Relation between the local equatorial electrojet and global Sq current system

Nurul shazana Abdul hamid[1]; Huixin Liu[2]; Teiji Uozumi[3]; Kiyohumi Yumoto[4]

[1] Science,Kyushu Univ.; [2] None; [3] ICSWSE, Kyushu Univ.; [4] ICSWSE, Kyushu Univ.

The equatorial electrojet (EEJ) is a current system caused by the enhanced ionospheric conductivity (Cowling conductivity) near the dayside magnetic dip equator. In this study, we examined the relation between the local EEJ component and global Sq current component using the two stations method. The data used are the new equatorial electrojet index, EUEL, provided by MAGDAS network and the commonly used geomagnetic northward, H, component obtained from MAGDAS/CPMN stations. The EUEL index contains both EEJ and Sq current component at the magnetic dip equator station. In the two stations method, the local EEJ component is reflected by the difference between the H component of the magnetic dip equator station and the H component of the off magnetic dip equator station located beyond the narrow channel ($\pm$ 3° in latitudinal range) of EEJ band. The global Sq component is then obtained by subtracting the local EEJ component from the EUEL index. The relation between these local EEJ component and global Sq component are then examined from three particular aspects. The first aspect is the daily variation which includes amplitude and phase (local time) different. The preliminary result shows that the amplitude of local EEJ component is always higher than the global Sq component and both of them are almost in phase. The second aspect is the day to day variation of these two current components and the third aspect is the F10.7 dependence of both components.