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Study of Preseismic Electromagnetic Signals in terms of T-Complexity

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While there is an accumulation of theoretical and computational/numerical results from catastrophe theory, bifurcation theory, stochastic and deterministic chaos theory, these theories do not go all the way to explaining the physics observed in actual catastrophic events. Experimental techniques are thus critical in corroborating theories from observed data. For example, it is widely understood that pre-seismic electromagnetic time-series contains information characteristic of an ensuing earthquake event. Often this information cannot be extracted in the context of the theory without the use of significant computational resources. In this paper, we explore a novel method for deriving entropy estimates of the coarse grained symbolic dynamics. We attempt to demonstrate that a computable complexity measure, such as T-complexity, gives useful evidence of state changes leading to the point of global instability, at which point the system moves towards a more organized and correspondingly lower entropic state.

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