



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: 21 – 31 December 2018

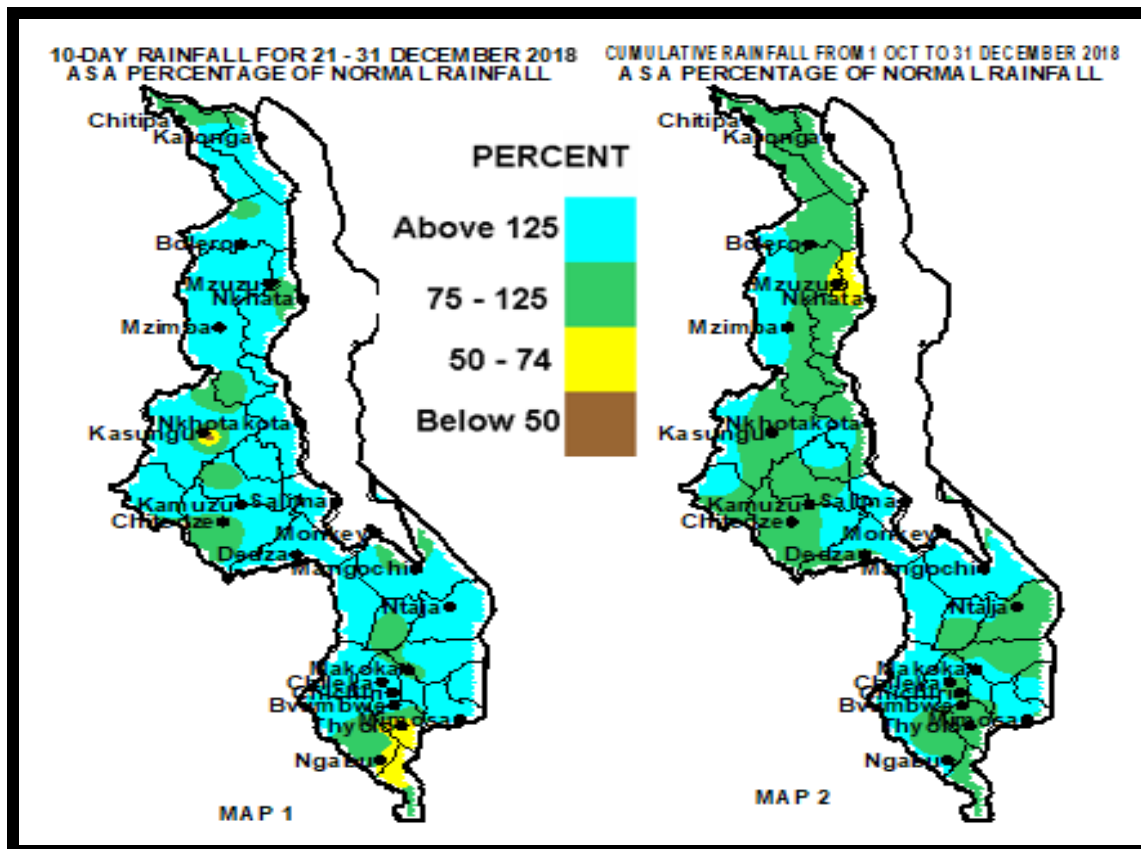
Season: 2018/2019

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HIGHLIGHTS

- Widespread locally heavy rainfall received over Malawi ...
- Average to above average cumulative rainfall amounts experienced over Malawi...
- More rainfall expected during the period 01 to 10 January 2019...



Rainfall Maps for 21 to 31 December 2018

1.0 WEATHER SUMMARY

During the last ten days of December 2018, the Inter Tropical Convergence Zone (ITCZ) remained active over southern and some parts of central Malawi while moist and unstable Congo airmass was active over northern Malawi and most of the lakeshore areas. As a result, most areas in Malawi had recorded scattered to widespread moderate to heavy cumulative rainfall amounts (Green and light Blue colours on Map 1).

1.1 RAINFALL SITUATION

During the last ten days of December 2018, scattered to widespread moderate to locally heavy rainfall amounts were reported over Malawi. Very high cumulative rainfall amounts exceeding 150mm during the ten-day period were reported in several places. However, Salima ADD where in 9 days Salima Met registered 341mm and Nkhotakota Met reported 207mm was the wettest. Other places which registered high cumulative rainfall amounts included Lifuwu Agric had received 206mm, Mulanje Agric recorded 205mm, Mlanjeni-Njolomole 203mm, Mkanda Agric in Mchinji had 193mm, Lujeri Tea Estate reported 191mm, Ntcheu-Nkhande had 183mm, Mpemba Agric 178mm, Euthini Agric 175mm, Chikweo Agric 163mm, Mzimba Met 158mm, and Dwangwa had 155mm. The ten-day total rainfall amounts were higher than the long-term mean rainfall amounts for the period over most areas countrywide (light Blue colour in Map1).

Map 2 indicates the spatial cumulative rainfall distribution since the start of the 2018/19 rainfall season in October 2018, up to 31 December 2018. The map generally indicates that most areas in Malawi have received normal to above normal cumulative rainfall amounts (Green to light Blue colours).

1.3 AIR TEMPERATURE

Warm to hot temperatures were experienced over most areas in Malawi during the last ten days of December 2018. Mean daily maximum temperatures had ranged from around 24°C at Dedza Boma to 35°C at Ngabu in Chikwawa while the average daily minimum temperatures had ranged from 16°C at Dedza to 24°C at Ngabu in Chikwawa district. During the same period the hottest temperature was 39°C still recorded at Ngabu in Chikwawa. On the otherhand the lowest temperature was 15°C recorded at Dedza Boma and around Makoka in Zomba. Details are in Table 2.

1.4 WIND SPEEDS

During the period 21 to 31 December 2018 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 1.1 km per hour at Nkhotakota to 9.0km per hour at Monkey Bay in Mangochi. More details are in Table 2.

1.5 RELATIVE HUMIDITY

During the period 21 to 31 December 2018, air over Malawi was fairly moist. Daily average relative humidity values recorded from various weather stations in Malawi had ranged from 52% at Ngabu in Chikwawa district to

88% at Ntaja in Machinga district. Details are on the Table 2.

1.6 SUNSHINE HOURS

Due to continued cloudiness, generally low hours of bright sunshine were observed over Malawi during the last ten days of December 2018. The daily values had ranged from 3.4 hours per day at Nkhotakota to around 7 hours per day and consequently the amount of Solar Radiation had ranged from 6.8 to 9.1 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

During the period 21 to 31 December 2018, scattered to widespread locally heavy rainfall was reported 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.

Maize crop, the staple food crop in Malawi, was mostly at vegetative stage and was reported doing very well particularly where both basal and top dressing fertilizers have already been applied. Based on rainfall performance so far, good crop yields are anticipated this season provided good rains continue through January and February 2019.

3. PROSPECTS FOR 2018/2019 RAINFALL SEASON

Global models are projecting 80 percent chance of El Nino conditions developing during early 2019. Meanwhile ENSO-neutral conditions are present. Therefore, the rainfall forecast for the 2018/19 season in Malawi is likely to remain favourable until sometime when El Nino conditions are established. Usually there is a time lag between the establishment of El Nino and its impact on rainfall pattern. During a neutral season, there is no generalization of the rainfall patterns in Malawi while during El Nino season, rainfall is greatly suppressed over southern half of Malawi and the North tends to receive better rainfall pattern.

The seasonal forecast is issued to users as a planning tool. For day to day operations, users are advised to make use of the available short to medium range forecasts issued by the Department.

4. OUTLOOK FOR 01 TO 10 JANUARY 2019

Models for short and medium range forecasts show that Malawi is likely to continue experiencing good rainfall for agriculture production during the first ten days of January 2019. These rains will continue supporting growth and development of crops in most parts of Malawi.

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 21 TO 31 DECEMBER 2018

ADD	RAINFALL STATION	ACTUAL DEKADAL TOTAL RAINFALL (mm)	DEKADAL NORMAL EXPECTED RAINFALL (mm)	ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)	ACTUAL TOTAL RAINFALL TO DATE (mm)	NORMAL (EXPECTED) RAINFALL TO DATE (mm)	ACTUAL TO DATE AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)	RAINY DAYS ≥ 3 mm	
KARONGA	Chitipa Met	94.0	80.4	117	252.3	261.1	97	6	
	Karonga Met.	77.2	63.0	123	208.9	213.4	98	7	
	Lupembe	131.6	47.0	280	220.6	163.8	135	5	
	Vinthukutu Agric	92.6	62.5	148	272.4	240.9	113	4	
MZUZU	Bolero Met	78.4	58.4	134	189.3	175.6	108	6	
	Bwengu Agric.	103.1	62.9	164	139.0	209.9	66	2	
	Chikangawa forest	114.7	77.2	149	238.6	286.4	83	7	
	Chelinda (Nyika)	87.5	82.1	107	335.4	342.4	98	8	
	Emfeni Agric	40.5	66.2	61	40.5	236.2	17	3	
	Ekwendeni Agric.	67.6	35.8	189	124.3	263.8	47	3	
	Euthini Agric.	175.0	68.1	257	434.5	223.7	194	7	
	Mbawa Res. Stn	129.5	71.0	182	410.6	241.9	170	8	
	Mzimba Met	158.0	69.6	227	294.4	243.9	121	8	
	Mzuzu Met.	75.1	63.1	119	173.3	271.2	64	6	
	NkhataBay Met.	78.3	76.0	103	220.0	319.3	69	7	
	Rumphii Boma	134.3	67.2	200	184.4	181.1	102	7	
	Zombwe Agric	100.5	56.8	177	170.5	196.6	87	5	
KASUNGU	Dowa Agric	115.0	71.2	162	275.6	241.4	114	8	
	Kaluluma DTC	67.6	72.3	93	76.2	248.0	31	3	
	Kasungu Met	99.2	54.0	184	226.0	211.8	107	6	
	Lisasadzi	84.0	66.8	126	97.2	243.9	40	7	
	Malomo Agric	118.8	53.2	223	335.8	188.0	179	5	
	Madisi Agric	50.3	61.2	82	252.9	221.3	114	3	
	Mchinji Boma	103.4	89.8	115	304.6	344.8	88	9	
	Mkanda Met	193.2	78.8	245	475.3	281.6	169	10	
	Mponela Agric	61.9	53.0	117	142.2	214.1	66	8	
	LILONGWE	Chitedze Met.	64.8	70.5	92	198.5	252.1	79	6
Dzonzi Forest		142.6	77.8	183	517.9	318.5	163	8	
K.I.A Met		111.8	72.1	155	275.5	222.7	124	8	
Kasiya Agric		107.3	73.5	146	301.7	332.2	91	5	
Mlangeni Njolomole		203.0	64.3	316	454.3	285.3	159	7	
Nathenje Agric		92.7	63.6	146	336.1	239.1	141	6	
Ntcheu - Nkhande		183.2	87.6	209	479.2	319.2	150	6	
Dedza RTC		109.1	72.5	150	288.0	271.5	106	9	
SALIMA		Dwangwa.	155.2	85.6	181	336.1	333.1	101	6
		Lifuwu	205.8	82.2	250	462.0	259.3	178	7
	Nkhotakota Met	207.4	94.1	220	359.0	314.2	114	9	
	Salima Met	341.4	84.0	406	566.9	269.5	210	9	
MACHINGA	Chikweo Agric.	163.3	74.6	219	304.4	303.2	100	5	
	Chingale Agric	102.9	68.6	150	362.4	292.2	124	6	
	Mpilipili (Makanjila)	85.8	72.4	119	237.6	254.8	93	7	
	Makoka Met	66.8	77.9	86	406.1	303.0	134	6	
	Mangochi Met.	60.1	39.2	153	235.0	156.5	150	5	
	Monkey Bay Met.	59.3	53.4	111	217.6	150.3	145	5	
	Namiasi Agric	34.4	69.5	49	244.0	210.6	116	4	
	Namwera Agric	145.9	72.7	201	488.8	295.6	165	7	
	Ntaja Met.	123.9	69.4	179	278.6	259.3	107	4	
	Phalula Agric	50.2	56.9	88	294.0	272.4	108	5	
BLANYTRE	Toleza Farm	83.0	71.1	117	472.8	273.5	173	5	
	Zomba RTC	135.4	83.4	162	375.1	387.3	97	6	
	Chileka Airport	115.6	57.7	200	362.3	284.7	127	9	
	Chiradzulu Agric	102.1	72.7	140	473.8	319.1	148	5	
	Chizunga Factory	66.8	100.8	66	363.9	477.2	76	3	
	Lujeri Tea Estate	190.5	125.3	152	825.7	678.2	122	7	
	Mimosa Met.	67.2	76.5	88	383.5	464.0	83	5	
	Mpemba Vet	178.7	77.0	232	547.7	369.0	148	7	
	Mulanje Boma	204.8	98.4	208	803.8	595.3	135	7	
	Mwanza Boma	138.2	61.2	226	642.1	328.1	196	7	
SHIRE VALLEY	Naminjiwa Agric	129.2	72.3	179	416.1	297.1	140	7	
	Neno Agric	145.6	71.9	203	509.6	319.2	160	5	
	Thuchila Agric	73.0	64.2	114	291.9	263.8	111	7	
	Thyolo Met	20.0	71.4	28	168.8	353.5	48	3	
	Chikwawa Boma	59.0	54.7	108	272.6	259.9	105	4	
	Makhanga Agric	28.0	62.2	45	284.0	258.4	110	2	
	Nchalo	44.7	43.0	104	198.0	202.8	98	3	
SHIRE VALLEY	Ngabu Met.	44.5	61.0	73	335.7	251.0	134	4	
	Nsanje Boma	61.3	65.0	94	245.1	355.2	69	3	

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 31 DECEMBER 2018

STATION/ADD	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	RAD-TION cal cm ⁻² p/day
KARONGA ADD										
CHITIPA	27.0	18.2	28.9	17.0	7.2	81	5.4	5.7	4.5	8.0
KARONGA	28.9	21.3	31.7	20.0	5.4	77	6.3	6.4	5.1	8.6
MZUZU ADD										
BOLERO	28.0	18.7	31.1	17.4	1.8	75	4.5	5.4	4.3	7.4
MZIMBA	25.8	16.5	27.6	14.7	2.5	81	3.4	4.7	3.7	6.8
MZUZU	25.8	17.4	28.7	16.6	4.7	81	3.8	4.9	3.9	7.0
NKHATA BAY	29.9	21.1	33.1	19.7	2.2	79	4.6	5.6	4.5	7.5
KASUNGU ADD										
KASUNGU	24.5	18.8	26.5	17.4	5.0	77	3.6	5.0	4.0	6.9
LILONGWE ADD										
CHITEDZE	25.8	19.2	29.3	18.2	1.8	78	5.5	5.6	4.4	8.2
DEDZA	23.3	15.9	26.1	14.7	6.5	82	4.5	5.1	4.0	7.5
K I A	24.1	18.4	27.0	17.0	5.0	81	5.5	5.5	4.3	8.2
SALIMA ADD										
NKHOTAKOTA	27.6	20.8	31.0	18.9	1.1	75	3.4	5.2	4.2	6.8
SALIMA	29.7	21.2	31.7	18.8	5.8	86	4.6	5.5	4.4	7.6
MACHINGA ADD										
NTAJA	28.6	20.8	32.9	19.6	6.8	88	6.5	6.3	5.0	8.9
MAKOKA	27.4	18.6	30.6	15.1	2.2	69	6.5	6.2	4.9	8.9
MANGOCHI	30.5	22.3	36.1	21.0	2.2	71	5.5	6.3	5.0	8.2
MONKEY BAY	28.8	22.5	31.9	21.4	9.0	78	5.5	6.4	5.1	8.2
BLANTYRE ADD										
BVUMBWE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CHICHIRI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CHILEKA	28.3	20.1	32.1	19.2	8.3	76	6.9	6.7	5.4	9.1
MIMOSA	29.0	20.5	31.2	18.9	4.0	85	6.5	6.3	5.0	8.9
SHIRE VALLEY ADD										
NGABU	34.8	24.1	38.8	22.3	2.2	52	6.8	7.5	6.1	9.1

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