



## Circulation of Venus upper mesosphere.

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Observation of the O<sub>2</sub> 1.27 μm airglow intensity distribution on the night side of Venus is one of the methods of study of the circulation in upper mesosphere 90-100 km. VIRTIS-M on board Venus Express made these observations in nadir and limb modes in Southern and Northern hemispheres respectively. Global map of the O<sub>2</sub> night glow is published (Piccioni et al. 2009). In this work we use for analysis only data, obtained with exposure > 3 s to avoid high noisy data. It was found that intensity of emission decreases to poles and to terminators (similar to Piccioni et al. 2009) in both hemispheres, which gives evidence for existence of SS-AS circulation with transport of the air masses through poles and terminators with ascending/descending flows at SS/AS areas. However, asymmetry of distribution of intensity of airglow is observed in both hemispheres. Global map for southern hemisphere (from nadir data) has good statistics at  $\phi > 10-20^\circ\text{S}$  and pretty poor at low latitude. Maximum emission is shifted from midnight by 1 – 2 hours to the evening (22-23h) and deep minimum of emission is found at LT=2-4 h at  $\phi > 20^\circ\text{S}$ . This asymmetry is extended up to equatorial region, however statistic is poor there. No evident indication for existence of the Retrograde Zonal Superrotation (RZS) is found: maximum emission in this case, which is resulting from downwards flow, should be shifted to the morning. The thermal tides, gravity waves are evidently influence on the night airglow distribution. VIRTIS limb observations cover the low northern latitudes and they are more sparse at higher latitudes. Intensity of airglow at  $\phi = 0 - 20^\circ\text{N}$  shows wide maximum, which is shifted by 1-2 h from midnight to morning terminator. This obviously indicates that observed O<sub>2</sub> night glow distribution in low North latitudes is explained by a superposition of SS-AS flow and RZS circulation at 95-100 km. This behavior is similar to the NO intensity distribution, obtained by SPICAV.