Modeling of hydrological temporal-spatial data by a universal model

KUZUHA, Yasuhisa[1]* ; ARAKI, Daisuke[1] ; SAITOH, Hanako[2] ; GOMI, Chieko[3] ; SENDA, Makiko[4]

[1]Graduate School of Bioresources, Mie University, [2]Faculty of Bioresources, Mie University, [3]Aichi Prefectural Government, [4]Kyoto Koka Women's University / Osaka Seikei University / Osaka Seikei College

We propose "the universal model" which generates hydrological temporal or spatial data. First a white noise is generetaed ,then the white noise is filterd by a specific filter and data are generated. If a field is fractal, log-log-linear-filter(ω vs.P(ω)) is used (Lavallée, 2008). If a field is modeled by e-model (Gomi and Kuzuha, 2013), an exponential filter is used. We examined rainfall time series, spatial rainfall filelds, time series of ion concentration in river water, and ion concentration in tap water. As a result, those data were modeled by the universal model.

Gomi, C. and Y. Kuzuha(2013), Simulation of a Daily Precipitation Time Series Using a Stochastic Model with Filtering, Open Journal of Modern Hydrology, DOI: 10.4236/ojmh.2013.34025

Lavallée, D.(2008), On the Random Nature of Earthquake Sources and Ground Motions: A United Theory, Advances in Geophysics, Vol. 50, 2008, pp. 427-461.

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