

## Time intermittency and spectral features of the geomagnetic field

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### Abstract

In the field of geomagnetism a number of studies have been devoted to the investigation of turbulence and intermittency in the outer core fluid motions. Here, in order to obtain information on such phenomena we study the time spectral and self-similarity features of the main geomagnetic field fluctuations as measured on the Earth's surface. The existence of a power law spectrum, characterised by an exponent  $a \sim 11/3$ , and an anomalous scaling of  $q$ -th order structure functions on time scales longer than 5 years, suggests the occurrence of intermittent turbulence rather than classical Kolmogorov turbulence in the fluid core motions. These results are briefly discussed in connection with the existence of a strong magnetic field and drift-wave turbulence.

### Keywords

nonlinear processes in geophysics;geomagneticfield;Earth's core;fluid dynamics;turbulence

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### References

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
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