Dear Friends:

Like many of you, CUAHSI is adapting to a new hybrid work environment. Rather than being centrally located in Cambridge, MA, we now have staff in New Hampshire, New York, North Carolina, Rhode Island, Utah, and Vermont, as well as in Massachusetts. Please take a moment to visit our staff page to learn about our excellent team.

Because our current office space is being converted to a biotechnology laboratory (imagine that happening in Boston), CUAHSI offices will be moving 2 miles west to Arlington, MA. Our new office footprint will more closely match our current utilization, thereby reducing costs, while fully supporting our hybrid work environment.

Thanks to leadership from the CUAHSI Board of Directors and support from our Members, CUAHSI bylaws were revised in 2021 to permit full CUAHSI membership for primarily undergraduate institutions (PUIs). We recently welcomed our first two PUI Members – Prairie View A&M University and Fort Lewis College, both of which are minority-serving institutions. I believe this is a major step toward a more diverse, equitable, and inclusive water-science community.

Thanks to all of you for supporting our new CUAHSI – AGU Hydrology Section joint hydrologic sciences meeting, known as the Frontiers in Hydrology Meeting. We received more than 100 session proposals, including town halls and workshops. Many of the proposed sessions are quite innovative in format and content, which was our intent as we created the meeting with the goal of a unique experience for participants. Based on the number of session proposals, we expect about 2,000 participants, which greatly exceeds our initial expectations. The community called for this meeting and has responded in kind. I hope to see you in San Juan in June 2022.

CUAHSI began significant new partnerships on two major cyberinfrastructure projects in 2021. I-GUIDE, or the Institute for Geospatial Understanding through an Integrative Discovery Environment at the University of Illinois Urbana-Champaign, is one of the five new Harnessing the Data Revolution Institutes recently awarded by NSF. CUAHSI is one of ten collaborating institutions which will support the mission of I-GUIDE. CUAHSI also is part of the CoMSES.Net team, which recently received funding for a five-year NSF-CSSI project led by Arizona State University to support and enable innovative next-generation modeling of human and natural systems, including reproducible workflows.

We are excited to roll out a completely revamped, modern web page in early 2022, which will be simpler to navigate and will provide easier access to CUAHSI water data and computing services. The new CUAHSI website will complement our new CZNet web pages that came online in 2021 to support the Critical Zone Collaborative Network. We also are excited about our modernized HydroClient service, which will be released in stages during 2022. Expect new functionality, including easier data search and data upload capabilities. We were pleased to add our 100th data service to the HydroClient in 2021.

We are striving to create an organization that is both helping to serve the water science community, while also providing scientific leadership in partnership with you. Let us hear from you on how we are doing. All the best for a healthy and rewarding 2022.

Take care,

Jerad Bales
President and Executive Director
The Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) supports the advancement of interdisciplinary water science. CUAHSI fosters a diverse and dynamic water science community enabled by shared scientific infrastructure that facilitates an integrated understanding of the interactions among water, earth, ecosystems, and society. CUAHSI’s programs and resources are available to everyone and have been used by students, educators, volunteer scientists, outreach coordinators, environmental and watershed organizations, corporate entities, and more. CUAHSI is a membership-based organization and attempts to be responsive to member needs. However, anyone involved in any aspect of water science, water-resources management, or water-resources protection and enhancement is a part of the CUAHSI community. CUAHSI’s programs and services are available to everyone - many free of charge - regardless of membership status. YOU are an integral part of CUAHSI and we hope you will take advantage of our many diverse programs and services.

CUAHSI is committed to ensuring that diversity, equity and inclusion are core values reflected in our internal culture and practices. Our vision is that CUAHSI’s commitment to Diversity, Equity and Inclusion (DEI) will strengthen interdisciplinary collaboration among water scientists by promoting the acceptance of diverse ideas and perspectives in the hydrologic sciences. The strategic plan seeks to align CUAHSI’s DEI strategy with our overall strategic planning process and to coordinate DEI throughout CUAHSI programming and services.

In alignment with the DEI Strategic Plan, CUAHSI:
• Established a DEI Standing Committee.
• Implemented DEI training at semi-annual Board of Directors meetings and a workshop for staff.
• Is currently developing a code of conduct for CUAHSI events in collaboration with the DEI Standing Committee.
• Updated the Standing Committee volunteer recruitment policies.
• Updated communication strategies.

To learn more about our Strategic Plan, visit our website.

CUAHSI’s mission is to advance water science by strengthening interdisciplinary collaboration in the water science community, to empower the community by providing critical infrastructure, and to promote education in the water sciences at all levels.
CONSORTIUM OF UNIVERSITIES FOR THE ADVANCEMENT OF HYDROLOGIC SCIENCE, INC

CUAHSI 2021 Annual Membership Report   |   About CUAHSI

NEW IN DATA SERVICES

Facilitating Collaboration & Community with HydroShare

The BuPuSa Community was created to facilitate sharing transboundary water data between Mozambique and Zimbabwe: the Buzi, Pungewe, and Save River Basins; this work was supported by the U.S. Army Corps of Engineers with additional support from UNESCO. HydroShare communities enable groups to share resources more seamlessly, fostering data sharing and access. The CUAHSI HydroShare team is currently working on enhancements to the existing HydroShare Community functionality that will provide additional value and make the communities feature easier to use. New HydroShare Groups for each of the CZNet Thematic Clusters also were added in 2021.

Supporting Education in the Cloud

CUAHSI’s cloud-based platforms to support educational events—JupyterEdu and MATLAB Online—were enhanced in 2021. These services can be tailored to the specific classroom or event requirements including, but not limited to, an isolated deployment that is accessible to only event participants, specialized cloud configurations, and custom software installation. The primary goal of this work is to alleviate educators of cyberinfrastructure tasks so that the focus is on science and education. To date, we’ve supported a number of classroom activities and workshop events, such as an international 100-person graduate course hosted by Dr. Martyn Clark at the University of Saskatchewan, a coupled data-model integration workshop at the Community Surface Dynamics Model System (CSDMS) annual conference, and a MODFLOW workshop at the 47th International Association of Hydrogeologists Congress in Brazil.

Please contact us at help@cuahsi.org to learn more about how we can support your upcoming classroom or workshop event.

TUESDAY JULY 20, 2021

Session 2: Bascom Lecture
Dr. Nicole Gasparini, Tulane University: Floods, Fires, and Land Building: Tackling Transdisciplinary Hydrologic Problems with Novel Data, Models, and Mindsets.

CUAHSI BIENNIAL COLLOQUIUM

Converging Ideas and Expanding Approaches in the Hydrologic Sciences

The 2021 CUAHSI Biennial Colloquium aimed to include a diversity of views and holistically address the grand challenges posed by a rapidly developing world and changing hydroclimate. Six virtual sessions were held over three days and an asynchronous webinar occurred prior to the conference. In addition to the established Eagleson and Wolman named lectures, this Colloquium featured the debut of the Bascom Keynote Lecture, named after Florence Bascom (1862-1945), who is considered to be America’s first woman geologist. We reached a broad audience with more than 160 participants from all over the world. The agenda included pop-up sessions, a panel on the future of hydrologic education, and presentations from CUAHSI grant awardees. We are grateful to all the moderators, panelists, and participants who supported this event. We are glad to provide a platform for these important conversations and to enable the sharing of ideas as educators and innovators on ways to explore meeting water science challenges in different ways.

All seven sessions from the 2021 Biennial can be viewed on our YouTube channel. For a detailed recap of this successful event, visit our website.

CUAHSI celebrates 20 years of service to the community in 2021. As part of this, we published articles prepared by previous and current members of CUAHSI’s Board of Directors. You can read those reflections here. CUAHSI also thanked previous members of the Board with small gifts that celebrate CUAHSI’s 20 years of service.

Floods, fires, and land building: tackling transdisciplinary hydrologic problems with data, models, and mindsets.

Nico M. Gasparini (she/her)
Tulane University
ngaspari@tulane.edu
@NMGasparini

TWEENTY YEARS OF CUAHSI

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CUAHSI HELPS WITH THE ENTIRE DATA LIFE CYCLE

CUAHSI supports all aspects of the data management life cycle, from collecting, storing, and analyzing data, to sharing, publishing, and citing data, thereby enabling reproducibility in the water sciences.

**Discovery & Planning:**
- Visit hydroshare.org and data.cuahsi.org to search thousands of hydrologic, biogeochemical, and geographic data sets available for immediate download.
- Obtain training on CUAHSI’s data management resources.

**Data Collection:**
- Add additional field sites to graduate research with CUAHSI Pathfinder Fellowship support (see Pathfinder Fellowships on Page 16).
- Learn new data collection techniques or instrumentation with hands-on training and Instrumentation Discovery Travel Grants (see Trainings and Workshops Page 14 and Instrumentation Discovery Travel Grants Page 17).

**Documentation & Processing:**
- Describe data sets using CUAHSI’s standard metadata templates in HydroShare.
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**Maintenance & Storage:**
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**Sharing:**
- Share your data publicly so that the data are discoverable through applications such as Google datasets search and others.
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CUAHSI provides free and open source software that supports managing, archiving, sharing, discovering, publishing, and analyzing all types of water data. These services support documentation of workflows and enable hydrologic modeling in a collaborative environment. In this section, some of our new features, services, and applications added in 2021 are highlighted.

**Hydrologic Information System (HIS)**

Our long time series centric data management system experiences a continued steady growth and use. We added 4 new services and reached a milestone of 100 services accessible through the platform. Users can now search more than a million sites with more than 5 million time series containing more than a billion observations.

**Community JupyterHub**

CUAHSI’s Community JupyterHub is a cloud computing service that enables users to execute scientific code and explore, modify, and interact with data inside a remote execution environment using Python and/or R programming languages. It is integrated with the CUAHSI HydroShare and HIS data repositories, making it easy to leverage community datasets, collaborate, and disseminate research workflows with peers. This service is equipped with a constantly evolving array of pre-configured environments for researchers to choose from, each of which provides an assortment of pre-installed scientific libraries and models to expedite and simplify their experience. All users are provided persistent storage for saving completed and ongoing research. New features added to CUAHSI JupyterHub in 2021 include a Jupyter interface for exploring and synchronizing data stored in HydroShare, as well as exploratory Jupyter implementation to support reproducible and replicable science applications. Currently, HydroShare resources can be launched into computing environments directly on MyBinder.org, however we’re extending this work to provide a seamless integration between cloud computing environments and HydroShare that encourages replicable and reproducible published scientific workflows.

**HydroShare**

2021 was another year of growth for HydroShare. The number of HydroShare users increased by 35%, the number of resources increased by 15%, and the total disk size increased by 29%

This is an indication that HydroShare is a core service for data management needs within the community.

The CUAHSI Hydroshare team added additional functionality and improved reliability:

- Delivered 11 major and 10 minor releases addressing more than 80 issues.
- Added functionality to enable editing of certain metadata fields of a published resource making it easier for a user to update metadata for publisher resources.
- Implemented a load testing process to improve responsiveness and improves scalability.
- Implemented a spam identification and remediation process for users and resources.
- Implemented OGC compliant web services for resources that contain shapefiles or geotiffs and corresponding tutorials to simplify sharing and visualization of spatial data.
- Updated the THREDDS implementation to improve the access to multidimensional files.
- Became a MemberNode for DataONE and it is now a part of the growing family of repositories sharing their data through DataONE’s services.
- Submitted an application to become a CoreTrustSeal certified repository to increase confidence and ensure compliance with common data management standards.
- Applied numerous updates to the core system components to enhance security and keep the system up-to-date.
- Created extensive documentation to support operation and development.
- Developed a comprehensive approach to identify and prioritize work on HydroShare through an open and transparent issue tracking project on github

**JupyterEdu Support for Educational Cloud Computing**

CUAHSI created JupyterEdu to provide cloud computing resources specifically aimed at educational events and use cases. JupyterEdu is a variation of CUAHSI’s community JupyterHub designed to enable event-specific customization for up to 100 participants. This includes an isolated deployment on the Google Cloud that is accessible to only event participants, specialized cloud configurations, custom software installation, and more.

JupyterEdu was used in 2021 to support a number of community activities including a modeling-focused workshop at the CSWMS annual meeting, a MODFLOW workshop at the 2021 IAH conference in Brazil, and numerous activities at the 2021 Summer Innovators (SI) program at the National Water Center. We’re looking to expand support for additional events in the next year.

**MATLAB Online**

CUAHSI has continued our partnership with MathWorks to offer a cloud-based computational modeling platform using MATLAB software, known as MATLAB Online. Together, CUAHSI and MathWorks are supporting practical quantitative thinking and exploration in water science research and education. The CUAHSI MATLAB Online is integrated with the HydroShare repository to provide access to data and code, and leverages the MATLAB compute environment for analyzing data and reproducing research findings. This capability provides a convenient and freely accessible mechanism for data discovery, collaboration, and reproducibility, and is relevant to a wide range of water-resources professionals.

In 2021 this service was moved to the Google Cloud Platform and deployed using the Kubernetes orchestration framework which enables us to scale with demand up to 50 concurrent users. Since this migration in late June, there have been approximately 411 total active instances; approximately 80 per month. All users are given a persistent disk allocation to save data and code, as well as free access to the MATLAB programming language and 20 toolboxes that range from curve fitting and optimization to machine and deep learning.

Please contact us at help@cuahsi.org to learn more about how JupyterEdu and MATLAB Online can support your classroom or workshop activity.

**Web Applications**

CUAHSI has established a hosting solution for community developed web applications. Our primary focus is to alleviate the hosting responsibilities for scientific and educationally focused web applications so researchers can focus on science rather than cyberinfrastructure. We’re currently focusing on web applications written in the Python and R programming languages using the StreamLit and RShiny frameworks, respectively. In 2021, we added several applications, including dissemination of science data (RiverColor, Synthetic SWOT Generator), data discovery (Macrosheds), and educational tools (WaterBalance).

Please contact us at help@cuahsi.org to get involved or learn more about how CUAHSI can host your web application.

**CUAHSI Domain Subsetter**

CUAHSI collaborates with the community to build a service for collecting static model domain datasets for continental-scale (CONUS) water science models. The goal of this work is to closely align community research efforts around CONUS models with their respective operational and core development activities. The CUAHSI subsector currently supports the National Water Model (versions 1.2.2 and 2.0) and ParFlow-CONUS (version 1.0). By leveraging a combination of modern cyberinfrastructure techniques and state-of-the-science modeling tools, model users have access to the NWL and ParFlow-CONUS domain data that would otherwise require extensive computational resources and expertise to generate. In 2021, this service was integrated with HydroShare to provide data hosting capabilities, as well as CUAHSI’s cloud computing efforts to enable remote model execution. This service was also integrated with a high performance computing framework developed as part of the NSF HydroFrame project to support a wide array of hydrologic modeling activities using the ParFlow model (HydroFrame.org).

The CUAHSI Domain Subsector is also supporting scientific research studies investigating streamflow predictions using multi-model and multi-precipitation forcings (see Seo et al., 2021), and continental hydrologic intercomparisons (see Tijerina et al., 2021). To learn more about how it can support your research activities, visit the Domain Subsector website.

Please contact us at help@cuahsi.org to learn more about how HydroShare and HIS can support your research studies.
CUAHSI provides continual learning opportunities for researchers and practitioners at every career stage by facilitating programs and services beneficial to students, early career scientists, and advanced career professionals alike. Due to the ongoing changes surrounding COVID-19, CUAHSI has adapted educational activities to better support water science educators and learners in a virtual setting.

**CUAHSI Virtual University**

The CUAHSI Virtual University (CVU) is a unique inter-university online education experience that enables students to participate in specialized online hydrology course modules taught by leading faculty at universities across the country. CVU:

- Enhances the depth and breadth of graduate course offerings for participating universities;
- Enables graduate students to experience new research and courses not offered at their home university;
- Facilitates networking among the hydrologic community.

Seventeen universities and 228 students have participated in the CVU since its founding in 2017. The unique format enables students to receive course credit for participating in the CVU through their home university.

In 2021, 63 students are participating in the CVU, with each student participating in three modules of the student’s choosing. The modules are:

- Advances in Drone-Based Hydrology
  Instructor: Scott Tyler, University of Nevada – Reno

- Applying Geographic Information Systems for Terrain and Watershed Analysis in Hydrology
  Instructor: David Tarboton, Utah State University

- Environmental Objectives in Water Management Models
  Instructor: Sarah Null, Utah State University

- Hydrological Catchment Modeling
  Instructor: Jan Seibert, University of Zurich

- Introduction to Open Channel Flow Modeling
  Instructor: Ehab Mesehe, Tulane University

- Open and Reproducible Research Computing
  Instructor: Alejandro Flores, Boise State University

- Seminal Papers in Flood Hydrology
  Instructor: Daniel Wright, University of Wisconsin – Madison

- Snow and Snow Cover Physics
  Instructor: Matthew Sturm, University of Alaska

- Snow Hydrology: Focus on Modeling
  Instructor: Jessica Lundquist, University of Washington

- Urban and Stormwater Hydrology
  Instructor: Anne Jefferson, Kent State University

- Watershed Reactive Transport Processes
  Instructor: Li Li, Pennsylvania State University

**Cyberseminars**

CUAHSI Cyberseminars feature presentations, panels, and virtual events with experts on new or timely topics of interest. The program enables researchers to share their work and contribute to an archive of over 200 lectures available to the public. For the first time in 2021, CUAHSI hosted two series that included a discussion portion with breakout sessions for attendees.

Presentations from CUAHSI’s 2021 Cyberseminar Series are available to view on the CUAHSI YouTube Channel.

The 2021 series included:

- **Introduction to Snow Hydrology**
  Convened by BINTER - Snow International

- **Research and Observatory Catchments: The Legacy and the Future**
  Convened by Jamie Stanley (U.S. Geological Survey), Stephen Sebestyen (USDA Forest Service), Julia Jones (Oregon State University), and Theresa Blume (GFZ Potsdam)

- **Virtual Town Hall with NSF Hydrologic Sciences Program Directors**
  Speakers: Laura Lautz, Elizabeth Boyer, and Justin Lawrence (Program Directors, Hydrologic Sciences, National Science Foundation)

- **Critical Conversations: Why Integrated Earth and Environmental Science Might Define Your Future**
  Convened by the Critical Zone Research Collaboration Network in collaboration with the National Association of Geoscience Teachers (NAGT)

- **Navigating Academic Waters: Academic Job Applications Cyber Workshop**
  Convened by AGU Hydrology Section Student Subcommittees (HSB) Professional Development Team

- **Introduction to Critical Zone Observatories and Watershed Sites**
  Convened by the CZN Early Career Network in partnership with the Critical Zone Collaborative Network

- **Perspectives on Urban Flood Resilience: How Different Fields Tackle One of the World’s Most Prevalent Disasters**
  Convened by Kristen Raub (CUAHSI & Northeastern University)

- **Tools for Integrating and Synthesizing Data from CZOs and Watershed Sites**
  Convened by the CZN Early Career Network in partnership with the Critical Zone Collaborative Network

- **Digital Hydroconnectivity**
  Convened by Sudarshana Mukhopadhyay (Cornell University), Sankar Anumugam (North Carolina State University), and Jerad Bales (CUAHSI)
Hydrology Guest Lecturer Database

CUAHSI’s Guest Lecturer Database connects scientists and lecturers with virtual classrooms across the country. Instructors can use the database to connect with colleagues who have volunteered to give lectures on a subject of their expertise, and invite them to give a virtual guest lecture in their classroom.

“T’ll echo this guest lecture database @CUAHSI is a great resource. Utilized it last fall and had an awesome guest speaker come in for a talk students really engaged with - even led to a student choosing to do grad school with them!”
- Scott Hamshaw from @sdhamshaw

Workshops

CUAHSI facilitates workshops and short courses that provide interdisciplinary perspectives on specific technologies or topics that may not be available through any single institution. Along with building new skills, CUAHSI workshops create opportunities for community collaboration and relationship building between participants and instructors from different institutions.

In-person workshops were further postponed in 2021, but we look forward to hosting them again when circumstances allow.

2021 Workshops

Open Hydrological Sensor Technologies: DIY Stream Sensor Networks Virtual Workshop
September 2021
Lead Instructor: Chet Udell (Oregon State University, OPenS Lab)

The Community WRF-Hydro Modeling System Abridged Virtual Training Workshop
October 2021
Lead Instructor: David Gochis (NCAR)

National Water Center Innovators Program: Summer Institute

In 2015, the National Weather Service, in partnership with CUAHSI, established the National Water Center Innovators Program to engage the academic community in research to advance the mission of the National Water Center (NWC). The primary activity of the Innovators program is a seven-week Summer Institute which takes place at the NWC in Tuscaloosa, Alabama, and brings together graduate students, academic researchers, and NWC staff to work on projects designed to improve water-related products and decision-support services.

Since the first Summer Institute in 2015, nearly 150 students have participated in the program, which continues to play an important role in developing and refining the National Water Model. Due to ongoing concerns relating to the COVID-19 Pandemic, the 2021 Summer Institute was held remotely for the first time in the program’s history. The 2021 Summer Institute cohort consisted of 14 graduate students - 3 M.S. students and 11 Ph.D. candidates from 12 universities across the United States.

CUAHSI and the NWC intend to hold the 2022 SI in person at the National Water Center. Additional information, including application details and a technical report that highlights impressive and ambitious projects over the summer, can be found at cuahsi.org/education/summerinstitute/.

Support water science education and educators by volunteering to give a virtual lecture here.

ARE YOU INTERESTED IN ORGANIZING A WORKSHOP?

CUAHSI provides funds to seed workshop development and assists with organizing, advertising, and executing workshops. Proposal guidelines can be found here. Contact Julia Masterman at jmasterman@cuahsi.org for more information.

SUPPORTING HYDROLOGY FACULTY

In 2021, the CUAHSI Board of Directors and Officers published a statement to the community: “CUAHSI Board Statement on Holistic Evaluation of Research in Hydrologic Sciences.” The statement can be accessed here, and is free for sharing to the entire community. The document intends to provide context on norms within the hydrologic science community to provide a framework for understanding what research products and processes are valued by the academic hydrologic sciences community.

The document is accessible in HydroShare at https://doi.org/10.4211/hs.21e61fe839004fd399439a2a3391a763.
CUAHSI supports activities to extend research and develop new products. All programs accept proposals once per year. Submission deadlines are announced on the CUAHSI newsletter and website.

Hydroinformatics Innovation Fellowship
The Hydroinformatics Innovation Fellowship supports projects that result in a hydroinformatics product that can be broadly shared and used. Past awardees have developed software products, data products, and technical manuscripts. Students and scientists at U.S. universities and colleges are eligible for this grant. Applications are accepted in the fall.

An Open-source, Community Toolbox for Stream Solute Tracer Interpretation
Tyler Balson, Indiana University

Annual Water Temperature Signal Analysis for Evaluating Groundwater Contributions to Streams Across Scales: Web Application
Danielle Hare, University of Connecticut

SnowClim: A High Resolution Snow Model and Data for the Western United States
Abby Lute, University of Idaho

A Geo-processing Tool for Co-locating the Dependency of Critical Infrastructure with Hydrologic Information Network Sudarshana Mukhopadhyay, Cornell University

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Voices of the Future Award
The Voices of the Future Award recognizes students who demonstrate outstanding potential in the field of water science. Applications are accepted in the spring.

The Relationship Between Socioeconomic Status and Access to High Quality Water Resources
Madison Coleman, Columbus State University

Envisioning a Future of Water-Human Networks: Digital Solutions to Link Water Management and Human Behavior
Morgan DiCarlo, North Carolina State University

Pathfinder Fellowship
The Pathfinder Fellowship program provides travel funds to graduate students in hydrology and related sciences to enhance their research by adding a field site to conduct comparative research, collaborating with a research group, or working with researchers on adding an interdisciplinary dimension to a project. Applications are accepted in the fall.

The Pathfinder Fellowship was not offered in 2020 due to travel restrictions imposed by the pandemic. If you are a previous CUAHSI Grant recipient, reach out and let us know how you’re doing - we would love to hear how your Pathfinder experience has impacted your career!

Let’s Talk About Water
The Let’s Talk About Water (LTAW) program provides funds to support events that promote water and earth science education by using film and panel discussions to engage audiences and encourage critical thinking. The new format for LTAW includes funding options for virtual events, communication workshops, and creating a short film about your research or a water issue in your community. Applications are accepted in the fall.

Talk About Water Virtual Livestream Film Fest
Stacey Sloan Biersch, Columbus State University

Let’s Talk about Water: A SciComm + Movie Night Virtual Event
Itzel Marquez, Central Michigan University

Watershed Stories: Communicating Watershed Science through Storytelling
Katherine Metzcerocks, Siena College

Let’s Talk About Mercer County, NJ’s Water
Indranil Pal, City University of New York/City College and Columbia University

Eagles, Let’s Talk About Water!
Rachel R. Rotz, Florida Gulf Coast University

Instrumentation Discovery Travel Grant
The Instrumentation Discovery Travel Grant (IDTG) program enables scientists to learn the details of hydrologic instrument installation, operation, maintenance, and data processing by visiting experts or scheduling reverse site visits. Applications are accepted in the spring.

New York State Mesonet’s Ground-based Gamma Radiation SWE Sensors for Snow Hydrology Research
Eunsang Cho, NASA Goddard Space Flight Center & University of Maryland College Park

Building Electrical Resistivity Equipment for Hydrogeological Research
Rachel R. Rotz, Florida Gulf Coast University

Hydrologic Monitoring of Wetlands to Support Remote Sensing Driven Carbon Measurements
Anthony J Stewart, University of Washington

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MEMBERSHIP

Become a Member

CUAHSI’s membership includes over 150 U.S. universities, colleges, nonprofit affiliates, and international affiliates who recognize the need for interdisciplinary collaboration and innovative thinking to advance water science and solve society’s most pressing water issues.

Through CUAHSI membership, your institution can:

Support the growing national and international water science community;

Contribute to innovations in water science and education;

Designate representatives for your organization to participate in community governance;

Receive registration discounts on CUAHSI events and workshops.

Anyone affiliated with a member organization is eligible for the member discount.

READY TO BECOME A CUAHSI MEMBER? Learn more online at www.cuahsi.org/about/membership or contact Maddie Scranton at mscranton@cuahsi.org

CUAHSI is now accepting membership from Primarily Undergraduate Institutions (PUI). Check our website for more information.

WELCOME TO CUAHSI

A special welcome to new CUAHSI Members of 2021:
University of California - Riverside, Fort Lewis College and Prairie View A&M!

Members

Boise State University
Carnegie Mellon University
Clemson University
Colorado School of Mines
Colorado State University
Dartmouth College
Drexel University
Fort Lewis College
George Mason University
Georgia State University
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Kent State University
Louisiana State University
Marquette University
Michigan State University
Michigan Technological University
Montana State University
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## 2022 FRONTIERS IN HYDROLOGY MEETING

**June 19th to 24th, 2022**  
San Juan, Puerto Rico

The Frontiers in Hydrology meeting will test innovative approaches to convene the water community, communicate science and its integration in other disciplines, and design engaging conference experiences. Leveraging collaborations between co-sponsors, the American Geophysical Union (AGU) Hydrology Section and CUAHSI, the conference will include engineering, urban planning, social science, and affiliated science communities.

Visit www.agu.org/FIHM for the most up to date information regarding this joint AGU and CUAHSI meeting.

## 2022 CUAHSI Board of Directors

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<thead>
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<th>Institution</th>
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<td>SARAH LEDFORD</td>
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<td>ASHOK MISHRA</td>
<td>Clemson University</td>
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<td>University of North Carolina at Chapel Hill</td>
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<td>Oregon State University</td>
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<td>STEVEN LOHEIDE</td>
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<td>SAFEEQ KHAN</td>
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<td>TROY GILMORE</td>
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