

# Study of the fractality of magnetized plasma using an MHD shell model driven by solar wind data

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© 2018 Author(s). An MHD shell model is used to describe the dissipative events that take place in magnetized plasmas. We analyze the activity of the time series of the magnetic energy dissipation rate obtained in the MHD shell model, which evolves under two forcing regimes: quiet and active states. To this purpose, we use solar wind data as the forcing terms of the shell model, covering solar maximum and solar minimum periods. Then, we calculate the fractal dimension of the solar wind data for the thirteen years of the 23rd solar cycle and we compare this with the energy dissipation time series obtained from the shell model description. We discuss the correlation between the fractal dimension of the solar wind data and the corresponding energy dissipation rate.