

Study on poleward moving electron concentration around the dayside cusp

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We have determined electrodynamic characteristics of electron concentration that moves recurrently from the dayside cusp into the polar cap. This phenomenon is likely related to the so-called flux transfer event (FTE) and poleward moving auroral form (PMAF). Kono et al. [2001] has shown electrodynamic characteristics of electron concentration, based on analysis of the data obtained from the EISCAT Svalbard radar (ESR) and EISCAT KST VHF radar during a rocket and EISCAT collaboration campaign in November-December 2000. They have shown time development and electrodynamic feature of a poleward moving electron concentration in a wide latitudinal range from 72 deg to 85 deg N of the ionosphere, by using both radars looking poleward with low elevation angles.

However, their study was limited to 1-D feature of the phenomenon, which has obviously a 2-D structure. A 2-D approach will hence be needed for further understandings of electrodynamic characteristics of electron concentration. We will in this study show the spatial distribution of plasma motions inside and outside the electron concentration in more detail by using auroral images and HF radar data.