

Radiolarian faunal turnover across the early/middle Miocene boundary in the eastern equatorial Pacific Ocean

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The lower to middle Miocene sequence was drilled at IODP Site U1335 (5°18.735'N, 126°17.002'W, water depth 4328 m) in the eastern equatorial Pacific Ocean. In the modern ocean, Site U1335 is located under the North Equatorial Current, and the biogenic silica fluxes to the sea-floor sediments are comparatively high in this area. The sediments recovered from Site U1335 are predominantly nannofossil ooze with siliceous microfossils such as diatoms and radiolarians.

230 morphotypes of radiolarians were identified at this site. Because the low latitude species commonly occurred at this site, the tropical Cenozoic zonation of radiolarians proposed by Sanfilippo and Nigrini (1998) was adopted. The studied sequence was divided into four zones, consisting of the RN2 (the *Stichocorys delmontensis* Interval Zone), RN3 (the *Stichocorys wolffii* Interval Zone), RN4 (the *Calocycletta costata* Interval Zone), and RN5 (the *Dorcadospyrus alata* Interval Zone) at Site 1335. In the standard zonal scheme, the early/middle Miocene boundary corresponds to the top of C5Cn.1n with an age estimate of 16.268 Ma (Pälike et al., 2010; Gradstein et al., 2012). Hence, this boundary was placed at 189.6 mcd at Site 1335.

Radiolarian fauna was divided into three assemblages based on variations in the composition of dominant species: an early Miocene assemblage (20.0 to 16.8 Ma), a transitional assemblage (16.8 to 13.4 Ma) and a middle Miocene assemblage (13.4 to 12.0 Ma). The early Miocene assemblage is characterized by two dominant species of *S. delmontensis*, *S. wolffii*, and *Tholospyris anthophora*. The transitional assemblage consists of three dominant species of *S. delmontensis*, *Calocycletta robusta* group, and *T. anthophora*. The four dominant species of the middle Miocene assemblage present in this assemblage are *Stylodictya* sp. A, *Lophocyrtis aspera*, *Disolenia* spp. and *Collosphaera* spp. The most significant faunal turnover of radiolarians is marked at the boundary between the transitional/middle Miocene assemblages.

Keywords: radiolaria, Miocene, eastern equatorial Pacific