



## **Impact of the Cape Sao Vicente (SW Iberia) upwelling filament on the nutrient and chlorophyll distributions**

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The Cape Sao Vicente is an upwelling center under favourable wind conditions and is the origin of one of the major and recurrent cold filament observed along the Iberian coast. The main objective of this work was to understand the dynamics of the filament and determine its implications on the chemical and biological fields. Such multidisciplinary description through in situ sampling of a filament feature off Iberia has never been succeeded before and did allow the estimation of the excess of offshore mass transport. The survey was conducted late in the upwelling season, by the end of October 2004, under weak winds, but just after a significant upwelling event, as confirmed through the almost real-time guidance by satellite imagery. A total of 42 CTD stations with nutrients and chlorophyll a water sampling at selected levels from surface till a maximum depth of 400 m were carried out. Simultaneously, continuous onboard wind records and flow field data from the vessel mounted ADCP were acquired. At surface the nutrients concentration was lower than expected, due to its effective consumption by phytoplankton. The strongest horizontal and vertical gradients were found between 50 and 75 m depth. The highest concentration of chlorophyll a ( $3.6 \mu\text{g/L}$ ) was found at the nearshore stations at 20 m depth and represents a high value for this time of the year. Although the offshore decrease of chlorophyll a concentration, relatively high values ( $>0.3 \mu\text{g/L}$ ) occur at 60-80 km from the coast, along the filament axis. An estimate of the total amount of chlorophyll present in the filament was 66 tons. Estimated values of fluxes and transport of nutrients and chlorophyll a reveal that filament structures represents an efficient way of exchange with the open ocean, even in this time of the year, and have an important impact on the control of the primary production.