The 36 channel Moderate Resolution Imaging Spectroradiometer (MODIS) has been a benchmark for high resolution visible and infrared environmental imagery since the first instrument was launched on December 18, 1999. Its successor, the Visible Infrared Imager Radiometer Suite (VIIRS) was launched on the Suomi National Polar-orbiting Partnership (S-NPP), the first of the JPSS constellation, on October 28, 2011. Starting with Suomi NPP, VIIRS replaces — and improves upon — three different legacy sensors with a single instrument: AVHRR onboard EUMETSAT Polar System Metop and NOAA POES, MODIS onboard NASA’s Terra and Aqua, and OLS onboard DMSP. Comparisons and differences between MODIS and VIIRS, as well as the OLS Day/Night Band and VIIRS, are shown here.

The addition of a day/night band (DNB) to VIIRS allows for the detection of phenomena previously difficult or impossible to detect with MODIS, as shown in Figures 7 – 9 below:

- **Figure 7: Low clouds at night**
  Night time detection of low clouds is difficult in thermal IR (left). VIIRS DNB easily detects marine layer (right).

- **Figure 8: DNB Wildfires**
  VIIRS can detect fires, smoke plumes, and city lights at night, giving fire fighters vital overnight coverage.

- **Figure 9: DNB Blackouts**
  Before and after images from VIIRS DNB illustrates regions of power blackouts.