Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Energy flux of internal waves generated by tidal flow over topography beneath a turning depth[1] MATTHEW DRAKE, M.S. PAOLETTI, F.M. LEE, P.J. MORRISON, H.L. SWINNEY, University of Texas Austin — We present experimental and computational studies of internal gravity wave generation by tidal flow over 2D topography in a stably stratified fluid designed to model the deep ocean. King et al. found that there exist regions in the deep ocean where the buoyancy frequency (proportional to the square root of the density gradient) becomes less than the tidal frequency [King et al., J. Geophys. Res. 117, C04008 (2012)]. Below such "turning depths" the internal gravity waves become evanescent. The effect of turning depths on global internal wave generation has not been examined. Here we present experiments and 2D Navier-Stokes simulations that determine the far-field energy flux as a function of the distance of the turning depth above the topography. We examine how the energy flux depends on the tidal frequency, stratification, topographic profile, and the distance of the topography below the turning depth.

[1]Supported by ONR MURI Grant N000141110701.

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Date submitted: 30 Jul 2012 Electronic form version 1.4