POS-B02

PD en Cuaternario: Cambios Ambientales y Huella Humana

IMPACT OF THE EARLY LUTETIAN C21R-H6 CARBON-CYCLE PERTURBATION ON CALCAREOUS NANNOFOSSILS AND OCEAN DYNAMICS (GORRONDATXE, WESTERN PYRENNEES)

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The Eocene Epoch was characterized by overall warm temperatures and superimposed multiple hyperthermal events. The largest, such as the PETM, ETM2 and ETM3, may not be the best analogues to forecast the consequences of current global warming, as the amount of carbon released was greater than 103 Gt, which exceeds the current rate of emissions. With the aim of modeling how our oceans could be affected by the ongoing global warming, smaller scale hyperthermals should be analyzed. In this study, carried out at the Gorrondatxe Beach (Biscay, Western Pyrenees), we have studied the Middle Eocene (Lutetian) C21r-H6 hyperthermal event, which was first defined by Sexton et al. (2011) in the western Atlantic Ocean. Later, Payros et al. (2012) identified this hyperthermal in Gorrondatxe and determined that it was characterized by a ›1‰ decline in δ13C and that it lasted 226 kyr (47.44-47.214 Ma). Our new study focused on a 400 kyr interval extending from before the hyperthermal event to its aftermath. As a supplement to previous stable isotope, mineralogy and foraminifera information (Payros et al., 2012), calcareous nannofossil data are reported herein. The proportion between the most representative genera was calculated for each part of the succession. In addition, the carbonate volume of some coccoliths was determined using an innovative technique that measures the quantity of light emitted by the shell when it is illuminated with polarized light. Our data show that the volume of calcium carbonate of selected calcareous nannofossils species decreased during the C21r-H6 event, suggesting changes in calcification, although potential dissolution is also considered and anlyzed. The temperature of the environment increased, which probably contributed to raise the sea level. The proportion of reworked calcareous nannofossil taxa increased considerably, suggesting higher erosion of the hinterland. Finally, an increase in nutrient availability has also been deduced.