Geophysical Research Abstracts, Vol. 9, 08623, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-08623
© European Geosciences Union 2007

Turbulence and anomalous scaling in the solar wind

R. Bruno (1), B. Bavassano (1), R. D'Amicis (1), V. Carbone (2), L. Sorriso-Valvo (2), A. Noullez (3)

(1) INAF-Istituto Fisica Spazio Interplanetario, Rome, Italy, (2) Dpt. Fisica, Università della Calabria, Rende (Cs), Italy, (3) Observatoire de Nice, Nice, France, (roberto.bruno@ifsi-roma.inaf.it / Phone: +39-06-4993-4389)

A turbulent flow can be considered as a complex system and, in the past decade or so, new interesting insights have been obtained applying the theory of complex dynamical systems to the study of solar wind magnetohydrodynamic turbulence. The solar wind, in fact, has been used as a large wind tunnel to investigate scaling laws of turbulent fluctuations, multifractals models, etc, employing in-situ observations from several s/c, located at different heliocentric radial distances and latitudes. Today we have a rather complete picture of the phenomenology that characterizes the interplanetary MHD turbulence. Moreover, comparative studies highlighted similarities and discrepancies between hydrodynamic and magnetohydrodynamic turbulence. As a matter of fact, the presence of a background mean magnetic field introduces a symmetry breaking in the interplanetary space and plays a major role in the evolution of the turbulence itself. This presentation aims to briefly review the present state of the art in this field.