

Newsletter of the Subcommittee on Hydrology

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

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Welcome from the Chair

Certain aspects of hydrology continue to make news. One such recent event was the record flooding in the Red River basin of North Dakota and Minnesota in March and April of 2009. The Red River at Fargo, North Dakota set a new record for peak stage for the period of record of over 100 years. This flood highlighted some unique aspects of the Red River basin which make it extremely difficult to monitor and forecast flooding.

The Red River flows from south to north. During this spring's flood, in general, the southern part of the basin was thawing while the northern parts of the basin were still frozen. Depending upon weather, the whole basin also went through a daily or weekly freeze-thaw cycle. Add to that the basin's extremely flat slope, and this meant that the river's northward flows often encountered ice jams. All of these factors made it extremely difficult for agencies such as the U.S. Geological Survey, the Army Corps of Engineers, and the Bureau of Reclamation to monitor conditions and for the National Weather Service to forecast the flooding.

The Red River flooding emphasized the continued need for (1) improved water monitoring, modeling, and forecasting tools, and (2) enhanced collaboration amongst the organizations involved in responding to floods; both areas in which the Subcommittee on Hydrology (SOH) is very active.



USGS scientist Chris Laveau breaks up ice to prepare for the boat to go in the water to conduct streamflow measurements at Fargo, North Dakota on March 27, 2009. U.S. Geological Survey photo by Jennifer LaVista, USGS

Our Work Groups, such as the Hydrologic Frequency Analysis, Extreme Storms, Hydrologic and Hydraulic GIS Applications, and Hydrologic Modeling Work Groups, are all working on issues that relate to improved flood monitoring, modeling, and forecasting. The SOH's quarterly and periodic Work Group meetings go a long way toward fostering and improving relationships between organizations involved in flood response.

One of the primary functions of the SOH is to "foster collaborative partnerships of relevant organizations at the national, river basin, State, Tribal, and watershed levels for the support of a national program of precipitation, streamflow, and related monitoring activities."

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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 is currently chaired by Steve Blanchard of the United States Geological Survey. Steve can be reached by phone at 703-648-5629 or by e-mail at: sfblanch@usgs.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.

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To meet that charge, the SOH, along with the Subcommittee on Sedimentation (SOS), is co-sponsoring the Joint 9th Federal Interagency Sedimentation and 4th Hydrologic Modeling Conferences, June 27 - July 1, 2010 in Las Vegas, Nevada. The Joint Conference is designed to provide opportunities to discuss recent accomplishments and progress in research and on technical developments in the physical, chemical, and biological aspects of sedimentation and the development and use of models addressing surface-water quality and quantity issues.

More information about the Joint Conference is available at:

<http://acwi.gov/hydrology/mtsconfworkshops/2ndJFIC-Call-for-Papers-102808.pdf>

I want to thank all the SOH of organization representatives and, particularly, the Work Group chairs, for your active participation in the SOH and for your many contributions.

*Steve Blanchard,
Chair, Subcommittee on Hydrology
USGS Office of Surface Water*

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Highlights from January 2009 Meeting

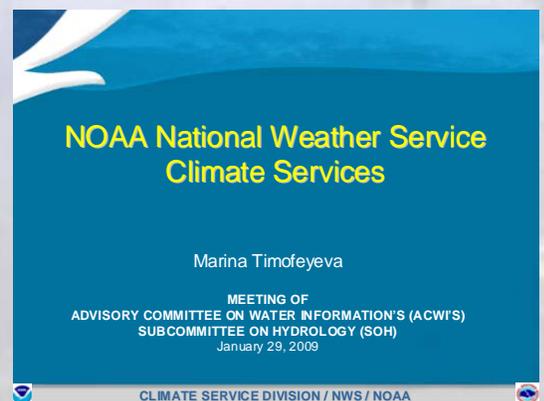
Featured Speaker

At the January 29, 2009 meeting of the SOH, Marina Timofeyeva, discussed the NOAA National Weather Service Climate Services.

Ms. Timofeyeva provided an overview of the NWS Climate Services and discussed examples of NWS Climate Services partnerships with NOAA (NESDIS/NCDC, OAR, NOS); the National Drought Mitigation Center; Regional Integrated Sciences and Assessments (RISAs); Regional Climate Centers (RCCs); State Climatologists (AASC); UCAR; Academia; and other government agencies.

She also discussed the roles of the the National Weather Service (NWS), the Climate Services Division (CSD), and the Climate Prediction Center (CPC) within NOAA.

She reviewed NWS national, regional, and local programs and their initiatives, NOAA data collection efforts, user access to data including a live demonstration of NOWData: NOAA Online Weather Data., as well as national and local examples of the product suite and services.



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Marina concluded with a discussion of the latest research including the impacts and applicability of climate products and user requirements; and the recognition of the needs for the establishment of a National Climate Service established within NOAA.

Marina Timofeyeva's presentation can be viewed on-line at:

http://acwi.gov/hydrology/minutes/CSDforACWIS_Jan292009.pdf

Other highlights from the January 2009 meeting included:

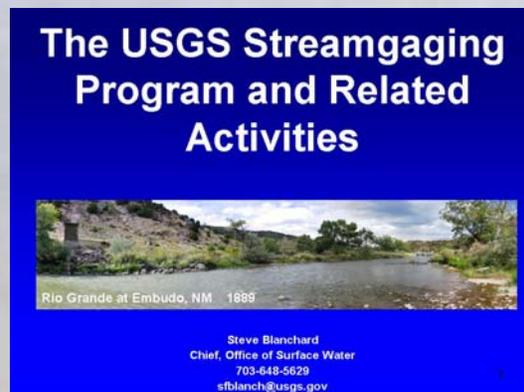
- OSM's Gerald Waddle attendance as OSM seeks to replace Mary Greene on the SOH;
- An update on CUAHSI;
- An overview was provided of the USGS Report "An Evaluation of Selected Extraordinary Floods in the United States Reported by the U.S. Geological Survey and Implications for Future Advancement of Flood Science" Costa, John E.; Jarrett, Robert D. This On-Line only report is available at URL: <http://pubs.usgs.gov/sir/2008/5164>

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Highlights from April 2009 Meeting

Featured Speaker

Steve Blanchard presented an "Overview and Status of the USGS Streamgaging Program" and discussed the National Streamflow Information Program (NSIP), during the April 30, 2009 SOH meeting. Steve's PowerPoint presentation can be viewed through SOH web-site at: http://acwi.gov/hydrology/minutes/Streamgaging_Status_SOH-April30-2009.pdf.



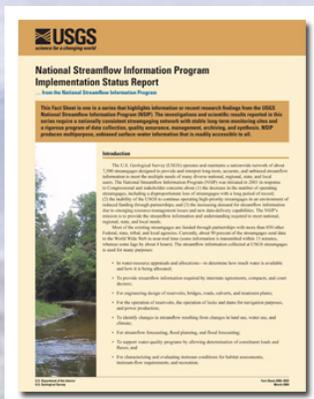
NSIP was established in response to stakeholder and congressional concerns about:

- Decreases in the numbers of operating gages, particularly those with long periods of record;
- The inability of USGS to continue operating gages as funding levels decline; and
- The increasing demand for streamflow information.

The five goals of the NSIP are to:

1. Establish a stable gage network;
2. Improve delivery of streamflow data to users;
3. Provide regional assessments of streamflow characteristics;
4. Expand data collection during floods and droughts; and
5. Increase basic research and development to meet user needs.

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A brief description of each of the goals of NSIP follows.

- (1) **Establish a stable gage network** by
 - Adding or renewing discontinued gages at critical locations;
 - Upgrading equipment at gages that do not have capability of transmitting data in real time;
 - Implementing the NSIP network of 4,744 federally funded gages as authorized in PL-111.11;
 - Flood-hardening gages at NWS forecast locations to the 1 in 200 flood level; and
 - Federally funding infrastructure costs of the entire national streamgage network.

- (2). **Improve Delivery of Streamflow Data to Users** by:
 - Implementing a system to help ensure uninterrupted delivery of information;
 - Developing enhanced systems and processes for quality assurance; and
 - Maximizing the usefulness and accessibility of information.

- (3) Provide **Regional Assessments of Streamflow Characteristics** by:
 - Evaluating appropriate methods for utilization of the data; and
 - Utilizing the streamflow information available in the National Water Information System (NWIS) database.

- (4) **Expand Data Collection During Floods and Droughts** with the objective being to increase the intensity of data collection, improve the analysis of the data collected and produce interpretive reports in order to improve the understanding and response to floods and droughts.

- (5) Increasing **Research and Development** by performing basic and applied research to develop new tools and technologies to improve the way surface-water information is obtained and analyzed; and to improve the understanding of surface-water flow.

USGS Fact Sheet 2009-3020 can be viewed at:
<http://pubs.usgs.gov/fs/2009/3020/>

Steve also discussed types of gages and the methodologies USGS uses in collecting stream information; as well as the various products that USGS makes available to the public via the internet through various web-sites.

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2009 ACWI Annual Meeting

The SOH briefing presentation at the ACWI 2009 Annual Meeting February 10-11, 2009 was very well received. SOH provided an overview of our purpose, membership and workgroup activity.

- The Hydrologic Modeling Work Group highlighted the Call for Papers for the 2010 conference.
- The Satellite Telemetry Interagency Work Group updated ACWI on the development of the Emergency Data Distribution System (EDDN), and improvements to the GOES DCS system.
- The Hydrologic Frequency Analysis Work Group discussed the status of their work on the Bulletin 17B.
- The Hydrologic and Hydraulic GIS Applications Work Group presented their status reviewing public access GIS models.

The majority of the presentation centered on providing ACWI with the background and need for the establishment of our newest Work Group on Extreme Storms. The Work Group objectives, membership, and initial activities were reviewed.



The meeting also consisted of briefings from other ACWI sub Groups, reports from member organizations, and a guest speaker, Robert Hirsch (USGS) discussing, "Water Resources and Floods in a Non-Stationary World."

Meeting highlights are available at:
http://acwi.gov/acwi2009/acwi_highlights_09.pdf

Meeting presentations are available at:
<http://acwi.gov/acwi2009/slide.lib/index.html>

The general ACWI 2009 Annual Meeting website with additional information is located at:
<http://acwi.gov/acwi2009/index.html>

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Work Group Reports

Extreme Storm Events Work Group

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

A work group teleconference was held June 2, 2009 to discuss the following items:

- **Assistance by NOAA/NWS on Obtaining Extreme Storm Event Datasets**
John England and Doug Clemetson recently visited the NOAA/NWS offices in Silver Spring, Maryland. There they were able to scan and tabulate significant amounts of paper files of hydrometeorological data for their respective studies on updating HMRs for PMP analyses in the Carolinas, and storm and flood data for the upper Missouri River Basin.
- Briefing on “Cherry Creek PMP Issues” by Doug Clemetson, USACOE
- PMP Research by John England, Reclamation
- Development of a National Database of Extreme Storm Events related to Flooding by Douglas Clemetson, U.S. Army Corps of Engineers’ (USACE), Omaha, Nebraska

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.

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Hydrologic Frequency Analysis Work Group

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

The Data Group (Martin Becker, Don Woodward, Jerry Coffey, Beth Faber and Will Thomas) had a conference call on April 22, 2009 to discuss the status of the EMA-Bulletin 17B testing.

It was decided that the testing should include, at a minimum, a comparison of 1-percent chance flood discharges derived using EMA versus the Bulletin 17B procedures for the 80 stations under review. This is to include full period of record testing, some split sampling testing of observed data, and a summary of existing Monte Carlo simulations that the team has already completed (the published results to date).

The Association of State Floodplain Managers (ASFPM) is drafting a letter to the Congressman on the House Appropriations Subcommittee and to USGS supporting the update to Bulletin 17B. ASFPM is concerned that the work of the HFAWG is progressing too slowly and are requesting that a dedicated source of funding be established for this activity to ensure that this critical update is completed in a timely fashion. ASFPM believes that the update of Bulletin 17B will help ensure that new FEMA maps delineating our nation's floodplains properly reflect the true risk of flooding.

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.

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Satellite Telemetry Interagency Work Group

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

Meeting minutes and information on the activities of this Work Group can be obtained from Charles Allen. He can be reached by phone at: (208) 378-5189 or by e-mail at: callen@pn.usbr.gov.

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Hydrologic and Hydraulic GIS Applications Work Group

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

Teleconferences for Work Group members are held regularly. The last two teleconferences were held March 3, 2009 and May 5, 2009. 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 12 questionnaires received.

Dr. Vijay Singh at Texas A&M University (TAMU) maintains a list of hydrologic model contacts for anyone who wants to see what models are listed and their contacts . This list can be found at <http://hydrologicmodels.tamu.edu/>.

A proposal from the Bureau of Reclamation for a CESU agreement with Texas A&M has been approved for \$20,000. The GIS applications in hydrology and hydraulics will be included in the web site. There is a detailed plan of work for the graduate student at Texas A&M to conduct the project. This will include searching for additional GIS applications in hydrology and hydraulics. Coordination between the student and the Work Group will be ongoing over the next year.

Involvement with the upcoming 4th Federal Interagency Hydrologic Modeling Conference (June 2010) was discussed. Involvement will include submitting an abstract for an oral presentation on the activities and progress of the work group.

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.

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Hydrologic Modeling Work Group

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

March 17, 2009 Conference Call Summary notes:

Conference plans are well underway. A summary of the proposed short courses is being developed. All member agencies have been distributing the call for papers which can be found at:

<http://acwi.gov/hydrology/mtsconfwkshops/2ndJFIC-Call-for-Papers-102808.pdf>

Tim Randle is the poster coordinator for the Joint Federal Interagency Conference. Victor Hom will coordinate with Tim. Joe Treadway will be in charge of commercial exhibits for the Joint Federal Interagency Conference.

A conference web-site was not yet operational as of the teleconference date. A conference registration fee has not yet been determined.

One consideration is related to ADA (the Americans with Disabilities Act) accessibility of the host facility and how that will be addressed in the website.

A face-to-face meeting of Work Group members is planned for July 7-9 in Las Vegas.

David Kirschtel reported on the activities of CUAHSI. Two of their primary activities are the Community of Hydrologic Modeling Platform (CHMP) which will have an initial workshop shortly. The second major activity is the Community Surface Dynamic Modeling Group associated with the University of Colorado. This activity focuses on software development. Don Frevert will send the web-link for the Joint Federal

Interagency Conference to David Kirschtel and Rick Hooper for distribution among CUAHSI's member universities.

To date, no abstracts have been received. It was agreed that another reminder should be sent out on or about June 1, 2009 if abstract submittal continues to lag. Four session proposals have been received for the Federal Interagency Sedimentation Conference so far.

May 2012 Conference Call Summary notes:

Action items from the previous conference call were reviewed. All had been completed or were in progress.

Action: David Kirschtel will re-check within CUAHSI to determine whether they will be able to assist in the transfer of funding from NSF to the conference for support of student participants.

Update on Community Hydrologic Modeling Platform (CHMP):

David Kirschtel reported that the April 30 – May 1 meeting on the Community Hydrologic Modeling Platform drew more than 100 participants. The consensus was that there is currently enough flexibility in available hydrologic modeling platforms and that a new stand alone modeling platform is not a major need. The current priority seems to be on developing and agreeing upon best modeling practices.

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Abstracts for 2010 Federal Interagency Hydrologic Modeling Conference:

Don Woodward reported that no abstracts have been received so far. Several of the agency participants reported significant interest in the conference within their agencies. It was agreed that at least one more reminder should be sent out within the participating agencies before the deadline – probably in early June. The link for the call for papers is:

<http://acwi.gov/hydrology/mtsconfworkshops/2ndJFIC-Call-for-Papers-102808.pdf>

Action: All member agency representatives will circulate the call for papers to key members of their technical staffs in early to mid June and follow up with individuals who are deemed to have potential contributions for the conference.

Action: All members are encouraged to make contact with international colleagues who may have papers to contribute and also with organizations like USAID who may be able to provide support to international participants.

Summary of Short Courses:

Obey has sent out summary tables and short course descriptions for the conference.

Action: Obey will update the description narrative to include the Curve Number short course by Pete Hawkins and Don Woodward. He will also consult with Jerry Bernard to see if he has any additions or corrections to offer. He will then redistribute the summary prior to the July 7-8 meeting in Las Vegas.

Conference Website:

Doug Glysson reported that arrangements with a private organization to develop the website are nearly complete and that support for Jeff Rieker has been arranged for. The goal will be to have the website operational in time to do a demonstration at the July 7-8, 2009 meeting in Las Vegas.

Las Vegas Meeting:

The next meeting of the work group will be **July 7th and 8th** in Las Vegas in conjunction with the general meeting of the conference planning committee. The work group breakout will be held on the morning of Wednesday, July 8th. The Hydrology Subcommittee will meet the morning of July 7th and the conference planning committee will meet on the afternoon of the 7th and again on the afternoon of the 8th – after the work group breakout sessions. Comments on the draft agenda for the breakout session should be sent to Don Frevert.

Action: All members who haven't already done so should make their hotel reservations for attending July 7th and 8th meetings.

Action: Doug Glysson will arrange for call in capabilities for those who are not able to attend the meeting on site – and will send out the call in information.

Teleconference minutes and additional information on the activities of the Work Group can be obtained from Don Frevert. He can be reached by phone at (303) 989-4270 or by e-mail at dkfrevert@netzero.net

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The FUNdamentals

The difference between Hydrology and Hydraulics

Simply speaking, *hydrology* is mainly concerned with the prediction of *water quantity and its distribution* in time and space. *Hydraulics* is mainly concerned with predicting the *behavior of water* in both static and dynamic situations.

In principle, *hydrology* is a *science* that deals with the properties, quantities, distribution, and circulation of the earth's water. Yet *hydraulics* is a branch of *engineering* that applies fluid mechanics principles to problems dealing with the collection, storage, control, transport, regulation, measurement, and use of water.

After all, in *engineering applications* *hydrology* generally refers to *natural processes* of temporally and spatially distributed water quantities, whereas *hydraulics* generally refers to *human-controlled or artificial processes* based on related water behaviors.

Compiled by:
Sam Lin, NRC

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News from Member Organizations

NOAA - National Weather Service

NOAA NWS Advanced Hydrologic Prediction Service (AHPS) Flood Maps for Blanchard River at Findlay, Ohio

USGS, NOAA/NWS, and City of Findlay, OH completed an interactive flood warning system that integrates the USGS streamgage, the NWS Forecast, USGS Flood Studies, and NOAA NWS AHPS Flood Maps. The announcement celebrating this achievement can be found at:

<http://www.usgs.gov/newsroom/article.asp?ID=2204>

The AHPS Flood Maps in association with NWS real-time forecasts are available at:

<http://newweb.erh.noaa.gov/ahps2/inundation/inundation.php?wfo=cle&gage=fdyo1>

Submitted by:
Victor Hom, NOAA NWS

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NOAA Atlas 14 Volume 4: Precipitation-Frequency Atlas of the United States, Hawaiian Islands

The estimates have been published through the **Precipitation Frequency Data Server** at:

<http://hdsc.nws.noaa.gov/hdsc/pfds/>

The release includes:

- precipitation frequency estimates for
 - durations from 5-minutes through 60-days
 - average recurrence intervals 1-year through 1,000-years
 - confidence limits
- cartographic maps of select durations/frequencies:
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_maps.html
- GIS shapefiles:
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_gis.html
- the annual maximum series data used in the analysis:
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_series.html
- temporal distribution data:
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_temporal.html

Accompanying documentation describing the data, metadata and methodology will be released in May 2009.

Submitted by:
Victor Hom, NOAA NWS

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Upcoming Conferences and Calls for Papers



Association of State Floodplain Managers Annual Conference
Green works to reduce flood losses
Orlando, Florida
June 7 - 12, 2009
<http://www.floods.org/Conferences,%20Calendar/Orlando.asp>



American Geophysical Union AGU Chapman Conference on Abrupt Climate Change

**Byrd Polar Research Center
 The Ohio State University
 Columbus, Ohio
 15-19 June 2009**
<http://www.agu.org/meetings/chapman/2009/ccall/>



**American Water Resources Association
 2009 Summer Specialty Conference**
Adaptive Management of Water Resources
Snowbird, Utah
June 29-July 1, 2009
<http://www.awra.org/meetings/SnowBird2009/>



US Army Corps of Engineers Infrastructure Systems Conference
Building National Technical Competency
Cleveland, Ohio
July 20-24, 2009
<http://www.usaceiscconf.org/2009/>



2009 5th International SWAT Conference
August 3-7, 2009
Boulder, Colorado
http://www.brc.tamus.edu/swat/conf_5th.html



**American Water Resources Association
 2009 Annual Water Resources Conference**
Seattle, Washington
November 9 - 12, 2009
<http://www.awra.org/meetings/Seattle2009/>



Joint Federal Interagency Conference on Sedimentation and Hydrologic Modeling
Hydrology & Sedimentation for a Changing Future: Existing and Emerging Issues
Las Vegas, Nevada
June 27 - July 1, 2010
<http://www.jfic2010.org/>

Call for papers:
 Abstracts due July 1, 2009



**ASCE - Environmental Water Resources Institute
 2010 Watershed Management Conference**
Innovations in Watershed Management under Land Use and Climate Change
Madison, Wisconsin
August 23-27, 2010

Call for papers:
 Abstracts due August 12, 2009
<http://content.asce.org/conferences/watershedmanagement2010/>

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For your information

SWAT International Conference

**August 3-7th, 2009
Boulder, Colorado**

SWAT, the Soil and Water Assessment Tool, is a basin-scale model jointly developed by USDA Agricultural Research Service (USDA-ARS) and Texas AgriLife Research which is part of The Texas A&M University System. The SWAT model is used as a river basin-scale model to simulate the quality and quantity of surface and ground water and predict the environmental impact of land management practices on different soil patterns and land use patterns.

The 5th International SWAT Conference will be held from August 3rd thru 7th at the University of Colorado in Boulder, Colorado. The theme of the conference is Development and Application of SWAT Model.

A hands-on workshop will held August 3rd thru 4th and offer a variety of courses ranging from introductory to advance classes on SWAT. More information can be found at:
http://www.brc.tamus.edu/swat/conf_5th.html

*David Wells,
Environmental Protection Agency*

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National Flood Conference

The National Flood Insurance Program (NFIP) and Federal Emergency Management Agency (FEMA) [2009 Annual National Flood Conference](#) took place from 4/19 to 4/22 in Boston. NOAA National Ocean Service, National Weather Service, and United States Geological Survey held a workshop seminar on the importance of precipitation, streamgage, tide data, geodetics, and LIDAR to Flood Insurance Studies, which are the basis for the Digital Flood Insurance Maps (DFIRM), used by the insurance industry when writing flood policies. NOAA and USGS also had an exhibit booth to discuss NSIP, NWS AHPS, and NOAA NOS Coastal Program. Members of the insurance industry better understand the value and the importance of precipitation and streamgage data to the flood studies, used by NFIP to produce the DFIRM.

NOAA NWS Presentation on NOAA activities inter-related to NFIP is posted at:
http://apps.weather.gov/tempdocument_s_ext/NWS_NFC2009_Hom_20090422_Final.ppt

*Victor Hom,
NOA - National Weather Service*

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Western Snow Conference

The 77th Annual Meeting of the Western Snow Conference was held in Canmore, Alberta, Canada April 21-22, 2009. Sixty attendees from various Canadian universities and Provincial governments, US universities, State and Federal government and private corporations attended.

Fourteen technical papers were presented and ten posters exhibited covering such topics as:

- Low elevation snowfall in central and northern California;
- Relations between monthly precipitation and elevation in the Canadian Rocky Mountain foothills;
- Potential effects of future climate change in Idaho;
- Processes and predictions of alpine snow hydrology in the Canadian Rocky Mountains;
- Incorporating satellite data into snow melt prediction models;
- Effects of the canopy on snowmelt in forested areas;
- Research into the effects of mountain pine beetle infestation on snow accumulation and ablation in British Columbia; and
- Managing snowcover for soil water content in grain fields managed for straw fiber.

Proceedings from the meeting will be made available on the Western Snow Conference web-site at:
www.westernsnowconference.org.

*Claudia C. Hoeft,
USDA - Natural Resources
Conservation Service*

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Death of a Pioneer



Dr. Danny Fread

It is with much sorrow that I report that Dr. Danny Fread passed away quietly on February 5, 2009. He was a good friend and the Director of the Office of Hydrology in the National Weather Service. He was a real pioneer in hydrology and the developer of NWS-DAMBRK and FLDWAV; National Weather Service Dam Break Analysis and flood routing programs. Danny was a recognized authority throughout the world.

He received many national awards for his work including the Department of Commerce Gold Medal, the American Society of Civil Engineers Huber Research Prize, and the Association of State Dam Safety Officials National Award of Merit.

He was widely known for his efforts on developing computer models that more accurately forecasted the flows of flooding rivers and dam failures.

Danny was a dedicated public servant who worked many long hours to advance the science of hydrology. It was my distinct honor and pleasure to be associated with Danny for over 20 years. Danny was always available to discuss his innovative programs with his numerous colleagues and constantly give them encouragement. Under his excellent leadership, the Low Water Crossing video was developed and distributed widely. This video saved countless lives by pointing out the dangers associated with the awesome power of flood waters.

Besides his work, Dr. Fread was extremely active in his Church. Through his leadership and dedication, many service projects were initiated to help those in need. He is survived by his beloved wife Helen of many years, a daughter, son-in-law and two grandchildren.

Gene Stallings
National Hydrologic Warning Council

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Upcoming Meetings

Subcommittee on Hydrology:

July 7, 2009 in Las Vegas, Nevada in conjunction with the Subcommittee on Sedimentation and planning meeting for the 2010 Joint Federal Interagency Conference (www.jfic2010.org).

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Editor's Corner

In Memorium

† Leo Roy Beard

We were saddened to hear of the death of Leo Roy Beard, founding Director of the U.S. Army Corps of Engineers Hydrologic Engineering Center (HEC) in Davis, California.

After 33 years with the Corps, Professor Beard retired in 1972 and went on to work with the University of Texas and the engineering consulting firm of Espey, Huston, and Associates. He was a visiting professor at the University of California (Berkeley) and Utah State University, and lectured at the University of California (Davis).

Roy was a member of numerous professional societies and organizations and served those organizations in multiple capacities.

In 1975 he was elected to the National Academy of Engineering. In 2001, he received the American Society of Civil Engineers and in 2007 he received the Ven Te Chow Award of the American Society of Civil Engineers.

Leo Roy Beard's obituary may be found at http://www.wcfish.com/mgxroot/page_10780.php

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Thank you to all who submitted items for this newsletter. As a reminder, we can always use articles, meeting notices, ideas you might have, or other information for the newsletter.

To submit items, please contact either Mary Greene or Claudia Hoeft.

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