

Aqua

Earth Observing System

THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

Aqua Earth Observing System

Most long-term environmental change slips into our lives unnoticed. Then comes the shock of recognition: the rainy season is longer, the trees are blooming earlier, what were once freak storms have become routine. What's going on here? When did this happen?

The Aqua Earth Observing System satellite is helping us better understand the causes and effects of global change. Data from its scientific instruments allows researchers to begin to piece together answers to some fundamental questions: What natural and human forces are at work? How do they interact? What can we predict? How can we prepare? What can we prevent?

Aqua is one of a series of orbiting Earth Observing System platforms that are central to NASA's Earth Science Enterprise, a long-term study of the planet and its processes. The program comprises remote sensing spacecraft, a data distribution system and international, multi-disciplinary teams of researchers. Its goal: provide a scientific basis for understanding the scope, dynamics and implications of global change.

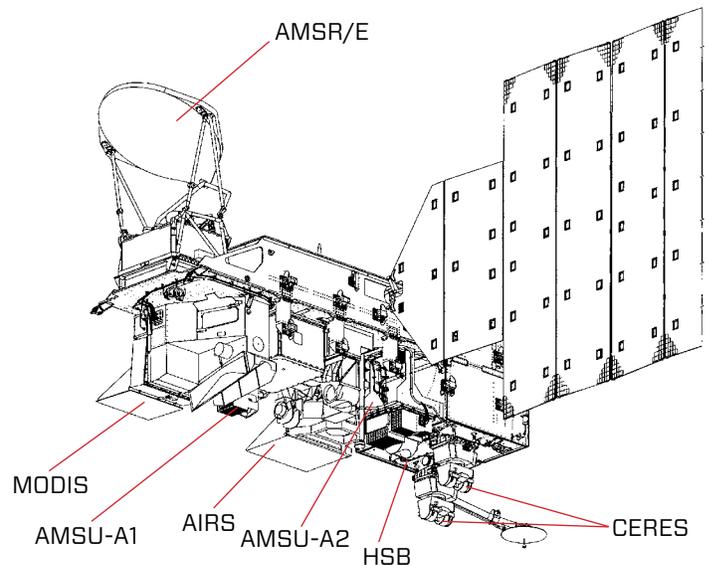
Launched in 2002, Aqua is collecting climate-related data with on-board sensors that measure clouds, precipitation, atmospheric temperature/moisture content, terrestrial snow, sea ice, and sea surface temperature. Flying in low-Earth orbit, Aqua passes over the same position each afternoon, allowing the comprehensive measurements needed to assess long-term change.

Northrop Grumman built the Aqua space platform and integrated its NASA-provided instruments. The spacecraft is based on Northrop Grumman's modular, standardized T330 bus, a design with common subsystems easily scalable to the mission-specific needs of this and future Earth observing missions. Comfortable weight, power and footprint margins readily accommodate payload replacement/refinement without impacting the basic design or the development schedule.

Aqua Specifications

Size	8.8 ft (2.68 m) x 8.1 ft (2.47 m) x 21.3 ft (6.49 m) stowed 15.7 ft (4.78 m) x 55.9 ft (17.03 m) x 21.9 ft (6.67 m) deployed
Weight	6,662 lb (3,022 kg) 4,277 lb (1,940 kg) (spacecraft) 2,385 lb (1,082 kg) (instruments)
Electrical Power	4,740 W EOL
Telemetry	S-band (TDRSS and Deep Space Network/ground network compatible)
Orbit	438 mi (705 km) polar, sun-synchronous

SN-100-Based Explorer Proposals



	Instrument	Sponsor/Developer
AIRS:	Atmospheric Infrared Sounder	NASA JPL/ Lockheed Martin
AMSR/E:	Advanced Microwave Scanning Radiometer-EOS	NASDA/Mitsubishi
AMSU-A1, A2:	Advanced Microwave Sounding Unit - A1, A2	NASA GSFC/Aerojet
CERES:	Clouds and the Earth's Radiant Energy System	NASA LaRC/ Northrop Grumman
HSB:	Humidity Sounder for Brazil	Brazil/Matra Marconi
MODIS:	Moderate Resolution Imaging Spectroradiometer	NASA GSFC/ Santa Barbara Remote Sensing