Coccolith evidence of upper ocean water variations for the past 1.53Myr in the Western Pacific Warm Pool

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Coccolith analysis has been carried out for the past 1.53 Myr sediment from ODP Site 807, which is located in the center of the Western Pacific Warm Pool. The results show that the depth of nutricline experienced significant changes, mainly at 0.9, 0.48 and 0.28 Ma, respectively, enabling the recognition of four stages of change for the last 1.53 Myr. From 1.53 Ma to 0.9 Ma, the depth of nutricline shoaled gradually. At about 0.9 Ma, the nutricline abruptly deepened and remained stable until 0.48 Ma. The nutricline became very shallower during the time interval between 0.48 to 0.28 Ma. At 0.28 Ma, it deepened again and increased gradually up to the present. Variations in primary productivity match with the nutricline fluctuations, and also with the depth of thermocline derived from planktonic foraminifera. Comparison between the percentage of *F. profunda* and primary productivity, from ODP Site 807 and ODP Site 1143 in the southern South China Sea, indicates opposite changes before 0.9 Ma, but similar changes after 0.9 Ma. This implies that variations in the upper ocean water are different between the center and the margin of the Western Pacific Warm Pool before 0.9 Ma, but after 0.9 Ma they have the same trends.