NOAA JPSS Monthly Program Office

AMP/STAR FY22 TTA

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Jul, 2022

Highlights from the Science Teams (June)

NRL Demonstrates Positive Forecast Impact of Two New VIIRS Winds Products

The U.S. Naval Research Laboratory (NRL, Monterey, CA) recently demonstrated the positive impact of two new VIIRS polar winds products. Cooperative Institute for Meteorological Satellite Studies (CIMSS) and NOAA scientists have expanded their suite of VIIRS polar winds to include winds derived from a shortwave infrared (SWIR) band, and also a "tandem" winds product that takes advantage of the 50-minute separation time between the NOAA-20 and Suomi NPP satellites flying in the same orbit. NRL's test results for April 2021 show that both products are beneficial to numerical weather forecasts.

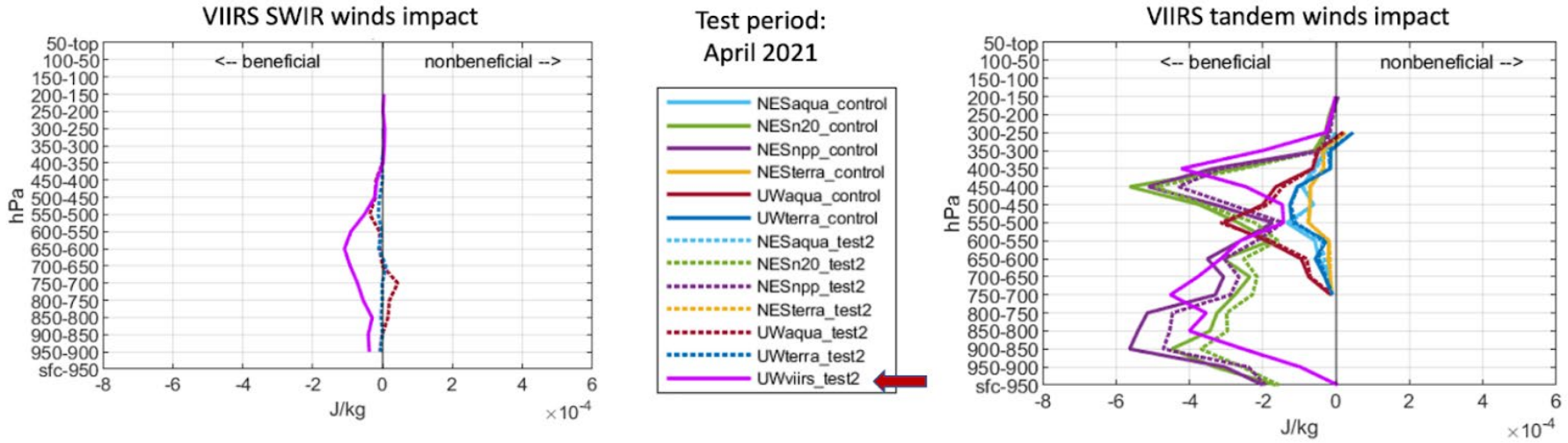


Figure: Impact of the VIIRS SWIR (left) and three-orbit tandem (right) winds in a April 2021 test case at NRL. The magenta "UWviirs_test2" line shows the impact of the new VIIRS winds in both figures.

Highlights from the Science Teams (June)

NRL Demonstrates Positive Forecast Impact of Two New VIIRS Winds Products

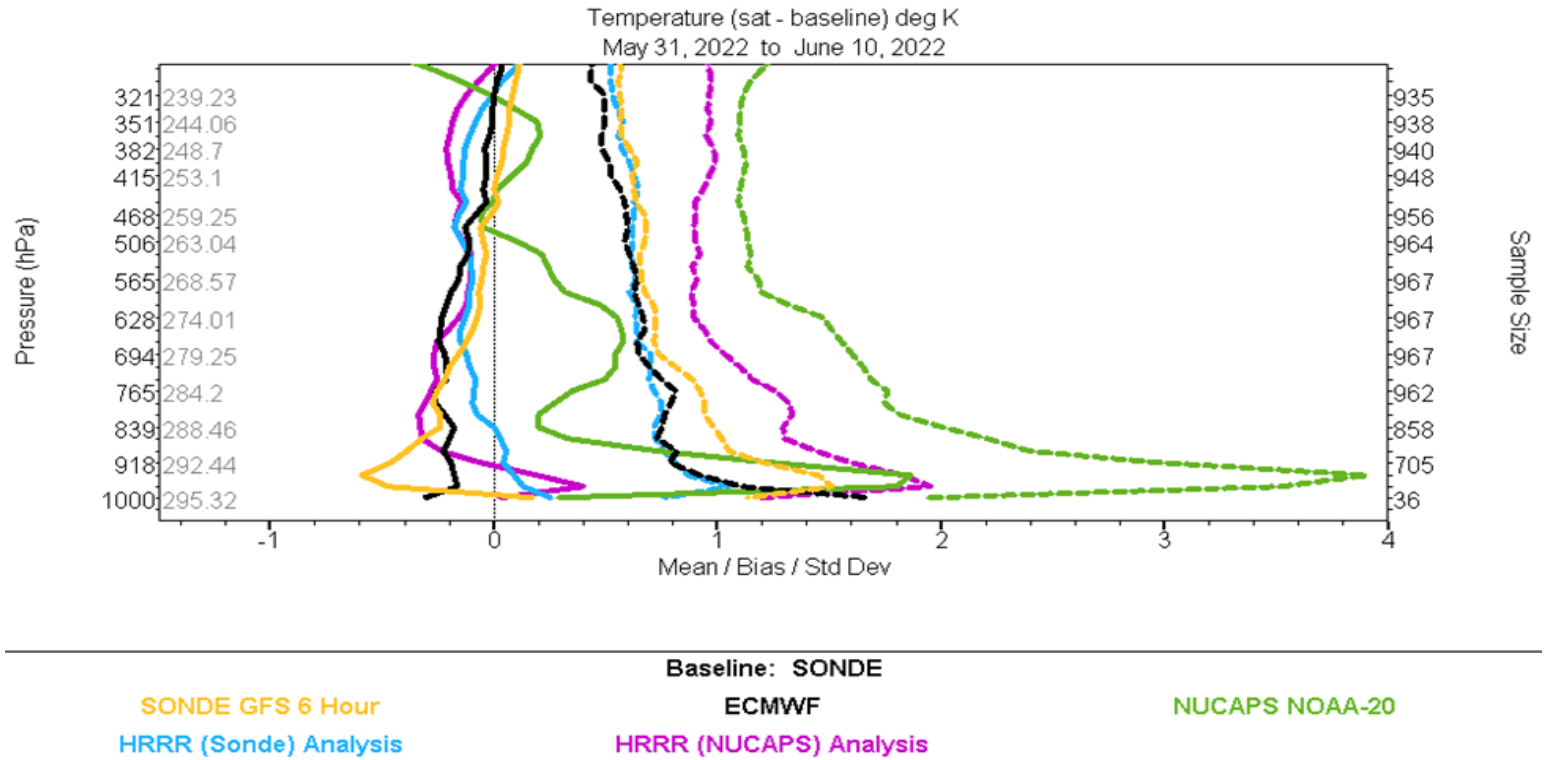


Figure. "Enterprise" Mean and Standard Deviation vertical statistics for each NWP and NUCAPS product suite minus the Radiosondes for NUCAPS (green), NOAA GFS 6-hour forecast (yellow), HRRR (collocated with the Radiosonde; blue) and HRRR (collocated with NUCAPS; purple)

The NWS High Resolution Rapid (hourly) Refresh (HRRR) "regional" analysis was integrated into STAR NPROVS at the request of the JPSS NUCAPS User Initiative. The HRRR is the first "regional" model implemented into NPROVS and directly supports NWS users in assessing the value of NUCAPS in CONUS, complementing existing global ECMWF and NOAA GFS forecast data. HRRR integration includes routine collocation with Radiosondes and NUCAPS soundings, respectively, providing additional information on the importance of temporal differences in the context of assessment.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
  - 6/22/2022 CrIS SDR team submitted J2 JCT3-TVAC CrIS review/Checkout Report
  - 6/29/2022 Imagery team delivered updated ATBD (D0001-M01-S01-008_JPSS_ATBD_VIIRS-Imagery_VersionE, for 16 M-Band Imagery)
  - 7/06/2022 VIIRS team submitted J2 JCT3-TVAC review/checkout report
  - 7/11-12/2022 STAR SDR teams supported JCT4 RDR data review/checkout
  - 7/11/2022 STAR delivered VIIRS DAP (ADR9904/CCR6099, VIIRS SDR Excessive Reflectance Values) to DPMS
    List of code changes: checkLimits.cpp; Calibrate_Reflective_Bands.cpp
  - 7/22/2022 ATMS team delivered DAP (ADR9815/CCR6106, SNPP/ N20 / J2 ATMS WarmNEDT and ColdNEDT update) to ASSISTT team

- DAPs – Enterprise Products:
  - 6/30/2022 GCOM team delivered AMSR3 Cal/Val plan (final delivery)
  - 7/8/2022 STAR delivered V8Pro DAP to NDE (V4r2, final delivery for NOAA-21 and maintenance delivery for NOAA-20 and NPP)
    Changes: (1). Modified scripts and codes for adding more source info into the metadata; (2). Updated soft-calibration adjustments for both S-NPP and N20; (3). New-added/Modified metadata variables
  - 7/13/2022 STAR delivered JRR patch DAP to NDE (Patch to J2 Final "Super DAP", addresses IP filename corrections for Land Mask and GFS via the Python wrapper scripts)
  - 7/19/2022 STAR delivered Enterprise V8TOZ Preliminary CCAP to OSPO for Code Review
  - 7/19/2022 STAR delivered Enterprise HEAP Final CCAP NCCF Cloud S3 bucket (Final CCAP for Enterprise HEAP for MetOp-B/C and JPSS/NPP). There were no science updates. Metadata update for NCCF.
  - 7/22/2022 STAR delivered BUFR Toolkit Patch CCAP to the Cloud (Final CCAP for BUFR Toolkit- SMOPS, ASCAT Winds, GPM-GMI-L1CR, CrIS, ATMS products)

- 6/02/2022 NDE 2.0.31 operational. Includes: ACSPO v2.8, OMPS NP V8 PRO v4.1, BUFR 5.0 (to support ACSPO 2.8 and OMPS NP V8PRO 4.1), HEAP recompilation on RHEL7
- 7/18/2022 IDPS Block 2.3 Mx7 TTO. Includes: OMPS Nadir Mapper Geolocation Code Change for Off-nadir Geolocation Error Correction; J2 MM-coef based on the Pre-dynamic alignment measurement report; Quality Flag/DQTT Updates
- 7/21/2022 NDE2.0.32 operational. Includes: VFM; V8TOz & V8TOS; RH7 updates for AF (M-band) and GCOM RDR to ASD Converter (GRAC)

Accomplishments

- JPSS-2 Pre-Launch Testing events:
  - JCT2a-DSE (8/24/2021): 10/06/2021 JSTAR submitted review/checkout summary report
  - JCT3-AMB DSE part2 (OMPS Science RDRs Not Timeshifted)
    - 5/04/2022 OMPS SDR team provided review/checkout report (no problem, as expected)
  - JCT3-TVAC Segment 1 (5/10-5/13, 72hr): 5/15/2022 JSTAR submitted review/checkout summary report
  - JCT3-TVAC Segment 2 (5/17–5/19, 39hr): 5/23/2022 JSTAR submitted review/checkout summary report
  - JCT3-TVAC Segment 3 (5/25-5/26, 33hr): 5/27/2022 JSTAR submitted review/checkout summary report
  - JCT3-TVAC SDR teams reports: 06/22/2022 CrIS; 07/06/2022 VIIRS; 05/23/2022 OMPS
  - JCT4 (7/11-12/2022) SDR teams reports: 07/14/2022 ATMS; 07/14/2022 CrIS
  - ICVS beta run through J2 pre-launch testing JCT3-TVAC S1/S2/S3, JCT4 data, figures are available at ICVS-beta website
  - One-Orbit JPSS-2 Proxy data
    - STAR teams checked/run the one-orbit data, provided summary report on 5/12/2022
  - Three-Orbit JPSS-2 Proxy data
    - 7/14/2022 STAR downloaded the three-orbit J2 proxy data, and posted on STAR FTP for OSPO/NDE to download for J2 EDR test runs

- IDPS Builds Checkouts:
  - Block 2.3 Mx7 I&T STAR review/checkout: 6/23/2022 JSTAR provided “GO” and submitted summary report to DPMS/RTN/OSPO
    - 6/21/2022 VIIRS team submitted report
    - 6/21/2022 Imagery team submitted report
    - 6/22/2022 CrIS team submitted report
    - 6/22/2022 OMPS team submitted report
    - 6/23/2022 ATMS team submitted report
    - 6/24/2022 CrIS team submitted updated report

Accomplishments – JPSS Cal Val Supports

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

S-NPP	Weekly OMPS TC/NP Dark Table Updates	06/07/22, 06/14/22, 06/22/22, 06/28/22, 07/06/22, 07/12/22, 07/19/22, 07/26/22
NOAA-20	Weekly OMPS TC/NP Dark Table Updates	06/07/22, 06/15/22, 06/22/22, 06/28/22, 07/06/22, 07/12/22, 07/19/22, 07/26/22
S-NPP	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	06/07/22, 06/22/22, 07/06/22, 07/19/22
NOAA-20	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	06/14/22, 06/28/22, 07/12/22, 07/26/22
S-NPP	Monthly VIIRS LUT Update of DNB Offsets and Gains	06/07/22, 07/05/22
NOAA-20	Monthly VIIRS LUT Update of DNB Offsets and Gains	06/07/22, 07/05/22

- Transition of the reprocessed SDRs to CLASS/NCEI:
  - The official transition of the reprocessed SNPP SDRs to CLASS/NCEI started on December 1, 2021
  - The transition of the reprocessed SNPP ATMS, CrIS, and OMPS data was completed. These data are available at CLASS website now
  - The transition of the reprocessed SNPP VIIRS started on March 15, 2022
  - The reprocessed SNPP VIIRS SDR data from 1/2/2012 to 3/13/2013 (313.26T, 19.4% of total) has been completed as of June 30, 2022
  - It's expected that the VIIRS data transition will complete in October, 2023

- Recent VIIRS Imagery Social Media/Blog Posts
  - VIIRS Geocolor of Alaska Smoke
  - VIIRS Natural Fire Color RGB over Pipeline Fire
  - VIIRS Day Cloud Phase Distinction RGB of SW US Thunderstorms
  - VIIRS Fire Temperature RGB of Alaska Fires
  - High Plains Accumulating Hail – 07 June 2022

Upcoming Milestones/Deliveries

- JSTAR Code/LUT/Product Deliveries:

  DAP to DPMS:
  - Aug-22: Final launch-ready JPSS-2 PCT/MM-coef DAP (ATMS & CrIS)
  - Aug-22: Final launch-ready JPSS-2 LUTs/MM-coef DAP (VIIRS & OMPS)

  NOAA-20/JPSS-2 Algorithm DAP to NDE/CoastWatch:
  - Oct-22: J2-ready OMPS LP DAP to NDE (Aug-22: to ASSISTT)
  - Mar-23: J2-ready Ocean Color DAP to Cloud (ASSISTT NCCF)

FY22 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Algorithm Updates DAPs				
Final launch-ready JPSS-2 ATMS PCT/MM-coef DAP	Aug-22	Aug-22	**Pre-dynamic MM: 03/08/22**	**02/25/22 to ASSISTT**
Final launch-ready JPSS-2 CrIS PCT/MM-coef DAP	Aug-22	Aug-22	**Pre-dynamic MM: 03/11/22**	**03/07/22 to ASSISTT**
Final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP	Aug-22	Aug-22	**Pre-dynamic MM: 02/24/22**	**02/18/22 to ASSISTT**
Final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP	Aug-22	Aug-22	**Pre-dynamic MM: 03/08/22**	**03/02/22 to ASSISTT**
Final J2 ready Super DAP (include NPP/N20 updates), Clouds/Aerosol/VolcanicAsh/Cryosphere/LST/LSA/VPW	Mar-22	May-22	12/06/21 v3.1 patch DAP 02/24/22 XML cnf file to NDE 05/17/22 v3.2 final DAP **07/13/22 patch DAP**	
Final J2 ready Active Fires DAP (include NPP/N20 updates, I-Band)	Mar-22	Mar-22	03/17/22	
Surface Reflectance: Final J2 ready DAP	Oct-21	Oct-21	10/07/21 02/02/22 (patch DAP)	
NVPS (VI & GVF): Final J2 ready DAP	Mar-22	Mar-22	03/29/22 (code & docs) 04/08/22 data only	
Vegetation Health: Initial/Final (combined) J2 ready DAP	Dec-21	Dec-21	12/20/21	
SST: Final J2 ready DAP (ACSPO 2.80)	Dec-21	Dec-21	Initial/Final DAP: 09/16/21 EUM & SMM doc: 12/15/21	
NUCAPS: Final J2 ready DAP	Mar-22	Mar-22	04/08/22	
MiRS & SFR: Final J2 ready DAP	Mar-22	Mar-22	03/31/22	12/30/21 v11.6 patch
OMPS Ozone V8Pro: Final J2 ready DAP	Mar-22	Jun-22	07/08/22	02/17/22 to ASSISTT
OMPS Ozone V8TOz: Final J2 ready DAP	Jan-22	Jan-22	02/03/22 V8TOZ: v4r2; V8TOS: v5r0	11/26/21 to ASSISTT
L3 Global Gridded LST/LSA (J2 DAP)	Mar-22	May-22	12/30/21 Prelim J2 DAP 05/13/22 Final J2 DAP	
Reformatting Toolkit	Mar-22	May-22	05/25/22	
AMSR-3 ready DAP (include AMSR-2 updates)	Sep-22	FY23		NCCF schedule

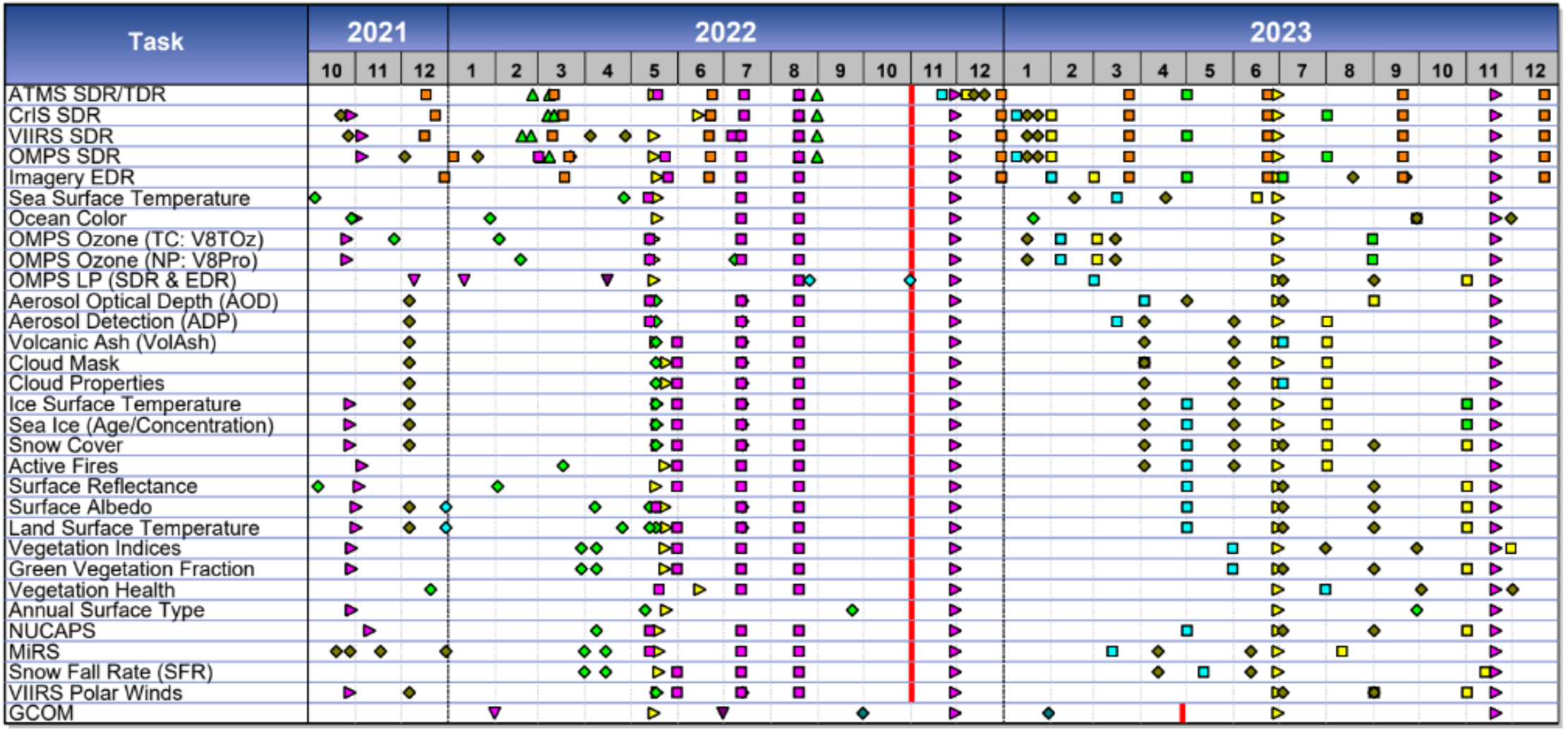
FY22 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Date	Variance Explanation
Algorithm Cal/Val/LTM				
FY21 End of Year Science Team Presentations (all teams)	Oct-21	Oct-21	Oct/Nov-2021	
FY23 Program Management Review (all teams)	Jun-22	Jun-22	May/Jun-2022	
Enterprise Cal/Val plan for J2 OMPS LP SDR & EDR	Dec-21	Dec-21	12/09/21	
GCOM: AMSR-3/Enterprise Cal/Val Plan - draft delivery	Jan-22	Jan-22	Jan-22	
GCOM: AMSR-3/Enterprise Cal/Val Plan - final delivery	Jun-22	Jun-22	06/30/22	
AST-2021 (VIIRS Annual Surface Type)	Sep-22	Sep-22		
Support Alaska Demo (JPSS Aviation Initiative)	Sep-22	Sep-22		
JPSS-3 pre-launch test data review/analyze (SDR teams)	Sep-22	Sep-22		
Update J2-ICVS prototype to support J2 ICVS readiness (for JCT-3 test)	Sep-22	Sep-22	Oct-21: JCT2a-DSE Feb-22: one-orbit J2 data May-22: JCT3-TVAC S1/2/3 Jul-22: JCT-4	
Maintain / expand existing EDR LTM web pages and JSTAR Mappers	Sep-22	Sep-22		
Images of the Month	Monthly	Monthly		

FY22 STAR JPSS Milestones

Milestones	Original Date	Forecast Date	Actual Completion Date
Operational/Program Support			
S-NPP: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/05/21, 10/13/21, 10/19/21, 10/26/21, 11/02/21, 11/09/21, 11/16/21, 11/23/21, 11/30/21, 12/07/21, 12/14/21, 12/21/21, 01/04/22, 01/11/22, 01/18/22, 01/25/22, 02/01/22, 02/08/22, 02/15/22, 02/22/22, 03/01/22, 03/08/22, 03/15/22, 03/22/22, 03/29/22, 04/06/22, 04/12/22, 04/19/22, 04/26/22, 05/03/22, 05/10/22, 05/17/22, 05/24/22, 05/31/22, **06/07/22, 06/14/22, 06/22/22, 06/28/22, 07/06/22, 07/12/22, 07/19/22, 07/26/22**
S-NPP: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/13/21, 10/26/21, 11/09/21, 11/23/21, 12/07/21, 12/21/21, 01/04/22, 01/18/22, 02/01/22, 02/15/22, 03/01/22, 03/15/22, 03/29/22, 04/12/22, 04/26/22, 05/10/22, 05/24/22, **06/07/22, 06/22/22, 07/06/22, 07/19/22**
S-NPP: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/12/21, 11/09/21, 12/14/21, 01/11/22, 02/08/22, 03/08/22, 04/06/22, 05/04/22, **06/07/22, 07/05/22**
NOAA-20: Weekly OMPS TC/NP Dark Table Updates	Weekly	Weekly	10/05/21, 10/13/21, 10/19/21, 10/26/21, 11/02/21, 11/09/21, 11/16/21, 11/23/21, 11/30/21, 12/07/21, 12/14/21, 12/21/21, 01/04/22, 01/11/22, 01/18/22, 01/25/22, 02/01/22, 02/08/22, 02/15/22, 02/22/22, 03/01/22, 03/08/22, 03/15/22, 03/22/22, 03/29/22, 04/06/22, 04/12/22, 04/19/22, 04/26/22, 05/03/22, 05/10/22, 05/17/22, 05/24/22, 05/31/22, **06/07/22, 06/15/22, 06/22/22, 06/28/22, 07/06/22, 07/12/22, 07/19/22, 07/26/22**
NOAA-20: Bi-Weekly OMPS NP Wavelength & Solar Flux	Bi-Weekly	Bi-Weekly	10/05/21, 10/19/21, 11/02/21, 11/16/21, 11/30/21, 12/14/21, 01/04/22, 01/11/22, 01/25/22, 02/08/22, 02/22/22, 03/08/22, 03/22/22, 04/06/22, 04/19/22, 05/03/22, 05/17/22, 05/31/22, **06/14/22, 06/28/22, 07/12/22, 07/26/22**
NOAA-20: Monthly VIIRS LUT update of DNB Offsets and Gains	Monthly	Monthly	10/12/21, 11/09/21, 12/14/21, 01/11/22, 02/08/22, 03/08/22, 04/06/22, 05/04/22, **06/07/22, 07/05/22**
Block 2.3 Mx builds deploy regression review/checkout (Jan-22 Mx5; Mar-22 Mx6; Jun-22 Mx7 SDRs and VIIRS Imagery teams)	Sep-22	Sep-22	Mx5 SOL: 11/23/21; Mx5 I&T: 01/06/22 Mx6 I&T: 03/22/22 Mx7 SOL: 05/26/22; Mx7 I&T: 06/23/22
Participant/support JPSS-2 pre-launch testing events (**Mar-22 JCT3-Ambient; May-22 JCT3-TVAC;** Maybe: **Jul-22 JCT4; Aug**-22 JCT4-DSE)	Sep-22	Sep-22	**10/06/21: JCT2a-DSE report; 03/01/22: JCT3-Ambient (OMPS J2 RDRs)** **JCT3-TVAC: Segment 1 5/10-13 report; Segment 2 5/17-19 report; Segment 3 5/25-26 report** **SDR teams reports: 06/22/22 CrIS; 07/06/22 VIIRS; 05/23/22 OMPS** **07/11-12/22 JCT4: reports: ATMS; CrIS**

STAR JPSS Schedule: TTA Milestones



DPMS/STAR FY22

Lihang Zhou, DPMS Deputy
Bonnie Reed, DPMS Algorithm Sustainment

June 2022

JPSS Project Milestones

Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Product Monitoring Phase V				
-- CDR	Dec-16	May-17	May 2017	Completed
-- SRR				TK: The schedule is aligned with the operational ... the NCCF. Monitoring ... ng in fall 2021 as each ... HRR clouds, winds, and
-- ORR	Aug-19			
-- Operations	Sep-21			
NOAA-20: Hurricane Intensity and Structure Algorithm (JPSS-1 HISA)				
-- CDR	Oct-16	-	10/27/2016	Completed
-- SCR	Apr-19	--	4/2/19	Completed
-- ARR	Oct-19	Jul-23		
-- ORR	Dec-19	Jul-23		
-- Operations	Feb-20	Jul-23		
Enhanced TOAST with S-NPP OMPS Limb Profiles				
-- CDR	Jan-17	NA		No longer required
-- SCR	Apr-17	NA		No longer required
-- ORR	NA	NA		
-- Operations	Jun-17		2/2021	Completed
S-NPP and N-20 Flood Mapping Product				
-- CDR	Dec-19	Dec-19	Dec 2019	Completed
-- ARR	Mar-21	Feb-21	2/26/2021	Completed
-- ORR	May-21	Jul-22		
-- Operations	Jun-21	Jul-22		Plan to TTO 7/21

Zhaohui Cheng and Walter Wolf wanted that task taken out because all the monitoring process has been added to all of the tasks and no longer needed to be tracked separately.

JPSS Project Milestones

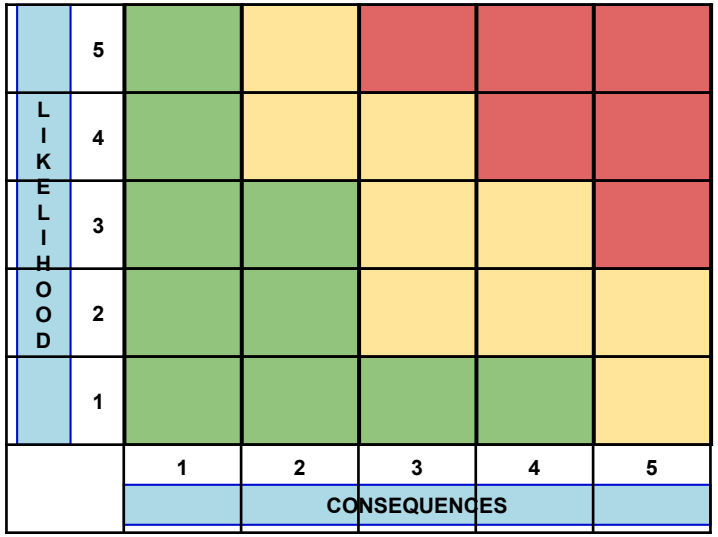
Product Name	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
S-NPP/N20 SST - ACSPO L3SST				
-- CDR	Dec-21	-	5/4/22	Completed
-- ARR	Dec-22	July-23		
-- ORR	Jun-23	Jul-23		
-- Operations	Aug-23	Aug-23		
Advected Layer Precipitable Water (Blended TPW)				
-- CDR	Dec-21	-	12/16/2021	Completed
-- ARR	Oct-22	Apr-23		Combining ARR/ORR
-- ORR	Feb-23	Apr-23		
-- Operations	May-23	May-23		
Global Biomass Burning Emissions with VIIRS I-Band Fire (GBBEPx V5)				
-- CDR	Jan-21	-	1/27/21	Completed
-- ARR	Dec-22	Jul-23		Combining ARR/ORR
-- ORR	Apr-23	Jul-23		
-- Operations	Oct-22	Jul-23		
Ocean Color - OKEANOS SNPP and N-20 Legacy Migration				
-- CDR	Oct-20	-	1/27/21	Completed
-- ARR	Dec-21	May-24		ARR and ORR will be combined
-- ORR	Mar-22	May-24		Based on latest Red Team LM schedule
-- Operations	Apr-22	Jun-24		
J2 Algorithm Updates Completed				
Delivered to IDPS and NDE	Nov-21	Jun-22		Final DAPs to NDE scheduled for Jun-22 except for GCOM (FY23), VIIRS OC/C (Jun-22 to NCCF)

JPSS Risk Summary
Top Risks

Status as of: 07/01/2022

Rank Risk ID	Summary	LxC Trend	Aprch	Status

No Current Risks as of July 1, 2022



Criticality
HIGH
MED
LOW

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

LxC Trend
⇩ – Decreasing (Improving)
⇧ – Increasing (Worsening)
⇔ – Unchanged
NEW – Added this month

Color code:

Green: **Completed Milestones**

Gray: **Non-FY22 Milestones**

ATMS SDR

June, 2022

Accomplishments / Events:

- Analyzed JPSS-2 ATMS observatory TVAC data during cold cycle #4 and hot cycle #4. Because both tests are for performance evaluation, the NEDT of both tests were calculated and compared to instrument TVAC results. The NEDT results are comparable among all tests during observatory TVAC.
- Simulated ATMS antenna PSF during lunar intrusion events under different conditions. Proposed NASA flight team the new optimal JPSS-2 ATMS post-launch maneuver plan to support the ATMS beam pointing angle evaluation task so as to potentially improve the ATMS data quality for downstream data users.
- Finished revising ATMS Calibration ATBD to include operational NEDT calculation algorithm description and recommended scan level NEDT algorithm, as well as the comparison of recommended NEDT using on-orbit data to instrument TVAC analysis results. The final version has been submitted to document approval system.
- Reviewed/checked out IDPS I2.3.07.00 pre-operational I&T string ATMS science data to verify ATMS calibration algorithm processing in new IDPS version. Submitted verification report to STAR JPSS.

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.*

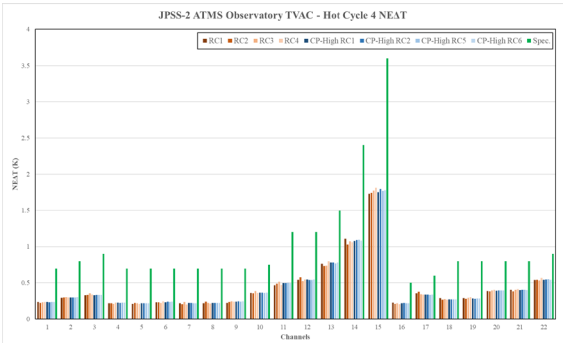
Issues/Risks:

None

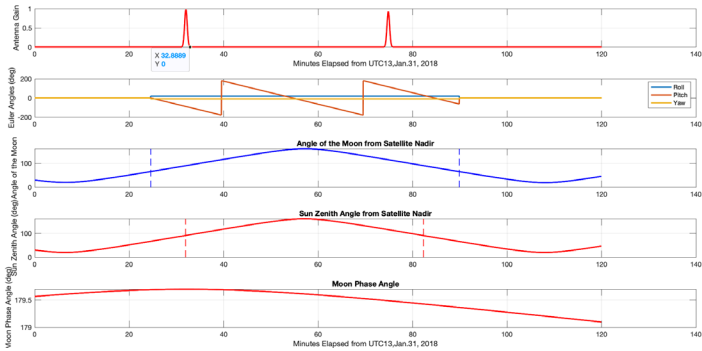
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Generate JPSS-2 ATMS mounting matrix coefficients (MM-coef) based on the JPSS-2 pre-launch instrument interface alignment measurements report	Mar-22	Mar-22	02/25/22	pre-dynamic
Update of ATMS non-linearity correction coefficients after applying TVAC target thermal gradient correction	May-22	May-22	May-22	PMR slide6
Verify and finalize JPSS-2 ATMS processing coefficients table (PCT) using JPSS-2 pre-launch JCT data (JCT-3 satellite TVAC data)	May-22	May-22	May-22	PMR slide6
Deliver final launch-ready JPSS-2 ATMS PCT/MM-coef DAP to ASSISTT	May-22	Aug-22	02/25/22	pre-dynamic
Deliver final launch-ready JPSS-2 ATMS PCT/MM-coef DAP to DPMS	Jun-22	Aug-22	03/08/22	pre-dynamic
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
Improvement of ATMS lunar calibration algorithm by updating lunar temperature estimation model	Aug-22	Aug-22	May-22	PMR slide6
Analyze ATMS reprocessing data. Cooperate with EUMETSAT for ATMS reprocessing data application in climate study	Sep-22	Sep-22	May-22	PMR slide6
JPSS-3 ATMS pre-launch measurement and test data review/analyze	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/18/22 07/14/22	ICVS-Beta. report
Block 2.3 Mx builds deploy regression review/checkout (Dec-21 Mx5; Mar-22 Mx6; Jun-22 Mx7~~; Sep-22 Mx8~~)	Sep-22	Sep-22	12/17/21 Mx5 03/11/22 Mx6 06/23/22 Mx7	

Highlights:

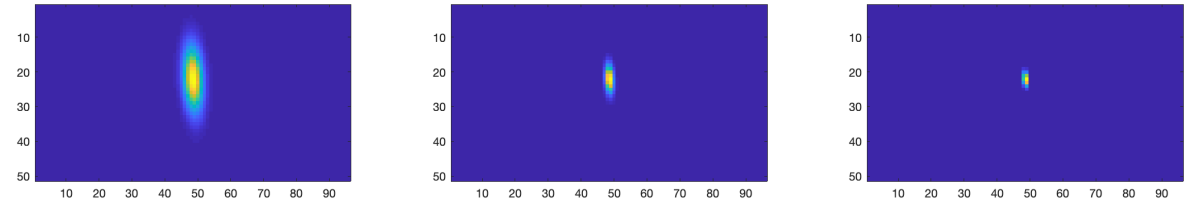
J2 ATMS observatory TVAC hot cycle #4 NEDT



Simulated LI from controlled pitch-over with 0.2 deg/sec slow rate during the full moon



Simulated ATMS antenna PSF during LI for controlled pitch-over with 0.2 deg/sec slew rate



CrIS SDR

June, 2022

Accomplishments / Events:

- Completed the assessment of the JPSS-2 CrIS JCT3 TVAC test data, including verification of RDR and SDR tools using the data in preparation for launch, J2 CrIS RDR checkout using the CrIS RDR reader, RDR processing using ADL and checking against IDPS SDR product, and J2 CrIS SDR checkout using cal/val tools (including a noise and geolocation assessment).
- Continued the development of a PC Compression product, including testing a new iteration of the algorithm (with all FORs) showing small residuals, and developing a weighted latitude scheme, and establishing a common data set across teams.
- Continued the development and assessment of Infrared Intercomparison products. Assessed the impact of MetOp-C IASI In-Plane Maneuver on June 1 on the intercomparion with CrIS, and began the development of an intercomparison of CrIS with GOES-18 ABI and COSMIC-2 Radio Occultation (RO) data.
- Currently supporting to the Satellite Regional Validation Sites (SRVS) project by the generation of global maps of NOAA-20 CrIS Brightness Temperature maps of selected channels to be included in the SRVS website.
- Conducted an assessment of the new NOAA-20 CrIS Scan Baffle anomaly event on June 13-14 including the scan baffle temperature and temperature drift, the data quality flags raised, and the impact on NUCAPS, NCEP, and OSPO products (none). Using I&T data it was demonstrated the effectiveness of the anomaly solution expected to be TTO on Jul 18, 2022.
- Supported the evaluation of Block 2.3 Mx7 I&T Deployment Regression
- Performed a radiometric stability study based on anomaly retrievals of minor gasses from SNPP-CrIS, including retrievals of GHG anomalies and SST and compared them with in-situ measurements, and the impacts on climate-based work.
- Reported on the Global Covariance and PC tests, namely verifying the combined covariance method, and the Hybrid PC score settings.

Overall Status:

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

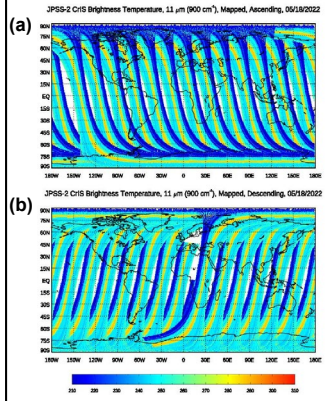
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

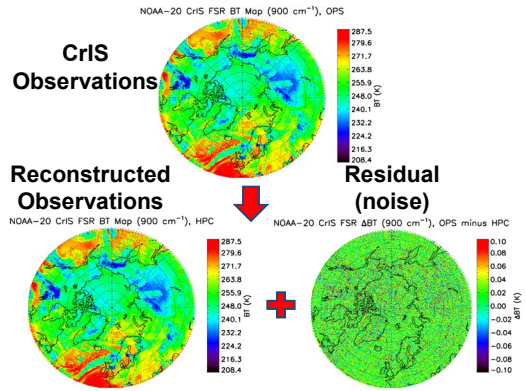
- The CrIS Team got a 100TB on STAR servers (data638 and data645) on May, 2022. However, the CrIS Team is still in need of hardware/software resources. Presently, there is only one server dedicated to 6 CrIS Team members. There is high risk for the CrIS SDR Team to continue on such a single server environment for the operational CrIS Cal/Val activities that includes 5 CrIS sensors (SNPP, JPSS-1 to -4). This may affect the timely completion of deliverables and program milestones. The recommendation is to have one additional server/storage as soon as possible (< 2 months) and add another server/storage in the next months, preferable before the launch of the J2 CrIS. A new Matlab license is also required. Corresponding hardware/software quotations and SNO have been submitted.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/29/21	
Deliver the engineering packet v42 with new mapping parameters for SNPP CrIS	Oct-21	Oct-21	10/22/21	
Report the comparison assessment of CrIS radiometric nonlinearity correction formalism	Feb-22	Mar-22	03/16/22	Anomaly Resolution
Support and participate in the J3 CrIS Pre-ship Review	Mar-22	Apr-22	04/19/22	Vendor Rescheduled
Generate JPSS-2 CrIS mounting matrix coefficients (MM-coef) based on the JPSS-2 pre-launch instrument interface alignment measurements report	Mar-22	Mar-22	03/07/22	pre-dynamic
Verify and finalize JPSS-2 CrIS processing coefficients table (PCT) using JPSS-2 pre-launch JCT data (JCT-3 satellite TVAC data)	May-22	Jun-22	Jun-22	JCT3-TVAC delay
Deliver final launch-ready JPSS-2 CrIS PCT/MM-coef DAP to ASSISTT	May-22	Aug-22	03/07/22	pre-dynamic
Deliver final launch-ready JPSS-2 CrIS PCT/MM-coef DAP to DPMS	Jun-22	Aug-22	03/11/22	pre-dynamic
JSTAR CrIS Website upgrade	Aug-22	Aug-22		
Demonstrate the functionality of the methods planned to be used to mitigate the failure of the J2 CrIS neon calibration system	Sep-22	Sep-22		
New developments and studies (working on the CrIS principal components generation, enhance the infrared cloud detection algorithm for radiometric assessment)	Aug-22	Aug-22		
FY23 Program Management Review	Jun-22	Jun-22	06/14/22	
JPSS-3 CrIS pre-launch measurement and test data review/analyze	Sep-22	Sep-22		
JPSS-3 CrIS Pre-launch evaluation tools development	Sep-22	Sep-22		
JPSS-3 Flight/Ground support	Sep-22	Sep-22		
Radiometric inter-comparison of S-NPP and NOAA-20 CrIS SDR data against other IR observations, including MetOp/IASI, AQUA/AIRS and GOES/ABI	Jun-22	Jun-22	Jun-22	
Perform regular RDR and SDR data analysis for instrument and data health	Sep-22	Sep-22		
Support investigation and resolution of anomalies from CrIS sensors including potential intensive Cal/Val activities	Sep-22	Sep-22		
Participate/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/18, 6/22 07/14	ICVS-Beta, report
Block 2.3 Mx builds deploy regression review/checkout (Dec-21 Mx5; Mar-22 Mx6; Jun-22 Mx7; ~~Sep-22 Mx8~~)	Sep-22	Sep-22	12/23/21 Mx5; 03/17/22 Mx6 Mx7: 05/23/22 SOL; 06/22/22 I&T	

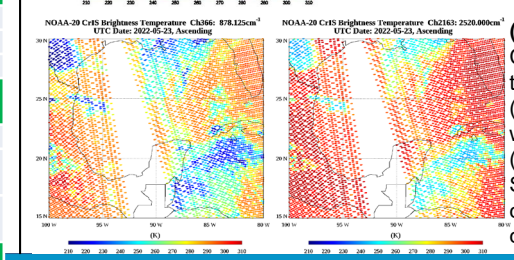
Highlights:



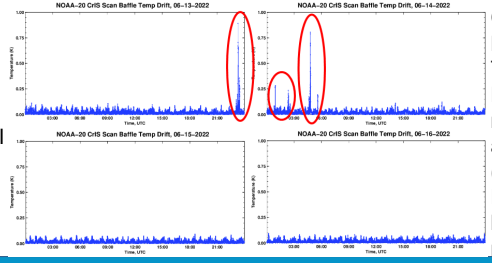
(1) Geolocation Assessment of JPSS-2 CrIS JCT-3 TVAC data for (a) ascending and (b) descending brightness temperature maps



(2) (Top) NOAA-20 CrIS Observations. (Bottom) NOAA-20 CrIS HPC reconstructed observations (Bottom-left) along with reconstructed residuals (Bottom-right) over north pole for 14 Dec 2021. The HPC compression is expected to provide smore than one order of magnitude of data compression



(3) NOAA-20 CrIS brightness temperature (BT) at LWIR window channel (878.125 cm^{-1}), SWIR window channel (2520 cm^{-1}) for SRVS



(4) NOAA-20 CrIS Scan Baffle Temperature Drift during recent anomaly (6/14-15). Events are highlighted in red

VIIRS SDR

June, 2022

Accomplishments / Events:

- Validated the radiometric performance of the Suomi NPP and NOAA-20 VIIRS SDR using the RadCalNet data from the Railroad Valley site as an absolute reference: NPP VIIRS agrees with N20 VIIRS to within 3%, with NPP TOA reflectance measurements being consistently higher than N20
- Completed verifying and finalizing JPSS-2 VIIRS lookup tables (LUTs) using JPSS-2 pre-launch JCT data from JCT-3 satellite TVAC: updated QA-V2 LUT to correct M6 quality flag; Geo LUTs still need to be updated based on post-TVAC VIIRS-to-s/c alignment measurement report
- Verified successful recovery from the Suomi NPP VIIRS anomaly on 6/28/2022: remaining DNB striping to be reduced after the DN0 LUT update based on the new moon data from 6/29/2022
- Assisted in scheduling NOAA-20 and Suomi NPP VIIRS lunar calibration w/o roll maneuvers on 6/10/2022 and analyzed the collected data to monitor radiometric response of the reflective solar bands; Created and delivered for deployment in the IDPS operations updated N20 and NPP DNB offset and gain ratios LUTs generated using the new moon calibration data from 5/30/2022

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/05/21	
DAP delivery (ADR9760/CCR5724, N20 VIIRS-SDR-F-PREDICTED-LUT Update #7)			10/27/21	
ADR9903/CCR5939 VIIRS SDR Not Produced as Expected for Defective Data Packets			04/04/22	DAP to DPMS
DAP (ADR9904/CCR6099, VIIRS SDR Excessive Reflectance Values) to DPMS			07/11/22	
Generate JPSS-2 VIIRS mounting matrix coefficients (MM-coef) based on the JPSS-2 pre-launch instrument interface alignment measurements report	Mar-22	Mar-22	02/18/22	pre-dynamic
Verify and finalize JPSS-2 VIIRS lookup tables (LUTs) using JPSS-2 pre-launch JCT data (JCT-3 satellite TVAC data)	May-22	Aug-22		Post-TVAC MM
Deliver final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP to ASSISTT	May-22	Aug22	02/18/22	pre-dynamic
Deliver final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP to DPMS	*Jun-22*	*Aug-22*	02/24/22	pre-dynamic
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
NOAA-20 VIIRS TEB RVS and Offset change testing and validation	Dec-21	Dec-21	Nov-21	
RDR code change to handle anomalous packets(similar to DB anomaly over Mexico)	Mar-22	Mar-22	Mar-22	
Develop VIIRS Global Area Coverage (VGAC) production capabilities in collaboration with NCEI to meet user needs (ISSCP, EUMETSAT, and others)	Sep-22	Sep-22		
OnDemand reprocessing delivery to CLASS (SNPP recalibrated & reprocessed VIIRS SDR)	Sep-22	Sep-22		
NOAA-20 VIIRS recalibration & reprocessing (on CLOUD)	Sep-22	Sep-22		
Delivery of VIIRS RSB calibration LUTs to mitigate degradation, as needed	Sep-22	Sep-22		
Delivery of VIIRS DNB straylight LUTs, as needed	Sep-22	Sep-22		
NOAA-20 VIIRS as GSICS reference	Mar-22	Mar-22	Mar-22	Report 1
Absolute calibration using CEOS RadCalNet Sites	Jun-22	Jun-22	Jun-22	Report 2
Offline RSB/DNB/TEB Cal/Val analyses	Jun-22	Jun-22	Jun-22	Report 3
Continue cross-calibration and monitoring between NOAA-20 and SNPP VIIRS	Sep-22	Sep-22		Report 4
JPSS-3 VIIRS pre-launch measurement and test data review/analyze	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/11/22, 07/06/22	JCT3-TVAC
Block 2.3 Mx builds deploy regression review/checkout (Dec-21 Mx5; Mar-22 Mx6; Jun-22 ~~Mx7; Sep-22 Mx8~~)	Sep-22	Sep-22	12/16/21 Mx5; 03/10/22 Mx6 Mx7: 05/11/22 SOL; 06/21/22 I&T	
Operational Support: VIIRS LUT update of DNB Offsets and Gains (S-NPP & NOAA-20)	Monthly	Monthly		

Overall Status:

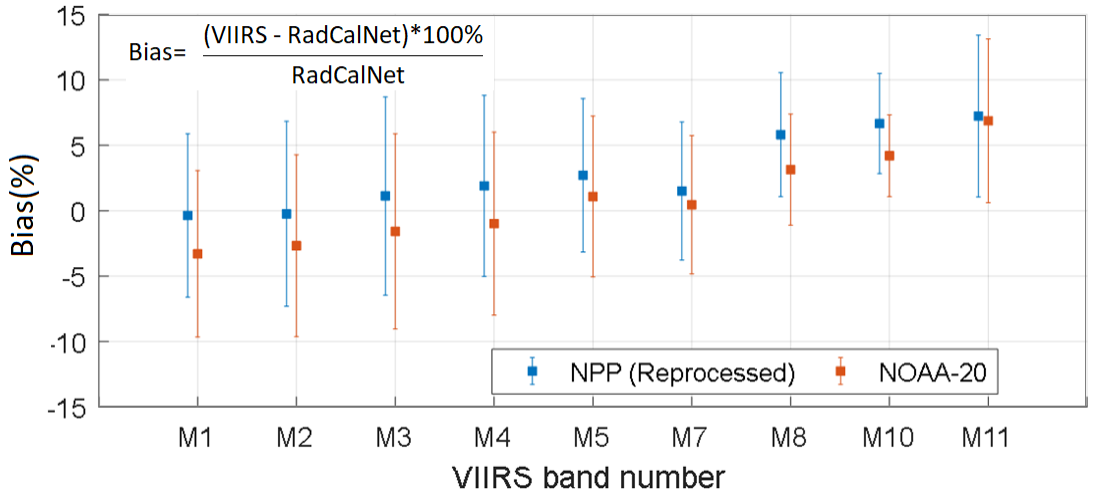
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		x			
Technical / Programmatic		x			
Schedule		x			

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:



Radiometric consistency between the Suomi NPP and NOAA-20 VIIRS instruments (within 3%) using RadCalNet as a reference: the absolute bias relative to RadCalNet is larger for SWIR bands

OMPS SDR

June, 2022

Accomplishments / Events:

- Delivered OMPS biweekly NP solar irradiance bi-weekly LUTs, associated with use of a different solar wavelength shift derivation algorithm.
- Continued the analysis of both JPSS-02 OMPS JCT3 TVAC test data and reprocessed data. Discovered several anomalies such as mis-use of the stray light calibration table and the dark calibration table in both the NM and NP ground data processing system (IDPS).
- Continued working on generating the OMPS geolocation code, with sub-satellite latitude, longitude, altitude, and velocity having been created.
- Continued working on generating inter-sensor comparisons between NOAA-20 OMPS NM and TropOMI radiance data (see Fig. a for example).
- Continued working on updating and refining the OMPS VCRTM interface. In addition, confirmed the performance of the existing solar intrusion correction (see Fig. b for example).
- The manuscript about SNPP OMPS SDR reprocessing has been accepted by J. Remote Sensing for publication.
- The manuscript about OMPS NM geolocation error assessment tool is accepted for publication.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/05/21	
DAP (ADR9633/CCR5577 OMPS TC geolocation code change for off-nadir geolocation error correction)			12/03/21	
DAP (ADR9908/CCR5926 OMPS J02 Nadir Version LUT Update N_TIM_PAT_VER Value)			03/22/22	
Generate JPSS-2 OMPS mounting matrix coefficients (MM-coef) based on the JPSS-2 pre-launch instrument interface alignment measurements report	Mar-22	Mar-22	03/02/22	pre-dynamic
Verify and finalize JPSS-2 OMPS lookup tables (LUTs) using JPSS-2 pre-launch JCT data (JCT-3 TVAC)	May-22	Aug-22		JCT3-TVAC &Mounting matrix data delay
Deliver final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP to ASSISTT	May-22	Aug-22	03/02/22	pre-dynamic
Deliver final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP to DPMS	Jun-22	Aug-22	03/08/22	pre-dynamic
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
OMPS SDR Calibration ATBD (update)	Jun-22	Aug-22		Low priority
Development/Update (Internal delivery):				
ADL-OMPS offline processing code update (with flexible NM resolutions)	Jul-22	Jul-22		
ADL-OMPS diagnostic (>380 nm) offline code development for geolocation	Aug-22	Aug-22		
OMPS polarization impact and mitigation algorithm development	Aug-22	Aug-22		
1) J2 OMPS SNR calculation algorithm code update 2) J2 OMPS SDR solar intrusion detection code prototype	Jan-22	Jan-22	Jan-22	
1) J2 OMPS NM/NP Day-1 solar analysis code prototype using NOAA-20 as proxy 2) OMPS NM/NP x-sensor comparison code development (e.g., RTM/DCC methods)	Feb-22	Feb-22	Feb-22	
J2 OMPS geolocation error assessment code update using JCT3 OMPS SDR data and J2 mounting matric coef.	May-22	Sep-22		Lack of measurement data
OMPS dark and solar raw flux processing code update	May-22	May-22	May-22	Updated with good progress, but not completed
Inter-sensor code prototype development (e.g., SNPP/NOAA-20/J2 OMPS, OMPS-GOME-2)	May-22	May-22	May-22	
1) OMPS Wavelength registration change investigation from ground to flight 2) J2 High resolution risk mitigation algorithm development update in support to J2 3) J2 OMPS pre-launch straylight correction analysis 4) OMPS SDR quality validation baseline tool prototype developments (e.g., RTM-DD, SNO-DD, NM (VIIRS)-DD, 32D-AD) 5) NM/NP SDR re-processing and data stability analysis update 6) Assess impact of a new solar reference data on OMPS NM/NP SDR data quality	Sep-22	Sep-22		
Sustainment, monitoring, maintenance S-NPP & NOAA-20 in flight performance	Sep-22	Sep-22		
JPSS-3 OMPS pre-launch measurement and test data review/analyze	Sep-22	FY23		No data available
Participant/support JPSS-2 pre-launch testing events (Mar-22 JCT3-Ambient; May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	03/01/22 05/23/22	JCT3-Ambient JCT3-TVAC
Block 2.3 Mx builds deploy regression review/checkout (Dec-21 Mx5; Mar-22 Mx6; Jun-22 Mx7~~; Sep-22 Mx8~~)	Sep-22	Sep-22	01/04/22 Mx5; 03/21/22 Mx6 Mx7: 05/25/22 SOL; 06/22/22 I&T	
Operational Support: Weekly updates darks for NM and NP (S-NPP & NOAA-20)	Weekly	Weekly		
Operational Support: Bi-weekly update NP Wavelength and solar flux (S-NPP & NOAA-20)	Bi-Weekly	Bi-Weekly		

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

(a) TopOMI and N20 OMPS NM SDR data inter-comparison

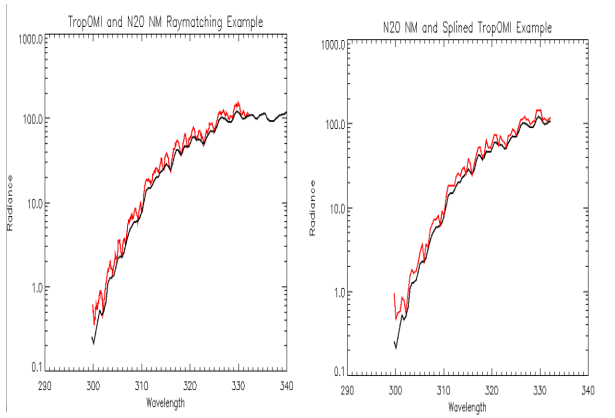


Figure 1: An example of successfully ray-matched datapoints from NOAA-20 OMPS NM (shown in black) and TropOMI (shown in red). The left image shows data from both sensors at their full resolutions, while the plot on the right shows a cubic spline of the TropOMI data to make its resolution equal to that of OMPS NM

(b) Re-assessing performance of solar-intrusion correction using O- B

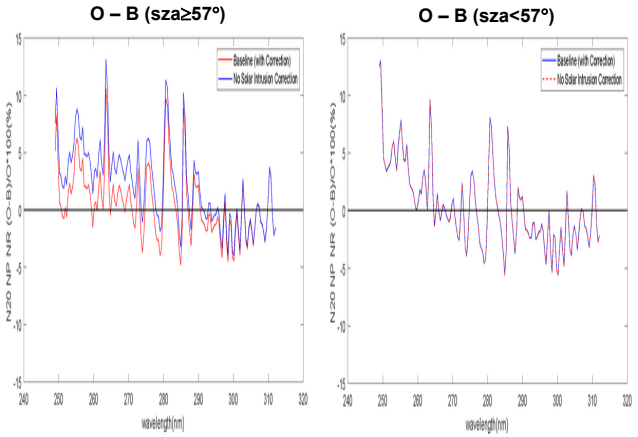


Figure 3: O-B values created using the VCRTM package for OMPS NP showing both original (blue) and solar intrusion corrected (red) results. The left image shows O-B values for solar zenith angles greater than 57.5°, while the right plots shows O-B values for solar zenith angles less than 57.5°.

SDR Reprocessing

June, 2022

Accomplishments / Events:

- The official transition of the reprocessed SNPP SDRs to CLASS/NCEI started on December 1, 2021.
- The transition of the reprocessed SNPP ATMS (V1 and V2), CrIS, and OMPS (V1 and V2) data was completed in December 2021, February 2022 and March 9, 2022, respectively. These data are available at CLASS website now.
- The transition of the reprocessed SNPP VIIRS started on March 15, 2022.
- The VIIRS data transition is ongoing with 6 parallel jobs with data volume control of a stable daily data transition speed of ~2.96T/day
- The reprocessed SNPP VIIRS SDR data from 1/2/2012 to 3/13/2013 (313.26T, 19.4% of total) has been completed as of June 30, 2022.
- It's expected that the VIIRS data transition will complete in October, 2023.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
~~FY23 Program Management Review~~	~~Jun-22~~	~~Jun-22~~		~~Not scheduled~~
Complete planning and testing on transition of S-NPP reprocessed SDR data to CLASS	Oct-21	Oct-21	Oct-21	
Complete transition of 1000 Tb of reprocessed S-NPP SDR data to CLASS	Sep-22	Sep-22		

Overall Status:

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

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

Issues/Risks:

None

Highlights: Status of the Reprocessed SNPP Data Transition

Sensor	Data Type (name)	Period	Notes	Volume (Tb)	Status
ATMS	TDR (TATMS)	2011-11-08 to 2019-10-15	V2	0.406	Completed on Dec. 20, 2021
	SDR (SATMS)	2011-11-08 to 2019-10-15	V2	0.431	
	GEO (GATMO)	2011-11-08 to 2019-10-15	V2	0.420	
ATMS	TDR (TATMS)	2011-11-08 to 2017-03-08	V1	0.273	Completed on Dec. 30, 2021
	SDR (SATMS)	2011-11-08 to 2017-03-08	V1	0.289	
	GEO (GATMO)	2011-11-08 to 2017-03-08	V1	0.283	
CrIS	GCRSO	2012-02-20 to 2020-01-29	V2	0.369	Completed on Feb. 25, 2022
	SCRIS	2012-02-20 to 2020-01-29	V2	67.994	
	SCRIF	2014-12-04 to 2020-01-29	V2	74.455	
OMPS	TC (SOMTC, GOTCO)	2012-01-30 to 2018-09-30	V1	1.2	Completed on Mar. 4, 2022
	NP (SOMPS, GONPO)	2012-01-25 to 2017-03-08	V1	0.134	
OMPS	NP (SOMPS, GONPO)	2012-01-25 to 2021-06-30	V2	0.246	Completed on Mar. 9, 2022
	TC (SOMTC, GOTCO)	2012-01-30 to 2021-06-30	V2	1.695	
VIIRS	VIIRS ALL SDR	2012-01-02 to 2020-04-30	V2	1615	Completed 19.4%
Total				1764.65	

ICVS

June, 2022

Accomplishments / Events:

- Finished developing ATMS 32-day grid data running mean inter-sensor bias trending package. Reprocessed NPP and N20 data to produce daily global mean time series. Bias trending products match very well to the inter-sensor bias using double different through daily O-B products.
- Generated VIIRS 32-day intersensory bias trending products and compared results to the bias using double difference through GOES ABI vs. VIIRS SNO matchup results for RSB. A good match between both products is observed from the comparison results.
- Finished processing JPSS-2 JCT3-TVAC test data using ICVS modules updated for JPSS-2 and post sample data quality monitoring figures to internal ICVS-beta web site to support JPSS-2 prelaunch Cal/Val activities.
- Started separating ICVS LEO-GEO inter-sensor bias monitoring web page from GSICS portal to better support JPSS missions.
- Kept developing OMPS NM vs VIIRS inter-sensor bias trending products and NPP vs. N20 OMPS inter-sensor bias trending through OMPS-VIIRS bias double difference.
- Kept revising the manuscript about the ATMS maximum scan drive mechanism temperature prediction by multiple sensor health status parameters using AI technology.

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
Update ICVS JPSS-2 modules to support J2 pre-launch JCT verification (**May-22 JCT3-TVAC**; Maybe: **Jul-22 JCT4** JCT4-DSE) and on-orbit NRT monitoring	Sep-22	Sep-22	05/18/22 07/14/22	JCT3-TVAC
Maintain the ICVS for SNPP and NOAA-20 including ICVS-GSICS Portal and provide anomaly reports	Sep-22	Sep-22		
Work closely with JPSS cal/val teams to facilitate the evaluations of SDR anomaly events	Sep-22	Sep-22		
Initialize a NRT geolocation accuracy monitoring module for SNPP/NOAA-20 OMPS NM in coordination with OMPS SDR team together	Nov-21	Nov-21	Nov-21	
Improve the ICVS SDR data quality evaluation testbed with more sensors	Dec-21	Dec-21	Dec-21	
Update the following sub-systems within the ICVS towards operations a) SNPP and NOAA-20 ICVS-Vector (dynamic visualization information) b) Git repository for ICVS software package version control	Feb-22	Feb-22	Feb-22	
Update the following sub-systems within the ICVS towards operation a) ICVS-Anomaly Impact Watch Portal (AWP) b) SNPP/NOAA-20 inter-sensor bias monitoring tool via the 32D-AD method	Mar-22	Mar-22	Mar-22	
Upgrade the ICVS-Vector (dynamic visualization information) for J2 using JCT as proxy data	May-22	May-22	May-22	
Initialize the instrument and data anomaly detection development using AI methods	Jun-22	Jun-22	Jun-22	
Initialize the S-NPP vs NOAA-20 ATMS inter-sensor bias trending product using double difference through RO profiles	Jul-22	Jul-22		
Initialize the cloud mask module for ICVS-OMPS (beta version)	Aug-22	Aug-22		
FY22 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/01/21	
FY23 Program Management Review	Jun-22	Jun-22	06/14/22	

Overall Status:

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

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

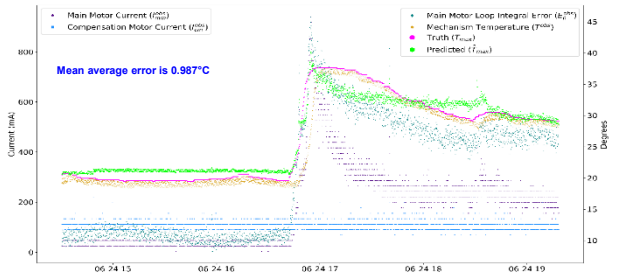
Issues/Risks:

None

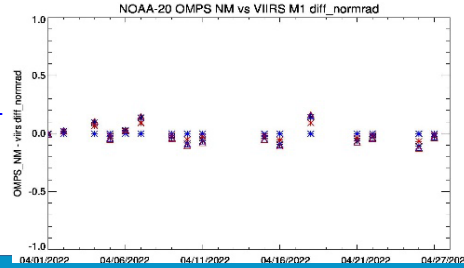
Highlights:

Significantly contribute to STAR SDR Teams

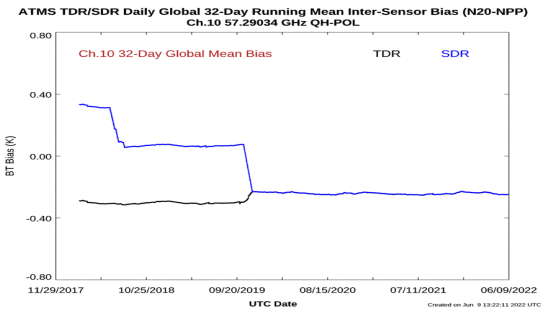
(a) Comparison of predicted and measured ATMS main motor mechanism temperatures

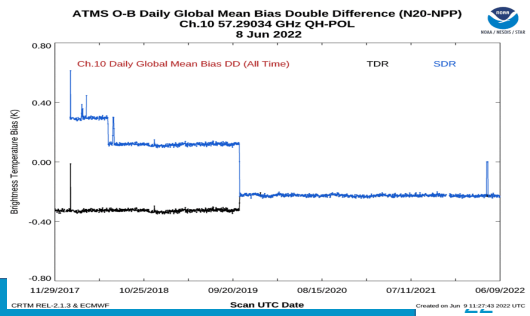


(b) NOAA-20 OMPS NM vs. VIIR M1 Inter-sensor Bias Time Series



(c) N20 vs. NPP ATMS inter-sensor bias from 32-day running mean direct comparison (upper) and O-B double difference (lower)





VIIRS Imagery

June, 2022

Accomplishments / Events:

- Imagery Products ATBD updated and delivered
- Reviewed and provided feedback on Block 2.3 Mx 7 I&T Deploy Regression
- Recent VIIRS Imagery Social Media Posts
  - VIIRS Geocolor of Alaska Smoke
  - VIIRS Natural Fire Color RGB over Pipeline Fire
  - VIIRS Day Cloud Phase Distinction RGB of SW US Thunderstorms
  - VIIRS Fire Temperature RGB of Alaska Fires
- Recent Blog Posts with VIIRS Imagery
  - High Plains Accumulating Hail – 07 June 2022 (see image below)
- A VIIRS Sea Spray RGB Quick Guide was published online for users to view here.
- Recent VIIRS Teletraining
  - JPSS/GOES Fire Monitoring tele-training session with NWS ARHQ.
  - NCC teletraining session with NWS San Juan, PR.
- A recent AMS Satellite Short Course highlighted various VIIRS (and GOES) Applications

Overall Status:

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

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

Issues/Risks:

N20 NCC LUT update

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
N20 NCC LUT update DAP (to ASSISTT)	Aug-22	FY23	PMR slide 7: move to FY23 due to challenges with DNB statistics and complex curve fitting	
N20 NCC LUT update DAP (to DPMS)	Sep-22	FY23		
New Imagery products or product enhancements (display on SLIDER)	Sep-22	Sep-22	continuing	
Realtime Imagery monitoring and display systems (SLIDER, etc.)	Sep-22	Sep-22	continuing	
Images of the Month to STAR JPSS Program/website and interesting Imagery to Social Media outlets	Monthly	Monthly	continuing	
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/25/22	JCT3-TVAC
Block 2.3 Mx builds deploy regression review/checkout (Dec-21 Mx5; Mar-22 Mx6; Jun-22 Mx7~~; Sep-22 Mx8~~)	Sep-22	Sep-22	11/23/21 Mx5 SOL; 12/29/21 Mx5 I&T 03/18/22 Mx6 I&T 06/21/22 Mx7 I&T	

Highlights: Image of the Month

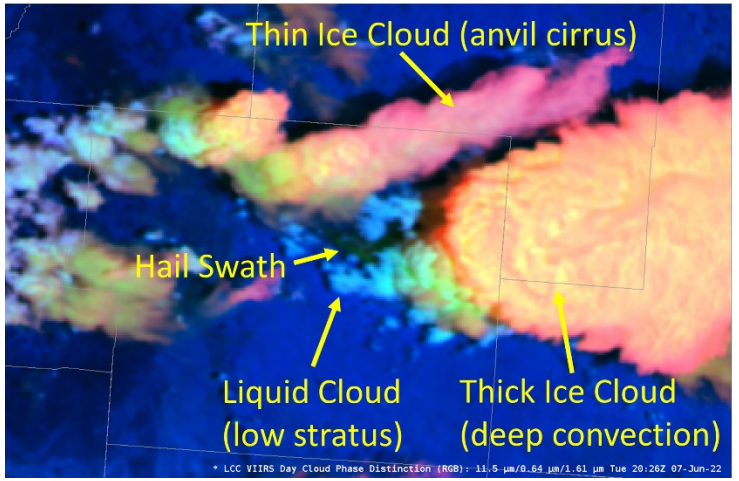


Figure: VIIRS I-band Day Cloud Phase Distinction RGB captured various convective features, including a hail swath left by the severe thunderstorm.

Clouds

June, 2022

Accomplishments / Events:

- CIRA and CIMSS continue to evaluate the updated ECM2 provided by CIMSS
- The DCOMP team updated the LUT for NPP, fixing the issue. Figure 1 shows that the original NPP LUT was not in sync with the optical properties from NOAA-20 (left) and with the fix, the values of the cloud optical properties are more in sync with NOAA-20 (right). Note that they will not be *exactly* the same due to the time and viewing angle differences from granule and viewing geometry differences. However, this is only causes a small difference.
- The CIRA team completed a six-month data analysis of ground radar measurements at the ARM SGP site for CBH product evaluation and continued comparisons between VIIRS and ABI products using METAR data over CONUS. We started data testing of 3D gridded cloud products using the AWIPS-2 Volume Browser for cloud vertical sections, which has been applied to 3D NWP 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.*

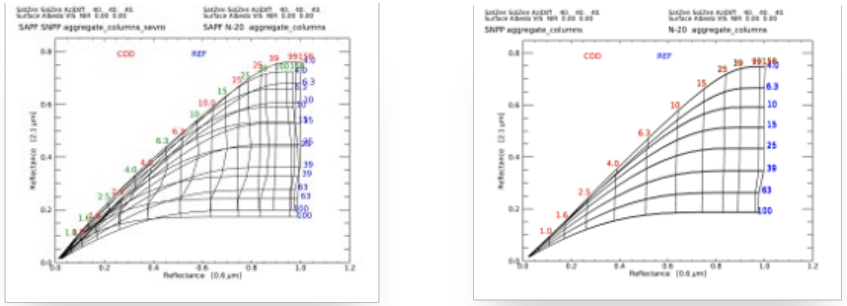
Issues/Risks:

None

Milestones:

- ***See next slides***

Highlights:



Before After

Figure 1. The above figures shows that the original NPP LUT was not in sync with the optical properties from NOAA-20 (left) and with the fix, the values of the cloud optical properties are more in sync with NOAA-20 (right)

Clouds (Cloud Mask)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Verify DNB and new ECM implementation within STAR Algorithm Processing Framework (SAPF) and adjust LUT based on feedback from teams	Jan-22	Apr-22	Apr-22	SAPF run delayed
Verify ECM LUT against J2 simulated data prior to J2 launch	Aug-22	Aug-22	Jun 22	J2 data provided early
Support Alaska Demo and ESRL usage and reviews	Aug-22	Aug-22		
Work with NCEP on All Sky Radiance (ASR) assimilation. Adjust mask as necessary	Sep-22	Sep-22		
Apply CALIPSO tools to NDE Mask with Lunar Ref	Sep-22	Sep-22		
Continue collaboration wtith OAR/ESRL/GML on use of RadFlux Cloud Fraction for Verification including high-latitude sites	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (Cloud Phase/Type)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Optimize cloud phase thresholds for NOAA-21 and maintain code consistency with GOES-R deliveries	Aug-22	Aug-22		
Modify phase as needed based on height/winds interaction and development from GOES-R	Aug-22	Aug-22		
Support S-NPP and NOAA-20 EDR monitoring	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (ACHA)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Support NCEPs use for ASR assimilation	Jan-22	Sep-22		Making consistent with ECM date
Continue improving multilayer ACHA by analysis of CALIPSO and AEOLUS lidars and extend to level of best fit of Polar Winds	Jan-22	Sep-22		This is ongoing work
Verify extending the treatment of scattering to support 3.75 micron. Needed for NCOMP replacement	Aug-22	Sep-22		This is ongoing work
Continue work on ACHA COMP and begin JPSS-2 ACHA COMP validation plan	Aug-22	Aug-22		This is ongoing work
Continue working with FAA to adopt ACHA products instead of simplistic NCAR cloud heights. Continue support of Alaska Demo CTH requests	Aug-22	Aug-22		This is ongoing work
Support Polar AMVs as needed including use of CrIS	Aug-22	Aug-22		This is ongoing work
Continue to display ACHA products in CIMSS and STAR LTM site	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (DCOMP)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Improve the performance of thin ice clouds by using ACHA COD and will work with the ACHA team on development and validation	Aug-22	Aug-22		
Validate DCOMP at night using DNB	Aug-22	Aug-22		
Incorporate method to identify pixels with potentially incorrect phase within DCOMP DQFs	Sep-22	Sep-22		
Inter-sensor calibration studies by using visible reflectance and cloud optical thickness from GOES, JPSS and MODIS. Use this to adjust VIIRS M5 and M7 as needed	Sep-22	Sep-22		
Consistency checks for day and night retrievals	Sep-22	Sep-22		
Continuous use of microwave-based LWP data for validation	Sep-22	Sep-22		
Develop collaboration with OAR/ESRL/GML on use of RadFlux Cloud Optical Depth for Verification	Sep-22	Sep-22		
Improving the near real-time monitoring tools with (simple) web application	Sep-22	Sep-22		
Support several projects (i.e., processing of data, visualization tools, & ATMS/VIIRS precip for Alaska Demo)	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (NCOMP)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Consistency checks for day and night retrievals	Sep-22	Sep-22		
Continuous use of microwave-based LWP data for validation. (coordinate with DCOMP)	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (Cloud Base Height)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Verify DCOMP nighttime COD (DNB) improvement in Cloud Base for performance over NWP or IR-only	Jan-22	Apr-22	Apr-22	SAPF run delayed
Apply fix for SZA expansion of daytime DCOMP to 82º (degraded between 75-82º SZA)	Jan-22	Jan-22	Jan-22	
Implement low layer cloud confidence flags for multi-layer cloud systems, leveraging GOES-RR	Jan-22	Sep-22		This is ongoing work
Develop gridded products for vertical cross-sections and AWIPS-2	Sep-22	Sep-22		
Develop a new aviation website and incorporate feedback from NWS/AWC	Sep-22	Sep-22		
Support Alaska Demo and any necessary reviews	Sep-22	Sep-22		
Validate products from SAPF and continue data analysis using ARM, METAR, PIREPs, and CloudSat/CALIPSO	Sep-22	Sep-22		
Implement an updated lunar irradiance model in CLAVR-x for nighttime COD and compare products	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Clouds (CCL)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	ASSIST provided data for analysis last week of March. Analyzed by team. ASSISTT is responsible for DAP delivery
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Continue CCL visualization and demo for the Aviation Weather Center, with focus on Alaska Region and Hawaii. Work directly with respective POC's and use feedback to improve CCL	Sep-22	Sep-22		
Support Alaska Demo and any necessary reviews	Sep-22	Sep-22		
Validate NDE CCL output, supercooled/convective probability layers for nighttime cases with lunar DCOMP included for Base	Sep-22	Sep-22		
Support ASSISTT update to NESDIS Data Exploitation (NDE) at appropriate time(s)	Sep-22	Sep-22		
Support consistency validation of products from CSPP	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Aerosol

June, 2022

Accomplishments / Events:

- Used proxy J2 data to generate one orbit of Aerosol Optical Depth and compared to Suomi-NPP Aerosol Optical Depth (See highlight) to show good qualitative agreement.

Overall Status:

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

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

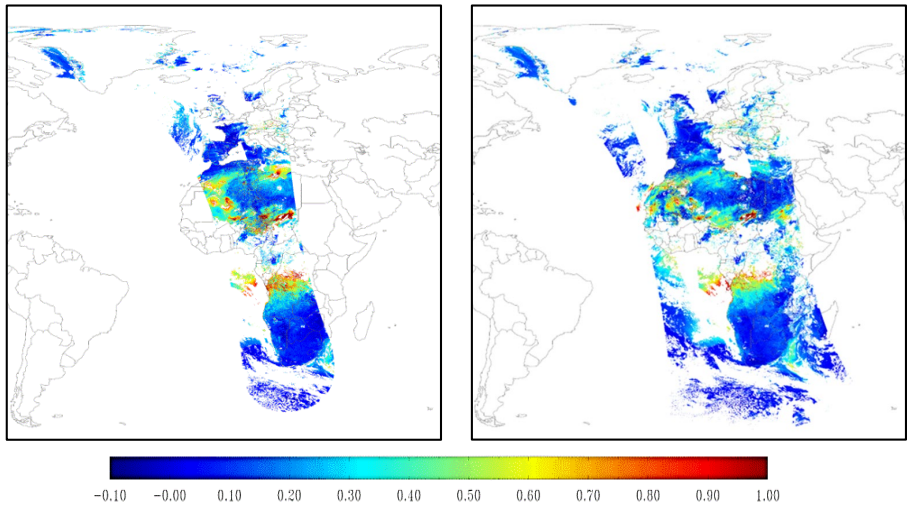
Issues/Risks:

No risks

Milestones:

- ***See next slides***

Highlight: **Evaluation of J2 Proxy AOD EDR**



Comparison of AOD retrieved from proxy J2 data with SNPP VIIRS AOD shows good qualitative agreement.

Aerosol (AOD)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/17/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Evaluate robustness of method to determine AOD bias characteristics	May-22	Sep-22		Departure of affiliate; 80% complete as of May 2022
Complete implementation of AI-based surface reflectance relationship in VIIRS enterprise aerosol optical depth algorithm	Jun-22	Jun-22	May-22	PMR slide17
Extend record and evaluation of merged S-NPP/NOAA-20 and gridded global AOD products	Jul-22	Jul-22		
Based on latest J2 SRF update LUTs and other processing coefficients used in AOD algorithm	Aug-22	Aug-22		
Complete first assessment of multi-year VIIRS aerosol optical depth product (Summary report on accuracy and precision)	Aug-22	Aug-22		
Explore VIIRS AOD error characteristics for any relationship with aerosol model selection/residuals (Summary report identifying relationship between AOD error and retrieval residual, surface type)	Aug-22	Aug-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (**May-22 JCT3-TVAC**; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	**05/13/22**	**JCT3-TVAC**

Aerosol (ADP)

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/17/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Exploring callback approach by including other bands for thick smoke/dust plumes, which are frequently missed due to cloud mask	Jun-22	Jun-22		
Further refining smoke detection over land in IR-Visible path by including more surface type from IGBP classifications to defining surface reflectance relationship, such as the approaches used in AOD algorithm. In addition, work will be carried out for reducing/eliminating the detected smoke plumes difference between two orbits	Jun-22	Jun-22		
Exploring regional thresholds for dust detection over land in deep-blue algorithm path	Jun-22	Jun-22		
Reprocess the entire SNPP and NOAA-20 VIIRS ADP and generate smoke and dust climatologies	Jun-22	Jun-22	May-22	PMR slide15
Analyze near real time aerosol optical depth and detection products for performance of quality flags and how to optimize the quality flags for a given scenario that can potentially lead to data artifacts	Jun-22	Jun-22		
Reducing false smoke detection for SO2 plumes over ocean from volcanic eruptions by including 8.4 μm band, which is SO2 absorption band	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Continue long-term validation of SNPP and NOAA-20 VIIRS ADP by comparisons with AERONET, CALIPSO, MISR, and IMPROVE	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (**May-22 JCT3-TVAC**; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	**05/13/22**	**JCT3-TVAC**

Volcanic Ash

June, 2022

Accomplishments / Events:

- Continued to ensure high quality Volcanic Ash retrievals from EDR algorithms and VOLCAT. VOLCAT is long-term plan.
- Verified all planned algorithm updates for J2 have occurred (compared activities completed to Algorithm Update Review activities planned)

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			

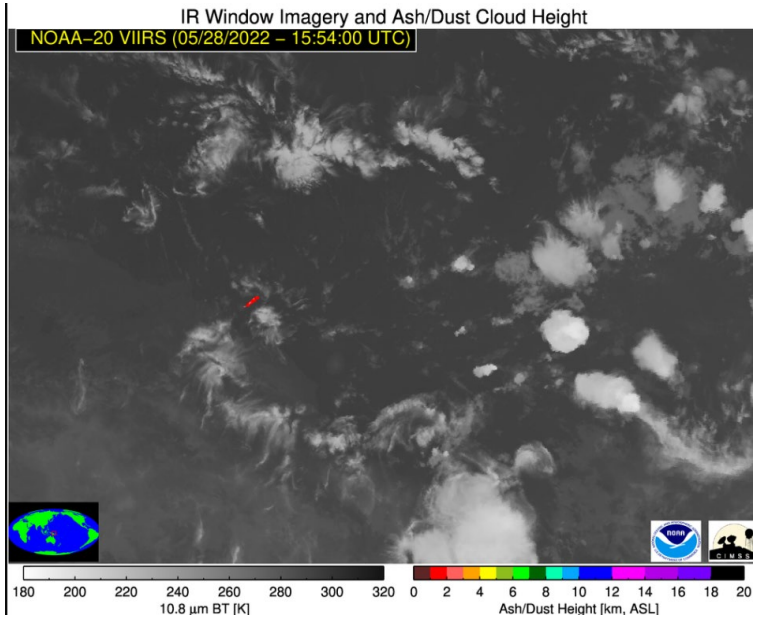
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/17/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Development activities that support transition to VOLCAT	Sep-22	Sep-22		
Software and LUT updates for J2	Sep-22	Sep-22		
Update thresholds and LUT's, if needed	Sep-22	Sep-22		
Routinely validate volcanic ash products	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights: Volcanic Ash/Dust Cloud Height product 5/28/2022



Cryosphere

June, 2022

Accomplishments / Events:

x VIIRS snow and IMS product accuracy estimated by comparing to station snow depth reports. Accuracy of VIIRS snow retrievals has been compared to the accuracy of IMS snow maps using snow depth observations at ground-based stations over North America as ground truth. although the daily agreement of VIIRS and IMS snow maps to the station data was close, VIIRS snow maps slightly, by 1-2%, outperformed the IMS maps.

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
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/28/21	
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Incorporate passive microwave filter to improve ice products	Dec-21	Dec-21	Dec-21	
Cloud shadow flag, blended snow cover product	Sep-22	Sep-22		
New physically-based snow and snow-free land BRDF, algorithm to infer the snow fraction	Sep-22	Sep-22	Apr-22	
Generate new lookup tables, retrieval coefficients for JPSS-2 (all snow, and ice products)	Sep-22	Sep-22	Oct-21	
Weekly and monthly ice products composite	Sep-22	Sep-22		
Continuous monitoring of S-NPP and NOAA-20 products	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlight: VIIRS Snow Depth accuracy assessed using In-Situ measurements along with Interactive Multisensor Snow and Ice Mapping System (IMS) Snow Depth product

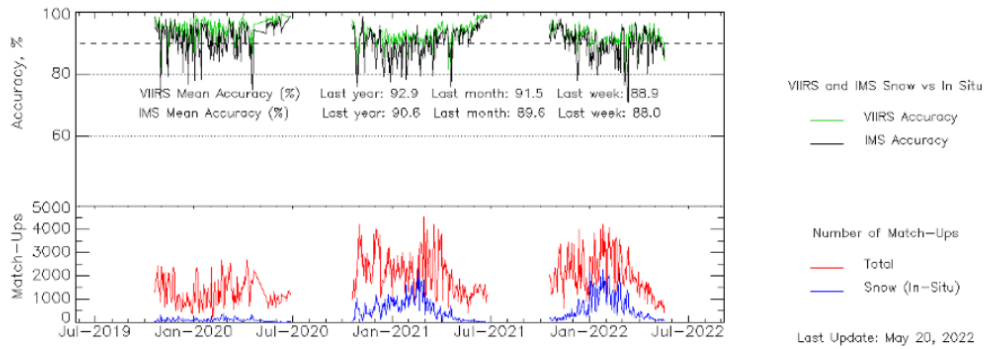


Figure Daily rate of agreement of VIIRS and IMS snow maps to the ground-based station data (upper plot) during three winter seasons from 2019-2020 to 2021-2021. Lower plot shows the total number of snow depth reports and the number of reports of non-zero snow depth used in the comparison.

Active Fires

June, 2022

Accomplishments / Events:

- On June 21-22, 2022, Ivan Csiszar (STAR) and Wilfrid Schroeder (OSPO) attended remotely the combined meeting of the Global Wildfire Information System (GWIS) and the Fire Mapping and Monitoring Implementation Team (IT) meeting, held in Stresa, Italy. As members of the IT, they gave a presentation “An Update on NOAA’s Satellite Fire Product Development Activities”, which covered the current status of NESDIS’s active fire products, ongoing research, the development of the new NESDIS fire application system and key operational applications.
- Reviewed tasks planned from 2020 J2 algorithm update reviews and confirmed they are completed, with exception of minor documentation updates that will occur in July. However, ASSIST is having some trouble with I&T of the delivered package. Lesson learned for J3 algorithm update reviews is to better track ASSIST deliveries – this year was difficult due to contract and staff changes from STAR to OSGS. ASSIST issues have not been tracked closely by science teams.

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:

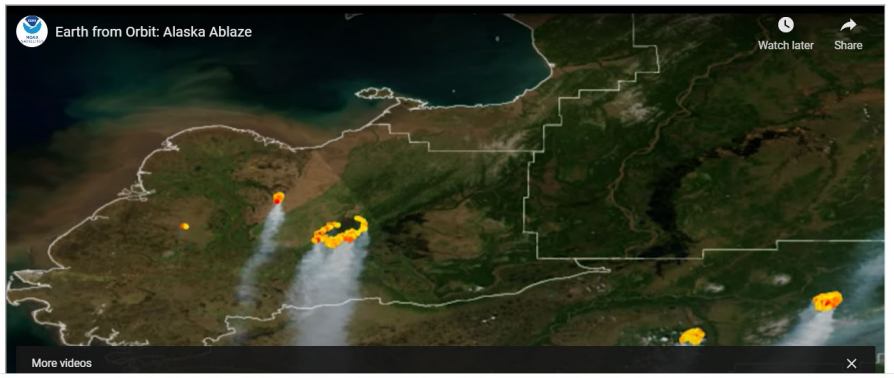
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/05/21	
FY23 Program Management Review	Jun-22	Jun-22	05/23/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Mar-22	Mar-22	03/17/22	
Final J2 ready DAP to CSPP			05/26/22	
I-band algorithm improvements for non-optimal conditions	Sep-22	Sep-22		
J2 readiness and sensor performance evaluation	Sep-22	Sep-22		
Opportunistic validation using in-situ data (Error rates and FRP APU)	Sep-22	Sep-22		More limited validation
Persistent anomaly data files updates	Sep-22	Sep-22		Less frequent updates
Suomi NPP / NOAA-20 data analysis and feedback	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlight: NOAA-20 and Suomi-NPP Active Fire products featured on NESDIS Events video of June 2022 wildfires in Alaska :

https://www.nesdis.noaa.gov/news/earth-orbit-alaska-ablaze

Earth from Orbit: Alaska Ablaze

June 30, 2022



Surface Type

June, 2022

Accomplishments / Events:

- STAR-UMD VIIRS Surface Type team has downloaded and processed S-NPP and NOAA-20 VIIRS daily granule surface reflectance data acquired in June 2022 for the production of AST-2022.
- The team has produced the preliminary of VIIRS Annual Surface Type AST2021 using annual classification metrics based on 2021 daily VIIRS surface reflectance data.
- The team is updating the surface type validation points, which will be used to validate and post process AST2021 to be delivered to JSTAR in Sept 2022:
  - Improvements to the validation data collection tool have been developed to facilitate better use of available high resolution (10m - 30m) land cover products and spaceborne LiDAR samples.

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.*

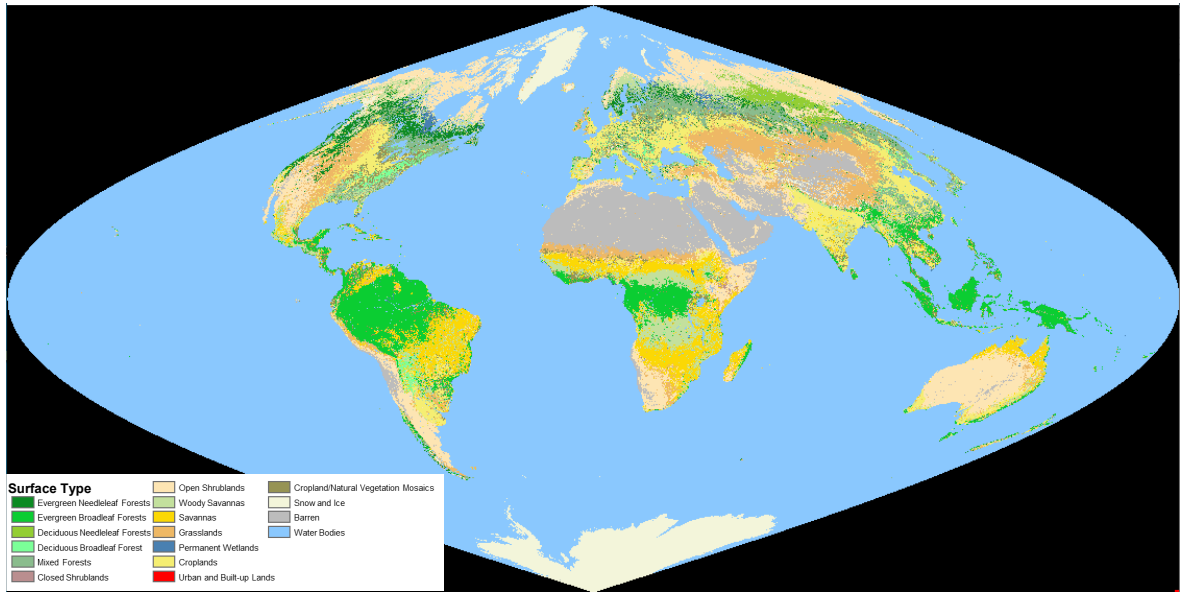
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/29/21	
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
Deliver AST-2020 to NDE (with JRR Super DAP)	May-22	May-22	05/17/22	
Complete global monthly composites based on 2021 VIIRS data	Apr-22	Apr-22	Apr-22	
Generate global annual classification metrics	May-22	May-22	May-22	
Develop approaches for using newly available high resolution global maps on urban and water	Sep-22	Sep-22		
Experiment methods for mapping surface type change	Sep-22	Sep-22		
Generate VIIRS AST21 based on 2021 VIIRS data using SVM algorithm	Aug-22	Aug-22		
Comparison of AST21 with surface type validation data	Sep-22	Sep-22		
Delivery of AST21 (made available for users through STAR FTP)	Sep-22	Sep-22		
Routinely monitor surface type changes in the training and validation data sets	Sep-22	Sep-22		
Improve and update training and validation data, ATBD and VIIRS AST web sites	Sep-22	Sep-22		

Highlights:

Preliminary surface type map derived by classifying 2021 VIIRS data using the support vector machines (SVM) algorithm.



Surface Reflectance

June, 2022

Accomplishments / Events:

- Investigated the LUT difference between NASA SR product and NOAA SR product, particularly for the aerosol model difference, working on the LUT rebuilt using the updated J2 and NOAA-20 spectral response functions to keep the consistency.
- Maintain the SR daily monitoring and weekly validation at the AERONET, post the results to the team websites for quick diagnose.
- Investigate the discrepancy between S-NPP and NOAA-20, also to the MODIS, evaluate the impact on downstream users like Vegetation index, discuss the practical solutions.
- Review the JPSS-2 pre-launch task list.

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			

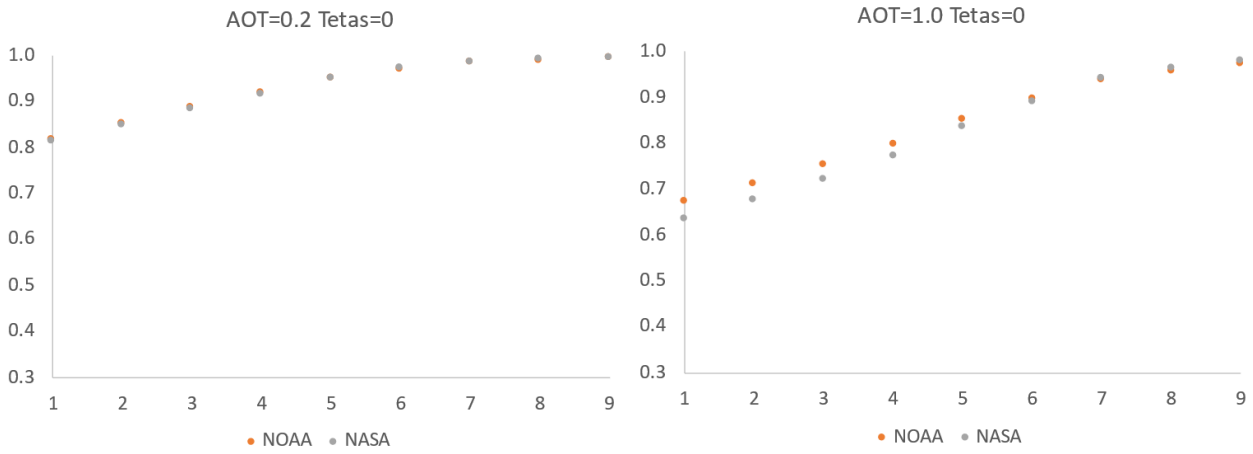
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/03/21	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Oct-21	Oct-21	10/07/21	
Continue to validate against in-situ measurements and inter-comparison with other SR Products	Dec-21	Dec-21	12/15/21	
J2 final patch DAP to NDE			02/02/22	
The SR Long-term monitoring improvement and perform the time-series analysis	Mar-22	Mar-22	03/15/22	
FY23 Program Management Review	Jun-22	Jun-22	05/17/22	
JPSS-2 pre launch readiness	Jun-22	Jun-22		
Cal/Val update for SNPP and NOAA20 SR product; Collect the vegetation product feedback of the impact of SR	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights:



NOAA and NASA SR LUT (transmittance) difference for the smoke low type.

NOAA and NASA aerosol model difference

NASA Aerosol model definition and parameters

	Smoke Low	Smoke High	Urban Low	Urban High	Dust
Refractive Indexes					
Real part n_r	1.47	1.51	1.41 - 0.03 t_{440}	1.47	1.48
Imaginary part n_i	0.0093	0.021	0.003	0.014	Variable with l (**)
Size distribution : fine mode					
Volume mean radius $\overline{r_{vf}}$ (μm)	0.13 + 0.04 t_{440}	0.12 + 0.025 t_{4400}	0.12 + 0.11 t_{440}	0.12 + 0.04 t_{440}	0.12
Standard dev. s_f	0.40	0.40	0.38	0.43	0.49 + 0.10 τ_{1020}
Volume concentration C_{vf} ($\mu m^3/\mu m^2$)	0.12 t_{440}	0.12 t_{440}	0.15 t_{440}	0.12 t_{440}	0.02 + 0.02 τ_{1020}
Size distribution : coarse mode					
Volume mean radius $\overline{r_{vc}}$ (μm)	3.27 + 0.58 t_{440}	3.22 + 0.71 t_{440}	3.03 + 0.49 t_{440}	2.72 + 0.60 t_{440}	1.90
Standard dev. s_c	0.79	0.73	0.75	0.63	0.63 - 0.10 τ_{1020}
Volume concentration C_{vc} ($\mu m^3/\mu m^2$)	0.05 t_{440}	0.09 t_{440}	0.01 + 0.04 t_{440}	0.11 t_{440}	0.9 τ_{1020}
AOT correspondence					
t_{440} (or t_{1020} for DUST)	1.48288 $t_{550}^{0.971296}$	1.40855 $t_{550}^{0.945148}$	1.29033 $t_{550}^{0.873918}$	1.36218 $t_{550}^{0.928598}$	0.983195 $t_{550}^{1.04351}$

NOAA Aerosol model definition and parameters

Table 3-10. Microphysical properties of land aerosols

Aerosol Model	Mode	Volume median radius r_V	Standard Deviation σ	Volume Concentration C_V ($\mu m^3/\mu m^2$)	Complex Refractive Index
Generic	Fine	0.145+ 0.0203 $\tau^{\&}$	0.3738+ 0.1365 τ	0.1642 $\tau^{0.7747}$	1.43 - (0.008-0.002τ)i
	Coarse	3.1007+ 0.3364 τ	0.7292+ 0.098 τ	0.1482 $\tau^{0.6846}$	
Urban	Fine	0.1604+ 0.434 τ	0.3642+ 0.1529 τ	0.1718 $\tau^{0.8213}$	1.42 - (0.007-0.0015τ)i
	Coarse	3.3252+ 0.1411 τ	0.7595+ 0.1638 τ	0.0934 $\tau^{0.6394}$	
Smoke	Fine	0.1335+ 0.0096 τ	0.3834+ 0.0794 τ	0.1748 $\tau^{0.8914}$	1.51 - 0.02i
	Coarse	3.4479+ 0.9489 τ	0.7433+ 0.0409 τ	0.1043 $\tau^{0.6824}$	
Dust	Fine	0.1416 $\tau^{-0.0519}$	0.7561 $\tau^{0.148}$	0.087 $\tau^{1.026}$	$(1.48\tau^{-0.021}) - (0.0025\ \tau^{0.132})$i at 0.47μm* $(1.48\tau^{-0.021}) - 0.002$i at 0.55μm $(1.48\tau^{-0.021}) - (0.0018\ \tau^{-0.08})$i at 0.66μm $(1.46\tau^{-0.040}) - (0.0018\ \tau^{-0.30})$i at 2.12μm
	Coarse	2.20	0.554 $\tau^{-0.0519}$	0.6786 $\tau^{1.0569}$	

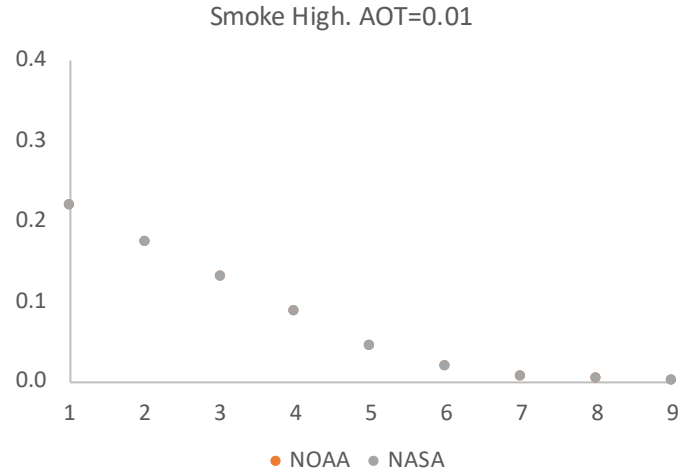
& Aerosol optical depth (τ) is the spectral value at 0.55μm. The properties (r_v, σ and C_V) of smoke and generic aerosol model are defined for τ<2.0, and τ=2.0 is used in calculation when τ>2.0. Likewise, parameters of urban and dust aerosol are defined for τ<1.0, and τ=1.0 is applied for higher τ.

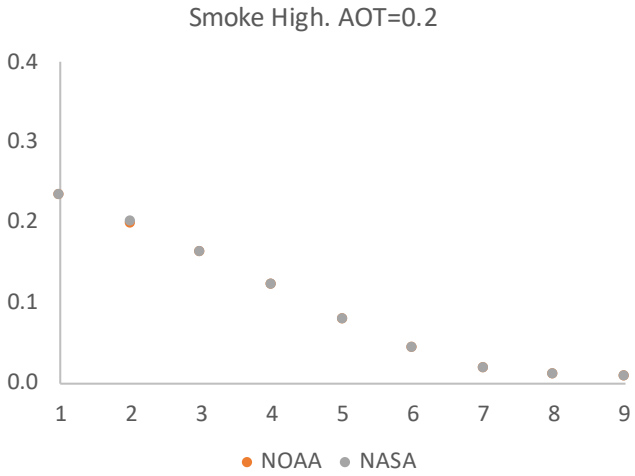
* Refractive index at other shortwave wavelength is estimated by spectral interpolation. No extrapolation is performed if wavelength is shorter than 0.47 μm or longer than 2.12 μm.

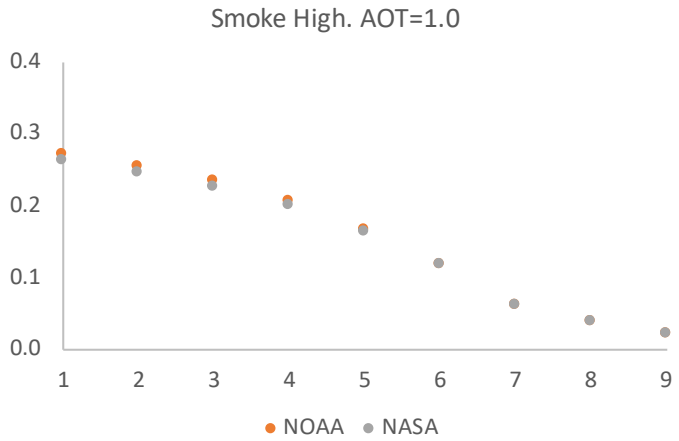
Aerosol models differences:

- NASA with 5 models while NOAA has 4 models
- Both size distribution and refractive index are different.

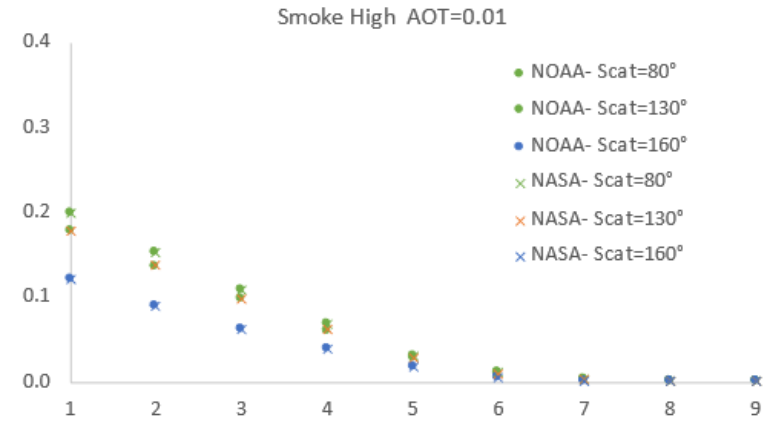
NOAA and NASA LUT difference (1)

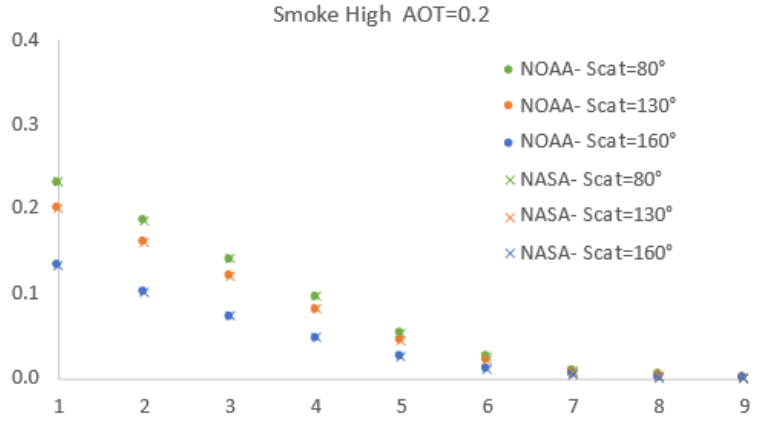


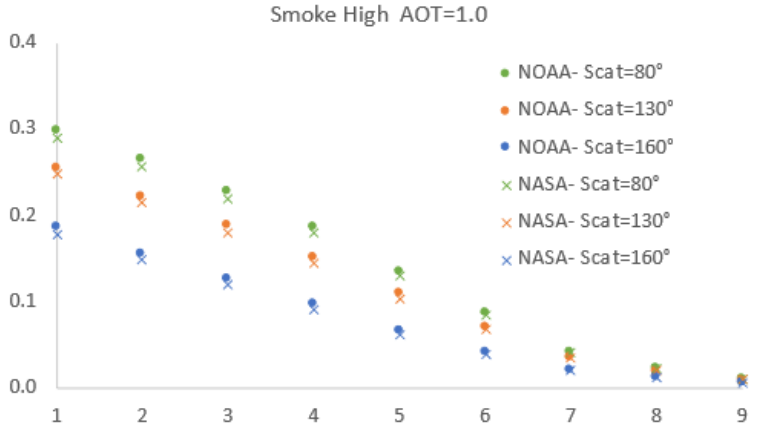




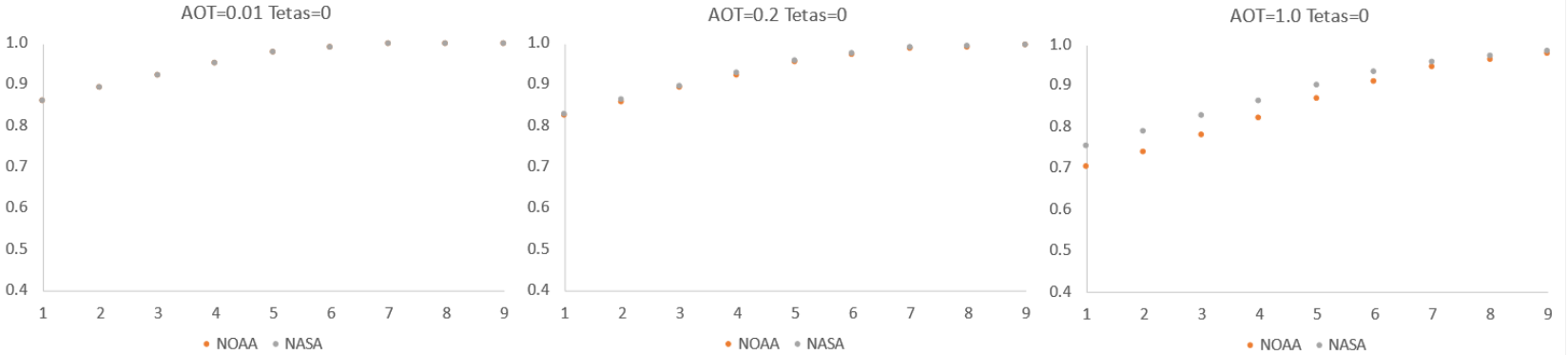
The smoke aerosol type with similar parameters, and the LUT is quite similar.

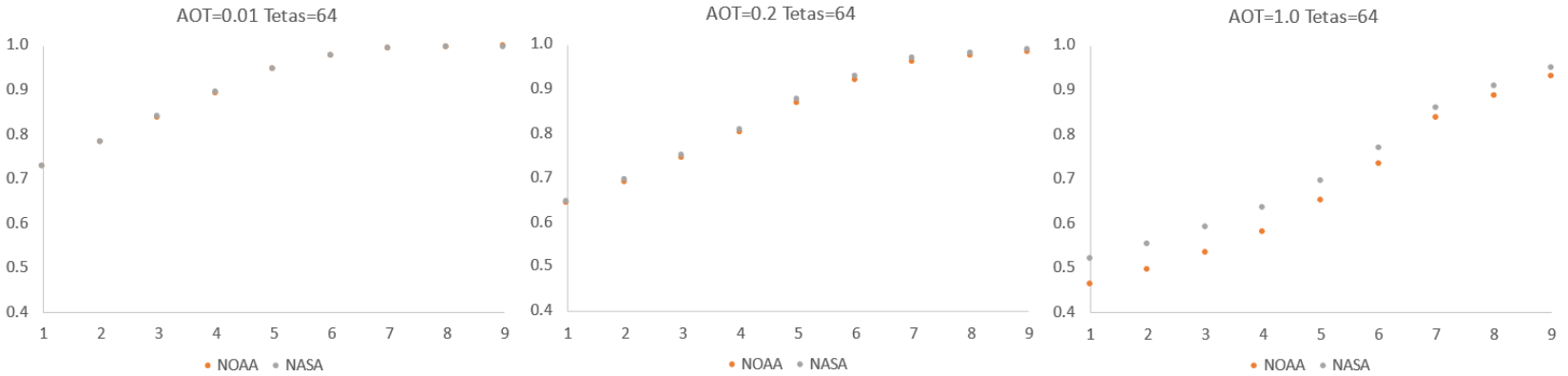


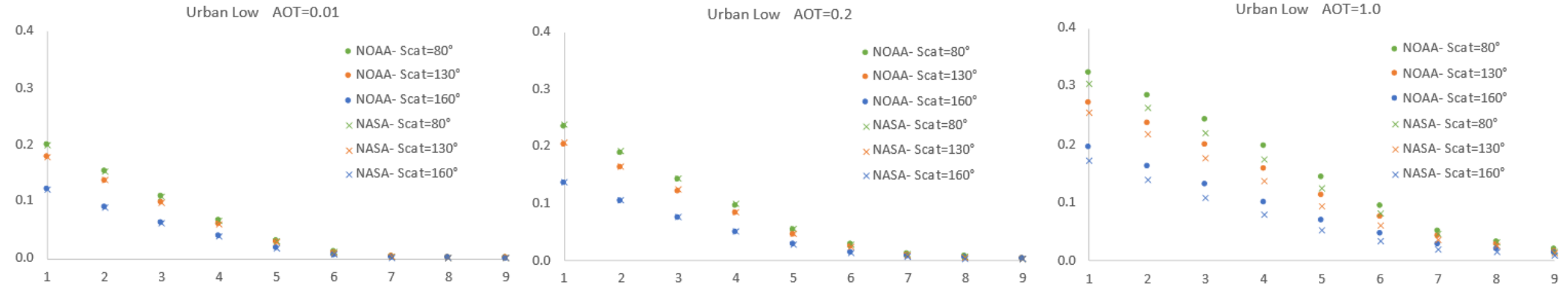




NOAA and NASA LUT difference (2)







For the urban aerosol type, the definition is sort of different, and the LUT have some difference, particularly for the high AOD.

Land Surface Temperature

June, 2022

Accomplishments / Events:

- Continue to work on the improvement of convergence efficiency for the LST LUT interpolation. The code running is interrupted and the efficiency needs further improvement.
- Completed the J-2 proxy data evaluation. No issues are observed. (slide 2&3)
- Generated the all weather LST test data, which includes the LST value, associated quality flag and view time information.
- Prepared the poster titled “Quantifying the Uncertainty of VIIRS LST Product” for Collective Madison Meeting.
- The manuscript titled “Ten years of VIIRS Land Surface Temperature Product Validation” is accepted and published in the special issue of " VIIRS 2011–2021: Ten Years of Success in Earth Observations " by Remote Sensing.
- Presented the VIIRS LST validation against NDBC buoy observations in JSTAR

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/01/21	
ATBD update	Oct-21	Dec-21	Dec-21	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
L3 Global Gridded LST/LSA DAP to NDE (Prelim J2 DAP)			12/30/21	
Offline LSE DAP delivery (J2)			04/25/22	
Manuscript ready for Remote Sensing special issue “VIIRS 2011–2021: Ten Years of Success in Earth Observations"	Apr-22	Apr-22	Apr-22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
L3 Global Gridded LST/LSA DAP to NDE (final J2 DAP)	May-22	May-22	05/13/22	
All weather LST generation based on the microwave LST and VIIRS LST: methodology development and experiment	May-22	May-22	May-22	PMR slide7
FY23 Program Management Review	Jun-22	Jun-22	05/24/22	
LUT interpolation method development and test	Jun-22	Jun-22	Jun-22	The optimization efficiency is in improvement
Routine Validation Summary/report of LST product including L2 and L3	Jul-22	Jul-22		
LST uncertainty evaluation and calibration	Aug-22	Aug-22		
Routine monitoring tool and its update	Aug-22	Aug-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Overall Status:

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

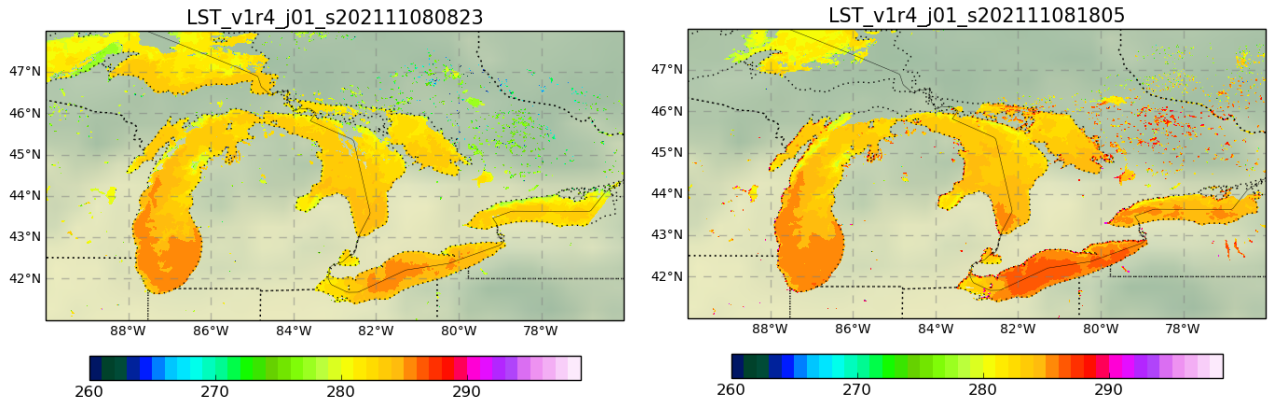
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Highlights:

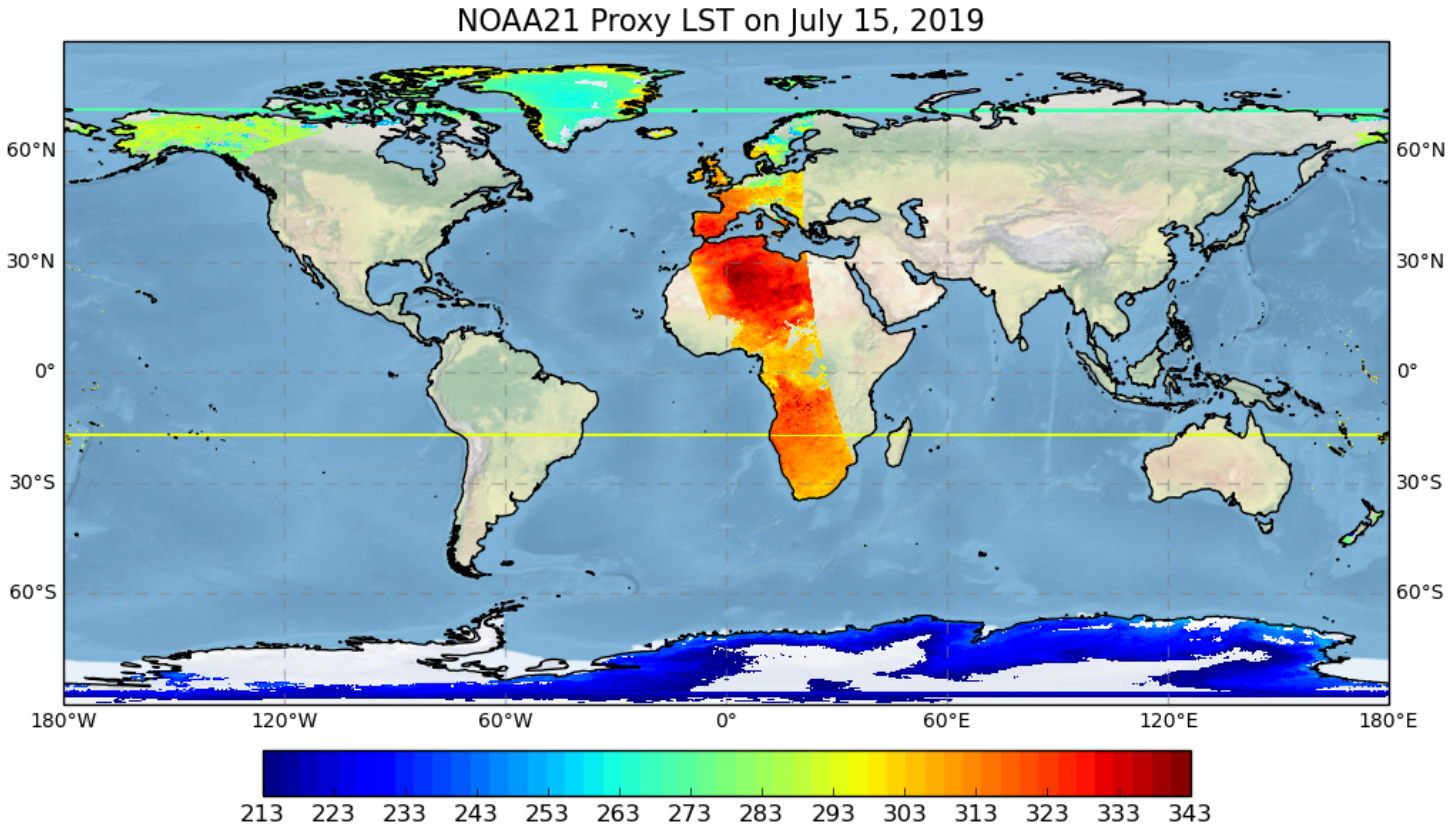
LST over great lake region

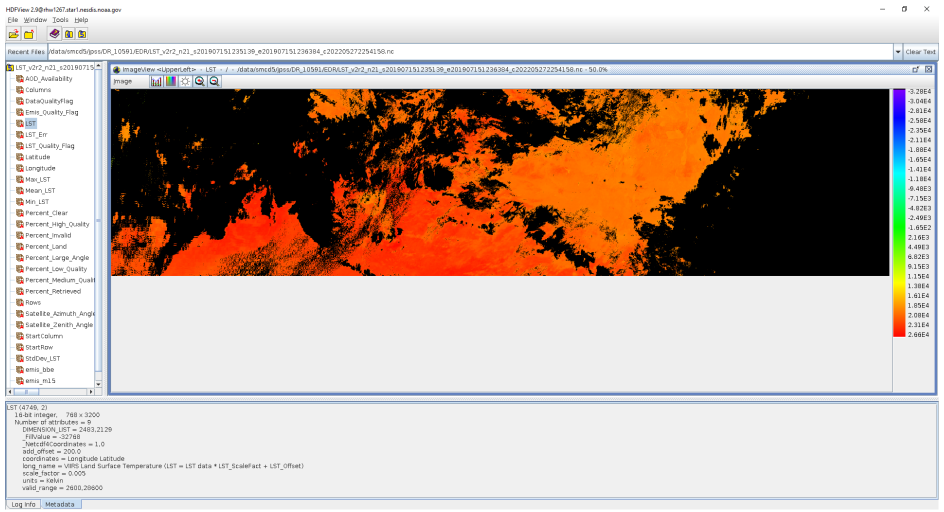


LST product provides surface temperature over inland water surface and coastal surface. Above figure shows the LST maps over great lake region on Nov. 08, 2021 for nighttime(left) and daytime(right)

Information about the proxy data

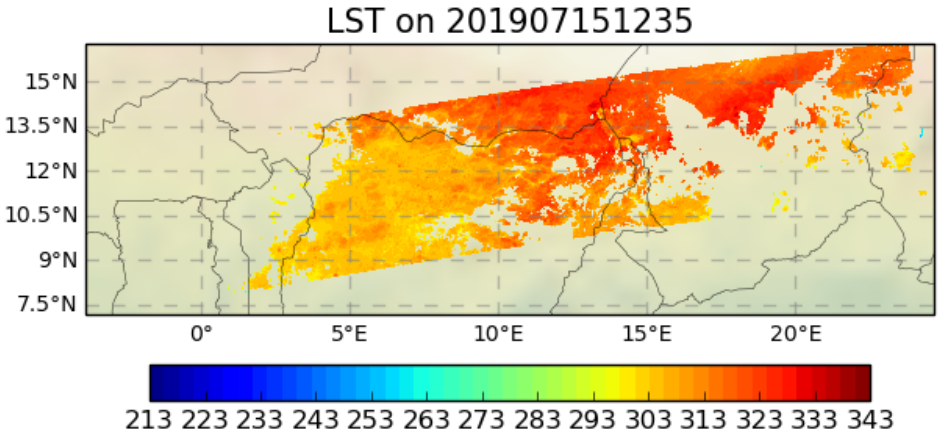
- Total 74 LST granules are provided
- The data is with time stamp on July 15, 2019

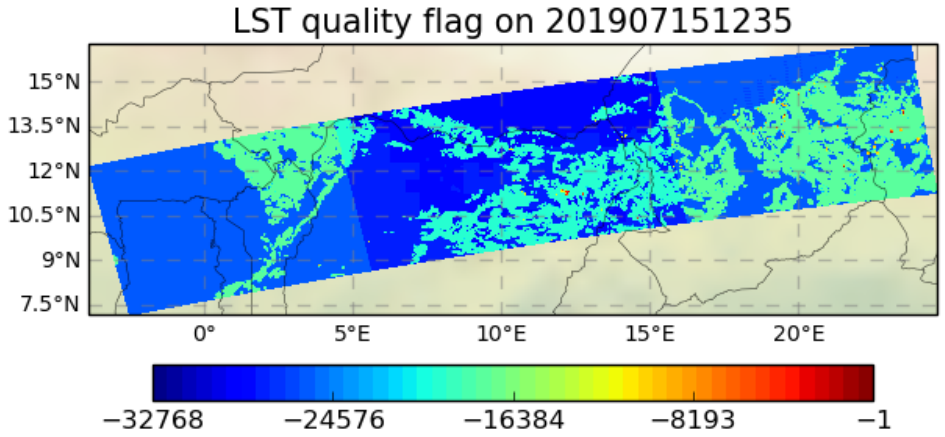


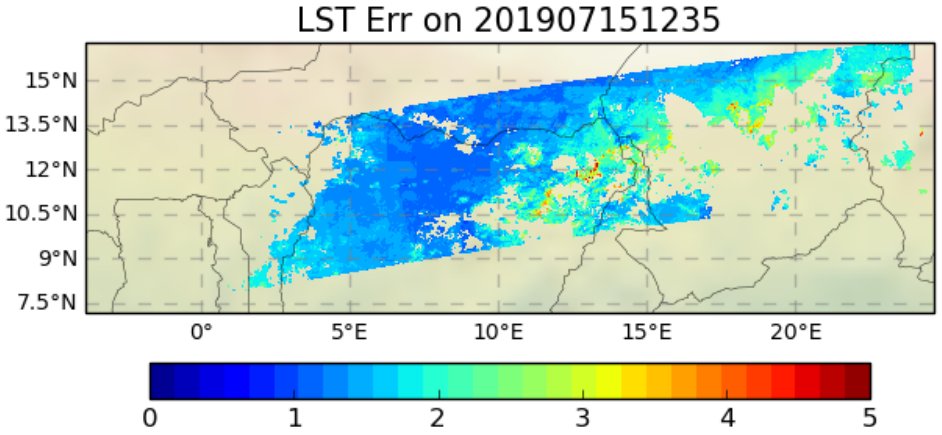


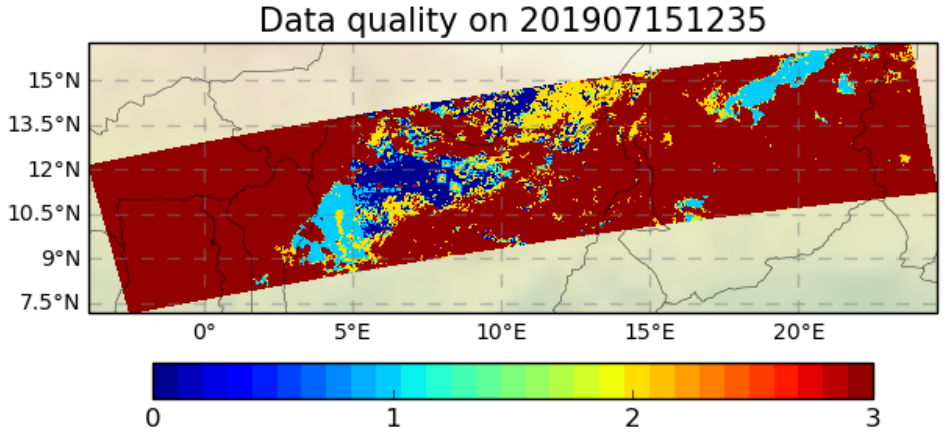
- All granules are plotted(bottom left). The LST value is found within valid range and the zonal pattern looks reasonable
- Note that the two artificial lines are due to the software bug likely related to the geomapping issue. The corresponding granule LST is checked and no issue is found.
- One random granule is selected for further check. The data layers are complete with the correct name and attributes as shown in the top right figure.

Granule LST data investigation









- LST value is within valid range
- LST quality looks reasonable within valid range
- LST err value and its spatial distribution looks reasonable
- The data quality data layer is compared with the quality extracted from the LST quality flag, they are identical.
- The metadata looks reasonable

No issue is observed in the proxy data

Surface Albedo

June, 2022

Accomplishments / Events:

- Checked the second version J2 albedo files and summarized the results
  - file format is consistent as NOAA-20 and SNPP
  - albedo and QC values are valid
- Assessed the albedo anomaly from past six years
  - VIIRS albedo needs reprocessing before applying to this experiment due to the algorithm transition from IDPS to Enterprise
  - MODIS data was employed for this first study, and VIIRS albedo will be used later
  - Anomaly assessment demonstrate year 2022 shows more significant anomaly
- Evaluated the correlation between albedo anomaly and anomaly of relative parameters
  - Albedo, LST, and NDVI shows interesting anomaly patterns
- Submitted a manuscript about cloudy albedo algorithm

Overall Status:

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

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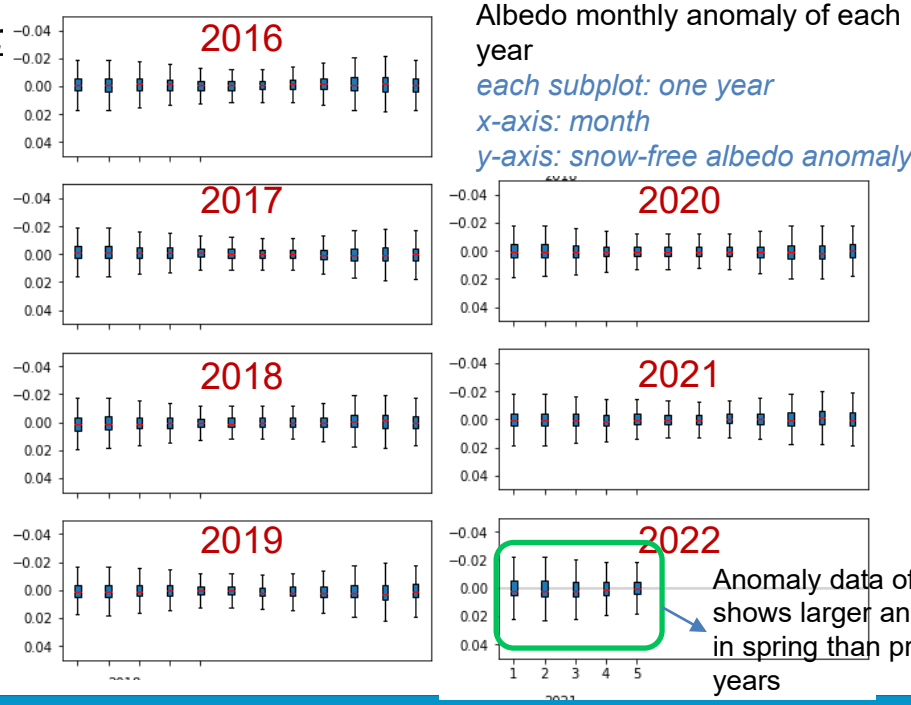
Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year PMR	Oct-21	Oct-21	11/01/21	
Manuscript ready for Albedo Climatology update	Dec-21	Apr-22	Mar-22	
Generating the VIIRS BRDF climatology and real-time BRDF/Albedo test data generation	Jan-22	Jan-22	Jan-22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Offline LSA DAP delivery (J2, climatology files)			04/07/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
L3 Global Gridded LST/LSA DAP to NDE (Prelim J2 DAP)			12/30/21	
L3 Global Gridded LST/LSA DAP to NDE (final J2 DAP)	May-22	May-22	05/13/22	
BRDF data development plan ready	Mar-22	Mar-22	Mar-22	Ready in team, but Project Postponed
VIIRS cloudy-sky albedo improvement	May-22	May-22	May-22	PMR slide7
FY23 Program Management Review	Jun-22	Jun-22	05/23/22	
Routine monitoring tool and its update	Aug-22	Aug-22		
NOAA-21 data test if provided	Aug-22	Aug-22		
Participant/support JPSS-2 pre-launch testing events (**May-22 JCT3-TVAC**; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	**05/17/22**	**JCT3-TVAC**

Highlights:



Albedo monthly anomaly of each year

each subplot: one year

x-axis: month

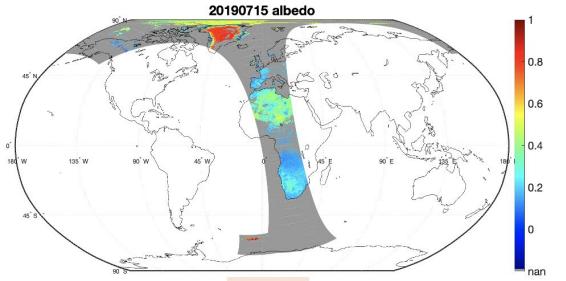
y-axis: snow-free albedo anomaly

Anomaly data of 2022 shows larger anomaly span in spring than previous years

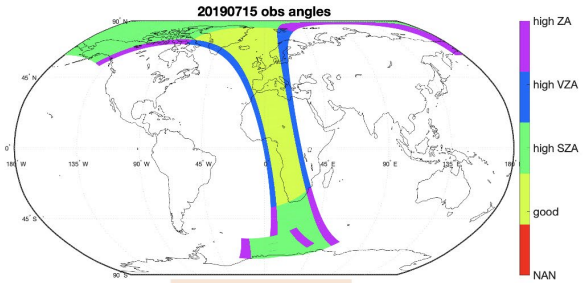
Checking of the J2 albedo proxy data v2

June 2022

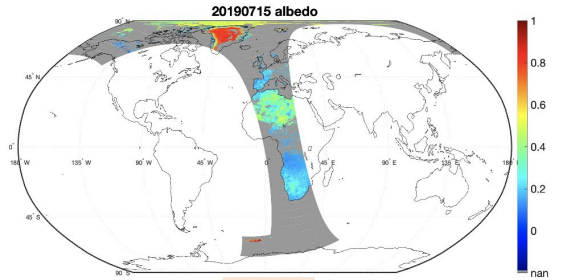
- Data
  - Surface albedo (SURFALB) EDR from proxy J2 data for one orbit on 07/15/2019
  - source: /data/smcd5/jpss/DR_10591/EDR/
- Results
  1. **J2 proxy conditionally meet expectations**
     - If the input data does not contain the historical offline output from 2 days ago, the output is as expected
  2. **The data format is consistent as latest NOAA20 and SNPP enterprise data**
  3. **Albedo looks reasonable in spatial pattern**
     - VIIRS_Albedo_IP looks as expected
     - VIIRS_Albedo_EDR needs further verification as there are still gaps. If the historical offline data from 2 days ago has been used in execution, the gaps requires double check of the configuration about data location; otherwise, the gaps is largely because of no input of historical albedo.
     - The albedo value is incomparable with contemporary SNPP or NOAA20 albedo since the IDPS algorithm was still operational at that time.
  4. **The bits in quality flags look normal**
  5. **The values of metadata are as expected**



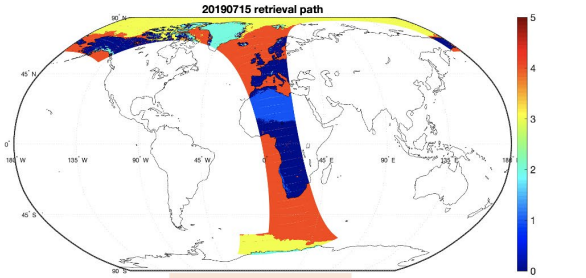
J2 IP



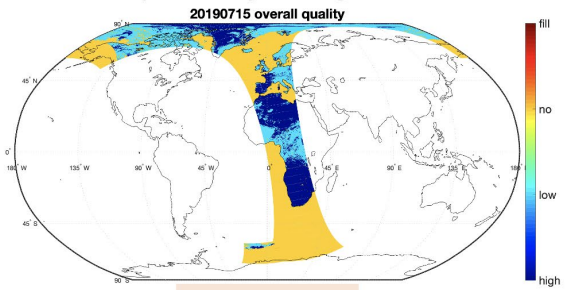
Angle condition



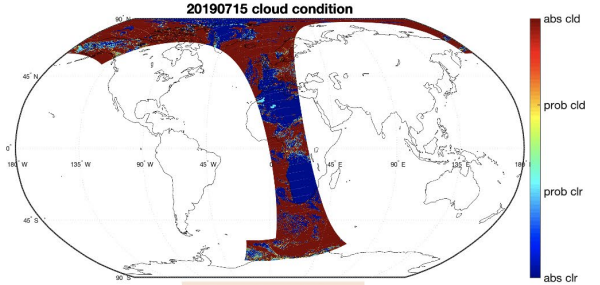
J2 EDR



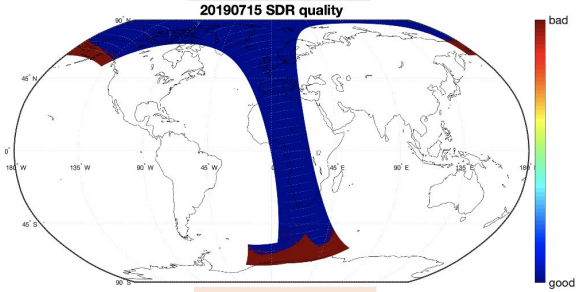
LUT type



Overall Quality



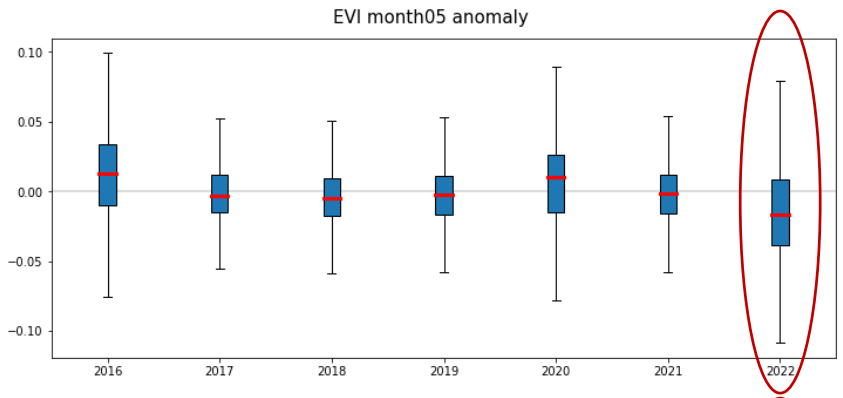
Cloud mask bit

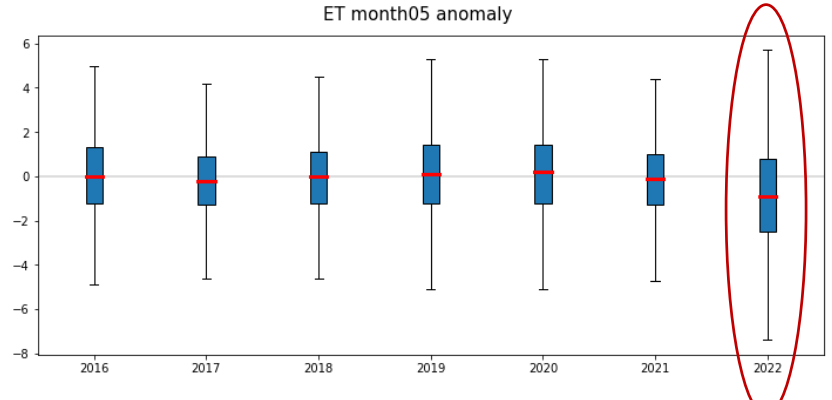


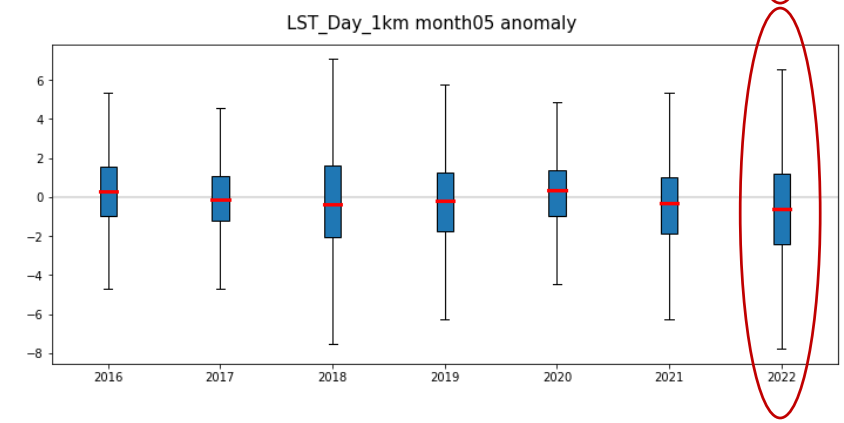
SDR Quality

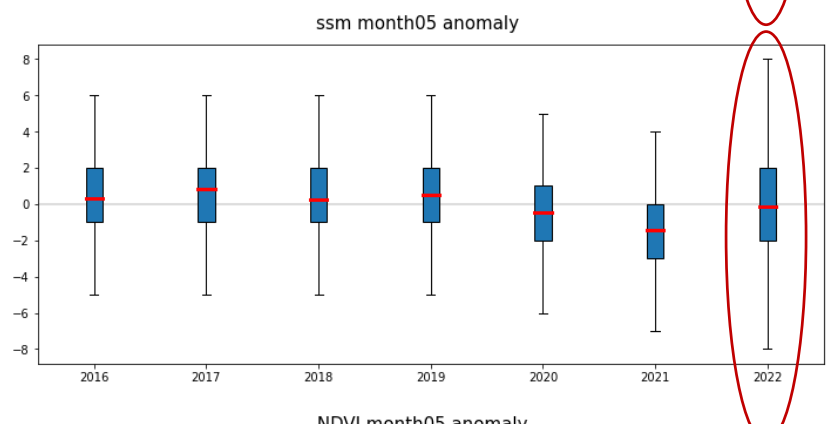
The land parameter anomaly in 2022 is more significant than past years

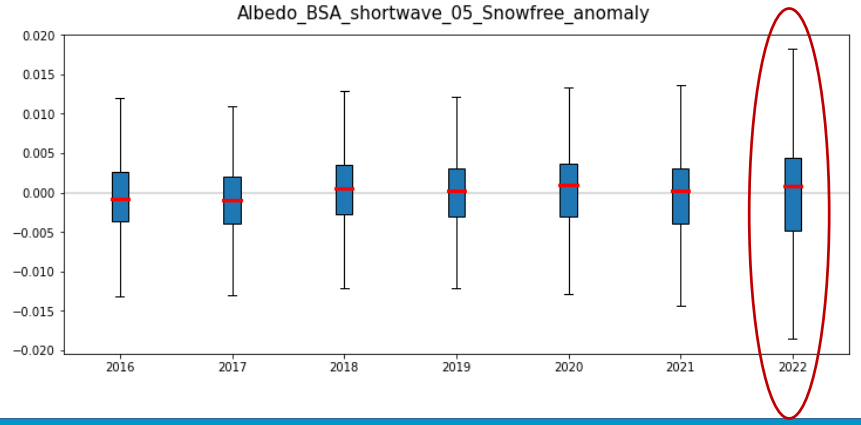
1. The land parameter monthly anomaly for albedo, LST, NDVI, EVI, ET, soil moisture has been assessed using multi-source products from polar-orbiting (MODIS) and passive microwave satellite.
2. The anomaly distribution (boxplot) of May 2022 has been compared with May of past years. Results show the anomaly of May 2022 is more significant from its distribution range.

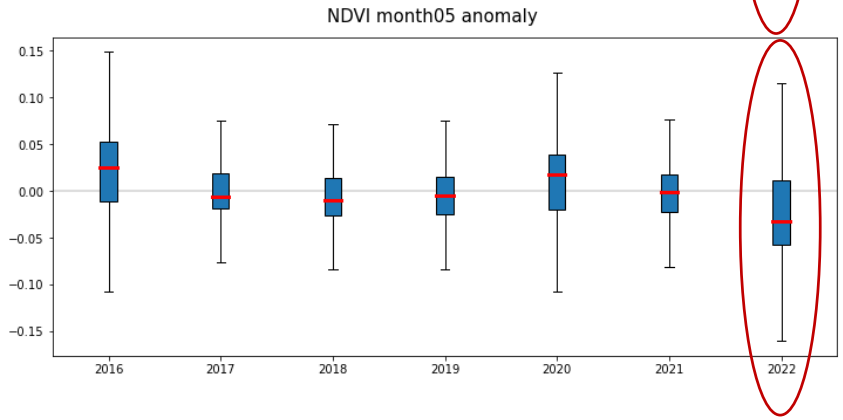






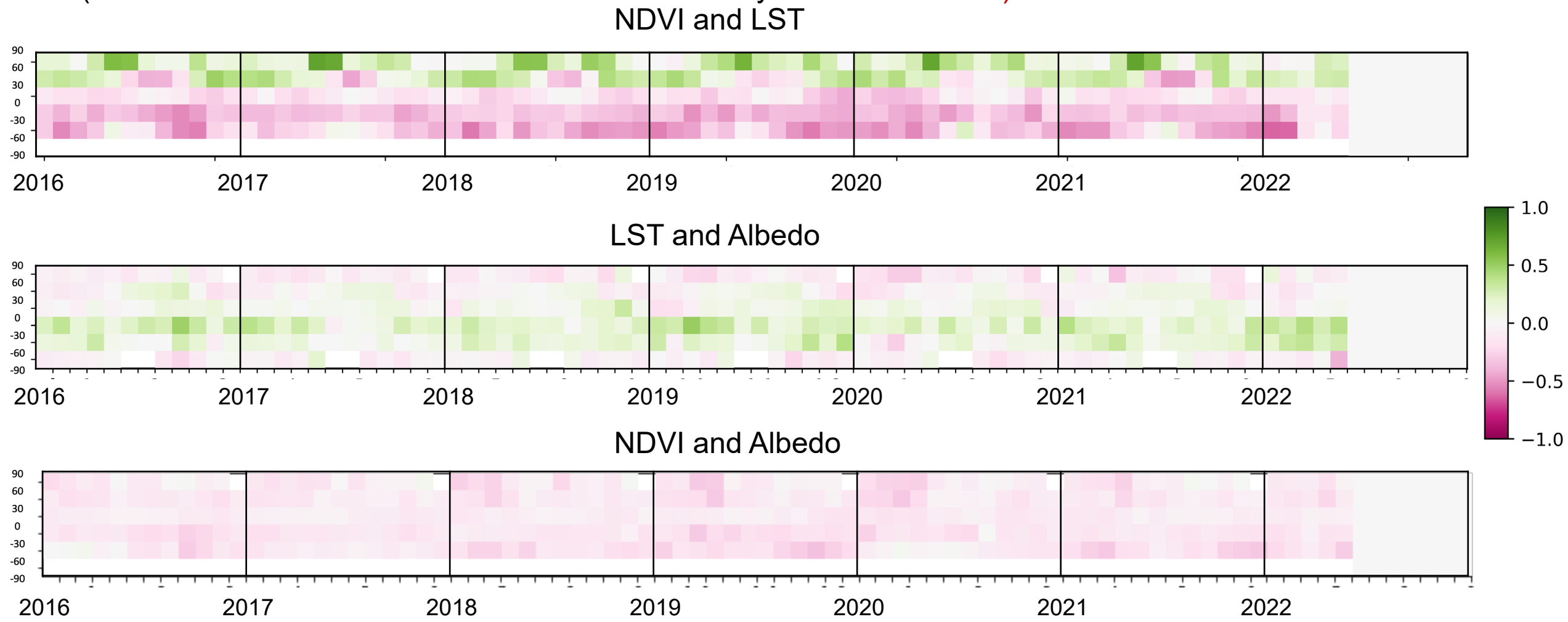






Correlation between land parameter anomaly

- The status of vegetation on the surface directly affects the amount of solar radiation received by the surface. (the main reason of the correlation between anomaly of albedo and NDVI, albedo and LST)
- The vegetation also affects the change of LST through climate regulation during the growth process. (the main reason of the correlation between anomaly of NDVI and LST)



Vegetation Index and Green Vegetation Fraction

June, 2022

Accomplishments / Events:

- Generated monthly mean GVF using 9 years of local run GVF data
- Produced VIIRS monthly GVF anomaly maps for April and May 2022
- Generated GOES-R ABI VIs excluding 0 or 1 reflectance values using solar zenith angle adjusted maximum SAVI compositing and also mean VI values. Evaluated by comparing with VIIRS VIs from the same time period.

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			

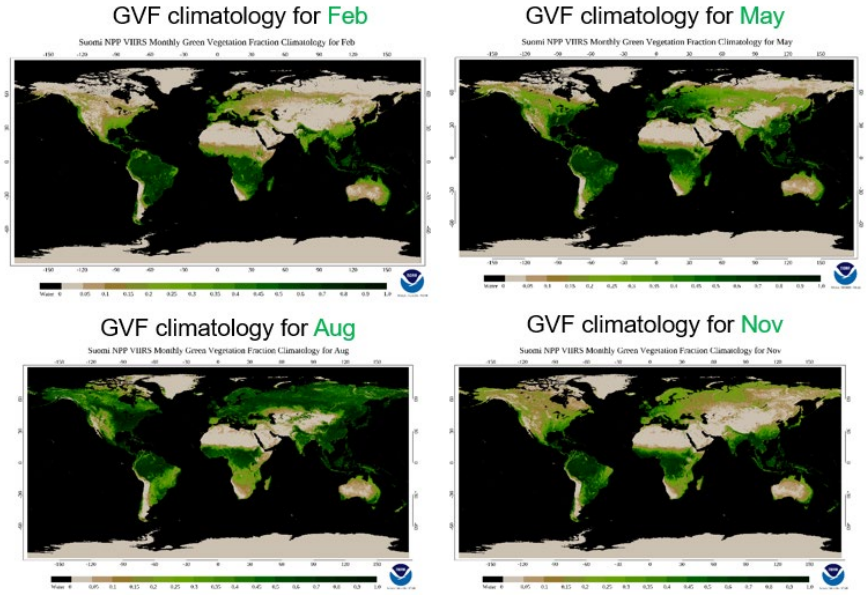
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

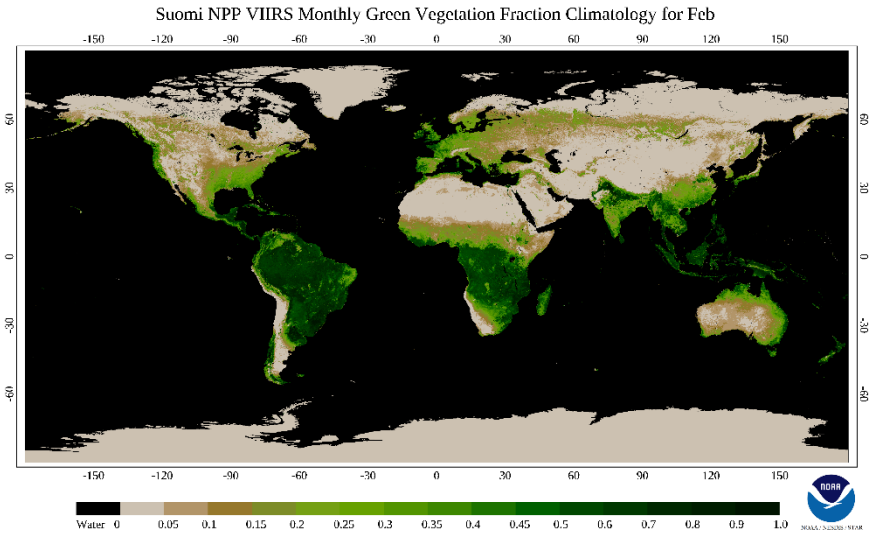
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/29/21	
Prototype code of 1km global GVF product	Oct-21	Dec-21	Dec-21	
Prototype of VI generation using ABI data	Feb-22	Feb-22	Feb-22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Mar-22	Mar-22	03/29/22 (code & docs) 04/08/22 (data)	
LAI data development plan ready	Mar-22	Mar-22	Mar-22	NPPWG project rescheduled
Technical readiness of 1km GVF development	May-22	May-22	May-22	PMR slide7
Operational support readiness of J2 VI and GVF products	Jun-22	Jun-22	Jun-22	
FY23 Program Management Review	Jun-22	Jun-22	05/23/22	
Ground measurements collection and processing. LAI experimental product preliminary in-situ validation and cross-comparison with other products.	Sep-22	Sep-22		
Calibration/Validation update for SNPP and NOAA20 VI and GVF products	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights: VIIRS monthly GVF climatology generated from 9 years of data

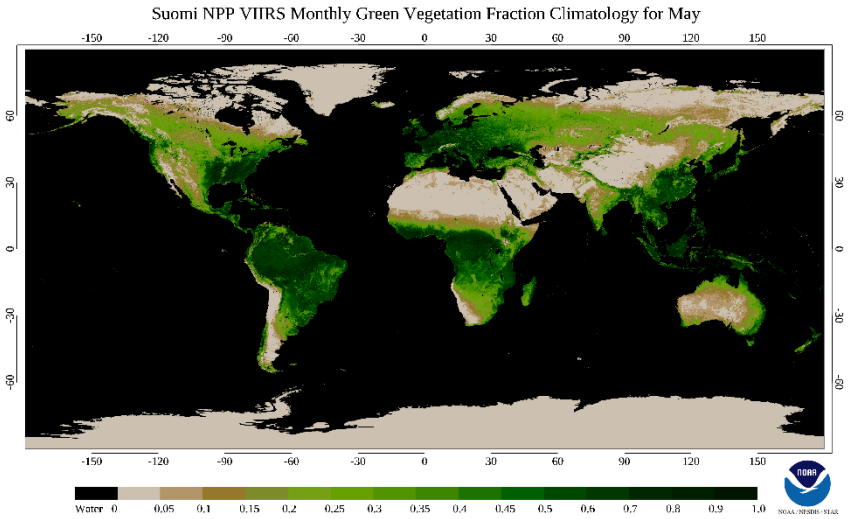


VIIRS monthly GVF climatology generated from 9 years of data

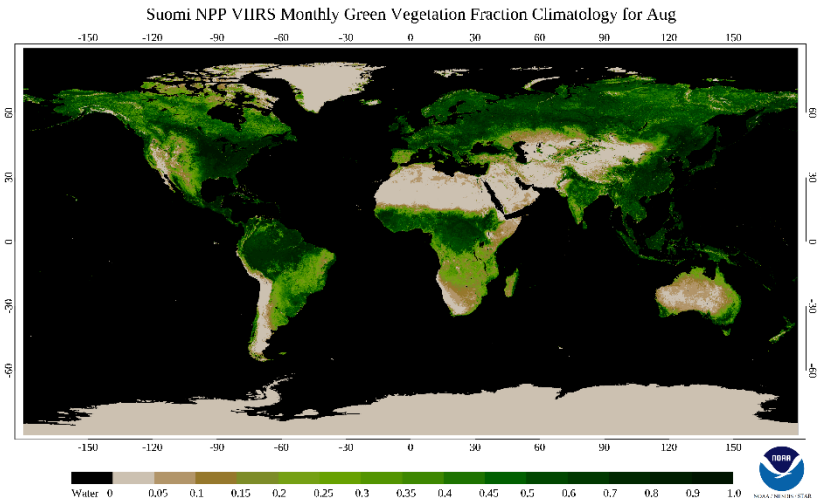
GVF climatology for Feb



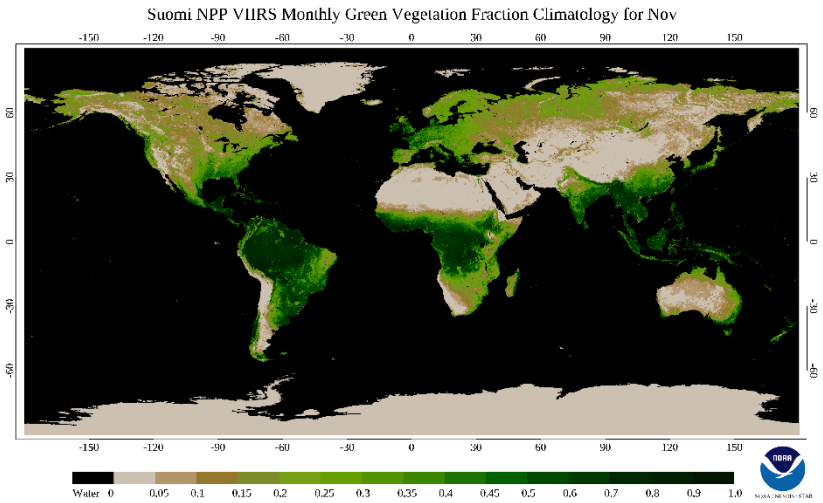
GVF climatology for May



GVF climatology for Aug



GVF climatology for Nov

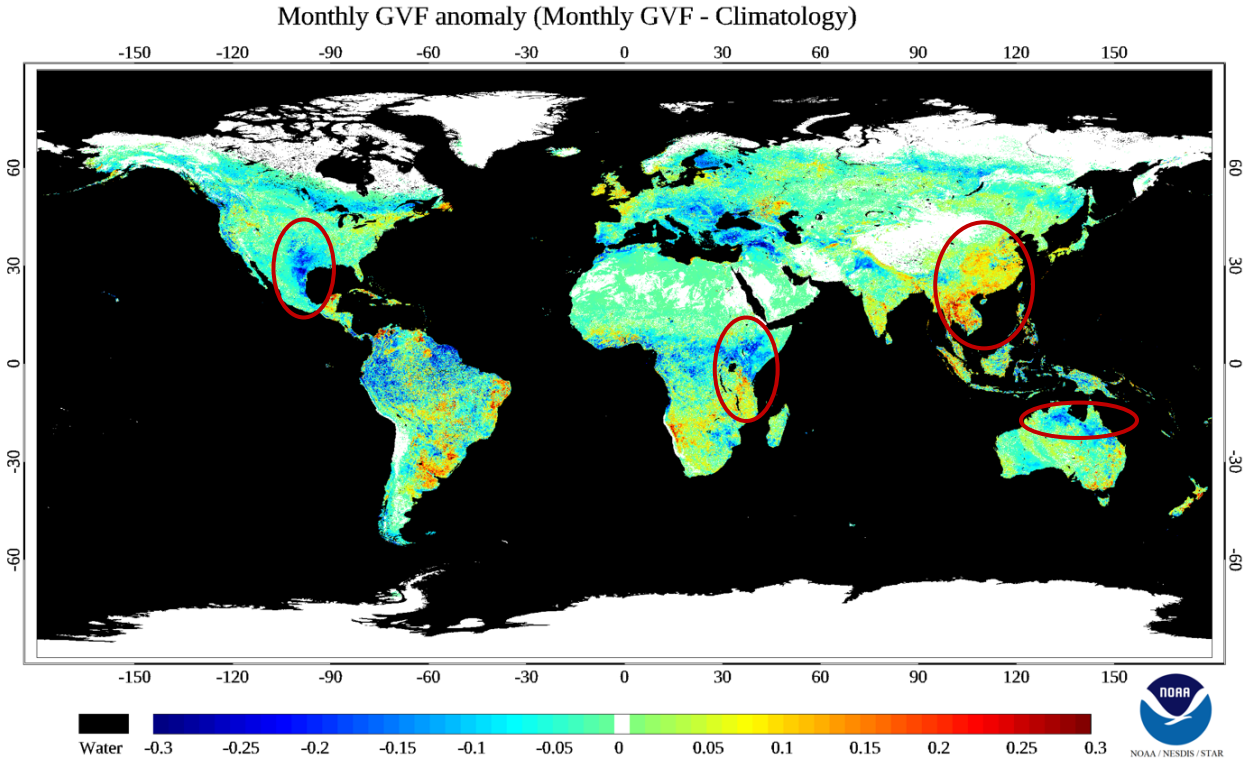


Calculated monthly mean GVF using 9 years of local run GVF data

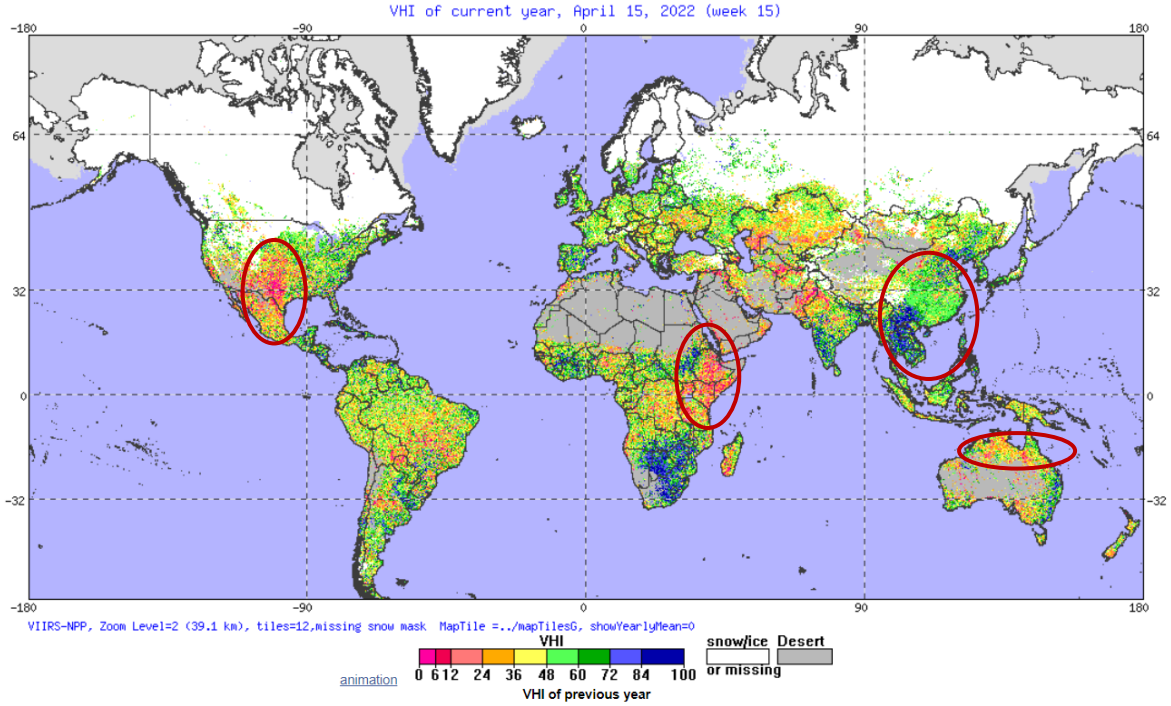
- NPP GVF From Jan 2013 to Sep 2019
- NOAA-20 GVF from Oct 2019 to Dec 2021
- Calculated the global monthly mean GVF for the 9 years
- A monthly GVF climatology value is the mean GVF over the month in the 9 years

VIIRS monthly GVF anomaly for April 2022

- Calculated monthly mean GVF for April 2022
- Monthly GVF anomaly was calculated by subtracting GVF climatology from the monthly GVF
- The GVF anomaly map was comparable with vegetation health index for Apr 15, 2022



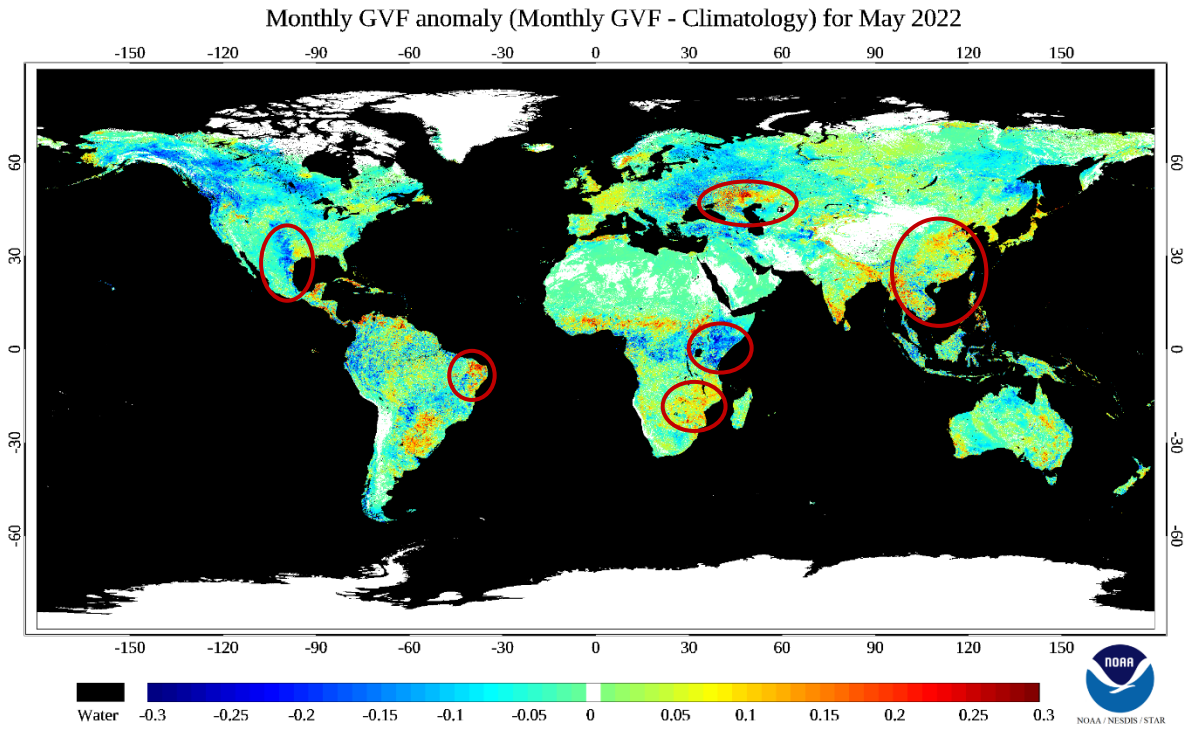
Vegetation health index (Apr 15)



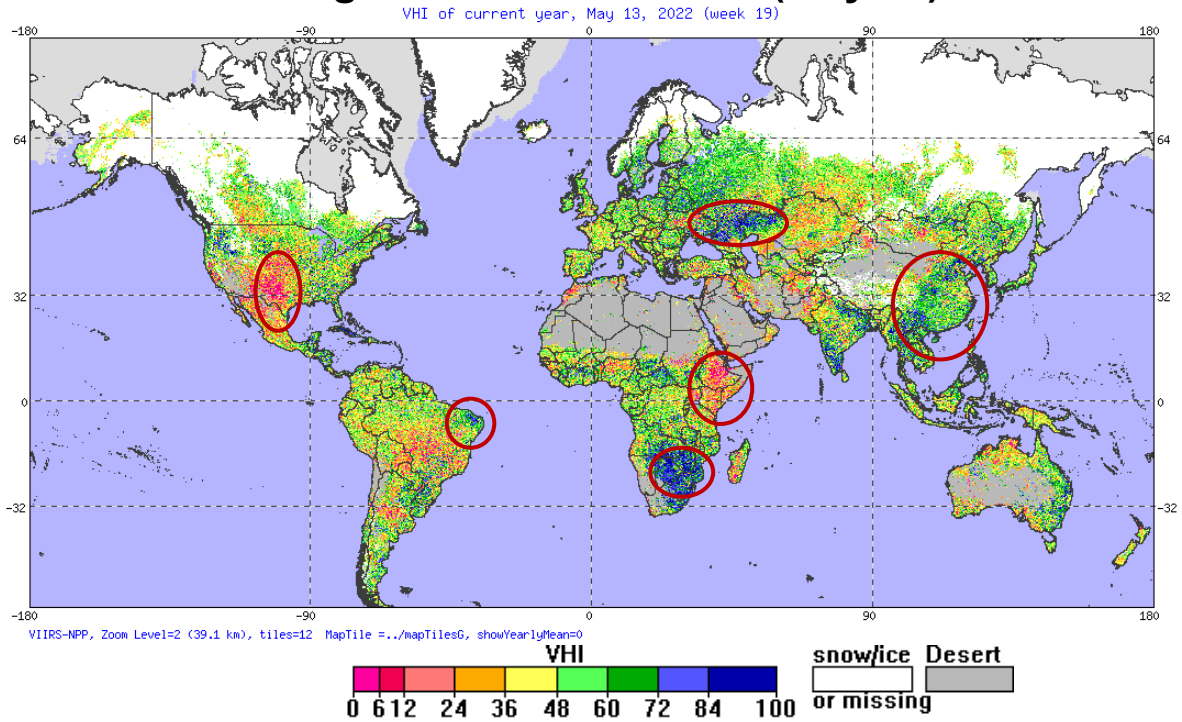
- VIIRS GVF in April 2022 is higher than average year in east and southeast Asia
- VIIRS GVF in April 2022 is lower than average year in southern US
- VIIRS GVF in April 2022 is lower than average year in the east of central Africa
- VIIRS GVF in April 2022 is lower than average year in northern Australia

VIIRS Monthly GVF anomaly for May 2022

- Calculated monthly mean GVF for May 2022
- Monthly GVF anomaly was calculated by subtracting GVF climatology from the monthly GVF
- The GVF anomaly map was comparable with vegetation health index for May 13, 2022



Vegetation health index (May 13)



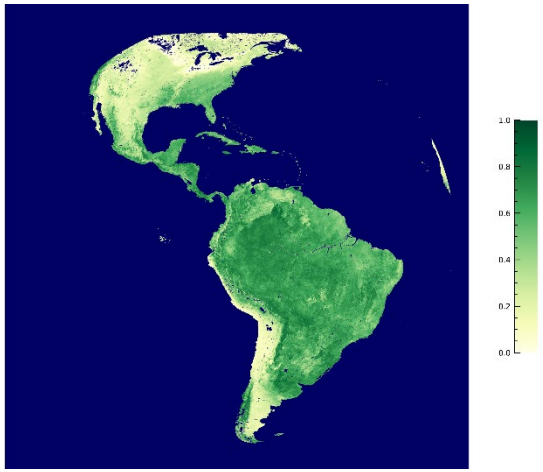
- VIIRS GVF in May 2022 is higher than average year in east and southeast Asia
- VIIRS GVF in May 2022 is lower than average year in southern US
- VIIRS GVF in May 2022 is lower than average year in the east of central Africa
- VIIRS GVF in May 2022 is higher than average year in southeastern Africa

Generation of GOES-R ABI VI: Procedure and results

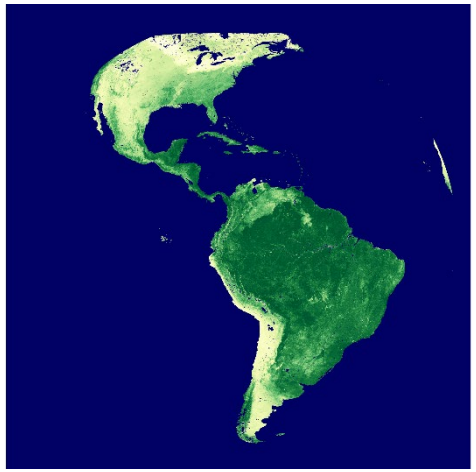
- Used ABI reflectances from 20220201 through 20220216
- Two ABI VI generation methods:
  - Maximum solar zenith angle adjusted SAVI compositing
  - Mean of all good quality VI values
- Compare to VIIRS NDVI and EVI reprojected to GOES-R ABI geometry
- Mean ABI NDVIs are significantly lower than SZA-adjusted ABI NDVIs or VIIRS NDVIs
- SZA-adjusted ABI NDVIs are a better match to VIIRS than mean ABI NDVIs
- Mean ABI EVIs are lower than SZA-adjusted ABI EVIs
- Mean ABI EVIs are better match to VIIRS than SZA-adjusted ABI EVIs.

NDVI from ABI versus VIIRS, 20220201-20220216

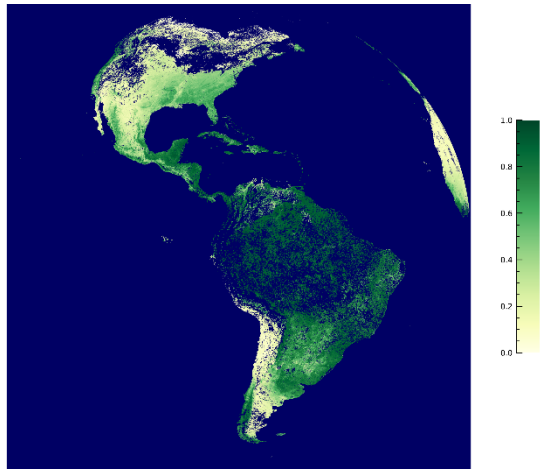
ABI mean NDVI

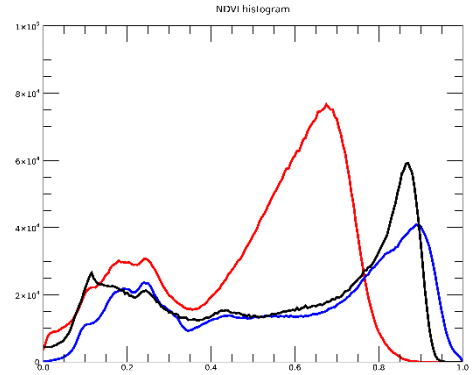


ABI SZA-adj NDVI



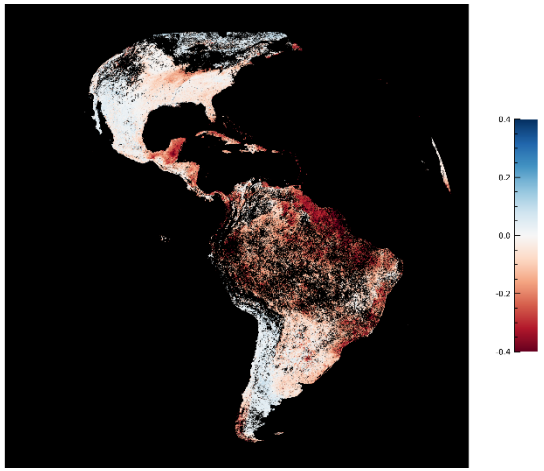
VIIRS NDVI



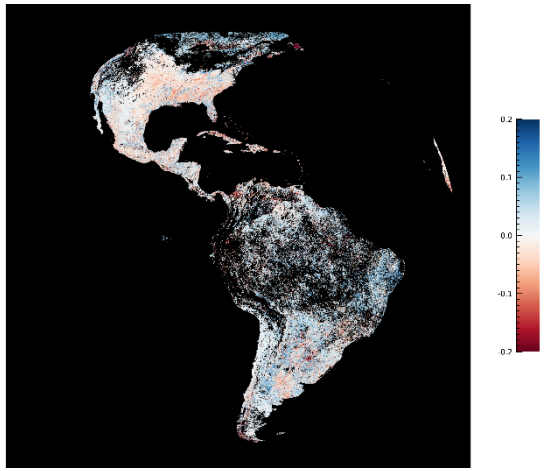


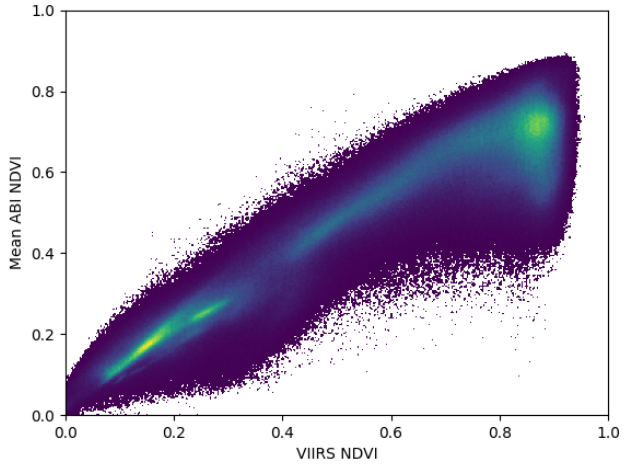
ABI mean
ABI SZA-adj
VIIRS

ABI mean - VIIRS



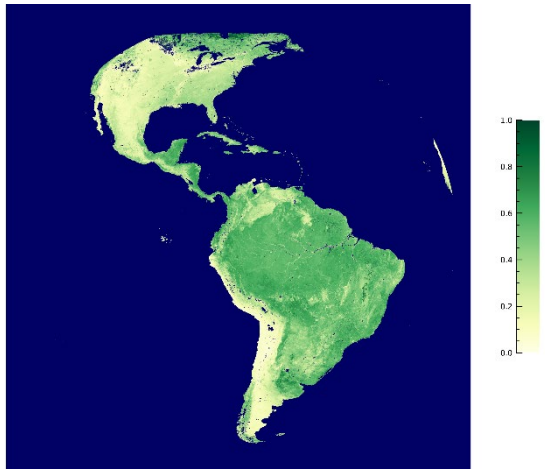
ABI SZA adj - VIIRS



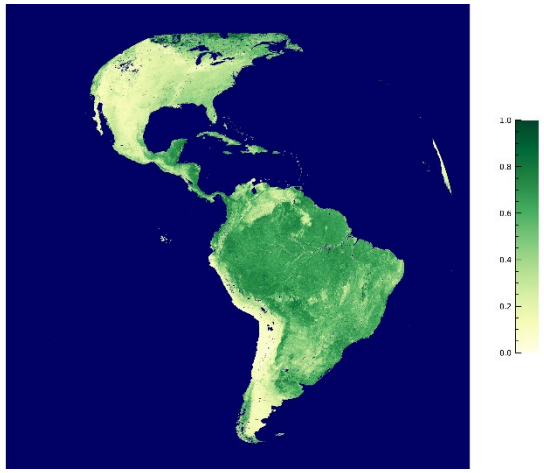


EVI from ABI versus VIIRS, 20220201-20220216

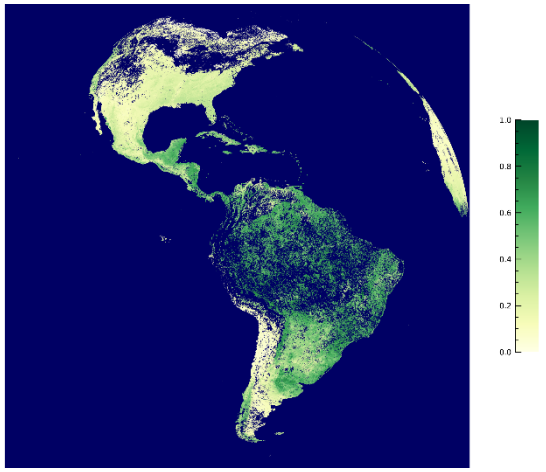
ABI mean EVI

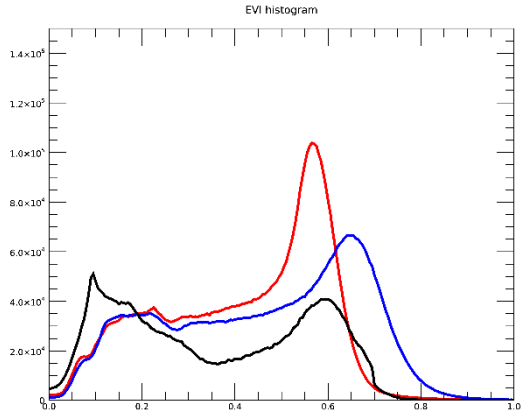


ABI SZA-adj EVI



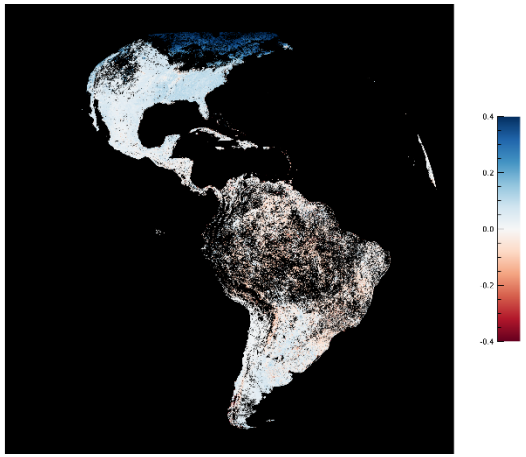
VIIRS EVI



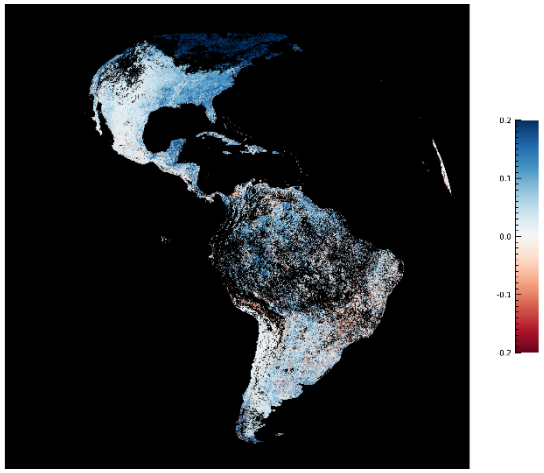


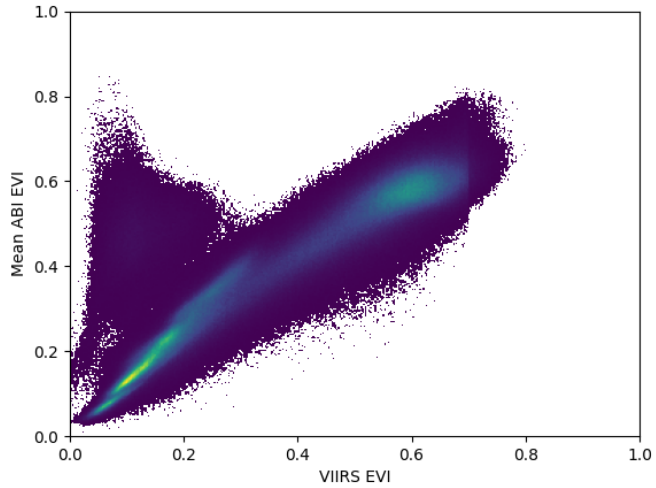
ABI mean
ABI SZA-adj
VIIRS

ABI mean - VIIRS



ABI SZA adj - VIIRS





Vegetation Health

June, 2022

Accomplishments / Events:

- Drafting a manuscript on our research on the radiation product and crop yield, kept on updating texts and figures;
- Communicated with users on various queries relating to VH Products;
- Prepared to transfer crontab jobs to another Linux account;
- Reviewed the VHP code to check if it satisfies the latest operational code standard; made a list of possible improvement;
- Help the user to develop a script to download all files in VH FTP data folder;
- Generated a series of data and figures of VIIRS/VHP-1 and -4, -16 km resolution products, covering June 2022 (Highlighted);

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			

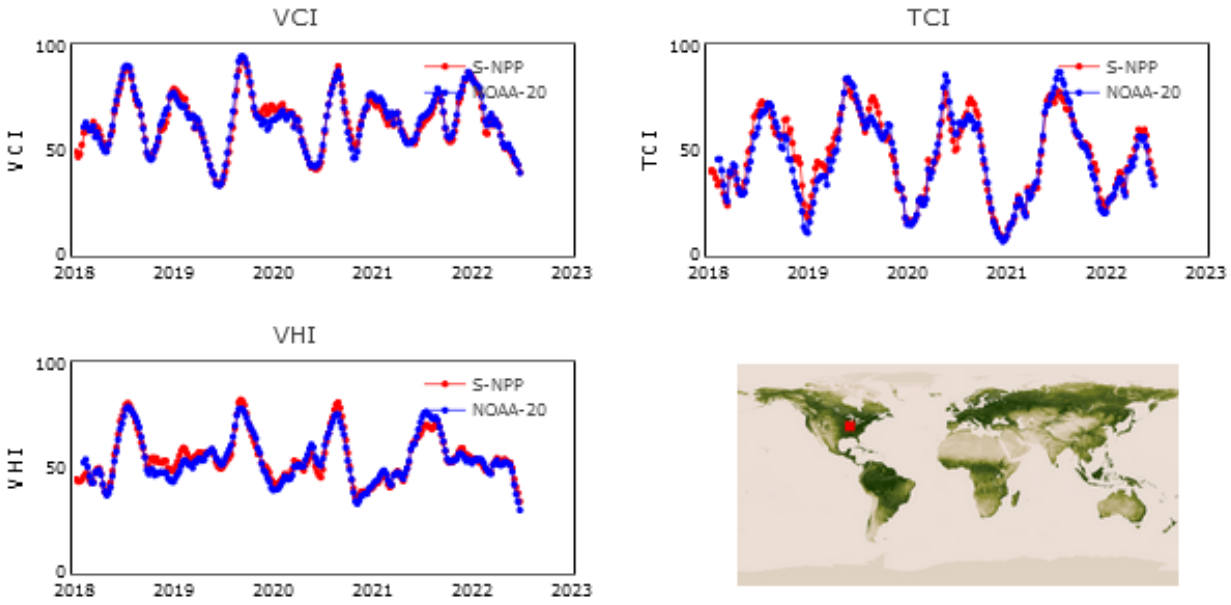
1. *Project has completed.*
2. *Project is within budget, scope and on schedule.*
3. *Project has deviated slightly from the plan but should recover.*
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		Not needed
FY23 Program Management Review	Jun-22	Jun-22	06/15/22	
Final J2 ready DAP to NDE (include NPP/N20 updates, initial/final DAPs combined)	Dec-21	Dec-21	12/20/21	
Algorithm: VHindices-Malaria (South America)	Sep-22	Sep-22		
VIIRS-0.5 km SMN & SMT (8-year Max-Min Climatology)	Sep-22	Sep-22		Not needed
40-year Vegetation Greenness (NDVI) & Global warming	Sep-22	Sep-22		
Climate warming & temperature (SMT) in agricultural regions	Sep-22	Sep-22		
FAO locust activity vs VHindices in 2021	Sep-22	Sep-22	01/12/22	
NDVImax/min & BTmax/min: 0.5 and 1 km correlation	Sep-22	Sep-22		
Regional drought and global warming trends	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/19/22	JCT3-TVAC

Highlights: Comparison between S-NPP and NOAA-20 over Illinois, USA



Ocean Color

June, 2022

Accomplishments / Events:

- Personnel Updates to Oregon State University team (lead by Nick Tufillaro): Andrew Barnard CV: https://www.linkedin.com/in/andrew-barnard-92a9863b/ and Alexandar Bailess CV: https://www.linkedin.com/in/alexander-bailess-5a0826183/

- USC SeaPrism Operations: Reviewed data from the beginning of 2022 at the USC SeaPrism (Eureka) and compared all bands between the SeaPRISM, VIIRS-SNPP, NOAA-20, Sentinel-3a, and Sentinel-3b. All Eureka SeaPrism operations are nominal with the one possible anomaly in the Sentinel-3(a) matches. Obtained nominal regressions for all. S-NPP and N-20 are shown in highlight.

- Initiated analysis of HyperNAV instrument data collected during 2022 Ocean Color Cal/Val cruis in Hawaii.. HyperNAV instrument has two upwelling hyperspectral radiometers operating from 350 to 1000 nm with an approximately 0.5 nm resolution integrated with an Argo float. initial plots here show a comparison of the two upwelling sensors showing a deviation of less than 2% between 350-600 nm.

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
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/01/21	
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
J2 ready DAP to CoastWatch (include NPP/N20 updates)	Dec-21	Dec-21	10/29/21	cc ASSISTT
Re-deliver the J2 DAP to CW			01/28/22	
J2 ready DAP to ASSISTT (include NPP/N20 updates)	Mar-22	Mar-22	Mar-22	CoastWatch delivery
J2 ready DAP to Cloud (include NPP/N20 updates)	Jun-22	Mar-23		ASSISTT delivery
Support CoastWatch/ASSISTT for J2 OC MSL12 testing/verification, if needed	Sep-22	Sep-22	03/31/22	PMR slide15
J2 OC data processing (MSL12) ready for J2 launch	Sep-22	Sep-22		
Start mission-long VIIRS OC data reprocessing	Mar-22	Aug-22		J2 DAP issues
Evaluation of MSL12 ver 1.51 performance over global ocean	Sep-22	Sep-22		
Producing consistent VIIRS SNPP and NOAA-20 ocean color products	Sep-22	Sep-22		
Cal/Val team complete the 7th VIIRS ocean color dedicated cruise	Jul-22	Jul-22	03/31/22	PMR slide15
Improvement of the OCView tool or web presentation	Aug-22	Aug-22		
Continue working on improvement of the ocean color data processing system (MSL12), particularly over global coastal and inland water regions	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights: x

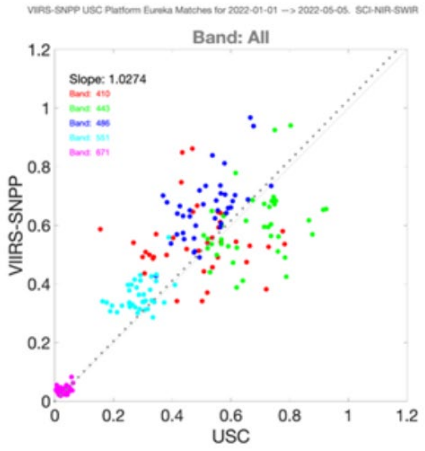


Figure 1

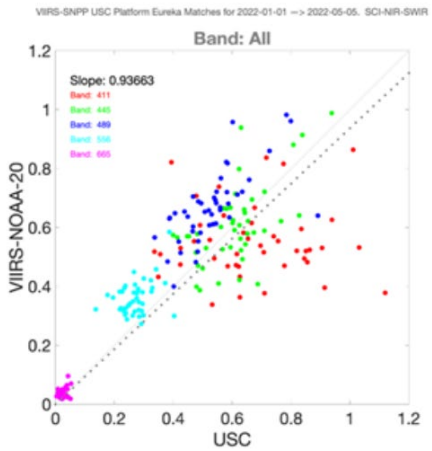


Figure 2

Sea Surface Temperature

June, 2022

Accomplishments / Events:

- Critical Design Review of Gridded Supercollated SST products (L3S-LEO) was held on 4 May 2022. Work on L3S-LEO ATBD is underway. Performance of L3S-LEO products (PM, from 2 VIIRSs; AM from 2 Metop-FGs; and Daily) was presented at the CoastWatch Meeting from 9-12 May 2022. OAR GLERL and NCEI assimilate L3S-LEO the GLSEA and OISST analyses.
- Backfilling VIIRS Reanalysis 3 (RAN3) data produced with ACSPO v2.80 in Physical Oceanography Distributed Active Archive Center (PO.DAAC; https://podaac.jpl.nasa.gov/) is now fully completed from NPP (2012-on) and N20 (2018-on). The links to landing pages and data are: NPP L2P: https://doi.org/10.5067/GHVRS-2PO28; N20 L2P: https://doi.org/10.5067/GHV20-2PO28; NPP L3U: https://doi.org/10.5067/GHVRS-3UO28; N20 L3U: https://doi.org/10.5067/GHV20-3UO28).
- Work is underway on RAN3 peer-reviewed pub. Figure shows one of the improvements in RAN3 compared with RAN2: significantly reduced high-latitude biases in retrieved SST.
- Preparation for N21 launch continues. SST online monitoring systems SQUAM, MICROS, ARMS are being updated to be ready to support N21 Cal/Val.

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.*
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Issues/Risks:

Tonga volcanic eruption may result in cold SST biases of unknown magnitude.

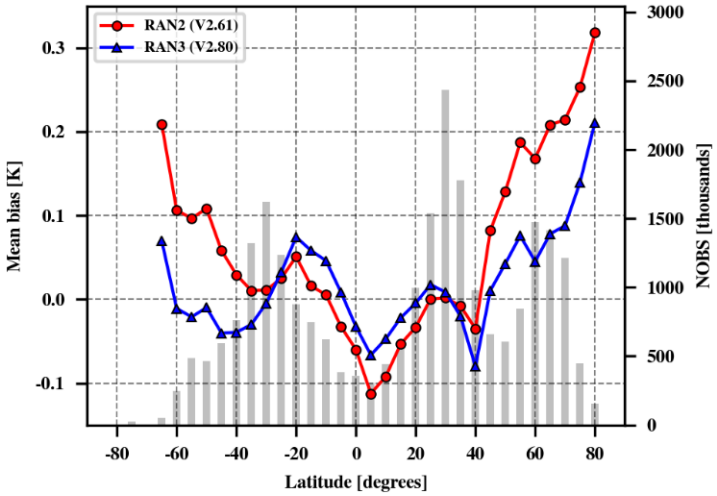
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
Final J2 ready DAP to NDE (no science code update: initial/final combined)	Dec-21	Dec-21	12/15/21 SPSRB docus (EUM, SMM)	if needed (e.g., update for Intel 19.0.5, filename change, etc)
Continue development of ACSPO 3.00. Improve Clear-Sky Mask & SST Algorithms. Focus on NPP/N20 SST consistency	Dec-23	Dec-23	PMR slide6	V2.9 for Goes-R
Integrate in ACSPO. Test in STAR environment. Include N21 functionalities in NOAA Match-Up code/Monitoring	Aug-22	Aug-22		
Continue NOAA SQUAM and ARMS monitoring & validation against iQuam. Provision for N21 infrastructure	Aug-22	Aug-22		
Maintain ACSPO, SQUAM, iQuam, ARMS, match-up & RAN infrastructure & codes. Improve/optimize/add N21	Sep-22	Sep-22		
Monitor SST performance online. Identify anomalies. Work w/SST Algorithms & SDR Team and archives to address	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/12/22	JCT3-TVAC

Highlights:

ACSPO NPP 'subskin' minus (Drifters + Tropical Moorings) SST for the full year of 2020, stratified by latitude. Red: RAN2 (produced with ACSPO V2.61). Blue: RAN3 produced with ACSPO V2.80.

The zonal amplitude of the validation bias is reduced from ~0.45 K in RAN2 to ~0.25 K in RAN3.

This illustration is a part of the "VIIRS RAN3 SST" paper being submitted to the Remote Sensing special issue "VIIRS 2011–2021: Ten Years of Success in Earth Observations".



VIIRS Polar Winds

June, 2022

Accomplishments / Events:

NRL Demonstrates Positive Forecast Impact of Two New VIIRS Winds Products: The U.S. Naval Research Laboratory (NRL, Monterey, CA) recently demonstrated the positive impact of two new VIIRS polar winds products. Cooperative Institute for Meteorological Satellite Studies (CIMSS) and NOAA scientists have expanded their suite of VIIRS polar winds to include winds derived from a shortwave infrared (SWIR) band, and also a "tandem" winds product that takes advantage of the 50-minute separation time between the NOAA-20 and Suomi NPP satellites flying in the same orbit. NRL's test results for April 2021 show that both products are beneficial to numerical weather forecasts.

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
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/28/21	
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
Patch DAP (final J2 DAP) deliver to NDE			07/13/22	
Implement VIIRS tandem winds	Mar-22	Mar-22	Dec-21	Running routinely at CIMSS
Generate new lookup tables, retrieval coefficients for JPSS-2	Sep-22	Sep-22		
Continuous monitoring of S-NPP and NOAA-20 products	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights: Positive impact of VIIRS SWIR and three-orbit winds in NRL model

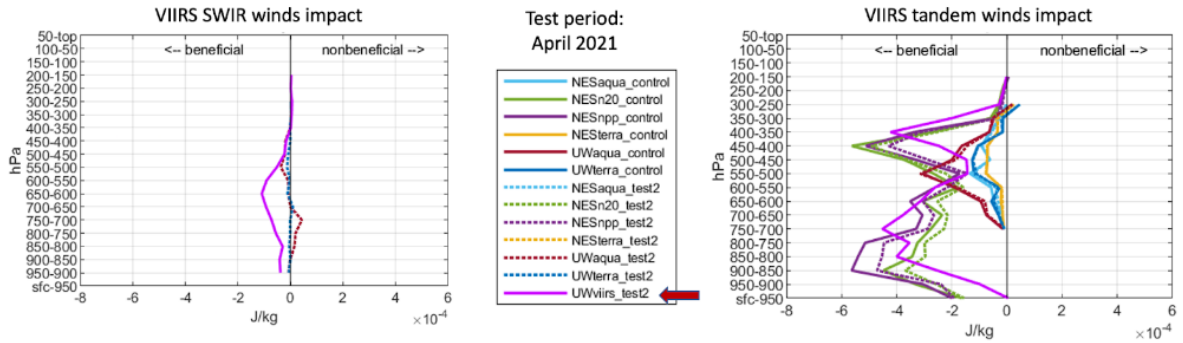


Figure: Impact of the VIIRS SWIR (left) and three-orbit tandem (right) winds in a April 2021 test case at NRL. The magenta "UWviirs_test2" line shows the impact of the new VIIRS winds in both figures.

NUCAPS Products

Accomplishments / Events

June, 2022

- NUCAPS team participated in the MetOp-B/C NCCF Operational Readiness Review (ORR, 6/23) and presented validation results for the MetOp-B/C UAT data. The validation results included focus day comparisons of the MetOp-B/C UAT products with the offline NUCAPS to ensure product integrity, and statistical metrics with ECMWF, and other satellite observations (TROPOMI, OCO-2) for trace gas products. In summary, the MetOp-B/C NCCF UAT products are consistent with the NUCAPS science team offline runs, and the ASSISTT implementations. Statistical metrics derived for MetOp-B/C AVTP, AVMP, O3, OLR, and trace gas products (CO, CH4, and CO2) are very similar to the JPSS (NOAA-20) products. The NUCAPS team started working on some of the minor fixes for the MetOp-B/C NCCF system as part of the next upgrade.
- NUCAPS team participated and presented in the NOAA-GML quarterly meeting (6/29). Presentations included accomplishments since November 2021 towards Theme 1 and Theme 2 collaborative efforts with NOAA GML scientists. The NUCAPS team Theme 1 (Carbon Trace Gases) presentation concentrated on the methane trends as observed by GML ground stations and the NUCAPS and AIRS retrieval system; these results are included in a manuscript currently under review for MDPI /Remote Sensing/ (Zhou, Warner, Nalli, Murty, et al.). Theme 2 presentation (Ozone and Water Vapor) included accomplishments on four areas, (1) NUCAPS Ozone product improvements, (2) Operational implementation and user needs on Averaging Kernels, (3) NUCAPS product availability from MetOp-B and C, and (4) A case study related to NUCAPS ozone product applications for Tropopause folding and resulting cyclogenesis and severe weather. Both Theme 1 and Theme 2 presentations included plans for the next quarterly activities and team Readiness Levels (RLs).
- Continued optimization of Ammonia retrievals through development of parameters and thresholds specifically for CrIS and updates to the SARTA wrapper scripts needed for operational implementation.

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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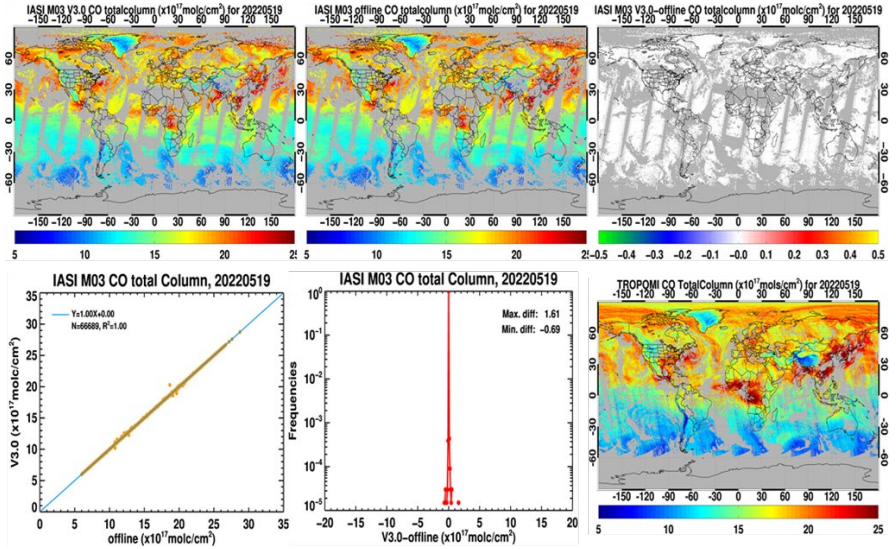
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/10/21	
FY23 Program Management Review	Jun-22	Jun-22	05/19/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	Mar-22	Mar-22	04/08/22	
NUCAPS Averaging Kernels (AK) and improved stability indices. S-NPP Mission long reprocessing version (NUCAPS v3.1)	Dec-21	May-22	OSPO PPM approved AK implementation. 04/29/22 (to AIT)	The NUCAPS DAP with AK is with the ASSISTT team for a delivery to the NDE
Addition of Ammonia product to NUCAPS operational retrievals (NUCAPS v3.2)	May-22	May-22	May-22 Offline retrieval	Optimized NH3 for CrIS
NUCAPS augmentation for EPS-SG (NUCAPS v3.3)	Jul-22	Jul-22		
NUCAPS IR-only retrieval for risk mitigation and conceptual GEO-CrIS retrieval products (NUCAPS v3.4)	Jan-22	Jan-22	Results published in a joint paper with the CrIS SDR team	No plans yet for an operational DAP
Land, Snow/Ice and Ocean Spectral Emissivity Improvements	Mar-22	Mar-22	Mar-22	Paper accepted for publication
Reactive maintenance and Improvements to surface emissivity first guess using CAMEL, temperature lower-tropospheric bias improvements over land, optimized cloud clearing and Local Angle Corrections (LAC) for S-NPP/NOAA-20 NUCAPS	Sep-22	Sep-22		
NOAA-GML Theme 1: NUCAPS trace gas product validation with corroborative data sets and collaboration with GML and other stakeholders in support of NOAA/NESDIS initiatives	Sep-22	Sep-22		continuing
NOAA-GML Theme 2: NUCAPS ozone and water vapor products validations with CLIMCAPS and O3SNDS, and collaboration with GML and other stakeholders in support of NOAA/NESDIS initiatives	Sep-22	Sep-22		continuing
Routine monitoring of trace gas products, T(p) and q(p) bias improvements	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/13/22, 05/19/22	JCT3-TVAC

NUCAPS NCCF UAT vs. Offline: Total Column CO (20220519)



- MetOp-B/C NCCF trace gas products evaluation with correlative satellite observations (CO and CH4 with TROPOMI; CO2 with OCO-2) indicate good agreement, and product performance is very similar to the JPSS NOAA-20.

Evaluation of the NCCF NUCAPS MetOp-C product with the offline: Total Column CO (20220519)

MiRS Products

June, 2022

Accomplishments / Events:

- Preliminary implementation has been completed of a U-Net convolutional neural network architecture to correct MiRS operational satellite retrievals of instantaneous precipitation rate (RR). This meets the June-2022 milestone. The U-Net architecture was implemented using NOAA-20/ATMS passive microwave retrievals from the MiRS system. The training data consisted of input features that included operational retrievals of precipitation rate, total precipitable water, latitude, longitude, and satellite observation zenith angle. The training target data were instantaneous precipitation rates from the operational Multi-Radar/Multi-Sensor System (MRMS) blended radar-rain gauge analysis over the continental U.S. (CONUS). The U-Net was trained on one year of collocated MiRS and MRMS data over the CONUS during 2021. Independent validation of the U-Net was performed using data from January – May 2022. The validation results showed that the U-Net predictions were clearly improved relative to the original operational MiRS retrievals in terms of bias and error standard deviation, as well as categorical scores (see highlights).

Overall Status:

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

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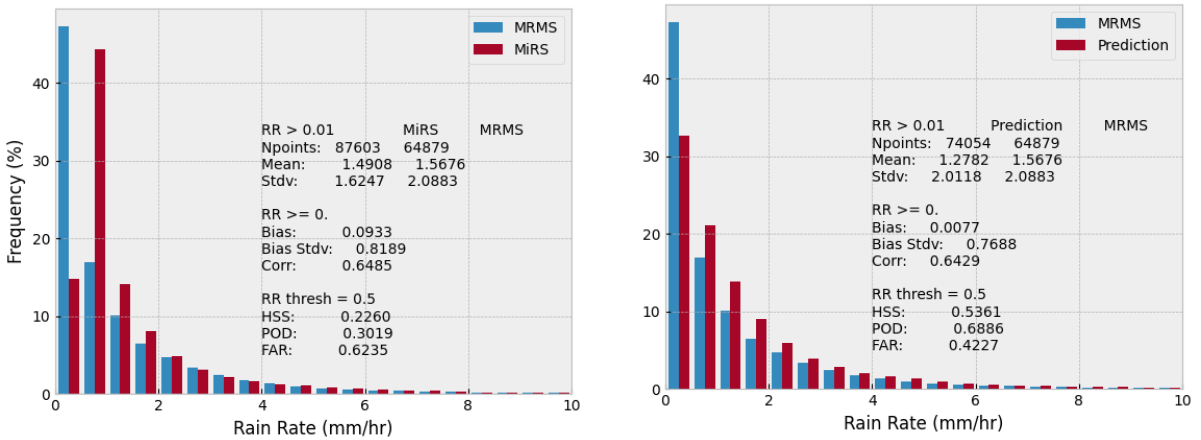
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required
FY23 Program Management Review	Jun-22	Jun-22	05/19/22	
Patch DAP delivery (to ASSISTT)			V11.6 10/19/21 V11.8 10/28/21 V11.8 11/17/21	
MiRS 11.6 Patch Delivery (Patch DAP for MiRS (J1, J2, S-NPP)			12/30/21	To NDE
Final J2 ready DAP to NDE (include NPP/N20 updates)	Mar-22	Mar-22	03/31/22	
Complete collocation and evaluation of experimental MiRS-TC version for one year of Atlantic and Pacific basin TCs in 2020	Jan-22	Jan-22	Jan-22	
Update snow and ice emissivity catalogs (look-up tables) for EPS-SG/MWS to account for polarization differences at 23 and 31 GHz	Apr-22	Apr-22	Apr-22	
Develop AI (post processing) approaches to precipitation retrieval in MiRS, leveraging the collocated MiRS-MRMS datasets for training and validation	Jun-22	Jun-22	Jun-22	
MiRS DAP (v11.9 or v11.10): integrate SFR algorithm updates, code/science improvements, final pre-J2 launch delivery	Jul-22	Jul-22		
Begin reprocessing entire JPSS mission data for both SNPP and N20 using latest version of MiRS. Complete reprocessing for SNPP for the period 2011-2015	Sep-22	Sep-22	May-22	PMR slide6
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (**May-22 JCT3-TVAC**: Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	**05/13, 05/19**	**JCT3-TVAC**

Highlights:



Comparison of frequency distributions of MiRS operational (left) and U-Net corrected (right) rain rates (red) over the CONUS relative to ground based MRMS rainfall estimates (blue).

Snowfall Rate

June, 2022

Accomplishments / Events:

- The SFR v02r01 package was delivered to the MiRS team for integration with MiRS on June 28. Major updates include
  - New Extreme Gradient Boosting (XGB) machine learning Snowfall Detection algorithms for JPSS-2, NOAA-20, S-NPP, NOAA-19, Metop-B, and Metop-C
  - Updated Neural Network machine learning Ice Water Path initialization and SFR bias correction for JPSS-2, NOAA-20, S-NPP, NOAA-19, Metop-B, and Metop-C
  - Expanded SFR low and high limits
- The SFR team collaborated with MiRS on the analysis of the SFR v02r01 test run result obtained by the MiRS team. Comparison between the results from the two teams revealed discrepancy at a single Metop-B point among all data from six satellites. The issue was traced to the minute differences caused by the computing environments and their comparison with the thresholds for 1DVAR convergence. The chance of such discrepancy is less than 3 per 1 million. It is concluded that the MiRS' SFR v02r01 test run is successful.

Overall Status:

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

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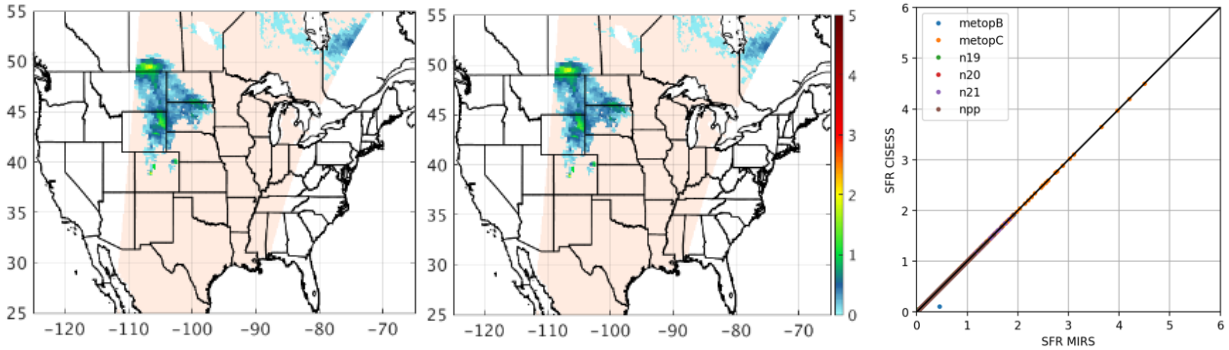
4. *Project has fallen significantly behind schedule, and/or significantly over budget.*

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
Final J2 ready DAP to NDE (include NPP/N20 updates)	Mar-22	Mar-22	03/31/22	
Patch DAP delivery (to ASSISTT)			V11.6 10/19/21 V11.8 10/28/21 V11.8 11/17/21	
MiRS 11.6 Patch Delivery (Patch DAP for MiRS (J1, J2, S-NPP)			12/30/21	To NDE
FY23 Program Management Review	Jun-22	Jun-22	05/19/22	
Develop NOAA-20 ML Snowfall Detection model. Improve SFR algorithm through ML	Jun-22	Jun-22	May-22	PMR slide9
NOAA-20 and S-NPP cross-calibration & comparison after algorithm update	Aug-22	Aug-22		
NOAA-20 and S-NPP stratified validation after algorithm update	Aug-22	Aug-22		
SFR near real-time webpage, operational monitoring	Sep-22	Sep-22	May-22	PMR slide9
Implement ML ATMS SD in the Enterprise SFR system	Sep-22	Sep-22		
Deliver ATMS SFR with ML SD to MiRS	Sep-22	Sep-22	June -22	
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22		

Highlights: SFR v02r01 Delivered to MiRS



Left: Sample SFR generated at CISESS; middle: the same SFR orbit generated by MiRS; right: comparison between CISESS SFR and MiRS SFR from six satellites, NOAA-20, S-NPP, NOAA-19, Metop-C, and Metop-B.

OMPS Ozone (V8Pro, V2Limb & V8TOz)

June, 2022

Accomplishments / Events:

- Reviewed activities planned for J2 Algorithm Updates and presented in 2020, compared to activities that occurred, and collected lessons learned for J3 Algorithm Updates. All planned science team activities have been completed, with the exception of minor updates to the ATBD/EUM/SMM ASSIST delivery to NDE for V8Pro did not occur as scheduled although delivered to ASSIST in 2/2022 from the science team. Lesson learned is to better coordinate ASSIST deliveries/tracking. These were difficult this year due to contract and personnel changes from STAR to OSGS. Schedule is for ASSIST to deliver V8Pro in July to NDE.

Overall Status:

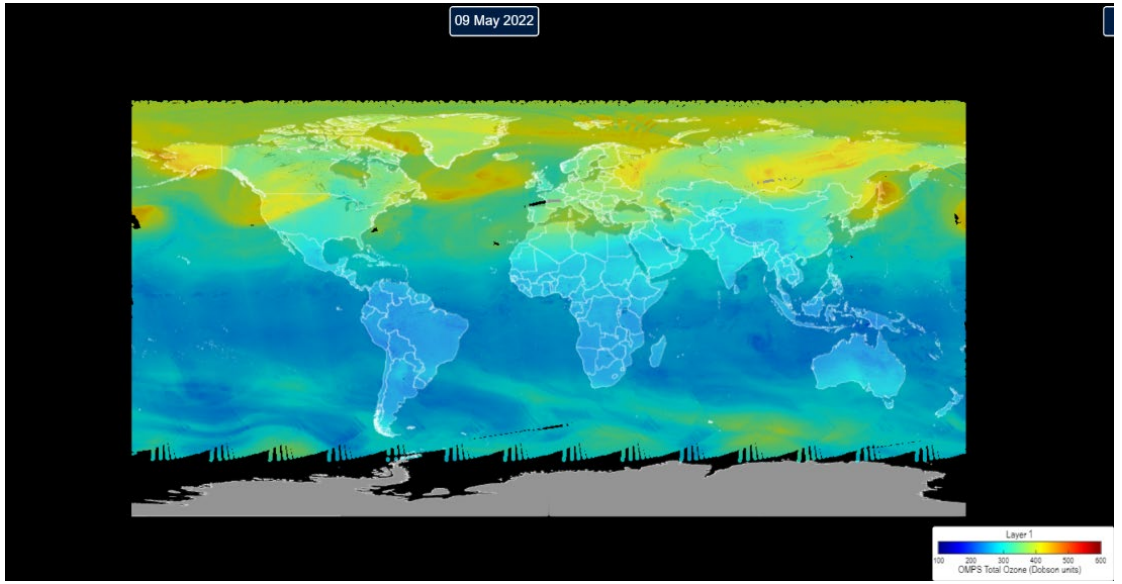
	Green[1] (Completed)	Blue[2] (On-Schedule)	Yellow[3] (Caution)	Red[4] (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/26/21	
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
Final J2 ready DAP to NDE (include NPP/N20 updates), V8TOz	Jan-22	Jan-22	02/03/22	05/04 to CSPP
Final J2 ready DAP to NDE (include NPP/N20 updates), V8Pro	Apr-22	Jun-22	07/08/22	To ASSISTT: 02/17/22
Revise Cal/Val Plan to include JPSS-2 Limb and draft schedule	Dec-21	Dec-21	12/09/21	
Update Version 2.5Limb, three improved Climatologies, Cloud Top, Repaired	Jan-22	Jan-22	Jan 22*	*Cloud Top not resolved
Version 2.7 Limb Profile SDR and EDR (include J2 LP)	Sep-22	Oct-22	PMR slide8	To ASSISTT: Aug-22
J2 Radiative Transfer & Bandpass Tables for V8Pro and V8TOz	Sep-22	Mar-22	Jan-22 (for V8TOz)	
Soft calibration adjustments for V8TOz (TC) and V8PRo (NP) NPP reprocessing for V8Pro & V8TOz	Nov-21 May-22	Feb-21 Apr-22	11/26/21 (TC) 02/17/22 (NP)	SDR Delays
N20 V8Pro and V8TOz reprocessing	May-22	Jun-22		
Limb Darks and Orbital Definition files: Weekly ancillary file deliveries to PDA / NDE	Sep-22	Sep-22		Ongoing
Overpass data sets and comparisons to GB and MERRA2	Sep-22	Sep-22		Ongoing
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		As Needed
Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC; Maybe: Jul-22 JCT4, JCT4-DSE)	Sep-22	Sep-22	05/13/22	JCT3-TVAC

Highlights: *Total Ozone as seen in JSTAR Mapper for 9 May 2022*



GCOM-W

June, 2022

Accomplishments / Events:

- GCOM-W soil moisture EDR team gave a presentation to NASA SPoRT team on AMSR2 soil moisture data product as part of their training series that attempts to increase JPSS data products use in data sparse regions.
- AMSR2 soil moisture team has tested various machine learning algorithms to upgrade AMSR2 and future AMSR3 soil moisture EDR. Preliminary result shows the Extreme Gradient Boosting algorithm produces the best results.
- NESDIS Soil Moisture Operational Product System (SMOPS) that ingests GCOM-W AMSR2 soil moisture EDR has been delivered to NESDIS Common Cloud Framework (NCCF) S3 bucket on June 23rd, 2022.

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.*

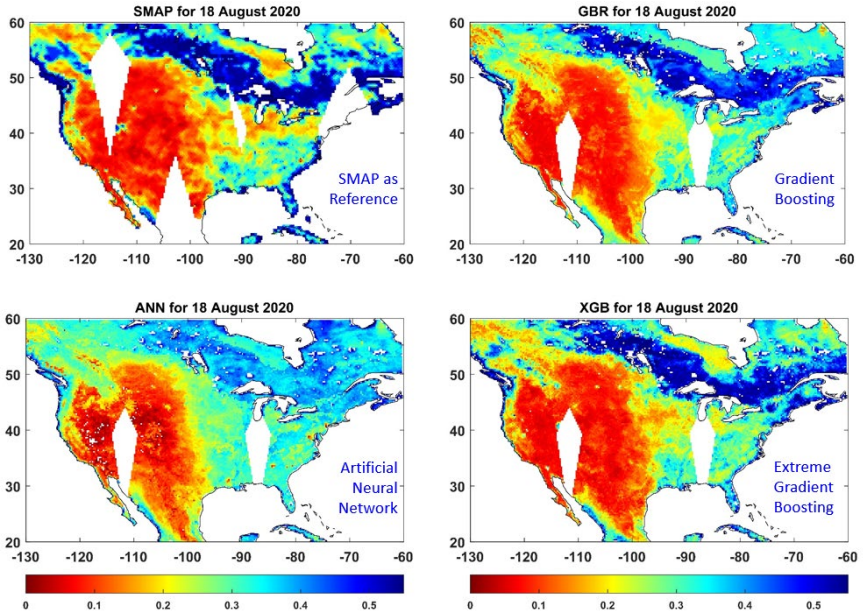
Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
AMSR-3 Cal/Val Plan - draft delivery	Jan-21	Jan-22	Jan-22	
AMSR-3 Cal/Val Plan - final delivery	Jun-22	Jun-22	06/30/22	
AMSR-3 ready DAP to ASSISTT (include AMSR-2 updates)	Jun-22	Sep-22		
AMSR-3 ready DAP to NDE (include AMSR-2 updates)	Sep-22	Jan-23	FY23	To NCCF
Algorithm Updates Review	Sep-22	Sep-22		
Assessment of new algorithms for enterprise algorithms for both AMSR2 and AMSR3	Jun-22	Jun-22	FY23	PMR slide4
Reprocessing of L2 EDR's (Full L2 products from launch through July 2022)	Jul-22	Jul-22		
Continue AMSR2 L1 monitoring; develop AMSR3 capabilities	Sep-22	Sep-22		
Support ASSISTT/NDE evaluation as required/needed	Sep-22	Sep-22		

Highlights:

Totally five machine learning algorithms have been examined for deriving surface soil moisture from AMSR2 observations. The same day SMAP soil moisture retrievals were matched with AMSR2 brightness temperature observations from the C, X and Ka bands. AMSR2 sol moisture retrievals are then compared with the SMAP retrievals as reference and in situ soil moisture measurements from USDA Soil Climate Analysis Network . Comparison results indicated that the Extreme Gradient Boosting algorithm produced the best AMSR2 data product in terms of spatial pattern (see maps on the right) and validation statistics.



JSTAR Mapper and NPROVS

June, 2022

Accomplishments / Events:

NPROVS (Tony Reale (STAR)

- The NWS High Resolution Rapid (hourly) Refresh (HRRR) "regional" analysis was integrated into STAR NOAA Products validation System (NPROVS) at the request of the JPSS/NWS NOAA Unique Combined Atmospheric Processing System (NUCAPS) User Initiative. The HRRR is the first "regional" model implemented into NPROVS and directly supports NWS users in assessing the value of NUCAPS in the continental U.S. (CONUS), complementing existing global ECMWF and NOAA GFS forecast data. HRRR integration includes routine collocation with Radiosondes and NUCAPS soundings, respectively, providing additional information on the importance of temporal differences in the context of assessment.
- The MetOp-B/C operational readiness review was conducted by OSPO (Sharma) on Thursday (June 23). There is a 2-month ongoing review of NUCAPS products (prior to operational implementation) which will be available on the NCCF in a User Acceptance Test environment (PDA I&T). The NPROVS team plans routine access and will provide updated performance assessment statistics for review.

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.*
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Issues/Risks: None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21		not required - no major issues
FY23 Program Management Review	Jun-22	Jun-22	06/14/22	
Maintain / expand existing ~~EDR LTM web pages and~~ JSTAR Mapper web site	Aug-22	Aug-22		Remove LTM
Maintain /expand NPROVS and support NUCAPS / MiRS EDR assessments for NPP, NOAA-20, JPSS-2 and MetOp-A,B,C; GNSS NESDIS-COSMIC-2	Aug-22	Aug-22		
Manage JPSS dedicated Radiosonde program (DOE-ARM), EDR/Raob collocations (Special), expand to store SDR (GSICS / GRUAN; 75TB)	Aug-22	Aug-22		
Support JPSS AWIPS (NUCAPS) and Hydrological (MiRS) Iniatives and Case Studies	Aug-22	Aug-22		

Highlights: x

(Top Panel): Geographic distribution of collocations recently compiled by NPROVS for NUCAPS atmospheric profiles for a 10-day period during May (2022).

(Lower Panel) **NUCAPS**, **NOAA GFS 6-hour forecast**, **ECMWF**, **HRRR (collocated with the Radiosonde)** and **HRRR (collocated with NUCAPS)** mean (solid) and standard deviation (dash) for Temperature across the NUCAPS and the NWP product suites within the troposphere (10km). Notable from these results is the overall reduced standard deviation (and bias) for **HRRR (collocated with the Radiosonde)** versus **HRRR (collocated with NUCAPS)** and a signature warm bias for NUCAPS in the lower troposphere. The integration of HRRR began on May 1 just in time to use NPROVS in conjunction with a NWS Hazardous Weather Test Bed (HWTB) activity during May and June.