

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)  
Planetary Atmospheres (C31)

## THE POLAR THERMOSPHERE OF VENUS

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The thermosphere of Venus has been extensively observed in-situ primarily by the Pioneer Venus Orbiter, but those measurements concentrated on the low latitude regions. Until recently, no in-situ observations were made of the polar thermosphere of Venus, and reference atmospheres such as the VTS3 and VIRA models relied on solar zenith angle trends inferred at low latitudes in order to extrapolate to polar latitudes.

The Venus Express Atmospheric Drag Experiment (VExADE) carries out accurate orbital tracking in order to infer for the first time ever the densities in Venus' polar thermosphere near 180 km altitude at solar minimum. During 3 recent tracking campaigns we obtained density measurements that allow us to compare actual densities in those regions with those predicted by the reference atmosphere models. We constructed a hydrostatic diffusive equilibrium atmosphere model that interpolates between the Venus Express remote sensing measurements in the upper mesosphere and lower thermosphere region and the in-situ drag measurements by VExADE. This paper will present and discuss our latest findings.