Solar Wind Turbulence as Observed by the Ulysses Spacecraft: Power Spectra and Cross Spectra

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Observational properties of solar wind turbulence in the ecliptic and at high latitudes will be investigated using Ulysses plasma and magnetic field data. The power spectra of magnetic field, velocity, and pressure-related parameters will be presented, as will spectra of magnetic helicity, cross-helicity, and information as to directionality of the fluctuations. Theory indicates that compressional fluctuations may be related to pressure balance, or may be related to magneto sonic waves; the nature of this relationship may depend on both the ratio of plasma thermal pressure to magnetic pressure and the sign of the correlation between them. These possibilities will be discussed on the basis of the power-spectral and cross-spectral observations.