



Recurrence plot analysis of spatially extended high-dimensional dynamics

Norbert Marwan (1), Saskia Foerster (2), and Jürgen Kurths (1)

(1) Potsdam Institute for Climate Impact Research, Transdisciplinary Concepts and Methods, Potsdam, Germany
(marwan@pik-potsdam.de), (2) German Research Center for GeoSciences GFZ, Potsdam, Germany

Recurrence plot based measures of complexity are capable tools for characterizing complex dynamics. We show the potential of selected recurrence plot measures for the investigation of spatially extended high-dimensional dynamics by applying them to data from the Lorenz96 model. The recurrence plot based measures are able to qualitatively characterize typical dynamical properties such as chaotic or periodic dynamics. Moreover, we demonstrate its power by analyzing satellite image time series of vegetation cover with contrasting dynamics as a spatially extended and potentially high-dimensional example from the real world.