SUBCOMMITTEE ON HYDROLOGY (SOH)

CHARGE

FOR THE
HYDROLOGIC AND HYDRAULIC
GIS APPLICATIONS WORK GROUP (H2GISAWG)

The Hydrologic and Hydraulic GIS Applications Workgroup consists of application developers and users. The GIS data community is well developed and organized. On the other hand, application developers and users are not organized and do not have an efficient way to exchange and learn relevant technology, coordinate application development, and express needs. Use of GIS data and applications is growing at a steady rate. Numerous federal and non-federal employees would like to learn about both GIS data and its application in H&H. The Workgroup would communicate to the GIS user community the variety of data and applications that are available, how to access the data and applications, and how to receive training and support.

Background:

The Subcommittee on Hydrology (SOH) of the Advisory Committee on Water Information (ACWI) has the goal to provide cutting-edge information on new technological advances in hydrologic and related hydraulic analysis techniques to both federal and non-federal entities. One of the functions of the SOH is to "Develop procedures to improve the interpretation and integration of data needed to describe surface-water resources and to understand the factors that affect the spatial and temporal distribution of these resources". With the amount of GIS data and applications of GIS data growing at a rapid rate, keeping up-to-date is difficult. Some GIS applications in H&H have been developed which use the most recent GIS data and provide high quality analysis of physical process simulation modeling.

The Workgroup has a very broad scope which includes data sources, data quality, GIS applications, and user support. Since the Workgroup is new, the actual working group members need to organize themselves and have input with respect to specific products that would be feasible to develop and distribute. Since the purpose is to benefit the organizations represented by the members, products of the highest priority could be identified. The Workgroup could start with information exchange concerning hydrologic and hydraulic GIS applications and data requirements. The primary product of the Workgroup will be a report (discussed in detail later). Another possible product is a list of web sites where GIS data and applications are available and a short description of the application and data requirements. Another possible product could be to assemble a list of hydrologic and hydraulic GIS applications and data needs of the federal and non-federal agencies.

The Workgroup will focus on 1) reporting availability, efficient access, and quality of GIS data for applications in H&H, 2) identifying and summarizing existing GIS applications in H&H, 3)

promoting interagency development of GIS applications in H&H, and 4) facilitating training and user support on associated GIS applications.

The SOH will direct operation of the Workgroup. The SOH will provide general oversight and guidance to the Workgroup who will conduct the in-depth deliberations and information gathering associated with the overall task. The SOH will assist to draft the charge and recruit volunteers. The Workgroup will report schedule, plans, and progress at each SOH quarterly meeting.

Coordination of H&H GIS Applications Workgroup with Subcommittees :

The Workgroup is requested to coordinate closely with the Subcommittee on Spatial Water Data (SSWD). The common ground between the Workgroup and the SSWD is that applications use spatial water and related natural resources data and the applications depend on data quality, accessibility, scale, etc. However, hydrologic and hydraulic (H&H) GIS applications use more than spatial water data. Some of these are soil, land use, satellite imagery, etc. Coordination with other committees such as the Federal Geospatial Data Committee (FGDC) will also be needed. Communication between the data and application communities is of utmost importance because new applications are being developed which depend on knowing what spatial data are available and their quality. On the other hand, some potential future applications may require data which are not currently available or are of limited extent or quality. These needs must be communicated.

Products and Timeline for the Hydrologic and Hydraulic GIS Applications Workgroup:
The Hydrologic and Hydraulic GIS Applications Workgroup is asked to review existing public domain GIS applications in hydrology and hydraulics (H&H) maintained by federal agencies and others, with emphasis on national or large regional applications. If members of the workgroup know of other active hydrologic and hydraulic GIS applications underway that can illustrate factors important to its proposals, these locations can be contacted to provide summary information concerning the application.

Characteristics of applications that should be included in the Hydrologic and Hydraulic GIS Applications review include: (1) those that are maintained routinely, (2) those that include parameters of interest, with an identifiable level of quality assurance, (3) those that relate to surface water quantity analyses, (4) those that operate with generally available GIS data, and (5) emerging technology which would more widely used with minimal improvements. It is expected that the Workgroup will identify other characteristics of hydrologic and hydraulic GIS applications that are to be included in the GIS applications review.

The H&H GIS Applications Workgroup will prepare a report that contains the following:
1. List and summarize GIS applications (including data requirements) in H&H developed and supported by participating federal and other agencies.
2. Contacts for each application for those interested in obtaining them.
3. Plan for transferring the applications.
    A. Web site list.

B. Training opportunities.
C. Technical sessions at the 2010 Federal Interagency Hydrologic Modeling Conference to present papers, computer demonstrations, short courses, etc.

4. Recommendations for future improvement and/or development of hydrologic and hydraulic GIS applications which are needed by federal and other agencies.

The draft report on GIS applications in H&H is tentatively scheduled for submission to the SOH and SSWD in January 2009. At least two progress reports from the workgroup are needed to assure that this deadline can be met and to prepare for review by the SOH and SSWD. Because other activities are dependent on the work of the Hydrologic and Hydraulic GIS Applications Workgroup, the SOH and SSWD will want to track progress closely without causing the workgroup to spend too much time preparing reports rather than doing the work. One way to facilitate the needed information exchange will be to copy members of the SOH and SSWD on minutes of workgroup meetings and other correspondence. A first draft of the entire report will be submitted also to the ACWI.

Resources:

Federal agencies, state agencies, and others will supply appropriate individuals to conduct the work of the workgroup. It is expected that the workgroup will conduct its business via telephone, E-mail, and meetings in the Washington, DC metropolitan area.

In addition to the list of applications below, current applications of participating agencies will be reviewed and summarized.

EPA Basins
HEC Geo-HMS and HEC Geo-RAS
NRCS Geo-Hydro, GIS interface to the WinTR-20 Hydrologic Model (ESRI ArcView and ArcGIS versions).
ESRI ArcHydro tools
ARS Automated Geospatial Watershed Assessment Tool (AGWA)

Dates of Approval: Subcommittee on Hydrology (SOH)

July 26, 2007

S. Samuel Lin

Chair, The SOH