

Applying a Noise Reduction Method to Reveal Chaos in the River Flow Time Series

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Abstract : Chaotic analysis has been performed on the river flow time series before and after applying the wavelet based de-noising techniques in order to investigate the noise content effects on chaotic nature of flow series. In this study, 38 years of monthly runoff data of three gauging stations were used. Gauging stations were located in Ghar-e-Aghaj river basin, Fars province, Iran. The noise level of time series was estimated with the aid of Gaussian kernel algorithm. This step was found to be crucial in preventing removal of the vital data such as memory, correlation and trend from the time series in addition to the noise during de-noising process.

Keywords : chaotic behavior, wavelet, noise reduction, river flow

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