

Using of Remote Sensing data for Monitoring of Drought related Surface Water Stress in Pastoral Areas of Uganda

BY

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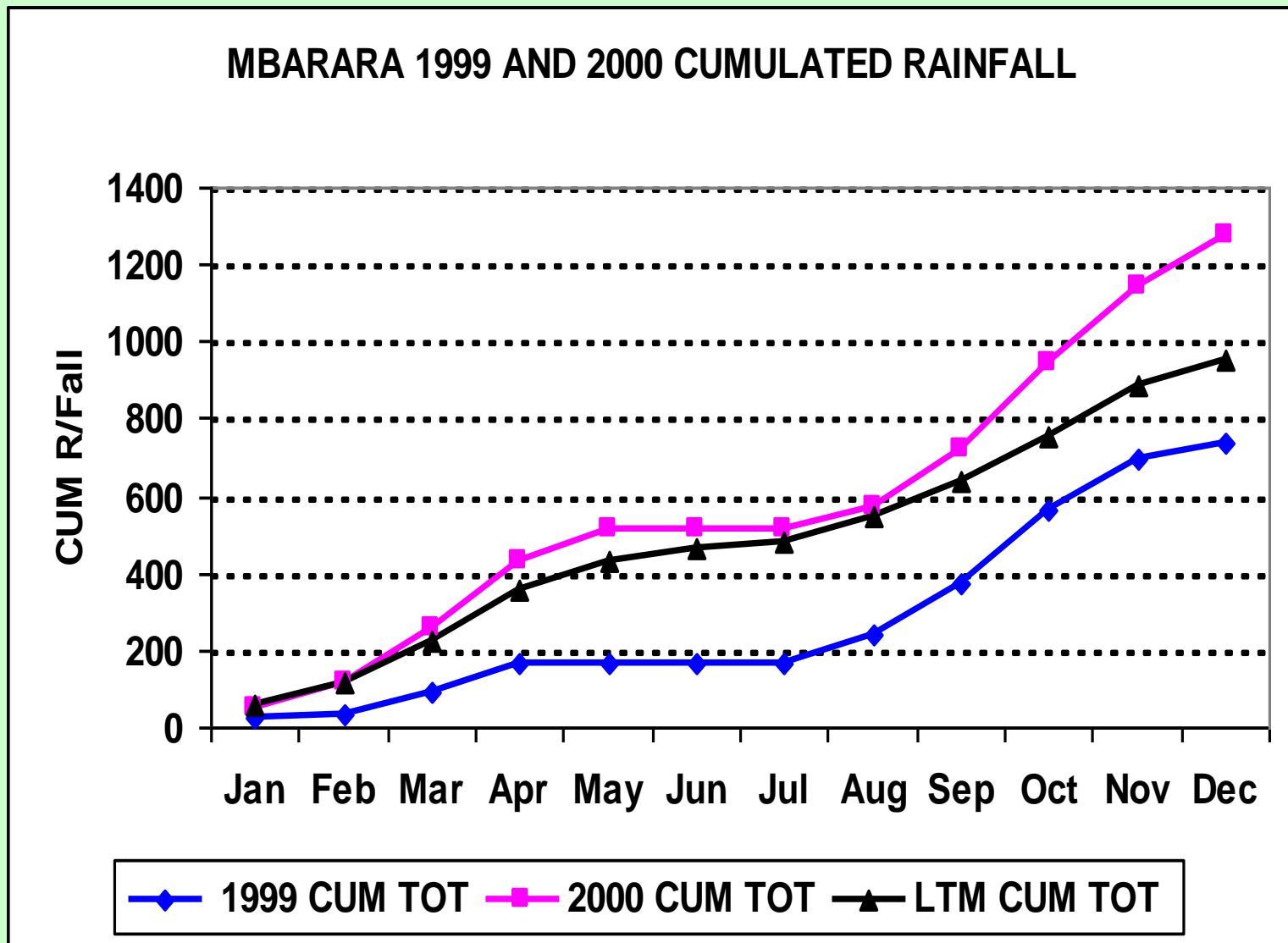
MINISTRY OF WATER AND ENVIRONMENT

UGANDA NATIONAL METEOROLOGICAL AUTHORITY

Introduction

- Drought is normally considered as a consequence of natural reduction in the amount of precipitation received over an extended period of time.
- Droughts often hit various climatic regions of Uganda, bringing significant water shortages, economic losses and adverse social consequences.
- The land areas recover from drought when the rains return, but continued land abuse during droughts increases land degradation.

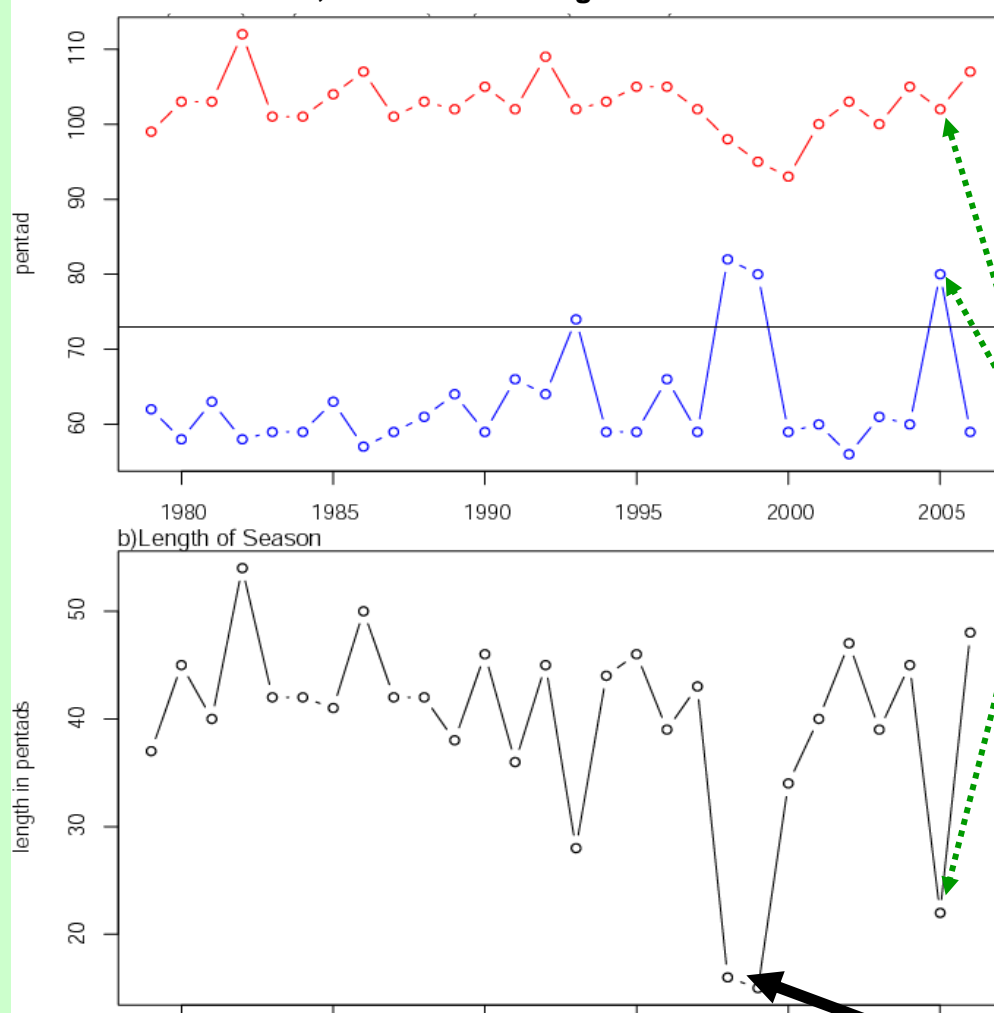
Mbarara 1999 drought



Analysis of recent severe droughts in Teso region (Soroti)

**Crop failure
(2005 Drought)**

Soroti 1998, 1999 & 2005 drought due to late onset

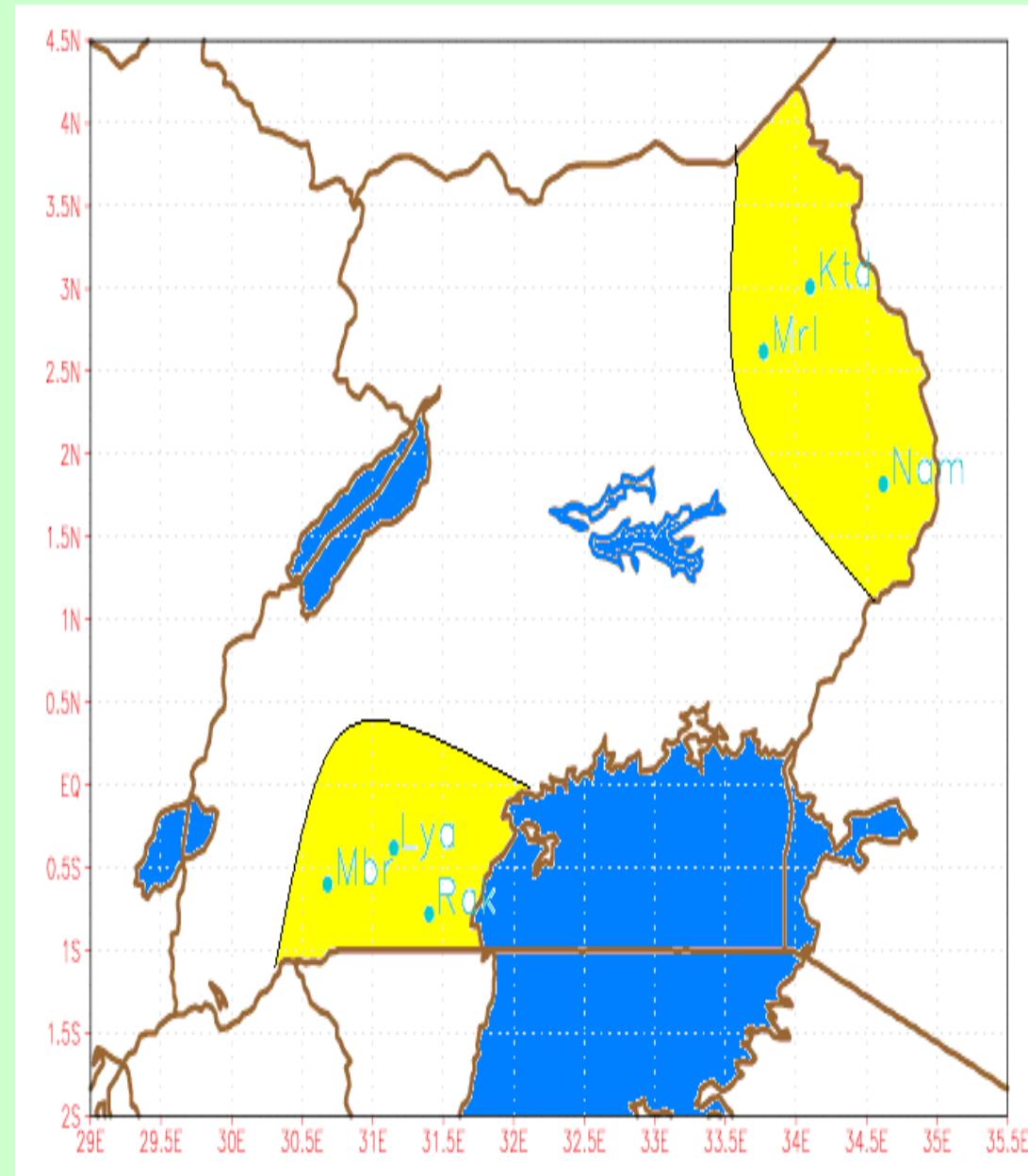


Assessment shows that very late start of the rains was responsible for the 1998, 1999 & 2005 disaster

Analysis also clearly detects the severe 1998, 1999 & 2005 drought

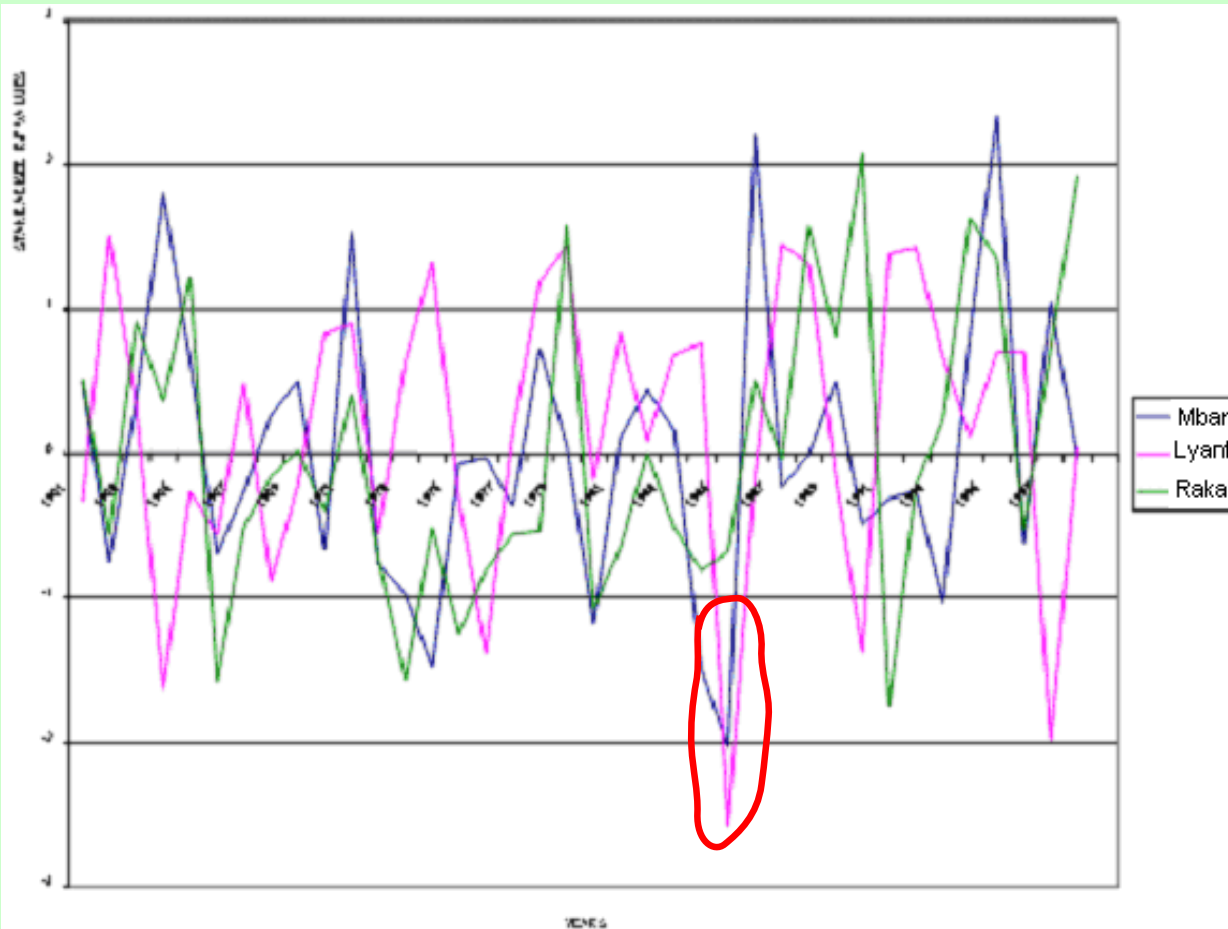
Study on Drought using rainfall and NDVI Data

- NOAA (1983 – 2011) NDVI dataset were used in the study.
- Rainfall data (1960-2011) for six gauge stations from UNMA. Kotido, Namalu and Morulem in north-eastern; and Mbarara, Rakai and Lyantonde in South-western Uganda

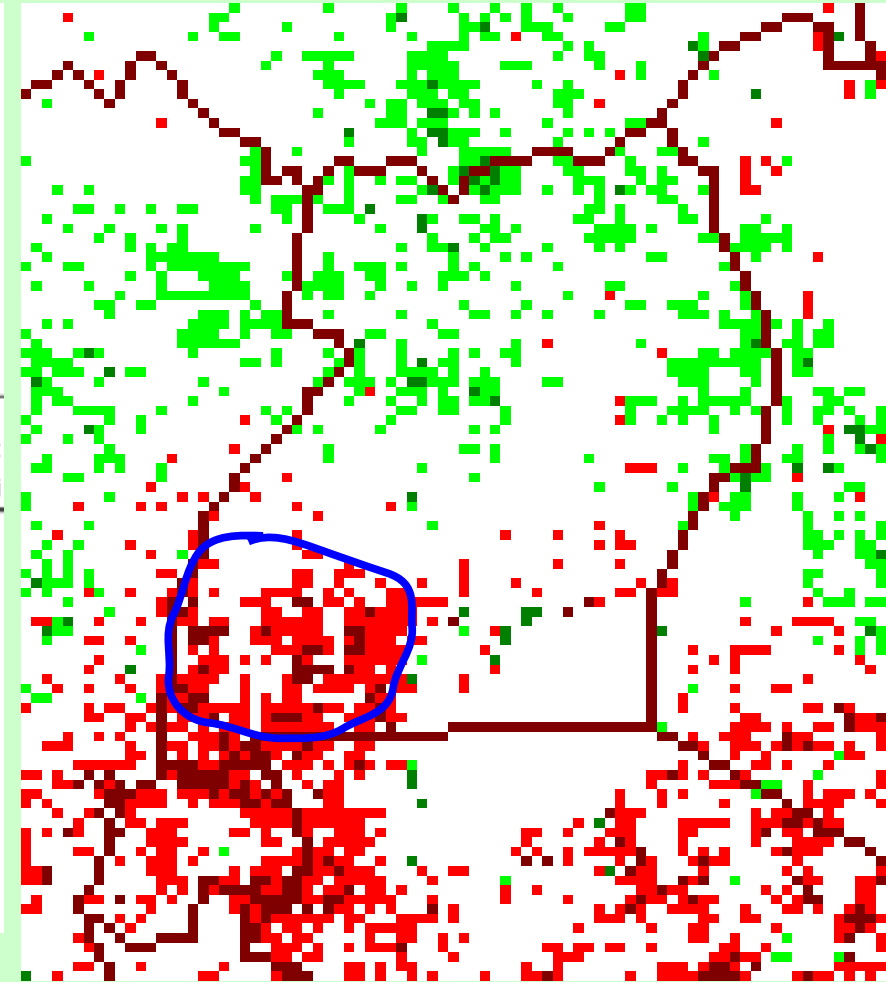


Results of the study

MAM Inter-annual rainfall variability; Mbarara, Lyantonde & Rakai

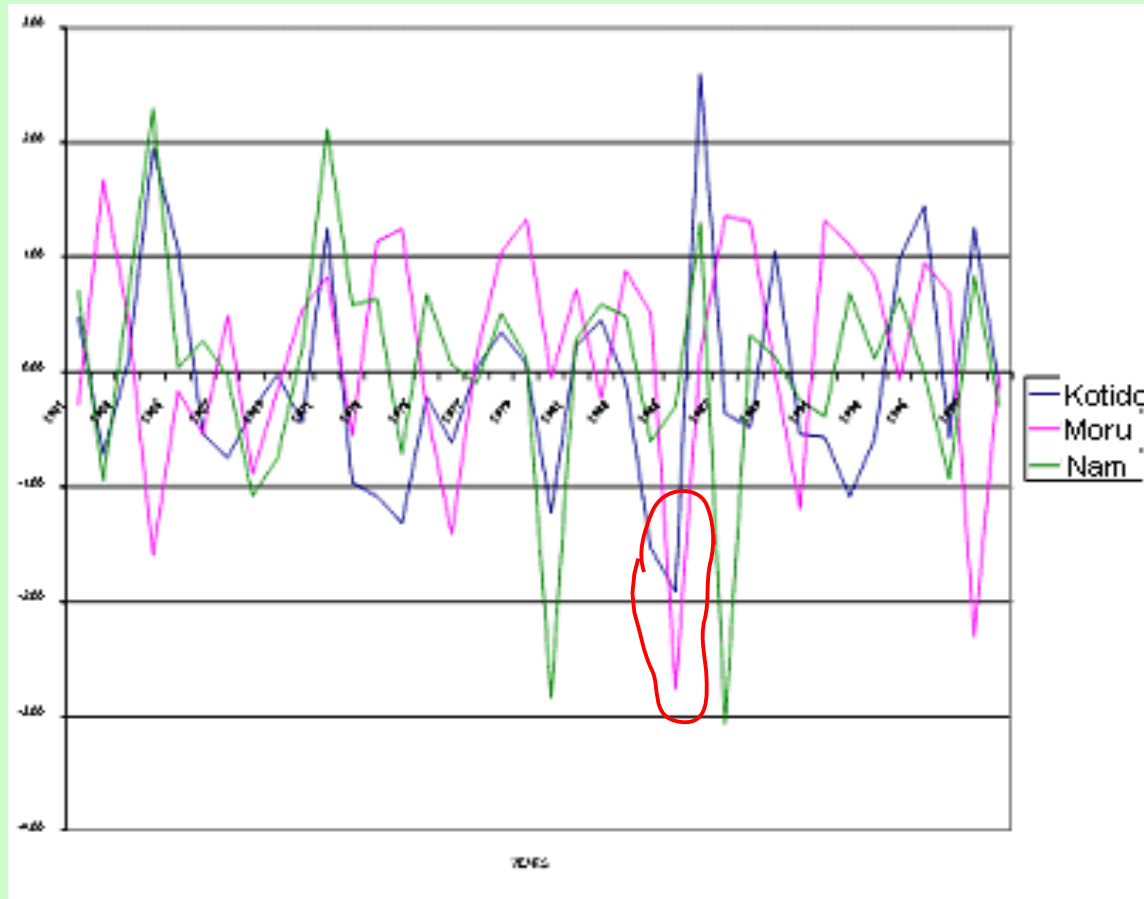


NDVI JJA; Difference of 2005 from LTM

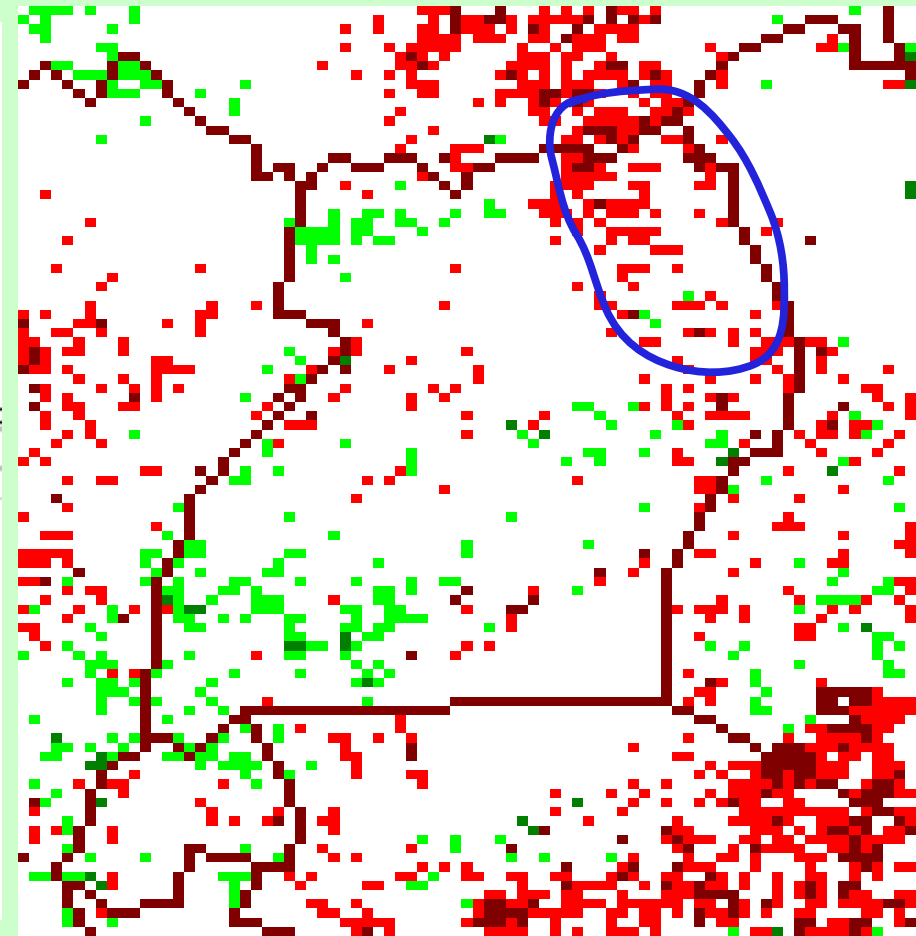


Results

SON Inter-annual rainfall variability; Kotido, Morulem & Namalu



NDVI DJF; Difference of 2011 from LTM



We need an Early Warning System (EWS) to respond to impacts of weather related risks effectively

- This can be a multi-institutional effort where every stakeholder plays a part . EWS as a strategy to address the needs of vulnerable communities living in the floods and drought-prone regions of Uganda can be designed.
- On our part as Meteorology, the baseline for this strategy is provision of timely and accurate weather information to all stakeholders.

Role of Media in EWS strategy

- The other important component of our EWS is the Media. When information is released, the role of the media is to draw the attention of all stakeholders on the forecasts and the anticipated impacts to the poor communities.
- Attempts to accurately pinpoint areas vulnerable to impacts of extreme weather, the potential risks and hazards can be averted when right decisions are made.

Conclusion and Recommendations

- Results show that; on average the Pastoral areas of South-western and North-eastern regions are not severely affected in the same periods.
- It is also evident that NDVI can be used in monitoring of droughts and water stress in the dry pastoral regions of Uganda hence EWS can be designed for mitigation and proper use of the already marginalized lands.

END

**Thanks for
your attention**