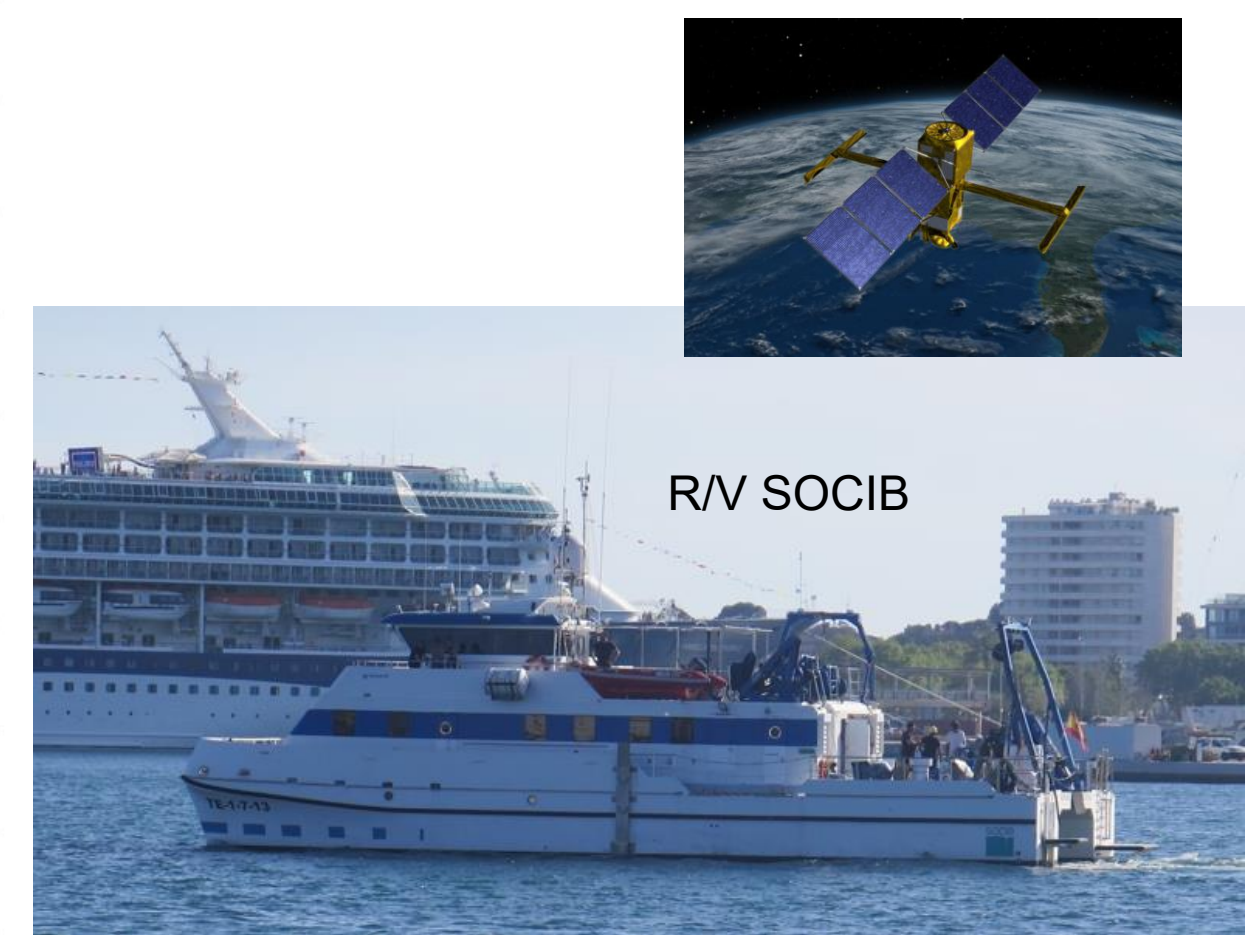
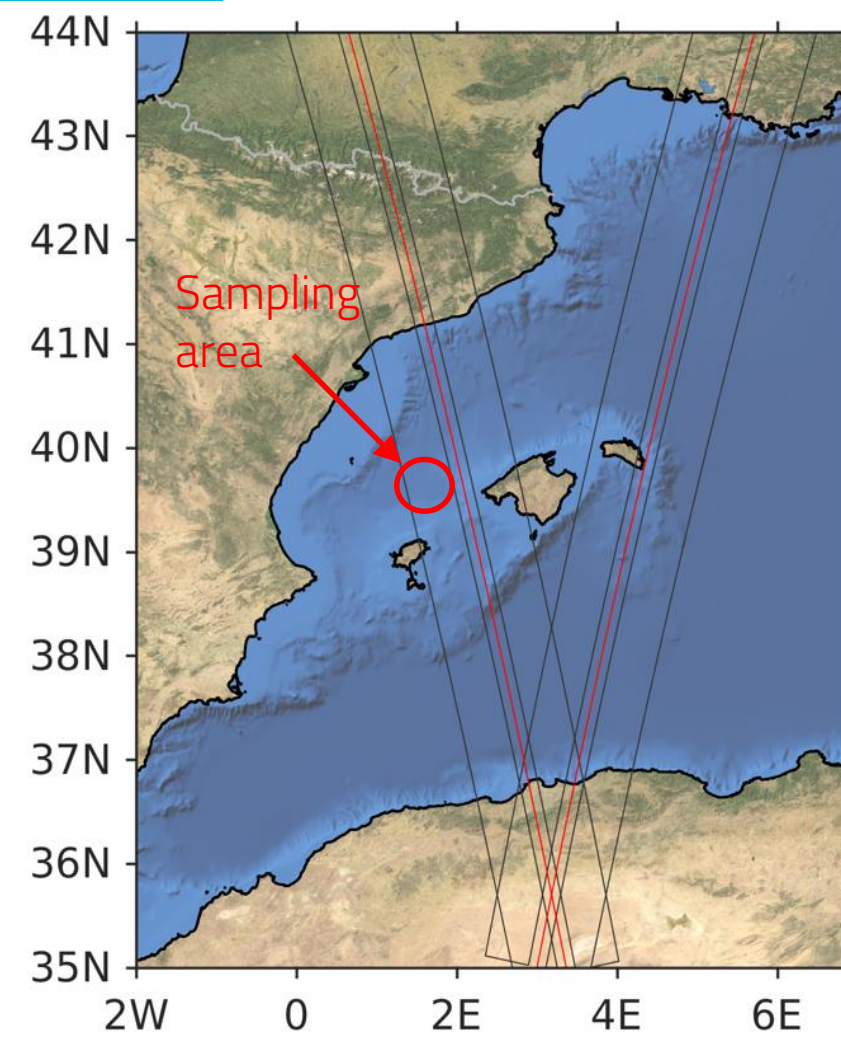


FaSt-SWOT multi-platform experiments for SWOT validation in the Western Mediterranean Sea

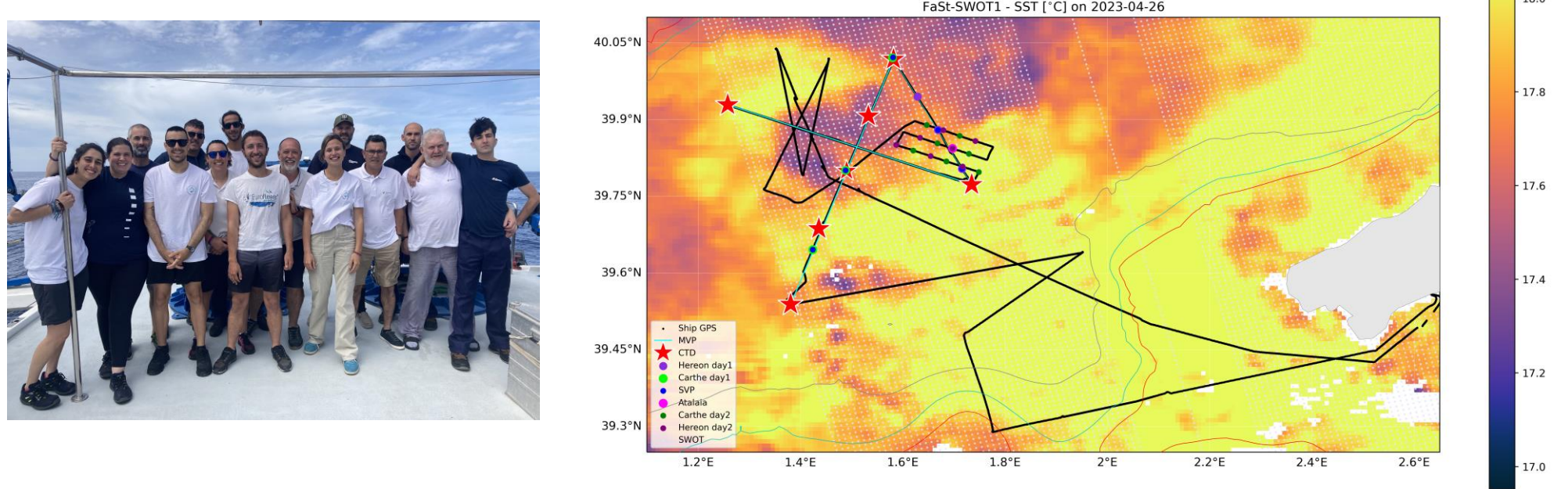
Baptiste Mourre¹ (bmourre@socib.es), Ananda Pascual² (ananda.pascual@imedea.uib-csic.es), Pau Balaguer¹, Bàrbara Barceló-Llull², Ana Bonilla², Noemí Calafat¹, Benjamín Casas¹, Vincent Combes², Eugenio Cutolo², Lara Díaz-Barroso¹, Máximo García-Jove¹, Laura Gómez-Navarro², Juan Gabriel Fernández¹, Mélanie Juza¹, Irene Lizarán¹, Guiomar López¹, Albert Miralles¹, Xisco Notario¹, Verónica Ortiz¹, Emma Reyes¹, Llúcia Ribot¹, Rosa Rodríguez¹, Pere Rossello², Laura Secorun³, Nathan Siegel³, Daniel R. Tarry², Joaquín Tintoré^{1,2}, Elisabet Verger-Miralles², Guillermo Vizoso², Nikolaus Wirth¹ and Nikolaos Zarokanellos¹

¹SOCIB, Balearic Islands Coastal Observing and Forecasting System, Palma, Spain; ²IMEDEA, CSIC-UIB, Esporles, Spain; ³ONA OCEAN, Barcelona, Spain

The FaSt-SWOT sea trial experiments, conducted in the Balearic Sea between 25-28 April and 7-10 May 2023, aimed at collecting multi-platform in-situ observations of fine-scale ocean structures in the area covered by SWOT during its initial fast-sampling phase. The general objectives of the FaSt-SWOT project are twofold: 1) participate with these data to the satellite cal/val activities, and 2) improve the characterization and understanding of these fine-scale structures by combining in-situ multi-platform and satellite data with high-resolution numerical models and machine-learning computational techniques.



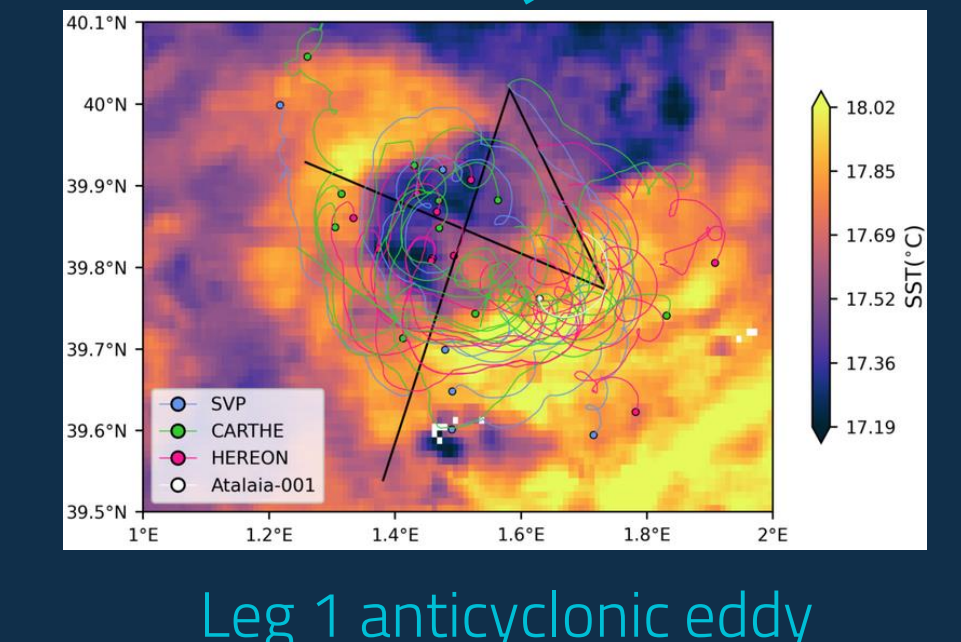
Leg 1: 25-28 April 2023



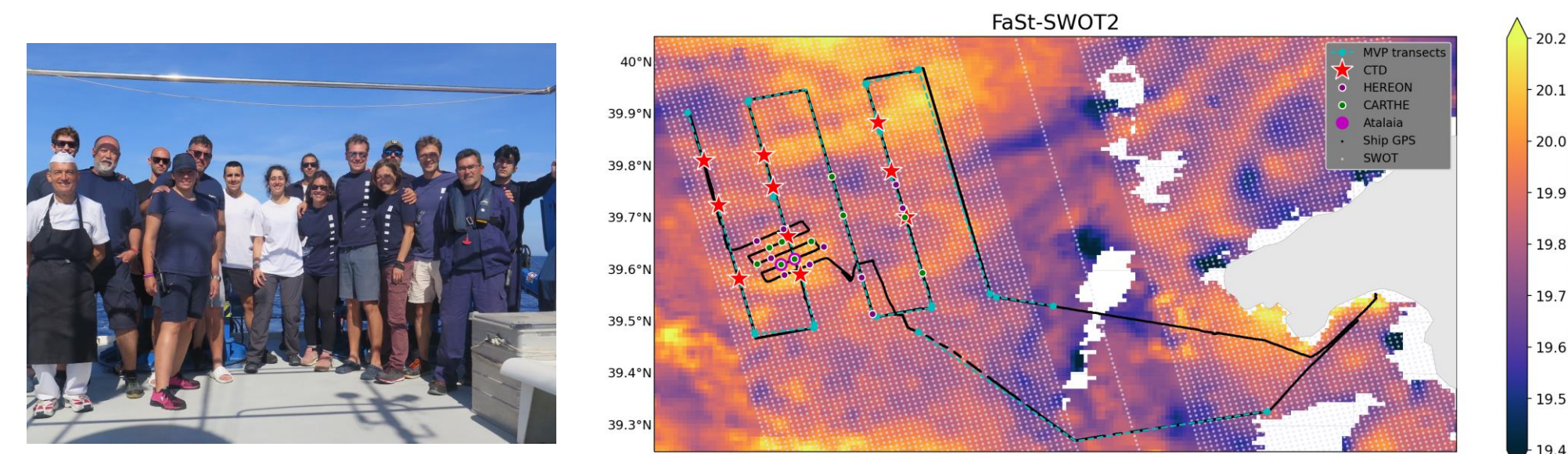
Instrumentation

- Thermosalinograph
- CTDs [0-700m]
- Moving Vessel Profiler [0-200m]
- ADCP (Vessel Mounted)
- 2 Slocum gliders
- 45 surface drifters
- Meteorological station
- GoPros

Drifter trajectories

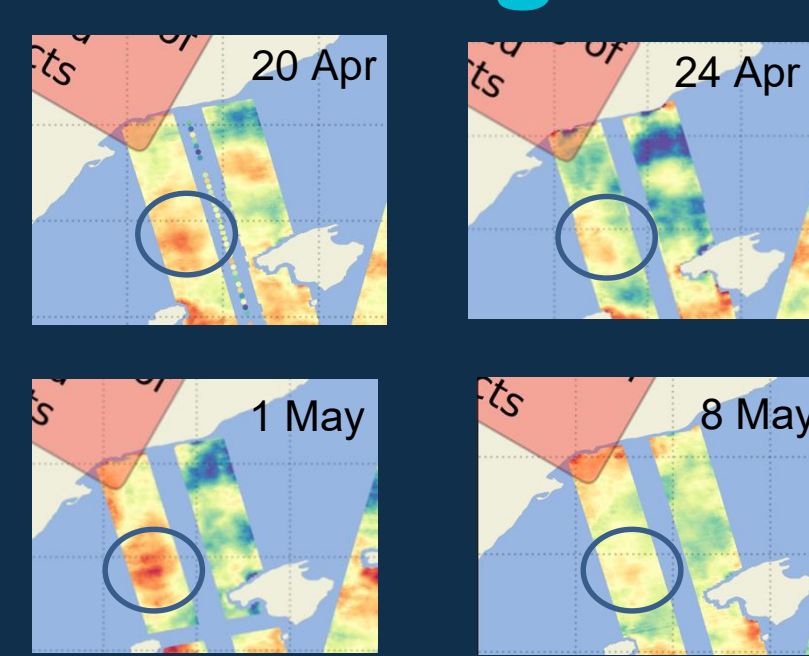


Leg 2: 7-10 May 2023



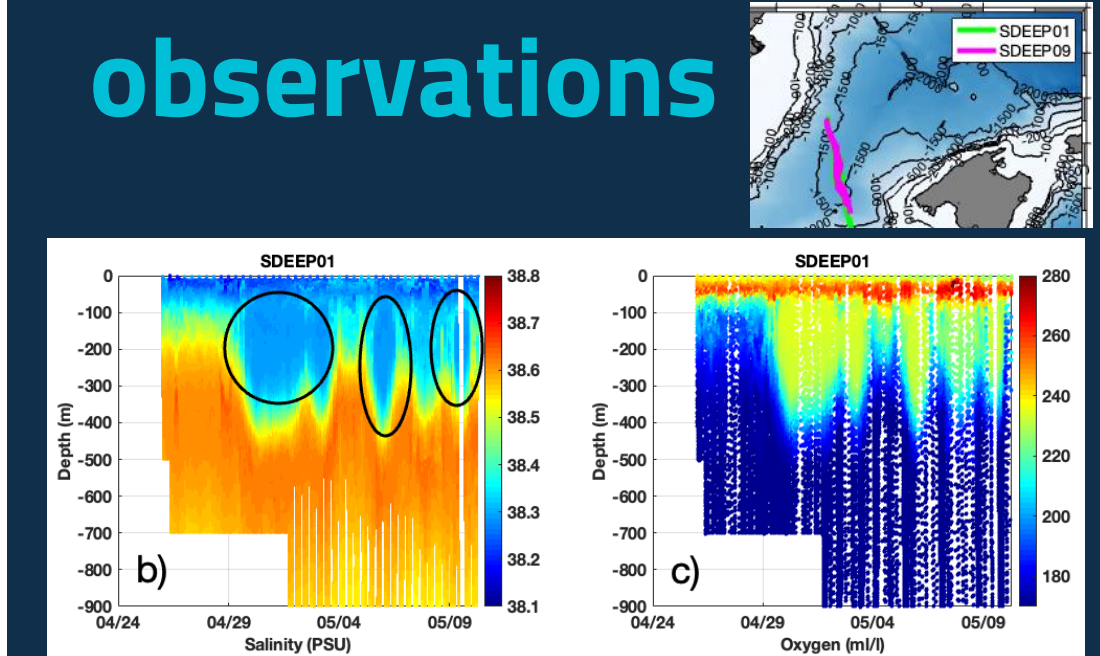
- Monitoring of water column T-S and horizontal velocities
- Sampling repeated after 10 days to track the evolution

SWOT images (AVISO)



Positive SLA signal

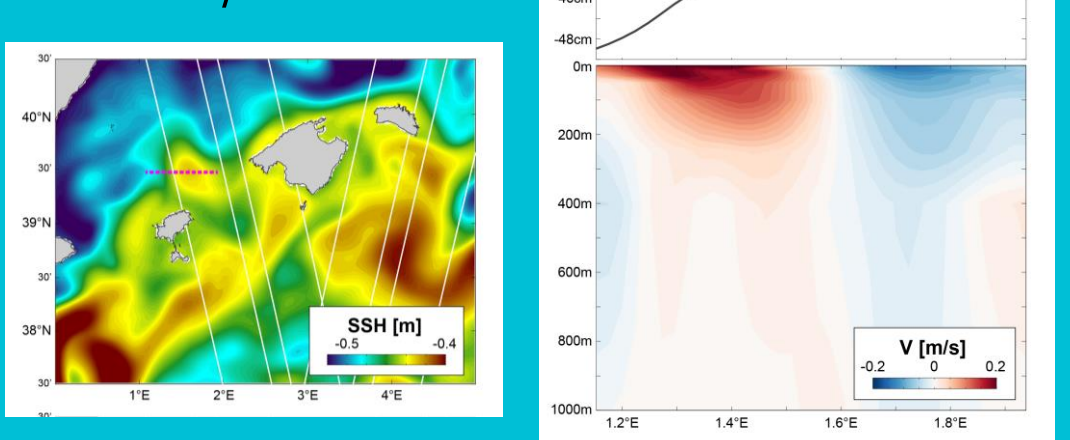
Glider observations



Back-and-forth transects

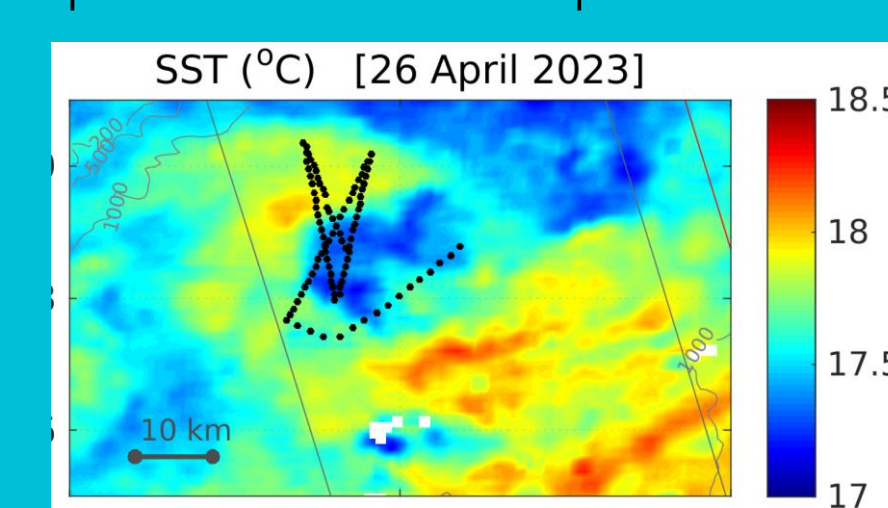
Modelling

WMOP high-resolution data-assimilative model: real-time & reanalysis



Adaptive sampling

Based on deep-learning CLOinet algorithm trained with high-res. SST. Implemented on 28 April.



Outreach

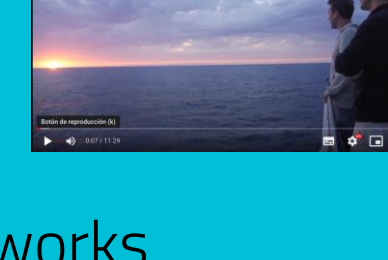
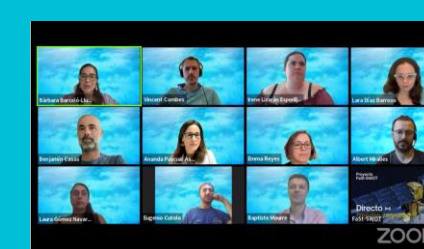
Boya al agua! educational program

Youtube direct Q&A

Cruise documentary

Newspapers, TV, radio

AdAC blog & social networks



Next steps

- In-situ data analysis
- Dynamic height reconstruction
- Comparison to SWOT observations
- SWOT and in-situ data assimilation

Acknowledgements



International collaborators: F. D'Ovidio, A. Doglioli, R. Morrow, T. Farrar, R. Fablet, J. Le Sommer
FaSt-SWOT technical team and R/V SOCIB crew
HEREON drifters support team: J. Horstmann, R. Carrasco

Interested in joining us?
We are hiring a postdoc for 2.5 years! (see LinkedIn IMEDEA)