# Development of Hydrological Model for Ungauged Large Rivevr Basins on the Base of BTOPMC Model

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## INTRODUCTION

This research is a part of the 5-year project RR2002 funded by Japanese government. It focuses on model development for Asia Monsoon watersheds to predict the effects of natural and human-made changes on basin water resources. The Mekong River is one of the two study basins. A physically based distributed hydrological model BTOPMC, Block-wise use of TOPMODEL with Muskingum-Cunge method, is used as a basis for developing a hydrological model for the 795,540 square km Mekong River.

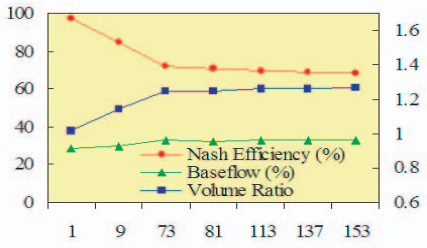
The long-term objective is to develop a hydrological model for PUB (Prediction in Ungauged Basins), a 10-year program initiated by IAHS in 2002, particularly for ungauged large river basins.

## OUTLINE OF THE BTOPMC MODEL

**Automatic Topography Analysis Tools Integrated in BTOPMC**

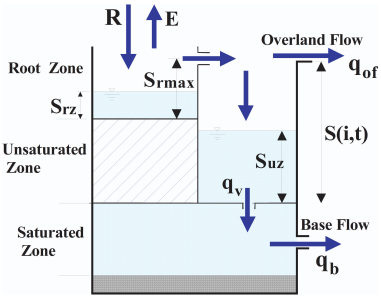

Pits-removal and Delineation

Basin Subdivision

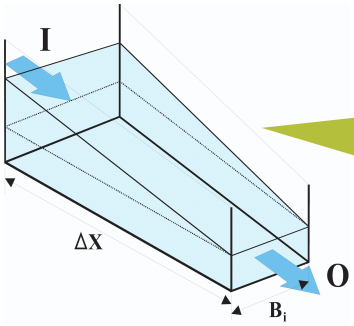



Stabilized Simulation

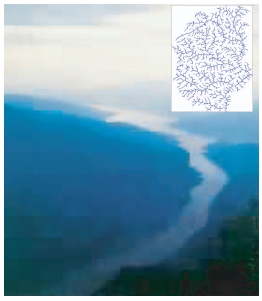
**Physically Based Runoff Generation and Flow Routing**



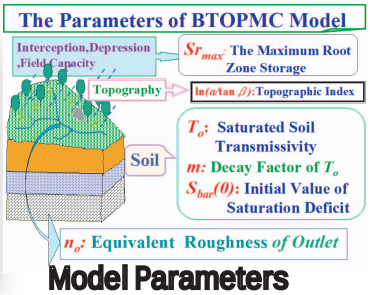

Block-wise Use of TOPMODEL



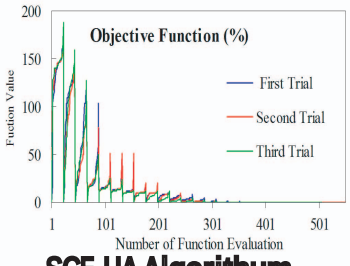

Muskingum-Cunge Method



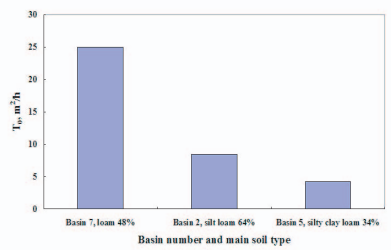
**Model Parameters: Fewer Numbers and Automatic Identification**




Model Parameters



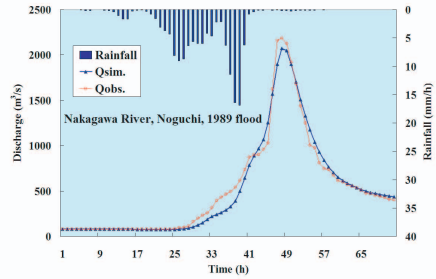

SCE-UA Algorithum



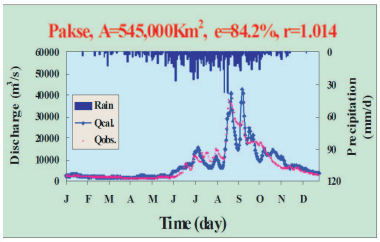

Soil Type and Parameter T0

**Example Applications**


Study Basins in Sotheast Asia and USA (MOPEX Basins)




Floods in Nakagawa River, Japan




Annual Runoff in Mekong River