

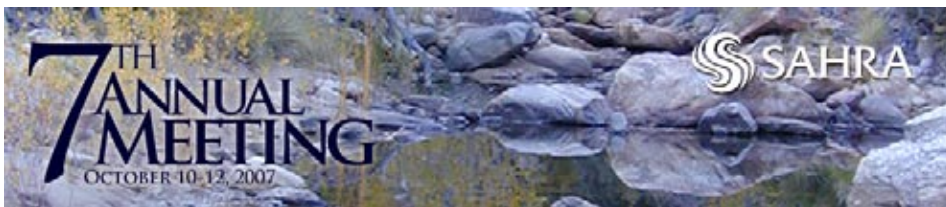
Ephemeral Flow

A NEWSLETTER ABOUT SAHRA

2007, no. 3

Welcome to the third 2007 issue of Ephemeral Flow, a newsletter for sharing information within the SAHRA community. Ephemeral Flow is sent to SAHRA researchers, staff, and students at all participating institutions every few months. Your contributions and suggestions are always welcome. Please send items to Mary Black at mblack@sahra.arizona.edu.

FEATURES



SAHRA's 7th Annual Meeting and NSF Site Visit, "Supporting Regional and International Water Management," will be held at the Westward Look Resort in Tucson, Oct. 10-12.

Wednesday's keynote addresses will be given by representatives of: the Army Corps of Engineers, on the pending ICIWARM initiative; the director general of the Comisión Nacional del Agua (Mexico); and by Terry Fulp of the BoR on issues and research related to the Colorado River and U.S.-Mexico border. Breakout sessions involving panels of stakeholders will be featured in the afternoon.

Thursday will focus on presentations and poster sessions by researchers and students. **All students who have had SAHRA support for at least a year are expected to submit a poster.** Send abstracts to Jim Washburne (jwash@sahra.arizona.edu) by **Sept. 14**.

Friday will be devoted to SAHRA signature products and small-group planning activities. Saturday field trip options include Kartchner Caverns, Sabino Canyon, Mt. Lemmon, and Biosphere 2.

RESEARCH

Rio Grande Salinity Research Put to Good Use

In June, **Fred Phillips, James Hogan,** and **Barry Hibbs** attended and made presentations at the Rio Grande Project Salinity Management Workshop in El Paso. Organized by the Rio Grande Compact Commission, the meeting brought together researchers looking at salinity sources in the Rio Grande. Participants included representatives of the New Mexico Office of the State Engineer, Interstate Stream Commission, and academics from Texas and New Mexico.

The meeting was a resounding success. SAHRA's research was featured prominently. Results catalyzed interstate discussion in mitigating salinization. Phillips talked on history; Hogan on isotope studies; Hibbs on El Paso area work. All three participated in a panel on future work and management options. Some factional issues remain, but the meeting was significant in setting up a task force to investigate a formal interstate and international salinity management program on the river analogous to the Colorado River Salinity Forum. This development is a tangible example of the success of SAHRA's goal of translating research into action.

UPCOMING EVENTS

Meetings, Workshops, Seminars, Short Courses

Aug. 29-Sept. 1, 2007

Regional Water Symposium, "Sustainable Water, Unlimited Growth, Quality of Life: Can We Have It All?" Westin La Paloma Resort and Spa, Tucson, AZ. Co-sponsored by Southwest Hydrology and the Arizona Hydrological Society. Details at www.watersymposium.org and in the Announcements section below.

Oct. 10-12, 2007

SAHRA's 7th Annual Meeting, Westward Look Resort, 245 E. Ina Rd., Tucson, AZ. See feature article for details and to register now online at www.sahra.arizona.edu/events/meetings/2007_ann_meeting.

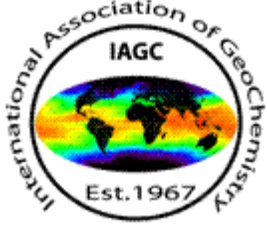
CONTACT US!

Please let us know when you have news to share or a reason to brag. Students, let us know for example when you have completed your oral exam, defended your thesis/dissertation, or accepted a position in the real world (or even academia). Faculty members, are you offering a new course, hosting a workshop, leading a panel, editing a new journal? Anonymous or second-party tips on newsworthy announcements are also gratefully accepted.

Send comments, information, suggestions to mblack@sahra.arizona.edu.

AWARDS AND HONORS

SAHRA Research Garners Inaugural Hitchon Award



Researchers from SAHRA and the Lawrence Livermore National Laboratory (LLNL) were

recognized recently by their selection for the Hitchon Award, given to the authors of the most significant 2006 paper published in *Applied Geochemistry*, the journal of the International Association of Geochemistry (IAGC).

This is the inaugural presentation of the Hitchon Award, initiated to honor the IAGC's 40th Anniversary. The award will be presented next week at the annual Goldschmidt Conference in Cologne, Germany. The work was done at LLNL in the Livermore-Amador groundwater basin with the cooperation of Zone 7, a local water agency. Authors included **Keara Moore** (a SAHRA

graduate student who was an LLNL summer intern at the time), **Brenda Ekwurzel** (a SAHRA researcher and assistant professor in the UA Dept. of Hydrology and Water Resources at the time), Bryant Hudson, Jean Moran, and Brad Esser. The research formed the basis of Keara's master's thesis. The study was funded by SAHRA, LLNL's Seaborg Institute's Nuclear Science Internship Program (NSIP), and the State of California Groundwater Ambient Monitoring and Assessment Program (GAMA).

Dean's Dissertation Fellowship

Congratulations to **Craig Broadbent**, Ph.D. candidate in economics at the University of New Mexico, who received a Dean's Dissertation Fellowship for his project, "Three essays on water leasing and benefit transfers." The fellowship includes an \$11,000 stipend plus fringe benefits, tuition, and health insurance.

KNOWLEDGE TRANSFER

Log Offshoot Produces Mapper

A prolific monsoon and a handful of grants created a recipe for success for RainLog.org, helped by a flurry of publicity from newspapers and media outlets in Cochise, Pima, and Maricopa counties of Arizona. RainLog is a web-based network of over 1,200 volunteer weather watchers who measure and report rainfall in their backyards. The service is the brainchild at UA of SAHRA's **Gary Woodard** and Cooperative Extension's **Michael Crimmins**.

A related RainMapper service debuted in July, thanks to support from the Bureau of Reclamation. Homeowners who register for this free service receive emails with information generated from RainLog on how much rain fell in their neighborhood. The information helps fill an apparent void for those who can't trust the official airport gauge to tell them how to adjust their irrigation for local weather conditions. In its first two weeks, over 2,000 people subscribed to the new RainMapper service.

See related story, R&R section below.

ADMINISTRATIVE NOTES

Benchmark Series Debuts



SAHRA's collaboration with the International Association of Hydrological Sciences (IAHS) has born fruit in the form of their co-publication of the first two

volumes of the Benchmark Papers in Hydrology Series. The series collects by theme the outstanding papers that provide the scientific foundations for hydrology in the 21st century. Published across a wide spectrum of disciplines, these papers define the field and provide an overview of the development of ideas that have led to our current concepts and understanding. Each thematic volume reproduces around 30 papers

selected by a leading expert, who also introduces the theme and comments on the significance of the individual papers.

The first two volumes, published this summer, are *Streamflow Generation Processes*, edited by Keith Beven, and *Evaporation*, edited by John Gash and SAHRA director **Jim Shuttleworth**.

Full Steam Ahead

SAHRA's commitment to the production and distribution of defined SAHRA signature products is bearing fruit. A full list and description is impossible here, but some noteworthy examples by macro-theme include:

Basin-Scale Water Balance

- Hydro-ecological observational infrastructure in the Valles Caldera and San Pedro

River Systems

- Mimbres water trading pilot study

Integrated Modeling

- Climate change and development scenarios
- SAHRA GeoDatabase

Knowledge Transfer

- Rio Grande book
- *Southwest Hydrology*

Education

- Watershed visualization
- Volunteer monitoring of Arizona rivers

These signature products will be highlighted in more detail in upcoming issues of *Ephemeral Flow*, and will also be featured in the new SAHRA *Vision, Programs, and Progress* publication coming your way at the 7th Annual Meeting.

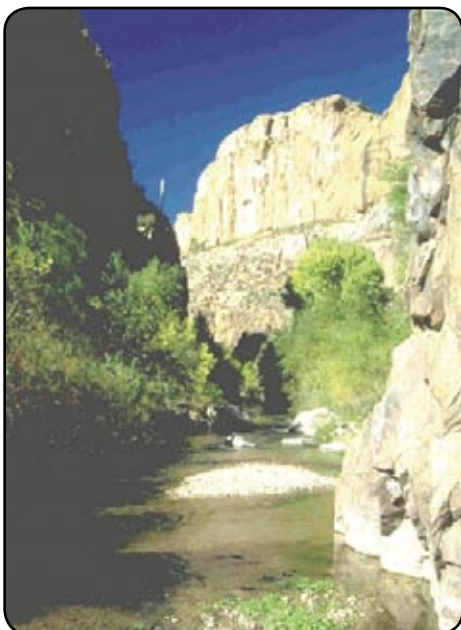
PEOPLE

New SAHRA Students

If you are a student new this year to SAHRA at any of our partner institutions, we'd like to hear from you. Please send your name, intended degree, research or personal interests, and a few details about your academic background to mblack@hwr.arizona.edu. We'll share the information in the next *Ephemeral Flow*. If you include a favorite picture of yourself, we won't have to hunt you down and photograph you when you are at your worst.

Students Who Finished Degrees

Matt Weber received his Ph.D. in hydrology and water resources from the University of Arizona in August, with a focus on riparian valuation in the Southwest. Part of Matt's work focused on Aravaipa Canyon (see photo), a remote and scenic canyon in southern Arizona, assessing the recreational value of scarce desert riparian systems. One interesting finding was that visitors are willing to pay more to visit the more remote end of the canyon, resulting in a 45% increase in consumer surplus on a per-day basis as a result of this "remoteness premium." Matt's work also assessed the social benefits of



New students, take a lesson from Matt. This is the type of field site you should be seeking!

different riparian restoration options along the Rio Grande in the Albuquerque region.

The public benefit of riparian restoration in this area was found to be on the order of tens of millions of dollars per year. Roughly three-quarters of this benefit was tied to the density and distribution of native and non-native species, with 82% of survey respondents stating that they were aware of issues regarding non-native tree encroachment. 37% of those surveyed stated riparian health was a factor in their decision on whether to continue residing in Albuquerque.

Slacker Alert

If you know of a student not from the University of Arizona who has been involved in SAHRA research and recently completed a degree, we want to know about him or her. PIs have been remiss in this reporting so we need your help. Contact Mary at mblack@hwr.arizona.edu with your insider information.

New Staff

Madden Quits Football and the Classroom

The SAHRA Education team and all of us other schmucks in SAHRA are lucky to have **John Madden** joining us. Although he is not new to SAHRA, having collaborated since its inception in teaching the Inquiry and Water Issues summer course, Madden now joins us full-time. John has perhaps the most impeccable teaching credentials possible: he taught secondary science in Arizona for the last 20 years, and last year received the (U.S.) Presidential Award for Excellence in Mathematics and Science Teaching. Since his career switch from a classroom teacher, he has had to resign his position on the Teacher Advisory Council for the National Academies.

John has a B.S. in geosciences from the University of Missouri-Kansas



City (the Fighting Kangaroos!) and an M.Ed. in secondary education from the University of Arizona. He and his wife Jennie have three children (Andrew, 16; Ryan, 14; and Kelley Rose, 9) who forthwith will be forced to beta test all SAHRA education products.

John replaces **Wylie Cox**, who was spirited away by the military-industrial complex (URS Corporation, specifically) to train helicopter pilots for the U.S. Air Force and is now based at Cairns Army Airfield at Fort Rucker, Alabama.

Don't Call Her Kyle

Cindy Grooms, SAHRA's new graphic design supervisor, has come full circle at the UA. As a young girl, she could be found drawing pictures with paper



and crayons on the floor of an office in the business building, while her father, Dr. Howard Morgan, busily graded his students' economics and marketing papers. After living in Tucson for seven years, the family packed up and headed for the Maryland/Virginia area, where she lived most of her life.

Cindy continued to pursue her early interest in art, training at several colleges including Virginia Commonwealth University. She has worked as a graphic/web designer for 18 years on projects in publication design and layout, logo design, illustration and website development.

Don't ask her to tell you anything about her experience with government defense contractors Kaman Sciences and ITT Industries, because of the secret clearance work she did there! She also worked for Weekly Reader, the National Council for Community Behavioral Healthcare, and UA/Psychology.

Cindy says she is enjoying her new position with SAHRA, is very impressed with the projects Kyle and others have left behind, and looks forward to the numerous opportunities ahead!

ANNOUNCEMENTS

Students and Researchers Wanted



desk, or light supervision of AV/computing equipment in the breakout technical sessions of their choice. For details, go to www.swhydro.arizona.edu/symposium/studentvol.html; contact Mary Black (mblack@hwr.arizona.edu) to volunteer.

SAHRA researchers are invited — nay, *encouraged* — to support *Southwest Hydrology* by registering for the symposium. One-day and two-day registration options are available, along with five workshops and three field trips. Truly there is something for everybody! The symposium will feature keynote addresses by **Peter Gleick**, director and founder of the Pacific Institute, and **Gerald Galloway**, president of the American Water Resources Association. Among the 120 or so distinguished presenters and discussants are **Robert Johnson**, commissioner of the U.S. Bureau of Reclamation, **Bill Alley**, chief of the USGS Office of Ground Water, and **Pat Graham**, Arizona state director of The Nature Conservancy. Register at www.watersymposium.org.

R&R

Vanity, Thy Name is Rainlog

Talk about putting your money where your mouth is, walking the walk not just talking the talk, not to mention a constant busman's holiday! SAHRA database specialist **Ramon Vazquez**, the genius pulling the strings behind the curtain of RainLog and RainMapper, is the proud new owner of vanity license plate touting the project.



Talk about Targeted Research!

If SAHRA research specialist **Jonathan Petti** seems a little frazzled during the monsoon, cut him some slack. The wild weather that we have experienced in southern Arizona this summer hit him especially hard, nearly literally: there were three direct strikes on the 30-meter Mt. Bigelow eddy correlation tower on days when Jon huddled in the nearby tool shed avoiding anything metal.

As a tribute to his troubled relationship with the Mt. Bigelow tower, Jon offers the following word-find puzzle.

Y	P	I	P	T	U	V	G	L	B	G	J	C	I	E	C	U	J	V	O	B	S	U	D		
D	G	H	Y	E	L	E	I	S	B	X	W	I	N	F	H	L	R	B	E	R	L	P	L	O	
Z	R	O	G	T	F	F	C	L	O	U	D	S	B	U	L	L	O	C	K	S	G	D	X	K	
E	C	T	L	S	I	K	O	N	O	I	T	A	I	D	A	R	U	Q	S	L	R	A	M	J	
E	W	O	C	O	L	D	N	N	H	R	L	N	G	T	D	Q	O	D	V	D	C	Z	L	I	
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U	D	E	N	A	W	E	R	A	A	M	Z	O	D	J	L	G	A	U	L	W	R	L	F	T	
P	E	S	T	O	N	L	T	H	T	H	O	F	L	W	X	F	N	I	T	J	H	P	U	W	
S	J	I	T	E	I	S	N	K	A	I	G	R	A	L	U	A	I	W	T	J	I	M	B	Q	
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N	G	G	O	I	H	O	A	I	E	S	E	N	S	I	B	L	E	H	E	A	T	A	C	J	
P	Y	R	Q	L	E	S	M	R	R	R	R	N	L	G	M	B	Z	G	N	U	J	R	S	A	
O	K	N	L	S	A	J	O	E	O	A	U	A	R	H	A	S	T	H	D	F	C	N	W	T	
O	C	J	B	L	O	R	T	H	N	P	T	T	I	T	R	G	R	K	W	P	H	X	U	Q	
W	L	P	M	B	E	N	E	P	S	A	A	I	S	N	O	W	Z	V	O	Q	B	L	M	V	
V	N	F	W	H	N	B	R	S	C	W	R	V	O	I	I	V	H	Z	A	Z	L	E	R	J	
Q	R	B	B	G	O	U	P	O	C	D	E	U	E	N	O	M	M	E	L	H	M	G	Q	I	
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GRANTS/LEVERAGING

Valle and the Critical Zone

NSF recently made funding decisions on its \$4.5 million/5-year Critical Zone Observatory RFP. With only three proposals funded, the competition was very competitive. A proposal submitted by UA researchers that built on SAHRA investments in the Valles Caldera was well received but unfortunately was not funded. However, SAHRA researchers **Chris Duffy** and **Roger Bales** were lead PIs on successful proposals based in Pennsylvania and California respectively. Congratulations to Roger and Chris!

SAHRA's research and those of our partners continues in the Valles Caldera. Valle researchers met August 16-17 in Jemez Springs to review recent results, work toward integrating research, and plan papers for an upcoming special issue on VC work.

ANEMOMETER	FIR	PIE
ASPEN	FIRE	PINE
ATMOSPHERIC	FLUX	RADIATION
BATTERY	FOREST	RAIN
BIGELOW	GILL	SAHRA
BULLOCK	GRANITE	SENSEHEAT
CAMPBELL	HAIL	SNOW
CARBON	HUMIDITY	SOIL
CATALINA	ICE	SOLAR
CLOUDS	INSTRUMENTATION	SUMMERHAVEN
CONDENSATION	LADYBUGS	TEMPERATURE
CONIFERS	LATENTHEAT	TOWER
COVARIANCE	LEMMON	TRANSPIRATION
DATA	LICOR	TREES
DEW	LIGHTNING	TURBULENT
EDDY	MICROMETEOROLOGY	WATER
ENERGY	MOISTURE	WIND
EVAPORATION	PHOTOSYNTHESIS	