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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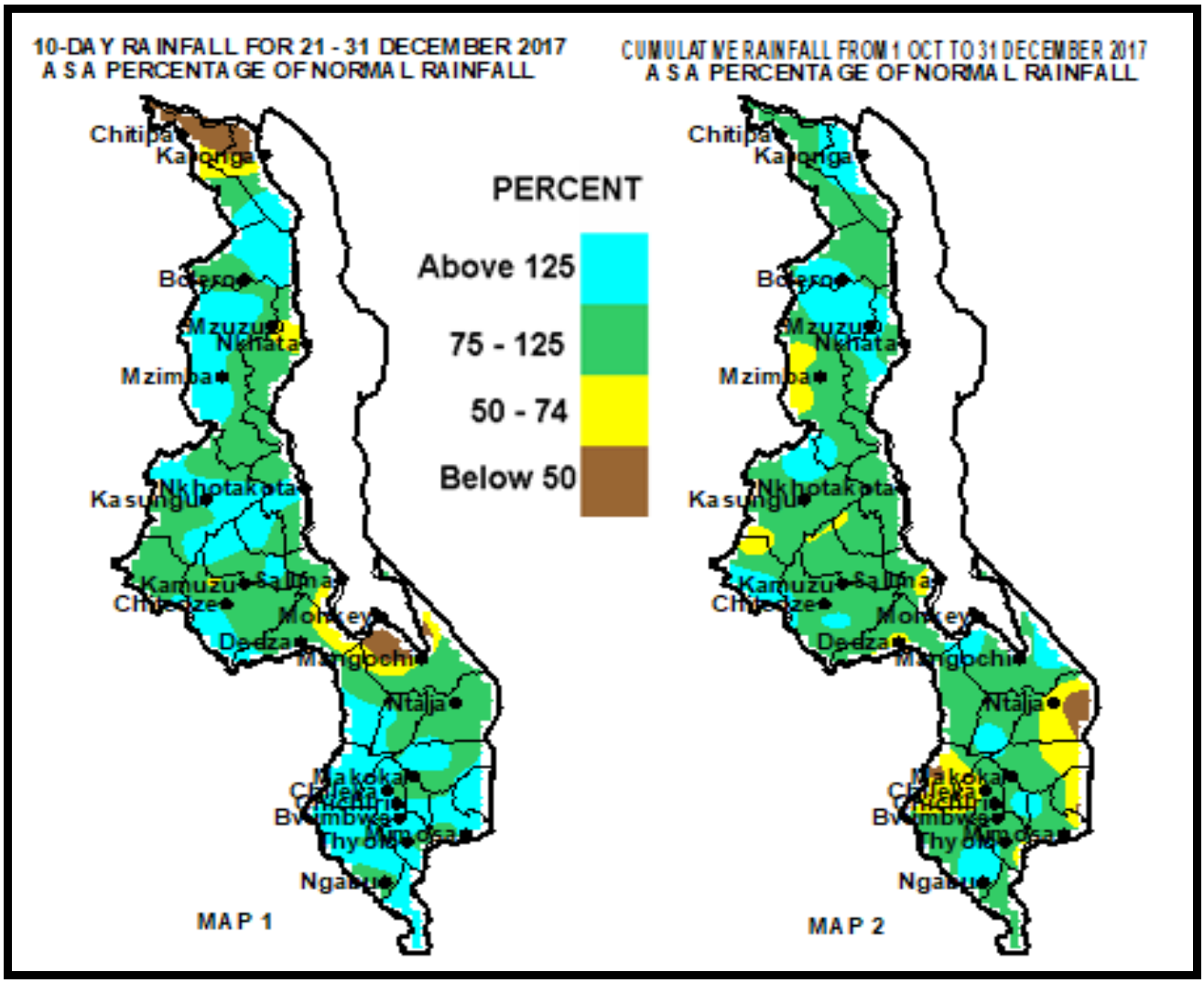
HIGHLIGHTS

- **Moderate to heavy rainfall experienced over Malawi…**
- **Maize crop mostly in good condition at vegetative stage …**
- **More rains expected over northern half of Malawi and drier conditions in the south …**



Rainfall Maps by 31 December 2017

1.0 WEATHER SUMMARY

During the last ten days of December 2017, the Inter Tropical Convergence Zone (ITCZ) remained active over southern Malawi while moist and unstable Congo air mass was still active over central and northern Malawi. As a result most areas in Malawi had recorded average to above average cumulative rainfall amounts (Green and light Blue colours on Map 1).

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1.1 RAINFALL SITUATION

During the last ten days of December 2017, scattered to widespread moderate to locally heavy rainfall amounts were reported over Malawi. Very high cumulative rainfall amounts exceeding 120mm during the ten day period were reported in several places including Neno Agric 342mm, Lujeri Tea Estate in Mulanje 250mm, Bvumbwe Met had 240mm, Masambanjati Agric in Thyolo 187mm, Chizunga Factory 170mm, Mpemba Agric 169mm, Nsanje Agric recorded 166mm, Vinthukutu Agric in Karonga 153mm, Madisi Agric in Dowa 152mm, Mbawa Research station in Mzimba accumulated 135mm, Nkhotakota Met 128mm, Makhanga Agric in Nsanje and Dzonzi Forest in Ntcheu recorded 125mm. The cumulative rainfall in most of these areas was above the long term average. On the other hand dry conditions and below average rainfall amounts were recorded over the extreme northern tip of Malawi and over some parts of Mangochi districts in the South. More details are in Table 1 and Map 1.

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2017/18 rainfall season in October 2017 up to 31 December 2017. The map shows that most areas in Malawi have received normal to above normal rainfall amounts (Green to light Blue colours) with pockets of below normal seasonal rainfall existing over southern Malawi(Yellow and brown colours).

1.3 AIR TEMPERATURE

Warm to hot temperatures had persisted over most parts of Malawi during the last ten days of December 2017. Mean daily maximum temperatures had ranged from around 25°C at Dedza Boma to 33°C at Ngabu in Chikwawa while the average daily minimum temperatures had ranged from 15°C at Dedza to 24°C at Ngabu in Chikwawa district. During the same period the hottest temperature was 38°C still recorded at Ngabu in Chikwawa. On the otherhand the lowest temperature was 11°C recorded at Dedza Boma. Details are in Table 2.

1.4 WIND SPEEDS

During the period 21 to 31 December 2017 most parts of Malawi had experienced 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 2.2km per hour at Ngabu and Nkhata Bay to 9.7km per hour at Chileka Airport. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the period 21 to 31 December 2017, air over Malawi was still moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 53% at Mimosa in Mulanje district to 87% at Mzuzu in Mzimba district. Details are on the Table 2.

1.6 SUNSHINE HOURS

High cloud cover was still observed over most areas in Malawi during the period 21 to 31 December 2017. The daily average values of sunshine hours had ranged between 4 and around 7 hours. Consequently the amount of solar radiation received over most areas was between seven and nine calories per square centimeter per day. More details are in Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period 21 to 31 December 2017, scattered to widespread locally heavy rainfall was experienced over Malawi. These rains have supported growth and development of crops and application of basal and top dressing fertilizers. The rains have also improved pasture availability for livestock production, water resources and soil moisture reserves. The general crop stand in the fields was reported in good condition. Maize crop was generally at vegetative stage. However, fall armyworm outbreak has been reported affecting a total of 20 out of 28 districts. The affected districts have been declared as disaster areas.

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 have been established and are predicted to be short-lived. Based on weak La Niña conditions, the updated rainfall forecast for 2017/18 season in Malawi is that during the period January to March 2018 a greater part of the country would experience normal to above normal total rainfall amounts.

4. OUTLOOK FOR 01 TO 10 JANUARY 2018

Models for short and medium range forecasts show that during the first ten days of January 2018 southern and some parts of central Malawi are likely to experience dry weather conditions while Congo Air mass and Inter Tropical Convergence Zone will cause scattered locally heavy rainfall over northern and lakeshore areas.

TABLE 1: DEKADAL RAINFALL FOR SELECTED STATIONS FOR 21 TO 31 DECEMBER 2017

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.	38.3	73.9	**52**	300.2	256.2	**117**	5
	Chitipa Met	39.7	80.4	**49**	184.7	261.1	**71**	4
	Karonga Met.	18.0	63.0	**29**	264.8	213.4	**124**	4
	Lupembe	40.5	47.0	**86**	124.3	163.8	**76**	2
	Vinthukutu Agric	152.5	62.5	**244**	338.7	240.9	**141**	4
MZUZU	Bolero Met	57.1	58.4	**98**	183.2	175.6	**104**	7
	Bwengu Agric.	75.4	62.9	**120**	N/A	209.9	**N/A**	3
	Chikangawa forest	54.8	77.2	**71**	153.2	286.4	**53**	5
	Chintheche Agric	118.6	86.8	**137**	548.1	373.3	**147**	2
	Emfeni Agric	56.4	66.2	**85**	N/A	236.2	**N/A**	4
	Ekwendeni Agric.	57.0	35.8	**159**	N/A	263.8	**N/A**	2
	Mbawa Res. Stn	134.5	71.0	**189**	300.6	241.9	**124**	6
	Mzimba Met	105.2	69.6	**151**	250.0	243.9	**103**	6
	Mzuzu Met.	40.9	63.1	**65**	249.5	271.2	**92**	6
	NkhataBay Met.	34.0	76.0	**45**	312.4	319.3	**98**	6
	Rumphi Boma	110.9	67.2	**165**	350.3	181.1	**193**	6
	Zombwe Agric	92.7	56.8	**163**	258.9	196.6	**132**	6
KASUNGU	Dowa Agric	108.9	71.2	153	327.0	241.4	135	4
	Kasungu Met	79.5	54.0	147	217.0	211.8	102	3
	Lisasadzi	60.5	66.8	91	N/A	243.9	N/A	4
	Malomo Agric	92.0	53.2	173	186.6	188.0	99	4
	Madisi Agric	151.5	61.2	248	433.9	221.3	196	4
	Mchinji Boma	66.3	89.8	74	538.7	344.8	156	4
	Mponela Agric	34.0	53.0	64	N/A	214.1	N/A	5
	Ntchisi Boma	79.3	109.8	72	256.8	341.2	75	3
SALIMA	Dwangwa Sugar	64.2	85.6	75	325.2	333.1	98	4
	Lifuwu	83.9	82.2	102	248.1	259.3	96	3
	Nkhotakota Met	127.6	94.1	136	504.1	314.2	160	7
	Salima Met	50.0	84.0	60	283.8	269.5	105	3
LILONGWE	Chileka Namitete	102.7	61.0	168	479.0	298.5	160	5
	Dzonzi Forest	124.7	77.8	160	319.7	318.5	100	6
	K.I.A Met	82.8	72.1	115	145.9	222.7	66	6
	Kasiya Agric	43.7	73.5	59	133.2	332.2	40	2
	Mlangeni Njolomole Agric	80.7	64.3	126	262.2	285.3	92	2
	Nathenje Agric	51.0	63.6	80	372.7	239.1	156	3
	Ntcheu – Nkhande Agric	117.0	87.6	134	324.6	319.2	102	4
	Dedza Met	66.8	72.5	92	246.8	271.5	91	7
MACHINGA	Chikweo Agric.	75.4	74.6	101	332.7	303.2	110	2
	Chingale Agric	124.0	68.6	181	204.2	292.2	70	5
	Mpilipili (Makanjila) Agric	65.4	72.4	90	167.7	254.8	66	3
	Makoka Met	52.7	77.9	68	209.2	303.0	69	7
	Mangochi Met.	29.1	39.2	74	396.7	156.5	253	3
	Monkey Bay Met.	16.2	53.4	30	88.8	150.3	59	3
	Namiasi Agric	0.0	69.5	0	109.1	210.6	52	0
	Namwera Agric	93.0	72.7	128	316.9	295.6	107	5
	Ntaja Met.	52.1	69.4	75	178.8	259.3	69	3
	Phalula Agric	52.6	56.9	92	296.6	272.4	109	3
	Toleza Farm	94.0	71.1	132	256.5	273.5	94	4
	Zomba Agric	102.2	83.4	123	311.1	387.3	80	4
BLANTYRE	Bvumbwe Met.	240.0	61.9	388	394.4	336.3	117	6
	Chichiri Met.	113.5	104.4	109	327.3	578.0	57	7
	Chileka Airport	93.8	57.7	163	331.8	284.7	117	5
	Chiradzulu Agric	80.4	72.7	111	210.8	319.1	66	6
	Chizunga Factory	170.1	100.8	169	338.9	477.2	71	5
	Lujeri Tea Estate	250.1	125.3	200	1022.6	678.2	151	5
	Masambanjati Agric	186.5	100.8	185	426.5	417.0	102	7
	Mimosa Met.	86.5	76.5	113	479.2	464.0	103	5
	Mpemba Vet	169.4	77.0	220	377.2	369.0	102	6
	Mulanje Boma	116.4	98.4	118	853.1	595.3	143	3
	Neno Agric	341.8	71.9	475	767.6	319.2	240	5
	Thuchila Agric	109.1	64.2	170	405.5	263.8	154	5
SHIRE VALLEY	Chikwawa Boma	62.4	54.7	114	115.5	259.9	44	3
	Kasinthula Res. Stn.	26.3	53.0	50	142.0	228.6	62	2
	Makhanga Agric	124.9	62.2	201	259.7	258.4	101	5
	Nchalo Sucoma	75.2	43.0	175	312.1	202.8	154	5
	Ngabu Met.	41.5	61.0	68	138.3	251.0	55	3
	Nsanje Boma	166.0	65.0	255	378.2	355.2	106	4

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 DECEMBER 2017

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	27.5	17.3	31.0	16.2	6.1	72	4.4	5.5	4.4	7.4
Karonga	30.1	22.0	32.8	20.1	4.7	74	6.1	6.5	5.2	8.5
MZUZU ADD										
Bolero	28.5	18.8	32.0	17.3	3.6	79	5.5	5.8	4.6	8.1
Mzimba	27.4	17.8	30.1	18.6	3.2	75	5.6	5.8	4.5	8.2
Mzuzu	28.7	19.4	29.6	16.3	3.6	87	5.5	5.7	4.5	8.1
Nkhata Bay	30.4	21.7	34.0	20.4	2.2	80	5.4	6.0	4.8	8.0
KASUNGU ADD										
Kasungu	27.0	16.6	28.5	14.4	4.7	57	5.8	6.1	4.9	8.3
LILONGWE ADD										
Chitedze	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dedza	24.6	15.0	27.3	10.6	4.7	78	5.6	5.5	4.3	8.3
KIA	27.1	18.1	28.9	15.2	4.7	74	5.6	5.9	4.7	8.2
SALIMA ADD										
Nkhotakota	32.0	22.0	32.0	20.5	1.4	77	6.0	6.3	5.0	8.5
Salima	30.5	22.4	32.5	21.0	7.6	75	6.0	6.8	5.5	8.5
MACHINGA ADD										
Makoka	29.8	20.3	29.5	14.5	2.9	80	5.3	6.0	4.7	8.1
Mangochi	32.0	21.9	35.0	19.0	2.5	67	6.5	6.8	5.5	8.8
Monkey Bay	30.4	23.5	33.8	21.5	8.6	71	6.5	7.2	5.8	8.8
Ntaja	29.4	20.5	31.8	17.4	9.4	76	4.2	5.9	4.8	7.4
BLANTYRE ADD										
Bvumbwe	25.2	16.0	28.1	13.6	4.7	79	5.7	5.6	4.4	8.3
Chichiri	26.9	18.2	30.1	15.1	4.0	75	5.5	5.8	4.6	8.2
Chileka	29.4	20.0	32.5	16.5	9.7	68	6.5	6.9	5.6	8.8
Mimosa	28.7	19.8	32.6	15.5	2.9	53	6.0	6.5	5.2	8.5
SHIRE VALLEY ADD										
Ngabu	32.8	23.7	37.7	20.7	2.2	64	6.5	7.1	5.7	8.9

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