International Association of Hydrogeologists
Commission on Managing Aquifer Recharge

IAH-MAR
MEMORY OF ACTIVITIES IN 2021

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Sister Websites:

Spanish: www.dinamar.tragsa.es/

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Index:

Former and current IAH-MAR Commission co-chairs. Photo: Jon San Sebastián

1- Aims of the Commission and renewal request

- **The Commission promotes the secure application of MAR techniques for improved access to water resources** as well as protecting and improving its quality in ways that are appropriate, environmentally sustainable, technically viable, economic and socially desirable.
- **It encourages research, development and adoption of improved practices** for management of aquifer recharge and improving knowledge, skills and capabilities of practitioners, water resources managers and regulators.
- **It facilitates international exchange of information between members** (e.g. via a web page and an email list), by disseminating results of research and practical experience (e.g. via conferences and workshops), raising awareness of MAR among IAH members, related professions and the community, and its members undertaking projects and activities identified in plenaries as important.
- **Aligns with UNESCO IHP-VIII** (2014-2021), Water security: responses to local, regional, and global challenges", strategic plan, ***Focal Area 2.2 – Addressing strategies for management of aquifers recharge***

Screenshot of IAH-MAR Commission website (https://recharge.iah.org)

As a little forward-looking commitment, it is important to state that IAH-MAR Co-chairs, WG and CoPs leaders intend keeping doing MAR-related activities. Those developed during 2021, despite pandemic, support the statement that the MAR activity has advanced well and holds an enduring value.

This memory is, therefore, a written commitment by which we commit to continue developing the usual activities and, either future useful actions that might be detected and shared by any member, or recommended by the IAH Executive.

Some of the previous lines of action have finished and either might be replaced by new challenges, or simply closed. Most on-going ones (exposed in the next chapter) will continue and the outcomes will be reported in the next IAH MAR memory of activities. They will be announced in the IAH-MAR monthly newsletters too.

2- Working Groups and Communities of Practice

The work of the IAH-MAR Commission is organised in several Working Groups (WGs) and Communities of Practice (CoP).

A- Working Groups

Working groups have evolved out of ideas raised by attendees of IAH-MAR Plenary Meetings to advance knowledge of MAR in areas considered important to improved knowledge, reliability, information, communication and wise uptake of MAR. The current working groups of the IAH-MAR Commission include the following:

MAR for Sustainable Development
https://recharge.iah.org/working-groups/mar-for-sustainable-development
Yan Zheng (SUSTech, PR China)

> Initiated in the IAH MAR Plenary at ISMAR8, Beijing Oct 2013, the MAR for Development group aims to advance the policies and practice of MAR in developing countries by sharing relevant information. The aims expanded to include sustainable development through exchange of experiences between developing and developed countries. In 2021, the group leader and Commission co-chair, Yan Zheng, continued working on the release of the UNESCO publication on MAR “Managing Aquifer Recharge: A Showcase for Resilience and Sustainability”, released in 2021 October (see chapter 3b).

Economics of MAR
https://recharge.iah.org/working-groups/economics-of-mar
Andrew Ross (ANU, Australia)

> The objectives of the group are to document the financial costs and economics of MAR in relation to alternative water supplies or storages, to provide information on the value of investing in MAR, and to identify scenarios where MAR may produce the least cost water supply. An economic and financial analysis of MAR case studies was included in the already published UNESCO book (see chapter 3b) by Andrew, who is one of the co-editors of the book. Further involvement includes contributions to a research proposal of TU Dresden led by Catalin Stefan on the economic valuation of MAR contribution to ecosystem services.

Monograph on clogging and its management
https://recharge.iah.org/working-groups/clogging-and-its-management
Russell Martin (WGA Pty Ltd, Australia)

> A second book on MAR clogging is still in preparation, planned to be released during 2022. A first monograph was produced between 2010 and 2013 and included a compilation of case studies on 212 pages.
> Download the full PDF here: https://recharge.iah.org/files/2015/03/Clogging_Monograph.pdf.

MAR water quality guidance and regulations
https://recharge.iah.org/working-groups/mar-regulations
Manuel Sapiano (Malta Energy and Water Agency)

The group aims to assemble access to known policies, regulations and guidelines on the IAH-MAR website, together with any commentaries on these, and subsequently produce a critical review that would be useful for jurisdictions needing to develop such policies. The first outcomes are already available on the working group website (see link above). Furthermore, Manuel drafted a Guidance Document on Managed Aquifer Recharge as part of Common Implementation Strategy (CIS) of European Commission for the Water Framework Directive. The draft document is currently being reviewed by EU Member States with further debates and improvements planned in 2021. Noteworthy is also the recent paper:

Fernández Escalante, E., Henao Casas, J., Vidal Medeiros, A., San Sebastián Sauto, J. (2020). Regulations and guidelines on water quality requirements for Managed Aquifer Recharge. International comparison. Acque Sotterranee - Italian Journal of Groundwater. 9. https://doi.org/10.7343/as-2020-462.

MAR suitability mapping
https://recharge.iah.org/working-groups/mar-suitability-mapping
José Bonilla (AyA, Costa Rica) and Catalin Stefan (TU Dresden, Germany)

The aim of the working group is to identify, discuss and evaluate the range of methods used for mapping MAR suitability. The group published several papers and a report as result of a workshop held during ISMAR10 in Madrid, Spain. The activities continued in 2021 organizing events and preparing publications.

MAR in conferences (NEW in 2020)
https://recharge.iah.org/working-groups/mar-co
Daniela Benedicto van Dalen (Acacia Water, The Netherlands) and IAH MAR Commission co-chairs, plus future local members

The Working Group “MAR at Conferences” (MAR-CO) was created in 2020 to assist conference organizers worldwide with the integration of MAR into the conference programmes. Whenever possible, a dedicated session is proposed, together with additional events and side activities. For 2021, the MAR-CO WG aimed to call attention to MAR during the 47th IAH Congress in Sao Paulo, Brazil, and the 48th in Brussels. Overall, the initiative aims to share knowledge and best practices on MAR with local professionals and governmental institutions, especially in Brazil, to create awareness of the benefits and importance of MAR, network with the Latin American community during the congresses and foster new ideas for future cooperation and pilot projects.
For future conferences we seek to find more volunteers willing to provide assistance to conference organizers, in order to increase the presence of MAR in the conference programmes.

Urban MAR (NEW in 2020)
https://recharge.iah.org/working-groups/urban-mar

Niels Hartog (KWR, the Netherlands)

This Urban MAR working group aims to exchange information and cooperate in the development of technical and non-technical aspects for the successful application of urban MAR and to showcase successful practical examples. To foster and develop the application of urban MAR, it is proposed to develop a position paper on the conditions, requirements and benefits of using urban MAR in cities. The aim is to present a position paper during 2022.

The following steps are proposed to come to a position paper on urban MAR:

1. Collection of "Urban MAR" example summaries (1-2 pages, standardized format)
2. Thought development on what defines urban MAR and how it can contribute to more healthy and sustainable cities
3. Develop a perspective on how the conditions and goals for successful urban MAR application depending on local and regional, hydrogeological, economic and governmental conditions.
4. Write globally oriented draft position paper on potential and application of urban MAR.

Working groups closed but partially still active:

60 years history of MAR
https://recharge.iah.org/working-groups/60-years-history-mar
Peter Dillon (CSIRO, NCGRT, WGA Australia) and Pieter Stuyfzand (KWR & TU Delft, NL). After the HJ publication, the Group is inactivated but willing to contribute in related developments.

MAR to MARk€t
https://recharge.iah.org/working-groups/mar-to-market
Enrique Fernández Escalante (Tragsa, Spain) and Teresa Leitao (Portugal). Their activity is taking place within the framework of the MARSOLut EU founded Project, MSC action. CA 840066.

Global MAR Inventory
https://recharge.iah.org/working-groups/global-mar-inventory
Catalin Stefan (TU Dresden, Germany) and Arnaud Sterckx (IGRAC, NL). The Group stands performing technological watching on new activities.

B- Communities of Practice

MAR Communities of Practice are groups of individuals with an interest in sharing information at national level to improve the uptake, practice, governance and outcomes of MAR. To date four suchgroups have evolved: in China, Italy, Australia and Latin America. In some countries IAH Chapters or other associations undertake these tasks, and IAH-MAR is happy to support those organisations with resources and experience gained elsewhere.

2010 MAR Network China
https://recharge.iah.org/mar-network-china

2015 MAR Network Italy
https://recharge.iah.org/mar-network-italy

2017 MAR Community of Practice Australia (actually frozen and expecting new members to keep the previous activity)
https://recharge.iah.org/mar-community-practice-australia

2019 MAR Community of Practice in Latin America (LatinMAR)
https://recharge.iah.org/cop-latinmar

3- MAR-related events / actions involving IAH members

In the following paragraphs will be presented different sets of actions in which IAH MAR members have participated to a certain extent.

It is worth to remark that a vast sum of things would not have happened without IAH-MAR´s work.

The activities are grouped into four categories:

A- CONTRIBUTIONS AT MAR- RELATED INTERNATIONAL SYMPOSIUMS / CONFERENCES
B- NEW BOOKS AND OUTSTANDING PUBLICATIONS
C- DISSEMINATION AND TECHNOLOGY TRANSFER. WEBINARS
D- OTHER REMARKABLE EVENTS WITH IAH-MAR COMMISSION PARTICIPATION

A- CONTRIBUTIONS TO MAR-RELATED INTERNATIONAL SYMPOSIUMS / CONFERENCES

11st International Symposium on Managed Aquifer Recharge, ISMAR 11.

The premier conference on MAR, ISMAR 11, published the call for abstracts. ISMAR 11, CA, April 11-15 2022

ISMAR 11 includes a full day of pre-conference workshops, three days of technical sessions, plenary sessions, awards luncheon, field trips and great networking, socializing, and entertainment opportunities…

Stay connected by signing up for the ISMAR11 mailing list for the latest information on abstracts, registration information, etc.

More info: https://www.ismar11.net/#about

ISMAR website: https://www.ismar11.net/
GRA event page: https://lnkd.in/gXn6YNz
Register as a Sponsor or Exhibitor: https://lnkd.in/g6Sb6ur
View the Sponsorship Opportunities booklet: https://lnkd.in/gKqA4nh
Along with the email - Facebook, LinkedIn, Instagram and Twitter all have posts about ISMAR11 on GRAC: www.grac.org
Preliminary agenda: https://www.grac.org/media/files/files/4407fbbd/ismar-2022-preliminary-agenda-flyer.pdf

Register as a Sponsor or Exhibitor here: https://lnkd.in/g6Sb6ur
View the Sponsorship Opportunities booklet here: https://lnkd.in/gKqA4nh
Stay connected by signing up for the ISMAR11 mailing list for the latest information on abstracts, registration information, etc.
There is a **sponsorship prospectus** available for those that wish to be a sponsor or exhibitor at the event.

Along with the email - Facebook, LinkedIn, Instagram and Twitter all have posts about ISMAR11 on GRC. Please comment, like and share to your networks!
Groundwater Resources Association: email@grac.org www.grac.org

Thank you Adam Hutchinson, Sarah Erck and co-organizers for reporting.

ISMAR 12. Call for expressions of interest

It is already time to think about ISMAR 12´s venue site, to be announced during ISMAR 11´s plenary.

IAH, IAH-MAR Commission, UNESCO and ASCE call for the expressions of interest.

At this moment only one candidacy has been received. Those institutions willing to host the premier symposium on MAR, ISMAR 12 in 2025, please contact: https://recharge.iah.org/contact-us

We encourage everybody to consider organizing the future edition of this conference.

International Symposium on Geofluids. July 2021

The conference was organised by the József and Erzsébet Tóth Endowed Hydrogeology Chair and Foundation and by the Regional Groundwater Flow Commission of IAH, in scientific collaboration with the ENeRAG H2020 project of Eötvös Loránd University.

In light of the COVID-19 pandemic situation, the Organizing Committee has decided to organise the Symposium as online event between 7-9 July 2021.

The planned topics of the symposium were:

1. Managed aquifer recharge and sustainable water management
2. Geoenergy, thermal water and hydrocarbon systems

3. Natural contamination and hazards of geofluids
4. Paleo and recent hydrothermal mineralization and scaling processes

On behalf of IAH-MAR Commission The conference was attended by Dr. Catalin Stefan (Co-Chair) and Dr. Niels Hatog (Work Group Leader) who jointly chaired the session on managed aquifer recharge with six presentation on MAR-related topics (including a keynote talk by Niels Hartog on “Global water crisis: managed aquifer recharge (MAR) to the resque?”.

More info: http://geofluids2020.hu/

More info: https://geofluids2021.hu/circular/2021-03-03.html

National Ground Water Association (NGWA) USA. Current activities for your participation. Call for MAR case studies

Increasing MAR is a key tool to help address the growing demand for water supplies in the United States and globally. NGWA seeks to identify case studies of MAR projects around the United States, as well as North America, for a *Groundwater*® journal MAR special publication in 2021. Click here for the background and nomination "expression of interest" form to submit your MAR project to be compiled in an MAR compendium. NGWA counts on IAH-MAR Commission support.

More info: https://www.ngwa.org/what-is-groundwater/groundwater-issues/managed-aquifer-recharge

Free virtual conference organised by IAH Indian National Committee on "Resilience of Groundwater Resources for accommodating the changing climate scenarios". 27-28 Feb 2021

Dr. C. Mayilswami (Secretary, AGGS) informed about their free virtual conference organised by IAH Indian National Committee on "Resilience of Groundwater Resources for accommodating the changing climate scenarios".

More info: email: rgr.ccs@gmail.com and www.inciah.org.
Thank you very much Dr. Mayilswami for reporting.

Indian National Groundwater Conference (INGWC-2021)

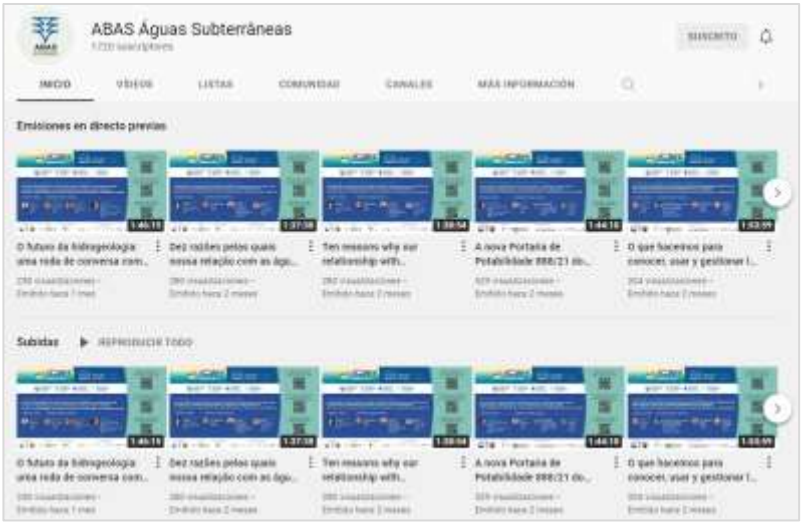
It is proposed to organise INGWC-2021 with the main focus on “Groundwater Management in Arid and Semi-Arid Regions of Hard Rock Terrains” during March 22-24, 2021 coinciding with world water day 2021.

These conference series (INGWC’s and IGWC’s) have attracted attendance by national and international experts in all facets of hydrogeology, geochemistry, microbiology, modeling, economics, water resources management and water supply. It has brought together water utilities, practitioners, hydro-geologists, consultants, the wider water industry, all levels of government, farmers, academicians and students. The present conference is aimed to bring Scientists, Researchers, Students, Engineers, Water Resources Specialists, Government Administrators, NGOs and all those interested in groundwater and environmental problems to a common platform and offer the opportunity to exchange ideas, knowledge, experience, techniques and know how in various aspects of groundwater research carried out in the last few decades in India and elsewhere.

IAH-MAR members had at least three slots during the conference.
More info: https://jntuhist.ac.in/ingwc_2021

47th IAH Congress-Brazil 2021. MAR session with 15 oral presentations. Results

A good collection of videos available for the whole community have been shared by the organizers. Some of them are on MAR:
https://www.youtube.com/channel/UCsgiRJ5lLtJD2VRh_lY8AHg?view_as=subscriber



More info: https://iah2021brazil.org.
IAH-Mar and MAR-CO WG contributed with organizers within their possibilities.

WhatsApp group on "Aquifer Recharge Management"

The **Whatsapp group** on *Aquifer Recharge Management* was organised as side-activity to IAH2021 Brazil and keeps working with vivid debates:

Pls, scan the QR code to join:

An IAH-MAR co-chair co-moderates this Whatsapp Group.

48th IAH Congress, Brussels, Belgium. 6-10 September 2021. MAR in topic 8

Managed aquifer recharge or MAR in all its forms (i.e. infiltration ponds, injection with wells, river bank filtration, etc.) covers the purposeful recharge of water to aquifers and its recovery when needed. The technique is applied for purposes as optimizing the use of groundwater reserves, increasing groundwater storage, preserving water demand in times of stress such as drought, improving the water quality or for environmental benefit. For this session we solicit contributions on different aspects of managed aquifer recharge such as the applicability of MAR to manage groundwater reserves, design considerations and tests, water quality issues, field studies, the interaction with existing groundwater systems, long-term effects and clogging issues, and economics of MAR.

Session 8 on **Managed Aquifer Recharge** was the second-biggest session at the congress by the number of submissions (after groundwater contamination), reflecting the increasing interest in MAR and the important role of MAR in (ground)water management. The session was divided in three days (Monday,

Tuesday, and Thursday), each day consisting of two blocks of about five presentations each.

In total 28 oral presentations were given on topics varying from water quality considerations at SAT/MAR sites, approaches for assessing the risks associated with MAR, multiple modelling studies at different scales, operation and maintenance of MAR schemes (especially ASR in coastal aquifers and SAT basins), general feasibility studies (including GIS-based MAR suitability mapping), strategies for stakeholders' engagement, the role of MAR for sustainable water governance, etc. Several posters were presented on MAR-related topics.

A keynote lecture by Prof. Dr. Pieter Stuyfzand about water quality problems and solutions with aquifer storage and recovery in different parts of the world opened the second conference day.

Conference program´s access:
-Oral Presentations: https://iah2021belgium.org/wp-content/uploads/2021/09/20210904_Scientific-program-oral-presentations-version-print-pdf.pdf
-Poster Presentations: https://iah2021belgium.org/wp-content/uploads/2021/08/20210830_Scientific-program-poster-presentations.pdf

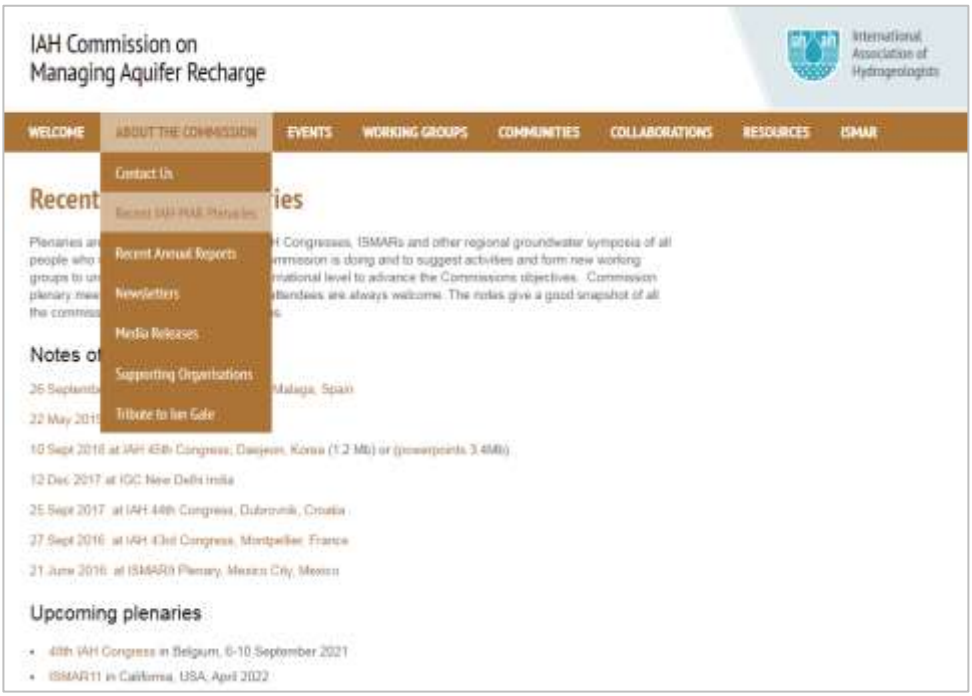
The organisers of the Congress were assisted by the 'Smurfs', who made the sessions very enjoyable. Photo: Catalin Stefan.

More info: https://iah2021belgium.org/programme/sessions-topics/

IAH MAR Commission Plenary. September 9th Brussels

An official plenary meeting of the IAH-MAR Commission was hosted by the co-chair Dr. Catalin Stefan on Thursday, September 9th, at the IAH Congress in Brussels. The meeting was attended by 18 participants from the Netherlands, Germany, France, Greece, Cyprus, Malta, etc. who shared recent information about the implementation of new MAR projects and related activities. Additionally, two working group leaders, Niels Hartog (urban MAR) and Manuel Sapiano (MAR regulations) provided a brief update on the activities conducted. Further short reports included MAR economics, MAR for sustainability, global MAR inventory, and MAR suitability mapping. Prof. Stuyfzand introduced two new books that will be officially released in 2022 and 2023.

More detailed information will be posted shortly on our site: https://recharge.iah.org/recent-iah-mar-plenaries



IWRA-FAO online conference 2021. One Water, One Health: Water, Food and Public Health in a Changing World. 7-9 June 2021

Themes & Issues

1. How can we better manage water for food and public health in a changing world?
2. How can managing water in agriculture contribute to food security and public health?
3. What opportunities lie in the improved cooperation between water, food, and public health sectors?

4. What are the synergies or trade-offs between ecosystem health and human health?
5. How can science better inform public policy, governance and capacity building for water, food and health?

IAH MAR members had, at least, two slots.
More info: https://iwraonlineconference.org/call-for-abstracts-2021/

IWRA online conference 2021. Some results on the Internet

Some of the conference´s results from the 2021 IWRA´s conference have been included to the already available ones at:
https://iwraonlineconference.org/recordings-2021/

There were some oral presentations of MAR… Posters are already available at:
https://iwraonlineconference.org/posters-2021/

IAH MAR members had, at least, two slots.

Singapore International Water Week 2021. Scarce presentations on MAR, but there were some…

Hear from Ryan Yuen, Managing Director of the Singapore International Water Week, who extends our sincerest thanks and gratitude to all who made #SIWW2021 Online a success!
Click on the video below for his wrap-up and concluding remarks. You can then access the special tribute video we have put together here: https://lnkd.in/gDuWWmp
https://www.linkedin.com/posts/siww_siww2021-activity-6816655936975970304-YUPG\

IAH MAR members had, at least, two slots.

Managed Aquifer Recharge and its role in climate change resilience in Africa

Thu 25 Nov 2021, 10-11:30 CET. Convener: IWMI. Co-Convenors: GEOSS and BGR

Water scarcity is expected to become more critical in the future due to climate change, and improved utilization of available water resource is therefore urgent to enhance resilience. Managed aquifer recharge (MAR), the purposeful recharge of water to aquifers for subsequent recovery, is used globally to replenish groundwater resources. Despite clear scope for this technology in Africa, the prevalence and range of MAR experiences in Africa is limited. The objective of this session is to review and synthesize MAR experience in Africa, fostering awareness and appreciation of MAR among stakeholders and various implementing agencies, strengthening capacity for its planning, implementation and management, better registration and documentation of MAR cases, and promoting research, monitoring and evaluation.

The session was a presentation and dialogue around the experience and perspectives of MAR in Africa. To realize the full potential of MAR in Africa, fostering awareness, enabling policy for MAR implementation, exploring feasibility of expansion of MAR, especially in geographic regions of high inter-annual variability and increasing water demand, are essential. This can be supported through research to gauge success and unpack and address the potential challenges and critical stakeholder dialogue. The session consisted of 7 presentations, followed by a moderated panel discussion to outline further challenges and prospects of MAR in Africa.

The session output/lessons-learned will be taken forward and presented in IGAD 2nd water dialogue forum to be held in Entebbe, **Uganda on 25-27 January 2022**.

Many IAH MAR members were involved in the whole event´s phases.

IV International Congress Smart Water Chihuahua 2021 included a MAR session (in Spanish)

On December 2nd and 3rd, 2021, the IV International Congress Smart Water Chihuahua 2021 took place, a mixed face-to-face and virtual event, Smart Water is focused on advances in global water management, especially in the field of water reuse. The conference involves several speakers from the Americas, Europe and Israel.

The event has been organized by the National Water Commission (CONAGUA), the Central Water and Sanitation Board of Chihuahua (Mexico), together with the University of Chihuahua, the Mexican chapter of the International Association of Hydrogeologists, etc.

Program: https://bit.ly/ProgramaFinal_Smart_Water

Smart water counted on MAR presentations. The results of the conference are already available on line:
https://drive.google.com/drive/folders/1qKk77lK5PEb6emfGj-7X6wyp_GHXujvP

https://www.jcas.gob.mx
https://bit.ly/ProgramaFinal_Smart_Water
https://www.jcas.gob.mx/peh2040/

8th African Water and Sanitation Week. 22 - 26 November 2021

The African Water and Sanitation Week for 2021 included a session titled Managed Aquifer Recharge and its role to climate change in Africa, and features speakers from Acacia Water, Department of Water and Sanitation, International Water Management Institute (IWMI), Minia University, Cranfield University and GEOSS South Africa (Pty) Ltd.

Registration link: https://lnkd.in/dmdkSHH3

B- NEW BOOKS AND OUTSTANDING PUBLICATIONS

MAR books repository. 104 free books on MAR

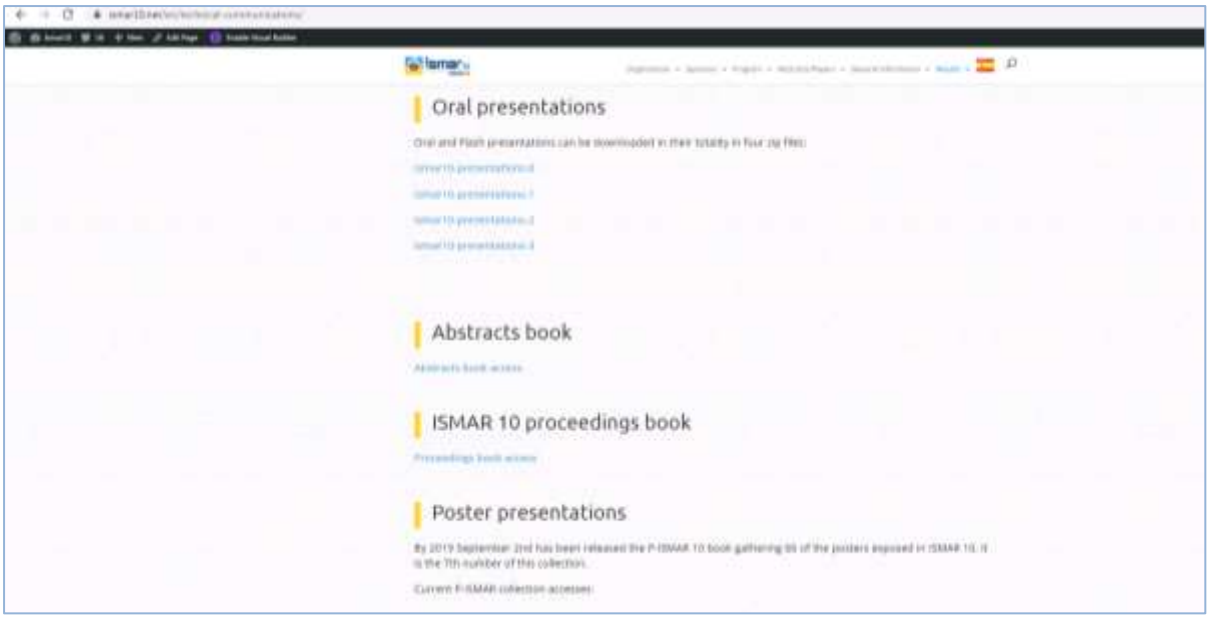
DINAMAR project´s team keep gathering those books of hydrogeology specially dedicated to MAR technique which are available for free on the Internet. The repository is open to everyone and any contribution will be welcome, emailing to: dinamar@tragsa.es.

Please notice that we understand for a book a publication with or exceeding 50 pages. We thank in advance your participation.

Repo link: https://dinamar.tragsa.es/post/actualizacion-update-libros-sobre-la-tecnica-mar-repositorio-mas-de-100-libros-mar-books-repository-more-than-100-free-books-on-mar-april-2021

ISMAR 10 Oral presentations. Whole set available (over 110 pdfs)

ISMAR 10 organizers have gotten the final permission to make public the whole set of presentations exposed in the main MAR conference.
You can download freely over 110 pdf presentations summarizing the current State-of-the-Art; at least until ISMAR 11. (USA, 2022 April).



Former ismar10´s website screenshot. Mirror site at dinamar.tragsa.es.

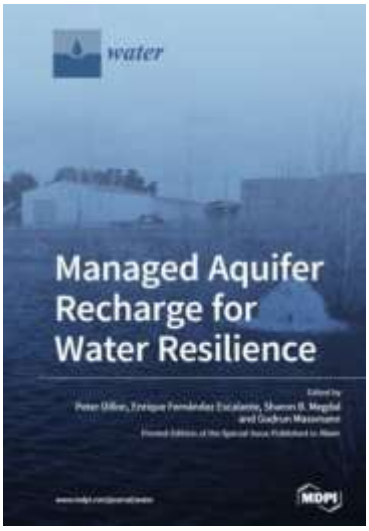
All the videos are linked from ISMAR 10´s proceedings book index: https://dinamar.tragsa.es/post/ISMAR-10-PROCEEDINGS-BOOK-RELEASE-LANZAMIENTO-DEL-LIBRO-DE-ARTICULOS-DEL-ISMAR-10

By 2021 October the site www.ismar10.net was removed from Internet and the content was transferred to www.recharge.iah.org and www.dinamar.tragsa.es.

Managed Aquifer Recharge for Water Resilience

Water Journal special issue containing 23 papers selected from ISMAR 10 conference. More info, pdf of the book and purchase of the printed version: https://lnkd.in/dDiQSHG

Edited by: Peter Dillon, Enrique Fernández Escalante, Sharon B. Megdal and Gudrun Massmann. Access: mdpi.com/books/pdfview/book/3558
ISBN 978-3-03943-042-0 (Hbk), ISBN 978-3-03943-043-7 (PDF)
Download (pdf): https://lnkd.in/dDiQSHG #MAR #Water
Informative leaflet: bookReprintFlyer_3558.pdf (413,64 kb)



All special issues now produced by the IAH MAR Commission are Open Access. The Commission thanks IAH Executive for its help in securing that open access permission.

IWRA's 2020 Online Conference "Addressing Groundwater Resilience under Climate Change" 2021 October. Results

IWRA's first innovative event ever hosted entirely online, organised with the generous support of the UNESCO Intergovernmental Hydrological Programme (IHP) and in collaboration both with the International Association of Hydrogeologists (IAH) and IHE Delft Institute for Water Education, has sent us a BIG THANK YOU for our efforts and help as part of the ISC to organize. They also thank to UNESCO-IHP. We also congratulate IWRA, who were able to grant free access for all registered attendees.

IWRA particularly welcomed participation by experts from Africa, low-income countries, women and youth. This support ensures open access to all conference related materials, including:

- Recordings and Q&As
- Abstracts, presentations and posters

- Policy briefs
- Final report

Figures and numbers from this event include:

- Number of abstracts received: **+130**
- Number of abstracts selected: **+70**
- Total number of participants registered: **+2650**
- Total number of attendees: **+1400**
- Percentage of attendees logged-in at some point: **53.4%**
- Number of countries represented: **131**
- Total speakers, panelists and poster authors: **+95**
- Regular sessions: **10**
- Plenary sessions (Opening & Closing Ceremonies): **2**
- High-level panels: **1**
- Poster program: **1**
- **Topic 2.8 on MAR counted with six MAR devoted speakers.**

Overall, IWRA's 2020 Online Conference provided the opportunity to promote the **sharing and exchange** of the latest scientific and policy knowledge on the links between groundwater resource resilience and climate change, focusing on the sustainable governance, use and management of these resources in all regions of the world.

More info: www.iwraonlineconference.org

IAH-MAR commission website has included the results from the whole ISMAR conferences. P-ISMAR books have been included

IAH-MAR Commission cochairs have been gathering materials and information from all the International Symposium on Managed Aquifer Recharge, ISMARs (ten editions).

Most of these Symposia results are available in the IAH-MAR website (https://www.recharge.iah.org/ismar). The P-ISMAR series has recently been included. They can also be downloaded directly from their repository in www.dinamar.tragsa.es website:

P-ISAR 4: https://dinamar.tragsa.es/private/p-ismar9/pismar4v1b.zip

P-ISMAR 5: https://dinamar.tragsa.es/private/p-ismar9/pismar5v3b.zip

P-ISMAR 6: https://dinamar.tragsa.es/private/p-ismar9/pismar6v1b.zip

P-ISMAR 7: https://dinamar.tragsa.es/private/ismar/pis-mar7-v8.pdf

P-ISMAR 8: https://dinamar.tragsa.es/pdf/P-ISMAR%208-v14.pdf

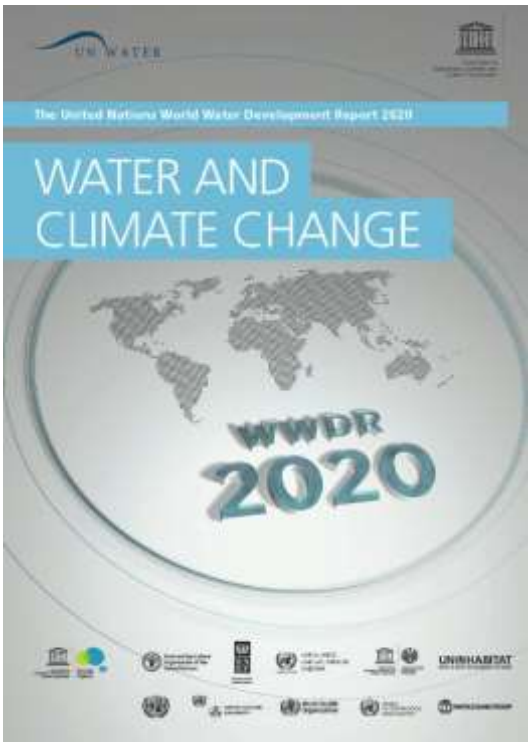
P-ISMAR 9: https://dinamar.tragsa.es/pdf/P-ISMAR%209-v6.pdf

P-ISMAR 10: https://dinamar.tragsa.es/pdf/P-ISMAR-10.pdf

Comments welcome. ISMAR library: https://recharge.iah.org/ismar

MAR is considered in the new book: The United Nations World Water Wevelopment Report 2020: Water and climate change

A new publication has been recently released including MAR issues with contributions from IAH-MAR Commission members.
Corporate author: UNESCO World Water Assessment Programme
ISBN: 978-92-3-100371-4. Collation: 219 pages : illustrations, maps
Language: English. Also available in: Français, Español
Year of publication: 2020. Licence type: CC BY-SA 3.0 IGO



Direct download:
https://unesdoc.unesco.org/ark:/48223/pf0000372985.locale=en

The World Bank is working on a global study to capture new or notable solutions to water storage. Call for action

The World Bank is working on a global study to capture new or notable solutions to water storage challenges that are being faced by their clients. They are currently seeking nominations of planning approaches or projects that help address water (in)security through storage.

They are looking for both green and grey approaches, as well as novel ways to integrate these approaches from a systems perspective.

More detail about the types of challenges requested to address and a submission form can be found in:
https://experience.arcgis.com/experience/5e8fa0aa66844e9bb1f73039351fea75/page/page_1/

Managed aquifer recharge with various water sources for irrigation and domestic use. Book chapter written by Israel members

MARSoluT partner Daniel Kurtzman, and the external expert Yossi Guttman, published a book chapter on "Managed aquifer recharge with various water sources for irrigation and domestic use: a perspective of the Israeli experience" in Global Groundwater.

https://www.sciencedirect.com/science/article/pii/B978012818172000044X?via%3Dihub

The Institutional Dimensions of Groundwater Recharge: A Special Collection

MAR in USA collection of use-cases: *In this special collection, editors and authors examine deployment of MAR in examples from around the USA to illustrate the range of institutional approaches used as well as how those relate to the drivers and objectives of MAR. The overarching impetus for this work is the recognition that water managers often anecdotally agree that institutional elements are as important, or more important, than technical challenges to MAR in many cases.*

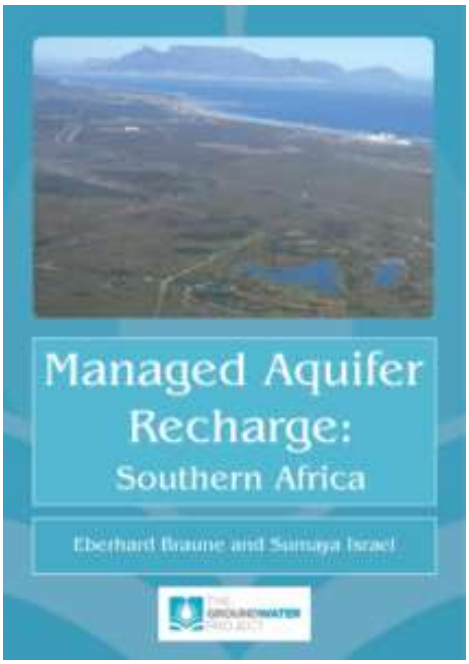
Articles access: https://online.ucpress.edu/cse/pages/idgr

CASE STUDIES IN THE ENVIRONMENT

Managed Aquifer Recharge: Southern Africa

ISBN: 978-1-77470-006-8. 96 pages.
Authors:
- Eberhard Braune. Associate Professor Department of Earth Science, University of Western Cape. Ground Water Division of the Geological Society Cape Town.
- Sumaya Israel. Senior Lecturer. Environmental and Water Science, Earth Science Department. University of Western Cape Ground Water Division of the Geological Society Cape Town, South Africa.

Download: https://gw-project.org/books/managed-aquifer-recharge-southern-africa/



MDPI´s Special Issue "Managed Aquifer Recharge—Enhancing the Use of Alternative Water Sources for Subsurface Storage and Soil Aquifer Treatment"

This special issue, including 9 papers, is leaded by Guest Editors: Daniel Kurtzman and Christoph Schueth (MARSOLut).


Special Issue Editors

Special Issue Information

All articles can be accessed freely online at:
https://www.mdpi.com/journal/water/special_issues/Managed_Aquifer_Recharge

New Book on US-Mexico Water Management Cooperation Available: Contemporary visions for cooperation and water management on the Mexico-US border

El Colegio de la Frontera Norte has issued a new book: “Visiones contemporáneas de la cooperación y la gestión del agua en la frontera Mexico-Estados Unidos” (Contemporary visions for cooperation and water management on the Mexico-US border), edited by José Luis Castro Ruiz, Alfonso Andrés Cortez Lara, and Vicente Sánchez Munguía.

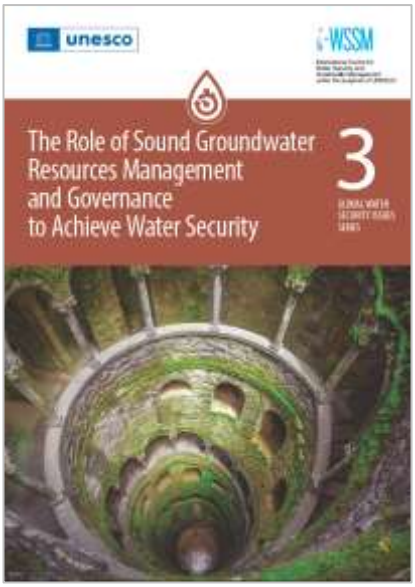
This collection of papers by scholars from Mexico and the US, with content in both Spanish and English, contains a chapter by Mary-Belle Cruz Ayala, a post-doctoral researcher at the WRRC, and others on the overuse of groundwater in northwestern Mexico and the implementation of Managed Aquifer Recharge (MAR) for mitigating climate change impacts.

The book ranges geographically from Baja California to the Rio Bravo/Rio Grande region, encompassing the binational water framework, water security and climate change, transboundary groundwater, and local governance. It is an excellent summary of successful examples of collaboration between Mexico and the US, as well as the challenges faced when conducting binational projects.

No info has still been received about this book´s access.
Source: Sharon Megdal’s Water Resources Research Centre at Arizona State University. Weekly Wave 29 Oct 2021.

Global Water Security Issues (GWSI) Case Studies: Water Security and the Sustainable Development Goals. 2020 Edition

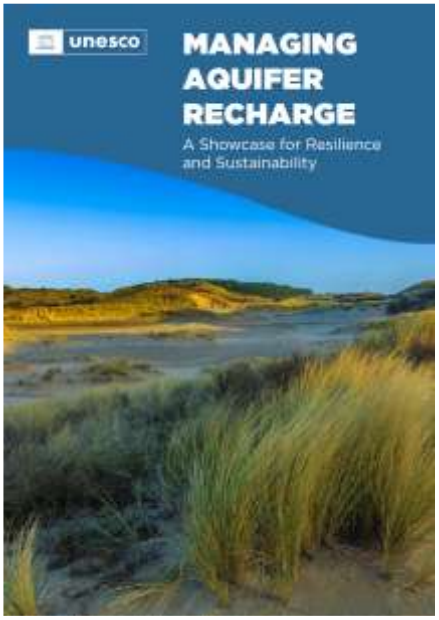
The new 2020 GWSI and i-WSSM edition is finally on line. This book includes MAR-related chapters.



Download freely from: https://unesdoc.unesco.org/ark:/48223/pf0000379093
Previous GWSI-i-WSSM books:
2018: https://unesco-iwssm.org/board/select?bbsNo=0000000068&nttSn=20
2019: https://unesco-iwssm.org/board/select?bbsNo=0000000064&nttSn=35

Managing Aquifer Recharge: A Showcase for Resilience and Sustainability

Zheng, Y., Ross, A., Villholth, K and Dillon, P. (eds) (2021) Managing Aquifer Recharge: A Showcase for Resilience and Sustainability. UNESCO-IAH Publication.



This 379 page 30MB book provides accounts of 28 MAR schemes from around the world by the implementers and operators. Many schemes are long-lived, demonstrating success in improving quantity and quality of water supplies and buffering them against drought and emergencies by communities from village to state, and trans-boundary level. A benefit-cost analysis shows that MAR offers a 50% reduction in costs compared to the best alternatives. When evaluated for its environmental and social sustainability using a basic qualitative technique specifically developed for this book, most schemes are found to be sustainable.

Available at: https://unesdoc.unesco.org/ark:/48223/pf0000379962

Selection of managed aquifer recharge practices in Latin America

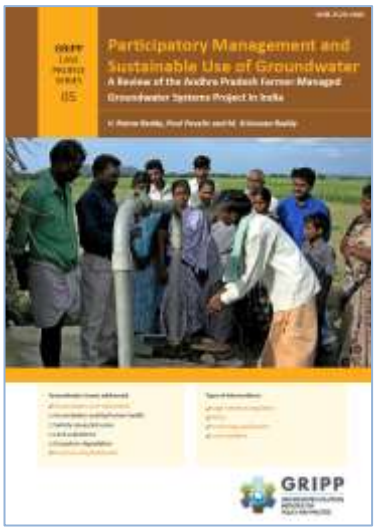
Authors: Research Group INOWAS, Department of Hydrosciences, Faculty of Environmental Sciences, Technische Universität Dresden (TUD), Germany. Centre for Environmental Studies and Biodiversity (CEAB), Universidad del Valle de Guatemala (UVG), Guatemala.

The overall goal of the DIGIRES project ("Digitally-enabled green infrastructure for sustainable water resources management in Latin America and the Caribbean") is the development and utilisation of ICT-based tools, coupled with citizen science observations, for the design and implementation of managed aquifer recharge (MAR) as nature-inspired solution for sustainable water resources management in Latin America and the Caribbean. Read more and download… 27 pg, 8,9 Mb:

https://digires.inowas.com/case-studies/

New MAR-related GRIPP publication: Participatory Management and Sustainable Use of Groundwater A Review of the Andhra Pradesh Farmer-Managed Groundwater Systems Project in India

Authors: V. Ratna Reddy, Paul Pavelic and M. Srinivasa Reddy



This GRIPP Case Profile assesses whether the proactive involvement of rural communities in the management of groundwater positively contributes towards sustainable resource use. The assessment uses the long-term (2003-2013) Andhra Pradesh Farmer-Managed Groundwater Systems (APFAMGS) project in India as a case study. Implemented across seven districts, the assessment is based on a critical review and synthesis of existing literature and complementary field visits conducted five years after project closure… read more and download:

https://gripp.iwmi.org/wp-content/uploads/sites/2/2021/12/GRIPP-Case-Profile-Series-Issue-5.pdf

Future book. Invitation to contribute. Artificial recharge to groundwater and rain water harvesting: issues and learning from the developing countries

ARTIFICIAL RECHARGE TO GROUNDWATER AND RAIN WATER HARVESTING: ISSUES AND LEARNING FROM THE DEVELOPING COUNTRIES

Call for Contributions

ABOUT THE MONOGRAPH

ABOUT THE NAM S&T CENTRE

Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre)

New Monograph Series

IN ASSOCIATION WITH

ABOUT THE EDITORS

Dr. Dipankar Saha

Dr. Mohamed Shamrukh

Dr. Karen G. Villholth

TIMELINE	TENTATIVE ACTIVITY
August – September 2021	*Preparatory Work and Editorial Consultations*
October 2021	*Formal Invitations to Authors for Submission of Papers/Chapters*
November 2021	*Receipt of Tentative title, Scope of paper along with 5 Key Keywords*
December 2021 – February 2022	*Receipt of Full Papers/Chapters*
March 2022	* *Submission of Book Proposal to a Reputed Publisher*
March – May 2022	*Editing and Revision of Papers*
June 2022	*Submission of Full Manuscript to the Publisher*
July – September 2022	*Publication Process*
October 2022	*Publication of Monograph*

C- DISSEMINATION AND TECHNOLOGY TRANSFER. WEBINARS

INC-IAH. Online Seminar. February 27-28, 2021

The Indian National Chapter of International Association of Hydrogeologists (INC-IAH) conference finished successfully. It included a MAR session.

More info: http://inciah.org/

Managed Aquifer Recharge (MAR): Science; Technology; and Applications Worldwide (1.19.21). MARSOLut project´s activity at EmeraldPlanet TV

The world-wide EmeraldPlanet International Foundation® movement, EmeraldPlanet TV® programs and Dr. Sam Hancock are linking millions of professionals and citizens around the globe through a practical community-by-community identification, evaluation, broadcasting, and promotions weekly television program and selected The Emerald Mini-Treks®.

Last January 19th was recorded a MARSOLut project´s program, where participated:

- Dr. Joao-Paulo Lobo Ferreira, Principal Research Officer, Portugal National Civil Engineering Laboratory (LNEC).
- Prof. Christoph Schüth (Germany), MARSOL and MARSoluT Projects Coordinator, Technology University of Darmstadt.
- Dr. Daniel Kurtzman (Israel), Agricultural Research Organization (ARO).
- Prof. Xavier Sanchez-Vila, (Spain), Polytechnic University of Catalonia, (UPC).

Show 1

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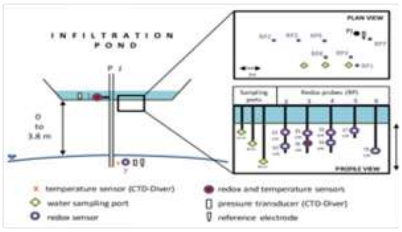
Show 3



Show 4

Welcome to join in this worldwide movement by watching https://www.emerald-planet.org/17584/

IAH WEBINAR series. Mexican chapter. El liderazgo de las mujeres en el agua subterránea en México (in Spanish)

The purpose of this event is talking about women´s leadership in work environment related to groundwater in Mexico. The event will be four weekly sessions transmitted by zoom and Facebook live. Dates will be 10, 17, 24 and 31 March, 18h, (GMT-6) Hora en Ciudad de México, CDMX.

8th March 2021

More info: https://www.facebook.com/Asociaci%C3%B3n-Internacional-de-Hidroge%C3%B3logos-Capitulo-Mexicano-113751694096954

IAH MAR Commission webinar series

As committed, the first IAH-MAR Commission webinar, organized by the University of Arizona and IAH-MAR, took place on March 22nd during the World Water Day:

- Managing Aquifer Recharge: A Showcase for Resilience and Sustainability

More info: https://iah.org/events/world-water-day-special-webinar-managing-aquifer-recharge-a-showcase-for-resilience-and-sustainability
https://wrrc.arizona.edu/world-water-day-special-webinar

Results from the webinar Managing Aquifer Recharge: A Showcase for Resilience and Sustainability. PPT and VIDEORECORD

More info, PPT and video: https://wrrc.arizona.edu/world-water-day-special-webinar

- Funcagua Guatemala webinar on water security and MAR (in Spanish)

I Congreso Nacional de Seguridad Hídrica

22th to 25th March 2021.
The conference took place during four consecutive days, having the last one a MAR and economic water security approaches.

The whole presentations of the 4-day conference have been merged in a single pdf file. Download: https://lnkd.in/ehFtJh5

More info: https://lnkd.in/eiiA3En - www.elaguanosune.com.gt

Funcagua Guatemala. Series of conferences on Aquifer Recharge (in Spanish). Results.

Funcagua has organized during 2021 April a series of conferences on Aquifer Recharge.

Full collection of presentations on line: https://fb.watch/4Ut_vYzv9U/

Regarding the *I Congreso Nacional de Seguridad Hídrica* Guatemala, 22th to 25th March 2021, which included a session on water security and MAR (in Spanish); the whole presentations of the 4-day conference have been merged in a single pdf file. Download: https://lnkd.in/ehFtJh5.

Stay tuned for personalized zoom links in the website www.funcagua.org.gt

Online workshop on "Artificial recharge in Gulf Cooperation Council countries"

17th March 2021

Workshop on MAR in China

Online meeting - China-Denmark
March 22nd 2021. Denmark (8:00-11:40) - China (15:00-18:40)

More info: https://www.mar-china.geus.dk/wp-content/uploads/2021/03/MAR-China-workshop-Invitation-and-program-1.pdf

Workshop on MAR in China –Online meeting– March 22nd 2021. Denmark-China. Results published

The organizers have posted the results of this workshop in their website: https://www.mar-china.geus.dk/about-mar-china/activities/

There are 10 presentations posted, some from IAH MAR members. Some photos and videos are available too.

PI RURAL 2-day Dialogue Seminar. Best practices in groundwater quality management. Tuesday 26 and Thursday 28 October

The Rural Water and Food Security Webinar on Best Practices in Groundwater Quality Management included leading EU and Chinese experts' opinion on the status of groundwater quality in the EU and China and their recommendations on its protection for future generations.

Rural Water and Food Security
An action supported by the European Union

CHINA EUROPE Water Platform

INOWAS international workshop on line. Evaluación del impacto holístico de la regarga gestionada de acuíferos (MAR) en los servicios ecosistémicos (in Spanish)

2021 April 12th, 17 to 19 h CET. Brochure and program:

MAYA Project, final workshop

The final conference of the project Master in Agricultural and hYdrological Approaches to a better and sustainable development MAYA, co-funded by the Erasmus+ program, will be this 2021 April 12th 09:30 h CEST.

More info: https://www.maya-project.eu/mod/forum/discuss.php?d=99

MAYA had a full WP on MAR and posted a full course on the Internet with five lectures inviting IAH-MAR members:

Lecture 1: https://youtu.be/0EHPwBRBBgI
Lecture 2: https://youtu.be/nSX5d2CBNw8
Lecture 3: https://youtu.be/vRxHFDNvGDs
Lecture 4: https://youtu.be/2HZji_Hs7xc
Lecture 5:https://youtu.be/RUUHMqQ7xEw

Webinar on Managed Aquifer Recharge, but then for heating or cooling :) April 16th

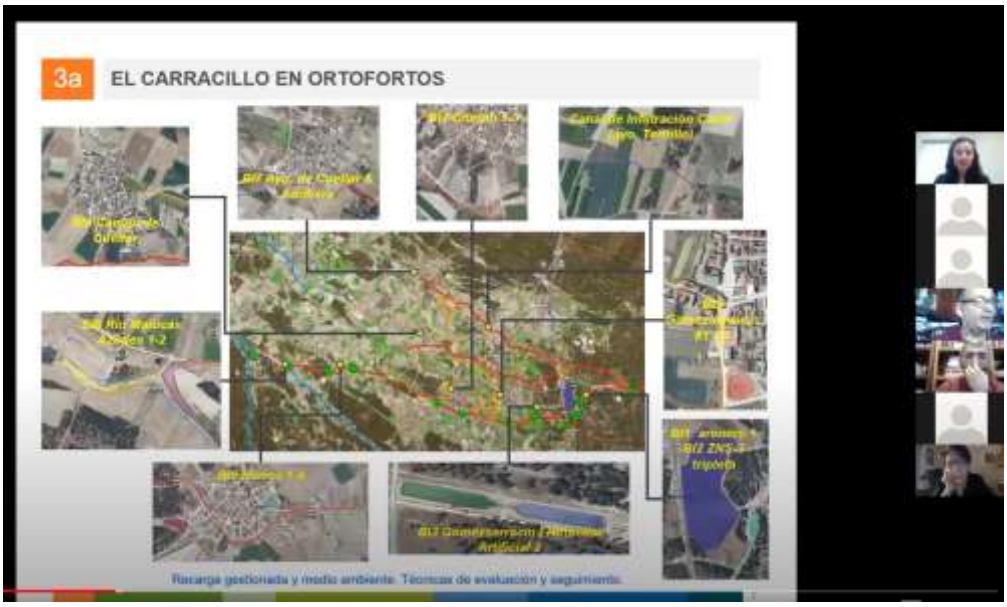
"Groundwater's role in Sustainable Heating and Cooling" organized by The Netherlands Chapter of the IAH - International Association of Hydrogeologists. The application of hydrogeological expertise in support of the energy transition is still a relatively new, and certainly a "hot" topic for years to come.

https://www.linkedin.com/posts/nielshartog_im-delighted-to-announce-a-webinar-on-groundwaters-activity-6785665733666885632-BVN9

Webinar "MAR and Environment" organized by Chihuahua University (UACH). Results

The Autonomous University of Chihuahua (UACH) organizes conferences on managed recharge and other current topics.

On April 16th, Dr. Jon San Sebastian (Tragsatec) was invited to give the talk: "MAR and Environment".



Direct access (You Tube, in Spanish):
https://www.youtube.com/watch?v=8ufDT0-hsGI&feature=youtu.be

Groundwater Technical talk. Malaysia

Info about a future webinar has been received without specific details.

Conference-Webinar on MAR organized by the Cámara de Comercio de Ica (Perú); 20/05/2021 (in Spanish)

Conference: “Implementación de dispositivos de recarga gestionada de acuíferos. Opciones, métodos de selección e integración y ejemplo en el acuífero I-V-L (Perú)”.

Speaker: Dr. Enrique Fernández Escalante; 2021 May 20th, 17 h Lima. Organized by Cámara de Comercio de Ica.

Organizers shared the webinar video: https://fb.watch/5J_JtexBKr/

Reimagining Groundwater Governance (gwG) with a special emphasis on India

Advanced Center for Water Resources Development and Management (ACWADAM), Pune works in the areas of education, training, capacity building, action research and outreach, on the topic of groundwater management and governance, across India's diverse aquifer systems through a variety of partnerships. ACWADAM organised webinar series on Groundwater Governance, with a special focus on India's unique groundwater situation. There are many ongoing and past efforts to develop, enhance and consolidate the understanding of groundwater governance on the global scale.

This workshop is a small attempt to bring together researchers, practitioners and policy makers from across the globe, representing various geographical settings, to discuss groundwater governance. Our purpose is to view the topic of groundwater governance in the context of various current and emergent themes like climate change and groundwater, eco-systems and groundwater, gender and groundwater, the nexus between food, groundwater and energy and many more. The workshop planned a dialogue on various aspects of groundwater governance, keeping in mind the lessons of relevance, particularly to the Indian groundwater situation.

Detailed schedule of the webinar series here:
http://www.acwadam.org/images/pdf/gwG-Webinar-2021-schedule.pdf.

Organised by Advanced Center for Water Resources Development and Management (ACWADAM), Pune, India.

Dresden University MAR-WEB webinars on Managed Aquifer Recharge 2021

The division of Water Sciences, HTW Dresden organized a MAR-WEB webinar on Managed Aquifer Recharge 2021

https://bbb.htw-dresden.de/b/san-fia-juk-nhu

The record of the webinar will be available shortly in their website.

Managed Aquifer Recharge Webinar
MAR-WEB 18.11.2021

Time (CET)	Agenda	Speaker
08:55 – 09:00	Login by participants and technical checks	
09:00 – 10:20	Worldwide MAR/RBF case studies	**Dr. Cornelius Sandhu, M.Eng. Gustavo Covatti** University of Applied Sciences Dresden
10:20 – 10:30	Questions & Discussion	

The webinar series MAR-WEB are held within the framework of the Project "CCRBF – Expansion of the Indo-German Competence Centre for Riverbank Filtration" and Future East – HTW Dresden regional and international Project (education and training)

MAR-WEB Link: https://bbb.htw-dresden.de/b/san-fia-suk-nhu

Access Code: 141****

Prior Registration: marles@htw-dresden.de (free of charge)

CONNECT | TECHNISCHE UNIVERSITÄT DRESDEN | DAAD

MAR-WEB webinar on Managed Aquifer Recharge | 2021

Webinar "Transboundary Aquifers", Water Research Centre, Sultan Qaboos University, Oman. September 7th, 2021

A transboundary unconfined aquifer with natural accretion and a smartly located MAR infiltration basin: HYDRUS versus analytical solutions and optimization of aquifer's stock and fluxes…

More info: https://www.squ.edu.om/agriculture/Academic-Department/Soils-Water-and-Agricultural-Engineering

3rd interactive training of cross sectoral stakeholder group of the DEEPWATER-CE project

DEEPWATER-CE Interreg project team are conducting some training session on MAR solutions exposing the results of this project. E.g. Sept. 29th

Managed Aquifer Recharge Site #5 (MAR 5) and Gila River Interpretive Trail. Workshop

On October 22, 2021, the Gila River Indian Community hosted over 60 people at the Managed Aquifer Recharge Site #5 (MAR 5) and Gila River Interpretive Trail. This opportunity was offered to those who attended the WRRC's 2021 Annual Conference, Tribal Water Resilience in a Changing Environment. As noted in the Interpretive Trail pamphlet received by all, "MAR 5 is a water recharge project that operates as a storage system, and serves as the first portion of the Community's 'Return to the River' program."

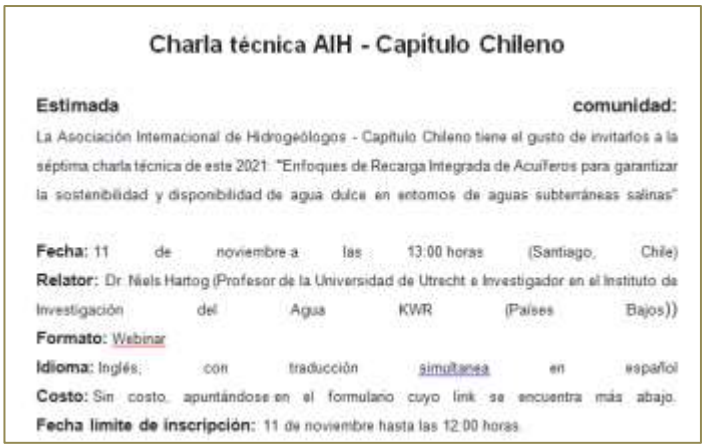
Source: Sharon Megdal's Water Resources Research Centre at Arizona State University. Weekly Wave 29 Oct 2021.

Charla técnica AIH - Capítulo Chileno. Enfoques de Recarga Integrada de Acuíferos para garantizar la sostenibilidad y disponibilidad de agua dulce en entornos de aguas subterráneas salinas (in English and Spanish)

The International Association of Hydrogeologists - Chilean Chapter is pleased to invite you to the seventh technical talk of this 2021: "Integrated Aquifer Recharge Approaches to ensure sustainability and freshwater availability in saline groundwater environments".

Date: 11 November at 13:00 (Santiago, Chile)
Speaker: Dr. Niels Hartog (Professor at the University of Utrecht and Researcher at the Institute for Water Research KWR (The Netherlands))

No more info was received.



Charla técnica AIH - Capítulo Chileno

Estimada **comunidad:**

La Asociación Internacional de Hidrogeólogos - Capítulo Chileno tiene el gusto de invitarlos a la séptima charla técnica de este 2021: "Enfoques de Recarga Integrada de Acuíferos para garantizar la sostenibilidad y disponibilidad de agua dulce en entornos de aguas subterráneas salinas"

Fecha: 11 de noviembre a las 13:00 horas (Santiago, Chile)
Relator: Dr. Niels Hartog (Profesor de la Universidad de Utrecht e Investigador en el Instituto de Investigación del Agua KWR (Países Bajos))
Formato: Webinar
Idioma: Inglés; con traducción simultánea en español
Costo: Sin costo, apuntándose en el formulario cuyo link se encuentra más abajo.
Fecha límite de inscripción: 11 de noviembre hasta las 12:00 horas

Conference "Agua para el futuro". Mendoza, Argentina (in Spanish)

During November 2-4 will general Dpt. of Irrigation in Mendoza is hosting an event on line about Water for the sustainable development, including MAR issues.

Conference series on MAR and water reuse for agriculture (in Spanish)

Organized by Chihuahua´s government of the State, JMAS is drafting a series of conferences. The event will took place in December 2nd and 3rd. Organizers are still drafting the program. In case you want to participate, please email cjnavarro.jmas@gmail.com

U. Birmingham Li Siguang Annual Lecture. Yan Zheng´s speech

As a part of the University of Birmingham's COP26 events, Prof. Yan Zheng of SUSTech, an IAH-MAR Commission co-chair was invited to give the China Institute's 2021 Li Siguang Lecture, broadcasted virtually on 28th October 2021.

Youtube Premier: China Institute: Annual Li Siguang Lecture - YouTube
Recorded video: 22401 - Full Length Edit - V50810_2.mp4 - 08-10 - Frame.io

FEMAR: FEmale scientists for the use of reclaimed water through Managed Aquifer Recharge in North Africa

The project FEMAR – FEmale scientists for the use of reclaimed water through Managed Aquifer Recharge in North Africa is exploring the potential of an intelligent, artificial groundwater recharge system to contribute to sustainable water resource management in Egypt and other North African countries. With the help of a managed aquifer recharge (MAR) pilot system in Egypt, the project will demonstrate the feasibility of unconventional, near-natural water management concepts and increase acceptance…


FEMAR: FEmale scientists for the use of reclaimed water through Managed Aquifer Recharge in North Africa

In large parts of North Africa there is a critical water shortage, which is increasingly exacerbated by ongoing developments. In Egypt in particular, economic development, agricultural growth and urbanisation are worsening the situation. In order to meet growing water demand, groundwater resources are increasingly being used, which in some areas leads to overexploitation and salinization. The discrepancy between increasing water demand and limited water resources makes unconventional water supply concepts and the treatment of wastewater for reuse essential to the sustainable development of the region.

More info: https://www.adelphi.de/en/project/femar-female-scientists-use-reclaimed-water-through-managed-aquifer-recharge-north-africa

D- OTHER REMARKABLE EVENTS WITH IAH-MAR COMMISSION PARTICIPATION

IAH-MAR commission website has included the results from the whole ISMAR conferences

IAH-MAR Commission cochairs have been gathering materials and information from all the International Symposium on Managed Aquifer Recharge, ISMARs (ten editions).

Most of these Symposia results are available in their website. Some more will be posted in the coming weeks. Please notice that a few ones are restricted due to copyright and cannot be published.

We are looking forward these will be useful for the community. Comments welcome.

https://recharge.iah.org/ismar

IAH MAR Commission Newsletters gathered since 2020 February. Whole collection

The whole collection since 2020 Feb. has been posted in our website: https://recharge.iah.org/newsletters

Mirror site in the IAH-MAR sister page: https://dinamar.tragsa.es/post/iah-mar-commission-newsletters-coleccion-completa-de-boletines-recientes-en-internet

The web browser for Spain´s MAR-map has been updated: dinamar hydrogeoportal (in Spanish)

DINAMAR´s "hidrogeoportal" has just been upgraded including modern geographical coverages and improving its capability.

Please, access the MAR-MAPs generator and the manual for the application at:
Cartographic visor direct link
Manual for the application (in Spanish)

IAH Commission on Managing Aquifer Recharge. Twitter account and IAH MAR list

A new Twitter account of the IAH Commission on Managing Aquifer Recharge has been created: https://twitter.com/IAHMARCom

Twitting by cochairs, everyone invited to use this channel to announce your news on MAR.

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

https://lists.flinders.edu.au/mailman/listinfo/iah-mar.listcgs to stay informed on MAR issues.

The IAH-MAR Commission sister site, www.dina-mar.es, is operative again: www.dinamar.tragsa.es

Since 2020 May the former site dina-mar.es, to post news on MAR, generally in Spanish language, is operative again.

Notice the site has been modified from www.dina-mar.es to www.dinamar.tragsa.es; anyway the previous one will redirect during some months.

The most remarkable item is the collection of more than 100 books on MAR to be downloaded freely, collection growing up since years ago. Contributions welcome.

There is also a IAH-MAR sister Linked-In group:
https://www.linkedin.com/groups/4690290/

And an associated Twitter account: @4dina_mar

El proyecto de recarga gestionada del Grupo Tragsa vuelve a la carga en su etapa de difusión y transferencia tecnológica como "sister site" de la IAH MAR Commission.
El viejo dominio Dina-mar.es redirigirá al nuevo: tragsa.dinamar.es hasta finales de 2021.
Sean bienvenidas sus amables contribuciones a través del correo electrónico dinamar@tragsa.es

These communication channel is available for the whole MAR community: dinamar@tragsa.es

Some new MAR activity in Spain

Tragsa has reported new constructions supported by the Junta de Castilla y León and Confederación Hidrográfica del Duero en Arabayona, Salamanca, Spain.

The drainage from an irrigation area is diverted to a neighbor aquifer in which MAR takes place by means of a 500 m canal. The activity is finalizing the construction phase. An abstract describing the site has been submitted to ISMAR 11.

Location: https://www.google.es/maps/@41.0291389,-5.3322165,6573m/data=!3m1!1e3

Oaklands Education Centre - Joint Research Program between Flinders University and the City of Marion won the Australian National Prize in the Excellence in Research and Innovation category

Peter Reeve was at the heart of a National Stormwater Australia Award for Excellence: National Prize in the Excellence in Research and Innovation category. This project won the SA Award in 2020, and was up against all other states in the national award which it won on Wednesday night. As well as research to help City of Marion manage its wetland, Peter and team have a big role in helping with water and environmental education of high school students. Congratulations to Peter, Flinders U and City of Marion! Congratulations to our South Australian Winners!

The Oaklands Park Wetlands Education Centre is a joint initiative between the City of Marion and Flinders University and supports Flinders University teaching, Honours, Masters and PhD research projects relating to wetlands and managed aquifer recharge (MAR). The Centre enables STEM outreach, associated with stormwater management to primary and secondary school children. One of the key outcomes for the initiative is to engage local students in applied research that will benefit MAR Operation and Long Term financial planning for Opex and Capex Budgets for all MAR Operators. The resulting innovative and novel applied research is providing information that will drive the continuous improvement of MAR operations whilst providing assurance that no long-term adverse environmental impacts are occurring during the injection of trace amounts of inorganic and organic compounds….

You can watch the video presentation on our Youtube channel here: https://www.youtube.com/watch?v=Zj_C40pQmTU

Additionally, the Combining Integrated Stormwater Management with Environmental Protection at Springwood, Gawler East project.

Wallbridge, Gilbert Aztec received a high commendation in the Excellence in Strategic or Masterplanning category. You can watch the video presentation on our Youtube channel here: Watch video now

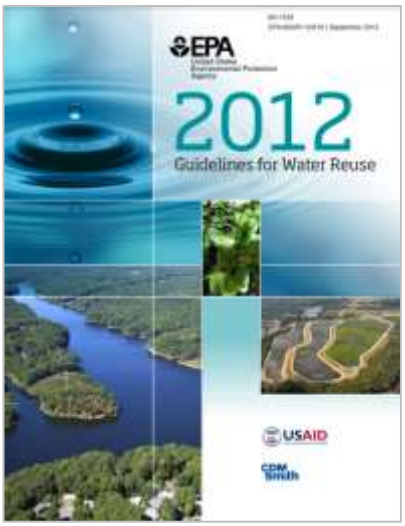
MAR in Tuscany, Italy (in Italian). New video on MAR

Rudy Rossetto, MARSoluT partner from SSSA, was talking on Rai1 channel about MAR in Tuscany, Italy. The infiltration test site from the MARSOLut´s ESR Esteban Caligaris (SSSA) is shown and described.

You Tube link: https://www.youtube.com/watch?v=FfZk_O_hVDo&t=4s

Reminder on the USEPA guidelines on water reuse (2012)

It is time for new guidelines, specially in Europe, and this publication must be taken into account: USEPA guidelines on water reuse (2012).



Download: https://www.epa.gov/sites/default/files/2019-08/documents/2012-guidelines-water-reuse.pdf

New video on hydrogeology. Groundwater video - IAH GQC & ECHN

Short 4 minute 15 second video on groundwater and groundwater quality developed by the International Association of Hydrogeologists' (IAH) Groundwater Quality Commission (GQC) and the Early Career Hydrogeologists Network (ECHN).

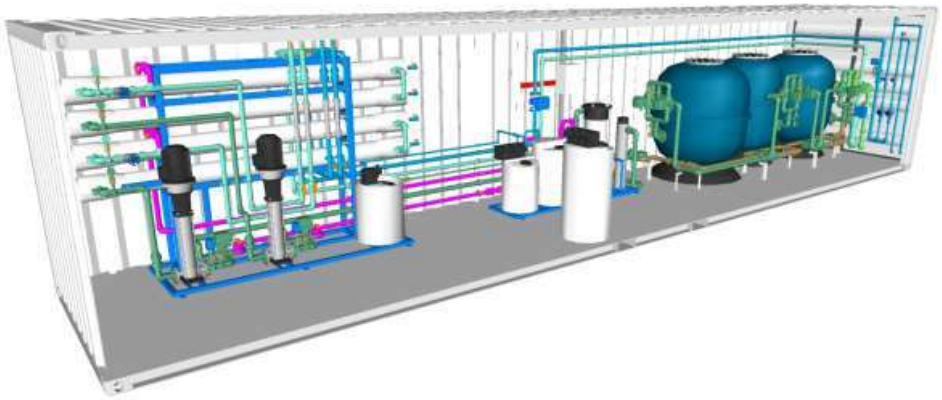
This short film is an introduction to groundwater and is geared toward the general public, beginning students, and decision makers.

Video access: https://drive.google.com/file/d/1g5ehPmdqnOPxcyF_zvVpov3-AHxVkNK7/view Thank you Prof. Dr. David Kreamer for reporting.

NEW SAT-MAT experience in Spain. Balearic Islands

Northline and Amphos 21 start the project "Pilot test of reuse of reclaimed water for the recovery of overexploited aquifers" of the General Directorate of Water Resources of the Balearic Government, Spain.

The project consists of a pilot plant that is sized to produce two lines of 100 m^3 / d and up to 200 m^3 / d continuously, which will be injected into the aquifer through two wells. The injected water control network consists of a total of 12 newly built piezometers and existing wells, which will be equipped with water pressure and quality sensors, in addition to being sampled throughout the lifetime of the project, one year. Since the source water has high organic matter content, a five-phase treatment and a chemical pre-treatment will be carried out before osmosis.



RO plant Project for tertiary water treatment before well injection.

Austrian Embassy presents Energy Globe Award to Aquafondo for MAR project in Peru

Aquafondo, the Water Fund for Lima and Callao, received the "National Energy Globe Award" —one of the world's most respected environmental awards— for its sustainable water resources management project in Chillon, Rimac, and Lurin river basins, under the motto "Sowing water. For more and better water for Lima."

https://andina.pe/agencia/noticia-austrian-embassy-presents-energy-globe-award-to-aquafondo-for-project-in-peru-873273.aspx

The quality of water produced by Turku Region Water (a MAR-related area in Finland) is rated the best in the world by UNESCO

Turku Region Water, press release 1.12.2021:

The water quality produced by Turku Region Water in Finland has been evaluated among the best in the world. The company is one of the largest suppliers of drinking water using managed aquifer recharge. The contribution of the UNESCO book is a tribute to the Finnish water know-how, as the shortage of groundwater is a global challenge to be solved...

More info: www.turunseudunvesi.fi/en
https://unesdoc.unesco.org/ark:/48223/pf0000379962

In Memoriam. Professor Ramón Llamas

The professor Ramón Llamas, one of the fathers of hydrogeology in Spain passed away in Dec 11st. He was President of the International Association of Hydrogeologists from 1984 to 1989 and an outstanding contributor to the hydrogeology.

An obituario has been published in the IAH main website:
https://iah.org/news/in-memoriam-professor-ramon-llamas-1931-2021

The IAH-MAR Commission, with plenty of students of the professor (he was professor and Director of one co-chair´s PhD Tribunal), wants to recognize his trajectory, legacy and kindness. Thank you Professor!!

4- Invitation

Members of IAH and others are invited to participate in this Commission to receive and contribute news and information via our email list, to attend symposia and workshops, notably ISMAR11 in April 2022 in Long Beach, California, USA, and to join and initiate formation of working groups that produce needed specific outcomes over a finite time frame. You can join our email list from the Commission website https://recharge.iah.org/. If you find this Commission useful, you are likely to find joining IAH as a member is also useful https://iah.org/join-us – through access to Hydrogeology Journal, newsletters and a wide range of Commissions and Networks, and discounted registrations to IAH Congresses and ISMARs.

5- IAH-MAR Forum and presence in social networks

@IAHMARCom

Please, remember you can book freely in the **IAH MAR Commission Forum**: https://lists.flinders.edu.au/mailman/listinfo/iah-mar.listcgs

Sister sites:

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

https://dinamar.tragsa.es/

@4dina_mar

Enrique Fernández Escalante, Catalin Stefan and Yan Zheng

Co-Chairs of IAH Commission on Managing Aquifer Recharge

2022 January

https://recharge.iah.org/

IAH-MAR Commission co-chairs. Photo: Jon San Sebastián

Please, get ready for our next main event: www.ismar11.net