



NOAA *Background*

National Environmental Satellite, Data, and Information Service

Operating the country's system of environmental satellites, whose cloud images are seen daily on television weather forecasts, is one of the major responsibilities of the National Oceanic and Atmospheric Administration. NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) operates the satellites and manages the processing and distribution of millions of bits of data and images these satellites produce daily. The prime customer for the satellite data is NOAA's National Weather Service, which uses satellite data to create forecasts for television, radio, and weather advisory services.

A WORD ABOUT NOAA. . .

The National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment which sustains us all.

A Commerce Department agency, NOAA provides these services through five major organizations: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, and Office of Oceanic and Atmospheric Research; and numerous special program units. In addition, NOAA research and operational activities are supported by the Nation's seventh uniformed service, the NOAA Corps, a commissioned officer corps of men and women who operate NOAA ships and aircraft, and serve in scientific and administrative posts.

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NOAA's operational environmental satellite system is composed of: geostationary operational environmental satellites (GOES) for short-range warning and "now-casting," and polar-orbiting environmental satellites (POES) for longer-term forecasting. Both kinds of satellites are necessary for providing a complete global weather monitoring system. The satellites carry search and rescue instruments, and have helped save the lives of about 10,000 people to date. The satellites are also used to support aviation safety (volcanic ash detection), and maritime/shipping safety (ice monitoring and prediction).

GOES satellites orbit the earth at the same speed as the earth rotates, thus continually watching over the same area. They are a mainstay of weather forecasting in the United States. They provide data for severe storm evaluation, information on cloud cover, winds, ocean currents, fog distribution, storm circulation and snow melt, using visual and infrared imagery. The satellites also receive transmissions from free-floating balloons, buoys and remote automatic data collection stations around the world. The weather data gathered by GOES satellites, combined with data from Doppler radars and automated surface observing systems, greatly aids weather forecasters in providing warnings of thunderstorms, winter storms, flash floods, hurricanes, and other severe weather. These warnings help to save lives, preserve property, and benefit commercial interests.

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Complementing the geostationary satellites are two polar-orbiting satellites. Constantly circling the Earth, these satellites support large-scale, long-range forecasts and numerous secondary missions. Operating as a pair, they ensure that data for any region of the Earth are no more than six hours old. The polar orbiters monitor the entire Earth, tracking atmospheric variables and providing atmospheric data and cloud images. The satellites provide visible and infrared radiometer data that are used for imaging purposes, radiation measurements, and temperature profiles. The polar orbiters' ultraviolet sensors also provide ozone levels in the atmosphere and are able to detect the "ozone hole" over Antarctica during mid-September to mid-November. Data from these satellites are valuable in forecasting models, especially for remote ocean areas, where conventional data are lacking.

NESDIS also operates satellites in the Defense Department's Defense Meteorological Satellite program. On May 5, 1994, President Clinton made the landmark decision to merge the Nation's military and civil operational meteorological satellite systems into a single, national system capable of satisfying both civil and national security requirements for space-based remotely sensed environmental data. As an early step in the convergence process, Satellite Control Authority for the existing DMSP satellites was transferred in May 1998 from the U.S. Air Force to NOAA. The command, control, and communications functions for the DMSP satellites have been combined with the control for NOAA's POES satellites at NOAA's facility in Suitland, Md.

In addition to operating satellites, NESDIS also manages global data bases for meteorology, oceanography, solid-earth geophysics, and solar-terrestrial sciences. From these sources, it develops and provides environmental data and information products and services. NESDIS gathers global data about the oceans, Earth, air, space, and sun and their interactions to describe and predict the state of the physical environment. Many other agencies, organizations, and individuals, both domestic and foreign, collect similar data for particular uses and missions. Once the data have

been collected, they are sent to NESDIS' national data centers. The centers archive the data to assist scientists in fully understanding Earth systems and long-term climatic, oceanographic and geophysical effects on the environment. The data centers are:

National Climatic Data Center, Asheville, N.C.; the world's largest active archive of atmospheric and climate data. NCDC archives data obtained by the National Weather Service, military services, Federal Aviation Administration, and the Coast Guard, as well as data from voluntary cooperative observers. NCDC also collects data from around the globe and has more than 150 years of data on hand. The Center provides historical perspectives on climate which are vital to studies on global climate change, the greenhouse effect, and other environmental issues. The Center stores information essential to industry, science, agriculture, hydrology, transportation, recreation, and engineering.

National Oceanographic Data Center, Silver Spring, Md.; serves to acquire, process, preserve, and disseminate oceanographic data. It ensures that global oceanographic data are maintained in a permanent archive that is easily accessible to the world science community and to other users. The NODC holds global physical, chemical, and biological oceanographic data. It receives foreign data from organizations and institutions in dozens of countries around the world. NODC also manages the NOAA Central Library, which holds more than 1 million volumes, including books, journals, data and information CD-ROMs, and audio and video tapes.

National Geophysical Data Center, Boulder, Colo. NGDC houses activities in the fields of solid earth geophysics, marine geology and geophysics, solar-terrestrial physics, and paleoclimatology. It has a cooperative agreement with the University of Colorado to handle data services for the National Snow and Ice Data Center. Although some NGDC data come from the observation programs of other NOAA activities, much more result from cooperative arrangements with universities, other government agencies, and foreign organizations. ☺

For more information contact NESDIS Public Affairs, Suitland, Md., at (301) 457-5005. NESDIS products and services are available online. <http://www.nesdis.noaa.gov>