



NSF EPSCoR WATER WORKSHOP: WATER DYNAMICS

Hosted by Vermont EPSCoR

November 9–12, 2008

Sheraton Hotel and Conference Center
Burlington, Vermont





WATER is a topic that should be of high priority in this century.

Fundamental studies of water are important to all the NSF EPSCoR jurisdictions, and, indeed, are sponsored across many of the directorates at NSF.

We welcome you to this important workshop on research on water dynamics hosted by Vermont EPSCoR and featuring research on water across the NSF EPSCoR jurisdictions.

The goals of the workshop will include sharing of information, exploration of collaborations and learning about the opportunities for research on water through the NSF.

“Although the movement of water links natural systems and human social systems, there are many gaps in our basic scientific understanding of water dynamics. We still know very little about the effects of climate change and resulting changes in human interventions and land use on the availability and quality of fresh water.

One of the greatest environmental and economic challenges we face this century is to ensure an adequate, high-quality water supply for human use while maintaining the integrity of ecosystems. While humans can survive without petroleum, they can't survive without water.”

— Dr. Arden L. Bement, Jr., Director, NSF

Judith Van Houten
Vermont State EPSCoR Director

Beverley Wemple
Conference Co-Chair

AGENDA

Water Dynamics Workshop

Sunday, November 9, 2008

- 6:00– **Evening Reception** (*Lake Champlain Exhibition Hall*)
8:00 p.m. **Registration** (*Conference Center Lobby*)

Monday, November 10, 2008

- 7:00 a.m. **Registration Continues** (*Promenade I and II*)
Continental Breakfast (*Emerald Ballroom I and II*)
Mount Posters
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- 8:00 a.m. **Welcome Remarks** (*Emerald Ballroom III*)
Henry Blount, *NSF EPSCoR Office Head*
Pamela Stephens, *Senior Associate for Science Coordination, NSF Directorate for GeoSciences*
Judith Van Houten, *Vermont State EPSCoR Director*
John M. Hughes, *Provost, University of Vermont*
George Crombie, *Secretary, Vermont Agency of Natural Resources*
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- 8:30 a.m. **Introduction of NSF Directors and Program Officers**
Short presentations by NSF Directors and Program Officers
Todd Crowl, *Program Director, Ecosystem Science Cluster*
Pamela Stephens, *Senior Associate for Science Coordination, NSF Directorate for GeoSciences*
Robert O'Connor, *Program Director, Division of Social and Economic Sciences*
Teofilo Jun Abrajano, *Section Head, Earth Science, NSF Program Officer, Program on Environmental Sustainability*
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- 10:15 a.m. **Keynote Speaker**
Introduction by Beverley Wemple (*Vermont*)
Richard Hooper, *Executive Director, CUAHSI*
Advancing Hydrologic Science through Community Engagement
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11:10 a.m. Break

11:25 a.m. **Research highlights from NSF EPSCoR jurisdictions: Comparisons, divergences and learning from each other**
Moderator – Beverley Wemple (*Vermont*)
Michelle Daley (*New Hampshire*) – *Northeastern U.S. and Appalachia*
Ric Hauer (*Montana*) – *Northwestern U.S.*
Kyle Hoagland (*Nebraska*) – *Midwestern U.S.*
Tom Piechota (*Nevada*) – *Southwestern U.S.*
Durga Poudel (*Louisiana*) – *Southeastern U.S.*

12:30 p.m. **Lunch and Speaker** (*Emerald Ballroom I and II*)
Introduction by Lesley-Ann Dupigny-Giroux (*Vermont*)
Konstantine Georgakakos,
Director, Hydrologic Research Center, San Diego
Demonstrating science benefits of water resource predictions for water management: The need for reliable forecast uncertainty estimation and adaptive management

2:00 p.m. **Theme 1 – Change Dynamics** (*Emerald Ballroom III*)
Co-Chairs Jeffrey Gaffney (*Arkansas*) and Mary Watzin (*Vermont*)
Brian McGlynn (*Montana*):
Hydrologic connectivity from hillslope to landscape scales: Implications for runoff generation and water quality
Walter Dodds (*Kansas State Univ*):
Thresholds, non-linearity and prediction in freshwater ecosystems
Tom Giambelluca (*Hawaii*):
Global change threats to Hawaii's hydrology and terrestrial ecosystems: Impacts of global warming and species invasion in Hawaii
Shaleen Jain (*Maine*):
The impact of hydroclimate variations and change on Water Resources Decision-Making and Adaptation

4:00 p.m. Moderated Discussion of Theme 1

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- 4:30 p.m.** **Breakout Sessions** (*Diamond Ballroom*)
with NSF Directors and Program Officers
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- 6:00 p.m.** **Hors d'oeuvres** (*Emerald Ballroom I and II*)
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- 6:30 p.m.** **Dinner and Speaker** (*Emerald Ballroom I and II*)
Introduction by Breck Bowden (*Vermont*)
David Maidment, *Hussein M. Alharthy Centennial Chair in Civil Engineering and Director of the Center for Research in Water Resources at the University of Texas at Austin*
Hydrologic Data and Modeling
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- 8:00 p.m.** **Poster Session & Networking** (*Emerald Ballroom I, II and III, Promenade*)
with Dessert Buffet

Tuesday, November 11

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- 7:00 a.m.** **Continental Breakfast** (*Diamond Foyer*)
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- 8:00 a.m.** **Theme 2 - Water Research Tools** (*Diamond Ballroom, with Amphitheater for overflow*)
Co-Chairs Lilian Alessa (*Alaska*) and **Donna Rizzo** (*Vermont*)
Andrew "Andy" (Anaru) Kliskey (*Alaska*):
Forecasting resilience in Arctic landscapes: an agent-based model of water resource use
Donna Rizzo (*Vermont*):
Identifying Model Structure and Scale Dependencies in Complex Systems
Venkat Lakshmi (*South Carolina*):
Studies of the water cycle using modeling and satellite remote sensing
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- 9:15 a.m.** **Break**
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9:30 a.m. Theme 2 (continued)

Juan de Dios Barrios (*West Virginia*):

Historical landsat images for rivers and streams

Scott Tyler (*Nevada*):

Distributed Temperature Sensing: A Transformative Technology in Water Resources and Ecology

Sloane Ritchey (*Kentucky*):

Watershed Scale Assessment of a Karst Drainage Basin Using Microbial, Geospatial, and Geochemical Approaches

Austin Troy (*Vermont*):

Integrating water quality into the planning process using a land use simulation model

11:15 a.m. Moderated Discussion

12:00 p.m. Lunch and Speaker

Introduction by Judith Van Houten

Jill Karsten, *NSF, Directorate for Geosciences, Program Director for Education and Diversity*

Beyond the Pipeline: A Watershed Model for Broadening Participation in the STEM and Geoscience Workforce

1:30 p.m. Theme 3 - Implications for Management

Co-Chairs Barbara Kucera (*Kentucky*) and Charles Somerville (*West Virginia*)

Ric Hauer (*Montana*):

Satellite and Airborne Remote Sensing in Basic and Applied River Research

Charles Somerville (*West Virginia*):

Current Bacteriological Assessment Practices Sufficient for Water Resource Management in the Ohio River Basin

Mickey Hazelwood (*Nevada Nature Conservancy*):

NGOs and Government Agencies Partnering on River Restoration: Truckee River Case Study

David Conrad *Senior Water Resources Specialist, National Wildlife Federation*

What do water policy makers need from scientists and engineers?

3:15 p.m. Break

3:30 p.m. Theme 4 - Water and Society

Co-Chairs Teferi Tsegaye (*Alabama*) and Gail McClure (*Arkansas*)

Lilian Alessa (*Alaska*):

One Wet Failure: Bridging the Gaps in Understanding Water as a Social Process

Kathijo Jankowski (*Vermont*), Declan McCabe (*Vermont*)

The Vermont EPSCoR Streams Project: Involving Students and the Community in Water Research

Jessica Leahy (*Maine*):

Citizen and Volunteer Science: A Review and Future Directions within Human Dimensions Research

5:00 p.m. Moderated Discussion of Themes 3 & 4

5:30 p.m. Closing remarks

Henry Blount, *NSF EPSCoR Office Head*

Judith Van Houten, *Vermont State EPSCoR Director*

6:30 p.m. Dinner on Your Own

Buses will be available to take attendees to the pedestrian walkway on Church Street where there are many nearby restaurants. Buses arranged for return, or public transportation can be used

NSF Water Workshop: Water Dynamics Organizing Committee

State/Jurisdiction	Name	Institution
Alabama	Teferi Tsegaye	Alabama A&M University
Alaska	Lilian Alessa	University of Alaska Anchorage
Alaska	Anne Sudkamp	University of Alaska Anchorage
Arkansas	Gail McClure	Arkansas Science & Technology Authority
Arkansas	Jeffrey Gaffney	University of Arkansas at Little Rock
Arkansas	Cathy Ma	Arkansas Science & Technology Authority
Delaware	Steve Borleske	University of Delaware
Kentucky	Barbara Kucera	University of Kentucky
Louisiana	Durga Poudel	University of Louisiana at Lafayette
Maine	John M Peckenham	University of Maine
Montana	Ric Hauer	University of Montana
Nebraska	Lorrie Benson	University of Nebraska-Lincoln
Nebraska	Dr. Kyle Hoagland	University of Nebraska-Lincoln
Nevada	Laurel Saito	University of Nevada Reno
Oklahoma	Will Focht	Oklahoma State University
Oklahoma	Aondover Tarhuke	University of Oklahoma
Puerto Rico	Dr. Rafael Rios	University of Puerto Rico
South Dakota	Dr. Boris Shmagin	South Dakota State
Vermont	Judith Van Houten	University of Vermont
Vermont	Lillian Gamache	University of Vermont
Vermont	Kathijo Jankowski	University of Vermont
Vermont	Mary Watzin	University of Vermont
Vermont	Breck Bowden	University of Vermont
Vermont	Beverly Wemple	University of Vermont
Virgin Islands	Meri Whitaker	University of the Virgin Islands
West Virginia	Charles Somerville	Marshall University

Funding made possible through NSF EPS Grants 0849385 & 0701410

