



Case Study on Field Aligned Current Observed by Cluster in the Storm Times

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Two cases were chosen to study the relationship between the Field Aligned Current (FAC) in the PlasmaSheet Boundary Layer (PSBL) and Auroral Electrojet (AE) index in 2001. The case 1 took place on Aug. 17, 2001 when the Cluster just went through the PSBLs during sudden storm commencement and main phase in the storm. The case 2 took place on Oct. 1, 2001 when the Cluster just went through the PSBLs during main phase and recovery phase in the storm. The current is calculated with data from the FGM onboard the Cluster. The main results show that: (1)during the sudden commencement phase and the early main phase, the FAC increases when the AE decreases and the FAC decreases when the AE increases, (2)during the later main phase and the early recovery phase, the FAC increases when the AE increases and the FAC decreases when the AE decreases, (3)during the late recovery phase, it seems as that the FAC has no clearly relationship with the AE index.