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Nonhydrostatic dynamics of high amplitude internal waves in straits

P. C. Gallacher(1), M. Schaferkotter(2), A. Izquierdo(3), A. Vazquez(3) and M. Bruno(3)

(1) Coupled Processes Section, Oceanography Division, Naval Research Laboratory, Stennis Space Center, MS. USA, (2) Jacobs Sverdrup, Inc., Diamondhead, MS, USA, (3) Applied Physics Department, Faculty of Marine and Environmental Sciences, University of Cádiz, Cádiz, Spain, gallacher@nrlssc.navy.,mil

High Amplitude Internal Waves (HAIWs) and Internal Bores (IBs) are frequently generated by the interaction of internal tides with topography. These interactions are intensified in straits where the flow is constricted by the geometry and velocity shears are large. Several mechanisms have been proposed for the generation of HAIWs and IBs from internal tides. To better understand the dynamics of these processes we simulate the generation and propagation of HAIWs and IBs in the Straits of Gibraltar using nonhydrostatic models. The nonhydrostatic models will be forced at the open boundaries using data from the two layer, three dimensional model developed at the University of Cadiz. The results are compared with measurements taken as part of the Gibraltar Mixing (GIMIX) project, funded by the Science and Technology Ministry of the Spanish Government. The results of this work also have implications for the dynamics of the Luzon Straits which is the site of observations and simulations in the near future.