



Status of climate prediction and climate services provision in Eastern Africa and the Role of ICPAC in monitoring and predicting climate and providing climate services

J MUTEKI,

ICPAC & UoN

GAD Climate Prediction and Applications Centre

What are the core Roles of ICPAC as RA-I IGAD RCC?

- Operational data services, to support LRF and climate monitoring
- Provision of climate database and archiving services, at the request of NMSs
- Operational activities for climate monitoring
- Operational activities for long-range forecasting
- Training in the use of operational RCC products and services

Regional Climate Data Archive.

- ICPAC was started as a project in 1989

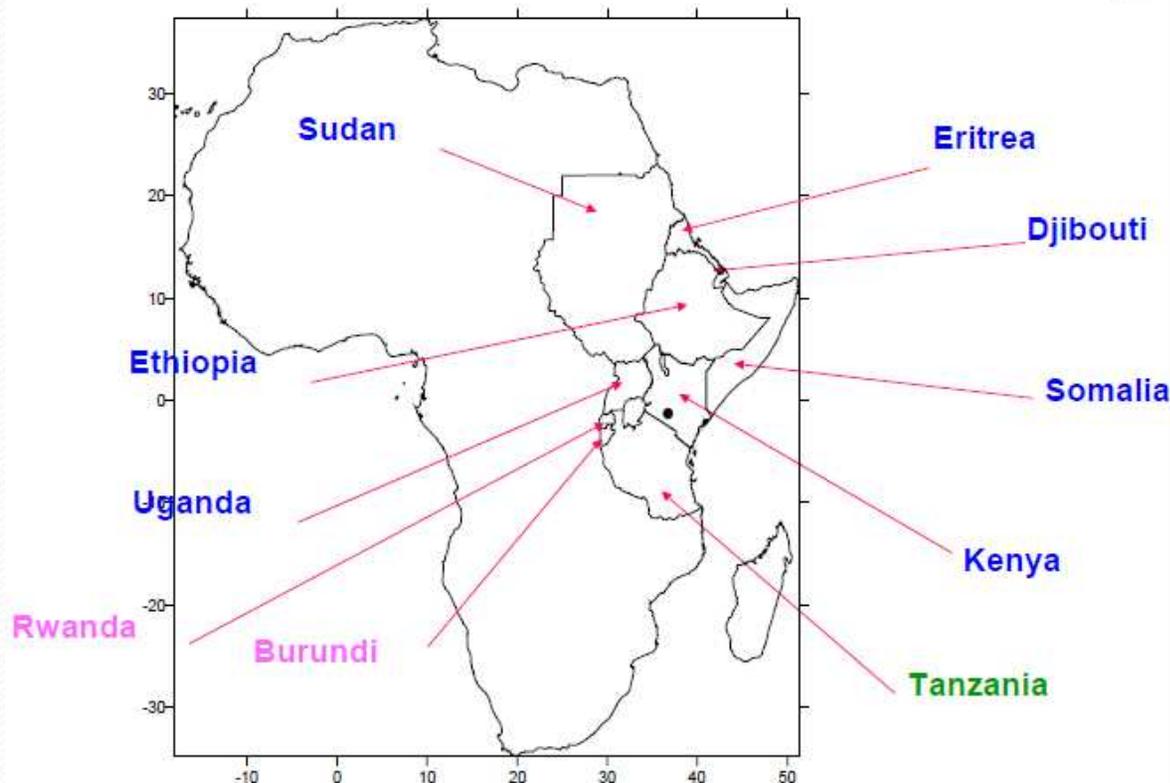
- It became a specialized Institution of the IGAD
- In 2003.

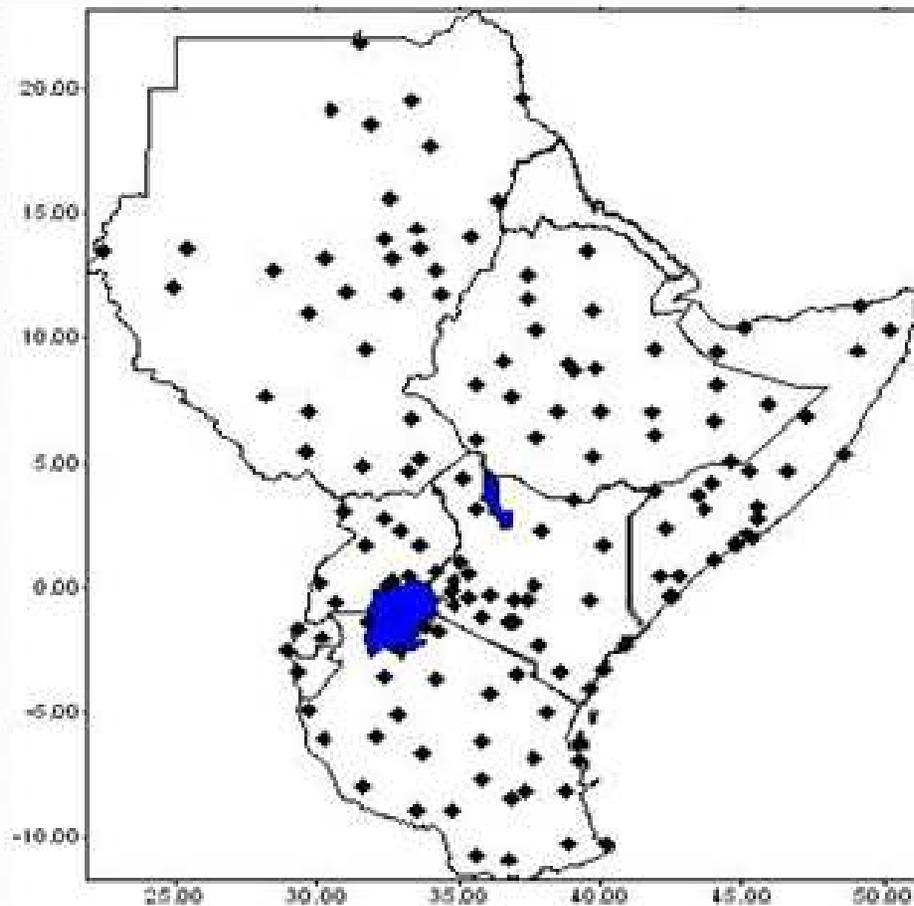
- ICPAC, as a WMO regional climate Centre (RCC) is now providing mandatory climate services and tasks for the 11 Countries of the Greater Horn of Africa, where the 11th member state is the New Republic of Southern Sudan.

- **Data details**

- Most is monthly rainfall ~1957 to present
- ~ Few stations send temperature records
- ~ Dekadal rainfall record is growing since early 2000s

ICPAC PARTICIPATING COUNTRIES IN THE GHA





GHA

meteorological
stations

providing
observed

regional data

...Mainly

synoptic

stations

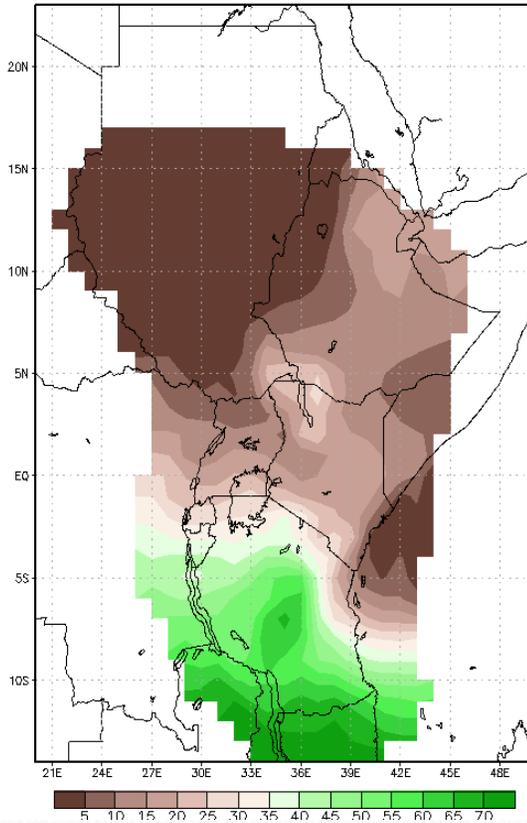
...need to

increase data

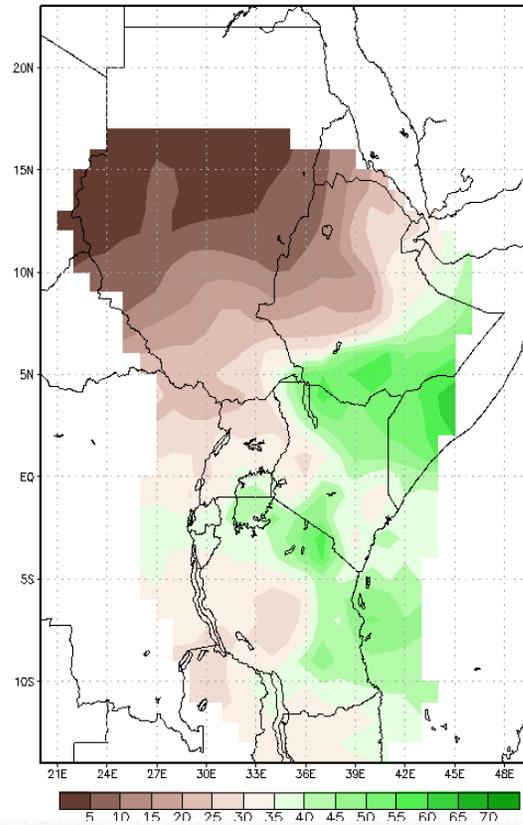
density

REGIONAL CLIMATE DIAGNOSIS AND ANALYSIS PRODUCTS....

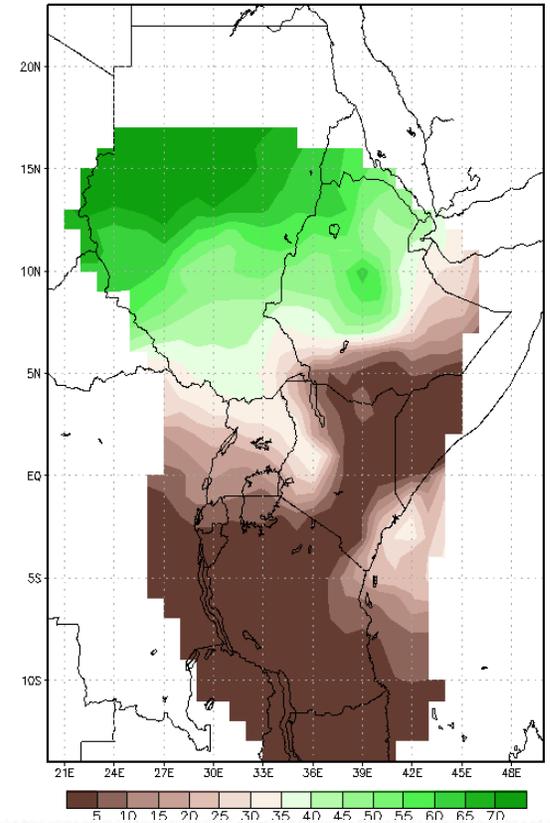
GHAJFM Rainfall As Percentage Of Annual Total



GHAMAM Rainfall As Percentage Of Annual Total



GHAJJA Rainfall As Percentage Of Annual Total



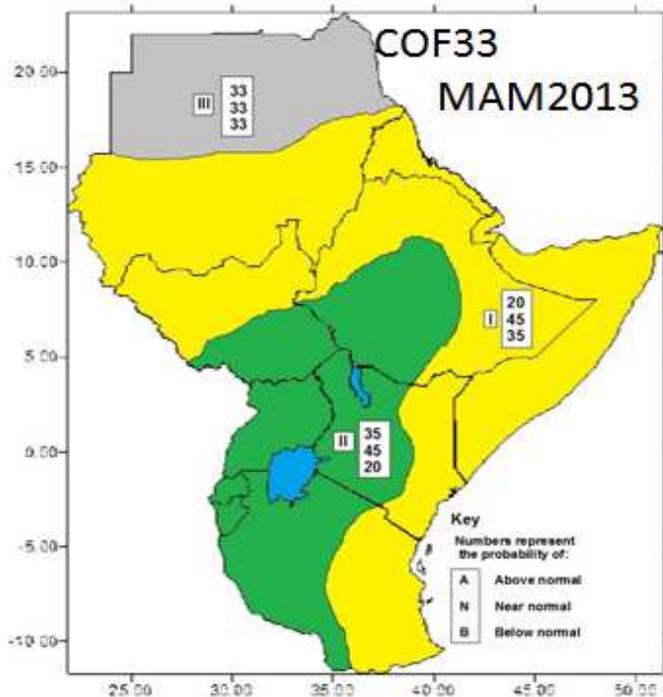
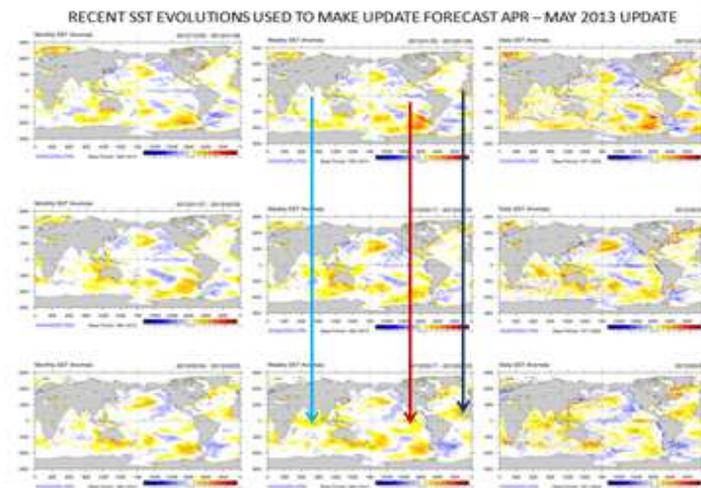
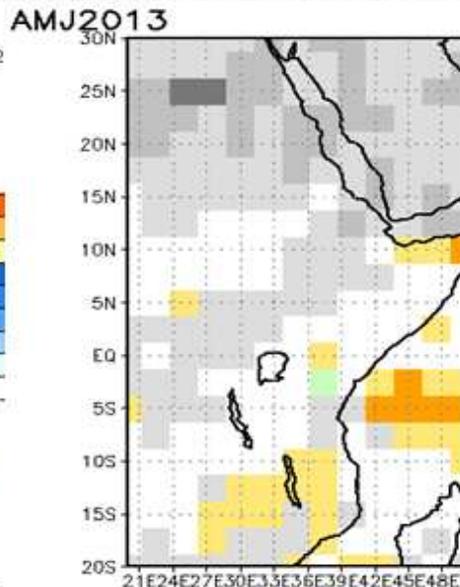
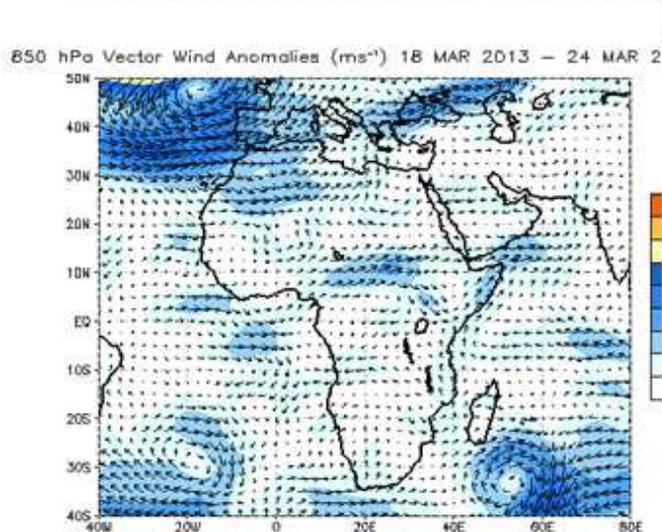
The more regional observational data we have, the better the regional details, and thus the higher the resolution of RCC products like climate forecasts

How to improve these products data derived RCC products

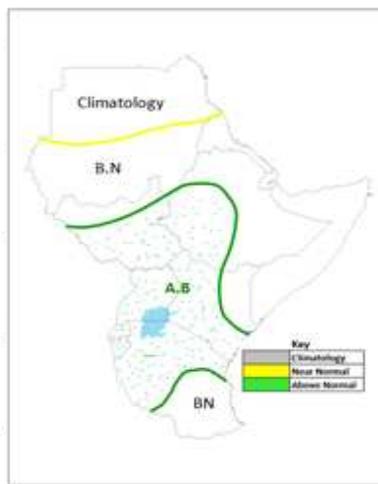
- Steps must be undertaken to include more rainfall stations into the regional archive, stations that are non-synoptic. Indeed, across the region in the countries, there are much more data from research stations which is not yet availed to support regional climate monitoring, analysis and prediction...
- Some areas/ countries have huge data gaps. It is time we made better use of satellite data sets. First step would be to ground-truth these satellite data sets like REFs against the existing ground observations, and periods non-data gaps and prepare a regional blended data set. This is the only way of improving situation in data devoid areas such as Somalia.

Operational activities for long-range forecasting

CONTINUOUS ANALYSIS & MODELING FOR UPDATING REGIONAL OUTLOOK APR – MAY 2013



WET SIGNAL FOR COASTAL AREA
Is main adjustment to
GHACOF33: APR-MAY 2013



GHACOF33 in March for APR-MAY 2013

Main highlight is a wet signal during April 2013 which is anticipated to include the coastal area.

NB: Access Updated FCST from www.icpac.net

Look for monthly product...

Above signals support a near normal signal over coastal.

This is the main adjustment update to COF33, but focusing only on APR-MAY 2013

See link:

www.icpac.net

REGIONAL CLIMATE WATCHES

Weather:

- ✓ As meteorologists, we know that we live under vagaries of weather and we eventually say it was “climate”. One challenge that faces us as meteorologists is that as we finish a weather/or climate forecast, it is nearly changed and cannot be strictly valid, so we start again! Indeed, weather predictability is best 1~3 days, more or less as an initial value problem of the atmospheric states!

Climate:

- ✓ Predictability is boundary value problem, mainly slow evolution of oceanic conditions and likely fluctuations in the “climatological mean states”.

It is desirable that a regional climate forecast should capture weather regimes, but it is generally a research area. Climate Watches can go a long way in supplementing regularly outlooks.

Climate watches: ICPAC experience (So far 27 climate watches)

Whenever there is a sudden and/or unique climatic evolution scenario that has potential to persist and impact significantly on the societal welfare in the region, then decision makers, contingency planners and public in general should be well informed. Climate watches are a quick way of providing such information.

- ✓ A good example of sudden weather events are Intense flash floods of synoptic scale in form of successive wet spells with lots of rainfall and that cause flooding over wide areas of a country or region. Such unique climatic evolution scenarios have huge implications on operations of public welfare and services. (E.g. Conditions in Lower parts of SE. Kenya is that roads are all impassible due to torrential rainfall, area is completely cut off from the rest of the country there is already suffering!!....)

Climate events like these, and most importantly implications on welfare must be reported.

At ICPAC we report them as special regional bulletin called climate watch!



IGAD Regional Climate Centre (IGAD-RCC)

(A WMO RCC of RA I in Demonstration Phase)

- HOME
- About ICPAC
- Climate Monitoring
- El Nino/ La Nina Indices
- RCC Products
- Verification
- R&D
- Activities

- News
- Member Countries
- Related Links

Member Countries



WMO Regional Climate Center in RA I



News

- GHACOF 33 Information Note [2013-02-07]
- YOUTH SCIENCE FORUM CALL FOR ABSTRACTS [2013-01-21]
- GHACOF 33 Announcement [2012-12-24]
- GHACOF32 Update Forum Report For posting [2012-12-06]
- Updated GHACOF32 Statement released by IC... [2012-12-04]

Product Updates

- 2013 Tenth Dekadal (1 - 10 April) English French
- March 2013 Monthly Bulletin English French
- GHACOF 33 Statement English
- ICPAC Climate Watch May 2012 English

CONCLUSIONS

Early delivery of actionable climate information for socio-economic activities and management of societal welfare, in particular DDR is the only way to prevent societal setbacks and disasters which are derive by climate extremes.

We need real good quality and high resolution data sets. In many parts of Africa, observational data is too spare, needs improvement and blending with modern data sets, especially satellite (e.g. REFs) and other modern data sets to facilitate improved analysis and understanding.

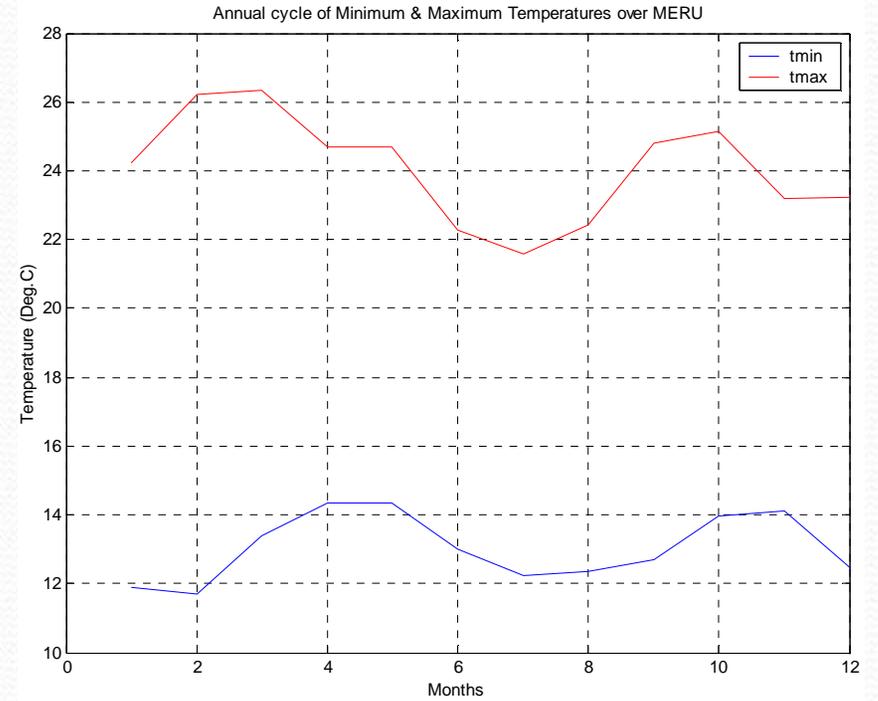
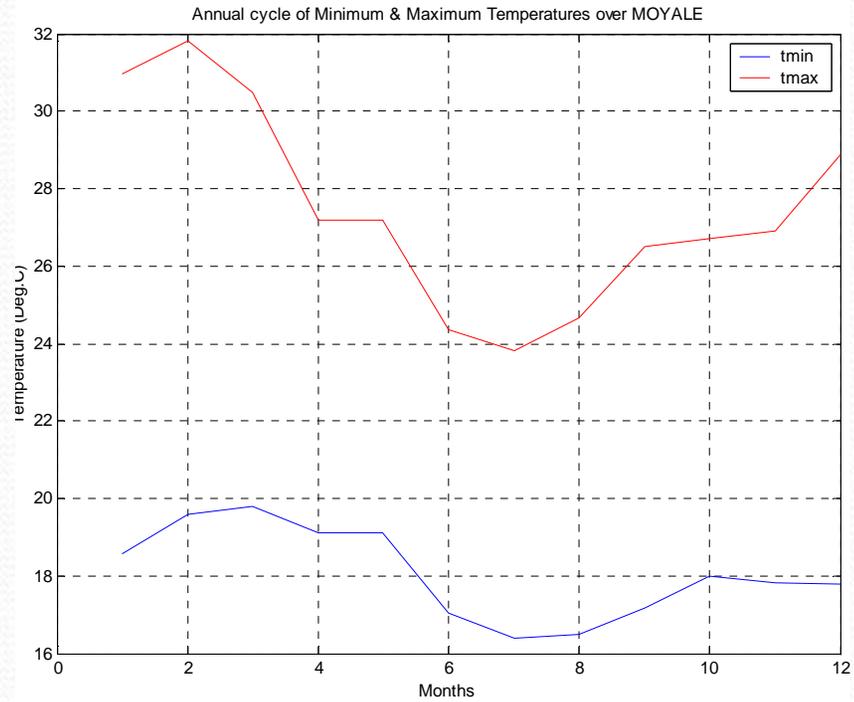
Enhancing ROFs Routine climate watches go a long way in increasing climate services for sustainable development and societal welfare supported by weather and climate information. As RCC, ICPAC is now conduction 3-GHA COFs per year, namely MAM, JJA & OND.

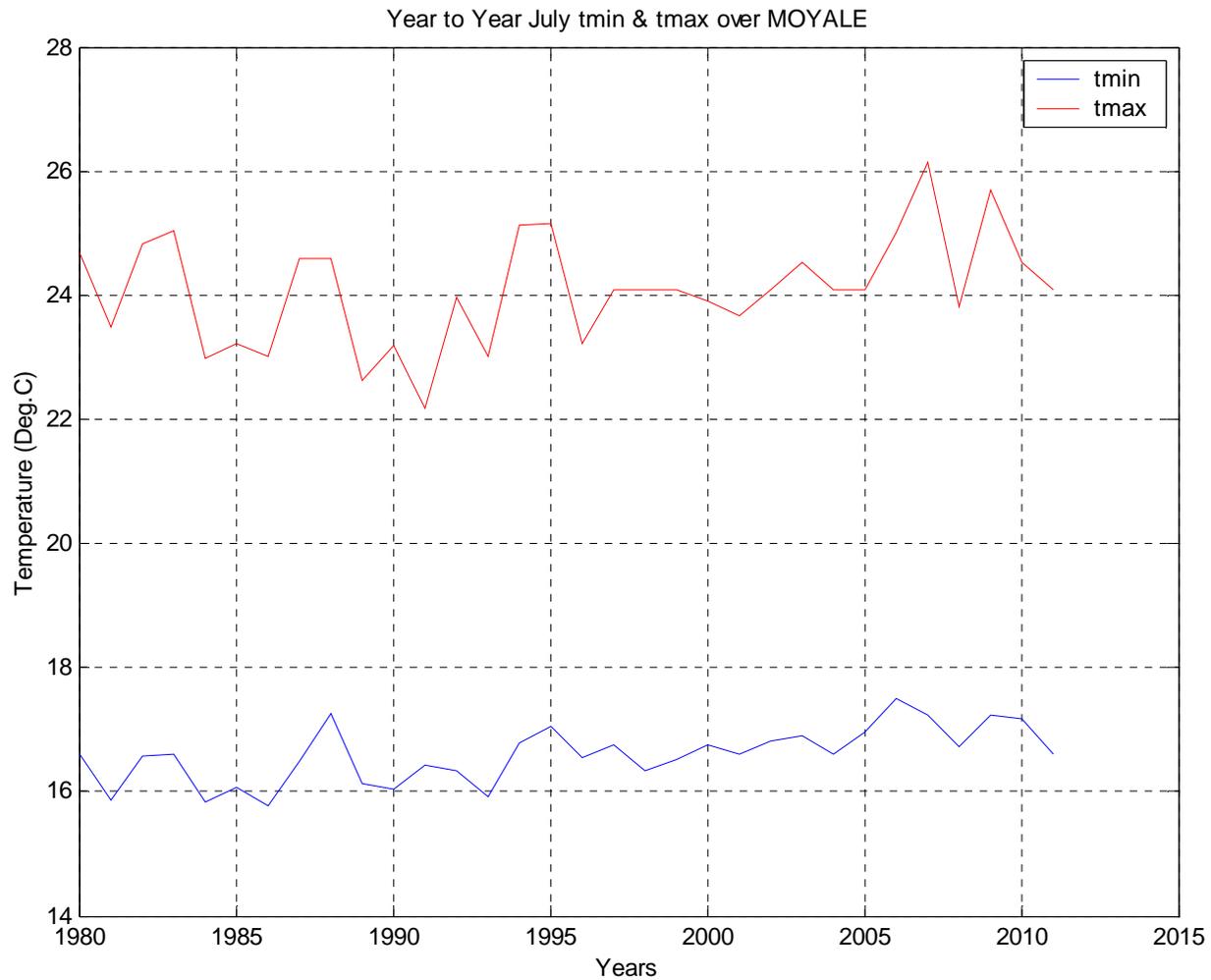
The ICPAC RCC products are evolving rapidly, always pick the links www.icpac.net and www.icpac.net/RCC/



Thank you !

FOR REGIONAL CLIMATE CHANGE REMARKS...

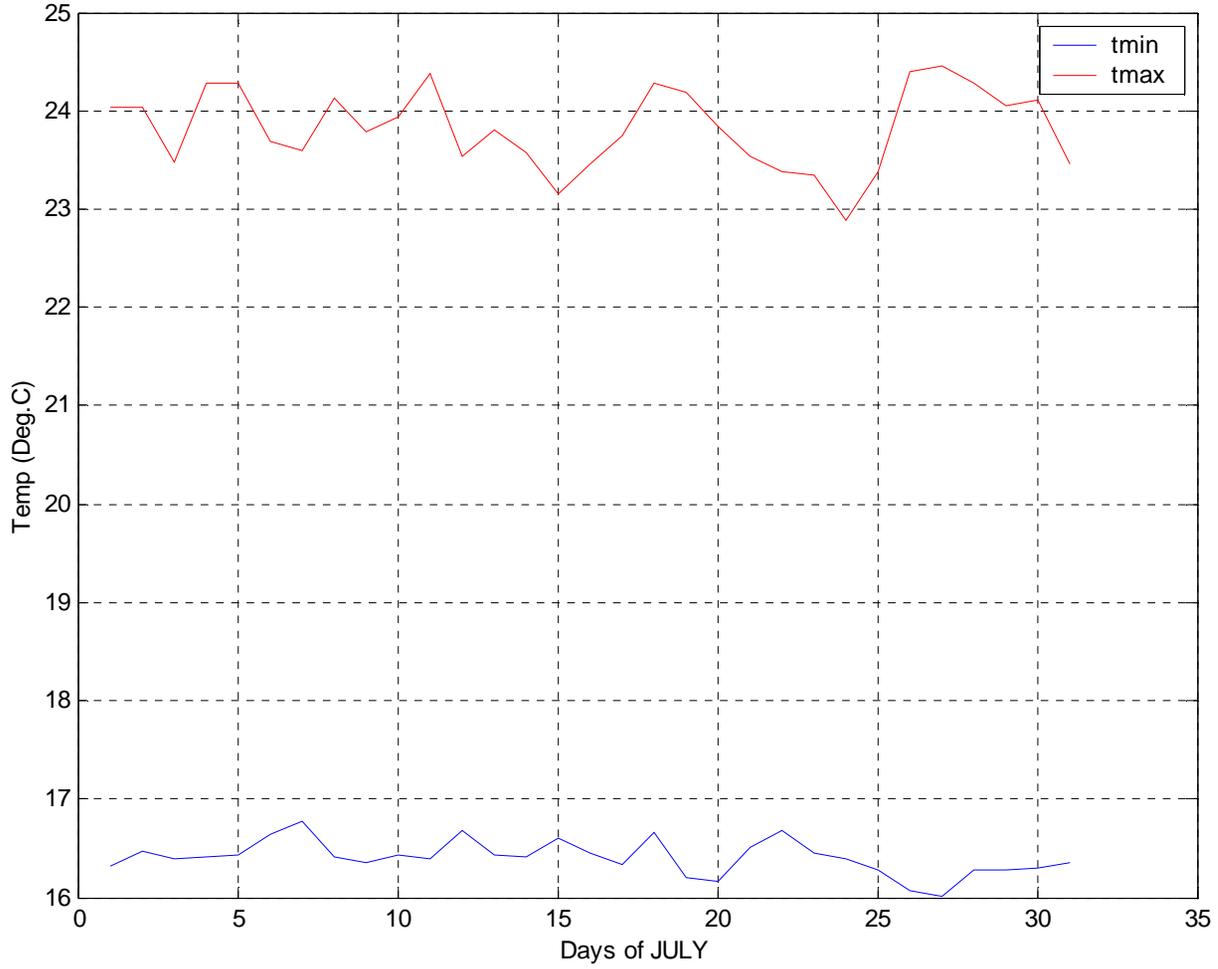




+Ve Trends in temperatures are event in the region...

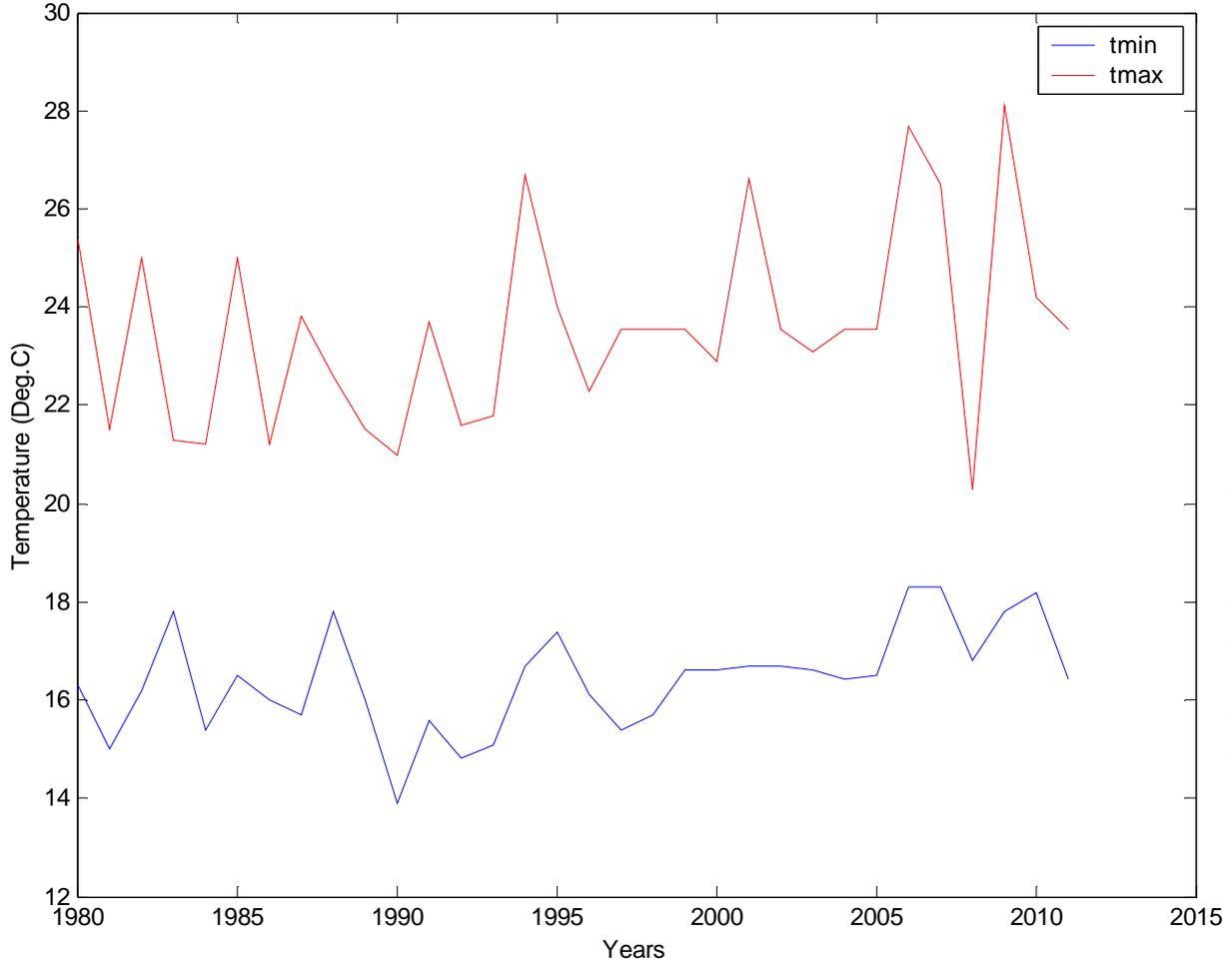


Daily tmin and tmax climatology during JUL over MOYALE





trends in coldest day tmin & tmax over MOYALE



Critical Questions
 Is temp changing?
 By how much?
 Is it significant? Statistically?

Is the signal local?,
 Regional?

What is the implication on
 critical sectors e.g.
 agriculture & water
 resources (e.g.
 evaporation?).
 What is deriving the
 change?.
 What should community do
 to adapt?