



**Second call for
International Workshop
on
Climate Change and Soil Salinity Dynamics:
Threats and Challenges**

11-12 April 2018

Arabian Gulf University, Manama, Kingdom of Bahrain



Greetings

I would like to invite you to become a sponsor of the “International Workshop on Climate Change and Soil Salinity Dynamics: Threats and Challenges”, to be held at the Arabian Gulf University from 11-12 April 2018.

We are diligently working on bringing together researchers from a variety of disciplines who are working on this vital topics. This workshop will have two full days of technical sessions, along with poster sessions regarding issues on the cutting edge of Climate Change and Soil Salinity Dynamics. There will also be many opportunities for the exchange of information, innovative ideas and interaction among participants of this international workshop.

Through this invitation, we look forward to your organization in being a partner with us through taking part in this important international workshop. Below are the options for the several sponsorship levels available. Thus, this provides sponsors with options for different levels of exposure that are related to their financial commitment.

For any further inquiries on this subject matter, do not hesitate to contact us.

We earnestly look forward to you envisaged positive response

Sincerely

Dr. Khalid A. N. Al-Ohaly
President of the Arabian Gulf University

Gold Sponsor 7,500 BD - 15,000 BD

- Organization name and logo on all conference materials including the program and the conference website and emails.
- Recognition as a conference sponsor throughout the event during key sessions.
- Keynote Exposure - A slide with all Gold level sponsor logos looped before the keynote presentation.
- Acknowledgment as a conference sponsor of a luncheon, outing, or special event.
- Two full conference registrations, including attendance at all conference sessions, welcome reception and the conference dinner.

Silver Sponsor 7,000 BD - 5,500 BD

- Organization name and logo on all conference materials including the program and the conference website and emails.
- Recognition as a conference sponsor throughout the event during key sessions.
- One full conference registration is available at this level.

Bronze Sponsor 2,500 BD - 5,000 BD

- Organization name and logo on all conference materials including the program and the conference website.
- Recognition as a conference sponsor throughout the event during key sessions.

Should you wish to confirm sponsorship, please return this form to the Arabian Gulf University on **abannari@agu.edu.bh**

Contact Person: Professor Abderrazak Bannari
E-mail: abannari@agu.edu.bh Tel: +973 1723 9531



International Workshop on Climate Change and Soil Salinity Dynamics: Threats and Challenges

UNDER THE HIGH-PATRONAGE OF

Dr. Khalid Bin Abdul Rahman Al-Ohaly

President of the Arabian Gulf University,
Manama, Kingdom of Bahrain

and

Dr. Ismahane Elouafi

Director General of International Center for Biosaline Agriculture
Dubai, United Arab Emirates

Arabian Gulf University, Manama, Kingdom of Bahrain

11-12 April 2018

Welcome to Bahrain and to International Workshop



Dr. Khalid Bin Abdul Rahman Al-Ohaly



Dr. Ismahane Elouafi

Scientists and policymakers around the world continue to look for and work out strategies to cope with climate change and its impact on the “soil-water-vegetation ecosystems” in the biosphere, there are fears of serious implications worldwide for social and economic stability, biodiversity and sustainable development. Arid, semi-arid, marginal, and saline environments are considered most vulnerable, especially with the population growth, which is putting a growing pressure on limited natural resources in these regions. As the soil resources become degraded, the impact on the environment becomes devastating and, consequently, people living in these areas will find difficult to make an adequate living. All this calls for prompt collaborative and integrated efforts by policymakers, scientists and international research and development organizations. Obviously, there is an urgent need for new and innovative approaches, procedures and policies to tackle these emerging issues sustainably. Together with national, regional and international interactions, we will conduct research and help to develop sustainable soil solutions in marginal and saline environments. Around the world, scientists are developing a

number of innovative methods and technologies to improve climate change adaptation, crop productivity and diversification, policy analysis, and to increase soil capacity and agricultural productivity. They must adopt a multi-pronged approach to addressing the closely linked challenges of ensuring water, environment, income, and food security.

We would like to invite you to this international workshop on “Climate Change and Soil Salinity Dynamics - Threats and Challenges” which will be held at the Arabian Gulf University, Manama (Kingdom of Bahrain) from 11 to 12 April 2018. The workshop target an international participation and cooperation for global awareness, underscores the need to work together to find global solutions to our most-pressing problems on soil salinization. We wish to invite researchers and multi-stakeholders around the world to this event, which is an ideal forum for sharing up-to-date information on the latest developments, exchange of ideas, identification of future trends and networking with the international geoscience, soil, environment, agronomy, GIS and remote sensing, and agriculture community on “Climate change and soil salinity dynamics”.

Workshop Background

Soil salinity is a global land degradation hazard that negatively affects the soil quality, productivity, ecosystem services and food security. Salinity problems occur under all climatic conditions and can result from both natural and human-induced actions. Generally, soil salinity develops in arid and semi-arid regions where rainfall is insufficient to meet the water requirements of the crop, and leach mineral salts out of the root zone. Salinity occurs in the landscape in response to many factors, especially global warming, which is represented by higher and more variable temperatures, changes in precipitation patterns and higher frequency of extreme events. With particular regard to the arid and semi-arid environment, according to climate models, more increase of temperature combined with changes in rainfall amount and distribution would be expected during the next decades, resulting into sea level rise and impact on coastal areas, and the rise in temperature that will inevitably lead to increased evaporation and subsequent salinization.

It is realized that recent estimates of global extent of soil salinization does not exist, but it can be assumed that, since the earlier data gathering in the 1970s and 1980s, salinization has expanded as newly affected area most probably exceed reclamation and rehabilitation ones. In this perspective, we wish to organize an international workshop on “Climate change and soil salinity dynamics – Threats and Challenges” through inviting international experts to analyze the situation globally, with more emphasis on semi-arid and arid environment such as gulf cooperation council (GCC) countries through multidiscipline modern methods including but not necessarily limited to spatial, climatic, modeling, GIS and remote sensing.

Workshop Scientific Themes

- Soil salinization and climate change
- Techniques/approaches to address soil salinization for climate change adaptation
- Innovations in soil salinity diagnostics technologies
- Global and regional soil salinity issues
- Innovative thinking to tackle salinity problems
- Water and soil salinity in agricultural ecosystems
- Impact of water desalinization on soil and marine environment
- Soil salinity modeling, mapping, and monitoring
- Soil salinity, land degradation, and vegetation resilience in marginal environment
- Economic and social aspects of soil salinity impacts.

Benefits of attending and outcomes

This event will bring together soil-scientists, geoscientists, environmentalists, climate change modelers, agriculturists, engineers, stakeholders, decision makers, etc. from all over the world. It will provide an important platform for international knowledge exchange where scientists, especially senior and early career researchers or graduate students, can present their work and discuss their innovative ideas in all topics of this event related to climate change and soil salinity dynamics - Threats and Challenges. It will focus on exploring new challenges and opportunities created by the rapid advances in information technology, computer science, advanced visualization, data-intensive science, virtual research environment, and new models development. Moreover, it will combine many innovative methods and highlighting the potential of satellite remote sensing revolution, GIS, GPS and modeling for salt-affected soil mapping. The main output of the event will be a book summarizing the main innovative findings and recommendations for the future research trends and new scientific exploitation activities. The international workshop will include plenary papers, oral presentations, demonstrations, discussions, and poster sessions.

Reasons you should attend

- Educational opportunities,
- Networking with peers,
- To be updated about innovative approaches,
- Position yourself as an expert, and/or
- Learn from experts.

Workshop language

English will be the conference language.

Organizing Committee

- Prof. Abderrazak Bannari, Arabian Gulf University, Manama, Bahrain
- Dr. Shabbir Shahid, International Center for Biosaline Agriculture (ICBA), Dubai, United Arab Emirates
- Dr. Ali-Elbattay, Arabian Gulf University, Manama, Bahrain
- Dr. Abdullah Alshankiti, International Center for Biosaline Agriculture (ICBA), Dubai, United Arab Emirates
- Dr. Nadir Hameid, Arabian Gulf University, Manama, Bahrain.

Scientific Committee

- Prof. Graciela Metternicht, University of New South Wales, Sydney, Australia
- Dr. Prasad S. Thenkabail, USGS-NASA, USA
- Dr. Weicheng Wu, East China University of Technology, China
- Dr. Riadh Abdelfattah, COSIM Lab, SUP'COM, University of Carthage, Tunis, Tunisia
- Prof. D.D. Alexakis, Technical University of Crete, Chania, Greece
- Dr. Dominique Arrouays, Institut National de Recherche Agronomique, France
- Prof. Hassan Rhinane, University King Hassan-II, Casablanca, Morocco
- Prof. Taha Ouarda, Institut national de la recherche scientifique, Québec, Canada
- Dr. Chandrashekhara Biradar, International Center for Agricultural Research in the Dry Areas, Jordan
- Dr. Mohamed Elhag, King Abdulaziz University, Jeddah, Saudi-Arabia
- Dr. Javad El-Kharraz, Middle East Desalination Research Center, Muscat, Oman
- Prof. Fares Howari, Zayed University, Abu Dhabi, United Arab Emirates
- Prof. Karim Chokmani, Institut national de la recherche scientifique, Québec, Canada
- Prof. Abderrazak Bannari, Arabian Gulf University, Manama, Bahrain
- Dr. Shabbir Shahid, International Center for Biosaline Agriculture (ICBA), Dubai, United Arab Emirates

Workshop Structure

- Plenary papers by invited speakers on workshop themes
- Volunteer papers for oral presentation selected by the scientific committee
- Poster session
- Conclusions and recommendations session

Call for papers

The scientific committee invites international scientific community to attend international workshop and present their relevant work to workshop themes. The intended participants can send an abstract (Times New-Roman 12, abstract title in 14 bold, maximum 1000 words) through email to workshop secretariat: salinity.workshop@agu.edu.bh. The scientific committee will evaluate the abstracts and notify the acceptance or otherwise. The participants would then be requested to submit full manuscript for publication in workshop book. All papers will be peer reviewed prior to publication.

Important Deadlines

| | | |
|-------------|------|--------------------------------------------|
| 30 January | 2018 | Deadline for abstract submission |
| 10 February | 2018 | Notification of abstract acceptance |
| 15 March | 2018 | Deadline for submission of full manuscript |
| 30 March | 2018 | Final program notified to participants |
| 11 April | 2018 | Start of workshop |

Workshop Venue

The workshop will be held at the Arabian Gulf University, Manama, Kingdom of Bahrain.



Registration

Registration fee is 500 US\$ to attend the workshop, and 250 US\$ for graduate students. Participants have to cover all other costs of travel, hotel and food. The organizing committee will provide workshop material, abstract book, workshop lunches, and refreshments during sessions. Likewise, a copy of the final published book will be posted to the participants after the workshop.

Workshop Secretariat

Workshop secretariat will assist in visa issuance and in finding good accommodation in Bahrain. The secretariat will negotiate hotel rates for workshop participants.

Please contact: **Dr. Nadir**

Nadir@agu.edu.bh or salinity.workshop@agu.edu.bh

Workshop Secretariat, Arabian Gulf University, Bahrain.

Tel: +973 17239 531

P.O Box 26671, Kingdom of Bahrain.

Keynote Speakers



Dr. Dominique Arrouays is a senior soil scientist and researcher at INRA (France). His fascination for the soil fueled his quest to find ways of mapping this non-renewable, little-known resource. Since 2000, he has been at the helm of Infosol, a service unit he created at the INRA-Orléans (France) Environment and Agronomy Division to obtain a single information system (Soil Quality Monitoring Network) on French soils and their evolution over time. His scientific expertise has been highly sought after, and from 1999 to

2001, he led one of INRA's first international expert reports on carbon sequestration in France's agricultural soils and its potential contribution to the fight against climate change. Dr Arrouays then became a member of the Intergovernmental Panel on Climate Change (IPCC), **which received the 2007 Nobel Peace Prize for its work.** In 2008 and 2015, he received the best scientific article award from the International Union of Soil Sciences' Commission on Pedometrics. In 2012, he became the scientific coordinator for the international Global Soil Map project, which will produce a global, digital map of soil properties. On 2013, he was appointed to the Intergovernmental Technical Panel on Soils (ITPS) for the Global Soil Partnership (GSP) created by the FAO of the UN. ITPS brings together 27 soil specialists from around the world, of which five are from Europe. Dr Arrouays' nomination to the Panel is an endorsement of his internationally recognized scientific expertise. Moreover, he was member of the European Topic Centre of Soil from the European Environment Agency between 1997 and 2000, head of Soil Survey and Soil Monitoring for France between 2000 and 2011, and president of the French Soil Science Society between 2013 and 2015. Currently, he is member of the European Soils Bureau Network (2010 to now), chairperson of the IUSS

Working Groups on 'Soil Monitoring' (2010-present) and 'Global Soil Mapping' (2016-Present). Dr Arrouaysis was honored several times, he obtained the gold medal of the French Academy for Agriculture in 2014; he was honored as Knight of the French national Order of Agricultural Merit in 2014, and he gets the honorific Prize for Data Rescue in Geosciences 2015. Member of Geoderma and Geoderma Regional Editorial Boards. Editor-in-Chief of the French Journal of Soil Science 'Etude et Gestion des Sols' (2009 to present). As well as he is a peer reviewer for more than 20 international journals. He is the author of 125 publications (in WoS; h-index: WoS: 34, GoogleScholar: 44), more than 450 communications in international conferences and symposia, and 50 book chapters. He edited one book and he is the co-author of the 'Status of the Worlds' Soil Resources' report in 2015. Dr Arrouaysis one of the world's leading soil experts today.



Dr. Prasad S. Thenkabail (Prasad) is international expert in remote sensing science, working currently with the United States Geological Survey (USGS), USA. Currently he leads a NASA MEaSUREs (Making Earth System Data Records for Use in Research Environments) funded global food security-support analysis data (GFSAD) project that has released the world's first Landsat and Sentinel data based nominal 30-m global cropland product. His expertise in remote sensing science cuts across several areas: agriculture, soil

and water resources, food security, droughts, wetlands, land use characterization, and forests. Dr. Thenkabail has work experience in more than 30 countries spread across Africa, Asia, and Americas. He has led remote sensing science in three International Institutes: 1. International Water Management Institute (IWMI), 2. International Institute of Tropical Agriculture (IITA), and 3. International Center for Integrated Mountain Development (ICIMOD). He also held key remote sensing research positions at the Yale Center for Earth Observation (YCEO). He started his remote sensing career working for the Indian National Remote Sensing Agency (currently, National Remote Sensing Center) being a key member of the Indian National Drought Monitoring Team using satellite remote sensing data. Member of Landsat Science Team (2007-2011) selected by USGS and NASA. He is the former chair of International Society of Photogrammetry and Remote Sensing (ISPRS) Working Group WG VIII/7 for the period 2013-2016. He was selected by NASA and USGS as a member of Landsat Science Team Member (2007-20011), and was a scientific advisory board member of Rapideye (2001). Dr. Thenkabail is the current: 1. Editor-in-Chief of Remote Sensing Open Access Journal and is on the editorial board of Remote Sensing of Environment, 2. Associate Editor of the American Society of Photogrammetry and Remote Sensing (ASPRS) Journal Photogrammetric Engineering and Remote Sensing (PE&RS), and 3. Editorial Advisory Board member of the ISPRS Journal of Photogrammetry and Remote Sensing (P&RS). He is the author of more than 100 scientific papers, mostly peer-reviewed research papers in major international remote sensing journals, as well as he is the Editor-in-Chief of seminal books (Publisher: Taylor and Francis Inc.):

- Three volume (82 Chapters) Magnus Opus, Remote Sensing Handbook (2015):
<https://www.crcpress.com/Remote-Sensing-Handbook-Three-Volume-Set/Thenkabail/p/book/9781482218015>
2. Hyperspectral Remote Sensing of Vegetation (2012):
<https://www.crcpress.com/Hyperspectral-Remote-Sensing-of-Vegetation/Thenkabail-Lyon/p/book/9781439845370>
3. Remote Sensing of Global Croplands for Food Security (2009):
<https://www.crcpress.com/Remote-Sensing-of-Global-Croplands-for-Food-Security/Thenkabail-Lyon-Turrall-Biradar/p/book/9781420090093>



Graciela Metternicht is a Professor of Environmental Geography in the School of Biological, Earth and Environmental Sciences, University of New South Wales Australia. She is a member of the Science Policy Interface of the UN Convention to Combat Desertification, the College of Experts of the Australian Research Council, and the Assessment Methodology Group of the 6th Global Environment Outlook. Her research interest is primarily in the fields of environmental geography, with a focus on geospatial

technologies and their application in environmental management (mapping and monitoring, sustainable land management, land degradation, indicators, ecosystem services) and sustainability. Prior to joining UNSW, Professor Metternicht was Regional Coordinator of Early Warning and Assessment of the United Nations Environment Programme (UNEP) for Latin America and the Caribbean. Previous academic appointments include Head of Discipline and Professor of Geospatial Systems and Environmental Management at the School of Natural and Built Environments of the University of South Australia and Professor of Spatial Sciences at the Western Australian School of Mines, Curtin University of Technology. She has published over 100 scientific papers in international journals and conference proceedings, and has attracted research funding through Australian competitive grants (ARC and others), international grants and research contracts. She is the Editor of the book on Remote Sensing of Soil Salinization: Impact on Land Management. Professor Metternicht has developed international and professional leadership standing, resulting in invitations of Guest professorships and visiting Fellowships at the Swiss Institute of Technology, Zurich (Swiss), the University of Alcalá (Spain), the Institute for Soil, Climate and Water of the Agricultural Research Council of South Africa, the Centre for Global Environmental Research of the National Institute for Environmental Studies of Japan, and Institute for Remote Sensing Applications of the Chinese Academy of Science. She is membership of editorial boards of international journals in GeoSpatial Sciences, and the prior appointment as chair (acting) of the commission mapping from satellite imagery of the International Cartographic Association, member of Australian Geographers Institute and the Australian Rangeland Society.



Dr. Dimitrios Alexakis is a senior scientist at the School of Environmental Engineering, Technical University of Crete, Greece. He holds B.Sc., M.Sc. and PhD degrees from the School of Geology, Aristotle's University of Thessaloniki, Greece. His research focuses on soil, land salinization and degradation, geomorphology, geology, hydrology, and the applications of remote sensing and geographic information systems for environmental monitoring. He is a peer reviewer for more than 15 scientific journals and the main convener of a special session in EGU conference. He has also received several awards, such as Marie Curie Fellowship, Greek State Scholarship Foundation, and best Poster Award RSCY 2014. Dr Alexakis has extended teaching experience in graduate and postgraduate studies as an adjunct lecturer as well as an invited lecturer in the field of Remote Sensing and GIS (Cyprus University of Technology, Technical University of Crete, Foundation for Research and Technology Hellas, Technical Educational Institute of Crete etc.). He is author and co-author of more than 35 peer review journal papers, 4 book chapters, and more than 60 communications in international conference proceedings. He has been involved in more than 20 EU and national funded research projects dealing with remote sensing applications in environmental surveillance.

Hotel Information:

Recommended hotels where we will provide transport for the workshop

1- Gulf Hotel (Five Stars):

<https://gulfhotelbahrain.com>

General information: dos@gulfhotelbahrain.com

Telephone: +973 17713000

Fax: +973 17386021



2- Golden Tulip Hotel (Four Stars):

<http://www.goldentulipbahrain.com>

General information: info@goldentulipbahrain.com

Telephone: +973 1 7535000

Fax: +973 17532071

Reservations: 800 358 0846



3- Ibis Hotel (Three Stars):

<https://www.lonelyplanet.com/bahrain/manama/hotels/ibis>

General information: h6303-re@accor.com

Telephone: +973 17386020

Fax: +973 17386021



Other Hotel Accommodation and Rates for Our International Workshop

| Hotel Name | Hotel Stars | Room Category | Room Rate * |
|---------------------------------|-------------|-----------------|---------------|
| Gulf Hotel | 5 Stars | Superior Room | BD 75.000 ++ |
| The Diplomat Radisson Blu-Hotel | 5 Stars | Superior Room | BD 69.000 ++ |
| Ramee Grand Hotel & Spa Bahrain | 5 Stars | Premier Room | BD 56.000 ++ |
| Le Meridien City Center | 5 Stars | Superior Room | BD 55.000 ++ |
| Mercure Hotel | 4 Stars | Executive Suite | BD 40.000 Net |
| Golden Tulip | 4 Stars | Standard Room | BD 40.000 Net |
| Swiss Belhotel | 4 Stars | Superior Room | BD 40.000 Net |
| Ramada Manama City Center | 4 Stars | Superior Room | BD 35.000 ++ |
| Ibis Hotel | 3 Stars | Standard Room | BD 26.000 ++ |

* All Including Breakfast

Visa Requirements

Arabian Gulf University will assist in the issuance of visas for participants from countries requiring a visa. For that, we will need a copy of the first page of the passport, digital passport size photo, 2 months before the workshop date.



International Workshop on Climate Change and Soil Salinity Dynamics: Threats and Challenges

Arabian Gulf University, Kingdom of Bahrain
11-12 April 2018

| | |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Title: | Mr. Dr. Miss. Mrs. |
| Surname: | |
| First names: | |
| Professional title and organization: | |
| Correspondence address: | |
| City: | |
| Country: | |
| Telephone: | |
| Fax: | |
| Email: | |
| Participation intention Tick (✓) as appropriate | <input type="checkbox"/> Oral presentation <input type="checkbox"/> Poster presentation <input type="checkbox"/> Participation only |
| Title of the paper / poster | |
| Complete authors names | |

For more information, please contact:
Prof. A. Bannari, Head of the Department of Geoinformatics:
abannari@agu.edu.bh or salinity.workshop@agu.edu.bh

Arabian Gulf University
Office: +973 172 39 531
Mob: +973 353 387 21

www.agu.edu.bh/salinity_workshop.pdf



A non-conductive environment for agriculture “salt scald” but a neglected resource for commercial exploitation – opportunity and challenge

.....needs joint rethinking



