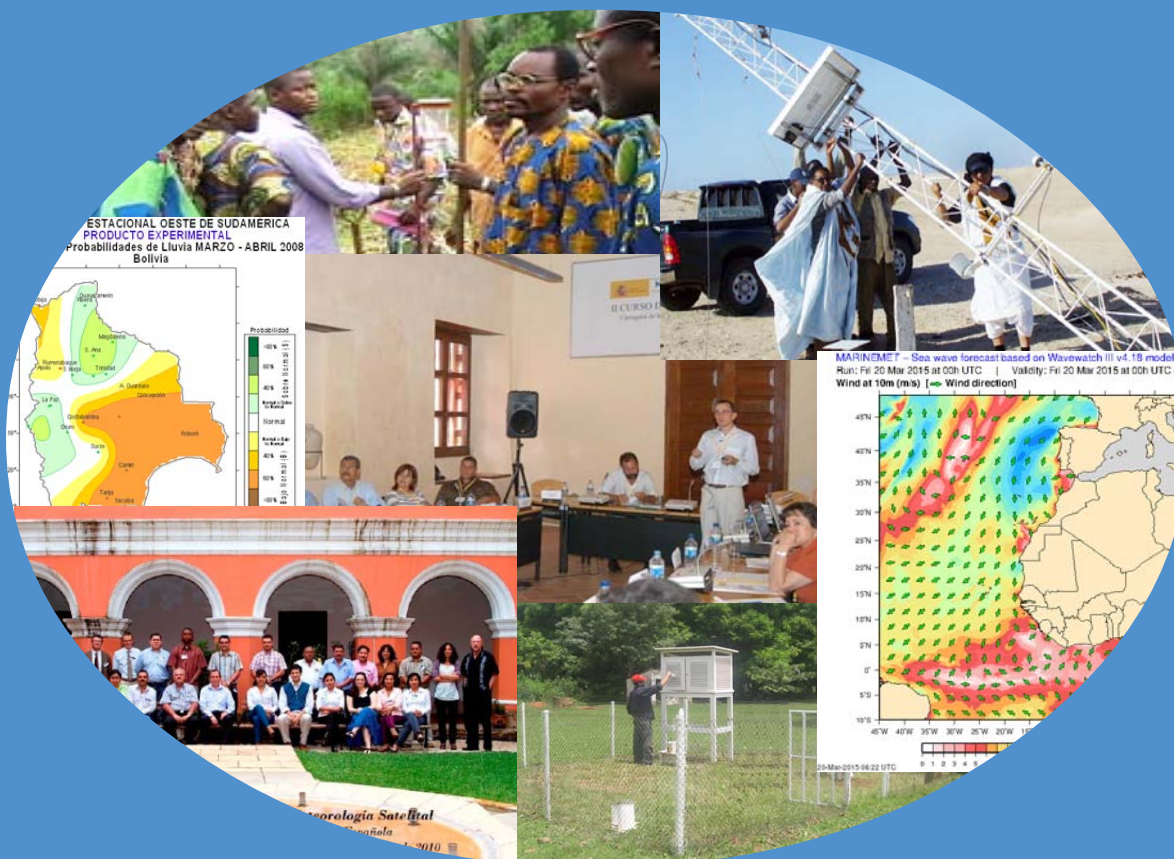


# The National Meteorological Agency of Spain (AEMET) Cooperation in weather and climate



*Promoting capacity building*



GOBIERNO DE ESPAÑA

MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA



Agencia Estatal de Meteorología

# AEMET



The geographical location of Spain, among Atlantic Europe, the Mediterranean Sea and the North of Africa, has a direct consequence on its history and its inhabitants. **A diverse and heterogeneous country**, the result of a century-long mixture of different peoples and enriched by a tradition of exchanges, cooperation and understanding among Europe, Africa and the Americas.

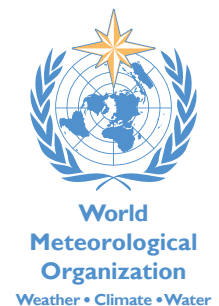


Traditionally, the National Meteorological Agency of Spain (AEMET) has also had a strong vocation for international development cooperation, even long before its Statute pointed it out among its competences.



*Spain has a strong spirit of cooperation, solidarity and understanding.*

The fact that Spain is a «crossroad» of different climates and different sorts of weather, has contributed to the development and specialization of a Meteorological Service, with more than 150 years of history. Nowadays, AEMET provides a high quality public service in order to protect lives and goods through the adequate forecasting and monitoring of extreme meteorological phenomena and as a support to social and economic activities through the provision of quality meteorological and climate services.



For these reasons, the contribution of AEMET in meteorology and climatology can be considered extremely valuable.

AEMET cooperation programs are participatory, proactive, aligned with the needs identified by their partners and by the World Meteorological Organization (WMO) and are regionally oriented. They focus mainly on Latin America, West Africa and the Greater Mediterranean Region, creating networks for development and focusing on

**capacity development.**



# CIMHET

  
Conferencia de Directores de los Servicios  
Meteorológicos e Hidrológicos Iberoamericanos

www.cimhet.org

**A**EMET has been cooperating with the Ibero-American National Meteorological and Hydrological Services (IA-NMHSs) for over forty years. This relationship was formalised in 2003 with the creation of the Ibero-American Meteorological Cooperation Programme and its management authority, the **Conference of Directors of the Ibero-American NMHSs (CIMHET)** which, together with the WMO Secretariat, establishes multi-annual action plans on three strategic lines:



*One tenth of WMO members are coordinated through CIMHET.*

- Institutional reinforcement and resources mobilisation;
- Provision of weather and climate services;
- Education and Training.

The activities carried out in the last action plans are, among others:

## Institutional reinforcement and resources mobilisation

- Analysis of education and training needs in the region to design a strategic training plan among the Regional Training Centres of WMO in the region.
- Collaboration with the Spanish Cooperation Agencies, the Spanish Agency for International Development Cooperation (AECID) and the Latin American Foundation for Public Administration and Policies (FIIAPP) to present proposals to be funded by different mechanisms, especially from the European Union (EU).
- Planning of joint activities with other Ibero-American environmental networks, such as the Conference of Ibero-American Water Directors (CODIA) and the Ibero-American Network of Climate Change Bureaus (RIOCC).

## Provision of weather and climate services

- Support to the creation and operability of Regional Virtual Centres for early warnings of extreme events.
- Support to the International Research Centre on El Niño (CIIFEN).
- Development of a database administration system (MCH) that was donated to the WMO for its implementation in other NMHSs.
- Development of a Central American lightning detection regional network.
- Development of regionalized climate change scenarios for Central America, with access to data and web visualization.

## Education and Training

- CIMHET counts with the essential support of AECID, through the Interconecta Program, and its four training centres in Ibero-America. Other strategic partners as EUMETSAT also participate.
- In 2015 the first blended (online and attending) training course to train meteorologists in Spanish took place according to WMO BIP-M standard, the online part lasting 650 hours, and 200 hours for the classroom part. The third edition of this course is planned to start in 2019 and end in 2020.
- Support to horizontal cooperation between Ibero-American services with a view to complementing their capacities mutually.

*Since 2004 some 1200 pupils of the Ibero-American NMHSs have been trained, with over 60 courses and workshops*

During the latest CIMHET meeting (held at AECID's training centre in Montevideo, Uruguay, March 2019) the implementation of **immediate plans** was agreed, such as:

- The continuation of training and capacity development activities for the professionals of the Ibero-American NMHSs.
- Support the implementation of the Central American Virtual Centre for the prevention of extreme hydrometeorological phenomena.
- Development of regional projects of generation of climate change scenarios and climate data recovery.



## MedCOF



medcof.aemet.es

The Mediterranean Climate Outlook Forum (MedCOF) is a joint effort of all meteorological services of the Greater Mediterranean Region.

It includes other forums already existing, such as SEECOF and PRESANORD.

To date, twelve forums have been organized:

- Six face-to-face forums, always held at the beginning of November, which make the consensual probabilistic forecasts for the following winter;
- Six on-line forums, organized over the course of May, to make the consensual probabilistic forecasts for summer.



MedCOF priorities include the organization of courses and training workshops and the improvement of tools and procedures for on-line forums.

The MEDSCOPE project - through which AEMET and other active MedCOF institutions participate within the European initiative ERA4CS, contributes substantially to MedCOF, supporting it with training workshops and development of specific tools for the Mediterranean region.

# AFRIMET

Since 2007, Spain, through AEMET and in collaboration with the WMO, is implementing the Programme of Cooperation for development of West African NMHSs and its management authority, the Conference of Directors of the West African NMHSs (AFRIMET). In their meetings, the members of AFRIMET establish the common projects and priorities. The experience acquired in decades of cooperation in Ibero-America has been applied to Africa and has produced tangible outcomes very quickly.



The AFRIMET programme is structured along strategic lines and different projects closely aligned with the priority areas of the Global Framework for Climate Services (GFCS), in particular:

## HEALTHMET

### **Institutional reinforcement and creation of links with health authorities:**

Promotes the training of meteorological services in the study and forecast of dust and sand storms with the aim of creating a warning system that, in coordination with the health authorities, allows to take sanitary measures to protect the population. This project has the active participation of the Barcelona Dust Forecast Centre of AEMET.

## METAGRI

**Alignment with food safety policies:** The first AFRIMET project, continued with METAGRI OPERATIONAL, fosters the generation of climate information by subsistence farmers, so that they can make decisions based on it, which has generated crop yield increases of 30%.

- *14 000 farmers trained in 350 roving seminars.*

## MARINEMET

**Pioneering project for improved forecasts in the coastal waters of Western Africa**, enabling the NMHSs in Mauritania, Senegal, Cape Verde and Gambia to provide new services to their users through observation of automatic stations, numerical modelling, training courses in maritime meteorology and use of web tools. Future extension of the project to Gulf of Guinea countries.



- *10 automatic weather stations and 6 tide gauges installed in 4 countries of Western Africa. Training of maritime forecasters from 13 AFRIMET countries.*

# SDS-WAS / BDFC

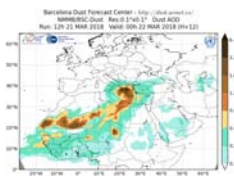
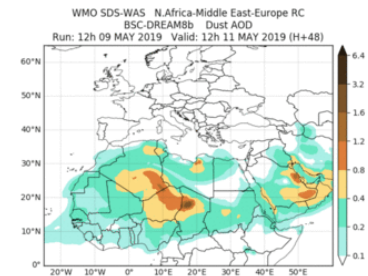


sds-was.aemet.es  
dust.aemet.es

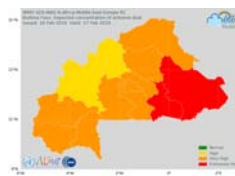
Since 2010 Spain hosts the Northern Africa-Middle East-Europe Regional Node of the Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS NA-ME-E Regional Centre), jointly managed by AEMET and the Barcelona Supercomputing Centre (BSC-CNS).

This centre coordinates activities from different institutions of the region for the development of new products. Since 2010 it supports capacity building through:

- The organization of 12 international courses and capacity building workshops, carried out in Africa, Middle East and Europe.
- The participation in other 15 courses attended by experts of more than 20 countries.
- The participation in European projects InDust (COST Action 16202) and DustClim (ERA4CS).
- The Warning Advisory System for sand and dust storms in Burkina Faso was started up in October 2018.

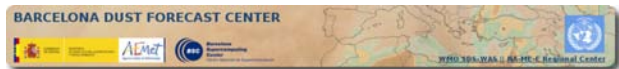


Forecasting of the optical thickness of atmospheric mineral dust.



Dust storm warning for Burkina Faso.

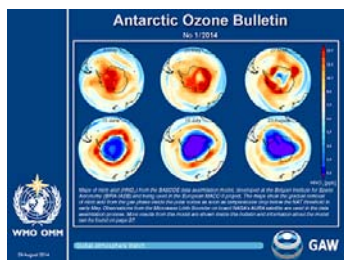
In 2014 the Barcelona Dust Forecast Centre (BDFC) has been established and is managed jointly by AEMET and BSC-CNS, being the first WMO regional meteorological specialized centre for atmospheric sand and dust forecast, providing operationally products to assist NMHSs in making their forecasts and warnings.



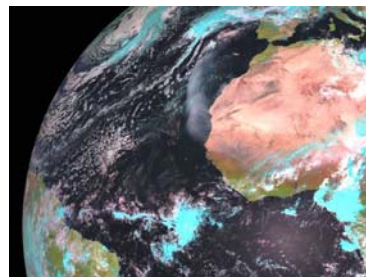
# SDS-Africa y GAW-Sahara

izana.aemet.es

AEMET, through the Izaña Atmospheric Research Centre (Tenerife, Canary Islands), carries out numerous international cooperation activities within the framework of the WMO Global Atmospheric Watch Program, as a Regional Calibration Centre for



Brewer Spectrophotometers, being the world reference for ozone-brewer, and as a test bed for aerosol and water vapour remote sensing equipment.



Izaña coordinates aerosol and ozone-measuring networks in the Sahara and Northern Africa created with the support of AECID, and their maintenance as well as capacity building are fostered among their operators. Also twinning arrangements are maintained and certain measurement programs are co-managed with other Global Atmosphere Watch stations such as Tamanrasset (Algeria) or Ushuaia (Argentina).



**A**mong the strategic lines of AEMET's international cooperation, training has always been specially relevant.

Since 1969 when the National Meteorological Service of Spain (now AEMET) began to teach an international meteorology course for foreign students, numerous training courses have been carried out with different formats, face-to-face and online, having trained more than 2,000 meteorological services professionals from different countries, mainly from Ibero-America.

In recognition of this important training task, the 70th WMO Executive Council, designated AEMET as a Regional Training Centre (RTC) of WMO in Spain. In this new RTC in Spain, AEMET collaborates with the Spanish Agency for International Development Cooperation (AECID), the Climate Change Centre (C3) of the Rovira i Virgili University, and the Barcelona Supercomputing Centre (BSC) through the Regional Centre for the evaluation and emission of warnings of dust and sand storms in North Africa, the Middle East and Europe. Thus, Spain joins the currently 26 RTC network of WMO to complement the training offer in Spanish at the world level, which is currently mostly in English (only 5 of them are Spanish-speaking).

This designation is a great stimulus to continue with the training activities, and will provide an excellent platform for AEMET to continue with its transfer of knowledge to other countries.

The RTC of Aemet is aligned with the WMO **Global Campus** initiative, which aims to build a global education and training community, based on three principles: Collaborate, Cooperate and Share. This will allow to increase learning opportunities, give greater visibility to training activities, share resources (both material and human), facilitate innovative learning approaches, promote training in skills required for the performance of jobs, and improve the quality of the training.



*Training Centres of Spanish Cooperation in Latin America and the Caribbean.*

Finally, AEMET promotes numerous international cooperation initiatives for the development of NMHSs and other related institutions, such as Climate Change Bureaus or Water Agencies.

This cooperation usually has a regional approach and is done in a coordinated and participative manner with different partners and stakeholders, like recipient countries through regional sectorial conferences, the World Meteorological Organization and other United Nations agencies, and with the support of key institutions such as the Spanish Agency for International Development Cooperation (AECID).

AEMET wants to share these experiences with the whole World, continue networking and establish partnerships with as many stakeholders ready to look for synergies with its cooperation programmes as possible.



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