

Cause of long term variation of geomagnetic Sq field

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Variation of geomagnetic Sq field amplitudes in the Y component at some observatories was studied and effect of the solar activity in the variation was investigated. While solar activity dependence of ionosphere conductivity could explain most solar activity dependence of the time scale for more than a few years of Sq amplitude, the solar activity dependence of the dynamo electric field was small. Rather, the dynamo field tends to be small when solar activity is high. Although there was a difference by an observatory in the long-term change of the a dynamo electric field, the difference is mainly due to the secular variation of a geomagnetic main field, and variation of the neutral wind velocity was almost the same at all observatories.

Keywords: geomagnetism, daily variation, solar activity, electric conductivity, neutral wind, main field strength