



Haze rainout and clouds on Titan

P. Rannou (1), F. Montmessin (1), F.Hourdin (2), and S. Lebonnois (2)

(1) Service d'Aéronomie, IPSL, Université de Versailles-St-Quentin, BP3, 91371 Verrières le buisson, FRANCE, (2) Laboratoire de météorologie Dynamique/IPSL, Université de Paris 6, FRANCE, (contact pra@aero.jussieu.fr, Phone: (+33) 1 64 47 42 16),

Titan is shrouded by a thick photochemical haze which controls the climate and hides the surface from view. Most haze structures observed in stratosphere are explained by interaction with winds. On other hand, a strong extinction inversion layer in troposphere still remain unexplained. In this talk, we present the results of a circulation model which accounts for the interactions between haze, clouds and circulation. We find that ethane and methane form clouds on aerosols and produce an extinction inversion layer by a strong rainout processes. In the same time, we explain the formation of several cloud types, like the cloud at south pole and the short living clouds recently observed by telescopes and by Cassini. This new result is of particular interest, especially within the context of the descent of the Huygens probe.