



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 December 2018

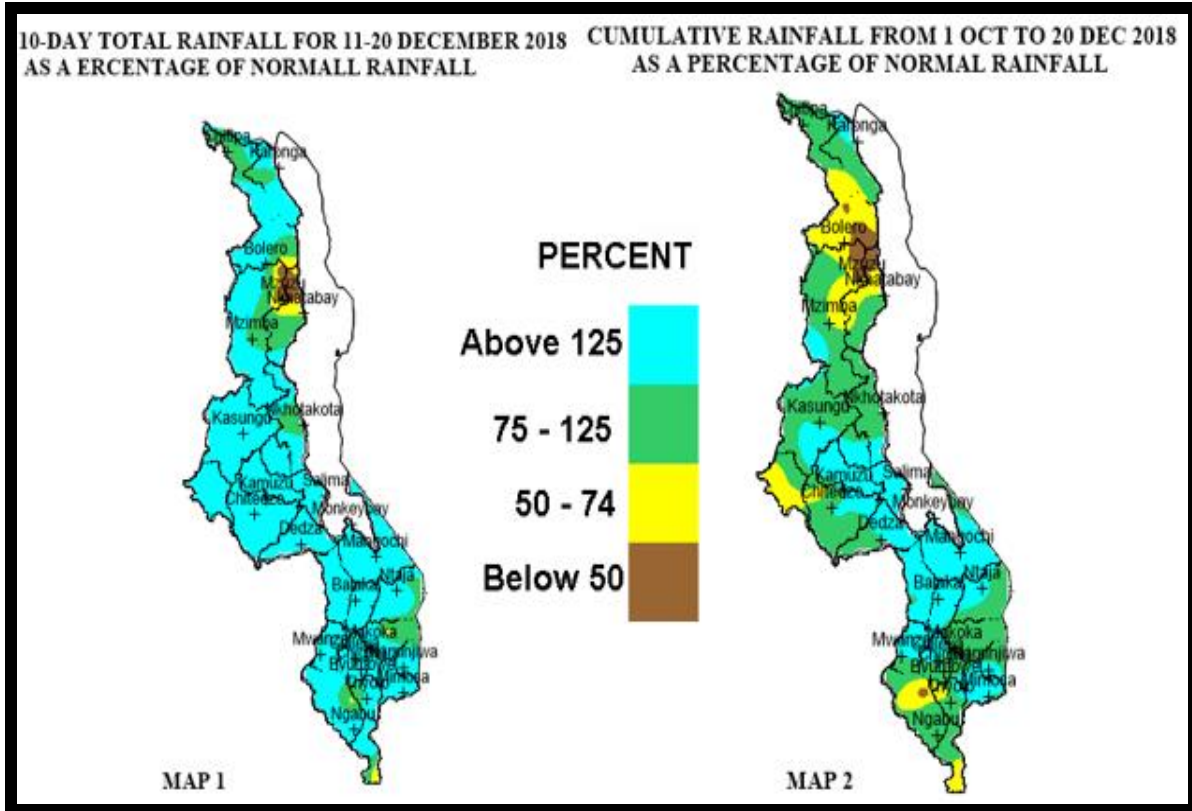
Season: 2018/2019

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## HIGHLIGHTS

- Heavy rains caused floods in Mangochi and Rumphi districts ...
- Major agro-activities included planting, basal dressing and weeding...
- More rainfall expected during the period 21 to 31 December 2018...



Rainfall Maps for 11 to 20 December 2018

## 1.0 WEATHER SUMMARY

During the second ten days of December 2018, the Inter Tropical Convergence Zone (ITCZ) had remained active over southern Malawi while moist and unstable Congo Air mass was active over central and northern Malawi. As a result, Malawi was an area of active rain-belt and more rain clouds. Hence, most areas in Malawi had recorded average to above average cumulative rainfall amounts and many rainy days (Green and light Blue colours on Map 1).

### 1.1 RAINFALL SITUATION

During the second ten days of December 2018, moderate to heavy rainfall amounts were reported over Malawi. The ten-day total rainfall amounts were higher than the long-term mean rainfall amounts for the period over most areas countrywide (light Blue colour in Map1). However, a few areas over northern and southern Malawi reported lower than long-term mean rainfall amounts (Yellow and Brown colours in Map1). Areas that had reported cumulative rainfall amounts exceeding 165mm during the ten-day period included Mwanza Boma which recorded 271.9mm, Bvumbwe Met recorded 214.0mm, Chichiri Met recorded 211.1mm, Namwera Agric recorded 209.6mm, Lifuwu Research Station recorded 201.3mm, Ntcheu-Nkhonde had 198.0mm, Zomba RTC received 187.4mm, Makoka Met had received 186.2mm, Lujeri Tea Estate 182.0mm, Toleza Farm 180.0mm, Madisi Agric 177.9mm, Neno Agric reported 173.6mm, Balaka Agric 170.7mm, Dzonzi Forest in Ntcheu reported 167.2mm and Namiasi Agric in Mangochi which had 166.4mm. More details are in Table 1 and Map 1. As a result of heavy rainfall intensities, floods were reported in Mangochi district and around Bwengu and Mzokoto in Rumphidistrict.

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2018/19 rainfall season in October 2018, up to 20 December 2018. The map generally indicates that most areas in Malawi have received normal to above normal rainfall amounts (Green to light Blue colours) with few patches of below normal rainfall amount (Brown and Yellow colours).

### 1.3 AIR TEMPERATURE

Generally hot temperatures were experienced over Malawi during the second ten days of December 2018. Mean daily maximum temperatures had ranged from 24°C at Dedza to 32°C at Ngabu in Chikwawa while the mean daily minimum temperatures had ranged from 16°C at Dedza to 24°C at Ngabu in Chikwawa district. Details in Table 2.

### 1.4 WIND SPEEDS

During the period 11 to 20 December 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 1.1km per hour at Makoka in Zomba district to 8.3km per hour at Chileka in Blantyre district. More details in Table 2.

### 1.5 RELATIVE HUMIDITY

During the period 11 to 20 December 2018, air over Malawi was fairly moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 59% at Ngabu in Chikwawa district to 87% at Bvumbwe, Ntaja and Makoka in Thyolo, Machinga and Zomba districts respectively. Details as in Table 2.

### 1.6 SUNSHINE HOURS

Due increased cloudiness, generally low hours of bright sunshine were observed over Malawi during the second ten days of December 2018. The daily values had ranged from around 2 hours per day at Makoka in Zomba District to around 6.9 hours per day at Nkhotakota and consequently the amount of Solar Radiation had ranged from 6.0 to 9.1 cal/cm<sup>2</sup>/day. For details see Table 2.

## 2. AGROMETEOROLOGICAL ASSESSMENT

During the second ten days of December 2018 widespread locally heavy rains caused floods and soil waterlogging conditions particularly along the lakeshore and northern Malawi. These rains have supported planting, seed germination, growth and development of crops and application of basal and top dressing fertilizers. The rains have also improved pasture availability for livestock production, water resources and soil moisture reserves.

The general crop stand in the fields was reported in good condition and mostly between germination and vegetative stages.

## 3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

Global models are projecting 80% chance of El Nino conditions developing during early 2019. Meanwhile ENSO-neutral conditions are present. Therefore, the rainfall forecast for the 2018/19 season in Malawi is likely to remain favourable until sometime when El Nino conditions are established. Usually there is a time lag between the establishment of El Nino and the start of its impact. During a neutral season, there is no generalization of the rainfall patterns in Malawi while during El Nino season, rainfall is greatly suppressed over southern half of Malawi and the North tends to receive better rainfall pattern.

## 4. OUTLOOK FOR 21 TO 31 DECEMBER 2018

Models for short and medium range forecasts show that Malawi is likely to continue experiencing wet weather conditions during the final ten days of December 2018. Farmers are therefore advised to take advantage of the wet weather by intensify planting of various crops and basal and top dressing fertilizer application.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 11 TO 20 DECEMBER 2018

ADD	RAINFALL STATION	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 ≥.3mm	
KARONGA	Baka Res. Stn.	87.5	85.0	103	91.4	182.3	50	6	
	Chitipa Met	69.6	62.3	112	158.3	180.7	88	7	
	Karonga Met.	120.4	63.3	190	131.7	150.4	88	7	
	Lupembe	78.0	51.3	152	89.0	116.8	76	3	
	Vinthukutu Agric	114.4	68.0	168	179.8	178.4	101	5	
MZUZU	Bolero Met	71.9	45.7	157	110.9	117.2	95	7	
	Bwengu Agric.	27.6	59.9	46	35.9	147.0	24	3	
	Chikangawa forest	64.5	66.6	97	123.9	209.2	59	6	
	Chelinda ( Nyika)	111.3	72.8	153	247.9	260.3	95	8	
	Chintheche Agric	102.0	81.7	125	241.5	286.5	84	4	
	Ekwenendi Agric.	33.4	73.5	45	56.7	228.0	25	4	
	Euthini Agric.	92.0	50.3	183	259.5	155.6	167	5	
	Mbawa Res. Stn	153.3	71.4	215	281.1	170.9	164	8	
	Mzimba Met	62.3	63.1	99	136.4	174.3	78	6	
	Mzuzu Met.	24.7	55.1	45	98.2	208.1	47	8	
	NkhataBay Met.	46.4	67.9	68	141.7	243.3	58	6	
	Rumphu Boma	31.0	44.0	70	50.1	113.9	44	9	
	Zombwe Agric	53.1	48.8	109	70.0	139.8	50	5	
	KASUNGU	Dowa Agric	88.7	66.7	133	160.6	170.2	94	7
Kasungu Met		97.6	58.8	166	126.8	157.8	80	8	
Malomo Agric		90.7	68.2	133	217.0	134.8	161	5	
Madisi Agric		177.9	68.5	260	202.6	160.1	127	6	
Mkanda Met		142.2	74.0	192	282.1	202.8	139	5	
Mwimba Research		151.3	69.7	217	230.0	183.1	126	7	
LILONGWE	Chitedze Met.	64.9	51.6	126	133.7	181.6	74	6	
	Dzonzi Forest	167.2	78.8	212	375.3	240.7	156	6	
	K.I.A Met	106.0	52.2	203	163.7	150.6	109	6	
	Kasiya Agric	135.6	95.7	142	194.4	258.7	75	7	
	Mlangeni Njolomole	136.7	74.7	183	251.3	221.0	114	8	
	Nathenje Agric	106.1	63.0	168	243.4	175.5	139	8	
	Ntcheu - Nkhonde	198.0	74.8	265	296.0	231.6	128	9	
	Dedza RTC	103.9	66.5	156	178.9	199.0	90	9	
SALIMA	Dwangwa	125.7	78.7	160	180.9	247.5	73	8	
	Lifuwu	201.3	71.6	281	256.2	177.1	145	7	
	Nkhotakota Met	53.5	88.0	61	151.6	220.1	69	5	
	Salima Met	149.7	80.8	185	225.5	185.5	122	7	
MACHINGA	Balaka Agric	170.7	58.2	293	259.6	197.0	132	8	
	Chancellor College	50.8	94.3	54	121.1	317.3	38	5	
	Chikweo Agric.	86.8	83.3	104	141.1	228.6	62	2	
	Chingale Agric	86.1	73.5	117	259.5	223.6	116	7	
	Mpilipili (Makanjila)	107.4	62.5	172	151.8	182.4	83	5	
	Makoka Met	186.2	60.5	308	339.3	225.1	151	9	
	Mangochi Met.	77.9	41.2	189	174.9	117.3	149	3	
	Monkey Bay Met.	125.3	46.3	271	158.3	96.9	163	6	
	Namiasi Agric	166.4	51.5	323	209.6	141.1	149	3	
	Namwera Agric	209.6	61.5	341	342.9	222.9	154	7	
	Ntaja Met.	148.0	64.1	231	154.7	189.9	81	8	
	Phalula Agric	163.0	50.8	321	243.8	215.5	113	6	
	Toleza Farm	180.0	59.4	303	389.8	202.4	193	8	
	Zomba RTC.	187.4	100.5	186	239.7	303.9	79	8	
	BLANYTRE	Bvumbwe Met.	214.0	66.6	321	401.5	274.4	146	8
Chichiri Met.		211.1	89.9	235	421.6	473.6	89	10	
Chileka Airport		93.8	50.6	185	246.7	227.0	109	7	
Chiradzulu Agric		148.6	63.1	235	371.7	246.4	151	8	
Chizunga Factory		103.9	113.0	92	297.1	376.4	79	5	
Lujeri Tea Estate		182.0	126.8	144	635.2	552.9	115	8	
Mimosa Met.		153.1	82.5	186	316.3	387.5	82	9	
Mpemba Vet		113.5	74.4	153	369.0	292.0	126	8	
Mulanje Boma		160.4	92.3	174	599.0	496.9	121	5	
Mwanza Boma		271.9	68.4	398	503.9	266.9	189	9	
Naminjiwa Agric		112.5	61.6	183	286.9	224.8	128	4	
Neno Agric		173.6	66.1	263	364.0	247.3	147	7	
Thuchila Agric		118.1	53.2	222	218.9	199.6	110	8	
SHIRE VALLEY		Chikwawa Boma	57.2	51.2	112	213.6	205.2	104	3
		Kasinthula Res. Stn.	111.8	46.3	241	275.6	175.6	157	6
		Makhanga Met	105.6	51.5	205	256.0	196.2	130	4
	Nchalo	30.5	43.5	70	153.3	159.8	96	4	
	Ngabu Met.	153.5	52.8	291	291.2	190.0	153	6	
Nsanje Boma	43.0	76.6	56	183.8	290.2	63	4		

**TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 DECEMBER 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	RAD-TION cal cm <sup>-2</sup> p/day
<b>KARONGA ADD</b>										
CHITIPA	26.9	18.5	29.2	17.7	6.1	77	4.0	5.3	4.2	7.1
KARONGA	31.1	21.7	33.6	20.3	5.8	70	5.0	6.2	5.1	7.7
<b>MZUZU ADD</b>										
BOLERO	28.3	19.6	32.1	18.6	1.8	75	5.5	5.8	4.6	8.1
MZIMBA	27.1	17.3	28.5	16.6	2.9	68	4.6	5.5	4.3	7.5
MZUZU	25.9	18.0	27.0	16.7	4.3	80	3.2	4.8	3.8	6.6
NKHATA BAY	29.4	21.6	31.2	20.7	2.2	78	4.7	5.7	4.5	7.6
<b>KASUNGU ADD</b>										
KASUNGU	24.5	16.8	26.8	15.0	5.4	76	3.7	4.9	3.9	7.0
<b>LILONGWE ADD</b>										
CHITEDZE	26.5	18.9	28.3	17.9	1.4	81	3.5	4.9	3.9	6.9
DEDZA	23.9	16.4	24.9	15.6	7.9	81	3.8	5.0	3.9	7.1
K I A	24.1	18.4	26.7	17.2	5.0	81	3.8	4.9	3.9	7.0
<b>SALIMA ADD</b>										
NKHOTAKOTA	28.9	20.3	30.5	18.8	2.9	76	6.9	6.5	5.1	9.1
SALIMA	29.3	21.5	30.9	20.2	6.1	83	6.0	6.2	5.0	8.5
<b>MACHINGA ADD</b>										
NTAJA	29.3	21.1	30.9	20.2	6.5	87	2.5	4.8	3.8	6.2
MAKOKA	26.3	18.9	28.5	18.2	1.1	87	2.1	4.2	3.4	6.0
MANGOCHI	31.4	22.9	33.2	22.0	6.8	65	6.0	7.0	5.7	8.5
MONKEY BAY	27.0	22.8	31.1	22.0	6.5	63	6.0	7.5	6.2	8.5
<b>BLANTYRE ADD</b>										
BVUMBWE	24.3	18.1	26.1	16.7	4.7	87	3.3	4.6	3.6	6.7
CHICHIRI	25.3	18.9	26.5	17.8	3.2	81	3.3	4.8	3.8	6.7
CHILEKA	27.5	19.8	29.8	19.2	8.3	77	3.3	5.3	4.3	6.7
MIMOSA	28.6	20.6	31.0	19.5	3.2	81	2.5	4.8	3.8	6.2
<b>SHIRE VALLEY ADD</b>										
NGABU	32.4	23.6	35.5	21.5	1.8	59	4.0	6.1	5.0	7.2

**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) = mpsx3.6