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Qualitative aspects of the Mutual Information for geoelectric time series

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The principles of information theory are applied to electric self-potential time series monitored in the most important seismic region in Mexico. The aim of this paper is to compute the level of global cross-correlation between two perpendicular components of the electric field measured. Both time series were monitored some months before and after of an Ms = 7.4 earthquake occurred at September 14, 1995. Our calculation, based in the re-scaled average mutual information index L = L(I), where I is the mutual information function suggest that the high level of global correlation observed between both components some months before the event, is associated with the preparation mechanism of the EQ occurred. The index L is a measure of the strength of nonlinear correlations between two time series.