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Internal Wave Propagation over "Non-Reflected" Shelf

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Using linear long internal wave theory for a two-layer stratified ocean we identify several bottom topographies for which internal wave can propagate without reflections even out of slow-varied bottom assumption. The detail structure of interfacial displacement and velocity versus coordinate is investigated. The theoretical study is confirmed by the numerical experiment in the frames of fully nonlinear Euler equations for stratified flow. The influence of wave nonlinearity on non-reflected wave propagation is studied. It is shown that the identified bottom profiles are may be also "non-reflected" for nonlinear internal wave up to moderate wave amplitudes.