Alfvénic Transport in the Storm-time Magnetosphere

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In this presentation it is shown how measurements performed in Earth's magnetosphere during periods of disturbed space weather know as geomagnetic storms comprise a range of Alfvenic interactions with basic consequences for the near-Earth space environment. These interactions drive the formation of dynamic aurora and the modulation of energetic particle populations through this region of space. Here observations reported from a number of spacecraft are combined in a fluid-kinetic model to describe the energy transport and particle scattering/energisation evolution driven by these interactions. It is shown from simulations and a consideration of transport coefficients evaluated using the observations that these plasma processes are likely important drivers of the enigmatic evolution of this region of space during geomagnetic storms.