

Integrated operational oceanography in response to science and society needs in the Western Mediterranean Sea.

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SOCIB is a marine research infrastructure operating a complex network of observing platforms and prediction systems for the long-term monitoring of physical processes and biogeochemical processes and cycling, in the Western Mediterranean. The observing network includes surface and profiling drifters, moorings, coastal stations, high-frequency radar (HFR), autonomous underwater gliders, animal borne instruments and a multidisciplinary ocean research vessel. The continuous recording of ocean data is transmitted to SOCIB Data Centre that applies quality control and standardization procedures which allow their integration in numerical prediction systems of met-ocean variables such as currents, waves or high-frequency sea level variations associated with meteotsunamis. The observational data and the outputs of the predictive models are available for scientists and society, being also integrated in specific SOCIB products and science-based societal applications providing user-oriented services. Here we present the following key strategic elements in SOCIB regarding science and societal applications, two of the main lines of the MONGOOS strategic plan:

- Boosting the HFR data usage in operational systems for model assessment and improvement through data assimilation, for a better understanding of small-scale-features coastal dynamics and for extreme events monitoring, facilitating also its integration in the catalogues of Search and Rescue agencies and in downstream data services like IBISAR.
- Enhancing operational oceanography applications for fisheries and ecosystem sustainability, with specific examples related to the identification of Bluefin Tuna spawning habitats and sea turtles pathways and spatial distributions. Operational products provide direct information to assessment and management bodies such the International Commission for the Conservation of Atlantic Tunas (ICCAT).
- Development of biogeochemistry capabilities in multi-disciplinary experiments and investigate the biological and biogeochemical properties from a Lagrangian perspective. Specifically, experiments showed the role of anticyclonic-cyclonic eddy-dipole interaction in organizing biogeochemical properties in a frontal region.