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Dynamics of the Venus atmosphere as seen by VIRTIS on Venus Express

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After about three years since the orbit insertion, VIRTIS aboard the Venus Express spacecraft has addressed a significant amount of the planned scientific objectives, from the surface up to the lower thermosphere, in terms of mapping, composition, structure and dynamics.
The VIRTIS instrument consists of two channels: VIRTIS-M, an imaging spectrometer with moderate spectral resolution in the range from 0.25um to 5um and VIRTIS-H, a high spectral resolution spectrometer in the range from 2 to 5um co-aligned with the field of view of –M. The resolution of VIRTIS-M is 2nm from 0.25 to 1um and 10 nm from 1 to 5um. The resolution of VIRTIS-H is about 2nm.
The atmosphere above the clouds is regularly observed both on day and night sides, in solar reflection and thermal emission in nadir geometry. Cloud tracking in the day side at 350 nm, 980 nm and 1.74 um in the night side allows direct wind measurements from the lower clouds to the clouds top. Spectroscopy of the 4-5 micron range gives access to the cloud structure and thermal fields in the 60-95 km altitude levels, including the vortex. Nightglows and in particular oxygen nightglow from the (0-0) band at 1.27 microns in nadir geometry permits to infer the dynamics of the lower thermosphere. In addition, limb observations of the same nightglow provides the missing third dimension in the vertical direction.
A review of the main results in the dynamics achieved by VIRTIS is given in this talk.