Subcommittee on Hydrology

Presentation to:

Advisory Committee on Water Information

July 12, 2011

Overview

- Subcommittee Membership
- Work Group Reports
  - Hydrologic Frequency Analysis Work Group (HFAWG)
  - Extreme Storm Events Work Group
  - Hydrologic Modeling Work Group
  - GIS Applications in Hydrology and Hydraulics Work Group (GISA)
  - Satellite Telemetry Interagency Work Group (STIWG)
- Other Activities
  - Federal Data Sharing
  - SOH Connections Newsletter

Subcommittee Membership

Member organization resignations:

- American Forests *(result of reorganization)*

New member organizations:

- Global Ecosystems Center (GEC) *(established when American Forests reorganized)*
- California Division of Water *(inquired about membership)*

Hydrologic Frequency Analysis Work Group (HFAWG)

- Wilbert O. Thomas, Jr., Chair,
  Michael Baker, Jr. representing the Association of State Floodplain Managers,
  WTHOMAS@mbakercorp.com

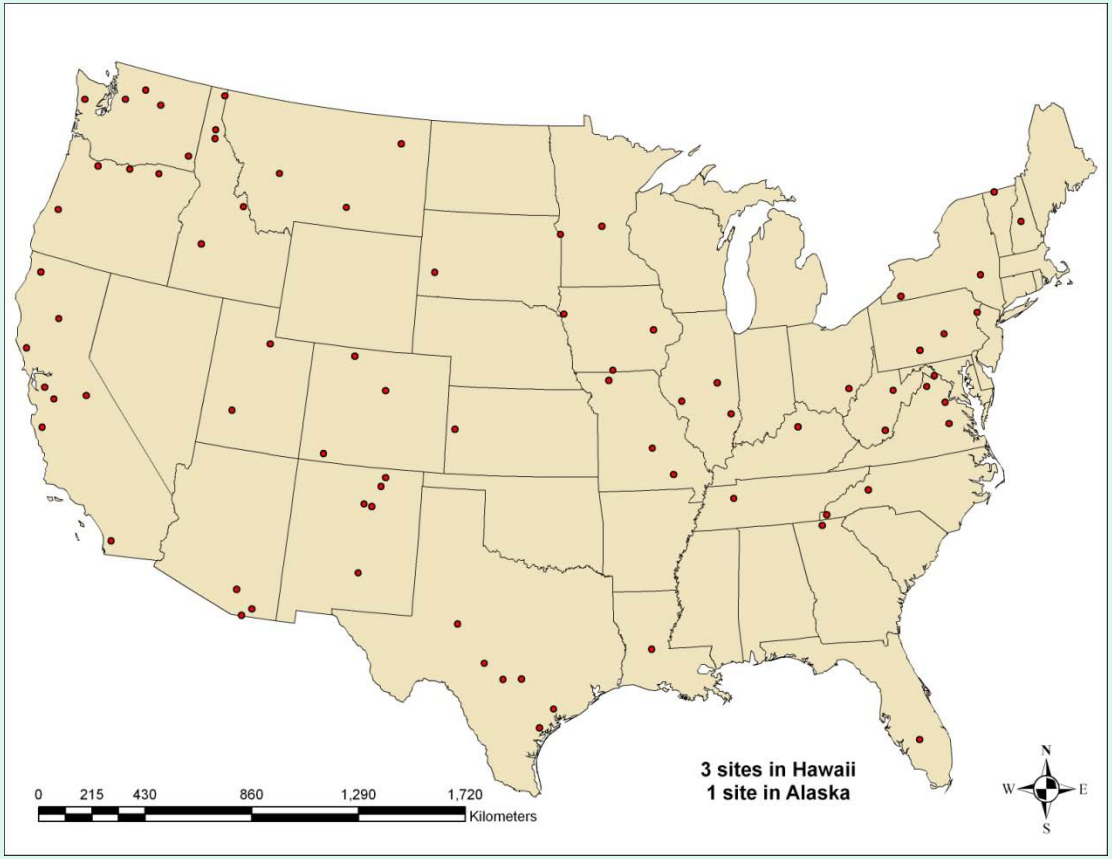
Hydrologic Frequency Analysis Work Group

- The HFAWG is evaluating potential improvements to Bulletin 17B (see HFAWG web site for details *http://acwi.gov/hydrology/Frequency):*
  - Expected Moments Algorithm (EMA) = new statistical technique for estimating moments of the Pearson Type III distribution
  - Evaluate and compare EMA and Bulletin 17B for analyzing data sets with historic and paleoflood data, low outliers and zero flows

Hydrologic Frequency Analysis Work Group

Testing EMA for:

- 82 gaging stations with an average record length of 80 years (see map for locations of stations)
- Monte Carlo simulations for assumed frequency distributions



Hydrologic Frequency Analysis Work Group

- Progress to date:
  - Testing in 2009-2010 indicated a need for a new low-outlier detection method
  - A Generalized Grubbs-Beck test was developed and incorporated in the EMA code
  - Data for the 82 stations were reanalyzed using the new computer code
  - Preliminary results indicate more low outliers are detected – may be an effective way to deal with the low-outlier issue

Hydrologic Frequency Analysis Work Group

- Future plans:
  - Complete EMA-Bulletin 17B testing and document results
  - Update the November 2009 report of test results
  - Convene a HFAWG meeting and make decisions about revisions to Bulletin 17B
  - Make recommendations to SOH (and eventually ACWI) on revisions to Bulletin 17B

Extreme Storm Events Work Group

- Interim Chair:
  Thomas J. Nicholson, U.S. Nuclear Regulatory Commission; 301-415-6268; *Thomas.Nicholson@nrc.gov*
- Vice-Chair:
  Dr. John England, Bureau of Reclamation; 303-445-2541; *jengland@do.usbr.gov*

Extreme Storm Events Work Group

- Developing a draft proposal for updating PMP estimates for the U.S. using a 2-Phase approach
- Asked member agencies to submit a short narrative on their agency need for updating PMP estimates
- Proposal is an outline for potential work which does not identify who will do the work or funding sources

Extreme Storm Events Work Group

- Phase 1:
  1. Background and Need statement
  2. Summary literature review
  3. Update storm rainfall catalog
  4. PMP updates of HMR using existing methods
  5. Define Federal Interagency Technical Oversight Group, its functions, capabilities, requirements
- Phase 2:
  1. Detailed literature review on potential new methods
  2. Evaluating and testing of select new methods
  3. PMP updates of HMRs

Extreme Storm Events Work Group

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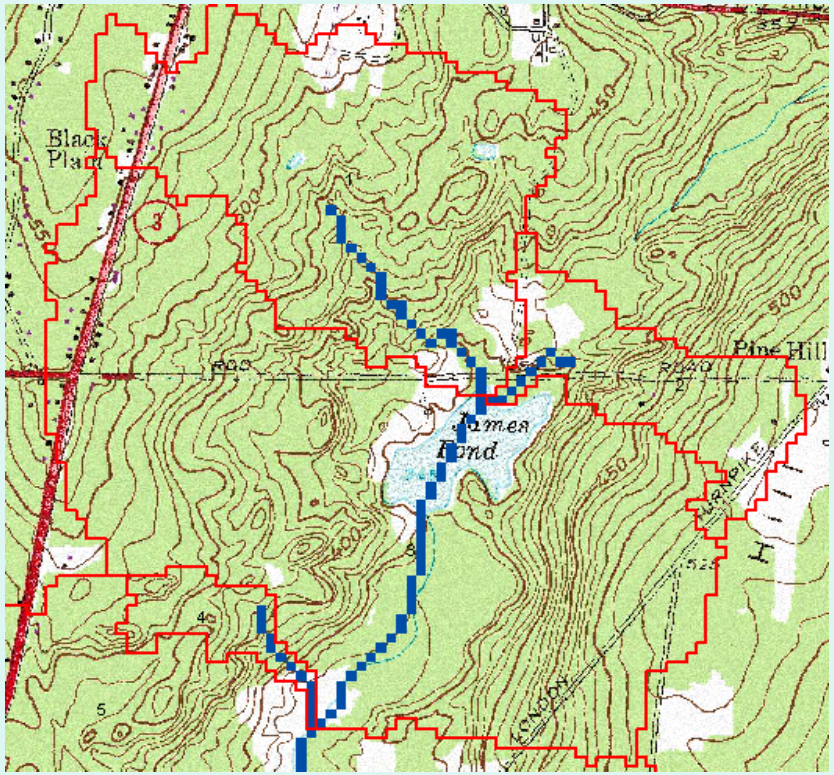
Hydrologic Modeling Work Group

- Jerry Webb, US Army Corp of Engineers (USACE), *Jerry.w.webb@usace.army.mil*, (202) 761-0673
- Joe Giacinto, Vice-Chair, Nuclear Regulatory Commission, Office of New Reactors, *joseph.giacinto@nrc.gov*, (301) 415-0714

Hydrologic and Hydraulic GIS Applications Work Group

- William Merkel, Chair, Natural Resources Conservation Service, *william.merkel@wdc.usda.gov*, (301) 504-3956



Accomplishments

- Presented three papers at professional conferences
- Demonstrated GIS applications
- Distributed questionnaire to federal agencies and others.
- Developed page with web links to major applications.
- http://hydrologicmodels.tamu.edu/

Hydrologic Modeling Inventory Website

Welcome to the Hydrologic Modeling Inventory Website. This is a collaborative effort between Texas A&M University and the Bureau of Reclamation to provide basic information on a variety of hydrologic models to practitioners in the academic, governmental and private sectors.

The effort was started in 1999 as a collaborative effort between Louisiana State University and the Bureau of Reclamation. Developers of well known models were contacted by Dr. Vijay P. Singh, Dr. Donald K. Frevert and several other Bureau of Reclamation staff members. Each developer was asked to fill out a questionnaire providing basic information including the capabilities of their model, input requirements, output information, assumptions, hardware requirements and contact information. The questionnaires were originally posted on a Bureau of Reclamation website, but in 2007 the website was moved to the Texas A&M domain to facilitate support and maintenance. Developers have been contacted in subsequent years to update the information on their respective models and new models continue to be added as appropriate.

Visitors to the website will click on the link at the bottom of this page and will be directed to a page with a listing of model links which, in turn, will direct the visitor to the summary sheet for each model. More detailed information on specific models can be obtained by contacting the developers and the e-mail, phone or mailing addresses indicated.

Comments and suggestions for the Hydrologic Modeling Inventory Website are welcome.

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Click to access Hydrologic Modeling Inventory

GIS Application in Hydrology and Hydraulics

- Automated Geospatial Watershed Assessment Tool
- eCoastal Program
- BASINS version 4.0
- GIS Weasel
- HAZUS-MH
- HEC-GeoRAS
- HEC-GeoHMS
- MapWindow
- NHDPlus Append Tool
- NRCS Geo-Hydro ArcGIS
- NRCS Geo-Hydro ArcView
- StreamStats
- Soil and Water Assessment Tool (SWAT)

Current and future activities

- Teleconference scheduled
- Prepare draft report for review by Workgroup and SOH.
- Prepare final report on Workgroup activities.

Satellite Telemetry Interagency Work Group

- Chair, Robbie Swofford, Bureau of Land Management,
- Dan Schwitalla, U.S. Geological Survey, *dschwit@usgs.gov*, 443-498-5605

Federal Data Sharing

- Dave Goodrich, USDA – Agricultural Research Service, *dave.goodrich@ars.usda.gov*, 520-647-9241 ext. 144

SOH Connections

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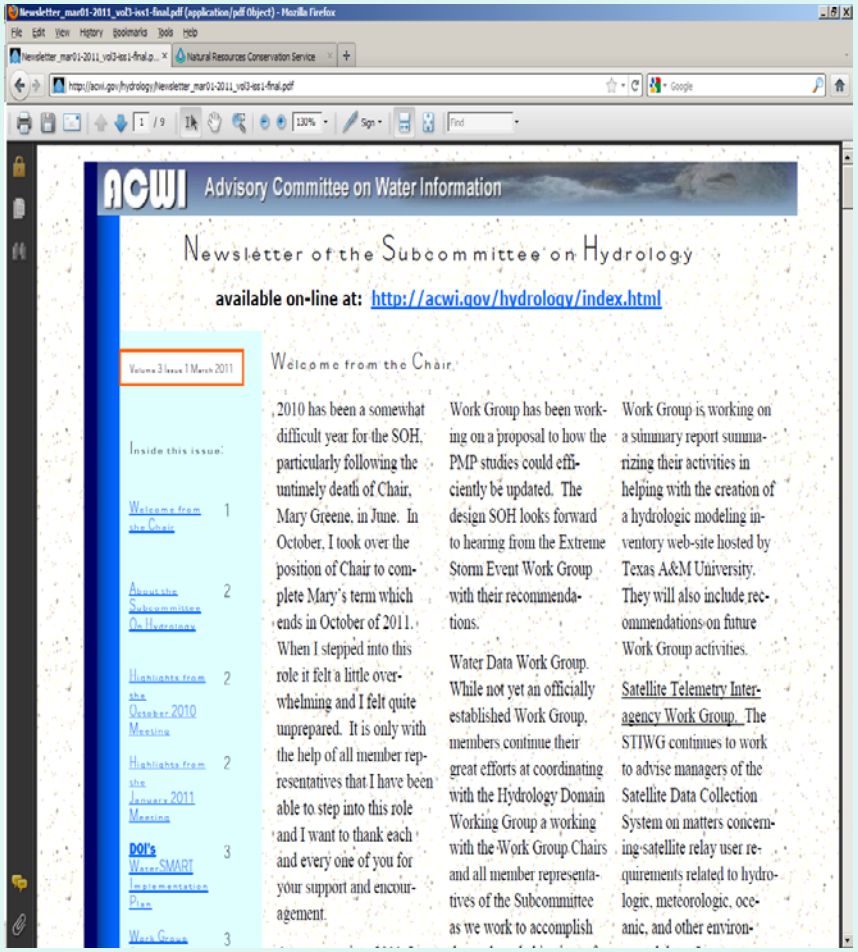

ACWI Advisory Committee on Water Information

Newsletter of the Subcommittee on Hydrology

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

Volume 3 Issue 1 March 2011

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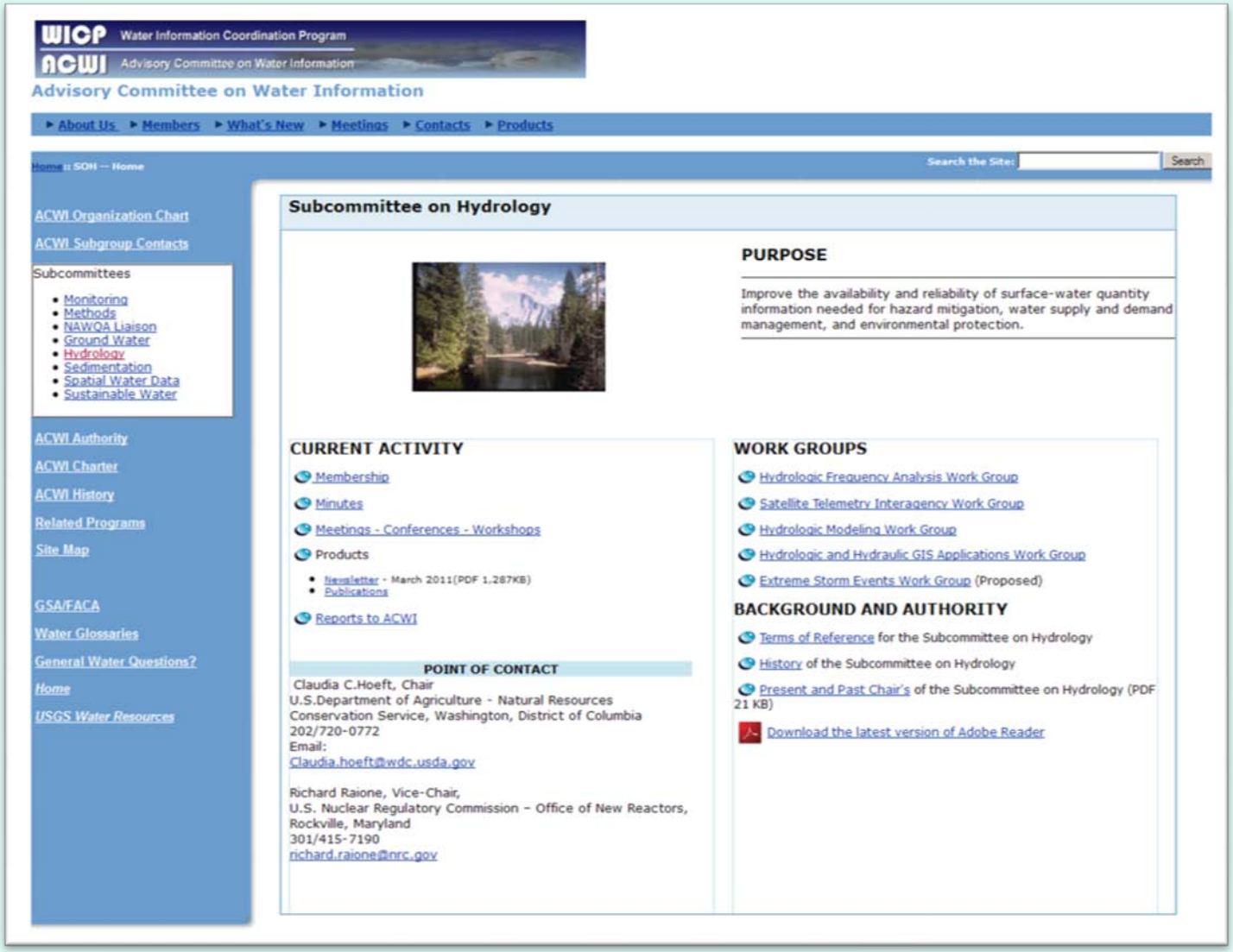
Welcome from the Chair

2010 has been a somewhat difficult year for the SOH, particularly following the untimely death of Chair, Mary Greene, in June. In October, I took over the position of Chair to complete Mary's term which ends in October of 2011. When I stepped into this role it felt a little overwhelming and I felt quite unprepared. It is only with the help of all member representatives that I have been able to step into this role and I want to thank each and every one of you for your support and encouragement.

Work Group has been working on a proposal to how the PMP studies could efficiently be updated. The design SOH looks forward to hearing from the Extreme Storm Event Work Group with their recommendations.

Water Data Work Group. While not yet an officially established Work Group, members continue their great efforts at coordinating with the Hydrology Domain Working Group a working with the Work Group Chairs and all member representatives of the Subcommittee as we work to accomplish

Work Group is working on a summary report summarizing their activities in helping with the creation of a hydrologic modeling inventory web-site hosted by Texas A&M University. They will also include recommendations on future Work Group activities.

Satellite Telemetry Interagency Work Group. The STIWG continues to work to advise managers of the Satellite Data Collection System on matters concerning satellite relay user requirements related to hydrologic, meteorologic, oceanic, and other environ-

www.acwi.gov/hydrology/index.html