Geophysical Research Abstracts
Vol. 13, EGU2011-1375-1, 2011
EGU General Assembly 2011

Calcareous nannofossil distribution and climate variability during the Mid-Pleistocene Transition interval at the Site ODP 198-1209B (Shatsky Rise, Nortwestern Pacific Ocean)

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CALCAREOUS NANNOFOSSIL DISTRIBUTION AND CLIMATE VARIABILITY DURING THE MID-PLEISTOCENE TRANSITION INTERVAL AT THE SITE ODP 198-1209B (SHATSKY RISE, NORTWESTERN PACIFIC OCEAN)

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Our study starts from the Early Pleistocene stratigraphic interval of the core ODP Leg 198 1209B (32°39'18" N, 158°30'59" E) recovered from the Shatsky Rise in the north-west Pacific Ocean. The research is focused on the calcareous nannofossil content, with particular attention for some fluctuations in the Gephyrocapsa abundances recorded during the Middle Pleistocene Transition (MPT).
Several calcareous nannofossil biohorizons are detected, eight of these have been previously included in the standard biostratigraphical schemes or discussed as bioevents.
The studied succession has been calibrated following the most recent review of the nannofossil datum events performed by Raffi et al. (2006) and with the magnetic reversal intervals performed by Shipboard Party 1209 (Bralower et al., 2002). The bottom and the top of the 1209B portion here considered are slightly older than the LO of large Gephyrocapsa and slightly younger than the HO of Pseudoemiliania lacunosa.
During the Pleistocene, the Gephyrocapsa is extremely abundant and provides several bioevents used in biostratigraphy. As well as the known standard events, we observed the occurrence of particular Gephyrocapsa morphogroups and significant changes on the relative abundances of G. caribbeanica. In the Early-Middle Pleistocene we identify four intervals in base on the Gephyrocapsa content. Moreover, during the MPT, the stratigraphic distribution of Gephyrocapsa underlines a dominance of both the small morphogroup and the medium sized G. caribbeanica that could be dependent on their paleoecology. Small Gephyrocapsa and G. caribbeanica seem to be more competitive compared to other coccolithophores during the global oceanographic variations and the re-organisation of the glacial-interglacial periodicity related to the MPT.

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Raffi, I., Backman, J., Fornaciari, E., Pälike, H., Rio, D., Lourens, L., Hilgen F., 2006. A review of calcareous nannofossil astrobiochronology encompassing the past 25 million years. Quaternary Science Reviews, 25, 3113–3137.