Government of Malawi
Ministry of Natural Resources and Climate Change

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 – 28 February 2022 Season: 2021/2022 Issue No.15

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HIGHLIGHTS

- **Wet conditions experienced over central and northern Malawi…**
- **Major on-farm activities included fertilizer application and banking …**
- **Moderate to locally heavy rainfall expected mainly over northern half during the dekad 01 to 10 March 2022…**

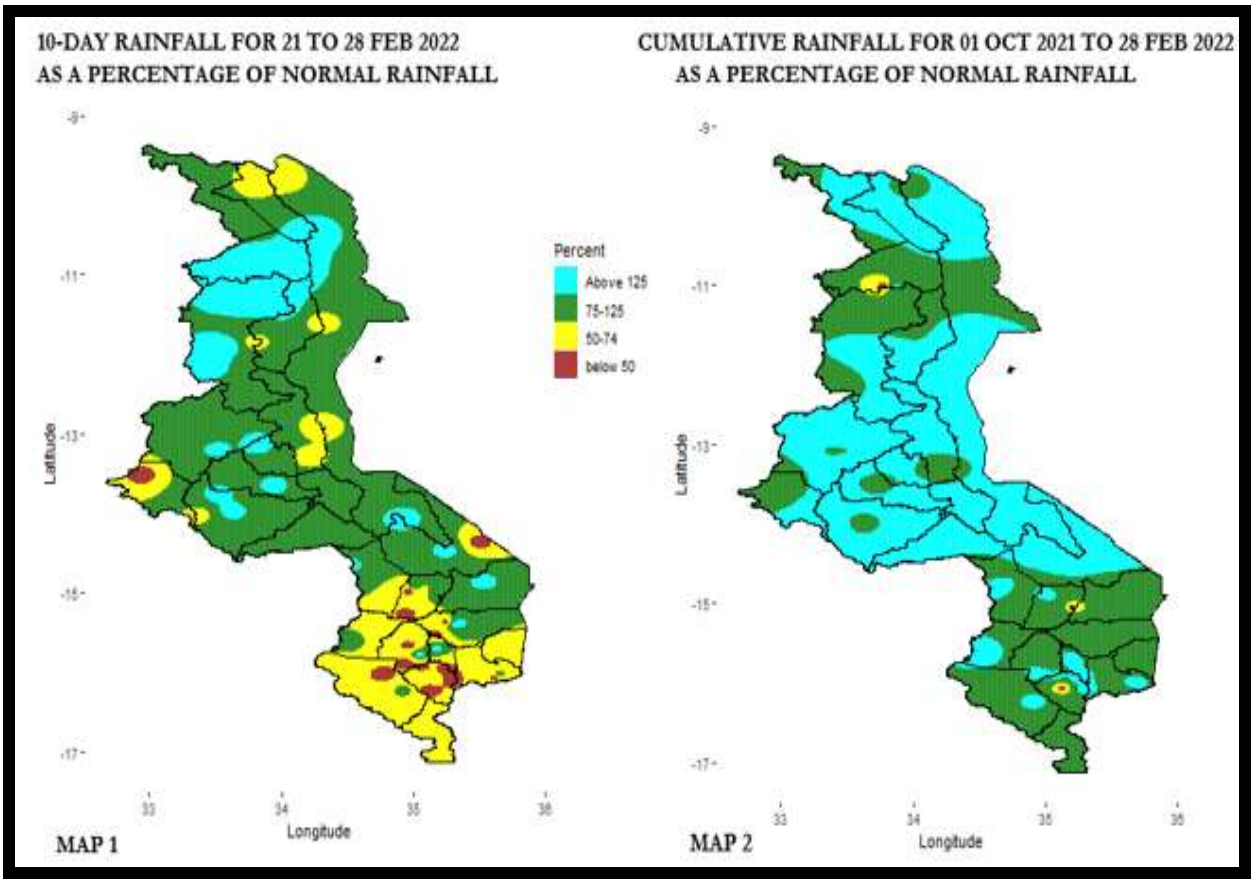

Figure 1: Observed dekadal and seasonal rainfall as percentage of normal for Malawi

1.0 WEATHER SUMMARY

During the period 21 to 28 February 2022, the Inter-Tropical Convergence Zone, ITCZ, was active mainly over central and northern areas of Malawi. This resulted in wet conditions over majority of central and northern areas of the country and relatively dry conditions elsewhere.

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1.1 RAINFALL SITUATION

During the last dekad of February 2022, wet conditions prevailed over majority of central and northern areas of the country. The ten-day cumulative rainfall amounts were near the long-term or higher than the long-term dekadal average rainfall amounts for the period over most central and northern areas (represented by cyan and green colours in Map1) with less than long-term dekadal average rainfall amounts over most southern areas (yellow and brown colours in Map1).

For the period under review, areas that recorded a dekadal total of at least 130.0mm included Mlangeni in Ntcheu which recorded 207.1 in 5 rainy days, Vinthukutu Agriculture in Karonga recorded 139.7mm in 4 rainy days, Ntaja Meteorological station in Machinga recorded 138.9 in 2 rainy days and Zomba Agriculture recorded 132.8mm in 5 rainy days. More details in Table 1.

Map 2 indicates the spatial cumulative rainfall distribution since the start of monitoring of the 2021/2022 rainfall season in October 2021, up to 28 February 2022. The map indicates that Malawi has received normal to above normal rainfall amounts (green and cyan colour) with isolated cases of normal to below normal rainfall amounts over parts of Balaka and Thyolo in the southern region, as well as Rumphi district in the northern region of the country.

1.2 AIR TEMPERATURE

Malawi experienced warm to hot conditions during the period 21 to 28 February 2022. Mean daily maximum temperatures had ranged from 23.9°C at Dedza Meteorological station to 31.5°C at Ngabu Meteorological station in Chikwawa. Mean daily minimum temperatures had ranged from 16.9°C at Dedza Meteorological station to 23.6°C at Ngabu Meteorological station. Details in Table 2.

1.3 WIND SPEEDS

During the period under review, most parts of Malawi experienced light to moderate wind speeds. Daily average wind speeds measured at a height of two metres above the ground level across the country had ranged from 0.7 km per hour at Bolero (Rumphi district), Nkhotakota, Ntaja (Machinga district) and Mangochi Meteorological stations, to 11.9 km per hour at Chileka International Airport in Blantyre. More details in Table 2.

1.4 RELATIVE HUMIDITY

During the period 21 to 28 February 2022, air over Malawi was humid. Daily average Relative Humidity values recorded from various weather stations had ranged from 51% at Ngabu Meteorological station to 83% at Mzuzu International Airport in Mzimba district. Details as in Table 2.

1.5 SUNSHINE HOURS

Generally medium to long hours of bright sunshine were observed over Malawi during the period 21 to 28 February 2022. Daily average values had ranged from 6.6 hours per day at Mzuzu Meteorological station to 9.8 hours per day at Ngabu Meteorological station. Consequently, the amount of Solar Radiation had ranged from 8.0 to 10.3 cal/cm²/day. For details see Table 2.

2. AGROMETEOROLOGICAL ASSESSMENT

The period under review was wet in both time and space for majority of central and northern areas of the country with relatively dry conditions over southern areas. The wet conditions provided the required water for continued crop development of staple crop maize as well as rice in rice growing areas over central and northern lakeshore districts. However, continued rainfall in Salima district, which reported flooding cases during the previous dekad, did not give room for crops to recover from negative effects of floods. Over the south, continued dry conditions may affect some late planted crop that is still at flowering stage in some parts.

The main on-farm activities over Malawi included pest and disease control, fertilizer application and banking. Majority of farmers in the north as well as those that planted late in the southern and central areas were reported to be applying top dressing fertilizers as well as banking. Maize crop is at maturity stage over majority of southern Malawi with few areas still at flowering stage, while the crop is at cobbing stage over central and vegetative stage over northern Malawi. The staple crop is reportedly doing well particularly where manure or both basal and top-dressing fertilizers have already been applied.

However, in a season where floods, due to heavy rains from **Tropical Storm ANA and Ex-Tropical Storm DUMAKO**, in majority of areas in the Shire Valley Agriculture Development Division as well as some districts like Lilongwe, Salima and Mangochi have negative impacts on the good crop stand in such areas thereby affecting food security at both district level and national level.

3. PROSPECTS FOR 2021/2022 RAINFALL SEASON

La Nina conditions still exist over eastern-central equatorial Pacific Ocean. Global models are projecting that these conditions are likely to persist up to end of the 2021/2022 rainfall season. The rainfall forecast for the sub season JFM is that:

> **"During January to March 2022, most areas in the south, center and the north are expected to receive normal to above-normal rainfall amounts"**

At national level, there are higher chances of normal to above normal rainfall amounts over most parts of the country.

4. OUTLOOK FOR 01-10 MARCH 2022

There is a high chance of continued rainfall activities mainly over central and northern Malawi due to the continued influence of the Inter Tropical Convergence Zone. Relatively dry conditions should be anticipated in most areas of the south. The anticipated dekadal rainfall amounts are likely to be within the normal to above normal categories of the climatological dekadal values as shown in figure 2 below.

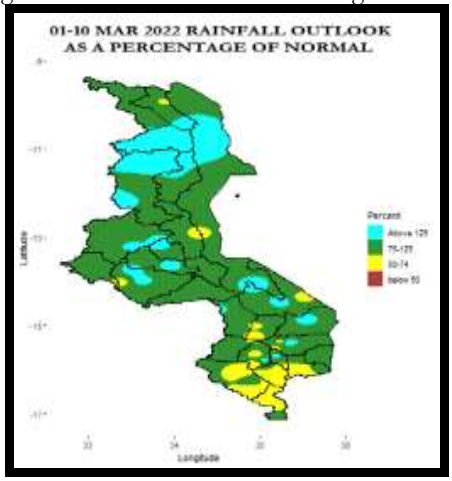

Figure 2: Dekadal rainfall outlook for Malawi as percentage of normal rainfall

TABLE 1: 10-DAY RAINFALL TOTALS AT SELECTED STATIONS FOR 21 TO 28 FEBRUARY 2022

ADD	STATION NAME	ACTUAL DEKADAL TOTAL RAINFALL (mm)	DEKADAL NORMAL EXPECTED RAINFALL (mm)	ACTUAL TOTAL AS PERCENTAGE OF NORMAL (EXPECTED RAINFALL)	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.	40.3	54.6	74	6	820.3	615.5	133
	Karonga Met.	35.8	55.9	64	6	551.7	541.4	102
	Lupembe	64.1	52.4	122	6	652.7	493.0	132
	Vinthukutu Agric	139.7	48.9	286	4	1278.5	602.3	212
MZUZU	Bolero Met	114.4	35.1	326	7	203.3	490.5	41
	Bwengu Agric.	74.9	45.4	165	5	672.5	577.3	116
	Chikangawa For.	46.9	63.9	73	5	1073.2	734.3	146
	Mbawa Res. Stn	96.8	46.8	207	6	680.6	620.1	110
	Mzimba Met	73.6	54.4	135	7	927.7	677.2	137
	Mzuzu Met.	58.2	42.9	136	5	762.4	636.1	120
	NkhataBay Met.	33.7	55.3	61	8	1030.8	721.7	143
	Rumphi Boma	63.7	44.5	143	7	762.3	539.3	141
	Zombwe Agric	69.5	47.4	147	7	661.9	532.2	124
KASUNGU	Dowa Agric	110.6	64.9	170	7	936.5	673.9	139
	Kasungu Met	63.6	59.6	107	6	772.4	609.1	127
	Lisasadzi	85.3	54.8	156	5	853.5	666.2	128
	Malomo Agric	68.1	48.8	140	6	829.2	630.3	132
	Mkanda Met	0.0	59.0	0	0	552.1	682.2	81
	Mponela Agric	52.5	61.3	86	6	684.0	643.2	106
	Mwimba Res.	64.5	69.8	92	5	748.8	694.7	108
	Nathenje Agric	68.7	66.5	103	4	1014.9	656.0	155
	Ntchisi Boma	48.4	75.3	64	3	865.1	905.4	96
LILONGWE	Chileka Namitete	36.1	60.4	60	3	1269.3	737.7	172
	Chitedze Met.	93.5	66.9	140	6	814.5	669.5	122
	K.I.A Met	53.0	66.5	80	5	882.1	652.6	135
	Kasiya Agric	118.6	81.8	145	8	993.4	750.6	132
	Mlangeni	207.1	57.8	358	5	902.6	738.6	122
	Ntcheu - Nkhande	76.3	69.3	110	3	1045.7	817.3	128
SALIMA	Nkhotakota Met	54.4	85.7	63	7	1301.3	870.2	150
	Salima Met	106.3	92.8	115	6	1511.9	867.5	174
MACHINGA	Balaka Township	12.9	47.2	27	3	822.7	679.0	121
	Chancellor College	93.7	68.0	138	5	947.5	953.8	99
	Chingale Agric	24.3	54.0	45	5	851.3	723.5	118
	Liwonde Town	43.7	55.9	78	4	452.7	624.4	73
	Makoka Met	18.3	56.8	32	5	898.6	760.0	118
	Mangochi Met.	78.7	47.5	166	6	824.9	530.9	155
	Monkey Bay Met.	65.7	33.7	195	4	610.1	479.5	127
	Namwera Agric	23.1	63.1	37	5	1002.0	780.1	128
	Ntaja Met.	138.9	57.5	242	2	833.2	676.0	123
	Phalula Agric	1.7	57.6	3	1	825.1	663.4	124
	Toleza Farm	52.0	49.9	104	3	1130.1	667.4	169
	Zomba RTC	132.8	66.1	201	5	869.6	903.7	96
BLANTYRE	Bvumbwe Met.	7.7	62.4	12	4	1143.0	833.7	137
	Chichiri Met.	90.6	52.5	173	3	1138.7	972.5	117
	Chileka Airport	22.4	47.9	47	3	688.1	684.8	100
	Chiradzulu Agric	78.5	53.3	147	3	1088.8	763.8	143
	Lujeri Tea Estate	102.7	110.3	93	5	1836.0	1451.5	126
	Masambanjati Agr.	4.0	75.6	5	2	976.1	948.7	103
	Mimosa Met.	13.8	62.9	22	3	981.0	1002.6	98
	Mpemba Vet	0.0	54.7	0	0	1094.9	848.6	129
	Mulanje Boma	30.6	55.9	55	2	1487.3	1209.8	123
	Mwanza Boma	66.4	57.4	116	2	1012.2	780.5	130
	Thuchila Agric	10.6	47.4	22	1	956.5	668.4	143
	Thyolo Boma	35.8	52.6	68	3	208.3	833.9	25
SHIRE VALLEY	Chikwawa Boma	2.7	32.8	8	1	633.2	603.4	105
	Kasinthula Res.	11.5	41.4	28	2	774.6	529.2	146
	Nchalo Sucoma	41.5	37.2	112	3	802.5	518.5	155
	Ngabu Met.	28.9	40.9	71	3	678.9	590.6	115

TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 TO 28 FEBRUARY 2022

ADD/STATION NAME	MAX TEMP (°C)	MIN TEMP (°C)	ABS MAX (°C)	ABS MIN (°C)	WIND SPEED (Km/hr)	RH (%)	SUN SHINE (Hrs)	Eo (mm per day)	Et (mm per day)	RADIA-TION (cal cm^{-2} p/day)
KARONGA ADD										
KARONGA	29.2	20.8	33.7	19.9	2.2	77	7.7	7.4	5.9	9.6
MZUZU ADD										
BOLERO	25.9	18.9	28.1	16.1	0.7	76	7.9	6.4	5.4	9.7
MZIMBA	25.7	17.2	27.5	15.4	3.2	77	7.2	6.1	5.2	9.0
MZUZU	24.9	17.6	27.0	16.4	4.0	83	6.6	6.8	5.2	8.0
NKHATA BAY	28.7	21.4	30.0	20.0	1.4	80	7.6	7.1	5.6	9.7
KASUNGU ADD										
KASUNGU	27.7	18.9	29.0	18.0	2.5	68	7.5	6.6	5.2	9.7
LILONGWE ADD										
CHITEDZE	26.7	18.6	28.8	17.0	1.8	71	8.1	6.7	5.3	9.2
DEDZA	23.9	16.9	24.6	16.2	3.6	73	6.8	6.2	4.8	9.5
K I A	25.5	18.5	27.3	16.8	3.2	75	7.4	6.3	4.9	9.5
SALIMA ADD										
NKHOTAKOTA	28.1	20.7	29.6	20.2	0.7	72	9.2	6.7	5.3	8.9
SALIMA	28.9	21.7	31.1	21.1	5.0	68	9.4	6.6	5.3	9.1
MACHINGA ADD										
NTAJA	28.5	20.8	30.2	19.8	0.7	75	7.5	7.2	5.7	9.9
MAKOKA	26.3	18.6	27.2	17.0	2.9	76	7.6	6.6	5.2	9.2
MANGOCHI	29.8	21.5	31.2	20.5	0.7	68	8.3	7.5	6.0	10.0
MONKEY BAY	29.1	22.4	30.8	21.8	4.3	61	8.5	7.6	6.1	10.0
BLANTYRE ADD										
BVUMBWE	24.9	18.0	25.5	16.8	5.0	66	7.5	5.5	4.3	8.4
CHICHIRI	25.7	18.1	26.4	17.4	2.9	71	7.4	6.0	4.7	8.5
CHILEKA	27.8	20.4	28.9	19.7	11.9	60	8.2	6.8	5.4	8.8
MIMOSA	28.7	19.1	29.5	17.6	4.0	60	7.5	6.3	5.0	8.5
SHIRE VALLEY ADD										
NGABU	31.5	24.0	32.8	23.6	1.1	51	9.8	8.7	6.3	10.3

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