

**MINUTES of the MEETING OF
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI'S)
SUBCOMMITTEE ON HYDROLOGY (SOH)**

9:00 am – 12:00 Noon (EDT)

October 30, 2008

Room 7000A, Department of Interior Building

1849 C Street, N.W., Washington DC 20240

Enter from E St Entrance

AGENDA

1. Welcome and Introductions Don Frevert
2. Review and Approval of Agenda Don Frevert
3. Approval of Minutes from July 31, 2008 Meeting Don Frevert
4. Status of Action Items from July 31, 2008 Meeting Don Frevert
5. National Hydrologic Information System (HIS) development and SOH effort David Goodrich
(Needs to give report early in meeting- by phone)
6. Presentation – “Risk terminology and communicating flood risk“
by David A. Moser, Ph.D. Chief Economist, USACE (Presentation followed by Q&A - total 30 min.)
7. Update on Hydrologic Frequency Analysis Work Group Will Thomas
8. Update on Satellite Telemetry Interagency Work Group (by phone) Kay Metcalf
9. Hydrologic and Hydraulic GIS Applications Work Group William Merkel
10. Update on Hydrologic Modeling Work Group Don Frevert
11. Extreme Storms Task Force Tom Nicholson
12. Current Events within Hydrologic Communities All
 - *National Academy of Sciences Disasters Workshop on "Making the World Safer from Disasters: the US Role" held on October 2, 2008 – Gene Stallings*
 - *COHS Workshop on October 15-16, 2008 – “Research and Applications Needs in Flood Hydrology Science”*
13. Announcements and Q&A on Business Reports from Member Organizations All
 - *The “SOH Connections” Newsletter Editor’s report*
 - *Next Advisory Committee on Water Information Meeting – February 10-11, 2009 in Herndon, VA*
14. Plans for Next Meeting in January Don Frevert
15. Plans for July 2009 Meeting in Las Vegas – Thursday July 9 Don Frevert

Adjourn

SUMMARY OF THE MEETING

(Prepared by Mary Greene, NRCS – National Water and Climate Center)

PARTICIPANTS

Martin Becker	Defenders of Property Rights (DPR) <i>(by phone)</i>
Michael Eberle	Bureau of Land Management
Don Frevert	Bureau of Reclamation (BOR)
Mary Greene	NRCS National Water and Climate Center (NWCC) <i>(by phone)</i>
Dave Goodrich	USDA-Agricultural Research Service <i>(by phone)</i>
Steve Haley	American Forests <i>(by phone)</i>
Tim Helble	NOAA – National Weather Service
Claudia Hoeft	Natural Resources Conservation Service (NRCS) <i>(by phone)</i>
Douglas James	National Science Foundation NSF <i>(by phone)</i>
Sam Lin	Federal Energy Regulatory Commission
William Merkel	USDA Natural Resources Conservation Service
Kay Metcalf	National Oceanic and Atmospheric Administration <i>(by phone)</i>
Tom Nicholson	Nuclear Regulatory Commission (NRC)
Zhida Song-James	Association of State Floodplain Managers (ASFPM) <i>(by phone)</i>
Gene Stallings	National Hydrologic Warning Council (NHWC) <i>(by phone)</i>
Nancy Steinberger	Federal Emergency Management Agency (FEMA) <i>(by phone)</i>
Jean Thomas	USDA Forest Service
Will Thomas	Association of State Floodplain Managers (ASFPM)
Jerry Webb	Army Corps of Engineers (USACE) <i>(by phone)</i>
Max Yuan	Federal Emergency Management Agency (FEMA) <i>(by phone)</i>

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9:00 am – 12:00 Noon (EDT)

October 30, 2008

Room 7000A, Department of Interior Building

1849 C Street, N.W., Washington DC 20240

Enter from E St Entrance

1. Welcome and Introductions
Don Frevert graciously moderated the meeting. Steve Blanchard had a conflict. Steve serves as the Delaware River Master (<http://water.usgs.gov/osw/odrm/>) administering the provisions of the 1954 Supreme Court decree allocating the waters of the Delaware River. The Decree parties had some difficult issues to work through and the only date that all the decree parties were available was on October 30th. Mary Greene recently changed positions and was not able to obtain travel. Don called the meeting to order at 9:04 welcoming members and each participant introduced themselves. There were 20 participants with 12 of the 20 attending via phone.
2. Review and Approval of Agenda
The agenda was approved.
3. Approval of Minutes from July 31, 2008 Meeting
The minutes were approved pending modifications to be completed by November 14, 2008.
4. Status of Action Items from July 31, 2008 Meeting
 - Subcommittee members should submit any additional business reports to Mary Greene for inclusion in the minutes – *Completed, any reports which missed the report due to Mary changing positions will be resent to Mary by Nov 14 for incorporation into the minutes.*
 - Work Group Chairs should submit written reports to Mary Greene for inclusion in the minutes– *Completed, any reports which missed the report due to Mary changing positions will be resent to Mary by Nov 14 for incorporation into the minutes.*
 - Steve Blanchard will follow-up on the request to modify the status of the Extreme Storms Task Force to create a work group. – *Unknown, due to circumstances, the USGS was not able to have a representative at the meeting to update this status.*
5. National Hydrologic Information System (HIS) development and SOH effort
David Goodrich had to leave prior to providing his report. The report is also posted on the SOH website for the October Minutes. Mary Greene shared the written report he sent by email prior to the meeting that provides an update Hydrologic Information Systems items from USDA-ARS and the CUAHSI HIS efforts. Of note from the CUAHSI efforts are substantial progress toward evolving WaterML (mark-up language) into an international standard for the exchange of water observations data via web services and to integrate that standard with existing standards for the exchange of geographic data via web services.

Report on Hydrologic Information Systems Efforts

Oct. 29, 2008

D. Goodrich (USDA-ARS, Tucson, AZ)

- I. USDA-ARS releases STEWARDS (Sustaining the Earth's Watersheds, Agricultural Research Data System) data system for web based access of ARS Experimental Watershed Data

The USDA and Agricultural Research Service (ARS) have supported watershed research since the 1930's with sites added periodically to meet evolving needs. However data from ARS watersheds have been managed and disseminated independently at each research location, hindering accessibility and utility of these data for policy-relevant, multi-site analyses. Comprehensive, long-term data for watershed systems across diverse locations are essential for interdisciplinary hydrologic and ecosystem analysis and model development, calibration and validation.

A team within the Conservation Effects Assessment Project - Watershed Assessment Studies has developed a web-based data delivery system to provide access to soil, water, climate, land-management, and socio-economic data from fourteen watersheds. The system, STEWARDS: Sustaining the Earth's Watersheds, Agricultural Research Data System, allows a variety of users to search, visualize, and download data via the internet. STEWARDS consists of: 1) a centralized site with Web/SQL/ArcGIS servers and application software, including a database management system (DBMS) and a geospatial data access portal; 2) data: including measurement data, imagery/GIS, and metadata; 3) users; and 4) research watershed sites that are data sources. Anticipated benefits of STEWARDS include preservation of data, increased data use, and facilitation of hydrological research within and across watersheds with diverse collaborators.

(<http://arsagsoftware.ars.usda.gov/stewards/index.asp>)

II. CUAHSI HIS efforts (update provided by Prof. David Maidment, UT-Austin)

(1) Progress is being made to evolve WaterML into an international standard for the exchange of water observations data via web services and to integrate that standard with existing standards for the exchange of geographic data via web services. The Open Geospatial Consortium (OGC) is an association of about 300 institutions internationally that has established the Web Map Service, Web Coverage Service and Web Feature Service, which are vendor-independent, widely accepted standards for the transmission of geographic data via web services. Prof. Maidment spoke at the OGC quarterly meeting in Atlanta about our interest in establishing a Hydrology Domain Working Group to extend those standards to cover hydrologic data, and he was joined there by representatives from the Australian CSIRO and Bureau of Meteorology. This Working Group will likely be formally established at the next OGC Meeting to be held in Valencia, Spain, in December, and it will be jointly chaired by Rob Vertessy of the Australian Bureau of Meteorology and David Maidment. A related activity is being considered by the Commission for Hydrology of WMO as part of its work program for the next several years, being decided by a meeting in Geneva in early November. It will take several years to work all this through these organizations and to reconcile our efforts with those proposed elsewhere, but the anticipated outcome is an International Standard for transmission of water observations data as a web service affirmed by the International Standards Organization to which both WMO and OGC contribute.

(2) The CUAHSI HIS project was subjected to a review by the CUAHSI Standing Committee for HIS at a meeting in July in Boulder, CO, and for the purpose a summary report was prepared that can be obtained at <http://his.cuahsi.org/documents/HISOverview.pdf>. An inventory of all data services provided by CUAHSI Water Data Services shows that our National Water Metadata Catalog maintained at the San Diego Supercomputer Center now indexes 342 million data measured at 1.75 million locations in the United States. This is the most comprehensive catalog of water data existing in the nation.

(3) As part of the review at the Boulder CUAHSI meeting, the HIS team announced the availability of HIS version 1.1 that includes a new data loader and improved schema for storing hydrologic observations data, and improved tools for ingesting those data into Excel and ArcGIS. These developments are described in the overview report I have cited.

(4) Performance evaluation of our WaterML web services show that they deliver time series data at a rate of about 30,000 values per second if the service is built and maintained locally, at

5000 values per second if the service is a native WaterML service extracting data from a CUAHSI ODM database at a remote location (such as a CUAHSI University partner), and at about 1000 values per second if the data are coming through a proxy WaterML service maintained at the San Diego Supercomputer Center onto one of the national data archives (USGS, EPA, NCDC, NRCS).

(5) The National Climatic Data Center has established WaterML web services to its hourly and daily weather observations globally. These provide access to weather observations up to 1.5 days back from the present time at about 13,000 stations around the world. This is the first global CUAHSI water data service. The hourly data service provided by CUAHSI to this information is:

http://water.sdsc.edu/wateroneflow/NCDC/ISH_1_0.asmx?WSDL

and the daily data service is

http://water.sdsc.edu/wateroneflow/NCDC/ISD_1_0.asmx?WSDL

(6) The HIS team have started providing data via CUAHSI web services from Snotel, and hope to improve that service by direct ingestion of web services from the NRCS Water and Climate Center in the future. The present service is available at:

http://river.sdsc.edu/snotel/cuahsi_1_0.asmx?WSDL

(7) A CD summarizing CUAHSI Water Data Services is being prepared for release at the AGU meeting in December.

(8) The Texas Water Development Board announced the formation of a Texas Hydrologic Information System based on CUAHSI HIS technology at the Texas GIS Forum on October 27. The TWDB is sponsoring the publication of state level observations data in CUAHSI ODM format and provision of WaterML web services from those data. A list of 10 new water data services for Texas is at <http://data.cwrw.utexas.edu> and a new web site www.waterdatafortexas.org is in the process of being established. The Texas Natural Resource Information System is building a statewide data viewer for these Texas water data services.

6. Presentation – “Risk terminology and communicating flood risk“ by David A. Moser, Ph.D. Chief Economist, USACE (Presentation followed by Q&A - total 30 min.)
Dr. Moser’s PowerPoint slides are available on-line. During his presentation, he discussed the necessity of helping people understand the risks involved regarding flooding and the historical misunderstandings of the terminology and communication of flood risk. A main discussion was regarding the certification of levees and the potential risk involved with these levees.

7. Update on Hydrologic Frequency Analysis Work Group Will Thomas
Hydrologic Frequency Analysis Work Group (HFAWG) report

At the July 31, 2008 Subcommittee on Hydrology meeting, Will Thomas reported that a data group of the HFAWG (Martin Becker, Jerry Coffey, Don Woodward, Beth Faber, Nancy Steinberger and Will Thomas) had a conference call on July 30 to discuss the May 2008 interim test results for EMA and Bulletin 17B. A summary of this conference call was prepared on October 2, 2008 and sent to John England, BOR, and Tim Cohn, USGS. Will briefly summarized the major issues of the July 30 conference call:

- John and Tim should not send out any more interim test results until all the testing has been completed.
- There is a growing concern within the data group that there are some operational problems with EMA. The data group requests that all testing be completed by the end of the 2008 calendar year.
- The data group concerns with EMA are based on the May 2008 test results that indicate the EMA procedure does not always provide reasonable results when there are low outliers and peaks below a gage base.
- At the July 31, 2008 SOH meeting, Jerry Webb, USACE, indicated that we should not give the impression that publication of Bulletin 17C is imminent. Furthermore, if USGS or BOR use EMA for

studies, they should make it clear that this is an agency decision and the HFAWG/SOH has not approved EMA.

- At the July 31, 2008 SOH meeting, Robert Mason, USGS, acknowledged that the standalone version of PeakFQ and Version 5.2 on the USGS web site do not provide the same results. The data group encouraged John and Tim to finalize the EMA code as soon as possible and make sure the code will run on all operating systems commonly used for engineering applications.

Based on input from John England, BOR, Will reported the following relative to the ongoing testing of EMA:

- Nancy Steinberger, FEMA, has joined the testing group to assist John and Tim.
- John, Tim, and Nancy worked together on the testing the week of September 22-26 in Denver and met again in Washington, DC on October 15-16.
- John and Nancy are working together the week of October 27-31 in Denver with Tim working remotely.
- The EMA analyses for stations with low outliers and historical information are being rerun.
- Tim has developed a generalization of the Grubbs-Beck low outlier test that takes into account the number of outliers detected.
- Progress has been made in documenting the EMA theory and a draft outline of a proposed USGS report was provided.

8. Update on Satellite Telemetry Interagency Work Group

Kay Metcalf provided an update via phone for Ernest Dryer who was unavailable this week. Due to the concern that no back-up system has been available, Ernest has initiated a back-up system for data since April. During the last two months when the batteries have not been recharging on the satellite, there has been a minimal loss of data due to the existence of this back-up system. NOAA has offered their thanks to Ernest for his initiative.

9. Hydrologic and Hydraulic GIS Applications Work Group *Bill Merkel*

Teleconferences for Work Group members are held regularly. The last one was September 23, 2008 and the next one is scheduled for November 5, 2008. The teleconference minutes are posted at <http://acwi.gov/hydrology/h2gisa/>.

The current focus of the Work Group is to gather information (specific items listed in a questionnaire) for GIS applications in hydrology and hydraulics. Once this information is gathered, the plan is to post it on the internet for those individuals interested in learning about and downloading the various applications. There are currently 14 applications identified (these are listed in the September 23 teleconference minutes).

Dr. Vijay Singh of Texas A&M University maintains a list of hydrologic models on-line. The Work Group is investigating the possibility of adding a category of models which are GIS related on this web site. A funding proposal for \$20,000 is being submitted through the Bureau of Reclamation to facilitate this effort. The web site has information posted on each model but does not have direct web links to the various models. The information posted (probably in pdf format) could have a web address which would lead a potential user to the correct web site.

At the next teleconference of the Work Group, involvement with the upcoming 4th Federal Interagency Hydrologic Modeling Conference will be discussed. Possible involvement could include submitting a group of abstracts, organizing a session on GIS applications in hydrology and hydraulics, setting up a short course, computer demonstrations, and/or poster session.

10. Update on Hydrologic Modeling Work Group *Don Frevert*

Don Frevert reported that Steve Markstrom had to step down as technical chair of the 2010 Federal Interagency Hydrologic Modeling Conference and that Don Woodward has agreed to serve as technical

chair. Don's willingness to serve is very much appreciated. He previously served as the technical co-chair of the 1998 Federal Interagency Hydrologic Modeling Conference.

The call for papers for the 2010 Joint Federal Interagency Conference has been released and is being distributed among member organizations, the academic community, the private sector and appropriate international contacts. The call for papers will also be linked to the subcommittee website.

Jayantha Obeysekera has received information on five additional short courses in ground water which could be offered at the 2010 conference. This brings the total number under consideration to 9 for the hydrologic modeling portion of the conference. A final decision on which short courses will be offered will be made at the July, 2009 meeting in Las Vegas.

The next conference call of the work group will be on Tuesday, January 13th at 3:00 pm Eastern Time. Anyone interested in joining the call should contact Don Frevert at dkfrevert@netzero.net or 303-989-4270.

11. Extreme Storms Task Force *Tom Nicholson*

The inaugural meeting of the Federal Work Group on Extreme Storm Events was held on September 4, 2008 at the U.S. Nuclear Regulatory Commission's (USNRC) Headquarters Building in Rockville, Maryland. Thomas Nicholson (USNRC) was appointed by Steve Blanchard, SOH Chair, to serve as the Interim Chair. The representatives to the Work Group are: John England, Bureau of Reclamation; Eugene Stallings, National Hydrologic Warning Council; Douglas Clemetson, USACE; John Onderdonk, FERC; Nancy Steinberger, FEMA; Christopher Cook, USNRC; Robert Mason, USGS; John McClung, USDA/ARS; and Geoffrey Bonnin, NWS. The first agenda item was review of the SOH-approved Charter lead by John England, Bureau of Reclamation and the principal author of the Work Group Charter (see attached). He discussed the purpose, applicability, scope, and activities of the newly approved work group. John mentioned that many of the items in the charter are highlighted in his abstract (see attached) for presentation at the American Geophysical Union's 2008 Fall Meeting on December 15, 2008.

The second agenda item focused on newly-funded research by the USNRC at the U.S. Department of Interior's Bureau of Reclamation with Dr. John England as the principal investigator. This Interagency Agreement research will assess extreme storm events occurring over the last 35 years to evaluate flood estimates for safety assessments of dams, nuclear power plants, and other high-hazard structures in the U.S. Due to staff shortages at Reclamation, the work will be limited at first to examining storms occurring in the Carolinas. This initial effort focuses on collecting and reviewing extreme storm event data in the Southeastern U.S. that have occurred since Tropical Storm Agnes (1972). John will work with Geoff Bonnin, NOAA/National Weather Service (NWS) to obtain hydrometeorological data from these large storms to update Probable Maximum Precipitation (PMP) estimates presented in the generalized hydrometeorological reports (HMRs). The ultimate scope is to examine all extreme storm data in the U.S., such as the January 1996 storm in Pennsylvania, June 2008 Iowa storms, and Hurricanes Andrew (1992), Floyd (1999), Isabel (2003), Katrina (2005), and to systematically assembled and analyzed this data for use in regional extreme storm studies throughout the U.S. John plans to incorporate recent advances in storm maximization, transposition, envelopment, and depth-area duration procedures including radar precipitation data and stochastic storm techniques. Uncertainties and exceedance probability estimates of PMP will be explored. Potential effects of climate variability and change on the PMP will also be investigated.

A national database of extreme storm events related to flooding was discussed. Douglas Clemetson, U.S. Army Corps of Engineers's (USACE), Omaha, Nebraska Office mentioned that he was having a student start on compiling the extreme storm data that the USACE has in the Omaha office files. This work is to initiate the creation of database that can be shared between agencies and updated with additional storm information. The work consists of entering historic storm information into a database including the date of the storm, storm location, scanned images of isohyetal maps, bucket survey data, depth-area-duration relationships, temporal distribution, storm dew points, wind direction, elevation of the storm center, and radar images if available. The isohyetal maps will be digitized into a GIS format for use in future storm transposition studies. Initially, this database will contain about 250 historic extreme storms that have

occurred in and around the Missouri River basin. It will also include the previously analyzed storms published in "Storm Rainfall in the United States" which contains extreme storms through 1973. Once the initial database is completed we can add additional storms that have occurred since 1973 for other regions of the US as funding and resources permit. All this information can be placed on a web site for easy access by all agencies and the public, if desired by the work group. Doug hopes to submit a request for additional funding through the USACE dam safety program. If this is approved, he plans to assemble a team of hydrologists and meteorologists from around the Corps to assist with this effort. To further this work he requested that we facilitate a meeting with John England, Reclamation and Geoff Bonnin, NWS to see what data they can provide so we do not duplicate any effort.

The work group next discussed the National Academies of Science and Engineering's *Workshop on Research and Applications Needs in Flood Hydrology Science* being held on October 15, 2008 in Washington, DC (see attached agenda). Tom Nicholson, John England, Geoff Bonnin, Nancy Steinberger, and Robert Mason attended the workshop. The four fundamental questions addressed during the one-day workshop were:

- 1. What should be the underpinnings and motivating science and applications questions in a new science of hydrologic extremes?*
- 2. What can and should be the role of new observing methods, both in situ (including new sensor technologies) and remote sensing? How might approaches to the estimation of hydrologic extremes differ based on the richness of the historic observations?*
- 3. What should be the interface between the science of hydrologic extremes and applications issues, such as the need to replace standard methods, such as Bulletin 17B and other methods that are based on stationary statistical methods? And*
- 4. How can advances in techniques for the accurate analysis of ancient flood events aid estimation of future flood magnitudes and frequency, and understanding of the generative processes for extreme flood phenomena?*

The workshop presentations and discussion sessions focused on these questions. The presentations and subsequent discussions will be summarized to the SOH during the October 30, 2008 meeting by Tom Nicholson and the Work Group members that attended. In follow-up discussions with Dr. Eric Wood, Princeton University and NAS/Committee on Hydrologic Sciences, Tom Nicholson invited him and Will Logan, NAS workshop facilitator to discuss their workshop observations and recommendations to the Work Group members at the next meeting.

The next Work Group meeting will be in conjunction with the AGU 2008 Fall Meeting in San Francisco. John Onderdonk, FERC will host the work group meeting at their offices in downtown San Francisco on Tuesday, December 16, 2008 @ 2:00 PST. A tentative meeting agenda and teleconferencing access will be provided prior to the meeting. The principal meeting topics will be the NAS Workshop highlights, Reclamation's progress on their PMP research, and the extreme storm event database being developed by the USACE.

John England, Reclamation, volunteered to serve as Work Group Vice-Chair. No other candidates were identified and or nominated. John was elected Vice-Chair as per the Charter procedures. No one volunteered or was nominated to serve as Work Group Chair. Representatives were requested to reconsider and to elect a Chair at the next meeting. Tom Nicholson will remain as Interim Chair.

12. Current Events within Hydrologic Communities

All

- **New Interagency Workgroup – Jean Thomas – Forest Service**
WestFAST

Nine Federal agencies have joined together to form the Western States Federal Agency Support Team (WestFAST) and are signing a Declaration of Cooperation to work as partners to collaborate with the Western States Water Council to seek watershed solutions to water issues in the Western States. The nine Federal agencies are: Bureau of Reclamation, U.S. Army Corps of Engineers, Environmental Protection Agency, U.S. Geological Survey, National Oceanic Atmospheric Agency, Natural Resources Conservation Service, USDA Forest Service, U.S. Fish and Wildlife Service and Bureau of Land Management.

The Western States Water Council (WSWC) published a document in 2006 (“Water Needs and Strategies for a Sustainable Future”) that listed numerous recommendations on water management topics such as water information and data, water planning and management, technologies and strategies, infrastructure needs, and climate change information. WestFAST is developing a work plan for 2009 based on projects the agencies are already working on or areas they could assist on based on the top priority recommendations of the WSWC.

The items in the draft work plan include:

- Work together to provide universal access to the water-related data collected by all state, local and federal agencies, as well as tools and models that better enable the synthesis, visualization and evaluation of water related data.
- Work with states to help communities develop drought preparedness plans, drought contingency plans, support the implementation of the National Integrated Drought Information System (NIDIS), ensure there is an accurate assessment of the Nation’s water availability and water demands.
- Support more spending for research and development related to innovative water conservation and supply augmentation strategies.
- With federal assistance, states should identify, restore and preserve high value watershed and natural features (such as wetlands) that provide ecological service and that may minimize the need for structural alternatives.
- Federal agencies should begin updating reservoir operating plans and drought contingency plans, NOAA should take the lead on improving forecasts on multiple geographic and temporal scales and conduct additional research so that forecasts can be incorporated into reservoir operations, and the USGS should improve monitoring and data collection to identify and respond to changing regional and local trends.

Attached is a list of the Federal agency support team contacts. The two publications the Western Governors’ Association and the Western States Water Council have published can be found at <http://www.westgov.org/wswc/>. Select publications. Contact your agency’s support team member if you have projects or ideas that can assist this effort.

Western Governors’ Association/Western States Water Council’s Water Management Symposium: “The West’s Water Future: Water Information Needs and Strategies”

There is a Symposium in Salt Lake City November 17 – 19 on “The West’s Water Future: Water Information Needs and Strategies”. Many of the speakers from the Federal agencies and the topics are focused on data and information. An agenda is attached. To register for this symposium go to <http://www.westgov.org/wswc/>, select meetings and go to “Water Management Symposium”. There is a late registration after October 17.

- *National Academy of Sciences Disasters Workshop on “Making the World Safer from Disasters: the US Role” held on October 2, 2008 – Gene Stallings*

National Academy of Sciences Disasters Workshop on “Making the World Safer from Disasters: the U.S. Role”.

On October 2, I attended the National Academy of Science Disasters Workshop in Washington, D.C. The theme was making the world safer from disasters. Similar to the United States, countries throughout the world are vulnerable to many types of hazards, both natural and technological. This is particularly true of developing countries, and the United States has been intensively involved in collaborative efforts to reduce global disaster losses. Several statements were made at the Disasters Workshop on the cooperative projects but the most memorable one was that e-mail between countries was nice but does not compare with being there in person with your “near peers” in another country. Gene Stallings, PE NHWC Washington Area Consultant

- *Committee on Hydrologic Science (COHS) Workshop on October 15-16, 2008 – “Research and Applications Needs in Flood Hydrology Science”*
 - Several Subcommittee members attended this workshop and reported there was good discussion and positive feedback on the needs for Flood Hydrology. The discussion was relevant to the SOH mission and the missions and many of its members.
 - On October 15-16, the National Research Council’s Committee on Hydrologic Science (COHS) convened a Workshop in Washington, D.C. The theme of the Workshop was “Research and Applications in Flood Hydrology Science” There were 30 participants involved in the two day event. The first day focused primarily on hydrologic extremes and based on the input from the first day developed a brainstorming session for future workshops held by COHS. On the second day, attendees concluded that the prime need is developing a workshop on decision-making for water resources which would include climate and natural variabilities. One notable conclusion reached in the two day workshop was the vital importance of uncertainty associated with hydrologic extremes. Gene Stallings, PE NHWC Washington Area Consultant

13. Announcements and Q&A on Business Reports from Member Organizations All

- a. *The “SOH Connections” Newsletter Editor’s report*
 - i. Submission deadline November 28, 2008
 - ii. Target Publication and distribution December 19, 2008
 - iii. Comments the Newsletter is still very useful, it worked to skip the summer issue this year, the Subcommittee agreed this should be a decision made on an annual basis.
- b. *Next Advisory Committee on Water Information Meeting – February 10-11, 2009 in Herndon, VA*

14. Plans for Next Meeting in January

Thursday January 29, 2009 at Main Interior Building Washington, D.C.

15. Plans for July 2009 Meeting in Las Vegas – Thursday July 9

Don Frevert

NOTE: Date change to **TUESDAY July 7, 2009 in Las Vegas**

Action Items:

1. Phone attendees please send an e-mail to Mary Greene to ensure inclusion on the meeting attendee list.
2. Work Group Reports should be submitted by COB Friday November 7 to Mary Greene and Steve Blanchard for inclusion in the minutes.
3. Business Member Reports should be submitted by COB Friday November 7 to Mary Greene and Steve Blanchard for inclusion in the minutes.
4. July Business Member Reports and Workgroup Reports which missed the Draft July 31, 2008 minutes should be re-submitted to Mary by Nov 14 for incorporation into the final July 31, 2008 minutes.
5. Newsletter information should be submitted by COB Friday November 28 to Claudia Hoeft and Mary Greene.
6. **Reserve the meeting date of January 29, 2009 for the next SOH meeting in Washington, DC.**
7. **Reserve the new meeting date of Tuesday July 7, 2009 in Las Vegas.**

Member Business Reports for SOH Meeting October 30, 2008
Compiled by M. Greene
Current Monday November 10, 2008

Bureau of Reclamation – Don Frevert

The Bureau of Reclamation and the Japanese Public Works Research Institute (PWRI) are making plans for their fourth Watershed and River Systems Management Workshop to be held in May, 2009 in Japan. Both Reclamation and USGS have enjoyed long and productive working relationships with PWRI and look forward to continuing those ties in the future.

FERC – Sam Lin

FERC representative participated in an international Dam Safety Workshop of 10/22 in Calgary, Canada. The topic, which is “Gauging the Effectiveness of Dam Safety Programs”, is very timely and applicable to all dam safety programs including FERC. For the past year, due to the number of historic and recent dam failures where an ineffective dam owner’s dam safety program was a contributing factor, FERC has been focusing its licensees on the importance of effective owner’s dam safety programs. FERRC is looking toward making progress in developing effective performance measures for dam safety programs.

National Hydrologic Warning Council – Gene Stallings

The National Hydrologic Warning Council is pleased to announce that the Call for Abstracts is now available for the Eighth National Hydrologic Warning Council Conference to be held at, Vail, Colorado, on May 18 through 21, 2009. Information is included with the October edition of The NHWC Transmission. Four current tracks for the Conference will allow attendees to learn more about partnership developments, new technological advancements, tackling the communications challenge and exploring what is on the horizon for hydrologic warning. Mr. Jack Hayes, Director of the national Weather Service will be a guest speaker.

USGS – Steve Blanchard

1. The USGS released a new Fact Sheet publication describing the StreamStats Application. The Publication is available at: <http://pubs.usgs.gov/fs/2008/3067/>.

StreamStats is a Web-based Geographic Information System (GIS) application that was created by the USGS, in cooperation with Environmental Systems Research Institute, Inc. (ESRI), to provide users with access to an assortment of analytical tools that are useful for water-resources planning and management. StreamStats allows users to easily obtain streamflow statistics, basin characteristics, and descriptive information for USGS data-collection stations and user-selected ungaged sites. It also allows users to identify stream reaches that are upstream and downstream from user-selected sites, and to identify and obtain information for locations along the streams where activities that may affect streamflow conditions are occurring. This functionality can be accessed through a map-based user interface that appears in the user’s Web browser, or individual functions can be requested remotely as Web services by other Web or desktop computer applications. StreamStats can perform these analyses much faster than historically used manual techniques. StreamStats was designed so that each state would be implemented as a separate application, with a reliance on local partnerships to fund the individual applications, and a goal of eventual full national implementation. Idaho became the first state to implement StreamStats in 2003. By mid-2008, 14 states had applications available to the public, and 18 other states were in various stages of implementation. StreamStats state applications are available at: <http://water.usgs.gov/osw/streamstats/index.html>.

2. The USGS released the report “An Evaluation of Selected Extraordinary Floods in the United States Reported by the U.S. Geological Survey and Implications for Future Advancement of Flood Science” Scientific Investigations Report 2008-5164. The report is available on-line only at: <http://pubs.er.usgs.gov/usgspubs/sir/sir20085164>.

Thirty flood peak discharges determine the envelope curve of maximum floods documented in the United States by the U.S. Geological Survey. These floods occurred from 1927 to 1978 and are extraordinary not just in their magnitude, but in their hydraulic and geomorphic characteristics. The reliability of the computed discharge of these extraordinary floods was reviewed and evaluated using current (2007) best practices. Of the 30 flood peak discharges investigated, only 7 were measured at daily streamflow-gaging stations that existed when the flood occurred, and 23 were measured at miscellaneous (ungaged) sites. Methods used to measure these 30 extraordinary flood peak discharges consisted of 21 slope-area measurements, 2 direct current-meter

measurements, 1 culvert measurement, 1 rating-curve extension, and 1 interpolation and rating-curve extension. The remaining four peak discharges were measured using combinations of culvert, slope-area, flow-over-road, and contracted-opening measurements. The method of peak discharge determination for one flood is unknown.

Changes to peak discharge or rating are recommended for 20 of the 30 flood peak discharges that were evaluated. Nine floods retained published peak discharges, but their ratings were downgraded. For two floods, both peak discharge and rating were corrected and revised. Peak discharges for five floods that are subject to significant uncertainty due to complex field and hydraulic conditions, were re-rated as estimates. This study resulted in 5 of the 30 peak discharges having revised values greater than about 10 percent different from the original published values. Peak discharges were smaller for three floods (North Fork Hubbard Creek, Texas; El Rancho Arroyo, New Mexico; South Fork Wailua River, Hawaii), and two peak discharges were revised upward (Lahontan Reservoir tributary, Nevada; Bronco Creek, Arizona). Two peak discharges were indeterminate because they were concluded to have been debris flows with peak discharges that were estimated by an inappropriate method (slope-area) (Big Creek near Waynesville, North Carolina; Day Creek near Etiwanda, California). Original field notes and records could not be found for three of the floods, however, some data (copies of original materials, records of reviews) were available for two of these floods. A rating was assigned to each of seven peak discharges that had no rating.

Within the U.S. Geological Survey, new approaches are needed to collect more accurate data for floods, particularly extraordinary floods. In recent years, significant progress has been made in instrumentation for making direct discharge measurements. During this same period, very little has been accomplished in advancing methods to improve indirect discharge measurements. Greater use of paleoflood hydrology could fill many shortcomings of U.S. Geological Survey flood science today, such as enhanced knowledge of flood frequency. Additional links among flood runoff, storm structure, and storm motion would provide more insight to flood hazards. Significant improvement in understanding flood processes and characteristics could be gained from linking radar rainfall estimation and hydrologic modeling. Additionally, more could be done to provide real-time flood-hazard warnings with linked rainfall/runoff and flow models.

Several important recommendations are made to improve the flood-documentation capability of the U.S. Geological Survey. When very large discharges are measured by current meter or hydroacoustics, water-surface slope should be measured as well. This measurement would allow validation of roughness values that can significantly extend the discharge range of verified Manning's n for 1-dimensional and 2-dimensional flow analyses. At least two of the floods investigated may have had flow so unstable that large waves affected the interpretation of high-water marks. Instability criteria should be considered for hydraulic analysis of large flows in high-gradient, smooth channels.