

**Texas A & M University and U.S. Bureau of Reclamation
Hydrologic Modeling Inventory**

Model Description Form

July 20, 2008

[Please update as appropriate]

Name of Model: SCS-CN-based hydrologic simulation package

Model Type: Deterministic Model

Model Objective(s): To determine infiltration, runoff volumes, infiltration rate, and runoff hydrograph.

Agency and Office:

1. Texas A & M University, College Station, TX 77803-2117, U.S.A.
2. Department of Water Resources Development and Management, Indian Institute of Technology, Roorkee-247667, UK, India.

Technical Contact and Address:

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2. Dr. Surendra Kumar Mishra, Department of Water Resources Development and Management, Indian Institute of Technology, Roorkee-247 667, Uttarakhand, India. E-mail: skm61fwt@iitr.ernet.in

Model Structure or Mathematical Basis: Model is primarily based on the basic proportionality concept of the Soil Conservation Service Curve Number method published in 1956.

Model Parameters: Potential maximum retention, initial abstraction coefficient, and storage routing coefficient

Spatial Scale Employed in the Model: Small to mid-size catchments

Temporal Scale Employed in the Model: Event-based

Please see the Hydrologic Modeling Inventory Website: <http://hydrologicmodels.tamu.edu/>
The inventory is being maintained by Texas A&M University and the Bureau of Reclamation.

Input Data Requirements: Rainfall hyetograph, antecedent precipitation amount, infiltration data, geomorphological characteristics of the watershed, soil-vegetation-land use complex.

Computer Requirements: A Personal Computer

Model Output: Infiltration and runoff volumes, Infiltration rates and runoff hydrographs.

Parameter Estimation/ Model Calibration: Optimization by Marquardt least square approach

Model Testing and Verification: Verification using split sampling approach and employing the empirical relations derived from the calibrated parameters.

Model Sensitivity: Model is sensitive to variation in parameter-values on small agricultural watersheds and insensitive to an urban watershed.

Model Reliability ---

Model Application / Case Studies: Applied to 8 small agricultural watersheds, 2 mid-size watersheds, 1 micro urban watershed.

Documentation: Model documentation is given in the form of the text, but no documentation for the computer programs.

Other Comments: NIL