Geophysical Research Abstracts
Vol. 14, EGU2012-5515, 2012
EGU General Assembly 2012

On the structure of Titan's tail

Z. Bebesi (1), K. Szego (1), N. Krupp (2), Z. Nemeth (1), G. Erdos (1), F.J. Crary (3), D.G. Mitchell (4), and S.M. Krimigis (4)

(1) Wigner Research Centre for Physics, Hungarian Academy of Sciences, Space physics and space technology, Budapest, Hungary (bebesi.zsofia@wigner.mta.hu), (2) Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, (3) Southwest Research Institute, San Antonio, Texas, USA, (4) Applied Physics Laboratory, Johns Hopkins University, Laurel, MD, USA

We use measurements of the Cassini Plasma Spectrometer, the Magnetospheric Imaging Instrument and the Magnetometer of the Cassini spacecraft to analyse the structure and composition of the tail section of the induced magnetosphere of Saturn's moon, Titan. The orbital positions of the Titan flybys of Cassini are distributed over various Saturn Local Time regions, so the effects of multiple-source ionization can be studied. We included flybys TA-T78 into the analysis.
For many of the encounters the position of the center of the tail differed from that derived from the nominal flow direction, depending on SLT. We compared this with hybrid simulations. We also examined how the different mass particles (m/q=1, 2, 16-19) were distributed in the tail section. During the many tail flybys Titan was close to the plasma sheet of Saturn (for example during T11, T15, T29, T36, T44) hence embedded in a tilted magnetic field and higher density plasma. The possible effects of the Kronian magnetodisk on Titan's tail are discussed.