



## **Preliminary results of the ISL Langmuir probe on DEMETER**

**S. Stverak** (1,2), M. Maksimovic (2), P. Travnicek (1), J-P. Lebreton (3), S. Merikallio (3) and M. Parrot (4)

(1) Institute of Atmospheric Physics, ASCR, Prague, Czech Republic, (2) LESIA, Observatoire de Paris-Meudon, France, (3) Research and Scientific Support department, ESA/ESTEC, Noordwijk, The Netherlands, (4) LPCE, Orleans, France.

The instrument ISL (Instrument Sonde de Langmuir) onboard the CNES microsatellite DEMETER (Detection of Electro-Magnetic Emissions Transmitted from Earthquake Regions) consists of two different electrostatic probes. The main scientific objectives of DEMETER are to study the disturbances induced in the Earth ionosphere by seismic and volcanic activity. The two ISL sensors are able to sample the current-voltage characteristics using 5 different sweeps with a maximum scale  $\pm 7.62$  V in a time resolution of 1 s. The first sensor is a common cylindrical Langmuir probe. The second one, the Segmented Langmuir probe (SLP), is a new original design of the spherical probe concept. SLP provides independent measurements of the plasma current/voltage characteristics in different view directions.

The DEMETER mission has is in operation since June 29th, 2004. In this paper we present preliminary results obtained with ISL. The measured data are analysed in a classical way using an automated routine designed for this mission and compared with some theoretical models of the current collection in plasmas. As a second topic, we also look for some evidence of the existence of non-thermal, e.g. Kappa or bi-Maxwellian, electron distribution functions in the ionosphere.