

# GRECPIMA

MAY 2019  
08-10

International Groundwater Resilience to Climate Change and High Pressure Conference

## Conference Program

[www.grecpima.com](http://www.grecpima.com)



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## Venue and Dates

**GRECPIMA Conference will  
be held at AKM conference center at Muğla  
Sıtkı Kocman University, Muğla, Turkey.  
(<http://www.sksd.mu.edu.tr/tr/akm-salonlari-9006>)**

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## IMPORTANT NOTICE

After you reached BJV Muğla Milas-Bodrum Airport, you can take a bus from Milas airport to Muğla city center. You can find MUTTAS bus in front of the airport. You can exchange your money as Turkish Liras, that you will need it in the bus. You can find an exchange office in the airport arrivals part of building or you can exchange your money in İstanbul before you come to Muğla. When you reach to Muğla bus terminal by bus, you can find a taxi or bus to reach the center and your hotel.

### Milas Airport



MUTTAS Bus (20 TL)  
Direction to MUGLA



TAXI (180 TL)

### Mugla Bus Terminal



Mugla Bus terminal to City Center  
(one way ticket price: 3 TL)





# GREOPIMA

**MAY 2019**  
**08-10**

## Conference at a Glance

TUESDAY 07 MAY	WEDNESDAY 08 MAY	THURSDAY 09 MAY	FRIDAY 10 MAY
	9:30–10:30 <b>Registration Desk (AKM)</b>	9:30–10:30 <b>Technical Session 4</b>	9:30–10:30 <b>Technical Session 8</b>
	10:30–11:00 <b>Opening Plenary</b>	10:30–11:00 <b>Break</b> Exit Hall	10:30–11:00 <b>Break</b> Exit Hall
	11:00–11:15 <b>Break</b> Exit Hall	11:00–12:15 <b>Technical Session 5</b>	11:00–12:15 <b>Technical Session 9</b>
	11:15–12:30 <b>Technical Session 1</b>		
	12:30–14:30 <b>Lunch (MSKU Student Palace)</b>	12:15–14:00 <b>Lunch (MSKU Student Palace)</b>	12:00–14:00 <b>Lunch (MSKU Student Palace)</b>
		14:00–14:30 <b>Keynote Talk 1</b>	14:00–14:30 <b>Keynote Talk 2</b>
	14:30–15:45 <b>Technical Session 2</b>	14:30–16:00 <b>Technical Session 6</b>	14:30–15:45 <b>Technical Session 10</b>
	15:45–16:15 <b>Break</b> Exit Hall	15:45–16:15 <b>Break</b> Exit Hall	15:45–16:00 <b>Break</b> Exit Hall
<b>15:00-18:00</b> <b>Registration Opens (AKM)</b>	16:15–17:30 <b>Technical Session 3</b>	16:15–17:30 <b>Technical Session 7</b>	16:00-17:00 <b>Closing Plenary</b>
	20:00–22:00 <b>Diner (MSKU VIP lounge)</b>	20:00–22:00 <b>Diner (MSKU VIP lounge)</b>	20:00–22:00 <b>Diner (MSKU VIP lounge)</b>



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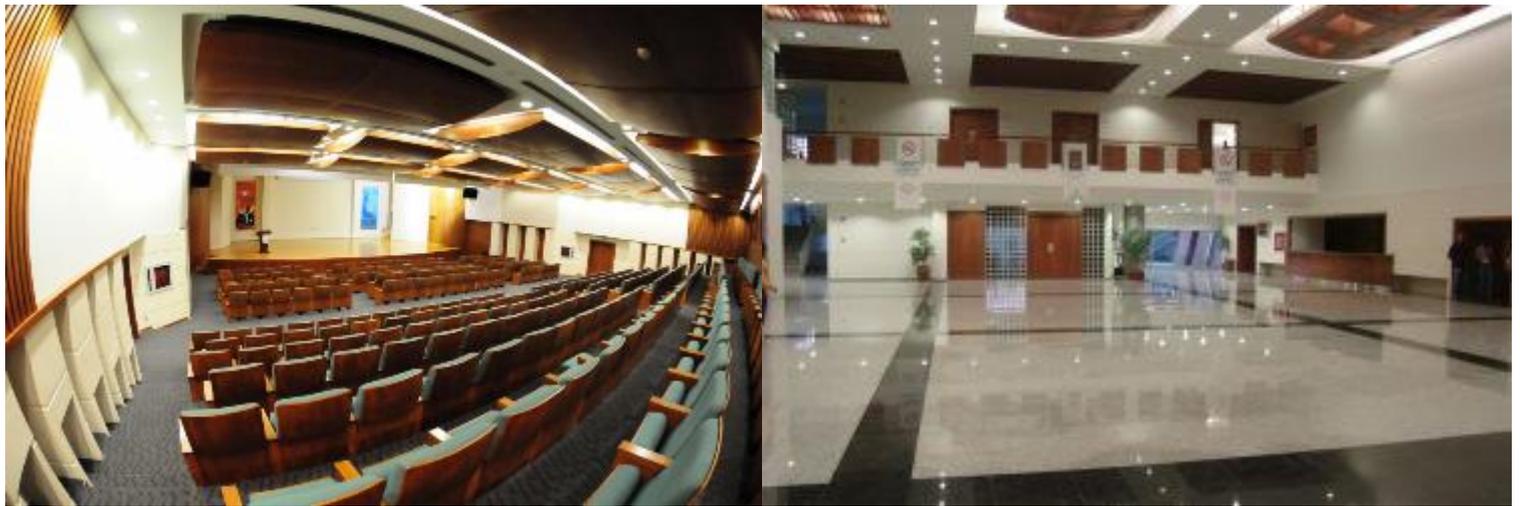
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# GREOPIMA

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*Muğla Sitki Koçman University Conference Center (AKM HALL B)*



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## Plenary Sessions

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### WELCOME ADDRESS

Assoc. Prof. Dr. Bedri KURTULUS, MSKU

### OPENING PLENARY

Prof. Moumtaz RAZACK, Poitiers University

### OPENING ADDRESS

Prof. Dr. Hüseyin ÇİÇEK, MSKU Rector

### KEYNOTE TALK 1

**PROF. DR. Mehmet EKMEKÇI**

Hydrogeological Engineering

Department

(Hacettepe University), Turkey



### KEYNOTE TALK 2

**PROF. DR. Mohammed SINAN**

Hassania School of Public Works, Casablanca,

Morocco



### CLOSING PLENARY

Best Student Oral Presentation Award

Closing plenary speech by

- Prof. Dr. Moumtaz Razack



- Prof. Mohammed Meddi



- Assoc. Prof. Dr. Bedri Kurtulus



## Technical Sessions at a Glance

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	Session	Hour	AKM Conference Hall B
<b>WEDNESDAY</b> <b>08 MAY</b>	1	11:15–12:15	T1. Impact of growing pressures and threats (increasing demands, land use changes, drought and over-exploitation) on groundwater resources and related ecosystems.
	2	14:30–16:00	T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources
	3	16:15–17:45	T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources
<b>THURSDAY</b> <b>09 MAY</b>	4	9:30–10:45	T4. Protection and sustainable management of groundwater. Innovative approaches with special emphasis to managed aquifer recharge.
	5	11:00–12:15	T7. GW exploration and assessment. Novel approaches using RS and GIS.
	6	14:30–16:00	T2. Groundwater and climate change. Resiliency and importance of groundwater in adapting to global change.
	7	16:15–18:00	T6. Preservation of water resources in coastal aquifers. T9. Groundwater facing agriculture demands.
<b>FRIDAY</b> <b>10 MAY</b>	8	9:30–10:30	T5. Surface water and groundwater interaction. Towards Integrated water resources management. T8. Understanding water governance. The role of groundwater.

- |    |             |   |
|----|-------------|---|
| 9  | 11:00–12:00 | T4. Protection and sustainable management of groundwater. Innovative approaches with special emphasis to managed aquifer recharge.<br>T7. GW exploration and assessment. Novel approaches using RS and GIS                                  |
| 10 | 14:30–15:45 | T2. Groundwater and climate change. Resiliency and importance of groundwater in adapting to global change.<br>T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources |

*The posters will be presented from the beginning of the Conference and the authors will stand on their posters during the day of related sessions will be presented.*



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## Technical Session Details

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### TECHNICAL SESSION 1

*T1. Impact of growing pressures and threats (increasing demands, land use changes, drought and over-exploitation) on groundwater resources and related ecosystems.*

**WEDNESDAY, 08 MAY**

Session Co-Chairmen:

Assoc. Prof. Dr. Ozgür AVŞAR

Assoc. Prof. Dr. Özlem Yağbasan

<p><b>11:15-11:30</b> <b>GR-28</b></p>	<p>Hydrogeological Characterization for Mining and Environmental Impact Assessment in Alpu Coal Basin, Eskişehir-Turkey</p> <p><b>Hasan Yazıcıgil, Yusuf Can Güney and Hatice Kiliç</b></p>
<p><b>11:30-11:45</b> <b>GR-18</b></p>	<p>Impact assessment of rejuvenated groundwater in floodplain aquifers of NCT Delhi</p> <p><b>Aditya Sarkar, Suman Kumar and Shashank Shekhar</b></p>
<p><b>11:45-12:00</b> <b>GR-25</b></p>	<p>Geologic and anthropogenic sources of low-arsenic groundwater on the western bank of river Bhagirathi in Bengal Basin, West Bengal, India</p> <p><b>Utsab Ghosal, Soumyajit Basu, Utsha Dasgupta and Pradip Sikdar</b></p>
<p><b>12:00-12:15</b> <b>GR-51</b></p>	<p>Methodology for estimating groundwater vulnerability based on the concept of soil sensitivity to infiltration. Application to the Dogger aquifer in Poitou region (France)</p> <p><b>Amani Shorieh and Moumtaz Razack</b></p>
<p><b>12:15-12:30</b> <b>GR-52</b></p>	<p>A critical analysis of municipal water supply in Turkey from the perspective of the UN-2030 Agenda for sustainable development</p> <p><b>Mehmet Ekmekci, Şükran Açikel and Otgonbayar Namkhai</b></p>

## TECHNICAL SESSION 2

*T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources*

**WEDNESDAY, 08 MAY**

Session Co-Chairmen:  
Assoc. Prof. Bedri Kurtuluş  
Prof. Dr. Fouad Amraoui

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14:30-14:45 GR-19	Monitoring Groundwater Storage with GRACE Gravity Records in Small to Moderate Sized Watersheds  <b>Orhan Gündüz and Behnam Khorrami</b>
14:45-15:00 GR-27	Preliminary Characterization Of Groundwater-Surface Water Interactions In “La Charca De Suarez” Wetlands. Granada, Spain  <b>Ángela María Blanco Coronas, María Luisa Calvache Quesada, Manuel López Chicano, Carlos Duque and José Benavente Herrera</b>
15:00-15:15 GR-75	Coupled SWAT-MODFLOW Model for Determining Surface Water and Groundwater Interaction  <b>Balca Ağaçsapan, Emrah Pekkan, Alper Çabuk</b>
15:15-15:30 GR-77	Monitoring of the percolation in the unsaturated zone on the Hydrogeological Experimental Site of the University of Poitiers: measurements, modelling and impact of climate change  <b>Jérôme Texier, Caner Laurent, Benoît Nauleau, Jacques Bodin and Gilles Porel</b>
15:30-15:45 GR-38	Filling the gaps in climate measurement data via Bayesian structural time series  <b>Z. Bora Ön</b>
15:45-16:15	<b>Break</b>

## TECHNICAL SESSION 3

*T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources*

**WEDNESDAY, 08 MAY**

Session Co-Chairmen:

Dr. M. Can Canoglu

Prof. Mohammed Meddi

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<p><b>16:15-16:30</b> <b>GR-26</b></p>	<p>Trend Analyses of Meteorological Variables and Lake Levels for Two Shallow Lakes in Central Anatolia</p> <p><b>Ozlem Yagbasan, Vahdettin Demir and Hasan Yazicigil</b></p>
<p><b>16:30-16:45</b> <b>GR-76</b></p>	<p>Regional Groundwater Recharge Estimation in Fırat and Kızılırmak Basins using GRACE and GLDAS</p> <p><b>Obby Nawa Likando, Emrah Pekkan</b></p>
<p><b>16:45-17:00</b> <b>GR-70</b></p>	<p>Water resources assessment of the Borena basin in Southern Ethiopia, a complex volcanic system under semi-arid climate, using numerical modeling</p> <p><b>Moumtaz Razack, Wakgari Furi, Fanta Likissa and Abera Shiferaw</b></p>
<p><b>17:00-17:15</b> <b>GR-64</b></p>	<p>Environmental Isotope Variations in the Azmak Springs: Implication for Water Mixing and Recharge Conditions</p> <p><b>Günseli Erdem, Bedri Kurtuluş, Çağdaş Sağır, Özgür Avşar, Mustafa Can Canoğlu and Moumtaz Razack</b></p>
<p><b>17:15-17:30</b> <b>GR-40</b></p>	<p>Depletion and quality deterioration of Groundwater Resources and its consequences on irrigated agriculture [Case Study: Pakistan]</p> <p><b>Ammara Nusrat, Hamza Farooq Gabriel and Abdul Sattar Shakir</b></p>
<p><b>17:30-17:45</b> <b>GR-84</b></p>	<p>Cleanup process of contaminants with Phytoremediation Technology</p> <p><b>Ozah Aydın</b></p>

## TECHNICAL SESSION 4

*T4. Protection and sustainable management of groundwater. Innovative approaches with special emphasis to managed aquifer recharge.*

**THURSDAY 09 MAY**

Session Co-Chairmen:

Assoc. Prof. Dr. Bedri Kurtulus

Assoc. Prof. Dr. Ozgür AVŞAR

9:30-9:45 GR-71	Simulation of climate change impact on a coastal aquifer under arid climate. the Tadjourah aquifer (Republic of Djibouti, Horn of Africa)  <b>Moumtaz Razack, Mohamed Jalludin and Abderamane Houmed-Gaba</b>
9:45-10:00 GR-83	Occurrence of Oxadixyl Fungicide in the Groundwater Fed Urban Lake of Bordeaux City, France  <b>Jessica D. Villanueva, Philippe Le Coustumer, Nicolas Peyraube, Damien Granger , Romain Thiennot and Laurent Ley</b>
10:00-10:15 GR-44	Assessment of recharge mechanisms of a complex volcanic aquifer (Mountain Range of Goda, Republic of Djibouti) using hydrochemistry, stable isotopes ( $^2\text{H}$ , $^{18}\text{O}$ ) and tritium ( $^3\text{H}$ )  <b>Ibrahim Mohamed Ahmed, Mathieu Le Coz, Jalludin Mohamed and Moumtaz Razack</b>
10:15-10:30 GR-39	Study of surface water quality in the Wadi El Harrach for the artificial recharge of the Mitidja groundwater (North Algeria)  <b>Hind Meddi, Said Boudehane, Abdelamadjid Boufekane, Mohamed Meddi and Moumtaz Razack</b>
10:30-11:00	<b>Break</b>

## TECHNICAL SESSION 5

*T7. GW exploration and assessment. Novel approaches using RS and GIS*

**THURSDAY 09 MAY**

Session Co-Chairmen:

Prof. Dr. Philippe Le Coustumer

Prof. Dr. D. Funda Kurtulus

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<b>11:00-11:15</b> <b>GR-56</b>	Assignment of Groundwater Potential of the Sub-Basin Drainage Area of Tigris River Batman Region by GIS Based MCDM Method  <b>Recep Çelik</b>
<b>11:15-11:30</b> <b>GR-42</b>	Assessment of karst spring geometry using electrical resistivity tomography on Azmak Springs, Ula, Muğla, Turkey  <b>Çağdaş Sağır, Bedri Kurtuluş, Günseli Erdem, Özgür Avşar, Mustafa Can Canoğlu, Dilek Funda Kurtuluş and Moumtaz Razack</b>
<b>11:30-11:45</b> <b>GR-80</b>	Evaluation of the Characteristics of Surface Ice Layer of Çıldır Lake with Remote Sensing  <b>Hande Mahide Yeşilmeden, Bedri Kurtuluş, Özgür Avşar, Hakan Aksu</b>
<b>11:45-12:00</b> <b>GR-79</b>	Flood Monitoring with Synthetic Aperture Radar Imagery (Sentinel -1): A Case Study in Turkish Thrace  <b>Çağrı Alperen İnan, Bedri Kurtuluş</b>
<b>12:00-12:15</b> <b>GR-73</b>	Numerical Modeling of Unsteady Water Flow and Solute Transport In Unconfined Aquifers. Effect of The Unsaturated Porous Media  <b>H. Lemacha, M. Razack, A. Maslouhi, Z. Mghazli, F. Hecht, A. Ghafiri, S. Elmoutaki</b>

## TECHNICAL SESSION 6

*T2. Groundwater and climate change. Resiliency and importance of groundwater in adapting to global change.*

**THURSDAY 09 MAY**

Session Co-Chairmen:

Dr. Esra Çetin

Dr. Bora Ön

14:30-14:45 GR-17	Solar forcing and climatic variability for last 500 years from Lake Köyceğiz sediment records (SW Anatolia)  <b>Sena Akçer-Ön</b>
14:45-15:00 GR-49	Paleoenvironmental Reconstruction of Lake Bafa (SW, Anatolia): Multi-Variate Statistical Analyses of Ostracoda and Benthic Foraminifera Species  <b>Rana Salihoğlu, Sena Akçer-Ön, Finn Viehberg and Martin Langer</b>
15:00-15:15 GR-63	Hydroclimate Changes in the Lake Gölcük (Isparta, SW Anatolia) Sedimentary Records  <b>Iliya Bauchi Danladi, Ersin Ateş, Dursun Acar, Bora Ön and Sena Akçer-Ön</b>
15:15-15:30 GR-62	Assessment of the Bahr-el-Ghazal groundwater, a major water resource in West-Central Chad, under heavy natural and anthropogenic threats  <b>Hamit Abderamane, Mahamat Sougoudji and Moumtaz Razack</b>
15:30-15:45 GR-54	Availability of data for the development of a database on the physicochemical quality of Moroccan groundwater  <b>Omkeltom Zidani, Mohamed Dakki and Fatima Fadil</b>
15:45-16:15	<b>Break</b>

## TECHNICAL SESSION 7

T6. Preservation of water resources in coastal aquifers.

T9. Groundwater facing agriculture demands.

### THURSDAY 09 MAY

Session Co-Chairmen:

Dr. Sena Akçer Ön

Dr. Ceren Kucukuysal

<b>16:15-16:30</b> <b>GR-58</b>	Groundwater quality of Mitidja Plain  <b>Yahiaoui Samir, Meddi Mohamed, Razack Moumtaz, Kurtulus Bedri and Boufekane Abdelmadjid</b>
<b>16:30-16:45</b> <b>GR-21</b>	Two Dimensional Simulation of Seawater Intrusion in A Cenomanian Carbonate Aquifer (Chaouia Costal Aquifer, Morocco)  <b>Bahija Alabjah, Jalal Moustadraf, Fouad Amraoui and Mohamed Slimani</b>
<b>16:45-17:00</b> <b>GR-11</b>	Impact of agricultural practices on the origin and evolution of salinization by modeling, and on nitrate pollution and overexploitation at irrigated area level of Tadla, Morocco  <b>Mohammed Yasser Jamali, Mustapha Namous, Anas Tallou and Soumia Amir</b>
<b>17:00-17:15</b> <b>GR-59</b>	Estimating groundwater vulnerability to pollution using a modified DRASTIC model in the Mitidja Plain Area (Algeria)  <b>Abdelmadjid Boufekane, Samir Yahiaoui, Hind Meddi, Mohamed Meddi and Moumtaz Razack</b>
<b>17:15-17:30</b> <b>GR-48</b>	The effect of excess abstraction on groundwater quality in Coastal Aquifers.  <b>Mohammed Seyam, Jawad S Alagha and Augustine Chioma Affam</b>

## TECHNICAL SESSION 8

*T5. Surface water and groundwater interaction. Towards Integrated water resources management.  
T8. Understanding water governance. The role of groundwater.*

**FRIDAY 10 MAY**

Session Co-Chairmen:  
Assoc.Prof.Dr. Bedri Kurtuluş  
Dr. M. Can Canoglu

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<b>9:30-9:45</b> <b>GR-67</b>	Vulnérabilité & Adaptation au Changement Climatique des Ressources en Eau du Maroc  <b>Mohamed Sinan</b>
<b>9:45-10:00</b> <b>GR-06</b>	Assessment of Rainfall Runoff Models for flood prediction: case of Djendjen catchment in Eastern Algeria  <b>Ishak Abdi and Mohamed Meddi</b>
<b>10:00-10:15</b> <b>GR-32</b>	The sustainability of Water Resources: Case of Grand Casablanca (Morocco)  <b>Fouad Amraoui and Jalal Moustadraf</b>
<b>10:15-10:30</b> <b>GR-31</b>	Integrated Management of Water Resources as a Response to the Water Deficit: Case of the Saiss Plain (Morocco)  <b>Fouad Amraoui</b>
<b>10:30-11:00</b>	<b>Break</b>

## TECHNICAL SESSION 9

*T4. Protection and sustainable management of groundwater. Innovative approaches with special emphasis to managed aquifer recharge.*

*T7. GW exploration and assessment. Novel approaches using RS and GIS*

**FRIDAY 10 MAY**

Session Co-Chairmen:

Prof.Dr. Moumtaz Razack

Dr. Abdoulrahman Houmed Gaba Maki

<p><b>11:00-11:15</b> <b>GR-60</b></p>	<p>Assessment of the groundwater potential in the hard rock terrain of western anti atlas belt using Remote Sensing and GIS Techniques: a case study of Telimzoune region, Morocco</p> <p><b>Abdessamad Jari, El Mostafa Bachaoui, Achraf Khaddari, Said Chakiri, Amine Jellouli and Abderrazak El Harti</b></p>
<p><b>11:15-11:30</b> <b>GR-24</b></p>	<p>Influence of climate change on rainfall variability, and water resources, Case of the springs area. Upper basin of Oum-Er-Rabiaa (Middle Atlas, Morocco).</p> <p><b>Amine Tahiri, Fouad Amraoui, Mohamed Sinan and Faouzi Berrada</b></p>
<p><b>11:30-11:45</b> <b>GR-47</b></p>	<p>Multicriteria analysis for groundwater potential mapping in arid zones (Case of the Ighrem Region, Western Anti-Atlas, Morocco)</p> <p><b>Khalid Benjmel, Fouad Amraoui and Said Boutaleb</b></p>
<p><b>11:45-12:00</b> <b>GR-37</b></p>	<p>Comparative study of the assessment methods of the vulnerability of aquifers to pollution in a porous environment with the use of SIG tools. With application to the aquifer of Souss-Chtouka, Morocco</p> <p><b>Mohamed Sinan and Yassine Jabrane</b></p>
<p><b>12:00-12:15</b> <b>GR-36</b></p>	<p>Valorization of superficial waters of floods control dams for aquifers artificial recharge Case of the dams of Settat plateau and Berrechid aquifer (Morocco)</p> <p><b>Mohamed Sinan, Moumtaz Razack, Mohamed Dchieche and Najlae Naser</b></p>

## TECHNICAL SESSION 10

*T2. Groundwater and climate change. Resiliency and importance of groundwater in adapting to global change.*

*T3. Groundwater monitoring and modelling. Novel Approaches in characterizing spatial-temporal distribution of water resources*

**FRIDAY 10 MAY**

Session Co-Chairmen:

Dr. Abdourahman Houmed Gaba Maki

Assoc.Prof.Dr. Bedri Kurtulus

<p><b>14:30-14:45</b> <b>GR-61</b></p>	<p>Assessment of groundwater resources in the Bouanane basin (Eastern High Atlas, Morocco) based on hydrochemical and isotopic approaches</p> <p><b>Fatima Abdelfadel, Mohamed Hilali, Claude Fontaine, Lilian Eloy, Jérôme Labanowskia, Abderrazzak El Albani and Moumtaz Razack</b></p>
<p><b>14:45-15:00</b> <b>GR-14</b></p>	<p>Securing access to drinking water in north-eastern Morocco: The example of the Taourirt-Oujda corridor</p> <p><b>Halima Jounaid, Taha Attou and Toufik Remmal</b></p>
<p><b>15:00-15:15</b> <b>GR-66</b></p>	<p>Groundwater artificial recharge to adapting to water scarcity and global change in the Mediterranean regions: case of Ras Jebel aquifer (Nord Tunisia)</p> <p><b>Fethi Lachaal, Sameh Chargui and Lobna Truki</b></p>
<p><b>15:15:15:30</b> <b>GR-55</b></p>	<p>Calibration of a semi-distributed hydrologic model for Comprehensive and Efficient Flow Simulations in semi-arid watershed</p> <p><b>Siham El Aryf and Hassan Rahali</b></p>
<p><b>15:30-15:45</b> <b>GR-72</b></p>	<p>Is groundwater resilience to climate changes and high pressures an opposite concept? An assessment based on the analysis of the Dogger aquifer in Poitou region, France</p> <p><b>Moumtaz Razack, Bedri Kurtulus, Mohamed Meddi, Can Canoglu, Amani Shorieh, Cagdas Sagir, Günseli Erdem, Florent Louis, Yvan Delbirani, Arnaud Chambat and Emilie Gilbert</b></p>

## Poster List

<b>T3 GR-30</b>	<p>Using Mann-Kendall and Sen's slope method for detecting trend of streamflow of the Tafna Basin (Northwest of Algeria)</p> <p><b>Hanane Bougara, Kamila Baba Hamed, Christian Borgemeister, Bernhard Tischbein, Navneet Kumar</b></p>
<b>T3 GR-82</b>	<p>Hydrogeological characterization and aquifer recharge mapping for groundwater resources management using hydrogeochemistry analyses and structural mapping: A case study from South-West of Mugla, Turkey.</p> <p><b>Günseli Erdem, Hatice Turan, Bedri Kurtuluş, Jean-Luc Régnier, Moumtaz Razack</b></p>
<b>T3 GR-78</b>	<p>Relative lake level fluctuations and paleoclimate of the middle Pleistocene travertine deposits (Göktepe- Muğla)</p> <p><b>Özlem Yılmaz, Talip Güngör, İsmail İşintek and Mine Sezgul Kayseri Özer</b></p>
<b>T4 GR-81</b>	<p>Hydrogeological assessment of a geothermal source near Yatagan, SW Turkey.</p> <p><b>Çağdaş Sağır, Günseli Erdem, Özgür Avşar, Bedri Kurtuluş, Mutlu Gürler</b></p>

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**International Groundwater Resilience to  
Climate Change and High Pressure Conference**

**May, 8-10, 2019**

**Muğla Sıtkı Koçman University, Turkey**

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