Republic of Kenya

KENYA METEOROLOGICAL DEPARTMENT

Republic of Kenya

MINISTRY OF HEALTH

MALARIA EPIDEMIC EARLY WARNING PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR MARCH 2024

Ref No: KMD/MM/3-2024

Issue Date: 04/03/2024

1. Summary

The model outputs for the malaria epidemic early prediction system for the western highlands of Kenya indicate no risk of Malaria in all the three areas in the months of March, 2024 and April, 2024

The weather observations indicate generally increase in maximum temperatures in all the three areas.

2. Model Outputs

2.1 Malaria epidemic early prediction system for Kakamega

Table 1 below shows the malaria epidemic early prediction system for Kakamega for March, 2024.

Table 1: MALARIA EPIDEMIC EARLY PREDICTION SYSTEM: KAKAMEGA

Yr.	Month	Tmax	Mean Tmax	Tmax Deviation /anomaly	R/fall (mm)	R/fall Code	Tmax Deviation /anomaly Code	Additive % Risk
2024	01	27.6	28.3	-0.7	239.5	4	0	36.4
2024	02	29.7	29.2	0.5	83.1	0	1	0.0

The observed climate data for February, 2024 indicates an increase in maximum temperature from 27.6°C in January, 2024 to 29.7°C in February, 2024. This observation in February, 2024 was positive (0.5 above the mean of the month). Rainfall decreased from 239.5mm in January,2024 to 83.1mm in February, 2024. The additive model percentage risk in February, 2024 was **Nil.**

Box 1:
For Kakamega, the epidemic threshold level is 30%.

Consequently, there is no risk of Malaria Epidemic in Kakamega in the month of March, 2024 and April, 2024(See Figure 1)

Table 2 below shows the malaria epidemic early prediction system for Kisii for March, 2024.

Table 2: MALARIA EPIDEMIC EARLY PREDICTION SYSTEM: KISII

Yr	Mon	Tmax (^{0}C)	Mean Tmax (^{0}C)	Tmin (^{0}C)	Mean Tmin (^{0}C)	Tmax Dev./ anom	Tmin Dev./ anom	Total Temp Dev./ Anom	Temp Dev./ anom Code	R/fall (mm)	R/fall Code	Model Output
2024	01	26.2	26.1	16.4	15.7	0.1	0.7	0.8	0	121.3	0	0
2024	02	29.7	27.0	16.6	16.1	2.7	0.5	3.2	4	194	0	0

The observed climate data for Kisii for February, 2024 indicates an increase in maximum temperature from 26.2°C in January, 2024 to 29.7°C in February, 2024. This observation in February, 2024 was positive (2.7°C above the mean of the month). Rainfall decreased from 121.3mm in January, 2024 to 194.0 mm in February, 2024. The Model output risk is **Nil.**

Box 2:
For Kisii, the epidemic threshold level is 20%.

Hence there is no risk of malaria epidemic in Kisii in the month of March, 2024 and April, 2024. (See Figure 2).

2.2 Malaria epidemic early prediction system for Nandi

Table 3 below shows the malaria epidemic early prediction system for Nandi for March, 2024.

Table 3: NANDI MALARIA EPIDEMIC EARLY PREDICTION SYSTEM

Yr	Mon	Tmax (^{0}C)	Mean Tmax (^{0}C)	Tmax Dev.	Tmin	Mean Tmin	Tmin Dev. /anom	Total Temp Dev. /Anom.	R/fall (mm)	Temp Dev. Filters	R/fall Filters	Multiplicative Model
2024	01	24.4	23.3	1.1	13.3	10.9	2.4	3.5	303.8	4	3	**75**
2024	02	26.4	23.2	3.2	12.5	11.7	0.8	4.0	123.8	5	0	**0.0**

The maximum temperature in Nandi indicates an increase from 24.4°C in January, 2024 to 26.4°C in February, 2024. This observation in February, 2024 for Nandi was positive (3.2°C above the mean of the month). Rainfall decreased from 303.8mm in January, 2024 to 123.8mm in February, 2024. The additive model percentage risk in February, 2024 was **Nil.**

Box 3:
For Nandi, epidemic threshold level is 20%.

Hence, there is no risk of malaria epidemic in Nandi in the month of March, 2024 and April, 2024. (See Figure 3)

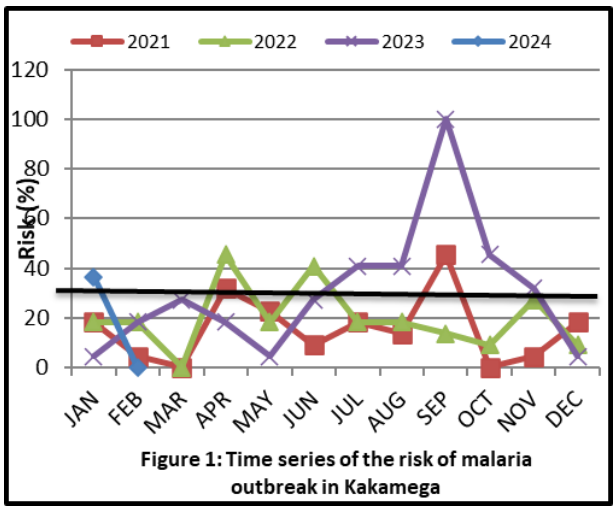

Figure 1: Time series of the risk of malaria outbreak in Kakamega

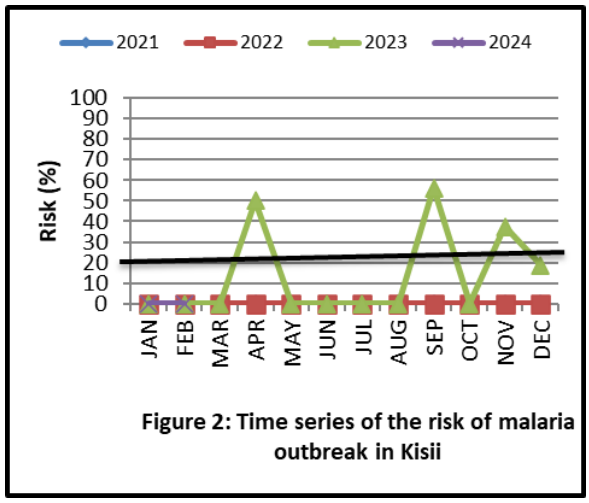

Figure 2: Time series of the risk of malaria outbreak in Kisii

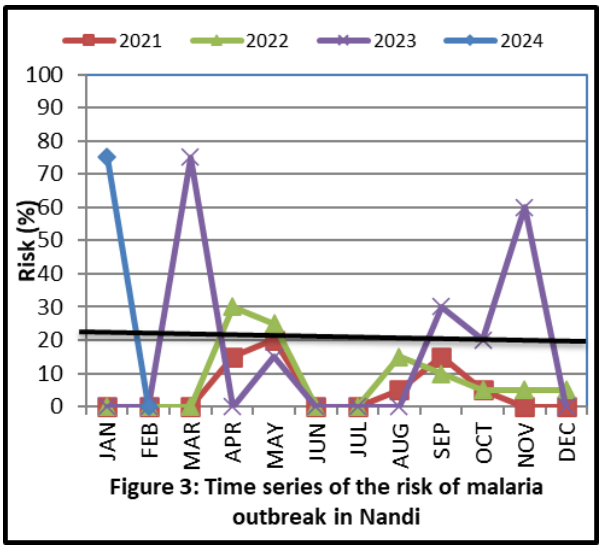

Figure 3: Time series of the risk of malaria outbreak in Nandi

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