DR3M

Model Uses DR3M is a watershed model that can be used to assess the routing of storm-water-runoff through a system / network of pipes or natural channels and is usually used to simulate small urban basins.

Major Categories Hydrology and Water Use

Minor Categories Run Off

Model Type Physical Model

Subject Knowledge Level
Intermediate

Technical Difficulty Level
Intermediate

Geographic in Nature?
No

Abstract
DR3M is a watershed model for routing storm runoff through a Branched system of pipes and (or) natural channels using rainfall as input. DR3M provides detailed simulation of storm-runoff periods selected by the user. Daily soil-moisture accounting between storms can be calculated by the model. Drainage basins are represented by the model as a set of overland-flow, channel, and reservoir segments, which jointly describe the drainage features of the basin. This model is usually used to simulate small urban basins.

Future Developments
Unknown

Model Limitations
- Interflow and base flows are not simulated
- Snow accumulation and snowmelt are not simulated.

Model Features
- Detailed simulation of storm runoff periods
- Daily soil-moisture accounting

Required Data Types
Daily precipitation, daily evapotranspiration, and short-interval precipitation are required. Short-interval discharge is required for the optimization option and to calibrate the model. These time series are read from a WDM file. Roughness and hydraulics parameters and sub-catchment areas are required to define the basin. Six parameters are required to calculate infiltration and soil-moisture accounting. Up to three rainfall stations may be used. Two soil types may be defined. A total of 99 flow planes, channels, pipes, reservoirs, and junctions may be used to define the basin.

Model Outputs
The computed outflow from any flow plane, pipe, or channel segment for each storm period may be written to the output file or to the WDM file. A summary of the measured and simulated rainfall, runoff, and peak flows is written to the output file. A flat file containing the storm rainfall, measured flow (if available), and simulated flow at user selected sites can be generated. A flat file for each storm containing the total rainfall, the measured peak flow (if available), and the simulated peak flow for user-selected sites can be generated.

Hardware Requirements
None noted.

Supported Platforms

DOS	☒	**UNIX**	☒
Windows	☐	**Macintosh**	☐

Software Requirements
None noted.

Cost, Licensing and Availability
DAFLOW is provided free of charge from the link below.

Source
US Geological Survey

Source (URL)
http://water.usgs.gov/software/dr3m.html