

Dear Ladies and Gentlemen, dear MAR family, good day!

Please, have a look on these MAR pieces of news for 2023 July

## IAH MAR Commission Newsletter. 2023 July

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- Future Handbook of Hydrosystem Restoration (HHR) by Elsevier
- MAR in the next IWRA's World Water Congress
- 50th IAH congress. Cape Town, South Africa. September 18th to 22nd
- Confirmed: IAH 50 will have a MAR specific session
- International RBF Conference, Dresden, 16-18 October 2023. Abstract deadline July 31th.
- Second International Conference on "Water Resources Management and Sustainability: Solutions for Arid Regions", 26-28 February 2024, Dubai, United Arab Emirates
- Risorse idriche e siccità del 29/06/2023 a Torino. Water resource scarcity in times of climate crisis: issues, experiences and proposals for mitigation action. Presentations available on the Internet (In Italian and some in English).
- Successful 5 International Summer School on Managed Aquifer Recharge, MARISS, from 3 July to 14 July 2023. Dresden, Germany
- AGU Fall 2023 meeting. Dec. 11 – 15, 2023. San Francisco
- MARSOLut Webinar. July 6th
- UNAM Webinar. July 12nd
- FIRO-MAR workshop. July 20th
- Call for action: Benchmark MAR in Europe. Survey. MARWAL project
- Call for action 2. Invitation for a contribution in a new IAH Series: Technical Insight Papers
- A new thesis on MAR defended, and a new Doctor in the MAR family
- Positions for "MARers" recently published.
- New MAR-related regulation for Spain (in Spanish)
- El proyecto LIFE REMAR inicia la construcción de balsas para la recarga del acuífero del Baix Camp (in Spanish)
- Whatsapp group on Aquifer Recharge Management
- Previous IAH-MAR Newsletters
- IAH-MAR Commission on Twitter
- IAH-MAR Commission's sister Web sites
- IAH MAR Commission Forum


## MAR PUBLICATIONS

### Managed Aquifer Recharge. A key to sustainability. Journal Water special issue. Final chance to submit!

Selected papers on MAR, specially presented at ISMAR 11, are published in this Special Issue of the open-access Journal WATER.

Nine papers have already been published, one more is expected, apart from the wrap-up paper. In case you have some article prepared, probably it still might be included applying the 50% APCs discount. Let's try...

[https://www.mdpi.com/journal/water/special\\_issues/Aquifer\\_Recharge](https://www.mdpi.com/journal/water/special_issues/Aquifer_Recharge).



**Submit to Water**

Review for Water

Propose a Special Issue

**Journal Menu**

- Water Home
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**Journal Browser**

volume

issue

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➤ forthcoming issue  
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Vol. 15 (2023)	Vol. 7 (2015)
Vol. 14 (2022)	Vol. 6 (2014)
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Vol. 12 (2020)	Vol. 4 (2012)
Vol. 11 (2019)	Vol. 3 (2011)
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Vol. 9 (2017)	Vol. 1 (2009)
Vol. 8 (2016)	


### Special Issue "Managed Aquifer Recharge: A key to Sustainability"

- Print Special Issue Flyer
- Special Issue Editors
- Special Issue Information
- Keywords
- Published Papers


A special issue of *Water* (ISSN 2073-4441). This special issue belongs to the section "Water Resources Management, Policy and Governance".

Deadline for manuscript submissions: **closed (18 November 2023)** | Viewed by 12298


**Share This Special Issue**




**Special Issue Editors**




**Dr. Enrique Hernández Escalante** [E-Mail](#) [Website](#)  
**Guest Editor**  
 Trages H&D, UPV Lecturer, WB Consultant, Co-Chair IAH MAR Commission, Madrid, Spain  
**Interests:** WRM; hydrogeology; technical solutions for water management; design and construction criteria  
 Special Issues, Collections and Topics in MDPI journals



**Dr. Cabrin Stefan** [E-Mail](#) [Website](#)  
**Guest Editor**  
 Research Group INOWAS, Department of Hydrosciences, Technische Universität Dresden, 01069 Dresden, Germany  
**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; geotechnical engineering; dam safety



**Dr. Jure Mirocki** [E-Mail](#) [Website](#)  
**Guest Editor**  
 U.S. Army Corps of Engineers-Jacksonville District, Jacksonville, FL, USA  
**Interests:** groundwater geochemistry; geochemical modeling; groundwater quality; water-rock interactions

## Local Actions are Key to Progress in Reaching Groundwater Sustainability

*Some may be asking after this extremely wet water year -- how is California progressing towards sustainable groundwater management and efforts to recharge groundwater basins? Local agencies, with state support, have made tremendous progress thus far in carrying out the requirements of the Sustainable Groundwater Management Act (SGMA), and locals are continuing to make critical decisions about how to manage this vital resource beneath our feet through future extreme weather cycles...*



Read more and download:

<https://water.ca.gov/News/Blog/2023/July-23/Local-Actions-are-Key-to-Progress-in-Reaching-Groundwater-Sustainability>

Thank you Adam Hutchinson for reporting

### Westlands ramps up groundwater recharge efforts

Westlands Water District has sought to take advantage of intense storms by recharging the aquifer with more groundwater.



*Westlands Water District has recharged about 60,000 acre feet of water over the past few months as it works to take advantage of the increased water supply this year.*

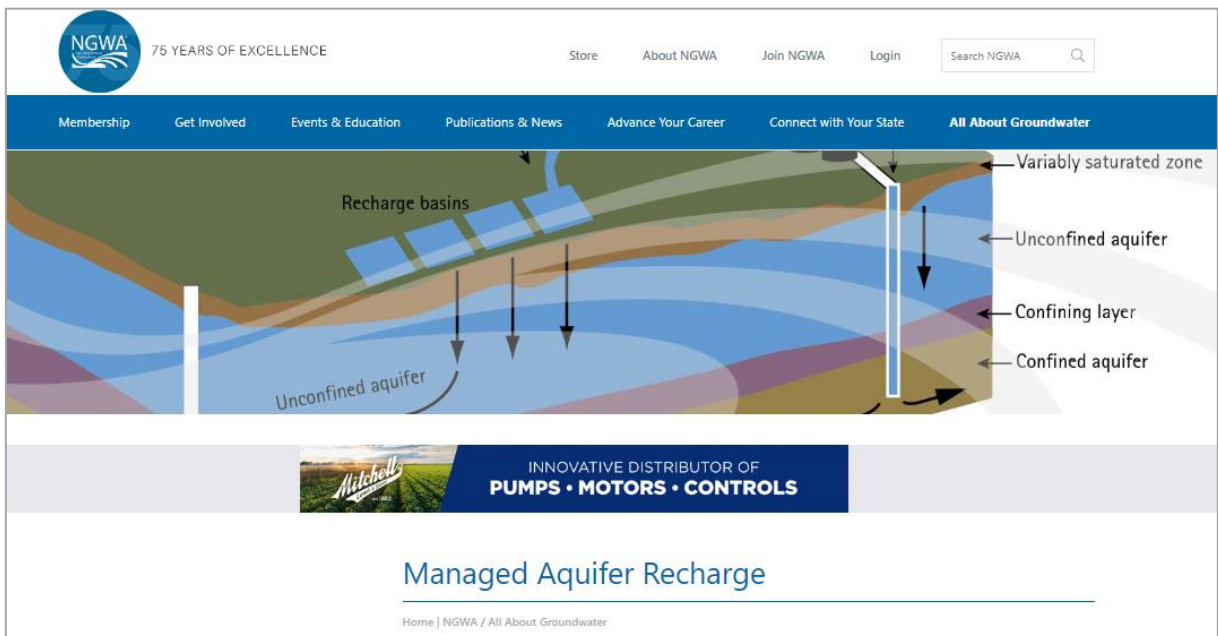
*The district released its latest data in its groundwater recharge efforts this week, detailing its work through May...*

Read more: <https://sjvsun.com/ag/westlands-ramps-up-groundwater-recharge-efforts/>

This publication is not open access.

## NGWA publications

Specific MAR chapter at NGWA website, and MAR working group.



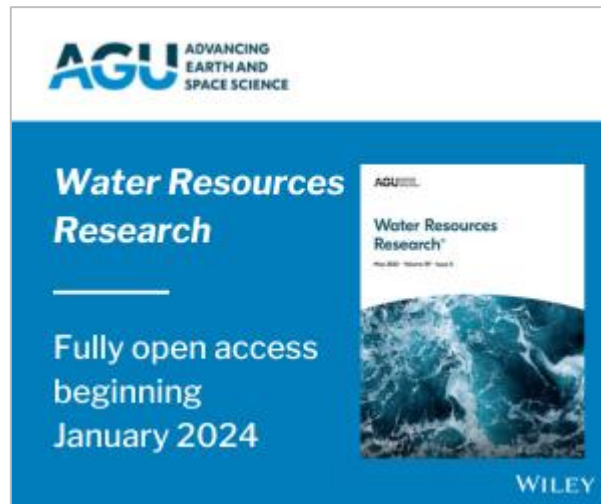
The screenshot shows the NGWA website header with the logo and "75 YEARS OF EXCELLENCE". Navigation links include Store, About NGWA, Join NGWA, Login, and a search bar. A menu bar contains: Membership, Get Involved, Events & Education, Publications & News, Advance Your Career, Connect with Your State, and All About Groundwater. Below the menu is a diagram of a cross-section of the ground showing recharge basins on the surface. Arrows indicate water flowing from the basins into the ground. The diagram labels the following layers from top to bottom: Variably saturated zone, Unconfined aquifer, Confining layer, and Confined aquifer. A banner for Mitchell's pumps is visible, stating "INNOVATIVE DISTRIBUTOR OF PUMPS • MOTORS • CONTROLS". Below the diagram, the text "Managed Aquifer Recharge" is displayed, followed by a breadcrumb trail: "Home | NGWA / All About Groundwater".

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

## AGU Water resources research

Collection of articles and special issues, generally not open access.

*Water Resources Research publishes original research articles and commentaries on hydrology, water resources, and the social sciences of water and that provide a broad understanding of the role of water in Earth's system...*




More info: <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2021WR031459>

## AGI. Managed Aquifer Recharge in California. Four examples of managed groundwater replenishment across the state.

*Under the 2014 Sustainable Groundwater Management Act, California now requires comprehensive groundwater management throughout the entire state...*

Read more...


Case Study

### Managed Aquifer Recharge in California

Four examples of managed groundwater replenishment across the state

**The Need for Groundwater Management**  
*Sustaining water supplies and preventing hazards*

In California, surface water from rainfall, snowmelt, and distant rivers rarely meets the state's urban and agricultural water needs. Groundwater is an essential water source, providing 35% of the fresh water used in California. However, when groundwater is used more rapidly than it is naturally replenished, groundwater management becomes necessary. One of the tools used by groundwater managers is managed aquifer recharge (MAR).

Aquifers, the porous rocks and sediments that hold and transmit groundwater, are naturally replenished by surface water that seeps into the ground. MAR enhances the recharge rate by creating artificial streams and ponds where water trickles into the ground, or by using wells to directly inject water underground. MAR can also be used to improve groundwater quality and prevent some of the negative consequences of groundwater depletion, like ground sinking (subsidence) or the intrusion of salty groundwater from the oceans into coastal freshwater aquifers. Because of its arid climate and large population, California is home to some of the oldest and largest MAR projects in the United States. This case study highlights four of these projects, covering almost a century of MAR and water security in California.

**Case 1: Santa Clara Valley Water District**  
*Stopping subsidence and storing water*

The land in the Santa Clara Valley, better known today as Silicon Valley, began sinking in the early 1900s as excessive groundwater removal caused the ground to compact. The Santa Clara Valley Water District was founded in the 1920s to recharge groundwater supplies and prevent further land subsidence. However, local water supplies have always been low, and despite many attempts to optimize the use of local water for aquifer recharge, groundwater depletion and subsidence continued until non-local ("imported") state and federal waters from the Sacramento-San Joaquin River Delta were made available to the district in 1965 and 1987. Since then, groundwater levels have been restored and the subsidence has largely stopped.

**Key Concepts, Defined:**

**Acre-foot:** An acre-foot of water is approximately 326,000 gallons. This is the average amount of water used each year by a five-person household in the United States, although the amount used varies depending on regional climate and water conservation practices. In California, an acre-foot is the average annual water consumption of two and a half single-family households.

**Total Aquifer Capacity:** The total aquifer capacity is the amount of groundwater that the aquifer holds when completely full.

**Minimum Operational Aquifer Level:** This indicates the amount of water that can be safely removed from the aquifer without undesirable consequences such as land subsidence.

**Target Operational Aquifer Level:** This is the optimal amount of water to have in an aquifer enough to provide a steady water supply during a prolonged drought, but with enough space to capture stormwater or excess river water in very wet years.

**Regulatory Framework and Management Matter**

The success of MAR depends not only on having a suitable aquifer, but also on having an appropriate regulatory framework and proper management.

AGI Critical Issues Program: [americanhydrogeologists.org/critical-issues](https://americanhydrogeologists.org/critical-issues)  
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Case Study 2017-002  
Written by Karja Luxon for AGI, September 2017

Download: <https://www.americangeosciences.org/geoscience-currents/managed-aquifer-recharge-california>

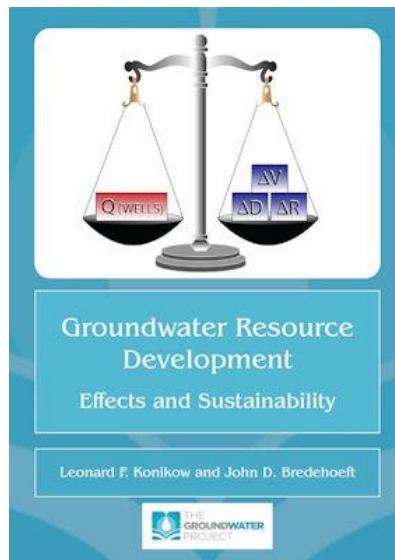
## NEW MAR-RELATED PUBLICATIONS

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### Groundwater Resource Development. Effects and Sustainability

Although it is not even a MAR-related book, it explains « the rules of the game » and might be useful for the community.

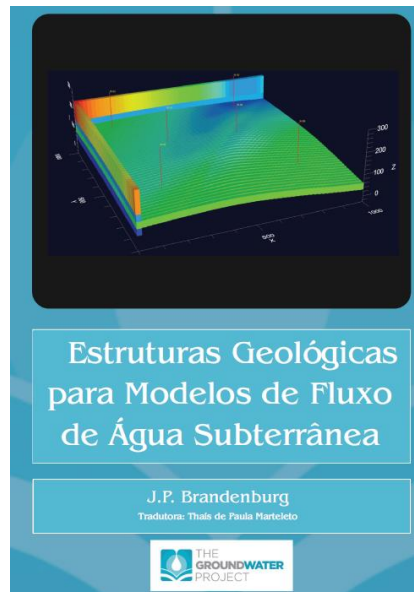
Authors: Leonard F. Konikow- United States Geological Survey, USA, and John D. Bredehoeft – The Hydrodynamics Group, LLC., USA. Publication year: 2020. Number of pages: 96. ISBN: 978-1-7770541-4-4. Updated: 6 July 2023.



Download: <https://gw-project.org/books/groundwater-resource-development/>

### Estruturas Geológicas para Modelos de Fluxo de Água Subterrânea (in Portuguese)

It is of the same collection than the previous one.



Download: <https://gw-project.org/download/geologic-frameworks-for-groundwater-flow-models-in-portuguese/#>

## Future Handbook of Hydrosystem Restoration (HHR) by Elsevier

Elsevier is beginning to produce four volumes on hydrogeology and MAR.

### *Vol. 1: Streamflow Recharge (SFR) and Lake Rehabilitation (LR)*

1. An Introduction to Stream Rehabilitation Planning-FILLED 2. Stream Rehabilitation Concepts-FILLED 3. Stream Morphology Changes under Climate Changes-FILLED 4. Stream Morphology Changes under Climate Changes-FILLED 5. Best Management Practice in Streams I-FILLED 6. Best Management Practice in Streams II-FILLED 7. Best Management Practice in Streams III, FILLED 8. Anthropogenic Impact on Wetland Ecosystem, FILLED 9. Anthropogenic Impacts on Lake and Stream Ecosystems, FILLED 10. SFR Case Studies in Africa 11. SFR Case Studies in Australia 12. SFR Case Studies in China 13. SFR Case Studies in Eurasia 14. SFR Case Studies in India-FILLED 15. SFR Case Studies in MENA Countries 16. SFR Case Studies in USA and Canada 17. SFR Case Studies in Zayandehrud River, Iran-FILLED 18. SFR Case Studies in Urmia Lake, Iran-FILLED 19. Current Challenges and Future Strategies-FILLED 20. SFR Case Studies in Karstic Watersheds 21. Lake Rehabilitation Examples across the World-FILLED 22. Assessment of Site Suitability For Surface Water Retention and Spring Shed Rejuvenation Using Geospatial Techniques: A Case Study of Mizoram State-FILLED 23. SFR Case Studies in South America

### *Vol. 2: Groundwater Natural Recharge (GNR)*

1. An Introduction to GNR-FILLED 2. Ecohydrological Models for Estimating Soil Moisture-FILLED 3. Aquifer Storage and Recovery-FILLED 4. Water Productivity Enhancement using GARC-FILLED 5. Groundwater Vulnerability to Climate Change-FILLED 6. Groundwater Vulnerability to Climate Change-FILLED 7. Groundwater Vulnerability to Climate Change-FILLED 8. Groundwater and Surface Water Interaction-FILLED 9. Groundwater and Surface Water Interaction-FILLED 10. Remote Sensing Data to Model Groundwater Recharge Potential-FILLED 11. GNR from River-FILLED 12. GNR from Irrigated Cropland-FILLED 13. Global GNR in Semiarid and Arid regions-FILLED

14. Groundwater Dam-FILLED 15. Karst Watersheds: Advantages and Disadvantages  
16. Snow Hydrology and GNR 17. Application of Soft-Computing for GNR Modeling and Estimation  
18. Future Perspective of Semi-Arid and Arid Regions-FILLED 19. Case Studies on GNR in Inland Area-FILLED  
20. Case Studies on GNR in Coastal Area-FILLED 21. Beneath the Surface: Assessing Paleochannels as Pathways for Groundwater Recharge - A Saraswati River Case Study-FILLED

*Vol. 3: Groundwater Artificial Recharge with Conventional Water (GARC)*

1. Three-R: Recharge, Retention and Reuse of Water-FILLED 2. GARC Management for Sustainability-FILLED  
3. Assessment of GARC Using GIS 4. Conceptual Modeling of GARC 5. Water Spreading Systems  
6. Water Banking with GARC 7. Water Harvesting Systems and GARC-FILLED 8. Water Harvesting Systems and GARC-FILLED  
9. Water Productivity Enhancement using GARC-FILLED 10. Traditional Groundwater Recharge Techniques-FILLED  
11. Innovations in Groundwater Recharge Techniques-FILLED 12. IWRM and GARC-FILLED  
13. Management of GARC and Discharge for Aquifer Storage Equilibrium 14. Methodological Surveys for Estimation of GARC  
15. Planning Various GARC Schemes 16. Classification Methods for Ranking the appropriate Locations for GARC  
17. Future Trends in GARC 18. Case Studies on GARC in Inland Area 19. Case Studies on GARC in Coastal Area--FILLED

*Vol. 4: Groundwater Artificial Recharge with Unconventional Water (GARU)*

1. An Introduction to Unconventional Water 2. Standard Guidelines for GARU, FILLED 3. AGR with Reclaimed Municipal Wastewater-FILLED  
4. Geochemistry and Qualitative Aspects of GARU 5. Risk Assessment in GARU 6. Water Reuse and Groundwater Augmentation-FILLED  
7. Water Reuse and Groundwater Augmentation, FILLED 8. Unconventional Water and Groundwater Vulnerability-FILLED  
9. Vetiver Potential for Increasing GARU 10. Induced Infiltration and GARU  
11. GARU: Global Opportunities and Challenges 12. Intelligent Sensory Technology and Restoration Monitoring (GARU, GARC, GNR, SFR and LR)-FILLED  
13. Public Consultation on using GARU  
14. Farmland Drainage Water and Suitability Assessment for GARU  
15. Microbiological Assessment and GARU-FILLED  
16. Overlook of GARU in a Changing Climate-FILLED  
17. Case Studies on GARU in Inland Area  
18. Case Studies on GARU in Coastal Area-FILLED

In case you are interested in an open contribution, please, contact: [pr.saeid.eslamian@gmail.com](mailto:pr.saeid.eslamian@gmail.com)

## **MAR AND MAR-RELATED CONFERENCES AND SEMINARS**

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### **MAR in the next IWRA's World Water Congress**

This September 11<sup>st</sup>, during the IWRA world water conference, will take place a specific session on MAR: *Managed Aquifer Recharge: A Proven Technology to Improve Water Security*. From 15 to 16:30, local time.





Guosheng Ballroom 300 m <sup>2</sup>	
Room 8	
Special Session 2	
Managed Aquifer Recharge: A Proven Technology to Improve Water Security	SS-1-4 Danish Environmental Protection Agency (DEPA)

More info: <https://www.worldwatercongress.com>

**50<sup>th</sup> IAH congress. Cape Town, South Africa. September 18<sup>th</sup> to 22<sup>nd</sup>  
Confirmed: IAH 50 will have a MAR specific session**

Under the title "Groundwater: A Matter of Scale" the next IAH Congress will take place in Cape Town, South Africa, in September, 18-22.



Daniela Benedicto and Kevin Pietersen will chair the MAR session. All the Mar and MAR-related papers are organized to obtain the best from this future MAR session. Please, do not miss it!!!

Submitted abstracts:

#	ID	Sub theme	Abstract title	Country	1 <sup>st</sup> author
1	169	MAR	Mitigating climate change with managed aquifer recharge: 5 Case Studies	South Africa	<i>Danita Hohne</i>
2	120	MAR	Managed Aquifer Recharge as a strategy for increased water supply security in Eastern Botswana	Botswana	<i>Jonathan Stromgren</i>
3	261	MAR	Aquifer storage and recovery (ASR) applications to enhance drinking water supply security in the Sultanate of Oman	Oman	<i>Harmen van den Berg</i>
4	392	MAR	Interpretation of groundwater modelling scenarios for managed aquifer recharge (MAR), Langebaanweg, South Africa.	South Africa	<i>Anelkha Nicholls</i>
5	112	MAR	The impact of storage and hydrogeological conditions on the design and recovery performance of small-scale urban ASR systems	Netherlands	<i>Niels Hartog</i>
6	244	MAR	MANAGED AQUIFER RECHARGE (MAR) SUITABILITY MAPPING USING GIS-MCDA: THE SOUTH AFRICAN PERSPECTIVE	South Africa	<i>by Lebogang Nhleko</i>
7	146	Artificial recharge	Evaluation of the impact of artificial recharge of groundwater by river replenishment in the North China Plain using numerical model	China	<i>Qichen Hao</i>
8	391	MAR/ Governance	Benefits and costs of managed aquifer recharge: an integrated water governance solution	15 countries	<i>Andrew Ross</i>
9	295	MAR	Salinity limit of waters to be used for Managed Aquifer Recharge at the Langebaan Road Aquifer, West Coast (Western Cape – South Africa)	South Africa	<i>Melinda Nongqoba</i>
10	147	MAR	Optimizing managed aquifer recharge in coastal dunes by extracting brackish groundwater: results of a field pilot in the Netherlands	Netherlands	<i>Gertjan Zwolsman</i>
11	306	MAR	Hydrochar or biochar amendments to increase the retention of organic micropollutants and pathogens in managed aquifer recharge systems (MAR)	(Not mentioned ) Denmark/South Africa	<i>Ulla E. Bollmann</i>
12	43	Artificial recharge	Experiments of artificial-recharge rate of sand and gravel aquifer through shallow recharge wells in Chao Phraya River basin region	Thailand	<i>Kwankwaj Daranond</i>
13	409	MAR	Assessment of Water Supply Security and Sustainability of Managed Aquifer Recharge in Botswana	Botswana	<i>Andreas Lindhe</i>
14	143	MAR	Electrical Hydrogeology of Managed Aquifer Recharge from Meter to Kilometer Scales	USA	<i>Todd Hallihan</i>
15	256	MAR	Planning for increased water security and preventing salinisation in coastal areas of the Netherlands: A study on the suitability for managed aquifer recharge and extraction of brackish water, including quantification of potential extractable volumes.	Netherlands	<i>Ida de Groot-Wallast</i>
16	225	MAR	Integrated and conjunctive Reservoir and Aquifer Management to improve water security in the Elqui Basin, Chile	Chile	<i>Marta Faneca Sanchez</i>
17	170	MAR	Managed Aquifer Recharge within the Greater Kruger National Park and Implementation of Recharge Scheme	South Africa	<i>Michael Holloway</i>

More info: <https://iah2023.org.za/> (The MAR session's program has not been published yet).  
Visit the last conference's newsletter: [https://iah2023.org.za/wp-content/uploads/2021/11/IAH\\_Conference\\_Newsletter\\_No3.pdf](https://iah2023.org.za/wp-content/uploads/2021/11/IAH_Conference_Newsletter_No3.pdf)

## **International RBF Conference, Dresden, 16-18 October 2023. Abstract deadline July 31<sup>th</sup>.**

Bank filtration / riverbank filtration (BF/RBF) is an element of managed aquifer recharge and has been used by riverside communities for many decades as a natural water treatment process. RBF forms part of a multi-barrier approach to drinking water supply at numerous sites. With a growing and conscious use worldwide...

**RBF CONFERENCE**  
Dresden, Germany  
16 to 18 October 2023

**Organizers**  
The conference is organized by the Division of Water Sciences of the University of Applied Sciences Dresden. It is co-funded by the Federal Ministry of Education and Research of Germany as an activity of the project CCRBF: Expansion of the Indo-German Competence Centre for Riverbank Filtration in the CONNECT program (BMBF grant no. 01DU20003).



**CONNECT**  
Education Research Innovation



**INTERNATIONAL RIVERBANK FILTRATION CONFERENCE**  
**DRESDEN, GERMANY**

16 to 18 October 2023  
at  
**MARITIM HOTEL DRESDEN - INTERNATIONAL CONGRESS CENTER**



Hochschule für Technik und Wirtschaft Dresden  
University of Applied Sciences

**HTW****D**

**Venue**  
Maritim Hotel Dresden - International Congress Center  
Deutzenstraße 10 - 12/Ostra-Ufer  
01067 Dresden  
<https://www.maritim.com>

**Contact**  
Dr.-Ing. Cornelius Sandhu  
Prof. Dr.-Ing. Thomas Grischek  
[rbfconf@htw-dresden.de](mailto:rbfconf@htw-dresden.de)  
<http://www.htw-dresden.de/rbfconf>

Hochschule für Technik und Wirtschaft Dresden  
University of Applied Sciences  
Friedrich-List-Platz 1  
01069 Dresden  
<http://www.htw-dresden.de>

**Abstracts** (free format) for oral/poster presentations can be sent **before 31 July 2023** to: [rbfconf@htw-dresden.de](mailto:rbfconf@htw-dresden.de).

More info: [www.htw-dresden.de/rbfconf](http://www.htw-dresden.de/rbfconf) and [https://www.htw-dresden.de/fileadmin/HTW/Fakultaeten/Bauingenieurwesen/RBF\\_Conference\\_2023\\_Flyer.pdf](https://www.htw-dresden.de/fileadmin/HTW/Fakultaeten/Bauingenieurwesen/RBF_Conference_2023_Flyer.pdf).

**Second International Conference on “Water Resources Management and Sustainability: Solutions for Arid Regions”, 26-28 February 2024, Dubai, United Arab Emirates**

**UAEU** المركز الوطني للمياه والطاقة  
National Water and Energy Center

جامعة الإمارات العربية المتحدة  
United Arab Emirates University

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2<sup>nd</sup> International Conference

# Water Resources Management & Sustainability: Solutions for Arid Regions





The conference includes a sub-theme entitled:  
**Advanced Technologies in Water Resources Management**  
*(Large Scale Water Management, ASR, MAR)*

Submission deadline: Sep 1<sup>st</sup>, 2023.

More info: <https://conferences.uaeu.ac.ae/warms2024/en/index.shtml>

Thank you Dr. Mohsen Sherif for reporting.

## SEMINARS AND WEBINARS

**Risorse idriche e siccità del 29/06/2023 a Torino. Water resource scarcity in times of climate crisis: issues, experiences and proposals for mitigation action. Presentations available on the Internet (In Italian and some in English).**

The organizers have shared the presentations exposed in the seminar:



**LA SCARSITA' DELLA RISORSA IDRICA IN PERIODI DI CRISI CLIMATICA: PROBLEMATICHE, ESPERIENZE E PROPOSTE DI INTERVENTI DI MITIGAZIONE**

**SEDE: AULA MAGNA "TULLIO REGGE"**  
Dipartimento di Fisica dell'Università di Torino,  
Via Pietro Giuria, 1 – 10125 TORINO

**ORARIO DALLE 9 - ALLE 13:30**

MODALITA' DI SVOGIMENTO: IN PRESENZA, FINO A ESAURIMENTO CAPIENZA DELLA SALA OSPITANTE

**MAGGIORI DETTAGLI e MODULO DI ISCRIZIONE**  
sul sito [www.geologi piemonte.it](http://www.geologi piemonte.it)

**ORGANIZZATORI:**  
DIPARTIMENTO DI SCIENZE DELLA TERRA,  
UNIVERSITA' DI TORINO  
ORDINE DEI GEOLOGI DELLA  
REGIONE PIEMONTE

**LA SCARSITA' DELLA RISORSA IDRICA IN PERIODI DI CRISI CLIMATICA: PROBLEMATICHE, ESPERIENZE E PROPOSTE DI INTERVENTI DI MITIGAZIONE**  
**TORINO - GIOVEDI' 29 GIUGNO**  
Presso il Dipartimento di Fisica dell'Università di Torino  
Aula Magna "Tullio Regge" via Pietro Giuria,1

**PROGRAMMA**  
8.30 - 9.00: Registrazione partecipanti  
**PRIMA PARTE 9 – 11.10:** Moderatore: UGO DE LA PIERRE

**9.00 - 9.30: SALUTI E INTRODUZIONE LAVORI**  
**9.30 - 13.30: CONTRIBUTI SCIENTIFICI**  
9.30 - 9.50: SECONDO BARBERO - *Direttore Arpa Regione Piemonte. "L'IMPATTO DEI CAMBIAMENTI CLIMATICI SULLA RISORSA IDRICA: I RECENTI EVENTI SICCIOSI E GLI SCENARI FUTURI"*  
9.50 - 10.10: DOMENICO ANTONIO DE LUCA - *Professore Associato, Dipartimento Di Scienze Della Terra, Università Di Torino. "RUOLO E GESTIONE DELLE ACQUE SOTTERRANEE NEGLI SCENARI DI CRISI"*  
10.10 - 10.30: PAOLO SEVERI, IMMACOLATA PELLEGRINO - *Funziario Servizio Geologico, Sismico e dei Suoli della Regione Emilia-Romagna. "LA RICARICA ARTIFICIALE DELLE FALDE IN EMILIA-ROMAGNA"*  
10.30 - 10.50: RUDY ROSSETTO - *Ricercatore presso la Scuola Superiore Sant'Anna di Pisa. "PROGETTAZIONE ED ESERCIZIO DEGLI IMPIANTI DI RICARICA DELLE FALDE IN CONDIZIONI CONTROLLATE AI SENSI DEL DM 100/2016"*  
10.50 - 11.10: DISCUSSIONE  
11.10 - 11.30: PAUSA CAFFE'  
**SECONDA PARTE 11.30 – 13.15:** Moderatore: SUSANNA MANCINI

**11.30 - 11.50: ENRIQUE FERNANDEZ ESCALANTE –** *Idrogeologo Senior presso Grupo Trausa (Madrid) And Technical University Of Madrid Msc. Lecturer. "WATER SECURITY INCREASEMENT AND CLIMATE CHANGE ADAPTATION BY MEANS OF MANAGED AQUIFER RECHARGE. OVERVIEW OF DEMONSTRATIVE SITES AND LESSON LEARNED" ("Incremento della sicurezza idrica e adattamento ai cambiamenti climatici attraverso la ricarica controllata degli acquiferi, panoramica dei siti dimostrativi e delle lezioni apprese")*  
**11.50 - 12.10: DAVIDE MURGESE –** *Professionista presso Seacoop Stp Torino. "PROGETTARE BACINI DI RICARICA DELLE FALDE IDRICHE COME STRATEGIA DI ADATTAMENTO AI CAMBIAMENTI CLIMATICI. SOLUZIONI A SCALA INTERCOMUNALE. FATTIBILITA' TECNICA E URBANISTICA"*  
**12.10 - 12.30: PATRIZIA ERCOLI e CAMILLA LUZZOLINO –** *Dirigente e Funziario dell'Area Tutela e Gestione Acque della Regione Emilia-Romagna. "GESTIONE DELLA RISORSA IDRICA, STRATEGIE DI ADATTAMENTO CLIMATICO E MISURE DI MITIGAZIONE PER LE SITUAZIONI DI SCARSITA': SOLUZIONI PER ALIMENTARE E DIVERSIFICARE LA DISPONIBILITA' DI RISORSA"*  
**12.30 - 12.50: MAURO FALCO –** *Funziario Direzione Ambiente, Energia e Territorio Settore Tutela Acque della Regione Piemonte. "POSSIBILITA' TERRITORIALI E NORMATIVE ALL'UTILIZZO DEI "LAGHI DI CAVA" PER L'ATTINGIMENTO DELLE ACQUE SOTTERRANEE A FINI IRRIGUI"*  
12.50 - 13.15: DISCUSSIONE  
**FINE LAVORI**

**DIPARTIMENTO DI SCIENZE DELLA TERRA,  
UNIVERSITA' DI TORINO**  
**ORDINE DEI GEOLOGI DELLA  
REGIONE PIEMONTE**

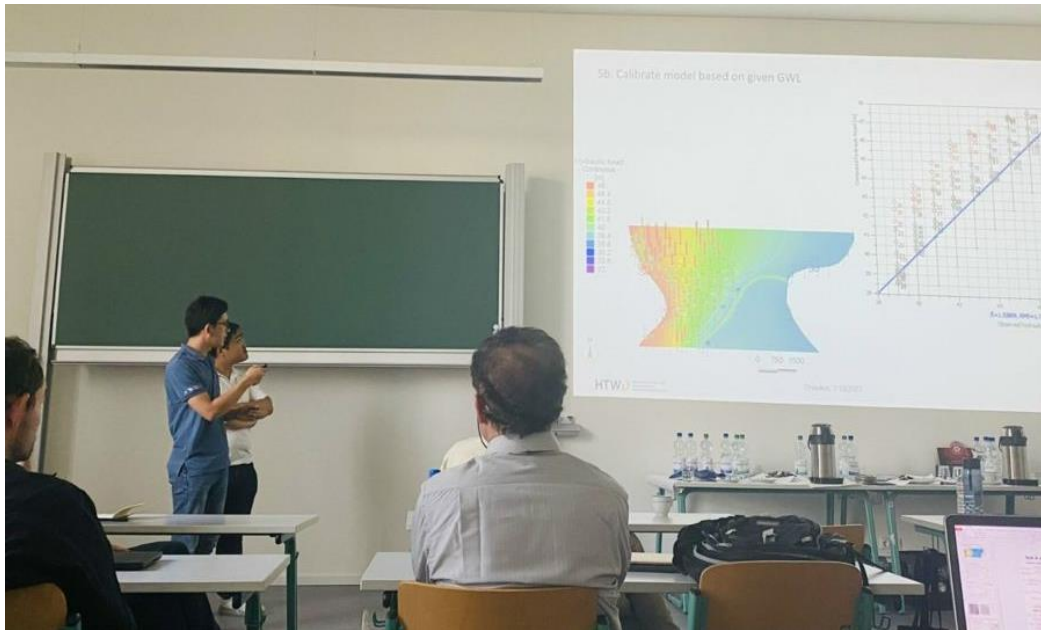
Access to the presentation:

[https://drive.google.com/file/d/1Dqwa3\\_bTxmD0EDgSrc1ph5PmL6fXoRGY/view](https://drive.google.com/file/d/1Dqwa3_bTxmD0EDgSrc1ph5PmL6fXoRGY/view)

Thank you Ugo De la Pierre and Susanna Mancini for reporting.

**Successful 5 International Summer School on Managed Aquifer Recharge, MARISS, from 3 July to 14 July 2023. Dresden, Germany**

Congratulations to all the “MARers” involved in the 5<sup>th</sup> MARISS conference.



Thank you organizers for keep pushing MAR worldwide! ☺

More info: <https://bit.ly/3BbeVzB>

Program of the course:

[https://www.htw-dresden.de/fileadmin/HTW/Fakultaeten/Bauingenieurwesen/MARISS\\_2023.pdf](https://www.htw-dresden.de/fileadmin/HTW/Fakultaeten/Bauingenieurwesen/MARISS_2023.pdf)

Summer schools in Europe: <https://www.summerschoolsineurope.eu/course/14306/managed-aquifer-recharge-mariss>

## **AGU Fall 2023 meeting. Dec. 11 – 15, 2023. San Francisco**

We would like to invite you to submit an abstract to the AGU Fall 2023 meeting session H040. Climate proofing our water supply through upscaling managed aquifer recharge. The AGU Fall 2023 meeting will take place between Dec. 11 – 15, 2023 in San Francisco in person and on line anywhere. Abstract is due by Aug. 1, 2023, and the link to submit is: <https://agu.confex.com/agu/fm23/prelim.cgi/Session/185164>

We look forward to interacting with you along with our invited speakers:

William M. Alley, National Ground Water Association

Dave Owen, University of California, Hastings College of the Law

Paula Rodriguez Escales, Universitat Politècnica de Catalunya

# AGU23

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### H040 - Climate proofing our water supply through upscaling managed aquifer recharge

[Submit an Abstract to this Session](#)

#### Session H040 Description:

Unchecked groundwater use has resulted in overexploitation, pollution, and unintended consequences such as fundamental changes in the hydrological cycle, loss of groundwater-dependent ecosystems, and land subsidence. Managed Aquifer Recharge (MAR), the purposeful recharge of water to aquifers for subsequent recovery or environmental benefit, has emerged as an important tool for achieving groundwater sustainability. This session calls for cross-disciplinary contributions that will enhance the scientific evidence to allow for upscaling of MAR in light of substantial challenges in water quantity and quality, as well as governance, with topics including but not limited to:

- MAR technologies adaptive to the widespread presence of contaminants, including synthetic chemicals and emerging novel biological entities, in source water;
- Water quantity studies sensitive to ecosystem needs for water in a changing climate;
- Regulatory frameworks for water-supply management and human-health protection;
- Criteria for environmental, social, and economic sustainability of MAR.

#### Session Conveners,

Yan Zheng, Southern University of Science and Technology  
Helen E Dahlke, University of California Davis  
Scott Alan Bradford, USDA, ARS, US Salinity Laboratory  
Dave Owen, University of California, Hastings College of the Law

## WEBINARS

PAST WEBINARS ON MAR. Former announces:

MARSOLut Webinar. July 6<sup>th</sup>



**WATER RESOURCES AND ENVIRONMENT**  
**WEBINARS 2023**  
**EXPERIMENTAL STUDIES ON WATER QUALITY ISSUES RELATED TO MANAGED AQUIFER RECHARGE SOLUTIONS\***

**Edinsson Muñoz Vega**  
 Civil Engineer, M.Sc. U. de Chile  
 Ph.D.(c), Early Stage Researcher  
 MARSokuT project  
 Institute of Applied Geosciences,  
 Technische Universität Darmstadt,  
 Germany

English July 8th 16:00 PM (UCT-4) Online

QR code, SDG 13 Climate Action, Live streaming on [Youtube.com/dicuchilecfm](https://www.youtube.com/dicuchilecfm)

\*Contributed to the Sustainable Development Goals

UNAM. July 12<sup>nd</sup>



**WEBINAR RECARGA ARTIFICIAL DE ACUÍFEROS**  
 Organiza: Centro Regional para la Gestión de Aguas Subterráneas en América Latina y el Caribe (CeReGAS)



**Miércoles 12 de julio a las 11:00 (hora Uruguay / GMT-3)**

- Manejo de la Recarga de Acuíferos – Dra. Adriana Palma Nava**  
*Coordinadora del Grupo de Análisis de Recarga Gestionada de Acuíferos - Red del Agua de la Universidad Nacional Autónoma de México*
- Soluciones Ancestrales Basadas en la Naturaleza para la Recarga Gestionada de Acuíferos – Dr. Sergio Martos Rosillo**  
*Investigador - Instituto Geológico y Minero de España del Consejo Superior de Investigaciones Científicas*

Inscripción: <https://zoom.us/meeting/register/tJEpfuGpgjsoGdK3DtovwllLXOf13W7PKgz>

Luego de la inscripción, recibirá un correo electrónico de confirmación con información para unirse al seminario web

FIRO-MAR workshop. July 20<sup>th</sup>







\*MARWAL: Managed Aquifer Recharge for the aquifers of Wallonia  
([https://www.uee.uliege.be/cms/c\\_10264166/fr/projet-marwal](https://www.uee.uliege.be/cms/c_10264166/fr/projet-marwal))

The coordinator has announced he will share the results of the survey with all those who have contributed. We encourage your participation.

## Call for action 2. Invitation for a contribution in a new IAH Series: Technical Insight Papers

Marco Petitta, IAH Vice President of IAH for Programme & Science Coordination, has invited our Commission to participate in a new IAH Series: Technical Insight Papers. Co-chairs will try and make it. In case any other member in the group is interested, please, contact.

*The IAH Executive Council intends to launch a new series of strategic papers, in addition to the existing SOS papers (<https://iah.org/education/professionals/strategic-overview-series>).*

*We are interesting in producing a similar short paper series, but more oriented in technical issues respect with the "social" ones adopted for the SOS series.*

*The (provisional) name of this new series is Technical Insight Papers. We are contacting you, the chairs of the GW Quality Commission and of the MAR Commission, taking into account your outstanding contribution and powerful activity among the IAH Commissions...*

**MENSAJES CLAVES**

Las aguas subterráneas constituyen un excelente "amortiguador" frente a la variabilidad climática de los almacenamiento del agua superficial favoreciendo así la adaptación al cambio climático, debido a las enormes capacidades de almacenamiento de las mismas.

**¿Cómo se relacionan el cambio climático y el uso de la tierra a nivel global con las aguas subterráneas?**

Las aguas subterráneas (contenidas en sedimentos y rocas) constituyen la reserva de agua dulce más importante del planeta, habitualmente con tiempos de almacenamiento que van de décadas a siglos y milenios. Los recursos hídricos subterráneos representan, por lo tanto, un excelente "amortiguador" contra los efectos de la variabilidad climática así como los almacenamiento de aguas superficiales, debido a las enormes capacidades de almacenamiento de las mismas.



**Strategic Overview Series (IAH-SOS / AIH-SOS)**

IAH's Strategic Overview Series (IAH-SOS / AIH-SOS) aims to inform professionals and learners in a variety of sectors of key interactions with groundwater resources and hydrogeological science. They are also intended to aid IAH members and supporters in their outreach efforts. Current titles are below, including the latest Spanish, Portuguese, French, Chinese and Hindi translations (efforts for which are ongoing):

-  Irrigated Agriculture & Groundwater (new, October 2022)
-  Rural Water-Supply & Groundwater (new, October 2022)
-  River-Basin Agencies & Groundwater
-  Poverty Reduction and Groundwater
-  Water Security and Groundwater
-  Water Utilities and Groundwater
-  Ecosystem Conservation and Groundwater



**Why is groundwater a vital resource for rural water supply provision?**

Groundwater resources are widely distributed and shallow aquifers can usually meet the demand for village domestic water supply through waterwells and/or handpumps. The quality of groundwater is usually also adequate for drinking. Water supply provided through waterwells can properly constructed and water wellhead protection can be placed in particular the case of a shallow waterwell equipped with handpump, or with a water-lift pump for local village level distribution, is only low compared to any alternative source.

Over the last 40 years or so, waterwells have been becoming the key source for domestic water supply of rural communities in areas which have aquifers and where potential surface water are scarce.

Natural groundwater storage is reduced to dry periods and will allow handpump waterwells to run drier for long after local surface water have dried-up. But extended drought can still be compensated by any alternative source.



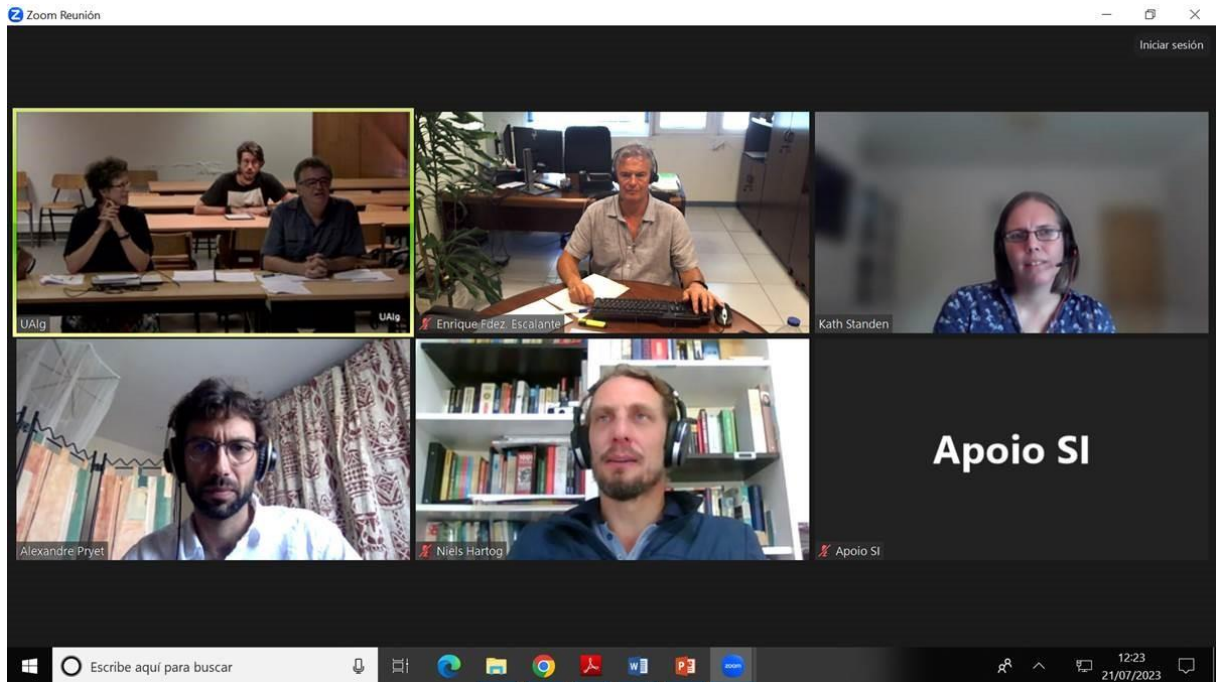
## MORE ACTIONS

### A new thesis on MAR defended, and a new Doctor in the MAR family

We are delighted to let you know that the defense of Kathleen Elizabeth Standen Ph.D. thesis entitled "Managed Aquifer Recharge: An integrated water resource management solution for the Algarve, Portugal" took place last 21<sup>st</sup> of July 2023, at 9:30 h (Lisbon time). The examination was at the Campus de Gambelas, with the possibility of participation using videoconference for colleagues external to the University.

Kath has fulfilled the second/12 PhD foreseen for the 12 MARSOLUT Early Stage Researchers: <https://www.marsolut-itn.eu/people/early-stage-researchers/>

Congratulations Kath!!!



Tribunal members:

Professors Enrique Fernandez Escalante, Niels Hartog and Alexandre Priet

Directors: Zé Paulo Monteiro and L. Costa.

## Positions for “MARers” recently published.



WAT-CHANGE - Water-related ecosystem services for adapting societies to climate change

### *Learning objectives*

*While climate change is posing at risk traditional water resources management, there is the urgent need to devise low-energy and low-impact solutions to adapt the environment, societies and economies to this threat.*

*The WAT-CHANGE Seasonal School aims at introducing the participants to the new growing area of solutions provided by water-related ecosystem services.*

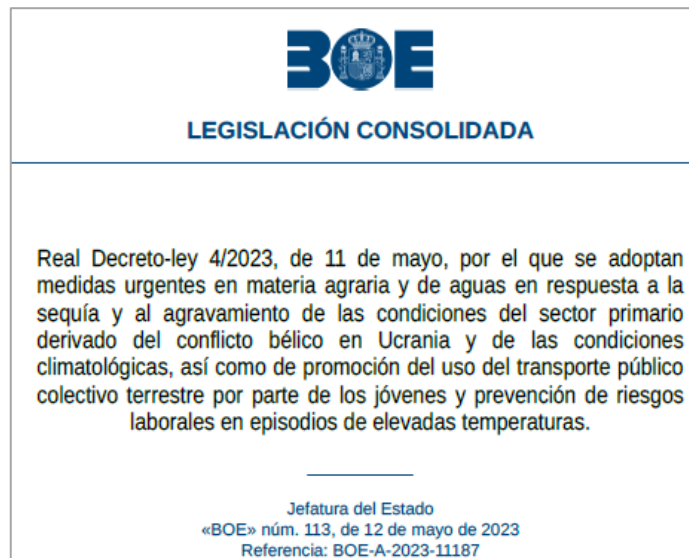
Read more: <https://www.santannapisa.it/it/seasonalschool/wat-change-water-ecosystem-climate-change>

Thank you Rudy Rossetto for reporting.

## New MAR-related regulation for Spain (in Spanish)

Real Decreto-ley 4/2023, de 11 de mayo, por el que se adoptan medidas urgentes en materia agraria y de aguas en respuesta a la sequía y al agravamiento de las condiciones del sector primario derivado del conflicto bélico en Ucrania y de las condiciones climatológicas, así como de promoción del uso del transporte público colectivo terrestre por parte de los jóvenes y prevención de riesgos laborales en episodios de elevadas temperaturas.  
Medidas en materia de aguas.

Artículo 20. Ámbito temporal y territorial de aplicación de las medidas urgentes para paliar los efectos de la sequía.



Download: [https://boe.es/diario\\_boe/txt.php?id=BOE-A-2023-11187](https://boe.es/diario_boe/txt.php?id=BOE-A-2023-11187)

## El proyecto LIFE REMAR inicia la construcción de balsas para la recarga del acuífero del Baix Camp (in Spanish)

*Comaigua, empresa comarcal de gestión del ciclo integral del agua en el Baix Camp -parte del grupo Agbar-, con la colaboración de los socios del proyecto LIFE REMAR (LIFE20 ENV/ES/000284), CSIC, UPC, CNRS y Mejoras Energéticas, inicia las obras de construcción de las balsas para llevar a cabo la infiltración del agua procedente de la EDAR de Cambrils, aplicando la tecnología de recarga gestionada de acuíferos (MAR).*

Read more...



Read more (RETEMA.es): <https://www.retema.es/actualidad/el-proyecto-life-remar-inicia-la-construccion-de-balsas-para-la-recarga-del-acuifero-del>

More info (RETEMA-ACA): <https://www.retema.es/actualidad/la-aca-estudia-aplicar-agua-regenerada-al-acuifero-aluvial-de-la-baja-costa-brava>

## Whatsapp group on Aquifer Recharge Management

This is the link to join the group, with 168 participants today:

<https://chat.whatsapp.com/HDIU5W6HKSFq9mYF2zZi7>

## Previous IAH-MAR Newsletters

Please, remember that you can access the previous newsletters in our website:

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

## IAH-MAR Commission on Twitter



**@IAHMARCom**

<https://twitter.com/IAHMARCom>

## IAH-MAR Commission's sister Web sites

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



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



@4dina\_mar

<https://www.linkedin.com/groups/4690290/> (499 members)

## IAH MAR Commission Forum

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

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

That's all by now... **please, keep reporting** ([dinamar@traqsa.es](mailto:dinamar@traqsa.es)). We miss too many pieces of news, specially from Asia

Dr. Enrique Fernández Escalante, on behalf of the IAH MAR Commission co-chairs.

2023 July 28<sup>th</sup>

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