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Hurst exponent analysis of the Earth's Magnetic time signal measured in Teoloyucan Observatory, Mexico.

Elsa Leticia Flores-Marquez (1) and Alejandro Ramírez-Rojas (2)

(1) Instituto de Geofisica, Exploracion, Mexico, Mexico (leticia@geofisica.unam.mx), (2) Area de Física de Procesos Irreversibles, Universidad Autónoma Metropolitana, México

The time dynamics of magnetic signal measured, during four years (1998 to 2001), in Teoloyucan Magnetic Observatory, in Mexico, is investigated by means of the Hurst exponent. The observed fluctuations, in the Hurst exponent, show a multifractal behavior that depends on the long-range correlations of the time series.
The analysis point out to the presence of two main periodicities (12 hours and 24 hours) in magnetic signal embedded within an antipersistent structure at any timescale, due to diurnal variation. We also depict a 6-h periodic component. Our findings do not put in evidence magnetic variations due to magnetic storms.