



Diffusion Coefficient Values Obtained at Individual Diffuse Ion Events Based on Cluster Observations: What Do We Know About the Physical Process?

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We present simultaneous multipoint observations of diffuse ions in front of the Earth's quasi-parallel bow shock. For the analysis we use data provided by the Cluster CIS-HIA particle instrument and data from FGM magnetic field instrument. Several individual diffuse ion events during various solar wind conditions are presented and analysed. The diffusion coefficients at each analysed upstream ion event present unique characteristics especially at lower diffuse ion energies (around 10 keV). We analyse in detail the reasons for the observed differences in the value of the diffusion coefficient; results are also compared with predictions of the theory and the reason for the eventual difference is explained.