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For Your Information

Travel Grants Available: CUAHSI HydroGeoPhysics Facility. For additional information see the [CUAHSI HydroGeoPhysics Facility](#) web page.

Browse our postings page for interesting [Career Opportunities](#)

Check out the [CUAHSI Services page](#) for ways in which we can support your research!

Upcoming Events

July 9-15, 2011

- Gordon Research Conferences
[2011 Catchment Sciences](#) — **Sentinels of Global Change** - Bates College, Lewiston, ME

August 14-19, 2011

- [Goldschmidt 2011](#) - Prague, Czech Republic

September 11-13, 2011

- [Freshwater Advanced Aquatic Sensor Workshop: Sensors, Platforms and Data Management](#) - The University of Michigan Biological Station (UMBS) - Douglas Lake, MI

September 26-30, 2011

- [Fourth Interagency Conference on Research in the Watersheds \(ICRW\)](#) - Fairbanks, AK

October 9-12, 2011

USGS and CUAHSI Hold Joint Workshop on Optical Water Quality Sensor Networks

The USGS and CUAHSI convened a three day workshop on In Situ Optical Water Quality Sensor Networks, June 8 - 10, 2011, in Shepherdstown, WV. The goal of the workshop was to explore ways to coordinate development of standards and applications for optical sensors, as well as handling, storage, and analysis of the continuous data they produce.

The workshop brought together more than 60 scientists, programs managers, and vendors from universities, government agencies, and the private sector to identify opportunities and begin developing community standards for making nationally-consistent, high-quality environmental measurements with optical sensors.

USGS and CUAHSI are working to advance various phases of this effort post-workshop. A white paper based on workshop results is being produced, and working groups will be formed based on topics identified in several breakout sessions. We invite all who wish to participate in the workgroups advancing various phases of this effort to contact Brian Bergamaschi (bbergama@usgs.gov).

An on-line community to share experiences is also being established at www.watersensors.org; anyone interested in optical sensors is welcome to join.

More information on the workshop program and follow up activities can be found at www.cuahsi.org/ws-usgs-synopsis.html

Groundwater Depletion Is Detected From Space - Famiglietti in the New York Times

According to an article written by Felicity Barringer and published in the New York Times online on May 30, 2011 "Scientists have been using small variations in the Earth's gravity to identify trouble spots around the globe where people are making unsustainable demands on groundwater, one of the planet's main sources of fresh water." **Jay Famiglietti**, member of the CUAHSI Board of Directors and director of the University of California's Center for Hydrologic Modeling states that "the center's Gravity Recovery and Climate Experiment, known as **Grace**, relies on the interplay of two nine-year-old twin satellites that monitor each other while orbiting the Earth, thereby producing some of the most precise data ever on the planet's gravitational variations. The results are redefining the field of hydrology, which itself has grown more critical as climate change and population growth draw down the world's fresh water supplies." The article touches on the sensitivity of water resource managers to accepting these data as reported and that water politics, especially in "in arid regions around the world where groundwater basins are often shared by unfriendly neighbors." Dr. Famiglietti acknowledges that water politics are almost certainly unavoidable and concludes that "...water has been a resource that has been plentiful ... I think we've taken it for granted, and we are probably not able to do that any more.

To read the entire article in the Times, please go to nytimes.com/2011/05/31/science/31water.html.

GSA 2011 Session: Geoinformatics in Action

There is a special session at this year's [GSA Meeting](#) (Minneapolis, October 9-12) entitled Geoinformatics in Action (T196). This session is convened by Steve Richard at Arizona Geological Survey, Tim Ahearn at IRIS DMC, Kerstin Lehnert at Lamont (EarthChem), and Rick Hooper of CUAHSI. The purpose of this session is to bring together geologists and geoinformatics practitioners to learn about operational systems that utilize geoinformatics, as well as prototype systems exploring the next generation of geoinformatics applications. This is a great opportunity to showcase how informatics enables interdisciplinary science as well as the specifics of

- [2011 GSA Annual Meeting](#) - Minneapolis, MN
December 5-9, 2011
- [AGU Fall Meeting 2011](#), San Francisco, CA
• [select hydrology sessions](#)
September 7-9, 2012
- [13th Plinius Conference on Mediterranean Storms](#) - Priamar Fortress, Savona, Italy

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hydroinformatics. The **Topical Sessions** page can be viewed at geosociety.org/meetings/2011/sessions/topical.asp [scroll down to **T196**]. [Submit an abstract for this session](#). **Deadline for abstracts: July 26.**

New Water Sustainability and Climate (WSC) solicitation released by NSF

CUAHSI would like to bring to your attention NSF's recently announced revised solicitation for a new round of proposals to the Water Sustainability and Climate (WSC) program. The announcement is 11-551 and can be accessed at nsf.gov/pubs/2011/nsf11551/nsf11551.htm. **The deadline for proposals is October 19, 2011.** Many of the scientific challenges faced by water science and surface earth processes occur at disciplinary interfaces. WSCs present a unique opportunity to address these challenges with three types of awards.

- **Category 1** awards are small exploratory grants meant to develop plans for establishment of a study site or modeling effort.
- **Category 2** awards cover place-based observational and modeling studies, and are the largest of the awards (up to 5 years, and a maximum of \$5 million).
- **Category 3** awards will fund synthesis, modeling, and integration studies that use existing data.

CUAHSI can assist in various aspects of your WSC proposal:

- Data services-to satisfy NSF's new data management policy and make your data available to the public and the broader community, as well as a resource for legacy and existing data for Category 3 projects.
- Instrumentation nodes-to access or to provide access to instrumentation.
- Community access-to engage the community through our communication outlets.
- CUAHSI can help you identify community members to provide informal, friendly reviews of your proposal.

See cuahsi.org/docs/WSC.pdf for more information.

Selected Sessions of Special Interest at Fall AGU 2011

Each year, in preparation for the annual [Fall AGU meeting](#), we publish a list of "[Selected Sessions of Special Interest](#)." Typically, these HIGHLIGHTED sessions cross beyond the boundaries of the Hydrology (H) section as they are still very much relevant to water science. CUAHSI will, in the coming months leading up to the Fall meeting IN December, augment this listing. Please check our web page, www.cuahsi.org/agu2011.html, for the latest compilation.

Hydrology (H)

- **H39: [Hydroclimatic Extremes: Monitoring, Diagnosis & Prediction](#)**
[[see description](#)]

[[hide description](#)]

Amir AghaKouchak, University of California Irvine

Upmanu Lall, Columbia University

Hydroclimatic extremes have significant socio-economic and ecological impacts. Despite availability of extensive satellite and radar-based data, their applications to monitoring, modeling and analysis of extremes have been limited due to underlying uncertainties. This session aims to attract studies on: (a) monitoring extremes using satellite/radar-derived data; (b) analysis of extremes and their precursors using gage and remotely sensed data with hydroclimatic models, statistical and learning algorithms; (c) inference on the dynamics of extremes; (d) diagnosis, assessment and prediction of extremes severity, duration and spatiotemporal patterns. Case studies that focus on regional or continental aspects are encouraged.

[[hide description](#)]

- **H49: [Moving Towards a Unified Threshold-Based Hydrological Theory](#)**
[[see description](#)]

[[hide description](#)]

Genevieve Ali, University

Claire Oswald, University

Christopher

Spence,

Many theories fail to explain runoff variation because landscape heterogeneity and hydrologic connectivity are not adequately considered. Rainfall and storage thresholds have been proposed to explain complex rainfall-runoff behavior but hydrologists still need to agree on how to quantify critical conditions where catchments transition between distinct hydrological functions. We invite papers that (i) suggest methods for detecting thresholds and incorporating them into model structures; (ii) examine how thresholds interact across scales; (iii) compare threshold-driven catchment functions across different land use and climatic conditions; and (iv) address reasons why threshold behaviors might not occur in some environments.
[\[hide description\]](#)

- **H80: [Model/Parameter Uncertainty in the Subsurface and Impacts on Risk and Decision Making](#)**
[\[see description\]](#)

[\[hide description\]](#)

Diogo Bolster, University of Notre Dame	Wolfgang Nowak, University of Stuttgart	Sanjay Srinivasan, University of Texas at Austin	Sean McKenna, Sandia National Laboratories
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Many challenges for prediction and decision-making under uncertainty arise in the subsurface (e.g. groundwater contamination, CO2 sequestration, nuclear waste storage). This session combines three aspects: Model/parameter identification, risk assessment and decision-making. We encourage presentations that address uncertainty in parameter identification and propagation of uncertainty to response predictions. Such models serve as tools in risk assessment or decision-making, and address: What can happen? What is the probability it occurs? What are the consequences? Decision-making under uncertainty approaches must incorporate the risk of 'failed' decisions, consequences and their probability of occurrence.
[\[hide description\]](#)

- **H97: [Recent Advances in Remote Sensing and Modeling in Rivers and Streams for Understanding and Predicting Riverine Dynamics](#)**
[\[see description\]](#)

[\[hide description\]](#)

Albert Kettner, University of Colorado	Sagy Cohen, University of Colorado	Carl Legleiter, University of Wyoming	Tamlin Pavelsky, University of North Carolina
Konstantinos Andreadis, Ohio State University	Christian Torgersen, USGS	James Syvitski, University of Colorado	G Brakenridge, University of Colorado

Remote sensing and models are revolutionizing scientific study of river systems, and this session will provide a venue for describing recent applications of these technologies. Topics of interest span a broad range of remote sensing and modeling approaches that scale from ground-based predictions of individual sediment grains to monitoring of the world's largest rivers. A focus of this session will be on predicting water discharge and sediment flux dynamics for large rivers using modeling and remote sensing. This session will serve as a forum for discussing ways in which remote sensing and modeling can improve our ability to understand and predict future riverine dynamics in response to environmental changes.
[\[hide description\]](#)

- **H131: [Threats on Water: Chemical and Isotope Monitoring & Integrated Modeling of Water Quality across Scale in Eco-hydrological Systems](#)**
[\[see description\]](#)

[\[hide description\]](#)

Min Liu, University Stuttgart	Philippe Negrel, BRGM	Michael Rode, Helmholtz Centre - UFZ	Emmanuelle Petelet-Giraud, BRGM
Indrajeet Chaubey, Purdue University	Sim Reaney, Earth Sciences Department	Thomas Bullen, USGS	

Understanding water quality of both geogenic (As, chlorophyll a, N/P/C), and anthropogenic (pesticides, pharmaceuticals, endocrine disruptors) response to changes (e.g. climate, land use,

management) at landscape scale is an increasing scientific challenge. Recent progress in high frequency water quality monitoring systems, isotope tracing, modelling, remote sensing and novel and interdisciplinary tools has offered new opportunities for data acquisition and process insight. Investigations at point, plot and catchment scales need to be unified into a consistent framework for scale-transitional process understanding and description, to aid modeling and inform policy.

[\[hide description\]](#)

Global Environmental Change (GC)

- **GC49: [Climate Change, Food and Water 2. Global Climate Change and Agriculture](#)**
[\[see description\]](#)

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Molly Brown, NASA Goddard Space Flight Center	Kirsten de Beurs, University of Oklahoma
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The growing demand for food has increased pressure on agriculture over the past decade to intensify and produce more. Commodity prices are rising while more land is brought into cultivation. Climate and global environmental change will continue to influence agricultural production and the ability of farmers to adapt. Remote sensing information is key to monitor trends and other changes in growing conditions for existing agricultural systems. This session focuses on methods for estimating changes in agricultural yields, cropped area, irrigation and soil condition. We are particularly interested in methods that may lead to improved understandings of how climate and environmental change affect agricultural production now and in the coming decades.

[\[hide description\]](#)

Biosciences (B)

- **B37: [Impacts of Extreme Climate Events and Disturbances on Carbon Dynamics](#)**
[\[see description\]](#)

[\[hide description\]](#)

Shuguang Liu, USGS	Jingfeng Xiao, Penn State University
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Extreme climate events (e.g., drought, heat waves) and disturbances (e.g., harvesting, fire, hurricane, and insect outbreaks) substantially affect carbon cycle processes. However, their impacts on terrestrial carbon dynamics are not well understood and quantified. Accurate quantification of these impacts requires the use of ecological observations (e.g., eddy flux measurements), remotely-sensed data, modeling approaches (e.g., ecosystem modeling, upscaling methods), or the integration of these data and techniques. We invite submissions that explore the impacts of extreme climate events and disturbances on carbon dynamics over various spatial and temporal scales using observational, simulation, or integrated approaches.

[\[hide description\]](#)

Union (U)

- **U33: [Coupled Processes in the Arctic System: Feedbacks, Amplification, and Impacts on Mid-latitudes](#)**
[\[see description\]](#)

[\[hide description\]](#)

James Overland, NOAA/PMEL	James White, University of Colorado	Stan Wullschleger, Oar Ridge National Laboratory	Cathy Wilson, Los Alamos National Lab
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Through multiple feedbacks and amplification processes, some surprising and not well understood, Arctic changes are occurring earlier and in ways other than anticipated from uniform anthropogenic contributions alone. These interactions are occurring between atmosphere, permafrost, vegetation, hydrology, geomorphology, biogeochemistry, snow, clouds, sea and glacial ice, and the oceans over a range of space and time scales. These changes are also beginning to impact oceans, land, and atmospheric circulation beyond the Arctic. We welcome

observational, theoretical, and numerical studies focused on emergent, nonlinear, and threshold dominated amplification processes and teleconnections.
[\[hide description\]](#)

Earth and Space Science Informatics (IN)

- **IN18: [HydroInformatics: Informatics Applications at the Nexus of Hydrologic Sciences](#)**
[\[see description\]](#)

[\[hide description\]](#)

Michael Piasecki, City College New York	Richard Hooper, CUAHSI
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The area of HydroInformatics has become a broad field of research with emerging new approaches to data gathering, sensors description standards in addition to remote sensing and HPC computing techniques, metadata descriptions, information systems among many more topics. This session seeks to attract contributions in the area of informatics in a somewhat broader sense as it relates to hydrology or water in general. It is intended as a collection pool for those individuals whose "home" is informatics who would like to present techniques and research to wider water audience.

[\[hide description\]](#)

Earth and Planetary Surface Processes (EP)

- **EP28: [Scaling and Feedbacks among Water, Life, and Landforms](#)**
[\[see description\]](#)

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Shirley Papuga, University of Arizona	Sally Thompson, Duke University	Jon Pelletier, University of Arizona	Kelly Caylor, Princeton University
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Water and life play a central role in the processes that create and modify landforms. Scaling laws are commonly observed in water (e.g. frequency-magnitude relationships of floods), life (e.g. species-area relationships), and landform (e.g. the fractal nature of drainage networks) phenomena, yet how these scaling laws relate to one another is not well understood. This session will bring together researchers seeking to understand the emergent/self-organized scaling behaviors (and breaks in scaling) among water, life, and landforms and how water, life, and landform processes interact and feed back on one another over a wide range of spatial and/or temporal scales.

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- **EP30: [Alluvial Corridors in Tropical Lowland Areas: Links between Geology, Hydrology and Human Controls](#)**
[\[see description\]](#)

[\[hide description\]](#)

A.J.F. (Ton) Hoitink, Wageningen University	S.B. (Salomon) Kroonenberg, Delft University of Technology	A.K. (Andrew) Skidmore, University of Twente	Z. (Zoltan) Vekerdy, University of Twente
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In tropical lowlands the alluvial corridor presents complex interactions between river discharge and the tidal motion, in a geological setting that is often poorly understood. An integrated approach is required to cope with contemporary challenges related to climate change and the loss of biodiversity. In this context, peat domes and mangrove forests are among the most threatened ecosystems. This session brings together geologists, hydrologists and remote sensing scientists to consider the links between discharge dynamics, Holocene evolution, geomorphology and vegetation in tropical lowlands. Contributions presenting insights from novel measurement methods are particularly welcomed.

[\[hide description\]](#)

AGU Chapman Conference on Remote Sensing of the Terrestrial Water Cycle

Kona, Hawaii - February 20-24, 2012: New and emerging satellite missions will soon produce a more clear picture of the hydrosphere than ever before. It is necessary at this time to synthesize the current status of hydrologic remote sensing and determine what are the necessary next steps for the study of the water cycle. Targeted areas of interest include Precipitation, Snow and Cold Regions, Groundwater and Surface Water Storage, Soil Moisture, and Evapotranspiration. These topics areas are closely aligned with new or upcoming NASA and international satellite missions, and appropriate representatives will be sought to summarize their contribution to the overall study of the water cycle.

Call for Pre-Proposals — Water Environment Research Foundation

The Water Environment Research Foundation seeks pre-proposals of not more than 5 pages in length for the 2011 "Unsolicited Research Program." Proposers are invited to submit on topics consistent with WERF's mission, that is, to advance science and technology addressing water quality issues as they impact water resources, the atmosphere, the land, and quality of life. Pre-Proposals must be received by **5:00pm EDT, Thursday, July 14, 2011**.

The Unsolicited Research Program supports WERF in its mission by funding research projects that can be the catalyst for transforming our understanding of our water resources and our ability to protect and preserve them in a sustainable and cost effective manner and to minimize impact on health and the environment. WERF seeks pioneering research that will significantly advance knowledge and understanding and that could fundamentally transform how WERF subscribers perform their work. WERF also considers proposals that would take existing research to the next level of completion, resulting in practical solutions to water quality problems.

For more information, please see [Call for Pre-Proposals](#).
