



Multi-Point Studies of the Auroral Acceleration Region by Cluster

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Multi-point particle and field measurements from crossings of the auroral acceleration region (AAR) by the Cluster fleet are used to address and resolve different open issues on the auroral acceleration processes. The Cluster data interpretation was facilitated by the use of DMSP auroral images from oval crossings close in time to those of Cluster. Examples to be discussed are: the altitude distribution of the quasi-static acceleration potential and its stability in space and time; the parallel electric field and potential drop from Cluster conjunctions; the interaction and relative role of quasi-static and Alfvénic acceleration within the plasma sheet boundary layer; the two-dimensional (altitude and latitude) distribution of the density cavity with respect to the AAR and to the quasi-static Region 1.