The Texas A&M University and U.S. Bureau of Reclamation Hydrologic Modeling Inventory (HMI) Questionnaire

December 19, 2009

This document is the Texas A&M University (TAMU)-U.S. Bureau of Reclamation (USBR) Hydrologic Modeling Inventory (HMI) Questionnaire. Your response to this questionnaire will provide the basis for the HMI on-line database accessed through the HMI Web page. Modelers can interactively obtain information about your model through this Web-enabled model inventory complete with search capabilities. The information you provide will hopefully foster wider interest in your model. A designated contact will be explicitly acknowledged and posted within the HMI Web page database.

Given more and more applications of GIS and remote sensing techniques to hydrologic modeling, water resources and watershed management, the Subcommittee on Hydrology has recently set up a workgroup to organize and publicize information on GIS applications in the fields of hydrology and hydraulics. This scope has been expanded to include related water quality, watershed management, and ecological sciences GIS applications. This work is intended to make information on GIS applications in hydrology and hydraulics more generally available. This questionnaire is also designed to gather limited but key information about a particular GIS application in order for a potential user to decide if the application fits his/her computer system, data requirements, and physical system to be modeled.

These applications should be public domain and supported by user documentation. Availability on the Web is not necessary if the application can be distributed on CD ROM or through e-mail requests. If a short abstract, fact sheet, or technical paper is available on the application, please attach a copy. Please respond this email before **22 January, 2010**.

Name of Model, Date, Version Number:
HEC-GeoHMS version 4.2.92, August, 2009
HEC-GeoHMS version 4.2.93, December, 2009

Contact (with e-mail, web site, and/or phone number):
US Army Corps of Engineers, Hydrologic Engineering Center (HEC)
Downloads at http://www.hec.usace.army.mil/software/hec-geohms/download.html.
Email hec.geohms@usace.army.mil.

Brief Description:
The Hydrologic Engineering Center's Geospatial Hydrologic Modeling Extension, HEC-GeoHMS, is a public domain extension to ESRI's ArcGIS software (ArcView® license) and the Spatial Analyst extension. HEC-GeoHMS is a geospatial hydrology toolkit for engineers and hydrologists. The user can visualize spatial information, document watershed characteristics, perform spatial analysis, delineate subbasins and streams, construct inputs to hydrologic models, and assist with report preparation. Through the use of HEC-GeoHMS a user can easily and efficiently create hydrologic inputs that can be used directly with the Hydrologic Engineering Center's Hydrologic Modeling System, HEC-HMS software.

Model Type:
HEC-GeoHMS is a public domain extension to ESRI's ArcGIS software (ArcView® license) and the Spatial Analyst extension.

Model Objective(s):
HEC-GeoHMS has been developed as a geospatial hydrology toolkit for engineers and hydrologists with limited GIS experience. The program allows users to visualize spatial information, document watershed characteristics, perform spatial analysis, delineate subbasins and streams, construct inputs to hydrologic models, and assist with report preparation. Working with HEC-GeoHMS through its interfaces, menus, tools, buttons, and context-sensitive online help allows the user to expediently create hydrologic inputs that can be used directly with the Hydrologic Engineering Center's Hydrologic Modeling System, HEC-HMS.

Input Data Requirement:
The main data source required by HEC-GeoHMS is a Digital Elevation Model (DEM) of the study area. HEC-GeoHMS uses the DEM for determining subbasin and stream delineations as well as for computing physical characteristics of the watershed. Other geospatial datasets, like land use and soil information, can be used by HEC-GeoHMS for estimating hydrologic parameters for an HEC-HMS model.

Model Output:
HEC-GeoHMS creates background map files, basin model files, meteorologic model files, and a grid cell parameter file which can be used by HEC-HMS to develop a hydrologic model. The basin model file contains hydrologic elements and their hydrologic connectivity. The basin model file includes subbasin areas and other hydrologic parameters that could be estimated using geospatial data. To assist with estimating hydrologic parameters, HEC-GeoHMS can generate tables containing physical characteristics of streams and watersheds. The grid cell parameter file is required in order to use the ModClark transform method, grid-based precipitation (like radar rainfall), or gridded loss methods.

Input Data Format:
The DEM should be in ESRI grid format and other geospatial datasets can be in shapefile format.

Output Data Format:
Output raster layers are saved in ESRI grid format and output vector layers are saved to a geodatabase. Output from HEC-GeoHMS that can be imported into HEC-HMS include background shapefiles and ASCII files.

Platform/Operating System:
HEC-GeoHMS versions 4.2.92/4.2.93 have been extensively tested on the Windows XP operating system.

Web-based or desk-top application?
HEC-GeoHMS is a desktop application.

Are system and user documentation available?
HEC-GeoHMS is fully documented with downloadable user manuals and example datasets.
http://www.hec.usace.army.mil/software/hec-geohms/index.html

Is there a user group or hotline-type support?
The HEC-GeoHMS website supports a "Known Issues" link. Technical support for HEC-GeoHMS users within the Corps of Engineers is provided through an annual subscription service.
Support cannot be provided to users outside the Corps of Engineers

Questions or problems regarding HEC-GeoHMS should be directed to the development team at hec.geohms@usace.army.mil.