Venusian super-rotation generated by meridional circulation and barotropic instability.

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The Venus atmosphere rotates 60 times faster than the solid part at the cloud-top level. In this study, this super-rotation is investigated in the light of the upward transport of angular momentum by meridional circulation.

In the first part of the present study, this generating mechanism of the super-rotation is examined by a two-dimensional model on a meridional plane with very large horizontal eddy viscosity. The parameter-dependency of magnitude of the super-rotation is also examined in detail.

In the second part of this study, the origin of the very large horizontal ``eddy viscosity'' assumed in the first part is investigated in the light of barotropic instability. In this model, the barotropic instability occurs and angular momentum is transported equatorward by barotropic eddies.