



المركز الإقليمي للتخدير من  
العواصف الغبارية والرملية  
Sand and Dust Storm Warning Regional Center

المركز الوطني للأرصاد  
National Center for Meteorology  
المملكة العربية السعودية



# THE First International Conference On SAND AND DUST STORM Riyadh - Fairmont 4 - 6 MARCH 2024 Scientific Program

Conference Venue





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العواصف الغبارية والرملية  
Sand and Dust Storm Warning Regional Center



المركز الوطني للأرصاد  
National Center for Meteorology



We are pleased with your participation in the First  
International Conference on Dust and Sandstorms

**We work to serve you**

Organizing Committee



# Conference Agenda and Program

Day 1 March 4, 2024

| Time   | Content   |
|--|---|
| 07:45-08:15  | Registration  |
| 08:15-08:30  | Welcoming speech<br>CEO of the National Center for Meteorology<br>& Supervisor of the Regional Center for Dust and Sandstorms   |
| Session 1: Health and Environmental Impacts<br>Chair and Keynote: Dr. Rami Alfarra |   |
| 08:30-09:00  | Impacts of Dust on Air Quality and Human Health in Urbanized Arid Regions<br>By Dr. M. Rami Al Farra, Qatar Environment, and Energy Research Institute  |
| 09:00-09:15  | Exposure to Dust Aerosols During Typical Sand and Dust Storms in the Eastern Mediterranean Region<br>By Dr. Tareq Hussein, University of Helsinki   |
| 09:15-09:30  | Overview of the Health Impacts of Air Pollution in Dusty Environments<br>An Eye on the WHO Eastern Mediterranean Region<br>By Dr. Heba Safi, WHO Regional Centre for Environmental Health Activities, Amman, Jordan |
| 09:30-09:45  | Transboundary Sand and Dust Storms from Iraq to Kuwait: Susceptibility Mapping and Health Impact<br>By Dr. Ali Al-Hemoud, , Kuwait Institute for Scientific Research  |
| 09:45-10:00  | Estimation of the Basic Reproduction Number (RO) model. Is Corona Virus Airborne?<br>By Dr. Majdi Al-Toukhi, Sand and Dust Storm Warning Regional Center/ National Center for Meteorology                           |
| 10:00-10:15  | Master Plan to Combat Sand and Dust Storms in West Asia<br>By Dr. Abdul-Majeid Haddad, Deputy Regional Director, UN Environment Programme (UNEP)  |
| 10:15-10:30  | Q&A   |
| 10:30-11:00  | Coffee Break  |

# Conference Agenda and Program

**Day 1 March 4, 2024**

## **Session 2: Forecasting and Mitigation of Sand and Dust Storms**

**Chair and Keynote: Prof. Alexander BaKlanov**

| Time        | Content   |
|-------------|---|
| 11:00-11:30 | <p>Sand and Dust Storms: from forecasting to combating and mitigation</p> <p><b>By</b> Dr. Alexander BaKlanov, Copenhagen University / WMO consultant</p>   |
| 11:30-11:45 | <p>User-oriented modelling applications for assessing mineral dust impacts</p> <p><b>By</b> Prof. Slobodan NićKović, Republic Hydrometeorological Service of Serbia, and Institute of Physics, Belgrade, Serbia</p> |
| 11:45-12:00 | <p>High-resolution climate projections to support adaptation planning in the Mashreq region</p> <p><b>By</b> Dr. Grigory NiKulin, Swedish Meteorological and Hydrological Institute (SMHI)</p>                      |
| 12:00-12:15 | <p>Current Status and Future Plans for Sand and Dust Storm-Related Activities in the Asian Region</p> <p><b>By</b> Dr. TaKashi MaKi, Meteorological Research Institute, Japan</p>                                   |
| 12:15-12:30 | <p>Dust air-pollution interaction: An emerging process for accurate dust forecast</p> <p><b>By</b> Dr. Mohamed AbdelKader, National Center for Environmental Compliance (NCEC)</p>                                  |
| 12:30-12:45 | <p>A summary of current challenges in dust numerical modeling (both, in climate and forecast)</p> <p><b>By</b> Dr. Ana VuKovic, University of Belgrade</p>  |
| 12:45-13:00 | Q&A   |
| 13:00-13:30 | Coffee Break  |



# Conference Agenda and Program

Day 1 March 4, 2024

## Session 3: Monitoring and Prediction Technologies

Chair and Keynote: Prof. Jean Sciare

| Time        | Content   |
|-------------|---|
| 13:30-14:00 | <p>The next generation of technologies and regional models to better monitor and predict sand and dust storms: Challenges and Opportunities</p> <p>By Prof. Jean Sciare, Cyprus Institute, Cyprus</p>   |
| 14:00-14:15 | <p>Characterization and impact of dust storms on North Indian subcontinent</p> <p>By Dr. Chandan Sarangi, Indian Institute of Technology, Madras, India</p>   |
| 14:15-14:30 | <p>Elucidating PM2.5 pollution during the Middle East's springtime severe dust events: Spatiotemporal trends, meteorological influences, and transport pathways</p> <p>By Dr. Ishaq Sulaymon, WMO Sand and Dust Storm Warning Regional Center/ National Center for Meteorology, KSA</p> |
| 14:30-14:45 | <p>Prediction of Dust Storm Monthly Frequency in Riyadh Using LSTM model</p> <p>By Dr. Reem Alshammari, King Saud University, KSA</p>   |
| 14:45-15:00 | <p>Temporal Evolution of Aerosol Optical Depth over the Arabian Peninsula: AERONET, MODIS, and MERRA-2 Observations from the 21st Century</p> <p>By Dr. Ahmad E. Samman, King Abdulaziz University, KSA</p>   |
| 15:00-15:20 | Q&A   |
| 15:20-16:30 | Lunch   |

# Conference Agenda and Program

Day 2 March 5, 2024

Time

Content

10:00-10:30

## Opening and Welcome

- . National Anthem
- . Visual presentation about the NCM
- . NCM CEO talk
- . Minister of Environment, water and agriculture talk
- . WMO representative talk

- . UN Coalition on Combating Sand and Dust Storms representative talk
- . Visual presentation about the WMO SDSC
- . WMO SDSC Executive Director talk
- . A promotional video for COP16

10:30-11:30

## Panel Discussion

### Panel Moderator: Prof. Turki Habeebullah, General

Manager for Research, Development and Innovation, National Center for Meteorology.

#### Panelist 1 Dr. Ayman Ghulam

Chief Executive Officer (CEO) of the National Center of Meteorology.

#### Panelist 2 Dr. Barron Joseph Orr

Lead Scientist for the United Nations Convention to Combat Desertification (UNCCD).

#### Panelist 3 Dr. Juma Al-Maskari

Meteorologist at the Cooperation Council for the Arab States of the Gulf (GCC).

#### Panelist 4 Dr. Feras Ziadat

Chair of the UN Coalition on Combating Sand and Dust Storms, (FAO).

#### Panelist 5 Dr. Khalid Al-Abdulqader

Chief Executive Officer (CEO) National Center for Vegetation Cover and Combating Desertification (NCVC).

#### Panelist 6 Eng. Jumaan Al-Qahtani

Executive Director of the WMO Sand and Dust Storm Warning Regional Center.

## Panel Discussion Scope

Enhancing Resilience to Sand and Dust Storms, Drought and land degradation: Challenges, Regional Cooperation, and Knowledge Exchange for Effective Action.

## Key Objectives:

- 1 Fostering Regional Collaboration for Data Sharing and Capacity Building
- 2 Develop an International Cooperation Framework
- 3 Align Efforts with Sustainable Development Goals and Addressing Root Causes and Challenges.
- 4 Integrating SDS data into related COP16 decisions to support affected parties.

11:30-12:00

Coffee Break



# Conference Agenda and Program

Day 2 March 5, 2024

## Session 4: Characterization and Properties of Dust

Chair and Keynote: Dr. Oleg Dubovik

| Time        | Content   |
|-------------|---|
| 12:00-12:30 | Characterization of desert dust properties from remote sensing: advances and challenges<br>By Dr. Oleg Dubovik, Université de Lille, CNRS, Laboratoire d'Optique Atmosphérique, Lille, France   |
| 12:30-12:45 | Toward the particle classification using the combination of a multispectral CE318 photometer and an ACTRIS ready Mie Raman Fluorescence high power CE710 LiDAR<br>By Dr. Stéphane Victori, Atmospheric Optical Laboratory of Lille France - CNRS University                   |
| 12:45-13:00 | The MEASMA-GEO Observatory capability to Monitoring Dust Storms from a Geo-Stationary Orbit<br>By Dr. Omar Hussain Al-Emam, International Outer Space Association, UK   |
| 13:00-13:15 | Accuracy Assessment of several satellite-based Aerosol Algorithms in the Desert Region of North Africa and Middle East (MENA): Ground Validation and Intercomparison<br>By Dr. Alaa Mhawish, WMO Sand and Dust Storm Warning Regional Center/ National Center for Meteorology |
| 13:15-13:30 | Capabilities for Detecting, Characterizing, and Monitoring Sand and Dust Storms from Operational Space Observations<br>By Bertrand Fougnie, EUMETSAT, Germany   |
| 13:30-14:00 | Q&A   |
| 14:00-15:00 | Poster Session  |
| 15:00-16:00 | Lunch   |

# Conference Agenda and Program

**Day 3 March 6, 2024**

**Session 5: Health and Air Quality in Dust-Affected Region**

**Chair and Keynote: Dr. Ali Al-Dousari**

| Time        | Content   |
|-------------|---|
| 08:30-09:00 | Dust in the Middle East, Properties and Adaptation Methods<br><b>By</b> Dr. Ali Al-Dousari, Kuwait Institute for Scientific   |
| 09:00-09:15 | Air Criteria pollutants" its relation with meteorological conditions and health implications<br><b>By</b> Dr. Srinivas PoKKunuri, NEOM, KSA                             |
| 09:15-09:30 | Impacts of ambient dust on air quality and solar energy production in Doha, Qatar<br><b>By</b> Dr. Christos FountouKis, Qatar Environment and Energy Research Institute |
| 09:30-09:45 | PM10 at Aqaba During Regional Dust Storms<br><b>By</b> Dr. Mahmoud Abu-Allaban, Hashemite University, Jordan  |
| 09:45-10:00 | Source Apportionment of Atmospheric Particulate in MaKKah<br><b>By</b> Prof. Turki Habeebullah, National Center for Meteorology, KSA                                    |
| 10:00-10:15 | Assessment of the intensity of dust events over Egypt with climate change scenarios<br><b>By</b> Dr. Zeinab Abdullah, Egyptian Meteorological Authority, Egypt          |
| 10:15-10:45 | Q&A   |
| 10:45-11:15 | Coffee Break  |





# Conference Agenda and Program

Day 3 March 6, 2024

**Session 6: Impact on Solar Energy, Weather and Climate**  
**Chair and Keynote: Prof. Georgiy StenchiKov**

| Time        | Content  |
|-------------|--|
| 11:15-11:45 | Measurement and Modeling of Dust Impact on Solar Devices and Climate over the Arabian Peninsula<br>By Prof. Georgiy StenchiKov, King Abdullah University of Science and Technology (KAUST)   |
| 11:45-12:00 | Pioneering Advancements and Impacts: The Regional Cloud Seeding Program's Quantum Leap in Weather Modification<br>By Eng. Ayman Albar, Executive Director of Regional Cloud Seeding Program  |
| 12:00-12:15 | Advancing Atmospheric Insights: Studies and Operations of KSA's Cloud Seeding Research Aircraft with latest technologies<br>By Eng. Asma Sarouji, Regional Cloud Seeding Program, National Center for Meteorology, KSA                             |
| 12:15-12:30 | Energy transition for accelerating climate actions: Implications to dust accumulation on solar PV systems<br>By Dr. Manish Kumar, Centre for Environment and Energy Development, India   |
| 12:30-12:45 | Spatial and Temporal Variations in the Incidence of Precipitations with Dust Storms Events in Riyadh Revealed from in Situ Observations<br>By Dr. ZaKiah Alhajji, WMO Sand and Dust Storm Warning Regional Center/ National Center for Meteorology |
| 12:45-13:00 | Impacts of mineral dust particles on cloud evolution and precipitation<br>By Dr. Ioannis Chaniotis, National and Kapodistrian University of Athens, Athens, Greece   |
| 12:45-13:10 | Q&A  |
| 13:10-13:30 | Coffee Break   |

# Conference Agenda and Program

**Day 3 March 6, 2024**

**Session 7: Dust, weather, climate, and policy**

**Chair and Keynote: Dr. Sara Basart**

| Time        | Content  |
|-------------|--|
| 13:30-14:00 | UN's ongoing activities for Combating Sand and Dust Storm<br><b>By Dr. Sara Basart, WMO</b>  |
| 14:00-14:15 | The UNCCD's Proactive and Collective Response to SDS: From Policy to Practice<br><b>By Dr. Barron Joseph Orr, United Nations Convention to Combat Desertification (UNCCD)</b>              |
| 14:15-14:30 | The development of a regional dust-forecast system to support the dust early warning system in the Middle East<br><b>By Dr. Paul Kucera, National Center for Atmospheric Research, USA</b> |
| 14:30-14:45 | The role of the Saudi Green Initiative in developing vegetation cover and mitigating dust and sand storms<br><b>By Dr. Ahmad Alghamdi, National Center for Vegetation Development, KSA</b> |
| 14:45-15:00 | The UN-Habitat's Role in UN SDS Coalition and Gulf Climate Action for City Resilience<br><b>By Dr. Ameera Alhassan, United Nations Human Settlements Programme (UN-Habitat) GCC</b>        |
| 15:00-15:20 | Q&A  |
| 15:20-16:30 | Lunch  |

**THANK YOU**

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