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Internal waves crossing an interface JOHN MCHUGH, University of New Hampshire — Internal waves in continuously stratified flow in two layers is considered. The interface between layers is defined by a jump in the Brunt-Vaisala frequency, assumed constant in each layer. The density profile is chosen to be continuous across the interface, and the flow is assumed to be Boussinesq. The waves are periodic in the horizontal but modulated in the vertical. A weakly nonlinear approach produces three amplitude equations with cubic nonlinearity, one for incident, reflected, and transmitted wave packets. The results show that a wave-induced mean flow is strongest near the interface and underneath it. Furthermore, this mean flow is discontinuous, and has an oscillatory component. These results provide a likely scenario for higher levels of atmospheric turbulence near Earth's tropopause and other similar interfaces.

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