Field observations and modelling of the waters of the southeastern Bay of Biscay

Luis Ferrer[1], Stefania Ciliberti[2], Yolanda Sagarminaga[1], Axel Alonso-Valle[2], Almudena Fontán[1], Raúl Alonso[2], Javier Franco[1], José María García-Valdecasas[2], Asier Nieto[1], Beatriz Jiménez[2], Iván Manso-Narvarte[1], Mario Moros[2], Andrea del Campo[1], Marcos García Sotillo[2], Lohitzune Solabarrieta[1], Anna Rubio[1]

[1]AZTI, Marine Research, Basque Research and Technology Alliance (BRTA), Herrera Kaia, Portualdea z/g, 20110 Pasaia, Spain

[2]Nologin Oceanic Weather Systems (NOW Systems), Rúa de Lope Gómez de Marzoa (FEUGA), s/n, 15705 Santiago de Compostela, Spain

Abstract

Coastal hydrodynamic modelling aims to understand and predict water circulation generated by wind, tides, differences in density of water masses and freshwater discharges. Accurate coastal modelling and field observations are essential to correctly assess and predict the risks of adverse events to human life, activities and infrastructure. With this in mind, the EUSCOMvu (EUSkadi Coastal Operational Model validation & user-engagement) project was launched in 2023 to provide reliable monitoring and forecasting in the southeastern Bay of Biscay.

EUSCOMvu aims to: (1) generate a highly optimized oceanic and coastal operational forecast in the waters of the Basque Country (Euskadi); (2) develop and implement an online and delayed mode validation capability to assess the performance of this forecast using available *in situ* and satellite observations, and including intercomparison with the Iberia-Biscay-Ireland physical ocean products provided by the Copernicus Marine Service; and (3) promote close cooperation with end users for the operational exchange of data and the definition of new hydrological indicators. These objectives will help lay the foundation for a seamless coastal hydrodynamic forecasting service in the southeastern Bay of Biscay and consolidate the use of Copernicus Marine Service products.

EUSCOMvu is funded by the Copernicus Marine Service National Collaboration Programme 2022–2028 and is also supported by EBEGI, a research project funded by the Basque Government. EBEGI is a super observatory located in the southeastern Bay of Biscay, which allows integrated and multidisciplinary observation of the marine environment and its ecosystem. It also contemplates technological innovation and experimentation tasks to identify and test cutting-edge ocean observation methodologies, including autonomous vehicles. This will increase the key information for the development of policies and directives on the conservation and recovery of biodiversity and marine habitats, as well as the challenges associated with climate and global change. Two recently acquired gliders are among the instruments used in the EBEGI project. The data collected by these gliders will be essential in the immediate future to evaluate the performance of the coastal hydrodynamic forecasting service established in the waters of the Basque Country.