Analysis and numerical simulation of a laboratory analog of radiatively induced cloud-top entrainment ALAN KERSTEIN, Sandia National Laboratories, HEIKO SCHMIDT, Technical University of Cottbus, RENAUD NEDELEC, Ecole Centrale Marseille, SCOTT WUNSCH, Johns Hopkins University Applied Physics Laboratory, BEN SAYLER, Black Hills State University — Numerical simulations using the One-Dimensional-Turbulence model are compared to water-tank measurements[1] emulating convection and entrainment in stratiform clouds driven by cloud-top cooling. Measured dependences of the entrainment rate on Richardson number, molecular transport coefficients, and other experimental parameters are reproduced. Additional parameter variations suggest more complicated dependences of the entrainment rate than previously anticipated. A simple algebraic model indicates the ways in which laboratory and cloud entrainment behaviors might be similar and different.

[1]B. J. Sayler and R. E. Breidenthal, J. Geophys. Res. **103** (D8), 8827 (1998).

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