



**MALARIA EPIDEMIC EARLY WARNING PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR JUNE 2022**

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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 outbreak in Kakamega and low risk in Kisii and Nandi in the months of June and July 2022.

The weather observations indicate generally a decrease in Maximum Temperature and monthly 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 2022.

**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
2021	12	29.5	27.5	2.0	54.4	0	4	18.2
2022	01	29.2	28.3	0.9	70.6	0	1	18.2
2022	02	28.6	29.2	-0.6	103.5	0	0	4.5
2022	03	30.4	29.1	1.3	62.8	0	4	0.0
2022	04	28.7	27.3	1.4	282.7	6	4	45.5
2022	05	27.8	26.4	1.4	138.4	0	4	18.2

The observed climate data for May 2022 indicates a decrease in maximum temperature from 28.7°C in April 2022 to 27.8°C in

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

May 2022. However, the maximum temperature anomaly in May 2022 was positive (1.4 above the mean of the month). Rainfall decreased from 282.7mm in April 2022 to 138.4mm in May 2022. The additive model percentage risk in May 2022 was 18.2%.

**Consequently, there is low risk of the Malaria Epidemic outbreak in Kakamega in the month of June and July 2022.** (See Figure 1)

Table 2 below shows the malaria epidemic early prediction system for Kisii for June 2022.

**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
2021	12	25.9	25.4	16.1	15.4	0.5	0.7	1.2	2	65.4	0	0
2022	01	26.4	26.1	15.9	15.7	0.3	0.2	0.5	0	96.4	0	0
2022	02	26.5	27.0	15.9	16.1	-0.5	-0.2	-0.7	0	159.3	0	0
2022	03	27.2	27.0	15.6	15.9	0.2	-0.3	-0.1	0	101.6	0	0
2022	04	26.4	25.5	16.0	15.8	0.9	0.2	1.1	2	291.5	2	0
2022	05	25.6	25.1	15.8	15.6	0.5	0.2	0.7	0	187.4	0	0

The observed climate data for Kisii for May 2022 indicates a slight decrease in maximum temperature from 26.4°C in April 2022 to 25.6°C in May 2022. This observation in May 2022 was positive (0.5°C above the mean of the month). Rainfall decreased from 291.5mm in April 2022 to 187.4mm in May 2022. 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 June and July 2022. (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 2022.

**Table 3: NANDI MALARIA EPIDEMIC EARLY PREDICTION SYSTEM**

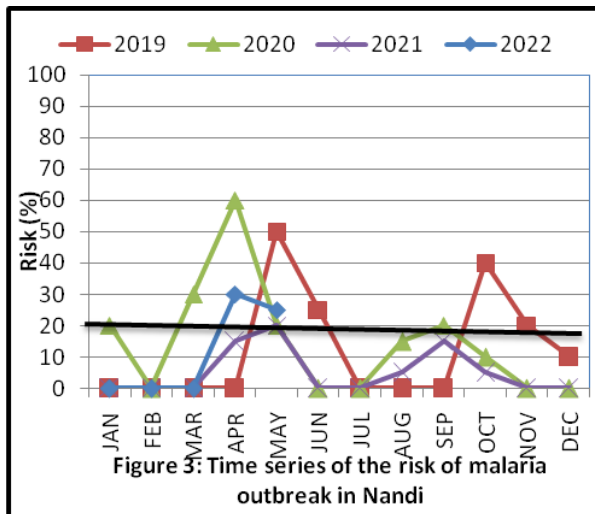
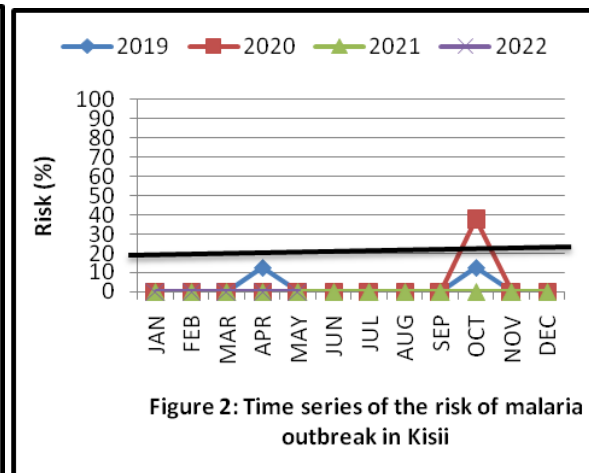
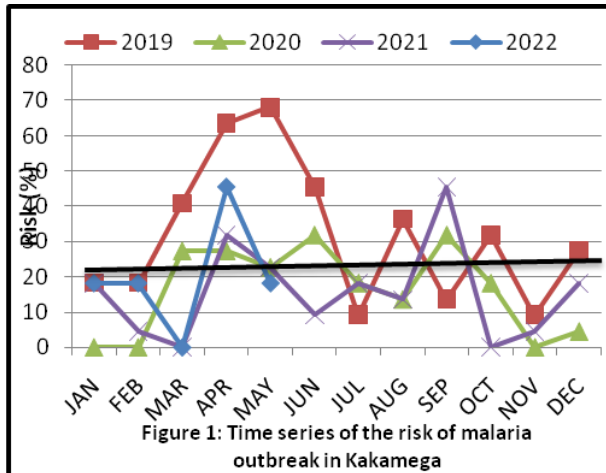
Yr	Mon	Tmax (°C)	Mean Tmax (°C)	Tmax Dev.	Tmin	Mean Tmin	Tmin Dev./anom	Total Temp Dev./Anom.	R/fall (mm)	Temp Dev. Filters	R/fall Filter	Multiplicative Model
2021	12	25.3	23.7	1.6	11.4	10.8	0.6	2.2	57.6	3	0	0.0
2022	01	25.4	23.3	2.1	11.1	10.9	0.2	2.3	68.6	3	0	0.0
2022	02	25.5	23.2	2.3	11.8	11.7	0.1	2.4	75.6	3	0	0.0

2022	03	27.3	23.0	4.3	12.2	11.5	0.7	5.0	58	5	0	0.0
2022	04	27.5	22.8	4.7	11.8	11.2	0.6	5.3	256.6	5	2	30
2022	05	24.7	22.7	2.0	12.6	10.7	1.9	3.9	200.9	4	1	25

The maximum temperature in Nandi decreased from 27.5°C in April 2022 to 24.7°C in May 2022. This observation in May 2022 for Nandi was positive (2.0°C above the mean of the month). Rainfall decreased from 256.6mm in April 2022 to 200.9mm in May, 2022. The May 2022 multiplicative model percentage risk for malaria was 25.0%.

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

Hence, there is high risk of malaria epidemic in Nandi in the month of June and July 2022. (See Figure 3)



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