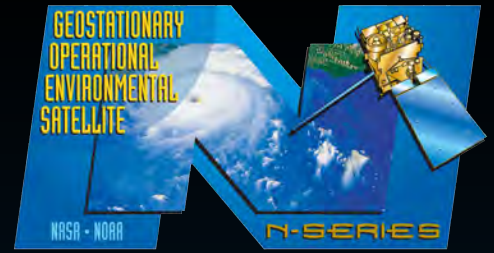


# GOES-N



GOES-N 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 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. As a result, GOES provides a constant vigil for the atmospheric "triggers" for severe weather conditions such as tornadoes, flash floods, hail storms, and hurricanes.

GOES-N carries an Imager, a Sounder, and a collection of other space environment monitoring instruments.

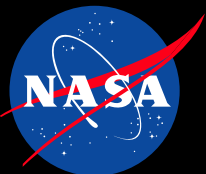
**Imager:** An imaging radiometer that uses data obtained from its five channels to continuously produce images of the Earth's surface, oceans, severe storm development, cloud cover, cloud temperature and height, surface temperature, and water vapor.

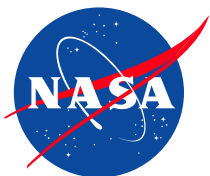
**Sounder:** Gathers atmospheric data over an approximately circular area extending from 60 degrees north to 60 degrees south latitude, allowing meteorologists to deduce atmospheric temperature and moisture profiles, surface and cloud-top temperatures, and ozone distributions by mathematical analysis and by adding to data from the Imager.

**Space Environment Monitor (SEM):** Includes three instrument groups:

- (1) an **energetic particle sensor** package, which measures the energetic particles at geosynchronous orbit, including protons, electrons, and alpha particles.
- (2) two **magnetometer sensors** that measure the magnitude, direction, and variation of Earth's geomagnetic field, and provide alerts of solar wind shocks or sudden impulses that impact the magnetosphere.
- (3) a **solar x-ray sensor (XRS)**, an x-ray telescope that observes and measures solar x-ray emissions in two ranges. In real time, it measures the intensity and duration of solar flares in order to provide warnings of potential disruption of radio communications and Global Positioning System (GPS) signals.

**Solar X-ray Imager (SXI):** Uses a telescope assembly to observe the sun's x-ray emissions and provide early detection and location of solar disturbances. These observations allow space weather forecasters to monitor solar features and activities such as solar flares, loops, coronal holes, and coronal mass ejections--clouds of charged particles shooting toward Earth from the Sun.





# GOES-N



## GOES-N Search and Rescue:

GOES is also part of the COSPAS-SARSAT search and rescue system. Emergency signals transmitted from aircraft, marine vessel, or individual emergency locator transmitters are relayed to a mission control center, from which rescue efforts can be dispatched. Since its inception in 1982, COSPAS-SARSAT has initiated the rescue of over 18,000 people.

## Launch:

Cape Canaveral Air Force Station, FL

Launch Vehicle: Boeing Delta IV

Launch Date: May 24, 2006, 6:11 pm EDT

GOES N initial orbit target at rocket separation.

- Orbit apogee altitude\* 36,000 km (22,300 mi)
- Orbit perigee altitude\* 6,622 km (4,115 mi)
- Inclination 12.0 deg

The spacecraft then performs a series of maneuvers to finally achieve a geosynchronous orbit at 33,900 km (22,300 mi) above Earth's surface.

\* Based on a 6,378-km (3,963-mi) Earth radius



Boeing Delta IV (4-m fairing with 2 solid strap-on motors) at Cape Canaveral, FL

## Acronyms:

EPS: Energetic Particle Sensor

EUV: Extreme Ultra-violet sensor

GOES: Geostationary Operational Environmental Satellite

SEC: Space Environment Center

SEM: Space Environment Monitor

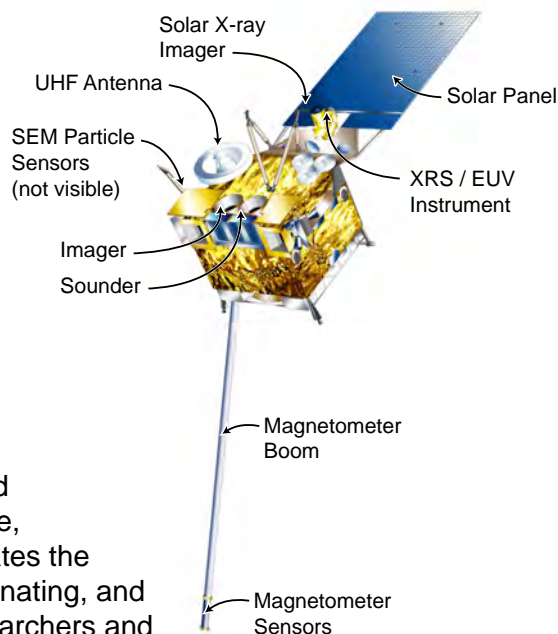
SXI: Solar X-ray Imager

UHF: Ultra-high frequency

XRS: (Solar) X-ray Sensor

## NOAA and NASA Partnership:

NASA's Goddard Space Flight Center procures, develops, tests, and delivers the GOES to orbit. NOAA's National Environmental Satellite, Data and Information Service (NESDIS) manages, funds, and operates the GOES. NOAA is also responsible for processing, analyzing disseminating, and archiving all operational data, which is available to government researchers and others for research and environmental applications.



<http://www.nasa.gov/goes-n>

<http://www.noaa.gov>

<http://goespoes.gsfc.nasa.gov/goes>