

**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

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>

**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 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](http://www.dynsystem.com/netstorm/help/netstormhelp.html)

**Other Comments:** Additional capabilities described at [www.dynsystem.com/netstorm](http://www.dynsystem.com/netstorm)