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Training Workshop on Sand and Dust Storms in the Arab Region
Cairo, Egypt, 10-12 February 2018

INFORMATION NOTE

I. BACKGROUND

Sand and dust storms (SDS) are meteorological phenomena that are common in arid and semi-arid regions. These extreme events affect the health and livelihoods of millions of people across the world, and have become increasingly problematic in the Arab region. These storms, which are likely to increase in frequency, intensity and geographical range as a result of climate change and changing land use patterns, can have an immense impact on socio-economic development by forcing airports and schools to close, interrupting supply chains and road networks, destroying crops and overwhelming hospitals.

Drylands in and around the Arab region are the main terrestrial sources of airborne dust. The Western Asia (*Mashreq*) part of the Arab region is part of the dust belt stretching from the western Sahara to central and eastern Asia. Climatological studies show the existence of active dust sources and pathways between March and September. There is another dust corridor that extends from the eastern frontier of the Syrian Arab Republic to Oman, with significant dusty areas also evident over Iraq, which impacts the Gulf region. Studies indicate that other sources of dust originate from the Empty Quarter (*Rub' al-Khali),* central parts of Saudi Arabia, and southwestern Iran. The Tokar Gap in North Eastern Sudan is another dust source which impacts the Arabian Peninsula and Arabian Gulf. Meanwhile, North Africa (*Maghreb*) countries are impacted by sand and dust storms which come from the Sahara Desert. Changing temperatures in the Mediterranean basin, strong winds and desert depressions affecting atmospheric systems are among other factors contributing to sand and dust storms in the *Maghreb* and *Mashreq*. To respond to such regional and global phenomena, the World Meteorological Organization (WMO) established the Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in 2007 to assist more than 40 countries improve their capabilities for preparing more reliable sand and dust storm forecasts and assessments.

The transboundary nature of sand and dust storms requires collective analysis and action to combat their severe impacts on human health and socio-economic activities. There is thus an utmost need to improve understanding of these extreme events within the context of climate change and efforts to achieve sustainable development. To do so requires identifying their origins, movements, changing seasonality and frequency, as well as examining their effect on air pollution across the Arab region. It is also important to consider various climate parameters and phenomena related to extreme temperatures, wind, soil moisture, drought and desertification. This can be achieved by building the capacity of Arab States for improved analysis and forecasting of these extreme events in the short term, while also drawing upon extreme climate indices projections generated under by the United Nations-League of Arab States Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR) for advancing the study and planning efforts to combat sand and dust storms over longer time periods. This will assist the Arab States in implementing the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs), namely, SDG 13, which aims to take urgent action to combat climate change and its impacts, and SDG 11, which aims to substantially increase the number of cities and

human settlements adopting climate change mitigation and adaptation actions and enhancing their resilience to disasters, which includes severe dust and sand storms in the Arab region.

Realizing the increasing challenge of addressing sand and dust storm in the Arab region and its impacts on various economic sectors such as agriculture, energy, transportation, health and others, the Executive Bureau of the Council of Ministers responsible for Meteorology and Climate of the League of Arab States at its April 2017 session requested the WMO, in coordination with the United Nations Economic and Social Commission for Western Asia (ESCWA) and the United Nations Environment Programme (UN Environment), to organize a training course for professionals in Arab States to increase their technical capacities to examine this meteorological and environmental phenomenon.

In response to this request, the League of Arab States with the support of the WMO, ESCWA and UN Environment are organizing a Regional Training Workshop on Sand and Dust Storms in the Arab Region in Cairo, Egypt from 10 to 12 February 2018. The workshop is being hosted by the Egyptian Meteorological Authority and is being conducted in collaboration with the European Organization for Exploitation of Meteorological Satellites (EUMETSAT), the State Meteorological Agency of Spain (AEMET) and the Barcelona Supercomputer Center (BSC).

II. OBJECTIVES

The objectives of the workshop are to:

- Enhance the technical capacities of operational and research meteorologists from Arab States on the analysis, prediction and projection of sand and dust storms, including the use of ground and satellite observations of dust, dust storm modeling and prediction, dust classification, data assimilation in dust models, etc.
- Enhance the understanding of the multi-dimensional impacts of sand and dust storms and their impacts on socio-economic sectors and ecosystems.
- Discuss opportunities for furthering collective regional work on sand and dust storms at the regional level in view of supporting the coordination of joint activities.

III. WORKSHOP STRUCTURE AND METHODOLOGY

The training will be carried out over three days. The first day will include presentations by United Nations organizations on various aspects of sand and dust storms, followed by discussions. Sessions on understanding and modelling the dust cycle and the use of ground observations in the monitoring of dust movements will be provided. On the second day, the methodologies applied for the satellite observations of dust, dust classification, and modelling of dust movements will be presented. During the last day, dust prediction and data assimilation techniques using dust models will be demonstrated. Hands on training on the models and tools used will be provided throughout the workshop.

IV. EXPECTED OUTCOMES

The workshop aims to achieve the following:

- Enhance the skills of the operational and research meteorologists of Arab States in sand and dust storms monitoring, prediction and modelling;
- Improve understanding and knowledge on the multi-dimensional effects of sand and dust storms;
- Agree on a set of coordinated activities for supporting future work on sand and dust storms at the regional level.

V. PARTICIPANTS

The main participants are the operational and research meteorologists from the Arab States. Other participants from relevant sectors engaged in sand and dust storms management (policy, mitigation, etc.) who are willing to learn more about the sand and dust storms will be also invited.

VI. LANGUAGE

The workshop will be conducted in the English language. No interpretation will be provided.

VII. VENUE AND DATE

The three-day workshop will be held at the Regional Training Center of the Egyptian Meteorological Authority in Cairo, Egypt from 10 to 12 February 2018.

VIII. VISA

Participants are responsible for their own visa arrangements to Egypt through communication with the Egyptian Embassy in their home country. Letters of invitation can be provided by the League of Arab States to nominated participants based on receipt of their registration form to facilitate this process, upon request.

IX. CONTACTS

Mr. Tarek Sadek Climate Change Officer Water Resources Section Sustainable Development Policies Division ESCWA Beirut, Lebanon Tel: +961 1 981 520 Fax: +961 1 981 510/511/512 Mobile: +961 70 824 432 E-mail: sadekt@un.org	Mr. Ashraf Nour Shalaby Regional Coordinator for Climate Change and Meteorology Department of Housing, Environment and Water Economic Sector League of Arab States Cairo, Egypt Tel: +202 257 50511 E-mail: ashrafnour03@hotmail.com
Mr. Hesham Abdelghany Moussa WMO Representative for West Asia WMO Manama, Bahrain Tel: +973 173 19401 Fax: +973 173 11607 Mobile: +973 339 52312 E-mail: habdelghany@wmo.int;	Mr. Abdul-Majeid Haddad Regional Climate Change Coordinator Manager of Implementation UN Environment Manama, Bahrain Tel: +973 17 812 754 Fax: +973 17 825 110/1 Mobile: +973 360 44805 E-mail: majeid.haddad@unep.org
Mr. Ashraf Zakey Undersecretary of State Central Administration Department for Research and Climate Ministry of Civil Aviation Cairo, Egypt Tel: +202 267 44721 Mobile: +201 152 655113 Fax: +202 267 44721 E-mail: ashzakey@gmail.com	