REPUBLIC OF MALAWI

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

10-day Weather and Agrometeorological Bulletin

In support of national early warning systems and food security

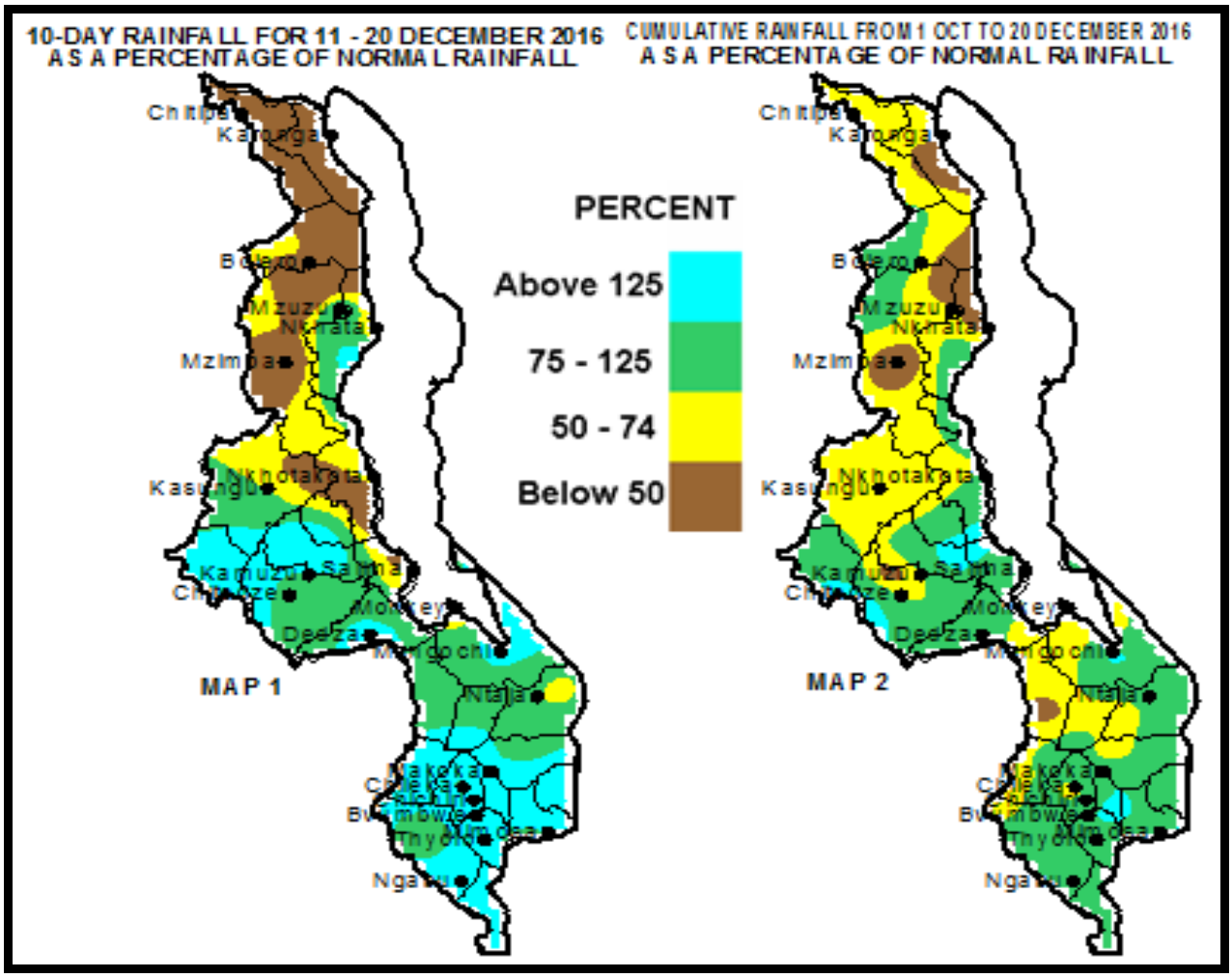
Be wise be weather-wise

Period: 11 – 20 December 2016 | Season: 2016/2017 | Issue No.8

Release date: 23 December 2016

HIGHLIGHTS

- **Moderate to locally heavy rainfall persisted over Malawi…**
- **Crops reported encouraging between planting and vegetative stages…**
- **Good rainfall distribution expected during 21 to 31st December 2016…**



Rainfall Maps for 11 to 20 December 2016

1.0 WEATHER SUMMARY

During the period 11 to 20 December 2016, both main rain bearing systems namely the Inter Tropical Convergence Zone and Congo Air Mass remained very active over Malawi. As a result most areas in Malawi recorded moderate to heavy rainfall. Many areas in central and southern Malawi had registered average to above average rainfall (Green to light blue Colours on Map 1).

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1.1 RAINFALL SITUATION

During the period 11 to 20 December 2016, most areas particularly in Southern Malawi had received widespread moderate to locally heavy rainfall amounts with more than eight rainy days. Areas that had accumulated at least 100mm of rainfall included Lujeri Tea Estate which had received 275mm, Satemwa Tea Estate recorded 213mm, Mpemba and Nsanje Agric stations had registered 188mm, Thyolo Met had 174mm, Chichiri Met and Chintheche Agric had 152mm, Chiradzulu Agric 149mm, Chiradzulu Agric had 143mm, Thuchila Agric 142mm, Bvumbwe Met recorded 138.9mm, Naminjiwa Agric 138.9mm, Thyolo Boma 135mm, Chileka Namitete 126mm, Dowa Agric recorded 115mm, Mponela Agric had 109mm, Dedza Met had 108mm, Madisi Agric 107mm, Mwanza Boma 104mm and Mchinji Boma had 103mm. These rainfall amounts were more than the long expected rainfall amounts for the respective areas. More details are in Table 1 and Map 1.

Map 2 shows cumulative rainfall performance for the period 1st October to 20th December 2016. Generally the map shows that Malawi has received average to below average rainfall amounts with very few pockets of above average cumulative rainfall amounts.

1.3 AIR TEMPERATURE

During the period 11 to 20 December 2016, average daily maximum temperatures in Malawi had ranged from 25.1°C at Dedza to 3 at Nkhata Bay Met. while average minimum temperatures had ranged from 16.7°C at Dedza to 24.8°C at Monkey Bay Met. The highest maximum temperature was registered at Ngabu (36.7°C) in Chikwawa while the lowest temperature was 15.8°C recorded at Chitipa. For more details see Table 2.

1.4 WIND SPEEDS

During the period 11 to 20 December 2016, average wind speeds measured at a height of two metres above the ground level across the country varied from 1.1Km per hour at Makoka Met to 10.1km per hour at Dedza Met. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the second ten days of December 2016, daily average relative humidity values recorded from various meteorological stations in Malawi had ranged from 57% at Kasungu Met to 82% at Makoka Met station. Details are on the Table 2.

1.6 SUNSHINE HOURS

The daily average hours of bright sunshine across Malawi had ranged from 2.3 hours at Bvumbwe to 9.9 hours at Salima Met. The lowest was registered at Chitipa while the highest was reported at Salima Met. Details are on Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period 11 to 20 December 2016, good rainfall amounts were received over most parts of Malawi. As a result average to above average rainfall amounts were recorded over most parts of the country. The major farming activities during the period included planting, weeding and application of basal fertilizer. The rains have significantly improved pasture availability for animal production, water resources, soil moisture reserves and supported seed germination, growth and development of crops.

The general crop stand in the fields particularly for maize was reported in good condition. Maize crop ranged from planting to vegetative stages. For proper utilization of the rains, farmers are encouraged to adhere to principles of good crop husbandry including use of appropriate seeds, timely planting, implementation of proper plant population and spacing, control of weeds, pests and diseases and fertilizer application. Farmers are advised to seek further advice and guidance from Agricultural Extension Officers.

3. PROSPECTS FOR 2016/17 RAINFALL SEASON

The rainfall forecast for the 2016/2017 season in Malawi is that during October to December 2016, the greater part of southern half of Malawi is likely to receive normal to above normal rainfall amounts while the northern half is likely 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. In view of this forecast farmers were advised to ensure timely planting, plant drought tolerant food crops such as cassava, sweet potatoes, sorghum and millet, in the early days of the rainy season, plant early maturing crop varieties and apply adequate manure to improve soil moisture retention

4. OUTLOOK FOR 21 – 31 DECEMBER 2016

Models for medium range weather forecast products indicate that both main rain bearing systems namely the Inter Tropical Convergence Zone and Congo Air mass will remain active during the last five to six days of December 2016. As a result most areas in Malawi are likely to experience good rainfall distribution and amounts. These rains are likely to support planting of crops, seed germination, growth and development of crops.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 11 TO 20 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.	6.8	85.0	8	90.7	182.3	50	1
	Chitipa Met	30.1	62.3	48	97.4	180.7	54	4
	Karonga Met.	16.6	63.3	26	105.4	150.4	70	1
	Vinthukutu Agric	18.1	68.0	27	90.4	178.4	51	2
MZUZU	Bolero Met	20.0	45.7	44	88.4	117.2	75	5
	Bwengu Agric.	3.8	59.9	6	N/A	147.0	N/A	1
	Chikangawa forest	39.1	66.6	59	70.1	209.2	34	5
	Chelinda (Nyika)	34.0	72.8	47	56.0	260.3	22	4
	Chintheche Agric	151.5	81.7	185	361.4	286.5	126	5
	Euthini Agric.	36.0	50.3	72	153.2	155.6	98	1
	Mbawa Res. Stn	28.3	71.4	40	96.0	170.9	56	5
	Mzimba Met	6.7	63.1	11	44.4	174.3	25	4
	Mzuzu Met.	66.8	55.1	121	111.8	208.1	54	4
	NkhataBay Met.	12.8	67.9	19	60.9	243.3	25	3
	Rumphi Boma	25.3	44.0	58	60.5	113.9	53	4
	Zombwe Agric	0.0	48.8	0	N/A	139.8	N/A	0
KASUNGU	Dowa Agric	114.9	66.7	172	229.2	170.2	135	7
	Kaluluma DTC	35.0	67.1	52	95.9	175.7	55	4
	Kasungu Met	37.1	58.8	63	115.8	157.8	73	3
	Lisasadzi	60.9	76.4	80	86.3	177.1	49	3
	Malomo Agric	33.8	68.2	50	73.0	134.8	54	3
	Madisi Agric	106.5	68.5	155	134.6	160.1	84	4
	Mchinji Boma	102.7	72.3	142	308.0	255.0	121	5
	Mponela Agric	109.4	43.5	251	181.1	161.1	112	5
	Mwimba Research	70.2	69.7	101	73.8	183.1	40	4
	Ntchisi Boma	21.6	90.9	24	72.6	231.4	31	5
SALIMA	Lifuwu	17.5	71.6	24	190.1	177.1	107	2
	Nkhotakota Met	49.2	88.0	56	49.2	220.1	22	4
	Salima Met	40.4	80.8	50	159.7	185.5	86	3
LILONGWE	Chileka Namitete	126.1	77.2	163	392.2	237.5	165	5
	Chitedze Met.	40.7	51.6	79	95.6	181.6	53	8
	K.I.A Met	52.6	52.2	101	111.4	150.6	74	6
	Mlangeni Njolomole	73.9	74.7	99	151.0	221.0	68	2
	Mtakataka Airwing	57.6	61.2	94	177.8	176.5	101	3
	Nathenje Agric	62.7	63.0	100	183.3	175.5	104	2
	Ntcheu - Nkhande	61.0	74.8	82	141.9	231.6	61	7
	Dedza RTC	107.5	66.5	162	160.2	199.0	81	7
	Chileka Namitete	126.1	77.2	163	392.2	237.5	165	5
MACHINGA	Balaka Township	38.6	58.2	66	113.9	197.0	58	4
	Chancellor College	85.7	94.3	91	281.4	317.3	89	7
	Chikweo Agric.	48.7	83.3	58	251.3	228.6	110	5
	Chingale Agric	90.7	73.5	123	147.4	223.6	66	6
	Mpilipili (Makanjila)	98.7	62.5	158	141.7	182.4	78	6
	Makoka Met	95.5	60.5	158	262.4	225.1	117	8
	Mangochi Met.	58.7	41.2	142	153.0	117.3	130	6
	Monkey Bay Met.	14.7	46.3	32	54.5	96.9	56	1
	Namiasi Agric	83.5	51.5	162	108.7	141.1	77	2
	Namwera Agric	88.2	61.5	143	201.6	222.9	90	6
	Phalula Agric	97.5	50.8	192	202.6	215.5	94	6
	Toleza Farm	65.5	59.4	110	146.5	202.4	72	6
BLANTYRE	Bvumbwe Met.	138.9	66.6	209	236.3	274.4	86	9
	Chichiri Met.	151.8	89.9	169	330.1	473.6	70	7
	Chileka Airport	52.3	50.6	103	161.2	227.0	71	5
	Chiradzulu Agric	143.3	63.1	227	306.5	246.4	124	7
	Chizunga Factory	87.5	113.0	77	284.2	376.4	76	6
	Lujeri Tea Estate	275.0	126.8	217	762.4	552.9	138	8
	Mimosa Met.	96.7	82.5	117	434.7	387.5	112	10
	Mpemba Vet	187.7	74.4	252	349.8	292.0	120	7
	Mulanje Boma	89.3	92.3	97	383.3	496.9	77	5
	Mwanza Boma	103.5	68.4	151	181.3	266.9	68	3
	Naminjiwa Agric	138.9	61.6	225	221.6	224.8	99	4
	Neno Agric	89.0	66.1	135	123.0	247.3	50	3
	Satemwa Tea Est	213.1	73.8	289	287.3	273.8	105	8
	Thuchila Agric	142.3	53.2	267	297.8	199.6	149	7
	Thyolo Boma	135.1	81.2	166	356.5	279.5	128	5
SHIRE VALLEY	Chikwawa Boma	45.2	51.2	88	61.0	205.2	30	6
	Kasinthula Res. Stn.	40.4	46.3	87	42.1	175.6	24	6
	Nchalo Sucoma	64.5	43.5	148	179.3	159.8	112	5
	Ngabu Met.	93.8	52.8	178	162.1	190.0	85	7
	Nsanje Boma	187.7	76.6	245	246.5	290.2	85	7

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 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	28.7	18.0	31.0	15.8	7.6	69	7.3	6.7	5.3	9.2
Karonga	32.7	23.5	34.8	19.5	6.5	58	9.0	8.3	6.7	10.3
MZUZU ADD										
Bolero	31.5	20.0	33.9	19.0	4.0	61	5.2	6.3	5.1	7.9
Mzimba	28.7	17.8	30.2	16.5	3.2	69	5.7	6.0	4.7	8.2
Mzuzu	27.8	17.1	29.2	16.3	5.0	69	6.8	6.3	5.0	8.9
Nkhata Bay	33.8	21.9	34.8	21.2	2.9	66	8.2	7.6	6.1	9.8
KASUNGU ADD										
Kasungu	29.4	18.1	31.9	19.1	7.2	57	4.9	6.3	5.1	7.7
LILONGWE ADD										
Chitedze	27.5	19.3	30.8	18.4	2.2	76	4.5	5.4	4.3	7.5
Dedza	25.1	16.7	26.1	15.9	10.1	74	5.6	5.9	4.7	8.2
KIA	27.1	18.7	29.6	18.1	5.0	73	5.3	5.8	4.6	8.0
SALIMA ADD										
Salima	31.1	23.9	34.0	21.5	6.1	71	9.9	8.4	6.7	11.0
MACHINGA ADD										
Makoka	27.0	20.0	29.7	18.5	1.1	82	3.3	4.9	3.9	6.7
Mangochi	32.8	23.5	35.5	22.0	2.5	69	7.5	7.4	5.9	9.5
Monkey Bay	32.5	24.8	34.8	23.1	7.6	67	7.4	7.9	6.4	9.4
Ntaja										
BLANTYRE ADD										
Bvumbwe	25.4	17.8	27.1	16.6	5.0	73	2.3	4.7	3.8	6.1
Chichiri	27.0	19.5	28.4	18.6	3.2	80	8.0	6.7	5.2	9.8
Chileka	29.1	21.1	30.5	20.1	7.9	73	3.8	5.8	4.7	7.1
Mimosa	29.3	20.6	32.0	19.5	2.9	72	2.5	5.0	4.1	6.2
SHIRE VALLEY ADD										
Ngabu	33.6	24.6	36.7	22.5	2.5	75	4.0	6.0	4.9	7.2

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