



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: 21 – 30 November 2018

Season: 2018/2019

Issue No.06

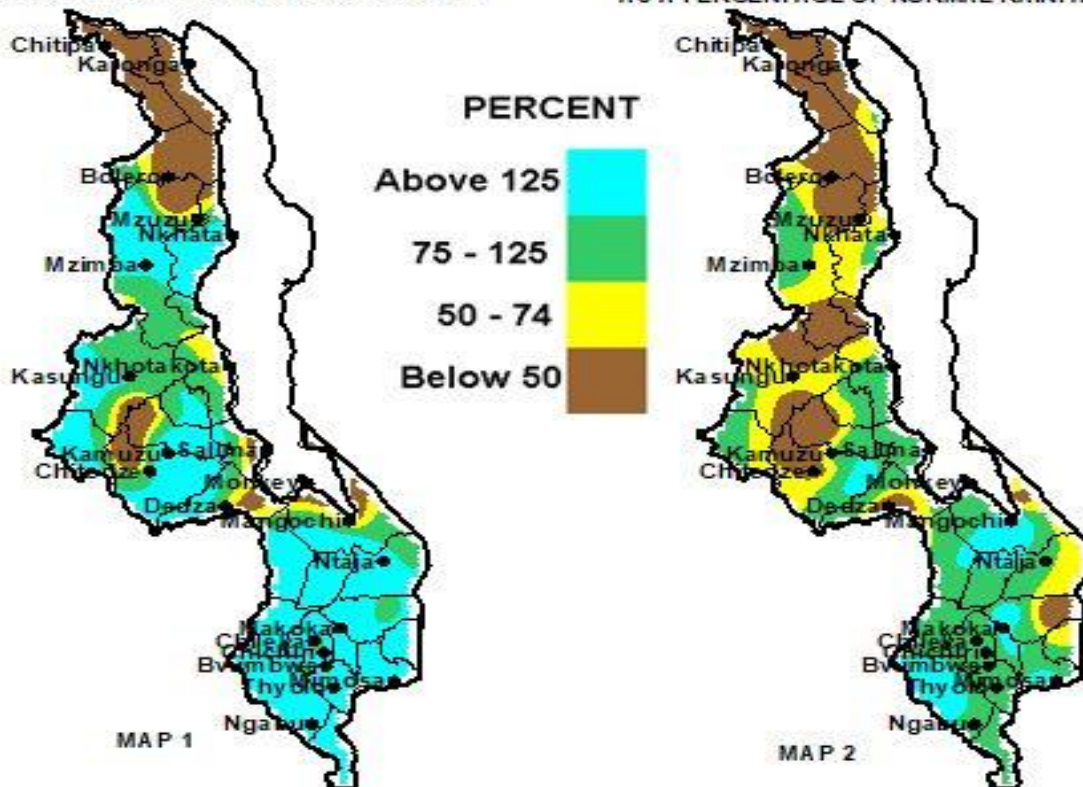
Release date: 06 December 2018

HIGHLIGHTS

- Light to moderate and locally heavy rainfall amounts were experienced ...
- Major agro-activities included land preparation, procurement of farm inputs and planting...
- More rainfall expected during the period 1 to 10 December 2018...

10-DAY TOTAL RAINFALL FOR 21 - 30 NOVEMBER 2018
AS A PERCENTAGE OF NORMAL RAINFALL

CUMULATIVE RAIN FALL FROM 1 OCTOBER TO 30 NOVEMBER 2018
AS A PERCENTAGE OF NORMAL RAINFALL



Rainfall Maps for 21 to 30 November 2018

1.0 WEATHER SUMMARY

During the last ten days of November 2018, inland surface heating over the interior subcontinent coupled with frontal low pressure system off south east coast of Republic of South Africa had caused pressure falls over the Eastern subcontinent including Malawi. As a result, the Equatorial rain-belt shifted southwards and rain clouds spread over Malawi. Hence, light to moderate and locally heavy rainfall amounts were observed over Malawi.

1.1 RAINFALL SITUATION

During the last ten days of November 2018, light to moderate rainfall amounts were reported over Malawi. However, the cumulative amounts were generally lower than the long-term mean rainfall amounts for the period over most northern and central areas (Yellow and Brown colours in Map1). Areas that had reported cumulative rainfall amounts exceeding 30mm during the ten-day period included Chikangawa in Mzimba which recorded 38mm, Mzimba Boma recorded 42.7mm, Nkhata Bay recorded 65mm, Nathenje Agric in Lilongwe had 71mm, Dowa Agriculture had 56mm, Makoka in Zomba reported 72mm, Chichiri reported 113mm, Chikwawa Boma reported 139mm and Lujeri Tea Est in Mulanje had 237mm. More details are in Table 1 and Map 1.

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2018/19 rainfall season in October 2018, up to 30 November 2018. The map generally indicates that most northern and central areas have received below normal rainfall (Brown and Yellow colours) with most southern areas receiving normal to above normal rainfall (Green to light Blue colours).

1.3 AIR TEMPERATURE

Generally hot temperatures were experienced over Malawi during the last ten days of November 2018. Mean daily maximum temperatures had ranged from 25°C at Dedza to 34°C at Ngabu while the mean daily minimum temperatures had ranged from 17°C at Mzuzu to 25°C at Monkey Bay in Mangochi district. Details in Table 2.

1.4 WIND SPEEDS

During the period 21 to 30 November 2018 most parts of Malawi continued to experience light to moderate wind speeds. Daily average wind speeds measured at a height of two metres above the ground level across the country had ranged from 2.9km per hour at Chitedze in Lilongwe district to 11.5km per hour at Chileka in Blantyre district. More details in Table 2.

1.5 RELATIVE HUMIDITY

During the period 21 to 30 November 2018, air over Malawi was still generally dry. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 51% at Monkey Bay to 79% at Bvumbwe in Thyolo district. Details as in Table 2.

1.6 SUNSHINE HOURS

Generally medium hours of bright sunshine were observed over Malawi during the last ten days of November 2018. The daily values had ranged from as low as 3.2 hours per day at Kasungu to 7.6 hours per day at Mzimba and the amount of Solar Radiation had ranged from 6.6 to 9.5 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the last ten days of November 2018 there was an improvement in spatial coverage of rainfall over Malawi and light to moderate rainfall amounts were reported. In areas where significant rainfall amounts have been received, farmers were reported to have started planting crops and some crops have germinated. The major on-farm agricultural activities over Malawi included land preparation, procurement of farm inputs and equipment.

For proper utilization of rainfall, farmers should adhere to principles of good crop husbandry including early land preparation, use of appropriate seeds, timely planting, implementation of proper plant population and spacing, control of weeds, pests and diseases, fertilizer application and supplemental irrigation when necessary.

3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

Global models are projecting the development of weak El Nino conditions during the month of December 2018. Therefore, the rainfall forecast for the 2018/19 season in Malawi based on expectations of El Nino is that: **“During the period October 2018 to March 2019, most of the northern areas spilling over into north of central areas of the country are expected to receive normal to above normal rainfall amounts, while most of the southern areas spilling over into south of central areas of the country are expected to receive normal to below normal rainfall amounts.”**

4. OUTLOOK FOR 01 TO 10 DECEMBER 2018

Models for short and medium range forecasts show that most parts of Malawi are likely to experience improved rainfall performance during the first ten days of December 2018. Farmers are therefore advised to finalize procurement of farm inputs and land preparations to ensure planting with the first effective rainfall which have already started in some parts of Malawi.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 21 TO 30 NOVEMBER 2018

| ADD | RAINFALL STATION | ACTUAL DEKADAL TOTAL RAINFALL (mm) | DEKADAL NORMAL (EXPECTED RAINFALL) (mm) | ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTE RAINFALL) | ACTUAL TOTAL RAINFALL TO DATE (mm) | NORMAL (EXPECTED) RAINFALL TO DATE (mm) | ACTUAL TO DATE AS PERCENTAGE OF NORMAL (EXPECTED) RAINFALL | RAINY DAYS ≥ 3mm | |
|-----------------------|--------------------|------------------------------------|---|---|------------------------------------|---|--|------------------|---|
| KARONGA | Baka Res. Stn. | 2.4 | 31.7 | 8 | 2.4 | 42.9 | 6 | 2 | |
| | Chitipa Met | 7.5 | 44.8 | 17 | 31.5 | 75.9 | 42 | 4 | |
| | Karonga Met. | 6.2 | 28.7 | 22 | 10.2 | 49.5 | 21 | 1 | |
| | Lupembe | 11.0 | 22.2 | 50 | 11.0 | 39.4 | 28 | 1 | |
| MZUZU | Bohero Met | 3.0 | 20.6 | 15 | 19.4 | 44.0 | 44 | 2 | |
| | Bwengu Agric. | 0.0 | 22.2 | 0 | 6.3 | 57.3 | 11 | 0 | |
| | Chikangawa forest | 37.7 | 32.2 | 117 | 37.7 | 87.9 | 43 | 5 | |
| | Chintheche Agric | 139.5 | 40.0 | 349 | 139.5 | 131.7 | 106 | 3 | |
| | Ekwendeni Agric. | 13.5 | 12.1 | 112 | 16.3 | 102.9 | 16 | 1 | |
| | Euthini Agric. | 76.5 | 26.4 | 290 | 76.5 | 60.2 | 127 | 3 | |
| | Mbawa Res. Stn | 15.8 | 25.4 | 62 | 50.0 | 70.2 | 71 | 4 | |
| | Mzimba Met | 42.7 | 24.2 | 176 | 57.5 | 63.3 | 91 | 2 | |
| | Mzuzu Met. | 21.1 | 30.5 | 69 | 54.7 | 107.4 | 51 | 3 | |
| | NkhataBay Met. | 64.7 | 31.7 | 204 | 84.2 | 95.6 | 88 | 4 | |
| | Rumpho Boma | 0.0 | 20.0 | 0 | 15.6 | 43.4 | 36 | 0 | |
| | Zombwe Agric | 0.0 | 19.5 | 0 | 0.0 | 60.2 | 0 | 0 | |
| KASUNGU | Dowa Agric | 55.8 | 24.0 | 233 | 63.4 | 57.8 | 110 | 2 | |
| | Kasungu Met | 21.1 | 25.3 | 83 | 25.9 | 52.9 | 49 | 5 | |
| | Lisasadzi | 8.6 | 22.6 | 38 | 13.2 | 45.4 | 29 | 2 | |
| | Malomo Agric | 32.9 | 21.2 | 155 | 39.7 | 43.7 | 91 | 3 | |
| | Madisi Agric | 0.0 | 19.3 | 0 | 7.6 | 49.3 | 15 | 0 | |
| | Mchinji Boma | 97.6 | 40.0 | 244 | 111.1 | 113.4 | 98 | 7 | |
| | Mkanda Met | 55.6 | 30.0 | 185 | 83.7 | 85.9 | 97 | 6 | |
| | Mwimba Research | 47.8 | 23.0 | 208 | 63.2 | 67.4 | 94 | 3 | |
| | Ntchisi Boma | 32.1 | 33.0 | 97 | 53.5 | 62.2 | 86 | 3 | |
| | Chileka Namitete | 39.9 | 39.6 | 101 | 54.8 | 99.9 | 55 | 5 | |
| | Chitedze Met. | 21.3 | 32.5 | 66 | 38.6 | 86.0 | 45 | 5 | |
| | Dzonzi Forest | 77.8 | 34.3 | 227 | 130.2 | 93.9 | 139 | 4 | |
| LILONGWE | K.I.A Met | 49.9 | 19.1 | 261 | 57.4 | 65.7 | 87 | 2 | |
| | Kasiya Agric | 0.0 | 31.8 | 0 | 27.2 | 109.7 | 25 | 0 | |
| | Mlangeni Njolomole | 51.5 | 29.9 | 172 | 58.0 | 89.8 | 65 | 5 | |
| | Mtakataka Airwing | 0.0 | 22.4 | 0 | 44.5 | 52.4 | 85 | 0 | |
| | Nathenje Agric | 70.5 | 29.0 | 243 | 131.2 | 73.6 | 178 | 3 | |
| | Ntcheu - Nkhande | 50.8 | 34.1 | 149 | 63.3 | 92.0 | 69 | 4 | |
| | Dedza Met | 4.1 | 22.1 | 19 | 26.8 | 82.7 | 32 | 5 | |
| | Dwangwa | 29.9 | 39.8 | 75 | 32.9 | 92.2 | 36 | 3 | |
| | Lifuwu | 0.0 | 22.1 | 0 | 27.0 | 42.4 | 64 | 0 | |
| | Nkhotakota Met | 9.2 | 25.5 | 36 | 55.8 | 55.9 | 100 | 3 | |
| | Salima Met | 0.4 | 16.8 | 2 | 38.6 | 42.7 | 90 | 1 | |
| | MACHINGA | Balaka Agric | 39.2 | 34.3 | 114 | 75.5 | 100.7 | 75 | 4 |
| Chancellor College | | 27.8 | 48.0 | 58 | 29.3 | 123.5 | 24 | 3 | |
| Chikweo Agric. | | 28.6 | 25.7 | 111 | 54.3 | 84.7 | 64 | 2 | |
| Chingale Agric | | 81.9 | 36.2 | 226 | 133.6 | 88.7 | 151 | 7 | |
| Mpilipili (Makanjila) | | 9.1 | 20.6 | 44 | 23.9 | 64.1 | 37 | 1 | |
| Makoka Met | | 72.4 | 35.0 | 207 | 143.0 | 92.9 | 154 | 7 | |
| Mangochi Met. | | 7.9 | 16.9 | 47 | 81.7 | 45.4 | 180 | 2 | |
| Monkey Bay Met. | | 1.8 | 8.1 | 22 | 25.1 | 22.0 | 114 | 1 | |
| Namiasi Agric | | 4.1 | 16.7 | 25 | 23.1 | 39.6 | 58 | 1 | |
| Namwera Agric | | 27.5 | 32.8 | 84 | 63.4 | 94.2 | 67 | 3 | |
| Phalula Agric | | 56.9 | 40.7 | 140 | 71.9 | 114.1 | 63 | 4 | |
| Toleza Farm | | 100.5 | 23.2 | 433 | 136.8 | 82.6 | 166 | 7 | |
| Zomba RTC | | 22.8 | 46.5 | 49 | 22.8 | 110.5 | 21 | 3 | |
| BLANTYRE | | Bvumbwe Met. | 102.3 | 43.7 | 234 | 165.7 | 128.6 | 129 | 7 |
| | | Chichiri Met. | 112.9 | 75.9 | 149 | 157.1 | 301.6 | 52 | 7 |
| | Chileka Airport | 33.6 | 43.9 | 77 | 117.6 | 123.0 | 96 | 5 | |
| | Chiradzulu Agric | 95.0 | 42.1 | 226 | 189.5 | 122.9 | 154 | 7 | |
| | Chizunga Factory | 65.5 | 42.0 | 156 | 80.7 | 157.6 | 51 | 2 | |
| | Lujeri Tea Estate | 237.6 | 67.8 | 350 | 419.5 | 316.2 | 133 | 7 | |
| | Mimosa Met. | 66.4 | 58.6 | 113 | 136.0 | 203.7 | 67 | 7 | |
| | Mpemba Vet | 93.2 | 49.3 | 189 | 150.3 | 145.9 | 103 | 5 | |
| | Mulanje Boma | 241.7 | 81.8 | 295 | 416.6 | 293.9 | 142 | 6 | |
| | Mwanza Boma | 147.8 | 52.5 | 282 | 159.0 | 143.7 | 111 | 5 | |
| | Neno Agric | 107.6 | 40.7 | 264 | 130.4 | 117.5 | 111 | 5 | |
| | Satemwa Tea Est. | 130.1 | 43.5 | 299 | 190.1 | 134.4 | 141 | 5 | |
| | Thuchila Agric | 92.4 | 28.4 | 325 | 92.4 | 95.1 | 97 | 5 | |
| | Thyolo Met | 123.2 | 44.7 | 276 | 148.8 | 143.6 | 104 | 5 | |
| | Bvumbwe Met. | 102.3 | 43.7 | 234 | 165.7 | 128.6 | 129 | 7 | |
| | SHIRE VALLEY | Chikwawa Boma | 139.7 | 42.2 | 331 | 145.4 | 97.7 | 149 | 5 |
| | | Makhanga Agric | 56.7 | 28.5 | 199 | 76.4 | 92.7 | 82 | 3 |
| | | Nchalo | 87.0 | 28.0 | 311 | 96.3 | 78.1 | 123 | 6 |
| Ngabu Met. | | 101.7 | 32.8 | 310 | 101.7 | 88.3 | 115 | 7 | |
| Nsanje Boma | | 97.5 | 35.1 | 278 | 123.6 | 154.3 | 80 | 7 | |

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 30 NOVEMBER 2018

| STATION/ADD | 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 | 29.9 | 19.1 | 33.1 | 17.4 | 9.4 | 62 | 6.4 | 6.9 | 5.6 | 8.6 |
| KARONGA | 33.0 | 22.6 | 35.2 | 21.4 | 6.5 | 60 | 7.3 | 7.6 | 6.2 | 9.2 |
| MZUZU ADD | | | | | | | | | | |
| BOLERO | 32.5 | 21.0 | 35.7 | 19.9 | 4.3 | 53 | 7.5 | 7.4 | 5.9 | 9.4 |
| MZIMBA | 29.0 | 18.3 | 32.6 | 17.8 | 4.0 | 62 | 7.6 | 6.8 | 5.4 | 9.5 |
| MZUZU | 28.5 | 16.7 | 31.1 | 15.2 | 6.5 | 66 | 7.5 | 6.7 | 5.3 | 9.4 |
| NKHATA BAY | 33.0 | 21.2 | 35.6 | 20.0 | 3.2 | 61 | 6.3 | 6.8 | 5.5 | 8.6 |
| KASUNGU ADD | | | | | | | | | | |
| KASUNGU | 28.8 | 19.8 | 33.5 | 18.5 | 7.9 | 55 | 3.2 | 5.9 | 4.9 | 6.6 |
| LILONGWE ADD | | | | | | | | | | |
| CHITEDZE | 28.9 | 19.0 | 33.6 | 16.5 | 2.9 | 67 | 4.4 | 5.6 | 4.5 | 7.4 |
| DEDZA | 25.0 | 17.3 | 29.6 | 15.7 | 9.0 | 72 | 4.5 | 5.6 | 4.5 | 7.5 |
| K I A | 27.5 | 19.2 | 33.0 | 16.7 | 6.1 | 66 | 4.4 | 5.8 | 4.7 | 7.4 |
| SALIMA ADD | | | | | | | | | | |
| NKHOTAKOTA | 31.3 | 22.0 | 34.0 | 21.0 | 4.3 | 58 | 6.3 | 7.1 | 5.7 | 8.7 |
| SALIMA | 32.1 | 24.5 | 34.8 | 23.6 | 11.2 | 62 | 6.0 | 7.5 | 6.2 | 8.4 |
| MACHINGA ADD | | | | | | | | | | |
| NTAJA | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| MAKOKA | 28.6 | 19.3 | 34.2 | 17.5 | 6.1 | 75 | 3.6 | 5.4 | 4.3 | 6.9 |
| MANGOCHI | 31.9 | 23.1 | 35.2 | 21.9 | 5.8 | 57 | 6.0 | 7.1 | 5.8 | 8.5 |
| MONKEY BAY | 32.6 | 24.7 | 34.7 | 23.6 | 8.3 | 51 | 6.0 | 7.7 | 6.3 | 8.4 |
| BLANTYRE ADD | | | | | | | | | | |
| BVUMBWE | 26.3 | 17.9 | 33.4 | 12.1 | 6.1 | 79 | 5.0 | 5.5 | 4.4 | 7.8 |
| CHICHIRI | 27.5 | 19.3 | 33.4 | 17.0 | 6.5 | 72 | 5.0 | 5.9 | 4.7 | 7.8 |
| CHILEKA | 30.0 | 20.5 | 36.0 | 18.4 | 11.5 | 64 | 5.1 | 6.7 | 5.5 | 7.9 |
| MIMOSA | 30.4 | 20.5 | 37.0 | 17.6 | 3.6 | 74 | 5.5 | 6.1 | 4.9 | 8.1 |
| SHIRE VALLEY ADD | | | | | | | | | | |
| NGABU | 34.0 | 24.2 | 43.0 | 21.1 | 3.2 | 62 | 7.5 | 7.7 | 6.2 | 9.4 |

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 Meters Per Second (mps) to Kilometres per hour (Km/hr) = mps x 3.6