

Thermal convections in the Jovian equatorial zonal wind

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In the Jovian equatorial region, there are hot spot/festoon/plume complex features aligned in the east-west direction. These features show convective structures that have a pair of upwelling and downwelling in the plume and the hot spot, respectively. In this study, numerical simulations of thermal convections are carried out in the basic zonal flow with horizontal and vertical wind shears, and compare with the Jovian equatorial structures. In the zonal flow with simplified linear horizontal and vertical shears, the preferred patterns of the convections are two; the roll-like convection for large effects by the shear, and the plume-festoon like pattern for small effects. Also we will report the simulations for the convection with more realistic Jovian zonal flow.