Republic of Kenya

KENYA METEOROLOGICAL DEPARTMENT

Republic of Kenya

MINISTRY OF HEALTH

MALARIA EPIDEMIC EARLY WARNING PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR MAY 2025

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1. Summary

The model outputs for the malaria epidemic early prediction system for the western highlands of Kenya indicate high risk of Malaria in Kakamega and Nandi and low risk in Kisii in the months of May, 2025 and June, 2025

The weather observations indicate generally a decrease in maximum temperatures and an increase in total rainfall amounts 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 May, 2025.

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
2025	1	29.9	28.3	1.6	85.3	0	4	18.2
2025	2	32.7	29.2	3.5	3.9	0	16	18.2
2025	3	30.7	29.1	1.6	190.1	2	4	81.8
2025	4	28.7	27.3	1.4	251.1	5	4	40.9

The observed climate data for April, 2025 indicates a decrease in maximum temperature from 30.7°C in March, 2025 to 28.7°C in April, 2025. This observation in April, 2025 *was positive (1.4 above the mean of the month).* Rainfall increased from 190.1mm in March, 2025 to 251.1mm in April, 2025. The additive model percentage risk is **40.9%.**

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

Consequently, there is high risk of Malaria Epidemic in Kakamega in the month of May, 2025 and June, 2025 (See Figure 1)

Figure 1:

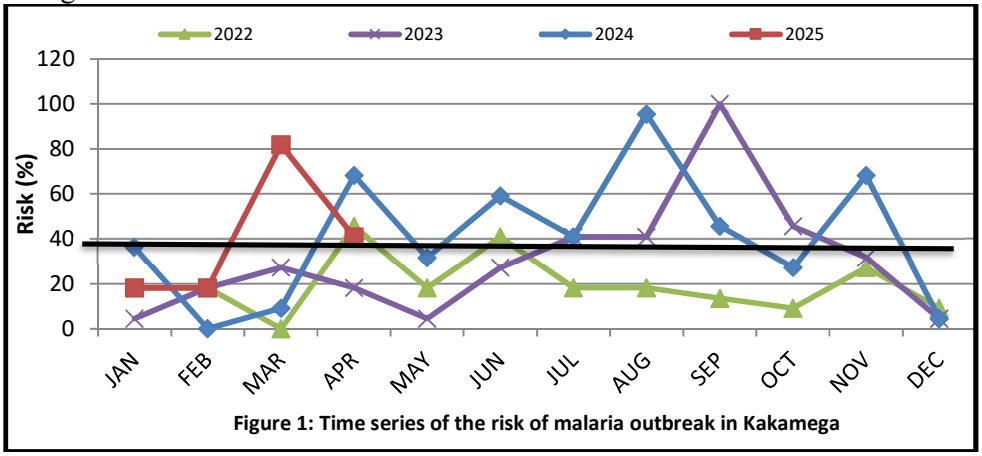

Figure 1: Time series of the risk of malaria outbreak in Kakamega

2.2 Malaria epidemic early prediction system for Kisii

Table 2 below shows the malaria epidemic early prediction system for Kisii for May, 2025.

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
2025	1	29.9	26.1	16.9	15.7	3.8	1.2	5.0	5	206.4	1	0
2025	2	29.2	27.0	11.3	16.1	2.2	-4.8	-2.6	0	47.6	0	0
2025	3	27.3	27.0	16.7	15.9	0.3	0.8	1.1	2	168.7	0	0
2025	4	25.5	25.5	16.3	15.8	0.0	0.5	0.5	0	287.1	2	0

The observed climate data for Kisii for April, 2025 indicates a decrease in maximum temperature from 27.3°C in March, 2025 to 25.5°C in April, 2025.

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

This observation in April, 2025 was *equal to the mean of the month)*. Rainfall increased from 168.7mm in March, 2025 to 287.1mm in April, 2025.

The model output risk is **Nil. Therefore, there is no risk of malaria epidemic in Kisii in the month of May, 2025 and June, 2025.** (See Figure 2).

Figure 2:

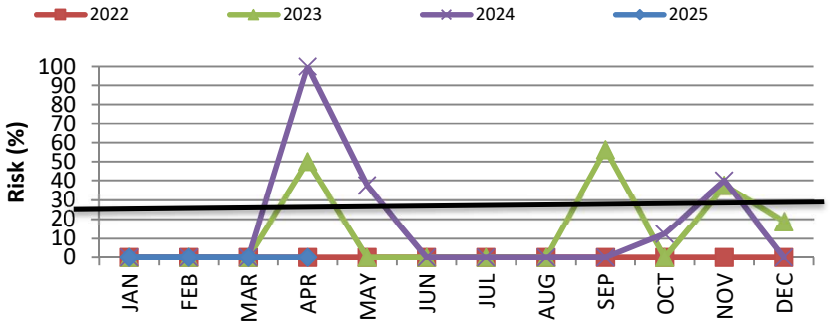

Figure 2: Time series of the risk of malaria outbreak in Kisii

2.3 Malaria epidemic early prediction system for Nandi

Table 3 below shows the malaria epidemic early prediction system for Nandi for May, 2025.

Table 3: NANDI MALARIA EPIDEMIC EARLY PREDICTION SYSTEM

Yr	M0n	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
2025	1	25.1	23.3	1.8	11.8	10.9	0.9	2.7	101	3	0	**0**
2025	2	27.6	23.2	4.4	16.8	11.7	5.1	9.5	32.7	5	0	**0**
2025	3	25.9	23.0	2.9	12.7	11.5	1.2	4.1	189.5	1	0	**0.0**
2025	4	24.8	22.8	2.0	12.4	11.2	1.2	3.2	267.6	4	2	**50.0**

The maximum temperature in Nandi indicates a decrease from 25.9°C in March, 2025 to 24.8°C in April, 2025. This observation in April, 2025 for Nandi was *positive (2.0°C above the mean of the month).* Rainfall increased from 189.5mm in March, 2025 to 267.6mm in April, 2025.

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

The additive model percentage risk is **50.0%.**

Hence, there is high risk for malaria outbreak for the month of April, and May, 2025. (See Figure 3)

Figure 3:

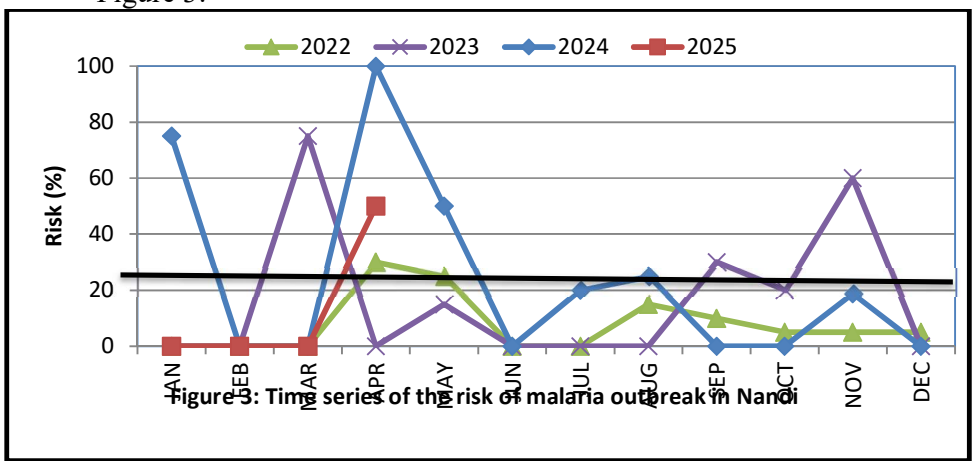

Figure 3: Time series of the risk of malaria outbreak in Nandi

3. Disclaimer

The information presented in this bulletin is based on predictive models and observed climate data, which are subject to change. While every effort has been made to ensure the accuracy and reliability of the data, the following points should be noted.

Public Health Advisory: This bulletin is intended for informational purposes only. It should not be used as the sole basis for public health decisions. Local health authorities should be consulted for actionable guidance and preventive measures against malaria.

Continuous Monitoring: Malaria transmission dynamics are influenced by numerous factors, including temperature, rainfall, and human behaviour. Continuous monitoring and updates to the predictive models are essential for accurate assessments.

Updates: This bulletin reflects data and predictions as of April 2025. Future updates will be issued as new data becomes available.

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