



Primary Productivity evolution during the Latest Holocene

(2,000 yr) off Oporto (Portuguese Margin)

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As part of the Iberian upwelling system, coastal upwelling occurs along the west coast of Portugal from Spring to early Autumn under fairly strong and steady northerly winds. This process is well recorded in the sediments that cover the bottom, both by diatom as by planktonic foraminifera abundances and assemblages composition, and that preserve most of the upwelling spatial variability. However, high primary productivity occurs year round in the northernmost area of Portugal as a response to both river and upwelling nutrient input.

Long-term changes in primary productivity and its causing process are investigated using instrumental and proxy data for a high-resolution sediment core collected off Oporto (41.4°N, 8.9° W).

Planktonic foraminifera multi-species oxygen isotopes are combined with alkanone derived SST, organic carbon and total alkanone concentrations, and diatom abundance and composition to investigate primary production as well as phytoplankton communities and water column structure during the last 2,000 years.

Iron content, magnetic susceptibility and continental biomarkers (n-alkanes and n-OH) are used as tracers for river water input.

Preliminary data points to a clear shift in the primary productivity generating process since about 300 years ago (1650 AD), with a relative increase in stratification and SST since then.