

RECENT SUBSTORM RESULTS FROM COMBINED CLUSTER AND DOUBLE STAR MEASUREMENTS

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Data from ESA's Cluster and the Sino-European Double Star spacecraft can provide a useful counterpoint to the observations made by the THEMIS mission in the field of substorm research. Here we review recent results from the ISSI international team on Combined Cluster-Double Star Measurements in the magnetotail, and others, concentrating on those measurements that would be difficult to make using a purely radial constellation of spacecraft. These include the first direct observation of return flows around the edges of a BBF, a magnetic curvature analysis of the evolution of a flattened current sheet during a substorm and the identification of a “plasma piston” mechanism operating between 16 and 7 R_E downtail. The importance of azimuthal coverage in identifying the tail counterparts of different auroral signatures will also be discussed, as will the potential the evolution of Cluster's orbit offers in providing detailed multipoint measurements of the current disruption region.

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