New high-resolution calcareous nannofossil biostratigraphy and *Fasciculithus* evolutionary trend across the Danian-Selandian transition at ODP Site 1262, comparison with Zumaia (Spain) and the Qreiya (Egypt) sections

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High-resolution calcareous nannofossil analysis has been carried out on an expanded and continuous Paleocene sequence recovered during Leg 208 (Walvis Ridge, South Atlantic) at Site 1262. The detailed magnetostratigraphy and astronocyclostratigraphy of Westerhold *et al*. (2008) have allowed a precise calibration of the recognized bio-events. Twenty meters of the composite section across the nannofossil Zones NP4-NP5 have been studied in order to define the lowest occurrence (LO) of *Fasciculithus*, and the evolutionary trend of this genus until the LO of *Fasciculithus tympaniformis*.

The first specimens of *Fasciculithus* (*F. magnicordis* and *F. magnus*) have been observed in the middle part of Chron C27r, just above the LO of *Toweius pertusus*, and prior to the LO of the genus *Sphenolithus* (in agreement with Agnini *et al*., 2007). The distribution and abundance of *Fasciculithus* vary throughout the studied interval, and diaplay two radiation intervals. The first radiation of *Fasciculithus*, that involves the occurrence of *F. chowii* and related species, is recorded in the upper part of Chron C27n. The second one, characterized by the assemblage of *F. ulii* gr. and *F. janii* gr., occurs in the lower part of Chron 26r. The distribution of *Fasciculithus* is not continuous; in fact, between the two radiations, an interval barren of *Fasciculithus* has been detected. The LO of *F. tympaniformis* has been observed in the upper part of Chron C26r between the LO of *Neochiastozygus perfectus* and the LO of *Toweius eminens*.

A taxonomic review of the early species of *Fasciculithus*, and the detailed stratigraphic distribution of these taxa, have permitted the identification of new species and suggested a possible evolutionary trend. The succession of the events recognized at Site 1262 confirms the bio-events documented in the Zumaia section, proposed as stratotype (GSSP) of the Danian/Selandian boundary (Bernaola *et al*., 2008). In general, the observations made at the Qreiya section validate the succession of the events recognized by Rodriguez & Aubry (2006) in the same section, even if some inconsistencies have been observed, mainly related to the different taxonomic concept of a few *Fasciculithus* species.

References

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