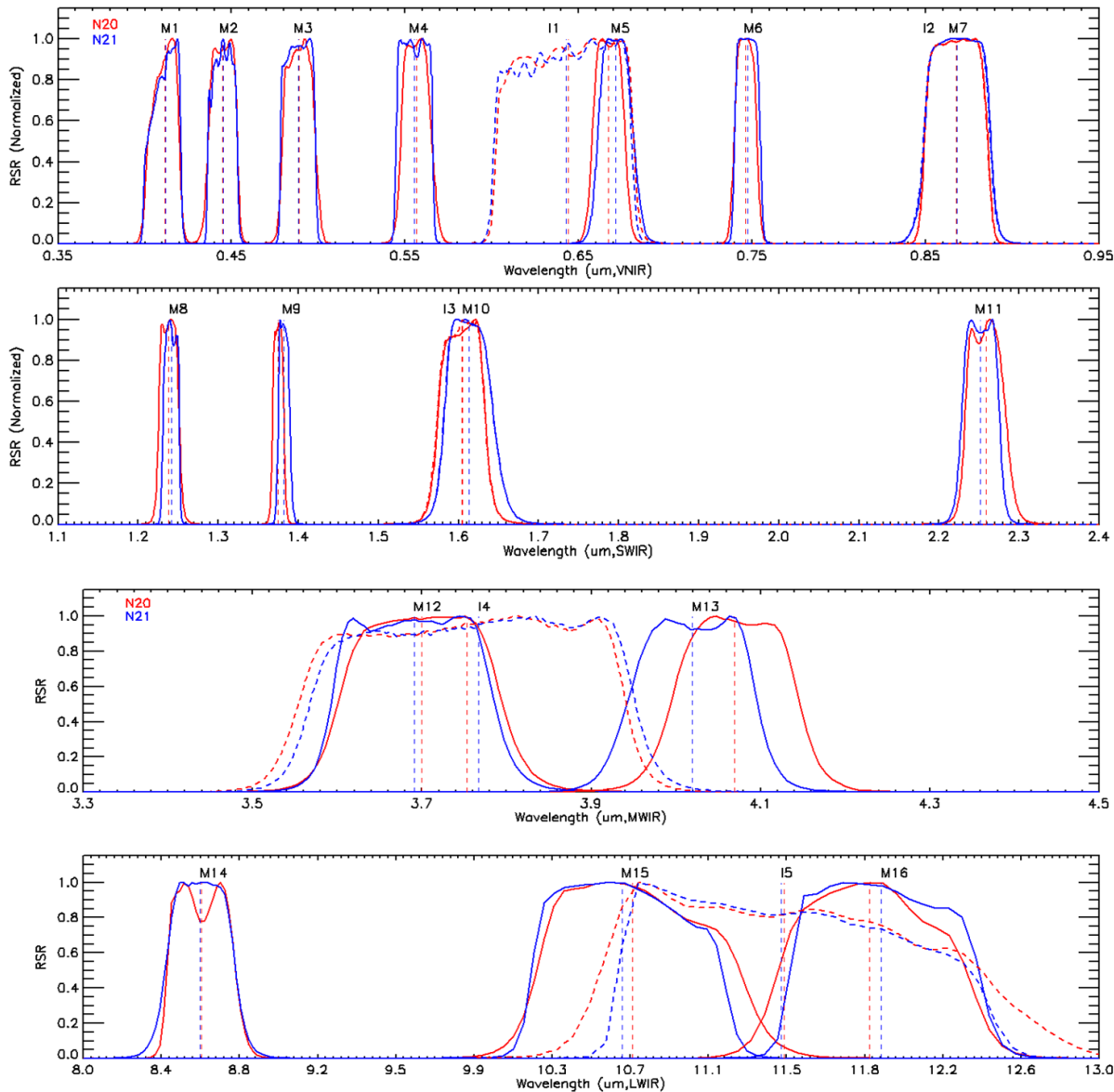
NOAA JPSS Monthly Program Office

AMP/STAR FY20 TTA

Lihang Zhou, DPMS Deputy
Bonnie Reed, Algorithm Sustainment Lead
Banghua Yan & Satya Kalluri, Acting AMP Deputies for Science
& JPSS STAR Program Managers

June 9, 2020

Highlights from the Science Teams

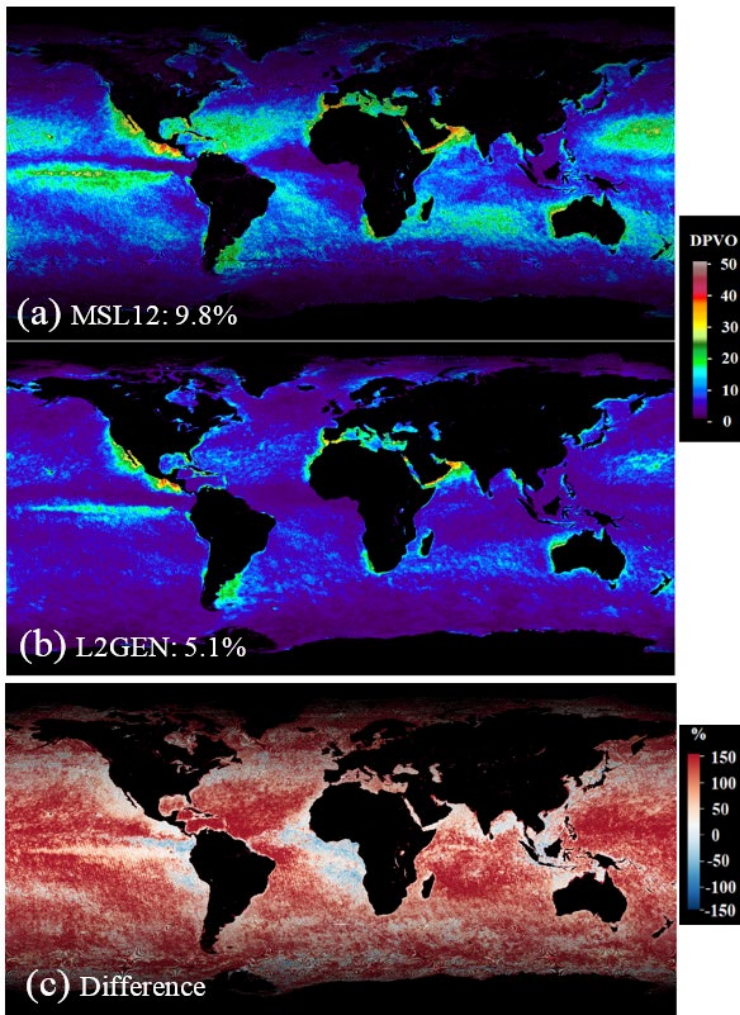


J2 VIIRS Spectral Response Functions released

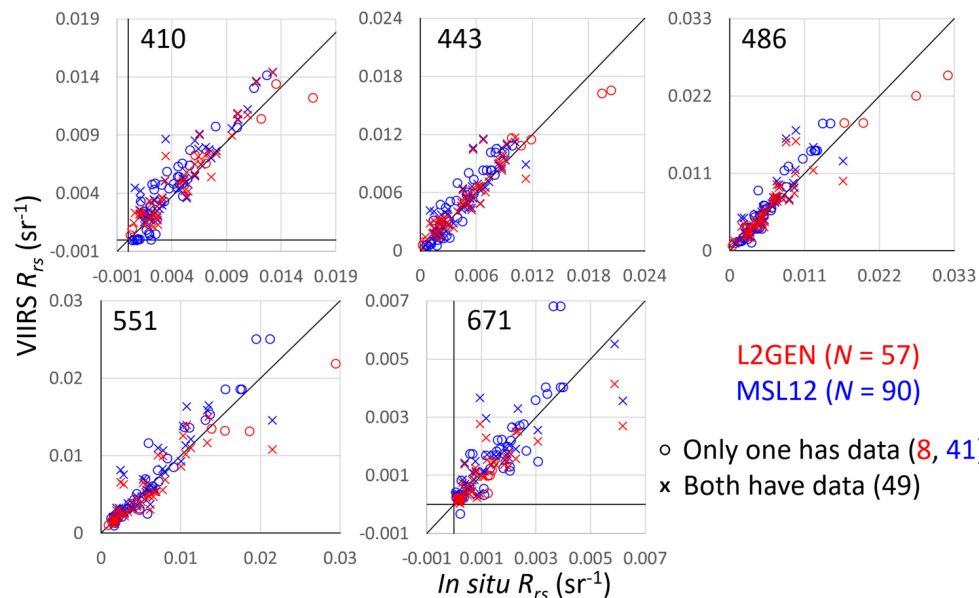
The VIIRS radiance science team has been working closely with the NASA JPSS flight project in analyzing prelaunch test data, and recently released the spectral response functions (SRF) for J2 VIIRS.

J2 VIIRS spectral bands match well with that of NOAA-20 VIIRS, except that relatively larger differences were observed in bands M9 (cirrus/cloud Cover) and M13 (active fire).
 . The VIIRS onboard the NOAA-21 satellite is scheduled to launch in 2022, following the successful launch of NOAA-20 VIIRS in late 2017.

A New Paper Published: NOAA MSL12 has much better performance



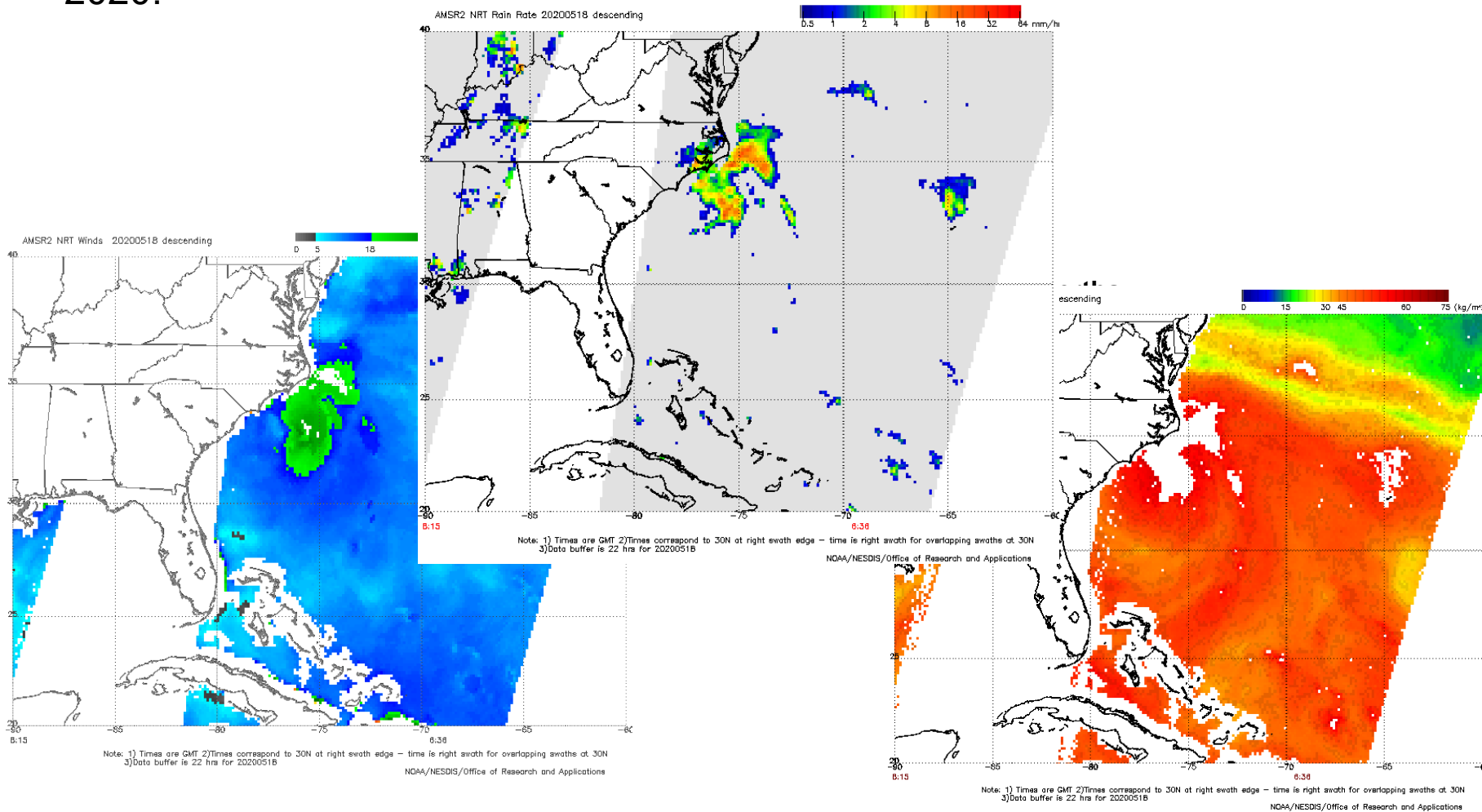
- Valid ocean color data amount from NOAA MSL12 (plot a) is significant more than that from NASA L2GEN (plot b), e.g., the global means are **9.8% vs. 5.1%**. See the left global images).
- Comparisons between satellite-derived ocean color data within situ data show that both NOAA MSL12 and NASA L2GEN produce similar data quality (see below results).
- Therefore, with similar high data quality, NOAA MSL12 can produce about twice of satellite ocean color data quantity globally, compare with that from NASA L2GEN.**



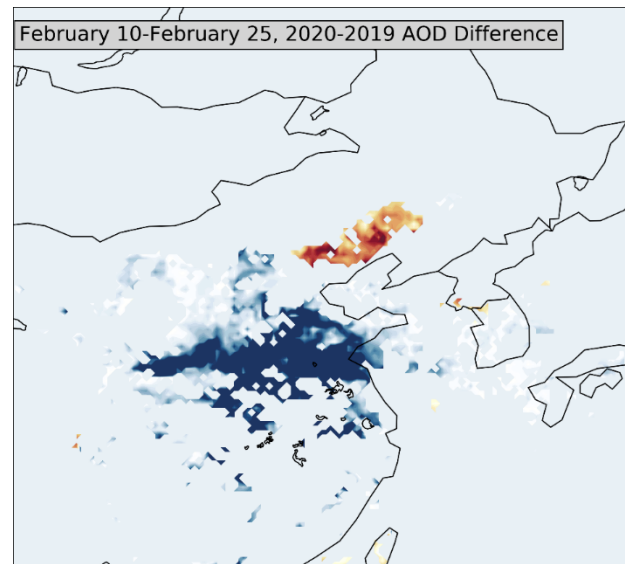
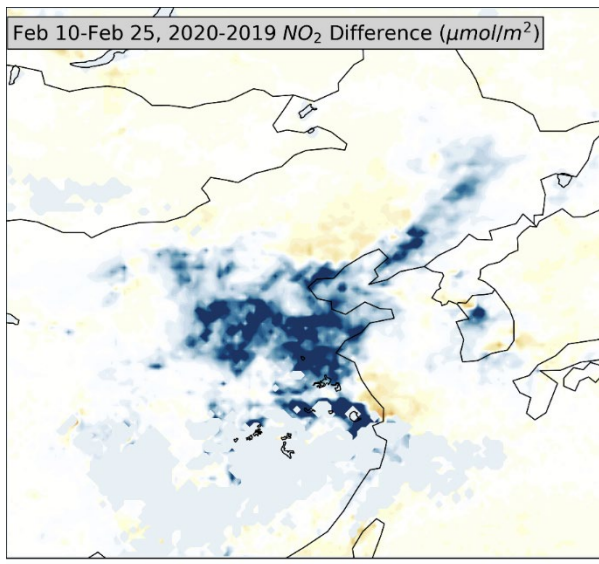
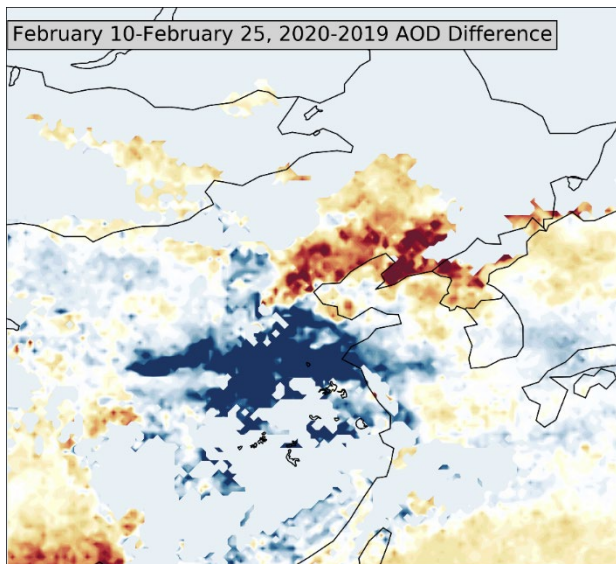
Hu, C., B. B. Barnes, L. Feng, M. Wang, and L. Jiang, "On the interplay between ocean color data quality and data quantity: Impacts of quality control flags," *IEEE Geosci. Remote Sens. Lett.*, **17**, 745–749, 2020. <https://doi.org/10.1109/lgrs.2019.2936220>

Highlights from the Science Teams

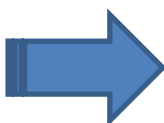
AMSR2 wind speed, rain rate and water vapor imagery from **Tropical Storm Bertha** before she came ashore in South Carolina on May 27, 2020.



Examining SNPP VIIRS AOD Changes due to COVID-19 Lockdown using S5P TROPOMI NO₂ as a Filter



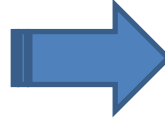
SNPP VIIRS AOD difference between 2020 and 2019 showing decrease in AOD in Hubei province where COVID-19 related shutdown was 100%. Increase in AOD due to transported smoke and/or increase in emissions in 2020 compared to 2019



Use NO₂ to filter AOD data

- NO₂ > 12 μmoles/m²
- ΔNO₂ > 5 μmoles/m²

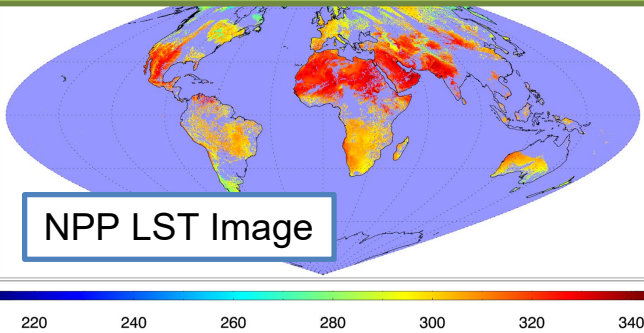
with criteria that both AOD and NO₂ should either co-increase or co-decrease



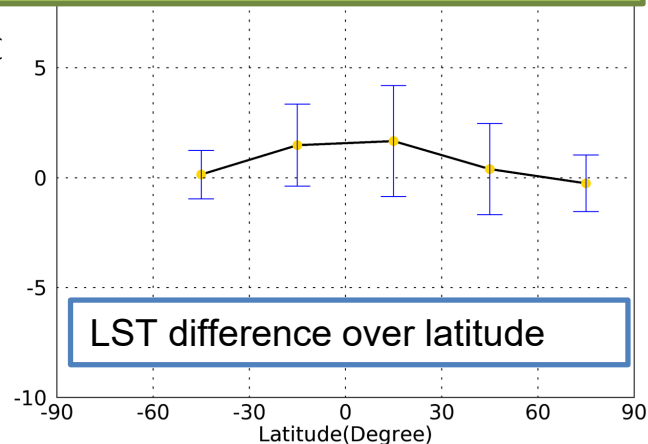
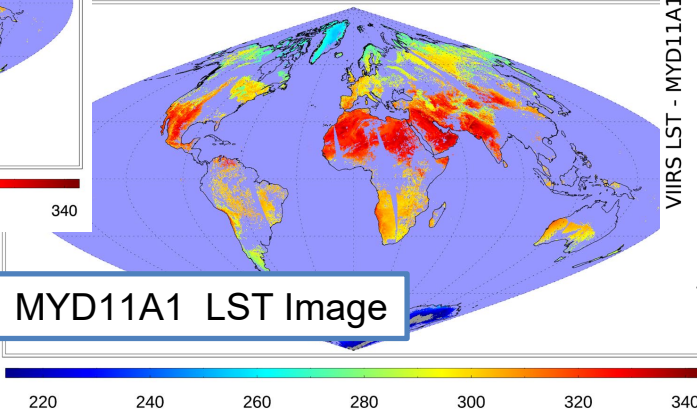
Capture AOD changes when source sector for aerosols/aerosol precursors and NO₂ are the same

S. Kondragunta, H. Zhang, Z. Wei
(NOAA/NESDIS/STAR)

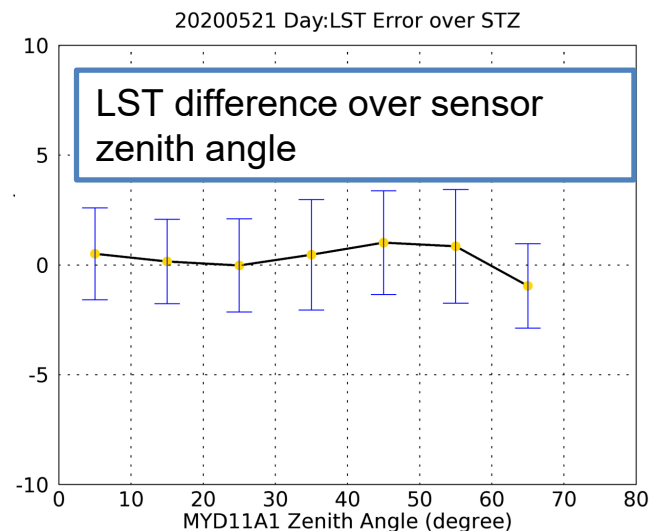
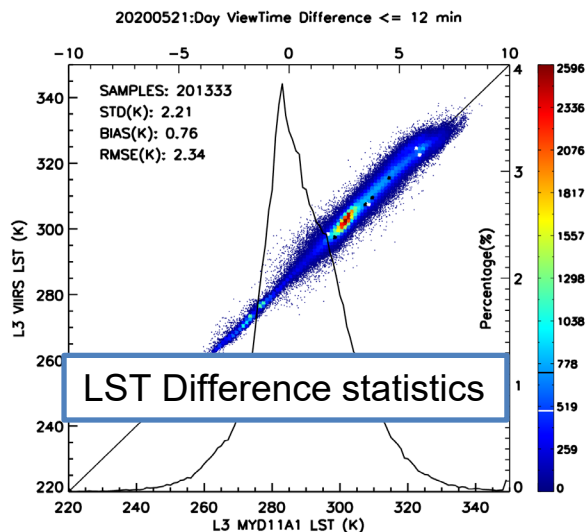
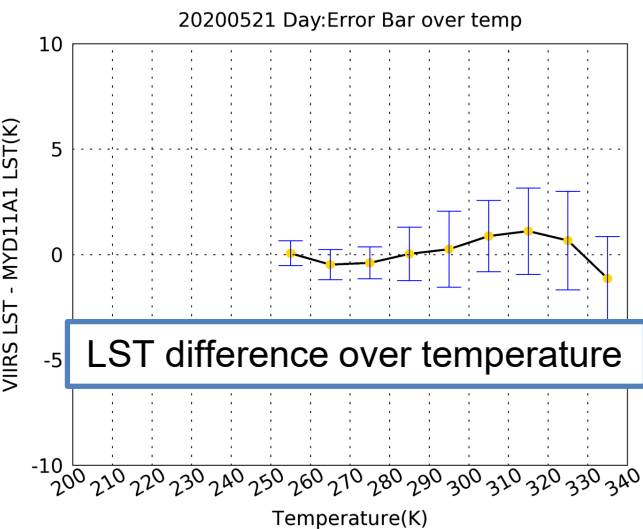
Cross comparison tools with MODIS increase confidence in LST



MYD11A1 LST Image (Day) on 20200521

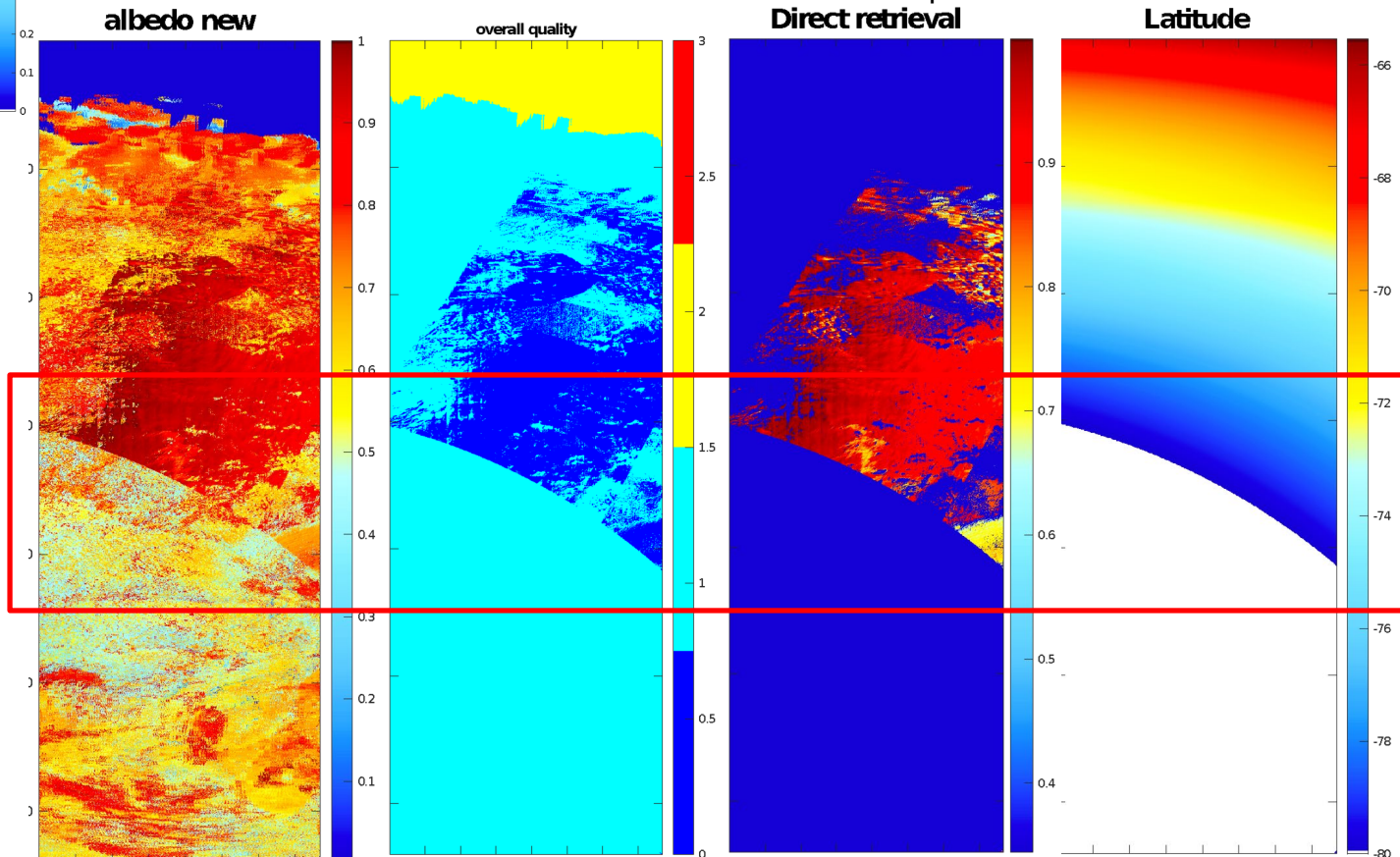
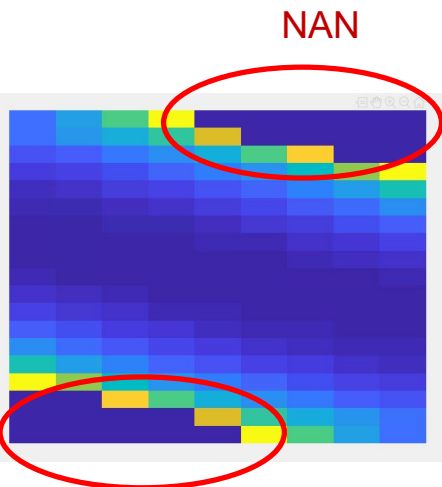
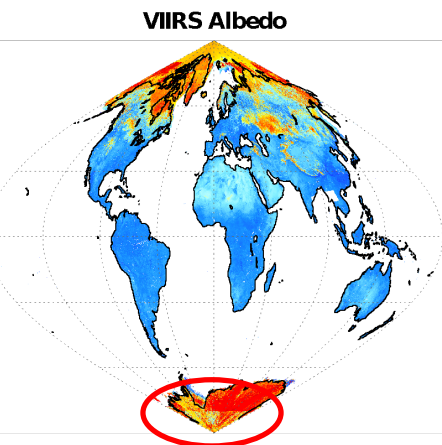


Comparison statistics include observations when temporal difference is less than **12 minutes** with cloud clear condition



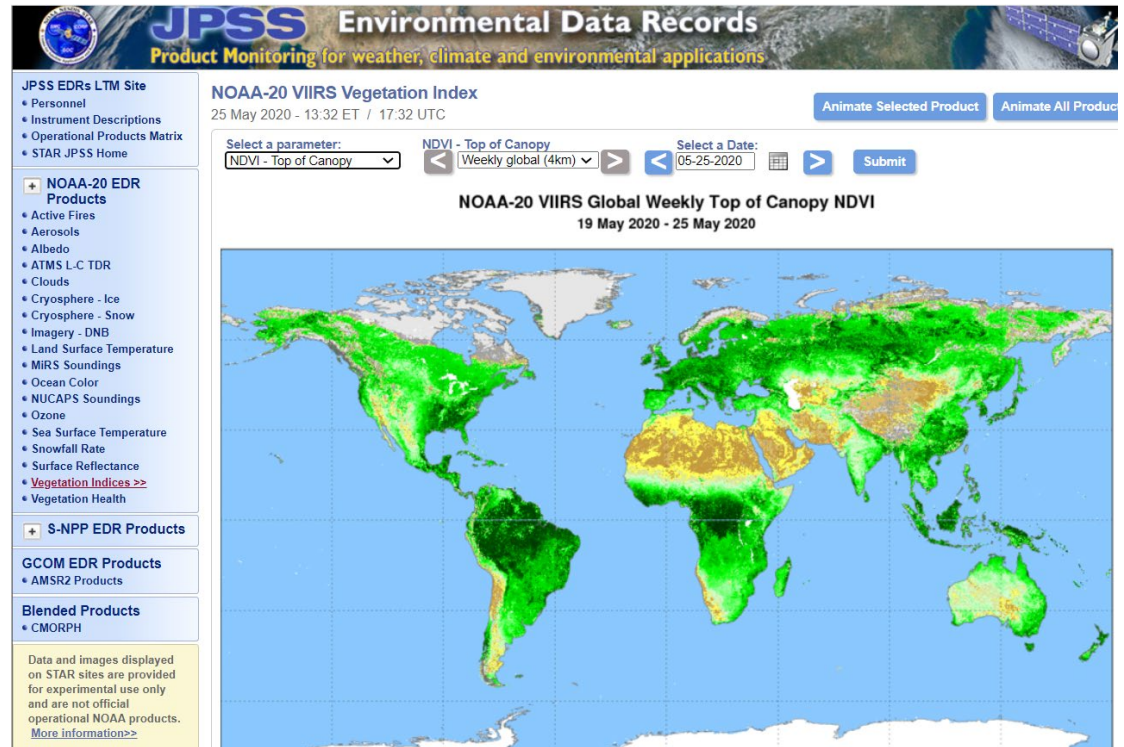
Antarctic discontinuity analysis

- An Antarctic granule shows albedo discontinuity.
- According to investigation, it is not related to cloud condition or retrieval path.
- The discontinuity boundary is consistent with the latitude line of 80°S. Latitude is an entry of the LUT.
- It has been confirmed that the LUT becomes NAN for lat between (80,90) and decimal angle > -5.875
- How to solve? Filled the LUT with valid value and will update to ASSISTT



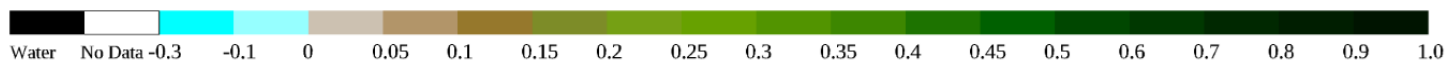
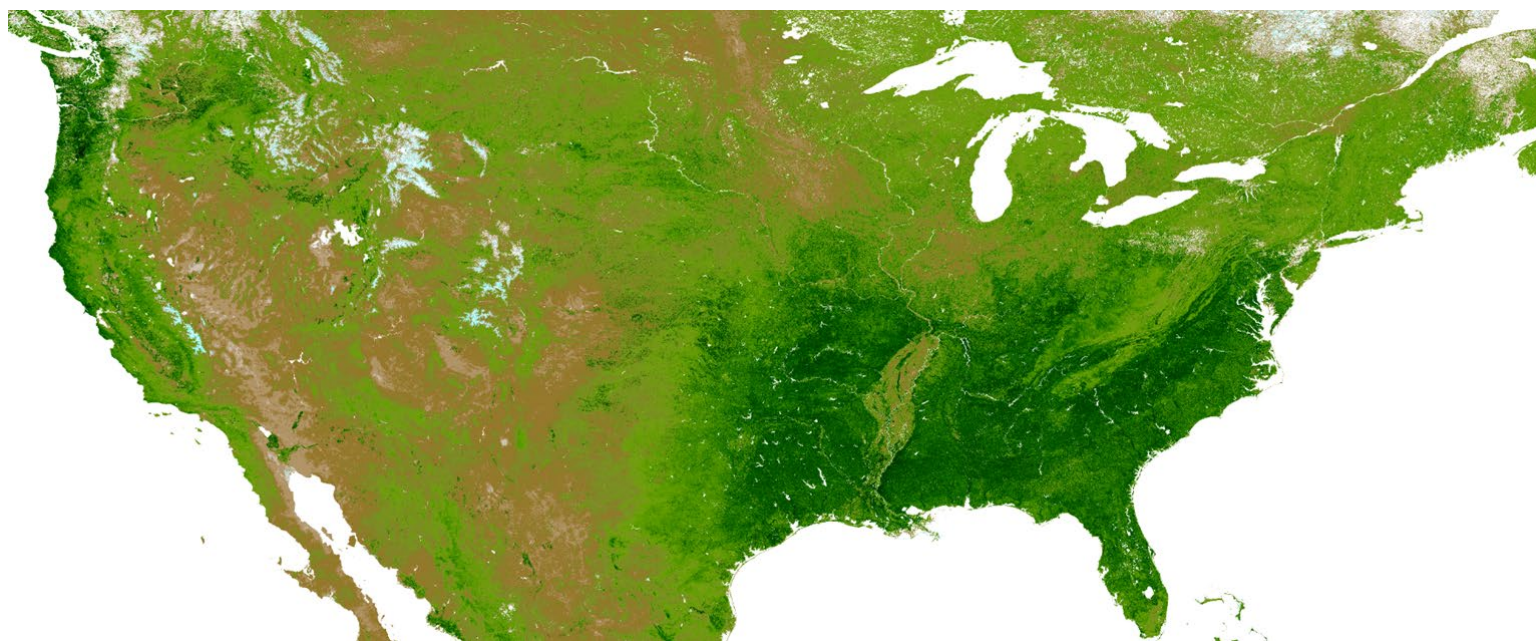
Improvements in VIIRS VI EDR Long term monitoring

- Previously daily VI images are shown on the JPSS EDT LTM website, which is contaminated by large areas of cloud
- To reduce the cloud noise on the VI images, weekly VI images are shown on the website
- So far, weekly VI images have been produced for
 - NPP: 20180508 to 20200526
 - NOAA20: 20190604 to 20200526



NOAA-20 1-km weekly EVI data over CONUS

- Upon the request from the STAR soil moisture team, NOAA-20 1-km weekly EVI data from Jan 1, 2020 to May 24, 2020 over CONUS were generated for testing



NOAA-20 1-km weekly EVI (Apr 30 – May 6, 2020)

Accomplishments

- **Delivery Algorithm Packages (DAPs) - Mission Unique Products:**
 - 5/5/2020: CrIS SDR DAP (ADR9286/CCR5012, CrIS Enable Fringe Count Error (FCE) Algorithm) delivered to DPES
 - 5/14/2020: VIIRS SDR change/test package (ADR9171/CCR4846, VIIRS SDR Geolocation Algorithm Correction) delivered to ASSISTT
 - 5/29/2020: VIIRS SDR DAP (ADR9171/CCR4846, VIIRS SDR Geolocation Algorithm Correction) delivered to DPES
 - 5/21/2020: OMPS SDR DAP (ADR9066/CCR5026, LUT update for N20 validated maturity) package (one table: OMPS-NP-CALCONST-LUT_j01) delivered to ASSISTT
 - 5/29/2020: OMPS SDR DAP (ADR9066/CCR5026, LUT update for N20 validated maturity) package (three tables: OMPS-NP-CALCONST-LUT_j01, OMPS-NP-WAVELENGTH-GND-PI_j01, OMPS-NP-WAVELENGTH-GND-PI_j01) delivered to ASSISTT
- **DAPs – Enterprise Products:**
 - 5/4/2020: I-Band Active Fires DAP delivered to NDE/OSPO for SCR (Software Code Review)
 - 5/18/2020: CSPP Delivery of JPSSRR ECM LUT Patch
- **New Data Distributions/Availability:**
 - 5/22/2020: OMPS SDR team delivered one day of J02 proxy test data in hdf5 format for EDR team
 - VIIRS Annual Surface Type AST-2018 is available at: <https://www.star.nesdis.noaa.gov/jpss/>
 - Reprocessed S-NPP VIIRS V2 data is available at: <http://viirs.astro.umd.edu/SatData/FileSearch/>
- **IDPS Builds Checkouts:**
 - STAR submitted Block 2.2 Mx1 SOL deploy regression review/checkout report to AMP/RTN/OSPO on 5/22/2020

Accomplishments – JPSS Cal Val Supports

- NOAA-20/S-NPP Operational Calibration Support:
 - S-NPP Weekly OMPS TC/NP Dark Table Updates: 05/05/20, 05/12/20, 05/19/20, 05/27/20
 - NOAA-20 Weekly OMPS TC/NP Dark Table Updates: 05/05/20, 05/12/20, 05/19/20, 05/27/20
 - S-NPP Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 05/05/20, 05/19/20
 - NOAA-20 Bi-Weekly OMPS NP Wavelength & Solar Flux Update: 05/12/20, 05/27/20
 - S-NPP Monthly VIIRS LUT Update of DNB Offsets and Gains: 05/05/20
 - NOAA-20 Monthly VIIRS LUT Update of DNB Offsets and Gains: 05/05/20
- Simulated/Proxy JPSS-2 test data sets:

SDR	Data Type	Dates/Granules	Location
Proxy JPSS-2 ATMS SDR Data	ATMS TDR, SDR, and Geolocation (TATMS, SATMS, & GATMO)	2019-08-30 all granules 2020-03-20 all granules	/data/smcd5/qliu/J2_D ATA_Coeff/DATA_J2/A TMS/
Proxy JPSS-2 CrIS SDR Data	CrIS FSR (Full Spectral Resolution) SDR, and Geolocation (SCRIF & GCRSO)	2020-03-20 all granules	/data/data516/ychen/D ata/J2_SDR_TestData/ 20200320_j02/
Simulated JPSS-2 VIIRS SDR Data	DNB: SDR, and Geolocation (SVDNB & GDNBO) I-Band: SDR (SVI01-SVI05), and Geolocation (GIMGO & GITCO) M-Band: SDR (SVM01-SVM16), and Geolocation (GMODO & GMTCO)	2017-06-22 18 granules 2017-06-24 8 granules 2017-07-21 16 granules 2017-07-23 18 granules	/data/smcd5/SimJ2_VI RS_SDR/
Proxy JPSS-2 OMPS SDR Data	OMPS SDR and Geolocation (NP: GONPO & SOMPS; TC: GOTCO & SOMTC; TC in high resolution data format: 240CT by 30AT)	2020-01-19 all granules	/data/data074/users/tb eck/J02/30scan_j02_pr oxy_20200119

Upcoming Cal/Val Maturity Reviews

- June, 2020 Maturity Review (6/18/2020):
 - Full Validated Maturity:
Snow Cover (Binary Map & Snow Cover Fraction)
Surface Reflectance

- July, 2020 Maturity Review:
 - Full Validated Maturity:
Ocean Color
OMPS NP Ozone EDR (V8Pro)

- September, 2020 Maturity Review:
 - Provisional/Validated Maturity:
GST (Global Gridded Surface Type)

- December, 2020 Maturity Review:
 - Full Validated Maturity:
NUCAPS CO₂ product (S-NPP & NOAA-20)

- JSTAR Code/LUT/Product Deliveries:

DAP to DPES:

- Sep-20: VIIRS Imagery EDR NCC LUT N20 update
- Sep-20: Initial J2 LUTs (VIIRS & OMPS SDRs)
- Sep-20: Initial J2 PCT (ATMS SDR)
- Oct-20: Initial J2 PCT (CrIS SDR)
- OMPS SDR, ADR9095/ADR9172 DAPs

NOAA-20 Algorithm DAP to NDE/CoastWatch:

- Jun-20: Initial/Final I-band Active Fires DAP, include initial J2 DAP
- 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	Jul-20		Need NASA sharepoint access permission
ATMS: J2 pre-launch sensor characterization report	May-20	Jun-20		PSR changed
CrIS: J2 pre-launch sensor characterization report	May-20	Jul-20		PSR changed
J2 pre-launch Algorithm Updates Review - SDRs and Imagery	Jun-20	Jun-20		
J2 pre-launch Algorithms/PCT/LUT packages - SDRs and Imagery	Aug-20	Oct-20		PSR changed
OMPS: High resolution SDR implementation (17km x 17km OMPS TC)	Aug-20	Aug-20		
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	5/4/2020 DAP to NDE/OSPO for SCR	With init J2 DAP Need J2 test data
J2 pre-launch Algorithm Updates Review - EDRs	Sep-20	Sep-20		
Initial J2-ready EDR DAPs (include NPP/N20 updates)	Sep-20	Dec-20		
AST-2019 (VIIRS Annual Surface Type)	Sep-20	Sep-20		

FY20 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Cal/Val				
J2 Cal Val Plans - Draft Delivery (all SDR/EDR products)	Jun-20	Jun-20		
N20 NUCAPS Full Validated Maturity (all NUCAPS products except CH4 & CO2)	Oct-19	Oct-19	10/28/19	
N20 Land Surface Temperature Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 Surface Albedo Full Validated Maturity	Nov-19	Nov-19	11/21/19	
N20 OMPS NP SDR Full Validated Maturity	Jan-20	Apr-20	04/23/20	
N20 OMPS NP EDR (V8Pro) Full Validated Maturity	Jan-20	Jul-20		
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 CrIs SDR Full Validated Maturity	Feb-20	Feb-20	02/06/20	
N20 Surface reflectance Full Validated Maturity	Apr-20	Jun-20		
N20 Snow Cover Full Validated Maturity	Apr-20	Jun-20		
N20 Ocean Color Full Validated Maturity	Jun-20	Jul-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	
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, 03/24/20, 04/07/20, 04/21/20, 05/05/20, 05/19/20	
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	
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 12 th 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	
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	
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	
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 12 th 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	
IDPS Mx build SOL and I&T deploy regression verification 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	
IDPS Cloud Implementation Verification (Based on Nov 2020 TTO)	Sep-20	Sep-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													◆		▼										

■ Beta
 ■ Prov
 ■ Val
 ◆ iDAP
 ◆ fDAP
 ◆ mDAP
 ▲ Report
 ▲ Algo
 ▲ iLUT
 ▲ fLUT/MI
 ▼ iCVplan
 ▼ fCVplan



FY20 JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP and N-20 Flood Mapping Product				
-- CDR	Dec-19	Dec-19	Dec 2019	Completed
-- ARR	Oct-20	Oct-20		
-- ORR	Jan-21	Jan-21		
-- Operations	Mar-21	Mar-21		
VIIRS I-Band Active Fires Product				
-- SCR	Jan-20	--	5/27/2020	Completed
-- ARR/AMR	Apr-20	Aug-20		
-- ORR	Aug-20	Aug-20		
-- Operations	Sep-20	Sep-20		



Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP: OMPS Limb Profiler Products				
-- EDR and SDR ORR	Dec-16	--	12/02/2019	Completed
-- Operations	Mar-17	Jun-20		
NOAA-20: OMPS Ozone: V8Pro				
-- ORR	Jul-18	Mar-20	3/2/20	Completed
-- Operations	Aug-18	Apr-20	4/16/20	Completed
NOAA-20: NUCAPS including CrIS OLR				
-- CDR	Oct-16	--	10/27/16	Completed
-- SCR	Aug-18	--	01/25/19	Completed
-- Operations (Temp/H2O profiles)		--	3/7/2017	Completed
-- ARR	Sep-18	--	10/28/19	Completed
-- ORR	Jun-19	Apr-20		Has not integrated to NDE I&T yet
-- Operations	Jul-19	May-20		Dates relate to CO2 and CH4 components
NOAA-20: Enterprise Processing System: Global Gridding LST, and LSA				
-- CDR	Mar-18	--	10/22/18	Completed
-- TRR	Jul-18	--	3/12/2019	Completed
-- SCR	Sep-18	--	8/30/2019	Completed
-- ARR	Dec-18	Sep-19	9/24/2019	Completed
-- ORR	Mar-19	--	2/13/2020	Completed
-- Operations	Jun-19	--	2/20/2020	Completed



Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NOAA-20: Ocean Color				
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Jan-19			Completed
-- ARR	Mar-19	11/2018	11/2018	Completed
-- SRR	Apr-19	--		Waived
-- ORR	Apr-19	--		Waived
-- Operations	Jun-19	Jun-20		
NOAA-20: Microwave Tropical Cyclone Products				
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Apr-19	--	4/2/19	Completed
-- ARR	Oct-19	Aug-20		ASSISTT results are not as expected
-- ORR	Dec-19	Oct-20		
-- Operations	Feb-20	Nov-20		
NOAA-20: Blended Products Blended Ozone				
-- SCR	Aug-17	NA		SCR not required; already running in OPS
-- ORR	Jul-18	NA		No ORR is required
-- Operations	Oct-18	Jul-20		
NOAA-20: Blended Products Blended Snow and Ice				
-- SCR	Aug-18	--	7/9/2019	Completed
-- ORR	May-19	--	8/28/19	Completed
-- Operations	Jun-19	--	9/18/19	Completed
Microwave and Diurnal Corrected Blended SST w/ AMSR-2				
-- ORR	Nov-16	ON HOLD		
-- Operations	Nov-16	ON HOLD		



Prior Year Funded JPSS PSDI Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Enhanced TOAST with S-NPP OMPS Limb Profiles				
-- CDR	Jan-17	NA		No longer required
-- SCR	Apr-17	NA		No longer required
-- ORR	May-17	Jun-20		
-- Operations	Jun-17	Aug-20		
Upgrade to the Multi-platform Satellite Tropical Cyclone Surface Wind Analysis Product				
-- PDR/CDR	Dec-17	--	1/26/2018	Completed
-- UTRR	Apr-18	--		Waived
-- SCR	May-18	--	1/24/2020	Completed
-- ARR	Oct-18	--	5/27/2020	Completed
-- ORR	Jan-19	Aug-20		
-- Operations	May-19	Sep-20		
Upgrades to the ADT Product				
-- PDR	Jul-17	--	8/23/2017	Completed
-- CDR	Jul-17	--	8/23/2017	Completed
-- SCR	Jun-18	--	2/25/2019	Completed
-- ARR	Oct-18	--	5/20/2020	Completed
-- ORR	Apr-19	Aug-20		
-- Operations	Jun-19	Sep-20		
Product Monitoring Phase IV (JPSS RR, VIIRS AF)				
-- SRR/ORR	Jun-18	Jan-20	1/29/2020	Completed
-- Operations	Jul-18	--	3/25/2020	Completed
Product Monitoring VI (NDE J1)				
-- CDR	Dec-16	--	04/17/18	Completed
-- TRR	Sep-17	--	5/14/2019	Completed
-- SCR	Jun-19	--	Waived	Waived
-- ORR	Aug-19	Jan-20	1/29/2020	Completed
-- Operations	Sep-19	--	3/25/2020	Completed



JPSS Risk Summary

Top Risks



Status as of: 06/05/2020

Rank Risk ID	Summary	LxC Trend	Aprch	Status
1 AMP-19-002	Proxy data delay due to J2 10Hz Sampling Freq	4x3 ↔	W	06/04/2020: Proxy data delay due to J2 10Hz Sampling Frequency. Softbench issues for JPSS-2 APID 11 are due to time issues. This risk remains until the next version of softbench is available and the JPSS-2 APID 11 is analyzed. Softbench version 5 data has not been received yet. 17 day test data currently uses JPSS-1 APID 11 data, repeated 1 HZ samples to create 10 HZ (all samples the same).
2 GJ-340	Data transfer via hard drive may be delayed due to offices being closed	4x3 ↔	W	6/4/2020: Action:List of STAR names for user?s who will submit Algorithm Change Packages.
3 AMP-19-003	Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq	3x2 ↔	M	06/04/2020: The JPSS-2 test data created from J1 APID 11, converted to 10 HZ (due to time issues in Softbench 4.5 for J2 APID 11). IDPS Version 2.3 will include geolocation change. 10hz APID11 (geolocation plan to decimate 10 samples to one sample).
4 AMP-18-003	J2 APID Changes to Accommodate New S/C Bus	2x2 ↔	W	06/04/2020: IDPS has received and incorporated APID changes for JPSS-2 in CCR 4439. No APID changes for JPSS-2 ATMS, CrIS, OMPS NP, OMPS TC, and VIIRS. CCR 4978 has been approved and is awaiting incorporation. Very unlikely that there will be any further changes to the JPSS-2 APID to VCID mapping that will affect JPSS-2 data production.
5 AMP-18-008	Data Product Requirements for OMPS-Limb	3x1 ↔	M	6/4/2020: OMPS Limb SDR and EDR are expected to be in operation with the next NDE release on June 10th
6 AMP-19-001	Algorithm testing & delivery impacts due to lag between IDPS and G-ADA moving to the Cloud	2x1 ↔	W	06/04/2020: DPMS put together a draft schedule for migrating GADA to Clouds.

	5					
L I K E L I H O O D	4			1 2		
	3	5	3			
	2	6	4			
	1					
		1	2	3	4	5
		CONSEQUENCES				

Criticality
HIGH
MED
LOW

Approach
A – Accept
M – Mitigate
W – Watch
R – Research
LxC Trend

↓ – Decreasing (Improving)

↑ – Increasing (Worsening)


↔ – Unchanged

NEW – Added this month



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<p>1</p> <p>Proxy data delay due to J2 10Hz Sampling Freq</p> 	AMP-19-002	<p>Given that: APID 11 (S/C Attitude and Ephemeris) and 30 (S/C Telemetry) sampling frequencies are at 10Hz on JPSS-2</p> <p>There is a possibility that: It will affect and delay the process of getting/producing simulated J2 data (proxy data) during JCT.</p> <p>Resulting in: Test data production during JCT will be more difficult. "Instead of using NPP and J01 Proxy, Attitude and Ephemeris would be manufactured by using STK. To compensate for the sample freq at 10Hz, the APID 11 packet will need to be converted to 10Hz causing unwanted delays.</p>	Watch	<p>06/04/2020: Proxy data delay due to J2 10Hz Sampling Frequency. Softbench issues for JPSS-2 APID 11 are due to time issues. This risk remains until the next version of softbench is available and the JPSS-2 APID 11 is analyzed. Softbench version 5 data has not been received yet. 17 day test data currently uses JPSS-1 APID 11 data, repeated 1 HZ samples to create 10 HZ (all samples the same).</p> <p>05/06/2020: waiting on Softbench data to see if J2 test data is making APID 11 at 10HZ. Data is expected to be available this month.</p> <p>04/01/2020: No update.</p> <p>02/07/20: Waiting on Softbench data to see if J2 test data is making APID 11 at 10HZ.</p> <p>12/18/19: Softbench version 5 currently being tested, expected delivery end of January 2020.</p> <p>11/06/19: Proxy data delay due to J2 10Hz Sampling Frequency Softbench issues for JPSS-2 APID 11 are due to time issues. This risk remains until the next version of softbench is available and the JPSS-2 APID 11 is analyzed. 17 day test data currently uses JPSS-1 APID 11 data, repeated 1 HZ samples to create 10 HZ (all samples the same).</p> <p>9/9/19: Data from the simulator has been received and bit busted by the SEI&T team. This includes the J2 APID 11 and J2 APID 30 and APID 37.</p>



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<p data-bbox="42 287 117 329">2</p> <p data-bbox="54 354 104 386">↔</p> <p data-bbox="150 297 465 376">Data transfer via hard drive may be delayed due to offices being closed.</p>	<p data-bbox="552 287 625 305">GJ-340</p>	<p data-bbox="687 287 1078 366">Given that: Seit Ops Like (SOL) data is transferred via hard drive and physically transported from Raytheon to STAR.</p> <p data-bbox="687 404 1103 484">There is a possibility that: the data transfer will be delayed due to Government Offices being closed.</p> <p data-bbox="687 521 1089 629">Resulting in: Scheduled testing of algorithm upgrades in SOL testing schedules for April 24 - May 8, 2020 to be delayed.</p>	<p data-bbox="1199 287 1267 305">Watch</p>	<p data-bbox="1358 287 1870 395">6/4/2020: Action:List of STAR names for user?s who will submit Algorithm Change Packages. Action: POC for the non-personal service account for the GRAVITE data transfer to the Cloud ADA DP-AE.</p> <p data-bbox="1358 432 1862 484">6/3/2020: Mx1 SOL Testing Passed. Risk continues for next maintenance release.</p> <p data-bbox="1358 521 1875 658">05/07/2020:Testing dates moved to Mx 1 SOL Regression Test time 5/11-5/22/2020. Working different scenarios to get STAR data. GRAVITE AND Sharepoint are possible ways to get data to STAR for Science Testing.</p> <p data-bbox="1358 695 1624 714">04/03/2020: Risk Submitted</p>



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; background-color: #4CAF50; color: white; padding: 2px 5px; margin-right: 5px;">3</div> <div> <p>Some IDPS and STAR algorithms cannot use APIDs with 10Hz sample freq</p> </div> </div>	AMP-19-003	<p>Given that: APID 11 (S/C Attitude and Ephemeris) and 30 (S/C Telemetry) sampling frequencies are at 10Hz on JPSS-2</p> <p>There is a possibility that: Some IDPS and STAR algorithms will not be able to use any science products that has APID 11 and 30 or any APIDs with a sampling frequency of 10Hz</p> <p>Resulting in: Delays since IDPS geolocation algorithms cannot use 10Hz APIDs. During JCT3 IDPS has to geolocate J2 RDRs with J2 S/C Diary and if the geolocation algorithm is not compatible with the 10hz freq, it will affect IDPS's ability to geolocate J2 RDRs. STAR needs to consider the effect 10Hz APIDs will have on their GEO and sensor product algorithms.</p>	Mitigate	<p>06/04/2020: The JPSS-2 test data created from J1 APID 11, converted to 10 HZ (due to time issues in Softbench 4.5 for J2 APID 11). IDPS Version 2.3 will include geolocation change. 10hz APID11 (geolocation plan to decimate 10 samples to one sample).</p> <p>05/06/2020: IDPS presented the J2 PRO review showing how IDPS would use 10 Hz APIDs. Flight provided some clarifications on mode and maneuver. The clarifications from Flight changes the IDPS J2 software configuration for identifying J2 S/C normal operations mode/calibration and diagnostic mode which is part of the IDPS determination on algorithm execution. IDPS does not plan to use the additional samples in APID 11 (10 Hz) and common geolocation algorithm will remain the same.</p> <p>04/01/2020: No update.</p> <p>02/07/20: No updates</p> <p>12/18/19: IDPS Version 2.3 will include geolocation change.</p>



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<p data-bbox="40 287 117 334">4</p> <p data-bbox="150 297 426 344">J2 APID Changes to Accommodate New S/C Bus</p> <p data-bbox="54 358 104 386">↔</p>	<p data-bbox="527 287 651 305">AMP-18-003</p>	<p data-bbox="687 287 1029 358">Given that: J2 has a new S/C Bus manufacturer and some new APIDs compared to J1 and S-NPP</p> <p data-bbox="687 386 1079 458">There is a possibility that: the SDR algorithms will need to be updated to accommodate new RDR format/structure</p> <p data-bbox="687 486 1079 534">Resulting in: additional unplanned work for Ground.</p>	<p data-bbox="1199 287 1267 305">Watch</p>	<p data-bbox="1358 287 1879 434">06/04/2020: IDPS has received and incorporated APID changes for JPSS-2 in CCR 4439. No APID changes for JPSS-2 ATMS, CrIS, OMPS NP, OMPS TC, and VIIRS. CCR 4978 has been approved and is awaiting incorporation. Very unlikely that there will be any further changes to the JPSS-2 APID to VCID mapping that will affect JPSS-2 data production.</p> <p data-bbox="1358 462 1879 609">05/06/2020: CCR 4978 was submitted to make JPSS-2 APID Update to ATMS, VIIRS, OMPS NP, OMPS TC and CrIS SRSPF. The CCR is currently in review cycle. CCR 4984 was submitted to make documentation corrections to SRS Data Dictionary Part 8 and 28 for J2 RDR sizes. It has been approved and is awaiting incorporation.</p> <p data-bbox="1358 638 1843 656">04/01/2020: CCR 4439 and 4892 have been incorporated.</p> <p data-bbox="1358 685 1879 732">02/07/20: CCR 4439 approved and waiting incorporation. CCR 4892 ? needs approval and incorporation</p> <p data-bbox="1358 761 1860 808">12/18/19: CCR 4439 has been incorporation. Latest APID to VCID released Dec 4th, 2019.</p> <p data-bbox="1358 836 1879 1018">11/06/19: J2 APID Changes to Accommodate New S/C Bus Received and incorporated APID changes for JPSS-2 in CCR 4439 approved and being incorporated. No APID changes for JPSS-2 ATMS, CrIS, OMPS NP, OMPS TC, and VIIRS ? according to latest JPSS-2 APID to VCID mapping (June 25, 2019). These JPSS-2 products are included in CCR 4759. Very unlikely that there will be any further changes to the JPSS-2 APID to VCID mapping that will affect JPSS-2 data production.</p> <p data-bbox="1358 1046 1879 1150">09/09/19: J2 GPS APIDs are currently not included in the J2 S/C TLM RDR, and all other Virtual Channel 0 APIDs are included in the S/C TLM RDR. Investigating the size of APID 133 and APID 144 to determine true size of J2 S/C TLM RDR (30 bytes vs. 38 bytes).</p>



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<p data-bbox="40 287 117 329">5</p> <p data-bbox="150 297 452 344">Data Product Requirements for OMPS-Limb</p> <p data-bbox="54 358 104 386">↔</p> <p data-bbox="150 372 343 419">Expected Closure: 10/2020</p>	<p data-bbox="527 287 651 305">AMP-18-008</p>	<p data-bbox="687 287 1107 334">Given that: There are no JPSS (or NOAA) data product requirements for OMPS-L</p> <p data-bbox="687 362 1103 486">There is a possibility that: benefits/impacts analysis from users based on NPP data products may demonstrate the need for NOAA processing of OMPS-L from JPSS-2/3/4</p> <p data-bbox="687 515 1089 615">Resulting in: Additional funding needed for delivering the algorithm, product generation/distribution/archive, and calval of the products.</p>	<p data-bbox="1190 287 1277 305">Mitigate</p>	<p data-bbox="1358 287 1875 368">6/4/2020: OMPS Limb SDR and EDR are expected to be in operation with the next NDE release on June 10th</p> <p data-bbox="1358 404 1881 485">5/7/2020: OMPS LP is successfully running in I&T with the new file names, moving forward for May promotion which will happen in the first week of June</p> <p data-bbox="1358 521 1875 631">4/2/2020: The OMPS LP is going for the SPSRB briefing on April 15 2002, and is on schedule to be in operation in NDE May 2020, pending on a successful SPSRB briefing.</p> <p data-bbox="1358 666 1875 709">2/19/2020: Promotion to NDE operations is scheduled for May, 2020</p> <p data-bbox="1358 745 1881 861">12/05/2019: An OMPS Operations Readiness Review (ORR) was conducted on Dec. 2, 2019. This is the last major review before it goes into operations. Will keep risk open until the algorithm is promoted from NDE I&T to Operations.</p> <p data-bbox="1358 896 1881 1012">9/23/2019: The OSPO PAL and STAR PI will schedule the ORR in Oct. 2019. The science team has been busy with NOAA-20 OMPS cal val during September and now the ORR for OMPS-LP is moved to October 2019.</p> <p data-bbox="1358 1048 1875 1115">8/8/2019: OSPO PAL and STAR PI are working on Operational Readiness Review (ORR) slides now and planning to hold ORR in September 2019.</p> <p data-bbox="1358 1150 1875 1193">7/12/2019: No change. There is still some issues with ancillary data with running OMPS-L on NDE I&T.</p> <p data-bbox="1358 1229 1561 1248">5/1/2019: No change</p>



JPSS Top Risks



Rank	Risk ID	Risk Statement	Approach	Status
<p data-bbox="40 287 117 334">6</p> <p data-bbox="54 354 104 386">↔</p> <p data-bbox="150 297 475 368">Algorithm testing & delivery impacts due to lag between IDPS and G-ADA moving to the Cloud</p> <p data-bbox="150 396 343 444">Expected Closure: 12/2020</p>	<p data-bbox="527 287 651 305">AMP-19-001</p>	<p data-bbox="689 287 1097 334">Given that: IDPS will be in the cloud prior to G-ADA being in the cloud,</p> <p data-bbox="689 362 1074 434">There is a possibility that: algorithm change testing and implementation may take longer</p> <p data-bbox="689 462 1091 509">Resulting in: delays to implementation of algorithm changes.</p>	<p data-bbox="1199 287 1271 305">Watch</p>	<p data-bbox="1360 287 1856 334">06/04/2020: DPMS put together a draft schedule for migrating GADA to Clouds.</p> <p data-bbox="1360 376 1875 424">5/7/2020: No change. Expected close in Dec 2020 when IDPS and G-ADA are implemented in the Cloud.</p> <p data-bbox="1360 458 1875 576">2/19/2020: After the successful cloud CDR held in Jan 2020, we would expect that the risk is lower and should be closed when the IDPS and G-ADA implemented in Cloud which is scheduled to be Dec 2020.</p> <p data-bbox="1360 611 1831 658">12/05/2019: Lihang will look into whether this risk should be transferred to DPMS</p> <p data-bbox="1360 686 1831 733">8/8/2019: Suggest to transfer this risk to be under DPMS risk</p> <p data-bbox="1360 762 1850 833">7/12/2019: No update. AMP and STAR teams have been engaged with the IPR reviews and provided feedback/inputs related to the algorithms/cal val.</p> <p data-bbox="1360 862 1566 881">5/1/2019: No Update</p> <p data-bbox="1360 915 1875 1033">3/6/19: Based on limited understanding from Ground Project as of February 2019, we believe that there is a real possibility that IDPS will be migrated to the Cloud prior to G-ADA being available in the Cloud (with proper training, etc).</p>

Color code:

Green:

Completed Milestones

Gray:

Non-FY20 Milestones

Accomplishments / Events:

Refined the J2 ATMS prelaunch TVAC data through reprocessing

Dr. Quanhua (Mark) Liu gave an invited talk on Advanced Technology Microwave Sounder (ATMS) at the community organized workshop supporting the NSF Spectrum Innovation Initiative on May 20, 2020 (<https://sites.google.com/tamu.edu/nsf-nets-resource-site/science-and-engineering-of-spectrum-workshop>).

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:

Microwave Remote Sensing from Space

- The first microwave radiometer from space began with measurements of Venus surface temperature at 15.8 GHz and 22.2 GHz during the Mariner-2 mission in 1962 (NASA).
- Scanning Multichannel Microwave Radiometer (SMMR) on Nimbus-7 in 1978.
- NOAA first operational satellite with the Microwave Sounding Unit (MSU) in 1978
- SSM/I: 7 channels from 1987
- TMI: 9 channels from 1997
- Advanced Microwave Sounding Unit: 20 channels since 1998
- AMSR-E: 12 channels from 2002
- SSMIS: 24 channels from 2003
- SNPP ATMS : 22 channels from 2011
- Saphir : 6 water vapor channels from 2013
- AMSR-2 : 16 channels from 2014
- GMI : 13 channels from 2014
- NOAA-20 ATMS : 22 channels from 2017
- ATMS on JPSS-2 (>= 2022), JPSS-3 (>=2026), JPSS-4 (>=2031), Eumetsat MWS (2023 to 2044), MWI (2024 to 2045), ICI (2024 to 2045),
- CubeSATS

NSF Virtual Workshop on Advanced Uses of Spectrum, May 20, 2020

Dr. Quanhua (Mark) Li gave an invited talk at NSF Spectrum Workshop. The above slide provides historical context/timeline for space-based MW Remote Sensing

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		
Pre-launch sensor characterization report	Jun-20	Jun-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		PSR + 6m
PCT update based on pre-launch test data and other changes	Sep-20	Sep-20		PSR + 6m
Algorithm Updates Review	Jun-20	Jun-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	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/13/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T ATMS data review/checkout	Jun-20	Jun-20		

Accomplishments / Events:

-The J2/CrIS Preship-Review (PSR) was held on April 23, 2020. Harris Corporation has demonstrated the successful completion of the J2/CrIS instrument. All required test and analysis have been successfully completed during the Electro Magnetic Interference (EMI), Vibe, and Thermal Vacuum (TVAC) environmental test campaigns. There is only one science waiver: encircled energy (EE). The slight EE outage has minimal mission impact. The instrument is ready to ship for spacecraft integration. **(Figure 1)**

-Prepared and delivered the packet for turning on Fringe Count Error detection and correction algorithm in IDPS operational system. Results of algorithm tests showed a minimal impact to latency for FCE detection. The FCE correction algorithm successfully corrected the impacted spectra. The team also tested to make sure it would not introduce false alarms.

-Delivered the Draft of the J2 CrIS Cal/Val Plan. The plan covers the pre-launch and post-launch Cal/Val activities to be used by the CrIS Science team for the J2 CrIS sensor.

-Currently making progress in providing CrIS intercomparisons as part of the radiometric assessment of the SNPP and NOAA-20 CrIS SDR data using simulated radiances **(Figure 3)** and comparisons against Metop/IASI observation **(Figure 2)**

-Prepared and provided spectral calibration dataset for helping Harris implementing an on-orbit laser metrology calculation algorithm using atmospheric measurements, as part of the J2 CrIS neon lamp monitoring. The dataset contains CrIS observations at clear nadir FORs (index 15 and 16) over ocean as well the corresponding LBLRTM simulations are included.

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			

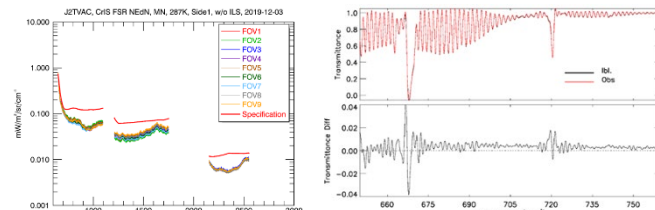
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

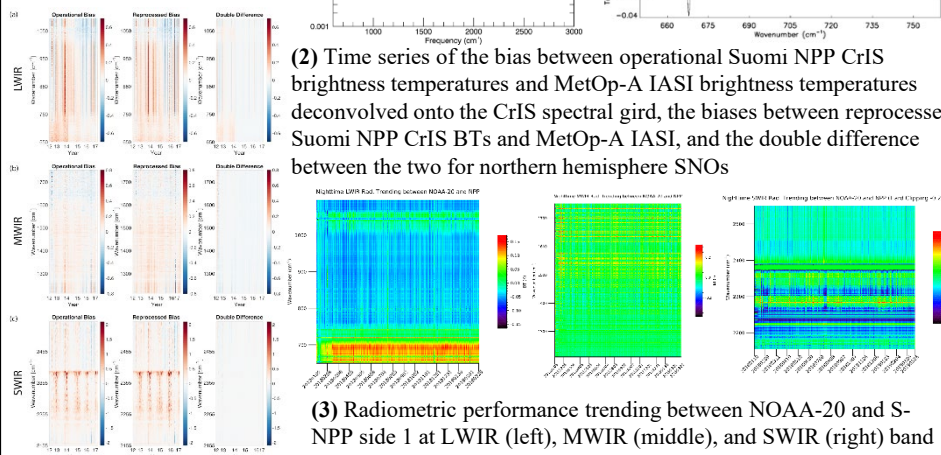
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
NPP (side-2) Validated Maturity	Feb-20	Feb-20	02/06/20	Prov + 6m
J2 pre-launch test data (TVAC) review/analyze	Apr-20	Apr-20	Apr-20	TVAC: Jan-20
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/29/20	
Pre-launch sensor characterization report	Jul-20	Jul-20		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		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		
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	Aug-20		
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	with Mx1 TTO	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	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T CrIS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T CrIS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T CrIS data review/checkout	Jun-20	Jun-20		

Highlights:

(1) J2/CrIS TVAC noise and spectral analysis performed at NOAA/NESDIS/STAR



(2) Time series of the bias between operational Suomi NPP CrIS brightness temperatures and MetOp-A IASI brightness temperatures deconvolved onto the CrIS spectral grid, the biases between reprocessed Suomi NPP CrIS BTs and MetOp-A IASI, and the double difference between the two for northern hemisphere SNOs



(3) Radiometric performance trending between NOAA-20 and S-NPP side 1 at LWIR (left), MWIR (middle), and SWIR (right) band using nighttime data.

Accomplishments / Events:

- released the J2 VIIRS relative spectral response function
- Revised geolocation error analysis software to use the updated transformation functions

Overall Status:

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

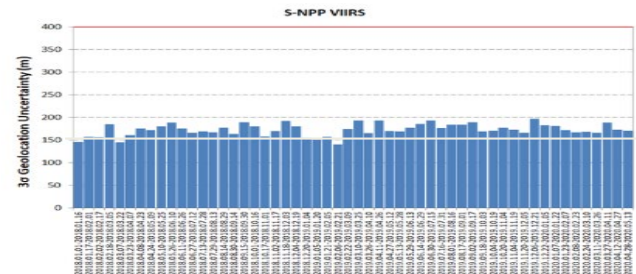
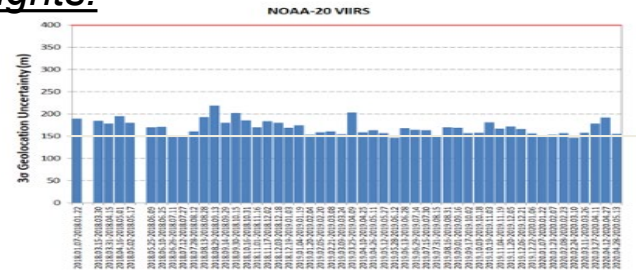
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

none

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test data (TVAC) review/analyze	Jan-20	Jan-20	01/31/2020	
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		
Algorithm Updates Review	Jun-20	Jun-20		
Simulated J2 SDR data available for EDRs	Jan-20	Jan-20	01/31/2020	
DAP: Lunar contamination (code & LUT updates)	Jun-20	Jun-20		
S-NPP VIIRS Geolocation LUTs Update (ADR9254)			03/25/2020	
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual VIIRS SDR performance report	Feb-20	Feb-20	02/28/2020	
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx8 I&T VIIRS data review/checkout	Nov-19	Nov-19	11/06/2019	
BL2.2 Mx0 I&T VIIRS data review/checkout	Apr-20	Apr-20	04/01/2020	
BL2.2 Mx1 I&T VIIRS data review/checkout	Jun-20	Jun-20		

Highlights:



Estimations of the NOAA-20 and S-NPP VIIRS geolocation uncertainties for the 16-day time period from 4/28/2020 to 5/13/2020, using revised geolocation error analysis software. Typically within 200m for both SNPP and N20. The 150m line is in black to assist with comparisons.

Accomplishments / Events:

- Delivered SNPP/NOAA-20 OMPS weekly Dark tables and solar irradiance LUTs to GRAVITE
- Prepared for J02 OMPS SDR Cal/Val Alg. Review presentation
- Worked on the update of the OMPS SDR cal/val plan for J02
- Deliver the initial version of J02 OMPS SDR simulation data to the EDR team
- Completed SOL OMPS data review and test
- Continued to investigate the root cause of the negative EV360 radiance issue
- Continue to analyze the SNPP/NOAA-20 dark calibration package in preparation to J02 OMPS
- Continue to simplify the NASA OMPS RDR-SDR package in preparation for J02 OMPS

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: OMPS-NP	Jan-20	Apr-20	4-23-20	See Issues/Risks
J2 pre-launch test data (TVAC) review/analyze	Apr-20	Jul-20		See Issues/Risks
J2 pre-launch evaluation tools development	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	06/05/20	
Pre-launch sensor characterization report	Dec-19	Jul-20		See Issues/Risks
Algorithm update based on pre-launch test data and other changes (e.g. APID, sampling frequency, FSW, and RDR)	Jun-20	Aug-20		
Launch-ready LUTs (initial delivery)	Jun-20	Aug-20		
Algorithm Updates Review	Jun-20	Jun-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
High resolution SDR implementation (17km x 17km OMPS TC)	Aug-20	Aug-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Annual OMPS SDR performance report	Feb-20	Feb-20	Feb-20	
Verification of cloud implementation	Sep-20	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T OMPS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T OMPS data review/checkout	Apr-20	Apr-20	04/07/20	
BL2.2 Mx 1 I&T OMPS data review/checkout	Jul-20	Jul-20		

Highlights:

Demonstration of two spatial resolutions for NOAA-20 and J02 (proxy data) NM at 318 nm

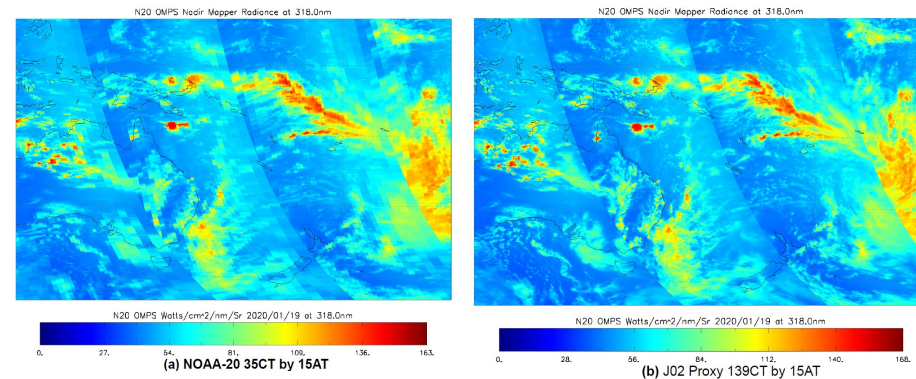


Figure Demonstration of two spatial resolutions for NOAA-20 and J02 (proxy data) NM at 318 nm. (a) NOAA-20 NM resolution. (b) J02 139CT by 15CT resolution.

Accomplishments / Events:

- Analyzed the correlation between S-NPP ATMS scan drive motor current anomaly and CrIS dynamic alignment tilt error
- Prepared responses to review comments on hurricane 3-D structure watch journal manuscript and updated corresponding event watch operational package
- Provided VIIRS ICVS sample data sets to develop ICVS-Vector webpage so as to provide user interactive ready dynamic ICVS web site
- Provided NRT CrIS data anomaly report for CrIS Cal/Val team and IDPS operator
- Conducted CrIS vs. ABI SNO inter-sensor comparison uncertainty study to improve CrIS data quality monitoring accuracy
- Studied OMPS NP long term data quality by building Solar Mg II index time series

Overall Status:

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

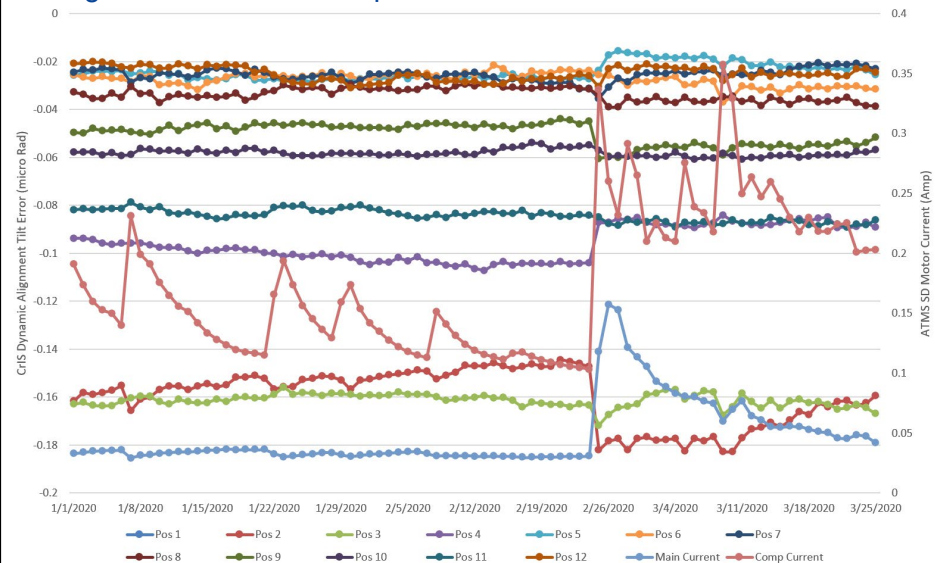
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Large ICVS Intersensor task relatively new and original schedule overly optimistic, pushed back ICVS interactive module task schedule due to resource constraints

Highlights: Significantly contribute to STAR SDR Teams

S-NPP daily mean ATMS scan drive motor current vs. CrIS dynamic alignment Y tilt error at epoch 40 between 1 Jan to 25 Mar 2020



Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
<ul style="list-style-type: none"> ICVS Intersensor web site beta version (e.g., direct, CRTM, 3rd instrument as transfer) ICVS-J2 prototype beta version using J1 as proxy data ICVS-reprocessing tool prototype 	Dec-19	Jun-20		See Issues/Risks
<ul style="list-style-type: none"> ICVS interactive modules: beta version OMPS geolocation error development Cloud mask module improvement using AI-based cloud detection algorithm: beta version 	Mar-20	Sep-20		Low priority and schedule conflict with the new task
Develop a LEO-GEO GSICS portal beta version	Ma-20	Apr-20	Apr-20	
Develop a LEO-GEO GSICS portal final	Jun-20	Jun-20		
<ul style="list-style-type: none"> ICVS intersensor web site improvement ICVS Module improvements (each instrument on both SNPP and NOAA-20) (with proper QCs in particular cloud mask over snow-free land) 	Jun-20	Jun-20		
<ul style="list-style-type: none"> ICVS Interactive modules: operational version ICVS-AI modules for each instrument lifetime performance assessment: beta version OMPS geolocation error monitoring module 	Jun-20	Sep-20		Low priority and schedule conflict with the new task (GSICS Portal)
<ul style="list-style-type: none"> ICVS-AI modules for each instrument lifetime performance assessment: ICVS-AI modules for each instrument SDR data quality assessment: beta version ICVS upgrade (if new servers are ready) 	Sep-20	Sep-20		
JPSS-ICVS System Standardization and ICVS Annual Performance Review	Feb-20	Feb-20	Feb-20	

Accomplishments / Events:

- **VIIRS EDR TC code changes** into ground systems testing for implementation in Q4.
- VIIRS NOAA-20 DNB-to-NCC LUT update being tested.
- Expanding effort: **6 to 16 M-band VIIRS EDR Imagery** documentation changes started
- **JPSS-2 Cal/Val plan** being drafted, based on J1 cal/val plan. First draft due June 2020, final due Dec 2020.
- **VIIRS Imagery Team website** being revised as part of larger RAMMB website update, projected for Q4 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			

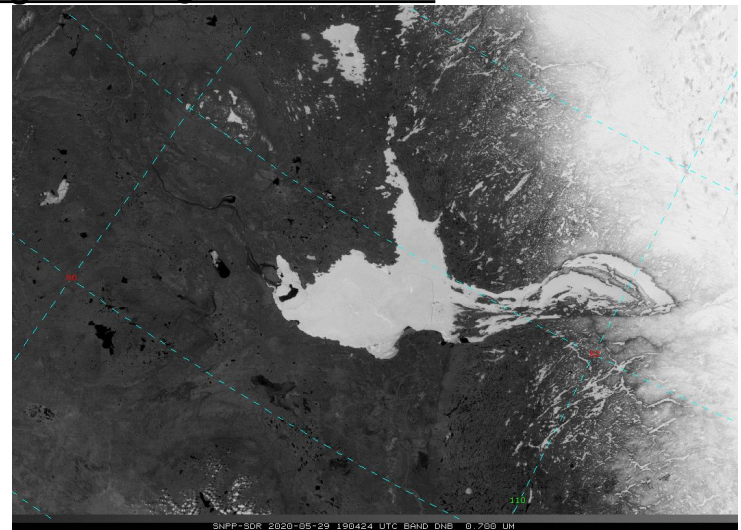
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Algorithm Updates Review	Jun-20	Jun-20		
N20 NCC LUT update	Sep-20	Sep-20		
All 16 M-bands as Imagery EDRs	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	Sep-20		
IDPS Mx build I&T deploy regression support:				
BL2.1 Mx 8 I&T ATMS data review/checkout	Nov-19	Nov-19	11/12/19	
BL2.2 Mx 0 I&T ATMS data review/checkout	Apr-20	Apr-20	04/01/20	
BL2.2 Mx 1 I&T ATMS data review/checkout	Jun-20	Jun-20		

Highlights: Image of the Month



Daytime DNB image of Great Slave Lake in northern Canada, showing the frozen lake surface on 29 May 2020. The white on the right side of the picture is snow-covered land. Some smaller lakes are ice free.

Accomplishments / Events:

- Completed CALIOP L3 processing needed for new ECM2 prior lookup table
- Delivered updates for Cloud Mask, Type, Height and Base for the 2020 JPSS DAP (scheduled integration into NDE late 2020)
- Performed analysis of ECM1 patch prior to NDE integration
- Developed Calibration/Validation plans

Overall Status:

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

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

Issues/Risks:

None

Highlights:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSIST:	Apr-20	Apr-20	Apr-20	With initial J2 DAP
<ul style="list-style-type: none"> 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 				
Verification of direct readout EDRs	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 tool and LTM webpage development/improvement	Sep-20	Sep-20		
Support Alaska Demo and ESRL usage	Sep-20	Sep-20		

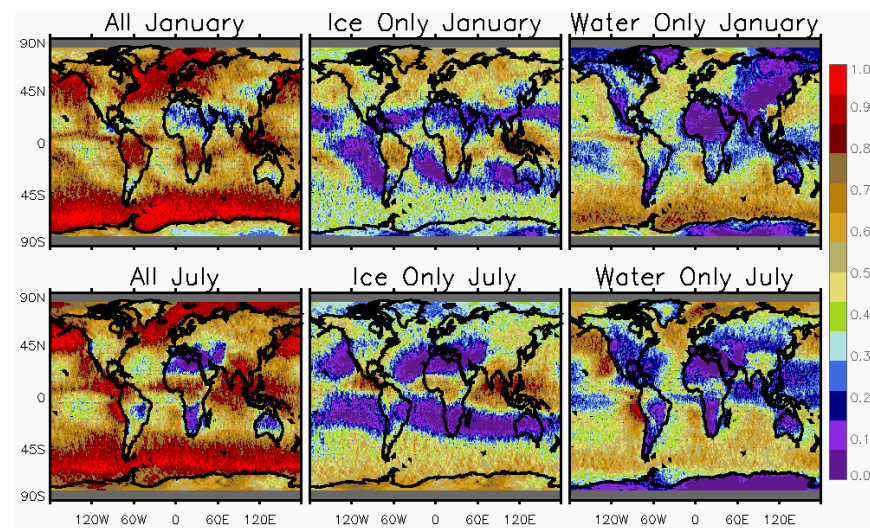


Figure 1. Cloud fraction generated using 9 years of CALIPSO Level 3 GEWEX data. This will be used for new ECM2 prior LUT.

Accomplishments / Events:

Examining SNPP VIIRS AOD Changes due to COVID-19 Lockdown using S5P TROPOMI NO₂ as a Filter

CSPP Delivery of JPSSRR ECM LUT Patch (5/18/2020) includes Aerosol with Enterprise Cloud Mask LUT update

Development of aerosol detection algorithm for TROPOMI: worked with FIREX-AQ DC8 aircraft observations. Applied the smoke detection to Level 1B data obtained from airborne MODIS simulator to derive smoke product at 20m resolution and compared it to VIIRS

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			

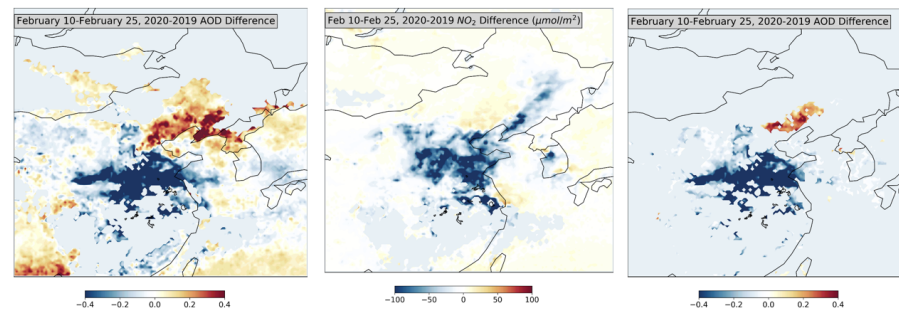
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

Examining SNPP VIIRS AOD Changes due to COVID-19 Lockdown using S5P TROPOMI NO₂ as a Filter



SNPP VIIRS AOD difference between 2020 and 2019 showing decrease in AOD in Hubei province where COVID-19 related shutdown was 100%. Increase in AOD due to transported smoke and/or increase in emissions in 2020 compared to 2019



Use NO₂ to filter AOD data

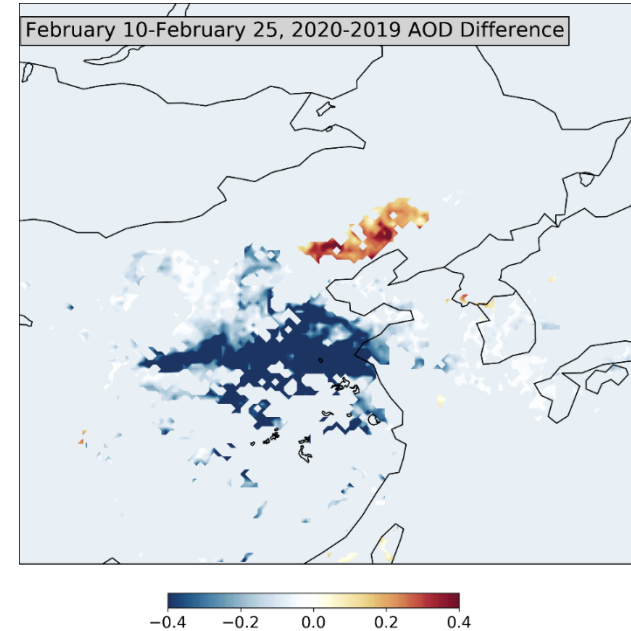
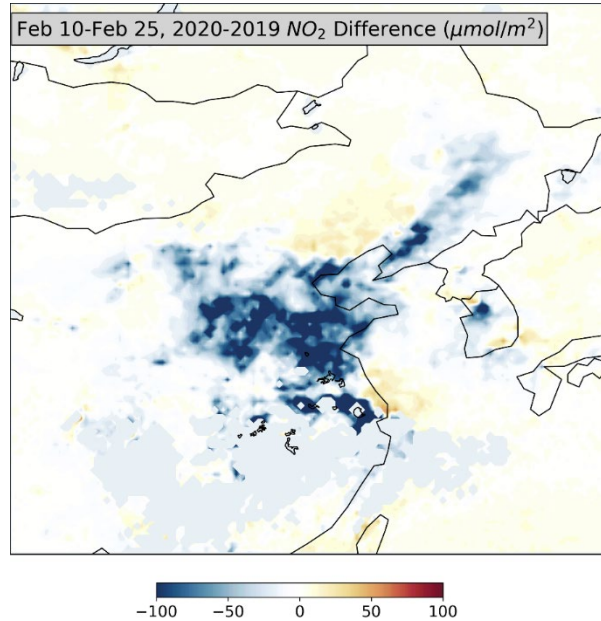
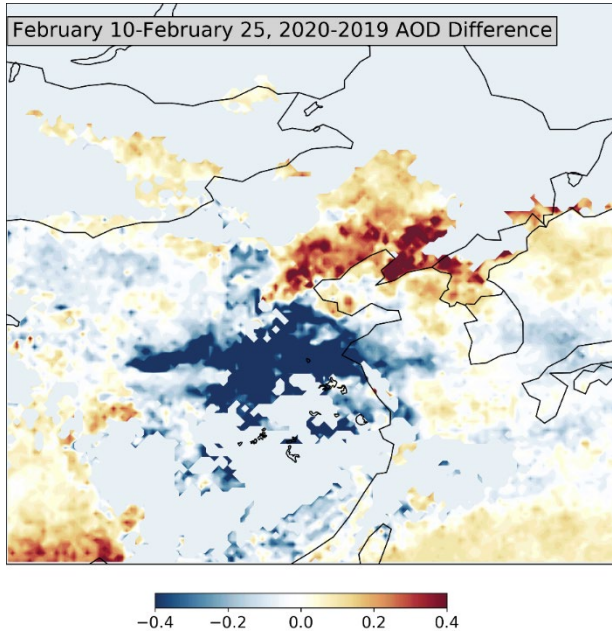
- NO₂ > 12 μmoles/m²
- ΔNO₂ > 5 μmoles/m² with criteria that both AOD and NO₂ should either co-increase or co-decrease



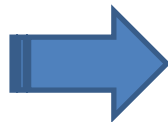
Capture AOD changes when source sector for aerosols/aerosol precursors and NO₂ are the same

S. Kondragunta, H. Zhang, Z. Wei (NOAA/NESDIS/STAR)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> 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
Verification of direct readout EDRs	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, update aerosol cal/val & AerosolWatch website	Sep-20	Sep-20		



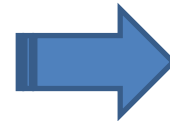
SNPP VIIRS AOD difference between 2020 and 2019 showing decrease in AOD in Hubei province where COVID-19 related shutdown was 100%. Increase in AOD due to transported smoke and/or increase in emissions in 2020 compared to 2019



Use NO₂ to filter AOD data

- NO₂ > 12 μmoles/m²
- ΔNO₂ > 5 μmoles/m²

with criteria that both AOD and NO₂ should either co-increase or co-decrease



Capture AOD changes when source sector for aerosols/aerosol precursors and NO₂ are the same

S. Kondragunta, H. Zhang, Z. Wei
(NOAA/NESDIS/STAR)

Accomplishments / Events:

- Collected user feedback on JPSS SO₂ product, VOLCAT event dashboard, and thermal time series tool via a survey form;
- Planning for VOLCAT DACS project and DevOps in the cloud;
- Developed improved SO₂ degassing time series capability

Overall Status:

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

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		
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		
Algorithm update DAP to ASSISTT:				With initial J2 DAP
▪ Refine thresholds and LUT's for S-NPP and NOAA-20 as needed	Apr-20	Apr-20	Apr-20	
Pursue algorithm enhancements, including eventual transition to VOLCAT	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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: 40 Years Ago....



On May 18, 1980, at 8:32 a.m. Pacific Daylight Time, a magnitude 5.1 earthquake shook Mount St. Helens. The bulge and surrounding area slid away in a gigantic rockslide and debris avalanche, releasing pressure, and triggering a major pumice and ash eruption of the volcano. Thirteen-hundred feet (400 meters) of the peak collapsed or blew outwards. As a result 24 square miles (62 square kilometers) of valley was filled by a debris avalanche, 250 square miles (650 square kilometers) of recreation, timber and private lands were damaged by a lateral blast, and an estimated 200 million cubic yards (150 million cubic meters) of material was deposited directly by lahars (volcanic mudflows) into the river channels. Fifty-seven people were killed or are still missing. USGS Photograph taken on May 18, 1980, by Austin Post.

Accomplishments / Events:

- Publication on AMSR2 vs IMS sea ice cover.
- Single- vs dual-band ice surface temperature algorithms have been extensively compared, with implications for a major update.
- VIIRS and AMSR2 ice motion have been validated with drifting ice buoy observations.
- Assessments of changes in the cryosphere have been updated with the AMSR2 sea ice product.
- The WMO Global Cryosphere Watch (GCW) Steering Group meeting was held May 11-13.

Overall Status:

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

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

Issues/Risks:

None

Highlights:

VIIRS and drifting ice buoy motion comparison. Ice motions derived from the VIIRS I5 band were compared to drifting ice buoy motions from the International Arctic Buoy Program (IABP) north of Svalbard (east of Greenland). The directions of the ice motion agree quite well. VIIRS speeds tend to be a somewhat higher (faster).

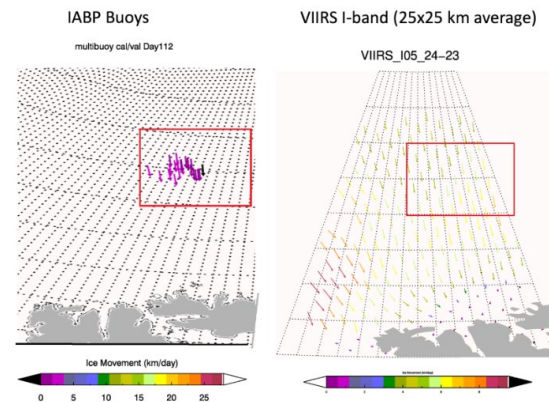


Figure: IABP drifting ice buoy motion north of Svalbard (left) and VIIRS band I5 motion in the same area (right).

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: Snow Cover (Binary Map & Snow Cover Fraction)	Apr-20	Jun-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		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> ▪ 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
Verification of direct readout EDRs	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		

Accomplishments / Events:

- The STAR and OSPO teams conducted a Software Core Review for the VIIRS algorithm
 - Only minor issues were identified that do not impact product performance
- Worked on the NOAA version of the ATBD for the VIIRS I-band product
 - Minor differences between the NOAA and NASA versions due to NASA L1 vs. NOAA SDR differences
- Continued evaluation of the persistent anomaly flag
 - The HRRR-smoke team reported positive impact

Overall Status:

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

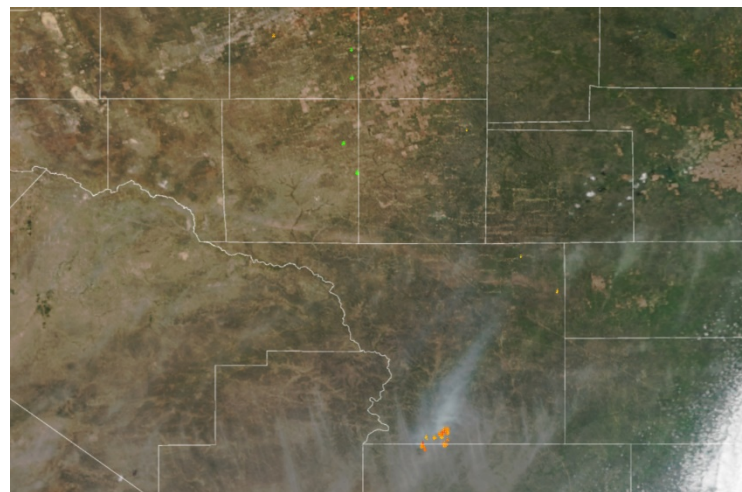
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity (M-Band & I-Band)	Jan-20	Jan-20	02/06/20	Scheduled: 2/6/20
Initial/Final DAP (I-Band)	May-20	May-20	5/4/20 DAP for SCR	With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	May-20	May-20	5/4 SCR	With I-Band DAP
Algorithm Updates Review	Sep-20	Sep-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	M-band update
Verification of direct readout EDRs	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:



Suomi NPP VIIRS I-band Fire Radiative Power data of a large fire complex (shades of orange and red) and persistent anomaly detections of gas flares (green) in Texas on April 21, 2020. Display from JSTAR Mapper (<https://www.star.nesdis.noaa.gov/jps/mapper/>).

Accomplishments / Events:

- The STAR and NASA GSFC teams have been working on preparations for the upcoming NOAA-20 Surface Reflectance Validated Maturity Review
 - Performance of the STAR implementation is compatible with NASA GSFC, with some remaining issues in QA flags
- Kevin Gallo worked on implementing a new product data selection in the Land Product Characterization System (LPCS)
 - adds Suomi NPP VIIRS data to compare near-IR surface reflectance time-series graph with Landsat 8 OLI, Terra and Aqua MODIS

Overall Status:

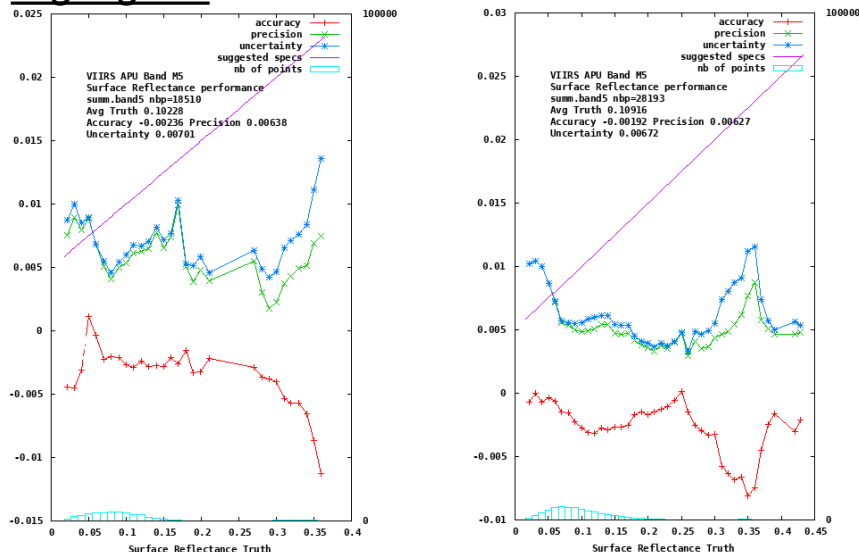
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget			X		Temporary funding delay
Technical / Programmatic			X		Large data volume for validated analysis
Schedule			X		Delay validated review

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

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

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Apr-20	Jun-20		6/18/2020
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Oct-20	Oct-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> 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
Verification of direct readout EDRs	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:



NOAA-20 VIIRS M5 Surface Reflectance performance from the NOAA STAR (left) and NASA GSFC (right) implementation of the algorithm
Credit: Eric Vermote, NASA GSFC

Accomplishments / Events:

- STAR-UMD VIIRS Annual Surface Type team has downloaded and processed S-NPP and NOAA-20 VIIRS granule data acquired in May 2020.
- The team has processed the first 12-month NOAA-20 data and produced the following:
 - Monthly composites from May 2019 to April 2020
 - Annual metrics derived the above monthly composites.
- The team continues to finalize the AST 2019 product based on SNPP data

Overall Status:

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

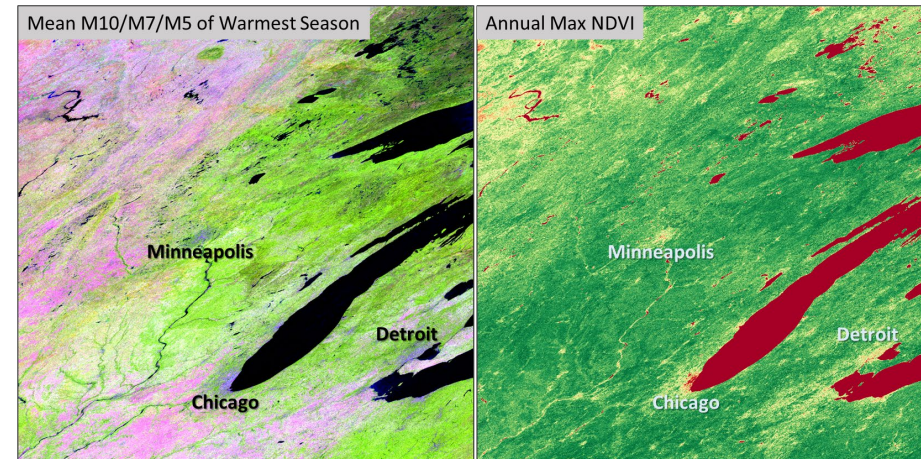
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

NOAA-20 Acquired First 12-Month Data Needed for Generating Annual Metrics



The AST product is derived based on a set of 69 annual metrics calculated from one full year's VIIRS data. By April 2020, NOAA-20 acquired its first 12-month data. These two metrics were calculated from NOAA-20 data acquired between May 1, 2019 and April 30, 2020

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		
AST19 (Annual Surface Type):				
Collaborate with land teams on daily and monthly product gridding and compositing for NDE Enterprise Algorithm (SR/NDVI/EVI/Temperature)	Sep-20	Sep-20		
Complete monthly composites of global gridded VIIRS data (9 land bands + thermal bands) for VIIRS AST19 based on 2019 VIIRS data	Aug-20	Aug-20		
Generate VIIRS AST19 based on 2019 VIIRS data using SVM algorithm	Aug-20	Aug-20		
Comparison of AST19 with surface type validation data (Accuracy statistics of the new AST19 and LWM)	Aug-20	Aug-20		
Delivery of AST19 (available for users through STAR FTP)	Sep-20	Sep-20		
AST18 NDE delivery (ASSISTT)				
<ul style="list-style-type: none"> 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

Accomplishments / Events:

- Finalized the response to the maturity review comments. Further collected feedback from users in NCEP and soil moisture group.
- Fulfilled the user request from soil moisture group on L3 VIIRS LST data over CONUS domain. The data from both SNPP and NOAA20 is provided to users to generate operational 1 km soil moisture product on a daily basis. Provided the historical L3 data to users. (highlight)
- Finished the modification of the scripts that run routine jobs according to the SCDR syntax update
- Finished the routine validation of the VIIRS LST against ground measurements from BSRN network. (Slide2)
- Cooperated the VIIRS LST validation study with users in Europe.
- Finished the draft of the cal/val plan and J2 algorithm update slides.
- Started to work on the routine cross satellite comparison with NASA LST products including MODIS LST and VNP21 LST. It is an ongoing effort. (example MYD11A1 results in slide 3 &4)

Overall Status:

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

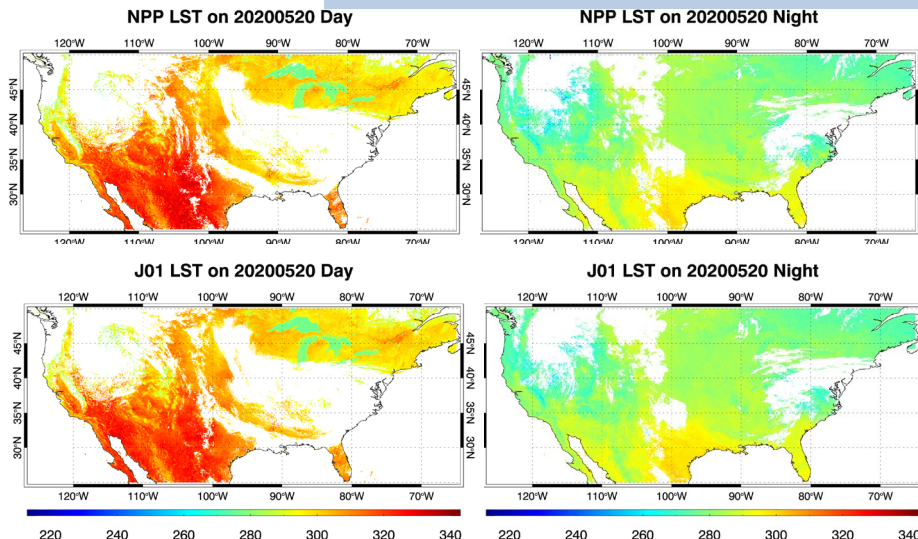
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3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded LST product (B/P/V ?)	Sep-20	Sep-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> ▪ 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	
Verification of direct readout EDRs	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		

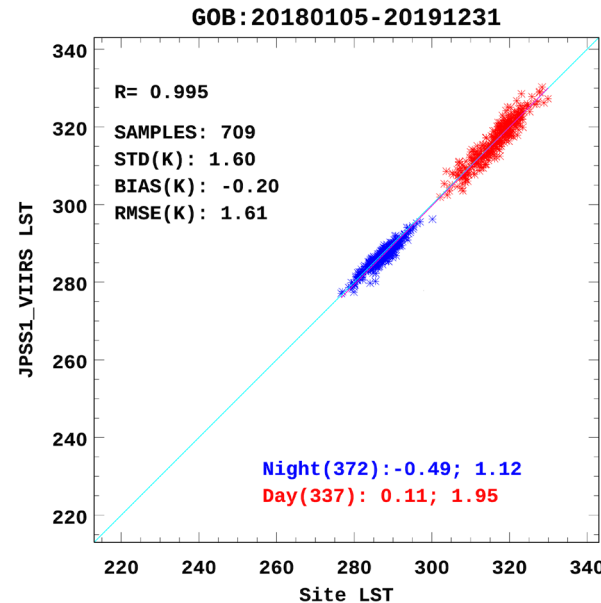
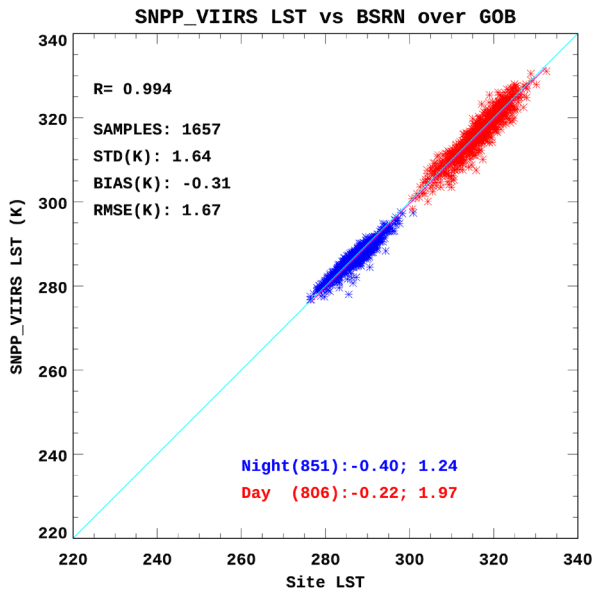
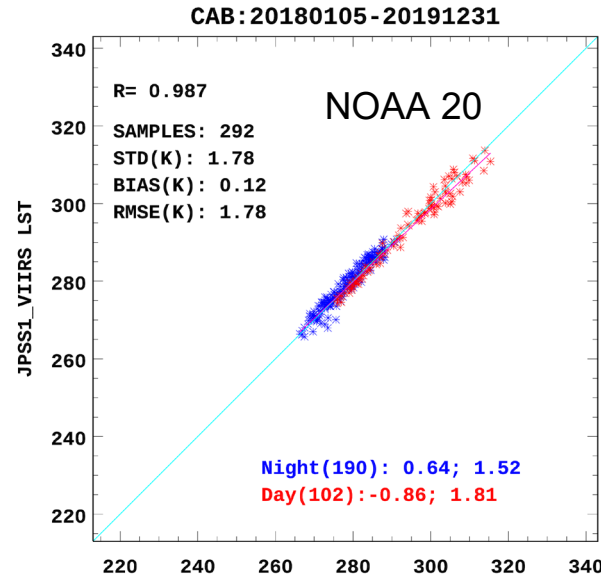
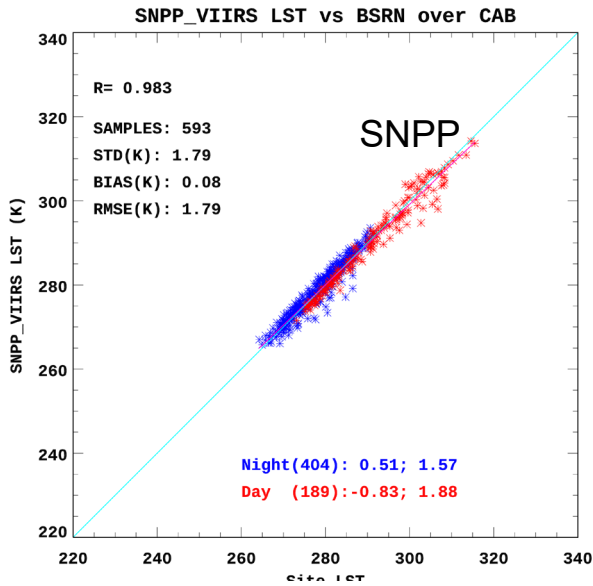
Highlights:

Example image of the L3 CONUS LST



The L3 VIIRS LSTs of SNPP and NOAA 20 over CONUS domain were provided to support the operational 1 km soil moisture production. The data is in lat/lon projection.

VIIRS LST validation against BSRN observations



- The VIIRS LSTs of SNPP and NOAA 20 were validated against ground observations from BSRN sites: CAB and GOB
- The time period is from Jan. 5 to Dec. 2019 for NOAA 20, from Sep. 2015 to Dec. 2019 for SNPP.
- The validation results indicate a very close agreement between satellite LST and ground in-situ LST for both SNPP and NOAA 20.

Routine cross comparison with MODIS LST-

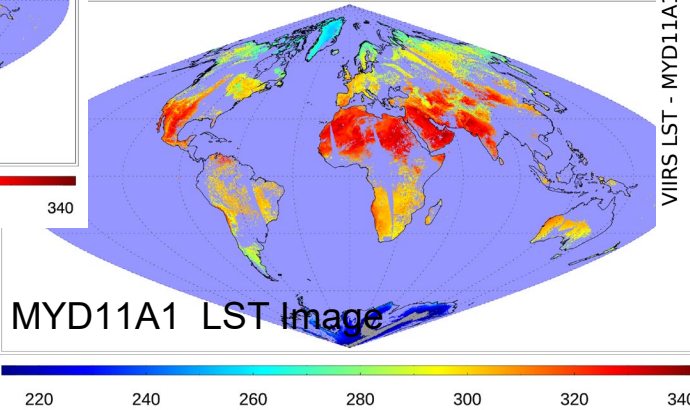
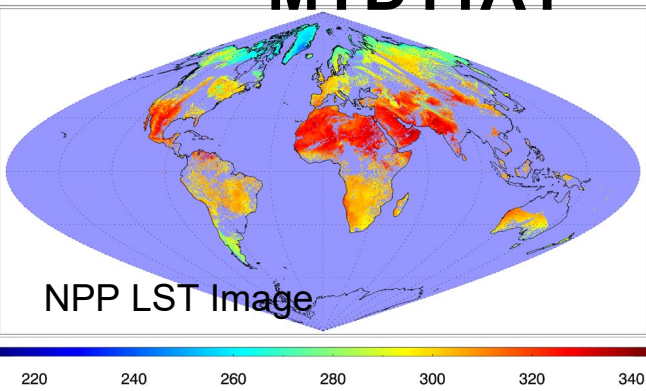
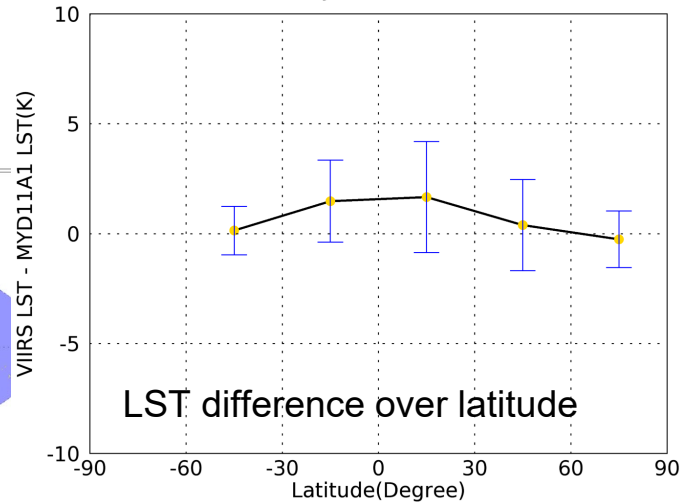
NPP LST Image on 20200521 Day
MYD11A1

Daytime

MYD11A1 LST Image (Day) on 20200521

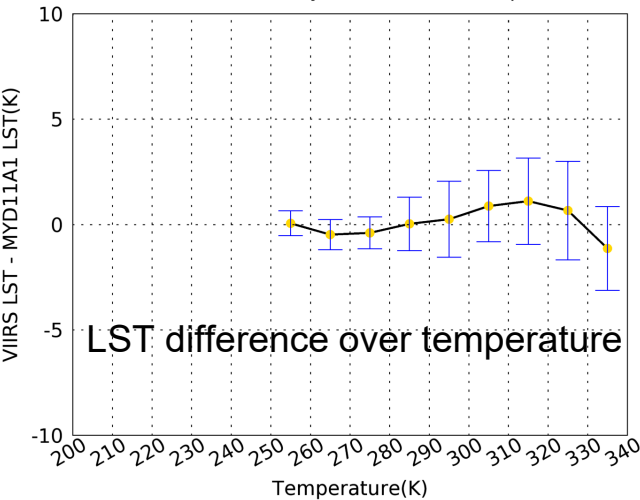
MYD11A1 LST Image

20200521:Day Error Bar over Latitude

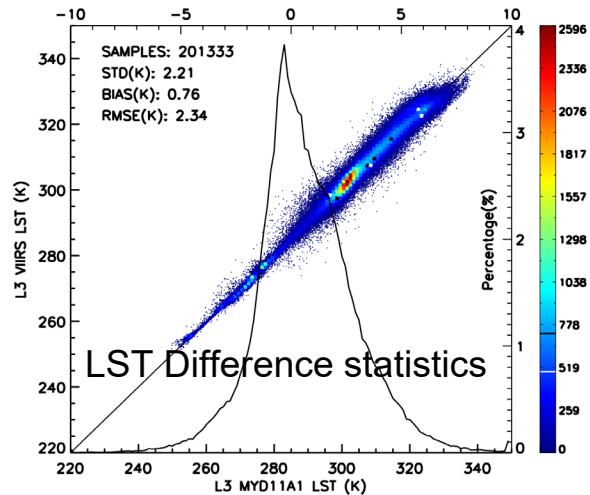


The statistics is for the absolute temporal difference less than 12 minutes and cloud clear condition

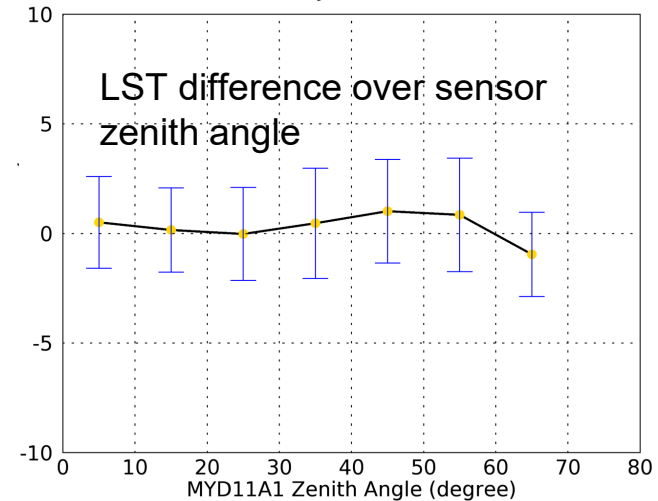
20200521 Day:Error Bar over temp



20200521:Day ViewTime Difference <= 12 min



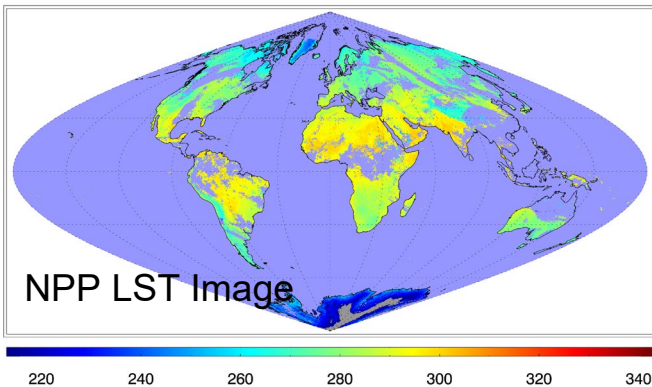
20200521 Day:LST Error over STZ



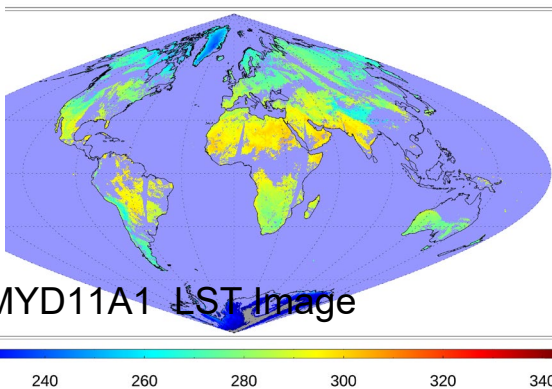
Routine cross comparison with MODIS LST-

MYD11A1
NPP LST on 20200521 Night

Nighttime

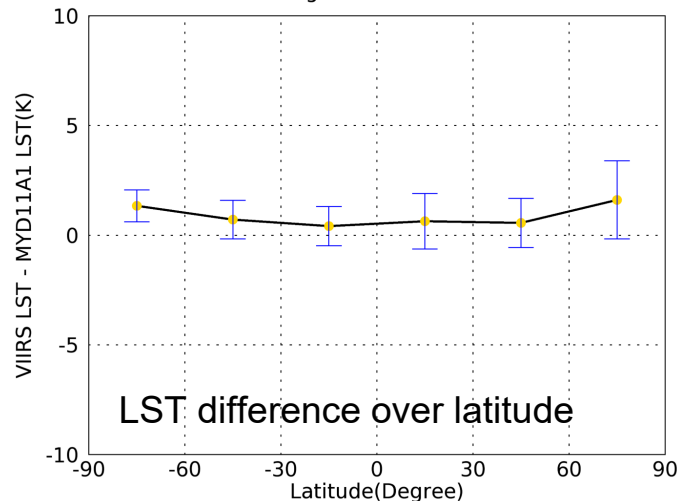


MYD11A1 LST Image (Night) on 20200521

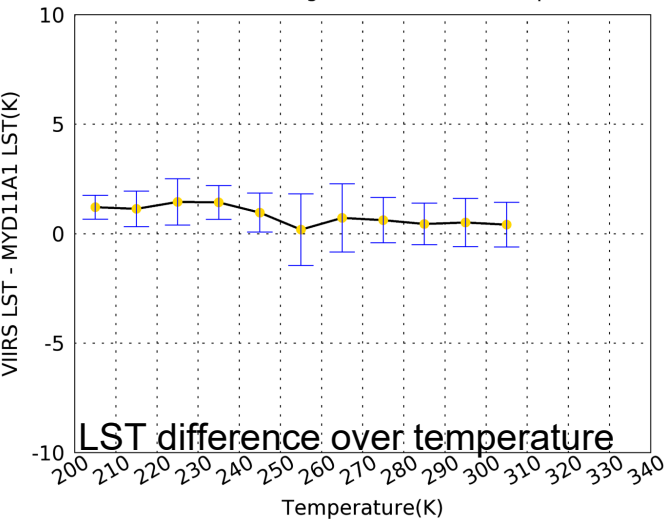


The statistics is for the absolute temporal difference less than 12 minutes and cloud clear condition

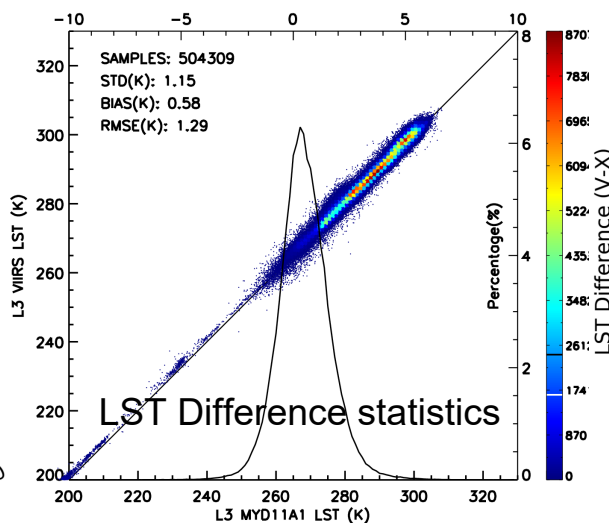
20200521:Night Error Bar over Latitude



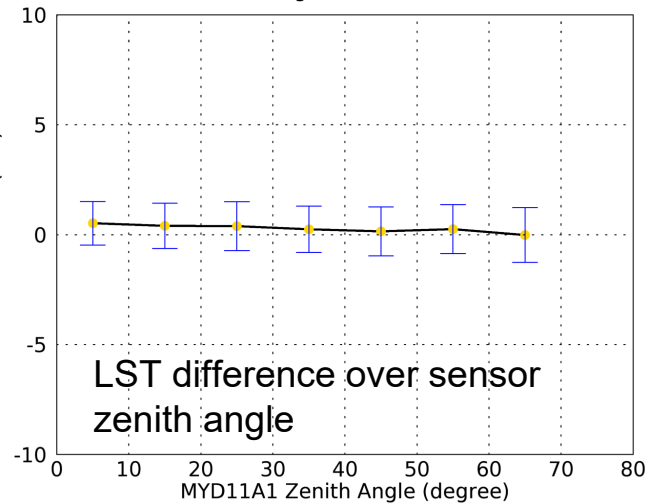
20200521 Night:Error Bar over temp



20200521:Night ViewTime Difference <= 12 min



20200521 Night:LST Error over STZ



Accomplishments / Events:

- Responded to the validated maturity review comments of the J1 VIIRS albedo product (**Highlight**)
- Updated the Enterprise Cal-Val plan
- Drafted the JPSS-2 Algorithm Update Plan
- Checked the sporadic albedo discontinuity in Antarctic at the latitude line of 80S and confirmed the NAN-value in the snow LUT, which has already been solved locally and pending delivery (**#2**)
- Compared the NOAA VIIRS albedo with the EUMETSAT EPS ETAL albedo from AVHRR (**#3**). This is an on-going effort

Overall Status:

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

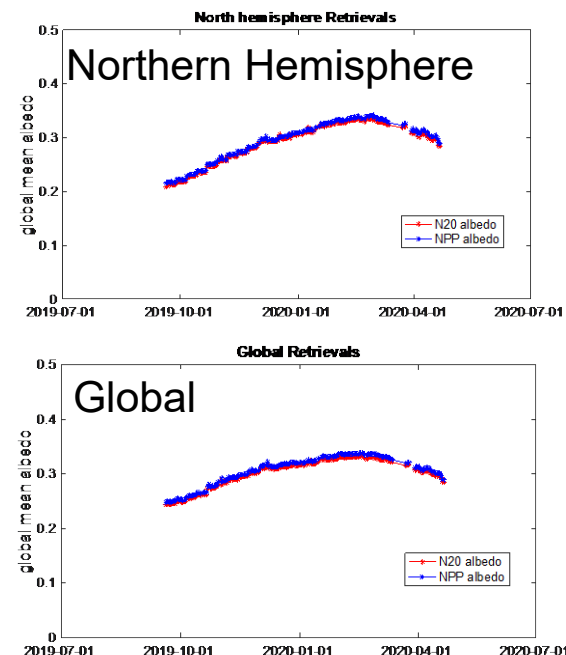
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Nov-19	Nov-19	11/21/19	
Validation of global gridded SURFALB product (B/P/V ?)	Sep-20	Sep-20		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20	05/28/20	
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Aug-20	Aug-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Improve the heterogeneity uncertainty analysis method Refining the 1-km climatology LSA 	Mar-20	Mar-20	Apr-20	
Developing a blended albedo product	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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:

Comparison between the mean N20 and NPP albedo over Northern Hemisphere and Globe respectively. The results show very small and stable differences between N20 and NPP albedo over both two spatial subset, which indicates their overall magnitude and calibration status is generally consistent.

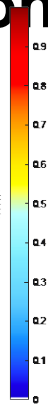
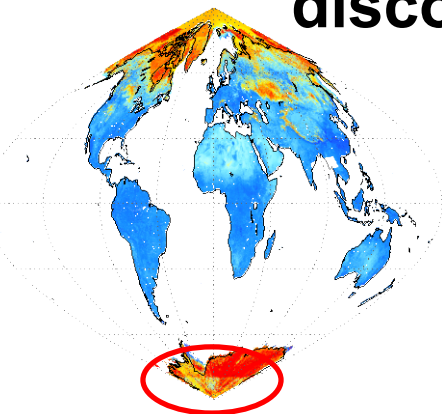


One problem solved about Antarctic

VIIRS Albedo

discontinuity

- An Antarctic granule shows albedo discontinuity.
- According to investigation, it is not related to cloud condition or retrieval path.
- The discontinuity boundary is consistent with the latitude line of 80°S. Latitude is an entry of the LUT.
- It has been confirmed that the LUT becomes NAN for lat between (80,90) and decimal angle > -5.875
- How to solve? Filled the LUT with valid value and will update to ASSISTT

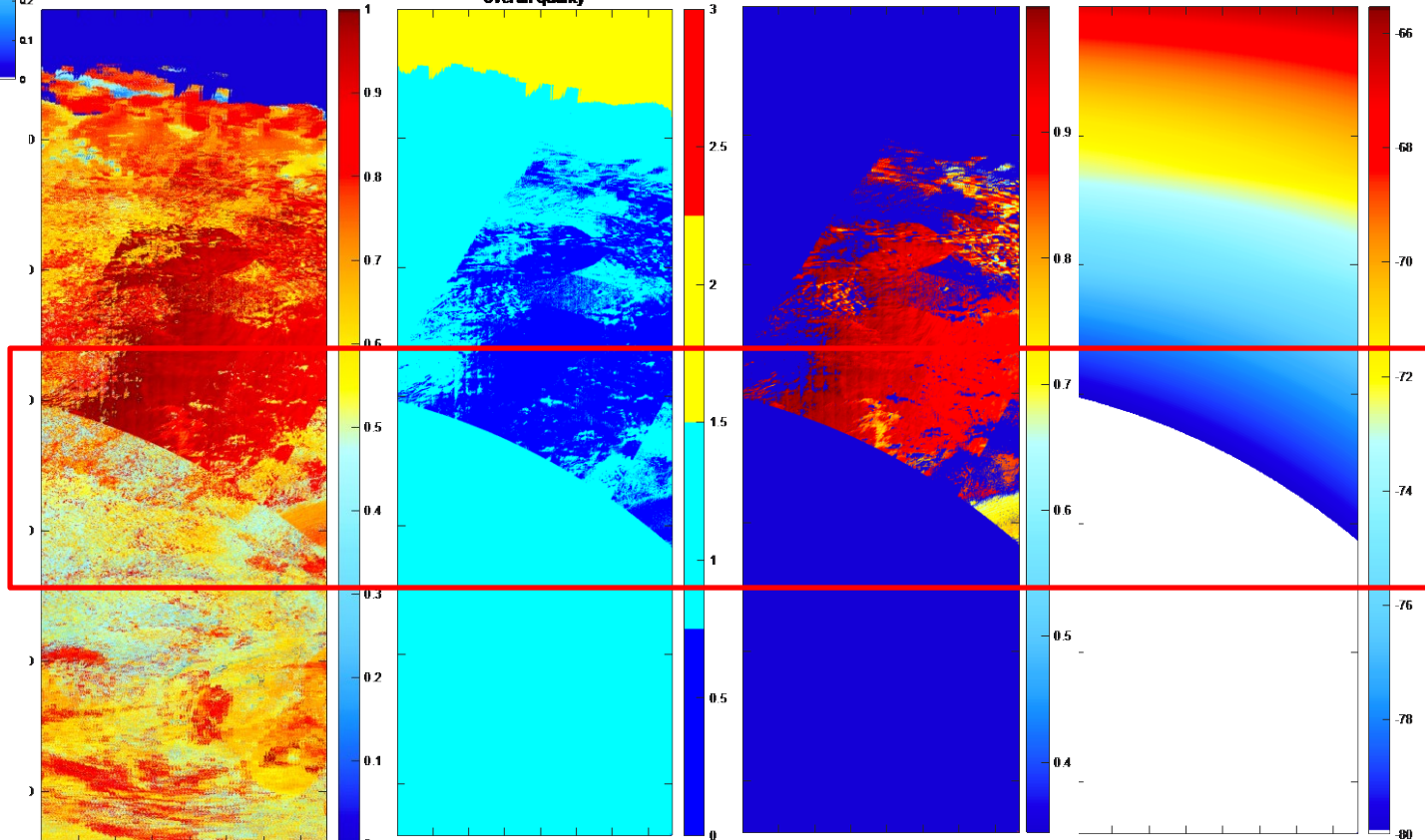


albedo new

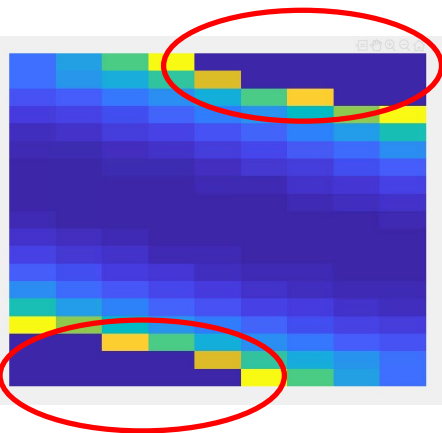
overall quality

Direct retrieval

Latitude



NAN

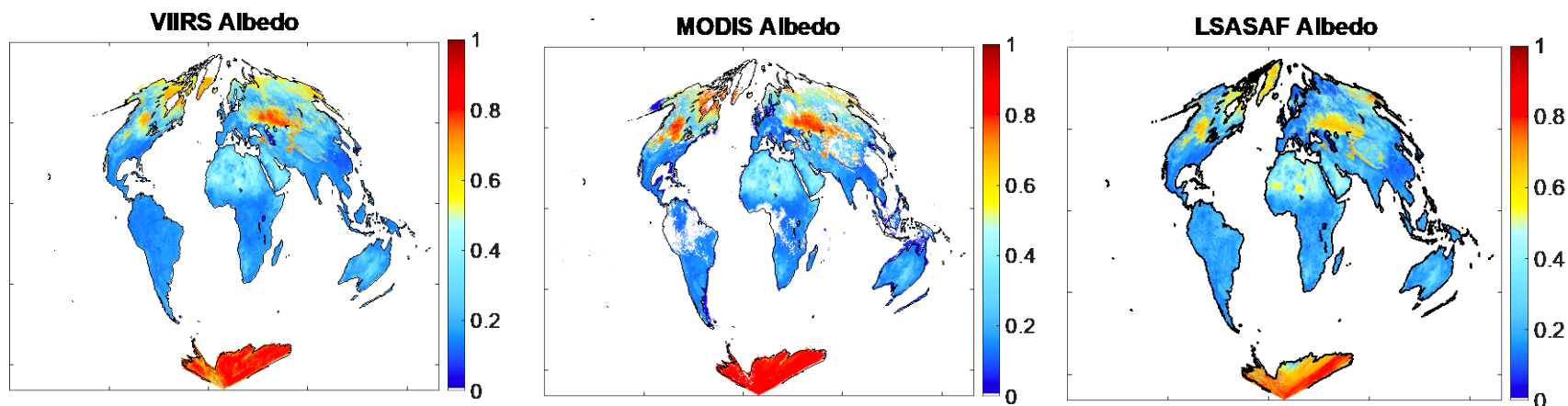


LUT profile example
with SZA=85,
VZA=40, RAA=100.

Compare VIIRS albedo with MODIS and LSASAF

- NOAA VIIRS EDR: from NOAA
- MODIS land albedo: from NASA
- LSASAF ETAL land albedo: from EUMETSAT

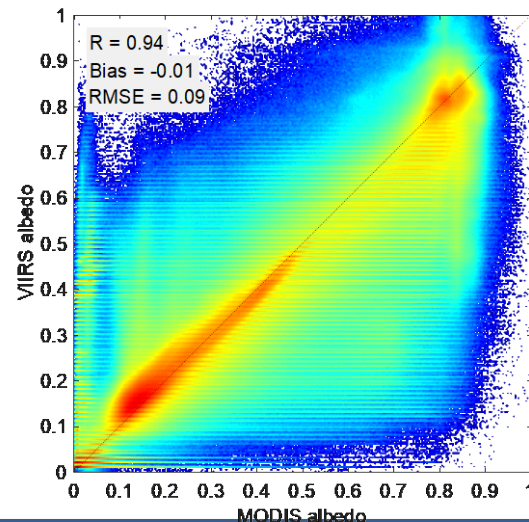
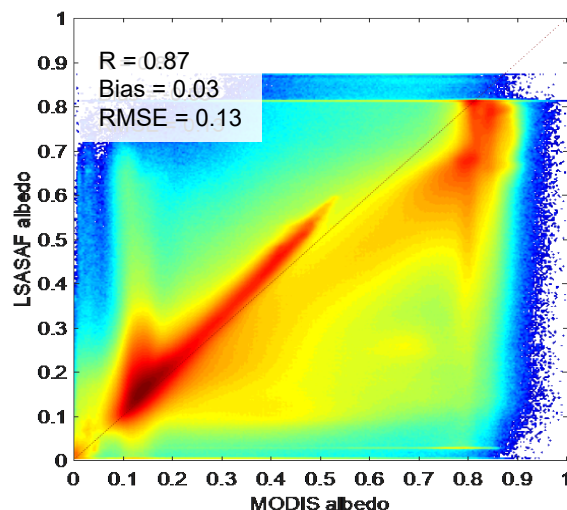
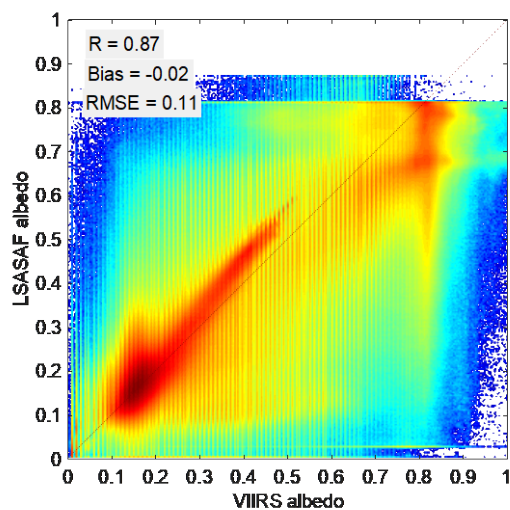
Data timestamp: Feb 15, 2019



VIIRS vs. LSASAF

MODIS vs. LSASAF

VIIRS vs. MODIS



Accomplishments / Events:

- Finished the VI and GVF cal/val plans for JPSS2.
- Modified the cron job for producing NOAA20 GVF browse image and produced SNPP and NOAA20 GVF browse images from Apr 26 to May 27 2020 for the JPSS EDR GVF monitor website
- Replaced the daily NOAA-20 VI browse images on the JPSS EDR monitor website with the weekly VI images for better quality of images
- Produced NOAA-20 1-km weekly EVI data from Jan 1, 2020 to May 24, 2020 over CONUS for testing by the STAR soil moisture team
- Investigated Copernicus NDVI and LAI/FPAR/GVF data sets for possible validation use
- Ongoing debugging of updated VI code with changed compositing and quality flags

Overall Status:

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

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

Issues/Risks:

None

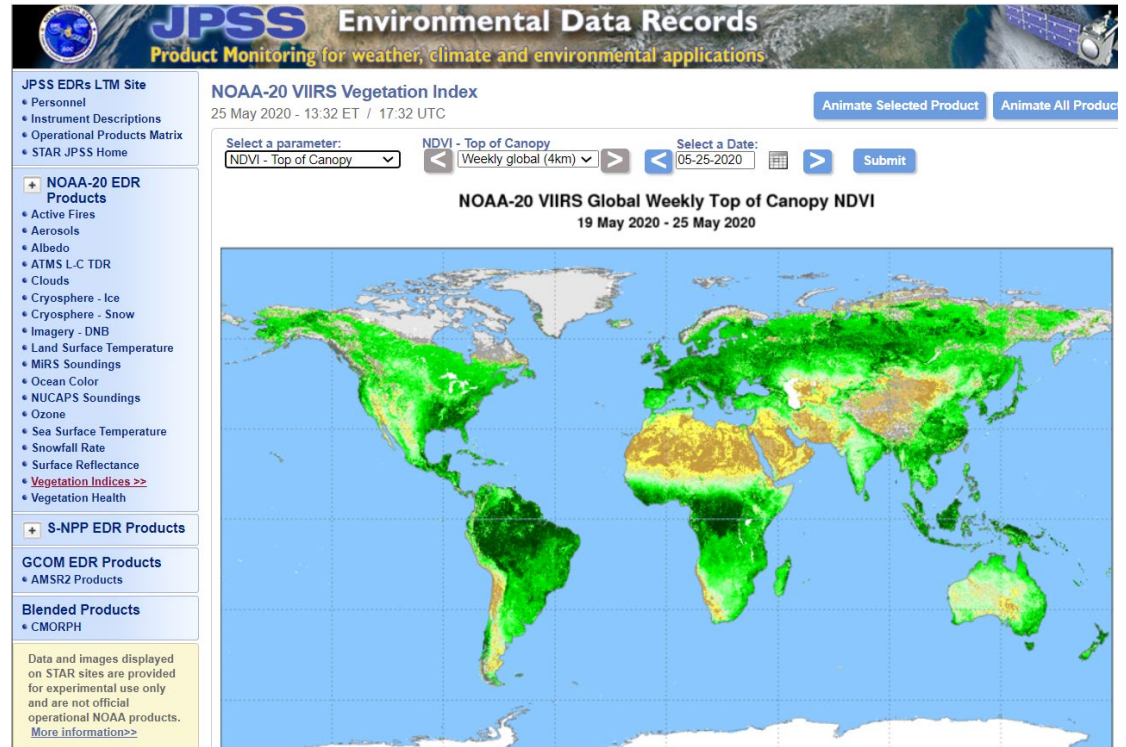
Highlights:

See attached slides

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity	Feb-20	Apr-20	Apr-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)	Sep-20	Sep-20		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> NVPS algorithms optimization and improvement (to reduce the process time) Sensitivity analysis of the GVF/VI gridding algorithms 	Jun-20	Jun-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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		

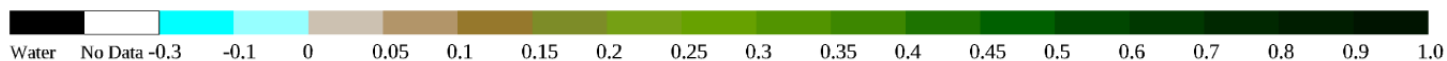
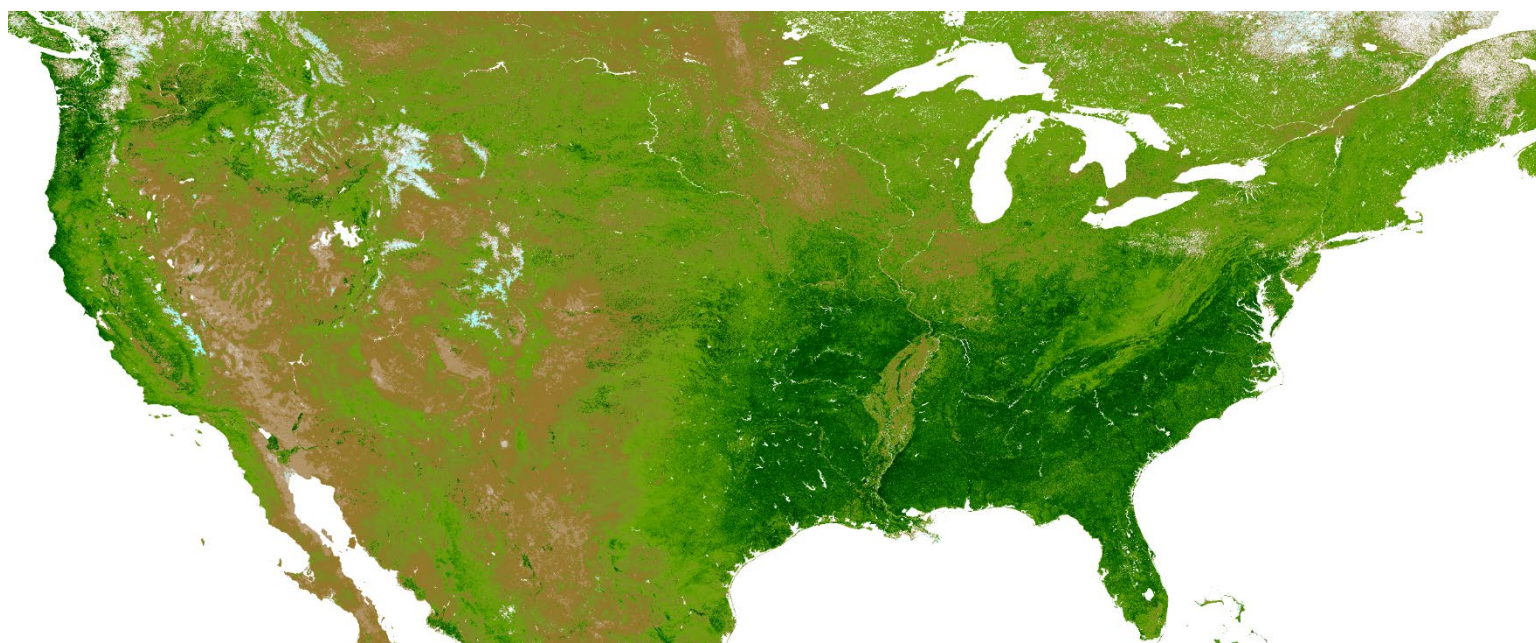
VIIRS VI EDR Long term monitoring

- Previously daily VI images are shown on the JPSS EDT LTM website, which is contaminated by large areas of cloud
- To reduce the cloud noise on the VI images, weekly VI images are shown on the website
- So far, weekly VI images have been produced for
 - NPP: 20180508 to 20200526
 - NOAA20: 20190604 to 20200526



NOAA-20 1-km weekly EVI data over CONUS

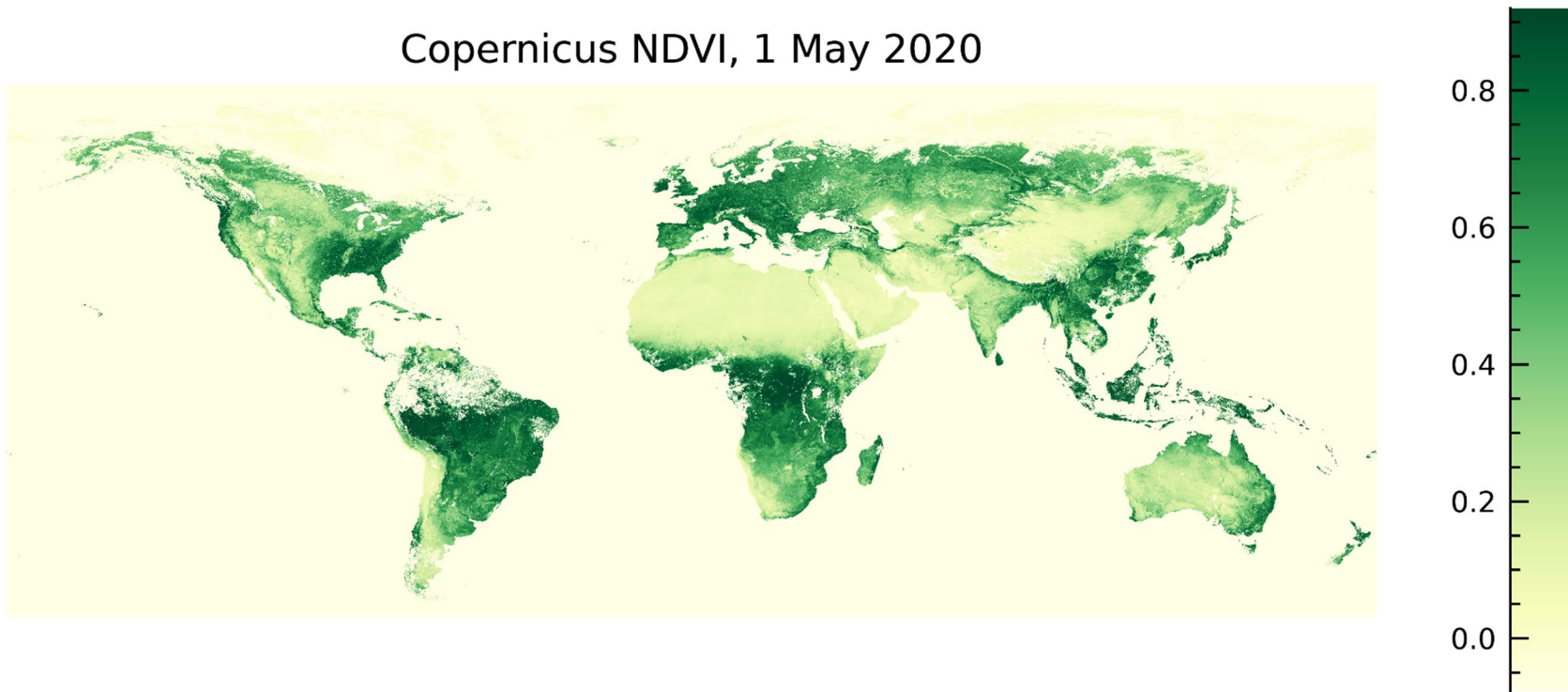
- Upon the request from the STAR soil moisture team, NOAA-20 1-km weekly EVI data from Jan 1, 2020 to May 24, 2020 over CONUS were generated for testing



NOAA-20 1-km weekly EVI (Apr 30 – May 6, 2020)

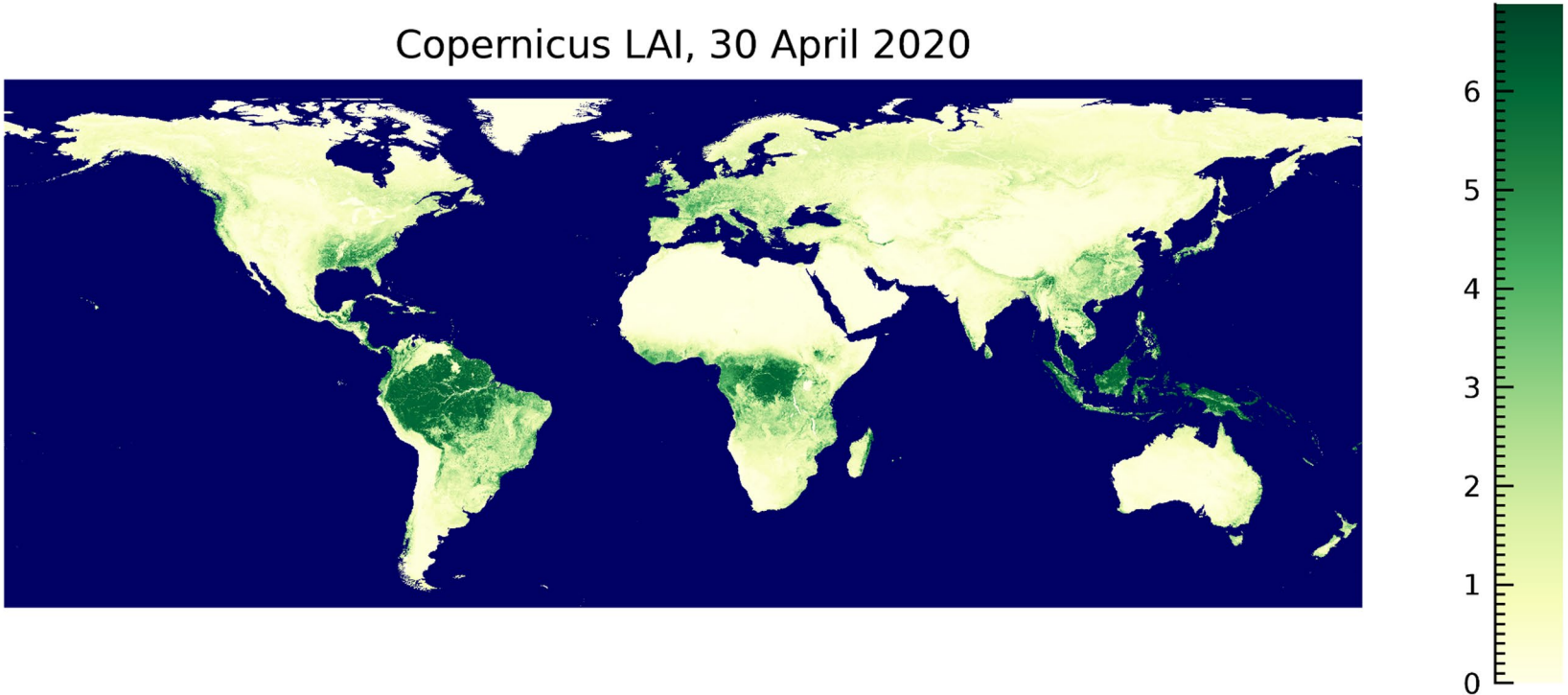
Copernicus NDVI – 10 day composite

Copernicus NDVI, 1 May 2020



Copernicus LAI – 10 day composite

Copernicus LAI, 30 April 2020



Accomplishments / Events:

- Worked with ASSIST/PLAIT to finalize software delivery for VH-1km
- Finished a draft of an invited paper on vegetation health product (Highlighted)
- Communicated with USDA Forest Service Fire & Aviation program to support their wildfire management
- A series of operation were conducted to keep our operational product normal in response to issues as snow mask;
- Generated a series of data and figures of VIIRS/VHP-1 and -4, -16 km resolution products, covering May 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		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		With final N20
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT: ▪ Algorithm updates/improvements	Jul-20	Jul-20		With initial J2 & final N20 DAP
Verification of direct readout EDRs	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: Draft of the invited paper



1 *Review*

2 **A blended long-term vegetation health product for**

3 **monitoring global food security**

4 **Wenze Yang^{1*}, Felix Kogan² and Wei Guo³**

5 ¹ IMSS, College Park, MD, USA; Wenze.Yang@noaa.gov

6 ² Center for Satellite Applications and Research, National Environmental Satellite Data and Information

7 Services (NESDIS), National Oceanic and Atmospheric Administration (NOAA), College Park, MD, USA;

8 Felix.Kogan@noaa.gov

9 ³ IMSS, College Park, MD, USA; Wei.Guo@noaa.gov

10 * Correspondence: Wenze.Yang@noaa.gov; Tel.: +1-301-683-3577

11 Received: date; Accepted: date; Published: date

12 **Abstract:** Remote observing of global vegetation from space has been enduring for nearly 50 years,

13 many datasets have been developed to monitor the vegetation status since then. Tailored to

14 specifically monitoring global food security with regards to drought and crop yield, a suite of

15 dataset based on vegetation health concept and Advanced Very High Resolution Radiometer

16 (AVHRR) observation was developed since 1980s. This data suite was utilized throughout the world

17 for the purpose. Now the satellites have evolved to the Visible Infrared Imaging Radiometer Suite

18 (VIIRS) era. With proper algorithm development, the blended version of the data suite has bridged

19 the long-term AVHRR observation and high-quality VIIRS data.

20 **Keywords:** NDVI; vegetation health; AVHRR; VIIRS; long-term; drought; crop yield; food security

21

Accomplishments / Events:

- Routinely producing global ocean color products from VIIRS SNPP and NOAA-20.
- Continue the work for the improvement of the MSL12 ocean color data processing system.
- Continue the work for the improvement of the OCView tool and ocean color product routine data monitoring system functions well.
- Continue the work for the improvement of VIIRS-NOAA-20 ocean color products, in preparing for the delivery of the validation status for VIIRS-NOAA-20.
- Worked on the NOAA-20 ocean color data improvement for the validation status in the summer 2020.
- A paper published showing that significant more amount ocean color data can be derived using the NOAA MSL12 compare with that from NASA L2GEN.
- A paper published in May providing improved water quality data for the Great Lakes derived from VIIRS observations.

Overall Status:

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

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

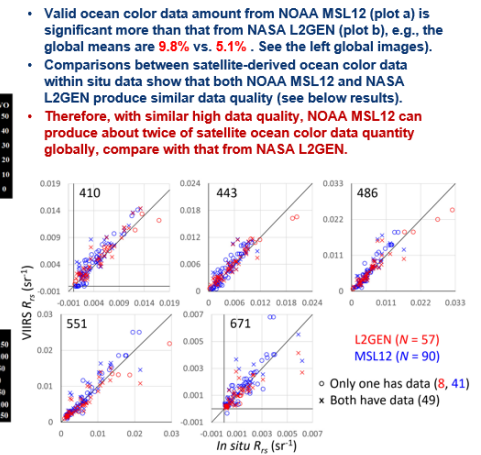
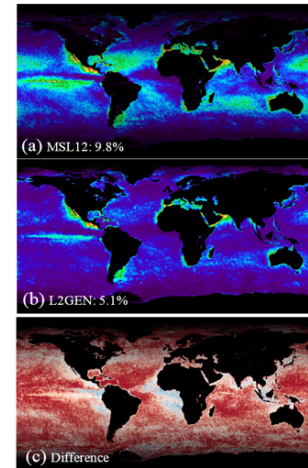
Issues/Risks:

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		Complex N20 SDR analysis
N20 Final DAP to CoastWatch	Dec-20	Dec-20		Cpmbine with init J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to NDE (include NPP/N20 updates)	Dec-20	Dec-20		With final N20 DAP
Algorithm Updates Review	Sep-20	Sep-20		
Improve the merged VIIRS OC data from SNPP and NOAA-20	Sep-20	Sep-20		
Vicarious calibration for VIIRS-NOAA-20 using MOBY in situ data	Jun-20	Jun-20		
Complete the Sixth VIIRS ocean color dedicated cruise	Apr-20			
Complete the fifth VIIRS cruise report and in situ data analyses (e.g., improve in situ data quality)	Sep-20	Sep-20		
Routine ocean color data production for both NRT and science quality data streams	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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 Published: NOAA MSL12 has much better performance

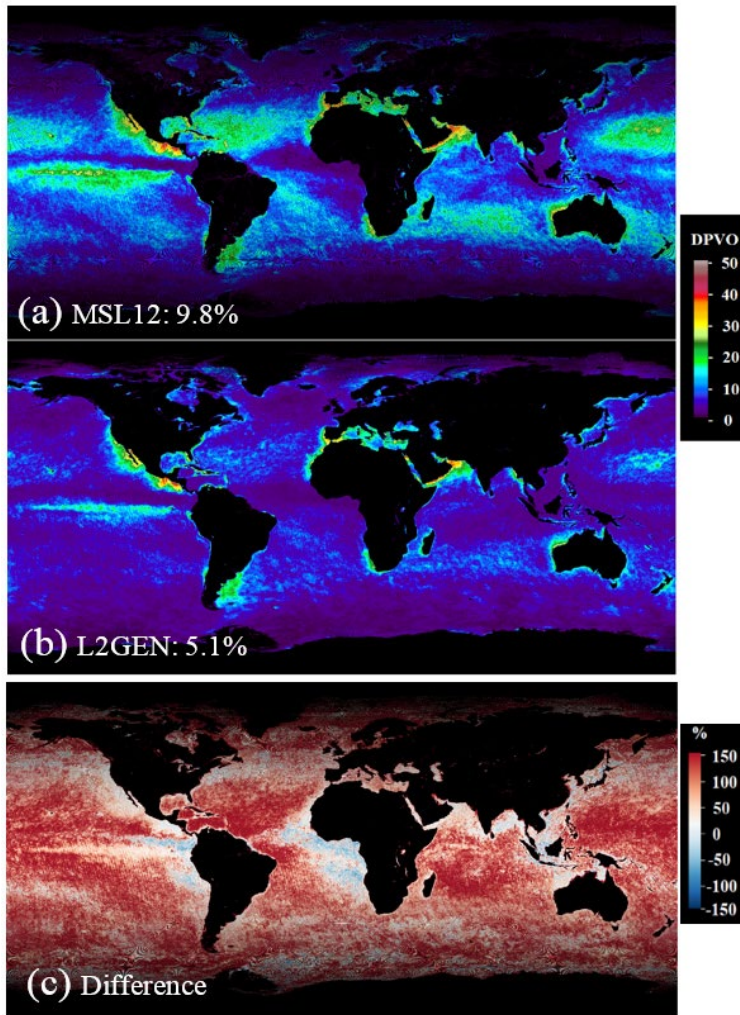


- Valid ocean color data amount from NOAA MSL12 (plot a) is significant more than that from NASA L2GEN (plot b), e.g., the global means are **9.8%** vs. **5.1%**. See the left global images).
- Comparisons between satellite-derived ocean color data within situ data show that both NOAA MSL12 and NASA L2GEN produce similar data quality (see below results).
- Therefore, with similar high data quality, NOAA MSL12 can produce about twice of satellite ocean color data quantity globally, compare with that from NASA L2GEN.

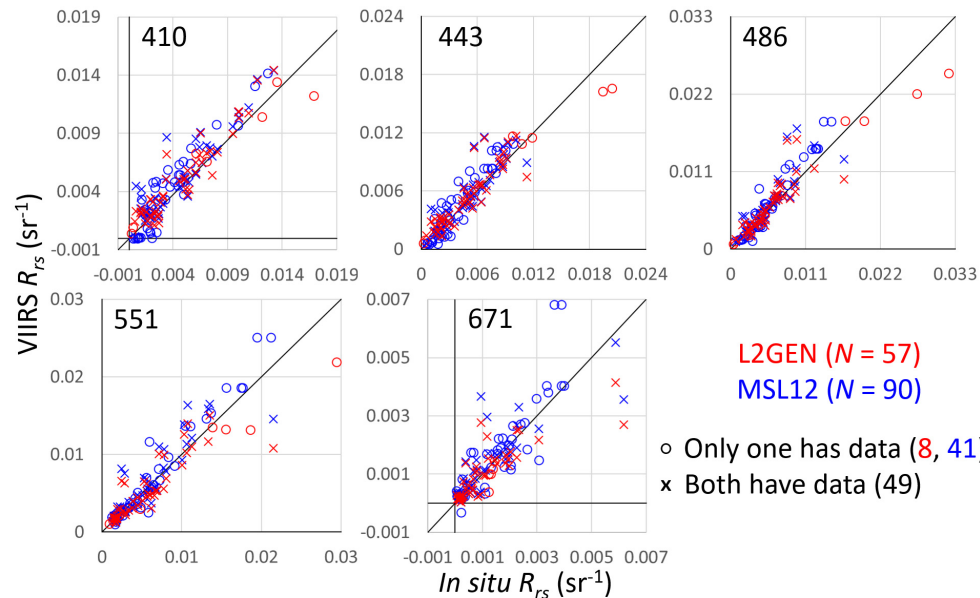
Hu, C., B. B. Barnes, L. Feng, M. Wang, and L. Jiang, "On the interplay between ocean color data quality and data quantity: Impacts of quality control flags," *IEEE Geosci. Remote Sens. Lett.*, 17, 745–749, 2020. <https://doi.org/10.1109/lgrs.2019.2936220>

Accomplishments / New Technologies

A New Paper Published: NOAA MSL12 has much better performance



- Valid ocean color data amount from NOAA MSL12 (plot a) is significant more than that from NASA L2GEN (plot b), e.g., the global means are **9.8%** vs. **5.1%**. See the left global images).
- Comparisons between satellite-derived ocean color data within situ data show that both NOAA MSL12 and NASA L2GEN produce similar data quality (see below results).
- Therefore, with similar high data quality, NOAA MSL12 can produce about twice of satellite ocean color data quantity globally, compare with that from NASA L2GEN.**



Hu, C., B. B. Barnes, L. Feng, M. Wang, and L. Jiang, "On the interplay between ocean color data quality and data quantity: Impacts of quality control flags," *IEEE Geosci. Remote Sens. Lett.*, **17**, 745–749, 2020. <https://doi.org/10.1109/lgrs.2019.2936220>

Accomplishments / Events:

- Experimental production of 2 gridded super-collated SST products (L3S) from two groups of LEO satellites, L3S-PM (from 2 VIIRSs) and L3S-AM (3 AVHRR FRACs), commenced on 1 Mar 2020
- CW landing page <https://coastwatch.noaa.gov/cw/satellite-data-products/sea-surface-temperature/noaa-acspo/l3s-leo.html> set up which points to 3 months of data on aftp and THREDDs
- Data are pushed to CDN <https://cdn.star.nesdis.noaa.gov/SST/> (Content Delivery Network) for NCEP Central Operations (NCO) to pull. Daily data volume is 1GB for both L3S-PM and L3S-AM
- Work is underway with NOS to pull the data to NCO and make available for WCOFS operations (scheduled to begin in Nov 2020)
- Next step is to work with SPSRB and generate the L3S data in OSPO and NDE and push to PDA.

Overall Status:

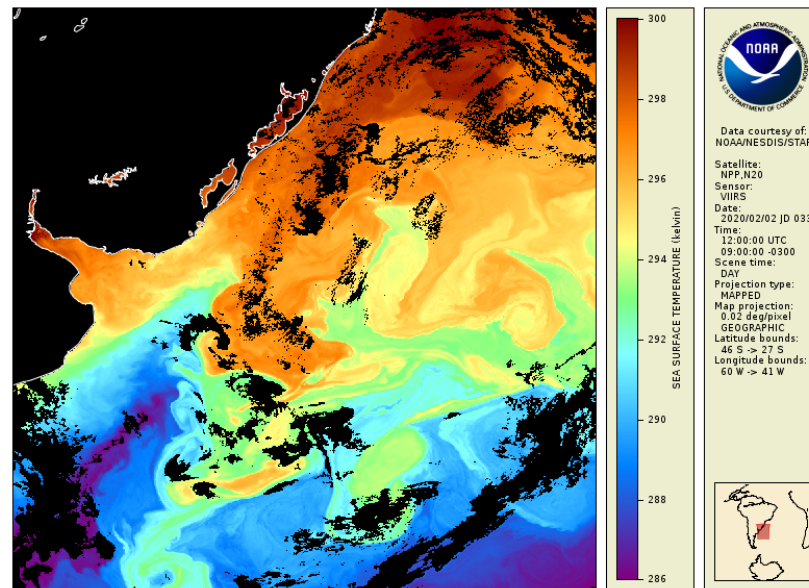
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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 (ACSP0 2.80, implement thermal fronts, improvements to support data fusion, J2 readiness) to ASSISTT	Aug-20	Aug-20		With initial J2 DAP
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP from ASSISTT to NDE (include NPP/N20 updates)	Nov-20	Nov-20		With ACSP0 2.80
Algorithm Updates Review	Sep-20	Sep-20		
Complete VIIRS RAN2 archival with PO.DAAC & NCEI	Aug-20	Aug-20	Dec-19: DAAC	
Verification of direct readout EDRs	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		
Maintain SQUAM/iQuam/ARMS. Resolve anomalies	Sep-20	Sep-20		



Example L3S-PM daytime product on 2 Feb 2020 over Brazil
Current produced from 4 available NPP and N20 overpasses.

Accomplishments / Events:

- Progress made with AlgorithmServices (aka ASSISTT Framework 2) that will enable NPP/NOAA-20 VIIRS winds processing.

Overall Status:

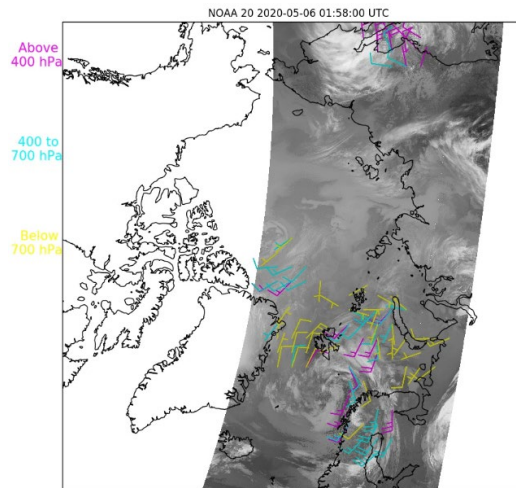
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

None

Highlights:



Near-real-time VIIRS winds images (example above for a NOAA-20, May 6 swath) are available at <http://stratus.ssec.wisc.edu/products/rtpolarwinds/>

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
J2 Cal/Val Plan - draft delivery	Jun-20	Jun-20		
Initial J2 ready DAP to 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		
Wind product updates/improvements: continue routine generation of combined S-NPP/NOAA-20 global winds	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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		

Accomplishments / Events

- Finalizing the MetOp-C preliminary DAP delivery for Cloud implementation. The NUCAPS algorithm V2.7.2 is used as the baseline to setup MetOp-C preliminary DAP. Updates to the MetOp-C retrieval DAP include updates to the pre-processing routines, all-sky and clear regression LUTs for MetOp-C IASI/AMSU-A and MHS data sets (using four focus days 20190715 20191015 20200116 20200415). The NUCAPS team is finalizing MW tuning and started constructing data sets needed for bias tuning from CAMS model data, ECMWF, and reference trace gas datasets.
- Continued NUCAPS CO and CO2 product applications for Coronavirus study. Collected and processed two months of S-NPP/NOAA 20 NUCAPS products for the period 01/17-03/16. Analyzed 7-day CO composites and time series of CO averaged over 104E-122E, 21N-40N. NUCAPS product analysis coupled with trajectory analysis reveal that Over China/Eastern Asia, the regional minimum in CO/CO2 concentrations in February coincided well with prolonged anticyclonic circulation.
- Collaborated with STC on averaging kernel discussion and implementation. Technical interchange meeting held on May 28, 2020 with the STC was quite useful and provided a path forward in implementing necessary updates to the NUCAPS OPS code.

Overall Status:

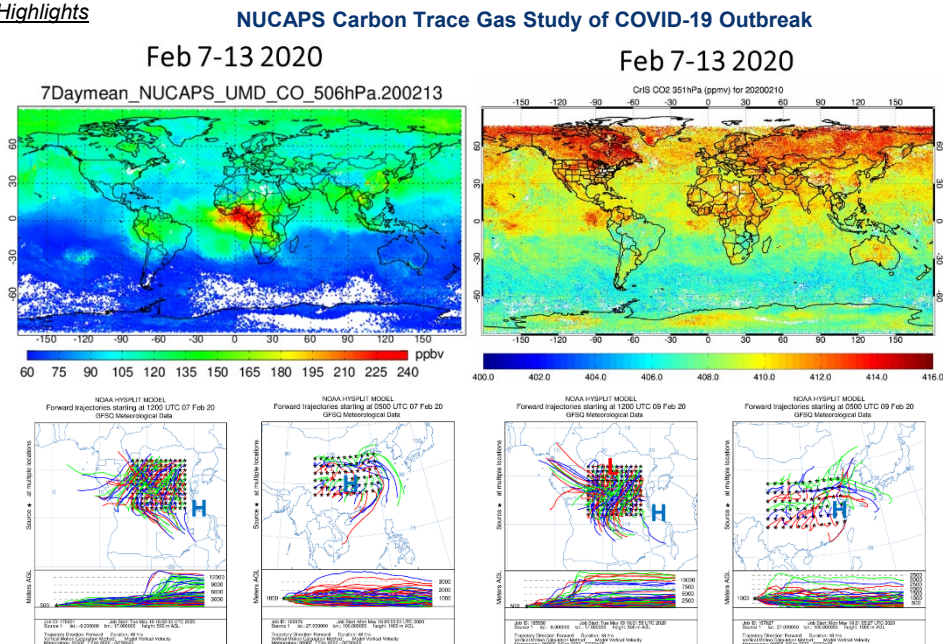
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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Issues/Risks:

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		
Algorithm update DAP to ASSISTT:				With initial J2 DAP
<ul style="list-style-type: none"> Optimization of CO related look up tables Improve NOAA-20 CH4/CO2 algorithms J2 HEAP algorithm 	Jul-20	Jul-20		
Validation against NUCAPS SNPP trace gas EDRs, other instruments (MOPITT, AIRS, IASI) and in situ measurements (TCCON, ATom, WE-CAN, KORUS)	Sep-20	Sep-20		
Verification of direct readout EDRs	Sep-20	Sep-20		
Annual algorithms/products performance report	Feb-20	Feb-20	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



Accomplishments / Events:

- MiRS was part of the Phase I Cloud Pilot. The MiRS team got their algorithm software into the cloud, compiled, tested and ran the algorithm. The algorithm was implemented in the HPC cluster and validated in the Cloud. Success!!!
- The MiRS team delivered the draft JPSS-2 Cal/Val Plan as well as the JPSS-2 MiRS EDR slides for the Algorithm Updates Critical Design Review to be held in July or August.

Overall Status:

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

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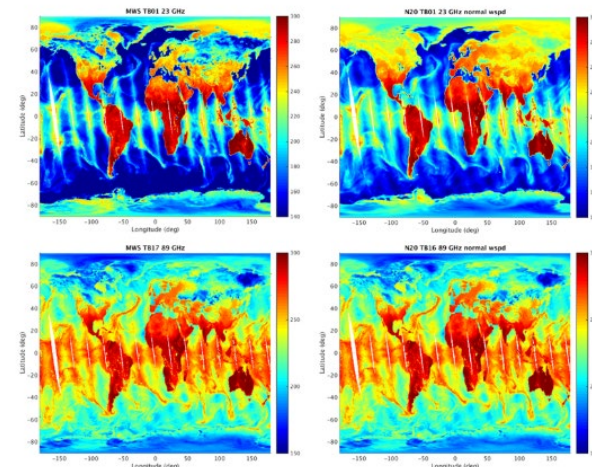
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
J2 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		
Algorithm Updates Review	Sep-20	Sep-20		
Algorithm update DAP to ASSISTT:				
<ul style="list-style-type: none"> Optimize MiRS for NOAA-20 and SNPP SFR integration; Algorithm test and verification 	Jul-20	Jul-20		With initial J2 DAP
Verification of direct readout EDRs	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:

MiRS team preparing for Metop-SG MWS instrument and has generated MWS proxy data so that the software can be properly tested and retrieval performance estimated.



MWS proxy data (left) vs. real N20 ATMS data (right) for two channels, 23 and 89 GHz.

Accomplishments / Events:

- A modification was made to the 1DVAR model to adjust the simulations from the two-stream radiative transfer model (RTM) to those from a full stream RTM under cloudy conditions. The adjustment significantly improves the initial (prior to bias correction) snowfall rate retrievals for all ATMS and MHS SFR products. In addition, it noticeably reduces the non-convergence rate (the Highlights section).
- The SFR team reprocessed three years of SFR data for six satellites: NOAA-20, S-NPP, NOAA-19, Metop-C, Metop-B, and Metop-A. The dataset was delivered to the CPC CMORPH group for the initial reprocessing of the CMORPH2 product. SFR provides overland snowfall rate to the global satellite blended precipitation analysis.

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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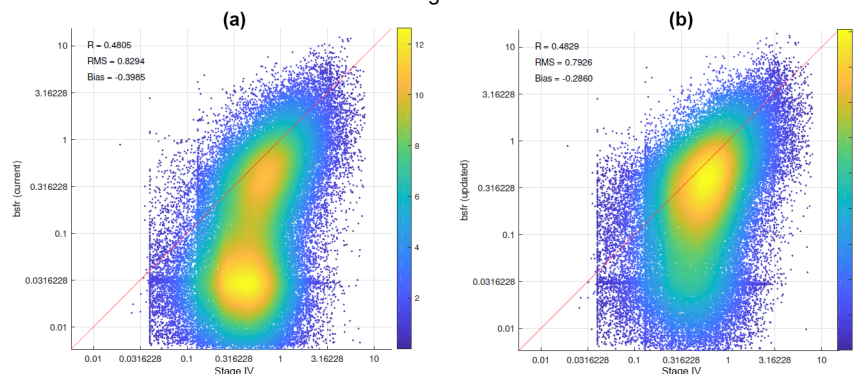
Issues/Risks:

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		
J2 pre-launch test/proxy data review/analyze	Sep-20	Sep-20		
Initial J2 ready DAP to ASSISTT	Jul-20	Jul-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		
Verification of direct readout EDRs	Sep-20	Sep-20		
NOAA-20 and S-NPP cross-calibration/comparison	Sep-20	Sep-20		
Cal/Val visualization and LTM tool development/improvement	Sep-20	Sep-20		

Highlights: SFR Algorithm Improvement

An improvement to the 1DVAR model has significantly increased the accuracy of the initial SFR retrievals and reduced the non-convergence rate.



Density scatter plot of NOAA-20 initial SFR (bsfr) vs. Stage IV radar-gauge combined precipitation product, (a) bsfr from the current 1DVAR, (b) bsfr from the improved 1DVAR. Most of the bsfr less than 0.05 mm/hr is non-convergent while the opposite is true for bsfr greater than 0.05 mm/hr. There is much less non-convergent data in (b) than in (a).

Accomplishments / Events:

- Validating OMPS V2Limb SDRs and EDRs.
 - Product is at Provisional maturity performance on NDE I&T.
 - Transfer to NDE Operations expected in **early June**.
- Investigating S-NPP / NOAA-20 OMPS product differences.
 - Preparing refined V8PRo DAP with better model fidelity.
- JPSS-2 Preparations
 - Provided draft Ozone EDR Cal / Val Plan.
- TOAST blended UV and IR Ozone
 - Verifying V8Pro & NUCAPS products at OSPO.
- V8TOz for the Cloud and GSICS
 - Developing enterprise algorithm for application to GOME-2, TropoMI and GEMS.

Overall Status:

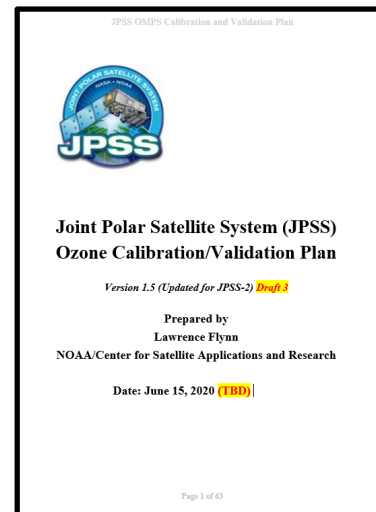
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule			X		# SDR Schedule, code change

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

Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Validated Maturity: V8Pro	Jan-20	Jul-20		Bandpass differences
Limb SDR and EDR to operations	Feb-20	Jun-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	Jul-20		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		
RT Tables with Wavelengths, Bandpasses	Jul-20	Jul-20		
V8TOz with Cloud top optical centroid algorithm	Aug-20	Aug-20		With Jul-20 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		

Highlights: Draft Ozone Cal/Val Plan in review at JSTAR. Draft to be delivered to AMP on time in June



Accomplishments / Events:

- Activities continue with NESDIS IA and JPSS to discuss AMSR3 and AMSR2 progress/plans
 - TIM with JAXA on hold due to travel restrictions from COVID-19
- Continued product cal/val; all products meeting requirements; Annual cal/val report for 2019 under development
- Portions of GCOM system under consideration for EPS-SG MWI; 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			

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

Issues/Risks:

None

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

Highlights:

Tropical Storm Bertha

AMSR2 wind speed, rain rate and water vapor imagery from Tropical Storm Bertha before she came ashore in South Carolina on May 27, 2020.

