A higher order Internal Wave Model

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From a higher order strongly nonlinear model for the evolution of internal waves at intermediate depth, we obtained a weakly nonlinear system similar to a Boussinesq system for surface gravity waves. The main difference between these systems is the presence of a dispersive term involving a Hilbert Transform on the strip, which is a nonlocal singular integral operator. Results concerning local well-posedness, conservation laws and some traveling wave solutions are discussed.