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Cell pattern transitions on a rotating convection induced by internal heat generation YUJI TASAKA, YUDAI YAMAGUCHI, Hokkaido University, TAKATOSHI YANAGISAWA, JAMSTEC, YOSHIHIKO OISHI, YUICHI MURAI, Hokkaido University — We examined cell pattern formation on a rotating convection induced by internal heating. In this configuration with thermal insulation for the bottom boundary the thermal boundary layer whose separation provides convective motion exists only on the top boundary and the mechanism of the cell patter formation would be simpler than RBC. Flake visualization of the flow pattern indicated that there are three cell patterns on the marginal condition; irregular polygonal cells usually observed in internal heating convection, regular hexagonal cells, and time-dependent state as the results of competition of these patterns. These cell patterns are arranged by Rossby number. In the regular hexagonal cell pattern the fluid layer is occupied by regular hexagons like the rotating lattice observed in rotating RBC (Bajaj *et al.*, 1998). But the cells do not show the continuous rotation unlike the rotating lattice but recreation of cells occurs intermittently in time and space. In a moderate condition, advecting local structures accompanied by sheet-like downward flows is observed instead of regular cell structures. This pattern is observed in a relatively large Ta region and interruption of natural separation of the thermal boundary layer by thinning Ekman layer is an important factor.

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