

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

**12:00 p.m. – 3:00 pm, Eastern Time
January 19, 2012
USDA South Building
1400 Independence Ave SW, Room 2406-S
Washington DC**

FINAL MINUTES

Agenda

1. Welcome and Introductions Richard Raione
2. Review and Approval of Agenda Richard Raione
3. Approval of Minutes from October 20, 2011 Meeting Victor Hom
4. Status of Action Items from October 20, 2011 Meeting Richard Raione
5. Meeting Topic : *Assessing Agency Needs and ACWI SOH Priorities* Richard Raione and
SOH Members
 - Purpose of the Assessment
 - Review of Survey Feedbacks from FERC, NWS, USGS, EPA, USACE
 - General Comments from other SOH Members
6. Work Group Reports
 - a) Hydrologic Modeling Work Group J. Webb/D. Glysson
 - b) Hydrologic Frequency Analysis Work Group Will Thomas
 - c) Hydrologic and Hydraulic GIS Applications Work Group William Merkel
 - d) Extreme Storms Work Group Tom Nicholson
 - e) Satellite Telemetry Interagency Work Group
7. Current Events within Hydrologic Communities All
8. Announcements and Q&A on Business Reports from Member Organizations All
 - a) Business Reports
 - b) “The SOH CONNECTIONS” Newsletter Editor’s Report
 - c) Other?
9. Review Action Items Richard Raione
10. Plans for Next Meeting Richard Raione

Adjourn

ATTENDEES

Subcommittee on Hydrology Members

Representative	Organization/Agency	Participation
Martin Becker	Defenders of Property Rights (DPR)	(phone)
Lee Koss	U.S. Bureau of Land Management (USBLM)	(phone)
Glenn Austin	National Hydrologic Warning Council (NHWC)	(phone)
Will Thomas	Association of State Flood Plain Managers (ASFPM)	(phone)
Thomas Torgensen	National Science Foundation (NSF)	(phone)
David Toll	USDA Agricultural Research Service (ARS)	(phone)
Brian Beuclerl	USDOT Federal Highway Administration (FHWA)	(phone)
Jerry Webb	U.S. Army Corps of Engineers (USACE)	(phone)
Michael Eberle	USDA United States Forest Service (USFS)	
David Wells	US Environmental Protection Agency (EPA)	
Sam Lin	Federal Energy Regulatory Commission (FERC)	
Darwin Ockerman	United States Geological Survey (USGS)	
Richard Raione	U.S. Nuclear Regulatory Commission	
Victor Hom	NOAA National Weather Service	
Claudia Hoeft	USDA Natural Resources Conservation Service (NRCS)	
Donald Woodward	Global Ecosystem Center (GEC)s	

MINUTES

1. Welcome and Introductions

The January 19th meeting of the ACWI SOH was well attended. Some noted participants included former ACWI chair, Mr. Glenn Austin. Glenn is currently the Executive Director for the NHWC. He was serving on the call in the place of Mr. Eugene Stallings, who passed away during the summer of 2011. Glenn noted that they are looking for a NHWC representative to serve as the primary POC. Until then, Kevin Stewart will fill the primary role. Glenn stated the NHWC 2012 goals and actions will focus on offering more Training Opportunities including the change on FEMA's Community Rating System (CRS) Activity 610, which involves credit for flood warning programs. Glenn extended an invitation to the SOH members to the Biennial NHWC Conference to take place from June 3 -6, 2013 in Jacksonville, FL.

2. Review and Approval of Agenda

The agenda was reviewed with no major revisions. Agenda was approved as is.

It was noted that the Review of the Feedback Surveys was important but when these discussions have been completed, ACWI SOH should open the meetings with a guest speaker and topic.

Dr. Sam Lin recommended that Dr. Ed Tomlinson be invited to speak..

3. Approval of Minutes from October 20, 2011 Meeting

Version 2 of the draft minutes was circulated prior to the meeting. Members were asked to submit any revisions which pertained to the October 20th meeting to Mr. Victor Hom. Victor has the action to check his emails for any unincorporated revisions. Minutes was approved as is, subject to any new edits.

4. Status of Action Items from October 20, 2011 Meeting

See Action items listed on page 4.

5. Meeting Topic : Assessing Agency Needs and ACWI SOH Priorities

Dr. Richard Raione provided a summary of the collected feedback from the ACWI SOH Survey. Feedback was provided by EPA, FERC, NWS, USACE, and USGS. Since Mr. Robert Mason was not in attendance, USGS will be provided an opportunity to discuss their feedback at the April meeting. All representatives thought that this was a needed task.

The agency POCs provided more details about the feedback from their respective agencies. The dialogue centered around the agency priorities and their suggestions on how ACWI SOH could better align within the needs of all stakeholders commensurate with ACWI SOH's purpose and scope.

Some of the comment themes include:

- The need for scientists to better understand the engineers who use the hydrologic data for operational and regulatory uses.*
- The acknowledgment of the challenges which scientists are having with respect to climate change/modeling and the lack of data stationarity to support scientific analyses*
- The impact of these scientific challenges to the engineering community.*
- Guidelines*
- Advisory Role*

The reports are attached to the minutes beginning on page 11. Agencies who have not submitted their feedback are urged to complete the SOH Survey Form by February 17th.

In addition, SOH Members asked background history about the formation of ACWI as it relates to OMB and the Water Information Coordination Program (WICP). Mr. Will Thomas provided the following background:

The Water Information Coordination Program (WICP) of the Department of Interior and the USGS began in 1964 under the Office of Management and Budget (OMB) Circular A-67. In those days, there were two coordination groups, one for the Federal agencies (IACWD) and one for the public sector (ACWDPU). In addition to these two groups, there was also the U.S. Water Resources Council (WRC).

In the 1960s and 1970s, the development of flood frequency guidelines was under the auspices of the WRC. There was a Hydrology Committee under WRC. This Hydrology Committee composed of Federal Employees, produced Bulletin 15 in 1967, Bulletin 17 in 1976, Bulletin 17A in 1977 and Bulletin 17B in 1981. There were a number of typographical errors in the 1981 version of Bulletin 17B. The Reagan Administration disbanded the WRC in 1982. Bulletin 17B was republished in March 1982, under the auspices of the Interagency Advisory Committee on Water Data (IACWD) since the WRC the original sponsoring agency no longer existed.

The authorization for IACWD and ACWDPU was continued in 1992 under OMB M-92-01. The IACWD and ACWDPU were combined into the Advisory Committee on Water Information in 1996 to comprise of both Federal agencies and the public.

In summary, the USGS Water Information Coordination Program (WICP) began in 1964 long before OMB M-92-01. Additional info can be found at <http://acwi.gov/acwihist.html>.

6. Work Group Activities

- **Hydrologic Modeling Work Group**

Mr. Jerry Webb provided an update on the plans for the 2014 conference. The conference name is now changed to the 2014 Federal Interagency Sedimentation and Hydrologic Modeling Conference (SEDHYD) to better relate to the intent of the conference in its title name. The three sites being considered includes Las Vegas, Reno, and New Orleans. The use of WEBEX is being considered.

- **Hydrologic Frequency Analysis Work Group**

Mr. Will Thomas stated that the group is making significant progress. He recognized the contributions of Tim Cohn and Nancy Barth of the USGS to the testing of the new EMA code with the Multiple Grubbs-Beck test. The workgroup will be holding a meeting in March and have been invited to Will's office in Alexandria VA. Mr. Martin Becker commented on the need to decide on the threshold for elevation change which would necessitate a use of the different procedure i.e. EMA versus Bulletin 17B.

- **Hydrologic and Hydraulic GIS Applications Work Group**

Mr. Jerry Webb commented that there is some redundancy of this workgroup with ACWI Spatial workgroup. This group may want to re-examine their role and perhaps, focus on flood inundation mapping. Mr. Martin Becker weighed in that there are multiple agencies doing their own version of flood mapping, thus these activities need to be better coordinated. Mr. Victor Hom commented that NWS is working with stakeholders and its partners such as USGS and USACE to Flood Inundation Maps which are linked to the USGS river gage and NWS Forecast Services.

- **Extreme Storms Work Group**

Dr. Richard Raione and Dr. Sam Linn both acknowledged the importance of this workgroup. Sam stated that similar to USACE, FERC is a user of the data, depends on the scientist to collect the data, and interpret the data to make recommendations on how to appropriately use the data. FERC has a strong interest to have the Extreme Storms Workgroup re-emphasize that NWS has a role and responsibility to redevelop the PMP. Richard understands NWS predicament and thus have worked with USBR to re-examine the PMPs. Sam reminded that it is imperative that ACWI executive make strong recommendation. Richard acknowledged that it is his intent to bring the recommendations and advice forward from the workgroup to the parent ACWI.

- **Satellite Telemetry Interagency Work Group**

Ms. Claudia Hoeft commented that there might be changes to STIWG and the group should coordinate with Dan Schwitalla on any changes.

NOTE: Work Group Reports have been appended to the minutes beginning on page 7.

7. Current Events, Business Reports, and Newsletter Update

NOTE: Business Reports have been appended to the minutes beginning on page 9.

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

a) Business Reports

Members are to note the due dates. The reports should be sent two weeks prior to the meeting for inclusion into the agenda and meeting notes.

b) “The SOH CONNECTIONS” Newsletter Editor’s Report

Richard will coordinate with Peter to send reminders.

c) Other ... - NONE –

9. Review Action Items

See Action items listed on this page.

10. Plans for Next Meeting

EPA will be first choice and FERC will be the alternate. Next meeting will be on April 19th from noon to 3PM.

Action Items

Actions	Status	Due Date
All members: Submit respective Agency SOH Survey to Richard and Victor.	Closed	February 17
Victor Hom: Review any unincorporated comments on October minutes. Victor is to check any new email postings.	Complete and to be distribute as final for posting onto ACWI SOH site.	February 17
Victor Hom: Send Draft of ACWI SOH Meeting Minutes for January 2012 to SOH Members after incorporating any new reports or comments.	Complete and distributed for review.	February 17
David Wells: Check for conference meeting room and logistic support for April 19 th SOH Meeting at EPA	Meeting to be moved to FERC -	February 23
Sam Linn: Confirm conference meeting room and logistic support for April 19 th SOH Meeting at FERC from Noon-3PM	Completed -	February 23
All members: Review Terms of Reference, History, and Membership List posted on ACWI SOH website at http://acwi.gov/hydrology/index.html and submit any suggestion for changes to Richard and Victor.	ACWI SOH members did a great job on the membership roster. Victor received no other related comments, but will provide his review of the website and webpages.	March 1
Victor Hom: Coordinate with Dr. Tomlinson on his availability to present at upcoming ACWI SOH meeting.	Deferred. Will Thomas and John	March 1

	England will be feature speakers for the April 2012 ACWI SOH meeting.	
Richard Raione/Victor Hom: Discuss ACWI SOH's purpose and its role as it relates to ACWI, OMB, 92-01, and any other related authorizations with Wendy Norton.	Richard has reached out to Wendy. Richard and Victor have re-examined ACWI-SOH's TOR and supporting materials. They are committed to rechanneling this group to its purpose.	March 15
All members: Submit current events and business reports on FY12Q2 activities to Richard and Victor in preparation for April 19 th meeting.	-	April 5
All members: Submit newsletter articles to ACWI SOH editors: Peter Chaput.	-	April 5
Work Group chairs: Send Work Group status reports to Richard and Victor in preparation for April 19 th meeting.	-	April 5
Claudia Hoeft: Draft a standard procedure regarding welcome to meetings and expectations / needs of guests who wish to attend SOH meetings.	Claudia to provide draft and discuss at April meeting.	April 19
Kevin Stewart: Identify NHWC/Washington DC representative for ACWI SOH.	Members are to submit recommendations to Glenn and Kevin	April 19
John Osterberg: Identify Dr. Ian Ferguson will be USBR Primary representative for ACWI SOH.	Completed - Dr. Ian Ferguson will be a welcome addition	April 19
Dan Schwitalla: STIWG draft statement of concern regarding bandwidth sell off impact on hydrology and hydraulic data collection and availability.	Carried forward	No date assigned
Completed Actions from Prior Meeting	Status	Due Date
Claudia Hoeft: Investigate what is required for a final report and dissolving a work group.	Claudia emailed Wendy Norton with questions regarding dissolution of Work Groups on 01-18-2012.	Completed

Final

Work Group Reports

Hydrologic Frequency Analysis Work Group (HFAWG) Report for the January 19, 2012 meeting of the Subcommittee on Hydrology

Background

A major objective of the Hydrologic Frequency Analysis Work Group (HFAWG) is to increase the usefulness of Bulletin 17B, *Guidelines for Determining Flood Flow Frequency*, which are used by all Federal agencies. The current guidelines were published in March 1982 and have not been updated to incorporate advancements in frequency analysis over the last 30 years.

In November 2005, the HFAWG developed a plan to investigate possible improvements in statistical procedures for frequency analysis. This plan titled “Flood Frequency Research Needs and Possible Improvements to Bulletin 17B” is posted on the work group web site at <http://acwi.gov/hydrology/Frequency/>. An important part of this plan was to evaluate the performance of the Expected Moments Algorithm (EMA) for analyzing historical flood data, high and low outliers and to compare this new procedure to the existing Bulletin 17B procedures. The potential advantages of EMA include the use of multiple thresholds and historical periods for analyzing historical floods and high outliers, the use of intervals rather than point estimates for characterizing annual peaks, and the use of greater than or less than values for annual peaks.

In August 2007, 82 long-term stations were chosen as a basis for testing EMA and the current Bulletin 17B procedures. A subgroup of the HFAWG, a Data Group, proposed various tests for the observed data and for Monte Carlo testing on simulated data. The proposed testing scheme was provided to another subgroup of the HFAWG for performing the testing.

In November 2009, the HFAWG met to discuss testing of the observed data at the 82 long-term stations. The test results and the associated report were completed by John England, Bureau of Reclamation; Tim Cohn, U.S. Geological Survey; and Nancy Steinberger, Federal Emergency Management Agency. At the November 2009 meeting, additional testing was proposed by the HFAWG.

Based on the early testing on observed data, it became apparent that the EMA procedure was not performing as well as anticipated for stations with low outliers. In early 2011, Tim Cohn, USGS, developed a Multiple Grubbs-Beck test that was incorporated in the EMA computer code. The Multiple Grubbs-Beck test allows for detection of several low outliers in a single run and eliminates some of the engineering judgment needed in frequency analysis.

Recent Progress

In the Fall of 2011, USGS (Tim Cohn and Nancy Barth) completed testing on the data at the 82 long-term stations and performed several Monte Carlo simulations using the new EMA code with the Multiple Grubbs-Beck test. For five of the longest observed records (> 100 years), data samples of size 40 were randomly resampled from the longer record. Specifically three estimators were evaluated for both observed and simulated data:

- Bulletin 17B with the current Grubbs-Beck low outlier test,
- Bulletin 17B with the new Multiple Grubbs-Beck low-outlier test, and

- EMA with the new Multiple Grubbs-Beck low-outlier test.

The three estimators were evaluated to identify differences due to EMA and differences due to the new Multiple Grubbs-Beck low outlier test.

The data sets for the 82 long-term gaging stations were updated through the 2010 water year where the data were available. Using the three estimators above, the relative percent differences were summarized for the 10-, 1- and 0.2-percent chance flood discharges for all stations. A summary of results is provided for four types of data:

- Systematic gage data only, no historical or low outlier data (23 stations)
- Stations with historical data and high outliers (18 stations)
- Stations with low outliers but no historical data (20 stations)
- Stations with low outliers, historical data and high outliers (21 stations)

There were 21 stations where the 1-percent chance discharges differed by 9 percent or more for Bulletin 17B with the current Grubbs-Beck low outlier test and EMA with the Multiple Grubbs-Beck low outlier test. Frequency plots for these stations were prepared as well as a discussion of reasons for the differences.

The three estimators were also applied to the simulated data and the resampled observed data. Box plots were used to compare for the three estimators for the 1-percent chance flood discharge and the differences were discussed. The synthetic frequency distributions used in the testing were developed by Beth Faber, USACE. The types of analyses included:

- simulated data from assumed log-Pearson Type III distributions with positive and negative skews,
- mixed distributions of two log-Pearson Type III distributions with positive skews,
- concatenation of two log-Pearson Type III distributions with negative skews,
- concatenation of two Generalized Extreme Value (GEV) distributions, one with negative skew and one with positive skew; and
- resampling from the observed record for five gaging stations with more than 100 years of annual peak data.

A draft report has been prepared and is being finalized for transmittal to the HFAWG. Plans are to send out the report by March 1 and have a HFAWG meeting on March 19, 2012 at Michael Baker's office in Alexandria, VA to discuss the testing described above. The objective of the meeting is to develop recommendations for revising Bulletin 17B.

Will Thomas
Michael Baker, Jr.
January 18, 2012
Revised January 20, 2012

Business Reports

FERC Report for SOH Meeting on January 19, 2012 Submitted by Sam Lin, FERC

- On November 7&8, 2010 FERC participated in a Board of Consultant (BOC) meeting on the Piru Creek Site-Specific PMP/PMF Study for determination of spillway adequacy at Santa Felicia Dam and Pyramid Dams. This Site-Specific PMP Study is a joint effort by the United Water Conservation District (UWCD) and the CA Department of Water Resources (DWR) for their respective FERC project dams.
- On December 7th and 8th, 2011, FERC attended an ASDSO Dam Failures Investigation Committee Meeting. The committee is tasked to develop a guidance document covering the scope of work, organization, conduct, and follow-up activities that would be used for a dam failure investigation and reporting. The Committee consists of Federal Dam Safety engineers, State dam safety officials, private consultants and owners that have direct and recent experience in the investigation of dam failures including Silver Lake (Michigan), Big Bay (Mississippi), Taum Sauk (Missouri), Hadlock Pond (New York), and Hope Mills (North Carolina) and KaLoko Dam (Hawaii).
- On January 10 and 11th FERC participated in the National Dam Safety Review Board (NDSRB) meeting and the Interagency Committee on Dams (ICODS) meeting. NDSRB focuses on the State dam safety offices and how the Federal dam safety agencies can assist and support the states in carrying out successful dam safety programs. ICODS focuses primarily on the Federal dam safety agencies and the collaboration and cooperation necessary to implement consistent programs.

NWS Report for SOH Meeting on January 19, 2012 Submitted by Victor Hom, NWS

- On December 14th, USGS, USACE, and NWS met to discuss interagency collaboration in enhancing flood risk communications with flood forecast inundation maps. HSD worked with USGS to host this third Quad Agency FIM Meeting and provided a status update on NWS flood inundation mapping (FIM) efforts. NWS reported that there are over 45 interagency FIM projects in which could lead to new AHPS FIM Libraries. HSD provided screenshots of the new AHPS Google-based FIM <<<http://ahpsdev.enable-us.com/ahps/inundation.php>>>. See link <<http://apps.weather.gov/tempdocuments_ext/QuadAgency_FIM_Meeting_Hom_20111214_Final.ppt>> . for a copy of the NWS presentation. USGS followed with presentations on their collaborations with NWS in linking the AHPS FIM libraries with FEMA Hazus-MH Analysis to show the socio-economic impacts of flooding and screen-shots of the coupled analysis on the USGS Flood Inundation Mapping Initiative (FIMI) Viewer. Afterwards, there was an open discussion to brainstorm on an efficient business model for interagency collaboration to develop flood forecast gage-based flood inundation maps.
- NWS has been participating in FEMA's LAMP (Levee Analysis and Mapping Approach) for Non-Accredited Levee System Forums and will be providing feedback on the new approaches used to evaluate the flood risk behind non-accredited levees. The new approaches include enhanced modeling behind levees and levee segments. HSD has the action to coordinate a collective response on behalf of NWS to FEMA. More information about these approaches can be found at: <<http://www.fema.gov/plan/prevent/fhm/lv_lamp.shtm>>.
- There will be an ICWP (Interstate Council on Water Policy) Washington Roundtable March 13-16. For more info, please see the following link: <<<http://www.icwp.org/cms/>>>.

NRC Report for SOH Meeting on January 19, 2012
Submitted by Richard Raione, NRC

- The U.S. Nuclear Regulatory Commission (NRC) will be hosting the Annual (24th) Regulatory Information Conference (RIC) on March 13-15, 2012, at the Bethesda North Marriott Hotel and Conference Center in Rockville, Maryland. The RIC brings together more than 3,000 participants from over 34 countries and offers an opportunity for government, industry, international agencies and other interested stakeholders and members of the public to meet and discuss safety and security initiatives and developments in the regulatory arena. Registration is free, see weblink for details: <https://ric.nrc-gateway.gov/ricregistration.aspx>
- In particular, the technical sessions that folks may be interested in attending include Session T6 (March 13) – International Panel Discussion on Assessing Environmental Risk from Radioactive Releases and Session W10 (March 14) - Flooding: Lessons Learned and Near-Term Regulatory Actions. See attachment for more details. Additionally, tabletop and poster presentations that may be of interest include “One Year Later: Implementing Lessons-Learned from Fukushima” and “Tsunami Hazards: Overview of NRC Safety Review Process, NRC-Supported Research, and NRC Plans for Updating Guidance.
- A desalination plant video from the USBR is posted at the website: <http://www.usbr.gov/> under the link referencing the Secretary of Interior Salazar and the USBR Commissioner Connor’s video about the world’s largest inland desalination plant located in El Paso, Texas. This plant produces about 27.5 million gallons per day of fresh water and struck me as a very impressive step forward and accomplishment dealing with water resources and protection. If you are interested in learning more about this project, please also see the link: http://www.epwu.org/water/desal_info.html

Agency Assessments (See attached for individual reports and comments)