

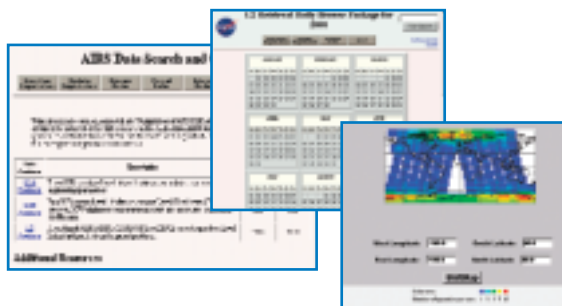
## Data Access

AIRS data will be available in HDF-EOS format (for information about HDF-EOS, please visit <http://hdfeos.gsfc.nasa.gov>). Access is provided through either the online GES DISC DAAC Search and Order System or the Earth Observing System Data Gateway.

### DAAC Search and Order

<http://acdisx.gsfc.nasa.gov/data/>

The GES DISC DAAC Search and Order enables users to request data efficiently through hierarchical architecture. This simple point-and-click navigational web interface shows temporal coverage, number of items, average item size, description and browse images for the AIRS data products available. One can search for data by following particular paths down the hierarchy. At certain levels of the hierarchy, you can also use spatial, temporal, orbital and parameter search features to customize your search.



### EOS Data Gateway

<http://eos.nasa.gov/imswelcome/>

The EOS Data Gateway (EDG) is the interface to all data available in NASA's Earth Observation System Data Information System and related data centers. With EDG, a user can search for and acquire a large variety of earth, ocean and atmospheric science data obtained from EOS instruments.



## Data Support

The Atmospheric Dynamics Data Support Team at NASA Goddard Earth Sciences Data and Information Service Center/Distributed Active Archive Center (GES DISC DAAC) provides science and data support to assist others in understanding, accessing and using the AIRS data products. Services include assistance with:

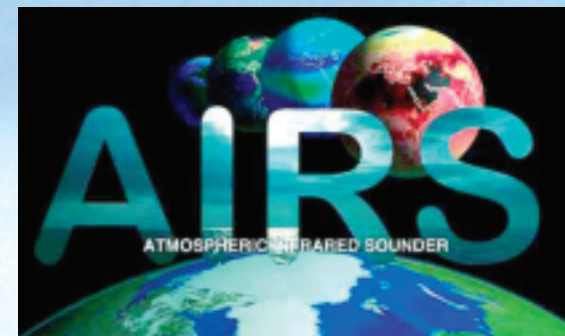
- product ordering and distribution
- access of various technical documents
- on-line data visualization and analysis
- on-the-fly and on-demand channel/variable sub-setting
- data mining (i.e. integrate and run user-provided data reduction algorithms to routinely generate value-added products)
- data format and tools support
- help desk for various user questions and request
- educational resources

For questions or comments, please contact:  
E-mail: [atmdyn-dst@daac.gsfc.nasa.gov](mailto:atmdyn-dst@daac.gsfc.nasa.gov)



NP-2001-11-399-GSFC

## Atmospheric Infrared Sounder

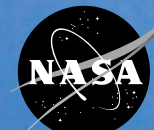


## Earth Observing System Aqua Platform Launching 2002

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GES DISC DAAC  
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<http://daac.gsfc.nasa.gov/atmdyn/>

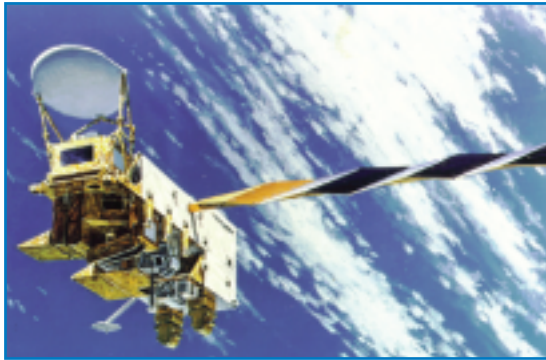


National Aeronautics and  
Space Administration

**Goddard Space Flight Center**  
Greenbelt, Maryland 20771

## About AIRS

The **Atmospheric Infrared Sounder** (AIRS) is a facility instrument aboard the second Earth Observing System (EOS) polar-orbiting platform, EOS Aqua. In combination with the Advanced Microwave Sounding Unit (AMSU) and the Humidity Sounder for Brazil (HSB), AIRS constitutes an innovative atmospheric sounding group of visible, infrared, and microwave sensors.



Artist rendition of EOS Aqua in orbit.

The scientific objective for the AIRS instrument is to provide long-term monitoring of the Earth's climate. AIRS data will significantly improve weather prediction by determining global atmospheric profiles with greater accuracy than currently deployed instruments. These sensors will be able to measure atmospheric temperature at an accuracy of 1 °C in layers 1 km thick, and humidity at an accuracy of 20% in layers 2 km thick in the troposphere.

AIRS data will be generated continuously. Global coverage will be obtained twice daily (day and night) on a 1:30 p.m. sun synchronous orbit from a 705-km altitude. For processing convenience, the data along the orbit will be divided into 6-minute scenes. Each orbit has approximately 16 scenes since each orbit takes 98.8 minutes.

## Instrument Characteristics

The chart below details the specifications of each instrument in the AIRS suite. The chart to the lower right lists product information.

### FACTS ABOUT AIRS

Size:	stowed: 116.5 x 80 x 95.3 cm deployed: 116.5 x 158.7 x 95.3 cm
Mass:	177 kg
Power:	220 W
Data Rate:	1.27 Mbps
Spectral Range:	IR: 3.74 - 15.4 $\mu$ m Vis/NIR: 0.4 - 1.0 $\mu$ m
Channels:	IR: 2378 Vis/NIR: 4
Aperture:	10 cm
Instrument Field of View:	IR: 1.1° (= 13.5 km @ nadir) Vis/NIR: 0.2° (= 2.3 km @ nadir)
Swath Width:	99° (= 1650 km)
Scan Sampling:	IR: 90 x 1.1°
Pointing Accuracy:	IR: 0.1°
Thermal Control:	IR detectors: active cooler @ 60 K Passive radiator @ 150 K
Prime Contractor:	British Aerospace Systems (formerly Lockheed-Martin)
Responsible Organization:	Jet Propulsion Laboratory



AIRS

### FACTS ABOUT AMSU

Instrument:	AMSU-A1	AMSU-A2
Size:	72 x 34 x 59 cm	73 x 61 x 86 cm
Mass:	49 kg	42 kg
Power:	77 W	24 W
Data Rate:	1.5 kbps	0.5 kbps
Spectral Range:	50 - 90 GHz	23 - 32 GHz
Channels:	13	2
Aperture:	15 cm (two)	30 cm (one)
Instrument Field of View:	3.3° (= 40.5 km @ nadir)	3.3° (= 40.5 km @ nadir)
Swath Width:	100° (= 1690 km)	100° (= 1690 km)
Scan Sampling:	30 x 3.33°	30 x 3.33°
Pointing Accuracy:	0.2°	0.2°
Thermal Control:	None (ambient)	None (ambient)
Prime Contractor:	Aerojet	Aerojet
Responsible Organization:	NASA/GSFC	NASA/GSFC



AMSU-A1

### FACTS ABOUT HSB

Size:	70 x 65 x 46 cm
Mass:	51 kg
Power:	56 W
Data Rate:	4.2 kbps
Spectral Range:	150 - 190 GHz
Channels:	4
Aperture:	18.75 cm (one)
Instrument Field of View:	1.1° (= 13.5 km @ nadir)
Swath Width:	99° (= 1650 km)
Scan Sampling:	90 x 1.1°
Pointing Accuracy:	0.1°
Thermal Control:	None (ambient)
Prime Contractor:	Matra Marconi Space (UK)
Responsible Organization:	INPE (Brazil)



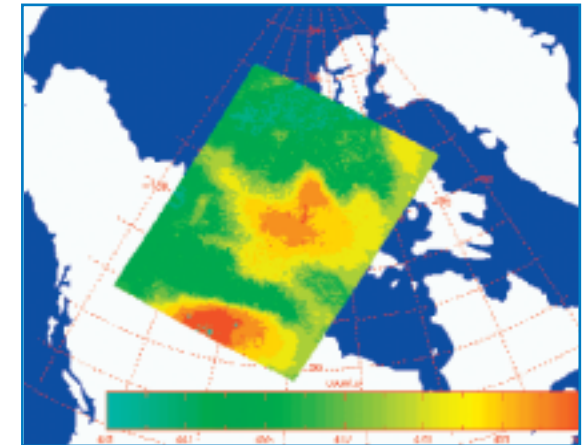
AMSU-A2



HSB

AIRS  
AMSU  
HSB

## Data Products



AIRS L1A simulated data counts (channel 201) for September 13, 1998.

Level 1A	
	Geo-located science data counts Engineering parameters
Level 1B	
	Calibrated geo-located radiance Brightness temperature Calibration coefficients
Level 2	
Flux Products	Clear-column radiance Outgoing longwave radiation at the top of the atmosphere Outgoing shortwave radiation at the top of the atmosphere Net longwave flux at the surface Net shortwave flux at the surface
Atmospheric Temperature Products	Temperature profile (30 levels) Troposphere height Stratosphere height
Humidity Products	Water vapor profile Total precipitable water Cloud liquid-water content Precipitation indication Cloud-ice indication
Cloud Products	Cloud-top pressure Cloud-top temperature Fractional cloud cover Cloud optical properties Cloud type
Ozone Products	Ozone profile Total ozone
Trace Constituent Products	Methane Carbon monoxide
Surface Analysis Products	Sea surface skin temperature Land surface skin temperature Infrared surface emissivity Microwave surface emissivity