

GIS Applications in Hydrology and Hydraulics Questionnaire

January 7, 2008

The Subcommittee on Hydrology set up a workgroup to organize and publicize information on GIS applications in the fields of hydrology and hydraulics. This work is intended to make information on GIS applications in hydrology and hydraulics more generally available and assist engineers and others in selecting appropriate applications and obtaining them. 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.

Name of Application:

HEC-GeoRAS

Source or Contact:

US Army Corps of Engineers, Hydrologic Engineering Center (HEC)

Downloads at <http://www.hec.usace.army.mil/software/hec-ras/hec-georas.html>

Features:

Creation of HEC-RAS import files using GIS techniques

Inundation area flood mapping

Creation of depth and velocity grids

Abstract:

HEC-GeoRAS is a set of procedures, tools, and utilities for processing geospatial data in ArcGIS using a graphical user interface (GUI). The interface allows the preparation of geometric data for import into HEC-RAS and processes simulation results exported from HEC-RAS. To create the import file, the user must have an existing digital terrain model (DTM) of the river system in the ArcInfo TIN format. The user creates a series of line themes pertinent to developing geometric data for HEC-RAS. The themes created are the Stream Centerline, Flow Path Centerlines (optional), Main Channel Banks (optional), and Cross Section Cut Lines referred to as the RAS Themes.

Additional RAS Themes may be created/used to extract additional geometric data for import in HEC-RAS. These themes include Land Use, Levee Alignment, Ineffective Flow Areas, and Storage Areas.

Water surface profile data and velocity data exported from HEC-RAS simulations may be processed by HEC-GeoRAS for GIS analysis for floodplain mapping, flood damage computations, ecosystem restoration, and flood warning response and preparedness.

Supported Platforms and License Requirements:

HEC-GeoRAS 4.1.1 for ArcGIS 9.1

ArcGIS 9.1 (ArcView license) with the 3D Analyst and Spatial Analyst extensions are required
Only runs on Window 2000/NT/XP

HEC-GeoRAS 4.1 for ArcGIS 9
ArcGIS 9 (ArcView license) with the 3D Analyst and Spatial Analyst extensions are required.
Only runs on Window 2000/NT/XP

HEC-GeoRAS 4.0 for ArcGIS 8.3
ArcGIS 8.3 (ArcView license) with the 3D Analyst and Spatial Analyst extensions are required.
Only runs on Window 2000/NT/XP

HEC-GeoRAS 3.1.1 for ArcView 3.2
ArcView 3.2 with the 3D Analyst extension is required. Spatial Analyst is recommended.
Only runs on Window 2000/NT/XP

HEC-GeoRAS 1.0 for ArcInfo
ArcInfo with the TIN extension is required.
Uses ArcInfo 7.x which is compatible with Unix or Windows NT

Software Requirements:

All software other than ESRI Licensed software are typically contained in a downloadable installation file. Details are contained in downloadable Users Manual for each software version.

Data Requirements:

At this time HEC-GeoRAS requires a DTM in the form of a triangulated irregular network (TIN). The DTM must be a continuous surface that includes the bottom of the river channel and all of the floodplain to be modeled. Because all cross-section data will be extracted from the DTM, only high resolution DTMs should be considered.

Documentation and Examples:

HEC-GeoRAS is fully documented with downloadable user manuals and example datasets.

User Support:

HEC website supports a “Known Issues” link.

Technical support for HEC-RAS 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-RAS should be directed to the development team at hec.ras@usace.army.mil.

Please return the questionnaire to William Merkel at william.merkel@wdc.usda.gov. If there are questions or concerns please contact him at 301-504-3956. Thank you.