

10th INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE

10º CONGRESO INTERNACIONAL DE RECARGA GESTIONADA DE ACUÍFEROS

ISMAR 10. PROGRAM. 2019 May 20th to 24th

**ISMAR 10
INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE
La Nave, Madrid**

MONDAY 20

ISMAR 10 SHORT COURSES (6) AND WORKSHOPS (2).

IGME HEADQUARTERS. Instituto Geológico y Minero de España (IGME); Ríos Rosas 23 St. 28003, Madrid (Ríos Rosas Metro Station, Line 1, blue color).

***Full time Simultaneous Translation in Auditory and Sala 2**

TUESDAY 21				
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa room	Other rooms and demonstration areas
9:00 9:30	Reception of participants			
9:30 10:30		OPENING Ministry of Agriculture, Fisheries and Food. Mr. Fernando Miranda Madrid City Council. Ms. Cecilia Briones International Association of Hydrogeologist. Mr. Peter Dillon UNESCO. Ms. Alice Aureli Tragsa Group. Mr. Jesús Casas		
10:30 11:00		Opening speech: <i>Water and food production. The Importance of irrigation for Spain</i> General Director of Rural Development, Innovation and Forestry Policy (MAPA) MRs Isabel Bombal		
11:00 11:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
11:30 13:30		Session 1 MAR AND INTEGRATED WRM 160, 27, 115, 87, 168, 73 (R: 57, 163) Chair: Dr. Alice Aureli (France) and Prof. J. Camkin (Australia)	Session 2 MAR AS A KEY CLIMATE CHANGE 31, 130, 221, 116, 152, 250 Chair: Dr. Alok Sikka (India)	Session 15 MAR AND ENVIRONMENT 15, 161, 197, 9, 251, 22 R: 46 Chairs: Dr. J. de la Orden (Spain) & Dr. Larry Eaton (USA) (Sala 5)
13:40 15:00	POSTERS/ LUNCH / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
15:00 15:40		Session Flash 1 MAR AND INTEGRATED WRM 57, 163, 2, 66, 129, 48, 237 Prof. J. Camkin (Australia)	Session 2b MAR AS A KEY CLIMATE CHANGE ADAPTATION MEASURE 42, 235 Dr. Alok Sikka (India)	
15:40 17:40	Round Table 1 <i>OPPORTUNITIES AND TECHNOLOGICAL CHALLENGES FOR WATER MANAGEMENT</i> Chairman: Mr. Simón Pulido. Responsible for Hydrological Management Products and Services SUEZ (Spain)	Session 3 NEW REGIONAL CASE STUDIES 94, 192, 216, 61, 68, 124 Chair: Dr. Y. Zheng (China)	Session 4 MAR MAPPING 132, 166, 33, 133, 223, 125 Chair: Dr. A. Sterck (The Netherlands-Belgium)	Session 5/6 MAR AND ECONOMIC ASPECTS / MAR to MAR-k€t (Sala 5) 217, 175, 146, 127 Chair: Dr. A. Ross (Australia) (Sala 5)
17:40 18:10	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			

18:10 19:10	Special session 1: ADAPTATION 136, 21, 17 Chair: Dr. J. San Sebastián (Spain)	Session 3b NEW REGIONAL CASE STUDIES 101, 205, 143, 238, 151 Chair: Dr. Y. Zheng (China)	Session 4b MAR MAPPING 45, 108, 133, 211 (R: 86) Chair: Dr. C. Stefan (Germany)	
----------------	---	---	--	--

WEDNESDAY 22				
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa room	Other rooms and demonstration areas
9:00 9:40		Keynote presentation 2 <i>The Water in Spain</i> MRs M ^a Dolores Pascual Ebro River Basin Authority President (Spain)		
9:40 9:50		Tenismarers mention		
9:50 11:10	Special Session 2: ARID REGIONS 177, 89, 246, 1 Chair: Dr. J. San Sebastián (Spain)	Session 8 SUSTAINABLE MAR TECHNICAL SOLUTIONS 5, 222, 28, 123 (R:147) Chair: Dr. D. Pyne (USA)	Session 7 MAR AND WATER REUSE 100, 164, 122, 210 Chair: Dr. C. Sprenger (Germany)	
11:10 11:40	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
11:40 13:20	Round Table 2. Public Institutions and Water Management Chairman: MRs. María Fernández Irrigation and Rural Infrastructures Subdirector, MAPA (Spain)	Session 8 b SUSTAINABLE MAR TECHNICAL SOLUTIONS 88, 141, 215, 173, (R: 25) Chair: Dr. Enrique Fernández (Spain)	Session 7b MAR AND WATER REUSE 113, 64, 75, 82 (R: 218) Chair: Dr. I. Negev (Israel)	Session 19 R&D PROJECTS ON MAR 241, 231, 10, 262, 263 Chair: Dr. P. Dillon (Australia) (Sala 5)
13:20 14:50	POSTERS/ LUNCH / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
14:50 15:40	Session 9 MAR AND MANAGEMENT OF CLOGGING 90, 190, 20, 59, 157, 40 (R: 26, 104) Chairs: Dr. R. Martin (Australia) Dr. Jordan Clark (USA)	Flash session 2 (sessions 8-11-12) 202, 239, 169, 242, 72, 58, 212, 26 Chair: Dr. Enrique Fernández (Spain)	Session 10 MAR & REGULATIONS 154, 31, 109, 232, 145, 183, 193 (R: 69) Chair: Dr. M. Sapiano (Malta)	Side event (Sala 4)
15:40 17:00		Session 11 MAR AND MONITORING 230, 44, 71 Chair: MSc. B. Bower (New Zealand)		
17:00 17:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
17:30 19:00		IAH MAR Commission Plenary		
20:30	ISMAR 10 GALA DINNER. Madrid City Center. Hotel Miguel Ángel			

THURSDAY 23				
	Sala 2* Recharged SATur	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa	Other rooms and demonstration areas
9:00 9:40		Keynote Presentation 3 Prof. Dr. Jörg Drewes <i>Next generation Managed Aquifer Recharge Systems for Enhanced Trace Organic Chemical and Pathogen Removal</i> Germany		
9:40 11:00	Session 14 MAR IN COASTAL AREAS... 98, 29, 43, 228 Chair: Dr. K. Yongcheol (South Korea)	Session 12 MAR AND MODELING 120, 144, 67, 158 Chair: Dr. R. Rossetto (Italy)	Session 13 MAR AND ECOSYSTEMS 198, 19, 117 Chair: Dr. J. San Sebastián (Spain)	Round Table 3 GRIPP (Sala 4) Chair: Dr. K. Villholth (South Africa) Side event: FFGA-FENACORE (Sala 5) Chair: Fernando López Vera (Spain) In Spanish
11:00 11:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			

11:30 13:50	Round Table 4. WATER MANAGEMENT AND DIGITALIZATION Chairman: Mr. M. Navarro Head of ICT/ R&D Tragsa Group (Spain)	Session 12b MAR AND MODELING 51, 65, 244 Chair: Dr. R. Rossetto (Italy)	Session 14b/15b MAR IN COASTAL AREAS & ENVIRONMENT 56, 159, 105, 83, 103, 196 Chair: Dr. S. de Lima (Brazil)	Session 20 TRAINING ON MAR 24, 96, 185, 84, 18 Chair: Dr. W. Weiping (China) (Sala 5)
13:50 15:10	POSTERS/ LUNCH / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
15:10 15:50	Session 16b/17 MAR WATER QUALITY/HEALTH ASPECTS 206, 95, 134, 181, 174, 106 Chair: Dr. P. Stuyfzand (The Netherlands)	Flash session 3 138, 53, 227, 240, 179 Chair: MSc. D. Bartlett (USA)	Session 19B/20b R&D PROJECTS ON MAR & TRAINING 112, 50, 110, 267 Chair: Dr. Catalin Stefan (Germany)	Working groups meetings (Salas 4 & 5)
15:50-16:50		Session 18. URBAN MAR 11, 97, 153, 13 Chair: Dr. K. Zuurbier (The Netherlands)		
15:50 17:10		POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA		
17:10 17:40	Session 17b MAR HEALTH ASPECTS 12, 191, 99, 225, (R: 126) Chair: Dr. D. Page (Australia) y Dr. B. van Breukelen (The Netherlands)	Session 18b URBAN MAR 70, 195, 34 Chair: Arq. I. Prieto (Spain)	Working groups meetings	Working groups meetings (Salas 4 & 5)
19:00 19:30	CLOSING CEREMONY Ministry of Science, Innovation and Universities. Dr. Enrique Playán European commission (EIP Water). Dr. Guido Schmidt Tragsa Group. MRs. Paloma López-Izquierdo ISMAR 11 ANNOUNCEMENT AND PHOTO			
*Full time Simultaneous Translation in Auditorio and Sala 2			ABSTRACTS LIST LINK	

IGME HEADQUARTERS.

FRIDAY 24

TECHNICAL TOURS

DEPARTURE FROM: Instituto Geológico y Minero de España (IGME) Headquarters*; Ríos Rosas 23 St. 28003, Madrid (Ríos Rosas Metro Station, Line 1, blue color, Ríos Rosas St. Exit).

1-LOS ARENALES AQUIFER FACILITIES IN VALLADOLID-SEGOVIA PROVINCE. 08:45 h. Return about 19:45 h

2-GUADIANA CHANNEL AND DAIMIEL NATIONAL PARK. 08:30 h. Return about 19:45 h

3-ASR/ASTR/DEPTH INJECTION BOREHOLES IN MADRID. 09:00 h. Return about 14:00 h

10th INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE

10º CONGRESO INTERNACIONAL DE RECARGA GESTIONADA DE ACUÍFEROS

ISMAR 10. DETAILED PROGRAM. 2019 May 20th to 24th

ISMAR 10
10TH INTERNATIONAL SYMPOSIUM ON MANAGED AQUIFER RECHARGE
2019 May 20th – 24th - La Nave, Madrid

MONDAY 20

ISMAR 10 SHORT COURSES (6*) AND WORKSHOPS (2*).

IGME HEADQUARTERS. Instituto Geológico y Minero de España (IGME); Ríos Rosas 23 St. 28003, Madrid (Ríos Rosas Metro Station, Line 1, blue color).

MORNING PROGRAM

09:30 – 14:00 Seminars 1 to 3 and 7:

SALA 1: Short course nº 1: State of the Art Techniques in Characterizing, Constructing and Operating Optimum Surface Spreading Groundwater Recharge Projects

Instructors: Dr. Michael Milczarek, President GeoSystems Analysis, Inc. and Dr. Greg Woodside, Executive Director of Planning and Natural Resources (USA)

SALA 2: Short course nº 2: Addressing the challenges to achieve successful groundwater recharge and recovery through wells. Comprehensive coverage of investigations required for ASR projects and their operation

Instructors: Dr. D. Pyne, (ASR Systems, USA) and Dr. Russell Martin (Wallbridge Gilbert Aztec, Australia)

SALA 3: Short course nº 7: Water quality aspects of Managed Aquifer Recharge systems

Instructor: Prof. Dr. P. Stuyfzand, KWR, Watercycle Research Institute. The Netherlands

SALA 4: Workshop nº 3: MAR site suitability mapping. Utilization of spatial analysis techniques for the identification of potential MAR areas: challenges and opportunities

Instructors: Dr. José Pablo Bonilla (AyA, Costa Rica), Dr. Dan Goode (USGS, USA), Jana Sallwey (TU Dresden, Germany), Dr. Catalin Stefan (TU Dresden, Germany) and Dr. Arnaud Sterck (IGRAC, the Netherlands)

AFTERNOON-EVENING PROGRAM

14:30 – 19:00 Seminars 4 to 6 and 8:

SALA 1: Short course nº 4: Technical solutions to increase Managed Aquifer Recharge effectiveness. MARSOL project findings and Tragsa Group Experience regarding design and construction criteria, operation and management

Instructors: Prof. Dr. Enrique Fernández Escalante and Dr. Jon San Sebastián Sauto (Tragsa Group, Spain)

SALA 2: Short course nº 5: Web-based numerical modeling and optimisation of MAR applications using the free INOWAS platform

Instructors: Prof. Dr. Catalin Stefan, Jana Glass, Ralf Junghanns (TU Dresden, Germany) and Russel Martin (WGA, Australia)

SALA 3: Short course nº 8: Modelling MAR facilities design and operations using the free and open source FREEWAT plugin

Instructors: Dr. Rudy Rossetto and Dr. Giovanna De Filippis (Institute of Life Sciences, Scuola Superiore Sant'Anna, Italy)

SALA 4: Workshop nº 6: Sustainable MAR in developing countries. Developing managed aquifer recharge in Latin America

Instructors: Dr. Edmundo Claro (CSIRO, Chile); Mr Tatsuo Shubo (Fundação Oswaldo Cruz – Fiocruz, Brazil); Dr. Declan Page (CSIRO, Australia) and Mr. Dennis Gonzalez (CSIRO, Australia)

*Workshops are free of cost

Short courses have a registration fee

<https://www.ismar10.net/en/pre-and-post-conference-seminars/>

ISMAR 10 CONFERENCE

LA NAVE. MADRID CITY COUNCIL'S INNOVATION SPACE. 5th Cifuentes Street, 28021 Los Angeles / Villaverde District, Madrid Spain.
Metro: Line 3, (Yellow color), South sector, Station: Villaverde Bajo-Cruce (Santiago Amón Exit).

TUESDAY 21				
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa room	Other rooms and demonstration areas
9:00 9:30	Reception of participants			
9:30 10:30		OPENING Ministry of Agriculture, Fisheries and Food. Mr. Fernando Miranda Madrid City Council. D. Pedro Catalinas International Association of Hydrogeologist. Mr. Peter Dillon UNESCO. Ms. Alice Aureli Tragsa Group. Mr. Jesús Casas.		
10:30 11:00		Opening speech Water and food production. The Importance of irrigation for Spain General Director of Rural Development, Innovation and Forestry Policy (MAPA) MRs Isabel Bombal		
11:00 11:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
		Session 1 MAR AND INTEGRATED WRM 160, 27, 115, 87, 168, 73 (R: 57, 163) Chair: Dr. Alice Aureli (France) and Prof. J. Camkin (Australia)	Session 2 MAR AS A KEY CLIMATE CHANGE 31, 130, 221, 116, 152, 250 Chair: Dr. Alok Sikka (India)	Session 15 MAR AND ENVIRONMENT 15, 161, 197, 251, 46, 22 Chairs: Dr. J. de la Orden (Spain) & Dr. Larry Eaton (USA) (Sala 5)
		Implementing Incentivized Managed Aquifer Recharge on a Basin Scale Tuthill, David R., Jr, Carlson, Ronald D. USA	A Conceptual Framework for Managed Aquifer Recharge as a Strategy to Mitigate Drought Effects in Irrigated Agriculture: The Role of Institutions and Conservation Reznik, Ami and Dinar, Ariel USA	Methodology for assessing Managed Aquifer Recharge project implementation in Chile Guimerà, Jordi, Vilanova, Ester; Pilar Enguita; Adrián Lillo SPAIN
		Postdoctoral Research Associate at University of Arkansas, Associate Professor at University of Arkansas and Economist at USDA Economic Research Service Dat Tran, Kent Kovacs and Steven Wallander USA	Potential for managed aquifer recharge to mitigate climate-change effects on fish and wildlife in the Snake River Basin, USA Van Kirk, Rob; Contor, Bryce; Morrisett, Christina USA	Evaluating the multi-scalar impact of widespread MAR implementation on groundwater storage: A critical review and case study of Gujarat. Alam, Mohammad Faiz; Villholth, Karen G.; Pavelic, Paul; Sikka, Alok INDIA
11:30 13:30		Dynamic water balance modelling for risk assessment and decision support on MAR potential in Botswana Lindhe, Andreas; Rosén, Lars; Johansson, Per-Olof and Norberg, Tommy BOTSWANA	Sites and indicators of MAR as a successful tool to mitigate Climate Change effects in Spain San Sebastián Sauto, Jon; Fernández Escalante, Enrique; Villanueva Lago, María and Calero Gil, Rodrigo. SPAIN	Application and evaluation of an advanced aquifer storage and recovery pilot system in Recife, Brazil Fernandes, Lucila; Conrad, Anika; Montenegro, Suzana; Paiva, Anderson; Andrade, Maria BRAZIL
		Integrated Water Management Utilising the tools of Managed Aquifer Recharge (MAR): Developing a Catchment-Scale Groundwater Replenishment System for the Hekeao/Hinds Plains, Canterbury, New Zealand Bob Bower; Brett Sinclair and Clare Houlbrooke NEW ZEALAND	The role of Aquifer Storage and Recovery in securing resilient long-term water supplies in the East of England Stanley-Jones, Hannah; Moncaster, Steve; Price, Victoria; Watson, Sally; MacDonald, Robert; Buckley, James ENGLAND	PVC-O pipes and fittings, the most environmentally friendly solution for water transportation Almudena Blazquez and Dolores Herran SPAIN
		Seeking Simplicity, Reliability and Sustainability in Drinking Water Purification for Future: the River Bank Filtration Based One Step Reverse Osmosis Process: from Concept to Practice Gang Liu*, Xu Wang, Harrie Timmer, Peter Wessels, Huijuan Liu, Pieter Stuyfzand, Jihui Qu, Walter van der Meer THE NETHERLANDS	Regional impact of MAR in Southern Central Valley Wendt, Doris E., Van Loon, Anne F. and Scanlon, Bridget R. ENGLAND	Water Quantity and Quality Risk Assessment of the Karst Aquifer Recharge with Multi-source Water in Yufu River of Jinan, China. Qu Shisong, Sun Xiuxiu and Wang Weiping. CHINA

		Riverbank filtration with siphon wells – breathing new life into an old idea Grischek, Thomas and Bartak, Rico GERMANY	Assessment of MAR efficiency to increase groundwater sustainability with different climate change scenarios Eunhee Lee; Esther Shin; Yongcheol Kim and Kyoochul Ha SOUTH KOREA	Managed Aquifer Recharge to Support Environmental Outcomes on the Katarapko Floodplain Martin, Young, Lush, Whittington AUSTRALIA
			Crucial Role of Managed Aquifer Recharge as an Adaptation Strategy for Groundwater Sustainability in the Face of Climate Change in India. Jain Ratan. INDIA	
13:40 15:00	POSTERS/ LUNCH / EXPOSITION AREA DRONES / DRONES DEMONSTRATION AREA			
15:00 15:40		Session Flash 1 MAR AND INTEGRATED WRM 57, 163, 2, 66, 129, 48, 237 Prof. J. Camkin (Australia)	Session 2b MAR AS A KEY CLIMATE CHANGE ADAPTATION MEASURE 42, 235 Dr. Alok Sikka (India)	Session 5/6 MAR AND ECONOMIC ASPECTS / MAR to MAR-k€t 217, 175, 146, 127 Chair: Dr. A. Ross (Australia) (Sala 5)
		Strategic Water Storage and Recovery with Desalinated Seawater in Liwa, UAE Kalbus, Edda; Kozirowski, Georg; Alhosani, Mohamed Husain Ahmed and Abdulla Mohamed Al Kamali. UAE	MAR of Geneva: when climate change implies to reassess management perspectives de los Cobos, Gabriel SCHWITZERLAND	El Carracillo. An example of positive rural development and impact on the agroindustry thanks to MAR technique. Los Arenales Aquifer, Castilla y León, Spain. López Hernández, Manuel; Fernández Escalante, Enrique; San Sebastián Sauto, Jon; Villanueva Lago, María and Calero Gil, Rodrigo. SPAIN
		Managed Aquifer Recharge as a bridge between water demand and supply – cases in Chile, Vietnam and Malaysia. Galvis Rodríguez, Sandra, van Baaren, Esther, Oude Essink, Gualbert, van Duijne, Hans, Ball, Sheila, Vergroesen, Toine THE NETHERLANDS		
		Integration of Stormwater Capture at Flood Management Reservoir with Managed Aquifer Recharge, Orange County, California Greg Woodside, Adam Hutchinson USA		
		The Atlantis Water Resource Management Scheme – resource management is people management. Towers, Luke; Riemann, Kornelius; Weitz, Jannie; Hugman, Rui. SOUTH AFRICA		
		Artificial recharge mechanisms via a leaky river bed – a case study in the outskirts of London, UK Karapanos, Ilias & Sage, Robert ENGLAND		
		Scaling-up river water-fed Managed Aquifer Recharge in the deeply anoxic Makauri Aquifer, Gisborne (New Zealand) Hartog;van Nieuwkerk;Hancock;Raai THE NETHERLANDS		
Alternate Conjunctive Use and Artificial Recharge in Water Resources Andrés Sahuquillo SPAIN				
15:40 17:40	Round Table 1 OPPORTUNITIES AND TECHNOLOGICAL CHALLENGES FOR WATER MANAGEMENT Chairman: Mr. Simón Pulido. Responsible for Hydrological Management Products and Services SUEZ (Spain) <i>MOLECOR TECNOLOGÍAS S.L. Mr. Agustín Moreno</i> <i>CATALANA DE PERFORACIONES S.A. Mr. Domenec Pintó</i> <i>ALLIED WATER. Mr. Koen Zuurbier</i> <i>AMBLU PIPES SPAIN S.A. Mr. Josep Aubeso</i> <i>SONDEOS MARTÍNEZ S.L. Mr. Manuel Martínez</i> <i>PREFABRICADOS DELTA S.A. Mr. Juan Pablo Guerrero</i> <i>ELECTROSTEEL EUROPE S.A. Mr. Raúl Bartolomé</i>	Session 3 NEW REGIONAL CASE STUDIES 94, 192, 216, 61, 68, 124 Chair: Dr. Y. Zheng (China)	Session 4 MAR MAPPING 132, 166, 33, 133, 223, 125 Chair: Dr. A. Sterck (The Netherlands-Belgium)	A Socio-Economic Impact Assessment of Managed Aquifer Recharge in the Pwales Groundwater Body - Malta Schembri Michael, Sapiano Manuel, Zammit Stephen MALTA
		Managing Aquifer Recharge at Local Level in India: Developing a Framework for Village Groundwater Co-operatives B. Maheshwari, P. Patil, P. Soni, Y. Dashora, P.K. Singh, J. Ward, P. Dillon, Y. Jadeja, S. Oza, M. Chhajer, R. Kookana and R. Packham AUSTRALIA	Using machine learning to incorporate potential water quality improvements for mapping MAR suitability Galen Gorski, Andrew T. Fisher, Sarah Beganskas, Calla Schmidt, Hannah Dailey USA	150 years old IBF systems in Budapest, Hungary - focusing on their sustainability and costs Szabó, Zsóka; Mádl-Szőnyi, Judit HUNGARY
		Tunisian experience in managed aquifer recharge by hill dam water release: case of some groundwater flow systems in North of Tunisia Anis Chekirbane, Dorsaf Aloui, Insaf El Euch, Sabine Mejri, Samia Khadhar, Fethi Lachaal and Ammar Mlayah TUNISIA	A GIS approach to evaluating bank-filtration occurrence and potential in the province of Quebec, Canada Patenaude, Marc, Baudron, Paul, Masse-Dufresne, Janie, Pontoreau, Coralie, Dion, Gabriel CANADA	
	The MAR system in Ica, Peru. Technical and social lessons learned from a Mega-scale MAR system and improvement possibilities Navarro Benegas, Roberto; Fernández Escalante, Enrique; Guerrero Salazar, Pedro and Rojas Vega, Carola PERU	Suitability maps for managed aquifer recharge: review and tool development Sallwey, Jana; Schlick, Robert; Bonilla Valverde, José Pablo; Junghanns, Ralf; Vásquez López, Felipe; Stefan, Catalin GERMANY		

		<p>Emergency response to drought - the City of Cape Town's groundwater abstraction and MAR scheme (South Africa) McGibbon, David; Hugman, Rui; Towers, Luke Cecil; Hartnady, Chris Hubert John; Hay, Elizabeth Rowena; Riemann, Kornelius SOUTH AFRICA</p> <p>Managed Aquifer Recharge and Aquifer Storage and Recovery in Kabul, Afghanistan Kissane, Stephen; Tookhi, Mohammad Naim; Klein, Hugh; Matti, Boris AFGHANISTAN</p> <p>Implementing an energy-neutral Aquifer Storage and Recovery (ASR) system in a complex geological context in Lebanon Lukas Rolf, Sieger Burger and Tine de Winkel THE NETHERLANDS</p>	<p>Producing more interpretable maps of managed aquifer recharge suitability by visualizing sensitivity to subjective choices during mapmaking Gorski, Galen and van der Valk, Michael USA</p> <p>Determining the Potential for Managed Aquifer Recharge (MAR) for the Bengal Basin, Bangladesh Faneca Sanchez, Marta; Zahid, Anwar; Oliemans, William THE NETHERLANDS</p> <p>Site selection of underground dams using spatial multi-criteria evaluation in the Semi-Arid region of the State of Alagoas, Brazil. Webber, Daniel C.; Barros, Alexandre H. C.; Da Silva, Maria S.L.; Neto, Manoel B.O.; Marques, Flávio A. BRAZIL</p>	
17:40 18:10	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARta room	Other rooms and demonstration areas
	Special session 1: ADAPTATION 136, 17, 21 Chair: Dr. J. San Sebastián (Spain)	Session 3b NEW REGIONAL CASE STUDIES 101, 205, 143, 238, 151 Chair: Dr. Y. Zheng (China)	Session 4b MAR MAPPING 45, 108, 133, 211 (R: 86) Chair: Dr. C. Stefan (Germany)	
	MAR as an adaptation measure for saline water intrusion and water scarcity in the Guanacaste Region of Costa Rica. Suárez Serrano, Andrea; Bautista-Solis, Pável; Stefan, Catalin; Alfaro, Carolina; Bonilla Valverde, José Pablo COSTA RICA	Managed Aquifer Recharge at a Farm Level: Evaluating the Performance of Direct Well Recharge Structures P. Soni, Y. Dashora, B. Maheshwari, P.K. Singh and P. Dillon INDIA	Specific types and adaptability zoning evaluation of managed aquifer recharge for irrigation in the North China Plain Wang Weiping, Liu Shuai, Qu Shisong CHINA	
18:10 19:10	Groundwater Hydraulics - Computing Groundwater Into/Out Flow for Lakes. (Study Case Lake Qarun, Egypt) DR. Mohamed Abd-El-Mooty, MRs. Rania Abd-El-Baky EGYPT	Use of Managed Aquifer Recharge to improve Water Management in Arid and Semi-Arid Regions of Mexico Cruz A. Mary-Belle; Megdal, S.B. USA	MAR suitability mapping: why and how? Lessons from a case-study in Southern France Dupont, Fanny; Sterckx, Arnaud; Sallwey, Jana; Bonilla, Jose; Stefan, Catalin THE NETHERLANDS	
	Correlation of the infiltration velocity with the hydraulic load of operation of the treated wastewater infiltration basin. Sánchez-Navarro, David Humberto, Navarro-Gómez, Carmen Julia, Sánchez-Navarro, Jesús Rubén, Calderón Fernández, Martha Lorena, Estrada Gutiérrez, Guadalupe Irma Graciela, Herrera-Peraza, Eduardo Florencio, Miguel ángel González Nuñez. MEXICO	Assessment of bank filtration in arid climate, case study: El-Minya, Egypt A. Abogabal, K. Khodeif, E. Souya, M. Bakr EGYPT	Producing more interpretable maps of managed aquifer recharge suitability by visualizing sensitivity to subjective choices during mapmaking Gorski, Galen and van der Valk, Michael USA	
		Groundwater-based natural infrastructure: a critical piece in supporting water security and resilience Karen Villholth et al. SOUTH AFRICA	Evolutionary multi-objective optimization of managed aquifer recharge locations in the Central Valley (US) Brunetti, Giuseppe, Wallander, Steven, Bigelow, Daniel, Sandoval-Solis, Samuel, Dahlke, Helen AUSTRIA	
		Artificial recharge proposed for the Purapurani Aquifer System, Bolivia Rafael Cortez BOLIVIA		

LA NAVE. MADRID CITY COUNCIL'S INNOVATION SPACE

WEDNESDAY 22				
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARta room	Other rooms and demonstration areas
9:00 9:40		Keynote presentation 2 The Water in Spain MRs M^a Dolores Pascual Ebro River Basin Authority President (Spain)		
9:40 9:50		Tenismarers mention		
	Special Session 2: ARID REGIONS 177, 89, 246, 1 Chair: Dr. J. San Sebastián (Spain)	Session 8 SUSTAINABLE MAR TECHNICAL SOLUTIONS 5, 222, 28, 123 (R:147) Chair: Dr. D. Pyne (USA)	Session 7 MAR AND WATER REUSE 100, 164, 122, 210 Chair: Dr. C. Sprenger (Germany)	
	Flash floods – possibilities of artificial recharge, example Egypt Troeger, Uwe, Wannous, Manal GERMANY	Comprehensive Guidelines for Managed Aquifer Recharge to Be Published by ASCE/EWRI Bartlett, R. Douglas; Moore, Stephanie; Sheng, Zhuping; and McCurry, Gordon. USA	Re-engineering soil aquifer treatment (SAT) to enhance wastewater recharge flux without compromising water quality. Brooks, Josh. Weisbrod, Noam. Bar-Zeev, Ido ISRAEL	
9:50 11:10	Evaluation of MAR for semi-arid, cold region Nasanbayar Narantsogt MONGOLIA	Using environmental isotope and major ions to characterize recharge and mixing properties in the aquifer system along Fen River in Taiyuan basin, northern China. Guo Chunyan, Zhang Zhaoji, Shi Jiansheng, Zhang Fenge CHINA	Hydrogeological characterization of a meso-scale managed aquifer recharge experiment focusing on the fate of nanocontaminants carried by reclaimed water (Palamós site, ACWAPUR project). Martinez-Landa, Lurdes; Valhondo, Cristina; García, Julià, and Carrera, Jesús SPAIN	
	Insights from groundwater level measurements over a managed aquifer recharge site in Central Morocco. Fakir Younes and Bouimouass Houssne MOROCCO	Conjunctive Use of Aquifer Storage Recovery Wells and Desalination to Mitigate Salt Water Intrusion and Achieve Water Supply Reliability Pyne, R. David G. USA	Soil Aquifer Treatment in Glacial Fluvial Deposits - Analogous to Recharge in Alluvial Systems Peter Fox USA	
	Crucial Role of Managed Aquifer Recharge as an Adaptation Strategy for Groundwater Sustainability in the Face of Climate Change in India. Jain Ratan Dr. INDIA	Environmental impact and mitigation of intake interruptions for Basin Aquifer Transfer Recovery systems Stuyfzand, Pieter J. THE NETHERLANDS	Natural-Engineered System (NES) for the Improvement of Conventional Soil Aquifer Treatment (cSAT) in Shafdan Aharoni, Avi; Cikurel, Haim; Raanan Kiperwas, Hadas ISRAEL	
11:10 11:40	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			

		Session 8 b SUSTAINABLE MAR TECHNICAL SOLUTIONS 88, 141, 215, 173, 25 Chair: Dr. Enrique Fernández (Spain)	Session 7b MAR AND WATER REUSE 113, 64, 75, 82 (R: 218) Chair: Dr. I. Negev (Israel)	Session 19 R&D PROJECTS ON MAR 241, 231, 10, 262, 263 Chair: Dr. P. Dillon (Australia) (Sala 5)
11:40 13:20	Round Table 2. Public Institutions and Water Management Chairman: MRs. María Fernández. Irrigation and Rural Infrastructures Subdirector, MAPA (Spain) <i>Mr Samuel Moraleda (MITECO-CHG)</i> <i>Mr Ignacio Rodríguez (MITECO-CHD)</i> <i>Mr Rafael Sáez ITACYL</i> <i>Mr Alejandro Alonso SEIASA</i> <i>MRs Belén Benito (CYII)</i>	Initial Results from Managed Aquifer Recharge Trials in the Hekeao/Hinds Plains, Canterbury, New Zealand. Houlbrooke, Clare, Bower, Bob, Sinclair, Brett NEW ZEALAND	Matching agricultural water supply using industrial and domestic treated wastewater via Controlled Drainage Systems. Raai, K.J. THE NETHERLANDS	Proposed approach to extend managed aquifer recharge facilities with reclaimed wastewater in Catalonia in a context of tighter regulations and extreme climatic events (NE Spain). Pérez-Paricio, Alfredo SPAIN
		Flood-protection of riverbank filtration wells. Musche, Fabian; Sandhu, Cornelius; Grischek, Thomas GERMANY	Enabling the reuse of industrial wastewater to meet freshwater demands of greenhouse agriculture by using aquifer storage and recovery (ASR). Van Dooren, Teun C.G.W.; Zuurbier, Koen G.; Raai, Klaasjan J.; Hartog, Niels; Stuyfzand, Pieter J. THE NETHERLANDS	Managed Aquifer Recharge in Italy: an overview. Rossetto, Rudy ITALY
		Ancient techniques of Managed Aquifer Recharge: Spanish Careos and Peruvian Amunas as an Adaptive Complex System. Breakdown, pathology and comparative analysis. Fernández Escalante, E; García Asensio, JM; Ayuga Téllez, F; Rojas Vega, C; Guerrero Salazar, P and San Sebastián Sauto, J. SPAIN	Infiltration of reclaimed wastewater for drinking-water production: experience of Europe's first project of this kind. Emmanuel Van Houtte, Luc Lebbe, Sayantan Samanta, Clyde Munster en Johan Verbauwheide BELGIUM	Assessing travel time through dune sediments with conservative tracer tests Guardiola-Albert, Carolina; Moreno-Merino, Luis; Kohfahl, Claus; de la Losa Román, Almudena; Ruiz Bermudo, Fernando; Martínez, Antonio; Antonio, Molano-Leno, Lidia. SPAIN

	<p>Feasibility of enhanced infiltration basins in Harris County, Texas. Sheng Zhuping; Miller Gretchen; Huang Mingyi and Lu Peirong USA</p> <p>Dipolic MAR "Bubble" Inside Confined Brine Formation or Floating "Lens" on Top of Unconfined Saline Aquifer. Kacimov, Anvar; Obnosov, Yurii and Al-Maktoumi, Ali. OMAN</p>	<p>Applications of Geochemical Tracer Experiments Near MAR Facilities to Determine Subsurface Travel Times and Hydraulic Connections to Nearby Production Wells Clark, Jordan USA</p>	
13:20 14:50	POSTERS/ LUNCH / EXPOSITION AREA / DRONES DEMONSTRATION AREA		

	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARta room	Other rooms and demonstration areas
	<p>Session 9 MAR AND MANAGEMENT OF CLOGGING 90, 190, 20, 59, 157, 40 (R: 26, 104) Chairs: Dr. R. Martin (Australia) Dr. Jordan Clark (USA)</p>	<p>14:50 15:40 Flash session 2 (sessions 8-11-12) 202, 239, 169, 242, 72, 58, 212, 26 Chair: Dr. Enrique Fernández (Spain)</p>	<p>Session 10 MAR & REGULATIONS 154, 31, 193, 109, 232, 145, 183 (R: 69) Chair: Dr. M. Sapiano (Malta)</p>	
		<p>Managed Aquifer Recharge Solutions (MARSOL). Final statements VIDEO Ortega, R; Fernández, E; Sapiano, M; Lobo, J P.; Guttman, Y; Schütz, C*; Weffer-Roelh, A.; San Sebastián, J.; Kallioras, A. & Dietrich, P. SPAIN</p> <p>Managed Aquifer Recharge Plan based on a surface water- groundwater model for the Santo Domingo creek, Baja California Sur, Mexico. Wurl, Jobst and Imaz Lamadrid, Miguel A. MEXICO</p> <p>Influence of aquifer recharge structures and surface water bodies on geogenic fluoride contamination Brindha, K., Elango, L., Kalpana, L. and Schneider, Michael GERMANY</p>		
	<p>Underground Taming of Floods for Irrigation (UTFI): Global to field scale assessments Alam, Mohammad Faiz; Pavelic, Paul; Sharma, Navneet INDIA</p>	<p>Numerical modeling of pumping test data at an artificial recharge site in Kuwait Mukhopadhyay, Amitabha KUWAIT</p> <p>Geo-electrical monitoring of soil aquifer treatment Haaken, Klaus, Weisbrod, Noam, Kemna, Andreas and Furman, Alex ISRAEL</p> <p>Study on the groundwater recharge based on South to North Water Diversion Project in Hutuo River Alluvial Plain, North China. Li Ya-song CHINA</p>	<p>Managed aquifer recharge in Brazil: current state of the legal framework Suênio A. F. da Silva, Victor S. G. Baptista, Victor H. R. Coelho, Cristiano das N. Almeida BRAZIL</p>	
14:50 17:00	<p>Biological and Physical Clogging in Infiltration Wells – The Effect of Well Diameter and Gravel Pack. Kalwa, Fritz; Binder, Martin; Händel, Falk GERMANY</p>	<p>First results on the assessment of the impact of artificial recharge on the unsaturated zone: Medina del Campo groundwater body (Duero, España) Pablo Valle*, Hector Aguilera, Javier Heredia, José Antonio de la Orden, África de la Hera, Victor del Barrio, Carlos Marcos. SPAIN</p>	<p>Retrospective on 10 years of risk-based guidelines for managed aquifer recharge Dillon, Peter ; Page, Declan ; Vanderzalm, Joanne ; Martin, Russell ; Johnston, Karen ; Higginson, Simon ; Ingleton, Greg ; Naumann, Bruce ; Thomson, Yvonne ; Parsons, Stephen; Cunliffe, David ; Morris, Ryan ; Hose, Grant AUSTRALIA</p>	
		<p>Integration of time-variable scaling factors in HYDRUS to simulate the reduction of hydraulic conductivity due to clogging during managed aquifer recharge operation. Glass, J; Šimůnek, J; Stefan, C. GERMANY</p>		
		<p>15:40 17:00 Session 11 MAR AND MONITORING 230, 44, 71 Chair: MSc. B. Bower (New Zealand)</p>	<p>Scaling-up UTFI in the Watershed and Beyond: Mainstreaming in Programs and Policies of the Government Sikka, Alok K; Alam, Mohammad Faiz; Pavelic Paul INDIA</p>	
	<p>Alluvial Aquifer Filtration as a Pre-treatment Option for ASR Keller, Jason, Rice, Robert, Burt, Walter, Melady, Jason USA</p>	<p>Design and operation of the MAR infiltration scheme in Suvereto (Italy). Rossetto, Rudy; De Filippis, Giovanna; Piacentini, Simone Maria; Febo, Simone; Fabbrizzi, Benucci; Claudio, Trebino, Ennio, Brilli, Mirko, Masi, Marco, Menonna, Valentina, Pei, Alessandra, Leoni, Riccardo, Lazzaroni, Federico, Ercoli, Laura, Pellegrino, Elisa, Enrico. ITALY</p>	<p>MARSOL Policy Brief Essentials on Managed Aquifer Recharge for policy makers and water managers Schüth, Christoph; Röehl, Karl; Fernández Escalante, Enrique; Guttman, Yossy and Lobo Ferreira, João Paulo. GERMANY</p>	
	<p>Laboratory Research on the Laws of Fe(III) Clogging during Urban Storm-water Groundwater Recharge Zhang Hexuan, Du Xinqiang, Ye Xueyan CHINA</p>	<p>MAR assessment through physical models: comparison of laboratory and field experiments Sallwey, Jana, Barquero, Felix, Fichtner, Thomas, Stefan, Catalin GERMANY</p>	<p>Regulation of Managed Aquifer Recharge schemes under the EU's Water Framework Directive Sapiano Manuel, Schembri Michael MALTA</p>	
	<p>Laboratory experiments for the assessment of the impact of solar irradiance on clogging of MAR basins Barquero; Felix; Binte, Rezwana; Mahmood, Hafsa; Muqet, Muhammad; Stefan, Catalin GERMANY</p>	<p>On the mechanisms affecting and controlling SAT operation Orgad, Ofri., Mizrahi, Guy., Furman, Alex., Weisbrod, Noam ISRAEL</p>	<p>The Legal Basis Under Idaho, USA, Law for Private Managed Aquifer Recharge and the Subsequent Rediversion and Use of Such Recharged Groundwater Foster, Kent W.; Rassier, Phillip J. USA</p>	

	The Effect of Soil Tillage Equipment on Recharge Capacity of Infiltration Ponds Negev, Ido; Shechter Tamir; Shtrasler Lilach; Rozenbach Hadar & Livne Avri ISRAEL	MAR Revolution in California – Policy and Regulatory Change to Increase Groundwater Recharge Statewide Timothy K. Parker USA	
17:00 17:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA		
17:30 19:00	IAH MAR Commission Plenary		
20:30	ISMAR 10 GALA DINNER		

LA NAVE. MADRID CITY COUNCIL'S INNOVATION SPACE

THURSDAY 23				
	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa room	Other rooms and demonstration areas
9:00 9:40		Keynote Presentation 3 Prof. Dr. Jörg Drewes <i>Next generation Managed Aquifer Recharge Systems for Enhanced Trace Organic Chemical and Pathogen Removal</i> Germany		
9:40 11:00	Session 14 MAR IN COASTAL AREAS... 98, 29, 43, 228 Chair: Dr. K. Yongcheol (South Korea) MAR on the Island of Gotland, Sweden – exploring the potential and feasibility in comparison to alternative measures Dahlqvist, Peter, Sjöstrand, Karin, Lindhe, Andreas, Rosén, Lars, Thorsbrink, Magdalena, Holgersson, Björn, Nisell, Jakob, Hellstrand, Eva, Persson, Lena, Bastani, Mehrdad SWEDEN Assessment of aquifer storage and recovery efficiency in coastal aquifers Hasan, Mohammad Imran; Bakker, Mark THE NETHERLANDS	Session 12 MAR AND MODELING 120, 144, 67, 158 Chair: Dr. R. Rossetto (Italy) Dr. Gudrum Massmann (Germany) Push-Pull test – Reactive transport modelling: A new approach to study water quality changes Kruisdijk, Emiel; Stuyfzand, Pieter J.; van Breukelen, Boris M. THE NETHERLANDS Modeling the influence of temperature in the infiltration rates and redox reactions of an infiltration pond located in the Llobregat River Basin Rodríguez-Escales, Paula; Barba, Carme; Sanchez-Vila, Xavier; Marcé, Rafel; Folch, Albert. SPAIN	Session 13 MAR AND ECOSYSTEMS 198, 19, 117 Chair: Dr. J. San Sebastián (Spain) Conjunctive Use of Managed Aquifer Recharge to Improve Water Resources and Riparian Habitat Quality Milczarek, Michael; Keller, Jason; Lacher, Laurel. USA Vulnerability of the aquifer system from the Nhartanda Valley (City of Tete, Mozambique) Bande, Ameno Délcio João Paulino & Antunes, Isabel Margarida Horta Ribeiro. PORTUGAL	Round Table 3 GRIPP (Sala 4) Chair: Dr. K. Villholth (South Africa)
	Monitoring and modeling MAR of desalinated seawater to a Mediterranean fresh-water aquifer, from ground-surface to wells' perforations Kurtzman Daniel, Katz Yoram, Ganot Yonatan. ISRAEL Risk reduction of water resource crisis using the managed recharge of coastal pliocenes aquifers in Marbella (Málaga, Spain) Ortuño Morales, A, Parellada Bezares, C, Espinosa Martínez, S, Barrera García, A, Bueso Sánchez, S, Corral Pérez, C SPAIN	Evaluating Managed Aquifer Recharge and Aquifer Storage and Recovery in Kabul, Afghanistan Using Regional and Site-Specific Groundwater Models Matti, Boris; Tookhi, Mohammad Naim; Klein, Hugh; Kissane, Stephen AFGHANISTAN Groundwater recharge estimation for sustainable development of groundwater in Kandi Belt of Jammu, India Singh, Vivekanand INDIA	Mitigating the impact of a future high-capacity ship canal on the nearby wetlands of the Seine estuary nature reserve: an on-site pilot to demonstrate the efficiency of a managed aquifer recharge solution to preserve wetland integrity Lenhardt, Florence; Boisson, Marc FRANCE	
11:00 11:30	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			
11:30 13:50		Session 12b MAR AND MODELING 51, 65, 244 Chair: Dr. R. Rossetto (Italy)	Session 14b/15b MAR IN COASTAL AREAS & ENVIRONMENT 56, 159, 105, 83, 103, 196 Chair: Dr. S. de Lima (Brazil)	Session 20 TRAINING ON MAR 24, 96, 185, 84, 18 Chair: Dr. W. Weiping (China) (Sala 5)

<p>Round Table 4. WATER MANAGEMENT AND DIGITALIZATION Chairman: Mr. M. Navarro Head of ICT/ R&D Tragsa Group</p> <p><i>RIEGOS IBERIA REGABER S.A. Mr. Xavier Díaz</i> <i>AMPHOS 21 S.L. Mr. Jordi Guimerá</i> <i>ODIN SOLUTION S.L. Mr. Antonio Skarmeta</i> <i>TECNITOP. Mr. Jorge Angas</i> <i>LANA SARRATE S.A. Mr. Carlos Lana</i></p>	<p>Investigation of viscosity effects caused by seasonal temperature fluctuations during MAR Glass, Jana; Li, Tailin; Sprenger, Christoph; Stefan, Catalin GERMANY</p>	<p>Reduction of the environmental impact of managed aquifer recharge Jokela, Petri; Kärkkäinen Jari FINLAND</p>	<p>Combining social and hydrogeological factors for MAR site selection in southwest Bangladesh Floris Loys Naus, Kennard Burer, Frank van Laerhoven, Jasper Griffioen, Kazi Matin Achmed, Paul Schot. THE NETHERLANDS</p>
	<p>Investigating a Strategic Aquifer Storage and Recovery Scheme in the Sherwood Sandstone to Improve Resilience Price, Victoria ENGLAND</p>	<p>Impact of geological heterogeneity on water quality at a dechlorinated river bank filtration site: A case study in Potsdam, Germany Wang, Weishi; Hu, Bin; Matthias Munz; Oswald, Sascha. GERMANY</p>	<p>Evidence dispels common myths on managed aquifer recharge in hardrock aquifers in Rajasthan, India Dillon, Peter; Maheshwari, Basant; Soni, Prahlad; Dashora, Yogita; Davande, Sham; Chinnasamy, Pennan. AUSTRALIA</p>
	<p>Artificial Recharge of a Karst Groundwater System in Developing Country El Khoury Ibrahim, Chalhoub Lara, Yazbeck Remy and Naji Khoury LEBANON</p>	<p>Managed aquifer recharge (MAR) in coastal aquifers, in brackish and saline groundwater – Cooperation between partners from European and GCC countries Klingbeil, Ralf; Groeschke, Maike GERMANY</p>	<p>Using free web-based tools for strengthening capacities and promotion of MAR Stefan, Catalin; Junghanns, Ralf; Glass, Jana; Sallwey, Jana, Barquero, Felix; Fichtner, Thomas; Schönekerl, Claudia. GERMANY</p>
		<p>Determining allowable groundwater withdrawals to prevent sinkhole collapse, a case study of the Jiangcun water source, Guanghua basin, China Meng Yan; Zhuojun Li, Long Jia CHINA</p>	<p>Water Planters – An Aquifer Recharge Case Study in Caparaó, Brazil. Shubo, Tatsuo; Dutra, Geraldo; Montenegro, Suzana. BRAZIL</p>
		<p>How to control groundwater quality degradation in coastal zones using MAR optimized by GALDIT Vulnerability Assessment to Saltwater Intrusion and GABA-IFI models Lobo-Ferreira, JP PORTUGAL</p>	<p>How can NGOs support collective action among the users of local drinking water systems? A case study of Managed Aquifer Recharge (MAR) systems in Bangladesh Hasan, Muhammad Badrul; Driessen, Peter; Zoomers, Annelies; Laerhoven, Frank VAN THE NETHERLANDS</p>
		<p>Managed of the ground water aquifer under the Nile Delta Maha Moawad and Mohamed abd-El-Mooty. EGYPT</p>	
<p>13:50 15:10</p>	<p>POSTERS/ LUNCH / EXPOSITION AREA / DRONES DEMONSTRATION AREA</p>		

	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARta room	Other rooms and demonstration areas
	<p>Session 16b/17 MAR WATER QUALITY/HEALTH ASPECTS 206, 95, 134, 181, 174, 106 Chair: Prof. Dr. P. Stuyfzand (The Netherlands)</p>	<p>15:10 15:50</p> <p>Flash session 3 138, 53, 227, 240, 179 Chair: MSc. D. Bartlett (USA)</p>	<p>Session 19B/20b R&D PROJECTS ON MAR & TRAINING 112, 151, 50, 110 Chair: Dr. Catalin Stefan (Germany)</p>	
<p>15:10 17:10</p>	<p>Monitoring of Eh, DOM and water quality in a MAR surface pond: understanding changes in the infiltration rate. Folch, Albert; Barba, Carme; Marcé, Rafael; Rodríguez-Escales, Paula; Sanchez-Vila, Xavier. SPAIN</p>	<p>Key hydrogeochemical processes (im)mobilizing trace metals (arsenic, iron, manganese) in MAR for drinking water provision in Bangladesh Rafiq, Muhammad Risalat, Ahmed, Kazi Matin, van Breukelen, Boris M. THE NETHERLANDS</p> <p>The role of organic matter in the release of iron and manganese during bank filtration A. Abdelrady, S.k. Sharma, A. Sefelnasr, M. Kennedy. THE NETHERLANDS</p>	<p>An integrated system based on MAR and reclaimed water reuse for sustainable agriculture irrigation under climate change conditions in Mediterranean countries. Vurro, Michele; Portoghese, Ivan*; Al-Raggad, Marwan; Bouden, Sarra; Doveri, Marco; El-Mansouri, Bouabid; Escalante, Enrique F. ; Giordano, Raffaele; Lobo-Ferreira, Joao Paolo; Mahjoub, Oifa; Michiel, Caroline; Monacelli Giuseppina; Rossetto Rudy; Santoro, Oronzo; Sapiano, ManuelO & Tuccinardi, Francesco P. ITALY</p>	<p>Working groups meetings (Salas 4 & 5)</p>
	<p>Seasonal Variations in Water Quality and NOM Removal in Natural Bank Infiltration of Boreal Lake Water Jylhä-Ollila, Maija, Laine-Kaulio, Hanne, Koivusalo, Harri FINLAND</p>	<p>Riverbank filtration in a narrow river valley of the Barranca river, Costa Rica Jones-Sánchez, Mark; Araya-Obando, José; Lazo, Andrés; Bonilla, José; Romero-Esquivel, Luis; Grischek, Thomas. COSTA RICA</p> <p>SUDS and resilience to climate change. Prieto Leache, Ignacio and García Ruiz, Luisa María. SPAIN</p> <p>Anticipating pathways and timing for cyanobacteria</p>	<p>Evaluation of Operation and Performance of the Everglades C-111 MAR Project Christopher J. Brown; June Mirecki USA</p>	

	breakthrough at a 2-lake bank filtration site via environmental tracers. Masse-Dufresne Janie, Baudron Paul, Barbecot Florent, Pasquier Philippe, Barbeau Benoit, Patenaude Marc, Pontoreau Coralie and Proteau-Bédard Francis. CANADA			
Emerging organic contaminants in managed aquifer recharge: investigating their removal to ensure a sustained, safe, high quality water resource. Reeve, Peter J.; Wallis, Ilka; Hutson, John; Fallowfield, Howard J. AUSTRALIA	15:50 17:10	Session 18. URBAN MAR 11, 97, 153, 13 Chair: Dr. K. Zuurbier (The Netherlands)	The MAR portal: a web-based tool for sharing mar-related information Sterckx, Arnaud; Stefan, Catalin THE NETHERLANDS	
Deciphering the long-term evolution of groundwater mixings at a multi-aquifer river bank filtration site Pontoreau Coralie, Baudron Paul, Barbecot Florent, Masse-Dufresne Janie and Patenaude Marc. CANADA		Managed aquifer recharge as a strategic storage and urban water management tool in the Darwin rural area, Northern Territory, Australia Knapton, Anthony; Page, Declan; Vanderzalm, Joanne; Gonzalez, Dennis; Barry, Karen; Taylor, Andrew; Horner, Nerida; Chilcott, Chris; Petheram, Cuan. AUSTRALIA		
Coupling bank filtration to pond infiltration – a useful option in terms of quality improvement? Burke, Victoria, Greskowiak, Janek, Sanz-Prat, Alicia, Rhode, Clara, Schröter, Ina, Drewes, Jörg, Hübner, Uwe, Sperlich, Alexander, Schimmelpfennig, Sebastian, Dünnbier, Uwe, Massmann, G. GERMANY		Principles for rainwater management in a multi-sponge city using soil, unconfined- and confined-aquifers Dillon, Peter; Argue, John; Meyer, Wayne; Barry, Karen. AUSTRALIA		
Combined removal of organic micropollutants and ammonium in a column study with reactive barriers simulating MAR Modrzyński, Jakub J., Albers, Christian N., Wittorf, L., Canelles, A., Hallin, S., Aamand, J. DENMARK		Influence of temporal discretization of rainfall data on efficiency of an injection well Victor S. G. Baptista, Victor H. R. Coelho, Nelson O. L. Caicedo, Suênio A. F. da Silva, Cristiano das N. Almeida. BRAZIL		
		Rooftop rainwater harvesting – way forward to meeting water crisis in urban India S.K.Sharma. INDIA	16:50 17:10	Post-conference trips information
17:10 17:40	POSTERS/COFFEE BREAK / EXPOSITION AREA / DRONES DEMONSTRATION AREA			

	Sala 2* Recharged SATur room	Auditory* Thirsty MARía room	Sala 6 Reclaimed MARTa room	Other rooms and demonstration areas
	Session 17b MAR HEALTH ASPECTS 12, 191, 99, 225, (R: 126) Chair: Dr. D. Page (Australia) and Dr. B. van Breukelen (The Netherlands)	Session 18b URBAN MAR 70, 195, 34 Chair: Arq. I. Prieto (Spain)		
17:40 19:00	E. coli attenuation during infiltration of treated wastewater Donn, Mike; Reed, Debbie; Vanderzalm, Joanne; Page, Declan. AUSTRALIA Fate of plant pathogenic bacteria in drainage water during managed aquifer recharge for agricultural irrigation Eisfeld, Carina; van Breukelen, Boris. M.; van der Wolf, Jan M.; Schijven, Jack F.; Medema, Gertjan. THE NETHERLANDS	Groundwater and Water Bourne disease in Kabul Matti, Boris; Klein, Hugh; Tookhi, Mohammad Naim; Kissane, Stephen. AFGHANISTAN Participatory Aquifer Management an Alternative Approach to Sustain Urban Water Supply – a case study of Bhuj City – Gujarat, India Jadeja Y. J., Jadeja, M.J., Parmar, G.H., Reel, G.D., Gorasiya, J. G.. INDIA	Working groups meetings	Working groups meetings (Salas 4 & 5)
	Antibiotic Degradation during Riverbank Infiltration of Reclaimed Water at Beiyun River in the North China Plain Ma, Yunjie; Ma, Meng; Yang, Yuxia; Li, Binghua; Zheng, Yan. CHINA	Preventing pluvial flooding and water shortages on various scales by integrating aquifer storage and recovery in urban areas Zuurbier, Koen; De Doelder, Bert and Van Breukelen, Boris. THE NETHERLANDS		

	Water quality changes during river bank filtration at Budapest, Hungary Zsuzsanna Nagy-Kovács, János Davidesz, Katalin Czihát-Mártonné, Thomas Grischek. HUNGARY	Recharge of aquifers through wells in urban areas of Mexico City Benton, Andrés. MEXICO	
19:00 19:30		CLOSING CEREMONY Ministry of Science, Innovation and Universities. Dr. Enrique Playán European commission (EIP Water) Dr. Guido Schmidt Tragsa Group. MRs. Paloma López-Izquierdo ISMAR 11 ANNOUNCEMENT AND PHOTO	
*Full time Simultaneous Translation in Auditorio and Sala 2 except Wednesday and Thursday evening			ABSTRACTS LIST LINK SESSIONS LINK

FRIDAY 24

TECHNICAL TOURS

DEPARTURE FROM: Instituto Geológico y Minero de España (IGME) Headquarters*; Ríos Rosas 23 St. 28003, Madrid (Ríos Rosas Metro Station, Line 1, blue color, Ríos Rosas St. Exit).

1-LOS ARENALES AQUIFER FACILITIES IN SEGOVIA PROVINCE 08:45 h

2-GUADIANA CHANNEL AND DAIMIEL NATIONAL PARK 08:30 h

3-ASR/ASTR/DEPTH INJECTION BOREHOLES IN MADRID 09:00 h

<https://www.ismar10.net/en/technical-tours/>

Updates: <https://www.ismar10.net/en/detailed-program/>