

Spanish cooperation in weather, climate and water

Networks for development



Alcantara Bridge, II Century AD,
declared a National Monument on River Tagus.
Valencia de Alcantara, Caceres. Spain.

*«The longest lasting building made by man, fully standing the
test of time and destructive agents..., and the bridge is still a
crossing bridge over the river and a link between successive
generations.» Eng. Carlos Fernández Casado.*



GOBIERNO
DE ESPAÑA

MINISTERIO
DE AGRICULTURA, ALIMENTACIÓN
Y MEDIO AMBIENTE

AEMet

Agencia Estatal de Meteorología

Spain



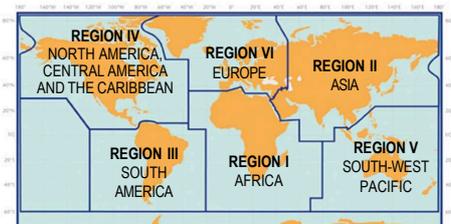
Its geographical situation, among Atlantic Europe, the Mediterranean Sea and the North of Africa, has a reflection on its history and its inhabitants. **A diverse and heterogeneous country**, the result of a century-long mixture of different peoples and enriched by a tradition of exchanges among Europe, Africa and the Americas.

It is a **mosaic of climates** and types of weather. As a result, it has meteorological and climate services of a very high quality, together with millennia of experience in the management of their unevenly distributed water resources.



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

Due to all these factors, traditionally Spain has greatly contributed to Meteorology, Climatology and water-related issues. Spanish cooperation programmes are participatory, proactive, aligned with the needs identified by



Spain's partners and by the World Meteorological Organization (WMO), and are regionally oriented. They focus mainly on Ibero-America, Western Africa and the Greater Mediterranean Region, creating **networks for development** in which Spanish institutions are active partners in capacity development and give a response to the priority areas of the Global Framework for

Climate Services (GFCS). The key references in the area of Spanish cooperation for development are the Master Plan for Spanish Cooperation and the Country Partnership Frameworks that Spain signs with the partner countries.



CIMHET



Conferencia de Directores de los Servicios Meteorológicos e Hidrológicos Iberoamericanos

www.cimhet.org



The tenth part of the WMO members is coordinated through CIMHET.

The State Meteorological Agency of Spain (AEMET) 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 annual and multi-annual action plans.

ACTIVITIES CARRIED OUT IN THE FOLLOWING LINES OF ACTION:

Institutional reinforcement and resource mobilisation

- Design of projects have been designed for the modernisation of 13 IA-NMHSs.
- Pilot projects for the assessment of the socio-economic benefits of meteorological services.
- Promotion of the participation in the Group on Earth Observations (GEO) of the IA-NMHSs.
- Implementation of Quality management systems for the aeronautical meteorological services.

Provision of weather and climate services

- Support to the creation and operability of virtual centres for early warnings of extreme events.
- Support to seasonal forecasting and integrated drought management forums.
- Support to the International Research Centre on El Niño (CIIFEN).
- Development of a database administration system (MCH) that has been donated to the WMO for its implementation in other NMHSs.

Capacity development

- CIMHET counts with the indispensable support of the Ibero-American Program of Specialized Technical Training (PIFTE), as well as with the training centres of the Spanish Agency for International Development Cooperation (AECID) in Ibero-America. Other strategic partners are also participating, such as EUMETSAT or the European Centre for Medium-Range Weather Forecasts (ECMWF).
- In 2015 the first blended (online and attending) training course to train meteorologists in Spanish will take place according to WMO BIP-M standard.
- Support to horizontal cooperation between Ibero-American services with a view to complementing their capacities mutually.

Since 2004 some 1,000 pupils of the Ibero-American NMHSs have been trained, with over 3,000 hours given in courses and workshops.

During the latest CIMHET meeting (held at AECID's training centre in Cartagena de Indias, Colombia, March 2015) the implementation of **immediate plans** was agreed, such as:

- The development of a virtual warning centre for extreme hydrometeorological events in Central America,
- The creation of a regional climate data recovery project, and
- The continuation of training and capacity development activities for the professionals of the Ibero-American NMHSs.



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 results very quickly.



The AFRIMET programme is structured along strategic lines and different projects closely aligned with the priority areas of the GFCS, in particular:

HEALTHMET

Institutional reinforcement and creation of links with health authorities: promotes climate-health working groups at a national level, creating synergies with other Spanish cooperation projects (sand and dust storm forecast) and with others of the GFCS (Clim-Health Africa).

METAGRI

Alignment with food safety policies: 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%.



- *7800 farmers trained in 160 roving seminars.*
- *Subsistence farmers obtained crop yield increases of 30%.*

MARINEMET

Pioneering project, carried out in collaboration with Puertos del Estado (Spanish State Port Authority), 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.

10 automatic weather stations and 6 tide gauges installed in 4 countries of Western Africa.

SDS-WAS / BDFC



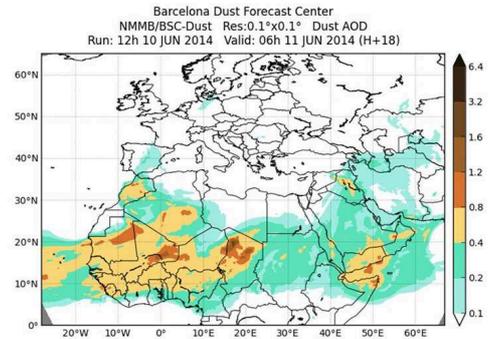
sds-was.aemet.es
dust.aemet.es

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), jointly managed by AEMET and the Barcelona Supercomputing Center (BSC-CNS).

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

The Barcelona Dust Forecast Center is the first WMO regional meteorological specialized centre for atmospheric sand and dust forecast

- The organization of 7 international courses and capacity building workshops.
- The participation in other 8 courses attended by experts of more than 20 countries.

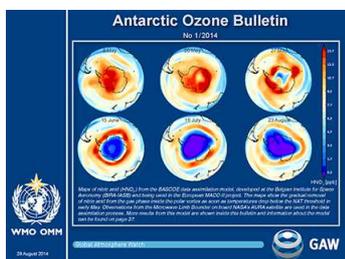


Since 2014 the Barcelona Dust Forecast Center (BDFC) has been established and is managed jointly by AEMET and BSC-CNS, being **the first WMO regional meteorological specialized centre for atmospheric sand and dust forecast**, providing operationally products to assist NMHSs in making their forecasts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

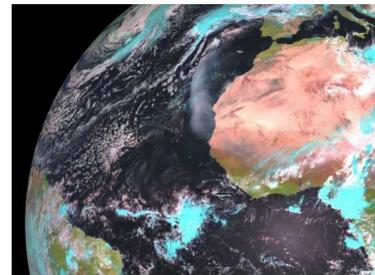
SDS-Africa and GAW-Sahara

izana.aemet.es

AEMET, through the Izaña Atmospheric Research Centre (Tenerife, Canary Islands), carries out numerous international cooperation activities. The Izaña Global Atmosphere Watch Observatory (GAW) is the regional centre for calibration of Brewer spectrophotometers and has been nominated test bed of the WMO Commission for Instruments and Methods of Observation.



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 development are fostered among their operators. Also twinning arrangements are maintained with other Global Atmosphere Watch stations such as Tamanrasset (Algeria) or Ushuaia (Argentina).



The Izaña GAW Observatory is the regional centre for calibration of Brewer spectrophotometers and has been nominated test bed of the WMO's CIMO.

The Mediterranean Climate Outlook Forum (MedCOF) is a joint effort of all meteorological services belonging to the Greater Mediterranean Region. It includes other forums already existing, such as SEECOF and PRESANORD.

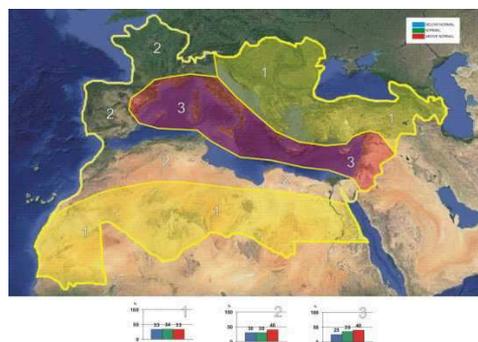
MedCOF makes seasonal forecasts for this region since 2013 with the coordination and support of AEMET.

In addition, Spain finances the participation of North African countries in MedCOF-related activities.

To date, four forums have been organized:

MedCOF makes seasonal forecasts with the coordination and support of AEMET.

- two face-to-face forums, always held at the beginning of November, which make the consensual probabilistic forecasts for the following winter;
- two 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.

MEDARE



The MEDiterranean climate DATA REscue (MEDARE) project is an initiative set up under the auspices of WMO and coordinated by Spain through the Rovira i Virgili University in Tarragona. Its main objective is to develop, consolidate and progress climate data and metadata rescue activities across the Greater Mediterranean Region (GMR) with the purpose of creating a high quality database, focused on essential variables, thus improving the capacity to detect, monitor and predict climate variability and change at a regional and national scale.

MEDARE country participants, together with affiliated organizations and individuals, can work jointly on the enhancement of research and training activities, capacity building, multi-country Data Rescue Projects, etc. Therefore, it is an opportunity to bring together climatologists from the NMHSs, scientists from universities, research centres and other climate-related institutions.



MEDARE is considered an example of success by WMO with the intention to replicate it in other regions such as the Indian Ocean.

RIOCC



The Ibero-American Network of Climate Change Bureaus (RIOCC) is a network coordinated by the Spanish Bureau for Climate Change (OECC), created in 2004 with the goal of maintaining a fluid and constant dialogue with Ibero-American countries on climate change issues. It receives the support of the Spanish Ministry of Agriculture, Food and Environment (MAGRAMA) and the Spanish Agency for International Development Cooperation (AECID).



The network meets formally once per year, although it also organizes technical and ministerial meetings in the margins of the international negotiation meetings of the United Nations Framework Convention on Climate Change (UNFCCC).

RIOCC's activities include institutional strengthening and capacity development, identification of potentially interesting regional studies and projects and other cooperation actions with the UNFCCC and UN Agencies, international financial institutions and other regional organizations. The network works in the area of climate change mitigation and adaptation. The activities in areas such as systematic observation, regionalization of climate change scenarios, coastal areas or water resources are carried out in collaboration with other regional networks like CIMHET or CODIA.

CODIA



The Conference of Ibero-American Water Directors (CODIA) was created in response to the mandate of the 1st Ibero-American Forum of Environment Ministers (Spain, 2001) to create a forum of the region for the main Ibero-American water managers to undertake the following:

- Facilitate the general lines of cooperation in the field of water to the Ibero-American Forum of Environment Ministers and to the Ibero-American Summits.
- Foster joint action plans and programmes in order to submit them to the appropriate funding bodies.
- Promote the development and exchange of experiences.
- Coordinate cooperation activities in the region.
- Facilitate both institutional and private exchanges and coordination in legal matters, technical issues, and training and investment aspects.
- Promote the achievement of common technical standards/regulations.
- Develop training courses and programmes for professionals, staff from public administrations and public officials.



To achieve this, CODIA cooperates with Latin American networks such as UNESCO-PHI, CIMHET, EU-RALCEA.

Up to date, the most important activity has been the training programme. Since 2008 and until 2014, a total of 53 courses have been held, attended by 1,418 pupils and 300 speakers of the various countries integrating CODIA. Since 2012, this programme has an online mode that has already offered 23 courses and received over 4,000 training requests.

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

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

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

