

**CENTRO INTERNACIONAL PARA LA INVESTIGACIÓN DEL FENÓMENO DE EL NIÑO**

# **EDO/GDO Annual Meeting**

## **Drought monitoring on South America (Andean countries)**



**CIIFEN**

[www.ciifen.org](http://www.ciifen.org)

*Pier Maquilón*



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## MISSION

To promote and develop actions to consolidate the **interaction** between **science and politics**, and the strengthening of hydro-climatic and oceanic services in order to contribute to **risk management** and **adaptation** to climate change and variability in developing countries.

CIIFEN is an international non-profit organization established on January 10th 2003 as the result of several resolutions adopted by the United Nations. Its International Board is composed by the Governments of **Ecuador** and **Spain**, the United Nations Office for Disaster Risk Reduction (**UNDRR**) and the World Meteorological Organization (**WMO**) as observer.







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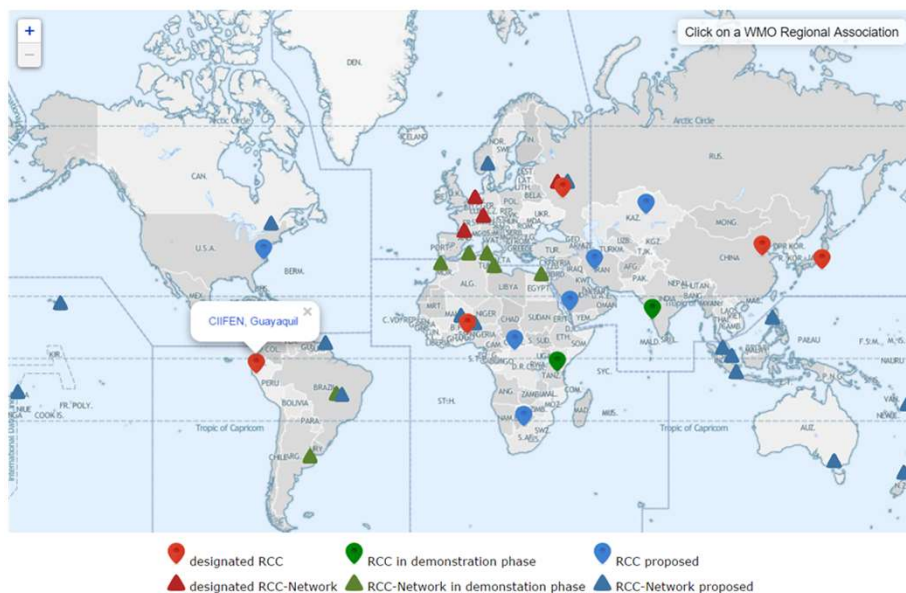
## Regional Climate Center for Western South America (RCC – WSA)



Please visit our public website:  
<http://public.wmo.int>

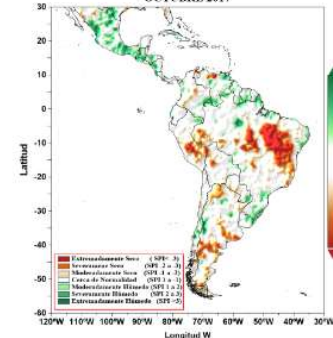
La Organización Meteorológica Mundial (OMM) designa Centros Regionales del Clima (CRCs) para generar y entregar productos y datos de alta resolución, como también entrenamientos y construcción de conocimiento con un enfoque regional.

CIIFEN fue designado el Centro Regional del Clima para el Oeste de Suramérica (CRC-OSA), región que está ubicada en la Asociación Regional III (AR III).

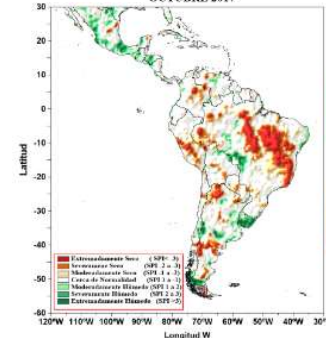


### Índice de Precipitación Estandarizado - SPI

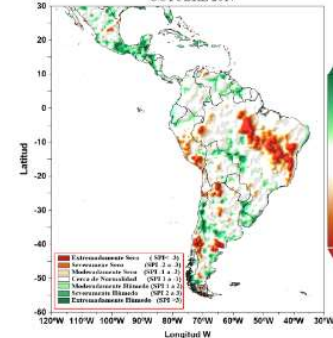
Índice de Precipitación Estandarizado (SPI), 1 mes  
OCTUBRE 2017



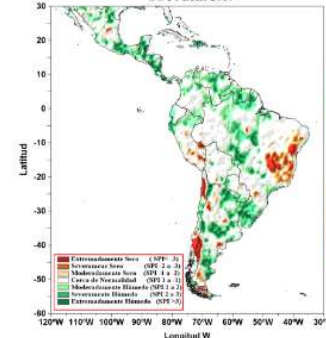
Índice de Precipitación Estandarizado (SPI), 3 meses  
OCTUBRE 2017



Índice de Precipitación Estandarizado (SPI), 6 meses  
OCTUBRE 2017

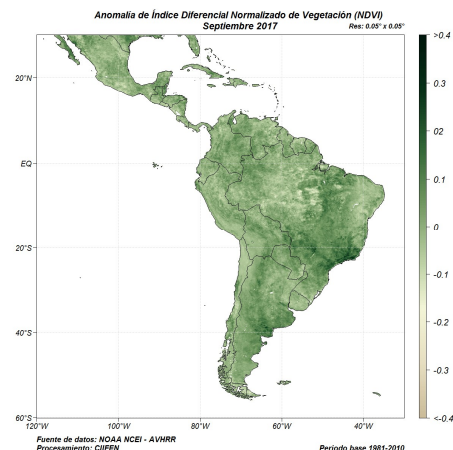
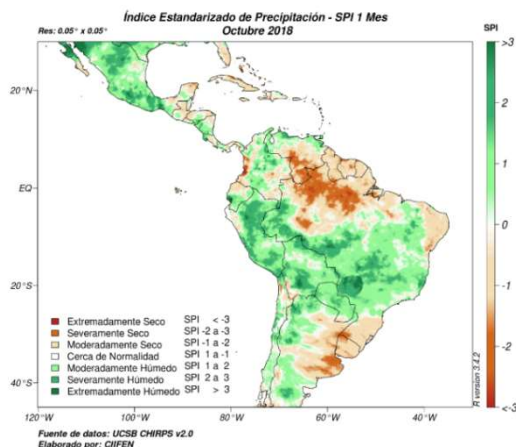


Índice de Precipitación Estandarizado (SPI), 12 meses  
OCTUBRE 2017



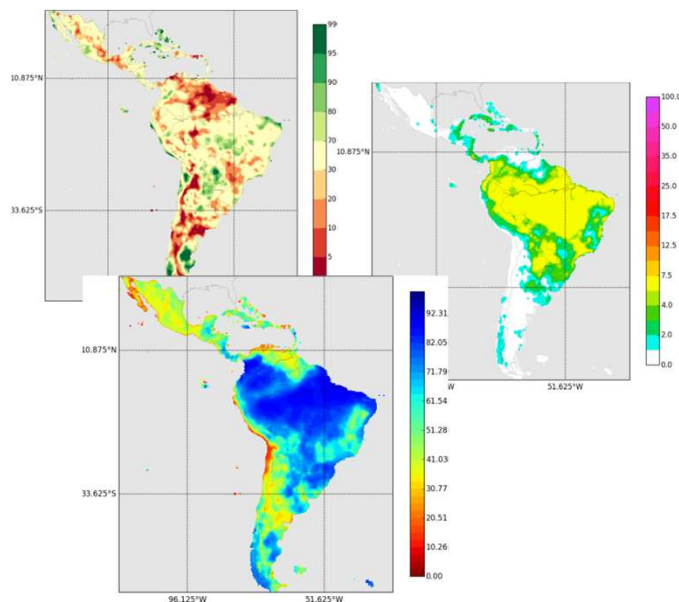
## CIIFEN/RCC-WSA: monitoring products

**SPI (CHIRPS)**  
**1 month, 3**  
**months**



**NDVI**  
**Monthly, Monthly**  
**Change, Monthly**  
**Anomaly, 10 days**

**PCA- LAFDM**  
**PDSI**  
**Soil moisture**  
**Evaporation**



**CHIRPS climate normals (1981-**  
**2010) in Netcdf**  
**Mexico, Central and South America**  
**5 days, 10 days, monthly, 3 months**  
**Average rainfall**  
**Annual ammount (1981 – 2016)**



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## Volunclima: Volunteers Rainfall Reporters

- Network of volunteers who report daily rainfall and drought impacts.
- Improve data collection in areas without NMHS stations.
- HQ calibrated pluviometers. Low cost of operation and maintenance.
- First volunteers from Caldas, in the Chinchiná basin – Colombia.
- Volunclima app in Google Play.

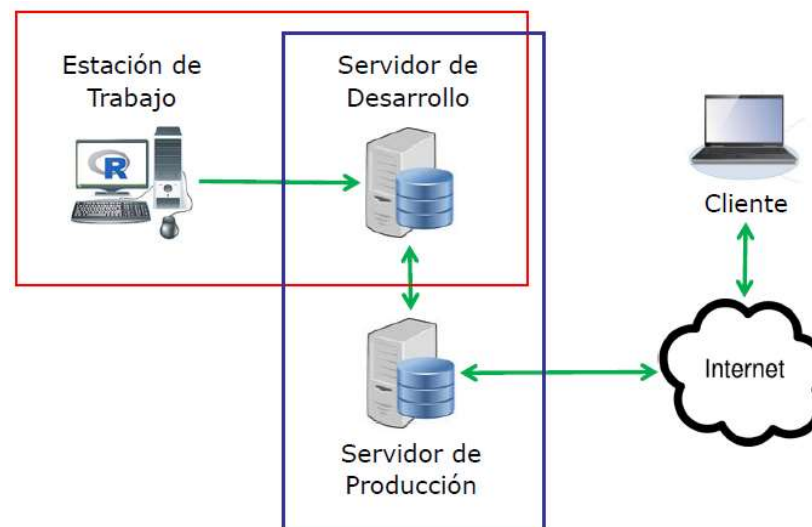






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## SCADO: Transfer to free software technologies



Componente	Versión
Apache	2.4.25 (Unix)
PHP	5.4.45
Postgresql	9.6.1
PostGIS	2.3.1
Mapserver	6.4.5
Openlayers 2	

<http://scado.ciifen.org>



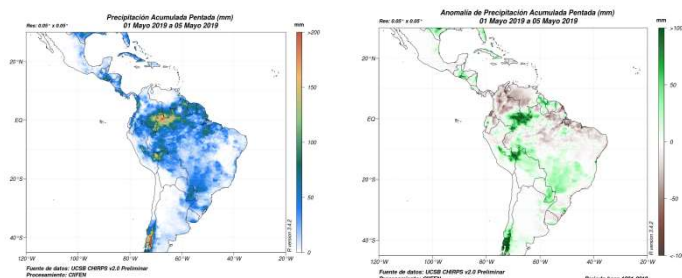
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## CIIFEN/RCC-WSA: monitoring products and climate forecasting

### Rainfall Monitoring (CHIRPS)

Accumulated and anomalies

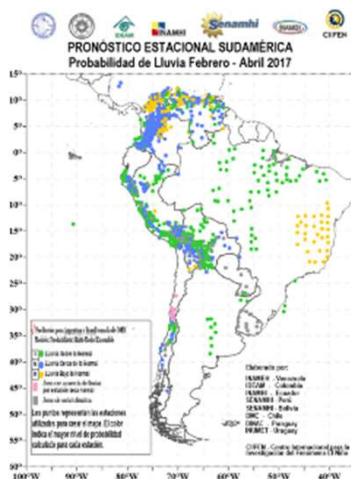
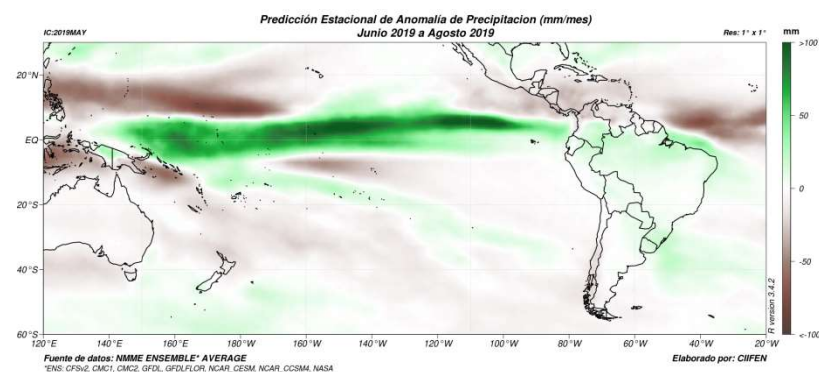
5 days, 10 days, monthly



### Rainfall Forecast (NMME)

Accumulated and

anomalies



### Statistical Quarterly Forecast (CPT + observations)

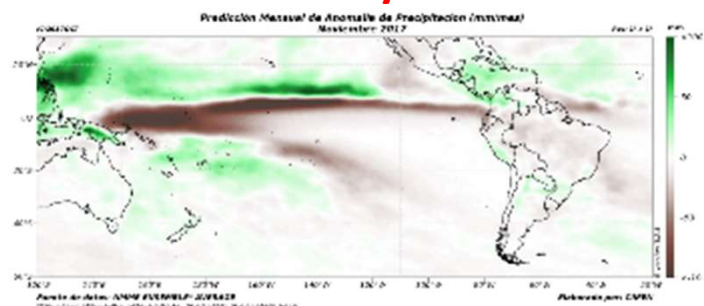
Max and min temperature, rainfall

With NMHS of South America Bulletin



## Advances on climate prediction

### NMME Monthly hindcast

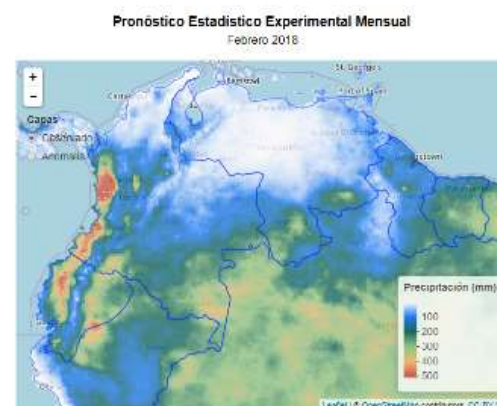


Explanatory variable

Climate Predictability Tool (CPT)

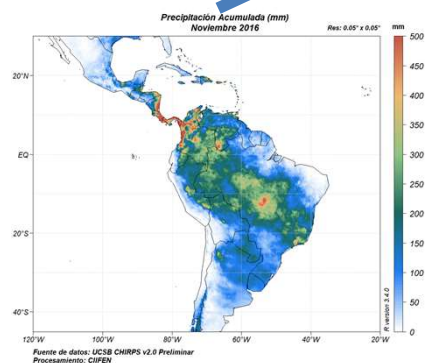


### Monthly Statistical Forecasting based on NMME and CHIRPS

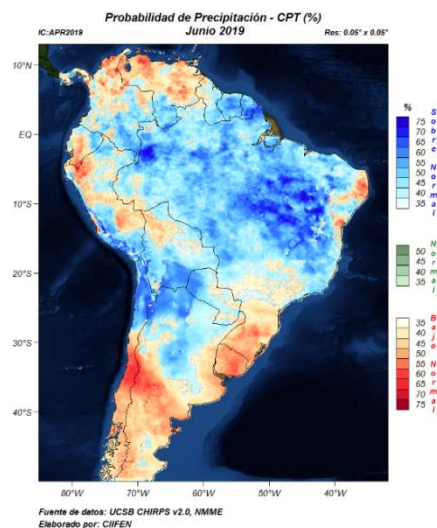


0.05°  
Accumulated,  
Anomaly

Response variable



CHIRPS Database



Tailoring:  
threshold,  
extremes





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## EUROCLIMA+ Drought and Floods - Andes

**Strengthening national and regional systems for monitoring and managing the risks of drought and floods in a context of climate change and desertification in the Andean countries**



Financing: **1'500.000 euros**

Period of execution: **36 months**

Euroclima+: Risk management, implemented by AECID and AFD.

Lead entity: CIIFEN

Countries involved: Bolivia, Colombia, Chile, Ecuador, Perú and Venezuela.

**National** project partners:

**Bolivia:** SENAMHI, VIDECI, MAYA.

**Chile:** Ministry of Environment, DMC, DGA, National Corporations: Irrigation and Forestry.

**Colombia:** IDEAM.

**Ecuador:** Ministry of the Environment, INAMHI and SGR.

**Peru:** MINAM, SENAMHI, CENEPRED.

**Venezuela:** INAMEH and Ministry of Popular Power.

**International** collaborators:  
AEMET and WMO

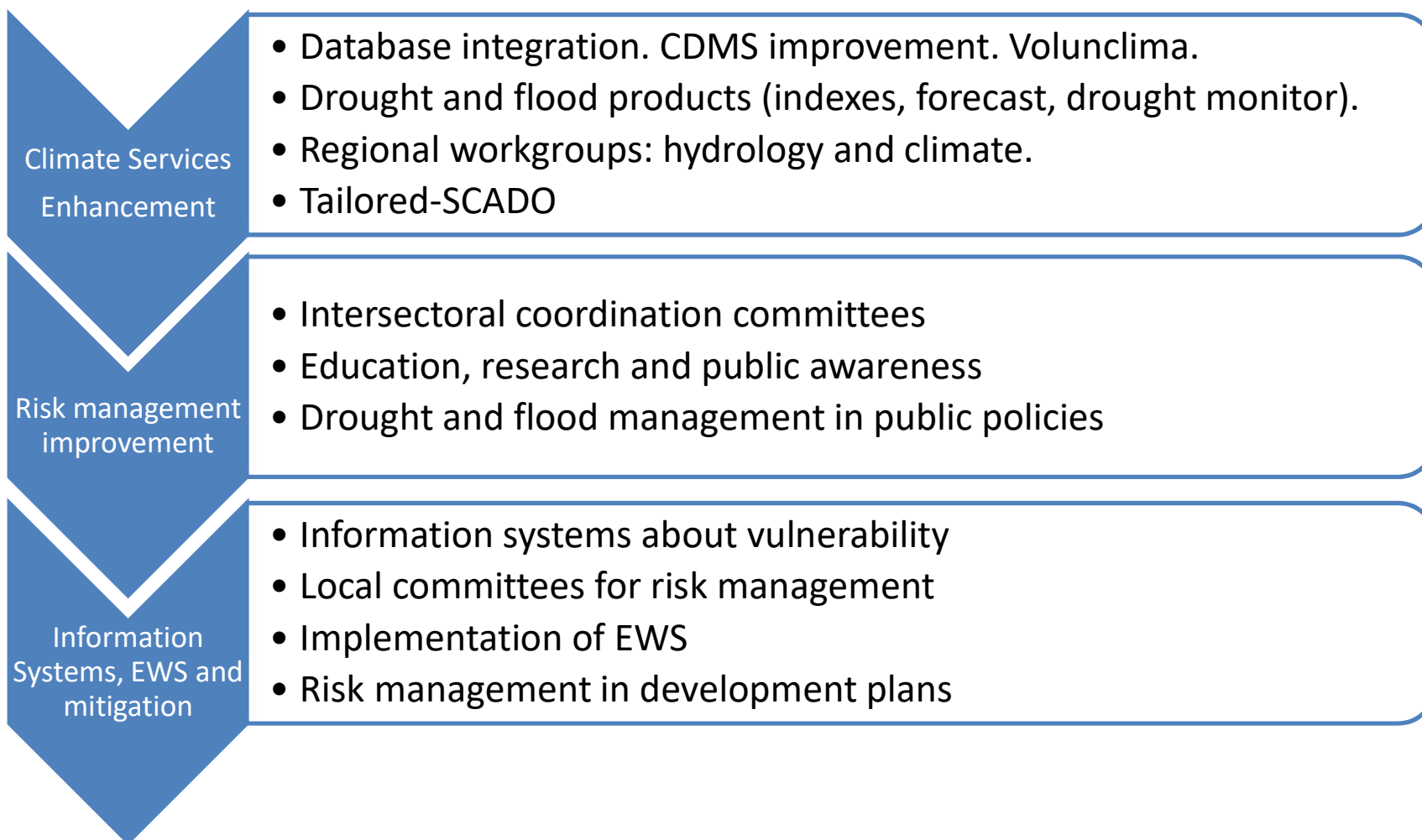


Financiado por la Unión Europea



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## EUROCLIMA+ Drought and Floods - Andes



## EUROCLIMA+ Drought and Floods – Andes Pilot areas

Country	Pilot areas
Bolivia	Cuenca Alta del Pilcomayo, Departamento de Potosí
Colombia	Altiplano Cundiboyacense, Departamento del Valle del Cauca
Chile	V región de Valparaíso
Ecuador	Provincias de Azuay, Guayas, El Oro, Loja y Manabí
Perú	Sierra sur-occidental del Perú
Venezuela	Estados Cojedes, Guárico, Anzoátegui y Monagas

<http://euroclimaplus.ciifen.org>





## EUROCLIMA+: Drought and Floods - Andes



Bogotá  
22-26 April 2019  
**Starting Workshop in  
Climate Data  
Management**

<http://euroclimaplus.ciifen.org>



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## EUROCLIMA+ Drought and Floods – Andes Priority activities for the implementation

- 1) Designation of counterpart technical teams in each NMHS. ✓
- 2) Baseline diagnosis. ✓
- 3) Annual Operational Plan 2019. ✓
- 4) Communication and visibility plan. ✓
- 5) Monitoring and evaluation plan. ✓
- 6) Coordination with other regional and binational projects. 
- 7) Establishment of the National Executive Committees.

# CENTRO INTERNACIONAL PARA LA INVESTIGACIÓN DEL FENÓMENO DE EL NIÑO



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**Thank you!**

**RCC-WSA**  
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**Drought and Floods - ANDES**  
[euroclimaplus.ciifen.org](http://euroclimaplus.ciifen.org)

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