International Ocean Colour Science Meeting 2025

Advancing Global Ocean Colour Observations

Plenary Panel Discussion on: *Supporting EO with high quality in situ measurements*

Darmstadt, Germany

December 1, 2025

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Objectives

- Explore innovative approaches to *in situ* data acquisition, processing, analysis and integration
- Focus on the high quality of situ measurements for validation (*e.g., Fiducial Reference Measurements* - FRM)
- Incorporate industry partners & community science cost-effective measurement solutions

Panelists

- Agnieszka Bialek, NPL, UK (Metrology/Fiducial Reference Measurements)
- Andrew Barnard, OSU, USA (Academy, Industry, autonomous profiling)
- Stefan Simis, PML, UK (High-tech, low-cost sensors, community science)
- Sindy Sterckx VITO, BE (Drones for in situ measurements)

FRM (Fiducial Reference Measurements)

The *Fiducial Reference Measurement (FRM)* concept was established to highlight the need for highly accurate *in situ* measurements supporting the post-launch satellite activities commonly referred as *Cal/Val*.

In situ radiometric measurements should be considered adhering to FRM requirements when:

- *Performed following*
  - *i*. published and verified, ideally community shared, measurement protocols and
  - *ii*. detailed quality assurance (QA) criteria.
- *Executed with instruments exhibiting*
  - *i*. features allowing to satisfy application needs and
  - *ii*. documented radiometric performance (*i.e.*, absolute calibrations traceable to SI and characterizations).
- *Reduced and processed in agreement with community shared procedures supported by details on*
  - *i*. the processing flow,
  - *ii*. the quality control steps (QC), and
  - *iii*. the metrology applied for the determination of the uncertainty budget.