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# NOAA Global Observing Platforms

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NOAA's mission is to understand and predict the oceans and atmospheres on timescales from minutes to centuries. To accomplish this goal, NOAA has deployed an array of global sensors that work together to provide the data needed by scientists. The complementary systems shown on this poster present a picture of the state of the global oceans and atmosphere. Each "tier" operates from a different altitude, with different instruments, to observe our planet.

### ***Tier 3: Geostationary Operational Environmental Satellites***

NOAA's two GOES satellites monitor the Western Hemisphere and the Pacific Ocean from geostationary orbit, 35,800 kilometers above the equator. They provide a comprehensive and nearly continuous view of the earth, with hourly pictures over the entire hemisphere and images as often as every few minutes over areas of the United States when severe weather threatens. The satellites provide images in one visible and four infrared channels, allowing characterization of surface temperatures and vegetation, among many other uses. They continuously track hazards such as volcanic plumes and forest fires. Infrared radiometers aboard the GOES satellites help estimate atmospheric temperature and moisture profiles for use in weather prediction models.

GOES is an "operational" system, meaning that since the first GOES satellite was launched in 1974 successive satellites have been launched as older ones reach the end of their life span. GOES satellites are currently scheduled out to the year 2012, with a new series planned to ensure continuous coverage into the future. ([www.oso.noaa.gov/goes/](http://www.oso.noaa.gov/goes/))

### ***Tier 2: Polar-orbiting Operational Environmental Satellites***

From altitudes of about 850 kilometers, NOAA's two operational polar orbiting satellites scan the entire earth once every six hours. In addition to infrared and visible sensors, the polar orbiters have an array of microwave radiometers that can "see" through clouds, allowing calculation of global upper air temperatures and detection of other geophysical phenomena such as ice concentration. An exciting array of new sensors is being investigated for use in the next generation of polar orbiting satellites, including advanced microwave instruments to detect

atmospheric water vapor and determine sea surface winds and surface characteristics. New sensors for ozone measurements, space environment sampling, and limb soundings will also be on this powerful satellite constellation.

In cooperation with POES, EUMETSAT's Environmental Polar-orbiting System (EPS) will begin flying Metop satellite series in 2005. In 2009 the next generation of polar satellites will converge the civilian POES system with the Defense Meteorological Satellite Program (DMSP) into the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a NOAA-led system with new generation sensors. ([www.oso.noaa.gov/poes/](http://www.oso.noaa.gov/poes/)) ([www.npoess.noaa.gov](http://www.npoess.noaa.gov))

### ***Tier 1: Air Platforms***

NOAA aircraft have a rich history of investigating hazardous weather, which has led to better prediction of hurricanes, tornadoes, winter storms, and almost every type of weather that affects the nation. NOAA's Gulfstream is a new and powerful addition to the arsenal of aircraft that is used to observe hurricanes and improve their track forecasts. NOAA is also investigating a new generation of unmanned aeronautical vehicles (UAVs) for use in its global weather and climate prediction. These UAVs could provide very accurate vertical soundings of atmospheric conditions and chemical composition to complement the satellite sensors. ([www.oma.noaa.gov](http://www.oma.noaa.gov))

### ***Tier 0: Surface and Submarine Platforms***

NOAA ships have explored the ocean surface and plumbed its depths. NOAA, along with several other organizations, is now deploying an innovative array of Argo "floats" that descend several thousand meters into the ocean and then rise again to measure temperature, salinity, and current. Several years ago, NOAA deployed the TAO/TRITON array of buoys in the tropical Pacific that helped to predict the El Nino/La Nina cycle. NOAA continually develops more advanced concepts for observing the ocean and land, and supports surface and upper air networks over the United States. ([www.argo.ucsd.edu](http://www.argo.ucsd.edu)) ([www.pmel.noaa.gov/tao/](http://www.pmel.noaa.gov/tao/))

*NOAA is a major contributor to the overall global observing system. There are other major contributors, both domestic and international.*