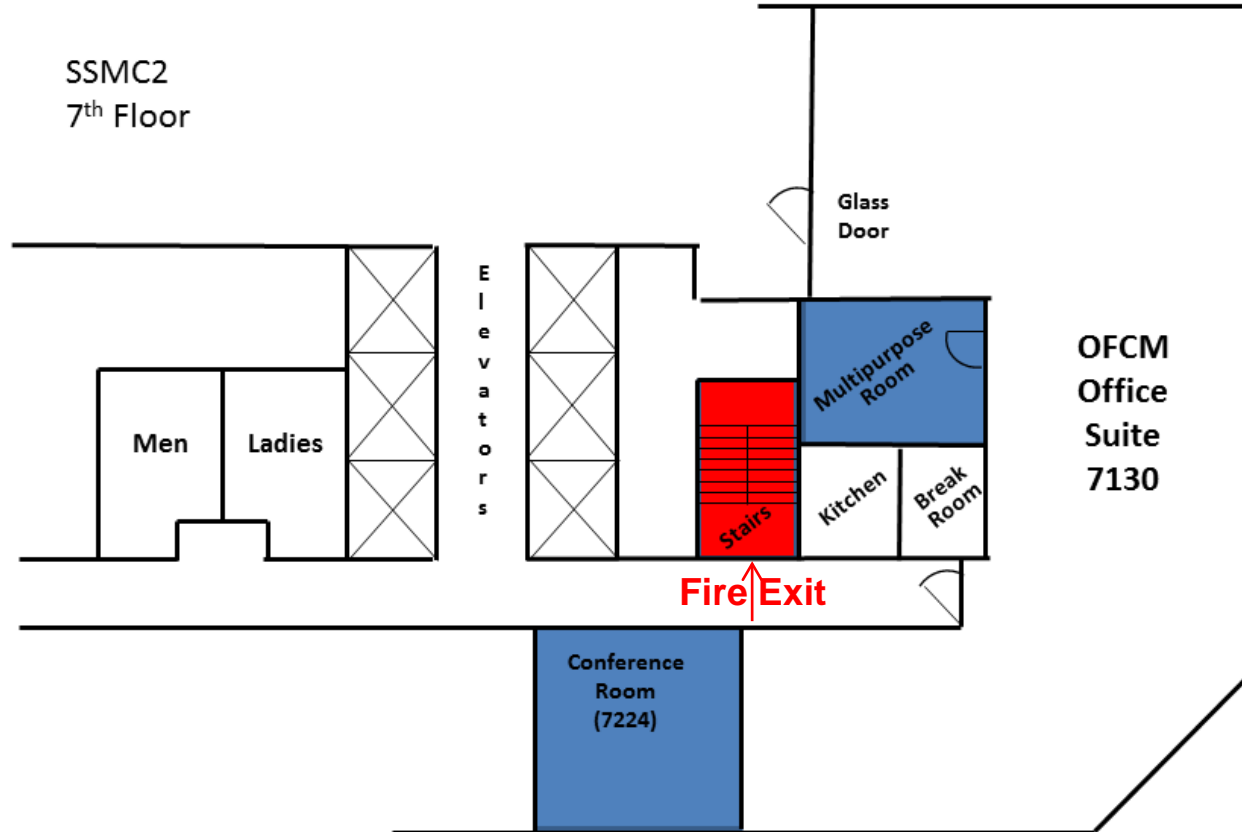

Committee on Operational Environmental Satellites

Meeting 2018-2

June 21, 2018

***Office of the Federal Coordinator for
Meteorological Services and Supporting
Research (OFCM)***

OFCM Floor Plan



Opening Remarks

COES Co-Chairs:

Mr. David McCarren (DOD-USN)

Mr. Ajay Mehta (NOAA-NWS)

COES Executive Secretary:

Mr. Michael F. Bonadonna (OFCM)

**Meeting is being recorded to help produce an
accurate Record of Action (ROA)**

Agenda

- Opening Remarks:COES Cochairs
 - Action Item Review:Executive Secretary
 - JPSS Satellite Update:Mitch Goldberg (NOAA)
 - GOES-R Satellite Update:Pam Sullivan (NOAA)
 - CGMS Annual Meeting Review:Matt Butler (NOAA)
 - Future COES Focus Areas:Ajay Mehta (NOAA)
 - Satellite Data Acquisition And Routing:General discussion
 - Commercial Weather Data Project Updates:General discussion
 - COES Briefing to ICMSSR and AMS:Executive Secretary
 - Open Discussion:All
 - Action Item Review / Next Meeting/ Adjourn:Executive Secretary
-

Action Item Review

AI #	Text	Responsible Office	Comment	Status	Due Date
2017-4.1	Schedule an agenda item for the next COES meeting to look at environment satellite data acquisition and communications architectures including needs, plans, and relevant deadlines.	ExecSec	6/8/18: On the agenda to discuss on 6/21.	closed	02/15/18
2017-4.2	Obtain a list from NOAA STAR of research satellite missions that may be of interest to COES discussion in future meeting.	ExecSec	6/8/18: Jim Yoe working with Harry Cikanek to complete this request.	Open	01/15/18
2017-4.4	Schedule an agenda item for the Summer 2018 COES meeting to review NOAA, NASA, and DoD progress and plans to obtain and use commercial weather data.	ExecSec	6/8/18: On the agenda to discuss on 6/21.	closed	05/16/18
2018-1.1	Review and provide COES a brief summary of analyses and mitigation planning for RFI on passive sensing bands used by current and future environmental satellites.	NEDSIS, NASA, USAF	6/12/18: HAF A3W working with SMC. NESDIS looking into it. NASA ESD looking into it.	Open	05/30/18

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-



COES 2018-2 Meeting

JOINT POLAR SATELLITE SYSTEM

JPSS Leadership Team

Program Director: Greg Mandt

Deputy Program Director: Jacqueline Townsend

Assistant Program Director: Stephen Walters

Business Manager: John Longenecker

Program Scientist: Dr. Mitch Goldberg

Program Systems Engineer: Dr. José Davis

JPSS Program Status





Development

- Northrop Grumman acquired Orbital ATK on June 5th – no impact anticipated
- JPSS-3 and JPSS-4 Spacecraft options exercised on the Orbital ATK contract
- JPSS-2 Mission CDR scheduled for September 2018
- Instrument and spacecraft development on track, though CrIS and ATMS technical issues are putting pressure on JPSS-2 July 2021 Launch Readiness Date (LRD)

Operations

- S-NPP Solar Array anomaly occurred on April 2, 2018; current output dropped 30%
 - Net effect is batteries take longer to charge coming out of eclipse
 - Fishbone analysis complete, most probable cause remains the connector or harness
 - Reliability analysis indicates S-NPP exceeds the 90% requirement for the next 5.5 years
 - Operations are nominal; S-NPP continues to exceed science data availability and latency thresholds
- NOAA-20 declared operational on May 30, 2018



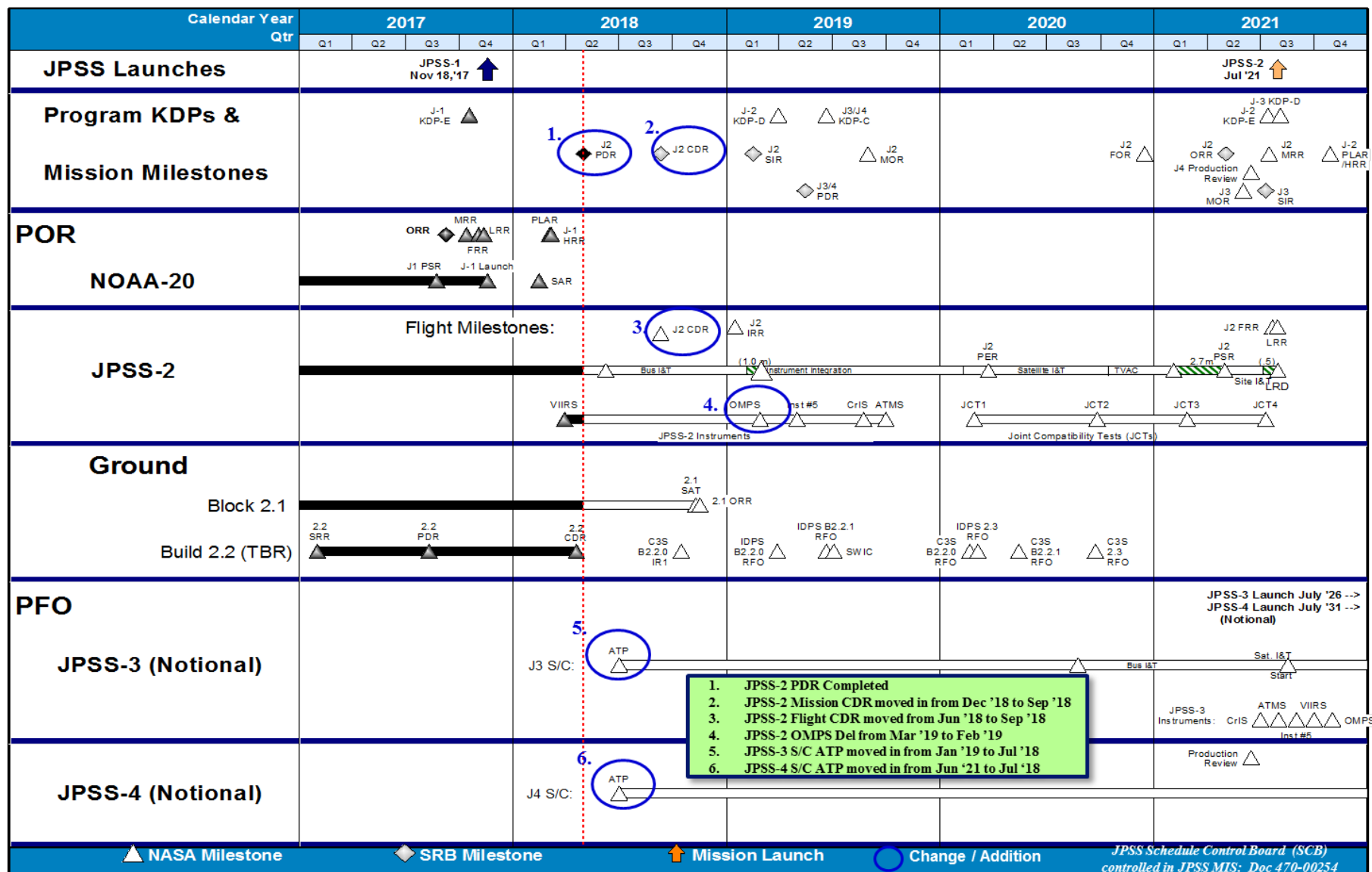
JPSS Ground Status

- Block 2.0 Ground System operational for JPSS-1, S-NPP and other on-orbit missions
- Ground Project management transitions from NASA to NOAA on August 1, 2018
- Block 2.1: Completes all baselined Block 2 functionality
 - Includes all content deferred in 2015 (capability to support three JPSS missions)
 - ORR on track for November 2018
- Block 2.2: Accommodates JPSS-2 mission unique changes
 - CDR conducted successfully in April 2018
- Developing a Service Level Agreement (SLA) for Data Acquisition and Routing services to simplify and standardize future mission support
 - Develop a Catalog of Services for the current Ground System capabilities
 - Use this Catalog to determine mission unique requirements
 - Use existing documentation (ICDs) for standard services
 - New documentation (ICDs, operational agreements, etc.) for the mission unique scope only



Program Integrated Master Schedule

April 30, 2018





JPSS New Mission Support

Support for EUMETSAT Enhanced Polar System-Second Generation (EPS-SG) under the Joint Polar System agreement

- Swap of JPSS passes on EUMETSAT antennas in Svalbard for EPS-SG passes on JPSS antennas in McMurdo
- Starts in the JPSS-2 timeframe (2021)
- JPSS is upgrading the McMurdo Ka antennas to support EPS-SG
- EUMETSAT is procuring a Ka antenna for Svalbard for JPSS use
- JPSS partnering with NSF to upgrade the McMurdo SatCom infrastructure with a new earth station antenna and a higher bandwidth service
 - NSF completed a SRR in April
 - Developing a Statement of Work for the commercial satellite communications service

Possible DoD Partnerships (ORS-8, WSF)

- JPSS and OSAAP are working on annexes to current agreement with USAF for ORS-8 and WSF partnership

JPSS User Community



NOAA-20 Science Product Validation & Readiness for Operations (1 of 2)

	Beta	Provisional	SPSRB Declared Ready for Operations	Validated
ATMS Level 1 Products				
Temperature Data Record (TDR)*	08-Dec-2017	23-Jan-2018	28-Feb-2018	14-Jun-2018
Sensor Data Record (SDR)	08-Dec-2017	23-Jan-2018	28-Feb-2018	14-Jun-2018
CrIS Level 1 Product				
SDR*	17-Jan-2018	16-Feb-2018	28-Feb-2018	Aug-2018
VIIRS Level 1 Product				
VIIRS SDR	1-Feb-2018	16-Feb-2018	28-Feb-2018	15-Jun-2018
OMPS Level 1 Products				
Total Column	5-Jan-2018	18-Apr-2018	Aug-2018	Aug-2018
Nadir Profile	5-Jan-2018	Jul-2018	Aug-2018	Aug-2018
VIIRS Level 2 Products(s)				
VIIRS Imagery*	1-Feb-2018	16-Feb-2018	28-Feb-2018	Aug-2018

Validation Maturity Levels

Not Validated	Beta Maturity	Provisional Maturity	Validated Maturity
---------------	---------------	----------------------	--------------------

Ready for Operations

SPSRB Declaration

*Key Performance Parameter (KPP)

Product quality documentation available: <https://www.star.nesdis.noaa.gov/jpss/AlgorithmMaturity.php>

NOAA-20 Science Product Validation & Readiness for Operations (2 of 2)

	Beta	Provisional	SPSRB Ready for Operations	Validated
VIIRS Level 2 Products				
Cloud Property Algorithms	Jul-2018	Sep-2018	Nov-2018	Mar-2019
Cloud Mask	18-Apr-2018	Sep-2018	Nov-2018	Mar-2019
Aerosol Optical Depth and Particle Size Parameter	18-Apr-2018 ¹	18-Apr-2018 ¹	Nov-2018	Mar-2019
Aerosol Detection	18-Apr-2018 ¹	18-Apr-2018 ¹	Nov-2018	Mar-2019
Ice Surface Temperature	15-Jun-2018	Sep-2018	Nov-2018	Mar-2019
Sea Ice Concentration and Ice Thickness	15-Jun-2018	Sep-2018	Nov-2018	Mar-2019
Snow Cover (Binary Map & Snow Cover Fraction)	15-Jun-2018	Sep-2018	Nov-2018	May-2019
Active Fire	18-Apr-2018	18-Apr-2018	Jun-2018	Dec-2019
Land Surface Temperature	Jul-2018	Dec-2018	Apr-2019	Nov-2019
Land Surface Albedo	Jul-2018	Dec-2018	Apr-2019	Nov-2019
GST (Global Gridded Surface Type)	Jul-2019	Sep-2019	--	Nov-2019
Land Surface Reflectance	15-Jun-2018	Nov-2018	Apr-2019	Nov-2019

	Beta	Provisional	SPSRB Ready for Operations	Validated
VIIRS Level 2 Products				
Green Vegetation Fraction (GVF)	Aug-2018	Feb-2019	Jun-2019	Feb-2020
Vegetation Index (VI)	Aug-2018	Feb-2019	May-2019	Feb-2020
Vegetation Health (VH)	Aug-2018	Feb-2019	May-2019	Jun-2020
Volcanic Ash	Jul-2018	Sept-2018	Apr-2019	Mar-2019
Ocean Color	Oct-2018	Mar-2019	Jun-2020	Jun-2020
Sea Surface Temperature	18-Apr-2018 ¹	18-Apr-2018 ¹	Oct-2018	Apr-2019
VIIRS Polar Winds	Sep-2018	Sep-2018	Feb-2019	Mar-2019
CRIS/ATMS Level 2 Products				
NUCAPS: AVTP, AVMP	15-Jun-2018 ¹	15-Jun-2018 ¹	Sept-2018	Sep-2019
NUCAPS: Ozone, Trace Gas (CO, CO2, CH4), OLR	15-Jun-2018 ¹	Sep-2018	Dec-2018	Sep-2019
ATMS Level 2 Products				
MiRS: AVTP, AVMP, TPW	18-Apr-2018 ¹	18-Apr-2018 ¹	Jul-2018	Sep-2019
MiRS: Snowfall Rate	18-Apr-2018	Mar-2019	Mar-2019	Jun-2020
MiRS: Other EDRs	18-Apr-2018 ¹	18-Apr-2018 ¹	Mar-2019	Sep-2019
OMPS Level 2 Products				
Ozone EDR: NP & TC	18-Apr-2018	Jul-2018	Aug-2018	Aug-2018

Validation Maturity Levels

Not Validated

Beta Maturity

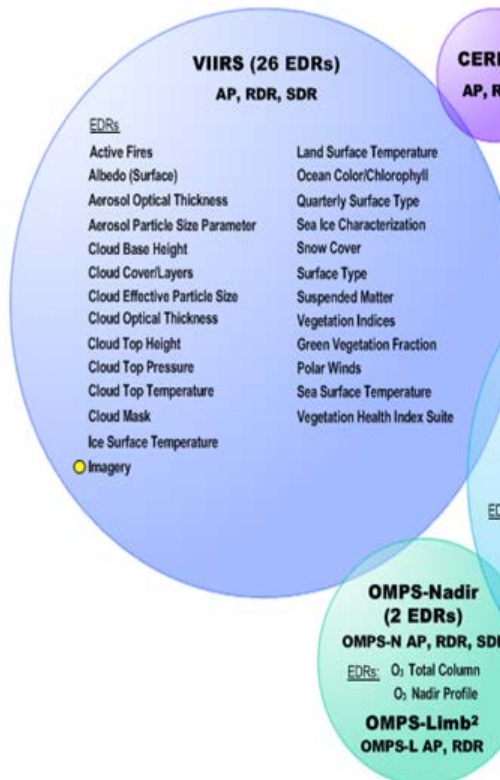
Provisional Maturity

Validated Maturity

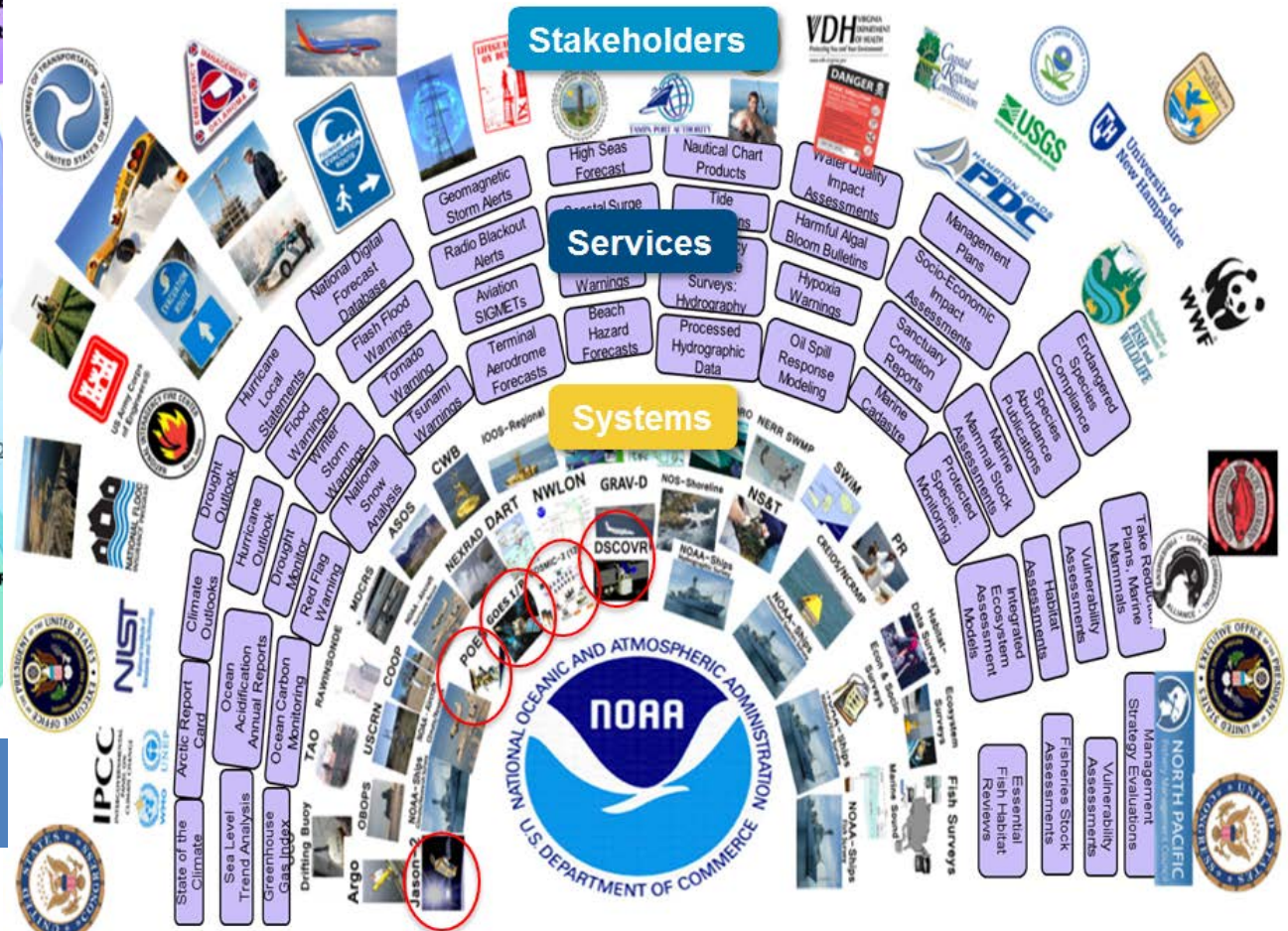
Ready for Operations

SPSRB Declaration

JPSS Proving Ground Program: optimizing the use of satellite data



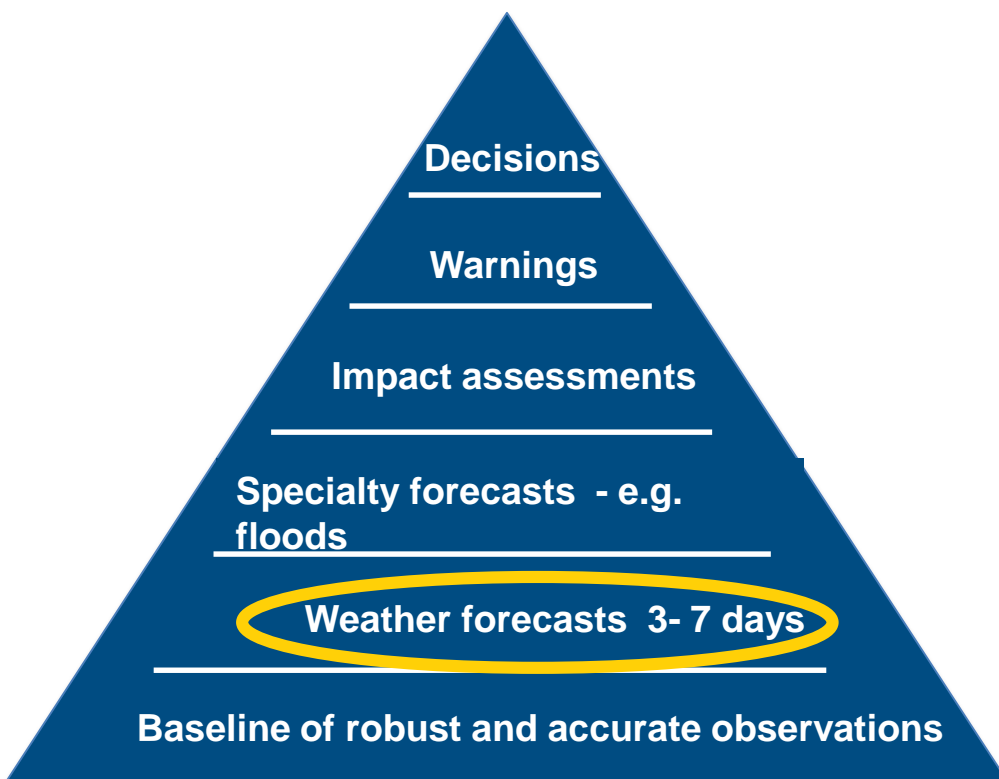
NOAA Satellite Observations and Products to Services





Focus on Applications and Decision Support for NOAA Service Areas and Partners

Starting in 2014 we transitioned from individual projects to coordinated team initiatives



Climb the pyramid through:

- Communicating our capabilities/needs
- Listening /understanding user needs and feedback
- Identifying user advocates/leaders
- Clearly stated objectives/deliverables
- Facilitators for managing meetings and milestones
- A very capable team

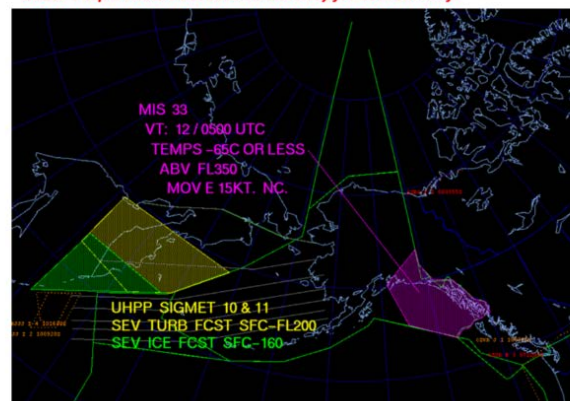
NESDIS Strategic Metric - “The utilization of NESDIS developed science by internal and external partners and stakeholders through enhanced coordination with partners and the user community”

The initiatives comprise of teams of developers and users working to develop/ evaluate applications of JPSS capabilities in the users' decision making environment

- ❖ Arctic
- ❖ Aviation
- ❖ Fire and Smoke
- ❖ Hurricanes and Tropical Storms
- ❖ Hydrology
- ❖ NWP
- ❖ Oceans and Coasts
- ❖ River Ice and Flooding
- ❖ Sounding
- ❖ Training
- ❖ Volcanic Hazards

JPSS Soundings are now used operationally by NWS to provide FAA warnings on cold air aloft

Alaska CWSU domain (green line) and warning guide for 11 January 2017. Purple hatched area is an advisory for Cold Air Aloft



Example text product disseminated by Alaska CWSU for Cold Air Aloft; valid 14 November 2015

```
FAAK20 KZAN 121458
ZAN MIS 01 VALID 121500-130300
...FOR ATC PLANNING PURPOSES ONLY...
COLD AIR ALOFT
FROM 185NE SCC-65NE ORT-55SW ENN-110NW BRW-185NE SCC
TEMPS -65C OR LESS FM FL350-400. AREA MOVG NE 40 KTS.
CMW NOV 14
```

Lat/Lon Extent of Cold Air from soundings, aircraft reports, model

Vertical Extent of Cold Air from soundings/aircraft reports/model

Motion determined from model data

<https://aerospaceamerica.aiaa.org/features/danger-in-the-air/>

Strong Impact to DOC Priorities

Strategic Objective 3.3 Reduce Extreme Weather Impacts

Severe weather and water events have an enormous impact on our nation's economy. To reduce the economic impact of these events, we are enhancing our prediction capabilities through better data gathering and modeling technology. Additionally, we are improving our ability to provide expert, timely, and actionable weather information to emergency managers, water resource managers, and other government agencies at the state, local, and tribal levels. We will also work with commercial partners to achieve these improvements faster and at a lower cost to taxpayers.

Strategies

- **Evolve the National Weather Service to deliver better forecasts, earlier warnings, and clearer communication of high-impact weather and water events.**

We will leverage new models, technology, and processes to ensure the most efficient and consistently accurate forecasts, watches, warnings, and outlooks. We will work with public safety partners to ensure that they are better able to utilize our forecasts in their emergency management and response plans.

- **Strengthen partnerships with America's weather industry and other members of the weather, water, and climate enterprise.**

We will increase our use of data from commercial observations and facilitate development of private value-added data products. The quality of the Department's research and information dissemination efforts will be enhanced through meteorological community participation in modeling and the National Oceanic and Atmospheric Administration (NOAA) Big Data Project.

- **Deploy the next generation of satellites, aircraft, ocean-going ships, and observation and data gathering systems.**

We will enhance our long-term observation capabilities and infrastructure that directly inform understanding of weather variability, extreme events, and ecosystem processes. New technologies will be implemented using innovative public and private partnerships.

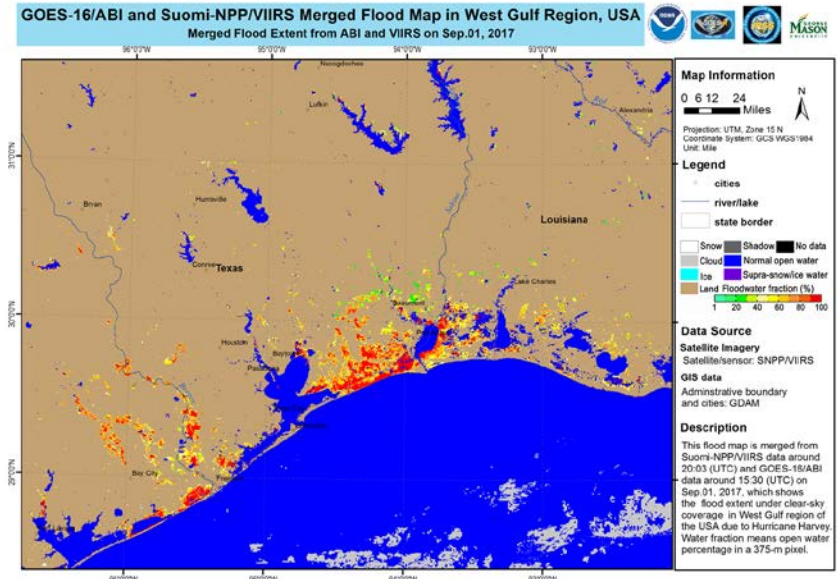


- **Develop and deploy next-generation environmental observation and modeling systems to make informed planning, resources management, and investment decisions.**

Next generation weather and environmental models will be created using high-performance computing and assimilation of state-of-the-science data sources. Faster, more accurate, and longer-range forecasts will be delivered to protect life and property, and inform business and community decisions.

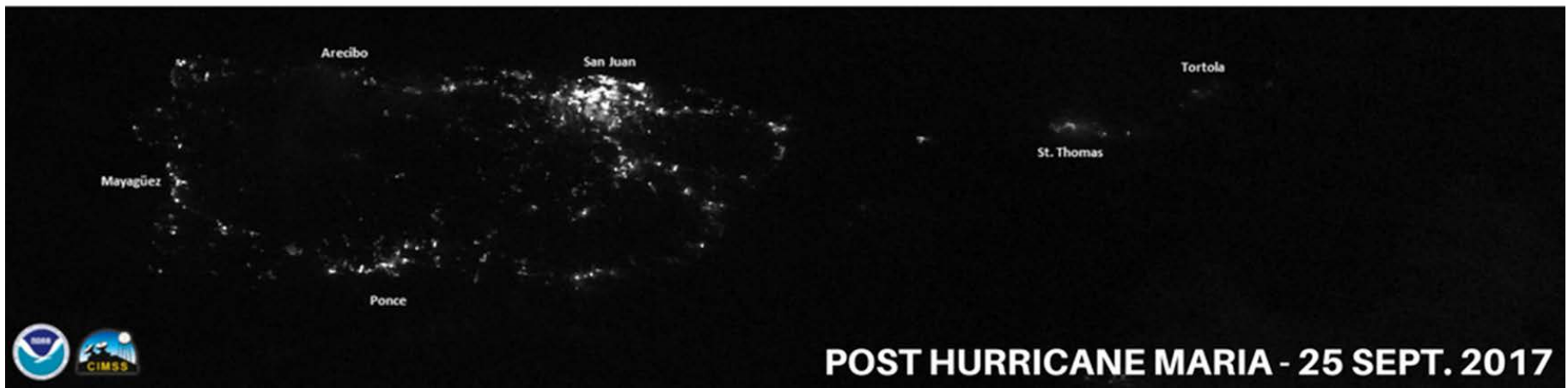
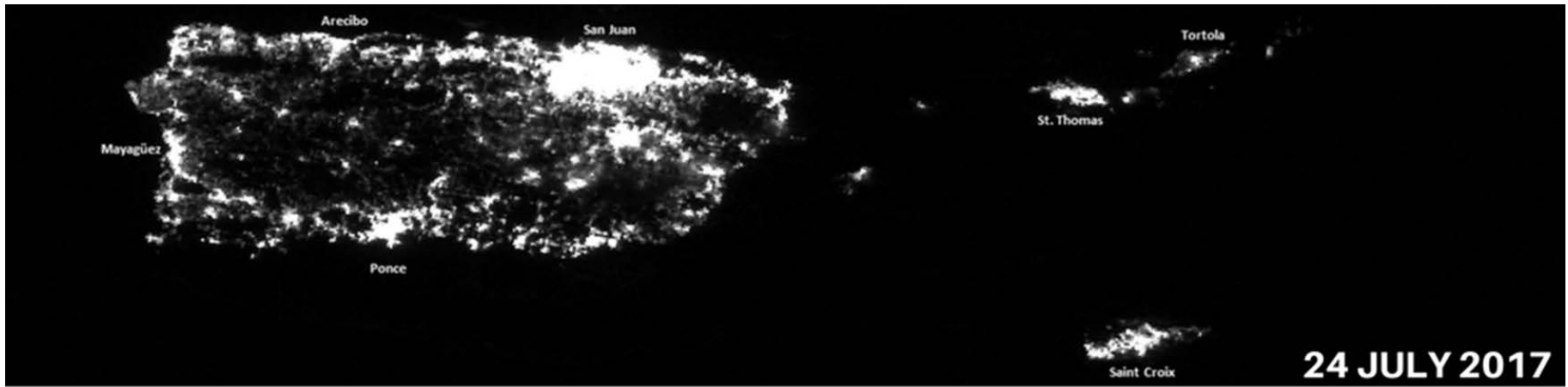
Performance Indicators

- **Mitigate Flood Impacts** – By September 30, 2019, NOAA's National Weather Service will improve decision support services by demonstrating a new flood inundation mapping capability serving 25 million people (i.e., 8 percent of the U.S. continental population) residing in flood-vulnerable freshwater basins and delivering an enhanced excessive rainfall outlook product that extends the lead time of high risk predictions from two to three days (APG) ★
- American Customer Satisfaction Index rating



- Integrated flood maps from VIIRS and ABI
- Feeds into new NWC flood inundation mapping capability

VIIRS Day-Night Band used by FEMA for Recovery Efforts



- Anchorage, AK (May 1-4) and Fairbanks, AK (May 7-8).
- Series of JPSS Initiative-based themed Technical Interchange Meetings (TIMs)
- Focused on the Arctic where the JPSS Satellite provides unique capabilities critical to science, service, and stewardship including saving lives and property.
- Daily themes included:

Weather Forecasting and Aviation Weather	Arctic Initiative with Focus on Sea Ice
Hydrology and River Ice and Flooding	Fire and Smoke
Oceans and Coasts	Science TIMs and Direct Readout



Carven Scott, Regional Director, NOAA/NWS Alaska Region HQ addresses the group on the NWS perspective on the Arctic

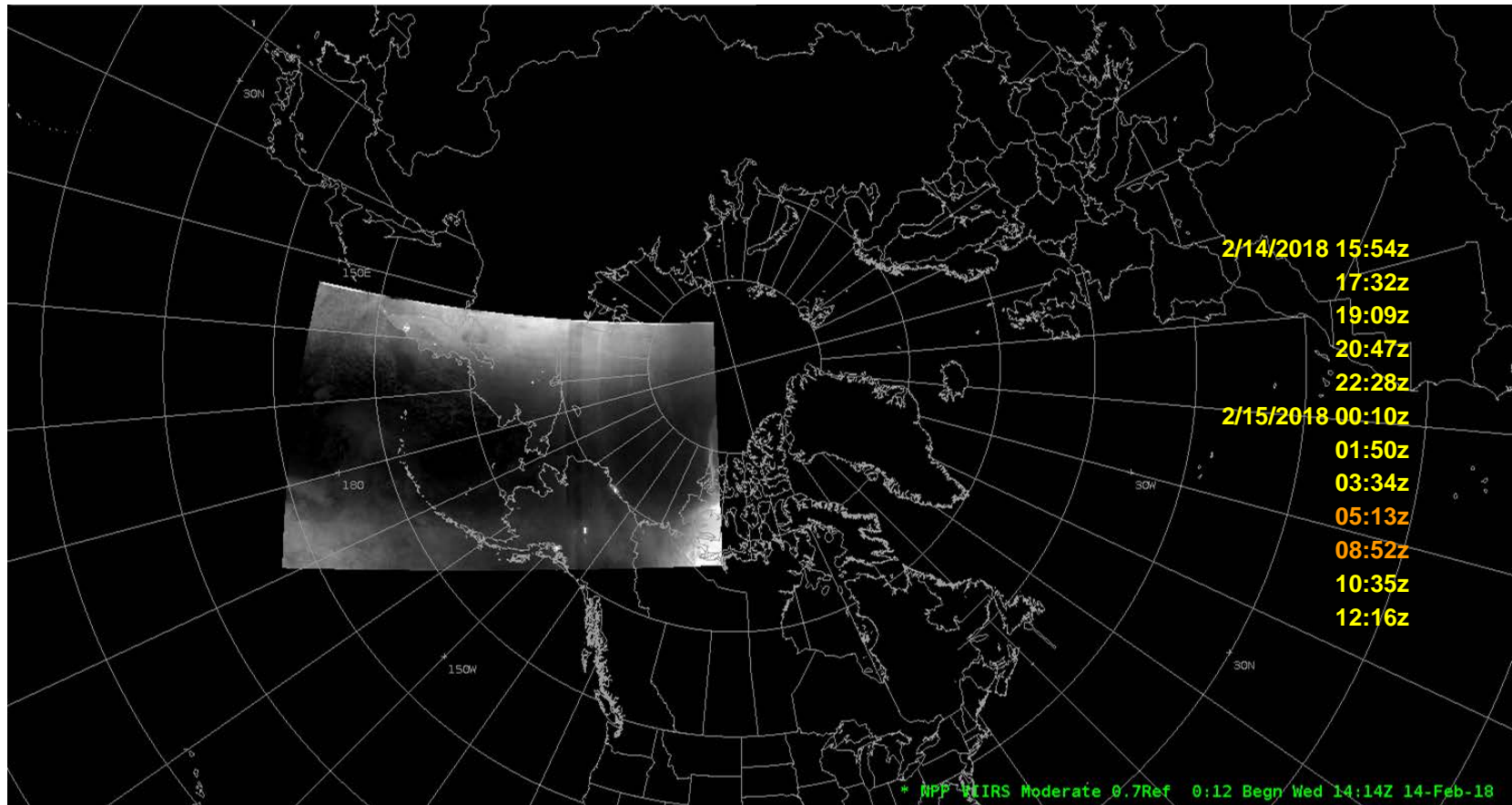


Group Picture from JPSS Arctic Summit



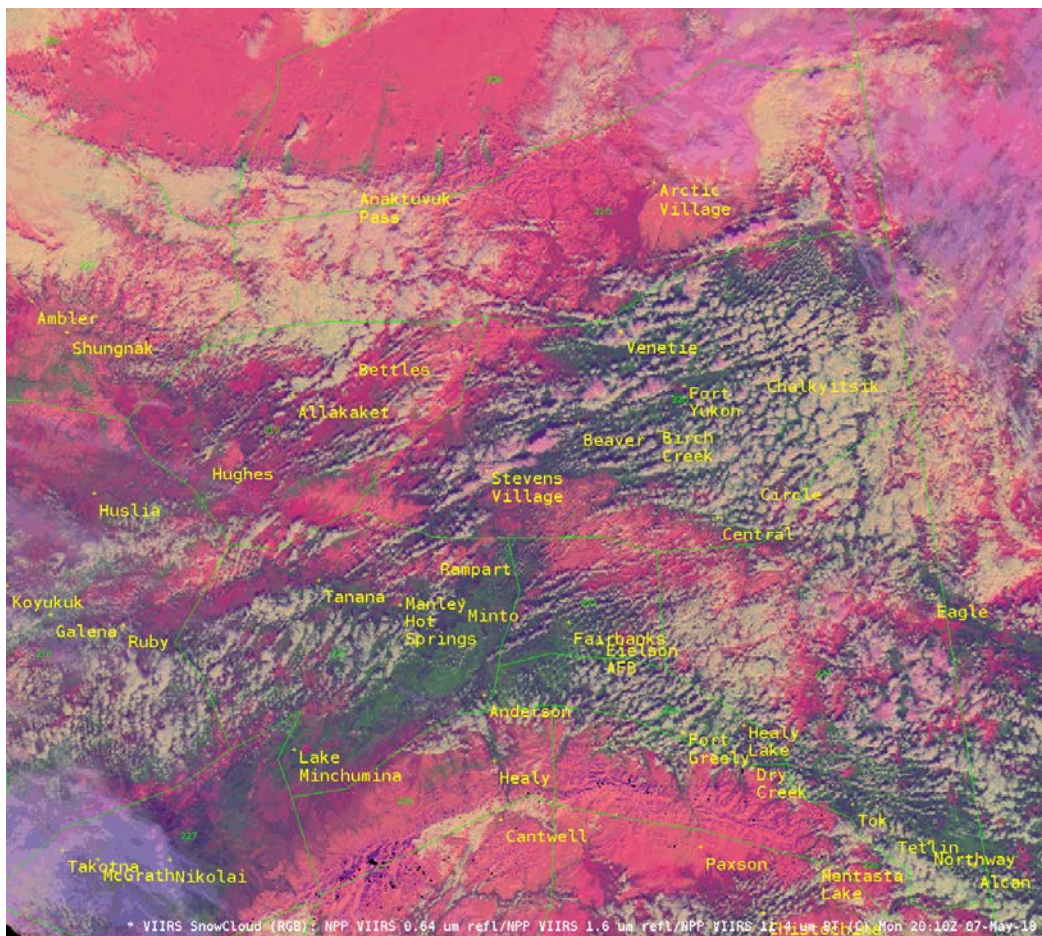
A Day of NOAA-20 VIIRS NCC Imagery for Alaska

from the NESDIS Ground Segment



Joseph Anderson, NWS

VIIRS RGB Composites: NOAA-20 and S-NPP



SnowCloud RGB product:
1.6 μm (I3), 0.64 μm (I1),
11.45 μm (I5 BT)

NOAA-20 @ 2010z
S-NPP @ 2100z
NOAA-20 @ 2150z
S-NPP @ 2240z
NOAA-20 @ 2331z

[Melissa Kreiler \(WFO Fairbanks\)](#)
[@ JPSS Arctic Summit May 8](#)



THANK YOU!

For more information visit www.jpss.noaa.gov

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Agenda

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-

A photograph of a rocket launch. The rocket is ascending vertically, leaving a massive, billowing white plume of smoke and vapor that spreads across the launch area. The launch site is situated on a grassy coastal plain with a road and some infrastructure visible in the foreground. The ocean is visible in the background under a bright blue sky with scattered white clouds. The rocket itself is a small, dark object at the top of the plume, with a bright orange flame at its base.

GOES-R Series Overview

Pam Sullivan
GOES-R Series Program Director

June 2018



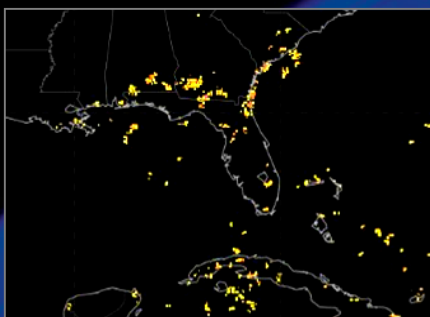
GOES-R Series Overview



Mission: Provide continuous imagery and atmospheric measurements of Earth's Western Hemisphere and space weather monitoring.



Visual & IR Imagery



Lightning Mapping



Space Weather Monitoring



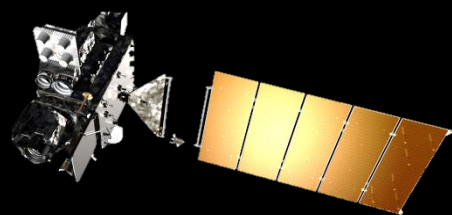
Solar Imaging

- **Joint mission between NOAA and NASA**
- **Team members**
 - Lockheed Martin – Spacecraft, GLM, SUVI
 - Harris Corp – ABI, Ground System
 - University of Colorado/LASP – EXIS
 - Assurance Technology Corp – SEISS
 - Macintyre Electronic Design Assoc - Mag

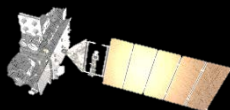
Launch Planning Dates	GOES-R: November 2016
	GOES-S: March 2018
	GOES-T: 4Q FY 2020
	GOES-U: 1Q FY 2025
Operational Life	FY 2017 – FY 2036



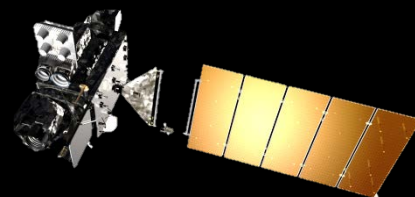
GOES-R Series Architecture Overview



GOES-West
137°W



On-orbit Storage
105°W



GOES-East
75°W



NOAA Satellite Operations
Facility, Suitland MD



Command and
Data Acquisition
Station,
Wallops VA



Consolidated Backup,
Fairmont WV



GOES-S Satellite



Solar Ultraviolet Imager (SUVI)



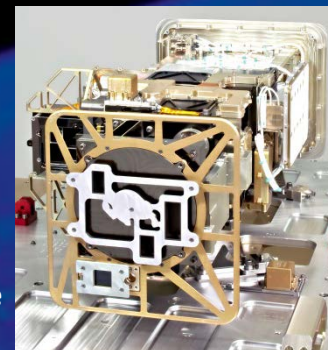
Geostationary Lightning Mapper (GLM)

Antenna Wing (DCS, GRB, HRIT/EMWIN, & SAR services)

Advanced Baseline Imager (ABI)

Extreme Ultraviolet and X-Ray Irradiance Sensor (EXIS)

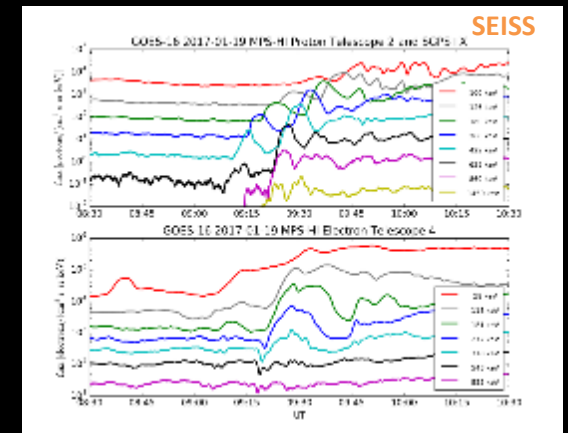
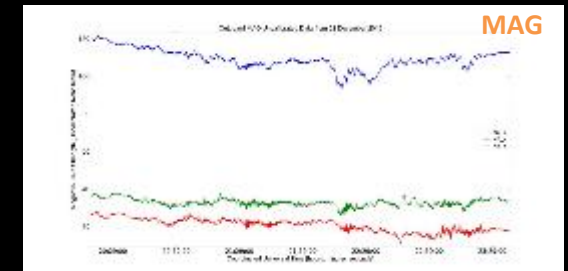
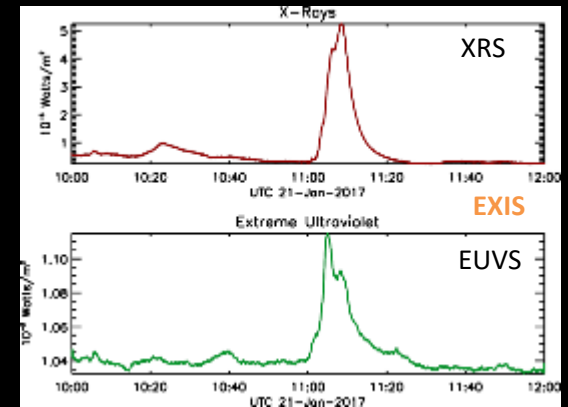
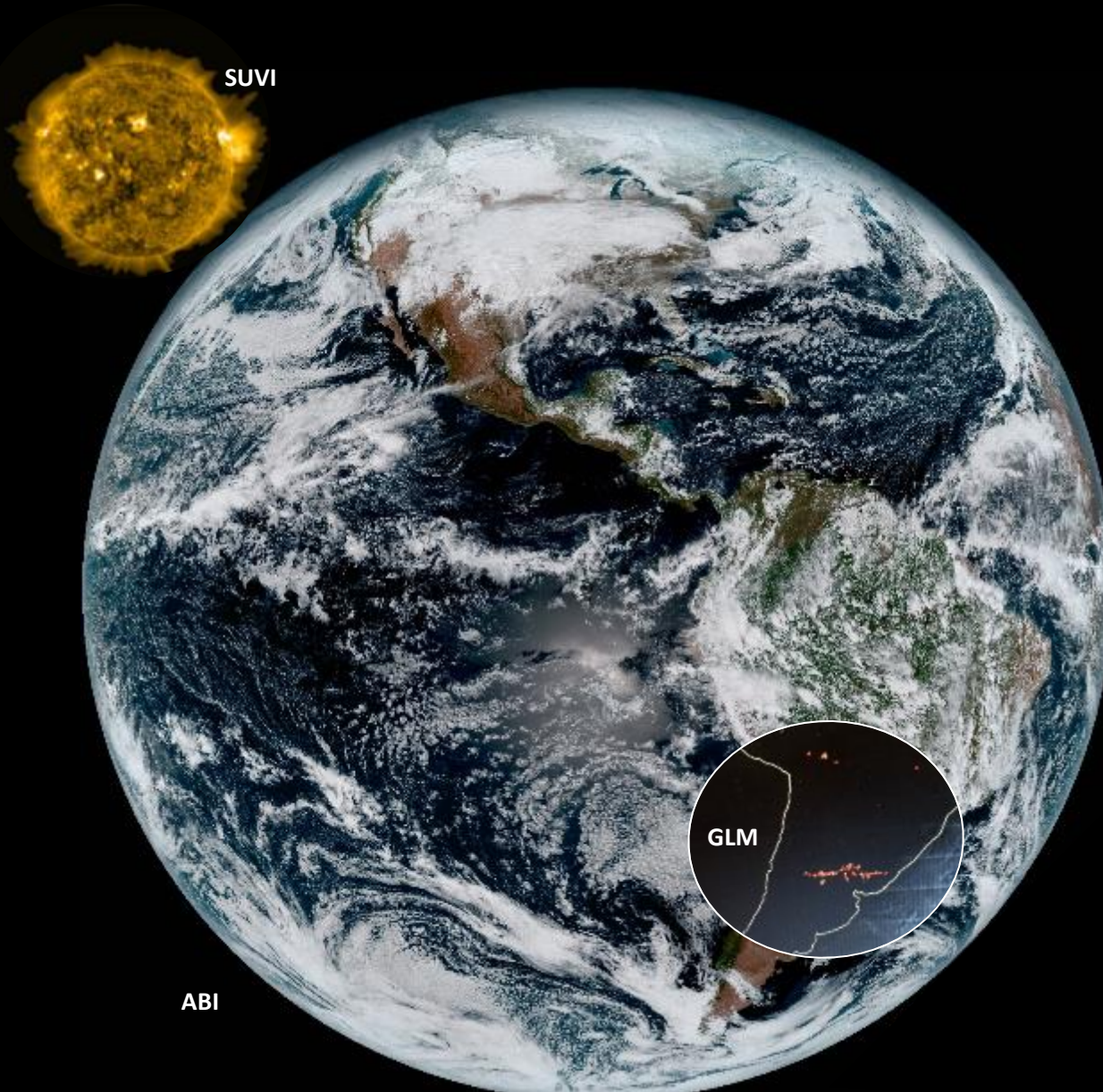
Space Environment In Situ Suite (SEISS)



Magnetometers



GOES-R Series Instrument Data





Science Product Validation Status (L1b)

ABI L1b Product	Beta	Provisional	Full
Radiances	2/28/17	6/1/17	6/1/18
GLM L2 Product			
Lightning: Events, Groups, Flashes	7/5/17	1/19/18	8/24/18
SEISS L1b Products			
Energetic Heavy Ions	2/10/17	7/11/18	12/21/18
Magnetospheric e^-/p^+ : Low Energy	2/10/17	10/15/18	12/21/18
Magnetospheric e^-/p^+ : High Energy	2/10/17	12/18/17	12/21/18
Solar & Galactic Protons	2/10/17	7/11/18	12/21/18
EXIS L1b Products			
Solar Flux: EUV	3/23/17	7/18/18	12/21/18
Solar Flux: X-ray Irradiance	3/23/17	7/18/18	12/21/18
SUVI L1b Product			
Solar EUV Imagery	4/19/17	5/4/18	12/21/18
MAG L1b Product			
Geomagnetic Field	5/25/17	8/29/18	12/21/18

Validation Maturity Levels:

Not Validated

Beta Maturity

Provisional Maturity

Full Maturity



Science Product Validation Status (L2+)

ABI L2+ Products	Beta	Prov	Full
Cloud and Moisture Imagery (CMI) and Sectorized CMI (KPP)	2/28/17	6/1/17	6/1/18
Aerosol Detection (Smoke & Dust)	5/24/17	6/22/18	11/3/18
Aerosol Optical Depth (AOD)	5/24/17	9/7/18	11/3/18
Clear Sky Mask	4/19/17	2/16/18	11/3/18
Cloud Optical Depth	6/8/17	2/22/18	11/3/18
Cloud Particle Size Distribution	6/8/17	6/22/18	11/3/18
Cloud Top Height	5/16/17	2/16/18	11/3/18
Cloud Top Phase	5/16/17	2/22/18	11/3/18
Cloud Top Pressure	5/16/17	2/16/18	11/3/18
Cloud Top Temperature	5/16/17	2/16/18	11/3/18
Derived Motion Winds	6/8/17	2/9/18	11/3/18
Stability Indices	5/16/17	2/22/18	11/3/18

ABI L2+ Products	Beta	Prov	Full
Downward S/W Radiation: Surface	6/23/17	9/7/18	11/3/18
Fire/Hot Spot Characterization	5/24/17	3/30/18	11/3/18
Hurricane Intensity Estimation	9/25/17	7/20/18	11/3/18
Land Surface Temperature	5/24/17	3/19/18	11/3/18
Legacy Vertical Moisture Profile	5/16/17	2/22/18	11/3/18
Legacy Vertical Temperature Profile	5/16/17	2/22/18	11/3/18
Rainfall Rate/QPE	9/13/17	3/30/18	11/3/18
Reflected S/W Radiation: TOA	6/23/17	9/7/18	11/3/18
Sea Surface Temperature	6/14/17	3/9/18	11/3/18
Snow Cover	TBD*	TBD*	TBD*
Total Precipitable Water	5/16/17	2/22/18	11/3/18
Volcanic Ash: Detection and Height	9/13/17	7/20/18	11/3/18

5/22/18

Validation Maturity Levels:

Not Validated

Beta Maturity

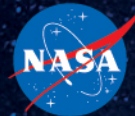
Provisional Maturity

Full Maturity

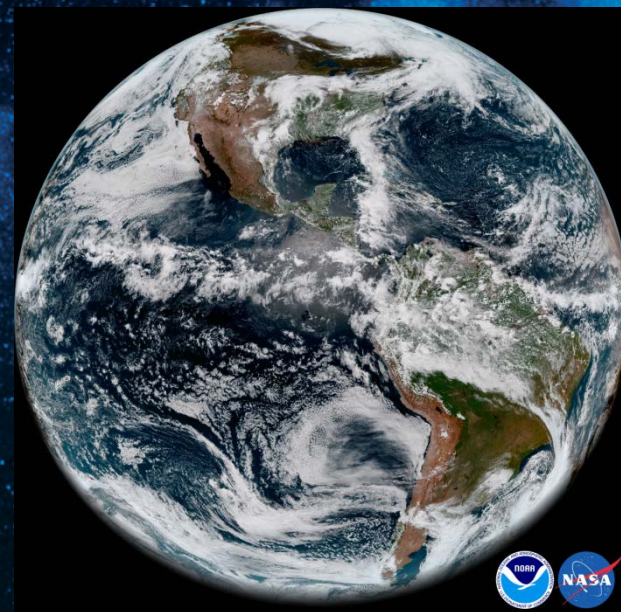
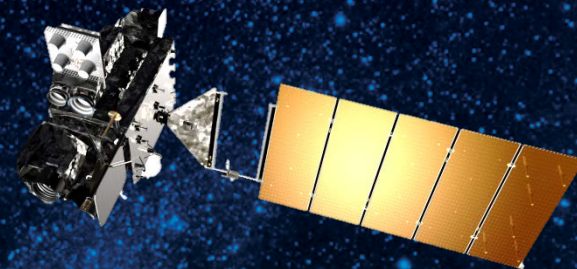
* Snow Cover has a waiver. It is dependent upon a non-baseline Albedo Product which is in development.



GOES-16 and GOES-17 Status



- GOES-16:
 - Began operational service as GOES-East at 75.2°W in December 2017
- GOES-17:
 - Launched March 1st 2018
 - Currently in post-launch test
 - All instruments on & collecting data
 - Working issue with ABI cooling system that affects some infrared channels for a portion of the day



GOES-T and GOES-U Status

- GOES-T:
 - System “mate” complete
 - Post-mate integration underway
 - Environmental testing to begin in fall-2018
 - Launched planned for 2020
- GOES-U:
 - All structure hardware shipped
 - Component deliveries continue
 - Launch planned for 2024





GOES R

GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE R-SERIES

The **next**
generation of
geostationary
environmental
satellites

Thank you

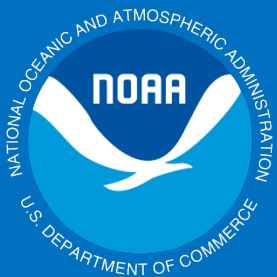
For more information visit www.goes-r.gov
www.facebook.com/GOESRsatellite
www.youtube.com/user/NOAASatellites
twitter.com/NOAASatellites
www.flickr.com/photos/noaasatellites

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Agenda

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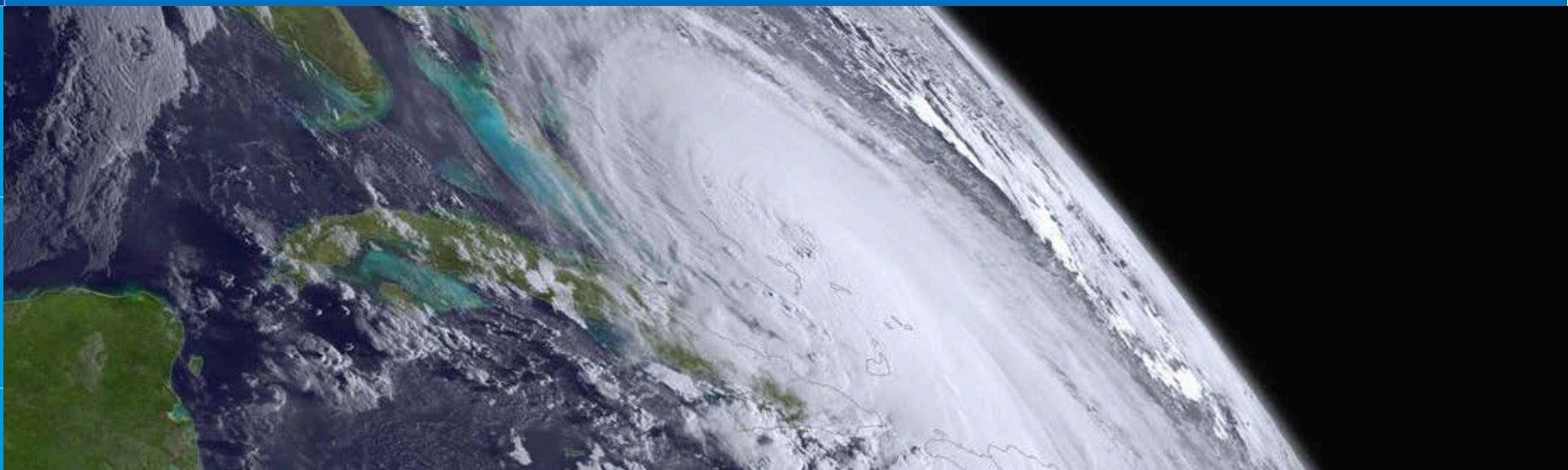
NOAA

Satellite and
Information
Service

June 21, 2018

Coordination Group on Meteorological Satellites (CGMS) Debrief

Matthew Butler, International Relations Specialist
International and Interagency Affairs Division





Agenda

- CGMS Background
- CGMS-46 Plenary Highlights
- CGMS-46 Working Group Highlights
- Looking forward to CGMS-47





Coordination Group for Meteorological Satellites (CGMS)

- CGMS provides an international forum for the exchange of technical information on geostationary and polar-orbiting meteorological satellites. In recent years, CGMS expanded to include climate monitoring.
- CGMS Members include current and prospective developers and operators of meteorological satellites. This includes:
 - China (CMA), Europe (EUMETSAT and ESA), India (ISRO and IMD), Japan (JMA and JAXA), Korea (KMA), Russia (ROSHYDROMET and ROSCOSMOS), U.S. (NOAA and NASA), and User Groups (WMO and IOC/UNESCO)
- Primary Objectives:
 - Operational continuity of meteorological missions and contingency planning for a loss in capability.
 - Coordination of satellite systems and operations including the development of best practices to create harmonization among systems.
 - Enhancement of the quality of satellite-derived data and products
 - Coordination of data access and end user support for meteorological and climate data products



CGMS-46 Overview

- CGMS-46 was hosted by ISRO June 3-8, 2018 in Bangalore, India
- Meeting main sessions:
 - Plenary with thematic sessions:
 - WMO and IOC issues, passive microwave observations, climate and greenhouse gas monitoring, ISRO's thematic session of GEO coverage over the Indian Ocean and scatterometry
 - Working Group I: Systems and Services Operations
 - Working Group II: Satellite and Data Products
 - Working Group III: Operational and Contingency Planning
 - Working Group IV: Data Access and End User Support
 - Space Weather Task Team



CGMS-46 Plenary Session

- WMO Issues for Coordination with CGMS Space Agencies
 - WIGOS 2040 Vision
 - OSCAR/Space Database
 - Public-Private Sector Engagement
 - WMO Critical Satellite Data
- Passive Microwave Observations
- ISRO's Thematic Session
 - Geostationary coverage over the Indian Ocean
 - Future of scatterometry
- Climate and Greenhouse Gas Monitoring
- IOC-UNESCO and the Global Ocean Community
 - Geostationary Satellite Measurements of essential ocean variables
 - United Nations Decade of Science for Sustainable Development



Working Group I: Systems and Services Operations



- Developed new Terms of Reference with WGIV. Added topics of SSA, space weather anomaly reporting, and large volume data circulation.
- Frequency issues
 - Coordination with Space Frequency Coordination Group (SFCG) and WMO ahead of WRC-19
 - Agencies need to provide information on space weather sensors for filing to be addressed in WRC-23 agenda item on space weather
- Space Weather Anomaly Reporting
 - Encouraging more anomaly reporting
 - Intersessional meetings with Space Weather Task Team
- Data Collection Systems (DCS)
 - Created sub-group to work on issues of international DCS and frequency protection





Working Group II: Satellite Data and Products

- Intercalibration
 - Global Space-based Inter-Calibration System (GSICS) provided recommended instrument parameters for all agencies to monitor the development of operational instrument performance monitoring systems
 - GSICS presented its report that assesses the fit for purpose of the data and the corrections needed to enable consistent multi-sensor/multi-platform products
- NOAA-CMA Flood Mapping Initiative
 - Planning an intercomparison study for up to 6 flood events, comparing flood products to promote algorithm and processing improvements
 - Will also collaborate with CEOS flood mapping activities by using research satellite LEO flood maps (especially SAR data) for independent validation
- Operational Oceanography
 - CGMS endorsed the “First International Operational Satellite Oceanography Symposium” to be held at NCWCP in June 2019
 - CGMS will consider organizing a special plenary session or a side event on operational oceanography at CGMS-47



Working Group III: Operational Continuity and Contingency Planning

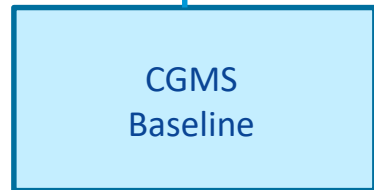
- Indian Ocean Data Coverage
 - 2018 is the final year of the 5 year IODC Plan that CGMS developed in 2013
 - From a CGMS perspective, the launch of China's FY-2H will meet the requirements of the region. CMA made announcement at Plenary as well
- CGMS Baseline and Contingency Plan
 - A new Baseline and Contingency Plan were approved by plenary
 - The Baseline is now designed to reflect the commitments of CGMS Members and captures space weather observations for the first time
- Gap Analysis and Risk Assessment
 - Process of gap analysis and risk assessment were codified
 - Gap analysis is WMO's analysis of how CGMS meets the WIGOS Vision 2040 Tier 1
 - Risk Assessment is CGMS's internal analysis of whether it is meeting the commitments identified in the baseline



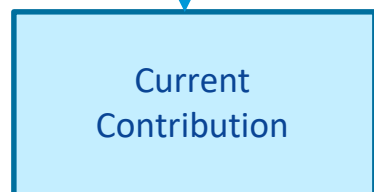
CGMS Baseline and Contingency Plan in Context



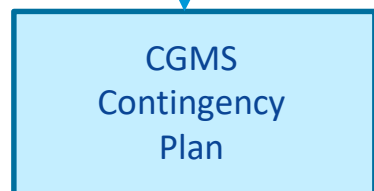
Response to WIGOS
2040



Status of Implementation



Risks of Current Contribution
contributing to the Baseline



Activity

Frequency

Responsible Organization

Gap Analysis

Every 4 Years

WMO

Risk Assessment

Annually

CGMS

Contingency Response

As Needed

CGMS



Working Group IV: Data Access and End User Support



- Developed new Terms of Reference with WGI. WGIV will focus on data dissemination and user support. Added the topic of cyber security.
- Change Notifications
 - WGIV agreed to create best practices in addressing the notification of changes (and alerts) in satellite data and/or products impacting users
- Next Generation GEO Data
 - Discussed the increasing demand for high volume data
 - Scalability of download services may become an issue, other methods are being investigated (e.g. cloud services) are still in experimental stages
- Indian Ocean Data Coverage
 - From a user perspective, implementation of essential data dissemination expected to be completed in 2018



Space Weather Task Team

- Developed new Terms of Reference. Will now be called the Space Weather Coordination Group giving this group permanent status for the first time.
- Space Weather Calibration
 - SWTT presented status of intercalibration of energetic electrons at 2018 GSICS Executive Panel meeting held ahead of the CGMS Plenary
 - GSICS agreed to support and create path forward in terms of establishing a GSICS task group
- Space Weather Anomalies
 - Started discussion that carried into WGI based on analysis by NCEI that more data was needed
 - SWTT will clarify what information needs to be provided and will provide a use case for space weather anomaly analyses where resultant recommendations were provided to operators



Looking forward to CGMS-47

- Internal US issues to consider before the next plenary meeting
 - GOES IO
 - How to reflect DoD contributions in the international community
- Working Groups will hold intersessional meetings to make progress on actions identified in CGMS-46
 - Joint intersessionals between SWTT and WGI on space weather anomaly reporting
- Working Group III will hold workshop to conduct the first risk analysis under the new system – likely Q1 in CY19
- CGMS-47 hosted by ROSCOSMOS in Sochi, Russia on May 19-24, 2019

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-

Future COES Focus Areas

Notes from the meeting:

- X
 - X
 - X
 - X
-

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Satellite Data Acquisition And Routing

Notes from the meeting:

- X
- X
- X
- X

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Commercial Weather Data Projects

Notes from the meeting:

- X
- X
- X
- X

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-

COES Presentation at AMS



***35th Conference on Environmental Information Processing
Technologies
99th AMS Annual conference,
Phoenix, AZ,
6-10 Jan 2019***

**Session Inter-agency Coordination within the Federal Weather
Enterprise**

Submitters:

**William J. Schulz Jr., NOAA, Silver Spring, MD and
C. Sim James, NOAA, Silver Spring, MD**

COES Presentation at AMS

Session: Inter-agency Coordination within the Federal Weather Enterprise

Federal government agencies active in meteorological services and supporting research describe existing and planned programs, projects and coordination mechanisms which involve multiple government agencies, and aim to increase overall effectiveness within the Federal Weather Enterprise. These mechanisms include bi-lateral agreements between agencies for shared use of observing systems, numerical modeling resources and product dissemination systems. Also of interest, standing committees and panels which provide opportunities for synergistic engagement among multiple agencies, particularly in areas such as aviation weather and disaster preparedness and mitigation. The session may begin with a description of the coordination committee (the Inter-agency Committee for Advancing Weather Services) mandated in the Weather Act of 2017.

COES Presentation at AMS

Title:

***“The Committee for Operational Environmental Satellites (COES):
An Effective Avenue For Improved Federal Agency Coordination of
Environmental Satellite Issues.”***

Authors:

David McCarren, Chief Scientist - Oceanographer of the Navy

**Ajay Mehta, National Environmental Satellite, Data and Information
Service, National Oceanic and Atmospheric Administration**

***M. F. Bonadonna*, Office of the Federal Coordinator for Meteorology
(OFCM), Silver Spring, MD**

Abstract Deadline: 1 August 2018

COES Update to ICMSSR

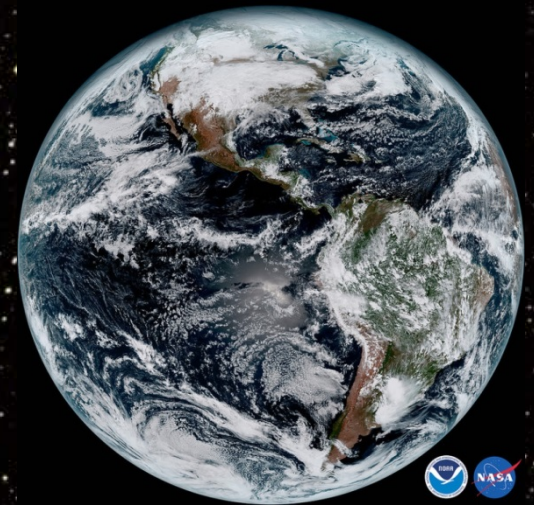
- **The Interdepartmental Committee for Meteorological Services and Support Research (ICMSSR) requires each of the four OFCM Committees to provide update briefing annually.**
- **COES will brief ICMSSR in Late August 2018**
- **One of the COES CoChairs will give the presentation**
- **The COES ExecSec will update the briefing for COES review**
- **The following slides were presented last year.**

Committee for Operational Environmental Satellites (COES) Update

*Interdepartmental Committee for Meteorological Services
and Support Research (ICMSSR)*

Meeting 2017-3

September 27, 2017



Overview



- Background
- Terms of Reference
- Activities / Issues / Interests
- Conclusion

Background



- **1982:** COES established as part of the FWE coordinating Infrastructure
- **1996:** COES deactivated after the NPOESS Senior Users Advisory Group (SUAG) was established
- **2010:** NOAA response to GAO 10-799, Recommendation 3 stated GOES-R would report status through OFCM to the interagency partners annually.
- **2013:** US Navy requested and ICMSSR approved COES be reactivated to provide interagency coordination of environmental satellite issues.
- **2014:** COES was re-established in 2014
- **2016:** GAO- 16-252R recognizes COES value:
 - “One potential vehicle for formalizing collaboration”
 - “DOD official have stated (COES) is one way DOD can connect with NOAA’s international affairs ”
 - “...we believe DOD should formalize its coordination and collaboration...through committees... such as COES..”



ToR: Purpose

The COES shall advance the goals of the ICMSSR to achieve interagency coordination in planning for use of sustained environmental satellite systems to support federal meteorological and oceanographic operational services providers and their customers.



NOAA, NASA, and USAF
partner on DSCOVER



DMSP Operations at
NOAA NSOF



NOAA, NASA, DoD
Partnership in JCSDA

ToR: Objectives

- Ensure interagency review and coordination of approved requirements for operational environmental satellite programs.
- Promote an open dialog concerning environmental satellite systems development, satellite data systems architecture, continuity plans, data exploitation readiness plans.
- Consider potential use of research satellite capabilities to augment operational systems in meeting user needs, and plans to transition research data into operational products and new applications.
- Facilitate working-level relationships between Federal members and other stakeholders to effectively resolve interagency issues with regard to the availability of environmental satellite data and products from future systems.

ToR: Objectives

- Establish dialog with other standing groups currently engaged in various aspects of environmental satellite and data readiness and exploitation, including: USGEO, CEOS, CGMS, GOES User conference, and other relevant user groups.
- Coordinate with the Committee for Operational Processing Centers (COPC) on issues of mutual interest, i.e. data availability and data assimilation, and share information.
- Address other matters as directed by the ICMSSR.
- Provide regular updates to the ICMSSR and other elements of the Federal Coordination Infrastructure as necessary.

Participation

CoChairs



- NOAA
 - NWS (**Joe Pica**)
 - NESDIS (CoChair starting 2018: Ajay Mehta)
- DOD
 - Oceanographer & Navigator of the Navy (**Dave McCarren**)
 - HQ USAF Dir. of Weather (CoChair in 2019: Col Jeff Jarry)



Members/Participants:

- DOC: NOAA: NWS, NESDIS, OMAO
- DOD: USAF, USN, USA, AFSPC, USSTRATCOM, SMC, PDSA
- DOE: LANL
- DHS: FEMA, USCG
- DOI: BLM, USGS
- DOT: FAA, FHWA
- NASA: ESD, JASD
- NGA, NRO
- NSF: AGS
- USDA
- EOP: OSTP (Observers)

Activities, Issues, and Interests

Activities

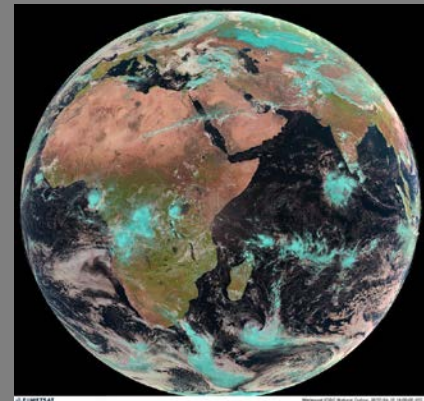
- Monitoring plans for environmental satellite programs
 - S-NPP, JPSS, GOES-R, COSMIC2
- Satellite Radio Frequency encroachment
 - Provided an Advocacy letter to ICMSSR
- COES ToR renewal
 - Signed on 3/17/2017
- Environmental Satellite Coordination Briefing to ICMSSR
 - Provided briefings to ICMSSR on 6/1/2016 and 9/29/2016
- Satellite Telemetry Interagency Working Group (STIWG) ToR Renewal
 - Primary user group for GOES Data Collection System
 - STIWG is aligned under COES and the Advisory Committee on Water Information (ACWI) Subcommittee for Hydrology (SOH)



Activities, Issues, and Interests

Issues

- DoD SBEM programs and data gaps
 - Joint Requirements Oversight Council Memo 092-14
 - Prioritized gaps for DoD:
 - Ocean Surface Vector Winds
 - Tropical Cyclone Intensity
 - Low Earth Orbit Energetic Charged Particle
 - Numerous other DoD requirements to be provided from “Civil and International Partners.”
- Indian Ocean satellite coverage and data exploitation
 - Use of INSAT 3D-R if practical
 - 2017 USAF / NOAA MOA for Interagency Cooperation on Collection of SBEM Data
 - Leverage DoD-unique assets to meet IO data requirements if possible



Activities, Issues, and Interests

Interests

- Leveraging NASA research satellite capabilities
 - CYGNSS, TROPICS, PACE, RapidScat, CATS, GPM
- International Cooperation
 - Presented US Government issues for NOAA and NASA representatives to international conferences
 - Back-brief from CGMS and other international meetings
- Emerging GPS-RO capabilities
 - Monitoring COSMIC-2 and other GPSRO developments
- Commercial Weather Data Acquisition Programs
 - Monitoring Commercial Weather Data Pilot programs in NOAA, DOD, and NASA
 - Monitoring progress on Commercial Weather data provisions of the Weather Forecast Improvement Act of 2017



Conclusion

- COES supports coordination between Federal Agencies, EOP, and International groups
- The GAO recognizes the need for coordination and has identified COES as part of the solution for interagency environmental satellite issues
- COES provides a forum for issue discovery and the means to connect stakeholders with organizations providing environmental satellite services and system development

The FWE agencies can work together to solve environmental satellite issues beyond the reach or scope of individual agencies.

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Action Item Review / Next Meeting

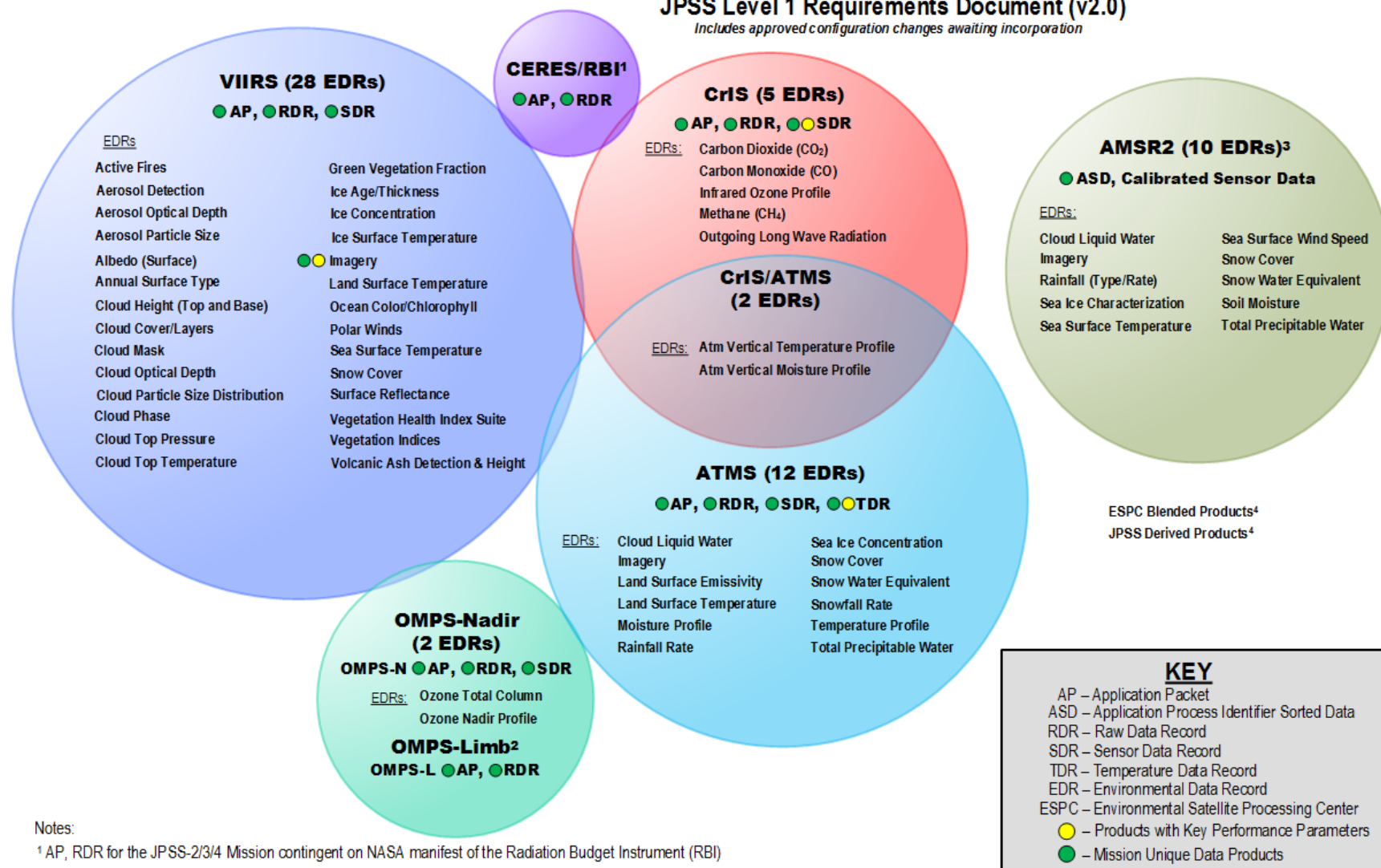
- The Executive Secretary will document any action items taken during the meeting
 - The Executive Secretary will coordinate with the cochairs and schedule the next meeting.
 - Our goal is to conduct 4 COES meetings in 2018 (March, June, September, and December)
 - Mar 21, 2018
 - Jun 21, 2018
 - Sep 21, 2018
 - Dec 14, 2018
-

BACK-UP

JPSS Program Data Products

JPSS Level 1 Requirements Document (v2.0)

Includes approved configuration changes awaiting incorporation



Notes:

¹ AP, RDR for the JPSS-2/3/4 Mission contingent on NASA manifest of the Radiation Budget Instrument (RBI)

² Not applicable to JPSS-1; AP and RDR contingent on NASA manifest of OMPS-Limb on the JPSS-2/3/4 Mission

³ All products contingent on the Global Change Observation Mission (GCOM) provided by the Japan Aerospace Exploration Agency

⁴ Blended and Derived Product requirements are managed by the NOAA JPSS Program and specified in segment-level documentation

The JPSS Program includes Ground System Support for the Metop, EPS-SG, DMSP, and GCOM missions

January 2, 2018

This chart is controlled by JPSS
Program Systems Engineering

**JPSS-P
Rev C**

75



Ross Island SatCom Upgrade

