

MARINE AND CONTINENTAL PLIOCENE RECORDS FROM PORTUGAL: PALAEOECOLOGY AND EVIDENCE OF CLIMATIC CHANGE

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The Pliocene of Central-West Portugal includes records of marine, lacustrine and palustrine environments. These records have been studied in order to track and understand palaeoecological and palaeoenvironmental changes occurred during the Late Cainozoic of Portugal and to correlate them with global climatic changes. In this study multi-proxy palaeontological records were used for comparison and cross calibration of environmental change, namely palynoflora, calcareous nannofossils and marine molluscs. Two main basins were investigated: the Cainozoic Lusitanian Basin (Pombal and Óbidos regions) and the Tejo (Tagus) Basin (Rio Maior, Barracão and Santarém). The reconstruction of the vegetational ecosystem and its evolution made it possible to establish the palynological zonation and the climatostratigraphy of the Central-West Portuguese Pliocene and to correlate them with Northwest Europe and the Mediterranean area as well as to stress their importance in the context of global change. Calcareous nannofossils were studied in order to precise the biostratigraphic positioning of the shallow marine sequences and to understand certain palaeoceanographic features of the Northeast Atlantic at Iberian latitude, such as the presence of warm water species and upwelling relative intensity. The presence of northern elements in the Portuguese Piacenzian molluscan faunas, together with thermophile molluscs nowadays occurring only off the coast of West Africa, clearly suggests a faunal shift southwards, along the European Atlantic frontage, during Pliocene times, due to climatic change, i.e. the progressive Late Pliocene cooling events.