A scenic landscape photograph of a river valley. In the foreground, a river flows through a rocky bed. The middle ground shows a lush green valley with a small town or village. In the background, there are rugged mountains under a blue sky with some clouds.

# **SUBCOMMITTEE ON HYDROLOGY**

**2006 Achieved Progress  
2007 Planned Activities**

**ACWI Annual Meeting  
January 17, 2007**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Overall Goal (from Purpose statement)**

**“To improve the availability and reliability of surface water quantity information needed for hazard mitigation, water supply and demand management, and environmental protection”**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Implementation Mechanism**

- **Sharing valuable water related information through the meetings and activities**
- **Organizing working groups to accomplish tasks as needed.**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Meetings Held Quarterly**

- **January 12, 2006 in Washington, DC**
- **March 31, 2006 in Reno, NV**
- **July 27, 2006 in Washington, DC**
- **October 26, 2006 in Washington, DC**
- **January 11, 2007 meeting held at NASA/GSFC, Greenbelt, MD**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Present Officers**

- **S. Samuel Lin, FERC, Chair**
- **Steve Blanchard, USGS, Vice-Chair**

**(Terms Extend through September, 2007)**

# SUBCOMMITTEE ON HYDROLOGY

- **Current Member Organizations**

- Agricultural Research Service
- American Forests
- Association of State Floodplain Managers
- Bureau of Land Management
- Bureau of Reclamation
- Defenders of Property Rights
- Federal Emergency Management Agency
- Federal Energy Regulatory Commission
- Federal Highway Administration
- National Hydrologic Warning Council
- National Science Foundation

- **Current Member Organizations (cont.)**

- National Aeronautic and Space Administration
- National Weather Service
- Natural Resources Conservation Service
- Nuclear Regulatory Commission
- Office of Surface mining
- US Army Corps of Engineers
- US Environmental Protection Agency
- US Forest Service
- US Geological Survey

**(Total: 20 – 16 Federal agencies and 4 interest groups)**

# **SUBCOMMITTEE ON HYDROLOGY**

## **2006 Initiatives and Accomplishments**

- **Membership Drive**
- **Promoting Team Work and Networking**
- **Constantly Providing Post-Meeting Activities**
- **Continuing and Increasing Contacts with Other Committees**
- **Publishing Quarterly Issued Newsletter**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Current Working Groups**

### **–Hydrologic Modeling Working Group (HMWG),**

- Donald Frevert (BOR), Chair**

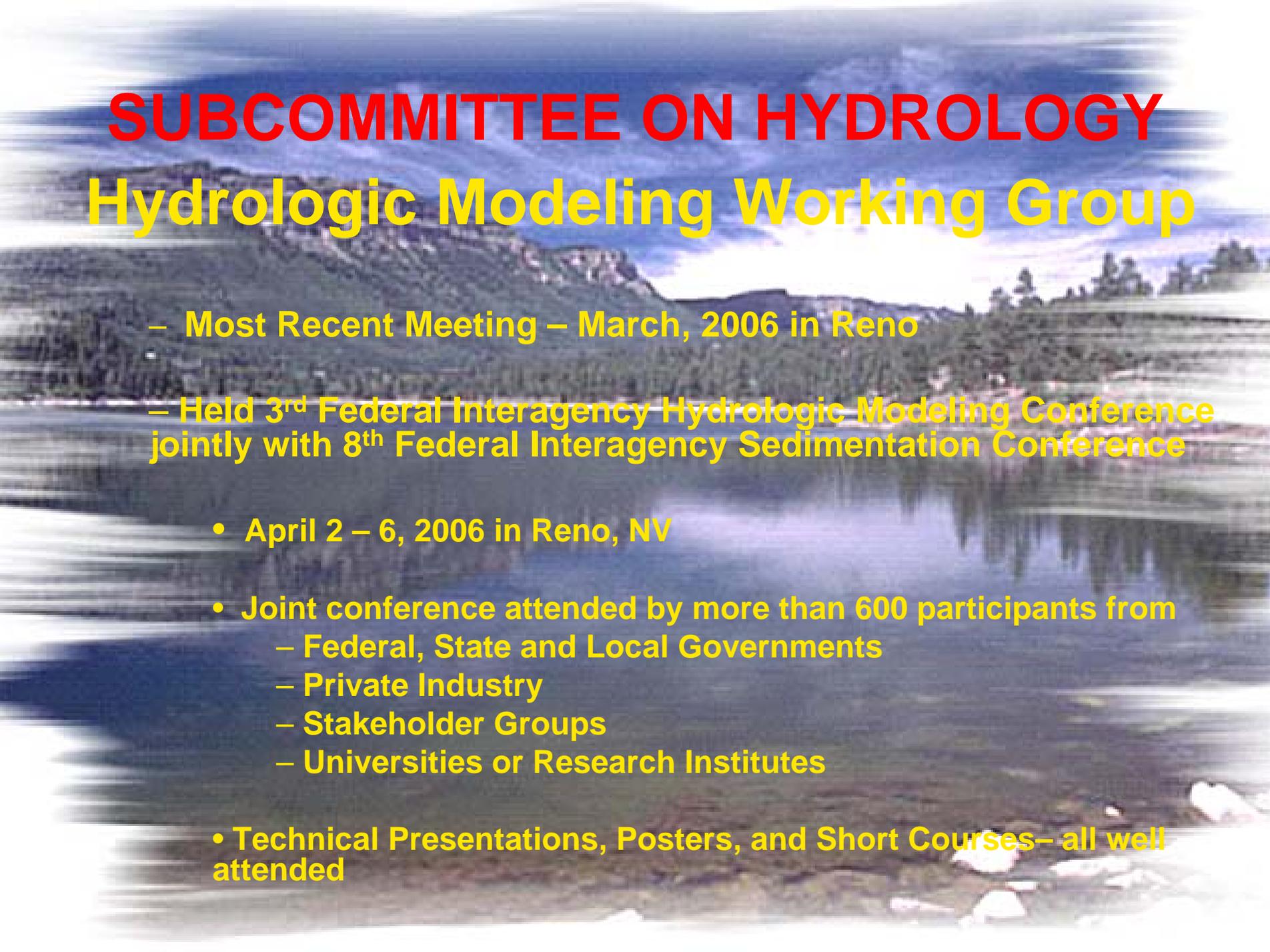
### **– Hydrologic Frequency Analysis Working Group (HFAWG),**

- Will Thomas (Michael Baker, Jr.), Chair**

### **–Satellite Telemetry Interagency Working Group (STIWG),**

- Charles (Kaz) Kazimir (BLM); Chair (2006)**
- Bonnie Wyatt (FS), Chair (2007)**

(Toni Johnson met with the representatives to advise issue resolution on 7/26/06 )



# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Modeling Working Group**

- **Most Recent Meeting – March, 2006 in Reno**
- **Held 3<sup>rd</sup> Federal Interagency Hydrologic Modeling Conference jointly with 8<sup>th</sup> Federal Interagency Sedimentation Conference**
  - **April 2 – 6, 2006 in Reno, NV**
  - **Joint conference attended by more than 600 participants from**
    - **Federal, State and Local Governments**
    - **Private Industry**
    - **Stakeholder Groups**
    - **Universities or Research Institutes**
  - **Technical Presentations, Posters, and Short Courses – all well attended**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Modeling Work Group (cont.)**

**– Next Joint Conference Planned for 2010**

- **Site selection in process**
- **Format– probably six concurrent technical sessions**
  - » **three on hydrologic modeling**
  - » **three on sedimentation**
- **Plans for special features including**
  - **Poster Sessions**
  - **Demonstration Sessions**
  - **Short Courses**
  - **Technical Field Trips**

# SUBCOMMITTEE ON HYDROLOGY

## Hydrologic Modeling Work Group (cont.)

– Proceedings from 1998, 2002 and 2006 Conferences and 1993 Modeling Workshop to be posted by February, 2007

– **Contact:**

• Donald Frevert, chair

– [dfrevert@do.usbr.gov](mailto:dfrevert@do.usbr.gov)

– (303) 445 – 2473

– Information Site: <http://www.jfic.org/>

# SUBCOMMITTEE ON HYDROLOGY

## Hydrologic Frequency Analysis Working Group

- Most Recent Meeting – October 23, 2006
- Work group formed in Dec. 1999 to address three main issues:
  - Preparing a list of “Frequently Asked Questions and Answers” about Bulletin 17B - Guidelines For Determining Flood Flow Frequency (Interagency Advisory Committee on Water Data, 1982)
  - Developing guidance for “Flood Frequency Estimates” for ungaged watersheds
  - Developing guidance for “Flood Frequency Analysis” for watersheds regulated by flood control structures
- List of “Frequently Asked Questions and Answers” on Bulletin 17B posted on the work group web site
- Paper entitled “Evaluation of Flood Frequency Estimates for Ungaged Watershed” posted on the work group web site  
<http://acwi.gov/hydrology/Frequency/>

# SUBCOMMITTEE ON HYDROLOGY

## Hydrologic Frequency Analysis Working Group (cont.)

– 29 of 43 Bulletin 17B references are on the USGS web site under the Office of Surface Water, USGS

– [http://water.usgs.gov/osw/bulletin17b/bulletin\\_17B.html](http://water.usgs.gov/osw/bulletin17b/bulletin_17B.html)

– Ongoing Tasks:

- Preparing a report on flood frequency techniques for regulated watersheds
- Developed a plan to test new statistical procedures for Bulletin 17B and testing will begin soon

[http://acwi.gov/acwi2006/slide.lib/Thomas\\_HFAWG-17B\\_4\\_ACWI06.doc](http://acwi.gov/acwi2006/slide.lib/Thomas_HFAWG-17B_4_ACWI06.doc)

**Benefit of Working Group:** Provides a forum for discussion of flood frequency analysis issues among experts throughout the country and a mechanism for developing improved techniques

# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Frequency Analysis Working Group (cont.)**

### **Flood Frequency Research Needs:**

- **Procedures for ungaged watersheds and/or regulated watersheds**
- **Adjustments for watershed changes (urbanization) and treatment of nonhomogeneous flood data**
- **Mixed populations analyses**
- **Treatment of outliers, zero flows, historic and paleoflood data**
- **Comparative analyses to validate Bulletin 17B results**
- **Estimation of regional/generalized skew**
- **Alternative frequency distributions and fitting methods**
- **Improved procedures for determining confidence limits**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Frequency Analysis Working Group (cont.)**

### **Plans to investigate possible revisions to Bulletin 17B**

- **Following plan discussed with Subcommittee on Hydrology (SOH) on January 12, 2006 – approval to proceed**
- **Proposed plan is research that can be accomplished in a reasonable time frame (one to two years) with limited resources**
- **Stay with fitting Pearson Type III distribution to logs of annual peak flows using a method of moments approach**
- **Plan presented as information to ACWI in January 2006, results of proposed research will be provided at future ACWI meetings**

# SUBCOMMITTEE ON HYDROLOGY

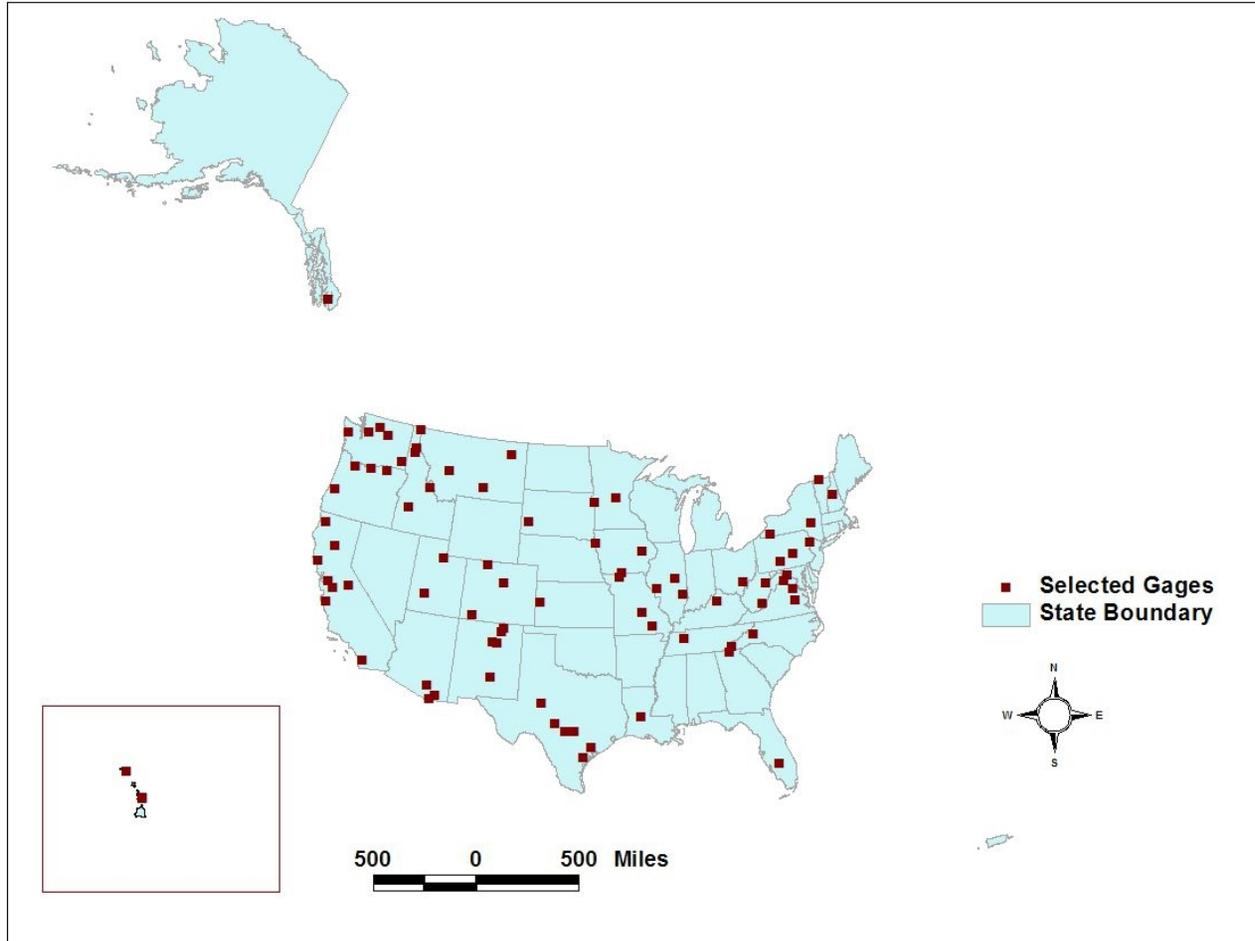
## Hydrologic Frequency Analysis Working Group (cont.)

### Plans to investigate possible revisions to Bulletin 17B (cont.)

- Evaluate and compare performance of Expected Moments Algorithm (EMA) to the current Bulletin 17B procedures for analyzing samples with historic and paleoflood data, outliers and zero flows
- Testing on gaging station data (~80 samples) and review of comparisons in the published literature
  - Drainage areas range from about 1 to 7,500 square miles
  - Record lengths generally exceed 70 years
  - Nationwide geographic distribution
  - No regulation of annual peak flow records
- Recommend improved plotting position formula when historic data are available

# SUBCOMMITTEE ON HYDROLOGY

## Location of Gaging Stations



# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Frequency Analysis Working Group (cont.)**

### **Plans to investigate possible revisions to Bulletin 17B (cont.)**

- **Describe and recommend improved procedures for estimating regional / generalized skew**
- **Bulletin 17B skew map will not be replaced at this time**
- **Describe improved procedures for defining confidence limits that include the uncertainty in the skew coefficient**
- **Describe confidence limit procedures for EMA if adopted**

# **SUBCOMMITTEE ON HYDROLOGY**

## **Hydrologic Frequency Analysis Working Group (cont.)**

### **Plans to investigate possible revisions to Bulletin 17B (cont.)**

- **Work will be accomplished by HFAWG members, no additional funding requested**
- **Investigations to be completed in 2007; coordination, review and approval process to be completed in 2008**
- **Product will be a new Bulletin 17C describing the new procedures**
- **Review and approval of new Bulletin 17C will be coordinated with the SOH, ACWI, and OMB with a public comment period**

# SUBCOMMITTEE ON HYDROLOGY

## Satellite Telemetry Interagency Working Group

- Chartered jointly by the Office of the Federal Coordinator for Meteorology (OFCM) and the Advisory Committee on Water Information (ACWI).
- Reports to OFCM's Committee for Environmental Services, Operations and Research Needs ( C/ESORN) and ACWI's Subcommittee on Hydrology.
- Acts as a user's group for major users of the GOES DCS. Advises NOAA/NESDIS of user requirements.
- Coordinates funding for user-desired improvements to the GOES DCS.
- Members include USBR, USGS, Corps of Engineers, BLM, Forest Service , NOAA, NPS, & Dept. of State.
- Met twice during 2006 ( Sioux Falls, SD in May; Asheville, NC in Nov.

# SUBCOMMITTEE ON HYDROLOGY

## Satellite Telemetry Interagency Working Group (cont.)

### Major Activities in 2006:

- Generated an issue paper outlining GOES DCS vulnerabilities & recommending a more formally documented strategic plan for the continued operation of the GOES DCS.
- Presented concerns of the STIWG concerning the GOES DCS to the SOH and ACWI (Interim meeting).
- Briefed Western Governors Association concerning their dependency on the GOES DCS for obtaining data related to Fire Weather and the current vulnerabilities.
- Awarded SBIR to Sutron Corp. for DCPI operations. The target objective is to provide a prototype receiver and a concept of operation to NOAA/NESDIS & GOES DCS users.
- Started a discussion with manufacturers to jointly specify a binary protocol standard and explore compaction methods to maximize efficiency of GOES DCS bandwidth.

# SUBCOMMITTEE ON HYDROLOGY

## Satellite Telemetry Interagency Work Group (cont.)

### Major Activities in 2006 ( cont. )

- USGS & NOAA/NESDIS developed an agreement to transfer funds to USGS to support the development of an Emergency Data Dissemination Network (EDDN). The EDDN will provide another method to retrieve environmental DCP data during non-satellite related GOES-DCS outages at Wallops. The EDDN will use primarily standard off the shelf products. The STIWG agreed to help support ongoing O&M costs to sustain the operational EDDN at EROS.
- The STIWG supports the USGS recommendation to host the EDDN at the USGS's Sioux Falls, SD EROS facility because of the geographic location and robust proven infrastructure for satellite data reception and processing. (LANSAT since 1970's)
- Started process to develop systems to better manage shared software and metadata.

# SUBCOMMITTEE ON HYDROLOGY

## Satellite Telemetry Interagency Work Group (cont.)

### Major Activities in 2006 ( cont. )

- Worked with GOES DCS program manager (Kay Metcalf) to identify and mitigate constraints and susceptibilities for the GOES DCS operation on current and future satellites.
- Continued to be concerned about GOES DCS vulnerabilities and are still working through our parent committees to:
  - Emphasize the criticality of the GOES-DCS for member agencies and others.
  - Elevate the priority of the GOES DCS to ensure the proper level of operational support.
  - Strengthen relationships with NOAA and become more involved in NOAA's strategic planning processes for the GOES DCS.

# SUBCOMMITTEE ON HYDROLOGY

## KEY WEBSITES

– <http://acwi.gov/> for general subcommittee information

– [http://acwi.gov/hydrology/hydrol\\_members.html](http://acwi.gov/hydrology/hydrol_members.html) for rosters

– <http://acwi.gov/hydrology/mtsconfworkshops/index.html> for conference and workshop information