Republic of Kenya   **Republic of Kenya**

KENYA METEOROLOGICAL DEPARTMENT   **MINISTRY OF HEALTH**

MALARIA EPIDEMIC EARLY PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR FEBRUARY 2021

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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 outbreak in **all** areas in the months of February and March 2021.

The weather observations indicate generally a decrease in Maximum temperature 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 February 2021.

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
2020	12	29.1	27.5	1.6	108.1	0	4	4.5
2021	01	28.3	28.3	0.0	104.2	0	1	18.2

The observed climate data for January 2021 indicates a decrease in maximum temperature. However, the maximum temperature anomaly in January 2021 was Nil (equal to the mean of the month). Rainfall decreased from 108.1mm in December 2020 to 104.2mm in January 2021. The additive model percentage risk in January 2021 was 18.2%.

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

Consequently, there is low risk of the Malaria Epidemic outbreak in Kakamega in the month of February and March 2021. (See Figure 1)

Table 2 below shows the malaria epidemic early prediction system for Kisii for February 2021.

Table 2: MALARIA EPIDEMIC EARLY PREDICTION SYSTEM: KISII

Yr	Mon	Tmax (⁰C)	Mean Tmax (⁰C)	Tmin (⁰C)	Mean Tmin (⁰C)	Tmax Dev./ anom	Tmin Dev. /an om	Total Temp Dev. /An om	Temp Dev. /ano m Code	R/fall (mm)	R/fall Code	Model Output
2020	12	26.1	25.4	15.8	15.4	0.7	0.4	1.1	2	178.4	0	0
2021	01	26.0	26.1	15.8	15.7	-0.1	0.1	0.0	0	73.8	0	0

The observed climate data for Kisii for January 2021 indicates a slight decrease in maximum temperature from 26.1°C in December 2020 to 26.0°C in January 2021. This observation in January 2021 was negative (0.1°C below the mean of the month). Rainfall decreased from 178.4mm in December 2020 to 73.8mm in January 2021. The Model output risk is Nil.

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

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Hence there is no risk of malaria epidemic in Kisii in the month of February and March 2021. (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 February 2021.

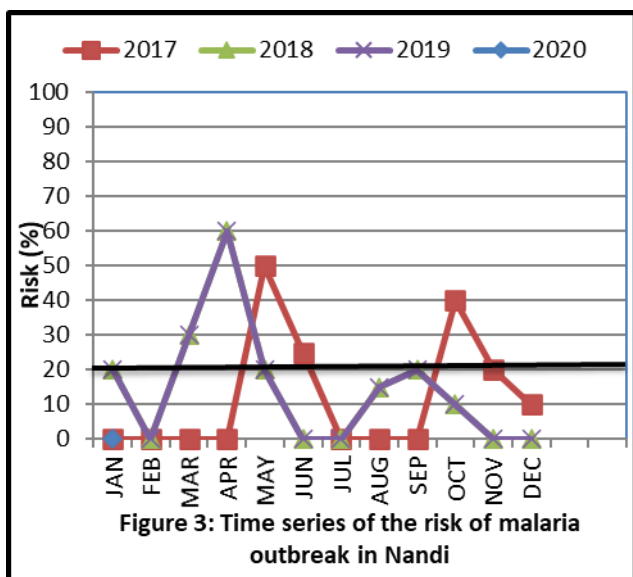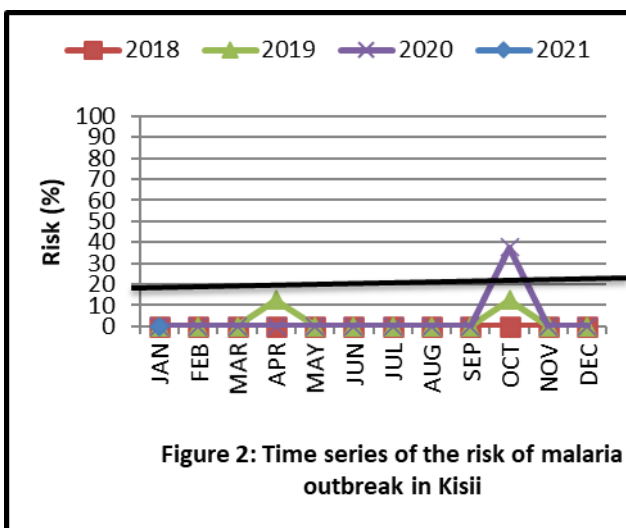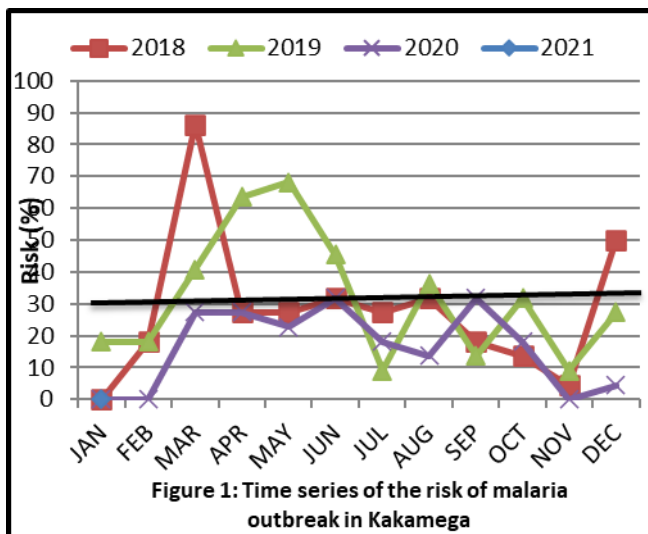**Table 3: NANDI MALARIA EPIDEMIC EARLY PREDICTION SYSTEM**

Yr	Mon	Tmax (⁰C)	Mean Tmax(⁰C)	Tmax Dev.	Tmin	Mean Tmin	Tmin Dev. /anom	Total Temp Dev. /Anom.	R/fall (mm)	Temp Dev. Filters	R/fall Filters	Multiplicative Model
2020	12	25.1	23.7	1.4	10.4	10.8	-0.4	1.0	70	1	0	0.0
2021	01	25.0	23.3	1.7	11.0	10.9	0.1	1.8	187.7	2	0	0.0

The maximum temperature in Nandi slightly decreased from 25.1°C in December 2020 to 25.0°C in January 2021. This observation in January 2021 for Nandi was positive (1.7°C above the mean of the

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

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month). Rainfall increased from 70mm in December 2020 to 187.7mm in January 2021. The January 2021 multiplicative model percentage risk for malaria was Nil.

Hence, there is no risk of malaria epidemic in Nandi in the month of February and March 2021. (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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