



South polar dynamics of the Venusian atmosphere from VIRTIS/Venus Express mapping in the thermal range

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We report on measurements of Venus cloud velocities from VIRTIS/Venus Express observations of the south polar region of Venus. Cloud tracking has been performed using a method of automated digital correlation. Tracking has been performed on pairs of monochromatic VIRTIS images selected mainly in the $5 \mu\text{m}$ window, but also at 1.74, 2.3, 3.93 micrometers. Wind measurements from vector retrievals based on automated feature tracking show high variability, indicating the presence of important transient motions. The time-averaged zonal winds indicate different day and night side regimes. On the day side both the zonal wind component (u) and the meridional one (v) are approximately uniform between 84S and 76S, with $u \sim -40$ m/s and $v \sim -10$ m/s. On the night side the zonal wind decreases poleward, from a maximum at 76S. The meridional wind is smaller than on the day side and appears to change sign from poleward to equatorward at 76S. The cold collar boundary appears to be a transition region not only for the temperature, but for the winds as well. In this region wave motions are also apparent, with amplitudes on the order of 40 m/s for u' and 10 m/s for v' .