



Comparison between IPSL Venus Global Climate Model results and aerobraking data

Antoine Martinez, Sébastien Lebonnois, Jean-Yves Chaufray, Ehouarn Millour, Thomas Pierron

► To cite this version:

Antoine Martinez, Sébastien Lebonnois, Jean-Yves Chaufray, Ehouarn Millour, Thomas Pierron. Comparison between IPSL Venus Global Climate Model results and aerobraking data. EGU General Assembly 2021, Apr 2021, Online, Germany. 10.5194/egusphere-egu21-5025 . hal-03184241

HAL Id: hal-03184241

<https://hal.sorbonne-universite.fr/hal-03184241>

Submitted on 29 Mar 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

EGU21-5025

<https://doi.org/10.5194/egusphere-egu21-5025>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Comparison between IPSL Venus Global Climate Model results and aerobraking data

Antoine Martinez¹, Sébastien Lebonnois¹, Jean-Yves Chaufray², Ehouarn Millour¹, and Thomas Pierron¹

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

²LATMOS, Sorbonne Université, CNRS, Paris, France

For fifteen years, a Global Climate Model (GCM) has been developed for the Venus atmosphere at Institut Pierre-Simon Laplace (IPSL), in collaboration between LMD and LATMOS, from the surface up to 150 km altitude. Its recent extension up to the exobase (roughly 250 km) within the framework of the VCD project now allows us to simulate the Venusian upper atmosphere and the key atmospheric parameters of the aerobraking phases. The aim of this presentation is to study the evolution of the density of the Venusian upper atmosphere as a function of different parameters such as solar irradiance, latitude, local time and zenith solar angle (SZA), for regions from 130 to 180 km of altitude. We will present here several comparisons of the upper atmosphere of Venus between our model results and a selection of aerobraking data from different missions such as Venus Express, Pioneer Venus and Magellan.