

Subcommittee on Hydrology
Report to the Advisory Committee on Water Information
July 12, 2011

SOH Leadership:

The Subcommittee members were deeply saddened upon the very sudden and unexpected passing of Mary Greene, USDA-NRCS, Chair the SOH, in July of last year. This left the Subcommittee with a dilemma as is tried to determine how best carry on Subcommittee functions and work with the least amount of disruption. Ultimately, in order to maintain consistency and the normal election cycle, Subcommittee members decided on the following actions:

- 1 – Claudia Hoefl, USDA-NRCS, Vice-chair, to take over the position of Chair and complete Mary's term;
- 2 – Elect a new Vice-Chair to replace Claudia.
- 3 – The newly elected Vice-Chair takes over as Chair at the end of Mary's original term ending September 30, 2011.

Richard Raione, NRC, volunteered to serve as Vice-Chair for the remainder of the term and will assume the position of Chair effective October 1, 2011. The Subcommittee will be electing a new vice-chair at the next regularly scheduled meeting on July 20, 2011.

Subcommittee Membership:

The Subcommittee lost one member organization, American Forests, when it reorganized. That reorganization, however, led to the establishment of the Global Ecosystems Center (GEC) and the American Forests representatives, Don Woodward, and Ken Kay, now represent GEC.

California Division of Water has inquired through the FEMA representatives about membership on SOH. The Subcommittee expects a written request soon, but to date, none has been received.

Work Group Reports:

Hydrologic Frequency Analysis Work Group (HFAWG)

Will Thomas, Association of State Floodplain Managers Association (ASFPM), Chair

The Hydrologic Frequency Analysis Work Group (HFAWG) has identified several revisions that are needed in Bulletin 17B, *Guidelines For Determining Flood Flow Frequency* (<http://acwi.gov/hydrology/Frequency>). One of those revisions includes the evaluation of a new statistical procedure, the Expected Moments Algorithm (EMA), for estimating the moments of the Pearson Type III distribution. This testing has been ongoing for a few years. During 2009 the HFAWG prepared a draft report describing comparisons of EMA to the existing Bulletin 17B procedures using peak-flow data for 82 long-term gaging stations. These tests indicated that EMA and Bulletin 17B analyses depart the most at those stations that had low outliers. This prompted the HFAWG to develop a Generalized Grubbs-Beck test for identifying multiple low

outliers. The computer code has recently been revised and new analyses performed at the 82 long-term gaging stations. The Generalized Grubbs-Beck test identifies more outliers than the existing Grubbs-Beck test and this new test may be a good way to deal with the low-outlier issue within the context of flood frequency analysis.

Future plans include completing the EMA – Bulletin 17B testing on observed data and performing some limited tests on simulated data for a mixture of assumed frequency distributions. Once these test results are completed and the HFAWG has evaluated these results, recommendations will be made to the Subcommittee on Hydrology and the ACWI on revisions to Bulletin 17B. These recommendations will be forthcoming sometime in 2012.

Extreme Storm Event Work Group

Tom Nicholson, NRC, Chair

At the direction of the SOH, the Extreme Storm Event Work Group formed an Ad Hoc Committee in December 2010, chaired by John England, U.S. Bureau of Reclamation, to prepare a proposal for updating Probable Maximum Precipitation (PMP) estimates for the U.S. The Ad Hoc committee met on February 23, 2011 to discuss development of a proposal outline. The committee decided that the proposal would have a two-phase approach: a short-term (1 to 2 years) Phase I effort to organize and document what is presently available [(e.g., existing PMP methods; updating the USACE Storm Rainfall Catalog (1973) with new data such as electronic Depth-Area-Duration (D-A-D) data for each new storm; and developing a Web Portal for the data, etc]; and a Phase II (2 to 5 years) effort focusing on review of new potential methods such as 3-dimensional models (WRF) to replace the storm separation concept, and evaluating and testing select new methods for estimating PMPs. Finally, the HydroMeteorological Reports (HMRs) should be updated with the PMP estimates using those new methods. It was decided that the initial effort would be on updating HMR 51 (eastern half of the conterminous U.S.). John England requested each Federal agency to provide a short narrative on why they needed an updated HRM 51.

The draft "PMP Proposal" outline is:

- Phase 1:
1. Background and Need
 2. Summary Literature Review
 - document existing methods
 - identify any major flaws (if any)
 - identify some new methods (no recommendations)
 3. Storm Rainfall Catalog Update
 - update the USACE Storm Rainfall Catalog (through 1973) with new data
 - electronic D-A-D data for each new storm
 - develop web portal for data
 4. PMP Updates of HMRs using Existing Methods
 - target HMR 51 first
 - web portal for reporting data and HMR updates
 5. Federal Interagency Technical Oversight Group

- Phase 2
- define the group, its technical functions, capabilities, and requirements
6. Detailed Literature Review on New Potential Methods
 - such as 3-D numerical models (WRF) to replace the storm separation concept
 7. Evaluating and Testing of Select New Methods
 8. PMP updates of HMRs

Hydrologic Modeling Work Group

Jerry W. Webb, USACE, Chair

The Hydrologic Modeling Work Group has primary responsibility for hosting the Federal Interagency Hydrologic Modeling Conference. The last two Federal Interagency Hydrologic Modeling Conferences have been held in conjunction with the Subcommittee on Sedimentation's Sedimentation Conference. The last Joint conference was held last year. The next, 3rd, Joint Conference is planned for 2014. To date, site and date are not yet determined, but the primary organization of the planning group has been established. Planning for the next conference will kick off soon in conjunction with the Subcommittee on Sedimentation.

GIS Applications in Hydrology and Hydraulics

William Merkel, USDA-NRCS, Chair

Since its establishment in 2007, the Work Group has held an average of 4 teleconferences per year during which various GIS applications were identified and demonstrated. A questionnaire requesting information on GIS applications in hydrology and hydraulics was formulated and distributed to federal and outside organizations. Questionnaires were received from 12 application developers. An agreement was funded with the assistance of the Bureau of Reclamation with Texas A&M University to add these applications to the Hydrologic Model Inventory maintained by Texas A&M. Two papers were presented on the activities of the Work Group at major professional conferences.

There may be additional benefits from keeping the Work Group active, however, when the Work Group was organized the terms of reference did not foresee this as a long-standing Work Group. The major item from the terms of reference that needs to be completed is a report on the state-of-the-art of GIS applications in hydrology and hydraulics. The field of GIS and its applications is constantly moving forward, so this report is envisioned as a snapshot in time. A draft outline for such a report will be distributed to the Work Group members for comments within the next month. The complete report is envisioned in about 6 months.

Satellite Telemetry Interagency Work Group

Robbie Swofford, BLM, Chair

The current chair of the STIWG is Robbie Swofford of the Bureau of Land Management. Daniel Schwitalla of USGS currently serves as Vice-Chair and local DC area contact for STIWG. The

STIWG is jointly sponsored by the Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR) and the Advisory Committee on Water Information (ACWI); and reports directly to the Committee for Environmental Services, Operations and Research Needs (CESORN) of the ICMSSR and the Subcommittee on Hydrology (SOH) of the ACWI.

Other SOH Activities

Federal Water Data Sharing

Dave Goodrich, ARS, Work Group Contact

Dave Goodrich, ARS, continues his great efforts at coordinating with the Hydrology Domain Working Group a Joint Working Group of the World Meteorological Organisation (WMO) and the Open Geospatial Consortium (OGC) to provide information on the Federal Water Data Sharing efforts to SOH. We are hoping to have an invited guest speaker at a future meeting to make a presentation on the Federal Water Data Sharing efforts.

*Role for Subcommittee on Spatial Water Data!!!

SOH Connections Newsletter

Richard Raione, NRC, Editor

Joseph Giacinto, NRC, Assistant-Editor

The SOH continues to issue the SOH Connections Newsletter, although on a somewhat infrequent basis. We continue to receive positive feedback from subcommittee members and others on the newsletter, but occasionally have difficulty getting submittals for the newsletter. Richard Raione, NRC, currently serves as the newsletter editor and Joseph Giacinto, NRC, as Assistant-editor.