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Internal Wave Generation by Convection in a Sphere DANIEL LECOANET, Princeton University, MATTEO CANTIELLO, Flatiron Institute, KEATON BURNS, MIT, ELIOT QUATAERT, Princeton University, LOUIS COUSTON, University of Lyon/ENS Lyon, GEOFFREY VASIL, University of Sydney, BENJAMIN BROWN, CU-Boulder, JEFFREY OISHI, Bates College — When a stably-stratified fluid layer lies adjacent to a convective fluid layer, the convection can excite internal gravity waves in the stably-stratified fluid. Here we present a set of numerical simulations of wave generation by convection in spherical geometry using the Dedalus code. The convection is either driven by internal heating in the case of a full sphere (extending to r=0), or a bottom boundary condition in the case of a spherical shell. A piece-wise linear equation of state causes a transition from a lower convective layer to an upper stably-stratified layer. We calculate the frequency- and wavenumber-dependence of the excited waves as a function of the properties of the convection, the equation of state, and the geometry of the system. The waves are compared to waves generated by convection in cartesian geometry.

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