A model of self-potential time series based in a chaotic map

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Since some years ago the electric self-potential time series monitored in seismically actives regions have been considered as a possible method to find precursory signatures of impeding earthquakes. The time series show different behaviors as white noise, Brownian motion and power law correlations. In this work we propose a simple chaotic model to simulate some properties of the dynamical behavior observed in electroseismic time series. Our simulated time series reproduces important statistical features of the monitored electric self-potential time series. Moreover, we also show how the equilibrium distribution function of the model can be obtained from the Perron-Frobenius operator.