



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

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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 all the three areas in the months of June, 2024 and July, 2024

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 June, 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
2024	03	31.3	29.1	2.2	156.7	1	9	9.1
2024	04	28.2	27.3	0.9	329.6	6	1	68.2
2024	05	29.1	26.4	2.7	419.5	6	9	31.8

The observed climate data for May, 2024 indicates an increase in maximum temperature from 28.2°C in April, 2024 to 29.1°C in May, 2024. This observation in May, 2024 was positive (2.7 above the mean of the month). Rainfall increased from 329.6mm in April, 2024 to 419.5mm in May, 2024. The additive model percentage risk in

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

May, 2024 was **31.8%**.

Consequently, there is **high risk** of Malaria Epidemic in Kakamega in the month of June, 2024 and July, 2024(See Figure 1)

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

Table 2: MALARIA EPIDEMIC EARLY PREDICTION SYSTEM: KISII

Yr	Mon	Tmax (°C)	Mean Tmax (°C)	Tmin (°C)	Mean Tmin (°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	0
2024	03	28.8	27.0	16.1	15.9	1.8	0.2	2.0	3	185.7	0	0
2024	04	25.5	25.5	16.7	15.8	0.0	0.9	0.9	0	379.5	4	100
2024	05	26.1	25.1	16.9	15.6	1.0	1.3	2.3	3	300.6	2	37.5

The observed climate data for Kisii for May, 2024 indicates an increase in maximum temperature from 25.5°C in April, 2024 to 26.1°C in May, 2024. This observation in May, 2024 was positive (1.0 above the mean of the month). Rainfall decreased from 379.5mm in April, 2024 to 300.6 mm in May, 2024. The Model output risk is **37.5%**.

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

Hence there is **high risk** of malaria epidemic in Kisii in the month of June, 2024 and July, 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 June, 2024.

Table 3: NANDI MALARIA EPIDEMIC EARLY PREDICTION SYSTEM

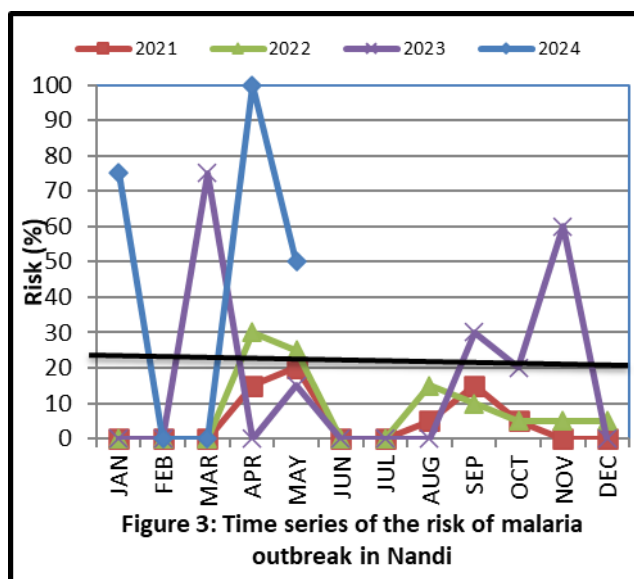
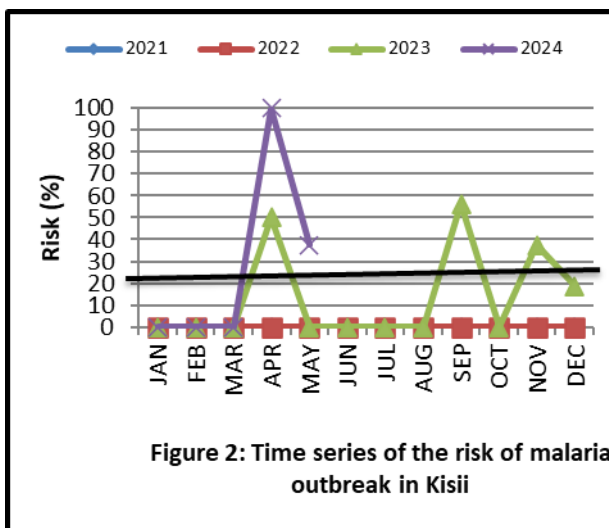
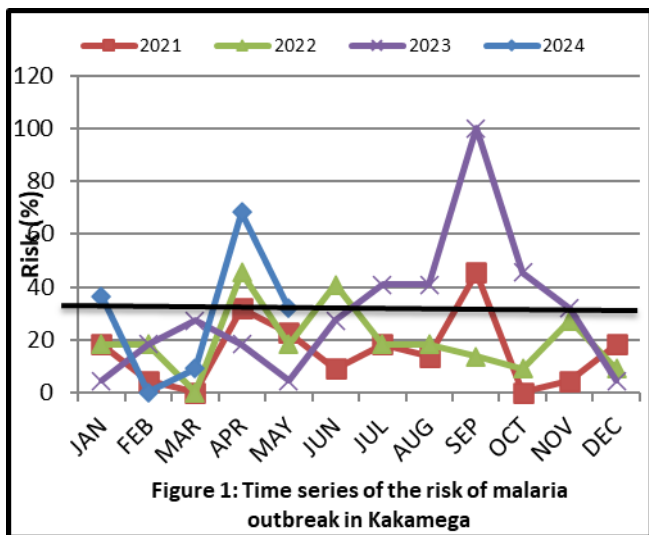
Yr	Mon	Tmax (°C)	Mean Tmax (°C)	Tmax Dev.	Tmin	Mean Tmin	Tmin Dev./anom	Total Temp Dev./Anom	R/fall (mm)	Temp Dev. Filters	R/fall Filters	Multiplicative Model
2024	01	24.4	23.3	1.1	13.3	10.9	2.4	3.5	303.8	4	3	75
2024	02	26.4	23.2	3.2	12.5	11.7	0.8	4.0	123.8	5	0	0.0
2024	03	27.7	23.0	4.7	12.1	11.5	0.6	5.3	150.3	5	0	0.0
2024	04	24.4	22.8	1.8	16.8	11.2	5.6	7.2	366.3	5	4	100
2024	05	24.8	22.7	2.1	12.1	10.7	1.4	3.5	273.0	4	2	50

The maximum temperature in Nandi indicates a slight increase from 24.4°C in April, 2024 to 24.8°C in May, 2024. This observation in May, 2024 for Nandi was positive (2.1°C above the mean of the month). Rainfall

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

decreased from 366.3mm in April, 2024 to 273.0mm in May, 2024. The additive model percentage risk in May, 2024 was **50%**.

Hence, there is **high risk** of malaria epidemic in Nandi in the month of June, 2024 and July, 2024. (See Figure 3)



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