



Abstract View

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Vertical Coherence of the Internal Wave Field from Towed Sensors

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ABSTRACT

Constant depth and isopycnal-following tows are used to estimate the, towed vertical coherence of the internal wave field, at vertical separations of 8.5, 18, 28 and 70 m. The depths of the tows are ~ 750 m at the maximum of the buoyancy frequency in the main thermocline of the Sargasso Sea, and near 350 m in the buoyancy frequency minimum between the main and seasonal thermoclines.

The towed spectra and towed vertical coherence are compared with three model spectra (GM75, GM76 and IWEX): at 750 m the agreement between data and models is very good, with IWEX being slightly better. At 350 m several of the measured towed vertical coherence spectra are more complex than the spectra from the deeper tows, there are anomalously high coherences in a band from 0.7 to 2 cycles per kilometer that are not predictable by the models. We suggest this coherence bump may be evidence of Eckart resonance, i.e., modes tunneling between the two thermoclines into the region of low buoyancy frequency.

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