



ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS



ISMAR 10

INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE

Madrid, 20-24 Mayo 2019



GOBIERNO DE ESPAÑA

MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD



Instituto Geológico y Minero de España



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- La técnica de Gestión hídrica “Managed Aquifer Recharge” o M.A.R. se usa en España desde el Siglo XII.
- En el mundo se aplica de manera desigual. En U.S.A. hay más de 600 dispositivos, en España apenas 33.
- Existe un congreso a nivel internacional para los agentes relacionados con esta técnica llamado ISMAR, que ha tenido nueve ediciones.



Technicians and scientists in the IAH have been avoiding the term artificial recharge and instead have been using managed aquifer recharge for more than a decade

MAR advocates and presents an international common terminology for types of MAR in use, joining older terms as enhanced recharge, water banking, sustainable underground storage, artificial recharge...

1. 1988 Anaheim California, USA (ASCE)
2. 1994 Orlando, Florida, USA (ASCE)
3. 1998 Amsterdam, Netherlands (IAH, ASCE & UNESCO)
4. 2002 Adelaide, Australia "
5. 2005 Berlin, Germany "
6. 2007 Phoenix, Arizona, USA "
7. 2010 Abu Dhabi, UAE "
8. 2013 Beijing, P.R. China "
9. 2016 Mexico City, Mexico "
10. 2019 **Madrid, Spain**



- La 10ª edición del ISMAR será en mayo de 2019 (20-24).
- Tragsa presentó una candidatura a la UNESCO-IAH-ASCE, que resultó ganadora y anunciada en ISMAR 9 (Junio de 2016).
- Se cuenta con la participación de dos co-organizadores invitados, el Instituto Geológico y Minero de España (IGME) y IWRA/CYII ?



- Interesantes perspectivas de futuros desarrollos
 - 25 dispositivos previstos en el nuevo Plan Hidrológico de la Cuenca del Ebro.
 - Tres en Baleares, Guadalquivir...
 - Se ha realizado un estudio para la CH Duero identificando 10 áreas potenciales...
- Actividad creciente en Sur América y África
- Los países que han organizado un ISMAR han tenido una subida en la actividad.





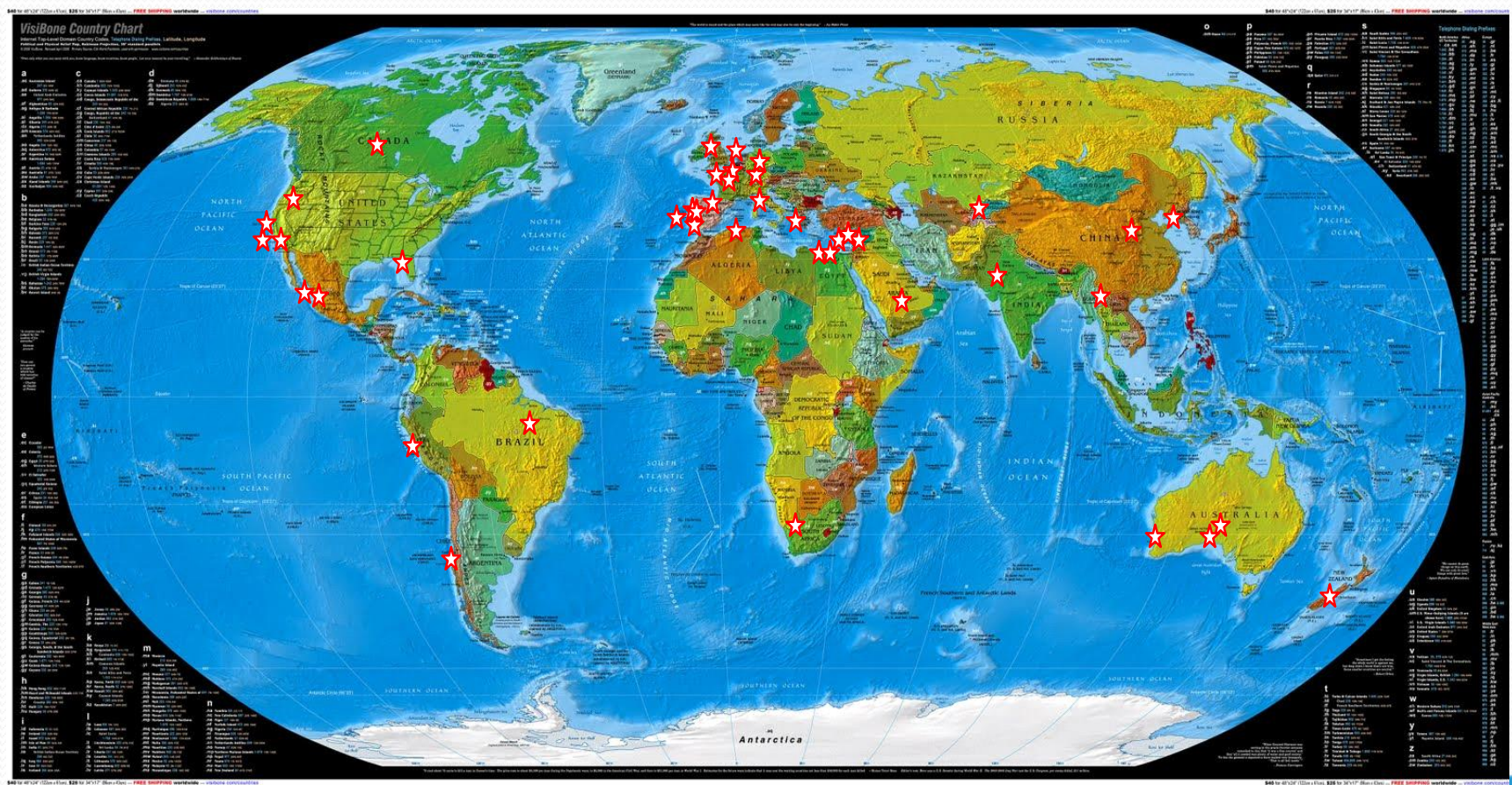
ismar₁₀

INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE

Madrid, 2019 May

Comité científico

- 40 Doctores de 27 países (abierto)



1. MAR AND INTEGRATED WATER RESOURCES MANAGEMENT

MAR & rural. MAR for rural and irrigation water supplies
Potential of MAR in long-term/distance water diversion schemes
Establishing strategic groundwater reserves

2. MAR AS A KEY CLIMATE CHANGE ADAPTATION MEASURE

Innovation in harvesting and storing flood water
Detention and infiltration systems
Mitigation of climate change adverse impacts by means of MAR

3. NEW REGIONAL/LOCAL CASE STUDIES

MAR in developing countries

4. MAR MAPPING

Advanced methodologies for the selection of aquifers/sites
MAR maps methods & new MAR maps

5. MAR AND ECONOMIC ASPECTS

Quantification of benefits and costs of MAR
Circular economy and MAR (from cradle to cradle)
Financing MAR for water and food security
Water footprint from MAR activities. Green and blue waters
Public Procurement of MAR Innovative Solutions

6. MAR to MAR- κ et

MAR to complement groundwater demand management
Industrial applications of MAR, agroindustry and mining
Geothermal injection, MAR to source heat pumps...

7. MAR AND WATER REUSE

Water reclamation technologies for MAR
Reclaimed water reuse via aquifers

8. SUSTAINABLE MAR TECHNICAL SOLUTIONS

Advances in design and construction criteria of MAR systems, BIM
MAR Technical Solutions (SMARTS). Methods and strategies
Alternative and innovative water recharge systems
Operations and maintenance of MAR

9. MAR AND MANAGEMENT OF CLOGGING

10. MAR & LEX

MAR worldwide regulations
Recharge policies, quality standards
Institutional innovation for MAR. Water banks, groundwater user groups...
Governance & Decision Support Systems (DSS)

11. MAR AND MONITORING

Water management and MAR innovative systems
IT applications
Normalization, standardization and interoperability advances

12. MAR AND MODELING

New developments and codes. Practical examples
Water quality interaction codes & hydro-economic modeling

13. MAR AND ECOSYSTEMS

Riparian restoration
Mitigating geological/geotechnical impacts using MAR, land subsidence...

14. MAR IN COASTAL AREAS AND ISLANDS

MAR for mitigating saltwater intrusion
MAR with desalinated water

15. MAR AND ENVIRONMENTAL IMPACTS/RISKS

Risk and impacts assessment. Specific indicator systems for MAR
MAR activities impact evaluation assessment & Benchmarking

16. MAR WATER QUALITY & RELATED HYDROGEOCHEMISTRY ASPECTS

MAR for drinking water quality improvement
Techniques to break/recycle emergent compounds

17. MAR HEALTH ASPECTS

Removal and fate of microorganisms and organic compounds
Fate of pathogens and pollutants of concern in MAR system
Microbial ecology of MAR aquifer storage zones

18. URBAN MAR

Sustainable Urban Drainage systems (SUDS)
Rainwater/stormwater harvesting

19. R&D PROJECTS ON MAR

Innovation and integration in MAR
Recent and ongoing R&D projects (EC perspective)
Research gaps

20. RESEARCH AND EDUCATION ON MAR

Training for MAR operators & future water managers
Dissemination strategies and examples



Red europea de proyectos relacionados

ISMAR 10 PAN-EUROPEAN NETWORK



“M.A.R. to solve the global water crisis”

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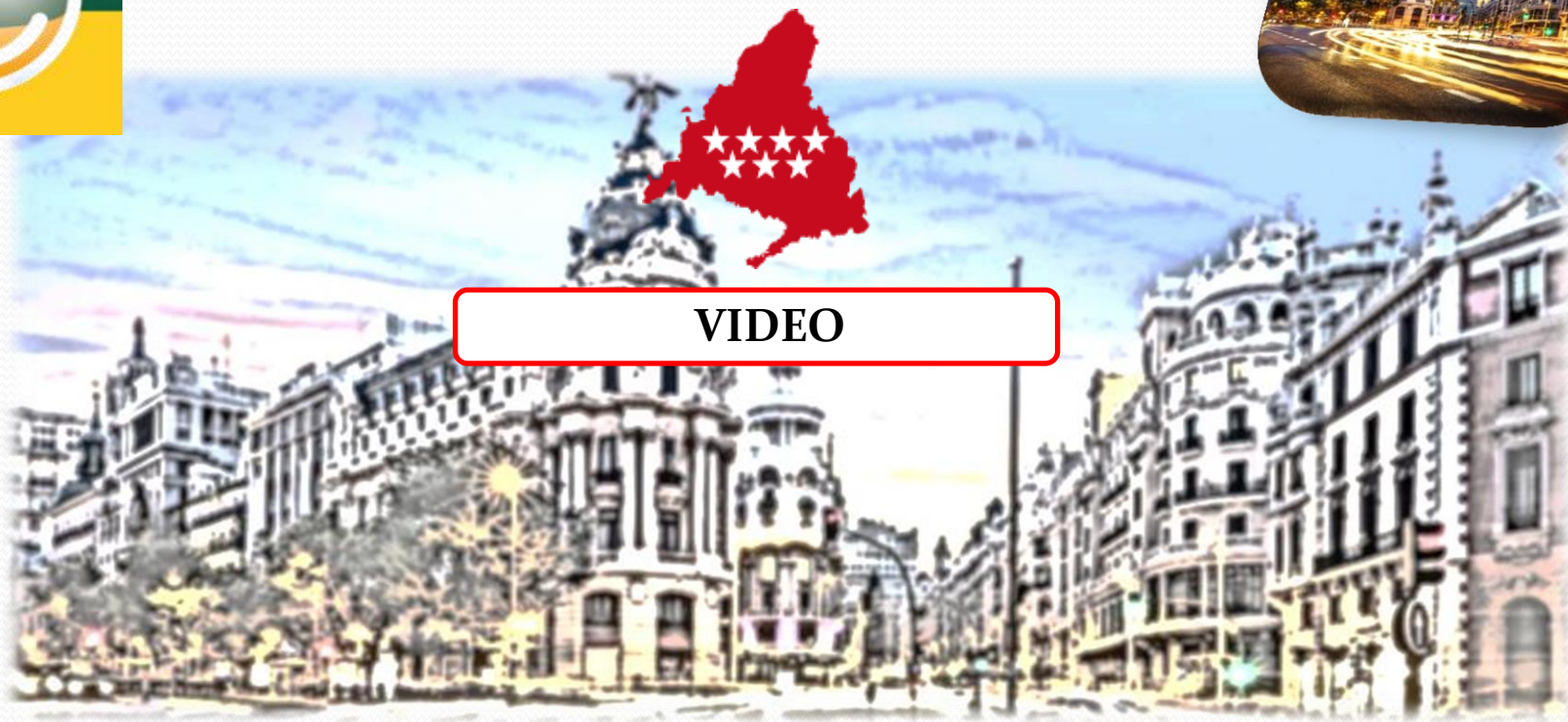
...M.A.R. IS ORGANIZED (SOMEHOW) IN EUROPE

ACTIVIDADES	FECHAS
Primer anuncio	31 Enero 2018
Segunda circular	15 Junio 2018
Llamada de resúmenes y artículos	1 Septiembre 2018
Plazo final envío resúmenes	1 Noviembre 2018
Apertura del registro	15 Enero 2019
Notificación de la aceptación de los resúmenes	1 Febrero 2019
Envío del artículo final	31 Marzo 2019
Plazo final del registro temprano	1 Abril 2019
Tercera circular	15 Abril 2019
Notificación de la aceptación de los artículos	20 Abril 2019
Congreso ISMAR 10	20-24 Mayo 2019





Nos vemos en Madrid 2019



VIDEO

info@ismar10.net

