

Acknowledgement - Fifth Coastal Altimetry Workshop 2319885

→ **5th COASTAL ALTIMETRY WORKSHOP**

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Abstract title

On the influence of coastal mesoscale dynamics on the jellyfish trajectories and distributions

Abstract text

Oceanic mesoscale plays a key role in modulating large-scale circulation, heat fluxes transfer and primary production enhancement. Such hydrodynamic processes are also crucial for jellyfish transport and distribution along the Mediterranean coastal areas. Investigating the relationships between jellyfish distribution and mesoscale hydrodynamic processes therefore provides a rational to understand the influence of such physical structures on the dynamics of regional ecosystems, at the interface between the open ocean and the continental shelf. Nevertheless, the high spatial and temporal variability associated with coastal mesoscale motions makes them difficult to study with sparse in-situ observations. Alternative options rely on developing methodologies based on the combination of multi-sensor platforms in conjunction with numerical simulations. In this respect, we use an advanced Lagrangian particle tracking code developed at LOPB (Marseille, France) to simulate jellyfish trajectories from both a 3D circulation regional model and currents derived from satellite observations. These are obtained by a high resolution altimetric current mapping tools developed at IMEDEA (Majorques, Spain). The large scale signals (~100 km) are removed by subtracting the gridded Sea Level Anomaly maps (AVISO) to improve along track data. In a second step, the residuals are submitted to an objective analysis scheme with correlation scales adjusted to smaller mesoscale and coastal dynamics. Our approach allows us to characterize the main mesoscale features and exchange between the Ligurian Sea and the Gulf of Lion and to infer possible main pathways of jellyfish trajectories.

Topics

1 A Altimetry in coastal observing systems

05 A5 other applications

Presentation Preference

Oral

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