

Sedimentary trends, shifts and breaks across the South-Pyrenean Foreland System

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Foreland systems are regions where the complex interplay between deep and surface processes causes that the triggers and feedbacks are not easily differentiated. Understanding the causal relationships which operate in foreland systems relies on the analysis of the sedimentary record and its placement in a robust chronostratigraphic frame.

During the Paleogene and Neogene the NE Iberian plate underwent significant paleogeographic changes which include several basin-scale transitions between open to closed drainage and, at smaller scale, the basin partitioning associated to the emplacement of thrust units, leading to transitions from foredeep to wedge-top sedimentation. These changes had a strong impact on basin filling, overfilling and later erosion, evolution which was ultimately marked by the variable role of tectonics, climate and eustacy.

In this presentation, the long-term trends of sedimentation in the South-Pyrenean Foreland Basin are analyzed in order to identify key moments of change in basin configuration. This is achieved thanks to the many magnetostratigraphic studies carried out in the past decades, which allowed the construction of a reliable picture of the evolving sedimentary environments and routing systems through time. We review the evolution of the South-Pyrenean sediment transfer systems and sinks, from the middle Eocene chain-parallel turbiditic troughs to the late Eocene to Miocene internally drained Ebro basin, and the final fluvial incision and drainage opening towards de Mediterranean basin.