



Kenya Meteorological Department  
P.O. Box 30259-00100, Nairobi

KILIFI COUNTY  
[cdmkilifi@meteo.go.ke](mailto:cdmkilifi@meteo.go.ke); [cdmkilifi@gmail.com](mailto:cdmkilifi@gmail.com)

## **AGRO-WEATHER ADVISORIES FOR THE OCTOBER-DECEMBER 2023 (OND 2023) RAINY SEASON**

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# 1 OND 2023 Seasonal Weather Forecast

## 1.1 Highlights

The OND-2023 rainy season is expected to be Above-Normal with onset between 1<sup>st</sup> – 14<sup>th</sup> October 2023, and good distribution in space and time. Rains are likely to continue into January 2024. The reasons for Above-Normal rainfall and early onset are:

- (a) Higher than normal Sea Surface Temperatures in the central and Eastern Pacific Ocean (El-Nino conditions) and;
- (b) Higher than normal Sea Surface Temperatures in the Western Indian Ocean (Positive Indian Ocean Dipole (IOD))

## 1.2 Spatial distribution of total OND Seasonal Rainfall

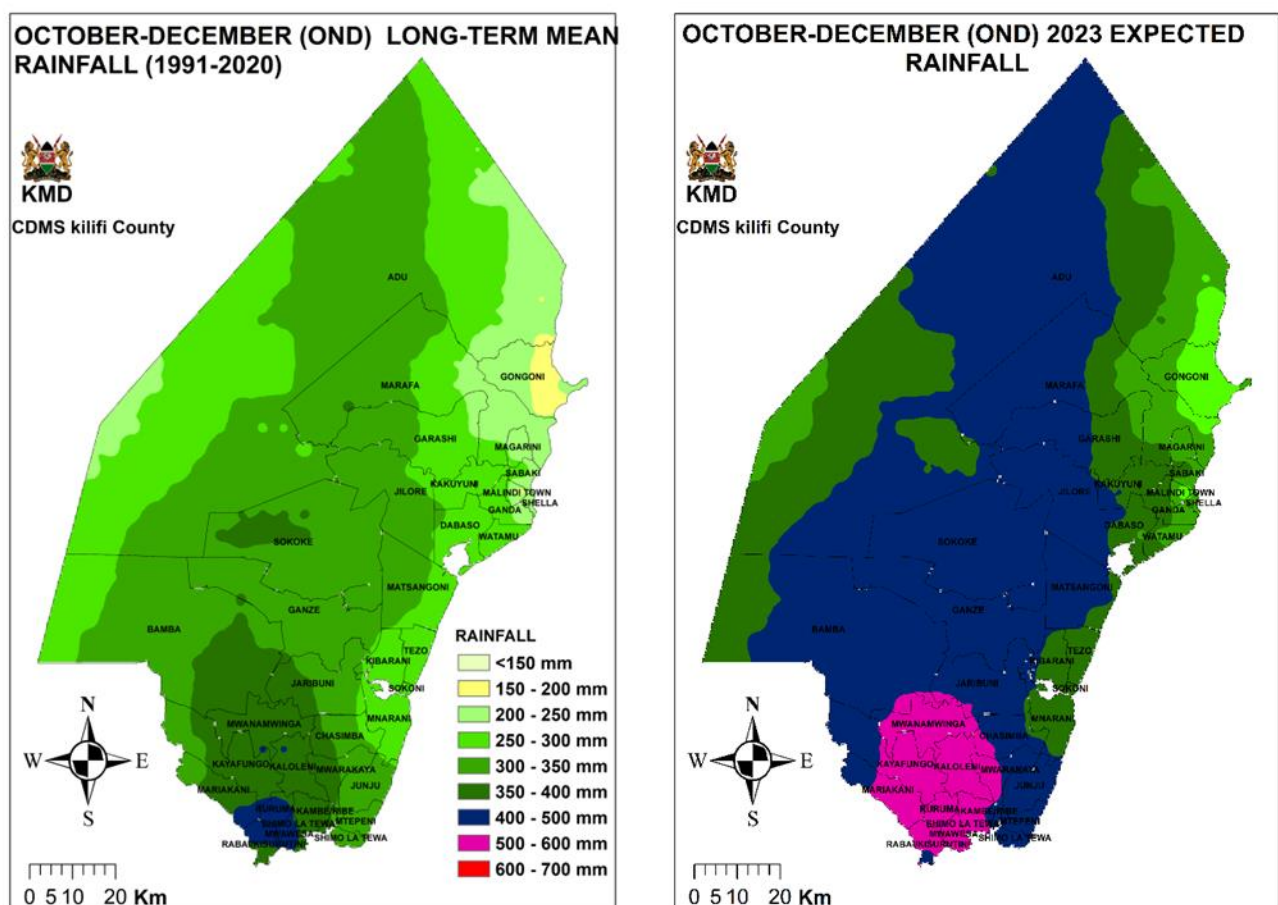


Figure 1. Compares the Long-Term Average OND rainfall for Kilifi to the OND-2023 total rainfall forecast

### 1.3 OND 2023 Seasonal Rainfall Forecast by Ward

Sub-county	Ward	NORMAL (LONG TERM MEAN 1991- 2020)	FORECAST FOR OND 2023	PRABABLE ONSET DATES	PROBABLE CESSATION DATES
Magarini	Marafa (Bomani, Madina, Mambrui, Marikebuni)	200 - 350 mm	290 - 340 mm	Between 1st - 14th October 2023	Between 10th - 24th January 2023
	Marafa (Dakacha, Mwambani)	200 - 350 mm	350 - 450 mm		
	Magarini	200 - 250 mm	300 - 350 mm		
	Gongoni	200 - 250 mm	250 - 320 mm		
	Adu ( Kisiki, Makongeni, Matolani, Medina)	240-320 mm	300 – 450 mm		
	Adu (Kamale, Marereni, Ramada, Kadzandini)	240-320 mm	290 – 300 mm		
	Garashi	200 - 350 mm	320 - 450 mm		
Kilifi South	Junju	300 - 350 mm	400 - 480 mm		
	Mwarakaya	300 - 380 mm	400 - 520 mm		
	Chasimba	280 - 370 mm	370 - 500 mm		
	Mtepeni	300 - 350 mm	400 - 500 mm		
	Shimo La Tewa	300 - 350 mm	400 - 500 mm		
Kilifi North	Matsangoni	280 - 320 mm	390 - 450 mm		
	Watamu	250 - 290 mm	300 - 360 mm		
	Mnarani	250 -290 mm`	350 - 400 mm		
	Tezo	250 -290 mm`	350 - 400 mm		
	Sokoni	250 - 290 mm	350 - 400 mm		
	Dabaso	270 - 300 mm	350 - 420 mm		
	Kibarani	270 - 300 mm	350 - 400 mm		
Kaloleni	Mariakani	320 - 400 mm	400 - 550 mm		
	Kayafungo	320 - 400 mm	400 - 550 mm		
	Kaloleni	350 - 400 mm	450 - 550 mm		
	Mwana mwinga	350 - 400 mm	450 - 530 mm		
Malindi	Sabaki	220 - 270 mm	300 - 360 mm		
	Jilore	280 - 300 mm	400 - 450 mm		
	Kakuyuni	250 - 300 mm	350 - 400 mm		
	Ganda	240 - 300 mm	320 - 390 mm		
	Malindi Town	200 - 280 mm	250 - 350 mm		
Ganze	Sokoke	300 - 360 mm	400 - 450 mm		
	Ganze	300 - 380 mm	400 - 450 mm		
	Jaribuni	290 - 360 mm	400 - 480 mm		
	Bamba	320 - 370 mm	360 - 480 mm		
Rabai	Rabai	350 - 420 mm	450 - 580 mm		
	Kambe/Ribe	350 - 400 mm	450 - 550 mm		
	Ruruma	350 - 410 mm	500 - 570 mm		
	Mwawesa	380 - 420 mm	500 - 580 mm		

## 2 OND 2023 Agro-Weather Advisories

### 2.1 General Responsibilities

- Farmers to implement the advisories
- Agricultural Officers to advise farmers
- Input suppliers to ensure inputs are available on time
- Community Extension Volunteers to advise farmers
- Kenya Met Department to provide weather updates (weekly, other)
- Agriculture, Livestock and Fisheries development
- Insurance companies

### 2.2 General Farm Activities

- Early land preparation: before 21<sup>st</sup> October
- Repair of soil and water conservation structures: Terraces, Zai Pits, Basins
- Repair of water storage structures: Desilting of farm ponds, weirs, water tanks, water pans, Gutters
- Practices: Conservation Agriculture (CA): Ripping, Planting stations.
- Pre-germination (seed soaking); Seed preparation
- Scale up manure and fertilizer application (basal & top dressing)
- Timely weed control
- Timely and proper pests and disease control.
- Proper spacing of crops
- Plant ecologically suitable certified seeds as indicated above
- Pitting for fruits and forest Trees

### 2.3 When to Plant

- Plant when the **weekly forecast** indicates enough rainfall. This onset week should be around the predicted seasonal onset dates.

## 2.4 Specific agro-weather Advisories for the Magarini Sub-County

Crops to plant	Ward (Probable OND 2023 amount)	Ward (Probable OND 2023 amount)
	<b>Marafa</b> [Bomani, Madina, Mambrui, Marikebuni]; <b>(290-340 mm)</b> <b>Gongoni</b> <b>(250-320 mm)</b> <b>Adu</b> [Kamale, Marereni, Ramada, Kadzandini] <b>(290-300 mm)</b>	<b>Marafa Ward</b> [Dakacha, Mwambani] <b>(350-400 mm)</b> <b>Magarini Ward</b> <b>(300-350 mm)</b> <b>Sabaki Ward</b> <b>(300-360 mm)</b> <b>Garashi Ward</b> <b>(320-450 mm)</b>
Crop type	Proposed varieties	Proposed varieties
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43	Same crops
2. Cow Peas	Kenkunde, M66	Same crops
3. Green Grams	KS20, N26	Same crops
4. Simsim	Black (Sarada)	Same crops
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22	Same crops
6. Cassava	Tajirika	Same crops
7. Pumpkins	Elgon cream, Cushaw green striped	Same crops
8. Sweet Potatoes	Mtwapa 8	Same crops
9. Sorghum	Gaddam, Serena, Seredo	Same crops
10. Millets	Finger millet, Pearl Millet	Same crops

## 2.5 Specific agro-weather Advisories for Kilifi South Sub-County

Crops to plant	Ward (Probable OND 2023 amount):
	<b>Junju (400-480 mm); Mwarakaya (400-520 mm); Chasimba (370-500 mm); Mtepeni (400-500 mm); Shimo La Tewa (400-500 mm)</b>
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43
2. Cow Peas	Kenkunde, M66
3. Green Grams	KS20, N26
4. Simsim	Black (Sarada)
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22
6. Cassava	Tajirika
7. Pumpkins	Elgon cream, Cushaw green striped
8. Sweet Potatoes	Mtwapa 8
9. Sorghum	Gaddam, Serena, Seredo
10. Millets	Finger millet, Pearl Millet

## 2.6 Specific agro-weather Advisories for Kilifi North Sub-County

Crops to plant	Ward (Probable OND 2023 amount):  Matsangoni (390-450 mm); Watamu (300-360); Mnarani (350-400 mm); Tezo (350-400 mm); Sokoni (350-400 mm); Dabaso (350-420 mm); Kibarani (350-400 mm)
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43
2. Cow Peas	Kenkunde, M66
3. Green Grams	KS20, N26
4. Simsim	Black (Sarada)
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22
6. Cassava	Tajirika
7. Pumpkins	Elgon cream, Cushaw green striped
8. Sweet Potatoes	Mtwapa 8
9. Sorghum	Gaddam, Serena, Seredo
10. Millets	Finger millet, Pearl Millet

## 2.7 Specific agro-weather Advisories for Kaloleni Sub-County

Crops to plant	Wards: Mariakani, Kayafungo, Kaloleni, Mwana Mwinga Probable OND 2023 amount: <b>400-550 mm</b>
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43
2. Cow Peas	Kenkunde, M66
3. Green Grams	KS20, N26
4. Simsim	Black (Sarada)
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22
6. Cassava	Tajirika
7. Pumpkins	Elgon cream, Cushaw green striped
8. Sweet Potatoes	Mtwapa 8
9. Sorghum	Gaddam, Serena, Seredo
10. Millets	Finger millet, Pearl Millet

## 2.8 Specific agro-weather Advisories for Malindi Sub-County

Crops to plant	Ward: Malindi Town Probable OND 2023 amount: 250 – 350 mm	Jilore (400-450 mm); Kakuyuni (350-400 mm); Ganda (320-390 mm);
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43	Same crops
2. Cow Peas	Kenkunde, M66	Same crops
3. Green Grams	KS20, N26	Same crops
4. Simsim	Black (Sarada)	Same crops
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22	Same crops
6. Cassava	Tajirika	Same crops
7. Pumpkins	Elgon cream, Cushaw green striped	Same crops
8. Sweet Potatoes	Mtwapa 8	Same crops
9. Sorghum	Gaddam, Serena, Seredo	Same crops
10. Millets	Finger millet, Pearl Millet	Same crops

## 2.9 Specific agro-weather Advisories for Ganze Sub-County

Crops to plant	Ward (Probable OND 2023 amount):  Sokoke, Ganze, Jaribuni (400-450 mm); Bamba (360-480 mm)
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43
2. Cow Peas	Kenkunde, M66
3. Green Grams	KS20, N26
4. Simsim	Black (Sarada)
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22
6. Cassava	Tajirika
7. Pumpkins	Elgon cream, Cushaw green striped
8. Sweet Potatoes	Mtwapa 8
9. Sorghum	Gaddam, Serena, Seredo
10. Millets	Finger millet, Pearl Millet

## 2.10 Specific agro-weather Advisories for Rabai Sub-County

Crops to plant	Ward (Probable OND 2023 amount): Rabai (450-580 mm); Kambe/Ribe (450-550 mm); Ruruma (500-570 mm); Mwawesa (500-580 mm)
1. Maize	PH1, DHO2-4, DK8031/DK8033, DK777, Aminika, Tsavo, Duma 43
2. Cow Peas	Kenkunde, M66
3. Green Grams	KS20, N26
4. Simsim	Black (Sarada)
5. Sunflower	Kenya Shaba H-008, Kenya Fedha H-894, Rekard kensun22
6. Cassava	Tajirika
7. Pumpkins	Elgon cream, Cushaw green striped
8. Sweet Potatoes	Mtwapa 8
9. Sorghum	Gaddam, Serena, Seredo
10. Millets	Finger millet, Pearl Millet

## 2.11 General Analysis of Hazards/Risks and Opportunities (agriculture)

Hazards /risks	Opportunities	Proposed actions
<ul style="list-style-type: none"> <li>• Moderate floods (flash floods)</li> <li>• Soil erosion</li> <li>• Isolated incidences of water logging</li> <li>• Outbreak of crop pests and diseases</li> <li>• Leaching of nutrients</li> <li>• False on-set of rains</li> <li>• Poor germination and loss seeds</li> <li>• Destruction of farm structures</li> <li>• Low land productivity</li> <li>• Low crop yields</li> <li>• Loss of inputs and poor crop establishment</li> <li>• Food insecurity and poor farm incomes</li> </ul>	<ul style="list-style-type: none"> <li>• Maximizing yields and income through planting recommended varieties</li> <li>• Increased area under crop and farm forest cover</li> <li>• Water harvesting for crop production and household use</li> <li>• Availing of certified farm inputs by agro-dealers</li> <li>• Kitchen gardening</li> <li>• Insuring of crops against</li> </ul>	<ul style="list-style-type: none"> <li>• Establish new and Repair existing soil and water conservation structures and farm facility structures</li> <li>• Staggered planting</li> <li>• Timely procurement of inputs</li> <li>• Embrace Integrated Pest Management and Integrated Crop Management</li> <li>• Procurement of crop insurance</li> </ul>



### 3 Specific advisories for Livestock farmers

Recommended Actions	Hazard/Risks	Opportunities	RESPONSIBLE
<b>✓ Pastures/fodder to be established</b> <ul style="list-style-type: none"> <li>• Panicum maximum (Mbwea)</li> <li>• Chloris Roxburghiana (Kilili)</li> <li>• Bracharia species</li> <li>• Pennisetum species</li> <li>• Cencrus ciliaris</li> <li>• Sorghum Fodder</li> <li>• Sudan grass</li> <li>• Eragrostis Superba (Mbeetwa)</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock diseases, Parasites infestation, Poor pasture and fodder establishment</li> <li>• Inadequate pasture and fodder</li> <li>• Reduced milk production</li> <li>• Low birth rates</li> <li>• Poor body condition</li> <li>• Low prices of animals</li> <li>• Reduced water availability</li> <li>• Reduced household income</li> </ul>	<ul style="list-style-type: none"> <li>• Feed Conservation</li> <li>• Breed improvement-for adaptable breeds</li> <li>• Value addition</li> <li>• Water harvesting and storage</li> <li>• Increase of small stock number</li> <li>• Breed improvement-for adaptable breeds</li> <li>• Value addition</li> <li>• Water harvesting and storage</li> <li>• Increase of small stock number</li> <li>• Feed Conservation</li> </ul>	Farmers  WLPO  Community Extension Volunteers,  Inputs suppliers  Service providers
<b>✓ General actions</b> <ul style="list-style-type: none"> <li>• Ration feeding/Paddock/conservative feeding</li> <li>• Destocking for appropriate carrying capacity.</li> <li>• Adopt Home feed formulations.</li> <li>• Breed management</li> <li>• Rehabilitation of Existing and establishment of new water harvesting structures</li> <li>• Bush management for pasture improvement</li> <li>• Deworming</li> <li>• Tick control</li> <li>• Vaccinate the animals against weather related diseases</li> <li>• Proper housing for livestock protection.</li> <li>• Timely harvesting and preservation of pastures and fodder</li> <li>• Rehabilitation of fish ponds</li> <li>• Restocking of fish ponds.</li> </ul>			

### 4 Advisories for Other Livelihood Sectors

SECTOR	Impact	Hazards/ Risk	Opportunity	Intervention/Actions	Responsible
Water resources	Plenty of water that should be harvested	Inadequate water infrastructures Flash flood	Water harvesting & conservation	Water harvesting structures e.g., dams, ponds, water tanks	Dept of water and development partners
Disaster management	El Nino related disasters likely to happen	Likelihood of El Nino phenomenon to persist	Leverage on salvaged produce	Emergency /contingency plans	National Drought Management Authority, NGOs,Governments,Faith Based Organization, County Governments
Wildlife /forestry	Reduced Human /wildlife conflict	Loss of wildlife	Conservation and strict protection of the current biodiversity	Human /wildlife conflict minimization through budgetary allocation for compensation, electric fencing,	KWS National & County Government Farmers

SECTOR	Impact	Hazards/ Risk	Opportunity	Intervention/Actions	Responsible
				surveillance and enforcement, Afforestation programs	
Trade, industry and finance	commodity price increase Reduced per capita incomes	Flooded roads, post-harvest losses	Prudent utilization of current food reserves, Importation of essential food commodities	Subsidized trader Reduced credit interests	Dept of Trade, Business Community, National & County Government
Energy	Energy infrastructure network collapse	Electrocution, Temporary blackouts	Maintenance of KPLC infrastructures, Investment on alternative energy sources	Allocate emergency funds, develop response and maintenance plans	Kenya Power
	Power outages	Short-circuiting	Energy saving	Alternative supply e.g., solar, generators	Kenya Power
	Increased cost of Energy	Reduced electric energy generation (hydro-power)  Infrastructure destruction	Increased use if electrical energy	Power rationing, Subsidies on solar power equipment	
Transport /communication	Poor transport & communication networks	Flash floods	Room for water harvesting	Diversion channels Emergency funds /personnel, declogging of culverts	Dept of Transport, NTSA, National Government, County Government
Health & Nutrition	Increased Food security Increased disease burden	Reduced Malnutrition, reduced food deficient related ailments Water-borne disease outbreaks Increased in vector borne diseases	Leverage on Nutrition, Increase food supplements for young children and the elderly Water treatment Disease vector controls	Emergency /mobile clinic, Increase Health personnel, Enhanced public health activities, Prepositioning of drugs in health facilities	Ministry Of Health, Private Hospitals, Stakeholders
Education	Disruptions of education due to flooding, Increased school drop outs	Poor school infrastructure Flooding in schools Use of schools as rescue centers	Initiation of School feeding Program Repair of school infrastructure	Early warning and preparedness	Dept of Education, NGOs, Faith Based Organizations, Parents

## 5 How to get Weather Updates

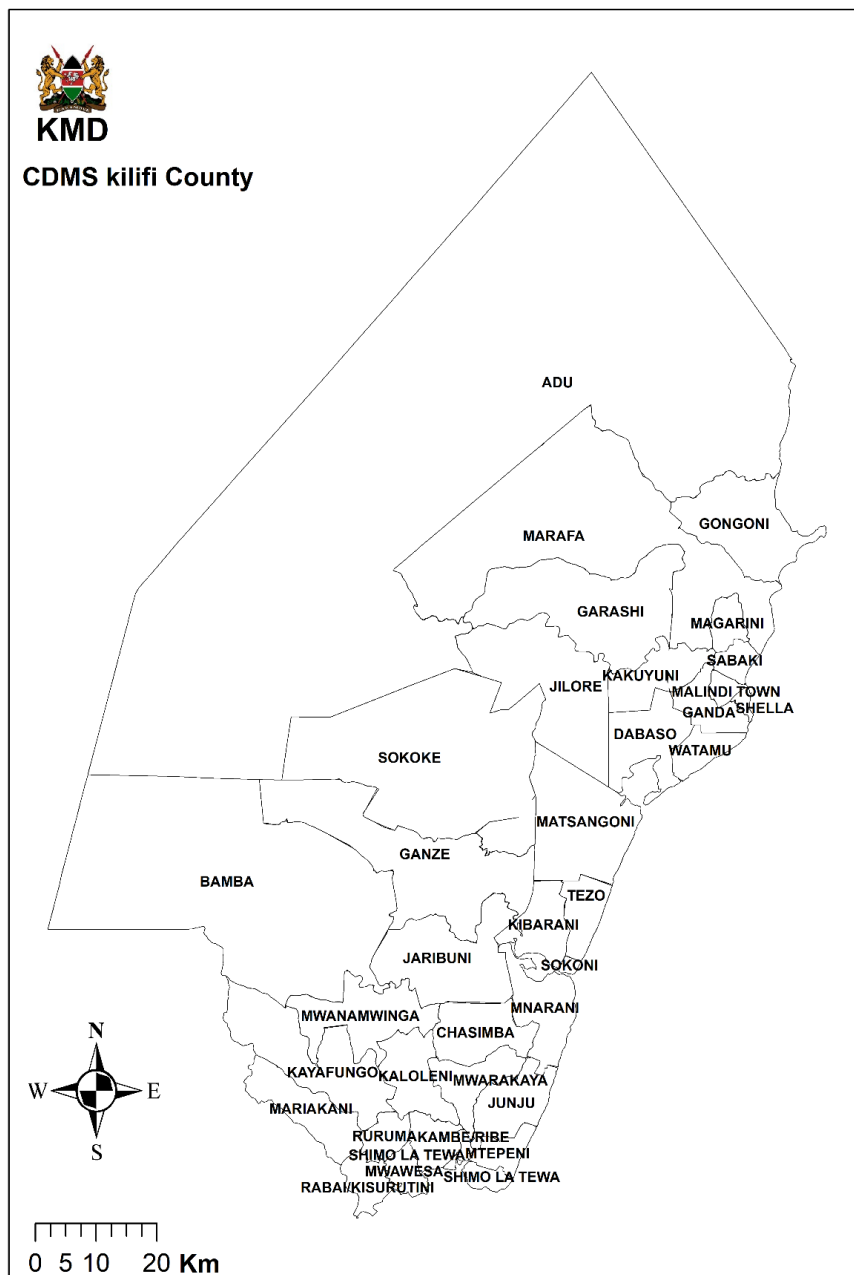
You can get weekly weather updates from the Counties folder in the KMD Website <https://meteo.go.ke/node/4292> and SMS messages every Monday evening or early Tuesday morning.

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*For More information Contact, the Nearest Agric Office: Ward, Sub County & County-Kilifi.*

**Kilifi County Meteorological Office mobile 0746423989**

## 6 Kilifi Wards Map



## 7 Annex 1: Review of Previous Season (MAM 2023)

### 7.1 Highlights

- Above normal rainfall observed in MAM 2023 with good spatial distribution and temporal distribution as shown in Figures 2 - 3 and
- Table 1 below.
- Rainfall onset was however delayed occurring between 29<sup>th</sup> March – 19<sup>th</sup> April 2023.
- Cessation occurred in May in few areas but most areas had late cessation into June and even in others, the rains continued into July and August (see Figure 3 and
- Table 1 below).
- MAM 2023 was generally a good season for crop production.

### 7.2 MAM 2023 Rainfall Vs LTM

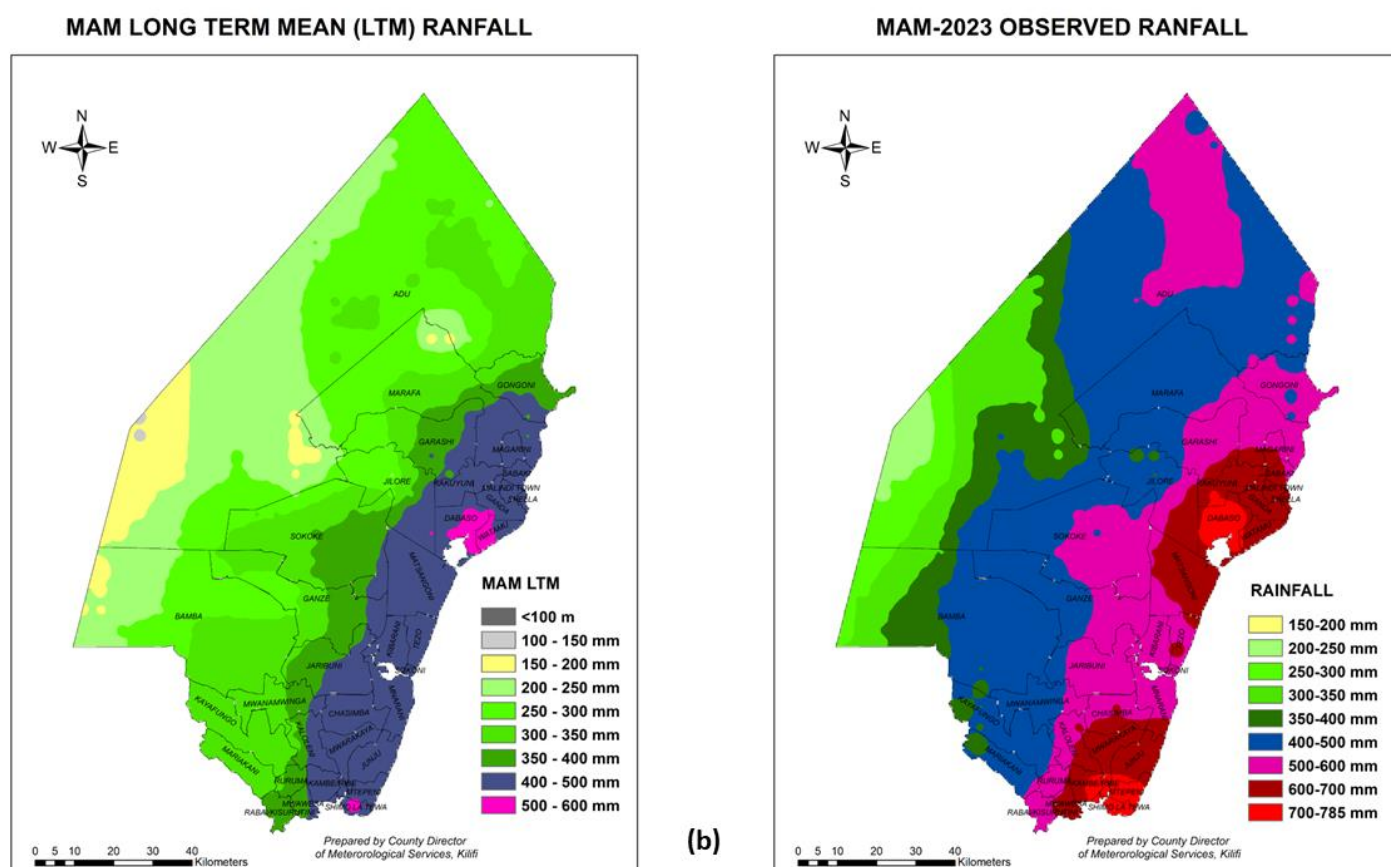


Figure 2. Long Term Mean rainfall (1991-2020) for March-April-May (MAM) season (a); and observed MAM-2023 rainfall (b).

### 7.3 MAM 2023 Cumulative Rainfall curves

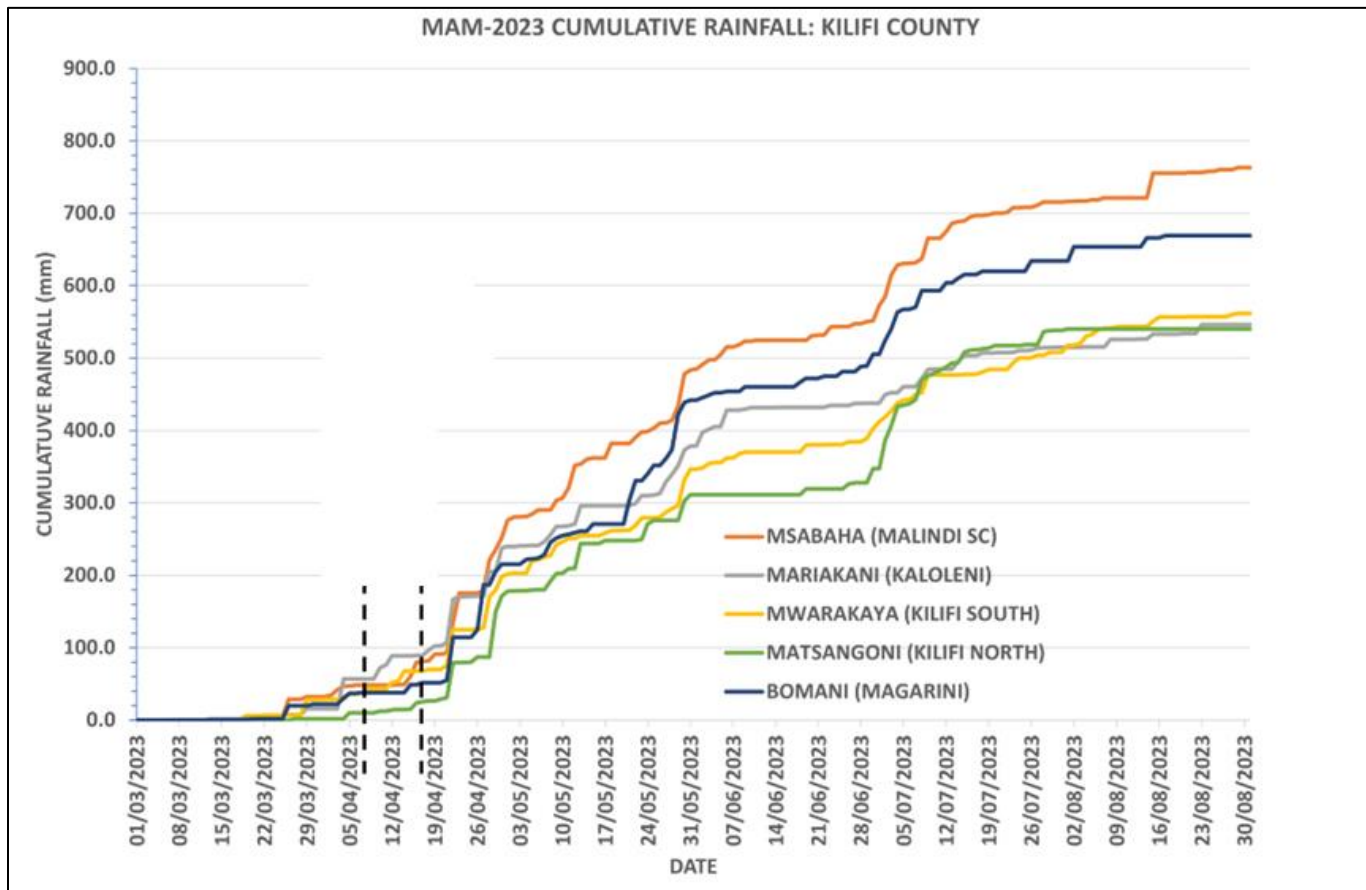


Figure 3. MAM 2023 rainfall cumulative curves for Selected Stations in Kilifi showing distribution was generally good.

**7.4 Table 1. Weekly rainfall totals by Ward as a further indicator of the distribution of rainfall**

	Mariakani	Dzitsoni	Matsangoni	Magarini	Mtepeni	Gongoni	Mwana-mwinga	Kakoneni	Kanyangwa	Mwarakaya	Mtwapa	Msabaha	Malindi
<i>WEEK1(27 Feb- 5 Mar 2023)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>WEEK2 (6-12 Mar 2023)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>WEEK3(13-19 Mar 2023)</i>	0	0	0	1.2	0	0	0	0	0	6	0	0	0
<i>WEEK4(20-26 Mar 2023)</i>	6.9	4.2	0	18.3	7.8	13.1	7.5	0	11.6	0.2	7.6	28	11.9
<i>WEEK5(27 Mar-2 Apr 2023)</i>	8	0.7	2	2.3	58.1	0	0	64.2	1	21.4	65.9	5.7	11.2
<i>WEEK6(3-9 Apr 2023)</i>	41.2	10.3	8	16.5	29.13	52.4	11.9	14.5	19.6	14.8	26.6	6.1	7.5
<i>WEEK7(10-16 Apr 2023)</i>	31.5	25.1	13	10.6	33.5	14.3	16.7	29.2	19.2	23.8	53.3	31.3	15.9
<i>WEEK8(17-23 Apr 2023)</i>	81.5	88.3	55.3	65.6	181.26	81.1	55	41.8	50.3	56.8	153.4	95.8	69.4
<i>WEEK9(24-30 Apr 2023)</i>	66.4	123.5	90.8	100.9	122.09	91.8	45.2	163.4	105.6	73.8	109	76.4	101.7
<i>WEEK10(1-7 May 2023)</i>	7.8	29.5	8.1	13.3	22.35	20	50.1	7.3	13.3	27	42	38.1	58.2
<i>WEEK11(8-14 May 2023)</i>	49.4	33.1	63.9	32.5	82	23.6	13.9	23.8	48.5	29.4	69.3	70.4	76.9
<i>WEEK12(15-21 May 2023)</i>	0	47.4	3.7	42.5	17	63.3	0	0	16.2	7	17.4	21.4	27.6
<i>WEEK13(22-28 May 2023)</i>	43	15	27.6	48.2	49.06	54	39.3	14.5	17	29.8	40	31.5	32.5
<i>WEEK14(29 May-4 June 2023)</i>	66	0	35.4	0	80.11	35.3	7.1	39.1	106.5	63.8	141.3	83.8	62.9
<i>WEEK15(5-11 June 2023)</i>	26.3	0	0	0	0	0.5	37.3	8.3	11.4	14.2	41	26.8	18
<i>WEEK16(12-18 June 2023)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.6
<i>WEEK17 (19-25 June 2023)</i>	2.3	0	7.6	0	0	0	0	7.2	11.5	10.4	21.6	18.2	11.5
<i>Seasonal Totals (mm)</i>	<b>430.3</b>	<b>377.1</b>	<b>315.4</b>	<b>351.9</b>	<b>682.4</b>	<b>449.4</b>	<b>284</b>	<b>413.3</b>	<b>Continued to July</b>				
<i>Length of rain period(days)</i>	<b>70</b>	<b>49</b>	<b>49</b>	<b>56</b>	<b>70</b>	<b>63</b>	<b>63</b>	<b>77</b>	<b>Continued to July</b>				

**KEY**

	Onset week
	Cessation week