Journal of Environmental Hydrology

COUPLED WAVELET-AUTOREGRESSIVE MODEL FOR ANNUAL RAINFALL PREDICTION

S.Tantanee[1]
S. Patamatammakul[1]
T. Oki[2]
V. Sriboonlue[1]
T. Prempree[1]

[1]*Khon Kaen University, Thailand*
[2]*Institute of Industrial Science, University of Tokyo, Japan*

ABSTRACT
Because rainfall is one of the most significant parameters in a hydrological model, several stochastic models have been developed to analyze and predict the rainfall process. In recent years, wavelet techniques have been widely applied to various water resources research categories because of their time-frequency representation. This study was undertaken to find an alternative method for rainfall prediction by combining the wavelet technique with a conventional autoregressive (AR) model. The 52-year rainfall records of four stations distributed over the northeastern part of Thailand were analyzed by the coupled Wavelet - AR Model (WARM). Two rainfall variables, the number of rainy days and the amount of rainfall were analyzed to obtain the model parameters. Comparing the correlation of the WARM process with the conventional AR process, it was clearly seen that the WARM process provides a better annual rainfall prediction than the simple AR model.

CONTACT:
Sarintip Tantanee
Department of Civil Engineering
Naresuan University
Tha Pho, Muang, Phitsanulok 65000
Thailand

E-mail: *stantanee@yahoo.com, sarintipt@nu.ac.th*