



Strategic Partner



المؤسسة العامة لتحلية المياه المالحة  
Saline Water Conversion Corporation

**International Workshop**  
on  
**Innovations in Ocean Brine Mining for  
Rare Metals & Minerals**

**April 8 & 9, 2020**

Jubail, Saudi Arabia

Organized by

**Desalination Technologies Research Institute of**

**Saline Water Conversion Corporation**



# **International Workshop on Innovations in Ocean Brine Mining for Rare Metals & Minerals**

This workshop is organized by the Desalination Technologies Research Institute (DTRI) of the Saline Water Conversion Corporation (SWCC) under the patronage of the Ministry of the Environment, Water and Agriculture of the Kingdom of Saudi Arabia.

## **Focus on the Value of Ocean Brine**

Brine from desalination plants contains valuable minerals and ocean brine mining has the potential to surpass earth mining as a source of rare-earth metals such as lithium, strontium, cesium, rubidium, barium and others. Ocean brine mining brings a new era of exploration of the vast water resources of the planet. This workshop opens a venue for presenting and discussing the latest advanced technologies for extraction of ocean minerals and rare metals.

## **Purpose of this Workshop**

The main purpose of the two-day Ocean Brine Mining Workshop is to provide a forum for expert scientists, applied researchers, practitioners and innovators in the field of ocean brine mining to share their latest technologies and experience of mineral and metal extraction. Emphasis will be given to membrane based brine concentration and advanced extraction methods and technologies which combine low energy use and competitive production of rare metals and minerals.

The focus of the presentations will be technologies and systems that are advanced to the point of proof-of-concept and beyond, that have potential to yield minerals and rare metals at cost lower than that of earth mining and conventional methods of production. Presentations sharing case studies for demonstration or full-scale implementation of brine concentration and mineral extraction technologies are very welcome.

## **Workshop Venue and Time**

The workshop venue is the DTRI Conference Auditorium in the City of Jubail, Saudi Arabia. The workshop is planned to be held on April 8 and 9, 2020. Recommendations for hotel accommodations near the workshop venue will be provided to the participants that are invited to participate in the workshop with a second announcement planned for February 15, 2020.

# Key Themes of the Ocean Brine Mining Workshop

The presentations of the Ocean Brine Mining Workshop will be divided into two days. Each day will have one morning and one afternoon session and each session will include six 25-minute presentations each followed by 10-minute discussions.



## Day 1 - Technologies for Ocean Brine Concentration and Zero Liquid Discharge



### Morning Themes

- State of the Art of Thermal Brine Concentration
- Advanced Technologies for Membrane Brine Concentration
- Non-thermal & Non-membrane Brine Concentration Technologies
- Brine Concentration for Harvesting of Minerals
- Brine Concentration for Harvesting of Rare Metals



### Afternoon Themes

- Brine Concentration for Zero Liquid Discharge
- Case Studies for Brine Concentration
- Case Studies for Zero Liquid Discharge
- Lowering Cost and Energy Use Barriers for Brine Concentration
- The Future of Brine Concentration – Next Generation Technologies



## Day 2 - Technologies for Ocean Brine Mining of Minerals and Metals



### Morning Themes

- Keynote - State of the Art of Mineral Mining – What Minerals at What Cost?
- Advanced Technologies for Mining of Sodium Chloride
- Advanced Technologies for Mining of Calcium and Magnesium Salts
- Market Survey for Ocean Brine Minerals
- Case Studies for Mining of Minerals



### Afternoon Themes

- Keynote - State of the Art of Metal Mining – What Metals at What Cost?
- Advanced Technologies for Mining of Lithium, Rubidium and Cesium
- Advanced Technologies for Mining of Other Rare Metals
- Market Survey for Mining of Rare Metals from Ocean Brine
- Case Studies for Mining of Rare Metals from Ocean Brine



## Cash & Scholarship Awards

An independent panel of experts will review and evaluate the presented technologies for ocean brine mining and will award three Cash Awards as follows:

- Award for Advanced Brine Concentration Technology | US\$10,000
- Award for Advanced Mineral Extraction Technology | US\$10,000
- Award for Advanced Rare Metals Extraction Technology | US\$10,000

Two researchers will be awarded **6-month DTRI Scholarships** for funding and pilot testing of their research at the DTRI research center in Jubail. The scholarships will cover all expenses of the selected scientists to travel to Jubail and to pilot test and advance the development of their technologies for 6 months at the DTRI research center and will provide 6-month stipendium/salary for the period of the scholarship. The two scholarships to be awarded by DTRI/SWCC are:

- Scholarship for Advancement of Mineral Extraction Technology
- Scholarship for Advancement of Rare Metal Extraction Technology



## You are Invited...

You are invited to submit an abstract for your presentation by December 31, 2019. The authors of the shortlisted abstracts will be notified by January 15, 2020 and will have to forward their presentation and paper by March 15, 2020. You will be qualified to receive the cash award and/or the scholarship only if your work is shortlisted and you submit your presentation and full paper by no later than March 15, 2020.



## How to Submit Your Abstract...

Please submit your abstract by December 31, 2019 to Dr. Christopher Michael Fellows – Senior Expert with the DTRI – by e-mail: [CMichael@swcc.gov.sa](mailto:CMichael@swcc.gov.sa). For questions regarding the conference please contact Dr. Fellows at: +966-13-343-0333, ext. 31703; or Eng. Nikolay Voutchkov: +1-203-253-1312; +966-54-043-5425; or +966-13-343-0333, ext. 31700. We look forward to meeting you in Jubail in April 2020.

***DTRI's Mission is to Drive Innovation In Desalination Technology and to Lead The Development of Water Solutions By 2030***



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