

Status Report on NOAA's Current & Future Satellite Systems

Presented to CGMS-44, Plenary Session, Agenda Item D

Science, Service, Stewardship – Supporting NOAA's Mission

PLANES FLY,

SHIPS SAIL,

UMBRELLAS OPEN,

CITIES PREPARE AND LIVES ARE SAVED

CROPS ARE PLANTED,

WITH FORECASTS MADE USING DATA & INFORMATION

FROM **NESDIS** 

National Environmental Satellite, Data, & Information Service

www.nesdis.noaa.gov

Coordination Group for Meteorological Satellites - CGMS



Coordination Group for Meteorological Satellites

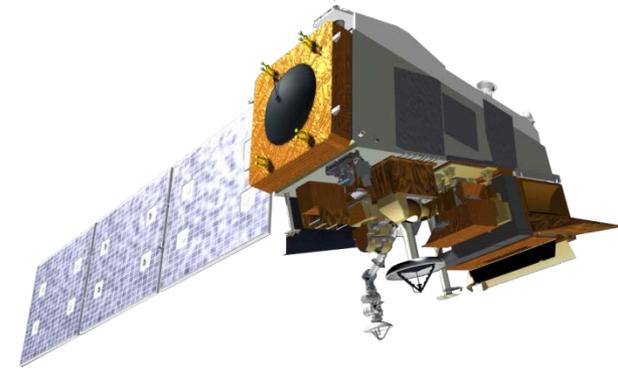
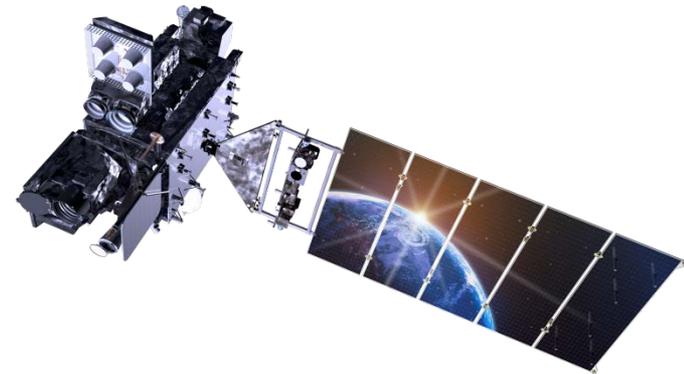


Recent & Upcoming Launches



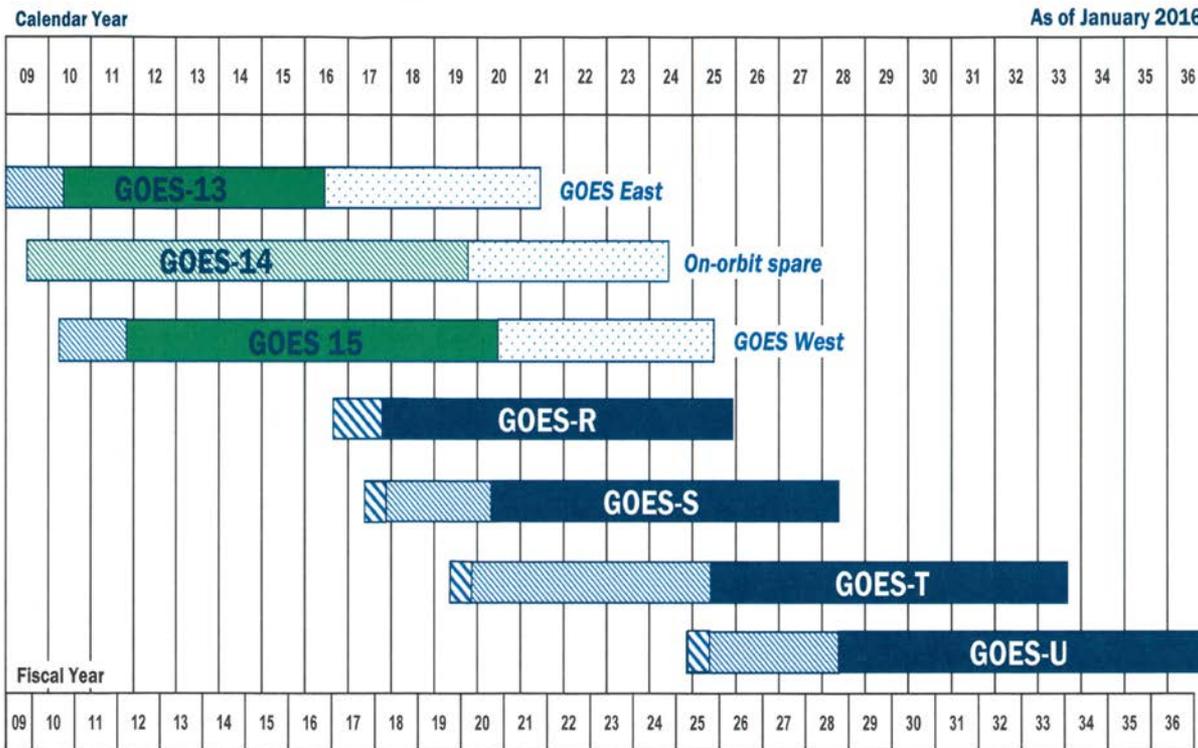
NOAA's Established LEO and GEO Platforms

- From Geostationary Orbit
 - The GOES-R through U series, following on the GOES-N/O/P series, provides the US continental coverage well into the 2030s
- From Low Earth Orbit
 - The five satellite combination of JPSS + Polar Follow-On will establish NOAA's LEO coverage in the afternoon orbit well into the 2030s
- Together, these platforms form the backbone of our observing network for the coming decades

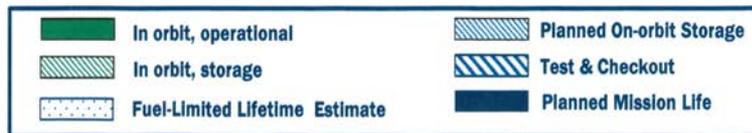




NOAA Geostationary Satellite Programs Continuity of Weather Observations



Approved: Stephen [Signature]
Assistant Administrator for Satellite and Information Services



The Future of Forecasting: GOES-R

3X MORE CHANNELS



Improves every product from current GOES Imager and will offer new products for severe weather forecasting, fire and smoke monitoring, volcanic ash advisories, and more.

4X BETTER RESOLUTION



The GOES-R series of satellites will offer images with greater clarity and 4x better resolution than earlier GOES satellites.

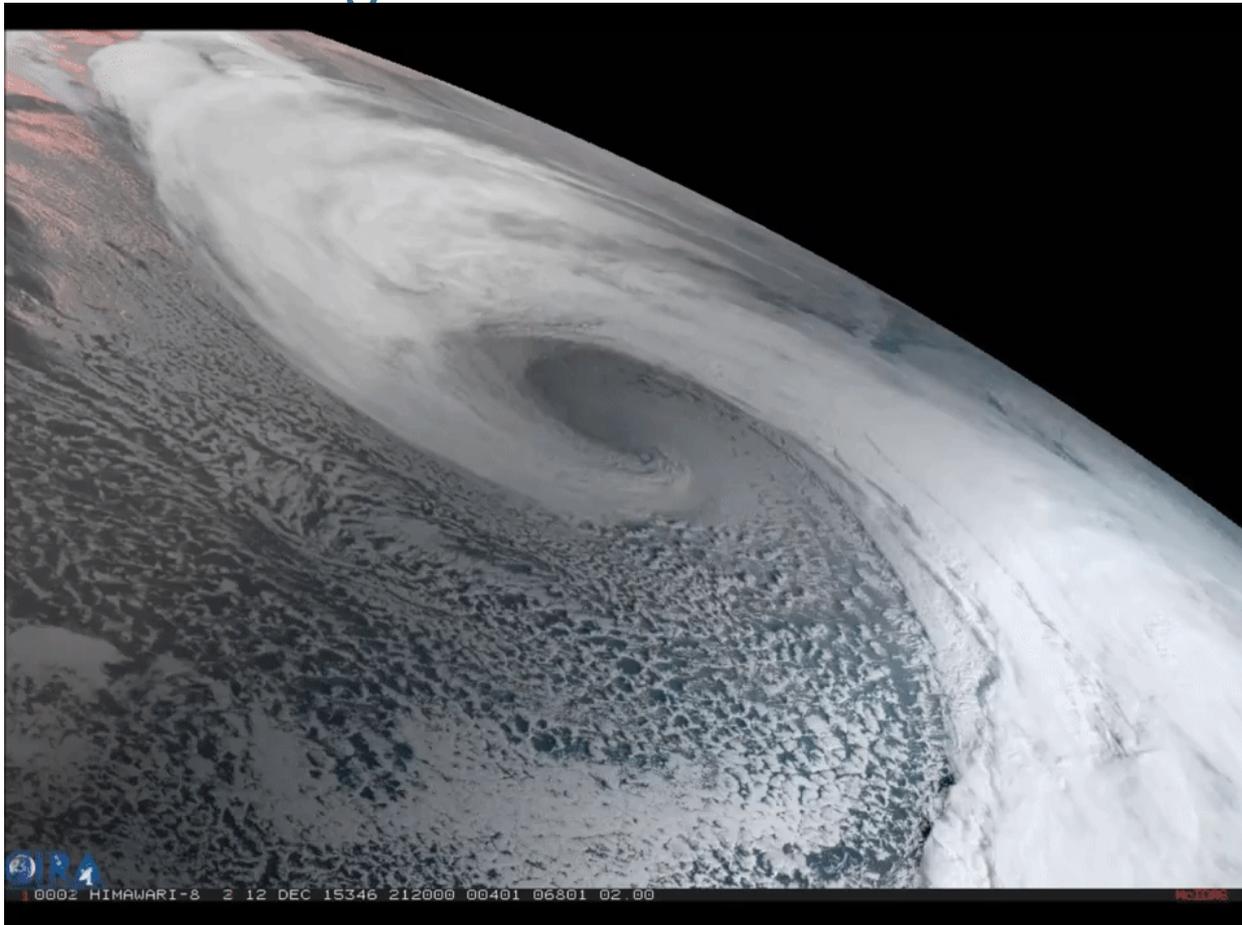
5X FASTER SCANS



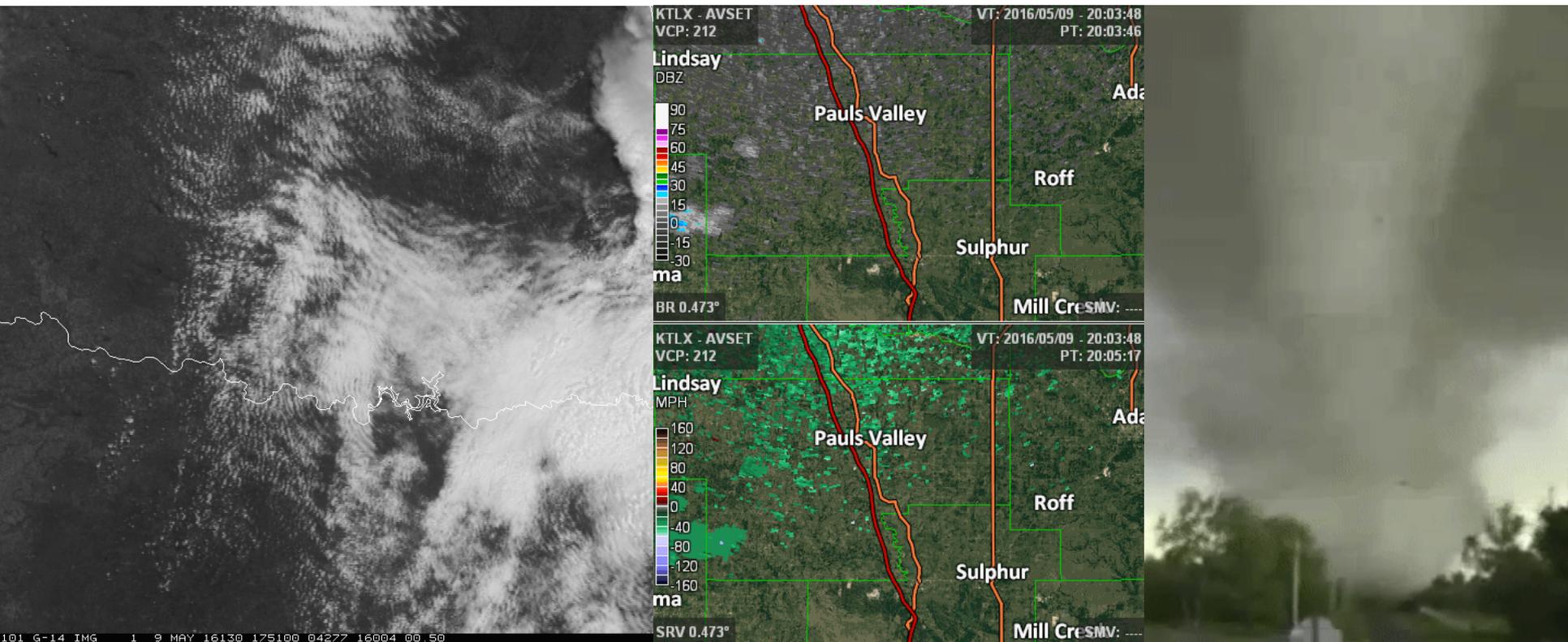
Faster scans every 30 seconds of severe weather events and can scan the entire full disk of the Earth 5x faster than before.



Preparing Users for GOES-R: Learning from JMA's Himawari-8

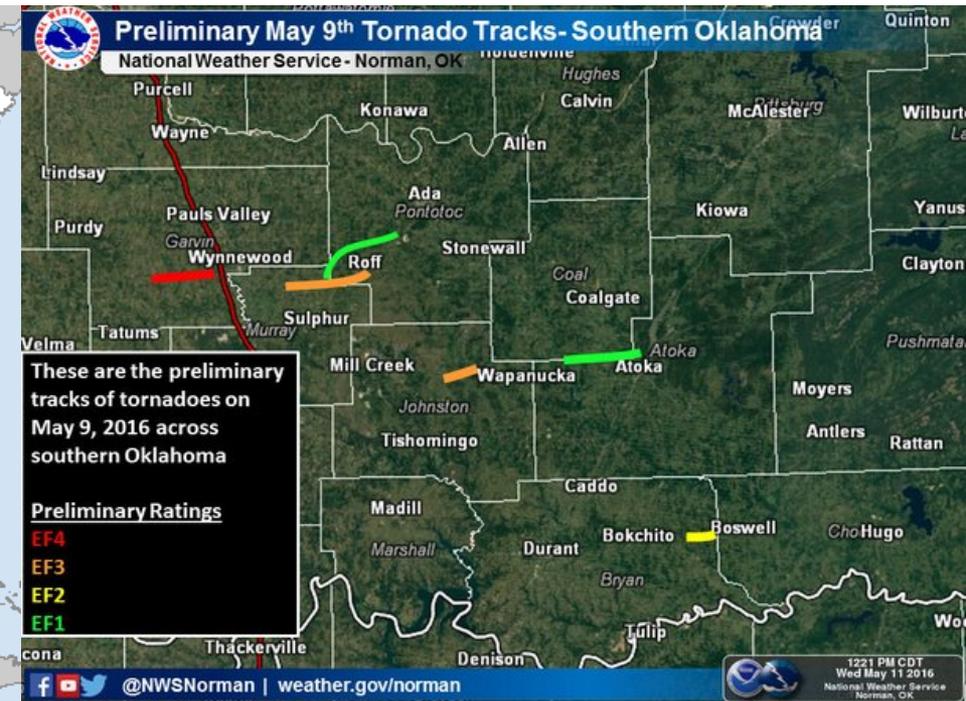
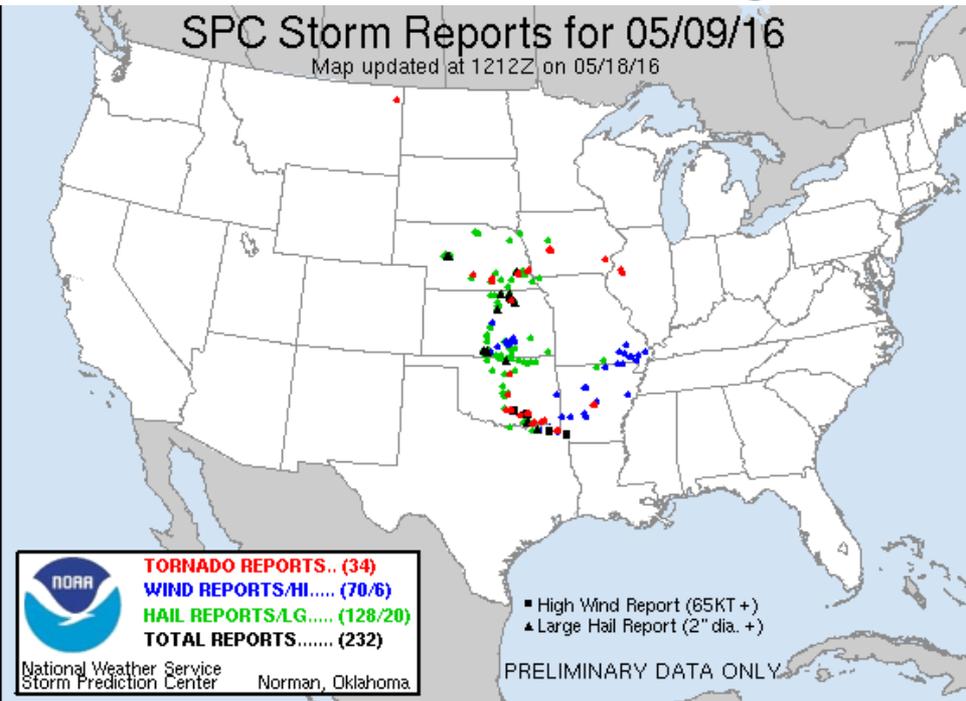


Preparing Users for GOES-R: Data Integration



"For initial development along the dryline, convection went up very fast. Without the 1-minute data, we wouldn't have been able to recognize so soon that convection initiation was occurring. It was helpful to see the overshooting tops as they occurred in near real-time. It helped us to figure out right away which storms had the strongest updrafts." –William Line, Storm Prediction Center/Hazardous Weather Testbed GOES-R/JPSS Satellite Liaison, University of Oklahoma-CIMMS

Preparing Users for GOES-R



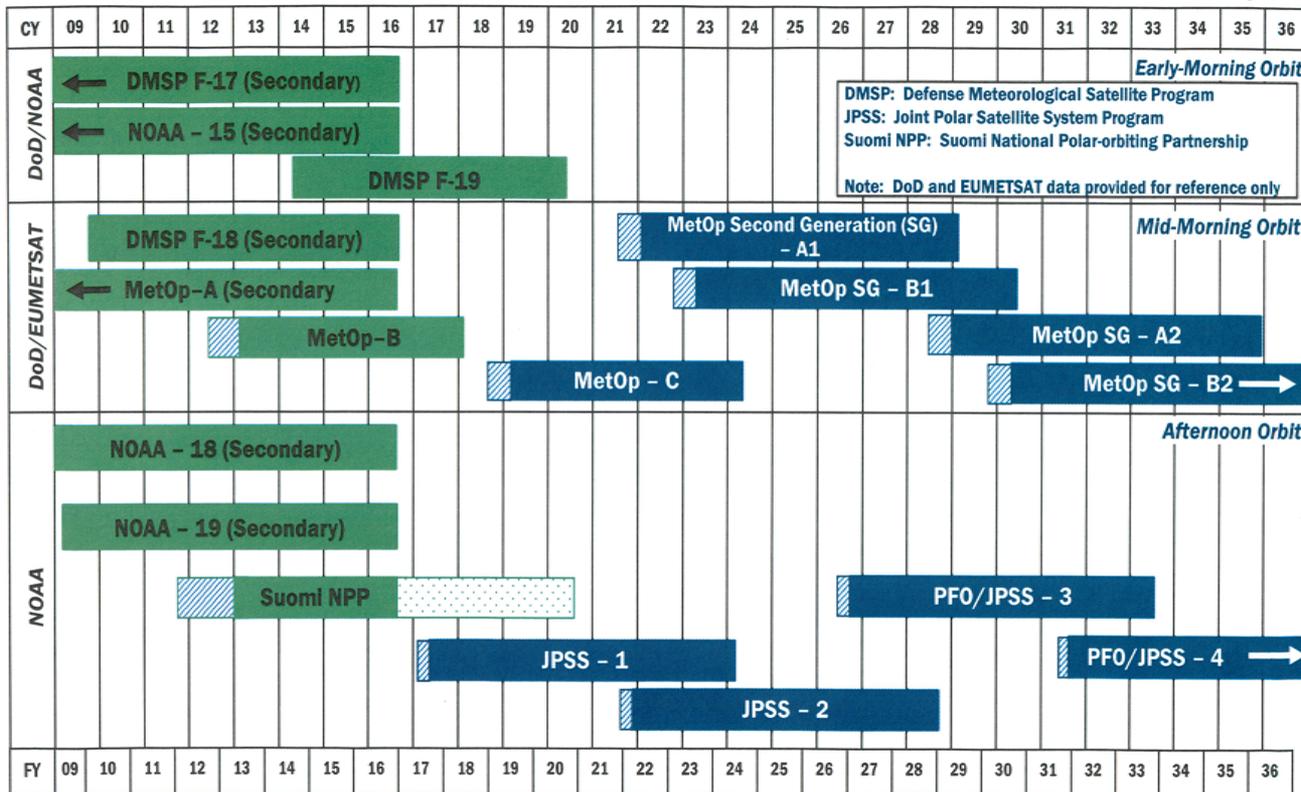
Time	Location	County	State	Lat	Lon	Comments
2104	4 NNW HENNEPIN	GARVIN	OK	3456	9736	*** 1 FATAL *** UPDATED. EF4 TORNADO PATH FROM 1.25 MILES SOUTH OF KATIE OR ABOUT 4 MILES NORTH OF HENNEPIN TO 8 MILES EAST OF KATIE OR ABOUT 5 MILES SOUTHWEST OF WYNNE (OUN)



NOAA & Partner Polar Satellite Programs Continuity of Weather Observations



As of January 2016



DMSP: Defense Meteorological Satellite Program
 JPSS: Joint Polar Satellite System Program
 Suomi NPP: Suomi National Polar-orbiting Partnership
 Note: DoD and EUMETSAT data provided for reference only

Approved:
 Assistant Administrator for Satellite and Information Services

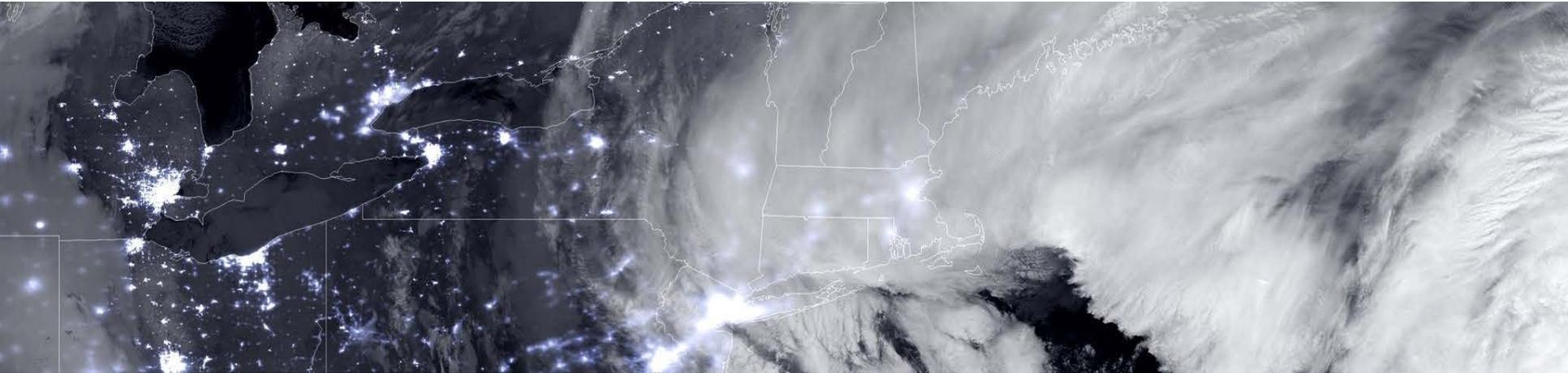
Note: Extended operations are reflected through the current FY, based on current operating health.

	In orbit		Post Launch Test
	Fuel-Limited Lifetime Estimate		Planned Mission Life, from Launch Readiness Date
	Launched before Oct 2008		Operational beyond Dec 2036

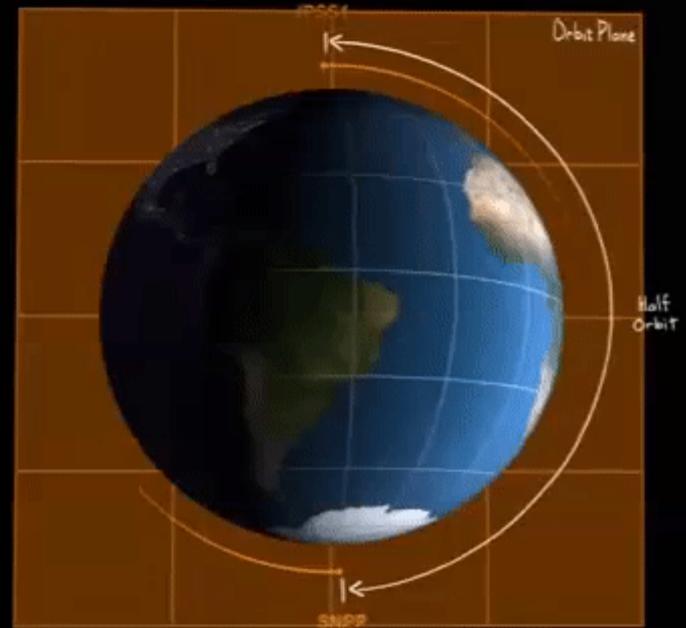
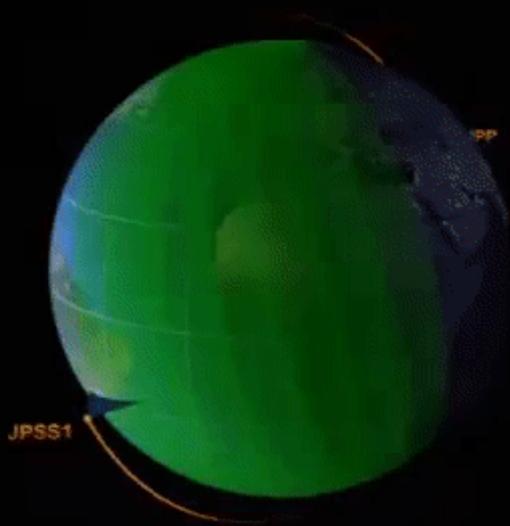


The Future of Forecasting: JPSS

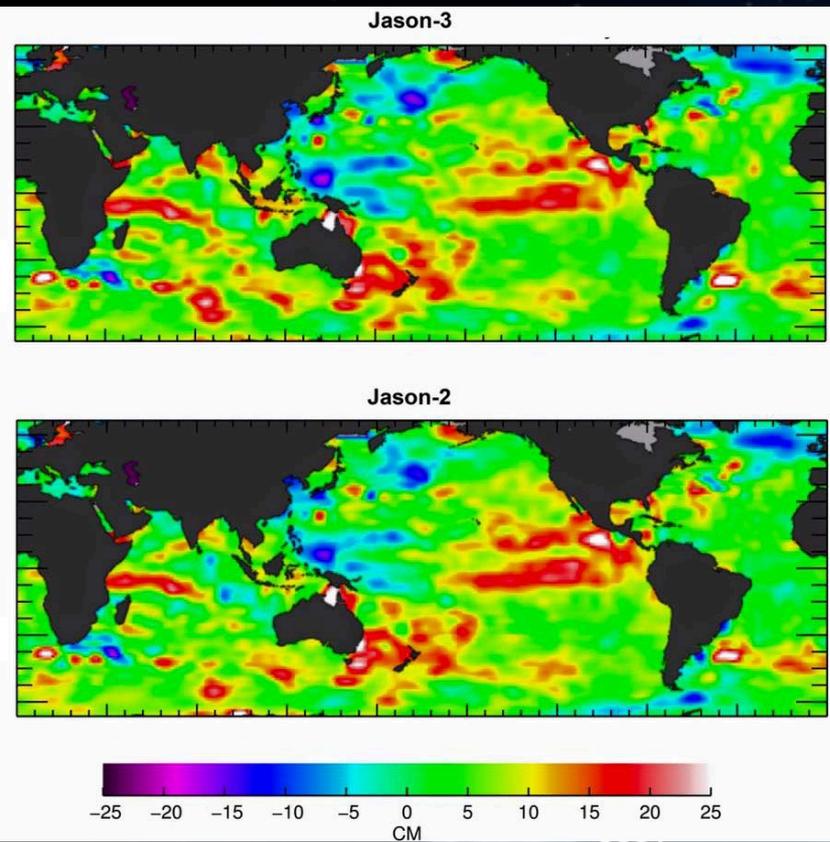
- Suomi NPP is operational
- JPSS-1 is executing as planned
- JPSS-2 procurement progressing well
- Polar Follow-On – JPSS-3/4



Plan for Suomi NPP & JPSS-1 Joint Operations



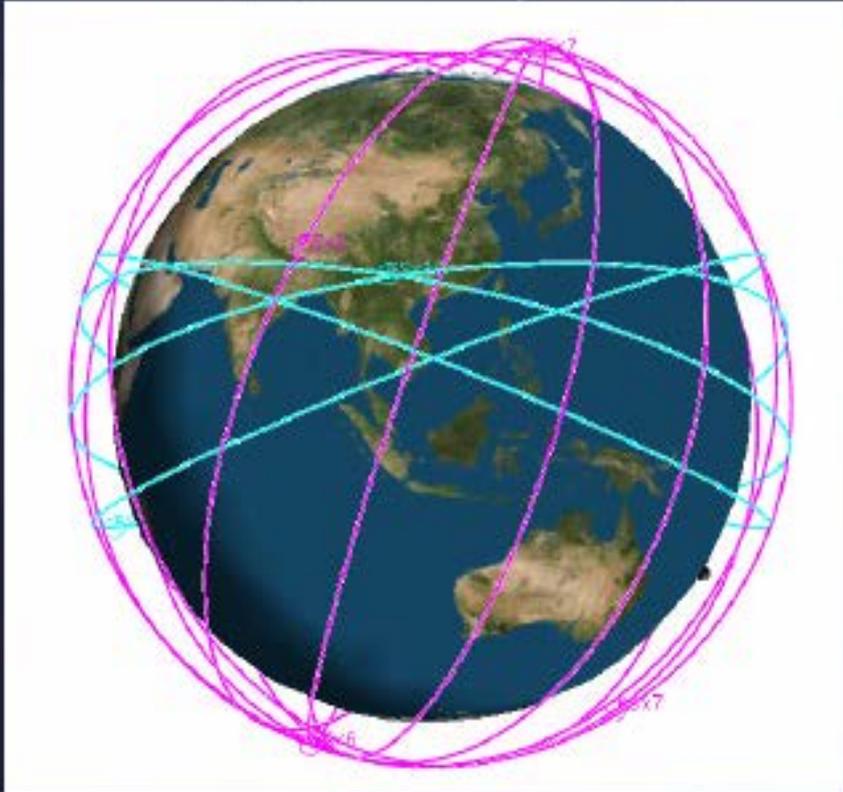
Ocean Altimetry: Jason-3



- Partnership with EUMETSAT, CNES, NASA
- Successfully launched 17 January 2016

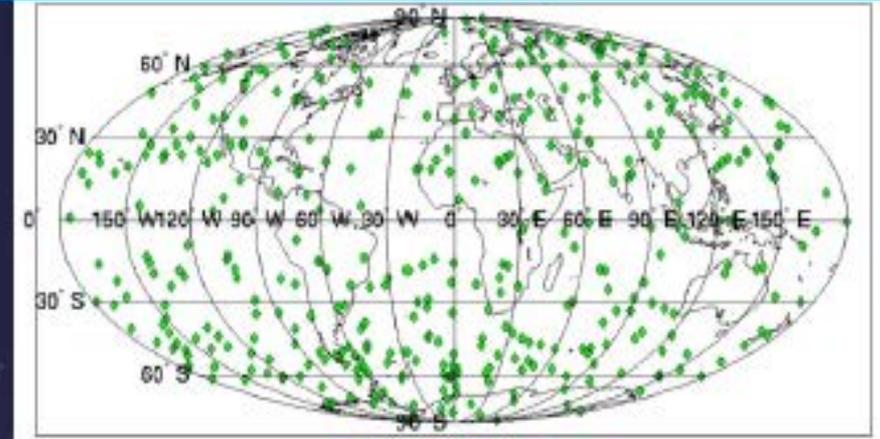


Radio Occultations: COSMIC-2

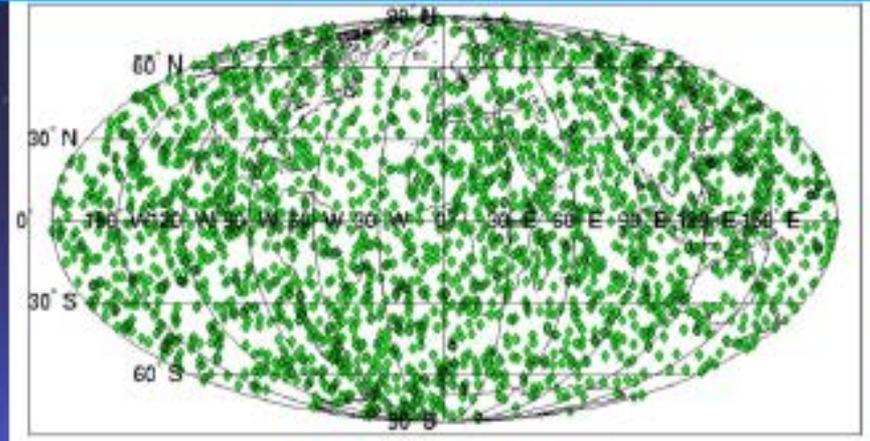


12 Satellites - 2 inclinations
Data are distributed
more homogeneously

COSMIC Occultations-3 Hrs Coverage



COSMIC-2 Occultations - 3 Hrs Coverage



Space Weather: DSCOVR



- Launched 11 February 2015
- NOAA operating since 28 October 2015

Image Credit: SpaceX



Constellation of Meteorological & Environmental Satellites





Identify user needs
Engage with our various users in order to understand their needs.



Determine How to Meet User Needs
Identify the satellite, ground, product processing and distribution, or archival systems required to meet our user's needs.



Access Data
Obtain the necessary data by building, blending, or buying it.

- Build: Managing NOAA's current and future satellite programs
- Blend: Working with U.S. and international partners to develop and build satellite systems
- Buy: Purchasing data provided by commercial satellite systems

NESDIS Data Lifecycle

UNDERSTANDING OUR DYNAMIC PLANET AS A TRUSTED SOURCE OF ENVIRONMENTAL DATA



Provide useful data in near real-time
NESDIS operates satellites 24/7, processes data using developed algorithms, and transmits data to users in near real-time.



Provide archived data
NESDIS houses data in an archive and makes it available to outside researchers.



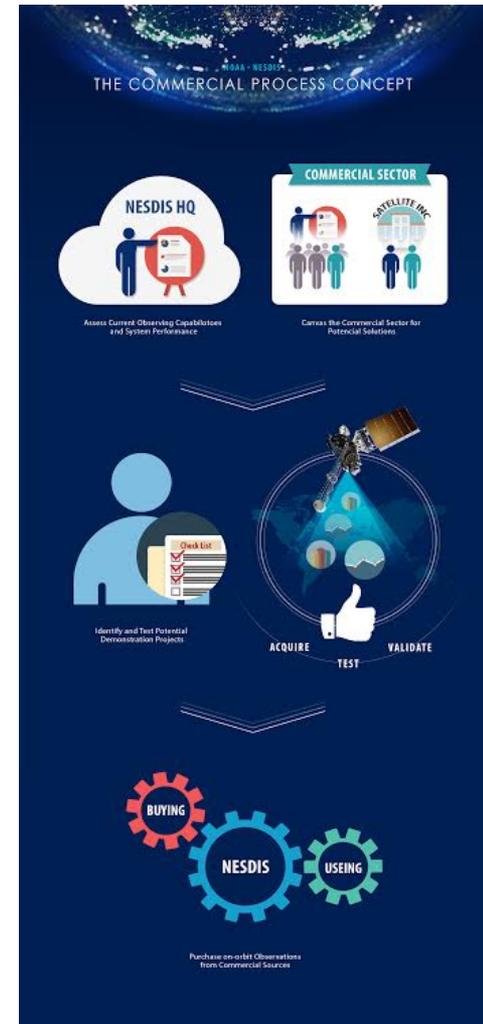
Use data and conduct research
NESDIS uses our own data to create operational products and conduct internal research.



Make the Data Useful
Develop algorithms to create products as well as calibrate and validate data to ensure quality and accuracy.

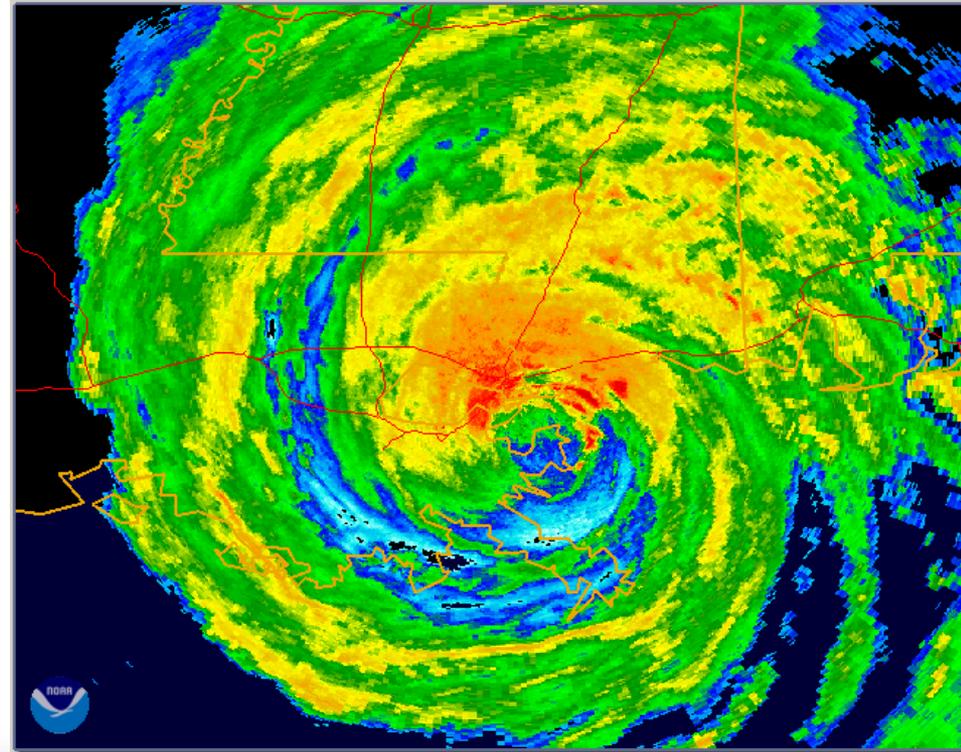
Commercial Space

- NOAA Commercial Space Policy:
 - Released January 8, 2016
- NESDIS Commercial Space Activities Assessment Process:
 - Reviewing public comments received about draft
- NOAA Commercial Weather Data Pilot:
 - Project to assess data from commercial companies
 - Request for Information (RFI) seeking radio occultation data released May 24, 2016



Big Data Project

- Cooperative Research and Development Agreement (CRADA)
- 3-year Project
- Developing Prototypes



Architecture of the Future

Develop a space-based observing enterprise that is flexible, responsive to evolving technologies, and economically sustainable.

--FY15 NOAA Annual Guidance

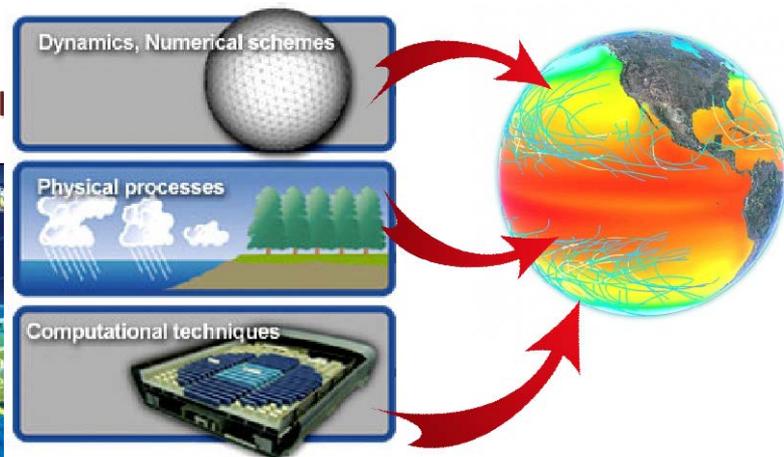
Global Earth Observing Satellite System



Next Generation Integrated & Adaptive Operations



Integrated & Assimilated Operational Data Flow



Merci

Gracias

감사합니다

Merci

धन्यवाद

Danke

ありがとう

Grazie

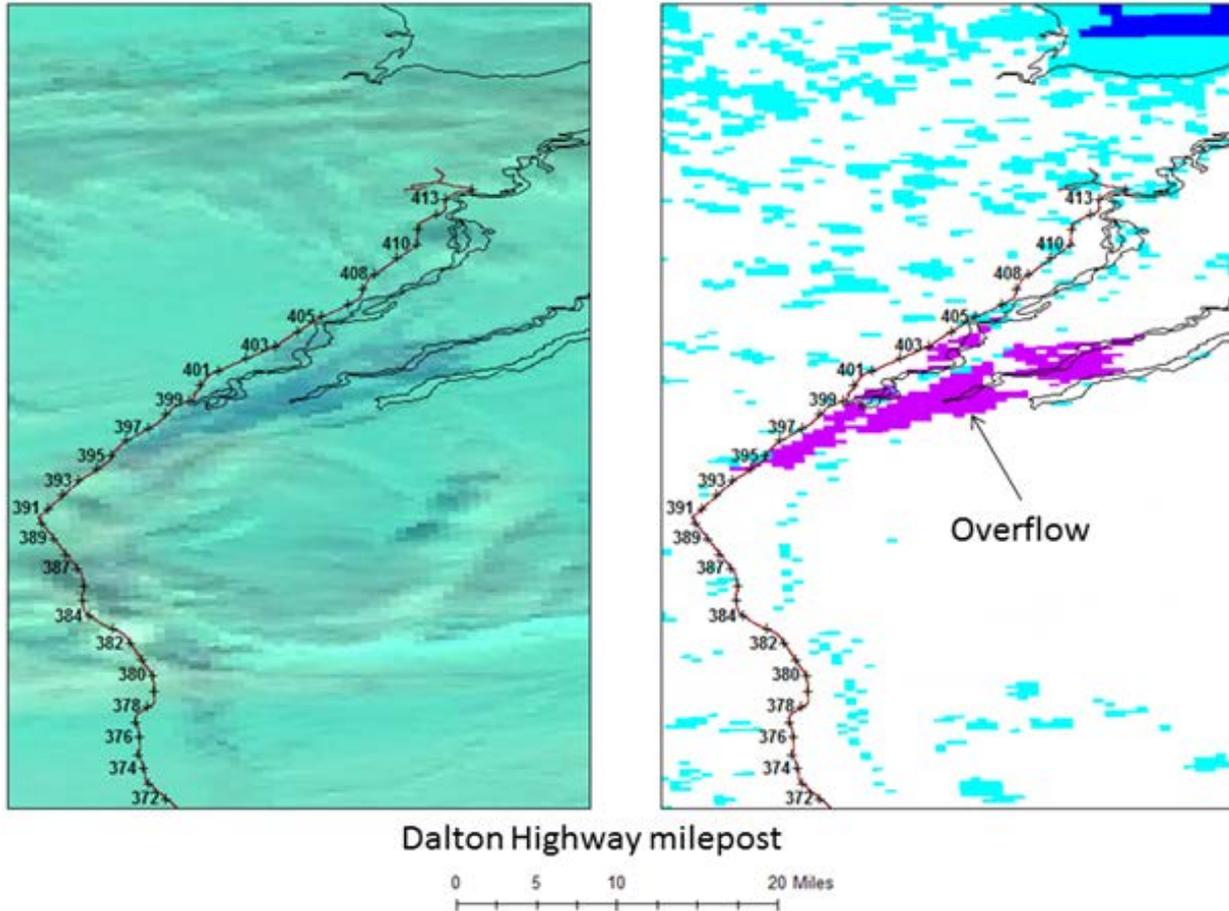
谢谢

Спасибо

Thank you



The Future of Forecasting: Learning from Suomi NPP



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