

Subcommittee on Hydrology (SOH)

ACWI National Meeting

Tuesday 8/19/2014

USGS National Center

12201 Sunrise Valley Dr

Reston, VA 12201

**Victor Hom, SOH Chair
NOAA National Weather Service**

**Robert Mason, SOH Vice-Chair
United States Geological Survey**

SOH Member Organizations

1. Agricultural Research Service (ARS)
2. Association of State Floodplain Managers (ASFPM)
3. BECKER
4. Bureau of Land Management (BLM)
5. Bureau of Reclamation (USBR)
6. Environmental Protection Agency (EPA)
7. Federal Emergency Management Agency (FEMA)
8. Federal Energy Regulatory Commission (FERC)
9. Federal Highway Administration (FHWA)
10. Forest Service (USFS)
11. National Aeronautics and Space Administration (NASA)
12. National Hydrologic Warning Council (NHWC)
13. National Science Foundation (NSF)
14. Natural Resources Conservation Service (NRCS)
15. NOAA National Weather Service (NWS)
16. Nuclear Regulatory Commission (NRC)
17. Office of Surface Mining (OSMRE)
18. U.S. Army Corps of Engineers (USACE)
19. United States Geological Survey (USGS)

SOH Workgroups

- Hydrologic Frequency Analysis Work Group (HFAWG)
- Extreme Storm Events Work Group (ESEWG)
- Hydrologic Modeling Work Group (HMWG)
- Satellite Telemetry Interagency Work Group (STIWG)

Subcommittee On Hydrology

Purpose

Improve the availability and reliability of surface-water quantity information needed for hazard mitigation, water supply and demand management, and environmental protection.

Activities

Quarterly Meetings, Workgroups, Workgroup Meetings, Newsletters, Conferences.

Website

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

Recap of SOH Activities

- Quarterly Meetings hosted by Member Agencies
- Participation by Senior Officials, Advisors, Staff of the Host Agency, SOH Members, and Guests
- Formal Presentation on a Topic of Mutual Interest
- SOH Review of Workgroup Activities
- Member Agency reports
- Cross collaboration with other ACWI Subcommittees

Formal Presentations on Mutual Topics

- [USGS Streamgaging](#)
- [Impact of Climate Change and Population Growth on the National Flood Insurance Program](#)
- [Engineering Guidance Frame Work for In-land Hydrology Considering Climate Change](#)
- [Climate Change Adaptation and Water Resources](#)
- [National Dam Safety Program and Hydrologic Needs](#)
- [The 2011 Mississippi River Basin Flood - A Perspective on Forecasting, Water Management, and Flood Fight](#)
- [Army Water Footprint](#)



SOH Hydrologic Modeling Workgroup (HMWG)

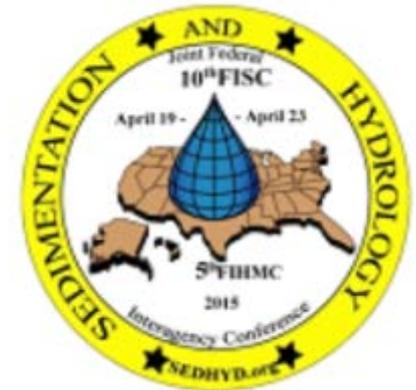
- **Jerry Webb, Chair** US Army Corp of Engineers (USACE),
- **Joe Giacinto, Vice-Chair**, Nuclear Regulatory Commission (USNRC)

Purpose and Goals:

- Promote sharing of information on modeling tools and modeling systems in hydrology and water resources.
- Plans, organizes, and promotes the Federal Interagency Hydrologic Modeling Conference every four years and
- Engages in other modeling related activities as appropriate.

SOH Hydrologic Modeling Workgroup (HMWG)

- **Jerry Webb, Chair** US Army Corp of Engineers
- **Joe Giacinto, Vice-Chair**, Nuclear Regulatory Commission (USNRC)



Actions/Accomplishments:

- ❑ SEDHYD 2015 (April 19-23, 2015) - www.sedhyd.org/2015/
- ❑ Joint 10th Federal Interagency Sedimentation and 5th Hydrologic Modeling Conference.
- ❑ 250 abstracts, 20 posters, 10 model demos, short courses, student program, and 5 technical field explorations/reconnaissance surveys of our changing world.

SOH Satellite Telemetry Interagency Workgroup (STIWG)

- **Dan Schwitalla, Chair** US Geological Survey (USGS)
- **Howard Diamond, Vice-Chair**, NOAA National Climatic Data Center

Purpose and Goals:

- User group for the Geostationary Operational Environmental Satellite (GOES) Data Collection System (DCS).
- Advises NOAA National Environmental Satellite, Data, and Information Service (NESDIS) on matters concerning satellite data relay user requirements
- Undertakes projects to benefit the GOES DCS community

SOH Satellite Telemetry Interagency Workgroup (STIWG)

- **Dan Schwitalla, Chair** US Geological Survey
- **Howard Diamond, Vice-Chair** NOAA National Climatic Data Center

Actions/Accomplishments:

- 118th STIWG Meeting - May 2014.
 - DCS Administration and Data Distribution System (DADDS)
 - Emergency Data Distribution Network (EDDN)
 - Domestic Communications Satellite (DOMSAT)
- 100 baud DCP Transmitters to be replaced by May 2015
- Low Rate Information Transmission (LRIT) - alternative to DOMSAT



SOH Extreme Storm Events Workgroup (ESEWG)

- **Thomas J. Nicholson, Chair** US Nuclear Regulatory Commission (US-NRC)
- **Victoria Bahls, Vice-Chair**, US Bureau of Reclamation (USBR)

Purpose and Goals:

- ❑ coordinate studies and databases for reviewing and improving methodologies and data collection techniques used to develop design precipitation estimates of large storm events up to and including the Probable Maximum Precipitation (PMP).
- ❑ develop a detailed scope of work/plan of study, and
- ❑ determine the necessary funding requirements to update the Catalog of Extreme Storms and Hydrometeorological Reports (HMR) for estimating PMP.

SOH Extreme Storm Events Workgroup (ESEWG)

- **Thomas J. Nicholson, Chair** Nuclear Regulatory Commission (US-NRC)
- **Victoria Bahls, Vice-Chair**, US Bureau of Reclamation (USBR)



Actions/Accomplishments:

- ESEWG Workshop on May 15, 2014
 - defined needed extreme precipitation products*
 - collected feedback from Federal, State agencies, and member organizations of the ICODS and NDSRB on their user needs for Extreme Storm data and services, and*
 - established ESEWG Proposal Writing Team (PWT)*
- Workshop on Probabilistic Flood Hazard Assessment on January 29-31, 2013 in Rockville, MD

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

- **Will Thomas, Chair** Baker/ASFPM
- **John England, Vice-Chair**, US Bureau of Reclamation (USBR)

Purpose and Goals:

- recommend procedures to increase the usefulness of the current guidelines for Hydrologic Frequency Analysis computations,
- evaluate other procedures for frequency analysis of hydrologic phenomena, and
- forward draft papers and recommendations to the Subcommittee on Hydrology of ACWI for appropriate action.

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

- **Will Thomas, Chair** Baker/ASFPM
- **John England, Vice-Chair**, US Bureau of Reclamation (USBR)

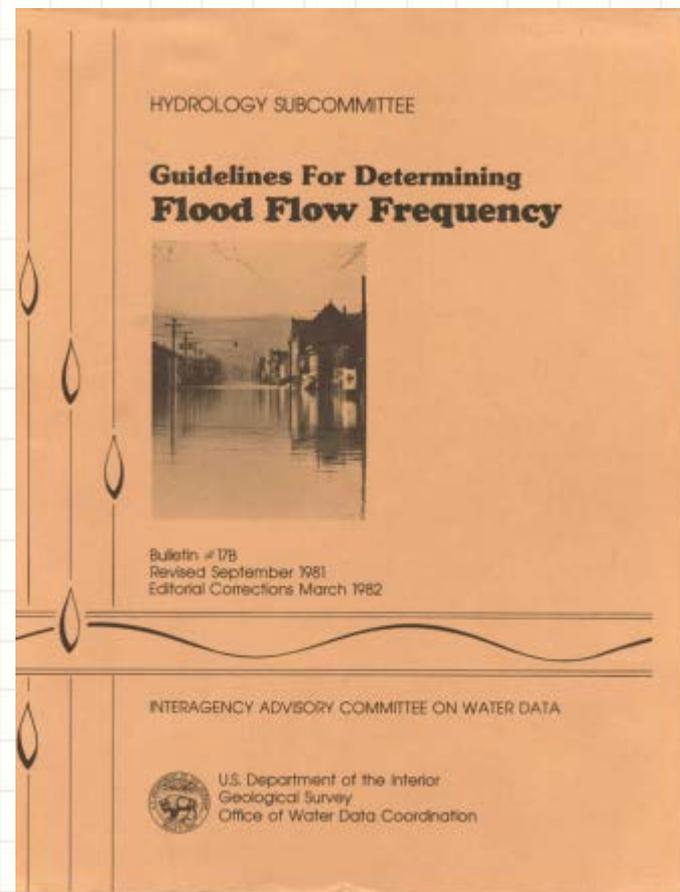
Summary:

- ❑ Established December 1999 under the Subcommittee on Hydrology of the Advisory Committee on Water Information
- ❑ Held 17 meetings since January 2000, most interaction through email
- ❑ Representatives from Federal agencies, private consultants, academia, water management agencies
- ❑ <http://acwi.gov/hydrology/Frequency/>

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

Updating Bulletin 17B Guidelines:

- Published in March 1982, based on research from 1960s and 1970s
- HFAWG is updating Bulletin 17B using pertinent research since 1982
- Incorporating new statistical procedures for analyzing historical floods and nonstandard flood data and adjusting for low floods
- http://water.usgs.gov/osw/bulletin17b/bulletin_17B.html



SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

Revisions to Bulletin 17B

1. Replace Historical-Weighted Moments and Conditional-Probability Adjustment (CPA) with Expected Moments Algorithm (EMA) for improved analysis of historical floods and treatment of very low floods
2. Generalize Grubbs-Beck (GB) test to a new Multiple Grubbs-Beck (MGB) test to identify multiple influential low floods
3. Replace confidence interval formulas that do not consider the uncertainty in skew and historical data with EMA computations based on weighted skew that consider more sources of uncertainty

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

Revisions to Bulletin 17B

4. Revise guidelines for estimation of generalized (regional) skew estimators
5. Replace single-threshold plotting position with multiple-threshold plotting position to consider different historical periods
6. Replace outdated statements on “Climate Trends” with a revised discussion that reflects the current understanding of climate change
7. Remove discussion of “Expected Probability” since it is no longer used

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

Progress since July 2012 ACWI meeting

- * June 2013 – HFAWG voted to accept recommended revisions to B17B
- * August 2013 – SOH voted in favor of HFAWG drafting a new B17C
- * April 2014 – completed the testing report on “Evaluation of Recommended Revisions to Bulletin 17B” – to be published as USGS report
- * USGS developed PeakFQ 7.0 program that implements EMA/MGB with new confidence intervals
- * Currently drafting a new Bulletin 17C to be published as USGS Circular – effort being lead by USBR, USGS, and USACE

SOH Hydrologic Frequency Analysis Workgroup (HFAWG)

Draft Bulletin 17C
by
December 2014

USGS
where for a change world

Prepared in cooperation with the Hydrologic Frequency Analysis Work Group, Subcommittee of Hydrology

Guidelines for Determining Flood Flow Frequency

Bulletin 17C



Circular XXXX – DRAFT for review purposes only

U.S. Department of the Interior
U.S. Geological Survey

SOH Activities for 2014-2015

- Support the Open Water Data Initiative, water data integration, and connect with Subcommittee on Spatial Water
- Review HFAWG Draft B17C
- Review ESEWG Proposal, Scope of Work, and Workplan
- Joint Federal Interagency Sedimentation and Hydrologic Modeling Conference April 2015
- Complete transition to Higher Speed DCPs
- Quarterly Meetings (4)
 - *Oct. 23, 2014, Jan. 22, 2015, Apr. 30, 2015, July 23, 2015*
 - *National Climatic and Precipitation Data, Transforming the Water Data Infrastructure, Global Precipitation Network/Tropical Rainfall, Landsat 8 and Hydrology*

SOH References

- SOH Website - <http://acwi.gov/hydrology/index.html>
- SOH Quarterly Meetings - <http://acwi.gov/hydrology/minutes/index.html>
- Joint Federal Interagency Conference April 2015 - www.sedhyd.org/2015/
- SOH HMWG - <http://acwi.gov/hydrology/Hydro-Modeling/index.html>
- SOH STIWG - <http://acwi.gov/hydrology/stiwg/index.html>
- LRIT - <http://www.noaasis.noaa.gov/LRIT/about.html>
- SOH ESEWG – <http://acwi.gov/hydrology/extreme-storm/index.html>
- SOH HFAWG - <http://acwi.gov/hydrology/Frequency/>
- Bulletin 17B - http://water.usgs.gov/osw/bulletin17b/bulletin_17B.html
- PeakFQ - <http://water.usgs.gov/software/PeakFQ/>