Contributions of the University Community to Watershed Research

R.P. Hooper, D.R. Maidment, D.B. Kirschtel

Abstract

The Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), founded in 2001, has been developing infrastructure for use by the hydrologic science community with the support of the National Science Foundation. Central themes have been the development of informatics, instrumentation, multidisciplinary synthesis, and observatory facilities to enable integrated research in the hydrologic cycle and to support research at larger scales and for longer durations than typical academic projects in the past. Federal partners, such as the U.S. Geological Survey, the U.S. Environmental Protection Agency, and the National Climate Data Center, have been supportive of these efforts. Pilot projects have been undertaken in all of these areas with results that are of interest to the broader watershed research and management community. The most advanced of these projects, CUAHSI Hydrologic Information Systems, is described in this paper.

The CUAHSI Hydrologic Information System (HIS) is designed to improve access to the Nation's water data. An important part of this information are time series of observations made at point locations, such as precipitation and streamflow gages, soil water and climate stations, groundwater wells, and water quality sampling sites in surface and groundwater. These data can be stored in the CUAHSI Observations Data Model, communicated through the Internet using the WaterML language, and cataloged in a national water metadatabase. Individual researchers and research organizations can use these facilities to publish their water data as a CUAHSI Water Data Service.

These Water Data Services will permit watershed researchers to publish their data online and to be discovered by the broader research and management community far more easily than was possible in the past. Integrating data from multiple sources promises to provide a more complete description of our environment and to permit better management decisions.

Hooper and Kirschtel are scientists with CUAHSI, 2000 Florida Avenue, NW, Washington, DC 20009. Maidment is a professor at University of Texas, Center for Research in Water Resources, Austin, TX 78712. Email: rhooper@cuahsi.org; dkirschtel@cuahsi.org; maidment@mail.utexas.edu.