THE OUTLOOK FOR MARCH 2020 AND WEATHER REVIEW FOR FEBRUARY 2020

HIGHLIGHTS

THE FORECAST FOR MARCH 2020

The outlook for March 2020 indicates that near average tending to above average rainfall is expected over Western, North Eastern, Central, and Coastal regions as well as over parts of Southeast Lowlands. North-Western Kenya is however likely to have near average rainfall. The onset of March-May 2020 “Long-Rains” seasonal rainfall is expected to begin early over most parts of the country and more so over the Eastern and Southern region. Over the Western region, the Central Highlands, the South Coast, the Southern and Central Rift Valley; and the Southeastern Lowlands the onset is expected during the first to second week of March. The rest of the country is expected to experience the onset during the third to fourth week of March.

WEATHER REVIEW FOR FEBRUARY 2020

In February, substantial amounts of rainfall were recorded over parts of Central and Western Kenya, especially, during the first week of the month. Several meteorological stations recorded rainfall that was above 125% of their February long term averages (LTMs). Makindu Meteorological Station recorded 296.1% of its monthly LTM. Other stations that recorded more than 125% are Embu, Garissa, JKIA, Kericho, Laikipia, Machakos, Marsabit, Meru, Nyeri, Nyahururu, and Thika.

Narok, Kakamega, Msabaha, Lamu, Malindi and Moyale recorded below normal rainfall (between 0 to 75% of their February LTM).
1. FORECAST FOR MARCH 2020

The rainfall forecast for March 2020 is based on regression of Sea Surface Temperature Anomalies (SSTAs) on Kenyan March rainfall as well as Sea Surface Temperature (SST) gradients. The current slightly warmer than average SSTs in the Western Equatorial Indian Ocean (adjacent to the East African Coast) coupled with neutral to warmer than average SSTs in the Central Equatorial Indian Ocean and the slightly cooler than average SSTs (adjacent to Australia) were also considered. The analogue year 1962 was used to derive the likely onset dates of the March-May seasonal rainfall as well as its distribution over various parts of the country.

*Figure 1* portrays the expected rainfall pattern in March 2020. The forecast indicates near average tending to above average rainfall is expected over Western, North Eastern, Central, and Coastal regions as well as over parts of Southeast Lowlands. North-Western Kenya is however likely to have near average rainfall especially during the beginning of the month.

1.1. SPECIFIC OUTLOOKS FOR INDIVIDUAL AREAS

1.1.1. Counties in the Lake Victoria Basin, Highlands West of the Rift Valley and Central and South Rift Valley (Siaya, Kisumu, Homa Bay, Migori, Kisii, Nyamira, Trans Nzoia, Baringo, Uasin Gishu, Elgeyo Marakwet, Nandi, Laikipia, Nakuru, Narok, Kericho, Bomet, Kakamega, Vihiga, Bungoma and Busia): Rainfall is expected to continue from February 2020 and throughout the month of March with occasional breaks. The rainfall amounts are likely to be higher than the long-term average received during the same period in other years.

1.1.2. Counties in the North-Western Region (Turkana, West Pokot and Samburu): Occasional rainfall is expected at the beginning and towards the end of the month of March. The remaining days are likely to be sunny and dry. The expected rainfall amounts are likely to be near the long-term average amounts received during the same month in other years. High temperatures (30 to 40°C) are expected to prevail in most places during the month.

1.1.3. Counties in the Highlands East of the Rift Valley and Central Kenya (Nairobi, Nyandarua, Nyeri, Kirinyaga, Murang’a, Kiambu, Meru, Embu, and Tharaka): Occasional light morning rains and afternoon/night showers are expected over several places during the beginning and towards the end of the month. The expected rainfall amounts are likely to be above the long-term average for March.

1.1.4. Counties in the North-Eastern Region (Mandera, Marsabit, Wajir, Garissa and Isiolo): Sunny and dry conditions are expected to prevail at the beginning of the month. Occasional moderate rainfall is expected over a few areas towards the end of the month when the onset begins.
1.1.5. Counties in the South-Eastern Lowlands (Kajiado, Kitui, Makueni, Machakos and Taita Taveta): Occasional rainfall is expected at the beginning and towards the end of the month. The expected rainfall amounts are likely to be higher than the long-term average amounts received in March.

1.1.6. Counties in the Coastal Strip (Mombasa, Tana River, Kilifi, Lamu and Kwale): is expected to receive occasional rainfall in March. The South Coast is likely to receive occasional rainfall throughout the month. However, mainly sunny and dry conditions are likely to prevail over the North Coast at the beginning of the month but rainfall is expected towards the end of the month. The expected rainfall amounts are likely to be higher than the long-term average amounts received in March.

1.2. EXPECTED ONSET DATES

Table 1: Expected Onset dates for the 'Long-rains” Season

<table>
<thead>
<tr>
<th>Region</th>
<th>Onset Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Counties in the Lake Basin and in Highlands West of the Rift Valley (Siaya, Kisumu, Homa Bay, Migori, Kisii, Nyamira, Trans Nzoia, Uasin Gishu, Elgeyo Marakwet, Nandi, Kericho, Bomet, Kakamega, Vihiga, Bungoma and Busia)</td>
<td>Rains are expected to continue from February 2020 with occasional breaks likely during the second week of March 2020.</td>
</tr>
<tr>
<td>2.2 Counties in the Southern parts of the Rift Valley (Narok, Kajiado)</td>
<td>Rains are expected to continue from February 2020 with occasional breaks likely during the second week of March 2020.</td>
</tr>
<tr>
<td>2.3 Counties in the Central highlands including Nairobi area (Nairobi, Nyandarua, Nyeri, Kirinyaga, Murang’a, Kiambu, Meru, Embu, and Tharaka Nithi)</td>
<td>Rainfall is expected from the 1st week of March 2020. The rainfall is however likely to break during the second week then pick up in the third and fourth week.</td>
</tr>
<tr>
<td>2.4 Counties in the Central Rift Valley (Nakuru, Baringo, Laikipia).</td>
<td>Rainfall is expected to continue from February 2020 with occasional breaks likely during the second week of March 2020.</td>
</tr>
<tr>
<td>2.5 Counties in the South-eastern Counties (Machakos, Kitui, Makueni, Taita Taveta, parts of Tana River).</td>
<td>Rainfall is expected from the 1st week of March 2020. The rainfall is however likely to break during the second week then pick up in the third and fourth week.</td>
</tr>
<tr>
<td>2.6 Counties in the Southern Coastal Strip (Mombasa, Kwale, parts of Kilifi).</td>
<td>Onset is expected in the 1st week of March 2020.</td>
</tr>
<tr>
<td>2.7 Counties in the Northern Coastal Strip (Lamu, Northern parts of Kilifi and Coastal parts of Tana River).</td>
<td>Onset is expected during the 3rd to 4th week of March 2020.</td>
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<tr>
<td>2.8 Counties in the North-western Counties (Turkana, West Pokot, Samburu)</td>
<td>Onset is expected during the 4th week of March to 1st week of April 2020. Occasional rainfall is however likely during the beginning of the month.</td>
</tr>
<tr>
<td>2.9 Counties in the Northern and North-eastern Counties (Wajir, Garissa, Isiolo, Mandera, Marsabit).</td>
<td>Onset is expected during the 3rd to 4th week of March 2020. Occasional rainfall is likely during the beginning of the month.</td>
</tr>
</tbody>
</table>

1.3. EXPECTED IMPACTS

- In the agricultural counties of Western Kenya, Nyanza, central Rift Valley, central Kenya and parts of South-Eastern Kenya where above normal rainfall performance is expected, the farming communities should take advantage of the expected rains and maximize crop yield through appropriate land-use management. Farmers are advised to liaise with the State Department of Agriculture for advice on the appropriate seeds to be used.
Food security is expected to improve over most parts of the country and more so in the Arid and Semi-Arid Lands (ASALs) of Kenya. The good rainfall performance expected in these areas may also impact positively on the livestock sector.

Cases of lightning strikes are likely in Western Kenya. Contingency measures should therefore be put in place to avoid loss of life and property.

The Seven Forks and Sondu Miriu catchment areas are expected to experience near-normal to above-normal rainfall during the coming season. It is, therefore, expected that the optimum water level in the hydroelectric power generation dams will be maintained.

2. REVIEW OF THE WEATHER DURING FEBRUARY 2020

2.1. Rainfall

In February 2020, several parts of the country received enhanced rainfall in comparison with the Long Term Means (LTMs). An analysis of rainfall up to 26th February 2020 indicates that the performance of rainfall was near the long-term average over several parts of the country. Several meteorological stations recorded rainfall that was above 125% of their February long term averages. Makindu Meteorological Station recorded 296.1% of its monthly LTM. Other stations that recorded more than 125% are Embu, Laikipia, Nyahururu, Meru, JKIA, Thika, Garissa, Nyeri, Machakos, Marsabit and Kericho. Narok, Kakamega, Msabaha, Lamu, Malindi and Moyale recorded below normal rainfall (between 0 to 75% of their February LTM) as shown in figure 2 below. Kericho station recorded the highest monthly total rainfall of 109.7mm which is 125.5% of its February Long Term Mean (87.4mm). Other stations that recorded rainfall totals of more than 60mm included Kisii (84.4mm), Makindu (83.3mm), Kisumu (80.4mm), JKIA (78.2mm), Meru (75.6mm), Matungu (61.7mm), Kabete (60.6mm), Nyeri (60.7mm), and Kakamega (60.3mm) as shown in figure 3 below.

The beginning of the month was characterized by a few isolated storms in different parts of the country. For instance, JKIA recorded 41.5mm on 1st February. On the same day, Nyahururu reported 35.6mm, Makindu reported 29.5mm, Eldoret Airport reported 29.3mm and Kabete reported 23.0mm. Moreover, Kangema reported 48.2mm on 3rd February. Generally sunny and dry weather conditions prevailed over Northwestern and Northeastern Kenya where most stations recorded between 0 and 5mm of rainfall. Wajir and Mandera met stations received no rainfall during the month.
2.2. Temperature
Most parts of the country recorded near-average daytime temperatures during the month. However, most stations in North-Western and North-Eastern Kenya and a few stations in Western and Central Highlands recorded higher than average temperatures. The highest daily maximum temperature of 40.1°C was recorded in Wajir on 25th February 2020 while the lowest daily minimum (nighttime) temperature of 5.0°C was recorded in Nyahururu on 11th February 2020. In terms of monthly averages, Wajir Meteorological Station recorded the highest average maximum temperature of 38.2°C while Nyahururu Meteorological Station recorded the lowest average minimum temperature of 8.3°C.

2.3. SEA SURFACE TEMPERATURE ANOMALY PATTERNS AND THE INTER-TROPICAL CONVERGENCE ZONE ITCZ
Neutral conditions (No El-Niño or La-Niña) were observed in the Pacific Ocean during the month of February. The SSTs over both the Eastern Equatorial Indian Ocean (adjacent to Australia) and the Western Equatorial Indian Ocean (adjacent to the East African coast) were slightly cooler than average. This constitutes a neutral Indian Ocean Dipole (IOD) that is not favorable for rainfall especially over the eastern sector of Kenya. During this period, the zonal arm of the rain bearing Inter-Tropical Convergence Zone (ITCZ) remained south in Tanzania while the meridional arm was
mainly over Congo and the Central African region but occasionally shifted to the western and central parts of the country.

2.4. EXPERIENCED IMPACTS

- The prevailing warm and dry conditions gave farmers ample time to prepare their farms in anticipation of the March-May 2020 seasonal rainfall;

- The rainfall that was experienced in the first week of February led to the displacement of 11 families in Baringo. Close to 1000 families in Nyando Constituency in Kisumu County were also displaced by floods caused by increased water levels on Lake Victoria.

- A matatu was swept away by flood waters at River Waani (Mbooni East) while a lorry was submerged in River Ivuini (Kitui County).

- Two people lost their lives due to floods in Makueni.

- Locusts continued to thrive and spread to more counties due to favorable conditions.

NB: This outlook should be used with 24-hour, 5-day, 7-day, monthly forecasts and regular updates issued by this Department. Weekly County forecasts are available from County Meteorological Offices.

Nicholas Maingi
FOR: DIRECTOR METEOROLOGICAL SERVICES