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Spectral analysis of geomagnetic field variations at the Eskdalemuir Observatory in the range of 2-41 years

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Today, the study of the internal structure of time series is carried out using various methods: constructing difference integral curves, correlation and spectral functions; using spectral-time analysis, each of which has its own advantages and disadvantages. One of the most preferred methods is spectral analysis, based on the expansion of functions, graphically represented as an oscillatory process, into a Fourier series. When carrying out our studies, the initial data for high-frequency oscillations of the geomagnetic field were data from instrumental observations from 1941 to 2023 of three components of the magnetic field at the Eskdalemur observatory. Eskdalemuir Observatory is located near the village of Eskdalemuir in the Dumfries and Galloway region of Scotland. The spectrum is interpreted in the range of 2-41 years.

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