Copernicus FICE 2025

Training on

In situ Ocean Colour Above-Water Radiometry towards Satellite Validation

The Bay-sketballers

fiducial reference measurements for satellite ocean colour

UNIVERSITY OF TARTU

BROCKMANN CONSULT

CNR ISMAR ISTITUTO DI SCIENZE MARINE

NPL National Physical Laboratory

EOScience

30 1995-2025 Venice International University

PROGRAMME OF THE EUROPEAN UNION

Copernicus

IMPLEMENTED BY EUMETSAT

NASA

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In situ Ocean Colour Above-Water Radiometry towards Satellite Validation

A.k.a. the Ciccheti syndicate

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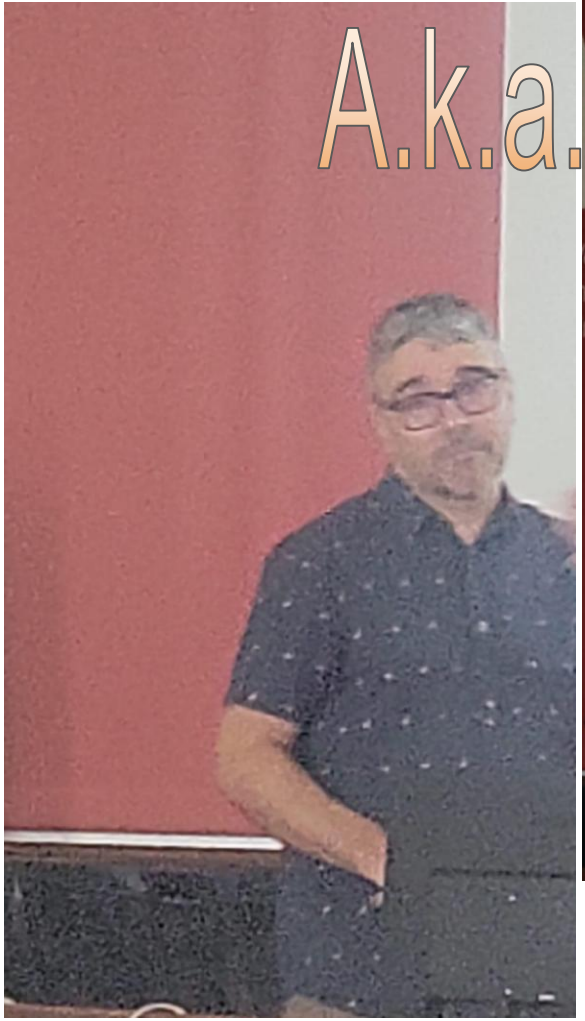
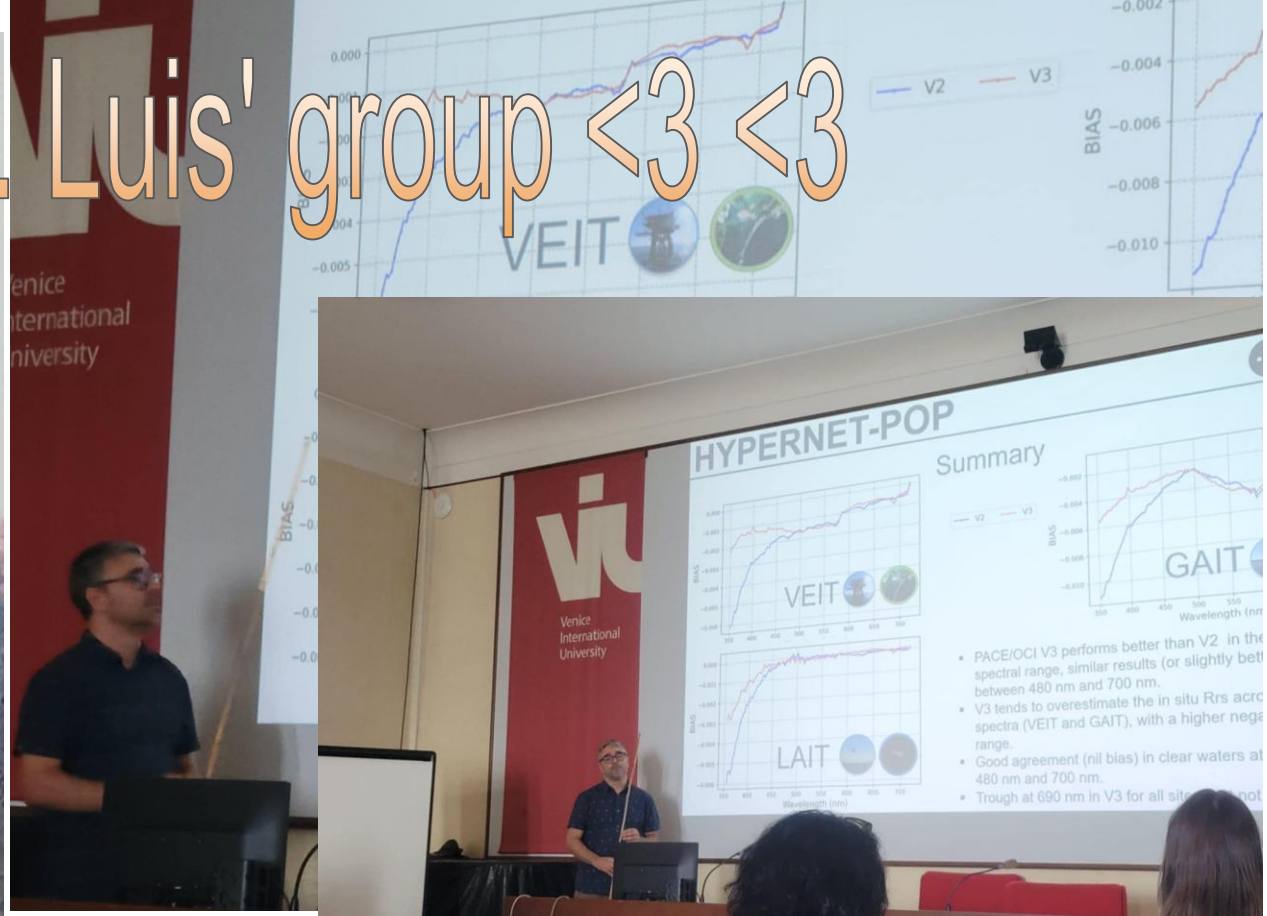
Copernicus Europe's eyes on Earth

IMPLEMENTED BY EUMETSAT

NASA

A.k.a. Luis' group <3 <3

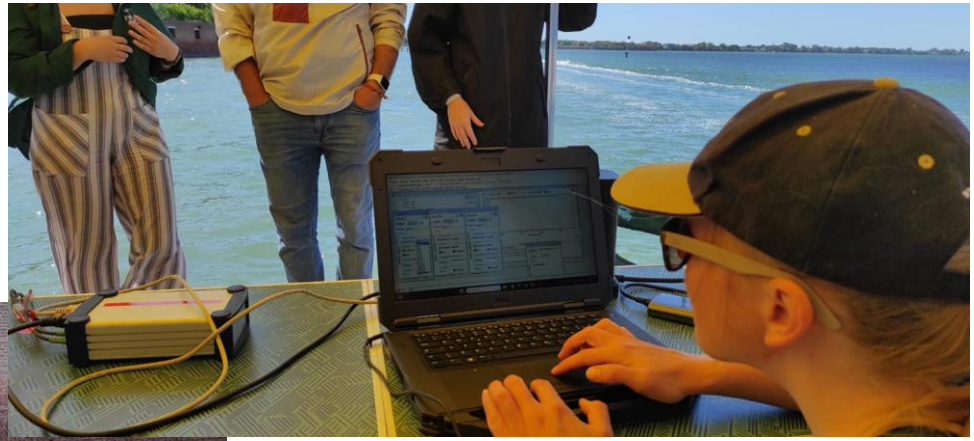




PART I

Field experience

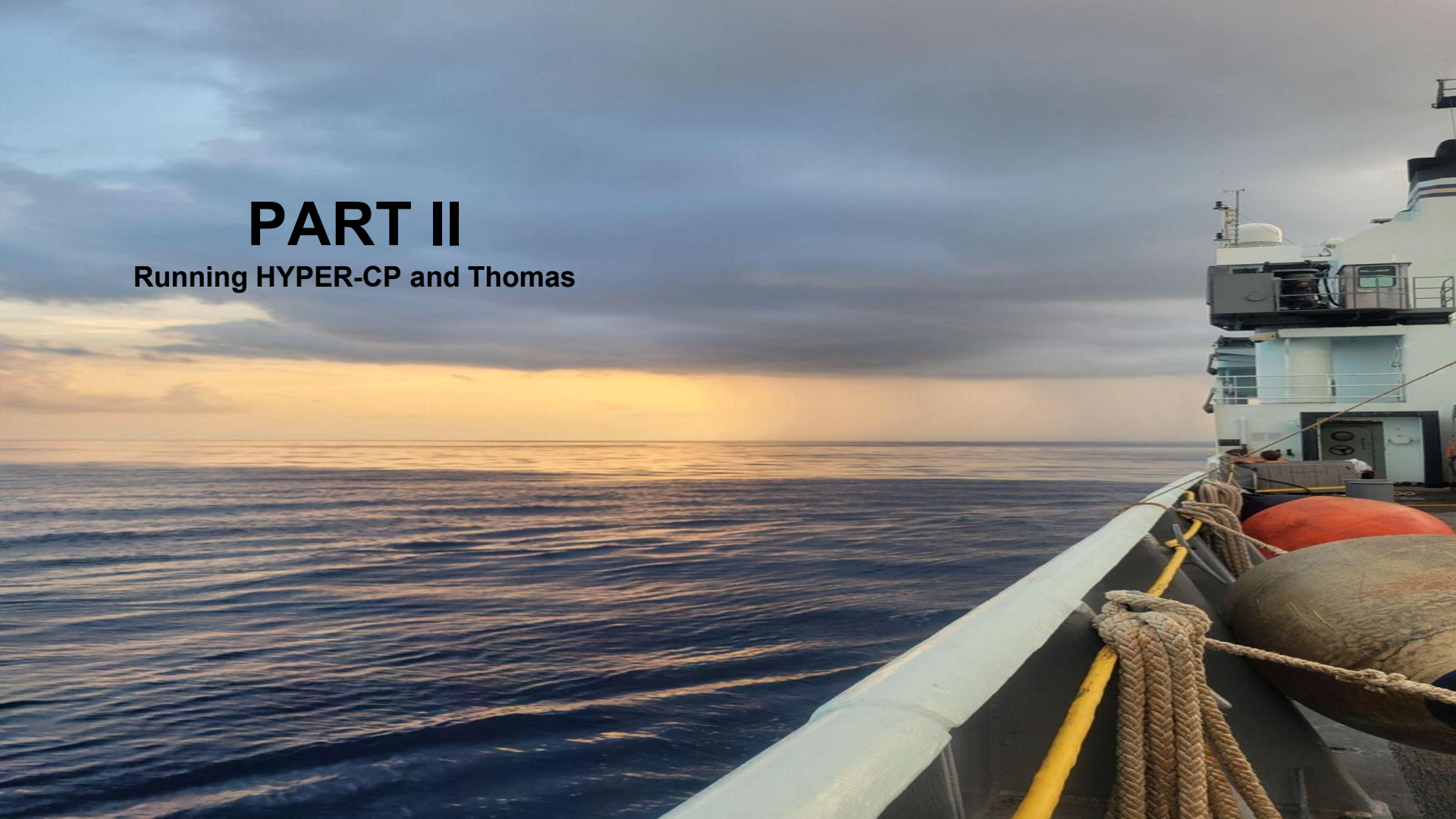
Your experience during the field measurements in San Servolo and AAOT



It was easy because the teaching team did everything and all was well prepared

Experts might not be around when doing field measurements


VE 8428



PART II

Running HYPER-CP and Thomas

PART II

+ Leg 2 but we were not there

2025 EKAMSAT cruise TN-444A (Leg 1)

PySAS goes here

The Ekamsat cruise in the Bay of Bangal:
PACE in situ calibration effort

- **Radiometry**
- Optical measurements
- Discrete sampling (flow cytometry and HPLC)
- Some physical oceanographer toys

Leg 1: 5th May to 16th May
Leg 2: 1st June to 15th June

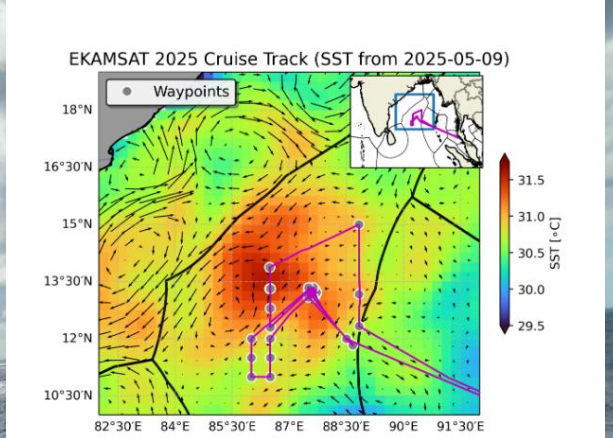
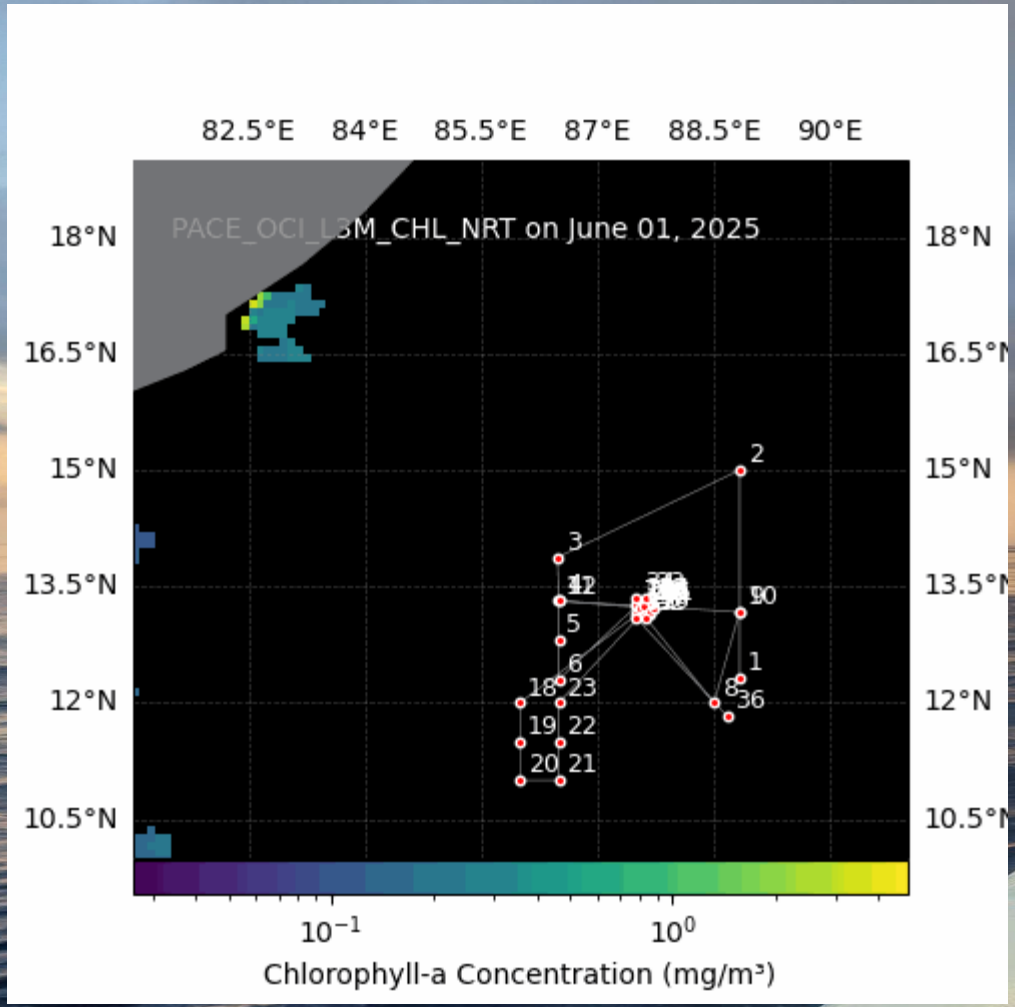
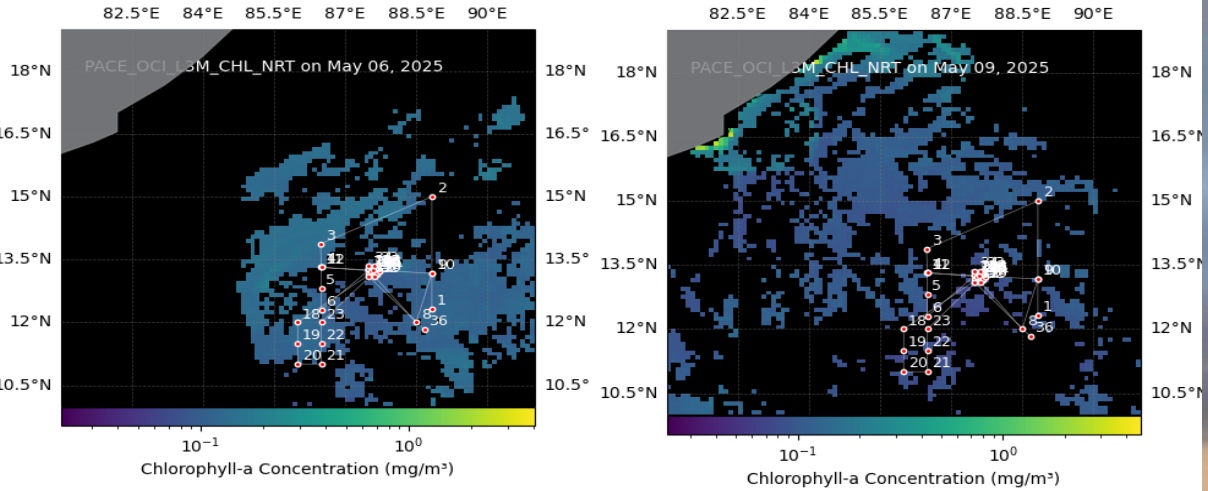
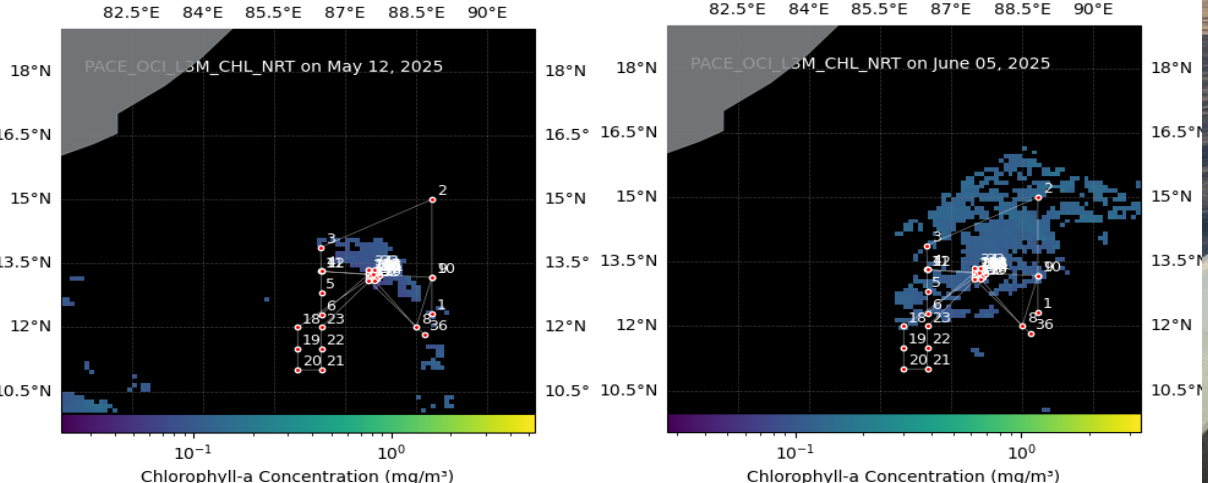


Figure 1: Cruise track and sea surface temperature during TN-444A.



Made with Earthdata access and inspired by **PACE data visualization scripts from Carina Poulin**



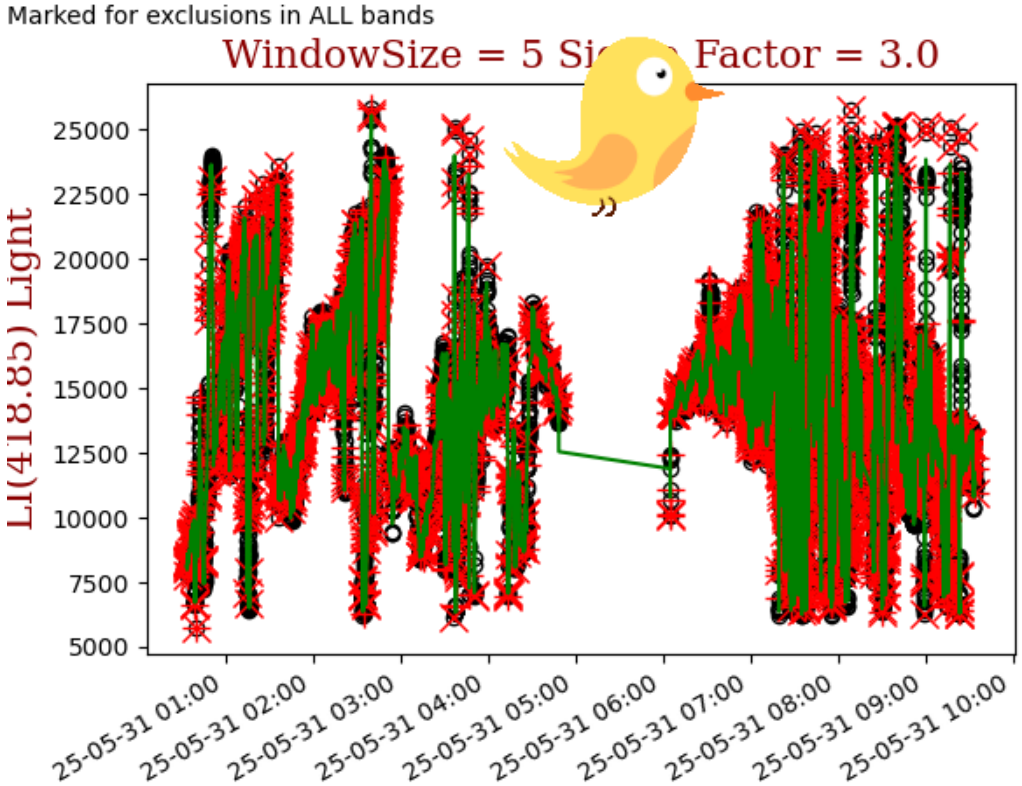


Shockingly the monsoon season comes with clouds.

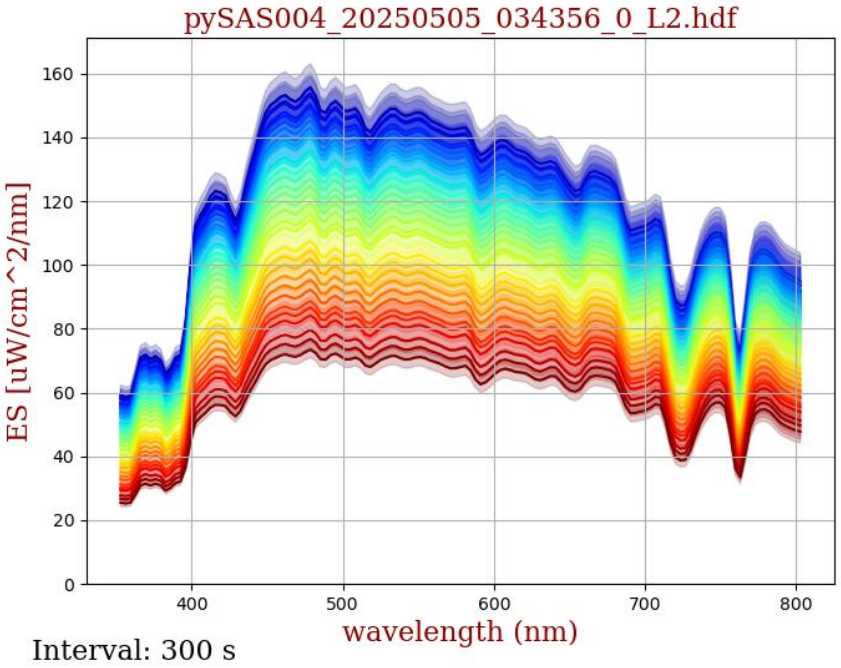
For a 30 day cruise → 4 days that appear to have data

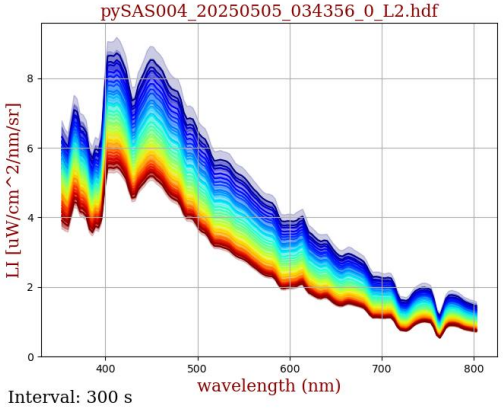
Made with Earthdata access and inspired by **PACE data visualization scripts from Carina Poulin**

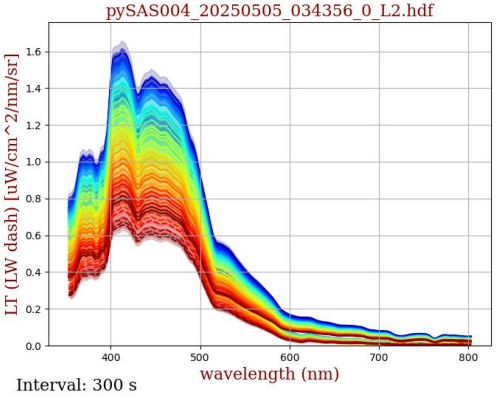
Most days: High cloud variability (Or birds ?)



24 hours measurement files: Cannot use spectral outliers







Very blue Type 1 waters.
Good quality spectra

QWIP score: < 0.1

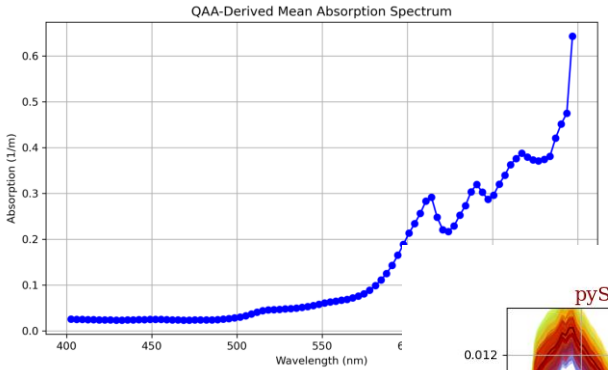
AVW: 457nm

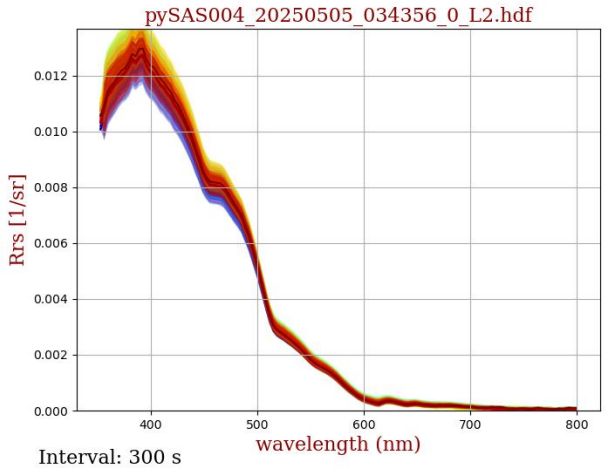
Wei: 1

Used Mobley Glint Correction,

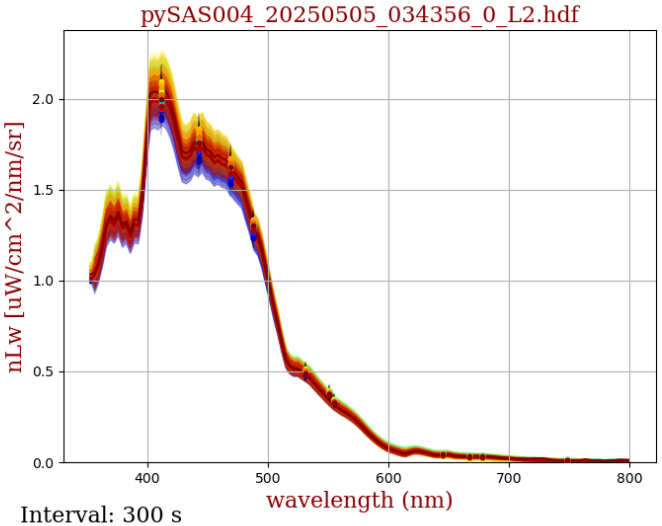
O25 BRDF

→ Little difference when changing those



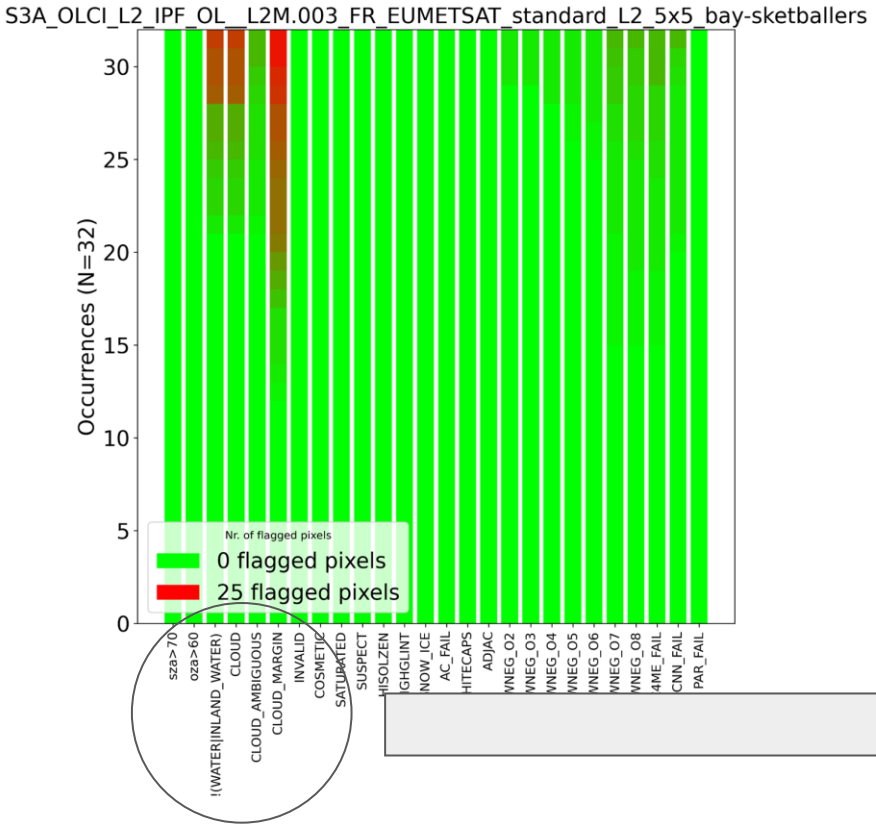


Interval: 300 s



Interval: 300 s

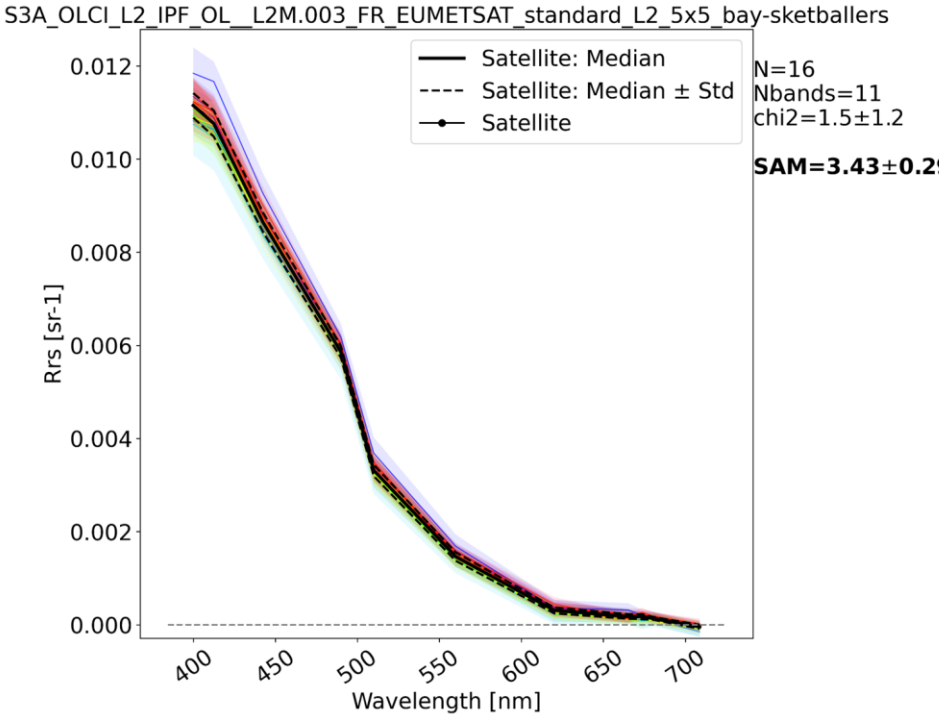
Thomas - 05 May 2025 - Sentinel 3A

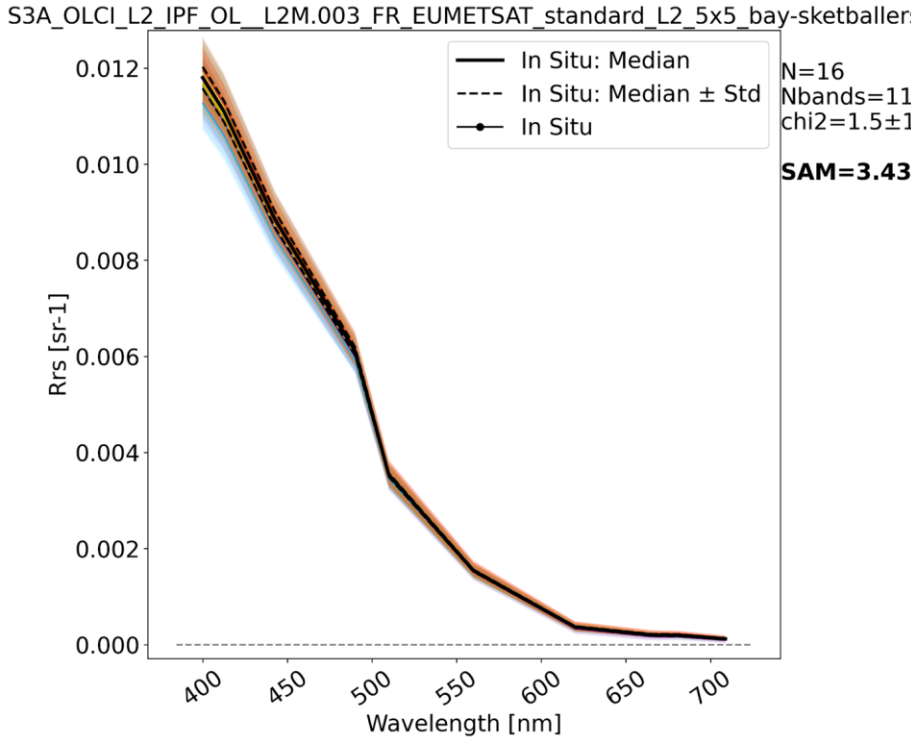


16 / 32 valid match-ups

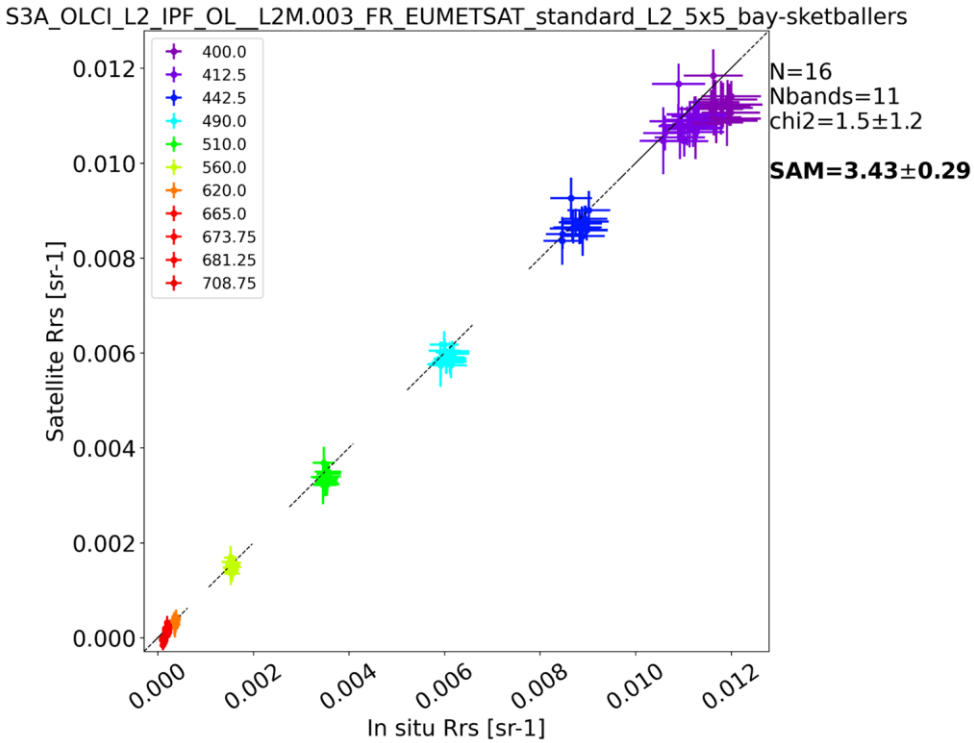
Mainly clouds

Thomas - 05 May 2025 - Sentinel 3A

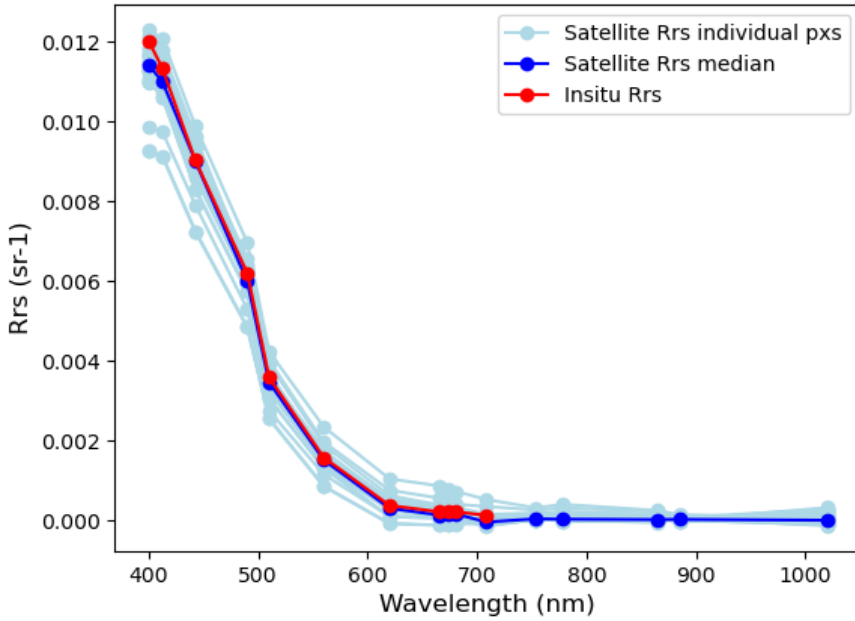




Thomas - 05 May 2025 - Sentinel 3A



Closest match-up in time



Satellite time: 2025-05-05 03:54:47

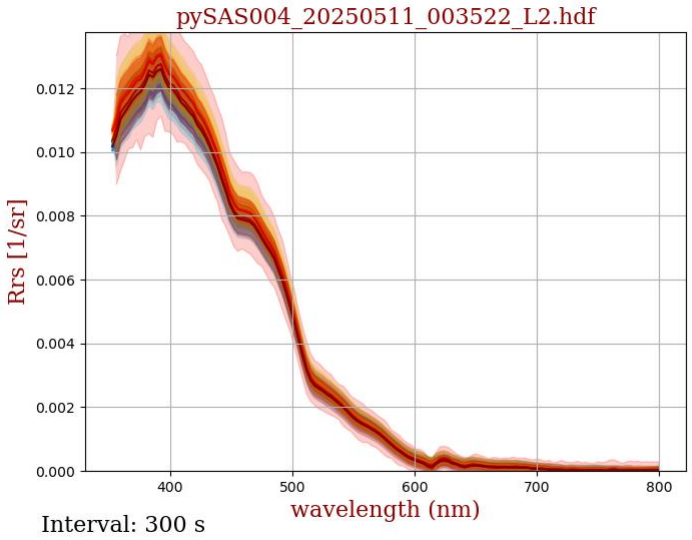
In situ time: 2025-05-05 03:43:56

PART III

Achieving *FRM quality* over your future measurements

Is there any specific procedure that you follow that you consider to be specific to your measurement conditions (site/instrumentation/other) and that should be accounted for in the current documentation?

Maybe label clearly which radiometer is meant for Lt and Li



Take away messages to achieve FRM quality

- Preparation is key
- Better to be overkill with ancillary data in the field than the opposite
- Making the ancillary file takes longer
- Training the community <3 <3 <3

- You can always get results from feeding garbage data.
  - BUT you will get garbage result

Grazie