



## Abstract View

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## Normal Modes of the World Ocean. Part II: Description of Modes in the Period Range 8 to 80 Hours

**George W. Platzman, Gary A. Curtis, Kirk S. Hansen, and Richard D. Slater**

*Department of the Geophysical Sciences, The University of Chicago, Chicago, IL 60637*

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### ABSTRACT

We have calculated normal modes with period between 8 and 80 h for a domain consisting of the Arctic, Atlantic, Indian and Pacific oceans. In this period range the numerical model has 56 modes, of which 13 are topographic vorticity waves all slower than 30 h. The trapping sites for these modes are the Siberian Shelf, the Icelandic Plateau, the Grand Banks, the Falkland Plateau and Patagonian Shelf, the Kerguelen Plateau, the New Zealand and Fiji Plateaus, and the Hawaiian Ridge. Predominantly planetary vorticity waves do not appear in the model at periods less than 80 h. The 41 modes found between 30 and 8 h include basin modes in the North Atlantic, Indian and equatorial Pacific; quarter-wave resonances in the Arabian Sea, Bay of Bengal and Gulf of Guinea; and Kelvin waves on the Antarctic coast, the Pacific North American coast and the New Zealand coast. Several vorticity and gravity modes exhibit an eastward circumglobal flow of energy that is confined to equatorial latitudes except where deflected southward by the continental land masses of the Southern Hemisphere. Tide-gage data are cited as consistent with 25.8 and 14.1 h basin modes in the North Atlantic and with the three Kelvin waves noted above, whose periods are 28.7, 15.5 and 10.8 h, respectively.

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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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