# GLIMPSING THE FIRST PRODUCTS FROM VIIRS

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# NPP Visible Infrared Imaging Radiometer Suite (VIIRS)

**0130, 1330 local time orbits**

**“Early afternoon slot”**

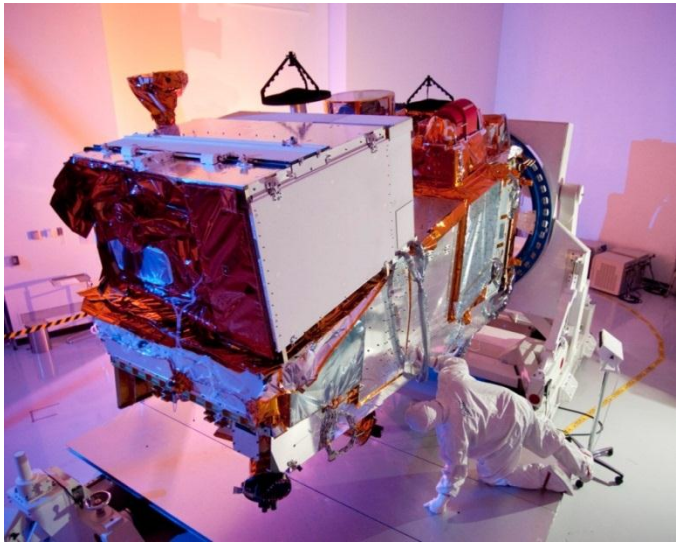
October 28 2011

Credit: NASA

# VIIRS Outline

- Global observations of land, ocean & atmosphere
- Multi-spectral scanning radiometer – 22 channels
- Heritage: Operational and R&D sensors
- Features: Wider swath, higher spatial resolution, constrained pixel growth, many applications.

VIIRS on NPP

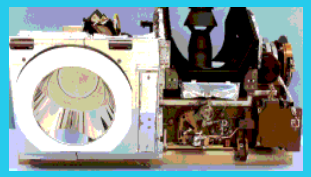


Credit: Ball Aerospace

# Heritage Operational and R&D Sensors

## Operational Sensors

### OLS



- 74 kg
- 2 bands

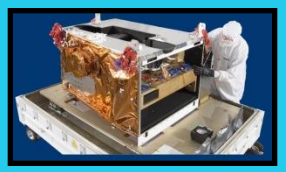
- High Spatial Resolution
- Day/Night Band
- Minimize Resolution Growth Over Scan

- Radiometric Accuracy
- SST Band Continuity

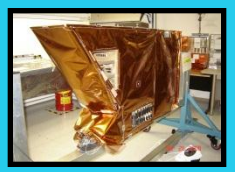
### AVHRR

- 33 kg
- 5 bands

### VIIRS



OMM



EM

- 275 kg
- 22 bands

## R&D Sensors

### MODIS

- 220 kg
- 36 bands

- Band Selection/Continuity
- Thin Cirrus Band
- Solar Diffuser
- Earthshine Lessons Learned

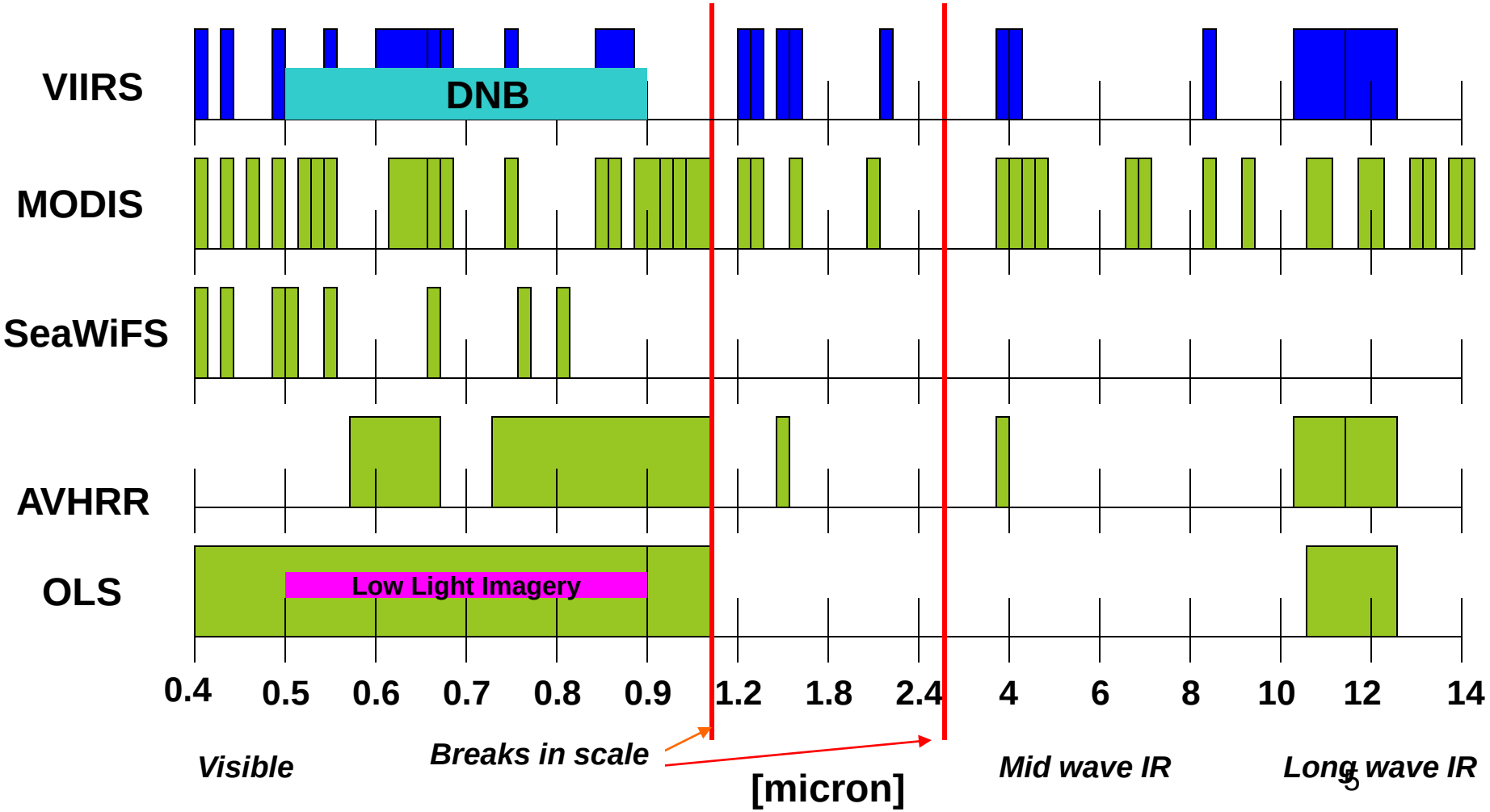
- Ocean Color Bands
- Rotating Telescope

### SeaWiFS

- 45 kg
- 8 bands

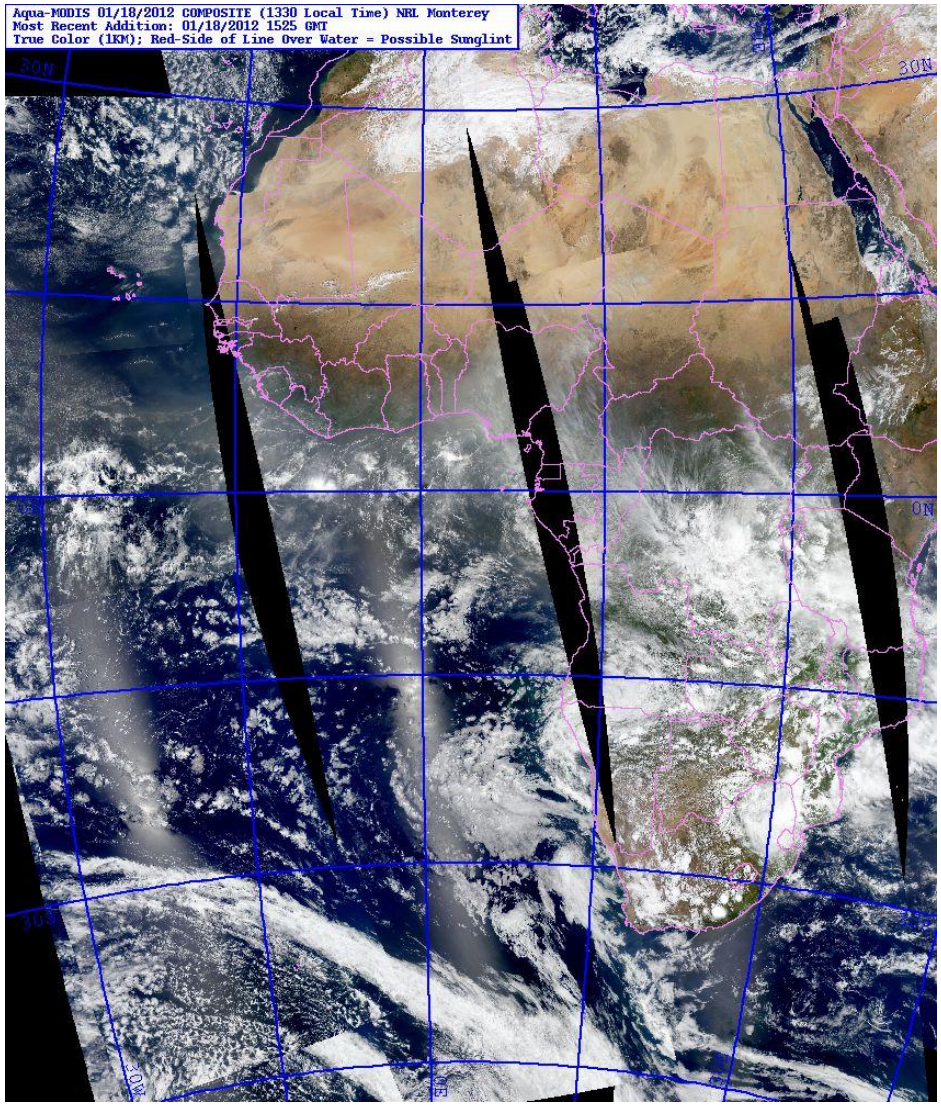
Credit: Northrup Grumman & Raytheon

# Heritage Capabilities




Credit: Northrup Grumman & Raytheon

# MODIS over Africa

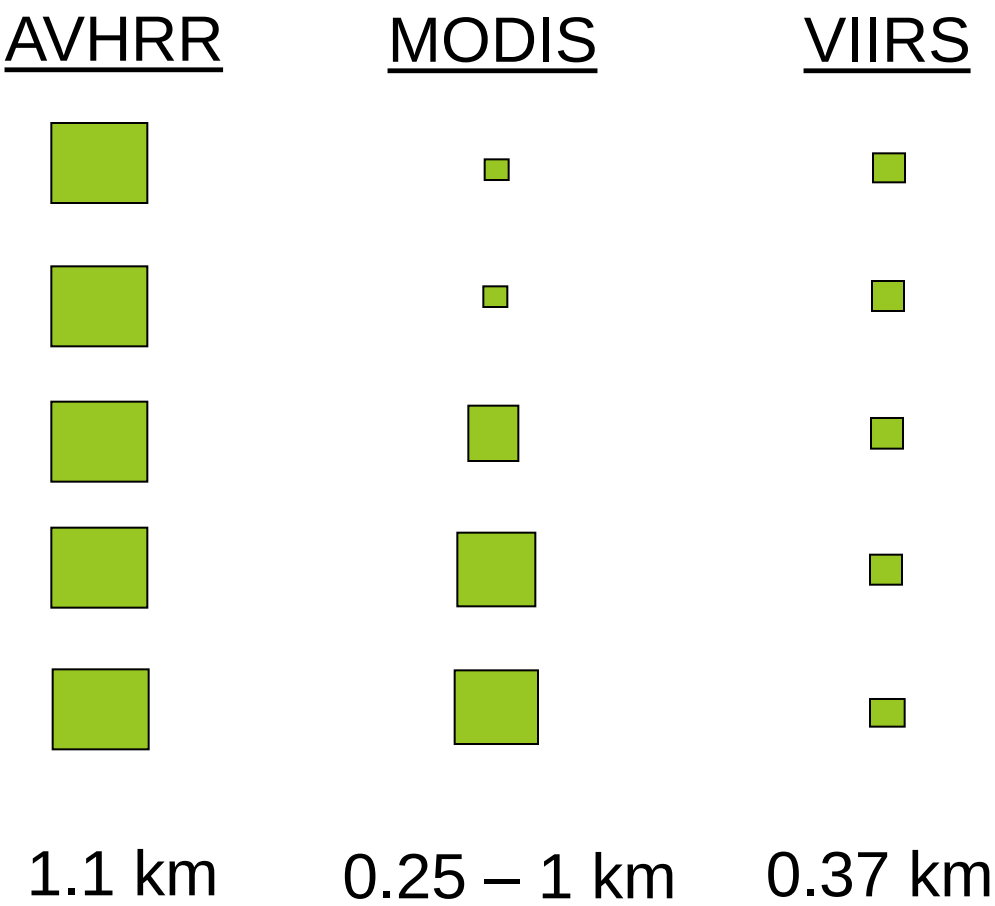


# VIIRS First Global View
# No Gaps Between Passes

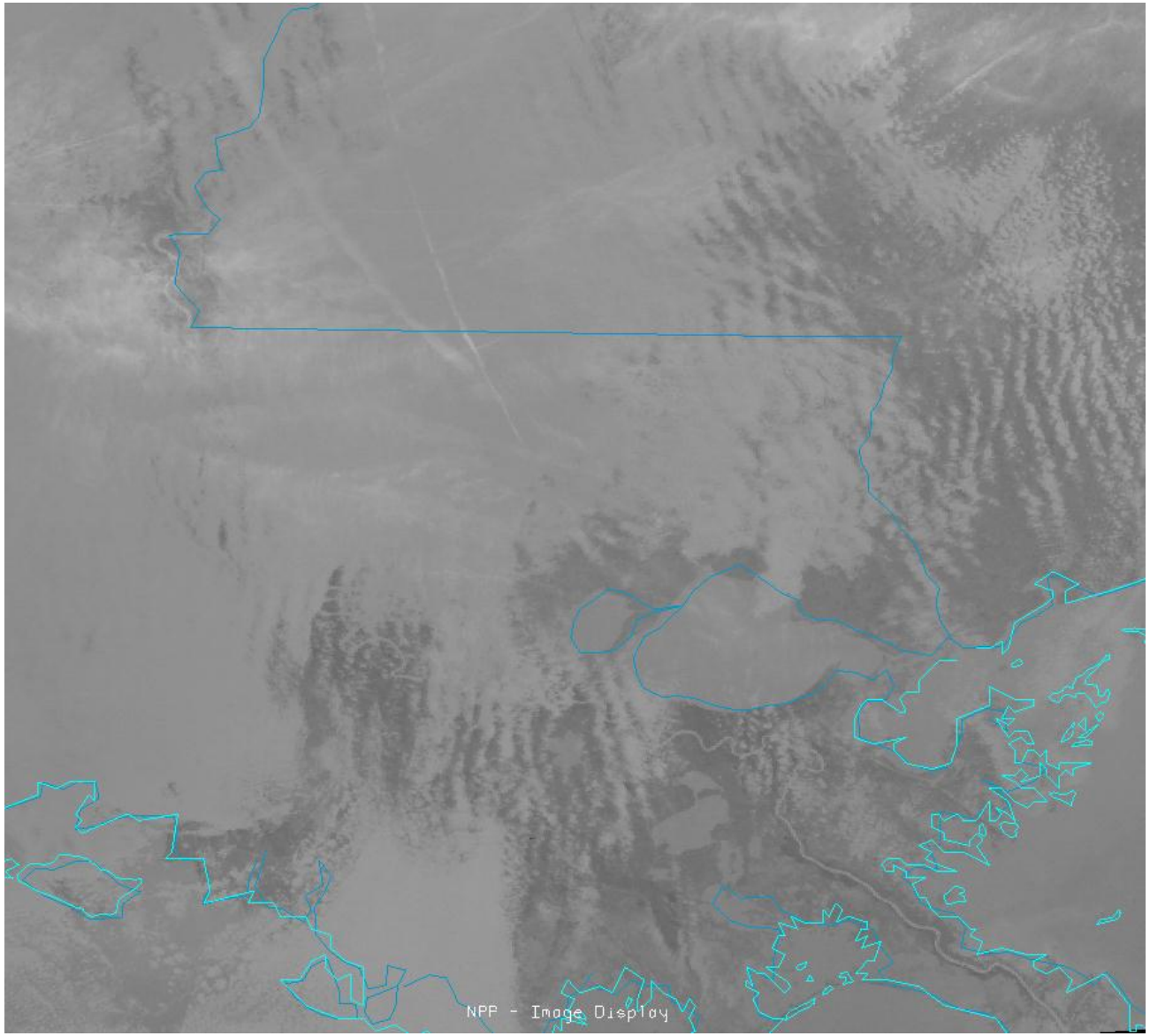
November 24, 2011
Credit: NASA

# Comparison of “Imagery” Bands at Nadir

- .63 µm
- .86 µm
- 1.6 µm
- 3.7 µm
- 11.4 µm



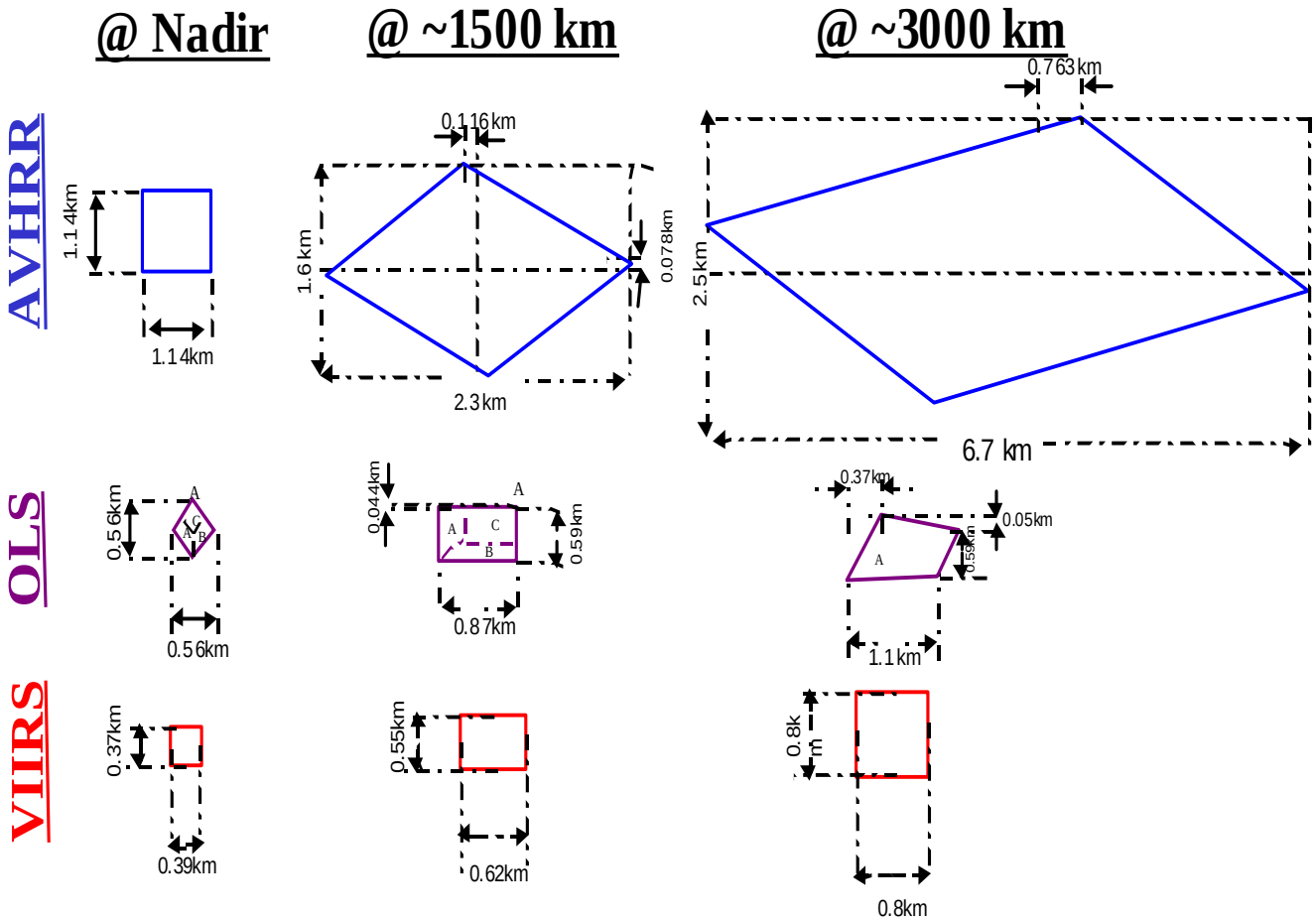
# 375 m (I5) Image of New Orleans Area




January 19 2012 Daytime

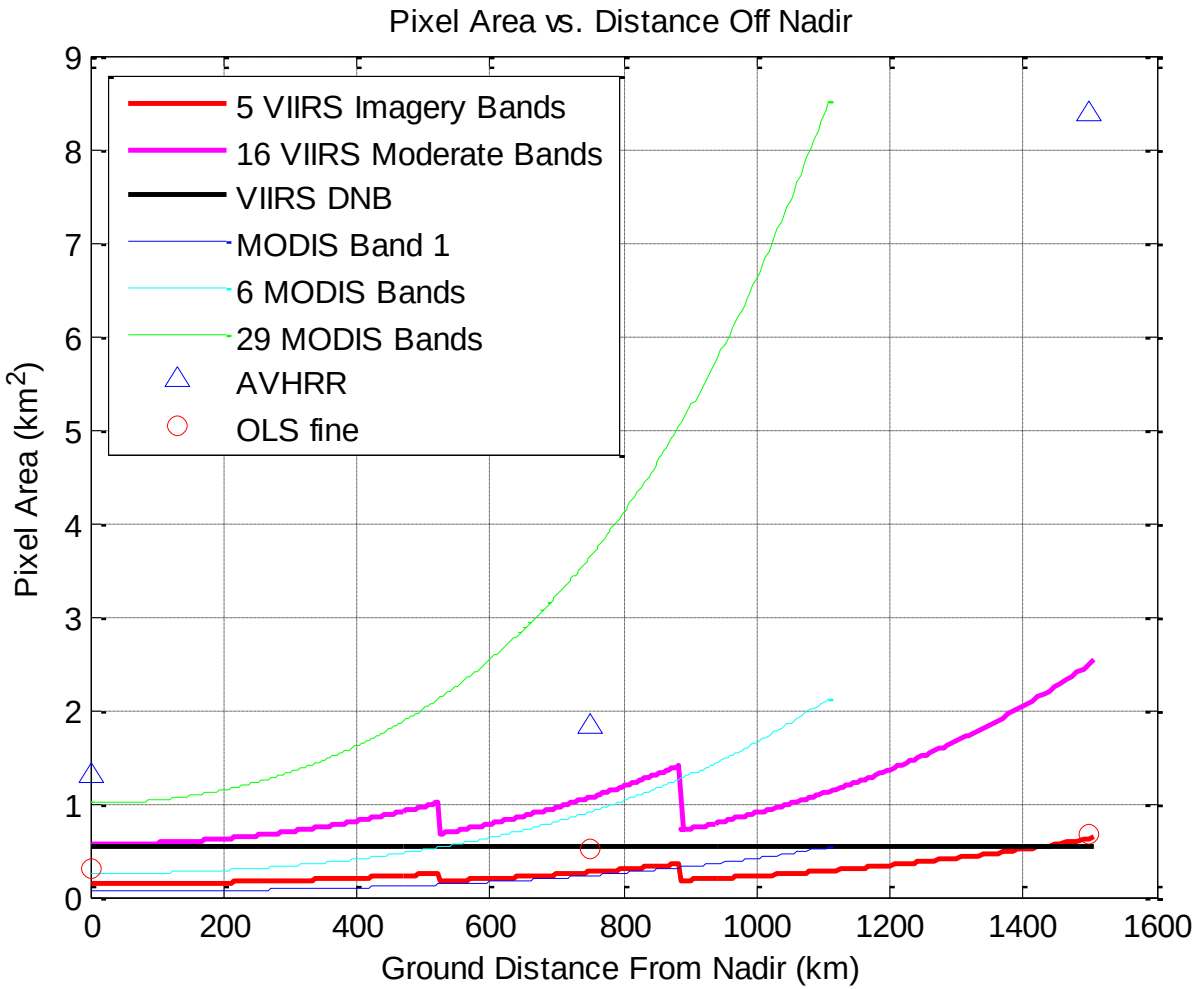
Credit: Dan Lindsey CIRA

# Spatial Resolution Comparisons for VIIRS, AVHRR, and OLS at Nadir and Across Swath



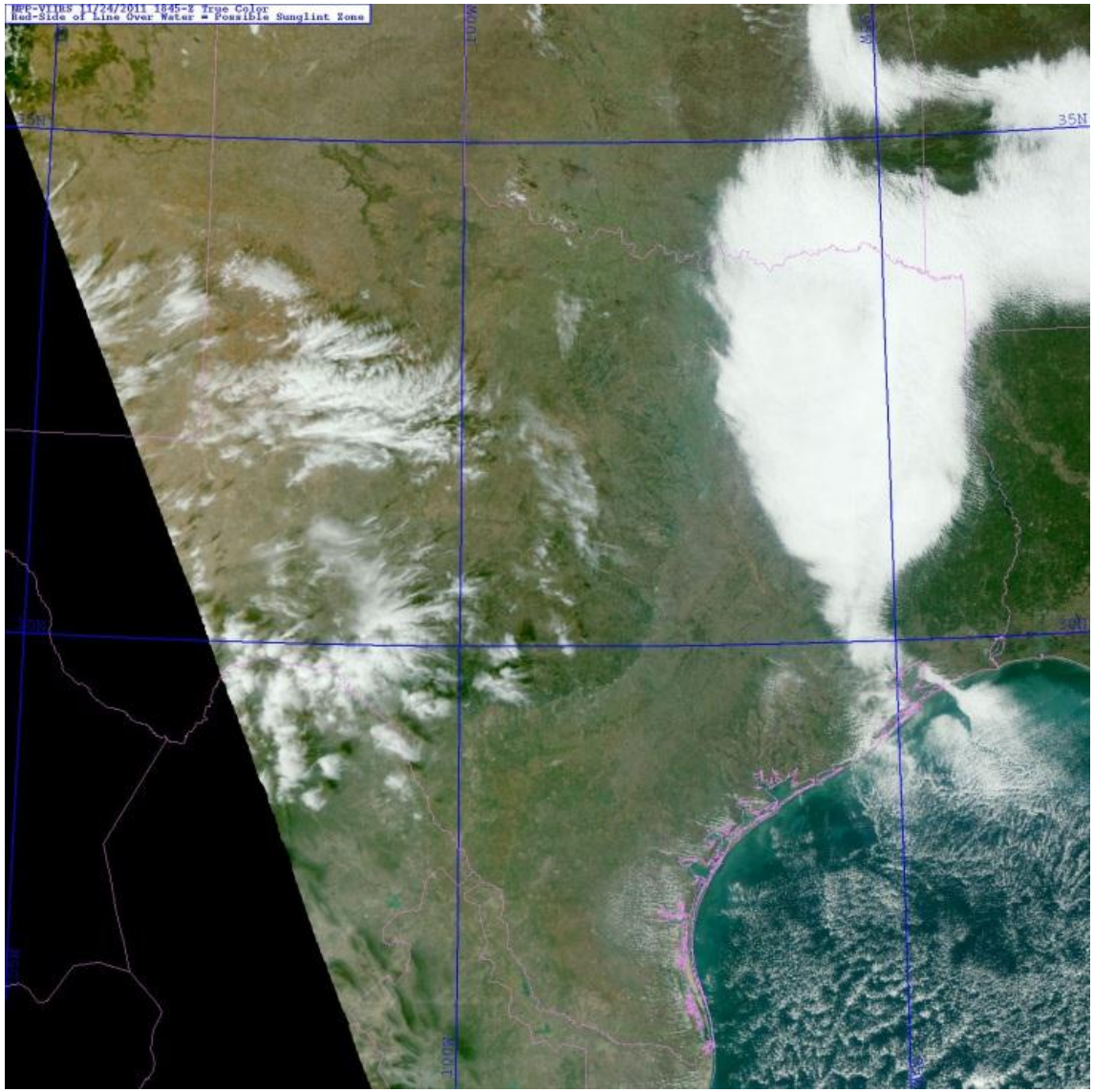

Credit: Northrup Grumman & Raytheon

# Spatial Resolution Comparisons for VIIRS, AVHRR, MODIS and OLS at Nadir and Across Swath

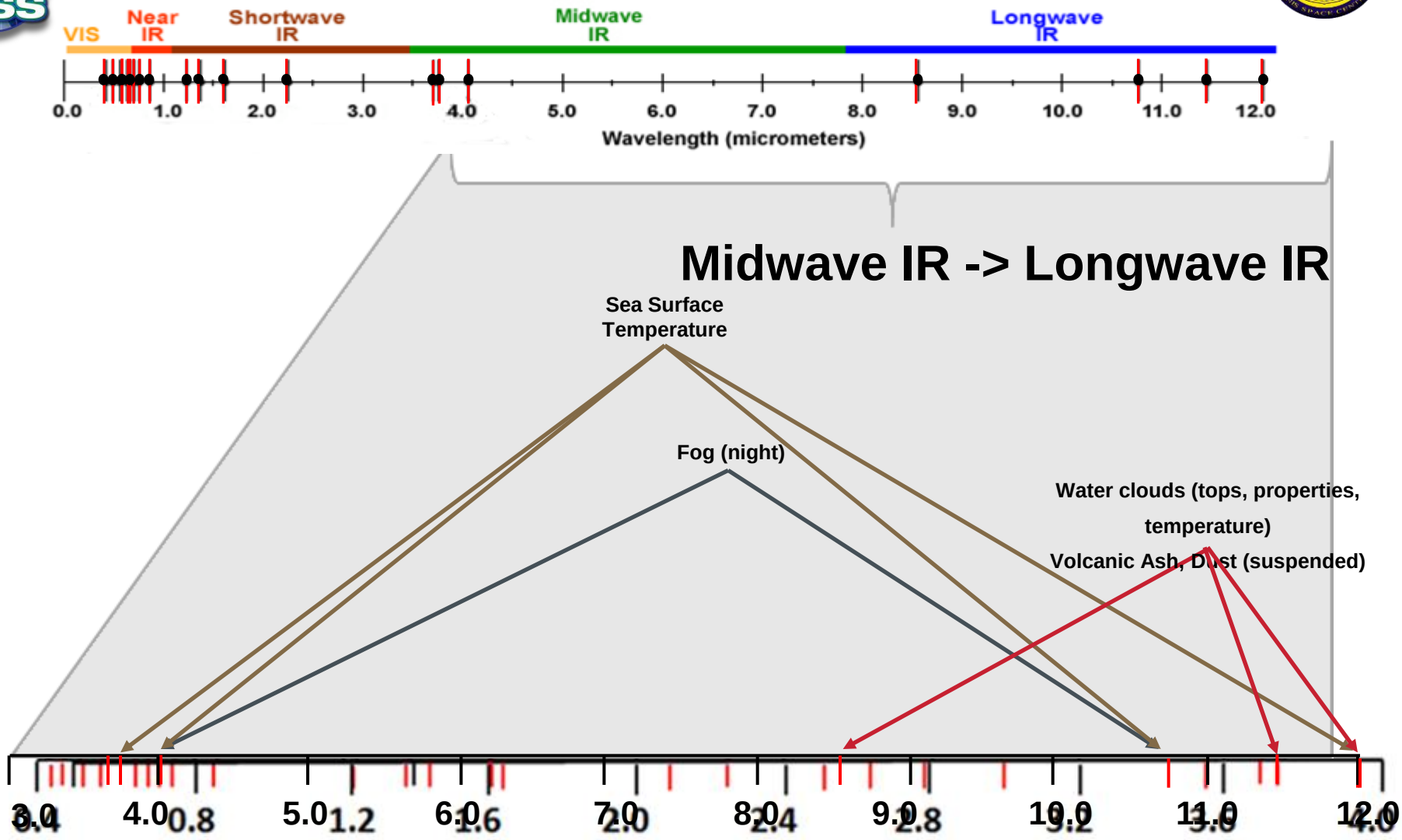



**Because of aggregation VIIRS has much better resolution away from nadir, pixel area 8 times smaller than AVHRR or MODIS**

# Crisp at the Edge



# VIIRS Applications



# Conclusions

- Encouraging results so far!
- 0130, 1330 Orbit nicely fills “afternoon” slot
- VIIRS blends operational lessons with recent R&D
- High resolution to to the edge of scan
- Effective set of channels for applications
- DNB will have unique capability