Texas A & M University and U.S. Bureau of Reclamation
Hydrologic Modeling Inventory
Model Description Form

JUNE 18, 1999

Name of Model:

Illinois Urban Catchment Runoff Simulation (ILUCAT)

Model Type:

ILUCAT is an event based rainfall runoff simulation model for small watershed.

Model Objective(s) :

The main purpose is to produce simulation of the runoff hydrographs for small catchments through the rainfall-abstraction-runoff process with reasonable and practical data demand.

Agency and Office:

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Technical Contact and Address:

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Model Structure or Mathematical Basis:

A distributed system model based on water budget (continuity equation) and flow process (kinematic wave equation) considering rainfall, initial losses, continuous infiltration loss, overland flow, for individual rain events over small urban or rural catchments. Developed to couple with NISN network model for channel runoff in watersheds.

Model Parameters:

Uniform rainfall intensity and duration over a catchment, different catchments can have different rainfalls. Abstractions are different for five different components in a catchment. Infiltration parameters in Horton form. Soil is represented by SCS soil groups A, B, C and D. Main computed parameter is surface runoff rate at catchment outlet.

Spatial Scale Employed in the Model:

Each catchment is divided into five different surface components following two different flow paths.

Temporal Scale Employed in the Model:

User defined or default time discretization in model for individual events.

Input Data Requirements:

Catchment data: direct impervious and pervious surfaces, indirect supplemental impervious and pervious soil type for each surface. Specified or default initial losses.

Rainfall: rain data file or triangular hyetograph or IDF relationship.

Computer Requirements:

PC running on DOS

Model Output:

Catchment runoff hydrograph

Parameter Estimation / Model Calibration:

Calibration is encouraged but not required

Model Testing and Verification:

Tested on a few urban catchments

Model Sensitivity:

Model Reliability:

Need reliable data to establish

Model Application / Case Studies:

Documentation:

User's manual, also see Yen, B.C., Pagliara, S. and Bottazzi, E., " A Practical Effective Urban Catchment Runoff Simulation Model," Proceedings, 8th Int'l Conf. Urban Storm Drainage, e.d. by I.B. Joliffe and J.E. Ball, Vol. 4, pp. 1880-1886, Sydney, Australia, September, 1999.

Other Comments: