WORLD METEOROLOGICAL ORGANIZATION

REGIONAL CLIMATE CENTRE WESTERN SOUTH AMERICA

The WMO Regional Climate Centre for Western South America (RCC-WSA), hosted by the Centro Internacional para la Investigación del Fenómeno de El Niño (CIIFEN), covers the Plurinational State of Bolivia, Chile, Colombia, Ecuador, Peru and the Bolivarian Republic of Venezuela.

Governance

- Servicio Nacional de Meteorología e Hidrología (SENAMHI), Plurinational State of Bolivia
- Dirección Meteorológica de Chile (DMC), Chile
- Instituto de Hidrología, Meteorología y Estudios Ambientales (IDEAM), Colombia
- Instituto Nacional de Meteorología e Hidrología (INAMHI), Ecuador
- Servicio Nacional de Meteorología e Hidrología (SENAMHI), Peru
- Instituto Nacional de Meteorología e Hidrología (INAMEH), Bolivarian Republic of Venezuela

Linkage with WMO Global Climate Centres

RCC-WSA uses products from several WMO Global Producing Centres for Seasonal Prediction (GPCs-SP), including the Center for Weather Forecasts and Climate Studies, the European Centre for Medium-Range Weather Forecasts, GPC Exeter, GPC Offenbach, GPC Tokyo and GPC Washington.

Linkage with WMO Regional Climate Centres

RCC-WSA has an operating agreement with the Regional Climate Centre Network for Southern South America, including for capacity-building activities the region towards providing sub-seasonal to seasonal predictions and for the collection of national climate data. Both RCCs share climate products as well as training and webinar materials for drought monitoring.

Linkage with WMO Regional Climate Outlook Fora

RCC-WSA contributes to the Western Coast of South America Climate Outlook Forum (WCSACOF).

Mandatory functions

All WMO RCCs fulfill a set of mandatory functions related to seasonal prediction, climate monitoring, data services and training. Listed below are those performed by the RCC-WSA.

OVERVIEW

Domain of responsibility: Western South America

Language: Spanish

Status

- Demonstration phase initiated: March 2013
- Designation by WMO: May 2015

Climate features

The Andes mountain range in western South America extends over 7 000 km from the Bolivarian Republic of Venezuela to southern Chile, with an average altitude of 4 000 metres above the sea level. Between 5°S and 30°S, cold, arid climate conditions prevail along the Pacific coast, while warmer, humid, rainy conditions prevail on the eastern slopes.

Modes of variability

ENSO, the main mode of variability in the region, contributes to droughts, floods, extreme temperatures and rainfall as well as to other extreme events.

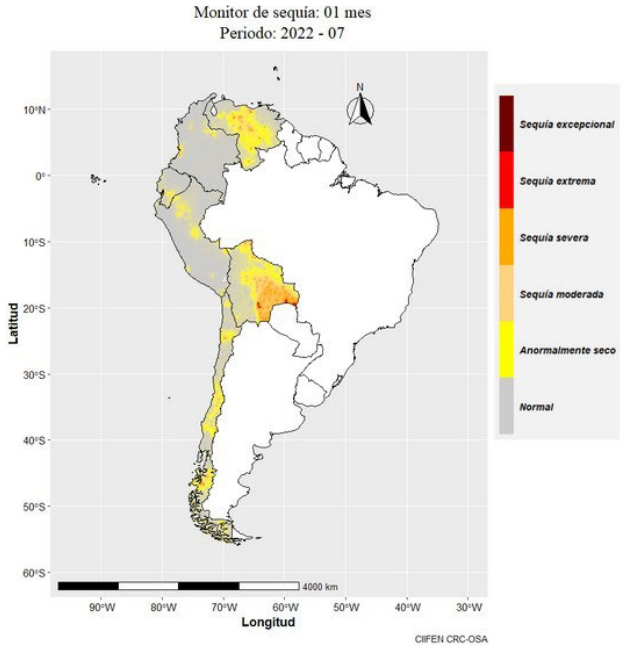
Seasonal prediction

- Monthly and seasonal predictions of sea-surface temperatures, precipitation and near-surface air temperature
- Seasonal prediction data of precipitation and maximum and minimum temperature
- El Niño–Southern Oscillation (ENSO) information

Climate monitoring – RCC-WSA produces monitoring maps for various parameters – sea-surface temperatures, sub-surface temperature, near-surface air temperature, precipitation, outgoing long-wave radiation, winds, air pressure.

It also provides a regional drought monitoring system, which covers the following drought indices:

- Standardized Precipitation Index Standardized Temperature Index
- Standardized Normalized Difference Vegetation Index Standardized Soil Moisture Index
- Standardized Precipitation Evapotranspiration Index



Data services – A network of voluntary climate observers (Volunclima) has been implemented within the framework of the project "Euroclima+: Sequías e Inundaciones – Andes". RCC-WSA's commitment is to report daily precipitation data and extreme events and to provide monthly reports on the perception of drought impacts (click here to access).

The Centre also provides climatological normals for 1961–1990 based on station data in South America and climatological normals for 1981–2010 based on the Climate Hazards Group InfraRed Precipitation with Station (CHIRPS) data for the Latin American region.

Training – RCC-WSA conducts workshops on a variety of topics:

- Data homogenization and quality control
- Bias correction for satellite data
- Drought monitoring
- Seasonal predictions with the IRI Climate Predictability Tool and data visualization tools
- Volunclima activities
- Hydrological modelling for flood risk management
- Seasonal and sub-seasonal prediction

Recommended functions fulfilled

WMO RCCs are recommended to fulfill certain functions. Listed below are those performed by RCC-WSA.

Climate prediction and climate projection – undertakes studies on vulnerability and risk assessment for different regions of Latin America. RCC-WSA also generates climate indices with RClimdex, using historical, prediction and projection data.

Non-operational data services – An automated system is currently being developed for the digitization of pluviograph data from INAMHI, Ecuador. Once fully operational, the system will be deployed to other countries in the region.

Coordination – The PRASDES project has enabled the development of new tools:

- SOPHIE, a tool for the exchange of hydrographic data in transboundary basins among the NMHSs
- A mobile application to report station data in an institutional database and a system to efficiently manage the database and visualize the data.

Research and development – As part of ongoing Latin America studies on the ENSO phenomenon, efforts are currently focused on understanding the influence of the triple La Niña in 2020–2022 on the western region of South America.

A routine has also been implemented to correct global data from CHIRPS and the United States National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Centre (CPC) with local data. This methodology is being used to improve drought monitoring in Chile.

Success story

In Chile, precipitation records collected by Volunclima members has allowed the validation of precipitation forecasts. Comments from reports also contribute to the validation of other forecast products, such as those for frost and electrical storms.

CIIFEN CRC OSA