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Coastal upwelling regions, as the Iberian margin, are highly productive and play an important role in the Earth climate regulation. To better understand the present-day climatic system and better estimate future climate, the knowledge of the past conditions is obligatory. The lack of instrumental records beyond 150 years requires the use of natural archives like marine sediments. Otherwise, to make optimal use of these sediments it is necessary to calibrate the sediment properties (e.g. diatom content and assemblages' composition) to the modern oceanographic conditions. This study aims to understand the present-day seasonal abundance and diversity of siliceous microorganisms, especially diatoms, how these microorganisms relate to hydrographic conditions, and their transference/preservation into the sediments.

Thus, we are studying the diatom flux between water column, sediment traps and surface sediment samples off Vigo, including the integration and comparison with other productivity and hydrographic data. Preliminary results show that the diatom assemblages observed in the water column and sediment traps samples evidence seasonal productivity. The major productivity/hydrographic features observed are: the spring bloom and late spring to summer coastal upwelling, which are associated with high diatom abundances and elevated percentages of *Chaetoceros spp.* and *Leptocylindrus spp.*, including resting spores.

Freshwater genera indicate major river input during autumn/winter/early spring.

Surface sediment samples are dominated by resting spores of the same groups, *Leptocylindrus spp.* and *Chaetoceros spp.*, which are very resistant to dissolution. These genera blooming capacity and spore resistance makes them especially effective productivity markers both in sediment traps and sediment samples.

Palavras chave: afloramento costeiro, diatomáceas, fluxo de microorganismos siliciosos, Margem Ibérica NW, produtividade primária.

Keywords: coastal upwelling, diatoms, NW Iberian Margin, productivity, siliceous microorganisms flux.

The role of blocking events during the 8.2 ka event over the mid-latitudes of the eastern North Atlantic region

O papel dos bloqueios durante o evento 8.2 ka nas médias latitudes do Atlântico Norte

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Vegetation and climate changes in southwestern France/northern Spain are documented for the extreme climate event about 8200 years ago in a well-dated shelf core, KS05-10, retrieved in the southern margin of the Bay of Biscay (Basque country, 43°22'765N, 2°16'744W). The Bay of Biscay pollen record detects an abrupt cool and wet episode, between 8.3 and 8.1 ka, marked by the contraction of temperate trees (particularly hazel) and expansion of ubiquitous plants (mainly *Cyperaceae*), respectively. The relatively cold conditions were probably the result of the weakening of the Meridional Overturning Circulation (MOC) triggered by the final catastrophic drainage of the proglacial Laurentide lakes and consequent input of freshwater in the North Atlantic region. The cooling led to the strengthening of the thermal gradient between high and low latitudes and the southern migration of the Atlantic westerly jet stream to the European mid-latitudes. This atmospheric mechanism together with the prevalence of strong zonal flow and frequent low pressure systems (associated with less blocking events) over southwestern France/northern Spain would have favoured the increase in precipitation rate and therefore moister conditions in that region.

Palavras chave: evento 8.2 ka, Holocénico, sudoeste da Europa, Corrente de Jato Atlântica, eventos de bloqueio, *Corylus*, *Cyperaceae*.

Keywords: 8.2 ka event, Holocene, Southwestern Europe, Atlantic westerly jet stream, Blocking events, *Corylus*, *Cyperaceae*.

Planktonic foraminifera proxies calibration off the NW Iberian margin: temperature and nutrients view

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The NW Iberian upwelling system has been studied both in terms of physical, biogeochemical and geological processes. However there are few studies combining hydrographic and biogeochemical conditions with the past oceanic or climate conditions. This fact has special relevance since it will improve the prediction of future changes against possible climate alteration and anthropogenic influence. In order to minimize this lack of information from the upper water column

temperature and nutrients point of view, we investigate planktonic foraminifera (PF) relative abundances, trace element and stable isotopes from PF, and alkenone Uk₃₇ index from a large set of core-top sediment samples from the NW Iberian margin (41.5-42.5°N; 9-10°W). Sediment data are compared with present-day water column data (CTD, stable isotopes, satellite measurements) and to “global” calibration data-sets of the proxies with sea surface temperature. We explore reconstructing upper water column structure using three species (*G. bulloides*, *N. pachyderma* dextral, and *G. inflata*) with different depth habitats, different seasonal abundances, and linked to specific hydrographic conditions in this region. Preliminary results from the PF relative abundance distribution, and derived temperatures from PF (Mg/Ca, δ¹⁸O) of all species and the alkenone Uk₃₇ index are consistent with seasonal hydrographic conditions observed in present-day water column data. Ba/Ca, Cd/Ca and δ¹³C imply a complex relationship between nutrient tracers and nutrient content of the local water masses. *G. bulloides* data for example, reflect higher-nutrients under upwelling waters, confirm the relationship between this species and nutrient-rich upwelling waters, already suggested for this region based in PF assemblages.

Palavras chave: calibração de múltiplos indicadores, foraminíferos planctónicos, amostras de água, elementos traço, afloramento costeiro.

Keywords: multi-proxy calibration, planktonic foraminifera, water column sampling, trace elements, coastal upwelling.

High marsh foraminiferal assemblage response to intradecadal climate variability (Caminha, NE Portugal).

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Foraminiferal assemblages of Caminha tidal marshes have been studied since 2002, revealing a peculiar dominance of brackish species like *Haplophragmoides manilaensis*, *Haplophragmoides* sp., *Pseudothurammina limnetis* and *Trochammina salsa / irregularis* in the high marshes of the Minho and the Coura lower estuaries. The assemblage composition reflects low salinity conditions, despite the short distance to the estuarine mouth (~4km). However, these environments presented a different composition in May 2010 when the presence of *Trochammina inflata* and *Jadammina macrescens* became very significant. This change is a reflection of several consecutive years marked by low precipitation and its associated increase in salinity in sediment pore water. The foraminiferal assemblage

response to the shift in regional precipitation regime over the 8 years of this study, allows us to conclude that foraminiferal assemblages from Caminha high marsh record short period fluctuations, being able to contribute to high-resolution studies of SW Europe climate evolution.

Keywords: Recent foraminifera, high-marsh, precipitation, Minho.

Caminha high marsh foraminifera response to precipitation: records from 1934 to 2010 of Minho region (NW Portugal)

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A study to assess the relationship between the record of high-marsh benthic foraminifera and the instrumental data of river flow and precipitation was undertaken in the Minho region since 1934. River flow has a positive correlation ($0.72 < R < 0.85$) with precipitation which longer record is more suitable to be applied to the interpretation of foraminiferal assemblages variability. The analysis of a sediment core from Caminha marsh (top 10cm) shows that foraminiferal assemblages respond to the variations of average precipitation. The occurrence of positive anomalies of precipitation (mainly in winter months - DJFM), are responsible by the increase of freshwater seepage and flooding in the upper part of intertidal. These changes of ecological conditions have a quantitative and a qualitative influence in the high marsh foraminiferal assemblages: 1) reducing the number of individuals by cm³ of sediment; 2) increasing the dominance of low salinity species like *Haplophragmoides manilaensis* and *Trochammina irregularis*.

Keywords: recent foraminifera, high-marsh, precipitation, Minho.

Associações de ostracodos dos sapais dos estuários dos rios Minho e Lima (Norte de Portugal)

Ostracod tidal marsh assemblages from the Minho and Lima estuaries (north Portugal)

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