FULL AGENDA

3rd annual EPSCoR western consortium
tri-state meeting

april 6th-8th, 2011
hyatt regency tamaya resort & spa
santa ana pueblo, new mexico

IDAHO EPSCoR

EPSCoR NEVADA

New Mexico EPSCoR

NSF

Western Consortium of Idaho, Nevada, and New Mexico

WELCOME!

3rd Annual EPSCoR Western Consortium Tri-State Meeting

The Third Annual EPSCoR Western Consortium Tri-State Meeting provides an opportunity for researchers and educators from the partner EPSCoR states of New Mexico, Nevada, and Idaho to share the results of their work, identify new questions and opportunities for synergies, and forge new partnerships while strengthening those that have already developed.

This year's meeting builds upon and extends the collaborations that have been established between researchers across institutions and disciplines throughout the Western Consortium. Those collaborative efforts have begun to yield important data to advance our understanding of climate change and its impacts on the western United States. By combining resources and expertise across the Consortium, progress is being made which would be impossible for each jurisdiction to accomplish on its own.

This year's meeting seeks to broaden the collaborative partnerships to be more inclusive of those who will ultimately use the results of the climate research to manage resources in the region. In addition, the meeting provides a venue for further integration of cyberinfrastructure (CI), research, and education as well as continuing to work towards achieving the Consortium's goals for increasing diversity.

Meeting Outcomes:
- Identification of "next steps" in research, CI, education, and diversity efforts across the Western Consortium
- Formation of partnerships to develop joint research, education, and policy efforts across the Western Consortium

Western Consortium Tri-State PIs:
Dr. Gayle Dana, Project Director, *Nevada EPSCoR*
Dr. Peter Goodwin, Project Director, *Idaho NSF EPSCoR*
Dr. William Michener, Project Director, *New Mexico EPSCoR*

Photo Credits:
New Mexico Balloon, Rio Grande in Autumn & Chile Ristras: MarbleStreetStudio.com, courtesy ACVB
View of Sandia Mountains: Hyatt Tamaya Resort & Spa
Albuquerque Skyline: Ron Behrmann, courtesy ACVB

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Western Consortium of Idaho, Nevada, and New Mexico

AGENDA
WEDNESDAY, APRIL 6, 2011
Connecting CI & Diversity Working Groups to Research & Education

7:30 AM	**Registration Opens (available all day)**
7:30-8:30 AM	**Breakfast** *(Tamaya E)*
7:45-8:00 AM	**Welcome & Excursions Information** *(Tamaya E)*
8:30-11:30 AM	**Concurrent Working Groups and Workshop**

Bear A **A1: Cyberinfrastructure (CI) Working Group**

Moderators: **Karl Benedict**, University of New Mexico

Greg Gollberg, University of Idaho

Dan Ames, Idaho State University

Sergiu Dascalu, University of Nevada, Reno

This session is a working meeting of the CI collaborators from all three states. The agenda for the meeting focuses on our primary work areas:

1. Model interoperability framework (software development, deployment, and user interaction)
2. Interoperable data portals (distributed search and data sync)
3. Integration with national networks/initiatives

In all three instances we will review (relative to our current project plan) progress to date, work plans through the end of the current project year (for both Track 1 and Track 2), and anticipated work plans and deliverables for next project year (for both Track 1 and Track 2). We will also address the development of revised metrics for measurement of "impact", strategies for increased interaction/input from stakeholders, and relationship of our work to other CI development activities (e.g. LTER, NEON, DataOne, CUAHSI) as these have been significant and recurring themes in our feedback from our external advisors.

Bear B **A2: Diversity Working Group**

Moderators: **Michele Casella**, Nevada EPSCoR

Mary Jo Daniel, New Mexico EPSCoR

Sarah Penney, Idaho EPSCoR

Building on last year's Diversity session at the Tri-State meeting and the Diversity IWG, this session will review the Tri-State Diversity Strategic Action Plan that has been developed, discuss progress to date on activities, and develop a presentation for sharing the plan with the broader Tri-State EPSCoR community (Friday morning).

Eagle A **A3: Climate Modeling Workshop**

Instructor: **Darko Koracin**, Desert Research Institute

Co-Instructors: John Mejia, Benjamin Hatchett, Erick Wilcox, Travis McCord

Closed Workshop - Pre-registration required.

11:45 AM-12:45 PM	**Luncheon & Lunchtime Talk**
Tamaya E	**Standards and Sharing in Mature Organizations**

Speaker: **Ted Habermann,** NOAA's National Geophysical Data Center

Dr. Habermann works at the National Geophysical Data Center in Bolder, CO. He has recently been working on a number of projects that integrate geospatial databases, international documentation standards and internet mapping.

1:00-2:30 PM	**Concurrent Sessions and Workshop**
Eagle A	**A3: Climate Modeling Workshop (continued)**
Bear A	**B1: Cyberinfrastructure (CI) and Research**

Moderators: **Karl Benedict**, University of New Mexico
Greg Gollberg, University of Idaho
Dan Ames, Idaho State University
Sergiu Dascalu, University of Nevada, Reno

This session will aim at continuing engagement with the researchers that participated in our Tri-State "Cyber-Science" workshops in November and bringing in additional researchers as we can. In particular, we will work to achieve the following:

1. Initiate proposal development on at least two topics that came out of the workshops
2. Define working groups for developing 1-2 page white papers for at least 2 other topics as the foundation for future proposal development

Bear B **B2: Enacting Cyberlearning with Analysis and Visualization of Data**

Moderator: **Kent Crippen**, University of Nevada, Las Vegas

This session will focus on a discussion of strategies for using data analysis and visualization to serve learning outcomes in a formal education setting from middle school through the undergraduate level.

Presentations:

- **Lorie Liebrock**, New Mexico Tech: *Data Sets and Visualization for Understanding Climate*
- **Betsy Frederick**, Supercomputing Challenge and Project GUTS: *Models and Scientific Inquiry*
- **Jerry Esquivel,** New Mexico High School Teacher: *The 21st century classroom using Project-Based – Learning and STEM's*
- **Carol Moore**, Idaho State University: *Using 3-D Visualizations for Environmental Outreach*
- **Michael Pullin**, New Mexico Tech: *A Successful Model for Interdisciplinary Undergraduate Research*

2:30-3:00 PM	**Networking Break**
3:00-4:30 PM	**Concurrent Sessions and Workshop**

Eagle A **A3: Climate Modeling Workshop (continued)**

Bear A **C1: Data Portals for Research and Education Users**

Moderators: **Karl Benedict**, University of New Mexico

Greg Gollberg, University of Idaho

Dan Ames, Idaho State University

Sergiu Dascalu, University of Nevada, Reno

This session will provide overviews of the capabilities, interfaces, and use of the data portals being developed in each state. Following a brief overview of key interoperability standards that are supported within the data portals that are under development, each state will provide a 15-minute demonstration/presentation with a focus on use of the portal. This will leave us with 30-minutes for questions/discussion. The two outcomes that we hope to achieve in this session are:

1. User familiarity with the interfaces and capabilities being developed in the three states so that users are in a position to make use of the capabilities being developed (discovery, access, use of published services)
2. Feedback from science, education, and policy users relating to additional features/capabilities that should be considered for further development of the portals.

Presentations:

- **Bruce Godrey**, University of Idaho: *INSIDE Idaho – Demonstration of the Geospatial Portal for Idaho*
- **Michael McMahon**, University of Nevada, Reno: *Nevada's Climate Data Portal*
- **Renzo Sanchez-Silva**, University of New Mexico: *New Mexico's EPSCoR Data Portal, a Demonstration and Tutorial*

Bear B **C2: Connecting Education & Outreach with Research**

Moderators: **Sarah Penney**, Idaho EPSCoR

Michele Casella, Nevada EPSCoR

This session is designed to highlight existing outreach efforts in each of the Tri-State jurisdictions that utilize cyberinfrastructure (CI) and emphasize research. The session will include a Tri-State Panel Presentation highlighting an activity going on in Nevada, New Mexico, and Idaho. The final portion of the workshop will be devoted to discussion on ways to move forward, barriers to overcome, new ideas in CI outreach and opportunities to cross state boundaries.

AGENDA
WEDNESDAY, APRIL 6, 2011
Connecting CI & Diversity Working Groups to Research & Education

3:00-4:30 PM	**Concurrent Sessions and Workshop (continued)**
Bear B	**C2: Connecting Education & Outreach with Research (continued)** <u>**Presentations:**</u> • **Kent Crippen**, University of Nevada, Las Vegas: *Las Vegas +30: Personalizing Urban Sustainability with a Cyberlearning Curriculum Unit* • **Dick Powell**, Northern NM Network: *Professional Development for High School Science and Math/Science Teams of Teachers at the Valles Caldera* • **Colden Baxter**, Idaho State University: *ISU Outreach Activities in the Portneuf River Basin*
4:30-5:00 PM	**Meeting Overview *(Tamaya E)*** **Welcome from Project Investigators**
5:30-7:30 PM	**Welcome Reception *(Veranda)*** Meet and re-meet colleagues from across the Consortium. Join us for light refreshments and good conversations on the veranda overlooking the Rio Grande bosque.

7:30 AM	**Registration and Breakfast** *(Tamaya E)*
8:00-8:30 AM *Tamaya E*	**Welcoming Remarks** <u>Speaker:</u> **Johann van Reenan,** UNM Associate VP for Research **IWG's: A Mechanism for Collaboration and Synergy** <u>Speaker:</u> **Mary Jo Daniel**, Associate Director of New Mexico EPSCoR
8:30-11:45 AM	**Concurrent Sessions**

Bear A & B **D1: Climate Drivers and Landscape Response**
    <u>Moderators:</u> **Jen Pierce**, Boise State University
                Ben Crosby, Idaho State University
                Joe Galewsky, University of New Mexico
                Scotty Strachan, University of Nevada, Reno

This session examines the types and magnitudes of climatic drivers that can trigger landscape response to climate change, and the types and magnitudes of landscape responses that are anticipated under ongoing and future climatic change. Session will include "pop-up" presentations by audience members.

<u>Presentations:</u>

- **Grant Meyer**, University of New Mexico: *Holocene climate and landscape response in the Greater Yellowstone Ecosystem*
- **Nick Lancaster**, Desert Research Institute: *Response of sand dune systems in the Southwestern USA to climate change*
- **Jan Eitel**, University of Idaho: *Red-edge information from satellites improves early stress detection in forests*
- **Dylan Ward**, University of New Mexico: *Landscape response to climate forcing in the Chilean Andes*
- **Tom Whittaker**, University of New Mexico: *Climate signals from isotopic composition of tree rings in Arizona*

Eagle B **D2: Catchment Science**
    <u>Moderator:</u> **John Wilson**, New Mexico Tech

Presentations and discussion will focus on metrics that can be used to detect climate change at the catchment scale and options for water management that maximize water yield under conditions of climate change with consideration of possible side effects.

8:30-11:45 AM	**Concurrent Sessions (continued)**
Tamaya H	**D3: Economics of Water and Land Use**

<u>Moderator:</u> **Kelly Cobourn**, Boise State University

This session will focus on the feedback between climate change and economic decisions pertaining to water and land use in the Intermountain West. It will feature discussion to identify pressing policy issues at the national and state level along with short presentations on related empirical work.

<u>Presentations:</u>

- **Michael Frey**, Idaho State University: *Projected Water Rights Transfers*
- **Levan Elbakidze**, University of Idaho: *Prior Appropriations Doctrine During Water Shortages: Evaluation of Spatial and Temporal Efficiency*
- **Wenchao Xu**, Boise State University: *Institutional Water Risk and Agricultural Land Use Decisions*
- **José Rivera**, University of New Mexico: *Land, Water, and Community Aspects of Acequia Culture*
- **Derek Kauneckis**, University of Nevada, Reno: *Improving Local Government Resilience to Climate Change*

<u>Additional Presenters:</u> Janie Chermak (University of New Mexico), Scott Lowe (Boise State University), Sian Mooney (Boise State University)

11:45 AM-1:30 PM	**Luncheon & Keynote**
Tamaya E	**Forest Mortality Responses to Climate Change Stresses at Regional to Global Scales**

<u>Speaker:</u> **Craig Allen,** United States Geological Survey

Ongoing climate changes (increases in mean temperatures as well as frequencies, durations, and severities of extreme drought and heat) can amplify tree physiological stress, and may drive increases in both background tree mortality rates and episodes of rapid, broad-scale forest die-off. Recent examples of regional-scale forest die-off involving many tree species are presented from the southwestern US.

Dr. Allen is a research ecologist with the U.S. Geological Survey Fort Collins Science Center and was named a Fellow of the American Association for the Advancement of Science (AAAS) in January 2011. Dr. Allen has developed collaborations with a diverse range of scientists from all forested continents to document and better understand global patterns of drought and heat-induced forest die-off.

1:45-3:15 PM	**Concurrent Sessions**

Tamaya H

E1: Water Quality in Snowmelt Dominated Systems: Coupled Hydology and Biogeochemistry

    <u>Moderators:</u> **Michael Pullin**, New Mexico Tech

                          Paul Gabrielsen, New Mexico Tech

Predicting the effects of climate change on water quality in Alpine systems requires an understanding of how the hydrology and biogeochemistry of these watersheds are coupled. This session will explore these issues, including surface/groundwater interactions.

<u>**Presentations:**</u>

- **Bob Parmenter**, Valles Caldera National Preserve: *Interannual and seasonal differences in stream water quality in the Valles Caldera National Preserve*
- **Paul Gabrielsen**, New Mexico Tech: *Agent-based modeling of hyporheic zone carbon biogeochemistry*
- **Michael Pullin**, New Mexico Tech**:** *Overview of water quality research*

Eagle B

E2: Integrated and Interdisciplinary Modeling

    <u>Moderator:</u> **Tim Link**, Univeristy of Idaho

The development of adaptation and mitigation strategies to address the effects of climate change on water resources can be facilitated through the use of integrated and interdisciplinary models. This session will summarize the results of a recent EPSCoR-supported interdisciplinary modeling course, and will focus on identifying research and education needs to integrate disciplinary models into frameworks that can be used to support regional climate change adaptation.

Eagle A

E3: Strategies for Effective Education and Outreach Activities in Research Projects

    <u>Moderator:</u> **Mary Jo Daniel**, New Mexico EPSCoR

Presentations and discussion will focus on the value of effective education/outreach for broadening participation in STEM and show how useful educational outreach can be included in grant proposal submissions.

<u>**Presentations:**</u>

- **Sarah Koerber**, University of Idaho: *Incorporating education and outreach into research proposals*
- **Jacque Ewing-Taylor**, University of Nevada, Reno: *Researchers working with College of Education on proposals*
- **Elsa Bailey**, Elsa Bailey Consulting: *Outreach with "informal learning" environments*

1:45-3:15 PM	**Concurrent Sessions (continued)**
Bear A & B	**E4: Carbon and Nitrogen Dynamics in Semi-Arid Ecosystems: Responses to Climate Change from Mechanisms to Landscape Processes** <u>Moderators:</u> **Kevin Feris**, Boise State University **Marie-Anne DeGraaff**, Boise State University Presentations in this session will focus on the mechanistic drivers of carbon and nitrogen cycling in semi-arid ecosystems in the wake of climate change and their corresponding effects on landscape level processes. Presentations will be followed by a discussion that sets out to identify future research directions aimed at gaining an improved understanding of the fundamental ecological mechanisms driving atmospheric-terrestrial carbon cycle feedbacks. **<u>Presentations:</u>** • **Heather Throop**, New Mexico State University: *Spatial and temporal changes in carbon pools in response to woody plant encroachment* • **Paul SJ Verburg**, Desert Research Institute: *Belowground responses of Creosote bush to experimental nitrogen and water additions in a Mojave Desert ecosystem* • **Kevin Feris**, Boise State University: *Experimental manipulation of precipitation regime affect soil microbial community structure and carbon storage in the semi-arid sagebrush steppe* • **Keith Reinhardt**, Idaho State University: *Desert shrub responses to seasonal timing of precipitation are contingent on soil depth: long-term experimental evidence, from leaves to populations*
3:15-3:45 PM	**Networking Break**
3:45-5:15 PM	**Concurrent Sessions**
Tamaya H	**F1: Enabling Climate Change Research: Monitoring Environmental Parameters** <u>Moderators:</u> **Michael Pullin**, New Mexico Tech **Paul Gabrielsen**, New Mexico Tech Understanding how climate change will affect water resources requires accurate and continuous measurements in challenging circumstances. This session will explore approaches for sensing and measuring water movement and water quality. **<u>Presentations:</u>** • **Jevon Harding**, New Mexico Tech: *Applying distributed temperature sensing (DTS) to New Mexico climate change research* • **Laura Crossey**, University of New Mexico: *Tackling the water quality challenge in the new millennium: Using new technology to track geologic salinity sources to surface and ground water* (continued on next page)

3:45-5:15 PM

Tamaya H **F1: Enabling Climate Change Research (continued)**

<u>Presentations (continued):</u>

- **Asitha Cooray**, New Mexico Tech: *Colorimetric analysis of iron in natural waters at nanomolar concentrations*
- **Scotty Strachan**, University of Nevada, Reno: *Building Climate Monitoring Infrastructure in Nevada: Cyberinfrastructure meets field science along high elevational transects*

Bear A& B **F2: Use of Climate Records**

Moderator: **John Mejia**, Desert Research Institute

This session will focus on the use of climate records—observed and simulated—to characterize western US climate variability and trends. Presentations will help create an inventory of the efforts done to collect, perform quality control, and evaluate simulated climate records that are "commonly" used to force hydrological, ecological, and socio-economic models across different scales.

<u>Presentations:</u>

- **Lynn Fenstermaker**, Desert Research Insititute: *Assessing climate variability and its impact on vegetation using historical Landsat data*
- **Von Walden**, University of Idaho: *Idaho downscaling of simulated climate records and dissemination using GIS*
- **Kristien King**, Desert Research Institute: *Regional Climate Modeling Efforts for the Western United States*
- **Benjamin Hatchett**, Desert Research Institute: *Historical Climate Data: The Never Ending Battle for Acquisition*
- **John Abatoglou** (via Skype), University of Idaho: *Observed Increases in Fire Danger across the Western United States*

Eagle A **F3: Climate Change Education**

Moderator: **Lawrence Rudd**, Nevada State College

The focus of this session will be the dissemination of information on climate change to K-12 teachers and students. Presentations will build on experience gained from both working with teachers during summer climate change education institutes and the application of lessons during the school year. Active, inquiry-based teaching techniques will be emphasized.

<u>Presentations:</u>

- **Karla Eitel,** University of Idaho: *Connecting teachers, scientists, water and climate change*
- **Nico Marrero**, NM Tech: *Project Django-class: A Free and Easy Web Framework for Teachers*
- **Paul Buck**, DRI and Nevada State College: *Effective climate change professional development for in-service secondary science teachers* (continued on next page)

3:45-5:15 PM *Eagle A*	**F3: Climate Change Education (continued)** **Presentations (continued):** **Aubrey Shirk**, University of Nevada, Las Vegas: *Teachers and students on Climate Change Science Education: 7th-12th grade Classroom Observations of Inquiry-based lessons in Clark County School District, Las Vegas, Nevada* **Larry Rudd**, Nevada State College: *Using local field trips as an integral part of teaching and learning about climate change science in Nevada*
Eagle B	**F4: Connecting Agencies and Researchers** Moderator: **Bob Parmenter**, Valles Caldera National Preserve A panel and discussion of how researchers can provide useful information to land managers and what land managers really need from researchers. Invited guests/panelists include: **Marie Rodriguez**, Valles Caldera Natural Resources Coordinator **Greg Kaufman**, Jemez Pueblo Director of Resource Protection **Craig Allen**, Lead Scientist, Jemez Mountains Field Station, USGS **Jason Lott**, Superintendent at Bandelier National Monument **Linda Riddle**, District Ranger for USFS Jemez District
5:30-7:30 PM *Tamaya Pre-Function*	**Student Poster Session/Competition & Reception** **Substantial hors d'oeuvres and hosted bar** Join us for the Tri-State Poster Competition! Students (Undergraduate and Graduate) from New Mexico, Idaho, and Nevada will display their research on posters in the pre-function area. This is your chance to talk to some of our students regarding current research and exciting findings! The winner(s) will be announced on Friday during the lunch hour.
7:00-8:30 PM *Veranda*	**S'mores and Live Music** The fun continues with live music and s'mores under the New Mexico night sky.

7:30 AM	**Networking and Breakfast *(Tamaya E)***
8:00-8:30 AM	**Tri-State Diversity Plan *(Tamaya E)***
8:30-9:30 AM *Tamaya E*	**The NSF Perspective on Collaborative and Interdisciplinary Science** **Moving Forward** <u>Speaker:</u> **Jennifer Schopf,** National Science Foundation EPSCoR Program Officer
9:30-10:00 AM	**Networking Break**
10:00-11:45 AM *Bear A & B*	**Concurrent Sessions** **G1: Water Resources: State and Change** <u>Moderators:</u> **Robert Heinse,** University of Idaho **Amanda White,** Los Alamos National Laboratory **Caiti Steele,** New Mexico State University This session's aim is to create an inventory and venue for continuing and fostering interdisciplinary research efforts. Within the common theme of water resources, presentations will help facilitate discussion centered on leitmotifs of interdisciplinary approaches, and provide a showcase and opportunity to educate the Tri-State community about exciting new initiatives. **<u>Presentations:</u>** • **José Rivera,** University of New Mexico**:** *Acequia water systems linking culture and nature – the Rio Chama Basin as a case study in interdisciplinary and transformative research* • **Thomas Piechota**, Unversity of Nevada, Las Vegas: *Vulnerability and resilience of urban water systems under uncertain changing climate scenarios* • **John Mejia**, Desert Research Institute: *Evaluation of three climate downscaling techniques in forcing a coupled hydrological model in a snow-dominated watershed in the Lake Tahoe basin*
Eagle A & B	**G2: Communicating Climate Change Science to Non-Scientists** <u>Moderator:</u> **Jessica Sapunar-Jursich,** NM Museum of Natural History & Science Beginning with a review of climate change risk perception, this session will focus on strategies that may be effective in communicating EPSCoR research to a wider public audience, including students at all levels and community members.

10:00-11:45 AM *Eagle A & B*	**G2: Communicating Climate Change Science to Non-Scientists (continued)** <u>**Presentations:**</u> • **Zhongwei Liu,** University of Nevada, Las Vegas: *Risk perceptions of the ranchers and farmers* • **Eileen Everett,** NM Museum of Natural History & Science: *Talking and educating about climate change* • **Sajjad Ahmad,** University of Nevada, Las Vegas and **Fred Harris,** University of Nevada, Reno: *Lake Mead simulation demonstration* • **John Fleck,** Albuquerque Journal: *Reaching the public through the media*
12:00-1:00 PM	**Networking Lunch & Poster Session Awards Presentation (Tamaya E)**
1:00-2:15 PM *Tamaya E*	**Plenary** **From the Digital Pueblo to a Consortium for Fulldome Development: Regional Partnerships for Research, Education and Economic Development** <u>Speaker:</u> **Ed Angel,** University of New Mexico New Mexico's well publicized successes in the film production is one part of strategic plan to build a media industry based on the state's multicultural environment and its strengths in technology and the arts. Research and education are major components of this strategy as is building the necessary cyberinfrastructure. In this talk, I will describe our work with two media-related NSF Partnerships for Innovation grants, both of which span research, education and economic development. Dr. Angel is the Chair of the Board of Directors of the Santa Fe Complex; Founding Director of the Art, Research, Technology and Science Laboratory (ARTS Lab) and Professor Emeritus of Computer Science, University of New Mexico.
2:15-2:45 PM	**Networking Break**
2:45-3:15 PM	**Meeting Synthesis (Tamaya E)** <u>Moderator:</u> **William Michener,** New Mexico EPSCoR
3:15-4:00 PM *Tamaya E*	**Consortium Roundup** **Next Steps for Further Development of Consortium Collaboration** <u>Speakers:</u> **William Michener,** New Mexico EPSCoR Director **Gayle Dana,** Nevada NSF EPSCoR Project Director **Peter Goodwin,** Idaho EPSCoR Director
4:00 PM	**Adjourn**