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Turbulence scaling in the heliosheath and in the local interstellar medium from Voyager observations FEDERICO FRATERNALE, Politecnico di Torino, NIKOLAI V. POGORELOV, University of Alabama in Huntsville, JOHN D. RICHARDSON, MIT, DANIELA TORDELLA, Politecnico di Torino — This study considers the recent observations of magnetic field fluctuations in the inner heliosheath (IHS) and in the Local Interstellar Medium (LISM). We analyze in-situ data provided by the Voyager Interstellar Mission (V1 and V2 spacecraft) for heliocentric distances up to 115 AU (V2) and 135 AU (V1). Turbulence, instabilities and reconnection near the heliopause affect the particle transport and magnetic energy conversion into kinetic energy and into heat. A relevant mediation effect on plasma fluctuations is expected from charge exchange processes, which extensively generate pickup ions and energetic neutral atoms. We discuss the multi-scale features of magnetic fluctuations for a six-decades range of spacecraft-frame frequencies, which includes the energy-injection regime, the inertial cascade, and the fluid-to-kinetic transition. In the IHS, our study reveals the presence of two relevant scales within the magnetohydrodynamic regime, and highlights a correlation between the intermittency and compressibility of fluctuations. In the LISM, we show that the dominant Alfvénic character observed in 2015/2016 is not retained during 2017, when the large-scale compressibility reaches the value of 0.6.

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