



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 March 2019

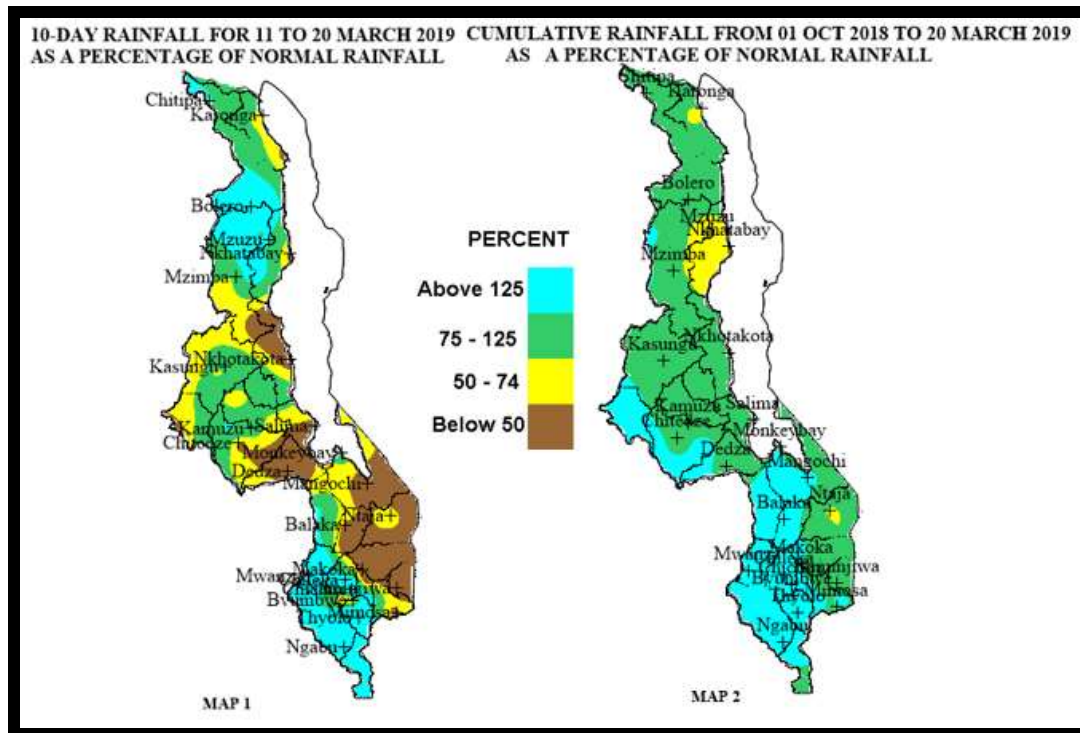
Season: 2018/2019

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HIGHLIGHTS

- Moderate to locally heavy rainfall amounts were experienced over some parts of Malawi...
- Maize crop doing well between maturing and drying stages...
- Moderate to locally heavy rainfall expected during the period 21 to 31 March 2019 over northern half...



Rainfall Maps for 11 to 20 March 2019

1.0 WEATHER SUMMARY

During the period 11 to 20 March 2019, a diffused Inter-Tropical Convergence Zone (ITCZ) remained active over northern half of the country while Ex-Tropical Cyclone IDAI influenced weather over southern half of the country. As a result, some areas over northern Malawi as well as areas within the trough of Ex-Tropical Cyclone IDAI like Nsanje, Chikwawa received above normal rainfall amounts (light blue colours on Map 1) while some areas over southern, central and lakeshore received below normal rainfall amounts as a result of diffluence of airflow from Ex-Tropical Cyclone IDAI as shown by yellow and brown colours on Map 1.

1.1 RAINFALL SITUATION

During the period 11 to 20 March 2019, moderate to locally heavy rainfall amounts were recorded over Shire Valley areas and some areas in the northern and central regions of Malawi. The ten-day total rainfall amounts were higher than the long-term average rainfall amounts for the period over these areas while most Shire Highland Districts, Lakeshore Districts and some central areas recorded ten-day total rainfall amounts below the long-term average rainfall amounts (brown and yellow colours in Map1). Areas that had recorded cumulative rainfall amounts exceeding 35mm during the period under review included Satemwa Tea Estate which recorded 140.7mm, Makhanga Met which recorded 120.7mm, Thyolo Met which recorded 119mm, Chikangawa Forest which recorded 114.2mm, Chizunga Factory which recorded 103.7mm, Mwanza Boma which recorded 98.6mm, Nsanje Boma recorded 97.1mm, Lujeri Tea Estate recorded 88mm, Neno Agriculture recorded 86.6mm, Chitipa Met recorded 85mm, Baka Resaerch Station recorded 80.2mm, Rumphu Boma recorded 78.4mm, Ntchisi recorded 77.4mm, Mzuzu Met recorded 76.3mm, Thuchila Agriculture recorded 74.4mm, Ntcheu-Nkhande recorded 72.4mm, Nchalo Sucoma recorded 69.4mm, Chileka Airport recorded 68.8mm, Karonga Met recorded 56.8mm, Zombwe Agriculture recorded 54.6mm, Kasiya Agriculture recorded 53.8mm, Chileka Namitete recorded 53mm, Lifuwu recorded 52.4mm, Euthini Agriculture recorded 52.1mm, Malomo Agriculture recorded 48.9mm, KIA Met recorded 46.8mm, Ngabu Met recorded 46.4mm, Lisasadzi in Kasungu recorded 44.5mm, Chichiri Met recorded 44.5mm, Lupembe in Karonga recorded 43.7mm, Mlangeni-Njolomole recorded 42.4mm, Kasungu Met recorded 38.9mm, Chikwawa Boma recorded 38.4mm, Ekwendeni Agriculture recorded 36.9mm and Mponela Agriculture recorded 36.1mm. More details in Table 1.

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2018/19 rainfall season in October 2018, up to 20 March 2019. The map generally indicates that most areas over Malawi have received normal to above normal rainfall amounts (Green and light Blue colours) with isolated cases of below normal rainfall amounts over parts of Karonga, Nkhatabay and Mzimba Districts in the north as shown by Yellow colour on Map 2.

1.3 AIR TEMPERATURE

Generally warm to hot temperatures were experienced over Malawi during the period 11 to 20 March 2019. Mean daily maximum temperatures had ranged from 25°C at Dedza to 33°C at Ngabu in Chikwawa District while the mean daily minimum temperatures had ranged from 15°C at Dedza to 23°C at Ngabu in Chikwawa District. Details in Table 2.

1.4 WIND SPEEDS

During the period 11 to 20 March 2019 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

0.7 km per hour at Ngabu in Chikwawa District to 7.9 km per hour at Chileka in Blantyre District. More details in Table 2.

1.5 RELATIVE HUMIDITY

During the period 11 to 20 March 2019, air over Malawi was generally moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 63% at Monkey Bay in Mangochi District to 84% at Ntaja in Machinga District. Details as in Table 2.

1.6 SUNSHINE HOURS

Generally medium to long hours of bright sunshine were observed over Malawi during the period 11 to 20 March 2019. The daily values had ranged from 6.5 hours per day at Dedza and Bvumbwe in Thyolo District to 9.2 hours per day at Salima and consequently the amount of Solar Radiation had ranged from 8.6 to 10.3 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period 11 to 20 March 2019, wet conditions prevailed over selected areas of Malawi with relatively drier conditions prevailing over some areas. Rainfall experienced over central and northern areas provided much needed moisture to reduce water stress at critical stages of late planted Maize crop which is at flowering and cobbing stages. Furthermore, the rains supported the growth of pastures for Livestock production as well as boosting soil moisture reserves for growth and development of root and tuber crops like potatoes.

Maize was reported doing well at various growing stages. Countrywide the maize crop had ranged between cobbing and maturing stages for the north and central areas, while at maturing and drying stages for the southern areas. For the crop that was at drying stage, more sunshine is required for proper drying. On the other hand, more water is required for the crop that is at cobbing stage.

Basing on the current crop stand, good crop yields and production are anticipated this season provided good rains continue through March 2019 and April particularly over central and northern Malawi. However, in southern areas crops have been negatively affected by the heavy rains and flooding, a situation that is likely to cause localised reduction in the 2018/19 production.

3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

ENSO-neutral conditions are present. Therefore, as the 2018/19 rainfall season comes to an end, Malawi is likely to experience favourable rainfall amounts for agricultural purposes up to the end of the season in April 2019.

4. OUTLOOK FOR 21 TO 31 March 2019

Models for short and medium range forecast show that moderate to locally heavy rainfall amounts are likely to be experienced over most parts of northern half of Malawi while light rainfall amounts will likely be experienced over southern half of Malawi during the period 21-31 March, 2019.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 01 TO 10 MARCH 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 $\geq 0.3\text{mm}$
KARONGA	Baka Res. Stn.	80.2	140	57	503.7	871.3	58	3
	Chitipa Met	85	66.1	129	926	827.7	112	6
	Karonga Met.	56.8	78.9	72	662.5	693.7	96	3
	Lupembe	43.7	62.8	70	488.9	621.4	79	2
	Vinthukutu Agric	32	79.5	40	840.9	758.5	111	3
MZUZU	Chikangawa forest	114.2	63.1	181	470	873.5	54	6
	Ekwendeni Agric	36.9	31.9	116	N/A	692.3	N/A	5
	Euthini Agric.	52.1	41.2	126	850.1	680.9	125	4
	Mbawa Res. Stn	26.2	40.4	65	888.9	729.3	122	3
	Mzimba Met	31.6	41.7	76	850.3	790.6	108	4
	Mzuzu Met.	76.3	58.2	131	502.4	775.3	65	6
	NkhataBay Met.	30.5	96.7	32	636.1	915.9	69	2
	Rumphi Boma	78.4	37.7	208	585.1	638.4	92	4
KASUNGU	Zombwe Agric	54.6	35.5	154	502.4	624.2	80	3
	Dowa Agric	34.3	45.4	76	872.2	794.1	110	2
	Kasungu Met	38.9	38.7	101	628.3	712.1	88	5
	Lisasadzi	44.5	33.7	132	741.6	752.8	99	3
	Malomo Agric	48.9	46.7	105	907.2	761.3	119	3
	Madisi Agric	11.4	33.6	34	802.9	768.9	104	3
	Mchinji Boma	15	46.7	32	1196.5	898	133	3
	Mkanda Met	27.8	41.3	67	1149.3	783.7	147	2
	Mponela Agric	36.1	35.1	103	748.9	739.5	101	5
	Mwimba Research	23.8	38.9	61	730.2	810.1	90	3
LILONGWE	Ntchisi Boma	77.4	82.4	94	1018.9	1074.1	95	4
	Chileka Namitete	53	44.6	119	1197.8	827	145	1
	Chitedze Met.	19.8	51.1	39	724.9	788.1	92	1
	K.I.A Met	46.8	41.8	112	837.8	763.5	110	4
	Mlangeni Njolom	42.4	54	79	1149.2	870.9	132	4
	Nathenje Agric	18	39.1	46	1058.5	757.8	140	1
	Ntcheu - Nkhanda	72.4	50.4	144	1358.8	947	143	3
SALIMA	Dedza RTC	14.5	49.2	29	942.8	900.7	105	4
	Dwangwa Sugar	0.9	91.8	1	N/A	992.3	N/A	1
	Lifuwu	52.4	78.7	67	692.6	1057.2	66	2
	Nkhotakota Met	25.2	113.7	22	1072.1	1102.1	97	3
MACHINGA	Salima Met	12	85.6	14	1056.2	1051.8	100	2
	Balaka Township	15.7	40.2	39	1126.2	776.7	145	2
	Chancellor College	3.5	82.6	4	933.3	1124.8	83	2
	Chikweo Agric.	14.2	67.3	21	905.3	945.3	96	1
	Chingale Agric	30	52	58	1168.9	833.1	140	2
	Makoka Met	7.8	46.7	17	1051.8	871.8	121	3
	Mangochi Met.	5.1	44.1	12	903	630.1	143	2
	Monkey Bay Met.	15.5	16.3	95	670.1	538.2	125	2
	Namiasi Agric	17.5	49.7	35	828.4	709.5	117	2
	Ntaja Met.	33.9	44.6	76	N/A	778.6	N/A	3
	Phalula Agric	7.6	37	21	962.2	757.6	127	2
BLANTYRE	Toleza Farm	25	45.4	55	1166.5	776.8	150	2
	Zomba R.T.C	31.6	73.9	43	1043	1053.6	99	2
	Bvumbwe Met.	27.4	54.2	51	1387.4	958.2	145	4
	Chichiri Met.	44.5	16.1	276	1501.3	1013.2	148	4
	Chileka Airport	68.8	45.8	150	1201.6	782.4	154	3
	Chizunga Factory	103.7	84.5	123	1628.9	1131.8	144	3
	Kasinthula Res. Stn.	32.7	29.6	110	949.3	646	147	6
	Mimosa Met.	26.1	89	29	1206.2	1186.7	102	4
	Mpenba Vet	18.8	61.9	30	1708.4	988.4	173	2
	Mulanje Boma	33.7	70.2	48	1707.9	1399.1	122	3
	Mwanza Boma	98.6	55.4	178	1387.9	901.7	154	6
	Neno Agric	86.6	46.9	185	1791.7	968.5	185	6
	Satemwa Tea Est.	140.7	63.1	223	1630.3	917.2	178	5
	Thuchila Agric	74.4	37.9	196	1027.1	774.9	133	5
	Thyolo Met	119	58.6	203	1320.7	1050.8	126	4
SHIRE VALLEY	Chikwawa Boma	38.4	32.9	117	906.7	680.1	133	5
	Makhanga Met	120.7	38	318	1198.5	650.5	184	3
	Nchalo Sucoma	69.4	19.3	360	868	578.8	150	5
	Ngabu Met.	46.4	37.3	124	908.5	669.7	136	5
	Nsanje Boma	97.1	49.9	195	895.6	942.8	95	6

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 01 TO 10 MARCH 2019

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 ⁻² p/day
KARONGA ADD										
CHITIPA	29	17.5	31.1	16.1	4.3	77	7.2	6.2	4.9	9.0
KARONGA	31.4	21	32.8	19	3.6	70	7.5	6.9	5.5	9.2
MZUZU ADD										
MZIMBA	29.1	17.1	31.7	15.4	2.2	69	8.2	6.5	5.1	9.6
MZUZU	27.8	16.6	30	14.6	3.2	77	6.2	5.7	4.4	8.3
NKHATA BAY	31.6	20.8	33	19.3	2.5	70	7.1	6.6	5.3	8.9
KASUNGU ADD										
KASUNGU	N/A	18.2	N/A	16.4	2.2	72	7	N/A	N/A	N/A
LILONGWE ADD										
CHITEDZE	28.9	17.3	31	13.7	1.8	73	7.5	6.2	4.9	9.2
DEDZA	25.3	14.6	27.2	10.9	4.3	70	6.5	5.6	4.4	8.6
K I A	28.4	17.2	30.5	13	4.7	71	8.4	6.7	5.2	9.8
SALIMA ADD										
NKHOTAKOTA	30.6	20.4	31.9	18.9	3.2	70	8.7	7.3	5.7	10.0
SALIMA	30.8	21	32.6	18.6	4.7	71	9.2	7.5	5.9	10.3
MACHINGA ADD										
NTAJA	30.1	20.2	32.2	18.4	6.5	84	7.2	6.5	5.1	9.0
MAKOKA	28.2	18.2	30	14.8	3.6	75	7	6.2	4.8	8.9
MANGOCHI	31.6	22	33.7	19.9	2.9	68	7.5	7.0	5.5	9.2
MONKEY BAY	30.9	22	32.4	19.9	5.0	63	7.2	7.0	5.6	9.0
BLANTYRE ADD										
BVUMBWE	26.8	17.5	29.3	15.1	5.0	76	6.5	5.9	4.6	8.6
CHICHIRI	27	18.4	30.4	16	5.0	72	7	6.2	4.9	8.9
CHILEKA	29.5	19.3	31.8	17.2	7.9	70	7.6	6.9	5.5	9.3
MIMOSA	29.9	19.6	33.5	16.8	4.0	76	7	6.4	5.1	8.9
SHIRE VALLEY ADD										
NGABU	32.7	23.2	36.8	21.5	0.7	76	8.5	7.4	5.9	9.9

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