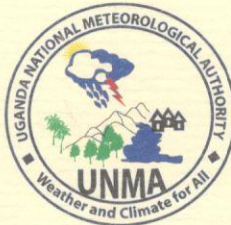


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Ref: SCF/MAM/2021

19th February, 2021

MARCH TO MAY 2021 SEASONAL RAINFALL OUTLOOK OVER UGANDA

1.0 General Forecast

March-April-May (MAM) constitutes the first major rainfall season over Uganda. Overall, there is an increased likelihood of **near normal (closer to average rainfall conditions) to above normal (wetter than usual) rainfall** over several parts of the country. The onset of seasonal rains is expected in late February in the southern parts of the country and Lake Victoria basin with a gradual progression through Central to Eastern, Northern and in North-eastern at around late March to Mid- April 2021.

The onset of seasonal rains is anticipated to be characterized by severe isolated lightning, thunder and hailstorms.

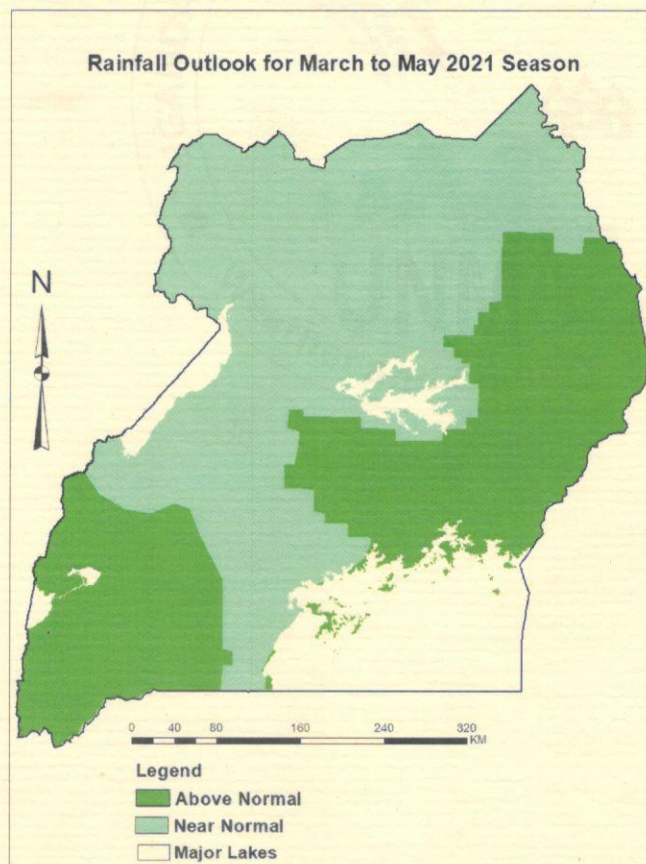


Figure 1: Seasonal climate outlook for March to May (MAM) 2021

2.0 Detailed Forecast

The major physical conditions that are likely to influence the rainfall outlook for MAM 2021 over Uganda include: -

- i. The current and evolving Sea Surface Temperature (SST) anomalies over global oceans, specifically the increased probability for Neutral El Niño Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) through the MAM 2021 period;
- ii. Intra-seasonal variations such as the influence of a weaker shift to active Madden Julian Oscillations (MJO) which are most significant over the region (slightly wetter);
- iii. The influence of regional circulation patterns, topographical features and large inland water bodies;

Based on the above considerations as well as details of the climatology of Uganda and scientific tools for climate analysis and prediction, Uganda National Meteorological Authority (UNMA) has come up with the following detailed rainfall outlook:

2.1 Western Uganda

2.1.1 South Western: (Kisoro, Kabale, Rubanda, Rukiga, Rwampara, Kazo, Rukungiri, Kanungu, Ntungamo, Mbarara, Kiruhura, Isingiro, Ibanda, Kitagwenda, Bushenyi, Buhweju, Mitooma, Sheema, Rubirizi and Kasese) districts.

Most parts of this region have been experiencing occasional rains since January 2021. The onset of the seasonal rains is expected to occur around late February to early March 2021. The peak of rains is expected around early to mid-April and cessation around late May to early June. Overall, the region is expected to receive near normal (closer to average rainfall) with a high tendency to above normal (above average rainfall).

2.1.2 Central Western: (Bundibugyo, Ntoroko, Kabarole, Kyenjojo, Kyegegwa, Kamwenge, Kibaale, Kikuube, Bunyangabu, Kakumiro, Kagadi, Hoima, Buliisa, Masindi) districts

This region has been characterized by dry conditions and isolated showers since January 2021. The onset of seasonal rains associated with showers and thunderstorms is expected around late February to early March 2021. Thereafter, steady rains are expected to get established with the peak occurring in early to mid-April. Cessation of the seasonal rains is expected in late May to early June. Overall, there is high chance for the region to receive near normal rains with a slight tendency to above normal rains.

2.2 Central Region and Lake Victoria Basin

2.2.1 Western areas of Central region: (Nakasongola, Luwero, Kyankwanzi, Kakumiro, Kasanda, Nakaseke, Kiboga, Mubende, Sembabule, Western Masaka, Lyantonde, Kyotera and Rakai) districts

Dry conditions punctuated by isolated rains have been experienced in this region since January 2021. The onset of seasonal rainfall associated with occasional outbreaks of showers and thunderstorms is expected around early to mid March.

The peak rains are expected around mid April with cessation around late May to early June. Overall, there is high chance of near normal (closer to average rainfall) with slight tendency to above normal rains (above average rainfall) over this region.

2.2.2 Central and Western Lake Victoria region: (Kalangala, Kampala, Wakiso, Masaka, Lwengo, Mpigi, Butambala, Kalungu, Bukomansimbi, Gomba, and Mityana) districts

The region has been experiencing unusual rains and dry conditions over most parts since January 2021. The onset of the rains usually associated with isolated outbreaks of showers and thunderstorms is expected around late February to early-March. The peak rains are expected around early April to mid-April with cessation around late May to early June. Overall, there is high chance for this region to receive near normal (closer to average rainfall) with the slight tendency to above normal (above average) rainfall during this season.

2.2.3 Eastern areas of Central region: (Mukono, Buikwe, Kayunga, Buvuma) districts

This region has been receiving on and off showers since January 2021 and which is expected to continue up to early to mid-March. Thereafter, steady rain is expected to get established. The peak of the seasonal rains is expected around early to mid-April with the cessation around late May to early June. Overall, this region is expected to receive near normal rainfall with a high tendency to above normal rainfall.

2.2.4 Eastern Lake Victoria and South Eastern: (Jinja, Mayuge, Kamuli, Iganga, Bugiri, Namayingo, Luuka, Namutumba, Buyende, Kaliro, Busia and Tororo) districts

Some parts of this region have been experiencing some rains punctuated with dry spells since January 2021. The onset of the seasonal rains is expected around early to mid-March while the peak is expected around mid-April. The cessation is expected to occur around late May to early June. Overall, this region has a high chance of receiving near normal to above normal rainfall.

2.2.5 Central Eastern: (Pallisa, Budaka, Kibuku, Butebo, Mbale, Sironko, Manafwa, Namisindwa, Bududa, Kapchorwa, Kumi, Kalaki, Kaberamaido, Soroti, Serere, Butaleja, Bulambuli, Kween, Bukwo, Bukedea and Ngora) districts.

This region has been experiencing occasional rains punctuated by dry conditions in many parts since January 2021. Onset of the seasonal rains is expected around mid to Late March. The peak rains are expected around late April to Early-May with cessation expected around late May to early June. Overall, there is high chance for this region to receive near normal to above normal rains.

2.2.6 North Eastern Region: (Katakwi, Amuria, Moroto, Kotido, Nakapiripirit, Abim, Napak, Kapelebyong, Nabilatuk, Karenga, Amudat and Kaabong) districts

This region has been experiencing dry conditions since January 2021. The onset of seasonal rains is expected around late March to early April which will give way to steady rains reaching the peak levels around early to mid-May. Thereafter a moderate relaxation is expected around early to mid-June. Overall, there is high chance for this region to receive near normal with slight tendency to above normal rains.

2.3 Northern region

2.3.1 North Western: (Arua, Maracha, Koboko, Terego, Yumbe, Obongi, Moyo, Adjumani, Madi Okollo, Zombo, Nebbi and Pakwach,) districts

Most parts of this region have been experiencing dry conditions with occasional rains since January 2021. The onset of the rains is expected around early to late March. The peak of the seasonal rain is expected around late April to early May, followed by moderate relaxation around mid-June. Overall, this region is expected to receive near normal rains.

2.3.2 Central Northern Parts: (Gulu, Omoro, Lamwo, Nwoya, Amuru, Oyam and Kiryandongo) districts

The region has been experiencing dry conditions with isolated light rains since January 2021. The onset of the seasonal rains is likely to get established around mid to late March with the peak of the rains expected around mid-April to mid May. Moderate relaxation of the rains is expected around mid-June. Overall, this region is expected to receive near normal rainfall over the forecast period.

2.3.3 South-eastern areas of Northern region: (Dokolo, Amolatar, Alebtong, Lira, Kole, Otuke, Pader, Kitgum, and Agago) districts

This region has been experiencing dry conditions, with light, isolated rain in some few areas since January 2021. The onset of the seasonal rains is expected around mid-March to early April with the peak around mid-April to mid-May. Thereafter moderate relaxation of rains is expected around mid-June. Overall, near normal rainfall is expected over this region.

3.0 Advisories to different sectors

With expected average rainfall conditions to wetter than usual rainfall in most parts of the country, the following advisories have been developed for action.

3.1 Agriculture and Food Security Sector

Generally, the March to May (MAM 2021) forecast presents good prospects for improved agricultural production across the country. Farmers and other agricultural practitioners are highly encouraged to take advantage of the expected good rains to optimize food and crop production. The general advisories include:

- ✓ Early prepositioning of seed and other agro/livestock-inputs in/or near agricultural/pastoralist communities,

- ✓ Timely land preparation and early planting, expansion of farming acreages, proper seed selection to optimize yields,
- ✓ Availability of Water for aquaculture,
- ✓ Promotion of water harvesting and micro-irrigation (where necessary),
- ✓ Maximizing agroforestry/plantation tree planting,
- ✓ Restocking livestock farms, fish ponds and apiaries; and
- ✓ Intensifying agricultural extension/veterinary services across all agricultural/pastoral communities, among others.

3.2 Disaster Management Sector

The near normal to above average rainfall forecast for the March to May 2021 season will have various implications to the Disaster Management Sector.

The forecast for near normal to above normal rains will bring the risk of floods, water logging and water level rise in many parts of the country specially eastern and central Uganda, landslides in highland areas of Rwenzori, Kigezi and Elgon. Suitable conditions for locust invasion and risk of displacement people.

The Key response measures / advisories are as follows:

- ✓ The Disaster Risk Management institutions should review their contingency plans based on the MAM, 2021 forecast;
- ✓ Communities at high risk areas need to be informed in good time including to prepare for planned relocations,
- ✓ Decision makers need should be informed early enough to be able to allocate resources and provide prompt support.
- ✓ In addition there is need for an effective multi-sectoral coordination at national level by the DRM institutions and timely activation of task forces should be emphasized.
- ✓ The importance of understanding uncertainties in the forecast for all categories and preparing for multiple scenarios should be underlined.

3.3 Water, Energy and Hydro-Power generation

- ✓ Areas expected to receive average to above average rainfall should undertake integrated flood management, flood preparedness and mitigation strategies in flood prone areas.
- ✓ Plans for optimization of power generation and distribution should be enhanced due to the expected increased discharge of seasonal rain water into the water bodies;
- ✓ Setting up and protection of vegetated/forested buffer zones around water sources to guard against water pollution should be encouraged;
- ✓ Communities should avoid consumption of contaminated water and Rehabilitation of drainage facilities should be undertaken to avoid flooding.

3.4. Infrastructure, Works and Transport Sector

- ✓ The anticipated near normal to above normal rainfall patterns are likely to be accompanied by intense rainfall events that may lead to flash flooding in some localized places especially urban areas. The following measures should be taken:-
- ✓ Urban authorities need to clear and reduce blockages of the drainage systems to avoid water logging on streets;
- ✓ Strong/violent winds may be experienced that can cause structural damages to buildings (blow off rooftops and collapse of poorly constructed buildings);
- ✓ De-silting drainages and other water channels to curtail flooding is encouraged;

3.5. Health

- ✓ There is high risk of malaria in wetter areas of Teso, Lake Victoria basin, Lake Kyoga basin, lowlands adjacent to Elgon region
- ✓ Risk of cholera cholera is expected in Buliisa, Busia, South western, Bulambuli, Karamoja sub-region and Namayingo District.
- ✓ There is therefore need to conduct community awareness about the potential outbreak of the diseases in context and surveillance.

4. Conclusion

The predicted rains require action in sufficient time and in an appropriate manner so as to take advantage of the information. This forecast should be used for planning in all rain-fed economic activities so as to improve economic welfare and livelihoods for all our communities in their localities.

Uganda National Meteorological Authority will continue to monitor the evolution of relevant weather systems particularly the state of the Seas Surface Temperature (SSTs) and Indian Ocean Dipole, and issue appropriate rainfall alerts, updates and advisories to the users regularly, especially to those areas that have been heavily affected by floods and landslides disasters.


Dr. Festus Luboyera
EXECUTIVE DIRECTOR

ANNEX

PERFORMANCE OF RAINFALL FOR SEPTEMBER 2020 – TO – JANUARY 2021

The September to December rainfall season is the second season in Uganda that is associated with wide spread of rainfall across the country.

Analysis of September to December, 2020 period indicates that most parts of the country received above normal rainfall. The months of September and November recorded rainfall in above normal (much wetter than usual) category whereas Near Normal rainfall conditions were experienced in October and December, 2020.

From the recorded data, Gulu weather station recorded the highest amount of 966.9mm of rainfall during the period September to December, 2020 while the lowest amount was observed at Kotido station with 229.9mm.

In the month of January, most parts of Southern and Eastern Uganda received substantial amounts of rainfall. This reduced the dry conditions that are always associated with the month of January.

Refer to the spatial distribution maps and Graphical analyses below for details.

Spatial distribution for every month from September 2020 to January 2021

i) September 2020

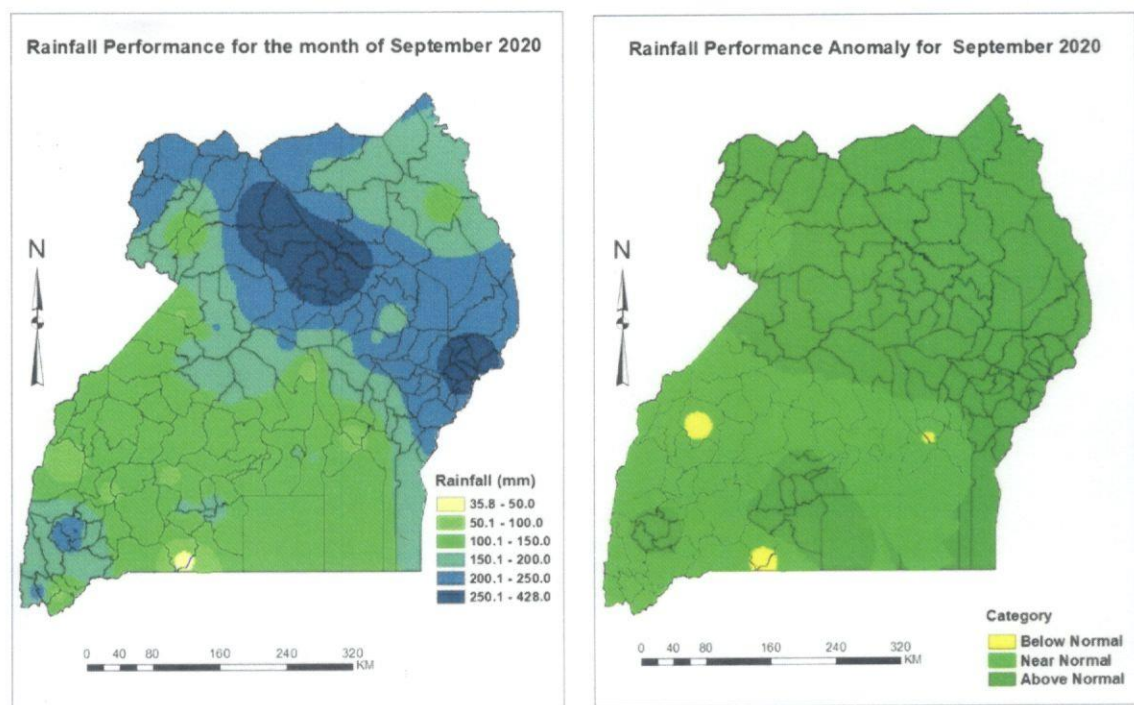


Fig 2: September 2020 Observed rainfall totals (mm) and Deviation from Average

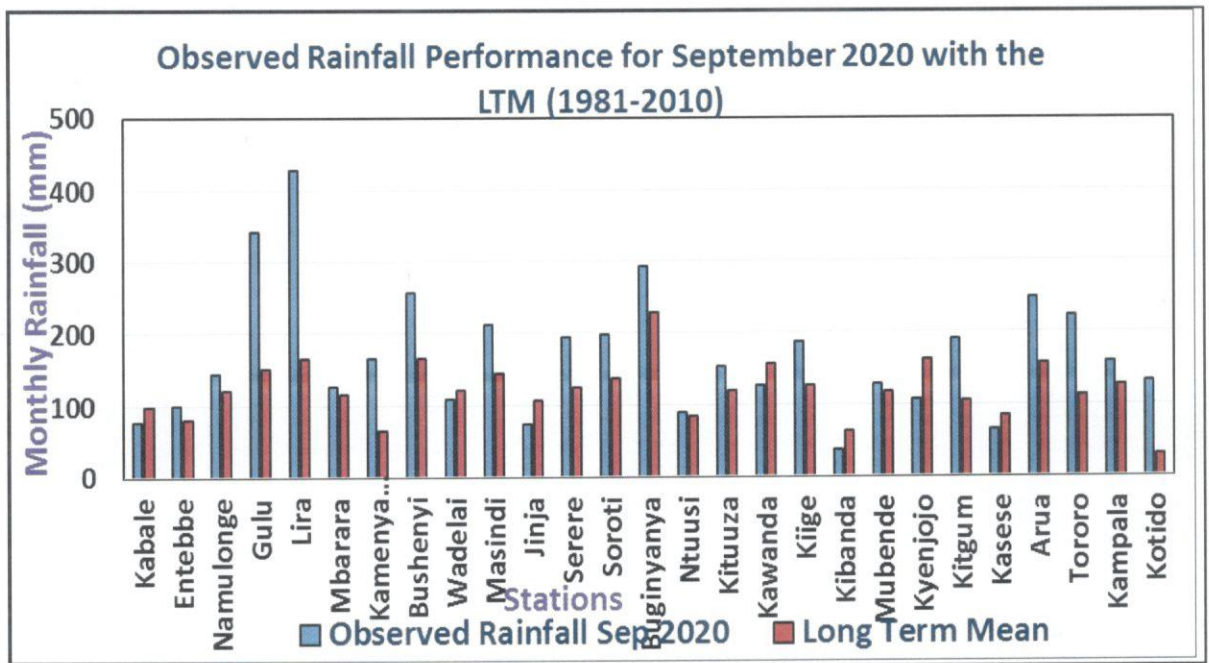


Fig 3: A graph of Rainfall performance for September 2020 with the LTM (1981-2010)

ii) October 2020

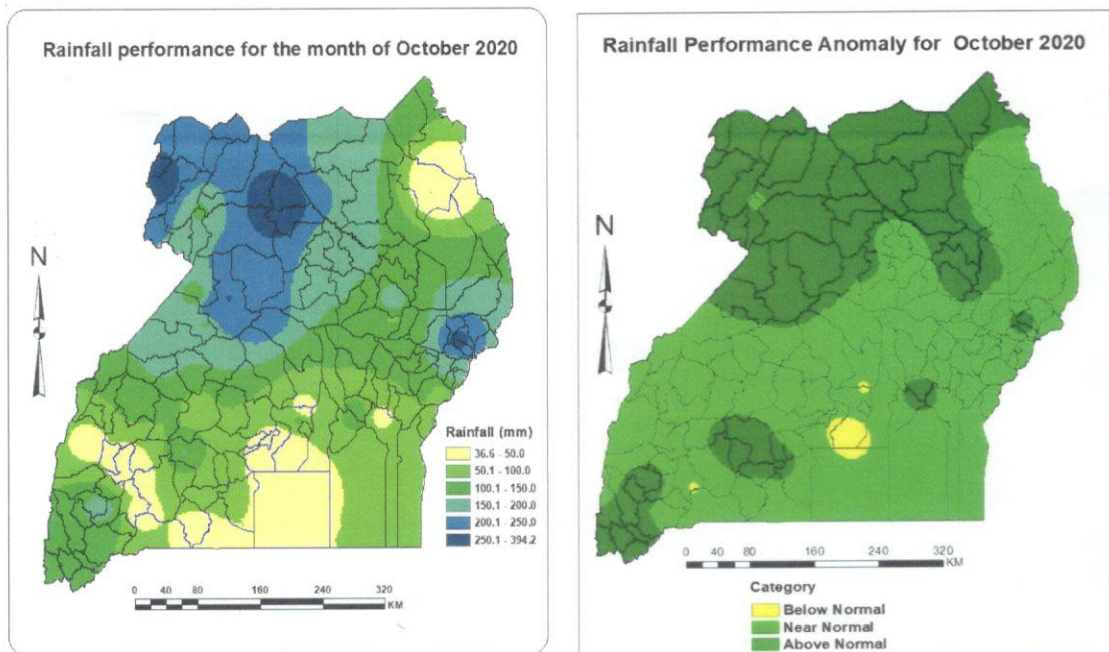


Fig 4: October 2020 Observed rainfall totals (mm) and Deviation from Average

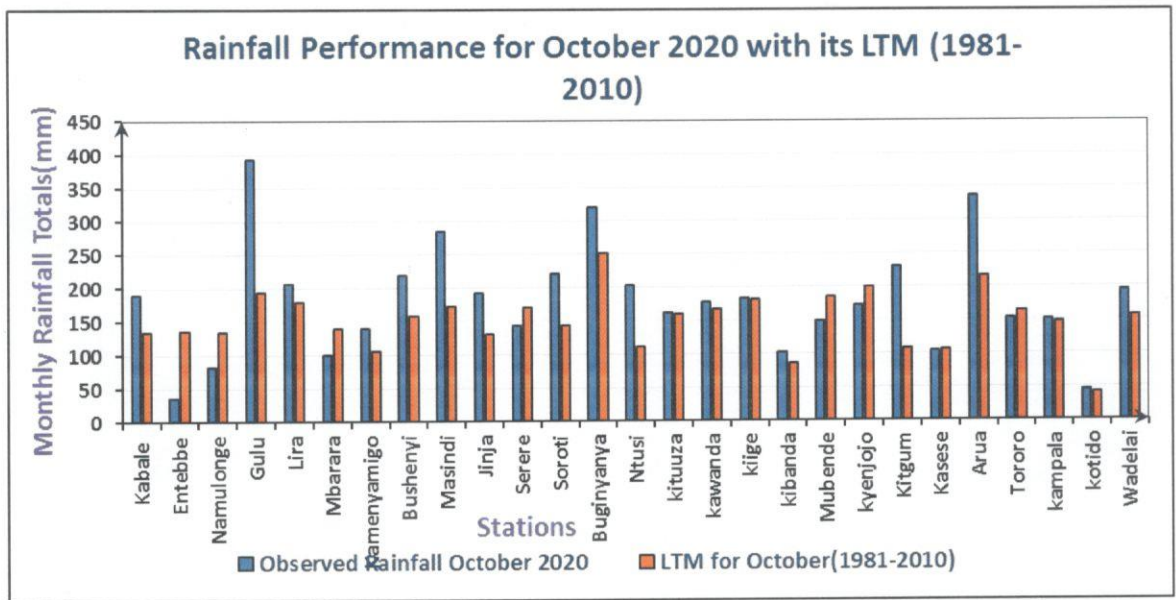


Fig 5: A graph of Rainfall performance for October 2020 with the LTM (1981-2010)

iii) November 2020

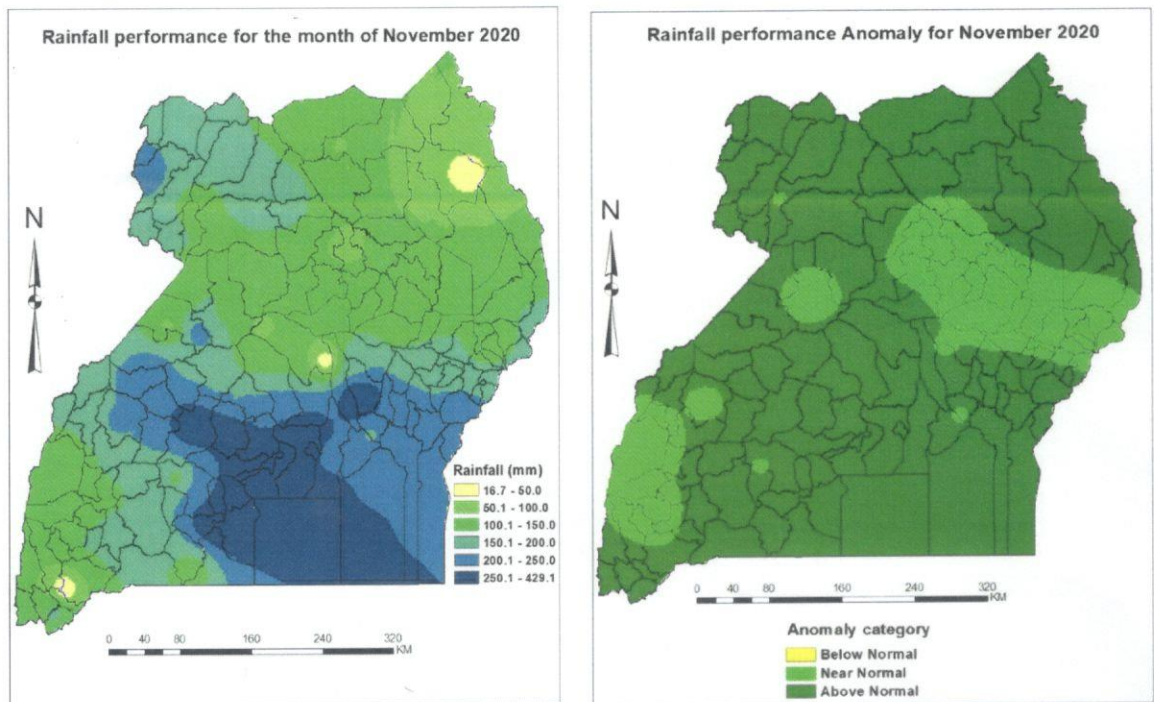


Fig 6: November 2020 Observed rainfall totals (mm) and Deviation from Average

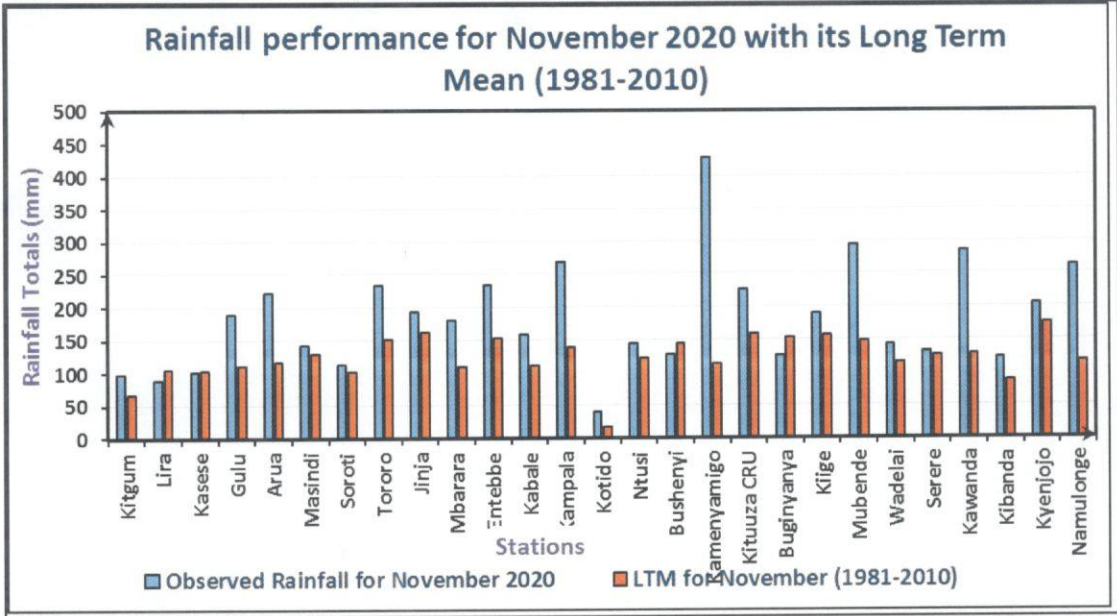


Fig 7: A graph of Rainfall performance for November 2020 with the LTM (1981-2010)

iv) December 2020

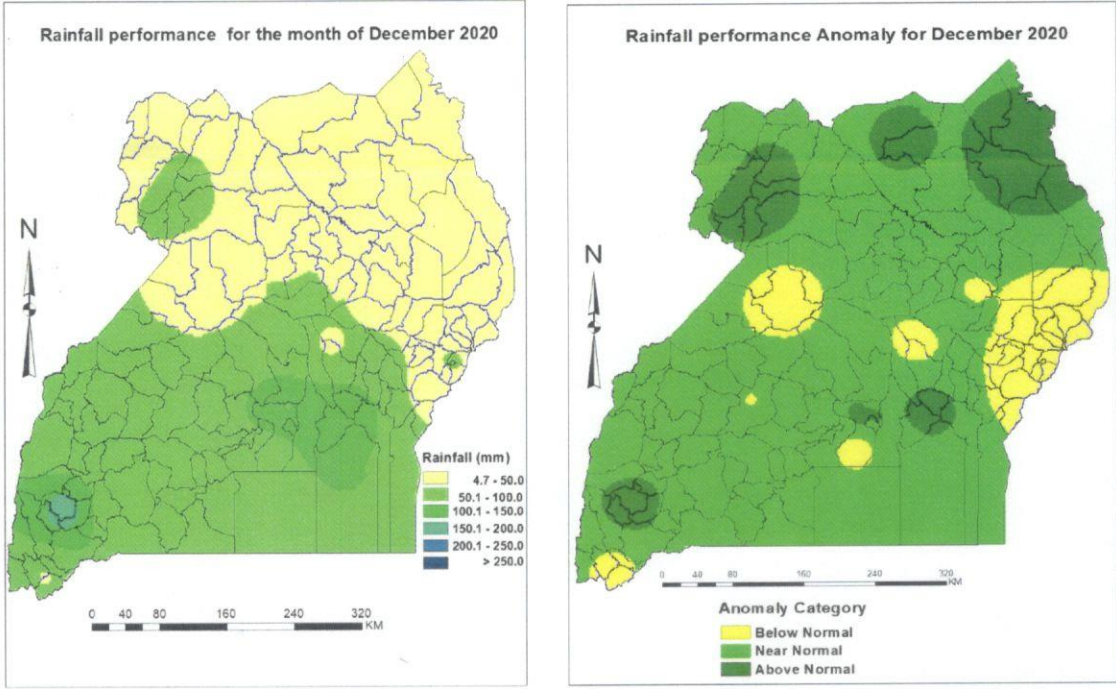


Fig 8: December 2020 Observed rainfall totals (mm) and Deviation from Average

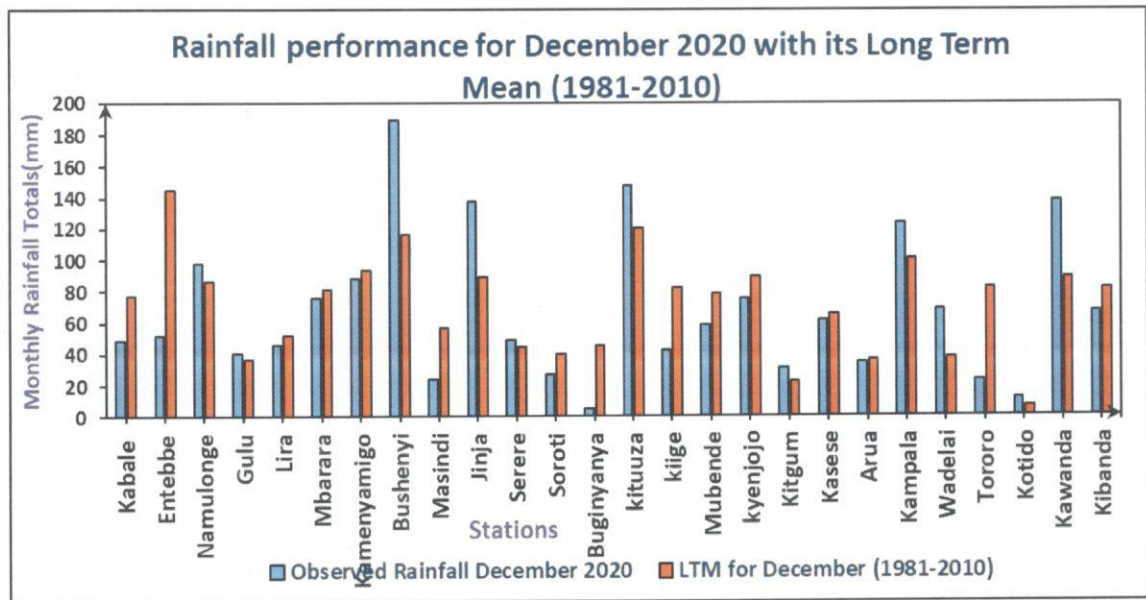


Fig 9: A graph of Rainfall performance for December 2020 with the LTM (1981-2010)

v) September to November (SON) 2020 Season

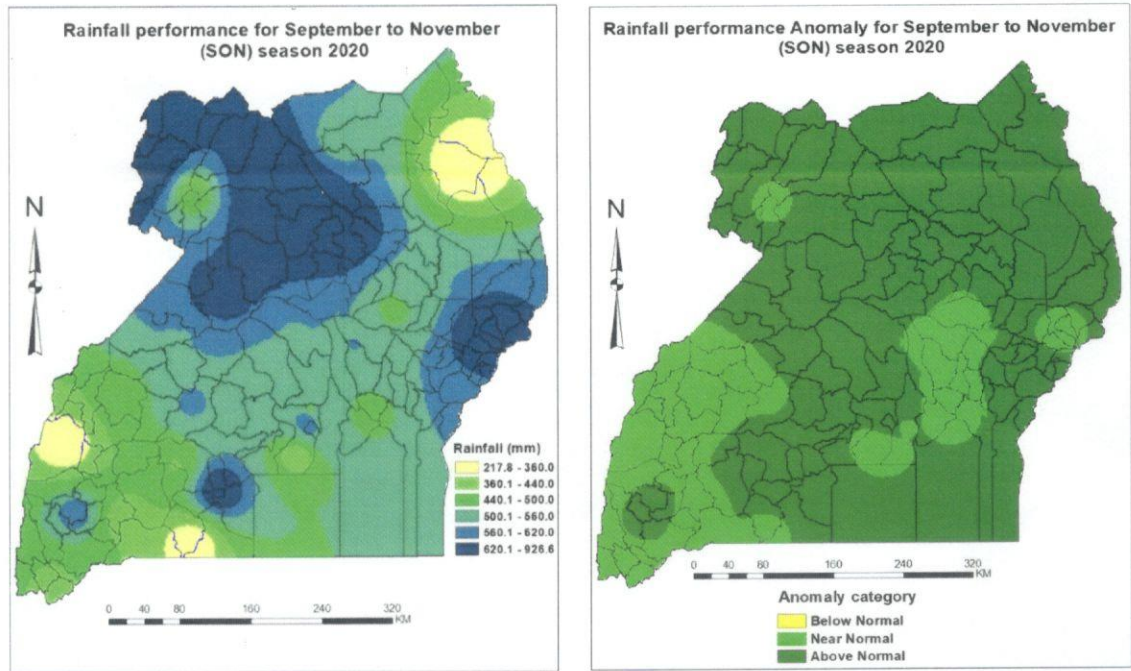


Fig 10: SON 2020 Observed rainfall totals (mm) and Deviation from Average

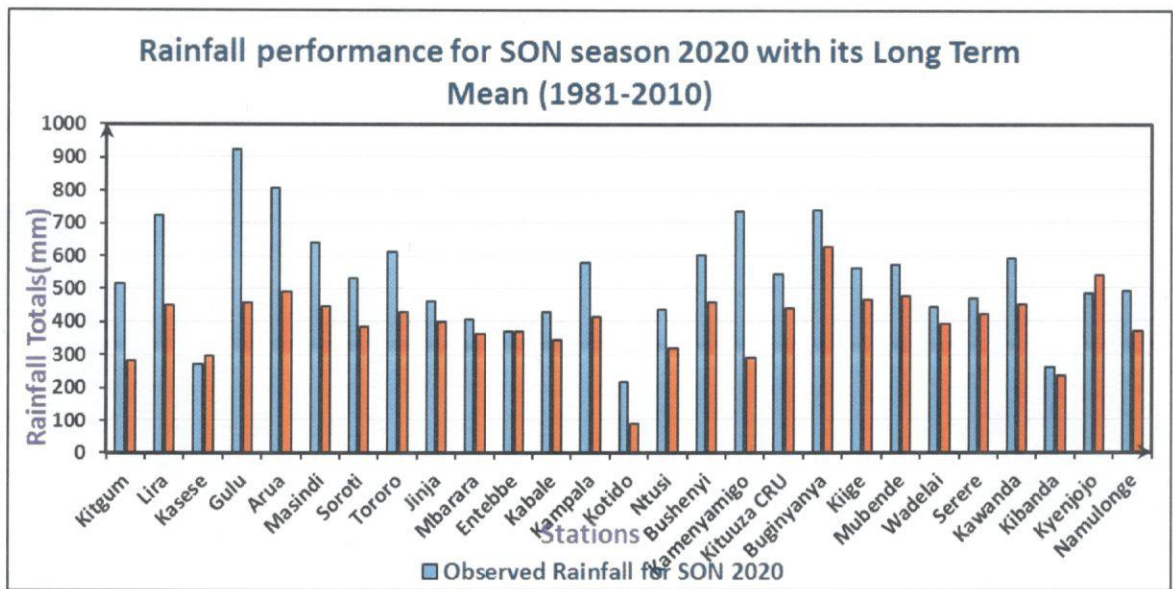


Fig 11: A graph of Rainfall performance for SON 2020 with the LTM (1981-2010)

vi) January 2021

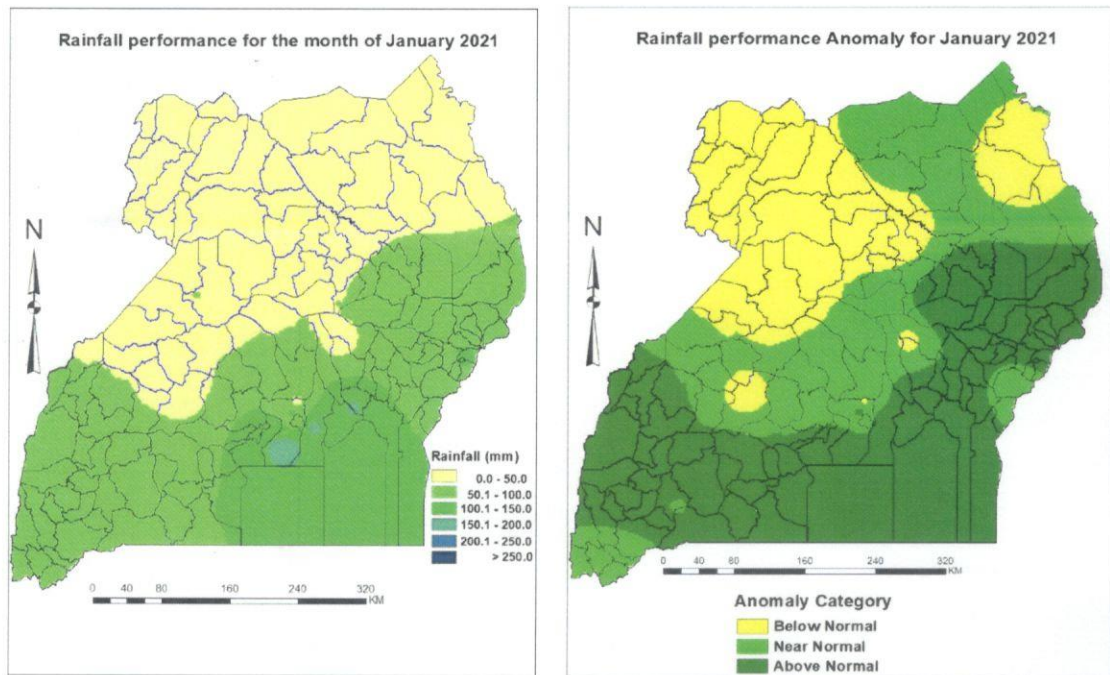


Fig 12: January 2021 Observed rainfall totals (mm) and Deviation from Average.

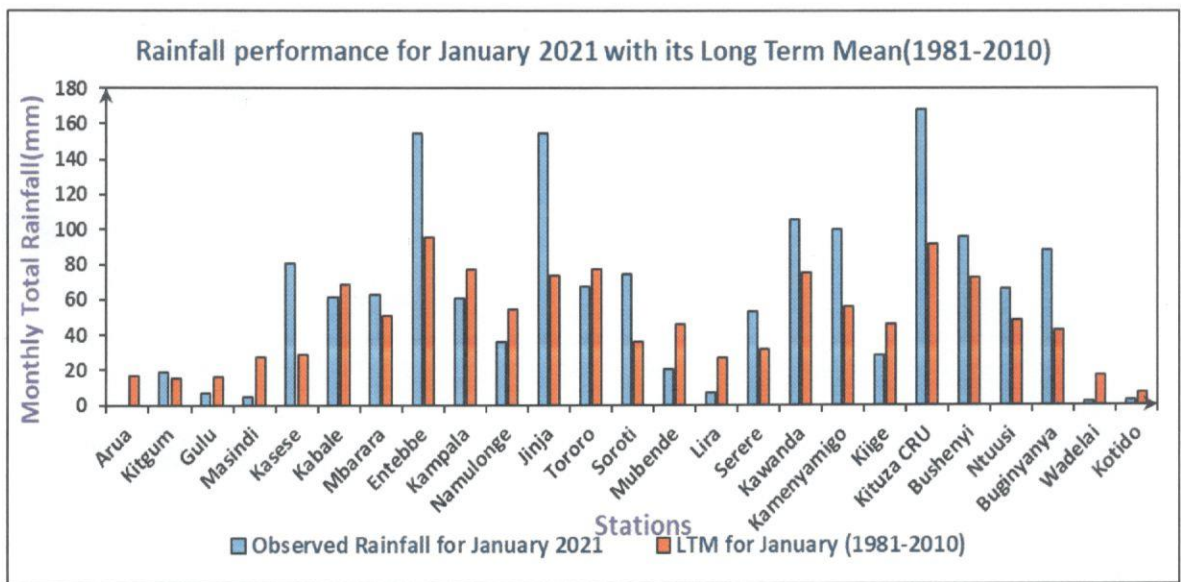


Fig 13: A graph of Rainfall performance for January 2021 with the LTM (1981-2010)