



EOF Analysis of Seasonal and Interannual Variability of the Surface Circulation along the West Iberian Coast from 1995-2005

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Satellite derived sea surface temperature (SST) and sea surface height (SSH) measurements are used to investigate the seasonal and interannual variability of the surface circulation along the west Iberian coast during the period 1995 - 2005.

The basic pattern of surface circulation consists of an alternation between a density-driven poleward current (Portugal Countercurrent) and an upwelling-related equatorward geostrophic current. The poleward flow moves over the continental slope off western Iberia, increasing northward, and has been observed in autumn and winter. In summer, however, the surface circulation along the slope reverses, turning equatorwards, in response to the wind-induced coastal surface divergence. The alternation between the density-driven and upwelling-related currents and their variability is mainly due to the surface circulation conditions in the open ocean and the local wind stress.

In this study an EOF analysis of SST, SSH derived geostrophic velocity fields, and NCEP wind stress fields is carried out to identify and study the characteristic patterns of variability and how much of the forcing is due to the local wind stress.