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JERICO-NEXT

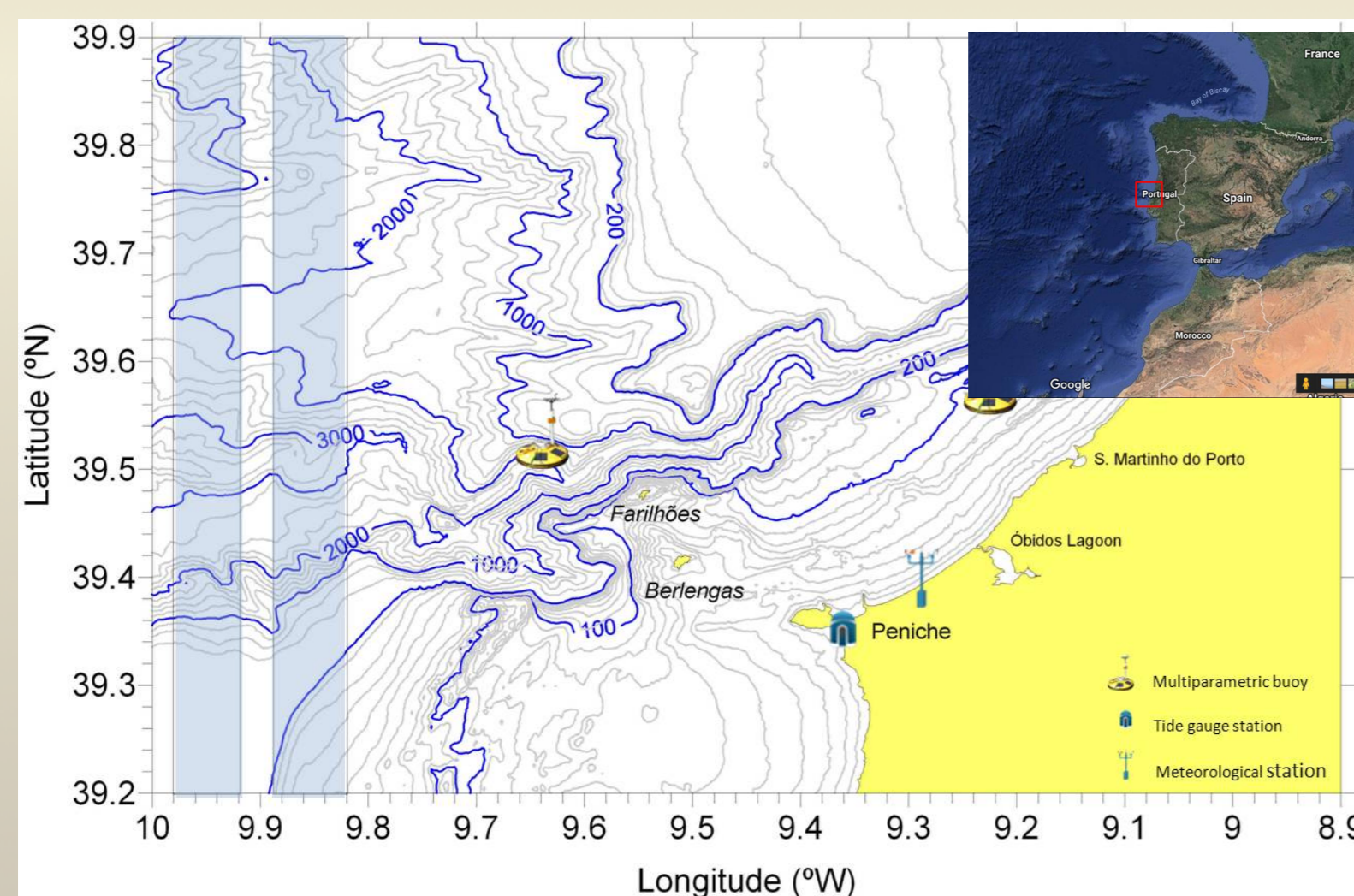
Joint European Research Infrastructure network for Coastal Observatories
Novel European eXpertise for coastal observatories

Topic #4: Hydrography & 4D characterization of trans-boundary hydrography and transport

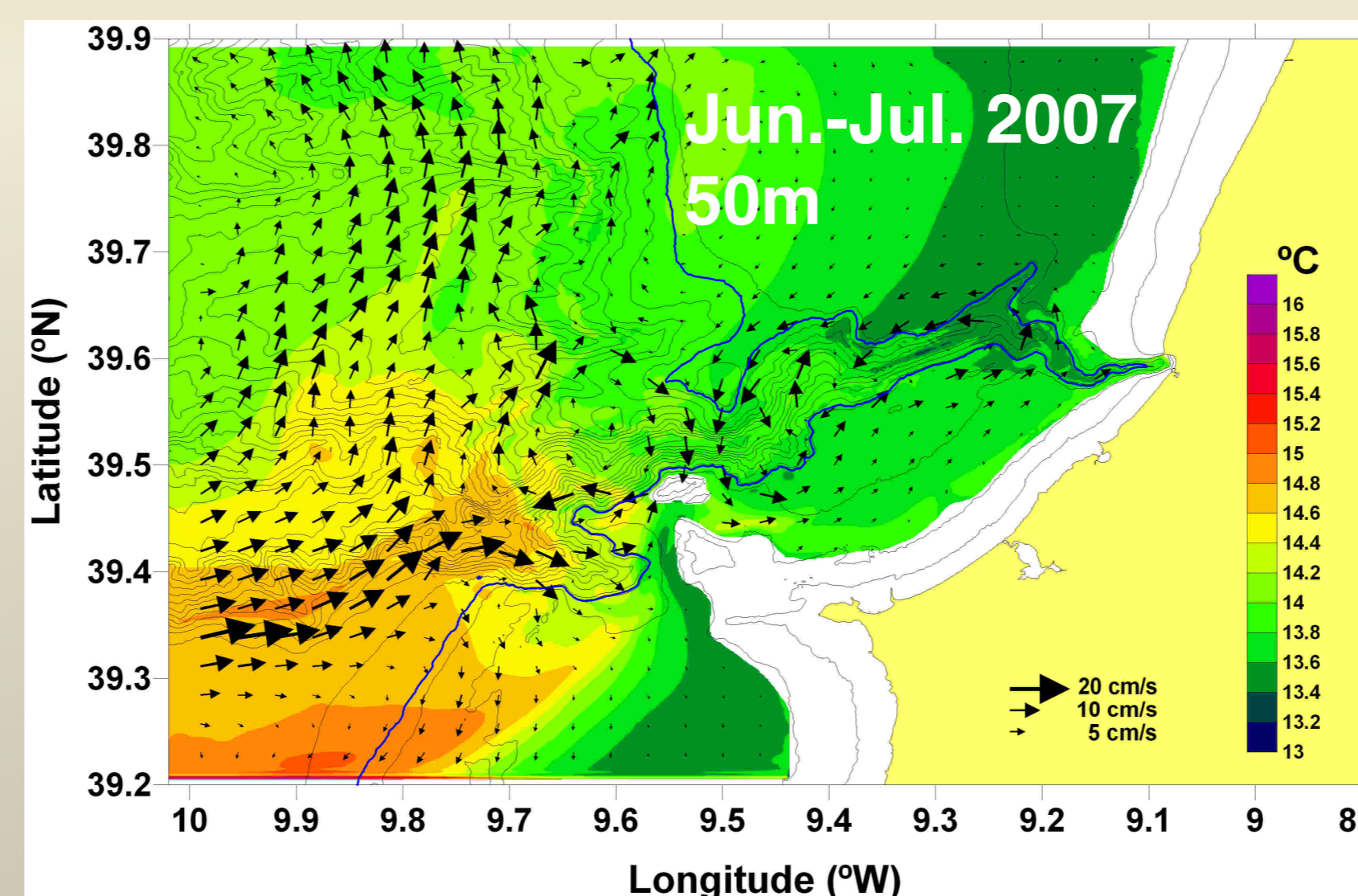
Topic#6: Operational Oceanography and forecasting

The Nazaré Canyon (W Portugal)

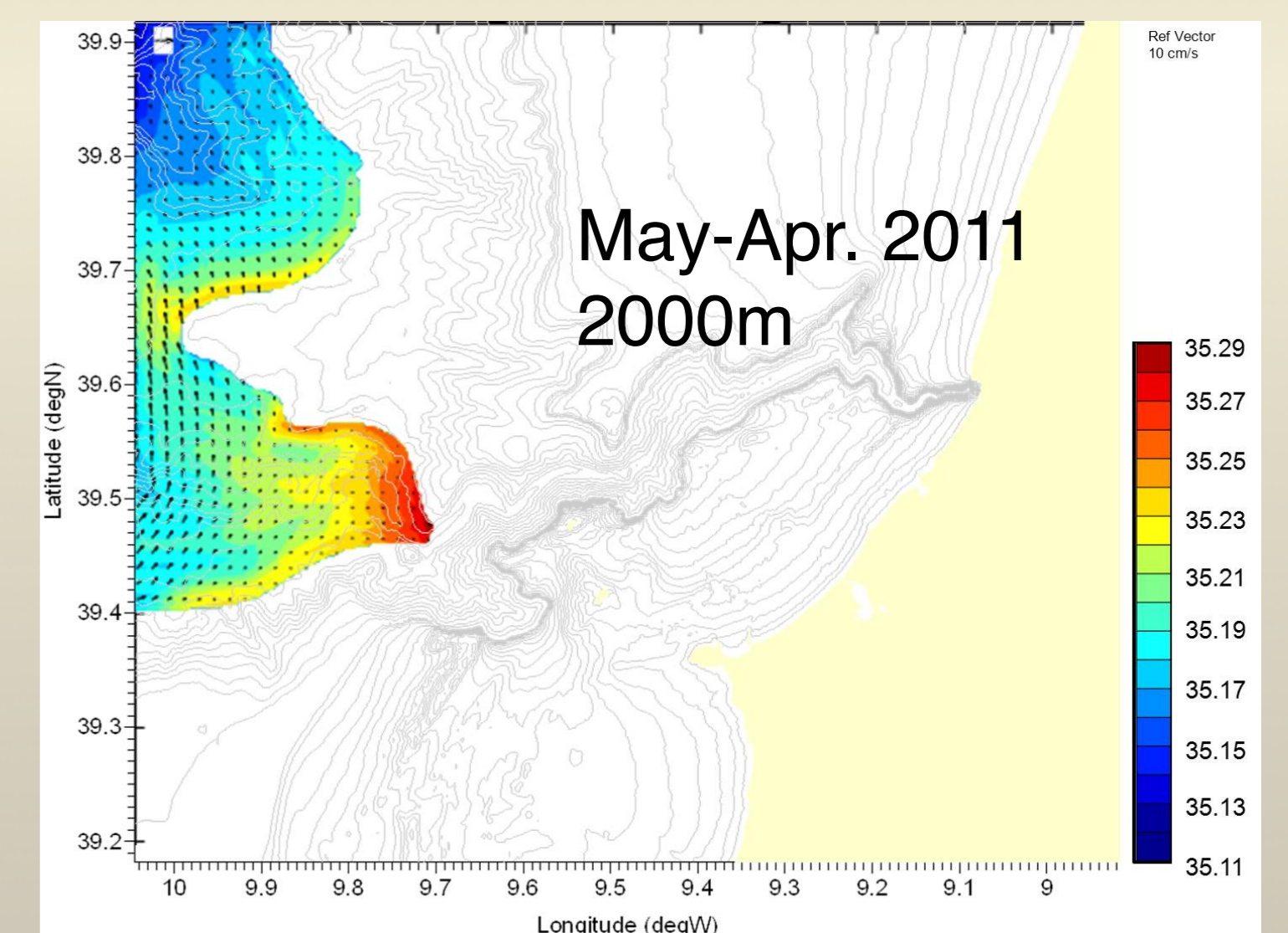
- One of the largest submarine canyons of the European margin.
- In 2009: The Nazare Canyon Observatory MONICAN, a real-time monitoring infrastructure, led by IH
- High resolution model (HOPS) with data assimilation :
 - To assess the importance of the monitoring system components
 - For better understanding :canyon's impacts on the shelf and on some of the main along slope flows, such as the Iberian Poleward Slope Current or the Mediterranean Water flow.



Topography (m) & real-time monitoring systems.
 Shadowed bands: navigation corridors
 Berlengas and Farilhões Islands: protected areas



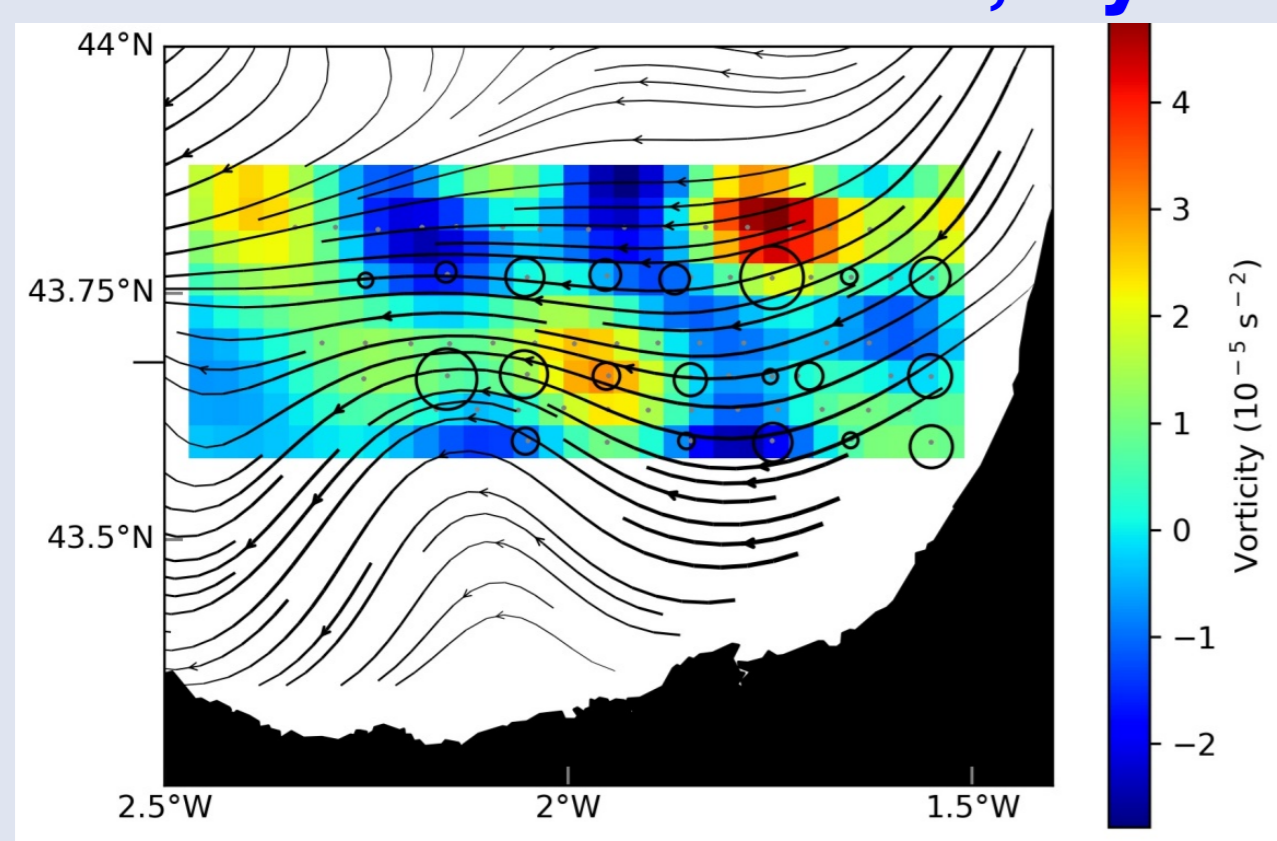
Temperature & current: interaction with warm and saltier poleward slope
 160m ~ canyon rim.



Salinity & current: simulation + assimilation of CTD profiles.

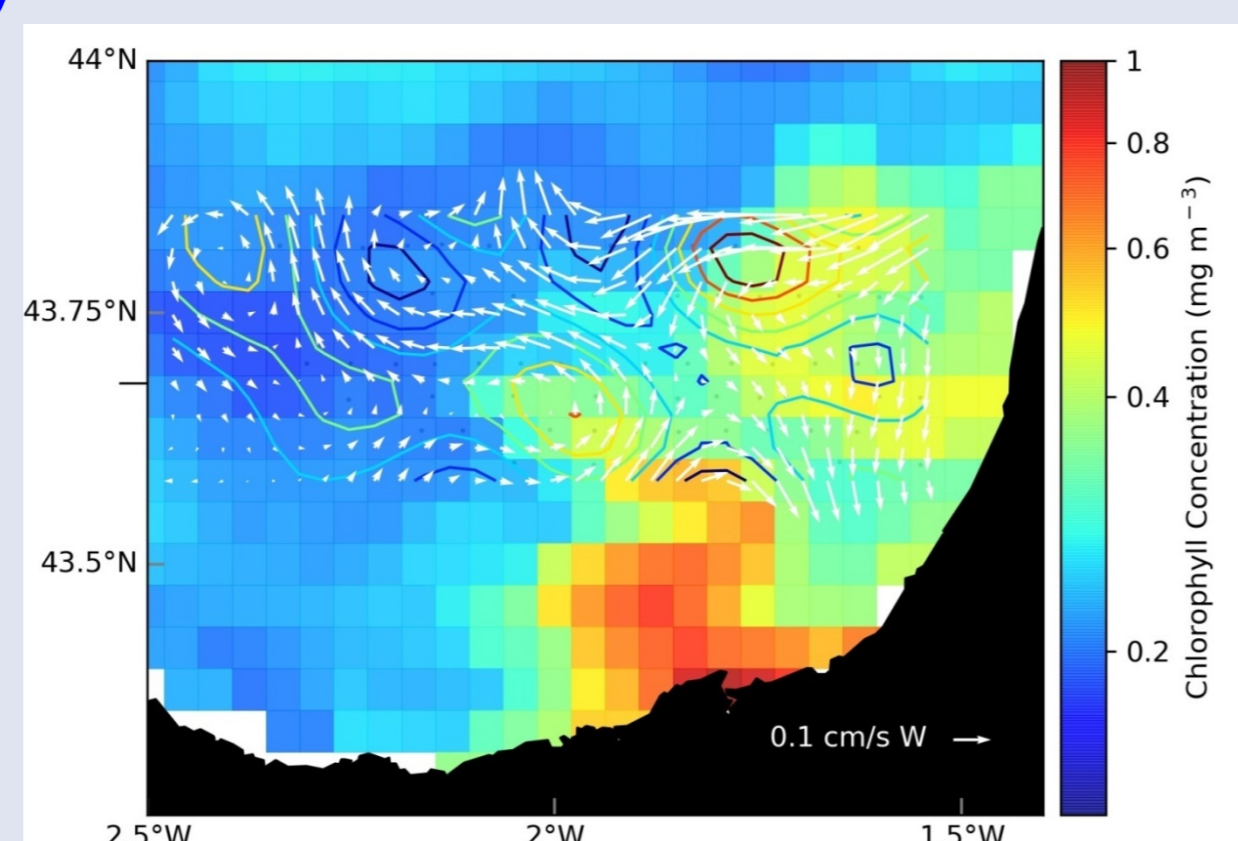
Inside the Nazaré Canyon upper section (the part that cuts the shelf and upper slope) bottom intensified internal tidal motions promote a strong mixing between the Mediterranean Water and the North Atlantic Deep Water below. The saltier (and warmer) water plume that emerges from the canyon mouth is transported along the slope potentially affecting the deep layers in other regions along the Iberian slope.

Bay of Biscay: ETOILE experiment (Aug. 2017) HF radar, hydrology & marine litter



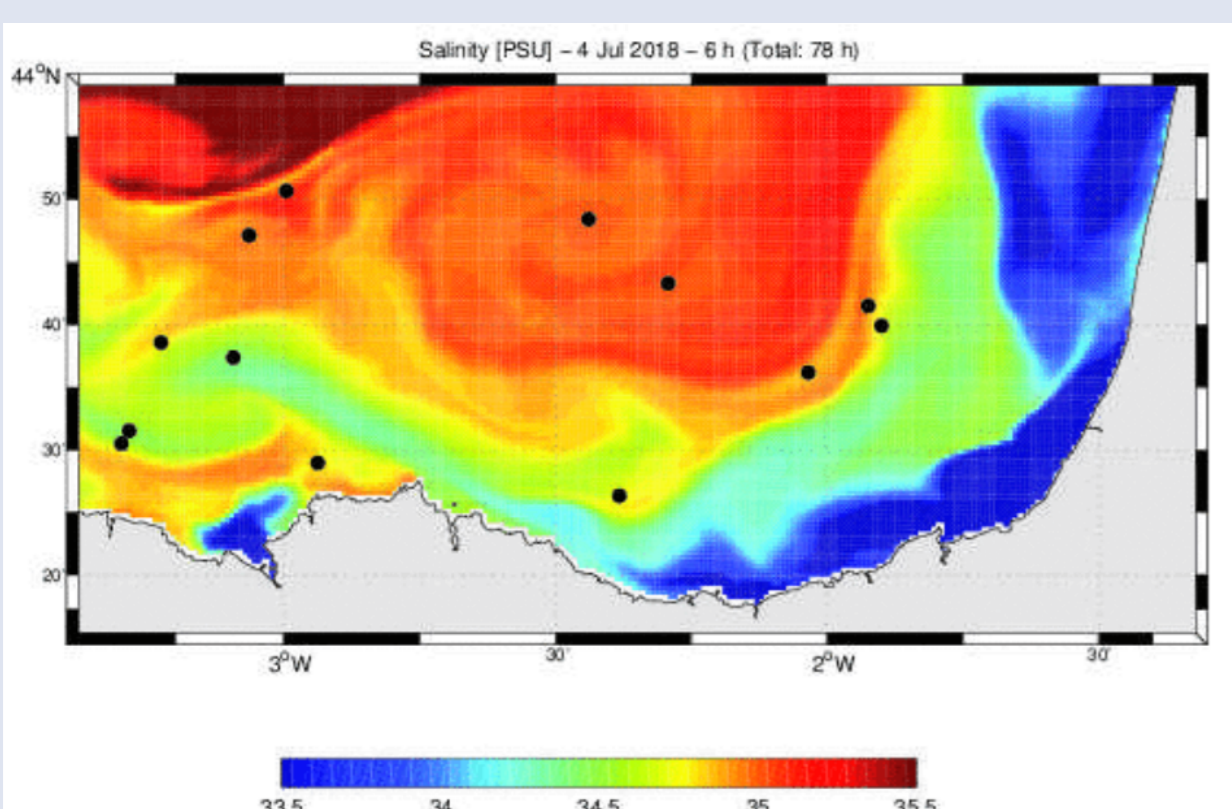
Geostrophic Relative Vorticity.

Black lines: Lagrangian Residual Currents from HF Radars. **Black circles:** location & quantity of marine litter from a 500 µm Neuston net (microplastics).



Geostrophic Relative Vorticity.

White arrows: Chlorophyll data from satellite overlaid on the relative vorticity field, together with the derived geostrophic velocities.



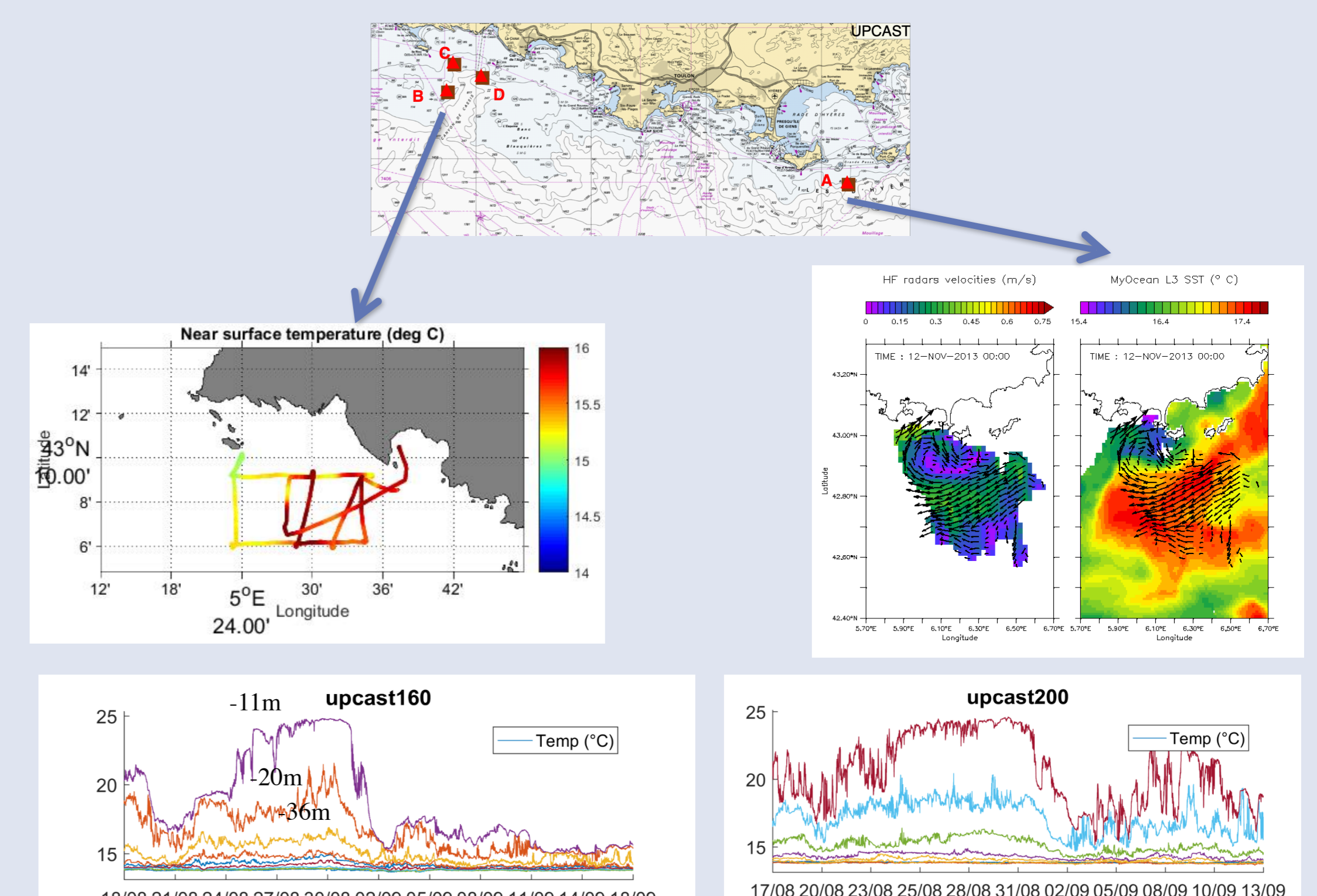
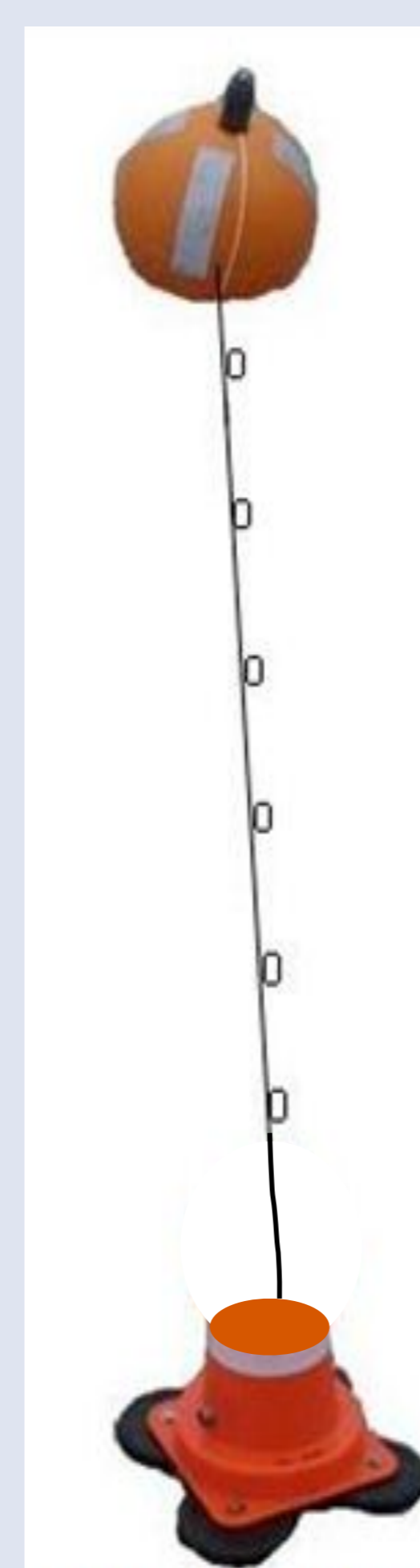
Operational simulations of salinity and particle advection using a 670 m horizontal resolution ROMS configuration for the SE Bay of Biscay (more: www.euskoos.eus/en)

A first insight on the distributions of floating marine litter and phytoplankton in relation with currents and hydrography in the SE Bay of Biscay.

✓ Marine litter & phytoplankton distributions : influenced by vorticity.

✓ Advection to be considered
 ✓ Increased sampling step needed

NW Mediterranean Sea: Up Cast experiment (Sep. 2017) Low cost T mooring, HF radar & modelling



Mastodon 2D :

- Ground dim: 40 X 40 X 40 cm³
- Line high: 120 -200 m
- Line: 3mm thick + 10 T&P sensors

- ✓ Low cost & easy to deploy
- ✓ Complete autonomous continuous monitoring
- ✓ Information along the water column