EPSC Abstracts,
Vol. 2, EPSC2007-A-00146, 2007
European Planetary Science Congress 2007

Interaction of Venus and Titan with their Plasma Environments

H. Y. Wei1, C. T. Russell1, M. K. Dougherty2, J. G. Luhmann3, T. L. Zhang4, M. Delva4 and Y. J. Ma1

1Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA, 90095-1567, USA

2Imperial College, The Blackett Lab., Dept. of Physics, London, SW72BZ, UK

3Space Sciences Laboratory, University of California, Berkeley, CA 94720, USA

4Space Research Institute, Graz, A-8042, Austria

The ionospheres of Titan, Venus and Mars are magnetized by their interactions with flowing magnetized plasma corotating with Saturn in the former case and convected by the supersonic solar wind in the latter two cases. At solar maximum, the Venus ionosphere was found to be generally field-free by the PVO eccentric orbiter, albeit threaded with twisted flux ropes. Venus Express is now orbiting Venus at solar minimum and detects a largely magnetized ionosphere. Similarly, the repeated low altitude passes of Cassini through the Titan atmosphere reveal a “strongly” magnetized ionosphere. We compare the features of these two magnetized ionospheres to illustrate the differences associated with subsonic and supersonic flow.