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I. Foreword

This "Climate Information for the Health Sector" Bulletin has been designed to convey essential information regarding the monitoring of human comfort conditions based on the analysis of temperature and humidity data and also for the monitoring of Malaria outbreak areas based on the analysis of temperature and precipitation data. Since the monitoring of temperature and rainfall over a given area can be used to assess the likelihood of outbreak of Malaria with a lag of two months, this information can be an important for early warning tool if used judiciously.

The major objective of this bulletin is in line with the Ethiopia Meteorological Institute strategy of diversifying climate application products to the basic developmental sectors (such as the Health, the water, the agricultural sector etc…). This bulletin can be a very important source of information to Health professionals engaged in the monitoring of Public Health, to Tourism Agents and institutions who advise tourists regarding the comfort conditions of the places to be visited by the tourists and to the researcher who is interested in the field of Bio-Climatology.

We have the opinion that careful and continuous use of this bulletin can benefit to the improvement of early warning and preparedness in the Heath sector.

Meanwhile, your comments and constructive suggestions are highly appreciated to make the objective of this bulletin a success,
This same bulletin can be accessed online at:
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II. Assumptions

i. Malaria: According to the International Research Institute for Climate and Society, (IRI), the predicted conditions of rainfall, temperature, and relative humidity are used in determining the degree of incidence for malaria.

- When rainfall is above 80 mm, the temperature is between 25°C and 32^{0}C, and relative humidity is greater than 80%, the region is at high risk and is placed under high incidence.
- When the temperature is between 20°C and 25°C, relative humidity is between 70 and 80%, and rainfall is above 80 mm, then moderate incidence is advised.
- Low incidence for malaria is issued when the temperature is in the range of 18^{0}C-20°C, relative humidity is 60 - 70% and rainfall is above 80 mm.
- No incidence is required when the temperature is less than 18°C, relative humidity less than 60%, and rainfall amount below 80 mm.

Based on these, climate variables have ***a one to two months*** postponed (delayed) effect on the spread of malaria.

ii. Human heat index: is a measure of how hot it feels when relative humidity is factored with the actual air temperature. The levels of caution for heat index are classified as follows:

- Cold stress when THI is <14, ***Asthma, Pneumonia, Common Cold and flu***
- Comfortable when THI is 14-21, ***pleasanter***
- Moderate when THI is 21-26, ***No more effects***
- Heat stress when THI is >26, ***heat stroke, heat cramps, hyperthermia, respiratory and cardiovascular diseases***

iii. Cattle heat index: The climatic condition for Cattle is a measure that accounts for the combined effects of environmental temperature and relative humidity on cattle. The level of heat stress for cattle classified as follows:

- Not Stressed when THI is <68, ***free from heat stress***
- Stressed threshold when THI is 68 – 71, ***impact less stress starting***
- Mild stress when THI is 72 – 79, ***stress begins and calf rate affected***
- Moderate stress when THI **is** 80 – 89, ***Milk production affected***
- Severe stress when THI is 90 – 99, ***very significant losses in milk production***
- Extremely stress when THI is >100, ***ultimate dead of cows***

1. Weather Impact Assessment on Health for Second dekad of May 2026

1.1 Malaria prone areas during Second dekad of May 2026

The climatic conditions for malaria breeding and transmission, during the second ten days of May 2026, there were low to moderately suitable climate condition over most parts of western and southern Oromia, South west Ethiopia, South Ethiopia, Angewak and Itang Special woredas in Gambela, Assosa, Mao komo, Kamashi and Metekel zones in Benishangul Gumuz, Sidama region, Dawa and liben in Somali as illustrated in figure 1

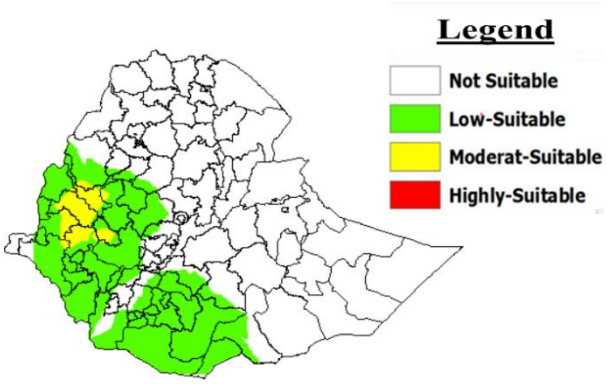
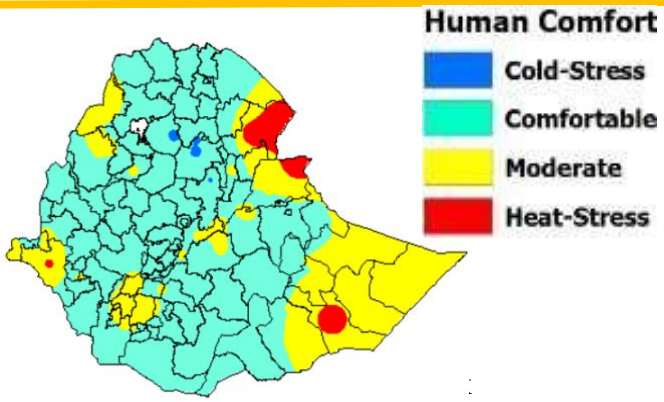


Figure 1: Malaria Prone areas

1.2 Climate comfort Conditions

1.2.1 Comfortability for Human

For the daily activity of human beings, the weather during May second dekad of 2026, there was moderate to fully uncomfortable weather condition over Afar, Gambela, Metema, South Ethiopia region, Metehara and Southern and Norther Somali region, while in the rest most parts of the country were very pleasant as shown in figure 2.



1.2.2 Comfortability for Cattle

Unlikely human comfort, there was no significant heat stress conditions affecting cattle production and productivity. However, as illustrated in Figure 3, moderately heat stress conditions occurred in some border parts of the Afar, and northern Somali.

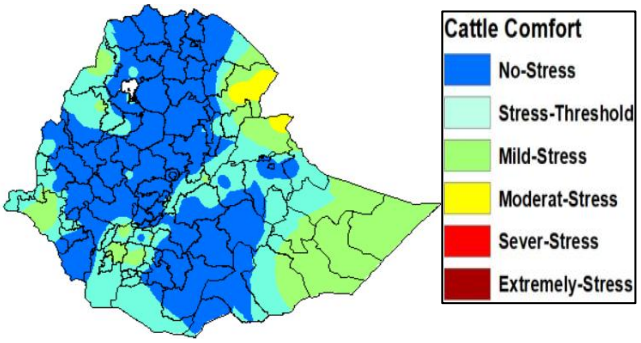


Figure 3: Cattle Comfort index

2. Expected Weather Impact on Health for Third dekad of May 2026

2.1Expected Mosquito breeding areas

In the Coming third dekad of May 2026, weather conditions will be suitable for malaria breeding and transmission over Kelem Wollega, West Wollega, Ilu Aba Bora, Buno Bedele and Jim**ma zones in Oromia,** Bench Sheko, Sheka, Kefa, Dawro, and Konta in Southwest Ethiopia; Wolayita, Gofa, Basketo, and Amaro in South Ethiopia; Tembaro Special Woreda and Hadiya in Central Ethiopia; Majang, Anuak, and Itang Special Woreda in Gambela and Sidama region. Conversely, as shown in Figure 4, the rest of the country will experience weather conditions unsuitable for the breeding and transmission of malaria.

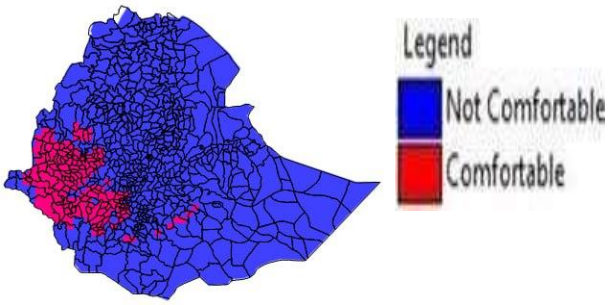


Figure 4: Expected malaria prone

2.1 Temperature Humidity Index

2.2.1 Human Comfort Condition

For the Coming third dekad of May 2026, the border parts of Afar, South Ethiopia, western Amhara, and Tigray, Southern Somali and Gambela regions will be partially to fully uncomfortable for human daily activities, indicating possible signs of heat stress, as shown in Figure 5.

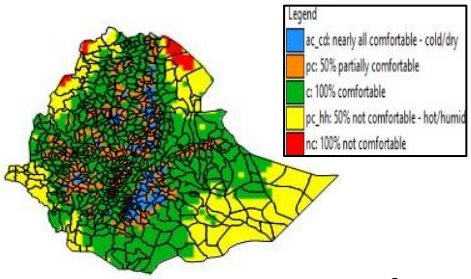


Figure 5: Expected Human comfort index

2.2.2 Cattle Comfort Condition

Cattle are expected to experience mild to moderate heat stress over most lowland areas of Afar, Somali, Gambella, South Ethiopia, Benishangul-Gumuz, and the western parts of the Amhara and Tigray regions in the coming third dekad of May 2026 as illustrated in figure 6 below.

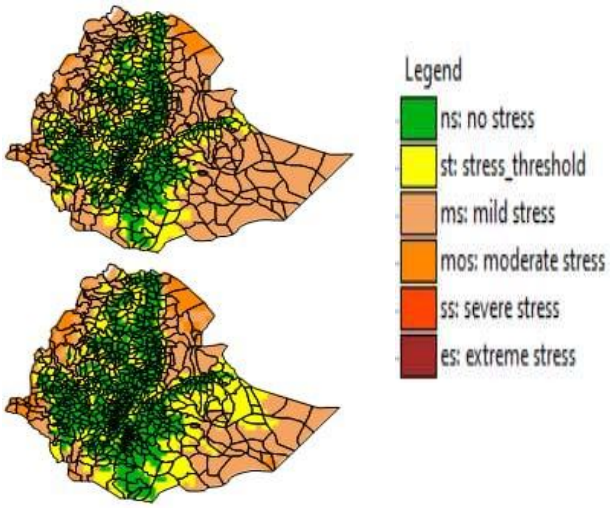


Figure 6: Expected Dairy (Top) and Non-Dairy (Bottom) Cattle comfort

3. Summary

Based on the weather condition analysis of May 1st and 2nd dekad, The Belg benefiting areas of the Southern, South-western, and Western parts of the country were under suitable conditions for Malaria breeding and transmission,

However, significant heat stress conditions exist in the low-lying border areas of the eastern, northeaster, western, and southern parts of Ethiopia, particularly in the Afar, Gambela, Somali, Western Amhara and South Ethiopia regions which affects human daily activity.

4.Advisory

Use and implement the following recommendations in places that are favourable for the development of malaria and other vector-borne related diseases;

- Attention to any incidence, especially for malaria disease in such favourable areas
- Controlling measures and activity are advised
- Reducing the environmentally aggravating condition
- Awareness creation campaign to the community and sharing of the climate-health update
- Avoid any exposure of the community to mosquitoes by ensuring clean environment and using Mosquitoes nets.