How can society benefit from high quality climate data?

A water manager can decide to enforce water restrictions based on the climate forecast for the coming season and information on historical rainfall over a catchment.

A farmer can weigh the risks of planting certain seeds and crops for the coming season using the El Niño climate forecast and historical information about his property.

An epidemiologist can provide early warning on the increased risk of malaria by analyzing the relationship between disease outbreaks and prevailing climactic conditions over a region.

An emergency services analyst can plan bushfire risk mitigation actions for the coming season by investigating the relationship between vegetation curing, and forecast and historical climatic conditions.

A renewable energy analyst can select the best type of solar system for a client by reviewing historical solar radiation data for a region.

A civil engineer can determine the optimal location for a road and bridge project by analyzing the historical potential for rain and floods in particular areas.

A land manager can create a plan to mitigate climate change impacts on biodiversity and ecosystems by analyzing climate change projections and historical climatic conditions for certain species.

A city planner can consider whether a housing development proposal should be approved using information on the historical potential for rain and floods in the area.

WORLD METEOROLOGICAL ORGANIZATION

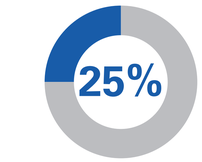
WEATHER CLIMATE WATER

What do we need to generate and manage high quality climate data?

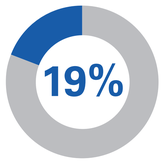
A **Climate Data Management System (CDMS)** is essential. A CDMS is an computer-based system, which facilitates the effective archiving, management, analysis, delivery and use of a wide range of integrated climate data.

What is the current state of Global CDMS?

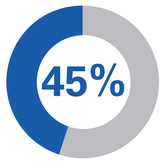
The WMO Expert Team on Climate Data Management Systems sent a survey to all 191 WMO Members, of which 72% responded. Survey results showed that:



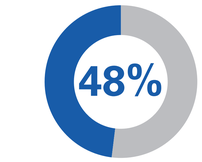
Do not use a data-base



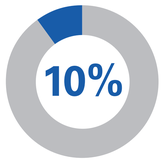
Use a spreadsheet to manage climate data



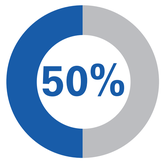
Have developed their own CDMS



Have operational issues



CDMS is not oper-ational

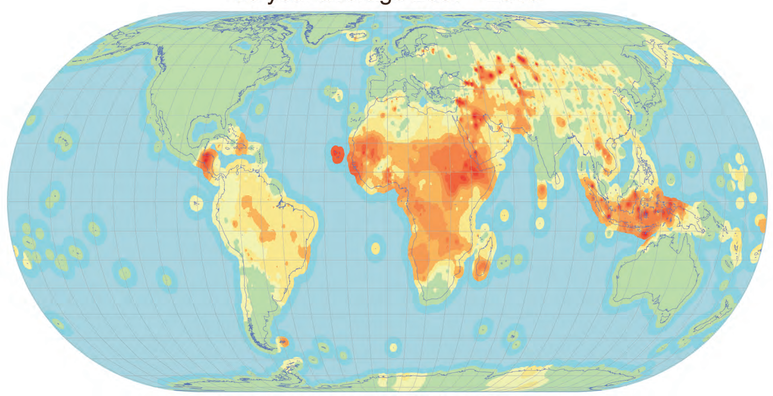


Would like to change their CDMS

The difficulties in global climate data management conveyed in these statistics are also reflected in the map below, which shows the supply of climatological data reported by land-based observation sites to data centres from 2007-2016.

% correct global CLIMAT messages received

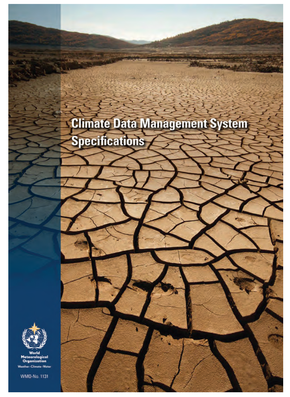
10 year average 2007 - 2016

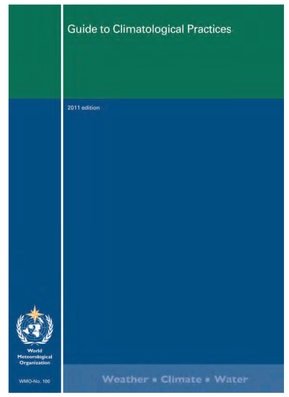


What can we do to improve global climate data management?

Most current systems that are referred to as CDMSs were developed in the absence of a formal definition of the functionality expected from a CDMS. Consequently, each system has different and inconsistent capabilities.

The WMO Climate Data Management System Specifications (WMO #1131) were developed to provide a clear definition of the functionality expected within a CDMS. WMO #1131 is approved as a WMO Standard.





> "WMO #1131 gave me an authoritative and convincing source for proposing improvements to our CDMS ... and ensuring that we are managing data in the best possible way for our customers and stakeholders."
>
> - Charlotte McBride, South African Weather Service

Using a CDMS that complies with WMO #1131 and following the WMO Guide to Climatological Practices (WMO #100) will ensure high quality climate data that are consistent, authoritative, valued, trusted and easily accessible for global, regional and national use.

These actions will lead to consistent, federated global climate data sets. Climate scientists will then be able to minimize the time spent on integrating data from different CDMSs and maximize time spent on data analysis.

Ensure that your CDMS complies with WMO Standards.

Are you ready?

For more information, email **cdms.info@wmo.int**
Download WMO #1131 and WMO #100 at **library.wmo.int**