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MINISTRY OF ENVIRONMENT & FORESTRY
KENYA METEOROLOGICAL DEPARTMENT**

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REF. NO: KMD/FCST/3-2018/MO/04

Date: 27th March, 2018

**WEATHER REVIEW FOR MARCH AND THE OUTLOOK FOR
APRIL 2018**

1. HIGHLIGHTS

1.1 Weather Review for March 2018

In March 2018, enhanced rainfall, characterized by heavy storms, was recorded over several parts of the country especially the South-eastern, Western, Central Highlands including Nairobi and parts of Northern Kenya (Marsabit). The heavy rainfall resulted into isolated cases of flooding and loss of life and property. Some areas along the Coastal Strip (Malindi, Msabaha), however, recorded depressed rainfall (less than 75 percent of their seasonal Long-Term Means (LTMs)).

The onset of the March-May 2018 "long-rains" seasonal rainfall was well within the predicted period of the third week of March. However, several parts of the country started receiving rainfall as early as the beginning of March. This was as a result of the impacts of tropical storms Dumazile and Eliakim coupled with the 2nd phase of the Madden-Julian Oscillation (MJO) that is normally conducive for good rainfall in Kenya.

1.2 The forecast for April 2018

April marks the peak month of the "Long Rains" season in Kenya. The outlook for April 2018 indicates that several parts of the country are likely to experience enhanced rainfall that may be characterized by heavy storms especially over Western, North-western, Central and parts of South-eastern. Generally depressed rainfall is expected over parts of the Coast and North-eastern Kenya. The rainfall is likely to be poorly distributed, both in time and space.

2. REVIEW OF THE WEATHER DURING MARCH 2018

The month of March marks the onset of the March-May "long-rains" season in the country. During March 2018, most parts of the country recorded highly enhanced rainfall that was characterized by heavy storms. This was more so in Western, Central including Nairobi, South-eastern and North-eastern Kenya. Siakago rainfall station in Embu County, for example, recorded 182.6mm on 25th March while Mrangi Primary School station in Taita Taveta County recorded 138.0mm on 16th March 2018. Other high daily rainfall amounts during the month include 97.8mm at Iten rainfall station on 14th March, 94.9mm at Busia Ministry of Water Rainfall Station on 14th March, 91.2mm at Kitui Meteorological Station on 25th March, 86.5mm at Alupe Kalro station (in western Kenya) on 18th March and 86.1mm at Makindu Meteorological station on 1st March.

Malindi and Msabaha stations along the Coastal strip, however, recorded depressed rainfall (less than 75 percent of their LTMs). The stations recorded 53 and 60 percent of their March LTMs respectively.

Up to 28th March, Makindu station recorded the highest monthly rainfall total amount of 384.6mm (582%), as compared to its March LTM rainfall of 66.1mm. Kisii, Wilson, Narok, Dagoretti Corner and Meru stations recorded 322.6mm (165%), 289.1mm (318%), 268.5mm (276%), 260.3mm (268%) and 249.8mm (239%) respectively. Embu, Moi Airbase (Easleigh), Voi, Jomo Kenyatta International Airport, Kitale and Kakamega stations recorded between 200 and 250mm while the rest of the stations recorded less than 200mm.

Figure 1a shows the total amount of rainfall recorded in March 2018 (**the green bars**) as compared to the LTMs - **the red bars**) while **Figure 2** depicts the spatial distribution.

3. CONTRIBUTION OF MARCH 2018 RAINFALL TO THE MAM 2018 SEASON

The rainfall recorded during March 2018 contributed significantly to the MAM 2018 seasonal totals. Analysis indicates that the rainfall amounts at most stations were more than 33 (one-third) percent of their seasonal LTMs. Makindu station, for example, recorded more than twice the amount recorded during the entire MAM season. The station recorded 205% of its MAM seasonal LTM while Voi, Garissa and Narok stations recorded 119%, 110% and 80% respectively. Nyahururu, Machakos, Laikipia Airbase, Wilson Airport, Jomo Kenyatta International Airport, Wajir, Moi Airbase (Easleigh), Eldoret (Kapsoya), Meru and Dagoretti Corner stations recorded between 50 and 75 percent of their MAM seasonal LTMs.

Figure 1b shows the total amount of rainfall recorded in March 2018 (**the green bars**) as compared to the March-April-May (MAM) LTMs - **the red bars**).

4. SEA SURFACE TEMPERATURE ANOMALY PATTERNS AND THE ITCZ

During this period, near-average to warmer than average Sea Surface Temperatures (SSTs) dominated over western equatorial Indian Ocean (along the East African Coast) while average to cooler than the average SSTs over the eastern equatorial Indian Ocean (adjacent to Australia). This pattern presented a positive phase of the Indian Ocean Dipole (IOD) that is normally conducive for rainfall over most parts of the country. Models show persistence of a positive phase of the IOD through to the second quarter of year 2018. The zonal arm of the rain-bearing Inter-Tropical Convergence Zone (ITCZ) was mainly over central and northern Tanzania, occasional shifting to southern western Kenya. The meridional arm was well situated in western Kenya, occasionally shifting to the central parts of Kenya. This together with the 2nd phase of the Madden-Julian Oscillation (MJO) contributed significantly to the rainfall received over much of the country.

5. EXPERIENCED IMPACTS

- In the pastoral areas of Rift Valley, pasture for livestock improved significantly as a result of the good rains experienced in these regions;
- There were cases of flooding that claimed some lives in some parts of western, South Eastern, Northwestern, Central, Nairobi and Northeastern Kenya as a result of heavy rainfall episodes;
- The heavy rains caused Athi River to break its banks and submerged Mto wa Mawe (Stoni Athi) bridge leading to the temporary closure of the busy Nairobi-Mombasa highway;
- The Heavy rainfall also led to flash floods that disrupted transport along the Mai Mahiu-Narok road.

6. FORECAST FOR APRIL 2018

April marks the peak month of the “Long Rains” season. The rainfall forecast for April 2018 is based on regression of Sea Surface Temperature Anomalies (SSTAs) on Kenyan rainfall and the expected evolution of global SST patterns. The forecast indicates that several parts of the country are likely to experience enhanced rainfall that may be characterized by heavy storms over areas in Western,

Northwestern, Central and parts of Southeastern. Generally depressed rainfall is, however, expected over parts of the Coastal region and some parts of Northeastern Kenya. The rainfall in these areas is likely to be poorly distributed, both in time and space. **Figure 3** shows the expected rainfall performance during April 2018. The detailed forecast is as follows:

The Northwestern Kenya (Lodwar, Lokichoggio, Lokitaung), Western highlands and the Lake Victoria basin (Kericho, Kakamega, Kisumu, Kisii, Eldoret, Kitale, Elgon, etc), Central Rift Valley (Nakuru, Narok, Kajiado), Central Highlands and Nairobi (Embu, Nyeri, Meru, Murang'a, Kiambu, Dagoretti, etc), most of Southeastern Kenya (Machakos, Kitui, Makeni, Kangundo, Makindu, Voi, Taita, Taveta) and the Northern parts of Kenya (Moyale, Marsabit, Wajir) are likely to experience near normal rainfall with a tendency to above normal (enhanced rainfall);

Parts of Northeastern Kenya (Isiolo, Garissa etc) and the entire Coastal Strip (Mombasa, Mtwapa, Malindi, Msabaha, Lamu, Kilifi) are likely to experience near normal rainfall with a tendency to below normal (generally depressed rainfall).

7. POTENTIAL IMPACTS

- Good crop performance is expected in most agricultural areas of the country due to the expected good rainfall performance. Farmers should therefore take advantage of the good rains and apply the appropriate farming methods in order to maximize on crop yield.
- Pasture for livestock is likely to improve in the pastoral areas.
- Chances of flooding are still high especially in the riparian and low-lying areas including urban centers. Cases of lightning strikes are also highly probable especially in western Kenya. Landslides/mudslides are very likely over prone areas in central highlands (Murang'a, Meru, among others) as well as western and Rift Valley. Contingency measures should therefore be put in place to avoid any loss of life and property.
- The Seven-Forks power generating dams are expected to experience good inflows due to the expected enhanced rainfall in the catchment areas.
- In areas forecasted to experience enhanced rainfall, water-borne diseases are likely to be on the increase. The expected flooding in various parts of the country is conducive for mosquito breeding. This is expected to lead to malaria outbreak. The Ministry of Public Health is therefore encouraged to map out possible outbreak areas and to intensify surveillance of such diseases.

NB: This forecast should be used in conjunction with regular updates issued by this Department.

Mr. Peter Ambenje

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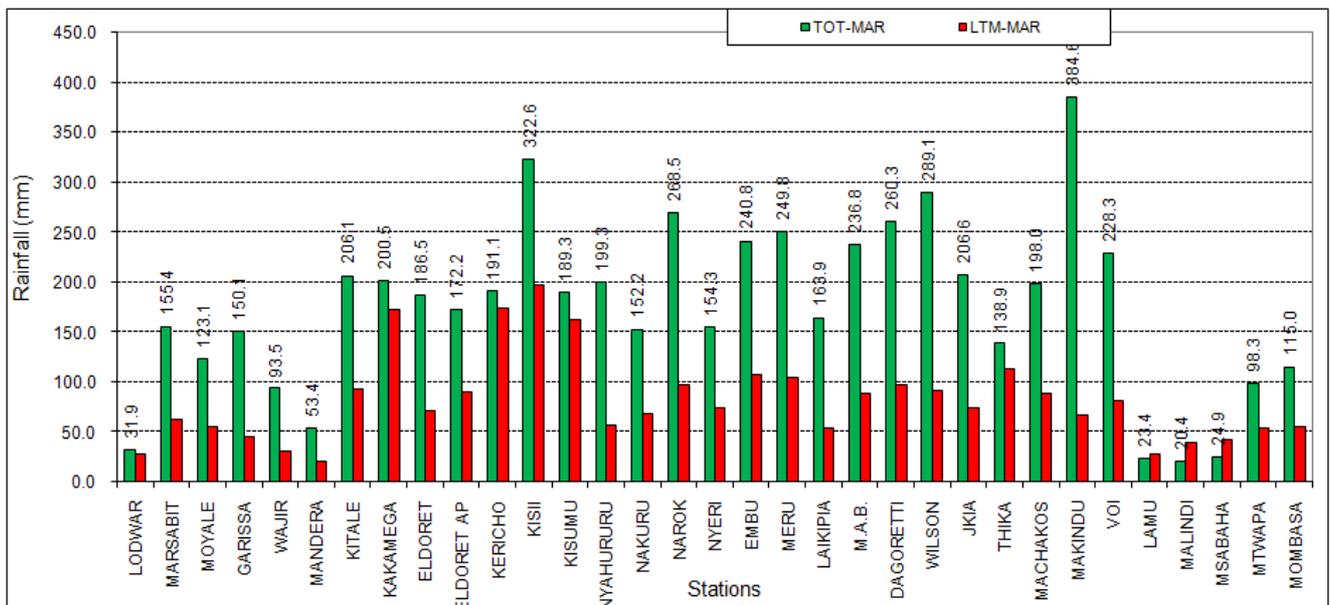


FIGURE 1A: MARCH 2018 RAINFALL COMPARED TO THE MARCH LTMS

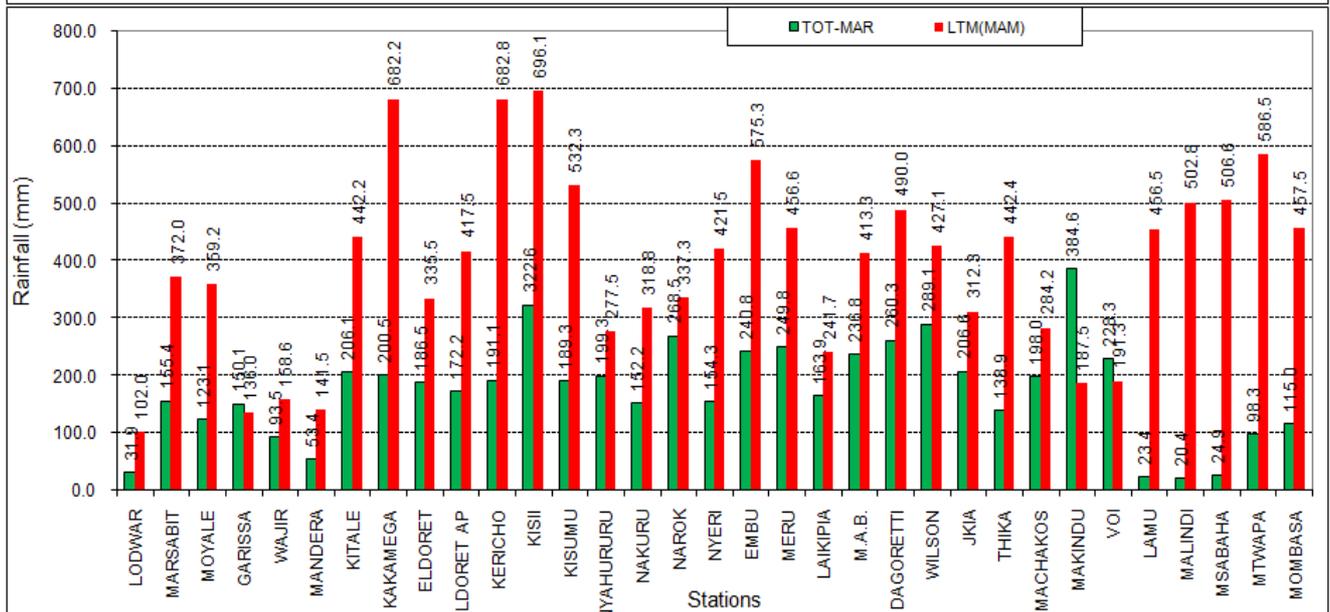


FIGURE 1B: MARCH 2018 RAINFALL COMPARED TO THE MAM LTMS

