

عنوان مقاله:

Application of Wavelet-GP Model for Estimation of Daily Rivers Suspended Sediment Load

محل انتشار:

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خلاصه مقاله:

Accurate estimation of the sediment outflow is one of the most important factors in water development projects. Estimate of sediment yield is required in a wide spectrum of problems such as: design of reservoirs and dams, transport and deposition of sediment in channel networks and water pollution. It is difficult to appoint governor equations of suspended sediment because of different parameters effects, and comparative mathematical models usually don't have enough accuracy. In this study a conjunction of wavelet and genetic programming is employed to develop a black-box model of predicting sediment load in Mississippi River. The application of wavelet theory in hydrology has been gaining considerable interest in recent times. Genetic Programming (GP) is also one of evolutionary methods in developing black-box models in hydrology. This paper studies effect of decomposing inputs by wavelet on GP performance and investigates functions and decomposition levels which represent better performance. The results of this study show that the set of four main mathematical operators estimates sediment load better. Application of wavelet-genetic programming models in estimating load of reservoirs is also studied in this paper. although It is shown the results of both GP and WGP are satisfying, employing wavelet transform to .decompose inputs decreases the need to increase the temporal memory of models

کلمات کلیدی:

Sediment Load, Genetic Programming, Wavelet, Black-box model, Mississippi

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