



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 – 31 December 2019

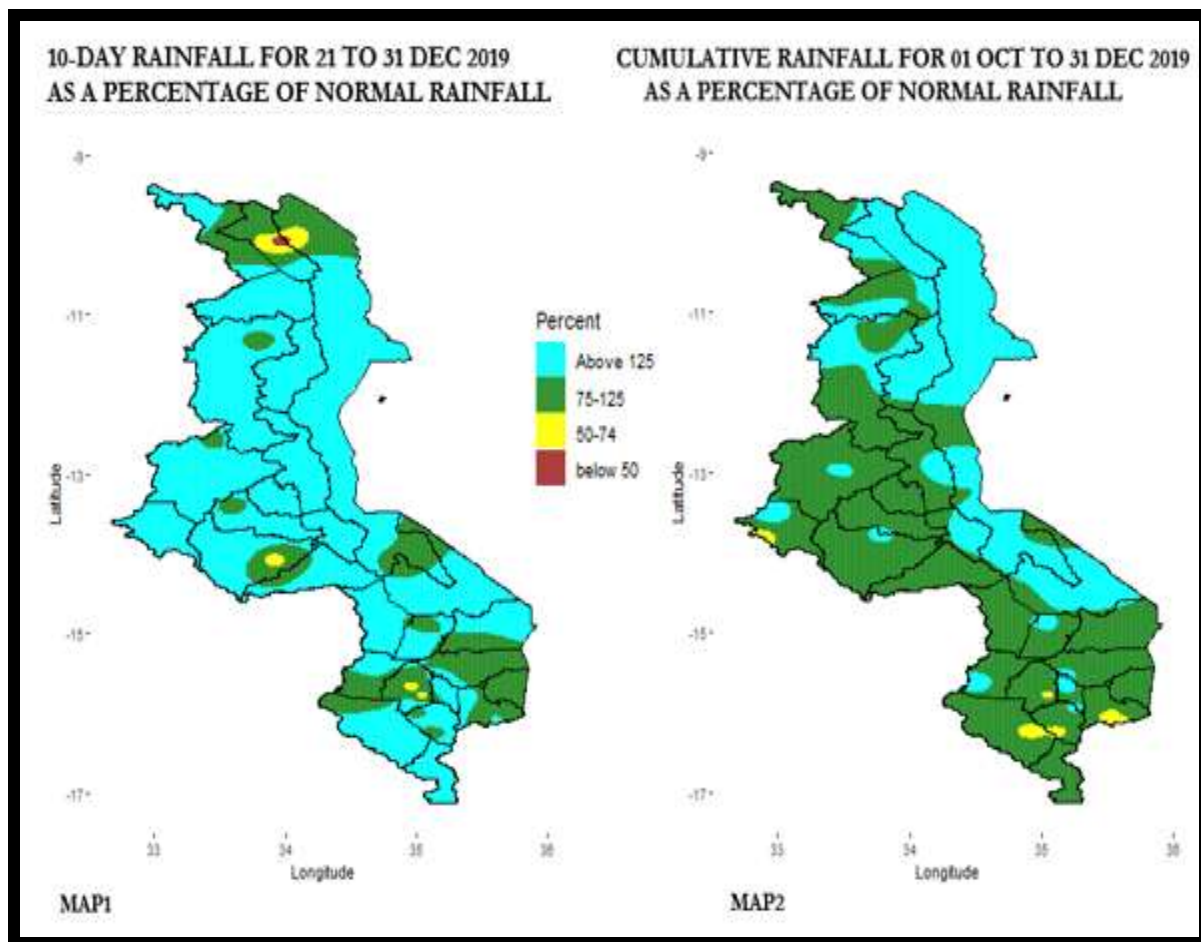
Season: 2019/2020

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## HIGHLIGHTS

- Moderate to heavy rainfall experienced over Malawi ...
- Maize crop mainly at vegetative stage and doing well...
- More rainfall expected during the period 01-10 January 2020....



## 1.0 WEATHER SUMMARY

During the period 21 to 31 December 2019, the Inter-Tropical Convergence Zone (ITCZ) oscillated over Malawi. Hence moderate to heavy rainfall amounts were observed countrywide.

### 1.1 RAINFALL SITUATION

During the period under review, moderate to heavy rainfall amounts were recorded over Malawi. The cumulative ten-day rainfall amounts were higher than the long-term average rainfall amounts for the period over most areas of Malawi (light blue and green colours in Map1) with isolated spots of lower than long-term average rainfall amounts in all the three regions. Some areas reported as high as 10 rainy days during the period under review. Areas that had reported ten-day cumulative rainfall amounts of at least 100mm included Chikangawa Forest which recorded 262.1mm, Chinthenge Agriculture recorded 240.8mm, Makoka Met station recorded 237.2mm, Dwangwa Sugar recorded 229.8mm, Mkanda Met station recorded 215.0mm, Nkhotakota Met station recorded 209.1mm, Vinthukutu Agriculture recorded 200.5mm, Namwera Agriculture recorded 193.6mm, Euthini Agriculture recorded 187.2mm, Chileka in Lilongwe recorded 186.5mm, Mpemba Veterinary recorded 179.1mm, Kasungu Met station recorded 168.8mm, Neno Agriculture recorded 160.0mm, Mwimba Research station recorded 154.4mm, Chiradzulu Agriculture recorded 152.4mm, Lifuwu recorded 150.2mm, Salima Met station recorded 149.5mm, Mzuzu Met station recorded 149.0mm, Mchinji Boma recorded 147.7mm, Kamuzu International Airport recorded 145.6mm, Mimosa Met station recorded 144.4mm, Mponela Agriculture recorded 138.7mm, Bwengu Agriculture recorded 137.9mm, Emfeni Agriculture recorded 133.2mm, Mzimba Met station recorded 130.8mm, Nkhanda in Ntcheu recorded 127.4mm, Bvumbwe Met station recorded 127.3mm, Lujeri Tea Estate recorded 126.5mm, Thuchila Agriculture recorded 126.2mm, Malomo Agriculture recorded 124.6mm, Nkhata Bay Met station recorded 120.5mm, Kasiya Agriculture recorded 116.1mm, Thyolo Met station recorded 115.6mm, Chitedze Met station recorded 112.8mm, Satemwa Tea Estate recorded 112.4mm, Chitipa Met station recorded 111.5mm, Chelinda in Nyika recorded 110.9mm, Mulanje Boma recorded 110.8mm, Mbawa Research station recorded 107.5mm, Balaka township recorded 107.5mm, Ngabu Met station recorded 105.8mm, Mangochi Met station recorded 101.6mm, Dowa Agriculture recorded 100.9mm and Masambanjati Agriculture in Thyolo recorded 100.2mm. More details in Table 1.

Map 2 indicates the cumulative spatial rainfall distribution since the start of the 2019/20 rainfall seasonal monitoring in October 2019 up to 31 December 2019. The map generally indicates that cumulative rainfall amounts recorded over southern Malawi have improved compared to last reporting period. Overall, most areas over Malawi have so far received normal to above normal rainfall amounts (green and light blue colours) with spots of below normal rainfall amounts over Mulanje and Thyolo districts as shown by yellow and brown colours. Extra details in Table 1.

### 1.3 AIR TEMPERATURE

Generally hot temperatures were experienced over Malawi during the period 21 to 31 December 2019. Mean daily maximum temperatures had ranged from 24.8°C at Dedza to 36.3°C at Ngabu. On the other hand, mean daily minimum temperatures had ranged from 17.1°C at Dedza Meteorological station to 25.6°C at Ngabu. Details in Table 2.

### 1.4 WIND SPEED

During the period 21 to 31 December 2019, most parts of Malawi experienced light to moderate wind speed. Daily average wind speeds measured at a height of two metres above the ground level across the country had ranged from 2.2 km per hour at Ngabu Meteorological station to 9.7 km per hour at Chileka International Airport in Blantyre. More details in Table 2.

### 1.5 RELATIVE HUMIDITY

During the period 21 to 31 December 2019, air over Malawi was humid. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 58% at Mimosa to 86% at Mzuzu. Details as in Table 2.

### 1.6 SUNSHINE HOURS

Generally low to medium hours of bright sunshine were observed over Malawi during the period under review. Mean daily values had ranged from 3.2 hours per day at Mzuzu to 5.7 hours per day at Salima Meteorological station. Consequently, the amount of Solar Radiation had ranged from 6.6 to 8.3 cal/cm<sup>2</sup>/day. For details see Table 2.

## 2. AGROMETEOROLOGICAL ASSESSMENT

During the period under review, there was good spatial distribution of moderate to heavy rainfall over Malawi. The rains supported growth and development of crops. The rains also improved pasture availability for livestock production, water resources and soil moisture reserves.

Over most parts of Malawi, Maize crop was mostly at vegetative stage and was reported doing very well particularly where both basal and top-dressing fertilizers have already been applied. However, incidents of Fall Army Worm (FAW) infestation have been reported in several districts.

For proper utilization of rain water, farmers should adhere to principles of good agricultural practices including moisture conservation, timely control of weeds, pests and diseases and fertilizer/ manure application. Water harvesting technologies should also be practiced for future use during periods of suppressed rainfall.

## 3. PROSPECTS FOR 2019/2020 RAINFALL SEASON

ENSO-neutral conditions are prevailing over central tropical Pacific Ocean. Climate models are projecting that the ENSO-neutral conditions and a positive Indian Ocean Dipole (IOD) are likely to persist throughout the 2019/2020 rainfall season. Based on these expectations and other analyses conducted, the updated rainfall forecast for the period January to March 2020 (JFM) sub-season is that:

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

## 4. OUTLOOK FOR 01-10 JANUARY 2020

Models for short to medium range forecasts indicate that the Inter-Tropical Convergence Zone (ITCZ) will continue oscillating over Malawi thereby providing the required water amounts to continue supporting growth and development of most crops over most areas.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 21 TO 31 DECEMBER 2019

ADD	STATION NAME	ACTUAL DEKADAL TOTAL RAINFALL (mm)	DEKADAL NORMAL EXPECTED RAINFALL (mm)	ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)	DEKADAL RAINY DAYS ≥.3mm	ACTUAL TOTAL RAINFALL TO DATE (mm)	NORMAL (EXPECTED) RAINFALL TO DATE (mm)	ACTUAL TO DATE AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)
Karonga	Baka Res. Stn.	74.9	73.9	101	6	403.2	256.2	157
	Chitipa Met	111.5	80.4	139	9	305.1	261.1	117
	Lupembe	0.0	47.0	0	0	249.5	163.8	152
	Vinthukutu Agric	200.5	62.5	321	7	337.9	240.9	140
Mzuzu	Bwengu Agric.	137.9	62.9	219	9	248.2	209.9	118
	Chikangawa forest	262.1	77.2	340	10	559.5	286.4	195
	Chelinda ( Nyika)	110.9	82.1	135	6	405.5	342.4	118
	Chintheche Agric	240.8	86.8	277	5	711.7	373.3	191
	Emfeni Agric	133.2	66.2	201	7	219.7	236.2	93
	Euthini Agric.	187.2	68.1	275	7	304.8	223.7	136
	Mbawa Res. Stn	107.5	71.0	151	6	220.5	241.9	91
	Mzimba Met	130.8	69.6	188	8	271.8	243.9	111
	Mzuzu Met.	149.0	63.1	236	8	360.0	271.2	133
	NkhataBay Met.	120.5	76.0	159	9	469.4	319.3	147
	Rumpho Boma	84.9	67.2	126	10	241.8	181.1	134
Zombwe Agric	69.6	56.8	123	5	237.5	196.6	121	
Kasungu	Dowa Agric	100.9	71.2	142	7	272.0	241.4	113
	Kaluluma DTC	89.3	72.3	124	6	225.4	248.0	91
	Kasungu Met	168.8	54.0	313	10	293.7	211.8	139
	Malomo Agric	124.6	53.2	234	6	186.8	188.0	99
	Madisi Agric	67.1	61.2	110	5	184.2	221.3	83
	Mchinji Boma	147.7	89.8	164	6	248.4	344.8	72
	Mkanda Met	215.0	78.8	273	6	438.0	281.6	156
	Mponela Agric	138.7	53.0	262	7	242.1	214.1	113
Mwimba Research	154.4	71.8	215	5	246.0	254.9	97	
Lilongwe	Chileka Namitete	186.5	61.0	306	5	364.0	298.5	122
	Chitedze Met.	112.8	70.5	160	8	278.0	252.1	110
	K.I.A Met	145.6	72.1	202	6	282.2	222.7	127
	Kasiya Agric	116.1	73.5	158	5	308.1	332.2	93
	Nathenje Agric	36.4	63.6	57	5	187.2	239.1	78
	Ntcheu - Nkhonde	127.4	87.6	145	10	380.5	319.2	119
Salima	Dedza RTC	97.2	72.5	134	8	256.9	271.5	95
	Dwangwa Sugar Corp.	229.8	85.6	268	8	403.3	333.1	121
	Lifuwu	150.2	82.2	183	8	429.4	259.3	166
	Nkhotakota Met	209.1	94.1	222	7	592.4	314.2	189
	Salima Met	149.5	84.0	178	7	377.6	269.5	140
Machinga	Balaka Township	107.5	52.4	205	5	307.0	249.4	123
	Chancellor College	90.7	94.3	96	6	329.4	411.6	80
	Chingale Agric	82.0	68.6	120	7	239.0	292.2	82
	Mpilipili (Makanjila)	79.3	72.4	110	6	235.9	254.8	93
	Makoka Met	237.2	77.9	304	7	394.6	303.0	130
	Mangochi Met.	101.6	39.2	259	7	326.3	156.5	208
	Monkey Bay Met.	66.1	53.4	124	6	217.5	150.3	145
	Namwera Agric	193.6	72.7	266	9	410.5	295.6	139
	Ntaja Met.	53.8	69.4	78	5	N/A	259.3	N/A
	Phalula Agric	84.9	56.9	149	7	333.7	272.4	123
Blantyre	Toleza Farm	88.4	71.1	124	7	492.3	273.5	180
	Bvumbwe Met.	127.3	61.9	206	8	288.9	336.3	86
	Chichiri Met.	65.4	104.4	63	7	329.1	578.0	57
	Chileka Airport	42.1	57.7	73	5	262.0	284.7	92
	Chiradzulu Agric	152.4	72.7	210	7	402.5	319.1	126
	Chizunga Factory	87.2	100.8	87	5	334.6	477.2	70
	Lujeri Tea Estate	126.5	125.3	101	5	503.4	678.2	74
	Masambanjati Agric	100.2	100.8	99	7	289.2	417.0	69
	Mimosa Met.	144.4	76.5	189	7	254.4	464.0	55
	Mpemba Vet	179.1	77.0	233	7	430.8	369.0	117
	Mulanje Boma	110.8	98.4	113	3	332.2	595.3	56
	Mwanza Boma	62.7	61.2	102	3	456.4	328.1	139
	Neno Agric	160.0	71.9	223	5	344.5	319.2	108
	Satemwa Tea Est. No.1	112.4	68.0	165	7	302.0	341.8	88
	Thuchila Agric	126.2	64.2	197	8	427.1	263.8	162
Thyolo Met	115.6	71.4	162	5	280.0	353.5	79	
Shire Valley	Makhanga Met	95.3	62.2	153	4	225.4	258.4	87
	Nchalo Sucoma	66.5	43.0	155	5	140.0	202.8	69
	Ngabu Met.	105.8	61.0	173	5	233.8	251.0	93

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 DECEMBER 2019

ADD/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 <sup>-2</sup> p/day
<b>KARONGA ADD</b>										
CHITIPA	26.7	18.6	29.7	17.7	5.8	79	3.9	5.8	4.7	7.0
KARONGA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>MZUZU ADD</b>										
BOLERO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZIMBA	26.4	17.3	29.3	16.5	2.9	81	3.7	5.2	4.1	7.0
MZUZU	25.4	19.7	27.6	16.3	4.3	86	3.2	5.0	4.0	6.6
NKHATA BAY	30.0	22.1	33.2	20.5	2.5	80	4.5	5.9	4.8	7.4
<b>KASUNGU ADD</b>										
KASUNGU	27.8	19.5	31.0	18.5	5.8	76	5.1	6.5	5.4	7.9
<b>LILONGWE ADD</b>										
CHITEDZE	27.4	19.2	30.0	17.9	2.9	74	5.2	6.1	4.9	8.0
DEDZA	24.8	17.1	26.9	15.2	5.4	83	4.9	5.7	4.6	7.8
K I A	26.7	18.6	29.8	17.5	6.8	80	5.1	6.4	5.2	7.9
<b>SALIMA ADD</b>										
NKHOTAKOTA	29.1	21.3	31.2	18.4	3.2	77	4.5	6.1	5.0	7.5
SALIMA	30.3	22.8	32.5	21.1	8.3	77	5.7	7.6	6.3	8.3
<b>MACHINGA ADD</b>										
NTAJA	30.4	22.0	33.2	19.9	6.5	74	5.3	7.3	6.1	8.1
MAKOKA	28.4	19.3	30.5	18.1	5.0	71	5.0	6.7	5.5	7.9
MANGOCHI	31.6	21.7	34.0	16.6	6.5	76	5.3	7.3	6.0	8.0
MONKEY BAY	31.0	23.5	32.8	22.3	8.6	72	5.2	8.1	6.8	8.0
<b>BLANTYRE ADD</b>										
BVUMBWE	26.6	19.2	29.3	17.8	7.2	74	4.9	6.8	5.6	7.8
CHICHIRI	27.2	19.7	30.2	18.4	2.5	71	5.0	6.1	4.9	7.9
CHILEKA	32.9	23.0	33.5	19.0	9.7	78	5.1	7.9	6.6	7.9
MIMOSA	31.0	21.0	34.3	19.5	3.2	58	4.9	7.1	5.9	7.8
NGABU	36.3	25.6	40.0	23.5	2.2	61	5.6	7.7	6.4	8.3

**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