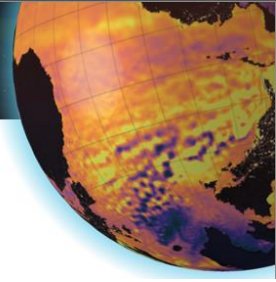# Assessing Operational Regional to Coastal Ocean Predictions in the framework of the Copernicus Marine and Coastal Services

Generation of comprehensive knowledge and understanding of the ocean requires operational systems that can offer solutions scientifically relevant and technically interoperable. Along each phase of the ocean value chain, the products assessment is fundamental for system and service evolutions and for providing tailored and understandable information to users. NOW Systems is developing novel capabilities in analyzing ocean model solutions together with the best available observations and other existing model products, to support not only forecasters and researchers, but also stakeholders that use forecast products for a more knowledge-based decision making. A new Python-based multi-model/multi-observation modular tool for validating operational ocean products is presented: starting from the solid existing baseline provided by NARVAL, adopted by the Copernicus Marine Iberia-Biscay-Irish (IBI) Monitoring and Forecasting Center, which is led by Mercator Ocean International (France), it offers metrics for monitoring operational production for the regions of interest, following the GODAE/OceanPredict standards. The first part of this contribution is dedicated to present the most recent progresses in assessing operational products provided in the IBI and in the Northeast Atlantic and Shelf Seas regions, by using all available quality-controlled in-situ and satellite observations, and by intercomparing them with other operational systems that are provided in overlapping areas. Going deeper in this concept of multi-model intercomparisons over a specific coastal zone, the second part of this contribution focuses on recent and novel implementations of a new co-designed product quality dashboard for the EUSCOMvu forecast system, developed by AZTI (Spain) for monitoring the coastal ocean state in the Bay of Biscay, in the framework of the Copernicus End Users Engagement Program. The coastal EUSCOMvu physical model solution is validated using satellite SST and in-situ observations from available moorings and CTD coastal observatory, and compared with the regional IBI one in which it is nested. Product assessment provides useful information on the added value of the applied coastal downscaling approach, identifying also limitations and way forward for evolving the numerical configurations.   This is a first effective showcase of the matured ability of generating quantitative and qualitative tailored information for stakeholders and end users, supporting their daily activities in monitoring water quality and search-and-

rescue operations in the Bay of Biscay, representing a key element to enhance the evolution of the local short-term coastal ocean predictions.

Stefania Ciliberti (Nologin Oceanic Weather Systems, Spain), Axel Alonso (Nologin Oceanic Weather Systems, Spain), Bruno Levier (Mercator Ocean International, France), Elodie Gutknecht (Mercator Ocean International, France), Luis Ferrer (AZTI, Spain), Mario Moros (Nologin Oceanic Weather Systems, Spain), Jose Maria Garcia-Valdecasas (Nologin Oceanic Weather Systems, Spain), Yolanda Sagarminaga (AZTI, Spain), Roland Aznar (Nologin Oceanic Weather Systems, Spain(, Sylvain Cailleau (Mercator Ocean International, France), Marcos G. Sotillo (Nologin Oceanic Weather Systems, Spain).