

Ephemeral Flow

A NEWSLETTER ABOUT SAHRA



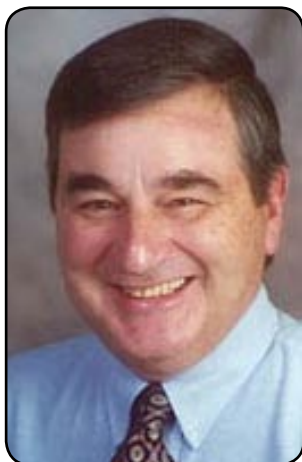
2008, no. 2

Welcome to the second 2008 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

Long Live the New King

SAHRA Director **Jim Shuttleworth** is hanging up his megaphone and taking a well-deserved rest from administration, beginning August 28. At that time, **Juan Valdés**, co-leader of the Knowledge Transfer/International macro-theme, will exchange his role as head of the UA Dept. of Civil Engineering and Engineering Mechanics for the position of SAHRA Director. To ensure a smooth transition in leadership, Juan has been named Deputy Director in the interim. Previous Deputy Director **Kathy Jacobs** (who also serves as Executive Director of the Arizona Water Institute), has been appointed SAHRA's Associate Director for Science Implementation. Her role is to build relationships with an expanded range of SAHRA stakeholders, beyond those concerned with water management, with a view to defining new avenues of financial support for SAHRA's ongoing scientific activities when NSF funding ends.



New role for Valdés: savior or scapegoat?

ICIWaRMing Up



SAHRA's partnership with the Army Corps of Engineers (USACE) and other entities took a substantial step forward in early 2008, with the formal approval of a proposal to establish the International Center for Integrated Water Resources Management (ICIWaRM). (Will somebody please stop Gary Woodard from naming future programs?) ICIWaRM hopes to be the first U.S.-based center to work in support of UNESCO's International Hydrology Program (IHP). The proposal was submitted to the U.S. National Committee for UNESCO and subsequently passed through the U.S. government for IHP approval in February. The next hurdle is gaining formal acceptance by the Governing Council in June; general UNESCO approval would follow in six to nine months. ICIWaRM will focus on Latin America and the Caribbean. With funding from USACE, SAHRA will manage the participation by U.S. academic institutions nationwide in training and project activities. SAHRA's activities will be coordinated by **Juan Valdés**. More news as it develops...

Related to SAHRA's ramped-up international efforts, Juan will give

UPCOMING EVENTS

May 29: SAHRA Executive committee Meeting, Doubletree Hotel at Reid Park, Tucson, noon

May 30: SAHRA External Advisory Board Meeting, Doubletree Hotel at Reid Park, Tucson

Oct. 16-17: SAHRA 8th Annual Meeting, Biosphere 2

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.

the keynote speech at the 2008 Water Science Forum on June 27 at the U.S. Department of State, on the U.S. role of science and engineering in addressing water issues in arid and semi-arid regions worldwide. The forum will address problems of water scarcity and pollution in countries that have the least resources for coping with these important issues. The 200 ambassadors to the United Nations who represent UNESCO countries have been invited to attend, along with U.S. agency representatives.

ADMINISTRATIVE NOTES

Annica Polm has revealed her true identity and henceforth will be known as **Annisa Tangreen** (pronounced tan-gren). Much appreciated if you would adjust your thinking, your records, and your emails.

RESEARCH

Riparian Vegetation Change at Last!

After waiting nearly 18 months for EPA funds to arrive, SAHRA researchers **Tom Meixner, James Hogan** and **Julie Stromberg** are finally able to begin their research to assess the potential for riparian vegetation change in Arizona. Riparian ecosystems are sensitive to even small changes in water availability, with sharp changes in vegetation as streams become intermittent and as groundwater declines. As a result, riparian vegetation has declined on many rivers due to water extraction or has been



Photo: James Hogan

UA grad student Scott Simpson samples the Bill Williams River prior to a planned reservoir release.

altered due to the hydrologic impacts of climate variability. Despite much previous disciplinary work on individual rivers, a regionally comprehensive and integrated understanding of how these systems respond to hydrologic change (including impacts from climate change) has been missing

Researchers have begun field work on three study rivers that span a precipitation gradient from winter-rain dominated (the

Bill Williams River in the Mojave Desert of western Arizona and its tributary, the Santa Maria), equal winter and summer rain (the Hassayampa River in the Sonoran Desert of central Arizona), and summer-rain dominant (the San Pedro River in the Sonoran/Chihuahuan Desert of southern Arizona). On each river, researchers have focused on hydrologically gaining reaches that have perennial flow and shallow groundwater, and losing reaches with intermittent flow and deeper and more fluctuating groundwater levels. Efforts at the Hassayampa and San Pedro rivers have been enhanced by an Arizona Water Institute grant, which funded

the deployment of a comprehensive monitoring system (including the use of new passive neutron probe technology) to characterize physical and biotic responses to floods. On the Bill Williams River, efforts have focused on monitoring the hydrologic and ecologic impacts of recent reservoir releases in the form of management floods, aimed at promoting riparian vegetation establishment.

This research will produce three useful products for resource managers in the Southwest. First, it will improve understanding of the linkages between climate (precipitation timing and amount), hydrologic variability (streamflow and aquifer

conditions), vegetation structure, and ecosystem services in riparian ecosystems, and of regional variability in these relationships. Second, it will produce a transferable model of coupled hydrologic-vegetation processes in riparian ecosystems. Third, it will develop a climate-sensitivity matrix that will be useful for projecting regional impacts of climate change and anthropogenic impacts on riparian water budgets and ecosystem change.

H₂O POLICY & MANAGEMENT

NM and TX Bury the Hatchet

The Elephant Butte Irrigation District (EBID), El Paso County Water Improvement District No. 1 (EPCWID), and the U.S. Bureau of Reclamation recently reached what EBID Manager Gary Esslinger called “a monumental agreement” on apportioning Rio Grande water from the Elephant Butte Reservoir between New Mexico and Texas, culminating a decades-long negotiating effort that included significant help from **Tom Maddock**, head of the UA Dept. of Hydrology and Water Resources, and several of his graduate students over the past decade. In fact, one of the more fruitful discussions occurred in the Marshall Building under the auspices of SAHRA.

In February, the districts, which together operate the Rio Grande Project, agreed to drop their separate lawsuits over water rights, following a 29-year old dispute. EPCWID had claimed that unregulated groundwater pumping by New Mexico farmers was cutting into its share of reservoir water. Both Texas and New Mexico had been building their respective war chests to litigate the issue, but were at an impasse over who had jurisdiction, since major lawsuits had been filed in federal district courts in each state. Both sides credited Pat Gordon, incoming Rio Grande Compact Commissioner for Texas, with helping the parties break through to an agreement. Under it, EBID will guarantee delivery of EPCWID water to the state border, and the New Mexico farmers can continue to pump groundwater as long as the El Paso delivery requirements are met. The agreement is historic in that the two sides were able to settle out of court, a rarity in the West.



Photo: James Hogan

Elephant Butte Reservoir, New Mexico

EDUCATION

Rolling on a River

As part of the Arizona Rivers program, SAHRA Education Program Director **John Madden** led a rafting trip in April on the Salt River for high school students enrolled in the AP environmental science class of Tucson's AmeriSchools College Preparatory Academy. Participants enjoyed a full day of sun and adventure while getting hands- and bodies-on research experience.

The trip started where the Upper Salt intersects Highway 60 on the White Mountain Apache Reservation and ended



Photo: John Madden

well as how much they individually, and we as a society, use. Many of them have said they have started making changes in the way they think and act regarding their own resource consumption. Most importantly, many have become interested in becoming involved in the political processes that will influence future water policy.”

And from the kids: “I would like to work with Outdoor Adventures in college and help educate people and show them that we do have... some very beautiful water resources.” — Amanda Hollenbaugh
“The whitewater rafting trip has had an impact on me by

showing that there are situations to be concerned about but while finding those concerns and finding solutions, we can enjoy and expand our knowledge of the water and what is in it.” — Anthony Rome

at Cibecue Creek. Students measured temperature, TDS, pH, nitrates, alkalinity, and dissolved oxygen at four sites along the river and another site upstream on Cibecue Creek. Thanks go to Pat Crowley of Sierra Club's Inner City Outings for coordinating the trip with help of UA Outdoor Adventures, and several river guides who volunteered their time.

Teacher Angela Urbon says the trip “taught my students in a very real way the reasons people should care about water resource issues. They are more concerned about the quality of our water as



Photo: John Madden

PEOPLE

Students Finishing Degrees

Belated congratulations to **Koray Yilmaz**, who finished his Ph.D. in hydrology and water resources at UA late in 2007, and is continuing at the UA as a postdoc, working with Hoshin Gupta. Koray's dissertation was titled “Towards Improved Modeling for Hydrologic Predictions in Poorly Gauged Basins.”

Our congratulations (and similar apologies for belatedness) also go to **Farid Ishak Boushaki**, who received his Ph.D. in civil engineering in 2007 from the University of California at Irvine. Farid's dissertation was “Merging Ground and Remote Sensing Precipitation Data for Improving Hydrologic Modeling Performance,” undertaken under the mentorship of Soroosh Sorooshian. Farid is now employed as a senior engineer with Wildemuth Environmental in Lake Forest, California.

Later this month, UA hydrology master's student **Will Veatch** is planning to defend his thesis, “Quantifying the effects of forest Canopy Cover on Net Snow Accumulation at a Continental, Mid-Latitude Site, Valles Caldera National Preserve, NM, USA.” His post-degree plans likely will involve moving to Washington, DC or New Orleans for water policy/development-related work, but the situation, as they say in the hydro biz, “is fluid.” Will's primary advisor is Paul Brooks.

Will's field work buddy **Joe Gustafson** also plans to finish his MS in hydrology at UA early this summer. His (tentative) thesis title is “Quantifying Spatial Variability of Snow Water Equivalent, Chemistry, and Water Isotopes: Application to Snow Pack Water Balance.” Joe plans to move back to the Portland, Oregon area to be with his fiancée, a first year dental student at Oregon Health Sciences University in Portland. He will be interviewing for positions in environmental consulting, and would like to specialize in environmental mitigation, remediation, and due diligence.

Just last week, **Samantha Treese**, MS student in hydrology at UA, successfully

defended her thesis, "Stream/Aquifer Interactions in a Semi-arid Artificial River: The Effects of Effluent." Sam has not announced her post-degree plans.

Also last Tuesday, **Geneva "Gigi" L'Abbe** completed requirements for her M.Eng. in hydrology, with her paper "The Road to a Masters of Engineering in Water Resources: The Straight and Narrow." Gigi will continue working for the Chicago office of the Internal Revenue Service, where she specializes in water projects and water infrastructure. Her primary advisor at UA was Don Davis.

Staff graduations

SAHRA Applications Systems Analyst **James McGill** will receive his BS in computer science at the UA commencement in May. He and his wife, Melissa Panagos, have multiple reasons to celebrate: Melissa will also receive double bachelor's degrees in molecular and cellular biology and psychology. It seems that together they have all the bases covered!

Publicity/Honors

Two SAHRA affiliates from the UA,

Ph.D. student **Hoori Ajami** and postdoc **Francina Dominguez**, were recognized by the Hydrology Section of AGU for the excellence of the papers they presented at the 2007 Fall Meeting. Both received Outstanding Student Paper Awards, Hoori for "Application of GIS based tools for groundwater recharge and evapotranspiration estimation: Arc-recharge and RIPGIS-NET," and Francina for "Relocation of southwestern US terrestrial moisture through atmospheric pathways." The awards were announced in a recent issue of *Eos*.

R & R

The Last Word

Across

1. Co-winner (with Begin) of the Nobel Peace Prize.
6. SAHRA's type of NSF-funded organization.
9. SAHRA built one on Mt. Bigelow.
14. Expunge.
15. Abner or Diamond.
16. Second largest city in Japan.
17. Sticks fast in mud.
18. Yale student.
19. Grace _____, poet and writer who died in 2007.
20. Optimal.
21. Shade tree.
22. What H.S. dropouts sometimes later pursue.
23. Chore, assigned duty.
25. Incumbent director Valdes no doubt is a member of this org.
28. A persistent organic pollutant.
31. Son of Priam and Hecuba.
33. AGU's weekly rag.
36. Hah, hah, nowadays.
37. A southpaw is one type.
38. Meixner is one.
39. Tallest peak in Turkey.
41. Fave color at OSU and VaTech.
43. Gull-like shore bird.
44. What Bush says we're fighting a war on.
48. Fleming, creator of 007.
49. Summer refreshment.
50. Leaves of grass.
51. Terminate.
52. One who tests well.
53. Place to store instruments and tools.

56. See 8-Down.
59. Lousy egg.
61. A broadcast medium.
65. Our beloved Center.
67. "Should I Stay or Should _____?"
68. Stoves.
69. Extraterrestrial.
70. Not either.
71. Italian ten.
72. Fermenting agent.
73. A test many college seniors face.
74. Icelandic sagas.

Down

1. Partly, used as a modifier for 2-Down.
2. Type of region SAHRA research focuses on.
3. Challenge.
4. Have _____ at the table (2 words)
5. The father of physics, or name of a new electric sports car.
6. Has less drag.
7. Work the fields.
8. It is "unequivocally" changing, according to 56-Across.
9. Foremost.
10. Midwestern tribe.
11. Rib of fabric.
12. Got by (with 'out').
13. Beams of light.
24. What the present director would be named if his mother had followed 26-Down's naming convention.
26. The former SAHRA director.
27. Initials of UA SAHRA student and leader of Master Watershed Stewards.

by Mary Black

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28. Rio de la _____.
29. Prepared an apple.
30. Sound loudly.
32. With Br, isotope is used to study the solute balance of the Rio Grande.
33. _____, meenie, miney, moe.
34. Wurlitzer or spleen, for example.
35. Use up, consume.
37. Exclamation of surprise or triumph.
38. Position for a grad student.
40. ER worker.
42. Reading or B&O.
45. Netting.
46. Hwy.
47. Something to do to a compromised wetland.
50. Previous to A.D.
52. Big lots.
54. Wear away, as soil.
55. Goodrich or Brookshire.
56. "_____, old chap!"
57. Wan.
58. Inanimate pet.
60. Stravinsky.
62. Proof of legal ownership.
63. Ancient Andean empire.
64. Pathological suffix.
66. Hard-working insect.