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Biostratigraphy and Paleoenvironmental Analysis on Late Middle Eocene Deposits on The Margin of The South Pyrenean Foreland Basin (NE Spain)

The study concerns the south-eastern end of the South Pyrenean foreland basin. During the Eocene sedimentation the basin was opened to the Atlantic Ocean (Biscay Gulf) and its axis was oriented NW-SE. The evolution of the basin was controlled by the generation and southward migration of various Pyrenean thrust sheets from the Upper Cretaceous to the Oligocene. The Eocene materials deposited in the active margin have been incorporated into the thrust sheets, while the sediments deposited in the passive margin remain almost un-deformed.

The studied sector corresponds to the passive margin, however, the strike-slip faults acting in this margin induced fan delta progradation during Middle Eocene times, and a high percentage of terrigenous sediments intercalates with carbonate deposits. Nevertheless, in spite of the terrigenous input to the marine ecosystem, the concentration of nutrients was probably limited and oligotrophic conditions prevailed in this part of the basin, as is suggested by the dominance of K-strategist larger foraminiferal faunas.

The study focussed on the Late Middle Eocene sediments and integrated mapping, sedimentology, paleoenvironmental data and biostratigraphy (foraminifera). Two sedimentary cycles (Lower and Upper Bartonian, respectively) have been documented. From each cycle, constituted by open marine shelf, barrier, protected platform and littoral facies, several fossil assemblages have been characterised.