

General review of Hydrological Modelling in Small Catchment

Ayush Vashisth

Department of Civil Engineering

Central University of Haryana

Email:avashisthiitkgp@gmail.com

Abstract:

The present study consists of various hydrological models in the field of surface and subsurface ground water modelling. These models help to understand the salient features and some selected parameters of the models based on the present study. These models give compatible results as compare to other methods.

Introduction

Since long time, the research on surface and subsurface ground water modelling is a keen interest to the researcher to understand hydrological system by using various numerical and analytical methods, But few research have been correlated the results based on some experimental values and other models. Based on past studies of various investigators few suggest models were analysis based on their input values and corresponding output as a result.

Review of Literature

Many investigator suggested that the modelling of hydrological parameters will be depends upon the Lumped models and distributed models. The deterministic models usually express their results in a single set of output but the effect of stochastic models gives that the single output.

Some selected models

SWAT:

Soil and water assessments tools helps us to determine sediments modelling, soil water up take modelling and crop water requirements modelling in the field of agricultural modelling. The SWAT model is usually done modelling for a large catchments divided into different small catchment.

MIKESHE:

This method is usually preferred over different methods for which Kristensen and Jensen (1975) is used this method for evapotranspiration. The exact details of the MIKESHE model are available with the DHI and also the other investigator reported that the Refsgaard and strom (1995) has provided the detail description of the model setup.

TOPMODEL

The TOPMODEL is a model which is usually used to analysis the rainfall-runoff models to predict the runoff as an output parameters. This models use Green-Ampt method as suggested by Beven (1984) for analysis of runoff modelling parameters.

Conclusion

In the general way, the modelling of evapo-transpiration and other hydrological modelling can be used to understand the major and minor hydrological phenomenon. There is existence of large number of models based on past investigator and also different numerical modelling also play vital role for this modelling. If there is a huge data collected from various sources for analysis then some other suggested techniques may also be used for large data packets for analysis of data using various statistical tools.

References:

1. Beven, K.J., Kirby, M.J., Schofield, N. and Tagg A.F., 1984. Testing a Physical based flood forecasting model (TOPMODEL) for three UK catchments. *Journal of Hydrology* 69, 119-143
2. Refsgaard, J.C. and Storm, B., 1995. MIKESHE. In: Singh (ed) *Computers of watersheds hydrology*, water resources publication.
3. Kristensen, K.J. and Jesen, S.E., 1975 A model of estimating actual evapotranspiration from potential evapotranspiration. *Nordic hydrology*. 6, 170-188.