Geophysical Research Abstracts, Vol. 9, 04518, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-04518

An upper limit to the intrinsic magnetic moment of Titan

H. Y. Wei (1), C. T. Russell (1), M. K. Dougherty (2), F. M. Neubauer (3), C. Bertucci (2), and Y. J. Ma (4)

(1) Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA 90095-1567, USA, (2)Imperial College, The Blackett Lab., Dept. of Physics, London, SW7 2BZ, UK, (3) Inst. of Geophysics, University of Koln, Koln 50923, Germany, (4) Department of Atmospheric, Oceanic and Space Sciences 2436A SRB, University of Michigan, Ann Arbor, Mi., 48109, USA

Titan is embedded in the Saturnian rotating magnetosphere with its orbit lying in the equatorial plane at radius of 20 Saturn radii. The interaction of Titan with this flowing magnetospheric plasma is complex due to the time variation of external conditions and the physics of the interaction with the neutral atmosphere and the ionosphere. A search for any intrinsic magnetic field of Titan must be carried out at low altitudes, where the complexities of the interaction are minimized. Large scale magnetic fields are observed below Titan's ionopause and these fields change both magnitude and orientation at low altitudes. Magnetometer data below 1100 km are studied to determine how much of these fields may be due to an intrinsic dipole moment. The variability of these fields suggests that external contributions are present at low altitudes but pass to pass consistencies allow us to estimate an upper limit of the intrinsic field to be about 8 nT on the surface at the equator.