



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 March 2019

Season: 2018/2019

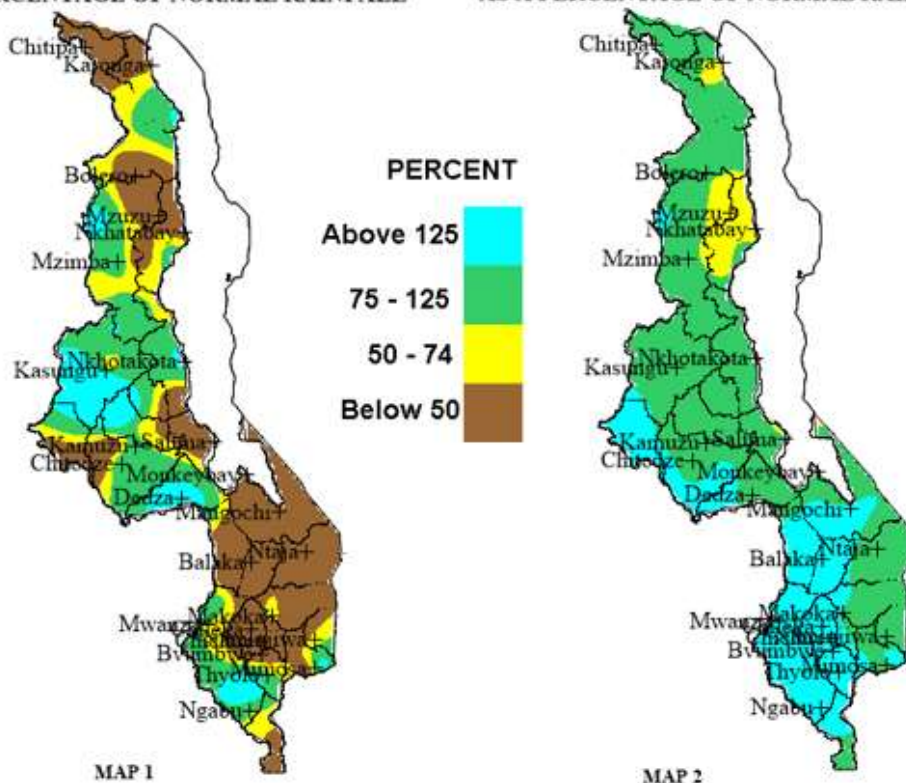
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HIGHLIGHTS

- 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 01 to 10 April 2019 over northern half...

10-DAY RAINFALL FOR 21 TO 31 MARCH 2019 AS A PERCENTAGE OF NORMAL RAINFALL CUMULATIVE RAINFALL FROM 01 OCT 2018 TO 31 MAR 2019 AS A PERCENTAGE OF NORMAL RAINFALL



Rainfall Maps for 21 to 31 March 2019

1.0 WEATHER SUMMARY

During the period 21 to 31 March 2019, a diffused Inter-Tropical Convergence Zone (ITCZ) remained active over northern half of the country influenced weather over northern and parts of the central areas; while a High Pressure System in the Indian Ocean extended a ridge into the Eastern Sub-continent thereby influencing weather over southern half of country. As a result, some areas over Malawi, mostly northern and central districts like Kasungu, Lilongwe, recorded normal to above normal rainfall amounts as shown on Map 1 (green and light blue colours) while some areas recorded below normal rainfall amounts, with the southern highland districts of Blantyre, Machinga, Balaka and Phalombe being the driest as shown by yellow and brown colours on Map 1.

1.1 RAINFALL SITUATION

During the period 21 to 31 March 2019, moderate to locally heavy rainfall amounts were recorded over some areas of Malawi. The ten-day total rainfall amounts were higher than the long-term average rainfall amounts for the period over these areas while southern highlands and selected central and northern districts recorded ten-day total rainfall amounts that were below the long-term average rainfall amounts (brown and yellow colours in Map1). Areas that had recorded cumulative rainfall amounts of at least 20mm included Nkhotakota Met which recorded 222.8mm, Chintcheche Agriculture in Nkhata Bay recorded 210.3mm, Lujeri Tea Estate recorded 182.5mm, Vinthukutu Agriculture in Karonga recorded 169.4mm, Mwimba Research station in Kasungu recorded 101.6mm, Dwangwa recorded 93.2mm, Baka Research Station in Karonga recorded 88mm, Dedza recorded 85.3mm, Madisi Agriculture in Dowa recorded 83mm, Chelinda in Rumphi District recorded 70.5mm, Euthin Agriculture in Mzimba recorded 68.2mm, Lupembe in Karonga recorded 64.mm, Nchalo recorded 59.6mm, Karonga Met recorded 55.4mm, Mzimba Met recorded 53.1mm, Mimosa Met recorded 53.1mm, Chitedze Met recorded 49.7mm, Satemwa Tea Estate recorded 44.3mm, Mkanda Met recorded 44.1mm, Thyolo Met recorded 43.4mm, Emfeni Agriculture in Mzimba District recorded 42.5mm, Kamuzu International Airport recorded 42.4mm, Lisasadzi recorded 41.8mm, Nathenje Agriculture recorded 40.5mm, Mzuzu Met as well as Neno Agriculture recorded 39.2mm, Nkhata Bay met recorded 38.9mm, Chizunga Factory in Thyolo District recorded 32.7mm, Malomo Agriculture in Ntchisi District recorded 29.2mm, Mulanje recorded 28mm, Ngabu Met recorded 27.8mm, Mponela Agriculture recorded 26.8mm, Chikwawa recorded 26.7mm and Mwanza recorded 25.7mm. 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 31 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 21 to 31 March 2019. Mean daily maximum temperatures had ranged from 24°C at Dedza and Bvumbwe in Thyolo District to 32°C at Ngabu in Chikwawa District while the mean daily minimum temperatures had ranged from 15°C at Dedza to 23°C at Salima Met station in Salima District. Details in Table 2.

1.4 WIND SPEEDS

During the period 21 to 31 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

0.4 km per hour at Ngabu in Chikwawa District to 7.6 km per hour at Salima and Chileka Airport. More details in Table 2.

1.5 RELATIVE HUMIDITY

During the period 21 to 31 March 2019, air over Malawi was 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 Nkhotakota Met station. 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 4.2 hours per day at Mzuzu Met station to 11.1 hours per day at Chileka Airport and consequently the amount of Solar Radiation had ranged from 6.9 to 11.5 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period under review, 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 of late planted Maize crop as well as support rice growth in Rice growing districts like Karonga, Nkhotakota among others.

Furthermore, the rains supported the growth and development 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 maturing and drying stages. For the crop that was at drying stage, more sunshine is required for proper drying.

Basing on the current crop stand, good crop yields and production are anticipated this season provided good rains continue through 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, northern Malawi is likely to experience favourable rainfall amounts for agricultural purposes through April.

4. OUTLOOK FOR 01 TO 10 April 2019

Models for short and medium range forecasts show that moderate to locally heavy rainfall amounts are likely to be persist over most parts of northern half of Malawi while light rainfall amounts likely experienced over southern half of Malawi during the period 01-10 April 2019.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 21 TO 31 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 $\geq 3\text{mm}$	
KARONGA	Baka Res. Stn.	88	188.6	47	591.7	1059.9	56	6	
	Chitipa Met	6	52.8	11	932	880.5	106	4	
	Karonga Met.	55.4	114	49	717.9	807.7	89	5	
	Lupembe	64.9	89.4	73	553.8	710.8	78	5	
	Vinthukutu Agric	169.4	122.5	138	1010.3	881	115	7	
MZUZU	Zombwe Agric	0	56.7	0	502.4	680.9	74	0	
	Bolero Met	1.3	29.6	4	452.5	595.9	76	1	
	Bwengu Agric.	2.2	49.3	4	489	712.2	69	1	
	Chikangawa forest	11.9	95.2	13	481.9	968.7	50	3	
	Chelinda (Nyika)	70.5	89.1	79	953.1	1071.7	89	5	
	Chintheche Agric	210.3	190	111	1164.1	1325.6	88	3	
	Emfeni Agric	42.5	31.1	137	614.3	749	82	2	
	Ekwendeni Agric.	22	45.3	49	427.8	737.6	58	5	
	Euthini Agric.	68.2	44.6	153	918.3	725.5	127	6	
	Mbawa Res. Stn	15.8	35.8	44	904.7	765.1	118	2	
	Mzimba Met	53.1	48.2	110	903.4	838.8	108	5	
	Mzuzu Met.	39.2	100.9	39	541.6	876.2	62	4	
	NkhataBay Met.	38.9	167	23	675	1082.9	62	5	
	Rumphu Boma	0	38.4	0	585.1	676.8	86	0	
	KASUNGU	Dowa Agric	22.5	41.3	54	894.7	835.4	107	2
Kasiya Agric		0	36.2	0	956.1	909.2	105	0	
Kasungu Met		13.5	31.1	43	641.8	743.2	86	2	
Lisasadzi		41.8	23.5	178	783.4	776.3	101	6	
Malomo Agric		29.2	30.8	95	936.4	792.1	118	2	
Madisi Agric		83	27.5	302	885.9	796.4	111	4	
Mchinji Boma		10.1	50.6	20	1206.6	948.6	127	2	
Mkanda Met		44.1	43.7	101	1193.4	827.4	144	3	
Mponela Agric		26.8	27.9	96	775.7	767.4	101	3	
Mwimba Res		101.6	30.3	335	831.8	840.4	99	2	
Ntchisi Boma		0	67.5	0	1018.9	1141.6	89	0	
Chileka Namite		6.3	34.6	18	1204.1	861.6	140	1	
Chitedze Met.		49.7	41.6	119	774.6	829.7	93	4	
K.L.A Met		42.4	47.3	90	880.2	810.8	109	6	
Mlangeni Njol	24.6	44.3	56	1173.8	915.2	128	4		
LILONGWE	Nathenje Agric	40.5	38.5	105	1099	796.3	138	2	
	Ntcheu - Nkhand	1	45	2	1359.8	992	137	1	
	Dedza RTC	85.3	44.3	193	1028.1	945	109	6	
	SALIMA	Dwangwa Sugar	93.2	143.8	65	951	1136.1	84	5
		Lifuwu	0	71.7	0	692.6	1128.9	61	0
		Nkhotakota Met	222.8	142.5	156	1294.9	1244.6	104	4
	MACHINGA	Salima Met	0	71.6	0	1056.2	1123.4	94	0
		Chikweo Agric.	2.5	55.8	4	907.8	1001.1	91	1
Chingale Agric		20	30.1	66	1188.9	863.2	138	3	
Mpilipili		3	35	9	672.1	845.5	79	1	
Makoka Met		20.2	32.5	62	1072	904.3	119	3	
Mangochi Met.		3.2	33.2	10	906.2	663.3	137	2	
Monkey Bay M		0	13.4	0	670.1	551.6	121	0	
Namiasi Agric		0	23.5	0	828.4	733	113	0	
Naminjiwa Agric		20.5	36.5	56	1067.7	910.1	117	1	
Namwera Agric		10.1	51.7	20	1249.54	972.2	129	3	
Ntaja Met.		1.8	48.6	4	526.3	827.2	64	2	
Phalula Agric		0	27.2	0	962.2	784.8	123	0	
Toleza Farm		0.5	29.3	2	1167	806.1	145	1	
Zomba RTC		8.2	58.2	14	1051.2	1111.8	95	1	
BLANTYRE		Bvumbwe Met.	11.9	57.9	21	1399.3	1016.1	138	4
		Chichiri Met.	3.8	15.3	25	1505.1	1028.5	146	2
		Chileka Airport	1.2	44.5	3	1202.8	826.9	145	1
	Chiradzulu Agric	9.6	44.5	22	1169.5	919.5	127	2	
	Chizunga Factory	32.7	71.5	46	1661.6	1203.3	138	4	
	Lujeri Tea Estate	182.5	131.2	139	2367.7	1744	136	5	
	Mimosa Met.	53.1	81.3	65	1259.3	1268	99	5	
	Mpemba Vet	0	52.1	0	1708.4	1040.5	164	0	
	Mulanje Boma	28	125	22	1735.9	1524.1	114	3	
	Mwanza Boma	25.7	35.2	73	1413.6	936.9	151	4	
	Neno Agric	39.2	42.6	92	1830.9	1011.1	181	4	
	Satemwa Tea Es	44.3	61.2	72	1674.6	978.4	171	5	
	Thuchila Agric	13.8	40.2	34	1040.9	815.1	128	2	
	Thyolo Met	43.4	56.3	77	1364.1	1107.1	123	4	
	SHIRE VALLEY	Chikwawa Boma	26.7	33.9	79	933.4	714	131	3
		Kasinthula Res.	15.7	21.2	74	965	667.2	145	4
		Makhanga Met	15.9	25.5	62	1214.4	676	180	2
		Nchalo Sucoma	59.6	26.6	224	927.6	605.4	153	3
Ngabu Met.		27.8	35.1	79	936.3	704.8	133	3	
Nsanje Boma	22.2	57.7	38	917.8	1000.5	92	3		

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 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										
CHITIPA	28.1	18.1	30.0	17.5	8.6	74	7.5	6.6	5.2	9.2
KARONGA	31.1	20.9	32.6	20.4	4.3	75	10.0	7.8	6.1	10.9
BOLERO	29.8	17.8	30.8	16.4	1.8	70	6.5	5.9	4.6	8.4
MZUZU										
MZIMBA	28.5	16.5	30.3	15.0	2.5	72	6.5	5.8	4.5	8.4
MZUZU	25.9	17.6	28.3	15.8	4.7	83	4.2	4.8	3.8	6.9
NKHATA BAY	29.9	21.4	34.0	20.3	3.2	76	6.1	6.0	4.8	8.1
KASUNGU										
KASUNGU	29.4	17.8	30.1	16.0	2.9	73	7.0	6.1	4.8	8.8
LILONGWE										
CHITEDZE	28.4	17.5	30.0	14.9	1.1	72	7.0	5.9	4.6	8.8
DEDZA	24.6	14.5	26.8	11.9	2.5	77	6.5	5.3	4.1	8.5
K I A	27.1	16.7	28.6	13.4	5.0	76	7.9	6.2	4.8	9.4
SALIMA										
NKHOTAKOTA	29.5	20.2	30.5	17.4	3.2	84	7.7	6.5	5.1	9.2
SALIMA	30.7	22.9	32.1	19.5	7.6	68	8.0	7.3	5.8	9.4
MACHINGA										
NTAJA	28.7	20.0	30.8	18.2	5.0	78	6.5	6.1	4.8	8.5
MAKOKA	27.0	16.9	29.5	14.0	3.2	75	6.5	5.7	4.5	8.5
MANGOCHI	31.1	22.0	33.0	20.1	2.5	64	7.5	6.8	5.4	9.1
MONKEY BAY	28.5	22.3	32.0	20.0	5.8	62	7.0	6.7	5.4	8.8
BLANTYRE										
BVUMBWE	24.6	16.6	27.6	15.0	5.8	74	6.5	5.7	4.4	8.5
CHICHIRI	26.0	17.7	27.7	16.0	6.1	71	9.5	6.9	5.4	10.5
CHILEKA	30.1	17.4	31.1	17.4	7.6	76	11.1	7.8	6.1	11.5
MIMOSA	30.1	21.1	30.5	17.0	2.5	74	6.5	6.3	5.0	8.5
SHIRE VALLEY										
NGABU	32.0	22.3	33.7	20.5	0.4	63	8.5	7.2	5.7	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 Meters Per Second (mps) to Kilometres per hour (Km/hr) = mpsx3.6