

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

9:30 am – Noon (EST)

January 11, 2007

NASA/GSFC Public Building at the Visitor Center  
8800 Greenbelt Rd, Greenbelt, MD 20771

**AGENDA**

(Breaks as appropriate)

1. Welcome and Introductions
2. Review and Approval of Agenda
3. Approval of Minutes from October 26, 2006 Meeting
4. Status of Action Items from October 26, 2006 Meeting
5. ACWI Meeting on January 17&18, 2007
6. Update on Hydrologic Modeling Working Group
7. Update on Hydrologic Frequency Analysis Working Group
8. Update on Satellite Telemetry Interagency Working Group
9. Thoughts on Collaborative Hydrologic Database Solution
10. Proposed Hydrology and GIS Application Interagency Working Group (tabled until next meeting)
11. "The SOH CONNECTIONS" Newsletter
12. Current Events within Hydrologic Communities
  - Hydrologic Information Systems (HIS) effort by CUAHSI (Consortium of Univ. for the Advancement of Hydrologic Sciences, Inc.), 1st meeting in Nov., 2006, Austin, Texas
13. Announcements and Business Reports from Member Organizations
14. Presentation of "NASA Water Science and Applications" by Jared Entin/Lawrence Friedl/David Toll/Edwin Engman
15. Plans for Next Meeting

Adjournment

Post-meeting Activity: NASA/GSFC Tour (12:00-1:30)

## SUMMARY OF MEETING

(Prepared by Stephen Blanchard, USGS)

### PARTICIPANTS

Martin Becker	Defenders of Property Rights (DPR)
Stephen Blanchard	Geological Survey (USGS)
Crista Peters-Lidard	National Aeronautic and Space Administration (NASA)
Chris Carlson	Forest Service (USFS)
Tom Donaldson	National Weather Service (NWS)
Mike Eberle	Bureau of Land Management (BLM)
Ted Engman	National Aeronautic and Space Administration (NASA)
Don Frevert	Bureau of Reclamation (BOR)
David Goodrich	Agricultural Research Service (ARS) <i>(by phone)</i>
Mary Greene	Office of Surface Mining (OSM)
Claudia Hoefl	Natural Resources Conservation Service (NRCS)
Joseph Krolak	Federal Highway Administration (FHWA) <i>by phone</i>
Samuel Lin	Federal Energy Regulatory Commission (FERC)
Eugene Stallings	National Hydrologic Warning Council (NHWC)
Will Thomas	Association of State Floodplain Managers (ASFPM)
David Toll	National Aeronautic and Space Administration (NASA)
Jerry Webb	Army Corps of Engineers (USACE) <i>(by phone)</i>
David Wells	Environmental Protection Agency (USEPA)

### Meeting Highlights

Sam Lin called the meeting to order at 9:30 AM (EST).

#### 1. Welcome and Introductions

Sam Lin welcomed everyone to the meeting. Each person introduced themselves and their organizational affiliation. A total of 18 individuals participated, with 2 of the 18 participating by phone. Dr. Crista Peters-Lidard, Chief of NASA Hydrological Science Branch, welcomed everyone to the NASA facility and provided some information about the NASA Hydrology program.

#### 2. Review and Approval of Agenda

William Merkel was out of country and was not able to present on agenda item #10. That topic was tabled until the next meeting.

The meeting agenda was approved as listed above.

Martin Becker suggested that because the committee membership is growing and in order to save time at the meetings, the agency/organization business reports could be sent out ahead of the meeting along with the agenda. During the meeting, the business reports will be limited to questions and answers about the reports provided with the agenda. The motion was seconded and passed unanimously.

**DECISION:** Written organization/agency business reports will be sent to the Chair and Vice-Chair about 2 weeks prior to the meeting. The business reports will be compiled and sent out with

the agenda about 1 week prior to the meeting. The business report at the meeting will be questions and answers about the reports provided with the agenda.

### **3. Approval of Minutes from 10-26-06 meeting**

The 10-26-06 meeting minutes were approved.

### **4. Status of Action Items from October 26, 2006 Meeting**

- **Action:** Subcommittee members will send contributions (including pictures whenever possible / appropriate) to Don and Mary by November 30 for the SOH Newsletter.

*This action was completed.*

- **Action:** Don will send a reminder about the need for contributions to the subcommittee members in advance of the November 30 deadline.

*This action was completed*

- **Action:** Don and Mary will send a draft of the newsletter to subcommittee members by December 7th. Subcommittee members will provide any comments by COB December 11th.

*This action was completed*

- **Action:** Don and Mary will send the revised newsletter to all subcommittee members and other agreed on recipients on or about December 15th.

*This action was completed*

- **Action:** William Merkel will work with the Spatial Water Data Subcommittee and also raise the issue with Toni Johnson as to the best location for the proposed Hydrology and GIS Applications Interagency Working Group - whether it should be under the Spatial Water Data Subcommittee or under the SOH or under both. This topic will be discussed at the next SOH meeting.

*This action was tabled to the next meeting.*

- **Action:** The SOH will further discuss the possibility of a collaborative hydrologic database at the next meeting.

*This action is included on the agenda for this meeting.*

- **Action:** SOH members are to provide any comments they have on the draft NWS Flood Inundation Mapping Guidelines to Tom Donaldson and the NWS will revise and send out again.

*Tom Donaldson received comments from the USGS on the guidelines. The NWS also met with FEMA to discuss these guidelines – draft minutes from that meeting are provided in attachment 1. Tom is continuing to revise the NWS Standards into a more cross agency set of guidelines, incorporating suggestions received from the USGS. Tom is going to try to have that completed for additional review by the SOH in time for the next meeting.*

## **5. ACWI Meeting on January 17&18, 2007**

Sam Lin will present the main SOH report at the ACWI meeting. Will Thomas will also give a brief report on the HFAWG activities for the last year and Ernest Dreyer will present the Satellite Telemetry Interagency Working Group (STIWG) issue paper related to the GOES DCS system and the Wallops Island back-up. Mr. Charles Bryant of NOAA-NESDIS will attend the meeting and respond to the STIWG issue paper.

Information about the ACWI meeting is available and the meeting minutes will be posted on the ACWI web page at URL: <http://acwi.gov/acwi2007/index.html>

## **6. Update on Hydrologic Modeling Working Group**

Don Frevert reported that proceedings for the 1993 Workshop on Hydrologic Modeling Demands for the 1990's and for the first, second, and third Federal Interagency Hydrologic Modeling Conferences (held in 1998, 2002 and 2006 respectively) are being uploaded by Reclamation and USGS personnel in Denver. It is anticipated that all of the proceedings will be available via web link in the next several weeks.

Locations are being considered for the 2010 Joint Federal Interagency Conference on Sedimentation and Hydrologic Modeling. A short list will be developed in the next several months and this will be followed by a site selection tour. A site and date will likely be selected within the next 12 to 18 months at which time, specific planning for the joint conference will begin.

Don Frevert will be working on Terms of Reference for the Hydrologic Modeling Working Group with the objective of getting a draft version ready for review by the subcommittee and the work group membership in time for the next subcommittee meeting.

## **7. Update on Hydrologic Frequency Analysis Working Group**

Will Thomas reported that he modified the plan to evaluate and compare Bulletin 17B and EMA methods based on comments from the October 2006 Subcommittee on Hydrology meeting. The revised plan was sent out to the HFAWG on November 13, 2006 and he received no comments or revisions. Will talked with Tim Cohn, USGS, about the status of incorporating the updated EMA code in the USGS PEAKFQ computer program and Tim indicated that it would be April before the computer program was ready for use in the Bulletin 17B testing. The testing will begin as soon as the published version of PEAKFQ with the updated EMA code is available.

## **8. Update on Satellite Telemetry Interagency Working Group**

Bonnie Wyatt (USFS) is the new chair of STIWG.

Charles Kazimer submitted this report in writing to be read at the SOH meeting. *The STIWG recently found it necessary to add an issue #5 to the issue paper. Historically the GOES satellite had two backup transponders one for the Data Collection System (DCS) and one for Low Resolution Information Transfer (LRIT). NOAA eliminated one backup transponder from the current specification of GOES N and GOES R. These are the next satellites to be built and launched. The result is a single backup transponder to be used by either DCS or LRIT. In the*

*event DCS and LRIT primary transponders fail only one of the systems will be functional. With DCS having an ancillary designation, the STIWG questions which system will prevail. Naturally we want the DCS to remain operational and this news is unsettling. STIWG expresses its gratitude to the entire SOH committee for the support and assistance received to resolve the issues the STIWG has identified.*

Ernest Dreyer with USGS will represent the STIWG and Charles Bryant will represent NOAA at the ACWI meeting on Jan 17th.

## **9. Thoughts on Collaborative Hydrologic Database Solution**

Sam Lin - The collaborative hydrologic database solution and the water information provided for public awareness are defined as one of the SOH's functions in its charter, the Terms of Reference. The discussed solution and education may need the SOH to organize a working group to implement those functions.

Steve Blanchard briefly reviewed the discussion from the previous SOH meeting on this topic and some of the existing web page portals that exist for water data, such as WaterMonitor.gov (<http://watermonitor.gov/>) and EPA's Surf Your Watershed (<http://www.epa.gov/surf/>).

Steve also highlighted the work of CUAHSI to develop a Hydrologic Information System (HIS) (<http://www.cuahsi.org/his.html>). According to the CUAHSI HIS web page – “*The goals of the CUAHSI HIS are to unite the nation's water information, to make it universally accessible and useful, and to provide access to the data sources, tools and models that enable the synthesis, visualization and evaluation of the behavior of hydrologic systems.*” Steve reported that CUAHSI would be receiving several million dollars over the next 4-5 years for the development of the HIS. David Goodrich (ARS) provided some additional information about the CUAHSI HIS (see Attachment 2).

Steve posed the question to the SOH as to whether (1) the SOH should pursue the development of a water data portal through the very limited resources of the Federal agencies that make up the SOH, or (2) work with CUAHSI in some way to facilitate their development of the HIS and reach the SOH goal through HIS.

**DECISION:** The SOH decided to accomplish the goal of a water data portal through facilitating the development of the HIS and not through the development of a SOH lead data portal effort. The SOH decided to invite David Maidment, the CUAHSI HIS project manager, to come to the April 12<sup>th</sup> meeting of the SOH to provide an overview briefing of the HIS and to allow a time for questions and answers.

**ACTION:** Steve Blanchard will contact David Maidment to invite him to the April 12<sup>th</sup> meeting. Steve Blanchard will offer the possibility of the SOH helping with the development of the HIS by providing information about and access to relevant water data, providing reviews of HIS proposals and plans, and facilitating the development of the HIS through the SOH agency and organizational contacts.

David Goodrich stated that the document, "CUAHSI Community Observations Data Model Working Design Specifications", (<http://www.cuahsi.org/his/docs/ODM4-20061026.pdf>) presents the current design for the integrated hydrologic observations database that is proposed for the CUAHSI HIS. CUAHSI is welcoming reviews and comments about the proposed data model. A questionnaire was developed and is available to guide the review

(<http://www.cuahsi.org/his/docs/ODMOpenCommentQuestions.pdf>), although reviewers should not feel constrained by this and should feel free to provide feedback in whatever form you think is most appropriate. CUAHSI would like to receive comments by January 31, 2007.

## **10. Proposed Hydrology and GIS Application Interagency Working Group**

This agenda item was tabled until next meeting

## **11. "The SOH CONNECTIONS" Newsletter**

Don Frevert thanked all who contributed to the first issue of the newsletter which was released on December 27, 2006. Special thanks were extended to Mary Greene and Sam Lin for their hard work and significant contributions. It was agreed that conference announcements and other items of interest may be carried over from the December newsletter to the next version as appropriate.

Mary Greene encouraged all SOH members to contribute to the newsletter and noted that contributions are welcome any time prior to or after the reminder message that will be sent out. Initial comments from the subcommittee membership on the first issue were quite favorable. Sam Lin noted that the newsletter will provide improved visibility for the work of the subcommittee. Follow up comments from subcommittee members to Don, Mary, and Sam on the newsletter are encouraged.

**Action:** Don Frevert will send out a reminder to the subcommittee members by February 16<sup>th</sup> requesting submissions to the next newsletter.

**Action:** Subcommittee members will send contributions to Don Frevert, Mary Greene, and Sam Lin by February 23rd.

**Action:** Subcommittee members will provide comments and suggestions to Don Frevert, Mary Greene, and Sam Lin regarding the content, format and other facets of the newsletter by February 23rd.

**Action:** Don Frevert and Mary Greene will send out the next issue of the newsletter by about March 15th.

Gene Stallings commented that Don Frevert and Mary Greene did a fantastic job in preparing The SOH CONNECTIONS. It should prove to be a valuable asset.

Gene Stallings wanted to know if he could repeat his article on the upcoming Conference and Exposition of the National Hydrologic Warning Conference. Don agreed that was satisfactory since the Conference was still months in the future".

Sam Lin commented that it was a great job on the 1<sup>st</sup> issue of newsletter. He got positive responses seeing how this newsletter and web page will be of great value to those who view it. Including the SOH's activities and other related information to provide broader visibility and publicity is good for all of us.

## **12. Current Events within Hydrologic Communities**

- Dave Goodrich (ARS) provided a report (attachment 2) on the 1st meeting of the CUAHSI (Consortium of Univ. for the Advancement of Hydrologic Sciences, Inc.) Hydrologic Information Systems (HIS) held November 2006 in Austin, Texas.

### **13. Announcements and Business Reports from Member Organizations**

#### FERC – Sam Lin

The upper reservoir of the Taum Sauk Pumped Storage Project was overtopped causing its rim dike failure in December 2005 in Missouri. As one of follow-up actions FERC held a pumped storage project workshop last November in Virginia and initiated a task group to develop a technical guidance document for the safe operation of pumped storage projects.

There were about 100 participants including all the owners of FERC regulated 23 pumped storage projects, consultant engineers, and representatives of several Federal and State agencies. Facilitated discussion sessions focused on Identification of Important Operational and Safety Issues and Development of Pump Storage Project Operations Guidelines. As discussed at November's meeting, the concept for the task group is for owners to take the lead in developing the guidance document with FERC participation and support. The task group's first meeting will be held at FERC in February. FERC will integrate efforts of licensee, consultant and regulator in this important operational and safety issue including human factors, organizational processes, over pump protection/water management, etc.

#### Bureau of Reclamation – Don Frevert

Reclamation continues its Managing for Excellence initiative as directed by the Deputy Secretary of the Interior. The objective of the initiative is to address issues raised in the recent National Research Council evaluation. Information on the initiative can be found at: <http://www.usbr.gov/excellence/> The initiative is a high priority of Commissioner Robert Johnson and it is anticipated that it will be completed around December, 2007.

#### National Weather Service – Tom Donaldson

Tom Donaldson announced that he will no longer be the representative for the NWS on the SOH. Tom will be leaving NWS headquarters to assume the position of Hydrologist in Charge of the West Gulf River Forecast Center in Fort Worth, Texas. Dr. Tom Grazaino will be attending the SOH meetings as the NWS representative.

Tom conveyed to the SOH members his gratitude for the many opportunities provided to him as a member of such a dedicated and competent group of individuals. Tom stated that his association with this group before joining the NWS was one of the reasons that made him decide to come to Washington DC in the first place. His association with this group turned out to be one of the shining stars in his time in Washington. Tom thanked everyone for contributing to his great memories of the last five years here.

#### Federal Highways Administration – Joe Krolak

FHWA is assisting several SE State DOTs in a project to update rainfall maps (related to NOAA 14 approaches and efforts).

#### U.S. Geological Survey – Steve Blanchard

The President's USGS budget along with the House and Senate mark-up of the USGS budget for FY07 called for a \$2.8 M increase to the National Streamflow Information Program (NSIP) to

help support the Streamgaging program. However, the full year continuing resolution that is proposed not include the increase.

The USGS recently published a User's Manual for Program PeakFQ which performs flood frequency analysis using Bulletin 17B guidelines. The report is available online at: <http://pubs.usgs.gov/tm/2006/tm4b4/>

Corps of Engineers – Jerry Webb  
Nothing to report

Defenders of Property Rights – Martin Becker  
Nothing to report

Forest Service – Chris Carlson  
Nothing to report

Bureau of Land Management – Mike Eberle  
Nothing to report

Agricultural Research Service – David Goodrich  
Nothing to report

Office of Surface Mining – Mary Greene  
Nothing to report

Natural Resources Conservation Service – Claudia Hoelt  
Nothing to report

National Hydrologic Warning Council – Gene Stallings  
The NHWC's 7<sup>th</sup> Biennial National Conference and Exposition will be held in Savannah, GA June 11-14, 2007. More information about the conference is available from the conference web page at: [http://nhwc.udfcd.org/2007\\_conference.htm](http://nhwc.udfcd.org/2007_conference.htm)

Association of State Floodplain Managers – Will Thomas  
Nothing to report

National Aeronautic and Space Administration – David Toll  
Nothing to report

U.S. Environmental Protection Agency – David Wells  
Nothing to report

#### **14. Presentation of “NASA Water Science and Applications”**

David Toll provided an overview PowerPoint presentation of various activities and research conducted under the NASA Water related programs.

#### **15. Plans for Next Meeting**

The next meeting will be held at the FERC building in Rm. 3M-3 on April 12, 2007 from 9:30 AM to 12 noon.

## **Adjournment**

Post-meeting Activity: The SOH expressed their appreciation to David Toll, Ted Engman, and the NASA Visitor Center Staff for providing an excellent tour of the NASA/GSFC facility.

**FEMA-NWS Meeting Summary**  
**31 October 2006**  
**DRAFT**

**Purpose of meeting:** Discuss opportunities to collaborate on Flood Forecast Inundation Mapping.

**Attendees:**

FEMA: Matt Miller, Scott McAfee, Paul Rooney, Jonathan Westcott

NOAA NWS: Gary Carter, Tom Graziano, Tom Donaldson, Reggina Cabrera, Doug Marcy

**Meeting Structure:**

1. Introductions and opening remarks – Matt Miller and Gary Carter
2. NWS Flood Severity Inundation Mapping – Doug Marcy
3. Proposed collaborative activities – Tom Graziano.
4. Ways to collaborate NWS efforts with FEMA Map Modernization – Matt Miller.
5. Future directions brainstorming and roadmap for near term opportunities – All

**General Discussion:**

The NWS and FEMA discussed current mapping efforts and the potential for additional collaborative activities. Based on user input, the NWS is developing inundation maps showing the potential area covered by flood waters along with the estimated depth of flooding in the vicinity of its forecast points. The NWS plans to provide images and geospatial data to allow users to visualize and quantify the impact of flooding based on selected river levels. This information, combined with river observations and forecasts will allow emergency managers and other decision makers to better plan for and respond to flooding. Both agencies agreed that the development of map inundation libraries at NWS service locations will enhance the communication of flood risk.

The NWS recently worked with the State of North Carolina, FEMA, and the USGS to develop map inundation libraries in North Carolina. Additionally, FEMA and the NWS recently partnered to develop inundation maps for the Indian Creek in Overland Park, Kansas. FEMA, after developing an understanding of the NWS mapping proposal, expressed a desire to assist the NWS on its most recent demonstration in the Gulf Coast where the NWS is planning to develop inundation libraries for 30-35 additional river forecast locations. Potential FEMA support for this project includes facilitating coordination with Regional Mapping Center to access to existing FIS data.

The data and modeling necessary to develop these inundation graphics was discussed. Essentially, the data analysis and modeling process to create DFIRMs (Digital Flood Insurance Rate Maps) and the NWS flood inundation maps described above is identical. For most Flood Insurance Studies (FIS), assembling the data and setting up the model comprises the majority of the cost and work associated with the project. FEMA and the NWS discussed how we could leverage each others ongoing activities to develop and provide access to this information which benefits emergency managers at minimum cost to taxpayers. Preliminary estimates indicate that

for a small additional increase (approximately a ~1-2%) in cost, the NWS map libraries can be developed along with the flood insurance studies.

The NWS is developing guidelines for the development of map libraries which are consistent with the FEMA guidelines for FIS and would like to have the FEMA FIS guidelines reference or incorporate the NWS guidelines. The NWS proposes no changes to existing FEMA FIS procedures or products. NWS personnel stated that map inundation libraries are only needed at NWS forecast points, and expressed a desire to have NOAA personnel participate in CTP (Cooperating Technical Partner) kick-off meetings to enumerate the benefits of generating map inundation libraries. NWS personnel also stated that the NOAA/NWS infrastructure could be used to provide enhanced access to integrated FEMA & NOAA Flood Maps and expanded outreach and user education on the National Flood Insurance Program.

**Action items:**

- 1.) NWS will follow up with Watershed Concepts on strategy for making model data requests from the Region IV and Region VI Regional Mapping Centers (RMCs) (Michael Baker). Strategy will concentrate on a sequenced request for model data for the 35 forecast locations in the 5 Gulf Coast States, and also model status for the entire 524 forecast points in the 5 state region (TX, LA, MS, AL, FL)
- 2.) FEMA agreed to help facilitate this request by Watershed Concepts and possibly offset any unexpected costs from the RMCs associated with fulfilling the request. This will be determined once the RMCs give cost estimates for data requests from Watershed Concepts.
- 3.) NWS will obtain the FY06 – FY08 Multi-Year Flood Hazard Identification Plan (MHIP) from FEMA that shows which counties are currently undergoing Map Modernization projects and which ones are scheduled in the next couple of years. NWS will then overlay these counties with the forecast point locations to determine which locations are a potential for inundation map library projects in conjunction with new Flood Insurance Studies.
- 4.) NWS will request Watershed Concepts to provide a list of the current FIS they are working on in the Gulf Coast Region that include river forecast points to see which ones could use the data from these ongoing studies.
- 5.) NWS will provide prioritized list of potential forecast points for developing inundation map libraries that overlap with FEMA’s MHIP counties for FY06-08 to FEMA.
- 6.) FEMA will send list of NWS forecast points to respective Regions for evaluation of cost and current workload to see if cooperative mapping studies are feasible
- 7.) FEMA agreed to support pilot studies beyond the Gulf Coast States Katrina Supplemental to extent possible as a proof of concept exercise.
- 8.) NWS agreed to use the existing pilot inundation map library efforts and future pilot studies with FEMA as demonstrations to build support within NOAA for additional funding through budget process to secure funding for continuation of the inundation map libraries for the rest of the country, in partnership with FEMA
- 9.) NWS will continue to develop national guidelines for doing the inundation map libraries with the Subcommittee on Hydrology. These guidelines may eventually be cited by FEMA in the guidelines and specifications documents for the NFIP contractors as “a best practices” for producing inundation map libraries.
- 10.) NWS will coordinate with FEMA on initial scoping meetings for new FIS with CTPs and commit to sending NWS hydrologists to meetings to participate on ground level of study and show the inundation map library concept to CTPs to see if CTPs could potentially fund this additional mapping activity as part of the FIS study process.

- 11.) Eventually once the process for collaboration and study process for completing inundation map libraries is spelled out, FEMA and NOAA will evaluate entering into a formal MOU to perpetuate the relationship / partnership.
- 12.) NWS agreed to assist FEMA with outreach efforts on NFIP map products through NWS regional and local infrastructure (122 WFOs and 13 RFCs).

**Potential ideas for collaboration and in-kind support by NWS**

- 1.) NWS may be able to provide in kind support to offset additional cost for FEMA to do the inundation map libraries by offering up their hydrologic models for sub- basins as part of the FIS study process. This would save a significant portion of funds in the studies if FEMA could use existing or updated hydrologic models. NWS will look into the feasibility of this idea. This would involve perhaps providing the hydrologic characteristics of watersheds from NWSRFS to FEMA and contractors to be used in flood insurance study Hydrology and Hydraulic analysis.
- 2.) Discuss with Watershed Concepts the concept of leveraging existing work they are doing with FEMA for creation of inundation map libraries and see if they could provide any offset costs for FEMA, with the carrot being additional inundation map library work.
- 3.) Bring the Association of State Floodplain Managers (ASFPM) on board to this process as well and have them be a champion for the project in garnering support through CTPs so that CTPs can offset cost for inundation map libraries.
- 4.) Future discussion between FEMA and NOAA on modeling not only for inland riverine studies, but also coastal studies, with the goal of modeling one time for multiple agency purposes to reduce duplication of effort amongst government agencies.

## **Notes on CUAHSI Hydrologic Information Systems (HIS) and Nov. 15-17, 2006 Austin, TX Meeting**

### **General HIS Background**

Main Link to the Hydrologic Information System:

<http://www.cuahsi.org/his.html>

HIS Cyberseminar (Ppt slides and recorded presentation made by David Maidment)

<http://www.cuahsi.org/sem-current.html>

(Scroll down to Dec. 1, 2006)

### **HIS Data Model Links and Request for Review and Input**

The document, "CUAHSI Community Observations Data Model Working Design Specifications", (<http://www.cuahsi.org/his/docs/ODM4-20061026.pdf>) presents the current design for the integrated hydrologic observations database that is proposed for the CUAHSI Hydrologic Information System (HIS). I have prepared a questionnaire to guide the review (<http://www.cuahsi.org/his/docs/ODMOpenCommentQuestions.pdf>), although reviewers should not feel constrained by this and should feel free to provide feedback in whatever form you think is most appropriate. We would like to receive comments by January 31, 2007.

### **Meeting Background**

#### **Letter from Prof. David Maidment to Federal Hydrologic Data partners (USGS, NCDC, EPA)**

Mark, Rich, Joe:

I am writing to you as representing the three principal federal agencies with whom we are partnering on developing WaterOneFlow web services. You may not know each other, so let me make introductions:

Mark Hamill is the person in charge of the USGS National Water Information System with whom we've been developing product specifications for WaterOneFlow web services from NWIS.

Rich Baldwin has programmed a set of WaterOneFlow web services at NCDC to provide direct access to the Automated Surface Observing System, and is investigating how web services should be carried forward at NCDC, where Sharon Le Duc is the Deputy Director.

Joe Wilson is in the front office of the EPA Office of Water, who has responsibilities for the EPA Storet system and who has been helping us to get an observations catalog for Storet.

I am writing to let you know that from Nov 15-17 we are holding an NSF workshop in Austin on observatory testbeds (NSF has funded 10 of these) and their proposed integration using CUAHSI HIS as a common data system. Nov 15 will be a discussion by the testbed PI's so perhaps more of an internal discussion (and we are out of room space on that day), and on Nov 16 we are going to do the HIS rollout and morning of Nov 17 discuss how to connect the two. I think it would be very appropriate if you or another person representing your agency were able to participate in the workshop on Nov 16-17. When I roll out HIS, I could present what you are doing in your role as

our federal partners, and if you wanted to add something to that discussion you would be welcome to do so.

Rick Hooper, President of CUAHSI, has suggested that we should have a dinner on the evening of Nov 16 for just a few CUAHSI people and our federal partners so that we can discuss among ourselves and get some common understandings of how we can all do business together on this, as distinct from CUAHSI working with each agency individually. I think this is a precursor of a more regular meeting perhaps once or twice a year of this kind where we share experience and you can review CUAHSI's plans for development and help guide the advancement of those plans. I know that each of you has made a considerable effort to work with and help CUAHSI, and I want you to feel welcome and encouraged to participate in our group and learn more about how we are putting all this stuff together from the various agencies so that it comes out as a synthesized water data system.

The Environmental Systems Research Institute (ESRI) is also helping us significantly in this work, and they are doing the programming for the prototype HIS Server, which will be demonstrated at the workshop on Nov 16. Its likely that this will evolve into a standardized map interface and server database connection that supports map-based serving of observational data (as distinct from table-based or text-based serving as most agencies are doing now), and you may be interested in seeing how HIS Server operates from that viewpoint. This may be useful for NCDC in developing the web portal for NIDIS, for example.

I am including Dave Goodrich in this email exchange because he represents USDA-ARS, which has a similar data system under development to HIS, called STEWARDS, to store and publish data from USDA-ARS watersheds. NSF has asked Dave to be on a coordinating committee between HIS and the testbed PI's to assist in the connection between them and I think Dave will also be at the meeting in Austin in that capacity, but of course, he's welcome to join our "CUAHSI federal data provider group" as well!

Thanks  
David Maidment

## Meeting Agenda

Joint Workshop for WATERS Network Test Beds and CUAHSI Hydrologic Information Systems

Draft 2

November 14 – 17, 2006

Austin, TX

**Meeting Goals.** CUAHSI HIS is rolling out version 1 of its system to discover, to deliver, and to publish data using a common technology from Federal “mission” agencies and the academic research community. The potential benefits of this open and extensible system are tremendous for accomplishing our research more effectively and for transforming the way in which we do our research to become more interdisciplinary and more open. For environmental observatories to be effective, the observatories must attract the interest of scientists from the broad community, and a data system is critical for accomplishing that goal.

As the HIS project is entering its second phase, 11 WATERS Network test bed projects have also been awarded. These are a diverse set of projects, each considering some aspect of observatory design and operation. The people involved with these test beds form a natural “beta testing” group for the HIS software to see how effective and useful it is and to recommend changes before its final release. Ultimately, for a data system to be accepted, it must be useful to the individual scientist in accomplishing his or her goals.

Therefore, the objectives of this workshop are the following:

- To understand the science goals of the test bed projects
- To introduce the concepts and the capabilities of CUAHSI HIS version 1.0
- To determine effective engagement strategy between Test bed Projects and CUAHSI HIS Team
- To identify opportunities to coordinate activities among test beds, other proto-observatories, and CEOP Projects

### Agenda

*Tuesday, November 14*

4:30 pm. Meeting of Coordinating Committee, NSF Program Officers, CUAHSI and CLEANER Project Office personnel (dinner following) Amerisuites Hotel.

*Wednesday, November 15*

8:00 am Registration

8:30 am “The Role of Test Beds in Development of the WATERS Network” Pat Brezonik and Doug James

9:15 am Questions and Answers

10:00 am Break

### **Theme 1. Science Goals of the Testbed Projects**

(Each talk limited to 10 minutes and 3 power point slides. Speakers should allow a few minutes for questions. Projects are encouraged to bring a poster to the workshop that will be posted for the duration of the workshop. Note that the Corpus Christi Bay test bed will be presented on Thursday in a more extended example of HIS application.)

10:15 am “The Digital Continent: A Vision of Cyber-infrastructure for Environmental Observatories” Rick Hooper

10:45 am “Overview of the CUAHSI Hydrologic Information System: Version 1.0 and beyond” David Maidment  
 11:15 am Crown of the Continent (MT) Test Bed  
 11:25 am Bear River (UT) Test Bed  
 11:35 am Sierra Nevada/San Joaquin (CA) Test Bed  
 11:45 am Clear Creek (IA) Test Bed

**11:55 am Break for Lunch**

1:00 pm Minehaha Creek (MN) Test Bed  
 1:10 pm Susquehanna River (PA) Test Bed  
 1:20 pm Chesapeake Bay (PA/MD/VA) Test Bed  
 1:30 pm Chesapeake CEO:P project  
 1:40 pm Baltimore (MD) Test Bed  
 1:50 pm Albemarle Sound (NC) Test Bed  
 2:00 pm Santa Fe (FL) Test Bed  
*Other Proto-observatory Efforts*  
 2:10 pm SAHRA Field Sites (AZ/NM)  
 2:20 pm Illinois River Basin (IL) Water/Carbon Project  
 2:30 pm HydroKansas ARM Site (KS)  
 2:40 pm Sevilleta LTER Site (NM)

**2:50 pm Break and Poster Viewing**

*Related NSF Cyberinfrastructure Projects*

4:00 pm COMET: Coast-to-Mountain Transect  
 4:10 pm Kepler Scientific Workflow System  
 4:20 pm Cyber-Environmental Portal  
 4:30 pm A Data-Intensive Cyberinfrastructure Component for Coastal Forecasting and Change Analysis  
 4:40 pm Comments of Coordinating Committee  
 5:00 pm Open Discussion  
 5:30 pm Adjourn

*Thursday, November 16.*

8:00 am Coffee

**Theme 2. CUAHSI HIS and Testbed Projects**

8:30 am HIS and the Corpus Christi Bay Test bed: How HIS can help accomplish science (Maidment)  
 9:00 am Corpus Christi Bay Testbed Cyberenvironment: CyberInfrastructure from NCSA's ECID Project (Minsker)  
 9:30 am HIS Architecture overview and the National HIS (Ilya, SDSC and Dean, ESRI)  
 10:00 am Workgroup HIS (Maidment?)  
 10:30 am Break  
 11:00 am Discussion of functional requirements of HIS System from Test bed PI's point of view/ Survey of needs  
 12:00 n Lunch

1:00                    **Break-out 1: Test-bed PI's: discussion of collaboration opportunities**

**Break-out 2: Test-bed Information Managers: Getting started ith HIS**

*Friday, November 17*

**Theme 3. Towards Digital Observatories: Where to from here?**

8:30                    Reporting from Break-out groups  
9:30                    Discussion of coordinating HIS and Test beds—who goes first?  
10:30                    Break  
10:45                    Finalizing strategy for engagement  
12:30                    Adjourn