THE STATE OF CLIMATE OF UGANDA IN 2018

PRESENTED AT THE JOINT SECTOR REVIEW MEETING OF MINISTRY OF WATER AND ENVIRONMENT,

24TH - 26TH SEPTEMBER 2019

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Presentation Outline

1. Background
2. Data, Tools and Methods
3. National Climate Assessment
4. Regional Climate Assessment – Temperatures (Western and Eastern regions)
5. Climate - a Catalyst for Industrialisation

1-Background

The Annual State of Climate reveals the extent of climate variability and change at three different levels.

❖**At Global Level:** The Annual State of the Global Climate is prepared and published by World Meteorological Organization (WMO) since 1993.*

❖**At Continental Level:** The State of Climate of Africa is annually prepared and published by African Centre of Meteorological Applications for Development (ACMAD), in Niamey, Niger.

❖**At National Level:** The State of Climate of Uganda is prepared and published by the Uganda UNMA annually since 2017.

2-DATA, TOOLS AND METHODS

2.1-DATA: RANGE AND REFERENCE PERIOD

- Atmospheric Temperature of Uganda : 1950-2018
- Rainfall of Uganda : 1981-2018
- WMO Operational Reference Period: 1981-2010

2-DATA, TOOLS AND METHODS (CONTIN)

- **2.2-TOOLS**

- **CLIMATE DATA OPERATORS (CDO)** – to manipulate and analyse global climate data and to generate weather and climate products for Uganda at high resolution.
- **QUANTUM GEOGRAPHICAL INFORMATION SYSTEMS** (QGIS) - is an open source, software packages/different, user friendly GIS used to viewing, editing, managing and analysis of spatial data with various functions and features. It is cross platform and can be run on Microsoft Windows, Macintosh (Mac OS X) and Linux. (HTTP://WWW.QGIS.ORG/FR/SITE)

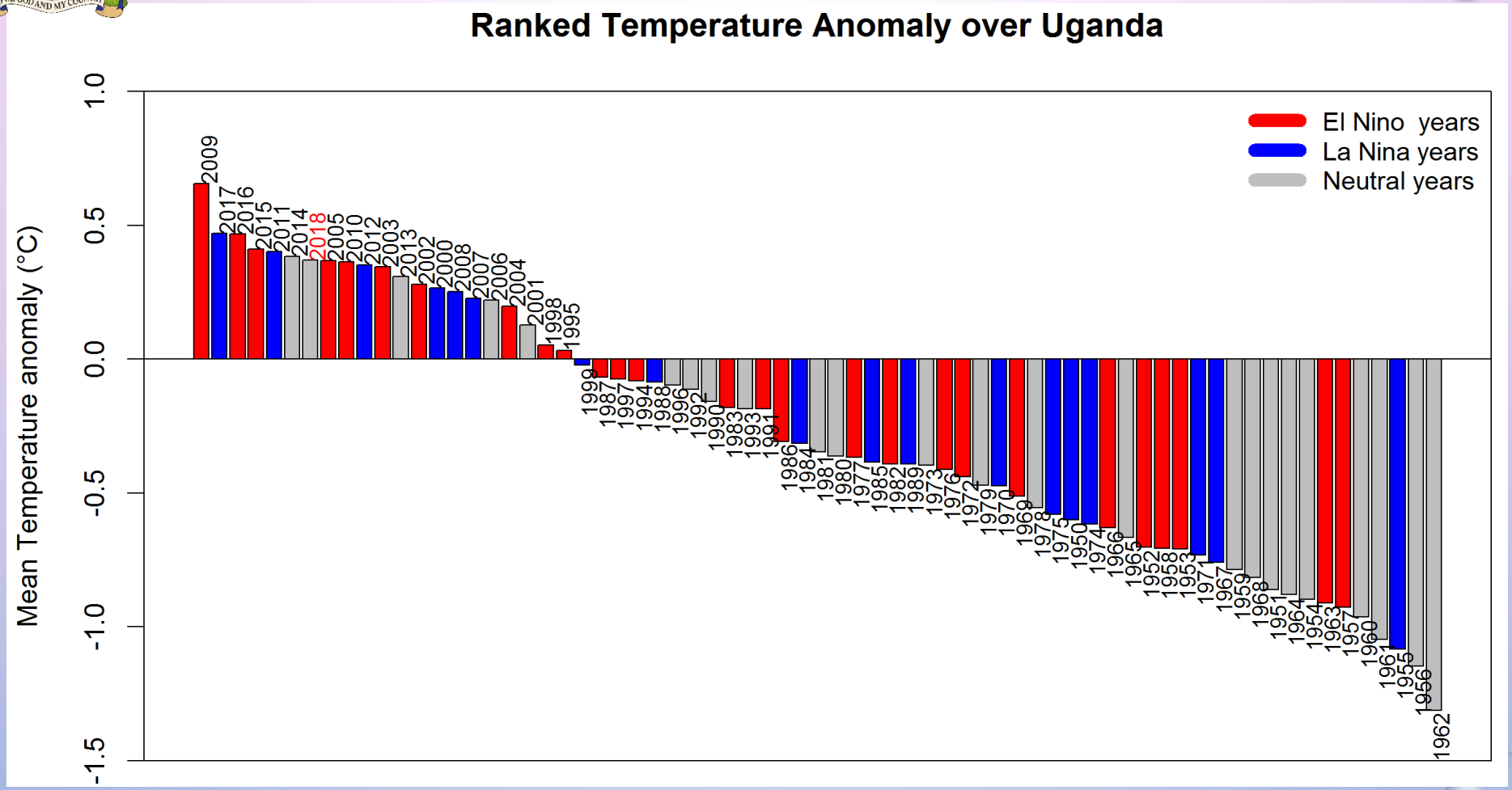
2-DATA, TOOLS AND METHODS (CONTIN)

- **2.2-TOOLS**
- **ORIGINLAB SOFTWARE -** computer programme for data analyse and representing of data sets on a graphs.
- **R SOFTWARE -** is a free, cross platform programming language to manipulate data using statistical methods. (http://www.r-project.org)

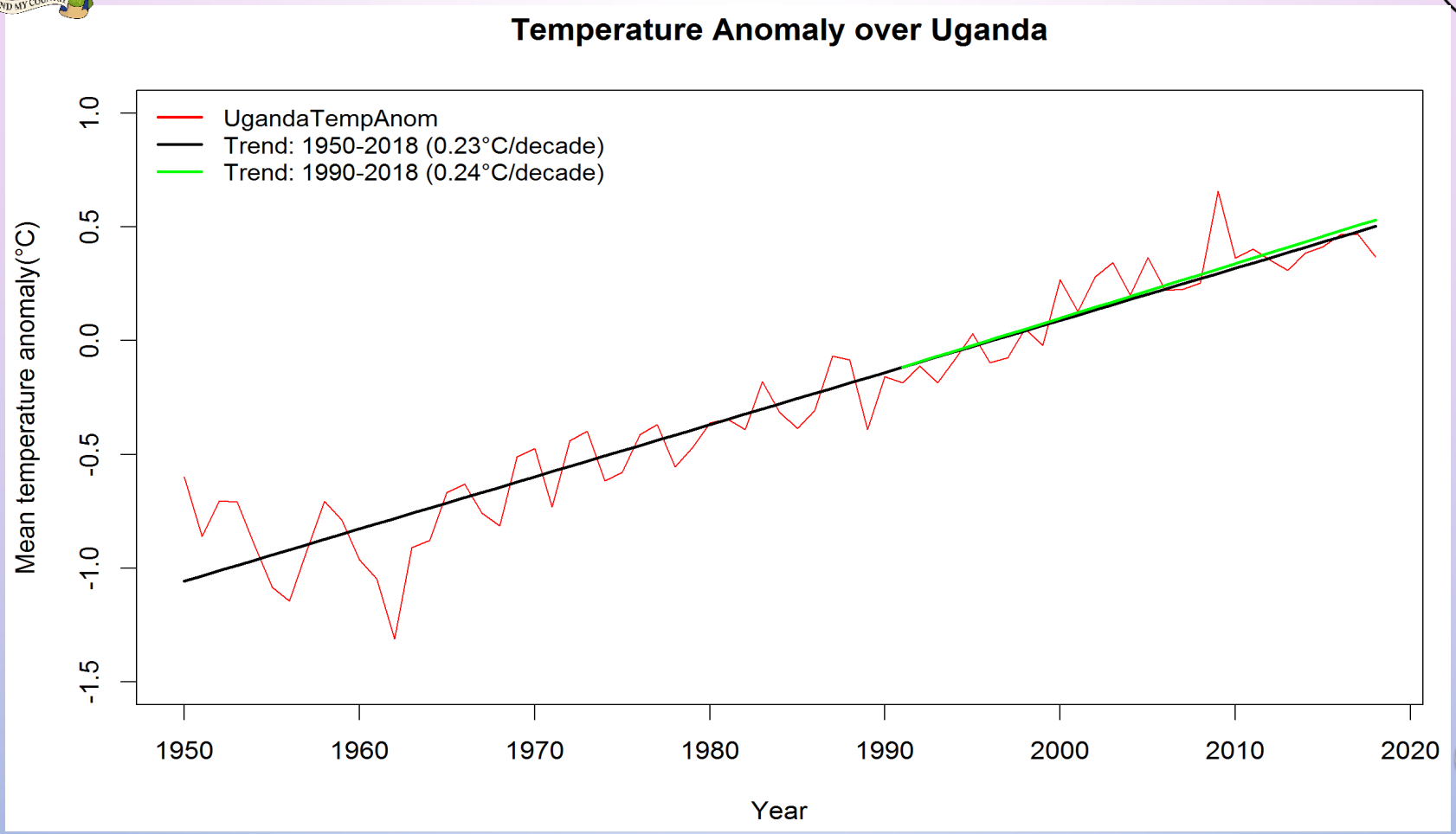
2-DATA, TOOLS AND METHODS (CONTIN)

- **2.3 METHODS**
- Annual rainfall totals expressed as a percentage of average
- Rainfall trend (Linear regression approach)
- Temperature anomalies (departure from the Long Term Mean (LTM)/climatology)

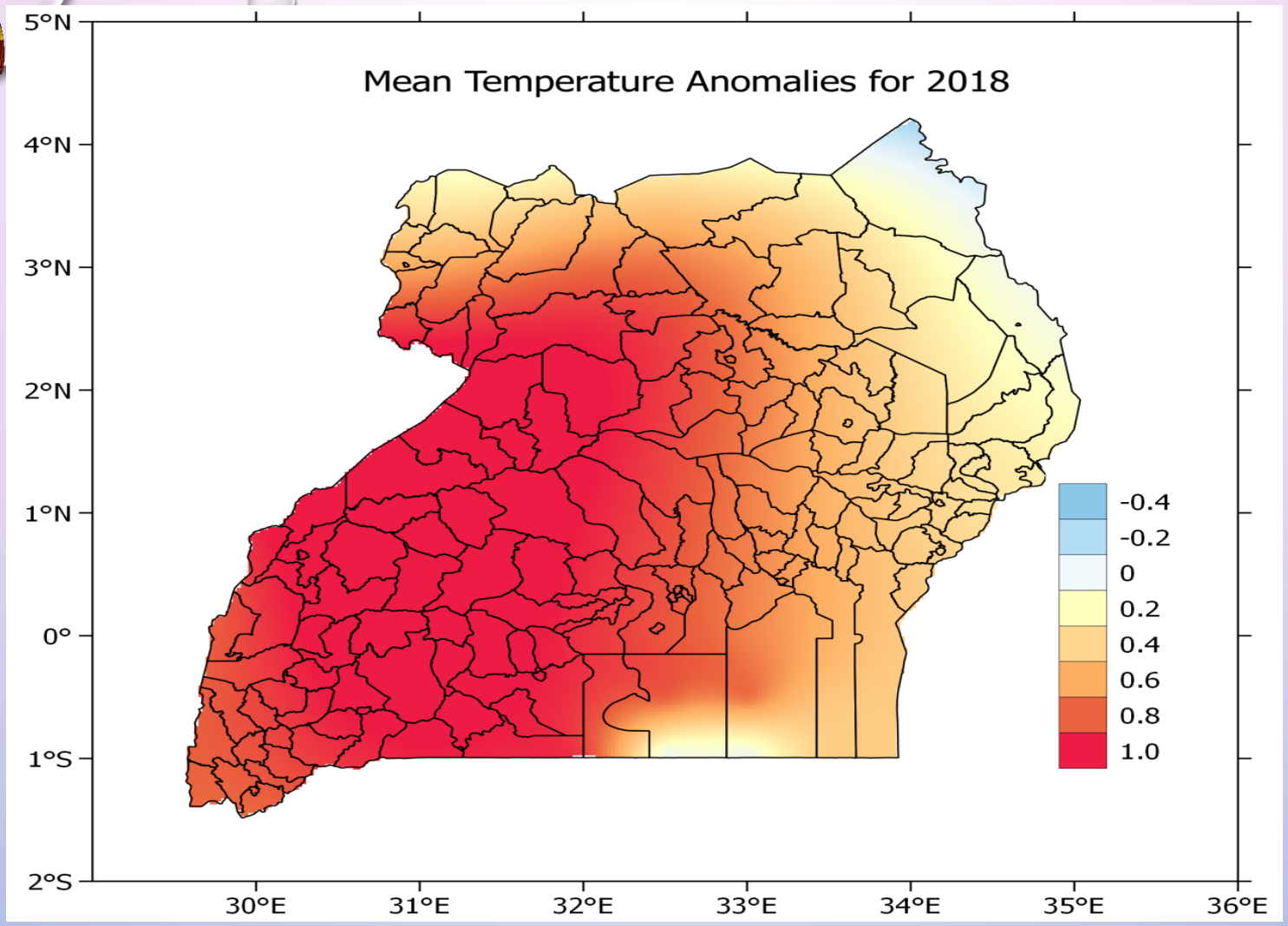
3-NATIONAL ASSESSMENT



Year 2018, was the 7th warmest year on record over Uganda since 1950.
It falls after years: 2009, 2017, 2016, 2015, 2011, 2014

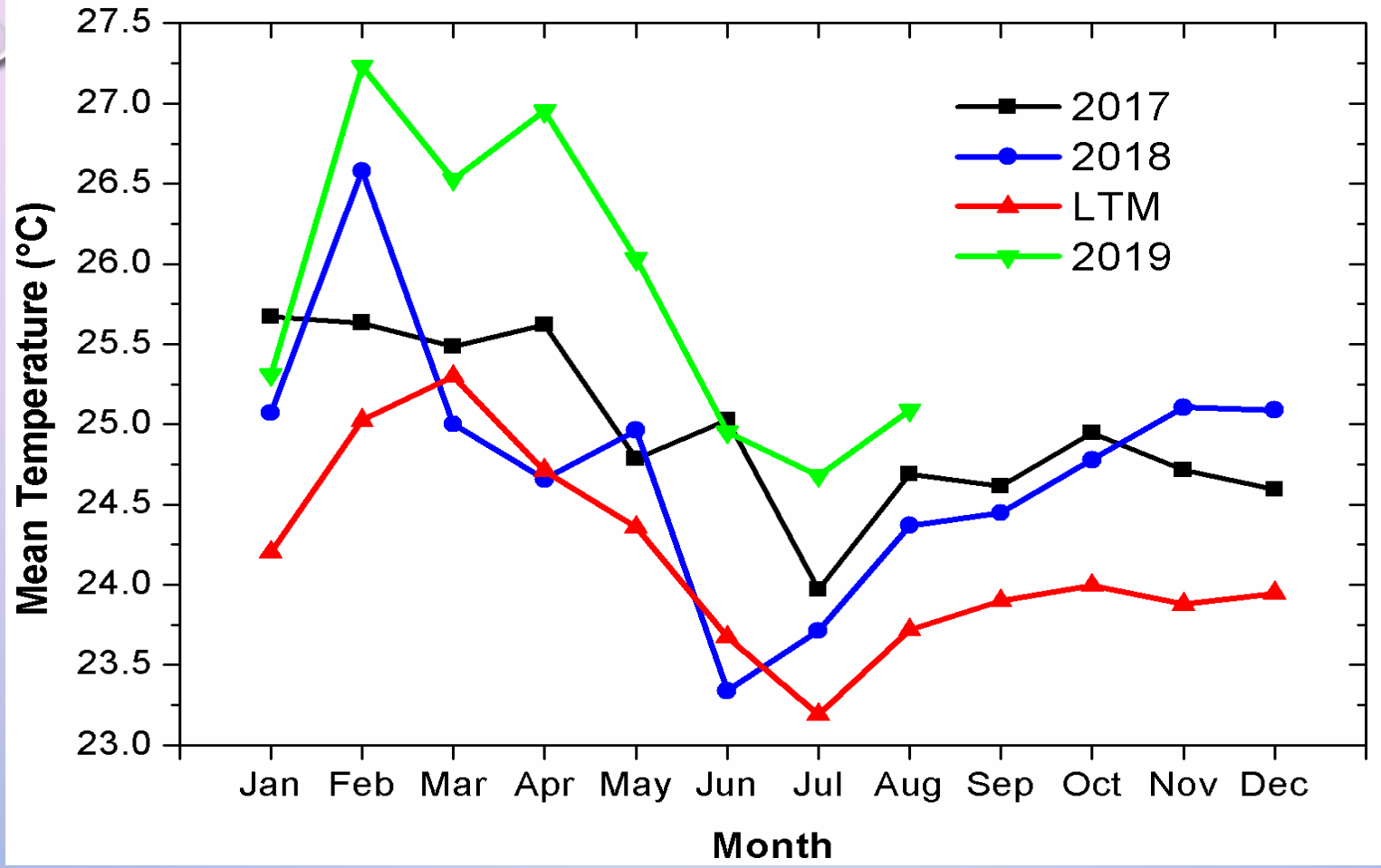


Rate of temperature increase for the period 1950-2018 is 0.23 °C/decade and in recent years:1990-2018, it is slightly higher at 0.24 °C/decade



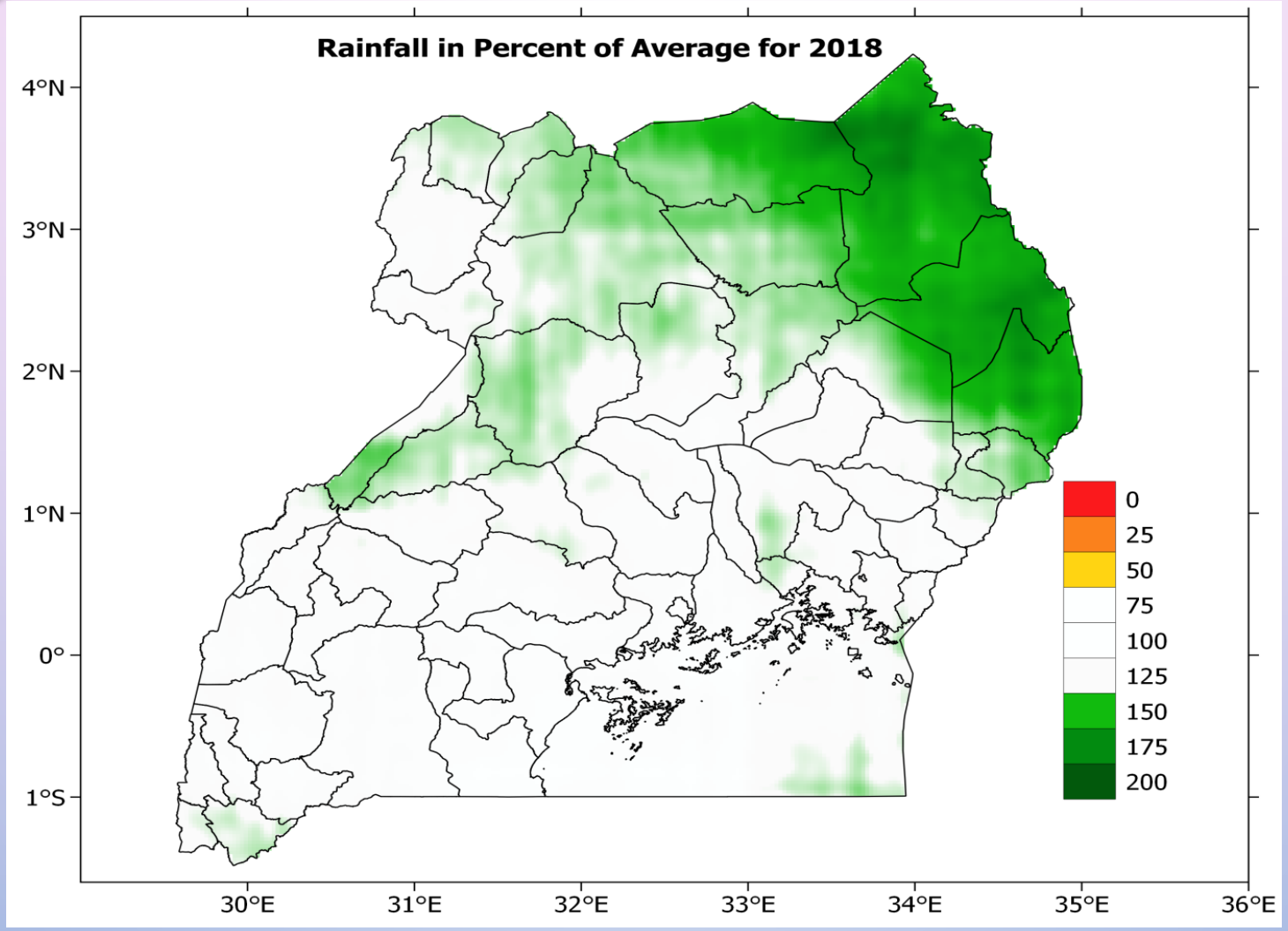
There is higher warming over the western part of Uganda. Need for further study to explain this observation.

Annual Cycle of Temperature for 2017, 2018, climatology (LTM) and 2019

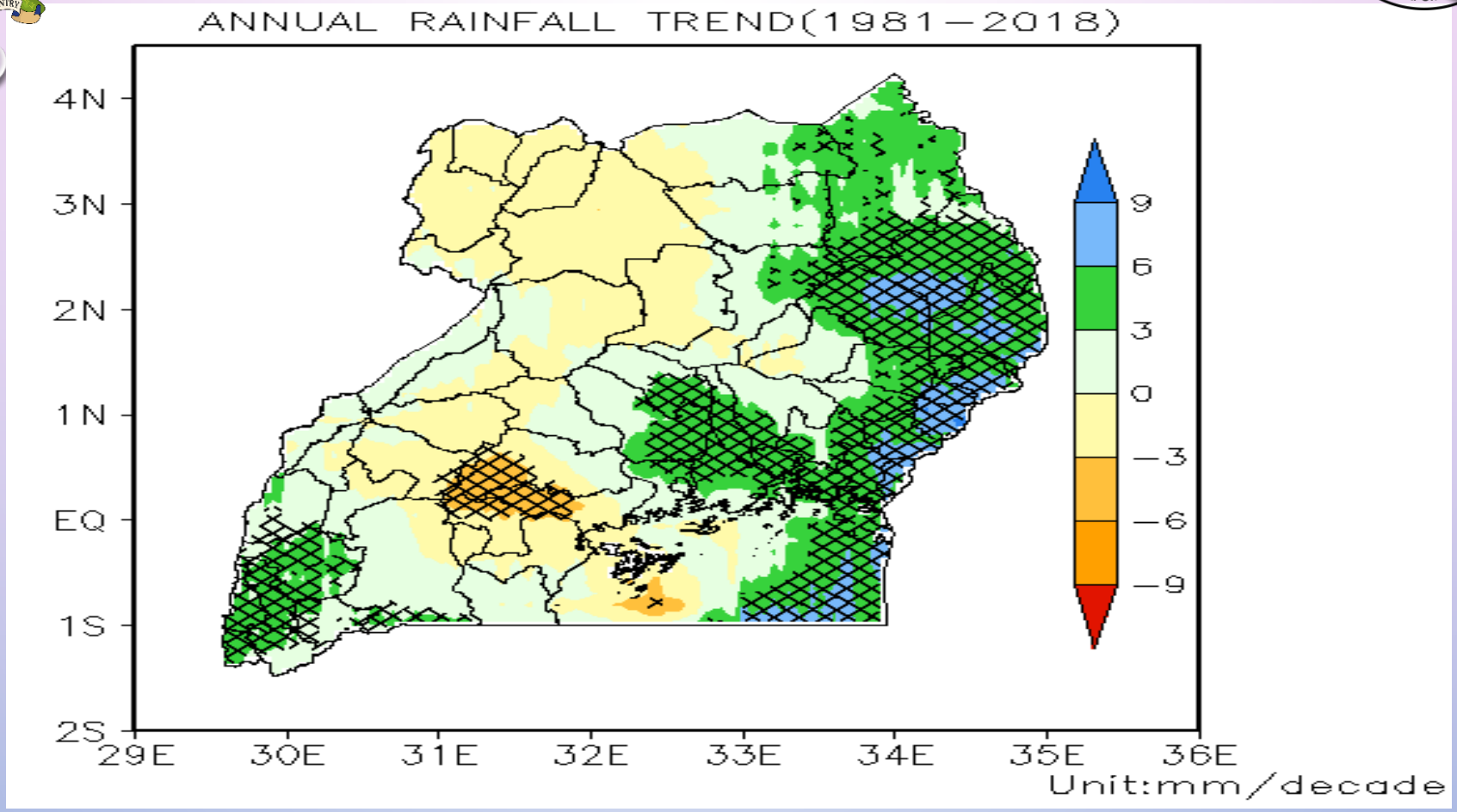


- Year 2018 was only warmer than 2017 during Feb, May, November and December.
- It was cooler than the climatology (LTM) during Mar, Apr and June.
- Year 2019 is so far warmer than both 2018 and 2017, as well as the climatology

Rainfall of Uganda in 2018

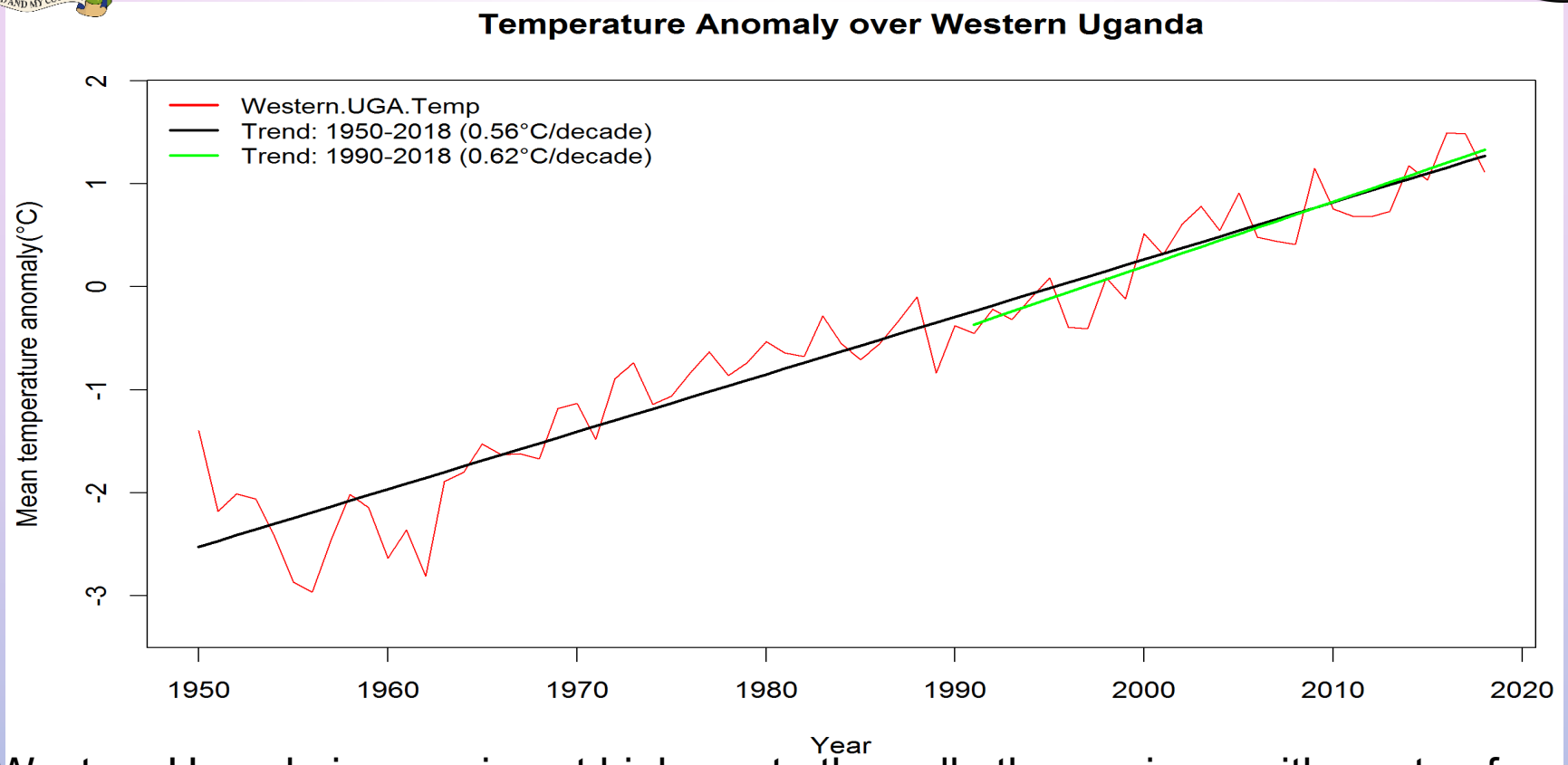


- Most area received near normal rainfall (**75% ≤ Rainfall ≤ 125**)
- Northern and northeastern parts received above normal rainfall **(>125%)**



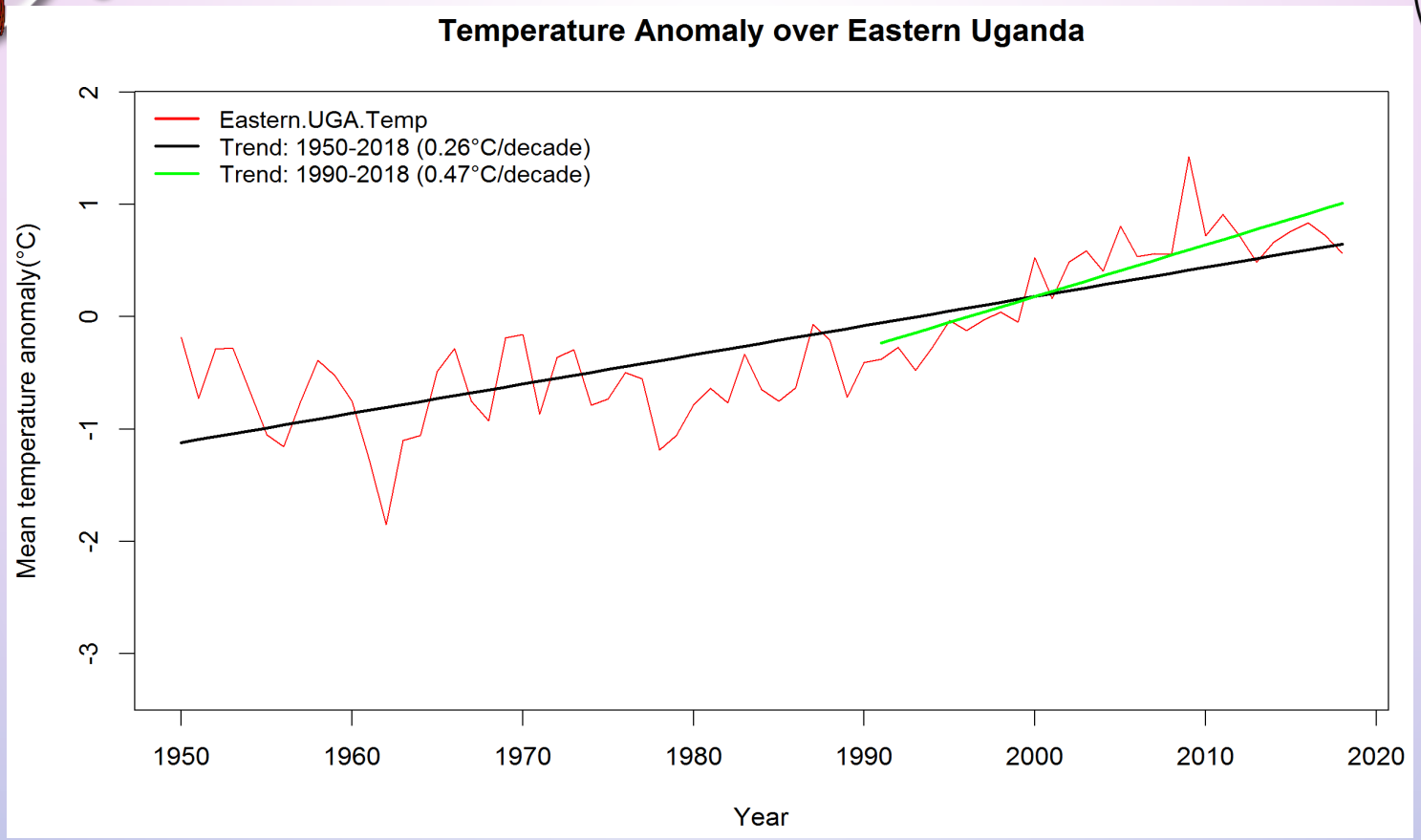
- The shaded areas indicate increasing trend (positive) or decreasing trend (negative).
- The hatched regions show significant increase or decrease at 95% confidence level.
- The eastern and southwestern parts exhibit significantly increasing annual rainfall amounts.

4. Temperature Assessment



Western Uganda is warming at higher rate than all other regions, with a rate of 0.56°C/decade over the period: 1950-2018. The warming rate is even higher in recent years: 1990-2018, at 0.62°C/decade.

Year 2018 was the 5th warmest on record since 1950.



- Eastern Uganda is warming lower rate compared to other regions, with a rate of 0.26°C/decade over the period: 1950-2018. The warming rate is higher in recent years: 1990-2018, at 0.47°C/decade.
- Year 2018 was the 11th warmest on record since 1950.

5. Climate – A Catalyst for Industrialisation

1. The Annual State of Climate of Uganda reveals the extent of climate variability and change in 2018.
2. It is meant to raise awareness and help in formulation of plans and policies, particularly by Policy and Decision makers.
3. Given the observed rates of temperature rise over Uganda and its regions, there is need to take care of our climate as we strive for industrialisation.
4. A favourable climate ensures availability of raw materials including water and energy resources for our industries. It is also a key factor in the wellbeing of the workforce (labour);
5. Green development that carefully considers the environmental and social impacts of development needs to be embraced so as to achieve sustainable development (minimising emission of greenhouse gases (GHGs) into the atmosphere);
6. Stakeholders need to make use of the freely available weather and climate products (seasonal, dekadal and daily forecasts) and other information/ advisories from UNMA as a catalyst for Uganda's industrialisation.

THANK YOU FOR

LISTENING