

IAH MAR Commission Newsletter. Issue nº 49. 2025 March-April

Dear “MARers”, please, find some recent information on Managing Aquifer Recharge.

INDEX:

- ISMAR 12. ONE WEEK LEFT... 28 April – 2 May 2025 – Stellenbosch, South Africa
 - ISMAR 12 Newsletter 5 on line
 - Thank you, sponsors and exhibitors
 - ISMAR 12's IAH-MAR Commission plenary (AGM)
- Managed Aquifer Recharge (MAR). Common Implementation Strategy for the Water Framework Directive and the Floods Directive. Guidance Document No. 39
- Supporting more and better jobs by investing in nature-based solutions
- World Drought Atlas. UNCCD Publication
- Declaración de Santa Cruz de la Sierra sobre la siembra y cosecha de agua (in Spanish)
- IWRA's 1st Islands Water Congress. Final Report by the International Water Resources Association (IWRA)
- Agua para la prosperidad y la paz
- How to measure the success of managed aquifer recharge? Experiences from a three-day workshop in Dresden
- Regional Hybrid Training Workshop on “Urban Flood Management: From Prevention to Adaptation”. May 13-14, 2025, Tehran, Iran, postponed
- The 2025 SGMA Implementation & Legislative summit. May 27-28, 2025 in Sacramento
- 6th International Summer School on MAR in Dresden
- MAR specific session in the IAH 2025 congress
- IWRA. XIX World Water Congress on "Water in a Changing World: Innovation and Adaptation". Call for abstracts about to close
- IAH-MAR webinar series. #Third. April 15th, 15:30 h CET
- IAH-MAR webinar series. #Fourth. May 16th, 15:30 h CET
- Seminars on MAR in Peru, Ica and Lima. March 2025 (in Spanish)
 - Ica, 2025 March 7th
 - Lima, March 10th
- Conference on nature-based solutions for groundwater management. March 18th (In Spanish)
- Impactos dos extremos climáticos nas águas subterrâneas. ABAS Jovem webinar (in Portuguese)
- Webinar on MAR organized by IAH Mexican chapter. May 19th (in Spanish)
- ISMARs' photos collection. We still miss some from ISAR 1.
- Intense MAR activity in Peru during 2025 March
 - AR news, Chile
 - MAR news Mexico
 - MAR news Spain
- Whatsapp group on Aquifer Recharge Management
- Previous IAH-MAR Newsletters
- IAH-MAR Commission on Twitter (X)
- IAH-MAR Commission's sister Web sites
- IAH MAR Commission Forum

ISMAR 12. One week left...

28 April – 2 May 2025. Stellenbosch, South Africa.

Space and time for “MARers” to meet and debate. It is supposed that the attendants have already prepared their presentations and knowledge to share with the community. Please, proceed....

“From Theory to Implementation and Operation”



The final programme is already available on the website <https://ismar12.org.za/programme/>

Please, also notice that the organizers will share on line the opening ceremony and the IAH-MAR plenary (AGM). If you will not be present in the main conference on MAR, please, check the program and book for these activities. Everybody welcome!!

The symposium will feature four pre-symposium workshops (52 delegates booked to date), as well as three workshops integrated into the main three-day event.

The field excursions, showcasing fascinating sites, will complement the symposium themes, offering attendees a comprehensive and enriching experience.

At this time the register is closed. More info: <https://ismar12.org.za/>

Thank you Fanus Fourie and team, for conducting all the necessary for this interesting event...

ISMAR 12 Newsletter 5 on line

A few programme highlights:

Panel Discussions

Aquifer management, the microbiome and bio surveillance – from science to operations
Through a series of short presentations and a panel discussion, this session will provide an overview of the state of the art of the aquifer microbiome research, identify knowledge gaps and discuss what is needed to develop a biosurveillance toolkit for use by water resource managers.

Workshops

We are excited to offer a dynamic lineup of pre-symposium workshops and workshops integrated into the main symposium program
Delegates who have registered and paid for workshops should visit the link below for details on:

- Workshop start times
- What to expect
- Required materials to bring

<https://ismar12.org.za/workshops/>

Field Excursions

The final day of the symposium features a variety of excursions—pre-booking is essential.
Itineraries for the symposium field excursions and the departure and return times will be available on the website from 28 March 2025.



https://ismar12.org.za/wp-content/uploads/2025/03/ISMAR12_Newsletter5.pdf

Thank you, sponsors and exhibitors

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Exhibitors



ISMAR 12's IAH-MAR Commission plenary (AGM)

The next IAH-MAR Commission plenary will take place during ISMAR 12, April 30th, 16:30 to 17:30 (AGM).

IAH-MAR Plenary agenda:

Agenda: AGENDA

1. Presentation of IAH-MAR Commission (Enrique & Catalin)
Last memory of activities (2024 Next 2025 report (Enrique)
2. Working Groups and Communities of Practise (WG & COPs leaders)
3. Invitation to ISMAR 13, 2028 (ISMAR 13 representative).
4. Election / Re-election of IAH-MAR Co-chairs (Julian Conrad)
5. IAH Certificates of Appreciation (IAH representatives & IAH-MAR co-chairs)
6. Upcoming events (Enrique & Catalin)
7. Information Sharing: on going or recently finished MAR or MAR-related projects (Catalin & Enrique)
8. Future post-ISMAR 12 Journal. Special issue. Call for action (Catalin)
9. New publications on MAR. Short mention/presentation by authors (all)
10. *In memoriam* (all)
11. Suggestions for new activities (all)
12. Call for volunteers to participate in existing and new activities (all)
13. Information sharing on MAR (*not covered elsewhere*) (all)

We kindly ask for your contributions. New members in the MAR family, more than welcome 😊.

STREAMING

To attend the opening ceremony and the IAH-MAR plenary (AGM) on line, please, use this links:

ISMAR 12 PLENARY INVITE (OPENING CEREMONY):

When: Apr 29, 2025 08:30 AM Johannesburg

<https://us06web.zoom.us/j/81270959036?pwd=3GOtd9y3dsr9tj99PT2282NAatoKfq.1>

Passcode:456397

AGM INVITE (IAH-MAR PLENARY AT ISMAR 12):

Time: Apr 30, 2025 04:30 PM Johannesburg

<https://us06web.zoom.us/j/89909319038?pwd=UF2ZVBXWCf01CkyBy2kFazOsIWL7qL.1> Meeting ID: 899 0931 9038 Passcode: 275903

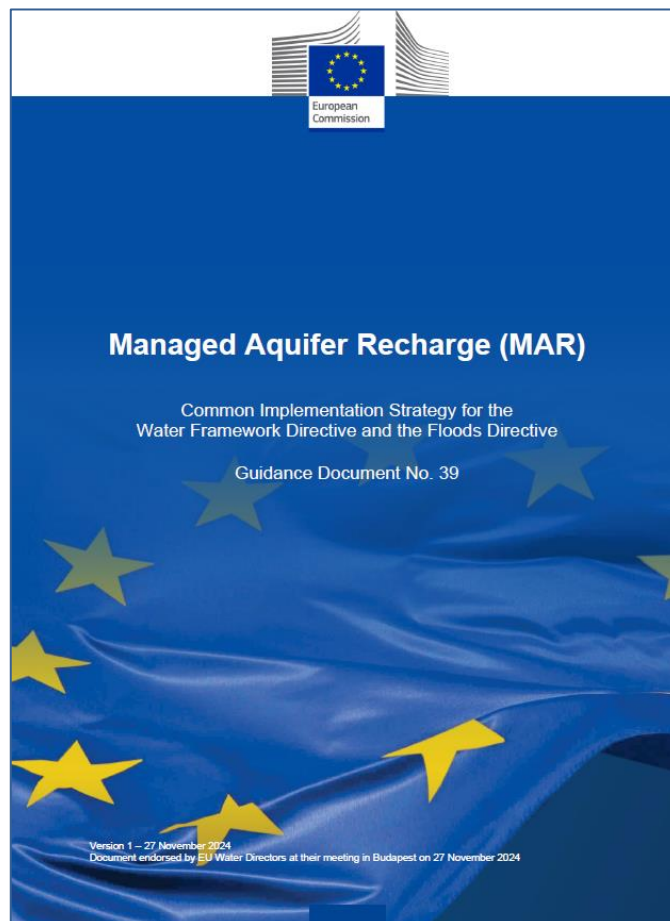
Notice that during the plenary will take place the Elections for IAH-MAR co-chairs, conducted by the IAH Vice President of Finance and Membership, Julian Conrad.

Information about candidates and their proposals will be shared to all attendants in advance. Every assistant should select a maximum of three names.

PUBLICATIONS ABOUT MAR

Managed Aquifer Recharge (MAR). Common Implementation Strategy for the Water Framework Directive and the Floods Directive. Guidance Document No. 39

Finally, after a long journey, the European Commission, through the CIS groundwater group, has released the final version of the MAR guidelines document.



This technical document has been developed through a collaborative framework (the Common Implementation Strategy) involving the Member States, European Free Trade Association countries, and other stakeholders, including the European Commission. The document reflects the informal consensus position on best practice acknowledged by the EU Water Directors. However, the document does not necessarily represent the position of any of the partners.

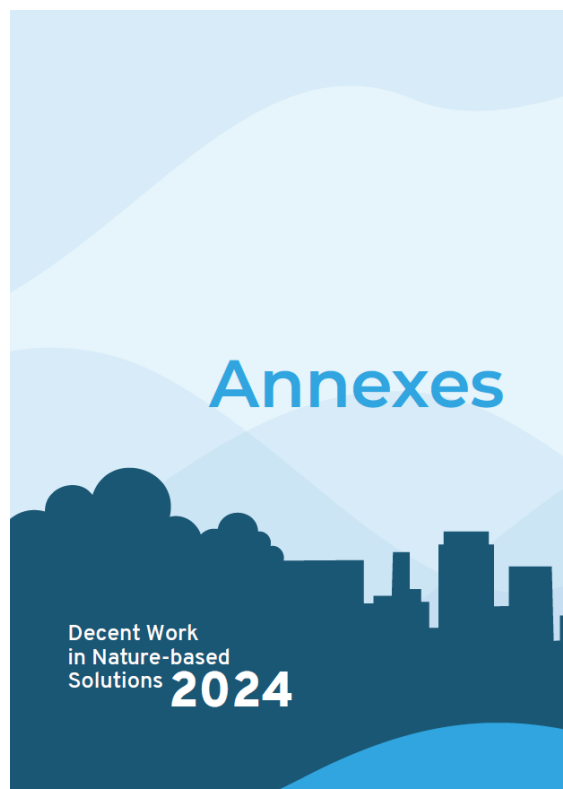
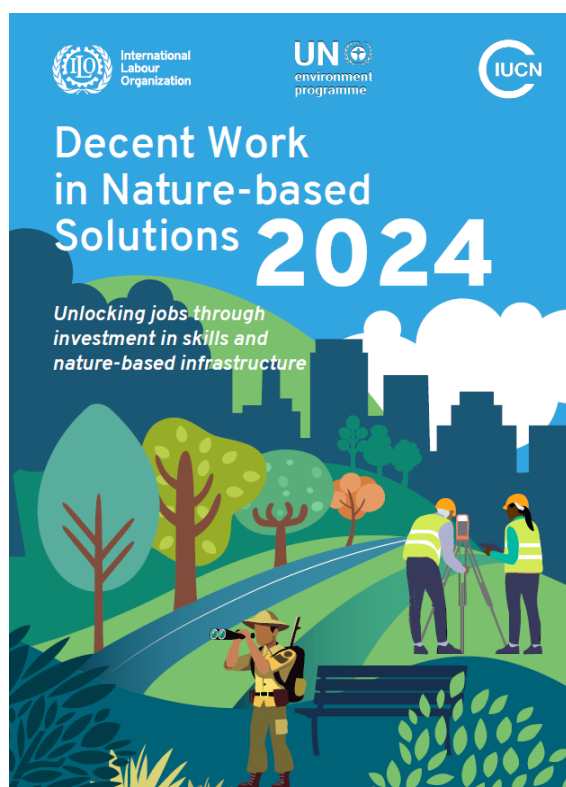
MAR EC CIS document access:

<https://euagenda.eu/publications/managed-aquifer-recharge-mar-common-implementation-strategy-for-the-water-framework-directive-and-the-floods-directive>

NEW MAR-RELATED PUBLICATIONS

Supporting more and better jobs by investing in nature-based solutions

There is increasing realization that nature-based solutions (NbS) can address the global crisis of accelerating climate change, biodiversity loss, and land degradation. The NbS agenda plays an essential role in meeting the objectives of the three United Nations Rio Conventions...



Read more and download:

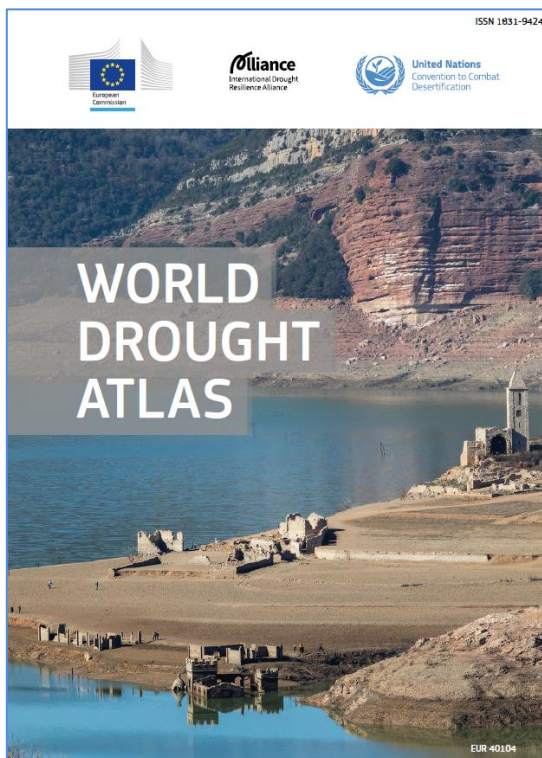
Decent Work in Nature-based Solutions Unlocking jobs through investment in skills and nature-based infrastructure 2024. https://www.ilo.org/sites/default/files/2024-12/Decent%20work%20NbS%202024_EN_0.pdf

Decent Work in Nature-based Solutions 2024. Annexes.

https://www.ilo.org/sites/default/files/2024-12/Decent%20work%20NbS%202024_ANNEXES.pdf

World Drought Atlas. UNCCD Publication

Drought has challenged and afflicted communities throughout history. Albeit not a new phenomenon, drought is also not going away. Instead, when we observe the droughts that have affected communities in recent years, we cannot deny their striking frequency, duration, or intensity, nor their prevalence – affecting every continent on the globe. Exacerbated by climate change, mismanagement of vital resources - such as land and water- and negligently planned development, the future looks challenging. Estimates suggest that, by 2050, three of every four of us worldwide may be impacted by droughts...



Read more and download: <https://www.unccd.int/resources/publications/world-drought-atlas>

Declaración de Santa Cruz de la Sierra sobre la siembra y cosecha de agua (in Spanish)

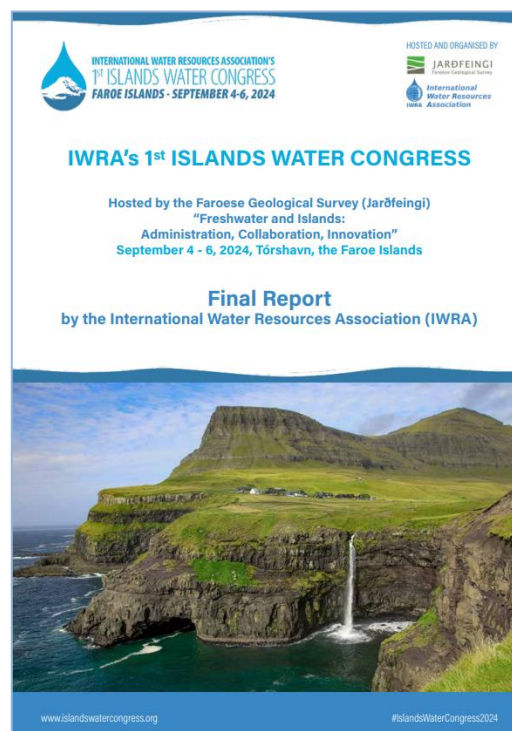
El encuentro sobre Siembra y Cosecha de Agua, celebrado en Santa Cruz de la Sierra (Bolivia) el día 10 de febrero de 2023, en la sede de la Agencia Española de Cooperación Internacional para el Desarrollo (AECID) de dicha ciudad, y las posteriores reuniones de trabajo de las coordinadoras y coordinadores nacionales de la Red “Siembra y Cosecha de Agua en Áreas Naturales Protegidas” del Programa Iberoamericano de Ciencia y Tecnología para el Desarrollo en Iberoamérica (CYTED) han permitido emitir la siguiente Declaración...



More Info and download from IAH-GE site: https://www.aih-ge.org/wp-content/uploads/Declaracion_Santa_Cruz.pdf

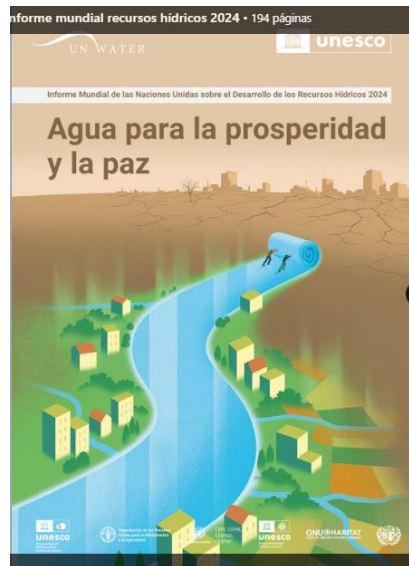
IWRA's 1st Islands Water Congress. Final Report by the International Water Resources Association (IWRA)

IWRA's 1st Islands Water Congress addressed the unique freshwater challenges faced by island communities around the globe. By fostering collaboration, innovation, and knowledge exchange, the Congress laid a strong foundation for sustainable water management practices tailored to the distinct needs and contributions of islands. The Congress provided tangible outcomes, such as the Torshavn Dialogue on Sustainable Freshwater Management on Islands, plans for an IWRA Islands Water Task Force, and the ongoing formulation of a new Faroese water law, reflecting the event's immediate impact and enduring legacy...



More info and download: <https://www.iwra.org/wp-content/uploads/2025/03/iwra-islands-water-congress-2024-web.pdf>

Agua para la prosperidad y la paz



Impresionante, pero en pleno siglo XXI, seguimos hablando de cooperación por el agua como si no fuera ya una urgencia civilizatoria.

El Informe Mundial sobre el Desarrollo de los Recursos Hídricos 2024 (UNESCO, 2024) revela que casi la mitad de la población mundial enfrenta desabastecimiento de agua al menos una parte del año, y que el 25 % está sometida a niveles de estrés hídrico extremadamente alto, mientras seguimos operando bajo modelos extractivos, lineales y desiguales.

Esta paradoja (agua como bien común y herramienta de dominación) nos exige reconfigurar la investigación y la gobernanza hídrica desde una ética más integradora (eco social y territorial), lejos del fetiche tecnocrático.

La ciencia ya no debe ser cómplice del espejismo de “eficiencia sin equidad”. En territorios marcados por la injusticia hídrica y climática, no se trata solo de gestionar el agua, sino de democratizar su poder.

MAR AND MAR-RELATED CONFERENCES AND WORKSHOPS

How to measure the success of managed aquifer recharge? Experiences from a three-day workshop in Dresden

TU Dresden has organized a three-day event on MAR between 12-14 March in Dresden, Germany. The meeting is organised in collaboration with VUB, Belgium, as

part of the EUTOPIA University Alliance, a collaborative network of European and global partner universities co-funded by European Union aiming to develop a new model of higher education through transnational cooperation.



*For the training course, we focused on planning and optimizing MAR schemes using the web-based groundwater modelling platform **INOWAS** (www.inowas.com). The platform contains several simulation tools, including a MODFLOW-based interface that enables users to setup, run and discuss groundwater flow models directly from their browsers. At first, the participants created a conceptual model that represented a specific MAR configuration, followed by its numerical implementation on the INOWAS platform and the presentation of the simulation results.*

It was truly mind-blowing to witness the motivation and commitment of all participants and the strong collaboration enabled by the breakout groups among PhD and MSc students from different universities. For such a short time, it was a great achievement to complete the design of a conceptual MAR scheme, to translate it into a numerical model and to use a completely new software to understand its impact on the underlying aquifer system. Everybody did so great and I was very grateful to see our INOWAS platform pushed to its technical limits, getting also very valuable feedback and suggestions for our future updates.

The conference continued over the third day with a roundtable discussion and a new round of participants. After getting busy with all the technical challenges related to MAR modelling during the first two days, it was time to leave the comfort zone behind us and glance at MAR from a totally different perspective. Splitting again in breakout groups, we reviewed the available technical, environmental, social and economic valuation tools for MAR with the aim to identify knowledge gaps and propose converging indicators and metrics that can be used for an integrated quantification of MAR societal benefits. The tasks included the expansion of the list of assessment methods, their ranking using a set of evaluation criteria (such as required data, skills, or resources, applicability across scales and sectors, application accuracy etc.), and identification of strengths and limitations of each method and their associated indicators.

Overall, the conference enabled the establishment of new partnerships and strengthened the existing collaborations within [EUTOPIA](#) University Alliance and MAR community, enabling the participants to identify shared interests, complementary expertise, and potential collaboration opportunities.

Thank you, Catalin Stefan, for so detailed report.

UPCOMING EVENTS

Regional Hybrid Training Workshop on “Urban Flood Management: From Prevention to Adaptation”. May 13-14 , 2025, Tehran, Iran

Announced in the previous newsletter. The conference has been **Postponed**. The organizers will inform in due time.

The 2025 SGMA Implementation & Legislative summit. May 27-28, 2025 in Sacramento

The Groundwater Resources Association (GRA), the Association of California Water Agencies (ACWA), and Brownstein Hyatt Farber Schreck (Brownstein) have teamed up to present the **Sustainable Groundwater Management Act (SGMA) Implementation and Legislative Summit** at the prestigious Kimpton Sawyer Hotel in downtown Sacramento.



This annual event has been revamped with a new format that maximizes information exchange, networking, and collaboration. Also included is a Law and Legislative component that has been combined into the SGMA Summit to bring you expanded content, deeper local connections, and the ability to connect with local and state government. This event will bring together a diverse group of regulators, water agencies, Groundwater Sustainability Agencies (GSA) staff, consultants, legislative representatives, and attorneys. Being part of this event will provide tremendous exposure and connection to the groundwater community in California.

Agenda and Registration:

https://www.grac.org/events/EventDetails.aspx?id=1947868&group=&utm_source=GRA+Information&utm_campaign=375c907774-EMAIL_CAMPAIGN_2023_04_06_09_57_COPY_01&utm_medium=email&utm_term=0-f22c807bdb-343128904

6th International Summer School on MAR in Dresden

The one-week “6th International Summer School on Managed Aquifer Recharge” (MARISS) will be organised by the Division of Water Sciences at the University of Applied Sciences in Dresden, Germany, in collaboration with the TU Dresden and partners of the MENAWAT project either in the calendar week 34 or 36. It will be the next summer school in the MARISS series of summer schools organised in Dresden after 2023.



MARISS will again be organised by HTWD and partner TUD in Dresden in August/September 2025. More information will be updated on www.htw-dresden.de/mariss

Thank you Dr. Cornelius Sandhu for reporting.

MAR specific session in the IAH 2025 congress

Groundwater now and for the future

Join us for an extraordinary gathering of groundwater expertise at the Melbourne Convention and Exhibition Centre, from September 15-19, 2025. This event, held in conjunction with the 2025 Australasian Groundwater Conference, marks a significant return of the World Groundwater Congress to Australia after 12 years.

The detailed program has not been published yet.



More info: <https://iah2025congress.com/>

IWRA. XIX World Water Congress on "Water in a Changing World: Innovation and Adaptation". Call for abstracts about to close

Marrakech, Morocco, 1-5 December 2025. Call for papers and special sessions is now open.
 MAR is included in the thematic area 5.

THEMATIC AREAS:	
1. WATER GOVERNANCE, FINANCING, AND PLANNING DURING UNCERTAINTY	+
2. WATER-ENERGY-FOOD-ECOSYSTEMS NEXUS (WEFE NEXUS)	+
3. WATER SECURITY AND WATER-RELATED RISKS	+
4. TOWARDS INNOVATION AND A SMART WATER FUTURE	+
5. GROUNDWATER CHALLENGES AND OPPORTUNITIES	—
~ Groundwater Assessment: Innovate groundwater data collection methods, improve monitoring technologies, and develop policies to sustain groundwater as a key and strategic resource in water-scarce regions. ~ Groundwater Data: Explore mechanisms for encouraging and facilitating open sharing of data on groundwater resources, including available storage, flow rates and directions, chemistry, aquifer characteristics, recharge and discharge values, uses and allocations, and other traits. ~ Participatory Groundwater Management: Foster community and stakeholder involvement and inclusive governance in groundwater management, including in transboundary aquifer basins, to ensure equitable access and long-term sustainability. ~ Integrated Surface Water and Groundwater Management: Explore the interconnectedness of surface water and groundwater systems and identify mechanisms for implementing integrated management approaches that optimize the use and sustainability of both resources within basins and across borders. ~ Managed Aquifer Recharge (MAR): Accelerate the adoption of MAR techniques to replenish overdrawn aquifers, develop water banking opportunities, and promote sustainable water resource management. ~ Impacts of Climate Change on Groundwater Resilience: Examine the influence of climate change on groundwater recharge rates, storage capacity, and availability; identify strategies for enhancing the resilience of groundwater systems to climate variability and extreme weather events.	
6. WATER FOR SUSTAINABLE DEVELOPMENT	+
7. WATER QUALITY AND ONE HEALTH OPPORTUNITIES	+



More info: <https://worldwatercongress.com/about-us/congress-theme/#1736332941814-6a357f08-d37d>

SEMINARS AND WEBINARS

IAH-MAR webinar series. #Third. April 15th, 15:30 h CET

Extending your knowledge on managed aquifer recharge?

IAH-MAR webinar series. #Third webinar: Tuesday April 15th. 15:30 – 17:00 h CET:

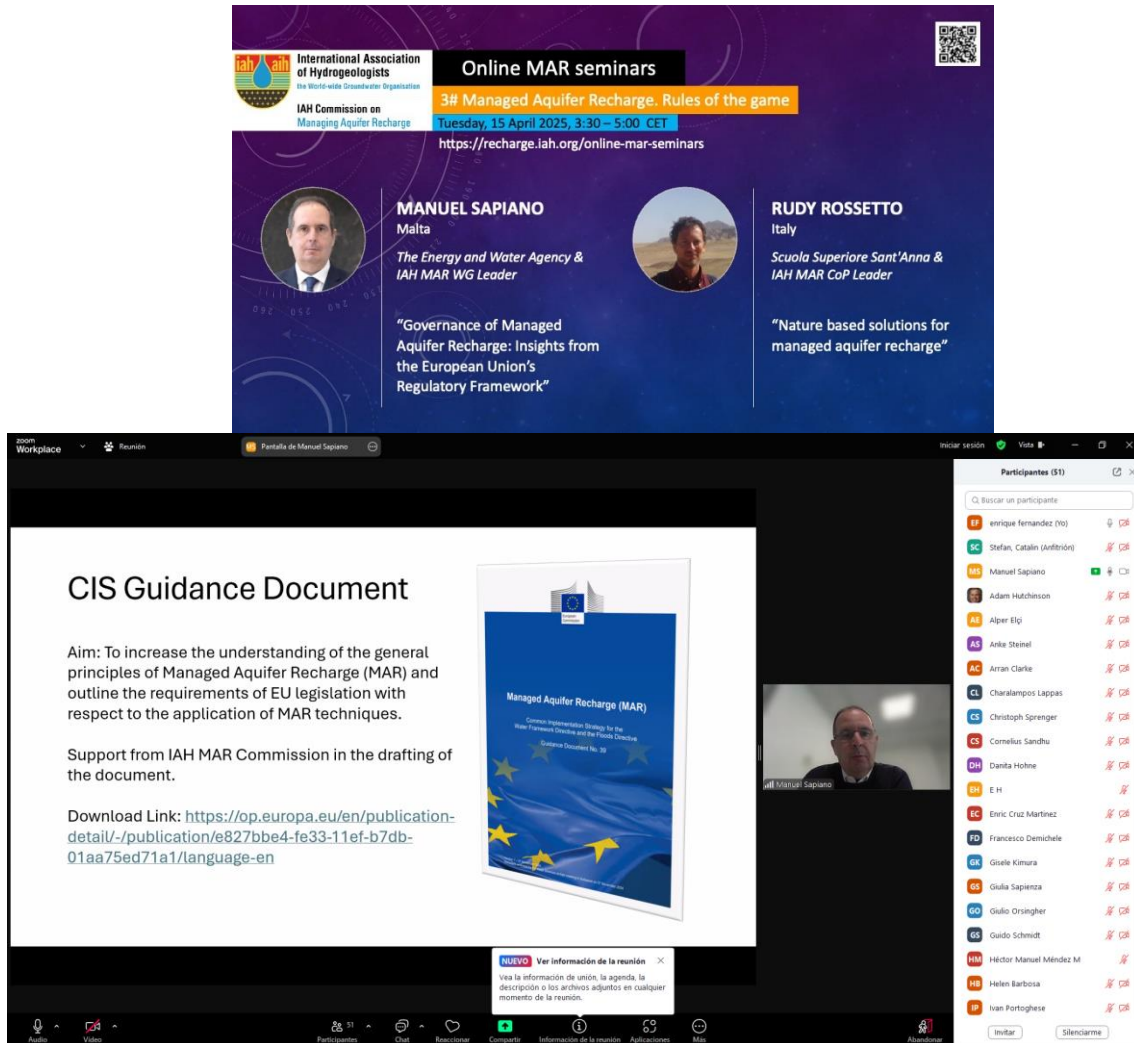
Invited speakers:

Manuel Sapiano (The Energy and Water Agency, Malta).

Governance of Managed Aquifer Recharge: Insights from the European Union's Regulatory Framework.

Rudy Rosetto (Scuola Superiore Sant'Anna, Italy)

Nature based solutions and managed aquifer recharge



The screenshot shows the webinar interface. The top banner reads "Online MAR seminars" and "3# Managed Aquifer Recharge. Rules of the game" for Tuesday, 15 April 2025, 3:30 – 5:00 CET. It lists two speakers: Manuel Sapiano (Malta, The Energy and Water Agency & IAH MAR WG Leader) and Rudy Rosetto (Italy, Scuola Superiore Sant'Anna & IAH MAR CoP Leader). The main content area displays the "CIS Guidance Document" with its aim and a download link. A list of 60 participants is shown on the right, including Enrique Fernandez, Stefan, Catalin, Manuel Sapiano, Adam Hutchinson, Alper Elgi, Anke Steinel, Arran Clarke, Charalampos Lappas, Christoph Sprenger, Cornelius Sandhu, Danita Holme, E H, Enric Cruz Martinez, Francesco Demicheli, Gisèle Kimura, Giulia Sapienza, Giulio Orsieglier, Guido Schmidt, Héctor Manuel Méndez M, Helen Barbosa, and Ivan Portoghesi.

60 people attended this webinar with plenty of questions, notes of humour, and time to debate. IAH-MAR members are invited to participate in future webinars. Please, consider proposing a title for a future slot and send your suggestion to the coordinator, [Catalin Stefan](#).

More info and presentations' pdf: <https://recharge.iah.org/online-mar-seminars>

IAH-MAR webinar series. #Fourth. May 14th, 15:30-17:00 h CET

Our speakers and titles for the webinar #4 are:

Dr. Cornelius Sandhu (and co-authors):

Potential of riverbank filtration in the Ganga and Damodar River basins and rural northeast India

Professor A.K. Sinha:

Managed Aquifer Recharge Practices and Policies in India - Pathway to Water Security

Please, stay tuned at: <https://recharge.iah.org/online-mar-seminars>

Registration: [Please register here to receive the link to the meeting.](#)

Seminars on MAR in Peru, Ica and Lima. March 2025 (in Spanish)

During the presence of one IAH-MAR co-chair in Peru, two seminars have taken place during March.

Ica, 2025 March 7th

<https://diariocorreo.pe/edicion/ica/corehidro-realiza-el-plan-integrado-de-gestion-del-agua-del-acuifero-de-ica-noticia/>

Lima, March 10th

GEOTHIDRO, 2025. Organized by the Sociedad Geológica de Peru, and coordinated and presented by Dr. Flúquer Peña (SUNASS).



GEOTHIDRO 2025
SIMPOSIO DE GEOTECNIA E HIDROGEOLOGÍA
04 al 06 de junio 2025

ENRIQUE FERNANDEZ
Dr. en HIDROGEOLOGÍA

CONFERENCIA MAGISTRAL
RECARGA ARTIFICIAL DE ACUÍFEROS
(Seguridad hídrica en tiempos de crisis)

- Dr. en Hidrogeología Universidad Complutense de Madrid (UCM)
- 35 años de experiencia profesional
- Especialista en Tragsa I+D+i
- Co-operante y consultor de la ONU, WB, IAEA, UNESCO, ADB
- Profesor Asociado en el Campus Moncloa
- Reviewer de la Comisión Europea
- Co-director de la Comisión de Recarga Gestionada de la Asociación Interna de Hidrogeólogos
- Ex-secretario Técnico de la Plataforma Tecnológica Española del Agua (PTEA).
- Autor, coautor o editor de 27 libros sobre Gestión Integrada de los Recursos Hídricos y MAR
- Más de 100 publicaciones científicas y técnicas.
- Actividad profesional en 18 países.

MODERADOR
MSc. FLÚQUER PEÑA
HIDROGÉOLOGO SENIOR
SUPERVISOR EN HIDROGEOLOGÍA
SUNASS

ESTE LUNES
10 MARZO **7:00 P.M.**

Sociedad Geológica del Perú
Av. 28 de Julio 745, Miraflores

Informes:
geothidro@sgp.org.pe
938 267 771

ORGANIZA SGP

LIVE
www.sgp.org.pe

Recorded. Video facebook: <https://www.facebook.com/share/v/1AVkfC8fj9/?mibextid=wwXlfr>

Conference on nature-based solutions for groundwater management. March 18th (In Spanish)

1st Conference on nature-based solutions for groundwater management. Taking advantage of the World Water Day celebrations.

The event featured 12 speakers who explained their experience in different types of natural solutions.

Madrid, CHT, Tuesday 18 March, from 9:00 to 15:00 (CET). The conference was recorded and may be visited in this link (YouTube Video): <https://www.youtube.com/watch?reload=9&v=B4I43Yw3Ask>



Thank you, IAH-GE, Carolina Guardiola and Sergio Martos, for this all.

Impactos dos extremos climáticos nas águas subterrâneas. ABAS Jovem webinar (in Portuguese)

Os extremos climáticos estão cada vez mais intensos e as águas subterrâneas desempenham um papel crucial nesse cenário. Quer entender melhor esses impactos? Então, junte-se a nós para um bate-papo imperdível com especialistas da área!

📅 Data: 07/05/2025
🕒 Horário: 19h (Brasília)



Participantes:

- ◆ Alderlene Pimentel – Dra. em Clima e Ambiente
- ◆ Marília Carvalho – Dra. em Recursos Hídricos
- ◆ Zulene Almada – Dra. em Geologia
- ✎ Moderação: Daniela Barbati – Doutoranda em Hidrogeologia
- 🔊 Organização: Samira Linhares & Fernanda Barreto

Connection link:

https://youtube.com/channel/UCsgjRJ5lLtJD2VRh_IY8AHg?si=3xfajn1vKoN0BITT

*This webinar is an initiative by the Brazilian Youth Groundwater Association (ABAS jovem).

Webinar on MAR organized by IAH Mexican chapter. May 19th (in Spanish)

Please, pay attention on this upcoming webinar...

4º Webinar IAH Capítulo México del Ciclo 2023-2024
 "Recarga Gestionada de Acuíferos"

INFORMACIÓN DEL EVENTO

Fecha: 19 de mayo 2025

Horario: 10:00 a 11:30 (Ciudad de México)

Lugar: Plataforma de Transmisión: Zoom/Facebook

PARTICIPANTES

Enrique Fernandez Escalante	España	Doctor en CC. Geológicas, Especialista en Tragsa I+D+i y profesor asociado en la Univ. Complutense. Co-chair de la IAH-MAR Commission
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Adriana Palma Nava	México	Ingeniería Civil, UNAM. Maestría en Hidráulica y doctora por la UNAM. Coordinadora del grupo de análisis de Recarga Gestionada de Acuíferos de la Red del Agua de la UNAM.
Marcela Jaramillo	Colombia	Geóloga de la Universidad EAFIT. Maestría y doctorado en Recursos Hidráulicos de la Universidad Nacional de Colombia. Miembro de la IAH

Moderadora: Adriana Serrano, Candidata a Doctorado Ciencias del Agua, UDLAP.

REGISTRO. Zoom: <https://bit.ly/zoomIAH>



Asociación Internacional de Hidrogeólogos Capítulo Mexicano
WEBINAR:
 Grabación en Facebook y Youtube
**Recarga gestionada de acuíferos:
Desafíos en su implementación**

ADRIANA PALMA NAVA (México)
 ENRIQUE FERNANDEZ ESCALANTE (España)
 MARCELA JARAMILLO URIBE (Colombia)

19 DE MAYO, 2025.
 10 AM - 11:30 AM (GMT-6)

INFORMACIÓN ADICIONAL Y REGISTRO
 Visita nuestros canales de comunicación
 @aih_mexico
 aih.iah.mexico@gmail.com

Asociación Internacional de Hidrogeólogos Capítulo Mexicano
Creación, tecnología e ingeniería. Actos de capacitación y aprendizaje. 1.7 mil seguidores
 @AsociacionInternacionaldeHidro

NEW MAR OR MAR-RELATED ACTIVITIES

ISMARs' photos collection. We still miss some from ISAR 1.

The IAH MAR commission website includes an ISMAR-related section containing all information gathered from our conferences.

IAH-MAR co-chairs have already posted on line a photo album from each edition (attending carefully IPRs license CC BY-NC), exposing a disclaimer too.

We kindly request contributions from ISAR 1, Anaheim, 1988, still empty.

Photo-album of the whole ISMAR series. IPRs.

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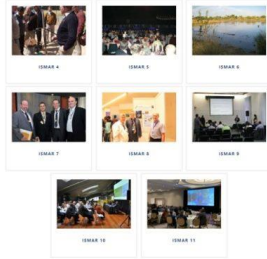
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By the moment, and due to the large amount of Mb required, photos are in an external repo (Google Photos), accessible clicking each link posted at each ISMAR section:
<https://recharge.iah.org/ismar>

Position for a “MARer” in the Sorbonne University

Thèse SATEPAT-SAN
Systemes Soil Aquifer Treatment : EPurATion naturelle

Informations générales

Lieu de travail : UMR 7619 METIS, Sorbonne Université 4 place Jussieu, 75005 Paris
[\(https://www.metis.upmc.fr/\)](https://www.metis.upmc.fr/)
 + Missions de terrain à Agon-Coutainville
 + Missions d'analyses à l'UMR 6143 M2C de Rouen

Encadrement : Danièle Valdés (UMR 7619 METIS, Sorbonne Université)
 Thierry Berthe (UMR 6143 M2C, Université de Normandie, Rouen)
 Julie Leloup (UMR 7618 iEES, Sorbonne Université)
 + collaboration avec Laurent Moulin (Eau de Paris, Recherche et Développement)

Ecole Doctorale : Sorbonne Université - ED 398 - GRNE (Géosciences, Ressources Naturelles et Environnement)

Financement : Allocation doctorale : Mission pour les initiatives transverses et interdisciplinaires MITI-CNRS
 Fonctionnement : EC2CO (DYCOVI) du CNRS

Démarrage : Septembre 2025

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Présentation synthétique du projet de thèse (english version below)
 → projet détaillé sur demande

Mots-clés : Recharge maîtrisée des aquifères, solution fondée sur la nature, Soil Aquifer Treatment, contamination chimique, micro-organismes pathogènes, aquifère, approche in situ, modélisation du transport réactif.

Le changement climatique et la pression anthropique exercés sur les ressources en eau impactent de manière significative la capacité des hydro-géosystèmes à répondre aux besoins croissants en eau, tant d'un point de vue quantitatif que qualitatif. Suite aux sécheresses de 2022, le gouvernement met en avant la valorisation des eaux non conventionnelles : eaux grises, eaux de pluie, eaux pluviales, ... ainsi que les eaux usées traitées par des stations d'épuration (STEU).

L'infiltration dans le sous-sol d'eaux usées traitées constitue une solution basée sur la nature, qui permet la recharge des aquifères (recharge maîtrisée / Managed Aquifer Recharge : MAR), la limitation du biseau salin en domaine côtier tout en proposant une étape d'épuration supplémentaire qu'offre le passage dans le sol et l'aquifère. Ce système d'épuration est nommé aujourd'hui système SAT : Soil Aquifer Treatment. Les effluents traités de STEU contiennent des micropolluants et des micro-organismes pathogènes, qui sont alors introduits dans le sol puis l'aquifère. Une fois dans l'aquifère, le devenir de ces contaminants est contrôlé par des processus physico-chimiques (dilution, filtration, processus de sorption/désorption) et biologiques (perte de viabilité, stress, lyse virale, adhésion sur des biofilms, compétition avec les communautés microbiennes autochtones), or ces processus et les facteurs clés influençant ces processus sont encore mal connus.

La thèse est basée sur l'approche in situ du système SAT d'Agon-Coutainville. Les eaux usées traitées de la STEU sont infiltrées dans des roselières avant de rejoindre l'aquifère des sables pour finalement rejoindre la mer (à environ 800 m). Des piézomètres situés dans les roselières, en amont et en aval, permettent un accès à la nappe et aux sédiments (sables de l'aquifère). Le SAT d'Agon-Coutainville est étudié depuis 2016 par METIS et le BRGM, notamment au travers de la thèse de Guillemoto, (2022) qui a permis une première caractérisation des processus de transport réactif des composés traces organiques TrOCs (Guillemoto et al., 2022) et un premier modèle hydrogéologique à l'échelle du site (Guillemoto et al., 2023). Concernant le volet microbiologie, le volet risque sanitaire n'a pas encore été exploré, alors que les rejets en mer sont à proximité de zone de baignade et de pêche à pied (bivalves où peuvent se concentrer les pathogènes) ; de même, le rôle de la communauté microbienne autochtone dans la dégradation des contaminants chimiques reste à étudier.

Please, contact the “contacts” in case of interest.

MORE ACTION

MAR in the Media. Press releases

MAR news, Peru

<https://diariocorreo.pe/edicion/ica/accion-popular-realiza-el-1er-encuentro-de-formacion-macrorregional-ica-huancavelica-ayacucho-noticia/>

<https://leisa-al.org/web/revista/volumen-31-numero-03/las-pozas-de-ica-como-sistema-de-riego-y-recarga-del-acuifero/>

<https://diariocorreo.pe/edicion/ica/advierten-que-el-acuifero-en-ica-cada-ano-desciende-en-15-metros-noticia/>



MAR news, Chile

<https://www.adprensa.cl/cronica/consorcio-quitai-anko-invita-participar-de-su-experiencia-del-piloto-de-recarga-artificial-de-acuiferos/>

<https://www.meganoticias.cl/nacional/480067-lanzan-proyecto-recarga-artificial-acuifero-region-metropolitana-consumo-mensual-47-mil-hogares-brk-25-03-2025.html>

<https://www.mop.gob.cl/ministra-lopez-participa-en-lanzamiento-de-proyecto-de-recarga-artificial-del-acuifero-mapocho-alto/>

<https://www.induambiente.com/actualidad/noticias/rm-lanzan-pionero-proyecto-de-recarga-artificial-del-acuifero-mapocho-alto>

<https://elpais.com/chile/brande/2025-03-21/aguas-andinas-inicia-la-semana-del-agua.html>

<https://q5noticias.cl/2025/04/20/presentan-en-terreno-novedoso-piloto-para-recarga-de-acuiferos-que-mejora-la-sustentabilidad-de-los-recursos-hidricos/>

MAR news Mexico

<https://www.reforma.com/ante-sobreexplotacion-del-acuifero-urgen-reabastecerlo/ar2974504>

MAR news, Spain

<https://www.101tv.es/relleno-artificial-acuiferos-solucion-infravalorada-desembalses-malaga/>

https://diario16plus.com/sociedad/d16-verde/pp-pide-sanchez-plan-nacional-recarga-artificial-acuiferos-pero-olvida-donana_507747_102.html

Whatsapp group on Aquifer Recharge Management

The group congregates 191 participants today. Ask the invitation link by [email](#), pls, as it changes eventually. Right now, it is:

<https://chat.whatsapp.com/EaXBXtWgILrKpPF1hQGXd8>



Previous IAH-MAR Newsletters

Previous newsletters access: <https://recharge.iah.org/newsletters>

IAH-MAR Commission on Twitter (X)



@IAHMARCom

<https://twitter.com/IAHMARCom>

IAH-MAR Commission's sister Web sites

<http://china-mar.ujn.edu.cn/>



<https://dinamar.tragsa.es/>



@4dina_mar

<https://www.linkedin.com/groups/4690290/> (552 members)

IAH MAR Commission Forum

Please, remember you can book freely in the IAH MAR Commission Forum:

<https://lists.flinders.edu.au/mailman/listinfo/iah-mar.listcgs>

The IAH MAR list has 365 members today... you are invited to join!

That's all by now... **please, keep reporting** (dinamar@tragsa.es).

Dr. Enrique Fernández Escalante, on behalf of the IAH MAR Commission co-chairs,
Catalin Stefan and Yan Zheng.

2025 April 22nd
