LEO Program Data Update for CSPP Users

NESDIS

National Environmental Satellite, Data, and Information Service

Lihang Zhou, Satya Kalluri, and Ken Yienger

LEO Program Office

Contributions from STAR JPSS Science Teams are thankfully acknowledged

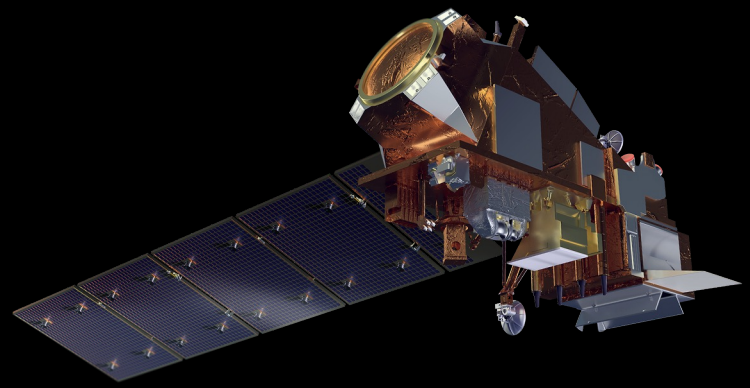
Agenda

- LEO Missions Update
- JPSS-4 Algorithms and Calibration/Validation Readiness
- Research to Operation of Advanced LEO Products
- Summary

Low Earth Orbit Updates

JPSS

- JPSS-4 planned launch date is September 1, 2027
- JPSS-3 is in long term storage with a planned launch date late in 2032
- NOAA-21 is Primary - Working together with NOAA-20, SNPP: All operational products are validated and in science maintenance and upgrades (e..g N20 OMPS hi-res implemented in operation 2026)



QuickSounder

- QuickSounder launch is scheduled on Feb 15, 2027

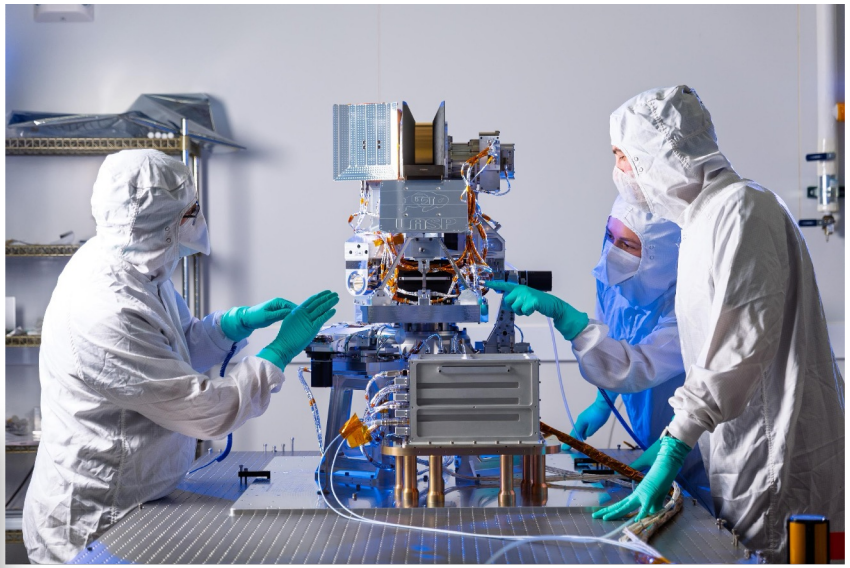
NEON Series-1

- The Request for Proposal for the Sounder for Microwave Based Applications (SMBA) was released in April 2026
- The notional launch date for the first Series-1 is in mid-2030s

Photo by Mario Tama/Getty Images

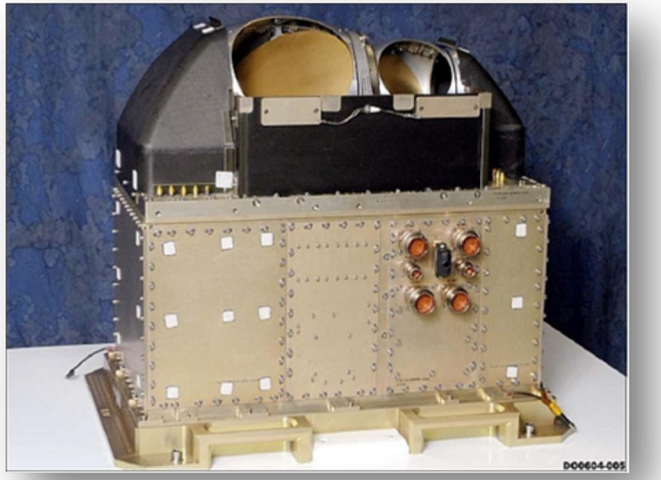
JPSS-4 Instrument Suite

OMPS – Integrated on JPSS-4

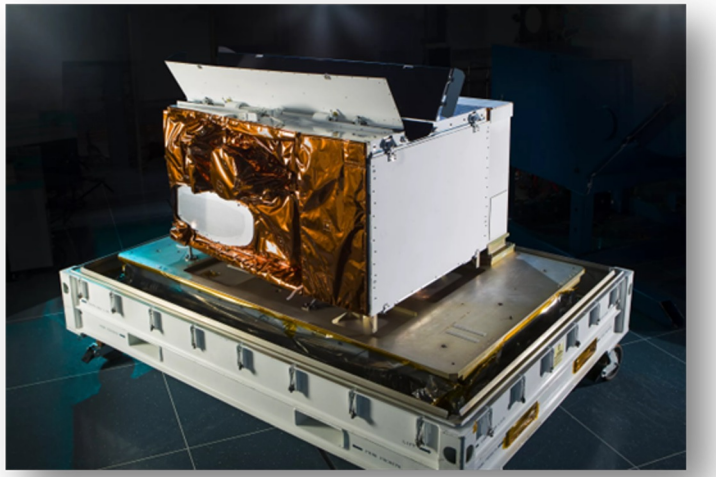


Libera* – Integrated on JPSS-4

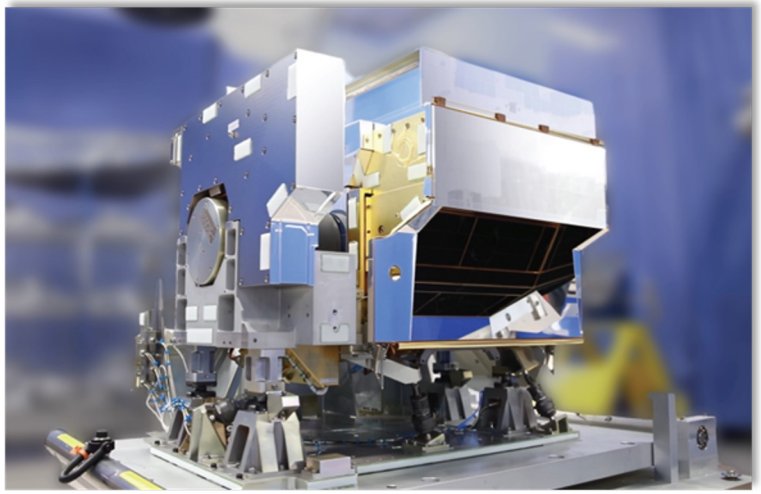
* Funded by Earth Science Division (ESD)



ATMS – Integrated on JPSS-4



VIIRS – Integrated on JPSS-4



CrIS – Integrated on JPSS-4

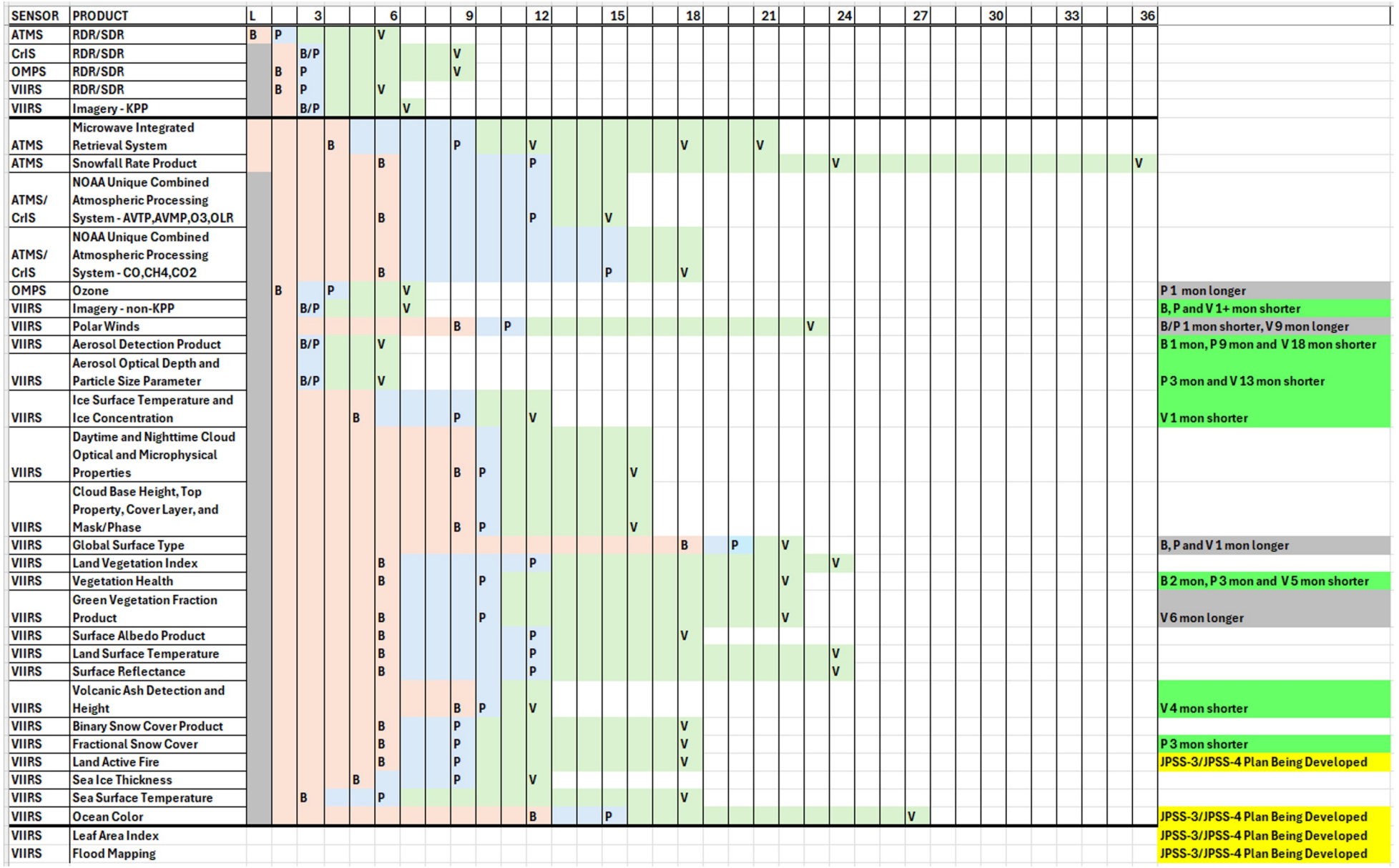
JPSS-4 Deltas from JPSS-2

- **Libera** manifested on JPSS-4: NASA's SDS-EDOS is only MP receiving Libera SMD, IDPS will not receive Libera SMD
- **JPSS-4 VIIRS** instrument scan rate increased from 3.510 rad/sec to 3.546 rad/sec to correct the scan-to-scan underlaps in JPSS-1 and JPSS-2
- **JPSS-4 OMPS NM TC** (more accurate NO2 & air quality)
  - **Code Change For J04 OMPS-TC-SDR** The processed spectral range is **extended from a legacy cutoff of 380nm out to ~440nm**. The extended spectral range increases the OMPS-TC file size by approximately 50%, raising the daily data volume from 5GB to 7.5GB per day.
  - **LUT Update for OMPS-NP Filter Modifications:** The hardware cutoff filter at 305nm was modified for J04 OMPS-NP. This causes small shifts in wavelength intervals, which require Look-Up Table (LUT) updates for processing, though no underlying code changes are needed.
  - **Potential Straylight Algorithm Adjustments:** Processing the new 380nm–440nm range may require upgrades to the straylight correction algorithm. Using J02 as proxy data to learn more about how the straylight algorithm behaves in the 380nm to 440nm range.

JPSS-4 Algorithm & Cal/Val Readiness

- **Pre-launch PCT/LUTs Updates (Jun ‘26)**
  - STAR has delivered all instrument LUTs to ASSISTT.
  - ASSISTT to IDPS-AIT should occur ahead of the JCT-3. This delivery (LUTs only package ADR11612) introduces no functional changes and is intended solely to support JCT-3 testing.
- **OMPS J4 initial Algorithm Package (Jun ‘26)**
- **Pre-launch test data review/analysis and activity support by SDR teams. (Sep ‘26)**
  - JCT 3a (TVAC) (Jul ‘26 –Sep ‘26) With Science team involvement.
    Orbit-In-The-Life Testing during the 2 month TVAC duration will be used to provide 3.5 orbits of TVAC SDR data for all the sensors. If more data needed, STAR will obtain any TVAC data they may need from IDPS DP-AE and process it using ADL.
- **Proxy/Test data for JPSS-4-Ready EDR Algorithms (Sep ‘26)**
  - Milestone for SDR teams to generate proxy /synthetic data to test JPSS-4-Ready EDR science algorithm offline
- **Maintain/Update Integrated Cal/Val System (ICVS)**
  - ICVS prototype in place to support JPSS-4 JCT-3b Test Analysis (May ‘26)
  - Enhancements and augmentation of ICVS modules to support JPSS-4 activities (Inter-sensor comparison, etc.) for operational monitoring. (Sep ‘26)

JPSS-4 Product Cal/Val Maturity Schedules



SENSOR	PRODUCT	L	3	6	9	12	15	18	21	24	27	30	33	36	
ATMS	RDR/SDR	B	P	V											
CrIS	RDR/SDR		B/P		V										
OMPS	RDR/SDR		B	P		V									
VIIRS	RDR/SDR		B	P		V									
VIIRS	Imagery - KPP			B/P		V									
ATMS	Microwave Integrated Retrieval System			B		P		V		V		V			
ATMS	Snowfall Rate Product				B			P		V				V	
ATMS/ CrIS	NOAA Unique Combined Atmospheric Processing System - AVTP,AVMP,O3,OLR				B			P	V						
ATMS/ CrIS	NOAA Unique Combined Atmospheric Processing System - CO,CH4,CO2				B			P	V						
OMPS	Ozone		B	P		V									P 1 mon longer
VIIRS	Imagery - non-KPP			B/P		V									B, P and V 1+ mon shorter
VIIRS	Polar Winds				B		P				V				B/P 1 mon shorter, V 9 mon longer
VIIRS	Aerosol Detection Product			B/P		V									B 1 mon, P 9 mon and V 18 mon shorter
VIIRS	Aerosol Optical Depth and Particle Size Parameter			B/P		V									P 3 mon and V 13 mon shorter
VIIRS	Ice Surface Temperature and Ice Concentration				B	P		V							V 1 mon shorter
VIIRS	Daytime and Nighttime Cloud Optical and Microphysical Properties					B	P			V					
VIIRS	Cloud Base Height, Top Property, Cover Layer, and Mask/Phase					B	P			V					
VIIRS	Global Surface Type							B	P	V					B, P and V 1 mon longer
VIIRS	Land Vegetation Index			B		P					V				
VIIRS	Vegetation Health			B			P			V					B 2 mon, P 3 mon and V 5 mon shorter
VIIRS	Green Vegetation Fraction Product			B			P			V					V 6 mon longer
VIIRS	Surface Albedo Product			B		P		V							
VIIRS	Land Surface Temperature			B		P					V				
VIIRS	Surface Reflectance			B		P					V				
VIIRS	Volcanic Ash Detection and Height				B	P	V								V 4 mon shorter
VIIRS	Binary Snow Cover Product			B	P			V							
VIIRS	Fractional Snow Cover			B	P			V							P 3 mon shorter
VIIRS	Land Active Fire			B	P			V							JPSS-3/JPSS-4 Plan Being Developed
VIIRS	Sea Ice Thickness		B		P	V									
VIIRS	Sea Surface Temperature		B	P				V							
VIIRS	Ocean Color					B	P				V				JPSS-3/JPSS-4 Plan Being Developed
VIIRS	Leaf Area Index														JPSS-3/JPSS-4 Plan Being Developed
VIIRS	Flood Mapping														JPSS-3/JPSS-4 Plan Being Developed

JPSS-4
Schedule from Cal/Val Plans

JPSS-2 Product Cal/Val Maturity Schedules

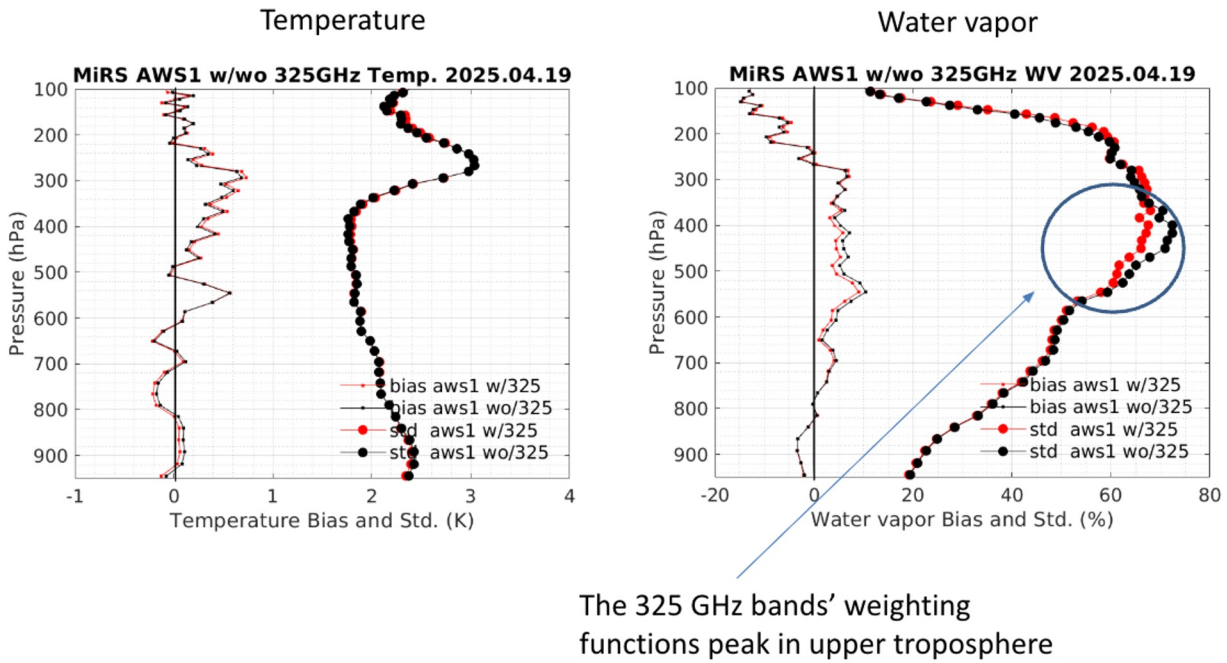
SENSOR	PRODUCT	L	3	6	9	12	15	18	21	24	27	30	33	36	
ATMS	RDR/SDR	B	P	V											
CrIS	RDR/SDR		B P	V											
OMPS	RDR/SDR		B P	V											
VIIRS	RDR/SDR		B P	V											
VIIRS	Imagery - KPP		B/P	V											
ATMS	Microwave Integrated Retrieval System		B	P		V		V	V						
ATMS	Snowfall Rate Product			B		P				V				V	
ATMS/ CrIS	NOAA Unique Combined Atmospheric Processing System - AVTP,AVMP,O3,OLR			B		P	V								
ATMS/ CrIS	NOAA Unique Combined Atmospheric Processing System - CO,CH4,CO2			B			P	V							
OMPS	Ozone	B	P	V											
VIIRS	Imagery - non-KPP		B	P	V										
VIIRS	Polar Winds				B	P	V								
VIIRS	Aerosol Detection Product		B			P				V					
VIIRS	Aerosol Optical Depth and Particle Size Parameter		B	P				V							
VIIRS	Ice Surface Temperature and Ice Concentration		B	P		V									
VIIRS	Daytime and Nighttime Cloud Optical and Microphysical Properties				B P		V								
VIIRS	Cloud Base Height, Top Property, Cover Layer, and Mask/Phase				B P		V								
VIIRS	Global Surface Type							B	P V						
VIIRS	Land Vegetation Index			B		P				V					
VIIRS	Vegetation Health				B		P				V				
VIIRS	Green Vegetation Fraction Product			B	P		V								
VIIRS	Surface Albedo Product			B		P		V							
VIIRS	Land Surface Temperature			B		P				V					
VIIRS	Surface Reflectance			B		P				V					
VIIRS	Volcanic Ash Detection and Height				B P		V								
VIIRS	Binary Snow Cover Product			B		P		V							
VIIRS	Fractional Snow Cover			B		P		V							
VIIRS	Land Active Fire			B		P		V							
VIIRS	Sea Ice Thickness		B			P		V							
VIIRS	Sea Surface Temperature		B	P				V							
VIIRS	Ocean Color					B	P				V				
VIIRS	Leaf Area Index														No Plan Needed for JPSS-2
VIIRS	Flood Mapping														No Plan Needed for JPSS-2

JPSS-2
Schedule from Cal/Val Plans

Research to Operations: Advanced LEO Products

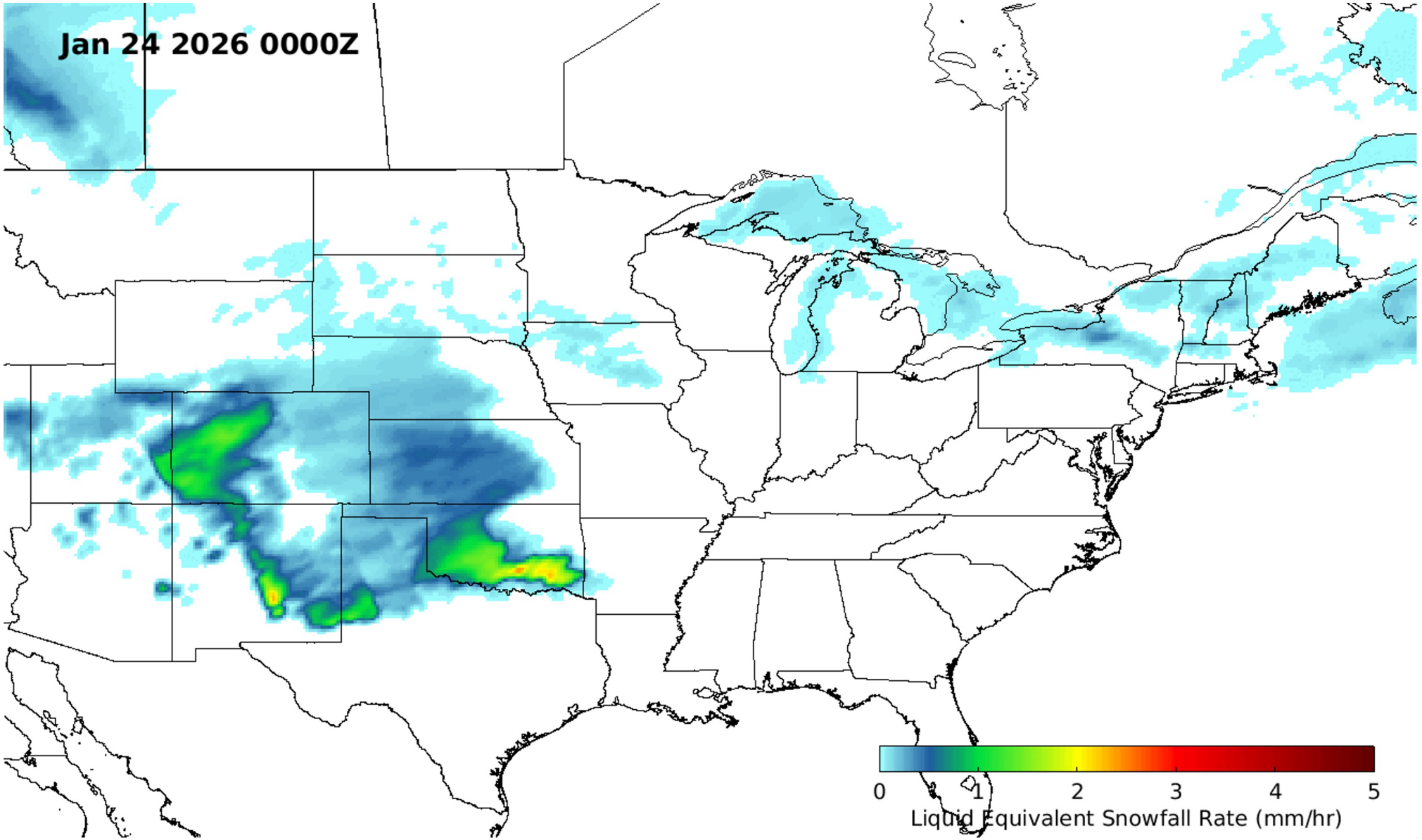
- **Atmosphere:** ALPW, LVP, ALPW Percentile, VIIRS PM2.5
- **Land**: LAI, BRDF, Enhanced Veg Health; hi-reso Soil Moisture
- **Ocean:** L3S SST
- **Cryosphere:** Blended Ice Motion; Enhanced resolution sea ice
- **Cross-cutting:** AI/ML upgrades, microwave imagery
- **New Missions:** AWS, WSF-M, GOSAT-GW, QS, JPSS-4, Metop SG A1, B1, EO-IR…

MiRS AWS MWR w/ and w/o 325 GHz
2025.04.19



Arctic Weather Satellite (AWS) - Integrated into the NESDIS SFR Algorithms:

Example Case for Snowfall Event in Jan 2026: 11-LEO-Satellite SFR with Gaussian Temporal Gap Filling



Satellites used:

NOAA-21
NOAA-20
S-NPP
Metop-C
Metop-B
GPM
DMSP-F16
DMSP-F17
DMSP-F18
Metop-SG-A1
AWS

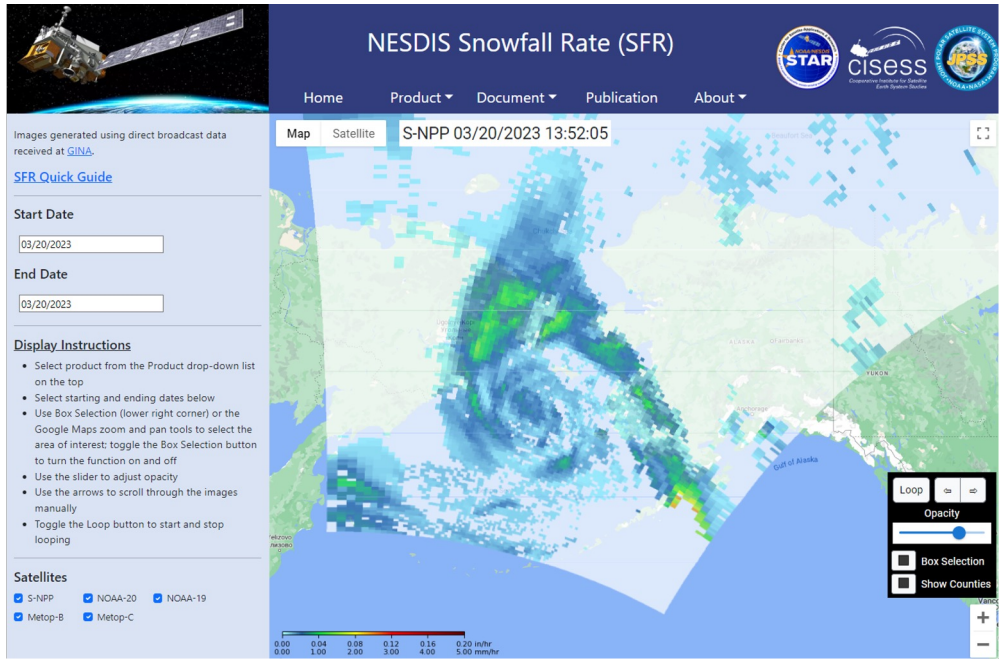
AWS MIRS/SFR are implemented in GINA for NWS Users in Alaska

NOAA STAR MIRS Lead: Dr. Huan Meng

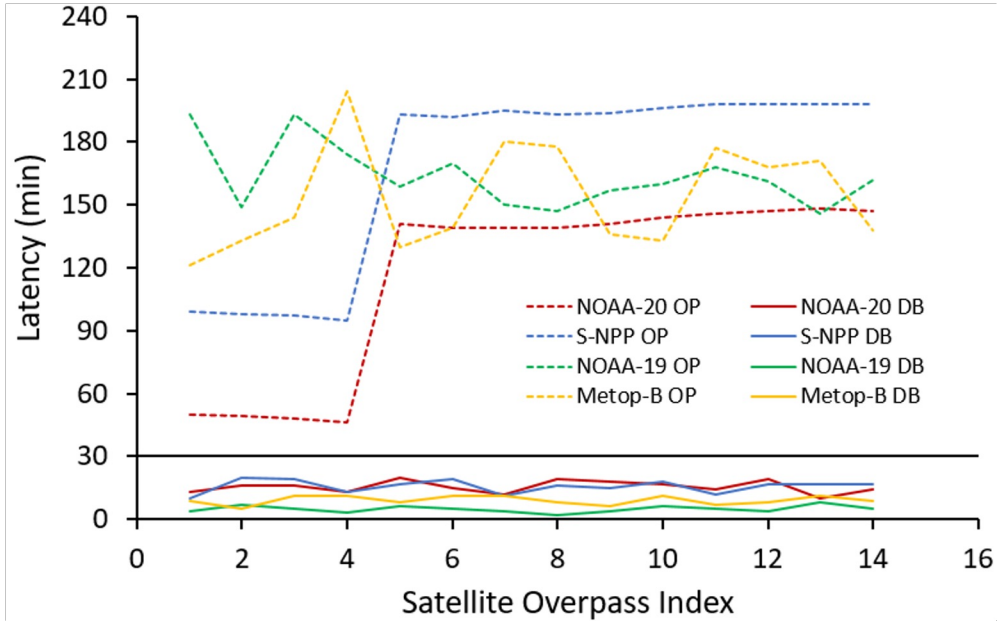
Example of NOAA Direct Broadcast (DB) Processing

SnowFall Rate (SFR)

- SFR is produced from DB data at CISESS, University of Maryland in near real-time
- Input: ATMS and AMSU-A/MHS DB data (+ non-DB data from GPM and 3 DMSP satellites)
- An SFR processing system was also built on a virtual machine at GINA and ingests GINA DB data to produce SFR locally.
- Website: https://sfr.umd.edu/?page=Home



SFR latency from the operational data stream (dash lines) and the DB system (solid lines)



- **SFR latency:**
  - Latency is defined as the delay from the 1st observation to when SFR becomes available
  - ATMS SFR latency is less than 20 min
  - AMSU-A/MHS SFR latency is less than 30 min

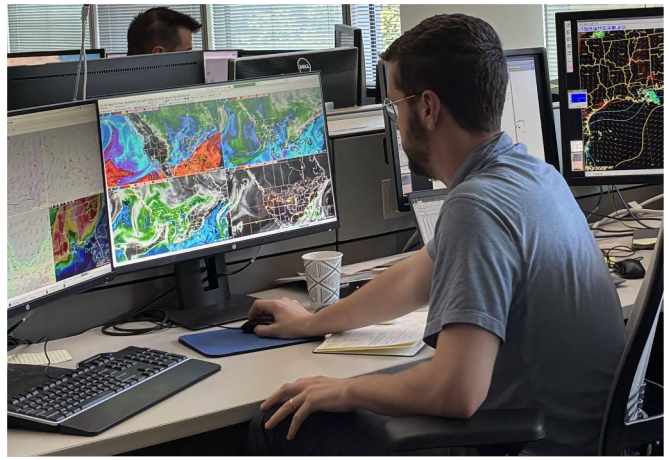
NOAA STAR SFR Lead: Dr. Huan Meng

Atmospheric Product Spotlight: Advected Layered Precipitable Water (ALPW)

The Advected Layered Precipitable Water (ALPW) product transitioned to NESDIS Operations Q1 FY25

- Operational NESDIS blended water vapor product
- Used daily in NWS operations
- Enhances extreme rainfall & flood prediction

Figure. Using ALPW for Hurricane Helene (Credit: Sheldon Kusselson, Research Associate, CIRA/Colorado State University (CSU); Retired, NOAA/NESDIS



Figures above showing the operational ALPW product on NWS NCEP Weather Prediction Center's AWIPS-2 workstation. (Picture taken during the LEO team visit to WPC on Sept 8, 2025)

NESDIS operational water vapor blended products (ALPW, Blended Total Precipitable Water, and Blended TPW Percent of Normal) are widely used in NWS weather forecast operations

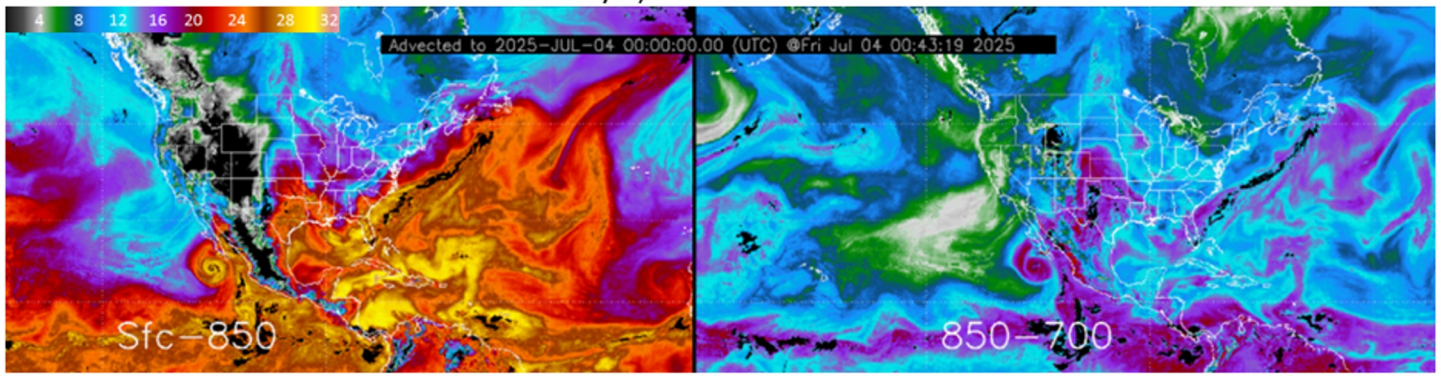
ALPW Supporting Flash Flood Warnings (Texas, July 2025)

Prior to the devastating flood in Kerr County, TX, NWS/Weather Prediction Center (WPC) issued a **Mesoscale Precipitation Discussion** and warned of likely flash flooding in central Texas including Kerr County.

The discussion mentioned that the **ALPW** imagery revealed an extremely moist environment with water vapor contributions from both the Gulf of America and tropical eastern Pacific.

Advected Layer Precipitable Water

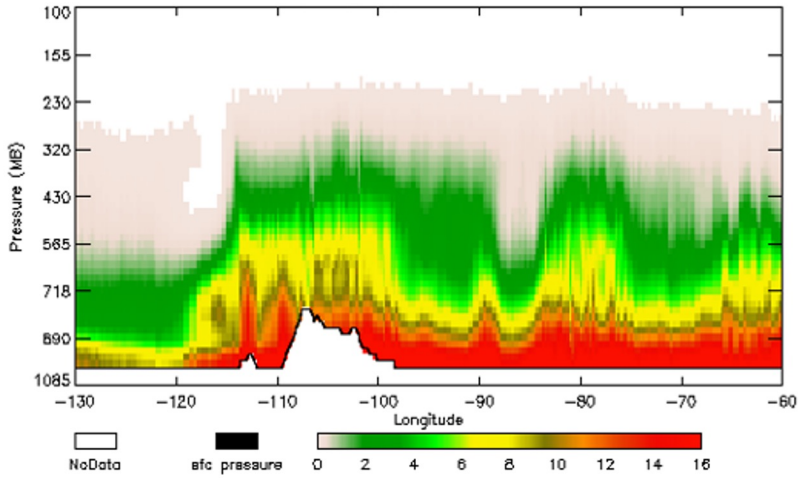
July 4, 2025 00 UTC



(Courtesy of Sheldon Kusselson)

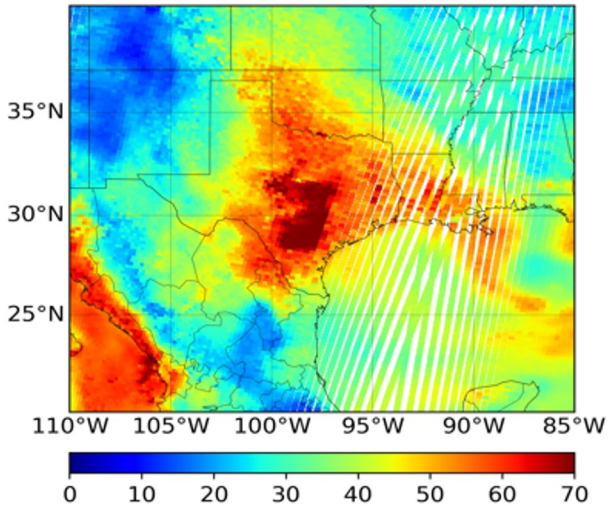
NOAA-21 MiRS WV Profile, Lat 27º

July 4, 2025 08:42 UTC



NOAA-21 MiRS TPW (mm)

July 4, 2025 08:42 UTC

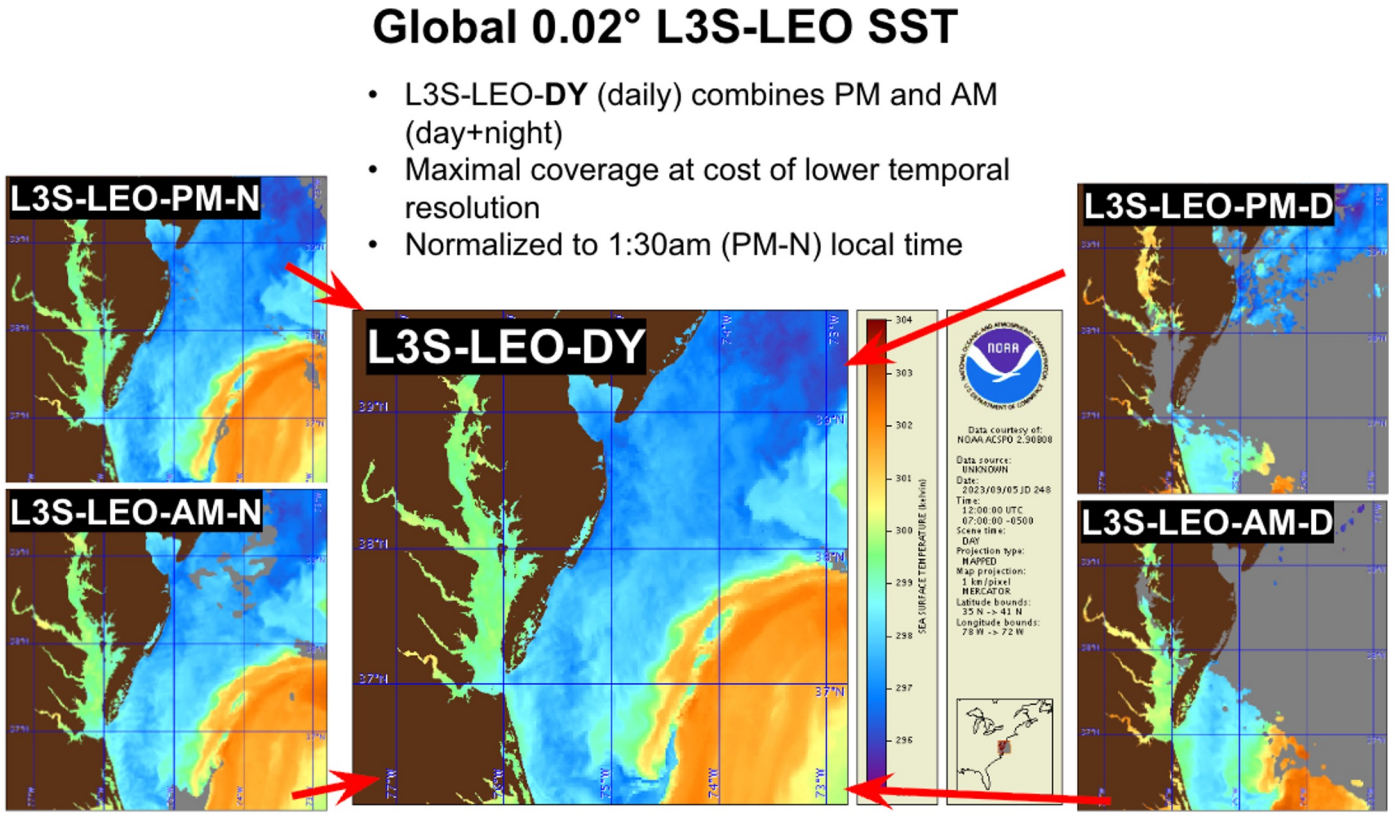


NOAA MIRS Lead: Huan Meng

Identified deep tropical moisture sources; Supported WPC mesoscale discussions Demonstrates global moisture → local flood risk

Ocean Products: Global Coverage, Local Forecast Skill

- L3 Super-Collated SST (L3S SST) → consistent global SST
- Supports marine forecasting, hurricanes, DA

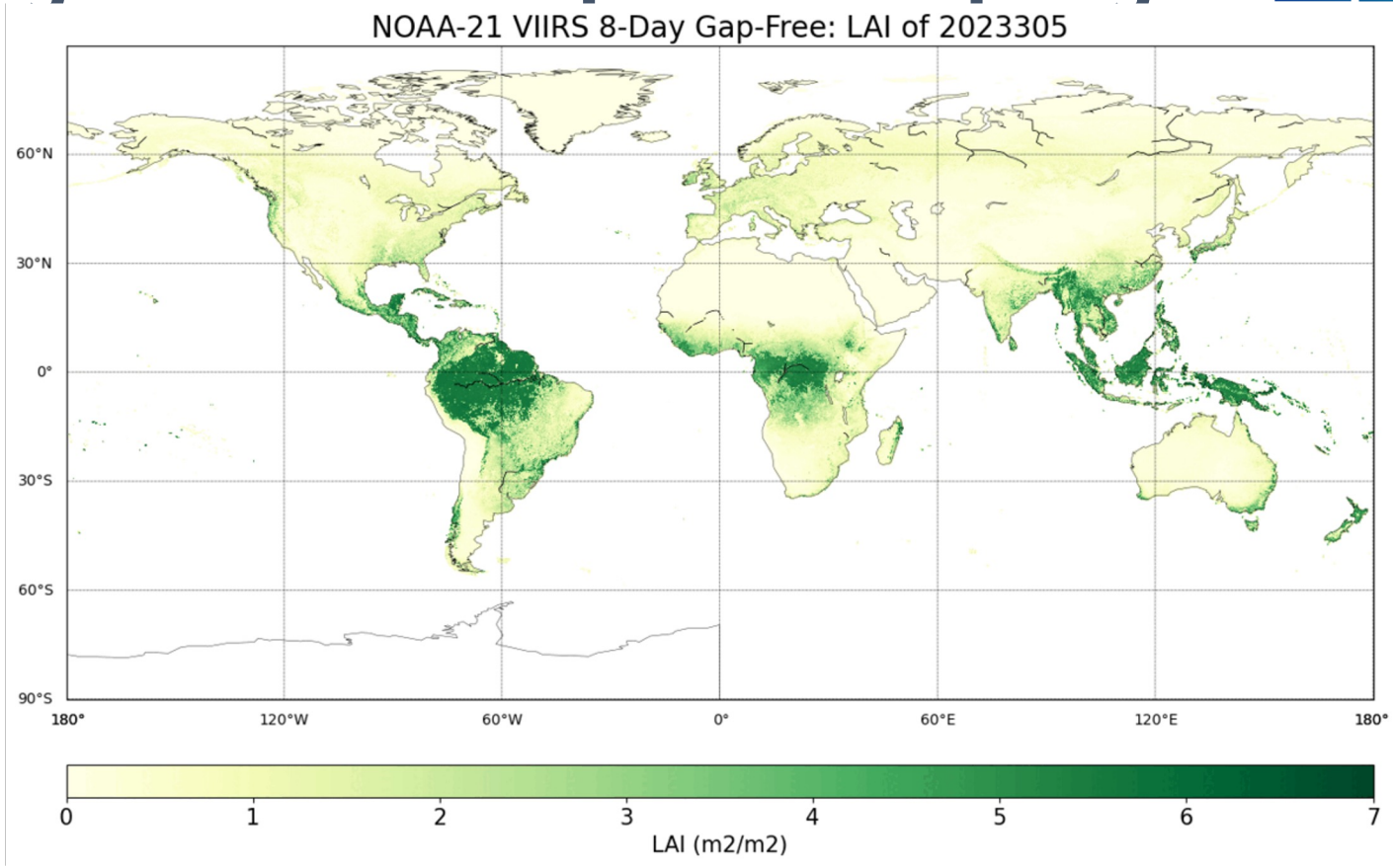


L3S SST is critical for Weather, Climate, Fisheries, Defense, Ecosystems, Recreation, Transportation, Ocean Data Assimilation, Analysis, Forecast, Monitoring, Dynamics, Coastal Management etc.

NOAA STAR SST POC: Dr. Veronica Lance

Land Products Improving Land–Atmosphere Coupling

- VIIRS Leaf Area Index (LAI) improves vegetation representation
- BRDF product enhances surface reflectance and modeling
- Supports drought monitoring and land data assimilation



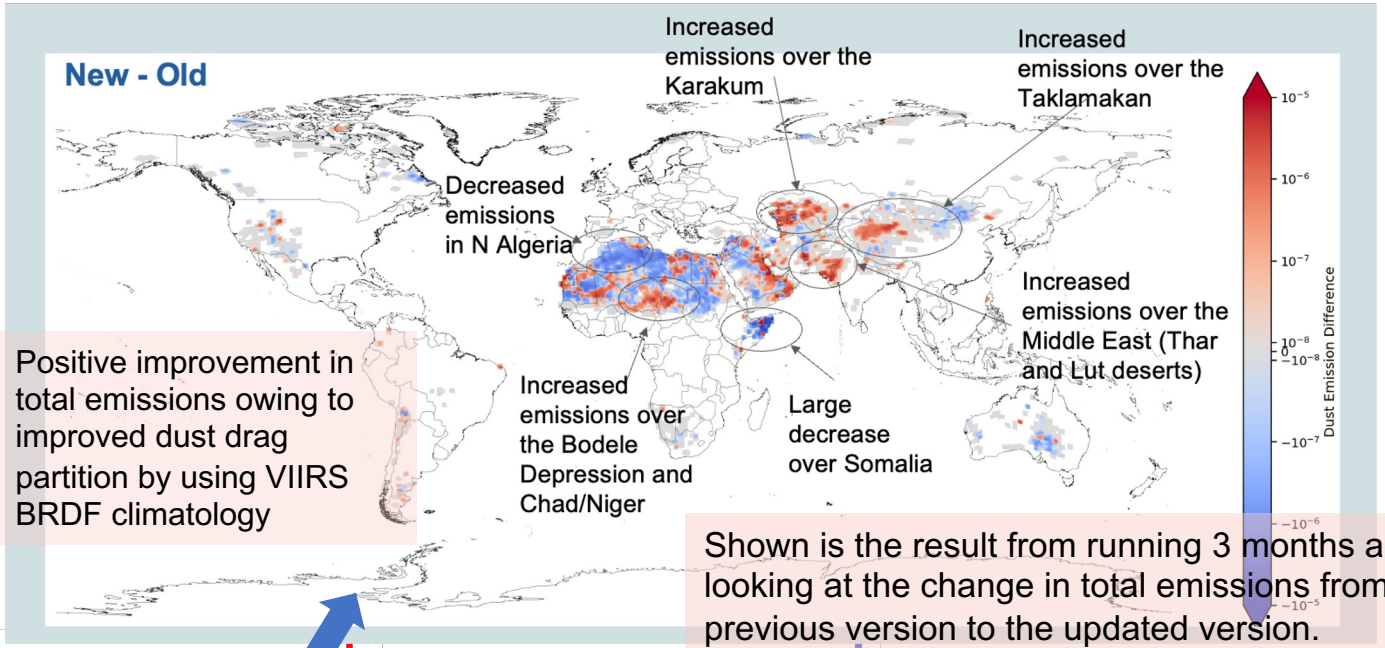
The Leaf Area Index (LAI) product was developed in response to requests from EMC model users. This product **directly supports NOAA's EMC land surface models** and will significantly enhance numerical weather forecasting.

NOAA STAR POC: Dr. Jerry Zhan

VIIRS BRDF Improving Aerosol and Dust Forecasts

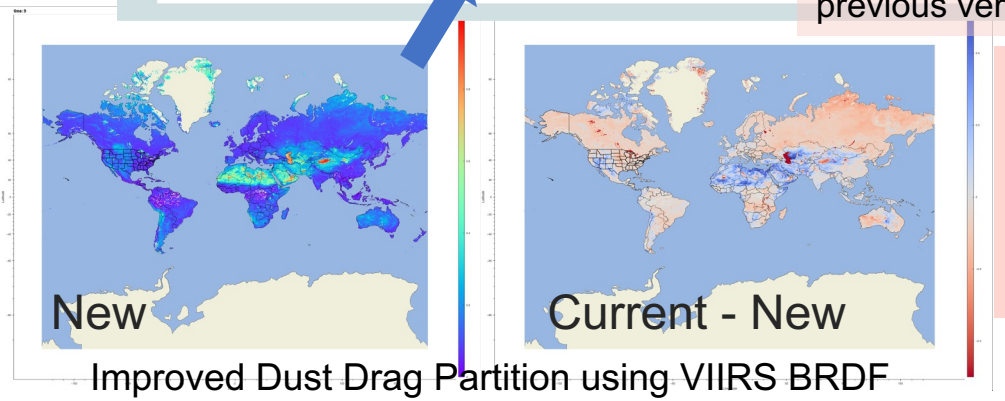
Operational Uses of VIIRS BRDF Climatology and upcoming NRT product :

- Integrated into AQM, GEFS-Aerosol, RRFS-SD
- Improves dust drag partition
- Reduces regional over-/under-prediction

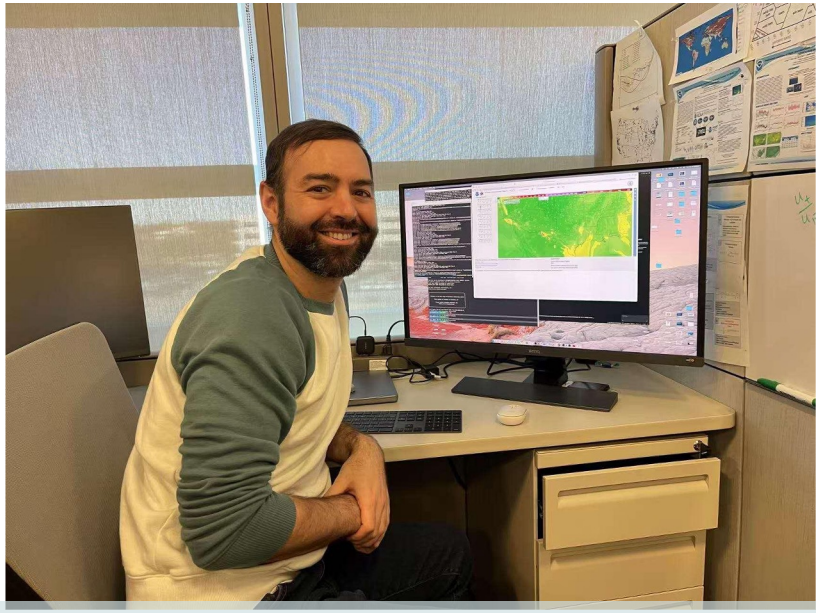


Positive improvement in total emissions owing to improved dust drag partition by using VIIRS BRDF climatology

Shown is the result from running 3 months and looking at the change in total emissions from the previous version to the updated version.



Improved Dust Drag Partition using VIIRS BRDF

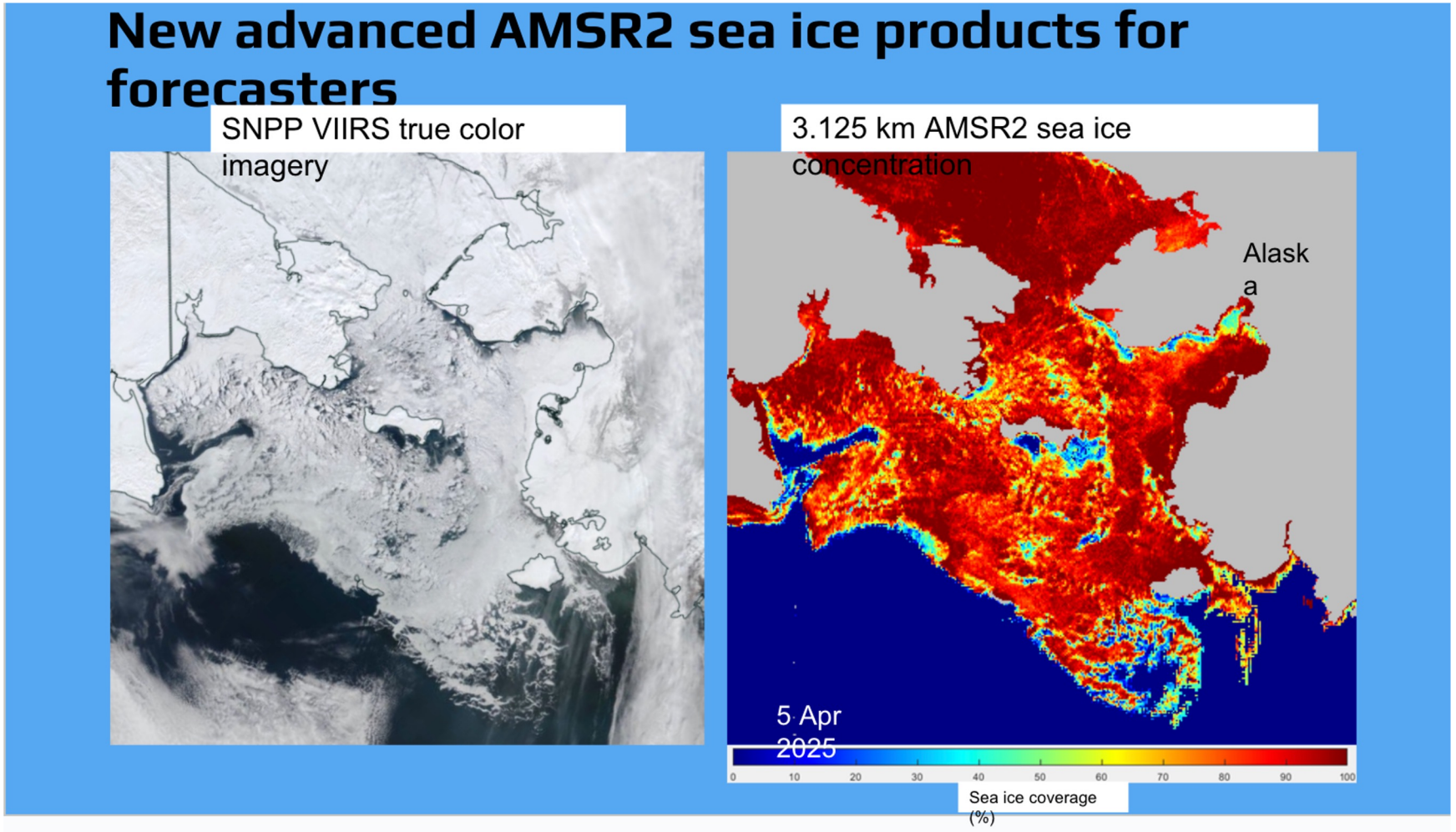


Dr. Barry Baker, Chemical Modeling and Emissions Group Leader in ARL, is showing the BRDF in aerosol prediction model, picture taken by Dr. Yunyue Yu

Acknowledge to the NOAA ARL team for integrating VIIRS BRDF into the aerosol prediction models, which especially contributes to dust predictions by modifying the threshold friction velocity and the drag partition. These adjustments led to positive results, addressing regions where dust levels were previously underpredicted or overpredicted. Specifically, the model now reduces overprediction in the Sahara while improving underpredictions from Asian sources, particularly in the Taklamakan, Thar and Lut deserts.

NOAA STAR POC: Dr. Ivan Csiszar

Cryosphere Products: Enhanced Spatial Resolution

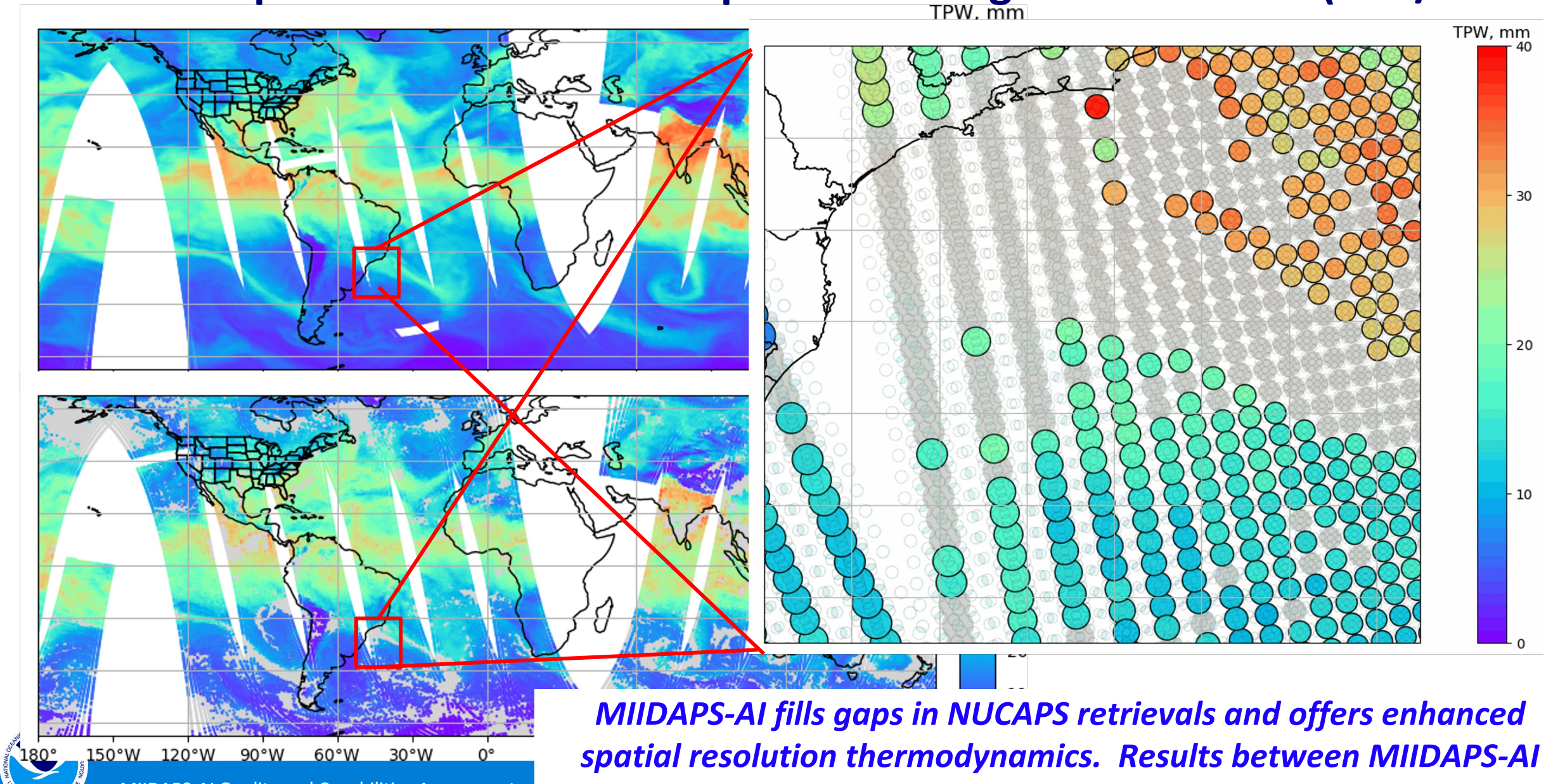


- Microwave-enhanced imagery improves polar region monitoring
- Enhanced sea-ice concentration retrieval
- Supports Arctic awareness and surface hazard detection

Spatial resolution improvements for the enhanced AMSR2 36H GHz imagery (right) over the original imagery (left). Tom Greenwald (CIMSS)

NOAA STAR POC: Dr. Yinghui Liu

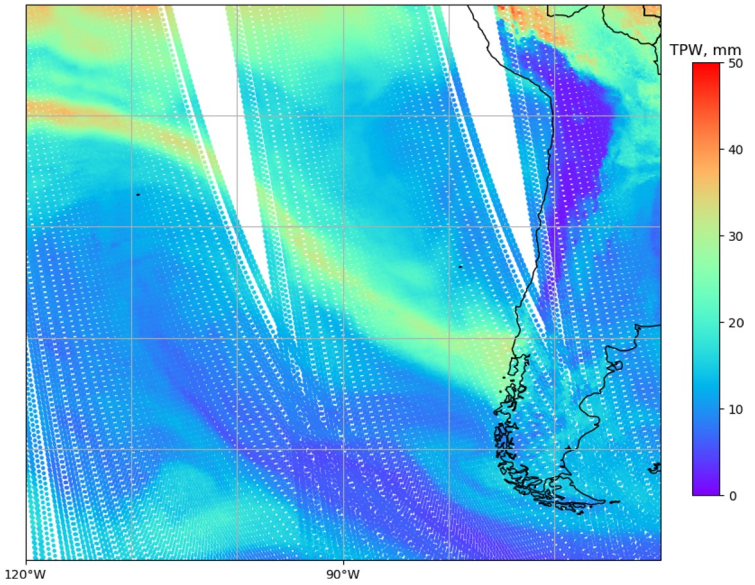
MIIDAPS-AI (CrIS/ATMS)
Enhanced Spatial Resolution and Spatial Coverage over NUCAPS(CrIS/ATMS)



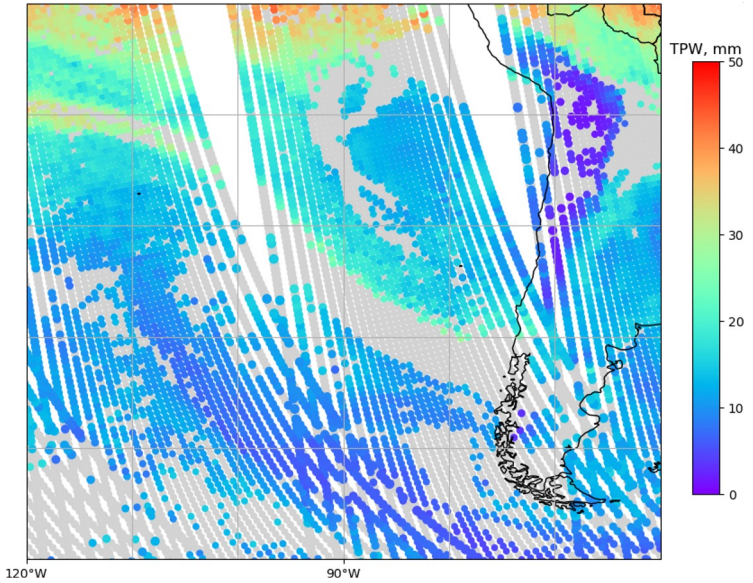
MIIDAPS-AI fills gaps in NUCAPS retrievals and offers enhanced spatial resolution thermodynamics. Results between MIIDAPS-AI and NUCAPS look consistent in overlap regions.

MIIDAPS-AI (CrIS/ATMS) and NUCAPS(CrIS/ATMS)
Southern Hemisphere Atmospheric River July 2, 2025

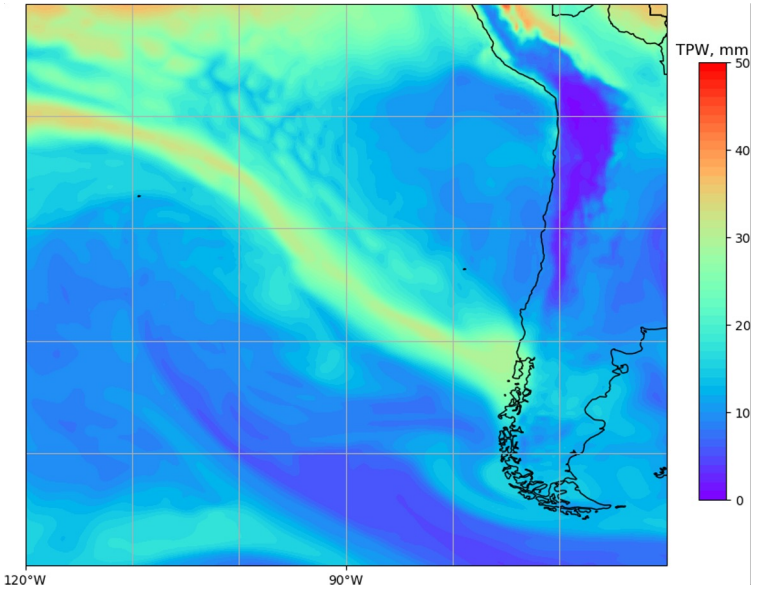
MIIDAPS-AI(CrIS/ATMS)

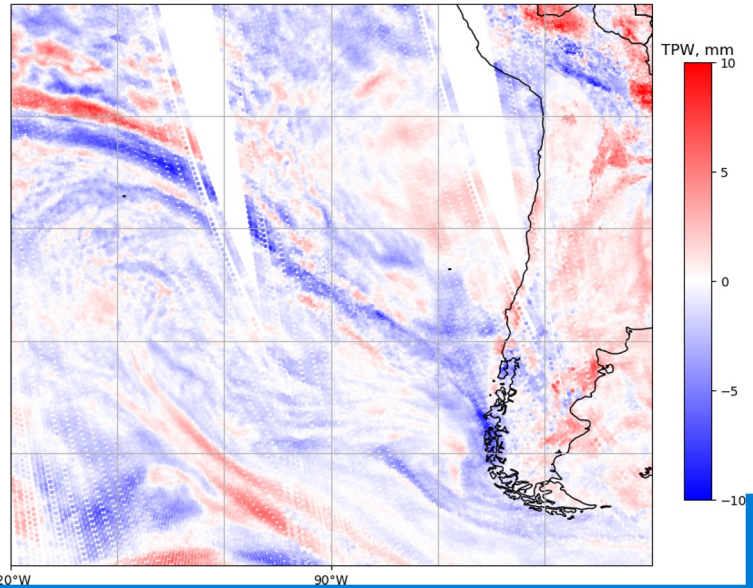


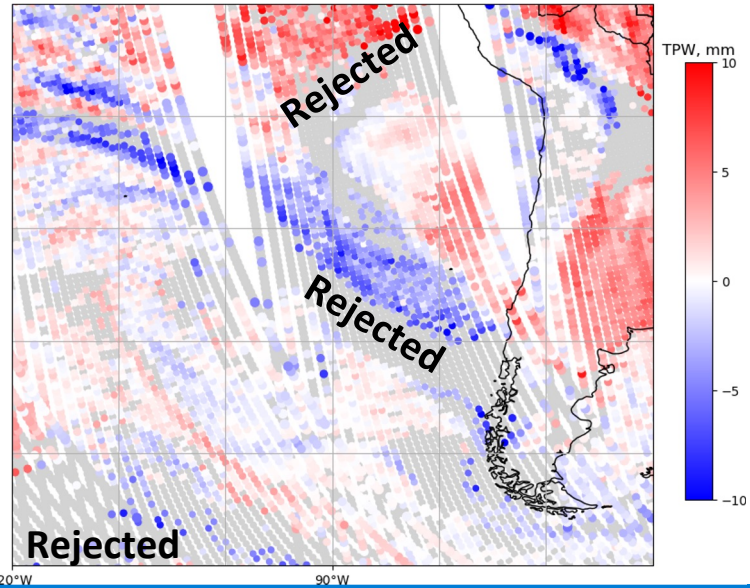
NUCAPS(CrIS/ATMS)



ERA5





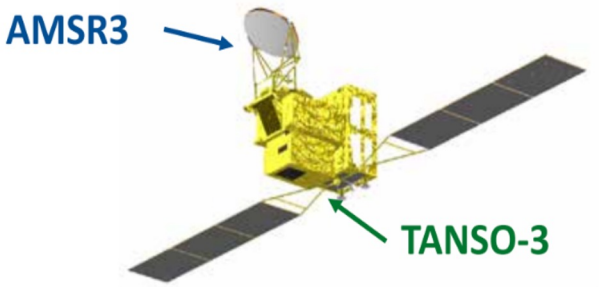


MIIDAPS-AI

- ***Higher spatial resolution***
- ***Higher yield*** - Better coverage of atmospheric environment especially in cloudy/precipitating conditions
- ***Better quality*** compared to reference models (ERA5 and FV3GFS)

LEO Partnership Observations: GOSAT-GW/AMSR-3

Global Observing SATellite for Greenhouse gases and Water cycle "IBUKI GW" (GOSAT-GW)/Advanced Microwave Scanning Radiometer 3 (AMSR3)



GOSAT-GW Satellite Specifications

Mission Instruments		AMSR3 (JAXA) TANSO-3 (MOE/NIES)
Orbit	Type	Sun-synchronous, Sub-recurrent orbit
	Altitude	666km, recurrent cycle 3days (same as GOSAT)
	Local sun time at ascending	13:30+/-15min (same as GCOM-W)
	Revisit time	3 days
Satellite Mass		2.6 tons (including propellant)
Designed lifetime		> 7 years
Launch		29 June 2025 (JST) by H-IIA #50

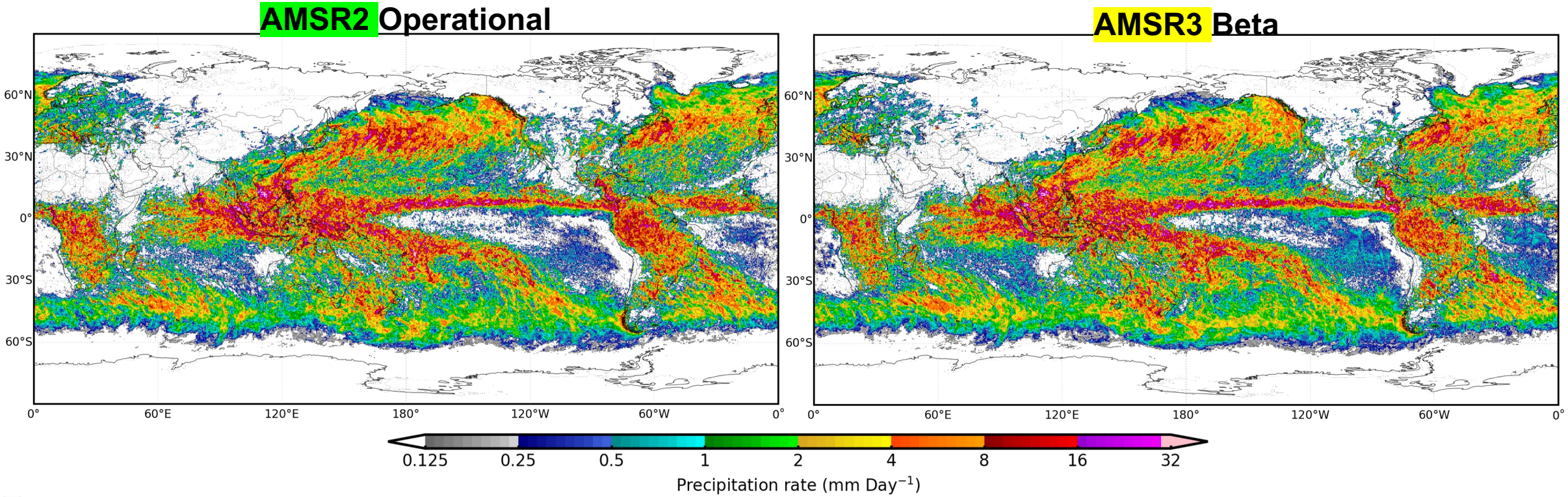
Characteristic	AMSR2 (GCOM-W1)	AMSR3 (GOSAT-GW)
Launch/Status	Launched 05/2012 (Operational)	Launched 06/2025 (Operational)
Instrument Type	Sun-synchronous, conical scanning total power microwave radiometer	Sun-synchronous, conical scanning total power microwave radiometer
Channels	16	21
Frequencies	6.9, 7.3, 10.65, 18.7, 23.8, 36.5, 89.0 GHz	6.9, 7.3, 10.25, 10.65, 18.7, 23.8, 36.5, 89.0, 165.5, 183 GHz
Antenna Diameter	2.0 meters	2.0 meters
Spatial Resolution	~3km – 62 km (frequency dependent)	~5km – 50 km (frequency dependent)
Swath Width	~1450 km	~1535 km
Altitude	~700 km	~666 km
Key Enhancements	Added 7.3 GHz channel over AMSR-E for RFI mitigation	Added channels (10.25/165.5/183 GHz) over AMSR2 for improved RFI detection and snowfall and water vapor profiling

GOSAT-GW AMSR3 NOAA Unique Products (NUPs) Validation Schedule

Sensor	Algorithm	Beta	Provisional	Validated
AMSR-3	GOSAT-GW NUP: Microwave Imagery	Aug-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP: Sea Surface Temperature	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Sea Surface Wind Speed	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Total Precipitable Water	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Precipitation Type/Rate	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Cloud Liquid Water	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Sea Ice Concentration	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Sea Ice Type	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Snow Cover/Depth	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Snow-Water Equivalent	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Soil Moisture	Jan-2026	Aug-2026	Jun-2027
AMSR-3	GOSAT-GW NUP:Snowfall Rate-new	Jan-2026	Aug-2026	Jun-2027

Evaluation of AMSR-3 NOAA Unique Algorithm Performance Rainfall Rate

- ***Monthly average Rainfall Rate*** from GCOM-W1 AMSR2 (left) and GOSAT-GW AMSR3 (right) for the month of November 2025
- Good agreement in rainfall pattern and intensity



Transitioning AMSR-2 to AMSR-3 NOAA Operational Products

Global Datasets Downlink: High-latitude station (KSAT : Svalbard)

- JAXA will set **two-month (July and August 2026) transition period** and receive AMSR2 global data with all passes to provide users during the transition period. JAXA will bear the cost for it.
- From **July 2026 to August 2026**, JAXA receives AMSR2 global data with all passes at Svalbard ground station and provides standard and near-real-time products.
- From **September 2026**, JAXA will receive AMSR2 global data with 4 passes per day at Svalbard station and provide AMSR2 standard products. **AMSR2 Standard near-realtime data provision will terminate.**
- **From the end of June 2026, AMSR 3** standard and global near-real-time data will be provided, data receiving with all the passes.

Direct Reception

- Direct reception service for AMSR2 continues even after the transition period, while direct reception services of AMSR3 will become available.
- Therefore, JAXA can commence AMSR3 direct downlink once NOAA notifies JAXA that the NOAA partner reception sites become ready.

GOSAT-GW Upcoming Milestones

- JAXA plans to update AMSR3 L1 Software once more before the public release and the delivery of AMSR3 L1 Software Version 1.1 is estimated around the end of June or early July.
- NOAA AMSR3 Products Transition to Operations: Full transition to operations is currently targeted for August 2026, coinciding with the planned GCOM-W and GOSAT-GW parallel operations (L+14 months)

LEO Partnership Observations: Metop/Metop-SG A1

EUMETSAT											
EUM CDA	CDA-1: G				CDA-2: G						
EUM SVL	SG10: G			SG51: G			SG52: G				
EUM Central Site	G										
EUM Comms	G										
Metop-B	ASCAT	AMSU-A Y (1)	GRAS G	MHS G	AVHRR Y (2)	SEM G	IASI G	GOME G	HIRS R (3)	SARSAT Y (4)	ADCS O (5)
Metop-C	ASCAT	AMSU-A Y (6)	GRAS G	MHS Y (7)	AVHRR G	SEM G	IASI G (8)	GOME G	ADCS G		
Metop-SGA1	MWS	RO	3MI	METimage	RMU	IASI-NG			Sentinel-5/UVNS		
Notes:	1. Metop-B AMSU-A1: Channel 7 Channel increased magnitude and frequency of NEDT spikes (23 Feb 2016). Channel 15 declared failed (17 Oct 2016) and degradation of Channel 3 as of 17th Oct 2016. Channel 3 NEDT declared out of specification (13 Jan 2019). Channel 6 reached spec limit (17 September 2021). AMSU-A2 nominal.										
	2. Metop-B AVHRR: Channels 1, 2, 3A reached specification limits										
	3. HIRS: switched to INERT – Passivation of the instrument (2025-01-21)										
	4. Metop-B SARSAT: Degradation of received messages because of CRA antenna cable swap. (28 Sep 2012) - Transmitter switched ON after the end of the interference period (05 Feb 2025)										
	5. Metop-B ADCS: ADCS transmitter is OFF, ADCS receiver is ON.										
	6. Metop-C AMSU-A1: H3 reached specification limit (27 Jan 2019). As per decision in Metop Mission Lifetime review held on 23 June 2020, status changed to yellow to be more consistent with the Metop-B AMSU status, as the performance is similar. AMSU-A2 nominal.										
	7. Metop-C MHS: Channels 3 & 4 MHS erratic NEdT (gain). LO for H3/H4 on B-Side. 25 April 2019 - H3 and H4 channel usability - positive feedback from the user community. 03 Jul 2019 - Metop Lifetime Review Board Decision to downgrade MHS due to H3/4 Noise levels.										
	8. Metop-C IASI: 22 Jan 2019 – Instrument on B-side (apart from LAS1). Started producing data and is currently in NORMOP since 25th Jan 2019 on the redundant side (B side electronics), following an anomaly on 8th January 2019.										

Operational Status on May 7, 2026

Metop spacecraft status | EUMETSAT User Portal

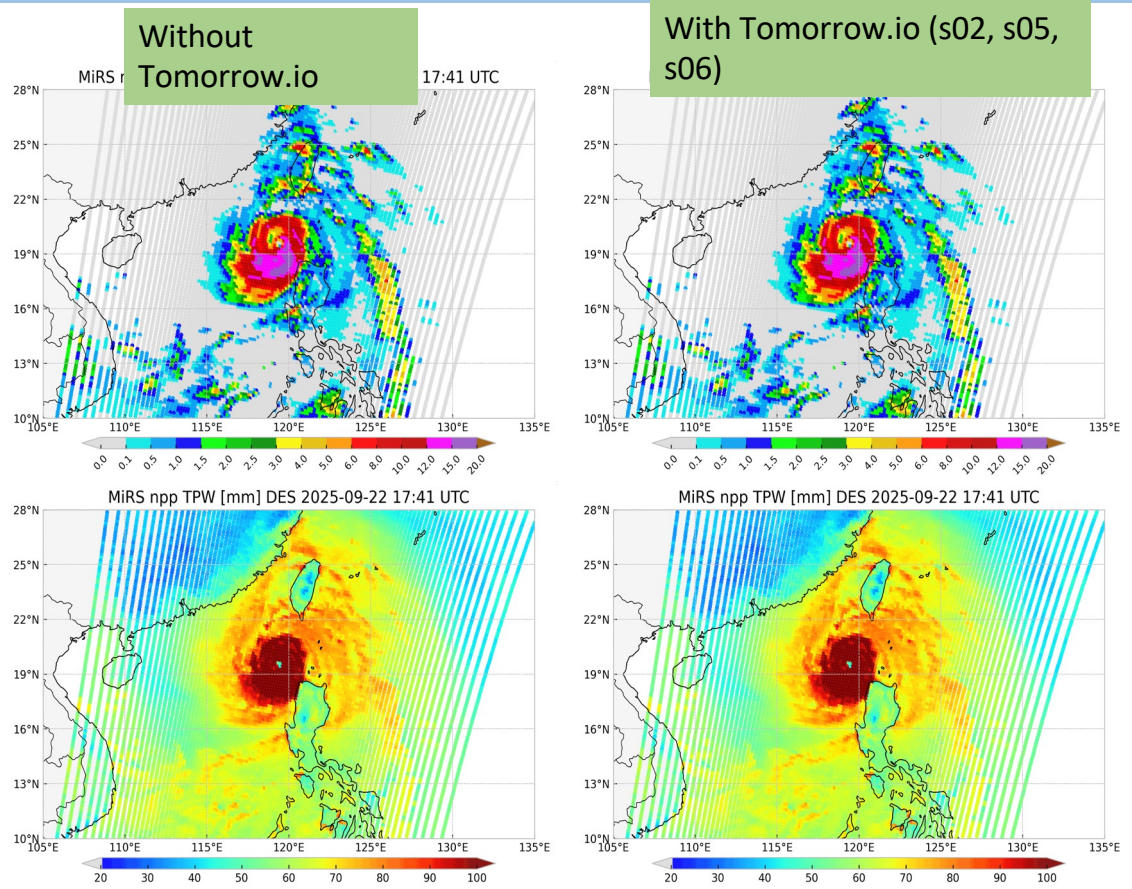
Metop-SG A1 Products Updates:

- **Cal/Val efforts ongoing**: NOAA STAR received RO and MWS data; initial EUMETSAT-NOAA Cal Val Collaboration Meeting held in April 2026
- **System Integration (Office of Common Services):**
  - **Secure Ingest**: Ingest EPS-SG A1 Level 1B/C, Level 2 and BUFR formatted products from EUMETSAT. The ingest pipeline utilizes the Automatic Multi-Tunneling (AMT) client to connect to EUMETSAT Tellicast. As of May , NCCF is receiving RO and MWS pre-operational data.
  - **Product Generation:** NOAA enterprise algorithm products are planned for development of the NOAA Unique Products, generation, and reformatting in NCCF
  - **Dissemination & Access:** NCCF will distribute MetOp-SG products to users.
  - **Stewardship:** EUMETSAT retains the responsibility for level-1 data, NCCF OISS will provide long-term archiving for NOAA-Blended products.

Partnership & Commercial Data Expanding Temporal Coverage

- Partnership with EUMETSAT, ESA, JAXA, NASA, and global community
- Evaluate commercial satellite data for operational uses
- Ensure readiness and utility for NOAA missions and operational forecasting services

MiRS rain rates for typhoon Ragasa on September 22-23, 2025

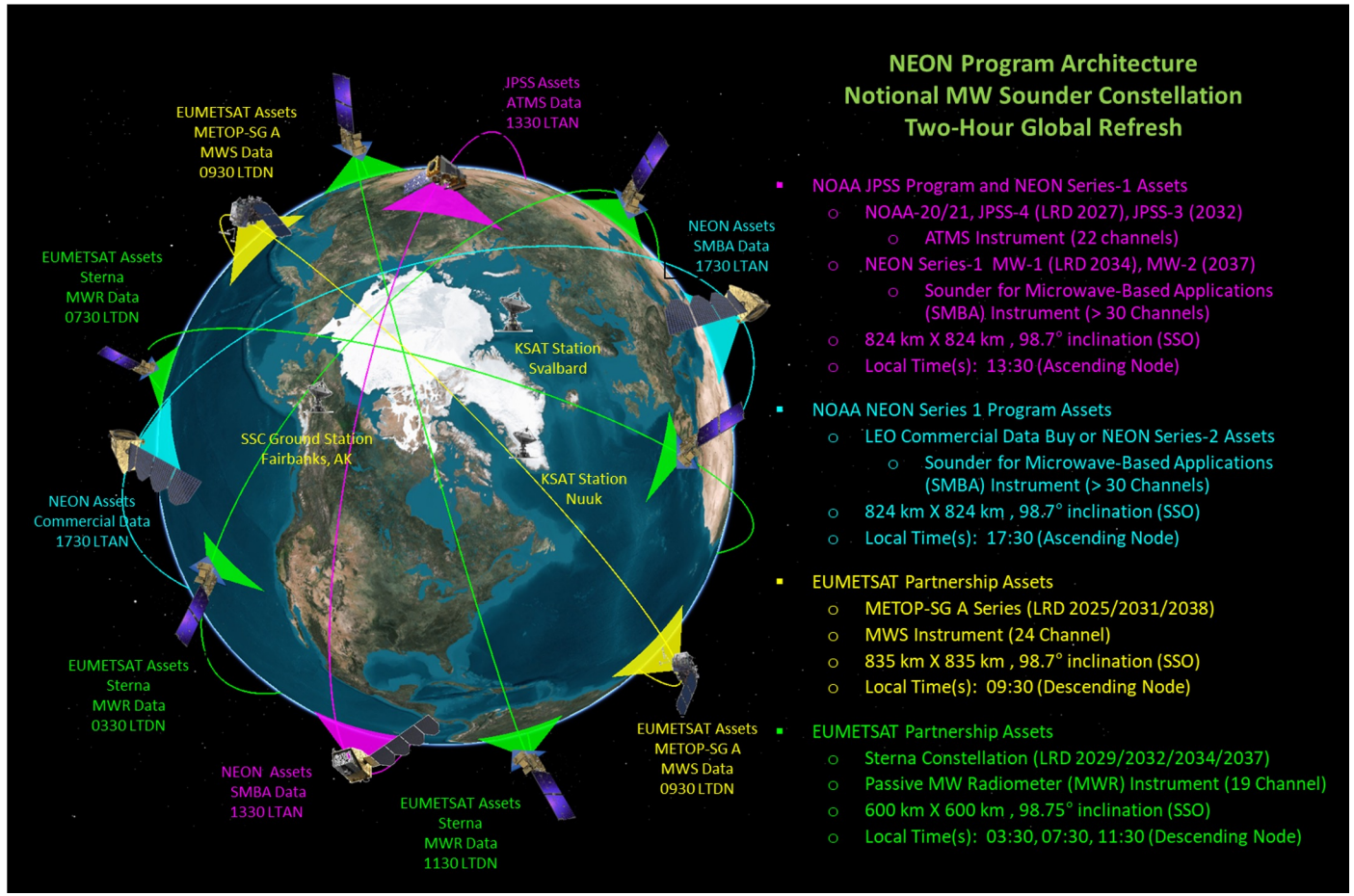


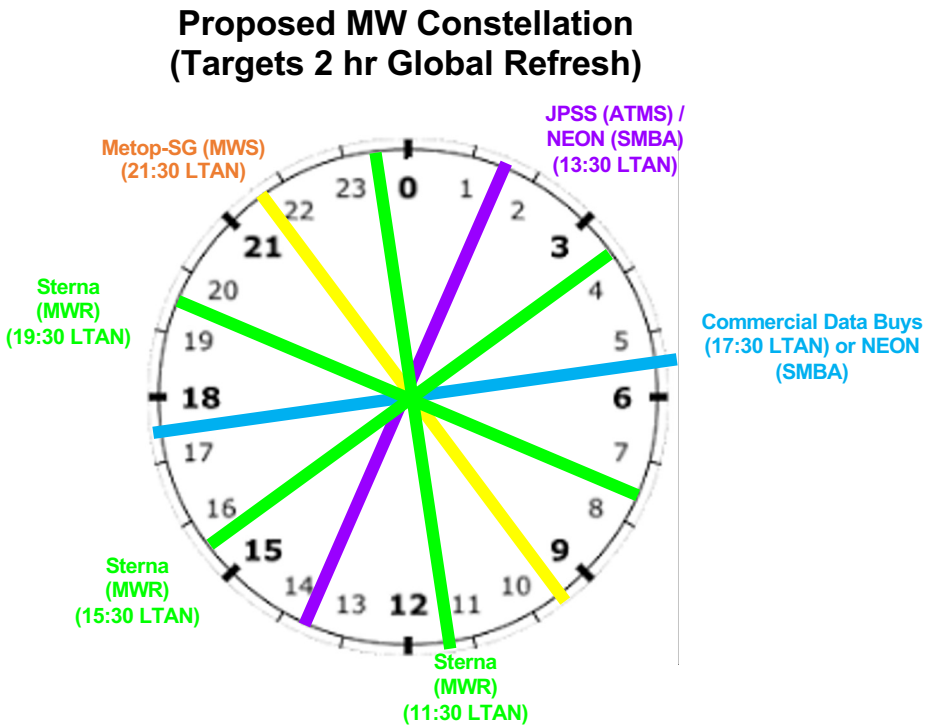
MiRS rain rates and TPW derived from the tomorrow.io satellites fill the gaps between operational satellite measurements (JPSS satellites and MetOp series), which are applied in NWS nowcasting.

Blank images are the gaps where tomorrow.io fills in.

NOAA STAR MIRS POC: Dr. Huan Meng

Next-Gen LEO Microwave Radiance Measurements





Ken Yienger, LAE

6-Plane Backbone Provides 2-Hour Global Revisit Rates with > 80% Global Coverage and 1-Hour Global Revisit Rates above 60° Latitudes (Alaska Region)

Summary and What's Next

- **LEO JPSS Products in Operations:**
  - NOAA-21 Products (Primary), along with NOAA-20 (secondary) and SNPP (Tertiary) are fully validated, running in operation, and in science maintenance phase

- **Science Products Sustainments:**
  - QS, JPSS-4/JPSS-3 algorithms and cal/val readiness
  - Partnership Missions: GOSAT-GW/AMSR3; WSF-M/MWI; AWS; Metop-SG
  - New dev incl. AI-ML for science algorithms developments and cal/val enhancements

- **Planning for Future NEON Missions:**
  - NEON Science Data Products Cal/Val Plan has been developed: more agile and flexible so it can be applied to the data products from the backbone observing system as well as those from partnership missions and commercial entities.
  - LEO Sensor Library is being developed to benefit the cal/val for future missions

- **Continue to support the Direct Broadcast User Community:**
  - LEO works with University of Wisconsin, CIMSS to ensure the data produced using CSPP are the same quality as those produced through the NOAA ground system.
  - Readiness for the next-gen LEO missions

THANK YOU!!

NESDIS

National Environmental Satellite,
Data, and Information Service