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Study of rotating convection in a new configuration with simultaneous imposition of radial and vertical temperature gradients AYAN KUMAR BANERJEE, AMITABH BHATTACHARYA, SRIDHAR BALASUBRAMANIAN, Indian Inst of Tech-Bombay — Laboratory experiments were conducted in a novel configuration, comprising of non-homogeneously heated rotating cylindrical annulus, to study dynamics of rotating convection. This configuration allows co-existence of convective plumes and baroclinic instabilities, which characterizes geophysical flows. Localized temperature time series data acquired by thermocouples, combined with 2D axisymmetric ANSYS Fluent simulation were used to understand the physics of baroclinic instabilities, convective structures and their interaction. Scaling for the proposed system is derived and validated with thermal measurements.

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