



## **Spatial distribution of the ions species near the plasma sheet of the Venusian magnetotail**

**A. Fedorov** (1), C. Ferrier (1), S. Barabash (2), T. Zhang (3), J.-A. Sauvaud (1), C. Mazelle (1)

(1) CESR/CNRS, Toulouse, France, (2) IRF, Kiruna, Sweden, (3) SRI, Graz, Austria

Plasma sheet of a non-magnetic planet is a thin layer located in the planetary shadow and filled by rather dense and accelerated plasma of planetary origin. Position of plasma sheet corresponds to position of the current sheet in the planetary tail. The signature of the last one is an abrupt change of the sign of  $B_X$  component of local magnetic field. This paper presents a study of the fine structure of the plasma sheet, namely the spatial distribution of various ion species relatively to the current sheet. This study used the data from IMA mass spectrometer (Aspera-4) onboard of Venus Express mission. The flow of different ion species was investigated in a special frame referring to the direction of the magnetic field. Epoch superposition analysis shows that the central plasma sheet, coinciding with zero  $B_X$  is filled by heavy ions like  $O^+$  only. The  $He^+$  ions create an envelope of plasma sheet, and then this helium layer is surrounded by thick proton flow. Thus the Venusian plasma sheet works like a giant mass spectrometer. Paper is discussing possible reasons of a such separation of the species.