



## **Spanish Deep Standard Section and (CO)VACLAN Projects: studying the variability of deep waters in the southern Bay of Biscay**

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Recent decades have supposed a progressive increase in the oceanic observational effort, thus resulting in a better knowledge of its role in the global climate. Decadal changes have been measured in the termohaline properties of the modal waters in the Iberian North Atlantic and Bay of Biscay basins, and it has been possible to establish links between these changes and climatic patterns as the North Atlantic Oscillation (NAO) and meteorological forcing at the formation areas. Particularly during last decade, a great warming trend has been detected in the intermediate waters of the Bay of Biscay, and extreme climatic events have occurred as the anomalously warm summers in 2003 and 2006 and the extremely cold winter of 2005, able to produce permanent changes in the whole vertical structure of central waters in the Bay of Biscay.

The main objective of the present projects ([www.vaclan-ieo.es](http://www.vaclan-ieo.es)) is to study the climatic variability observed in the Iberian Bay of Biscay and Atlantic margin mainly in the last decade. An important deliverable is the maintenance of an observational system which avoid an irrecoverable lost of potentially critical information in the next years, taking into account that climatic warming seems to have accelerated recently.

The physical-chemical sampling is being carried along three hydrographical sections, which have been occupied twice a year since 2003, as well as two semi-permanent moorings in the locations  $43^{\circ}00'N$   $11^{\circ}00'W$  and  $43^{\circ}50'N$   $03^{\circ}47'W$ . An ocean-meteorological buoy has been recently moored near the second location.

Preliminary results have permitted an analysis of intermediate and deep circulation in the area. This is being used to evaluate the skill of the sampling scheme in capturing the variability and scale of the circulation. This study will suggest recommendations for the future optimization of the sampling net. Finally, the establishment of an efficient system of transference of data and information in cooperation with national and international data centres is also an objective of this project.