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Turbulent mixing by buoyancy-driven flows in long tubes STUART DALZIEL, DAMTP, University of Cambridge, LIYONG ZOU, National Laboratory for Shock Wave and Detonation Physics, China Academy of Engineering Physics — We explore the buoyancy-driven turbulent flow that develops due to a change of orientation for a long tube initially filled with a statically stable stratification. For simple orientation histories, the flow may be characterised by the low mixing of a gravity current, the modest mixing of Kelvin-Helmholtz instability, or the much greater mixing of Rayleigh-Taylor instability. However, precise details of the orientation history can prove to be important. We present experimental results from a range of orientation histories, exploring both the temporal development of the flow and the level of mixing achieved.

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