# MODELING THE EASTWARD EQUATORIAL ELECTRIC FIELD USING CHAMP MAGNETOMETER DATA

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The day-time eastward equatorial electric field (EEF) in the E-region plays an important role in equatorial ionospheric dynamics. It is responsible for driving the equatorial electrojet (EEJ) current system, equatorial vertical ion drifts, and the equatorial ionization anomaly (EIA). Due to its importance, there is much interest in accurately measuring and modeling the EEF. In this work we use CHAMP satellite-derived latitudinal current profiles of the day-time EEJ in order to estimate the eastward electric field at all longitudes, seasons, and day-side local times. We have constructed a dataset of over 36,000 individual EEF estimates based on six years of CHAMP data. This data was used to construct a climatological model of the EEF mean as a function of longitude, season, local-time, lunar local-time and solar flux level. Furthermore, we have created a model of the day-to-day variability of the EEF as a function of the same parameters.

electrojet, eastward electric field

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