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Carbon and oxygen stable isotope records of benthic foraminiferal shells at DSDP Site 296

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Carbon and oxygen stable isotope records of benthic foraminifera at DSDP Site 296 (2920 m water depth) from the Kyushu-Palau Ridge were measured. Sediment samples for upper 300 m of DSDP Site 296 were taken at every ˜2 m and freeze-dried and washed on a 63 micro m mesh sieve and dried in an oven at 40 degree C. The dry samples were sieved through a mesh with 250 micro m opening. Two epifauna species, Cibicides wuellerstorfi and Cibicidoides mundulus were picked for isotope measurements. The foraminiferal shells were cleaned by soaking them in 99.5% methyl alcohol, followed by ultrasonication until all chambers were open. After confirming that all dirt had been removed, we washed the shells in Milli-Q water and dried them in an oven at 40 degree C. The dried samples were analyzed using IsoPrime mass spectrometry (Center for Advanced Marine Core Research, Kochi University). Analyses were calibrated to the CO-1, and the average analytical errors for delta 13C and delta 18O were less than 0.03 permil and 0.10 permil, respectively.

Age model of DSDP Site 296 is established by planktic foraminiferal and calcareous nannoplankton stratigraphy (Elias, 1975; Ujiie, 1975). Continuous stable isotope records except for a stratigraphic gap at ˜250 mbsf are obtained for the past 20 Myrs. These records are basically consistent with those by Zachos et al. (2001).

Keywords: North Pacific, Benthic foraminifera, Stable isotope, Miocene, Pliocene