

” Present Status of MOBY and MOBY-Refresh”

UNIVERSITY
OF MIAMI



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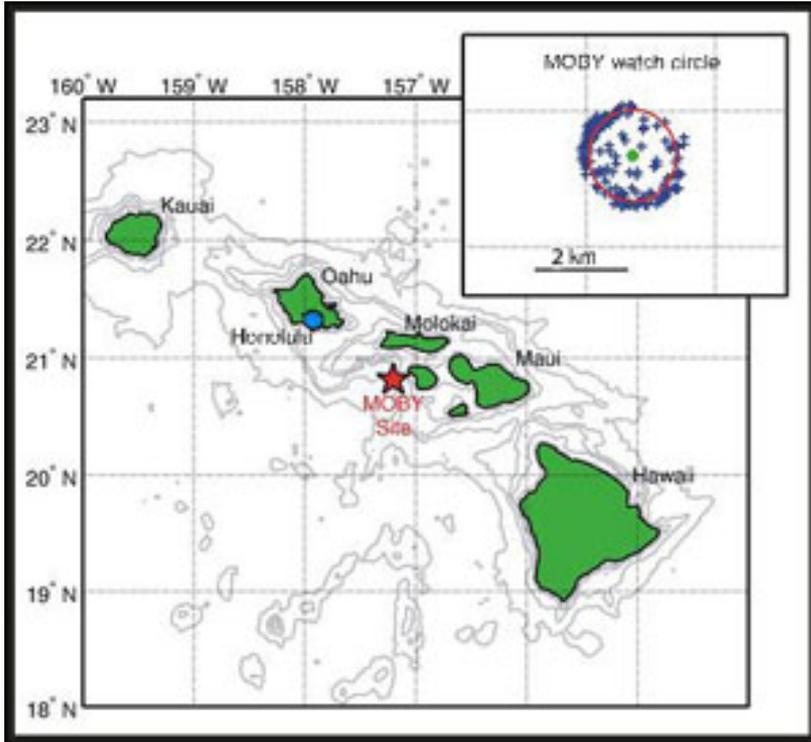
Collaborators: Carol Johnson (NIST), Mark Yarbrough (and others at MLML), Art Gleason (UM), Yong Sung Kim and Paul DiGiacomo (NOAA/NESDIS/STAR)

8/15, STAR JPSS 2015 annual meeting, College Park, Md.

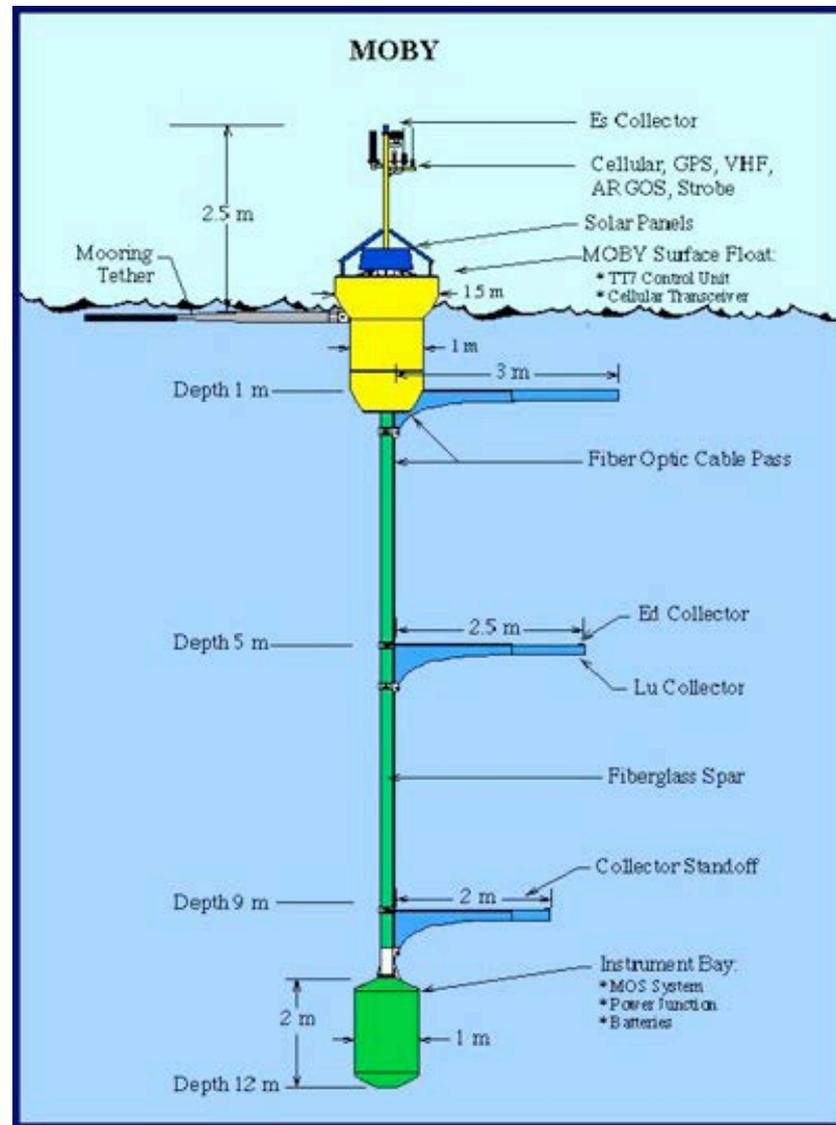
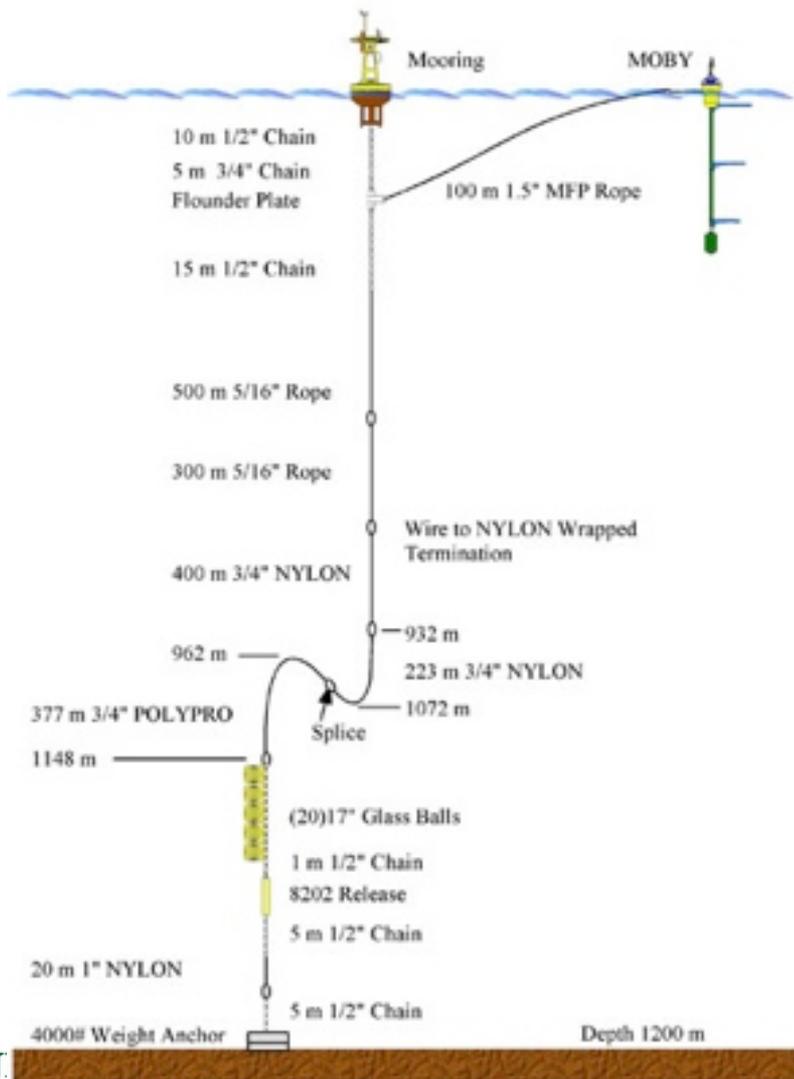
The current MOBY site is off of Lanai, Hawaii.

Tent constructed on UHMC site

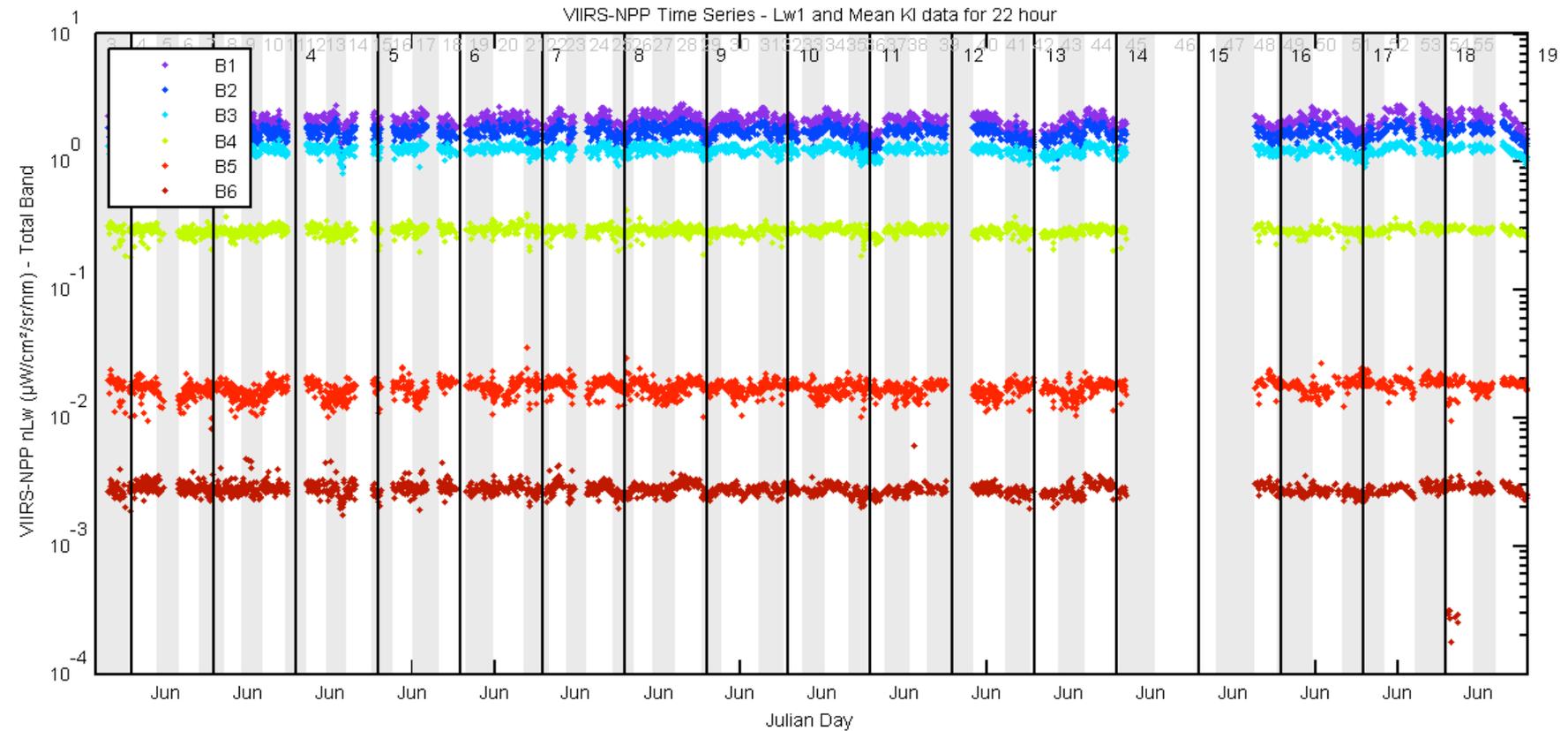
Ships available



MOBY & Lanai Mooring



Currently have a 17 yr + time series



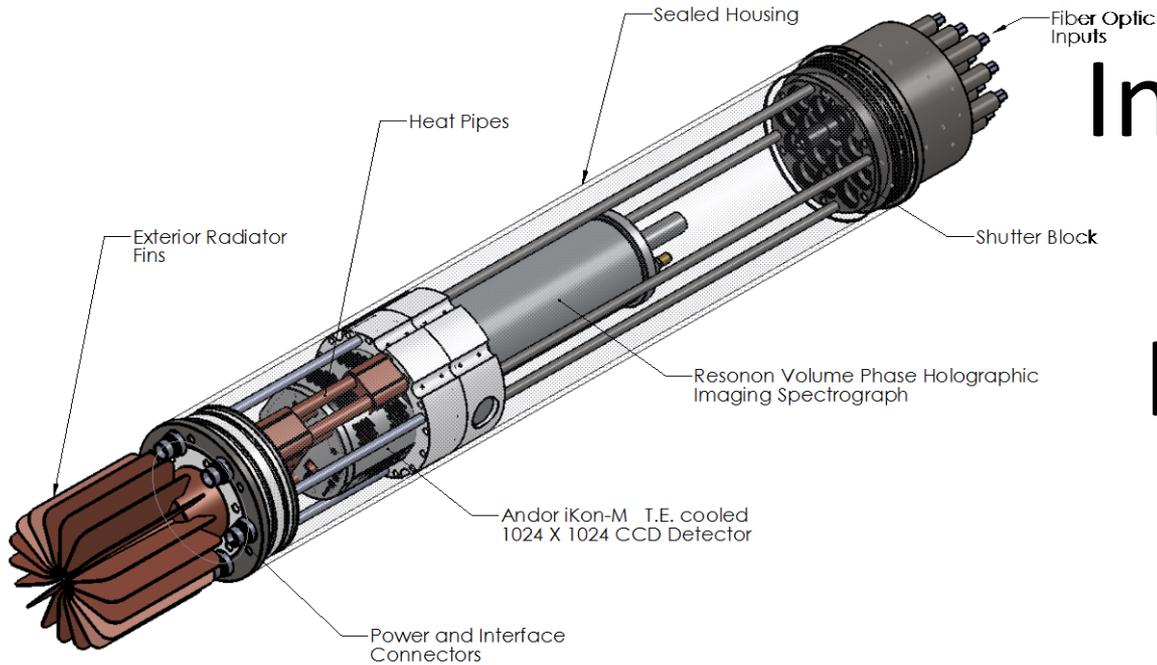
Primary ocean color vicarious calibration site for VIIRS.

Current status

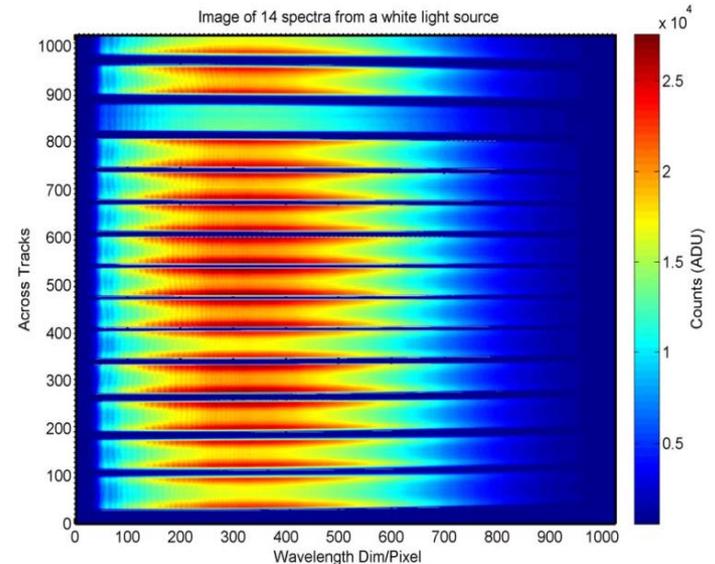
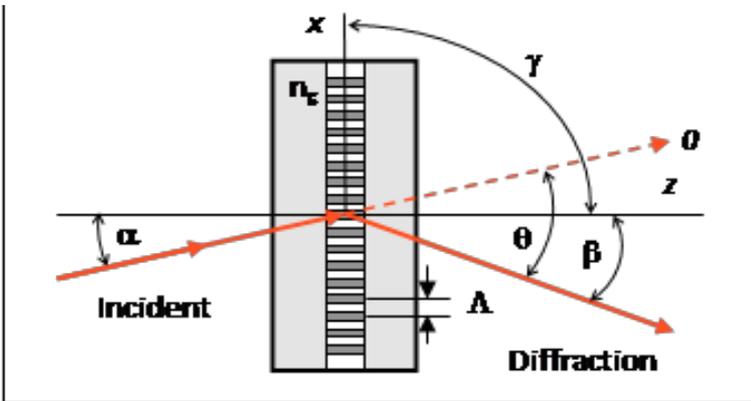
- Next deployment will be in mid September.
- Currently an issue with top battery in MOBY dating back to mid August.
- Trying to get out to fix, but there are currently 3 hurricanes in the vicinity of the Hawaiian islands (they are up to the letter “I” out there)...so going out to fix the instrument has been an issue. Maybe fixed yesterday (Wednesday).

Instruments are getting old, so we are now in the middle of a “refresh” of the optical system and onboard control system.

Changes include upgraded and new control computers and new optical system.

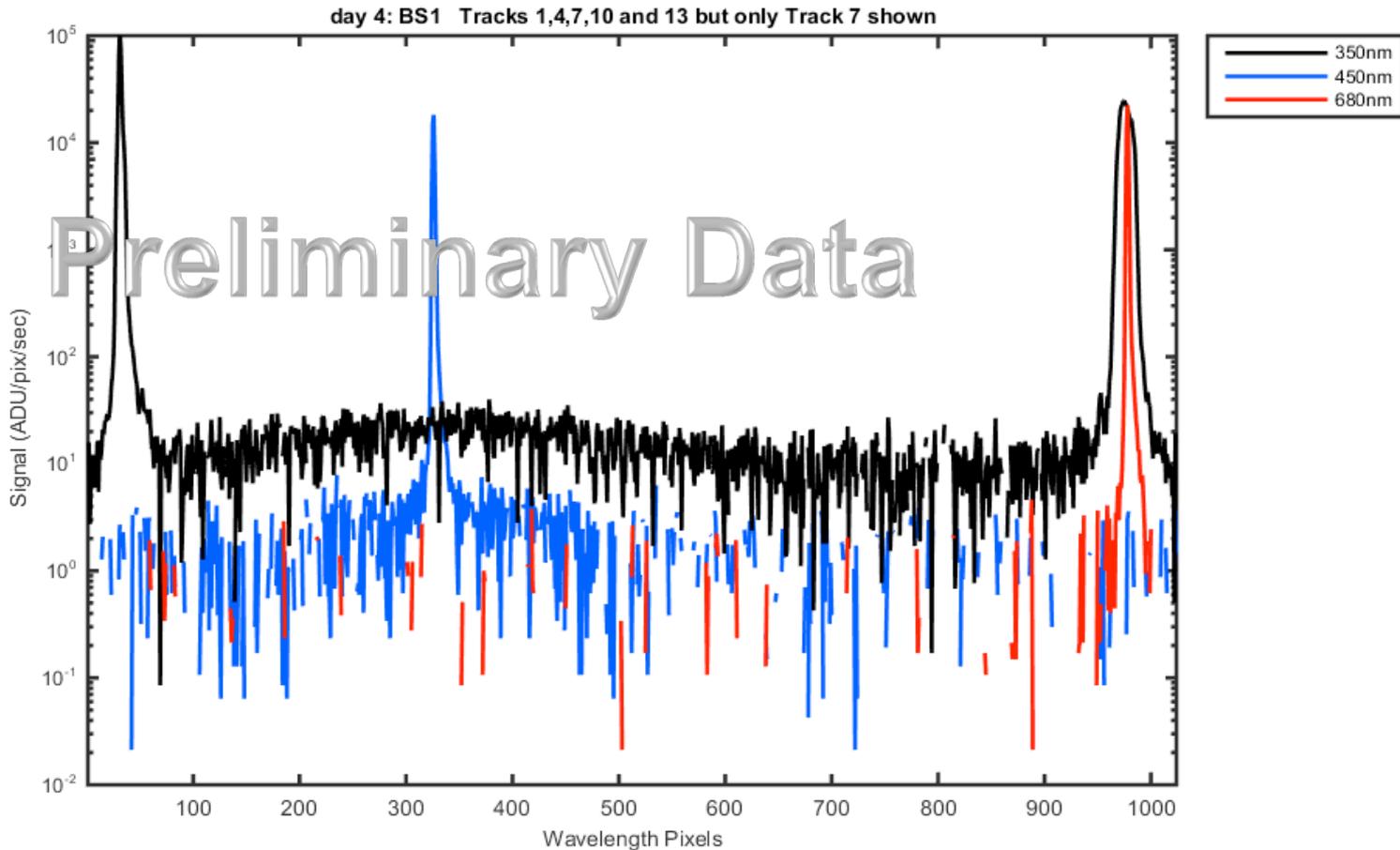


In-line Volume Phase Holographic grating



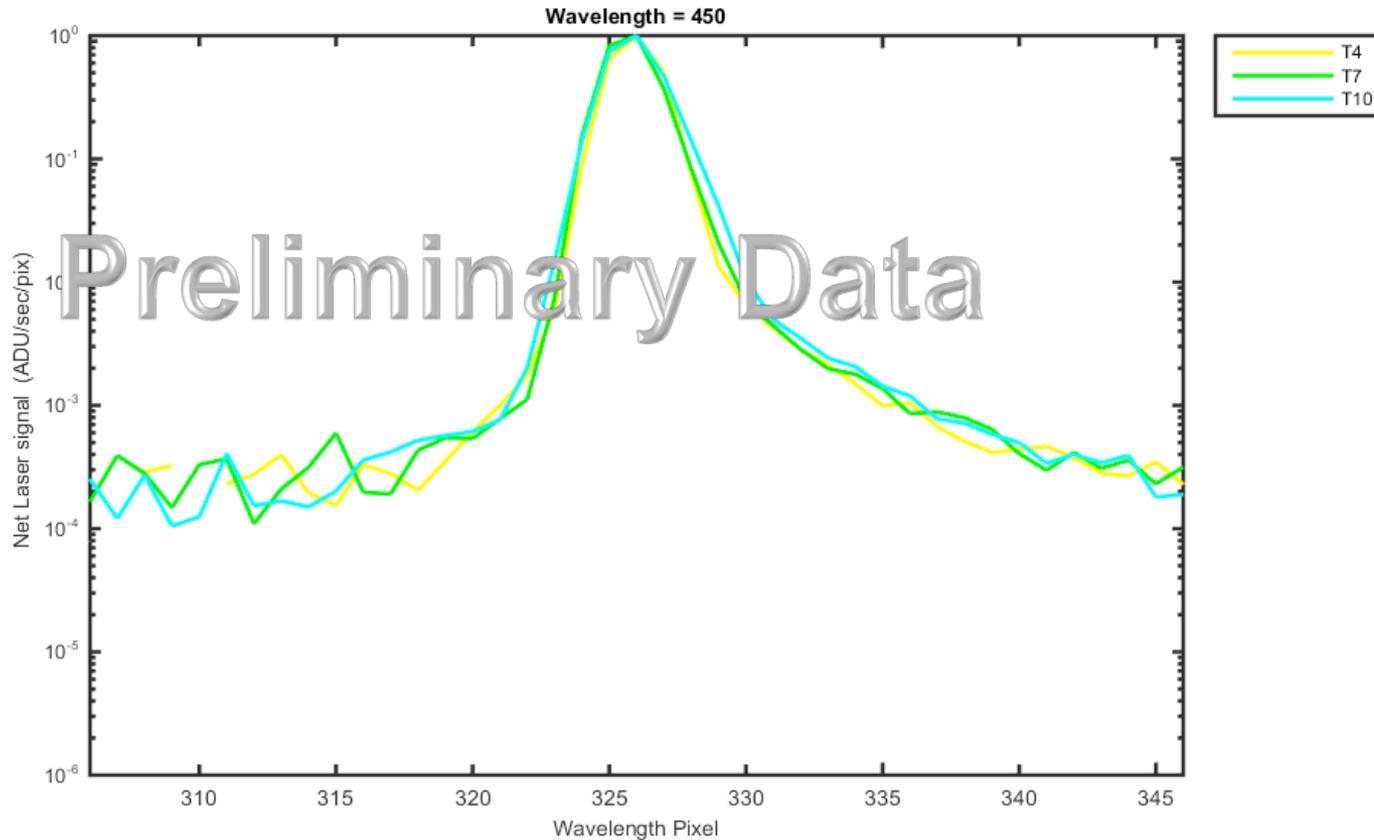
From
<http://www.bayspec.com/technical-support/definitions/vpg/>

Currently testing Blue spectrometer and components of new system



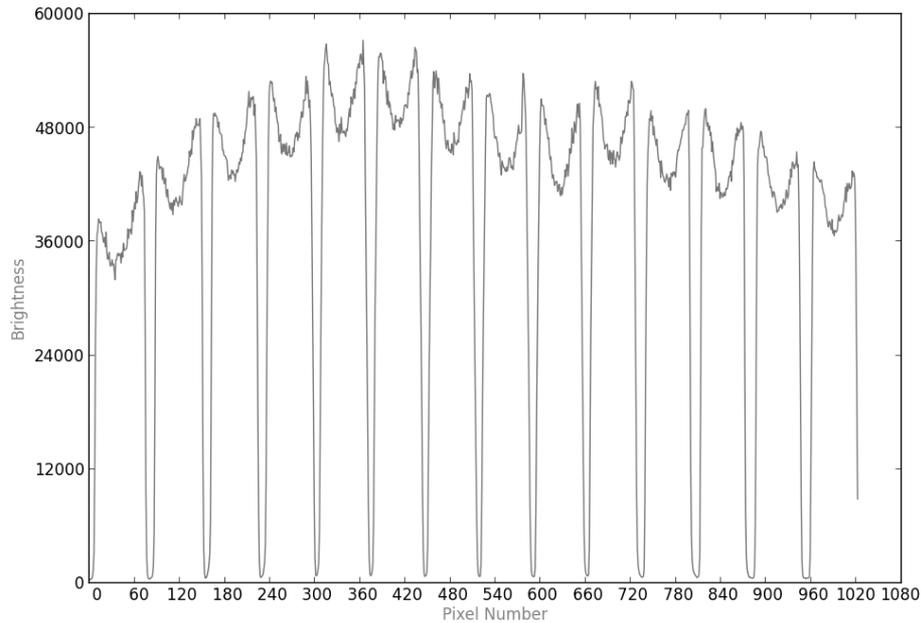
Wavelength calibration...approximately 0.3 nm/pixel

Currently testing Blue spectrometer and components of new system



Zoom in on the 450 nm data, shows good stray light characteristics, and a Full Width at Half Maximum of approx. 1 nm.

Preliminary results from the blue spectrometer prototype



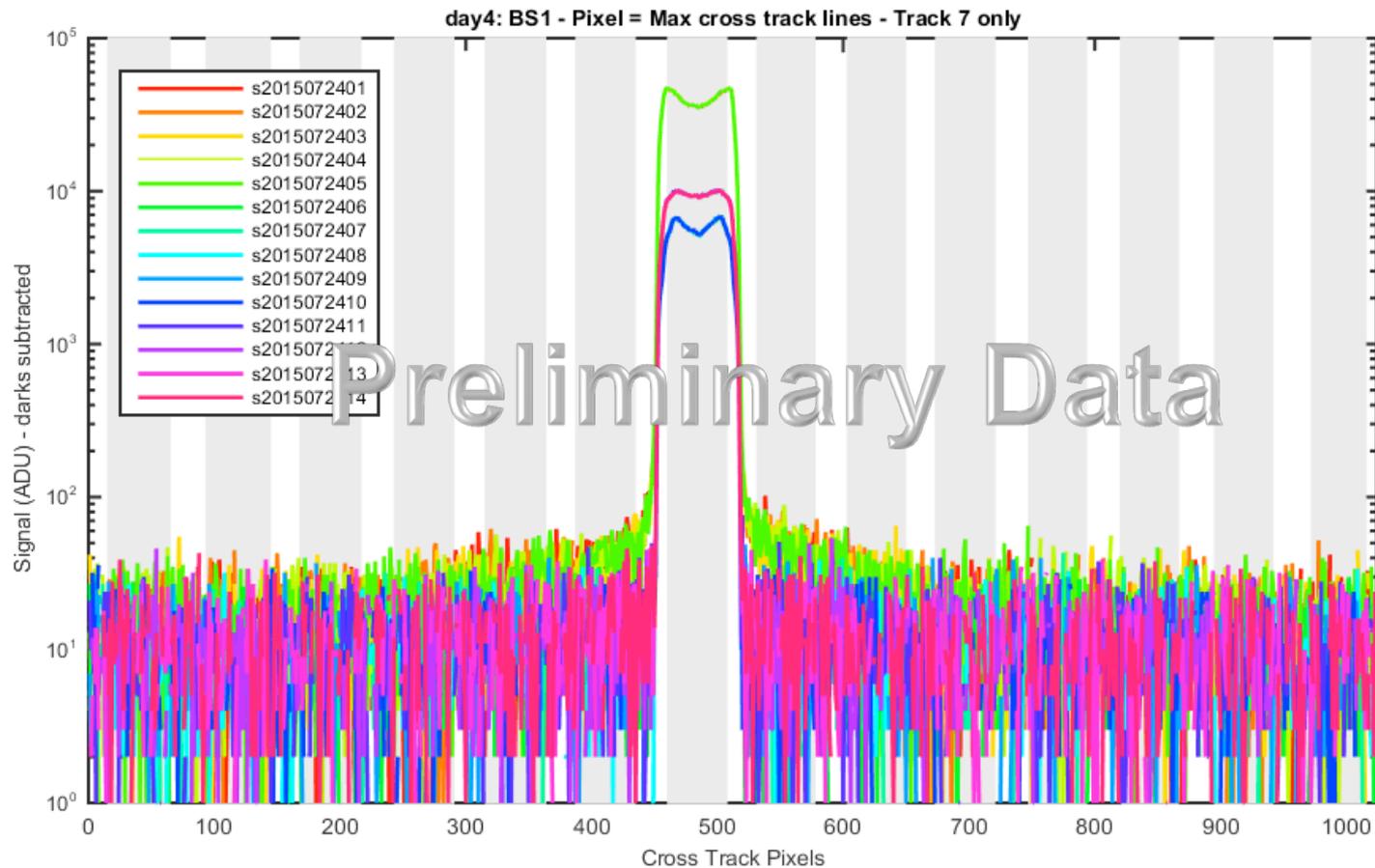
White light illumination

Showing spatial resolution



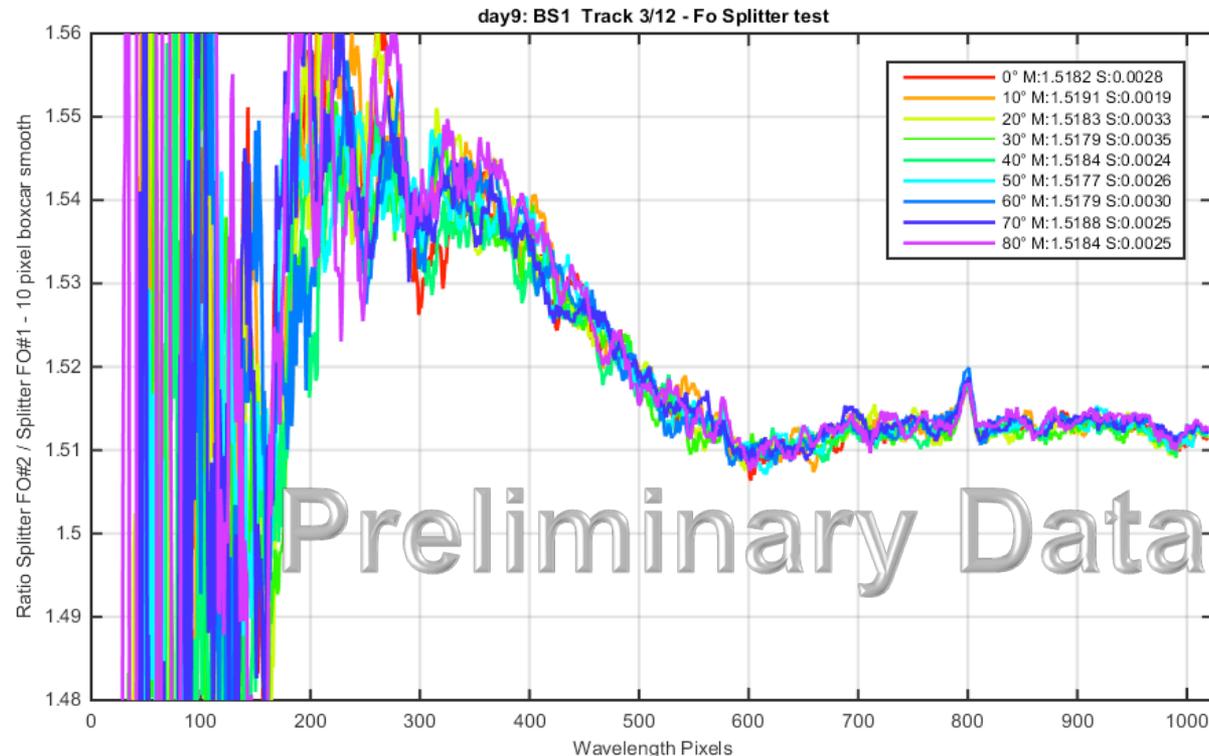
We will be doing spectral resolution, stray light analysis on the system in Hawaii.

Some data showing more detail on cross track imaging

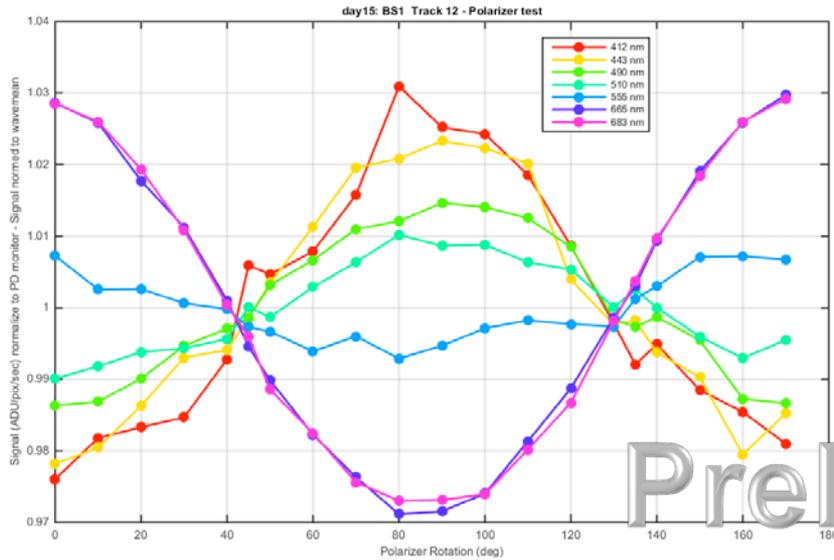


Testing new components to be used in new system, such as a fiber optic splitter instead of dichroic beam splitter:

Splitting ratio could be effected by how the light is put into the fiber at the collector, We tested by varying the incident angle of light on the cosine collector (worse case), no change in ratio....tests also help us learn more about the spectrometer systems operating parameters as we go along.



In the process we are cleaning up other issues we find with MOBY: slight polarization sensitivity

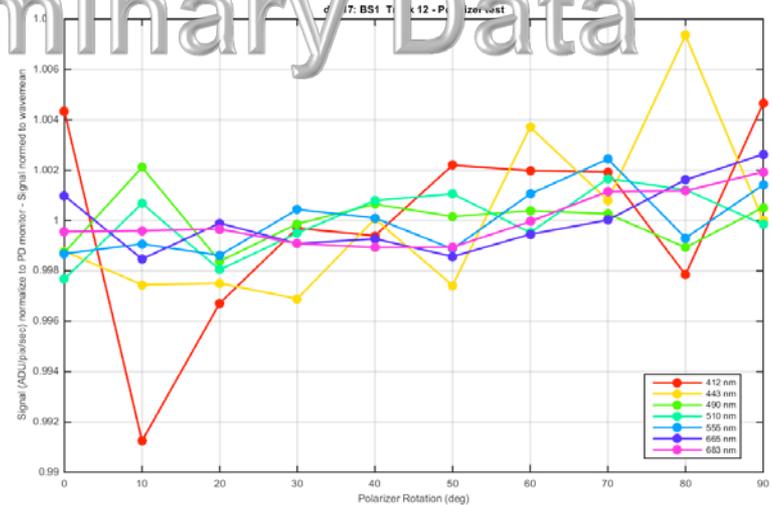


Before, +-3% (effectively 1.0% in field)

NOTE: SCALE CHANGE, LEFT +-4%
Bottom +-0.8%

After, no polarization
dependence evident signal
within +- 0.2%, no $\cos(2\theta)$
dependence.

Preliminary Data



Refresh schedule

- The September deployment will have the new controller.
- We are working towards having the first deployment of the Blue spectroradiometer on the January deployment (along side the current system). We are aiming for at least a one year cross over experiment.
- We have been able to order the long lead time items for the red spectrometer.
- We expect that we will be able to start ordering the rest of the parts needed for complete refresh in late spring 2016.
- The goal is to be completely done with Refresh by Sept 2018.