Suomi NPP VIIRS –
Day Night Band (DNB)

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Joint Laboratory Meeting
Tuesday, April 3, 2012
• 10/28/2011: Launched on NPP from VAFB
• 11/08/2011: VIIRS instrument powered on
• 11/16/2011: NPP reaches Mission Orbit – all burns are done
• 11/21/2011: VIIRS Nadir Door opened
• 11/22/2011: First Ocean Chlorophyll image (from Gene Feldman)
• 01/19/2012: First thermal data (cooler door opened)
First Light Image (Nov. 21)
First Global Light Image (Nov. 24)
Compared to OLS, the improvement in the VIIRS DNB resolution is 14X at nadir and 53X at the edge of scan. This will make significant impacts in the use of nighttime light data for land applications.
Improvements Coming for Nighttime Lights
VIIRS vs OLS San Francisco, California Nov. 27, 2011

- 12 bit quantization
- 750 m GSD
- ~750 m GIFOV
- 1:30 am overpass
- Radiometric calibration
- No saturation

- 6 bit quantization
- 2.7 km GSD
- 5 km+ GIFOV
- 8:00 pm overpass
- No in-flight calibration
- Saturation in urban center in operational data collections
Improvements Coming for Nighttime Lights
VIIRS vs OLS Milan, Italy Region, January 8, 2012

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National Geophysical Data Center (NGDC)
NOAA Satellite and Information Service
• Mission renamed: Suomi NPP

• VIIRS data looks good

• Initial mirror degradation is well understood and is not expected to impact mission (EDR impact assessment is underway)

• Beta versions of VIIRS Level 1 and Land products now available in LAADS
BACKUP
Verner Edward Suomi

• Invented the Spin-Scan Cloud Camera (ATS-I/Explorer 7, 1966), which allowed satellites in geosynchronous Earth orbit to maintain continuous focus and enable ‘instant-replay-style’ weather images.

• Having this period in our weather history (1966-1972) accessible increases the time base available for climate study and modeling.

NPP Renamed in Honor of Satellite Pioneer
A layer of tungsten oxides on the surface of the first four mirrors in the VIIRS telescope caused the mirror surfaces to darken when exposed to ultraviolet light.

Mirror degradation is expected to continue until it reaches a plateau.

VIIRS is expected to meet its design parameters (SNR > 350) in these bands.

The commissioning phase of NPP and VIIRS resumed on Jan. 19.