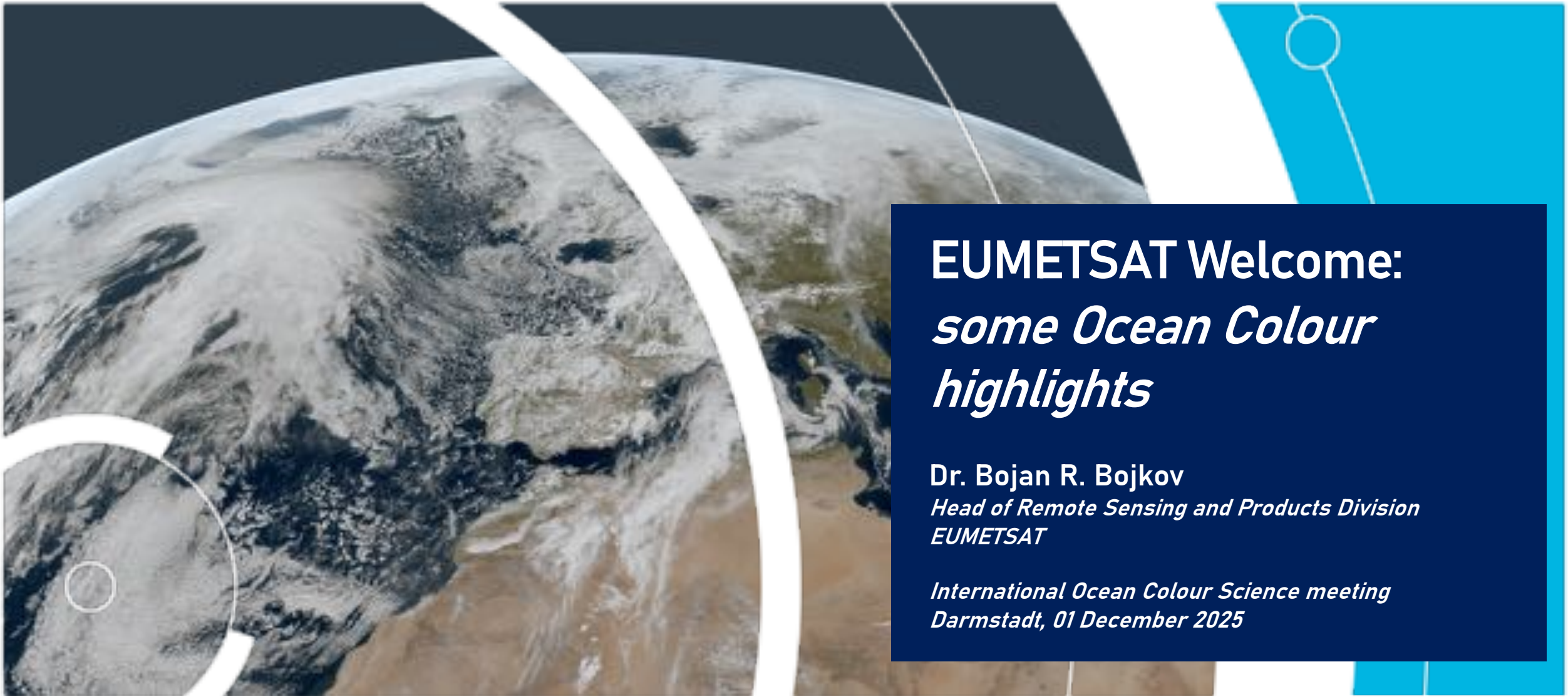


EUMETSAT Welcome: *some Ocean Colour highlights*

Dr. Bojan R. Bojkov
Head of Remote Sensing and Products Division
EUMETSAT

International Ocean Colour Science meeting
Darmstadt, 01 December 2025

EUMETSAT: serving Earth system science & our society

www.eumetsat.int

EUMETSAT is an intergovernmental organisation whose mission objectives are to:

- Establish, maintain and exploit European systems of meteorological satellites.
- Contribute to the operational monitoring of the environment, and of the climate and the detection of global climatic changes.

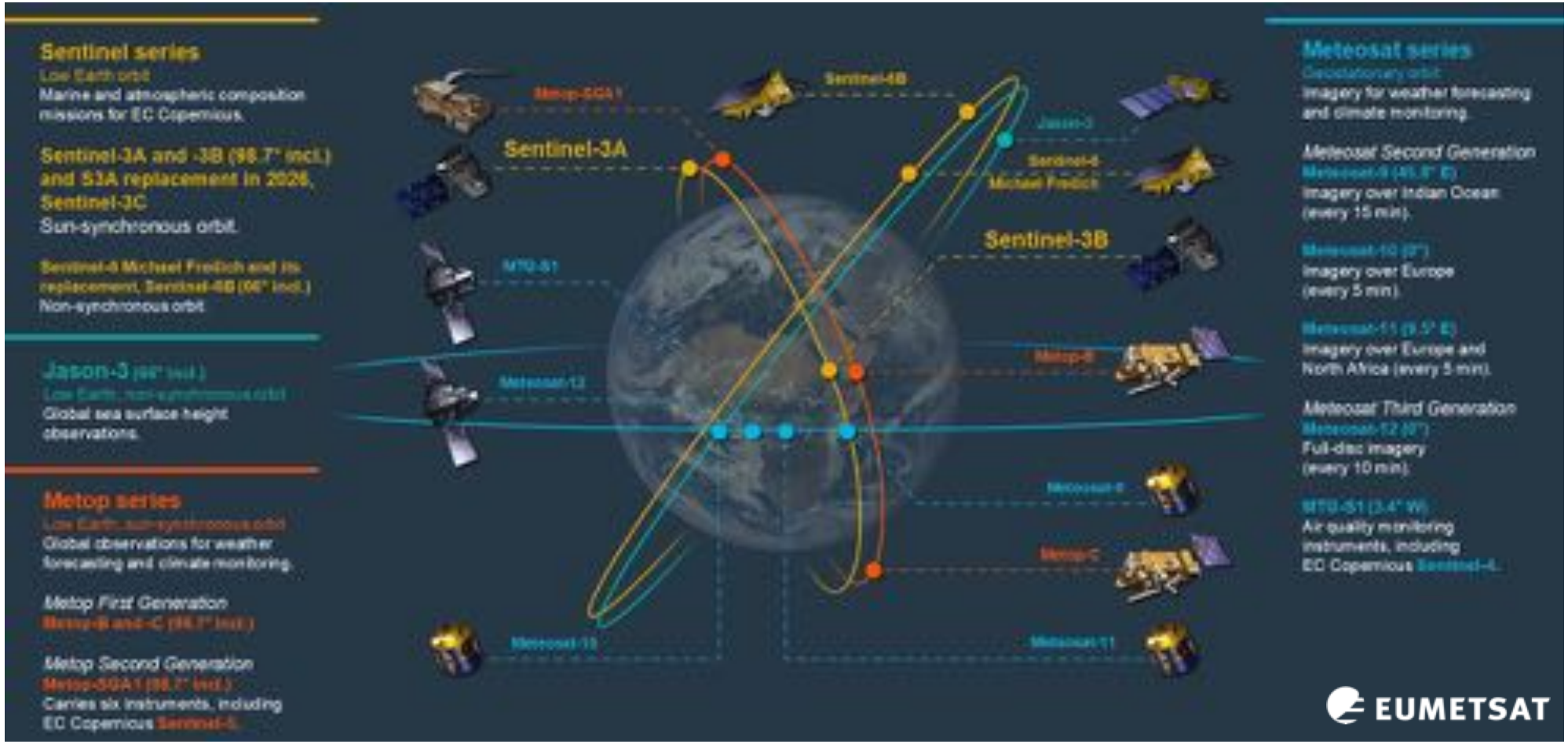
MTG-I, True colour RGB, June 2023

Full disk is scanned every 10 minutes

Ocean Colour: serving Earth system science & our society

In agreement with the European Commission, EUMETSAT is responsible for the operations of a large fleet of Sentinel satellites within the Copernicus Earth Observation Programme (Sentinel-3, Sentinel-4, Sentinel-5, Sentinel-6, and CO2M)

For Ocean Colour (or Aquatic Colour), EUMETSAT operates the Sentinel-3 constellation that carries Ocean and Land Colour Instruments (OLCI)



Current status of Sentinel-3 Ocean Colour products

Sentinel-3 OLCI Level-1

- Operational and reprocessed (collection 4)
- Major updates:
  - TSIS-1 Solar Irradiance Reference Spectrum
  - Per-pixel Radiance Uncertainties included in the products
  - Spectral Temporal Model introduced
  - Geometric and Radiometric calibration revised

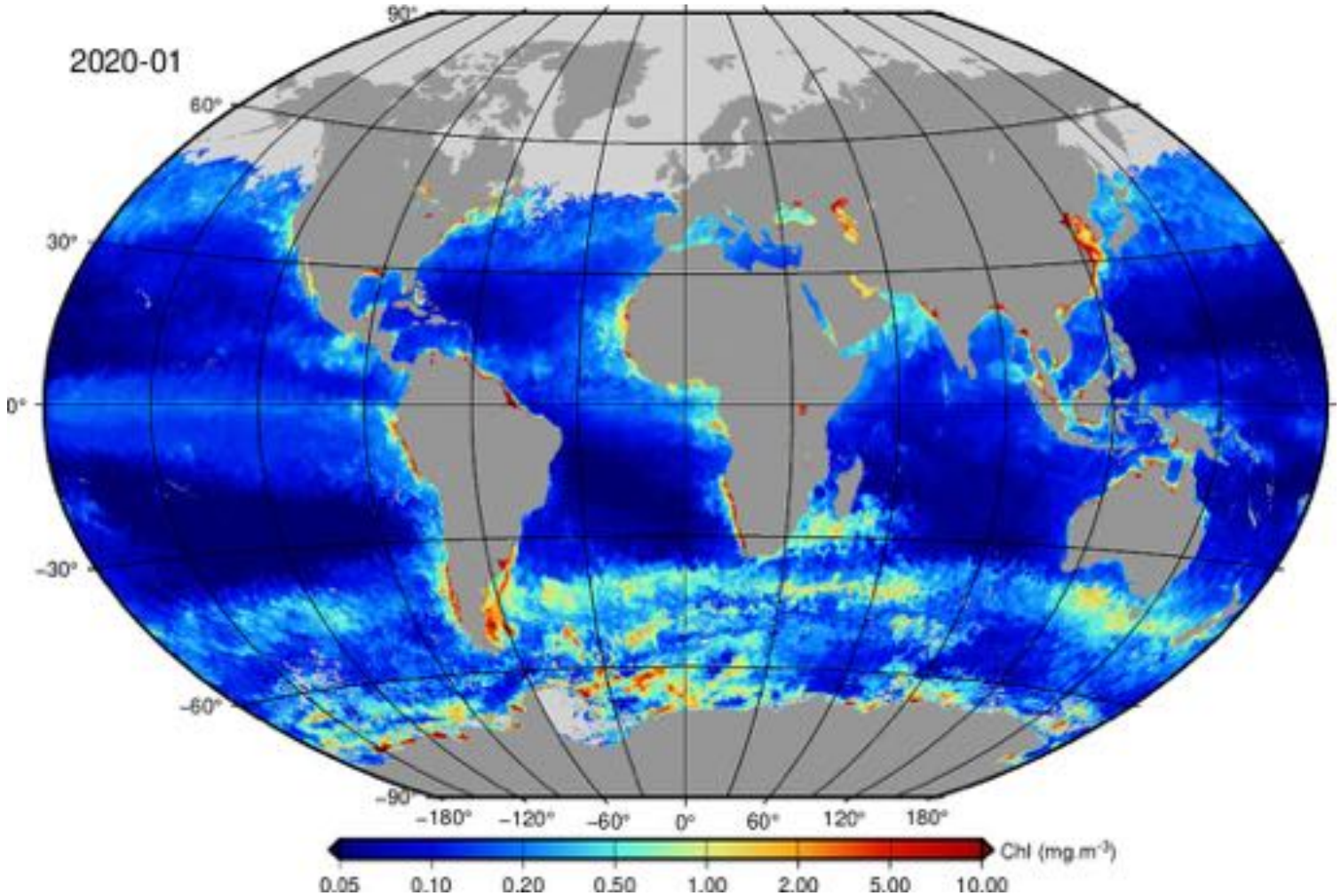
Sentinel-3 OLCI Level-2

- Operational and reprocessed (collection-3):
  - Good consistency between OLCI-A and OLCI-B
  - IOP new products included in Feb 2024

Data access via EUMETSAT Data Store

https://data.eumetsat.int

OLCI-A monthly chlorophyll coverage at 300m resolution



New products: Ocean Colour from geostationary orbit

Geostationary Meteosat SEVIRI and FCI instruments were NOT developed with Ocean Colour requirements

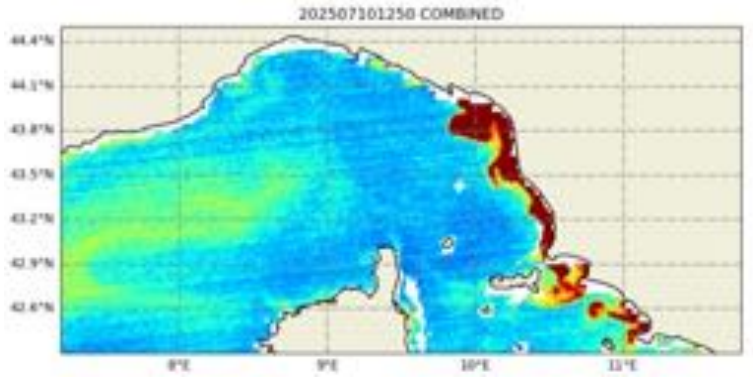
Meteosat demonstration products to showcase the value of GEO-OC

- Prototyping of products such as Turbidity, SPM, Chlorophyll (FCI only), cocco index
- Investigating different Atmospheric Correction approaches: standard, spectral-matching (POLYMER, FCI only), and Neukermans *et al.*, 2012, 2009

IOCS / IOCCG Recommendations
- IOCS 2013, 2015, 2019
- Geostationary Ocean Colour - Report 12

Meteosat Third Generation (MTG) Flexible Combined Imager (FCI) disk observation every 10 min at 1 km at nadir

MTG FCI RGB and chlorophyll over Mediterranean, Ligurian Sea



Brockmann Consult GmbH

HYGEOS

museum

solvo

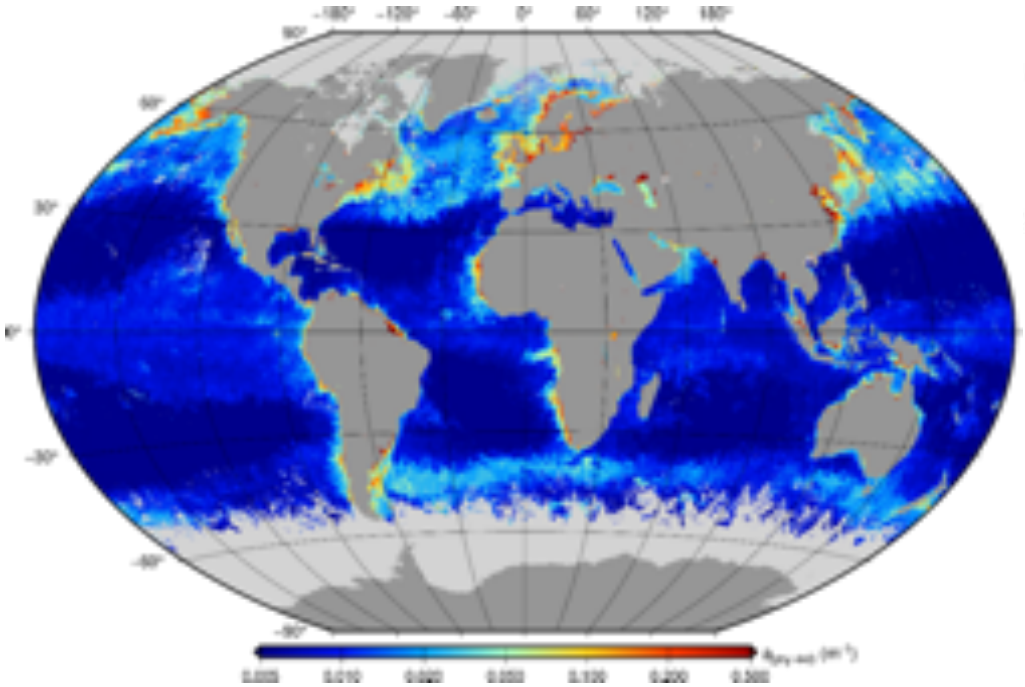
See poster #148
(Carole Lebreton *et al.*)

New products: independent validations of IOP

Water Inherent Optical Property (IOP) products

- a_{nw}, a_{phy}, a_{cdm}, b_{bp} at 442.5 nm and b_{bp} slope from the three-step semi analytical algorithm by *Jorge et al., 2021*
- a_{cdom} at 442.5 nm by *Bonelli et al., 2021*
- K_d 490 nm by *Jamet et al., 2012*, *Loisel et al., 2018*
- Optical Water Class (OWC) based on *Mélin and Vantrepotte, 2015*

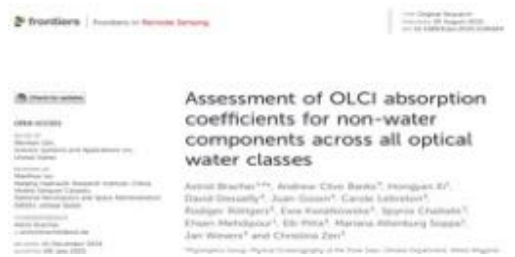
Absorption by Phytoplankton at 442.5 nm [1/m]



Zibordi et al., 2023

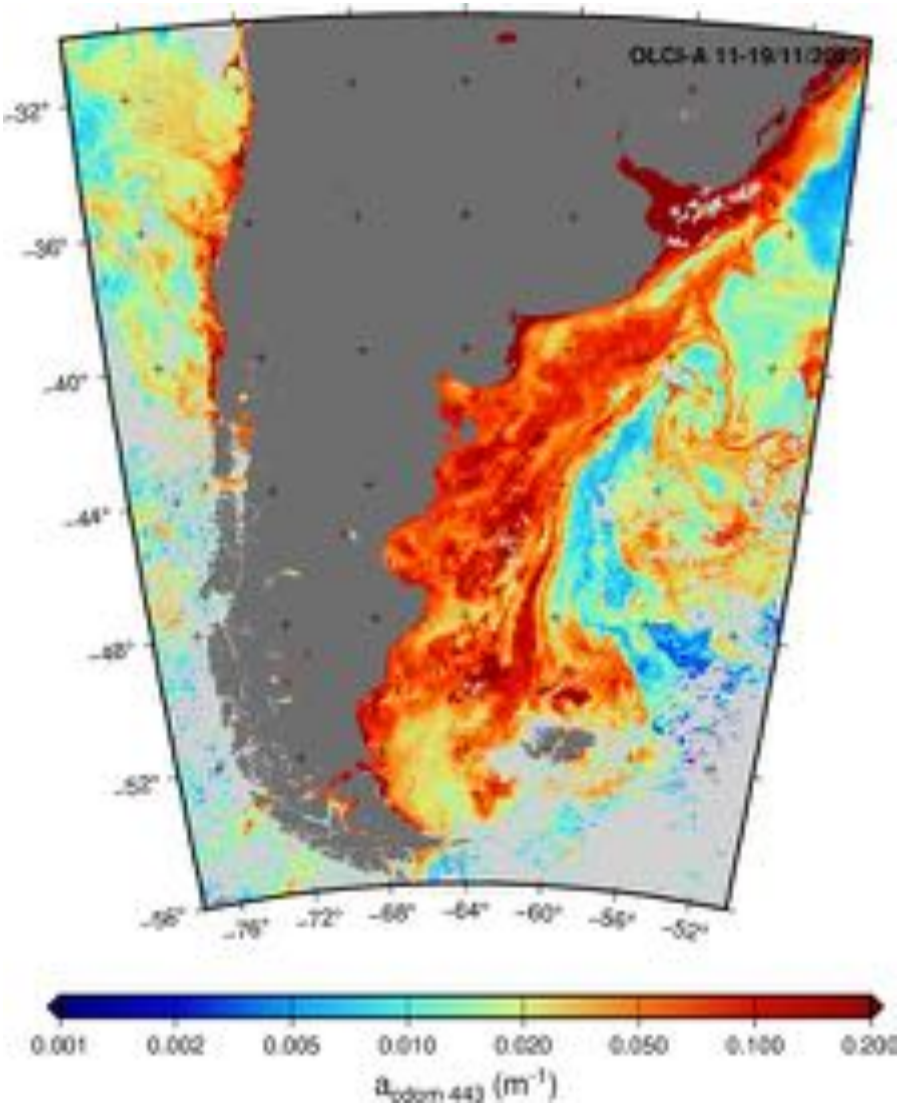
Assessment of OLCI-A Derived Aquatic Optical Properties Across European Seas

Bracher et al., 2025



Assessment of OLCI absorption coefficients for non-water components across all optical water classes

Absorption by Coloured Dissolved Organic Matter at 442.5 nm [1/m]
11 – 19 November 2025

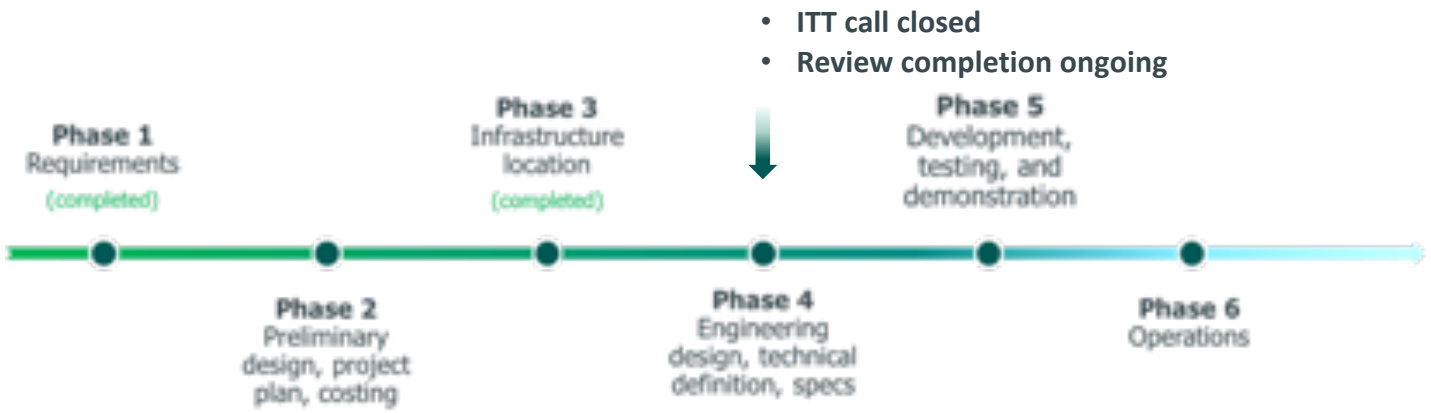


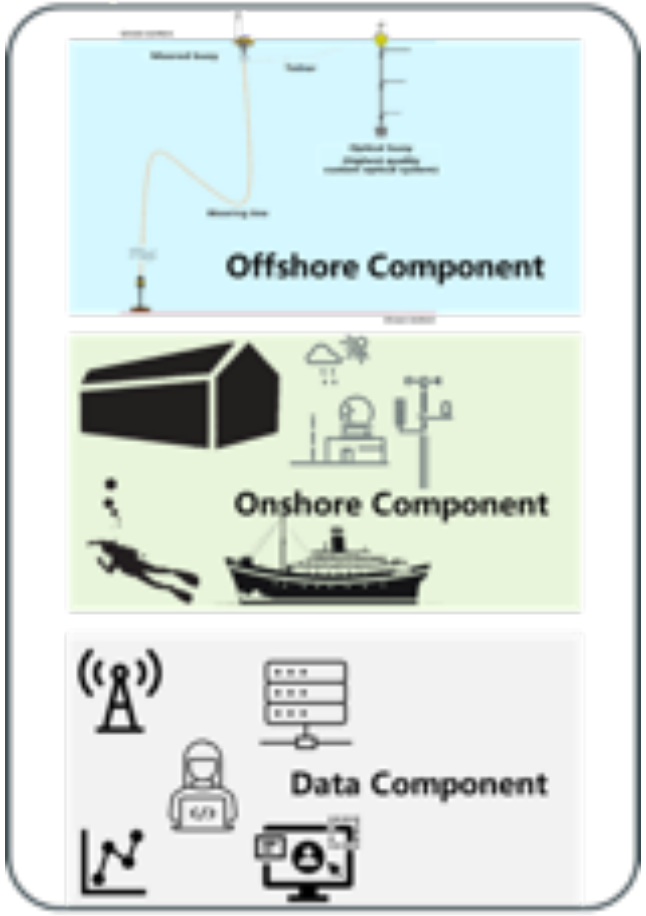
Copernicus OC-SVC: current development status

OC-SVC is a requirement (IOCS 2013, 2017, 2019, OC-SVC white paper) for all Ocean Colour missions
→ *one of the largest and most complex Fiducial Reference Measurements (FRM) activities!*

EUMETSAT manages OC-SVC activities on behalf of the EC Copernicus Programme:

- Establishing a European node of these unique OC-SVC infrastructures and securing European OC-SVC capability for its Copernicus missions (S3, S2, NG, Expansion)
- Standardising with NOAA's MOBY and NASA's MarONet
- Collaborating with NASA and the MarONet Team whose support is highly acknowledged
- Close oversight by the EC and the international Expert Review Board
- Free, full and open policy on data and code, complete infrastructure documentation
- https://www.eumetsat.int/OC-SVC





Many interesting topics will be covered this week: algorithms, new products, calibration and validation, FRMs and SOPs, etc.

Recommendations from IOCCG & IOCS are welcome!

Wishing you an interesting and successful IOCS 2025!