



Geochemical compositions of northeast equatorial Pacific sediments and implications for latitudinal position of the Intertropical Convergence Zone since late Miocene

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A 570 cm-long sediment core retrieved from the northeast equatorial Pacific ($9^{\circ}57'N$ and $131^{\circ}42'W$, 5,080 m) were determined for elemental compositions in order to understand time-series changes in contribution of potential sedimentary end members since 10 Ma. Variations in chemical composition of bulk sediments are explained with temporal changes in dust provenance, formation rate of authigenic Fe-rich smectite, and most significantly in contribution of hydrothermal origin materials. Rare earth elements and other trace elements such as V, Ni, and Cu are mostly associated with hydrothermally-driven Mn and Fe phase. The inorganic silicate fractions younger than ~ 2 Ma are similar to Asian dust in composition while those older than ~ 2 Ma (to 10 Ma) show chemical affinity to South/Central American dust. Our findings suggest an increase in the supply of Asian dust to the site since ~ 2 Ma likely due to southward shift in boreal winter-spring ITCZ range and/or aridification of central Asia.