

Abstract Submitted
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Nonlinear effects on internal wave reflection at an interface JOHN MCHUGH, Univ of New Hampshire — Internal waves impinging on an interface that has a sudden change in the first derivative of density are partially reflected, with a corresponding localized mean flow in the vicinity of the interface. Recent weakly nonlinear results have shown that this mean flow is discontinuous at the interface if the flow is inviscid. This recent theory showed that with continuous density at the interface, the linear interfacial conditions are asymptotically consistent, but only approximately balance overall momentum. The next level of nonlinear interfacial terms are now included here. Only several of the numerous terms are found to contribute significantly to the wave reflection, determined by numerical evaluation of all terms. Including these several terms has resulted in improved conservation of total momentum. The resulting nonlinear reflection coefficient depends strongly on wave parameters.

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