



National Aeronautics and
Space Administration



The Status of the SWOT Mission: Oceanographic Perspectives

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Mission Development

- Science Team Meeting in Toulouse (June 26-29)
- Application Working Group Meeting at USGS (April 5-6)
- Critical Design Review (CDR) is planned for February 2018
 - Karin CDR (Summer 2017) with fully functioning EM
 - Payload CDR (Fall 2017)
 - Spacecraft CDR (Nov 2017)
 - Measurement CDR (Dec 2017)
- Launch Vehicle has been chosen – SpaceX Falcon-9
- Science Data Systems (SDS) – on schedule.
- Quick-look data assessment before the end of 2017

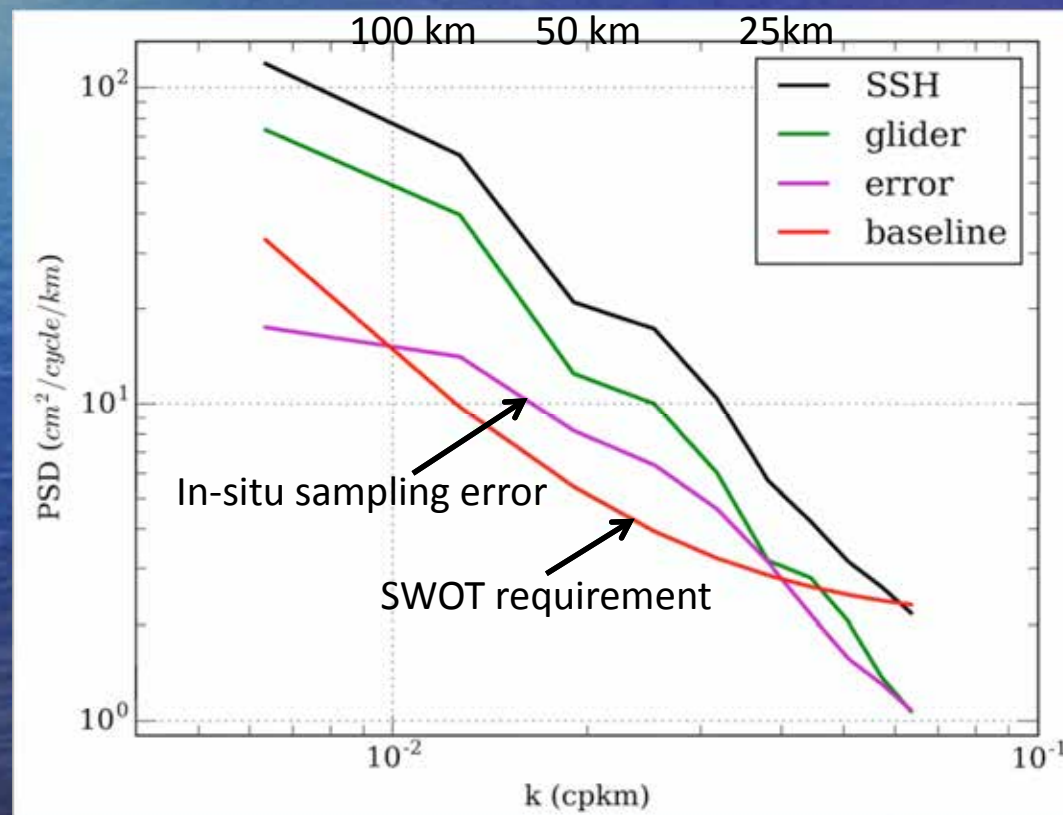
Ocean science issues and priorities

- New and exciting work is ongoing with high-resolution modeling including high-frequency tides and the internal gravity wave field.
- The challenge of interpreting SSH in the presence of balanced ocean circulation and internal tides and waves continues to be a focus of studies.
- Validating the models at fine scale and high-frequency is a priority.
- At launch, internal tide models may be useful for determining the signals that are coherent with the astronomic forcing, but the incoherent tides and waves will remain. Assessment of strategies to deal with these signals is a priority.

The Challenge of Ocean CalVal

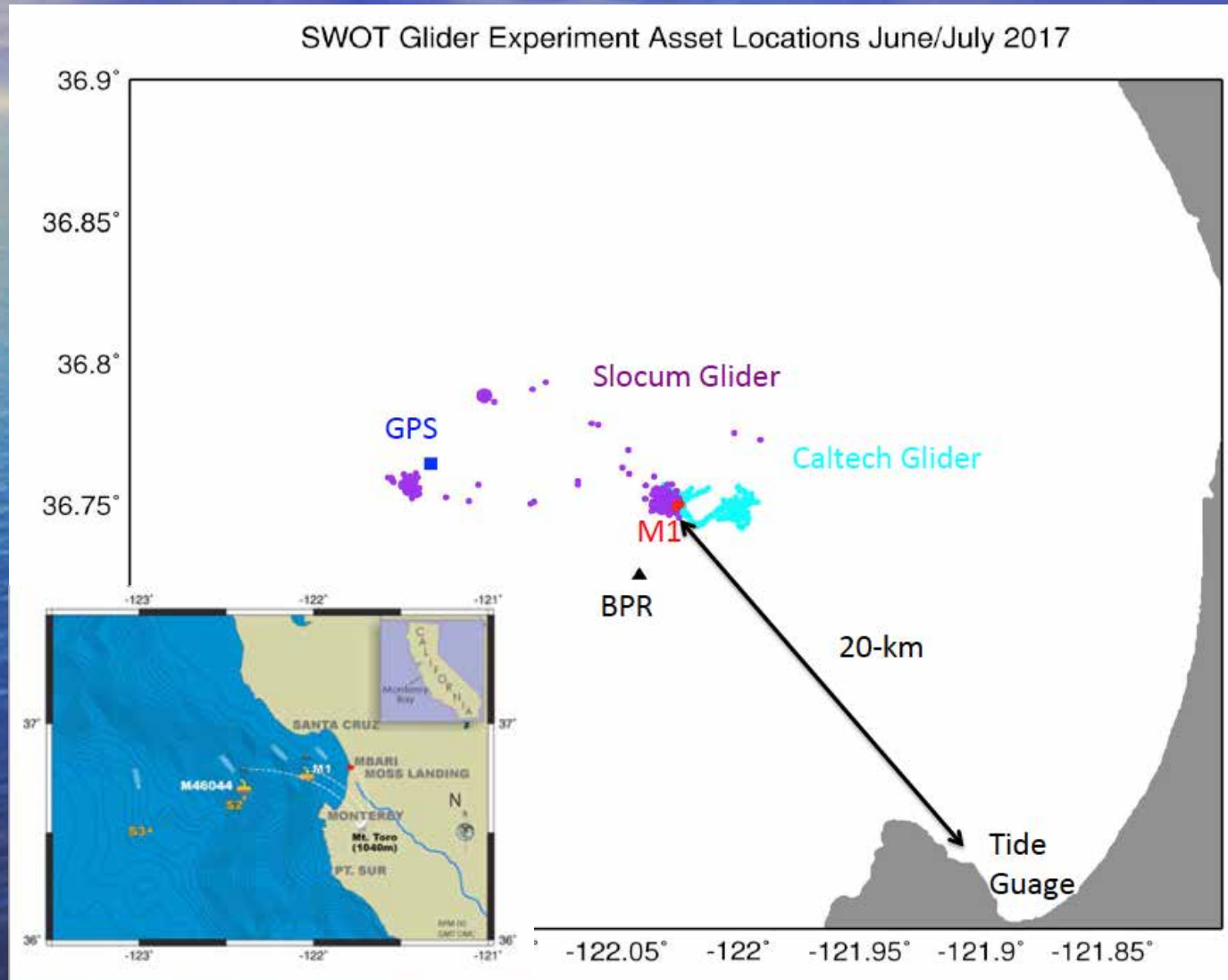
- SWOT is required to demonstrate the SSH performance in wavenumber space.
- The challenge is to provide a snapshot of the SSH from in-situ measurements for comparison to SWOT observations.
- We propose to deploy an array of station-keeping gliders as the baseline for the in-situ observing system
- We will also conduct global statistical calval at SWOT and SWOT-J-CS/S3 crossovers & science validation

SSH Wavenumber Spectrum

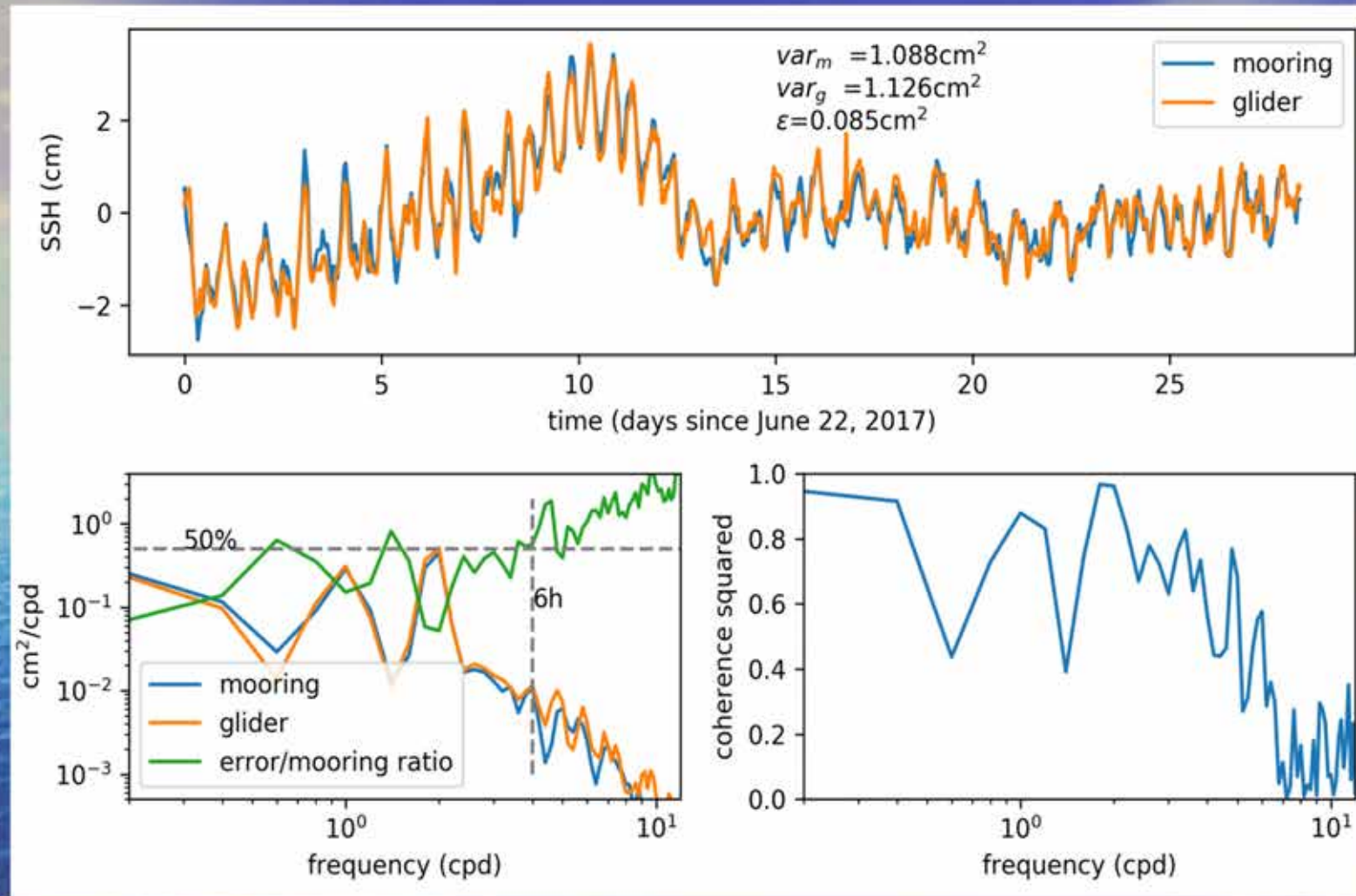


A pilot experiment in the Monterey Bay

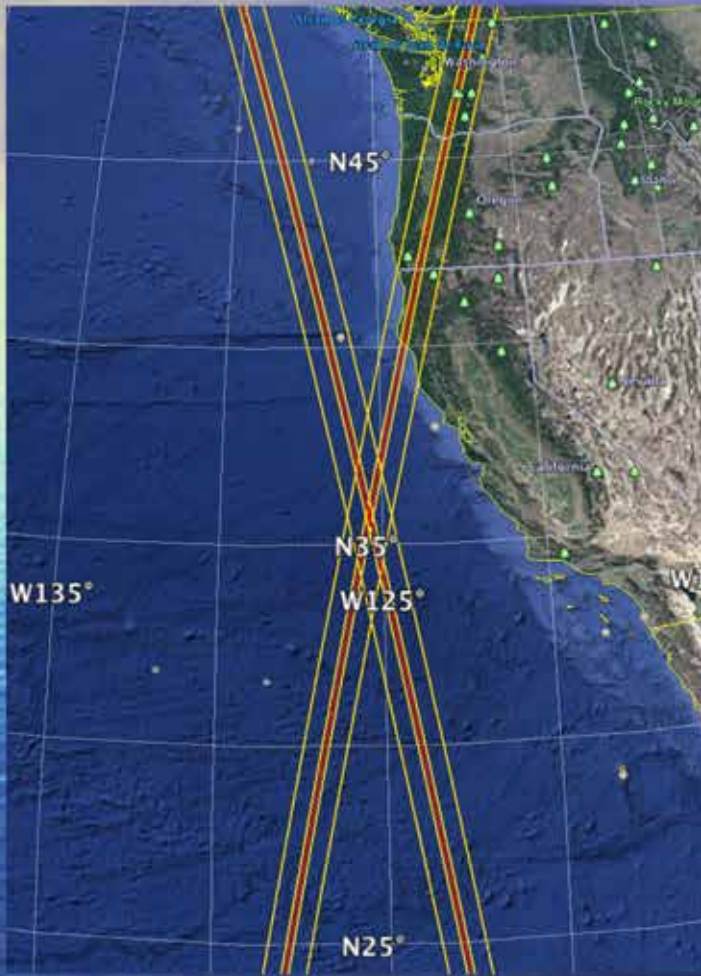
- The M1 mooring provided SSH truth.
- Station keeping gliders were tested.



Preliminary results suggest that the glider meets expectation



Glider station keeping meets the upper ocean sampling requirement



The next step is to put together a plan to conduct an experiment at the calval site to test

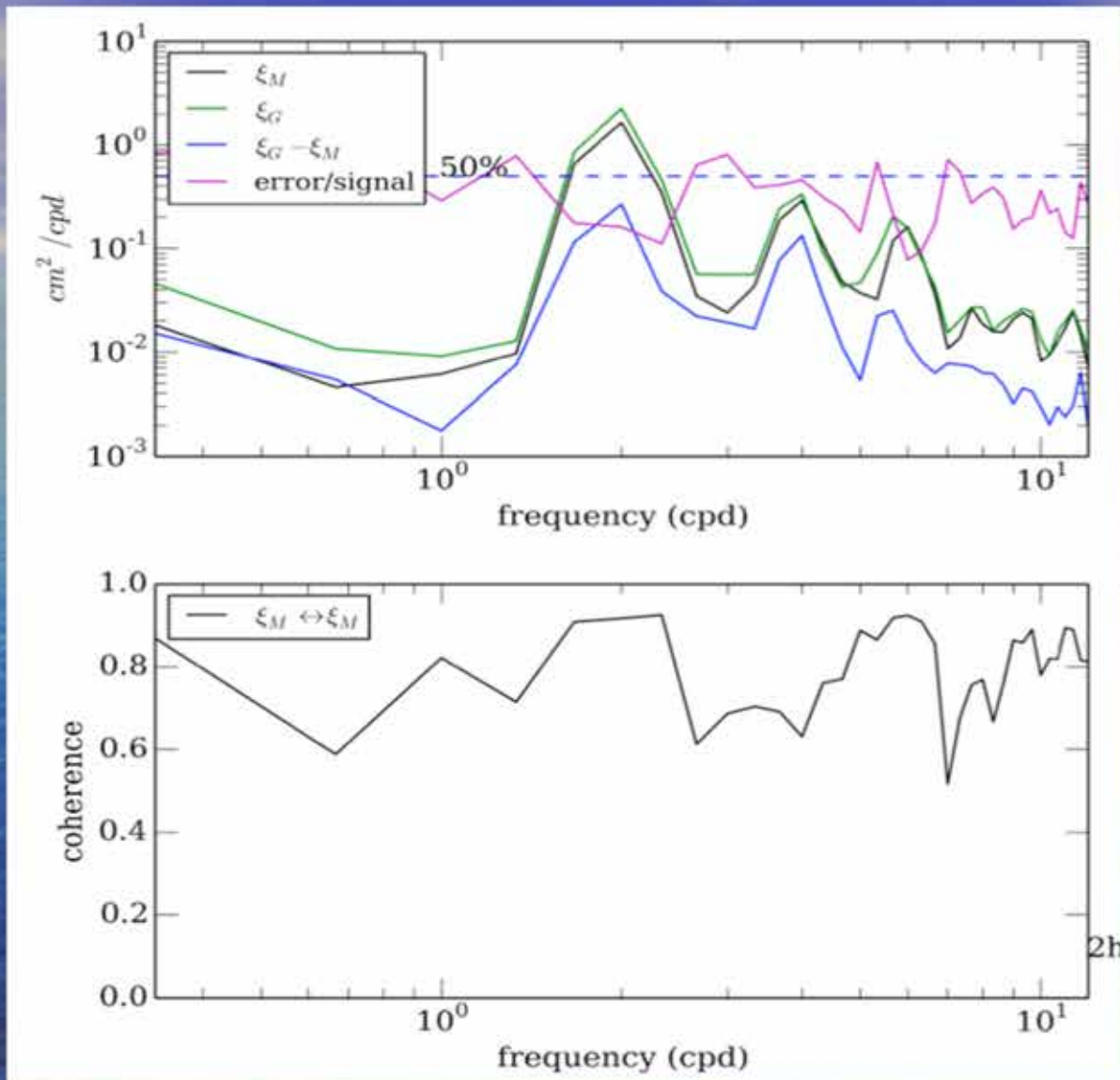
(1) The station keeping performance

(2) The model calculation that shows the sampling of the upper 500 m by the gliders is sufficient for meeting the calval objectives.

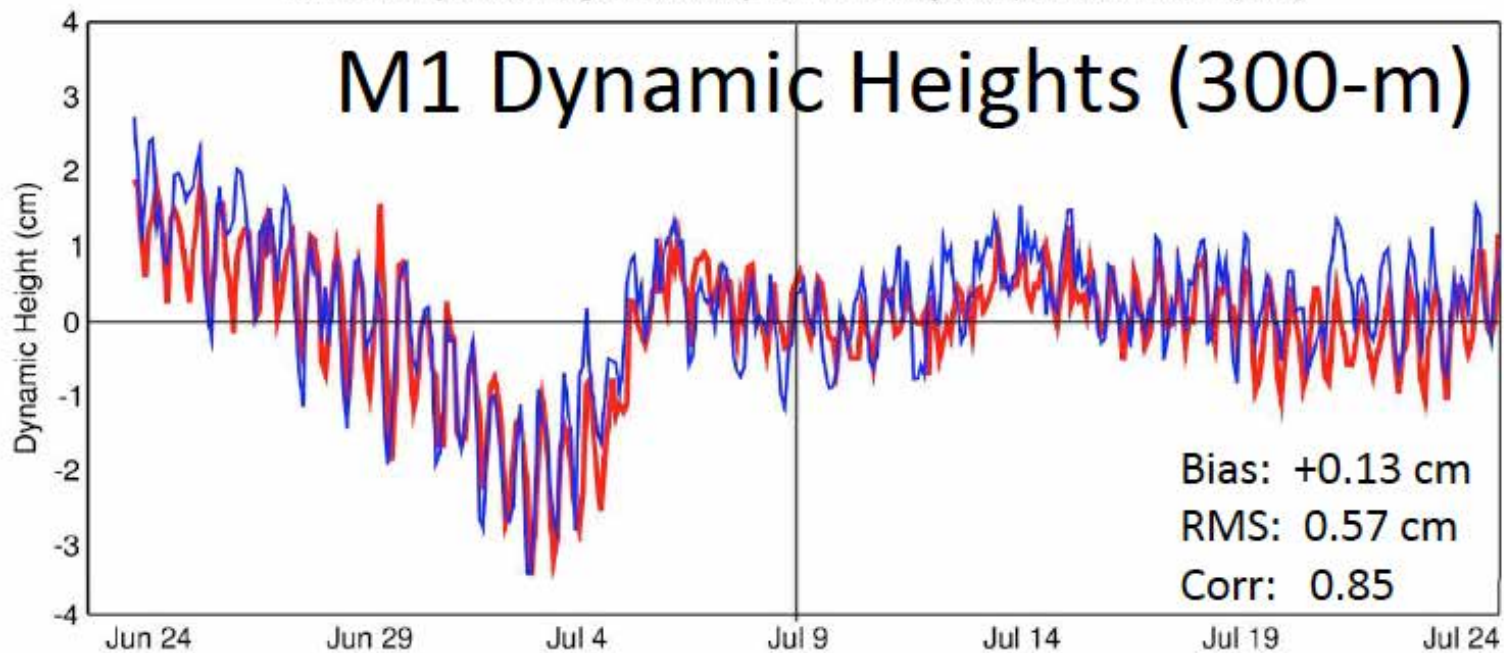
A wide-angle photograph of a vast blue ocean under a clear blue sky. On the left side, a vibrant rainbow is visible, its colors reflecting on the water's surface. The text "BACK-UP" is centered in the upper half of the image in a bold, white, sans-serif font.

BACK-UP

Glider performance assessment metric



M1 300m Dynamic Height, June/July 2017 Mooring (Red), Slocum Glider (Blue)



M1 300m Dynamic Height, June/July 2017 Mooring (Red), Seaglider (Green)

