



PEACE, PROSPERITY AND  
REGIONAL INTEGRATION

# CLIMATE CHANGE & THE HORN OF AFRICA: RESPONSES, OPPORTUNITIES & CHALLENGES

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IGAD Climate Prediction & Applications Centre (ICPAC)**

**NASA IDS: Seasonal Prediction of Hydro-Climatic Extremes in the  
Grater Horn of Africa (GHA): The Third Participatory Research  
Workshop, 24-25th October 2017, Addis Ababa, Ethiopia.**

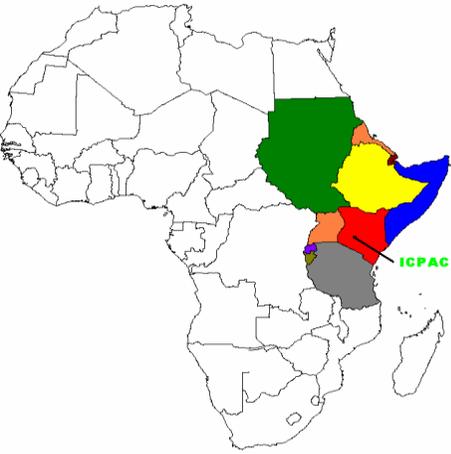
# OUTLINE

- 1. Introduction**
- 2. Causes of Climate Change**
- 3. Climate trends in the GHA region**
- 4. Climate Change projections for the GHA region**
- 5. Impacts of Climate Change**
- 6. Responses to Climate change**
- 7. Opportunities and challenges**
- 8. Way forward**

# 1. ABOUT ICPAC: HISTORY & MANDATE

## History of ICPAC

- Established as a Drought Monitoring Centre (DMC) in 1989 became an autonomous specialized Institution of IGAD in 2007 through a **Protocol** signed by IGAD heads of states providing climate services for 11 countries in GHA region



## Key Areas of Work & Mandates of ICPAC

1. Climate Data Management, Climatology & Climate Monitoring
2. Climate Diagnostics, Prediction and Early warning
3. Sectoral applications of climate information
4. Disaster Risk Management (DRM)
5. Climate Change
6. Climate Research and modeling
7. Capacity building
8. Climate Outlook Forums (COFs)



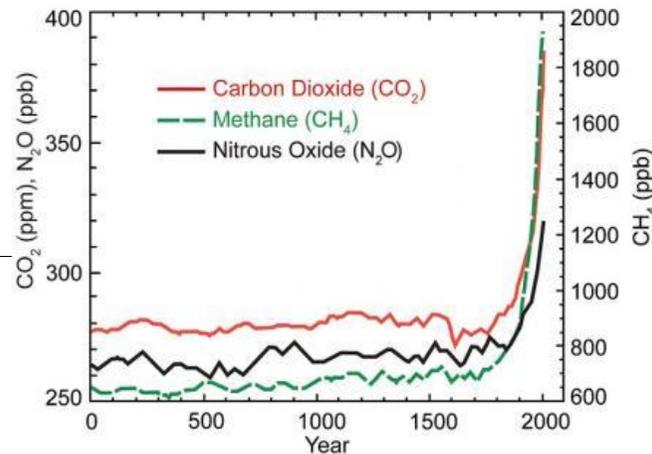
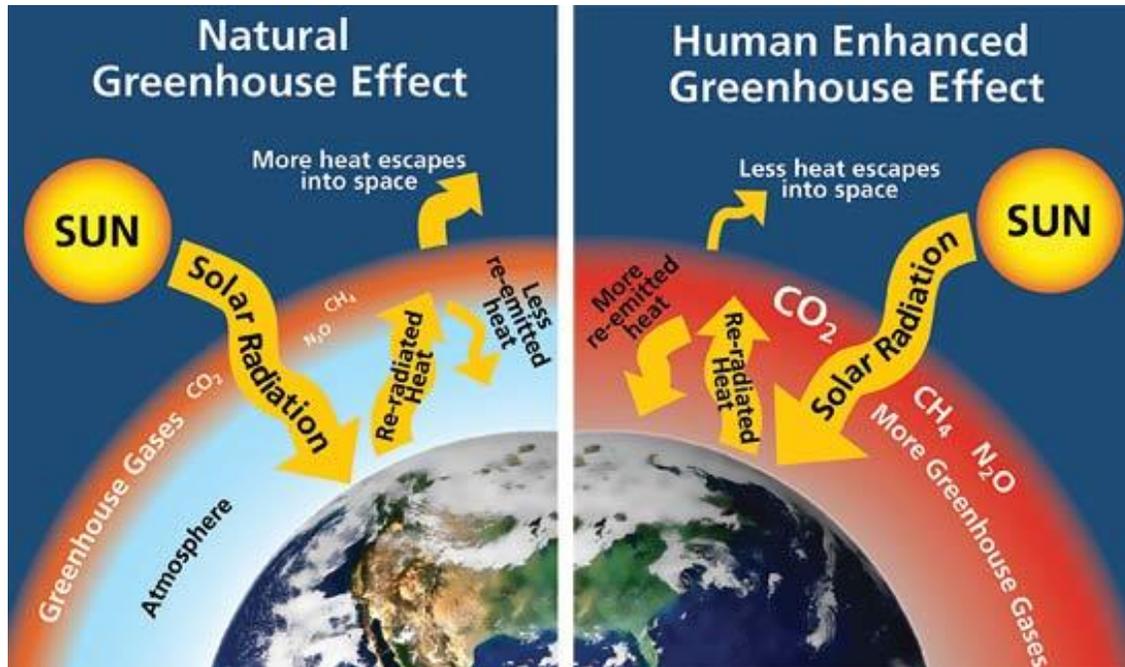
# 1. INTRODUCTION

## Importance of climate Issues

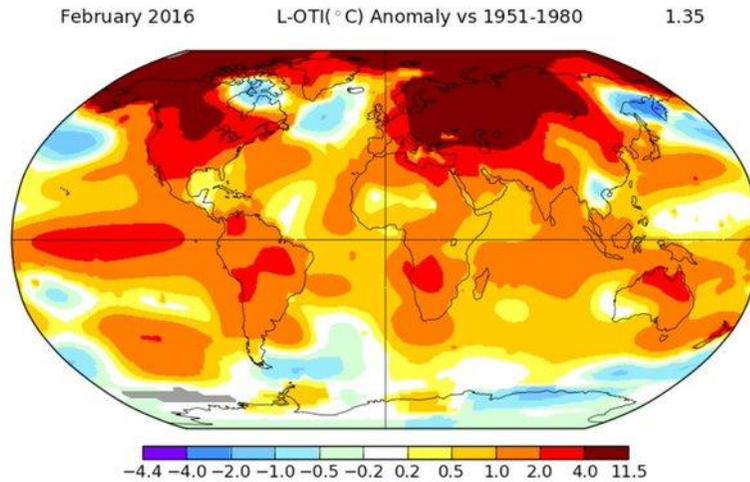
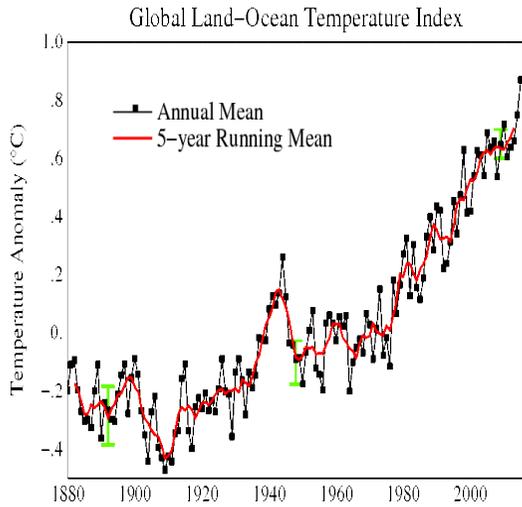
- Climate is a resource base
- Extreme climates are sources of risks
- Human made climate change

# 2. CAUSE OF CLIMATE CHANGE

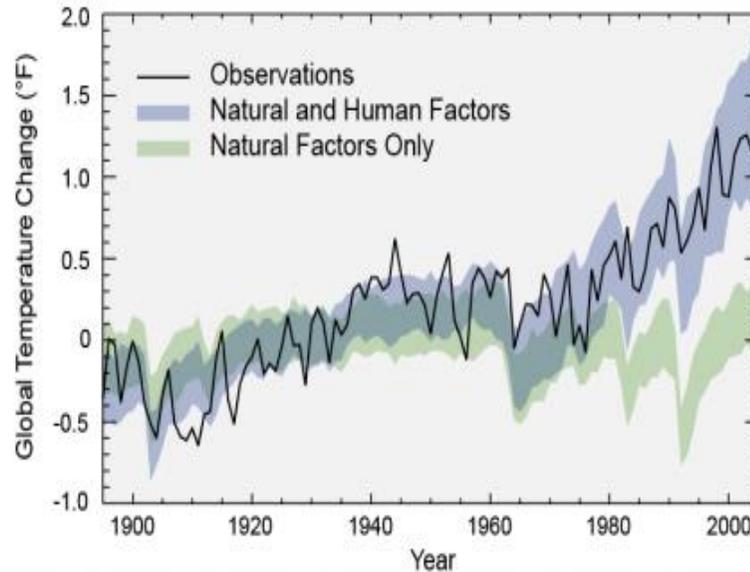
## Theory of the greenhouse effect



# 2. CAUSE OF CLIMATE CHANGE

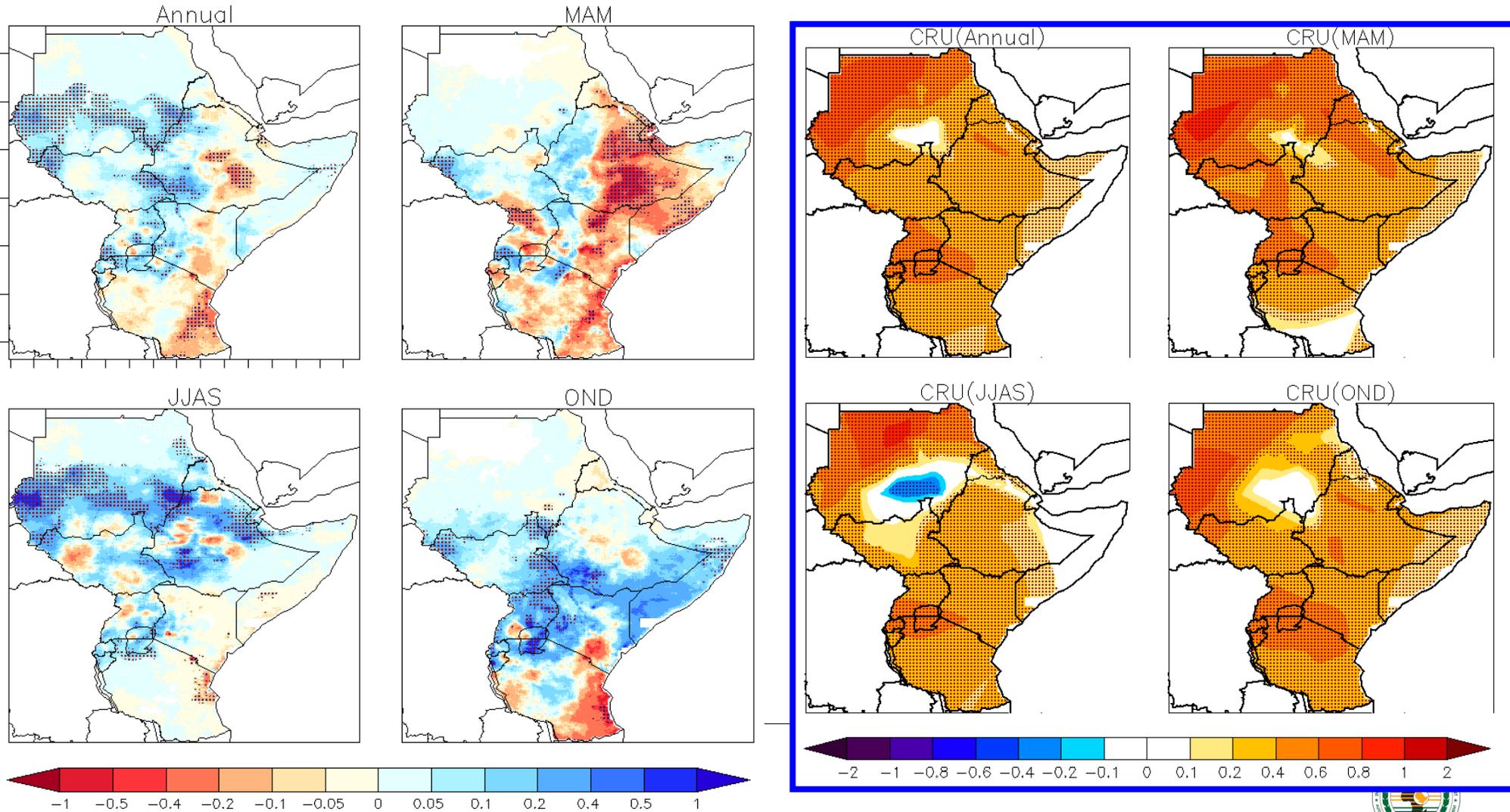


Separating Human and Natural Influences on Climate



# 3. CLIMATE TRENDS IN THE GHA REGION

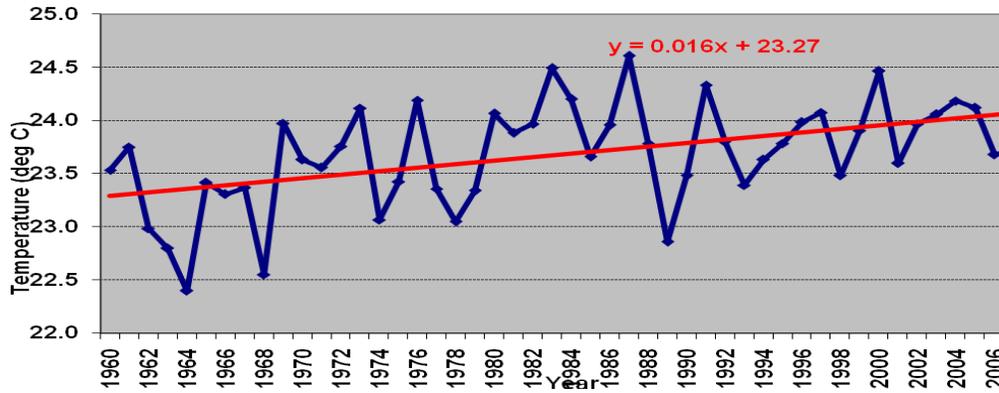
## Season rainfall trends based on CHRIPS data (1981-2015 period)



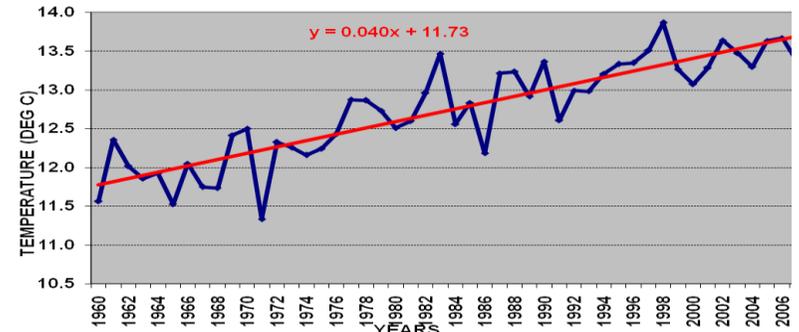
# 3. CLIMATE TRENDS IN THE GHA REGION

## Annual temperature variability and trends

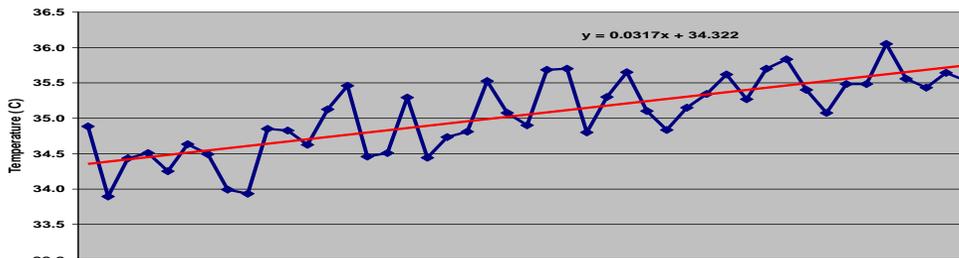
Annual Tmax for Dagoretti



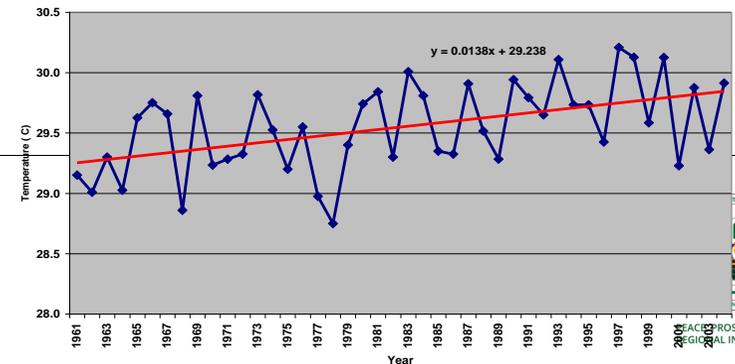
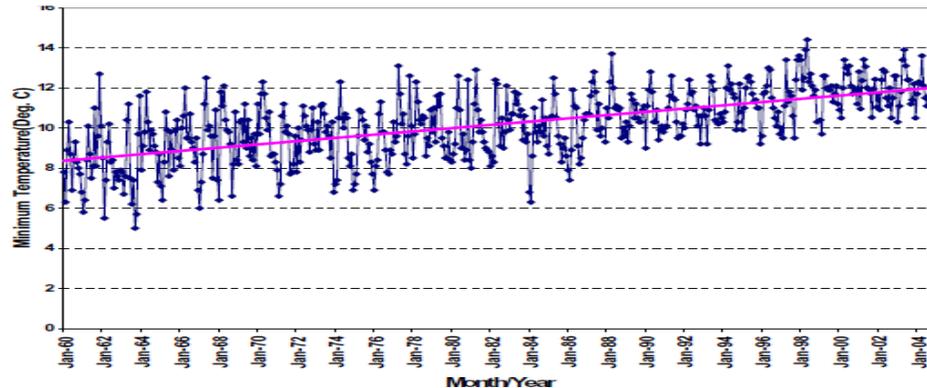
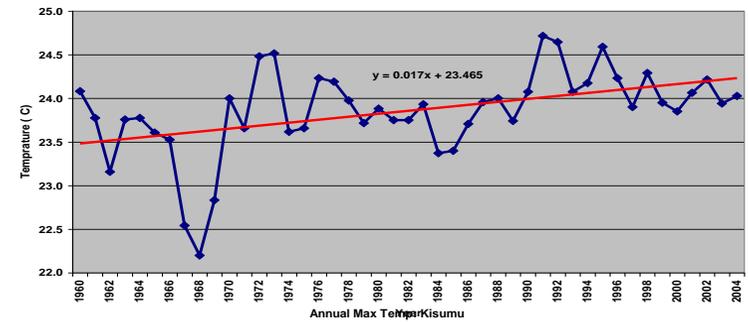
ANNUAL TMIN FOR DAGORETTI



Annual Max Temp: Lodwar

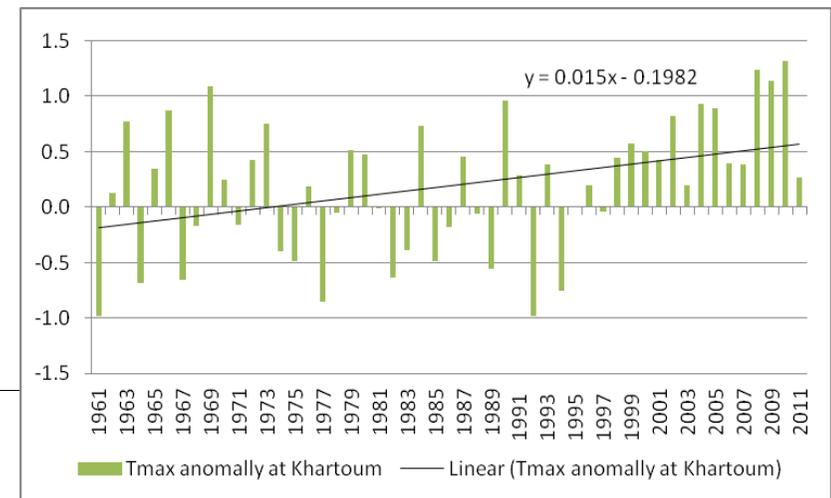
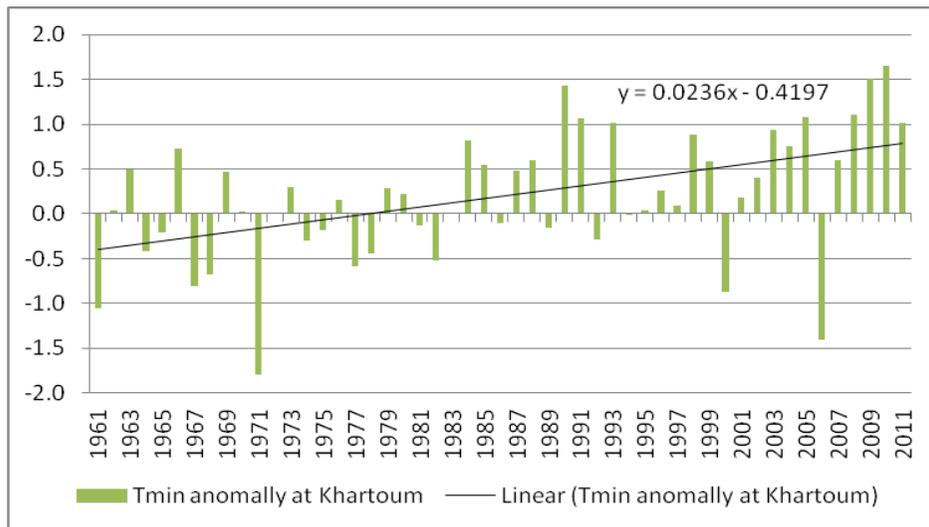
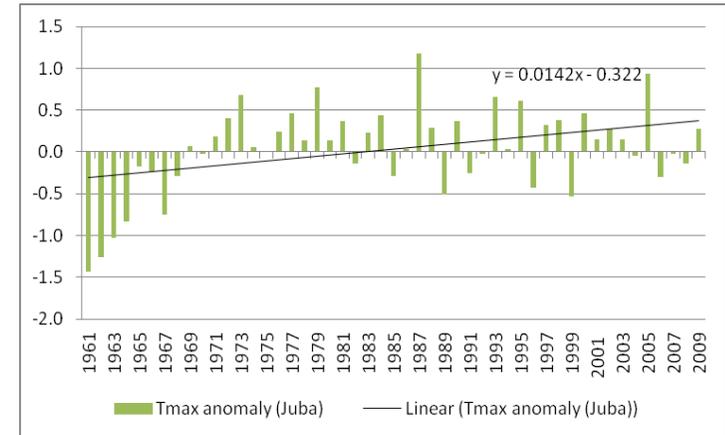
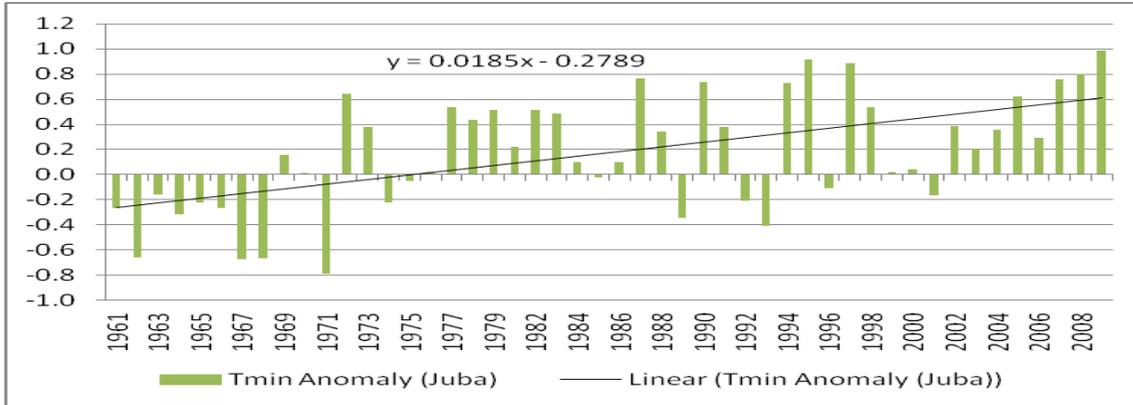


Annual Minimum Temp: Lodwar



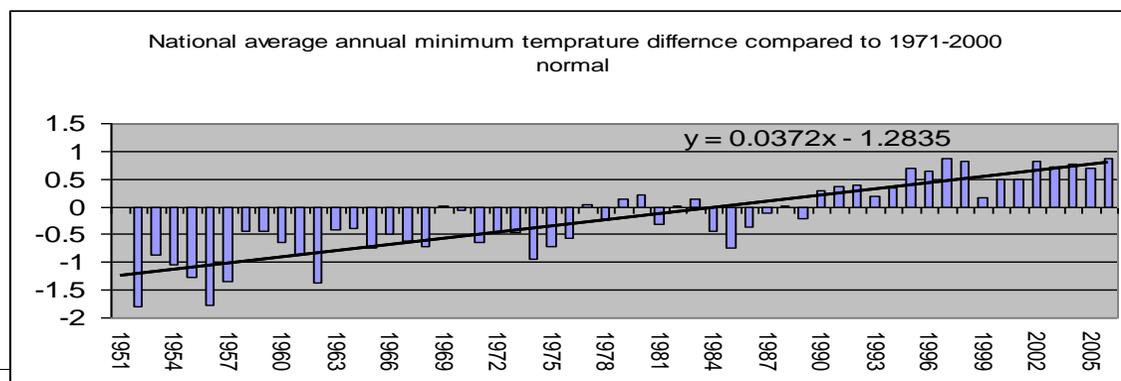
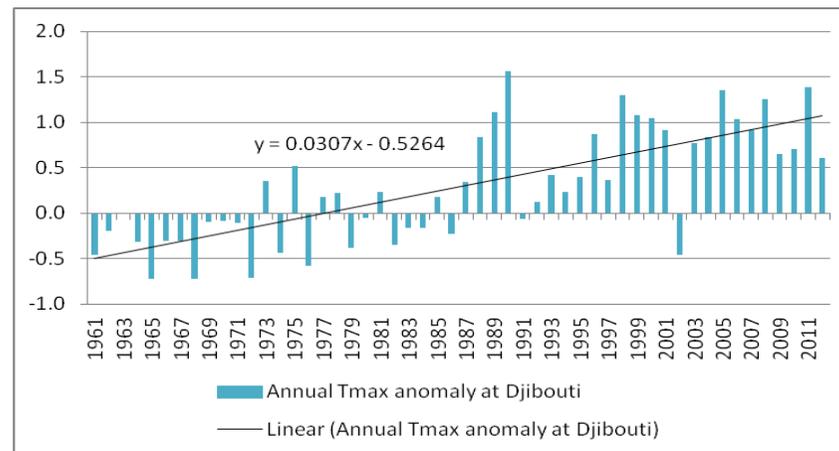
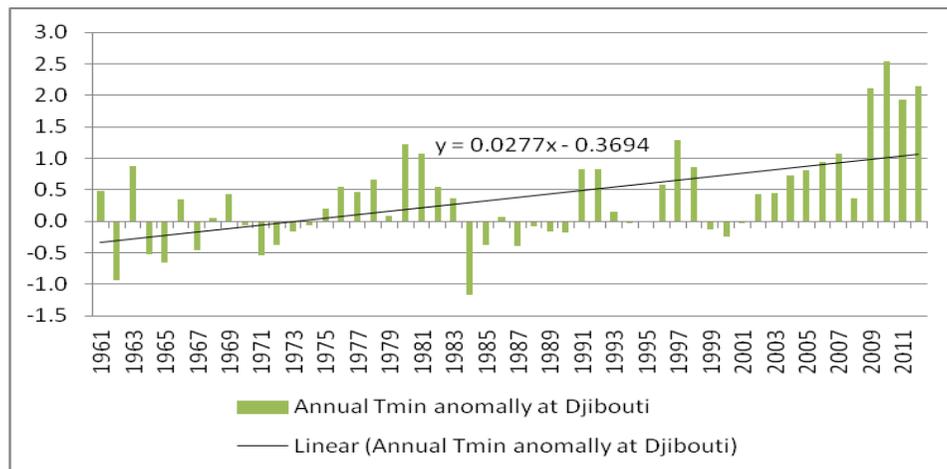
# 3. CLIMATE TRENDS IN THE GHA REGION

## Annual temperature variability and trends



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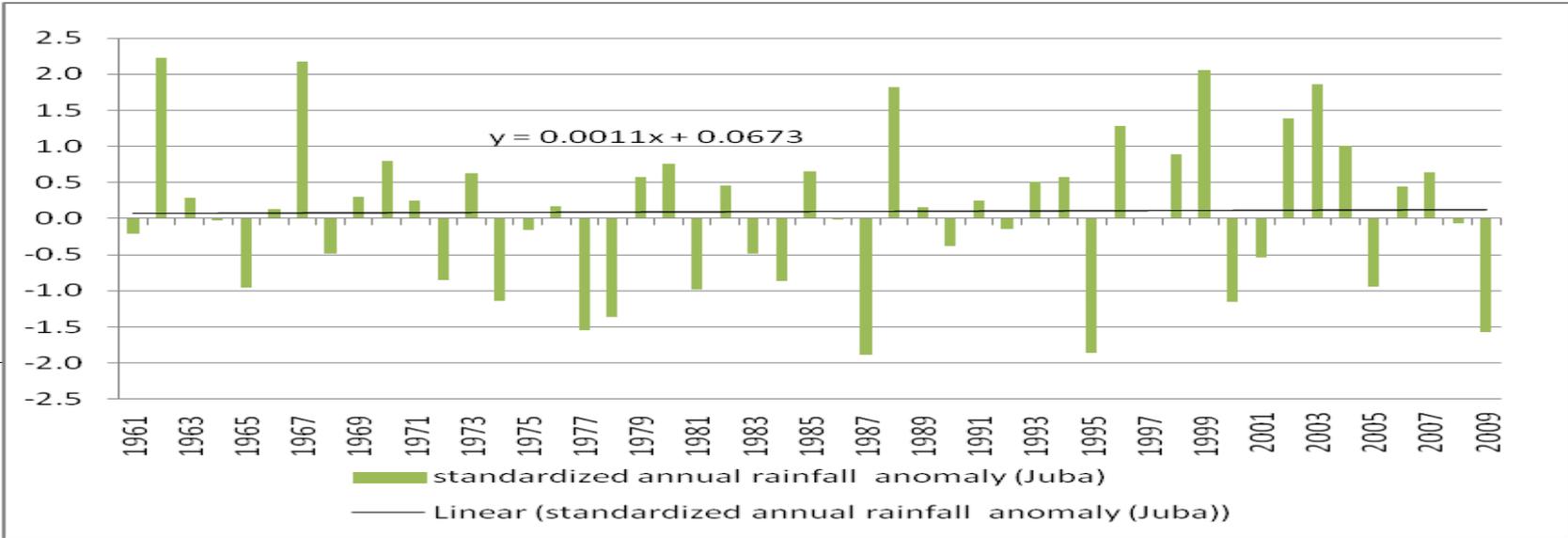
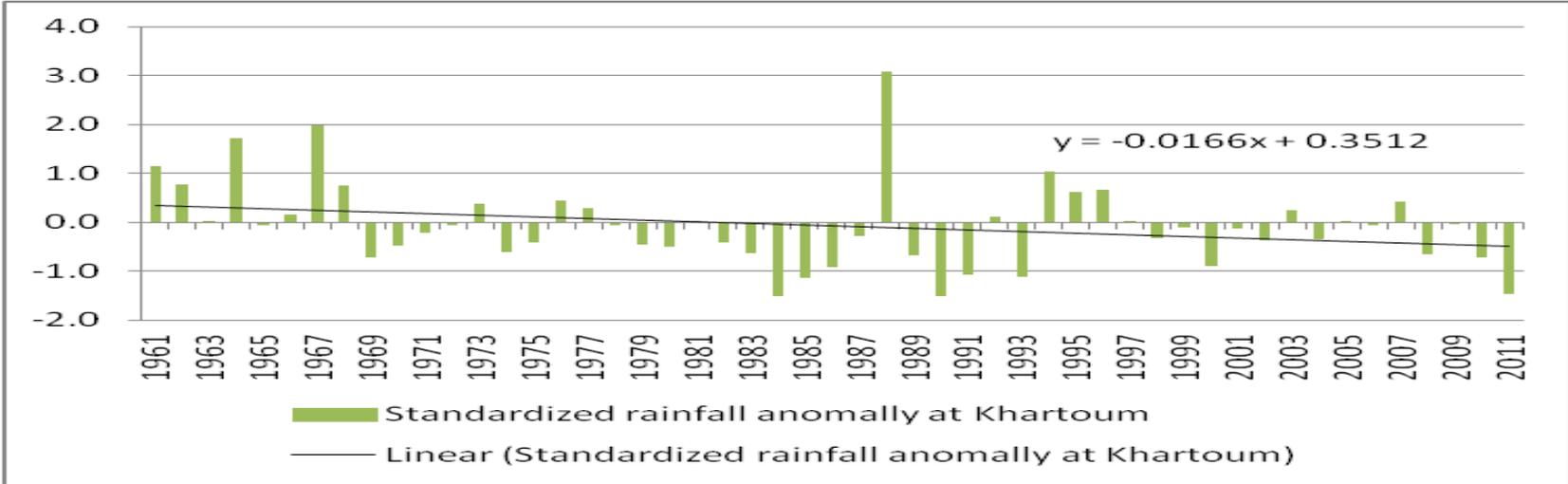


*Variability and trend of annual mean minimum temperature annual mean maximum temperature at Djibouti (Authors own analysis).*



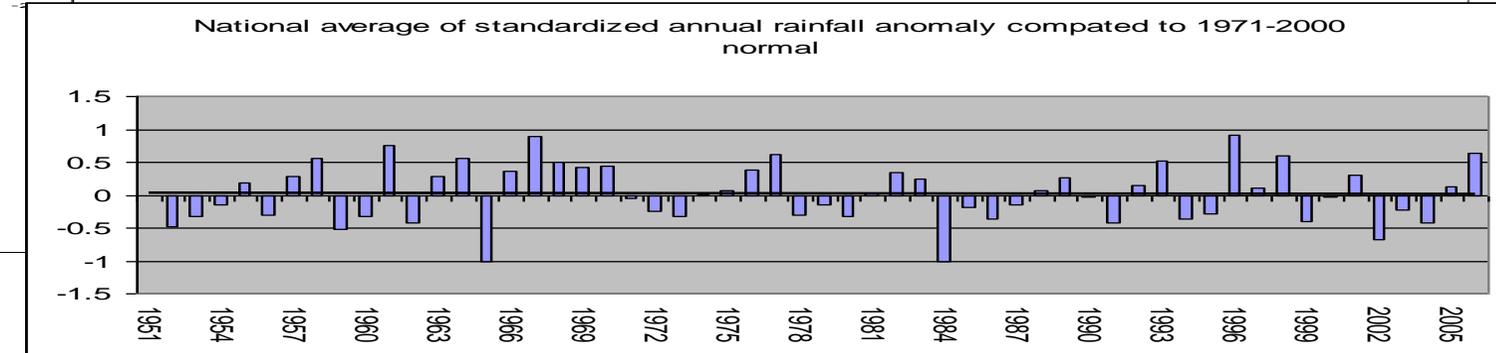
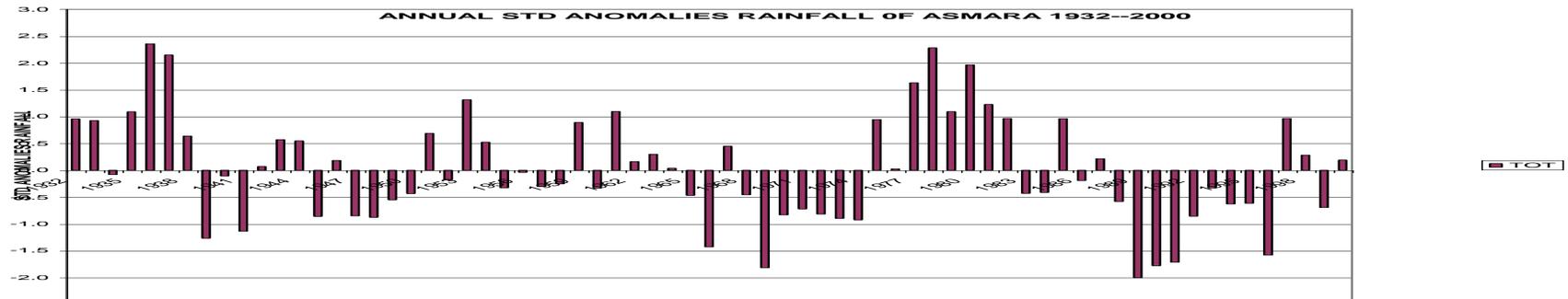
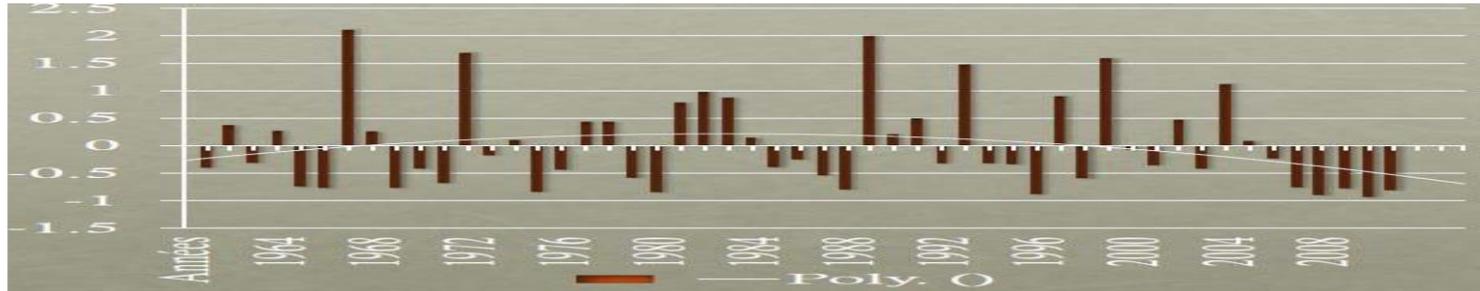
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## Annual rainfall variability and trends



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*Annual Rainfall Variability and trend at Djibouti 1964-2011 ( Source: ICPACs)*



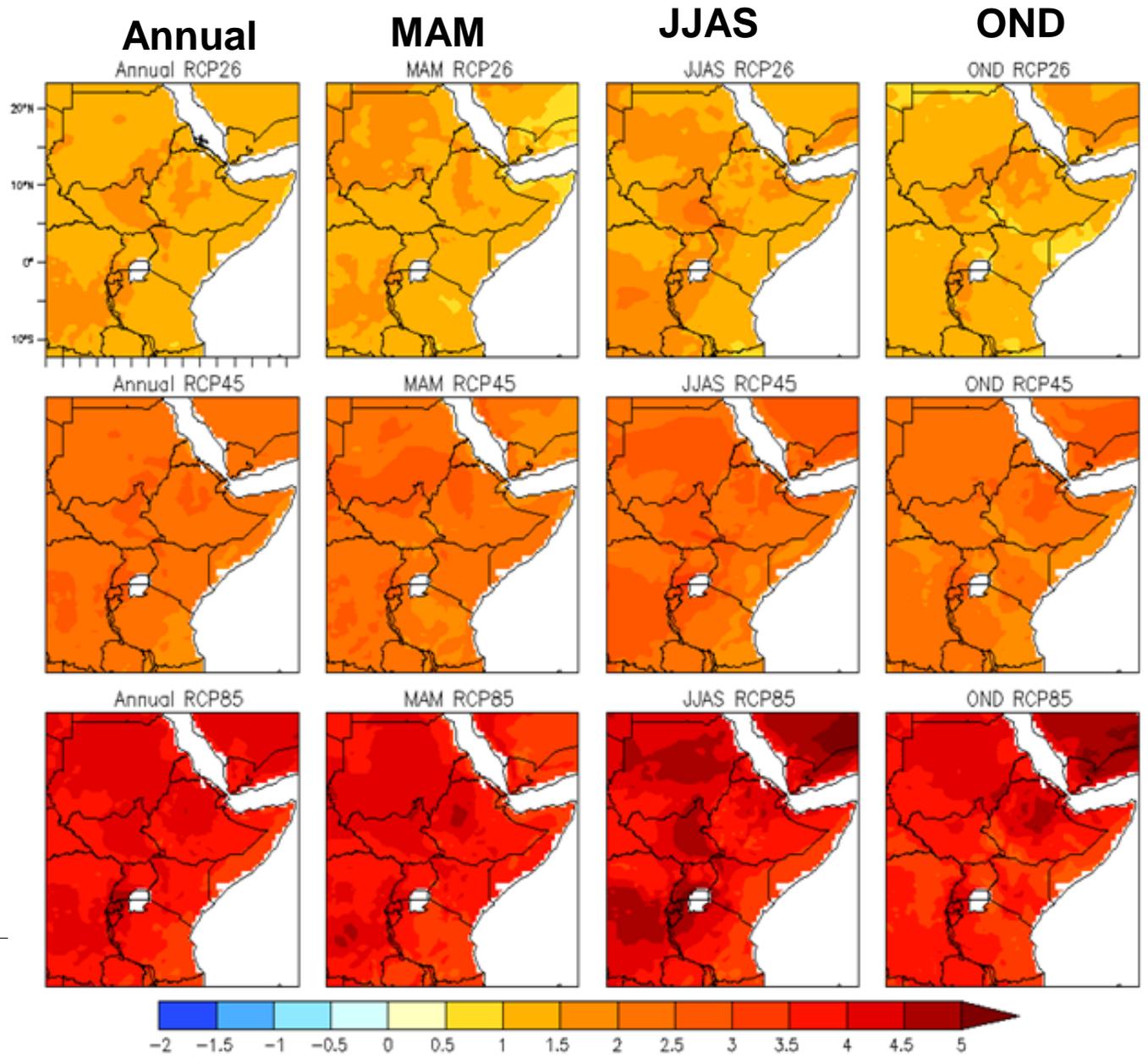
# 4. CLIMATE PROJECTIONS IN THE GHA REGION

Future  
Temperature  
projections

RCP26  
2080

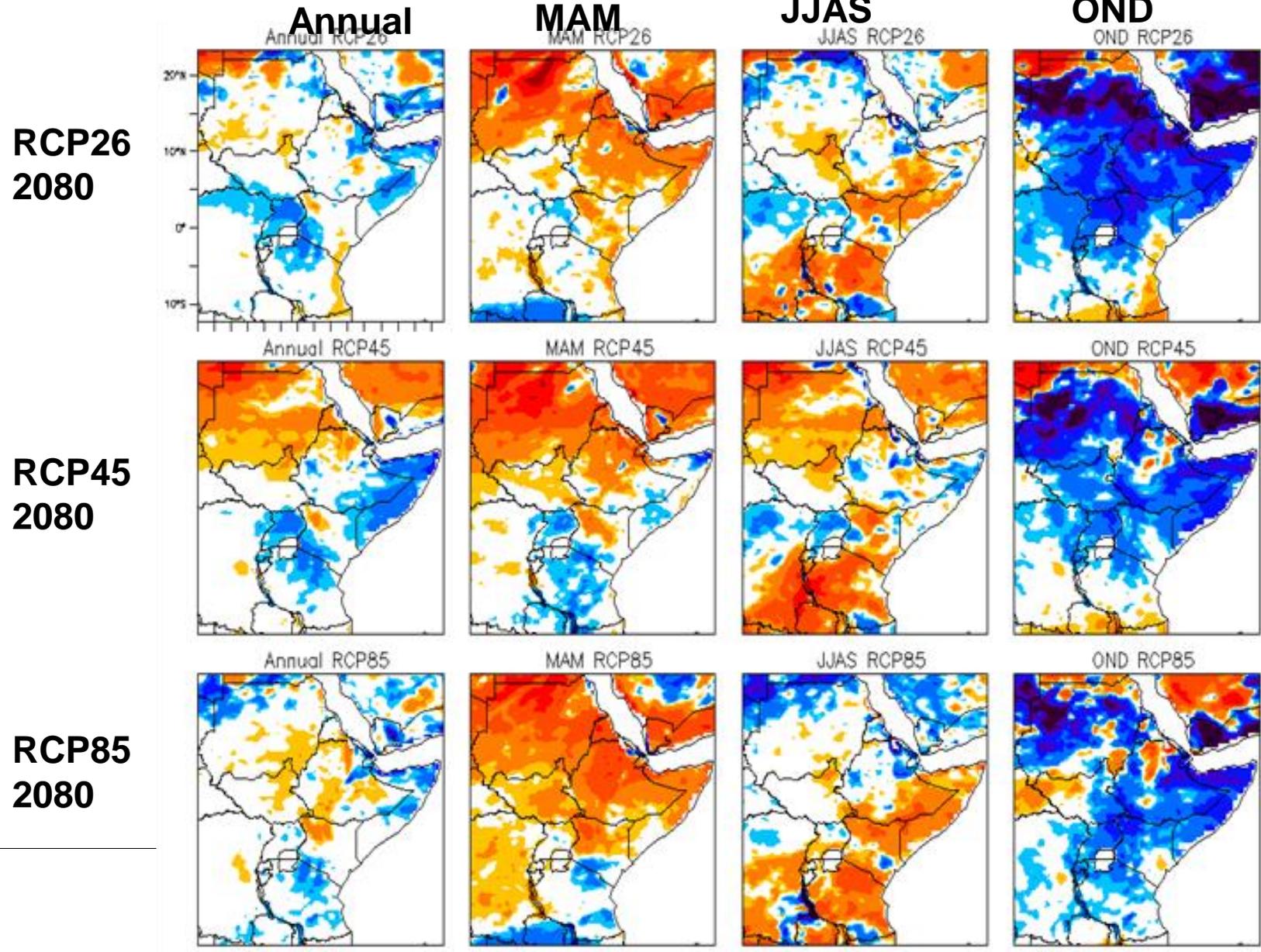
RCP45  
2080

RCP85  
2080



# 4. CLIMATE PROJECTIONS FOR THE GHA REGION

Future  
Rainfall  
projections



RCP26  
2080

RCP45  
2080

RCP85  
2080

Annual

MAM

JJAS

OND

Annual RCP45

MAM RCP45

JJAS RCP45

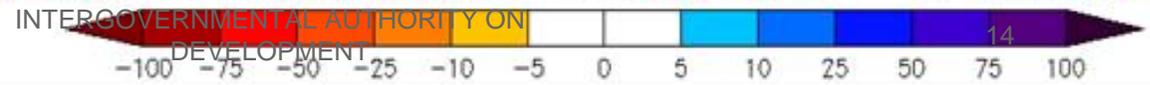
OND RCP45

Annual RCP85

MAM RCP85

JJAS RCP85

OND RCP85



# 5. IMPACTS OF CLIMATE CHANGE

Climate change is having global, regional, national and local impacts

- Increasing temperatures
- Melting of glaciers and icebergs
- Sea level rise
- Food security, water availability, health, ecosystems
- Natural disasters because of climate extremes (droughts, floods, heat waves)
- Increased migration/displacement /conflict

# 6. RESPONSES TO CLIMATE CHANGE

- UNFCCC in 1992
- Kyoto protocol in 1997
- Paris Agreement in 2015
- Regional and national climate Policies, Acts, Strategies, Action plans, National reports (NAPAs, NAPs, NDCs, CRGEs, National communications)

# 6. RESPONSES TO CLIMATE CHANGE

IGAD Regional Climate Change Strategy (IRCCS) drafted and validated in 2016 pending approval by IGAD council of Ministers

The strategy has identified 8 sectoral and cross- sectoral priority areas. The most immediate priorities the strategy plans to do are:

- **Capacity building for addressing climate change challenges and meeting INDCs, NAPs, NAPAs, GHG inventories**
- **Research and Assessments**
- **Development of Decision support tools**
- **Strengthening early warning systems**
- **Data, information and knowledge Management**
- **Establishments and implementation of sub-regional forums and networks**

# 7. OPPORTUNITIES & CHALLENGES

## Opportunities

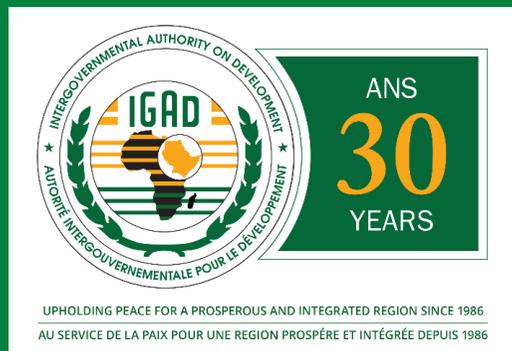
- Technological leap frogging
- Access to climate finances
- Capacity building opportunities
- High political support
- SDGs, Agenda 2063, Sandi framework for DRR, GFCS, Regional and National Development plans

## Challenges

- Slow in implementation of climate change polices, strategies and action plans
- Low literacy of the urgency of the climate change problem
- Institutional and human capacity
- Data availability and access
- Limited understanding of impacts of climate change on socio-economic and natural systems of the region
- Climate change requires huge coordination effort

# 8. THE WAY FORWARD

- Urgent action is needed to fight climate change and **implementation of government commitments** is critical
- Engagement at every level starting from personal level is critical
- More data collection and exchange is essential
- More research and studies needs to carried out
- Improved coordination, institutionalization and legislation of climate change issues at all levels
- We need to promote partnership and collaboration
- Communication and outreach
- Improved coordination and governance of climate change issues
- More human and institutional Capacity development



**THANK YOU VERY MUCH!**

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