

# PML

Plymouth Marine  
Laboratory

Listen to the ocean

## **FRM4SOC Radiometric field inter-comparison at the Acqua Alta Oceanographic tower.**

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**Fiducial Reference Measurements (FRM)** are distinct from in situ: *“The suite of independent ground measurements using accepted satellite protocols, **traceable to metrology standards**, **referenced to inter-comparison exercises**, with a full uncertainty budget to provide independent, high quality, satellite validation measurements for the duration of a satellite mission.”* **ESA S-3 Validation Team.**

**AAOT has long history of optical measurements to support and validate both NASA and ESA ocean colour missions and radiometer inter-comparisons (Zibordi et al. 2006; 2009, 2012).**

### **Objectives of the FICE-AAOT:**

Under the same calibration and environmental conditions, to compare  $E_d$ ,  $L_i$ ,  $L_t$  and  $R_{rs}$  between participants using their standard protocol. The comparisons included:

- Sensors (2 x HyperOCR; 5 x TRIOS-RAMSES, 1 x WISP, 2 in water; Bio-spherical & TRIOS systems).
- Methods (in & above-water).
- Above water systems measurement geometries ( $90^\circ$  /  $135^\circ$ ).

# Participants.



- **11 different measurement systems** were **compared** from 9-18 July 2018.
- Absolute radiometric calibration of all sensors was carried out using the same standards and methods at the same reference laboratory (University of Tartu).
- For  $\mathbf{E_d(O^+, \lambda)}$ , there was generally good agreement with **differences of <5%** between institutes,.
- For  $\mathbf{L_{sky}(\lambda)}$  and  $\mathbf{L_t(\lambda)}$  the **differences** in above water between institutes were consistently **<5%**.
- Next steps; scrutinise  $\mathbf{R_{rs}(\lambda)}$  processing.

# Thank you

