

Towards a synthesis of Venus Express cloud observations

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Many investigators have separately been investigating different aspects of the Venus clouds, using the different instruments of VEx as well as ground-based instruments. Recent results include:

- Temperature profiles through the clouds (VeRa)
- Maps of vertically-integrated cloud optical thickness as a function of latitude (Piccioni et al, VIRTIS)
- Possible sub-cloud haze (Satoh et al., VIRTIS)
- Constraints on lower cloud acid concentration (Barstow et al., VIRTIS)
- Constraints on lower cloud particle size; variation with latitude (Wilson et al., VIRTIS)
- Measurement of lifetime of lower cloud 'holes' (McGouldrick et al., VIRTIS)
- Variability in zonal velocity of lower cloud layer (Young et al., IRTF)
- Cloud-top altitude mapped (Ignatiev et al., VIRTIS dayside)
- Vertical profiles of stratospheric haze from thermal emission limb profiles (deKok et al., VIRTIS)
- Haze profiles in UV/IR (Wilquet et al, Montmessin et al., SPICAV/SOIR)
- Measurements of SO₂ distribution above clouds (Marcq et al, SPICAV)
- Extensive observations of cloud morphology (Marckiewicz et al., VMC)
- Phase function measurements of cloud-top particles (Marckiewicz et al., VMC).
- Short-lived mid-latitude brightening events (Marckiewicz, Limaye et al., VMC)

In this session we hope to combine these observational constraints with chemical and dynamical arguments to work towards a unified understanding of what processes are at work in the Venus clouds.

Questions for discussion include:

- How are the UV-light and dark regions in the upper cloud generated? Are they related to underlying convection cells?
- How does cloud vary from regions of thin to thick cloud?
- How does cloud vary with latitude?
- Does ice form in the upper cloud? Why not?
- Could there be rain within the clouds at any time?

Audience participation is enthusiastically encouraged!