

# **VIIRS: The Next Generation Visible-Infrared Imaging Radiometer**

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VIIRS: The Next Generation Visible-Infrared Imaging Radiometer Robert E Murphy<sup>1</sup>, John E Clement<sup>2</sup>, Debra Olejniczak<sup>3</sup> The Visible Infrared Imaging Radiometer Suite (VIIRS) is a moderate resolution imaging radiometer designed to continue many environmental measurements initiated by the Advanced Very High Resolution Radiometer (AVHRR) on the operational NOAA polar orbiters, the Operational Linescan System on the Defense Military Satellite Program (DMSP) operational satellites, and the Moderate Resolution Imaging Spectroradiometer (MODIS) on the Terra and Aqua research missions. VIIRS is a central part of the National Polar-Orbiting Operational Satellite System (NPOESS); it will fly on all NPOESS platforms and on the NPOESS Preparatory Project (NPP) beginning in late 2006. VIIRS has 22 spectral bands that range from 412 nm to 12 microns. Spatial resolution at nadir is 370 m for 5 bands and 740 m for 17 bands. It has a wide swath, yielding complete global coverage in one day. When the full operational system is deployed, VIIRS will be in three orbit planes, resulting in an 8-hour refresh period for all bands. All data will be transmitted to ground receiving stations and relayed to up to four central processing centers where it will be processed into 23 Environmental Data Records (Level 2 products) for use by U.S. governmental agencies for both research and operational purposes. All data will be stored in the NOAA Long Term Archive that will provide broader access to non-real-time data. In addition, all data will be continuously broadcast at X-band where it can be received by any properly equipped ground station with a 1-m class antenna. Data products include land, ice and sea surface temperature, vegetation index, land cover, ocean color, snow cover, cloud cover, and cloud and aerosol properties. This paper will present a summary of the design features of VIIRS, its expected radiometric and spectral properties, and the standard data products and their expected accuracies. 1 Integrated Program Office and George Mason University 2 Raytheon Santa Barbara 3) Northrop Grumman Space Technologies