

Late Cenozoic paleoceanography in the northwestern Pacific and eastern Indian oceans based on calcareous nannofossils

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We report Miocene to Pleistocene paleoceanography in the northwestern Pacific and eastern Indian oceans based on calcareous nannofossil assemblages from the ODP holes 1210A and 762B. The coccolith productivity, relative abundance of *Discoaster* (a lower photic taxon) and coccolith size distribution of *Reticulofenestra* show good relationship and allow us to reconstruct a sea-surface stratification or mixing condition that associates a change in nutrient level. The low coccolith productivity, abundant *Discoaster* and large *Reticulofenestra* suggests relatively deep thermocline and nutricline (i.e., oligotrophic condition). In contrast, the high coccolith productivity, rare *Discoaster* and abundant small *Reticulofenestra* indicates relatively shallow thermocline and nutricline (i.e., eutrophic condition). The thermocline was deep and warm, oligotrophic water widespread during 13 to 9 Ma in both areas, which was followed by eutrophication from 9 Ma onward. The coccolith size distribution of *Reticulofenestra* suggests the stepwise eutrophication along with collapse of sea-surface stratification at 8.1, 6.5 and 5.0 Ma in the northwestern Pacific Ocean. Whereas abrupt eutrophication occurred at 8.9 Ma in the eastern Indian Ocean. The nannofossil assemblages indicate that the process and timing of eutrophication are different between the two areas during that period.

Keywords: Calcareous nannofossil, Cenozoic, Eutrophication, Coccolith size