



Observation of 'Band' Structures in Spacecraft Observations of Inner Magnetosphere Plasma Ions

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In previous studies, several authors have reported inner magnetosphere observations of proton distributions confined to narrow energy bands in the range of 1-25 keV (Smith and Hoffman (1974), etc). These structures have been described as "nose structures", with reference to their appearance in energy-time spectrograms and are also known as "bands" if they occur for extended periods of time. Statistical surveys (Buzulukova et al. (2003); Vallat et al. (2007)) of these features in Interball and Cluster data highlight the presence of single nose in nightside sectors and multi-nose structures in the dayside sectors. We examine Double-Star TC1 HIA data mainly recorded in the equatorial plane of the inner magnetosphere ($L < 15$) to see how observations of "multi-banded structures" compare to the observations from more inclined orbits of Cluster and Interball. We investigate the properties of these multi-banded structures and carry out a statistical survey analysing them as a function of geomagnetic activity. This is a comparison study to a similar study conducted using DoubleStar TC-1 PEACE electron data.