



## Abstract View

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# Oscillations of Dynamic Topography in the Eastern Equatorial Pacific

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### ABSTRACT

For 14 months in 1980–81, surface dynamic height was monitored with inverted echo sounders at five sites from 0 to 9°N along 110°W. These records show that the SEC/NECC equatorial current system was well-developed during the boreal summer and fall, but weak and irregular during winter and spring when westward flow associated with the NEC extended as far south as 6°N.

Superimposed on the mean dynamic topography of this region are energetic 20- to-80-day oscillations, longer periods being associated with higher latitudes. Near the equatorial ridge (~5°N), these oscillations have predominantly monthly periods, and amplitude of ~10 dyn cm comparable to the mean dynamic-height difference across the NECC. The broad in-phase meridional extent of these monthly oscillations implies that the principal mode of ridge variation is vertical undulation rather than meridional meandering, producing large in-phase monthly modulations in transport of the SEC and NECC.

Oscillations of the equatorial ridge are correlated with propagating ~1000-km wavelength sea surface temperature (SST) wave patterns observed in satellite infrared imagery. Passage of a northerly SST crest on the equatorial front at 110°W corresponds to a dynamic height minimum on the equatorial ridge. The relative phase and trochoidal shape of these crests is explained kinematically by superposition of the observed mean and oscillatory dynamic-height fields.

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