A laboratory experiment to reach an internal gravity wave turbulence regime

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The search for laboratory observations of fully developed internal gravity wave turbulence has been an active topic over the past decade. This regime of weakly non-linear stratified turbulence is, however, difficult to reach due to the separation between the linear and non-linear timescales required by the weakly non-linear assumption. To approach this dynamics, we designed a large-scale laboratory experiment comprising a 2.5m tall cylindrical tank filled with a linearly stratified fluid and a meter-scale wave generator. We will present the first experiments realized with this setup designed to reach higher Reynolds numbers and lower Froude numbers than in previous experiments. These results constitute a significant step towards the observation of fully-developed internal gravity wave turbulence in the lab.