

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

9:00 am – 11:45 am (EDT)

April 17, 2008

*Room 7000B, Department of Interior Building
1849 C Street, N.W., Washington DC 20240*

Enter from E St Entrance

AGENDA

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|---|-----------------|
| 1. Welcome and Introductions | Steve Blanchard |
| 2. Review and Approval of Agenda | Steve Blanchard |
| 3. Approval of Minutes from January 24, 2008 Meeting | Steve Blanchard |
| 4. Status of Action Items from January 24, 2008 Meeting | Steve Blanchard |
| 5. Presentation of “An Overview of The National Integrated Drought Information System (NIDIS)”
by Jim Verdin (<i>Presentation followed by Q&A - total 35 min.</i>) | |
| 6. Update on Hydrologic Frequency Analysis Work Group | Will Thomas |
| 7. Update on Satellite Telemetry Interagency Work Group | Ernest Dreyer |
| 8. Hydrologic and Hydraulic GIS Applications Work Group | William Merkel |
| 9. Update on Hydrologic Modeling Work Group | Don Frevert |
| 10. National Hydrologic Information System (HIS) development and SOH effort | David Goodrich |
| 11. Extreme Storms | Tom Nicholson |
| 12. Current Events within Hydrologic Communities | All |
| a. <i>NAS Disasters Roundtable Workshop No. 22, "Disasters Risk Management in an Age of Climate Change" on April 3, 2008 - Gene Stallings</i> | |
| 13. Announcements and Q&A on Business Reports from Member Organizations | All |
| • <i>“The SOH CONNECTIONS” Newsletter Editor’s Report</i> | |
| 14. Plans for Next Meeting | Steve Blanchard |

Adjournment

SUMMARY OF THE MEETING

(Prepared by Mary Greene, OSM)

PARTICIPANTS

Martin Becker	Defenders of Property Rights (DPR) <i>(by phone)</i>
Steve Blanchard	Geological Survey (USGS)
Ernest Dryer	Geological Survey (USGS)
Ted Engman	National Aeronautics and Space Administration (NASA)
Don Frevert	Bureau of Reclamation (BOR)
Mary Greene	Office of Surface Mining (OSM) <i>(by phone)</i>
Claudia Hoeft	Natural Resources Conservation Service (NRCS)
Victor Hom	National Weather Service (NOAA/NWS)
John Hunter	Army Corps of Engineers (USACE)
Douglas James	National Science Foundation NSF <i>(by phone)</i>
Joe Krolak	Federal Highway Administration (FHWA) <i>(by phone)</i>
John Onderdonk	Federal Energy Regulatory Commission (FERC) <i>(by phone)</i>
John Ostenberg	Bureau of Reclamation (BOR)
Tom Nicholson	Nuclear Regulatory Commission (NRC)
Gene Stallings	National Hydrologic Warning Council (NHWC) <i>(by phone)</i>
Nancy Steinberger	Federal Emergency Management Agency (FEMA) <i>(by phone)</i>
Will Thomas	Association of State Floodplain Managers (ASFPM)
Jerry Webb	Army Corps of Engineers (USACE)
David Wells	Environmental Protection Agency (USEPA)
Donald Woodward	American Forests
Max Yuan	Federal Emergency Management Agency (FEMA) <i>(by phone)</i>

Meeting Highlights

Steve Blanchard called the meeting to order at 9:06 AM (EST)

At 9:07 AM there was a fire alarm and the building was evacuated. The meeting resumed at 9:20 AM.

1. Welcome and Introductions

Steve Blanchard welcomed everyone to the meeting. Each person introduced themselves and their organizational affiliation. A total of 21 individuals participated, with 8 of the 21 participating by phone.

2. Review and Approval of Agenda

The meeting agenda was approved as listed above

3. Approval of Minutes from January 24, 2008 Meeting

The minutes were approved.

4. Status of Action Items from January 24, 2008 Meeting

Action Items:

- a. Business Reports - email to Mary Greene by February 8 - *Completed*
- b. Work Group Reports- email to Mary Greene by February 8 – *Completed*
- c. The Hydrology and Hydraulics (H&H) GIS Applications Workgroup Questionnaire
Completed
- d. Extreme Storms Work Group – *Completed, Report is below*
- e. Steve will contact Doug James prior to our next meeting. Regarding possible NSF sponsorship of the information exchange efforts and activities in water availability.
 - i. *Completed, scheduled NIDIS presentation (below) instead*
- f. Send SOH Connections newsletter submissions - *Completed*

5. Presentation of “An Overview of The National Integrated Drought Information System (NIDIS)”

- a. Jim Verdin (USGS) presented. The PowerPoint slides are available on the SOH website at: <http://acwi.gov/hydrology/minutes/index.html> under Meeting Minutes Additional Materials.
- b. *This is an interagency project*
- c. *There is a current Pilot Study in the Colorado River Basin. It is unknown at this time if there will be another pilot study.*

6. Update on Hydrologic Frequency Analysis Work Group

No written report submitted to date.

Will Thomas

7. Update on Satellite Telemetry Interagency Work Group

No written report submitted to date.

Ernest Dreyer

8. Hydrologic and Hydraulic GIS Applications Work Group

William Merkel

John Hunter presented a short update on the Hydrologic and Hydraulic GIS Applications Work Group for Bill Merkel who was on travel.

The work group held its quarterly teleconference on 5 March 2008. Topics of the teleconference included finalizing a questionnaire to be sent to agencies of the subcommittee on Hydrology. The questionnaire was modified based on comments of the workgroup members and distributed on 21 March 2008. The target date to receive responses is May 15, 2008. Each member is requested to distribute the questionnaire to appropriate staff within their own agency. Agencies which are not represented on the work group will be distributed by their representative on the SOH.

Live Meeting or WebEx will be used in future teleconference to allow members to present GIS applications of interest to the group during each teleconference.

There are presently only nine SOH agencies represented in the GIS Applications Work Group. We encourage remaining agencies to select a representative to the work group. The next teleconference is Thursday, April 24, 2008 at 11:00 AM eastern time.

Minutes of the workgroup can be found at: <http://acwi.gov/hydrology/h2gisa/minutes/index.html>

9. Update on Hydrologic Modeling Work Group

Don Frevert

Don Frevert reported that the work group had its most recent conference call on Monday, April 7, 2008.

The dates of the Joint Federal Interagency Conference are set for June 27 – July 1, 2010. The conference will be held at the Riviera Hotel and Casino in Las Vegas. Suggestions are being invited for themes and several positions on the conference organizing committee are still open.

The first meeting of the organizing committee will be Thursday afternoon June 26 and Friday morning June 27th at the Bureau of Reclamation offices in Denver. Any subcommittee members interested in joining the meeting by phone should let Don know in advance so that he can provide call in information.

Proceedings for the 1998, 2002 and 2006 Federal Interagency Hydrologic Modeling Conferences have been set up on an FTP site by Steve Markstrom of USGS and need to be linked to the subcommittee website. Proceedings from the 1993 Conference entitled “Hydrologic Modeling Demands for the 1990s” need to be scanned so that they can also be linked to the subcommittee website.

The next conference call of the work group is set for Tuesday, May 20, 2008 at 1:00 pm EDT.

10. National Hydrologic Information System (HIS) development and SOH effort

David Goodrich was traveling overseas - No Report

11. Extreme Storms -Ad Hoc Group

Tom Nicholson

Final Minutes of the Opening Meeting of the Federal Task Force on Extreme Storm Events

On March 3, 2008, the newly-created “Task Force on Extreme Storm Events” held its kick-off meeting at NRC Headquarters. The meeting agenda and list of attendees is attached to the minutes.

1. Tom Nicholson, Interim Chair of the Task Force, opened the meeting through introductions of those present and those calling in on the teleconference (please see attached list of attendees). He also reviewed the draft agenda (please see attached) and invited suggested modifications. Next, he presented the Task Force charge from Steve Blanchard, Chair of SOH. The charge is to determine the need for and level of cooperation for updating databases and developing new methods for estimating extreme storm events. The focus should be on estimating various storm properties for assessing flood hazards. The Task Force is to report back to the SOH on the feasibility of establishing a standing working group to update Federal guidelines on estimating extreme storm events and to utilize the estimates within in a probabilistic, risk-based approach. Information and methods developed by this working group would be applicable to site-safety assessments, dam safety assessments and flood risk analyses, and will improve understanding of extreme flood processes and occurrences.

2. Eugene Stallings, National Hydrologic Warning Council, provided opening remarks and an historical perspective for the new enterprise. He mentioned that storm-based precipitation has long been a major input to rainfall-runoff models used to design reservoirs and other critical infrastructure components. He went on to provide a brief history on extreme storm precipitation data and its analysis.

“Just prior to World War II, the U.S. Army Corps of engineers (USACE) requested the national Weather Service (NWS) provide hydrometeorological services to assist in the design of their reservoirs. The USACE reservoir construction program was expected to increase dramatically and USACE wanted to assure that these

major structures would be safe, while providing appropriate levels of flood control. They wanted impartial estimates of extreme rainfall events. The NWS agreed to the USACE request. Subsequently, the Hydrometeorological Studies Branch (HSB) was established in the NWS with the USACE providing annual funding to prepare their various reports. There was little progress within the Branch until World War II ended. Construction of major reservoirs began at a very rapid pace in order to mitigate flood damages, provide hydroelectric power, water supply and recreation at many sites throughout the nation. It was called "The Golden Age of Reservoir Building." I was responsible for the planning and budgeting of the HMB in the 1970's.

However, there has been basically no new federal reservoirs build in recent years. As a result of this lack of construction, the size of the HSB gradually decreased until today, there is no existing expertise in house. The most recent Hydrometeorological Report was published in 1999."

3. John England, U.S. Bureau of Reclamation (Reclamation) reviewed the DOI/Reclamation proposal (see attached) authored by Robert Swain, John England and Richard Stodt, Reclamation to establish the Extreme Storm Event Work Group under SOH. John mentioned the need to re-examine Probable Maximum Flood (PMF) guidelines and determinations based on Probable Maximum Precipitation (PMP), and the updating of Hydrometeorological Reports (HMR's) that document them. As discussed in the Reclamation proposal, he mentioned that there is currently no mechanism in place within Federal Agencies to routinely collect, analyze, and archive extreme storm data that is useful for runoff modeling. In addition, there are no procedures in place to update storm data sets, methodology, and reports that are used to develop generalized PMP estimates. He reviewed the status of these HMR's and expressed a need to review the older HMR's such as HMR 49, and update them based upon extreme storm data collected since the late 1970's.

He mentioned that depth area duration (DAD) data and studies, and PMP methods used to provide "generalized" PMP estimates over large regions of the United States. These PMP data and methods are useful in reservoir designs and assessments. Estimates of project floods for Reclamation dams now involve probabilistic approaches, if the dam cannot pass a Reclamation PMF based on PMP. Improved extreme storm estimates, including probability estimates of storm properties, can be used for dam safety assessments, risk analysis, and understanding extreme flood processes.

John also discussed the issue of spatial and temporal scales for the reported PMP estimates, and the need to relate these generalized area estimates for the storm durations (e.g., 6 to 72 hours) and scales (e.g., 10,000 to 20,000 square miles) to site-specific estimates of design floods. What is clearly lacking in the current generalized HMR's is the specification of storm spatial and temporal distributions for all areas in the conterminous U.S. west of the 105 Meridian. Many of the recommendations for further work that are listed in HMR 55A, HMR 57, and HMR 59 have not been completed.

He stressed the need for an updated storm catalogue and to cite recent storm databases and analyses. John volunteered to update the proposal based upon these recent reports and studies by Reclamation.

4. Geoffrey Bonnin, NOAA/NWS, also discussed the status of the HMR's and the National Weather Service's (NWS) program to support them. In recent years, the NWS program has not been financed to update the HMR's and to extend the PMP estimates to all areas of the U.S. The NWS staff who worked on the earlier PMP program, mentioned by Eugene Stallings, have mostly left government service through retirements. There has been no work on PMP estimates by NWS since 1999. At present there are very limited resources to re-examine the HMR's. He agreed that if resources would become available, the HMR's and an updated storm catalogue should be updated to include data and analyses from recent extreme storm (e.g., Hurricanes Andrew, Rita and Katrina). He went on to comment that climatic change may not have an affect on PMP's since they are the perfect combination of conditions to produce an extreme storm event.

5. Tom Nicholson canvassed the attendees as to their Federal agency interest and needs.

a. Tom Nicholson mentioned meetings with NWS on this topic, and an attempt in 2007 to develop an Interagency Agreement between USNRC and NOAA/NWS to accomplish some of the HMR reviews and updates. Other NRC hydrologists also voiced a technical need to re-examine the HMR's and their PMP estimates due to "Early Site Permit" reviews of flooding for proposed nuclear power plant constructions.

- b. Mary Greene, OSM expressed a need and interest in estimating extreme storm events, but indicated they did not have resources to commit.
- c. John England, Reclamation expressed a strong interest and need as reflected in their proposal, and stressed a parallel need to develop risk analyses for extreme storm events, as well as the PMP deterministic approach.
- d. John Hunter, USCOE indicated that they need to re-examine PMP estimates as part of their self-regulatory program. He also mentioned that the Corps needs to define hazard conditions such as high hazard potentials for existing dams. Site-specific analyses would use extreme storm event estimates, and they support the Reclamation proposal.
- e. Sam Lin, FERC mentioned that they do require PMP estimates to determine PMFs and otherwise verify appropriate IDF (inflow design flood) as necessary for about 990 high or significant hazard potential dams under their jurisdiction. Some of projects have site-specific PMP study results. If we have a consensus regarding the need for the proposed extreme storm work group to proceed with the action items as discussed, we should vote to support for the approval of this work group in the SOH meeting.
- f. Nancy Steinberger, FEMA indicated that they are very interested and could support some of the effort.
- g. Geoffrey Bonnin, NWS questioned whether this is a Federal responsibility or should the private sector, including universities and consulting companies, be responsible for PMP estimates and methods using NWS databases. He also asked if the PMP standards should be Federal or developed through an industry consensus. He indicated that there is no funding now or into the future for this effort. If resources could be committed, NWS may reconsider, but as this time they are neutral.
- h. Robert Mason, USGS indicated that they understand the need and would support the effort.
- I. Eugene Stallings, National Hydrologic Warning Council, indicated his group is very interested and would support an effort.
- j. Will Thomas, Association of State Floodplain Managers, indicated that his group is neutral.

6. During general discussions, it was agreed to revise the Reclamation draft proposal to embed wording for a "Draft Charter" and to make recommendations on: (1) whether the Federal Government has the responsibility to develop and maintain guidance on defining the Probable Maximum Precipitation (PMP) and procedures for estimating (i.e., legacy comments from John Hunter, USACOE); (2) the role of the National Weather Service in taking the technical lead; and (3) what are the various Federal Agencies needs and expected deliverables for a cooperative Federal effort involving the establishment of a subcommittee on estimating extreme storm events for use in design (deterministic approach), and later for probabilistic-risk assessments for hazard identification and mitigation. The proposal should also discuss a possible mechanism to fund individual tasks/activities by the interested Federal Agencies, and how to bring the results from these efforts together for coordination among the Federal agencies.

Tom Nicholson, Interim Chair identified the following proposed action items:

The Task Force should report back to the SOH that there is sufficient interest to proceed.

- A. There was general agreement that PMP estimation standards, and related updating and maintenance of the HMR's is a Federal responsibility.
- B. Although the Reclamation proposal was well received, details on how to organize and fund the effort was not sufficiently understood.

- C. Geoffrey Bonnin and John England agreed to revise the Reclamation proposal to reflect the meeting discussions, and to include recent reports and studies dealing with PMP estimates and precipitation reports for extreme storm events. (It also agreed to update the references in the Draft Proposal to mention the 2001 Davis, CA conference on extreme storm events, as published by FEMA. The National Academy of Sciences references also need to be updated in the proposal. Information from the National Science Foundation on their funded studies involving PMP's should be mentioned and also referenced.)
 - D. The SOH should canvass their agencies' representatives to establish support and guidance following receipt of the revised proposal.
 - E. SOH agencies need to agree on what is specifically needed and a schedule of deliverables.
 - F. If HMR's are to be updated, funding from Federal agencies outside NWS must be developed. USNRC senior staff indicated that they were ready to commit funding in FY 2007 to this effort. Depending upon the conditions and details of the revised proposal, USNRC staff could recommend funding to their management in FY 2008.
 - G. The possibility of organizing and maintaining a Work Group on Extreme Storm Events in spite of little to no funding should also be considered for FY 2008.
7. The need and date for a future meeting will be determined following receipt and distribution of the Reclamation revised proposal.
8. The meeting was adjourned with draft minutes to be sent to each attendee.

**Tentative Agenda
Opening Meeting of the
Federal Task Force on Extreme Storm Events**

**March 3, 2008, 1:00 p.m. EST
Teleconference***

- 1. Introductions and Review Agenda ... Tom Nicholson, USNRC, Interim Task Force Chair
- 2. Opening Remarks and Historical Perspective Eugene Stallings, National Hydrologic Warning Council
- 3. Review DOI/US Bureau of Reclamation Proposal John England, DOI, Reclamation
- 4. Status of HMR's and NWS ActivitiesGeoffrey Bonnin, NOAA/NWS
- 5. Canvas of Federal Interest and Needs All participants
- 6. Identify Action Items Tom Nicholson
- 7. Determine Date and Time for Next Meeting if Needed All Participants
- 8. Adjourn

**List of Attendees
Opening Meeting of the
Federal Task Force on Extreme Storm Events**

**March 3, 2008, 1:00 p.m. EST
Teleconference***

Thomas Nicholson, U.S. Nuclear Regulatory Commission, Interim Chair of Task Force
 Geoffrey Bonnin, National Weather Service/NOAA
 Jill Caverly, U.S. NRC/NRO
 Christopher Cook, U.S. NRC/NRO
 John England, U.S. Bureau of Reclamation/DOI (teleconference)
 Mary Greene, Office of Surface Mining/DOI (teleconference)
 Brad Harvey, U.S. NRC/NRO (teleconference)
 Joseph Hoch, U.S. NRC/NRO
 John Hunter, U.S. Army Corps of Engineers/DOD

Sam Lin, Federal Energy Regulatory Commission (teleconference)
Robert Mason, U.S. Geological Survey/DOI (teleconference)
John McClung, Natural Resources Conservation Services/USDA (teleconference)
Eugene Stallings, National Hydrologic Warning Council
Nancy Steinberger, FEMA
Will Thomas, Association of State Floodplain Managers (teleconference)
Nebiyu Tiruneh, U.S. NRC/NRO
Max Yuan, FEMA

12. Current Events within Hydrologic Communities

a. *NAS Disasters Roundtable Workshop No. 22, "Disasters Risk Management in an Age of Climate Change" on April 3, 2008 - Gene Stallings National Hydrologic Warning Council*

Gene represented the National Hydrologic Warning Council at the 22nd Disasters Roundtable Workshop: "Disaster Risk Management in an Age of Climate Change" on April 3, 2008 at the Keck Center in Washington, D.C. Approximately 100 participants attended the Workshop. The aim of the Roundtables is to facilitate and enhance communication and the exchange of ideas among scientists, practitioners, and policy-makers concerned with urgent and important issues related to natural, technological, and other disasters. Chairman William Hooke welcomed everybody and provided some introductory remarks. He said that we live in a planet subject to extreme events and we should look at difficult problems and think outside of the box.

In its recently released report, *Climate Change 2007*, the Intergovernmental Panel on Climate Change (IPCC) noted that global climate change is likely to result in increases in drought, intense tropical cyclones activity, heat waves, and floods in certain regions of the world, including parts of the United States. It also suggested that such developments would require policy makers and other stakeholders to give increased attention to managing any new level of risks posed by extreme events and their adverse impacts. The Disaster Roundtable Workshop considered challenges facing disaster risk management in the context of climate change. Knowledge derived from science and the experience of policy makers and practitioners were a major part of the Workshop. Intensive questioning periods followed each of the four Panels. In the end, more time to respond to the questions would have been nice. The presentation on Hurricanes hitting directly New York City was the show-stopper.

b. *Federal Highway Embankment Incorrect Designations as Levees*

Joe Krolak reported that numerous highway embankments have incorrectly been identified as levees. The Federal Highway Administration does not support this designation and will be working to remove these designations.

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

a. *"The SOH CONNECTIONS" Newsletter Editor's Report*

- i. Mary Greene and Claudia Hoeft stressed the need for submissions from the SOH members to continue especially if any one has submissions appropriate for the "Public Awareness" section
- ii. Comments are requested regarding the idea of featuring an SOH member organization in each issue.
- iii. The submission due date for the Newsletter is Friday May 23, 2008. The next newsletter is scheduled for early June.

b. *Business Reports*

- i. No comments on the business reports submitted to date
- ii. Submit additional business reports to Mary Greene by Monday May 5.

14. Plans for Next Meeting

The next meeting of the Subcommittee on Hydrology is on Thursday July 31 starting at 9 AM at the Main Interior Building.

Adjournment

Action Items:

- I. Email any additional organization business reports to Mary Greene by Monday May 5
- II. Work Group leaders - email a written version of the reports you gave at the meeting to Mary Greene by Monday May 5 so Mary can complete the draft minutes.
- III. Email suggestions for a Theme for the 2010 Hydrologic Modeling Conference to Don Frevert by Monday May 5.
- IV. Steve will contact Carol regarding integrating the SOH and BOR websites to post the previous hydrologic modeling conference proceedings.
- V. Steve will act on the requests from the Extreme Storms Ad Hoc Group to resolve the NOAA/NWS availability for leading the extreme storm update effort.
- VI. Email SOH Connections Newsletter submissions to Claudia and Mary by Friday May 23 – the next newsletter is scheduled for early June 2008

Subcommittee on Hydrology Business Reports for April 17, 2008 Meeting

Compiled by M. Greene

Bureau of Reclamation – Don Frevert

Lower Colorado Regional Director Lorri Gray has selected Terry Fulp as the new Deputy Regional Director. Terry has been a Reclamation employee since 1989, and has most recently served as the Area Manager for the Boulder Canyon Operations Office where he played a lead role in the completion, approval and implementation of the Colorado River Shortage Guidelines and Coordinated Operations Environmental Impact Statement.

Terry holds a Ph.D. in Mathematical and Computer Sciences from the Colorado School of Mines, a M.S. in Civil Engineering from the University of Colorado, a M.S. in Geophysics from Stanford University, and a B.S. in Earth Sciences from the University of Tulsa. Terry has received numerous awards during his career, including the Virgil M. Kauffman Gold Medal from the Society of Exploration Geophysicists for his outstanding contribution to the advancement of geophysical exploration.

Reclamation's buy out opportunity for the Technical Services Center (TSC) staff ended on March 31st with the departure of about 60 senior technical experts in a variety of fields including water resources. Additional retirements are expected in the future as approximately 50% of the TSC staff is eligible or within five years of eligibility.

FERC – Sam Lin

FERC representative met with the Association of State Dam Safety Officials (ASDSO) Board of Directors on April 2 to discuss possible dam safety technical assistance efforts. FERC will propose sending an engineer to the local State dam safety offices to offer a one-day training session to all the state dam safety engineers in that office on a variety of technical issues. The topic menu will include potential failure mode analysis, EAP, geotechnical remediation and stability analyses, structural engineering analyses, lessons learned from past dam failures, etc.

USGS – Steve Blanchard

Track Flooding with the New Interactive USGS Water Hazards Map

An online, user-friendly water hazards map to track flooding across the country has been developed by the U.S. Geological Survey (USGS). This first-ever interactive USGS tool can be used to display changes in streamflow, ground-water levels, and water quality in real-time on Google Maps before, during and after a flood. Access the USGS water hazards map at <http://water.usgs.gov/waterwatch/hazards>.

This water hazards map is part of a continued effort by the USGS to assist the National Weather Service (NWS) in accurate flood forecasting. During a flood, teams of USGS hydrographers travel to streamflow-gaging stations to keep instruments operating and to verify and collect streamflow data.

The water hazards map allows users to zoom into their local monitoring stations and get detailed information about all types of USGS water data from streamgages, wells, and water-quality sensors in their area. Users have a direct link to the USGS database, which allows them to view graphs of the site's history over the past several days, years or even decades.

President's Budget Proposal for USGS in FY2009

The President has proposed a budget of \$968.5 million for the U.S. Geological Survey (USGS) in fiscal year 2009, a decrease of \$38.0 million from the 2008 enacted level. The FY 2009 budget focuses on the highest priorities for research while ensuring that the USGS builds the expertise it needs to continue answering the complex scientific questions that may arise. The budget includes \$34.9 million in program increases and \$15.0 million in fixed costs, offset by \$87.8 million in reductions for lower priority efforts and unrequested increases.

The 2009 budget includes a net increase of \$8.2 million to support the water census component of the \$21.3 million Water for America Initiative with the Bureau of Reclamation. To support the water census, the National Streamflow Information Program is funded at \$23.8 million, including an increase of \$3.7 million to upgrade 350 streamgages with real-time telemetry and to reinstate 50 discontinued streamgages in 2009. Increases of \$3.0 million for the Ground-Water Resources Program and \$1.5 million for Cooperative Geologic Mapping will provide additional support for the water census by increasing knowledge related to groundwater resources.

In addition, the proposed budget includes an increase of \$7.0 million for oceans science in support of the Department's Ocean and Coastal Frontiers Initiative and completing the work started in 2008 on the U.S. Ocean Action Plan. Coastal and Marine Geology is funded at \$47.4 million. An increase of \$4.0 million will be used to collect data for the extended Continental Shelf of the Arctic Ocean, working with the National Oceanic and Atmospheric Administration, to support the Nation's claim to its mineral and energy rights in the extended Continental Shelf. An additional \$2.0 million will be used to conduct merit-based ocean research projects, and \$1.0 million will complete funding for efforts in seafloor mapping, models to forecast response to extreme weather events, and developing a water quality monitoring network.

The 2009 budget reflects a restructuring to create a global change activity and sustains \$5.0 million of the \$7.4 million increase in 2008 for climate change science. The 2009 request of \$26.6 million includes \$21.6 million in base funds to continue current global change research, \$4.0 million to establish a pilot program in Alaska for a national climate change network, and \$1.0 million for climate change adaptation studies. These components will provide critical monitoring information needed for predictive modeling related to our changing climate and its effects on the landscape and the Nation's resources.

The 2009 budget consolidates funding for a new Global Change Activity totaling \$26.6 million that is supported by an additional \$4.8 million in Climate Change Science, bringing total climate change funding to \$31.4 million.

In order to focus programs on activities that are inherently governmental and to concentrate on highest priority research, the President's 2009 budget reduces funding to the Mineral Resources and the National Water Quality Assessment (NAWQA) programs. A \$24.6 million net reduction to Mineral Resource Assessments is proposed, which will result in a 2009 program of \$26.3 million. A \$10.9 million net reduction to NAWQA is proposed for a total 2009 program of \$54.1 million. The President's 2009 budget also reduces the Earthquake Hazards Program by \$5.0 million, retaining \$49.1 million for the highest priority earthquake research projects.

No Reports Submitted:

USDA-ARS - David C. Goodrich

Association of State Floodplain Managers – Will Thomas

Bureau of Land Management – Mike Eberle

Corps of Engineers – Jerry Webb

Defenders of Property Rights – Martin Becker

Federal Highways Administration – Joe Krolak

Federal Emergency Management Association – Doug Bellomo

Forest Service – Chris Carlson

Natural Resources Conservation Service – Claudia Hoelt

National Hydrologic Warning Council – Gene Stallings

National Aeronautic and Space Administration – David Toll

National Science Foundation – Doug James

Office of Surface Mining - Mary Greene

U.S. Environmental Protection Agency – David Wells

National Weather Service – Victor Hamm