

MOTION OF THE HAWAIIAN HOTSPOT DURING FORMATION OF THE EMPEROR SEAMOUNTS

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The bend in the Hawaiian-Emperor hotspot track is the best example of a change in plate motion in a fixed-hotspot frame of reference. Alternatively, the bend might primarily record differences in the motion of the Hawaiian hotspot in the mantle. This controversial view is supported by new paleomagnetic results from ocean drilling of the Emperor chain (ODP Leg 145) which suggest Pacific hotspots may have moved at rates comparable to those of lithospheric plates in Late Cretaceous to early Tertiary times (81-43 million years ago). If correct, this requires a major change in how we view mantle dynamics and the history of plate motions. Dr. Tarduno will discuss this controversy and paleomagnetic tests of hotspot fixity planned during future ocean drilling of the Emperor trend seamounts. Dr. Tarduno studied samples from ODP Leg 145 as a shore-based scientist, and sailed as a paleomagnetist on Legs 130 (Ontong Java Plateau) and 143 (Mid-Pacific Mountains).