The operational CMEMS IBI-MFC service today: Review of major achievements along the Copernicus-1 Service Phase (2015-2021)

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The CMEMS IBI-MFC (Iberia-Biscay-Ireland Monitoring & Forecasting Centre) delivers daily ocean model forecasts, analysis and reanalysis of different physical and biogeochemical parameters for the Atlantic façade, supporting all kind of marine applications.

Along Copernicus-1, this IBI operational service has continuously evolved, upgrading both its forecast capabilities (in 2015, only a circulation forecast in place; today, 3 operational services, including waves and biogeochemical forecasts) and its multi-Year production (covering altimetric era with ocean and wave reanalysis products, together with a non-assimilative biogeochemical hindcast).

The main IBI-MFC operational achievements and product upgrades are here reviewed. To evolve IBI services continuous R&D activity is performed (within the IBI-MFC itself and in external projects: mostly H2020 and CMEMS ones). Thanks to this R&D, IBI models (and their data assimilation schemes) were upgraded, and the coupling between different model components enhanced (including two-way wave-current coupling). Likewise, an overview of main IBI service milestones in terms of both operational production (with inclusion of new variables, increase of product resolution and temporal frequency, extension of forecast horizons and reanalysis coverages) and product quality enhancement is provided. The IBI model applications, able to deal with a large range of physical processes (from tidal to seasonal timescales), are routinely validated through meaningful skill scores and a wide range of statistical metrics computed to quantitatively assess the quality and reliability of these model solutions.

The CMEMS IBI-MFC delivers today a reliable operational service, meeting user needs for a widespread end-user community (with strong IBI-ROOS connections and marked by a high number of “regular” operational users linked to downstream services). The service is expected to be upgraded, already in a Copernicus-2 context, and major guidelines of the future IBI-MFC roadmap are outlined.