

and the skill of the pilots working for Caribbean Helicopters.

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NEWS

Survey Provides Guidance for Consortium's Hydrologic Measurement Facility

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The Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI) began the Hydrologic Measurement Facility (HMF) program in June 2005 to advance hydrologic measurement capability within the research community. To provide guidance for this effort, a recent survey assessed the level of need among the hydrological sciences community for community instruments and facilities. The survey aimed to identify technologies and methodologies that could make major advances in the hydrologic sciences.

Between 1 November 2005 and 15 January 2006, 363 responses were returned. (45% from hydrologists, 15% soil scientists, 12% geophysicists, 11% biogeochemists, 3% ecologists, 3% geomorphologists, and 11% other disciplines).

One question asked respondents to identify what was most needed to make progress in hydrologic sciences, among 23 options about measurements, instruments, and facilities. Results showed that 80.6 percent of respondents favored improving the integration between measurement and modeling methods; 79.7 percent supported improving spatial resolution of measurements; 77.3 percent thought the ability to make more/better measurements, for example, through distributed sensor networks was important; and 76.4 percent thought that improving the ability to measure and quantify water in the subsurface was necessary. There was also strong support for providing access to equipment costing over \$20,000, and for accompanying that access with technical support for deployment and data interpretation.

Responses interpreted as having general support included (in order): improving methods for determining measurement uncertainty;

improving the temporal resolution of measurements; developing cross-scale, multiprocess observational platforms; improving hydrological models; improving methods of sensor calibration; and developing new tracer methods.

Respondents identified and prioritized what the HMF's goals should be. The strongest response (62.7%) was received for conducting research and development into new hydrological measurement devices. Other areas drawing strong support were (in order): development of new methods and instruments; comparisons of sensors; preparing a comprehensive handbook of measurement techniques; and integrating measurement and modeling approaches.

Of the respondents, 59.0 percent supported having a single HMF research and development center; less than 4.0 percent wanted a stand-alone rental facility. It is noteworthy that CUAHSI has now signed a Cooperative Research and Development Agreement with the U.S. Geological Survey's Hydrological Instrument Facility to provide access to standard hydrological measurement equipment—resolving a need that was ranked as a lower priority—at no direct cost to CUAHSI or the U.S. National Science Foundation (NSF).

The survey addressed the issue of developing a shared pool of equipment. NSF has long held that this would be a desirable HMF function, allowing NSF to pay for equipment that would be broadly accessible to qualified researchers. The consensus view of respondents was that instrumentation should be owned and maintained by CUAHSI under the HMF umbrella, and that provision should be made to allow the entire community of investigators to lease or share this supported equipment.

Respondents indicated that the types of equipment they would most like to have

access to included: atmospheric profilers (e.g., radio acoustic sounding system, lidar, and sonic detection and ranging), ground-based and airborne geophysical equipment, water quality sensors, soil moisture measurement systems, weather radar, and atmospheric flux towers.

This survey was useful in providing guidance for the CUAHSI HMF, whose mission needs to address the following:

1. Identification and purchase of high-cost equipment for community use under the CUAHSI HMF umbrella, with support dedicated to developing methods and producing the correct interpretation of the data.
2. Provision of a facility/laboratory for instrument research and development specifically targeted at hydrology.
3. Support of distributed hydrologic measurements under the CUAHSI HMF umbrella.
4. Facilitation of the development and dissemination of methodologies for hydrologic measurements in watersheds, including ways to better integrate measurements and models, and to better assess measurement uncertainty.

A full report of the survey results, including all written comments submitted, will be published as a CUAHSI technical report on the CUAHSI Website: <http://www.cuahsi.org>. This material is based upon work supported by NSF under grants EAR-0326064 and EAR-0447287. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of NSF.

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