

Abstract Submitted  
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**Stratification established by peeling detrainment from gravity currents: laboratory experiments and models** CHARLIE HOGG, STUART DALZIEL, HERBERT HUPPERT, Cambridge University, JORG IMBERGER, Centre for Water Research, DEPARTMENT OF APPLIED MATHEMATICS AND THEORETICAL PHYSICS TEAM, CENTRE FOR WATER RESEARCH TEAM — Dense gravity currents feed fluid into confined basins in lakes, the oceans and many industrial applications. Existing models of the circulation and mixing in such basins are often based on the currents entraining ambient fluid. However, recent observations have suggested that uni-directional entrainment into a gravity current does not fully describe the mixing in such currents. Laboratory experiments were carried out which visualised peeling detrainment from the gravity current occurring when the ambient fluid was stratified. A theoretical model of the observed peeling detrainment was developed to predict the stratification in the basin. This new model gives a better approximation of the stratification observed in the experiments than the pre-existing entraining model. The model can now be developed such that it integrates into operational models of lakes.

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