



A model to study the Venus cloud structure based on recent ground-based and space observations

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Venus is our nearest neighbor, and has a size very similar to the Earth's. However, previous spacecraft missions discovered an extremely dense (92 bar at the surface) and CO₂-rich atmosphere, with H₂SO₄ clouds located at altitudes between 40 and 70 km. These clouds cover the whole planet.

A cloud model was proposed by Pollack et al. (1993), with vertical distributions of different cloud particles classified into 3 distinct modes. This model could be improved using new data obtained in the recent past from ground-based observations (IRTF telescope in Hawaii) and in-situ measurements from spacecraft observations (SOIR on Venus Express). A new cloud model, correcting for some Pollack model's limitations, was proposed using data from previous entry probes [Takagi Iwagami, 2011]. However, this model could not describe the global Venus cloud structure.

The purpose of the current work is to construct a more realistic cloud model based on ground-based spectroscopic observations of the Venus low-latitude region and on Venus Express/SOIR observations at high-latitude. We will present the model and discuss some results obtained on the cloud structure of Venus.