

## Development of shielding electric fields in the high latitude ionosphere

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Using magnetometer data from the polar cap to mid-latitudes (IMAGE, SAMNET, INTERMAGNET) and ionospheric plasma motion observed by SuperDARN, we have examined development of the shielding electric field in the ionosphere for the year 2000. The shielding effects were often observed at lower latitudes of about 65 magnetic latitude in the afternoon sector, which became significant tens of minutes after the growth of ionospheric convection. We found that the eastward electrojets and sunward plasma flow in the ionospheric F region were enhanced at latitudes between 67 and 72 degs at 17MLT. Our results suggest that divergent electric fields imposed by the Region-2 field aligned currents (FACs) which developed at around 65 magnetic latitude shielded the lower latitude ionosphere from the convection electric fields, and enhanced the electric field in the auroral ionosphere bounded by the Resion-1 and Region-2 FACs.