CUAHSI Board Meeting Minutes

January 3-5, 2012, Shepherdstown, West Virginia

**Notes for the meeting are recorded by the CUAHSI secretary (Chris B. Graham) as representation of the discussion topics and point and are not the opinion of the secretary

Roll Call (Chris B. Graham, Secretary)

- 14 members are present, needed 10 for quorum
- "X" indicates director is present

Term expires 12/31/2012
Robyn Hannigan – University of Massachusetts-Boston X (via phone)
Carol Johnston – South Dakota State University X
Witold Krajewski – University of Iowa X
Larry Murdoch – Clemson University X
Aaron Packman – Northwestern University X

Term expires 12/31/2013
David L. Freyberg, Stanford University (Education & Outreach Liaison) X
Brian McGlynn, Montana State University X
Jim McNamara, Boise State University (Observations Liaison) X
Todd Rasmussen, University of Georgia X
Ying Fan Reinfelder, Rutgers University X

Term expires 12/31/2014
Diogo Bolster, University of Notre Dame X
Peter Troch, The University of Arizona
Scott Tyler, University of Nevada – Reno X
Denice Wardrop, Pennsylvania State University X
David S. White, Murray State University X

Officers Present: Jennifer Arrigo (CUAHSI), Chris Graham (Boise State University), Richard Hooper (CUAHSI), Conrad Matiuk (CUAHSI)

Others:
Tom Torgersen (NSF; Thursday afternoon), Lina Patino (NSF; Thursday afternoon), Alva Couch (Tufts University), Tyler Wilson (US Congressional Staffer)

Wednesday, January 4
8:35 Call to Order (Krajewski)

1) Introductions and welcome
    a. Chair's goals for 2012; progress towards:
        i. Data center
            1. Sensors
            2. Models
            3. Data
        ii. Federal hydrology center
            1. Importance of federal agencies connecting with academia and vice versus
        iii. Bring CUAHSI in front of US Congress
            1. Visit from Tyler Wilson of Iowa (congressional staffer of Congressmen Loebsack)
    b. CUAHSI as opportunity to promote science through various agencies, beyond NSF. CUAHSI can create opportunities for agencies
        i. Show agencies that CUAHSI presents opportunities, rather than destination of funds
2) Advancing CUAHSI Instrumentation
    a. Background : See Instrumentation Briefing (attached)
    b. Recruiting additional nodes (a la CTEMPS, mobile radar) or increased instrumentation funding in hydrological research
        i. CUAHSI can lower activation energy for instrumentation proposals
        ii. Hydrology does not submit many instrument proposals – NSF would like to see more
            1. Build on successful nodes – CTEMPS to add additional instrumentation
        iii. Biology panel supported many lab and freshwater instrumentation proposals
        iv. CUAHSI can have role in helping PIs write better proposals
            1. Need to identify potential proposals, and advertise to NSF prior to submission
            2. CUAHSI can help define demand for instrumentation
            3. Determine and standardize funding requirements – how much will deployment cost
            4. Some activities can be offloaded to CUAHSI
                a. Determination of costs for users (not PIs)
                b. Contracts for usage
        v. Need to demonstrate to NSF CUAHSI's governance role in node system
            1. Access, awareness, management, basic principles
            2. Common principles for CUAHSI sponsored node
        vi. Key limitation to current nodes
            1. Need independent funding for deployment (Krajewski)
                a. CUAHSI vs. PI application for deployment funds
            2. Marketing to community

3. Different types of nodes require different funding model
4. Ease of determining costs, requirements of use of nodes
    a. Airborne mapping as good example, where it is easy to determine costs for entry into line item
5. Opportunities for facilities
    a. Do not require consensus among community, but large interest

vii. Hannigan proposed node
1. Access to and training on field sampling of field geochemistry
2. Develop methods for sampling
3. Analogous to geophysics

c. Action items for staff and Instrumentation Committee
i. Determine CUAHSI role in proposals
1. What is CUAHSI going to do?
    a. Services, governance, logistical support, identify needs, teams, PIs.

ii. Advertise value of CUAHSI assistance to PIs, for both use of current nodes and development of new nodes

iii. Formalize operational principles based on node experience on what due diligence means in terms of CUAHSI.
1. Define what it means to be a CUAHSI node

iv. Internal white paper with critical review of current facilities and future needs
1. Hannigan and Wardrop and CUAHSI staff, with assistance of Tyler and Krajewski
2. Discuss in February board meeting

3) Community Modeling Opportunities
a. Background: See Community Modeling Briefing
b. Background : See NSF Informatics Opportunities Briefing
c. NSF would prefer a community model to a modeling platform (CHyMP)
d. Two possibilities for future modeling efforts
i. Coordinate efforts by National Weather Service and IWRSS to develop through National Water Center to move beyond flood forecasting
1. New generation of integrated models
2. At developmental scale
3. CUAHSI could assist with identifying functions
4. CUAHSI could provide member to model committee

ii. Work with NCAR to add hydrology to WRF (WRF-Hydro)
1. Developing coupling framework with existing models

iii. NSF is willing to support CUAHSI activity in each
1. IWRSS still scoping for interactions with academic community

e. Are these two options adequate, or are there significant holes
f. CUAHSI is partnership with DRIHM, to work on unifying US and European grid computing centers
i. Proposal to be submitted to NSF for joint work (~$300k) Feb 18th

ii. CUAHSI would administrate sub award to San Diego, operating working group for test beds
    1. Some details are uncertain
iii. Can contribute to WRF-Hydro

4) Transitioning HIS and Proposing the CUAHSI Data Center: Dr. Alva Couch – Tufts University
    a. Background: See CUAHSI HIS Briefing
    b. Presentation from Dr. Couch
        i. Successes of HIS
            1. Use of standards
        ii. Tensions
            1. No glory for writing good software, reliable services
        iii. Components of HD
            1. Hydrocatalog
                a. Easy to move to Linux
                b. Harvester code – undocumented, fragile and not adequately tested. Needs advanced technician to run
                c. Catalog curating needs interface
                d. Needs to be ready to federate with other catalogs
                e. Recommendations
                    i. Curation interface
                    ii. Re-engineer harvester (1 month professional software engineer)
                    iii. Local caching existing data sources against failures
            2. Hydroserver
                a. Most solid component of system
                b. Cost of maintaining is high
                    i. Contingency planning
                    ii. Upgrades and patches
                    iii. Perpetuation, especially for small data sets
                c. High quality code, but is not practical for average hydrologists
                d. Recommendations
                    i. Deprecate HydroServer in favor of cloud
                    ii. Backup, failover and restore of existing HydroServer instances
                    iii. One person could run, rather than individual PIs
            3. Hydrodesktop
                a. Complex, low portability, immature, difficult to test, low usability and expensive.
                b. Plug-ins difficult to write / manage
                c. Expensive to re-engineer (1-3 year software engineer)
                d. It would be easier to start over to create portable (across platforms) version
                e. Recommendations

i. Data center should not extend HydroDesktop, but allow for it to remain open source
ii. Separate effort for increased portibility

4. Standards for data exchange
    a. WaterML – data interchange standard
    b. WaterOneFlow – service stack standard
    c. These standards are more important than server stacks
    d. Recommendations
        i. Continue emphasis
        ii. Focus on standards as community definitions, in addition to software support
5. Wrappers to publish nonstandard data sources
    a. Noncompliant data wrapped WaterOneFlow services
    b. Software maintenance is high
        i. Data names can be changed, and must be dealt with, etc…
    c. Reviewers considered wrappers more important than HydroServer
    d. Recommendations
        i. Make wrapper maintenance a core capability of data facility
        ii. Create wrapper workflows, with support software

iv. New data facility for Hydro-Informatics

1. Missions
    a. Standards
        i. Data access, service design, data discovery, semantic mapping
    b. Curation
        i. Standards, data catalog, data sources
    c. Software
        i. New and improved HydroCatalog
        ii. Cloud based HydroServer
        iii. Portable desktop client
    d. Support
        i. User support for Desktop, Server, developers creating and changing software
        ii. A chargeable service
2. Limitations
    a. No independent hydrological research
    b. Support of HydroDesktop
3. Business Model
    a. Charge researchers for data management
    b. Lower cost than independent service
    c. Sell services:
        i. Cloud based publication, backup restore
        ii. Data access statistics

iii. Support for data publication and software development
iv. Wrappers
v. Selling curated data

d. Economy of scale, for wrappers and hydro servers

4. Transition plan
    a. Priorities
        i. HydroCatalog
        ii. HydroServer
        iii. Wrapper curation
        iv. Multi-platform HydroDesktop
        v. Explore how to support data management
    b. Staffing (minimum 3)
        i. Senior software engineer
        ii. Development/operations engineer
        iii. User support specialist
        iv. Interim director for startup
    c. Contracts
        i. SDSC wrapper curation
        ii. Dan Ames for HydroDesktop support
        iii. Jeff Horsberger HydroServer support
5. Year 1 budget: $679,880
    a. Year 2: $596,968
    b. Board decision for later year goals

v. Hydrodesktop
1. Current work is focused on model plugins
2. Tied to Microsoft PCs
3. Current use ~ thousands of time series download per month
    a. Hundreds of downloads of HydroDesktop
4. Running risk of losing people due to overselling of capabilities
5. Simpler, more robust portable software may act as gateway to HydroDesktop
6. Outreach needed, perhaps outside of data center

vi. Board comments
1. Need to increase ease of data entry, in addition to data extraction
2. Who is paying for this?
    a. NSF IF proposal
        i. Transfer money from Hydro, replacing HIS funding
        ii. 5 year budget
    b. Core funding from NSF, with additional funds from fees from end users
    c. Maintenance costs dwarf development costs
3. Follow advice on cutting back on support on HydroDesktop, with transition to new software
4. Need to allow for 3 dimensional spatial data

a. Focus on data output for tools outside of data center products, rather than data visualizers
5. Spatial data should be included in further iterations
6. Concerns
    a. Budget request should request actual needs
    b. Plan on having NSF at least continually fund minimum core
    c. Argue to NSF for not charging for services
        i. Fulfills NSF mandated requirements
    d. Keep business side separate
    e. What is management structure?
        i. Director of facility will report to CUAHSI president
            1. Software engineer will act as director after second year
    f. Need to show NSF that implementation is important
        i. Will transform how PIs do science, rather than act as transformational science of itself

vii. Need help from board
1. Priorities
2. Policies
3. Workflows

viii. Review panel this month
1. Take panel comments to NSF in February
2. July IF proposal

5) Framing the Afternoon Discussion: Expanding CUAHSI's Scope
    a. Background: See Communications Briefing
    b. Addressing other agencies than NSF
        i. Memorandum of understanding creating IWRSS
            1. Draft of letter created
        ii. Are there other agencies that CUAHSI can interact with
        iii. Gates Foundation
            1. Interested in water in developing world / water borne disease
            2. Center for Global Safe Water as example organization working with Gates Foundation
    c. Water Safety and Health as potential focus area for CUAHSI
        i. WSH falls between NIH and NSF
        ii. Need to get interested investigators
        iii. Work with group like Agency for International Development, Center for Global Safe Water or Gates Foundation
        iv. CUAHSI as think tank
    d. Improving communication with public
        i. Concepts known by public for use in communication about water
            1. Floods, droughts, groundwater, irrigation, water quality, watersheds, water sources
        ii. Core resource materials
            1. Packaging data for use in media

iii. CUAHSI can serve as matchmaker between media firms and academics
iv. Simple water balance
    1. Calculate water balance using GRACE products
    2. Work with Bridget Scanlon (University of Texas - Austin) on packaging water balance work
v. CUAHSI builds frameworks for presentation of water data

6) Engaging With Congress (Senior Legislation Assistant Tyler Wilson from Congressman Loebsack office)
    a. 2008 had worst flooding in Iowa state history, with extensive flooding in Congressman Loebsack's district
        i. Worked with congress on disaster relief
    b. 15 agencies involved in water, coming together during floods
    c. Loebsack introduced to CUAHSI through Iowa flood center
        i. Interested in both flooding and other water issues
    d. CUAHSI had limited success with interaction with Congress in 2009
        i. Bad timing
    e. Possibility for briefings between scientists and congress members
        i. Opportunity for scientists to convey data, issues, problems with congress member
        ii. Opportunity for congress members to convey the data / information they need to better represent their interests / constituents
        iii. Series of briefings focused on specific topics
        iv. Caucuses and committees can set up briefings
        v. Ecological Society had well attended briefings
            1. Brought external representatives (Nature Conservatory)
            2. Tied to specific event, i.e. NOAA flood forecast
            3. Brief introduction, then presentations, Q & A and slideshows
    f. Universities are often the largest employer / organization in a representatives district, should be able to leverage presence with congressional members.
    g. Build coalition of interest, with list of interested staffers / congress members
        i. Water issues are generally not hot button issues (with exception of floods)
    h. What can CUAHSI do for legislators working on water research?
        i. Major legislation comes from committees
        ii. CUAHSI needs to contact committees and offer expertise
        iii. Identify CUAHSI members as potential expert authority on topics
        iv. Provide specific, regionally important information to congressional members
    i. Most common strategy for interaction with congress
        i. Make organization relevant to committees, congress members
        ii. Identify DC point person
            1. Keeping in touch with committee contacts, legislation
            2. Meetings to keep in contact with congressional offices
    j. Loebsack's office willing to help with congressional briefing
        i. Should touch base with authorizing committees
    k. National Flood Research and Education Act (NFREA)
        i. Serves as marker for discussion with other members

1. Currently have one cosponsor

ii. Outreach with environmental NGOs to build coalition

7) Education and Outreach Strategy (Conrad Matiuk)
   a. Outreach and Education strategy in strategic plan
      i. A number of O/E tasks, including public, members, students, practitioners…
   b. Current activities
      i. Website
      ii. eNews
      iii. Listservs
      iv. Cyberseminars
      v. Pathfinder
      vi. Let's Talk about Water
   c. Future activities
      i. Water Education Programs
         1. Graduate Water Programs
            a. 74 Universities have ~140 water related programs
            b. Programs listed on CUAHSI website with map
            c. ~400-500 hits on web page
            d. Matiuk will directly contact remaining 69 members to determine water program information
         2. Undergraduate Water Programs
            a. Member interest in similar website for undergrad programs
         3. High School
            a. National Earth Science Teachers Association conferences
            b. Issue of The Earth Scientist, NESTA journal
            c. Regional and state NESTA conferences
      ii. Congressional Outreach
         1. CUAHSI website with relevant committees and subcommittees
         2. Potential to organize LTAW event within targeted districts
         3. Communicating with Congress workshop / webinar
      iii. Less Talk About Water (LTAW)
         1. Compile database of field resources and make accessible to members via CUAHSI / LTAW websites
         2. Act as consultants to tailor events for interested parties
         3. Connection with UNESCO-IHE
      iv. My Clean Water Act Program
         1. Celebration of 40th anniversary of Clean Water Act
      v. Research Blog
         1. Need to line up contributors
            a. 6-10 scientists
         2. Audience is public, researchers
         3. CUAHSI as blog editor, advertiser, links
      vi. Pathfinder Journal
         1. Convey story of Pathfinder award winners
   d. Board Comments

i. Pathfinder Journal
    1. Combine with blog – "Pathfinder blog" as part of Pathfinder fellowship
    2.
ii. Congressional Outreach
    1. How can we piggyback on to existing organizations?
    2. Fellowships exist with congress members who are interested in water topics
    3. Can invite congress member or staff to attend LTAW events
    4. Outreach to local media may lead to congressional notice
iii. Graduate Programs link is difficult to find online

8) Corporate Operations
    a. Information Items
        i. 2010 A-133 Audit (see briefing)
            1. Clean audit
        ii. 403B changes and Design Benefits
            1. New paperwork and regulations
                a. Board members and officers financially liable to corporation
                b. Paperwork outsourced to Principle Financial Group
                c. $3,000 in additional fees
    b. **Board Decision: Affiliate Membership Application: Pacific Institute of Geography (Vladivostock, Russia) (see briefing)**
        i. **Motion to approve Pacific Institute of Geography (Vladivostock, Russia) as Affiliate Member: Johnston**
        ii. **Second: Wardrop**
        iii. **Discussion: None**
        iv. **Approval: Yes**
    c. Recruitment of Corporate Affiliates
        i. Volunteers or an Ad-hoc Committee to work with Staff on developing a recruiting strategy/materials
            1. Tyler, Hannigan
        ii. Arrigo will send email to board to gather names of contacts
        iii. Meetings are good places to make contacts with venders
    d. Report on Member Dues and Appointments (handed out at meeting)
        i. Currently sending bills out. Many have checks in the mail.
        ii. Board members asked to contact colleagues
        iii. 40 members unpaid, Hooper anticipates loss of ~15 universities
            1. All effort should be made to keep all universities
            2. Board members have offered to call late universities
    e. Employment Contract with Executive Director (see briefing)
        i. Plan for succession if Hooper leaves
        ii. Currently employed at will
        iii. Developed annual contract with automatic renewal
            1. Need 6 month termination window

2. Less than 6 month termination results in 2 month severance package
3. Contract directly with Hooper, not general document
4. Pay, vacation, benefits same as current
5. Issues reviewed by lawyer
    a. Salary increases acceptable
6. Evaluation process not in contract, but in NSF cooperation agreement
    a. Possible trigger for termination
7. Edits needed
    a. Name of organization incorrect (page 1 and 7)
    b. Change chair of board to Krajewski

iv. **Motion to approve contract to Hooper as attached with edits as listed in section iii 7 above**: **Tyler**
1. **Second: Freyberg.**
2. **Discussion: None**
3. **Approval: Yes**

9) Nominations for Chair Elect, At-Large Executive Committee, and President
    a. Nominations for chair:
        i. Hannigan: nominated by McNamara, Johnston
        ii. Rasmussen: nominated by Tyler, White
    b. Nomination for at large ExCom
        i. Tyler: nominated by Tyler, Krajewski
        ii. Freyberg: nominated by Freyberg, Krajewski
    c. Nomination for President
        i. Hooper: nominated by McNamara, Freyberg
        ii. Vote: Hooper is elected as President

6:30 Adjourn

Thursday January 5

8:00 Call to Order (Krajewski),

1) Approval of Minutes from 12/02/2011
    a. **Motion to approve 12/02/2011 minutes: Johnston**
    b. **Second: Packman**
    c. **Discussion: None**
    d. **Approval: Yes**
2) Election of Chair-Elect and At-Large ExCom members
    a. **Hannigan elected as Chair via paper ballot - Elect**
    b. **Motion to elect Tyler and Freyberg as At Large Executive Committee Members: McNamara**
        i. **Second: White**
        ii. **Discussion: None**
        iii. **Approval: Yes**
3) CUAHSI Web site Redesign
    a. Working with private firm to redesign website
        i. Simplify design, highlight CUAHSI activities
        ii. Mission statement highlighted
        iii. News, CUAHSI Events and Community events tabs
        iv. Navigation modeled off of IRIS, other similar organizations
        v. Main tabs
            1. Home
            2. About
            3. Community exercises
            4. Projects and Services
            5. Educations / Outreach
            6. Publications
    b. Board comments
        i. Some items may make sense to be listed in more than one tab
            1. Proposal resources might be listed under Community and Services
        ii. Using Word Press
        iii. Under publications, include page that compiles all papers that acknowledge CUAHSI, use HIS
        iv. Something to indicate breath of membership – plot of all universities on main page – map of USA with dots
        v. More pictures / images
        vi. Search function
        vii. More outreach focus on front page – focus on public and government rather than members
        viii. Add opportunities tab on top with RFPs, jobs, Pathfinder, proposals

ix. Add site map
x. CUAHSI events and non-CUAHSI events rather than CUAHSI and Community events

c. Requested feedback from board
i. Quick links

4) Biennial Meeting Update
a. July 16-18th at NCAR in Boulder
b. Fusing Science and Solutions
c. Previous Biennials
i. ~140 attendees
ii. Invited speakers, attendees present posters
d. Sessions
i. Transformational Science: Ken Potter (University of Wisconsin – Madison)
ii. Merging models and experiments:
iii. Coevolution of coupled system: Peter Troch
iv. Large scale experiments: John Selker (Oregon State University) and Scott Tyler
v. Learning from disasters: No chair
1. Ask Tom Nicholson NRC
e. Keynotes
i. Roger Pielke, Jr (University of Colorado, Boulder)
ii. Wolman: Tom Dunne (University of California, Santa Barbara)
iii. Eagleson: Soroosh Sorooshian (University of Californai, Irvine)
f. Workshops
i. PUC
ii. Tyler: Instrumentation
iii. Troch: Manipulations
g. Announcement out this month, registration soon

5) Preparation for Day 2 Discussions: Priorities with NSF discussion (Torgersen and Patino)
a. Background: Year 4 Budget as Submitted (see Budget Spreadsheet)
b. Background: NRC report on Research Opportunities
c. Discussion with NSF
i. Overview of last year's accomplishments
ii. Board's vision for 2012 (i.e. Data center, community modeling)
1. Torgersen
iii. CZO engagement
1. Cyber seminars, Biennial CZO session, MRI, data management, instrumentation
2. Assist with data sharing between CZOs
a. Incorporation of CZO data management in Data center proposal

b. Merge Earth-Chem and HIS to incorporate all data types – hydrology time series and samples
c. Incorporation of remote sensing spatial data / any gridded data into HIS. Another possible mission for data center

iv. Budget – avoid talking about details of budget scenarios
v. NSF vision of Hydrologic Science
1. New Blue Book – strategic plan of directorate, nearly finalized
2. CUAHSI role in fulfilling objective
vi. Management review in February
vii. WRFF-Hydro
viii. Introduce new members – increased diversity of board
ix. Earth Surface, SEES, Geo – Bio opportunities, Cyberinfrastructure, Water Sustainability and Climate

d. Discussion plan for NSF meeting
i. Krajewski introduction
ii. Packman on CZOs
1. Rasmussen on cyberseminars
iii. Murdoch on modeling efforts
1. Reinfelder on continental scale hydro stratigraphy
a. Data issue, rather than physics / methods
b. Possible proposal to EarthCube
i. EarthCube may be more interested in cyberinfrastructure portion, rather than actually finishing projects
c. Cyberinfrastructure issue
d. Regional databases have been begun
e. Private vs. public well logs
f. Powell center
iv. Tyler on instrumentation
1. Critical review on node model
v. Johnston on Data Center
1. CUAHSI is supportive of data center
2. CZO data
vi. General discussion
1. Observatories – HIS, capitalizing on existing efforts – no CUAHSI observatories
2. NSF looking for 2 positions – rotator, IPA. Earth Science Director – looking for nominations

6) Pursuing Synthesis Opportunities
a. Background: See Synthesis Briefing
b. Synthesis committee
i. Input on strategic plan
ii. No active committee
iii. Synthesis NSF funds
iv. New committee or ad-hoc community

1. Evaluate and compile NSF synthesis opportunities
    a. Powell Center
    b. SEES
    c. WRC
    d. Other RFPs
2. Is the current investment in synthesis sufficient?
    a. Issues with students
    b. Mechanisms for synthesis funding
    c. Understanding of opportunities
    d. Synthesis center
3. Present 2 page report to member on synthesis

v. Staff will compile list of synthesis opportunities through NSF, send to Torgersen for review, then submit to board

vi. Ad-Hoc Committee
    1. Reinfelder, Troch, McGlynn, Packman, Thompson, Basu, Bolster

7) CZO engagement
    a. Background: See CZO Briefing
    b. NSF desires CUAHSI involvement with CZOs in lieu of Hydrologic Observatories
    c. Communications with CZO representatives opened
        i. 6 CZOs with unfunded push for coordination, between CZOs and Australian and European activities
        ii. No mechanism in place for integration
            1. Common data sets (MRI proposal)
            2. Network office (open competition)
            3. Data management (each CZO is required to have customized data management plan)
        iii. NSF desires CZO to be community resources rather than closed projects.
            1. CZOs desire this as well, but do not have funds
        iv. Instrumentation MRI with CZO
            1. CUAHSI has offered to submit proposal for CZO PIs
                a. Tim White and Chris Duffy
            2. $2,000,000 for common instrumentation between CZOs
            3. Network level engineer as CZO / CUAHSI employee for instrumentation / training
            4. CZOs would be subaward. Ownership of instrumentation would go to CZOs
            5. Fund match is issue for CUAHSI
            6. CUAHSI business role needs to be flushed out
                a. CUAHSI should make itself more useful

i. Employing technicians
ii. Identify CUAHSI support

7. MRI committee
    a. Community resources beyond individual sites valued
    b. Grants less than $1,000,000 have much better chance of approval
    c. Due January 26
8. Proposal should not pitch as a mechanism to connect CZOs, but that there are science questions that need to addressed, and the CZOs are logical place to direct instrumentation
    a. Acts as service to CZOs
    b. Work has been done on flux issues at CZOs in November International CZO Conference
    c.

v. Network office
    1. No solicitation out currently
    2. Incorporation of individual CZOs to broader picture / network
    3. Value to CZOs
        a. Independent oversight
        b. Access to community / community voice
        c. Assist networking within CZOs
        d. Remove networking out of CZO budget
        e. CUAHSI has acted in this capacity in hydrologic community
            i. This is one of CUAHSI's central roles
        f. Integrates Earth System community

vi. CZO annual review in February

d. **Board Decision: Endorsement of pursuing a CUAHSI-led CZO-focused MRI proposal**
    i. General support of smaller, CUAHSI led MRI proposal, with concern that CUAHSI's contribution spelled out. This would act as springboard to greater CZO involvement
e. **Board Decision: CUAHSI's response to possible NSF solicitation to CZO network office**
    i. Support of CUAHSI solicitation

8) Community Engagement
    a. Background: See Communications Briefing
    b. Debrief from Town Hall—impressions of the Board
    c. Engaging New Representatives
    d. Mechanism for community engagement

e. **Board Decision: Recommend Solicitation Process for 2012**
    i. Late January 2011 solicitation of ideas from membership for CUAHSI activities
    ii. 14 proposals
        1. 7 from board and staff
        2. Standing committees reviewed proposals
    iii. Practitioner survey (Potter)
        1. Committee recommended
        2. Board approved
        3. Fuller proposal taken to NSF and approved
        4. $6,000 in next year's budget
    iv. Modeling education (Lundquist)
        1. Committee recommended with edits
        2. Board approved
        3. Lundquist not interested in running project
        4. MOCHA as possible destination for this idea (McGlynn)
    v. 2 groups encountered at Town Hall
        1. Individuals that want to run project (high involvement)
        2. Individuals with general ideas for CUAHSI activities (low involvement)
    vi. Need to give community better understanding of process and expectations
        1. Compile ideas on web site
        2. With no champion, projects do not advance
        3. Details can be ironed out with calls after proposals
        4. All proposals get feedback
        5. Prepare boilerplate response to proposals
            a. X proposals were reviewed, X were acted upon, etc…
        6. CUAHSI can facilitate action on good proposals
            a. Matchmaking service on community supported activities
f. Board recommends another solicitation
    i. Include summary of previous years' experience
    ii. Will be routed through Executive committee

9) Direct Discussions with NSF (Tom Torgersen, Lina Patino)
    a. Introduction of new and existing board members
    b. Accomplishments of 2011
        i. Developed and implemented strategic plan
        ii. Building ties with agencies and organizations
        iii. Transition of Hydrology Information System (HIS) to community service
            1. Independent consultant review (Couch)
            2. Some elements in HIS needing minor edits

3. HydroDesktop, needs major work to become platform independent
4. Need 4 newly hired programmers to shift to community service
    a. Curation of Data, software, continued development of HIS components
    b. Cloud based virtual servers as cost and effort saving measure
    c. Vender to user service, where data is transmitted directly to servers.
5. Community led operation

c. Critical Zone Observatory
    i. Community engagement
        1. Disseminate information to community
    ii. Cyberseminar series, with additional series in the coming year
    iii. CZO sessions at biennial conference
    iv. Discussion with data management committee
        1. Opportunities with HIS / data center
    v. Common Instrumentation
        1. Independent design of CZOs,
        2. CUAHSI role as manager of unified data streams
    vi. Promote central role in coordination in developing larger network beyond CZOs
        1. Network office
        2. International CZEN planning meeting
            a. Different sites with different purposes
            b. Need for organization to develop links between platforms
    vii. What will CUAHSI provide?
        1. Connection with community
        2. Independent organization providing logistics, support
        3. Incomplete dialog with CZOs
        4. Common instrumentation MRI as example
    viii. Who is counterpoint at CZOs?
        1. Instrumentation: Duffy
        2. Data: In flux
    ix. National Office
        1. CZOs will be transitioned to cooperative agreements
        2. Encourages CUAHSI to get identified in proposals as service
        3. Visualized as service led by research scientist who serves as spokesman encouraging dissemination of science and use of CZO by outside researchers

4. CUAHSI can have role as PI, subcontractor and service to National Office
5. Scientific need is seen to extend tenure of CZOs
    a. Information on renewal will come soon
6. Are there any must have elements of National Office?
    a. Scientific Leadership
    b. Data
    c. Education
    d. Outreach

d. Community modeling
    i. Wrapped up CHyMP in 2011 with report on workshop and CUAHSI position paper
    ii. Transitioning to new way forward
    iii. EarthCube charrette as path forward
    iv. Leverage ongoing efforts
        1. WRFF – Hydro; NCAR – CUAHSI partnership
            a. Torgersen: Submit as 2 pager to next EarthCube as foot in door
        2. Meeting with Don Cline at National Weather Service
            a. NWS needs to expand modeling efforts to capture earth surface processes (droughts, floods)
            b. IWRSS as USGS / Corps of Engineers / NWS collaboration
            c. CUAHSI as representative of academic community
            d. Identify items that are easy for CUAHSI vs. items that are easy for NWS
            e. Partnerships with agencies are good
    v. When does NSF need to be involved with meetings with NWS, etc…?
        1. When outside agency agrees to move forward, NSF should be brought in
    vi. How does CUAHSI convey need for interagency projects to be funded?
        1. Communicate with Torgersen et al.
        2. It may not be necessary to create new funding sources
    vii. Would data aspect – hydrostratigraphy – be worth getting started with USGS? How should CUAHSI proceed?
        1. Pilot efforts can be launched easily. When true partnership exists (agency time and effort), true funding can begin.

e. Instrumentation
    i. Virtual measurement facility
        1. 3 nodes
            a. Mobile radar

b. Hydrogeophysics
c. CTEMPS – fiberoptic sensors

2. Very different models
3. 2012 critical review of node to develop model for future notes
4. 4 workshops proposed in next 6 months
5. Interaction with CZOs
    a. CUAHSI will provide instrumentation services to CZOs (as well as rest of community)
6. Some unfulfilled potential due to lack of funding
    a. Operational, deployment costs
    b. Little carrot for instrumentation experts to be involved
7. CUAHSI partnership with API
8. CZO as opportunity for further instrumentation work
9. NSF:
    a. IRIS – one type of data
    b. CZO – multiple instruments, types, fast time scale
    c. What is business model for common instrumentation across CZOs?
    d. How would LTER be supplemented
    e. CUAHSI is operating at interface of PI needs and instrument capabilities
    f. Instrumentation review is at critical time – instrumentation as part of CZO renewal

f. General discussion
    i. Krajewski: If CUAHSI makes large request (i.e. $300k), can CUAHSI submit as PI led proposal rather than amendment to cooperative agreement?
        1. Yes. This method acknowledges need for extensive review in some projects.
        2. CUAHSI cannot lead proposals that are scientific inquiry
        3. CUAHSI should be cautious that proposals directed towards internal NSF review do not get sent out for external review. Take likely destination into account.
    ii. Proposal on ODM / EarthChem / HIS
        1. Integrating data management
    iii. McGlynn: Any movement at interface between directorates to assist interdisciplinary projects? Where will cross site CZO operations exist?
        1. NSF structure inhibits interactions
        2. Possible to fund individual projects, but larger movements difficult
        3. Frontiers of Earth Systems Dynamics

4. Integrate earth systems into EAR
5. Within Surface Earth Processes
6. NSF Interfaces program
7. Hooper: Would it make sense to fund workshops? How can CUAHSI assist?
    a. Raise as issue that confronts young scientists
    b. Communicate to board members in different programs
8. Krajewski: Engineering?
    a. Identify whether water is one of the Engineering emphasis
    b. Engineering are embracing parts of SEES and WRC

g. Synthesis
    i. CUAHSI Plan
        1. CUAHSI putting together list of current synthesis projects
        2. Run past NSF to check that list is complete
        3. Determine any gaps in synthesis activities
        4. Highlight to community / ask for input
    ii. Current synthesis projects have been successful because of free labor
        1. Enabled groups to form
        2. Allows researchers to propose activities outside of expertise due to dedicated post docs.

h. Management review
    i. Second review due this year
    ii. Input to CUAHSI re: business plan, strategic plan
    iii. CUAHSI has firm foundation as service organization
    iv. Year 4 budget is good.
        1. Supplemental fund requests due march

3:00 Adjourn