

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

October 20, 2005

**Rm. 3M-3, FERC Building
888 First Street, NE, Washington, DC 20426**

AGENDA

1. Welcome and Introductions
2. Review and Approval of Agenda
3. Review of Summary and Action Items from July's working meeting
4. Update of Roster and Subcommittee Membership
5. Update on Hydrologic Frequency Analysis Work Group
6. Update on Hydrologic Modeling Work Group and Joint FIHMC-FISC
Conference
7. Update on Satellite Telemetry Work Group
8. Closure on July Discussion of Modeling Source Code Policies
9. Announcements and Business Reports from Member Organizations
10. Upcoming Meeting of ACWI
11. Election and Transition to New Chair and Vice-Chair
12. Recognitions and Other Business
13. Plans for Next Meeting
14. Adjournment

The meeting will be followed by a tour of the FERC Market Monitoring Center starting between 11:30 am and 12 noon.

SUMMARY OF MEETING

PARTICIPATING

Don Woodward, American Forests
Will Thomas, Association of State Floodplain Managers (ASFM)
Michael Eberle, USDI Bureau of Land Management (BLM) (Michael_B_Eberle@blm.gov,
(202) 452-5179)
Don Frevert , USDI Bureau of Reclamation (BOR)
Martin Becker, Defenders of Property Rights (DPR) (*by phone hookup*)
David Wells, US Environmental Protection Agency (EPA)
Sam Lin, Federal Energy Regulatory Commission (FERC)
Joe Krolak, Federal Highway Administration (FHWA) (*by phone hookup*)
Gene Stallings, National Hydrologic Warning Council (NHWC)
Tom Nicholson, Nuclear Regulatory Commission (NRC) (tjn@nrc.gov; 301/415-6268)
Bill Merkel, Natural Resources Conservation Services (NRCS)
Tom Donaldson, National Weather Service (NWS)
Jerry Webb, US Army Corps of Engineers (USACE)
Toni Johnson, US Geological Survey (USGS) (tjohnson@usgs.gov; 703/648-6810)
Steve Blanchard (USGS)

(Note: A total of 15 participated - 13 in person and two by conference call; Phone call in # 888-889-6350, PASSCODE: 50302; email addresses and phone nos. listed above are only for those first time attendees or new addresses for previous attendees)

MEETING HIGHLIGHTS

Don Frevert called the meeting to order at 9:30 a.m. EDT.

1. Welcome and Introductions

There were 15 participants (including the ACWI Executive Secretary, Toni Johnson and Tom Nicholson representing a potential member organization - NRC). A total of 11 active member organizations were represented.

2. Review and Approval of Agenda

The meeting agenda was approved as listed above.

3. Review of Summary and Action Items from July's working Meeting

The minutes of the July 18, 2005 subcommittee working meeting have been posted on the subcommittee's website below. The minutes of the July 18, 2005 meeting were approved.

http://water.usgs.gov/wicp/acwi/hydrology/minutes/SOH_WorkingMeeting_071805.pdf

Action: Martin Becker asked about release of source code on hydrologic models by the federal agencies and executable version of their models to document their results. See response addressed in Item 8 below.

4. Update of Roster and Subcommittee Membership

SOH has 17 active member organizations (13 federal agencies and 4 interest groups). There are two potential organization members including Nuclear Regulatory Commission (NRC) and US Fish and Wildlife Service (FWS).

An organization may become a member of SOH by submitting a letter requesting membership two weeks before a meeting and then the SOH votes on the request. (See III B of the SOH' Terms of Reference)

5. Update of Hydrologic Frequency Analysis Work Group (HFAWG)

Will Thomas reported that the HFAWG had not met since the July 18, 2005 meeting of the Subcommittee on Hydrology but were going to meet on November 14-15, 2005 at the office of Michael Baker, Jr. in Alexandria, Virginia. Will indicated that the upcoming meeting was motivated by a proposal distributed to work group members by Jerry Stedinger, Cornell University. A copy of this proposal entitled "Time for a Change: Bulletin 17B and Flood Frequency Analysis in the United States", dated September 28, 2005, is included as an attachment to these minutes (See Attachment I). In this proposal, Jerry noted that significant research has been completed in the last 20+ years since Bulletin 17B was published and it was time to implement some of this research. Jerry recommended several new techniques that should become part of revised flood frequency guidelines. This proposal generated considerable email correspondence among work group members and resulted in convening a November 14-15 meeting of the work group. The purpose of the November 14-15 meeting is to update and revise Jerry's proposal, and to discuss changes needed in Bulletin 17B, changes that can and should be made in Bulletin 17B in the immediate future, testing and evaluation needed for possible changes in Bulletin 17B, and long-term research needs in flood frequency.

Action: Will Thomas will provide a fact sheet about the activities envisioned by the HFAWG regarding the proposal submitted by Jerry Stedinger to update Bulletin 17B. The fact sheet will be used to provide information for each member to be able to brief their management.

6. Update on Hydrologic Modeling Work Group and Joint FIHMC-FISC Conference

Don Frevert reported that arrangements for the conference are progressing well. Acceptance letters have been sent out and there will be a full program of high quality papers on both the Hydrologic Modeling and Sedimentation sides. The program for the conference has been distributed. Problems have been encountered in making arrangements for accepting credit cards with Chase Bank. Chase seems incapable of or unwilling to understand the status of the

conference with regard to not needing a business license. Arrangements with Bank of America will be pursued. Attendees will get a full book of abstracts and a CD with all papers.

7. Update on Satellite Telemetry Interagency Work Group (STIWG)

There were no new developments reported at the meeting.

8. Closure on July Discussion of Modeling Source Code Policies

The issue on Modeling Source Code Policies relates to the agencies' policy (See Martin Becker's email as Attachment II). Members from USACE, USGS, NRCS, NWS, EPA and BOR reported their individual agency's modeling production and modeling code policies. For instance, executables for most of BOR's models are available to the public on request – however in the case of proprietary models there may be a licensing fee payable to the developer.

9. Announcements and Business Reports from Member Organizations

Defenders of Property Rights

Martin Becker had no new developments to report.

FHWA

Joe Krolak reported that FHWA working with States affected by recent Hurricanes in regards to forensics, design, and mitigation.

Primary affected structures include:

- US 90 Biloxi Bay
- US 90 Bay St Louis
- I-10 Lake Pontchartrain
- Numerous other bridges and drainage crossings affected.

Allowing State DOT to use engineering and scientific state-of-art coastal engineering practices and consider higher design return periods (50 to 100-year) than typical bridge design practice (50-year) to replace severely damages structures.

Providing information to State DOT partners and Congress on means FHWA can provide assistance.

Bureau of Reclamation

Don Frevert reported that Reclamation, like many other federal agencies, is operating under a continuing resolution. The current continuing resolution will stay in effect until mid November.

Reclamation's Washington office is being reorganized and this will result in three deputy commissioners - one more than they presently have. Some responsibilities will be shifted and several managers will be getting new titles. At this point, no parallel reorganizations are anticipated in other Reclamation offices. Reclamation has provided support in the Hurricane Katrina relief effort.

EPA

David Wells reported that EPA emergency response personnel are working in partnership with FEMA and state and local agencies to help assess the damage, test health and environmental conditions, and coordinate cleanup from Hurricanes Katrina and Rita. In emergency situations such as this, EPA serves as the lead Agency for the cleanup of hazardous materials, including oil and gasoline. Our national and regional Emergency Operations Centers are activated to support EPA's field response.

In Louisiana there are a total of 1,591 drinking water facilities that served approximately 5 million people. As of Nov. 1st, EPA has determined that 1,491 of these facilities are operational, 23 are operating on a boil water notice, 66 are not operating, and further information is being gathered on 11. In Mississippi, there are a total of 1,367 drinking water facilities that served approximately 3.1 million people. EPA has determined that 1,302 of these facilities are operational, 41 are operating on a boil water notice and 24 are inoperable. And in Texas, there are a total of 1057 drinking water facilities that served approximately 4 million people. EPA has determined that 795 are operational, 186 are operating on a boil water notice, 3 are not operating, and further information is being gathered on 73. It should be noted that operational facilities may still be in need of repair or reconstruction. EPA's Water program is continuing to assess drinking water plants in the affected area.

In Louisiana, there are a total of 317 Public Owned Treatment Works (POTW's - Wastewater Treatment Plants). As of Nov. 1st, EPA has determined that 300 of these facilities are operational, 13 are not operating, and further information is being gathered on 4. In Mississippi, Alabama and Texas, all the facilities are operational. It should be noted that operational facilities may still be in need of repair or reconstruction. EPA's Water program continues to assess wastewater treatment plants in the affected area.

On Oct. 31st, EPA announced that an estimated one million pounds of household hazardous wastes have been collected in Louisiana. EPA and its contractors have distributed flyers announcing the collection system and then returned several days later to pick up all materials left in front of homes. After pickup and delivery to the various collection centers, the products were segregated into different waste streams for proper transportation and disposal.

EPA provided test results from water samples collected by the agency's Ocean Survey Vessel, "The Bold". Also participating to discuss the large-scale, collaborative multi-agency effort of monitoring waters in and around the Gulf were NOAA, FDA, DOI and LDEQ. EPA's data showed that the water from river channels and near shore waters surrounding the Mississippi Delta was appropriate for primary contact recreation - including swimming, however, the agency cautioned that the data should not be used to judge the safety of consuming raw or undercooked mollusks such as oysters.

NWS

Tom Donaldson reported that the NWS held the first ever Flood Safety Awareness Week this past spring, and that there are plans in the works to have another Flood Safety Awareness Week this coming spring. The Flood Safety Awareness Week is patterned after previously successful awareness weeks like the Lightning Safety Awareness Week, and Tornado week. Budget permitting, the Flood Safety Awareness Week will become an annual event.

Tom also reported that Debris Flow warnings are being produced in conjunction with the USGS in Southern California. The Debris Flow warnings are covering two of the large burn areas there. The USGS is providing exceedence threshold levels produced from their debris flow models for input into the NWS Flash Flood Monitoring and Prediction (FFMP) model. FFMP uses the threshold levels to compare to storm accumulation precipitation, and when exceeded, a warning goes out. This is a test through the wet winter season there to determine the feasibility for future use across the nation.

Another recent accomplishment that was mentioned was the agreement with the US Department of Transportation on the NWS proposed incident warning signs for their "Turn Around Don't Drown" program. The approved sign that may be used across the nation is "Flooding Ahead Turn Around Don't Drown" with black letters on a hot pink background. This wording and coloring conforms to the policy directives of DOT.

USGS

Steve Blanchard reported below:

1. USGS Director Chip Groat resigned in June 2005; current Acting Director is Pat Leahy (he was the Chief Geologist). The Dept of Interior hopes to announce a nominee for the position this fall.
2. USGS appropriations bill was signed prior to the start of FY06. There was a 2% increase for funding of the National Streamflow Information Program; however, the USGS is anticipating a rescission and is holding 2.5% in reserve in case there is a rescission. So for now, the allocation for streamgages is down about 0.5% for FY06 not including the cost of inflation.
3. The USGS is working with FEMA and the Corps to develop an atlas of high water marks for Hurricanes Katrina and Rita. The FEMA goal for publishing the atlas is mid-November. The USGS worked extensively after the hurricanes to mark high water marks. The USGS lost about 35 stream/tidal gages as a result of Katrina. To help document flood conditions during Rita, the USGS purchased low cost pressure sensors that were placed along the coast of TX and LA to help better document the surge and flooding from Rita in case a large number of permanent gages were destroyed by Rita. The temporary pressure sensors worked very well to provide additional information about the surge and flooding caused by Rita.
4. Two strong letters of support were sent to the Director of OMB and the Secretary of Interior Norton in support of the streamgaging program. One letter came from external stakeholder associations and was signed by a representative of 20 different associations/organizations. The second letter came from Senator Domenici and was signed by 9 other Senators. The major parts

of letters are attached FYI as Attachment III.

5. Bill Kirby, one of the USGS long time experts in statistical hydrology retired on September 30. Bill was a member of the Hydrologic Frequency Analysis Work Group. Tim Cohn of the USGS will take Bill's position on the Hydrologic Frequency Analysis Work Group.

Toni Johnson stated several things including the ACWI January meeting and subcommittees' accomplishments as addressed in her email of 10/27/05 (see Attachments IV & V.).

Action: Please respond to Toni's request on a potential roundtable or panel on Emergency Hurricane Response

Bureau of Land Management (BLM)

Michael Eberle reported that he will be the primary representative for BLM on the subcommittee. He has a background in hydrologic modeling and water quality and is now working in the area of water rights.

BLM will hold a conference for its Soil, Water and Air specialists during the last week of February, 2006. This conference will present drafts of several important guidance documents, including a program workforce analysis (part of the BLM workforce analysis) that will assess the program in terms of the work necessary to meet the Bureau's 2003-2008 goals. Technical training in the use of data bases and data collection critical to energy mineral and livestock grazing permitting will also be presented.

National Hydrologic Warning Council (NHWC)

Gene Stallings reported that the draft report of the Phase 1 portion of the NHWC study on economic benefits associated with USGS stream gages is presently under review. My portion of the Phase 2 Report is focused on reservoir optimization and flood warning systems. I feel comfortable with the dollar estimates. My first draft was submitted to David Ford Engineers, the Prime Contractor for the project.

US Army Corps of Engineers (USACE)

Jerry Webb reported below:

1. USACE is working under continuing resolution authority.
2. Summary – USACE Support to Katrina & Rita Recovery & Wilma Preparation (as of 19 Oct):
 - Total personnel in support: **3,158**
 - FEMA mission assignments: **\$3,730,900,000** for Katrina & Rita
 - Flood Control & Coastal Emergencies (FCCE) funds provided: **\$230,948,749** (Katrina, Rita, rehab projects and other)
 - Temporary roofs: **82,866** completed; **133,081** projected for Katrina & Rita
 - Water: **4,979** truckloads ordered, **3,902** distributed
 - Ice: **5,276** truckloads ordered, **4,736** distributed

- Generator assessments completed: **1,939**; generators installed: **679**; de-installed: **593**
- Debris removal: **12,319,397** cubic yards removed, **46,281,600 million** CY estimated from Katrina & Rita.

The un-watering effort in New Orleans is essentially complete. The efforts have been switched to recovery efforts for the levee protection system for future events.

NRCS

Bill Merkel reported below:

NRCS is using some Emergency Watershed Protection (EWP) funds to support the Katrina recovery efforts. Contract specialists, engineers, and technicians are working on debris removal and drainage problems.

NRCS has been involved in coastal wetland restoration in Louisiana for many years. These projects are mostly related to environmental and wildlife habitat improvement. Degradation of coastal wetlands has caused a great deal of concern with environmental impacts and as a buffer against storm surge. NRCS will continue this important work in the future.

NRCS has selected a new National Hydraulic Engineer. Her name is Claudia Scheer and she currently works in Little Rock, AR. Her reporting date to Washington DC is November 28, 2005. Her current e-mail address is Claudia.Scheer@ar.usda.gov. She will be the NRCS representative to the SOH. William Merkel will continue to be the alternate representative.

American Forests

Don Woodward reported that an Urban Forestry conference will be held in mid November.

Association of State Floodplain Managers (ASFPM)

Will Thomas reported that the ASFPM issued a Press Release dated September 9, 2005 on "Hurricane Katrina – Reconstruction through Mitigation". In this Press Release, ASFPM provided several suggestions for reconstruction in the areas hit hardest by Hurricane Katrina. Among the suggestions were to

- evaluate current flood maps and construction standards to see if adjustments are needed,
- mitigate the flood hazards by elevating or floodproofing the structures, acquiring and relocating those structures to less hazardous areas, and
- adopting higher standards for reconstruction.

Many other suggestions are given for cost sharing Federal mitigation programs, protecting and restoring natural coastal wetland systems, and improving levees and structural protection works. The Press Release is on the ASFPM web site at <http://www.floods.org>.

Will also reported that ASFPM was one of many organizations that sent a letter to Interior Secretary Gale Norton and Associate OMB Director David Anderson recommending increases in the USGS streamgage funding in Fiscal Year 2007 (see Attachment III). This letter asked for an increase of \$11 million for the Cooperative Water Program, recommended a request of \$16.2

million for the National Streamflow Information Program, and a \$100 million to reactivate and add streamgages and upgrade technology for the streamgaging program. This letter is also on the ASFPM web site.

FEMA

Will Thomas provided a brief report on FEMA activities on behalf of Doug Bellomo who was not able to attend the subcommittee meeting.

Will reported that FEMA has a series of Procedure Memorandums and recently released “Procedure Memorandum 34 – Interim Guidance for Studies Including Levees” that should be of interest to the Subcommittee on Hydrology. The procedure memo encourages communities and mapping partners to identify levees during the scoping phase of any new mapping effort and reminds them that “... it is the responsibility of the community or other party seeking recognition of a levee system at the time of a flood risk study or restudy to provide the data outlined in 44 CFR Section 65.10.” The memo further states that if the data are not submitted by the deadline, the levee cannot be recognized as providing protection from the 1-percent annual chance flood as part of the current mapping effort. Procedure Memorandum 34 and other Procedure Memoranda are on FEMA’s web site at http://www.fema.gov/fhm/gm_memos.shtml. A related FEMA activity is the establishment of a Levee Policy Task Committee in cooperation with the U.S. Army Corps of Engineers to articulate a national levee policy and to establish and maintain a GIS-based national inventory of levees.

Will also reported that FEMA released three Flood Recovery Guidance documents on October 3, 2005 for the three Mississippi coastal counties (Hancock, Harrison and Jackson) impacted by Hurricane Katrina. These documents provide guidance for estimating advisory flood elevations that should be useful in reconstruction for these three Mississippi counties. The advisory elevations are higher than those on the effective Flood Insurance Rate Maps and were estimated using annual maximum flood elevations for three long-term tide gages along the Gulf Coast (one gage in each county). These Flood Recovery Guidance documents are included as attachments to these minutes (see Attachment VI). There is also a Press Release on Questions and Answers related to these documents on the Mississippi Emergency Management Agency (MSEMA) web site at the following address: <http://www.msema.org/newsreleases/news.htm>.

Nuclear Regulatory Commission (NRC)

Tom Nicholson reported their hydrology issues and research. He pointed out that NRC had been a member of the SOH in the late 1970’s thru the 1980’s. At that time, NRC’s hydrology issues and program focused on surface water hydrology such as design basis floods, water supply for nuclear power reactors, and flood assessments and protection. NRC’s current hydrology issues and program focus primarily on ground-water flow and contaminant transport. Specifically, issues range from ground-water recharge, risk assessments of subsurface waste disposal facilities, ground-water modeling, and decommissioning reviews involving ground-water remediation, to monitoring of the unsaturated and saturated zones. NRC has cooperative research studies with the Agricultural Research Service (ARS) and the U.S. Army Corps of Engineers, as well as research at the U.S. Department of Energy’s national laboratories.

An important cooperative research initiative involving NRC is the Memorandum of Understanding (MOU) on research in multimedia environmental modeling. This MOU involves nine Federal Agencies, many of whom have representatives to the SOH. Detailed information such as: a copy of the MOU; listing of and Web site links to the participating nine Federal agencies; working group charters, members and accomplishments; workshop proceedings, publications, Interagency Steering Committee on Multimedia Environmental Modeling (ISCMEM) chair and members; quarterly ISCMEM meeting minutes; and presentations at the annual public meeting of ISCMEM are provided at their URL: <http://www.ISCMEM.Org>.

NRC is presently funding research on development and testing of:

- Methodology for assessing hydrologic conceptual model, parameter and scenario uncertainty.
- Integrated ground-water monitoring strategy to couple ground-water modeling to monitoring through identification and monitoring of performance indicators.
- Model abstraction techniques for assessing conceptual model formulation, parameter estimation, and model uncertainty, in conjunction with ARS.
- Ground-water recharge estimation methods at the small watershed scale, in conjunction with ARS.

NRC staff are active participants in hydrology-related consensus standards writing subcommittees, and routinely attend and support the National Academy of Sciences boards and committees involved in hydrology issues such as the NAS standing “Committee on Geological and Geotechnical Engineering” and Water Science and Technology Board.

FERC

Sam Lin reported below:

1. Access to FERC’s CEII: FERC’s Critical Energy Infrastructure Information (CEII) is a label or category of information FERC devised to limit access to information (files, reports, EAPs) that should be protected from terrorists. It is different from the Freedom of Information Act (FOIA) process that all Federal agencies use.

However, recently FERC has changed the rules to make it easier for other Federal agencies to gain access to sensitive dam safety information. Federal agencies with legitimate need for CEII no longer have to use the CEII procedures.

For example, there were two projects on US Forest Service (USFS) Lands in UT that were inspected this year by FERC’s contractor. FERC Staff can provide the information directly to USFS upon its request.

2. FERC’s dam safety engineering guidelines update: FERC’s Hydrology, Hydraulics and Operation technical resource group recently began the process of reviewing and updating its Engineering Guidelines, “Selecting and Accommodating Inflow Design Floods for Dams.” The work plan has a scheduled completion of this activity in early FY 2006 and will be followed by an in-house training for all staff, especially those entry level engineers.

10. Upcoming Meeting of ACWI

Toni Johnson stated the upcoming ACWI meeting will be held on January 18-19, in Herndon Virginia. On behalf of the SOH, Sam Lin will present to the meeting.

11. Election and Transition to New Chair and Vice-Chair

Sam Lin and Steve Blanchard were ratified as new chair and vice-chair, respectively and will start performing their duties after this meeting.

12. Recognitions and Other Business

Don Frevert in the capacity of the SOH chair recognized individuals with an Appreciation Certificate to Will Thomas, the leader of Hydrologic Frequency Analysis Work Group, and Stan Brua, the leader of Satellite Telemetry Interagency work group for their commitment and dedication to the SOH in the past year. Since Stan could not be present, his certificate will be presented at a subsequent meeting.

In recognition and appreciation for Don Frevert's professional leadership of the SOH in the past two and a half years, Toni Johnson, the Executive Secretary of ACWI presented him with a USGS Benchmark Certificate and plaque.

Don Frevert also invited the SOH members to give him their supervisors' information so he can express the SOH's appreciation for member organizations' support and individual members' contribution to the SOH in the past year.

This first time ever recognition of the members' commitment and contributions to the SOH has been largely appreciated by the members and their representing organizations. For those who were absent at this meeting and want Don Frevert's recognition letters, please don't hesitate to provide him with your supervisors' information as soon as possible.

13. Plans for Next Meeting

The next meeting will be held at FERC headquarters building (888 First Street, NE, Washington, D.C., 20426) on January 12, 2006. The meeting will start at 9:30 am EST at the building west wing's meeting Rm. 3M-3.

Action: The meeting participants who are not the SOH's members entering the FERC building need to preconfirm their attendance with Sam Lin

14. Adjournment

The meeting was adjourned at 12:00 p.m. EST.

A tour of the FERC Market Monitoring Center (MMC) (see Attachment VII Data Sheet) of the FERC building started at noon for an hour. Bob Czarick, Energy Information Analyst and Charles Whitmore, Senior Market Advisor with Office of Market Oversight and Investigations (OMOI) presented how FERC plays its nationwide energy market oversight functional role by using its MMC monitoring facilities. Participating members were impressed and appreciative of the presentation.

Attachment I. Professor Jerry Stedinger's Suggestion on Updating Bulletin 17B

September 30, 2005

Time for a Change:

Bulletin 17B and Flood Frequency Analysis in the United States

Jerry R. Stedinger, Ph.D.

Professor Water Resource Systems Engineering, Cornell University

Member, US Hydrologic Flood Frequency Work Group

Fellow AGU; Member International Water Academy

Winner 2004 Prince Sultan Bin Abdulaziz International Prize for Water - Surface Water Branch
for research on effective flood control methods

The current methodology recommended for flood-frequency analyses by U.S. Federal agencies is presented in *Bulletin 17B* published by the Interagency Committee on Water Data in 1982*. The fields of hydrology, flood frequency analysis and computational statistics have seen great advances since *Bulletin 17B* was published more than 20 years ago. Despite these important advances, methods prescribed for use by US federal agencies have not changed**. Moreover, many flood frequency studies still use the 1976 map from Bulletin 17 providing values of the skewness coefficient; that map has not been updated to reflect the 30 years of additional data that is now available, or the tremendous improvements in statistical methods available to correctly analyze such spatial data.

To help improve flood risk management in the United States it would be appropriate for Congress to direct the U.S. Geological Survey to conduct a review of appropriate methods for flood frequency in the United States in coordination with other federal agencies and the public. The conclusion of that review should be a revision of Bulletin 17B providing guidance on flood frequency methods that are accepted by the water resources community, would be uniform across agencies, are statistically sound, and are consistent and accurate. Such methods should address computation of flood risk at gauged sites, ungauged sites, and urban and developing areas, in unstable channels and on alluvial fans, on regulated streams and for coincidence frequency analysis at stream junctions, that can vary with season, and can address risk due to water and debris flows.

Currently the federal entities, such as the Hydrology Committee under the Water Data Coordination Program, and its subcommittee the Hydrologic Frequency Analysis Work Group,

lack the stature and mandate to do more than maintain the status quo. [Water Data Coordination Program - http://water.usgs.gov/wicp/acwi/subgrp_ls.html.]

Bulletin 17B can be downloaded at:

http://water.usgs.gov/osw/bulletin17b/bulletin_17B.html

See also, Frequently Asked Questions for Bulletin 17B at:

<http://water.usgs.gov/wicp/acwi/hydrology/Frequency/B17bFAQ.htm>

* *Bulletin 17* was first published in 1976 by the US Water Resources Council, minor corrections were made in 1977 resulting in *Bulletin 17A*, which was later succeeded with modest improvements in 1982 by *Bulletin 17B* currently distributed by the Interagency Committee on Water Data, U.S. Dept. of the Interior, Geological Survey, Office of Water Data Coordination, Reston, Virginia., 22092.

** New techniques are now available that should become part of standard procedures addressing:

- (i) statistically appropriate procedures for computation of regional skew and its precision that recognize that sample skewness estimators are relatively inaccurate themselves,
- (ii) statistically effective and flexible methods for employing historical flood data and non-standard measurements in flood frequency investigations,
- (iii) consistent and straightforward treatment of low outliers, zero flows and other problems,
- (iv) computation of confidence intervals for quantiles reflecting uncertainty in the skewness coefficient, and other appropriate descriptions of the statistical uncertainty in measures of quantiles, annual exceedance probabilities and expected flood damage reduction from flood risk reduction projects,
- (v) generation of flood records for frequency analysis from rainfall records employing conceptually-based and spatially distributed watershed models and computation of associated measures of uncertainty, and
- (vi) simulation of reservoir system performance and regulated flows to support regulated-flow frequency analyses and computation of corresponding uncertainty measures.

These improvements should be implemented along with better documentation of the concepts and methods used for flood frequency analysis and watershed and reservoir simulation, and access to federal and state data bases and frequency analysis and simulation tools.

Attachment II. Becker's Email for above Item 8

II.1 Email of 10/14/05

Don,

The issue on item 8 of the agenda relates to the agencies' policy as it relates to the agencies' requirements for transparency and reproducibility under the data quality act.

Thanks,

Martin Becker

II.2 Email of 11/16/05

it seems to me that item #8 of our meeting minutes should record the response of all of the agencies. as I recall, each agency except for the corps provides the source code info and an executable copy of the program upon request. in the case of the corps, I recall that the corps reports not to provide the source code info and an executable copy of the program if the computation is reproducible without the information. however, the corps did not state a position if the computation is not reproducible by the public. for that reason, I suggest that the minutes of the soh defer to the data quality act for each of the respondents.

the link is attached below for inclusion in the minutes:

<http://www.whitehouse.gov/omb/fedreg/reproducible2.pdf>

Thanks,

Martin Becker



Federal Register

Friday,
February 22, 2002

Part IX

**Office of
Management and
Budget**

Guidelines for Ensuring and Maximizing
the Quality, Objectivity, Utility, and
Integrity of Information Disseminated by
Federal Agencies; Notice; Reproduction

Attachment III. Streamgage Letters

(A) Streamgage Funding in FY-2007

August 12, 2005

The Honorable Gale A. Norton
Secretary of Interior
U.S. Department of Interior
1849 C Street, N.W.
Washington, D.C. 20240

Mr. David Anderson
Associate Director, Natural Resource Programs
Office of Management & Budget
Eisenhower Executive Building
Washington, DC 20503

Regarding: STREAMGAGE FUNDING IN FY-2007

Dear Secretary Norton and Mr. Anderson:

The undersigned organizations strongly support increasing federal spending to restore the U.S. Geological Survey's Cooperative Water Program and National Streamflow Information Program (NSIP) to previous levels in FY2007 and eventually full funding. Together, these two programs comprise a critical national system of streamgages. Without timely and accurate information, human life, health, welfare, property, and environmental and natural resources are at considerably greater risk of loss.

The Nation's demands for accurate streamflow data continue to increase along with our population. This information is used by federal, state, tribal, and local government agencies, as well as private and non-profit entities and individuals, on a regular basis to forecast flooding and drought and to project future water supplies for agricultural, municipal, and industrial uses; hydropower production, recreation, and environmental purposes, such as for fish and wildlife management and for endangered species needs. While these data collection and analysis programs benefit so many, their funding has been allowed to erode to the point that the quantity and quality of the basic data is threatened, with significant adverse consequences to a growing and diverse number of decision makers and stakeholders.

Many of our members are active, financial partners in the Cooperative Program or otherwise rely on the streamflow data collected and disseminated by these two important programs. These programs provide information that is vital to water resources management in the Nation. Years of neglect from slow erosion in federal funding – with flat or nearly flat appropriations in the face of continually rising costs – threatens the availability of critical data regarding stream flows, which are the basis for myriad public and private decisions.

In 1998, Congress' concern about streamgaging led the USGS to create the National Streamflow Information Program (NSIP). Unlike the Cooperative Water Program, which is funded in part by non-federal cooperators, the NSIP is funded entirely with federal funds. In November 2004, the National Research Council's Committee on Water Resources Research completed an assessment of the USGS plans for the NSIP and said, "Overall, the Committee concludes that the National

(B) Letter to secretary of US DOI

Congress of the United States

September 30, 2005

The Honorable Gale A. Norton
Secretary of Interior
U.S. Department of Interior
1849 C Street N.W.
Washington, DC 20240

Mr. Joshua B. Bolten
Director
Office of Management & Budget
Eisenhower Executive Building
Washington, DC 20503

Dear Secretary Norton and Director Bolten:

We are writing to request your support for increased funding for the U.S. Geological Survey's (USGS) National Streamflow Information Program and Cooperative Water Program.

Over the last seven years, Congress and the Administration have struggled to understand and achieve a balance in the appropriate Federal investment in the collection and management of water resources data.

There are a wide range of Federal responsibilities and programs dependent on water resources information. These include:

- Long-term impacts of potentially multi-decade droughts and dramatic increases in water demands resulting from population increases (as identified by the Department of Interior's Water 2025 Program);
- Regional impacts of climate change (as identified by the Department of Energy's Office of Science);
- Impacts of river management on ocean environments (as outlined in a report by the US Commission on Ocean Policy);
- Methods to measure and monitor river health in order to understand "Total Maximum Daily Loads" (as required by Section 303 of the Clean Water Act);
- Improved management of renewable energy resources such as hydropower (as required by Sections 931 and 1840 of the Energy Policy Act of 2005); and
- Understanding flood potential in real time and using this information to trigger emergency response (as is evident from the recent hurricane damage along the Gulf Coast).

Without sufficient information on ever-changing water resources, all of these efforts will be rendered ineffective and have the potential to fail completely.

Attachment IV. ACWI January 2006 Meeting Email of 10/27/05

DATE: 10/27/05
TO: ACWI Subgroup Co-Chairs
FROM: ACWI Executive Secretary

SUBJECT: Upcoming ACWI Meeting Reminder

Please put the upcoming ACWI meeting on your calendars for January 18-19, 2005. The meeting will be held in Herndon Virginia.

Agenda Topics will include formal presentations by each of the ACWI subgroup chairs, especially those of you who were not participants on the September interim web briefing: Hydrology, Sedimentation, Spatial Water Data, NAWQA National Liaison Committee.

We also plan a roll-out of the Design and Report on the National Water Quality Monitoring Network for Coastal Waters and their Tributaries (which is due to the Council on Environmental Quality and the Office of Science and Technology Policy in January). The reports from the Sustainable Water Resources Roundtable and the 2004 Cooperative Water Program, as well as the Guide for Water Quality Data Elements, should be complete, incorporating comments from the September ACWI meeting.

We are thinking about having a roundtable or panel on Emergency Hurricane Response, esp. Katrina, with a report from each of the Federal member agencies, and some of our non-federal member organizations on their response activities and results. If you have suggestions for a speaker on this topic from your agency, please let me know.

Please be thinking about the topics you would like to cover in your report to ACWI and send me bullets of any action items or outcomes you want to see from the meeting. January may seem far away, but when you consider the intervening Holidays, with the New Year's Holiday falling on January second, we need to begin planning the ACWI 2006 agenda now.

Also, please review the summary of ACWI 2005 Accomplishments, attached, and let me know if you have any additions from your subgroup.

Note the updated ACWI website for 2005 @ <http://water.usgs.gov/wicp/acwi/acwi2005> which includes the presentations from the September 2005 interim meeting and the accomplishments.

Finally, watch for a future notice on our new URL **<http://www.acwi.gov>** --we'll let you know as soon as the conversion has occurred.

Ami J. Mitchell
Administrative Operations
Water Information Coordination Program Phone: 703-648-5838 / Fax: 703-648-5644

U.S. Geological Survey
Mail Stop 417

12201 Sunrise Valley Drive
Reston, VA 20192

USGS - science for a changing world

Attachment V. ACWI 2006 Accomplishments

The National Water Quality Monitoring Council of ACWI provided an interim report to ACWI representatives on the Design of a National Water Quality Monitoring Network for U.S. Coast and Upland Watersheds. ACWI concurred with moving forward toward a final report due to the Council on Environmental Quality in January 2006. ACWI member organizations encouraged the Council to work on a plan to include Ground Water in the National Network; and to include metrics in the Network Design. The Monitoring Council also worked with ACWI member organizations to plan and organize a 5th National Monitoring Conference to be held in San Jose, California in May 2006. Over 300 abstracts and posters have been received.

The Methods and Data Comparability Board of ACWI completed the addition of biological elements to the Water Quality Data Elements. A guide for use of the Data Elements was prepared for publication in early 2006. Areas to be considered for future data element standardization include physical habitat assessments and studies for fish tissue burdens. ACWI recommended that the Data Elements be aligned with the Federal Geographic Data Committee Standards.

The Methods Board added 100 new methods to the National Environmental Methods Index on-line database, and completed improvements that will enhance public use and access. The Methods Board also developed a Cooperative Research and Development Agreement to allow the private sector to partner in further development of NEMI.

The Sustainable Water Resources Roundtable of ACWI prepared a preliminary report on Water Resources Sustainability Indicators, including 17 recommended indicators. ACWI supported publication of the report, and encouraged the Roundtable to work with state and regional water quality monitoring councils on indicator issues.

The 2004 ACWI Task Force on the USGS Cooperative Water Program prepared a draft final report for ACWI review. ACWI requested addition of an Executive Summary, suggested expanded sections on in-kind services and funding issues, and requested a focus on how to improve of the Program.

The Subcommittee on Hydrology and the Subcommittee on Sedimentation of ACWI worked together to plan and organize a Joint Interagency Conference on Sedimentation and Hydrologic Modeling with a theme of Interdisciplinary Solutions for Watershed Sustainability, to be held in April 2006 in Nevada. The joint conference will provide Federal and non-Federal scientists and managers from many disciplines the opportunity to discuss recent accomplishments and progress in research and technical developments. Combining the 8th Sedimentation and 3rd Modeling conferences saves all participating Federal agencies and other participants significant resources in both staff time and funding.

The Subcommittee on Spatial Water Data, reporting jointly to ACWI and the Federal Geographic Data Committee, created an interagency Steering Committee for the Watershed Boundary Dataset, to facilitate the development and availability of data via standards, advanced technology, quality control, and data access. The Committee will promote the adoption of standards by all partners and leverage available resources. The WBD comes under authority from OMB Circular A-16, revised 2002.

The National Liaison Committee to the USGS National Water Quality Assessment Program worked with the Water Environment Federation (an ACWI member) and the Environmental Energy and Study Institute to conduct a series of briefings on Capital Hill in February 25 and March, 2005. Topics included Water Quality Monitoring: Answers It Provides for Water Quality Protection; Moving from Monitoring to Prediction: The Quality of the Nation's Streams, and The Quality of the Nation's Ground Water. The briefings were attended by a total of 145 individuals. The briefings were successful in demonstrating how modeling can be used to expand the information gained through monitoring and how the resulting information can then be used in water protection policy and activities. A checklist was created for developing such briefings for policy audiences.

Assistance was provided to Liaison Committee participants in distributing NAWQA information about the water quality and general environmental conditions in NAWQA study units and indications of study unit areas at particular risk of environmental decline due to rapid population growth or other factors. A list of contacts in specific study units can support the utility of NAWQA information in making local and statewide water quality protection decisions.

Attachment VI. Three Flood Recovery Guidance Documents (Will Thomas' email of 10/24/05)

Here are the three Flood Recovery Guidance documents that I sent you on Friday, Oct. 21. After checking with Doug Bellomo and the FEMA Disaster Field Office, it is OK to forward these documents to the members of the Subcommittee on Hydrology. I send these documents again in case you want to forward my email to our subcommittee members.

There is a Press Release and Questions and Answers on the attached documents on the Mississippi Emergency Management Agency (MSEMA) web site at the following address (the attached documents are NOT on this web site):

<http://www.msema.org/newsreleases/news.htm> .

Let me know if you have questions or comments. I will provide a written report to Sam before the end of the week documenting my oral reports given at the Oct. 20 subcommittee meeting.

Will Thomas

(Three PDF documents: see attached with the SOH email)



ADVISORY Flood Elevations for Harrison County, Mississippi

Hurricane Katrina was a strong Category 5 hurricane for several days in the Gulf of Mexico when it began pushing waters towards the Mississippi coast. Katrina made landfall on August 29, near the Mississippi-Louisiana border. The hurricane caused extensive damage along the Gulf Coast of Mississippi.

To minimize the flood impacts of future events, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is providing advisory information concerning coastal flood elevations that can be used to guide recovery efforts. This guidance is necessary because Hurricane Katrina and other recent storms indicate that the flood risk for Harrison County (including incorporated areas) may be understated.

FEMA has completed an early assessment of the 1%-annual-chance (or 100-year) flood elevations, incorporating Hurricane Katrina and other storm data from the past 25 years. By including the additional 25 years of data, storm surge stillwater elevations (SWELs) for the 1%-annual-chance flood are as much as 4 to 6 feet higher than the SWELs published in the effective Flood Insurance Study (FIS). Specifically, the 1%-annual-chance SWELs for Harrison County should be increased to 18 feet (relative to the National Geodetic Vertical Datum [NGVD] of 1929) for the Gulf Coast, and 16 feet NGVD29 for back bay areas.

FEMA intends to update the FIS and Flood Insurance Rate Maps (FIRMs) for Harrison County in the next 1-2 years. These updated SWELs will likely move the coastal high hazard area (V Zone) a significant distance inland and the inland extent of the Special Flood Hazard Area will increase substantially. Until such a restudy is completed, FEMA has developed a simplified method to calculate a site-specific Advisory Flood Elevation that can be used in place of the base flood elevation on the current effective FIRM. This will help address the immediate need for more accurate data in the recovery and rebuilding process. This method is described in detail below, including an example calculation and a graphical explanation in Figure 1.

The first step in applying the simplified method is to determine if the building site is in an open coast or back bay area, and then to select the appropriate advisory SWEL based on that finding (18 or 16 feet NGVD29, respectively). The next step is to determine the ground elevation at the site so that the wave height for the area can be estimated. Wave effects, which are a key component of coastal flood elevations, are

not included in the SWEL and must be calculated separately. The wave height is estimated by calculating the flood depth resulting from the advisory SWEL, and dividing that value by two. The Advisory Flood Elevation is then calculated by adding the estimated wave height to the advisory SWEL.

1. Approximate Method for Calculating Advisory Flood Elevation:
 Advisory Flood Elevation = SWEL + Wave
 Wave = 1/2 depth = d/2

2. Example:
 Back Bay SWEL = 16 ft
 Ground Elevation (z) = 10 ft
 Depth = SWEL - z = 16 ft - 10 ft = 6 ft
 Wave = 1/2 (6) = 3 ft
 Advisory Flood Elevation =
 16 + 3 = 19 feet NGVD29



ADVISORY Flood Elevations for Jackson County, Mississippi

Hurricane Katrina was a strong Category 5 hurricane for several days in the Gulf of Mexico when it began pushing waters towards the Mississippi coast. Katrina made landfall on August 29, near the Mississippi-Louisiana border. The hurricane caused extensive damage along the Gulf Coast of Mississippi.

To minimize the flood impacts of future events, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is providing advisory information concerning coastal flood elevations that can be used to guide recovery efforts. This guidance is necessary because Hurricane Katrina and other recent storms indicate that the flood risk for Jackson County (including incorporated areas) may be understated.

FEMA has completed an early assessment of the 1%-annual-chance (or 100-year) flood elevations, incorporating Hurricane Katrina and other storm data from the past 25 years. By including the additional 25 years of data, storm surge stillwater elevations (SWELs) for the 1%-annual-chance flood are as much as 3 to 5 feet higher than the SWELs published in the effective Flood Insurance Study (FIS). Specifically, the 1%-annual-chance SWELs for Jackson County should be increased to 14 feet (relative to the National Geodetic Vertical Datum [NGVD] of 1929) for the Gulf Coast, and 12 feet NGVD29 for back bay areas.

FEMA intends to update the FIS and Flood Insurance Rate Maps (FIRMs) for Jackson County in the next 1-2 years. These updated SWELs will likely move the coastal high hazard area (V Zone) a significant distance inland and the inland extent of the Special Flood Hazard Area will increase substantially. Until such a restudy is completed, FEMA has developed a simplified method to calculate a site-specific Advisory Flood Elevation that can be used in place of the base flood elevation on the current effective FIRM. This will help address the immediate need for more accurate data in the recovery and rebuilding process. This method is described in detail below, including an example calculation and a graphical explanation in Figure 1.

The first step in applying the simplified method is to determine if the building site is in an open coast or back bay area, and then to select the appropriate advisory SWEL based on that finding (14 or 12 feet NGVD29, respectively). The next step is to determine the ground elevation at the site so that the wave height for the area can be estimated. Wave effects, which are a key component of coastal flood elevations, are

not included in the SWEL and must be calculated separately. The wave height is estimated by calculating the flood depth resulting from the advisory SWEL, and dividing that value by two. The Advisory Flood Elevation is then calculated by adding the estimated wave height to the advisory SWEL.

1. Approximate Method for Calculating Advisory Flood Elevation:
 Advisory Flood Elevation = SWEL + Wave
 Wave = 1/2 depth = d/2

2. Example:
 Back Bay SWEL = 12 ft
 Ground Elevation (z) = 10 ft
 Depth = SWEL - z = 12 ft - 10 ft = 2 ft
 Wave = 1/2 (2) = 1 ft
 Advisory Flood Elevation =
 12 + 1 = 13 feet NGVD29



ADVISORY Flood Elevations for Hancock County, Mississippi

Hurricane Katrina was a strong Category 5 hurricane for several days in the Gulf of Mexico when it began pushing waters towards the Mississippi coast. Katrina made landfall on August 29, near the Mississippi-Louisiana border. The hurricane caused extensive damage along the Gulf Coast of Mississippi.

To minimize the flood impacts of future events, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is providing advisory information concerning coastal flood elevations that can be used to guide recovery efforts. This guidance is necessary because Hurricane Katrina and other recent storms indicate that the flood risk for Hancock County (including incorporated areas) may be understated.

FEMA has completed an early assessment of the 1%-annual-chance (or 100-year) flood elevations, incorporating Hurricane Katrina and other storm data from the past 25 years. By including the additional 25 years of data, storm surge stillwater elevations (SWELs) for the 1%-annual-chance flood are as much as 6 to 8 feet higher than the SWELs published in the effective Flood Insurance Study (FIS). Specifically, the 1%-annual-chance SWELs for Hancock County should be increased to 20 feet (relative to the National Geodetic Vertical Datum [NGVD] of 1929) for the Gulf Coast, and 18 feet NGVD29 for back bay areas.

FEMA intends to update the FIS and Flood Insurance Rate Maps (FIRMs) for Hancock County in the next 1-2 years. These updated SWELs will likely move the coastal high hazard area (V Zone) a significant distance inland and the inland extent of the Special Flood Hazard Area will increase substantially. Until such a restudy is completed, FEMA has developed a simplified method to calculate a site-specific Advisory Flood Elevation that can be used in place of the base flood elevation on the current effective FIRM. This will help address the immediate need for more accurate data in the recovery and rebuilding process. This method is described in detail below, including an example calculation and a graphical explanation in Figure 1.

The first step in applying the simplified method is to determine if the building site is in an open coast or back bay area, and then to select the appropriate advisory SWEL based on that finding (20 or 18 feet NGVD29, respectively). The next step is to determine the ground elevation at the site so that the wave height for the area can be estimated. Wave effects, which are a key component of coastal flood elevations, are

not included in the SWEL and must be calculated separately. The wave height is estimated by calculating the flood depth resulting from the advisory SWEL, and dividing that value by two. The Advisory Flood Elevation is then calculated by adding the estimated wave height to the advisory SWEL.

1. Approximate Method for Calculating Advisory Flood Elevation:

$$\text{Advisory Flood Elevation} = \text{SWEL} + \text{Wave}$$
$$\text{Wave} = \frac{1}{2} \text{ depth} = d/2$$

2. Example:

$$\begin{aligned} \text{Back Bay SWEL} &= 18 \text{ ft} \\ \text{Ground Elevation (z)} &= 10 \text{ ft} \\ \text{Depth} &= \text{SWEL} - z = 18 \text{ ft} - 10 \text{ ft} = 8 \text{ ft} \\ \text{Wave} &= \frac{1}{2} (8) = 4 \text{ ft} \\ \text{Advisory Flood Elevation} &= \\ &18 + 4 = 22 \text{ feet NGVD29} \end{aligned}$$

Attachment VII. FERC MMC Data Sheet



MMC Overview

The MMC is an energy market information resource center that gives staff access to a variety of powerful commercially available information services. These services, many of which are the same used by energy traders, provide a broad range of data pertaining to energy markets. Real-time data is acquired via a high-speed communication link to the Internet and powerful PC workstations. High-end software applications and services provide FERC/OMOI staff volumes of historic data required to monitor and analyze energy market events.

Due to the centralization of energy analytical tools, the MMC provides a cutting edge portfolio to expanded staff without the costly limitations of licensing stand-alone products. The added benefit to centralization is the elimination of data bottlenecks— staff can freely exchange and organize information.

MMC Hardware Configuration

Four pairs of workstations drive the specialized applications and energy specific services. Attached to each of the eight workstations are three 17-inch flat screen monitors. This permits an analyst access to several information services simultaneously or permits the analyst to manipulate data by "dragging and dropping" data seamlessly from one source to another.

Enhancing the MMC energy tool-set are the two overhead projectors accessible from any one of the eight workstations. Real-time market data is available at a glance to anyone within the MMC or passing by the center. The MMC also doubles as a central hub for knowledge exchange, and the projection system is ideal for training and presentation visuals.

FERC Support Applications

Adobe Acrobat 5.0	MS Office Media Content
America On-Line	MS Office XP w/ FrontPage
Answerworks	Real Player Basic
Citrix Client	Windows Media Player
Easy CD Creator 5	WinDVD
Instant Messenger	WinZip
McAfee Anti-Virus Software	WordPerfect Office 2002

MMC Special Services and Subscriptions

Bloomberg LP
 BTU's Daily Gas Wire Report
 BTU's Daily Power Report for Regions
 Capacity Center.com
 Earth Satellite Corp: Additional Cities Package
 Earth Satellite Corp: Earth Sat Energy Weather Basic Package
 Earth Satellite Corp: Gas Weather Outlook
 Earth Satellite Corp: Previous Day Data
 Energy Argus: Energy Information Service
 Enhanced Gas Daily
 Enhanced Megawatt Daily
 Friedwire: Analyst Edge (real time data US Elec. System)
 Friedwire: DataFeed and DataWarehouse Updates
 Friedwire: MOP WestDesk
 Friedwire: PowerSurge (real time data US Elec. System)
 Friedwire: Traffic Report (real time data US Elec. System)
 Genscape: Power Flow/Power Transmission Lines/Output
 MapInfo 5 Licenses Purchase Upgrade License
 McGraw-Hill: Platt's Power Markets Week's Price Index Database
 Natural Gas Intelligence Daily Report
 NERC Flow Impact Study Tool
 OATT's Congestion Management
 OATT's OASIS Websweep
 ProMod

MMC Special Applications

Adobe Illustrator	Quick Time
Adobe Pagemaker	Quick View
Bloomberg	RDI's GasDat
Bloomberg Active X	RDI's NewGen
Bloomberg DDE Server	RDI's PowerDat
Bloomberg DPE Server	RDI's PowerMap
GADS Reports	SAS
INTCX	Shockwave
Java 1.3.1	Simulator OPF
Java Runtime 1.3.1	Sound Blaster Live
MapInfo Pro	Tagnet
Microsoft Image Composer 1.5	Telurate
Pixscreen	Trade Agent
Power World	Trade Agent Client

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