

Newsletter of the Subcommittee on Hydrology

available on-line at: <http://acwi.gov/hydrology/index.html>

Volume 2 Issue 2 September 2011

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Welcome from the Chair

As my term as Chair of the SOH winds down we've seen tornados earthquakes, hurricanes, floods, and fires that are impacting our nation's resources and infrastructure and are testing our ability to respond to such incidents. Since many of these events have occurred just in the past few months so I thought it fitting to reflect on some of these events.

The tragedy of the EF5 multiple-vortex tornado that struck Joplin, Missouri on Sunday, May 22, 2011 brought to the attention of the nation the importance of early warning systems and why they are absolutely vital in helping to save lives. The reality is that, as of this writing, there are 159 known deaths, and nearly 1,000 injuries directly linked to this tornado. Sirens sounded about 20 minutes prior to the tornado striking Joplin. Improvements in forecasting by the National Weather Service and the efforts of groups such as the National Hydrologic Warning Council to spread the word about the importance of early warning are making a difference in protecting lives through the use of real-time, high quality hydrologic information from automated remote data systems. Without the early warning that Joplin did receive, the death toll would certainly have been much higher.

The August 23, 2011 earthquake near Mineral, Virginia has resulted in the closure of the North Anna nuclear power plant which is now

being carefully inspected. While this is not a hydrologic concern, this event occurs on the heels of the meltdown at Japan's Fukushima Daiichi nuclear plant after it was struck by an earthquake and tsunami in March, and our member representatives from the Nuclear Regulatory Commission are involved in these assessments and evaluations.

After causing extensive flood and wind damage throughout the Caribbean, Hurricane Irene made landfall in the U.S. on August 27, 2011, over the Outer Banks of North Carolina and labored slowly along the Virginia coast, reemerged over water and made its second landfall over New Jersey on August 28, 2011. After downgrading to a tropical storm, Irene caused significant damages across New England, most notable in Vermont which suffered its worst flooding in centuries. Crews from the National Weather Service, the United States Geological Survey and others were out in the storm to deploy instrumentation to try to capture as much data as they could in order to be able to learn more about how such weather systems develop and sustain themselves. Other agencies such as the Army Corps of Engineer and the Natural Resources Conservation Service have a large role to play in clean-up and recovery efforts which are underway now.

As I'm writing this, the remnants of Hurricane, now Tropical Storm, Lee are tak-

ing a toll on the Northeast. Lee dumped heavy rainfall over southern Louisiana, Mississippi, Alabama, and the Florida panhandle. Lee continues to meander along the Gulf of Mexico pumping significant amounts of moisture into the atmosphere resulting in 4 days of rain in the Northeastern U.S. As Lee slowly moves over the Ohio River Valley it is expected to lose strength. The results have been road closures, disruptions to mass transit, flooding to business and homes, forced evacuation of people from their homes, emergency declarations and federal agencies being authorized to coordinate disaster relief efforts. All this on top has what already happened this year. While this story is still unfolding, it is remarkable to consider how we are now able to watch these systems develop and track them from space via weather satellite, radar and other technologies developed and supported by Agencies such as the National Weather Service and the National Aeronautics and Space Administration.

While I've mentioned only a handful of our member organizations, and only a few of the weather phenomena currently causing significant problems, I hope this illustrates the diversity of and hopefully highlights the importance of the work we do.

This is my last "Welcome from the Chair" message. Richard Raione of the Nu-

(Continued on page 2)



About the Subcommittee on Hydrology

The purpose of the Subcommittee on Hydrology is "To improve the availability and reliability of surface-water quantity information needed for hazard mitigation, water supply and demand management, and environmental protection." All members who join the SOH share in and support this common purpose as a network to fulfill our mission as defined in the Terms of Reference.

The subcommittee Chair and current contact is Richard Raione of the U.S. Nuclear Regulatory Commission. Richard can be reached at (301) 415-7190 or at: Richard.Raione@nrc.gov

Detailed information about the subcommittee can be found at: <http://acwi.gov/hydrology/>

The Subcommittee on Hydrology reports to the Advisory Committee on Water Information that operates under the Federal Advisory Committee Act.

Welcome from the Chair

(Continued from page 1)
clear Regulatory Commission takes over as Chair of the SOH and Victor Hom of the National Weather Service steps in as Vice-Chair effective October 1. I know Richard and Victor will receive the same encouragement and support as I've received. It has been an honor and a very rewarding experience to serve as the Chair for SOH for the past year. I am privileged to work with all of the individuals who make up the SOH.

Thank you to all of you who make up the SOH.

Claudia C. Hoeft

ACWI Purpose

The purpose of the Advisory Committee on Water Information (ACWI) is to improve water information for decision making about natural resources management and environmental protection. The Office of Management and Budget (OMB) Memorandum No. 92-01 designates the Department of the Interior, through the U.S. Geological Survey (USGS), as the lead agency. Other Federal organizations that fund, collect, or use water resources information work together with the USGS to implement program recommendations.

Gene Stallings

As this newsletter goes to press, we are sad to report that Eugene "Gene" Stallings passed away on September 13, 2011.

For the past decade, Gene served as the National Hydrologic Warning Council's Washington DC Liaison. In that capacity, Gene represented us on the Advisory Committee on Water Information's Subcommittee on Hydrology (and their Extreme Storm Event Work Group), and also on NOAA's Environmental Information Services Work Group. Gene did a great job of representing the NHWC on these committees as well as at the various conferences he attended on our behalf. His monthly "Inside the Beltway" articles were a popular part of our Transmission newsletters. His meeting summaries have become an important part of our online document archive.

Prior to his retirement from federal service in the mid 1990s, Gene worked for the National Weather Service and US Army Corps of Engineers. Gene was dedicated to understanding the principles of hydrology and mitigation of floods. While serving at the NWS Office of Hydrology, Gene played an important role in the creation of the National Flash Flood Program as well as in helping lead the implementation of the Integrated Flood Observing and Warning System (IFLOWS).

Gene was dedicated to his family, work, and friends. Besides volunteering to help the NHWC, he also was active in the Knights of Columbus. He was a kind man and great friend who will be missed by many. Gene was dedicated to his family, work, and friends. Besides volunteering to help the NHWC, he also was active in the Knights of Columbus. He was a kind man and great friend who will be missed by many.

Contributed by Geoffrey Bonnin, NWS

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SOH Meetings

Highlights from April 2011 Meeting

The April 2011 meeting focused on business of the SOH especially related to issues of requests for membership from new organizations and terms of reference.

Dr. Henry Jones (U.S. NRC) was a guest speaker on the topic of tsunami hazards, and associated planning, education and awareness in coastal environments.

A review of the hydrologic modeling inventory (a collaborative effort between Texas A&M University and the Bureau of Reclamation), status was conducted. The [hydrologic inventory website](#) provides basic information on a variety of hydrologic models to practitioners in the academic, governmental and private sectors.

Action items included a request for narratives describing the need for updated HMR 51 for the Extreme Storms Events Work Groups, and a request for suggested locations for the 2014 JFIC conference.

Highlights from July 2011 Meeting

The June 2011 meeting focused on business of the SOH especially related to issues of membership and terms of reference.

Siamak Esfandiary of the Federal Emergency Management Agency gave a presentation on FEMA's Levee Analysis and Mapping Project (LAMP).

A close out discussion by NWS on risk based assessments and event severity noted that risk-based hydrologic assessment is factored into NWS Flash Flood and River Products.

The Chair's presentation to ACWI was reviewed and included the following highlights: ACWI members express interest in continuing

support for the hydrologic modeling inventory, the roles of ACWI subcommittees, and the need for better communication among subcommittees.

Action items included submission of current events items and business reports for the next meeting, and development of a procedure for guests who may attend future SOH meetings.



ACWI Subcommittees

- ◆ [Monitoring](#)
- ◆ [Methods](#)
- ◆ [NAWQA Liaison](#)
- ◆ [Ground Water](#)
- ◆ [Hydrology \(SOH\)](#)
- ◆ [Sedimentation](#)
- ◆ [Spatial Water Data](#)
- ◆ [Sustainable Water](#)



SOH Work Group Contacts

[Extreme Storm Events Work Group](#)

<http://acwi.gov/hydrology/extreme-storm/index.html>

Information on the activities of the Extreme Storm Events Work Group can be obtained from Tom Nicholson. He can be reached by email at: Thomas.Nicholson@nrc.gov.

[Hydrologic Frequency Analysis Work Group](#)

<http://acwi.gov/hydrology/Frequency/index.html>

Information on the activities of the Work Group can be obtained from Will Thomas. He can be reached by e-mail at: WTHOMAS@mbakercorp.com.

[Satellite Telemetry Interagency Work Group](#)

<http://acwi.gov/hydrology/stiwig/index.html>

Meeting minutes and information on the activities of this Work Group can be obtained from Richard T Engstrom. He can be reached by phone at: (309) 794-5408 or by e-mail at: richard.t.engstrom@usace.army.mil

[Hydrologic and Hydraulic GIS Applications Work Group](#)

<http://acwi.gov/hydrology/h2gisa/>

For information on the Work Group or to become a member please contact Bill Merkel by phone at (301)-504-3956 or by e-mail at: william.merkel@wdc.usda.gov.

[Hydrologic Modeling Work Group](#)

<http://acwi.gov/hydrology/Hydro-Modeling/index.html>

For information on the Work Group or to become a member please contact Jerry Webb by phone at (202) 761-0673 or by e-mail at: jerry.w.webb@usace.army.mil

News from Member Organizations

U.S. NRC RES and FSME issue Proceedings of the Workshop on Engineered Barrier Performance

[“Proceedings of the Workshop on Engineered Barrier Performance Related to Low-Level Radioactive Waste, Decommissioning, and Uranium Mill Tailings Facilities: Held at the U.S. Nuclear Regulatory Commission Headquarters, Rockville, MD, August 3-5, 2010”](#)

NUREG/CP-0195 was recently issued by the U.S. NRC Office of Research (RES). This workshop was organized and jointly conducted by NRC’s Offices of Research and Federal and State Materials and Environmental Management Programs (FSME). The workshop was coordinated with the States (i.e., Texas, South Carolina, Utah, Colorado, Washington, and New York), Tribal Nations (Navajo, Umatilla and Nez Perce), and Federal agencies (e.g., U.S. Department of Energy [DOE], U.S. Environmental Protection Agency [EPA], U.S. Department of Agriculture’s Agricultural Research Service [USDA/ARS], U.S. Geological Survey [USGS], and DOE National Laboratories). The workshop technical topics focused on engineered surface covers and bottom liners designed to isolate waste by impeding surface water infiltration into the waste systems and mitigating the migration of contaminants from the waste disposal site. Topics included engineered barrier performance, modeling, monitoring, and regulatory experiences at low-level radioactive waste, decommissioning, and uranium mill tailings sites. The workshop objectives included: (1) facilitation of communication among Federal and State staff and contractors and selected experts on current engineered barrier issues and technical and regulatory experiences; (2) discussion of lessons learned and approaches for monitoring and modeling; (3) preparation of recommendations to address maintenance of engineered barrier performance over time; and (4) identification of topics for future research and the potential need to update technical guidance. Recommendations and insights derived from session

presentations, panel debates, and the discussions documented by the session reporters and were included in this report. Four significant recommendations from the workshop were:

1. A plan for periodic evaluation of barrier performance should be implemented by the individuals and groups responsible for design, maintenance and monitoring of the barriers
2. Potential degradation of engineered barrier performance over time must be monitored and compared against design criteria during these monitoring intervals.
3. The spatial, temporal, and analytical extent of monitoring should be commensurate with the performance objectives of the barriers and the physical environment.
4. The monitoring plan should be incorporated into a graded and iterative approach to identify significant processes and components requiring further detailed modeling and/or monitoring consistent with NRC’s defense-in-depth performance approach.

Courtesy of Thomas Nicholson, U.S. NRC

National Academies of Sciences issue Report on Extreme Hydrology

The Committee on Hydrologic Science (COHS) of the Water Science and Technology Board, National Research Council recently issued a National Academies Press report on “Global Change and Extreme Hydrology: Testing Conventional Wisdom.” The report provides a brief overview of the COHS workshop presentations and subsequent discussions on the topic of global climate-change and its possible effects on extreme hydrologic events. The workshop provided a forum for the science and engineering applications communities to identify differing perspectives and to seek common ground on the issue of climate-change induced floods and droughts. It also provided an

opportunity to recognize and potentially begin a technical dialogue on the array of contrasting definitions, scientific agendas, methodologies, and observations that separate the climate science, hydrologic, and engineering applications communities as they address the hydrologic extremes question. The statement of task for the workshop was organized through a series of questions for the presenters and panelists:

1. Is the global hydrologic cycle accelerating and what does this acceleration look like? Is precipitation becoming more intense? Is drought frequency and severity becoming more prominent?
2. Are hydrologic fluxes associated with floods and droughts changing at the regional scale?
3. Floods and droughts from a climatologic and hydrologic perspective—how do we reconcile the two?
4. How does the science compare to the public debate?

The workshop was sponsored by the U.S. Nuclear Regulatory Commission, the National Aeronautics and Space Administration, and the National Oceanic and Atmospheric Administration. The NAS report provides findings from these presentations and discussions, along with a list of references, agenda and abstracts from the speakers. For further information please contact Laura Helsabeck, NAS Staff Officer for the workshop and report. The report findings can be viewed at: <http://dels.nas.edu/Report/Global-Change-Extreme-Hydrology-Testing/13211> while the entire report can viewed online at: http://www.nap.edu/catalog.php?record_id=13211.

Courtesy of Thomas Nicholson, U.S. NRC

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For Your Information

2011 National Hydrologic Warning Council Conference and Exposition

May 9-12, 2011 Hilton San Diego at Mission Bay, San Diego, California

<http://www.hydrologicwarning.org>

The National Hydrologic Warning Council (NHWC) 9th Biennial Training Conference and Exposition was held in San Diego, California on May 9-12, 2011. Approximately 350 practitioners, manufacturers, researchers, scientists, engineers, and government representatives attended the conference. This was the largest conference in NHWC's history, and likely the largest ever in the United States devoted specifically to real-time hydrologic warning systems.

I was not able to attend the Training Conference and Conference because of poor health. Much to my surprise, NHWC Executive Director Glenn Austin informed me that I was honored to receive the Outstanding Service award. This is a highlight of my career and welcomed. It sits on my mantle on the fireplace. It has been a distinct privilege serving the NHWC as its Washington Area Consultant.

NHWC is a growing organization and is becoming the recognized leader in understanding and providing training, and professional development, standards, and guidance for the hydrologic warning community of professionals. Also, please mark your calendars for NHWC's 10th Biennial Conference and Exposition scheduled for June 3-6, 2013 at Sawgrass Marriott, Ponte Vedra Beach, Florida for the next meeting.

Courtesy of Gene Stallings, PE

Editors note: Eugene "Gene" Stallings passed away on September 13, 2011.

USGS National Surface Water Conference and Hydroacoustics Workshop held

The USGS held its quadrennial Surface-Water Hydrology Conference and Hydroacoustics Workshop in Tampa, Florida, March 28-April 1, 2011. The conference was attended by more than 500 hydrologists and engineers from the USGS and various other cooperating agencies. About 5 percent of the attendees were from agencies outside of the US. The conference included 23 half-day training sessions, 180 technical presentations, and one poster session featuring 78 posters.

The conference featured recognition of lifetime contributions to hydrology by noted retirees. Mike Simpson (California Water Science Center) was recognized for his contributions to hydroacoustics including his early use and adaption of the acoustic Doppler current meter (ADCP) to measurement of streamflow; Lamar Sanders (South Carolina Water Science Center) was recognized for his contributions to statistical hydrology and streamgage network operations, and Gary Tasker (USGS National Research Program) was recognized for his contributions to statistical hydrology including his work on generalized least squares regression and combining independent flood estimates as utilized in Bulletin 17B.

Courtesy of Robert Mason, USGS

New USGS professional paper on 2008 Midwest Flooding

USGS Professional paper 1175, Flooding in the United States Midwest, 2008, by Robert R. Holmes, Todd A. Koenig, and Krista A. Karstensen, summarizes flood and rainfall statistics for the Mississippi and Minnesota Rivers and their tributaries and reports on USGS activities measuring and monitoring flood flows and supporting the efforts of the National Weather Service, the Corps of Engineers, and other Federal, State, and local agencies to fore-

cast and fight the flood. During 2008, peak-of-record streamflows were recorded at more than 147 USGS streamgages. The annual exceedance probability of peak flows at 26 streamgages was less than the 0.2 percent flood (greater than the 500-year flood) and peaks at 67 streamgages were between the 1-percent and 0.2-percent exceedance probability (100-500 year floods). The report is available online at URL: <http://pubs.usgs.gov/pp/1175/>.

USGS Office of Surface Water Chief, Steve Blanchard Retires

Steve Blanchard, Chief of the USGS Office of Surface Water and former Chair of the Subcommittee on Hydrology retired on June 3, 2011. Robert Mason will serve as the acting chief until a permanent replacement is selected.

Courtesy of Robert Mason, USGS



JOHNS HOPKINS Center for Environmental & Applied Fluid Mechanics

Student's Corner

Johns Hopkins University Center for Applied Fluid Mechanics - Maryland

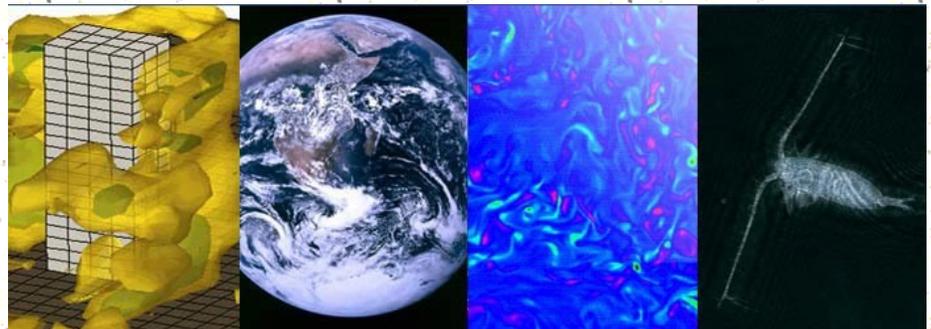
CEAFM Happenings

Johns Hopkins University has developed the Center for Environmental and Applied Fluid Mechanics to combine elements of research and teaching related to fluid mechanics. The center relies on researchers from the Whiting School of Engineering, the Krieger School of Arts and Sciences, and the Applied Physics Laboratory.

Areas of research cover fluid flows in disciplines such as industrial, transportation, manufacturing, and ocean and coastal engineering, as well as the treatment of aquatic and air-borne contaminants, in planetary atmospheres and oceans, rivers, subsurface waters, and fluids deep in the earth's interior, in biological systems, and in the microscopic environments relevant to microfluidic engineering applications and to aquatic and atmospheric chemistry and biology.

The Center for Environmental and Applied Fluid hosts weekly seminars at their Baltimore campus with presentations from leading researchers from around the world addressing a variety of topics such as:

Steve Elgar (Woods Hole Oceano-



graphic Inst.) *"Wave Dissipation by Muddy Seafloors"*

Dr. Patrick Lynette (Texas A&M) *"Towards Capturing the Complex Flow of a Tsunami Inundating the Built Environment"*

Dr. Mohamed Iskandarani (University of Miami) *"Simulating Oceanic Flows with Hydrostatic and Non-Hydrostatic Spectral Element Models"*

Dr. Anand Gnanadesikan (Johns Hopkins Earth and Planetary Science Department), *"Role of mixing in the large-scale circulation of the ocean,"* presented September 9, 2011.

Future presentation topics and presenters will be listed on the website for the Center for Environmental and Applied Fluid Mechanics at www.jhu.edu/~ceafm/, and can be attended in person at their Baltimore

campus, typically at 11:00 am every Friday.

The next presentation scheduled is *"Investigating transport and mixing of Atlantic Water in the Nordic Seas with surface drifters"* by Dr. Inga Koszalka (Earth and Planetary Science), September 23, 2011, Gilman Hall 50.

By [Ian Cozens](#), Hydrologist, U.S. Nuclear Regulatory Commission, Masters Student at Johns Hopkins University.

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Meetings of Interest

This is not an exhaustive list, but includes meetings of interest to the water resources community that have been brought to our attention. These meetings may be, but are not necessarily, co-sponsored by ACWI or Council member

October 15-19, 2011	WEFTEC 2011
October 16-20, 2011	Association of State Drinking Water Administrators Annual Conference Minneapolis, Minnesota
October 16-19, 2011	Association of Metropolitan Water Agencies Annual Meeting Newport, Rhode Island
October 20-22, 2011	American Society of Civil Engineers - 141st Annual Civil Engineering Conference Memphis, Tennessee
October 26-28, 2011	31st North American Lake Management Society Symposium Spokane, Washington
November 7-10, 2011	American Water Resources Association Annual Water Resources Conference Albuquerque, New Mexico
November 29-December 2, 2011	National Ground Water Association 2011 Ground Water Expo Las Vegas, Nevada
December 1, 2011	Maryland Water Monitoring Council - 2011 Annual Conference Maritime Institute, North Linthicum, Maryland
December 5-9, 2011	American Geophysical Union Fall Meeting 2011 , San Francisco, CA

Next Subcommittee on Hydrology Meeting

Thursday, October 20, 2011
1:00 — 4:00 p.m.

NOAA/National Weather Service
1325 East West Highway SSMC2 Room 10246,
Silver Spring, MD

Victor Hom will open up the "[Gateway to NOAA](#)" Exhibit to visitors at 12:15 p.m. for perusal of the multimedia and artifact displays. This will allow at least 30 minutes for viewing prior to the meeting.

The exhibit is on the ground floor adjacent to the Building 2 entrance to NWS. Click on the following link for location and parking information: <http://www.nws.noaa.gov/com/files/ssmcmmaps.pdf>.



Editor's Corner

by
Richard Raione

First, I extend congratulations to Claudia Hoeft for her unselfish act to assume the responsibilities of the Subcommittee of Hydrology (SOH) Chair under difficult and sad circumstances following the sudden illness and passing of Mary Greene, the elected 2011 SOH Chair. She is to be commended for her expertise, leadership and significant time to organize and conduct the business of the SOH. I hope that I can continue in the tradition that others before me have set so well.

We have a tremendous amount of expertise and talent within this group. I am excited about the activities and anticipated accomplishments for the upcoming year. I hope you will share my enthusiasm for our collective talents, and will help Victor Hom and I to meet our SOH goals. For your consideration, my vision for the SOH follows.

First, with all of the demands from our normal jobs, let us make the most of our meetings. Next we need to support and delegate to our working groups more of the technical discussions and activities. One area to gain efficiency is for the working groups to provide status reports no later than one week in advance of our meetings – these status reports could be streamlined to basic content such as introduction and purpose (including project team), brief history or setting, current status, three to six-month future projections, and tentative completion date. A short narrative could incorporate the following points: a definition of the final deliverable and its final use; potential stumbling blocks, challenges and the path forward. I think we can utilize the newsletter and our meetings toward the objective of increased efficiency and communication.

Second, let's reach out to collaborate and communicate with the other ACWI subcommittees. Through this collaboration we can realize synergy and economy of effort, and avoid unwanted duplication. With declining federal budgets, enhanced inter-agency collaboration will be even more important. The recruitment of young scientists and engineers to assist us in accomplishing the mission and sponsored SOH activities such as the upcoming JFIC was a good point raised during recent meetings. The SOH sponsored attendance of students at the past JFIC

conference is a good start. Existing agency-academic partnerships may be able to do a better job of exposing student participants to SOH activities and benefits similar to what I have done with summer hires/CO-OP student hires here at the U.S. NRC.

Finally, I propose that different SOH member organizations volunteer to host our next three annual meetings. Thanks to Victor for volunteering the NOAA facilities for our October 20 meeting, and opening up the "Gateway to NOAA" exhibit to attendees. My preference is have the four annual SOH meetings rotate to four different agencies/locations if possible with dates and times to be determined.

Please contact me directly if you can host a SOH meeting, or simply wish to comment on the above and contribute your thoughts and suggestions. I am looking forward to working with you in FY12.

To submit items for the newsletter, please contact:

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301-713-0006 x173

[Joseph Giacinto](#), Editor

(301) 415 0714

[Peter Chaput](#), Associate Editor

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