

## High-resolution Late Eocene-Late Oligocene biostratigraphy from Site 1090 (Agulhas Ridge, South Atlantic)

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Results are presented of a quantitative biostratigraphic study of the calcareous nannofossils from the ODP Site 1090 Hole B. It is located in the central part of the Subantarctic Zone on the southern flank of the Agulhas Ridge in the Atlantic sector of the Southern Ocean, above the calcium-carbonate compensation depth (CCD). The base of the section is composed of late Eocene nannofossil oozes mixed with red clays deposited at low sedimentation rates overlain by an extended succession of biosiliceous oozes and muds, comprising most of the late Eocene, and the late Oligocene.

Site 1090 proved to be a suitable section for high-resolution biostratigraphic studies (Marino and Flores, 2002). Part of their nannofossil biostratigraphy was reexamined using closely spaced samples and new data are presented here for the Late Oligocene. For this Site, also a detailed planktonic foraminiferal biostratigraphy (Galeotti et al., 2002), a robust magnetostratigraphy (Channell et al., 2003) and a late Oligocene astronomical calibration (Billups et al., 2004) are available. Age estimates for the nannofossil biohorizons recognized in the section were obtained through direct correlation to the magnetostratigraphy.

Although nannofossils are at times scarce, some intervals are barren, and preservation varies from good to very poor, it has been possible to precisely define most of the biostratigraphic events of the Martini (1971) and Okada and Bukry (1980) schemes. Nevertheless being Sphenoliths rare at these southern latitudes, it was difficult to recognize the Oligocene standard biozones, therefore additional bioevents have been proposed. This study allows the comparison and the improvement of the Paleogene calcareous nannofossil Zonal Scheme for the Southern Ocean. Part of the scheme has been previously proposed for the Middle Eocene-Late Oligocene interval (Wei and Wise, 1992; Villa et al., submitted).

We compared our biochronology with data available from other Southern Ocean sections (748, 689, 744, 738), confirming the diachronous character of some bioevents and highlighting in particular how the modified climatic conditions affected nannofossil assemblages of different latitudes.

Additionally, nannofossil total abundances, relative abundance of dominant species, and species group abundances were determined to evaluate the potential of this section for obtaining palaeoecological information.

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