



## Abstract View

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# Annual Variation in the Slope of the 14°C Isotherm along the Equator in the Pacific Ocean

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### ABSTRACT

The annual variation in the depth of the 14°C isotherm is described on the basis of the mechanical and expendable bathythermographic data in the archives of the National Oceanographic Data Center. The variations are representative of variations in the depth of the main thermocline. The 14°C isotherm slopes downward toward the west between 100°W and the dateline throughout the year. The slope is small during May and June, and large during October and November. However, variations in isothermal depth with a smaller spatial scale lead to considerable changes in phase of the slope at different longitudes. The easterly wind stress along the equator is weak during March, April and May, while the Intertropical Convergence Zone is located close to the equator. The westward slope of 14°C relaxes during this period, leading to the minimum slope in June. The easterly wind stress is strong during the winter of each hemisphere with maxima in July and December. Strong winds precede and follow the maximum slope in October. Eastward propagation of energy along the equator is suggested by the appearance of second harmonic (2 cycles per year) variations in isothermal depth in the eastern Pacific, remote from wind stress forcing at this frequency in the central Pacific. The phase of variations in isothermal depth and wind stress increases toward the west, suggesting a forced wave propagating toward the west.

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