



World Meteorological Organization

Weather • Climate • Water

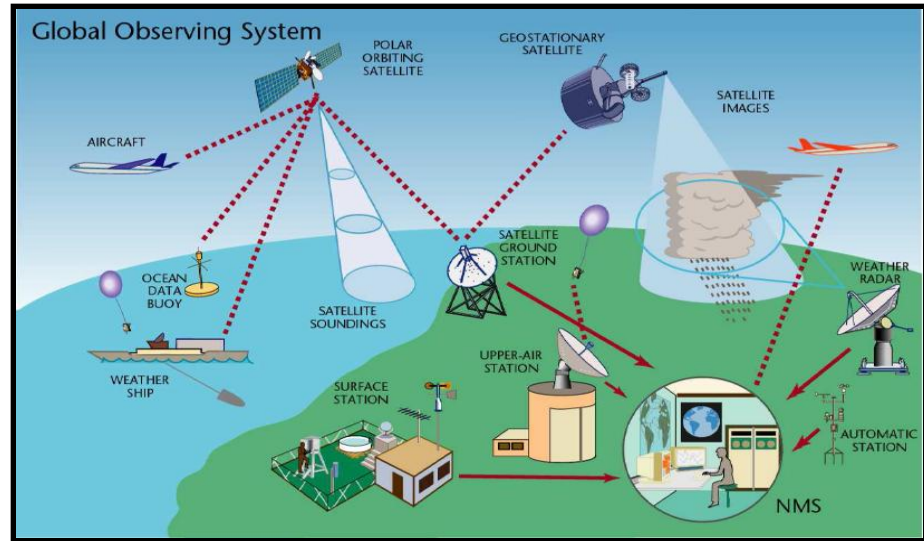
# WMO Climate System Monitoring and projects in Latin America

Karolin Eichler

# Climate System Monitoring

## Data Sources:

- Surface & ocean in situ measurements
- Upper-air networks
- Surface remote sensing networks
- Airborne observations
- Satellites
- ...



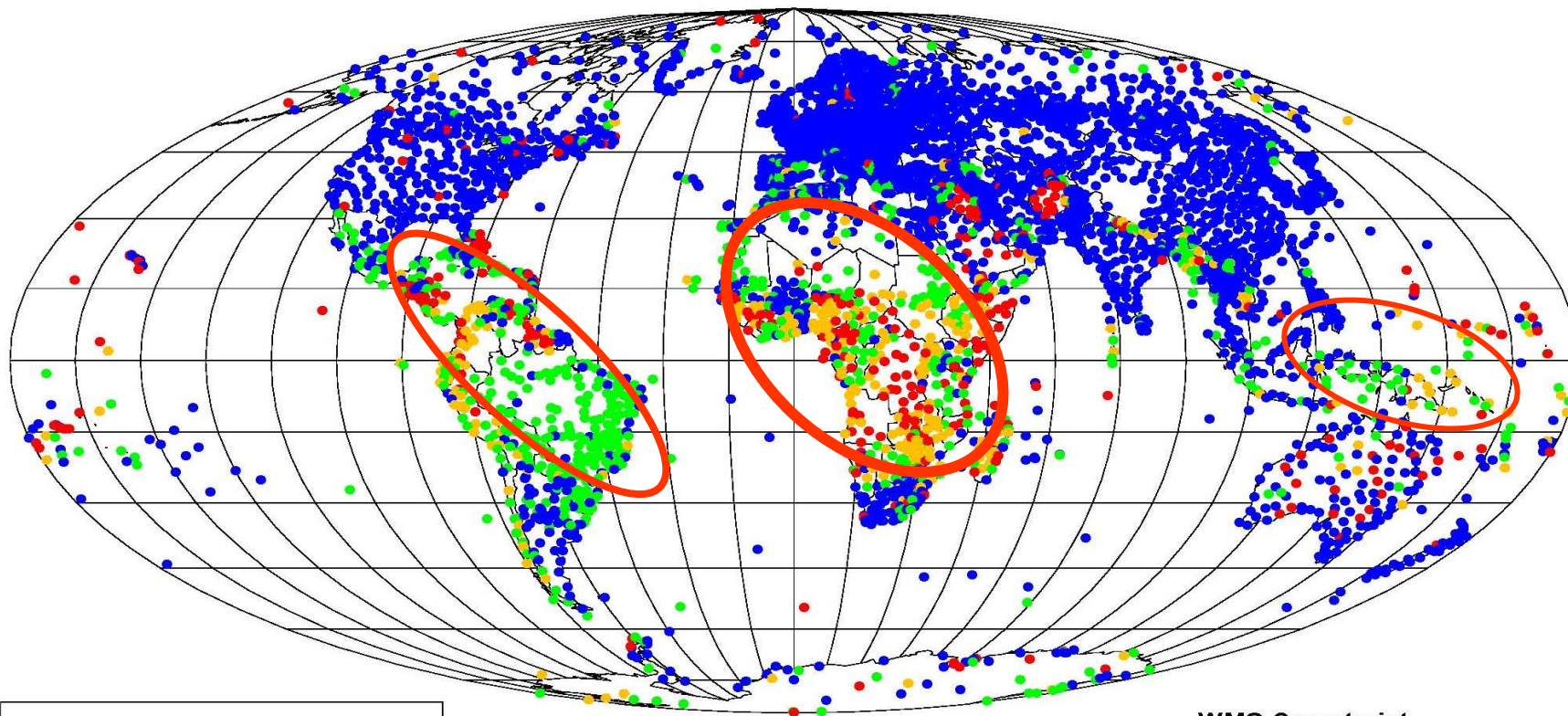
## The development of climate datasets is based on:

- Routinely disseminated daily and monthly weather and climate observations by the National Meteorological and Hydrological Services of the 189 WMO Members following the WMO standards for data collection, quality control and exchange;
- Historical climate records dating back to 1850, including marine climate summaries;
- Recovered old climate records worldwide as part of continuous data rescue efforts promoted by WMO and its Members;
- Data from specialized centres (tropical cyclones, snow and ice, ozone, greenhouse gases)
- Peer reviewed scientific methods for quality control, homogenization and interpolation to constitute high quality global climate datasets.



## Annual Global Monitoring 1-15/10/2008

SYNOP reports made at 00, 06, 12 and 18 UTC at RBSN stations



Percentage of reports received:

- 90 to 100 per cent (2912 stations)
- 45 to 90 per cent (697 stations)
- Less than 45 per cent (325 stations)
- Silent stations (350 stations)

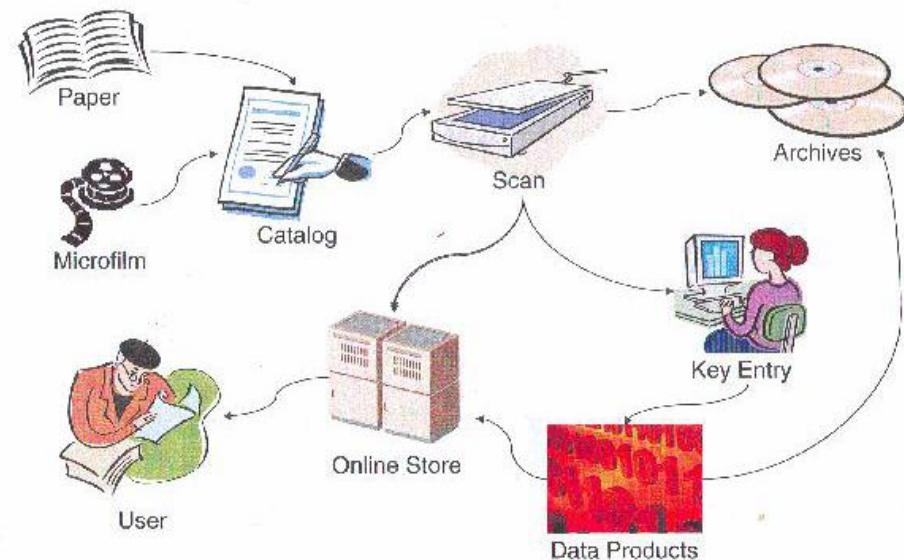
**WMO Secretariat**

The designation employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the WMO Secretariat concerning the legal status of any country, territory, city or area



# Data Rescue

- Data Rescue is the ongoing process of preserving data at risk of being lost and digitizing it into computer compatible form for easy access.
- Purpose: To study natural variability and to help to make models more credible





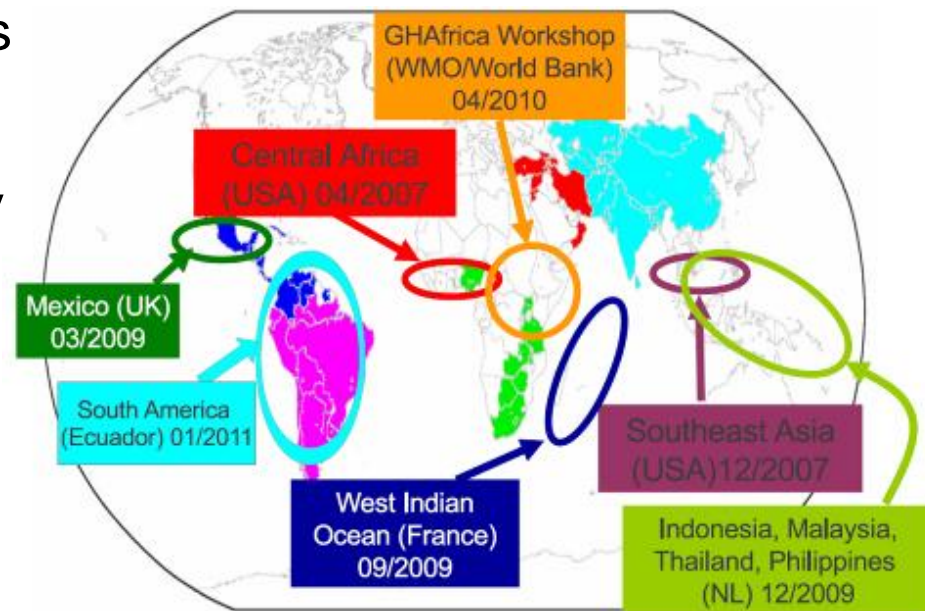
# International Climate Assessment and Dataset (ICA&D) and the regional project in Latin America LACA&D

- Is one of the eight GFCS pilot implementation projects
- Provides a way to organize local to regional data
- Builds on expertise gained in Europe
- Builds on cooperation between NMHSs, universities and other partners
- Provided and rescued data undergo QC before going into data base
- Provide historical perspectives on climate variability and change in addition to climate monitoring (regular updates of data)
- The ICA&D has been set-up in Latin America as the Climate Assessment & Dataset (LACA&D) in collaboration with CIIFEN.
- This activity builds on a regional indices workshop held in Guayaquil (Ecuador) in January 2011.



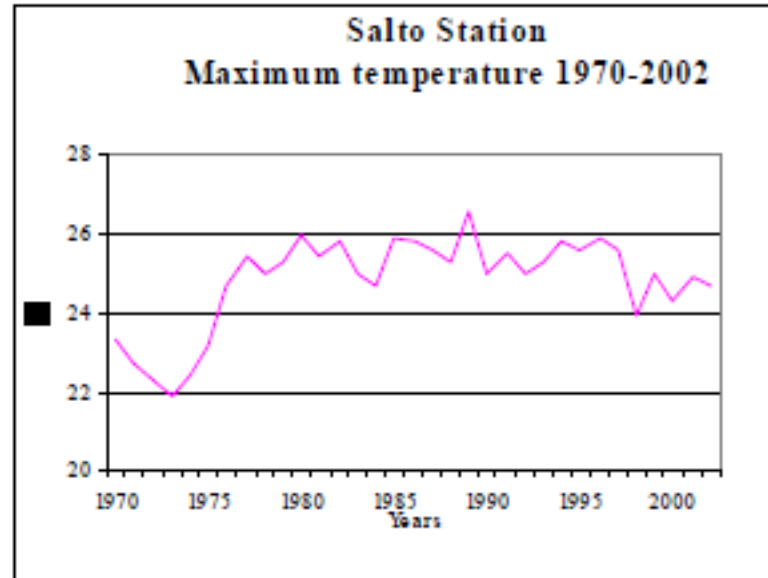
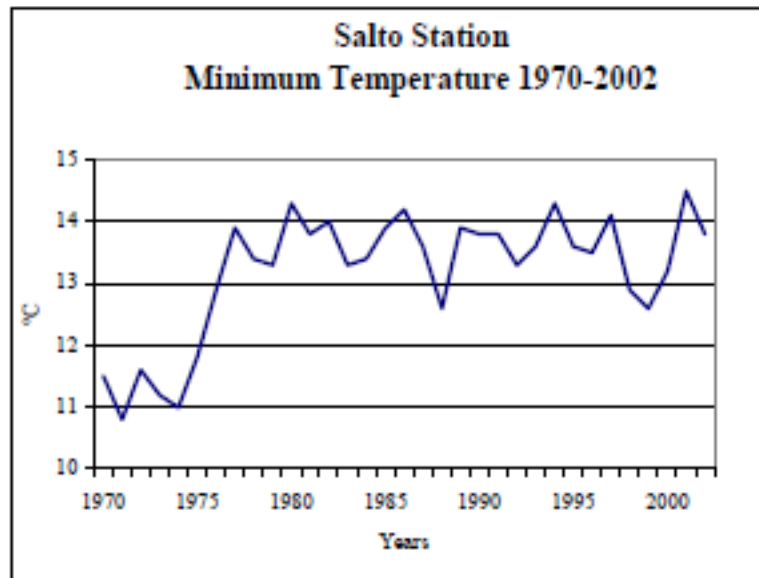
# Climate change indices by ETCCDI

- The joint CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) has a mandate to address the need for the objective measurement and characterization of climate variability and change by
  - providing international coordination
  - helping organizing collaboration
  - encouraging the comparison of modeled data and observations
- Indices calculated from daily data to place extreme events in a historical context



## Example: Station relocation in Uruguay

- No adjustment was made as nearby stations with same measurement period were missing



# Climate Watch System

- In context of global warming, extremes are expected to become more frequent, severe and gaining more geographical extend
- Warning system based on continuous monitoring and forecasting of climate anomalies
- Governed by National Meteorological and Hydrological Services (NMHSs) which provide advisories and statements to inform users
- Adds value to existing climate monitoring and forecasting systems

Ecuador  
2008

China  
2009

Need for climate watches,  
Review the status of climate monitoring,  
Review & discuss CW showcases,  
Work on tailoring the WMO guidelines,  
Recommend best practices,  
Recommend best strategies,  
Develop an action plan,  
Recommend a follow-up mechanism

Germany  
2010

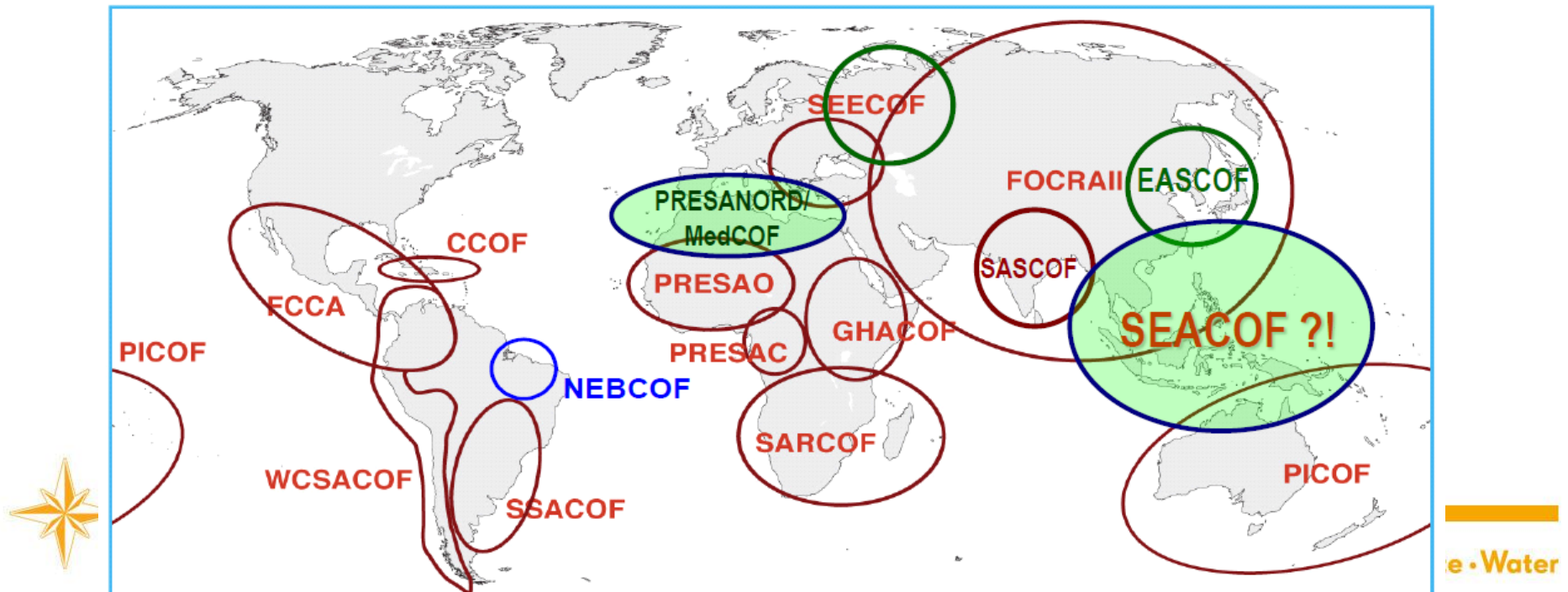
South Africa  
2013





# Regional Climate Outlook Forum

- RCOFs provide platforms for Climate experts and climate information users to:
  - Discuss current climate status
  - Exchange views on scientific developments in climate prediction
  - Develop consensus-based regional climate outlooks that can feed into national climate outlooks produced by NMHSs
  - Engage in user-provider dialogue



# International Research Centre on El Niño (CIIFEN)

- The mission of CIIFEN is to promote and develop actions to consolidate science-policy interaction and the strengthening of climate and ocean services aiming to contribute on risk management and adaptation to better cope climate change and climate variability
- Was established to reduce the impact of the El Niño phenomenon on January 10, 2003 in Guayaquil, Ecuador
- Activities of CIIFEN:
  - identifying and monitoring El Niño and climate variability and change impacts in Latin America
  - disseminating and sharing information and knowledge
  - delivering Regional Climate forecast and mapping for countries to improve preparedness.



# CIIFEN



# *PRASDES - Regional Andean Programme to Enhance Weather, Water and Climate Services and Development*

- General objective: “To contribute on sustainable human activity by reducing vulnerability to imminent and long-term climate related hazards through the efficient use of hydrological, meteorological and climatological information in the Andean region”
- Specific objective: “ To strengthen the capacity of the NMHSs in the Andean Region to provide high quality hydrological, meteorological and climatic information and services in response to the needs and demands of strategic development sectors, risk management systems and vulnerable communities at regional, national and local levels”
- Implementation managed by CIIFEN
- Contributes to GFCS



# Main beneficiaries

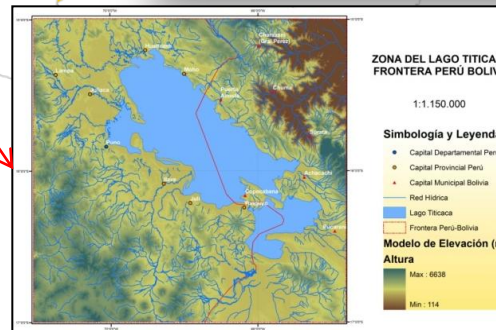
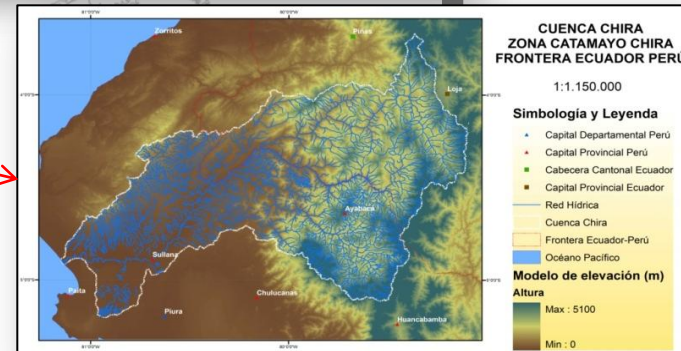
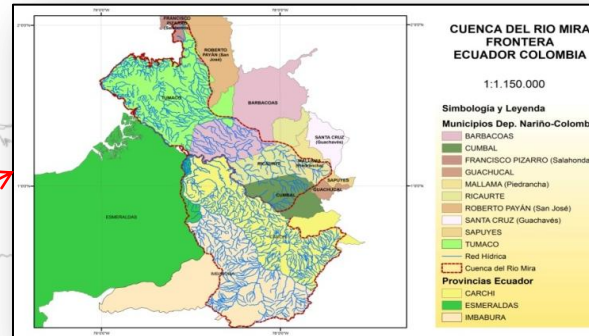
Mira-Mataje Basin

Catamayo-Chira Basin

Titicaca Lake Binational Basin



Farmers



Risk Managers



Water Managers





**World  
Meteorological  
Organization**

Weather • Climate • Water

# Thank you for your attention

[keichler@wmo.int](mailto:keichler@wmo.int)

[www.wmo.int/wcdmp](http://www.wmo.int/wcdmp)