



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

Period: 11 – 20 December 2019

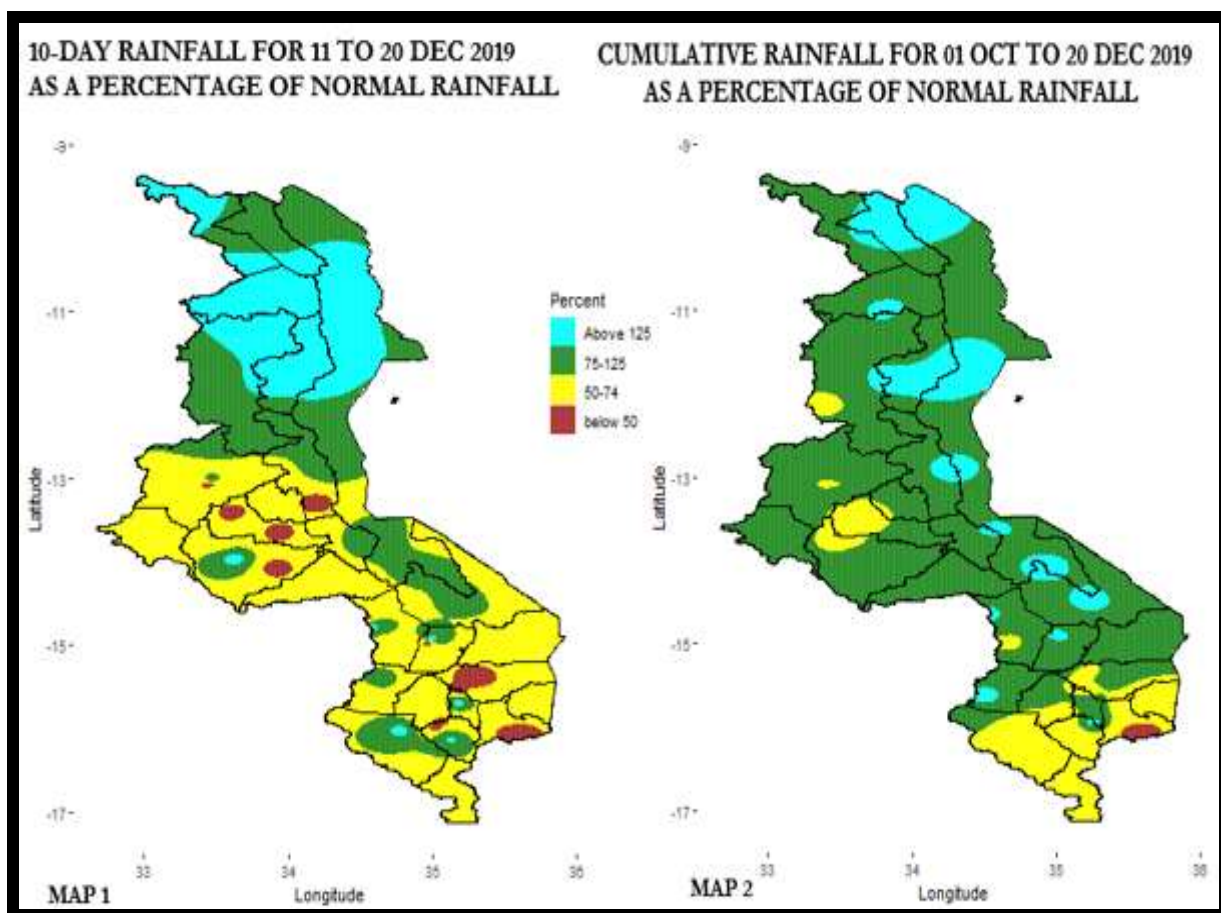
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HIGHLIGHTS

- Moderate to locally heavy rainfall experienced mainly over northern Malawi ...
- Major on-farm activities included weeding, basal dressing and top dressing ...
- Improvement in spatial rainfall distribution over southern half expected during the period 21-31 December 2019



1.0 WEATHER SUMMARY

During the second ten days of December 2019, northern areas of the country remained within the vicinity of the Inter-Tropical Convergence Zone (ITCZ). Hence moderate to locally heavy rainfall amounts were observed over northern areas with mostly drier conditions over central and southern areas of the country.

1.1 RAINFALL SITUATION

During the second ten days of December 2019, moderate to locally heavy rainfall amounts were recorded over northern areas of Malawi with isolated cases of moderate rainfall amounts observed over central and southern areas. The cumulative ten-day rainfall amounts were generally higher than the long-term average rainfall amounts for the period over most areas of northern Malawi as well as selected areas of central and southern Malawi (light blue and green colours in Map1). Some areas reported as high as 8 rainy days during the period under review. Areas that had reported ten-day rainfall amounts of at least 40mm included Chintcheche Agriculture which recorded 240.4mm, Nkhata Bay Meteorological station recorded 132.5mm, Chelinda recorded 129.7mm, Chikwawa Boma recorded 128.6mm, Chitipa Meteorological station recorded 115.2mm, Thyolo Meteorological station recorded 113.0mm, Chikangawa Forest recorded 108.6mm, Ntcheu-Nkhande recorded 107.8mm, Vinthukutu Agriculture recorded 102.6mm, Bwengu Agriculture recorded 102.1mm, Nkhotakota Meteorological station recorded 99.8mm, Toleza Farm recorded 99.4mm, Mzuzu Meteorological station recorded 97.7mm, Chiradzulu Agriculture recorded 87.3mm, Chitedze Meteorological station recorded 83.7mm, Baka Research station recorded 83.4mm, Kaluluma DTC recorded 80.1mm, Masambanjati Agriculture recorded 78.0mm, Lifuwu recorded 71.8mm, Salima Meteorological station and Rumphu Boma recorded 67.6mm, Kasungu Meteorological station recorded 63.8mm, Neno Agriculture recorded 62.2mm, Satemwa Tea Estate recorded 57.6mm, Monkey Bay Meteorological station recorded 57.4mm, Mbawa Research station recorded 56.6mm, Dzonzi Forest recorded 56.3mm, Chichiri Meteorological station recorded 55.4mm, Chizunga Factory recorded 54.1mm, Mzimba Meteorological station recorded 53.4mm, Lupembe recorded 51.5mm, Mangochi Meteorological station recorded 50.5mm, Kasiya Agriculture recorded 48.0mm, Mwanza Boma recorded 47.3mm, Mimosa Meteorological station recorded 46.7mm, Lisasadzi recorded 46.1mm, Namwera Agriculture recorded recorded 40.5mm and Makanjila recorded 40.2mm. More details in Table 1.

Map 2 indicates the cumulative spatial rainfall distribution since the start of the 2019/20 rainfall seasonal monitoring in October 2019 up to 20 December 2019. The map generally indicates that most areas over northern, central and southern highlands of Malawi have received normal to above normal rainfall amounts (green and light blue colours) with cases of below normal rainfall amounts mostly over Shire Valley as shown by yellow and brown colours. Extra details in Table 1.

1.3 AIR TEMPERATURE

Generally hot temperatures were experienced over Malawi during the period 11 to 20 December 2019. Mean daily maximum temperatures had ranged from 26.0°C at Dedza to 35.3°C at Ngabu. On the other hand, mean daily minimum temperatures had ranged from 16.4°C at Dedza Meteorological station to 24.1°C at Ngabu. Details in Table 2.

1.4 WIND SPEED

During the period 11 to 20 December 2019, most parts of Malawi experienced light to moderate wind speed. Daily average wind speeds measured at a height of two metres above the ground level across the country had ranged from

1.8 km per hour at Mzimba and Ngabu Meteorological stations to 9.8 km per hour at Chileka. More details in Table 2.

1.5 RELATIVE HUMIDITY

During the period 11 to 20 December 2019, air over Malawi was moderately humid. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 49% at Ngabu to 80% at Nkhata Bay. Details as in Table 2.

1.6 SUNSHINE HOURS

Generally medium to long hours of bright sunshine were observed over Malawi during the period under review. Mean daily values had ranged from 4.9 hours per day at Mzuzu and Mzimba Meteorological stations to 7.9 hours per day at Salima Meteorological station. Consequently, the amount of Solar Radiation had ranged from 7.7 to 9.7 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period under review, there was continued good spatial distribution of rainfall over northern areas of Malawi. Over most areas of southern Malawi, farmers were top dressing while most farmers over central and northern Malawi were weeding and applying basal fertilizer.

For proper utilization of rain water, farmers should adhere to principles of good agricultural practices including use of recommended seeds, moisture conservation, timely control of weeds, pests and diseases and fertilizer/ manure application. Water harvesting technologies should also be practiced for future use during periods of suppressed rainfall.

3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

ENSO-neutral conditions are prevailing over central tropical Pacific Ocean. Climate models are projecting that the ENSO-neutral conditions are likely to persist throughout the 2019/2020 rainfall season. Based on these expectations and other analyses conducted, the rainfall forecast for the 2019/2020 is that:

“During October to December 2019, most of the north and northern parts of central areas of the country are expected to receive normal to below normal rainfall amounts, while most of the south and southern parts of central areas are expected to receive normal to above normal rainfall amounts;

During January to March 2020, most of the north and northern parts of central areas of the country are expected to receive above normal to normal rainfall amounts, while southern areas and southern parts of central areas are expected to receive normal to below normal rainfall amounts.”

4. OUTLOOK FOR 21-31 DECEMBER 2019

Models for short to medium range forecasts indicate that the Equatorial rain-belt will continue oscillating over Malawi thereby improving spatial rainfall distribution over the country.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 11 TO 20 DECEMBER 2019

ADD	STATION NAME	ACTUAL DEKADAL TOTAL RAINFALL (mm)	DEKADAL NORMAL EXPECTED RAINFALL (mm)	ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)	DEKADAL RAINY DAYS ≥.3mm	ACTUAL TOTAL RAINFALL TO DATE (mm)	NORMAL (EXPECTED) RAINFALL TO DATE (mm)	ACTUAL TO DATE AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)
Karonga	Baka Res. Stn.	83.4	85.0	98	6	328.3	182.3	180
	Chitipa Met	115.2	62.3	185	8	193.6	180.7	107
	Lupembe	51.5	51.3	100	2	249.5	116.8	214
	Vinthukutu Agric	102.6	68.0	151	6	137.4	178.4	77
Mzuzu	Bwengu Agric.	102.1	59.9	170	5	110.3	147.0	75
	Chikangawa forest	108.6	66.6	163	6	297.4	209.2	142
	Chelinda (Nyika)	129.7	72.8	178	8	294.6	260.3	113
	Chintheche Agric	240.4	81.7	294	4	470.9	286.5	164
	Emfeni Agric	26.0	55.0	47	3	86.5	170.0	51
	Euthini Agric.	28.9	50.3	57	4	117.6	155.6	76
	Mbawa Res. Stn	56.6	71.4	79	4	113.0	170.9	66
	Mzimba Met	53.4	63.1	85	7	141.0	174.3	81
	Mzuzu Met.	97.7	55.1	177	6	211.0	208.1	101
	NkhataBay Met.	132.5	67.9	195	6	348.9	243.3	143
Rumphu Boma	67.6	44.0	154	5	156.9	113.9	138	
Kasungu	Dowa Agric	15.9	66.7	24	2	171.1	170.2	101
	Kaluluma DTC	80.1	67.1	119	3	136.1	175.7	77
	Kasungu Met	63.8	58.8	109	3	124.9	157.8	79
	Lisasadzi	46.1	76.4	60	4	153.0	177.1	86
	Madisi Agric	18.5	68.5	27	2	117.1	160.1	73
	Mkanda Met	38.0	74.0	51	3	223.0	202.8	110
	Mponela Agric	30.7	43.5	71	3	103.4	161.1	64
	Mwimba Research	25.0	69.7	36	3	91.6	183.1	50
Lilongwe	Ntchisi Boma	10.3	90.9	11	2	177.8	231.4	77
	Chitedze Met.	83.7	51.6	162	8	165.2	181.6	91
	Dzonzi Forest	56.3	78.8	71	4	146.7	240.7	61
	Kasiya Agric	48.0	95.7	50	4	192.0	258.7	74
	Mlangeni Njolomo	17.4	74.7	23	3	284.1	221.0	129
	Nathenje Agric	3.0	63.0	5	1	150.8	175.5	86
	Ntcheu - Nkhande	107.8	74.8	144	5	253.1	231.6	109
Salima	Dedza RTC	36.0	66.5	54	4	159.7	199.0	80
	Lifuwu	71.8	71.6	100	4	279.2	177.1	158
	Nkhotakota Met	99.8	88.0	113	6	383.3	220.1	174
Salima Met	Salima Met	67.6	80.8	84	3	228.1	185.5	123
	Machinga	Balaka Township	8.1	58.2	14	1	199.5	197.0
Chingale Agric		4.7	73.5	6	2	157.0	223.6	70
Mpilipili (Makanjila)		40.2	62.5	64	4	156.6	182.4	86
Makoka Met		12.5	60.5	21	3	157.4	225.1	70
Mangochi Met.		50.5	41.2	123	3	224.7	117.3	192
Monkey Bay Met.		57.4	46.3	124	5	151.4	96.9	156
Naminjiwa Agric		31.3	61.6	51	4	112.8	224.8	50
Namwera Agric		40.5	61.5	66	3	216.9	222.9	97
Phalula Agric		34.6	50.8	68	2	248.8	215.5	115
Toleza Farm		99.4	59.4	167	5	403.9	202.4	200
Blantyre	Zomba RTC	22.8	100.5	23	2	231.7	303.9	76
	Bvumbwe Met.	30.9	66.6	46	4	161.6	274.4	59
	Chichiri Met.	55.4	89.9	62	3	263.7	473.6	56
	Chileka Airport	26.2	50.6	52	2	219.9	227.0	97
	Chiradzulu Agric	87.3	63.1	138	5	250.1	246.4	102
	Chizunga Factory	54.1	113.0	48	5	247.4	376.4	66
	Masambanjati Agric	78.0	88.4	88	5	189.0	316.2	60
	Mimosa Met.	46.7	82.5	57	4	110.0	387.5	28
	Mulanje Boma	39.2	92.3	42	3	221.4	496.9	45
	Mwanza Boma	47.3	68.4	69	4	393.7	266.9	148
Shire Valley	Neno Agric	62.2	66.1	94	3	184.5	247.3	75
	Satemwa Tea Est.	57.6	73.8	78	3	189.6	273.8	69
	Thuchila Agric	39.1	53.2	73	2	300.9	199.6	151
	Thyolo Met	113.0	71.6	158	3	164.4	282.1	58
	Chikwawa Boma	128.6	51.2	251	3	150.2	205.2	73
	Makhanga Met	36.2	51.5	70	2	130.1	196.2	66
Ngabu Met.	Ngabu Met.	31.6	52.8	60	2	128.0	190.0	67

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 11 TO 20 DECEMBER 2019

ADD/STATION	MAX TEMP (°C)	MIN TEMP (°C)	ABS MAX (°C)	ABS MIN (°C)	WIND SPEED (Km/Hr)	RH %	SUN SHINE HOURS	Eo mm per day	Et mm per day	RADIATION cal cm ⁻² p/day
KARONGA ADD										
CHITIPA	27.3	18.2	29.6	17.4	6.2	68	6.2	7.2	5.9	8.5
KARONGA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZUZU ADD										
BOLERO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZIMBA	27.5	16.9	29.8	15.6	1.8	73	4.9	5.7	4.5	7.7
MZUZU	26.5	16.7	27.9	15.1	4.0	79	4.9	5.7	4.6	7.7
NKHATA BAY	31.1	21.0	33.1	20.4	2.5	80	5.5	6.3	5.1	8.1
KASUNGU ADD										
KASUNGU	29.6	19.6	31.5	18.5	5.4	66	7.1	7.8	6.4	9.2
LILONGWE ADD										
CHITEDZE	29.1	19.1	31.1	18.2	2.2	72	6.9	6.8	5.4	9.1
DEDZA	26.0	16.4	27.6	15.1	4.7	73	6.0	6.5	5.2	8.5
K I A	28.1	18.5	29.6	17.6	5.4	73	7.1	7.3	5.9	9.2
SALIMA ADD										
NKHOTAKOTA	29.8	22.4	31.9	19.6	3.6	70	6.5	7.4	6.1	8.8
SALIMA	30.8	21.0	32.9	21.8	8.7	71	7.9	8.8	7.3	9.7
MACHINGA ADD										
NTAJA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MAKOKA	28.2	19.0	31.5	17.3	4.7	76	6.5	6.9	5.6	8.8
MANGOCHI	31.5	21.6	35.0	17.6	2.2	66	7.1	7.4	6.0	9.2
MONKEY BAY	30.7	23.0	33.5	21.7	7.2	67	7.0	8.7	7.3	9.2
BLANTYRE ADD										
BVUMBWE	26.1	17.9	29.2	15.6	6.5	75	6.5	7.0	5.7	8.8
CHICHIRI	27.4	18.4	31.2	16.5	3.6	60	6.7	7.2	5.8	9.0
CHILEKA	29.6	20.9	32.5	19.4	9.8	67	7.5	9.2	7.7	9.5
MIMOSA	30.7	19.6	34.4	16.6	2.2	69	6.8	7.0	5.6	9.0
SHIRE VALLEY ADD										
NGABU	35.3	24.1	38.2	22.8	1.8	49	7.5	8.3	6.8	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 Kilometres per hour (Km/hr) to Meters Per Second (mps) = Km/hr ÷3.6