

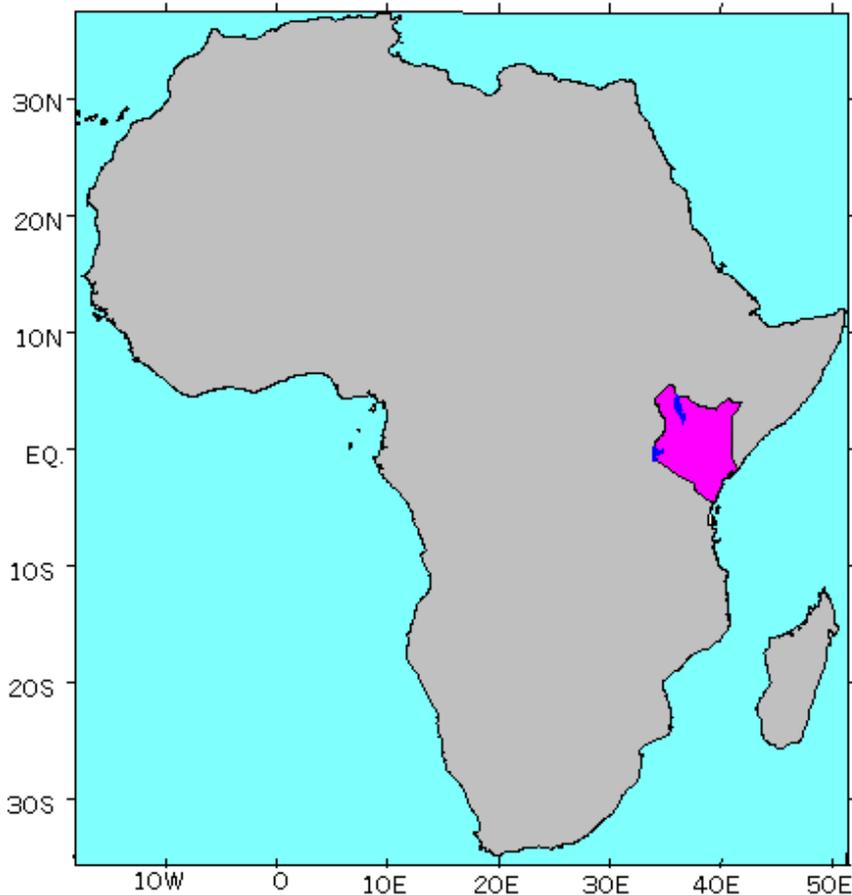
# **KENYA's CLIMATE**

BY

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*Kenya*

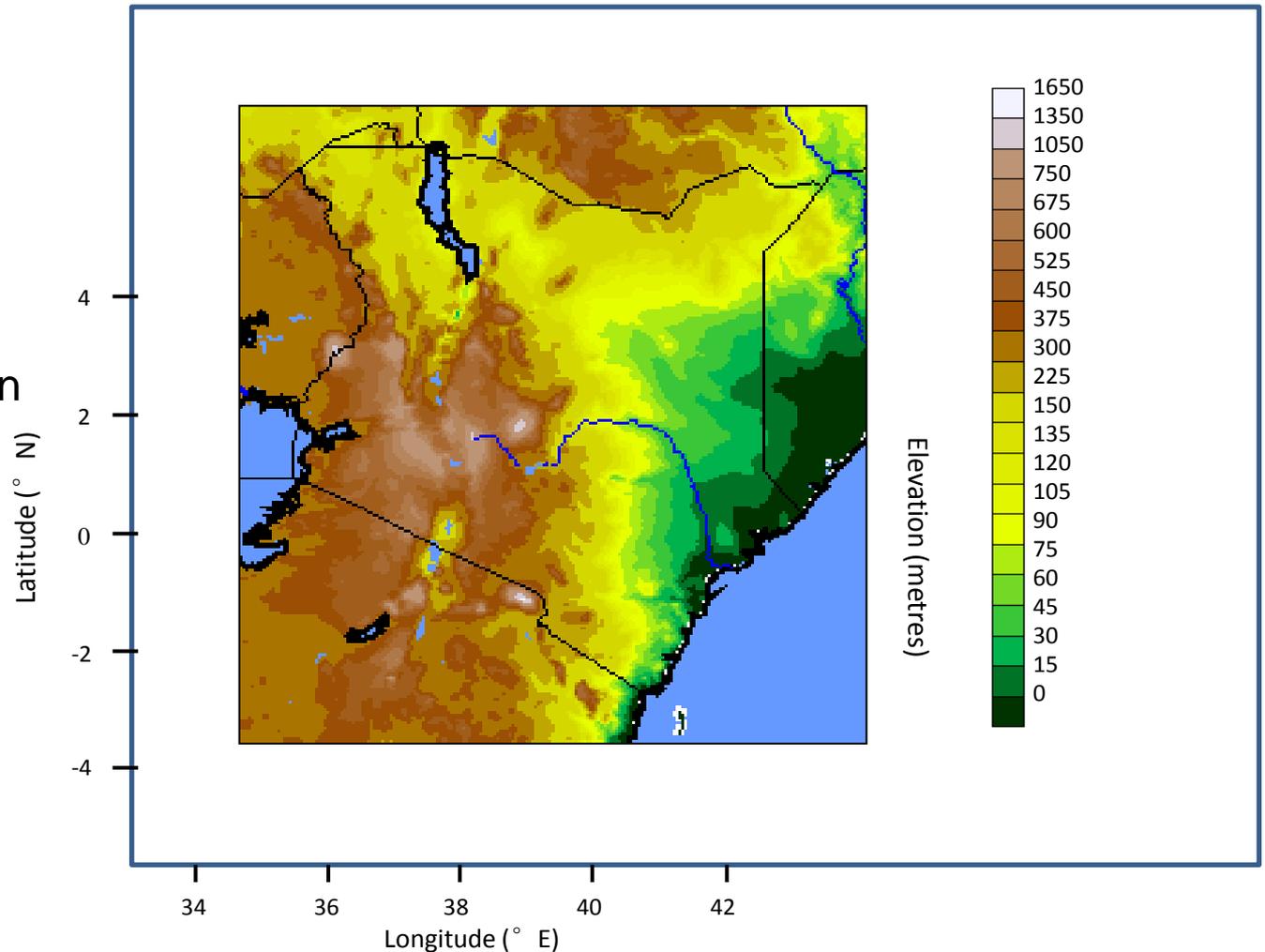
# Position



Kenya lies astride the equator, bounded by longitudes 34°E to 42°E and latitudes 5.5°N to 5°S and hence enjoys a tropical climate. It is hot and humid at the coast, temperate inland and very dry in the north and northeast parts of the country

# Topography

It has complex topography eg. large lakes, Great Rift Valley and snow-capped mountains which influence circulation and modify climate of various parts of the country.



# INTRODUCTION

- ❖ Kenya experiences two rainy seasons (bimodal), namely the long-rains (March to May) and the short-rains (October to December) seasons as the Inter-Tropical Convergence Zone (ITCZ) migrates through the equator from south to north, and vice versa lagging the overhead sun by about 3 to 4 weeks. However, some stations in the western and central parts of the Rift Valley experience tri-modal rainfall pattern

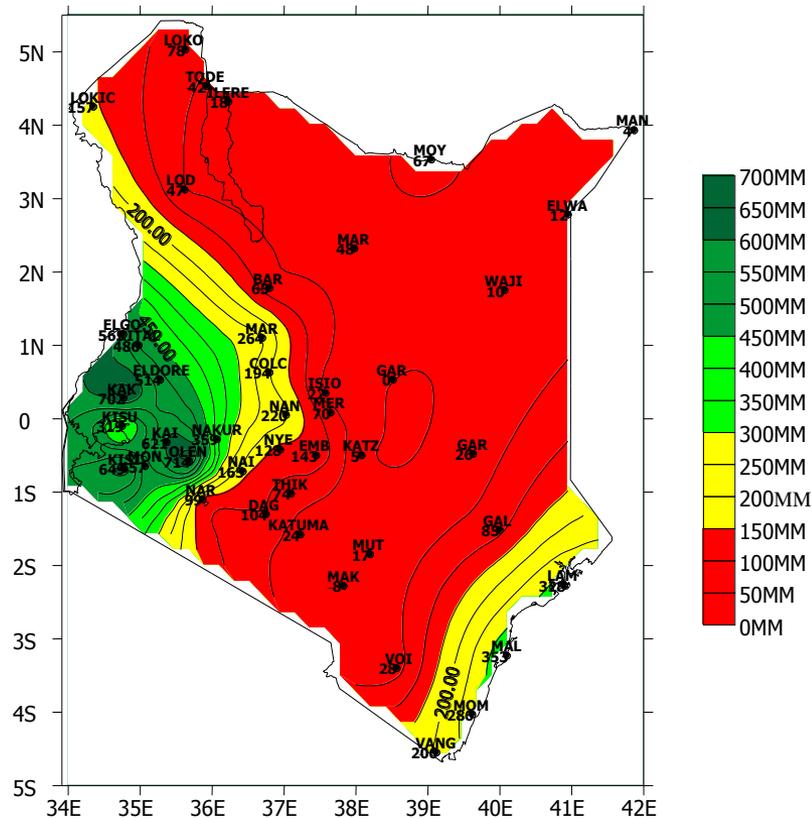




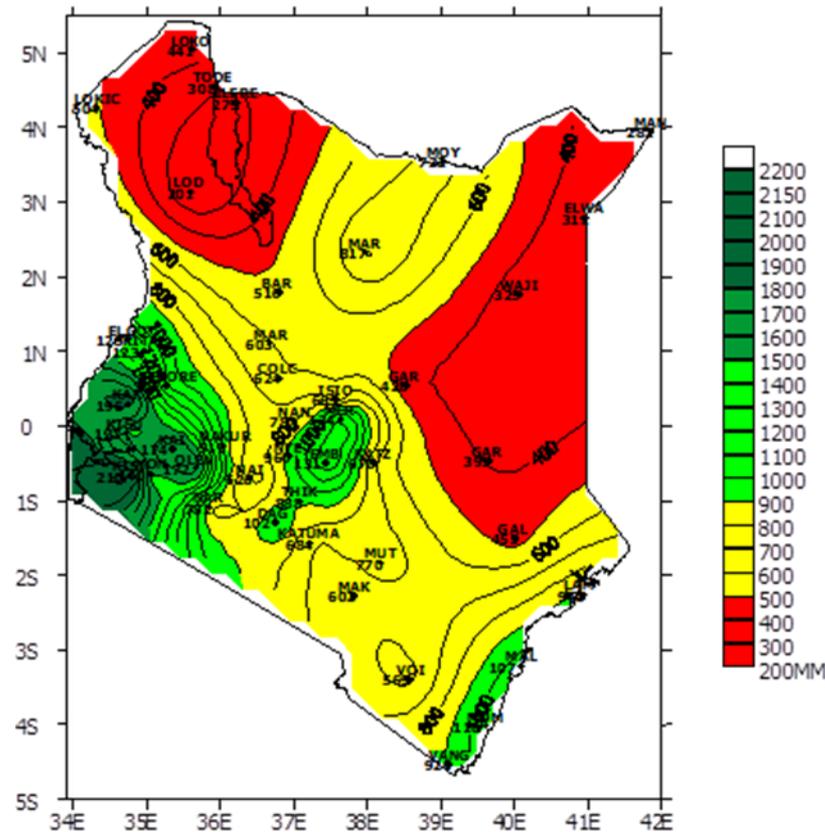
# INTROD CONTI..

- ❖ The western parts of the country do realise significant rainfall during the period June-August associated with influences from the tropical south Atlantic and incursions of moist Congo air mass when the meridional branch of ITCZ has maximum eastward displacement over the region.
- ❖ Coastal is also wet during this period.
- ❖ The January to February period is generally dry over most parts of the country.

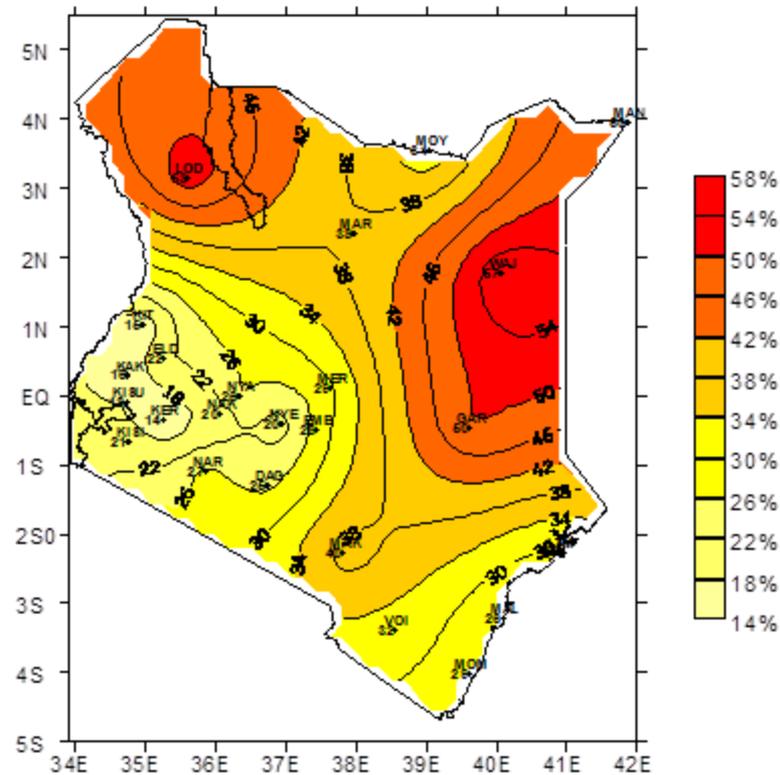
# Mean seasonal rainfall distribution during JJA over Kenya



# Mean annual total rainfall distribution over Kenya



# Annual Rainfall variability in Kenya



# Temperatures

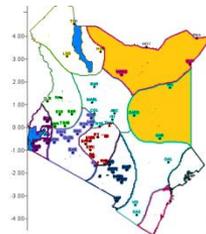
Generally:

- Highest temperatures: January to Feb
- Lowest temperatures: June to August

**The Lake Victoria Basin, Highlands west of the Rift Valley,  
Central and South Rift :**

**Max 22°C ( July) - 31°C (Feb)**

**Min 9°C (Sep) - 14 °C (April)**



Narok and Nyandarwa counties experience the experience the lowest average minimum temperature in the country of about 6°C which on a number of occasions has dropped to close to freezing point

# Temperatures

## **The Northwestern counties:**

- Max  $> 35^{\circ}\text{C}$  throughout much of the year except in June and July when the maximum temperatures drop slightly to less than  $34^{\circ}\text{C}$ . The average High average minimum temperatures:  $22^{\circ}\text{C} - 25^{\circ}\text{C}$

## **Central highlands including, Nairobi area:**

- Max  $21^{\circ}\text{C}$  (July) - to  $24^{\circ}\text{C}$  (Jan)
- Min  $10^{\circ}\text{C}$  (Jan)-  $16^{\circ}\text{C}$  ( April).

## **Northeastern counties:**

- Maximum temperatures are very high all year round ( $> 34^{\circ}\text{C}$ )  
June to August falls slightly to between  $31^{\circ}\text{C}$  to  $33^{\circ}\text{C}$ .
- The minimum temperatures average between  $24^{\circ}\text{C}$  during the hot months and  $21^{\circ}\text{C}$  during the cooler months except for points at high elevation like Marsabit

# Temperatures

## **Southeastern lowlands counties:**

- These counties are characterized by hot temperatures and extreme evaporation. Maximum temperatures range from 26°C in July to 31°C in March. Minimum temperatures range from 14°C in July to 18°C in March

## **The Coastal counties :**

- Generally hot with temperatures exceeding 22°C throughout the year.
- Max 27°C (July)- 33°C (March)
- Min 22°C( July) –25°C (April)

❖ The interannual variability of rainfall in Kenya results from complex interactions of forced and free atmospheric variations which include-

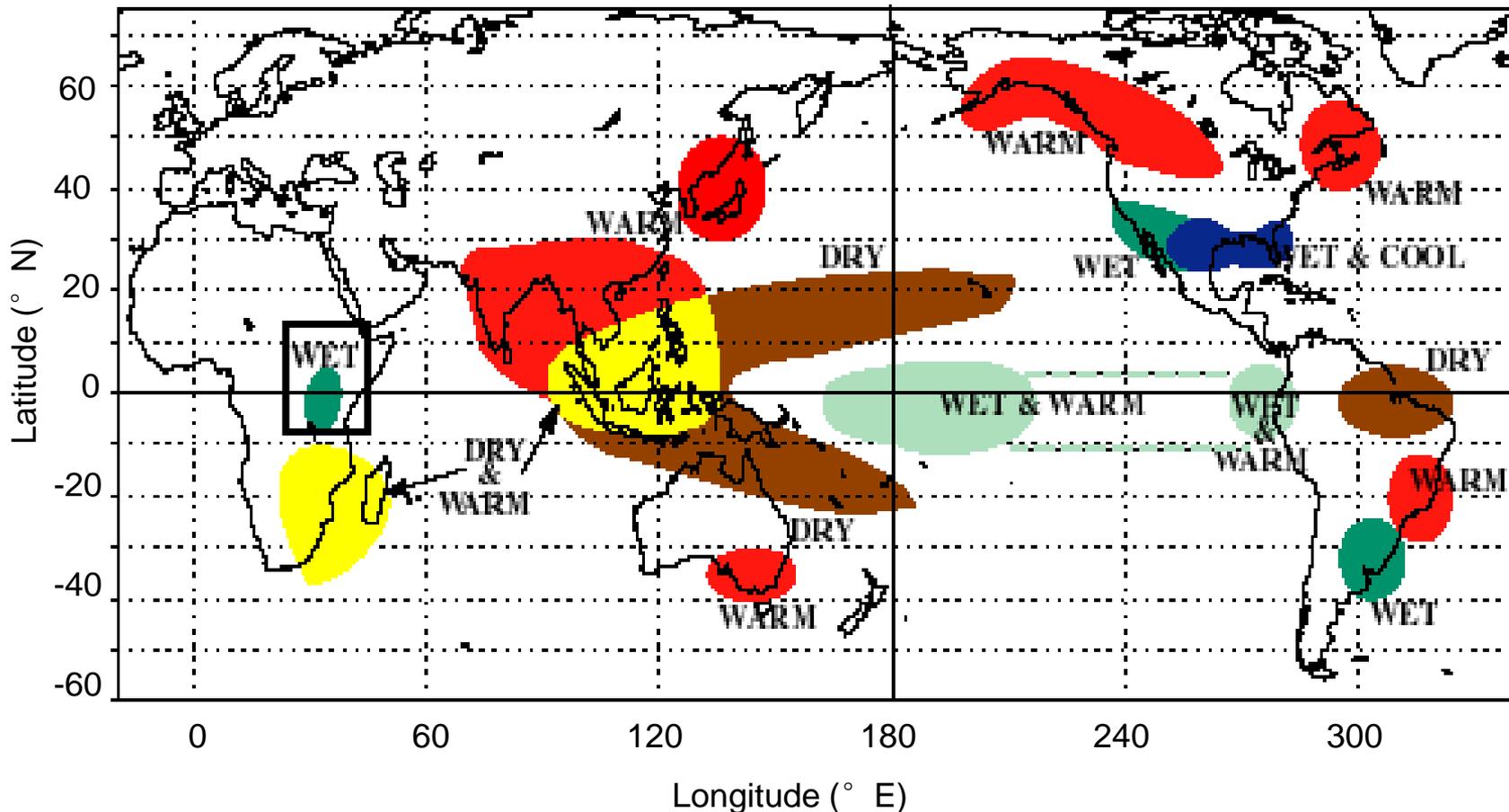
- SST forcing,
- Land-surface forcing,
- Monsoon and trade winds,
- Persistent mesoscale circulations,
- Tropical cyclones,

- Subtropical anticyclones,
- Easterly/westerly wave perturbations,
- Extra-tropical weather systems,
- Jet streams,
- El Niño / Southern Oscillation (ENSO), QBO etc.

First example of a teleconnection between SSTs and rainfall in East Africa:

## El Niño Southern Oscillation (ENSO)

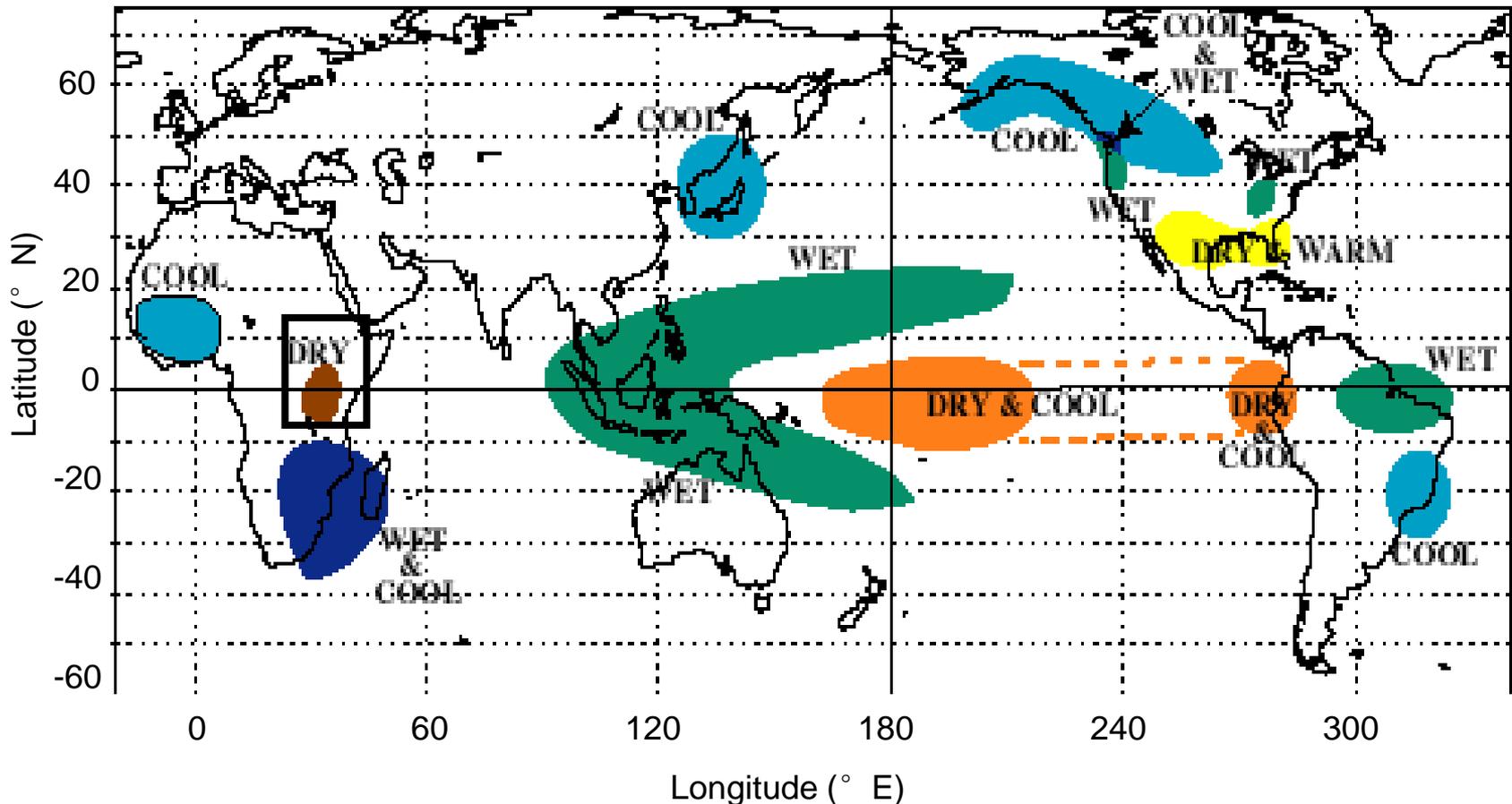
**El Niño:** Warm Episode Relationships (December - February)



First example of a teleconnection between SSTs and rainfall in East Africa:

## El Niño Southern Oscillation (ENSO)

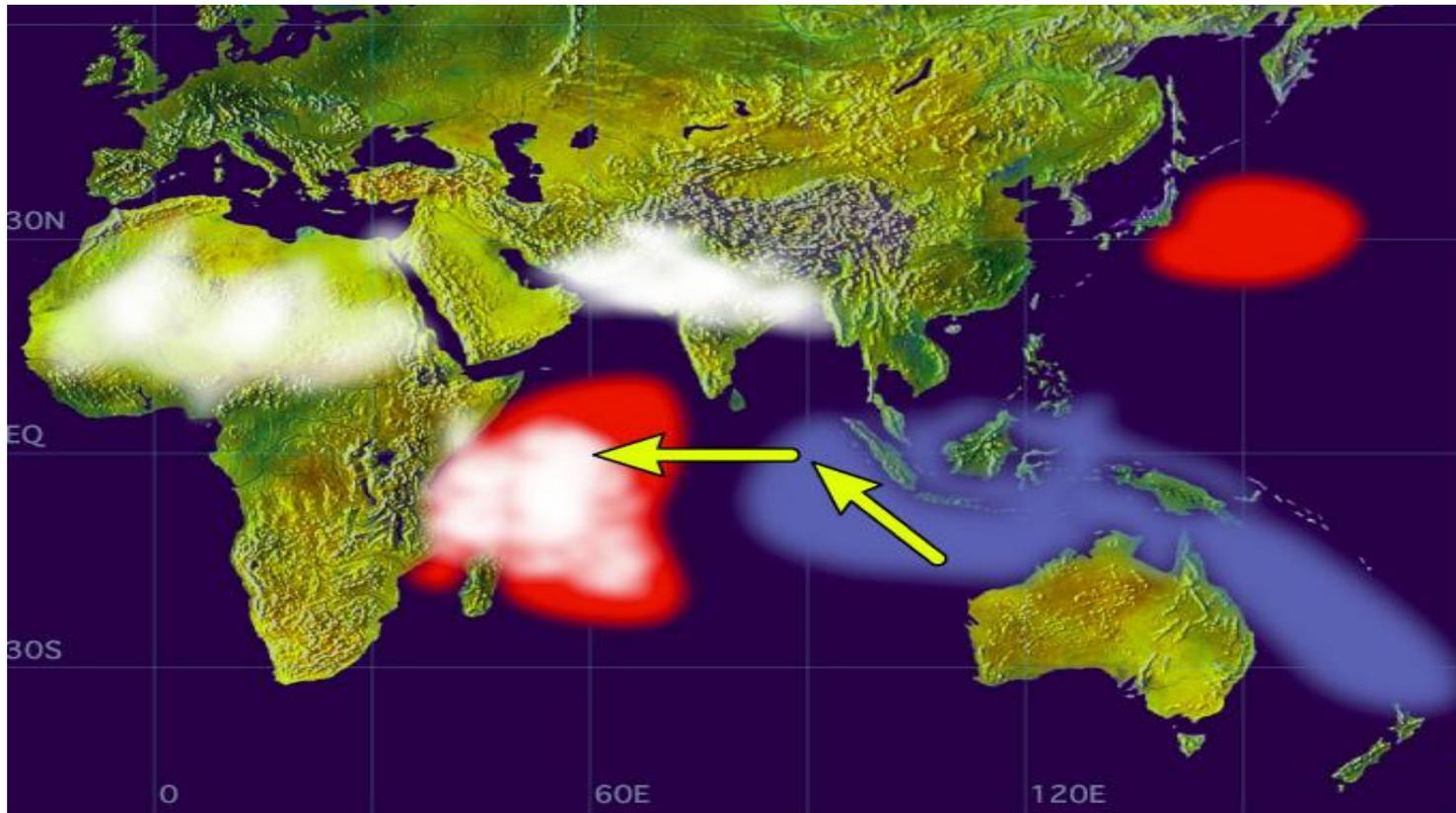
**La Niña:** Cold Episode Relationships (December - February)



Second example of a teleconnection between SSTs and rainfall in East Africa:

## The Indian Ocean Dipole (IOD)

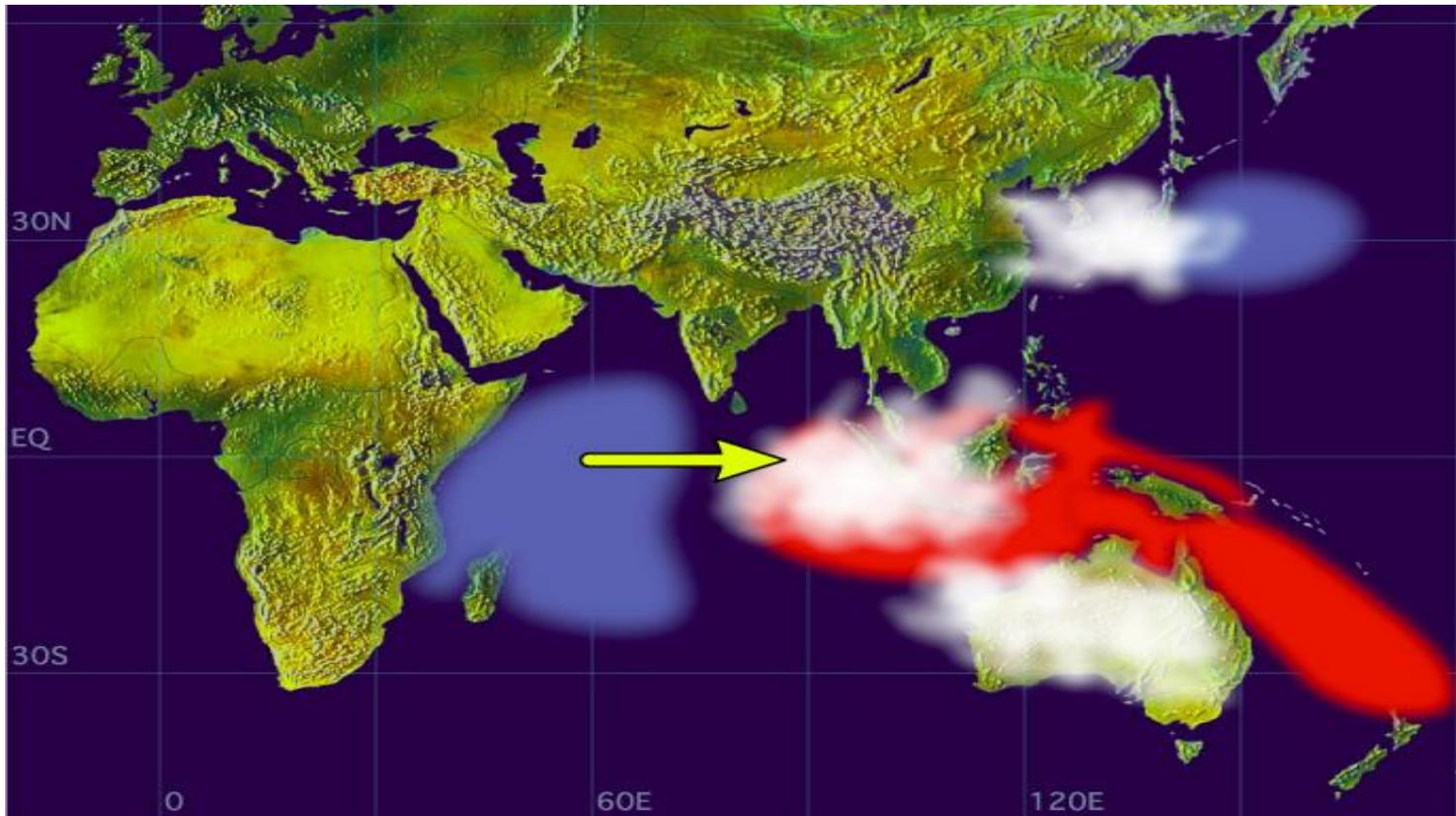
**Positive Dipole Mode:** (May - October)



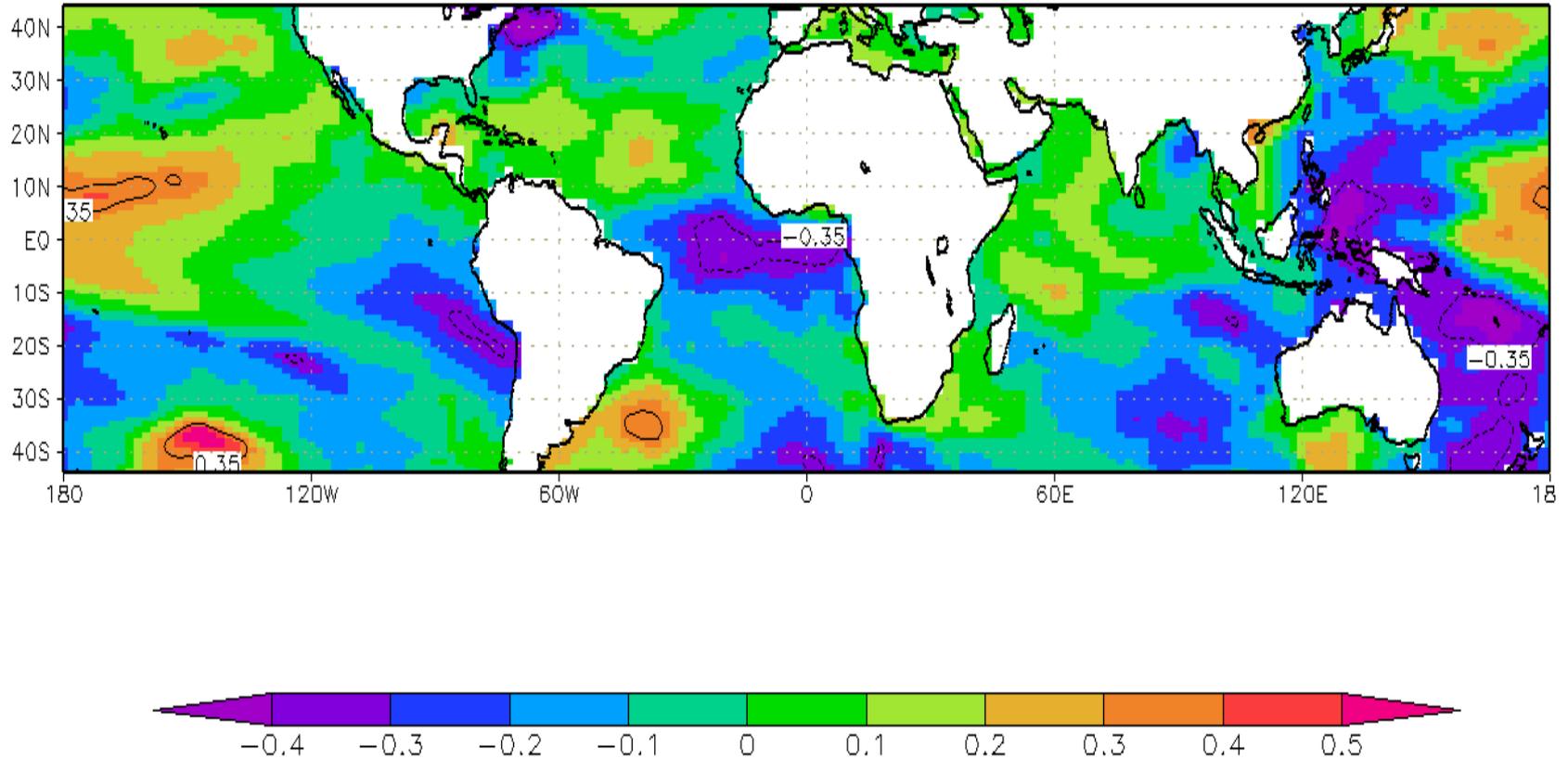
Second example of a teleconnection between SSTs and rainfall in East Africa:

## The Indian Ocean Dipole (IOD)

**Negative Dipole Mode:** (May - October)

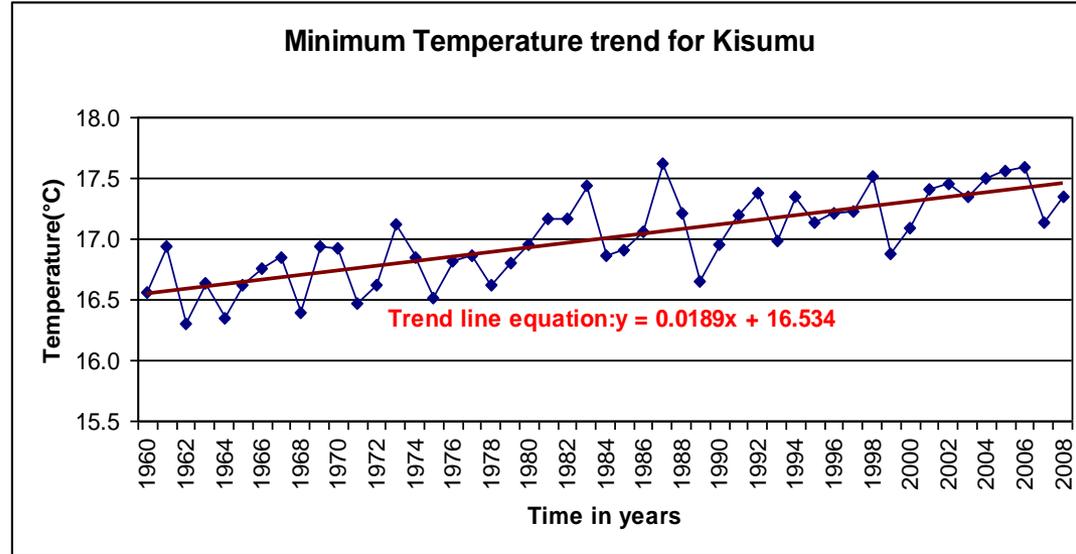


# Correlation between Kenya MAM seasonal rainfall for zone 4 and gridpoint NDJ SST

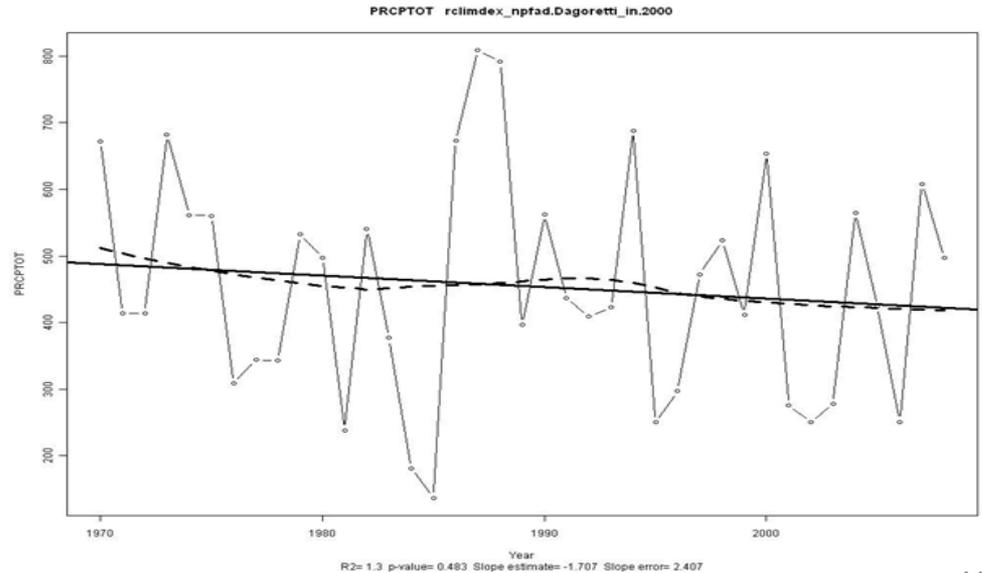


# Trends

Increasing significant temperature over most locations



Rainfall decreasing during MAM and increasing during DJF over some locations



**THANK YOU**