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Large overturns at a model Luzon Strait topography: an application of the Immersed Boundary Method NARSIMHA RAPAKA, SUTANU SARKAR, University of California San Diego — An Immersed Boundary Method (IBM) is used to study the internal wave field in a model of the Luzon Strait topography, a double ridge system with different heights and local roughness. Scale compression is employed, leading to horizontal scales of O (100 m) instead of km. Strong internal tide beams are generated on both the east and the west ridges near the critical regions where the internal wave characteristic slope matches with that of the topographic slope. A large fraction of the radiated tidal energy is confined near the top surface owing to ducting by the pycnocline. Isopycnal displacement is particularly large (around 200 m after scaling up) at the eastern flank of the west ridge, which corresponds to the station N2 of Alford et al., 2011 (JPO). The wave displacements at the east ridge is influenced by the proximity of the pycnocline. The spatial distribution of baroclinic energy conversion and internal wave flux is assessed.

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