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Direct numerical simulations of the large-amplitude internal waves YUAN-NAN YOUNG, New Jersey Institute of Technology, SOURABH APTE, Oregon State University, WOOYOUNG CHOI, New Jersey Institute of Technology — The instability of large amplitude internal waves is investigated by direct numerical simulations. Realistic values of parameters, such as the density contrast, fluid viscosity, and the ratio of wave amplitude to wave length for the internal waves in the ocean are used. From the simulation results the critical wave amplitude is determined. The dependence of the critical wave amplitude on the physical parameters will be reported. The numerical code is carefully validated, and its performance and convergence will also be reported. Diagnostics and analysis are conducted to compare with existing experimental findings and observations.

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