



Strong internal tides over the Mascarene Ridge

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The Mascarene Ridge in the Indian Ocean is the region of the strongest internal tides in the open ocean. Internal tides are generated over the slope of an underwater channel between two shallow banks. Amplitudes of internal tides exceed 150 m. Internal tides generated over the ridge propagate a distance exceeding 1500 km. Generation of internal tides over the Mascarene Ridge is studied on the basis of moored measurements and numerical modeling. An array of six moorings with temperature and current meters was deployed near the ridge to study properties of internal tides. Beam structure of propagation of internal waves over a submarine ridge is analyzed. Dependence of the beam propagation of perturbations on the steepness of the slope, depth of the ridge crest, and stratification is studied.