



0.1 Observations of the cusp during successively stable northward/southward turning IMF

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Observations from the EISCAT/ESR radars and measurements from Cluster satellites are coordinated to study the cusp's characteristics during successively variable IMF. The IMF B_z , from ACE satellite, successively changed its direction various times in the interval of 0830-1130 UT, which was properly shifted by 63 min. The first southward turning occurred at \sim 0920UT, before which IMF had a stable and strong northward component. It turned back to northward 34 min later, and then turned southward again at \sim 1013UT. After being southward for about one and a half hour, the 2nd northward turning occurred at \sim 1112UT. The B_z component was in stable northward/southward and predominated the IMF during most of the time.

Observations from CIS implied that Cluster passed the cusp twice before existing into the magnetosheath. During the 1st time interval, \sim 0830-1000UT, Cluster observed lots of separate injections in the cusp, whereas during the 2nd part, \sim 1000-1100UT, part of the cusp was on closed field lines which was indicated by "double" population of ions from magnetosheath and plasma sheet sources. Measurements from PEACE indicated that Cluster was in some sort of boundary layer in the interval of 0920-0955UT, during which the IMF changed sign twice.

At lower altitudes, the variations of the polar-moving Ne structures observed by the ESR 32m radar and the field-aligned measurements from the ESR 42m radar both indicated the moving of the reconnection site and the cusp region. The high-latitude ionospheric plasma convection, which can be inferred from the VLOS measured by the ESR 32m and EISCAT VHF radars, exhibited strong anti-correlation with the IMF Bz component shifted by 72 min. These observations indicated the reconfiguration of polar ionosphere corresponding to the IMF Bz changes.

Measurements from other facilities are potentially involved for the interpretation. Detail results will be presented during the meeting.