



Climate Data Transformation and Potential Lesson in Water

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Outline

- I. The Value Climate Data Water Resources Managemnet**
- II. Challenges to Availability of Climate Data**
- III. The ENACTS Approach**
 - 1. Improving Data Availability**
 - 2. Improving Access to Climate Information**
 - 3. Improving the Use of Climate Information**
- IV. Major Outputs**
- V. What is next?**

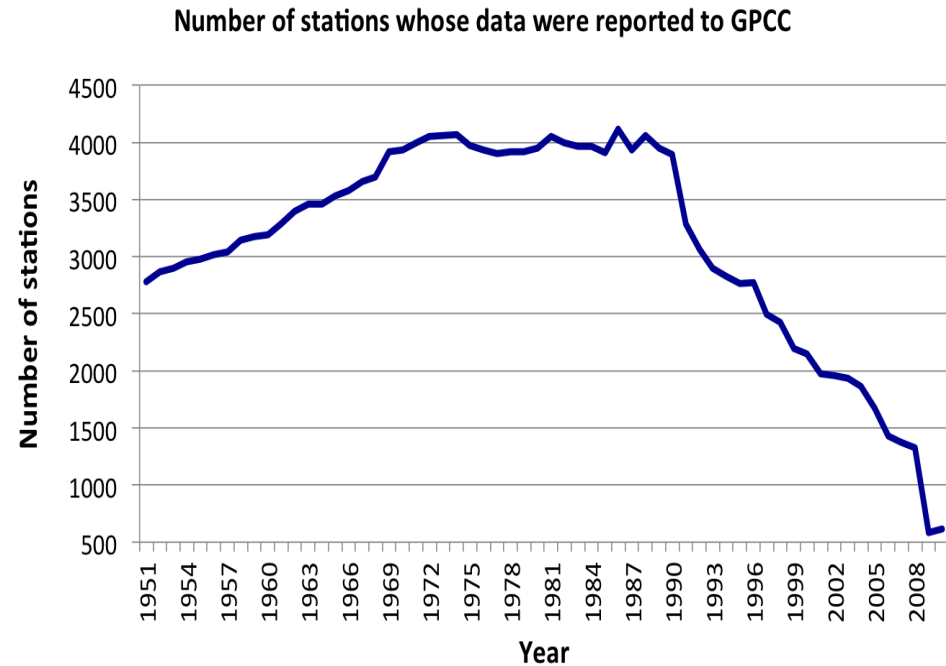
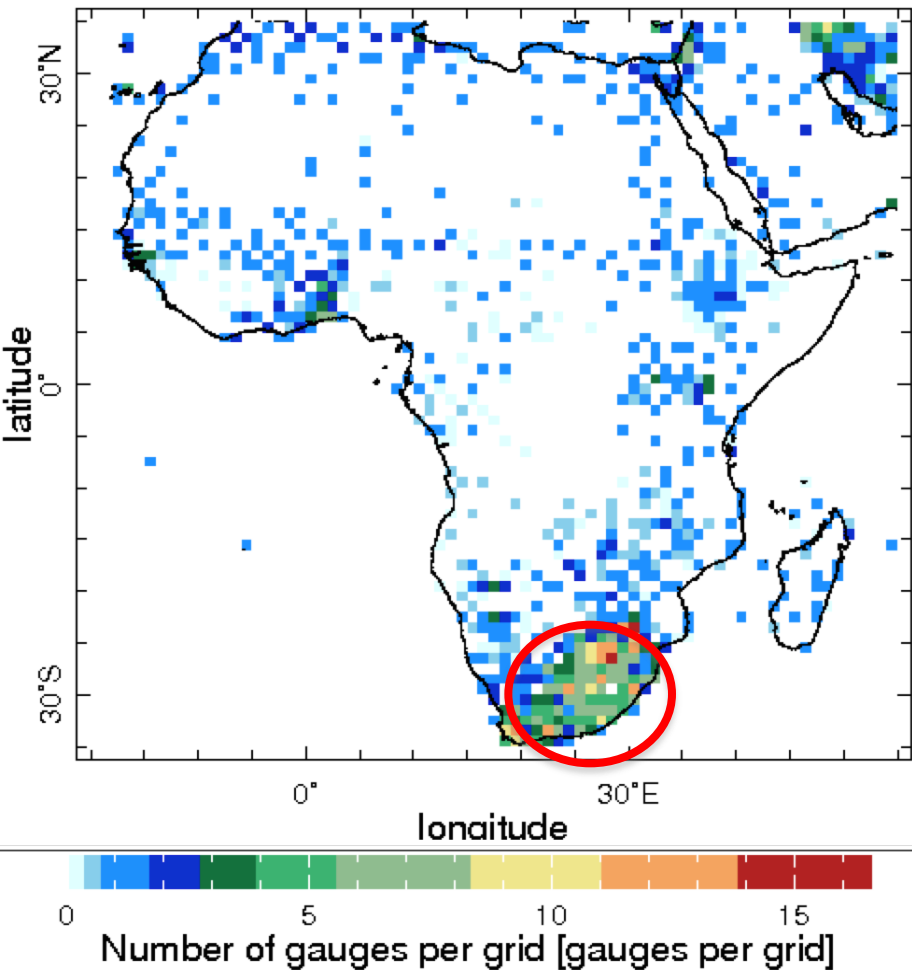
I. Value of Climate Data

- **Analysis of historical data that enables detection and attribution of climate change.**
- **Analysis of vulnerability to climate extremes and risk thresholds.**
- **Planning and managing water development schemes such as reservoirs.**
- **Enhancing drought and flood predictions that can support disaster risk preparedness and prevention.**

II. Major Challenges

- Number of weather stations inadequate and declining
- Most stations are located along main roads
 - ➔ Limited availability climate information and services to the rural community
- Serious gaps in observations (missing data)
- Questionable data quality
- Limited access and use of the available data

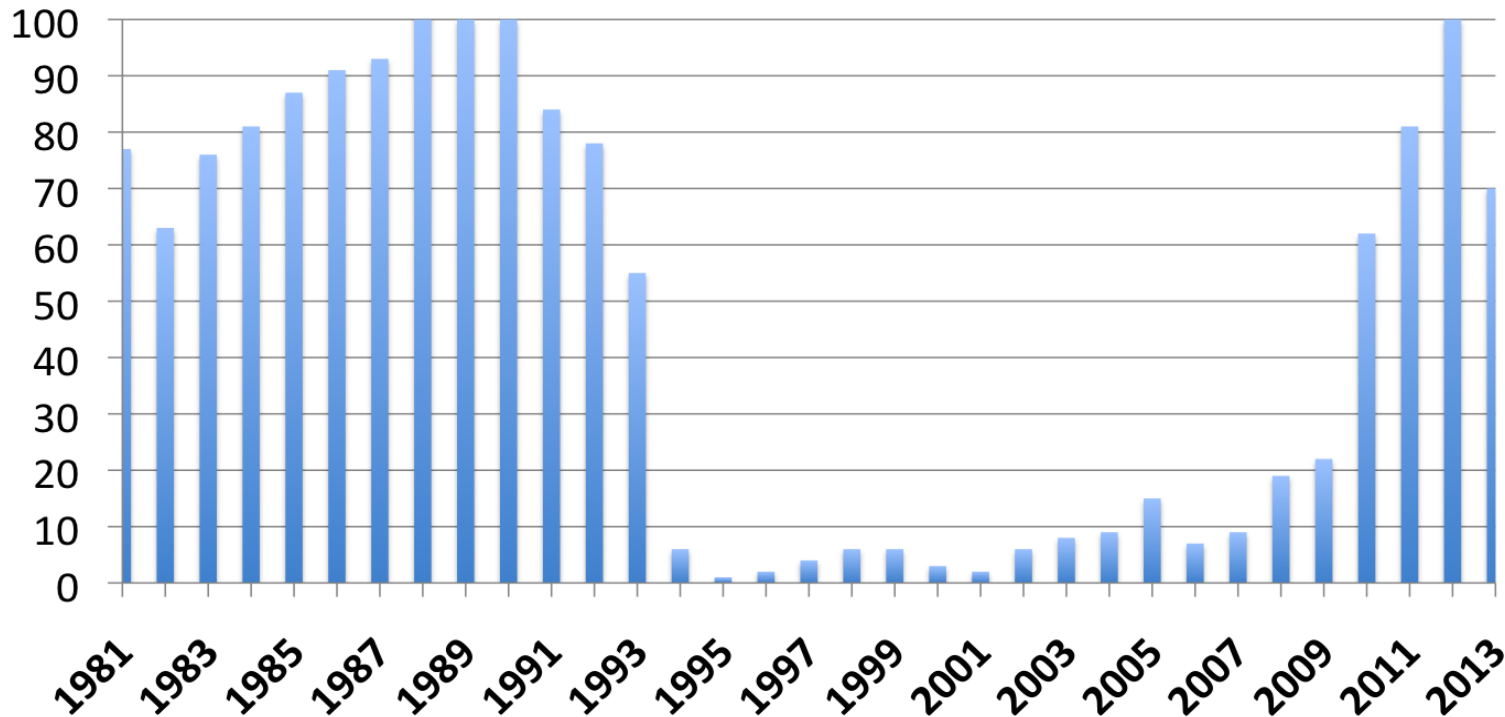
Challenges: Stations Distribution inadequate and declining



Average (2001 to 2010) number of stations per 100km X 100km grid box used by GPCP gridded rainfall product

Some Contributing Factors

Conflict or political upheaval

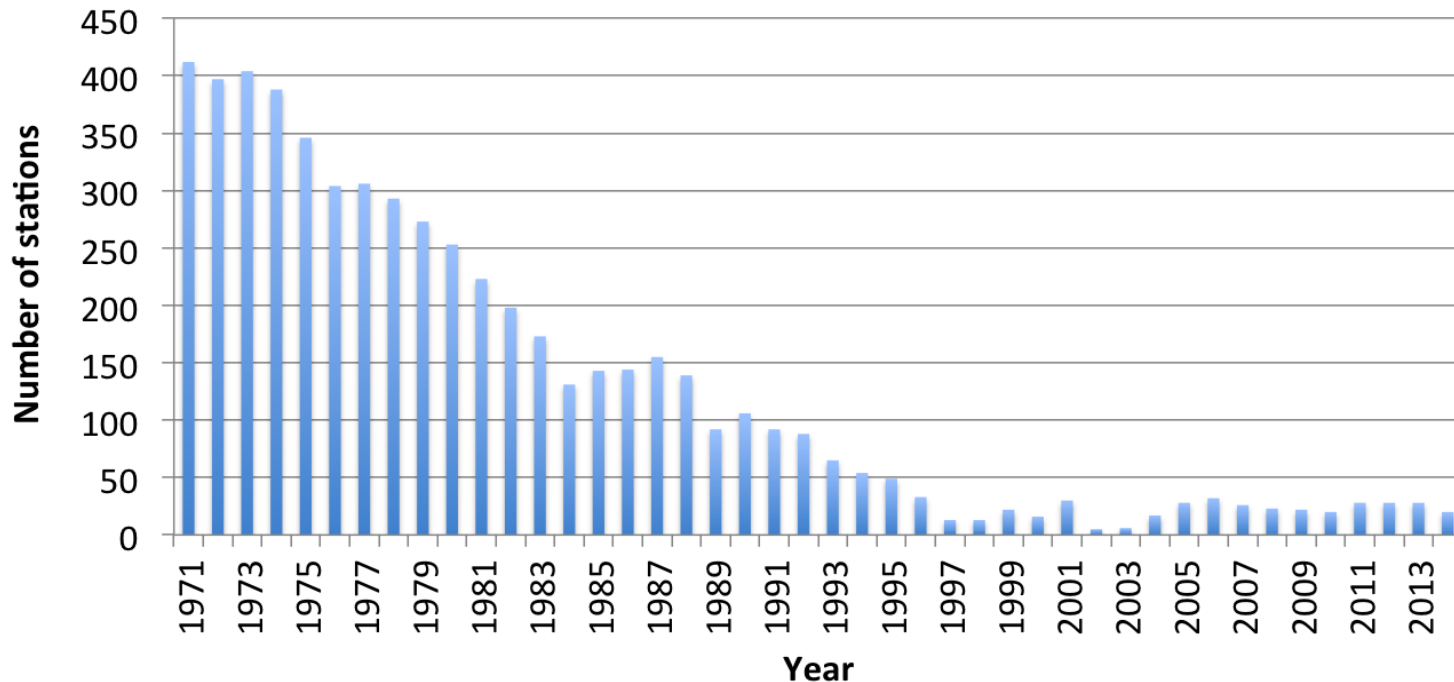


Average number of reporting weather stations in Rwanda during 1981 to 2013.

Main factors

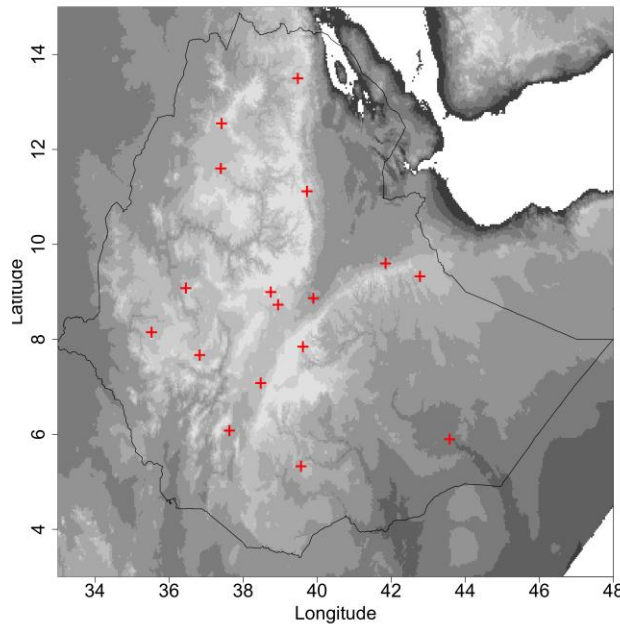
Lack or declining investment in the establishment and maintenance of weather stations

Average number of stations reporting every year

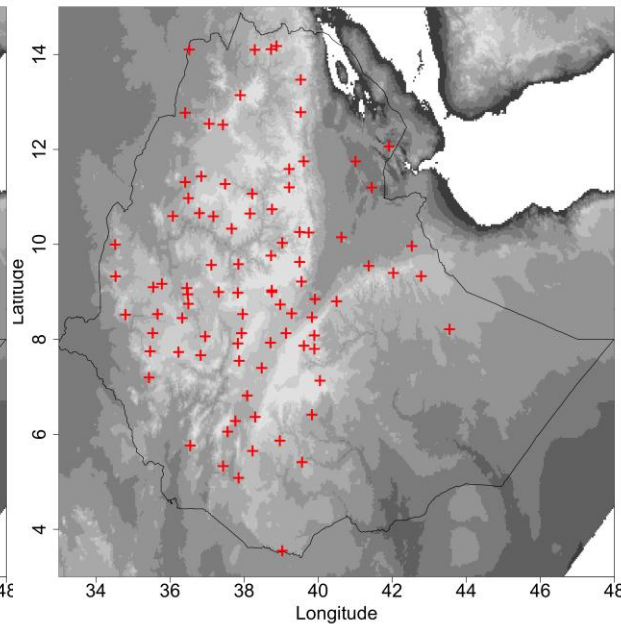


Still much more data at national level

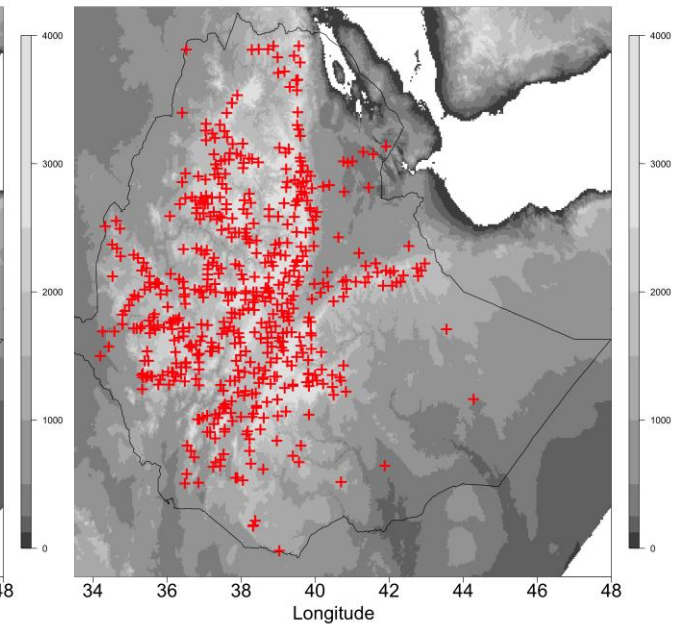
However, most NMHS have much more data than what is accessible outside the country/NMHS



Synoptic/GTS stations



Operational stations



ENACTS stations

II. The ENACTS Approach

- Strives to simultaneously improve availability, access and use of climate information.
- Works with NMHS to quality-control all available station data and combine them with satellite and reanalysis products.
- The main focus of ENACTS is creation of reliable climate information for local decision-making.

ENACTS Approach: Three pillars

ENACTS

Improve Availability

- Build capacity of NMHS
- Quality Control station data
- Combine station data with proxies
- Improve seasonal forecast

Enhance Access

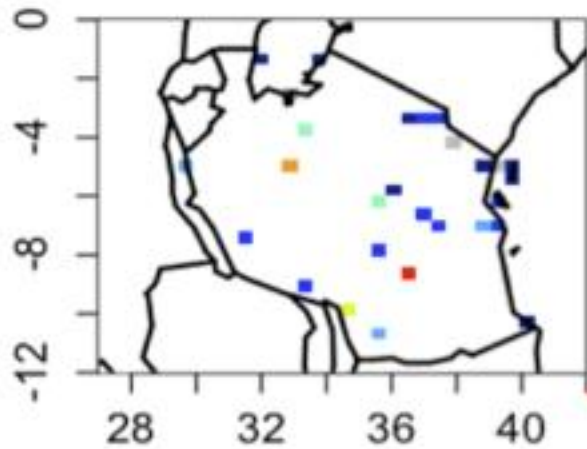
- Install IRI Data Library
- Develop online tools for data analysis and visualization
- Create mechanisms for data sharing

Promote Use

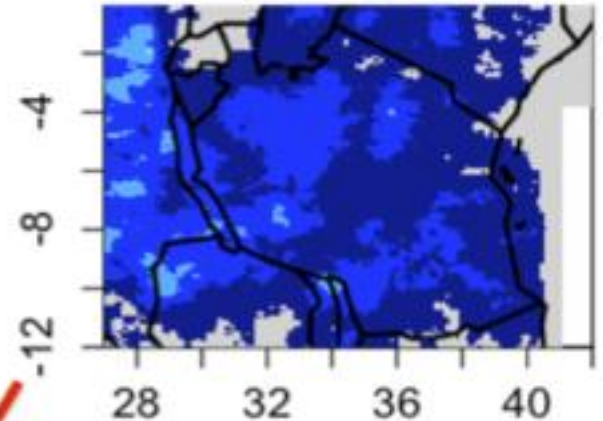
Engage users:

- *Raise awareness*
- Build capacity of users to understand and use climate info
- Involve users in product development

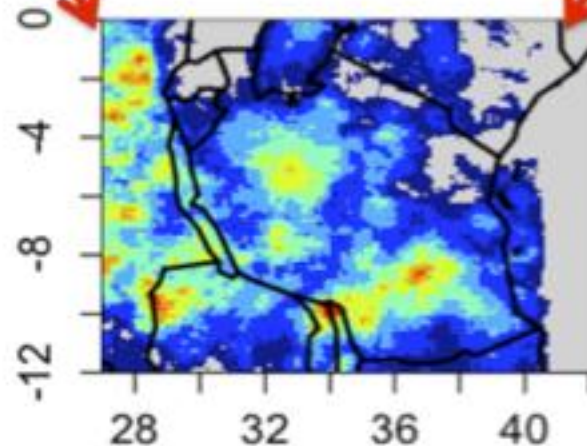
1. Improving Availability: Data Blending



Station



Satellite



Combined

2. Improving Access: Map Rooms

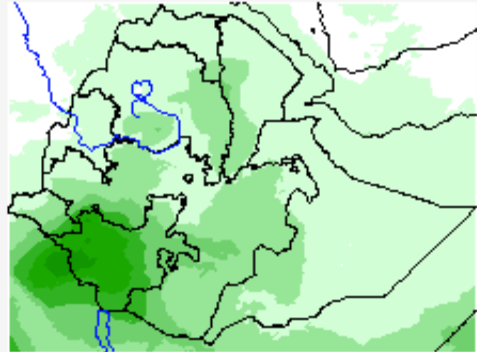
Data + IRIDL =

Climate Analysis | Climate Monitoring | Climate Forecast

Climate Analysis

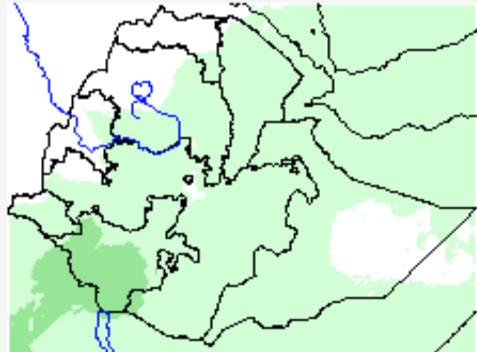
Monthly Climate Analysis

Rainfall and temperature time series (1983-2010) reconstructed from station observations and remote sensing proxies. This interface allows users to view rainfall, maximum and minimum temperature climatologies and anomalies.

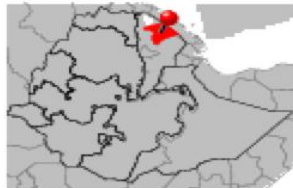


Dekad Climate Analysis

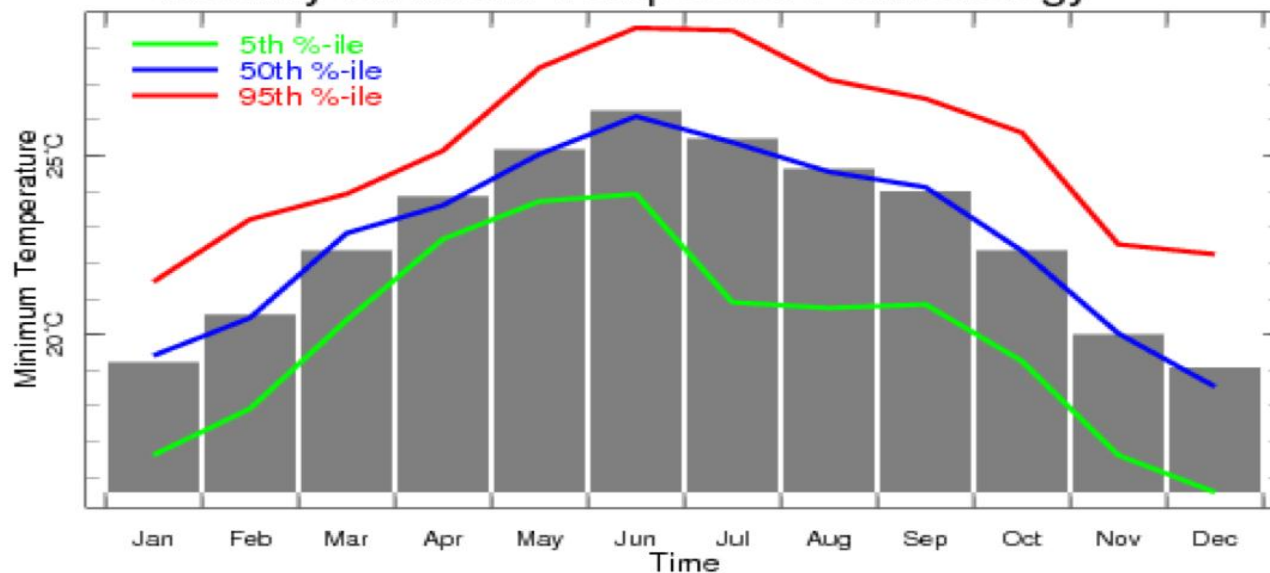
Rainfall and temperature time series (1983-2010) reconstructed from station observations and remote sensing proxies. This interface allows users to view rainfall, maximum and minimum temperature climatologies and anomalies.



Improving Access: Climate Analysis Tool

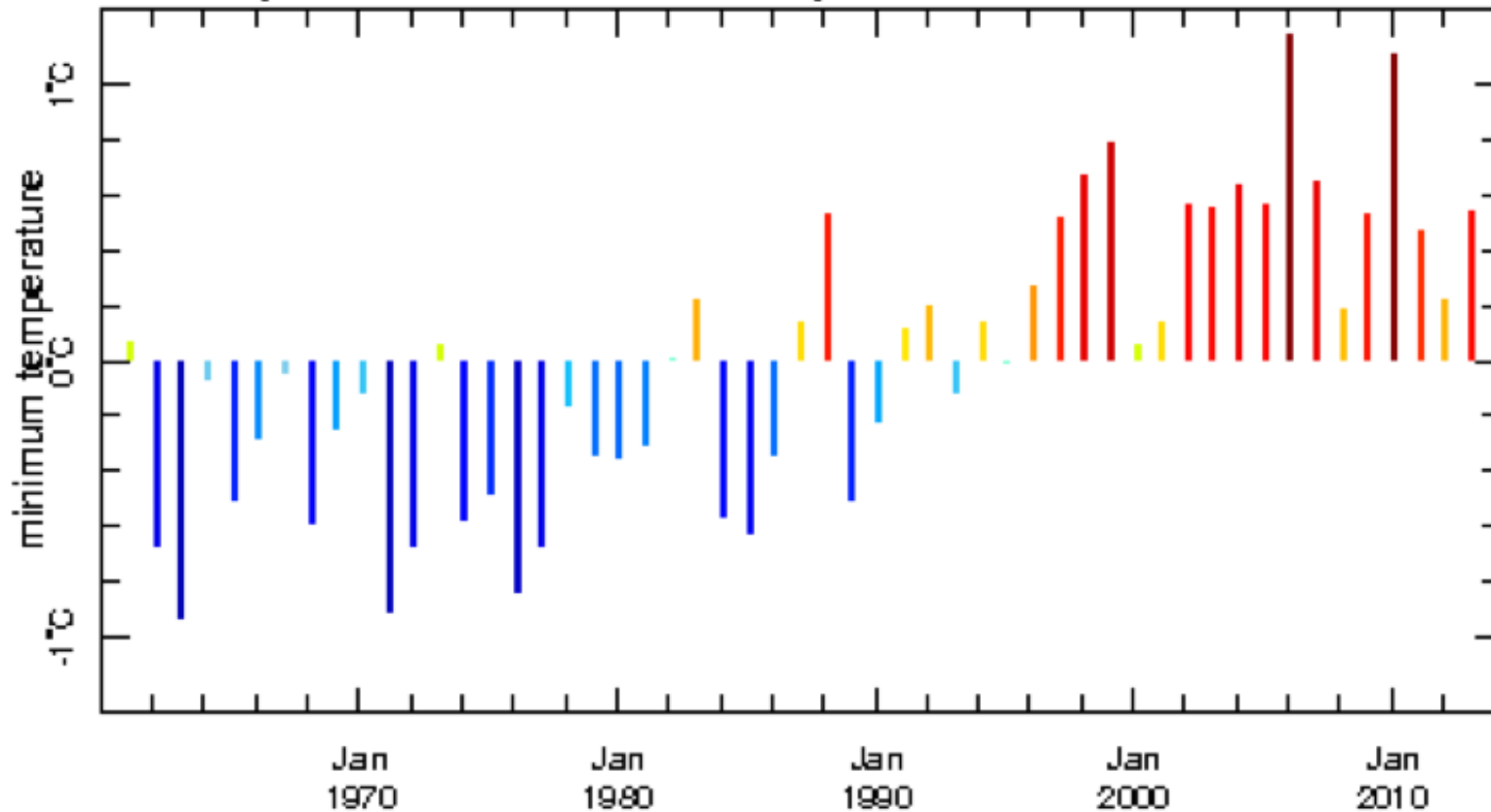


Observations for **Adera, Zone2, Afar, Ethiopia**
Monthly Minimum Temperature Climatology

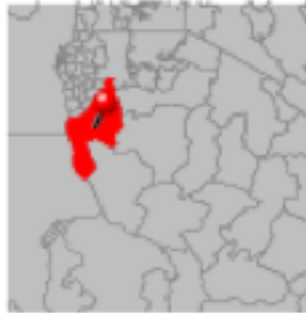


Improving Access: Climate Analysis Tool

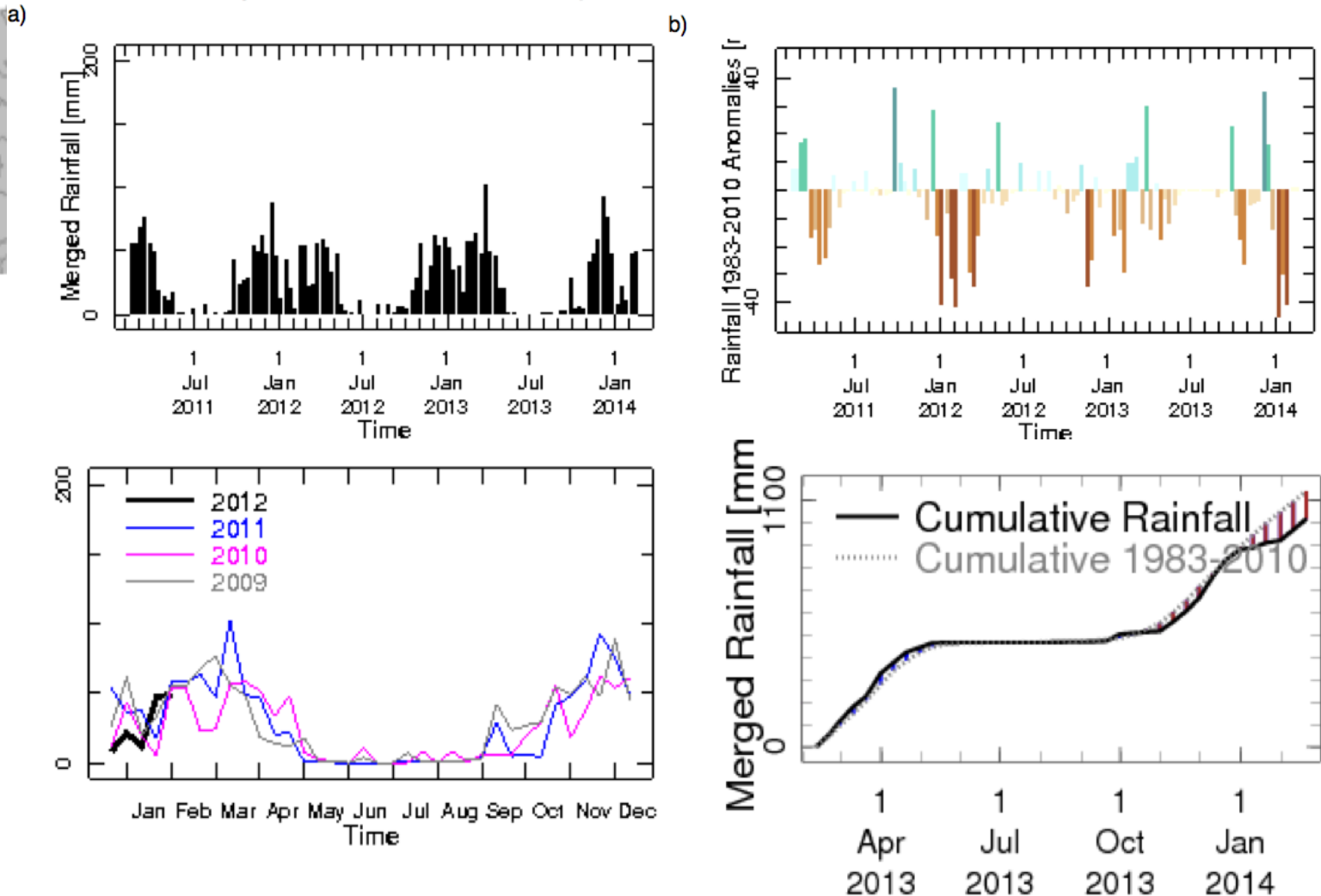
Yearly Seasonal Min Temperature Anomalies



Improving Access: Climate Monitoring Tool

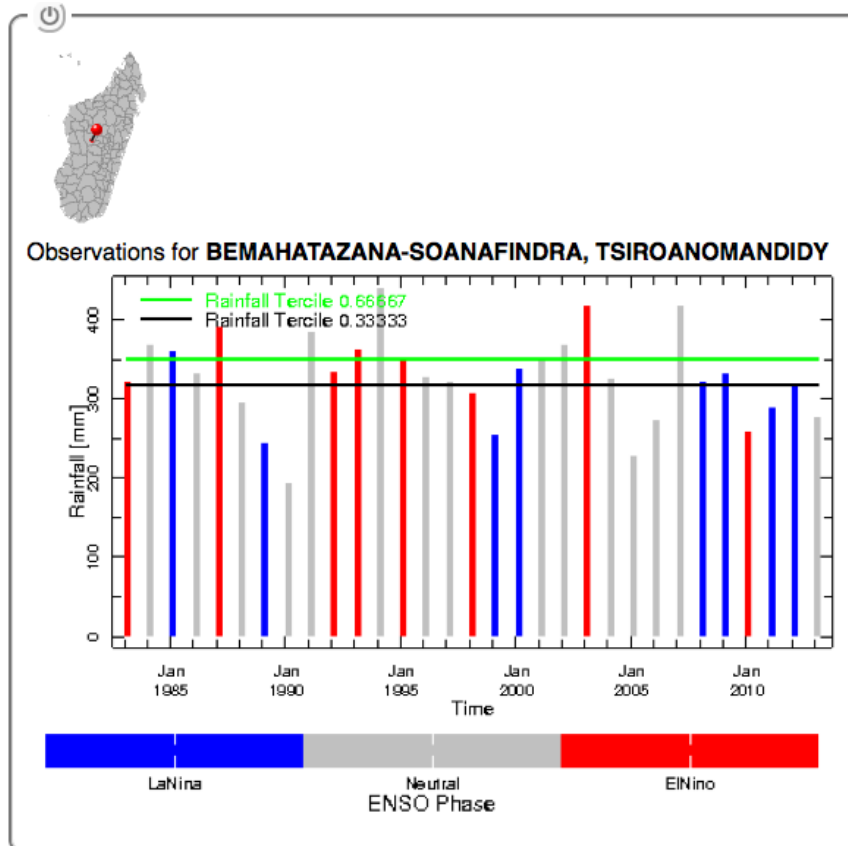
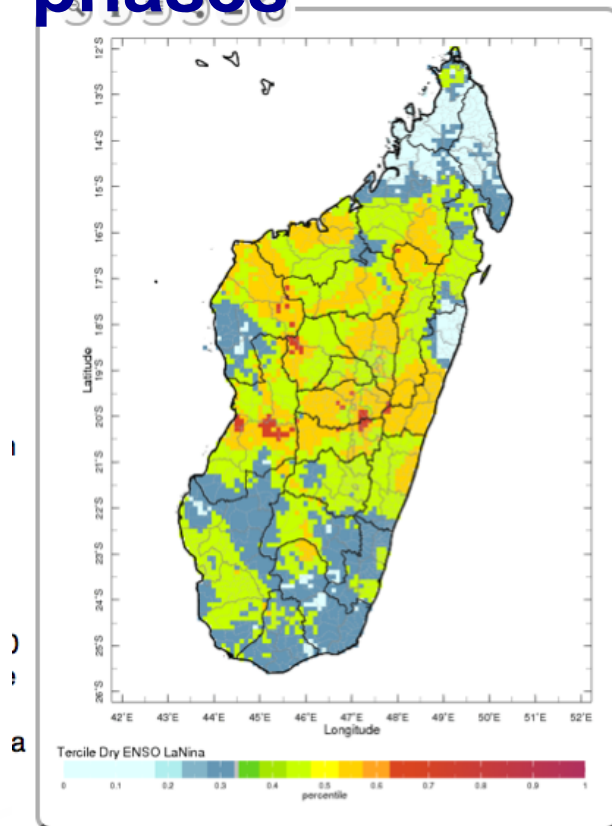


Merged Station-Satellite Rainfall for **Kigoma, Tanzania**



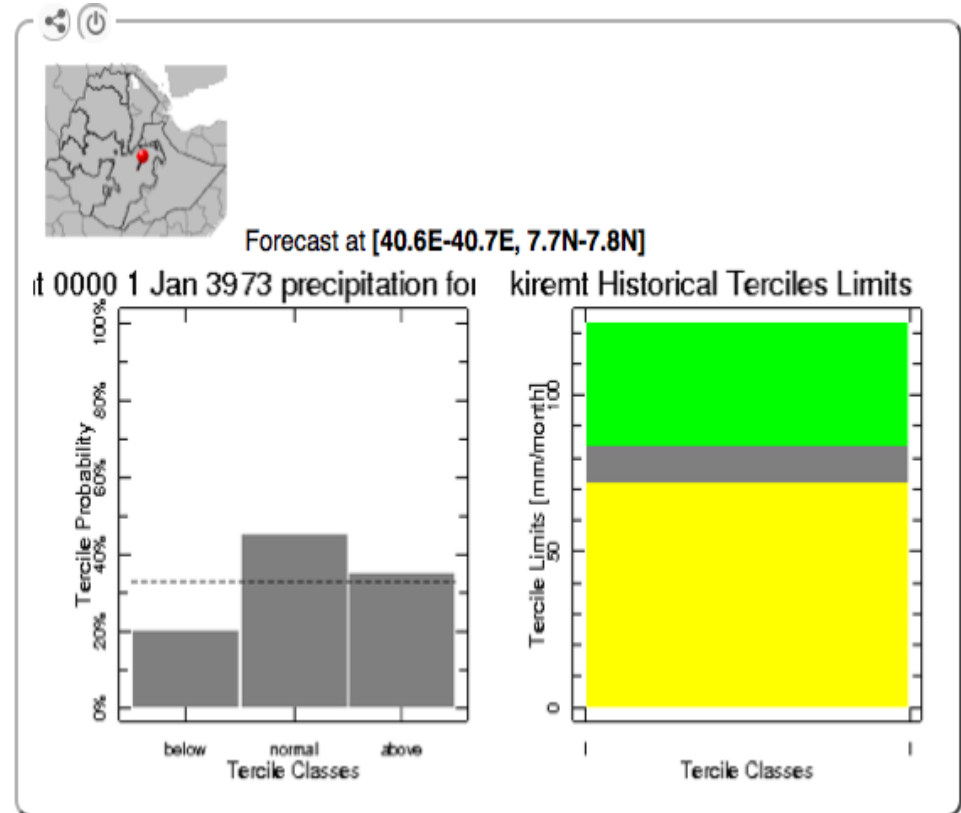
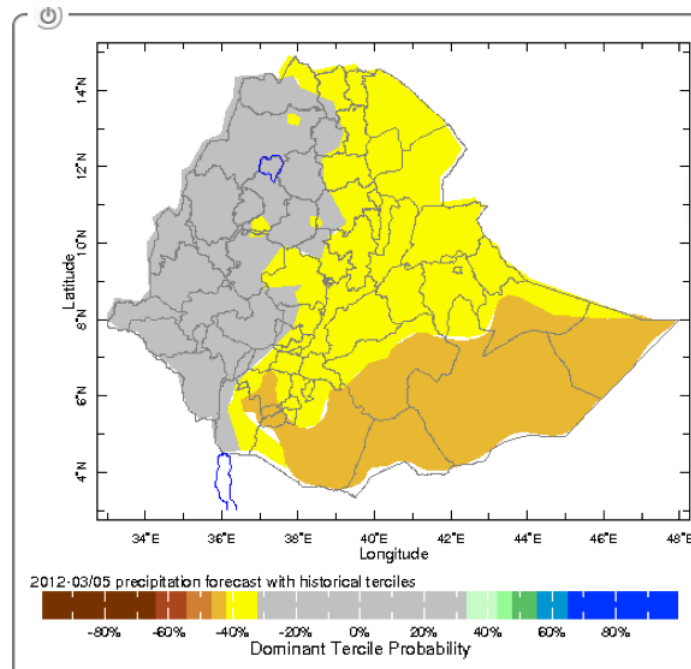
Improving Access: Climate Forecast Tool

Explore potential impacts of different ENSO phases



Improving Access: Climate Forecast Tool

Translates seasonal forecast from tercile to rainfall amounts



Improving Use

i. Awareness raising



iii. Involving users in product generation



ii. Training



Major Outputs

- **Over 30/50-years of climate data for every 4km/5km grid across each country:**
 - Now data available where there are no stations
- **Installation of the IRI Data Library at NMS**
 - A powerful tool for generating climate information
- **Unprecedented online access to information products:**
 - Satisfies the needs of many users
 - Overcomes (partly) the challenges of data access
- **Built capacity at NMS and some user communities**

ENACTS Countries

**Ethiopia
Tanzania
Madagascar
Rwanda
Gambia
CILSS**



**Next:
Ghana
Mali
Zambia
Burkina(?)**

IV. What is Next?

1. Add more climate variables (RH, PET/ET, ...)

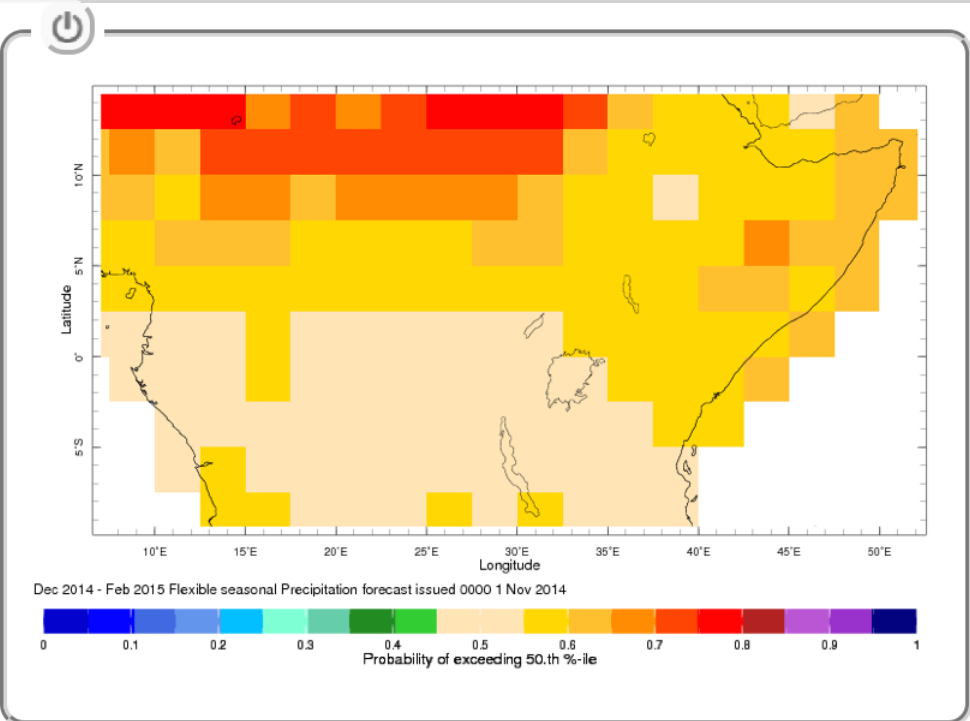
2. Include seasonal prediction at national level

- Evaluate; Improve; Implement

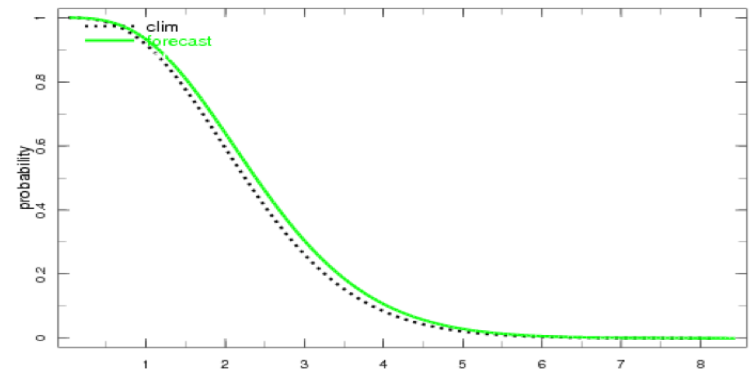
3. Add sector-specific Maprooms: Health, Agriculture, Water, Disaster, ..

4. Improved Forecast Presentation

What is Next: Improved presentation of seasonal forecast

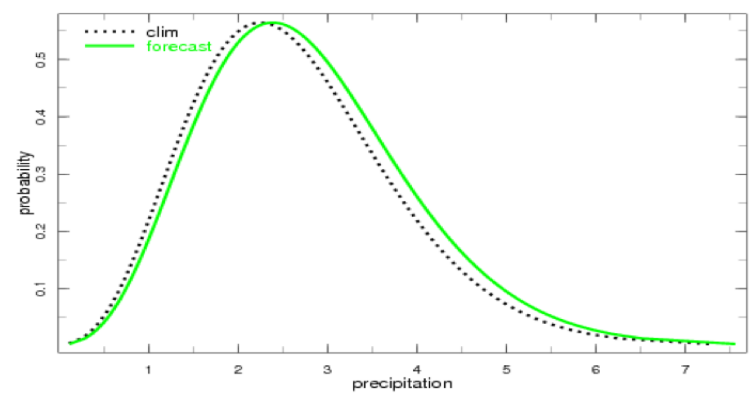


Probability of Exceedance



Dec 2014 - Feb 2015 issued 0000 1 Nov 2014 at (36.25E,3.75S)

Probability Distribution



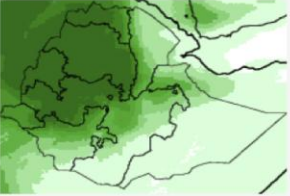
Country Online Maproom

Climate Analysis | Climate Monitoring | Climate Forecast

Climate Analysis

Monthly Climate Analysis

Rainfall time series(1983-2010) and temperature time series(1981-2010)reconstructed from station observations and remote sensing and other proxies. This interface allows users to view rainfall, maximum and minimum temperature climatologies.




DGM | DGM | Region

Météo Malagasy | Maproom | Madagascar

Climat

Conditions climatiques passés, présents et prévus sur Madagascar.

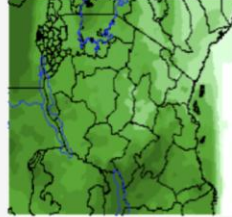


TMA

MAMLAKA YA HALI YA HEWA TANZANIA

Climate

Historical, current and forecast climate conditions around the country.




Data Library | Maproom | Region

Maproom | Climatology | CILSS

Climate Analysis | Climate Monitoring | Climate Forecast

Climate Analysis

Rainfall time series (1983-2010) reconstructed from station observations and remote sensing proxies. This interface allows users to view rainfall climatologies and anomalies.

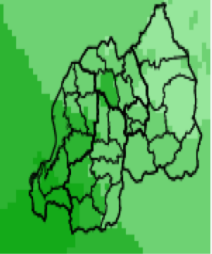


Climate Analysis | Climate Monitoring | Climate Forecast

Climate Analysis

Monthly Climate Analysis

Rainfall (1981-2013) and temperature (1981-2012) time series reconstructed from station observations and remote sensing proxies. This interface allows users to view rainfall, maximum and minimum temperature climatologies and anomalies.



<http://www.ethiometmaprooms.gov.et:8082/maproom/>

<http://maproom.meteo.go.tz/maproom/>

<http://map.meteomadagascar.mg/maproom/>

<http://maproom.meteorwanda.gov.rw/maproom/Climatology/index.html>

<http://cradata.agrhymet.ne/maproom/>



Thank You

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