

AQUA

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Agency supporting the mission: NASA

Mission orbital parameters

Purpose	Precession rate	Orbit radius	Long. of ascending node	Inclination	Repeat time
The purpose of the Aqua mission is to observe and measure various parts of Earth's water cycle...including the oceans, atmosphere, land, ice and snow, and vegetation. Other features of the earth system can also be monitored, such as radiation flux from the Sun and Earth, as well as studies of aerosols and trace atmospheric gases.	Sun-synchronous, near circular, near polar	705 km + a	Equatorial Crossing of Asc. Node: 1:30 PM	98.2 degrees	16 days (233 revolutions)

Launch Date/Time for Aqua: May 2, 2002/ 0955Z

Instr. Name	Purpose	Wavelength range (units)	# of Channels	Spectral resol (units)	Horiz swath (units)	Horiz resol (units)	Vert resol (units)	Data rate	Launch -& end dates
Atmospheric Infrared Sounder (AIRS)	Measures Humidity, Temperature, Cloud Properties, and the Amounts of Greenhouse Gases.	0.4-15.4 μ m	2,382	1200	1,650 km	13.5 km (Infrared) 2.3 km (Visible)	1 km	1,270 kb/s	Lifetime: 5 years
Advanced Microwave Scanning Radiometer for EOS (AMSR-E)	Measures Precipitation Rate, Cloud Water, Water Vapor, Sea Surface Winds, Sea Surface Temperature, Ice, Snow and Soil Moisture.	0.34-4.35 cm Frequency: 6.9, 10.7, 18.7, 23.8, 36.5, and 89 GHz	12		1,445 km	5-60 km		87.4 kb/s	Lifetime: 3 years
Advanced Microwave Sounding Unit (AMSU-A)	Obtains Temperature Profiles in the Upper Atmosphere and Provides a Cloud-Filtering Capability for Tropospheric Temperature Observations.	0.3-1.3 cm Frequency: 23-90 GHz	15		1,690 km	40.5 km		2.0 kb/s	Lifetime: 3 years
The Clouds and The Earth's Radiant Energy System (CERES)	Measures the Earth's Total Thermal Radiation Budget, and in combination with MODIS, Provides Information About Clouds.	0.3-5 μ m (1 channel) 0.3 -> 100 μ m (1 channel) 8-12 μ m (1 channel)	3		"Limb to Limb"	20 km		20.0 kb/s	Lifetime: 5 years

The Humidity Sounder for Brazil (HSB)	Obtains Humidity Profiles Throughout the Atmosphere even under conditions of heavy cloudiness and haze.	0.16-0.20 cm Frequency: 150 GHz (1 channel) 183.31 GHz (3 channels)	4		1,650 km	13.5 km		4.2 kb/s	Lifetime: 3 years
Moderate Resolution Imaging Spectrometer (MODIS)	Measures Visible and Infrared Radiation and Obtains Data that is used to derive products ranging from vegetation, land surface cover, and ocean chlorophyll fluorescence, to cloud and aerosol properties, fire occurrence, snow cover on land, and sea ice cover.	0.4 – 14.6 μm	36		2,330 km	250, 500, or 1000 m		6,487 kb/s	Lifetime: 5 years

Good reference web pages

http://www.nasa.gov/mission_pages/aqua/

<http://aqua.nasa.gov/>

Satellites

1. Aqua (NASA, 6 sensors)