Hydroshare: An interactive software infrastructure for sustaining collaborative community innovation in the hydrologic sciences

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HydroShare is a web-based collaborative environment being developed for better access to water-related data and models in the hydrologic sciences. HydroShare aims to give hydrologists the technology infrastructure they need to address critical issues related to water quantity, quality, accessibility, and management. HydroShare will expand the data sharing capability of the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) Hydrologic Information System (HIS) by broadening the classes of data accommodated, expanding capability to include the sharing of models and model components, and taking advantage of emerging social media functionality to enhance information about and collaboration around hydrologic data and models. We plan to develop sustainable web-based cyberinfrastructure, for better access to water-related data and models in the hydrologic sciences. Social media functionality will help users be better informed of the use and value of data and models so as to discover the information and tools most relevant to their needs as well as stimulate the combination of data and coupling of models from multiple sources and catalyze sharing and collaboration. We envisage that the system will help hydrologists more easily access water-related research data and models that are online, retrieve them to their desktops, and perform analyses that could include accessing other models or using computing systems in the cloud or in distributed grid infrastructures.

User input is critical to the development of HydroShare. We are using an Agile software development approach that is driven by user needs documented in terms of use cases. We invite you to help by providing input on the functionality you would like to see in HydroShare as a use case. Use cases list the specific things users should be able to do using the system. To submit a use case go to the project website [http://www.cuahsi.org/hydroshare.aspx](http://www.cuahsi.org/hydroshare.aspx) or email David Tarboton (dtarb@usu.edu).

HydroShare functionality will include:
- A web portal for model and data sharing
- Sharing features added to HydroDesktop client software
- Access to more types of hydrologic data using standards compliant data formats and interfaces
- Enhanced catalog functionality that broadens discovery functionality to different data types and models
- New model sharing and discovery functionality
- Enhanced easy to use access to high performance computing
- Social media and collaboration functionality
- Linkages to other data and modeling systems such as USGS and CUAHSI data services, NASA earth exchange and HPC resources e.g. at CSDMS

HydroShare will be open source and developed drawing on existing open-source NSF-supported cyberinfrastructure, specifically the CUAHSI HIS, iRODS and HUBzero. The HydroShare development team spans 8 universities and includes 9 faculty, 14 staff and programmers, 4 graduate students and 3 post docs. CUAHSI represents the hydrologic research infrastructure aspirations of 100+ research universities with research programs in hydrologic science. This project serves this community, is responsive to needs identified in CUAHSI strategic plan, takes input from the CUAHSI Informatics standing committee and uses CUAHSI community outreach and engagement capability.