

NOAA MOVES GEOSTATIONARY SATELLITE FOR IMPROVED COVERAGE OVER SOUTH AMERICA

A Vital Link in Global Earth Observation System of Systems (GEOSS)

The U.S. National Oceanic and Atmospheric Administration (NOAA) has announced the successful reposition of its geostationary satellite, GOES-10, to 60 degrees West to improve environmental satellite coverage over South America, a move that will help protect South Americans from natural hazards. GOES-10 arrived at its new position on December 4, 2006 and is functioning well, producing images of the southern hemisphere every 15 minutes to help predict important weather phenomenon and prepare for natural disasters.

NOAA moved the satellite in response to a formal request from the World Meteorological Organization (WMO) Regional Association 3 (Argentina, Brazil, Bolivia, Chile, Paraguay, Peru and Uruguay) and informal requests from other users in the region to consider repositioning the satellite. The request reinforced discussions with South American colleagues active in the Group on Earth Observations (GEO), which is developing the **Global Earth Observation System of Systems (GEOSS)**.

The GOES satellite move is a major U.S. contribution to the implementation of GEOSS which, over the next decade, will help make 21st-century technology as integrated as the planet it observes, predicts and protects. The vision developed in the GEOSS 10-Year Implementation Plan represents a global scientific and political view which encourages a state of the art Earth observation system, which requires continuous, coordinated observations of our planet on all scales. As a “system of systems,” GEOSS will work with and build upon national, regional and international systems to provide comprehensive, coordinated, sustained Earth observations from thousands of instruments worldwide, transforming the data they collect into vital information for society. GEOSS will meet the need for timely, quality long-term global information as a basis for sound decision-making and will enhance delivery of benefits to society in such crucial areas as disaster warnings, human health, energy and water-resource management, weather and climate variability monitoring, ecosystems, agriculture, and biodiversity.

Sixty-eight countries, the European Commission and 46 international organizations are engaged in creating GEOSS. The U.S. Group on Earth Observations (US GEO) has released a complementary Strategic Plan for the U.S. Integrated Earth Observation System.

Keeping the GOES-10 satellite in operation at 60 West longitude is enabling the GOES satellite constellation to continuously collect data over a greater portion of the Western Hemisphere and with increased frequency. Previously, data collection over South America was interrupted during severe weather events in the United States. Making GOES-10 available offset the loss of imager data to South America when NOAA’s operational GOES is placed in rapid scan mode during extreme weather events. During rapid scan mode, the imager focuses on North America and only captures data south of the equator every 3 hours, which impedes the forecasting of severe weather events in South America. During hurricane seasons in the past, the GOES

satellite would often be in rapid scan mode over 40% of the time. With GOES-10, South America is now receiving continuous coverage.

In addition, with images every 15 minutes, South America is now receiving imaging twice as frequently as it did even during standard operations. South America also now receives coverage further to the south, with imaging nearly all the way to the South Pole every 15 minutes. This capability provides coverage over the Straits of Magellan, an area where weather patterns develop quickly and one that is essential to safe ship and aviation navigation.

GOES-10 is now providing sounder data over South America. Previously, South America had never received sounder data from an operational geostationary satellite. Sounder data are used for measuring temperature and moisture variables at multiple levels of the troposphere and stratosphere. The availability of sounder data will enable improved weather forecasting in South America. It also helps build capacity as it gives South American meteorologists an opportunity to learn how to use a type of data they have had limited access to in the past.

Already data from GOES-10 has led to improvements in everyday weather forecasting and real-time weather surveillance. In addition, the satellite data is contributing to drought monitoring, fire detection in the Amazon rainforest of western Brazil and monitoring of volcanic hot spots and ash clouds.

The move of the GOES-10 satellite is truly an example of regional cooperation. Countries throughout Latin America and the Caribbean were involved in determining the optimal scheduling and tasking of the GOES-10 satellite. An ad hoc GOES-10 Operations Committee with membership from throughout the region is providing a means of disseminating information regarding the satellite operations and a forum for discussing data recording, data dissemination, product dissemination and training. In addition, Argentina and Brazil have dedicated GOES-10 receiving stations. They are receiving the data, archiving it, developing products and making the data and information available via the internet. On March 6, 2007, the Brazilian space research institute (INPE) shifted operational satellite image reception from GOES-12 to GOES-10. Real-time and historical data and products are available via the web and ftp. Information products available include cloud drift winds, precipitation, cloud tracking and nowcasting, surface solar radiation, cloud classification and detection of fire spots. Brazil also plans to make sounding products available. In May, Brazil plans to provide virtual training to teach South American users about the GOES-10 data products. NOAA is working with INPE, the Argentine space commission (CONAE), the WMO and other organizations in the region to develop a series of trainings throughout South America in Sept. 2007 on the use and application of the GOES-10 data.

The operation of the GOES-10 satellite is contingent on the maintenance of a healthy GOES satellite constellation for the United States. The successful launch and checkout of the GOES-N satellite (now GOES-13) enabled NOAA to make the GOES-10 satellite available for South America. NOAA continues to operate two geostationary satellites at 75 and 135 degrees West. The GOES-10 satellite arrived in place at 60 degrees West in December 2006.

The satellite move is an example of the type of regional cooperation that is being promoted by

GEOSS in the Americas. *GEOSS in the Americas* refers to the efforts of governments and others to support the realization of the Global Earth Observation System of Systems (GEOSS) in the Western Hemisphere. GEOSS-related activities in the Americas aim to improve the utilization of Earth observations by facilitating partnerships, encouraging the use and exchange of data, and coordinating and leveraging regional assets and resources.

GEOSS Societal Benefit Areas:

Improve Weather Forecasting

Reduce Loss of Life and Property from Disasters

Protect and Monitor Our Ocean Resource

Understand, Assess, Predict, Mitigate and Adapt to Climate Variability and Change

Support Sustainable Agriculture and Forestry and Combat Land Degradation

Understand the Effect of Environmental Factors on Human Health and Well-Being

Develop the Capacity to Make Ecological Forecasts

Protect and Monitor Water Resources

Monitor and Manage Energy Resources

www.earthobservations.org

<http://www.ssd.noaa.gov/PS/SATS/GOES/TEN/>