



An experimental study of thermal convection in an open cylinder

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We make a new proposal that a laboratory device is able to simulate the atmospheric circulation in high latitude. This device is composed by an open cylinder with a bottom subjected to heated and cooled to simulate the baroclinic instability. The velocity in the working fluid is visualized by a super resolution particle image velocimetry (SR-PIV) method (Kanae et al. 1994). In this cylinder, dominant wavenumber showed 4 - 6 and the flow field was dynamically changed with time. The result shows that vorticity on the center of cylinder accelerated concurrently with the zonal mean velocity on the half radius from the center.