

# Simulation of Mixing in 2D Gravity Currents Subject to Time-Dependent Forcing

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The mixing in 2D gravity currents subject to time-dependent forcing is simulated using a non-hydrostatic spectral element code. Two different forcing mechanisms were investigated, one due to periodic internal waves, and the other due to periodic changes in barotropic transport; and two different Reynolds were studied: 15,000 and 50,000. For the transitional Reynolds number, the incident internal waves lead to a dramatic increase in the mixing and the formation of individual heads, while changes in background transport lead primarily to an increase in interfacial layer thickness. For the high Reynolds number case, the time-dependent forcing had a lesser impact; however, the time-dependent forcing seem to influence the transport in density classes and the channel exit.