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Numerical simulations of stratified fluid flow over topography near resonance HARMONY BROWN, JAMES ROTTMAN, KEIKO NOMURA, University of California, San Diego — We use a high-resolution spectral numerical scheme to solve the two-dimensional equations of motion for the flow of a uniformly stratified Boussinesq fluid over isolated bottom topography in a channel of finite depth. The focus is on conditions such that the flow is near linear resonance. The results are compared with the existing theories: nonresonant steady hydrostatic theory, resonant and nonresonant time-dependent long-wave theory, and resonant fully nonlinear, weakly dispersive theory. We also analyze the approach to breaking that occurs downstream of the topopgraphy near resonance.

James Rottman
University of California, San Diego

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