



Exploring the potential of HF radar data to monitor upwelling events in the SE Bay of Biscay

Ainhoa Caballero, Anna Rubio, and Ivan Manso
AZTI, Marine Research, Pasaia, Spain (acaballero@azti.es)

Upwelling processes along oceanic eastern boundaries are key features for the development of the nearby coastal ecosystems. Indeed, in some areas, the upwelling processes, which usually describe pulses of intensity consistent with the shelf-slope circulation, are observed to be well correlated with the recruitment of commercial fish species. The complex topography of the southeastern Bay of Biscay, where a combination of different temporal and spatial ocean processes govern the local hydrodynamics, has promoted the development of a coastal observatory consisting in a HF radar and several coastal stations and offshore buoys. However, historically the upwelling index has been estimated from wind stress forcing in the area and not based on direct measurements of temperature and currents variability. In this contribution, we explore the potential offered by the existing observatory to compute upwelling indexes directly from the surface current fields measured by the HF radar system within the period 2009- 2016. The results of this analysis are compared with those derived from the conventional way of estimating upwelling index in the area (wind forcing). This comparison is done in order to assess the agreement between the two methods. Finally, both methods are validated with independent data coming from in-situ measurements of the water column and remote sensing techniques. In this regard, we have processed an extensive series of IR and visible remote sensing images, and selected periods with images where clear upwelling and downwelling events with different intensities are observed.