

NOAA'S SATELLITE AND INFORMATION SERVICE



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION • UNITED STATES DEPARTMENT OF COMMERCE

NOAA's Satellite and Information Service, or NESDIS, is the steward of national environmental treasures - operating the spacecraft that monitor severe weather, and preserving this data for generations to come.

NOAA satellites monitor a wide range of environmental factors. NOAA satellites track dangerous weather conditions, from hurricanes and tornadoes, to floods and snowstorms. Satellites also watch for emerging drought conditions and other changes in the climate and oceans. Some NOAA satellites monitor solar activity, providing real-time images of the sun's explosive atmosphere, enabling more timely warnings for solar storms that could impact billions of dollars worth of communications assets.

Each day, NESDIS manages the complex distribution of more than 16 billion bytes of environmental data from the eight satellites it operates and sends the information to its key user - NOAA's National Weather Service. The National Weather Service uses this satellite data to help create weather and climate forecasts and models that protect lives and property.



NESDIS continues to be an international leader in changing the way integrated environmental observations and data are captured, stored, managed, shared and used to benefit the entire world.

NOAA Satellites Always Ready

NOAA operates two geostationary environmental satellites, called GOES. These satellites are in fixed positions 22,300 miles above the east and west coasts and are constantly monitoring the air, land and waters of the Western Hemisphere.

NOAA operates a polar-orbiting environmental satellite, called POES, which circles the globe 540 miles above the Earth. NOAA is also partnered with Europe, providing instruments for its polar-orbiting satellite. Together the NOAA and European satellites form a two satellite operational constellation. NOAA also manages the operations of the Department of Defense's Meteorological Satellite Program, called DMSP.

In addition to operating the satellites, NOAA, in partnership with other government agencies, analyzes user requirements and acquires satellites and ground systems.

NOAA Satellites Serve the Nation

NOAA processes data from environmental satellites and creates information products for users around the world. While creating weather forecasts is the primary use of satellite data, NOAA also combines its data with data from partner agencies to provide routine information on a variety of environmental issues such as forest fires, drought conditions, sea level, iceberg

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movement, coral reef bleaching, volcanic ash and sea surface temperature. NOAA researchers use satellite data to explore and develop future products to benefit the public.

NOAA's New Environmental Satellite Center

In 2007, the NOAA Satellite Operations Facility officially opened as the new home for NESDIS around-the-clock, environmental satellite operations. Based in Suitland, Md., it is the operational data hub for the GOES, POES and DMSP satellite programs. It is also gearing up to provide support for NOAA's next generation satellite series: GOES-R and the National Polar-orbiting Operational Environmental Satellite System.

The facility, which supports more than \$50 million of high-technology equipment, including 16 antennas that control more than \$4.7 billion in satellites, also houses the U.S. Mission Control Center for the Search and Rescue Satellite-Aided Tracking program, called COSPAS-SARSAT, and the National Ice Center, which NOAA operates with the U.S. Navy and U.S. Coast Guard.

NOAA's National Data Centers

NOAA's Satellite and Information Service manages several data centers that are focal points for historical meteorological, climatological, geophysical, oceanographic and solar-terrestrial sciences. These data centers are a boon for researchers studying environmental trends and include:

- **National Climatic Data Center (NCDC), Asheville, N.C.:** The world's largest archive of atmospheric and climate data, NCDC records are as old as 150 years and as new as a few hours. NCDC houses data collected by Thomas Jefferson and Benjamin Franklin and data from the most modern observation and collection systems, including satellites, surface observations, radar and model output. NCDC climatologists develop national and global data sets that are used by government and the private sector to maximize the resources that are sensitive to climate and minimize the risks of climate variability and weather extremes. NCDC has a statutory mission to describe the climate of the United States and NCDC acts as the nation's scorekeeper of the trends and anomalies of weather and climate.
- **National Oceanographic Data Center, Silver Spring, Md.:** NODC provides scientific and public stewardship for national and international marine environmental and ecosystem data. These data include: physical, biological and chemical measurements from in situ

oceanographic observations, satellite remote sensing of the oceans and ocean model simulations. NODC maintains the World Ocean Database, the largest collection of data about the oceans of the globe, dating as far back as 1800. NODC houses the NOAA Central Library for the entire NOAA organization.

- **National Coastal Data Development Center, Stennis Space Center, Miss.:** Part of NODC, NCDDC provides stewardship and access to the nation's coastal data and ecosystem resources. NCDDC also provides a direct link to local, state and federal information as it pertains to severe weather preparation and monitoring throughout the Gulf of Mexico coastal region.
- **National Geophysical Data Center, Boulder, Colo.:** From the sun to the Earth, and from the Earth's surface to its interior, NGDC focuses on the planet's geophysical properties, marine geology and geophysics, tsunami and other hazards, space environment and solar physics. NGDC has more than 300 digital and analog databases and a myriad of widely disseminated products, including the nighttime lights of the world and advanced data management technologies that reflect the changing world of geophysics. ☺