



Remote sensing of O and N density distribution and fluxes from night airglow observations with Venus Express

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Spectral observations of the O₂ (¹Δ_g) infrared nightglow have been made with the VIRTIS-M instrument and ultraviolet spectra of the NO δ and γ bands have been obtained with SPICAV on board Venus Express. In particular, limb profiles of the two emissions have been collected in the northern hemisphere in the tangential limb mode. The O₂(¹Δ_g) emission is produced by three-body recombination of O atoms, while the NO airglow results from the N+O radiative recombination. The brightness of both emissions exhibits a large variability. Highest intensities at 1.27 μm are observed near midnight near the equator. Although no clear latitudinal dependence can be deduced from the SPICAV limb profiles, the largest NO intensity has been obtained at low latitude. Both emissions also show variations in the altitude of the peak emission.

On several occasions, VIRTIS and SPICAV observed the same regions of the northern hemisphere and obtained limb profiles. It will be shown that airglow observations, especially concurrent measurements of the O₂ and NO limb profiles is a valuable tool to remotely sense the distribution of O and N in the upper mesosphere and improve models of the night side composition and vertical transport.