Abstract View

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Vertical Structure of Low Frequency Variability in the Eastern Equatorial Pacific Ocean

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ABSTRACT

The vertical structure of low frequency velocity and temperature variability in the eastern equatorial Pacific Ocean is examined using surface and subsurface moored current meter data from 0°, 110°W between 20 and 3027 m depths over the period 30 March 1980 to 2 February 1981. Three methods of analysis are employed: vertical coherence, empirical orthogonal functions, and linear least-squares dynamical mode decompositions. Direct evidence is given for the existence of first baroclinic mode Kelvin waves in the east component of velocity and vertical displacement (estimated from temperature) in that the vertical displacement is coherent and in phase over the water column and the upper-ocean east component of velocity varies out of phase with the vertical displacement over the water column. Near-surface modifications due to advection, nonadiabatic processes, and local forcing are also noted.