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# The Seasonal Cycle and Its Modulation in the Eastern Tropical Pacific Ocean

**Daifang Gu and S. G. H. Philander**

*Program in Atmospheric and Oceanic Sciences, Princeton University, Princeton, New Jersey*

**Michael J. McPhaden**

*Pacific Marine Environmental Laboratory, National Oceanic and Atmospheric Administration, Seattle, Washington*

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### ABSTRACT

Data for the period from 1985 to 1993 from TAO moorings along 110°W (5°S–5°N) and 140°W (2°S–9°N) describe the vertical, meridional, and temporal structure of the seasonal cycle of several variables. The results have a number of interesting features. The amplitude of the seasonal cycle is relatively constant in the surface layers but varies considerably at the depth of the equatorial thermocline where it was small before 1989, large thereafter. Also, vertical seasonal movements of the thermocline have little effect on sea surface temperatures. These seasonal variations are consistent with a westward propagating coupled ocean–atmosphere mode in the surface layers. Conversely, the low-frequency modulation of the seasonal cycle in the thermocline is associated with changes in the seasonal cycle of the zonal wind in the central and western tropical Pacific and might be attributable to equatorial Kelvin waves forced resonantly by the surface winds.

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Headquarters: 45 Beacon Street Boston, MA 02108-3693  
DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826  
[amsinfo@ametsoc.org](mailto:amsinfo@ametsoc.org) Phone: 617-227-2425 Fax: 617-742-8718  
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