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Observations of Solar energetic particles dropouts associated with interplanetary magnetic field modulations

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Magnetic field fluctuations are ubiquitous in interplanetary space and extend over several frequency decades. Among these fluctuations, which have typical turbulence features, it is possible to localize coherent structures at different scales throughout the inertial range. We suggest that these magnetic structures might play a role during impulsive Solar Energetic Particles dropouts. The intensity of these particle events often has relatively short-timescale variations, occurring simultaneously across all energies and, most of the time, we found that they are associated with these magnetic events. The mechanism at the basis of SEP dropouts is not clear yet and different models in literature try to explain this phenomenon invoking also an active role of MHD turbulence. In this paper we report about the state of the art about this intriguing problem and show interesting results of our analysis which might suggest a possible alternative physical explanation.