

Abstract Submitted
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Assessing the importance of internal tide scattering in the deep ocean MAHA HAJI, MIT-WHOI, THOMAS PEACOCK, Massachusetts Institute of Technology, GLENN CARTER, University of Hawai'i at Manoa, T.M. SHAUN JOHNSTON, Scripps Institution of Oceanography — Tides are one of the main sources of energy input to the deep ocean, and the pathways of energy transfer from barotropic tides to turbulent mixing scales via internal tides are not well understood. Large-scale (low-mode) internal tides account for the bulk of energy extracted from barotropic tides and have been observed to propagate over 1000 km from their generation sites. We seek to examine the fate of these large-scale internal tides and the processes by which their energy is transferred, or “scattered,” to small-scale (high-mode) internal tides, which dissipate locally and are responsible for internal tide driven mixing. The EXperiment on Internal Tide Scattering (EXITS) field study conducted in 2010-2011 sought to examine the role of topographic scattering at the Line Islands Ridge. The scattering process was examined via data from three moorings equipped with moored profilers, spanning total depths of 3000-5000 m. The results of our field data analysis are rationalized via comparison to data from two- and three-dimensional numerical models and a two-dimensional analytical model based on Green function theory.

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