



Coastal Currents from Observations

This VLab provides a service to **generate integrated ocean surface current maps** from direct and indirect current measurements derived from different sources, High Frequency (HF) radar; drifter data; and geostrophic currents from altimetry data, using the **DIVAnd (Data Interpolating Variational Analysis in n dimensions) method**. The merging and analysis of these datasets is performed using various constraints, in particular the presence of the coastline, constraints on horizontal divergence as well as a momentum balance (between acceleration, Coriolis force and surface pressure gradient).

Partners Involved



Data Sources

CMEMS, GEBCO, EMODnet Bathymetry, NOAA, Open Street Map, ECMWF.

Main Target Users

Scientifics aiming to better understand the surface circulation, Model users (forecasting and validation purposes), and Oceanography students.

Blue-Cloud Added Value

The main output of this VLab is a service in the form of easily customizable Jupyter notebooks that allow users to generate surface currents maps for a user-chosen coastal region (when data is available and in particular the availability of HF radar data which extends depending on the configuration about 50 km – 200 km offshore). The user would also be able to make Lagrangian simulations based on these currents maps to visualize the movements of artificial drifters released at a user-chosen location (assuming suitable data coverage).

UN SDGs addressed



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The code will be openly available as open-source. The DIVAnd method is coded in the Julia programming language. Its package manager helps the user to create its environment in a reproducible way effortlessly. We are also aiming to make this service intuitive and easily understandable for the user by using a JavaScript library leaflet-velocity which creates an interactive output for the user.

**Access the
VLab Here!**

