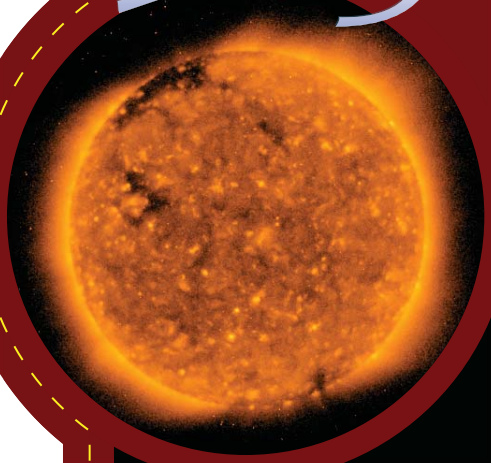
GOES



X-rays from the Sun

The Sun's atmosphere, or corona, is much hotter than its surface, and radiates strongly in x-rays. X-rays from the atmosphere give first warning of solar flares, coronal mass ejections, and other solar activities may affect us on Earth. The new Geostationary Operational Environmental Satellite (GOES)-14 satellite carries a sophisticated Solar X-ray Imager that gives early warning of these impending upsets. This early warning is important because travelling solar disturbances affect not only the safety of humans in high-altitude missions, such as human spaceflight, but also military and commercial satellite communications. In addition, coronal mass ejections can damage long-distance electric power grids, causing extensive power blackouts.

For more on NOAA operational satellites and services, see nesdis.noaa.gov.

GOES

Earth from GOES-14

The new Geostationary Operational Environmental Satellite (GOES)-14 took this image of Earth in both visible and infrared light. GOES-14 is the first in the O-series of GOES. GOES provide the kind of continuous monitoring necessary for intensive data analysis of Earth's weather and space weather events. Geostationary describes an orbit in which a satellite is always in the same position with respect to the rotating Earth. This orbit allows GOES to hover continuously over one position on Earth's surface. Thus GOES provides a constant vigil for the atmospheric "triggers" for severe weather conditions such as tornadoes, flash floods, hail storms, and hurricanes.

The GOES are built by NASA with NOAA funding and operated by NOAA.

Visit the GOES Project Science website at goes.gsfc.nasa.gov.

www.nasa.gov www.noaa.gov

The GOES Mission

GOES-14 is the latest in a series of Earth monitoring satellites. Geostationary Operational Environmental Satellites (GOES) provide the kind of continuous monitoring necessary for intensive data analysis. GOES-14 carries an imager, a sounder, and a collection of space environment monitoring instruments. The GOES are vital contributors of information for severe storm warnings (including solar storms), emergency management, and search and rescue.

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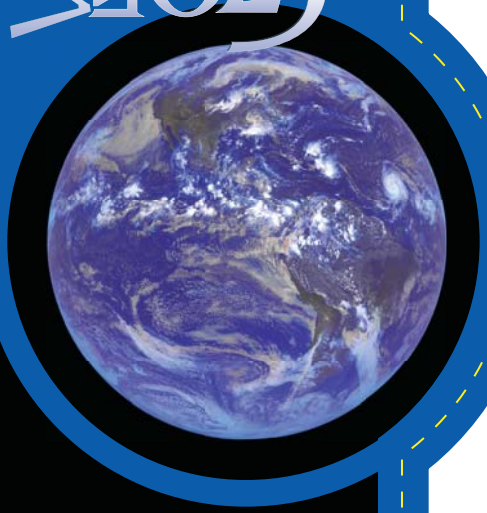

Earth from GOES-14

The new Geostationary Operational Environmental Satellite (GOES)-14 took this image of Earth on august 17, 2009, during a mid-summer heat wave in the eastern USA. Hurricane Bill appears far to the east of the Caribbean Sea. The picture is composed of data from visible and two infrared "window" channels placed in color layers of a digital image. Bright, low (warm) cloud layers appear yellow and dark, high, cold cloud layers appear blue. White clouds are both high (cold) and well lit by the Sun. The deep blue of the oceans and the brown of the continents show differences in temperature and reflectance from water and land.

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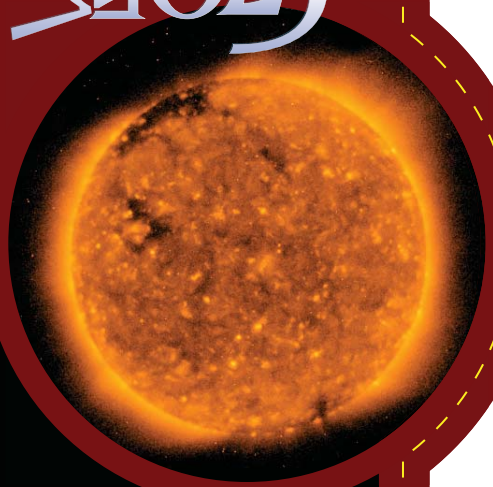

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