

Diminished occurrence of afternoon counter electrojet in certain longitude sectors and seasons

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Equatorial electrojet (EEJ) is a narrow band of current flowing eastward in the dayside ionosphere around the vicinity of the geomagnetic equator. Occasionally, the EEJ reverses from its normal eastward direction to westward during daytime. The reversed EEJ is known as counter electrojet (CEJ). CEJs occur mainly during morning and afternoon hours and is referred to as morning CEJ (MCEJ) and afternoon CEJ (ACEJ) respectively.

We derived the occurrence pattern of ACEJ from a chain of ground magnetic observations in the vicinity of the geomagnetic equator. It is found that the occurrence of ACEJ is diminished in certain longitude sectors and seasons. These results are discussed in context with the observed electrojet and tidal patterns from CHAMP satellite and TIMED Doppler Interferometer (TIDI) respectively. We also attempt to compare these observations with GAIA simulation results.