Pliocene planktonic foraminiferal assemblages of IODP Site U1338 in the equatorial Pacific: implication to the closure of the Central American Seaway

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Modern oceanographic settings of the equatorial Pacific is characterized by an East-West asymmetric structure of thermocline caused by the closure of the Central American Seaway in Pliocene. IODP Site U1338 was placed in the eastern part of the equatorial zone from Miocene to Pliocene. Therefore, this site is suitable to examine paleoenvironmental changes related to the closure of the seaway. In this study, we investigates planktonic foraminiferal assemblages from 5.5 to 2.2 Ma at Site U1338.
As a result, 79 species belonging to 19 genus of planktonic foraminifera were detected from 42 samples of this interval. The planktonic foraminiferal fauna is dominated by tropical to subtropical species such as *Globorotalia tumida*, *Globigerinita glutinata* and *Menardella menardii*. According to a Q-mode factor analysis of the samples, planktonic foraminiferal assemblages can be divided into three zones, namely, Zone A (5.5--4.5 Ma), Zone B (4.5--3.1 Ma) and Zone C (3.1--2.2 Ma). Zone A is characterized by cyclic changes of subtropical subsurface components, tropical subsurface components and surface components. In turn, Zone B is characterized by alternative changes between subsurface and surface tropical components. Zone C is dominated by tropical subsurface components. These faunal changes suggest that the shoaling of thermocline in the eastern equatorial Pacific might start at approximately 4.5 Ma followed by stepwise weakening of the western Pacific oligotrophic water.

Keywords: planktonic foraminifera, Pliocene, eastern equatorial Pacific, IODP

