

Simulations of Extrasolar Planet Atmospheres Under Large-Scale Forcing

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Abstract

Thermally forced, global, three-dimensional extrasolar planet simulations are presented. Both hot Jupiter-like and terrestrial-type planetary atmospheres are considered. The focus is on identifying dynamical processes that lead to equilibrated large-scale flows. In particular, conditions favourable for producing equatorial superrotation (i.e. mean east-west wind with axial angular momentum greater than surface axial angular momentum at the equator) are discussed and the role of instability-generated eddies on the mean flow is investigated in high resolution numerical simulations.