



Government of Malawi
Ministry of Natural Resources, Energy and Mining

Malawi 10-day Weather and Agrometeorological Bulletin

"In support of National Early Warning Systems and Food Security"



Be wise be weather-wise
Department of Climate Change and Meteorological Services

Period: 11 – 20 November 2019

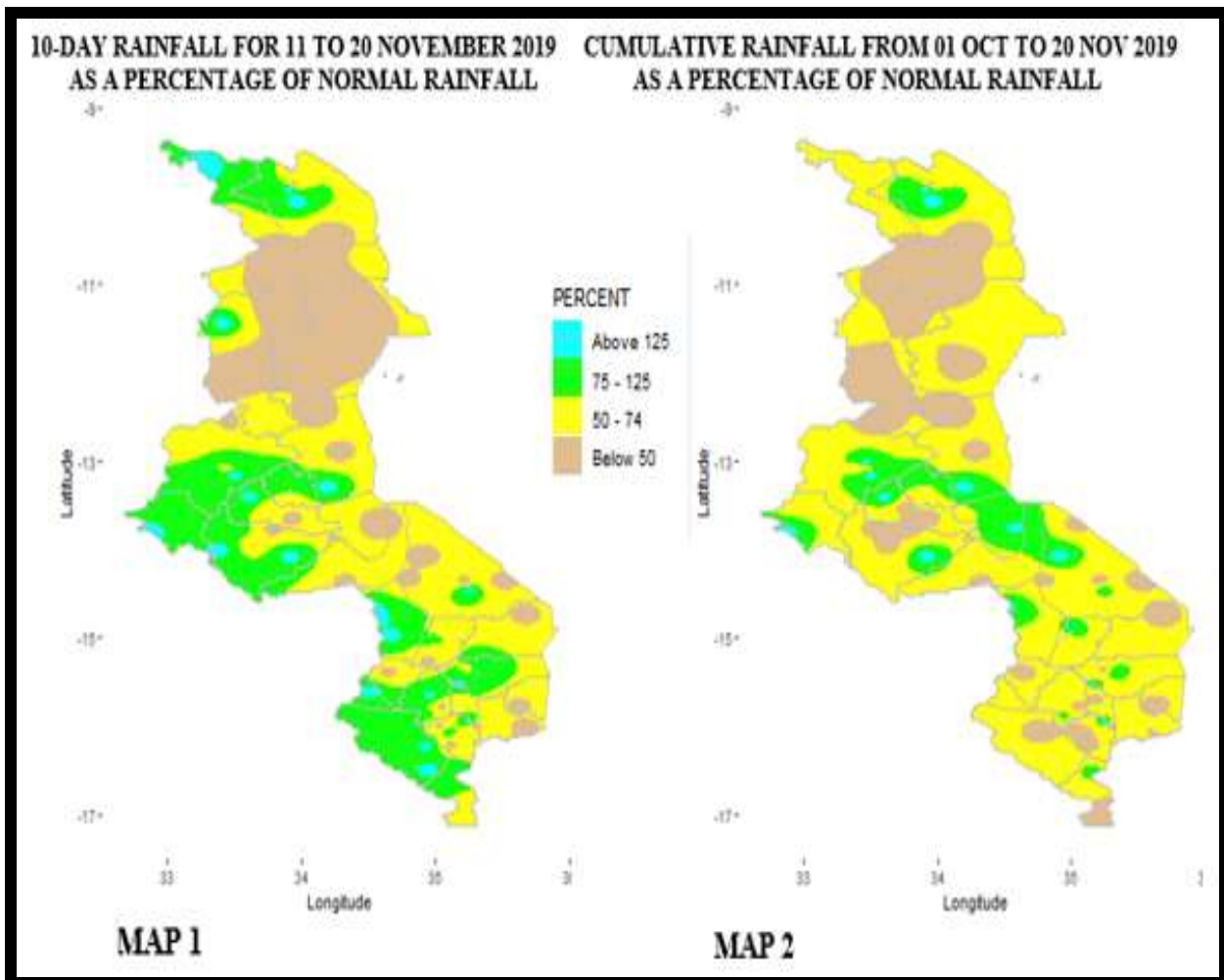
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HIGHLIGHTS

- Moderate rainfall experienced over Malawi ...
- Land preparation and planting remained major agro-activities...
- Enhanced rainfall activities expected mostly over Southern and Central Malawi during 21-30 November



1.0 WEATHER SUMMARY

During the period 11 to 20 November 2019, relatively moist and unstable easterly airmass influenced weather over Malawi. As a result, scattered thundery activities were experienced over Malawi. The ten-day total rainfall amounts were generally lower than the long-term average rainfall amounts for the period over most areas of the country (yellow and brown colours in Map 1) with selected cases of ten-day rainfall amounts being within the long-term average or slightly above the long-term average, mainly along the western sector of the country (green and light blue colours in Map1)

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1.1 RAINFALL SITUATION

During the period 11 to 20 November 2019, light to moderate rainfall amounts were recorded over Malawi. The highest recorded rainfall amount was 75.8mm at Baka Research station. Nathenje Agriculture recorded 75mm, Thuchila Agriculture recorded 61.2mm, Mwanza boma recorded 58.3mm, Njolomole in Ntcheu recorded 49.9mm, Nkhande recorded 45.9mm, Zomba Agriculture recorded 41.8mm, Makoka Meteorological station recorded 41.6mm, Mchinji boma recorded 41.5mm, Chileka International Airport recorded 40.4mm, Lujeri Tea estate and Chileka-Namitete recorded 38mm, Mulanje boma recorded 36.2mm, Madisi Agriculture 35.6mm, Ngabu Meteorological station recorded 35.5mm, Nchalo recorded 31.4mm, Lupembe in Karonga recorded 31mm, Mkanda recorded 30.7mm, Lisasadzi recorded 29.9mm, Mpemba Veterinary recorded 29.6mm, Chancellor College recorded 27mm, Kasiya Agriculture recorded 26.5mm, Nsanje boma recorded 24.7mm, Euthini Agriculture recorded 24.5mm, Makhanga recorded 23.8mm, Ntchisi boma recorded 22.3mm, Satemwa Tea estate recorded 22mm, Chitipa Meteorological station recorded 21.7mm, Chikwawa boma recorded 21.6mm, Malomo Agriculture recorded 20.3mm, Bvumbwe Meteorological station recorded 19.9mm, Mimosa Meteorological station recorded 18.9mm, Chizunga factory recorded 18.4mm, Kasungu Meteorological station recorded 16.8mm, Chitedze Meteorological station recorded 16.5mm, Chikweo Agriculture recorded 16.0mm, Toleza Farm in Balaka recorded 15.9mm and Balaka Township recorded 15.7mm. For details refer to Table 1 on Page 3.

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2019/20 rainfall season in October 2019, up to 20 November 2019. The map generally indicates that most areas over Malawi have received normal to below normal rainfall amounts (brown and yellow colours) with isolated cases of normal to above normal rainfall amounts mostly over parts of central Malawi as shown by pockets of green and light blue colour on Map 2.

1.3 AIR TEMPERATURE

Generally hot temperatures were experienced over Malawi during the period 11 to 20 November 2019. Mean daily maximum temperatures had ranged from 28.1°C at Dedza to 38.0°C at Ngabu. On the other hand, mean daily minimum temperatures had ranged from 18.2°C at Mzuzu Airport to 26.3°C at Salima Meteorological station. Details in Table 2.

1.4 WIND SPEED

During the period 11 to 20 November 2019 most parts of Malawi experienced light wind speed. Daily average wind speeds measured at a height of two metres above the ground level across the country had ranged from 1.8 km per hour at Makoka Meteorological station to 11.9 km per hour at Chitipa Aerodrome and Chileka International Airport in Blantyre. More details in Table 2.

1.5 RELATIVE HUMIDITY

During the period 11 to 20 November 2019, air over Malawi was relatively humid. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 42% at Ngabu and Monkey Bay Meteorological stations to 63% at Mimosa Meteorological station. Details as in Table 2.

1.6 SUNSHINE HOURS

Generally medium to long hours of bright sunshine were observed over Malawi during the period under review. Daily values had ranged from 6.5 hours per day at Bvumbwe and Chichiri Meteorological stations to 10.2 hours per day at Mzuzu Airport and consequently the amount of Solar Radiation had ranged from 8.7 to 11.2 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period under review, the main agricultural activities over Malawi included planting, mainly over southern areas, and land preparation and acquisition of farm inputs in readiness for effective planting rains over central and northern areas.

3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

ENSO-neutral conditions are prevailing over central tropical Pacific Ocean. Climate models are projecting that the ENSO-neutral conditions are likely to persist throughout the 2019/2020 rainfall season. Based on these expectations and other analyses conducted, the rainfall forecast for the 2019/2020 is that:

“During October to December 2019, most of the north and northern parts of central areas of the country are expected to receive normal to below normal rainfall amounts, while most of the south and southern parts of central areas are expected to receive normal to above normal rainfall amounts;

During January to March 2020, most of the north and northern parts of central areas of the country are expected to receive above normal to normal rainfall amounts, while southern areas and southern parts of central areas are expected to receive normal to below normal rainfall amounts.”

4. OUTLOOK FOR 21-30 NOVEMBER 2019

Models for short and medium range forecasts indicate that the Inter-Tropical Convergence Zone (ITCZ) is likely to be established over southern half of the country thereby enhancing convective activities mostly over southern and central Malawi during the last ten days of November 2019. The anticipated convective activities are likely to provide the required rainfall amounts to enable planting activities in areas where farmers have not yet planted, especially in the central and southern areas.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 11 TO 20 NOVEMBER 2019

| ADD | STATION NAME | ACTUAL DEKADAL TOTAL RAINFALL (mm) | DEKADAL NORMAL EXPECTED RAINFALL (mm) | ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL) | ACTUAL TOTAL RAINFALL TO DATE (mm) | NORMAL (EXPECTED) RAINFALL TO DATE (mm) | ACTUAL TO DATE AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL) | RAINY DAYS ≥ 3 mm |
|-----------------|------------------|------------------------------------|---------------------------------------|--|------------------------------------|---|--|------------------------|
| Karonga | Baka Res. Stn. | 75.8 | 6.6 | 1148 | 75.8 | 11.2 | 677 | 1 |
| | Chitipa Met | 21.7 | 16.8 | 129. | 22.3 | 31.1 | 72 | 2 |
| | Lupembe | 31.0 | 11.6 | 267 | 31.0 | 17.2 | 180 | 1 |
| Mzuzu | Chikangawa for | 3.7 | 27.2 | 14 | 35.0 | 55.7 | 63 | 1 |
| | Chelinda | 7.4 | 31.0 | 24 | 15.0 | 74.2 | 20 | 1 |
| | Emfeni Agric | 9.0 | 14.0 | 64 | 11.0 | 22.1 | 50 | 1 |
| | Ekwendeni Agr | 14.2 | 52.3 | 27 | 28.9 | 90.8 | 32 | 2 |
| | Euthini Agric. | 24.5 | 19.4 | 126 | 24.5 | 33.8 | 72 | 2 |
| | Mbawa Res. Stn | 10.2 | 24.8 | 41 | 10.2 | 44.8 | 23 | 3 |
| | Mzimba Met | 1.5 | 24.1 | 6 | 3.3 | 39.1 | 8 | 2 |
| | Mzuzu Met. | 1.5 | 28.1 | 5 | 43.7 | 76.9 | 57 | 1 |
| | NkhataBay Met. | 1.0 | 33.1 | 3 | 36.3 | 63.9 | 57 | 1 |
| Kasungu | Dowa Agric | 1.4 | 17.5 | 8 | 10.1 | 33.8 | 30 | 1 |
| | Kasungu Met | 16.8 | 14.8 | 113 | 37.3 | 27.6 | 135 | 2 |
| | Lisasadzi | 29.9 | 12.8 | 233 | 43.2 | 22.8 | 189 | 2 |
| | Malomo Agric | 20.3 | 16.2 | 125 | 20.7 | 22.5 | 92 | 1 |
| | Madisi Agric | 35.6 | 16.7 | 213 | 47.2 | 30.0 | 157 | 3 |
| | Mchinji Boma | 41.5 | 28.6 | 145 | 100.7 | 73.4 | 137 | 2 |
| | Mkanda Met | 30.7 | 30.8 | 100 | 30.7 | 55.9 | 55 | 3 |
| | Mponela Agric | 9.4 | 16.8 | 56 | 13.6 | 34.5 | 39 | 3 |
| | Mwimba Res | 13.0 | 21.3 | 61 | 13.0 | 44.4 | 29 | 2 |
| Lilongwe | Ntchisi Boma | 22.3 | 15.5 | 144 | 89.7 | 29.2 | 307 | 1 |
| | Chileka | 38.0 | 29.1 | 131 | 38.0 | 60.3 | 63 | 1 |
| | Chitedze Met. | 16.5 | 32.6 | 51 | 19.5 | 53.5 | 36 | 3 |
| | K.I.A Met | 2.1 | 26.3 | 8 | 2.7 | 46.6 | 6 | 2 |
| | Kasiya Agric | 26.5 | 26.9 | 99 | 26.5 | 77.9 | 34 | 2 |
| | Njolomole | 49.9 | 16.5 | 302 | 103.4 | 59.9 | 173 | 3 |
| | Nathenje Agric | 75.0 | 22.5 | 333 | 75.0 | 44.6 | 168 | 1 |
| | Nkhande | 45.9 | 17.4 | 264 | 45.9 | 57.9 | 79 | 3 |
| | Dedza Met | 11.5 | 24.8 | 46 | 17.9 | 60.6 | 30 | 2 |
| Salima | Dwangwa Sugar | 1.7 | 30.3 | 6 | 13.4 | 52.4 | 26 | 1 |
| | Lifuwu | 0.0 | 13.5 | 0 | 22.9 | 20.3 | 113 | 0 |
| | Nkhotakota Met | 0.9 | 14.0 | 6 | 2.3 | 30.4 | 8 | 1 |
| | Salima Met | 0.0 | 11.9 | 0 | 37.8 | 25.9 | 146 | 0 |
| Machinga | Balaka Town | 15.7 | 20.2 | 78 | 19.0 | 66.4 | 29 | 1 |
| | Chancellor Col. | 27.0 | 27.5 | 98 | 74.3 | 75.5 | 98 | 2 |
| | Chikweo Agric. | 16.0 | 32.9 | 49 | 16.0 | 59.0 | 27 | 1 |
| | Chingale Agric | 12.4 | 20.8 | 60 | 19.5 | 52.5 | 37 | 4 |
| | Mpilipili (Makan | 9.5 | 15.9 | 60 | 16.2 | 43.5 | 37 | 1 |
| | Makoka Met | 41.6 | 18.1 | 230 | 50.4 | 57.9 | 87 | 5 |
| | Mangochi Met. | 11.6 | 7.3 | 159 | 22.8 | 28.5 | 80 | 1 |
| | Monkey Bay | 0.0 | 3.9 | 0 | 18.4 | 13.9 | 132 | 0 |
| | Namwera Agric | 5.4 | 27.1 | 20 | 13.2 | 61.4 | 21 | 1 |
| | Phalula Agric | 6.7 | 32.4 | 21 | 37.2 | 73.4 | 51 | 2 |
| | Toleza Farm | 15.9 | 23.6 | 67 | 143.7 | 59.4 | 242 | 3 |
| Zomba Agri | 41.8 | 20.2 | 207 | 57.7 | 64.0 | 90 | 2 | |
| Blantyre | Bvumbwe Met. | 19.9 | 34.0 | 59 | 43.0 | 84.9 | 51 | 6 |
| | Chichiri Met. | 3.9 | 59.2 | 7 | 39.0 | 225.7 | 17 | 3 |
| | Chileka Airport | 40.4 | 30.7 | 132 | 46.8 | 79.1 | 59 | 4 |
| | Chiradzulu Agr | 13.3 | 23.5 | 57 | 36.9 | 80.8 | 46 | 2 |
| | Chizunga Facto | 18.4 | 38.1 | 48 | 31.9 | 115.6 | 28 | 3 |
| | Lujeri Tea Est | 38.0 | 90.5 | 42 | 164.6 | 248.4 | 66 | 3 |
| | Mimosa Met. | 18.9 | 49.4 | 38 | 24.2 | 145.1 | 17 | 3 |
| | Mpemba Vet | 29.6 | 33.0 | 90 | 74.3 | 96.6 | 77 | 3 |
| | Mulanje Boma | 36.2 | 49.8 | 73 | 110.5 | 212.1 | 52 | 3 |
| | Mwanza Boma | 58.3 | 21.7 | 269 | 61.5 | 91.2 | 67 | 3 |
| | Satemwa Tea E | 22.0 | 26.4 | 83 | 32.5 | 90.9 | 36 | 3 |
| | Thuchila Agric | 61.2 | 17.6 | 348 | 118.4 | 66.7 | 178 | 4 |
| | Thyolo Met | 0.0 | 24.5 | 0 | 12.4 | 98.9 | 13 | 0 |
| | Shire Valley | Chikwawa | 21.6 | 21.9 | 99 | 21.6 | 55.5 | 39 |
| Kasinthula Res. | | 11.0 | 13.7 | 80 | 11.0 | 60.0 | 18 | 3 |
| Makhanga Met | | 23.8 | 20.9 | 114 | 54.0 | 64.2 | 84 | 2 |
| Nchalo Sucoma | | 31.4 | 19.4 | 162 | 31.4 | 50.1 | 62 | 2 |
| Ngabu Met. | | 35.5 | 15.5 | 229 | 38.7 | 55.5 | 70 | 3 |
| Nsanje Boma | | 24.7 | 34.3 | 72 | 26.5 | 119.2 | 22 | 2 |

TABLE 1: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 NOVEMBER 2019

| STATION | MAX TEMP (°C) | MIN TEMP (°C) | ABS MAX (°C) | ABS MIN (°C) | WIND SPEED Km/Hr | RH % | SUN SHINE HOURS | Eo mm per day | Et mm per day | RADIATION cal cm ⁻² p/day |
|-------------------------|---------------|---------------|--------------|--------------|------------------|------|-----------------|---------------|---------------|--------------------------------------|
| KARONGA ADD | | | | | | | | | | |
| CHITIPA | 32.6 | 20.3 | 35.5 | 18.2 | 11.9 | 46 | 7.9 | 11.7 | 10.2 | 9.6 |
| KARONGA | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| MZUZU ADD | | | | | | | | | | |
| BOLERO | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| MZIMBA | 32.2 | 19.4 | 36.3 | 18.0 | 4.7 | 47 | 9.6 | 9.2 | 7.5 | 10.7 |
| MZUZU | 31.3 | 18.2 | 34.0 | 16.3 | 5.0 | 50 | 10.2 | 9.2 | 7.5 | 11.2 |
| NKHATA BAY | 36.9 | 21.5 | 39.0 | 20.1 | 3.2 | 50 | 9.2 | 9.3 | 7.6 | 10.5 |
| KASUNGU ADD | | | | | | | | | | |
| KASUNGU | 32.6 | 20.6 | 36.4 | 19.5 | 7.6 | 47 | 7.8 | 10.0 | 8.5 | 9.6 |
| LILONGWE | | | | | | | | | | |
| CHITEDZE | 32.2 | 19.7 | 35.0 | 18.8 | 3.2 | 52 | 8.5 | 8.3 | 6.7 | 10.0 |
| DEDZA | 28.1 | 18.4 | 31.2 | 16.4 | 3.2 | 60 | 6.8 | 7.1 | 5.7 | 8.9 |
| K I A | 31.9 | 20.5 | 34.7 | 19.0 | 7.2 | 52 | 8.4 | 9.7 | 8.1 | 10.0 |
| SALIMA ADD | | | | | | | | | | |
| NKHOTAKOTA | 35.4 | 23.9 | 37.2 | 22.5 | 3.2 | 52 | 9.3 | 9.6 | 7.9 | 10.6 |
| SALIMA | 35.0 | 26.3 | 37.4 | 24.9 | 6.8 | 51 | 8.9 | 11.0 | 9.4 | 10.3 |
| MACHINGA ADD | | | | | | | | | | |
| NTAJA | 34.5 | 22.9 | 37.2 | 21.4 | 6.8 | 51 | 6.6 | 9.6 | 8.3 | 8.8 |
| MAKOKA | 32.0 | 20.9 | 35.3 | 19.7 | 1.8 | 56 | 7.1 | 7.4 | 6.0 | 9.1 |
| MANGOCHI | 36.6 | 24.7 | 39.1 | 21.5 | 2.2 | 48 | 8.3 | 8.8 | 7.2 | 9.9 |
| MONKEY BAY | 34.1 | 26.2 | 36.3 | 22.0 | 7.2 | 42 | 8.2 | 11.2 | 9.6 | 9.8 |
| BLANTYRE ADD | | | | | | | | | | |
| BVUMBWE | 30.4 | 20.3 | 33.9 | 18.1 | 5.8 | 62 | 6.5 | 8.0 | 6.6 | 8.7 |
| CHICHIRI | 31.6 | 21.0 | 33.7 | 19.8 | 4.0 | 55 | 6.5 | 7.9 | 6.5 | 8.7 |
| CHILEKA | 34.5 | 22.9 | 38.5 | 21.2 | 11.9 | 52 | 6.7 | 11.5 | 10.1 | 8.9 |
| MIMOSA | 34.4 | 21.0 | 37.5 | 19.5 | 2.9 | 63 | 6.6 | 7.6 | 6.2 | 8.8 |
| SHIRE VALLEY ADD | | | | | | | | | | |
| NGABU | 38.0 | 26.0 | 41.7 | 23.0 | 3.2 | 42 | 8.5 | 9.8 | 8.2 | 10.0 |

Glossary of some terms on this table

- Eo = Potential Evaporation, Et = Potential Evapotranspiration and RH = Relative Humidity
- Mean Temperature of the day = (Max of the day + Min of the same day)/2
- ABS Max (Min) = Absolute Maximum (minimum) is the highest (lowest) of maximum (minimum) temperatures observed for a given number of days (calendar month) of a specified period of months (years).
- To convert Kilometres per hour (Km/hr) to Meters Per Second (mps) = Km/hr ÷3.6