

SPECTRAL ANALYSIS OF THE GEOMAGNETIC FIELD TEMPORAL VARIATIONS

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Two kinds of spectral analysis, indeed the spectral Fourier analysis and Spherical Harmonic spectral analysis are considered to be applied to geomagnetic real and synthetic series. Techniques of spectral analysis of the first kind, like windowed Discrete Time Fourier Transform (DTFT) or Discrete Wavelet Transform (DWT), are applied to long time series of secular variation (SV) and secular acceleration (SA) derived from data provided by geomagnetic observatories distributed overall the globe. In order to improve their global distribution, the same techniques are foreseen for synthetic series derived from global geomagnetic models, as gufm1 or CM4. This investigation can offer us a new picture of the geomagnetic jerks occurrence. For the second kind of spectral analysis, the power spectra of SV and SA derived from different geomagnetic models at the Core-Mantle boundary and different epochs is computed. Their time evolution and their ratio, can be investigated to find out if any relation exists between the temporal anomaly of the SH spectra and geomagnetic jerk events, which would bring some information on the global or regional nature of such events.

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