



Vortex Organization and the Cloud Level Circulation from Venus Monitoring Camera Observations from Venus Express

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The Venus Monitoring Camera (VMC) has been observing Venus cloud cover at four wavelengths from the Venus Express spacecraft orbiting Venus since April 2006. The apocenter observations have enabled determination of the southern hemisphere cloud level flow by tracking cloud features using automated digital tracking between equator and mid-latitudes. Beyond about 45 degrees latitude, the cloud morphology and the moderately low resolution of the apocenter images makes cloud tracking very challenging and somewhat unreliable. Results from visual tracking have been presented by Moissl et al. (2009)

The cloud tracking results show small temporal variations and the presence of solar thermal tides. At polar latitudes the organization of the cloud cover continues to be a hemispheric vortex centered over the pole. Both the VMC and the VIRTIS observations of the polar regions have shown occurrence of features that have been identified as signatures of dynamical instability (Limaye et al., 2009), which requires non-solid body rotation at high latitudes. The morphological evidence suggests that the high latitude measurements of cloud motions from the low spatial resolution imaging data (both VMC and VIRTIS, Sanchez-Lavega et al., 2008) should be interpreted with caution as they may not accurately reflect the meridional shear of the east-west component of the flow at high latitudes

References

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