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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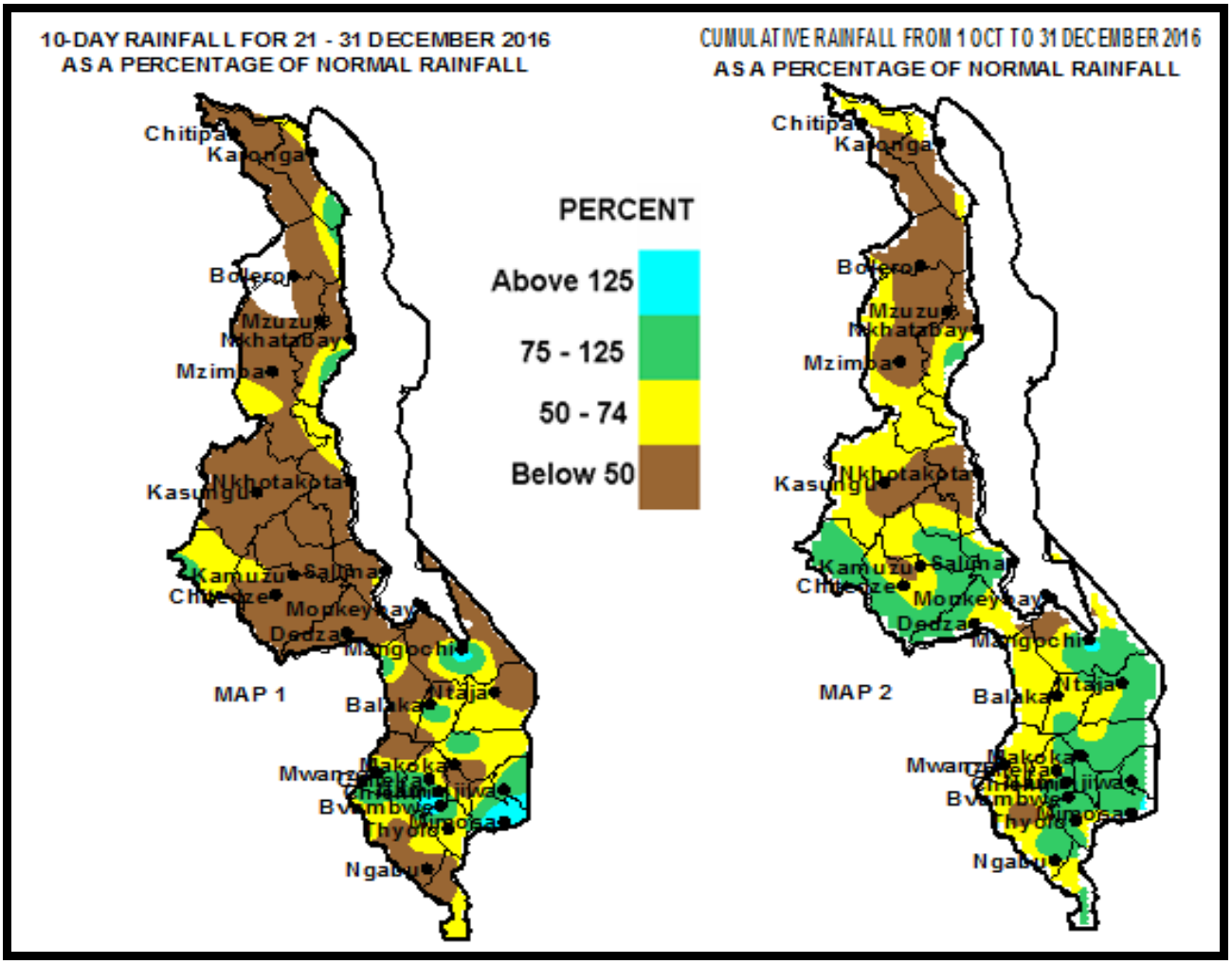
HIGHLIGHTS

- **Below average rainfall experienced over most parts of Malawi…**
- **Crops reported doing well between planting and vegetative stages…**
- **Widespread good rainfall amounts expected during 01 to 10 January 2017…**



Rainfall Maps for 21 to 31 December 2016

1.0 WEATHER SUMMARY

During the period 21 to 31 December 2016, Malawi was under a weak equatorial trough. As a result most areas in Malawi recorded light to moderate and below average rainfall amounts. Average to above average rainfall amounts were confined to very few areas mainly in southern Malawi (Green to light blue Colours on Map 1).

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1.1 RAINFALL SITUATION

During the last ten days December 2016, most areas in Malawi had received light to moderate rainfall amounts with poor distribution. During the entire period most areas had recorded a total of less than three rainy days and the amounts were generally far below the 30-year average. However a few stations had accumulated at least 70mm of rainfall and these stations included Lujeri Tea Estate in Mulanje district which had received 234mm, Mulanje Agric recorded 172mm, Bvumbwe Met station in Thyolo had registered 128mm, Mpemba Agric in Blantyre had reported 117mm, Chintheche Agric in Nkhata Bay district had 104mm, Thyolo Agric 95mm, Vinthukutu Agric in Karonga had 84mm, Mchinji Agric 79mm, Mlanjeni-Njolomole in Ntcheu and Chidzunga Factory in Mulanje had recorded 71mm each. During the entire period some areas particularly in Mangochi, Ntcheu, Dedza, Salima, Nkhotakota, Dowa, Kasungu, Mzimba, Rumphi, Chitipa districts had registered either little or nil rainfall. More details are in Table 1 and Map 1.

Map 2 shows spatial cumulative rainfall performance for the period 1st October to 31 December 2016. Generally the map shows poor rainfall performance over the northern half of Malawi and slightly better rainfall performance over the southern half Malawi where the map indicates existence of below average cumulative rainfall amounts particularly in the western sector of southern region.

1.3 AIR TEMPERATURE

During the period 21 to 31 December 2016, mean daily maximum temperatures in Malawi had ranged from 23.9°C at Dedza Met to 36.5°C at Ngabu Met. while the average minimum temperatures had ranged from 16.9°C at Dedza to 26.0°C at Ngabu Met. During the period the highest maximum temperature was registered at Ngabu (40.5°C) in Chikwawa while the lowest temperature was 16.1°C reported at Mzuzu Met. For more details see Table 2.

1.4 WIND SPEEDS

During the period 21 to 31 December 2016, average wind speeds measured at a height of two metres above the ground level across the country had varied from 2.2km per hour at Mangochi Met to 10.4km per hour at Dedza Met. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the last ten days of December 2016, daily average relative humidity values recorded from various meteorological stations in Malawi were in the range of 52% at Kasungu Met to 84% at Makoka Met station. Details are on the Table 2.

1.6 SUNSHINE HOURS

The daily average sunshine hours across Malawi had ranged from 7.4 hours at Bvumbwe to 10.5 hours at Monkey Bay Met. Details are on Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the last ten days of December 2016 the light to moderate rainfall amounts that were received over most parts of Malawi resulted in average to below average rainfall situation. The rains received so far have significantly improved pasture availability for animal production, water resources, soil moisture reserves and supported growth and development of crops. As a result major on farm agricultural activities during the period had included planting, weeding and application of basal and top dressing fertilizers. Due to good rainfall performance during the first half of the season, there have been fewer reports of incidences of army worms outbreaks with insignificant impacts.

In general the Maize crop, the staple food crop in Malawi, had ranged from planting to vegetative stages and was reported doing well particularly where both basal and top dressing fertilizers have already been applied. Good crop yields are anticipated this season provided good rains continue in January and February 2017 which are critical months for crop production in Malawi.

3. PROSPECTS FOR 2016/17 RAINFALL SEASON

The rainfall forecast for the 2016/2017 season in Malawi was that during October to December 2016, the greater part of southern half of Malawi was likely to receive normal to above normal rainfall amounts while the northern half was projected to receive normal to below normal rainfall amounts. During the period January to March 2017 the greater part of Malawi is expected to experience normal to above normal rainfall amounts.

4. OUTLOOK FOR 01 TO 10 JANUARY 2017

Products from models for medium range weather forecast indicate that both rain bearing systems namely the Inter Tropical Convergence Zone and Congo Air mass are likely to become more active over Malawi during the first ten days of January 2017. As a result widespread good rainfall amounts are expected over Malawi including some parts of the north where effective planting rains had not yet started by 31st December 2016. These rains are likely to improve pasture availability for animal production, water resources, soil moisture reserves and support crop growth and development.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 21 TO 31 DECEMBER 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.	28.0	73.9	38	118.7	256.2	46	1
	Chitipa Met	34.0	80.4	42	131.4	261.1	50	3
	Karonga Met.	35.0	63.0	56	140.4	213.4	66	2
	Lupembe	10.5	47.0	22	31.0	163.8	19	1
	Vinthukutu Agric	83.7	62.5	134	174.1	240.9	72	4
MZUZU	Bolero Met	0.0	58.4	0	88.4	175.6	50	0
	Bwengu Agric.	17.4	62.9	28	46.5	209.9	22	3
	Chikangawa forest	14.5	77.2	19	84.6	286.4	30	2
	Chelinda (Nyika)	7.5	82.1	9	63.5	342.4	19	3
	Chintheche Agric	104.0	86.8	120	465.4	373.3	125	4
	Emfeni Agric	4.0	66.2	6	N/A	236.2	N/A	1
	Euthini Agric.	5.0	68.1	7	158.2	223.7	71	1
	Mbawa Res. Stn	60.3	71.0	85	156.3	241.9	65	4
	Mzimba Met	6.3	69.6	9	50.7	243.9	21	1
	Mzuzu Met.	4.0	63.1	6	115.8	271.2	43	2
	NkhataBay Met.	41.3	76.0	54	102.2	319.3	32	5
	Rumphi Boma	0.0	67.2	0	60.5	181.1	33	0
	Zombwe Agric	0.0	56.8	0	22.5	196.6	11	0
KASUNGU	Dowa Agric	25.9	71.2	36	255.1	241.4	106	3
	Kaluluma DTC	0.0	72.3	0	95.9	248.0	39	0
	Kasungu Met	0.0	54.0	0	115.8	211.8	55	0
	Lisasadzi	5.4	66.8	8	91.7	243.9	38	1
	Malomo Agric	9.0	53.2	17	82.0	188.0	44	2
	Madisi Agric	0.0	61.2	0	134.6	221.3	61	0
	Mchinji Boma	79.1	89.8	88	387.1	344.8	112	5
	Mponela Agric	0.5	53.0	1	181.6	214.1	85	1
	Mwimba Research	14.8	71.8	21	88.6	254.9	35	1
	Ntchisi Boma	40.6	109.8	37	113.2	341.2	33	2
SALIMA	Dwangwa Sugar	60.7	85.6	71	224.9	333.1	68	4
	Lifuwu	4.6	82.2	6	194.7	259.3	75	2
	Salima Met	55.2	84.0	66	214.9	269.5	80	1
LILONGWE	Chileka Namitete	11.1	61.0	18	403.3	298.5	135	1
	Dzonzi Forest	0.0	77.8	0	84.8	318.5	27	0
	K.I.A Met	13.1	72.1	18	124.5	222.7	56	2
	Kasiya Agric	43.6	73.5	59	132.1	332.2	40	3
	Mlangeni Njolomole	71.4	64.3	111	222.4	285.3	78	1
	Mtakataka Airwing	0.0	57.2	0	177.8	233.7	76	0
	Nathenje Agric	31.5	63.6	50	214.8	239.1	90	2
	Ntcheu - Nkhande	5.5	87.6	6	147.4	319.2	46	2
	Dedza Met	12.2	72.5	17	172.4	271.5	63	2
MACHINGA	Balaka Township	58.3	52.4	111	172.2	249.4	69	2
	Chancellor College	51.1	94.3	54	332.5	411.6	81	2
	Chikweo Agric.	22.9	74.6	31	274.2	303.2	90	2
	Chingale Agric	63.7	68.6	93	211.1	292.2	72	6
	Mpilipili (Makanjila)	35.2	72.4	49	176.9	254.8	69	4
	Makoka Met	16.4	77.9	21	278.8	303.0	92	2
	Mangochi Met.	55.5	39.2	142	208.5	156.5	133	5
	Monkey Bay Met.	9.3	53.4	17	63.8	150.3	42	3
	Namiasi Agric	6.1	69.5	9	114.8	210.6	55	1
	Namwera Agric	17.1	72.7	24	218.7	295.6	74	3
	Ntaja Met.	33.6	69.4	48	189.8	259.3	73	4
	Phalula Agric	23.2	56.9	41	225.8	272.4	83	3
	Toleza Farm	2.5	71.1	4	149.0	273.5	54	1
	Zomba Agric	0.0	83.4	0	144.1	387.3	37	0
BLANTYRE	Bvumbwe Met.	128.0	61.9	207	364.3	336.3	108	5
	Chichiri Met.	46.5	104.4	45	376.6	578.0	65	4
	Chileka Airport	63.1	57.7	109	224.3	284.7	79	6
	Chiradzulu Agric	11.0	72.7	15	317.5	319.1	99	2
	Chizunga Factory	71.2	100.8	71	355.4	477.2	74	5
	Lujeri Tea Estate	234.0	125.3	187	996.4	678.2	147	5
	Masambanjati Agric	48.8	100.8	48	191.1	417.0	46	5
	Mimosa Met.	53.9	76.5	70	488.6	464.0	105	5
	Mpemba Vet	116.8	77.0	152	466.6	369.0	126	5
	Mulanje Boma	171.5	98.4	174	554.8	595.3	93	6
	Mwanza Boma	59.1	61.2	97	240.4	328.1	73	5
	Naminjiwa Agric	66.9	72.3	93	288.5	297.1	97	5
	Neno Agric	6.0	71.9	8	129.0	319.2	40	1
	Satemwa Tea Est. No.1	70.0	68.0	103	357.3	341.8	105	4
	Thuchila Agric	34.6	64.2	54	332.4	263.8	126	3
	Thyolo Boma	95.3	96.5	99	451.8	376.0	120	2
SHIRE VALLEY	Chikwawa Boma	24.0	54.7	44	85.0	259.9	33	4
	Kasinthula Res. Stn.	33.6	53.0	63	75.7	228.6	33	4
	Makhanga Met	26.5	62.2	43	109.8	258.4	42	4
	Nchalo	30.9	43.0	72	210.2	202.8	104	3
	Ngabu Met.	17.6	61.0	29	179.7	251.0	72	3

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 DECEMBER 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	30.1	19.3	31.8	17.8	9.4	65	9.7	8.0	6.3	10.8
Karonga	33.1	23.5	34.2	20.1	6.5	61	9.6	8.5	6.9	10.7
MZUZU ADD										
Bolero	32.8	20.1	34.9	18.5	4.0	53	8.8	7.7	6.1	10.2
Mzimba	27.7	18.2	33.1	16.5	4.0	58	8.7	7.1	5.5	10.2
Mzuzu	28.4	16.9	30.6	16.1	5.8	65	8.9	7.1	5.6	10.3
Nkhata Bay	34.2	21.8	36.8	20.5	2.9	70	9.6	8.2	6.5	10.8
KASUNGU ADD										
Kasungu	31.2	19.7	33.3	19.0	9.0	52	8.5	8.0	6.4	10.1
LILONGWE ADD										
Chitedze	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dedza	23.9	16.9	27.9	16.4	10.4	72	8.5	6.9	5.4	10.2
KIA	28.9	19.2	30.7	18.0	5.8	64	9.1	7.5	5.9	10.5
SALIMA ADD										
Nkhotakota	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Salima	33.6	24.4	35.5	20.5	7.6	59	9.5	5.7	4.4	10.8
MACHINGA ADD										
Makoka	33.0	21.8	32.0	18.5	2.5	84	9.0	7.9	6.2	10.5
Mangochi	35.2	24.0	38.0	22.5	2.2	57	8.8	8.2	6.6	10.3
Monkey Bay	34.2	25.5	35.6	23.1	8.3	69	10.5	9.5	7.7	11.5
Ntaja	33.5	22.4	35.7	21.4	7.6	61	9.7	8.7	7.0	11.0
BLANTYRE ADD										
Bvumbwe	27.9	18.5	31.1	16.5	5.4	73	7.4	6.7	5.3	9.4
Chichiri	29.7	20.3	32.4	18.5	4.3	67	7.5	7.0	5.6	9.5
Chileka	31.4	21.8	34.6	20.4	9.4	63	8.0	7.9	6.4	9.8
Mimosa	31.8	21.0	35.0	19.5	4.0	57	7.6	7.4	5.9	9.6
SHIRE VALLEY ADD										
Ngabu	36.5	26.0	40.5	24.3	2.9	61	7.5	8.1	6.6	9.5

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 Kilometers per hour (Km/hr) = mpsx3.6