

## deep-sea benthic foraminiferal assemblage in the eastern equatorial Pacific since the latest middle Miocene

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Our research objective is to study the influences of the climatic and oceanographic changes on deep-sea benthic foraminifera from the middle Miocene to Pleistocene. The mid-Miocene climatic optimum was followed by rapid global cooling, when Antarctic ice sheets expanded. In the middle Miocene to Pliocene, there are paleoceanographic events, such as "carbonate crash" (12-9 Ma) and "biogenic bloom" (6.7-4.5 Ma). These events are strongly influenced by ocean circulation changes. Such oceanographic changes enhanced the evolution of marine organisms.

Samples used in this study were collected in the eastern equatorial Pacific (Hole U1338B, IODP expedition 321), and studied interval is 12 to 0 Ma.

The relative abundance of high-productivity taxa increased at ca. 7-5 Ma, corresponding to high TOC interval (biogenic bloom). Long-term trend of benthic foraminiferal assemblage revealed that major faunal changes occurred at around 6-5.5 Ma and 2 Ma. The former period is the Messinian to the Pliocene transition period, and the relative abundance of *Cibicides mundulus* decreased and the relative abundance of *Epistominella exigua* increased. *Cibicides mundulus* and *Nonion affine* increased after the latter period. *Epistominella exigua* is good indicator of the influence of seasonal surface primary production. On the other hand, *Cibicides mundulus* prefers a low organic content substrate related to NADW (north Atlantic deep water). Thus, these foraminiferal changes are associated with the global oceanographic changes related to these factors.

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