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MINISTRY OF ENVIRONMENT & FORESTRY
KENYA METEOROLOGICAL DEPARTMENT

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DATE: 30TH APRIL 2018

WEATHER REVIEW FOR APRIL AND THE OUTLOOK FOR MAY 2018

1. HIGHLIGHTS

1.1 WEATHER REVIEW FOR APRIL 2018

In April 2018, enhanced rainfall, characterized by heavy storms, was recorded over several parts of North-eastern, the Lake Victoria Basin, Highlands West of the Rift Valley, the Central and South Rift Valley as well as the Central Highlands (including Nairobi). The North-western, the South-eastern Lowlands and the Coast recorded light to moderate rainfall at the beginning of the month. The heavy rainfall, which led to several cases of flooding and loss of property, resulted from the impacts of the rain-bearing Inter-Tropical Convergence Zone (ITCZ), tropical storm Fakir coupled with the influence of a favourable Madden-Julian Oscillation (MJO). This situation led to generally improved rainfall over most parts of Kenya. Rainfall analysis from 1st March to 26th April 2018 indicates that so far the seasonal rainfall already received is generally enhanced over most parts of the country.

1.2 THE FORECAST FOR MAY 2018

The outlook for May 2018 indicates that several parts of Western and Central Kenya are likely to experience generally enhanced rainfall. Counties in the Coastal region, few Counties in Northern, Southern and Central Rift Valley, few counties in Eastern Region are likely to receive near-average rainfall. South-eastern and North-eastern region counties are expected to receive slightly depressed rainfall. May marks the cessation of the "Long Rains" season for the North-western, North-eastern and South-eastern parts of the country, Southern parts of Central Rift Valley (Narok, Kajiado, and Magadi) and the Central regions including Nairobi.

2. RAINFALL REVIEW

a) REVIEW OF RAINFALL PERFORMANCE DURING APRIL 2018

April marks the peak of the Long Rains (March-April-May) season. The month began with heavy rainfall being recorded in some parts of Northeastern, the Lake Victoria Basin, highlands west of the Rift Valley, the Central and South Rift Valley as well as the Central Highlands (including Nairobi). The Northwestern, the Southeastern Lowlands and the Coast recorded light to moderate rainfall at the beginning of the month. However, as the month progressed several parts of the country continued to receive rainfall that has led many areas achieving more than 100% of their Long Term Means for April as shown in **Figure 1a and 1b**. Some of these areas include Garissa (352.3%), Lodwar (275.7%), Laikipia (259.6%), Eldoret Kapsoya (225.9%), Nakuru (224.6%), Makindu (215.9%), Eldoret Airport (215.8%), Narok (212.7%), Kakamega (211.9%), Embu (205.8%) and Marsabit (204.4%).

The Coastal region has generally received low rainfall for much of the month but heavy storms occurred towards the end of the month allowing Msabaha and Malindi to achieve near-normal rainfall while Lamu recorded above-normal rains. By 29th April, only Mombasa recorded below-normal rains having achieved only 59.4% of its LTM for the month.

Various parts of the country were pounded by heavy rains. Some of the areas that received more than 100mm of rainfall within 24 hours include: Marsabit (151.8mm on 13th), Garissa (125.3mm on 16th), Moi Air Base

(103.5mm on 23rd), Kitui (163.9 on 7th & 119.7mm on 23rd), Kangema (158.0mm on 27th) and Tuthu in Muranga County (108.4mm on 27th).

b) MARCH-MAY SEASONAL RAINFALL PERFORMANCE UP TO 26TH APRIL 2018

Analysis of March-May 2018 seasonal rainfall indicates that most meteorological stations in the country have received near-normal to above-normal rainfall well ahead of the cessation of the Long Rains. Some of the stations that have surpassed their March-April-May long term means include: Makindu (318.1%), Garissa (307.5%), Laikipia (190.9%), Marsabit (172.9%), Narok (171.7%), Wajir (168.5%), Lodwar (166.6%), Voi (161.1%), Meru (158.2%), Eldoret (150.8%), Embu (150.0%), JKIA (142.9%), Machakos (140.9%), Nakuru (140.6%), Wilson (140.0%) and Moi Air Base (125.1%). Stations that are within the near-normal range include Eldoret Airport, Mandera, Thika, Kitale, Nyahururu, Dagoretti, Kakamega, Nyeri, Moyale, Kisii, Kericho and Kisumu. Coastal stations remain within the below-normal range i.e.: Lamu (55.1%), Mtwapa (55.0%), Mombasa (45.5%), Msabaha (34.8%) and Malindi (28.9%) as depicted in **Figure 2a and 2b**.

3. SYNOPTIC CONDITIONS IN MARCH AND APRIL 2018

During the last four weeks, equatorial SSTs were above average in the western Pacific. SSTs were below average in the eastern Indian Ocean and the east-central and eastern Pacific. Near-average to warmer than average SST conditions dominated western sides of equatorial Indian Ocean. This pattern has presented a positive phase of the Indian Ocean Dipole (IOD). Models show persistence of a positive phase of the IOD through to the second quarter of year 2018. Neutral SSTs prevailed over the northwestern Indian Ocean adjacent to the Horn of Africa. These temperature patterns were not conducive for rainfall over the eastern sector of the country. Both the Meridional and Zonal arm of the rain-bearing Inter-Tropical Convergence Zone (ITCZ) were mainly diffuse over Western and Central Kenya, occasional shifting to Eastern Kenya. The rainfall received was also influenced by a favourable phase of the Madden-Julian Oscillation (MJO) and tropical storm *Fakir*. This situation led to generally improved rainfall over most parts of Kenya.

4. EXPERIENCED IMPACTS

- Some rivers (Tana, Ewaso Nyiro, and Nyando) burst their banks after heavy rains were experienced in the catchment areas.
- Heavy rains wreaked havoc leading to loss of lives in Makueni, Nyandarua, Tana River and Samburu counties.
- There were also mudslides reported in Nandi and Makueni Counties displacing more than 30 families. The mudslides toppled trees, demolished some houses and covered roads with a thick layer of mud, rendering most of them impassable.
- There was paralysis of transport after more than 10 vehicles were swept away by floods in Suswa along the Narok-Mai Mahiu road; traffic snarl-up in Sultan-Hamud following heavy rains and flooding that cut off the Nairobi Mombasa highway on April 22, 2018.

5. MAY 2018 FORECAST

The rainfall forecast for May 2018 is based on regression of sea surface temperatures (SSTs), SST gradients and the expected evolution of global SST patterns as well as upper air circulations patterns on Kenyan rainfall. The forecast indicates that several parts of Western and Central Kenya are likely to experience generally enhanced rainfall. Counties in the Coastal region; few Counties in Northern, Southern and Central Rift Valley; few counties in Eastern Region are likely to receive average rainfall. South-eastern and Northeastern region counties will have generally depressed rainfall. The specific outlooks for individual areas are as follows:

Most Counties in Western Kenya (Kakamega, Bungoma, Vihiga, Busia, Siaya, Kisumu, Kisii, Migori, Nyamira etc); a few counties in the Rift Valley region (Kericho, Nandi, Trans Nzoia, Uasin Gishu, Baringo, Nakuru)

and Central region (Nyandarua, Nyeri, Murang'a, Kiambu, Kirinyaga, Embu, Meru, Tharaka-Nithi), Nairobi and a few Counties in Eastern are likely to receive near-normal rainfall tending to above normal (generally enhanced rainfall) in May;

Some counties in the Coastal region (Mombasa, Kilifi, Lamu, Kwale); few Counties in Northern, Southern and Central Rift Valley (Turkana, Samburu, Laikipia, Kajiado); few counties in Eastern Region (Marsabit, Isiolo) are likely to receive near-normal rainfall (average rainfall) in May;

Some counties in Eastern Region (Kitui, Machakos, Makueni), North Eastern (Garissa, Wajir, Mandera) and parts of the Coast Province (Tana River, Taita-Taveta) are likely to receive near-normal rainfall tending to below normal (generally depressed rainfall) in May as depicted in **Figure 3**.

6. POTENTIAL IMPACTS

In the month of May 2018, the forecast climate is likely to result to improved water availability, crop and pasture conditions leading to good prospects for crop and livestock performance especially in much of the agriculturally high potential areas;

- Good crop performance is expected to continue over most parts of Kenya. The situation is however likely to improve in the agriculturally high-potential areas of Kitale, Eldoret, Kakamega, Kericho, Kisii and Nandi Hills areas, where near-average to above-average rainfall is forecast and also expected to continue into June-July-August period.
- Most of the pastoral areas of Northeastern and Northwestern Kenya are expected to experience average tending to below average rainfall. While pasture and water for livestock may be adequate from the good rains in April there maybe deterioration and scarcity towards the end of May and beyond.
- Parts of Western Kenya are likely to experience high rainfall amounts which might lead to localized flooding and associated impacts.
- Cases of lightning strikes are still probable in Western Kenya. Contingency measures should still be put in place to avoid loss of lives and destruction of property.
- The water levels in the Seven-Forks and Turkwel hydro-electric power generation dams are expected to improve slightly despite the expected near-average rainfall in the catchment areas.

7. EXPECTED CESSATION OF THE 2018 "LONG RAINS" SEASON

- The Western Kenya including parts of central Rift Valley (Nakuru, Nyahururu) and the Coastal strip are expected to continue receiving rainfall into June.
- The southern parts of Central Rift Valley (Narok, Kajiado, Magadi) and the Central regions including Nairobi are likely to experience cessation of the "Long Rains" during the third to fourth week of May.
- In the Northwestern, Northeastern and Southeastern parts of the country, the cessation is likely to occur during the first to second week of May.

NB: This forecast should be used in conjunction with regular updates as well as the daily (24-hr) forecasts issued by this Department.

PETER AMBENJE

DIRECTOR OF KENYA METEOROLOGICAL DEPARTMENT & PERMANENT REPRESENTATIVE OF KENYA WITH THE WORLD METEOROLOGICAL ORGANIZATION (WMO)

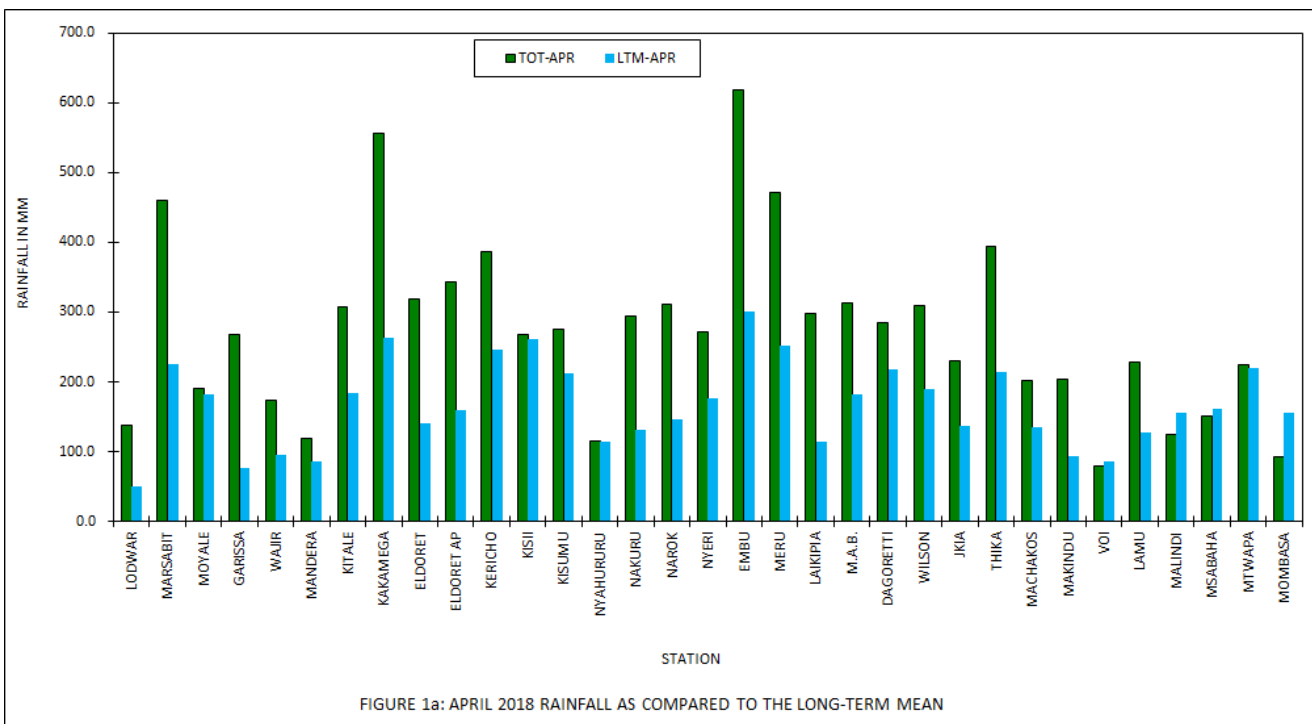
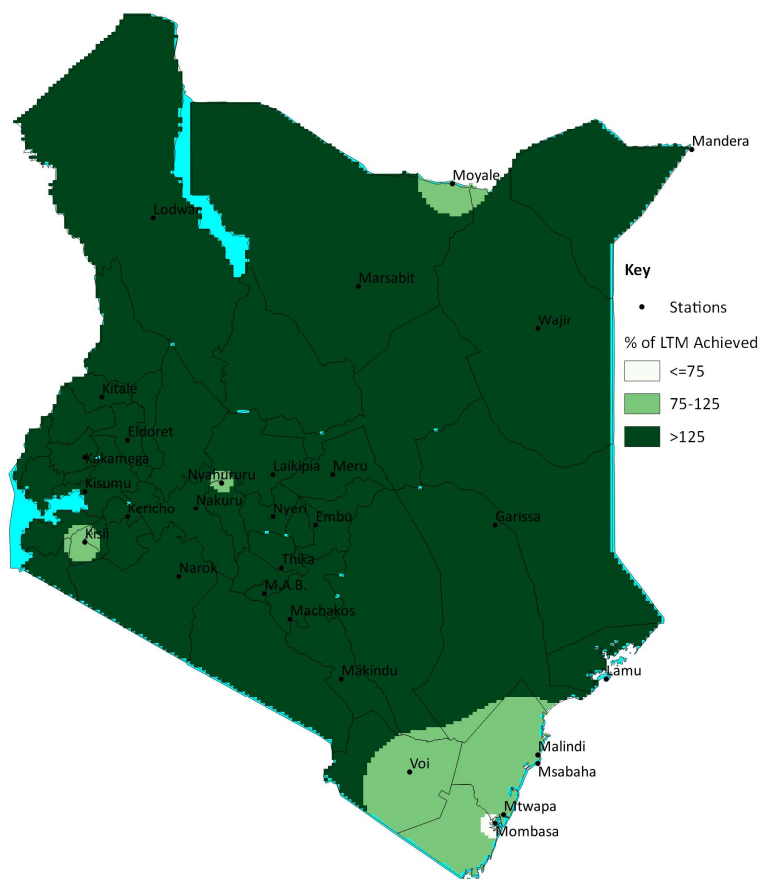


FIGURE 1b: APRIL 2018 RAINFALL AS COMPARED TO THE LONG-TERM MEANS



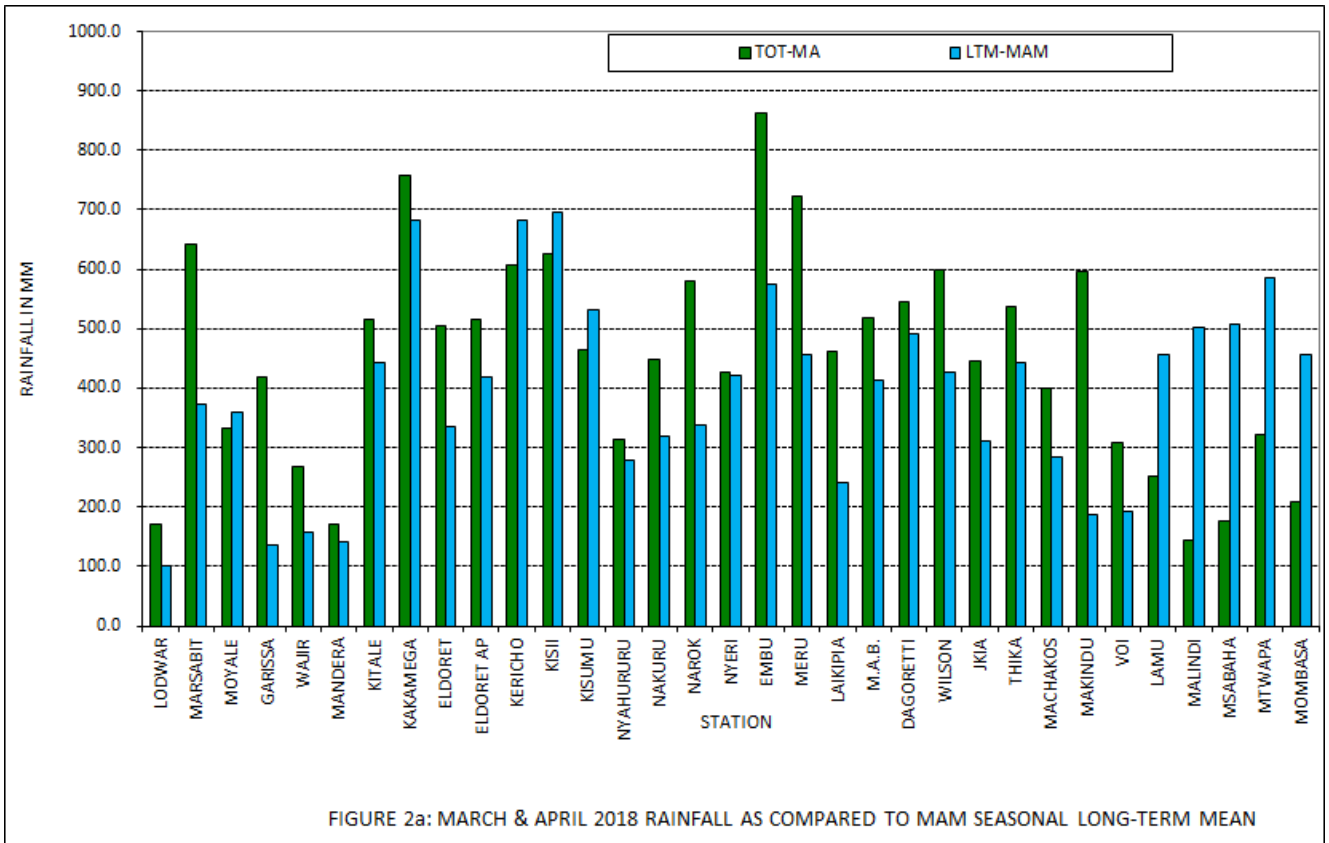
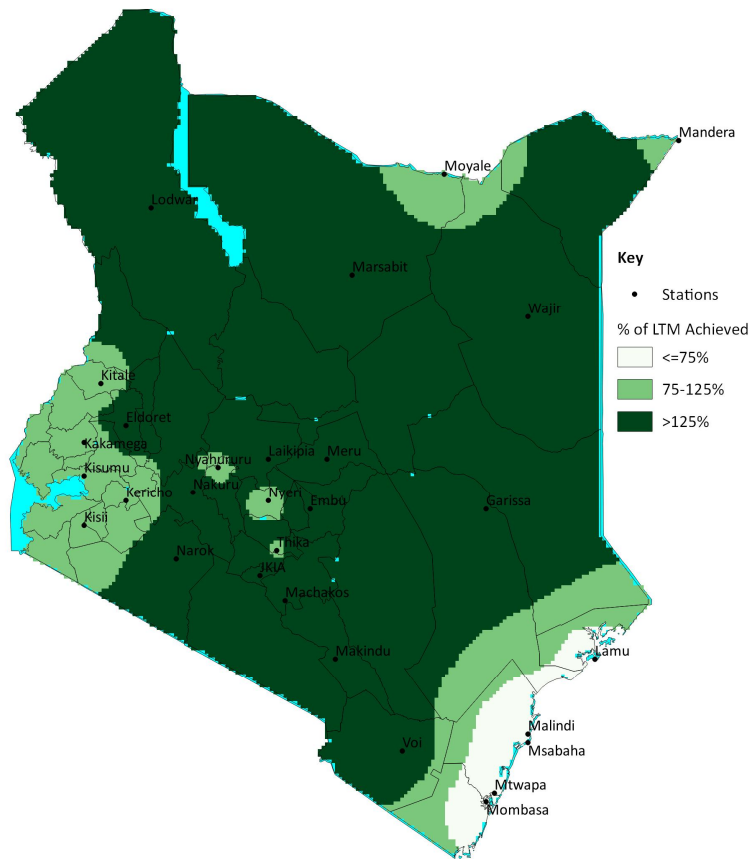


FIGURE 2a: MARCH & APRIL 2018 RAINFALL AS COMPARED TO MAM SEASONAL LONG-TERM MEAN

FIGURE 2b: MARCH & APRIL 2018 RAINFALL AS COMPARED TO MAM SEASONAL LONG-TERM MEANS



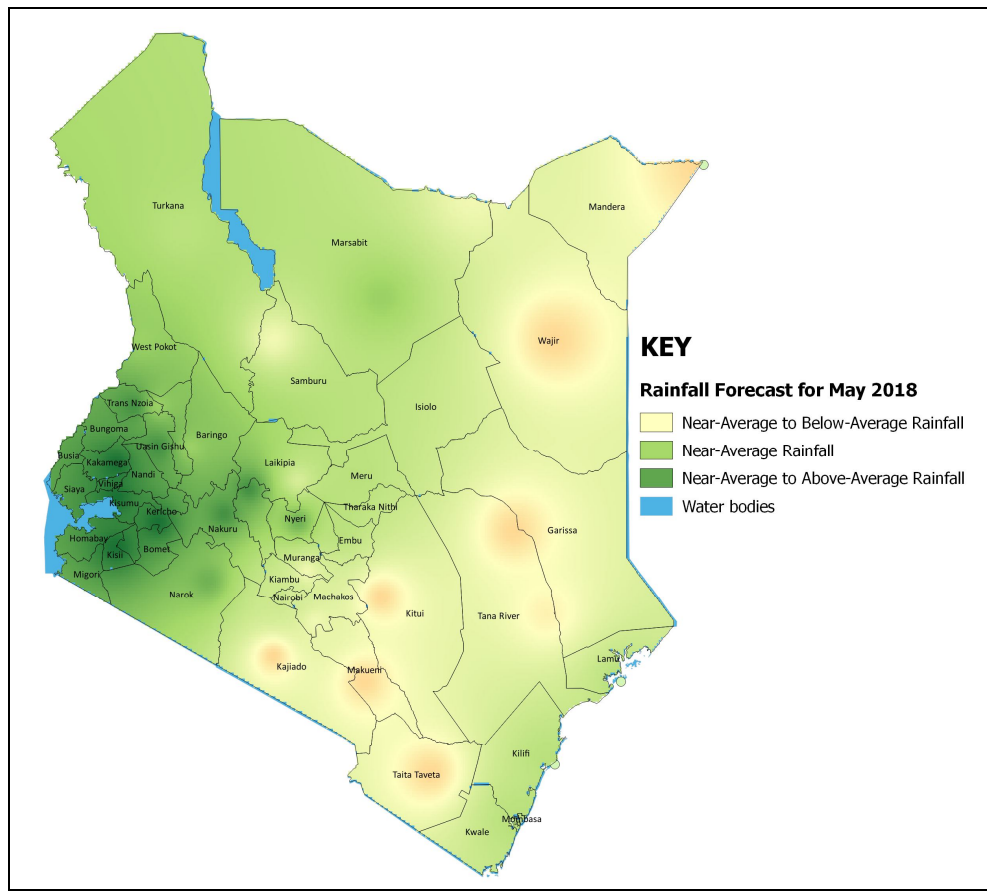


FIGURE 3: RAINFALL OUTLOOK FOR MAY 2018