

DANIAN CALCAREOUS NANNOFOSSILS FROM NORTHERN PATAGONIA, ARGENTINA, EVOLUTIONARY STUDY OF CHIASTOZYGUS AND NEOCHIASTOZYGUS

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In the northern Patagonia, Argentina, an extense carbonatic and bioclastic marine sedimentary sequence crops out, and constitutes the strata of the Jagüel and Roca Formation, which records the Cretaceous-Paleogene transition. Previous studies have been carried out on stratigraphy, invertebrates and microfossils. Calcareous nannofossils has been here analyzed, the association is diverse, very abundant, and well preserved. A bloom of thoracosphaerid and micrantholithid at the base of the marine Danian sediments reinforces the Cretaceous-Paleogene boundary in the area, followed by the FO of Biantolithus sparsus which confirms the NP1 Zone (earliest Danian). The FO of Cruciplacolithus primus, and the FO of Cruciplacolithus tenuis, indicate NP2-NP3 Zones (Danian), and the FO of Toweius africanus suggests an upper Danian NP4 Zone. Special attention has been focused in the evolution of the Chiasozygus-Neochiasozygus group, its peculiar abundance allow to follow a clear evolutionary trend based on the morphology of the central cross, and the thickening of the margin. The cretaceous Chiasozygus ultimus is replaced in the earliest Danian by Neochiasozygus primitivus, and progressively followed by Neochiasozygus modestus, Neochiasozygus saepes and Neochiasozygus perfectus in the late Danian. This group has been previously studied in the North Sea for reliable biostratigraphic correlations. In the Southern Ocean the Chiasozygus-Neochiasozygus genera are reported here for the first time, and being abundant, can be useful for biostratigraphic assignment in absence of marker species, usually rare in this area.