MonGOOS

CoLAB +ATLANTIC

Lisbon (Portugal)

Mediterranean Sea multiscale variability: knowledge, impacts, and road ahead

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MonGOOS General Assembly

3-4 DECEMBER 2025

2025 MonGOOS Workshop

EDITO

MERCATOR OCEAN INTERNATIONAL

SOCIB Balearic Islands Coastal Observing and Forecasting System

cmcc

Consiglio Nazionale delle Ricerche

OGS National Institute of Oceanography and Applied Geophysics

CSIC

Objective of the Workshop

The state of the Mediterranean Sea evolves in time and space in response to both external surface and boundary forcings and internal dynamics. Processes and interactions occur across multiple scales, ranging from quasi-steady sea currents that span hundreds of kilometers to meso/submesoscale and small-scale turbulence with length scales of a few meters only. **Multi-scale hydrodynamics** influences biogeochemical processes that maintain the basin's productivity and are essential for the health of the Mediterranean Sea. **Climate change** impacts add an extra stress to Mediterranean ecosystems and vulnerable economies and societies, which are already threatened by unprecedented levels of human activity, including heavy ship traffic, overfishing, massive tourism, marine pollution with direct consequences on biodiversity loss and habitat degradation. In this context, understanding multiscale interdisciplinary interactions is essential to accurately predict the evolution of the Mediterranean basin and protect its biodiversity.

This workshop invites contributions related to multiscale observational networks in the Mediterranean, including in-situ and remote sensing measurements, instrument intercomparison, accuracy assessment, and data management strategies. We encourage submissions addressing the modelling of Mediterranean hydrodynamics and biogeochemistry, with particular interest in downscaling techniques, assimilation of in-situ and satellite observations, evaluation of model performance in capturing multi-scale processes and uncertainty quantification.

In addition, the workshop promotes the integration of data-driven methodologies, including Machine Learning (ML) and Artificial Intelligence (AI), for short- to medium-term forecasting, sub-seasonal to seasonal prediction, and long-term climate projections, across spatial scales ranging from local to basin-wide. Contributions addressing the representation of the ocean's various components within the framework of the Digital Twin of the Ocean (DTO) are particularly encouraged.

MonGOOS Mission

The Mediterranean Oceanographic Network for the Global Ocean Observing System (MonGOOS) seeks to develop and promote operational oceanography in the Mediterranean Sea. Its strategy is founded on four pillars: enhancing marine science, increasing the visibility and recognition of services, strengthening capacity building that facilitates knowledge transfer among partners, and encouraging downstream applications for social benefits.

Local Organisers

- Francisco Javier Campuzano (+ATLANTIC CoLAB, Portugal)
- Teresa Carmo Costa (+ATLANTIC CoLAB, Portugal)

Chairs

- Vanessa Cardin (OGS, Italy)
- Baptiste Mourre (IMEDEA CSIC-UIB, Spain)

Scientific Committee

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- Christian Ferrarin (CNR, Italy)
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- Emanuela Clementi (CMCC, Italy)
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- Diego Alvarez (IEO-CSIC)

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