VIIRS

Visible Infrared Imaging Radiometer Suite

FACT

Mission
Collects images and radiometric data used to provide information on the Earth's clouds, atmosphere, oceans and land surfaces

Instrument Contractor
Raytheon Company,
El Segundo, California

22 Spectral Bands Coverage
from 412 nm to 12 µm

Nadir Resolution
400 m

Scanned Swath
3000 km (max)

Average Data Rate
7,674,000 bps

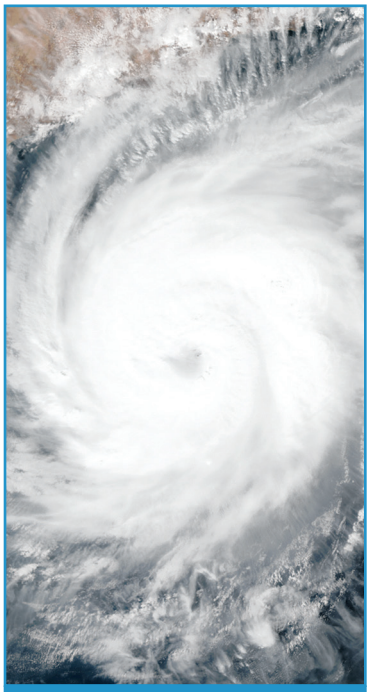
What is VIIRS?

The Visible Infrared Imaging Radiometer Suite (VIIRS) instrument collects visible and infrared imagery and global observations of land, atmosphere, cryosphere and oceans.

Currently flying on the Suomi NPP satellite mission, VIIRS generates many critical environmental products about snow and ice cover, clouds, fog, aerosols, fire, smoke plumes, dust, vegetation health, phytoplankton abundance and chlorophyll. VIIRS will also be on the JPSS-1 and JPSS-2 satellite missions.

VIIRS features daily multi-band imaging capabilities to support the acquisition of high-resolution atmospheric imagery and other instrument products, including visible and infrared imaging of hurricanes and detection of fires, smoke and atmospheric aerosols.

VIIRS extends and improves upon a series of measurements initiated by the Advanced Very High Resolution Radiometer (AVHRR), the Moderate Resolution Imaging Spectroradiometer (MODIS) and the Operational Linescan System (OLS). VIIRS has better spatial resolution with a larger swath as compared to legacy imagers. In fact, it was the VIIRS' Day/Night Band sensor that captured the widely popular and beautiful Earth at Night" Black Marble image.



Tropical Cyclone Chapala as seen by Suomi NPP's VIIRS instrument on 11/1/2015
Credit: NOAA/NASA

Benefits

VIIRS generates products for the operational weather community that improves weather, flooding and storm forecasting abilities, which help to protect life and property.

The maritime forecasting products of sea ice and ocean nutrients from VIIRS also help the maritime and commercial fishing industries—further improving vessel routing and making fishery management more efficient. The agricultural industry benefits from fire monitoring and vegetation index—along with weather warnings—which are critical to production yield.

VIIRS produces higher-resolution and more accurate measurements of sea surface temperature, as well as an operational capability for ocean-color observations and products. Ocean-color is an indicator of water quality supporting a wide range of decisions from fishing to tourism. The VIIRS' Day/Night Band also provides nighttime imagery, which is essential for Alaska during the winter months.

VIIRS provides global coverage twice a day with 750 m resolution across its entire scan. This represents twice the coverage of its predecessors and a substantial improvement for ocean ecology and carbon research studies, as well as for establishing accurate estimates of sea surface temperature which are essential for predicting hurricanes and other types of severe weather.