



Recurrence plots for investigation of nonlinear low frequency variability in atmosphere

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Interactions between the dynamical and the chemical changes in the atmosphere strongly influence the nonlinear low frequency variability (NLFV) of the climate from seasonal to decadal scales. Simulations from ECHO-GISP (GCM with stratospheric chemistry) are investigated using the nonlinear time series analysis technique called Recurrence Plots (RPs) to understand the mechanisms and processes responsible for NLFV. RPs are 2D representations of the behavior of a dynamical system. The recently developed quantification algorithms which are based on the structures found in RPs, are utilized to understand the dynamics of system under investigation.