



## **Intercomparison of different operational oceanographic forecast products in the CMEMS IBI area**

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The development of skill assessment software packages and dedicated web applications is a relatively novel theme in operational oceanography. Within the CMEMS IBI-MFC, the quality of IBI (Iberia-Biscay-Ireland) forecast products is assessed by means of NARVAL (North Atlantic Regional VALidation) web-based tool. The validation of IBI against independent in situ and remote-sensing measurements is routinely conducted to evaluate model's veracity and prognostic capabilities.

Noticeable efforts are in progress to define meaningful skill scores and statistical metrics to quantitatively assess the quality and reliability of the IBI model solution. Likewise, the IBI-MFC compares the IBI forecast products with other model solutions by setting up specific intercomparison exercises on overlapping areas at diverse timescales. In this context, NARVAL web tool already includes a specific module to evaluate strengths and weaknesses of IBI versus other CMEMS operational ocean forecasting systems (OOFs).

In particular, the IBI physical ocean solution is compared against the CMEMS MED and NWS OOFs. These CMEMS regional services delivered for the Mediterranean and the North West Shelves include data assimilation schemes in their respective operational chains and generate analogous ocean forecast products to the IBI ones. A number of physical parameters (i.e. sea surface temperature, salinity and current velocities) are evaluated through NARVAL on a daily basis in the overlapping areas existing between these three regional systems.

NARVAL is currently being updated in order to extend this intercomparison of ocean model parameters to the biogeochemical solutions provided by the aforementioned OOFs. More specifically, the simulated chlorophyll concentration is evaluated over several subregions of particular concern by using as benchmark the CMEMS satellite-derived observational products.

In addition to this IBI comparison against other regional CMEMS products on overlapping areas, a specific intercomparison between the CMEMS GLOBAL solution and the IBI (regional application dynamically embedded in the former) is conducted in order to check its consistency and ability to outperform the parent model solution. Particular emphasis is placed on the comparison of time-series at specified locations (class-2 metrics). The standardized validation methodology presented here is particularly useful and could encompass the intercomparison of the regional application (IBI) and other nested higher resolution models at coastal/shelf scales to quantify the added value of downscaling in local downstream approaches.