

# Multi-point observation of fast flow and dipolarization observed by Cluster and Double Star

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Fast flow and associated magnetic field disturbances are keys to understand the link between the midtail and the inner magnetosphere where the essential energy conversion processes take place during substorms. With the launch of Double Star, simultaneous observation of the inner magnetosphere and the midtail took place in summer 2004 successively. This constellation of the spacecraft allows us further to study the flow and dipolarization disturbance in a more global context. We discuss how the spatial structure of the plasma flow and the dipolarization front can be resolved with four Cluster spacecraft measurements and how these structures can be related to the ionospheric signatures. By applying the multi-point analysis techniques, the direction/speed of the propagation is determined within Cluster and is then compared with the global propagation of the disturbances with Double Star as well as relevant ionospheric disturbances to draw a more concise picture of the substorm development.