



NPP Status



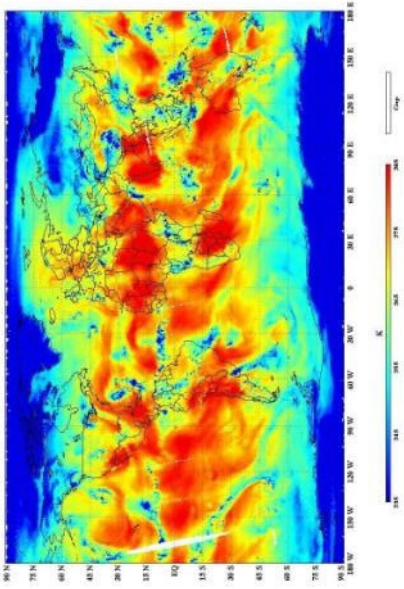
- Spacecraft in normal Mission Mode, all systems nominal
- Ground System performance nominal with data flowing to NESDIS and AFWA Centrals and to CLASS archive
- All Instruments are in normal operational mode
 - ATMS SDR data declared provisional (ready for broader use)
 - ATMS SDR/TDR to be used operationally by NOAA NCEP (NWP center) in April 2012
 - VIIRS, CrIS, OMPS, and CERES Instrument Commissioning is continuing



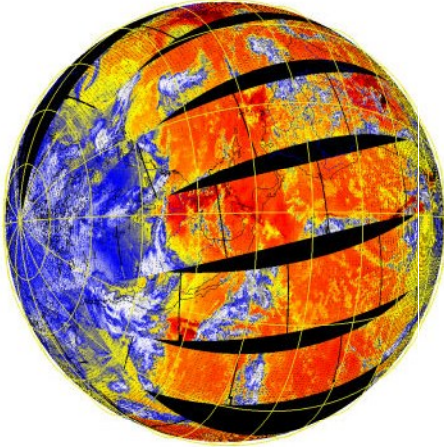
Suomi - NPP Images



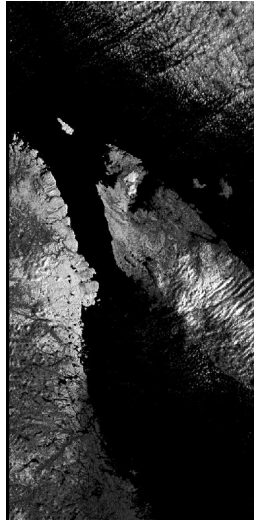
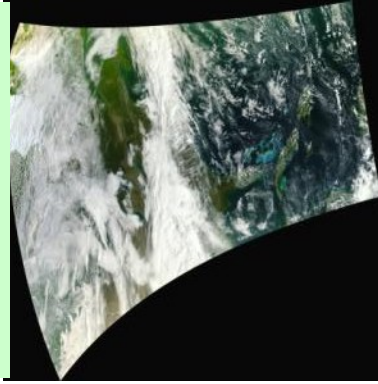
ATMS



CrIS



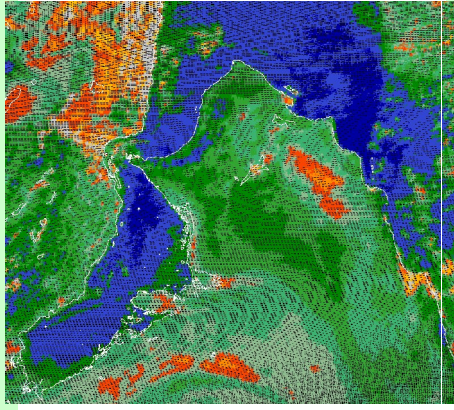
VIIRS 1st Image



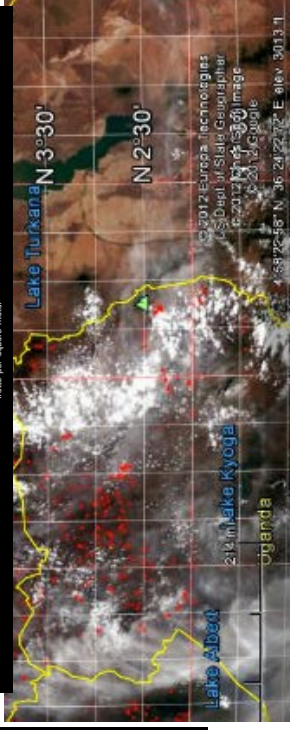
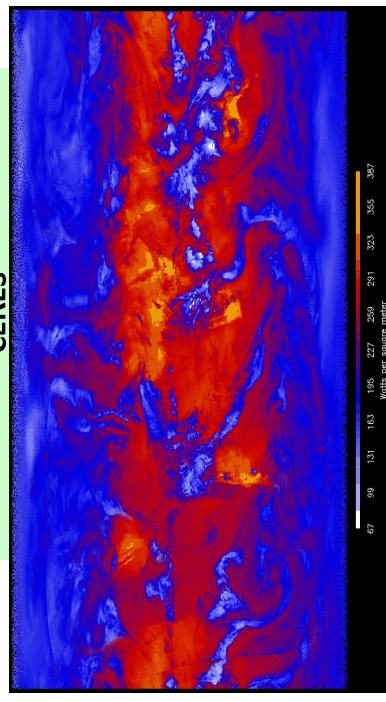
VIIRS Night, Visible & Fires



OMPS

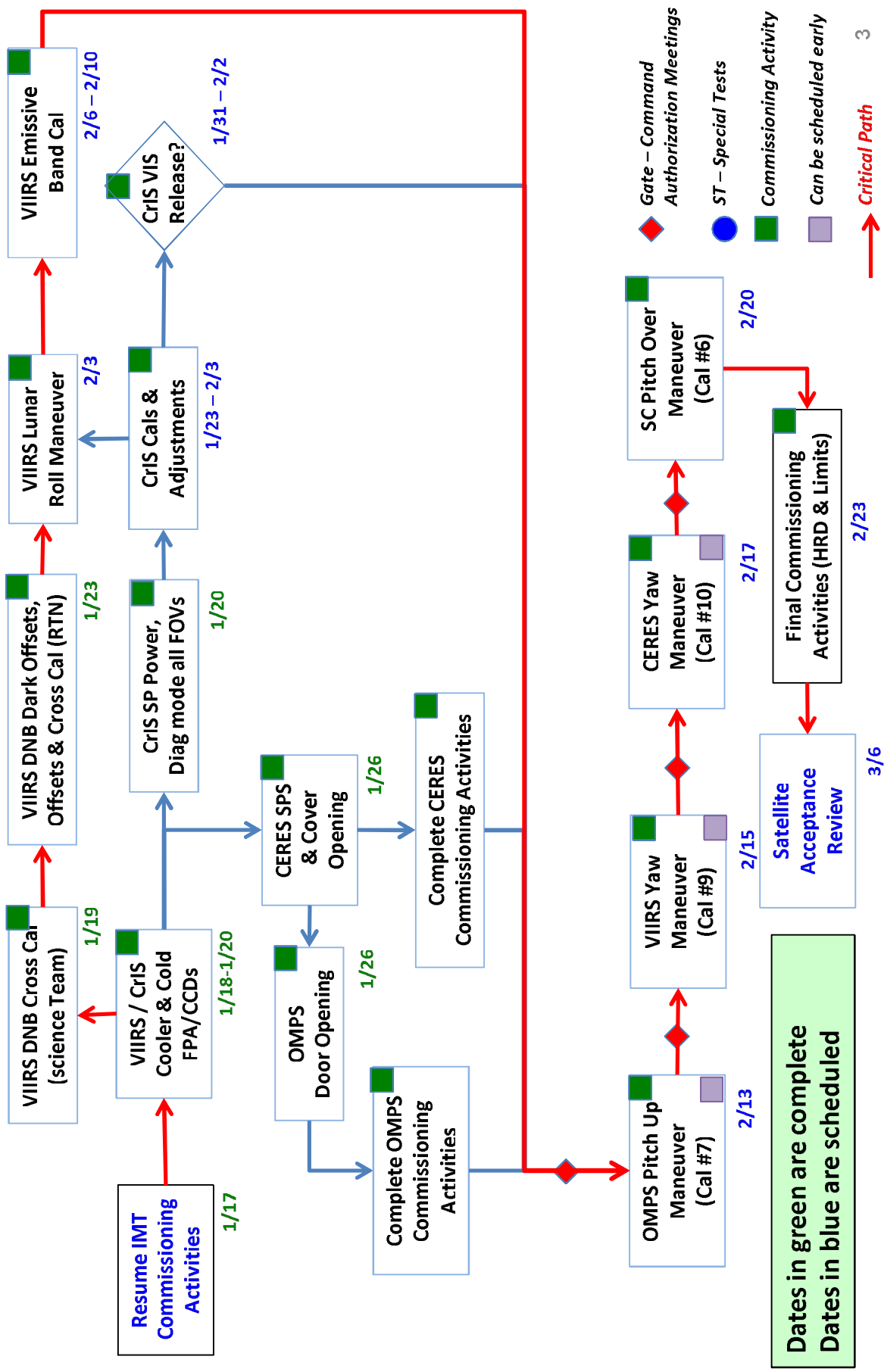


CERES



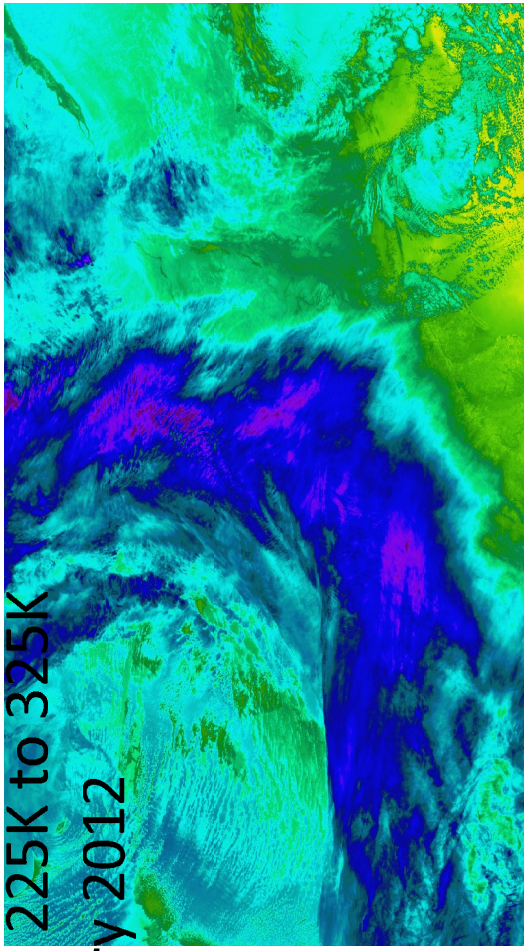
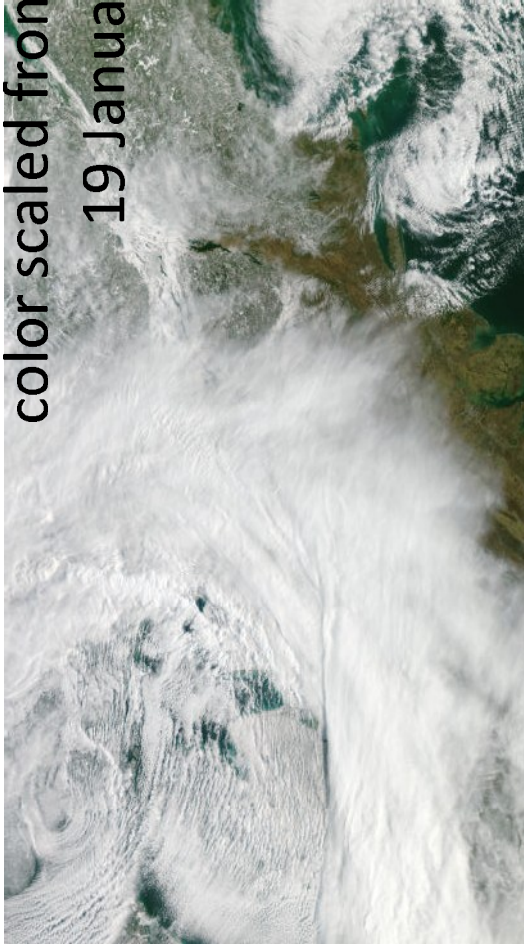


Revised Commissioning Schedule

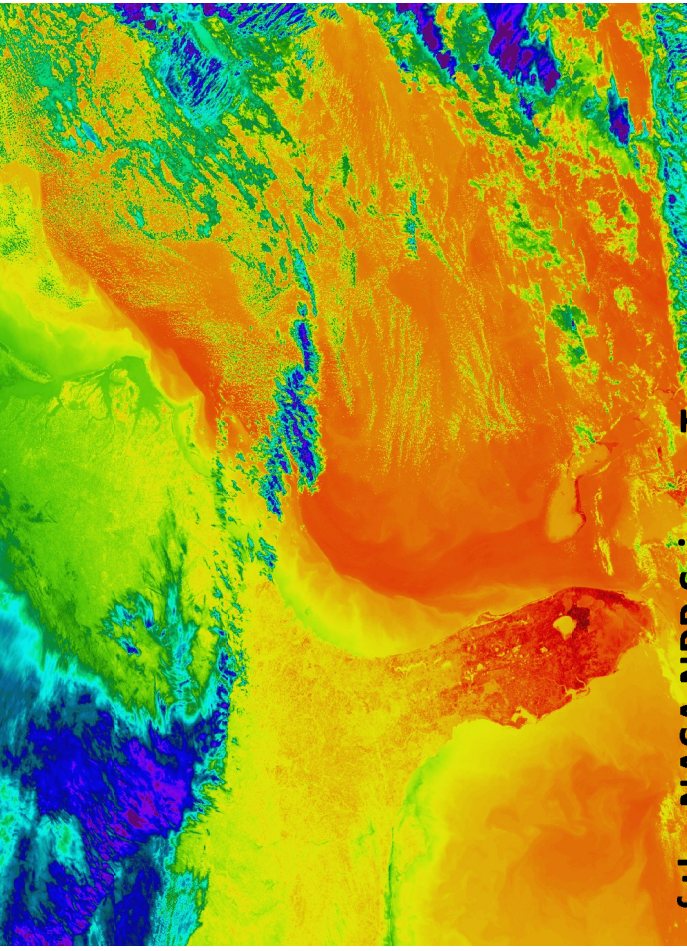
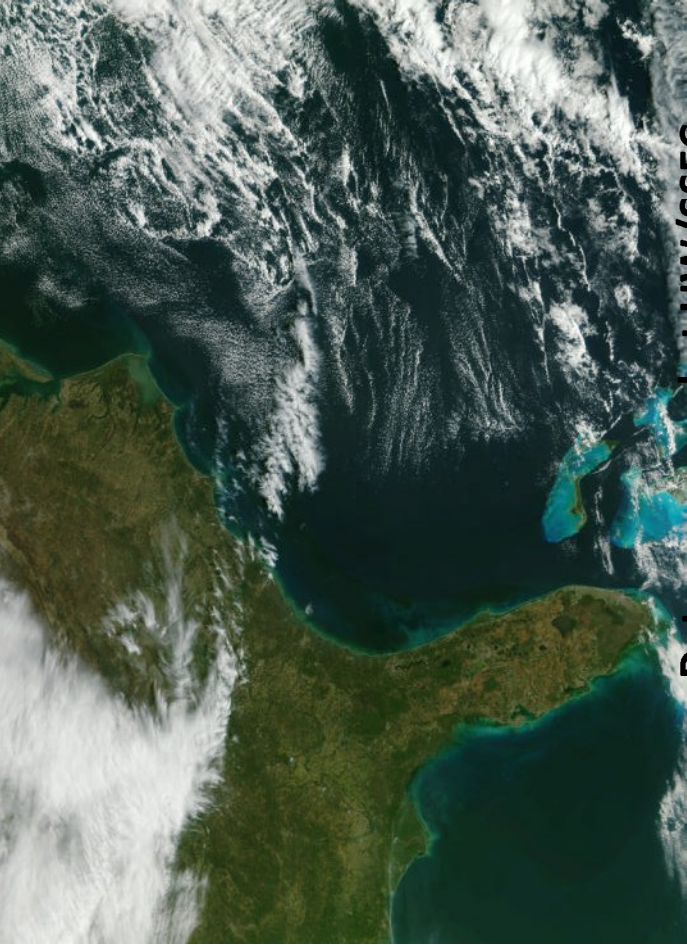




VIIRS M05/M04/M03 (red/green/blue)
VIIRS M15 (10.76 microns)



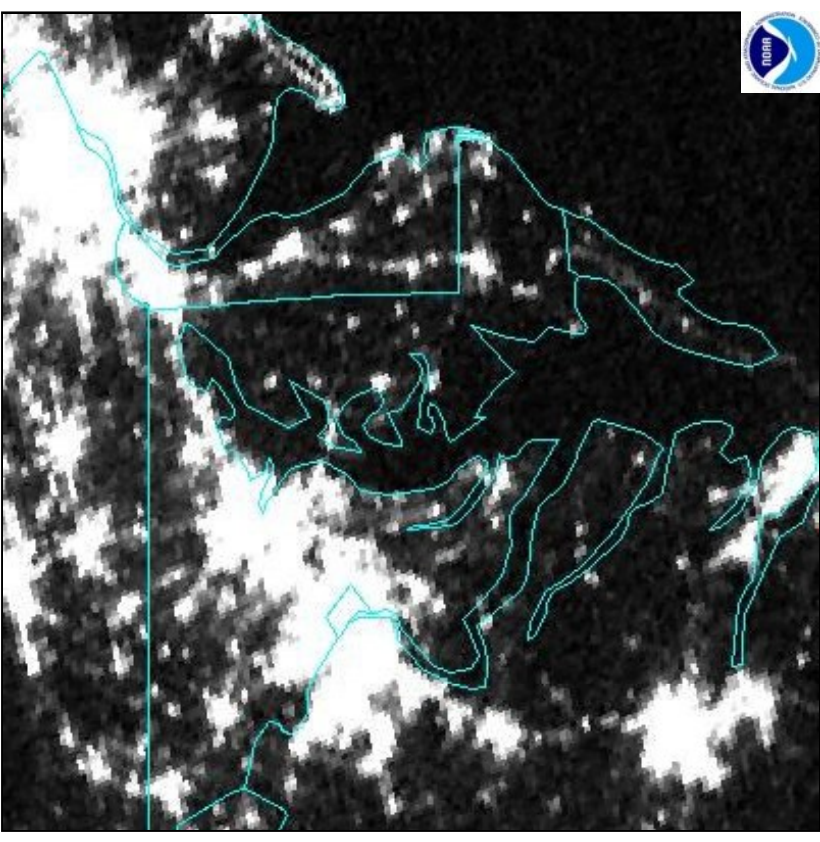
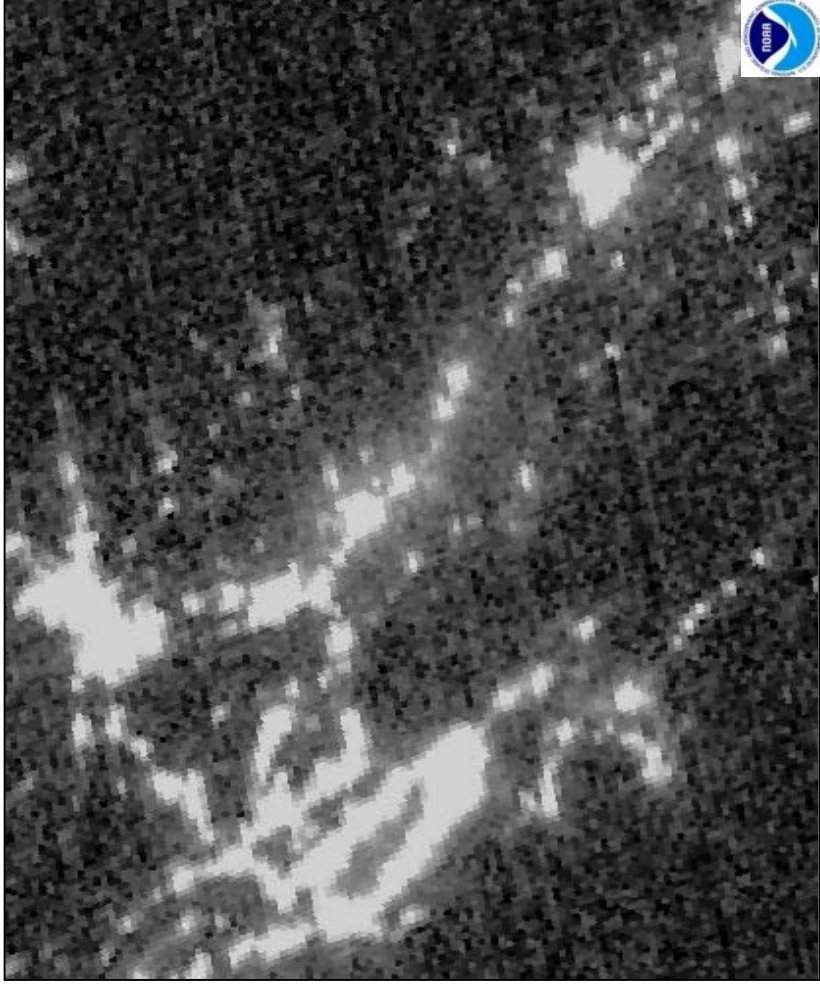
color scaled from 225K to 325K
19 January 2012



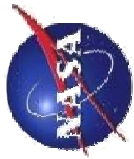
Data processed at UW/SSEC as part of the NASA NPP Science Team



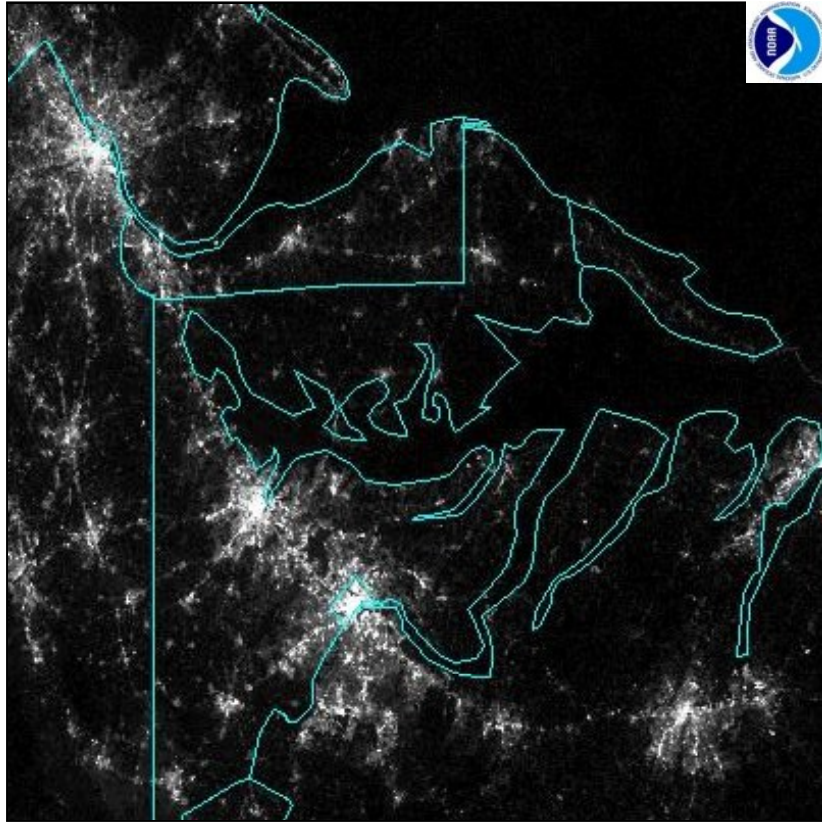
Resolution Improvements: OLS vs. DNB



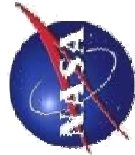
- 740 m instantaneous geometric field of view (DNB) vs. ~5 km for the OLS results in dramatic spatial resolution improvements.
- DNB Imagery courtesy of Steven Miller CIRA/CSU



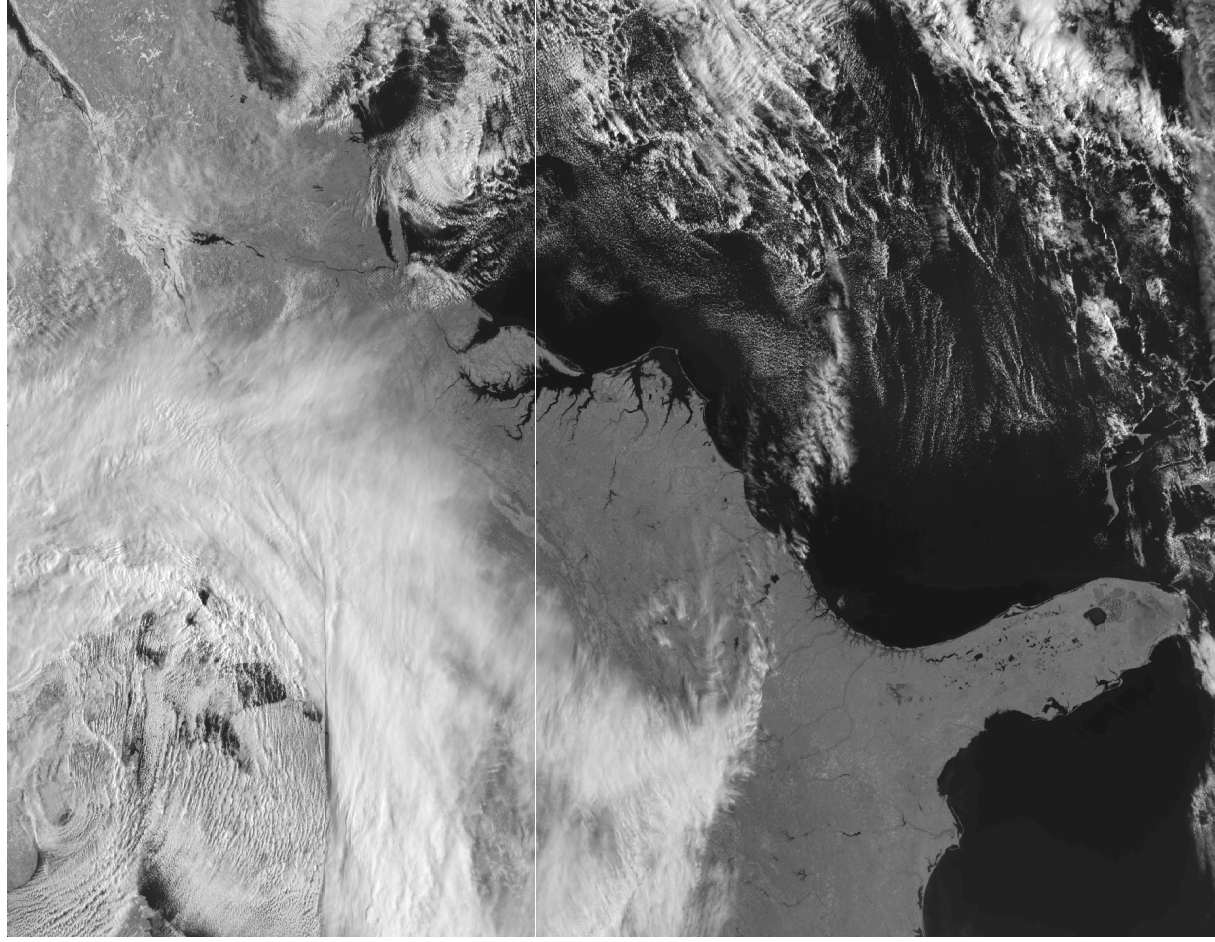
Resolution Improvements: OLS vs. DNB



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- DNB Imagery courtesy of Steven Miller CIRA/CSU



VIIRS M07 (0.865 microns) grey scaled 19 January 2012



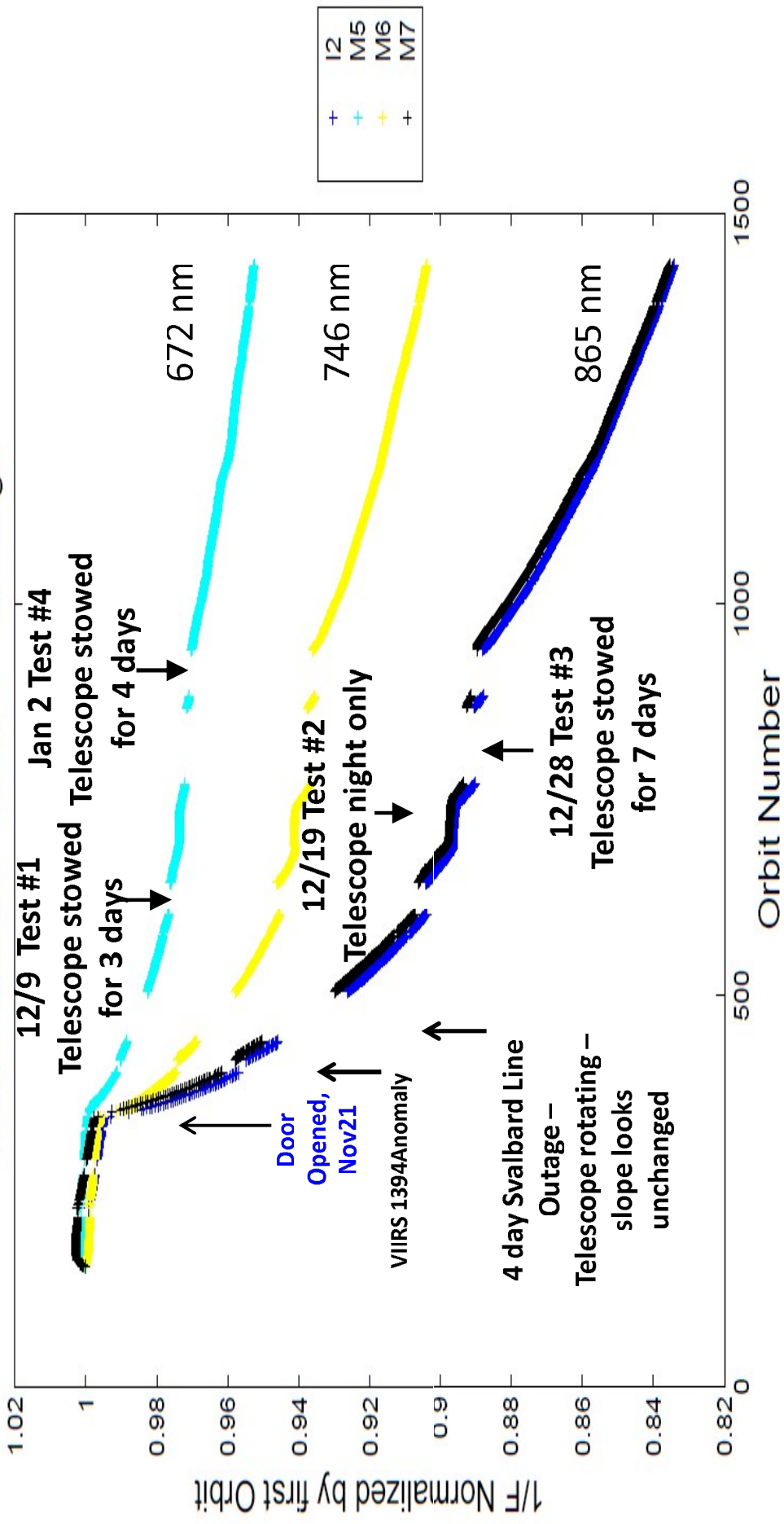
- **VIIRS Data Anomaly**
- **Degradation in M7/I2 observed after launch.**
- **Smaller effect in M6 & M5.**
- **Commissioning paused while anomaly was studied.**
- **Degradation believed to be caused by an error in mirror coating process. An inadvertent layer of tungsten film was put on telescope mirrors.**
- **Commissioning resumed Jan 18**
- **Degradation is slowing, should level off.**
- **No effect on VIIRS data products; VIIRS SNR in M7 expected to be above spec.**



VIIRS Anomaly



Change in VIIRS Solar Data as a function of orbit number



F is conversion factor that compares the measured VIIRS solar data to the predicted value.

Data shows 1/F-factor. Should be 1 for new instrument.

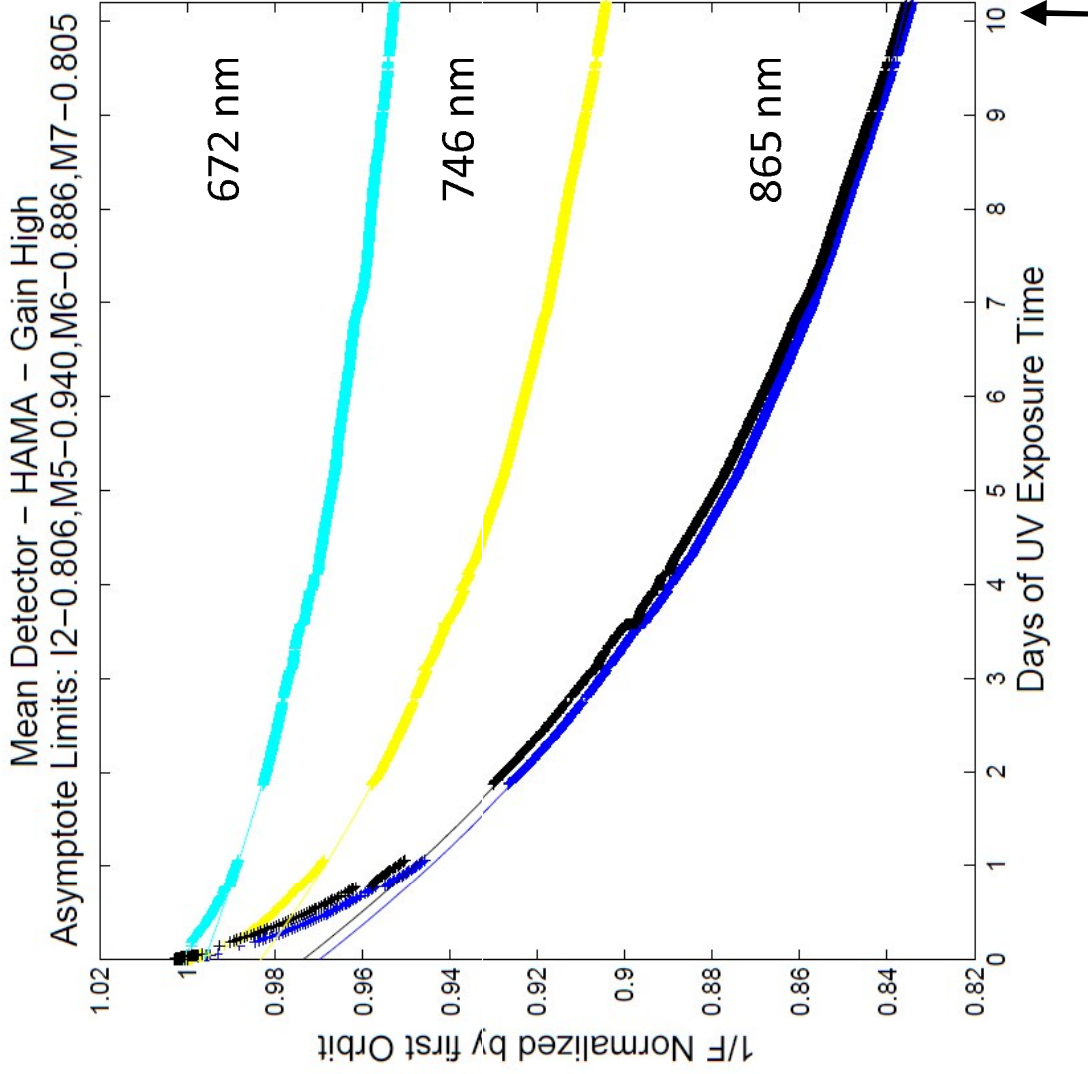
Test periods used to diagnose VIIRS anomaly.

Data show anomaly depends on solar exposure; increases with light; stops in dark.



VIIRS Anomaly

Change in VIIRS Solar Data as a function of UV exposure



Anomaly depends on exposure to light, probably in the UltraViolet (UV) region.

Calculate amount of UV exposure in each orbit. Replot data, converting x-axis from orbit number to UV exposure time.

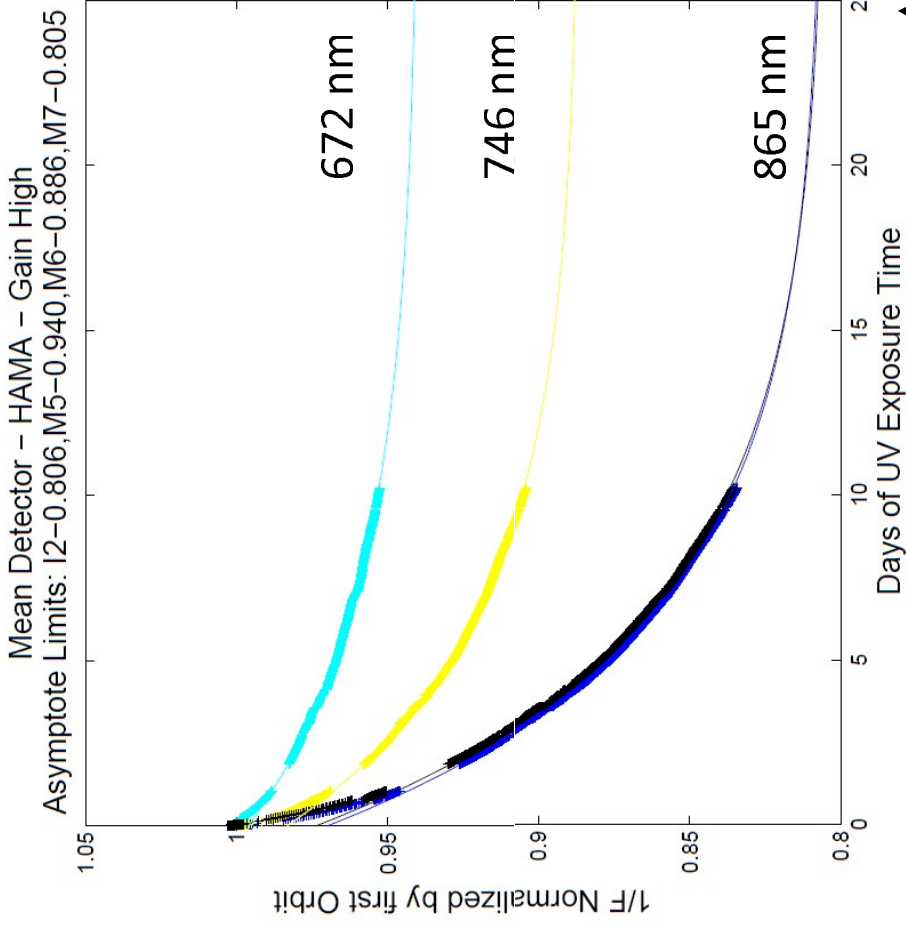
1 day UV exposure = 6.5 calendar days.

Data shows smooth dependence on UV exposure.

Feb 5, 2012



VIIRS Anomaly Predict Amount of Change in VIIRS using Solar Data



↑
Feb 5, 2012
Mid-May 2012
↑

1 day UV exposure = 6.5 calendar days.

For M7/I2 865 nm High Gain Signal-to-Noise (SNR)

Specification	SNR	Margin
Raytheon	215	
	419	95%

Analyze with a simple predictive optical model of multiple mirrors with an absorbing coating.

Model predicts throughput reduced to 81%

Adjusted Raytheon	SNR	Margin
	339	58%

Gov't estimates of VIIRS SNR are higher than Raytheon's.

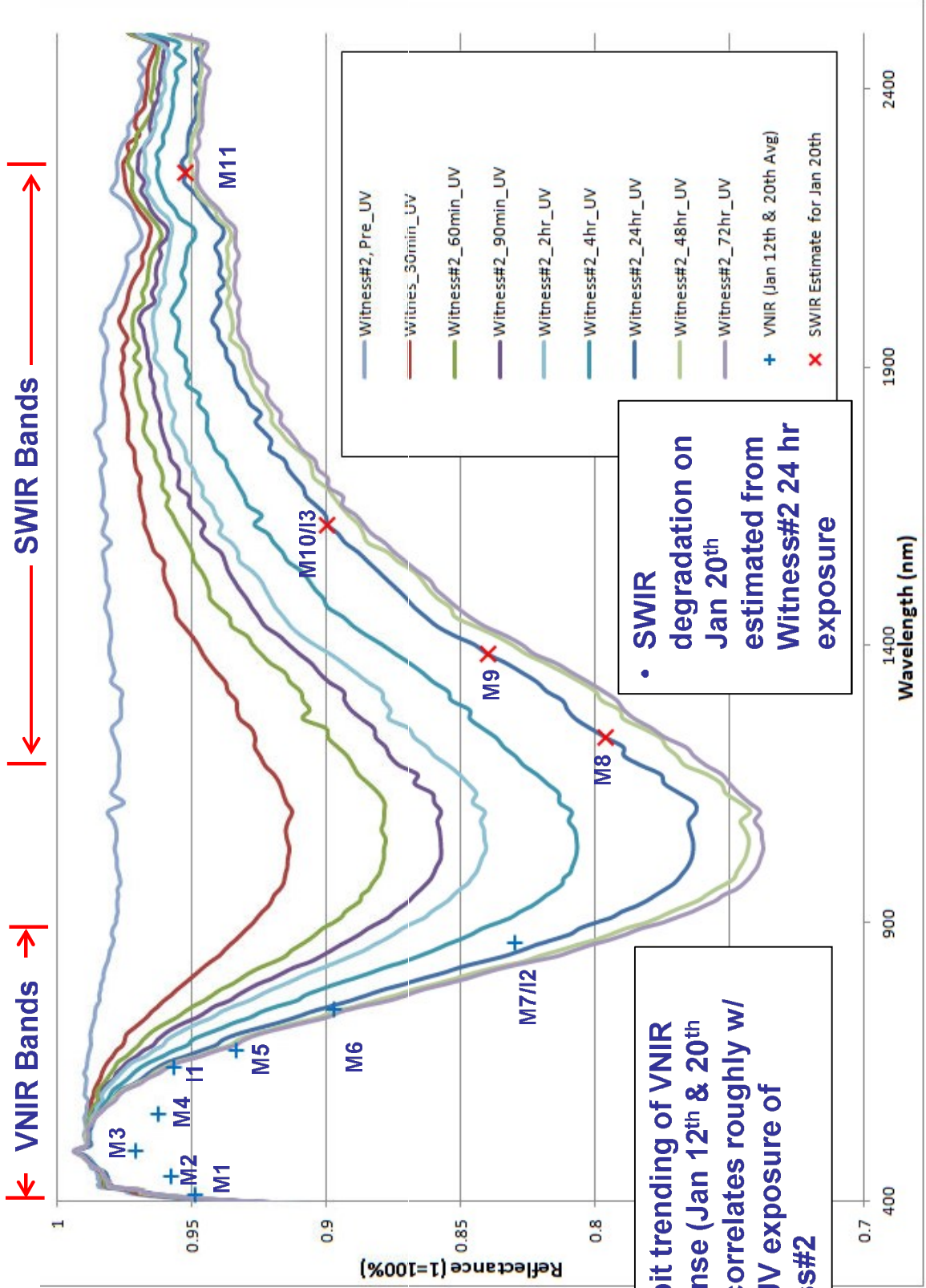
Raytheon producing more sophisticated predictive optical model of VIIRS degradation.



SWIR Degradation Estimated based on Witness #2 UV Exposure

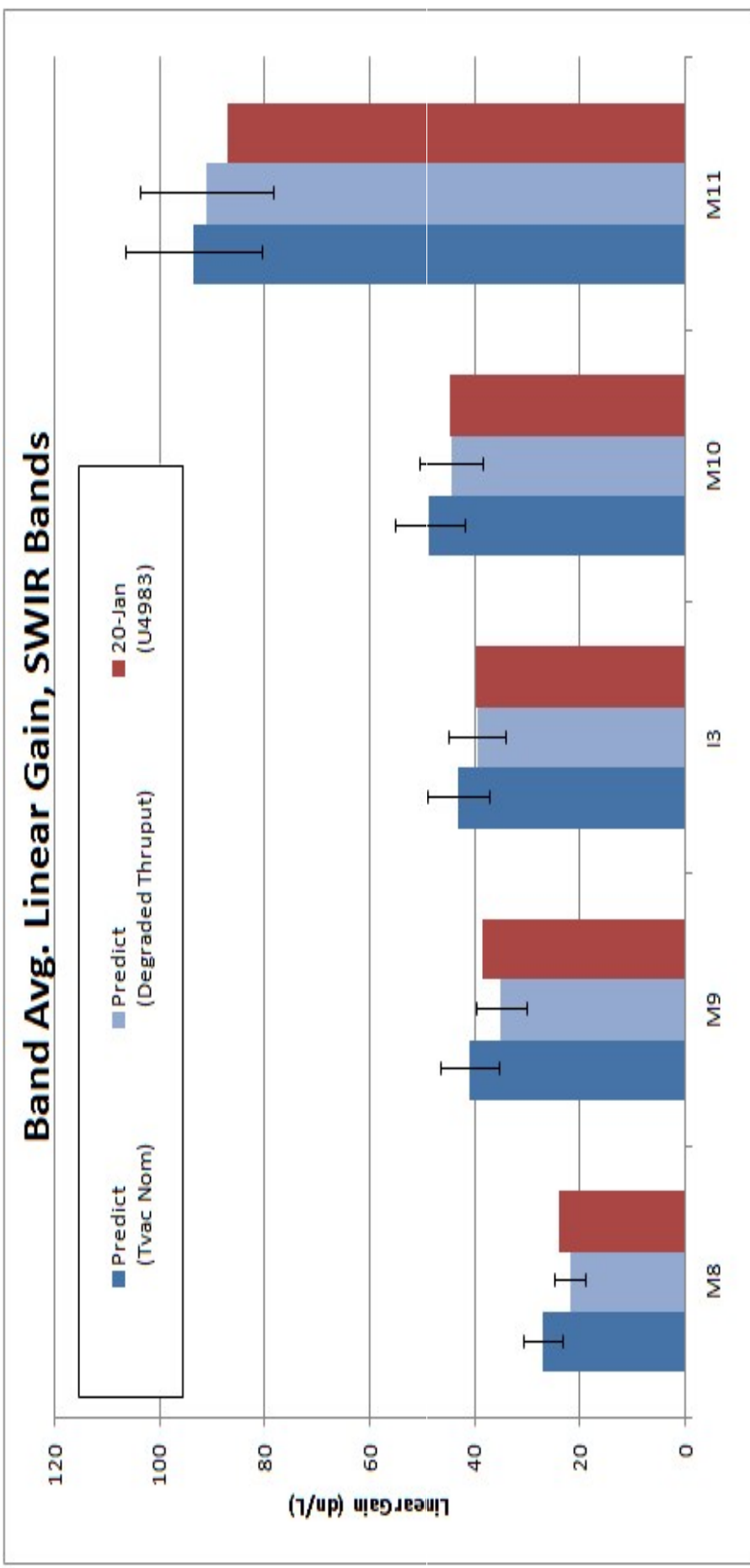


Space and Airborne Systems



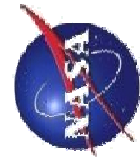


SWIR Turn-on shows expected performance

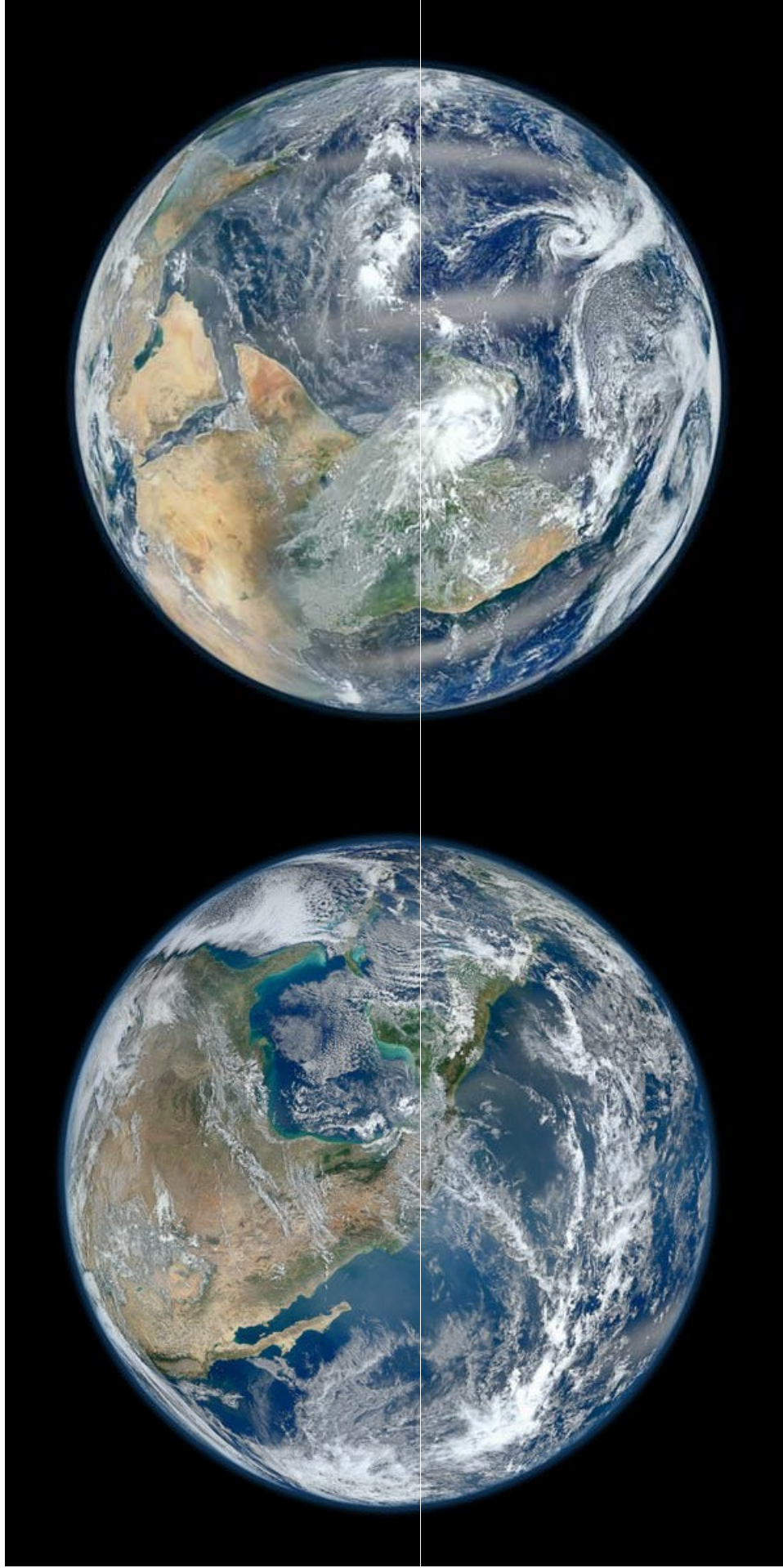


Error Bars are +/-13% of predicted gain

- Original based sensor-TV, nominal plateau RC2 P2
- Degraded thruput reduces original by 24 hr UV exposure results for Witness#2



Questions?



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