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Abstract

Estimation of the fractal dimension by using correlation dimension of precipitation time series play a fundamental role in the development of dynamic models of meteorological phenomena. As we know that the fractal dimension provides bounds for the number of independent variables necessary to model the system. We computed the correlation dimensions by Takens algorithm, Grassberger and Procaccia algorithm and by R/S method which gives the lower bound. In this paper, the fractal dimension by the method of correlation dimension of 20-years monsoon daily rainfall time series from June to September of Lahore region is estimated. The simulation of our time series is also considered which is based on wavelet fractional Brownian motion (wfBm) as a model that exhibits the self-similarity.

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