Under the patronage of the Custodian of the Two Holy Mosques
King Salman Bin Abdulaziz Al Saud

9th International Conference on Water Resources and Arid Environments

29-30 March 2021

Organizers

Contact: Dr. Adulmalek Al Alshaikh, Conference Chairman
Phone: (+966 11) 4675571  Fax: (+966 11) 4675574  WhatsApp: 0552881212  info@icwrae-psipw.org  www.icwrae-psipw.org
## ICWRAE 9 Conference Schedule

### Day 1: 29 March 2021

<table>
<thead>
<tr>
<th>Time (GMT)</th>
<th>ICWRAE 9 Inaugural Ceremony – Date: 29 March, 2021</th>
<th>Time: 15:00-15:50 GMT (Saudi Arabia Time GMT+3)</th>
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</thead>
</table>
| 15:00-15:50 | Abdulmalek A. Al Alshaikh  
Director, Prince Sultan Institute for Environmental, Water & Desert Research; PSIPW General Secretary  
Presentation: PSIPW  
Introducing the 9th Award Winners  
H.E. Badran al-Omar  
President, King Saud University  
Presentation: King Saud University  
An Introduction to KSU and its History  
H.E. Abdulrahman Abdulmohsen A. AlFadley  
Representative of the Custodian of the Two Holy Mosques King Salman Bin Abdulaziz Al Saud; Minister of Environment, Water and Agriculture | 18:00-18:50 |

### Opening Session (Guests of Honour) – Date: 29 March, 2021  
Time: 15:55-16:30 GMT (Saudi Arabia Time GMT+3)

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<tr>
<th>Time (GMT)</th>
<th>Opening Session (Guests of Honour) – Date: 29 March, 2021</th>
<th>Time: 15:55-16:30 GMT (Saudi Arabia Time GMT+3)</th>
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</table>
| 15:55-16:05 | Simonetta Di Pippo  
Director, United Nations Office for Outer Space Affairs | 18:55-19:05 |
| 16:05-16:20 | Mahmoud Abou Zaid  
President, Arab Water Council | 19:05-19:20 |
| 16:20-16:30 | Loïc Fauchon  
President, World Water Council | 19:20-19:30 |

### Session (A) – Date: 29 March 2021  
Time: 16:30–17:50 GMT (Saudi Arabia Time GMT+3)

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<tr>
<th>Time (GMT)</th>
<th>Session (A) – Date: 29 March 2021</th>
<th>Time: 16:30–17:50 GMT (Saudi Arabia Time GMT+3)</th>
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</table>
| 16:30-16:50 | Abdul Aziz bin Muhareb Al-Shaibani  
Deputy Minister for Water, Ministry of Environment, Water & Agriculture | 19:30-19:50 |
| 16:50-17:10 | Rahul Nair  
National Graphene Institute, University of Manchester, UK | 19:50-20:10 |
| 17:10-17:30 | Benjamin Hsiao  
Stony Brook University, New York, USA | 20:10-20:30 |
| 17:30-17:50 | Priyanka Sharma  
Stony Brook University, New York, USA | 20:30-20:50 |

### Session (B) – Date: 29 March 2021  
Time: 16:39–17:50 GMT (Saudi Arabia Time GMT+3)

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<tr>
<th>Time (GMT)</th>
<th>Session (B) – Date: 29 March 2021</th>
<th>Time: 16:39–17:50 GMT (Saudi Arabia Time GMT+3)</th>
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</table>
| 16:30-16:50 | Omar Yaghi  
University of California, Berkeley | 19:30-19:50 |
| 16:50-17:10 | Tom Soo  
Executive Director, IAHR | 19:50-20:10 |
| 17:10-17:30 | Kristine Larson  
University of Colorado at Boulder | 20:10-20:30 |
| 17:30-17:50 | Soroosh Sorooshian  
University of California, Irvine | 20:30-20:50 |

### ICWRAE 9 Inaugural Ceremony

**Presentation:**  
**H.E. Badran al-Omar**  
President, King Saud University  
**Presentation:**  
**H.E. Abdulrahman Abdulmohsen A. AlFadley**  
Representative of the Custodian of the Two Holy Mosques King Salman Bin Abdulaziz Al Saud; Minister of Environment, Water and Agriculture
## Session (A) – Date: 30 March 2021  Time: 15:00-17:50 GMT (Saudi Arabia Time GMT+3)

<table>
<thead>
<tr>
<th>Time (GMT)</th>
<th>Time (RIYADH)</th>
<th>Session</th>
<th>Title</th>
<th>Abstract</th>
</tr>
</thead>
</table>
| 15:00-15:20 | 18:00-18:20   | Abdul Latif Ahmad  
Universiti Sains, Malaysia | Recycling & reclamation of water from palm oil mill effluent using integrated membrane system |
King Abdullah University of Science and Technology, Thuwal, Saudi Arabia | Sustainability at the solar energy-water nexus |
| 15:40-15:50 | 18:40-18:50   | Break |  |  |
| 15:50-16:10 | 18:50-19:10   | Mansour Almazroui  
Consultative Council of Saudi Arabia | Climate change in the Kingdom of Saudi Arabia |
| 16:10-16:30 | 19:10-19:30   | Rong Wang  
Nanyang Technological University, Singapore | Novel hollow fiber membrane development for water reuse: from lab study to commercialization |
| 16:30-16:50 | 19:30-19:50   | Evelyn Wang  
Massachusetts Institute of Technology | A scalable solar-driven water production device |
| 16:50-17:10 | 19:50-20:10   | Ashok Gadgil  
University of California Berkley | Technology to support the human right to safe drinking water: Stopping arsenic poisoning |
| 17:10-17:30 | 20:10-20:30   | Mohamed Abdel Hamyel Dawoud  
Advisor, Water Resources, Abu Dhabi Environment Agency | The future of treated wastewater reuse in the MENA region |
| 17:30-17:50 | 20:30-20:50   | Kevin Trenberth  
National Center for Atmospheric Research, USA | The changing water cycle |

## Session (B) – Date: 30 March 2021  Time: 15:00-17:50 GMT (Saudi Arabia Time GMT+3)

<table>
<thead>
<tr>
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</table>
| 15:00-15:20 | 18:00-18:20   | Thomas L. Crisman  
USF Water Institute | Sustainability of the water, energy, food nexus in the humid Caribbean versus arid MENA: Projections and innovative solutions |
| 15:20-15:40 | 18:20-18:40   | Howard Wheater  
University of Saskatchewan | Hydrological modelling for water resources management in arid environments |
| 15:40-15:50 | 18:40-18:50   | Break |  |  |
| 15:50-16:10 | 18:50-19:10   | Jim. W. Hall  
Environmental Change Institute, University of Oxford | Understanding the growing challenge of water security in the Arab world |
| 16:10-16:30 | 19:10-19:30   | Damia Barceló  
Catalan Institute for Water Research, Girona, Spain | Microplastics pollution in mixed surface and treated wastewaters from Saudi Arabia. Can organic contaminants be absorbed by microplastic particles? |
| 16:30-16:50 | 19:30-19:50   | Zbiegniew Kundzewicz  
Polish Academy of Sciences, Poznan | Changes in flood risk |
| 16:50-17:10 | 19:50-20:10   | Jay R. Lund  
University of California Davis, USA | Integrated water management portfolio analysis using hydro-economic modeling |
| 17:10-17:30 | 20:10-20:30   | Rita Colwell  
University of Maryland at College Park | Climate, oceans, and human health: What cholera can teach us about COVID-19 |
| 17:30-17:50 | 20:30-20:50   | Patricia Gober  
Arizona State University | “The fusion of science and stakeholder engagement for public policy in the water sector” |
### Day 3: 31 March 2021

#### Time: 15:00-17:35 GMT (Saudi Arabia Time GMT+3)

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<thead>
<tr>
<th>Time (GMT)</th>
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<th>Session (B) – Date: 31 March 2021</th>
<th>Time: 15:00-17:35 GMT (Saudi Arabia Time GMT+3)</th>
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<tbody>
<tr>
<td>15:00-15:20</td>
<td>18:00-18:20</td>
<td>Joyashree Roy</td>
<td>H.E. Abdullah Ibrahim Al-Abdulkareem</td>
<td>Sustainable water supply and desalination technology</td>
</tr>
<tr>
<td>15:20-15:40</td>
<td>18:20-18:40</td>
<td>Sherif El-Safty</td>
<td>Jesús Carrera Ramirez</td>
<td>Recent advances in ‘Enhanced Managed Artificial Recharge’ to re-naturalise reclaimed water</td>
</tr>
<tr>
<td>15:40-15:50</td>
<td>18:40-18:50</td>
<td>Break</td>
<td>Break</td>
<td>The importance of modeling hydraulic conductivity heterogeneity</td>
</tr>
<tr>
<td>16:10-16:30</td>
<td>19:10-19:30</td>
<td>Polycarpous Falaras</td>
<td>Abdulkader Larabi</td>
<td>A path towards sustainable aquifer management: Example - the North China Plain</td>
</tr>
<tr>
<td>16:30-16:50</td>
<td>19:30-19:50</td>
<td>Bart Van der Bruggen</td>
<td>Wolfgang Kinzelbach</td>
<td>Key software tools for understanding and managing water flow and contaminant transport processes in the vadose zone</td>
</tr>
<tr>
<td>16:50-17:10</td>
<td>19:50-20:10</td>
<td>Shafiqul Islam</td>
<td>Martinus Theodorus van Genuchten</td>
<td>Challenges and opportunities in experiments to improve insights and advance modeling to address emerging global problems in hydrology and the environment</td>
</tr>
<tr>
<td>17:10-17:30</td>
<td>20:10-20:30</td>
<td>Mohamed Khayet</td>
<td>Tissa Illangasekare</td>
<td>Water or health: Where to put the money?</td>
</tr>
<tr>
<td>17:30-17:35</td>
<td>20:30-20:35</td>
<td>ICWRAE 9 Closing Remarks</td>
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<td>Sustainable water supply and desalination technology</td>
</tr>
</tbody>
</table>

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**Panelists:**
- Joyashree Roy: Professor of Economics at Jadavpur University, Kolkata
- Sherif El-Safty: National Institute for Materials Science, Japan
- Walid Abderrahman: Vice President, Arab Water Council
- Polycarpous Falaras: National Center for Scientific Research “Demokritos”, Athens, Greece
- Bart Van der Bruggen: Katholieke Universiteit, Leuven
- Shafiqul Islam: Tufts University, USA
- Mohamed Khayet: University Complutense of Madrid, Spain
- J. Jaime Gómez-Hernández: Universitat Politècnica de València, Spain
- Abdulkader Larabi: University Mohammed V-Agdal, Morocco
- Wolfgang Kinzelbach: Swiss Federal Institute of Technology
- Martinus Theodorus van Genuchten: Federal University of Rio de Janeiro, Brazil
- Tissa Illangasekare: Colorado School of Mines, USA

**Topics:**
- Sustainable water supply and desalination technology
- Recent advances in ‘Enhanced Managed Artificial Recharge’ to re-naturalise reclaimed water
- The importance of modeling hydraulic conductivity heterogeneity
- Quantitative evaluation of the vulnerability to seawater intrusion in coastal aquifers using a new normalized groundwater age-based index: implications for management and risk assessments
- A path towards sustainable aquifer management: Example - the North China Plain
- Key software tools for understanding and managing water flow and contaminant transport processes in the vadose zone
- Challenges and opportunities in experiments to improve insights and advance modeling to address emerging global problems in hydrology and the environment

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**Image:**
- A collage of images representing water management and desalination technologies.