



# Malawi 10-Day Rainfall & Agrometeorological Bulletin

Department of Climate Change and Meteorological Services



Period: 21 – 31 December 2009

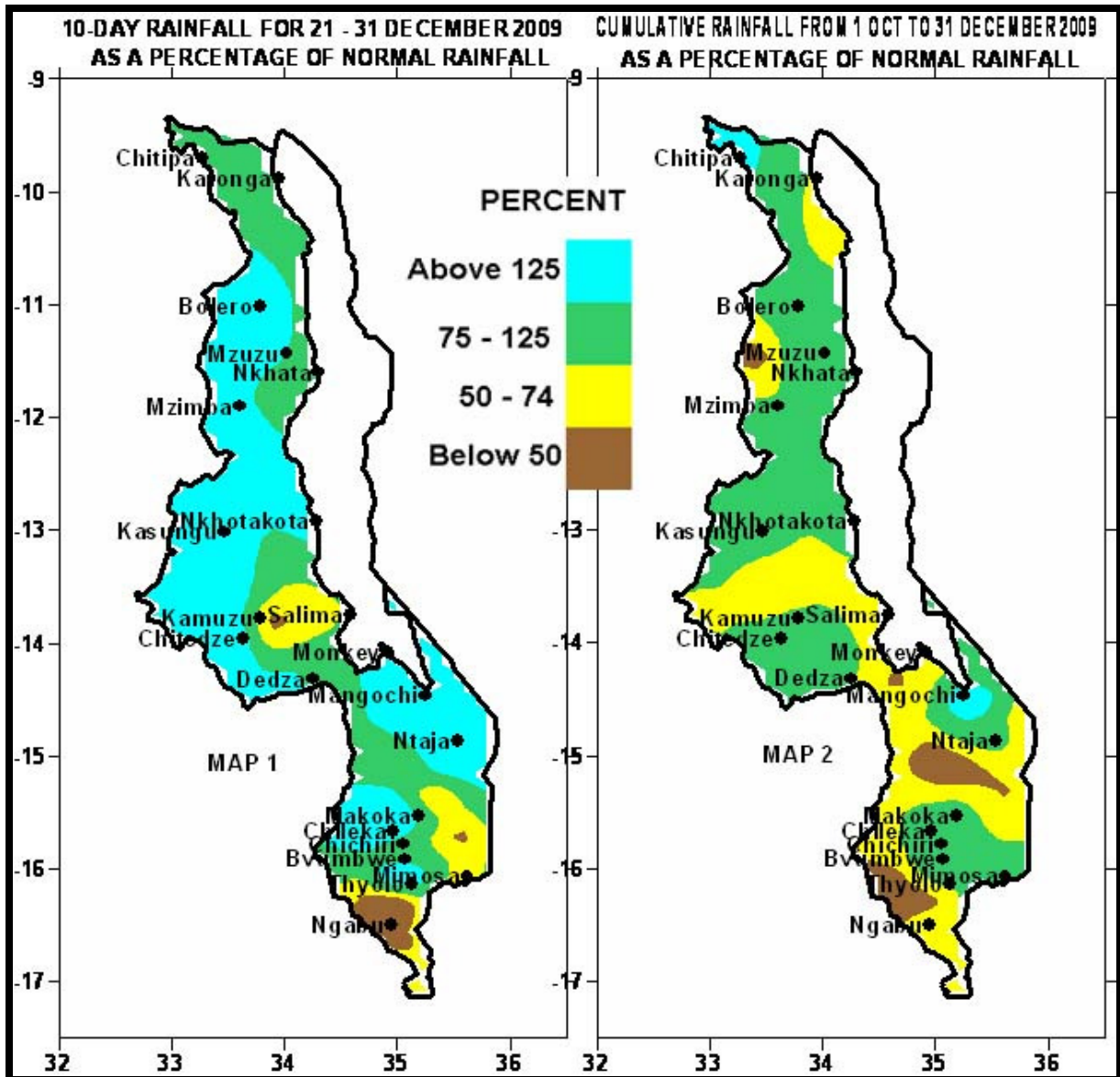
Season: 2009/2010

Issue No.9

Release date: 6 January 2010

## HIGHLIGHTS

- Significant improvement in rainfall distribution experienced...
- Soil moisture stress affects crops at vegetative stage...
- More rains expected over northern half Malawi, drier conditions in the south ..



## 1. WEATHER SUMMARY

### 1.1 RAINFALL SITUATION

In the last ten days of December 2009, the spatial and temporal distribution of rainfall had improved significantly. Most areas registered above average rainfall. Areas that reported cumulative rainfall amounts of at least 120mm included Satemwa in Thyolo (194 mm), Chileka-Namitete in Lilongwe (193 mm), Ntaja in Machinga (175mm), Mbawa Research in Mzimba (173mm), Nkhota kota Met (158 mm), Kasungu Met (147mm), Kaluluma in Kasungu (139mm), Lujeri in Mulanje (122mm), and Makoka Met in Zomba (121mm). The rainfall distribution was so that most areas registered at least 6 rainfall days. More details are found to Table 1 and Map 1.

By 31<sup>st</sup> December 2009, cumulative rainfall amounts covering the period from 1 October to 31 December 2009, expressed as a percentage of normal rainfall for the same period indicated that most areas in Malawi have received average (green colour) to below average (Yellow and Brown colours) rainfall amounts (Refer to Table 2 and Map 2).

### 1.2 MEAN AIR TEMPERATURE

Mean maximum air temperatures observed in the country ranged from 23°C at Dedza to 38°C at Ngabu in the lower Shire Valley. The highest mean maximum temperature was still reported at Ngabu (39.3°C). On the other hand, mean minimum temperatures were in the range of 17°C to 25°C. The lowest minimum temperature during this period was 16.6°C, reported at Dedza (see Table 2).

### 1.4 MEAN WIND SPEEDS

Mean wind speeds, measured at two metres above the ground were still low during the period under review. The lowest speed was 0.6 m/s (2.2 Km/h) reported at Chitedze while the highest was 2.5 m/s (9.0 Km/h) recorded at Chileka Airport (Refer to Table 2).

### 1.5 MEAN RELATIVE HUMIDITY

Relative Humidity values continued to take an upward trend during the last dekad of December 2009 compared to the previous ten days, signifying an increase in moisture levels over the country. The highest daily average relative humidity was reported at Mzuzu (86%) while the lowest daily average relative humidity was 63%, recorded at Ngabu in lower Shire Valley. More details are in the Table 2.

## 2. AGROMETEOROLOGICAL ASSESSMENT

The spatial and temporal distribution of rainfall during the last ten days of December



2009 was good for crop growth and development. Most areas received good rainfall amounts which supported crop water requirement. However, dry conditions and suppressed rainfall continued to affect some districts in Malawi particularly in Chikwawa, Nsanje, Phalombe and Zomba in the south and some parts of central Malawi. The dry conditions hindered progress of the ongoing agricultural operations such as application of basal and top dressing fertilizer. On the other hand, weeding of crop fields continued in most parts of Malawi. Due to dry spells, crops experienced moderate soil moisture stress that resulted in crop wilting during daytime. The above photo shows some maize crop wilting around Chileka Airport in Blantyre.

## 3. PROSPECTS OF 2009/10 RAINFALL SEASON

Most of dynamical and statistical model forecasts from advanced climate prediction centers indicate a continuation of the EL Nino conditions in the next several months. El Niño conditions are usually associated with below normal and erratic rainfall over a greater part of Southern Africa and above normal over Eastern Africa. However, not all El Niño events are associated with below normal rainfall over Malawi, for instance the 1997/98 season. During January to March 2010, Malawi is most likely to receive normal to above normal rainfall. Rainfall during this period is critical for agricultural production in Malawi since this is the period when most crops reach flowering and maturity stages, a period when crop water demands are at a peak. Prolonged dry spell at flowering stage may result in total crop failure.

## 4. OUTLOOK 01 – 10 JANUARY 2010

During the period 1 to 10 January 2010, pulses of Congo Air will confine most of the rains to the northern half of Malawi while a ridge of high pressure is expected to maintain dry weather over most of the south.

TABLE 1: DEKADAL RAINFALL SUMMARY FOR 21 – 31 DECEMBER 2009 AT SELECTED STATIONS

STATION NAME	DEKADAL TOTAL RAINFALL (mm)	DEKADAL NORMAL RAINFALL (mm)	RAINFALL DEKADAL TOTAL (%)	TOTAL TO DATE (mm)	NORMAL TO DATE (mm)	RAINFALL TOTAL TODATE (%)	RAINY DAYS
<b>SOUTHERN REGION</b>							
Balaka Township	37.5	52.4	72	91.0	249.4	36	4
Bvumbwe Met.	60.6	61.9	98	334.2	336.3	99	5
Chichiri Met.	53.5	104.4	51	325.5	578.0	56	5
Chileka Airport	110.0	57.7	191	321.3	284.7	113	8
Chiradzulu Agric	61.5	72.7	85	285.6	319.1	90	5
Lujeri Tea Estate	122.2	125.3	98	689.2	678.2	102	9
Mpilipili	112.1	72.4	155	226.0	254.8	89	8
Makoka Met	121.2	77.9	156	271.3	303.0	90	8
Mangochi Met.	106.0	39.2	270	299.4	156.5	191	8
Mimosa Met.	51.2	76.5	67	389.5	464.0	84	5
Monkey Bay Met.	98.6	53.4	185	121.0	150.3	81	4
Mpemba Agric	88.7	77.0	115	442.7	369.0	120	5
Mulanje Boma	24.8	98.4	25	225.7	595.3	38	2
Naminjiwa Agric	31.5	72.3	44	223.3	297.1	75	3
Nchalo Sucoma	3.9	43.0	9	73.4	202.8	36	2
Ngabu Met.	23.9	61.0	39	164.7	251.0	66	3
Nsanje Boma	39.6	65.0	61	262.0	355.2	74	3
Ntaja Met.	175.3	69.4	253	266.3	259.3	103	9
Satemwa Tea Est.	193.7	68.0	285	491.6	341.8	144	6
Thyolo Met	110.3	71.4	154	294.9	353.5	83	7
Zomba RTC	31.0	83.4	37	330.5	387.3	85	1
<b>CENTRAL REGION</b>							
Chileka Namitete	192.7	61.0	316	255.8	298.5	86	8
Chitedze Met.	85.0	70.5	121	221.3	252.1	88	7
Dedza Met	109.2	68.6	159	215.7	253.7	85	7
Kaluluma DTC	139.0	72.3	192	212.5	248.0	86	8
K.I.A Met	43.1	72.1	60	186.6	222.7	84	7
Kasungu Met	147.8	54.0	274	230.4	211.8	109	10
Malomo Agric	52.0	53.2	98	128.4	188.0	68	8
Mtakataka Airwing	84.1	57.2	147	215.2	233.7	92	7
Nathenje Agric	42.0	63.6	66	292.0	239.1	122	9
Nkhotakota Met	158.2	94.1	168	303.9	314.2	97	9
Ntcheu - Nkhanda	102.5	87.6	117	227.0	319.2	71	6
Salima Met	59.9	84.0	71	113.4	269.5	42	7
Dedza RTC	39.7	72.5	55	164.2	271.5	60	5
<b>NORTHERN REGION</b>							
Bolero Met	88.4	58.4	151	187.7	175.6	107	7
Chitipa Met	73.6	80.4	92	376.3	261.1	144	9
Karonga Met.	57.7	63.0	92	137.3	213.4	64	7
Mbawa Res. Stn	173.0	71.0	244	307.5	241.9	127	8
Mzimba Met	86.9	69.6	125	179.6	243.9	74	8
Mzuzu Met.	83.8	63.1	133	383.3	271.2	141	10
NkhataBay Met.	45.3	76.0	60	152.8	319.3	48	6

**TABLE 2: AGROMETEOROLOGICAL PARAMETERS FOR 21 – 31 DECEMBER 2009**

STATION	MAX TEMP (°C)	MIN TEMP (°C)	ABS MAX (°C)	ABS MIN (°C)	WIND SPEED (m/s)	RELATIVE HUMIDITY (%)
BOLERO	27.2	16.8	30.8	15.2	N/A	81
BVUMBWE	27.2	18.4	28.7	17.5	1.5	77
CHICHIRI	29.4	20.9	30.1	18.4	1.0	85
CHILEKA	30.1	21.1	31.3	19.0	2.5	74
CHITEDZE	27.5	18.7	29.6	17.2	0.6	72
CHITIPA	26.0	17.8	27.6	17.0	1.2	82
DEDZA	23.3	16.1	25.8	15.7	1.1	78
K I A	31.4	17.5	27.3	16.6	1.2	76
KARONGA	29.9	22.4	31.4	21.2	1.4	77
KASUNGU	26.8	19.5	28.0	18.0	1.6	81
MAKOKA	28.5	19.3	29.6	18.1	1.2	76
MANGOCHI	N/A	22.1	N/A	21.0	1.2	70
MIMOSA	32.1	19.8	34.2	18.4	1.2	68
MONKEY BAY	30.3	22.9	31.5	20.5	2.1	73
MZUZU	25.4	17.2	27.1	16.3	1.2	86
NGABU	37.5	24.7	39.3	23.2	2.3	63
NKHATA BAY	32.6	21.2	32.7	21.0	0.6	70
NKHOTAKOTA	28.0	21.3	29.5	20.0	N/A	82
NTAJA	29.8	21.3	31.1	19.7	1.5	76
SALIMA	29.7	22.3	31.3	21.1	1.7	78

**Glossary of some terms on this table**

- 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) = mps x 3.6