



MALARIA EPIDEMIC EARLY PREDICTION SYSTEM FOR WESTERN KENYA HIGHLAND FOR FEBRUARY 2019

Ref No: KMD/MM/2-2018

Issue Date: 06/03/2019

1. Summary

The model outputs for the malaria epidemic early detection system for the western highlands of Kenya indicate no risk (Kisii and Nandi, Kakamega) of malaria outbreak in the next one to two months.

The weather observations indicate generally an increase in Maximum Temperature amounts in the month of February 2019 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 detection system for Kakamega for February 2019.

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
2018	12	28.8	27.5	1.3	176.3	2	4	50
2019	01	30.2	28.3	1.9	20.5	0	4	18.2
2019	02	32.1	29.2	2.9	38.8	0	9	18.2

The observed climate data for February 2019 indicates a slight increase in maximum temperature from 30.2°C in January to 32.1°C in February 2019. However, the maximum temperature anomaly in February 2019 was still positive (2.9°C above the mean of the month). The additive model

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

percentage risk in February was 18.2%.

Consequently, there is no risk of the Malaria Epidemic in Kakamega. (See Figure 1)

2.2 Malaria epidemic early prediction system for Kisii

Table 2 below shows the malaria epidemic early detection system for Kisii for February 2019.

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
2018	12	25.1	25.4	15.8	15.4	-0.3	0.4	0.1	0	161.8	0	0
2019	01	27.1	26.1	16.5	15.7	1.0	0.8	1.8	2	24.3	0	0
2019	02	28.1	27.0	16.5	16.1	1.1	0.4	1.5	2	37.6	0	0

The observed climate data for Kisii for February 2019 indicates an increase in maximum temperature from 27.1°C in January to 28.1°C February 2019. This observation in February 2019 was 1.1°C above the mean of the month. Rainfall increased from 24.3mm in January to 37.6mm in February 2019. This is below the 250mm threshold for triggering malaria. The Model output risk is nil.

Box 1:

For Kisii, the epidemic threshold level is 20%.

Hence there is no potential for malaria epidemic in Kisii in the next one to two months (See Figure 1).

2.3 Malaria epidemic early prediction system for Nandi

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
2018	12	24.6	23.6	0.9	11.2	10.7	0.5	1.4	117.5	2	0	0
2019	01	26.1	23.3	2.8	10.5	10.8	-0.3	2.5	30.9	3	0	0
2019	02	28	23.2	5.0	11.5	10.8	0.7	5.6	49.6	5	0	0.0

The maximum temperature in Nandi increased from 26.1°C in January to 28.0°C in February 2019. This observation in February 2019 for Nandi was 5.0°C above the mean for the month. Rainfall increased

Box 2:

For Nandi, epidemic threshold level is 30%.

from 30.9mm January to 49.6mm in February 2019. This is below the 300mm threshold required to trigger malaria. The February 2019 multiplicative model percentage risk for malaria is nil. Hence, there is no risk of a malaria epidemic February and March 2019 (See Figure 2)

