



## CUAHSI Board Meeting Minutes

*July 31, 2014 at National Conservation Training Center, Shepherdstown, WV*

### **Roll Call**

- 12 members are present, needed 10 for quorum
- "X" indicates Director is present

### **Term expires 12/31/2014**

Diogo Bolster, University of Notre Dame X

Peter Troch, University of Arizona

Scott Tyler, University of Nevada, Reno (Chair) X

David White, Murray State University

### **Term expires 12/31/2015**

Anne Carey, Ohio State University X

Robyn Hannigan, University of Massachusetts-Boston (past-Chair)

Carol Johnston, South Dakota State University X

Witold Krajewski, University of Iowa X

Brian Waldron, University of Memphis X

### **Term expires 12/31/2016**

Michael Gooseff, Colorado State University X

David Hyndman, Michigan State University X

Brian McGlynn, Duke University X

Holly Michael, University of Delaware X

Todd Rasmussen, University of Georgia X

Al Valocchi, University of Illinois Urbana-Champaign X

**Officers & Staff Present:** Rick Hooper (CUAHSI), Jennifer Arrigo (CUAHSI), Adam Ward (Secretary), Alva Couch (Water Data Center), Jessica Annadale (CUAHSI), Emily Geosling (CUAHSI)

Minutes prepared by Adam Ward

**Thursday, July 31, 2014**

08:09 EDT Call to Order

1. Science Planning

- a. Tyler introduced the Science Plan, noting this document articulates the scientific position of CUAHSI and its role in the community.
- b. Hooper summarized the following key outcomes from his 1-on-1 interviews with Board of Directors members. He identified four ideas that had broad support: (1) GLEON-style working groups, (2) augmentation of the NEON network, (3) Criteria for additional HMF nodes, (4) NSF Major Research Infrastructure proposal.
- c. Hooper suggested a Powell Center workshop may be a useful mechanism for the design of an observatory and demonstrating the value of additional data. This could be a first step toward an NSF-MRI proposal. The group discussed how this effort could integrate with the CZO network, if at all.
- d. The group discussed the differentiation between advances that CUASHI helps with in some small way (e.g., supplementing efforts by individual PIs or at individual sites) vs. CUAHSI-centric efforts (e.g., instrumentation of a new site for community interest).
- e. Krajewski suggested a widespread field campaign across multiple sites and sub-disciplines, supported further by modeling efforts leveraging that campaign. Furthermore, he suggested required instrumentation for such a campaign could supplement existing sensor networks.
- f. McGlynn led a brief discussion of the past scientific plan, including its strengths and weaknesses. The group emphasized the need for continuity between past strategic and science plans with the future science plan.
- g. The group discussed supplementing NEON sites with additional hydrological instrumentation. Benefits of this include supplementing an existing network and integration with their efforts. Challenges include ongoing operational expenses and the selection of sites. Hooper articulated the differentiation of enabling science, the CUAHSI mission, as opposed to executing studies that a PI could undertake. Campaign data collection vs. deployment data collection was discussed. The general sense was that supplementing NEON sites had potential but also warranted further investigation of demand from the community.
- h. Valocchi expressed an interest in supplementing existing CZO sites with more hydrologically-oriented instrumentation.
- i. There is a challenge related to training and proper set-up in contrast to complexity of operation – instrumentation must be able to be successfully deployed by non-experts at their sites.
- j. The group discussed a mechanism to integrate existing equipment owned by PIs into an equipment-sharing framework with some type of CUAHSI-backed insurance of performance and against loss.
- k. Tyler and Hooper led a discussion about instrumentation sharing and instrumentation leasing with CUAHSI as an organizer and in an oversight role.
- l. Johnston suggested an interest in lakes was generally missing from CUAHSI discussions. She questioned if GLEON filled this niche.
- m. McGlynn suggested CUAHSI could be the organization to synthesize cross-network activities (e.g., linking CZO and LTER networks, EarthCube). The Water Data Center (WDC) is a first step toward filling this goal and enabling cross-site comparisons. Tyler

also noted a proactive effort by CUAHSI to harvest data for members could be valuable to the community.

- n. Gooseff noted the LTER network office has two primary roles: (1) information management from community efforts, and (2) coordinate of network activities and research. Hooper has been collaborating with GLEON and some LTER sites to include their efforts in the WDC, and articulate the role of the WDC in these efforts. Hooper's goal is a single system rather than multiple, parallel systems. Gooseff suggested an environmental data repository at a high-level within NSF could integrate across several programs and directorates, and support was likely from the group of networks.
  - o. Rasmussen questioned if there was a coordinated list of required data that the community could agree upon for modeling efforts, and if these data were aggregated in a single place. The group discussed these efforts and distributed models. Tyler suggested that harvesting of all existing data by the WDC was the most effective way to identify the gaps that exist, because the data are not integrated in a single location.
  - p. Tyler summarized that data harvesting and integration should be a central effort for CUAHSI.
  - q. The Board directed Hooper to continue articulation of a science plan focused on (1) synthesis activities through GLEON-style working groups, (2) instrumentation efforts including peer-to-peer sharing and MRI efforts, (3) improving hydrological process representation in and integration with earth system modeling via community modeling efforts, (4) synthesis of environmental data cross programs, or a network-of-networks, (5) enabling science in the network of experimental facilities. The goal will be a working document or brief summary that can be delivered to members prior to the AGU Fall 2014 meeting, using that opportunity to solicit feedback from the group. Hooper will pay particular attention to the evolution of past scientific and strategic planning documents and efforts to the current status of CUAHSI. Hooper's action plan will be to articulate the scientific justification for these activities to a broad audience.
2. Financial Review
- a. Annadale presented a financial summary for CUAHSI (Meeting Document #1).
  - b. CUAHSI received an unmodified (clean) report issued with no audit findings. Hooper noted that the Board needs to appoint an external audit committee. He will assemble a list of potential members for this and bring them to the Board in the coming months.
  - c. CUAHSI is expecting an updated indirect rate agreement from the NSF for the 2014-2016 period.
3. Water Data Center Status Report and Informatics Standing Committee Reports
- a. Hooper reported that the WDC and informatics standing committee have identified core, interacting services (data catalogue, server, client).
    - i. Catalog Updates:
      - 1. Recent efforts have clarified that all elements are controlled by the WDC to streamline services. Effort from WDC employees has been directed toward fixing and formalizing code modifications to improve aspects of the catalog. Couch reported that tracing grant numbers and associated data is one of several features suggested by the NSF that has been a focus for recent efforts. A curation interface has been added to help manage servers and their content.
    - ii. Client Updates:

1. Hooper reported improvements in the web-based client interface to add flexibility in the search mechanisms.
  2. Hooper reported development of a web-based client to replace HydroDesktop is a priority for the WDC.
  3. Michael reported that her experience with Data Uploader was challenging, and felt that “wizards” to help clients upload data would be helpful.
  4. There was general discussion that having several separate spreadsheets for the uploaded was inconvenient and would prevent users from participating.
  5. Hooper noted there is a goal to have a quality web-based client by the Fall 2014 AGU meeting.
- iii. Server Updates:
1. Couch reported that the WDC is now able to manage updates on cloud-based data servers, as opposed to having HydroServer operators implement updates on an ad-hoc basis. Couch is implementing a service to regularly sync individual HydroServer data with the database and monitor the status of servers.
  2. Tyler clarified that servers that do not have a long-term investment in data management are a challenge to the distributed-server model. Servers set-up for a grant-by-grant basis without continuity are a challenge. To serve the second population, Couch is moving as many services as possible to a cloud-based system to incentivize use of the centralized server over distributed servers.
- b. Hooper reported that the upcoming NSF review of the WDC will be important to the future of that program and its role in CUAHSI.
  - c. Krajewski noted that HydroServers evolved in part from integrating real-time data into an interface. He questioned if real-time integration direct to the cloud was possible. Couch reported it is possible but not a top priority at this time. Krajewski noted that until this is possible, distributed HydroServers are required. Hooper noted that management of data before delivery to the database is still a challenge.
  - d. Couch and Hooper discussed the usage metrics that are reported, and the ability of the WDC to generate these statistics. The web client will enable improved tracking of usage, but this is more challenging on the distributed HydroServers. As an example, tracking of searches is fairly simple; tracking of data in support of publication is more challenging.
  - e. The group discussed the level of metadata required and user-input structure that meets a minimum bar, and a complete ODM-compliant data set.
4. Hydro-CLM Update
- a. Arrigo summarized the community modeling discussion that was held at the Biennial meeting, and the history of the project. Arrigo reported that the current NSF award supports a working group with several participants led by Ying Fan Reinfelder, and support for CUAHSI staff and a 1-yr post-doctoral research at CUAHSI. The proposed effort was for Reinfelder to define a benchmarking process for large-scale hydrological modeling, and for a post-doctoral researcher to use CLM in these benchmarking activities. She noted that the role of CUAHSI is to enable the CUAHSI community to engage with CLM efforts.

- b. Arrigo reported the session led by C. Duffy and R. Maxwell was a good segue into the afternoon discussion of community modeling efforts, with their speakers providing a vision for the future of community modeling. She noted the general attitude of the discussion was one of interest and engagement, with little conflict over selection of a specific model, framework, or set of processes that would set an agenda that community members were required to follow.
  - c. Arrigo suggested a way forward would be to engage a working group around the articulated hydrological needs of NCAR that were articulated at the discussion. She felt this could be a good list around which Reinfelder's effort could be framed. Bolster suggested that one key process or outcome could be a focal point. Valocchi seconded this, noting a focus on a single item could be used to prototype a governance process.
  - d. The group discussed the leadership of this effort in terms of both intellectual leadership and community or working-group leadership. The group noted the need for both strengths to be represented in the leadership, with a goal of intellectual contributions and community consensus on a governance structure.
  - e. Arrigo noted that the CLM activity at CUAHSI was designed to include Reinfelder, a Board member, and a representative from the CLM community. Hooper articulated a goal of having a specific report on the scope of the activity and an associated action plan of specific items that is developed this calendar year.
  - f. Arrigo proposed a scope for such a report to clearly address three points: (1) identifying a governance structure and process for management of community-based modeling efforts, (2) identifying a specific area of need from CLM to focus on, and (3) scoping work for the post-doctoral researcher.
  - g. Tyler, Valocchi, and Bolster will initiate this discussion with Reinfelder, and work on an action plan.
5. Recruitment of Fall CyberSeminar Host
- a. Rasmussen volunteered to organize hosts and speakers for the Fall 2014 CyberSeminar series.
6. Organization of Fall Events
- a. GSA and AGU meeting events
    - i. Hooper and Tyler will attend GSA to represent CUAHSI, and requested any Board members who attend help drive attendance to the booth.
    - ii. Michael will be working to serve as a liaison to the GSA hydrogeology community.
    - iii. Carey suggested coordination with GSA leadership to increase CUAHSI visibility.
    - iv. Hooper reported that an AGU event was notably absent for members at the 2013 meeting, and he has heard requests to host some membership event. He posed several suggestions for possible activities. Hooper is also planning to repeat the early career luncheon activity that was organized last year, which was broadly endorsed by the Board. The Board encouraged this activity. McGlynn also suggested CUAHSI hosting a space for graduate students to interact is desired.
  - b. Annual Membership Meeting
    - i. Hooper will have a draft science plan for review prior to this phone meeting.
  - c. Election of Directors: Election Committee Assignment

- i. Hooper noted that four Board members will need to be replaced. Valocchi will serve as the chair of this committee, typically with one additional Board member and one external member comprising the committee. Michael will join the committee to represent the Board.
- 7. Biennial Wrap-up
  - a. The Board had heard very positive feedback on all aspects of the Biennial. McGlynn found the makeup of conveners and speakers to be excellent. He expressed appreciation for the substantial staff effort that was required to execute the event.
  - b. Emily Geosling had a generally good experience with the National Conservation Training Center.
  - c. McGlynn noted that the east-coast location could make attendance easier for membership, and an active push for “local” recruitment could be improved in future years.
- 8. Succession Planning
  - a. Tyler reported that he, Valocchi, and Hooper met with NSF program managers on Monday at the Biennial meeting. The meeting centered on the leadership succession plan with the future of CUAHSI in mind. Tyler and Hooper shared Meeting Document #2, summarizing potential future options for management structure and associated costs. Hooper left the NSF meeting feeling that recruitment of a WDC Director was accepted as reasonable to the group he met with. Tyler concurred that the cost structure presented was reasonable. He further noted that these salaries require justification on an annual basis.
  - b. Gooseff questioned the differentiation between an Executive Director and a part-time presidency. Tyler noted there is a timescale of activity that differs. Hooper suggested an Executive Director makes decisions on a day-to-day basis with the Board of Directors; he envisions a president that drives the longer-term planning and execution within CUAHSI.
  - c. Tyler noted that the replacement hire for Arrigo would set the path of the future of CUAHSI leadership. Hiring a WDC Director or Deputy Director is a key differentiation between the possible scenarios presented.
  - d. Johnson expressed concern that without a deputy director it will be difficult for CUAHSI to engage with new initiatives such as EarthCube.
  - e. Gooseff questioned how long the current staffing level at CUAHSI is sustainable. Carey suggested the near-term is the primary concern. Hooper noted that at current staffing levels, activities could be compromised. An example is the hiring of a post-doctoral researcher to pursue the CLM effort. Hooper suggested training activities may be an area that could also be reduced.
  - f. Hyndman suggested a potential third scenario in which CUAHSI would hire a deputy director, with a desired informatics skill set (e.g., someone with informatics background and technical savvy could then move into a WDC Director position). He also suggested a half-time buy-out of an academic could potentially supervise the WDC.
  - g. Rasmussen questioned if any WDC end-users are stand-out participants that would have an interest in WDC Directorships.
  - h. Tyler articulated two CUAHSI strategic missions: one the core activities of CUAHSI and the second being the WDC.
  - i. Arrigo suggested a hybrid approach, wherein a Deputy Director would be hired immediately as the heir apparent to the Executive Director. At the time that Hooper resigns, the WDC Director could then be hired.

- j. Hooper questioned if the immediate hire should be a WDC Director or a Deputy Director.
  - k. Hyndman suggested recruiting for both positions in a broad ad, and using the best recruited candidate to help define if the role will be a WDC Director or Deputy Director. The group discussed how a position description could be shaped for a director-level position with responsibilities to be defined based on qualifications. Valocchi questioned if the skill-sets overlap in a meaningful way.
  - l. Tyler expressed a preference toward strong leadership in the WDC as a flagship effort for CUAHSI that will define the group's identity for future years. Krajewski seconded this, expressing a preference for the path to ensure success of the WDC.
  - m. Hyndman and Valocchi expressed an interest in a hydroinformatic expert for the position, who could bridge the WDC and CLM efforts.
  - n. Valocchi expressed concern that a WDC director would face a major review in February 2015 that would have implications for the future of the program.
  - o. **Motion to proceed with recruitment and hiring of a full-time WDC Director.**
    - i. **Motion: Carey**
    - ii. **Second: Johnson**
    - iii. **Discussion: None**
    - iv. **Approval: Yes (unanimous)**
  - p. Tyler proposed a search committee composed of Hooper and two Board members, with Alva serving as a consultant to the search. Waldron and Valocchi volunteered to serve on the committee.
9. New Business: National Weather Service Opportunity
- a. Hooper reported that D. Maidment has been working on an Open Water Data Initiative, focused on aggregation of all federal water-related data and forecasts in a common format and framework. There is also a new National Water Center operated by the Office of Hydrologic Development of the National Weather Service with an eye toward hydrological modeling and forecasting within the scope of their mission. Ongoing discussions have focused on integration of academics with the Water Center activities, possibly organized around an ambitious initiative. An example would be flood forecasts at a refined scale, made in real-time and with a scalable framework for increased resolution in future applications, and communication of these forecasts to the emergency response community.
  - b. Hooper suggested this could be in the format of a supported working group that would include a summer institute with resident- and non-resident participants. Hooper has been in discussion for CUAHSI to help with execution of this kick-off event, with a scope that would be negotiated. The group discussed the outlay of CUAHSI staff time to help execute these activities.
  - c. Krajewski questioned the required outcomes of the activity and what commitments would be made by CUAHSI and by individuals. Gooseff suggested several outcomes related to interoperability of synthesizing data streams and models, but not focused on a calibrated, validated model of flood forecasting. Krajewski expressed concern about not articulating a scope of work that conflicts with achievable goals and objectives, and that does not re-invent effort that has been previously made.
  - d. Hooper reported that CUAHSI would be looked-to as a group to help set the pedagogy for the activity and expected outcomes. His perspective is that CUAHSI focus on this as a student-oriented, educational activity as opposed to a commitment to develop specific

products. Hooper anticipated a potential budget of as much as \$400,000 for this activity could be available.

- e. Valocchi clarified the opportunity to the Open Data Initiative was a large benefit to CUAHSI and the WDC efforts.
  - f. The Board directed Hooper to pursue this opportunity, with clarification about budget and scope of work. The Board will consider the possible role of CUAHSI in this effort.
10. Scheduling Executive Committee and Board of Directors meetings
- a. The January 2015 in-person Board of Directors meeting is scheduled for January 13-14, 2015, with January 12<sup>th</sup> reserved for new Board members.
  - b. Executive Committee meetings will be Tuesdays, 4-5pm Eastern Time from this meeting forward.
  - c. Board of Directors meetings will be Tuesdays, 4-5pm Eastern Time on the first Tuesday of each month from this meeting forward. There will be no Board meeting on 05-August-2014.
11. Executive Director Evaluation and Salary Recommendation
- a. The Board of Directors meeting entered an Executive Session to discuss the draft Evaluation of Hooper submitted by the Review Committee.

17:31 EDT      Adjourn

**Meeting Documents (Stored on Central Desktop along with meeting minutes):**

- 1. Financial Review PPT (Annadale)
- 2. Tyler succession plan PPT (Hooper / Tyler)