

# Overview and status of MOBY-Net concept

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# Main idea of MOBY-Net

Be able to support an additional remote site such that:

- Same optical design as the Hawaii deployment site for MOBY
- Consistent calibration with the Hawaii site
- Consistent data reduction

Follows IOCCG Insitu-OCR white paper on requirements for System Vicarious Calibration data site.

# Pieces of MOBY-Net

- Buoy, similar to MOBY, but designed to allow optical system to be removed intact.
- Separate stable source and source monitor to allow MOBY-Net's optical system to be tracked through complete process

# Envisioned protocol

-Additional Site has two MOBY-Net bouys, with sufficient infrastructure to deploy them in a rotating schedule.

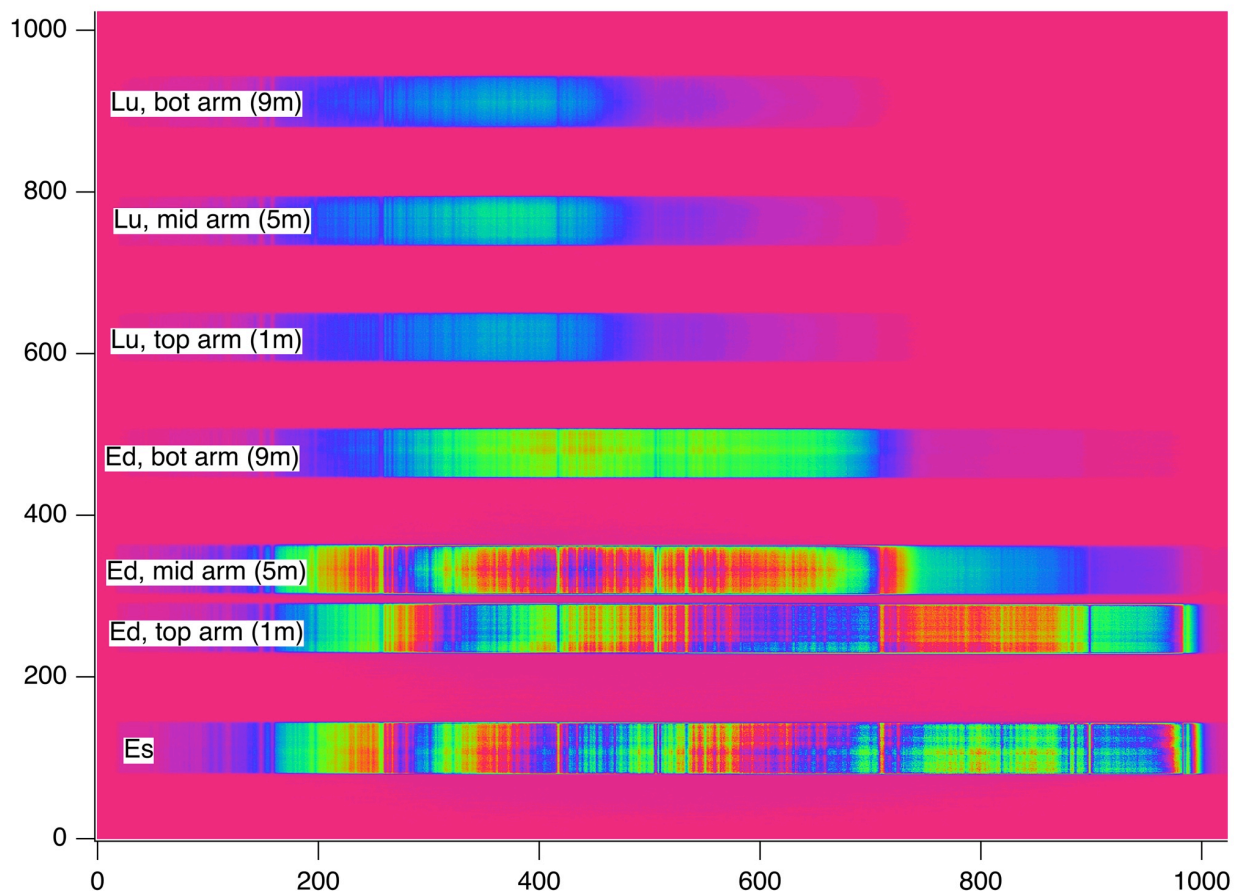
- 1) Optical system is calibrated
- 2) shipped to site
- 3) Installed on Buoy
- 4) deployed
- 5) recovered
- 6) taken off buoy
- 7) shipped to calibration site
- 8) recalibrated

At each step Optical system is checked with stability source and stability source is checked with monitor

The Blue spectrometer from the new optical system is being operated on MOBY during deployments:

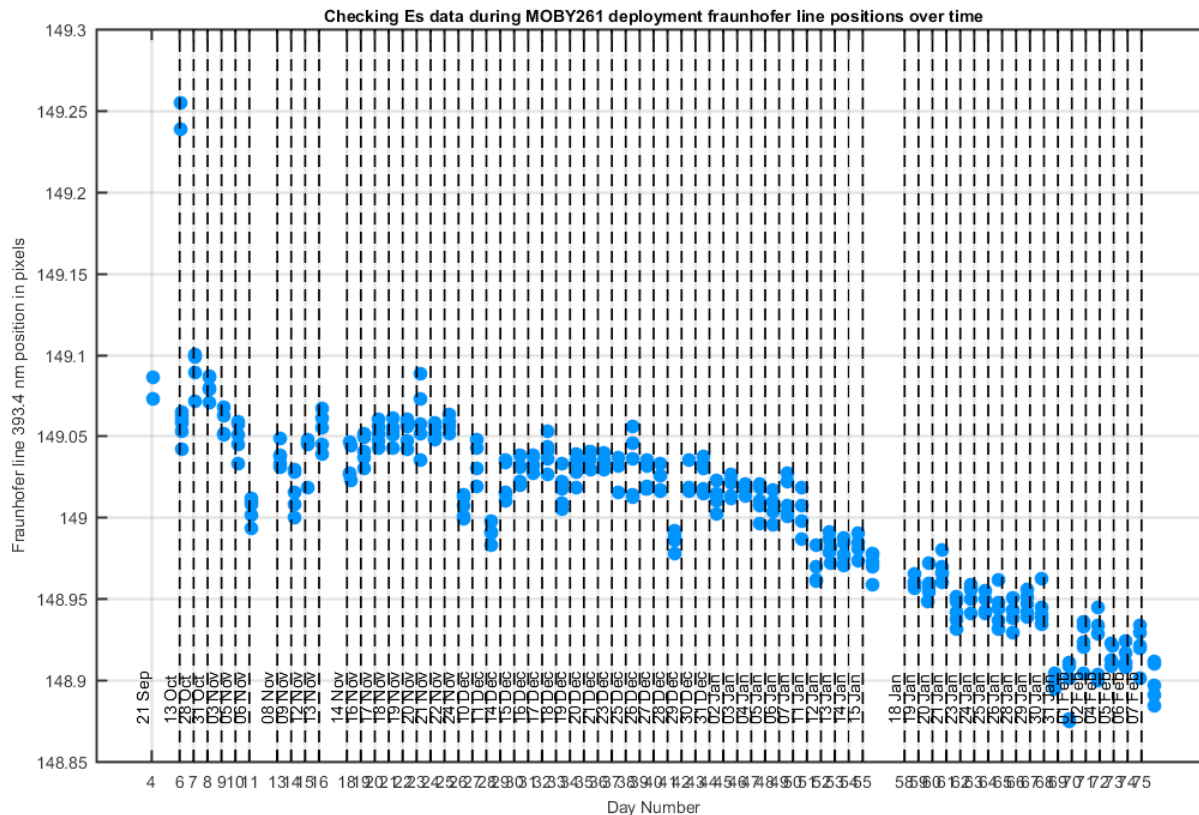


Preliminary results show that the new optical system does the simultaneous measurements, as we anticipated, but it is very optically “fast”, so must be slowed down (good problem to have).



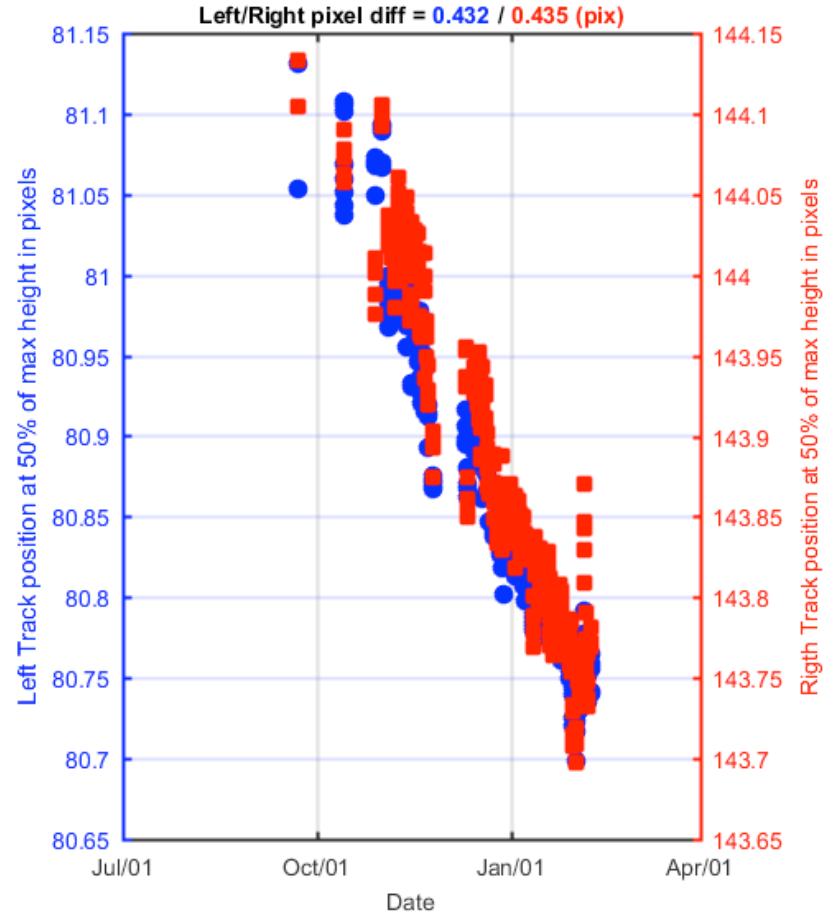
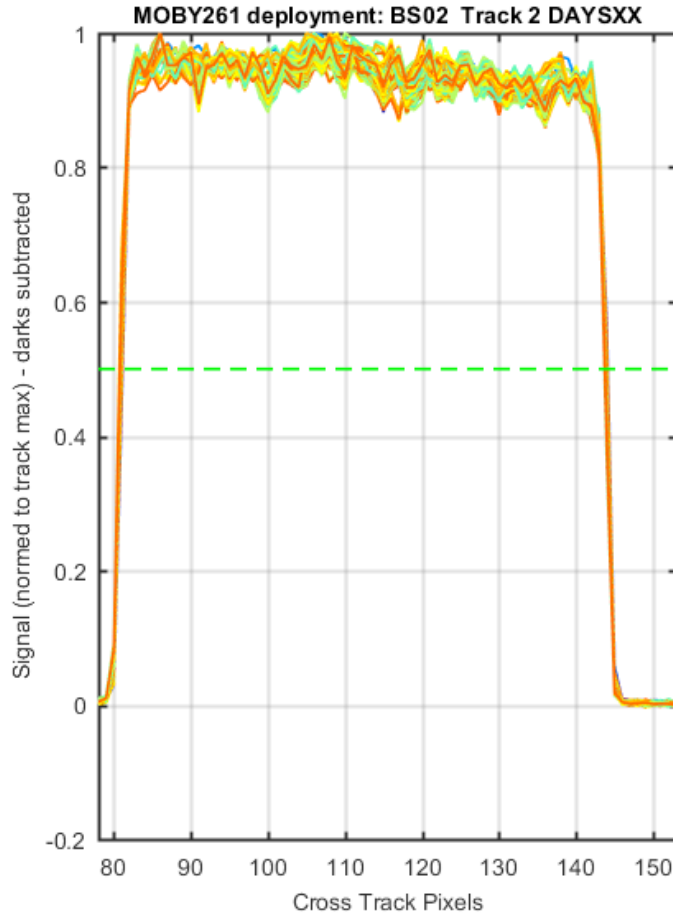
Wavelength from 340-700 nm

System has been very stable in both spectral registration (Less than 0.1 nm shift over 4 month deployment, as registered with Fraunhofer lines).



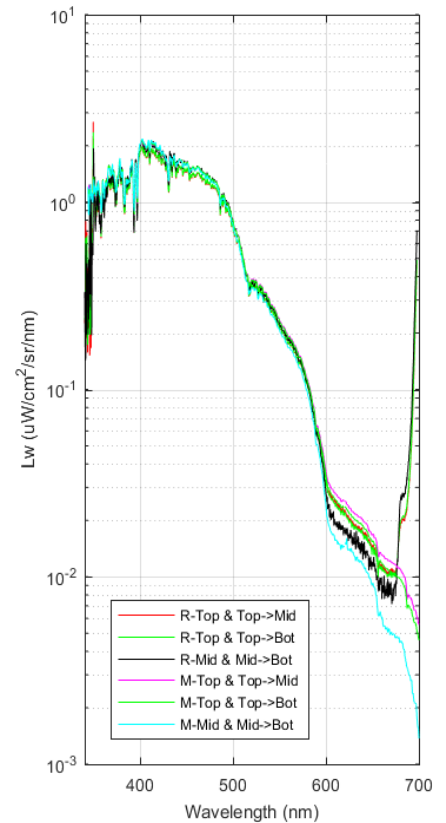
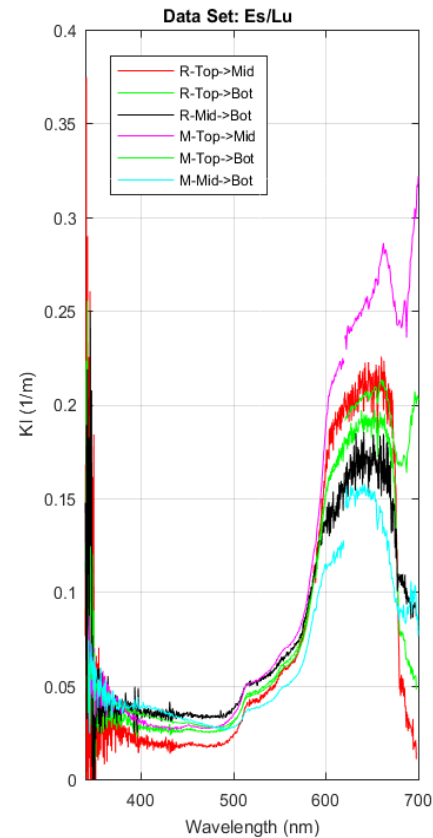
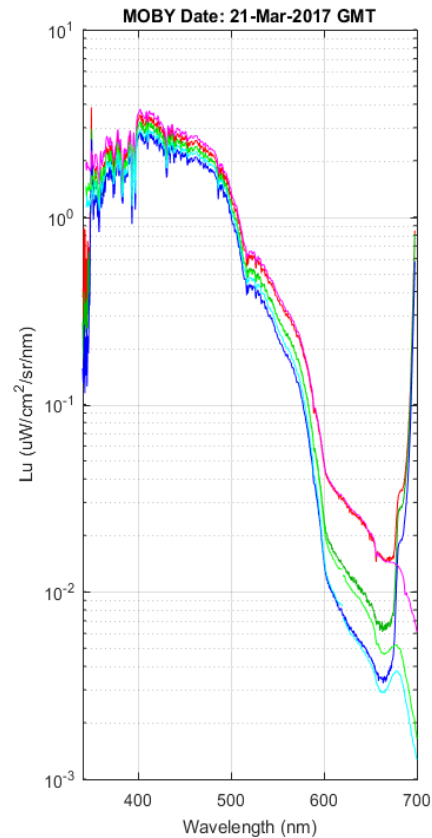
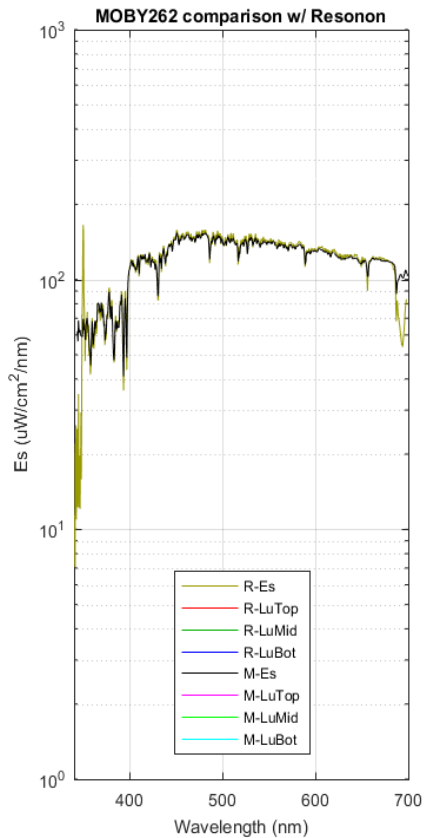
Vicarious calibration breakout  
Lisbon, May, 2017

And stable in the track dimension (less than 0.5 pixel shift over 4 months):





# Comparison of Heritage and new system



## MOBY-Net structure has been designed and built:



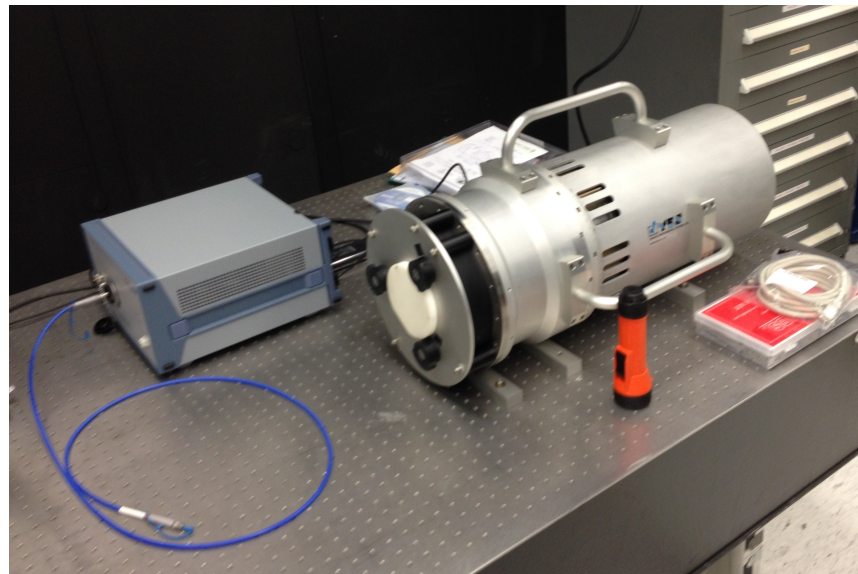
Above, main Spar with arms fitted in place.

To right: close up of end of spar with irradiance and radiance collectors fitted.



The other piece of MOBY-Net is the stability source and source monitor

The Stability System consists of a source stability system with SIMBIOS heritage and a CAS fiber-optic coupled spectral radiometer. Both are commercial systems, with modifications.



Vicarious calibration breakout  
Lisbon, May, 2017

# Conclusions

MOBY-Refresh and MOBY-Net are moving ahead. The goal is a yearlong cross-over between the new/old optical system, completed in 2018.