Overview of WMO and Collaboration with OIE
Commission of Agricultural Meteorology

- 17th Session held in Incheon (Republic of Korea) 18-20 April 2018
- Four Focus Areas
  Focus Area 1: Weather and Climate Services for Agriculture
  Focus Area 2: Research and Technology Development in Agrometeorology
  Focus Area 3: Agrometeorological Risk Management
  Focus Area 4: Communications, Education and Capacity Development

- More than 180 World Experts involved
- Expert Team on Crop, Animal, and Pest/Disease Early Warning Systems
- Guidance material on animal/plant pest/disease applications modelling and early warning systems
- **Beijing**: China Meteorological Administration (CMA) / Beijing Climate Center (BCC)
- **CPTEC**: Center for Weather Forecasting and Climate Research / National Institute for Space Research (INPE), Brazil
- **ECMWF**: European Centre for Medium-Range Weather Forecasts
- **Exeter**: Met Office, United Kingdom
- **Melbourne**: Bureau of Meteorology (BOM), Australia
- **Montreal**: Meteorological Service of Canada (MSC)
- **Moscow**: Hydrometeorological Centre of Russia
- **Offenbach**: Deutscher Wetterdienst
  Wetter und Klima aus einer Hand
- **Moscow**: Hydrometeorological Centre of Russia
- **Pretoria**: South African Weather Services (SAWS)
- **Seoul**: Korea Meteorological Administration (KMA)
- **Tokyo**: Japan Meteorological Agency (JMA) / Tokyo Climate Center (TCC)
- **Toulouse**: Météo-France
- **Washington**: Climate Prediction Center (CPC) / National Oceanic and Atmospheric Administration (NOAA), United States of America

*Source: WMO LC-LRFMME*
Airborne animal diseases – Ireland and EU

Food and mouth disease. Spread by contact and wind dispersion. Irish Met. Service Operational suite

Taken from K.Lambkin et al. TECO, Incheon April 2018
Mosquitos as vectors – Blue tongue virus

Bluetongue Virus (BTV) – automated daily risk product

Emissions
Weather Constraints
Validation
Graphical Output
Roving Seminars. Training on the use of Climate and Weather Information for Goat Shepherds and Honey Producers- Argentina 2016
Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) supported by WMO World Weather Research Programme

**Mission**

To establish a coordinated global network of SDS research & forecasting centres and to enhance the ability of countries to deliver timely and quality sand and dust storm forecasts, observations, information and knowledge to users through an international partnership of research and operational communities.
Impacts – Crops & Livestock

- Loss of plant tissue and reduced photosynthetic activity as a result of sandblasting
- Burial of seedlings under sand deposits
- Delayed plant development
- Increased end-of-season drought risk
- Causing injury and reduced productivity of livestock
WMO SDS-WAS System Components

Forecast Models

NASA A-Train MODIS CALIPSO & Geostationary Satellite IR Obs

GALION Surface-based LIDAR

European PM10

GAW/AERONET/SKYNET Surface-based AOD
Dust forecasting systems
SDS-WAS Regional Nodes

• 3 Regional Nodes, 15 organizations providing forecast
• Regional coordination: Regional Steering Group (for Regional Nodes)
• Global Coordination: Global Steering Committee
• Strategic Plan: SDS-WAS Science & Implementation Plan for 2015-2020
• Implementation: Trust Fund through WMO WWRP/GAW
Global Assessment of Sand and Dust Storms

Foreword

Large sand and dust storms, which result from a combination of strong winds and loose dry soil surfaces in arid and semi-arid areas, are detrimental to human health, agricultural land, infrastructure, and transport. Every year, an estimated 2,000 million tons of dust is emitted into the atmosphere. While much of this is a natural part of the biogeochemical cycles of the Earth, a significant amount is generated by human-induced factors, especially unsustainable land and water management.

However, there is considerable uncertainty about whether sand and dust storms are increasing in intensity and frequency and how much is due to human causes. There is also need for greater clarity on the role that climate change is playing and how changes in dust emissions due to land use and climate change may impact the atmosphere, climate and oceans in the future. Policymakers and other stakeholders need more information on what can be done to reduce the frequency and intensity of sand and dust storms and to protect infrastructure and human health from their effects.

The Global Assessment is a significant contribution to our understanding, synthesising the latest scientific information on the causes of sand and dust storms and their consequences for human and environmental well-being. It summarises the latest knowledge on predicting them and reducing their impact.

Given the dominance of natural sources of dust and uncertainty regarding future dust emissions, the report stresses the importance of protective measures, which include enhancing monitoring, prediction and early warning systems, and improving preparedness and emergency response. To reduce anthropogenic sources of sand and dust storms, the Assessment recommends integrated strategies that promote sustainable land and water management in cropland, rangelands, deserts and urban areas, and climate change mitigation.

The report proposes a consolidated and coordinated global policy for responding to sand and dust storms, integrated and synergistic actions across sectors, and strengthened cooperation among global institutions. These measures are integral to the success of the 2030 Agenda for Sustainable Development. They can contribute to improved public health, more livable towns and cities and more sustainable rural areas. They can help combat climate change, conserve oceans, and protect terrestrial ecosystems, thereby helping to reduce poverty and protect economic growth.

I commend this report to all Governments and stakeholders engaged in reducing the occurrence and impact of sand and dust storms and working to achieve the Sustainable Development Goals.

SAN Ki-Moon
United Nations Secretary-General
WMO Airborne Dust Bulletin

En: https://library.wmo.int/opac/index.php?lvl=bulletin_display&id=3902
Fr: https://library.wmo.int/opac/index.php?lvl=notice_display&id=19879
Ar: https://library.wmo.int/opac/index.php?lvl=notice_display&id=19881
Ch: https://library.wmo.int/opac/index.php?lvl=notice_display&id=19883
SDS-WAS Dissemination

WMO SDS-WAS websites and reports:
http://www.wmo.int/sdswas
https://public.wmo.int/en/our-mandate/focus-areas/environment/sand-and-dust-storm

SDS-WAS Regional Nodes and Operational Forecasts:
for Northern Africa, Middle East and Europe: http://sds-was.aemet.es;
for Asia: http://eng.nmc.cn/sds_was.asian_rc;
for the Americas: http://sds-was.cimh.edu.bb/
Operational Barcelona Center: http://dust.aemet.es/

WMO SDS-WAS Video
Protecting People from Sand and Dust Storms
https://www.youtube.com/watch?v=lYXcpYYlm8I
Potential Agricultural Applications of a SDS-WAS

Tactical Applications (Warnings)

• Near-term alerts for agricultural communities to take preventive action such as
  – harvesting maturing crops (vegetables, grain),
  – sheltering livestock, and
  – strengthening infrastructure (houses, roads, crop storage) for the storm.
Potential Agricultural Applications of a SDS-WAS

Strategic Applications

• Improved SDS climatologies for long-term planning for agricultural communities such as:
  – Planning windbreaks and shelterbelts (direction, size, etc)
  – Planning infrastructure and crops
Potential Agricultural Applications of a SDS-WAS

Research Areas

- Forecasting locust movement
- Plant and animal pathogen movement and the relationship of SDS to disease outbreaks
- Archive of SDSWAS products (Forensic Use)

Coffee Leaf Rust (1970) Angola to Bahia, Brazil

Wheat stem Rust (1969) S. Africa to Australia

Other Diseases

• Foot and Mouth Disease (livestock)
• Soybean Rust (South America to North America)
• Wheat Stem rust (ug99)

• Policy makers need to know source of disease outbreaks (airborne or human transport) to take actions to minimize risk
WMO – OIE Collaborations

• Support of joint activities
• Participation in expert groups
• Development of joint projects
• Possible revision of OIE-WMO MOU
Thank you

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