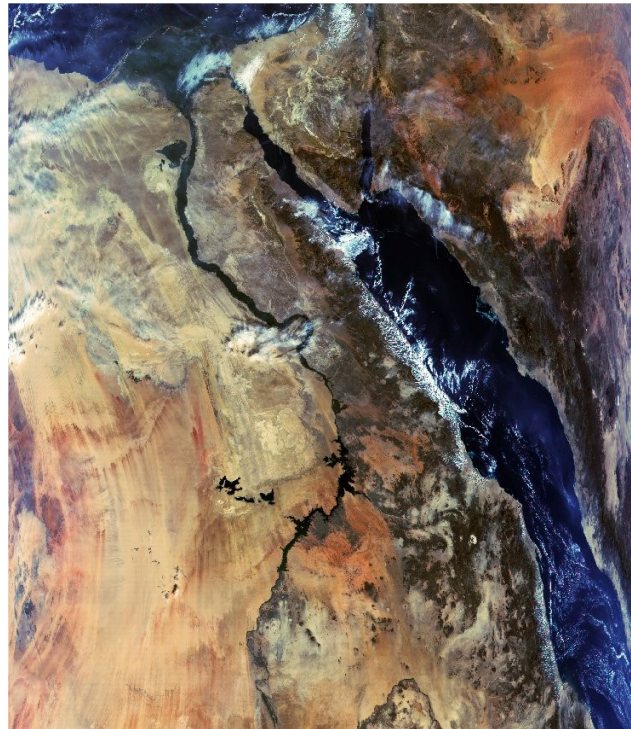


VxEos Multimission Satellite Ground System

Turnkey solution for medium resolution satellite data reception

Features and Benefits

- Affordable turnkey solution for reception and processing of EOS Terra and Aqua and future planned FY3, NPP and NPOESS and other medium resolution satellites with an X-band direct broadcast downlink.
- Built on proven ground station technology in operation around the world.
- Choice of reflectors and RF front ends.
- X-Y pedestal with no overhead cone-of-silence for complete hemispherical coverage.
- Reduced maintenance costs due to the low slew rates needed for X-Y tracking of low earth orbiting satellites and therefore minimised wear and tear on gearboxes and mechanical components.
- Optional sandwich foam core radome, impedance matched for reception of X-band transmissions around 8 GHz.
- Optional L-band and/or S-band front end, reception and processing for NOAA POES, FY1 and MetOp data.
- Antenna control and status over standard TCP/IP network interface.
- Program track, using two-line elements and orbital model, with optional auto-track.
- Compact design using small footprint integrated or rackmount receivers and plug-in data capture cards.
- High specification, dual processor, off-the-shelf PC workstations running Linux or MS Windows. Use of off-the-shelf components reduces maintenance costs.
- Fully automated scheduling, tracking, reception processing and archiving, completely configurable through the use of processing schedules and scripts.
- User friendly graphical user interfaces for all aspects of configuration, processing and visualisation of MODIS, AMSR-E and other sensor data.
- Realtime quick look of received data.
- Standard NASA GSFC, IMAPP and SeaDAS L0, L1 and L2 processors and data products.
- Import of NASA GSFC, IMAPP and SeaDAS HDF and HDF-EOS archived data products.
- Automated or manual image re-projection and mosaicing to user-definable geocoded areas of interest in a number of different standard map projections.



MODIS false colour composite of Egypt, the Nile and the Red Sea.

Overview

The VxEos Ground System is eOsphere's ground system designed for users who want to receive and process data from EOS Terra and Aqua MODIS, the future planned FY3, NPP and NPOESS satellites and other medium resolution remote sensing satellites with an X-band downlink.

Basic components of the system include a parabolic reflector, X-Y pedestal, RF/IF electronics, data capture, processing and visualisation system and ground system control software to automate the process of scheduling tracking, reception, processing and archiving of received data.

The system uses a fully automated software telemetry processing system to generate standard Level 0 Production Data System and NASA GSFC and IMAPP processors to generate L1 and L2 products running on high specifications PCs, typically Linux or MS Windows dual or single 3+GHz quad core CPUs based PCs, with 4GB memory, 160+750 GB disk storage, DVD writer, PCIe graphics and flat panel monitors.

A range of options are available including a range of different size reflectors, radomes, L-band reception and processing for the NOAA POES, FY1 and MetOp satellites, offline and online archive systems and hardcopy devices.

Features and Benefits (continued)

- Integrated, fully featured image viewer for visualisation and processing of received imagery, including:
 - Multiple image windows for concurrent display of different images or channels,
 - Grey scale or false colour composite display, both as single frames and as animation sequences,
 - Interactive real-time zooming and panning of displayed imagery,
 - Re-projection to standard map areas,
 - Contrast & colour palette enhancements,
 - Statistical measures and plots,
 - Convolution filters,
 - User definable vector, symbol and text annotations,
 - Geographic feature vector overlays and basemap underlays,
 - Export to standard bitmap formats (PNG, JPG, GeoTIFF etc.).
- Programmers API for interfacing to received data and system libraries.



VxEos 2.4m X-band only antenna during installation at Shanghai Ocean University, China in 2007.

Technical Specifications

Antenna and RF

- 2.4m or 2.6m parabolic reflector.
- X-Y tracking pedestal for full hemispherical coverage with no cone-of-silence, better than 0.1° pointing accuracy.
- X-band LNA and down-converter for all frequencies from 7.7 to 8.4 GHz and an IF of 720 MHz.
- System G/T ~24 dB/K.
- GPS for accurate clock synchronization.

Environmental

- Temperature: -20 to +55 °C (operational)
-30 to +60 °C (survival).
- Humidity: 0 to 100 % RH
- Wind: 80 km/h (operational)
160 km/h (survival)
240 km/h (in radome)

Data Acquisition

- High specification 3.6 Ghz Intel Xeon based PC, 1 GB RAM, 40+400 GB HDD, Linux or MS Windows.
- Drive-bay DSP-based MODIS receiver.
- High speed synchronous serial interface card.
- Configurable software telemetry processor.

Data Processing

- High specification dual or single 3.0+ Ghz Intel Xeon quad core 64-bit based PCs, 2 or 4 GB RAM, 160+750 GB HDD, 19-24" flat panel monitors, Linux or MS Windows.
- NASA GSFC and IMAPP L0, L1 and L2 processors (SPAs).

Optional Components

- Sandwich foam core radome for increased protection against the elements.
- 2.8m, 3.0m or larger parabolic reflector.
- Dual L/X-band feed, down-converter, receiver and processors for NOAA POES, FY1 and MetOp reception and processing.
- 24 TB+ Networked Attached Storage device
- 160/320 GB Super DLT tape drive for archive and retrieval of received data.