REPUBLIC OF MALAWI

Ministry of Natural Resources, Energy and Mining
Department of Climate Change and Meteorological Services

# 10-day Weather and Agrometeorological Bulletin

*In support of national early warning systems and food security*

Be wise be weather-wise

Period: 21 – 31 March 2016 | Season: 2015/2016 | Issue No.18

Release date: 04 April 2016

## HIGHLIGHTS

- **Mostly below average rainfall amounts experienced over Malawi…**
- **Maize crop ranged from maturity to drying and harvesting stages…**
- **Scattered locally heavy rains expected over Malawi during 01 to 10 April 2016…**

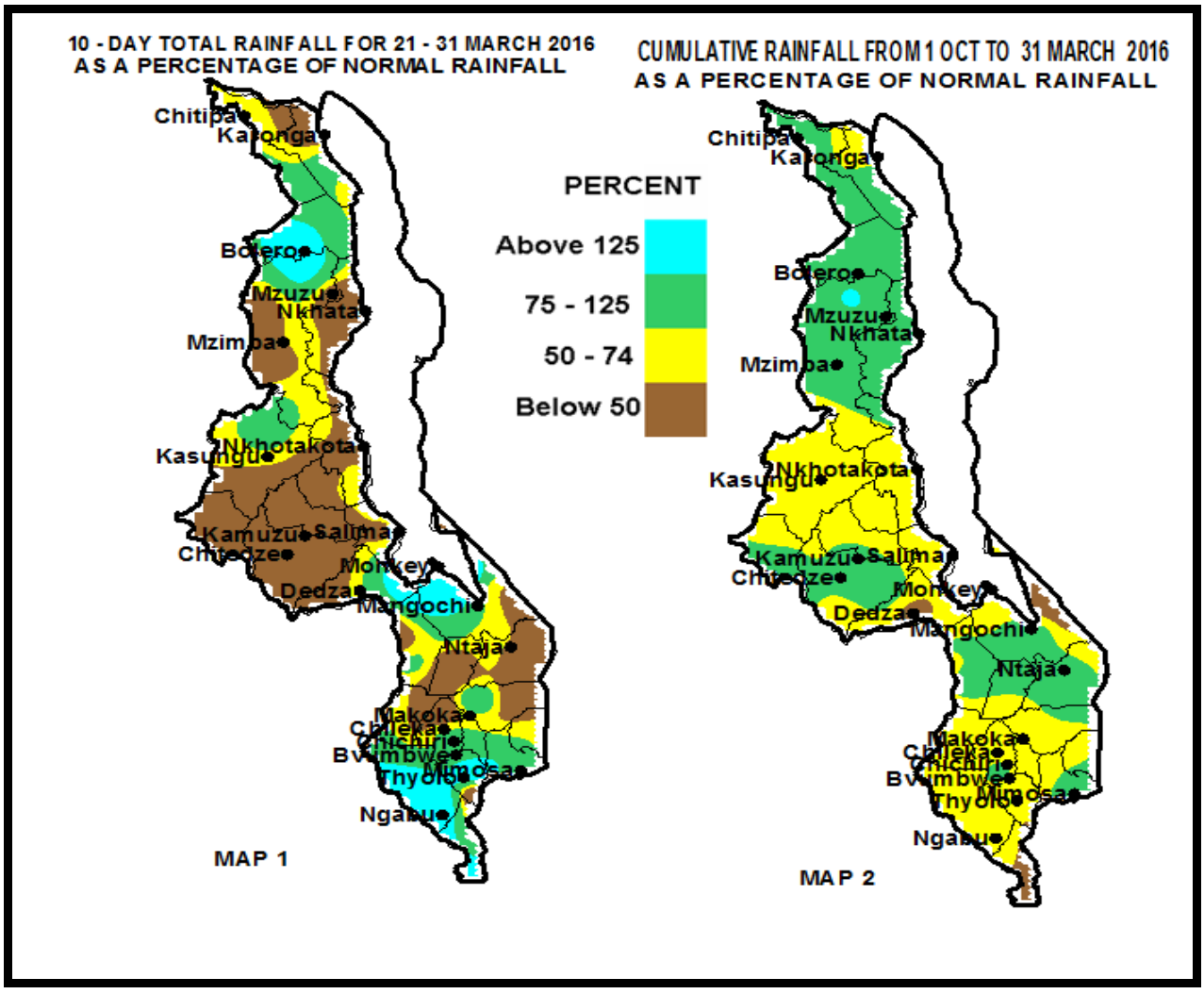


**Figure 1: Rainfall Maps for 21 to 31 March 2016**

## 1.0 WEATHER SUMMRY

During the last ten days of March 2016 the main rain belt had moved to north of Malawi. As a result very few areas in Malawi had received average to above average rainfall amounts.

All inquiries should be addressed to: The Director of Climate Change and Meteorological Services, P.O. Box 1808, Blantyre, MALAWI
Tel: (265) 1 822 014/106 Fax: (265) 1 822 215 E-mail: metdept@metmalawi.com Homepage: www.metmalawi.com

## 1.1 RAINFALL SITUATION

During the period 21 to 31 March 2016, moderate to heavy rainfall with better distribution was confined to very few areas in the south and north while most areas in Malawi had experienced average to far below average cumulative rainfall amounts with an average of one to two rainfall days. In the southern Malawi rainfall stations that had registered significant cumulative rainfall amounts of at least 75mm were mostly from Nsanje, Chikwawa and southern highlands and included Lujeri Tea Estate which had registered 110mm, Chizunga factory had recorded 99mm, Mulanje Boma had 98mm, 95mm was recorded at Satemwa Tea Estate, Ngabu Met and Nsanje Agric had 75mm each and in the north Lupembe Agric and Chelinda at Nyika plateau had reported 88mm. Most areas in Malawi had experienced low rainfall and long dry spells. More details are in Table 1.
Map 2 in Figure 1 shows cumulative rainfall performance during the period October 2015 up to 31 March 2016. The map indicates that seasonal rainfall deficits (yellow to brown colour) still existed in most parts of southern and central Malawi while generally northern Malawi has received average cumulative rainfall amounts. Refer to Map 2 and Table 1 for more details.

## 1.3 AIR TEMPERATURE

During the period 21 to 31 March 2016 warm to hot weather had covered most parts of Malawi. The average daily maximum temperatures had ranged from 25.3°C at Bvumbwe to 32.7°C at Ngabu in Chikwawa district. The average minimum temperatures were between 15°C and 22.9°C at Dedza and Ngabu respectively. The highest maximum temperature was 35.4°C still recorded at Ngabu in Chikwawa while the lowest temperature was 12.3°C reported at Dedza. For more details refer to Table 2.

## 1.4 WIND SPEEDS

During the 21 to 31 March 2016 daily average wind speeds measured at a height of two metres above the ground level across Malawi had ranged from 1.1Km per hour at Mangochi to 8.6km per hour at Chileka. High wind speeds have a good for generation of wind energy. More details are in Table 2.

## 1.5 RELATIVE HUMIDITY

During the period 21 to 31 March 2016, air over Malawi was fairly moist and unstable. The daily average relative humidity values had ranged from 62% at Mangochi Met to 80% at Mzuzu and Nkhata Bay. High relative humidity values are conducive for fungal diseases. Details are on the Table 2.

## 1.6 SUNSHINE HOURS

The mean durations of bright sunshine hours in Malawi were between 5 and 8.7 hours. The highest mean sunshine hours was observed at Makoka in southern Malawi. Details are on the Table 2. More sunshine hours are required for drying crops which are at maturity and drying stages.

## 2. AGROMETEOROLOGICAL ASSESSMENT

The moderate to heavy rains that continued to fall during the period 21 to 31 March 2016 were supportive to growth and development of roots and tubers as well as the late planted crops while sunny and dry conditions were favourable for harvesting and drying of matured crops. The rains had also assisted in replenishing soil moisture reserves and water bodies. On the negative note the wet weather had hampered harvesting and drying of matured crops.

Maize crop had ranged from maturity and drying and harvesting stages. Reports have indicated that the food security situation has improved slightly because some farm families have started harvesting matured crops. However, the relief is temporally as most farm families particularly in southern Malawi will not harvest enough maize this season due to the negative effects of erratic rainfall and prolonged dry spells. Crops that had reached physiological maturity required more sunshine hours for harvesting and drying.

Based on the rainfall performance during the 2015-2016 and hectarage figures from 2nd round 2016 Agricultural Production Estimates, the national maize production estimates from the Water Requirement Satisfaction Index model is projected at **2,627,560MTs**. This is the first season since 2007/08 that total maize production in Malawi is far below national requirement of around **3.0** million metric tons.

## 3. PROSPECTS FOR 2015-2016 RAINFALL SEASON

Most climate models predict that strong El Nino conditions are weakening and expected to reach neutral levels by May, June, July (MJJ) 2016 and possibly La Nina conditions during 2016/17 agriculture season. However, rainfall outlook for April to June (AMJ) 2016 suggest that Malawi is likely to experience below average rainfall amounts during the period.

## 4. OUTLOOK FOR 01 TO 10 APRIL 2016

Models for short and medium range rainfall forecasts suggest that most parts of Malawi will be under the influence of easterly waves. Therefore fairly scattered rainfall associated with locally heavy downpours is expected over the Malawi during the first ten days of April 2016.

## TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 21 TO 31 MARCH 2016

| ADD | RAINFALL STATION | ACTUAL DEKADAL TOTAL RAINFALL (mm) | DEKADAL NORMAL (EXPECTED) RAINFALL (mm) | ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED) RAINFALL | ACTUAL TOTAL RAINFALL TODATE (mm) | NORMAL (EXPECTED) RAINFALL TODATE (mm) | ACTUAL TODATE AS PERCENTAGE OF NORMAL (EXPECTED) RAINFALL | RAINY DAYS ≥ 0.3 mm |
|---|---|---|---|---|---|---|---|---|
| **KARONGA** | Baka Res. Stn. | 5.8 | 188.6 | 3 | 452.4 | 1059.9 | 43 | 1 |
| | Chitipa Met | 36.7 | 52.8 | 70 | 839.8 | 880.5 | 95 | 7 |
| | Karonga Met. | 11.0 | 114 | 10 | 420.6 | 807.7 | 52 | 3 |
| | Lupembe Agric | 87.5 | 89.4 | 98 | 831 | 710.8 | 117 | 3 |
| | Vinthukutu Agric | 61.4 | 122.5 | 50 | 889.6 | 881 | 101 | 3 |
| **MZUZU** | Bolero Met | 57.0 | 29.6 | 193 | 706.6 | 595.9 | 119 | 2 |
| | Bwengu Agric. | 66.9 | 49.3 | 136 | 736 | 712.2 | 103 | 3 |
| | Chikangawa forest | 55.7 | 95.2 | 59 | 883.1 | 968.7 | 91 | 2 |
| | Chelinda ( Nyika) | 88.0 | 89.1 | 99 | 1089.9 | 1071.7 | 102 | 10 |
| | Chintheche Agric | 60.5 | 190 | 32 | 1600.4 | 1325.6 | 121 | 2 |
| | Euthini Agric. | 13.8 | 44.6 | 31 | 668.4 | 725.5 | 92 | 2 |
| | Mbawa Res. Stn | 5.3 | 35.8 | 15 | 583.3 | 765.1 | 76 | 3 |
| | Mzimba Met | 24.4 | 48.2 | 51 | 836 | 838.8 | 100 | 4 |
| | Mzuzu Met. | 5.7 | 100.9 | 6 | 849.3 | 876.2 | 97 | 4 |
| | NkhataBay Met. | 25.0 | 167 | 15 | 952.9 | 1082.9 | 88 | 3 |
| | Rumphi Boma | 41.2 | 38.4 | 107 | 790.4 | 676.8 | 117 | 1 |
| | Zombwe Agric | 73.0 | 56.7 | 129 | 910.9 | 680.9 | 134 | 2 |
| **KASUNGU** | Dowa Agric | 10.8 | 41.3 | 26 | 538.7 | 835.4 | 64 | 3 |
| | Kaluluma DTC | 28.6 | 27.8 | 103 | 448.2 | 764.7 | 59 | 1 |
| | Kasungu Met | 23.3 | 31.1 | 75 | 590.3 | 743.2 | 79 | 4 |
| | Lisasadzi | 3.4 | 23.5 | 14 | 474.7 | 776.3 | 61 | 1 |
| | Malomo Agric | 7.4 | 30.8 | 24 | 361.2 | 792.1 | 46 | 1 |
| | Madisi Agric | 11.0 | 27.5 | 40 | 481.9 | 796.4 | 61 | 2 |
| | Mchinji Boma | 23.8 | 50.6 | 47 | 759.9 | 948.6 | 80 | 2 |
| | Mkanda Met | 12.7 | 43.7 | 29 | 595 | 827.4 | 72 | 2 |
| | Mponela Agric | 11.2 | 27.9 | 40 | 510.1 | 767.4 | 66 | 2 |
| | Ntchisi Boma | 46.2 | 67.5 | 68 | 664.8 | 1141.6 | 58 | 1 |
| | Dowa Agric | 10.8 | 41.3 | 26 | 538.7 | 835.4 | 64 | 3 |
| **SALIMA** | Dwangwa | 60.7 | 143.8 | 42 | 853.7 | 1136.1 | 75 | 2 |
| | Lifuwu | 50.8 | 71.7 | 71 | 562.6 | 1128.9 | 50 | 3 |
| | Salima Met | 17.1 | 71.6 | 24 | 508.8 | 1123.4 | 45 | 2 |
| **LILONGWE** | Chileka Namitete | 5.0 | 34.6 | 14 | 743.9 | 861.6 | 86 | 1 |
| | Chitedze Met. | 3.2 | 41.6 | 8 | 612.2 | 829.7 | 74 | 1 |
| | Dzonzi Forest | 43.0 | 38.5 | 112 | 861.4 | 931.8 | 92 | 2 |
| | K.I.A Met | 11.9 | 47.3 | 25 | 773.8 | 810.8 | 95 | 2 |
| | Kasiya Agric | 0.0 | 36.2 | 0 | 686.9 | 909.2 | 76 | 0 |
| | Mlangeni Njolomole | 2.0 | 44.3 | 5 | 691 | 915.2 | 76 | 1 |
| | Mtakataka Airwing | 13.9 | 36 | 39 | 213.9 | 763.5 | 28 | 3 |
| | Nathenje Agric | 0.0 | 38.5 | 0 | 928 | 796.3 | 117 | 0 |
| | Ntcheu - Nkhande | 0.0 | 45 | 0 | 585.7 | 992 | 59 | 0 |
| | Dedza Met | 36.9 | 44.3 | 83 | 604.6 | 945 | 64 | 3 |
| **MACHINGA** | Balaka Township | 0.0 | 32.8 | 0 | 701.9 | 809.5 | 87 | 0 |
| | Chancellor College | 10.0 | 75.3 | 13 | 411.4 | 1200.1 | 34 | 1 |
| | Chikweo Agric. | 27.2 | 55.8 | 49 | 574.7 | 1001.1 | 57 | 3 |
| | Chingale Agric | 37.1 | 30.1 | 123 | 598.5 | 863.2 | 69 | 4 |
| | Mpilipili (Makanjila) | 1.5 | 35 | 4 | 430.6 | 845.5 | 51 | 1 |
| | Makoka Met | 22.1 | 32.5 | 68 | 559.6 | 904.3 | 62 | 2 |
| | Mangochi Met. | 29.3 | 33.2 | 88 | 686.3 | 663.3 | 103 | 2 |
| | Monkey Bay Met. | 59.7 | 13.4 | 446 | 341 | 551.6 | 62 | 3 |
| | Namiasi Agric | 18.4 | 23.5 | 78 | 413.9 | 733 | 56 | 2 |
| | Namwera Agric | 20.4 | 51.7 | 39 | 323.2 | 972.2 | 33 | 3 |
| | Ntaja Met. | 22.6 | 48.6 | 47 | 654.4 | 827.2 | 79 | 3 |
| | Phalula Agric | 2.7 | 27.2 | 10 | 425 | 784.8 | 54 | 1 |
| | Toleza Farm | 16.0 | 29.3 | 55 | 660 | 806.1 | 82 | 1 |
| | Zomba Agric | 16.4 | 58.2 | 28 | 833.5 | 1111.8 | 75 | 1 |
| **BLANTYRE** | Bvumbwe Met. | 34.9 | 57.9 | 60 | 891.2 | 1016.1 | 88 | 2 |
| | Chichiri Met. | 28.2 | 15.3 | 184 | 775.2 | 1028.5 | 75 | 2 |
| | Chileka Airport | 8.1 | 44.5 | 18 | 589.3 | 826.9 | 71 | 1 |
| | Chiradzulu Agric | 36.3 | 44.5 | 82 | 582.6 | 919.5 | 63 | 2 |
| | Chizunga Factory | 98.7 | 71.5 | 138 | 550 | 1203.3 | 46 | 2 |
| | Lujeri Tea Estate | 110.4 | 131.2 | 84 | 1960.4 | 1744 | 112 | 3 |
| | Masambanjati Agric | 38.7 | 64.9 | 60 | 566.1 | 1188.6 | 48 | 2 |
| | Mimosa Met. | 67.4 | 81.3 | 83 | 1134.7 | 1268 | 89 | 3 |
| | Mpemba Vet | 38.2 | 52.1 | 73 | 796.8 | 1040.5 | 77 | 2 |
| | Mulanje Boma | 97.6 | 125 | 78 | 1437.6 | 1524.1 | 94 | 2 |
| | Naminjiwa Agric | 29.5 | 36.5 | 81 | 603.7 | 910.1 | 66 | 2 |
| | Neno Agric | 22.0 | 42.6 | 52 | 479.8 | 1011.1 | 47 | 1 |
| | Satemwa Tea Est. | 95.1 | 61.2 | 155 | 781.6 | 978.4 | 80 | 2 |
| | Thuchila Agric | 42.6 | 40.2 | 106 | 413.6 | 815.1 | 51 | 3 |
| | Thyolo Met | 42.3 | 56.3 | 75 | 732.6 | 1107.1 | 66 | 2 |
| **SHIRE VALLEY** | Chikwawa Boma | 40.9 | 33.9 | 121 | 477.9 | 714 | 67 | 2 |
| | Kasinthula Res. Stn. | 47.4 | 21.2 | 224 | 125.1 | 667.2 | 19 | 2 |
| | Makhanga Met | 0.0 | 25.5 | 0 | 260.7 | 676 | 39 | 0 |
| | Nchalo | 47.8 | 26.6 | 180 | 347.9 | 605.4 | 57 | 2 |
| | Ngabu Met. | 76.1 | 35.1 | 217 | 528.2 | 704.8 | 75 | 2 |
| | Nsanje Boma | 74.9 | 57.7 | 130 | 418.4 | 1000.5 | 42 | 2 |

## TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 MARCH 2016

| ADD/ STATION | MAX TEMP (°C) | MIN TEMP (°C) | ABS MAX (°C) | ABS MIN (°C) | WIND SPEED Km/hour | RH % | SUN SHINE HOURS | Eo mm per day | Et mm per day | RAD-TION calcm$^{-2}$ p/day |
|---|---|---|---|---|---|---|---|---|---|---|
| **KARONGA ADD** | | | | | | | | | | |
| Chitipa | 31.6 | 18.5 | 30.6 | 18.0 | 5.8 | 79 | 6.1 | 6.2 | 4.9 | 8.3 |
| Karonga | 31.8 | 22.3 | 33.5 | 21.5 | 4.0 | 72 | 6.1 | 6.5 | 5.2 | 8.3 |
| **MZUZU ADD** | | | | | | | | | | |
| Bolero | 29.4 | 19.0 | 31.0 | 17.8 | 3.6 | 75 | 6.0 | 5.8 | 4.6 | 8.1 |
| Mzimba | 28.3 | 17.7 | 29.9 | 16.6 | 3.6 | 76 | 5.7 | 5.6 | 4.4 | 7.9 |
| Mzuzu | 27.3 | 17.3 | 30.0 | 14.1 | 4.3 | 80 | 5.0 | 5.2 | 4.1 | 7.4 |
| Nkhata Bay | 30.7 | 22.0 | 34.5 | 20.5 | 2.2 | 80 | 5.2 | 5.7 | 4.5 | 7.6 |
| **KASUNGU ADD** | | | | | | | | | | |
| Kasungu | 30.7 | 18.3 | 32.7 | 18.3 | 2.2 | 73 | 6.8 | 6.2 | 4.8 | 8.6 |
| **LILONGWE ADD** | | | | | | | | | | |
| Chitedze | 29.5 | 18.3 | 32.2 | 15.4 | 2.5 | 72 | 7.5 | 6.4 | 5.0 | 9.1 |
| Dedza | 26.3 | 15.0 | 29.7 | 12.3 | 5.8 | 76 | 6.5 | 5.6 | 4.4 | 8.5 |
| K I A | 28.3 | 17.3 | 30.6 | 13.6+ | 4.0 | 71 | 7.9 | 6.4 | 5.0 | 9.4 |
| **SALIMA ADD** | | | | | | | | | | |
| Salima | 31.1 | 22.3 | 33.5 | 20.0 | 5.4 | 69 | 8.4 | 4.7 | 3.5 | 9.7 |
| **MACHINGA ADD** | | | | | | | | | | |
| Makoka | 27.8 | 18.3 | 30.8 | 16.1 | 5.0 | 71 | 8.7 | 6.8 | 5.3 | 9.9 |
| Mangochi | 31.3 | 22.2 | 35.0 | 20.5 | 1.1 | 62 | 7.1 | 6.6 | 5.3 | 8.9 |
| Monkey Bay | 31.1 | 22.9 | 33.0 | 20.2 | 5.8 | 71 | 7.7 | 7.2 | 5.7 | 9.3 |
| Ntaja | 30.0 | 20.9 | 32.2 | 18.6 | 4.0 | 75 | 7.3 | 6.6 | 5.2 | 9.1 |
| **BLANTYRE ADD** | | | | | | | | | | |
| Bvumbwe | 25.3 | 17.7 | 28.6 | 16.9 | 4.7 | 75 | 7.0 | 5.9 | 4.6 | 8.8 |
| Chichiri | 27.3 | 18.3 | 30.9 | 16.2 | 4.0 | 73 | 7.5 | 6.3 | 4.9 | 9.2 |
| Chileka | 26.5 | 20.0 | 32.5 | 18.2 | 8.6 | 71 | 8.4 | 6.9 | 5.5 | 9.8 |
| Mimosa | 29.3 | 19.2 | 32.8 | 15.6 | 3.2 | 63 | 7.0 | 6.4 | 5.1 | 8.9 |
| **SHIRE VALLEY ADD** | | | | | | | | | | |
| Ngabu | 32.7 | 22.9 | 35.4 | 21.6 | 4.0 | 79 | 8.5 | 7.5 | 6.0 | 9.8 |

**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 Kilometers per hour (Km/hr) to meters per second (mps) = (Km/Hr)/3.6