REPUBLIC OF MALAWI

Ministry of Natural Resources, Energy and Mining
Department of Climate Change and Meteorological Services

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In support of national early warning systems and food security

Be wise be weather-wise

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HIGHLIGHTS

- **Good rainfall amounts experienced in southern and central Malawi …**
- **Maize crop ranged from late vegetative to maturity and drying stages…**
- **Widespread locally heavy rains expected over Malawi during 21 to 31 March 2016…**

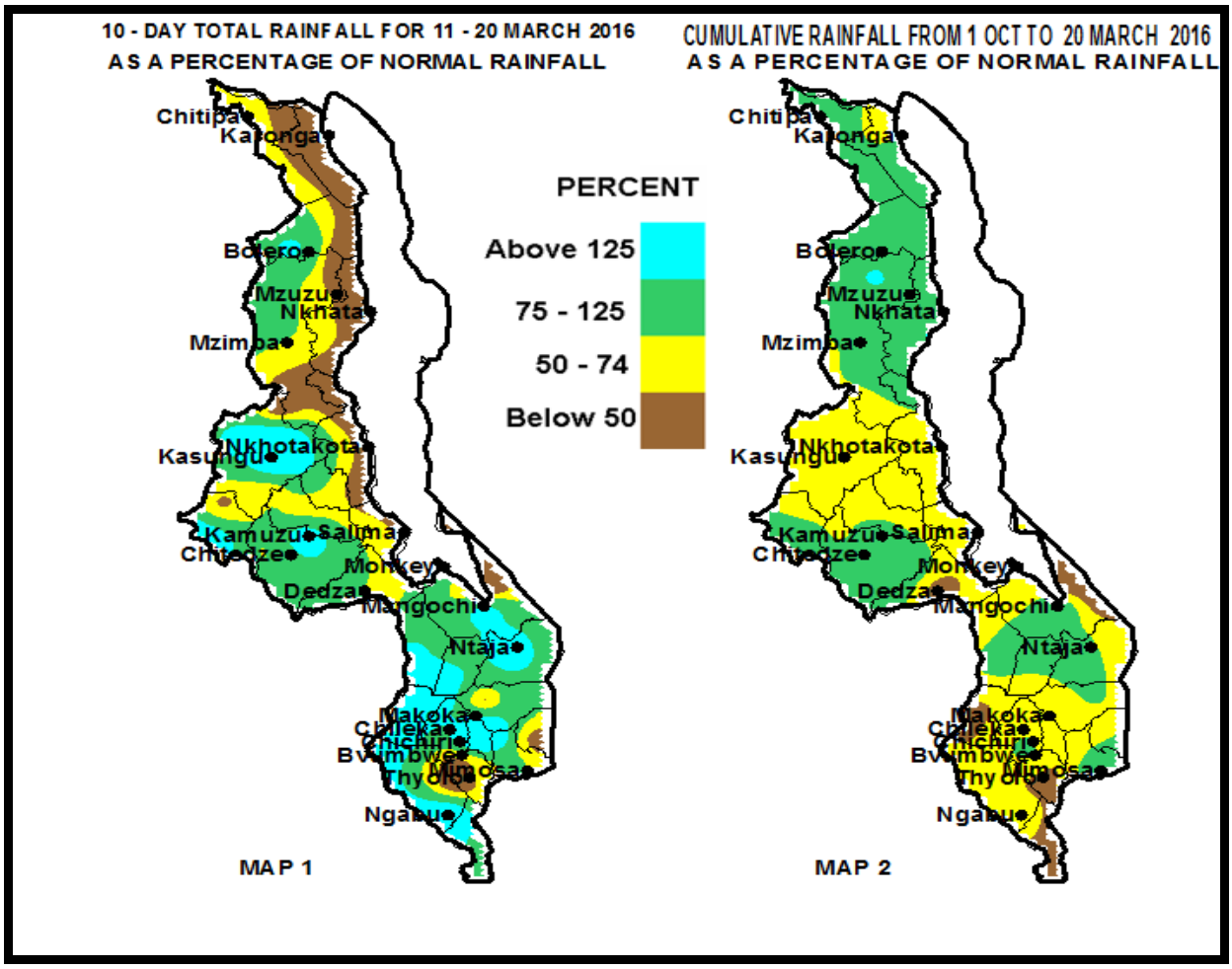

Figure 1: Rainfall Maps for 11 to 20 March 2016

1.0 WEATHER SUMMRY

During the period 11 to 20 March 2016 fairly moist easterly air mass had covered most of southern and central Malawi. As a result some parts of southern and central Malawi had received average to above average cumulative rainfall amounts while the rest of the country had generally experienced average to below average cumulative rainfall amounts.

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1.1 RAINFALL SITUATION

During the period 11 to 20 March 2016, moderate to heavy rainfall with better distribution was confined to southern and central Malawi while most areas in northern Malawi had experienced average to below average cumulative rainfall amounts with an average of two to three rainfall days. In southern Malawi rainfall stations that had registered significant cumulative rainfall amounts of at least 100mm had included Chiradzulu Agric which had recorded 122mm, Mwanza Agric recorded 115mm and Lujeri Tea Estate in Mulanje district which reported 104mmwhile in central Malawi heavy rainfall amounts were reported at Kasungu Met which had recorded 138mm and Mchinji Agric had reported. 113mm. Most areas in along the lakeshore had experienced low rainfall and prolonged dry spells. More details are in Table 1.

Map 2 in Figure 1 shows cumulative rainfall performance during the period October 2015 up to 20thMarch 2016. The map indicates that seasonal rainfall deficits (yellow to brown colour) still existed in most parts of southern and central Malawi while northern Malawi has generally received average cumulative rainfall amounts. Refer to Map 2 and Table 1 for more details.

1.3 AIR TEMPERATURE

During the period 11 to 20 March 2016 hot weather had persisted over Malawi. The average daily maximum temperatures had ranged from 26.6°C at Dedza to 37°C at Ngabu in Chikwawa district. The average minimum temperatures were between 17°C and 26°C at Dedza and Ngabu respectively. The highest maximum temperature was 39°C recorded at Ngabu in Chikwawa while the lowest temperature was 15.5°C reported at Mzuzu. For more details refer to Table 2.

1.4 WIND SPEEDS

During the 11 to 20 March 2016 daily average wind speeds measured at a height of two metres above the ground level across Malawi had ranged from 0.4Km per hour at Bolero and Kamuzu International Airport to 8.1km per hour at Dedza. High wind speeds have a good for wind energy generation. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the second ten day period of March 2016, air over Malawi was fairly moist and unstable. The daily average relative humidity values had ranged from 63% at Bolero in Rumphi district to 81% at Dedza. High relative humidity values are conducive for fungal diseases. Details are on the Table 2.

1.6 SUNSHINE HOURS

The mean durations of bright sunshine hours in Malawi were between 6 and 8 hours. The highest mean sunshine hours was observed at along the lakeshore. Details are on the Table 2. More sunshine hours are required for crops which are at maturity and drying stages.

2. AGROMETEOROLOGICAL ASSESSMENT

The moderate to heavy rains that fell during the period 11 to 20 March 2016 were supportive to growth and development of roots and tubers as well as the late planted crops while dry conditions had facilitated harvesting and drying of matured crops. The rains had also assisted in replenishing soil moisture reserves. On the negative note the wet weather had hampered harvesting of matured crops.

Maize crop had ranged from vegetative to maturity and drying stages and some farmers have started accessing the green harvests. However, the relief is temporally as most farm families particularly in southern Malawi will not harvest enough maize due to the negative effects of erratic rainfall and prolonged dry spells. Crops that had reached physiological maturity required more sunshine hours for harvesting and drying.

The first round of 2015/16 Agriculture Production Estimates Survey from Ministry of Agriculture, Irrigation and Water Development (MoAIWD) projected the national maize production at **2,719,425** metric tons which is 2.0 percent lower than the 2014/15 final round estimate of **2,776,277** metric tons. This is the first season since 2007/08 that total maize production is below national requirement.

3. PROSPECTS FOR 2015-2016 RAINFALL SEASON

Most climate models predict that strong El Nino conditions are weakening and may reach neutral levels by winter and La Nina conditions during 2016/17 rainfall season. However, rainfall outlook for the 2015-2016 season suggest that higher than usual chances that northern half of Malawi is likely to receive average rainfall amounts while the southern half of Malawi is expected to receive below average rainfall amounts during the period March to May (MAM) 2016.

4. OUTLOOK FOR 21 – 31 MARCH 2016

Models for short and medium range rainfall forecasts suggest that the main rain belt will be active over Malawi. The Inter Tropical Convergence Zone will be established over southern and central Malawi and Congo air mass will cover northern Malawi. Therefore expect widespread locally heavy rainfall over Malawi during the period 21 to 31 March 2016.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 11 TO 20 MARCH 2016

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.	7.3	140.0	5	446.6	871.3	51	2
	Chitipa Met	43.2	66.1	65	803.1	827.7	97	7
	Karonga Met.	4.4	78.9	6	409.6	693.7	59	3
	Lupembe	5.0	62.8	8	743.5	621.4	120	1
	Vinthukutu Agric	19.6	79.5	25	828.2	758.5	109	3
MZUZU	Bolero Met	37.0	27.9	133	649.6	566.3	115	2
	Bwengu Agric.	12.1	47.5	25	669.1	662.9	101	2
	Chikangawa forest	41.9	63.1	66	827.4	873.5	95	4
	Chintheche Agric	51.4	124.2	41	1539.9	1135.6	136	2
	Mbawa Res. Stn	25.6	40.4	63	578.0	729.3	79	6
	Mzimba Met	31.1	41.7	75	811.6	790.6	103	3
	Mzuzu Met.	25.9	58.2	45	843.6	775.3	109	3
	NkhataBay Met.	11.8	96.7	12	927.9	915.9	101	3
	Rumphi Boma	19.5	37.7	52	749.2	638.4	117	1
	Zombwe Agric	20.0	35.5	56	837.9	624.2	134	1
KASUNGU	Dowa Agric	37.4	45.4	82	527.9	794.1	66	5
	Kaluluma Agric	14.4	50.3	29	393.4	736.9	53	2
	Kasungu Met	138.6	38.7	358	567.0	712.1	80	3
	Lisasadzi	34.2	33.7	101	471.3	752.8	63	2
	Malomo Agric	51.3	46.7	110	353.8	761.3	46	3
	Madisi Agric	26.0	33.6	77	470.9	768.9	61	4
	Mchinji Boma	112.6	46.7	241	736.1	898.0	82	5
	Mkanda Met	16.5	41.3	40	582.3	783.7	74	3
	Mponela Agric	19.9	35.1	57	498.9	739.5	67	4
	Mwimba Research	32.0	38.9	82	459.0	810.1	57	3
	Ntchisi Boma	25.9	82.4	31	618.6	1074.1	58	2
SALIMA	Dwangwa	13.6	91.8	15	793.0	992.3	80	3
	Lifuwu	38.5	78.7	49	511.8	1057.2	48	3
	Salima Met	35.1	85.6	41	491.7	1051.8	47	4
LILONGWE	Chileka Namitete	22.6	44.6	51	738.9	827.0	89	3
	Chitedze Met.	58.6	51.1	115	609.0	788.1	77	2
	Dzonzi Forest	77.6	57.0	136	818.4	893.3	92	4
	K.I.A Met	69.8	41.8	167	761.9	763.5	100	5
	Mlangeni Njolomole	43.5	54.0	81	559.0	870.9	64	3
	Nathenje Agric	41.0	39.1	105	928.0	757.8	122	2
	Ntcheu - Nkhande	70.2	50.4	139	585.7	947.0	62	4
	Dedza Met	33.7	49.2	68	567.7	900.7	63	4
MACHINGA	Balaka Township	50.6	40.2	126	701.9	776.7	90	1
	Chikweo Agric.	62.5	67.3	93	547.5	945.3	58	5
	Chingale Agric	24.2	52.0	47	561.4	833.1	67	4
	Mpilipili (Makanjila)	4.9	39.6	12	429.1	810.5	53	2
	Makoka Met	50.3	46.7	108	537.5	871.8	62	2
	Mangochi Met.	58.5	44.1	133	657.0	630.1	104	3
	Monkey Bay Met.	16.0	16.3	98	281.3	538.2	52	3
	Namiasi Agric	9.2	49.7	19	395.5	709.5	56	3
	Ntaja Met.	75.3	44.6	169	631.8	778.6	81	5
	Phalula Agric	58.6	37.0	158	422.3	757.6	56	3
	Toleza Farm	42.0	45.4	93	644.0	776.8	83	3
	Zomba Agric	84.9	73.9	115	817.1	1053.6	78	3
BLANTYRE	Bvumbwe Met.	24.5	54.2	45	856.3	958.2	89	2
	Chichiri Met.	28.3	16.1	176	747.0	1013.2	74	2
	Chileka Airport	45.6	45.8	100	581.2	782.4	74	4
	Chiradzulu Agric	122.0	38.1	320	546.3	875.0	62	3
	Chizunga Factory	13.2	84.5	16	451.3	1131.8	40	2
	Lujeri Tea Estate	103.5	146.5	71	1850.0	1612.8	115	4
	Mimosa Met.	55.5	89.0	62	1067.3	1186.7	90	4
	Mpemba Vet	41.1	61.9	66	758.6	988.4	77	2
	Mulanje Boma	62.9	70.2	90	1340.0	1399.1	96	2
	Mwanza Boma	115.3	55.4	208	385.7	901.7	43	2
	Naminjiwa Agric	15.0	44.3	34	574.2	873.6	66	3
	Neno Agric	84.0	46.9	179	457.8	968.5	47	4
	Satemwa Tea Est	79.7	63.1	126	686.5	917.2	75	5
	Thuchila Agric	23.5	37.9	62	371.0	774.9	48	2
	Thyolo Boma	63.7	78.0	82	367.6	996.3	37	4
	Thyolo Met	32.8	58.6	56	690.3	1050.8	66	3
SHIRE VALLEY	Chikwawa Boma	19.1	32.9	58	437.0	680.1	64	1
	Makhanga Met	33.8	38.0	89	260.7	650.5	40	1
	Nchalo	3.1	19.3	16	300.1	578.8	52	1
	Ngabu Met.	85.9	37.3	230	452.1	669.7	68	3
	Nsanje Boma	32.0	49.9	64	343.5	942.8	36	2

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 MARCH 2016

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	29.5	18.7	31.3	17.6	6.1	74	7.1	6.5	5.1	8.9
Karonga	32.2	22.5	33.9	20.8	3.6	71	7.3	7.0	5.6	9.1
MZUZU ADD										
Bolero	31.2	18.9	33.3	17.9	0.4	63	6.5	6.2	4.9	8.5
Mzimba	29.4	18.0	31.5	16.8	2.2	71	6.2	5.9	4.7	8.3
Mzuzu	27.9	18.1	29.5	15.5	4.0	79	6.6	5.9	4.7	8.6
Nkhata Bay	32.4	21.9	33.9	21.3	1.8	77	7.0	6.7	5.3	8.8
KASUNGU ADD										
Kasungu	30.9	19.5	32.7	18.0	2.9	73	6.1	6.1	4.9	8.3
LILONGWE ADD										
Chitedze	29.8	19.8	31.1	18.7	1.8	76	6.9	6.3	5.0	8.8
Dedza	26.6	17.3	27.6	15.9	7.9	81	6.5	5.9	4.6	8.6
K I A	28.3	18.8	29.0	17.9	0.4	76	6.8	6.0	4.7	8.8
SALIMA ADD										
Nkhotakota										
Salima	33.0	23.5	34.0	22.0	5.4	69	7.7	4.7	3.6	9.3
MACHINGA ADD										
Makoka	30.3	20.2	31.1	19.5	2.5	72	7.1	6.5	5.2	9.0
Mangochi	33.1	23.8	35.0	22.5	0.7	73	7.1	6.9	5.5	9.0
Monkey Bay	33.1	24.4	34.2	22.3	5.8	72	7.7	7.6	6.1	9.4
Ntaja	32.2	22.6	33.6	21.6	4.7	74	6.8	6.9	5.5	8.8
BLANTYRE ADD										
Bvumbwe	28.0	19.8	29.4	19.2	4.7	73	6.9	6.3	5.0	8.8
Chichiri	29.6	20.4	31.6	19.3	3.6	70	6.9	6.5	5.1	8.8
Chileka	31.1	21.2	32.2	17.9	6.5	74	7.4	7.0	5.6	9.2
Mimosa	33.0	21.7	34.0	20.7	3.6	67	6.9	6.9	5.5	8.8
SHIRE VALLEY ADD										
Ngabu	36.9	25.7	38.8	24.8	7.6	65	7.5	8.3	6.8	9.2

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 Kilometers per hour (Km/hr) to meters per second (mps) = (Km/Hr)/3.6