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Main field model constraints on the position of the equatorial electrojet

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Using satellite magnetic observations to derive transient ionospheric currents systems is not a straight forward task. First we must remove the main field because it masks all other components by an order of 10^4 (nT). Using the dip equator as a base we will show that constraints and laxations exist for the satellite data. The static lithospheric field must next be removed. If the model of this field is not determined sufficiently then significant deviations reside in the residuals. This is most noticeable when determining the signature of the equatorial electrojet because the lithospheric anomalies have a similar wavelength.

Keywords: Equatorial Electrojet; Main field models.