



## Abstract View

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# Seasonal Variability in the Intermediate Waters of the Eastern North Atlantic<sup>1</sup>

**N.A. Bray**

*Woods Hole Oceanographic Institution, Woods Hole, MA 02543*

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### ABSTRACT

Observational evidence of seasonal variability below the main thermocline in the eastern North Atlantic is described, and a theoretical model of oceanic response to seasonally varying wind stress forcing is constructed to assist in the interpretation of the observation. The observations are historical conductivity-temperature-depth data from the Bay of Biscay region (2–20°W, 42–52°N), a series of eleven cruises over three years 1972 through 1974, spaced approximately three months apart. The analysis of the observations utilizes a new technique for identifying the adiabatically leveled density field corresponding to the observed density field. The distribution of salinity anomaly along the leveled surfaces is examined, as are the vertical displacements of observed density surfaces from the leveled reference surfaces. Seasonal variations in salinity anomaly and vertical displacement occur as westward propagating disturbances with zonal wavelength 390 (±50) km, phase at the eastern boundary of 71 (±30) days from 1 January, and maximum amplitudes of ±30 ppm and ±20 db, respectively.

The observations are consistent with the predictions of a model in which an ocean of variable stratification with a surface mixed layer and an eastern boundary is forced by seasonal changes in a sinusoidal wind stress pattern, when wind stress parameters calculated from the data of Bunker and Worthington (1976) are applied.

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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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