International Ocean Colour Science Meeting 2025

Advancing Global Ocean Colour Observations

Poster Lightning Session 1A

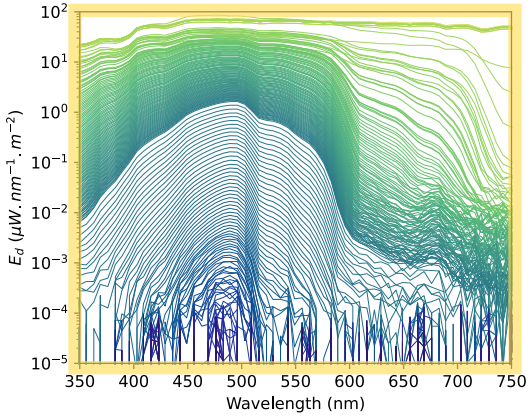
Poster # 02

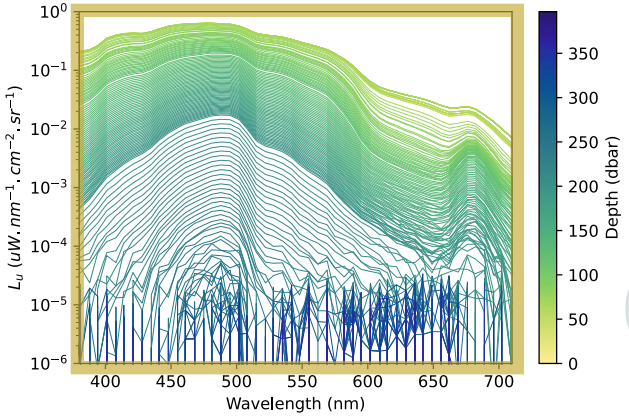
Coastal Monitoring Service: A Regional Approach from Copernicus LAC Chile

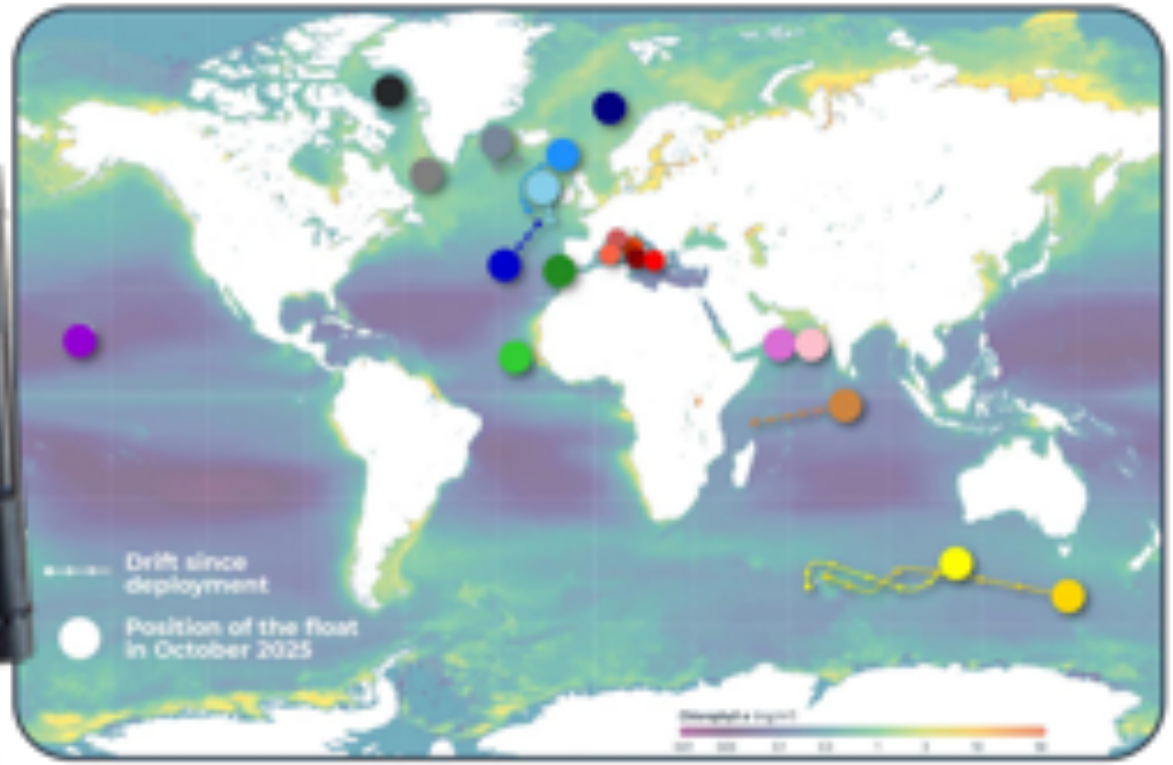
Lucas Amézquita Toledo, Marina Hernàndez Mora, Jaime Ortega

IDCS-2025 Darmstadt, 1-4 December

Hyperspectral radiometry on BGC-Argo floats.







1.How does the platform work and perform?

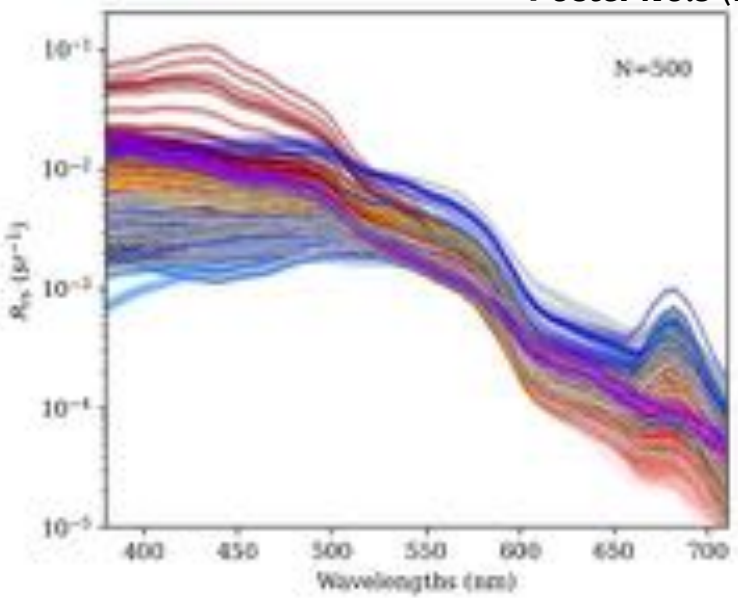
Poster No.48 *(Edouard Leymarie)*

2.How is data quality assessed?

Poster No.11 *(Charlotte Begouen Demeaux)*

3.How is R_{rs} derived and uncertainties estimated (with FRM requirements as guidelines) ?

Poster No.3 *(Lou Andrès)*



4.How do Rrs from S3-OLCI and PACE-OCI compare with BGC-Argo ?

Poster No. 82 *(Vincenzo Vellucci)*

Breakout Workshop#2: “ In water radiometry on autonomous profiling floats in support of satellite ocean colour validation activities”. (Today @14h30)

Poster # 04

Detecting plastic litter in inland waterbodies

Christine Atuhaire; Anthony Gidudu; Ronald Semyalo

Makerere University, P.O. Box 7062, Kampala, Uganda

IOCS-2025 Darmstadt, 1-4 December

Poster # 04

- Inland waterbodies contain a mixture of background surfaces.

1

The background effect
- Water
- Vegetation
- Sand/soil

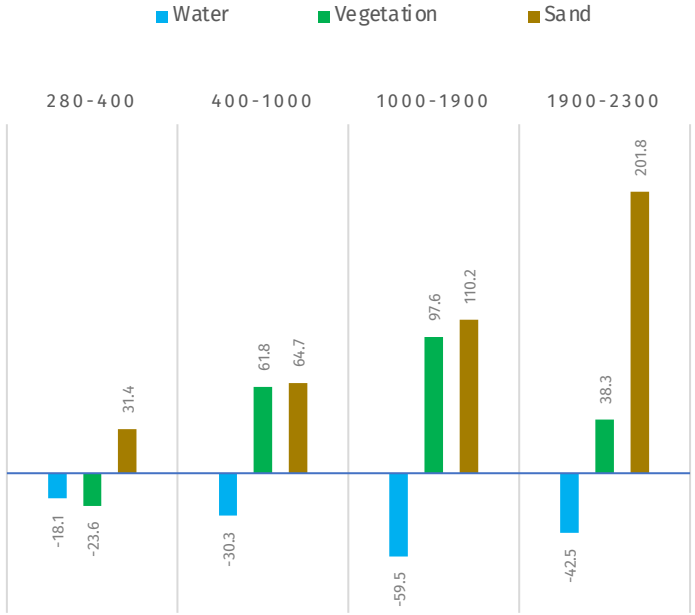
Plastic samples collected from Lake Victoria shores

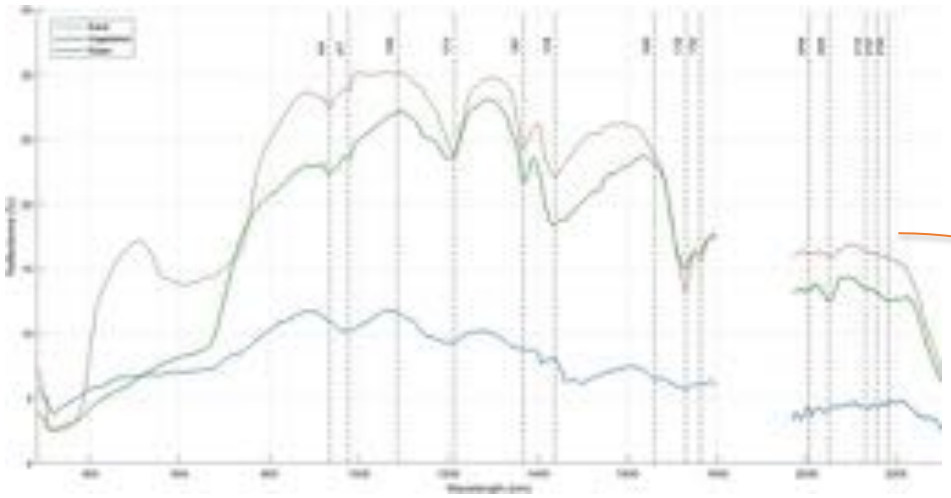
Spectral range (nm)	Significant proportion (%)	Wavelength (nm)	p-value
280-400	98.3	280-397	0.007
		398-399	0.057
400-1000	86.8	400-478	0.083
		479-999	0.004
1000-1900	100	1000-1799	5.68×10^{-9}
1900-2300	100	1961-2300	5.28×10^{-10}

- Water reduced the reflectance of the plastic samples in all the wavelength regions, but highest in the 1000nm-1900nm by over 50%.
- Vegetation and sand increased plastic reflectance more significantly in the 1000-1900nm.
- Sand increased plastic reflectance by about 200% in the 1900nm-2300nm.

2

- Background interference is wavelength-dependent





3

- Not all the previously detected absorption features are useful due to the complex nature of these environments.

Feature (nm)	Feature Parameters			Coefficient of Variation			No. of samples
	Depth	Area	Width (nm)	Depth	Area	Width	
1660	0.135	2.988	21	0.211	0.204	0.048	1
1730	0.102	2.139	19	0.595	0.635	0.111	4
2132	0.067	1.093	14	0.689	0.673	0.280	3

Poster # 5

Assessing the Ocean Color Capabilities of an Airborne Atmospheric Lidar

Rafael Simão*, Cédric Jamet, Cyrille Flamant, Julien Delanoé, Emmeline Francois, Sophie Bounissou, and Eric Lecuyer

***rafael.avila.simao@univ-littoral.fr**

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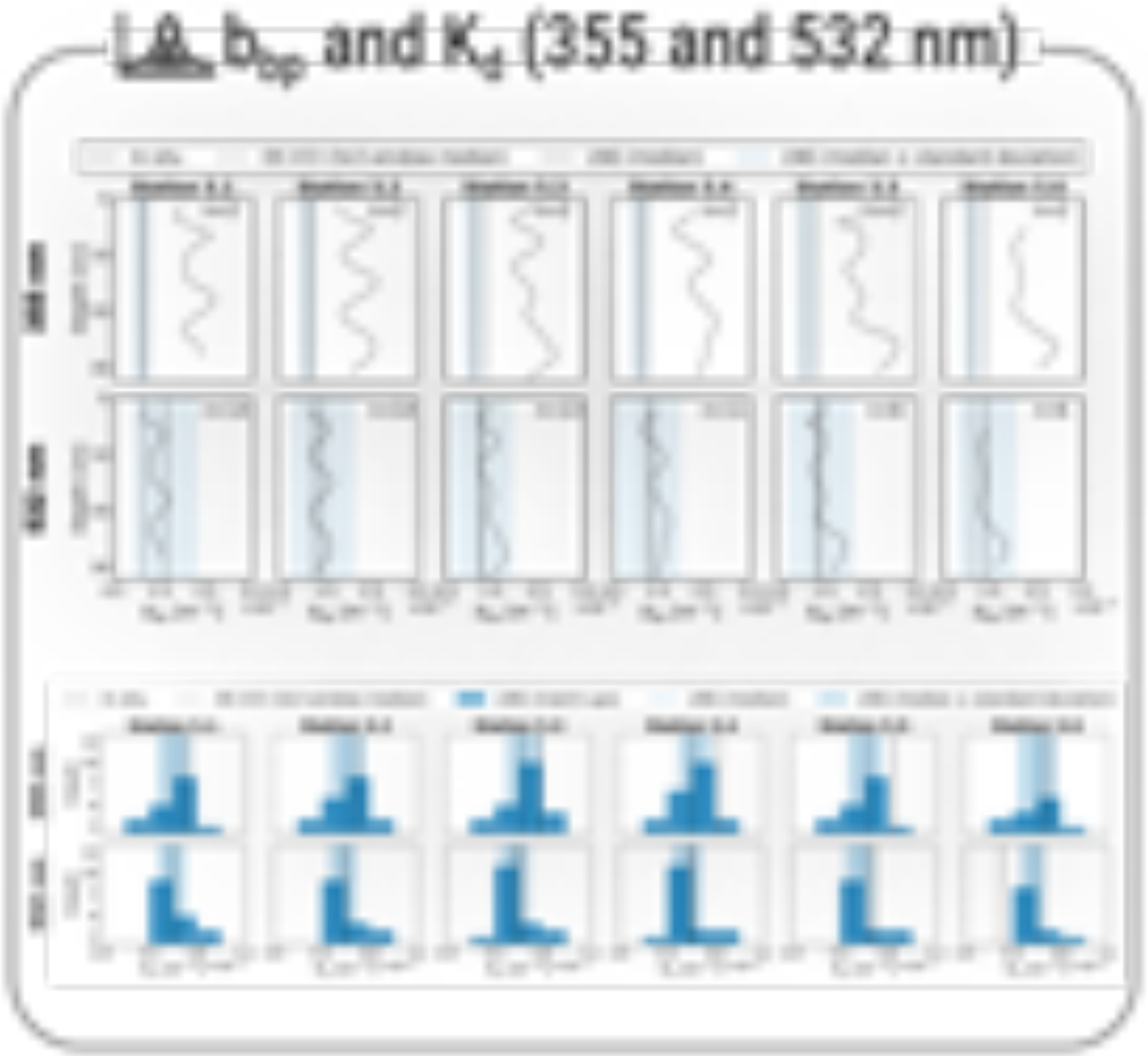
Poster # 5


Airborne lidar: LNG


Processing chain


LA b_{bp} and K_d (355 and 532 nm)

Poster # 8

New uncertainty visualisation features in HyperInSPACE Community Processor (**HyperCP)**

Agnieszka Bialek[1], Ashley Ramsay[1], Dirk Aurin[2,3], Juan Ignacio Gossn[4], Riho Vendt[5], Ilmar Ansko[5], Viktor Vabson[5], Ewa Kwiatkowska[4]

[1] National Physical Laboratory, UK;
[2] NASA Goddard Space Flight Center, USA;
[3] Morgan State University, USA;
[4] EUMETSAT, Germany;
[5] Tartu Observatory, University of Tartu, Estonia;

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Poster # 8 New uncertainty visualisation features in **HyperCP**

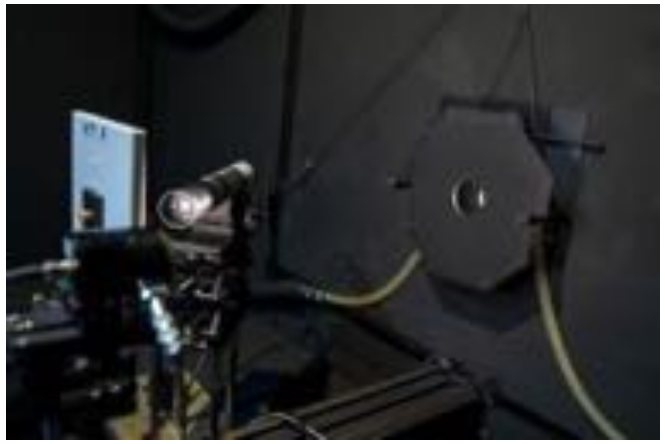
In situ raw data

Trios Ramses

SeaBird HyperOCR

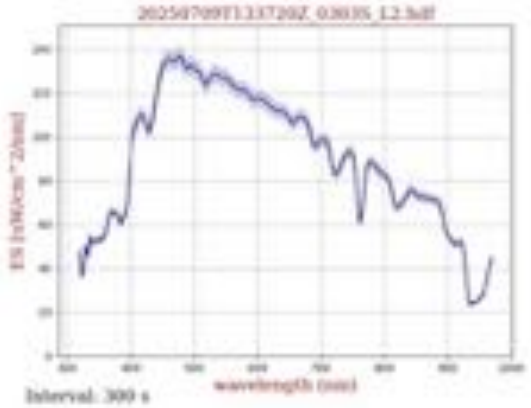
DALEC

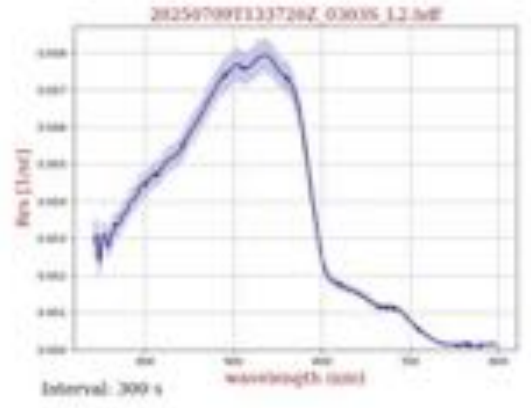
Unique batch laboratory tests



HyperCP

Outputs





Poster 12

Towards marine bioluminescence detection by satellite ocean colour

BRETECHE Anne-Gaëlle (Shom), JOURDIN Frédéric (Shom), MARTINI Séverine (MIO), MARGIRIER Félix (ALSEAMAR), LUNEAU Christopher (OSU Pytheas), BHAIRY Nagib (MIO), FUDA Jean-Luc (MIO)

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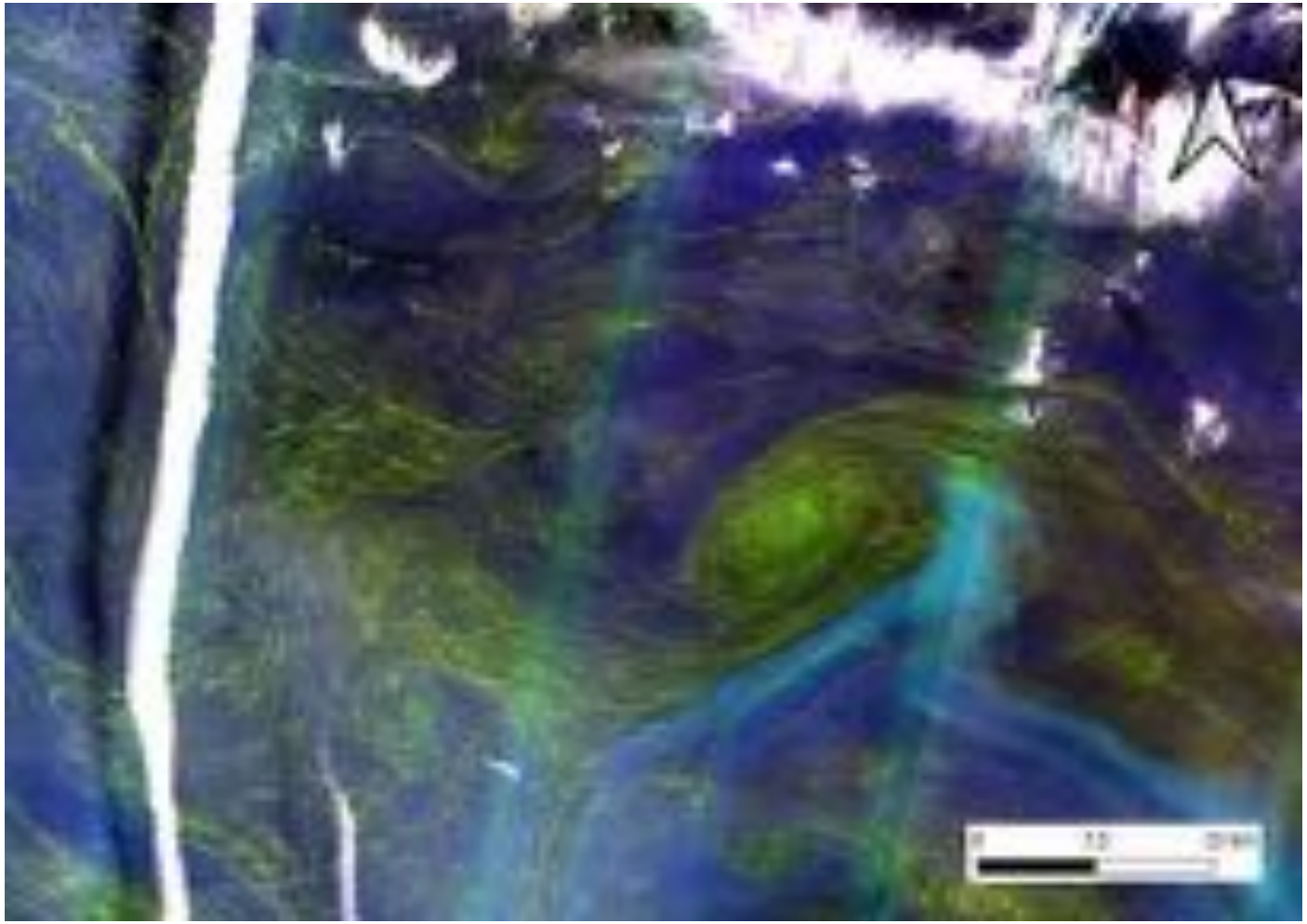
Poster 12



- **Target** : Noctiluca scintillans blooms
- **Method** : Sentinel-2 imagery + machine learning
- **Goal** : Predictive bioluminescence map

Image Sentinel 2A (bottom of atmosphere, RGB) – 25/02/2020 – Gulf of Oman

Poster # 13

Sentinel 2 Ground Segment Water Processor Sen2Water

C. Brockmann[1], V. Boccia[2], M. Böttcher[1], K. Stelzer[1], L. Rivoire[3], S. Clerc[3], F. Pignatale[4], J. Louis[4], G. Doxani[5], E. Cadau[5], F. Gascon[2]

[1] Brockmann Consult GmbH, [2] ESA ESRIN, [3] ACRI-ST, [4] Telespazio FR and DE, [5] SERCO for ESA/ESRIN

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Poster # 13

Sen2Water

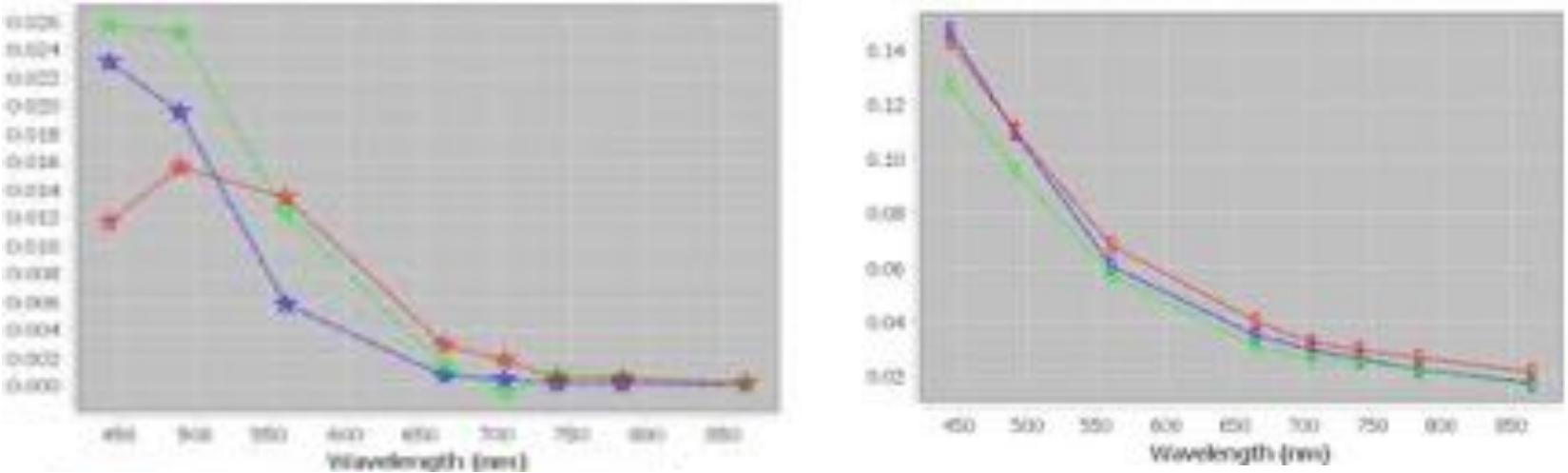
Sentinel 2 Aquatic Reflectances

- Copernicus Service equivalent
- Pixel Classification from **IdePix**
- 3 Atmospheric Correction Methods:
  - **C2RCC**
  - **ACOLITE**
  - **POLYMER**

Open Source Software

- Code on Github
- SNAP Plug-In
- Command line executable

Future ESA Sentinel 2 Level A Product Upgrade (2027)



Poster # 15

SuperDove radiometric data assessment in coastal and inland waters

Ilaria Cazzaniga, Ana I. Dogliotti,
Susanne Kratzer, Frédéric Mélin

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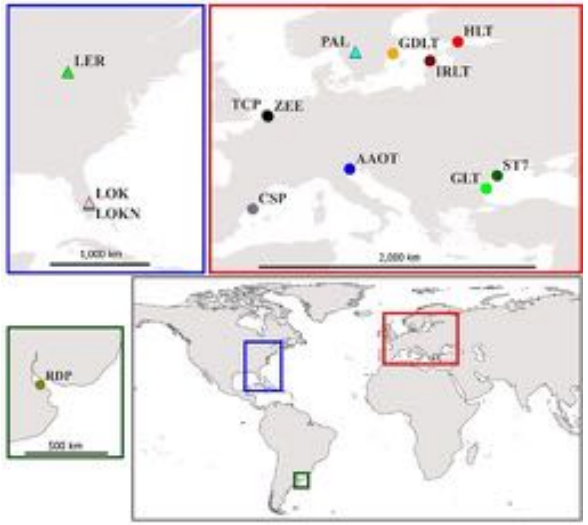
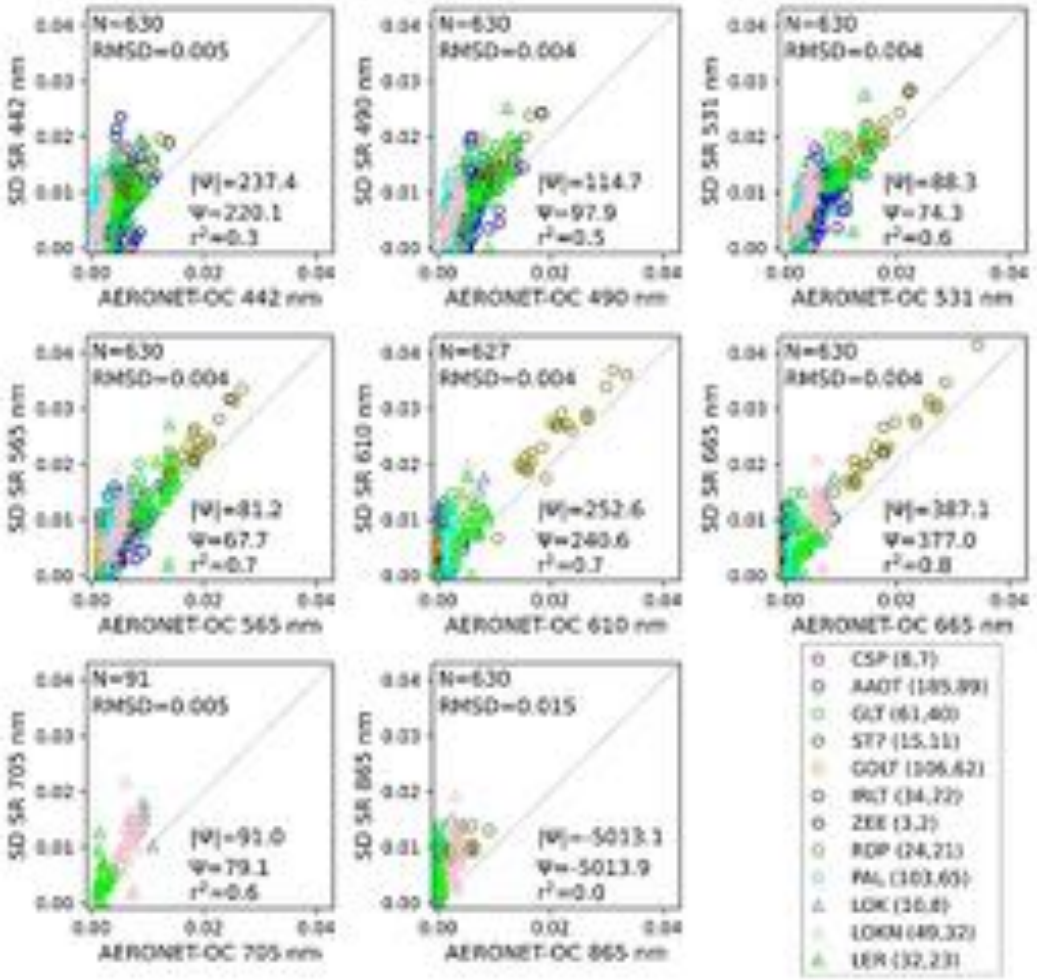
Poster # 15

Across different water types!

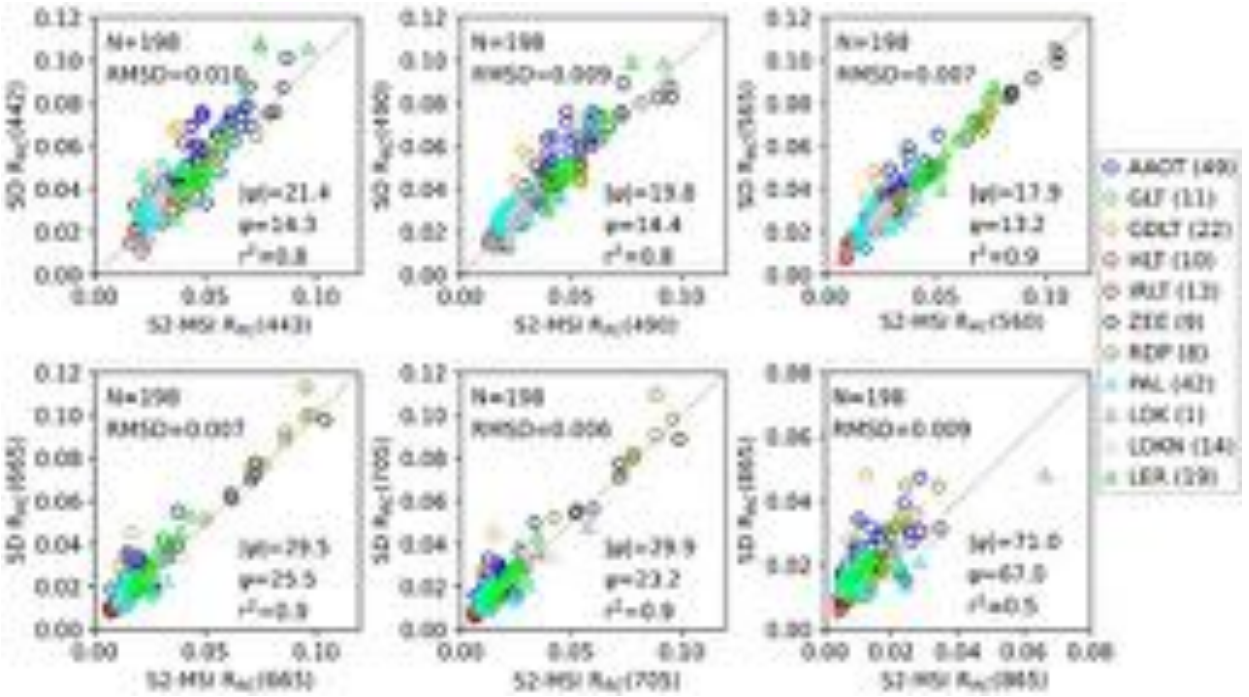


AERONET-OC sites
(coastal & inland waters)

SuperDove vs AERONET-OC ($\mathbf{R_{RS}}$)



SuperDove vs Sentinel-2 ($\mathbf{R_{RC}}$)



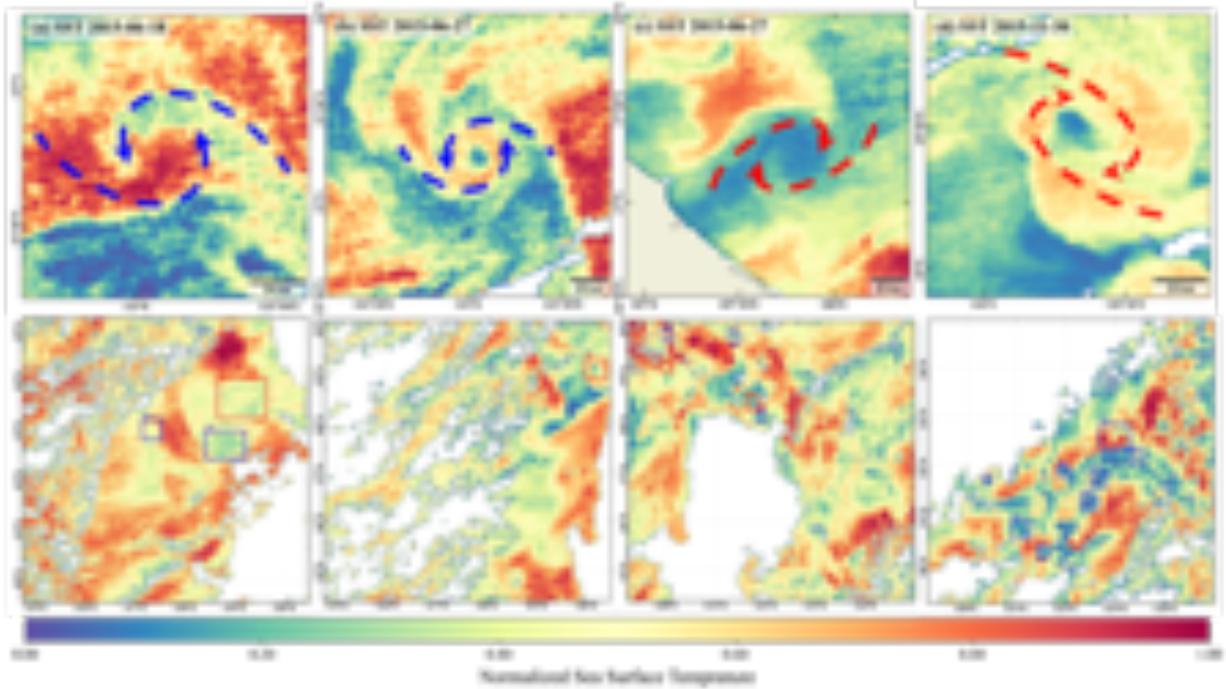
Poster # 18

Submesoscale Eddy Detection in the South China Sea Based on Satellite-Derived Sea Surface Temperature

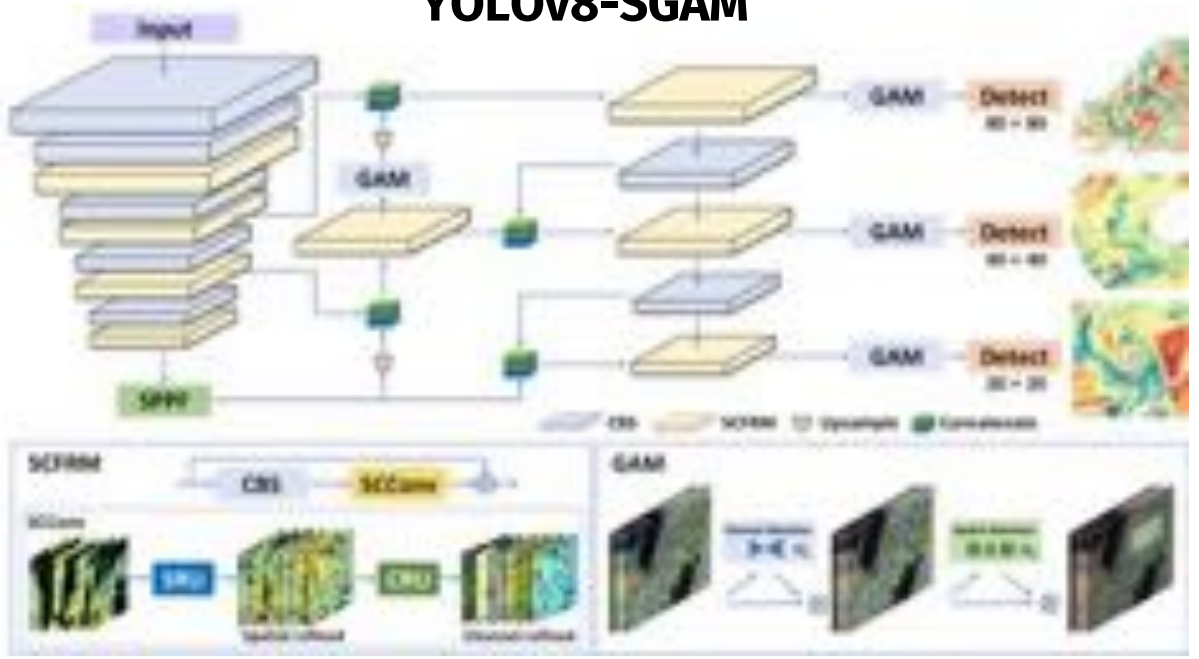
Chen Xi and Sun Shaojie
Sun Yat-sen University
chenx755@mail2.sysu.edu.cn

Poster # 18

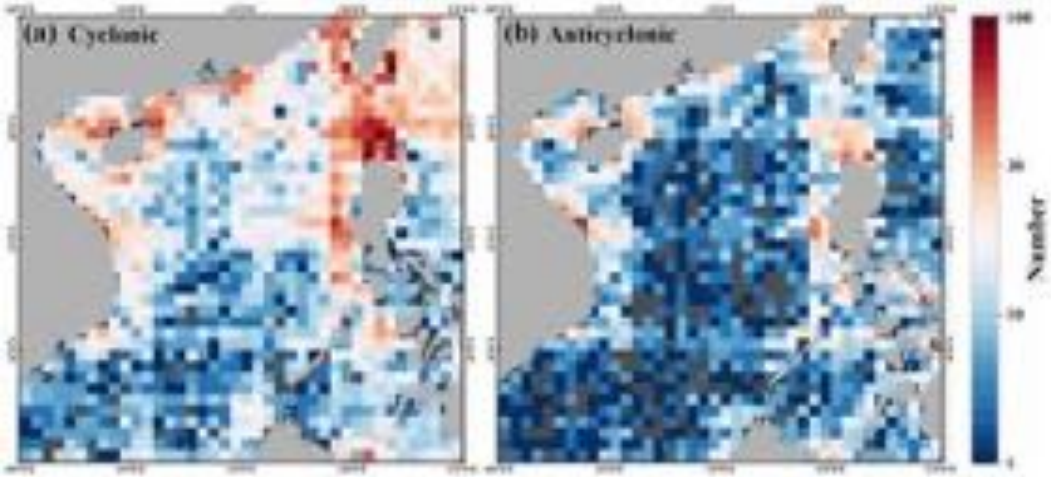
MODIS AQUA/TERRA SST



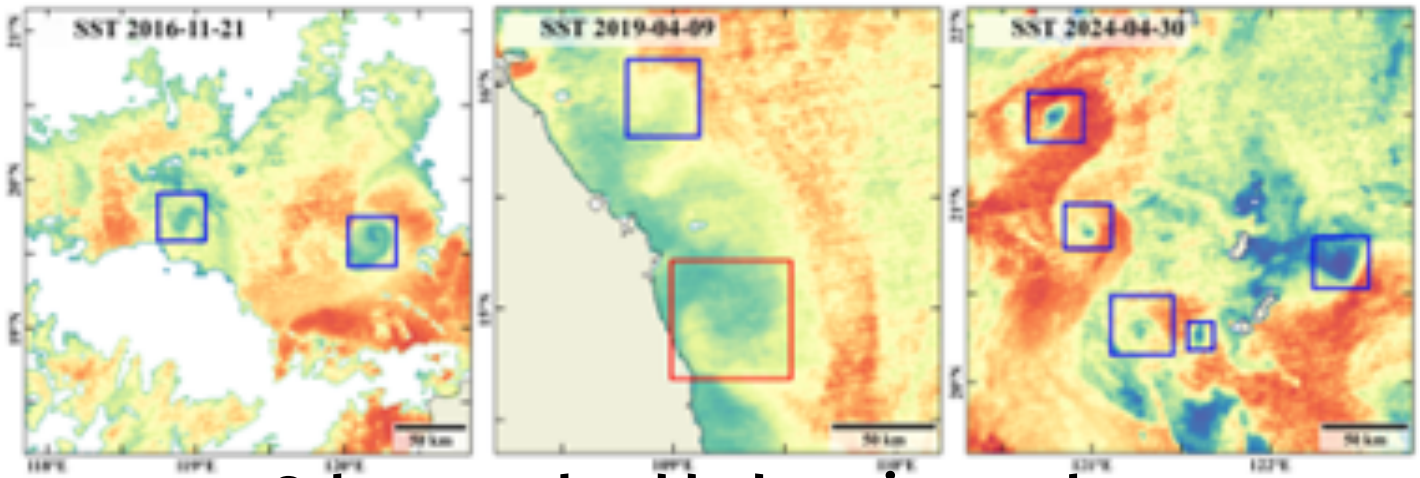
YOLOv8-SGAM



Accuracy: 95.9%



Submesoscale eddy distribution in the SCS



Submesoscale eddy detection results

Poster 19

Validation of Satellite Chlorophyll-a with data collected during the ESA Ocean Training Course 2025

Mathurin Choblet

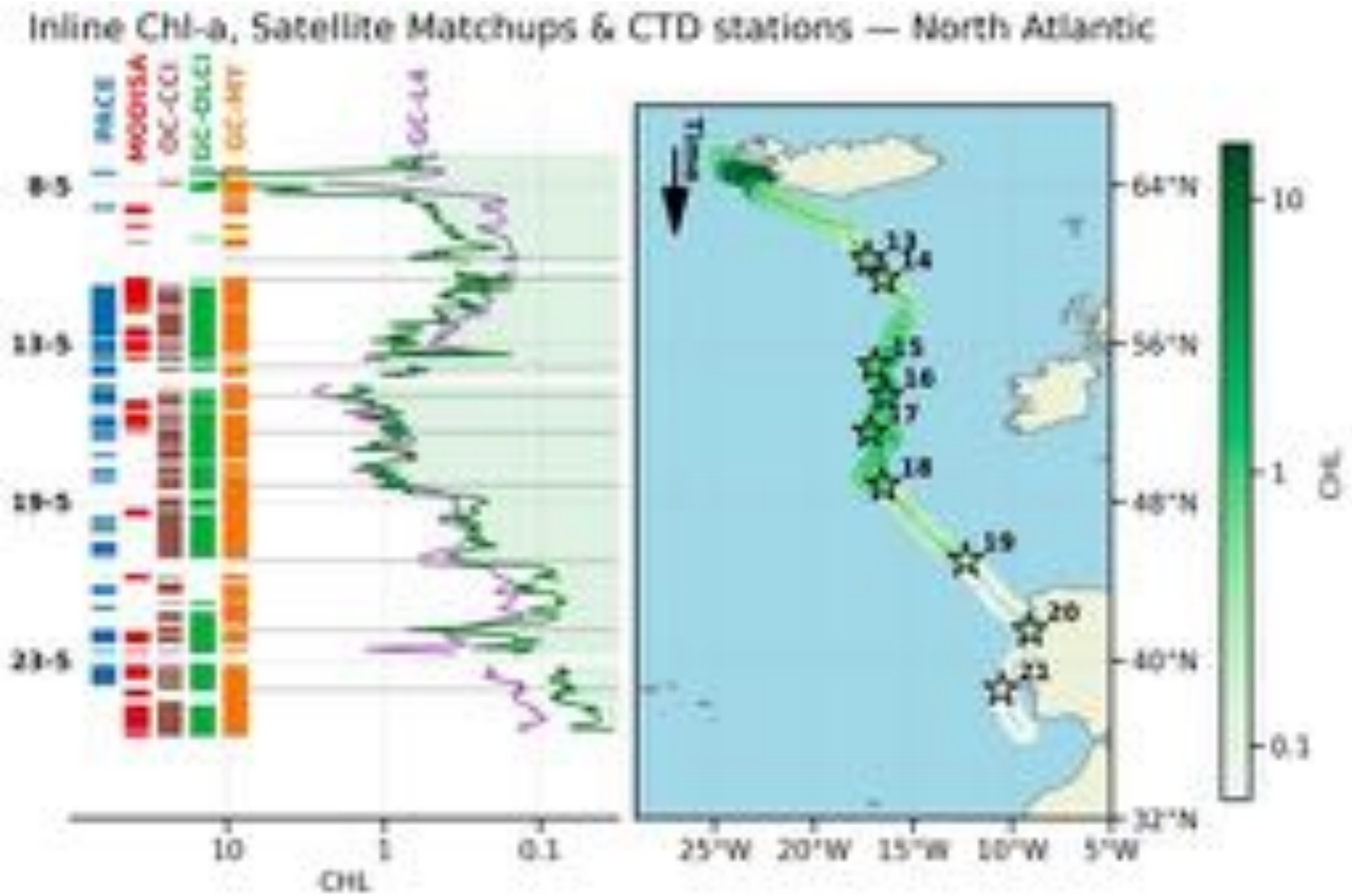
University of Liège, Belgium (mathurin@choblet.com)

Sejal Pramlall

Department of Physics and Technology, University of Bergen, Norway

The ESA OTC 2025 Crew_x0003_

Poster 19



Mathurin Choblet (mchoblet@uliege.be) - Chl-a validation in the Norwegian Sea, North Atlantic and Mediterranean Sea with data from the Ocean Training Course 2025

Poster 21

Beach litter detection: from Laboratory-based analyses to remote sensing detection

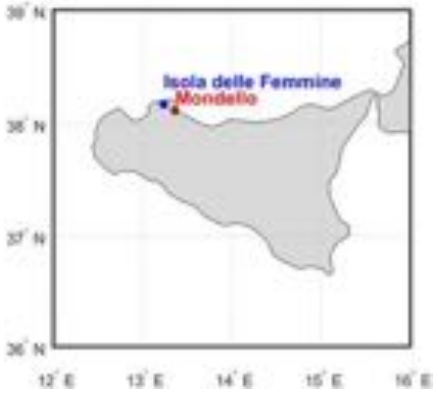
***Laura Corbari*[1], *Mario Minacapilli*[1], *Giuseppe Ciraolo*[1,2] *& Fulvio Capodici*[1,2]**

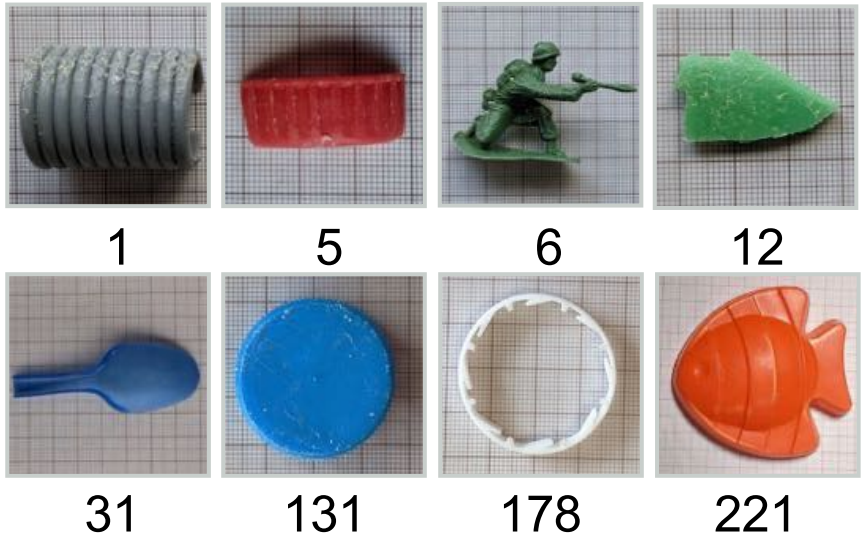
[1]*Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy.*
[2]*NBFC, National Biodiversity Future Center, Palermo, Italy.*
**e-mail: laura.corbari@unipa.it*

Poster 21

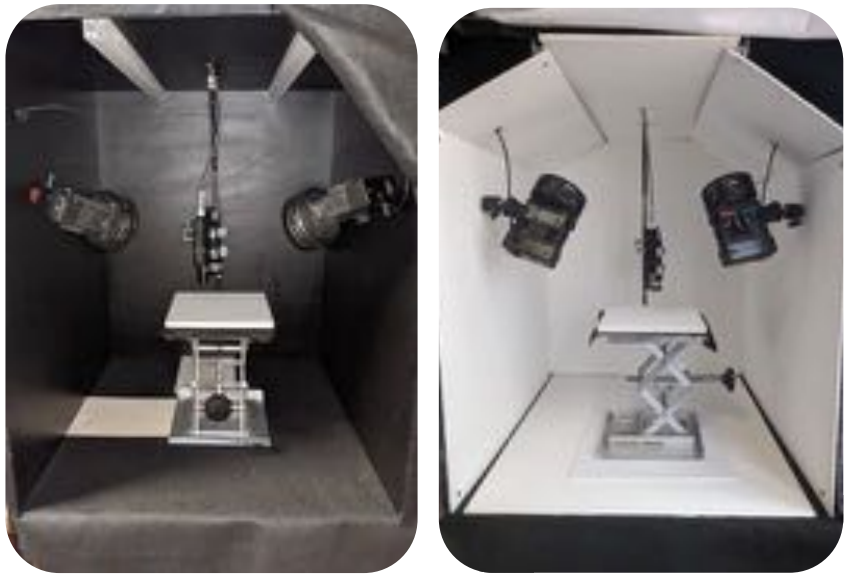
Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA
Archimede

Beach litter collection

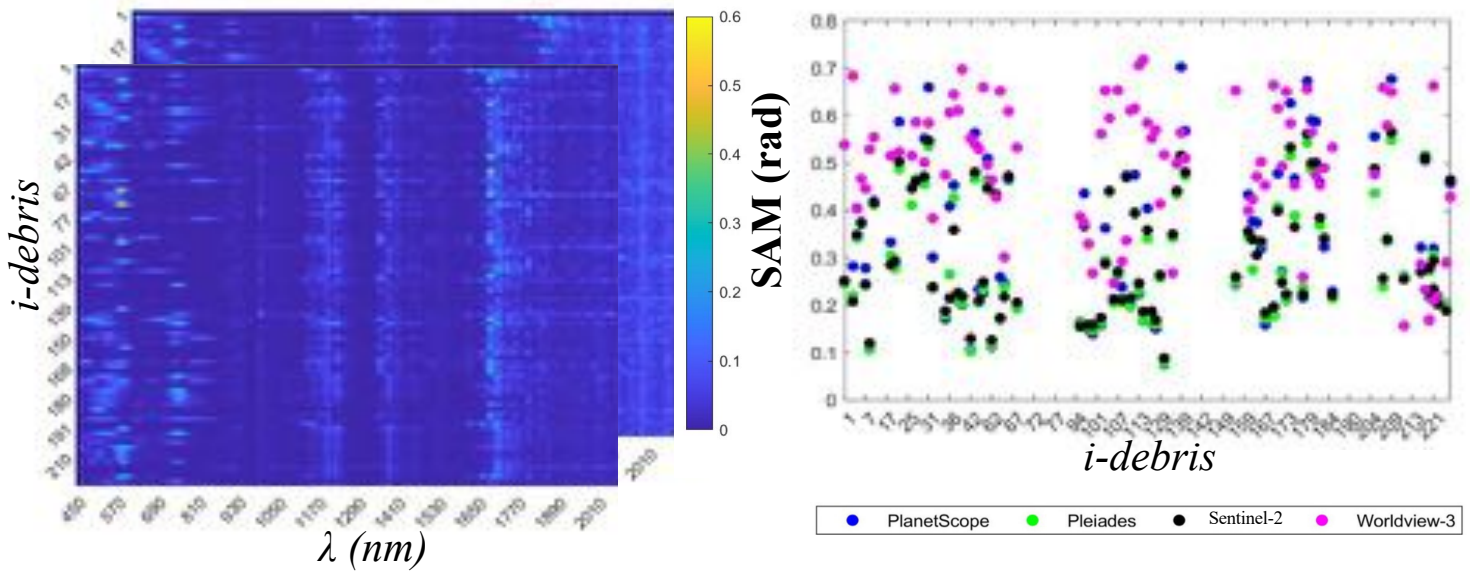




Spectral signatures acquisitions



Best wavelengths and sensors



Poster # 23

Spatio-temporal distribution of Coloured Dissolved Organic Matter on the Scotian Shelf, Eastern Canada

Authors:

Emmanuel Devred & Kirsten Wilson

Fisheries and Oceans Canada | Pêches et Océans Canada

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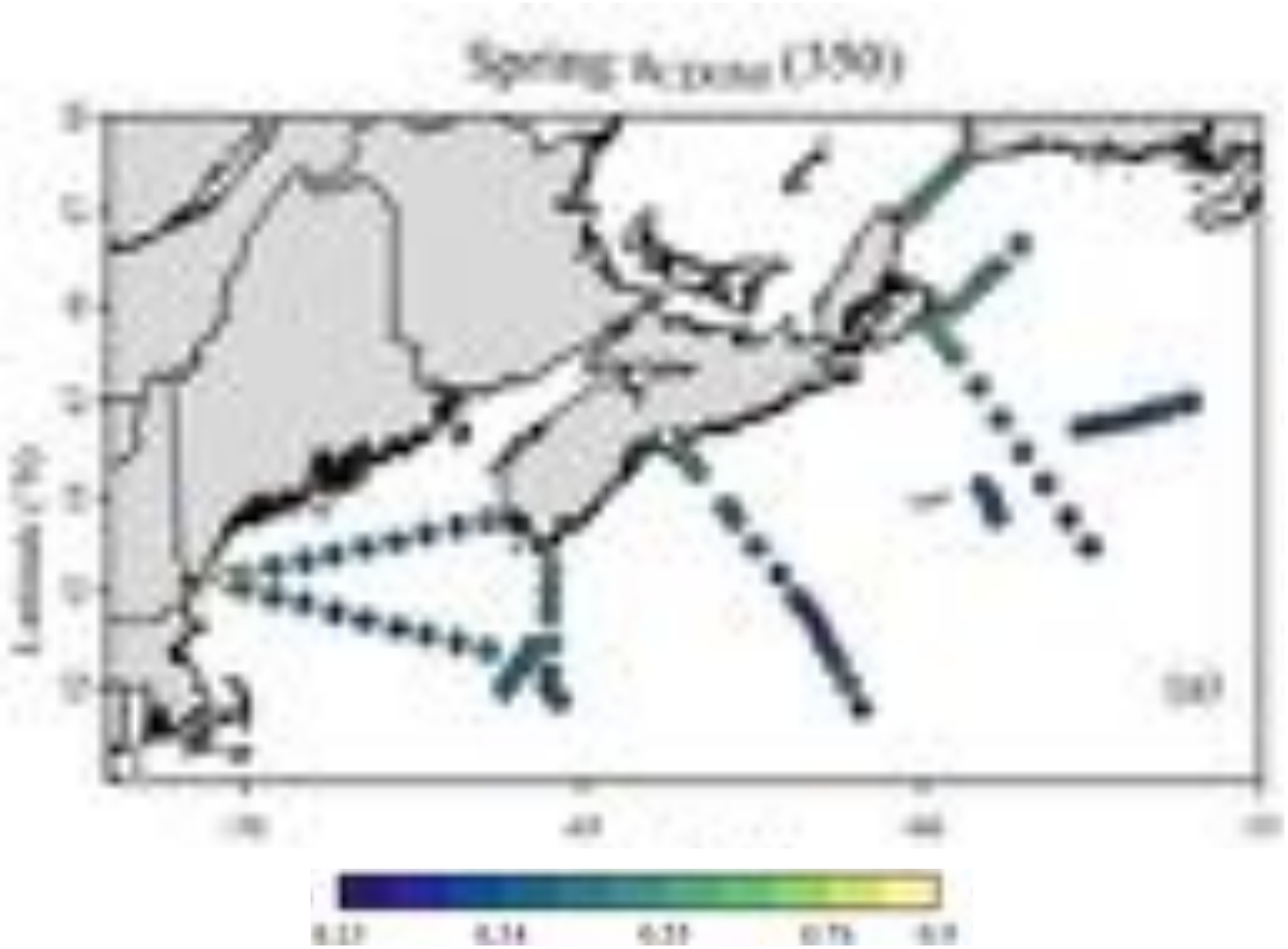
Poster # 23

About 800 measurements of a_{CDOM} (ranging 250 to 725 nm) between 2021 and 2025 collected in Spring and Fall during the Atlantic Zone Monitoring Program

Poster discusses mainly $a_{CDOM}(350nm)$ and $S_{275-295}$ in term of regional and seasonal dynamics

- ❑ What have we learned?
- ❑ What does that mean?
- ❑ What next?



$a_{CDOM}(350)$ (m^{-1})

Poster # 25

Advanced training to support the use of fiducial reference measurements for satellite ocean colour validation

Hayley Evers-King[1], Krista Alikas[2] , Dirk Aurin[3], Agnieszka Bialek[4] , Vittorio E, Brando[5] , Juan I. Gossn[6], Ewa Kwiatkowska[7], Laura Lorenzoni[8], Ben Loveday[9] , Jaime Pitarch[10], Carina Poulin[11], Riho Vendt[12], Giuseppe Zibordi[13]

1. EUMETSAT, Hayley.Evers-King@eumetsat.int 2. Tartu Observatory, University of Tartu, alikas@ut.ee 3. NASA Goddard Space Flight Center, dirk.a.aurin@nasa.gov 4. NPL, agnieszka.bialek@npl.co.uk 5. CNR-ISMAR, vittorioernesto.brando@cnr.it 6. EUMETSAT, JuanIgnacio.Gossn@eumetsat.int 7. EUMETSAT, Ewa.Kwiatkowska@eumetsat.int 8. NASA, laura.lorenzoni@nasa.gov 9. Innoflair UG, ben.loveday@innoflair.com 10. CNR-ISMAR, jaime.pitarch@cnr.it 11. NASA Goddard Space Flight Centre, carina.poulin@nasa.gov 12. Tartu Observatory, University of Tartu, riho.vendt@ut.ee 13. EOScience, giuseppe.zibordi@eoscience.eu

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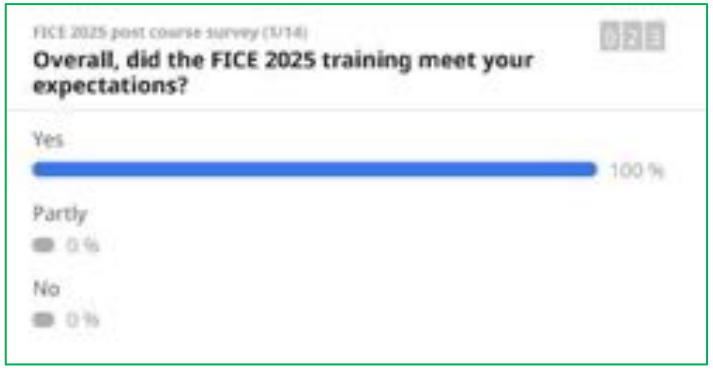
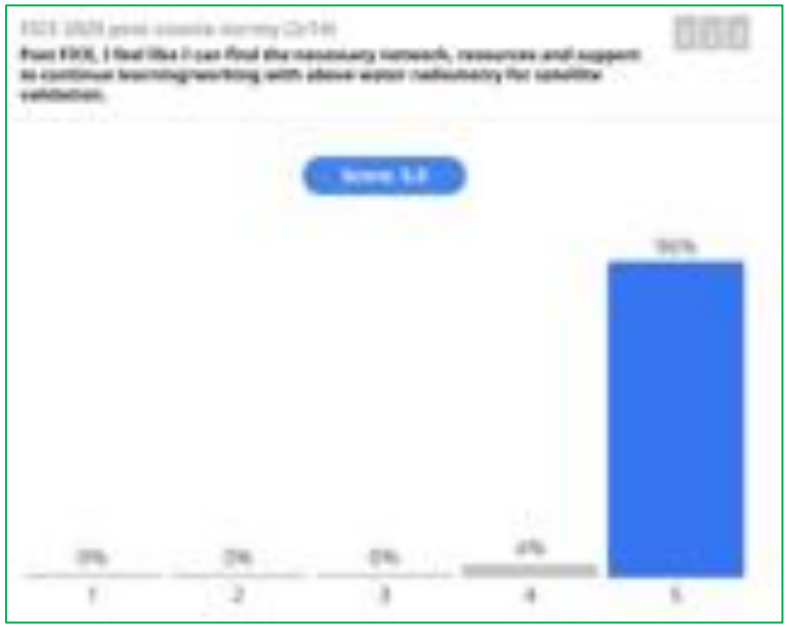


fiducial reference measurements for satellite ocean colour

FICE 2025 Training

Promoting the adoption of FRM principles across the community

https://frm4soc2.eumetsat.int



Poster # 26

Validation of PACE water products based on So-Rad *in situ* data collected onboard the R/V Gaia Blu in the Mediterranean Sea

Ivan Farace[1,2], Luis Gonzalez-Vilas [1,3], Vittorio E. Brando[1]

1. CNR-ISMAR 2. “Sapienza” University of Rome 3. NOW SYSTEMS

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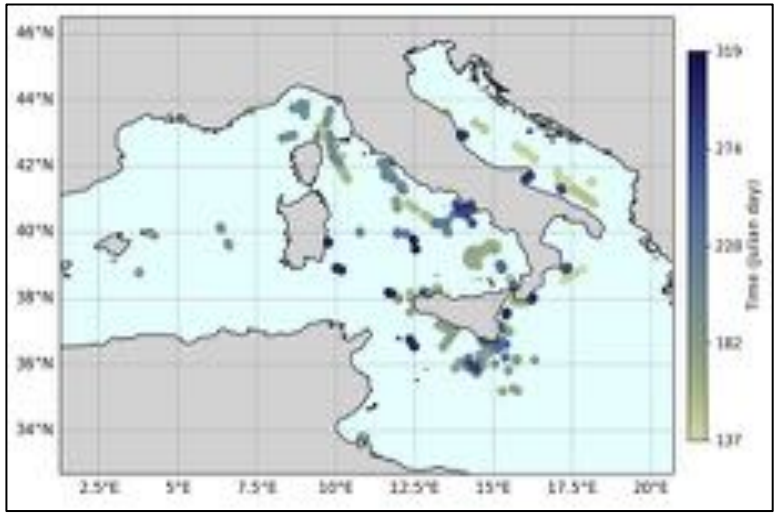
Poster # 26

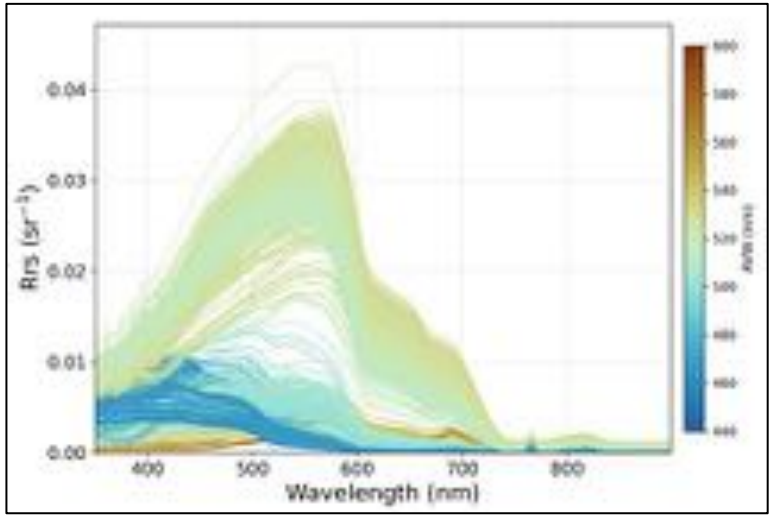
Gaia Blu

Spatial and Temporal Coverage

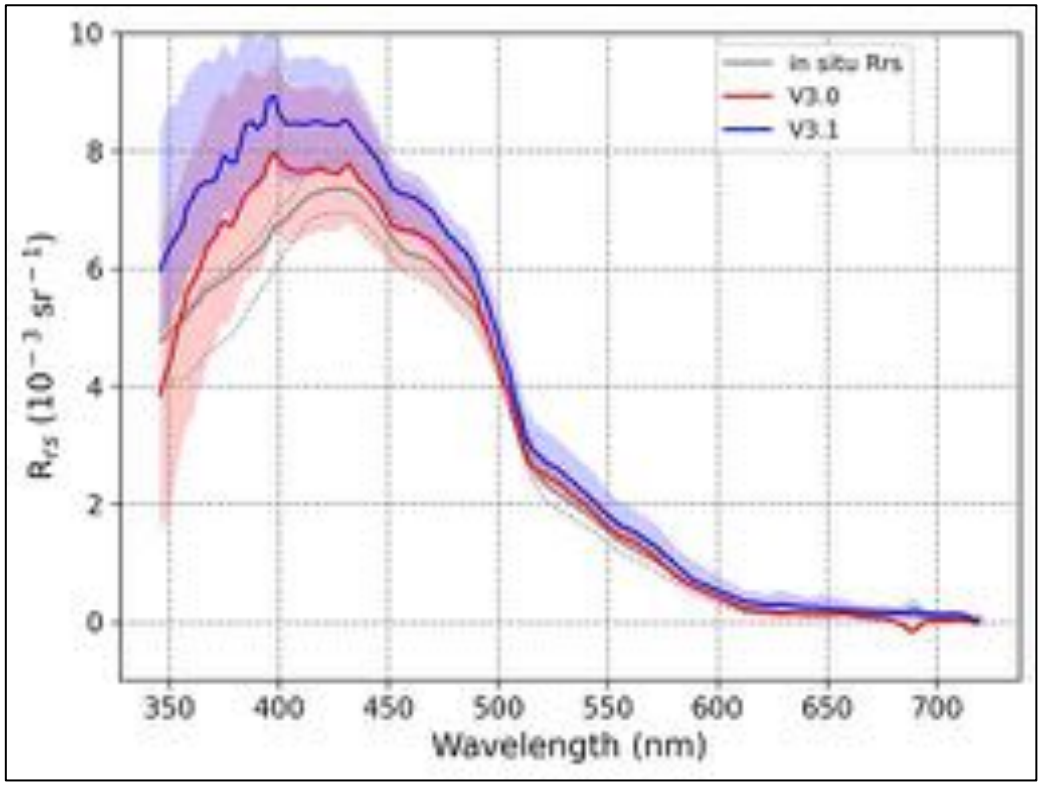


So-Rad system

Spectral Variability



Validation results



Poster # 27

Hierarchical Bayesian Modeling for Robust Estimation of SVC Gains across Multiple Sites

Robert Frouin, Jing Tan, Andrew Barnard, Alexander Bailess, Charlotte Begouen-Demeaux, Emmanuel Boss, Paul Chamberlain, Nils Häentjens, Matt Mazloff

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Poster # 27

Challenge:

-SVC gains from different sites are not identical; Simple average across sites is not defensible.

Hierarchical Bayesian modeling:

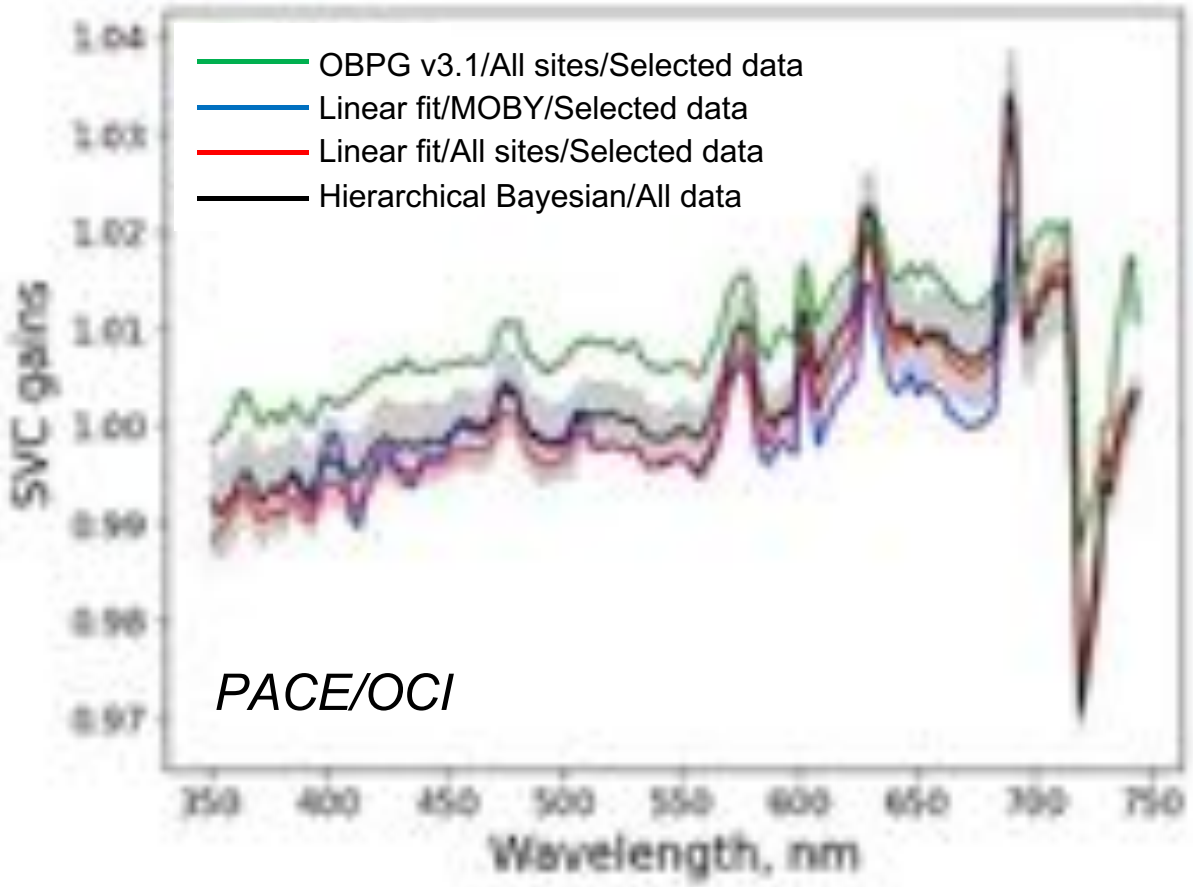
-Combines information from all sites without forcing them to be identical.

-Automatically down-weights noisy or sparse sites.

-Allows inclusion of covariates (e.g., aerosol type, instrument unit).

-Produces a globally consistent SVC gain with traceable uncertainty.

Application to PACE OCI



SVC gains for PACE OCI obtained from hyperspectral L_w data at 6 sites: MARONET, MOBY, Crete, Puerto Rico, Moorea, Hawaii.

Poster # 29

Floating marine plastic debris detection with a convolutional neural network and using multispectral satellite images

Adrien Gérard[1] – André Valente[2] – Aida Alvera-Azcárate[3] - Alexander Barth[4]

[1,3,4] *GeoHydrodynamics and Environment Research (GHER), University of Liège, Liège, Belgium*

[2] *Atlantic International Research Centre (AIR Centre), Portugal*

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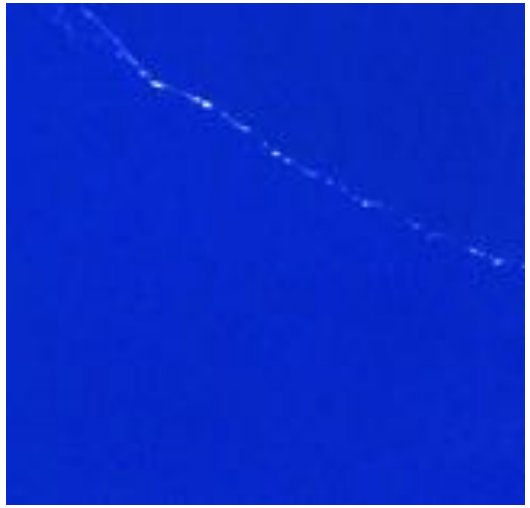
Poster # 29

MARIDA (Marine Debris Archive)

A real-world dataset with globally distributed annotations

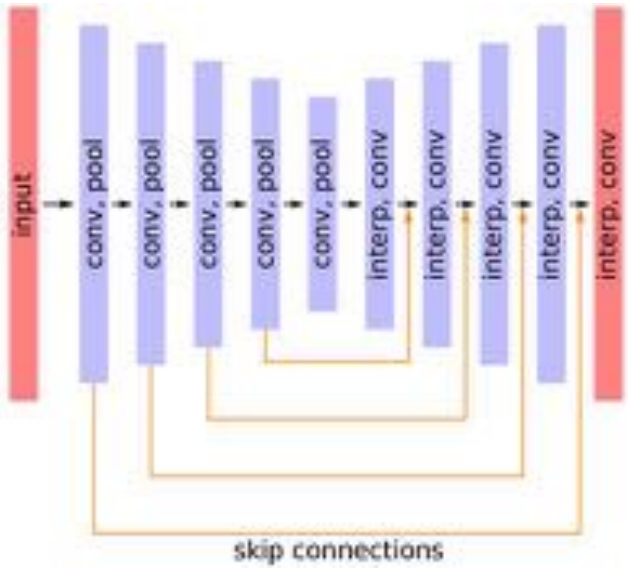
Kikaki et al. 2022.

Sentinel-2



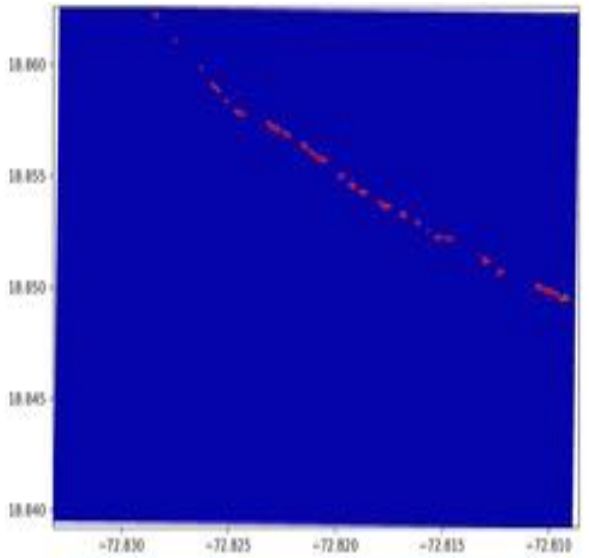
Input : 11 spectral bands

Schematic U-Net structure



Barth et al. 2022.

Prediction



Output

Classes :

- Shallow water
- Turbid water
- Foam
- Sediment-Laden Water
- Marine Water
- Clouds
- Ships
- Natural Organic Material
- Sparse Sargassum
- Dense Sargassum
- Marine Debris

Poster # 31

Assessing changes in the processing chain of Sentinel-3/OLCI using reference measurements from fixed autonomous hyperspectral radiometers in four Italian sites.

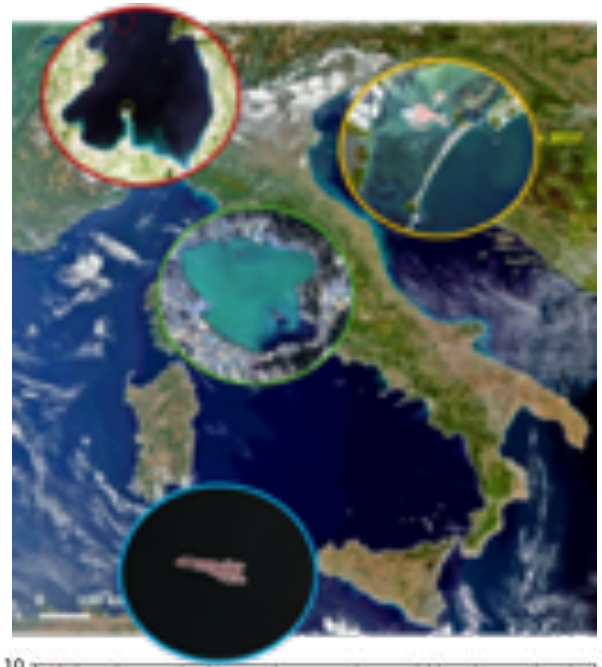
Luis Gonzalez Vilas[1,2], Vittorio E. Brando[1], Simone Colella[1], Javier Alonso Concha[1,3] , Ivan Farace[1] , Mauro Bastianini[1] , Federica Braga[1] , Mariano Bresciani [4] , Claudia Giardino[4] , Salvatore Mangano[4] , Alice Fabbretto[4] , Andrea Pellegrino[4] , Giorgio Di Sarra[5] , Damiano Sferlazzo[5]

1. CNR-ISMAR 2. NOW SYSTEMS 3. Serco S.p.A. c/o ESA-ESRIN 4. CNR-IREA 5. ENEA

IOCS-2025 Darmstadt, 1-4 December

Poster # 31

AIM: Assess changes between Sentinel-3/OLCI WFR collection 3 and collection 4 through a match-up validation analysis using the hyperspectral radiometric datasets acquired at four Italian sites.



Lampedusa Observatory (LAIT)

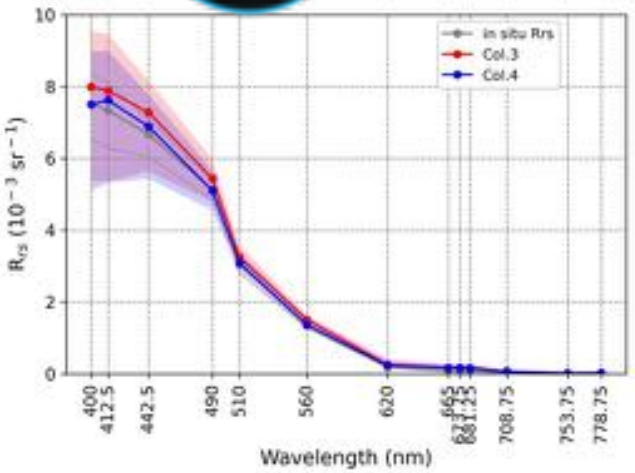
2022-07-01 to 2024-08-31

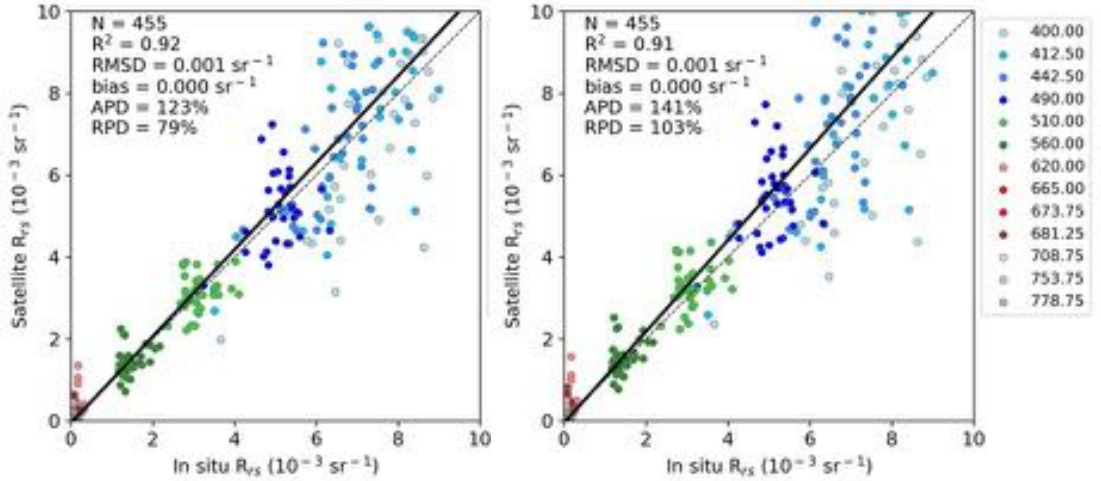
134 potential match-ups

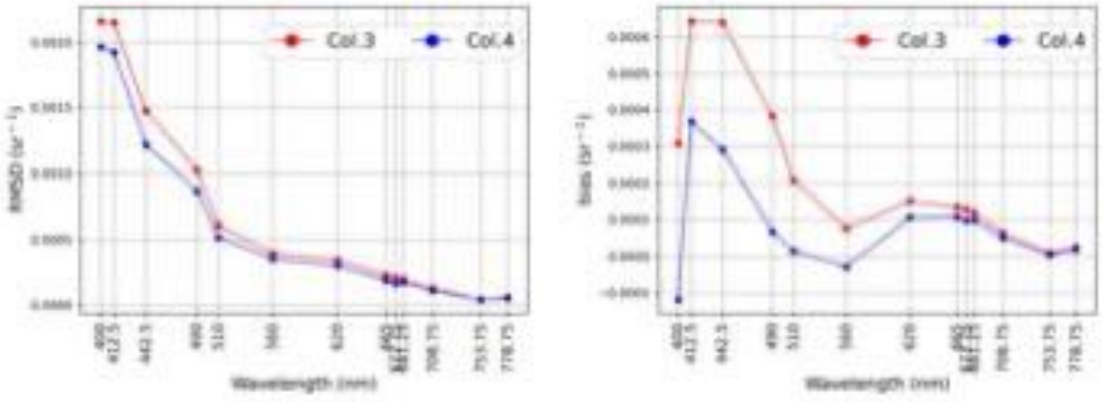
Col. 3: 40 valid match-ups

Col. 4: 36 valid match-ups

35 common match-ups







Preliminary results (collection 4 processing is still in progress)

International Ocean Colour Science Meeting 2025

Advancing Global Ocean Colour Observations

Poster Lightning Session 1A

END OF LIGHTNING TALKS