

# Middle and late Eocene calcareous nannoplankton in the Jaca Basin (south-central Pyrenees Eocene Basin): a biostratigraphic and environmental approach

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In the Paleogene of the south-central Pyrenees foreland basin system, the Jaca thrust-sheet top basin is located in the west. In the north, the basin overlies an assemblage of Paleozoic rocks that are unconformably overlain by Upper Cretaceous sediments. To the south, it is bounded by the Pyrenean frontal thrust. In general terms, the Jaca basin can be regarded as an ESE-WNW elongated dissymmetrical synclinorium. In its northern limb, a wedge of deep-marine clastic systems forms the Eocene Hecho Group, which is progressively wedged out and replaced in the southern limb by carbonate ramps (Guara Formation). This work focuses on the upper Lutetian clastic succession of the upper Hecho Group that is exposed along the Jaca transect (N-S) in the footwall of the Oturia thrust.

Samples were collected, starting in the Roncal-Fiscal megaturbidite (MT-5) key bed, continuing upward, and moving south within the Jaca thrust hanging wall until reaching the complete replacement of turbidite systems by deltas during Bartonian times. The deep-marine

sediments, which are the core of this study, contained a remarkable assemblage of calcareous nannoplankton that was dominated by *Coccolithus pelagicus*, *C. formosus*, *Reticulofenestra* spp., and *Cyclicargolithus floridanus*, and accompanied by occasional specimens of *Sphenolithus furcatolithoides*, *S. spiniger*, *S. strigosus*, and *Chiasmolithus solitus*, *C. gigas*, and *C. grandis*. Reworked Cretaceous nannofossils are also consistently present in the samples, but at lower abundances than the Eocene taxa.

Our preliminary results, based on a detailed biostratigraphic study of the sequence and a characterization of the main bioevents and chronologically dated nannofossil horizons, suggest that deposition of these sediments occurred during Zones NP15 to NP17. Our new age model for the Jaca basin provides a means to compare stratigraphic events with other regional sections, thus providing a better understanding of the lateral and temporal evolution of these depositional systems.