



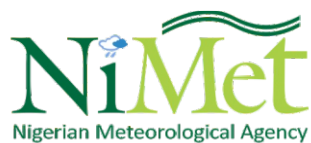
# CLIMATE AND HEALTH BULLETIN

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# Climate and Health Bulletin

January – March 2025

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# Introduction

Climate plays a critical role in shaping human health, particularly in tropical regions where weather patterns are more pronounced and climate-sensitive diseases are prevalent. The tropics, characterized by high temperatures and seasonal variations in rainfall and humidity, create ideal conditions for the transmission of various infectious diseases. The interplay between climatic factors and human health becomes especially evident during specific periods of the year when environmental conditions align to increase disease risk.

In Nigeria, the months of January, February, and March mark the dry season, characterized by reduced rainfall, increased sunshine, lower humidity, and the dominance of dry, dusty winds such as the Harmattan. These climatic conditions contribute significantly to the prevalence of certain health challenges. For instance, respiratory illnesses such as asthma, bronchitis, and pneumonia often surge due to increased airborne dust particles and low humidity levels. Meningitis, particularly cerebrospinal meningitis, also sees a marked increase during this period with the country, due to the dry and dusty conditions that irritate the respiratory tract and facilitate bacterial

invasion.

Moreover, the scarcity of water during the dry season can lead to poor sanitation and hygiene, resulting in outbreaks of waterborne diseases such as cholera and diarrhea, particularly in communities with inadequate water supply infrastructure. Additionally, changes in temperature and humidity may influence the behavior and lifecycle of disease vectors, potentially affecting the transmission patterns of diseases like malaria, although its peak is typically observed during or after the rainy season.

Understanding the seasonal dynamics of climate-sensitive diseases is crucial for public health planning and early warning systems. Proactive health surveillance, combined with meteorological insights, can help anticipate disease outbreaks and guide timely interventions to protect vulnerable populations during these critical months.

The vigilance maps of some climate-sensitive diseases as presented in this Bulletin on monthly basis. As the season changes climate-sensitive diseases that are expected are presented in this bulletin.

## Criteria for Determining the Degree of Vigilance of Diseases and Medication Instability

Changes in temperature, rainfall, and relative humidity due to climate change as well as their natural variabilities are expected to influence the incidence of malaria, meningitis, cholera, as well as heat stress directly by modifying the behaviour and geographical distribution of malaria and other disease vectors by changing the length of the life cycle of the parasite. The climate is also expected to affect the occurrence of malaria indirectly by changing ecological relationships that are important to the organisms (vector, parasite, and host) involved in malaria transmission. Rainfall increases the chances of egg-laying by increasing the number of potential breeding sites for anopheles' mosquitoes. The eggs can develop and reach adulthood within nine to twelve days which is necessary for the mosquito life cycle<sup>1</sup>.

**2.1.1 Malaria Vigilance:** According to the International Research Institute for Climate and Society (IRI), seasonal climatic suitability for malaria transmission is defined as the chance of precipitation accumulation greater than 80 mm, average temperature between 18°C and 32°C, and relative humidity greater than 60%. The combined values of these climate variables at a given location or region are an indication of the lower limit for potential malaria transmission in the area. This implies that once these conditions are met, malaria cases are likely to occur.

The predicted rainfall, temperature and relative humidity are used in determining the degree of vigilance for malaria. When rainfall is above 80 mm, the temperature is between 25°C and 32°C, and relative humidity is greater than 80%, the region is at high risk of malaria prevalence and is placed under High Vigilance. 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 Vigilance is advised. Low vigilance for malaria is recommended for any location or region if the temperature ranges from 18°C to 20°C, relative humidity is between 60% and 70%, and rainfall is above 80 mm. No Vigilance is

recommended when the temperature is lower than 18°C or above 32°C, relative humidity is lower than 60%, and rainfall is below 80 mm. This is because these climatic conditions are not conducive for mosquitoes to reproduce and multiply.

**2.1.2 Cholera Vigilance:** Vigilance for cholera is determined by the probability of high rainfall that may result in flooding and pollution of drinking water. Cholera-causing bacteria (*Vibrio cholera*) are mostly found in the faeces of an infected person, and in the event of open defecation, or broken sewage the faeces are easily transported by flowing water and deposited into water bodies such as rivers, streams, and lakes that serve as sources of water used by people for cooking, drinking and other domestic uses, especially in rural communities.

**2.1.3 Medication Stability Vigilance:** Medication or drug stability is defined as the ability of pharmaceutical dosage form to maintain the physical, chemical, therapeutic, and microbial properties during the time of storage and usage by the patient<sup>2</sup>. The composition of medicines is affected by weather conditions, especially air temperature and relative humidity. Maximum temperatures above 30°C and relative humidities higher than 75% have negative impacts on drug stability. Such conditions are therefore considered unsafe and unsuitable for the storage of medicines.

**2.1.4 Meningitis Vigilance:** Relative humidity, dust concentration in the atmosphere and mean air temperatures are used in determining the vigilance threshold for meningitis. For 'high vigilance', relative humidity of less than 20%, a temperature within the range of 25°C to 32°C and atmospheric concentration dust of 500 to 2000 µg/m<sup>3</sup> is applied. For 'moderate vigilance', relative humidity within the range of 20 to 40%, a temperature of 20°C to 25°C and dust concentration of 200 to 500 µg/m<sup>3</sup> are indicative.

Low vigilance is said to prevail when relative humidity is above 40%, temperature below 25°C, dust concentration is between 50 and 200 µg/m<sup>3</sup>. With any significant amount of rainfall, the outbreak of meningitis is unlikely and therefore 'no vigilance' is required.

## 2.2 HEAT INDEX

Heat Index (HI) is a parameter used in expressing the temperature felt by the human body. It is calculated by combining air temperature and relative humidity. Its unit is degrees Celsius (°C) or degrees Fahrenheit (°F). Severe conditions where the body is under stress due to high heat index are referred to as heat stress. Hot and humid conditions (or high HI) can lead to heat stress and affect human well-being. Revealing signs of heat stress include panting, increased respiration rate, persistent thirst, loss of appetite, and fatigue. Different levels of caution are prescribed depending on the value of the Heat Index. The levels of caution for the heat stress are classified as follows:

- (i) No Caution if HI is ≤26°C.
- (ii) Caution if HI is 27°C to 32°C.
- (iii) High Caution if HI is 33°C to 39°C.
- (iv) Danger if HI is 40°C to 51°
- (v) Extreme Danger if HI is ≥52°C.

## 2.3 Dust Concentration

For countries that are downwind of arid regions such as Nigeria, airborne sand and dust during the harmattan period, present serious risk to the environment, property and human health. Dust particles can carry irritating spores, bacteria viruses and persistent organic pollutants. Dust from the source region in the Sahara can also transport nutrients to parts of the world's oceans and this is beneficial to marine ecosystem. Dust haze usually impairs visibility. This has a negative impact on road transport, aviation, agriculture and solar energy conversion. The Inter-Governmental Panel on Climate Change (IPCC) recognizes dust as a major component of atmosphere aerosol, and an essential climate variable.

### 2.3.1 Effects of Dust on Human Health

The human body has several defense mechanisms

to deal with the dust we inhale. However, the defense mechanisms can be overwhelmed if the particles are small enough or in sufficient numbers. Smaller dust particles (less than 10 µg/m<sup>3</sup>) are well known for their ability to enter the lungs and cause serious health problems, whereas larger particles can irritate the nose, throat and eyes.

Dust may have the following health effects:

- Irritation of the airways, coughing, wheezing and difficulty in breathing.
- Reduced lung function.
- Aggravation of Asthma Chronic Obstruction Pulmonary Disease (COPD) and other chronic lung conditions: wheezing, coughing, shortness of breath and frequency severity of attacks.
- Contributions to Cardiovascular heart disease. In rare cases, particles may increase the risk of heart attack and stroke in susceptible individuals.

### 2.3.2 Advisories

The following precaution will protect and minimize the adverse effects of airborne dust on human health:

- Use of respirator or facemask is advisable.
- Avoid exposure to dust.
- In the event of sand/dust storm, it is advisable to stay indoors with windows and doors closed.
- Persons with chronic Obstruction Pulmonary Disease (emphysema and/or chronic bronchitis) or any other chronic lung condition should follow their treatment plan and take their regular medication. Persons who suffer from asthma or other respiratory challenges should avoid vigorous exercise when the atmosphere is dusty.
- Adults and children with asthma or respiratory conditions who experience shortness of breath, coughing, wheezing, or chest pain should follow their treatment plan.
- Wash the eyes, nose, and skin with water if itching is experienced due to exposure to dust.
- Seek medical advice if symptoms of respiratory disease persist.



# JANUARY 2025

## 1.1 The Climate in January 2025

The Inter-Tropical Discontinuity (ITD) position is anticipated to further move southwards to latitude 4.5°N in January. This southward movement will leave most parts of the country under the influence of Northeasterly winds (harmattan winds) and occasional rainfall only in the coastal parts of the country.

## 1.2 The highlights of the Bulletin for January 2025 are as follows:

- Maximum temperatures (daytime) across Nigeria in January 2025 are anticipated to be 28.3°C to 35.4°C. The lowest and highest maximum temperatures of 28.3°C and 35.4°C are predicted over Plateau and Nasarawa States.
- Nighttime temperatures across the country in January 2025 are anticipated to range between 11.8°C and 24.9°C. The lowest nighttime temperature range of 11.8°C to 14.0°C is anticipated over Jigawa, Yobe, parts of Plateau, Bauchi, Gombe, Kaduna, Kano, and Katsina states. Nighttime temperatures ranging from 17°C to 20.0°C are expected over Abuja, Nasarawa, and parts of Kwara, Kogi, Niger, Kaduna, Benue, Taraba and Adamawa states, while the highest nighttime temperature range of 23.0°C to 28.0°C is expected over parts of Benue, Lagos, Delta, Bayelsa and Kogi states.
- The cumulative rainfall amounts across the country are anticipated to be between 0.0 mm and 68.7 mm. Most parts of the country are expected to have little or no rainfall during the month. The coastal areas are expected to record rainfall amounts between 60.0mm and 68.7mm. Rainfall amounts of 20.0 mm to 60.0 mm are predicted over the south.

- The expected climatic conditions in January 2025 suggest high prospects of meningitis incidences in parts of Yobe, Sokoto, Gombe, Zamfara, Katsina, Kano, Jigawa, Bauchi, and Borno, states. Therefore, high vigilance for meningitis is recommended for these areas. Moderate vigilance is recommended for the northern states of Sokoto, Zamfara, Katsina, Kebbi, Plateau, Niger, Gombe, Kaduna, Bauchi, Adamawa and, Borno. Low vigilance is recommended over parts of central and southern states of FCT, Nasarawa, Benue, Kwara, Oyo, Ekiti, Osun, Anambra, Abia, Imo and Enugu states. However, no vigilance is prescribed for coastal states. (Figure 8).
- Based on the climate indices in January 2025, malaria parasites are expected to thrive across the country but in varying intensities. Thus, low vigilance for malaria is advised over most parts of the country. High vigilance is prescribed over part of Bayelsa and on the other hand, the probability of occurrence of malaria is moderate over the coastal states of Delta, Rivers, Cross River and Akwa Ibom, hence, moderate and low vigilance are therefore recommended.
- The temperature and humidity anticipated in January 2025 are likely to cause drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance for medication instability is recommended over Lagos, Bayelsa, Akwa Ibom, and parts of Ogun, Delta, Rivers, Anambra, Imo, Abia, Ondo, Oyo, Cross River and Edo states. Moderate vigilance is prescribed over parts of Borno, Gombe, Zamfara, Sokoto, Kebbi and central states, while low vigilance is advised over Kano, Jigawa, and parts of Bauchi, Plateau, Katsina, Kaduna, and Yobe states.
- Caution for Heat Index is advised in most parts of the country. Based on the anticipated air temperature and relative humidity, high levels of human discomfort and possibly heat stress are likely to be experienced in parts of Ogun and Oyo states.

### 1.3.0 GENERAL OUTLOOK FOR 1<sup>ST</sup> TO 31<sup>ST</sup> JANUARY 2025

**1.3.1** The Inter-Tropical Discontinuity (ITD) position is anticipated to further move southwards to latitude 4.5°N in January. This southward movement will leave most parts of the country under the influence of Northeasterly winds (harmattan winds) and occasional rainfall only in the coastal parts of the country.

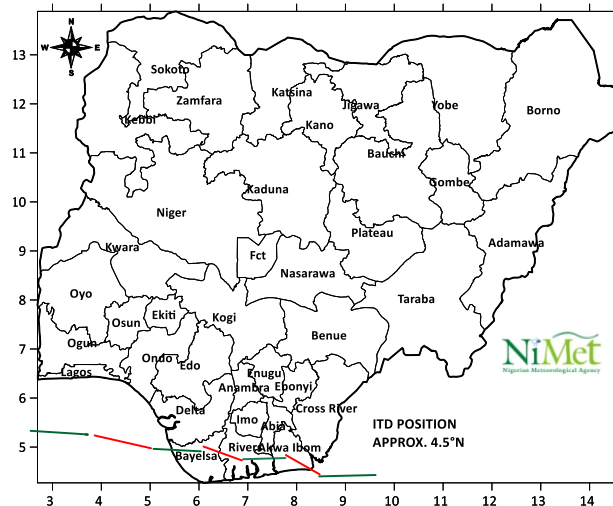
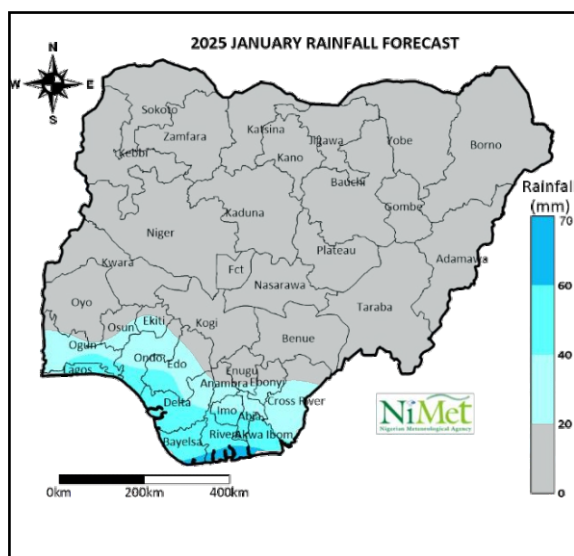


Figure 1: Projected ITD position in January 2025.

### 1.3.2 Rainfall Amount

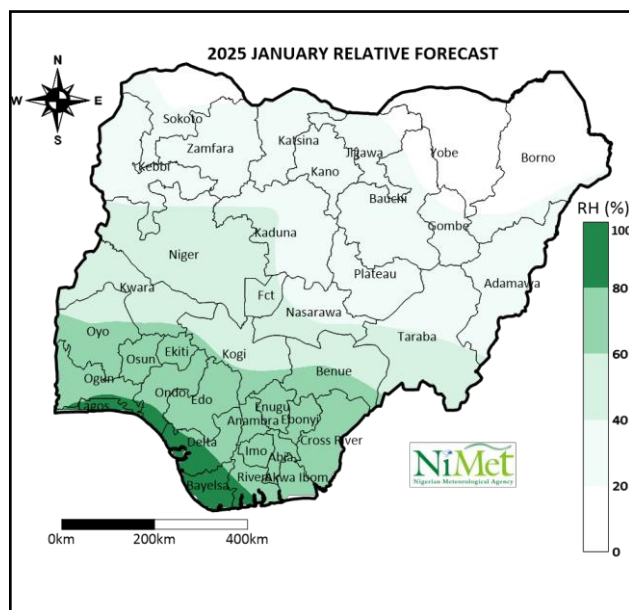


In January 2025, the cumulative rainfall forecast amount across the country is anticipated to be between 0.0mm and 68.7 mm. Most parts of the country are expected to have little or no rainfall. The coastal areas are expected to record rainfall amounts between 60.0mm and 68.7mm. Rainfall amounts of 20.0 mm to 60.0 mm are predicted over the south. (Figure 2).

Figure 2: January 2025 rainfall amount forecast.



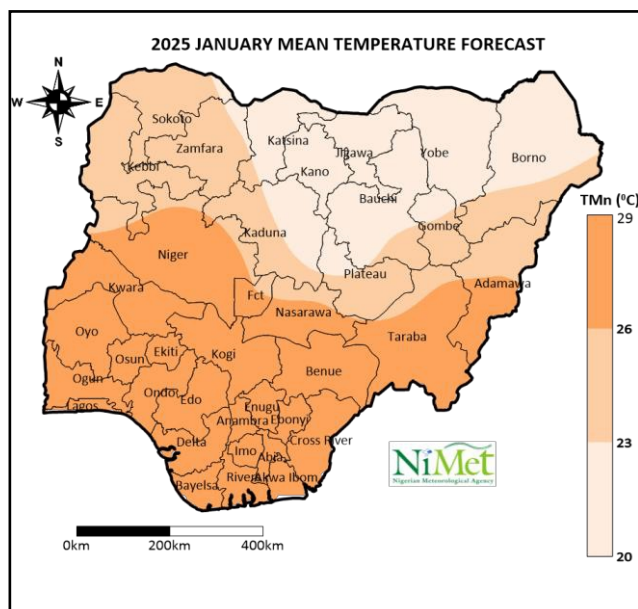
### 1.3.3 Relative Humidity (RH)



Relative humidity in January, 2025 are predicted to be within 20% to 100%, as shown in Figure 3. The highest range of values (60 – 100%) is expected over southern parts of the country. The extreme north is anticipated to record the lowest relative humidity within the range of (20 – 40%).

Figure 3: January 2025 Relative humidity forecast.

### 1.3.4 Mean Temperature



The predicted mean air temperatures for various locations across the country for January, 2025 are between 20.1°C and 28.8°C. The lower range (20.0°C to 23.0°C) is expected over the parts of Sokoto, Borno, Plateau, Kaduna, Yobe, Katsina, Jigawa, Kano, Gombe, Zamfara and Bauchi states, while parts of Taraba, Nassarawa, Kebbi, Adamawa and Bauchi are anticipated to have temperatures between 23.0° and 26.0°C. Mean air temperatures range of 26.0°C to 29.0°C are anticipated over the entire south and parts of central states (Figure 4).

Figure 4: January 2025 Mean temperature forecast.

### 1.3.5 Maximum (Daytime) Temperature

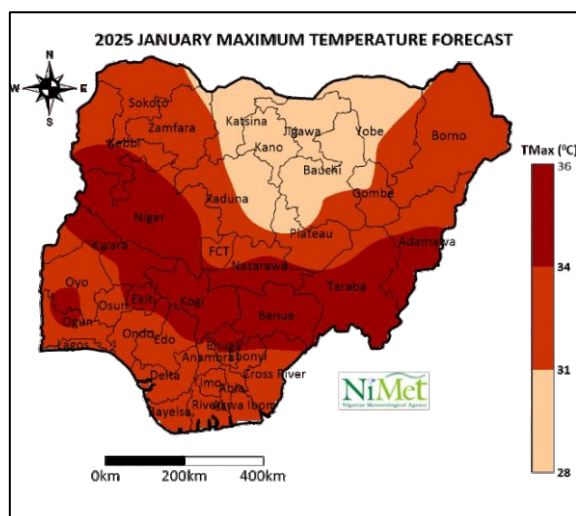


Figure 5: Maximum temperature forecast for January 2025.

The maximum temperature in January 2025 is anticipated to be between 28.3°C and 35.4°C, across the country, as shown in Figure 5. The lower range (28.0°C to 31.0°C) is expected over parts of Plateau, Kaduna, Yobe, Katsina, Jigawa, Kano, and Bauchi states, while the highest range (34.0°C to 36.0°C) is anticipated over parts of Niger, Kwara, Ogun, Oyo, Enugu, Ekiti, Kogi, Benue, Nassarawa, Taraba, Kebbi and Adamawa states. Maximum temperatures between 31.0°C to 34.0°C are expected over the coast, Imo, Abia, Anambra, Sokoto, Zamfara, parts of FCT, and Gombe states.

### 1.3.6 Minimum (Nighttime) Temperature

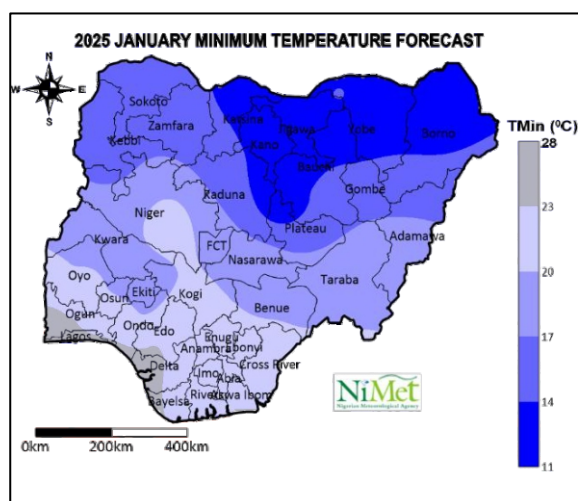


Figure 6: January 2025 minimum temperature forecast.

The minimum temperatures across the country in January, 2025 are anticipated to range between 11.8°C and 24.9°C, as shown in Figure 6. The lowest minimum temperature range of 11.0°C to 14.0°C is anticipated over parts of Plateau, Bauchi, Kaduna, Katsina, Borno, Yobe, Gombe, Kano and, Jigawa states, while parts of Kebbi, Kaduna, Adamawa, Taraba, Nassarawa, Niger, Abuja, Kogi, Ekiti, Kwara, Oyo, Osun, and Ondo states are anticipated to have minimum temperatures between 17.0°C to 20.0°C. The highest minimum temperature range of 23.0°C to 28.0°C is expected over parts of Lagos, Delta and Bayelsa States.

### 1.3.6 Dust Concentration

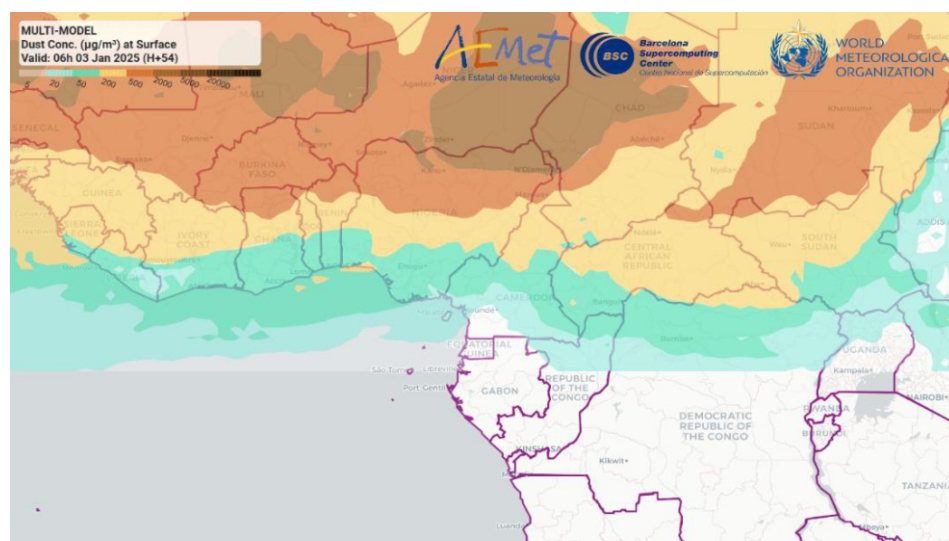


FIG 7: Dust Concentration ( $\mu\text{g}/\text{m}^3$ ) Ensemble valid for 3 January 2025

Source: WMO Barcelona Dust Regional Center

Significant dust concentrations between  $(500-1000) \mu\text{g}/\text{m}^3$  are envisaged over the extreme northeastern axis of Nigeria in January 2025, while concentrations ranging from  $(200-500) \mu\text{g}/\text{m}^3$  are forecast over the northern cities between latitude 10 and 12 degrees north. However, the central states are expected to experience dust concentrations in the range of  $(50 \text{ to } 100) \mu\text{g}/\text{m}^3$ .

## 1.4.0 DISEASE VIGILANCE

### 1.4.1 Meningitis

The expected climatic conditions [LET'S DISCUSS THIS] in January 2025 suggests high prospects of meningitis incidences in parts of Yobe, Sokoto, Gombe, Zamfara, Katsina, Kano, Jigawa, Bauchi, and, Borno, states. Therefore, high vigilance is recommended for these areas. Moderate vigilance is advised for Niger, Plateau, and Kaduna states. Low vigilance is recommended over parts of central and southern states. However, no vigilance is prescribed for coastal states. (Figure 8).



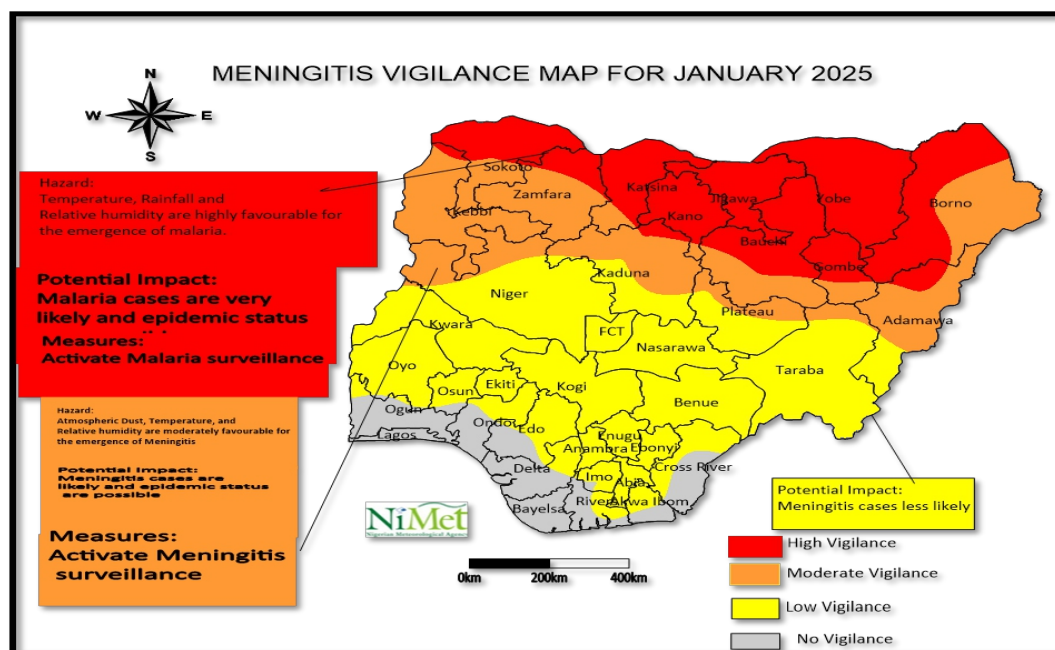


Figure 8: Meningitis Vigilance Map for January 2025

**Table 1: Climate Thresholds for Meningitis, epidemic Characteristics and Advisory**

Climate Conditions	Hazard	Potential Impacts	Advisory/Precautionary Measures
(i) Temperature between 25°C and 32°C. (ii) Relative humidity less than 20%. (iii) Atmospheric concentration dust of 500–2000µg/m <sup>3</sup>	High probability of occurrence of meningitis cases.	(i) Meningitis could be fatal if not treated promptly and properly. (ii) Meningitis is usually accompanied by neck stiffness, vomiting, lack of energy, sensitivity to light, lack of appetite, and confusion. (iii) Meningitis causes	(i) Avoid crowding and ensure adequate ventilation in homes. (ii) Use disposable tissue to cover mouth and nose when coughing or sneezing. (iii) Consistently wash hands thoroughly, especially after sneezing or coughing. (iv) Seek proper diagnosis and treatment at a medical facility if a sudden high fever or neck stiffness occurs. (v) It is recommended that all health care

		inflammation of the brain which in turn causes other problems like seizures, memory distress and loss of concentration.	professionals always follow universal care measures, such as wearing gloves when handling patients or caring for sick relatives.
(i) Temperature between 20°C and 25°C.  (ii) Relative humidity between 20% and 40%	Moderate probability of occurrence of meningitis cases	(iii) Severe meningitis leaves children with learning disabilities afterwards and even deafness.	
(iii) Atmospheric concentration dust of 200–500µg/m <sup>3</sup>			
(i) Temperature below 25°C  (ii) Relative humidity greater than 40%  (iii) Atmospheric concentration dust of 50–200µg/m <sup>3</sup>	Low probability of occurrence of meningitis cases		
(i) Emergence of rainfall	The occurrence of meningitis is unlikely		

## 1.4.2 Malaria

Based on the climate indices in January 2025, malaria parasites are expected to thrive across the country but in varying intensities. Thus, low vigilance for malaria is advised over most parts of the country. High vigilance is prescribed over part of Bayelsa. The probability of occurrence of malaria is moderate over the coastal states of Delta, Rivers, Cross River and Akwa Ibom. Moderate and low vigilance are therefore recommended (Figure 9).

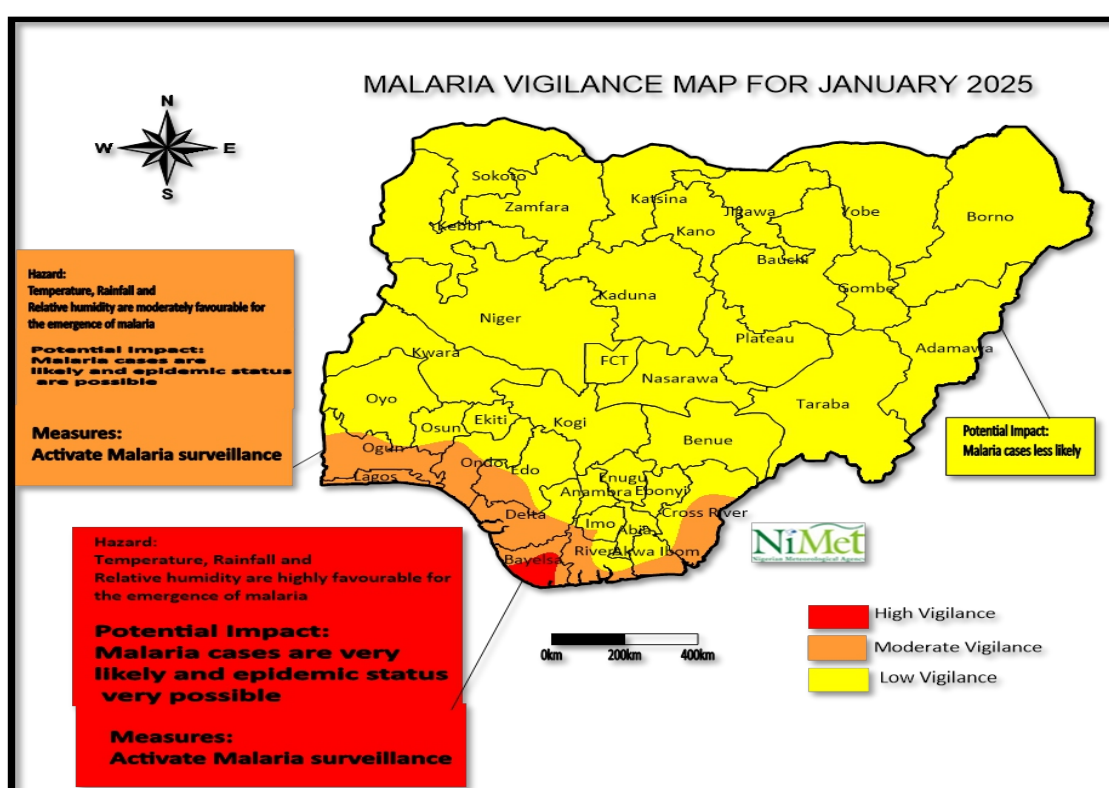


Figure 9: Malaria Vigilance Map for January 2025



**Table 2: Climate Thresholds for Malaria, Epidemic Characteristics and Advisory**

	<b>Climate Conditions</b>	<b>Hazard</b>	<b>Potential Impacts</b>	<b>Advisory/Precautionary Measures</b>
	(i) Temperature between 25°C and 32°C.	High probability of occurrence	(i) Malaria could be fatal if not treated promptly and properly.	As much as possible, avoid mosquito bites by using insecticide-treated mosquito nets,
	(ii) Relative humidity greater than 80%. (iii) Rainfall greater than 80 mm.	of malaria cases.	(ii) Procurement of drugs for the treatment of malaria is expensive and therefore has adverse impacts on the financial resources of individuals and government.	fumigating the environment frequently, and clearing drainages and stagnant water around homes.
	(i) Temperature between 20°C and 25°C. (ii) Relative humidity between 70% and 80% (iii) Rainfall greater than or equal to 80 mm	Moderate probability of occurrence of malaria cases.	(iii) Malaria is usually accompanied by headache, fever, and body aches. These health conditions impact negatively on the patient's daily life.	Early diagnosis and treatment should be emphasized.
	(i) Temperature between 18°C and 20°C (ii) Relative humidity	Low probability of occurrence of malaria cases.	(iv) Malaria patients usually feel sick with high fever and shivering chills. As a result, malaria patients cannot	To reduce the risk of contracting malaria, pregnant women are encouraged to take essential precautions such as using mosquito nets coated with

between 60% and 70%		undertake normal economic and social activities.	pesticides when sleeping and taking anti-malaria prophylaxis.
(iii) Rainfall 80 mm			
(i) Temperature is less than 18°C or greater than 32°C;	The occurrence of Malaria cases is unlikely.		
(ii) Relative humidity is less than 60%;			
(ii) Rainfall is less than 80 mm.			

### 1.5.0 Medication Instability

The temperature and humidity anticipated in January 2025 are likely to cause drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance is recommended over Lagos, Bayelsa, Akwa Ibom, and parts of Ogun, Delta, Rivers, Anambra, Imo, Abia, Ondo, Oyo, Cross River and Edo states. Moderate vigilance is prescribed over parts of Borno, Gombe, Zamfara, Sokoto, Kebbi and central states. While low vigilance is expected over Kano, Jigawa, and parts of Bauchi, Plateau, Katsina, Kaduna, and Yobe states (See Figure 10).

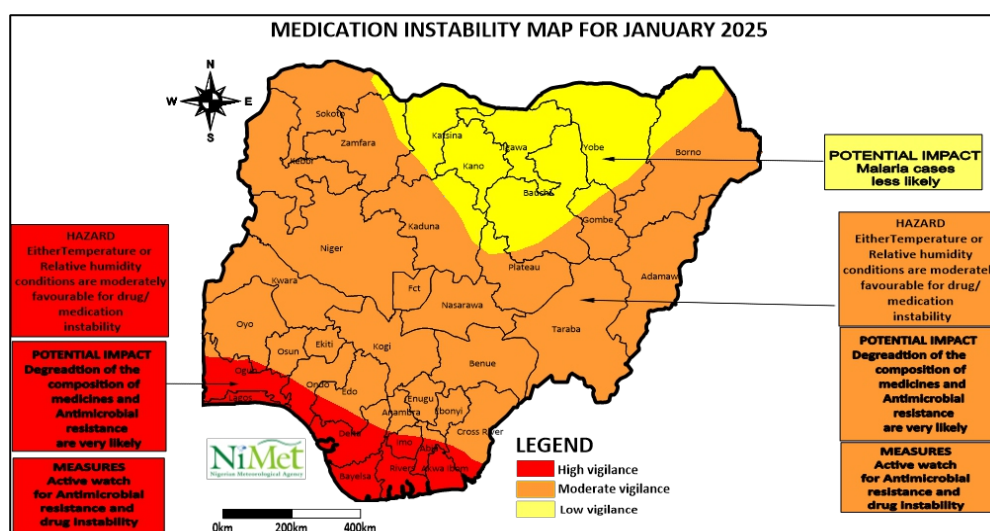


Figure 10: Medication Instability Vigilance for January, 2025

**Table 3: Climate conditions for Medication Instability threshold, potential impacts and Advisory**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Precautionary Measures
	(i) Air temperature is greater than 30°C and, (ii) Relative humidity is greater than 75%.	These conditions are considered unsafe and unfavourable or inconducive for the storage of medicines.	(i) Drugs may lose their potency. Consequently, patients treated with such medications are not likely to recover as desired. (ii) Microorganisms that cause some diseases may develop antimicrobial resistance (AMR). (iii) Recovery of patients will be retarded when they are treated	In areas with high level of medication instability vigilance, there is need for greater caution when moving and storing medications. Medicines should always be stored and transported using facilities with controlled temperature and humidity.

			with antibiotics that have been exposed to weather conditions that affect their stability.	
	Air temperature is greater than 30°C and Relative humidity is less than 75%.  OR	The predicted temperatures and relative humidity are likely to cause depreciation in the quality of medicines.	Microorganisms that cause diseases are likely to develop antimicrobial resistance (AMR) when treated with antibiotics that have lost their potency	Temperature and humidity monitoring systems for transporting and storing medicines are advised.
	Air temperature less than 30°C and Relative humidity greater than 75%.		due to exposure to weather conditions that affect their stability.	
	Air temperature is between 25°C and 30°C; Relative humidity is between 70% and 75%.	Unconducive weather conditions tend to shorten the shelf life of medicines and could affect their overall potency.		Medical professionals should also advise patients on the proper storage of their medications to avoid degradation and loss of potency.



### 1.6.0 Heat Index

Caution for Heat Index is advised in most parts of the country in January 2025. Based on the anticipated air temperature and relative humidity, high levels of human discomfort and possibly heat stress are likely to be experienced in parts of Ogun and Oyo states (See Figure 11).

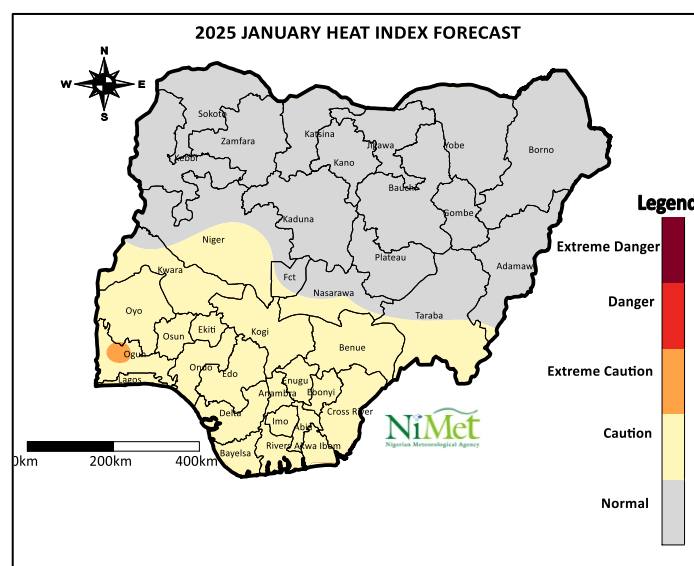


Figure 11: Heat Stress Vigilance for January 2025

**Table 4: Heat Index threshold, potential impacts and Advisory**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Measures
	Heat Index between 40°C and 52°C	The danger and extreme danger of heat stress are very likely in these areas. Heat cramps	People in these areas are more susceptible to heat stroke, exhaustion, loss of concentration, and possible damage to the brain, liver, and heart, which may lead to fainting.	(i) Use shades when engaging in outdoor activities to avoid direct exposure to heat from the sun.  (ii) Work and other outdoor activities should be carried out when the intensity of solar

		are possible. Heat cramps are the mildest form of heat-related illness. Symptoms of heat cramps often include heavy sweating, fatigue, thirst and muscle cramps.	In hot weather, body cools itself mainly by sweating. The evaporation of sweat regulates body temperature. But when involved in strenuous exercise or otherwise overexert in hot, humid weather, the body is less able to cool itself efficiently. Dehydration, which lessens body's ability to sweat is also another cause.	radiation is not severe. (iii) Dress in hot-weather-appropriate attire.  (iv) Reduce physically demanding labour when the weather is hot. (v) Keep the body hydrated by regularly drinking adequate water or other nutritious liquids.
	Heat Index between 33°C and 39°C	Moderate probability of heat stress.	Persistent and increased respiration rates can lead to exhaustion and fainting.	
	Heat Index between 27°C and 32°C	A low probability of heat	Thirst, loss of appetite, and fatigue. These may lead to other	
		stress is likely.	abnormal health conditions such as heat rash.	
	Heat Index equal to or lower than 26°C	Heat-related diseases and illnesses are unlikely to occur.		

# FEBRUARY 2025

## 2.1 The Climate in February 2025

The Inter-Tropical Discontinuity (ITD) position is expected to start its annual northward migration to latitudinal position of about 5.3°N in February compared to its mean position of 4.5°N in the previous month. This northward movement indicates an incursion of moisture-laden southwesterly winds into the country, resulting in rainfall activities in some southern parts of the country during the month.

## 2.2 The highlights of the Bulletin for February 2025 are as follows:

- *The expected maximum temperature in February 2025 is anticipated to be 30.1°C to 37.4°C across the country. The lowest value of 30.1°C is expected over plateau and highest value of 37.4°C is predicted over Adamawa, Nassarawa and Niger States.*
- *The nighttime temperatures across the country in February, 2025 are anticipated to range between 13.9°C and 25.7°C. The lowest and highest nighttime temperature of 13.9°C and 25.7°C is anticipated over Plateau and Lagos states respectively.*
- *The cumulative rainfall amounts across the country are anticipated to be between 0.0 mm and 82.7 mm. Most parts of the country are expected to have little or no rainfall. The coastal areas are expected to record rainfall amounts between 60.0mm and 80.0mm. Rainfall amounts of 20.0 mm to 60.0 mm are predicted over some places in the south.*
- *The expected climatic conditions in February 2025 suggest vigilance for malaria over the country with varying degrees. High vigilance is prescribed over Bayelsa, Lagos, parts of Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo and Osun states.*

*Moderate vigilance for malaria is prescribed over Abia, parts of Imo, Anambra, Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo, Ebonyi, Benue, Ekiti and Oyo states while low vigilance is prescribed over the northern and central states.*

- *The temperature and humidity anticipated in February 2025 are likely to cause drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance for drug and medication instability is recommended over the southern states and parts of the central states while moderate vigilance is prescribed over the northern parts of the country.*
- *Caution for Heat Index is advised in most parts of the country. Based on the anticipated air temperature and relative humidity, high levels of human discomfort and possibly heat stress are likely to be experienced in southern states and parts of Kogi, Benue, and states*

### 2.3.0 GENERAL OUTLOOK FOR 1<sup>ST</sup> TO 28<sup>TH</sup> FEBRUARY 2025

**2.3.1** The Inter-Tropical Discontinuity (ITD) position is expected to start its annual northward migration to latitudinal position of about 5.3°N in February compared to its mean position of 4.5°N in the previous month. This northward movement indicates an incursion of moisture-laden southwesterly winds into the country, resulting in rainfall activities in some southern parts of the country during the month.

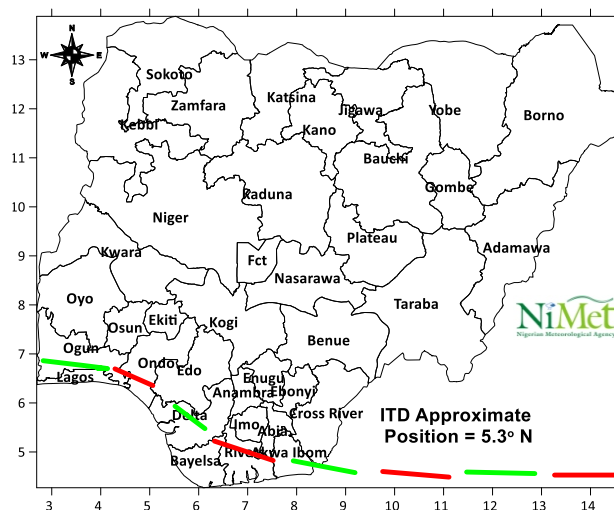


Figure 12: Projected ITD position in February 2025.



### 2.3.2 Rainfall Amount

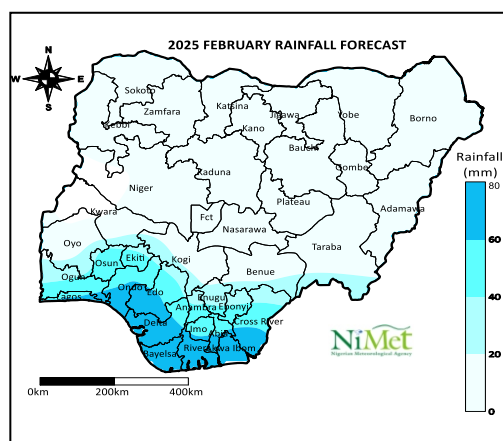


Figure 13: February 2025 rainfall amount forecast.

In February 2025, the cumulative rainfall amount across the country is anticipated to be between 0.0mm and 80.0 mm. Most parts of the country are expected to have little or no rainfall. The coastal areas are expected to record rainfall amounts between 60.0mm and 80.0mm. Rainfall amounts of 20.0 mm to 60.0 mm are predicted over the south. (Figure 13).

### 2.3.3 Relative Humidity (RH)

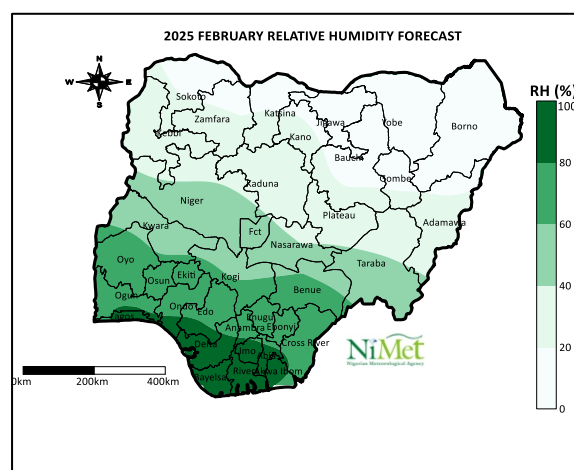


Figure 14: February 2025 Relative humidity forecast.

Relative humidity across Nigeria for February, 2025 are predicted to be within 20% to 100%, as shown in Figure 14. The highest range of values (80 – 100%) is expected over southern parts of the country. The extreme north is anticipated to record the lowest relative humidity within the range of (20 – 40%).

### 2.3.4 Mean Temperature

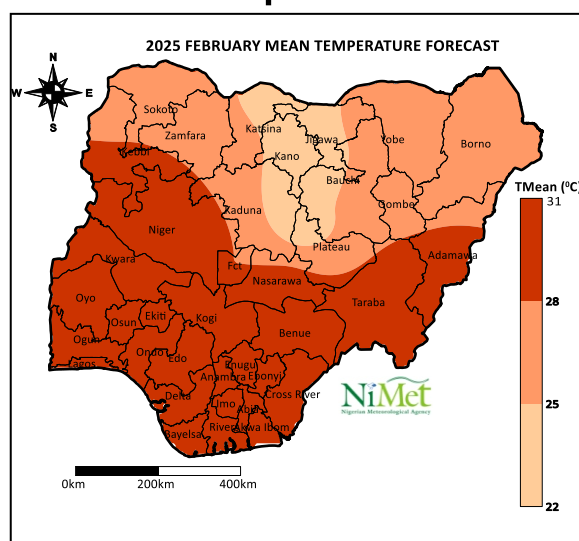


Figure 15: February 2025 Mean temperature forecast.

The predicted mean air temperatures for various locations across the country for February, 2025 are between 22.0°C and 31.0°C. The lower range (22.0°C to 25.0°C) is expected over Kano, parts of Plateau, Kaduna, Katsina, Jigawa, and Bauchi states. The next range (25.0°C to 28.0°C) is expected over Sokoto, Zamfara, Borno, Yobe, and Gombe states. Mean temperatures above 28°C are predicted for Kebbi, the central and southern states, as well as southern parts of Kebbi state (Figure 15).

### 2.3.5 Maximum (Daytime) Temperature

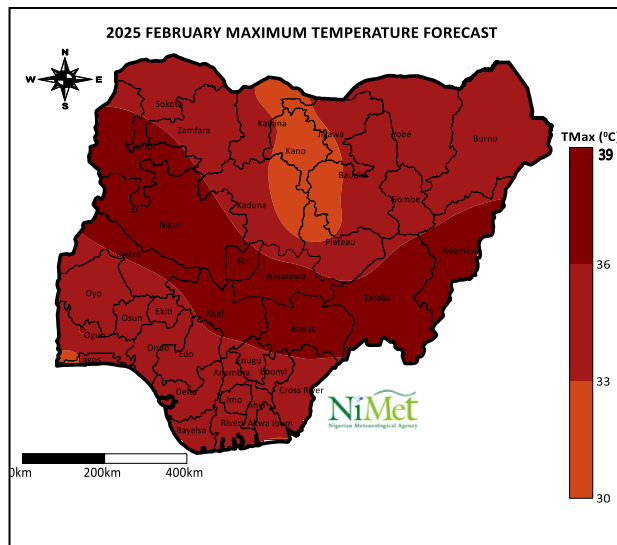


Figure 16: Maximum temperature forecast for February 2025.

The maximum temperature in February, 2025 is anticipated to be between 30.1°C and 37.4°C, across the country, as shown in Figure 5. The lower range (33.0°C to 33.0°C) is expected over Kano, parts of Plateau, Kaduna, Katsina, Jigawa, and Bauchi states. Maximum temperatures between 33.0°C to 36.0°C is predicted over Borno, Yobe, Gombe, Zamfara, and Sokoto states. The highest range of 36.0°C to 39.0°C is anticipated over parts of Kebbi, Adamawa and central states, Figure 16.

### 2.3.6 Minimum (Nighttime) Temperature

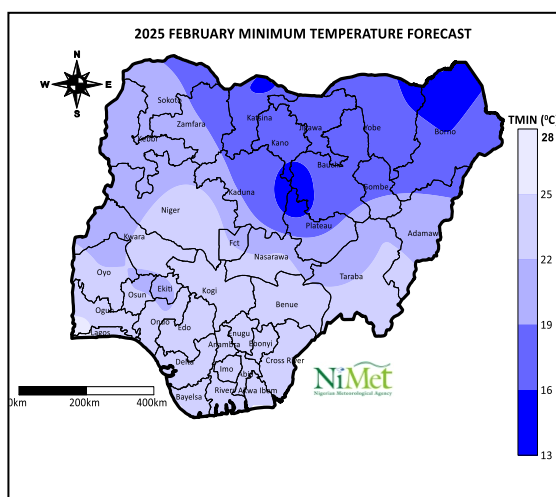


Figure 17: February 2025 minimum temperature forecast.

Minimum temperatures across the country in February, 2025 are anticipated to range between 13.9°C and 25.7°C, as shown in Figure 17. The lowest nighttime temperature range of 13.0°C to 17.0°C is anticipated over parts of Plateau, Yobe, Borno, Kaduna, and Katsina states. Minimum temperatures ranging from 16.0°C to 19.0°C are expected over Kano, Jigawa and parts of Gombe, Zamfara, Sokoto, Katsina, Borno, Plateau, Kaduna, Yobe and Adamawa states. The highest minimum temperature range of 25.0°C to 28.0°C is expected over the central and southern states during the period.

### 2.3.7 Dust Concentration

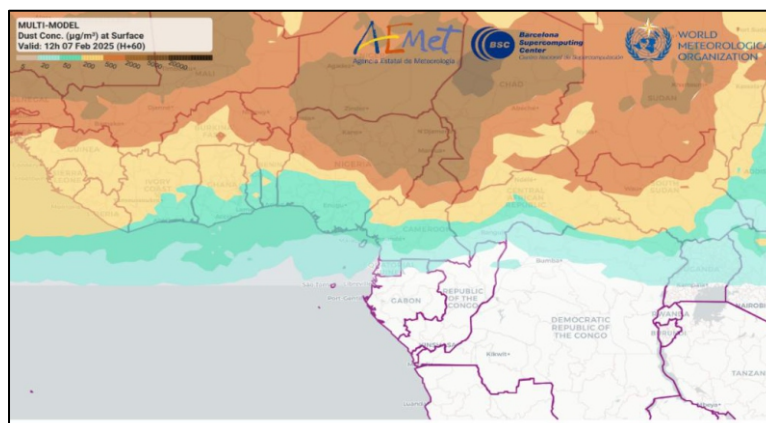


FIG 18: Dust Concentration ( $\mu\text{g}/\text{m}^3$ ) Ensemble valid for 7 February 2025  
Source: WMO Barcelona Dust Regional Center

Significant dust concentrations between (500–1000)  $\mu\text{g}/\text{m}^3$  are envisaged over the northern cities of Nigeria in February, while concentrations ranging from (200–500)  $\mu\text{g}/\text{m}^3$  are forecast over some northern and central cities. However, the rest of the country is expected to experience dust concentrations in the range of 50 to 100  $\mu\text{g}/\text{m}^3$ .

## 2.4.0 DISEASE VIGILANCE

### 2.4.1 Meningitis

The expected climatic conditions in February 2025 suggest high prospects of meningitis incidence in Yobe, Kano, Jigawa, and parts of Sokoto, Gombe, Zamfara, Katsina, Bauchi, and Borno states. Therefore, high vigilance for meningitis is recommended for these areas. Moderate vigilance is prescribed for the northern states of Kebbi, Adamawa, Plateau, Niger, Kaduna, and Taraba states. Low vigilance is prescribed over the central states, while no vigilance is prescribed for the southern states. (Figure 19).

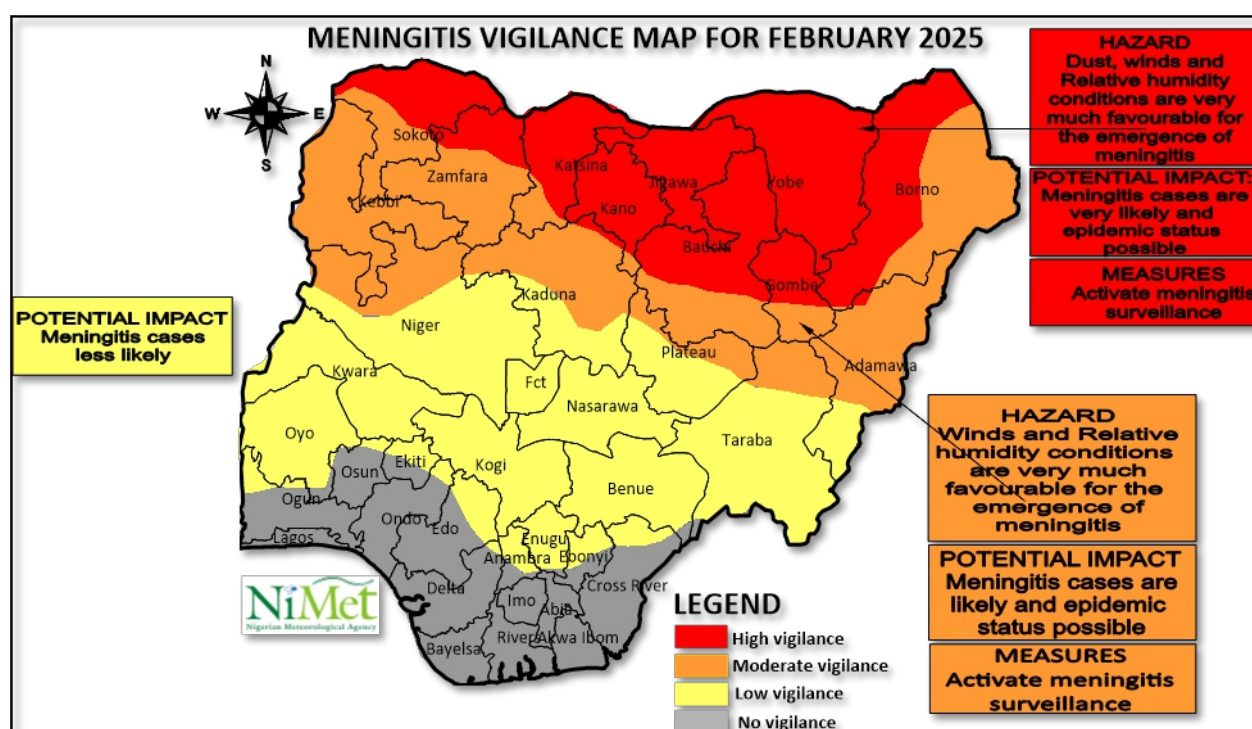


Figure 19: Meningitis Vigilance Map for February 2025

**Table 5: Climate Thresholds for Meningitis, Epidemic Characteristics and Advisory**

	<b>Climate Conditions</b>	<b>Hazard</b>	<b>Potential Impacts</b>	<b>Advisory/Precautionary Measures</b>
	(i) Temperature between 25°C and 32°C.  (ii) Relative humidity less than 20%.  (iii) Atmospheric concentration dust of 500–2000µg/m <sup>3</sup>	High probability of occurrence of meningitis cases.	(i) Meningitis could be fatal if not treated promptly and properly.  (ii) Meningitis is usually accompanied by neck stiffness, vomiting, lack of energy, sensitivity to light, lack of appetite, and confusion.  (iii) Meningitis causes inflammation of the brain which, in turn, may cause other problems like seizures, memory distress and loss of concentration.	(i) Avoid crowding and ensure adequate ventilation in homes. (ii) Use disposable tissue to cover mouth and nose when coughing or sneezing. (iii) Consistently wash hands well, especially after sneezing or coughing. (iv) Seek proper diagnosis and treatment at a medical facility if a sudden high fever or neck stiffness occurs. (v) It is recommended that all health care professionals always follow universal standard care measures, such as wearing gloves when handling patients or caring for sick relatives.
	(i) Temperature	Moderate probability of	(iii) Severe meningitis leaves	



	<p>between 20°C and 25°C.</p> <p>(ii) Relative humidity between 20% and 40%</p> <p>(iii) Atmospheric concentration dust of 200–500µg/m<sup>3</sup></p>	<p>occurrence of meningitis cases</p>	<p>children with learning disabilities afterwards and even deafness.</p>	
	<p>(i) Temperature below 25°C</p> <p>(ii) Relative humidity greater than 40%</p> <p>(iii) Atmospheric concentration dust of 50–200µg/m<sup>3</sup></p>	<p>Low probability of occurrence of meningitis cases</p>		
	<p>(i) Emergence of rainfall</p>	<p>The occurrence of meningitis is unlikely</p>		

## 2.4.2 Malaria

The expected climatic conditions in February 2025 indicate that incidence of malaria will occur across the country and suggest varying levels of vigilance for malaria. High vigilance is prescribed over Bayelsa, Lagos, parts of Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo and Osun states. Moderate vigilance is prescribed over Abia, parts of Imo, Anambra, Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo, Ebonyi, Benue, Ekiti and Oyo states while low vigilance is prescribed over the northern and central states (Figure 20).

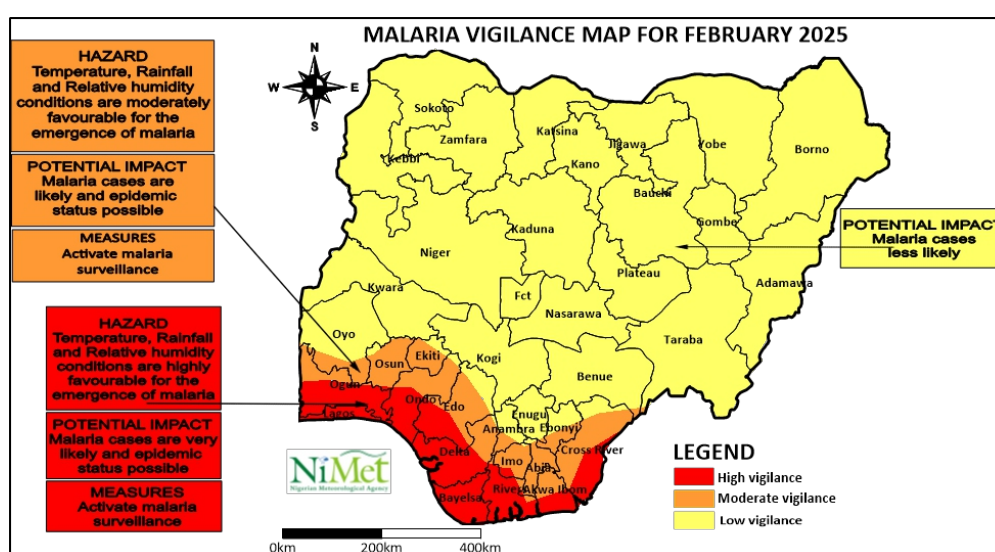


Figure 20: Malaria Vigilance for Map for February 2025

**Table 6: Climate Thresholds for Malaria, Epidemic Characteristics and Advisory**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Precautionary Measures
	(i) Temperature between 25°C and 32°C. (ii) Relative humidity greater than 80%. (iii) Rainfall	High probability of occurrence of malaria cases.	(i) Malaria could be fatal if not treated promptly and properly. (ii) Procurement of drugs for the treatment of malaria is expensive and therefore has	As much as possible, avoid mosquito bites by using insecticide-treated mosquito nets, fumigating the environment frequently, and clearing drainages and stagnant water around homes.

greater than 80 mm.		adverse impacts on the financial resources of individuals and government.	
(i) Temperature between 20°C and 25°C.  (ii) Relative humidity between 70% and 80%  (iii) Rainfall greater than or equal to 80 mm	Moderate probability of occurrence of malaria cases.	(iii) Malaria is usually accompanied by headache, fever, and body aches. These health conditions impact negatively on the patient's daily life.	Early diagnosis and treatment should be emphasized.
(i) Temperature	Low probability of	(iv) Malaria patients usually feel sick with high	To reduce the risk of contracting malaria, pregnant women are
between 18°C and 20°C  (ii) Relative humidity between 60% and 70%  (iii) Rainfall 80 mm	occurrence of malaria cases.	fever and shivering chills. As a result, malaria patients cannot undertake normal economic and social activities.	encouraged to take essential precautions such as using mosquito nets coated with pesticides when sleeping and taking anti-malaria prophylaxis.
(i) Temperature is less than 18°C or greater than 32°C;  (ii) Relative humidity is less than 60%;  (ii) Rainfall is less than 80 mm.	The occurrence of Malaria cases is unlikely.		

## 2.5.0 Medication Instability

The temperature and humidity anticipated in February 2025 are likely to cause different levels drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance is recommended over the southern states and parts of the central states while moderate vigilance is prescribed over the northern parts of the country. (See Figure 21).

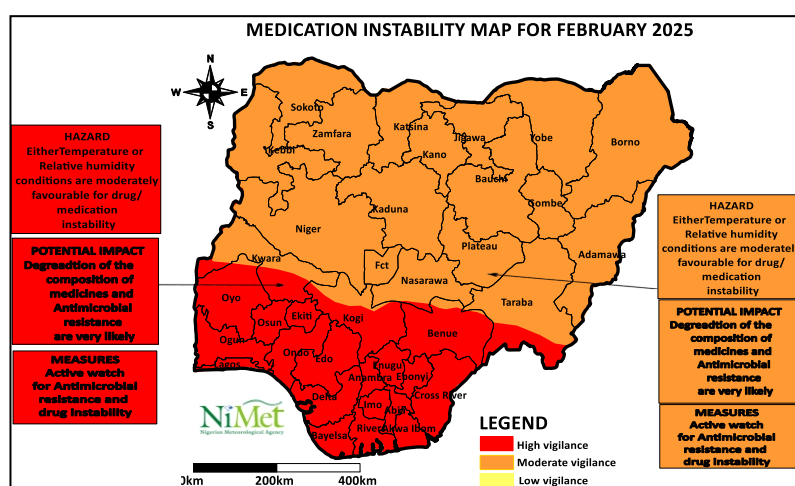


Figure 21: Medication Instability Vigilance for February, 2025

**Table 7: Climate Conditions for Medication Instability Thresholds, Potential Impacts and Advisory**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Precautionary Measures
	(i) Air temperature is greater than 30°C and, (ii) Relative humidity is greater than 75%.	These conditions are considered unsafe and unfavourable or inconducive for the storage of medicines.	(i) Drugs may lose their potency. Consequently, patients treated with such medications are not likely to recover as desired.  (ii) Microorganisms that cause some diseases may develop antimicrobial resistance (AMR).	In areas with high level of medication instability vigilance, there is need for greater caution when moving and storing medications.  Medicines should always be stored and transported using facilities with controlled temperature and humidity.



			(iii) Recovery of patients will be retarded when they are treated with antibiotics that have been exposed to weather conditions that affect their stability.	
	Air temperature is greater than 30°C and	The predicted temperatures and relative humidity are likely to	Microorganisms that cause diseases are likely to develop	Temperature and humidity monitoring systems for transporting and storing medicines are advised.
	Relative humidity is less than 75%.  OR  Air temperature less than 30°C and  Relative humidity greater than 75%.	cause depreciation in the quality of medicines.	antimicrobial resistance (AMR) when treated with antibiotics that have lost their potency due to exposure to weather conditions that affect their stability.	
	Air temperature is between 25°C and 30°C; Relative humidity is between 70% and 75%.	Unconducive weather conditions tend to shorten the shelf life of medicines and could affect their overall potency.		Medical professionals should also advise patients on the proper storage of their medications to avoid degradation and loss of potency.

## 2.6.0 Heat Index

Caution for Heat Index is advised in most parts of the country in January 2025. Based on the anticipated air temperature and relative humidity, high levels of human discomfort and possibly heat stress are likely to be experienced in southern states and parts of Kogi, Benue, and states (See Figure 22).

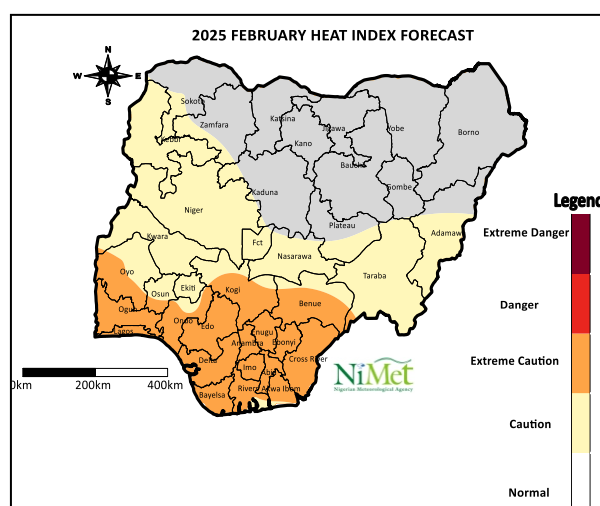


Figure 22: Heat Stress Vigilance for February 2025

**Table 8: Heat Index Thresholds, Potential Impacts and Advisory**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Measures
	Heat Index between 40°C and 52°C	The danger and extreme danger of heat stress are very likely in these areas. Heat cramps	People in these areas are more susceptible to heat stroke, exhaustion, loss of concentration, and possible damage to the brain, liver, and heart, which may lead to fainting. In hot weather, the human body cools	(i) Use shades when engaging in outdoor activities to avoid direct exposure to heat from the sun.  (ii) Work and other outdoor activities should be carried out when the intensity of solar

		are possible. Heat cramps are the mildest form of heat-related illness. Symptoms of heat cramps often include heavy sweating, fatigue, thirst and muscle cramps.	itself mainly by sweating. The evaporation of sweat regulates body temperature. But when involved in strenuous exercise or otherwise overexert in hot, humid weather, the body is less able to cool itself efficiently. Dehydration, which reduces the ability of the body to sweat.	radiation is not severe.  (iii) Dress in hot-weather-appropriate attire.  (iv) Reduce physically demanding labour when the weather is hot. (v) Keep the body hydrated by regularly drinking adequate water or other nutritious liquids.
	Heat Index between 33°C and 39°C	Moderate probability of heat stress.	Persistent and increased respiration rates can lead to exhaustion and fainting.	
	Heat Index between 27°C and 32°C	A low probability of heat stress is likely.	Thirst, loss of appetite, and fatigue. These may lead to other abnormal health conditions such as heat rash.	
	Heat Index equal to or lower than 26°C	Heat-related diseases and illnesses are unlikely to occur.		

# MARCH 2025

## 3.1 The Climate in March 2025.

The Inter-Tropical Discontinuity (ITD) position is predicted to oscillate northward with an average latitudinal position of 7°N in March. This northward movement will allow the penetration of the southwesterly winds and the influx of moisture into the country. This will result in rainfall activities in the southern parts of the country. Harmattan winds with dust haze are predicted to dominate the atmosphere over most of the northern states.

### 3.2.0 The highlights of the Bulletin for March 2025 are as follows:

- *Maximum temperatures at various locations across Nigeria in March 2025 are predicted to be between 32.4°C and 40.8°C. The lowest and highest maximum temperatures of 32.4°C and 40.8°C are anticipated over Plateau and Kebbi States, respectively.*
- *The minimum (nighttime) temperatures across the country in March 2025 are anticipated to range between 17.0°C and 27.0°C. The lowest nighttime temperature range of 17.0°C to 20.0°C is expected over parts of Plateau, Bauchi, and Kaduna states. During the same period, the central and southern states of the country are expected to experience the highest nighttime temperature range of 23°C to 27.0°C. The lowest and highest minimum temperatures of 17.1°C and 26.4°C are expected over Jos (Plateau state) and Lagos roof (Lagos state) respectively.*
- *The cumulative rainfall amount across the country is anticipated to be between 0.0mm and 182.8mm. The northern parts of the*

*country are expected to have little or no rainfall. The coastal areas are expected to record rainfall amounts between 80.0mm and 200.0mm. Rainfall amounts of 20.0 mm to 80.0 mm are predicted over parts of the south and central states.*

- The expected climatic conditions in March 2025 suggest high prospects of meningitis incidence in Jigawa, Katsina, Kano, Bauchi, Yobe, and Gombe states. Therefore, high vigilance is recommended for these areas. Moderate vigilance is prescribed for Sokoto, Zamfara, Kebbi, Borno, and parts of Plateau, Niger, Kaduna, Taraba, Bauchi, and Adamawa states. Low vigilance is advised over the central states; however, no vigilance is prescribed for the southern states.*
- The expected climatic conditions in March 2025 suggest low vigilance for malaria over the northern states. However, high vigilance is prescribed over Bayelsa, Lagos, Ekiti, Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo, Abia, and Osun states. Moderate vigilance is prescribed over parts of Anambra, Ebonyi, Benue, and Oyo states, while low vigilance is anticipated over the northern and central states*
- The temperature and humidity anticipated in March 2025 are likely to cause different levels of drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance is recommended over the southern states and parts of the central states, while moderate vigilance is prescribed over the northern parts of the country.*
- Caution for Heat Index is advised in most parts of the country. Based on the anticipated air temperature and relative humidity in*



*March 2025, high levels of human discomfort and possibly heat stress are likely to be experienced over parts of Benue, Ondo, Ogun, Anambra, Imo and Ebonyi states. Thus, extreme caution for heat stress is prescribed over the southern and central states. Caution is advised over the northern parts of the country*

### 3.3.0 GENERAL OUTLOOK FOR 1<sup>ST</sup> TO 31<sup>ST</sup> MARCH 2025

**3.3.1** The Inter-Tropical Discontinuity (ITD) position is predicted to oscillate northward with an average latitudinal position of 7°N in March. This northward movement will allow the penetration of the southwesterly winds and the influx of moisture into the country. This will result in rainfall activities in the southern parts of the country. Harmattan winds with dust haze are predicted to dominate the atmosphere over most of the northern states.

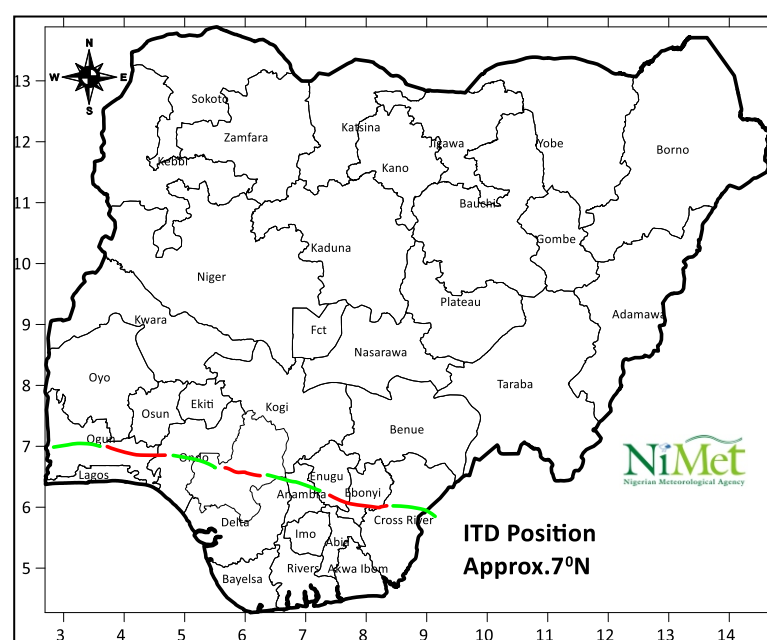


Figure 23: Projected ITD position in March 2025.

3.3.2 Precipitation Probabilities Forecast

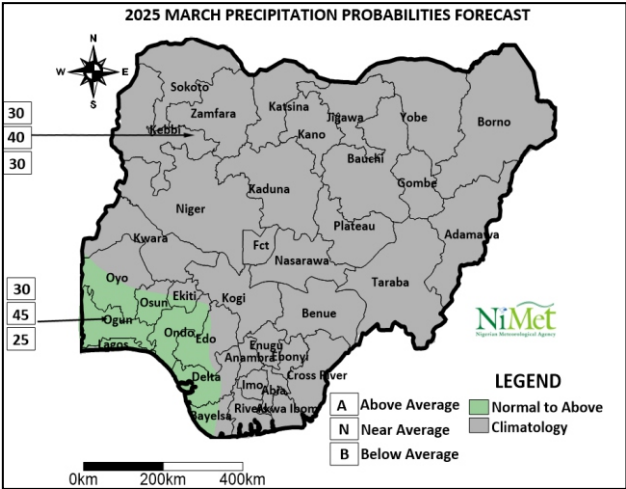


Figure 24: NiMet rainfall forecast for March 2025.

In March 2025, the precipitation probability forecast in Figure 24 indicates normal to above-normal rainfall amounts over the south west parts of the country, while normal is expected over most parts of the country.

3.3.3 Rainfall Amount

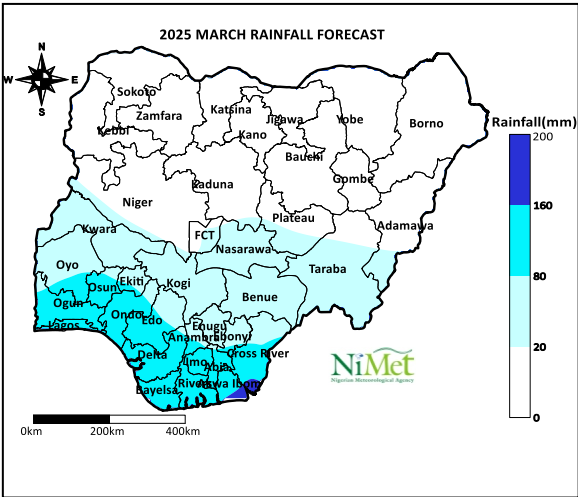


Figure 25: March 2025 rainfall amount forecast.

The forecast cumulative rainfall amount across the country for March 2025 is between 0.0mm and 182.8 mm. The northern parts of the country are expected to have little or no rainfall. The coastal areas are expected to record rainfall amounts between 80.0mm and 200.0mm. Rainfall amounts of 20.0 mm to 80.0 mm are predicted over parts of the south and central states. (Figure 25).

3.3.4 Relative Humidity (RH)

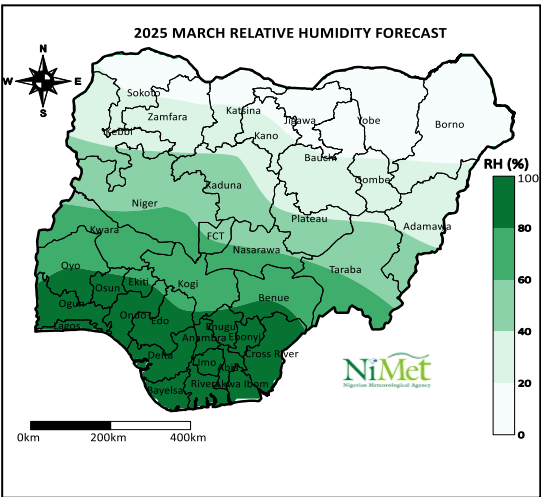


Figure 26: March 2025 Relative humidity forecast.

Relative humidity across Nigeria for March, 2025 are predicted to be within the range 0.0% to 100%, as shown in Figure 4. The highest range of values (80 – 100%) is expected over southern parts of the country. The extreme north is anticipated to record the lowest relative humidity within the range of (0.0 to 20%).

### 3.3.5 Mean Temperature

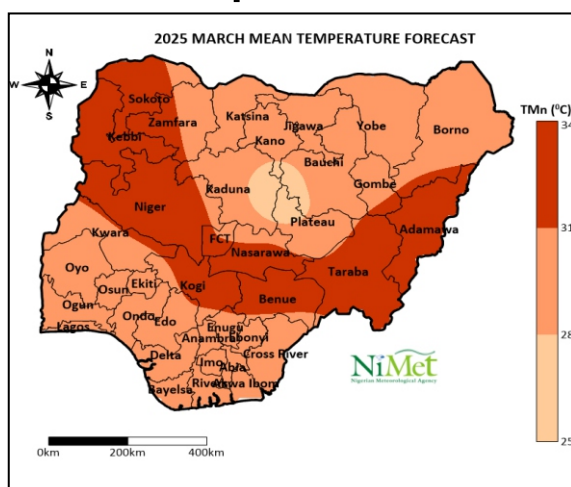


Figure 27: March 2025 Mean temperature forecast.

The predicted mean air temperatures for various locations across the country for March, 2025 are between 25.0°C and 34.0°C. The lowest range (25.0°C to 28.0°C) is expected over the parts of Plateau, Kaduna, Kano and Bauchi states. The highest range (31.0°C to 34.0°C) is anticipated over Kebbi, Sokoto, Zamfara and central states. Mean temperatures ranging from 28.0°C to 31.0°C are expected over Borno, Yobe, Gombe, Jigawa, Katsina, and southern states in March 2025.

### 3.3.6 Maximum (Daytime) Temperature

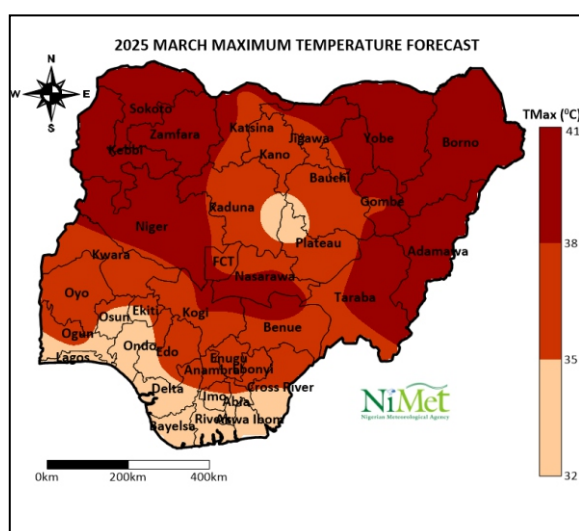


Figure 28: Maximum temperature forecast for March 2025.

The maximum temperature in March, 2025 is anticipated to be between 32.4°C and 40.8°C, across the country, as shown in Figure 28. The highest range (38.0°C to 41.0°C) is expected over northern states of Borno, Yobe, Adamawa, Sokoto, Zamfara, Kebbi, Niger, Nasarawa and Taraba. The lowest range (32.0°C to 35.0°C) is predicted over coastal states and parts of Plateau, Kaduna, Bauchi states.

### 3.3.7 Minimum (Nighttime) Temperature

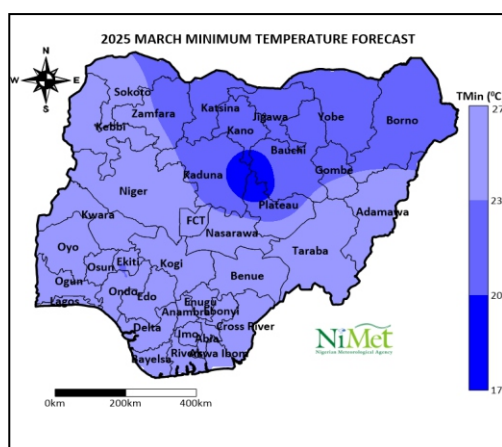


Figure 29: March 2025 minimum temperature forecast.

The minimum temperatures across the country in March 2025 are anticipated to range between 13.9°C and 25.7°C, as shown in Figure 29. The lowest nighttime temperature range of 17.0°C to 20.0°C is anticipated over parts of Plateau, Bauchi, and Kaduna states. Nighttime temperatures ranging from 20.0°C to 23.0°C are expected over Borno, Katsina, Yobe, Kano, Jigawa and parts of Gombe, Zamfara, and Sokoto states. The highest temperature range of 23.0°C to 27.0°C is expected over the central and southern parts of the country.



**Table 9: Meningitis Threshold, Epidemic Characteristics and Advisory for March 2025**

	<b>Climate Conditions</b>	<b>Hazard</b>	<b>Potential Impacts</b>	<b>Advisory/Precautionary Measures</b>
	(i) Temperature between 25°C and 32°C. (ii) Relative humidity less than 20%. (iii) Atmospheric concentration of dust of 500–2000µg/m <sup>3</sup>	High probability of occurrence of meningitis cases.	(i) Meningitis could be fatal if not treated promptly and promptly. (ii) Meningitis is usually accompanied by neck stiffness, vomiting, lack of energy, sensitivity to light, lack of appetite, confusion e.t.c. (iii) Meningitis causes inflammation of the brain, which in turn causes other problems like seizures, memory distress and loss of concentration.	(i) Avoid crowding and ensure good ventilation and adequate airflow in homes. (ii) Use disposable tissue to cover the mouth and nose when coughing or sneezing. (iii) Ensure regular washing of hands, especially after sneezing or coughing. (iv) Seek proper diagnosis and treatment at a medical facility if a sudden high fever or neck stiffness occurs. (v) It is recommended that all health care professionals always follow universal care measures, such as wearing gloves when handling patients or caring for sick persons.
	(i) Temperature between 20°C and 25°C. (ii) Relative humidity	Moderate probability of occurrence of meningitis cases	(iii) Severe meningitis leaves children with learning disabilities afterwards and even deafness.	



between 20% and 40%			
(iii) Atmospheric concentration dust of 200-500µg/m <sup>3</sup>			
(i) Temperature below 25°C	Low probability of occurrence of meningitis cases		
(ii) Relative humidity greater than 40%			
(iii) Atmospheric concentration dust of 50-200µg/m <sup>3</sup>			
(i) Emergence of rainfall	The occurrence of meningitis is unlikely		

### 3.4.2 Malaria

The expected climatic conditions in March 2025 suggest low probability of occurrence of malaria in the northern states. Low vigilance for malaria over the northern states is therefore recommended for these states during the month. On the other hand, high vigilance is prescribed over Bayelsa, Lagos, Ekiti, Ogun, Rivers, Cross River, Akwa Ibom, Delta, Ondo, Edo, Imo, Abia, and Osun states where the anticipated climate conditions very likely to favour the breeding of mosquitoes, and hence high likelihood of occurrence of malaria. Moderate vigilance is prescribed over parts of Anambra, Ebonyi, Benue, and Oyo states, while low vigilance is prescribed over the northern and central states (Figure 32).

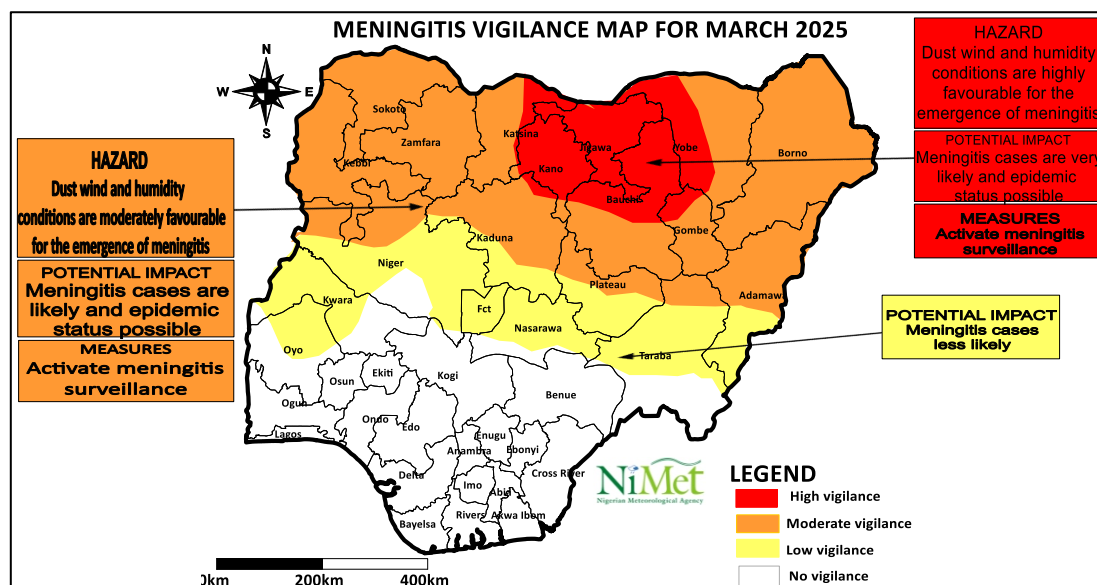


Figure 32: Malaria Vigilance for Map for March 2025

**Table 10: Malaria Threshold, Epidemic Characteristics and Advisory for March 2025**

	Climate Conditions	Hazard	Potential Impacts	Advisory/Precautionary Measures
	(i) Temperature between 25°C and 32°C. (ii) Relative humidity greater than 80%. (iii) Rainfall greater than 80 mm.	High probability of occurrence of malaria cases.	(i) Malaria could be fatal if not treated promptly and properly. (ii) Procurement of drugs for the treatment of malaria is expensive and therefore has adverse impacts on the financial resources of individuals and the government.	As much as possible, avoid mosquito bites by using insecticide-treated mosquito nets, fumigating the environment frequently, and clearing drainages and stagnant water around homes.
	(i) Temperature between 20°C and 25°C. (ii) Relative humidity between 70% and 80%	Moderate probability of occurrence of malaria cases.	(iii) Malaria is usually accompanied by headache, fever, and body aches. These health	Early diagnosis and treatment should be emphasized.

(iii) Rainfall greater than or equal to 80 mm		conditions impact the patient's daily life.	
(i) Temperature	Low probability of	(iv) Malaria patients usually feel sick with high	To reduce the risk of contracting malaria, pregnant women are
between 18°C and 20°C  (ii) Relative humidity between 60% and 70%  (iii) Rainfall 80 mm	occurrence of malaria cases.	fever and shivering chills. As a result, malaria patients cannot undertake normal economic and social activities.	encouraged to take essential precautions such as using mosquito nets coated with pesticides when sleeping and taking anti-malaria prophylaxis.
(i) Temperature is less than 18°C or greater than 32°C;  (ii) Relative humidity is less than 60%;  (ii) Rainfall is less than 80 mm.	The occurrence of malaria cases is unlikely.		

### 3.5.0 Medication Instability

The temperature and humidity anticipated in March 2025 are likely to cause drug and medication instability across Nigeria. Based on the expected climatic conditions, high vigilance is recommended over the southern states and parts of the central states, while moderate vigilance is prescribed over the northern parts of the country. (See Figure 33).

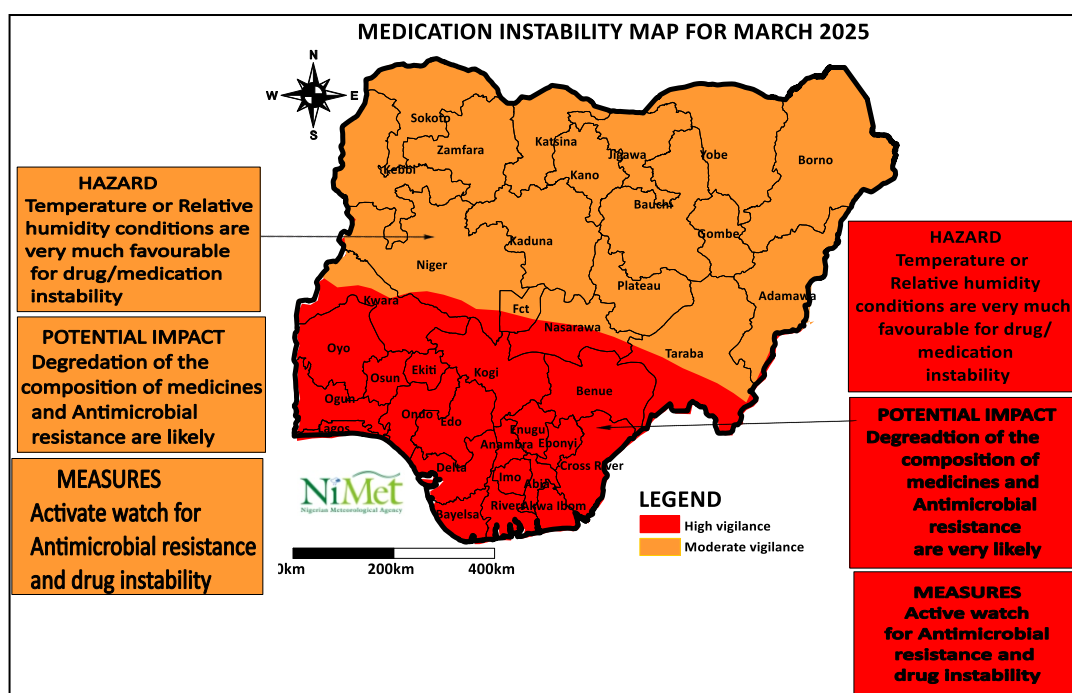


Figure 33: Medication Instability Vigilance for March 2025

**Table 11: Medication Instability Threshold, Potential Impacts and Advisory for March 2025**

	<b>Climate Conditions</b>	<b>Hazard</b>	<b>Potential Impacts</b>	<b>Advisory/Precautionary Measures</b>
	(i) Air temperature is greater than 30°C and, (ii) Relative humidity is greater than 75%.	These conditions are considered unsafe and unfavourable, or inconducive for the storage of medicines.	(i) Drugs may lose their potency. Consequently, patients treated with such medications are not likely to recover as desired.	In areas with high medication instability vigilance thresholds, there is a need for greater caution when moving and storing medications.  Medicines should always be stored and transported using
			(ii) Microorganisms that cause some diseases may develop antimicrobial	facilities with controlled temperature and humidity.

			<p>resistance (AMR).</p> <p>(iii) Recovery of patients will be retarded when they are treated with antibiotics that have been exposed to weather conditions that affect their stability.</p>	
	<p>Air temperature is greater than 30°C and Relative humidity is less than 75%.</p> <p><b>OR</b></p> <p>Air temperature less than 30°C and</p>	The predicted temperatures and relative humidity are likely to cause a depreciation in the quality efficacy of medicines.	Microorganisms that cause diseases are likely to develop antimicrobial resistance (AMR) when treated with antibiotics that have lost their potency due to exposure to weather conditions that affect their stability.	Temperature and humidity monitoring systems for transporting and storing medicines are advised.
	Relative humidity greater than 75%.			
	Air temperature is between 25°C and 30°C;	Unconducive weather conditions tend to shorten the		Medical professionals should also advise patients on the proper storage of their medications to avoid

	Relative humidity is between 70% and 75%.	shelf life of medicines and could affect their overall potency.		degradation and loss of potency.
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3.6.0 Heat Index

Different levels of Heat Index severity are anticipated across Nigeria in March 2025. Caution for heat stress is therefore advised in most parts of the country. Based on the anticipated air temperature and relative humidity, high levels of human discomfort and possibly heat stress are likely to be experienced over parts of Benue, Ondo, Ogun, Anambra, Imo and Ebonyi states during the month. Thus, Extreme caution is therefore prescribed over the southern and central states. Caution is advised over the northern parts of the country (See Figure 34).

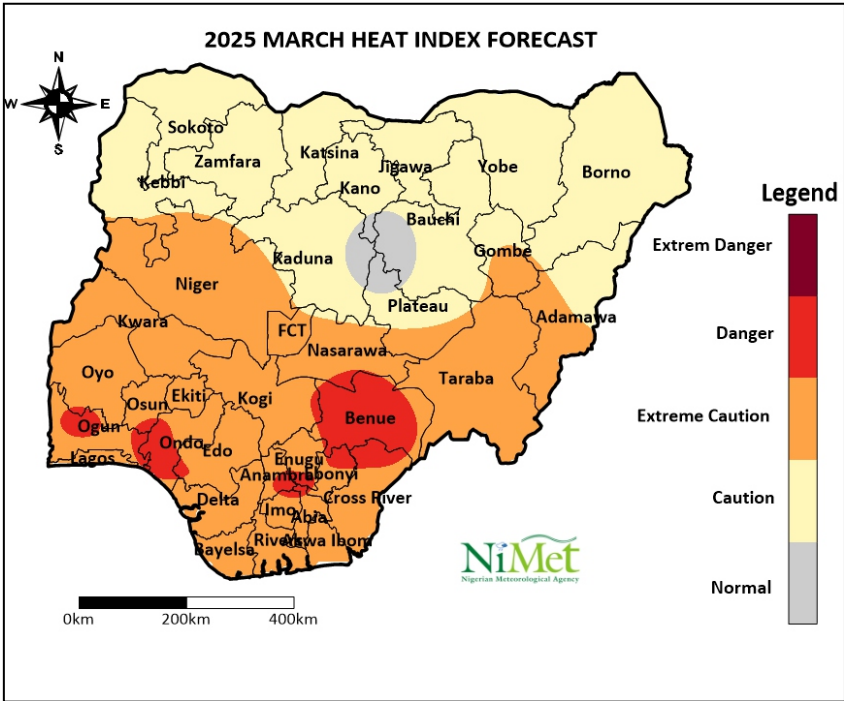


Figure 34: Heat stress Vigilance for March 2025



**Table 12: Heat Index Threshold, Potential Impacts and Advisory for March 2025**

	<b>Climate Conditions</b>	<b>Hazard</b>	<b>Potential Impacts</b>	<b>Advisory/Measure s</b>
	Heat Index between 40°C and 52°C	Danger and extreme danger of heat stress are very likely in these areas where the Heat Index is between	People in these areas are at risk of heat stroke, exhaustion, loss of concentration, and possible damage to the brain, liver, and heart, which may lead to fainting.	(i) Use shades when engaging in outdoor activities to avoid direct exposure to heat from the sun.  (ii) Work and other outdoor activities should be carried out when the intensity of solar
		40°C and 52°C.		radiation is not severe.
	Heat Index between 33°C and 39°C	Moderate probability of heat stress.	Persistent and increased respiration rates can lead to exhaustion and fainting.	(iii) Dress in hot-weather-appropriate attire.  (iv) Reduce
	Heat Index between 27°C and 32°C	A low probability of heat stress is likely.	Thirst, loss of appetite, and fatigue. These may lead to other abnormal health conditions, such as heat rash.	physically demanding labour when the weather is hot. (v) Keep the body hydrated by regularly drinking adequate water or other nutritious
	Heat Index equal to or lower than 26°C	Heat-related diseases and illnesses are unlikely to occur.		liquids.

**National Weather Forecasting and Climate Research Centre**  
**Nnamdi Azikiwe International Airport, Abuja**  
**[info@nimet.gov.ng](mailto:info@nimet.gov.ng)**  
**[www.nimet.gov.ng](http://www.nimet.gov.ng)**



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