

International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge

Enrique Fernández Escalante Catalin Stefan Yan Zheng IAH-MAR Commission co-chairs

Dave Kreamer
IAH President

https://recharge.iah.org



Catalin Stefan
Yan Zheng
Enrique Fernandez Escalante
Co-chairs of the IAH-MAR Commission



1- Welcome and Introductions



IAH Commission on Managing Aquifer Recharge

IAH-MAR Commission Plenary at ISMAR11

17:00-18:15 Wed 2022 April 13th

ALL WELCOME!

IAH Commission on Managing Aquifer Recharge

IAH-MAR Commission Plenary at ISMAR11

17:00-18:15 Wed 2022 April 13th

ALL WELCOME!





Draft Agenda:

- Welcome and Introductions 17:00-17:05
- Objectives of the Commission Enrique F. Escalante 17:05-17:10
- UNESCO-ASCE-IAH opening 17:10-17:15 UNESCO Repr.-Doug Bartlett
 - 1. UNESCO Travel Scholars
 - 2. Exemplary case studies publication with IAH and GRIPP. Future round of workshops
- 4. Progress reports and plans of Working Groups (either in person or slides) 17:15-17:35
 - 1. Global MAR Inventory Catalin Stefan
 - 2. MAR for Sustainable Development Yan Zheng
 - 3. Economics of MAR Andrew Ross
 - 4. 60 years history of MAR Peter Dillon and Pieter Stuyfzand
 - 5. Management of clogging-Russell Martin
 - 6. MAR to MARket Enrique Fernández Escalante
 - 7. MAR Regulations and Guidelines Manuel Sapiano
 - 8. MAR opportunity mapping Jose Bonilla and Catalin Stefan
 - Urban MAR Niels Hartog
 - 10. MAR in Conferences. Daniela Benedicto
 - 11. Italian Community of Practise slot. Rudy Rossetto (slides)
 - 12. Latin-MAR Community of Practise slot. Adriana Palma
 - 13. Australian Community of Practise slot ?

Any future WG or CoP?

- Invitation to ISMAR12, 2025. Finally the hosting place will be revealed!! 17:35-17:42
- Election / Re-election of IAH-MAR Co-chairs Conducted by IAH President, Dave Kreamer 17:42-17:50
- IAH Certificates of Appreciation –17:50-18:00 Co-chairs + IAH President
- Information Sharing (on going or recently finished MAR-related projects. 1 min for each presenter. E.g.
 - IGRAC MAR Portal
 - 2. Marsolut PhD education in MAR
 - 3. GRIPP GW Solutions Initiative for Policy & Practice
 - 4. MAR-NET activities in China / Germany / Denmark
 - 5. KMARP project in Kabul.
 - DEEP WATER project
 - 7. Any other MAR-related on-going project for R&D, cooperation... 17:58-18:05
- 9. Future post-ISMAR 11 Journal Water. Special issue. Call for action 18:05-18:07
- 10. New publications on MAR. Short mention/presentation by authors 18:07...
- 11. Suggestions for new activities anyone
- 12. Call for volunteers to participate in existing and new activities anyone
- 13. Information sharing on MAR (not covered elsewhere) anyone

ISMAR 11 IS STREAMING LIVE

 Whether you are in New Zealand, Australia or around the globe, you can now attend the 11th International Symposium on Managed Aquifer Recharge (ISMAR11) via live stream for free!

Thanks to sponsors <u>WGA (Wallbridge Gilbert Aztec)</u>, <u>KWR Water Research</u>
<u>Institute</u>, <u>Roscoe Moss</u> Company, and the American Institute of Hydrology (AIH)
– live streaming of select technical presentations is accessible for free for those that are outside of North America (and a small fee for those in North America)

Register now to learn how the tools of MAR are being applied globally to help sustainably manage groundwater supplies in a time of climate change and conflict over water.

https://lnkd.in/gB5cssb9

2- Objectives of the Commission

International Association of Hydrogeologists (IAH) Commission on Managing Aquifer Recharge



International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge



Photo: ISMAR10, Madrid, Spain

- Promotes the securing and expanding of water resources
- Encourages research, development and adoption of improved practices
- Facilitates international exchange of information between members
- Aligns with UNESCO IHP-VIII (2014-2021)

International Association of Hydrogeologists (IAH) Commission on Managing Aquifer Recharge



International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge

Current working groups:

- Clogging and its management
- MAR for Sustainable Development
- Economics of MAR
- MAR Regulations
- MAR Suitability Mapping
- Urban MAR
- MAR in Conferences

Closed working groups (activities still ongoing)

- Global MAR Inventory
- 60 years History of MAR
- MAR to MARket
- Call to Action on Groundwater Management

MAR Communities of Practice:

Australia, Italy, China, Latin America

Our website







Welcome



ASSOLT THE COMMESSION EVENTS WORKING GROUPS COMMUNITIES COLLABORATIONS

Affectives of IDMARYS. Markin, New 2016 - the letter trevious composition of UA+46ER (AFSCO and ADCE

Welcome to the well-site of the international Accordation of Hydrogenitogists Commission on Managing Apuller. Rectarge (MH-MAR): Here you can focuser into our waiting process are doing and controlled to their current projects, you can downmad receivable on MAR; commission with program, get information on symposial continging up with any age areal for this size informed of latest more. We also have a latest other in Standard and Chrosse.

Managed Aguifer Recharge

Managed equilar recturing, who called groundwater regiment-herest, valed between and efficial saturage, in the purposes in extraction of control of the property of vales to opides for scheepped recovery or environmental lenself. If entirectors methods such as sheetenin fidulates, sheen bed overs, entitlates pands and rejection wells, and uses studyed earlier scances and appropriately breated unben statisticated, insteady and other waste valent to introvers groundwater storage, protect and improve male quality, and social shought and entergrants supplied, this greening scentific basic supports the specific increases on one as a value management from in the substanding upon of the world's water into account.

Latest News



Time for elections!

Dear MAR Continuets:

During the upcoming (Shapith In California, USA on 11-15 April 2000 (https://linear11.col...bis.Contrassion of held new stachess: A those-year needates will be yellobed for the on-there, to be apply received at the ISMARTS conference in 2005. The elections will take give on 12 April 2002 during the (IA-MART Penairy Elections on 10 MARTS Equations).

CURRENT PROJECTS THAT YOU CAN

- Steel warring group: XVAT in Conferences: Coordinator: Denvise Benedicto van Dean
- New working group: Until WAF.
 Coordinator: News Hartog
- Lagrid AR Community of Procision
 A new Yilladies to advance.
 MAR of Later America.
 Constitution Advance Person.
- MAIN Substity Mezong Working Group, Constitutor, Joyle Borolle
- Contributions to a second monograph on cloggingfocessing on its transportent — Clogging Westing Crisis.
 Coordination Faces Martin
- Oncentrator Solidors Intilates to Policy and Practice (ISSPP) of Colonial International Project, Coordinator Karan Vibratio

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International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge

International Symposium on Managed Aquifer Recharge, ISMAR 11.



Less than two months left!!

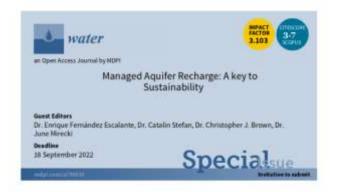
April 11th to 15th: Long Beach, California, USA.

SMART1 includes 3 pre-continence workshops, keynose spessions, buy says of malifi stack softmasi sostalam, the Herman Beauwy Avasds wuncheen, past-continence field hips, past conference geophysics workshop, nativorking, socializing, and nativorking opportunities.

Stay connected by signing up for the ISMART1 making for for the latest information on abstracts, registration information, etc.

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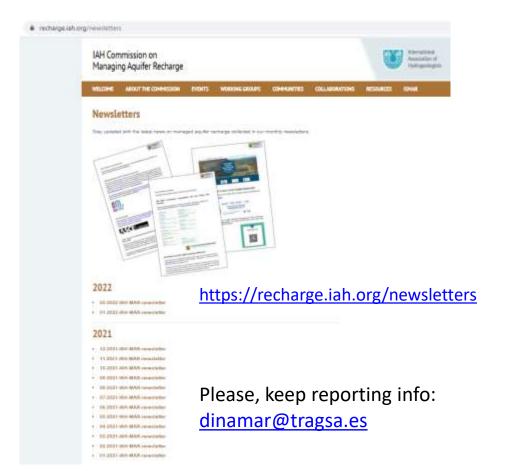
Check out the Evenmenty Agenda world



Special Sear "Menaged Agerba Macketge & Inglish Search and St."

Call for papers: ISMAR 11's Post-conference Journal, Water special issue (MDPI)

Newsletters





International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge

JOIN OUR MAILING LIST

Register with our large email group to share information, ideas and news concerning recharge enhancement.

Join IAH-MAR email community

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

Recent Annual Reports

https://recharge.iah.org/recent-annual-reports





JOIN OUR MAILING LIST

Register with our large email group to share information, ideas and news concerning recharge enhancement.

Join IAH-MAR email community

Stay informed!

COMMUNICATION





https://twitter.com/IAHMARCom



Edit profile

IAH MAR Commission

@IAHMARCom

IAH Commission on Managing Aquifer Recharge (MAR). Co-chairs: Enrique Fernández Escalante /-ef, Catalin Stefan /-cs, Yan Zheng /-yz



11 Following 63 Followers



IAH MAR Commission @IAHMARCom - Sep 6

The 48th @lahgroundwater Congress #InspiringGroundwater just kicked off in #Brussels. Thank you @MarijkeHuysmans and the entire team for making this event possible!



IAH MAR Commission @IAHMARCom - Sep 2

Join us next week in #Brussels for the 48th @lahgroundwater Congress and attend our multi-session on managed aquifer recharge on Mon/ Tue / and Thu. Also don't miss our Plenary Commission Meeting on Thu evening. Check conference programme for details iah2021belgium.org/programme/deta... /-cs



IAH MAR Commission @IAHMARCom - Aug 31

If you are NOT in Belgium next week: sign up to participate in the online @lahgroundwater General Assembly



IAH MAR Commission @IAHMARCom - Aug 31

Featured research: Identification of suitable sites for managed aquifer recharge under semi-arid conditions employing a combination of numerical and analytical techniques. Read more: rdcu.be/cwpEe /-cs



IAH MAR Commission @IAHMARCom - Aug 25

New book on "Managed Aquifer recharge: Southern Africa" written by Eberhard Braune and Sumaya Israel for The Groundwater Project Ogroundwaterproj. Download for free: gw-project.org/books/managed-__/-

WhatsApp Group



Aquifer Recharge Management

Initiated before 47th IAH Congress in Brazil, still very active!





https://chat.whatsapp.com/ BxYZq7wERpc7nDeTRIYN63



Sister site

https://dinamar.tragsa.es/



MAR books repository:

 104 books to be
 downloaded freely

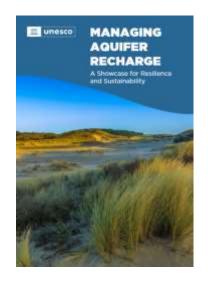
 (contributions welcome)

 dinamar@tragsa.es

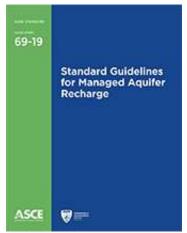
https://dinamar.tragsa.es/post/actualizacion-update-libros-sobre-la-tecnica-mar-repositorio-mas-de-100-libros-mar-books-repository-more-than-100-free-books-on-mar-april-2021

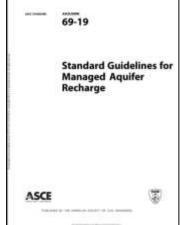


3- UNESCO-ASCE-IAH opening

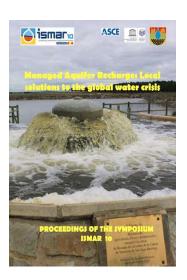


https://unesdoc.unesco.org/ark:/48223/pf0000379962





https://ascelibrary.org/doi/book/10.1061/9780784415283



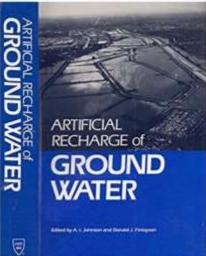
https://dinamar.tragsa.es/file.axd?f ile=/PDFS/ISMAR10-proceedingsbook_EF.pdf

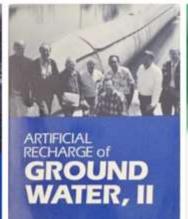
ASCE Managed Aquifer Recharge Standard Guideline

- ASCE published "Standard Guidelines for Managed Aquifer Recharge" as publication ASCE/EWRI 69-19 in 2020.
- A committee of about 15 professionals involved in MAR spent more than 10 years developing this standard guideline to assist water managers interested in MAR.
- The guideline is 206 pages and provides a complete summary of the steps involved in developing an MAR project from conception to closure.
- The guideline can be purchased online at: https://www.asce.org











Management of Aquifer Recharge for Sustainability

Sidner RJL Differs



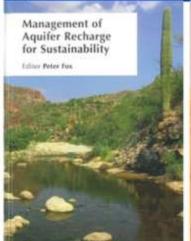


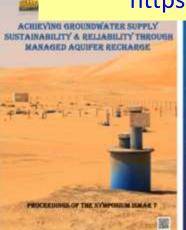




Proceedings of the 1th International Symposium on Management of Aquifer Recharge

















https://recharge.iah.org/working-groups

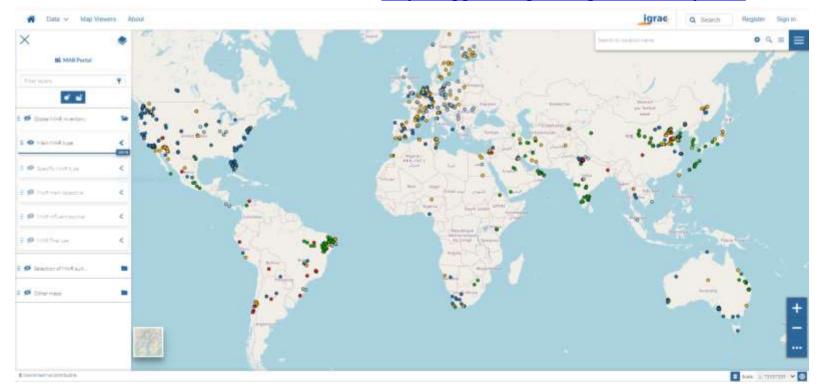
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- 13. Australian / Chinesse Communities of Practise slot? Any future WG or CoP?



1. Global MAR Inventory

Catalin Stefan - Arnaud Sterckx, IGRAC

A new version of the **Global Groundwater Information System** was launched in February 2021. The MAR Portal is now accessible at https://ggis.un-igrac.org/view/marportal.

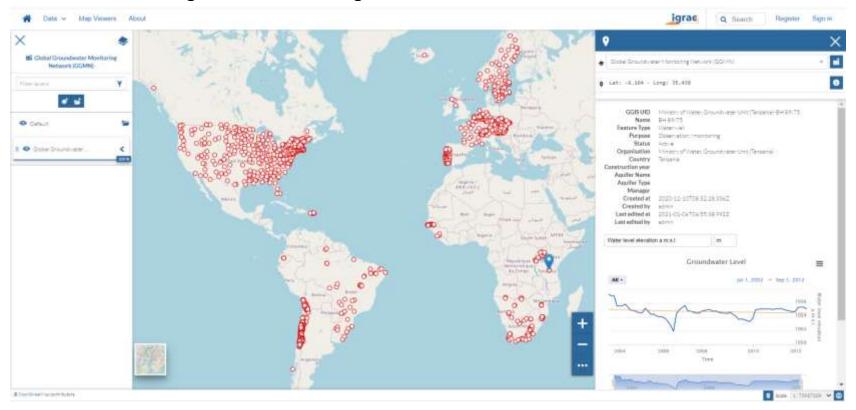


Working Group "Global MAR Inventory"



Arnaud Sterckx, IGRAC (the Netherlands)

Well and monitoring data are now integrated in the GGIS.



Working Group "MAR suitability mapping"



Report from Enrique Fernandez Escalante, Tragsa Group (Spain)





MAR suitability map for Spain. Improved in 2021 cartographic viewer on line

https://dinamar.tragsa.es/post/visor-web-hidrogeoportal-enlace

MAR suitability map for Spain v.2021

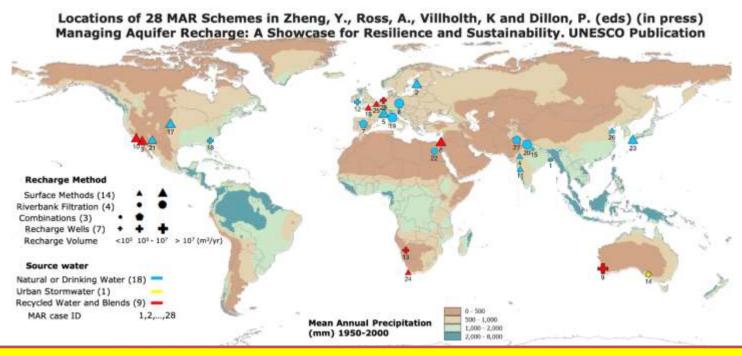




https://sjcarcgis.tragsatec.es/portal/app s/webappviewer/index.html?i d=d43af99e5b0e4ca8b89a8b c41902545d



2. MAR for Sustainable Development – Yan Zheng

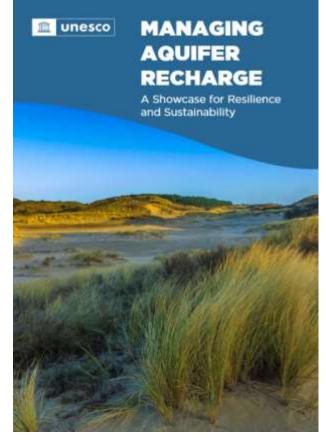


It would dissolve on completion of the UNESCO MAR Case Studies Book

3. Economics of MAR – Andrew Ross

- The output from the "Economics" and "MAR for Sustainable Development"
- Aim to collect & assess financial & economic information about costs & benefits of MAR schemes

 Assessment of costs & benefits of 28 MAR schemes in UNESCO-IAH-GRIPP 2021 publication "Managing Aquifer Recharge: A Showcase for Resilience and Sustainability" - Chapter 4



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

Next steps



- The economics of MAR working group has met its first 2 goals:
 - Development of standardised methods for estimating (1) costs & (2) benefits of diverse MAR schemes

Next steps

- Collection of data on more MAR schemes. Extend coverage of regions, MAR types
- Extension of existing work on MAR costs & benefits to cover environmental and social values of MAR, groundwater based natural infrastructure

References

- UNESCO-IAH-GRIPP 2021 "Managing Aquifer Recharge: A Showcase for Resilience and Sustainability" https://unesdoc.unesco.org/ark:/48223/pf0000379962.locale=en
- Groundwater based natural infrastructure https://gripp.iwmi.org/natural-infrastructure/



4. 60 years history of MAR – Peter Dillon and Pieter Stuyfzand

Completed its task in 2019 and closed, as reported in the IAH_MAR 2019 Annual Report

https://recharge.iah.org/files/2020/02/IAH-MAR-2019-Annual-Report.pdf

Article Full-text available

Sixty years of global progress in managed aquifer recharge

September 2018 · Hydrogeology Journal

DOI: 10.1007/s10040-018-1841-z

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Project: INOWAS

Labs: Water Nexus Research Group Manuel Sapiano's Lab

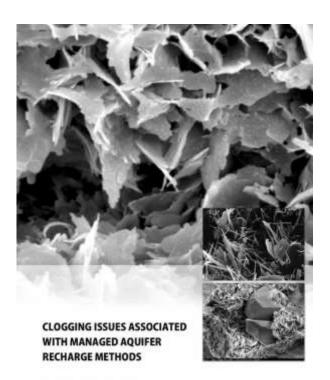
度 Peter Dillon - 🚯 Pieter J Stuyfzand - 🎲 Thomas Grischek - Show all 31 authors -

Manuel Sapiano



The publication has been cited more than 150 times so far

5. Management of clogging—Russell Martin



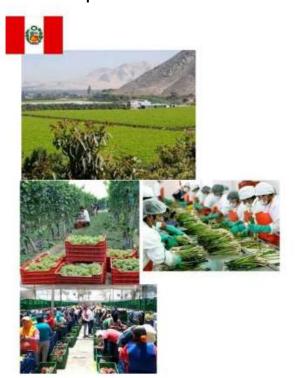
Edited by: Russell Martin

6. MAR to MARket > DINA-MAR



(Partially closed)

Enrique Fernández Escalante & Teresa Leitao











International Association of Hydrogeologists Commission on Managing Aquifer Recharge

MAR to MAR-k€t Working Group

Memory of activities during 2019



The working group aims to identify and communicate effectively with a much wider range of water users and water managers to explain MAR and its benefits than are normally exposed to IAH. This involves engaging with: Agro-industry, Water supply industry, Waste water treatment plants (SAT), Desalination companies, Bottled water companies, Golf courses, Public administration, Balnearies & spas (sallus per aquam), Hotels and tourist facilities.

Main web-site

www.dina-mar.es/

Mirror site connected to EIP Water Action Group 128 (MAR-solutions): https://www.eip-water.eu/MAR_Solutions

By Enrique Fernández Escalante February 2020

- 83

Free access books and info repository on MAR (104)

воокѕ



- No.4 Management of aquifer recharge / discharge processes and aquifer equilibrium states
- http://typo3.fao.org/fileadmin/user_upload/groundwatergovernance/docs/Thematic_papers/GWG_Thematic_Paper_4.pdf
- No.5 Groundwater Policy and Governance

http://www.groundwatergovernance.org/fileadmin/user_upload/groundwatergovernance/docs/Thematic papers/GWG ThematicPaper5 APr2013 web.pdf

- Rechargeable sustainability. The key is the storage" / "Sostenibilidad recargable. La llave en el almacén"
- http://www.dina-mar.es/post/2012/08/31/NUEVO-DINA-MAR-Publicacion-e2809cSostenibilidad-recargable-La-llave-en-el-almacene2809d-disponible-en-Internet.aspx
- DINA-MAR final book (in Spanish): http://www.dina-mar.es/post/2013/01/02/DINA-MAR-Publicacion-final-del-proyecto-c2a1Inminentel.aspx
- Strategies for MAR in semi-arid areas, Spanish: http://recharge.iah.org/recharge/downloads/MAR Strategies spanish.pdf
- P-ISMAR series: Posters from the last five International symposium on Managed Aquifer Recharge (P-ISMAR):
- http://www.dina-mar.es/post/2013/11/27/P-ISMAR-serie-Titulo-5-P-ISMAR-8-(descarga-gratuita-del-Ebook-Free-download).aspx
- http://www.dina-mar.es/post/2013/01/01/P-ISMAR-BOOKS-TITULO-4-P-ISMAR-7.aspx
- ISMAR 7 proceedings book. Achieving Groundwater Supply Sustainability & Reliability Through Managed Aquifer Recharge
- http://www.dina-mar.es/pdf/ismar7-proceedingsbook.pdf
- ISMAR 6 proceedings book https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge/downloads/AquiferRecharge_ISMAR6.pdf https://recharge.iah.org/recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge.iah.org/recharge_ISMAR6.pdf https://recharge.iah.org/recharge_ISMAR6.pdf https://recharge.iah.org/recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge.iah.org/recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge_ISMAR6.pdf https://recharge_





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

P-ISMAR series







https://dinamar.tragsa.es/post/P-ISMAR-



P-ISMAR 7

POSTERS OF THE 2** ENTERNATIONAL SYMPOSIUM ON MANAGEMENT OF ACCUSEN RECHANGE, 18448-5, AND ENGAGE COMP.

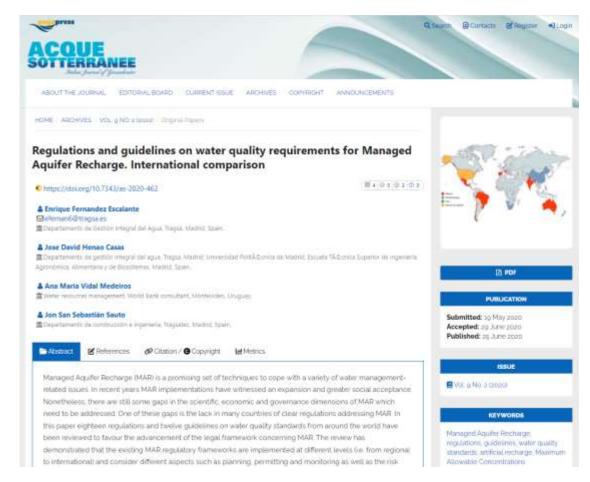
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- 7. MAR Regulations and Guidelines Manuel Sapiano
- Overall aim of developing a comparative assessment of the regulatory frameworks for MAR as applied in different regions. Assessment of different approaches to address similar concerns will enable the identification of key issues for strengthening of existing regulatory frameworks.
- Current work has focused on supporting the development of a common understanding of the EU Regulatory Framework for MAR – within the EU Common Implementation Strategy for the EU Water Framework Directive.
 Guidance Document to be finalized by Q2 2022.

MAR guidelines. International comparison



https://www.acquesotterranee.net/index.php/acque/article/view/462

Next Steps

- Broadening the scope of the assessment to different regions: Europe, Americas, Middle East, Asia, Africa, Australia,
- Establishment of a Working Group to work on the comparative assessment.
- Volunteers Required (Pls send interest requests to manuel.Sapiano@gov.mt)
- Aim to host an online meeting by Q3 2022, where as an introduction the different regulatory frameworks and approaches will be presented.
- Explore possibility of a joint publication presenting eventual results of assessment.







9. Urban MAR – Niels Hartog





https://dinamar.tragsa.es/pdf/GIAE%20English.pdf

10. MAR in Conferences. Daniela Benedicto / Tine te Winkel.



- Aims at assist conference organizers with the integration of MAR into the conference programmes.
- Also, to disseminate the principles of MAR in seminars or webinars.
- Started in 2020 possibility of a training during the 47th IAH congress in São Paulo-BR.



10. MAR in Conferences.



MAR in conferences



- Latest update:
- Presentation at the 8th African Water Week Sand Dams: a Highly Promising Adaptation Measure in Semi arid conditions
- Plenary session MAR in Africa online session
- Unfortunately, due to the high costs, a no-go to Stockholm Water Week, August 2022



10. MAR in Conferences.



48th IAH Conference



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

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

4- Progress reports and plans CoPs 11. Italian Network on MAR (CoP) Rudy Rossetto (slides)

Activities 2020/2022

- -1-day course in 2020 (pre-covid) on **Design and operating a Managed Aquifer Recharge scheme** (60 participants)
- -Online course (16 hours) in 2021 on MAR scheme design was given (within the EU LIFE REWAT project, 40 participants) to technicians of water authorities in REGIONE TOSCANA (Italy) along with water utilities and pratictioners. *Participants developed 6 preliminary projects*One of this project entered now in tier two design phase.
- -A Video for SUPERQUARK scientific programme was shooted in March and broadcasted in July 2021 on RAI 1 prime time (approx 2 M persons visualising it)





Italian Network on MAR

Activities 2020/2022

Growing interest on the topic in Italy, giving also the number of scientific papers published by Italian researchers (about 10 papers in 2020/21 in indexed journals).

Site visits at MAR scheme with (masked) students





4- Progress reports and plans of Working Groups



12. Latin-MAR Community of Practise. Adriana Palma





GOAL:

"Establish a mechanism to promote managed aquifer recharge interdisciplinary participation focused on project development, execution and knowledge transfer in Latin America". In May 2019 during the International Symposium on Managed Aquifer Recharge 10, delegates from Brazil, Chile, Costa Rica, México and Perú initiated the formation of a working group to establish a Community of Practice for managed aquifer recharge in the Latin American region. One of the first objectives identified by the Community of Practice was to further the work led by Dr. José Bonilla (Costa Rica), to update the global MAR inventory on the IGRAC platform with details of projects in Latin America.

As a result of these discussions and follow up communications, a second meeting was convened in Santiago de Chile supported by the Council on Australia Latin America Relations to formally establish a "Latin American Managed Aquifer Recharge (MAR) Community of Practice" (LatinMAR)



We have develop this activities:

- Virtual meetings to follow up with activities related to LATINMAR
- **Seminar:** "Managed aquifer recharge in Latin America: Experiences and challenges"
- We propose that the LatinMAR Community of Practice be represented by the foundational steering committee composed of representatives of different Latin American countries and a coordinator, each serving 2 years
- We are planning a virtual seminar on June to change of Coordinator, this period will be Dr. José Bonilla



https://www.youtube.com/watc h?v=UIzDDBW21hw











Horario	Actividad
пре-тав	Introducción LatinAAR M. J. Adrianis Falina Nava
	Introducción Red del Águs de la UNAM Dr. farnando I. Gorsans vitareal
11:35-12:00	Webseminar Red Carrougano
	"MAII an Allesse, Son Late Rio Colombia"
12:00 - 12:20	Webseminer
	"MAFIRITICA"
12:20 - 12:40	Webseminar Edmicratic Clark
	"NAR en la seno central de Chile"
12:40 - 13:00	Webseminar Marin Sesan Malusch
	"NAF para ganaderia boond en Argentino
13:00 - 13:25	Tour Virtuel
	"Son Luis Ale Celturadis legaries de vel·lmostes y Humedal Cocapa"
13/25 - 13/30	Corre

Programa: Jueves, 15 de octubre, 2020

Aparta la fecha, pronto mandaremos link de Zoom



https://www.youtube.com/watch?v=UIzDDBW21hw





13. Australian and Chinesse Communities of Practise?



Any future WG or CoP?

MAR & Governance?
Benchmarking on MAR cases?

•••

Contact co-chairs

Enrique Fernández Escalante efernan6@tragsa.es Catalin Stefan catalin.stefan@tu-dresden.de Yan Zheng yan.zheng@sustech.edu.cn

https://recharge.iah.org/contact-us

5- Invitation to ISMAR12, 2025.

Finally, the hosting place will be revealed!!

International Symposia on MAR

- 1988 Anaheim California, USA (ASCE)
- 1994 Orlando, Florida, USA (ASCE)
- 3. 1998 Amsterdam, Netherlands (IAH, ASCE & UNESCO)
- 2002 Adelaide, Australia 4.
- " 5. 2005 Berlin, Germany
- 2007 Phoenix, Arizona, USA 6.
- " 8. 2013 Beijing, P.R. China
- 9. 2016 Mexico City, Mexico
- 2019 Madrid 10.
- **2022** Palm Beach California

2010 Abu Dhabi, UAE

2025 ... **12.**































ISMAR 2025

International Symposium on Managed Aquifer Recharge

28 April – 2 May 2025 Cape Town South Africa

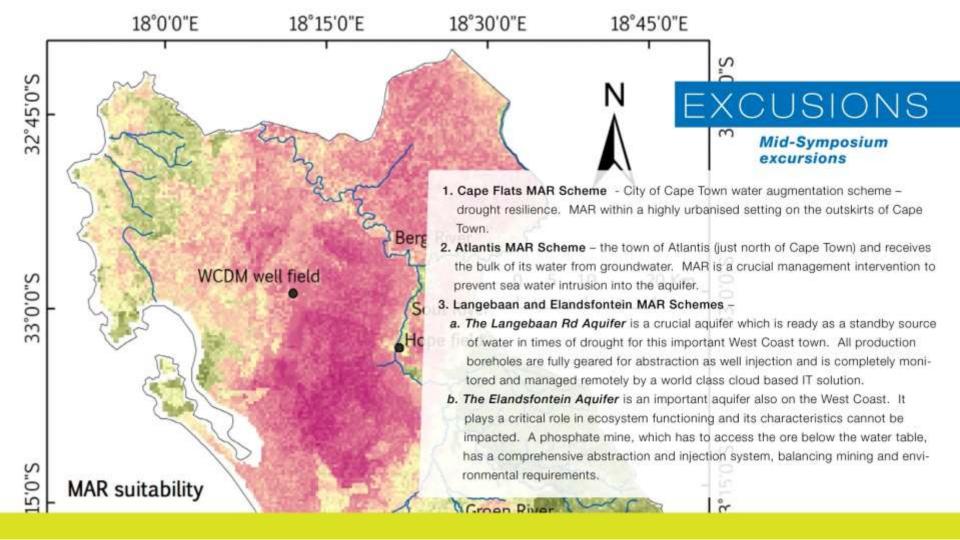
For more information please visit https://iah.org.za/



CTICC

Cape Town International Convention Centre

CTICC has become a leading events venue in Africa, hosting more than 5000 national and international events since 2003.







ISMAR 2025



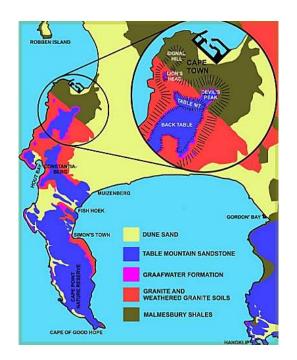


International Symposium on Managed Aquifer Recharge

28 April – 2 May 2025 Cape Town South Africa

For updates visit https://iah.org.za/

Save the date!









ISMAR 12 Cape Town, S.A.



6- Election / Re-election of IAH-MAR Co-chairs



Conducted by IAH President, Dr. Dave Kreamer

7- IAH Certificates of Appreciation



- a) current ISMAR organisers, as they obviously invest a huge amount of personal effort in promoting MAR
- b) people at (or close to) the end of their MAR career as there might not be a further chance to 'appreciate' them later
- c) people with outstanding committment to MAR promotion, regardless of above
- d) people with strong committment to MAR in the past but who got somehow 'forgotten' by previous appreciations



Adam Hutchinson - Robert Bower – ISMAR 11 TEAM

ISMAR 11 team

 Adam initiated and chaired the ISMAR 11 symposium in California in 2022 and fostered the USA network on MAR.



 Robert has been for 30 years a source of innovation and implementation of MAR and groundwater processes.



Karen Villholth

MAR activist wordwide

 Karen is a global MAR activist committed and devoted to capacity building, transboundary governance and accelerating the wise application of MAR in Africa and elsewhere.



Peter Dillon

Soul of the IAH-MAR Commission

- Peter has been a true inspiration for many generations, and the soul of the IAH-MAR Commission.
- His contribution to the MAR Community is out of ranks.



Sharon Megdal

Special issue journals from ISMARs. Developer

 Sharon has co-edited and provided significant contributions to several special issues arising from ISMAR symposia, and she is a champion in developing MAR policy and governance.



Thomas Grischek

 Thomas dedicated almost his entire career to the development of riverbank filtration schemes and their implementation at many locations worldwide. Entire career to RBF development





Networking opportunities

UPCOMING EVENTS

3rd International Riverbank Filtration Conference International Congress Center







Highlights

- Showcase current research and experiences on RBF worldwide
- Selected talks and posters based on peer-review of abstracts
- Experiences from operators and managers of RBF schemes
- Special issue in a peer-reviewed international journal
- Experience Dresden's rich history, culture and sights

- 13 to 15 June 2023 in ICC, Dresden
 - Day 1 & 2 (13. & 14.06.): conference in ICC
 - Day 3 (15.06.): excursion/ field visit to a RBF waterworks

Conference topics

- Clogging and hydraulic aspects of RBF schemes
- Design, operation and management of RBF schemes
- Numerical modelling aspects related to RBF
- Water quality aspects of RBF
 - OMPs, emerging & organic pollutants
 - Pathogens & microbiology
 - Inorganic pollutants
 - Innovative monitoring techniques
- Investigation techniques & selection of new RBF sites
- Worldwide RBF case-studies
- Post-treatment of RBF schemes
- Environmental & social impact and sustainability of RBF schemes
- Economic & policy aspects of RBF schemes



3nd International Summer School on MAR

Dresden, Germany, 23.08 – 03.09.2021

Organised by



Sponsored by



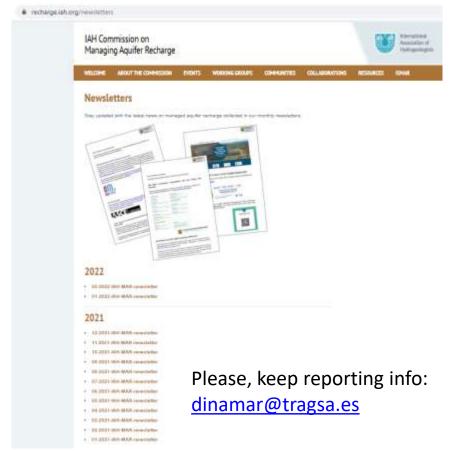


Partners















On going or recently finished MAR or MAR-related projects

Ongoing research activities

RESEARCH & COOPERATION PROJECTS





Managed Aquiter Recharge Solutions Training Network (Mar 2019 – Feb 2023)

www.marsolut-itn.eu

Coordinator: Christoph Schüth, Darmstadt Technical University, Germany. schueth@geo.tu-darmstadt.de.

Project website: https://www.marsolut-itn.eu.

MARSoluT is a four-year Marie Skłodowska-Curie Actions (MSCA) Innovative Training Network (ITN) funded by the European Commission. MARSoluT intends to tackle specific technical challenges in the operation of Managed Aquifer Recharge (MAR) sites on a scientific basis, specifically: a) chemical, biological and hydraulic processes resulting in clogging and reduction of infiltration rates; b) hydrogeochemical processes affecting the water quality, with special focus on micropollutants; c) performance monitoring and modelling, including reactive transport models to predict the fate of pathogens and emerging pollutants, and d) implications of the processes mentioned above on the technical design of MAR projects in the frame of regional flow models and water management plans. MARSoluT intends, at the same time, to train a significant number (12) of Early Stage Researchers (ESRs) to become experts in the application of MAR in the frame of an Integrated Water Resources Management.

The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation programme under The Marie Skłodowska-Curie grant agreement no. 814066

Thank you Dr. Daniel Kurtzman for reporting

MARSoluT -12 PhD Students (and their advisors) Perform Research, Training and Networking on MAR

Kath, Faro

Regional Modelling



Marcel. Lisbon

SAT Sand-tank



Vera, Barcelona



Reactive Transport



Jose, Madrid

Climate Change



Reactive Transport



Micro-pollutants **Transport**



Clogging



Hydrochemistry changes

Gera. Tel Aviv

Predictive Modelling



Groundwater Modelling





Seawater Intrusion

Rebecca, Leipzig



SW-GW Interaction

DEEPWATER-CE



Development of an integrated implementation framework for managed aquifer recharge solutions for facilitate the protection of Central European water resources endangered by climate change and user conflict (May 2019 – April 2022)

Coordinator: Anikó Horváth, Mining and Geological Survey of Hungary. horvath.aniko@mbfsz.gov.hu

Project website: https://www.interreg-central.eu/Content.Node/DEEPWATER-CE.html.

The depletion of drinking water resources is a tremendous problem almost everywhere in the world. At the same time, there are more and more frequent heavy rains and floods, bringing huge amounts of water that we do not store. Eight DEEPWATER-CE partners are working together to build a joint water resource management strategy, including retention of excess water from periods of heavy rainfall that can be used to recharge groundwater. As part of the DEEPWATER-CE project, pilot studies will be carried out in four countries (Poland, Hungary, Slovakia, Croatia) to examine available managed aquifer recharge solutions to develop the best methods and guidelines for Central Europe and the rest of the world.

SEQUEL PROJECT



SEA region. New phase of MAR work in Vietnam.

Sequel project demonstrating and scalingup MAR in the Central Highlands of Vietnam will begin shortly; implemented by IWMI together with national partners, and supported by Tchibo Coffee



Thank you Dr. Paul Pavelic for reporting

AGREEMAR



Adaptive agreements on benefits sharing for managed aquifer recharge in the Mediterranean region"

New project on MAR feasibility mapping

WG MAR mapping-related

Project duration: July 2022 - May 2025 (36 months)

Partners from Germany, Cyprus, Tunisia, Portugal, Spain





- 1. Integrated feasibility mapping
- 2. Participatory governance framework
- 3. Validation through numerical modelling
- 4. Aquifer agreements for MAR
- 5. Participative stakeholders' engagement











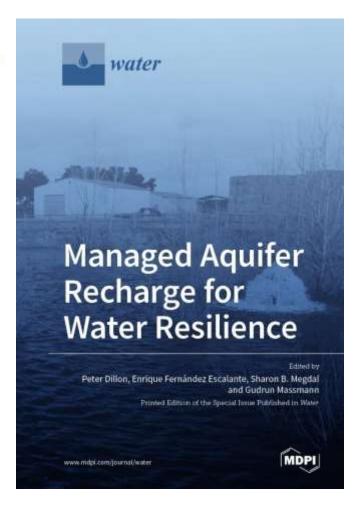
Managed Aquifer Recharge for Water Resilience

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)

https://www.mdpi.com/books/pdfview/book/3558

https://www.mdpi.com/books/pdfview/book/3558?fbclid=IwAR29Q0 MvOKpoymj8K15oLByJi2A6ZSVrlOeIHWRRu-McT2Wsu9tcaa3imS0



Post-ISMAR 10 special issue

9. Future post-ISMAR 11 Journal Water. Special issue. Call for action









an Open Access Journal by MDPI

Managed Aquifer Recharge: A key to Sustainability

Guest Editors

Dr. Enrique Fernández Escalante, Dr. Catalin Stefan, Dr. Christopher J. Brown, Dr. June Mirecki

Deadline

18 September 2022



Invitation to submit

https://www.mdpi.com/journal/water/special issues/Aquifer Recharge

Share This Special Issue









Dr. Enrique Fernandez Encalarte E Mail Weltsite SciProfiles

Traces R&D, UPW Lecturer Wff Consulter, Co-Chair IAH MAR Commission, Madrid, Spain

Interests: TVIRM: hydrogeology: technical solutions for water management, design and construction offerin Special trauss, Cufactions and Topics in MOPI journals



Dr. Catalin Stefan : E. Mail : Wohshie : SciProfiles

Research Group (NOWAS: Department of Hydrosolenous, Technische Universität Dresden, \$1069 Dresden

Interests; soil aquifer treatment (SAT); managed aquifer recharge (MAR);

Dr. Christopher J. Brown E. Mail Website Guest Editor

School of Engineering, University of North Florida, Jacksonville, FL, USA

Interests: groundwater hydrology: surface water hydraulics: peutechnical engineering, dam safety



Dr. June Wirecki E Mail Wobalts

U.S. Army Corps of Engineers-Jackson-Illa District, Jacksonvilla, FL, USA

Interests: groundwater geochemistry, geochemical modeling, groundwater quality; water-rock interactions



Special Issue Information

Waivers: 50% formula

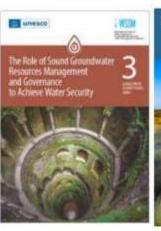


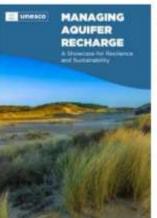
10. New publications on MAR. Short mention/presentation by authors

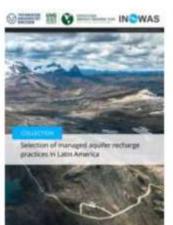
*Most of them are in the IAH-MAR 2021 memory of activities

https://recharge.iah.org/files/2022/02/IAH-MAR-memory-activities-2021.pdf





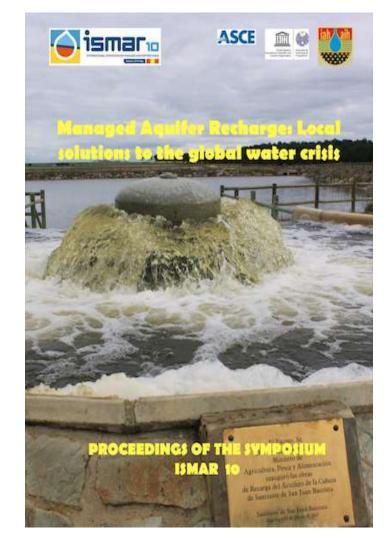


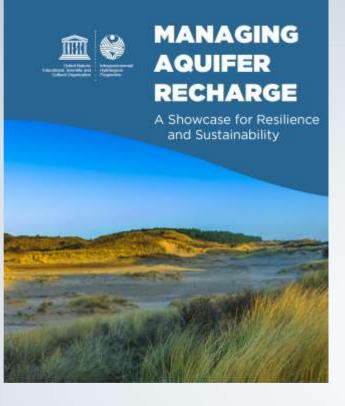






https://dinamar.tragsa.es/file.axd?file=/PDFS/IS MAR10-proceedings-book_EF.pdf





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Free Download!

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

ISMAR11 IAH-MAR COMMISSION PLENARY SESSION

GROUNDWATER: MAKING INVISIBLE VISIBLE





GROUNDWATER

Making the invisible visible

Published in 2022 by the United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France

ISBN 978-92-3-100507-7

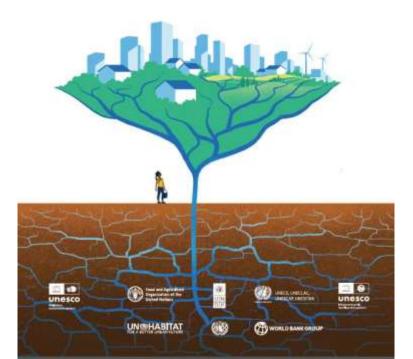
https://unesdoc.unesco.org/ark:/48223/pf000 0380721





The United Nations World Water Development Report 2022

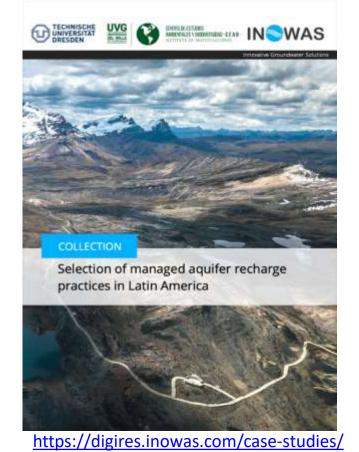
GROUNDWATER Making the invisible visible



Collection of managed aquifer recharge practices in Latin America

(available in English, Spanish and - soon- also in Portuguese)







Funded by













Opportunities for

Managed Aquifer Recharge

Second Learning Workshop for MENARID Project Managers 11-14 December 2012, Annua, Jordan

Final Report





















Upcoming: Books & Conferences

Available soon for free download via The Groundwater Project initiated by John Cherry https://gw-project.org/.



Dillon, P., W. Alley, Y. Zheng, and J. Vanderzalm (editors), in press, Managed Aquifer Recharge: Overview and Governance. The Groundwater Project, Guelph, Ontario,

Canada.



2022 World Water Week in Stockholm, Aug 23 - Sept 1 In-Person & Hybrid Session: Valuing Groundwater Two abstracts on MAR accepted



Ralf Klingbeil. *In memoriam*

BGR Former IAH Vice President and huge supporter of MAR





Professor Ramón Llamas. In memoriam

Post-mortem recognition for the trajectory of the professor, one of the fathers of the hydrogeology in Spain, and former IAH President (1984-1989).



In Memoriam: Prof. Giorgio Ghiglieri

5 Oct 2021 | IAH News

Wadis-MAR project coordinator...

Giorgio Ghiglieri, full professor of Hydrogeology and Engineering Geology at the Department of Chemical and Geological Sciences at the University of Cagliari, suddenly passed away on August 10, 2021 at the age of 58.

Giorgio achieved his degree in Geology at the University of Cagliari and the PhD degrees in Environmental Geological Engineering from the Politecnico of Torino and University of Cagliari Consortium. Giorgio had a storied career as an academic in hydrogeology at the University of Sassari, first as a researcher and then at the University of Cagliari as a full professor. He also held the position of Coordinator of the PhD in Earth and environmental sciences and technologies, where he put his experience at the service of young people, in particular in opening up to different realities, far from the usual ones. Indeed, Giorgio concentrated his research interests for more than 30 years on hydrogeology and environment, protection of aquifers from



contamination, managed aquifer recharge, salt-water intrusion, landslide hazard and desertification in Italy and Africa. He has directed numerous research projects in Sardinia and in developing countries, always involving colleagues and students.

https://iah.org/news/in-memoriam-prof-giorgio-ghiglieri



11. Suggestions for new activities

12. Call for volunteers to participate in existing and new activities

13. Information sharing on MAR

(not covered elsewhere)



International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH Commission on Managing Aquifer Recharge

https://recharge.iah.org



