Ministry of Natural Resources, Energy and Mining
DEPARTMENT OF CLIMATE CHANGE AND METEOROLOGICAL SERVICES

THE 2017/2018 RAINFALL SEASON UPDATE IN MALAWI AS ON 4TH FEBRUARY 2018

1.0 INTRODUCTION
The period October to April is the official rainfall season over Malawi. Generally the main rains start from November in the south and progressively spread northwards. During this period, the main rain bearing systems that influence rainfall over Malawi include the Inter-Tropical Convergence Zone (ITCZ), Congo air mass, Easterly Waves and Tropical Cyclones.

2.0 SEASONAL RAINFALL FORECASTS
The forecast is relevant for relatively large areas and seasonal time scales and therefore may not fully account for all factors that influence localized climate variability, such as daily, weekly and month to month variations. This forecast also takes into consideration the fact that Tropical Cyclones that develop in the South-West Indian Ocean and climate change can have either adverse or favourable effects on Malawi rainfall.

The Department of Climate Change and Meteorological Services has therefore continuously been daily and five-day forecasts, weekly weather updates, ten-day rainfall and agro-meteorological bulletins as well as monitor and issue advices on the development and movement of the Tropical Cyclones during the season.

3.0 SEASONAL RAINFALL PREDICTOR
The key driving factor on rainfall systems over Malawi are Sea Surface Temperatures (SSTs) over the tropical Pacific, Indian and Atlantic Oceans. Other local factors such as the lakes and mountains are also known to influence the rainfall pattern over the country.

From October 2017 Neutral El Nino Southern Oscillation (ENSO) conditions had developed over the Eastern Central Equatorial Pacific Ocean with model projections indicating that the conditions likely to persist up to the end of the 2017/2018 rainfall season.

4.0 2017-2018 SEASONAL RAINFALL OUTLOOK
In September 2017 the rainfall outlook for 2017/2018 season for Malawi was:

During the period October 2017 to March/April 2018 a greater part of the country will experience normal total rainfall amounts. However, episodes of extreme weather events such as prolonged dry spells and floods may occur in some places associated with the neutral ENSO conditions during the forecast period.

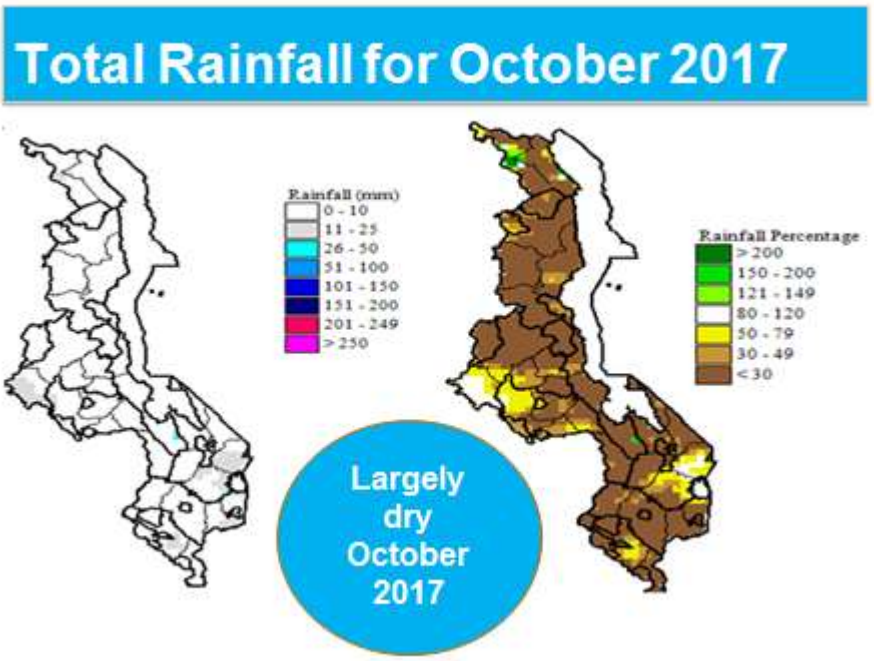
5.0 RAINFALL PERFORMANCE AS AT 31ST JANUARY 2018
Since the season started in October 2017, the country started experiencing the first rains few days before the end of October when most southern areas registered substantial daily rainfall amounts as central and northern areas remained dry.

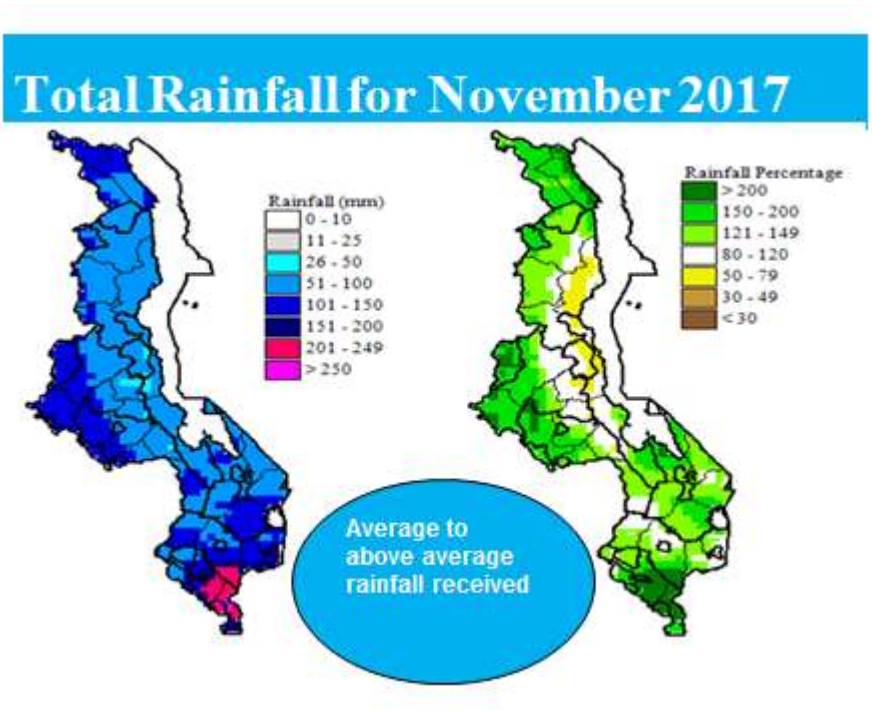
While only a few areas in the centre started the first rains during the first days of November most central areas received the first rains during the second week of November when substantial daily rainfall amounts were registered.

Northern areas received the first rains at the end of November when most areas registered substantial daily rainfall amounts.

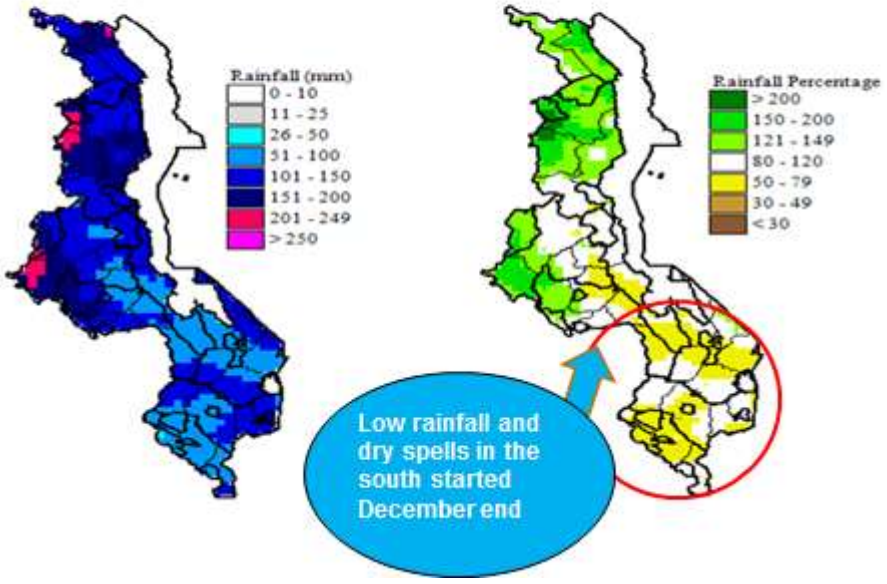
The good performance of rainfall continued unabated across the country until from mid-December when most areas in the south and central areas started registering no rainfall daily with good rainfall only confined over the north and few central areas of the country. This pattern of poor daily rainfall performance over the south and most of central areas continued to the end of January. This has resulted in normal to above normal cumulative rainfall amounts by end of January to be confined over most of northern Malawi while normal to below normal rainfall amounts have been received over most of southern and some central areas due to experienced low rainfall and prolonged dry spells.

Map below show monthly total rainfall for October, November, December 2017 and January 2018.

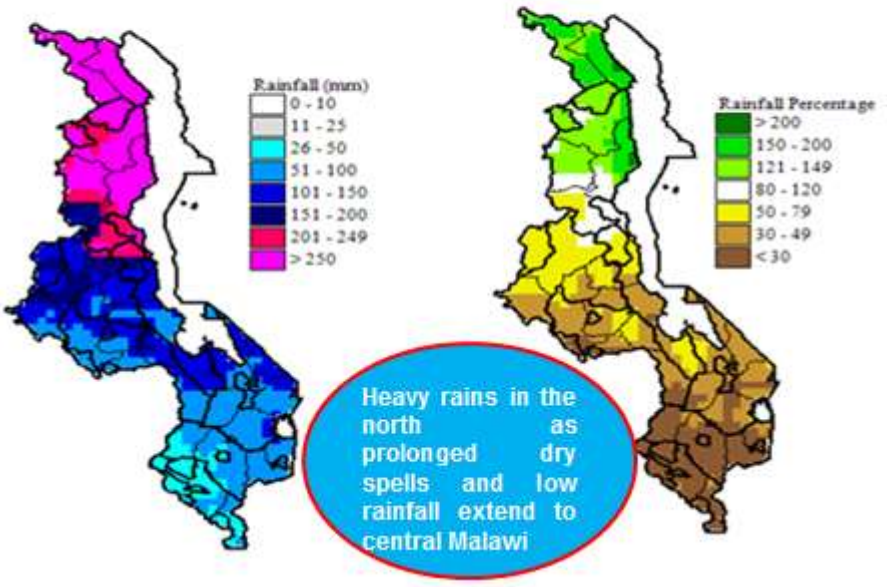




Total Rainfall for December 2017

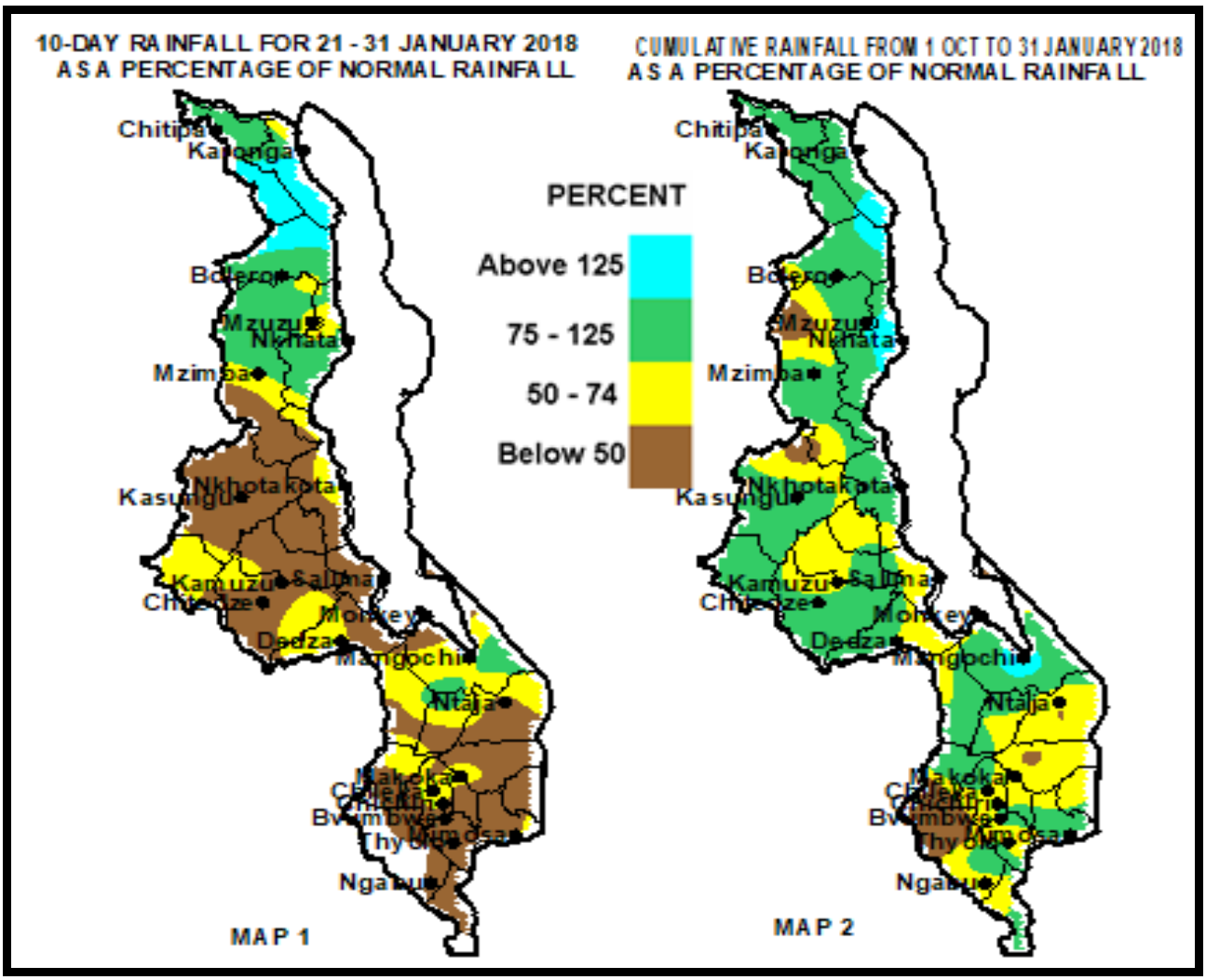


Total Rainfall for January 2018

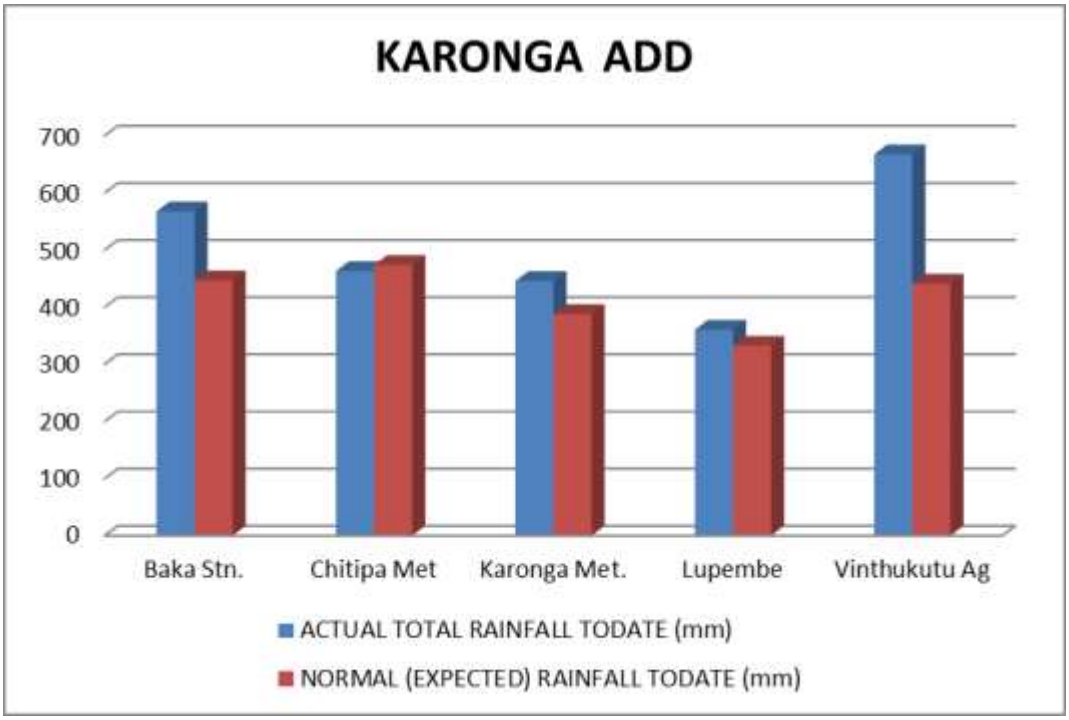


Below, Map 1 shows that during the last ten days of January 2018 good rainfall continued to be confined mostly to northern areas of the country while low rainfall and prolonged dry conditions continued over southern and most of central areas.

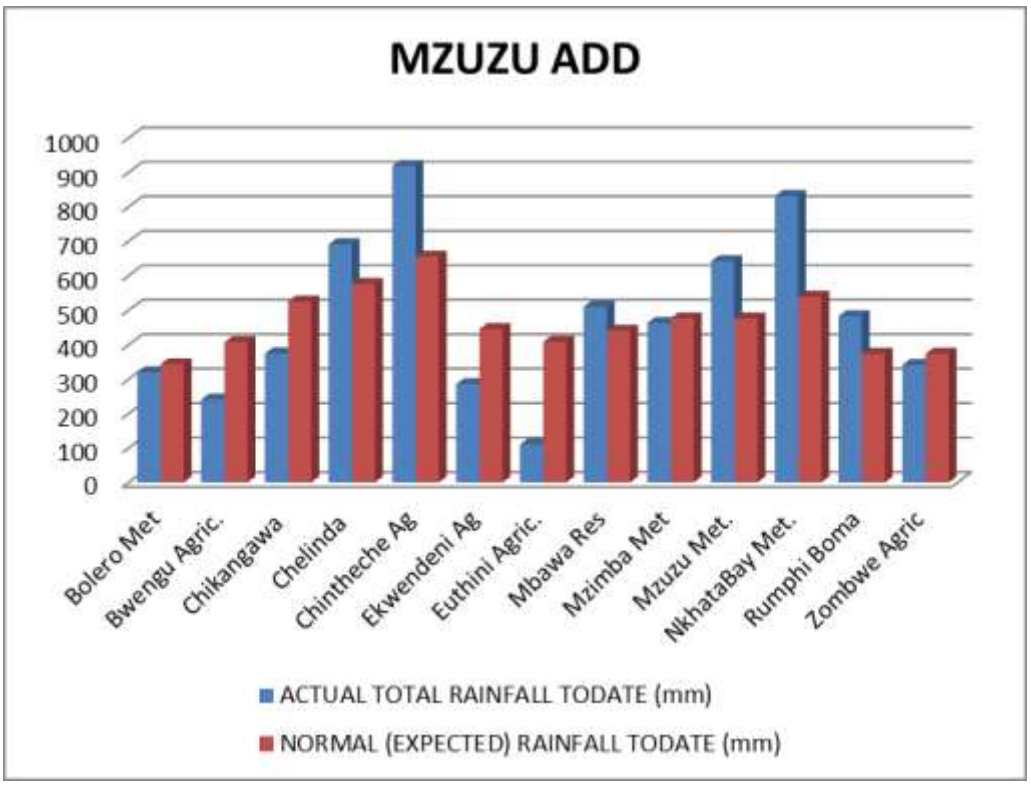
Map 2 shows that normal to above normal cumulative rainfall amounts to date since the rainfall season started in October 2017 have been confined over most of northern parts of the country while normal to below normal rainfall amounts have been received over most of southern and some central areas of the country.



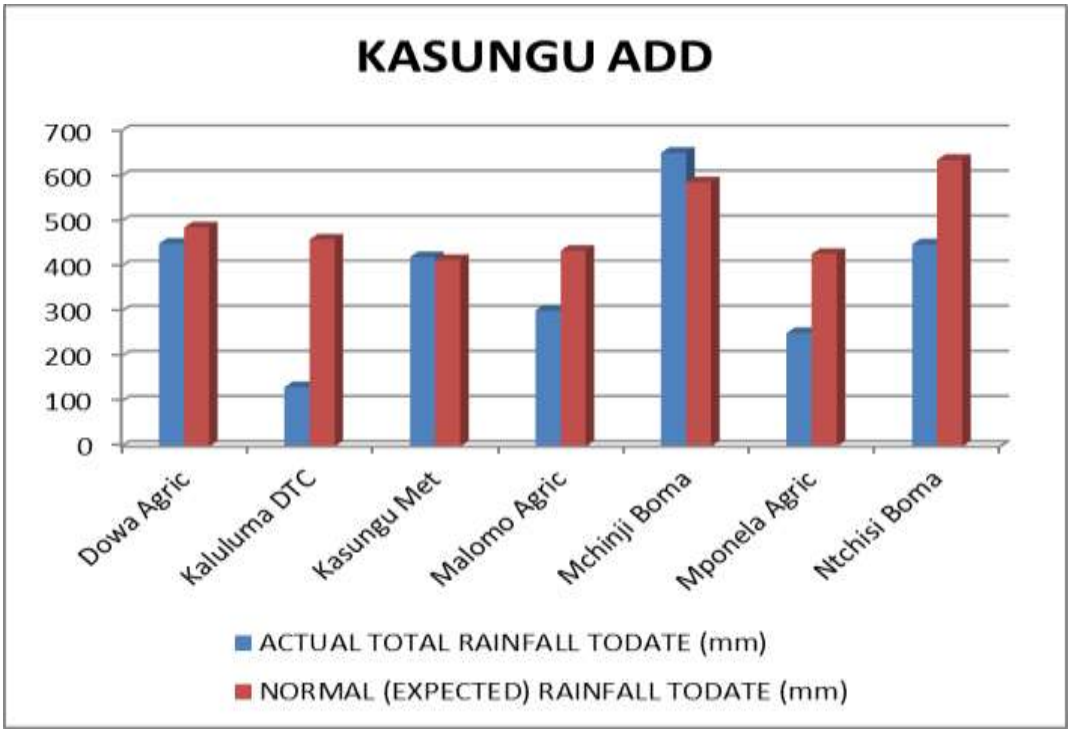
The graphs below show cumulative total rainfall amounts to date 31st January 2018 since the rainfall season started in October 2017 as compared to normal values in rainfall stations within each Agricultural Development Division:



- **Karonga ADD rainfall stations reported mostly normal to above normal total rainfall amounts todate**



- **Mzuzu ADD rainfall stations recorded mostly near normal to above normal total rainfall to date while Bwengu, Chikangawa, Ekwendeni and Euthini reported below normal**



- **<u>Kasungu ADD experienced a mix bag where Dowa, Kasungu met, Mchinji Boma recorded near normal to above normal total rainfall to date while Kaluluma, Malomo, Mponela and Ntchisi Boma reported below normal values</u>**
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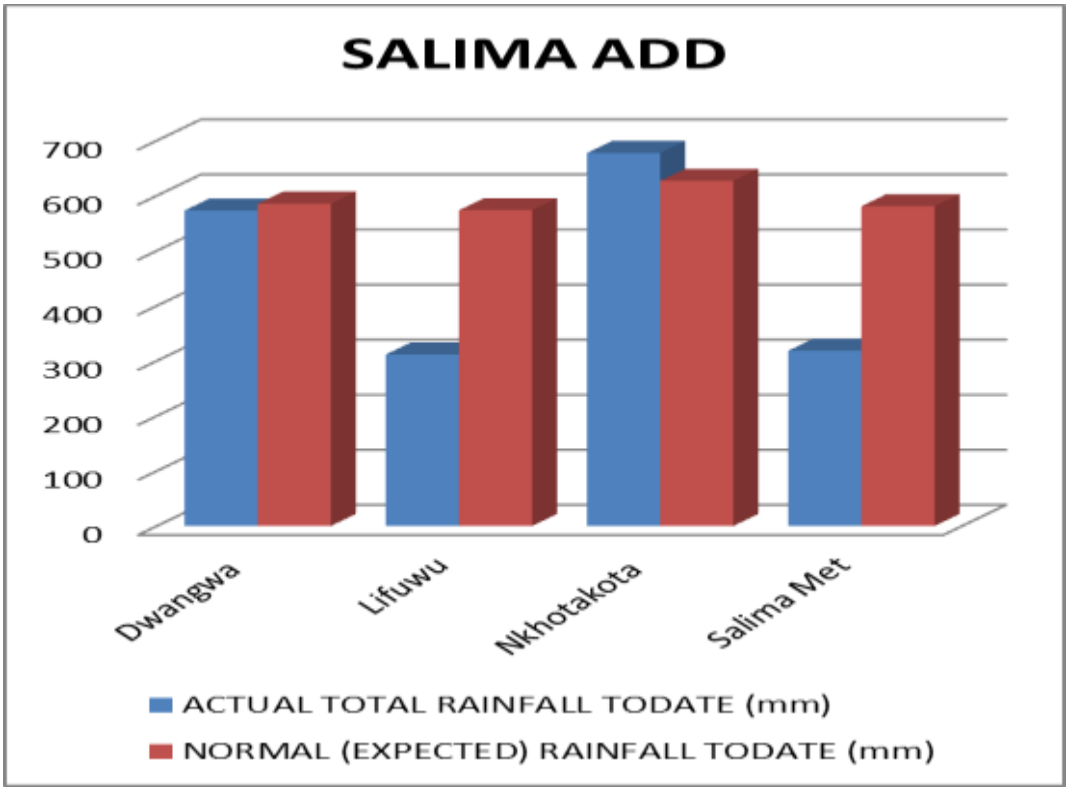
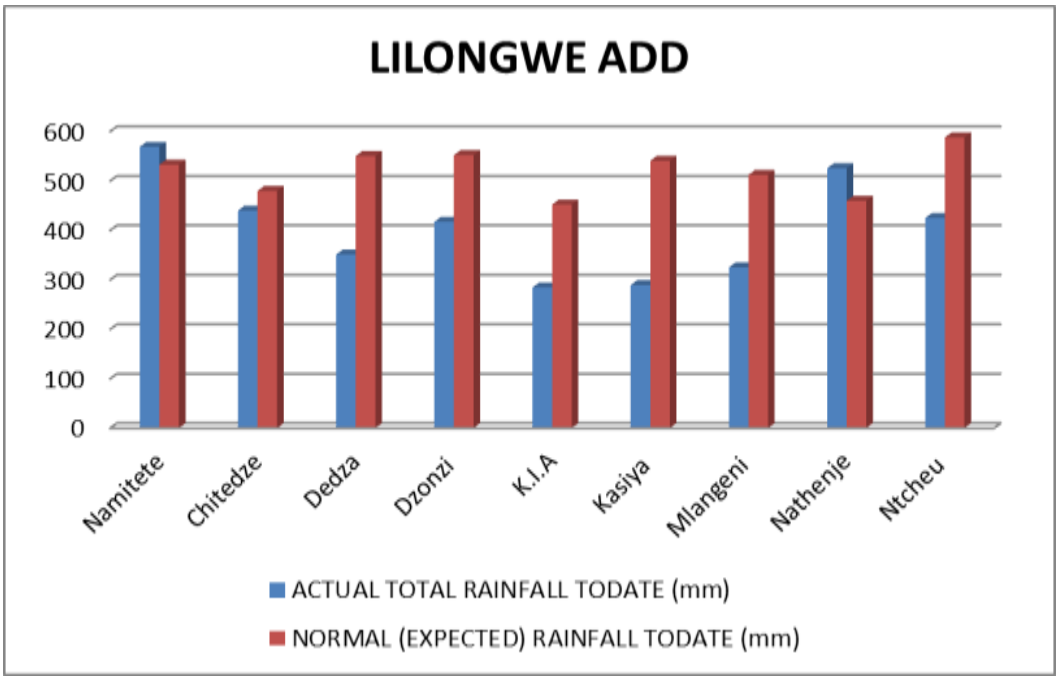
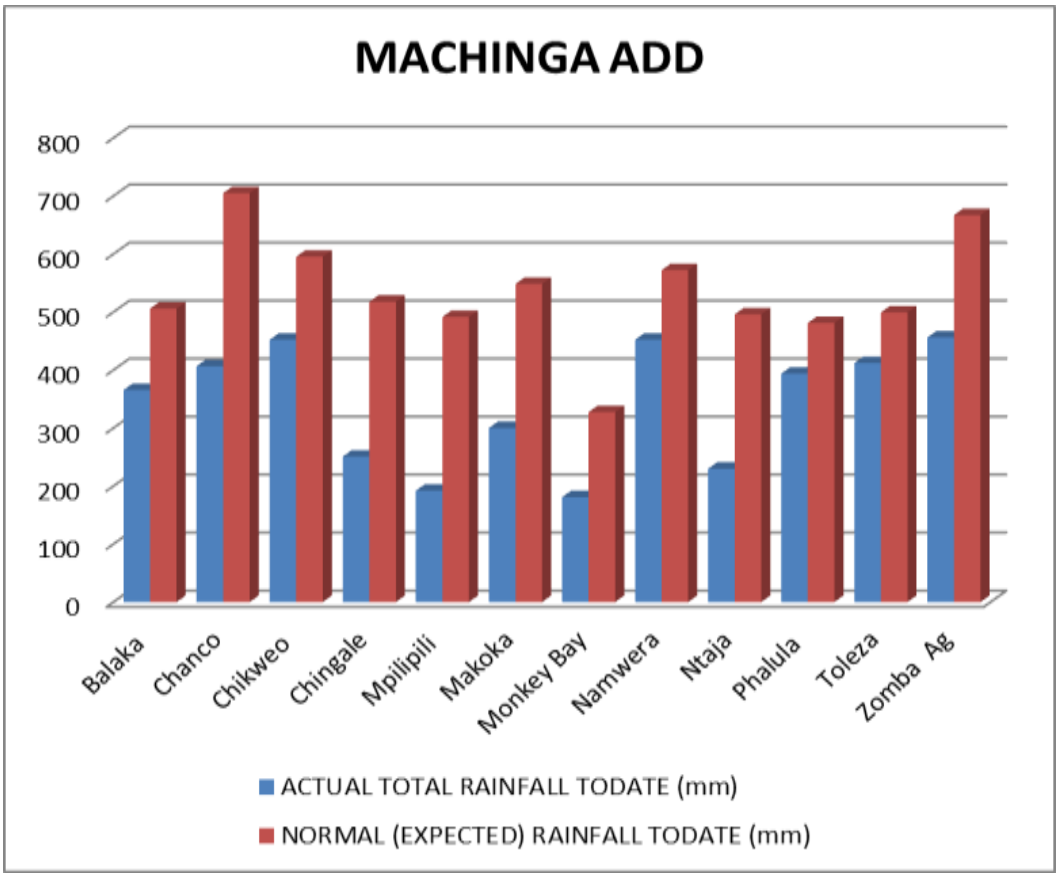


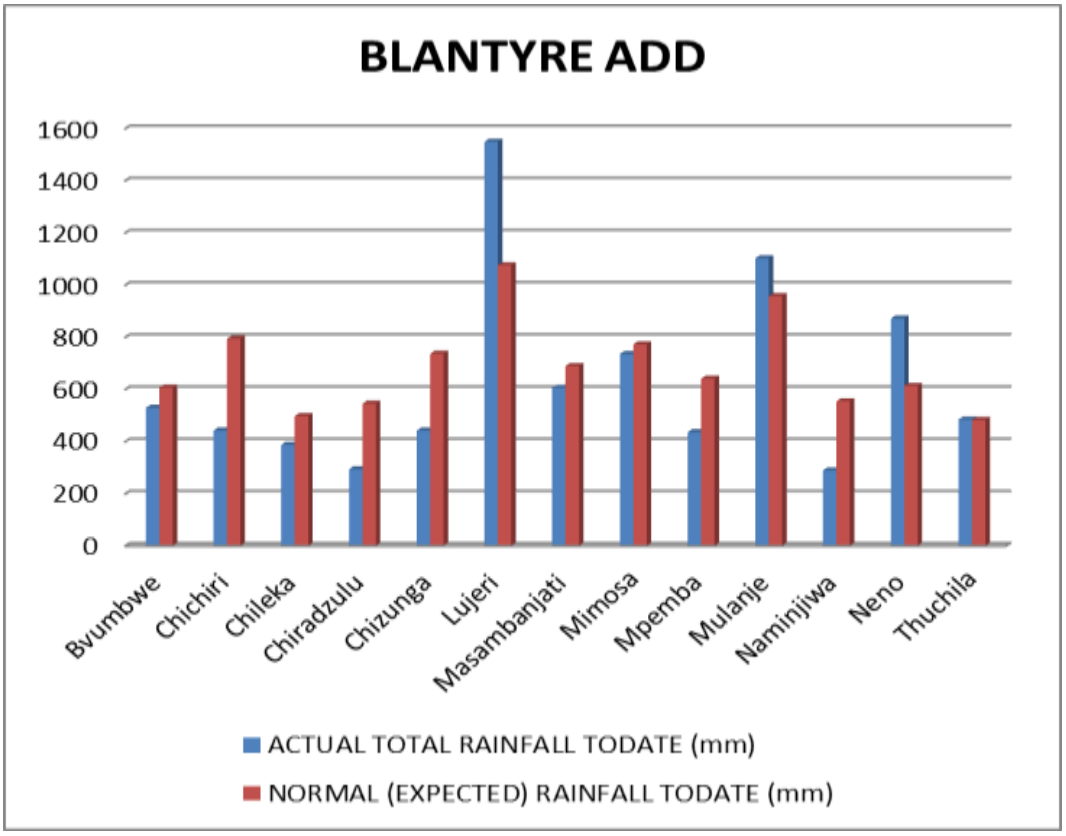
- **<u>Salima ADD experienced a mixed bag where Dwangwa and Nkhotakota stations have reported near normal total rainfall amounts todate while Lifuwu and Salima Met stations have reported below normal values</u>**



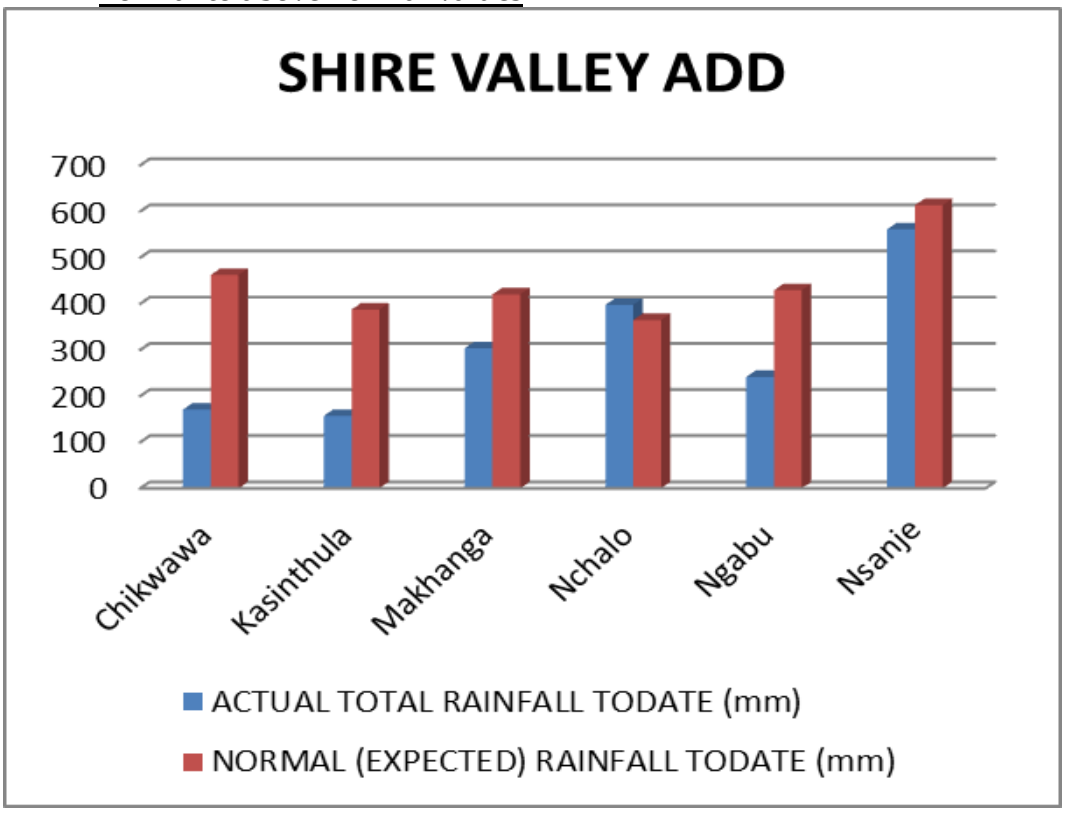
- **<u>Lilongwe ADD stations have reported mostly below normal total rainfall todate except Chileka-Namitete, Chitedze and Nathenje which have reported normal values</u>**



- **<u>Machinga ADD rainfall stations have reported mostly below normal total rainfall todate</u>**



- **<u>Blantyre ADD rainfall stations have mostly reported below normal total rainfall todate except Lujeri, Mimosa, Mulanje Boma and Neno which have reported normal to above normal values</u>**



- **<u>Shire Valley ADD rainfall stations have mostly reported below normal total rainfall amounts todate except Nchalo and Nsanje Boma which have reported almost normal values</u>**

6.0 THE STATE OF SEA SURFACE TEMPERATURES AS ON 31 JANUARY 2018

Meanwhile a weak La Nina has developed over central equatorial Pacific Ocean which could influence weather globally including in Malawi during February to April rainfall period.

La Niña events are generally associated with increased rainfall in southern Africa which include southern and some central areas of Malawi, and rainfall deficiency in eastern Africa that includes northern and some central areas of Malawi. These are areas where the opposite normally occurs during El Niño events. However, specific impact differs from place to place and for different seasons because two La Niña events are never alike in terms of their impact on rainfall pattern over Malawi because other factors such as temperatures of the Indian Ocean, the Tropical Atlantic Ocean and local factors such as the lakes and mountains are also known to influence the rainfall pattern over the country. Current model projections indicate that during March to April 2018 sea surface temperature in the Mozambique Channel will be above average increasing the likelihood for the development of low pressure systems in the channel which would enhancing an influx Congo air mass over the country.

7.0 FEBRUARY TO APRIL 2018 OUTLOOK FOR MALAWI:

In the Map below which is divided into two halves of Region I and Region II, indicate that during the months of February to April,

Region I is expected to get 35% chance of above normal rainfall amounts; 40% chance of normal rainfall amounts and 25% chance of below normal rainfall normal amounts.

Region II is expected to get 40% chance of above normal rainfall amounts; 35% chance of normal rainfall amounts and 25% chance of below normal rainfall amounts.

This means there is high likelihood for most areas in the country to experience normal and above normal rainfall amounts during February to April 2018 period.