

## Fast flow around the dipolarization region: THEMIS observation

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Dipolarization is one of the most dramatic and key phenomena in the course of substorms. Spacecraft often observe fast flow signatures followed by the dipolarization with turbulent magnetic fields. However, it is not clear whether such fast flows are independent of the dipolarization (thus can be a contributor for dipolarization) or a result by the dipolarization.

THEMIS multi-spacecraft sometimes provide the observation of tailward flows and/or azimuthally dominant flows associated with the dipolarization around  $10 R_E$ , offering some clues to address the above problem. In this study, we examine such flow patterns associated with the dipolarization and discuss their relation to the dipolarization.