Status Report on NOAA’s Current & Future Satellite Systems

Presented to CGMS-45, Plenary session, agenda item D.11
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 50% of NOAA’s Budget
4. To achieve organizational excellence
The NESDIS Strategic Plan

NESDIS Vision: To expand understanding of our dynamic planet as a trusted source of environmental data
The NESDIS Strategic Plan

We have to deliver without interruption the data and observational products our Users require.

We must ensure the space and ground assets are current, secure, and delivering the necessary information to meet User needs.

We must maintain a vibrant and capable workforce within and trusted partnerships globally to meet our Users’ needs.

Commitments
- Continuity
- Data & Information

Capabilities
- Architecture
- Use-inspired science

Community
- Partnerships
- People
Commitments

• **Continuity**
  NESDIS must continue to ensure the continuity of our observations over time and anticipate future risks to mission success with the reliability and robustness that have come to define the organization.

• **Data & Information**
  NESDIS must not only deliver single-source informational products, but also broad-based data-acquisition and distribution products that utilize and integrate multiple sources of data, allowing a broader spectrum of use.
Recent and Upcoming Launches

- **JASON-3**: Operational July 1, 2016
- **DSCOVR**: Operational July 27, 2016
- **COSMIC-2**: COSMIC-2A - 2018
- **GOES-R Series**
  - GOES-16: Launched November 19, 2016
  - GOES-S - 2018
  - GOES-T - 2019
  - GOES-U - 2025
- **JPSS Series**
  - JPSS-1 - 2017
  - JPSS-2 - 2021
  - JPSS-3 - 2026
  - JPSS-4 - 2031
Entering a New Era

**JPSS**
- Over 2000 channels
- Spectral resolution in IR/mw
- Hi-Res visible (Arctic, fire, ...)
- Night time imagery for Polar viewing

**GOES-R**
- Advanced Baseline Imager w/16 channels
- More rapid coverage of global and focused areas
- Geostationary Lightning Mapper

Coordination Group for Meteorological Satellites - CGMS
Integrating GEO and LEO to meet User Requirements for Nowcasting

Note: Pre-operational GOES-16 data
Capabilities

• Architecture
NESDIS will work to evolve its ground and space architecture and move away from stand-alone systems in order to improve observational capabilities, resiliency and efficiency.

• Use-Inspired Science
NESDIS has an opportunity to help better inform future environmental assessments through innovative science and meaningful engagements with stakeholders and decision makers. These engagements will also help develop the next generation of science-based product and services.
**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.

**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.

**Access Data**
Obtain the necessary data by building, blending, or buying it.
- **Build**: Managing NOAA’s current and future satellite programs
- **Blend**: Collaborate with our partners to develop satellite versatile systems or incorporate data from commercial providers into the generation of data products and their distribution
- **Buy**: Purchasing data provided by commercial satellite systems

**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.
Evolve to Data Source Agnostic Architecture

NOAA and Non-NOAA Satellite and Other Data

Secure Ingest

Real-Time Operational Processing
- Enterprise Algorithm Processing
- Product Distribution & Access

Non Real-Time Operational Processing
- Mission Science Network
- Future Archive
- One Stop

Essential Support Services

Users
- Real-time Operational User Community (NWS, DOD, OAR, NOS, NMFS, etc.)
- Non Real-time/Non Operational User Community (Public, etc.)

Near to Mid Term Strategic Priorities - Conducting pilots and developing plans for implementation
Community

• **Partnerships**
  Successful partnerships allow us to meet our mission cost-effectively and to be more responsive to the needs of our users and stakeholders. Under this strategic plan, our international and interagency partnerships will remain a priority for NESDIS.

• **People**
  As the scope, breadth and level of expertise of services and information provided by NESDIS expands in the years to come, we will continue to rely on a workforce that is engaged, diverse, dedicated and nationally and internationally recognized as authorities in their fields.
We Are Moving beyond exploitation of a NOAA-centric Observing System ...
...To greater utilization of a growing global constellation of Earth Observation satellites
A New Era for NOAA Environmental Satellites

2017 NOAA SATELLITE CONFERENCE
JULY 17-20, 2017
NEW YORK

At:
The City College of New York, NY
Hosted by:
NOAA Cooperative Science Center for Earth System Sciences and Remote Sensing Technologies (CREST)