



In Situ Ocean Data in Support of Ocean Prediction: data management and workflows in Europe

Ocean observation is crucial in met-ocean forecasting as it provides essential data for understanding the current state of the ocean and predicting its future patterns. A forecasting system is based on numerical modeling of ocean dynamics and data-assimilation schemes that integrate observations into the models. Parameters such as temperature, salinity, currents, and atmospheric conditions enhance the accuracy and reliability of model outputs by bridging the gap between model simulations and the actual state of the ocean.

A multitude of research institutes, governmental organizations, and private companies collect these data from a variety of observing sensors installed on platforms including research vessels, submarines, aircraft, moorings, drifting buoys, gliders, floats, fixed platforms, and satellites. These sensors measure physical, chemical, biological, geological, and geophysical parameters.

Near Real Time (NRT) data are needed for forecasting activities ranging from hourly to weekly, while Delayed Mode (DM) data are required for reanalysis, climate monitoring, and seasonal forecasting. To ensure data quality, different control procedures are applied to NRT and DM data. NRT data typically undergo automatic quality control using predefined procedures, whereas in-situ DM data are usually subject to offline quality control, performed by scientific experts who apply statistical tests along with consistency and climatology checks.

At the European level, two main programs organize ocean data observation and flow: the Copernicus Marine Service and the European Marine Observation and Data Network (EMODnet) and a special working group, the Marine In Situ Collaboration (MIC), with members from EMODnet, CMEMS and EuroGOOS, has been established to coordinate actions and gather new in-situ datasets and data providers. This presentation describes the collaboration and data workflow that support these programs towards Ocean Prediction goals

Antonio Novellino (1), Dominique Obaton (2), Fernando Manzano (3) Kate Larkin (4), Vicente Fernandez (4)

Author affiliations: 1) ETT, 2) IFREMER, 3) Puertos del Estado, 4) SeaScape Belgium