



NOAA JPSS Monthly Program Office

AMP/STAR FY22 TTA

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Jun, 2022

Experimental 1km all-weather Land Surface Temperature product

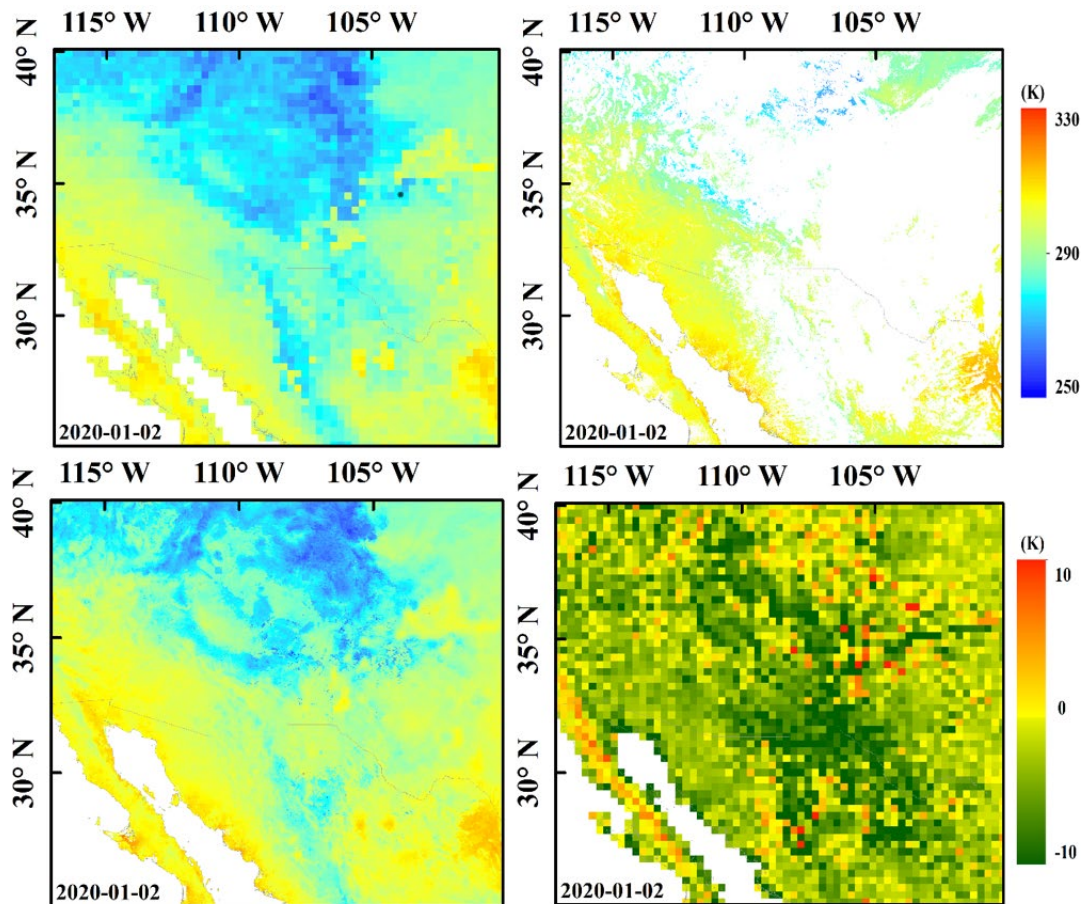
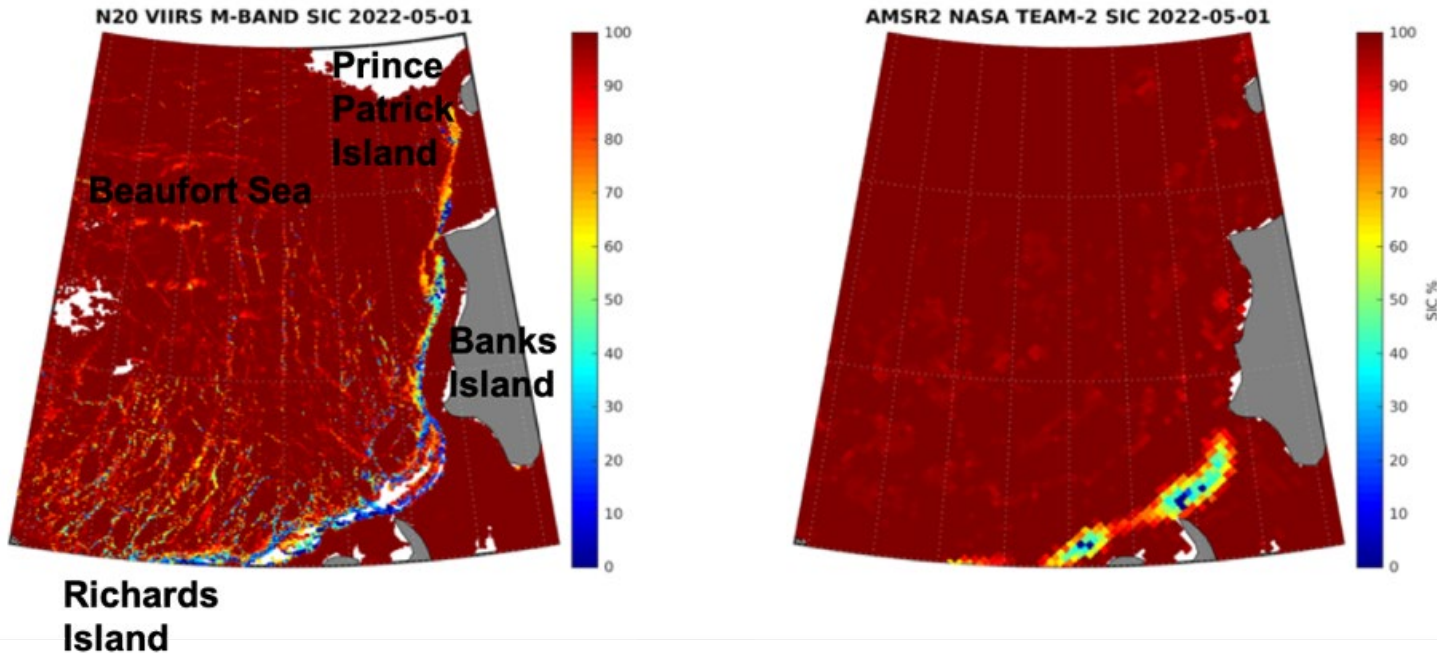


Figure: Daytime MIRS LST(top left), VIIRS LST (top right), all-weather LST (bottom left) and the LST difference between MIRS LST and all-weather LST(bottom right) on Jan. 2, 2020.

Recently, the STAR Land Product Development team has developed an experimental all-weather Land Surface Temperature (LST) dataset based on the fusion of microwave LST and thermal infrared from VIIRS. Ancillary data such as NDVI, Shuttle Radar Topography Mission (SRTM) slope, emissivity, etc. are also collected for the MIRS LST downscaling.

The all-weather LST is designed as daily data with a spatial resolution of 1 km over the CONUS region for daytime and nighttime JPSS overpass times, respectively. The figure below shows a set of sample images including the MIRS LST, VIIRS LST and all-weather LST. Preliminary evaluation was conducted using ground observations from SURFRAD, and the results are promising.

VIIRS sees sea ice features that AMSR-2 can not



On 1 May 2022, the NOAA-20 VIIRS Sea Ice Concentration (SIC) Enterprise Product detected a significant sea ice lead (quasi-linear ice fracture) that is over 900 km long. The AMSR2 NASA Team-2 SIC product for the same day does not capture the northern 500 km long part of this lead that extends from SW of Banks Island to the SW coast of Prince Patrick Island (Figure 1), primarily due to the lower resolution of the AMSR2 product. The VIIRS SIC is also able to resolve many smaller leads within the pack ice over the Beaufort Sea that AMSR2 is incapable of detecting. This case study shows the benefit of high spatial resolution NOAA-20 VIIRS SIC product in revealing small-scale sea ice features in the polar regions.

Accomplishments

- Delivery Algorithm Packages (DAPs) - Mission Unique Products:
- DAPs – Enterprise Products:
 - 5/04/2022 STAR delivered J2 Final DAP for V8TOz (OMPS TC) to CSPP
 - 5/12/2022 Patch CCAP for VFM (deliver to: JPSS Reprocessing Group)
 - 5/12/2022 STAR delivered Blended Hydro patch DAP to NDE (with addition of MetOp-C)
 - 5/13/2022 STAR delivered VIIRS Gridded Land DAP to NDE (final delivery for NOAA-21 and maintenance delivery for NOAA-20 and NPP)
Changes: new LUT for LSA; new view angle variables for LST (daytime/nighttime); changed intermediate output files in NetCDF format (instead of Binary); updated gridding tool to read/write intermediate NetCDF files; updated code to be able to handle longer file paths
 - 5/17/2022 STAR delivered VIIRS Super DAP (JRR v3r2) to NDE (final delivery for NOAA-21 and maintenance delivery for NOAA-20 and NPP)
Changes: all updates to this package are listed in the [Super DAP Updates For Spring 2022.xlsx](#) spreadsheet
 - 5/20/2022 STAR redelivery of Prelim CCAP for eFires to NCCF & OSPO (deliver to OSPO for SCR (software code review))
 - 5/25/2022 STAR delivered BUFR Toolkit DAP (v5.2, J2 Final and J1/S-NPP Maintenance DAP) to NDE
 - 5/26/2022 STAR delivered Active Fires I-band J02 Final Delivery to CSPP (v1r1, final DAP for J2, and maintenance DAP for NPP & N20)
 - Changes: The primary science upgrade is that the J02 platform now uses a different fire radiative constant from NPP and N20
- IDPS Builds Checkouts:
 - Block 2.3 Mx7 SOL STAR review/checkout: 5/26/2022 JSTAR submitted [summary report](#) to DPMS/RTN/OSPO
 - 5/11/2022 VIIRS SDR team submitted review/checkout report
 - 5/13/2022 VIIRS SDR team submitted revised report (IDPS reprocessed geolocation using the spacecraft diary data)
 - 5/23/2022 CrIS team submitted the report (the results are as expected)
 - 5/25/2022 OMPS team submitted report (The data looks ok, it is a go for OMPS)

Accomplishments

- JPSS-2 Pre-Launch Testing events:
 - JCT3-AMB DSE part2 (OMPS Science RDRs Not Timeshifted)
 - 5/04/2022 OMPS SDR team provided review/checkout report
 - JCT3-TVAC Segment 1 review/checkout (5/10-5/13, 72hr): JSTAR submitted [summary report](#) on 5/15/2022
 - 5/11/2022 VIIRS team submitted initial report
 - 5/11/2022 OMPS SDR team submitted initial report
 - 5/12/2022 SST team provided initial report
 - 5/13/2022 OMPS Ozone team provided report
 - 5/13/2022 AOD team provided report
 - 5/13/2022 ADP team provided report
 - 5/13/2022 MiRS team submitted report
 - 5/13/2022 NUCAPS team provided NDE error log analysis report
 - 5/17/2022 LSA team provided report
 - JCT3-TVAC Segment 2 review/checkout (5/17–5/19, 39hr): JSTAR submitted [summary report](#) on 5/23/2022
 - 5/18/2022 ICVS team report: ICVS beta run through JCT3-TVAC S1 & S2 data, figures for ATMS, CrIS, VIIRS, and OMPS from JCT3-TVAC Segment 1 & 2 are available at [ICVS-beta](#)
 - 5/19/2022 OMPS SDR team provided report. 5/23/2022 team provided summary report (for S1 & S2)
 - 5/19/2022 NUCAPS team provided report
 - 5/19/2022 MiRS team submitted report
 - 5/19/2022 Vegetation Health team provided report
 - 5/25/2022 Imagery team provided report
 - JCT3-TVAC Segment 3 review/checkout (5/25-5/26, 33hr): JSTAR submitted [summary report](#) on 5/27/2022
 - 5/26/2022 NUCAPS team provided report
 - 5/26/2022 Imagery team provided report
 - 5/27/2022 Vegetation Health team provided report
 - 6/16/2022 OMPS SDR team provided report (team meeting presentation)
 - One-Orbit JPSS-2 Proxy data
 - ASSISTT team ran one orbit data through SuperDAP and produced EDR products. EDR teams (AOD, ADP, Volcanic Ash, Sea Ice, Snow Cover) checked products and provided feedback on one-orbit SuperDAP EDR products

Accomplishments – JPSS Cal Val Supports

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

S-NPP	Weekly OMPS TC/NP Dark Table Updates	05/03/22, 05/10/22, 05/17/22, 05/24/22, 05/31/22, 06/07/22, 06/14/22
NOAA-20	Weekly OMPS TC/NP Dark Table Updates	05/03/22, 05/10/22, 05/17/22, 05/24/22, 05/31/22, 06/07/22, 06/15/22
S-NPP	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	05/10/22, 05/24/22, 06/07/22
NOAA-20	Bi-Weekly OMPS NP Wavelength & Solar Flux Update	05/03/22, 05/17/22, 05/31/22, 06/14/22
S-NPP	Monthly VIIRS LUT Update of DNB Offsets and Gains	05/04/22, 06/07/22
NOAA-20	Monthly VIIRS LUT Update of DNB Offsets and Gains	05/04/22, 06/07/22

- **STAR completed FY23 Program Management Review (PMR) for all JPSS science teams**
- NDE 2.0.31 operational on 6/2/2022. Includes: ACSPO v2.8, HEAP recompilation on RHEL7, OMPS NP V8 PRO
- 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 (227.11T, 14.06% of total) has been completed as of May 31, 2022
 - It's expected that the VIIRS data transition will complete in October, 2023
- Recent VIIRS Imagery Social Media Posts
 - [17 May 2022: VIIRS NCC observations of nighttime fire smoke produced from the Black Fire in southern New Mexico](#)

- JSTAR Code/LUT/Product Deliveries:

DAP to DPMS:

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

NOAA-20/JPSS-2 Algorithm DAP to NDE/CoastWatch:

- Jun-22: Final J2 OMPS Ozone V8Pro DAP
- Oct-22: J2-ready OMPS LP DAP to NDE (Aug-22: to ASSISTT)
- Jan-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	Jun-22	Jun-22	Pre-dynamic MM: 03/08/22	02/25/22 to ASSISTT
Final launch-ready JPSS-2 CrIS PCT/MM-coef DAP	Jun-22	Jun-22	Pre-dynamic MM: 03/11/22	03/07/22 to ASSISTT
Final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP	Jun-22	Jun-22	Pre-dynamic MM: 02/24/22	02/18/22 to ASSISTT
Final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP	Jun-22	Jun-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	
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	No final DAP delivery needed
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		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

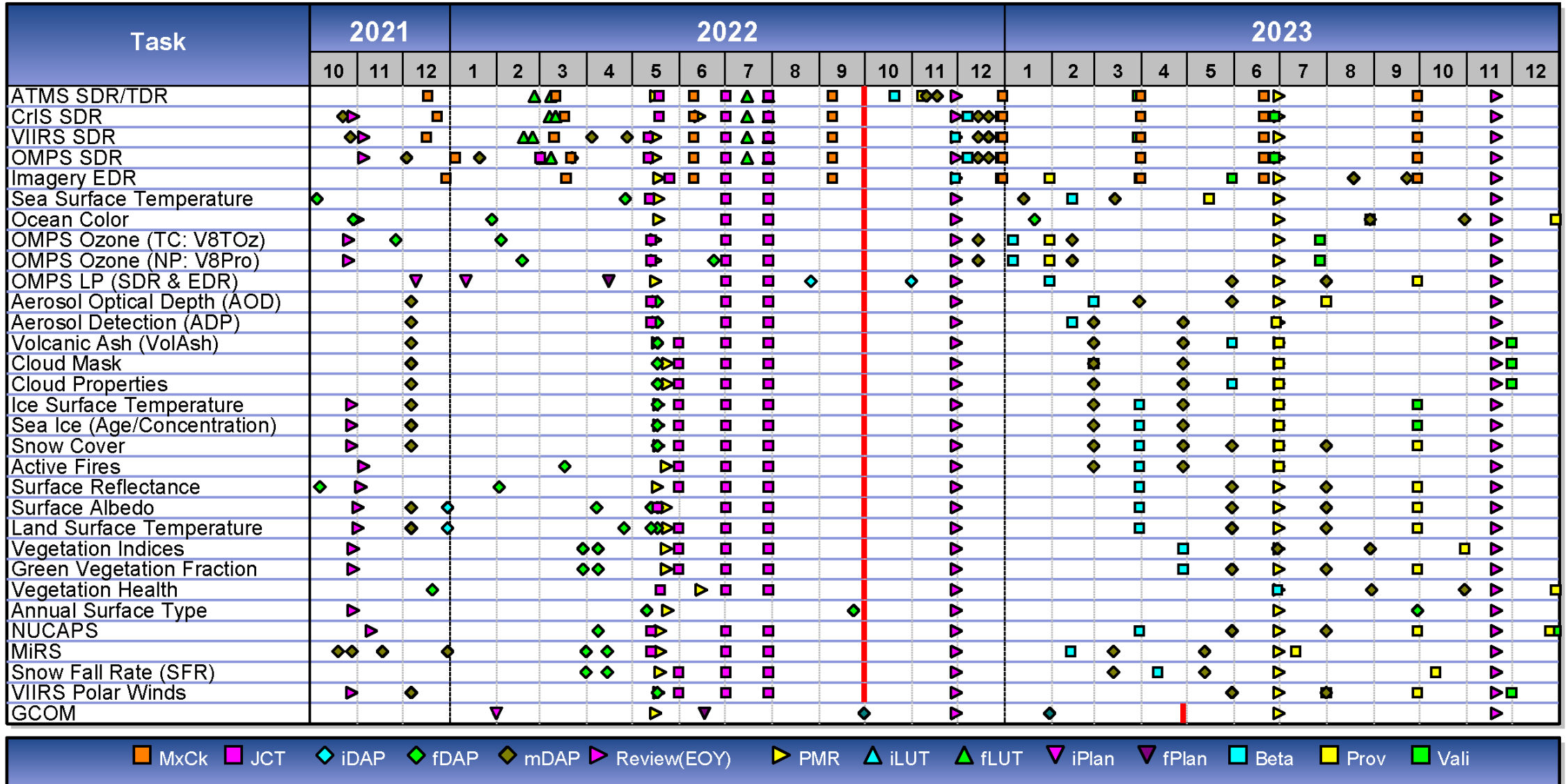
FY22 STAR JPSS Milestones

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		
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	
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
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
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
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
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
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
Block 2.3 Mx builds deploy regression review/checkout (Jan-22 Mx5; Mar-22 Mx6; Jun-22 Mx7; Sep-22 Mx8. 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
Participant/support JPSS-2 pre-launch testing events (Mar-22 JCT3-Ambient; May-22 JCT3-TVAC; Maybe: Jul-22 JCT4; Jul-22 JCT4-DSE)	Sep-22	Sep-22	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

STAR JPSS Schedule: TTA Milestones



■ MxCk
 ■ JCT
 ◆ iDAP
 ◆ fDAP
 ◆ mDAP
 ▶ Review(EOY)
 ▶ PMR
 ▲ iLUT
 ▲ fLUT
 ▼ iPlan
 ▼ fPlan
 ■ Beta
 ■ Prov
 ■ Vali

Color code:

Green:

Completed Milestones

Gray:

Non-FY22 Milestones

Accomplishments / Events:

- Analyzed the JPSS-4 ATMS calibration TVAC test data at 11 scene target temperatures of 4 different redundancy configuration (RC) over middle, low, and high baseplate temperature environments. Presented RC separated, baseplate dependent, channel NEdT, striping index, and maximum non-linearity in daily NOAA-NASA TVAC tag-up meetings.
- Proposed new JPSS-4 ATMS calibration TVAC environmental setup to improve the sensor pre-launch evaluation accuracy. Results indicate that new setup can improve the estimate accuracy of reflector emissivity.
- Discussed the calibration TVAC scene target temperature gradient corrected algorithm and impact to the ATMS pre-launch evaluation accuracy.
- Analyzed JPSS-2 JCT3-TVAC ATMS science RDR, TDR/SDR/GEO, and telemetry RDR data to support JPSS-2 pre-launch activities.
- Kept updating ATMS Calibration ATBD to include operational NEDT calculation algorithm description and recommended scan level NEDT algorithm, as well as the chronology of major ATMS operational calibration algorithm updates in IDPS.
- Finished reviewing the JPSS-2 ATMS calibration data book (Rev C) to ensure the description matches to the operational calibration processing.
- Simulated ATMS post-launch maneuver to propose the optimal solution to collect moon observations.

Overall Status:

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

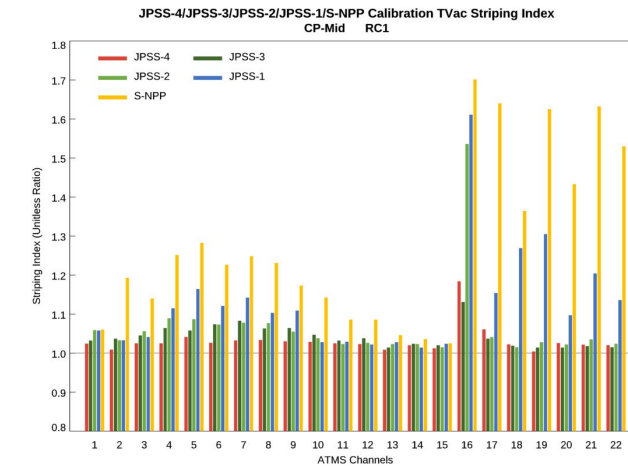
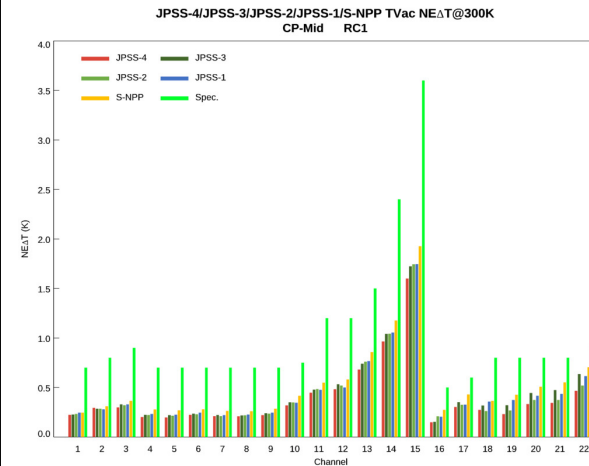
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

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	Jul-22	02/25/22	pre-dynamic
Deliver final launch-ready JPSS-2 ATMS PCT/MM-coef DAP to DPMS	Jun-22	Jul-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	JCT3-TVAC
Block 2.3 Mx builds deploy regression/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	

Highlights:



Accomplishments / Events:

- Submitted the "Path to JPSS-2 CrIS SDR Provisional Maturity by L+90" Cal/Val plan to the JPSS program office.
- Submitted the "MX7 SOL Checkout Report" to the JPSS program office.
- Reported the assessment of the CrIS Baffle Temperature Anomaly Fix during the JPSS Data Quality Meeting.
- CrIS STAR team generated two hybrid Principal Component (PC) Compression (PCC) datasets in consideration of whether separate FOVs in the PC scores, and performed extensive assessments of the performance of these two datasets in generation of the reconstructed radiances (Fig. 1).
- CrIS STAR team developed the CrIS PCC Guideline, and further discussion will be developed between STAR and UW teams.
- Continued working on the development of CrIS Cal/Val website (Fig. 2).
- Prepared and submitted material to support the EUMETSAT/STAR meeting planned for June 2022, where Joint STAR/EUMESAT Cal/Val Activities will be discussed.
- Provided support to the development of the STAR Satellite Global/Regional Validation Sites (GReVS): generated the CrIS brightness temperature (BT) maps at the Gulf of Mexico to be included in the GReVS website (Fig. 3).
- Make progress on the extension of the CrIS & ABI radiometric intercomparison to GOES-18 ABI, presently at Beta Maturity.
- Worked on improving the current version of the scan baffle temperature anomaly algorithm.
- Performed a long term assessment of the ADL implementation of the laser wavelength prediction algorithm (Fig. 4) developed at STAR to mitigate the potential failure of the CrIS neon lamp spectral reference.
- Discussed the CrIS long-term stability using Comparisons of SNPP-CrIS window channel bias trends versus the ERA-Interim global atmospheric reanalysis with AIRS and IASI. (Fig. 5)
- Comprehensive assessment activities of the JPSS-2 JCT3 TVAC data are ongoing.

Overall Status:

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

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

Issues/Risks:

The CrIS Team got a new disk of ~50TB on STAR server on May 18, 2022, which temporally alleviates the urgent need of storage. 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		JCT3-TVAC delay
Deliver final launch-ready JPSS-2 CrIS PCT/MM-coef DAP to ASSISTT	May-22	Jul-22	03/07/22	pre-dynamic
Deliver final launch-ready JPSS-2 CrIS PCT/MM-coef DAP to DPMS	Jun-22	Jul-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		
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	05/18/22	ICVS-Beta
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; 05/23/22 Mx7 SOL	

Highlights:

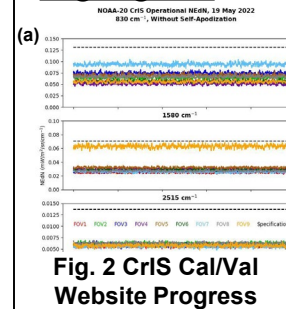


Fig. 2: (a) NEΔN on a scan basis on 5/19/2022. (b) SNPP CrIS ICT PRT temperature figure for CrIS website.

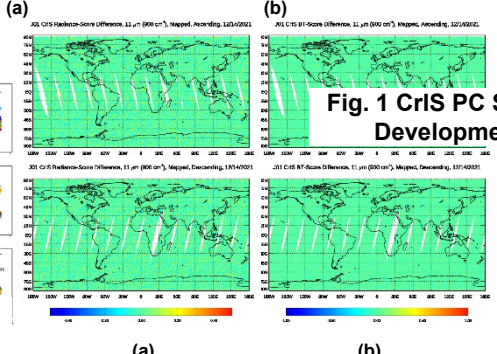


Fig. 1 CrIS PC Scores Development

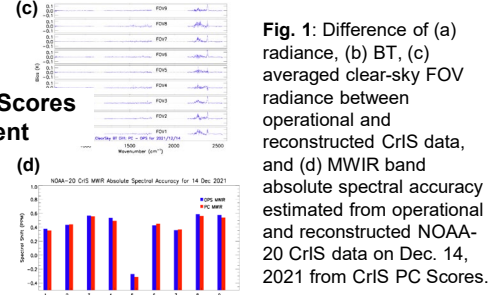


Fig. 3: NOAA-20 CrIS brightness temperature at 900 cm-1 for (a) ascending and (b) descending nodes on May 23, 2022 supporting the development of the STAR Validation Sites project.

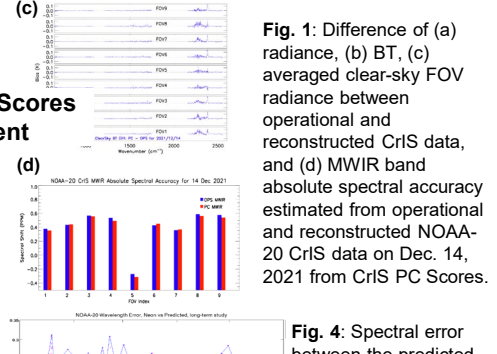


Fig. 4: Spectral error between the predicted and measured wavelength (purple), and the daily mean (black) and maximum errors (blue).

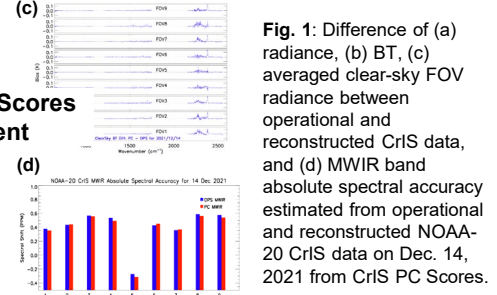


Fig. 5: Long-term BT differences between simulation from ERA-I and SNPP-CrIS, IASI-CDR, and AIRS L1C at 900 cm-1 from 2012 to 2019. (Courtesy of UMBC)

Accomplishments / Events:

- Performed revisit time analysis for different combinations of early morning, morning and afternoon orbit satellites to support the planning of future JPSS satellite orbits and collaboration with other agencies
- Developed software tools to build prototype quadtree structure-based Global/Regional Validation Sites (GRVVs) for quick and efficient imagery comparison and quality assurance
- Used JPSS-2 VIIRS SDR DNB geolocation products from DP-FE (SOL) reprocessed with IDPS Block 2.3 Release Mx7 to confirm that IDPS can generate VIIRS geolocation products when using the JPSS-2 spacecraft ephemeris and attitude data provided with the 10-Hz frequency
- Assisted in scheduling NOAA-20 and Suomi NPP VIIRS lunar calibration with roll maneuvers on 5/12/2022 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 4/30/2022

Overall Status:

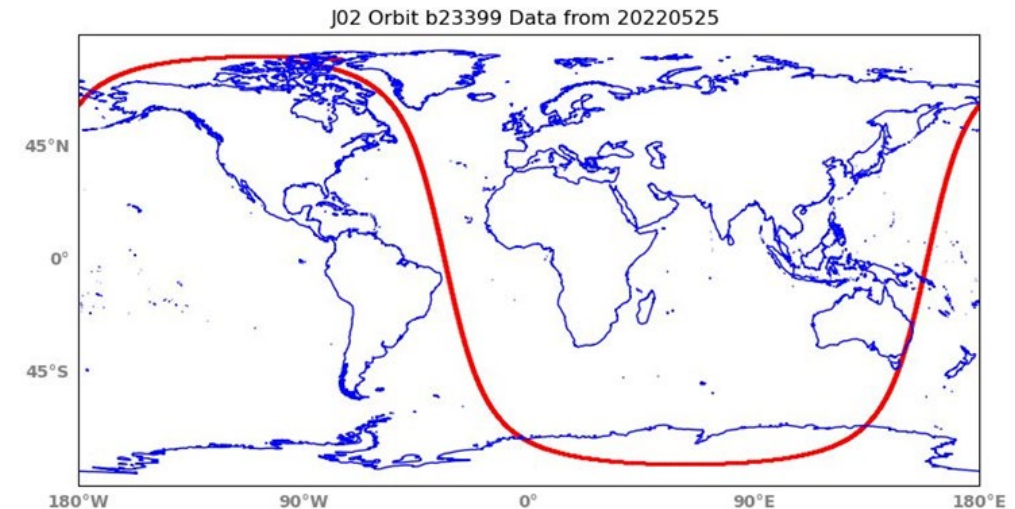
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Issues/Risks:

None

Highlights:



Example of JPSS-2 orbit ground track generated from VIIRS geolocation products created during Segment#3 of JCT-3 TVAC on 25 May 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 NDE
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	Jun-22		TVAC schedule
Deliver final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP to ASSISTT	May-22	Jul-22	02/18/22	pre-dynamic
Deliver final launch-ready JPSS-2 VIIRS LUTs/MM-coef DAP to DPMS	Jun-22	Jul-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		Report 2
Offline RSB/DNB/TEB Cal/Val analyses	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	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 05/11/22 Mx7 SOL	
Operational Support: VIIRS LUT update of DNB Offsets and Gains (S-NPP & NOAA-20)	Monthly	Monthly		

Accomplishments / Events:

- Delivered OMPS biweekly NP solar irradiance bi-weekly LUTs, associated with use of a different solar wavelength shift derivation algorithm.
- Completed and submitted the J2 OMPS SDR PLT schedule.
- Conducted the JCT3 TVAC test data verification and readiness. (1) Identified the deficiencies in the dark & stray light correction LUTs, seeing a re-processed J2 TVAC SDR image with corrected LUTs in Fig. 1a. (2) Debris was also observed throughout the LED test images (Fig. 1b).
- Successfully generated identical operational SNPP/NOAA-20 OMPS NM and NP dark data using IDPS RDR data and our newly developed processing code.
- Examined both working and reference diffuser measurements for SNPP and NOAA-20 OMPS NP to better understand issues seen in the degradation of the instruments.
- Continued the TropOMI and NOAA-20 OMPS NM geolocated radiance comparison.
- Added the OMPS NM and GOME-2 inter-sensor comparison module to the ICVS beta (Courtesy of ICVS).
- Successfully integrated the OMPS V-CRTM Interface into the new V-CRTM v3.0 code, with an improved OMPS radiance simulation.
- Submitted the revised manuscript about 10-year SNPP OMPS sensor performance assessment into FRC.

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		

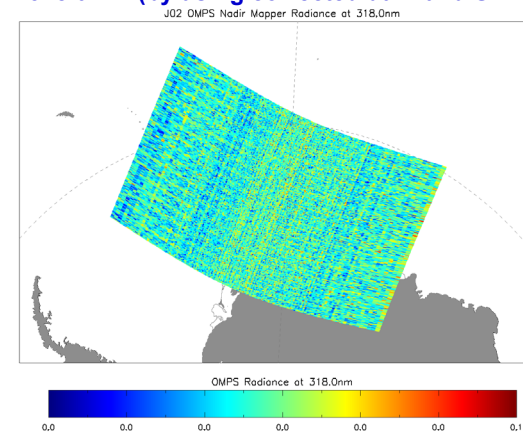
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

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	11/05/21	
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	Jun-22		JCT3-TVAC delay
Deliver final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP to ASSISTT	May-22	Jul-22	03/02/22	pre-dynamic
Deliver final launch-ready JPSS-2 OMPS LUTs/MM-coef DAP to DPMS	Jun-22	Jul-22	03/08/22	pre-dynamic
FY23 Program Management Review	Jun-22	Jun-22	05/16/22	
OMPS SDR Calibration ATBD (update)	Jun-22	Jun-22		
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 matrix 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 05/25/22 Mx7 SOL	
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		

(a) JCT3 TVAC Re-processed OMPS NM Radiance at 318.0 nm (by using corrected dark and SL LUTs)



(b) Debris in the JCT3 TVAC OMPS LED Image

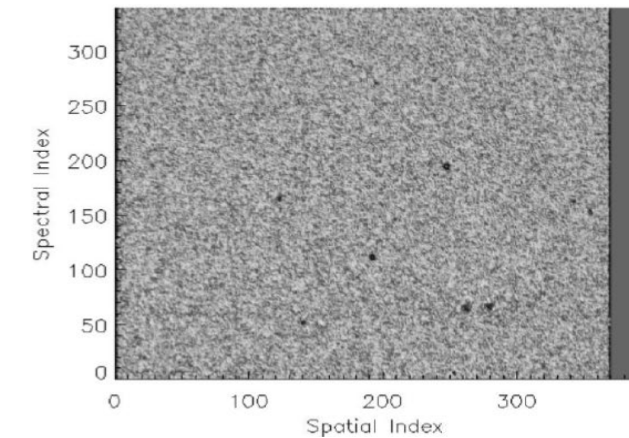


Figure 1: (a) JCT3 TVAC re-processed (offline) OMPS NM Radiance at 318.0 nm (by using corrected dark and SL LUTs). The radiance values without the correction of the LUTs are not in the reasonable range (figure is omitted here). (b) LED image from the JCT3 TVAC segment 1 test, showing dark spots located at various points throughout the CCD. The impact of the debris on calibration is currently being examined further.

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 ~2.94T/day
- The reprocessed SNPP VIIRS SDR data from 1/2/2012 to 3/13/2013 (227.11T, 14.06% of total) has been completed as of May 31, 2022.
- It's expected that the VIIRS data transition will complete in October, 2023.
- Per user's request, the RWG is working on the modification of aggregation to mitigate the issues related to the insufficient number of granules in the beginning of the day

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 14.06%
Total				1764.65	

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY23 Program Management Review	Jun-22	Jun-22		
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		

Accomplishments / Events:

- Processed 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.
- Generated customized VIIRS life time calibration data sets from ICVS historical data records based on VIIRS Cal/Val team requests to support JPSS VIIRS calibration/validation activities.
- Held ICVS LEO-GEO inter-sensor comparison web site development meeting with NOAA GSICS team leads to determine the optimal solution to support JPSS VIIRS and CrIS SDR data quality monitoring tasks.
- Kept updating VIIRS life time data quality vector trending products by adding daily max/min SDR data values.
- Kept processing NOAA-20 VIIRS and OMPS NM SDR data to produce VIIRS vs OMPS NM inter-sensor bias trending time series.
- Kept updating N20 vs. NPP ATMS 32-Day inter-sensor bias trending package. Processed life time TDR/SDR grid data to generate bias trending time series.
- Drafted a manuscript about the ATMS maximum scan drive mechanism temperature prediction by multiple sensor health status parameters using AI technology.

Overall Status:

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

- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
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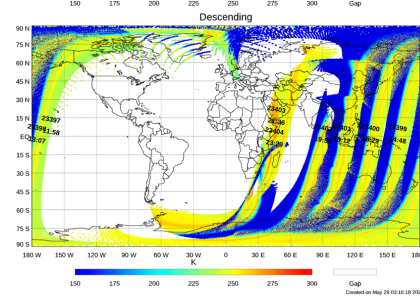
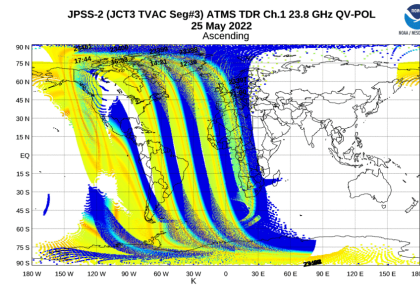
Issues/Risks:

None

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	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 tested 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		
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	

Highlights:

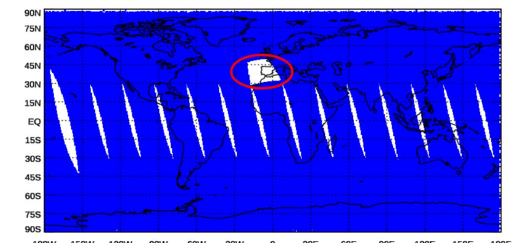
JPSS-2 JCT3-TVAC Segment 3 ATMS TDR at Channel1



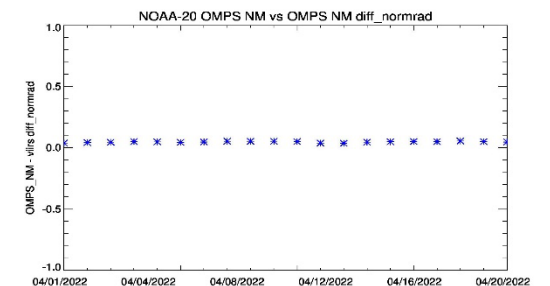
Significantly contribute to STAR SDR Teams

NPP CrIS SDR Data Missing Due to Calibration Error

NPP CrIS FSR LW SDR Overall Quality Flag, Mapped, Ascending, 05/10/2022
(Blue: Good; Green: Degraded; Red: Invalid) Updated at May 11 16:55:57 2022 UTC



NOAA-20 OMPS NM vs. VIIRS M1 Inter-sensor Bias Time Series



Accomplishments / Events:

- Bill Line prepared and presented FY23 Program Management Review. Provided follow-up responses to questions with updated slide-deck.
- Jorel Torres presented at the Satellite Book Club Seminar on 5/5: "[JPSS Applications: Datasets, Training Resources, and User Feedback](#)"
- Recent VIIRS Imagery Social Media Posts
 - [17 May 2022: VIIRS NCC observations of nighttime fire smoke produced from the Black Fire in southern New Mexico.](#)
- Reviewed and provided feedback on JCT3-TVAC as part of JPSS-2 pre-launch testing

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	

Highlights: Image of the Month

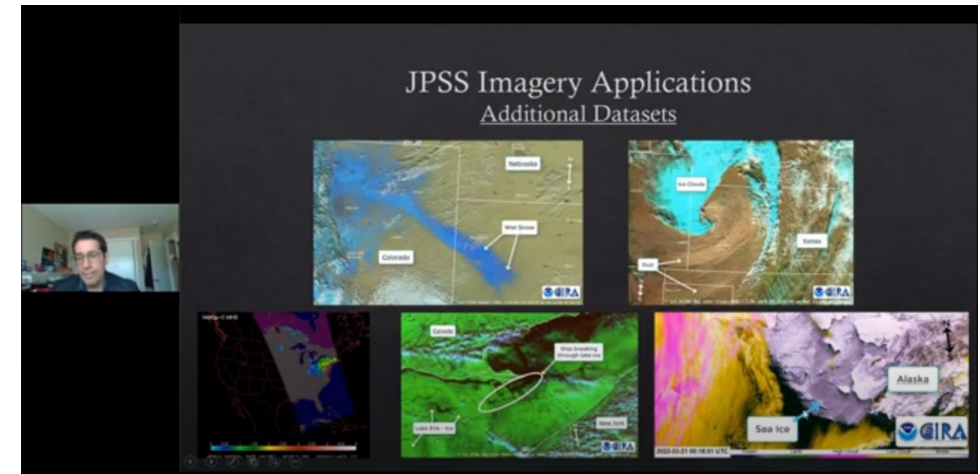


Figure: Jorel Torres discussing VIIRS Imagery applications at a recent Satellite Book Club Webinar, which had over 50 offices/individuals in attendance.

Accomplishments / Events:

- The ECM team is working with the Cloud Base team at CIRA in evaluating the new DNB LUT.
- The CIRA team continued to improve user feedback options on the aviation website for cloud cross-sections interacting with the Aviation initiative participants, and made progress in refining python codes for improved processing time, extending for CONUS with ABI, and finishing ML model transition to VIIRS for improved low layer cloud detection in multi-layer cloud systems. Developing ML models to retrieve vertical profiles of cloud water started, and validation using ground measurements is also ongoing. Four abstracts on these results were submitted to the AMS Collective Madison Meeting.
- DCOMP team continuing to work on NPP LUT issue reported last month.
- The ACHA team identified issues of low level water clouds converged immediately to prior values when using opaque temperature. This created patterns and is being investigated.

Overall Status:

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

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Issues/Risks:

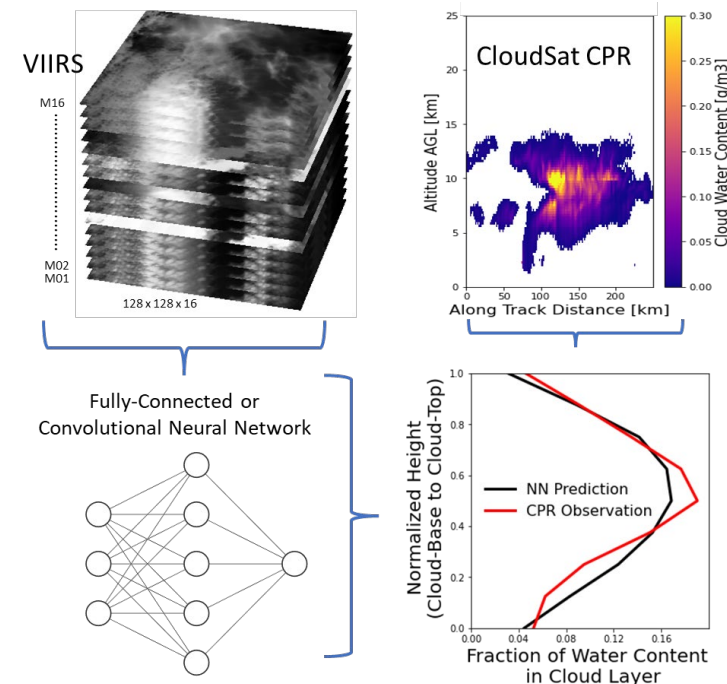
None

Milestones:

- See next slides

Highlights:

Figure 1. CIRA's ongoing research on developing AI models for vertical distributions of cloud water from VIIRS observations, which will be employed for building 3D cloud structure data (with a possibility to include in-flight icing information). Fully-connected NN and CNN approaches have been investigated, using CloudSat-VIIRS data for data training.



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	
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		
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 with 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	
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	
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	Aug-22		
Continue work on ACHA COMP and begin JPSS-2 ACHA COMP validation plan	Aug-22	Aug-22		
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		
Support Polar AMVs as needed including use of CrIS	Aug-22	Aug-22		
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	
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	
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	
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 82° (degraded between 75-82° 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	
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		

Accomplishments / Events:

- Completed implementation of AI-based surface reflectance relationship in VIIRS enterprise aerosol optical depth algorithm – see highlight
- Participant/support for JCT3-TVAC
- Reprocessed the entire SNPP and NOAA-20 VIIRS ADP and generated smoke and dust climatologies
- Completed the generation of surface PM2.5 estimates for CONUS for 2012-2020
- Held JSTAR Program Management Review for Aerosols on 17 May 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.

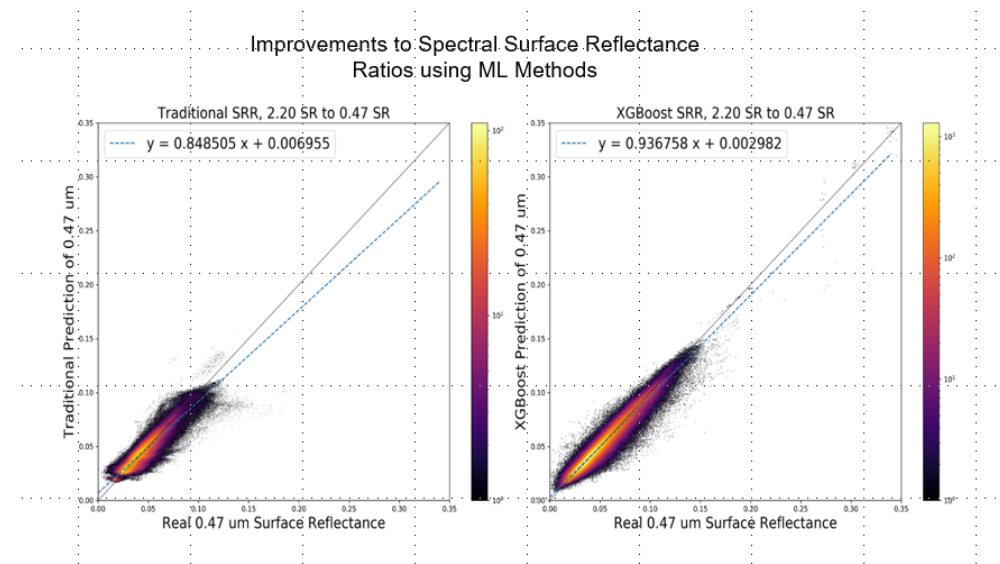
Issues/Risks:

No risks

Milestones:

- See next slides

Highlight: Implementation of AI/ML based surface reflectance relationship in VIIRS enterprise AOD algorithm



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	
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	
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

Accomplishments / Events:

- Continued to ensure high quality Volcanic Ash retrievals from EDR algorithms and VOLCAT. VOLCAT is long-term plan.
- Final J2 ready DAP to NDE (no significant changes)
- Held JSTAR Program Management Review for Volcanic Ash

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	
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 Advisory 16 May 2022

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FVXX22 KNES 161041
VA ADVISORY
DTG: 20220516/1041Z

VAAC: WASHINGTON

VOLCANO: RUIZ 351020
PSN: N0453 W07519

AREA: COLOMBIA

SUMMIT ELEV: 17457 FT (5321 M)

ADVISORY NR: 2022/497

INFO SOURCE: GOES-16. WEBCAM. NWP MODELS. VOLCAT.

ERUPTION DETAILS: CONT VA EMS

OBS VA DTG: 16/1010Z

OBS VA CLD: SFC/FL220 N0501 W07601 - N0453 W07519
- N0444 W07601 - N0501 W07601 MOV W 20KT
    
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VOLCAT is routinely cited in volcanic ash advisories

Accomplishments / Events:

Final J2 ready DAP to NDE

New VIIRS ice thickness algorithm shows improvement. To validate the VIIRS sea ice thickness product (OTIM), the thickness is compared to airborne observations during NASA's Operation IceBridge (OIB). The most recent research version of the One-dimensional Thermodynamic Ice Model (OTIM, V6.2) is compared to the previous version (V6.1). The highlight illustrates that the new version is in better agreement to the IceBridge ice thicknesses than the previous version. Version 6.2 will be delivered to ASSISTT in the coming months.

2022 JPSS VIIRS Ice Concentration Shows Good Agreement to Landsat over Great Lakes: In the scenes reviewed, the differences between Landsat and VIIRS are near zero with scattered small areas of larger differences that are mainly negative (VIIRS less than Landsat)

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.

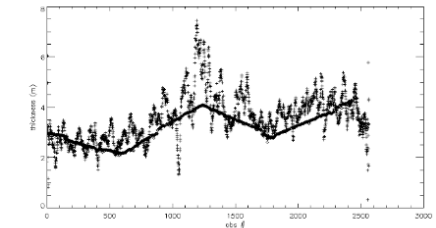
Issues/Risks:

None

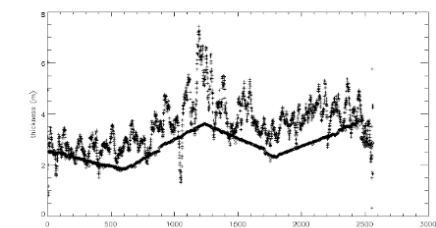
Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	10/28/21	
FY23 Program Management Review	Jun-22	Jun-22	05/18/22	
Final J2 ready DAP to NDE (include NPP/N20 updates)	May-22	May-22	05/17/22	
Super DAP v3.1 patch delivery			12/06/21	
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: New version of ice model with improved performance

OTIM ice thickness product (dark, smoother line) vs. IceBridge ice thickness measurements (line with "+") along a flight track on 4/06/2019. Top: Most recent version (V6.2) of OTIM. Bottom: Previous version of OTIM (V6.1).



V6.1:



Accomplishments / Events:

- Verifying the output of the enterprise fire processing package (eFire) for the VIIRS I-band and M-band products. (see highlight)
- Held JSTAR Program Management Review for Active Fires on 23 May 2022
- Provided support for the testing and delivery of the CSPP code for the Active Fire product

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	11/05/21	
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: Evaluating performance for enterprise fire processing package

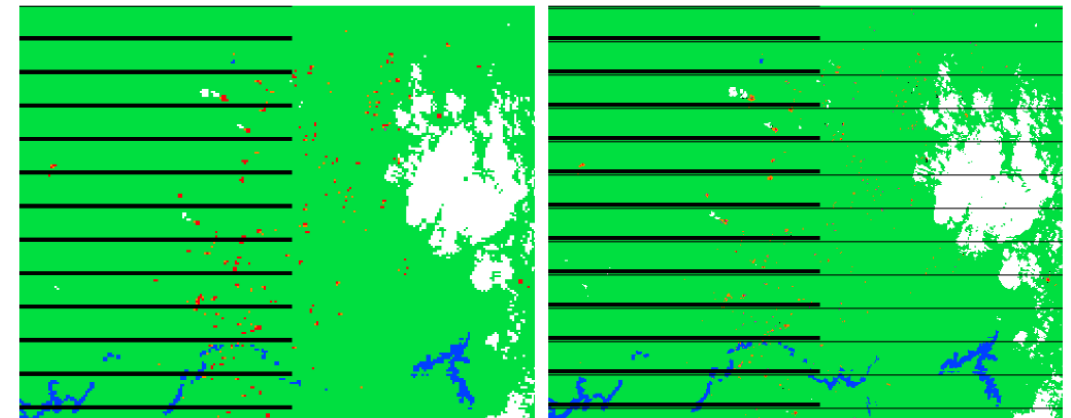


Figure: NOAA-20 VIIRS M-band (left) and I-band (right) active fire mask of an area in West Africa on April 30, 2022 at 13:51:UTC, produced by the enterprise fire (eFire) system.

Accomplishments / Events:

- STAR-UMD VIIRS Surface Type team has downloaded and processed S-NPP and NOAA-20 VIIRS granule surface reflectance data acquired in May 2022 for the production of AST-2022.
- The team published the following paper demonstrating the feasibility to quantify forest cover and height change based on VIIRS observations calibrated by forest measurements collected by NASA’s GEDI mission:
 - Rishmawi, K., Huang, C., Schleeweis, K., & Zhan, X. (2022). Integration of VIIRS Observations with GEDI-Lidar Measurements to Monitor Forest Structure Dynamics from 2013 to 2020 across the Conterminous United States. *Remote Sensing*, 14, 2320.
- The team is on track towards developing the AST-2021 product:
 - The team has generated the annual classification metrics using VIIRS observations collected in 2021, which are needed to produce the AST-2021 product.

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			

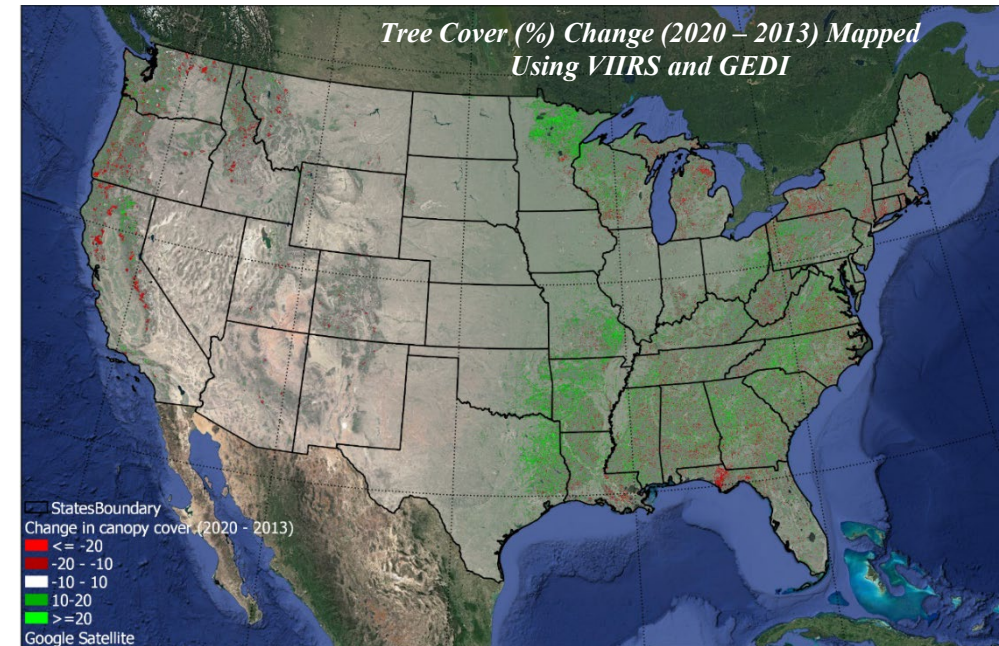
1. Project has completed.
2. Project is within budget, scope and on schedule.
3. Project has deviated slightly from the plan but should recover.
4. Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

From 2013 to 2020, ~56,000 km² of western forests (100 degree west) lost more than 10% tree cover in absolute value while only 22,000 km² had an increase of 10% or more. To the east, the area with canopy cover gains of 10% or more exceeded 285,000 km² compared to 199,000 km² of forests that had 10% or more canopy cover loss (Rishmawi et al. 2022).



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		

Accomplishments / Events:

- Investigated the consistency between SNPP and NOAA20 VIIRS SR product using in-situ surface reflectance (RadCalNet observation) and inter-comparison, verified the underestimated NOAA20 SR compared with SNPP.
- Inter-comparison between VNP09 and SNPP SR EDR, significant difference is found between these two product from same algorithm but different inputs. Impacts on the downstream products like NDVI and LAI is also evaluated.
- Maintained the SR monitoring and validation tools, fixed the issues through routinely monitoring.
- Set up the FY23 milestone and went through the FY23 Program Management 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			

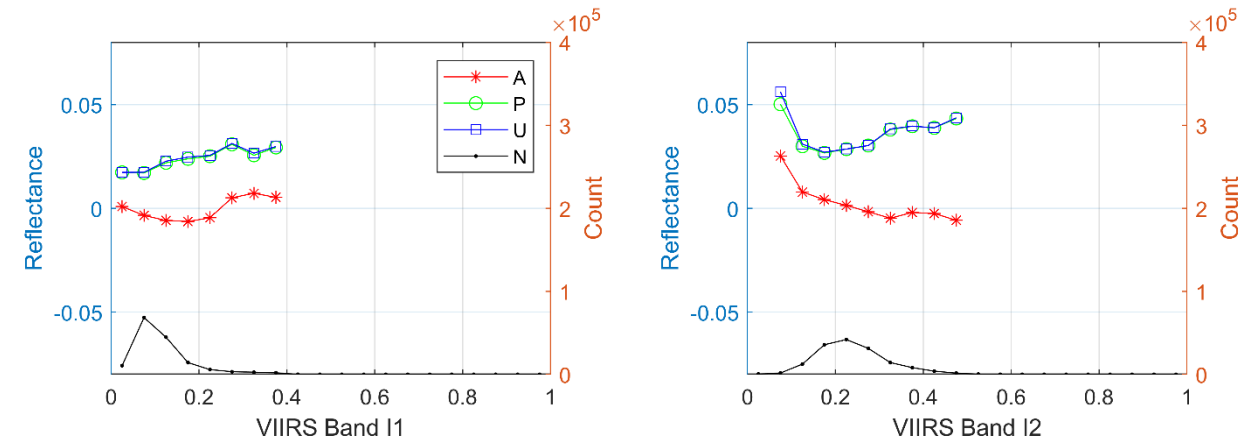
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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:



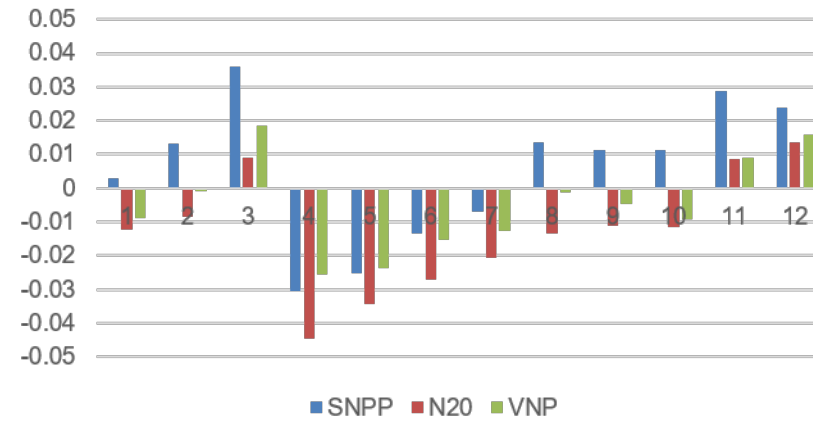
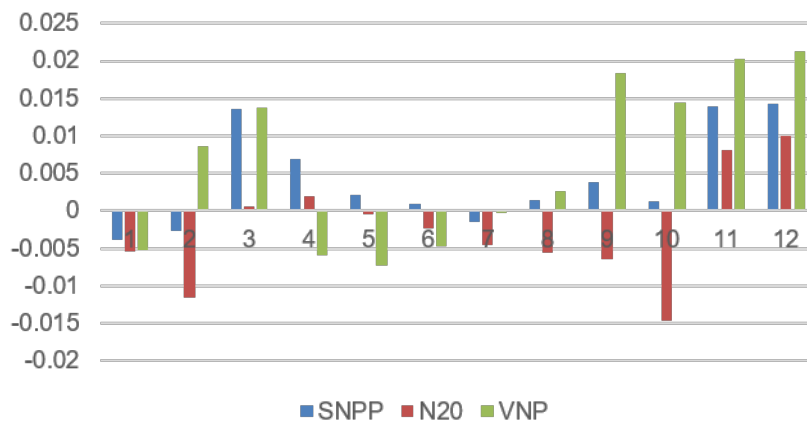
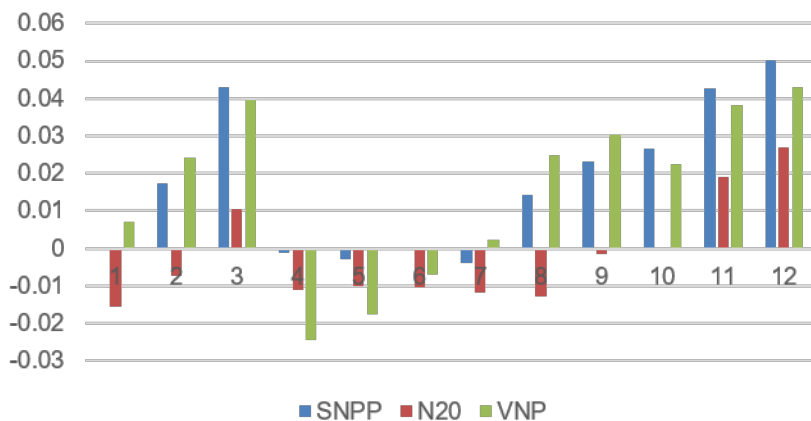
VNP09 and S-NPP SR (I1 & I2) EDR inter-comparison at global AERONET sites

- SR compared with in-situ reflectance of three RadCalNet sites using three products (SNPP EDR, N20 EDR and SNPP VNP09), NOAA20 shows a relative lower SR value compared with SNPP EDR.

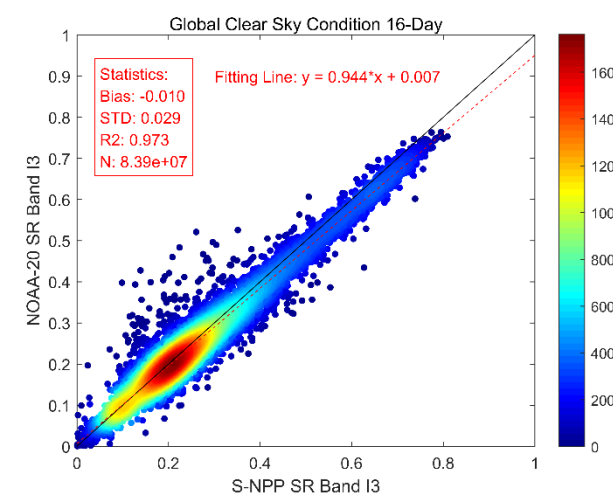
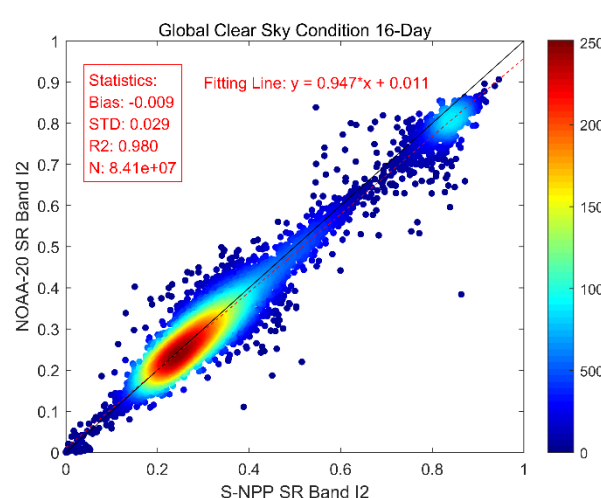
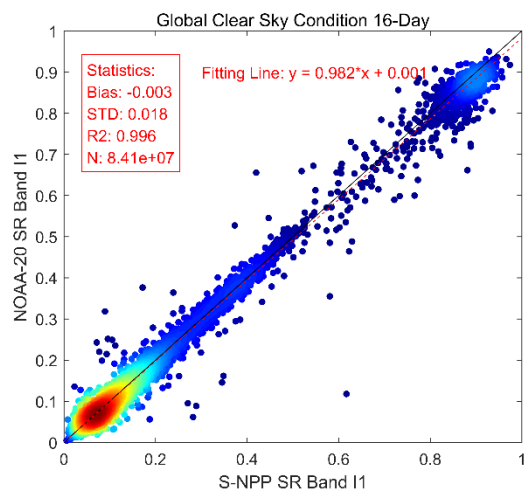
SR Bias @ LCFR

SR Bias @ GONA

SR Bias @ RVUS

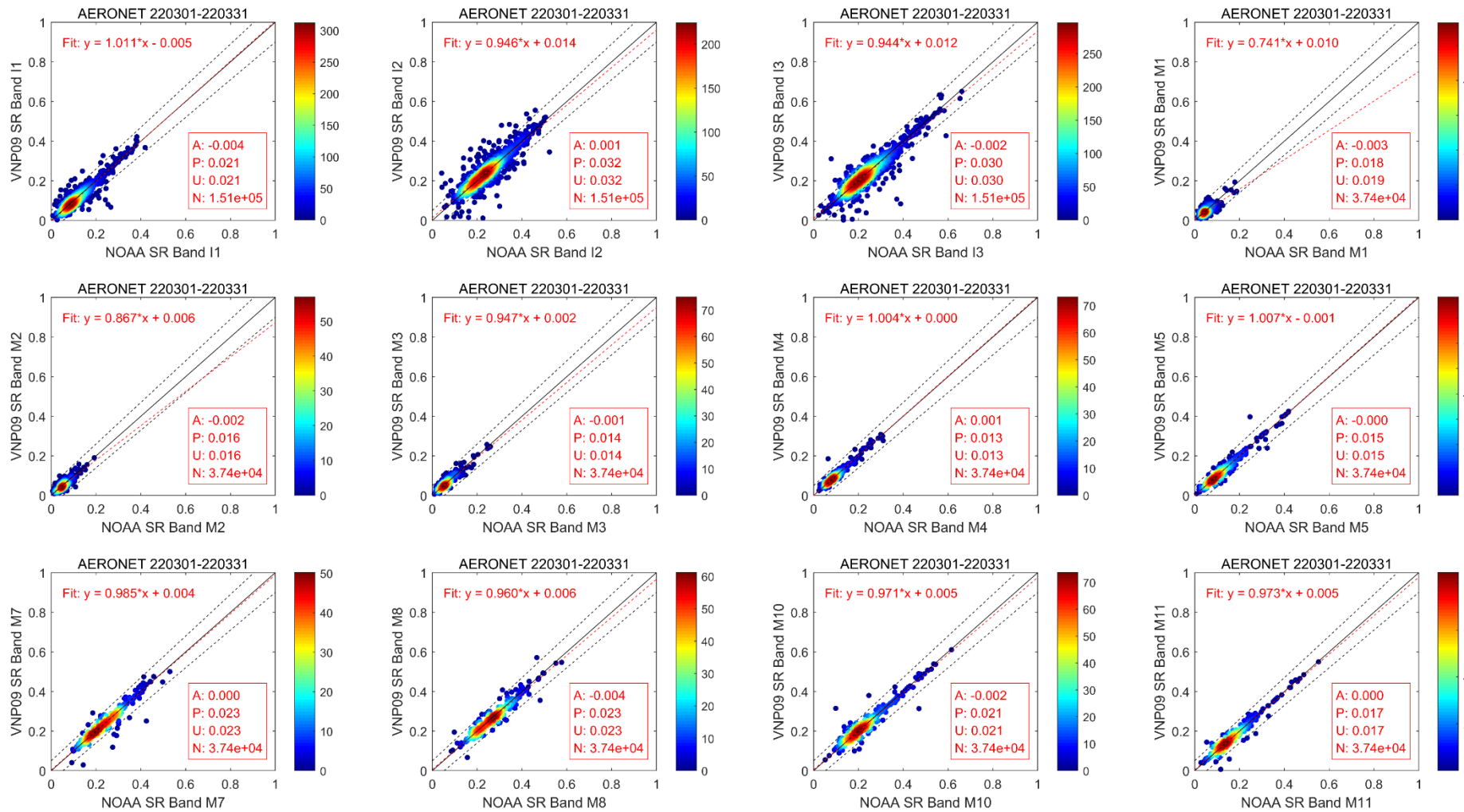


- 16-day sky clear mean SR were used for SNPP and NOAA20 comparison.
- Overall, two product have good agreements
- A small negative bias is found for N20 compared with SNPP.



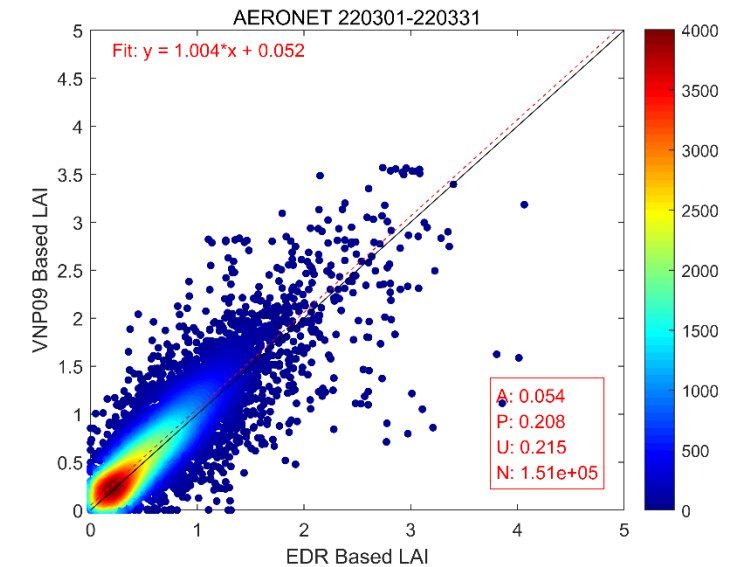
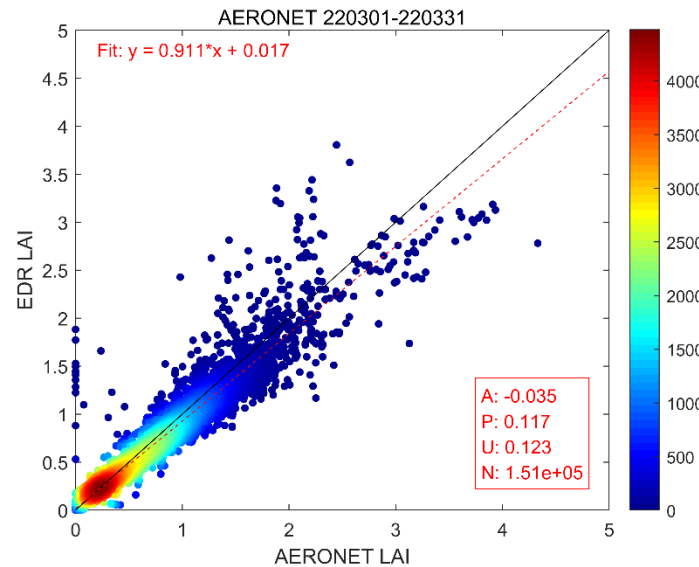
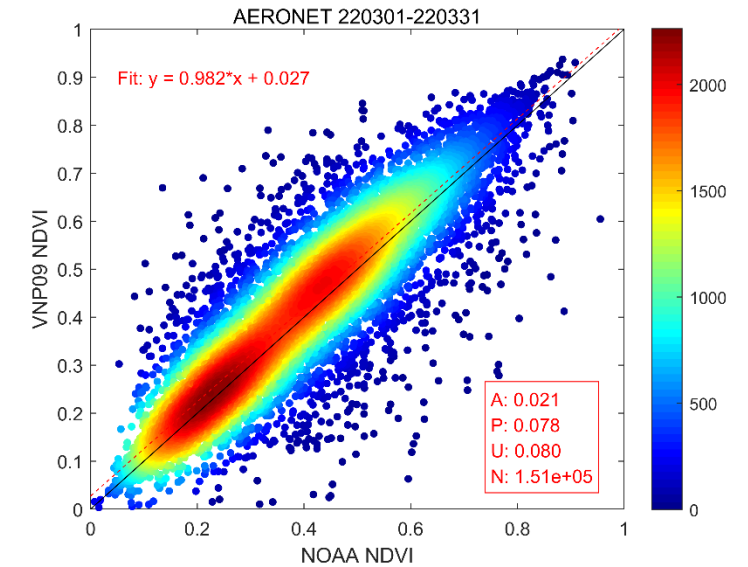
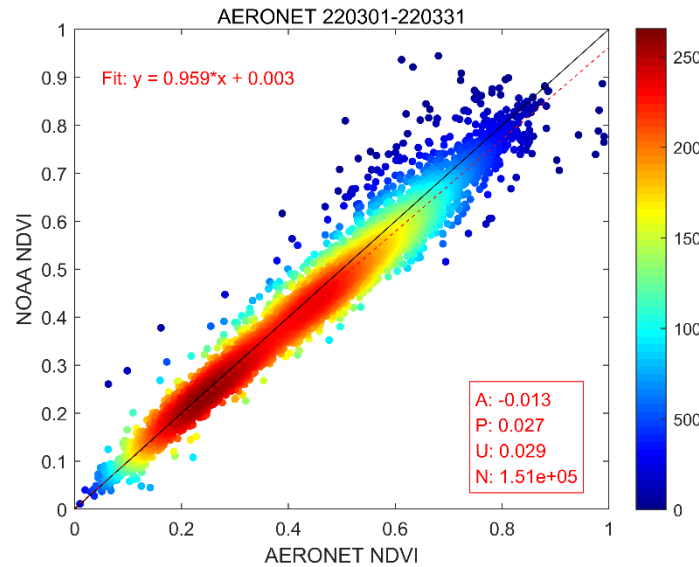
Inter-Comparison Between SNPP and N20 SR using 16-day average SR (I1-I3 bands)

- An inter-comparison between NASA VNP09 (SNPP) and NOAA SNPP EDR is performed for the SR product monitoring and evaluation. These two products share the same algorithm but with different inputs.



- One month (March 2022) data from global distributed AERONET sites (123 in total)
- VNP09GA data is used to match SR EDR both the Lat/Lon and view angles.
- Overall two product has good agreements with high R2 and small bias.
- Significant STD and RMSE is also found.

- An series of intense evaluations have been performed for SNPP and NOAA20 SR EDR, a preliminary evaluation is conducted for the downstream users, take NDVI and LAI for example.
- Three sets of SR matched at AERONET sites are used to generate NDVI and LAI (using a machine learning method to predict LAI from I1, I2 and I3 SR along with the view and solar angles).
- The AERONET based SR and better agreement with SR EDR, and yield a better agreement for both NDVI and LAI.
- Since VNP09 and SR EDR has larger difference, a larger difference is expected for both NDVI and LAI.
- Further investigation is undergoing for this impact evaluation.



Accomplishments / Events:

- Completed the code and preliminary test for LUT interpolation. Broyden-fletcher-Goldfarb-shanno algorithm(BFGS) method is used as the optimization algorithm in this study. Further efforts are needed to improve the convergence efficiency.
- Completed the preliminary evaluation of all weather LST using ground measurements from SURFRAD. Improved the image plots. (highlights & slide 2)
- Completed the PMR review slides
- Finalized the manuscript titled “Ten years of VIIRS Land Surface Temperature Product Validation” and submitted it to the special issue of " VIIRS 2011–2021: Ten Years of Success in Earth Observations " by Remote Sensing.
- Conducted L2 and L3 VIIRS LST validation against NDBC buoy observations over Great Lake region and summarized the results into a technical report. (slide 3, 4 and 5)

Overall Status:

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

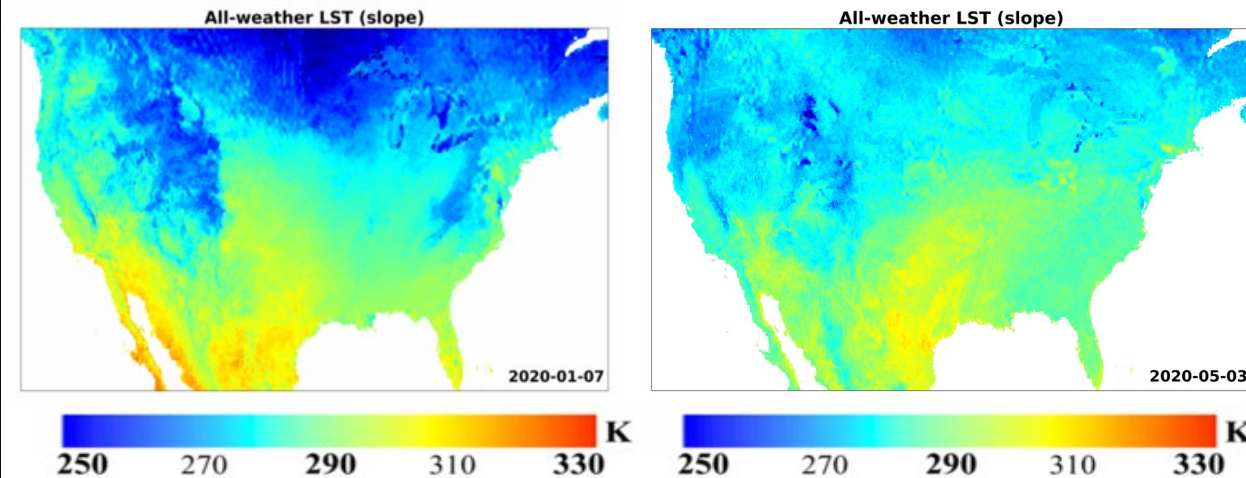
- Project has completed.
- Project is within budget, scope and on schedule.
- Project has deviated slightly from the plan but should recover.
- Project has fallen significantly behind schedule, and/or significantly over budget.

Issues/Risks:

None

Highlights:

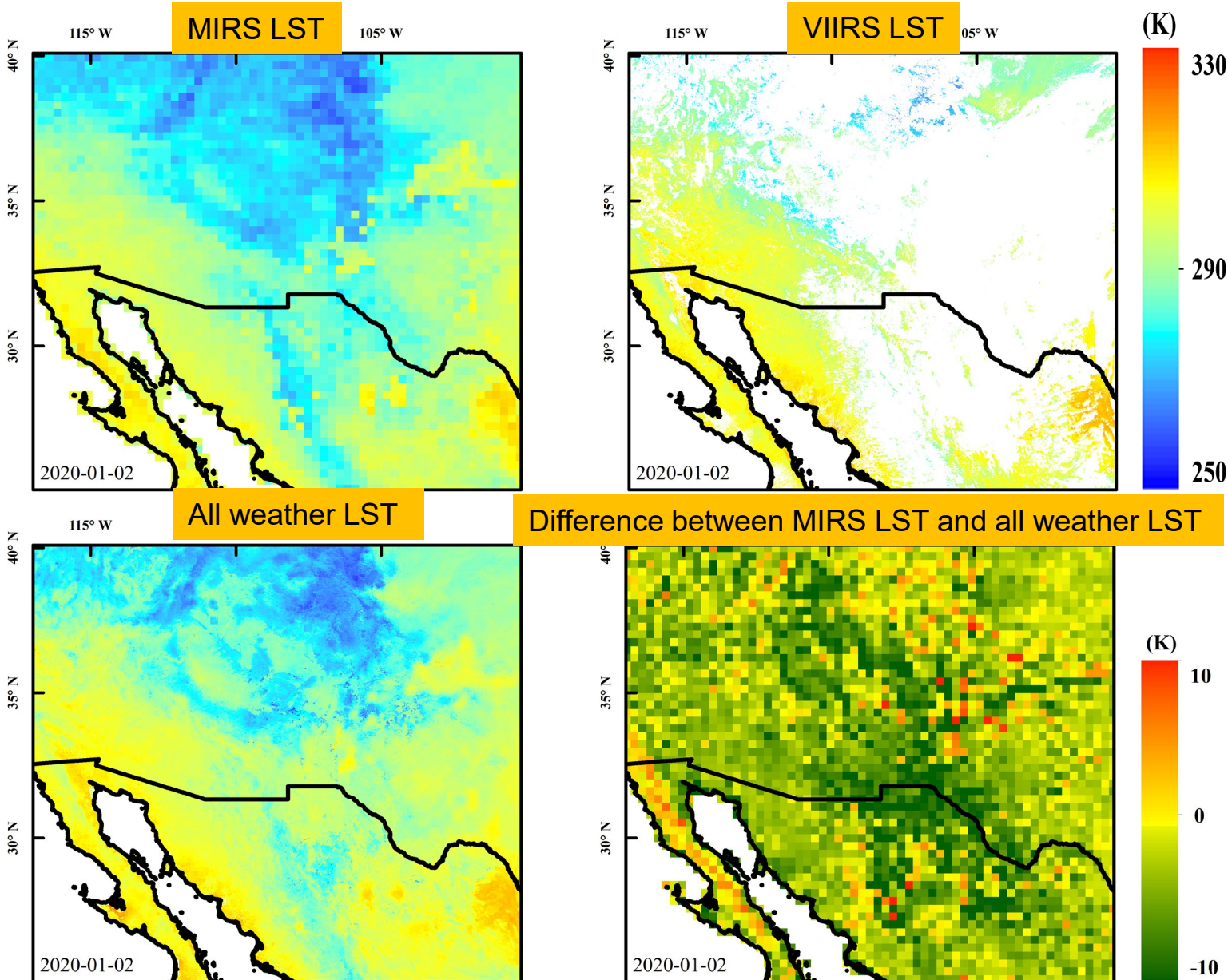
All weather LST over CONUS



All weather LST is based on the fusion of MIRS LST and VIIRS LST. The left image is for daytime on 01/07/2020 and the right image is for nighttime on 05/03/2020

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	
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		
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		

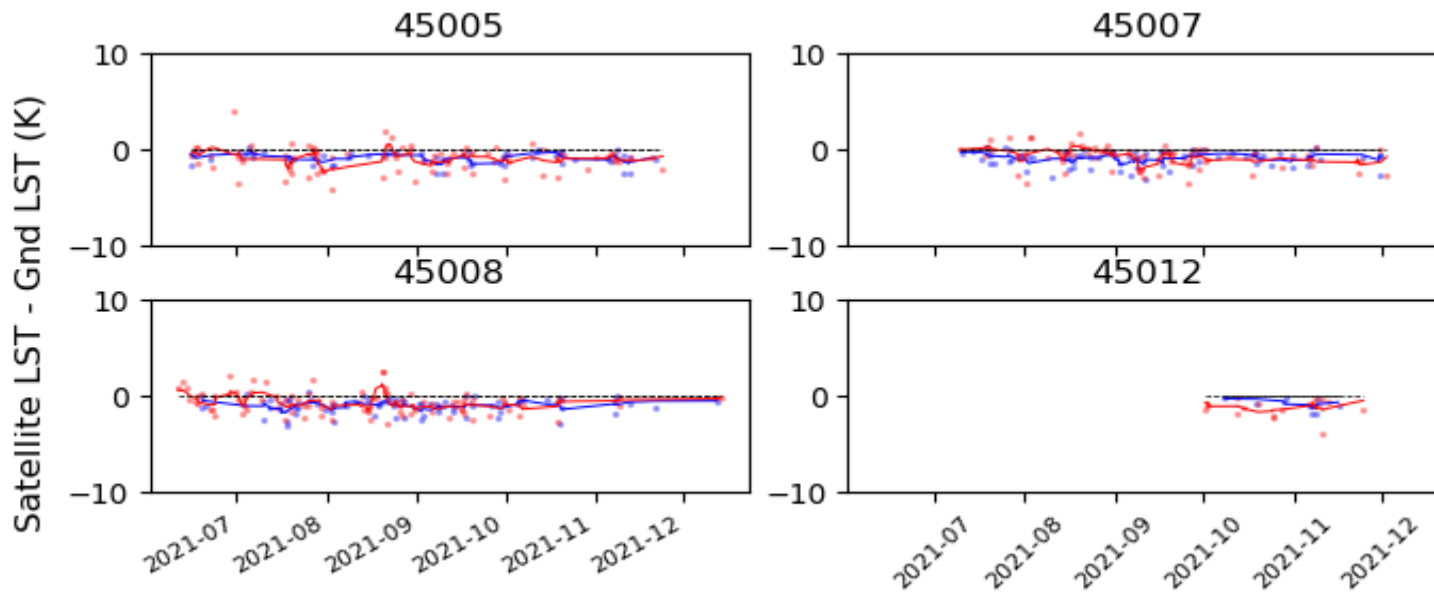
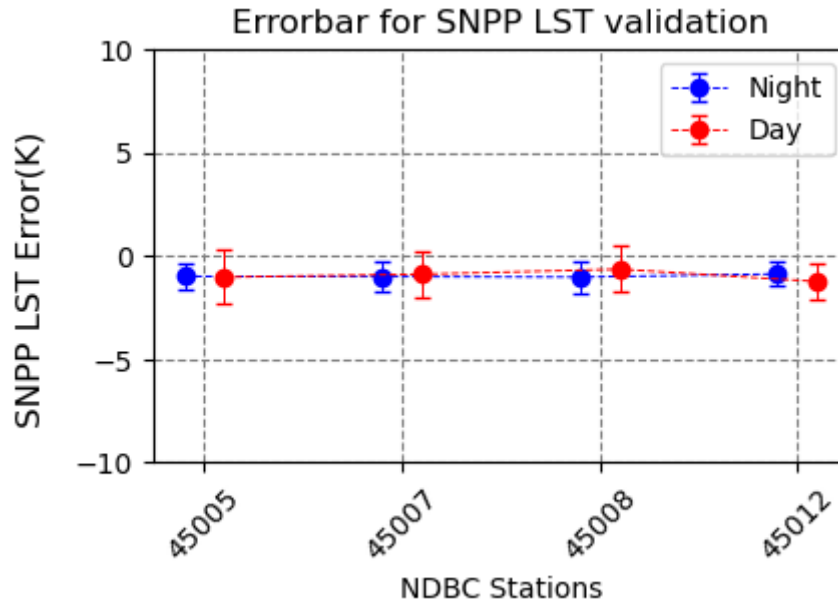
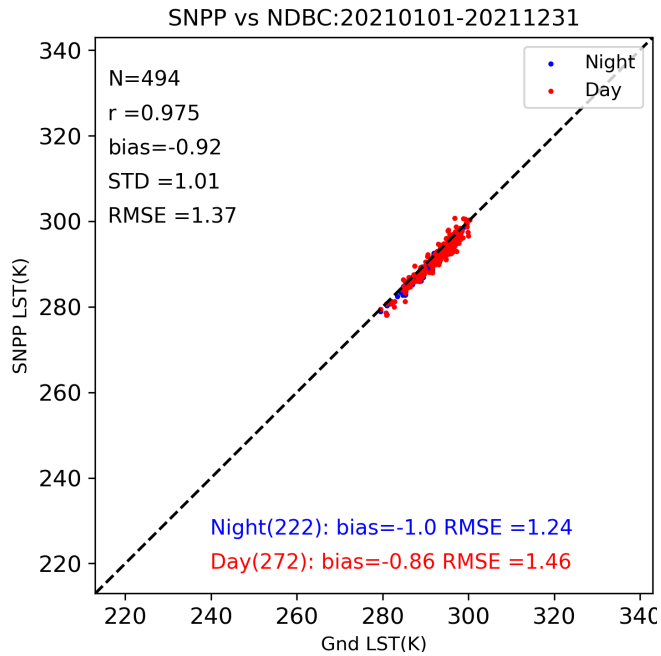
All weather LST Development



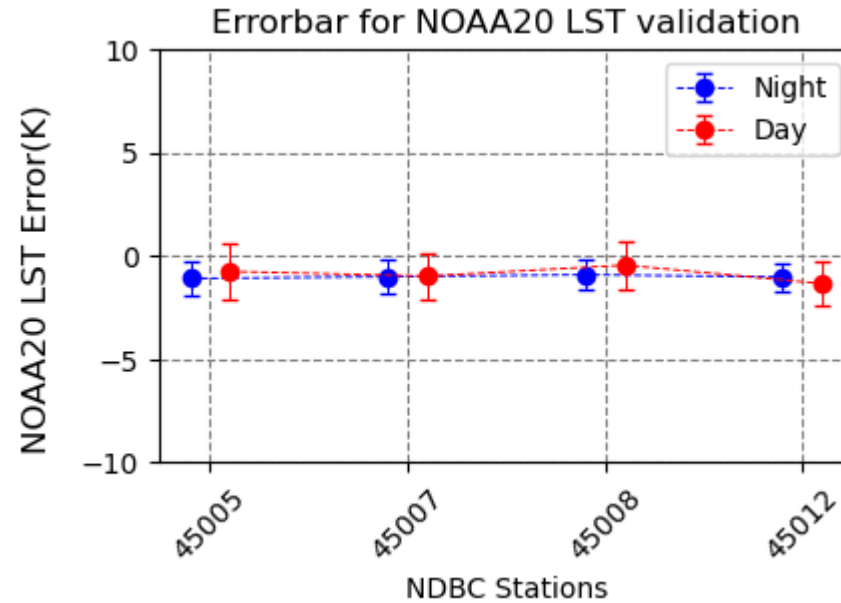
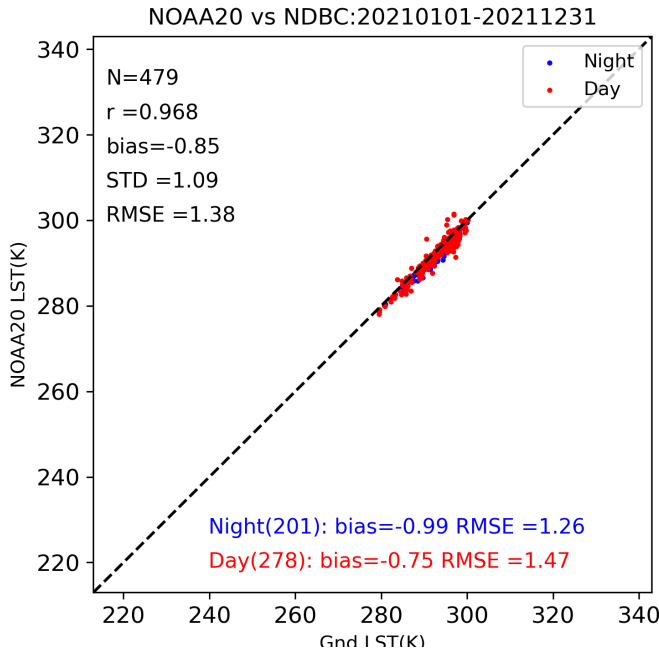
- All weather LST(bottom left) is developed based on the fusion of MIRS LST(top left) and VIIRS LST(top right) (under all confidently clear condition); bottom right figure shows the difference between the MIRS LST and all weather LST
- The all weather LST is daily data with 1 km spatial resolution for daytime and nighttime separately.
- It provides more complete data compared to VIIRS LST; more details and improved quality compared to MIRS LST; smooth LST with no apparent discontinuities or boundaries.

L2 SNPP VIIRS LST Validation Validation Against NDBC

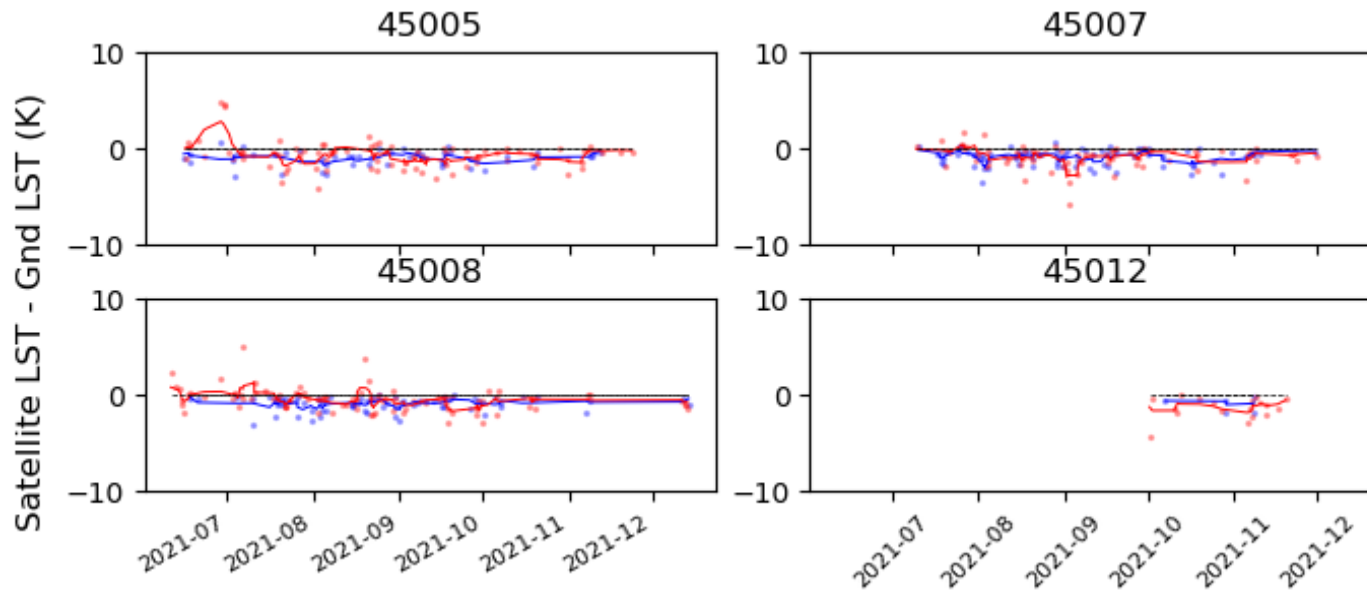
- Four sites from NDBC are selected for the validation of L2 SNPP VIIRS LST
- The data covers almost half year in 2021
- Additional cloud filtering procedure was applied
- Both daytime and nighttime LST shows a cold bias of about 1 K.
- The site wide time series of LST Error is generally stable with no obvious seasonal variation (blue for nighttime and red for daytime)



L2 NOAA20 VIIRS LST Validation Against NDBC



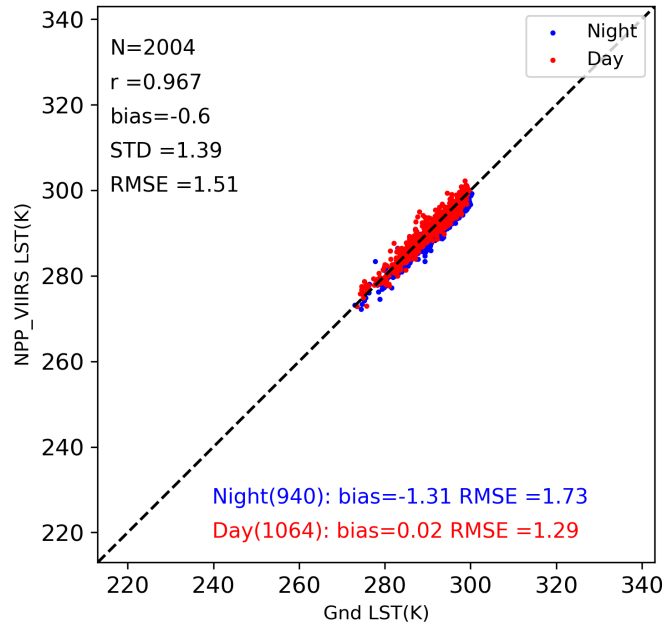
- Four sites from NDBC are selected for the validation against L2 NOAA20 VIIRS LST
- The data covers almost half year in 2021
- Additional cloud filtering procedure was applied
- Both daytime and nighttime LST shows a cold bias particularly at nighttime.
- The time series of the LST error is generally stable with no obvious seasonal variation for all sites



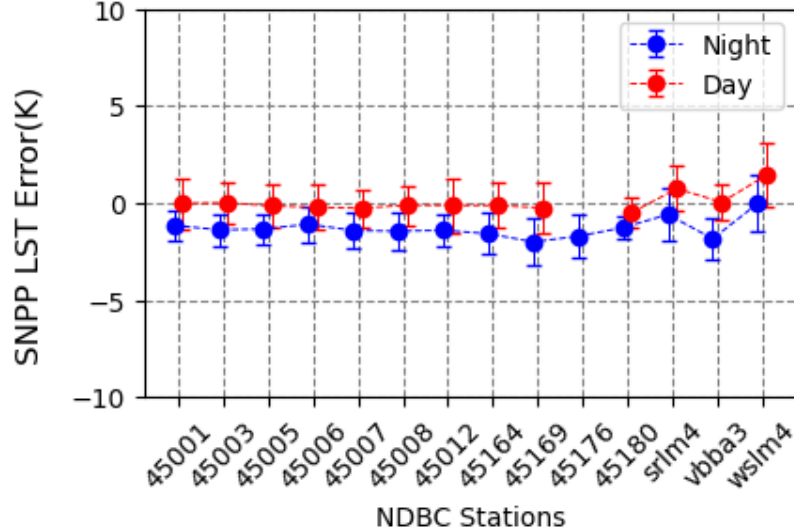
- Top left shows the combined validation results from the four sites with daytime and nighttime statistics separated
- Top right shows the site wide validation results for night and day
- Bottom left figure shows the site wide time series of the LST error between satellite and ground observation

L3 SNPPP VIIRS LST Validation Against NDBC

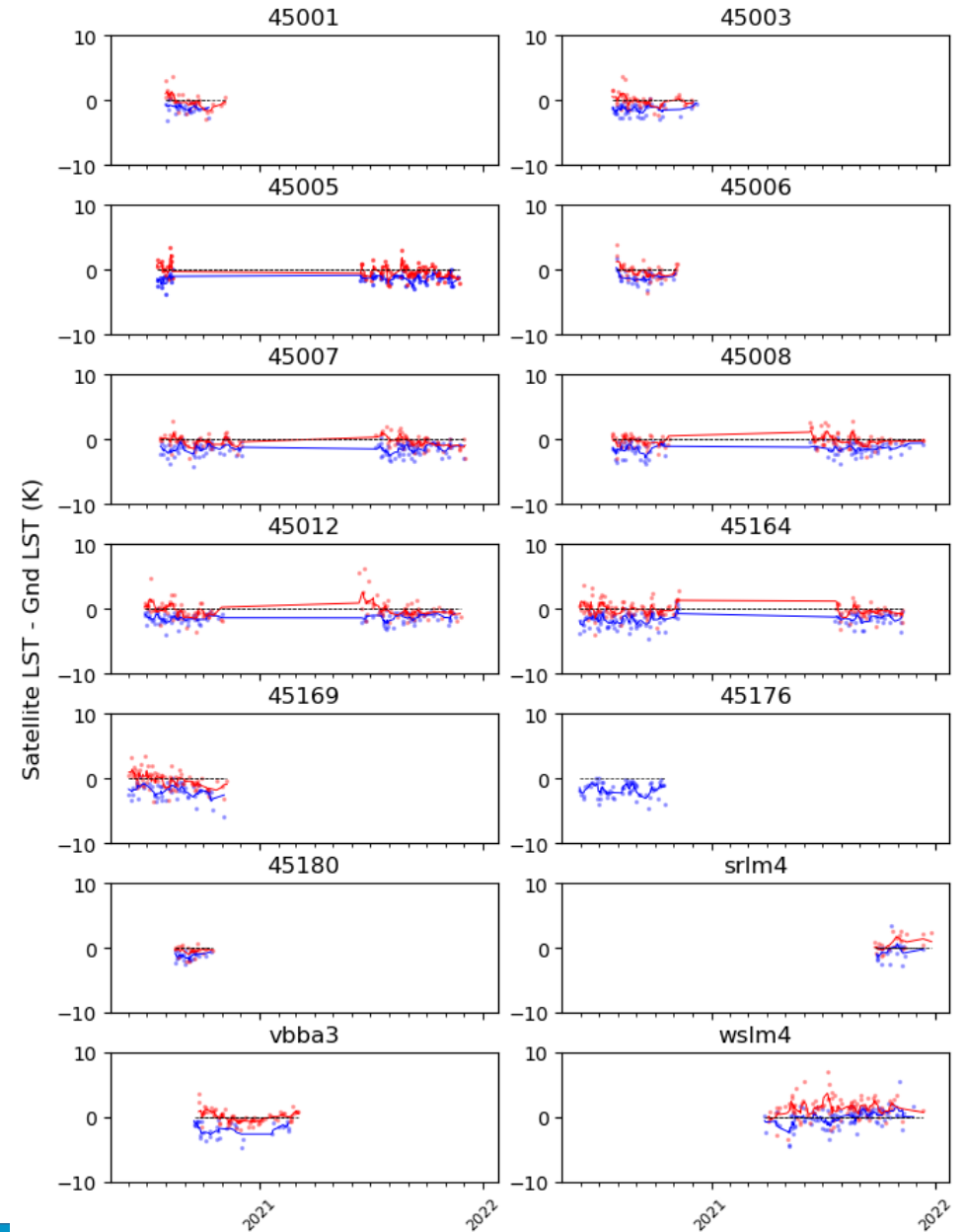
SNPP vs NDBC:20200101-20211231



Errorbar for SNPP LST validation



- 14 sites are selected for the validation.
- The time period varies over site but generally covers 2020 to 2021.
- The L3 SNPP LST was used in the study
- Cloud free in 3*3 of the match up pixel
- The STD of the 3*3 around the match up pixel less than 1.5 K
- A cold bias of 1 K is found at nighttime while nearly no bias at daytime. The STD is over 1K for both day and night
- Several sites are close to land surface



Accomplishments / Events:

- Summarized the cloudy-sky albedo algorithm test results
 - Utilized the microwave data to improve the albedo estimation accuracy over cloudy snow surface
- Prepared for the PMR slides of the albedo project
 - Checked the project milestones and made new plans
 - Summarized the achievements and identified the issues
- Checked the J2 albedo files and summarized the results
 - file format is consistent as NOAA-20 and SNPP
 - but none valid albedo retrievals
- Cross-compared VIIRS albedo validation results with GOESR albedo results
- Revised the VIIRS albedo manuscript according to reviewers' comments and re-submitted

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.

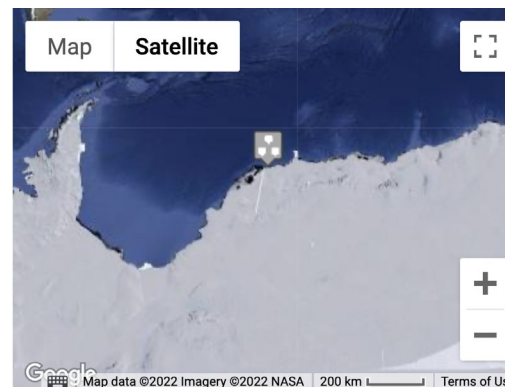
Issues/Risks:

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year PMR	Oct-21	Oct-21	11/01/21	
Manuscript ready for Albedo Climatology update	Dec-21	Apr-22	Apr-22	More time needed
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	
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

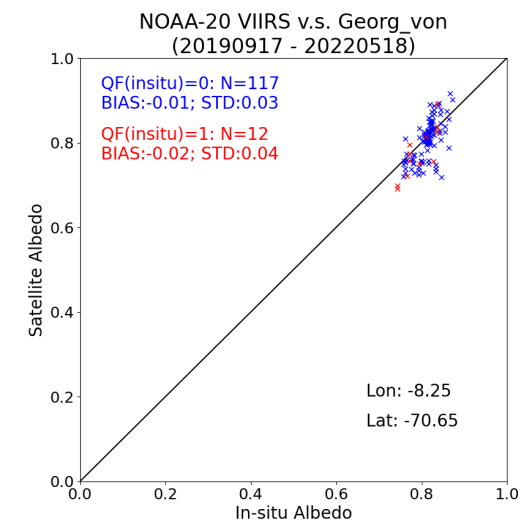
Highlights: LTM validation of VIIRS ice albedo:

von Neumayer Station (GvN) on Ekström Ice Shelf , Antarctica

At one ice-covered site in BSRN network, comparison with ground measurements shows the VIIRS ice albedo quality is reliable and stable



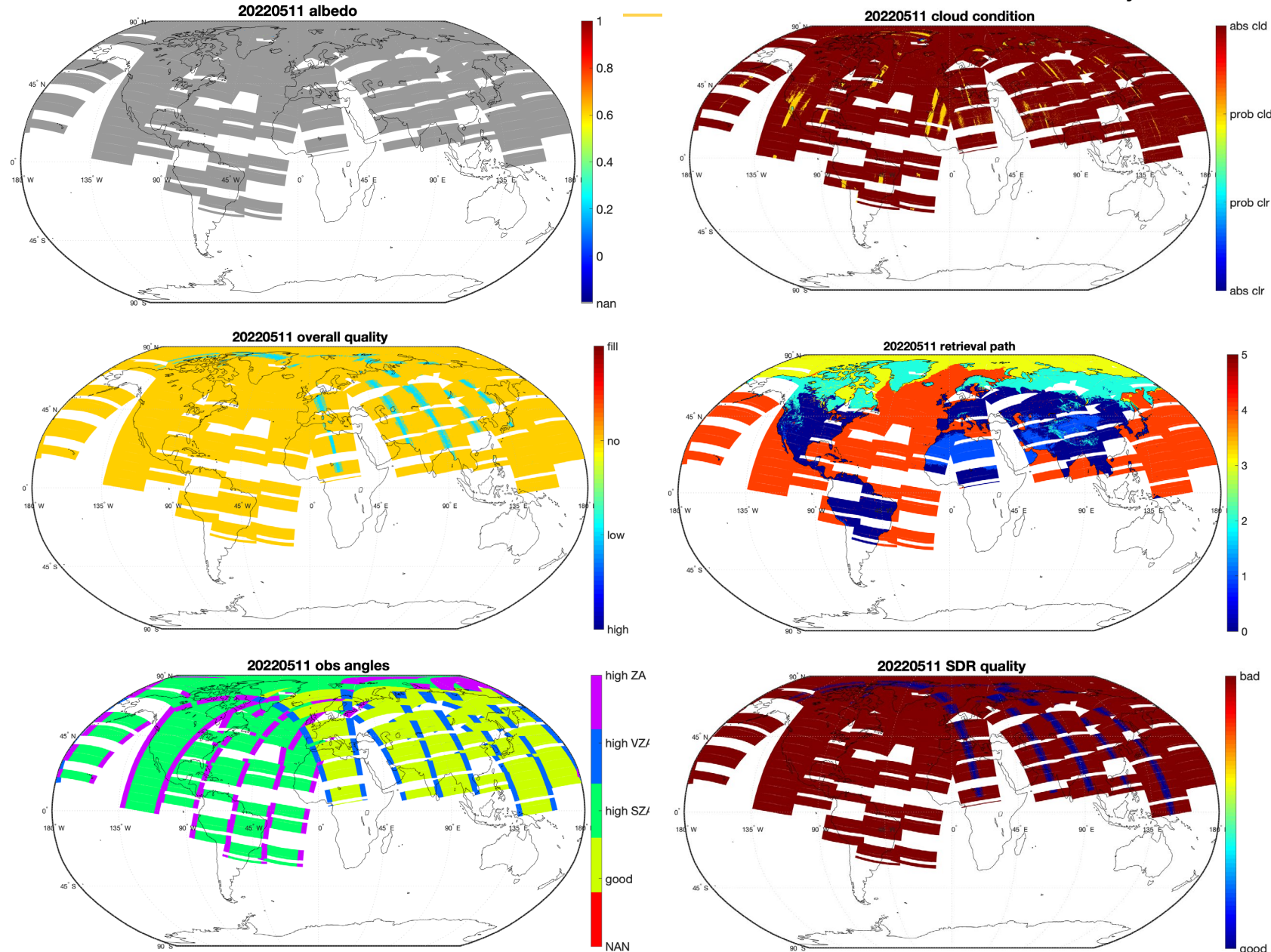
Latitude: -70.65 Longitude: -8.25



Checking of the first J2 albedo output

1. The data format is the consistent as NOAA20 and SNPP
2. Albedo is not correctly retrieved, and all granules with invalid value
 - both VIIRS_Albedo_IP and VIIRS_Albedo_EDR
3. The quality flag is not totally correct
 - The cloud flag looks incorrect, meaning cloud is incorrect during execution
 - The SDR is incorrect, meaning TOA ref is incorrect during execution.
 - The retrieval path bits looks correct, which show the surface type and snow/ice mask is correctly read in
 - The angles bits are correct, meaning the zenith angles are read correctly
4. Lat/lon variables in albedo files has data missing

May 2022



Summary:

- Background:** We are developing a new cloudy-sky albedo estimation method by including passive microwave data for snow albedo estimation under clouds and snow-free albedo climatology for snow-free cases. The site validation was implemented at SURFRAD sites and the accuracy was compared with current available all-sky albedo products.
- Conclusion:** Site validation indicates that daily all-sky VIIRS albedo has better accuracy than GLASS and GlobAlbedo, especially for snow cases. GLASS and GlobAlbedo have 8-day temporal resolution that is not suitable for characterizing snow albedo variation.

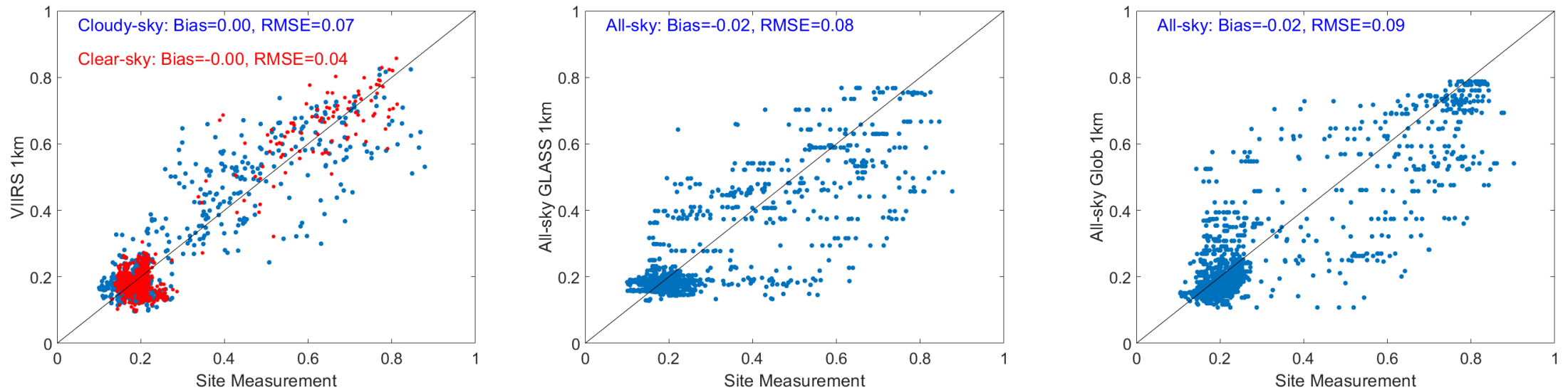


Figure. Site validation of all-sky 1km albedo products: (1) VIIRS, (2) GLASS, and (3) GlobAlbedo

Summary:

- **Background:** Temporal analysis in 2013 was performed in order to check if the new method can capture the general albedo pattern in snow and non-snow seasons, and GLASS was involved for comparison.
- **Conclusion:** The new method can capture the snow albedo variation not only in the general pattern but also in details. Short term snow cover (2-3 days) at these two sites were shown from site observations and VIIRS, whereas GLASS missed the short disturbance due to coarse temporal resolution.

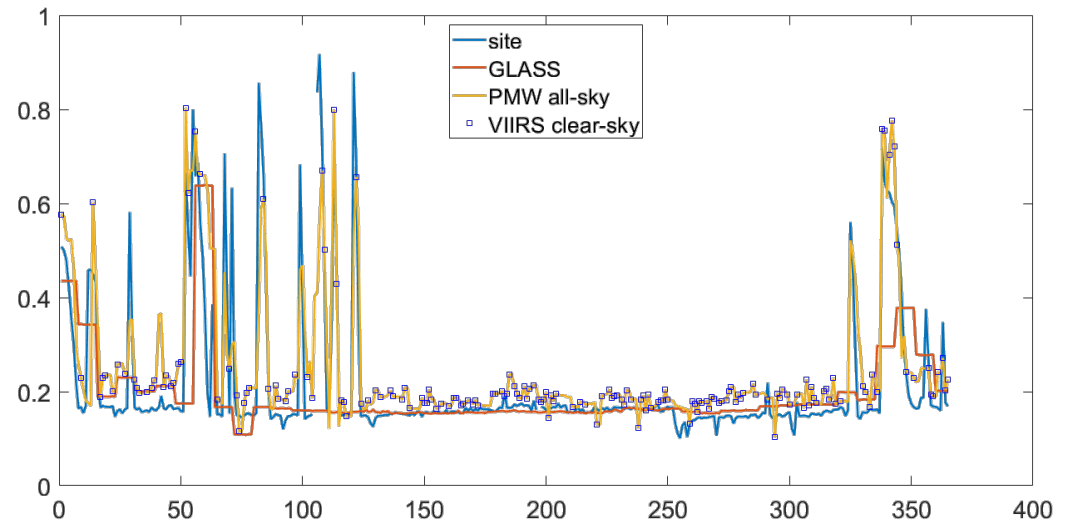
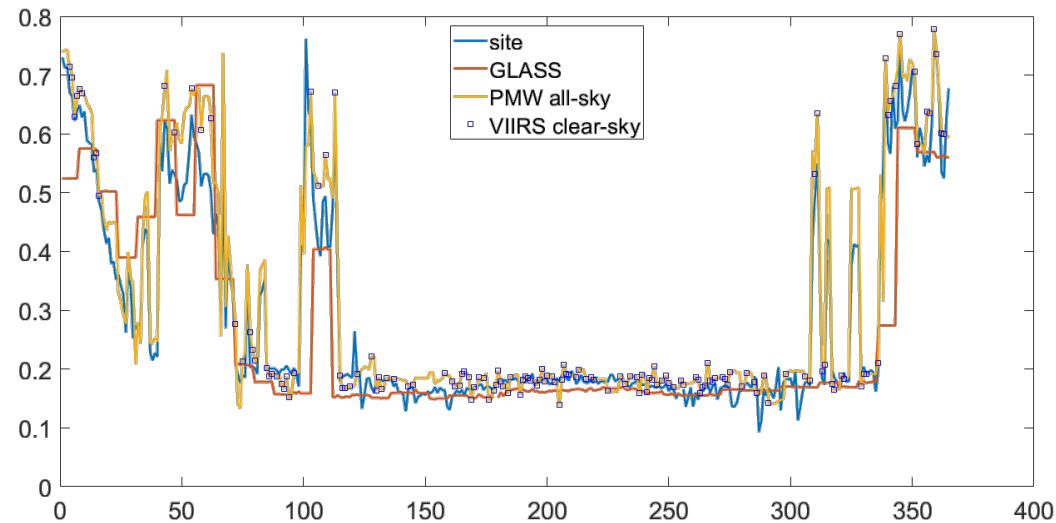


Figure. Temporal variation of all-sky albedo at (1) FPK and (2) TBL

Accomplishments / Events:

- Prepared and presented information about vegetation products and applications to GEONETCast Americas (GNC-A) users.
- Produced and posted 4 months of 1-km global GVF on STAR ftp for the GNC-A users.
- Generated another 16-day GOES-R ABI VI experimental data set and compared to equivalent VIIRS data.
- Prepared materials for PMR.

Overall Status:

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

- Project has completed.
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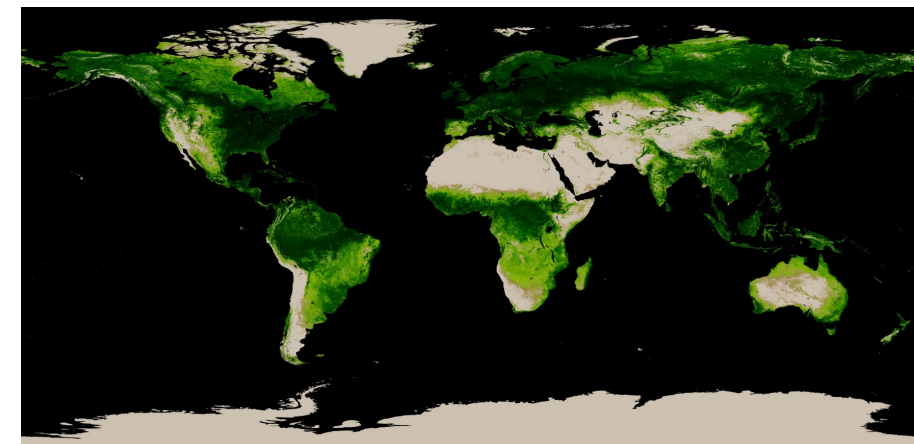
Issues/Risks:

None

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		
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		

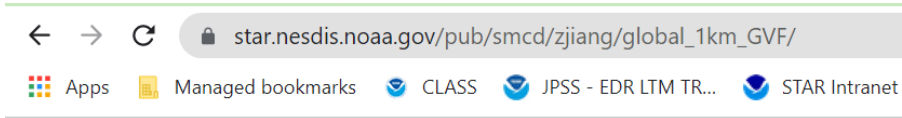
Highlights:

Four months of 1-km global GVF test data were produced and posted on STAR ftp (https://www.star.nesdis.noaa.gov/pub/smcd/zjiang/global_1km_GVF/) for the GEONETCast Americas (GNC-A) users. This map shows the 1-km global GVF for the week of July 9-15, 2021



1-km global GVF test data for the GNC-A users

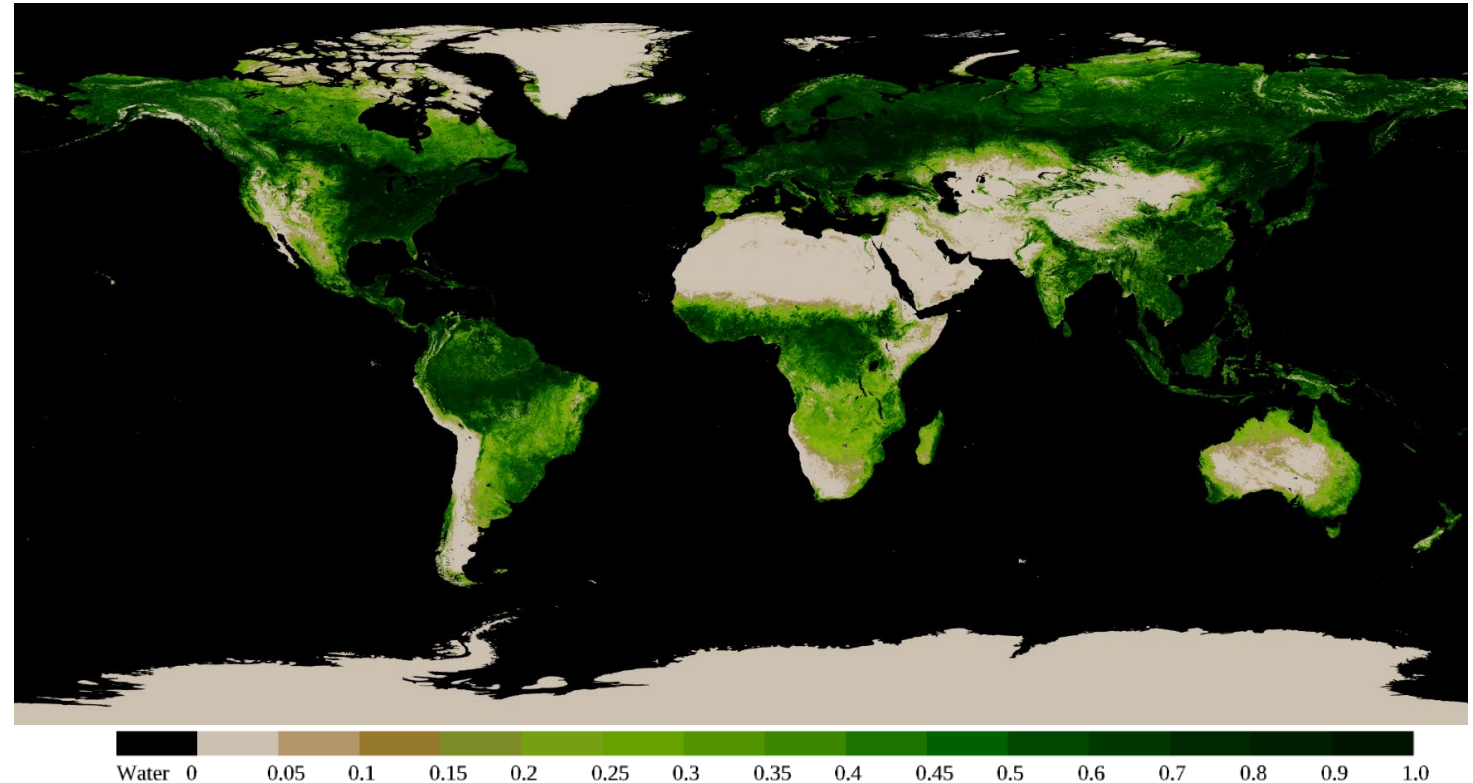
- Four months of 1-km global GVF test data were produced and posted on STAR ftp (https://www.star.nesdis.noaa.gov/pub/smcd/zjiang/global_1km_GVF/) for the GEONETCast Americas (GNC-A) users
- This map shows the 1-km global GVF for the week of July 9-15, 2021



Index of /pub/smcd/zjiang/global_1km_GVF

Name	Last modified	Size	Description
Parent Directory		-	
20210101-20210107/	2022-05-17 21:58	-	
20210102-20210108/	2022-05-17 21:59	-	
20210103-20210109/	2022-05-17 21:59	-	
20210104-20210110/	2022-05-17 21:59	-	
20210105-20210111/	2022-05-17 21:59	-	
20210106-20210112/	2022-05-17 21:59	-	
20210107-20210113/	2022-05-17 21:59	-	
20210108-20210114/	2022-05-17 21:59	-	
20210109-20210115/	2022-05-17 21:59	-	
20210110-20210116/	2022-05-17 21:59	-	
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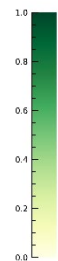
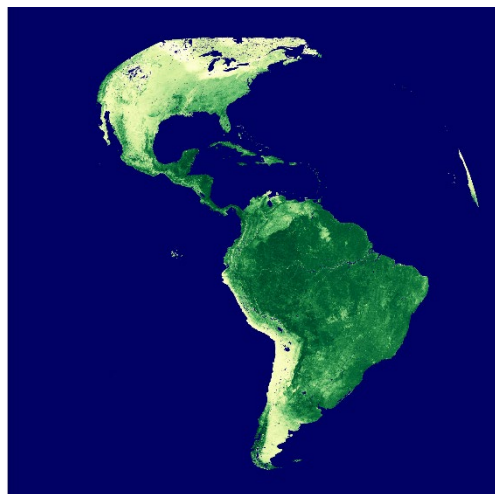
1-km Global GVF test data (20210709-20210715)



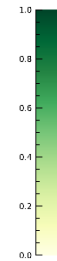
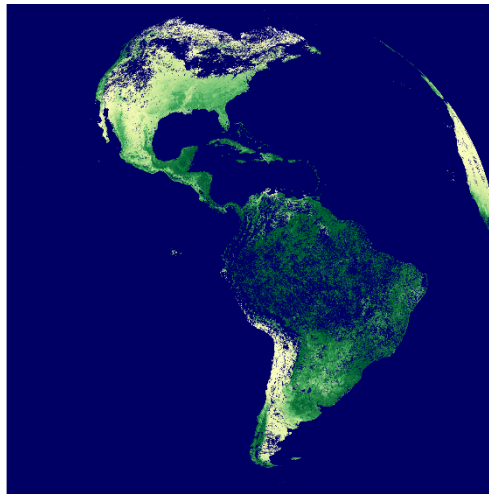
- Ten-minute interval GOES-R ABI TOC reflectances were obtained for the period 20220201-20220216
- Biweekly NDVI and EVI were generated from these data, compositing using solar zenith adjusted maximum SAVI method. Results were compared to the equivalent NOAA-20 VIIRS global biweekly TOC NDVI and TOC EVI from 20220201-20220216.
- Results were similar to the previously generated November 2021 GOES-R ABI VI case.
- Clear-sky coverage was significantly greater for ABI than for VIIRS, especially in the Amazon
- There was significant saturation of NDVI in the ABI data. This occurs where red reflectance values are zero, which are low quality data and will be excluded in future versions of this data set
- EVI was consistently higher for GOES-R ABI data than NOAA-20 VIIRS data.
- Work will continue on improving consistency between GOES-R ABI and VIIRS VIs.

GOES-R ABI and NOAA-20 VIIRS NDVI, 20220201-20220216

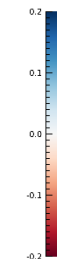
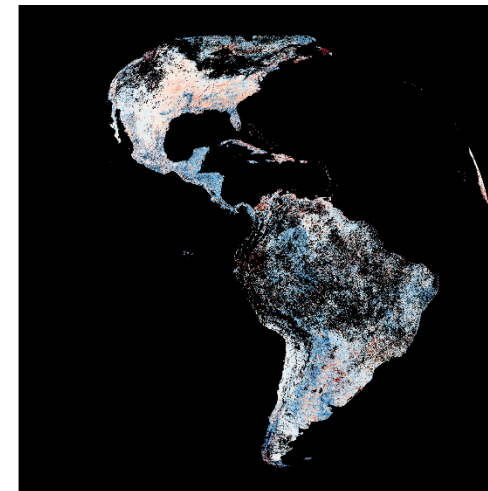
ABI



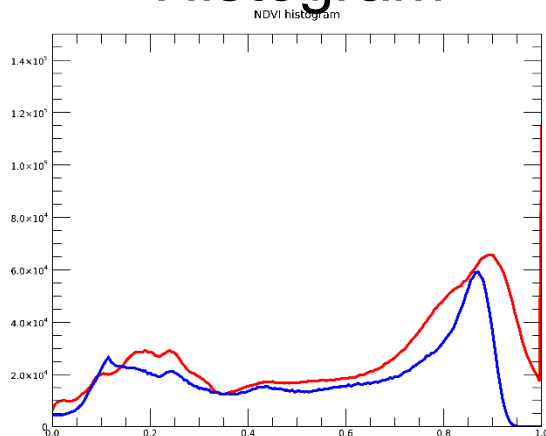
VIIRS



ABI - VIIRS

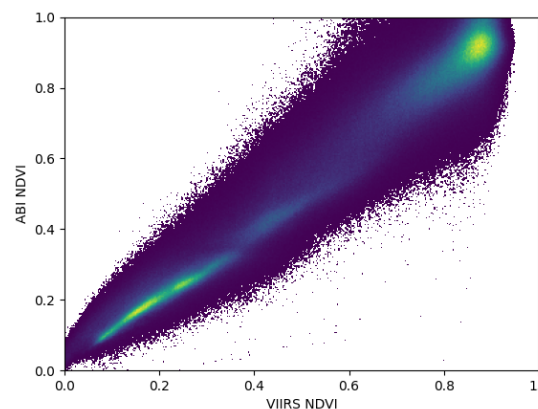


Histogram



ABI
VIIRS

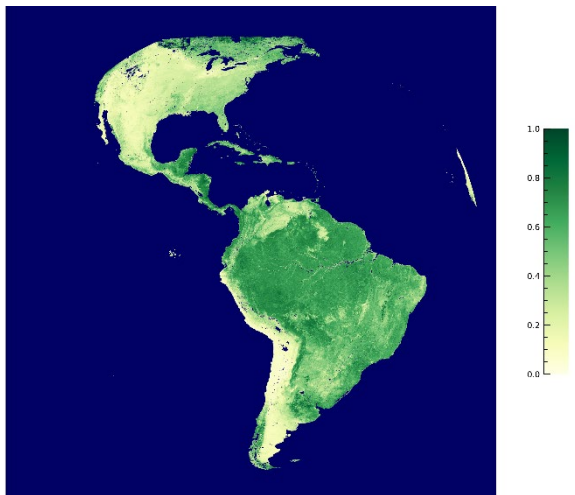
Scatterplot



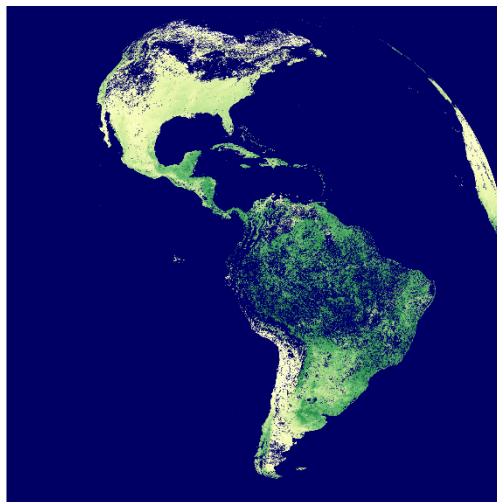
VIIRS on X axis
ABI on Y axis

GOES-R ABI and NOAA-20 VIIRS EVI, 20220201-20220216

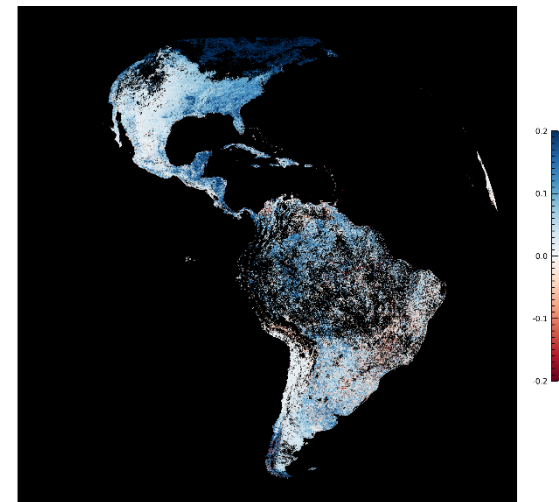
ABI



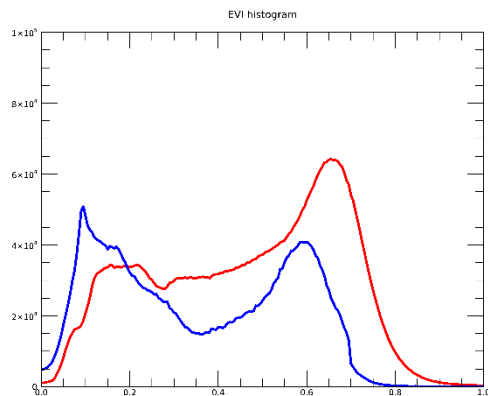
VIIRS



ABI - VIIRS

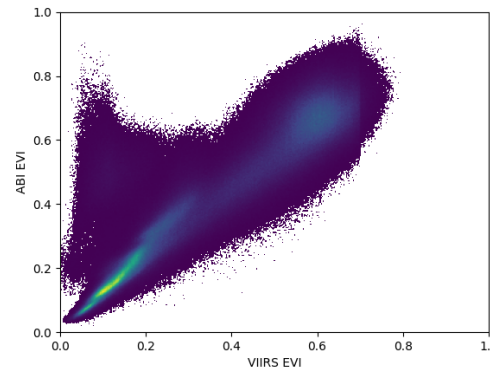


Histogram



ABI
VIIRS

Scatterplot



VIIRS on X axis
ABI on Y axis

Accomplishments / Events:

- Drafting a manuscript on our research on the radiation product and crop yield, kept on updating texts;
- Worked on JCT3-TVAC data testing from Segment 1 to Segment 3. In most 6-hourly period, there were output tiles, yet the contents made not much sense;
- Prepared slides for the Project Management Review and FY23 Project Plan;
- Kept on monitoring Vegetation Health deteriorating versus last year in Europe due to weather and the war (highlighted);
- Communicated with users on various queries relating to VH Products;
- Generated a series of data and figures of VIIRS/VHP-1 and -4, -16 km resolution products, covering May 2022;

Overall Status:

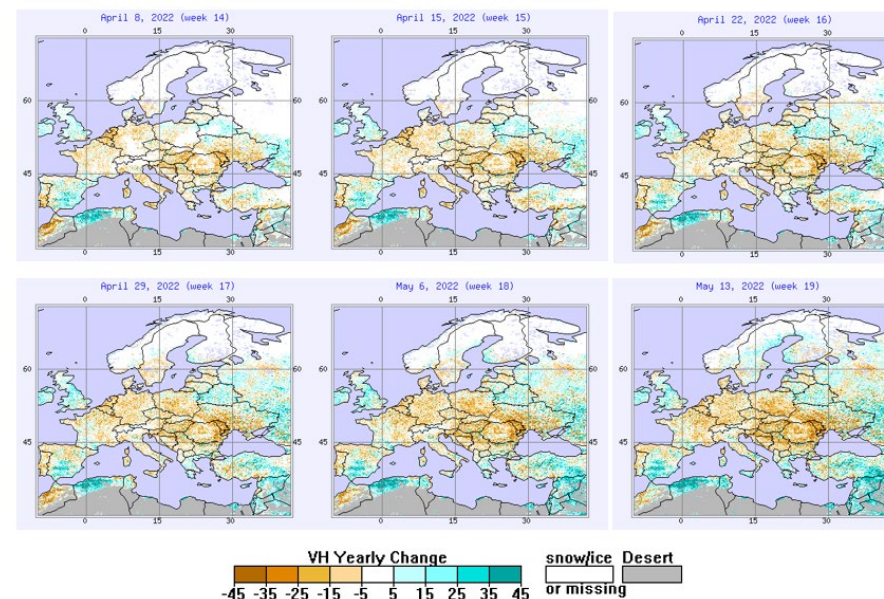
	Green ¹ (Completed)	Blue ² (On-Schedule)	Yellow ³ (Caution)	Red ⁴ (Critical)	Reason for Deviation
Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Highlights: Deteriorating Vegetation Health in Europe Week by Week



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

Accomplishments / Events:

- Characterizing performance of new Moby optical system that was deployed in February 2022. To date the new instrument is working very well. For the range from 400-600 nm, the percent difference between the new and older system is less than +/-2% (see Highlight)
- Analyzing data from NOAA Cal/Val 2022 cruise that took place between March 8th and March 18th 2022 onboard the NOAA Ship Oscar Elton Sette, with 24 stations mainly around the new and old MOBY sites
- Held JSTAR Program Management Review for Ocean Color on 18 May 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			

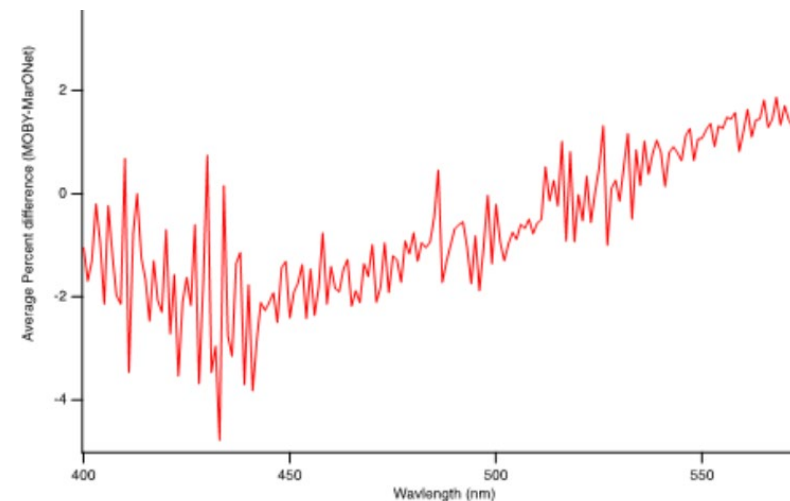
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Issues/Risks:

None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
FY21 End of Year Science Team Presentations (PMR)	Oct-21	Oct-21	11/01/21	
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	Jan-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: New optical system for in-situ measurements performing well:



Average percent difference for simultaneous measurements with MOBY (M272) and the new optical system (MarONet-1), showing the excellent agreement between the two systems. It is important to note that the two instruments are making their measurements at the same time, but at positions several kilometers from each other.

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			

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Issues/Risks:

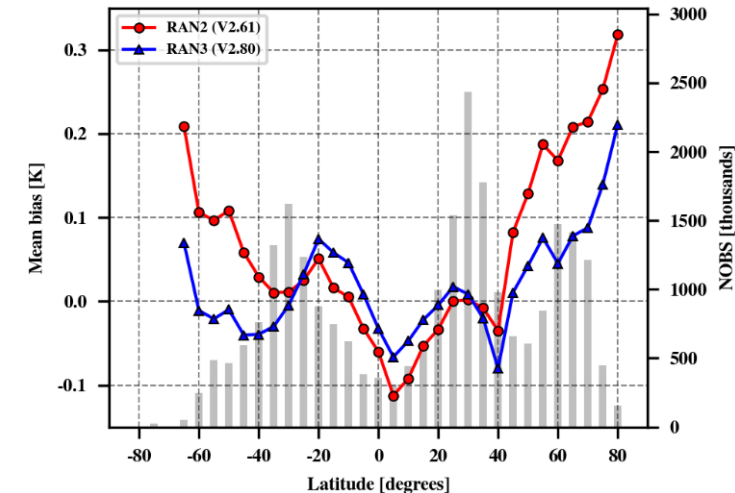
Tonga volcanic eruption may result in cold SST biases of unknown magnitude.

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”.



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

Accomplishments / Events:

JSTAR Program Management Review for Polar Winds held 17 May 2022.

New VIIRS wind products to be transitioned to operations

- * VIIRS tandem “triplet” winds (combination of S-NPP, N20, J2; polar coverage)
- * VIIRS tandem “doublet” winds (combination of S-NPP, N20, J2; global coverage)
- * Addition of VIIRS SWIR (2.25 um) winds type to VIIRS wind product suite
- * Addition of VIIRS DNB (NCC) winds type to VIIRS wind product suite

GOES-R ROSES Project: “New Fused GEO+LEO Multi-Satellite Product: Stereo-Winds from Collocated ABI and VIIRS Datasets”

- * Established end-to-end capability to generate GOES-ABI/SNPP-VIIRS, GOES-ABI/NOAA20-VIIRS stereo winds
- Close to adding capability to Himawari-8/SNPP-VIIRS, Himawari-8/NOAA20-VIIRS stereo winds

Overall Status:

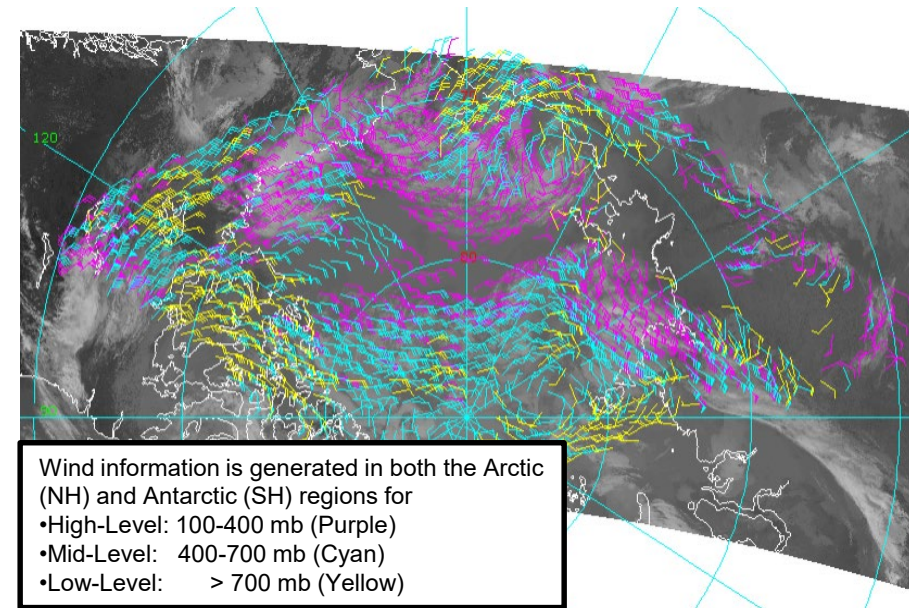
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Cost / Budget		X			
Technical / Programmatic		X			
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Issues/Risks:

None

Highlights: VIIRS Polar Winds Product overview



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	
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		

- The NUCAPS team participated in the verification of JCT-3 TVAC segments 1-3 NUCAPS EDR products and provided feedback to the JPSS Program. In summary, the EDR products files conform to the expected format. The TVAC segment 1 SDR data had missing or unreasonable view angles and geolocation. Parts of the segments 2 and 3 have also shown unreasonable view angles and geolocation, but overall appears to be okay. However, the retrieved EDRs have no accepted retrievals. This requires further investigation in association with the SDR quality.
- Continued evaluation of the MetOp-B/C NUCAPS NCCF product evaluations with the offline runs in preparation for the upcoming MetOp-B/C NCCF ORR (6/23). Initial results of evaluations indicate that the MetOp-B/C NCCF runs match the offline runs. Further evaluation and preparation of slides is in progress.
- Continued evaluation of the MetOp-B/C NUCAPS with the EUMETSAT derived products using an ensemble of 12 focus days of NUCAPS products matched with truth data sets (ECMWF, TCCON, and Aircore data) spanned across a year covering different seasons.
- 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.
- Continued preparations for the upcoming NOAA-GML Quarterly Meetings on Theme 1 (Trace Gases) and Theme 2 (Ozone water vapor) collaborations..
- Participated and presented at the NUCAPS soundings Program Management Review (5/19) highlighting algorithm development, enhancements, R&D, R2O, and maintenance activities, and funding needs over the next 5 years.

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			

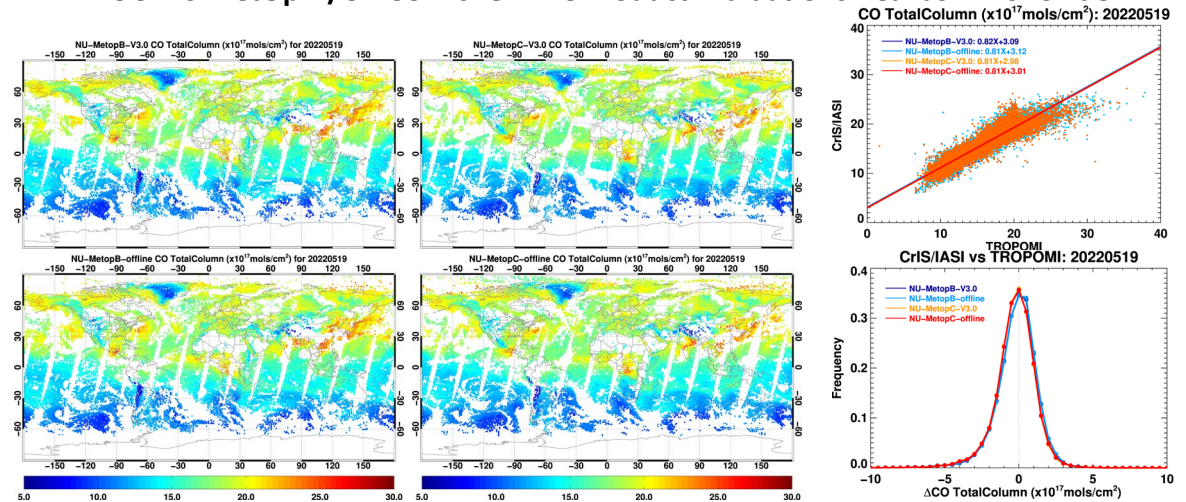
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Issues/Risks:

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 O3SND5, 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 MetOp-B/C NCCF vs. Offline Product Evaluations - Carbon Monoxide



Evaluation of the NUCAPS MetOp-B (left column) and MetOp-C (middle column) CO product from the NCCF and Offline implementations, and comparison with the TROPOMI total column CO (rightmost column). The NUCAPS team is providing validation support for the NCCF ARR/ORR expected on 6/23.

Accomplishments / Events:

- Initial development has begun of an air mass based radiometric ATMS bias correction for possible use in MiRS retrievals. If successful, this would be an alternative to the current operational static bias correction which does not account for local atmospheric or surface conditions. The concept follows the approaches used operationally at NCEP and ECMWF for variational bias correction in the direct assimilation of microwave radiances for global meteorological analyses and numerical weather prediction. To implement this, a deep neural network (DNN) approach was used. Inputs to the DNN include temperature lapse rates, TPW, CLW, satellite zenith angle, Tskin, and surface pressure. Initial results indicate that the predicted bias correction reproduces much of the spatial distribution of the actual bias correction (see highlights). The next step is to implement the DNN correction into the MiRS 1DVAR retrieval system.

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			

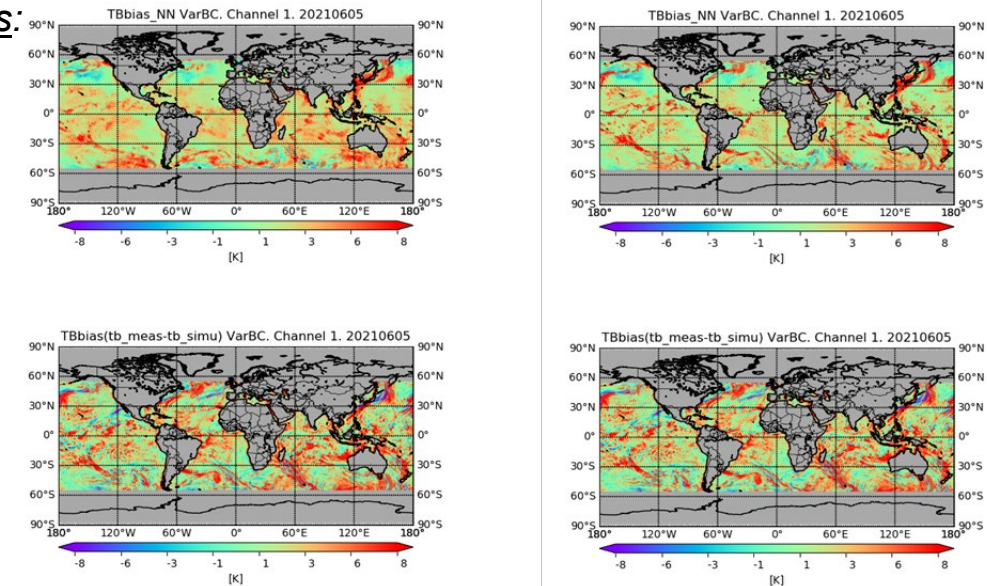
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Issues/Risks:

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		
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 maps of predicted (top row) and true radiometric bias correction (bottom row) for NOAA-20/ATMS channel 1. Results are shown for the case when CLW input to the DNN is obtained from a regression (right), and from the ECMWF analysis (left).

Accomplishments / Events:

- The SFR team continues the effort to enhance snowfall detection (SD) under cold conditions. The images in the Highlights section show the improvement made with the latest machine learning SD model.
- In preparation for the upcoming delivery to MiRS, the team is updating the SFR processing system with the latest mature ML SD and SFR algorithms for all ATMS and AMSU-A/MHS carrying satellites. The delivery is scheduled for June.
- The SFR team will mentor two summer interns, one is a University of Maryland undergraduate student and the other a high school student from the Montgomery County. Under the guidance of the team, the student in computer science major will build a new SFR website with advanced functionalities for enhanced user experience. The high school student will learn ML techniques during the internship.

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			

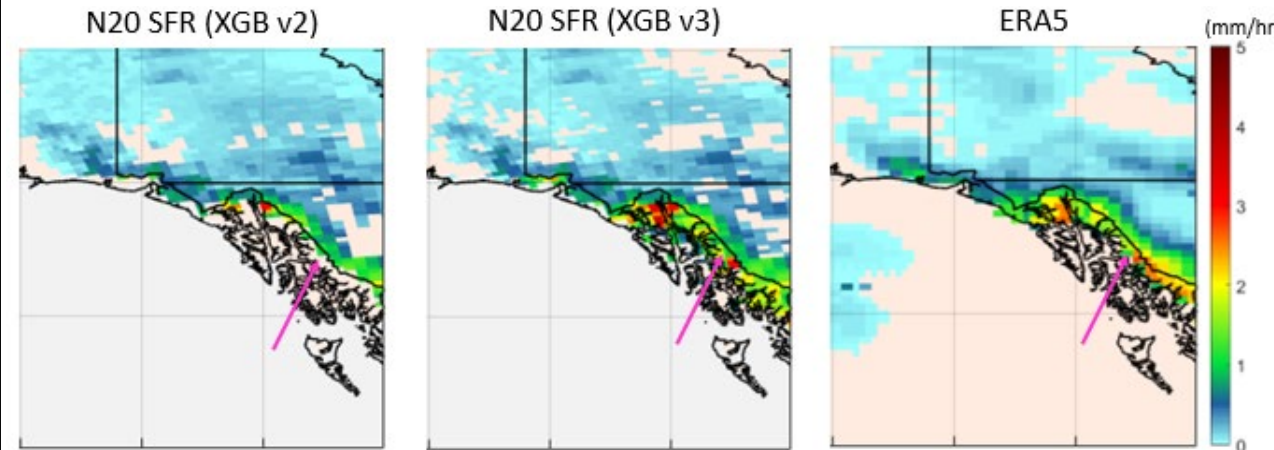
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Issues/Risks:

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 - 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		
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: Improving Snowfall Detection



Snowfall in the Juneau, Alaska area on November 12, 2021 as captured by NOAA-20 at 22:02 Z with the XGB v2 SD algorithm (left), with the XGB v3 SD algorithm (middle), and by the ERA5 reanalysis at 23Z. The XGB v3 is the latest ML SD algorithm and captures more snowfall than XGB v2.

Accomplishments / Events:

- Participant/support JPSS-2 pre-launch testing events (May-22 JCT3-TVAC)
- Held JSTAR Program Management Review for Ozone on 16 May 2022
 - NWS is assimilating the V8Pro and V8TOz BUFR products.
 - They are experimenting with the Limb BUFR.
 - Total ozone fields are used in the UV Index forecasts
 - The also use the products for Ozone Hole monitoring and Stratospheric Summary Reports
- Reprocessed OMPS Climate Data Records are used in the WMO Ozone Assessments.
- There are additional ozone product users at ECMWF, NASA GMAO, NRL FNMOC
- Note: NOAA-19 SBUV/2 Products will be discontinued in the late 2022.

Overall Status:

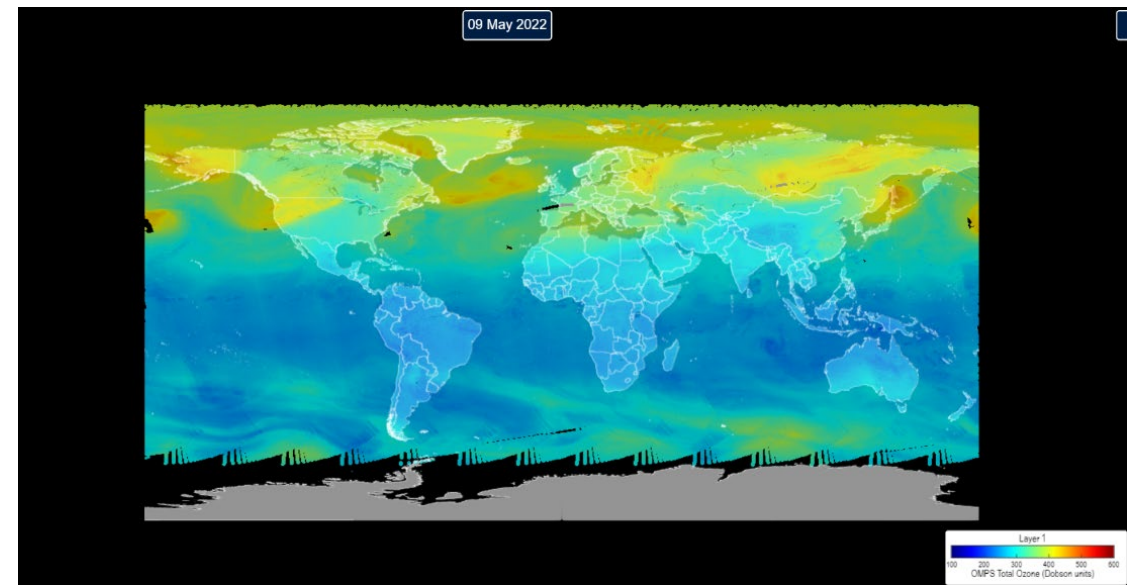
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Cost / Budget		X			
Technical / Programmatic		X			
Schedule		X			

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

Issues/Risks:None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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		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



Accomplishments / Events:

- Conducted GCOM-W1 Program Management Review for JSTAR on 16 May 2022
 - Outlined activities needed to evolve GCOM AMSR2 Algorithm Software Processor (GAASP) to the GOSAT AMSR3 Algorithm Software Processor (GAASP)
- Evaluating capabilities of GCOM-W1 in light of recent 500 km long sea ice lead missed on 1 May 2022 (see highlight). This shows the importance of including both sensors when identifying sea ice (one with high resolution like VIIRS and one all-weather like AMSR2)

Overall Status:

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

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

Issues/Risks:

None

Highlights: Necessary synergy with VIIRS Sea Ice Concentration – VIIRS high resolution captures features that AMSR2 cannot.

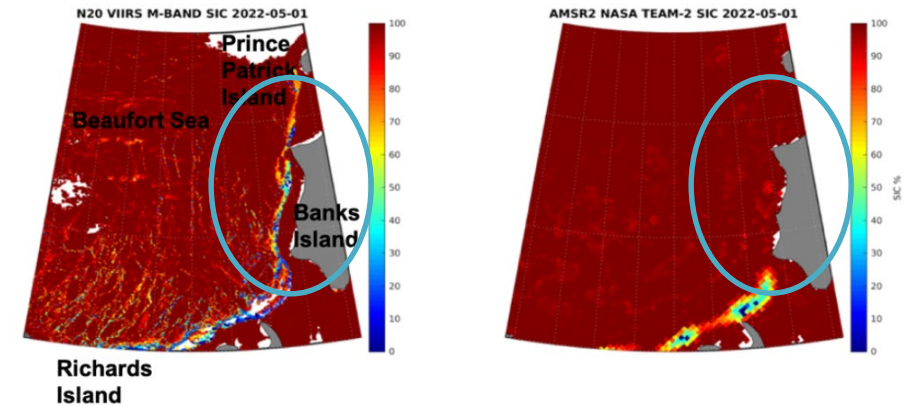


Figure 1: (left) NOAA20 VIIRS Daily Composite SIC and (right) AMSR2 NASA Team-2 Daily Composite SIC on May 1, 2022.

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		
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		

Accomplishments / Events:

- Mapper
- NPROVS
 - routinely monitoring and assessing the NUCAPS “Test” sounding products available from the STAR by the Algorithm Scientific Software Integration and System Transition Team (ASSISTT) Processing Lifecycle and Algorithm Integration Team (PLAIT). The Test system for NOAA-20 NUCAPS has been over 90% incomplete with respect to data coverage for almost every day since early January, 2022; and on average about 50% incomplete since late June 2021. Recently, through collaborative investigation of ASSISTT and NPROVS teams, this issue was (finally) resolved as of May 4th with Test system coverage restored to nearly 100% (see highlight)

Overall Status:

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

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

Issues/Risks: None

Milestones	Original Date	Forecast Date	Actual Completion Date	Variance Explanation
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) Initiatives and Case Studies	Aug-22	Aug-22		

Highlights: System fixed to allow NPROVS to better monitor NUCAPS Test sounding products

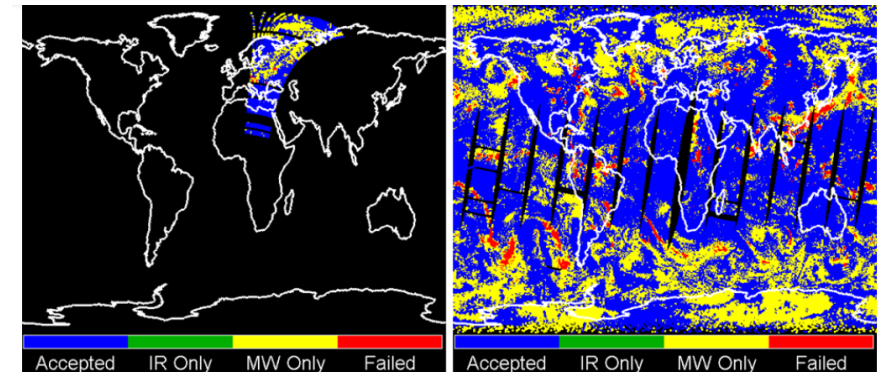


Figure 1: Daily NUCAPS NOAA-20 Test (v3) data coverage on April 27 (left) and May 15 (right), 2022. As can be seen only a small portion of the globe was covered on April 27, whereas on May 15 2022 there was complete global coverage; the parameter selected for display (of coverage) is the quality control (or sensor utility) flag data associated with NUCAPS products.