



**MALARIA EPIDEMIC EARLY WARNING PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR NOVEMBER 2024**

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**1. Summary**

The model outputs for the malaria epidemic early prediction system for the western highlands of Kenya indicate low risk of Malaria in all the three areas in the months of November, 2024 and December, 2024

**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 November, 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
2024	06	28.1	25.8	2.3	247.4	4	9	59.1
2024	07	29.1	25.6	3.5	82.3	0	16	40.9
2024	08	28.2	26.1	2.1	262.6	5	9	95.5
2024	09	28.6	26.9	1.7	155.7	1	4	45.5
2024	10	29.5	27.0	2.5	176.8	2	9	27.3

The observed climate data for October, 2024 indicates an increase in maximum temperature from 28.6°C in September 2024 to 29.5°C in October, 2024. This observation in October, 2024 was positive (2.5

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

above the mean of the month). Rainfall decreased from 155.7mm in September, 2024 to 176.8mm in October, 2024. The additive model percentage risk in October, 2024 was **27.3%**.

**Consequently, there is low risk of Malaria Epidemic in Kakamega in the month of November, 2024 and December, 2024(See Figure 1)**

Table 2 below shows the malaria epidemic early prediction system for Kisii for November, 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
2024	06	26.1	24.6	16.0	15.0	1.5	1.0	2.6	3	93.8	0	0
2024	07	26.1	24.5	16.1	14.5	1.6	1.6	3.2	4	92.5	0	0
2024	08	25.9	24.9	15.5	14.7	1.0	0.8	1.8	2	125.5	0	0
2024	09	27.0	26.0	16.2	15.1	1.0	1.1	2.0	3	189.4	0	0
2024	10	27.2	25.8	16.0	15.2	1.4	0.8	2.2	3	217.8	1	12.5

The observed climate data for Kisii for October, 2024 indicates a slight increase in maximum temperature from 27.0°C in September, 2024 to 27.2°C in October, 2024. This observation in October, 2024 was positive (1.4 above the mean of the month). Rainfall increased from 189.4mm in September, 2024 to 217.8mm in October, 2024. The Model output risk is **12.5%**.

**Box 2:**

**For Kisii, the epidemic threshold level is 20%.**

**Hence there is low risk of malaria epidemic in Kisii in the month of November, 2024 and December, 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 November, 2024.

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

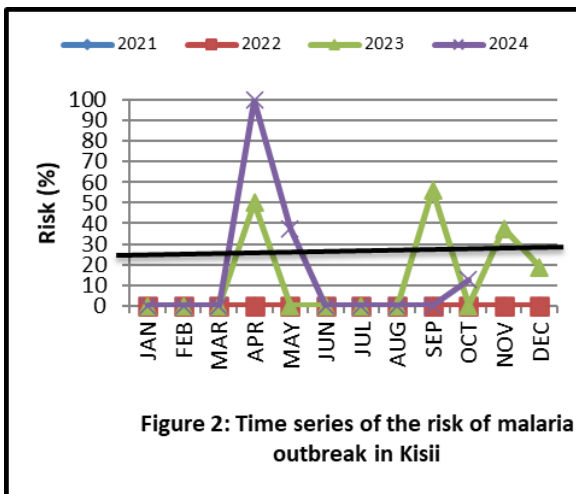
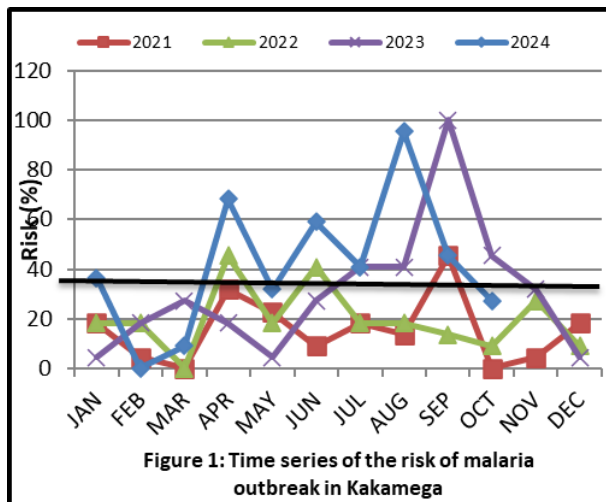
Yr	Mon	Tmax (°C)	Mean Tmax (°C)	Tmax Dev.	Tmin	Mean Tmin	Tmin Dev./anom	Total Temp Dev./Anom	R/fall (mm)	Temp Dev. Filters	R/fall Filters	Multiplicative Model
2024	01	24.4	23.3	1.1	13.3	10.9	2.4	3.5	303.8	4	3	<b>75</b>
2024	02	26.4	23.2	3.2	12.5	11.7	0.8	4.0	123.8	5	0	<b>0.0</b>

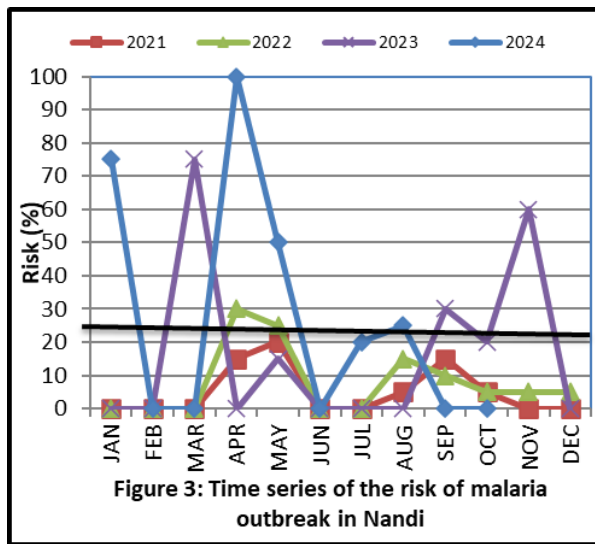
2024	03	27.7	23.0	4.7	12.1	11.5	0.6	5.3	150.3	5	0	<b>0.0</b>
2024	04	24.4	22.8	1.8	16.8	11.2	5.6	7.2	366.3	5	4	<b>100</b>
2024	05	24.8	22.7	2.1	12.1	10.7	1.4	3.5	273.0	4	2	<b>50</b>
2024	06	24.3	22.7	1.6	16.8	10.9	5.9	7.5	136.5	5	0	<b>0.0</b>
2024	07	24.8	22.8	2.0	12.1	10.6	1.5	3.5	203.3	4	1	<b>20</b>
2024	08	24.0	23.1	0.9	11.7	10.8	0.9	1.9	246.9	2	1	<b>25</b>
2024	09	24.8	23.3	1.5	11.2	11.1	0.1	1.6	179.8	2	0	<b>0.0</b>
2024	10	25.1	23.3	1.8	12.0	10.7	1.3	3.0	186.9	9	4	<b>0.0</b>

The maximum temperature in Nandi indicates an increase from 24.8°C in September, 2024 to 25.1°C in October, 2024. This observation in September, 2024 for Nandi was positive (1.8°C above the mean of the month). Rainfall increased from 179.8mm in September, 2024 to 186.9mm in October, 2024. The additive model percentage risk in October, 2024 was NIL.

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

Hence, there is low of malaria epidemic in Nandi in the month of November, 2024 and December, 2024. (See Figure 3)





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