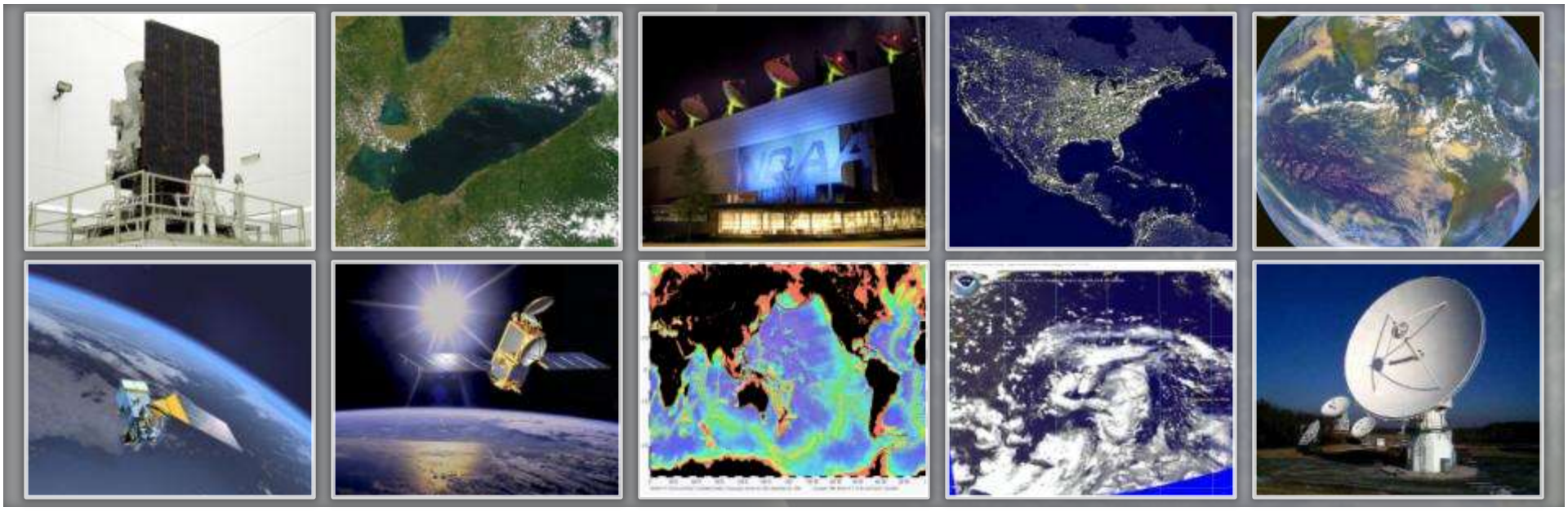
NOAA Satellite and Information Service

National Environmental Satellite, Data, and Information Service (NESDIS)



Briefing to Committee on Earth Science and Applications from Space

Mary E. Kicza, Assistant Administrator
October 29, 2013

NOAA/NESDIS Mission Supports NOAA's Mission and Goals

NOAA/NESDIS data products and services underpin and support NOAA's mission of Science, Service and Stewardship

Climate Adaptation and Mitigation

- Long-term climate record
- Sea-level rise
- Sea surface temperature

Weather Ready Nation

- Continuous surveillance for severe weather
- Primary input for numerical prediction models
- Real-time images/products

Healthy Oceans

- Coral reef bleaching alerts
- Harmful algal bloom detection
- Migratory tracking

Resilient Coastal Communities and Economies

- Oil spill monitoring and analysis
- Hydrologic monitoring
- Arctic sea ice analysis

NOAA Budget Status

FY 2014 President's Budget (PB)

- NESDIS FY 2014 PB = $2.186B (increase of $321.2M from FY 2013 Spend Plan)
  - Implements Administration and Congressional direction for the satellite acquisition programs
    - Requests funding for processing and distribution of Suomi NPP data
    - Continues the GOES-R four satellite next generation system
    - Focuses JPSS program on NOAA's critical weather mission
    - Establishes the Polar Free Flyer Program (Free Flyer-1, TSIS-1, ADCS-1, SARSAT-1, and ADCS-2 accommodation)
    - Transfers climate instruments to NASA (CERES, OMPS-Limb, TSIS-2)
    - Initiates planning for Enterprise Ground Services to evolve future ground systems to a more common ground environment while maintaining core ground systems capabilities

NOAA Budget Status (continued)

- The HAC bill provides $2,038M for NESDIS, an increase of $173.4M above the FY 2013 level.
  - Provides full funding for JPSS ($824M) and GOES-R ($955M)
  - Provides no funding for Jason-3, Polar Free Flyer and DSCOVR
- The SAC bill provides $2,150M for NESDIS, an increase of $285.3M above the FY 2013 level.
  - Fully funds JPSS, GOES-R, DSCOVR and JASON-3
  - Provides $4M for COSMIC-2
  - Provides partial funding for Polar Free-Flyer at $24.6M of the $62M requested

JPSS and GOES-R provide continuity and improvements to meet user demand

JPSS

CrIS: significantly improved temperature and water vapor information than POES HIRS

ATMS: improved global coverage and spatial resolution than AMSU

VIIRS: superior imagery and more spectral bands than AVHRR

OMPS: improved spatial resolution, coverage and vertical profiling than SBUV

CERES and TSIS: for fundamental energy budget climate measurements

GOES-R

ABI: superior imagery and more spectral bands than the GOES imager

Improved temporal sampling, CONUS every 5 minutes, full disk every 15 minutes and selected 1000 km2 area at 30 seconds

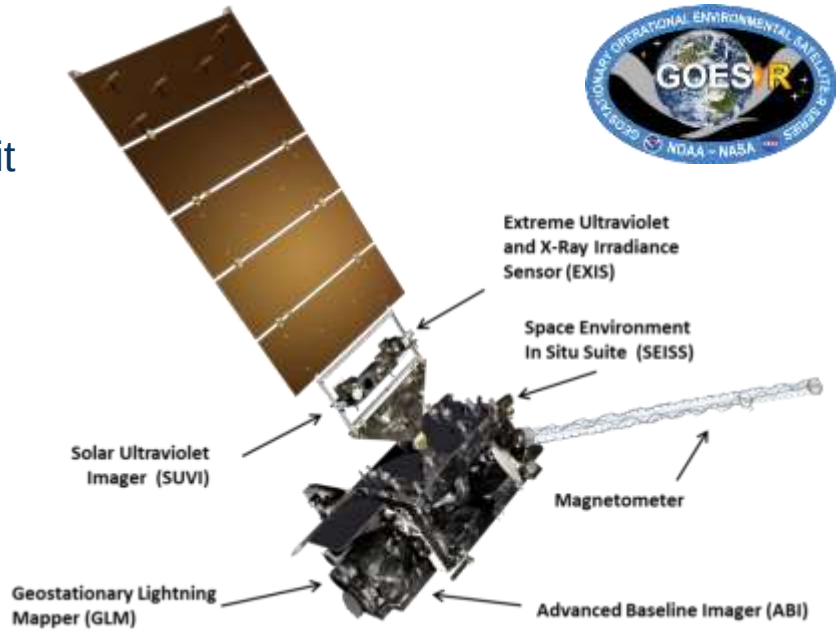
First ever geostationary lightning mapper

Significantly improved space weather instruments

GOES-R Series Overview

Benefits

- Maintains continuity of weather observations and critical environmental data from geostationary orbit
- Provides faster scanning of entire hemisphere while simultaneously observing individual storms
- Provides a new lightning mapping capability for improved early warnings of severe weather
- Provides improved warning of solar events to minimize impact to communications, navigation systems, and power grids



GOES-R Launch Readiness Date*	2QFY2016
Program Architecture	4 Satellites (GOES-R, S, T & U) 10 year operational design life for each spacecraft
Program Operational Life	FY 2017 – FY 2036
Program Life-cycle*	$10.860 billion

*Launch Readiness Date based on FY 2014 President's Budget Request

GOES-R 2013 Funding Reduction Impacts

- The GOES-R program was cut by $54M in March 2013 as a result of the final FY13 appropriation
- Fight project was cut by $33M and the Ground project $21M
- The net result was to move the GOES-R launch commitment date to second quarter FY16 and the GOES-S launch commitment date to third quarter FY17
  - The planning launch date for GOES-R stays October 2015
- The program's LCC increased $150M to $11.01B

JPSS Overview

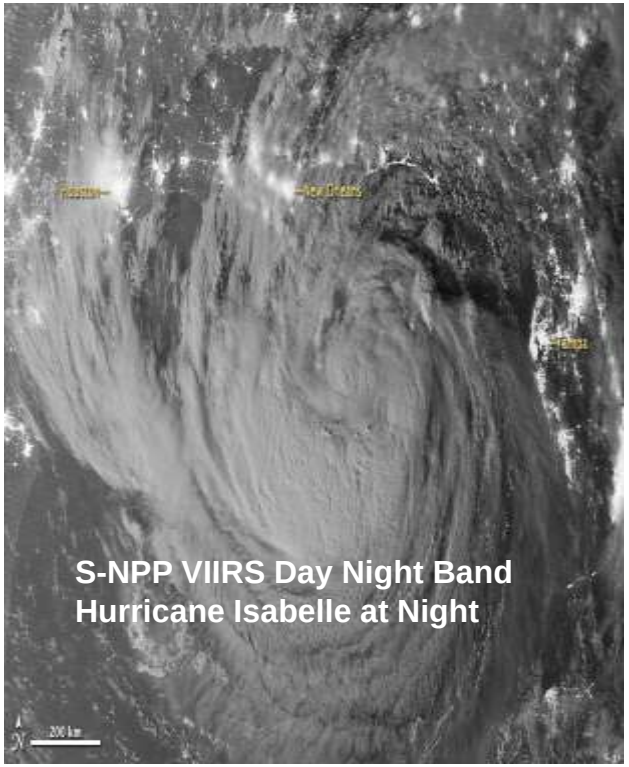
Benefits

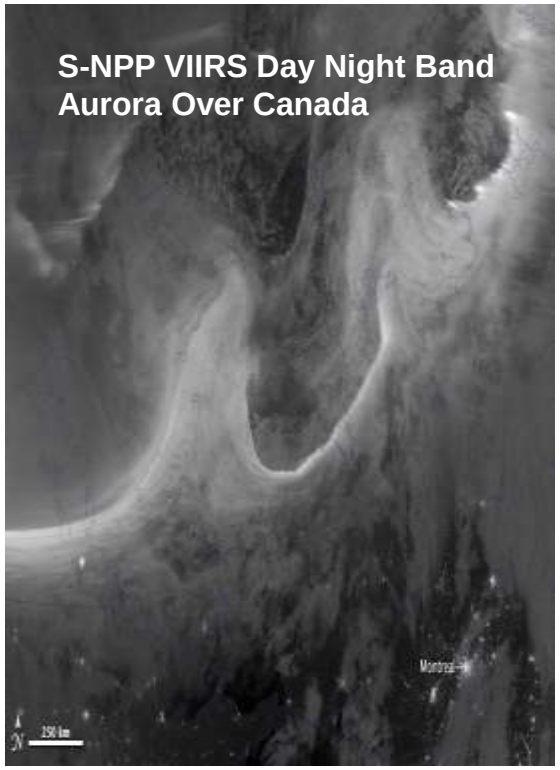
- Ensures continuity of global weather observations and critical environmental data around the world.
- Delivers real-time data to the National Weather Service, improving the quality of forecasts and enabling improved consistency in public warnings 3 to 8 days in advance of a severe weather event.
- Provides critical monitoring for hurricanes, droughts, floods, snowstorms and other severe weather events, allowing for the time to protect lives and property through evacuations and other preparations.
- Advances weather, climate, environmental and oceanographic science through technological improvements in satellite instruments and capabilities over legacy NOAA satellites.

Launch Dates	NLT 2QFY 2017 (JPSS-1)*; 1QFY 2022 (JPSS-2)
Program Architecture	3 Satellites (SNPP, JPSS-1, JPSS-2) SNPP- 5 year operational design life; JPSS-1 7-year operational design life
Program Operational Life	FY 2012 - FY 2025
Program Life-cycle (FY 2014 President's Budget)	$11.349 billion

***Launch Date based on FY 2014 President's Budget Request**

Joint Polar Satellite System (JPSS)





- To provide operational global observations in the early afternoon orbit which are critical inputs to numerical weather prediction models
- To provide uninterrupted continuity of observations from current NOAA POES, NASA EOS and Suomi NPP satellites
- FY 2014 President's Budget request refined JPSS Program content and cost

JPSS Program Overall Status

- Since the JPSS program was established in 2010, significant progress has been made to maintain continuity of the afternoon orbit. JPSS-1 remains on schedule for launch 2nd quarter FY2017, JPSS-1 launch accelerated to 1st quarter FY2022.
- Despite long term impacts of early funding shortfalls (approximately $850M between FY11-13), JPSS has kept on schedule and within budget since the FY 2012 appropriations were passed (~20 months ago)
  - Transition from NPOESS complete – Instrument and ground system contracts transitioned; JPSS-1 spacecraft contract awarded
  - S-NPP was successfully launched and is producing outstanding data
  - Clearly defined roles and responsibilities within the JPSS organization and timely decision-making (up through DOC) resulting in the successful completion of all major milestones
- Completed KDP-C for JPSS-1 in July. Completed KDP-1 for the JPSS Program in August, setting the baseline for the program
- JPSS-1 instruments and spacecraft proceeding well, at CDR level or beyond
  - Spacecraft is critical path for Flight but progressing well
- Ground elements are at PDR level or beyond
  - Facility readiness is current critical path for the Ground Project
  - Hardware procurement well underway, installation at NSOF to begin in January 2014

S-NPP Status

- S-NPP satellite healthy
  - All anomalies well-understood
  - No signs of any phenomena indicating any functionality would degrade / fail before propellant depletion (latest prediction is about 14 years of propellant)
  - More information in response section
- Operations transitioned to OSPO in February 2013
- Ground operations are going well; data availability high (~99.99%)
- Calibration/validation effort on schedule (with exception of priority 3 / 4 activities reduced due to FY13 budget reduction impacts)
- Data being used operationally
  - ATMS – NWS operational use started May 2012 (nearly 3 times faster than previous missions)
  - CrIS – NWS operational use started August 2013
  - VIIRS – Increasing use for now-casting, fog, hurricanes, and sea ice primarily through direct readout.
    - Alaska is primary user due to temporal refresh
    - Unique Day-night band (not available on GOES) is widely used

Other Satellite Programs

Jason-3 will provide global sea surface height measurements and continuity of a 20 year data record

- Joint NOAA/NASA/EUMETSAT/CNES mission for operational satellite oceanography measurements
- Crucial to improvements in weather modeling and hurricane intensification
- All activities on track for March 2015 launch

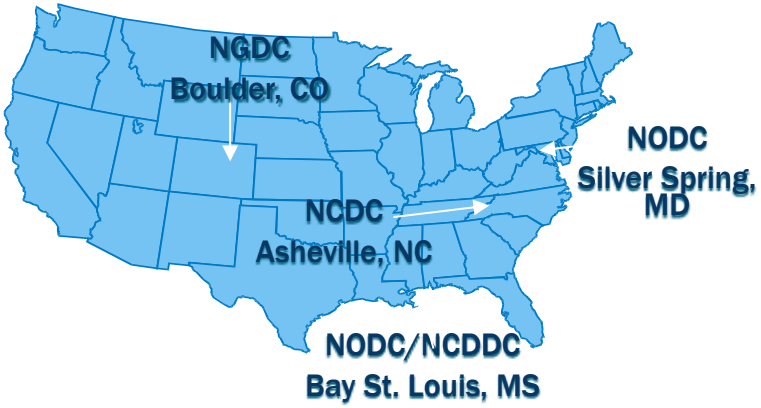
Deep Space Climate Observatory (DSCOVR)

- Joint NOAA/NASA/DoD space weather program
- Will provide improvements in geomagnetic storm warnings necessary for National infrastructure protection
- NOAA funding refurbishment by NASA for space weather mission; Air Force funding launch vehicle and services
- NOAA will operate post-launch
- Launch projected late CY 2014 to early CY 2015

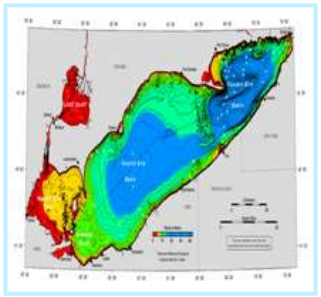
Data Centers & Information Services:

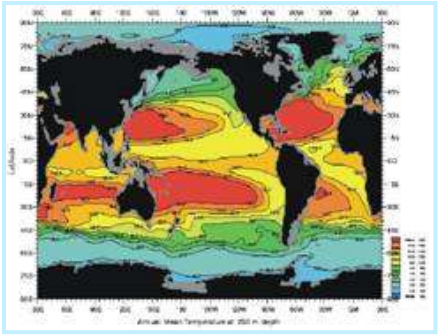
Archive, Access & Assessment

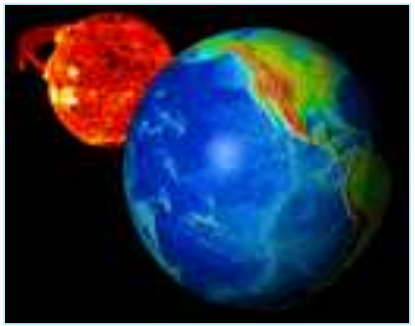
- NOAA's National Data Centers provide long-term preservation, management, data stewardship, and ready accessibility to the world's largest source of oceanographic, geophysical, solar-terrestrial, and climatic data
- Over 10 Petabytes of data in NOAA's National Data Centers.
- Over 4.1 PBs of data served in FY 2012, over 50 % annual growth rate



- **National Geophysical Data Center**
- **National Climatic Data Center**
- **National Oceanographic Data Center**
  National Coastal Data Development Center







Other Activities

- Executing FY13 Sandy Supplemental / Disaster Relief Funds to mitigate impacts of future natural disasters through:
  - Improved use of observations
  - NWP data assimilation and modeling
  - Strengthening domestic and international partnerships
- NESDIS Independent Review Team to report out November 2013
  - Assessment of NOAA's responses to IRT's 2012 recommendations
- NOAA Science Advisory Board / Satellite Task Force provided recommendations to NESDIS on long-term enterprise ground and space-based architecture.
  - NOAA response to be delivered to SAB at its meeting on November 19
- "Strengthening NESDIS" effort underway
  - Increases systems engineering emphasis at the Enterprise level, including examining future space/ground architectures
  - Lays groundwork for evolution to common ground services and consolidation of National Data Centers

Summary

- Continued significant progress for NOAA NESDIS programs since last report to CECAS
- Fiscal environment remains challenging, with clear recognition of the importance of NOAA's mission
- External reviews and our response to them is making us a stronger organization -- which will in turn benefit the communities we serve