Day-Night Cloud Asymmetry Inhibits Early Ocean Formation on Venus

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DAY-NIGHT CLOUD ASYMMETRY INHIBITS EARLY OCEAN FORMATION ON VENUS. M. Turbet[1], E. Bolmont[1], G. Chaverot[1], D. Ehrenreich[1], J. Leconte[2] and E. Marcq[3], [1]Observatoire astronomique de l'Université de Genève, Versoix, Switzerland (martin.turbet@unige.ch), [2]Laboratoire d'astrophysique de Bordeaux, Université de Bordeaux, CNRS, B18N, Pessac, France, [3]LATMOS/IPSL, UVSQ, Université Paris-Saclay, Sorbonne Université, CNRS, Guyancourt, France.

Abstract: In this contribution, we will present the results of new 3-D numerical simulations of the atmosphere of young rocky planets (supposedly rich in water vapor) carried out with the LMD-Generic Global Climate Model (GCM). We will first show how and why clouds tend to accumulate preferentially on the night side of these planets as soon as water vapor is a major component of the atmosphere. We will then show how and why this result has major consequences on the conditions of formation of early oceans on Venus, as well as on Earth and exoplanets.

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