GIS Applications in Hydrology and Hydraulics Questionnaire

NRCS Geo-Hydro ArcGIS Version

November 4, 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 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 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.

Name of Application, date, version number: NRCS Geo-Hydro, Dec 2008, Version 2.0.

Contact (with e-mail, web site, and/or phone number): William Merkel, william.merkel@wdc.usda.gov , 301-504-3956

Brief Description: NRCS Geo-Hydro is an ArcGIS GIS interface to the WinTR-20 hydrologic model. It operates with ESRI ArcGIS 9.1 and the Spatial Analyst extension. The interface is organized to complete the steps required to do a WinTR-20 hydrologic analysis. Using tools and menu selections, the user is guided step by step through the automated processes of defining the watershed boundary, dividing the watershed into sub-areas, developing cross sections, etc. The end result is a WinTR-20 execution with peak discharges, hydrographs, etc. Basic familiarity with NRCS hydrologic procedures and ArcMap operations are helpful.

Platform/operating system: Windows XP

Web-based or desk-top application ? Desk-top application.

Data Requirements: Digital elevation, land use, soil, and stream location layers are required.

Data format and compatibility: Elevation, land use, and soil must be in ESRI grid format and stream locations as an ESRI shapefile. Layers must be in the same geographic projection. Data may be in English or SI units.

Will the application import and export data files ? Within the framework of ESRI ArcGIS, digital elevation, land use, soil, and stream location are imported to ArcGIS/ArcMap. During the steps of the application, various layers are created which may be exported. Layers may be operated on through standard ArcMap commands.

Is the application flexible to couple with external programs and user created executables? Within the framework of ESRI ArcObjects and VBA, the application may be modified and other models may be linked.

Are system and user documentation available? Yes.   Are example applications available? Yes. These are included with the download package. In addition, course material is available which include power point slides and example workshops.

Does the application require prior installation of ESRI software? Yes.   If so, which products? ArcGIS 9.1 and Spatial Analyst extension. Installation software for ArcHydro Tools, AP Framework, and XML parser are provided with the installation package.

Is there a user group or hotline-type support? Yes, call or e-mail developers.

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.