

HOSTED BY



11TH INTERNATIONAL SYMPOSIUM ON
MANAGED AQUIFER RECHARGE



APRIL 11 - 15

2022

LONG BEACH, CA

A KEY TO SUSTAINABILITY

Welcome to ISMAR 11!

Onsite Guide

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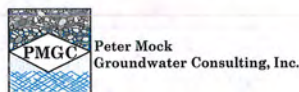
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You made it!

With all that has happened over the past two years, it is so great that you made the effort to come to the 11th International Symposium on Managed Aquifer Recharge (ISMAR11). Isn't it good to be together again, in person? Again, thanks for making the trip to beautiful Long Beach, CA and on behalf of the ISMAR11 Planning Committee, we welcome you and are honored to have been entrusted with carrying on the ISMAR tradition.

As the ISMAR11 Team approached planning the event more than two years ago, we recognized that the need for MAR was dramatically increasing worldwide. In many places in the world, groundwater resources continue to be unsustainably managed due to increased demands, contamination, and changes in climate. In California, especially, MAR is being touted as a tool to achieve sustainable conditions in numerous groundwater basins in order to comply with the 2014 Sustainable Groundwater Management Act (SGMA). All of these factors brings a new group to the MAR space. For this reason, the ISMAR11 Team added new elements, such as the pre-conference Governance and Policy Workshop, keynote addresses from thought leaders in water, Bruce Babbitt and David Kraemer, and two curated panels on MAR moderated by Sharon Megdal and Felicia Marcus. We of course have a very strong technical program with over 100 presentations with numerous international contributors. Finally, we are blessed to have two field trips to world renowned MAR facilities.

When I was a graduate student, I presented a poster of my research at the 2nd ISMAR held in Orlando, Florida in 1994. It was at this event that I made connections with many titans of the MAR community, including Herman Bouwer and David Pyne. These connections not only became important in my growth as a MAR professional but also became personally rewarding as many of the people I have met at ISMAR events have become lifelong friends. The MAR community is a special one. It is my hope and the hope of the ISMAR Planning Committee, that at ISMAR 11 you will make new connections, deepen existing connections, learn some new things about MAR, and have a lot of fun in the process. Enjoy ISMAR11!

Grateful,

Adam Hutchinson

Adam Hutchinson, ISMAR11 Planning Chair, Orange County Water District, Recharge Planning Manager



ISMAR Planning Team



Adam Hutchinson



Doug Bartlett



Bob Bower



Christy Kennedy



Jenn Swart



Sharon Megdal



Felicia Marcus



Sarah Erck

Health & Safety Protocols

VACCINATION OR TESTING VERIFICATION

All attendees (including sponsors, exhibitors, and speakers) must have their vaccination or negative covid test verified prior to picking up their name badge. No one without a name badge will be allowed in the session rooms or meal functions. Please look for the VERIFICATION STATION in the Academy Foyer. If you have pre-verified your vaccination status online, please go straight to ATTENDEE CHECK-IN, also in the Academy Foyer.

ENSURING PERSONAL COMFORT:

At registration, you will have the opportunity to pick up a bracelet indicating your comfort level while interacting with your colleagues. Prefer to keep your distance? Pick up a red bracelet! Ready for handshakes and hugs? Grab that green! Somewhere in between? Yellow is your zone.

MASK MANDATE:

L.A. County is not currently under a mask mandate, however GRA wants you to be as comfortable as possible. If your preference is to wear a mask, please feel welcome to do so. Disposable masks are available at registration upon request.

MAXIMIZED SANITIZING & DISTANCING OPTIONS:

Sanitizing stations will be available at the entrance of each meeting room meeting rooms are sanitized at the beginning and end of each day.

If you have any questions about the above, please see conference staff.

ISMAR CONFERENCE STAFF



Sarah Erck
GRA Administrative
Director



Kory Adams
GRA Coordinator



David Garrison
GRA Creative Director

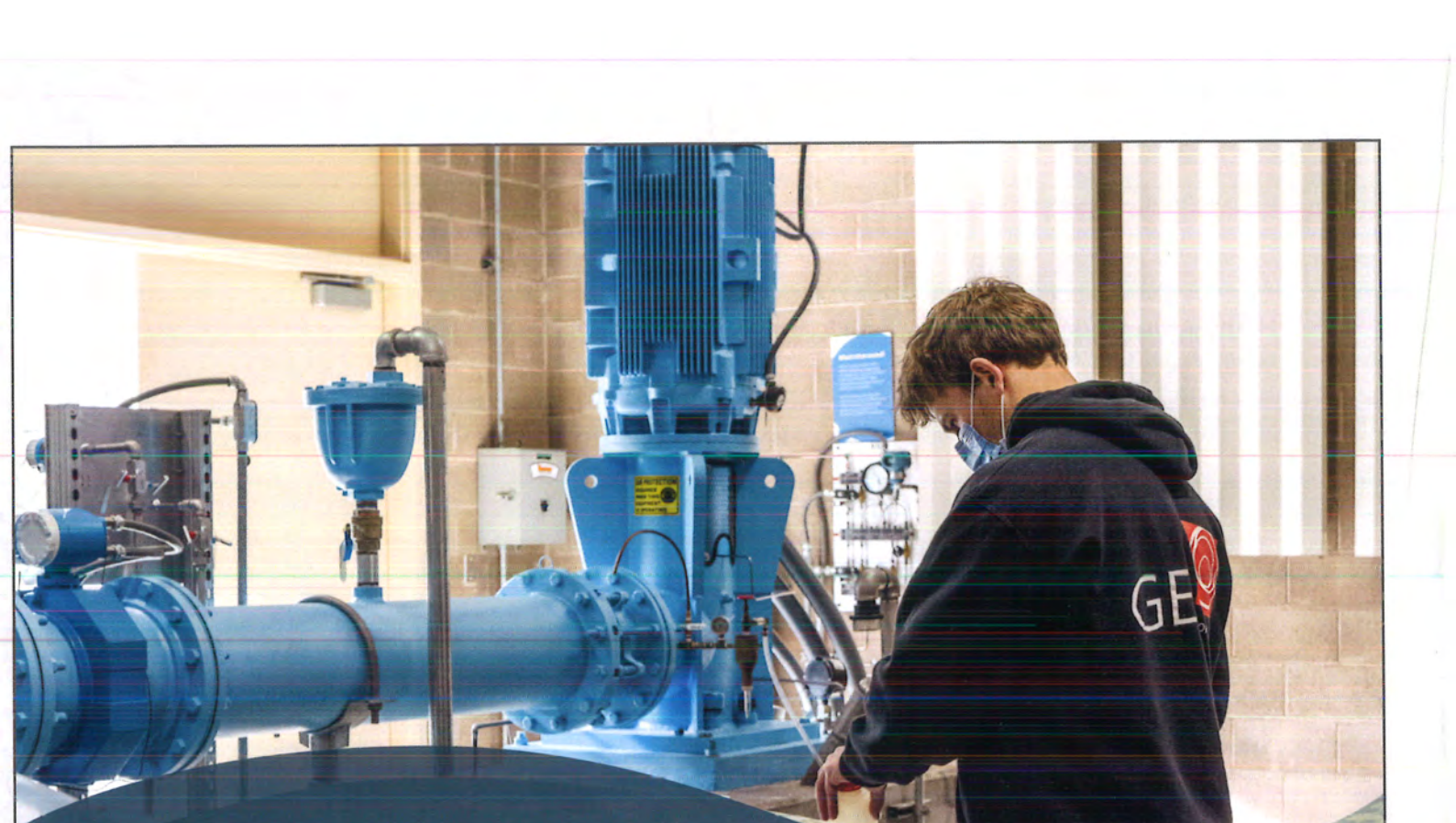


Amanda Smith
GRA Assistant



Courtney Smith
GRA Assistant

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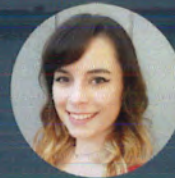
MASTERING THE PAST AUGMENTING TODAY REACHING A SUSTAINABLE FUTURE

- Managed Aquifer Recharge Planning, Design, and Construction
- ASR, Production and Monitoring Wells
- Water Budget Analysis
- SGMA Plans, Projects and Management Actions
- Hydrogeologic Studies and Monitoring
- Aquifer/Basin Characterization
- Groundwater/Surface Water Modeling
- GIS/Data Management System
- Exchange, Storage and Transfer Agreements
- Regulatory/Environmental Compliance
- Groundwater Governance
- Funding Assistance
- Outreach and Facilitation
- Website Development and Hosting
- Geotechnical Studies and Projects

Stop by our booth and chat with our **MAR**velous team



Chris Petersen



Paula Espinoza



Lydia Holland



Rodney Fricke



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The American Institute of Hydrology (AIH) was founded in 1981 as a non-profit scientific and educational organization dedicated to the certification and registration of professionals in all fields of hydrology. AIH is the only nationwide organization that offers certification to qualified hydrologic professionals.



AIH PURPOSE

The purpose of AIH is to enhance and strengthen the standing of hydrology as a science and profession by:

- Establishing standards and procedures to certify individuals qualified to practice hydrology
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- Providing education, public advice, and training in hydrology

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The benefits of being a member of AIH include:

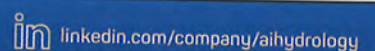
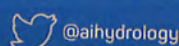
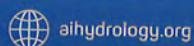
- Peer and employer recognition of professional competence in hydrology for career advancement
- Certification to perform duties specified by certain agencies
- Association to a nationwide network of hydrologists
- Access to and opportunities for contributing to AIH Bulletin
- Access to career development and continuing education resources
- Eligibility for annual awards

WHO BELONGS TO AIH?

Membership into the American Institute of Hydrology consists of more than 500 professional hydrologists, hydrologic technicians, hydrologists-in-training, students, and water resource businesses – both in the United States and abroad.



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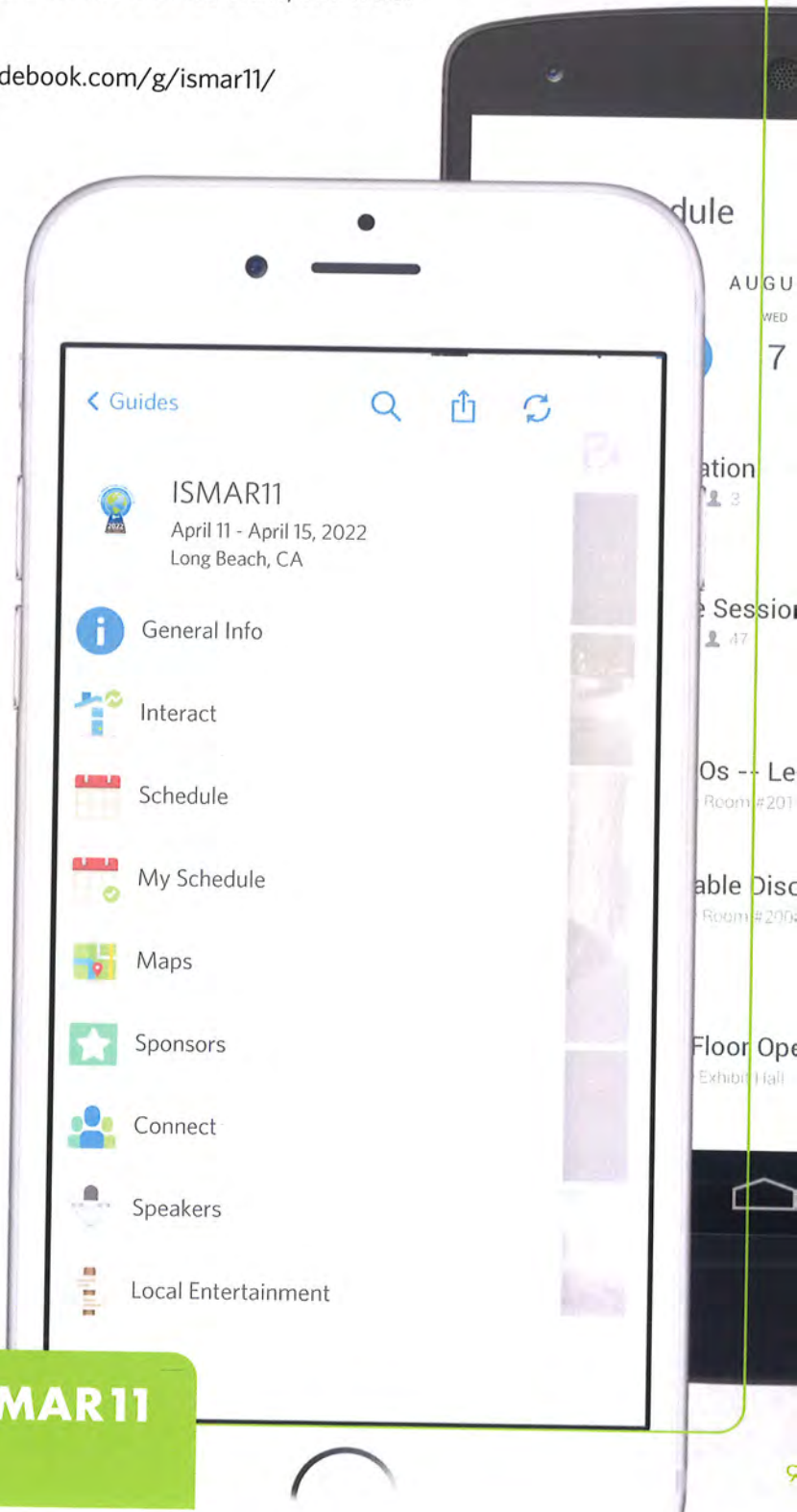
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ADDITIONAL EVENTS THIS WEEK TO CHECK OUT!

ISMAR^x

ISMAR^x is an innovative, fast paced session that features short presentations from students and young professionals on a MAR research or project, followed by time for networking with the student the presenters and other young professionals.



Wellness Activities - GRA wants you to take care of your mind and your body! Take part in our 7-minute standing workout breaks between sessions, enjoy the quiet space when you need a moment away, and join us in the lobby at 6:30am for the Darcy Dash 5k on Wednesday morning!



ISMAR Mardi Gras

MARDi Gras Reception is Tuesday 5-6:30pm in the Promenade/Foyer. Enjoy this reception to end the day, network and visit exhibitors!

ISMAR Speakeasy

Speakeasy - Wednesday 8-11 pm in the Galleria
Get ready to kick back and unwind at the ISMAR Speakeasy on Wednesday at 8pm! We'll be featuring a 10-piece jazz band, casino tables to try your luck, and costumes that evoke the mood of the 1920s. Dress your best and get ready to play the night away...when the sunsets over ISMAR, there's no telling where the night will go!

RAMBOLL



WRD
WATER REPLENISHMENT DISTRICT

Post-Conference Activities - Have you registered for Friday's post-conference field trips or Geophysics Workshop? See conference staff if you'd like to add one of these activities to your schedule!

#ISMAR11



SECURING OUR WATER FUTURE TODAY



The Water Replenishment District manages and protects two groundwater basins which provide nearly 50% of the total water supply for four million residents in southern Los Angeles County.

WRD ensures that a reliable and locally sustainable supply of high-quality groundwater is available through replenishment with recycled water and stormwater capture.



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GeoEngineers is putting MAR tools to work for agriculture, industry, and municipalities. Our team of hydrogeologists, engineers and scientists work to find sustainable and practical water management solutions. We are passionate about what we do!

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📍 **21 offices nationwide**

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Tuesday, April 12

GENERAL SESSION

International Ballroom

7:00 am – 5:00 pm

Registration

Promenade/Foyer

8:00 am – 8:05 am

Welcome

ISMAR 11 Conference Chair, Adam Hutchinson and GRA President, R.T. Van Valer

8:05 am – 9:10 am

Keynote Address

Leadership: A Key Ingredient for Addressing Water Management Challenges

Bruce Babbitt, former governor of Arizona (1978-87) and Secretary of Interior (1993-2001)

9:10 am – 10:00 am

Keynote Address

Protecting the Invisible, Underground Pulse of the Planet: The challenges and what needs to be done

David Kreamer, Ph.D., Professor of Geoscience, and past Director of the interdisciplinary Water Resources Management Graduate Program at the University of Nevada, Las Vegas.

10:00 am – 10:20 am

Break - Join us for a 7-minute standing workout and then network with colleagues and exhibitors before heading into the next session!

10:20 am – 12:00 pm

Panel Discussion: Managed Aquifer Recharge in California

Moderator: Felicia Marcus, William C. Landreth Visiting Fellow, Stanford University; Former Chair, California State Water Resources Control Board

Panelists:

- Paul Gosselin, Deputy Director, Sustainable Groundwater Management, CA Department of Water Resources
- Rosemary Knight, Professor of Geophysics, Senior Fellow, Woods Institute for the Environment, Stanford University
- Aaron Fukuda, General Manager, Tulare Irrigation District, and General Manager, Mid-Kaweah Groundwater Sustainability Agency.
- Sarge Green, Water Management Specialist, California Water Institute, Cal State University, Fresno

- Samantha Arthur, Working Lands Program Manager, National Audubon Society, California and Commissioner, California Water Commission

12:00 pm – 1:30 pm

Herman Bower Awards Luncheon

The Herman Bouwer Award is given to a person or agency that has significantly advanced the understanding or utilization of Managed Aquifer Recharge. Prior recipients include: Robert Rice (2014), Mario Lloria (2016), and David Pyne (2018).

1:30 pm – 2:00 pm

Break

2:00 pm – 3:30 pm

Panel Discussion: Managed Aquifer Recharge in Action

Moderator: Sharon Megdal, Director, University of Arizona Water Resources Research Center

Panelists:

- Ken Slowinski, Chief Legal Counsel, Arizona Department of Water Resources Topic: Arizona Water Banking Authority
- David DeJong, Project Director, Pima-Maricopa Irrigation Project, Gila River Indian Community(AZ) Topic: Gila River Indian Community's Managed Aquifer Recharge Site #5 (MAR 5) and Gila River Interpretive Trail
- Diego Berger, International Projects Coordinator, Mekorot-Israel National Water Co., Israel Topic: The role of MAR in implementing Israel's master plan for water (To be presented by Sharon Megdal)
- Danielle Squeochs, Hydrologist, Yakama Nation Topic: Yakama Basin Integrated Plan and the Yakama Nation's MAR program

3:30 pm – 4:15 pm

ISMARx: Presentations

Moderator: Erik Cadaret, West Yost

ISMARx is an innovative, fast paced session that features short presentations from students and young professionals on a MAR research or project.

4:15 pm – 5:00 pm

ISMARx: Networking

Facilitator: Erik Cadaret, West Yost

Part 2 of ISMARx involves networking of the presenters and other young professionals with conference attendees.

5:00 pm – 6:30 pm

MARdi Gras Reception

Enjoy this reception to end the day, network and visit exhibitors.

Wednesday, April 13

**TECHNICAL PRESENTATIONS, POSTER SESSION,
AND SPEAKEASY**

6:30 am

Join us in the lobby for the Darcy Dash 5k!

7:30 am – 5:00 pm

Registration

8:00 AM – 9:55 AM | CONCURRENT SESSIONS

**Multi-Benefits of Integrated Flood Managed
Aquifer Recharge in California**

International I-II

Moderator: Jim Wieking, CA Dept of Water Resources

- The Merced Flood-MAR Reconnaissance Study - Integrated Modeling - David Arrate, P.E., California Department of Water Resources
- The Merced Flood-MAR Reconnaissance Study - Climate Change Vulnerability - Karandev Singh, P.E., California Department of Water Resources
- The Flood Risk Sector of the Merced Flood-MAR Reconnaissance Study - Aleksander Vdovichenko, P.E., California Department of Water Resources
- The Water Supply Sector of the Merced Flood-MAR Reconnaissance Study - Lisbeth (Liz) DaBramo, E.I.T., Woodard & Curran
- Evaluation of Ecosystem Enhancements of the Merced Flood-MAR Reconnaissance Study - Taylor Spaulding, Fisheries Biologist Scientist, ESA Environmental

Aquifer Storage and Recovery (ASR) I

International III

Moderator: David Pyne, ASR Resources

- Aquifer Storage and Recovery Development in Northern California – Considerations and Lessons Learned - Chris Petersen, Principal Hydrogeologist, GEI Consultants, Inc.
- ASR in suboptimal conditions: freshwater self-sufficiency of the Dutch island Texel - Beatriz de La Loma Gonzalez and Tine te Winkel, Acacia Water
- 2D and 3D Seismic Reflection Surveys to Improve the Efficiency of ASR Systems - John Jansen, Senior Geophysicist, Collier Geophysics
- Part 1: City of Phoenix, Aquifer Storage and Recovery (ASR) Well #302: Recharge, Well Rehabilitation, and Lessons Learned - Gary M. Gin, R.G., Vice President of AZ Operations, LRE Water
- Well Efficiency and Performance: Influencing Factors - Corné Engelbrecht, Institute for Groundwater Studies (IGS), Natural and Agricultural Sciences, University of the Free State, South Africa & GEOSS South Africa, Stellenbosch, Western Cape, South Africa



ISMAR
Mardi Gras

TUESDAY

IN THE PROMENADE/FOYER

5:00 pm – 6:30 pm

Enjoy this reception to end
the day, network and visit
exhibitors.

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Managed Aquifer Recharge and Integrated Water Management I

International IV-V

Moderator: Mary-Belle Cruz Ayala, Arid Lands Resource Sciences-University of Arizona

- Co-Managed Aquifer Recharge (Co-MAR). A bottom-up approach for Integrated Water Resources Management enhancement. Novel method employed at Los Arenales aquifer (Spain) and first results - Enrique Fernández-Escalante, Tragsa Group (Spain) & IAH MAR Commission
- Evaluation of Managed Aquifer Recharge Using Municipal Residential Stormwater in the Pacific Northwest US - Jason Melady, Principal Hydrogeologist, Summit Water Resources
- Groundwater recharge in India: the transition from water conservation to MAR - Himanshu Kulkarni, Executive Director, ACWADAM
- Aquifer recharge and green stormwater infrastructure applied in urban regions - Hugo A. Loaiciga, Professor and Director, University of California, Santa Barbara
- Managed Aquifer Recharge in the Los Angeles Coastal Plain - Nathan Hatch, Hydrologist, INTERA Incorporated, California

9:55 am – 10:15 am

Break

Promenade/Foyer - Join us for a 7-minute standing workout and then network with colleagues and exhibitors before heading into the next session!

10:15 AM – 12:10 PM | CONCURRENT SESSIONS

Managed Aquifer Recharge Engineering and Design I

International I-II

Moderator: Gary Burchard, LRE Water

- A proposed methodology for identifying the feasibility of Managed Aquifer Recharge - Anne Imig, Technical University of Munich
- The effect of air injection on the biogeochemical efficiency of a soil aquifer treatment (SAT) system - Ido Arad, Civil & Environmental Engineering, Technion - Israel Institute of Technology
- Cooperative project on feasibility of MAR in the MENA region - Thomas Grischek, Professor, Dresden University of Applied Sciences, Division of Water Sciences
- Extraction of Brackish Water and Optimization of Injection at Seawater Intrusion Barriers and Inland Wells - Raghu Suribhatla, Senior Engineer, INTERA Incorporated
- Injection and Extraction at Elandsfontein Mine to Protect Langebann Lagoon - Kes Murray, Senior Scientist/Hydrogeologist, GEOSS South Africa (Pty) Ltd – Groundwater and Earth Sciences

Managed Aquifer Recharge Geophysics I

International III

Moderator: Tim Parker, Ramboll USA

- A new high-resolution geophysical imaging method for advanced assessment of MAR sites - Ahmad-Ali Behroozmand, Senior Geophysicist, Ramboll
- Efficient Hydrogeologic Characterization Using a Newly Developed Direct Push Magnetic Resonance System and Applications to Managed Aquifer Recharge - David Walsh, President, Vista Clara
- Soil texture and seepage mapping beneath earth irrigation infrastructure using electrical conductivity imaging. - David Allen, Principal, Groundwater Imaging Pty. Ltd.
- Identification of potential recharge pathways at the field scale using geophysical and CPT data: tools for recharge site assessment - Meredith Goebel, Post Doctoral Research Fellow, Stanford University
- Integrated Geophysics for Managed Aquifer Recharge Infiltration, Injection and Conjunctive Surface/ Groundwater Scheme Investigation - Geoff Pettifer, Technical Director, GHD, Australia

Managed Aquifer Recharge and the Environment I

International IV-V

Moderator: Russell Martin, Senior Principal Hydrogeologist, Wallbridge Gilbert Aztec, Australia

- Impact of managed aquifer recharge on critical zone processes in agricultural landscapes - Helen Dahlke, Associate Professor, University of California, Davis
- Multi-Benefit Groundwater Recharge: Saving Birds and Recharging Groundwater in California's Central Valley - Julia Barfield, Project Manager, The Nature Conservancy
- Recharge Quantification for Floodplain Restoration Opportunities on Central Valley Rivers - Michael Founds, Ecohydrologist, cbec eco engineering
- Environmentally sound managed aquifer recharge for drinking water production - Petri Jokela, Managing Director, Tavase Ltd.
- Catchment-scale hydrologic analysis of streambed recharge structures in Rajasthan, India (V) - Yogita Dashora, Senior Research Fellow and Vidya Bhawan Krishi Vigyan Kendra, Badgaon, Udaipur, India

Managed Aquifer Recharge Operations and Maintenance

Pacific I-II

Moderator: Nathan Nutter, Murraysmith

- Biochemical process optimization for enhanced SAT operation - Alex Furman, Civil & Environmental Engineering, Technion - Israel Institute of Technology
- Measuring and Monitoring Incentivized MAR in a Channel in Idaho, USA - Ernest M. Carlsen, Secretary, Recharge Development Corporation
- Part 2: Bench Scale Testing: Reducing Impacts to Stainless Steel Casing While Targeting Legacy Drilling Fluids - Gary M. Gin, R.G., Vice President of AZ Operations, LRE Water
- Ten years of ASR by deep well injection in a carbonate aquifer - Jordi Guimera, Hydrological Services Project Director, AMPHOS21
- Shallow Aquifer Recharge Expansion Planning at the City of Yelm's Cochrane Memorial Park Reclaimed Water Facility, Thurston County, Washington - Stephen D. Thomas, Hydrogeologist, GeoEngineers, Inc.

12:10 pm – 2:00 pm

Lunch - Hosted lunch provided in the Catalina Room

2:00 PM – 3:55 PM | CONCURRENT SESSIONS

Managed Aquifer Recharge Engineering and Design II

International I-II

Moderator: Mike Milczarek, Geosystems Analysis

- Preliminary assessment of a managed aquifer recharge pilot facility utilizing riverbank filtration and aquifer storage for sustainable groundwater-irrigated agroecosystems - Andy O'Reilly, Research Hydrologist, U.S. Department of Agriculture, Agricultural Research Service
- The Freeman Expansion project: increasing diversions and aquifer recharge during peak flows to reduce impacts of droughts and increased environmental flow requirements - Bram Sercu, Senior Hydrologist, United Water Conservation District
- Use of Enhanced Recharge Methods to Increase Managed Aquifer Recharge Rates - Jason Keller, Senior Hydrogeologist, GeoSystems Analysis, Inc.
- Infiltration capacity of infiltration trenches and basins in Dresden, Germany - Thomas Grischek, Professor, Dresden University of Applied Sciences, Division of Water Sciences
- Rooftop Rainwater Harvesting by Shallow Well Infiltration – Challenges and Opportunities - Zsóka Szabó, PhD student, Eötvös Loránd University, Budapest, Hungary

Managed Aquifer Recharge and Emerging Contaminants I

International III

Moderator: Bas van der Grift, KWR Water Research Institute

- Reclaimed Water Infiltration Study: Determining Attenuation Factors and Exposure Point Concentrations for Contaminants of Emerging Concern - Brittany Duarte, Hydrogeologist, HDR
- Field comparison of nitrogen cycling between three agricultural managed groundwater recharge sites - Elad Levintal, Postdoctoral Researcher, Department of Land, Air and Water Resources, University of California, Davis, CA, United States
- Treatment to Remove PFAS from Groundwater Impacted by MAR to Restore Drinking Water in Orange County, California - Manmeet (Meeta) Pannu, Senior Scientist, Orange County Water District
- Combining Constructed wetlands and Soil Aquifer Treatment to enhance infiltration flux and water quality - Ido Negev, Chief Hydrologist, Mekorot National Water Company

Managed Aquifer Recharge and the Environment II

International IV-V

Moderator: Christy Kennedy, Woodard & Curran

- Modeling the impact of levee setback on groundwater recharge and stream flow and temperature for ecosystem and anthropogenic needs - Andrew Calderwood, UC Davis, Foglia & Dahlke Labs
- Managed Aquifer Recharge: A No-Regret Climate Change Adaptive Measure - Jose David Henao Casas, Tragsa-Universidad Politécnica de Madrid
- Water Security and Integrated Water Resources Management improvements due to Managed Aquifer Recharge (MAR). Selection of case studies, characterization, benchmarking and practical recommendations. - Enrique Fernández-Escalante, Tragsa Group (Spain). Innovation SD
- MAR for Environmental Benefit - Katarapko Freshwater Injection Trial Case Study - Russell Martin, Senior Principal Hydrogeologist, Wallbridge Gilbert Aztec, Australia
- Agricultural Soil-Aquifer Treatment: A New Concept in the MAR Arsenal - Noam Weisbrod, Professor, Ben Gurion University of the Negev, Israel

AGENDA

Managed Aquifer Recharge and Water Markets

Pacific I-II

Moderator: Paul Weghorst, Irvine Ranch Water District

- Five years of Recharge Net Metering (ReNeM) to improve water supplies and water quality - Andrew T. Fisher, Professor of Earth and Planetary Sciences, University of California, Santa Cruz
- Creation of a Local Non-Profit Corporation to Manage and Distribute Incentivized MAR - Keith Esplin, Executive Director, Eastern Snake Plain Aquifer Recharge (ESPAR)
- Groundwater-energy-food nexus for sustainable management of the aquifers - Makoto Taniguchi, Professor, Research Institute for Humanity and Nature
- Creation of Local Non-Profit Corporations for the Implementation of Incentivized Managed Aquifer Recharge - David R. Tuthill, Jr., Ph.D., P.E., Vice President, Recharge Development Corporation
- The Costs and Benefits of Managed Aquifer Recharge - Andrew Ross, Visiting Research Fellow, Fenner School of Environment and Society, Australian National University

4:00 pm – 5:00 pm

Poster Session

Promenade Foyer

Enjoy reviewing posters, meeting the poster presenters, networking and visiting exhibitors.

5:00 pm – 6:15 pm

International Association of Hydrogeologists (IAH) Commission on MAR Plenary Session

International III

IAH MAR Commission Co-chairs: Enrique Escalante and Catalin Stefan

The IAH Plenary Session is held at every ISMAR event. The session will include an update on Commission activities, announcement of ISMAR12 location, election of IAH MAR Commission Co-chairs, and other business.

6:00 pm – 8:00 pm

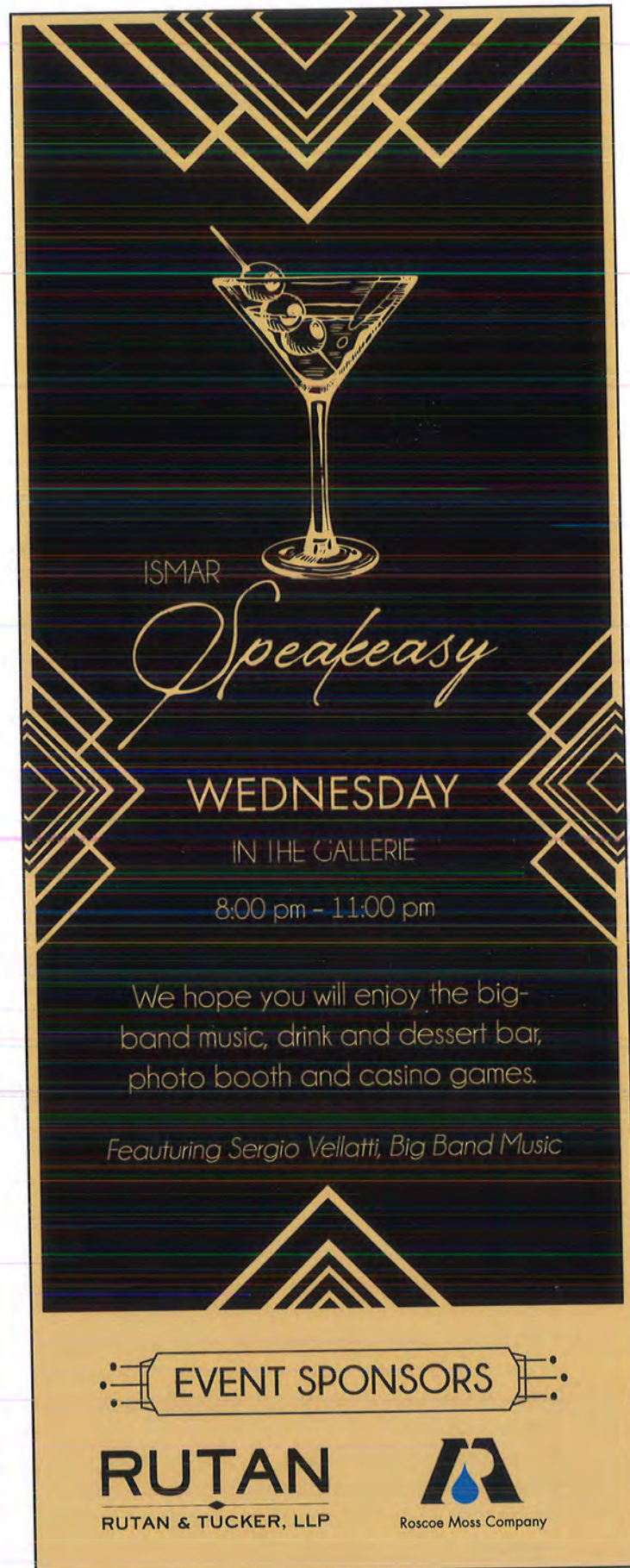
Break

Take a break and grab dinner on your own but don't forget to come back for our amazing evening in the ISMAR Speakeasy in the Gallerie!

8:00 pm – 11:00 pm

Speakeasy

Come dressed up and get ready to enjoy big-band music, drink and dessert bar, photo booth, casino games. Featuring Sergio Vellatti, Big Band Music.



The poster features a central illustration of a martini glass with olives and a lemon wedge, set against a dark background with gold geometric patterns. The text is in gold and white, providing event details and sponsor information.


ISMAR
Speakeasy
WEDNESDAY
IN THE GALLERIE
8:00 pm – 11:00 pm

We hope you will enjoy the big-band music, drink and dessert bar, photo booth and casino games.

Featuring Sergio Vellatti, Big Band Music

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9:55 am – 10:15 am

Break

Promenade/Foyer - Join us for a 7-minute standing workout and then network with colleagues and exhibitors before heading into the next session!

10:15 AM – 12:10 PM | CONCURRENT SESSIONS

Managed Aquifer Recharge and Emerging Contaminants III

International I-II

Moderator: Roohi Toosi, A-Tech Consulting

- Implications of Groundwater Contamination on Managed Aquifer Recharge Development: An Unforeseen Loss - Maria Gibson-Daugherty; Geologist IV; EA Engineering, Science, and Technology, Inc., PBC
- Managed Aquifer Recharge at West Richland, Washington, USA: Displacing Poor Quality Groundwater with High Quality Potable Water - Kevin A. Lindsey, Principal Hydrogeologist; GeoEngineers, Incorporated
- The fate of trace organic contaminants in managed aquifer recharge combined with pre-oxidation and nanofiltration - Sung Kyu Maeng, Professor, Sejong University
- Chronic Toxicity Mystery at an Advanced Water Treatment Facility - Phuong Watson, Senior Engineer, Water Replenishment District of Southern California
- Identifying SAT efficiency by modelling its specific aquifer environment influenced by natural and anthropogenic activities - Example of the Costal SAT of Agon-Coutainville (France) - Picot-Colbeaux Géraldine, Hydrogeologist, BRGM

International Recharge Opportunities and Innovation

International III

Moderator: Erik Cadaret, West Yost

- MAR for the Developing World - Guidelines for developing Community-based MAR Projects for Climate Change Resiliency and Water Security - Bob Bower, Principal Hydrologist, Mercy Corps
- Education and outreach on riverbank filtration in India – examples from the CCRBF project - Cornelius Sandhu, Senior Researcher, Dresden University of Applied Sciences
- Evaluating Managed Aquifer Recharge options to improve the status of an over-exploited aquifer in South Portugal - Kath Standen, Universidade do Algarve
- Identification and characterization of cross-sector collaborative relationships enabling Managed Aquifer Recharge projects in Mexico - Mary-Belle Cruz A., Arid Lands Resource Sciences-University of Arizona
- Addressing a Severe Water Scarcity Problem by Implementing a Fast and Durable Managed Aquifer Recharge Program in Northern Algeria (North Africa) - Farid Achour, Principal Hydrogeologist, GSI Environmental Inc.

Managed Aquifer Recharge Engineering and Design IV

International IV-V

Moderator: Kevin O'Toole, Orange County Water District

- The use of regional groundwater flow characteristics for optimized screening of MAR potential and application conditions - Ádám Tóth, ELTE Eötvös Loránd University
- Electrical Resistivity Tomography to Site Recharge Basins and Improve Groundwater Models in Southern California - Nicole Pendrigh, Senior Geophysicist, Collier Geophysics, LLC
- Site suitability analysis for managed aquifer recharge in karst aquifers (V) - Nourelhoda Itani, American University of Beirut
- Methodology for evaluation of potential sites for large scale river bank filtration - Thi Ngoc Anh Hoang, M.Eng, Dresden University of Applied Sciences
- Advantages and challenges of using vadose-zone water stable isotope profiles for assessing groundwater recharge - Lamine Boumaiza. Postdoctoral Hydrogeologist, University of Quebec at Chicoutimi (Canada)

Managed Aquifer Recharge of Stormwater: Rural and Agricultural Applications

Pacific I-II

Moderator: Bob Bower, Wallbridge Gilbert Aztec, New Zealand

- Increased Recharge to the Orange County Groundwater Basin from Forecast Informed Reservoir Operations (FIRO) at Prado Dam, Riverside County, California - Adam Hutchinson, Recharge Planning Manager, Orange County Water District
- Tools to Assess Groundwater Quality Effects when Flooding Agriculture Fields to Recharge Aquifers - Michael Milczarek, Program Director, GeoSystems Analysis, Inc.
- On-Farm Recharge at the McMullin Projects: Local expectations, and considerations - Philip Bachand, President, Principal Investigator, Bachand & Associates
- Basalt Aquifer Recharge in the Columbia Basin: Agribusiness Working to Reverse Aquifer Water Level Decline, Southern Columbia Basin, Oregon, USA - Kevin Lindsey, Principal Hydrogeologist, GeoEngineers, Inc.
- Managed Aquifer Recharge (MAR) for Agriculture: A Pilot Test Case Study of Direct Injection in the San Joaquin Valley, California - Robert Anderson, Principal Scientist, Geosyntec Consultants.

Thursday, April 14

TECHNICAL PRESENTATIONS

7:30 am – 2:00 pm
Registration

8:00 AM – 9:55 AM | CONCURRENT SESSIONS

Managed Aquifer Recharge and Emerging Contaminants II

International I-II

Moderator: Jeffery Davis, Integral Consulting

- Behavior of ammonium in the hyporheic zone during riverbank filtration - Gustavo Covatti, PhD Student, M.Eng., University of Applied Sciences Dresden
- Reclaimed Water Infiltration Study: Effectiveness of Residual Chemical Removal Through Soil Aquifer Treatment in a Glacial Aquifer System - Shane McDonald, PG, CPG, Senior Technical Leader, Hydrogeology and Modeling, HDR
- The Effect of Dry Wells on Groundwater Quality - Thomas Harter, Professor, University of California Davis
- Using molecular properties to predict the removal efficiency of (new) organic micro-pollutants during soil passage - Bas van der Grift, KWR Water Research Institute
- Large-scale tank experiments simulating soil aquifer treatment – Assessing attenuation of emerging organic compounds and water quality changes - Marcel Horovitz, Laboratório Nacional de Engenharia Civil (Portugal), Technical University of Darmstadt (Germany)

8:00 am – 9:55 am

Managed Aquifer Recharge and Sustainable Groundwater Management

International III

Moderator: Trey Driscoll, Dudek

- Managed Aquifer Recharge and Climate Change in Florida-Strategies for Coping with an Uncertain Future - Robert G. Maliva, Principal Hydrogeologist, WSP USA
- Sustainable Groundwater Management using Managed Aquifer Recharge (Dry wells) - Salini Sasidharan, Assistant Professor, Sustainable Groundwater Management Engineer, University of California, Riverside, CA; Oregon State University, OR
- California's 2014 Sustainable Groundwater Management Act (SGMA) - Progress Update, Lessons Learned and MAR Proposed - Timothy K. Parker, PG, CEG, CHG, Senior Hydrogeologist/Sustainability Expert, Ramboll USA
- Eastern Snake Plain MAR Program - Collaborative, Long-term Sustainable Management of an Aquifer - Wesley Hipke, Recharge Program Manager, Idaho Department of Water Resources

- Preliminary assessment of managed aquifer recharge opportunities for irrigated agricultural areas in Australia (V) - Dennis Gonzalez, Spatial Data Scientist, Commonwealth Scientific and Industrial Research Organisation

Managed Aquifer Recharge Engineering and Design III

International IV-V

Moderator: Doug Bartlett, Geo-Logic Associates

- Effect of small changes in clay content in sandy soil on recharge rates: new conclusions on planning criteria of new recharge ponds, and on the ability to rehabilitate existing ponds - Ido Negev, Chief Hydrologist, Mekorot National Water Company
- Significance of the topography of water table in MAR solutions - The example of the Danube-Tisza Interfluvium area, Hungary - Judit Mádl-Szőnyi, Associate Professor, Eötvös Loránd University
- Soil and infrastructure suitability for managed aquifer recharge with recycled water - Sarah Paschal Gerenday, PhD candidate, University of California Santa Barbara
- Optimizing MAR in coastal dunes by abstracting brackish groundwater: preliminary results of a field pilot in the Netherlands - Teun van Dooren, Scientific Researcher Hydrogeology, KWR Water Research Institute
- Depth-Specific Testing Methods for Water Bank Recovery Wellfield Design - Timothy Leo, Principal Hydrogeologist & Vice President, Montgomery & Associates

Managed Aquifer Recharge Modeling I

Pacific I-II

Moderator: Ali Tagavi, Woodard & Curran

- Strategizing Recharge in Complex Settings by Optimization of Recycled Water Injection - Chin Man W. Mok, Principal and Vice President, GSI Environmental Inc.
- Assessing predictions' uncertainty at a multi-source Managed Aquifer Recharge site using stochastic modelling: the Menashe System, Israel - Daniel Kurtzman, Sub-surface Hydrology Researcher, Institute of Soil, Water and Environmental Sciences, Agriculture Research Organization – Volcani Institute, Israel
- A novel analytical approach to calculating groundwater recharge through the vadose zone - Morteza Sadeghi, Water Resources Engineer, California Department of Water Resources
- Using Groundwater models to support Sustainable Groundwater Basin Management in California's Monterey Bay Region - Pascual Benito, Senior Hydrogeologist, Montgomery & Associates
- Water Availability Analysis for California Water Rights Permitting - Shelby Witherby, Water Resources Control Engineer, CA State Water Resources Control Board

12:10 pm – 2:00 pm

Lunch - Hosted lunch provided in the Catalina Room

2:00 PM – 3:55 PM | CONCURRENT SESSIONS

Managed Aquifer Recharge Geophysics II

International I-II

Moderator: John Jansen, Collier Consulting

- Rapid Mapping of Aquifers and Water Quality Using a Towed Cart Time-Domain Electromagnetic Induction System - Kristen Marberry, Geophysicist, Collier Geophysics, LLC
- Airborne geophysics and groundwater modeling to support a managed aquifer recharge project in the Mississippi Alluvial Plain - J.R. Rigby, Research Hydrologist, U.S. Geological Survey
- Airborne Electromagnetic Mapping for Managed Aquifer Recharge - Jared D. Abraham, Geophysicist/Geologist, Aqua Geo Frameworks LLC
- A geostatistical workflow for evaluating flood-MAR sites using geophysical data - Zach Perzan, Stanford University
- Improving hydrogeological characterization for managed aquifer recharge with borehole magnetic resonance - Ned Clayton, Principal Hydrogeologist, NMR Services

Managed Aquifer Recharge and Integrated Water Management II

International III

Moderator: Lyndsey Bloxom, Water Research Foundation

- Challenges and Experiences on Managed Aquifer Recharge in the Mexico City Metropolitan Area - Adriana Palma Nava, Master Engineering, UNAMF Institute of Engineering
- Leveraging Existing Information to Assess the Potential Impacts of Managed Aquifer Recharge Projects - Carolina Sanchez, Senior Engineer, West Yost
- Managing Aquifer Recharge: An Integrated Assessment of Global Best Practice (V) - Karen Grothe Villholth, Principal Researcher, IWMI - International Water Management Institute
- Potable Reuse of Municipal Wastewater in the United States - William M. Alley, Director, Science & Technology, National Ground Water Association
- MAR's Role in One Water – Building Resilience - Don Corbett, Senior Hydrogeologist, Hydrogeology and Water Programs, Region of Waterloo, ON, Canada

Aquifer Storage and Recovery (ASR) II

International IV-V

Moderator: Chris Petersen, GEI Consultants

- Aquifer Storage and Recovery using Desalinated Water in United Arab Emirates - Mohsen Sherif, United Arab Emirates University, Al Ain, United Arab Emirates
- ASR Implementation Challenges in Texas, USA - David K. Smith, Environmental Scientist, CDM Smith
- Power Regeneration During ASR Injection - Kent Madison, Owner of 3RValve LLC
- Aquifer Storage and Recovery in the Brackish Edwards Aquifer, Central Texas - Neil Deeds, Senior Water Resources Engineer, INTERA Incorporated
- Advanced monitoring of storage and recovery of unmixed drinking water in a brackish groundwater aquifer - Caspar van Genuchten, PWN Water Supply Company

Managed Aquifer Recharge Modeling II

Pacific I-II

Moderator: Stephanie Moore, INTERA Incorporated

- Groundwater Modeling to Support Permitting of Recycled Water Recharge Projects in California - Abhishek Singh, Principal Engineer; Vice President - Western Region, INTERA Incorporated
- Flood Water Allocation and Agricultural Site Suitability for Potential Flood Managed Aquifer Recharge - Francisco Flores-López, Ph.D., California Department of Water Resources
- Fluid Dynamics Assessment using Numerical Modeling of Water Flow through Different Screen Types for ASR Well Design - Salvador Jordana, Project Director, AMPHOS21
- Mapping the potential for water quality improvements during infiltration for MAR with machine learning informed by field and laboratory experiments - Galen Gorski, Postdoctoral Researcher, University of California, Berkeley
- The impact of storage conditions on the recovery efficiency during ASR: an analytical and numerical evaluation to optimize system design - Niels Hartog, Principal Scientist – Geohydrology, KWR Water Research Institute

AGENDA

Friday, April 15

FIELD TRIPS AND GEOPHYSICS WORKSHOP

Workshops and Field Trips require separate registration.

All pre-registered field trip attendees, please meet in the hotel lobby no later than 8:15 am - buses will depart at 8:30 am.

8:30 am – 2:00 pm

Field Trip to Orange County Water District

Guide: Kira Erquiaga, Orange County Water District

8:30 am – 2:00 pm

Field Trip to Water Replenishment District of Southern California

Guide: Jenn Swart, Water Replenishment District of Southern California

9:00 am – 12:00 pm

Application of Geophysics for Managed Aquifer Recharge

Presented by Ramboll

Instructors:

- Ahmad-Ali Behroozmand, Ramboll, Emeryville, California, USA
- Max Halkjaer, Ramboll, Aarhus, Denmark
- John Jansen, Collier Geophysics, West Bend, Wisconsin, USA
- Timothy K. Parker, Ramboll, Emeryville, California, USA

The objective of this workshop is to provide attendees information on a broad array of geophysical imaging methods and practical application through examples and lessons learned. The intent is to provide the project manager with the working knowledge needed to specify and evaluate geophysical surveys that provide the coverage and resolution that are optimal for the assessment of MAR sites for projects targeted at recharging shallow to deeper parts of the groundwater system. The workshop will provide ample opportunity for group discussions, and input on specific projects and site settings.



AGENDA



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Cortney Brand, PG



Gary Gin, RG



Jackie Tappan, GIT



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Poster Session

Wednesday 4-5pm in the Promenade/Foyer

Enjoy reviewing posters, meeting the poster presenters, networking, and visiting exhibitors.

Jose David Henao Casas, Tragsa-Universidad Politécnica de Madrid (UPM)

MAR as a Tool to Mitigate Aquifer Overexploitation: Insights from Los Arenales Aquifer (Spain)

Enrique Fernández Escalante, Tragsa Group (Spain) & IAH MAR Commission

Monitored Intentional Recharge (MIR). Methodological approach and guidelines

Enrique Fernández Escalante, Tragsa Group (Spain) & IAH MAR Commission

The use of MAR to improve water security and rural development. Arabayona demo-site using drainage water sources, Salamanca, Spain.

Miguel Ángel González-Núñez, Universidad Autónoma de Chihuahua

Etymology of concepts: Managed Aquifer Recharge or Artificial Recharge?

Louis Boansi Okofo, Brandenburg University of Technology

A 3D numerical groundwater flow model to assess the feasibility of managed aquifer recharge (MAR) in the Tamne River Basin of Ghana

Yara Pasner, University of California, Davis

Coordinating Agricultural Land Idling and Managed Aquifer Recharge to Prevent Domestic Well Failure



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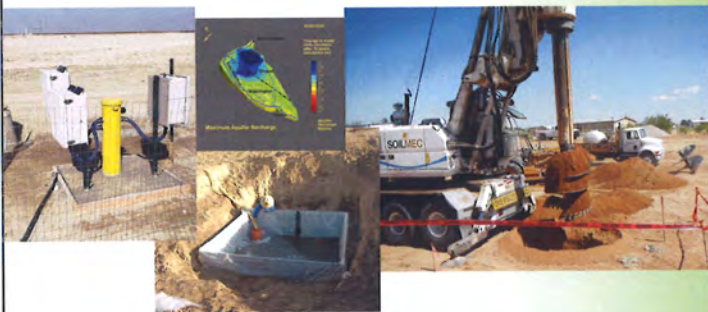
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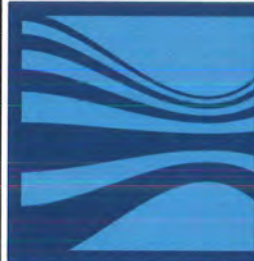
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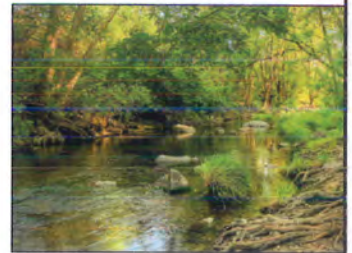
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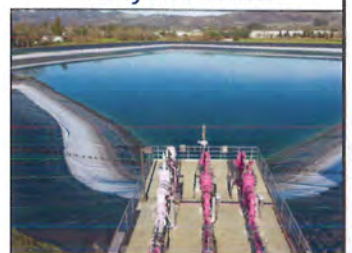
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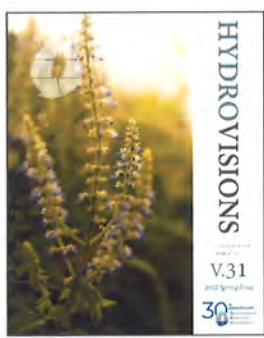


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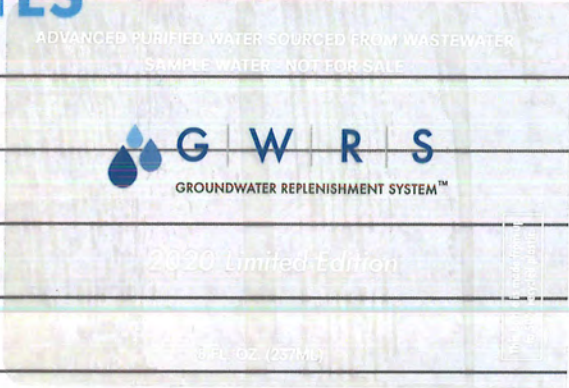
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