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Gravity currents in a stratified ambient fluid MICHAEL PATTERSON, Yale University & University of Bath, UK, ANDREW ASPDEN, Lawrence Berkeley National Laboratory — Motivated by the previous study of Maxworthy et al. 2002 we revisit the problem in which a lock release gravity current propagates into a stratified ambient fluid. High-resolution three-dimensional numerical simulations based on ILES framework are used in conjunction with a simple box model to develop a greater understanding of the complex interactions between the slumping gravity current and the internal waves that develop. Examination of the energetics of the system are carried out for both sub and super-critical gravity currents. The results show that for the sub-critical gravity currents the energy passed from the gravity current to the wave field and subsequently from the wave field back to the gravity current. Calculations of the energy transfer between the gravity current and the internal wave field will be presented.

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