

Intermittent Solar Wind Turbulence in the Ecliptic Plane and Beyond

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We study the fluctuations of the interplanetary magnetic and velocity fields measured by the Ulysses spacecraft. The distribution function of these fluctuations is non-Gaussian so that the second-order correlations or spectra are not sufficient to characterize these fields. High-order structure functions for the magnetic and velocity fluctuations are calculated. The set of power-law exponents found from the slopes of the structure functions gives valuable information about the interplanetary MHD turbulence. In particular, one can draw conclusions about the energy transfer in the inertial range of the turbulence and the parameters defining the intermittency, i.e. the structuring in space. The fast and slow solar wind regions are considered separately.

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