

# ARIZONA HYDROLOGICAL SOCIETY

July, 2007

## Viewpoint: Annual Meeting 2007

Here it comes, folks!

Starting the evening of August 29, the Arizona Hydrological Society in conjunction with *Southwest Hydrology* will present the 2007 Regional Water Symposium. It looks to be one of the biggest events we have ever had. I hope you have already registered and laid claim to one of those plush hotel rooms at an unbeatable rate, because they won't last forever.

This year's Annual Meeting will take place on Thursday evening at 5:00 PM, and will only last an hour. This year's symposium has packed a lot into its schedule, and as a result, presentation of the scholarships—which we usually do at lunch on the second day—will take place during the Annual Meeting. So we will be on a tight timeframe.

Why go to the Annual Meeting? In the past it has been the forum for many of the important debates within AHS. It took spirited discussion at several Annual Meetings to get the concept of the Foundation launched. I remember a few heated meetings when the idea of a professional registration for hydrologists came up. Now I don't foresee anything quite that contentious brewing on the horizon for this year, but the Annual Meeting can't be offhandedly dismissed. It is important. It's where we review the things we have done as a Society over the last year. It's where members get to express their opinions on what the Society needs to do in the next year. It's where we find out how we are doing financially (although we will keep that re-

port a short one this year, so we can acknowledge our scholars and give away money).

So you ought to be there. Come and offer your opinion on the issues before the Society, hear the reports on where we've been and where we're going, and clap heartily for the winners of our scholarships.

As an aside, I should mention that AHS long ago found that free libations make for a much better Annual Meeting. It's a great tradition. And I am never one to oppose tradition.

Alan Dulaney  
AHS President 2007



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## Update on 2007 Annual AHS Symposium

Sustainable Water, Unlimited Growth, Quality of Life



**2007 Regional Water Symposium  
OFFERS A VARIETY OF WORKSHOPS  
TO MEET YOUR PROFESSIONAL EDUCATION NEEDS  
Aug. 29-Sept. 1, 2007  
Westin La Paloma Resort & Spa  
Tucson, Arizona  
Thursday, August 29, 2007**

### 2007 Symposium Update

Still haven't decided whether or not to register for the symposium? In previous newsletters, we've written about optional workshops and field trips, and the great venue with its luxurious but "low-priced" rooms and wonderful food. We've also mentioned all the generous sponsors and exhibitors we have signed up, such that this symposium's vendor show will be AHS's largest ever. But since the program is ultimately what matters most, here are some highlights, in case you haven't yet checked out the website.

The symposium will have a total of 28 technical sessions over the course of two days and an unprecedented 50 poster presentations.

One track of seven consecutive sessions will address the symposium theme of "Sustainable Water, Unlimited Growth, and Quality of Life: Can We Have It All?" Of those sessions, three will be devoted exclusively to

moderated discussions where we'll ask the hard questions like, "Do physical limits to our water supply exist?" "Why *can't* we say no to development?" "How can we work with The Slow Gears of Regulatory Change?" and "How can environmental needs and values be better incorporated into water planning?" The track will conclude with a special panel discussion to address the hypothetical—yet not unlikely—scenario of the Colorado River at 10 million acre-feet average discharge and 50 million users.

The symposium also offers a good dose of technical presentations, including four consecutive sessions on riparian-related topics and two on energy-water issues along the U.S.-Mexico border area. Additional sessions cover such topics as urban runoff/recharge, regional and local-scale water quality concerns, water re-use approaches, artificial recharge, GIS tools for water resource planning, and complex data management tools.

For those more into water policy and planning, there will be a session to compare water policies across the Southwest states, and one specifically focusing on Arizona. In addition, you can learn about innovative approaches to development and regional water planning, and trends in residential water use and rainwater harvesting.

Visit <http://www.watersymposium.org> to see who all will be discussing these and other topics. And then register—soon! Rates go up after July 13. Also note that the hotel's room block is limited, so if you need a room, reserve it soon as well.

Gary Burchard and  
Betsy Woodhouse  
Symposium Co-Chairs

**Early registration ends July 13. Register at [www.watersymposium.org/reg](http://www.watersymposium.org/reg).  
Reserve your room online for only \$109/night (\$83 government rate\*) at  
[www.watersymposium.org/accommodations](http://www.watersymposium.org/accommodations)**

**Rates are good 3 days before and after the symposium.**

**\*Government employees must make reservations by phone: 520.742.6000, ask for x7845 to get the "Water Symposium Rate"**

## 2007 Annual AHS Symposium cont.

Fundraising Update for the Annual Symposium  
Please see the list for current sponsors for the Symposium. There are only four booths left so if you are planning on signing up do it now. To sign up please go to the Symposium AHS website at [www.watersymposium.com](http://www.watersymposium.com) or contact me at (520) 575-8100 or [mblock@metrowater.com](mailto:mblock@metrowater.com).

On the behalf of the Symposium Planning Committee, I would like to again thank all of our donors for your incredible generosity and support for a successful 2007 Symposium.

### Corporate

Archaeological Consulting Services, Ltd  
Hargis + Associates, Inc.  
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Layne Chistensen Company  
Sandia National Laboratories  
URS Corporation  
WDC Exploration & Wells  
Zonge Engineering and Research Organization  
hydroGEOPHYSICS, Inc.

Digital Lounge  
Salt River Project

### Event Sponsor

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### Exhibitor

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Boart Longyear Suppliers Division  
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University of Arizona - SAHRA

# JOBS

## GREAT NEWS!

The JOBS web page has been moved to the Public area of the AHS website. To see the latest JOB postings visit:  
[www.azhydrosoc.org](http://www.azhydrosoc.org)

# ISMAR6

## International Symposium on Managed Aquifer Recharge



### ***ISMAR6: The Sixth Annual International Symposium on Managed Aquifer Recharge***

October 28 – November 2, 2007 • Phoenix, Arizona, USA

You are invited to attend the 6th Biennial International Symposium on Managed Aquifer Recharge — the world's preeminent conference devoted entirely to aquifer recharge. This event is being organized by the [Arizona Hydrological Society \(AHS\)](#) in partnership with [IAH](#), [ASCE / EWRI](#), and [UNESCO](#). It will be held in Phoenix, Arizona, a well-known research and development center for managed aquifer recharge.

#### ***The Program***

This year's program includes 3 days of [technical and poster sessions](#), an IAH-MAR plenary, four exciting [workshops](#), a "meet and greet" reception, and two informative field trips to learn about innovative aquifer recharge projects in the [East Salt River Valley in the Phoenix area and in the Las Vegas Valley in Nevada](#).

After the conference, you can take advantage of your time in the beautiful Southwest to join a [sightseeing tour](#). Choose from the Grand Canyon, the Tucson / Sonoran Desert area, and the Sedona area.

#### ***Location & venue***

ISMAR6 will be held at the Pointe South Mountain Resort in Phoenix, Arizona.

You can enjoy a range of outdoor activities and world-class amenities amid abundant wildlife, picturesque sunsets, and inspirational landscapes.

In addition to the many activities associated with the conference, we have also just added a post conference field trip to **Las Vegas, Nevada** where participants will be able to see the many recharge facilities constructed by the Las Vegas Valley Water District. These include state-of-the-art ASR wells and water treatment infrastructure. The field trip will be on Saturday, November 3 from 9am to 4:30pm. To sign up, please contact Barbara Murphy at [bmurphy@clearcreekassociates.com](mailto:bmurphy@clearcreekassociates.com). You can view the details of the field trip to Las Vegas on the ISMAR6 website.

**DO NOT MISS OUT ON THIS OPPORTUNITY TO PARTICIPATE IN AN INTERNATIONAL CONFERENCE IN OUR VERY OWN BACKYARD!**

Soil Gas

Technical Session

Handouts

Available at

[www.azhydrosoc.org](http://www.azhydrosoc.org)

Click on Soil Gas Handouts

#### **AHS Newsletter Articles**

Anyone wishing to submit articles of interest to AHS members may do so by emailing your article to [jgmerideth@aol.com](mailto:jgmerideth@aol.com). Deadline is the 15th of the month prior to publication.

The AHS Editorial team reserves the right to publish or not publish your article.

## Announcements

### Call for Abstracts

*Due Date Extended to July 27, 2007*

## DESERT REMEDIAL ACTION TECHNOLOGIES WORKSHOP



October 2-4, 2007

Phoenix, AZ

Workshop Sponsors



#### Desert Remedial Action Technologies Workshop (D-RAT):

The first U.S. Environmental Protection Agency sponsored Desert Remedial Action Technologies Workshop will be held in Phoenix, Arizona on October 2-4, 2007. The 2-day workshop will be co-sponsored by the Arizona Department of Environmental Quality. An optional field trip will be offered on October 4, 2007. There will be no fee to attendees for this workshop.

This will be the first EPA-sponsored workshop to focus on remedial technologies being successfully applied in desert environments. The program will emphasize field applications and case studies for technologies being applied to dissolved phase volatile organic compounds (VOCs), (specifically trichloroethene [TCE]), perchlorate, and chromium.

Abstracts to be considered for placement in the program will be due by **July 27, 2007**. Poster presentations are welcome to present innovative technologies within the technical program scope, and are not limited to successfully applied technologies, but may present emerging technologies with desert applications.

Preferred accommodations will be established in the Phoenix area and announced at a later date.

**Technical Program Scope:** Presentations will cover innovative, emerging, **proven** technologies to remediate dissolved phase volatile organic compounds (VOCs), perchlorate, and chromium specifically in desert environments. The focus will be on in-situ technologies.

#### Desert Remedial Action Technologies Workshop (D-RAT):

##### Abstract Submission:

**Content:** All abstracts should be no more than 1 page in length and include content consistent with the technical program scope. A maximum ½ page biography should accompany all abstracts.

**Format:** All abstracts should not exceed one standard page in length. All abstracts must be presented in English in Microsoft Word format.

**Submission:** Use the form included with this call for abstracts when submitting abstracts.

**Confirmation of Receipt:** Confirmation of receipt of the abstract will be done by e-mail within one week of submittal. Electronic submission is preferred.

**Review:** Abstracts received by the due date will be reviewed for currency, technical merit and relevance to the workshop.

**Notification of Acceptance:** Notification of acceptance decision will be mailed by **August 10, 2007**.

**Proceedings:** Acceptance letters will include directions on providing abstracts and presentation materials to be available online to the attendees at the workshop. The anticipated deadline for slides and finalized abstracts is August 31, 2007. Electronic submission is preferred.

**Inquiries:** All inquiries regarding submission and content of abstracts should be addressed to Mary Aycock, Aycock.Mary@epa.gov, (415) 972-3289. Additional workshop information will be available in a forthcoming website.

## PHOENIX CHAPTER NEWS

### June Meeting Summary

\_\_\_Syed Amanatullah, PE, is the managing partner of AMTECH Associates, LLC. (AMTECH) and has over 23 years of diverse environmental consulting experience on environmental investigation and remediation services. On June 12, Syed gave a presentation on an alternative wastewater treatment plant in context to researching a solution a project that he is working on for Camp Verde. He provided a regulatory overview for wastewater treatment plants (WWTPs), touching on aquifer protection permits as well as compliance standards at all levels. He reviewed the advantages and disadvantages of mechanical, package, and natural wastewater treatment systems. This review was then put in context with the community needs of a rural area that is experiencing growth and large growth potential. In this scenario, the community has the need for a system that can handle a larger volume of wastewater, but may not have the funding to build, operate, and maintain an expensive mechanical WWTP.

As a case study, Syed visited the Audobon's Corkscrew Swamp Sanctuary near Naples, FL. They have built a wastewater treatment system, called the Living Machine, which uses sunlight, bacteria, green plants, and animals to restore water to clean conditions at about 35 - 40,000 gallons per day. You can read more about it at <http://www.corkscrew.audubon.org/Information/LivingMachine.html>. The advantages a natural treatment system has over the other systems is that it can handle a lot of volume, more so than package systems, yet they can cost approximately 1/3<sup>rd</sup> the amount to build than the mechanical systems. Audience members were curious as to how well a similar system that was built in Florida could be adapted to the Arizona climate.

The Phoenix Chapter would like to thank Syed for sharing his knowledge and experiences with the 20+ members and guests that came to the meeting.

### July Meeting

Tuesday, July 10, 2007

4:30 Chapter Board Meeting (all members welcome)  
 5:30 Social Hour  
 6:15 Order Diner  
 6:30 Dinner  
 7:15 Meeting with Speaker Presentation

Speaker: Lisa Spahr, EEC -

Topic: Status of Phase 1 MS4 AZPDES Permits in Arizona

Location: Uno's, Downtown Tempe.

Please, RSVP by Monday, July 9th, to Beth Proffitt at [eproffitt@transgeo.com](mailto:eproffitt@transgeo.com).

### 2007 Event Calendar

August – No Meeting  
 September – No Meeting  
 October - Andy Laurenzi - Sonoran's Sustainable Water Management report  
 November – Lori LaPlat Polasko Vice President and Principal Scientist- Geomatrix – Percholorate Talk  
 December – Tim Fitzpatrick Laboratory Data Consultants – Environmental data management software program  
 January – Kick-off meeting No Speaker  
 February – Paul Westerhoff, ASU - Endocrine disruptors

#### Phoenix Chapter Officers

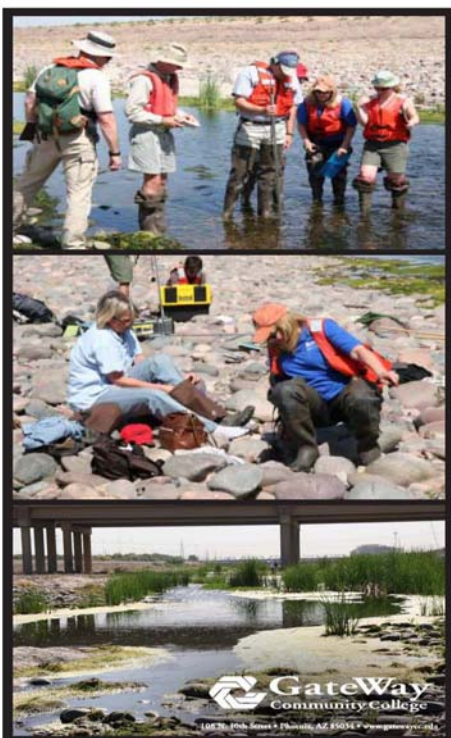
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# ANNOUNCEMENTS



## [Hydrologic Studies]

at GateWay Community College

*Fall 2007*

### Degrees, Certificates, and Courses Available!

- ◆ Associate in Applied Science in Hydrologic Studies
- ◆ Paid internships and field experience with industry organizations
- ◆ Hydrology Training
  - ◆ Surface Water Hydrology
  - ◆ Ground Water Hydrology
  - ◆ Water Quality
  - ◆ Instrumentation
  - ◆ Geographic Information Systems (GIS)

For more information or to register for classes, please contact the Industrial Technology Division at (602) 286-8613.

[www.gatewaycc.edu](http://www.gatewaycc.edu)



## [Water Resources Technology]

at GateWay Community College

*Fall 2007*

### Degrees, Certificates, and Courses Available!

- ◆ Associate in Applied Science in Water Technologies
- ◆ Certificate of Completions
- ◆ Arizona Department of Environmental Quality Water Operator Certification Training and Testing
- ◆ Water Resources Training
  - ◆ Water Treatment
  - ◆ Water Distribution
  - ◆ Wastewater Treatment
  - ◆ Wastewater Collections
  - ◆ Membrane Technologies
  - ◆ Water Quality
  - ◆ Maintenance and Troubleshooting

For more information or to register for classes, please contact the Industrial Technology Division at (602) 286-8613.

[www.gatewaycc.edu](http://www.gatewaycc.edu)

## Announcements

### **Reminder, Nominations Due for 2007 AHS Lifetime Achievement Award**

**-Mike Block, Metro Water District**

The Corporate Board of the Arizona Hydrological Society (AHS) is seeking nominations from AHS members on the 2007 AHS Lifetime Achievement Award. AHS member or non-member is eligible for nominations. The award consists of a personal recognition plaque, a rotating plaque listing all past recipients and a \$500 check to an Arizona educational organization of choice by the award recipient. The award is presented at the Annual Symposium to honor an individual who has contributed to AHS, the science of hydrology within Arizona

and/or has received national fame for their contributions in the hydrology field.

**Lifetime Achievement Award nominations can only be made by current AHS members.** Please refer to the Symposium section of the AHS website ([www.azhydrosoc.org](http://www.azhydrosoc.org)) for more information about the award and how to complete a nomination form. Your nomination must be submitted by July 10, 2007.

Please contact Mike Block at (520) 575-8100 or [mblock@metrowater.com](mailto:mblock@metrowater.com) if you need more information.

### **The Fourth Symposium on Southwest Hydrometeorology**

Tucson, Arizona  
September 20-21, 2007

**Purpose.** The Fourth Symposium on Southwest Hydrometeorology will provide a forum to discuss and present research issues associated with mid-latitude, subtropical, and tropical weather systems that affect the Southwest United States, and to discuss the impact of these systems on hydrologic systems. Since the Third Symposium in 2002, there have been considerable advances in both hydrologic and meteorological science; these advances have created a foundation for a much closer relationship between these disciplines. Extensive, ongoing research is underway through the North American Monsoon Experiment. Deterministic, ensemble and probabilistic forecasting has advanced. Close working relationships across academic, government and private sectors have opened new areas of investigation to address questions on how to add value to both weather and water forecasts. This symposium seeks to strengthen these relationships and continue to advance our understanding of the complex weather and hydrologic forecast issues in the Southwest U.S.

**Topics.** The wide range of bioclimatic zones in the region (e.g., deserts, savannah, alpine) and hydrometeorological phenomena (e.g., flash floods, drought, convective thunderstorms, tropical storms, teleconnections) demands a wide range of symposium topics. Session topics will include:

- Hydrometeorology integration
- Climate science and annual prediction
- Monsoon forecasting
- Extreme water and weather events in the Southwest

U.S.

- Ensemble and probabilistic forecasting
- Quantitative precipitation estimation (QPE)

**Presentations.** The two-day symposium will include both oral and poster presentations. Presentations from undergraduate and graduate students are highly desired and welcome. Abstracts should be submitted electronically no later than 15 July 2007. If you plan to attend, please provide your contact information and talk title, using the form at: <http://www.atmo.arizona.edu/swhs/SWHSFormSub.html>.

**Registration.** If you plan to attend, please provide your contact information (and talk title), using the form at: <http://www.atmo.arizona.edu/swhs/SWHSFormSub.html>.

**Cost.** The conference fee is only \$25 which will be collected at the conference itself. We will not be able to process credit cards.

**Location.** The Fourth Symposium on Southwest Hydrometeorology will be held Thursday and Friday, September 20-21, 2007, at the Tucson Hilton East Hotel.

**Logistics.** Further information on symposium logistics will be provided at a future date.

**Sponsors.** The symposium is co-sponsored by COMET, The National Weather Service, Vaisala, Inc., The University of Arizona Department of Atmospheric Sciences, The University of Arizona Department of Hydrology, The Climate Assessment for the Southwest (CLIMAS), and The Institute for the Study of Planet Earth.

**Contacts.** Please contact the program co-chairs, Chris Castro ([castro@atmo.arizona.edu](mailto:castro@atmo.arizona.edu)) or Erik Pytlak ([Erik.Pytlak@noaa.gov](mailto:Erik.Pytlak@noaa.gov)), for further information.



# SARSEF

## SOUTHERN ARIZONA REGIONAL SCIENCE AND ENGINEERING FAIR

By Mike Block, Gary Burchard, and Marla Odom Metro Water District, and Errol L. Montgomery & Associates, Inc.

On March 20, 2007, the Tucson Chapter of AHS again participated in the Southern Regional Science and Engineering Fair (SARSEF) held at the Tucson Convention Center. The Tucson Chapter presents monetary awards totaling \$575 to hydrology-related science fair projects at SARSEF. In 2007, thirteen awards were presented.

The following is a brief summary of the winning projects. In some cases, the student's name was not listed on the project. Since the prizes are administered by SARSEF, and the students were not present during the AHS judging, information on the individual winners may not be complete. For more information about SARSEF, see their website [www.sarsef.com](http://www.sarsef.com)

**Grades K-2:** Students in grades Kindergarten through second grade were judged more heavily on their ability to form a hypothesis, conduct an experiment, and make a conclusion based on the experiment than on the hydrological content of the experiment.

Mrs. Victoria Zismann's kindergarten class at Sonoran Science Academy tested the question of what liquid will grow bean seeds the best. They concluded that diet cola grew plants the best. They suggested a follow-up experiment using different types of water. "Different Liquids – How Well Do Plants Grow in Different Types of Liquids?"

Ashlyn Briggs from Mr. Scott's kindergarten room at Fruchthendler Elementary wanted to find out in what liquid will sugar cubes dissolve fastest and does temperature make a difference? She used three different liquids at three different temperatures and concluded that the sugar cube dissolved fastest in hot water and hot vinegar. "Now You See It, Now You Don't"

First Grader Austin Gray from Coyote Trails Elementary School hypothesized that the same amounts of liquids frozen the same amounts of time will take the same amount of time to melt. After testing 12 different liquids, he concluded there was a big difference in the amount of time it took different liquids to melt. Juice melted first, then carbonated drinks, then water. He also presented variables that might have affected his experiment. "Vanishing Ice"

Michaela Lopez, 1<sup>st</sup> grader from Chapel in the Hills School, hypothesized that carbonated water and mineral water will make seeds grow better. After observing daily seeds grown with five different types of water over two weeks, he concluded he was wrong and that tap water grew seeds the best. "Using Different Types of Water to See How Seeds Sprout."

Second Grader Joseph Montoya from Painted Sky Elementary had read that treatment plants use chlorine to treat wastewater, that too much chlorine can poison the water, and that treated wastewater is dumped into the Santa Cruz River. He hypothesized that chlorine would be found downstream of the treatment plant. His tests showed there was no chlorine in the Santa Cruz River. He conducted a follow-up interview with a Pima County Wastewater Management Department engineer and found out that the wastewater is dechlorinated before it goes into the river. "Chlorine in the Santa Cruz River?"

### Grades 3-5:

Isaac Koster, a 3<sup>rd</sup> grader at Ocotillo Ridge Elementary, asked, "Do Rocks Absorb Water?" Isaac's hypothesis was that pumice will absorb more water because it has holes and is light. He first measured the dry weights of sodalite, sandstone, fire agate, granite, and chalk. Next, he measured their weights after soaking 1 hour, 2 hours, 3 hours and 24 hours. Isaac found that the weight for chalk went down between 2 and 3 hours, but had increased after 3 hours. He concluded that porous rocks have empty space that holds air until water fills the voids.

Fourth graders Josephine Tolsa-Santillan and Angela Wager from Saints Peter and Paul Catholic School used kitchen ingredients to change the flavor of chlorinated tap water, trying to contribute new, inexpensive options for improved water taste. They added ¼ teaspoon each of sugar, salt, baking powder, baking soda, white vinegar, cinnamon, orange leaf, anise seed, lemon, and nopalitos cactus to one quart of water. They then conducted a taste test to see which water people preferred. They also tried Tucson Water's suggestions of refrigerating water for 2 hours before drinking and boiling water before drinking. They found that the water with vinegar added was preferred most, and also did not compromise the clarity of the water. "Tap Water Taste Absolutely Positive"

(Continued on page 10)

## SARSEF cont.

*(Continued from page 9)*

Catherine Campbell's fourth grade at Octotillo Elementary School hypothesized that Tucson's tap water would have the same levels of chlorine, sodium chloride, and pH all over Tucson. They found that the pH ranged from 5-10, depending on location. Half tested in the 7.0-7.5 range. Chlorine and sodium chloride tests were inconclusive because levels were far too low for the testing kits used. They decided that the discovery of the use of inappropriate tools was an important process in scientific learning. They also conducted a taste test, and found that most people preferred the water with the highest pH. They plan to continue studying Tucson tap water. "Testing Tucson's Taps"

Fourth grader, Elizabeth Young from Centennial Elementary School looked at the effects of prickly pear mucilage on drinking water quality. His hypothesis was that prickly pear cactus will decontaminate drinking water and therefore improve water quality, based on research indicating that prickly pear cacti successfully purified water for Latin American cultures in the past. He found that pH and nitrate levels in the treated water were indeed lowered in the water, but that turbidity, TDS, and bacteria increased, probably due to unfiltered plant material, and suggested future research of prickly pear mucilage in conjunction with filters. "The Effects Of Prickly Pear Mucilage On Drinking Water Quality"

Fourth grader Cassondra Simpson, from Mt. View Elementary investigated water quality on the Santa Cruz River. She hypothesized that water quality is better in the Santa Cruz River downstream at Chavez Siding Road than it is upstream at Rio Rico because Rio Rico is closer to the wastewater treatment plant. She tested for temperature, dissolved oxygen, pH, phosphate, nitrate, and turbidity and thoroughly explained the importance of each parameter on water quality. She found that the pH and temperature did not change. Dissolved oxygen was lower at Rio Rico (and therefore worse water quality). Phosphates were low at both sites. Nitrate decreased from 40 ppm at Rio Rico, to 5 ppm at Chavez Siding Road. Turbidity decreased from 100 jtu at Rio Rico, to 20 jtu at Chavez Siding Road. She therefore concluded that her hypothesis was correct. "Water Quality On The Santa Cruz River"

### Grades 7-9

Brad Greeson, a 7<sup>th</sup> grader at Pistor Gate Middle School had a sediment transport model project entitled "Go with the Flow?" Brad constructed his model

with a dam and spillway, plus with regularly spaced vertical pins to measure sediment depths. His hypothesis was that a higher rate of water flow will result in sediment deposits settling closer to the dam. His results confirmed his hypothesis, but not in the manner for which he had thought. Brad found sediment deposition was a lot more complicated process. He recognized more tests using different sediment compositions and flow rates could improve the project. Additionally, Brad thought that including a tributary or changing the height of the dam might help in learning more about sediment transport processes.

Rachel Snyder, an 8<sup>th</sup> grader at Doolen Middle School Gate Program investigated whether a copper smelter impacted surface water quality. Her project title was called "Is Pollution from the Hayden Smelter affecting the Water Quality of the Gila River?" Her experiment consisted of measuring pH, total dissolved solids, alkalinity and dissolved oxygen downstream and upstream of the smelter. She found dissolved oxygen was the same upstream and downstream. For TDS and pH, Rachel used the Student t Test to confirm there was no statistical difference between upstream and downstream measurements. She did find alkalinity was higher downstream and concluded that the change was because of the slag piles or other environmental factors.

Nicholas Griffis, a home school 9<sup>th</sup> grader researched how dredging in Sabino Canyon might benefit the Gila Chub. He coordinated with the U.S. Forest Service in constructing five transects which he staked and measured before and after storms and dredging. Nicholas noted that he used safety protocols approved by the U.S. Forest Service for his data collection. From his data he calculated the area for each transect and concluded dredging was not effective because the box culverts were inadequate for letting sediment through and that the bridges should have an arch design. Nicholas recommend that his field methods could be improved by having stakes at equal distances and using a GPS to more easily calculated elevation changes. "Fishy Refill"



## TUCSON CHAPTER NEWS

### Tucson Chapter monthly meeting

Date: July 10, 2007

**Speaker:**

Joellen Russell, Assistant Professor, University of Arizona Department of Geosciences

**Topic:** Climate Model Projections for the Southwest

**Location:**

Errol L. Montgomery & Associates, Inc.  
1550 E. Prince Road (just west of Prince Rd. & Campbell Ave.)

7:00 p.m. Social half-hour  
(food and beverages provided)  
7:30 p.m. Presentation

**Abstract:**

Climate projections for the Southwest are essential for residents, politicians, engineers, and planners. Will we get more winter rain or less? Will our monsoon get stronger? Weaker? More erratic? How hot will it get? The latest round of coupled climate model projections prepared for the Intergovernmental Panel on Climate Change (IPCC) are widely varying, but some general conclusions can be drawn. Joellen Russell, Assistant Professor of Geosciences at the University of Arizona, and lead author of several analyses of these models will share her conclusions and thoughts about the good, the bad, and the ugly of climate model projections for the Southwest.

**Speaker Bio:**

Joellen Russell is the leader of the Biogeochemical Dynamics Laboratory (BGDL) and an Assistant Professor of Geosciences at the University of Arizona. Prof. Russell is building a global and regional climate modeling center using the UA's new supercomputer and is delighted to be part of the 8th ranked

Geosciences Department in the country after her time at number 11 (Princeton University). Her work has been cited in the latest IPCC assessment of climate, and she is the youngest of 14 sci-

entists behind an amicus curiae brief supporting the plaintiff in the historic U.S. Supreme Court decision on carbon dioxide emissions and climate change, Commonwealth of Massachusetts, et al. v. U.S. Environmental Protection Agency.

### Tucson Chapter Officers

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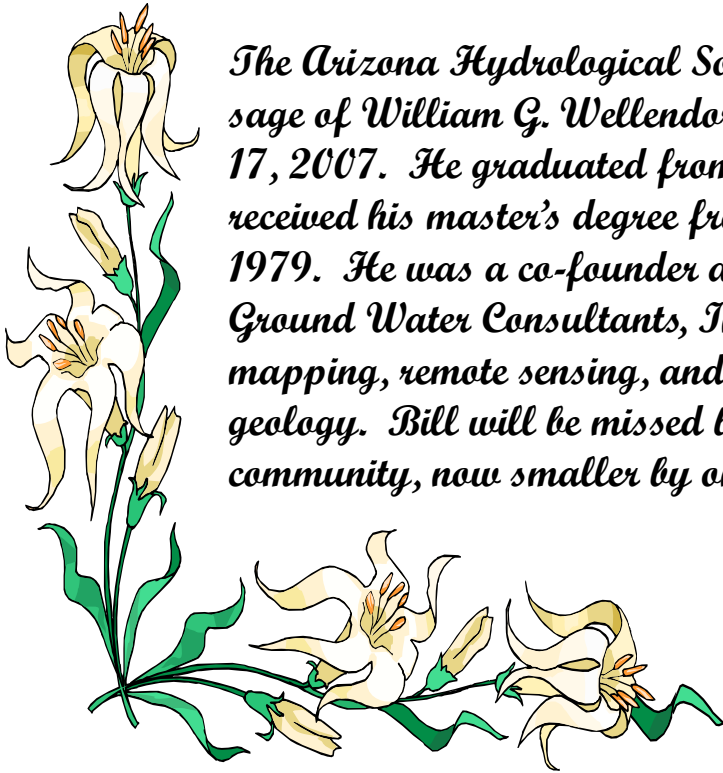
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## *In Memoriam*



*The Arizona Hydrological Society notes with sadness the passage of William G. Wellendorf. Bill Wellendorf died on June 17, 2007. He graduated from Indiana University in 1977 and received his master's degree from Arizona State University in 1979. He was a co-founder and principal of Southwest Ground Water Consultants, Inc., where he focused on surface mapping, remote sensing, and other aspects of environmental geology. Bill will be missed by his family and by the water community, now smaller by one.*

### **How to visit the AHS Members Only area:**

- Go to: [www.azhydrosoc.org](http://www.azhydrosoc.org)
- Located on the far right side of your screen click on Members Only
- Type in your username and password:  
Your username is the first initial of your first name and then your last name (ie Flo Waters would be FWaters). Your password is your zip code (that we have on file for you).

Once there you have access to documents that are not available on the public site.

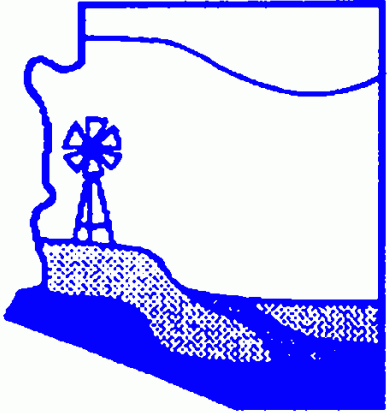
REMEMBER you must be a currently paid member of AHS to have access.

**Donations to AHS Foundation are considered charitable 501(c)(3) for tax purposes.**

**Donations of any amount may be sent to the AHSF Treasurer or the AHSF President.**

***AHS Foundation  
A. Michael Geddis, Treasurer  
3845 N Business Center Dr #115  
Tucson, AZ 85705***

# MEMBERSHIP APPLICATION



## Arizona Hydrological Society

Jeanie Merideth  
Association Manager  
PMB #139; 3305 N. Swan Rd. #109  
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Fax: (520)299-6431  
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[www.azhydrosoc.org](http://www.azhydrosoc.org)

**ARIZONA HYDROLOGICAL SOCIETY** c/o Jeanie Merideth Association Manager  
PMB #139; 3305 N. Swan Rd #109, Tucson, AZ 85712  
Membership Application (Dues: 1 year \$40, \$15 for students)

Name: \_\_\_\_\_ Position: \_\_\_\_\_

Company: \_\_\_\_\_ Email: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

*In addition to my dues, I am enclosing*

\$ \_\_\_\_\_ Herman Bouwer Intern Scholarship fund (Phoenix),  
\$ \_\_\_\_\_ Leonard C. Halpenny Intern Scholarship fund (Tucson),  
\$ \_\_\_\_\_ for the SARSEF Scholarship fund,  
and/or \$ \_\_\_\_\_ for the state-wide AHS General Scholarship fund.

Total amount enclosed: \$ \_\_\_\_\_

Chapter Affiliation:  
\_\_\_\_\_ Tucson  
\_\_\_\_\_ Phoenix  
\_\_\_\_\_ Flagstaff