DIVINING ROD
NEW MEXICO WATER RESOURCES RESEARCH INSTITUTE
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New Mexico Symposium on Hydrologic Modeling Draws 165 Participants

For the second year, the WRRI hosted a technical symposium in cooperation with Sandia National Laboratories, Los Alamos National Laboratory, U.S. Geological Survey, New Mexico Office of the State Engineer and Interstate Stream Commission, New Mexico Tech, New Mexico State University, University of New Mexico and the American Water Resources Association - New Mexico Section.

The one-day symposium was held at the Macey Center on the New Mexico Tech campus on August 12, 2003. This year's symposium focused on hydrologic modeling.

"We were very pleased with this year's participation. When we decided on modeling as our theme for this year's symposium, we estimated 60 or so specialists might attend. It turned out that 165 folks were interested in sharing and learning about water modeling research efforts. Participants came from throughout New Mexico and from Colorado, Arizona, and Texas," said WRRI Director Karl Wood.

"We were also delighted to have several graduate students present their research. Many of these students are working with staff at federal and state laboratories and agencies and this gave them the opportunity to present their work and to network with other modelers." Wood added, "We are considering for the next symposium a student presentation competition in which cash awards would be given for the best presentations."

Thirty-five presentations were made in the areas of river operations and conjunctive use of surface and groundwater, flowpath analysis and contaminant transport, modeling of river processes, recharge topics, surface and groundwater interaction, and regional groundwater models for resource management.

INSIDE

Posters were also displayed at the symposium. Twenty-five poster presenters described their work during two half-hour breaks and after lunch.

Abstracts for all presentations and posters are available on the WRRI website at: wrri.nmsu.edu. Go to the *Publications* link and then to *2003 New Mexico Symposium on Hydrologic Modeling abstracts*.

The 2003 New Mexico Symposium on Hydrologic Modeling provided an opportunity for colleagues to network.

WRRI Welcomes Kristine Kitchens

The WRRI is happy to announce that Kristine Kitchens has been named the institute's new coordinator. Kristine joined the staff in late May after the retirement of longtime staff member Darlene Reeves.

Kristine is responsible for the detailed administration of state and federal appropriations as well as water resources grants, contracts and agreements awarded through the WRRI. She will work with institute staff, faculty at the various state universities in New Mexico and with special water resources committees or commissions. Kristine will maintain all aspects of financial accountability for the institute's research program including the monitoring of research projects.

Kristine comes to the WRRI well versed in grants and contract administration having worked in New Mexico State University's Office of Grants and Contracts as a Contract Administrator. She is a Certified Research Administrator (CRA). Kristine's twenty years plus experience in higher education grants administration will be a tremendous asset to the WRRI.

Kristine enjoys a life-long interest in minerals, and is an enthusiastic collector. On weekends, she can usually be found working on her house, or hiking in the desert around Las Cruces.

Meet the Researcher

Chris Brown

Assistant Professor
Geography Department
New Mexico State University

Research Focus
U.S./Mexico border water resource issues; U.S./Mexico border environmental management; geographical information systems (GIS)

Education
Ph.D. geography, San Diego State Univ. 1998, Dissertation entitled, *A Watershed and Ecosystem Approach to Transboundary Wastewater Management in the Tijuana River Watershed*
M.A. geography, Michigan State University 1991
B.A. economics (honors) San Diego State University 1986

Experience
Chris Brown has been actively involved in the study of binational water resource management issues on the U.S./Mexico border for the last 10 years, specifically exploring binational water resource policy and the use of applied GIS tools to examine water quality and supply in the San Diego/ Tijuana, Ambos Nogales, and Paso del Norte regions. During this time, he has presented a wide range of papers at professional conferences and published several papers in refereed venues, as detailed in the latter part of this article.
Dr. Brown has had a particular interest in comparative studies of various twin city regions along the U.S./Mexico border, especially how regional stakeholders coalesce to work together within both existing institutions and newly forming ones. At the root of these studies is the desire to see how the regional geographies and political ecologies involved in each area support various policy initiatives. Related to this is an interest in how institutions interact together in the exchange and use of geospatial data and GIScience technologies towards the resolution of applied environmental problems in the borderlands region.

Courses Taught
Advanced Topics in GIScience
Advanced Spatial Analysis
Map Use and Analysis
U.S./Mexico Border Development
World Regional Geography
Urban Geography

Current Projects
Co-principal investigator: *Vulnerability of Borderland Water Resources: Developing Indicators for Selected Watersheds on the U.S. Mexico Border – The Paso del Norte Region;* SCERP; $77,602; 7/03-12/04 (*more on page 6)*
Co-principal investigator: *NMSU Border+20 Grant;* Southwest Center for Environmental Research and Policy (SCERP); $90,000; 9/02-9/03
Principal investigator: contract from the El Paso Water Utilities through the Paso del Norte Watershed Council to NMSU and Texas A&M University; *Development of a Prototype Coordinated Database Project for the Paso del Norte Watershed Council*; $50,000, with $28,250 awarded to NMSU; 8/02-7/03
Co-principal investigator: *Transportation and Major Thoroughfare Plan for Southern Doña Ana County*; Doña Ana County Community Development Department $30,000; 6/01-3/02

Recent Publications
Brown, C. 2003. New Directions in Binational Water Resource Management in the U.S./Mexico Borderlands. *Social Science Journa*l. In press.
Brown, C., A. Browning-Aiken, R. Varady, and D. Moreno. 2002. Comparative Analysis of Water Resources Management on the U.S./Mexico Border: The Case of the Rio Bravo/Rio Grande Basin. In *Proceedings of the First International Symposium on Transboundary Waters Management, la Asociación Mexicana Hidraulica, Monterrey, Nuevo Leon, Mexico*.
Browning-Aiken, A., C. Brown, R. Varady, and D. Moreno. 2002. Comparative Analysis of Water Resources Management on the U.S./Mexico Border: The Case of the San Pedro Basin. In *Proceedings of the First International Symposium on Transboundary Waters Mgmt, la Asociación Mexicana Hidraulica, Monterrey, Nuevo Leon, Mexico*.
Brown, C., R. Wright, N. Lowery, J.L. Castro. 2002. *Comparative Analysis of Transborder Water Management Strategies: Case Studies on The United States - Mexico Border*. Paper in press with an edited monograph summarizing research at the 2002 Border Institute IV, to be published by SCERP, fall 2003.
Brown, C. 2002. *Research Into Binational Watershed Councils (Consejos Binacionales de las Cuencas) as Instruments for Conflict Resolution in the Upper Santa Cruz Watershed*, Udall Center for Studies in Public Policy Issue Paper, The University of Arizona.

48th Annual New Mexico Water Conference

New Mexico Water Planning 200

November 5-6, 2003
Hyatt Regency Tamaya Resort & Spa
Santa Ana Pueblo

Preliminary Program

Wednesday, November 5, 2003

7:30 a.m. Registration

8:15 Welcome
Karl Wood, WRRI Director
Myron Armijo, Santa Ana Pueblo Governor

8:30 Why We Need a State Water Plan
Governor Bill Richardson (Invited)

9:15 Overview of How Water Planning is Being Formulated in New Mexico
State Engineer John D'Antonio

10:00 BREAK

10:20 How a State Water Plan Extends Beyond Our Borders
ISC Director Estevan Lopez

11:00 Legislative Perspective on State Water Planning
New Mexico State Representative
Mimi Stewart

11:30 How Water Quality Affects Planning
NM Environment Department Secretary
Ron Curry

Noon Luncheon - Albert E. Utton Memorial Lecture
Ambassador Alberto Székely
Border Water Affairs, Mexico City

1:45 Federal Perspective: Water 2025
John Keys, Commissioner,
Bureau of Reclamation

2:15 Water Planning Lessons Learned by a Neighbor State
Jonas Minton, Deputy Director,
California Department of Water Resources

2:45 Acoma Pueblo Takes a Unique Approach to Water Planning
Fidel Lorenzo, Director/Liaison and
Laura Watchempino, Water Quality Specialist/ Attorney

3:15 BREAK

3:35 Navajo Nation Plans for Their Water Future
John W. Leeper, Water Manager, Navajo Nation Department of Water Resources

4:00 Panel: Challenges, Opportunities, and Concerns When Planning for New Mexico's Water Future
Moderated by Bill Hume, Governor's Office
Letty Belin, Belin and Sugarman
Oscar Butler, Doña Ana Mutual Domestic Water Association
Tom Davis, Carlsbad Irrigation District
Charles DuMars, Law & Resource Planning Associates
Randy Kirkpatrick, San Juan Water Commission
Paula Garcia, New Mexico Acequia Association
Jennifer Wellman, Santa Ana Pueblo

Thursday, November 6, 2003

8:00 a.m. Planning for Drought
Anne Watkins, Special Assistant to the State Engineer

8:30 Water Transfers: Key to Water Planning
Jim Brockman, Stein and Brockman

9:00 Regional Water Planning Examples:
Rural & Urban
Mora and San Miguel Counties: Tracy Seidman-Hephner and Ernest "Ernie" Quintana
Middle Rio Grande: Bob Wessely

10:00 BREAK

10:20 Science and Technology Needs for Water Planning
Introduction: Karl Wood, WRRI
Desalination: Mike Hightower, Sandia National Labs, and Tom Jennings, Bureau of Reclamation
Groundwater and Surface Water Modeling: Phil King, New Mexico State University
Water Reuse: Ed Archuleta, El Paso Water Utilities

11:20 The Next Step: Implementation
Jim Dunlap, Interstate Stream Commission Chair
Carlos Rey Romero, NM Finance Authority

Water Conference Hotel Information

A block of rooms has been reserved at the Hyatt Regency Tamaya Resort and Spa for conference participants. The rate for a single or double room is $99, which includes taxes, for the first 50 participants making room reservations. After that, the rate is $137 for a single or double room. The conference rate will be honored for two days pre- and post-conference, subject to availability. The cut-off date for the block of rooms is **October 4, 2003**. Call the Resort's Reservation Department at (505) 867-1234 or 1-800-233-1234 to book your room. Participants must indicate that they are attending the **Water Conference** to get the conference negotiated rates.

2003 Albert E. Utton Memorial Water Lecture

Alberto Székely
Ambassador for Border Water Affairs
Mexico City

Ambassador Alberto Székely is a Career Ambassador, since 1986, with the Mexican Foreign Service. He served as Advisor to the Mexican Foreign Minister (1976-1979), was Alternate Representative of Mexico to the OAS in Washington (1979-1980), Legal Advisor to the Mexican Delegation to the Third U.N. Conference on the Law of the Sea (1973-1982), Alternate Representative of Mexico to the U.N. in Geneva (1982-1983), The Legal Adviser to Mexican Foreign Ministry (1983-1991), Representative to the Sixth Committee of the U.N. General Assembly (1983-1990), and is Member of the Permanent Court of International Arbitration at The Hague (1986 to date), and Member of the U.N. International Law Commission (1992-1996). The Ambassador has recently been appointed Judge for the International Tribunal for the Law of the Sea. He continues to be a guest/visiting lecturer on International Law at a number of U.S. Law Schools (Arizona State, University of New Mexico, Johns Hopkins) while conducting a private international legal consulting business from Mexico City specializing in International Environmental Law, the Law of the Sea and Transboundary Resources issues including environmental zoning and land use planning, sustainable coastal development, environmental defense, water law, forestry law, protected areas and human rights. In 1998 he coordinated the Citizens Workshop for Legislative Proposals (The Rule of Law and Administration of Justice). Ambassador Székely has an LL.B. from the National Autonomous University of Mexico School of Law (1968); M.A. and M.A.L.D. from the Fletcher School of Law and Diplomacy, Tufts and Harvard Universities (1969 and 1970); and Ph.D. from the University of London, College of Laws (1975). He has published extensively in English and Spanish in Mexican, American, and international journals.

48th Annual New Mexico Water Conference - New Mexico Water Planning 2003 - November 5-6, 2003

approved for 11.7 CLE general credit hours

Researchers at NMSU Receive SCERP Grant to Conduct a Watershed Vulnerability Assessment

An interdisciplinary research team at New Mexico State University (NMSU) has been awarded $77,602 by the Southwest Center for Environmental Research and Policy (SCERP) to conduct an assessment of watershed vulnerability in the Paso del Norte region of the Rio Grande Watershed. The team is headed by Dr. Christopher Brown of the NMSU Department of Geography and includes Dr. Brian Hurd of the NMSU Department of Agricultural Economics and Agricultural Business, Ms. Janet Greenlee of the NMSU Department of Geography, and Dr. Alfredo Granados, Coordinador del Centro de Información Geográfica de la Universidad Autónoma de Ciudad Juarez (UACJ).

This research project is based on earlier work that Dr. Hurd conducted for the U.S. Environmental Protection Agency in which he headed a team to do a watershed vulnerability assessment at the national scale using U.S. Geological Survey 4-digit Hydrologic Unit Code (HUC) regions. In the work funded by SCERP, the NMSU/UACJ team will borrow from this previous work and conduct a similar analysis in the Paso del Norte region of the Rio Grande Basin, employing a revised set of vulnerability indicators at a finer spatial resolution (6 or 8 digit HUCs). In addition to the actual assessment of watershed vulnerability in the study area, important outcomes of this work include a refined methodology for vulnerability assessment based on indicators that are appropriate for arid environments, the generation of baseline datasets on which additional research can be conducted, the identification of critical areas of concern, and a set of policy recommendations that focus on these areas.

NMSU Student Joins WRRI Staff

Early this summer, NMSU student Sean Carrasco began working in the WRRI's GIS lab. Sean will be producing maps and contributing to GIS production for projects involving water issues and geologic structure.

Many water folks met Sean at the August 12th hydrologic modeling symposium where he was responsible for seeing to it that the many PowerPoint presentations went off without a hitch. He succeeded admirably.

Sean currently is a senior, majoring in geography and minoring in GIS and geology. He will graduate this December. After graduation, Sean plans to pursue a career in geography specializing in GIS.

An avid outdoorsman, Sean enjoys hiking, rock climbing, and camping where he is always accompanied by his two Basset Hounds, Henry and Spencer. He is also an avid cook, specializing in Japanese cuisine, especially sushi, having worked as a Sushi Chef apprentice for three years.

Upcoming Meetings

September 22-23, 2003
Western Water Law, Adams Mark Hotel, Denver (www.cle.com)

October 20-22, 2003
New Mexico Environmental Health Conference, Sheraton Old Town Hotel, Albuquerque (www.nmehc.org)

October 22-23, 2003
Planning for Uncertainty - 14th Annual South Platte Forum, Raintree Plaza, Longmont, Colorado (http://southplatte.jjbrown.com)

November 3-4, 2003
Our Texas Treasure: The Mighty Rio Grande - Biannual American Heritage River Initiative Meeting, (http://www.epa.gov/rivers/98rivers/riogrande.html)

November 3-6, 2003
AWRA's 2003 Water Resources Conference, San Diego (harriette@awra.org)

November 5-6, 2003
New Mexico Water Planning 2003 - 48th Annual New Mexico Water Conference, Hyatt Regency Tamaya, Santa Ana Pueblo, New Mexico (wrri.nmsu.edu)

November 17-19, 2003
Restoring Streams, Riparian Areas, and Floodplains in the Southwest: Applying Science on the Ground, New Mexico Riparian Council and the Association of State Wetland Managers Conference, Socorro

2003 National Competitive Grants Awards Announced

The U.S. Geological Survey has announced the six award recipients for the 2003 Fiscal Year 2003 National Institutes for Water Resources (NIWR) and U.S. Geological Survey National Competitive Grants Program. Abstracts of the projects are available at http://water.usgs.gov/wrri/03grants/national/nationalindex.html. This year the program received 76 proposals requesting a total of over $11 million in federal funds. According to John Schefter, USGS Chief of the Office of External Research, many excellent proposals could not be funded given the nearly $1 million available.

An Assessment of New Advances in Low Streamflow Estimation and Characterization - Chuck Kroll, State University of New York, College of Environmental Sciences and Forestry, Syracuse; $154,589 (3 years)

A Regional Approach to Conceptualizing Fractured-Rock Aquifer Systems for Groundwater Management - Stephen B. Mabee, University of Massachusetts; $92,839 (3 years)

Dynamics of Point and Non-Point Source Fecal Pollution from an Urban Watershed in Southern California - Stanley B. Grant, University of California, Irvine; and Patricia Holden, University of California, Santa Barbara; $159,054 (3 years)

Bridging the Gap Between Plankton Dynamics and Spatial Variability in Water Quality in the Guadalupe Estuary (Texas): The Importance of Freshwater Pulses - Stephen E. Davis and Daniel L. Roelke, The Texas A&M University; $233,953 (3 years)

Distribution and Toxicity of Sediment-Associated Pesticides in the Sacramento River Watershed - Donald P. Weston, University of California and Michel J. Lydy, Southern Illinois University at Carbondale; $199,986 (2 years)

Photochemistry of Antibiotics and Estrogens in Surface Waters: Persistence and Potency - Kristopher McNeill, William A. Arnold, and Deborah L. Swackhamer, University of Minnesota; $134,092 (2 years)

Desalination Facility to Break Ground in December 2003

In late July, the design and building contract was signed for the soon-to-be-built Tularosa Basin Desalination Research Facility. The national facility to be built in Alamogordo will encom-pass a 30-acre research center with the capacity to enhance development and test a broad range of alternative desalination technologies.

A design and building contract has been signed with Laguna Construction Inc., a tribal-owned, federally charted corporation owned by the Pueblo of Laguna. Laguna Construction has sub-contracted with Malcolm Pirnie, Inc. to provide architectural and engineering design services as well as the construc-tion administration services during the actual construction. They are industry leaders in water treatment design, wastewater treatment design, groundwa-ter supply development, architectural and civil design, and controls and instrumentation design.

The focus of the facility will be on inland desalination research. Research goals include the evaluation of technolo-gies that address environmental issues of inland brine disposal or eliminate brine; evaluation of pre-treatment technolo-gies needed for process efficiencies for a range of inland waters, varying water chemistries, varying water contami-

Architect's rendering of the Tularosa Basin Desalination Research Facility.

nants, and produced water; cost-effec-tive use of smaller-scale applications; application of renewable energy to desalination processes; complement ca-pabilities of other national water treat-ment research centers; and to provide educational materials on water treatment research.

The Bureau of Reclamation has joined forces with Sandia National Laboratories, the U.S. Geological Sur-vey, the New Mexico Office of the State Engineer, and the New Mexico Water Resources Research Institute to oversee the planning of the facility.

According to Mike Hightower, Sandia National Labs, "We are at the point where desali-nation is becoming economically feasible as the limited availability of fresh water drives fresh water costs higher and higher. New Mexico and much of the U.S. have extensive brackish resources that have been essentially untapped, and desalina-tion may be one of the methods we can use to help meet our growing water demands. For wide-spread use of desalination in inland areas such as the Southwest, we must address major issues of the beneficial use or environmentally sound disposal of the generated salt concentrates. This is of great national importance and will be one of the major roles of the new research facility."

Conference Registration Form

To attend the 48th Annual New Mexico Water Conference, please complete one form for each person. Mail form with check or purchase order payable to NMWRRI-Water Resources Research Institute, MSC 3167, Box 30001, Las Cruces, NM 88003-8001.

For the Early Bird best rate of $150, registration must be received by September 12, 2003. Registration from September 13 until October 31 is $200. After October 31 and at the door, registration is $225. The registration fee will be refunded if written notice of cancellation is received by October 24, 2003. A $25 cancellation fee will be charged.

The registration fee includes the day-and-a-half conference, all breaks, lunch on Wednesday, and a copy of the proceedings on CD to be published within a few months of the conference.

Please check the following:

- ❑ Registration $150 received by Sept. 12, 2003 (Early Bird)
- ❑ Registration $200 from Sept. 13 to October 31, 2003
- ❑ Registration $225 after October 31 and at the door
- ❑ **Full-time** student registration $60
- ❑ Luncheon ticket(s) for guest(s) $40/guest
- ❑ Check enclosed
- ❑ Purchase order enclosed, no.
- ❑ Please bill my credit card:

Card No._____

Expiration date _____ Type _____

Name _____ City _____ State _____ Zip _____

Affiliation _____ Phone No. _____ Fax No. _____

Mailing address _____ Email address _____

Information on WRRI's Homepage

Check the WRRI's Homepage for updated information about the conference. You can also register for the conference using our Homepage at **wrri.nmsu.edu**. Choose the Water Conference link and follow the instructions. Purchase order or payment must be received by mail to confirm registration. We accept Visa, MasterCard and Discover credit cards.

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