Satellite-derived sea surface temperature (SST) trends are built at the pixel scale to investigate long term changes in oceanic patterns. We consider that the SST time-series already available is long enough to attempt the analysis at the decadal scale. The analysis extends from 1982 to 2009 and is applied to the Canary Current Upwelling System. Monthly mean SST data from the AVHRR/NOAA satellites, with a spatial resolution of 4x4 km, were retrieved from the NASA PO.DAAC system. Time series are limited to the night-time passes and only high quality SST values are used. A hierarchical suite of tests and procedures were applied to the imagery to guarantee their quality and that the annual and seasonal averages are not biased towards the seasonally more abundant summer temperature data. A robust linear fit was applied to each individual pixel, crossing along the time the same pixel in all the processed monthly mean images. Fields of SST trends (°C/year) were created upon the slopes of the linear fits. They show a generalized warming of the entire region. However, alternate patches of significantly different warming rates are observed, ranging from large scale down to mesoscale sized features that corresponds to known oceanographic structures, like coastal upwelling features. Going deep into short spatial scales, the spatial heterogeneities of the ocean became evident, revealing the importance of the mesoscale in the response to the global warming.

Palavras chave: variabilidade do afloramento, Sistema de Correntes das Canárias, deteção remota da TSM.
Keywords: *upwelling variability, Canary Current Upwelling System, decadal changes, SST remote sensing.*

Climate variability during the last glacial-interglacial transition and Holocene in north-western Iberian margin and adjacent landmasses

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Direct correlation between terrestrial and marine climatic indicators from deep sea core MD03-2697 (north-western Iberian margin) allows the detection of millennial scale climate variability for the last deglaciation in the mid-latitudes of the North Atlantic realm.

The mid-latitudes of the North Atlantic were marked by a complex pattern within Heinrich 1 (H1) event. In the first phase, sea surface conditions were extremely cold with almost no evidence for iceberg calving while the second one was less cold with high quantity of Ice-rafted detritus (IRD). In north-western Iberia vegetation has responded synchronously to this H1 pattern. During the first phase a drastic *Pinus* forest decline and heaths expansion reflect extremely cold and moist conditions whereas the second phase reveals the expansion of *Pinus* forest and semi-desert plants representing relatively cold and dry conditions on the continent. The first cold phase was probably triggered by the MOC shutdown followed by ocean-atmosphere rapid reorganizations while the wet and dry phases were the result of prevailing negative and positive North Atlantic Oscillation (NAO like) indexes, respectively.

The continental (deciduous *Quercus* expansion) and sea-surface warming characterizing the Bölling-Alleröd (B-A) event was produced by both the increase of mid-latitude summer insolation of the northern Hemisphere and the strengthening of the MOC.

During the Younger Dryas (YD) the decrease of deciduous *Quercus* forest and the expansion of semi-desert plants reflect continental cooling and dryness, which is contemporaneous with sea surface cooling. MOC reduction but increasing northern mid- latitudes summer insolation favored a decrease rather than a complete decline of deciduous *Quercus* forest in north-western Iberia. Beyond the MOC reduction, a prevailing positive NAO-like index could explain the observed dryness. Following this, the Holocene Thermal Maximum in this region is identified between 11 700 and 8 200 cal yr BP. At around 8 200 cal yr BP a sudden land (decrease of deciduous *Quercus* forest and *Corylus* woodlands) and sea cooling marks the 8.2 Ky event in Iberia as the result of the culmination of the successive episodes of the Laurentide Ice sheet decay, which enhanced the cooling over Greenland and Europe. After the 8.2 Ky event the long-term temperate forest decrease has responded to the orbital-induced cooling rather than to human impact.

Keywords: *abrupt climate change, LGIT and Holocene, Iberian Margin and adjacent landmasses, vegetation changes.*

A palaeobotanical contribution to modelling paleoenvironmental evolution and climate change of the Portuguese SW coast

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Depositional systems such as lagoons and estuaries are natural archives of information on coastal and