

## **OBSERVATION OF LOCALLY ACCELERATED OUTFLOWING ION BEAMS ABOVE THE POLAR CAP WITH CLUSTER: STATISTICAL RESULTS**

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Above the polar caps and at altitudes higher than  $4 R_E$ , the Cluster spacecraft detect accelerated ionospheric ion beams with energies up to a few keV. These beams can be separated into 2 categories: ion beams originating from the polar cusp/cleft and beams accelerated almost along the magnetic field line passing by the spacecraft.

Polar cusp beams are characterized by the encounter of field aligned proton and oxygen ions with energies differing by a factor of about 4. Polar cap local ions beams are characterized by nearly monoenergetic ion inverted V and are in many occasions associated with a converging electric field.

Using the AMDA science analysis service provided by the Centre de Données de la Physique des Plasmas (CDPP, <http://cdpp.cesr.fr>), we have been able to extract from the Cluster ion detectors dataset the time periods when Cluster encounters polar cap local ion beams. 6 years of data have been mined with this tool. After a description of the method used for the automatic detection of the beams, we present preliminary results about the statistical behavior of these structures. We will discuss the local properties of these beams (size, energy, location...) together with their dependence on the interplanetary conditions (solar wind parameters, IMF orientation and magnitude). We will then compare these statistical features to those expected for various models of local beams generators.

magnetosphere-ionosphere coupling, polar cap, ion outflow

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