

Electrodynamics of the Poleward Moving Auroral Form part2

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We have determined electrodynamics of poleward moving high electron density region that is dispatched recurrently from the dayside cusp. This phenomenon is considered to relate to the dayside reconnection, FTE and PMAF. However, the electrodynamics of this transient phenomenon has not been understood yet, in particular, the production mechanism, spatial and temporal distributions of electron density, plasma flow and particle precipitation inside and outside of the electron concentration. The present study is based on an analysis using simultaneous measurements on February 11, 2004 from ESR and EISCAT VHF radars, which cover widely the auroral zone, polar cusp and polar cap. In the dayside cusp where a recurrent poleward moving electron concentration start to move poleward, the electron temperature inside the concentration is increased but it tends to be decreased while moving deep in the polar cap. This implies that the electron concentration is produced by electron precipitation when it starts to move, but it becomes not associated with significant electron precipitation after a while.