NOAA Satellite Earth Observation Information: Present & Future

AMS Washington Forum
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NOAA Satellite and Information Service

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Supporting NOAA's Mission

NOAA is a science-based services agency engaged with the entire Earth system science enterprise.

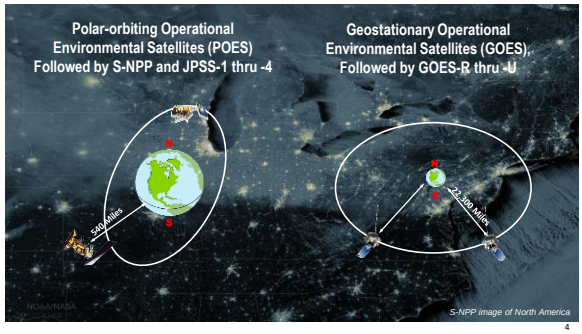
NOAA's Top Four Priorities:

1. To provide information and services to make communities more resilient
2. To evolve the National Weather Service
3. To invest in observational infrastructure
4. To achieve organizational excellence

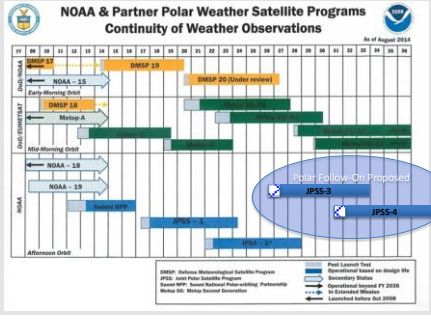
NESDIS Mission

Our mission is to deliver accurate, timely, and reliable satellite observations and integrated products and to provide long-term stewardship for global environmental data in support of the NOAA mission.

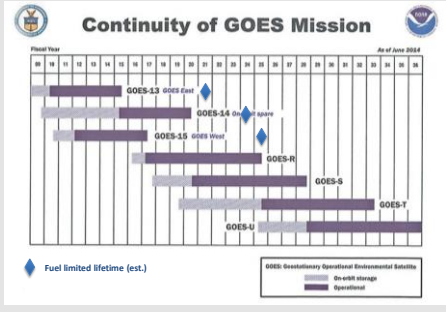
NOAA's Observational Paradigm Has Been: Two Orbits, One Mission



Polar Flyout Chart



GOES Flyout Chart



Our Weather Observations Involve Much More than NOAA

- NASA and ESA research satellites
- DOD, EUMETSAT & JMA operational satellites
- EC Sentinel satellites

NOAA's Established LEO and GEO Platforms

- From Low Earth Orbit
  - The five (5) satellite combination of JPSS + Polar Follow-On (PFO) will establish NOAA's LEO coverage in the afternoon orbit well into the 2030s
  - Cooperative agreements with EUMETSAT and DMSP (near term) establishes the global polar constellation
- 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
  - Cooperative agreements with EUMETSAT and JMA establishes the global geostationary constellation
- Together, these platforms have and will form the backbone of our observing network for the coming decades
  - To which we will add measurements from other sources to improve our NWP performance

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FY2016 Budget Highlights for NESDIS

- Funds the Polar Follow On (PFO), to build and deploy the PFO/JPSS-3 and PFO/JPSS-4 and complete the polar satellite time series through late 2030s
- Starts the work of a Space Weather Follow On, to follow DSCOVR, and funds the 2nd set of COSMIC-2 sensors
- Enables continued development of systems engineering and enterprise ground capabilities to integrate the GOES-R and JPSS operations into the other NOAA satellite operations
- Provides for a clarification of the NOAA and NASA Earth observation satellite responsibilities

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Information Generation Today

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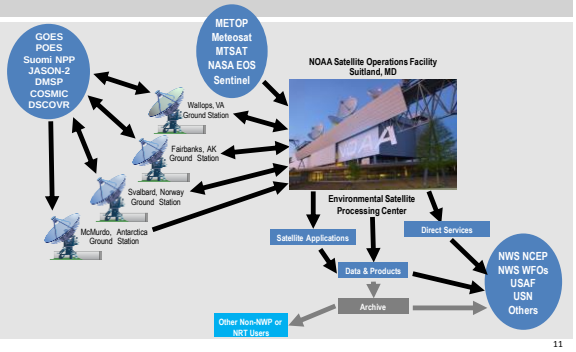
Current Data Flow to Support NWS & NWP



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Enabling data use: NCEI Product Highlights

- Climatological Atlas of the Nordic Seas and Northern North Atlantic
- World Ocean Atlas 2013
- National Climate Assessment
- BAMS State of the Climate in 2013
- Explaining Extreme Events of 2013 from a Climate Perspective
- Extended Continental Shelf (ECS) Project
- Post-Sandy Digital Elevation Model
- World Magnetic Model for 2015-2020

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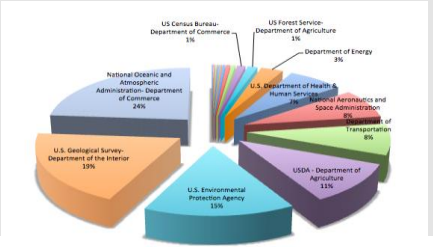
Enabling data use: Climate Data Initiative

The White House's Climate Data Initiative facilitates the discovery, access and use of climate-related Federal data sets by innovators across the public and private sectors.



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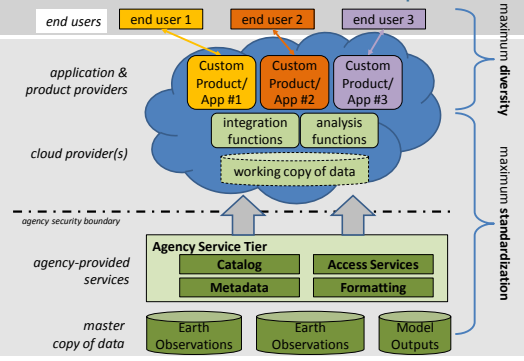
BDP Architectural Concept



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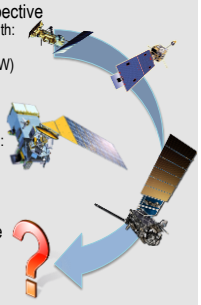
What's Next?: Moving Beyond "Two Orbits"

- We are broadening our "polar satellite" LEO perspective
  - Core POES/JPSS satellites through ~2038 augmented with:
    - Cosmic-2 RO mission
    - Earth Observing Nanosatellite - Microwave (EON-MW)
    - Smallsats or hosted payloads may also contribute
- We may also broaden our GEO perspective
  - GOES-R series through ~2036, may augment with others:
    - Alterative architectures, including hosted payload opportunities
    - Possibly to include alternative orbits
- Increasingly, commercial possibilities may emerge to supply some of NOAA's data needs



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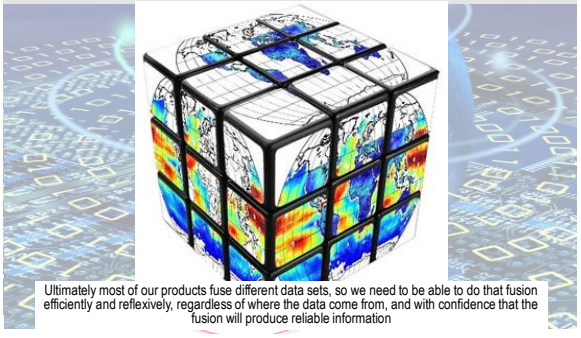
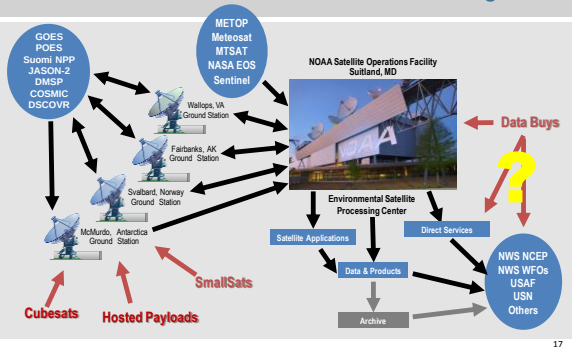
How Do We Integrate Commercial Data Into Our Operating Paradigm?



Ultimately most of our products fuse different data sets, so we need to be able to do that fusion efficiently and reflexively, regardless of where the data come from, and with confidence that the fusion will produce reliable information

How Could Future Data Flow Change?



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NOAA's Ongoing Commercial Discussions

- NOAA Commercial Space Policy
  - Policy to guide the use of space-based commercial data and services to meet NOAA requirements
  - In review in the Administration, expected release 2015
- NESDIS Commercial Options Assessment Process
  - Defines NESDIS process for engaging with the commercial sector to leverage commercial solutions for space-based earth observation requirements
  - Under development, expected release 2015
- NESDIS workshop: April 28, College Park http://www.nesdis.noaa.gov/April_workshop/
  - Focus is a discussion of how NESDIS identifies data requirements to address NOAA's priority observational needs, and how commercial solutions may apply
  - Opportunity for to give your input on the NESDIS process of engagement with the commercial sector
- Subsequent workshops to continue the process development

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Questions?

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Backup

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Commercial Engagement Through RFIs

- RFI on solar wind data released in January 2014
  - Although there is no current service, there continues to be interest and capability in the private sector for providing such data
- RFI for A-DCS/SARSAT hosting opportunity released in August 2014
  - Will be using Air Force HoPS contract to examine LEO hosting opportunities for key instruments
- RFI on GNSS-RO commercial capabilities released in September 2014
  - Goals were to understand the range of options available to purchase commercial radio occultation data and evaluate the current capabilities of potential suppliers
  - NOAA will continue to explore commercial RO solutions in conjunction with existing RO capabilities

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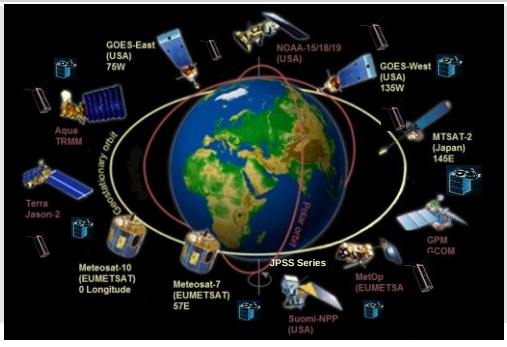
Future Constellation?



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