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The atmospheres of Mars, Venus and Titan: observed and modelled structures

Sebastien Lebonnois

Laboratoire de Meteorologie Dynamique, IPSL/CNRS, 4 place Jussieu, box 99, 75252 Paris Cedex 05, France

In our solar system, three bodies possess atmospheres presenting similar characteristics with our own environment: our neighbours Mars and Venus, and also Saturn's largest satellite Titan. The comparative study of these different atmospheric systems provides many insights on their respective behaviour, and helps understand the processes at work within these complex systems. In this review, the observed vertical and latitudinal structures of these atmospheres are presented, including their variability and seasonal evolution. Waves that have been observed are also shown, e. g. thermal tides, gravity waves. Global Climate Models that have been developed to study such atmospheric systems are also presented. Using these tools, production and role of the different waves present in each atmosphere may be studied.