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

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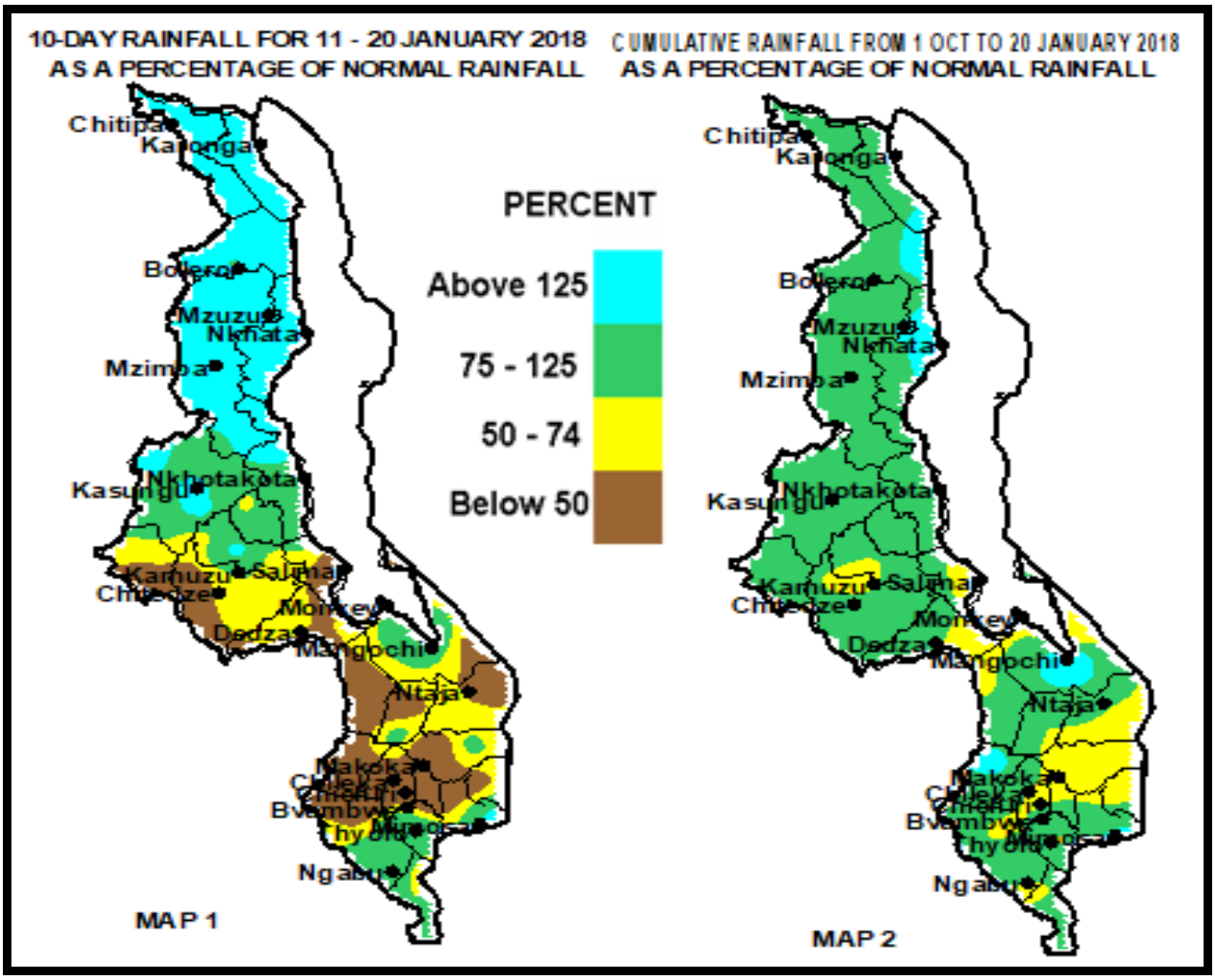
HIGHLIGHTS

- **Excessive rainfall led to flooding of Kasito and North Rukuru Rivers …**
- **Prolonged dry spells reduce chances of good harvest in 2017/18 season …**
- **Prolonged dry spells to persist over southern Malawi during 21 to 31 January 2018…**



Rainfall Maps by 20 January 2018

1.0 WEATHER SUMMARY

During the period 11 to 20 January 2018, the Inter Tropical Convergence Zone (ITCZ) remained active over northern Malawi while a ridge of high pressure covered southern and some parts of central Malawi. As a result most areas in southern and central Malawi experienced dry weather conditions and below average cumulative rainfall amounts (Yellow and Brown colours on Map 1).

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1.1 RAINFALL SITUATION

During the second ten days of January 2018, most areas over northern Malawi and a few areas mainly over the eastern sector of southern and central Malawi had experienced locally heavy rainfall amounts and above average rainfall situation. High cumulative rainfall amounts in excess of 120mm during the ten day period were reported in some areas including Lujeri Tea Estate which recorded 253mm, Chitipa Met had 205mm, Dwangwa recorded 193mm, Mzuzu Met 185mm, Mbawa Research Station 182mm, Mzimba Met had 157mm, Vinthukutu Agric 151mm, Chintheche Agric 146mm, Baka Research Station and Chelinda(Nyika) reported 144mm, Chikangawa Forest had 142mm, Ekwendeni Agric 139mm, Ntchisi Boma 134mm and Nkhata Bay Met 123mm. There were also reports that heavy rains caused flooding of Kasito river in Mzimba and North Rukuru river Karonga. At the same time dry conditions and below average rainfall amounts were experienced over most areas in southern and central Malawi as shown by Yellow and Brown colours in Map 1. More details are in Table 1 and Map 1.

Map 2 shows the spatial distribution of cumulative rainfall since the season 2017/18 started in October 2017 up to 20 January 2018. The map shows that by 20 January 2018 most areas in Malawi had received normal seasonal rainfall amounts (Green colour). However, pockets of dry areas still existed particularly in southern Malawi (Yellow colour).

1.3 AIR TEMPERATURE

Warm to hot temperatures had persisted over Malawi during the period 11 to 20 January 2018. Mean daily maximum temperatures ranged between 23°C at Mzuzu to 32°C at Ngabu while the average daily minimum temperatures had ranged from 14°C at Dedza to 23°C at Monkey Bay. During the same period the highest temperature was 34°C reported at Ngabu in Chikwawa. On the otherhand the lowest temperature was 13°C recorded at Dedza Boma. Details are in Table 2.

1.4 WIND SPEEDS

During the period 11 to 20 January 2018 most parts of Malawi experienced light to moderate wind speeds. The daily average wind speeds measured at a height of two metres above the ground level across the Malawi had ranged from 2.5km per hour at Nkhata Bay (Mkondezi) to 12.2km per hour at Chileka Airport. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the period 11 to 20 January 2018, air over Malawi was fairly moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 55% at Kasungu to 88% at Mzuzu. Details are on the Table 2.

1.6 SUNSHINE HOURS

Increased cloudiness was observed over Malawi during the period 11 to 20 January 2018. The daily average values of sunshine hours had ranged between 2 and 9 hours. Consequently the amount of solar radiation received over most areas was also reduced and had ranged between six (6) and ten (10) calories per square centimeter per day. More details are in Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the last ten days January 2018 good rainfall for crop production was confined to northern Malawi. The good rainfall that fell in northern Malawi had facilitated planting of roots and tubers, growth and development of crops, improved water availability, soil moisture reserves and pasture availability while low rainfall and prolonged dry spells that continued affecting southern and some parts of central Malawi had maintained soil moisture stress and wilting of crops. In some cases particularly in low altitude areas in southern Malawi cereal crops like maize have dried up permanently and some farming households are likely not to harvest anything from this crop. This has compromised crop yields, production and household food security this 2017/18 season.

Most crops in Malawi were planted between November and mid-December 2017, so most crops were reported to be ranging from vegetative to flowering stages. The early planted hybrid maize varieties were at cob formation and maturity stages.

3. PROSPECTS FOR 2017/2018 RAINFALL SEASON

The Sea Surface Temperatures which drive the rainfall patterns of the world including Malawi indicate that weak La Niña conditions have been established and are predicted to persist up to April 2018. Based on weak La Niña conditions, the updated rainfall forecast for 2017/18 season in Malawi is that during the period February to April 2018 most parts of Malawi would experience normal to above normal total rainfall amounts.

4. OUTLOOK FOR 21 TO 31 JANUARY 2018

Models for short and medium range forecasts show that the Inter Tropical Convergence Zone is likely to remain active over northern Malawi and ridge of high pressure is expected to maintain dryness particularly over southern Malawi during the period 21 to 31 January 2018.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 11 TO 20 JANUARY 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 TODATE (mm)	NORMAL (EXPECTED) RAINFALL TODATE (mm)	ACTUAL TODATE AS PERCENTAGE OF NORMAL (EXPECTED) RAINFALL	RAINY DAYS ≥ 0.3 mm
KARONGA	Baka Res. Stn.	143.5	60.6	237	504.0	382.9	132	7
	Chitipa Met	205.0	65.9	311	389.7	398.2	98	10
	Karonga Met.	116.6	55.3	211	410.4	331.7	124	8
	Lupembe	43.0	49.3	87	213.3	275.7	77	3
	Vinthukutu Agric	150.5	69.0	218	555.4	382.4	145	5
MZUZU	Bolero Met	54.0	52.0	104	272.4	290.2	94	5
	Bwengu Agric.	98.5	59.2	166	193.9	332.9	58	6
	Chikangawa forest	142.3	83.5	170	310.4	452.3	69	7
	Chelinda (Nyika)	144.0	79.6	181	560.0	499.0	112	10
	Chintheche Agric	145.7	83.1	175	819.4	564.1	145	4
	Ekwendeni Agric.	138.9	53.6	259	233.9	403.7	58	5
	Mbawa Res. Stn	181.9	59.4	306	492.9	377.6	131	6
	Mzimba Met	157.2	71.1	221	411.7	407.7	101	7
	Mzuzu Met.	184.9	69.3	267	609.1	407.1	150	9
	NkhataBay Met.	123.4	65.6	188	773.7	474.8	163	8
	Rumphi Boma	93.3	57.9	161	463.6	303.5	153	8
KASUNGU	Dowa Agric	50.5	82.0	62	416.0	394.0	106	5
	Kalululma Agric	55.9	76.9	73	110.7	384.0	29	6
	Kasungu Met	91.1	62.3	146	400.4	344.2	116	8
	Lisasadzi Agric	109.2	67.7	161	265.7	388.8	68	8
	Malomo Agric	64.8	125.7	52	293.8	379.7	77	5
	Madisi Agric	40.3	81.5	49	474.2	371.8	128	4
	Mchinji Boma	30.8	79.7	39	598.7	507.5	118	4
	Mponela Agric	108.8	68.1	160	222.6	350.2	64	7
	Mwimba Research	90.4	82.4	110	204.6	405.7	50	5
	Ntchisi Boma	134.3	98.2	137	431.1	532.7	81	7
SALIMA	Dwangwa Sugar	193.0	81.6	237	531.7	500.5	106	8
	Lifuwu	23.0	128.0	18	271.1	472.6	57	2
	Nkhotakota Met	73.1	105.9	69	594.3	528.9	112	6
	Salima Met	18.0	117.2	15	305.1	481.5	63	4
LILONGWE	Chileka Namitete	17.6	61.3	29	544.2	445.9	122	2
	Chitedze Met.	26.5	79.5	33	N/A	400.5	N/A	4
	Dzonzi Forest	2.0	81.9	2	383.7	471.3	81	1
	K.I.A Met	71.1	87.2	82	260.4	382.6	68	7
	Kasiya Agric	27.6	53.9	51	247.5	473.4	52	3
	Nathenje Agric	46.8	57.7	81	451.5	368.9	122	3
	Ntcheu - Nkhande	16.0	97.6	16	384.3	503.1	76	2
	Dedza RTC	39.9	87.2	46	294.2	434.1	68	5
MACHINGA	Balaka Township	5.8	70.2	8	312.6	403.7	77	1
	Chancellor College	85.9	89.4	96	381.0	601.5	63	3
	Chikweo Agric.	33.5	107.3	31	386.6	496.6	78	6
	Chingale Agric	8.7	64.4	14	212.9	427.0	50	2
	Mpilipili (Makanjila)	13.1	65.9	20	180.8	412.6	44	2
	Makoka Met	15.6	79.4	20	236.5	458.8	52	5
	Mangochi Met.	64.0	64.6	99	551.7	275.3	200	5
	Monkey Bay Met.	40.1	54.0	74	167.9	253.4	66	4
	Namiasi Agric	109.7	78.3	140	261.5	347.9	75	7
	Namwera Agric	29.8	86.6	34	363.3	471.8	77	5
	Phalula Agric	67.3	61.9	109	363.9	407.0	89	2
	Toleza Farm	30.5	70.8	43	322.0	409.1	79	4
	Zomba Agric	52.7	90.7	58	369.3	559.7	66	4
BLANTYRE	Bvumbwe Met.	67.5	84.0	80	490.1	500.5	98	6
	Chichiri Met.	39.3	74.8	53	389.6	741.0	53	4
	Chileka Airport	15.2	63.9	24	352.4	416.7	85	3
	Chiradzulu Agric	14.6	60.3	24	293.5	445.8	66	5
	Chizunga Factory	69.6	70.9	98	434.2	644.7	67	3
	Lujeri Tea Estate	252.7	127.7	198	1451.1	941.3	154	7
	Masambanjati Agric	87.4	82.2	106	599.9	596.1	101	5
	Mimosa Met.	95.9	93.8	102	696.6	655.5	106	7
	Mpemba Vet	23.7	88.8	27	414.4	545.3	76	2
	Mulanje Boma	107.8	109.7	98	1067.6	812.1	131	4
	Mwanza Boma	21.1	69.9	30	117.0	471.5	25	4
	Naminjiwa Agric	19.3	84.8	23	263.0	458.1	57	2
	Neno Agric	24.2	95.7	25	791.8	510.9	155	5
	Satemwa Tea Est.	110.1	61.5	179	394.7	478.9	82	5
	Thuchila Agric	16.6	67.6	25	458.6	399.1	115	4
SHIRE VALLEY	Chikwawa Boma	30.0	61.2	49	167.1	387.9	43	3
	Makhanga Met	12.7	47.7	27	285.0	368.3	77	2
	Nchalo Sucoma	61.9	58.1	107	397.6	314.0	127	4
	Ngabu Met.	67.0	55.8	120	241.5	368.1	66	4
	Nsanje Boma	97.4	97.8	100	561.1	528.7	106	4

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 JANUARY 2018

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	24.8	16.6	27.2	15.1	4.7	81	1.8	4.2	3.3	5.7
Karonga	28.3	20.5	31.3	19.7	4.0	81	3.0	4.9	3.9	6.5
MZUZU ADD										
Bolero	26.4	18.8	29.1	18.2	7.2	80	2.2	4.6	3.7	6.0
Mzimba	25.3	16.5	27.1	14.9	3.2	80	2.9	4.6	3.6	6.5
Mzuzu	23.4	16.9	26.1	15.8	3.2	88	2.9	4.3	3.4	6.5
Nkhata Bay	28.3	20.5	31.0	19.8	2.5	86	2.2	4.4	3.5	6.0
KASUNGU ADD										
Kasungu	28.0	19.1	30.0	17.6	3.2	64	5.6	6.1	4.8	8.2
LILONGWE ADD										
Chitedze	28.2	17.8	30.4	16.4	7.2	69	5.7	6.2	5.0	8.3
Dedza	24.5	14.3	27.7	12.6	5.4	73	5.7	5.6	4.4	8.3
KIA	25.4	17.4	28.0	16.0	5.0	76	5.6	5.7	4.5	8.2
SALIMA ADD										
Nkhotakota	28.7	22.4	29.8	20.1	2.9	74	5.5	6.1	4.9	8.2
Salima	29.7	22.6	31.4	20.5	9.7	69	7.9	7.6	6.1	9.7
MACHINGA ADD										
Makoka	26.9	17.4	29.7	16.2	4.0	79	6.0	5.9	4.6	8.6
Mangochi	30.9	21.7	34.0	21.0	3.2	76	7.7	7.1	5.7	9.6
Monkey Bay	29.4	23.0	31.5	20.9	8.6	65	7.7	7.6	6.2	9.6
Ntaja	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BLANTYRE ADD										
Bvumbwe	23.9	15.1	25.9	13.6	7.2	82	6.3	5.6	4.4	8.7
Chichiri	25.5	17.4	27.9	16.0	6.5	78	6.3	6.0	4.7	8.7
Chileka	28.7	19.3	30.9	17.6	12.2	68	8.1	7.6	6.1	9.9
Mimosa	27.0	19.4	30.0	18.0	3.6	75	6.3	6.1	4.8	8.7
SHIRE VALLEY ADD										
Ngabu	32.1	22.9	34.4	21.5	2.9	73	8.5	7.7	6.1	10.2

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
- kWh = 3.6 MJ