

**Texas A & M University and US Bureau of Reclamation
Hydrologic Modeling Inventory
Model Description Form**

Response requested by: October 1, 2008

HMI Team, River System & Meteorology Group

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Name of Model: NetSTORM

Model Type: Planning-level hydrology

Model Objective(s): urban storage-treatment analysis

Agency and Office: CDM, Cambridge, Mass.

**Technical Contact and Address: Mitch Heineman, CDM, 50 Hampshire St.
Cambridge MA 02139**

Model Structure or Mathematical Basis: Fortran dll called from built-in GUI or user-designed interface. Concept derived from old HEC-STORM; uses rational method at hourly timestep to compute storage-treatment-overflow-runoff for one or more storage-treatment units

Model Parameters: runoff coefficient, drainage area, fixed treatment rate, storage volume

Spatial Scale Employed in the Model: concept scalable from a single structural BMP structure serving less than one acre for stormwater detention facility to city-wide runoff for combined sewer overflow analysis

Temporal Scale Employed in the Model: hourly timestep

Input Data Requirements: Hourly precipitation data

Computer Requirements: Windows 2000, XP, or Vista

Model Output: text files, Access 2000 database

Parameter Estimation / Model Calibration: no built-in tools for parameterization/calibration. Includes solver for optimizing facility size

Model Testing and Verification: verified against HEC-STORM and spreadsheet analysis

Model Sensitivity: Model is linear; results highly dependent on runoff coefficient

Model Reliability: Model only applicable where rational method is appropriate for estimating runoff volumes, where treatment rate can be considered constant, and

Please see the HMI web page: <http://www.usbr.gov/hmi>

Forms are available in Text file, HTML, MS Word and WordPerfect formats

This effort is being conducted by River Systems & Meteorology Group: <http://www.usbr.gov/rsmg>

where hourly timestep is reasonable for estimating runoff rates (or treatment rate x time of concentration < storage volume)

Model Application / Case Studies: Several described in help file and in “NetSTORM — A Computer Program for Rainfall-Runoff Simulation and Precipitation Analysis”, World Water Congress 2004. Part of *Critical Transitions in Water and Environmental Resources Management, World Water and Environmental Resources Congress 2004*, Gerald Sehlke, Donald F. Hayes, David K. Stevens, Editors Salt Lake City, Utah, USA, June 27 – July 1, 2004, and in Long-Term Modeling of Structural BMPs Using STORM within a Spreadsheet”, World Water Congress 2005. Part of *Impacts of Global Climate Change, World Water and Environmental Resources Congress 2005*, Raymond Walton, Editors Anchorage, Alaska, USA, May 15-19, 2005.

Documentation: Context-sensitive help file and on-line at
www.dynsystem.com/netstorm/help/netstormhelp.html

Other Comments: Additional capabilities described at www.dynsystem.com/netstorm