## Sea-level changes across the PETM in the Pyrenees, part 2: evidence from a platform interior setting

## Victoriano Pujalte<sup>1</sup>, Alejandro Robador<sup>2</sup>, Aitor Payros<sup>1</sup>, Josep María Samsó<sup>3</sup>

<sup>1</sup> Dpt. of Stratigraphy and Paleontology, Univ. of the Basque Country, Bilbao, Spain
<sup>2</sup> Area de Cartografía Geocientífica, IGME, La Calera 1, Tres Cantos, Madrid, Spain
<sup>3</sup> Consulting Geologist, C/ Mayor 30, 1º, Jaca, Huesca, Spain

The Paleocene and lower llerdian are represented in the south-western Pyrenees by the Gallinera Group, a ca. 300 m thick unit of platform interior, shallow marine carbonates rich in algae and larger foraminifera. In the extensive outcrops of this unit, the PETM is generally recorded by a comparatively thin (<2 m) interval of nummulite-rich marls located at the base of the llerdian succession. However, in the Ordesa-Monte Perdido National Park of Spain, the PETM is represented by an up to 25 m thick siliciclastic unit, named La Pardina Formation after its best outcrop, interpreted as a deltaic accumulation (Robador et al., 2009, Geogaceta 46, pp111-114). The outstanding exposures of the National Park offer a continuous cross-section of this ancient delta, in which three main facies can be differentiated, sketched in Fig. 1.



Figure 1.: Location, outcrop map, reference sections and cross-section across the Thanetian-Ilerdian boundary in the Ordesa-Monte Perdido National Park (Spain)

Facies A consists of unfossiliferous pebbly quartz sandstones, arranged in a fining-up sequence, and is interpreted as delta-plain distributary channel fill. Facies A abruptly overlies an irregular erosional surface carved in marine Thanetian sandy limestones, a facies shift that clearly indicates a sea level fall. Facies B is also made up of unfossiliferous quartz sandstones, now disposed in a coarsening-up sequence that, in proximal outcrops, is capped by facies A (Fig. 1). In favourable outcrops (e.g., La Pardina) large-scale foresets or clinoforms can be clearly perceived, recording the progradation of the delta front. Since other data demonstrate that the sea-level rose during the PETM (Pujalte et al. part 1, this volume), such progradation implies a massive clastic supply. Facies C is composed of nummuliterich marls and marly limestones, interpreted as prodelta deposits. Facies C can be confidently ascribed to the PETM based on both biostratigraphic determinations and isotopic data, its vertical and lateral interfingering with facies B being the main evidence linking La Pardina delta and this thermal event.

## **ZOBODAT - www.zobodat.at**

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Berichte der Geologischen Bundesanstalt

Jahr/Year: 2011

Band/Volume: 85

Autor(en)/Author(s): Pujalte Victoriano, Robador Alejandro, Payros Aitor, Samso Josep Maria

Artikel/Article: <u>Sea-level changes across the PETM in the Pyrenees, part 2: evidence</u> from a platform interior setting 132