

EGU21-5515

<https://doi.org/10.5194/egusphere-egu21-5515>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



The Venus Climate Database

Sebastien Lebonnois¹, Ehouarn Millour¹, Antoine Martinez¹, Thomas Pierron¹, Aymeric Spiga¹, Jean-Yves Chaufray², Franck Montmessin², and Fabrice Cipriani³

¹Laboratoire de Meteorologie Dynamique, Sorbonne Université, CNRS, Paris, France

²LATMOS, Sorbonne Université, CNRS, Paris, France

³European Space Research and Technology Center (ESTEC), ESA, Noordwijk, The Netherlands

We have over the years developed a state of the art Venus Global Climate Model (GCM, Lebonnois et al. 2016; Gilli et al. 2017; Garate-Lopez & Lebonnois 2018). With funding from ESA in the context of the preparation of the possible upcoming EnVision mission, we have, in the footsteps of what has been done for Mars with the Mars Climate Database (), built a Venus Climate Database (VCD) based on GCM outputs.

The VCD dataset and software overall enable users to:

- extract atmospheric quantities (temperature, pressure, winds, density, ...) from the surface to the exobase (~250km) over a climatological Venusian day.
- to better bracket reality, several scenarios are provided, in order to reflect the possible range of solar activity (Extreme UV input from the Sun) which strongly affects the thermosphere (above ~150km), as well as a realistic range of UV albedo cloud top.
- in addition to a baseline climatology, the VCD software provides statistics (internal short term and day-to-day variability) along with means to add perturbations to represent Venusian weather.

At EGU we will present the VCD and its features, emphasizing how it can be useful for scientific users wanting to compare with their models or analyze observations, and for engineers planning future missions.