



NOAA 101

Benjamin Friedman
Deputy Under Secretary for Operations
Performing the Duties of
Under Secretary for Oceans and Atmosphere/NOAA Administrator

February 2017

Outline

1. NOAA's History and Mission
2. NOAA Organization
3. Budget Overview
4. Overview of Workforce, Facilities, & Assets
5. Partnerships

NOAA's History

- 1807 -- Thomas Jefferson founded the U.S. Coast and Geodetic Survey
- 1870 -- The Weather Bureau was founded.
- 1871 -- The U.S. Commission of Fish and Fisheries was founded.
 - *Individually, these organizations were: America's first physical science agency; America's first agency dedicated specifically to the atmospheric sciences; and America's first conservation agency.*
- These three agencies were brought together in 1970 with the establishment of NOAA, within the Department of Commerce.

NOAA's Mission

To understand and predict changes in climate, weather, oceans, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources.



National Weather Service (NWS)

NOAA's National Weather Service is building a Weather-Ready Nation by providing better information for better decisions to save lives and livelihoods.

National Ocean Service (NOS)

NOAA's National Ocean Service is positioning America's coastal communities for the future.

National Marine Fisheries Service (NMFS)

NOAA Fisheries provides science-based conservation and management for sustainable fisheries and aquaculture, marine mammals, endangered species, and their habitats.

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

Gathering data to monitor and understand our dynamic planet.

Office of Oceanic and Atmospheric Research (OAR)

NOAA Research provides the foundation for understanding our planet and technological innovation and scientific advances that improve our lives.

Office of Marine and Aviation Operations (OMAO)

NOAA's Office of Marine and Aviation Operations administers the NOAA fleet of ships and aircraft, and trains divers to safely facilitate Earth observation.



Charting



>\$2.4 billion

in annual benefits to U.S. economy

The NOAA National Spatial Reference System—the official U.S. government source for precise latitude, longitude, and elevation measurements—provides more than \$2.4 billion in potential annual benefits to the U.S. economy.

1.7 Million Jobs

Fisheries



The U.S. is now a global leader in sustainable fisheries management. US fishermen contribute nearly \$200 billion to the U.S. economy supporting 1.7 million jobs. NOAA Fisheries tracks 473 fish stocks managed by 46 fishery management plans. We have rebuilt 39 stocks since 2000 as a result of our fishery management processes.

Satellites



41,750 people

saved using satellites

41,750 people worldwide have been saved by the Search and Rescue Satellite-Aided Tracking System (COSPAS-SARSAT). When a distress signal is activated, NOAA satellites transmit the signal to ground stations around the world, alerting search and rescuers. NOAA owns or operates a total of 16 satellites.





Sanctuaries  **\$8 billion**

generated annually

Across all national marine sanctuaries, about \$8 billion annually is generated in local coastal and ocean dependent economies.



\$3 per person

Weather 

For about \$3 per person per year NWS provides each person in the U.S. with timely and accurate basic weather, water, and climate forecasts and information.

76 billion observations

Each year, NWS collects some 76 billion observations and issues approximately 1.5 million forecasts and 50,000 warnings.

15 weather and climate disaster events exceeding \$1 Billion

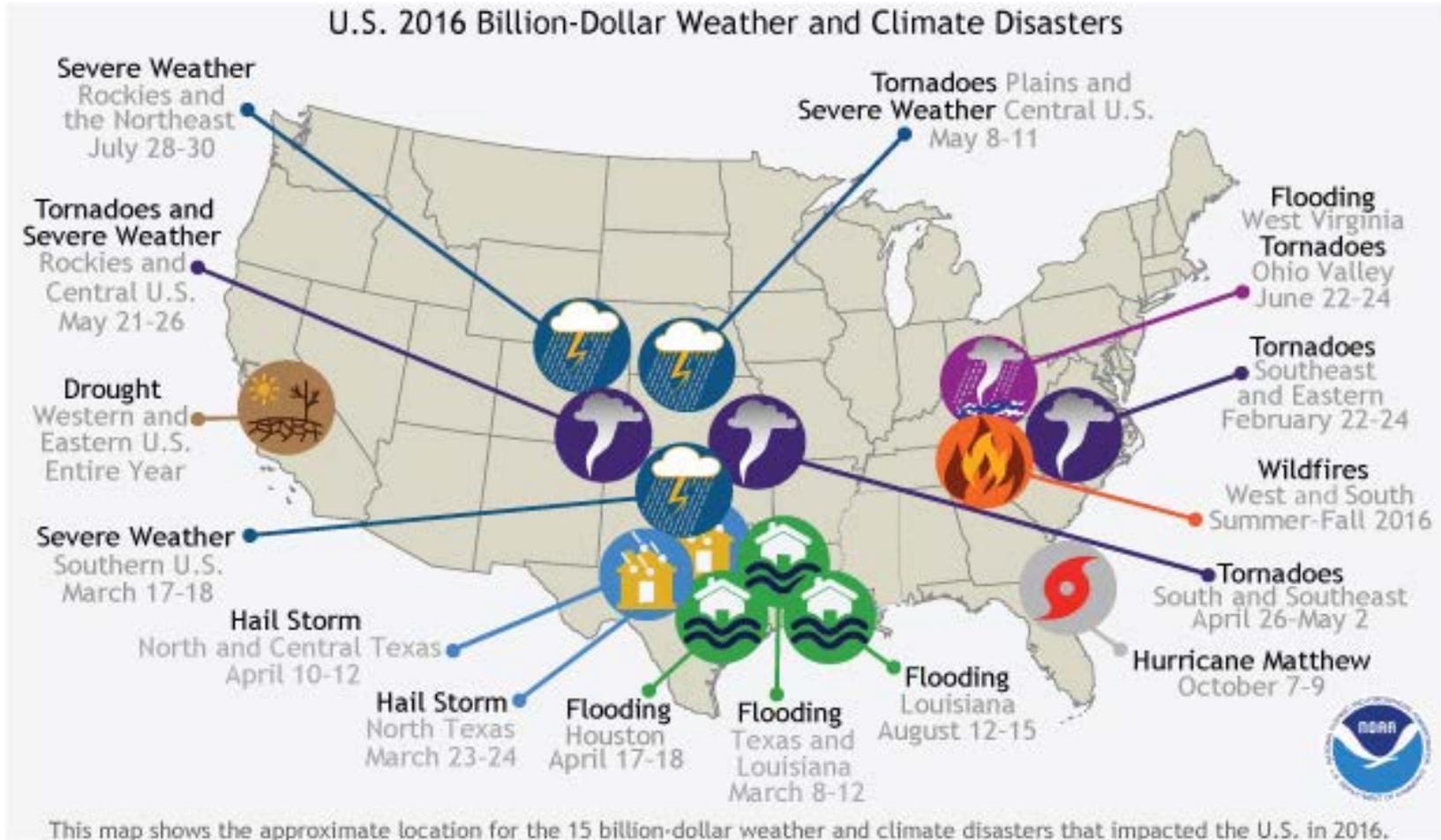
Climate 

Last year, the U.S. experienced 15 weather and climate disasters, each with losses exceeding \$1 billion for a total of \$46 billion. Tragically, the disasters claimed a total of 138 lives. These events included a drought event, 4 flooding events, 8 severe storm events, a wildfire event, and a hurricane.



2016 Extreme Events

A historic year for billion-dollar weather and climate disasters



15 events in 2016, 10 in 2015, 8 in 2014



Research



1,000,000

km² of the ocean mapped

95 percent of the ocean remains unexplored. The NOAA Ship *Okeanos Explorer*, the first and only U.S. federal vessel dedicated to ocean exploration, has mapped 1,000,000 square kilometers - larger than Texas and Florida combined.

Oceans & Coasts



40% of

the U.S. live in coastal communities

Accurate data directly impacts the more than 40 percent of the nation's population that lives in coastal shoreline communities, and more than \$6.6 trillion (> 45 percent) of our GDP, 51 million jobs and \$2.8 trillion in wages. For reference, the U.S. coastal communities alone would rank number three in GDP globally, behind the U.S. as a whole and China.

Marine & Aviation



16 ships,

9 research aircraft

NOAA's fleet of ships and aircraft supports a wide range of activities including: fisheries Surveys; nautical charting; ocean exploration, weather forecasts and airborne data collection.

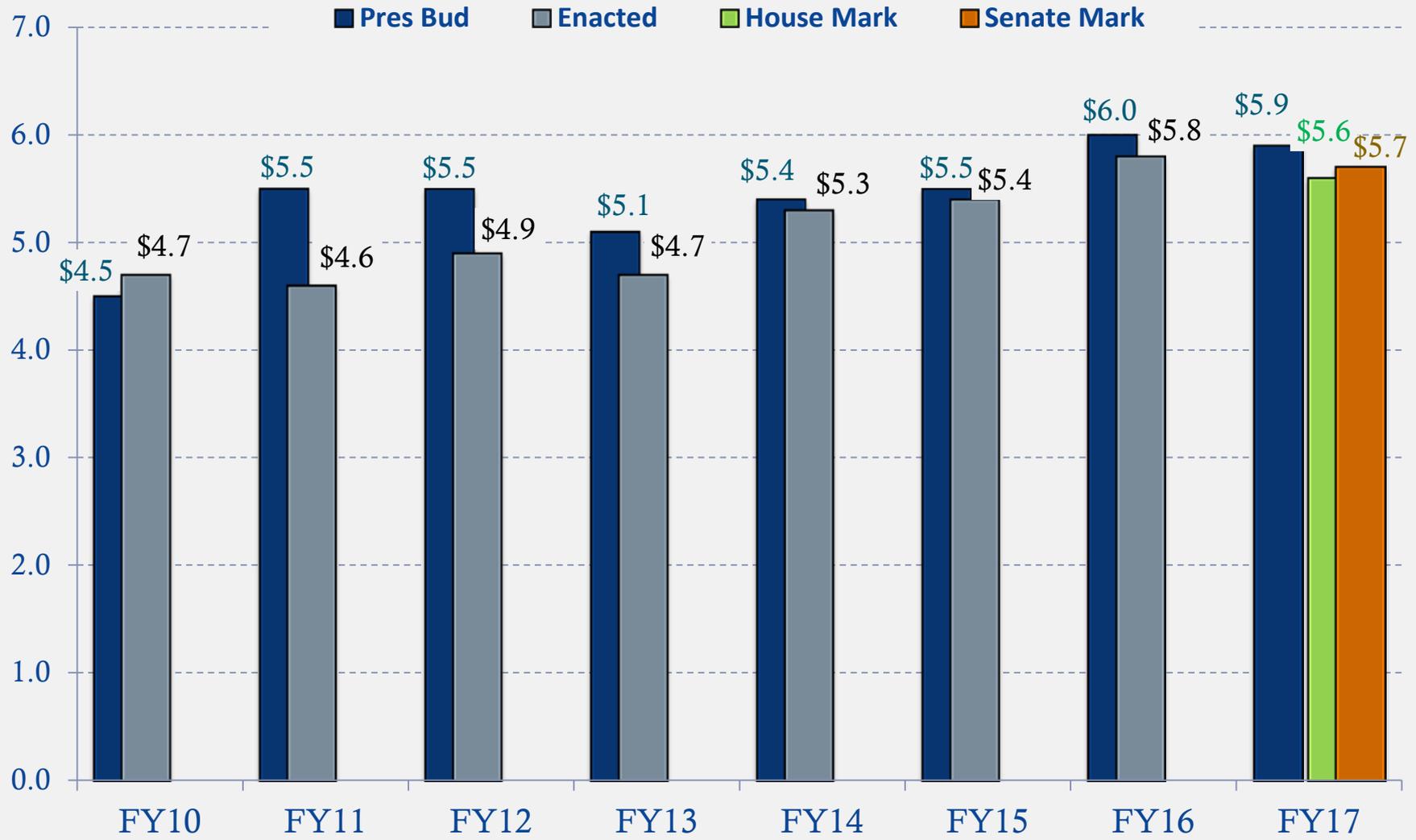


NOAA Mandates and Authorities

- There are 127 mandates and authorities applicable to NOAA's mission, including:
 - Reorganization Plan No.4 of 1970, 15 U.S.C. § 1511 note.
 - Weather Service Organic Act
 - Magnuson-Stevens Fishery Conservation and Management Act
 - Marine Mammal Protection Act
 - Endangered Species Act
 - Coastal Zone Management Act
 - National Marine Sanctuaries Act
 - America COMPETES
 - Hydrographic Services Improvement Act



NOAA Funding Levels Through FY2017



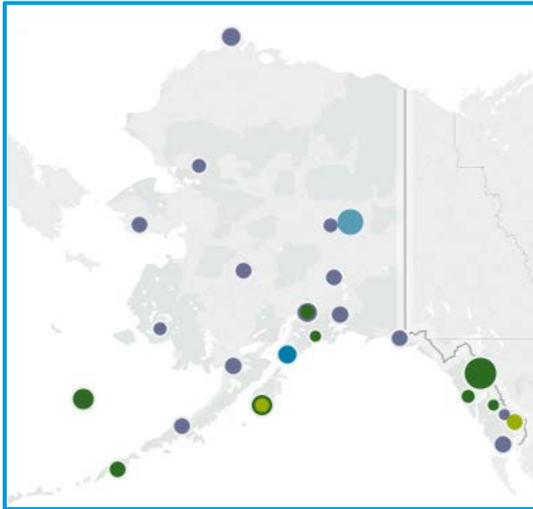
\$ IN BILLIONS

This represents Total Direct Discretionary Appropriations, and does NOT include the mandatory accounts.



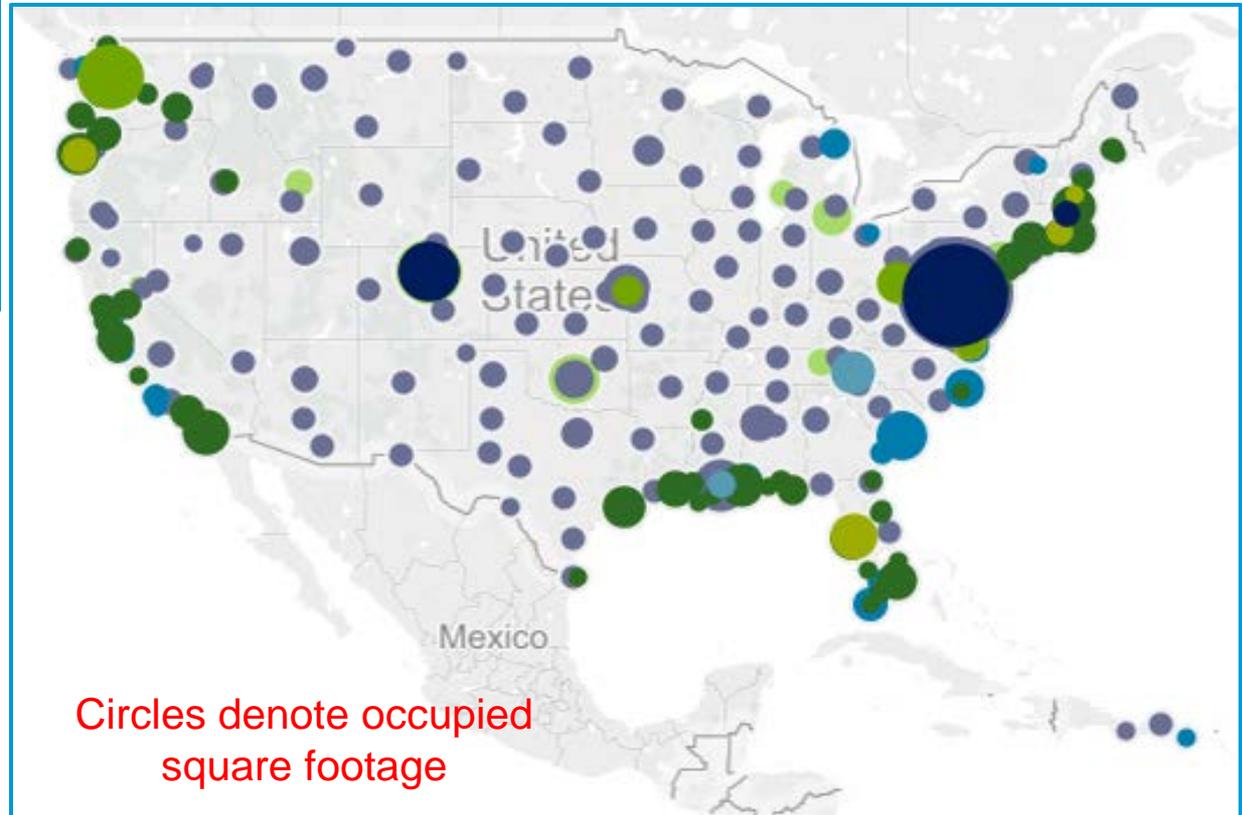
Where is NOAA?

- NOAA has a broad and diverse geographic footprint throughout the entirety of the United States

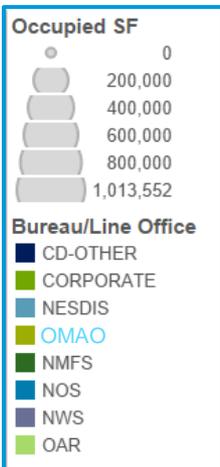


- > 700 buildings across the U.S. and territories
- NOAA in your State:

<http://www.legislative.noaa.gov/NIYS/>



Circles denote occupied square footage



Summary of Specialized NOAA Sites



- 7 OAR Labs
- 6 Fisheries Science Centers
- 122 Weather Forecast Offices
- 10 National Centers for Environmental Prediction
- 13 National Marine Sanctuaries
- National Centers for Coastal Ocean Science (NCCOS)
- 5 Marine National Monuments
- 4 National Centers for Environmental Information (NCEI)
- The Center for Satellite Applications and Research (STAR)
- 29 National Estuarine Research Reserves

NOAA Core Assets

- Over 100 Observing Systems, including:

- 122 Doppler radars
- 16 Earth Observing Satellites
- Buoy Networks (DART, TAO, etc)

- Ships and Aircraft

- 16 ships and 9 aircraft engaged in research and survey operations in support of NOAA's missions

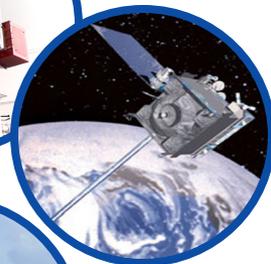
- High Performance Computing

- 2 operational supercomputers executing numerical models to produce environmental forecasts
- 3 weather and climate research supercomputers to support development of new numerical models

POES



GOES



TAO Buoy



Doppler Radar



NOAA Ship Oscar Dyson



NOAA G4 and P3



NWS Supercomputers

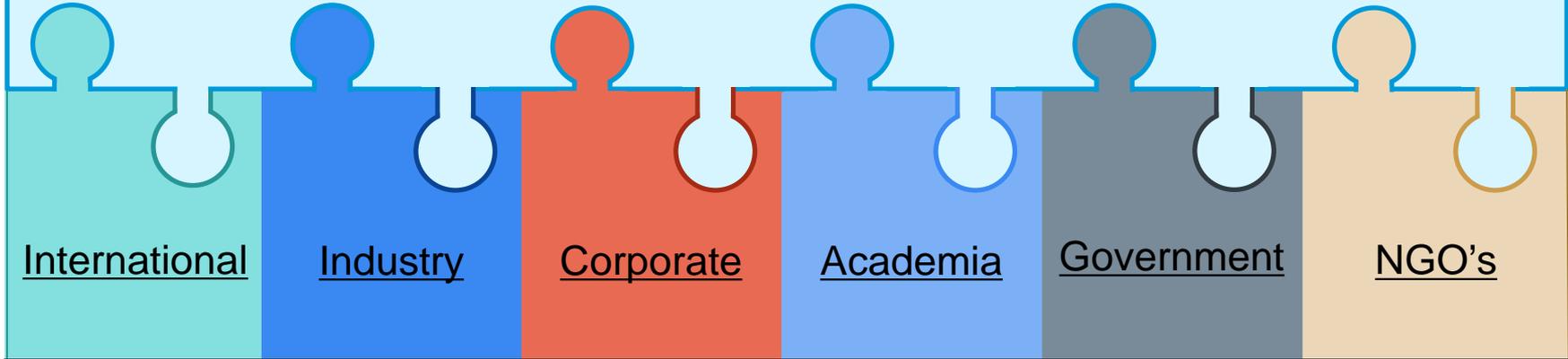
GFDL Supercomputer



NOAA



Partners



--------------	------------------	--------------	--------------	----------------------	------------------





NOAA's Long Term Goals



NOAA remains committed to four core priorities to support its mission as the nation's premier environmental intelligence agency:

- 
1. Provide information and services to help communities & economies to increase preparedness and reduce risks.
 2. Evolve NOAA's National Weather Service to meet the nation's growing needs for accurate and timely weather, water, and climate information.
 3. Invest in observational infrastructure to preserve and improve NOAA's ability to generate environmental intelligence.
 4. Achieve organizational excellence so NOAA can execute its mission.
- 
- 
- 



NOAA Legislative Affairs



A directory of NOAA Congressional Affairs staff is available at:
<http://www.legislative.noaa.gov/staff.html>

Contact our staff to sign up for:



- Monthly reports on the status of NOAA's fleet of ships and aircraft
- Significant weather updates targeted to your state/district
- Drought monitor reports
- NESDIS Newsletter for the latest on satellite and information services
- Fishery management news and updates in your region



QUESTIONS



FIRST IMAGE FROM GOES-16: This composite color full-disk visible image is from 1:07 p.m. EDT on January 15, 2017 and was created using several of the 16 spectral channels available on the GOES-16 Advanced Baseline Imager (ABI) instrument. The image shows North and South America and the surrounding oceans. GOES-16 observes Earth from an equatorial view approximately 22,300 miles high.

