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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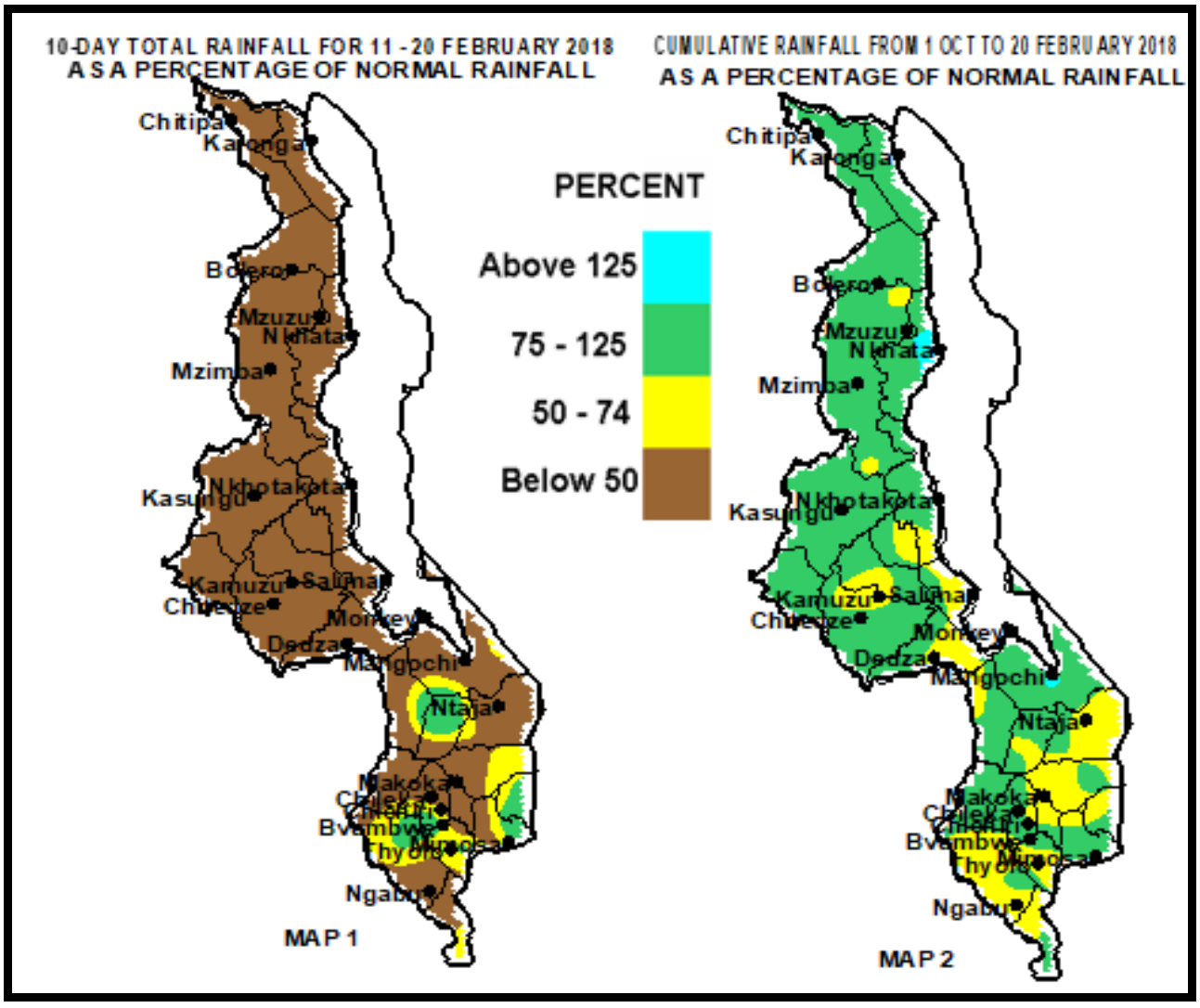
HIGHLIGHTS

- **Dry conditions and below average rainfall performance experienced …**
- **Prolonged dry spells and drought reduce chances of good harvest in 2018…**
- **More rains expected over Malawi during the period 21 to 28 February 2018…**



Rainfall Maps by 20 February 2018

1.0 WEATHER SUMMARY

During the second ten days of February 2018, warm and relatively dry north easterly air mass prevailed over Malawi as the main rain belt, the Inter Tropical Convergence Zone (ITCZ) had moved to south of Malawi. Hence several places in Malawi had experienced dry conditions and far below average cumulative rainfall amounts (Brown Colour on Map 1).

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1.1 RAINFALL SITUATION

During the period 11 to 20 February 2018 several places in Malawi had experienced dryness and below average cumulative rainfall amounts. Very few and sporadic areas particularly in southern Malawi had recorded cumulative rainfall amounts of at least 50mm. Such areas included Lujeri Tea Estate in Mulanje district which had recorded 186mm, Mpemba Agric in Blantyre had 76mm, Toleza Farm in Balaka district reported 75mm, Naminjiwa Agric in Phalombe had 58mm and Balaka Agric recorded 57mm. Otherwise several places had experienced dryness, below average cumulative rainfall amounts and less rainy days. More details are in Table 1 and Map 1.

The spatial distribution of cumulative rainfall since the 2017/18 rainfall season started in October 2017 up to 20 February 2018 is shown in Map 2. The map indicates that most parts of Malawi have received long term average cumulative rainfall amounts (Green colour). However, pockets of below average rainfall amounts still existed in some areas particularly over southern and central Malawi (Yellow colour on the map) due to prolonged dry spells and drought that were experienced in January 2018.

1.3 AIR TEMPERATURE

Warm to hot temperatures continued to prevail over most parts of Malawi during the second ten days of February 2018. Mean daily maximum temperatures ranged from 24°C at Mzuzu to 34°C at Ngabu while daily average minimum temperatures had ranged from 16°C to 24°C. During the same period the highest temperature was 37°C reported at Ngabu in Chikwawa. On the otherhand the lowest temperature was 14°C recorded at Dedza. Details are in Table 2.

1.4 WIND SPEEDS

During the period 11 to 20 February 2018 most parts of Malawi continued to experience 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 1.1km per hour at Makoka to 11.2km per hour at Chitipa. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the period 11 to 20 February 2018, air over Malawi was still fairly moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 62% at Bolero in Rumphi to 79% at Makoka in Zomba. Details are on the Table 2.

1.6 SUNSHINE HOURS

During the period 11 to 20 February 2018, Malawi had experienced increased sunshine hours. The daily average values of sunshine hours had ranged between 5 and close to 11 hours. Consequently, the amount of solar radiation received over most areas had also increased and most areas had recorded more than nine calories per square centimeter per day. More details are in Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

Following good rainfall performance during early February 2018, several places in Malawi had experienced dry conditions and below average cumulative rainfall amounts in the second ten days February 2018. The dryness and below average rainfall were reported to have caused soil moisture stress in localized places in Karonga and Nkhata Bay in northern Malawi and Kasungu and Mchinji in central Malawi. Significant cumulative rainfall amounts were confined to very few areas mainly in southern Malawi. These rains have continued to improve water resources, soil moisture reserves and pasture availability for grazing livestock and also have supported planting of early maturing crops like sweet potatoes and cassava particularly in areas where crops have wilted permanently due to prolonged dry spells and drought. Otherwise the crop situation in most fields particularly in the south was reported in poor state and poor harvests are expected in 2017/18 season. Maize, the staple food crop was reported to be ranging from vegetative to 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 are likely to persist up to April 2018. Based on weak La Niña conditions, the updated rainfall forecast for 2017/18 season in Malawi is that most parts of Malawi are likely to experience normal to above normal cumulative rainfall amounts during the period February to April 2018.

4. OUTLOOK FOR 21 TO 28 FEBRUARY 2018

Models for short and medium range forecasts show that both rain bearing systems namely, the Inter Tropical Convergence Zone (ITCZ) and moist westerly air mass are likely to become more active over Malawi during the last days of February 2018. Hence, farmers particularly in southern Malawi where crops like Maize have dried permanently due to prolonged dry spells and drought are strongly advised to utilize this rainfall by planting early maturing crop varieties like sweet potatoes and cassava and also to practice infield rainwater harvesting.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 11 TO 20 FEBRUARY 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.	0.0	63.4	0	599.4	560.9	107	0
	Chitipa Met	4.5	77.5	6	541.5	638.6	85	1
	Karonga Met.	0.0	49.1	0	497.4	485.5	102	0
	Lupembe	8.5	58.4	15	418.9	440.6	95	1
	Vinthukutu Agric	0.0	58.6	0	715.0	553.4	129	0
MZUZU	Bolero Met	6.2	60.7	10	383.6	455.4	84	1
	Bwengu Agric.	0.0	66.2	0	280.5	531.9	53	0
	Chintheche Agric	0.0	77.4	0	1066.4	809.1	132	0
	Ekwendeni Agric.	30.3	78.6	39	386.3	566.7	68	1
	Mbawa Res. Stn	23.3	66.0	35	656.9	573.3	115	2
	Mzimba Met	9.9	79.3	12	581.7	622.8	93	2
	Mzuzu Met.	0.0	65.3	0	724.6	593.2	122	0
	NkhataBay Met.	3.0	62.1	5	930.4	666.4	140	1
	Rumphi Boma	15.0	65.2	23	578.5	494.8	117	1
	Zombwe Agric	0.0	62.6	0	424.1	484.8	87	0
KASUNGU	Dowa Agric	0.0	56.4	0	532.1	609.0	87	0
	Kaluluma DTC	7.0	59.0	12	255.0	576.3	44	2
	Kasungu Met	0.3	63.3	0	539.2	549.5	98	1
	Lisasadzi	0.0	63.9	0	330.7	611.4	54	0
	Malomo Agric	0.0	65.7	0	405.5	581.5	70	0
	Madisi Agric	0.0	75.9	0	655.7	594.9	110	0
	Mchinji Boma	9.6	74.7	13	908.9	723.5	126	1
	Mponela Agric	0.0	71.5	0	386.8	581.9	66	0
	Mwimba Research	0.0	72.3	0	337.2	624.9	54	0
	Ntchisi Boma	0.0	90.3	0	548.2	830.1	66	0
SALIMA	Dwangwa	0.5	60.1	1	683.9	722.0	95	1
	Lifuwu	5.1	91.1	6	603.0	793.4	76	2
	Nkhotakota Met	15.8	73.6	21	841.1	784.5	107	2
	Salima Met	7.1	91.7	8	553.2	774.7	71	2
LILONGWE	Chileka Namitete	0.0	68.3	0	568.8	677.3	84	0
	Chitedze Met.	0.0	57.7	0	568.8	602.6	94	0
	Dzonzi Forest	13.0	70.9	18	554.3	707.4	78	1
	K.I.A Met	0.0	61.9	0	349.2	586.1	60	0
	Kasiya Agric	5.5	63.6	9	335.4	668.8	50	1
	Mlangeni Njolomole	16.8	87.2	19	428.7	680.8	63	2
	Nathenje Agric	0.0	73.4	0	598.5	589.5	102	0
	Ntcheu - Nkhande	8.0	75.7	11	554.9	748.0	74	2
	Dedza RTC	0.3	68.8	0	430.5	722.4	60	1
MACHINGA	Balaka Township	56.6	46.6	121	422.0	631.8	67	2
	Chikweo Agric.	4.1	65.1	6	456.2	738.9	62	1
	Chingale Agric	3.0	68.2	4	253.7	669.5	38	1
	Mpilipili (Makanjila)	3.5	62.7	6	329.4	651.0	51	2
	Makoka Met	7.5	63.1	12	400.2	703.2	57	3
	Mangochi Met.	6.1	65.0	9	625.8	483.4	129	2
	Monkey Bay Met.	0.0	46.7	0	416.7	445.8	93	0
	Namiasi Agric	0.0	50.6	0	439.0	565.8	78	0
	Namwera Agric	39.0	61.7	63	668.8	717.0	93	2
	Ntaja Met.	3.9	56.7	7	356.4	618.5	58	3
	Phalula Agric	8.6	57.4	15	486.3	605.8	80	3
	Toleza Farm	75.0	48.6	154	716.0	617.5	116	3
	Zomba RTC	45.2	70.4	64	617.3	837.6	74	5
BLANTYRE	Bvumbwe Met.	40.5	73.8	55	668.3	771.3	87	5
	Chichiri Met.	26.6	52.3	51	614.7	920.0	67	3
	Chileka Airport	17.1	50.4	34	564.3	636.9	89	2
	Chiradzulu Agric	13.3	66.2	20	384.0	710.5	54	3
	Chizunga Factory	43.1	86.4	50	566.9	897.5	63	5
	Lujeri Tea Estate	186.1	138.8	134	1892.2	1341.2	141	8
	Mimosa Met.	23.5	71.9	33	910.3	939.7	97	7
	Mpemba Vet	75.5	68.0	111	638.7	793.9	80	5
	Mulanje Boma	31.6	86.9	36	1273.9	1153.9	110	3
	Mwanza Boma	18.7	66.0	28	135.7	723.1	19	3
	Naminjiwa Agric	58.4	71.3	82	460.7	709.5	65	2
	Neno Agric	12.0	68.8	17	1075.6	790.5	136	2
	Thuchila Agric	8.0	57.8	14	622.7	621.0	100	2
SHIRE VALLEY	Chikwawa Boma	37.8	41.5	91	266.2	570.6	47	3
	Kasinthula Res. Stn.	43.3	46.3	94	251.8	487.8	52	6
	Ngabu Met.	1.2	51.3	2	300.9	549.7	55	1
	Nsanje Boma	47.5	72.5	66	656.0	767.8	85	1

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 FEBRUARY 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	28.7	17.8	31.0	16.8	11.2	66	9.7	7.9	6.2	10.9
Karonga	31.7	21.3	33.0	20.5	4.0	63	10.7	8.4	6.6	11.6
MZUZU ADD										
Bolero	24.6	16.9	29.0	15.6	4.7	69	9.7	6.9	5.3	10.9
Mzimba	30.4	17.6	32.2	16.3	4.7	62	9.7	7.6	5.9	10.9
Mzuzu	29.6	17.8	31.7	16.6	3.6	63	9.7	7.5	5.8	10.9
Nkhata Bay	32.6	20.7	33.8	19.7	2.2	72	10.0	8.0	6.3	11.0
KASUNGU ADD										
Kasungu	28.0	18.6	30.0	17.4	6.8	64	8.9	7.3	5.8	10.3
LILONGWE ADD										
Chitedze	28.4	18.5	30.4	17.9	4.0	77	7.4	6.5	5.1	9.3
Dedza	25.0	16.7	27.1	15.3	9.7	65	8.3	6.8	5.4	9.9
KIA	27.2	18.1	29.0	16.7	5.0	71	8.4	6.8	5.3	10.0
SALIMA ADD										
Nkhotakota	30.6	24.6	31.9	20.0	2.9	68	9.6	8.3	6.6	10.8
Salima	31.2	22.6	33.0	19.0	4.3	67	9.9	8.1	6.4	10.9
MACHINGA ADD										
Makoka	28.2	18.5	30.2	16.6	1.1	79	5.1	5.4	4.3	7.8
Mangochi	33.1	22.7	35.5	21.0	2.5	69	9.8	8.2	6.5	10.9
Monkey Bay	31.6	23.2	33.0	20.6	5.0	65	9.8	8.3	6.6	10.9
Ntaja	30.6	20.0	33.2	18.4	4.3	72	7.3	6.8	5.4	9.2
BLANTYRE ADD										
Bvumbwe	27.0	16.6	29.2	15.6	4.7	78	6.4	5.8	4.6	8.6
Chichiri	28.5	19.2	31.0	17.6	4.0	73	6.5	6.2	4.9	8.7
Chileka	30.5	21.1	32.5	19.4	10.4	69	7.3	7.3	5.9	9.2
Mimosa	30.2	19.3	32.2	16.5	2.9	69	6.5	6.3	5.0	8.7
SHIRE VALLEY ADD										
Ngabu	34.3	24.2	37.3	22.2	1.8	66	10.5	8.7	6.9	11.3

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 Meters Per Second (mps) to Kilometres per hour (Km/hr) = mpsx3.6
- kWh = 3.6 MJ