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

- **Local dryness experienced in some parts of Malawi during end December 2015…**
- **Some Maize crop wilting between germination to vegetative stages…**
- **Widespread locally heavy rains expected over Malawi from 8th January 2016…**

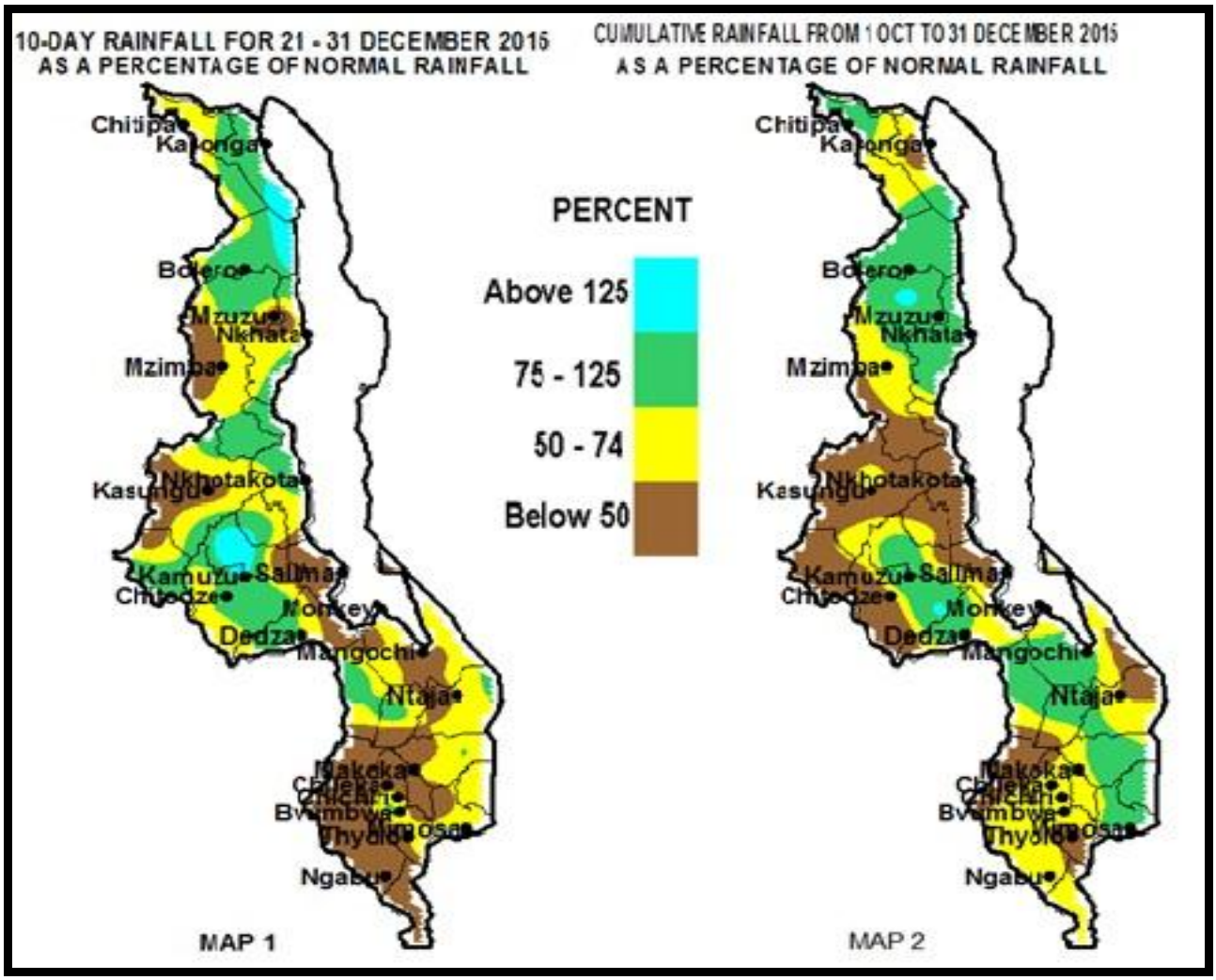

Figure 1: Rainfall Maps for 21 to 31 December 2015

1.0 WEATHER SUMMRY

During the last ten days of December 2015, the main rain bearing systems namely Inter Tropical Convergence Zone and Congo Air mass had shifted from southern Malawi to northern Malawi. As a result light to moderate rainfall amounts were recorded over most parts of Malawi.

All inquiries should be addressed to: The Director of Climate Change and Meteorological Services, P.O. Box 1808, Blantyre, MALAWI
Tel: (265) 1 822 014/106 Fax: (265) 1 822 215 E-mail: metdept@metmalawi.com Homepage: www.metmalawi.com

1.1 RAINFALL SITUATION

During the period 21 to 31 December 2015 scattered light to moderate rainfall amounts were reported over Malawi. Most areas in Malawi had recorded average to above average cumulative rainfall amounts (green and light blue Colours on Map 1). However, a few stations particularly over the south and centre still had recorded light rainfall amounts and this resulted in below average cumulative rainfall situation (yellow and brown colour on map 1). A few areas had registered high rainfall amounts of at least 80mm during the last ten days of December 2015. Such areas in the south included Chichiri Met in Blantyre which recorded 81mm in five days and Thyolo Met which reported 89mm in seven days in Central region such high rainfall figures were reported at Mchinji Agric 118mm in six days, Mponela Agric 106mm in six days, Madisi Agric 93mm in six days, Nathenje Agric 81mm, Nkhotakota Met recorded 88mm in eight days and Kamuzu International Airport recorded 95mm in five days while in the north high rainfall figures were reported at Vinthukutu Agric in Karonga which had registered 154mm in six days Baka Research Station had recorded 90mm in six rainy days. More details are in Table 1.

Map 2 in Figure 1 shows cumulative rainfall performance during the period October to December 2015. The map indicates that the country has experienced a mixed rainfall performance with some areas in Malawi registering less than half of the expected rainfall amounts (brown colour) and the following stations mainly in the north and centre experiencing above normal to normal rainfall situation: Nathenje and Agric 151%Zombwe Agric 149%, Vinthukutu Agric 145%, Chintheche Agric 142%, Kamuzu International Airport 121%, Mzuzu Met 113%, Bwengu Agric 111%, Mponela Agric 108%, Bolero Met 104% and Chitipa Met 100%. Refer to Map 2 and Table 1 for more details.

1.3 AIR TEMPERATURE

During the last ten days of December 2015, average daily maximum temperatures in Malawi had ranged from 24.8°C at Dedza to 35.9°C at Ngabu in Chikwawa while average minimum temperatures had ranged from 16.4°C at Dedza to 24.0°C at Monkey Bay, Ngabu and Salima. The highest maximum temperature was still reported at Ngabu (40.0°C) in Chikwawa while the lowest temperature was 15.1°C recorded at Dedza. For more details see Table 2.

1.4 WIND SPEEDS

Average wind speeds measured at a height of two metres above the ground level across the Malawi varied from 2.5Km per hour at Mkondezi in Nkhata Bay to 10.1km per hour at Chileka Airport in Blantyre. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the period 21 to 31 December 2015, daily average relative humidity values sampled from selected stations indicated that air over Malawi was fairly moist. The daily average values had ranged from 50% at Mimosa to 85% at Makoka Met. Details are on the Table 2.

1.6 SUNSHINE HOURS

The mean durations of bright sunshine hours across Malawi had increased due to a decrease in cloudiness. Most areas had experienced daily average sunshine hours of more than five hours. The highest mean sunshine hours were observed in Shire Valley and along the lakeshore. Details are on the Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period 21 to 31 December 2015 good rains for agricultural production fell over most parts of the north and some parts of central Malawi. This had allowed growth and development of most crops. These rains have also improved water resources, soil moisture reserves and pasture availability for communal grazing. At the same time local dryness had caused wilting of crops at between germination and vegetative stages particularly in some districts in southern Malawi and some parts of Kasungu and Salima in central Malawi. However, the situation had not yet reached the critical permanent wilting point so the crop is likely to recover if wet weather condition returns before mid-January 2016.

The major on-farm agricultural activities during the last ten days of December 2015 in the south and a few areas in the centre included weeding and procurement of farm inputs and equipment while in the north had included weeding, basal fertilizer application and planting of various crops. In a normal season planting of crops in southern Malawi and some parts of the centre get finalized by December while for north planting of crops can continue into January.

3. PROSPECTS FOR 2015/16 RAINFALL SEASON

The rainfall outlook for the 2015/16 season shows that most parts of Malawi are likely to receive average to higher than average rainfall amounts during the season. However, a few areas particularly in the Shire Valley are likely to receive lower than average rainfall amounts towards the end of season.

4. OUTLOOK FOR 01 –10 JANUARY 2016

Models for short and medium range rainfall forecasts show that the main rain bearing systems are likely to become less active over Malawi during the first seven days of January 2016 and become more active across the country starting from southern Malawi from 8th January 2016. Hence expect wet weather conditions to return to most parts of Malawi starting from 8th January 2016 when both rain bearing systems namely Congo Air mass and the Inter Tropical Convergence Zone get established over Malawi.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 21 TO 31 DECEMBER 2015

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.	90.2	73.9	122	90.2	256.2	35	6
	Chitipa Met	49.6	80.4	62	261.4	261.1	100	5
	Karonga Met.	55.0	63.0	87	72.9	213.4	34	4
	Lupembe	51.0	47.0	109	63.0	163.8	38	3
	Vinthukutu Agric	153.7	62.5	246	350.4	240.9	145	6
MZUZU	Bolero Met	74.5	58.4	128	183.4	175.6	104	5
	Bwengu Agric.	78.4	62.9	125	233.6	209.9	111	4
	Chelinda (Nyika)	48.0	82.1	58	285.5	342.4	83	6
	Chintheche Agric	79.6	86.8	92	530.2	373.3	142	4
	Ekwendeni Agric.	18.2	35.8	51	115.4	263.8	44	1
	Euthini Agric.	31.3	68.1	46	145.8	223.7	65	4
	Mzimba Met	36.9	69.6	53	213.5	243.9	88	5
	Mzuzu Met.	15.3	63.1	24	305.8	271.2	113	3
	NkhataBay Met.	54.1	76.0	71	275.6	319.3	86	4
	Rumphi Boma	60.8	67.2	90	156.8	181.1	87	4
	Zombwe Agric	63.1	56.8	111	293.5	196.6	149	4
KASUNGU	Dowa Agric	19.3	71.2	27	97.0	241.4	40	5
	Kaluluma Agric	67.7	72.3	94	117.3	248.0	47	3
	Kasungu Met	16.6	54.0	31	126.9	211.8	60	4
	Madisi Agric	92.8	61.2	152	165.3	221.3	75	3
	Mchinji Boma	118.3	89.8	132	146.9	344.8	43	6
	Mkanda Met	28.1	78.8	36	134.8	281.6	48	2
	Mponela Agric	105.5	53.0	199	230.7	214.1	108	6
	Ntchisi Boma	57.8	109.8	53	137.5	341.2	40	7
LILONGWE	Dedza Met	49.3	68.6	72	187.3	253.7	74	6
	Dzonzi Forest	47.1	77.8	61	208.2	318.5	65	4
	K.I.A Met	95.1	72.1	132	269.5	222.7	121	5
	Kasiya Agric	53.0	73.5	72	192.8	332.2	58	2
	Mlangeni Njolomole	75.2	64.3	117	257.7	285.3	90	3
	Nathenje Agric	80.8	63.6	127	362.2	239.1	151	2
	Dedza RTC	20.2	72.5	28	183.7	271.5	68	3
SALIMA	Dwangwa	69.0	85.6	81	102.5	333.1	31	7
	Lifuwu	2.1	82.2	3	67.0	259.3	26	1
	Nkhotakota Met	87.5	94.1	93	149.6	314.2	48	8
	Salima Met	4.1	84.0	5	75.3	269.5	28	3
MACHINGA	Balaka Township	60.8	52.4	116	230.1	249.4	92	2
	Chikweo Agric.	58.4	74.6	78	134.4	303.2	44	3
	Chingale Agric	20.9	68.6	30	223.6	292.2	77	3
	Mpilipili (Makanjila)	6.9	72.4	10	205.2	254.8	81	2
	Makoka Met	44.6	77.9	57	152.9	303.0	50	5
	Mangochi Met.	14.1	39.2	36	134.4	156.5	86	4
	Monkey Bay Met.	43.7	53.4	82	79.0	150.3	53	4
	Namiasi Agric	42.9	69.5	62	166.7	210.6	79	1
	Ntaja Met.	34.1	69.4	49	123.3	259.3	48	4
	Toleza Farm	43.0	71.1	60	333.0	273.5	122	2
	Zomba Agric	68.6	83.4	82	356.1	387.3	92	4
BLANTYRE	Bvumbwe Met.	35.1	61.9	57	232.8	336.3	69	5
	Chichiri Met.	81.3	104.4	78	253.4	578.0	44	5
	Chileka Airport	14.8	57.7	26	187.9	284.7	66	2
	Chiradzulu Agric	8.3	72.7	11	54.3	319.1	17	4
	Chizunga Factory	25.2	100.8	25	159.9	477.2	34	5
	Mimosa Met.	37.9	76.5	50	341.2	464.0	74	6
	Mpemba Vet	76.2	77.0	99	235.1	369.0	64	3
	Mulanje Boma	79.3	98.4	81	622.2	595.3	105	5
	Mwanza Boma	14.3	61.2	23	152.2	328.1	46	2
	Satemwa Tea Est.	29.8	68.0	44	186.5	341.8	55	7
	Thuchila Agric	13.1	64.2	20	153.4	263.8	58	1
	Thyolo Met	88.8	71.4	124	143.4	353.5	41	7
SHIRE VALLEY	Chikwawa Boma	4.0	54.7	7	138.4	259.9	53	2
	Nchalo Sucoma	15.8	43.0	37	154.1	202.8	76	1
	Ngabu Met.	29.1	61.0	48	147.7	251.0	59	3
	Nsanje Boma	22.1	65.0	34	188.3	355.2	53	4

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 DECEMBER 2015

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	28.4	18.6	29.7	17.5	7.2	75	5.1	5.9	4.7	7.8
Karonga	31.1	22.4	32.6	20.6	6.1	72	7.4	7.2	5.8	9.3
MZUZU ADD										
Bolero	29.3	19.4	31.3	17.5	5.4	68	6.2	6.4	5.1	8.5
Mzimba	28.2	17.6	30.4	16.6	2.9	68	5.2	5.8	4.6	7.9
Mzuzu	26.5	17.6	29.2	15.6	4.7	77	5.5	5.7	4.5	8.1
Nkhata Bay	31.3	21.9	34.0	20.7	2.5	81	6.2	6.4	5.1	8.5
KASUNGU ADD										
Kasungu	30.2	19.6	31.7	19.0	5.8	70	8.1	7.2	5.7	9.8
LILONGWE ADD										
Dedza	24.8	16.4	26.7	15.1	9.4	75	7.0	6.3	5.0	9.2
K I A	27.4	18.5	29.0	17.6	5.0	72	7.0	6.5	5.1	9.2
SALIMA ADD										
Nkhotakota	29.8	23.3	31.1	21.1	6.1	75	7.4	7.3	5.9	9.4
Salima	31.8	24.0	33.5	22.1	7.2	66	8.5	7.9	6.4	10.1
MACHINGA ADD										
Ntaja	31.3	22.0	33.4	21.6	7.9	67	7.0	7.4	6.0	9.2
Makoka	31.7	21.1	30.6	18.0	6.5	85	9.2	7.9	6.2	10.6
Mangochi	33.0	24.1	34.5	22.0	3.2	68	8.3	7.9	6.3	10.0
Monkey Bay	31.0	24.0	32.0	22.5	8.6	70	8.7	8.2	6.6	10.3
BLANTYRE ADD										
Bvumbwe	26.1	16.8	28.4	16.9	5.4	76	5.9	5.8	4.6	8.5
Chichiri	27.7	19.1	30.0	17.6	4.7	72	8.5	7.1	5.6	10.1
Chileka	30.5	21.3	32.7	20.1	10.1	61	9.0	8.2	6.6	10.5
Mimosa	31.4	20.2	34.5	17.6	4.0	50	5.9	6.8	5.5	8.5
SHIRE VALLEY ADD										
Ngabu	35.9	24.0	40.0	21.3	9.0	57	9.5	9.3	7.6	10.8

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