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Internationally Recognized as the Operational Imager for Global Weather Data POES AVHRR/3



ITT's Advanced Very High Resolution Radiometer (AVHRR) flies on all NOAA Polar-orbiting Operational Environmental Satellites (POES). The third generation AVHRR has resulted in improvements in performance and operational capabilities, and improved spectral performance: low light energy detection, snow/ice discrimination, forest fire detection, sea surface temperature, and global vegetation index.

The AVHRR/3 sensor is a six-channel imaging radiometer that detects energy in the visible and infrared portions of the electromagnetic spectrum. It measures reflected solar and radiated thermal energy from the land, clouds, sea and the atmosphere. The information collected is used as the primary source for global updates of meteorological data and is a vital tool used by scientists and many others to determine environmental changes that effect everyone on earth.

Key Features

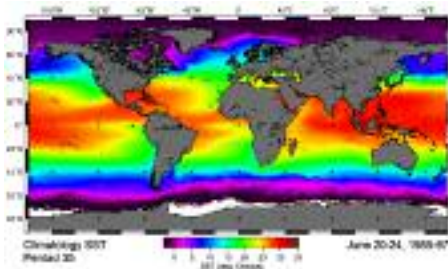
Application	Operational atmospheric and surface imagery from low earth orbit
Satellites	NOAA's: K,L,M,N, and N'; Metop-1; Metop-2
Orbit	Low earth orbit @ 833 km (450 miles)
Technology	Continuously rotating (360 rpm) crosstrack scanner with multiband relay optics and continuous internal thermal calibration
Aperture	20.3 cm (8 inches)
Spatial Resolution	1.1 km (1310 microradians) in all channels
Channel Registration	Better than 100 microradians
Sensitivity	Ch 1 and Ch 2 – 9:1 S/N for 0.5% Albedo Ch 3A – 20:1 S/N for 0.5% Albedo Ch 3B, Ch 4, and Ch 5 – <0.12°K at 300°K Scene Temperature
Detector Cooling	2-stage passively cooled radiator (controlled to 105°K)
Detectors	Photoconductive HgCdTe, Photovoltaic InGaAs, InSb and Silicon

Specifications

Spectral Channels, Detectors, and Purpose

Ch.	Wavelength μm	Wave Number cm^{-1}	Detector Type		Purpose	
1	0.63	15,873	Silicon	Cloud Cover	Snow Cover	Vegetation Index
2	0.863	11,587	Silicon	Earth Radiation Budget	Surface Water Boundaries	Vegetation Index
3A	1.61	6,211	In-Ga-As	Snow/Cloud Cover	Water/Ice Clouds	Vegetation Canopy Moisture
3B	3.72	2,688	In-Sb	Water Vapor Correction	Thermal Mapping	
4	10.8	926	Hg-Cd-Te	Thermal Mapping		
5	12.0	833	Hg-Cd-Te	Water Vapor Correction	Thermal Mapping	

Operational Surface and Image Products



The Climatology Sea Surface Temperature (SST) data is a reprocessing of historical AVHRR SST record data, dating back to 1985. It's produced by the Physical Oceanography Distributed Active Archive Center at the Jet Propulsion Laboratory/Caltech.

Third Generation METSAT Imager

- 6 spectral channels
- 1.1 km diameter FOV
- Small size: 30x 40x 80cm
- Low weight: <33 kg
- Low power: <29 W
- Data rate: <670 Mbps
- > 5 year demonstrated on-orbit life (3 year requirement)

Sensor Provides

- Irreplaceable calibrated radiometric inputs to the numerical weather forecast models for every continent in the world.
- Significant events imagery tracking: floods – fires – snow storms – hurricanes – volcanoes – dust storms.

ITT provides a full range of remote sensing and GPS navigation solutions. For further information, contact us at:

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