CUAHSI Board Meeting Minutes
June 13-14, 2023

Roll Call

12 members are present, 9 needed for quorum. "**X**" indicates present

Term expires 12/31/2023

Safeeq Khan, Univ. of California, Merced **X**

Sarah Ledford, Georgia State University **X**

Margaret Zimmer, Univ. of California, Santa Cruz **X**

Anne Nolin, University of Nevada-Reno **X**

Term expires 12/31/2024

Alejandro Flores, Boise State University (Past Chair) **X**

G.H. Crystal Ng, Univ. of Minnesota **X**

Steven Loheide, Unv. of Wisconsin - Madison **X**

Ashok Mishra, Clemson University

Terms expires 12/31/2025

JP Gannon Virginia Tech **X**

Drew Guswa Smith College **X**

Hoori Ajami, Univ. of California - Riverside **X**

Anne Jefferson, Kent State University (Chair Elect) **X**

Jay Zarnetske, Michigan State University (Chair) **X**

Officers: (terms expire January 31, 2023)

Troy Gilmore, University of Nebraska (Treasurer) **X**

Adam Ward, Indiana University (Secretary) **X**

CUAHSI Staff Present: Jordan Read

Minutes prepared by Ward

Wednesday, 14-Jun-2023

16:30 PDT   Call to Order

1. Board Meeting Call to Order
   a. Zarnetske and Read welcomed the Board and reviewed the agenda for the meeting.
2. Discussion of Biennial Colloquium (Zarnetske)
   a. The group discussed the location being positive, strong engagement with local institutions, and a thoughtful program that included topics that were novel compared to other hydrological science meetings.
   b. The meeting schedule was relatively 'packed', with a desire for some increased time for unstructured meetings and collaboration.
   c. The per-night cost for the biennial and travel was expensive, with a preference for a 'hub' airport at future meetings.
   d. Competition of the meeting with other events - in terms of schedule - was a negative. Scheduling with more separation from other aquatic science and hydrology meetings would be ideal. Historically, mid-to-late July timing was preferable.
   e. The idea of a family-friendly event in the future was viewed positively.
   f. Workshops and speakers were high-quality and the format was a plus. This could be a point that further differentiates the meeting from others in future years.
   g. The Board noted that it is critical for the sessions to not appear that session organizers and inviting a broad group of speakers, vs. giving any appearance of an 'insiders club'. This has to be balanced against an intentionally inclusive effort for session chairs and speakers. Transparency in the process could be more clear for how sessions, speakers, named lecturers, etc. are selected.
   h. The inclusion of an early career speaker in the sessions was intentional and should be retained.
   i. Having shared meals together was viewed as a strength, vs. having folks scatter to off-site restaurants.
   j. There could be more intentional coaching about sitting with people you don't already know and ensuring networking occurs. Setting the tone of building community and networking should be emphasized early and often. Putting 'topics' at tables to let folks opt in to discussion of specific topics could also be considered.
   k. Lightning talks were a good inclusion, and the poster session was well-attended and presenters had positive experiences. It was nice to have the same posters up for multiple days.
   l. The group discussed potentially shorter talks with longer discussion periods in the sessions.
   m. The NSF panel was engaging, useful, and a positive introduction to the HS program.
   n. Read suggested intentional 'mentor matching' or pairing of early career and more senior scientists to help build community. Small groups, rather than 1:1, was suggested as sometimes lower pressure and more comfortable.

o. The small size, extensive interaction, and common experience were all viewed as positives. The meeting size - approximately 120 attendees - was strong. The range of 100-200 attendees was considered a reasonable size.

p. Differentiation of the meeting by explicitly including racial justice, student-centered efforts, and similar topics that are not highlighted at all meetings is a positive strategy.

q. There is space to improve in engagement with local speakers, including indigenous populations. Investment of funding as honoraria to support speakers is valuable. Registration waivers to enhance opportunities for diverse speakers and attendees was suggested.

r. Travel support for students and faculty was valuable and should be continued.

s. Addition of a 'day before' local field trip for attendees able to arrive early was suggested.

t. Formalizing the requirements or expectations for opening remarks, introductions, closing remarks, etc. would be helpful to ensure nothing is missed.

3. New director recruiting and 2023 regular election (Ledford)

a. Ledford reported the special election for the Board positions is open and ongoing. Voting is actively underway.

b. Ledford initiated a discussion of the gaps on the Board that should be filled during the recruitment for the upcoming election.

   i. The Board discussed the balance of service effort and responsibility being asked of the Board, particularly early career members where pre-tenure folks may feel vulnerable.

   ii. Gaps identified on the Board included a present bias toward early career Board members. Several Board members indicated some interest in inviting Board members who have rotated off to run for re-election.

   iii. Loheide and others noted that not all members have three, active representatives. Reviewing who has been actively voting, attending workshops, engaging with activities, etc. would be a good population to recruit from.

   iv. Experience running large, collaborative projects (e.g., center directors, statewide project EPSCoR directors) would have skillsets related to business and management for the Board.

   v. Flores suggested that Board effort in cultivating member representatives to see themselves as future leaders, and see the opportunities they could pursue, would help build a pipeline of future leaders.

   vi. In brainstorming skillsets that seem underrepresented on the Board, potential research areas include: data science, remote sensing, hydrology-adjacent skillsets (i.e., places where hydrology intersects with other systems, like food-water-energy nexus), cyberinfrastructure, representatives who are deeply engaged with partners (e.g., DoE, NASA, USDA).

   vii. Loheide suggested that the Board could, in the future, consider Board members who are not from member organizations (e.g., business leaders, lawyers) who bring additional skillsets to the table. Several Board

members endorsed that adding a lawyer and CPA would be valuable additions. Expertise in fundraising would also be welcome.

       viii.   Ward noted that the Board is permitted to establish a 'Senior Advisory Council', with function and responsibilities largely at the Board's discretion (Article VII, Section 9). Flores suggested this could readily include agency representatives.

       ix.   The group discussed whether affiliate members could include national labs or other federal agencies. Ledford noted that a formal affiliation with a member institution would be needed for a representative to serve on the Board.

  c. Ajami, Zimmer, & Ward will serve as the nominating committee and coordinate the nomination process for the Fall 2023 elections.

4. Brief update on strategic plan (Read/Clark/Mucciacito)
  a. Read updated the Board on progress related to proposal development. He is working closely with CUAHSI staff to update the strategic plan. The present draft is accessible to the community and feedback is being accepted.
  b. The next step will include finalizing and publishing the strategic plan, which is a deliverable that is required in the Core Cooperative Agreement, due to the NSF in Fall 2023. The Board will vote to approve the final draft at a future meeting.

5. Standing Committee FYI Reports and Engagement (Brief Updates)
  a. Informatics (liaisons: Mishra/Flores; Zarnetske presented on their behalf)
      i.   Awards management continues to be a highlight and priority
      ii.   More informatics blogs created and posted; slowing future blog efforts based on board feedback
      iii.   The committee is excited to help advertise CUAHSI's web services.
      iv.   The informatics committee chair is intending to step down, and at least one other member is stepping down.
      v.   The sense of the liaison was that some turnover in membership and anticipated renewal of committee activities caused participants to re-evaluate their roles.
      vi.   A directed effort, like the USGS 30-day chart challenge, would be a great outlet for this committee.
  b. Education and Outreach (liaisons: Gannon/Ajami)
      i.   The committee met regularly through March, but has moved to ad-hoc as the Board considers the roles of committees.
      ii.   Pathfinder fellowship reviews were successful.
      iii.   The committee has discussed if there are term limits, procedures for turnover, etc. that should be governing their operations. The chair of the committee will transition in the coming year.
      iv.   The committee would like to be engaged as a resource for new programs, initiatives, and educational experts who want to engage actively in program operations.
  c. Instrumentation (liaisons: Zimmer/Jefferson)
      i.   The instrumentation discovery travel grant program was successful, and were thankful for Veronica's role on the team. They intend to collect added statistics about the applicants in the future.

      ii.   The committee hosted a successful workshop at the biennial: "Initiatives toward curating community-contributed methodological protocols". Community-driven, collaborative protocols is one area of interest for future work.

      iii.   The group has discussed their present scope of responsibility, possibly transitioning from a hardware-centric past to a future that might also include community protocols and data lifecycle SOPs.

      iv.   The committee is interested in scoping their activities and responsibilities, potentially expanding to data acquisition, monitoring, & methods.

      v.   An extensive response to the Board questions was provided as an attached for use by the Board.

      vi.   Read suggested partnerships with the USGS Hydrologic Instrumentation Facility might be an opportunity for the committee.

d.   DEI (liaisons: Ng/Guswa)

      i.   The liaison reports uncertainty about the committee's role, with clarity for whether they operate as a bottom-up group pursuing their own initiatives vs. a top-down group that acts only when asked or directed by the Board.

      ii.   The committee is drafting a proposal to establish CUAHSI DEI awards.

      iii.   The committee expressed uncertainty about how to collaborate with CUAHSI Staff and how to improve two-way communications from the organization. The group discussed committee-staff interactions and operational norms.

e.   Standing Committees Assessment and Revision Team Goals (Zarnetske)

      i.   Overall, the standing committee operation and function have been a longstanding challenge for the organization.

      ii.   Areas of clarification that would help the committees would include the bottom-up vs. top-down direction for committees and clarifying staff time and resources available to the committee.

      iii.   Zarnetske has established a team to review current standing committees and their operations, to help update and revise the committee operations and structure. This team includes Ng, Mishra, Nolin, & Zimmer with Ng and Zimmer as leads. This work starts in July and target completion is November 2023.

6.   Other business

a.   Zarnetske reviewed roles and responsibilities for the Board and officers including liaisons to standing committees, FIHM planning, executive director review, committee process review and revision, elections, CCA proposal team, audit committee, and executive committee. A summary document of roles has been added to the Board's working directory to clarify this for future reference.

b.   Zarnetske opened the floor to any other business. Hearing none, the meeting was adjourned for the day.

18:40 PDT   Adjournment

Thursday, 15-Jun-2023

08:00 PDT   Call to Order

7. Executive Director's Report
    a. Read briefly reviewed the briefing that was provided to the Board ahead of the meeting. This included assessment of CUAHSI's current and anticipated activities relative to the mission, updates on budget and fiscal health of the organization, and future operations and funding plans.
    b. Fiscal status of the organization
        i. Read discussed monthly cashflow, noting that well over 90% of CUAHSI's operations are based on performing work and then submitting expenses to NSF for reimbursement (i.e., funds are spent by the organization then reimbursed from CUAHSI). Guswa and others suggested increasing cash on-hand (e.g., via revenue) or a line of credit to backstop expenses. Member dues was historically used as this buffer in the short-term.
        ii. The Board discussed options for additional revenue streams, including foundation funding, fixed-term contracts, member dues, revenue generating activities like FIHM, corporate sponsorships, and donations or endowments. Nolin and others suggested a fee-for-service model that might support some activities (e.g., one-time charges for large storage volumes on HydroShare).
        iii. Nolin initiated a discussion about clarifying CUAHSI's expectations for partners where CUAHSI will partner on an award. Examples included fee-for-service for standard data archival, expectations for letters of collaboration that fit within the CCA's mission and scope, and similar. Read suggested formalizing and clarifying this process and the costs would be important, possibly in a model of billing to PIs as opposed to formal subawards for modest contributions. CUAHSI could include fee-for-service efforts to support PIs, or sponsorship of CUAHSI activities. A 'menu of services' with clarity on costs and procedures would lower barriers for PIs to include collaboration with CUAHSI.
        iv. The Board discussed articulation of the benefits of membership and whether raising dues was a reasonable source of funding.
        v. Flores suggested that past Board members who might be well-positioned to fundraise as they approach retirement might be engaged to help leverage their networks for private development.
        vi. Jefferson suggested that the Board might take on fundraising, rather than this being part of CUAHSI staff. Flores suggested a 'give-get' model for fundraising could be considered.
        vii. Private foundation or corporate sponsorship to endow awards, like the Pathfinder Fellowship, could be considered.
        viii. Guswa suggested pitching the dues and services as an element of professional development. If there are clear benefits for membership, he suggested that articulating these would be a strong justification for supporting faculty members.

    c. Project portfolio
- i. Read summarized the portfolio of current projects for the organization. He noted that the complexity of the project portfolio is a stressor on organizational resources.
- ii. Read discussed the fiscal operations, with the transition from in-house accounting to CRCFO and turnover of staff within that organization. He discussed costs and benefits of having expertise in the organization vs. outsourcing of services. One challenge is ensuring an understanding of NSF requirements and procedures is central to the fiscal management of the organization.
- iii. The Board discussed costs and benefits of in-house expertise compared to redundancy with an external provider.
- iv. Read shared a vision of a full-time in-house controller for day-to-day operations, with external oversight from a CPA or CFO.
- v. Read reviewed the procedures by which overhead rates are set.
- vi. The group discussed opportunities to partner with other, comparable organizations to pool operational expertise. Flores suggested something like a 'shared service model' could be implemented to help.

    d. CZ Hub Budget
- i. Read reviewed the proposed budget for year 4 of the CZ Hub CCA, which was provided in briefing materials.
- ii. One notable update is using carry-forward funds to support a large fraction of time for a data manager on staff to support the network activities. This is envisioned as complementing needs within CUAHSI overall, with the remainder of the FTE coming from project administration and other projects on the team. Read anticipates this is the start of a long-term hire to fill a gap between current software developers and data managers on projects that are served and supported by CUAHSI. Read noted the strength in data management is a key strategic advantage for CUAHSI in having won this award.
- iii. Read discussed the budget with the NSF program officer and they were supportive of this budget and plan moving forward.
- iv. The Board discussed the roles of current CUAHSI staff on the project.
- **v. Motion to approve the Year 4 budget for the CZ Hub CCA**
  - **1. Motion: Guswa**
  - **2. Second: Jefferson**
  - **3. Discussion: (none)**
  - **4. Vote: Approved (unanimous)**

8. Board Operations & Priorities
    a. Zarnetske initiated a discussion about the present operations of the Board, seeking input on how operations could be improved.
    b. Reflection on present strengths and opportunities for improvement of operations
- i. The Board has tended to focus on the CCA rather than the complete portfolio of CUAHSI activities
- ii. It has been challenging for the Board to understand what resources are available for new initiatives relative to maintenance of current activities. A

iii. The formalization of processes and protocols to increase transparency in the organization would help. This might include guidance of how new initiatives are undertaken, engagement with the full lifecycle of awards.

iv. Guswa spoke to the potential balance of trusting the staff vs. the Board having a line-item veto over initiatives. Others articulated that a summary and proactive communication might be valuable, where the Board could respond to strategic directions without direct decision-making on a project-by-project basis.

v. Increased Board representation from and/or engagement with the complete CUAHSI community - including federal agencies, the CZ community, as similar - was viewed as an area for improvement.

vi. Khan suggested intentional focus on CUAHSI's image as serving the entire community is important for the organization, aligning with the mission and values of CUAHSI. The group discussed the role of the Board in helping provide input and oversight. Read suggested the Board could help improve CUAHSI relationships with other communities and federal agencies. Nolin suggested increased focus on these relationships would also foster a career development path for students.

vii. Gilmore indicated that the role of the officers could be clarified and strengthened as operations are formalized. Drafting clear statements of responsibilities and expectations would be helpful in this regard.

viii. Continuity in board operations and responsibilities is a continuing challenge for the Board. Documentation of norms and procedures, improved focus on onboarding and knowledge transfer, and increased clarity in discoverable information (e.g., a shared, well-organized summary of each project, committee operations) would be helpful. Ensuring ongoing, sustained mentorship of incoming Board members.

ix. Zimmer and others suggested an explicit mentoring for new Board members through the duration of their first term on the Board. Explicitly articulating the roles and responsibilities, but also the professional and leadership development opportunities, is important in recruitment of Board members.

x. Board turnover is a challenge for the organization. The high rate of turnover and recent resignations are extremely challenging for continuity in the operation of the Board. The strong scientific bias of the Board may be limiting organizational success, vs. a Board that has a more diverse skillset.

xi. Bylaws limitations were discussed, including current Board terms, Board size, and limitations on who can serve on the Board.

xii. In-person travel to two meetings each year may be a limitation for participation by some potential Board members. This would also reduce cost for Board meetings. Replacing one meeting with a smaller group (e.g., Executive Director and ExCom) to visit with agencies in Washington, DC might be a logical replacement for one Board meeting.

Hosting Board meetings co-incident with other meetings - such as reserving a day during or immediately before AGU - would be a reasonable alternative. Others in the group indicated that extended focus on the organization at in-person meetings was valuable.

      xiii. Jefferson suggested that longer and/or more-frequent meetings of the Board might be necessary given the growth and complexity of the organization.

      xiv. Read emphasized the need for support in building connections with senior scientists and potential partners for the organization.

9. Audit Committee & Treasurer's Reports
   a. Gilmore summarized the status of outstanding audits for the past several years, and the need for multiple years of clean audits moving forward to demonstrate the fiscal health of the organization.
   b. Gilmore summarized the 2020 report from the Audit Committee, discussing the findings and how they are presented. This is in anticipation of the Board receiving reports and briefing them on what to expect.
   c. Gilmore summarized the process of forming an audit review committee, which is the responsibly of the Board. The committee is charged by the treasurer and provided with the documentation needed to prepare for and meet with the auditor. The committee provides commentary and a report back to the Treasurer, who presents the report to the Board. The audit, report, and associated documents are archived by the organization and are needed for future audits. Submittal of the audit itself to a federal clearinghouse and NSF also occurs to maintain nonprofit status and because the NSF is the primary federal sponsor of CUAHSI grants.
   d. Read noted that the nonprofit status of CUAHSI requires annual audits. The reporting and procedural responses to maintain nonprofit status is essential to the organization.
   e. Read anticipates that he will generate a plan of action in response to the audit and committee report, which he would present to the Board for concurrence of his plans.
   f. The group discussed the breadth of responsibility for the audit committee and the enumerated role in the Bylaws.
   g. The composition of the audit committee is specified in Article VII, Section 5.
   h. Gilmore proposed an audit committee of Amanda Johnson (Carey Institute Grants Manager & Compliance Officer), Dave Genereaux (former Board chair, current member representative, NC State University), and Drew Guswa (Board member, member representative, Smith College). All three have experience with organizational management and finances, and have expressed a willingness to serve. This committee would complete work on all outstanding audits for the organization. Gilmore indicated he expects the work to occur in July-September 2023.
   i. **Motion to appoint Johnson, Genereaux, and Guswa (Committee Chair) as the Internal Audit Committee members, with a scope of work primarily to complete the 2019, 2020, and 2021 audits and complete reporting on these to the Board. The appointment duration will be through October 2023, or longer if necessary to complete the audit reports.**

   i. **Motion: Zarnetske**
   ii. **Second: Ledford**
   iii. **Discussion: (no additional discussion)**
   iv. **Vote:**
     1. **Approved: Unanimous (excepting Guswa)**
     2. **Disapproved: (none)**
     3. **Abstentions: Guswa**
 j. The Board will review and revise the Internal Audit Committee charter to improve clarity and consistency with the Bylaws.
 k. The Board discussed an ad-hoc committee to support fiscal management of the organization, which will be discussed at a future meeting.

10. Evaluation of the Executive Director
 a. Flores and Loheide are working to implement the review of the Executive Director.
 b. Guswa suggested formalizing the transition for onboarding a new Executive Director, which would include potentially 3- and 6-month reviews until an annual cycle was completed.

11. Core Cooperative Agreement Renewal - Proposal Development Process, Strategy, & Brainstorming
 a. Read reviewed deliverables and commitments from the current CCA, summarizing progress across ongoing activities. Overall, meaningful progress has been made on most deliverables. Read perceives that NSF program officers are generally satisfied with performance under the CCA.
 b. The group discussed the balance of proposals content in terms of continuation of ongoing activities, enhancement or increased investment in ongoing activities, and identification of new activities. The balance of 'evolutionary' vs. 'revolutionary' was discussed.
 c. The group discussed the process by which the prior CCA proposal was developed and received, outlining strategies for a successful proposal process.
 d. The Board discussed costs and benefits of submitting to Geoinformatics vs. Hydrologic Science calls at NSF.
 e. Key areas for focus in the future proposal include community support for synthesis, (Ward missed two more that were here)
 f. Ledford suggested a role in helping centralize the cross-coordination between various platforms for discoverability. For example, parallel storage solutions, such as ESS-DIVE and HydroShare, could interact with one another to enable discoverability.
 g. Ng suggested increasing impact within each effort, which may include decolonization, bridging CARE principals to CUAHSI activities and services, and improving DEI within the community.
 h. Guswa suggested leveraging the recent inclusion of PUIs in CUAHSI membership is an opportunity to expand the reach of CUAHSI's services.
 i. Loheide brainstormed opportunities for Virtual University to expand to better serve PUIs, potentially via CUASHI staff offering courses.
 j. Nolin suggested a hydrologic field school as a potential activity to benefit students and provide field-based skills. Zarnetske noted that innovative way to

make this accessible would be an opportunity. Water conflict mitigation was also identified as a potential area for growth.

k. Gannon suggested community-created textbooks, perhaps parallel to those at the Groundwater Project, that are supported for the community. Potentially integrating these explicitly with data services, JupyterNotebooks, etc. would be of interest. Retaining this in Git, where versioning is readily possible to update or customize, was also suggested.

l. A parallel effort to the prior that would be focused on field equipment, protocols, and data workflows was also of broad interest.

m. The group discussed enabling synthesis activities, like SESYNC and Powell Center efforts, but with a focus on hydrology and water resources. Jump-starting this with data expertise from the CUAHSI staff would help these efforts.

n. Setting standards and norms for team science and large collaborative efforts, either as part of synthesis or a stand-alone effort, would be of interest.

o. Synthesis efforts and teams were of broad interest, also noting to explicitly partner with successful efforts (e.g., Powell Center) and ensure known experiences are leveraged (e.g., learning from GLEON success).

p. Khan suggested that CUAHSI shepherding responsible use of AI and machine learning techniques in the field would be an area for growth. Partnering with the HydroML effort at LBNL would be one possible path forward. Building domain data sets that are ready for synthesis or leverage within AI approaches is a complementary area for growth. Exploring hybridization between process-based and ML approaches is an area that could grow. Defining CUAHSI's unique position in this space is important.

12. Business Items

a. Executive Director Travel

    i. Read summarized the following upcoming travel

        1. NASA PODAC annual meeting (Pasedena, CA), taking over Bales' position on the group. Travel is funded by the inviting organization. 9-10 Aug 2023.

        2. Internet of Water Coalition. Annual meeting at Reservoir Center in Washington, DC. 26-27 Sept 2023.

    ii. Motion to approve Read's travel as outlined above.

        1. Motion: Jefferson

        2. Second: Ledford

        3. Discussion: (none)

        4. Vote: Approved (unanimous)

b. Board & EcCom meetings: Ward will identify a time and coordinate with CUAHSI staff and the Board.

    i. Scheduling poll: https://www.when2meet.com/?20360059-haS9o

c. January 2024 Board meeting.

    i. The Board discussed scheduling of the January 2024 Board meeting.

    ii. The summer 2024 meeting was broadly endorsed as being 'attached' to FIHM.

        iii.   Read will confirm with Lautz if an in-person meeting in Washington, DC is required or desired by the NSF. Flores suggested this could be a smaller delegation to meet the requirement of increased NSF coordination.

        iv.   Ward will distribute a poll for availability for the Board

        v.   Scheduling poll: https://www.when2meet.com/?20368390-VsgsS

13. Other business
    a. Zarnetske opened the floor to any other business. Hearing none, the meeting was adjourned.

16:00 PDT   Adjournment