



The three ionospheres of Titan

G. Gronoff (1), J. Lilensten (1), E. Flueckiger (2), L. Desorgher (2)

(1) Laboratoire de planetologie de Grenoble, Universite Joseph Fourier, CNRS, France
<Guillaume.Gronoff@obs.ujf-grenoble.fr> (2) Physikalisches Institut, University of Bern,
Sidlerstrasse 5, CH-3012 Bern, Switzerland

Three main processes are at the origin of the ionosphere of Titan:

- Photoionisation (and day to night transfer of solar wind particle) at the origin of the upper ionosphere.
- Electron and proton precipitation from the magnetosphere of Saturn, which may create an ionized layer (at least a lot of chemical reaction) near 500km.
- Cosmic rays, at the origin of the 60km ionized layer detected by Huygens.

We present the advance of our work to compute the ion production in the upper atmosphere ionized layer and the cosmic ray layer, corresponding to the situation where Titan is out of the Chronian magnetosphere.