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The oscillation modes of large-scale circulation in turbulent Rayleigh-Bnard convection in a cubic container DANDAN JI, KUNLUN BAI, ERIC BROWN, Yale University — We present measurement of the large-scale circulation (LSC) of turbulent Rayleigh- Bnard convection of a cubic cell. We measured the LSC orientation angle θ_0 and off-center displacement angle α. We found the LSC oscillates around one corner. The oscillation frequency matches the turnover time and the natural frequency based on the geometry of the cell predicted by the stochastic model presented by Brown and Ahlers (Phys. Fluids, 2008), however the model with advection which was used to predict oscillations in cylinders predicts the system is over-damped. The structure of the LSC breaks the symmetry of the cube.

Dandan Ji
Yale University

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