

AEMET-BSC-EUMETSAT-WMO

**WMO SDS-WAS Regional Center for Northern
Africa, Middle East and Europe:
<http://www.bsc.es/sds-was>**

**Lectures on atmospheric
mineral dust and its impact
on human health,
environment and economy**

Barcelona, 13 November 2010



**CaixaForum
Social and Cultural Center of La Caixa Outreach
Projects in Barcelona
Av. Francesc Ferrer i Guàrdia, 6-8
08038 Barcelona**

**More information and free registration:
lectures@aemet.es or lectures@bsc.es**

When winds are moderate or strong, large amounts of sand and dust are lifted from bare, dry soils into the atmosphere and transported downwind affecting regions hundreds to thousands of kilometers away. For countries in and downwind of source regions, airborne dust represents a significant threat. First, dust storms cause soil loss and damage to crop plants, thereby reducing agricultural productivity. Then, when suspended in the atmosphere, dust particulate plays an important role in different aspects of the climate system such as radiation budget, cloud microphysics or atmospheric chemistry. It has negative impact on human health, causing respiratory and cardio-vascular problems, eye infections and, in some regions, serious diseases such as meningitis. The main effects on the economy are related to reduced visibility, affecting aircraft and road transportation, and to polluted air, affecting semiconductor industry or solar energy plants. Finally, when deposited onto soil or ocean surfaces, mineral dust can have beneficial effects on certain ecosystems, such as Central and South American rain forests, which get most of their mineral nutrients from the Sahara, and iron-poor ocean regions, which get this metal and allow increased biomass growth.

The World Meteorological Organization (WMO) has taken the lead with international partners to develop and implement a Sand and Dust Storm Warning Advisory and Assessment System (WMO SDS-WAS). Since May 2010, the State Meteorology Agency for Spain (AEMET) and the Barcelona Supercomputing Center (BSC) host the Regional Center of WMO SDS-WAS for Northern Africa, Middle East and Europe

The Regional Center brings together and processes numerical forecasting models and observation material from both ground stations and satellites. In this respect, there are agreements of cooperation with EUMETSAT, the European consortium exploiting meteorological satellites. Once processed, the information allow for more accurate and longer term forecasts of atmospheric mineral dust content. The products developed at the Regional Center allow for improved assessment of air quality levels in Europe. However, the information is of particular interest to the Saharan and sub-Saharan African countries, where dust and sand storms pose a very serious health problem and a great burden for the development of some financial sectors. In that respect, agreements have been reached on a variety of World Health Organization programs, particularly with MERIT, a project aiming to reduce the ravages of meningitis in sub-Saharan Africa.

10:15 Presentation

10:30 A Global View of Atmospheric Sand and Dust:
Occurrence, Prediction and Impacts

Dr. Leonard Barrie, World Meteorological Organization, Research Department, Director

11:15 Break

11:45 Satellite Remote Sensing of Mineral Dust

Dr. José Prieto, EUMETSAT, User Service, Training Officer

12:30 Ground-Based Observation of Mineral Dust

Dr. Emilio Cuevas-Agulló, AEMET, Izaña Atmospheric Research Center, Director

13:15 Lunch Break

15:00 Modeling the Dust Cycle – Implications for
Climate and Air Quality

Dr. Michel Schulz, Norwegian Meteorological Institute. WMO SDS-WAS, Steering Group of the Regional Node for Northern Africa, Middle East and Europe, Chair

15:45 Numerical Prediction of Mineral Dust

Dr. José María Baldasano, Barcelona Supercomputing Center, Earth Sciences Department, Director

16:30 Break

17:00 Sand and Dust Storm – The Less Mentioned
High Impact Weather Event

Dr. Benjamin Lamptey, Regional Maritime University, Accra, Ghana

17:45 Impact of African Dust on Air Quality

Dr. Xavier Querol, CSIC Institute of Environmental Assessment and Water Research, Barcelona, Research Professor

18:30 Closure