

The University of Arizona
Department of
Hydrology & Atmospheric Sciences
Presents

El Día del Agua y la Atmósfera

March 22, 2022
“Our Water, Our Air”



**"Water you doing? I'm under pier pressure!"
Captured at Albany Beach, Berkeley, CA
By Reza Ehsani**

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Hydrology & Atmospheric Sciences
Student Research Symposium

El Dia 2022 General Theme

This year's El Día - titled "Our Water, Our Air" - will explore links between hydrology & atmospheric science and the pressing social challenges, with a specific focus on the arid southwest. Students will present oral and poster presentations in sessions with themes based upon guidance from world-leading institutions like the [World Meteorology Organization](#), [International Groundwater Resources Assessment Center](#), and the [UN Sustainability Goals](#).

The morning [keynote session](#) will be entitled "*Water Security in the Arid Southwest: Structures, Science, and Solutions*." We invite three panelists who can speak to the ways in which water security plays in the culture, economics, and health of the arid southwest. Panelists are advocacy, industry, and scientific leaders with a diverse set of backgrounds. The [lunch alumnus speaker](#) is Steve Waters, the Flood Warning Branch Manager at Flood Control District of Maricopa County. Steve got his B.S. from the UA. See [link](#) for more information.

In the afternoon, a career conversation and mixer will be held to bring students and alumni together to discuss "*Emerging Trends and Opportunities in Atmo & Hydro Employment*." The El Dia event will respect and amplify the focus in DEIJ (Diversity, Equity, Inclusivity, and Justice) for the larger EarthWeek event. The event will conclude with a reception, food, and drink (of course, no anchovies).

Message from the El Día Planning Committee

On behalf of the students at the University of Arizona Department of Hydrology and Atmospheric Sciences (HAS), we welcome you to our Annual Student Research Symposium, El Día del Agua y la Atmósfera 2022. This joint symposium is the result of merging two events - El Día del Agua, established by the Department of Hydrology & Water Resources Student Association in 1990, and Atmospheric and Interdisciplinary Research (AIR), established by the graduate students in the Department of Atmospheric Sciences in 1999.

El Día is one of the five symposia held during Earth Week. This year, a dedicated committee of HAS students - with essential support from staff and faculty - have managed and organized the event. We believe El Día is a good opportunity for students with background and interest in hydrology and atmospheric sciences to present their research, and get to know peers, prospective students, faculty members, alumni, and working professionals in the fields of hydrology, atmospheric sciences, and other disciplines.

This year's El Día - titled "Our Water, Our Air" - explores links between hydrology & atmospheric science and pressing social challenges, with a specific focus on the arid southwest. This theme is reflected in the speaker sessions. The morning keynote session is entitled "Water Security in the Arid Southwest: Institutions, Science, and Solutions." We invite three panelists - Janene Yazzie, Sandy Fabritz-Whitney, and Terri Sue Rossi - who can speak to the ways in which water security affects the culture, economics, and health of the arid southwest. The lunch alumnus speaker will be Steve Waters, the Flood Warning Branch Manager at Flood Control District of Maricopa County. Steve got his B.S. from the University of Arizona.

The success of El Día is made possible through the continued support of our sponsors, the efforts of students, faculty and staff members, the School of Earth and Environmental Sciences, and the College of Science. This year we'd like to extend a special thank you to the team that has worked together to bring El Día back in-person to a new venue in the Environmental and Natural Sciences 2 (ENR2) building. You guys rock!

Enjoy the symposium and thank you for participating in El Día del Agua y la Atmósfera 2022! We hope to see you next year! ~ 2022 El Día Planning Committee

El Día del Agua y la Atmósfera 2022 Planning Committee



El Día 2022 Planning Team

Top left Inset:

Sidian Chen (Volunteer, IT)

Dr. Ty Ferre (Distinguished Professor of Hydrology)

Erma Santander (Executive Assistant of HAS)

Left to Right:

Abigail Kahler (Marketing and Communications)

Stella Heflin (volunteer, Communications)

Alcely Lau (Logistics and Event Planning)

Quinn Bruce Hull (Committee chair)

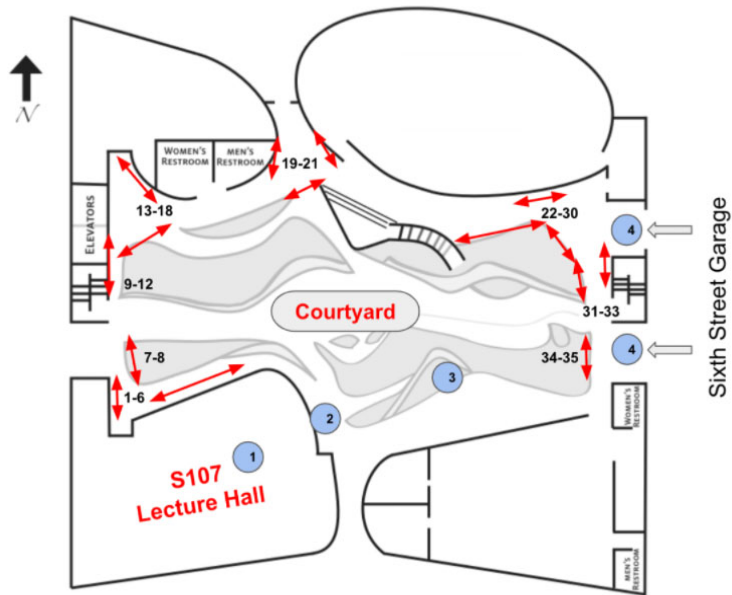
Hannah Haugen (volunteer, logistics and event planning)

Reza Ehsani (Website and IT)

El Día del Agua y la Atmósfera Agenda

- 8:00** Registration & Continental Breakfast - Courtyard
- 8:30** Opening & Welcome: Thomas Meixner, HAS Department Head and Quinn Hull, El Día Chair Student Planning Committee (S107 Lecture Hall)
- 8:50** Keynote Panel: Water Security in the Arid Southwest: Institutions, Science, and Solutions (S107 Lecture Hall)
- 10:25** Poster Session One & Coffee Break - Courtyard
- 11:30** Oral Session 1: Weather and Hydroclimate Extremes (S107 Lecture Hall)
- 12:35** Lunch ~ Served on the 2nd Floor—Dining Areas: S215, S225 & Courtyard
- 13:10** Lunch Speaker: Steve Waters, Flood Warning Branch Manager at Flood Control District of Maricopa County (S107 Lecture Hall)
- 13:45** Oral Session 2: Data-Driven and Physically-Based Modeling (S107 Lecture Hall)
- 14:50** Poster Session Two & Coffee Break ~ Courtyard
- 15:55** Oral Session 3: Aerosols, Isotopes, and Soils (S107 Lecture Hall)
- 17:00** Career Conversations & Mixer (S107 Lecture Hall)
- 17:45** Award Presentations & Closing Remarks (S107 Lecture Hall)
- 19:00** El Día Reception, No Anchovies Restaurant, 870 E. University Boulevard

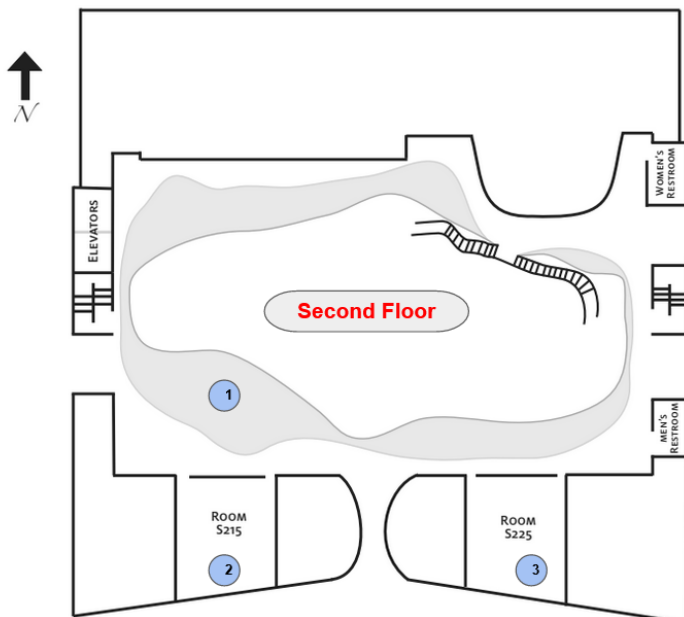
El Día del Agua y la Atmósfera Event Maps



Courtyard

1. Lecture Hall S107
2. Registration & Breakfast Table
3. HASSA Table
4. Entrance from Sixth Street Garage

↔ Arrows Indicate Posters 1 to 35



Second Floor

1. Lunch tables
2. Room S215: Dining Area
3. Room S225: Dining Area

Dennis R. Scheall
In Appreciation
Hydrology & Water Resources
Retired Director of Instruction and Research Support



The first Annual Hydrology Research Exposition (el Día del Agua, EDDA) was held on March 22, 1991. Dennis was handed the “simple” task of organizing this event from scratch in a year’s time with one overriding objective – make it a success. He did make the first EDDA a success with everyone who attended the event – students and faculty in Hydrology & Water Resources (HWR) and from other departments, alumni, and professionals from industry, consulting firms, and non-governmental and governmental agencies.

Dennis continued to be directly involved in planning and organizing each EDDA through the spring of 2007 – he retired from the University of Arizona (UA) later that year. Dennis did not let retirement stop him from participating in this annual event that he has always thought of as his “baby.” Dennis never regretted the extra time he had to spend on getting el Día del Agua started or the time needed every year to make each symposium a success. He enjoyed the opportunities to interact with students and was always impressed with the research they had done and the research they were planning to do. He has continued to be active and for many years volunteering as a poster judge. Each year he looks forward to meeting and talking with students, both new and those who are finishing their degree programs. In Dennis’ mind, students have always been the most important component of the Department and one of the primary reasons he continued his long career at the UA.

Dennis has always been an asset for the Department, whether the department's name was Hydrology & Water Resources or Hydrology & Atmospheric Sciences. He was "stolen away" from the Water Resources Research Center where he had worked in support of state-of-the-art field research and the last 4 years as an Assistant Director. Dennis' expertise with field research was utilized from the start of his career with Hydrology and he was involved throughout each year with the Field Methods class that gave students opportunities to connect their textbook learning to the physical world. He helped establish long-term relationships with Arizona State Parks to use Patagonia Lake in Southern Arizona and Dead Horse Ranch State Park in Northern Arizona. These field sites expanded hands-on experiences for students to learn additional field techniques and to understand how theory could provide a means to analyze the data. Dennis always considered these teaching opportunities as high points in each year and enjoyed the challenges he had to deal with when trying to answer the very intelligent and unexpected questions the students posed. Dennis' strengths with field equipment (design, installation, operation and maintenance) and conducting field experiments were also beneficial to many research projects within the Department. His official title – Director of Research and Teaching Support – reflected his contributions to these two important activities that made Hydrology the top department in the world.

Of course, Dennis had many other duties when he was still with HWR. If something needed to be done, Dennis was the go-to person. No one ever asked him how he got it done and he never volunteered what steps he had to take, but things got done and they were done right. Dennis worked with all of the founding members of HWR, multiple Department Heads and watched the Department evolve as new faculty joined and new students continued to enroll from all over the world. He was responsible for the many mundane details needed for day-to-day operations but also provided his input for any short-term or long-term projects that would benefit the Department. The contributions he made during his long years with HWR are still in evidence today. We are grateful for all that he did and continues to do and want to simply acknowledge Dennis' hard work and the positive impact he has had on the Department and the faculty, staff, and the hundreds of students that have had the opportunity to meet and work with him. *Dennis, Thank you.*

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Hargis Awards

Best Technical Presentation via Visual Communication

First Place Poster, Certificate and Award of \$1,000

Second Place Poster, Certificate and Award of \$400

Montgomery Prize

Best Oral Presentation

Certificate and Award of \$2,500

Benjamin M. Herman

Presentation in Atmospheric Sciences

Best Oral Presentation

Certificate and Award of \$1,000

HAS Awards of Excellence

Best Oral and Poster

Certificate and Award of \$400 for each award

Donald R. Davis Undergraduate Distinction Award

Outstanding Undergraduate Award (Academic or Research)

Certificate and Award of \$400

Eugene S. Simpson Undergraduate Poster Award

Best Undergraduate Poster in Hydrogeology,

Subsurface Hydrology, or Groundwater

Certificate and Award of \$400

Awards and Prizes ~ Corporate Sponsors

Thank you to our corporate sponsors who have pledged their contribution and we appreciate your support, Students are recognized for their superior achievement in oral and poster presentations by juried committees.

Arizona Hydrological Society
Best Hydrology Oral Presentation
Certificate and Award \$500

Pima County Flood Control Best Virtual Oral Award
Outstanding Oral Presentation
Certificate and Award of \$500

Salt River Project Best Virtual Oral Award
Outstanding Oral Presentation
Certificate and Award of \$500

Stanley N. Davis Poster Award
Outstanding Poster in Hydrology
Sponsored by Peter Mock Groundwater Consulting, Inc.
Certificate and Award of \$500

Matrix New World Engineering Best Oral Award
Outstanding Oral Presentation
Certificate and Award of \$500

Tucson Water Outstanding Poster Award
Excellence in Technical Communication in Poster Format
Certificate and Award of \$500

GeoSystem Analysis, Inc., Award
Best Applied Hydrogeology Oral Presentation
Certificate and Award of \$500

Pima County Department of Environmental Quality
Best Oral and Poster Awards
Outstanding Oral and Poster Presentations
Certificate and Award of \$200 for each award

The Hargis Awards

We would like to thank Hargis + Associates, Inc., a

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For many years, Hargis + Associates has sponsored two generous cash awards, The Hargis Awards, for the First and Second Place Best Poster Presentations at our annual student research symposium.

The Hargis Awards are made in recognition of the need for excellence in technical communication and serve as an incentive for participating students to demonstrate excellence in writing, visual presentation, and oral communication skills in support of their research projects. Evaluation of these awards is performed by a panel selected by HWR alumnus Dr. David Hargis, President and CEO. Fellow UA alumnus Dr. Leo Leonhart, Principal Hydrogeologist and Chief Technical Director, annually presents these awards.



HARGIS + ASSOCIATES, INC.
ENGINEERING • HYDROGEOLOGY

Hargis + Associates is an environmental consulting firm specializing in hydrogeology and engineering. Headquartered in San Diego, the company has offices in Sacramento, California and Tucson and Mesa, Arizona. At Hargis + Associates, our mission is to provide proactive: Expert advice and solutions to our clients with integrity and outstanding service. We deliver this mission with an unparalleled level of quality and service, inspired by collaboration and employee-ownership. For 40 years, the outcome has been practical and workable solutions, resulting in long-term client relationships. Learn more about us at www.Hargis.com.

The Montgomery Prize

We would like to thank Errol L. Montgomery & Associates, Inc., a

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for their support. For many years, Montgomery & Associates has sponsored the premier cash award, *The Montgomery Prize*, for the Best Oral Presentation at our annual student research symposium.

This “best of the best” prize is made in addition to the departmental Awards of Excellence for best oral and best paper presentations and is presented to the winner by a representative from Montgomery & Associates. The award symbolizes the company’s commitment to encouraging and rewarding excellence in oral presentation of hydrologic research. Montgomery & Associates offers similar awards during annual events at the University of Arizona and Northern Arizona University Geology Departments.



Errol L. Montgomery & Associates, Inc., founded by HWRS Alumnus Errol L. Montgomery, is a water resource consulting group with more than 25 years of experience addressing groundwater availability, sustainability, and quality issues for municipal, industrial, mining, and governmental clients. Professional services include:

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The firm’s principal office is located in Tucson, Arizona, and branch offices are maintained in Scottsdale, Arizona, Lima, Perú, and in Santiago de Chile.

Benjamin M. Herman

Oral Presentation Awards



Benjamin M. Herman was the first PhD student in the newly founded Department of Meteorology at the University of Arizona and went on to become Professor and Chair of the Department of Atmospheric Sciences. He excelled in classroom instruction particularly in teaching atmospheric radiation, remote sensing, and physical meteorology. As a result of his previous experience as an US Air Force meteorological officer, he loved to challenge the Departments students in Synoptic Meteorology.

Ben's research career was at a time when large-scale electronic computers became available at the University of Arizona and precise radiation sensing instruments were being developed for Earth orbiting satellites. He was a noted researcher, developing and applying the first numerical techniques to calculate scattering, emission and absorption of radiation in Earth and planetary atmospheres. Ben was recognized as an international leader in applying these techniques to quantitatively interpret satellite measurements, mentoring his many collaborating students to develop successful careers with NASA, NOAA, and other agencies.

He authored or co-authored over 80 publications in peer reviewed literature, many of which are still cited today. His papers on aerosol size and optical depth, as well as two of his papers on the use of GPS measurements to determine H₂O vapor profiles have each been cited over 400 times.

Ben retired in 2005 as a Professor Emeritus, after 45 years of service. In 2006, NASA and DOI bestowed Ben and others with the William T. Pecora Award for satellite techniques to infer O₃ and SO₂. He also received the Distinguished Public Service Medal by NASA. Ben was a Fellow of the American Meteorological Society.

Donald R. Davis

Undergraduate Distinction Award



Donald R. Davis joined the UA Department of Hydrology and Water Resources in 1972 and was one of the most senior members of the faculty at the time of his death in February 2009. His primary research focus was decision making under hydrologic and other uncertainties, and his basic approach utilized Bayesian decision theory in a general system setting. During the last decade of his life, even though the halcyon days of funded research were behind him, Don was still actively engaged in independent statistical studies with individuals both inside and outside the university. He continued to serve on MS and PHD exams and to advise masters and especially doctoral students who were majoring or minoring in Hydrology with the statistical aspects of their research projects. He was an active faculty examiner for the doctoral qualifying examinations in surface hydrology and water resources. Don served as the Undergraduate Coordinator and was the primary advisor to undergraduates with a major or minor in Environmental Hydrology and Water Resources. He taught the year-long Senior Capstone and Senior Honors Thesis courses and, when the department was part of the College of Engineering, was a rotating instructor for the COE's freshman course, Engineering 102. With Gary Woodard, he designed and oversaw the Master of Engineering degree program in Water Resources Engineering and helped that fledgling program get off the ground. Upon his death, he left an endowment to the Department of Hydrology and Water Resources specifically for undergraduates whom he especially supported and encouraged.

The evaluation for the Davis Undergraduate Distinction Award is made by a committee appointed by the department and recognizes an outstanding undergraduate who demonstrates excellence in writing, speaking, or technical communication or provides outstanding service through volunteerism or extracurricular activities that benefit the department or the profession.

Don will be remembered not only for his academic and advising contributions, but also for his love of the undergraduate program he nurtured.

Eugene S. Simpson Undergraduate Poster Award



Eugene S. Simpson began his professional career with the U.S. Geological Survey in 1946 where he was involved with problems of migration and dispersion of radioactive wastes that might accidentally or operationally be discharged into groundwater. In 1963, he was hired by Dr. John W. Harshbarger as a member of HWR's inaugural faculty, and he continued to pursue his research interests in aquifer mechanics, the migration of pollutants in groundwater, and the application of environmental tracers to problems of groundwater circulation. Simpson served as HWR Department Head from 1974-75 and 1979-81.

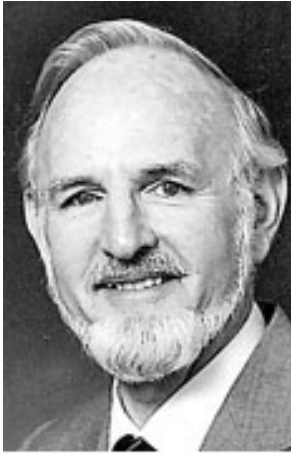
After his retirement in 1985, he remained active in the profession, serving the U.S. Chapter of the International Association of Hydrogeologists as Secretary-Treasurer from 1984-89 and as President from 1989-92. During his tenure as President, he became the Founding Editor and first Editor-in-Chief of the IAH journal, *Applied Hydrogeology*, which later became *Hydrogeology Journal* (Springer), the official journal of the IAH. The Geological Society of America Hydrogeology Division honored him with the Distinguished Service Award in 1992, and the International Association of Hydrogeologists elected him an Honorary Member in 1993.

Following retirement, he resided in Tucson until his death at the age of 78 in December 1995. At that time, the Eugene S. Simpson Endowment was established to provide financial support for undergraduate and graduate students, especially those studying hydrogeology and subsurface hydrology.

In March 2012, the inaugural Eugene S. Simpson Undergraduate Poster award was made for the best undergraduate poster with priority given to hydrogeology, subsurface hydrology, or groundwater content, Simpson's areas of expertise. Evaluation for the award is made by a committee appointed by the department.

The department would like to thank the family, friends, and former students of Eugene S. Simpson for their continued support and contributions to this endowment fund.

Stanley N. Davis Poster Presentation Awards



Dr. Davis was internationally recognized expert in the study of ground water. Dr. Davis also served on the faculty of Stanford University, the University of Chile, the University of Missouri--Columbia, and Indiana University--Bloomington. Additionally, over his career, he was a consultant for the United States Bureau of Reclamation, the Kansas and Missouri geological surveys, the Arctic Institute of North America, Princeton University, and the University Oriente and the University de los Andes, both of Venezuela. He also was the recipient of multiple honors throughout his career, in 1989 he was presented with the O.E. Meinzer Award by the Geological Society of America, and in 1996 he was made a Fellow of the American Geophysical Union. Over the course of his career, Dr. Davis was author or coauthor of more than 100 scholarly publications, and coauthor of the seminal textbook "Hydrogeology" with Dr. Roger DeWiest. From 1943-1946, Dr. Davis served in the U.S. Army during World War II in the Pacific Theater.

Keynote Panel

“Water Security in the Arid Southwest:
Institutions, Science, and Solutions”

8:50AM - 10:25 AM
ENR2 S107 Lecture Hall

For Arizona and the Arid Southwest, securing water for people and nature is a non-trivial challenge with ties to the interactions of climate, infrastructure, and history. That challenge has been amplified recently by Tier 1 shortage declarations from the Colorado River and COVID-19. Yet ‘water security’ means different things to the science, advocacy, and industry leaders who use the term. As panelist Janene Yazzie of Sixth World Solutions states: “Our challenges are so complex. Our histories are so complex, and our solutions need to mirror that... informed by the limitations and types of relationships that exist within our ecosystems.” What does securing water mean, how do ‘we’ go about it, and where do scientists fit in? Yazzie is joined by Sandy Fabritz-Whitney of Freeport McMoRan and Terri Sue Rossi of Arizona Water Company to ask these questions.



◆ **Janene Yazzie** ~ Janene is a Dine entrepreneur, community organizer and human rights advocate from the Navajo Nation. She works on climate change, water security, food security, energy development, and nation building with indigenous communities. She is program manager of Sustainable Community Development with the International Indian Treaty Council (IITC). She also represents IITC as the co-convenor of the Indigenous

Peoples Major Group (IPMG) to the United Nations High Level Political Forum on the 2030 Sustainable Development Goals. Co-founder of Sixth World Solutions LLP., and co-founder of the Navajo Nation Little Colorado River Watershed Chapters Association (LCRWCA), she has built expertise in infrastructure policy, integrated land and water management, and restoration and protection of traditional ecological knowledge (TEK). Janene Yazzie is a community organizer and human rights advocate who has worked on development and energy issues with Indigenous communities across the United States for over 12 years.



◆ **Sandra Fabritz-Whitney** ~ Sandra is the Director for Water Strategy, Freeport McMoRan; previously at ADWR. Sandy is an experienced Strategy Director with a demonstrated history of working in the mining & metals industry. She has worked as Director Water Strategy for Freeport McMoRan Copper & Gold since 2014 and prior to that, worked at Arizona Department for Water Resources for 22 years.



◆ **Terri Sue Rossi** ~ Terri Sue Rossi is currently the Water Resources Manager for Arizona Water Company, the second largest private water company in Arizona. She has worked in Arizona water resources since 1987 where she started her career at the Arizona Department of Water Resources. Terri Sue also served as the first water resource manager for the cities of Peoria and Surprise and for the largest private water company in Arizona now doing business as EPCOR. She

has also worked for the Central Arizona Project and the Arizona Water Banking Authority. In her free time, Terri Sue is a member of Red Rock Crossing Band a folk grass acoustic trio specializing in three-part harmony. She has a daughter who is an artist living in Sedona.

El Día del Agua y la Atmósfera
Luncheon Speaker ~ 13:10 - 14:50
ENR2 S107 Lecture Hall In-Person
ENR2 S215 & S225 Virtually



Steve Waters
Flood Warning Branch Manager
Flood Control District of Maricopa County

Steve Waters currently serves as a Senior Hydrologist and the Flood Warning Branch manager for the Flood Control District of Maricopa County, where his duties include supervision of flood warning, hydrologic data collection and publishing, maintaining a web site and coordinating emergency response for the District. Mr. Waters has worked for the District for 33 years, and previously worked for the City of Tucson for 3 years as an engineering intern. Mr. Waters received a BS degree in Hydrology and Water Resources from the University of Arizona College of Engineering and Mines in 1988. He is a past Board member and webmaster for the Arizona Floodplain Management Association, a member of the Arizona Statewide Flood Warning System Task Force, an elected member of the American Meteorological Society, and served on the Board of the National Hydrologic Warning Council.

Oral Session 1
Weather & Hydroclimate Extremes
Student Moderator: Alcely Lau

- 11:30 Diana Zamora-Reyes** ~ On The Unprecedented Character Of Enhanced Hydroclimate Variability In California Over The Past 600 Years
- 11:41 Patricia Puente** ~ Connections Between Low Frequency Streamflow Extremes And Nonlinear Dynamics In The Upper Colorado Basin
- 11:52 Amanda Triplett** ~ Climate Warming-Driven Changes In The Cryosphere And Their Impact On Groundwater-Surface Water Interactions In The Heihe River Basin
- 12:03 Lourdes Mendoza-Fierro** ~ Evaluating Extreme Precipitation Forecasts In Tarapacá, Chile Region Using Convective-Permitting Modeling
- 12:14 Neha Gupta** ~ Hydrological Evaluation Of Green Stormwater Infrastructure Implementation In Semi-Arid Nested Catchments
- 12:25 Mohammad Marza** ~ Li Content Of Oil Field And Other Sedimentary Basin Brines

Oral Session 2
Data-Driven & Physically-Based Modeling
Student Moderator: Abigail Kahler

- 13:45 Reza Ehsani** ~ Nowcasting-Nets: Representation Learning For Satellite-Based Precipitation Nowcasting Using Convolutional And Recurrent Neural Networks
- 13:56 Luis De la Fuente** ~ Hydro-Lstm: A Hydrological Approach To Lstm Machine Learning Based Modeling
- 14:07 Jetal Agnihotri** ~ Investigating The Impacts Of Frozen Soil Representation On High-Resolution Streamflow Simulation At The Continental Scale

Oral Session 2 (Continued)
Data-Driven & Physically-Based Modeling
Student Moderator: Abigail Kahler

- 14:18 Camilo Salcedo** ~ Near-Optimal Selection Of Multi-Confirmatory Sampling Locations In Water Distribution Systems
- 14:29 Sidian Chen** Pore-Scale Modeling Of Multiphase Fluid Flow, Multispecies Transport, And Phase Change In Nanoporous Materials
- 14:40 Yuan-Heng Wang** Bridging The Gap Between Physical-Conceptual Modeling And Machine Learning For Catchment-Scale Rainfall-Runoff Modeling

Oral Session 3 ~ Aerosols, Isotopes, and Soils
Student Moderator: Hannah Haugen

- 15:55 Genie Lorenzo** ~ An Aerosol Climatology Via Remote Sensing Over Metro Manila, Philippines
- 16:06 Mostafa Javadian** ~ Canopy Temperature Is Regulated By Ecosystem Structural Traits And Captures The Ecohydrologic Dynamics Of A Semiarid Mixed Conifer Forest Site
- 16:17 Xueyan Zhang** ~ The Control Of Plant And Soil Hydraulics On The Interannual Variability Of Plant Carbon Uptake Over The Central Us
- 16:28 Diana Hsieh** ~ Using Isotopes And Modeling To Determine Effects Of Rock Dams On Infiltration
- 16:39 Chandler Noyes** ~ Using Argon-39, Noble Gases, And Water Stable Isotopes To Infer Changes In Recharge To The Semi-Arid Tucson Basin (Arizona, USA) Over The Holocene
- 16:50 Chayan Roychoudhury** ~ Do Aerosols Really Matter Over High Mountain Asia?

Poster Session One: 10:25 ~ Poster No.

Abigail Kahler ~ Tailoring Hydrologic Modeling For Improved Water Resources Decision Support~P1

Adam Stratman ~ Origins And Residence Times Of Water Supporting O'Donnell Creek Cienega In Southeastern Arizona~P3

Adriana Arcelay ~Assessing The Impact Of Climate Change On Localized Flooding And Affected Populations~P5

Alexa Marcovecchio ~ Similarities And Differences Of Marine Boundary Layer Cloud And Drizzle Properties Measured Over Two Hemispheres~P7

Amaya Singleton ~ Evaluating A Simple Model Of Wastewater Transport In The Ocean Along Coastal Communities~P9

Ben West ~ Implementing Reservoir Operations In Parflow, A Fully Integrated Physical Hydrology Model~P11

Changpeng Fan ~ Simulating Microbial Functional Composition Across Diverse Environments Through Machine Learning~P13

Charles Andrew Hoopes ~ Improving Mountain Snowfall Forecasts In The Southwestern Using Machine Learning Methods~P15

Claire Acke ~A Global Climatology Of Tropical Cyclone Rapid Intensification And Its Relationship To Teleconnection Indices~P17

Connal Boyd ~ Water In The Bank: Budgets, Savings, And Uses In Residential Tucson~P19

Constantinos Manoli ~ Face Mask Filtration Efficiency In A Classroom Environment-P21

Danielle Rehwoldt ~ Hydrochemical Assessment Of Rare Earth Elements In Various Formation Water Types In The Paradox Basin~P23

Danielle Tadych ~ Exploring Connections Between Groundwater Storage And Management Settings Using Observations From Groundwater Wells And GRACE Data In Arizona~P5

Poster Session One (Continued) 10:25 ~ Poster No.

David Murray ~ Where The Decision Tree Grows: Can Machine Learning Design A Groundwater Monitoring Network?~P27

Josh Arden ~ Analysis Of The Efficacy Of The Kino Environmental Restoration Project: A Comparison Between Flow Data And Formula Predictions~P29

David Wessner ~ Learning the Scientific Method through an Evolving Hydrologic Experiment~P31

Poster Session Two: 14:50

Dylan Girone ~ A Forecast Evaluation Of The North American Summer Monsoon Precipitation Near Arizona In Recent Years~P2

Francisco Javier Gaxiola Ortiz ~ Soil Moisture Drydown Curves After Flooding Events Across An Irrigated Farmland~P4

Hannah Hansen ~ Agricultural Water And Crop Decisions In Central Arizona~P6

Integrated Climate Research in Ecosystems, Water and Weather (ICREWW) ~ An Analysis Of The Relation Between Precipitation, Streamflow, And Phenology Data In The Tohono Chul Park Region, Tucson, Arizona~P8

Jake Smith ~ Stormwater Harvesting Potential Within Massingale Watershed~P10

Jihyun Kim ~ Natural Gas Isotope Signals Of Thermal Maturity And Oxidation Of Hydrocarbons In The Paradox Basin~P12

Justin Headley ~Quantifying Groundwater Contribution To Streamflow In Cienega Creek During The 2021 North American Monsoon~P14

Lauren Cutler ~ Re-Evaluation Of Low Cloud Amount Relationships With Lower-Tropospheric Stability And Estimated Inversion Strength~P16

Poster Session Two (Continued) 14:50 ~ Poster No.

Lauren Knickrehm ~ An Ensemble Approach In Modeling Atmospheric Dispersion Of Pesticide Spray Drift In Yuma County: Results And Next Steps~P18

Lidia Irene Benítez Valenzuela ~ Land/Sea Breeze Influence On Atmospheric Stability And Turbulent Fluxes Over A Subtropical Semiarid Coastal Lagoon In The Gulf Of California~P20

Matthew Ford ~ Mapping Changing Cropping Patterns In The State Of Arizona And Their Connection To Groundwater Regulation And Water Availability~P22

Mekha Pereira ~ Statistical Relationships Between Groundwater, Economic, And Climatic Variables In Southeastern Arizona~P24

Quinn Hull ~ How To Calibrate A Process-Based Model Using Deep-Learning: Applying Simulation-Based Inference To A Hydrologic Model Of The Upper Colorado River Basin~P26

Sam Dahl ~ The Influence Of Mid-Latitude Systems On The Predictability Of Rapidly Intensifying (RI) Hurricanes In The Gulf Of Mexico~P28

Stella Heflin ~ Bias-Adjusted Satellite-Based And Reanalysis Products Show Agreement In Estimating North American Monsoon Season Precipitation~P30

Ava Lasater ~ Phenological Phase Timing In Relation To Climate Variables~P32

Benjamin Mitchell ~ Adding Prediction Uncertainty To An Online Groundwater Modeling Tool To Support Stakeholder Decision-Making~P33

Wenqian Zhang ~ Can Hydrologists Study Fuel Cells?~P34

Xenia De Gracia ~ Conceptual Model Of Mining Tailings Columns For Reactive Contaminant Transport Experiments~P35

Career Conversation & Mixer

ENR2 Room S107 ~ 5pm

Our panel includes Alyssa Kirk, Elonora Demaria, Jon Rohrer and Stephen Waters. Each panel member will give a brief introduction, describing their career path and what they currently do. The panel will then be open to questions.



◆ **Alyssa Kirk** is a groundwater hydrologist with Montgomery and Associates. Alyssa has a Bachelor of Science degree in Environmental Hydrology and Water Resources and a Master of Science degree in Hydrology from the University of Arizona. Alyssa has been at Montgomery & Associates for about six years where she has primarily provided support for environmental, hydrogeologic, water resources, and field investigations. Prior to joining M&A Alyssa worked for Tucson Water as an intern, engineering technician, and hydrologist, where she provided field, analytical and database support for large managed aquifer recharge projects.



◆ **Elonora Demaria** is a hydrologist for Pima County Regional Flood Control District where she is responsible for doing hydrologic and hydraulic modeling, project management, and overseeing various efforts related to the water and climate in the County. Before joining the District, Eleonora worked as a research scientist where she investigated the impacts of climate change on water resources and the usefulness of satellite-estimated precipitation for flood forecasting and water management. She gained a B.S. in Water Resources Engineering from Argentina, an M.S. in Meteorology from the University of Utah, and a Ph.D. in Hydrology from the University of Arizona.

Career Conversation & Mixer (Continued)

ENR2 Room S107 ~ 5pm



◆ **Jon Rohrer** is a Principal Hydrogeologist with over 25 years as a hydrogeologist and expert witness for Roux Associates in Long Beach, CA. As a Principal Hydrogeologist at Roux, Jon is responsible for guiding complex soil, soil vapor and groundwater projects and assisting in legal projects supporting attorneys in litigation. Jon has worked on a variety of types of contaminated-media and groundwater projects, ranging from clean-water supply efforts, water-supply contamination scenarios, litigation projects, redevelopment projects and site-cleanups. Jon received his M.S. from the University of Arizona in 1996 from the Department of Hydrology & Water Resources, and did his research in the Soil Water and Environmental Science Department working on the Tucson International Airport Superfund Site.



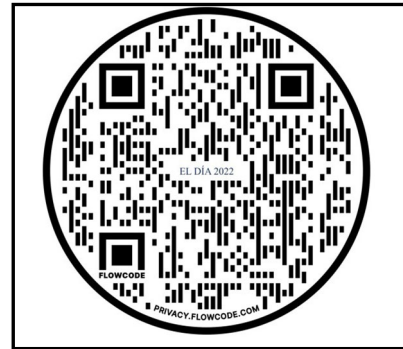
◆ **Stephen D. Waters**, a hydrology alumna (B.S. 1988), is the Senior Hydrologist and the Flood Warning Branch manager for the Flood Control District of Maricopa County, where his duties include supervision of flood warning, hydrologic data collection and publishing, maintaining a web site and coordinating emergency response for the District. Mr. Waters has worked for the District for 33 years, and previously worked for the City of Tucson for 3 years as an engineering intern. Mr. Waters received a BS degree in Hydrology and Water Resources from the University of Arizona College of Engineering and Mines in 1988. He is a past Board member and webmaster for the Arizona Floodplain Management Association, a member of the Arizona Statewide Flood Warning System Task Force, an elected member of the American Meteorological Society, and served on the Board of the National Hydrologic Warning Council.

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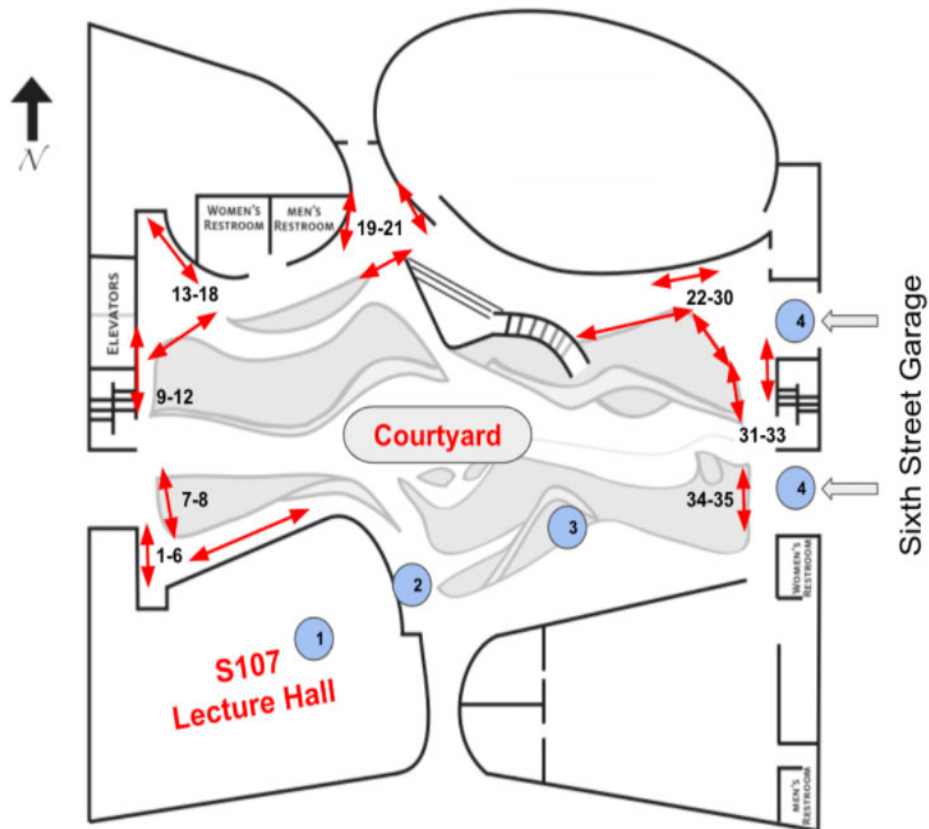
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Hydrology & Atmospheric Sciences
Student Research Symposium



<https://eldia2022.github.io/>



Event Floor Plan

1. Lecture Hall S107
2. Registration & Breakfast Table
3. HASSA Table
4. Entrance from Sixth Street Garage

Arrows Indicate Posters 1 to 35