



Dynamical and morphological evolution of Venus Southern polar vortex

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One of the most peculiar structures of Venus atmosphere is the Southern polar vortex. This vortex appears really complex with a structure that is mainly influenced by its great dynamics. VIRTIS-VeX collects many images of the vortex in the thermal range, especially in two wavelengths, 3.38 and 5.05 μm , in which the vortex has the highest contrast. The instrument is pointed to the vortex from different positions within the orbit and for a different number of acquisitions, in order to obtain the evolution of the structure with long and short time scale. As a first aspect we analyze the position of the vortex described by the centre of mass of its thermal brightness. Plotting the latitude vs the local time we are able to see that the centre of global rotation of the vortex is not along the planet rotation axis but it has an offset between 2 and 5 degrees. This offset is translated into an oscillation of the vortex latitude which seems linked to the solar irradiation of the planet. We also attempt to model the vortex using an analytic equation with six degrees of freedom, covering all the observed morphology, from the circle to the triangle. In this case we observe the deformation factor of the curve in the day side respect to the night side, where, in general the shape is more compact. The modelling of the vortex, linked to the wind field analysis, will be a constraint for the inclusion of this feature in the global circulation model.