



REPUBLIC OF KENYA

MINISTRY OF ENVIRONMENT AND MINERAL RESOURCES

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Ref. No. Met/ 7/23

Date: 29th May 2009

REVIEW OF RAINFALL DURING THE “LONG RAINS” (MARCH TO MAY) 2009 SEASON AND THE OUTLOOK FOR THE JUNE-JULY-AUGUST (JJA) 2009 PERIOD

SUMMARY

The “Long Rains” (March to May) season in 2009 has ended over most parts of the country. As per the prediction, the performance of the season over most parts of the country was generally poor. This poor performance was depicted both in terms of amounts and distribution (both in time and space) of the rainfall especially over the northern, coastal and southeastern parts of the country. Most meteorological stations in these areas recorded rainfall that was below 60 percent of the Long-Term Means (LTMs) of March to May. However, stations like Voi (in southeastern lowlands) and Wajir (in northeastern areas) managed to record slightly over 70% of their seasonal LTMs rainfall in less than 5 days. Despite a late onset of the season, the western parts of the country recorded significant rainfall amounts that were also well distributed and resulted to floods and even loss of lives and destruction of property in some areas like the Kano plains in Lake Victoria Basin.

The climate outlook for June-July-August (JJA) 2009 season indicates that the Western highlands (Kericho, Kisumu, Kakamega, Kisii, Kitale, Eldoret), Central Rift Valley (Narok, Nakuru, Nyahururu) and north coast (Malindi, Lamu etc) are likely to receive near normal rainfall with a tendency to below normal while slightly enhanced rainfall is likely to be experienced over south coast (Mombasa, Mtwapa, Matuga, Kwale etc) especially in the first half of the forecast period. The central highlands including Nairobi area will experience cool, cloudy and drizzly conditions. Fairly low temperatures are expected to be experienced in Central Rift Valley (Narok, Nakuru, Nyahururu, Timboroa) and parts of the highlands west of the Rift Valley (Kericho and Eldoret).

1. REVIEW OF “LONG RAINS” (MARCH-MAY) 2009 SEASONAL RAINFALL

The “Long Rains” (March-April-May) 2009 rainfall season has ceased over most parts of the country. An assessment of the rainfall recorded from 1 March to 31 May 2009 (*Figure 1a-1c*) indicates that the rainfall performance was poor over most parts of the country. The poor performance was reflected both in the amounts received and the distribution in time and space. The total rainfall amounts received over most of the country were below 75% of the Long-Term Means (LTMs). The northern, coastal and southeastern districts recorded the most depressed rainfall. Most stations recorded less than 60 percent of their LTMs. Marsabit station in the north for example recorded just 9 percent of its LTM, while Garissa, Mandera and Lodwar stations recorded 18, 30 and 33 percent of their LTMs respectively. Along the Coastal strip, Mombasa recorded the highest percentage of 34 while over the southeastern lowlands Makindu and Machakos recorded 27 and 46 percent respectively. Most stations along the coastal strip recorded very low rainfall amounts during the month of May despite the fact that this is normally the peak rainfall month in the region during the “Long Rains” season

(Figure 1 c). All the stations recorded less than 53 percent of their LTMs during the month with Mombasa recording the lowest (31 percent).

Localized and short-lived intense rainfall occurred in some areas such as Voi (in southeastern lowlands) and Wajir (in the northeastern areas), and contributed significantly to the seasonal rainfall totals. Voi, for example, was pounded by a heavy downpour on 8th April 2009 resulting in 131.3mm on that single day. The two stations managed to record rainfall totals that were 99 and 71 percent of their LTMs in less than 5 days.

The rainfall analysis shows that well distributed and significant rainfall amounts were recorded over the western highlands despite a late onset of the season. Localized areas of the central highlands including Nairobi area also received near normal rainfall amounts.

Kisii Meteorological station recorded the highest rainfall amount of 776.5mm which was 114% of the LTM. This was followed by Kakamega, Kisumu, Kericho, Embu, and Kitale stations with 575.4mm (85%), 445.4mm (82%), 434.7mm (64%), 420.8mm (74%) and 418.3mm (95%) respectively. In terms of percentages of the LTMs, Kisii station still recorded the highest percent of 114 while Nakuru, Voi, Kitale, Moi Airbase (Eastleigh), Kakamega, Kisumu, Eldoret, Embu, Thika and Wajir recorded 103%, 99%, 95%, 86%, 85%, 82%, 77%, 74%, 72% and 71% respectively. The rest of the stations recorded less than 70%. (Figure 1d).

2. EXPERIENCED IMPACTS

The poor rainfall performance experienced over most parts of the country impacted negatively on various sectors such as agriculture and livestock, disaster management and health among others. These impacts included:

- Poor crop performance in the southeastern lowlands, eastern highlands, central Rift Valley and parts of western highlands;
- Poor pasture conditions continued in pastoral areas due to depressed rainfall;
- Outbreak of cholera was reported in some parts of the country in April;
- Signs of water stress and diminishing pastures for livestock were observed over northeastern districts and southern Rift Valley (Narok) as a result of the poor rainfall performance; and
- Rainfall deficits in the catchment area of Tana River in the central highlands affected the water levels in the Seven-Forks hydroelectric power generation dams.

On the other hand, heavy rainfall that was experienced in some areas resulted in some flash floods. The flash floods led to displacement of families reported over parts of Turkana, Voi in the southeastern lowlands, Mtwapa and Malindi along the Coastal strip and Nyakach, Nyando and Nyatike in the Lake Victoria basin. At least ten people were reported dead in Turkana and Nyanza Provinces and nearly 1,000 people were rendered homeless due to the floods;

3. FORECAST FOR JUNE-JULY-AUGUST 2009

This climate outlook for June to August 2009 is based on regression of sea surface temperatures (SSTs), Sea Surface Temperature (SST) gradients and the expected evolution of global SST patterns as well as upper air circulations patterns on Kenyan rainfall. The expected performance is also based on statistical analysis of past years, whose characteristics were found to be similar to this year.

During June to August (JJA) season rainfall is normally pronounced over the western and coastal parts of the country (**Figure 2**). The forecast for June to August 2009 indicates that the Western highlands, Lake Basin, central Rift Valley and Northern Coast are likely to receive near-normal rainfall with a tendency towards below normal (slightly depressed rainfall), while southern coast is expected to receive slightly enhanced rainfall. The rest of the country is still expected to be generally dry (**Figure 3**). Most areas in the Central Highlands and Nairobi area are expected to experience cool and cloudy conditions with occasional drizzles or light rains. The specific outlooks for individual areas are as follows:

The Western Highlands (*Kitale, Kericho, Nandi, Eldoret, Kakamega, Bungoma, Butere/Mumias, Vihiga etc*); **Lake Basin** (*Kisumu, Nyando, Kisii, Busia*); **Central Rift Valley** (*Nakuru, Narok, Kajiado, Ol Kalao, Nyahururu*) and **Northern Coast** (*Malindi, Lamu etc*) are likely to receive near-normal rainfall tending to below normal (slightly depressed) rainfall.

The Southern Coast (*Mombasa, Mtwapa, Msabaha etc*) is likely to receive near-normal rainfall with a slight tendency to above normal (slightly enhanced) rainfall.

Central Highlands (*Kiambu, Nyeri, Embu, Meru, Murang'a*); **Nairobi Area** (*Dagoretti, Kabete, Wilson, Jomo Kenyatta International Airport, Eastleigh etc*); **will experience cool and cloudy conditions with occasional light rains. Occasional prolonged hours of overcast skies (cloudy conditions) resulting cold and chilly conditions are expected.**

Northwestern (*Lodwar, Lokichoggio, Lokitaung, North Horr*); **Southeastern lowlands** (*Machakos, Makindu, Kitui, Mwingi, Kibwezi, Voi, Taveta*) and **Northeastern Kenya** (*Wajir, Mandera, Garissa, Moyale, Marsabit, Isiolo, Garbatulla*) are expected to remain generally dry throughout the period.

4. POTENTIAL IMPACTS EXPECTED

The following are the expected impacts during the coming season:

4.1 Agriculture and Food Security Sector

- Save for the western highlands, Lake Basin and parts of central Rift Valley, chances of crop rejuvenation are very low in most other areas considering the fact that the crop performance was already poor during the March-May rainfall season; and
- Poor pasture conditions and limited water resources for livestock are expected to persist over the Arid and Semi-Arid Lands (ASALs). Contingency measures ought to be put in place to sustain livestock keeping and also minimize conflicts. A slight improvement in crop performance, availability of pasture and water for livestock is likely to occur in southern Rift Valley areas of Narok and parts of Kajiado where we expect near normal rainfall is expected.

4.2 Disaster Management Sector

- Problems related to limited pasture and water scarcity are likely to get worse for the pastoral communities. There is also potential for Human-wildlife and community to community conflicts over the limited resources in these areas. Close monitoring of the situation and contingency measures are necessary in order to adequately cope with the situation;
- Famine is expected to persist in areas where there was rainfall failure such as Garissa, Marsabit, Voi, Makindu, Laikipia, and Samburu etc. Relief food and rehabilitation plans should therefore be sustained;
- There is always a tendency for people to close all windows and light jikos to keep themselves warm during very chilly conditions in June-July-August. This should be avoided since the burning charcoal produces a poisonous gas called Carbon Monoxide that suffocates and even kills.

4.3 Health Sector

In areas expected to experience low temperatures like Nairobi, Central highlands, Central Rift Valley and parts of the highlands west of the Rift Valley, cases of respiratory diseases like asthma, pneumonia and common colds (flu) may be on the increase. Supply of drugs to combat these diseases is necessary and people are encouraged to adopt a warmer dress code.

4.4 Transport and Public Safety

Chilly, foggy and drizzly weather may lead to poor visibility and slippery roads in areas like Nairobi, Central Province and parts of Rift Valley. Such weather conditions are also likely to affect the aviation and road transport sectors. Motorists and pilots are advised to take care in order to minimize accidents. Occasionally, planes may be diverted from JKIA to other airports during cases of thick fog at the time of landing.

4.5 Water Resources Management and the Energy Sectors

The “Long Rains” were not sufficient to fill the dams for power generation and for domestic use. The situation may deteriorate during the coming months considering that June-September is generally a dry period over most of central highlands including Nairobi. Rationing of power and water may, therefore be inevitable.

4.6 Environment

The dry conditions especially in the Arid and Semi Arid Lands (ASALs) combined with relatively strong winds will enhance potential for forest fires. Pollution mainly resulting from erosion by strong winds is likely to reduce visibility in the ASALs and affect small aircrafts flying in low levels, especially over Garissa and Marsabit areas where the low level jet steams have their core.

N.B: This forecast should be used in conjunction with the daily 24-hour forecast issued by this Department. Monthly and weekly updates are also available.

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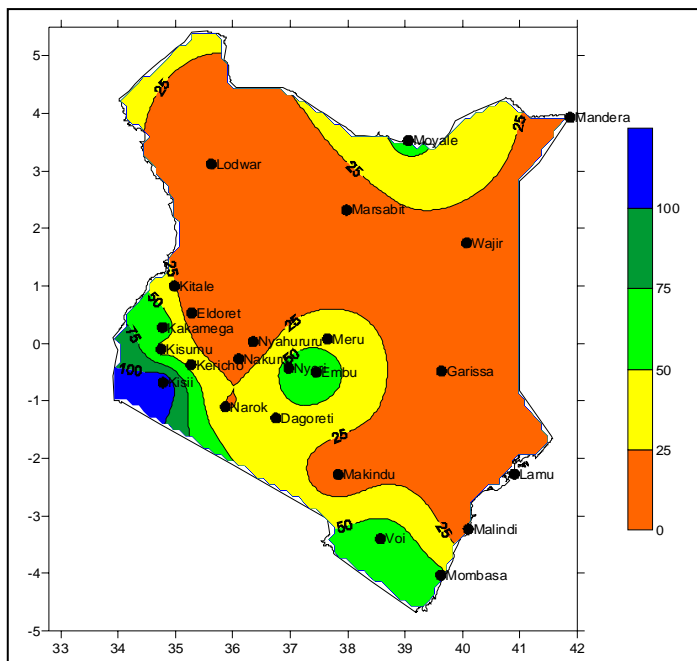


Figure 1a: %March 2009 Rainfall Performance

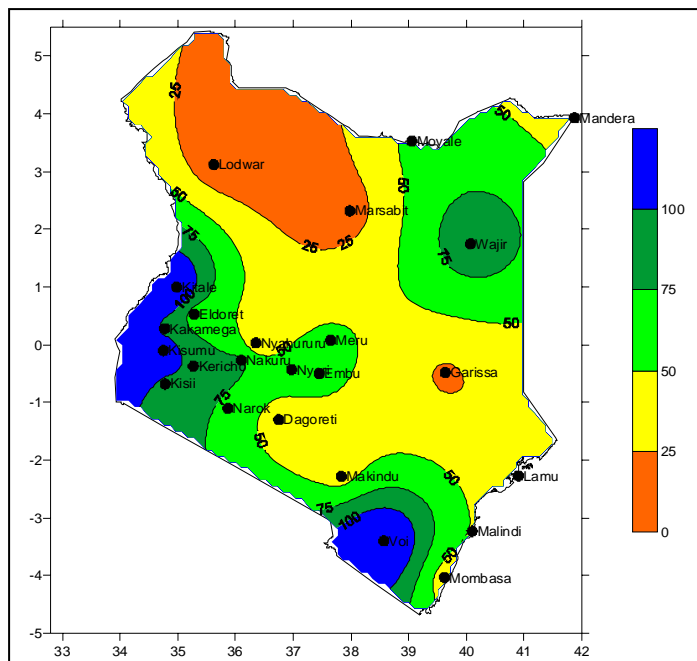


Figure 1b: %April 2009 Rainfall Performance

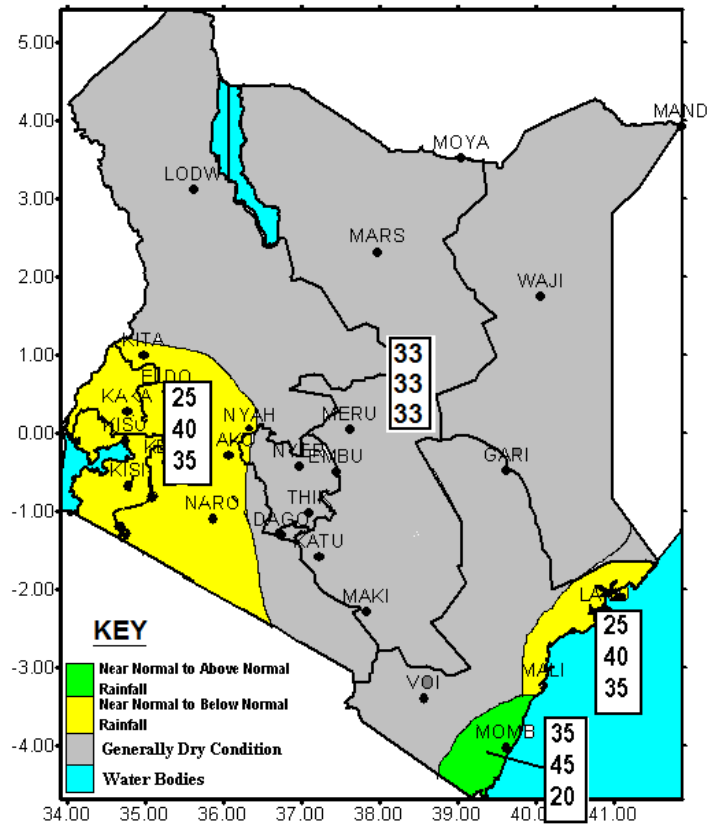


FIGURE 3: JUNE-JULY-AUGUST 2009 RAINFALL OUTLOOK