

Spectral Peaks of long - term EEJ variation

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The ultimate goal of this study is to understand the connectivity of, and independencies in, the Solar wind-Magnetosphere-Ionosphere-Atmosphere (S-M-I-A) system. For this goal, in this paper we analyze ground magnetometer data at the DAV (Davao, Philippines station located at 7.0N, 125.3E). This is one station of MAGDAS/CPMN (MAGnetic Data Acquisition System/Circum-pan Pacific Magnetometer Network). MAGDAS/CPMN network has been installed by SERC Kyushu University, and widely covers the world. DAV is located at the intersection of the 210 degree magnetic meridian and the magnetic equator. We have spectrally analyzed the EEJ (equatorial electrojet) using DAV data from Jan. 1, 1999 to Dec. 31, 2001. We have focused on long-term variations having the period of several months. A strong spectral peak at semi-annual period is found to show higher harmonic structure. The results suggest that the EEJ at DAV oscillated with the semi-annual period because the ionospheric conductivity changed. Other strong peaks are also found at 14.6, 28, and 35 days. In addition, we have spectrally analyzed the F10.7 solar radiation flux (1 day data) measured at the Dominion Radio Astrophysical observatory, Canada [<ftp://ftp.ngdc.noaa.gov/>] and the data of ACE (Solar density, temperature, speed, IMF) of NASA [<http://omniweb.gsfc.nasa.gov/>].