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Condensed Layers and Sea Level Changes in the Gulf of Lions during the Last Climatic Cycles (Data from Promess1, Borehole PRGL1-4)

Sierro, F. J.(1), Flores, J. A. (1), Pérez-Folgado, M. (1), González-Mora, B. (1), Bárcena, M. A. (1), Dennielou, B. (2) and Berné, S. (2)

(1) University of Salamanca, Spain. (2) IFREMER, Plouzané, France

During decades paleoceanographic research has focused on deep sea sediments, far away from continental margins, trying to avoid the disturbances that are sometimes associated with these environmental settings. However, European project Promess1 drilled two cores on the upper slope and shelf of the Gulf of Lions, a critical region to understand the Mediterranean hydrography and climate. A preliminary study of planktic foraminifera, coccoliths and other microfossils on Borehole PRGL1-4 indicates that there is a continuous record for at least 4 to 5 climatic cycles. Abrupt changes in sedimentation rates are associated to sea level variations and the subsequent movement of coastal lines. Several condensed layers were identified along the hole that were formed at times of rapid sea level rises during global melt-water peaks that sharply reduced ice volume on Earth. These condensed layers that are rich in coarse-grained planktic foraminifera and other sand-size particles were used to calibrate our record to global sea level records, demonstrating that this kind of sedimentary setting is useful for paleoclimatic and paleoceanographic purposes.