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2025 Seasonal Climate Prediction (SCP)

The Role of Early Warnings Towards A Climate Resilient Aviation Industry for Sustainable Socio-Economic Development

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2025

Seasonal Climate Prediction

The Role of Early Warnings Towards A Climate Resilient Aviation Industry for Sustainable Socio-Economic Development

A publication of Nigerian Meteorological Agency

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Foreword

Early warnings can be a lifesaver in these times of escalating climate change. Therefore, much emphasis is placed on the role of Meteorology in climate change mitigation and adaptation, including creating a climate-resilient society.

The aviation industry in Nigeria is at a pivotal moment where integration of early warnings by the Nigerian Meteorological Agency (NiMet) is crucial for building a climate-resilient aviation sector that saves lives and property thereby supporting sustainable socio-economic development. In the 2025 edition of the SCP, the Agency has highlighted the role of Early Warnings in aviation considering the recent extreme weather events amidst changing climate, hence the theme of the 2025 SCP: The Role of Early Warnings towards a Climate Resilient Aviation Industry for Sustainable Development.

A climate-resilient aviation industry is vital for Nigeria's socio-economic development. Reliable air transport is essential for global trade, tourism, and connectivity, which sequentially drive economic growth, create jobs, and foster international cooperation.

In his message at the UNFCCC COP29, President Bola Ahmed Tinubu GCFR emphasized Nigeria's dedication to securing international climate financing and improving access to climate funds. He also highlighted the importance of early warning systems and the need for enhanced resilience against climate impacts. The United Nations' Early Warnings for All (EW4All) Initiative (whereby all citizens of the world are protected by early warnings by the year 2027) is still in progress, and the WMO has reiterated calls on Members to accelerate its implementation to save lives and livelihoods. NiMet's Seasonal Climate Prediction perfectly fits this initiative and more.

The SCP has been serving Nigerians across several sectors for over a decade, providing climate information with adequate lead time before the beginning of each season. The 2025 Seasonal Climate Prediction (SCP) is based on the Neutral phase of the El Niño Southern Oscillation (ENSO) Nino 3.4 Region of the Pacific Ocean (5°N – 5°S, 170°W-120°W) will most likely persist. Unlike the previous year, the 2025 Seasonal Climate Prediction is based on a Neutral ENSO phase predicted by global ENSO prediction centres to dominate during the initial 6 to 8 months of 2025.

The SCP is an Early Warning Tool that provides information on the onset and cessation dates of the rainy season, Length of the rainy season; Annual Total amount of rainfall; Dry Spell Occurrence; Little Dry Season (August Break); Temperature (Day & Night) Forecast; climate

and health, and more, including the socio-economic implications of the prediction in food security, transportation, energy, water, environment, communication etc. It is also summarized for easy access and readability for the Nation's policymakers and translated into Hausa, Igbo, Yoruba, and Pidgin English to increase access and improve uptake for improved climate-resilient communities.

As the Ministry of Aviation and Aerospace Development continues to strengthen Early Warning capabilities through NiMet, I encourage ALL, stakeholders, including state governments, to partner with the Nigerian Meteorological Agency in disseminating the seasonal climate prediction across states, and communities (vulnerable) to ensure adequate preparedness for climate disasters. Also, pay critical attention to the 2025 Seasonal Climate Predictions, heed the warnings, make informed decisions, take early actions, and, more importantly, follow up with NiMet for necessary updates and advisories during the season.

Together, we can build a more resilient society and economy that is well-prepared to face the challenges of climate change, ensuring a safer and more sustainable world for future generations.

Festus Keyamo, SAN, CON, FCIArb (UK)
Honourable Minister of Aviation and Aerospace Development
(Minister in charge of Meteorology in Nigeria)

February 2025

Executive Summary

The Nigerian Meteorological Agency (NiMet) produces the Seasonal Climate Prediction (SCP) annually to fulfil its statutory responsibility to advise the Government and people of Nigeria on all aspects of weather and climate. The SCP gives the outlook of various climate variables, such as the year's rainfall and temperature patterns in Nigeria. NiMet produces these forecasts using state-of-the-art forecasting techniques, long-term meteorological data, and contemporary scientific knowledge. The information presented in the SCP publication is relevant for policy formulation, planning, and decision-making by operators, stakeholders, and individuals in both private and public sectors in Nigeria. The SCP provides a glimpse of some essential climate parameters and their behaviour within the season. Furthermore, a co-production process involving relevant stakeholders from weather-sensitive sectors such as agriculture, aviation, construction, water resources, health, trade, livestock, and tourism was implemented to achieve these remarkable user-tailored forecasts.The 2025 Seasonal Climate Prediction (SCP) is based on the fact that the Neutral phase of the El Nino Southern Oscillation (ENSO) Nino 3.4 Region of the Pacific Ocean (5°N – 5°S, 170°W-120°W) will most likely persist. Unlike the previous year, the 2025 Seasonal Climate Prediction is based on a Neutral ENSO phase predicted by global ENSO prediction centres to dominate during the first 6 to 8 months of 2025. Both Dynamical and Statistical ensemble model-based probabilistic forecasts from the Institute of Research for Climate and Society (IRI), USA[1], and the Bureau of Meteorology (BoM), Australia favours a Neutral ENSO phase from late 2024 to mid-2025. Furthermore, rainfall, temperature, soil moisture data, water balance, farm management practices, and other phenological and soil type information were factored into these forecasts.

Pre-Onset Activities (False Onset)

Most parts of the country will experience significant rainfall events at the beginning of 2025, these rains will likely come before the onset. These early rains are actuated by atmospheric climate drivers such as the Madden-Julian Oscillation and the Mid-Latitude Wave. The occurrence of these early rainfalls should not be taken to be the onset of rainy season. Those engaged in rainfed agriculture and other-rainfall dependent activities in Nigeria are therefore advised to refer to the predicted onset dates in this publication or consult NiMet for proper guidance

Rainfall Onset Dates

The onset of rain is predicted to be delayed over the northern and central states of Plateau as well as parts of Kaduna, Niger, Benue, Nasarawa, Taraba, Adamawa, and Kwara. While early onset is expected over the southern states of Delta,

[1] https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-iri_plume

Bayelsa, Rivers, Anambra, and sections of Oyo, Ogun, Osun, Ondo, Lagos, Edo, Enugu, Imo, and Ebonyi. The rest of the country is predicted to have a normal onset.

Rainfall Cessation Dates

The predicted end-of-rainy season compared to the long-term average indicates that parts of Zamfara, Katsina, Kano, Kaduna, Jigawa, Plateau, Bauchi, Borno, Yobe, Adamawa, Taraba, Niger, Kwara, Kogi, FCT, Ekiti, and Ondo states are expected to be early. A delayed end of season is expected over parts of Kaduna, Nasarawa, Benue, Lagos, Kwara, Taraba, Oyo, Ogun, Cross River, Delta, Akwa Ibom, Ebonyi, Anambra, and Enugu states.

Length of 2025 Rainy Season

The predicted length of rainy season in 2025 is expected to be mostly normal over most parts of the country. However, Borno and parts of Yobe states could experience shorter than normal length of season. Lagos, and Nasarawa states are likely to have longer than normal length of seasons in 2025.

Rainfall Amounts

The predicted 2025 annual rainfall is anticipated to be normal to below-normal rainfall in most parts of Nigeria compared to the long-term average. Parts of Kebbi, Kaduna, Ebonyi, Cross River, Lagos Abia, Akwa Ibom states, and the FCT are expected to have above-normal annual rainfall amounts. High-intensity rainfall is expected in May-June that may likely result in flash floods in the coastal cities.

Temperature

Temperatures are expected to be generally above the long-term average across the country. Both daytime and nighttime temperatures are predicted to be warmer than the long-term average over most parts of the country in January, February, March, and May 2025. However, April day and nighttime temperatures are predicted to be cooler than normal, while warmer than normal temperatures are likely over most of the northern states.

Dry Spells

The Prediction shows that in the April - May -June season, there is a likelihood of a severe dry spell of above 15 days after the establishment of rainfall in Oyo state (Saki, Iseyin, Ogbomosho, Atisbo, Orelope, Itesiwaju, Olorunsogo, Kajola, Iwajowa and Ori Ire). Moderate dry spell that may last 15 days is likely to occur in Ekiti, Osun, Ondo, Ogun, Edo, Ebonyi, Anambra, Imo, Abia, Cross River, Delta, Bayelsa, and Akwa Ibom states in the south. A severe dry spell that may last up to 21 days is predicted for the northern states of Nigeria during the June-July-August season of 2025.

Little Dry Season (LDS)

It is expected that the Little Dry Season (LDS) event of 2025 will only be severe over parts of Lagos and Ogun states. The number of days with little or no rainfall will range between 27 to 40 days. The average start day of the Little Dry Season for 2025 across the southwest is July 22nd. Moderate LDS effect is expected over parts of Ogun, Oyo, and Ekiti states. Osun, Oyo, Kwara, and parts of Ondo north are likely to experience light or mild Little Dry Season.

These forecasts serve as an early warning tool to stakeholders, state governments, and the general public for timely preparedness against potential hazards associated with heavy rains, floods, and high temperatures, as well as dry spells in parts of the country.

The 2025 SCP serves as an early warning tool for all Nigerians in line with the United Nations Early Warning for all initiatives and to climate-proof the Eight-point agenda of President Bola Ahmed Tinubu GCFR.

Professor Charles Anosike
Director General/CEO
Nigerian Meteorological Agency (NiMet) & Permanent Representative of Nigeria with WMO

February 2025

Chapter One

The Scientific Basis for the Prediction

1.0 Climate Drivers

1.1 ENSO Synopsis

The El Niño-Southern Oscillation (ENSO), which describes the state of the sea surface temperature over the central Pacific Ocean plays a very active role amongst other climatic drivers, in modulating and influencing atmospheric changes, weather, and climate from one season to another across the globe and over Nigeria. This is because a strong teleconnection exists between Sea Surface Temperatures (SST) of the tropical central Pacific Ocean NINO 3.4 region (latitude 5°N to 5°S, longitude 170°W to 120°W) and weather/climate patterns in different parts of the world, including West Africa and Nigeria. On this basis, NiMet uses the prevailing ENSO phase each year and long-term climatological data to drive the NiMet Seasonal Climate Prediction.

According to the Global ENSO Prediction centres, the neutral phase of ENSO will be predominant in the first 6 to 8 months of 2025. Both the Dynamical and Statistical ensemble model-based probabilistic forecasts from the Institute of Research for Climate and Society (IRI), USA, and the Bureau of Meteorology (BoM), Australia favour a Neutral ENSO phase from late 2024 to mid-2025. The 2025 Seasonal Climate Prediction is therefore based on a Neutral ENSO phase.

There is an approximately 60% probability of a neutral phase persisting throughout the January-February-March (JFM) season. Thereafter, the chances increase steadily to about 77% by the March-April-May (MAM) season after which the chances of a neutral ENSO phase decrease steadily to reach 51% by the July-August-September (JAS) season (Figure 1). Chances are, therefore, high that a neutral phase is likely to prevail from January to September 2025. The implication of a neutral ENSO phase is that the weather pattern over Nigeria during the year will be near average (near-normal). In the course of the year, the ENSO signal could also tilt towards a cold (La Niña) or warm (El Niño) phase depending on the dominant SST anomalies (positive or negative) that will prevail during the season. Each phase has its characteristic impact on the weather of Nigeria.

The Indian Ocean Dipole (IOD) is also predicted to be neutral in 2025 in agreement with the predicted ENSO phase (Figure 2)

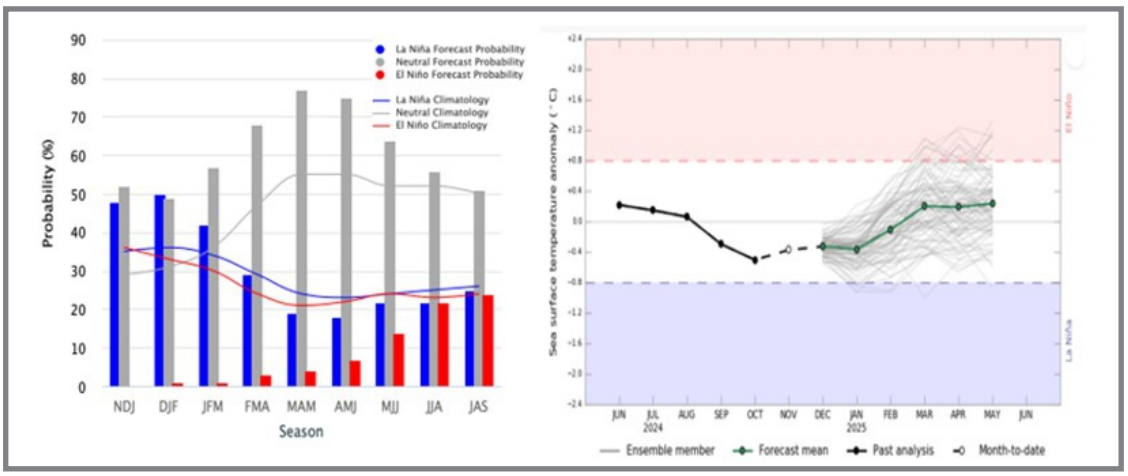

Figure 1: IRI/CPC and Bureau of Meteorology Australia Consensus ENSO Forecast

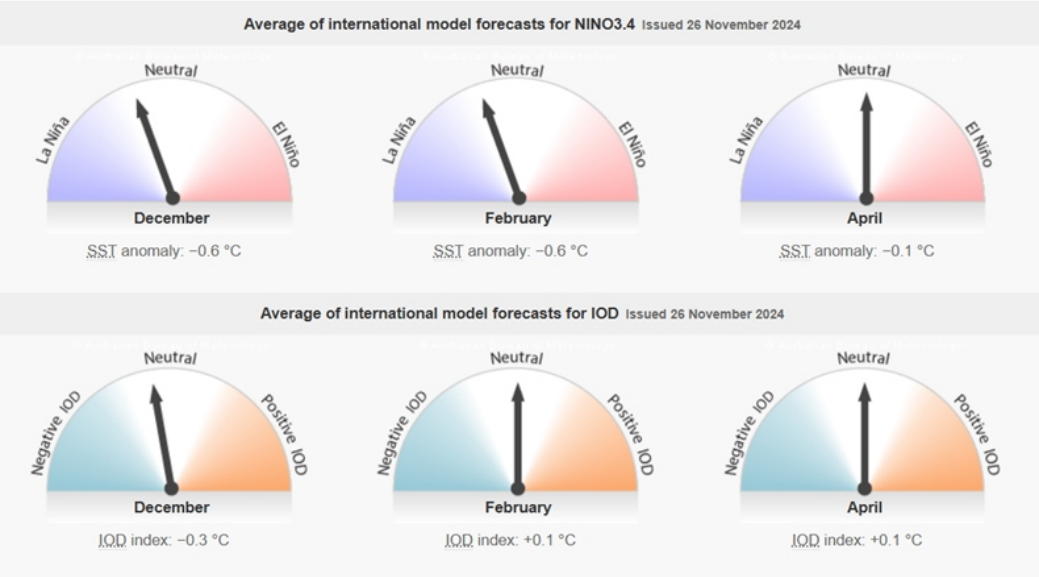

Figure 2: IRI/CPC/BoM Consensus ENSO Forecast

1.2 Pre-Onset Rainfall Events

The commencement of the rainy season every year in Nigeria follows the establishment of the southwest monsoon, which transports the moisture that feeds the weather systems over Nigeria. However, some isolated rainfall events occur in the country every year before the onset and the full establishment of the rainy season. These pre-onset rains are at times significant enough in terms of duration and intensity and are often misinterpreted to be the onset of the rainy season. Some farmers hasten to plant as soon as the pre-onset rainfall is observed, thinking that the rainy season, and hence the onset of the planting season, has commenced. The pre-season rainfall events are insufficient to support growth and development of crops. This usually results in crop failure and huge losses to the farmers. In order to avoid such losses, Farmers are therefore advised to consult NiMet Seasonal Climate Prediction to know the true onset date for their location.
Significant rainfall events will occur at the beginning of 2025; these rains will likely come before the onset is established.

The atmospheric phenomena that drive the pre-onset rainfall activities across Nigeria include:

1. **The Mid-Latitude Wave:** One of the most obvious challenges right now is the further warming of our planet. 2023 ended as the warmest year on historical record, and 2024 according to WMO is already set to be the warmest year on record and has exceeded the 1.5℃ limit set at COP 21 in Paris 2015. The activity of the Mid-Latitude trough, which is an extension of the Rossby waves, is equally affected by temperature differences between the polar region and the mid-latitudes. As global temperatures keep increasing, the extension and passage of the Mid-Latitude trough towards and over Northern Africa is expected to increase due to reduced temperature differential between the Arctic pole and the Mid-Latitude. This will increase the prospects of rains, and significant ones at that before the establishment of the rainy season.

2. **The Madden-Julian Oscillation:** One of the challenges of Global warming is the distortion of the general global circulation which affects convective atmospheric phenomena like the Madden - Julian Oscillation (MJO). The speed, strength and domain time of the MJO is likely to be very erratic in 2025 due to continuous changes of the general global circulation. The MJO has the potential to bring about significant rains before the establishment of the 2025 rainy season resulting from meridional moisture influx.

Chapter Two

2025 Seasonal Climate Predictions

2.0 Rainfall and Temperature Predictions

The 2025 SCP forecast is based on the El Niño (Neutral) phase of the ENSO projection which is characterized by normal temperatures, lower-than-normal rainfall, and shorter length of season for most parts of the country.

2.1 Rainfall Predictions

2.1.1 Onset Dates of Rainy Season & Departure from Normal (Long-term Average)

The onset of the rainy season is anticipated between March and April over the southern states of Lagos, Ogun, Ondo, Ekiti, Edo, Cross River, Enugu, Ebonyi, Imo, Abia, and Anambra, and between April and May over the central states of Niger, Kwara, Kogi, Benue, Plateau, Nasarawa, Taraba and the FCT. The onset of the rainy season over Sokoto, Zamfara, Katsina, Kano, Jigawa, Bauchi, Yobe, and Borno states is anticipated between early June and July 2025.

The 2025 onset of rain is predicted to be delayed over the northern and central states of Plateau, as well as parts of Kaduna, Niger, Benue, Nasarawa,

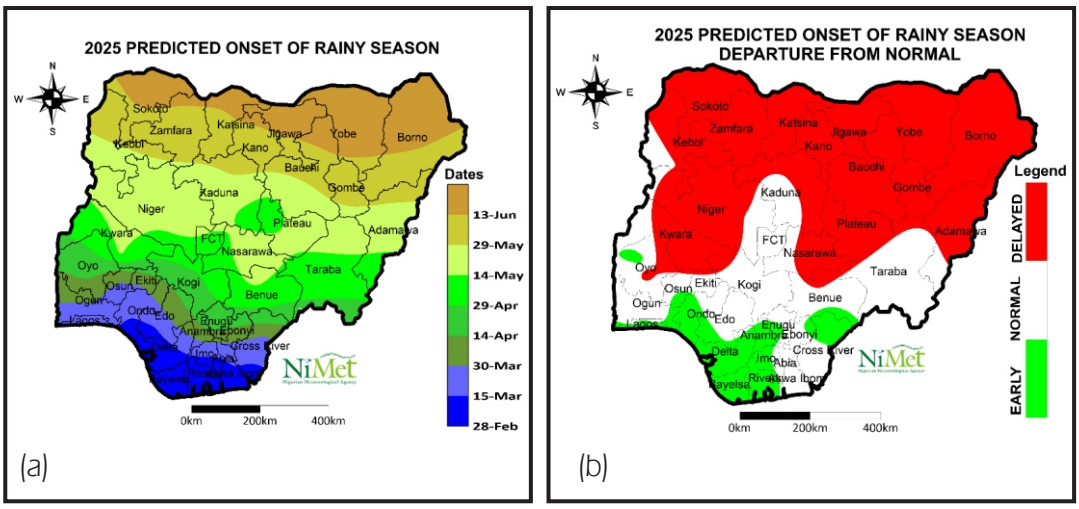

Figure 3: Predicted onset dates of the rainy season and Departure from normal.

Onset Date - when the available water content at the root zone attains a threshold of 50% cumulative from the beginning of the rainy season The 2025 prediction indicates that the earliest onset date of the rainy season in Nigeria is expected over the coastal region, covering states of Bayelsa, Rivers, Akwa Ibom, and parts of Delta between 23rd February and 10th March 2025 see Figure 3 (a).

Taraba, Adamawa, and Kwara states, while early onset is expected over the southern states of Delta, Bayelsa, Rivers, Anambra, and sections of Oyo, Ogun, Osun, Ondo, Lagos, Edo, Enugu, Imo, and Ebonyi. Normal onset dates are predicted for the rest of the country. (see Figure 3(b)).

It is important to note that strong windstorms across the country and sandstorms in the extreme northern states are precursor to the onset period. Safety precautions are advised

2.1.2 Predicted 2025 Cessation Dates and Departure from Normal

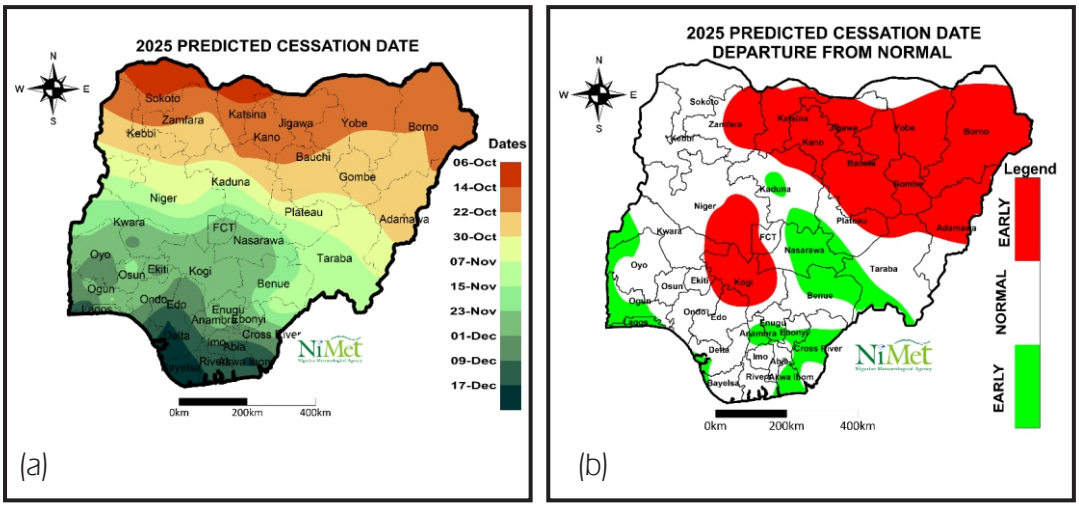

Figure 4: Predicted Cessation and Departure from normal.

Cessation Date - when the available water content at the root zone drops to 20% cumulative at the end of the rainy season

The 2025 end-of-season is predicted to be between 6th October and 17th December across the country as shown in Figure 4(a). It is expected that over the northern parts of the country the end of from the first week of October until late October and progress southwards, reaching the central states in early November and ending in mid-December in the southmost coastal states.

The earliest cessation date of the rainy season in the country is anticipated to be about 6th October 2025. This is expected in parts of Sokoto, Zamfara, and Katsina states. Other northern states of Kano, Jigawa, Yobe, Bauchi, Borno, Kebbi, Kaduna, Niger, Gombe, and Adamawa will experience the cessation of the rainy season from around 14th October to 30th October.

The end of the season for the central states of Plateau, Nasarawa, Kwara, Kogi, Benue, and the FCT, is projected to occur from 7th November to 23rd November. Furthermore, the inland states of Oyo, Osun, Ekiti, Edo, Imo, Anambra, Enugu, Abia, Ebonyi, and Cross Rivers, and the coastal states of Akwa Ibom, Rivers, Delta, Bayelsa, Ondo, Ogun, and Lagos are expected to experience the end of the season from 23rd November to 17th December.

The prediction shows that earlier-than-normal cessation dates of the rainy season are anticipated in Zamfara, Katsina, Kano, Kaduna, Jigawa, Plateau, Bauchi, Borno, Yobe, Adamawa, Taraba, Niger, Kwara, Kogi, Ekiti, Ondo states and the FCT.

Delayed cessation of the rainy season is expected over parts of Kaduna, Nasarawa, Benue, Lagos, Kwara, Taraba, Oyo, Ogun, Cross River, Delta, Akwa Ibom, Ebonyi, Anambra and Enugu states. (See Figure 4(b)).

2.1.3 Predicted Length of Rainy Season & the Departure from Normal (Long-term Average)

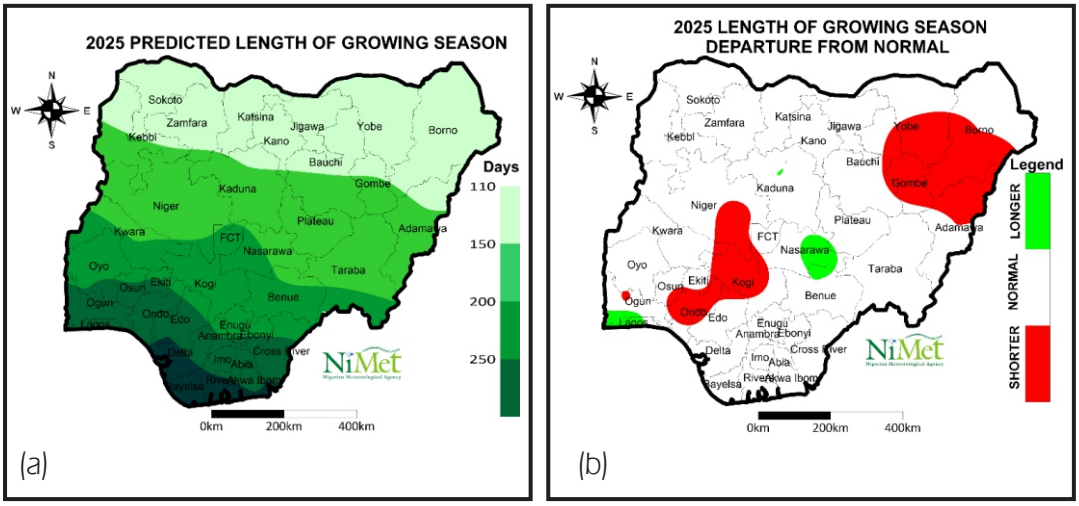

Figure 5: Predicted Length of growing season and Departure from normal.

In 2025, the length of rainy season is expected to be between 250 to 290 days in the southernmost part of the country. This includes Lagos, Delta, Bayelsa, Cross Rivers, Rivers, and Akwa Ibom states.

The length of season in the inland part of the south is anticipated to range between 200 to 250 days. States within this region are Ogun, Oyo, Ekiti, Osun, Ebonyi, Anambra, and Enugu.

In the central states, the length of the 2025 rainy season is expected to be from 150 to 200 days. In the north, the length of season will range from 110 to 150 days. Places that fall within this range include Sokoto, Katsina, Zamfara, Kano, Jigawa, Yobe, and Borno states.

Further details of this forecast according to states are contained in Table 4.

The length of the season forecast is expected to be mostly normal over the country as shown in Figure 5(b). However, parts of Borno, Yobe, Gombe, and Adamawa states in the north, as well as some parts of Kogi, Niger, and Ondo states are likely to have below normal length of season in 2025. In contrast, Lagos and parts of Nasarawa states are likely to have above normal length of season.

2.1.4 Predicted Annual Rainfall Amounts & the Departure from Normal (Long-term Average)

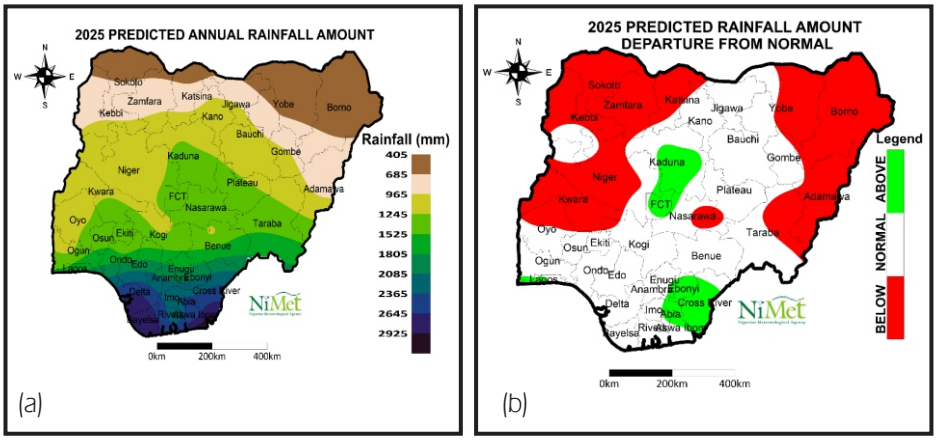

Figure 6: Predicted Annual rainfall amount and Departure from normal.

The total amount of rainfall across Nigeria in 2025 is predicted to be between 405 mm in the far north and 3010 mm in the coastal states of the country (See Figure 6 (a)). It is predicted that the annual rainfall total in Borno, Yobe, Sokoto, and Katsina states are likely to be less than 685 mm. Rainfall in the central states (parts of Niger, Kwara, Plateau, Nasarawa, Benue states, and the FCT) is expected to range from 970 mm to 1500 mm. It is projected that Rivers, Bayelsa, Cross River, and Akwa Ibom states will have between 2700 mm and 3010 mm of annual rainfall total.

The forecast shows that in 2025, the total rainfall amounts in most parts of Nigeria are likely to be normal to below normal when compared to the long-term average. Parts of Kaduna, Ebonyi, Cross River, Lagos, Abia, Akwa Ibom states, and the FCT are expected to have above-normal annual rainfall amounts as shown in Figure 6(b).

Detailed updates and advisories will be available on the Agency's website (www.nimet.gov.ng).

2.1.5 Dry Spell Prediction for 2025 Rainy Season

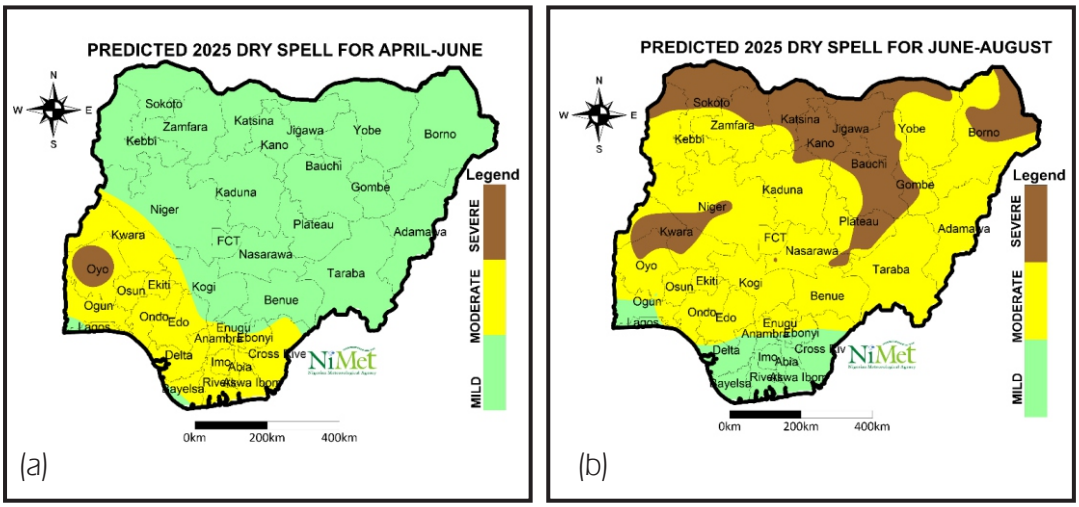

Figure 7: Predicted areas of occurrence of dry spell in April – June (a) and June - August 2025 (b)

The Prediction shows that in the April - May - June season, there is a likelihood of a severe dry spell of above 15 days after the establishment of rainfall in Oyo state (Saki, Iseyin, Ogbomosho, Atisbo, Orelope, Itesiwaju, Olorunsogo, Kajola, Iwajowa and Ori Ire). Moderate dry spell that may last 15 days in Ekiti, Osun, Ondo, Ogun, Edo, Ebonyi, Anambra, Imo, Abia, Cross River, Delta, Bayelsa, and Akwa Ibom states in the south. A severe dry spell that may last up to 21 days is predicted in the northern states of Nigeria during the June-July-August season.

Table 1: Severe Dry Spell Prediction June – August 2025

State	LGA likely to be impacted by a severe dry spell (21 days and above)
Borno	Abadam, Bama, Mobbar, Kukawa, Guzamala, Gubio, Nganzai, Monguno, Marte, Ngala, Bama, Gwoza, Kaga, Mafa, Magumeri
Yobe	Barde, Bursari, Damaturu, Fika, Potiskum, Geidam, Machina, Nguru, Karasuwa, Yunusari, Yusufari, Jakusko, Tarmuwa
Katsina	Baure, Batsari, Bindawa, Batagarawa, Daura, Charanchi, Kankia, Jibia, Rimi, Mani, Mashi, Mai'Adua, Matazu, Katsina, Dutsi, Sandamu, Ingawa, Zango
Jigawa	Babura, Birniwa, Gwiwa, Garki, Roni, Kazaure, Gumel, Guri, Yankwashi, Kirkasama, Maigatari, Kaugama, Sule-Tankarkar, Malam Madori
Bauchi	Damban, Darazo, Gamawa, Giade, Itas/Gadau. Jamaáre, Katagum, Misau, Ningi, Shira, Warji, Zaki
Yobe	Barde, Bursari, Geidam, Machina, Nguru, Karasuwa, Yunusari, Yusufari, Jakusko, Tarmuwa
Kebbi	Arewa Dandi, Aleiro, Kalgo, Bunza, Birnin Kebbi, Argungu, Augie, Jega, Maiyana
Kano	Bichi, Dambata, Makoda, Tsanyawa, Kunchi, Bagwai, Gwarzo, Tofa
Zamfara	Anka, Bakura, Birnin Magaji, Bukkuyum, Bungudu, Gummi, Kaura Namoda, Shinkafi, Talata Mafara, Tsafe
Sokoto	Binji, Bodinga, Dange-Shuni, Gada, Gwadabawa, Illela, Isa, Rabah, Shagari, Silame, Tambuwal, Yabo
Gombe	Nafada, Yamaltu-Deba, Dukku, Funakaye
Plateau	Langtang North, Kanke

2.1.6 2025 Little Dry Season (LDS) Prediction

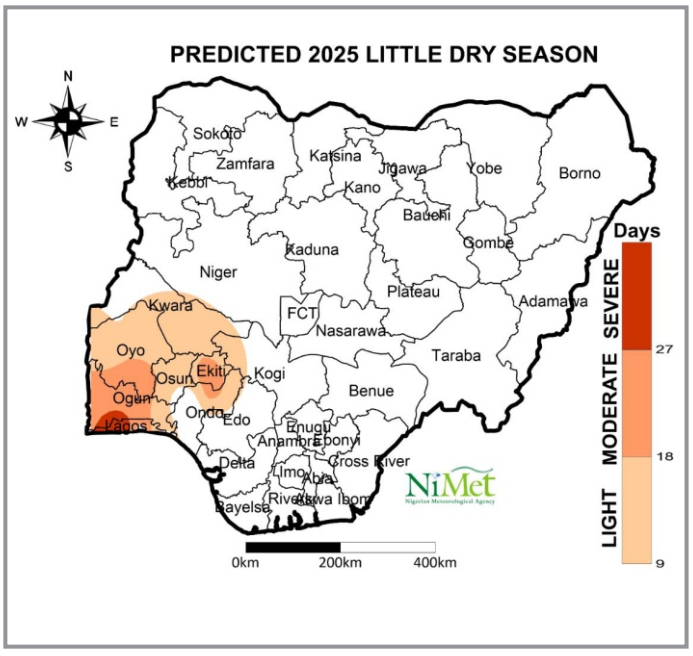

Figure 8: Predicted 2025 little dry season

It is expected that the Little Dry Season in 2025 will likely be severe over Lagos and Oyo states. The number of dry days over Lagos and Oyo states will range between 27 and 40 days. It is predicted that the Little Dry Season for 2025 across the southwest is likely to set in by July 22nd, 2025. Moderate LDS effect is expected over Ogun, Oyo, and Ekiti states. Osun, Oyo, Kwara, and parts of Ondo north are likely to experience light or mild Little Dry Season this year.

Table 2: Predicted Onset Dates of 2025 Little Dry Season (LDS) in Southwest of Nigeria

STATE	CITY	PREDICTED ONSET DATE OF 2025 LDS
Ogun	Abeokuta	21st July
Ekiti	Ado-Ekiti	24th July
Ondo	Akure	24th July
Edo	Benin	31st July
Oyo	Ibadan	22nd July
Ogun	Ijebu-Ode	25th July
Lagos	Ikeja	19th July
Kwara	Ilorin	28th July
Oyo	Iseyin	29th July
Lagos	Lagos Island	20th July
Osun	Osogbo	28th July
Oyo	Shaki	5th August

2.2 2025 Temperature Prediction

The predicted day and night-time temperatures, and the departures from long-term (1991 – 2020) averages for the five critical months – January, February, March, April, and May 2025 are presented in this section. The impact of temperature is mostly felt in the country during these months, i.e., the cold season during January while the hot season occurs in March, April, and May, depending on location within the country. Temperatures in parts of the country are expected to be warmer-than-normal (i.e., hotter than the average seasonal temperature).

2.2.1 Predicted Day-Time Temperatures Across Nigeria for January 2025

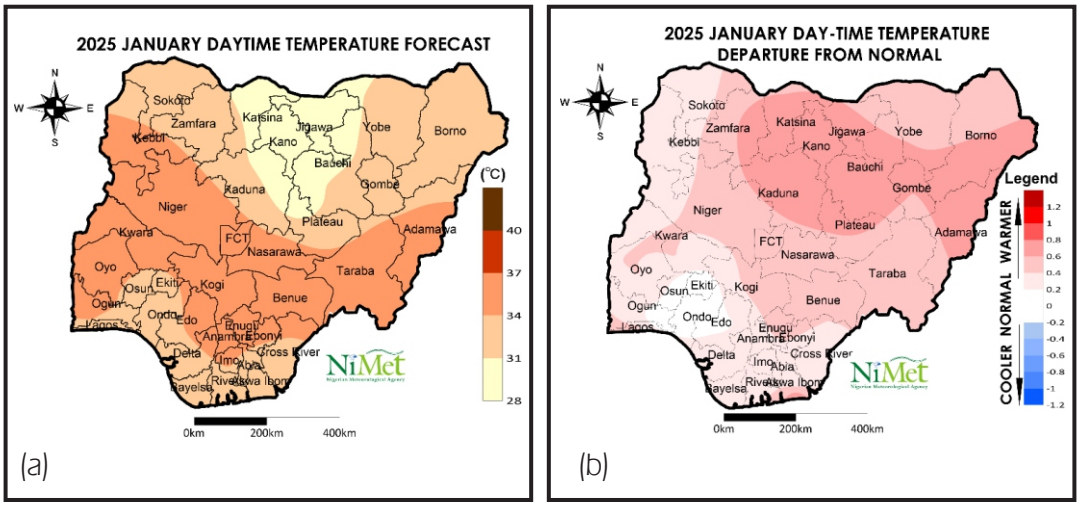

Figure 9: Predicted January 2025 Daytime temperature and departure from normal.

The daytime temperature in 2025 is anticipated to range between 28.8 ℃ and 35.9 ℃ across the country. The central states, parts of the northeast, southeast, and southwest are expected to have daytime temperatures above 34℃. Coastal areas are projected to have temperatures between 31℃ to 34 ℃, while Kano, Katsina, Jigawa, Bauchi, and Plateau states are expected to observe the lowest maximum temperature.

As shown in Figure 9(b), during the daytime, most of the country is expected to be warmer than normal in January 2025. However, Osun, Ekiti, Ondo, and Edo states are likely to experience normal daytime temperatures during the month.

2.2.2 Predicted Night-Time Temperatures Across Nigeria for January 2025

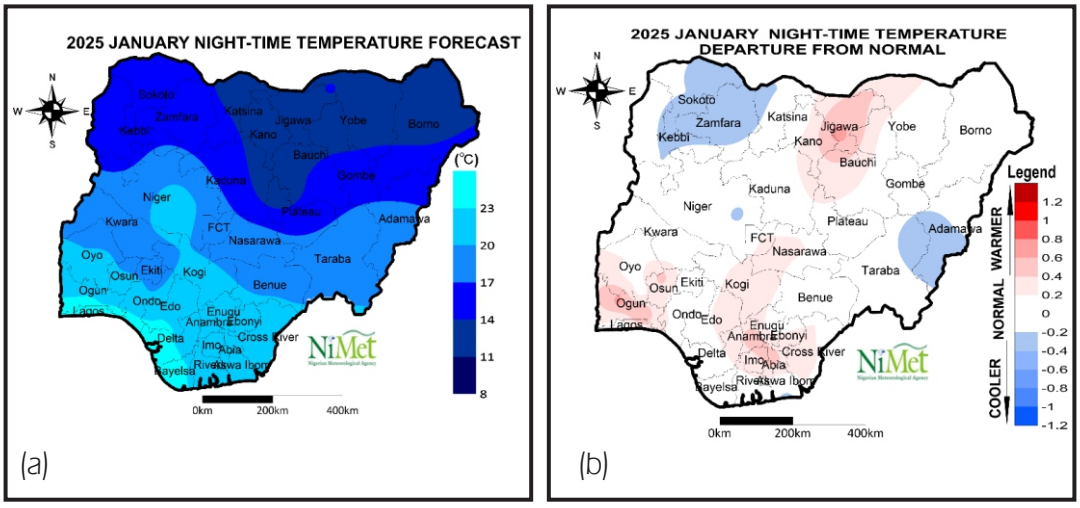

Figure 10: Predicted January 2025 Night-time temperature and departure from normal.

The night-time temperatures in January 2025 are expected to vary between 11 ℃ and 23 ℃ across the country. The northern parts of the country are expected to record lower-than-normal night-time temperatures, while places in the coastal parts of the country are expected to have higher-than-normal night-time temperatures as shown in Figure 10 (b).

The night-time temperatures in January 2025 are expected to be normal in most parts of the country except in parts of Jigawa, Kano, Bauchi, Ogun, Anambra, Osun, Abia, and Imo states which will experience warmer than normal night-time temperatures while, parts of Sokoto, Zamfara, Kebbi, Adamawa and Taraba states are expected to have cooler than normal temperatures as shown in Figure 10(b).

2.2.3 *Predicted Day-Time Temperatures Across Nigeria for February 2025*

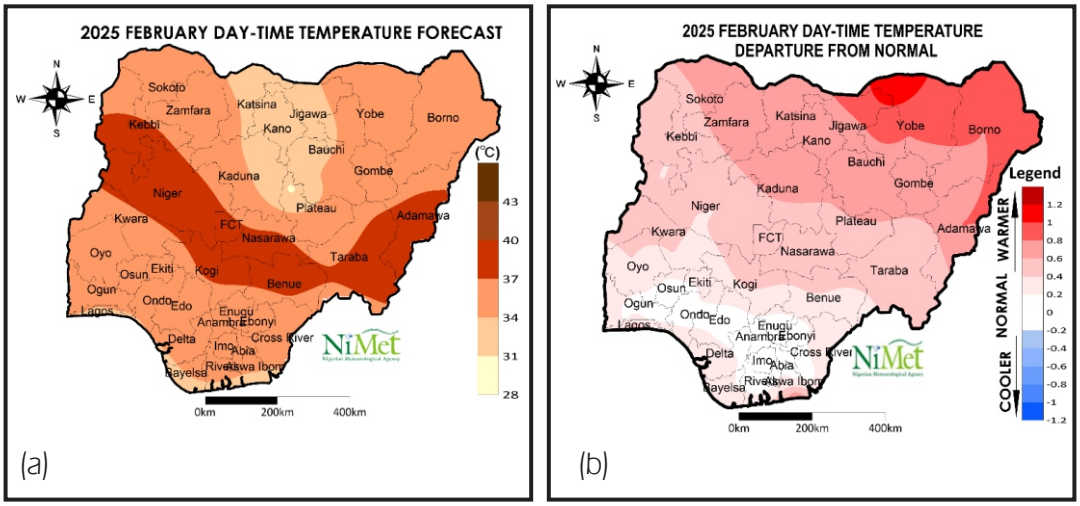

Figure 11: Predicted February 2025 Daytime temperature and departure from normal.

The forecast shows that in February 2025, daytime temperature across Nigeria will range between 31℃ and 38.9 ℃, depending on the location in the country. The lowest daytime temperature of 31℃ is likely to be observed over Plateau State while parts of Kebbi, Niger, Kogi, Nasarawa, Benue, Taraba, Adamawa states and the FCT are predicted to have the highest daytime temperatures between 37 ℃ and 38.9 ℃.

Daytime temperatures in February are expected to be predominantly warmer than normal over most parts of the country as depicted in Figure 11(b). In parts of Ogun, Osun, Ondo, Edo, Anambra, Enugu, Imo, Abia, Rivers, and Cross River states daytime temperatures are expected to be normal during this period.

2.2.4 Predicted Night-Time Temperature Across Nigeria for February 2025

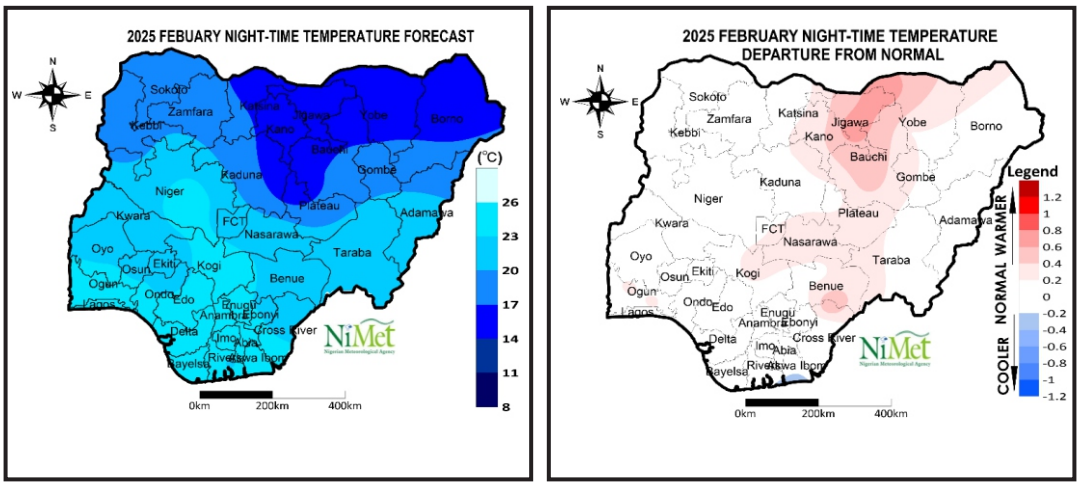

Figure 12: Predicted February 2025 Night-time temperature and departure from normal.

The minimum (night-time) temperature for February 2025 is predicted to range from 14 ℃ to 26 ℃ across the country. States in the North Central like Niger, FCT, Kwara, Nasarawa, Taraba, Benue, Kogi, down the coastal States like Cross-River, Akwa Ibom, Rivers, Bayelsa, and Delta will likely record nighttime temperatures between 20℃ to 26℃. The Northern States like Plateau, Gombe, Kaduna, Kebbi, Zamfara, Sokoto, Katsina, Jigawa, Yobe, and Borno are all expected to have temperatures below 20℃.

In 2025, the February nighttime temperature is expected to be normal in most parts of the country except for States like Nasarawa, Jigawa, Bauchi, and parts of Yobe, Benue, Kogi, Taraba, Plateau, Gombe, Borno, Kano, Katsina, Kaduna which shows warmer than normal conditions. A part of Akwa Ibom State is expected to be cooler than normal as shown in Figure 12b.

2.2.5 Predicted Daytime Temperatures Across Nigeria for March 2025

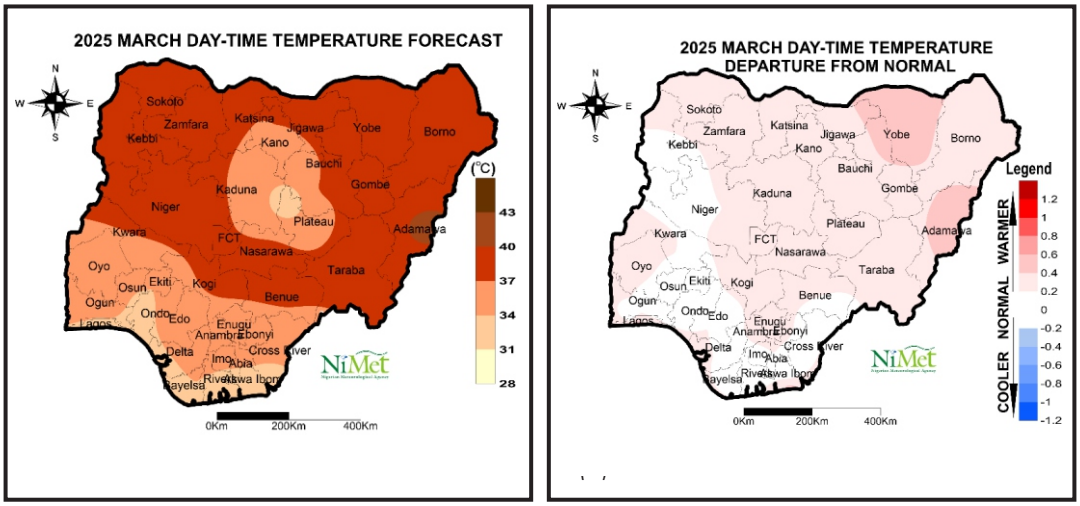

Figure 13: Predicted March 2025 Daytime temperature and departure from normal.

Daytime (Maximum) temperatures in March 2025 are predicted to vary from 31.0 to 43℃ across the country. The lowest temperature range of 31 to 34 ℃ is expected over Plateau state in north-central Nigeria and the coastal states of Akwa-Ibom, Rivers, Bayelsa, Ondo, Lagos, and part of Cross River, and Delta states while the highest range of 40 to 43℃ is expected over Adamawa State. Most of the northern and central states are predicted to record day-time temperatures of 37 to 40℃, while parts of Kano, Kaduna, Bauchi, Plateau in the North, and Oyo, Osun, Ogun, Ekiti, Edo, Enugu, Anambra, Ebonyi, Imo, Abia, part of Cross River and Delta states are expected to record day-time temperatures of 34 to 37 ℃ in the month Figure 13 (a).

A comparison of the predicted March day-time temperature with the 1991-2020 average values reveals that most parts of the country will be slightly warmer than normal by 0.2 to 0.6℃ in the month, while normal temperatures are expected over southern Kebbi, Niger, Osun, Ogun Ekiti, Ondo, Edo, Cross River, Bayelsa and part of Kwara states (Figure 13 (b)).

2.2.6 *Predicted Nighttime Temperatures Across Nigeria for March 2025*

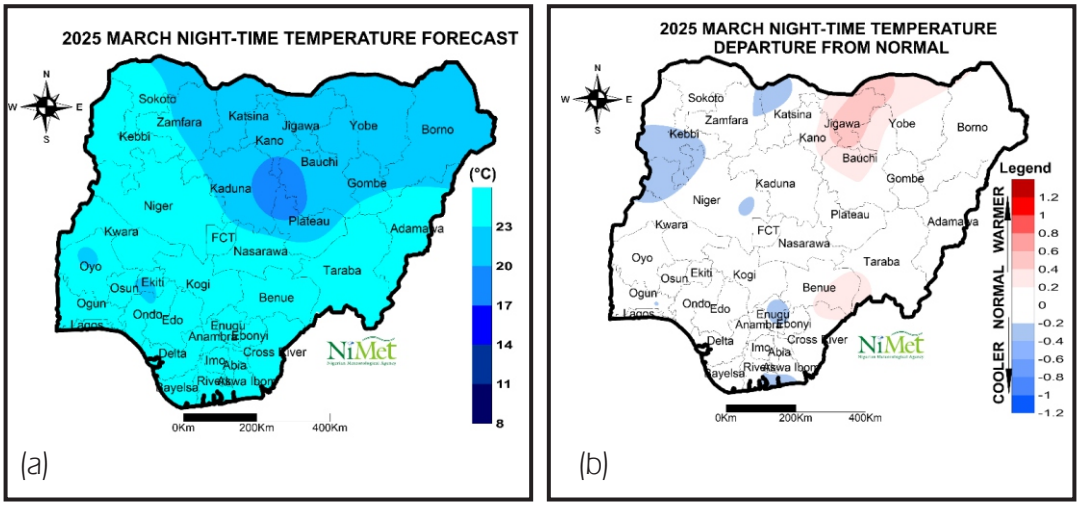

Figure 14: Predicted March 2025 Night-time temperature and departure from normal.

Night-time temperatures across Nigeria in March 2025 are expected to range between 16.9℃ and 26.3℃ as shown in (Figure 14(a). The lowest temperature of 16.9℃ is expected over Plateau State, while the highest value of 26.5℃ is expected over Niger State. Other parts of the country are expected to experience night-time temperatures greater than 23.0℃. The temperature generally decreases towards the Northeastern part of the country.

March 2025 night-time temperatures are predicted to be normal in most parts of the country, warmer than normal in areas around Yobe, Jigawa, Bauchi, and Benue states, while parts of Niger, Kebbi, Katsina, Enugu, and Rivers states are expected to be cooler than normal during the month.

2.2.7 Predicted Daytime Temperatures Across Nigeria for April 2025

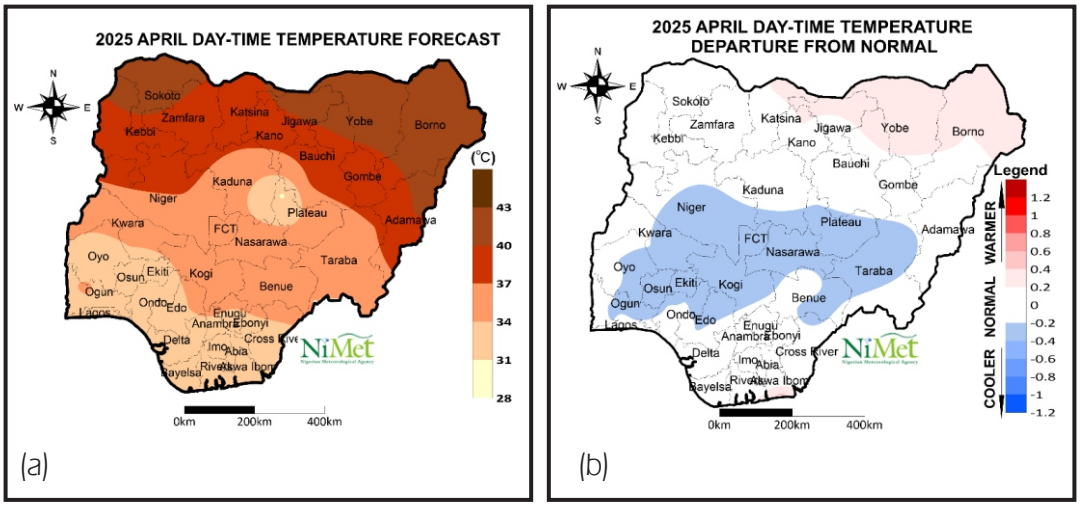

Figure 15: Predicted April 2025 Daytime temperature and departure from normal.

The daytime temperatures in April 2025 are predicted to range between 31℃ and 43℃ across the country. Parts of Plateau, Kaduna, Bauchi, and the southern states are expected to record the lowest daytime temperatures of 28℃ to 34℃.

The forecast shows that in April 2025 daytime temperatures are expected to be normal over most parts of the country. However, below-normal daytime temperatures are expected in parts of Kaduna, Niger, Plateau, Taraba, Nasarawa, Benue, Kwara, Oyo, Kogi, Ekiti, Ondo, Edo, Osun Ogun, and Federal Capital Territory. Also, warmer-than-normal temperatures are anticipated over parts of Katsina, Jigawa, Yobe, Borno, Rivers, and Akwa Ibom states.

2.2.8 Predicted Nighttime Temperatures Across Nigeria for April 2025

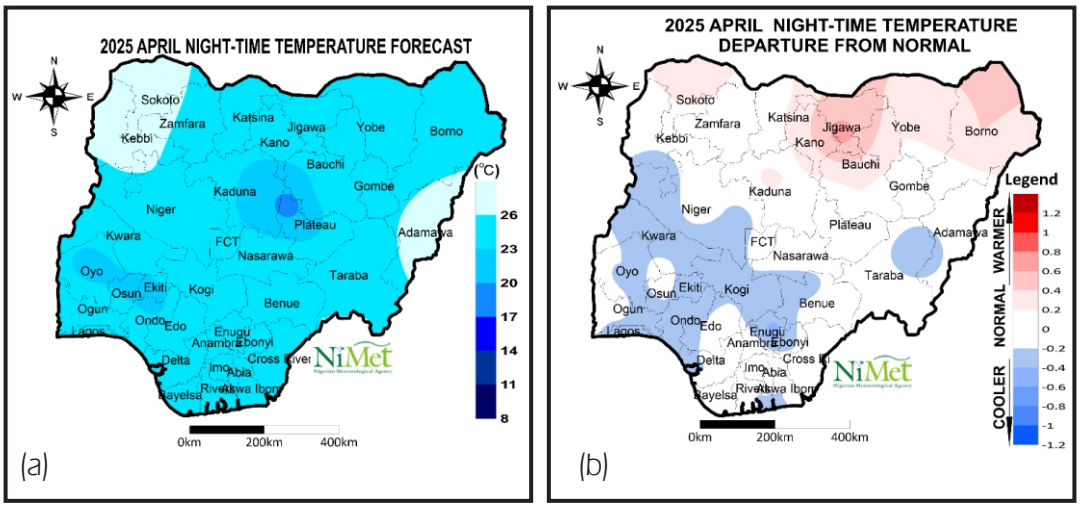

Figure 16: Predicted April 2025 Night-time temperature and departure from normal.

Night-time temperatures across Nigeria in April 2025 are predicted to range from 17 ℃ to 26 ℃ for all the States in the country. Most parts of the country are expected to experience nighttime temperatures between 23℃ to 26 ℃. Parts of Sokoto, Zamfara, Kebbi, and Adamawa are expected to record the highest night-time temperatures higher than 26℃ while parts of Plateau, Kaduna, Bauchi, Oyo, Osun, and Ekiti states are expected to record the lowest night-time temperature between 17 ℃ and 23℃.

Normal Night-time temperature is expected over the country except for parts of Sokoto, Katsina, Kano, Kaduna, Jigawa, Bauchi, Yobe Borno and Ogun states where warmer-than-normal night-time temperatures are expected. Below normal night-time temperatures are expected over parts of Kebbi, Niger, Kwara, Oyo, Ekiti, Osun, Ondo, Lagos, Delta, Kogi, Benue, Enugu, Rivers, Akwa Ibom, Taraba and Adamawa states during the month.

2.2.9 Predicted Day-Time Temperatures Across Nigeria in May 2025

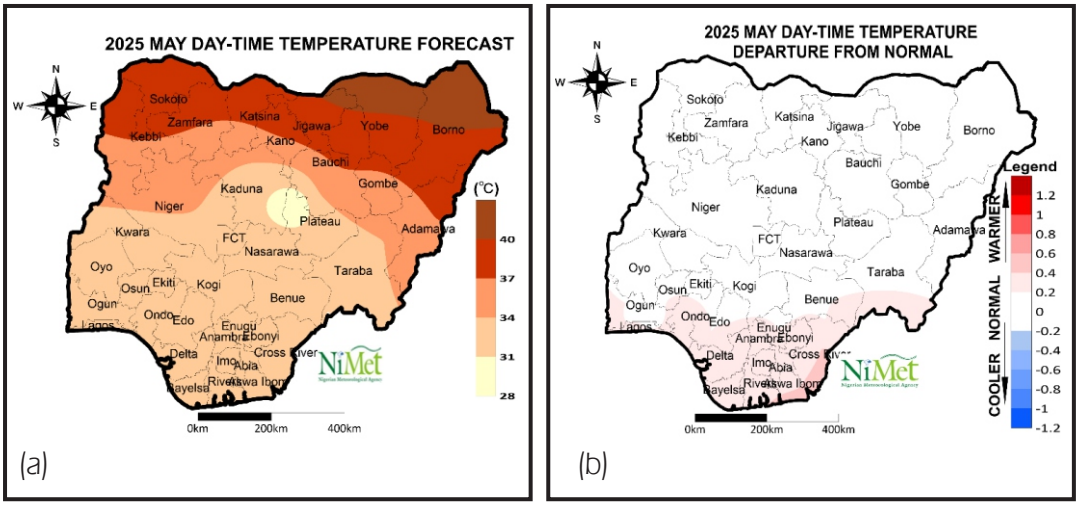

Figure 17: Predicted May 2025 Daytime temperature and Departure from normal.

Figure 17(a) shows the predicted maximum (daytime) temperatures across Nigeria for May 2025. The highest daytime temperatures range of 28 to 42℃ are expected across the country. The highest daytime temperatures of 40℃ and above are expected over the North-Eastern part of the country. Daytime temperatures of 37 to 40℃ are anticipated over Sokoto, parts of Zamfara, Kebbi, Katsina, Kano, Jigawa, Bauchi, Yobe, Borno, Gombe, and Adamawa States during the month. The Southern and Central States will experience daytime temperatures of 31 to 34℃ except for parts of Kaduna and Plateau States where 28 ℃ is likely to be recorded.

Figure 17(b) shows the predicted maximum (daytime) temperature departure from the normal across Nigeria for May 2025. Normal temperature trend is anticipated over the entire North and North Central except for the southern parts of Taraba and Benue states. The Southern States are likely to experience warmer than normal daytime temperatures, except Oyo, Ekiti, and parts of Osun, Ogun, Ondo, Enugu, and Edo states, which are expected to be normal.

2.2.10 Predicted Night-time Temperatures Across Nigeria for May

Figure 18 (a) shows the predicted minimum (night-time) temperature across Nigeria for May 2025. The night-time temperature range of 17 to 26℃ is expected across the country. The lowest night-time temperature range of 17 to 20℃ is expected over the northern parts of Plateau and a small portion of Kaduna states. The highest night-time temperature of 26 ℃ and above is anticipated over some parts of the northeast and northwest.

Figure 18 (b) shows the predicted night-time temperature departure from the normal across Nigeria for May 2025. Colder than normal night-time temperatures are anticipated over parts of the north: Sokoto, Kebbi, Zamfara, parts of Katsina, Kaduna, Kano, Adamawa, Gombe, Bauchi parts of Taraba, Borno, and Yobe states, part of North Central and the South. Normal night-time temperatures are predicted for the remaining parts of the country during the month.

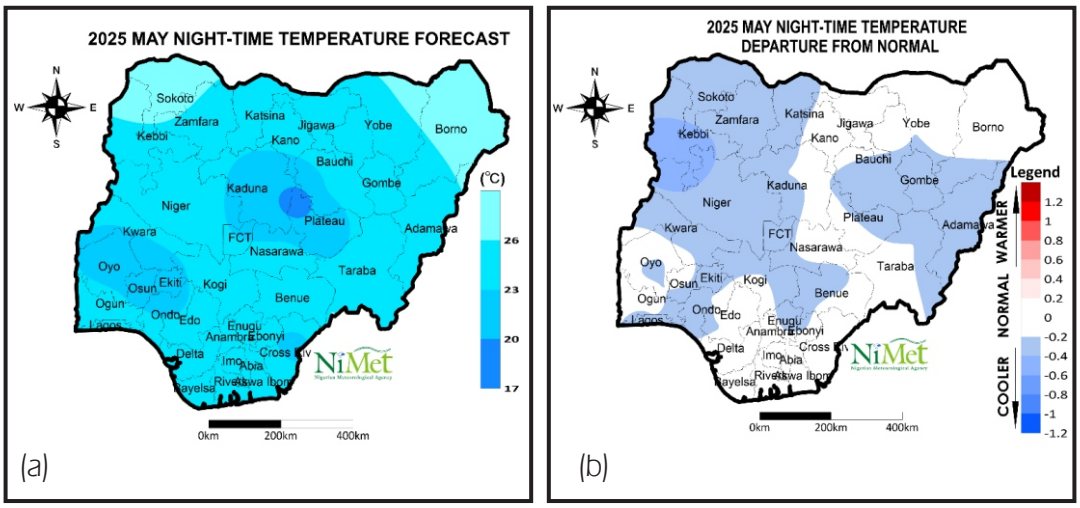

Figure 18: Predicted May 2025 Night-time temperature and Departure from normal.

2.3 Climate and Health

Changes in weather conditions, especially temperature, rainfall, and relative humidity, affect the survival, spatial distribution, and behaviour of insects (such as mosquitoes) and other organisms that transmit or cause diseases. During the rainy season, there are greater chances of an outbreak of water-borne diseases such as cholera; especially in flood-prone areas with poor sanitation. In the coastal parts of the country, an increase in rainfall, storm surge, and sea temperature rise could result in increased inundation and the chances of occurrence of water-related diseases.

Climate change can also impact people's health and well-being by altering the frequency or intensity of extreme weather events and the spread of certain pests and diseases.

2.3.1 Seasonality of Malaria, Meningitis and Heat Stress

Malaria is a common disease and public health challenge in the world and Nigeria is one of the five countries with the highest malaria burden. In 2023, there were 263 million malaria cases globally and Nigeria accounted for 68.14 million or about 26% of the cases. The outbreak and geographical distribution of malaria, meningitis, and heat stress across Nigeria are highly seasonal. Accumulated rainfall and temperature affect malaria outbreaks, while the incidence of meningitis is determined by relative humidity and dust concentration in the atmosphere.

Figure 19: Anopheles Mosquito
(Source: https://www.freepik.com/premium-photo/aedes-mosquitoe-is-sucking-blood-human-skin_15383001.htm)

Seasonal fluctuations in weather patterns directly affect malaria transmission due to the sensitivity of the parasite to temperature, rainfall, and humidity. Malaria parasites are transmitted from infected persons to healthy persons by female anopheles mosquitoes. The population of mosquitoes, and hence, the rate of transmission of malaria, are also affected by weather and other environmental factors.

Weather Threshold suitable for malaria

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℃ and 32 ℃, and relative humidity greater than 60%. The combined effects of these climate variables at a given location or region indicate the lower limit for potential malaria transmission in the area. This implies that malaria cases will likely occur once these conditions are met.

Meningitis is a serious infection of the meninges, the membranes covering the brain and spinal cord. It is a devastating disease that remains a major public health challenge. The disease is caused by different species of bacteria, fungi, or viruses, but the highest global burden is seen with bacterial meningitis. Meningococcal meningitis can affect anyone of any age but mainly affects babies, preschool children, and young people. The disease can occur in a range of situations from sporadic cases and small clusters to large epidemics throughout the world, with seasonal variations.

The largest burden of meningococcal meningitis occurs in the Meningitis Belt, an area of sub-Saharan Africa, which stretches from Senegal in the West to Ethiopia in the East as shown in Figure 20. Nigeria is one of the 26 countries that the World Health Organization categorizes as meningitis hyper-endemic in Africa.

The incidence of Cerebrospinal Meningitis (CSM) is highly seasonal. Dry, dusty weather that occurs seasonally in this belt favours the outbreak and spreading of meningitis. All the 19 states in the Northern region of Nigeria, as well as the Federal Capital Territory (FCT) fall within the Meningitis Belt. Outbreak of meningitis is common in these states during the dry season. Some southern states such as Ekiti, Ogun, Ondo, Osun, parts of Bayelsa, Cross River and Delta states also report incidences of Cerebrospinal Meningitis (CSM) during the dry season.

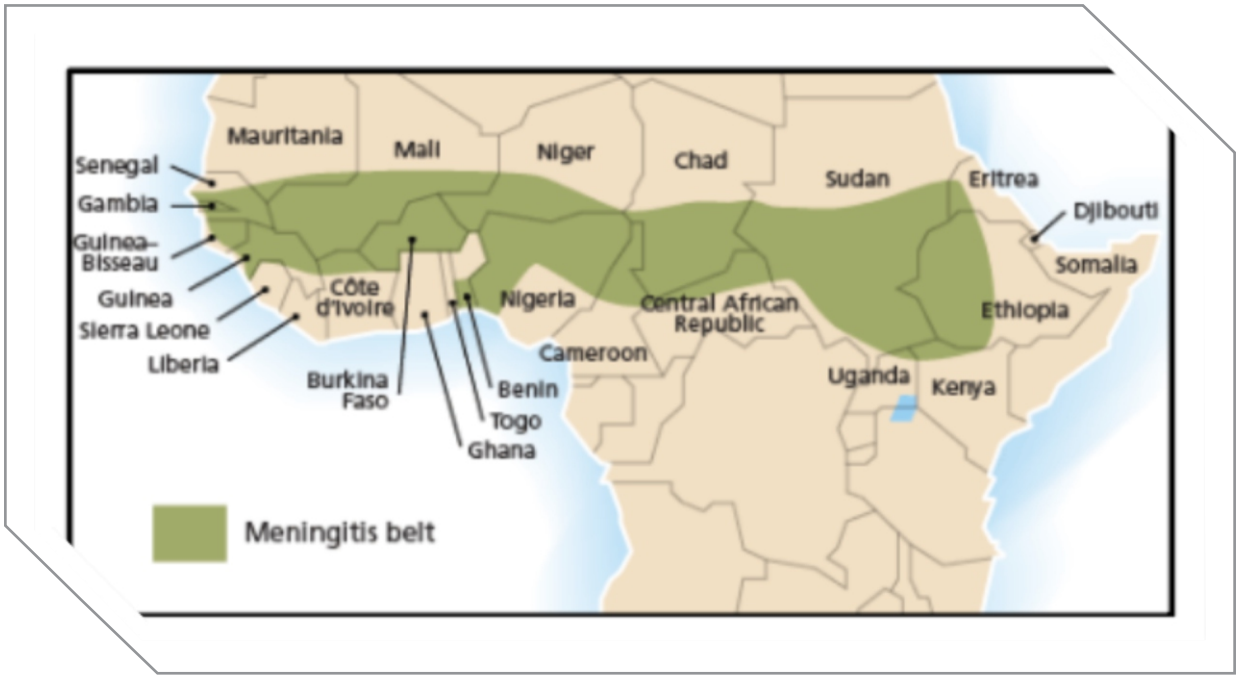

Figure 20: African Meningitis Belt (Meningitis Belt Countries in Sub-Saharan Africa

Weather Threshold for Outbreak of Meningitis

Outbreak of the disease should be anticipated when relative humidity is in the range of 20-40%, temperature of about 20℃ to 25℃ and dust concentration of 200 to 500 $\mu g/m^3$. The probability of the outbreak increases as relative humidity decreases and dust concentration increases.

Relative humidity, dust and mean air temperatures are used as the predictands in determining the probability of occurrence and the vigilance thresholds for meningitis. For high vigilance, relative humidity of less than 20%, a temperature within the range of 25℃ to 32℃, and atmospheric concentration of dust between 500 and 2000 $\mu g/m^3$ are applied. For moderate vigilance, relative humidity within the range of 20 to 40%, temperature of 20℃ to 25 ℃ and dust concentration of 200-500 $\mu g/m^3$ are indicative. Low vigilance is prescribed when relative humidity is above 40%, temperature below 25℃ and dust concentration is between 50 and 200 $\mu g/m^3$ while no vigilance is required if there is significant amount of rainfall.

2.3.2 Impact of Weather Conditions on the Stability of Drugs

The stability of medications is also affected by climate conditions. The stability and potency of drugs are affected by hot and humid conditions. The forecasts in the Seasonal Climate Prediction (SCP) is therefore used for predicting the possible instability of medications across the country.

2.4 Disease Vigilance

2.4.1 Malaria

2.4.1.1 January 2025 Malaria Vigilance

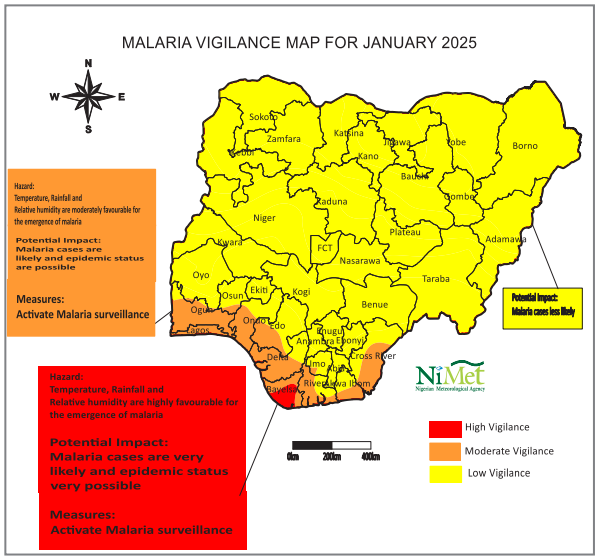

Figure 21:January 2025 Malaria Vigilance

The expected climatic conditions in January 2025 suggest that the chances of malaria incidence in most parts of the country are low. Low vigilance for malaria cases is therefore advised over most parts of the country except over the coastal states where the climate conditions may favour the incidence of malaria. Moderate vigilance and high vigilance for Bayelsa state are therefore prescribed. (Figure 21).

2.4.1.2 February 2025 Malaria Vigilance

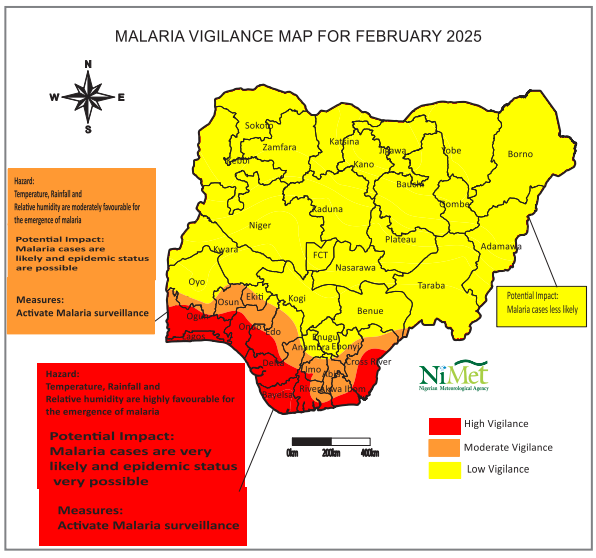

Figure 22: February 2025 Malaria Vigilance

The expected climatic conditions in February 2025 suggest that the chances of malaria incidence are low over a large portion of the country. Low vigilance for malaria cases is therefore advised over most parts of the country except over the coast and part of inland; where the probability of occurrence of malaria is high and moderate over Delta, Rivers, Edo, Lagos, Cross River, Bayelsa, Akwa Ibom, Imo, Abia, parts of Anambra, Ebonyi, Osun, Ekiti and Oyo states. Hence, high and moderate vigilance is recommended for those states during the month (Figure 22).

2.4.1.3 March 2025 Malaria Vigilance

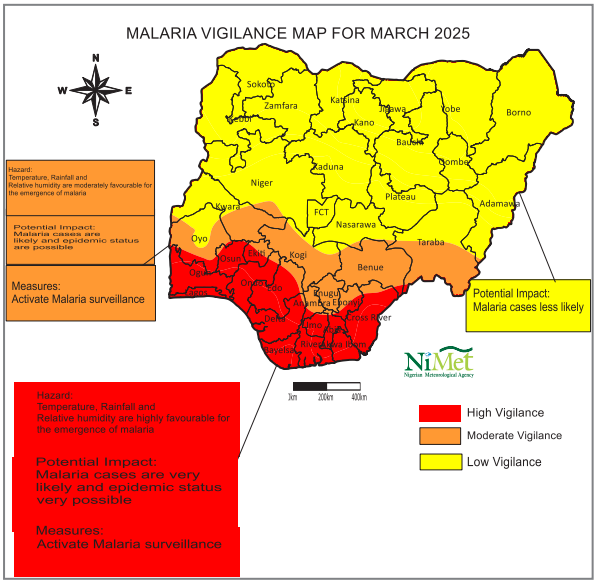

Figure 23: March 2025 Malaria Vigilance

The expected climatic conditions in March 2025 suggest that the probability of malaria incidence during the month is low over the northern states of Nigeria and the FCT. Low vigilance for malaria cases is therefore prescribed for those states during the month. However, the probability of occurrence of malaria is high and moderate over the southern states such as Delta, Rivers, Edo, Lagos, Cross River, Bayelsa, Akwa Ibom, Rivers, Imo, Abia, parts of Anambra, Ebonyi, Osun, Ekiti and Oyo states. Hence high and moderate vigilance are recommended for those states during the month. (Figure 23).

2.4.1.4: April 2025 Malaria Vigilance

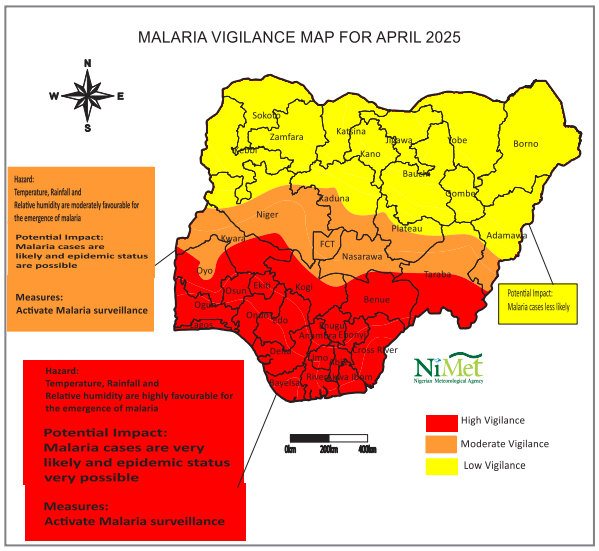

Figure 24: April 2025 Malaria Vigilance

The expected climatic conditions in April 2025 suggest that malaria incidents are not likely to occur in most of the northern states. Low vigilance for malaria is therefore prescribed for the states as shown in Figure 24. However, the probability of occurrence of malaria is moderate over some parts of the central states such as Kogi, Kwara, Benue, Taraba, and some parts of the southern states. High vigilance is likely over the southern states. Therefore, high and moderate vigilance is recommended for these areas. (Figure 24).

2.4.1.5 May 2025 Malaria Vigilance

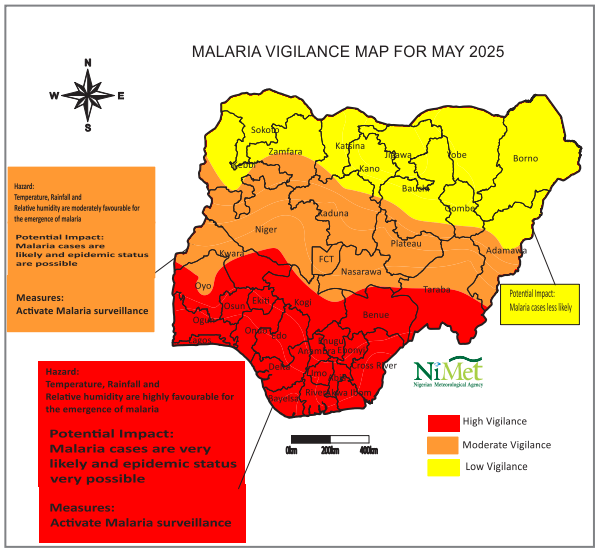

Figure 25: May 2025 Malaria Vigilance

The expected climatic conditions in May 2025 suggest that malaria incidences are unlikely to occur in the extreme northern states of Nigeria. Low vigilance for malaria cases is therefore recommended for these states during the month. However, the probability of occurrence of malaria is high over some parts of the central states such as Kogi, Kwara, Benue, and Taraba, and over the southern states except parts of Oyo state. High vigilance for malaria is therefore recommended for these states during the month/Moderate vigilance is likely over parts of the central states. Therefore, high and moderate vigilance is recommended (Figure 25)

2.5 Meningitis Vigilance

Relative humidity, dust concentration in the atmosphere, and mean air temperatures determine the probability of occurrence, and hence the vigilance threshold for meningitis. NiMet predicts the probability of meningitis and its geographical distribution across Nigeria using these three variables.

2.5.1 January 2025 Meningitis Vigilance

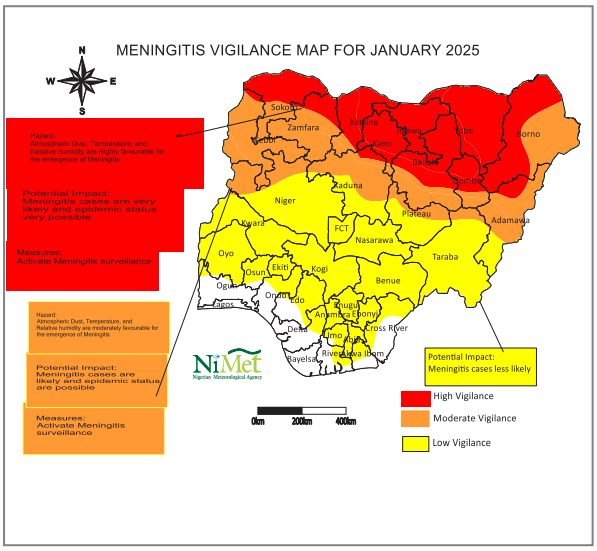

Figure 26: January 2025 Meningitis Vigilance

The expected climatic conditions in January 2025 suggest high and moderate prospects of meningitis incidences over the northern part of the country. Therefore, high vigilance is recommended for these states. The affected states are Sokoto, Zamfara, Katsina, Kano, Jigawa,

Bauchi, Yobe, and Borno. Moderate vigilance is prescribed for Kebbi, Adamawa, parts of Sokoto, Katsina, Kaduna, Bauchi, and Gombe states. Low vigilance is prescribed over most parts of the central states and a large part of the south. The climatic conditions in the coastal states in January 2025 are not favourable for occurrence of meningitis. No vigilance is therefore prescribed for the coastal states during the period. (See Figure 26).

2.5.2 February 2025 Meningitis Vigilance

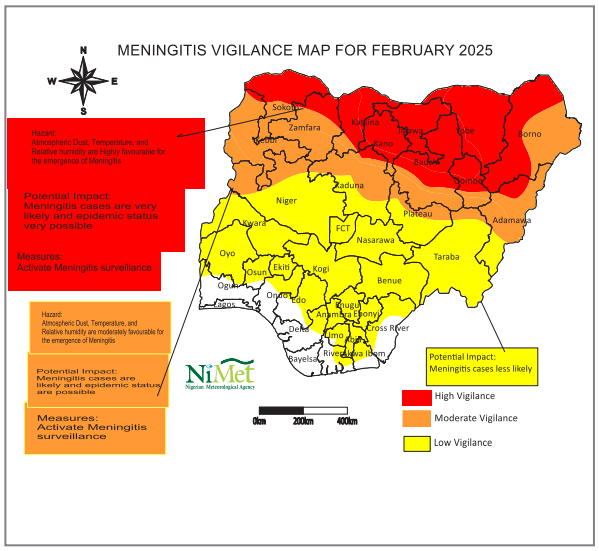

Figure 27: February 2024 Meningitis Vigilance

The expected climatic conditions in February 2025 suggest high and moderate prospects of meningitis incidences over the northern part of the country. Therefore, high vigilance is recommended for these states, Kano, Jigawa, northern parts of Sokoto and Zamfara, much of Katsina, Kano, Jigawa, Bauchi, and Borno states. Moderate vigilance is prescribed for Kebbi, parts of Sokoto, Adamawa, Katsina, Kaduna, Bauchi and Gombe. Low vigilance is prescribed over the central states, however, no vigilance is prescribed for most parts of the south except for parts of Oyo, Ekiti, Edo, Enugu, Anambra, and Ebonyi states where low vigilance is likely (Figure 27).

2.5.3 March 2025 Meningitis Vigilance

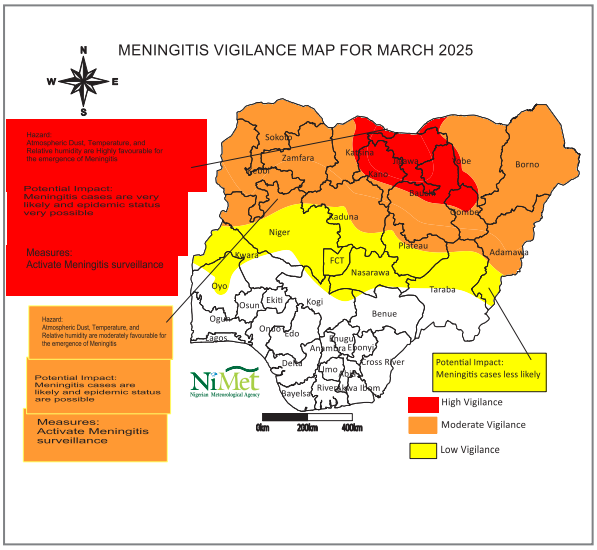

Figure 28: March 2025 Meningitis Vigilance

The expected climatic conditions in March 2025 suggest high and moderate prospects of meningitis incidences over the northern part of the country. Hence, high and moderate vigilance is recommended in Jigawa, Katsina, Yobe, Borno, Bauchi and Gombe. Low vigilance is prescribed over most parts of the central states and parts of Oyo state, while no vigilance is prescribed for other parts of the country (Figure 28).

2.5.4 April 2025 Meningitis Vigilance

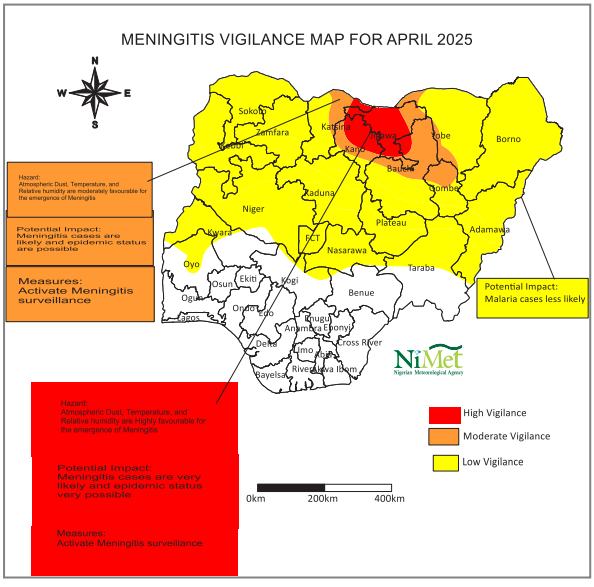

Figure 29: April 2025 Meningitis Vigilance

The expected climatic conditions in April 2025 suggest high and moderate prospects of meningitis incidences over Katsina, Kano, Jigawa, Yobe, Bauchi, and Gombe state. Hence, high and moderate vigilance is recommended. Low vigilance is predicted over parts of Niger, Kaduna, and Plateau states, while no vigilance is prescribed for the central and southern states (Figure 29).

The expected climatic conditions in May 2025 suggest high and moderate prospects of meningitis incidences over Jigawa, parts of Katsina, Kano, Bauchi, Gombe and Yobe states. Hence, high and moderate vigilance are recommended. Low vigilance is recommended over the remaining parts of the northern states, while no vigilance is prescribed for the central and southern states (Figure 30).

2.5.5 May 2025 Meningitis Vigilance

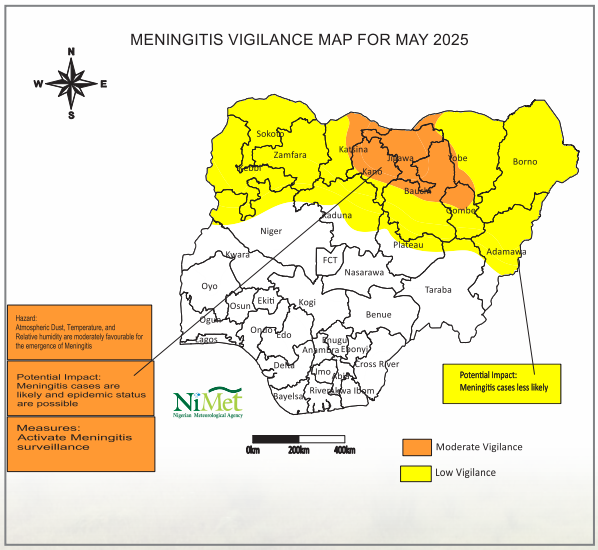

Figure 30: May 2025 Meningitis Vigilance

Chapter Three

Implications of the 2025 Seasonal Climate Prediction for Some Key Economic Sectors

Weather affects every sector of the economy and aspect of human activities. The predicted conditions of the climate in Nigeria for 2025 will affect various sectors of the economy in different ways and to different extents, and the response by operators will vary from one sector to another.

3.1 Aviation

Weather plays a critical role in aviation. It affects every stage of flight operations, from planning and routing to safety and efficiency. Hazardous weather conditions can affect an aircraft's performance and passengers' comfort and safety. Therefore, weather forecasts/early warnings help pilots, air traffic controllers, airline operators and others to prepare adequately to avert aviation-related accidents. Even though NiMet provides regular weather forecasts and other aeronautical meteorological products in line with ICAO and NCAA guidelines, it is imperative to also keep aviators informed of the likely weather/climate for the year to enable adequate planning of their activities for the year.

NiMet's prediction indicates that in 2025, the temperature in most parts of the country is likely to be normal or slightly warmer than normal. Warmer temperatures usually cause decreased air density, and consequently, reduced lift generation by aircraft wings during take-off.

This potentially imposes a weight restriction on take-off/landing thereby reducing the aircraft's efficiency and increasing its fuel consumption and operational cost.

Warmer than normal air temperatures can also cause Clear Air Turbulence (CAT) which may lead to significant discomfort and physical injury in some cases. High atmospheric temperature can easily cause rapidly rising tyre pressures which could burst easily upon impact with the ground during landing.

While most places are expected to experience high-intensity rainfall at the peak of the rainy season in Kebbi, Kaduna, Ebonyi, Cross River, Lagos, Abia, Akwa Ibom states, and the FCT with the likelihood of wet runways that may lead to runway excursions and the potential damages are during the rainy season. Intense rainfall can significantly reduce visibility, thereby complicating take-off/landing, and taxiing operations.

Thunderstorms, wind shear, and squally conditions that are common during the onset and cessation of rainy season, can also cause accidents and result in significant financial losses. Flight cancellations, rescheduling, and diversion are also common during this period. Furthermore, during the onset and cessation of rains, cumuli clouds are more prevalent, bringing about turbulent flights.

Dust haze is a weather condition that impedes visibility and makes aircraft take-off/landing more challenging and hazardous. It is most common from November to February, and flight cancellations, rescheduling, and diversion are also common during this period.

Figure 31: Commercial Aircraft in Nigeria

Table 3: Implication of the prediction to aviation

Pre-Onset	Implication
Influx of migratory birds (increased bird activities)	Increase in bird strikes
High wind strength (especially during onset and cessation) wind shear and squall	Excursion or skidding, if tailwind or crosswind. Especially dangerous for smaller aircraft and helicopters. Could shift aircraft from parked positions,if not restrained thereby causing a serious incident
High-Intensity Rainfall	
Excess water on the runway	Aquaplaning (less friction/reduction of breaking action)
Increased Rainfall	Low visibility which leads to flight delays /cancellation
Cloud base drop	Low visibility
Warmer than normal temperatures	
Longer landing run	Increased fuel consumption
Evaporation of fuel in storage	Fuel loss
Severe thunderstorm activities (microburst, downdraft, etc.)	Flight delay or cancellation, discomfort/ bumpiness during flight.
Prevalence of waves and Jets (African Easterly Wave)	Clear Air Turbulence (CAT), Bumpy Flights
Thermals on runway	Affects the smooth landing of aircraft

Advisory

- Airline operators are encouraged to abide by the Standard and Recommended Practices (SARPs) of ICAO as well as the NCAA regulations for the safety of aerodrome and flight operations, they should also leverage technology and innovation to enhance safety.
- Pilot and crew are advised to regularly attend the flight weather briefing at all NiMet Forecast Offices nationwide to ensure the entire crew complies with the Nigerian Civil Aviation Authority (NCAA) regulations as applied to aero-meteorological information
- Onset and cessation are associated with the influx of birds interrupting flight operations, therefore appropriate body responsible for bird control are advised to adhere to NiMet's onset and end-of-season prediction in planning their bird control activities
- All aviation operators (airlines, ground operations, etc.) should always heed routine NiMet advisories and warnings.
- Airport operators should ensure adequate drainage of Runways and the activation of the GRF procedure, when warranted.
- Wildlife unit of the airport operators should be up and doing to always keep the activities of birds in check.
- Operators of ight aircraft and helicopters should specifically heed NiMet warnings and advisories, especially during pre-onset activities.
- Relevant authorities should regularly inspect and maintain airport drainage systems.

3.2 Agriculture

In 2025 the onset of the growing season is expected to be normal or delayed in most parts of the country. However, earlier onset dates are expected in the southern states. Normal to early cessation dates are expected across the country. Below-normal rainfall amounts are also predicted in most parts of the northern states.

This is likely to create water stress in those states.

Farmers are therefore advised to apply the following precautionary measures during the year:

3.2.1 Crop Production

- Farmers should adhere strictly to the predicted onset dates before the commencement of rainfed farming operations. Farmers should not plant before the establishment of the rains.
- Where onset is delayed, farmers are advised to use drought-tolerant and early-maturing crop varieties.
- Some crops thrive when planted during pre-onset in some areas (for example, melon and sweet potato in North Central), it is advised that caution and proper information are sought before planting.
- Given the expected early onset in the southern parts of the country farmers and state governments should start early preparation, and input acquisition such as seeds, fertilizers, and pesticides.
- Farmers in the areas where dry spells are expected around July and August are advised to use drought-tolerant varieties. Additionally, farmers should adopt soil water conservation techniques such as mulching, rainwater harvesting, and drip irrigation/irrigation scheduling to help conserve soil moisture.
- Farmers in coastal and wetland areas should adopt alternative livelihood sources such as petty trading and other off-farm activities that could support household livelihood in the event of extreme weather.
- To avoid the leaching of nutrients, farmers should refrain from applying fertilizers right before the rains. The use of short-range forecasts from NiMet such as the three-day forecast is effective in this regard.
- Use shading techniques and mulching to protect crops from extreme temperatures.
- Monitor pests, as warmer temperatures can increase pest activities, particularly Army Worms often causing devastating effects on maize plants.
- Plant drought and water-logging tolerant varieties

- Farmers in the Southwest are advised during the major season to plant drought-tolerant varieties and during the Small Season (Second) to plant extra early maturing varieties
- Supplementary irrigation systems and rainwater harvesting

Figure 32: Maize farm in Nigeria

3.2.2 Livestock Production

Poultry/ Piggery Farming

In 2025, daytime temperatures in most parts of the country are likely to be normal or slightly above normal in January, February, March, April, and May. This is expected to have an impact on domestic animals and may result in economic losses. The following advisories are therefore recommended.

a. Poultry pens should be well ventilated and the temperature in the poultry pens regulated.
b. Farmers should consider reducing stocking density during the stress period and ensure good biosecurity.
c. To boost livestock performance and reduce stress caused by rising temperatures, farmers should provide their animals with clean and adequate drinking water (fortified with multivitamins).
d. Adopting climate-smart poultry housing (Elevated poultry housing)
e. modification of the microenvironment to enhance heat dissipation process.
f. Plant shade trees (natural or artificial)
g. Improved ventilation
h. Provide cooling systems and regular change of litter (wood shavings, beddings, etc)
i. Use of sawdust as bedding for pigs to improve moisture absorption.
j. Frequent changing of beddings for poultry
k. Use of anti-stress for poultry, supplementation with yeast product increase digestibility of nutrients
l. Poultry pens should be regularly sanitized and the floor kept dry during the rainy season to avoid the breeding of fungi, bacteria, and other pathogens.
m. To increase and enhance feed intake and reduce selective feeding, feed may be given in pelleted forms.
n. An adequate lighting system should be provided for additional warming to maintain

optimum production during the period of cold night-time temperatures.

o. Provision of clean and cold water ad lib.
p. Ensure housing has adequate ventilation.
q. Reduce stocking density during hot periods of the year (February to June).
r. Discourage the rearing of broilers during hot periods where climate-smart practices are not affordable.
s. Use of relatively cheaper sources of feed that are not competitive
t. Culling of extremely stressed animals (Weak and vulnerable)
u. Feed early in the morning and late in the evening (provide lightening at night to aid feeding during cool hours of the day)
v. During periods of cold night-time temperatures, livestock farmers should provide additional sources of heating while ensuring proper lighting of the housing/pen.

Figure 33: Poultry farm in Nigeria

Dairy production

The warmer-than-normal temperature anticipated in most parts of the country in 2025, could affect dairy production in the following ways:

a. During periods of high temperatures, feed intake is reduced.
b. There is a gradual decline in milk production/ milk quality during high temperatures. This could result in stunted growth and reduced reproductive performance
c. Changes in hormone levels and metabolic processes due to heat stress.
d. Increase in the rate of water loss from the body owing to a high rate of evaporation. which also increases the water requirement per day.
e. Unfavourable temperatures weaken the immune system of the animals and increase their susceptibility to diseases.

Advisory

a. Artificial insemination should be done during the cool hours of the day and the period between insemination to the birth of the calf be timed to coincide with the establishment of the onset of the rainy season.
b. Appropriate biosecurity measures should be adopted.
c. Fresh and clean running water should be provided frequently and number of water drinking points increased.
d. The evolution of disease-causing organisms

should be closely monitored, as warmer temperatures can favour their proliferation.

e. Feeding of farm animals should be minimized during periods of elevated temperatures
f. Encourage commercial Pasture production with early maturing and drought-resistant seed variety.
g. Farmers are advised to stock animals that are well acclimatized to particular areas; animal breeds that are drought tolerant/resistant within high production breeds.
h. Rearing of cattle with shorter hair, hair of greater diameter, and lighter coat colour is encouraged, as they are more adapted to hot weather.
i. Sprinkling water on cattle or making them wallow in clean water to help improve fertility in hot months is advisable.
j. Provision of clean cool water ad lib
k. Livestock farmers should make deliberate efforts at cultivating fodder crops using marginal lands.
l. Due to early cessation of rainy season in the north, farmers should endeavour to harness crop residues and store them for future use.
m. Encourage pasture processing into hay and silage.
n. Proper management and utilization of rangelands
o. Planting of browse plants
p. Government and the Ministry of Livestock Development should make effort to rehabilitate the grazing reserve/route.
q. All year pasture production by providing irrigation facility in commercial pasture farms is encouraged.
r. Reproductive activities should be planned and controlled in order to prevent birth of young ones during unfavourable conditions.
s. Culling of extremely stressed animals (weak and vulnerable)
t. Feeding with green pasture or grazing during cooler hours of the day to overcome heat stress
u. Feeding cows, a forage with a lower fibre concentration during periods of heat stress can reduce the overall heat load the animal experiences.

Figure 34: Traditional milking of a cow

Low Temperature (Cold Stress)

a) Animals use more energy to maintain body temperature
b) Reduced feed consumption due to decreased metabolic rate.
c) Stunted growth may be experienced, especially in young animals.
d) Lower conception rates and increased lamb/kid mortality.
e) The immune system is weakened, and this predisposes animals to respiratory and other health diseases.

Advisories

- Provide adequate shelter and shade during extreme weather conditions (predicted higher temperature months).
- Ensure access to clean, fresh water constantly.
- Adjust diets to meet increased energy demands during cold stress or reduced feed intake during heat stress.
- Use of fans, sprinklers, or misting systems to reduce heat stress.
- Provide warm, dry housing and bedding during cold weather.
- Adjust breeding seasons to avoid extreme weather periods.
- Implement effective vaccination and deworming programs.

3.2.3 Aquaculture

The following precautionary measures are recommended;

I. Dredge out mud and weeds from the pond to increase pond depth.
ii. Farmers are advised to plant shade trees such as plantain, banana, etc., around the pond to help modulate temperature around the pond.
iii. Ponds should be cleaned frequently to minimise eutrophication.
iv. Avoid constructing ponds on waterways/flood-prone areas.
v. For concrete and plastic aquaculture there must be continuous change of water and adequate aeration should be provided.
vi. Reduce stocking density.
vii. Provision of shade during hot periods.
viii. Efficient water management.
ix. For farmers that use earthen ponds, there should be water reservoirs and water should be provided during periods of dry spell.
x. Controlled and planned breeding.
xi. Feed early hours of the morning and late at night during hot periods.
xii. Fish farmers are advised to minimize feeding during hot periods of the day.

Figure 35: Catfish and fingerlings

3.3 Water Resources Management

Effective water resources management is crucial for addressing growing water challenges, especially under the pressures of climate change, population growth, and pollution. Rainfall, its availability, usage, and storage are key components of an effective water resource management system. This involves balancing competing demands for water, including drinking water, sanitation, agriculture, energy production, and environmental conservation.

Therefore, adequate forecasting and monitoring of rainfall, temperature, runoff, groundwater, and streamflow characteristics are essential for responding and adapting to climate change and variability.

NiMet's rainfall prediction for 2025 may be summarized as follows:

- Normal-to-delayed onset of rainfall in parts of Nigeria,
- Normal-to-early cessation of rainfall
- Normal-to-shorter length of growing season in various parts of the country,
- Normal-to-below-normal rainfall amounts, and
- Normal-to-slightly warmer temperatures in most parts of the country.

While the overall rainfall is predicted to be normal in many parts of the country, the risk of flash floods cannot be ruled out, particularly in areas with poor drainage and soil infiltration characteristics.

The predicted delayed onset of rainy season and normal to below-normal rainfall amounts may result in delayed groundwater recharge and surface water availability in 2025. This will invariably affect drinking water supply, agriculture and other industrial uses.

Reduced reservoir inflows are likely to occur in those parts of the country where above normal temperatures and below normal rainfall amounts have been predicted. This may affect hydropower generation and result in electric power shortages.

The predicted slightly warmer-than-normal temperatures between the months of January and May 2025 might increase drought vulnerability through evaporation from water bodies, reservoirs, and soil, reducing overall water availability and result in scarcity in vulnerable areas. The below-normal rainfall predicted for the 2025 rainy season suggest that there may be increased competitive demand for water among agriculture, industry and domestic consumption.

Stress on aquatic ecosystems due to decreased inflows and drying of wetlands may be exacerbated with the forecasted slightly warmer-than-normal temperatures in 2025.

To effectively manage water resources and mitigate potential risks in the course of the year, the following advisories are recommended to all stakeholders, particularly dam managers, Water Boards, Rural Water Supply and Sanitation Agency (RUWASSAs), and other relevant agencies

1. **Early Preparedness:**

- Proactive water management systems using the forecasts provided in the 2025 Seasonal Climate Prediction issued by NiMet.
- Use forecasts to schedule water release activities appropriate to the predicted characteristics of the 2025 rainy season.
- Implement water rationing or prioritization during peak demand periods using NiMet's short-term and intra-seasonal forecasts.

2. **Integrated Water Resources Management (IWRM):**

- Strengthen coordination among water/rainfall-dependent sectors (agriculture, power generation, health) to balance competing demands for limited water resources due to the anticipated below-normal rainfall amounts in some places in the year.
- Ensure equitable water allocation between water-dependent sectors to avoid conflicts.
- Optimize water storage in reservoirs and prioritize essential water uses (e.g., drinking water, health care, hydropower generation, etc.).
- Explore water harvesting techniques to supplement surface water resources.

- During periods of above-normal temperatures, which enhance the growth of algae in reservoirs, adequate treatment of water for domestic use should be intensified.
- Encourage the removal of obstructions in drainage systems and waterways.

3. **Irrigation Development**

- Expand and maintain irrigation infrastructure in the northern states to enhance agricultural productivity during the delayed onset of rainy season.
- Promote efficient water use practices, including drip irrigation and mulching, to reduce the effect of evaporation losses and optimize water use.

Figure 36: River Niger in Onitsha, Anambra State.
(Source: News wire)

3.4 Transportation sector

Transportation plays a vital role in the economy of any nation, linking various places, enabling the movement of people, goods, and services, and fostering economic growth.

Nigeria's tropical climate, characterized by distinct wet and dry seasons significantly impacts the country's transportation systems.

Each weather variable such as fog/mist, heavy rainfall, dust haze, extreme temperatures, and long rainy season poses unique challenges to transportation.

3.4.1 Road Transportation

Roads are the backbone of Nigeria's transport system, and the road network in the country spans approximately 200,000km including Federal, State, and Local Government roads[2]. Road transportation is a crucial component of the country's economy and infrastructure, facilitating the movement of goods, services, and people across its vast geographical area.

[2] Nigeria Road Safety Strategy II NRSSII 2012-2030)

Figure 37: Typical Nigerian Highway.

Even though normal length of the rainy season, mostly normal rainfall amounts, and warmer-than-normal temperatures have been predicted for most parts of the country in 2025, the anticipated rainfall and temperature may still affect road infrastructure in various ways.

1. **Flooding:** Heavy rainfall could overwhelm drainage systems causing widespread flooding that can damage roads, create traffic disruptions, and increase commute times.

2. **Road Degradation:** a normal length of season will mean ample rainfall events. Persistent high-intensity rainfall could result in road collapse, bridges being cut off, increased potholes and washouts.

3. **Accidents:** Wet, slippery roads and reduced visibility during heavy rainfall can increase accident rates.

4. **Dust Hazards:** During the Harmattan which is a dry dusty period (January, February November, and December) poor horizontal visibility can hamper road transport.

5. **Highways:** The predicted warmer-than-normal temperature conditions can increase the chances of road warping and buckling. It can increase the chances of tyre bursting for long-distance journeys.

Advisory

- It is advised that drainages be kept clean and free of rubbish, and accumulated sand removed from time to time for free flow of surface runoff water. This will reduce the spill over of runoff waters onto roads and reduce the impact of flash flooding on the roads.
- Road commuters are advised to wait out heavy rainfall events before embarking on their journey, maintain speed limits as recommended by road traffic authorities, and ensure that headlamps are bright and functional.
- Road commuters are also advised to drive carefully during dust haze events with reduced horizontal visibility conditions.
- Drivers should ensure their tyres are well-checked and okay before embarking on a long-distance journey, particularly during the predicted months with warmer-than-normal temperatures.

3.4.2 Rail Transport

The rail transport sector in Nigeria is a vital part of the country's economy and transportation infrastructure, with the potential to reduce road congestion, lower logistics costs, and support industrialization. The rail network consists of Narrow-gauge lines and the Standard gauge line, recently introduced to improve speed, efficiency, and capacity. However, the rail transport system is not immune to the effects of weather and climatic conditions which can significantly influence its operational safety, and infrastructure durability.

Figure 38: Abuja Light Rail

Likely Impacts of the Predicted Weather in 2025 on Rail Transportation.

i. Storms and strong winds: Strong winds and storms during the onset and cessation of the rainy season can bring down trees and power lines onto rail tracks.
ii. High temperatures can cause the rail tracks to expand and buckle which may increase the chances of derailment.
iii. Rainfall may cause flooding of rail tracks, erosion of track beds, and rail embarkments pose the risk of subsidence and heave.
iv. Increased wind speeds can damage infrastructure on railway lines, such as signals, sensors, and lights.

Advisory

- The railway corporation should ensure that routine and regular inspections of rail tracks are carried out to address vulnerabilities before the rainy season.
- Regular inspection of rail tracks for debris and trees falling on the rail tracks, especially during rainstorms.
- Provision for cooling equipment and shades to protect from the heat should be made in and around the train terminals.

3.4.3 Marine Transportation and Blue Economy

The Nigerian coastline, bordering seven southern states (Lagos, Ondo, Delta, Bayelsa, Rivers, Akwa Ibom, and Cross River), is vital for the nation's marine and blue economy. The sector leverages marine resources to drive economic growth, create jobs, and improve livelihoods. It encompasses diverse activities including fisheries, maritime transport, oil and gas, and coastal tourism. The 2025 SCP has the potential to significantly benefit the maritime sector by providing valuable information for decision-making, resource management, and risk mitigation.

SUB-SECTORS

A. Fisheries

The river discharge in September will likely enrich coastal waters with nutrients, stimulating phytoplankton blooms and attracting fish populations.

Figure 39: Fisherman in the coastal region of Nigeria

Advisory:

- Fisherfolks are encouraged to take advantage of the nutrient-enriched waters in September and use updates from NiMet's daily weather forecast and marine bulletin to minimize the effect of potential hazards like storms, sea level rise, and strong currents during fishing activities.

B. Maritime Transport

The normal to above-normal rainfall predicted for 2025 over the coastal region will have an impact on maritime navigation, especially in the inland waterways. The water level is projected to be sufficient for larger vessel navigation during June – October.

Figure 40: Ferry boats at a jetty in the coastal city of Lagos

Advisory

- Mariners are encouraged to effectively plan their route for vessels in the inland waterways during the peak of rains when the water level is anticipated to be high.
- Tidal currents could be strong, especially during the monthly transition between high and low tides. These currents can cause navigation challenges for smaller vessels or inexperienced local boat operators. Hence navigators are advised to obtain daily tidal information from NiMet and other relevant agencies to ensure safety.

C. Coastal Tourism

Pleasant weather conditions like sunshine and moderate temperatures make coastal destinations more appealing to tourists. Outdoor activities like swimming, sunbathing, surfing, and other water sports attract more visitors.

The 2025 SCP shows that January to May will be characterized by normal to slightly warmer conditions with a projected daytime temperature of 31 to 34℃, while rainfall onset in the coastal region is projected to commence from late February to mid-March.

Figure 41: Recreational beach in the coastal region of Nigeria

Advisory

- The mild temperatures and normal rainfall anticipated during January to March make this period a good time to hang around beaches and other coastal recreational centres.
- Tourists should wear sunscreen, a hat, and sunglasses to protect their skin if there will be prolonged exposure to the sun.
- Tourists are advised to drink sufficient water as dehydration in sunny weather can lead to health problems

D. Oil and Gas

The oil and gas industry contributes significantly to Nigeria's Gross Domestic Product (GDP) and is a major source of foreign exchange earnings for the government. The industry creates jobs and stimulates economic growth.

The predicted weather in 2025 could affect oil installations, especially during the onset of the rainy season. This period is characterized by thundery activities and might be challenging for oil installations in Nigeria's coastal region.

Figure 42: Oil and gas installations in the coastal region of Nigeria

Advisory

- To ensure safety, organizations should always check NiMet's daily marine forecast to stay updated on the latest offshore and onshore weather conditions.
- The structural integrity of offshore platforms and onshore facilities to withstand thundery activities and hazardous winds should be assessed frequently.

3.5 Power Sector

Figure 43: Renewable Energy, Power Generation and Distribution

3.5.1 Hydropower Generation

The predicted delayed rainfall onset, early cessation, and below-normal rainfall over the North are likely to negatively affect the amount and level of water available in dams for hydropower generation during the season. This could lead to reduced electricity generation and power shortages. Conversely, in the South, the predicted high annual rainfall amount of 2700 to 3010 mm over Rivers, Bayelsa, Cross River, and Akwa Ibom states is likely to threaten power installations. Where such high rainfall results in flooding, it could collapse and damage electric poles and submerge transformers which could cause prolonged power outages.

High monthly mean temperatures of 38.0 to 41.0℃ predicted for the hot season (March to May) over Yobe, Borno, Kano, Sokoto, Adamawa, Niger, Katsina, Kano, Jigawa, Kebbi and Bauchi states could heighten demand for energy to power cooling systems thereby straining the existing power grid. Such high temperatures

especially during the dry season could also cause melting and burning of electric transmission cables, reduce the efficiency of power plants that could pose operational challenges and consequently affect power transmission to users.

3.5.2 Renewable Energy (Solar and Wind)

The predicted high temperatures and delayed onset in the North are favourable for clear and less cloudy skies that enhance long hours of sunshine and increase the potential for solar power generation. Such an opportunity can be fully exploited to complement power generation from hydropower sources.

Prolonged dry seasons in the North could create conditions favourable for wind energy projects, particularly in states such as Sokoto, Zamfara, Katsina, Kano, Jigawa, Plateau, and Borno, where the flow of dry northeast (NE) trade winds from the Sahara Desert could enhance wind speeds that could be harnessed for generation of power using wind turbines.

Advisory

Investors, individuals and Government should take advantage of the enhanced solar and wind energy potential/opportunity in northern Nigeria to invest in renewable energy generation that will potentially reduce dependence on traditional power sources.

3.6 Telecommunication Sector

Telecommunication relies heavily on environmental conditions for the optimal performance of equipment, signal transmission, and infrastructure integrity. Weather events including rainstorms, windstorms, thunderstorms, and high temperatures have a significant influence on telecommunications infrastructure and operations, affecting both wireless and wired communication systems.

The impact of these weather events may be increased, particularly during the pre-onset of the rainy season, which is often characterized by high humidity, temperature fluctuations, and unstable atmospheric conditions as anticipated in SCP projections for 2025.

The predicted normal to warmer temperatures for January to May could pose challenges such as overheating, dust accumulation, power shortages for the telecommunications sector. By incorporating meteorological information into operations, service delivery can be enhanced.

Figure 44: Mobile Network Tower
(Source: Getty Images)

Likely Impact of the Predicted Weather for 2025 on Telecommunication Sector in Nigeria.

- Heavy rains can cause signal distortion, reducing the quality of service and resulting in network fluctuations.
- Strong winds can topple towers, dislodge antennas, and damage infrastructure such as cables and poles.
- Wind-induced vibrations can misalign satellite dishes and antennas, affecting signal strength.
- Windstorms often lead to power outages, disrupting telecommunication equipment that lacks robust backup systems.
- Direct lightning strikes can damage equipment, leading to outages and degrading signal quality in wireless networks.
- Voltage surges from lightning can destroy sensitive components in telecom systems without proper surge protection.
- Strong winds can damage telecom towers, increasing the risk of collapse.

- High temperatures can cause overheating of equipment such as servers, routers, and switches, leading to system malfunctions or shutdowns.

Advisory

- Collaborate with the Nigerian Meteorological Agency to incorporate weather forecasts into operational planning.
- Regular inspection and maintenance of existing infrastructure against moisture and wind damage.
- Use weather-resistant materials for towers, antennas, and cables that can withstand extreme heat, dust storms, and rain events.
- Use real-time weather monitoring to adjust network operations dynamically.
- Optimize cooling systems to handle high temperatures while reducing energy consumption.
- Install lightning arresters and grounding systems to protect against strikes and surges
- Strengthen redundancy in network design to maintain service quality during weather-related disruptions.
- Deploy mobile towers and satellite communication units as backup during adverse weather conditions.
- Use weather information to pre-emptively adjust signal routing and optimize coverage

3.7 Disaster Risk Reduction

Disaster events profoundly affect humans on multiple levels — physically, emotionally, socially, and economically. Floods, droughts, and heat waves are examples of weather-related calamities that have a major impact on societies and their effects can be extensive, impacting ecosystems, infrastructure, livelihoods, and health.

The prediction for 2025 indicates normal to below-normal rainfall activities across most parts of the country. Low-lying regions of Niger, Benue, Kogi, Rivers, and coastal states are more vulnerable to floods.

Several disasters such as the collapse of billboards, electrical poles, removal of roofs, and so on can occur during the onset and cessation period of the rainy season due to the strong winds associated with the period. Flash floods cannot be ruled out because of high-intensity rainfall expected in some areas such as parts of Kaduna, Lagos, Ebonyi, Cross-River, Abia, Akwa-Ibom, and the FCT. In the northern states, flooding may also occur when rainfall is at its peak in July, August, and September. Places within the urban cities of the country with poor drainages are also vulnerable to floods during the rainy season.

The predicted normal to slightly warmer conditions can result in a drier atmosphere especially over the north in January, February, November, and December which may support fire outbreaks due to the dry and windy conditions.

Figure 45: Flood in Maiduguri, Borno state, Nigeria September 15, 2024.

Table 4: Implication of the Prediction to Disaster Risk Management

IMPLICATION	Advisory	Communication Strategy
1. Windstorms that may destroy properties such as destruction of power and telecommunication infrastructure and roofs	• Planting of Trees • Prevent outside burning/ wildfire • Getting meteorological information on wind direction and speed from NiMet before mounting • Strategically placing of infrastructures • Using quality and disaster-reliance materials • Monitoring, maintenance, and upgrading of existing infrastructure e.g. dams, telecommunications infrastructure	• Making Use of Early Warning Advisories • Translation of all advisory into the local language • Adapting advisory into inclusive such as sign language, visual, and braille. • Using digestible IEC materials • Collaboration with the Organisation of People with Disabilities, community /religious leader • Adding DRR strategies to the school curriculum • Print and Electronic Media/social media • Organizing workshops/trainings • Use of influencers • Stakeholder engagement • Downscaling of the SCP
2. Flash flood due to heavy/high-intensity rainfall	• Environmental clean-up (waterways and drainage system • Discourage people on waterways • Proper town planning • Sensitization (See NEMA Flood Advisory)	
3. Building collapses due to heavy rainfall/windstorm	• Authorities should enforce developers to follow building standards and code in project development • Use of substandard materials should be discouraged • Avoid building on floodplains • Construction of drainages	
4. Dry Spell -	• Encourage water harvesting	
5. Erosion	• Afforestation • Erecting of windbreakers • Construction of retaining wall and embarkment in erosion-prone areas	
6. Internal displacement of people due to damage to homes	• Provision of temporary shelters/camp • Provision of humanitarian assistance • Advocacy and Sensitization	

7. Epidemics (cholera, airborne diseases, malaria and meningitis	• Proper health care measures such as stocking up on vaccines and Personal Protective Equipment (i.e. gloves, mask, etc) • Sensitization and risk communication • Water, Sanitation, and Hygiene (WASH) advocacy and facilities	
8. Fire outbreak	• Discourage/control of bush burning • Turning off electrical appliances • Fire defence equipment • Fire prevention sensitization • Abiding by fire safety code • Relevant authority should install fire emergency monitoring	

- Federal, state, and local authorities should ensure that sufficient funds are available and released on time for proactive measures.
- Research and innovation that can enhance the understanding and management of disaster risks, such as hazard mapping, risk assessment, and forecasting models, should be supported.

3.8 Health

Weather and climate have a profound impact on human health. These can have both direct and indirect effects on people and communities, including social and economic conditions as well as the operation of healthcare systems. Climate change is therefore a risk multiplier that threatens to undo decades of advancements in health.

The climate and health section of this document outlines how health sector partners can effectively use climate information and services to detect, monitor, predict, and manage climate-related health risks. As climatic parameters change, storms, extreme heat, floods, and droughts become more frequent and intense.

These weather and climate hazards have health implications, including an increase in communicable and noncommunicable diseases, the onset and spread of infectious diseases, health emergencies, and the risk of death.

The Neutral phase of the ENSO projection, which is the basis for the 2025 SCP prediction, is marked by a near-normal climate situation for the country. High-intensity rainfall may result in flash flooding even where near-normal rainfall is expected.

Heavy rains have the potential to contaminate drinking water, raising the risk of both flood-related health issues such as malaria and waterborne diseases like cholera, dysentery, and diarrhoea. The growth of fungi is accelerated in damp conditions, leading to an increase in respiratory illnesses. Access to medical facilities may be hampered by infrastructure damage and displacement brought on by heavy rains.

Flooding that may lead to cholera outbreaks can occur in places such as parts of Kaduna, Lagos, Ebonyi, Cross River, Abia, Akwa Ibom, and the Federal Capital Territory where heavy rainfall is

predicted. The bacteria that cause cholera are mostly found in faeces of an infected person so in areas where open defecation is practiced, faeces can easily be transported by run-off water and deposited into water bodies used by communities for domestic uses. Reducing these health risks requires adequate sanitation, public health campaigns, and disaster readiness.

It is anticipated that nationwide temperatures from January to May 2025 will be close to normal or slightly warmer. This suggests that during this time of the year, heat-related conditions including heat exhaustion, heatstroke, and dehydration may worsen and directly endanger lives. People with underlying health conditions may be affected by prolonged high temperatures, which can worsen respiratory and cardiovascular disorders as well as the quality of the air. Infectious diseases spread by vectors like mosquitoes are also facilitated by rising temperatures. Furthermore, heatwaves can disproportionately impact vulnerable communities and put a strain on healthcare services.

The harmattan season, which is observed in January, February, November, and December in most parts of the country, is characterized by dry and dusty winds that may raise the risk of respiratory tract conditions including cough and asthma as well as cardiovascular problems. Additionally, the meningitis outbreak is influenced by low relative humidity and dusty conditions of the harmattan season.

Advisory on malarial risk

- Prevent mosquito bites, by using mosquito nets, insecticide, and repellent.
- Fumigate the environment, and clear the drainage and stagnant water around the home frequently
- Seek prompt medical attention if the disease is suspected
- Taking antimalarial tablets under the guidance of a health professionals
- Administering the vaccine to children who live in places where malaria is endemic.
- Relevant stakeholders should provide mosquito nets.

Advisory on the Meningitis risk

- Seek proper diagnoses and treatment at medical facilities if sudden neck stiffness or high fever occurs.
- Frequent thorough hand washing is advised. This helps to prevent the spread of germs.
- Practice good hygiene which includes not sharing of drinks, foods, straws, eating utensils, lip balms, or toothbrushes with anyone else.
- Avoid overcrowding and ensure adequate ventilation at homes
- Use disposable tissue to cover mouth and nose when coughing or sneezing.

Advisory on cholera risk

- Government should provide toilets at strategic places to discourage open defecation
- To help reduce the intake of contaminated water and the spread of waterborne diseases during flooding, all relevant agencies should provide drinking water to communities.
- Good hygiene among communities should be encouraged.

Advisory on Heat Stress

- Drink water at regular intervals
- Do not go outside during the hottest part of the day if you can afford it or try to arrange your activities for earlier or later in the day when it is cooler
- Stay in shaded areas, wear sunscreen, sunglasses, hats, or use umbrellas when outside
- Keep the home cool by closing the curtains during the hottest time of the day and opening at nighttime to cool down the house.
- The use of fans and coolers at home if available

Figure 46: Parents/care givers waiting for their babies to be immunize during Measles campaign/routine immunization for children under 0 – 5 years at Town Hall clinic Gwagwalada FCT-Abuja on Tuesday 12th December 2023

Chapter Four

Evaluation of 2024 Seasonal Climate Prediction

Evaluation of the SCP for the preceding year is basically the process of comparing the forecasts issued at the beginning of the year with the observed data from the Agency's weather observatories across Nigeria. It is an assessment of the level of accuracy of the predictions. NiMet uses the result of the evaluation as a guide towards improving the accuracy of predictions for the subsequent year.

4.1 Evaluation of Predicted Onset, Cessation of Rainy Season and Rainfall Amounts for 2024

The performance of the 2024 Seasonal Climate Predictions for the onset of the rainy season, the end of the rainy season, the length of the season, and annual rainfall amounts has been assessed. The evaluation results of the rainfall forecasts are presented in Figure 47.

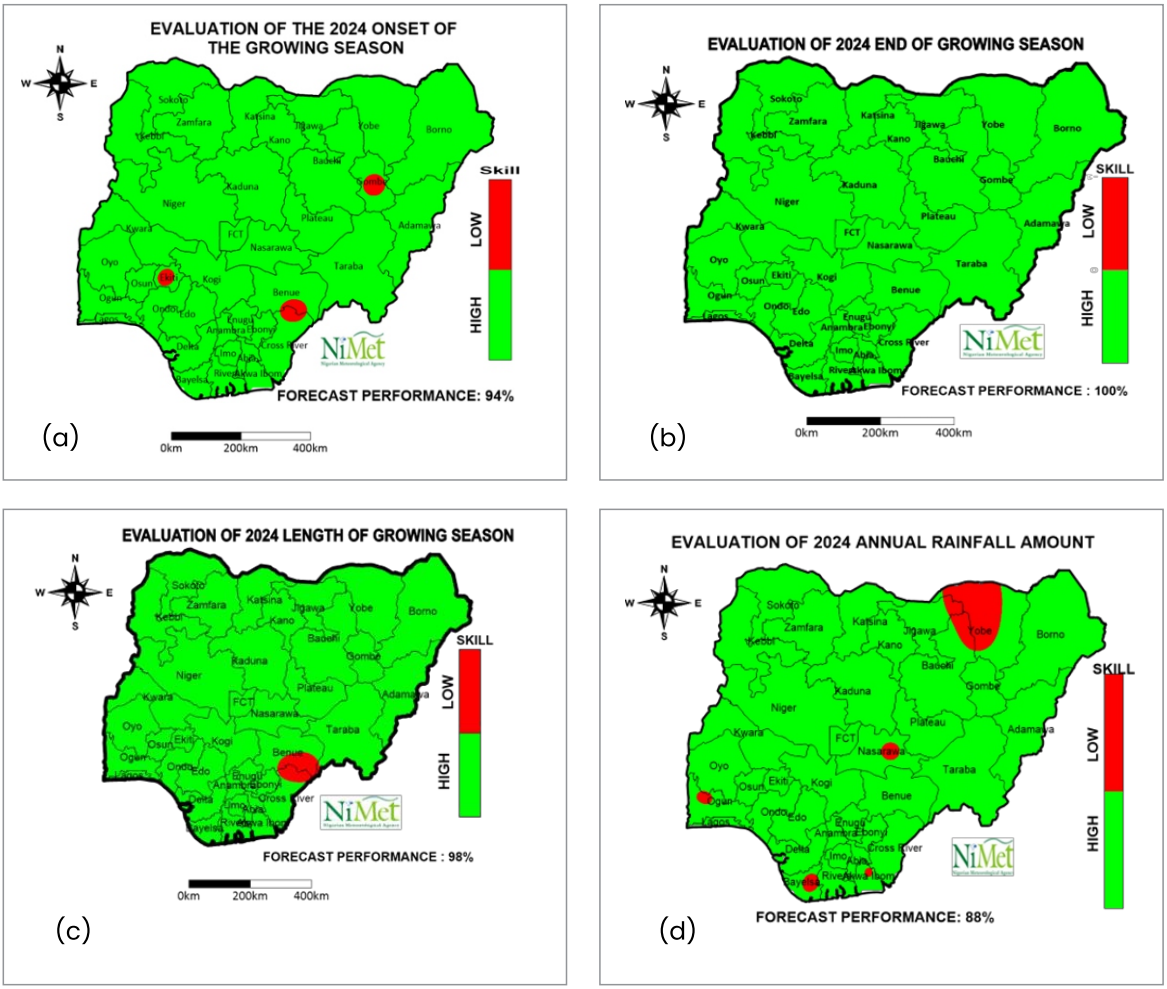

Figure 47: Performance Skills (or Accuracy) of Onset, Cessation, Length of season and Rainfall amount across Nigeria

The forecast for the onset of the 2024 rainy season across the country recorded a high accuracy of 95%. However, the level of accuracy was low in parts of Gombe, Ekiti, and communities along the border of Benue and Cross River states. In contrast, the forecast for the end of the season achieved a performance skill (or accuracy) of 100% nationwide all over Nigeria.

The forecast for the length of the season also performed well, with a skill level (accuracy) of 98% in most parts of the country. However, the forecast accuracy was low around the border areas of Benue and Cross River states. Among the four forecasts, the prediction of annual rainfall amount recorded the lowest performance skill of 88%. Poor performance skills were observed in the western part of Yobe, the eastern parts of Jigawa and Bauchi states, as well as parts of Nasarawa, Ogun, Bayelsa, and Akwa Ibom states.

Overall, a high-performance skill level of approximately 95% was achieved in the NiMet's 2024 forecasts for the onset, end, length of the season, and annual rainfall amount.

Table 5.: Performance Of 2024 Rainfall Forecasts

RAINFALL FORECAST PARAMETER	PERFORMANCE (In %)
Onset of Rainy Season	94
Length of Rainy Season	100
End of Rainy Season	98
Annual Rainfall Amount	88
AVERAGE PERFORMANCE	**95%**

4.2 Evaluation of 2024 Temperature Predictions

4.2.1 January 2024 Daytime and Nighttime Temperatures

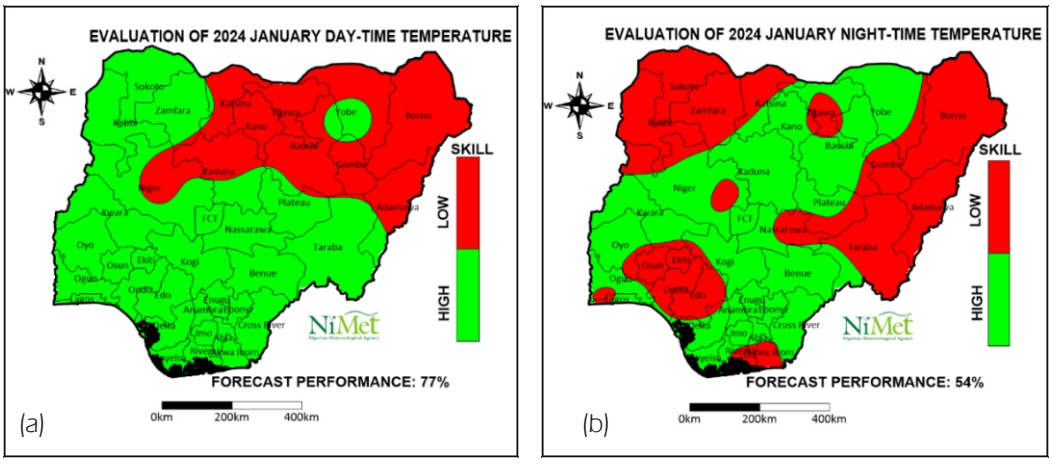

Figure 48: Performance Skills (or Accuracy) of January 2024 Daytime and Nighttime Temperature Forecasts Across Nigeria

Figure 48 (a) shows the performance of January 2024 daytime temperature forecasts in different parts of Nigeria. The evaluation shows that a performance skill of 77% was recorded. The observed daytime temperature was higher than the prediction in most of the northeastern states, except some parts of Yobe and Bauchi states.

The predicted January nighttime temperature had a performance score (accuracy) of 54%.

4.2.2 February 2024 Daytime and Nighttime Temperatures

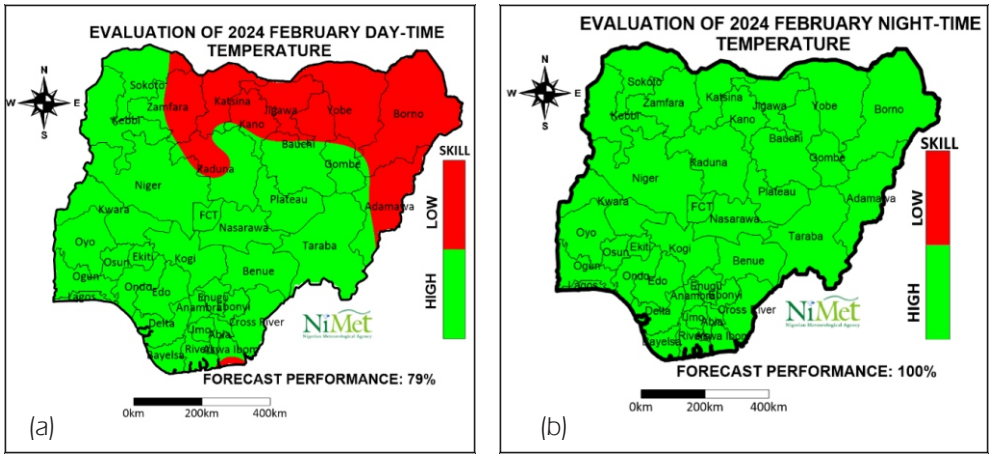

Figure 49: : Performance Skills (or Accuracy) of February 2024 Daytime and Nighttime Temperature Forecasts Across Nigeria

The predicted February 2024 daytime temperature panned out well over most parts of the country with a performance score of 79%. Akwa Ibom, Zamfara, Kaduna, Kano, Jigawa, Yobe and Borno States were however cooler than predicted.

The predicted nighttime temperature shows an accuracy (performance skill) of 100%, implying that the forecast panned out as predicted all over the country.

4.2.3: March 2024 Daytime and Nighttime Temperatures

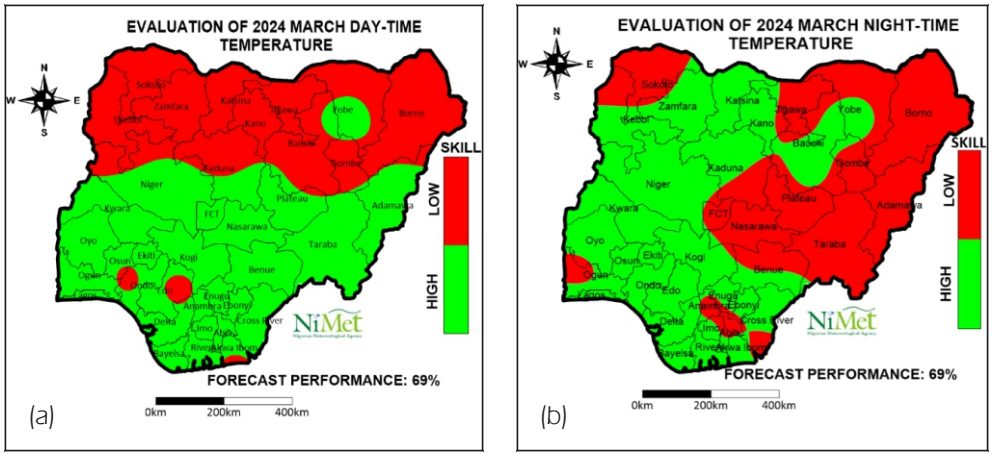

Figure 50: Performance Skills (or Accuracy) of March 2024 Daytime and Nighttime Temperature Forecasts Across Nigeria

The daytime temperatures in March 2024 panned out as predicted in most of the southern and central states, except in a few places in Edo, Ondo and Eket in the southern fringe of Akwa Ibom state. The prediction was also accurate in parts of Yobe and Bauchi states. The overall performance skill of March 2024 daytime temperature prediction was 69%. The observed March 2024 daytime temperatures were however, at variance with the predicted in most of the states in northern Nigeria as shown in Figure 50 (a). The low skills observed in most of the northern and southern states were as a result of unusual warming experienced in the year. The observed

daytime temperatures were higher than the predicted and long-term average values by 1.1 to 3.2℃. The predicted March 2024 nighttime temperatures show significant level of accuracy, with a score of 69%. The observed nighttime temperatures were, to a large extent, in agreement with the prediction. In most parts of the northeast, the observed nighttime temperatures were lower than predicted. Abuja and its environs were predicted to have cooler than normal nighttime temperatures but were eventually observed to be warmer than normal.

4.2.4 April 2024 Daytime and Nighttime Temperatures

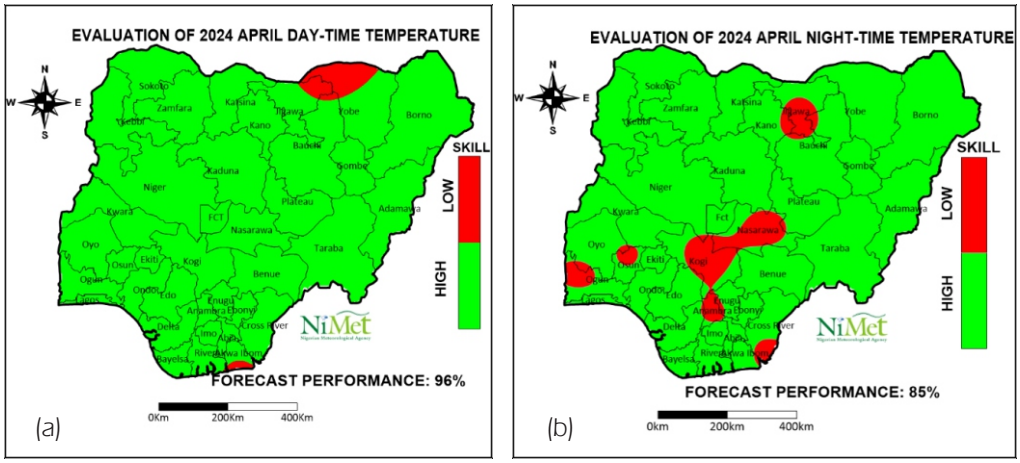

Figure 51: Performance Skills (or Accuracy) of April 2024 Daytime and Nighttime Temperature Forecasts Across Nigeria

The daytime (maximum) temperature forecast evaluation for April 2024 shows that the forecast model performance of was 96%. However, in Yobe state the observed daytime temperatures were higher than predicted, while Akwa Ibom state recorded lower (cooler) daytime temperatures than was predicted. (Figure 51 (a)).
The nighttime (minimum) temperature forecast evaluation for April 2024 shows that the forecast model performance was 85%. However, Ogun, Anambra, Cross River, Jigawa, Nasarawa, Kogi and Osun States were observed to have recorded low forecast skills due to the lower (cooler) than predicted nighttime temperatures experienced over those places. (Figure 51 (b)).

4.2.5 May 2024 Daytime and Nighttime Temperatures

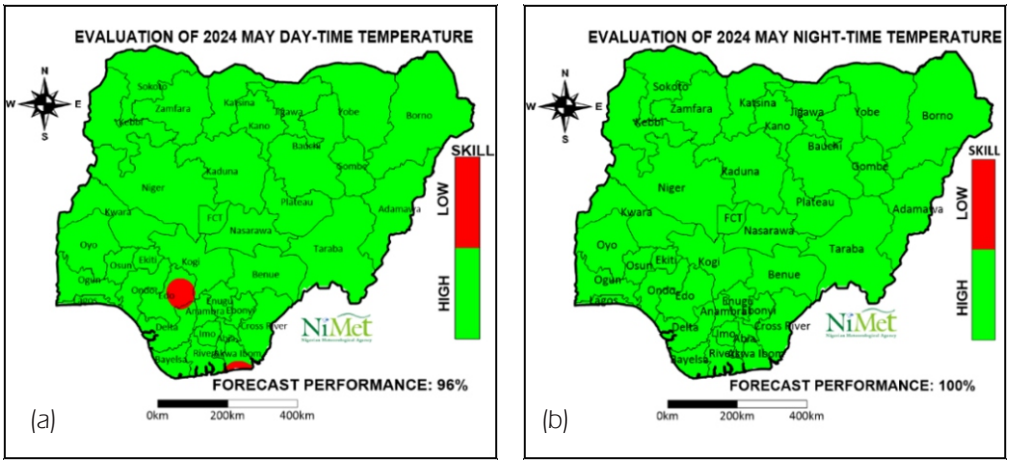

Figure 52: Performance Skills (or Accuracy) of May 2024 Daytime and Nighttime Temperature Forecasts Across Nigeria

A forecast model performance of 96% was recorded for May 2024 daytime temperature. The model recorded low skill over Delta and Akwa Ibom states as those places experienced lower (cooler) than predicted daytime temperatures in May 2024.

The evaluation of the May 2024 nighttime temperature forecast showed a performance of 100% (See Figure 52(b)). This indicates that the observed nighttime temperatures across the country in May 2024 were exactly as predicted.

Table 6: Summary of the Forecast performance in 2024

PERFORMANCE OF 2024 TEMPERATURE FORECASTS			
S/N	**Month**	**Daytime Temperature Forecast Performance (%)**	**Nighttime Temperature Forecast Performance (%)**
1	January	77	54
2	February	79	100
3	March	69	69
4	April	96	85
5	May	96	100

Chapter Five

Daytime and Nighttime Temperature Predictions

This chapter highlights the forecasted day and night temperatures from January to May 2025 for selected locations in the 36 states of the country and the FCT.

Table 7: Predicted 2025 Day time Temperatures

State	Location	January	February	March	April	May
Abia	Arochukwu	32.2	33.0	32.7	32.3	32.0
	Ukwa West	32.9	33.5	32.8	32.3	32.2
	Umuahia	33.6	35.2	34.3	33.6	32.3
	Umunneochi	32.4	33.4	33.1	32.6	32.1
Adamawa	Ganye	32.6	35.1	38.0	36.0	34.0
	Madagali	32.3	35.8	38.3	39.5	38.1
	Numan	33.8	37.0	38.1	36.8	34.0
	Yola	33.9	37.6	39.8	40.1	37.5
Akwa-Ibom	Eket	31.0	32.4	31.8	31.6	30.7
	Oni	29.6	31.0	30.7	30.5	29.6
	Oron	29.0	29.4	29.1	28.8	28.2
	Oruk	30.5	31.5	31.0	30.6	29.8
	Uyo	33.2	34.8	33.9	33.1	32.1
Anambra	Anambara West	30.4	31.9	31.5	31.0	29.9
	Awka	34.3	35.8	35.3	34.6	32.9
	Idemili South	29.7	31.2	30.8	30.6	29.6
	Ogbaru	29.7	31.2	30.8	30.6	29.6
Bauchi	Bauchi	30.3	33.8	36.9	38.5	36.7
	Bogoro	31.1	33.8	35.0	34.7	32.4
	Darazo	31.7	35.4	37.8	39.1	37.8
	Zaki	31.2	35.1	38.0	40.5	40.2
Bayelsa	Brass	29.7	30.7	30.2	29.4	28.7
	Ekeremor	29.6	30.5	30.2	29.8	29.0
	Southern Ijaw	29.7	30.7	30.2	29.4	28.7
	Yenegoa	33.2	34.4	34.1	33.7	32.7
Benue	Katsina Ala	30.9	33.5	33.7	32.9	31.2
	Makurdi	34.8	37.5	37.5	36.2	33.7
	Oturkpo	31.7	34.1	34.4	33.6	31.6
	Vandeikya	30.4	32.5	32.3	31.8	30.4

Borno	Abadam	30.7	34.6	38.0	41.5	42.2
	Dikwa	33.7	37.1	40.0	42.1	41.6
	Maiduguri	30.9	34.8	38.2	41.2	40.9
	Nganzai	32.0	35.7	38.8	41.5	41.3
Cross-river	Abi	29.9	31.5	31.2	30.9	29.8
	Calabar	32.6	34.1	32.7	32.2	31.3
	Ikom	33.3	35.6	35.1	34.0	32.9
	Obudu	30.4	31.9	31.6	31.0	29.8
	Ogoja	35.0	37.0	36.6	35.4	33.3
Delta	Asaba	34.5	36.2	35.7	35.1	33.4
	Ndoka East	31.0	32.5	32.0	31.7	30.7
	Patani	30.0	31.1	30.7	30.1	29.4
	Warri	29.3	30.4	30.1	29.6	28.7
	Warri North	33.2	34.4	34.1	33.7	32.7
Ebonyi	Abakaliki	30.4	32.2	31.9	31.3	30.1
	Afikposi South	29.9	31.5	31.1	30.8	29.8
	Ishielu	30.4	32.2	31.9	31.3	30.1
Edo	Akoko Edo	32.2	34.1	33.9	33.1	31.0
	Benin	33.6	35.2	34.5	34.2	33.0
	Esan East	30.4	31.8	31.2	30.6	29.6
	Ovia Southwest	29.7	31.1	30.5	29.9	28.8
Ekiti	Ado Ekiti	33.2	34.9	34.2	33.4	31.7
	Ide Orun	31.4	33.0	32.5	31.5	29.6
	Ijero	32.1	34.0	33.5	32.2	30.2
	Ikole	33.0	35.0	34.8	34.0	31.5
Enugu	Aninri	29.9	31.5	31.1	30.8	29.8
	Enugu	33.7	35.8	35.3	34.5	32.6
	Igboeze North	30.4	32.3	31.9	31.3	29.9
	Uzo Uwani	30.4	31.9	31.5	31.0	29.9
FCT	Abaji	33.0	34.5	34.7	33.8	31.5
	Abuja	34.8	37.0	37.0	36.3	33.6
	Bwari	32.7	34.6	35.1	33.7	31.0
	Kuje	32.9	34.8	35.1	34.1	31.5
Gombe	Balanga	34.7	37.8	39.1	37.8	34.8
	Dukku	31.7	35.4	37.8	39.1	37.8
	Gombe	30.5	34.4	37.1	38.6	36.5
	Shomgom	32.9	36.4	37.6	36.3	33.3
Imo	Ideato North	29.7	31.2	30.8	30.6	29.6
	Ngor Okpala	29.9	31.3	31.0	30.7	29.8
	Obowo	29.6	31.0	30.7	30.5	29.6
	Owerri	33.7	35.2	34.5	33.9	32.4
Jigawa	Dutse	31.0	32.4	31.8	31.6	30.7
	Gwaram	29.7	33.8	36.6	39.0	38.8

	Gwiwa	31.5	35.1	37.5	39.0	38.0
	Suletankarkar	30.5	34.5	37.5	40.2	40.0
Kaduna	Birnin Gwari	30.0	33.8	35.5	35.6	33.0
	Kachia	32.7	35.4	36.2	35.0	31.9
	Kaduna	30.6	34.4	35.6	36.2	33.8
	Lere	31.2	34.1	35.6	35.8	33.9
	Zaria	29.2	33.1	35.5	37.0	34.8
Kano	Dambatta	30.1	34.2	37.1	39.8	39.8
	Gwarzo	29.6	33.7	36.3	38.2	37.6
	Kano	28.6	33.4	36.4	39.4	38.8
	Sumaila	30.0	33.9	36.4	38.1	37.2
Katsina	Danmusa	29.5	33.5	35.9	37.6	36.5
	Katsina	29.1	33.0	36.2	39.3	38.9
	Sabuwa	29.8	33.7	35.7	36.5	34.4
	Zango	29.7	33.9	36.9	39.9	40.1
Kebbi	Arewa	33.1	36.9	39.2	40.7	39.1
	Dokonwasagu	32.4	36.0	37.7	37.8	35.1
	Suru	33.5	37.0	38.9	39.3	37.0
	Yelwa	34.9	37.9	39.4	39.2	36.4
Kogi	Ibaji	31.4	32.9	32.5	31.8	30.4
	Lokoja	34.8	37.3	37.6	36.5	34.1
	Yagba West	33.0	35.0	34.8	34.0	31.5
Kwara	Baruten	34.1	36.2	35.7	34.2	32.0
	Ekiti	32.1	34.0	33.5	32.2	30.2
	Ilorin	33.8	35.9	35.9	34.8	32.7
	Pategi	34.0	36.2	36.3	35.9	33.4
Lagos	Badagry	29.8	30.7	30.3	29.8	29.1
	Ikeja	33.0	34.1	33.9	33.5	32.2
	Ikorodu	29.4	30.4	30.1	29.6	28.9
	Lagos Island	31.0	31.5	31.7	31.4	30.6
Nasarawa	Akwanga	34.1	36.2	36.6	34.9	31.6
	Awe	31.6	34.5	34.9	33.7	31.8
	Doma	32.4	34.8	35.4	34.5	32.2
	Lafia	35.1	37.8	37.9	36.5	33.7
Niger	Bida	34.9	37.8	38.3	37.8	35.0
	Borgu	32.1	35.4	37.0	37.1	35.1
	Lapai	33.0	34.5	34.7	33.8	31.5
	Magama	32.5	35.8	37.2	36.7	34.2
	Mashigi	34.0	36.5	37.0	36.5	34.1
	Minna	34.7	37.5	38.1	37.6	34.5
	Rijaw	26.5	26.5	27.2	28.4	29.3
Ogun	Abeokuta	35.1	36.9	35.9	35.0	33.3
	Ijebu Ode	33.5	35.1	34.4	33.7	32.3

	Imeko Afon	31.4	33.0	32.5	31.3	30.2
	Ipokia	30.8	31.6	31.0	30.1	29.3
	Ogun Waterside	29.2	30.4	30.1	29.5	28.7
Ondo	Akoko Northwest	31.4	33.0	32.5	31.5	29.6
	Akure	33.3	34.9	34.1	33.4	31.7
	Ilaje Eseodo	29.3	30.4	30.1	29.6	28.7
	Ondo	33.5	35.0	34.5	33.0	31.5
	Ose	30.9	32.1	31.3	30.4	29.3
Osun	Atakumosa East	30.7	32.3	31.8	30.6	29.0
	Ifedayo	32.1	34.0	33.5	32.2	30.2
	Ife North	30.3	31.9	31.3	30.2	29.1
	Oshogbo	34.0	35.7	35.1	33.8	32.1
Oyo	Ibadan	33.7	35.7	35.2	34.1	32.4
	Iseyin	34.2	35.6	35.0	33.6	31.8
	Iwajowa	32.0	33.8	33.5	32.0	30.6
	Oluyole	30.5	31.7	31.1	30.3	29.4
	Shaki	33.8	35.8	35.4	33.6	31.7
Plateau	Bokkos	33.8	35.9	36.2	34.4	31.1
	Jos	27.7	30.2	31.5	31.3	28.8
	Langtang South	33.6	36.6	37.1	35.0	32.4
	Wase	34.9	37.5	38.1	36.1	33.0
Rivers	Akukutor	29.8	30.7	30.1	29.4	28.6
	Ogba Egbe	29.9	31.3	31.0	30.7	29.8
	Opobo Nkoro	29.6	30.2	29.7	29.1	28.4
	Port Harcourt	33.3	34.5	33.5	33.1	32.1
Sokoto	Gudu North	31.8	35.9	38.5	41.0	40.4
	Illela	31.5	35.6	38.4	40.9	40.2
	Isa	31.5	35.4	38.0	40.1	39.1
	Kebbe	33.0	36.7	38.7	39.3	37.0
	Sokoto	32.4	36.0	38.7	41.0	40.0
Taraba	Bali	34.1	37.1	37.5	35.4	31.7
	Jalingo	34.7	37.7	38.6	37.7	34.6
	Sardauna	29.6	31.9	32.2	30.7	28.2
Yobe	Gulani	32.9	36.2	38.5	39.4	37.3
	Nguru	29.8	33.7	37.0	40.8	41.1
	Potiskum	30.3	34.3	37.0	39.6	39.2
	Tarmuwa	30.8	34.7	37.8	40.7	40.7
	Yunusari	30.3	34.2	37.5	40.8	41.3
Zamfara	Gummi	33.0	36.7	38.7	39.3	37.0
	Gusau	30.9	34.9	37.8	39.4	37.5
	Maru	31.4	35.2	37.0	37.3	34.9
	Shinkafi	31.5	35.4	38.0	40.1	39.1

Table 8: Predicted 2025 Night-Time Temperatures

State	Location	January	February	March	April	May
Abia	Arochukwu	19.3	22.2	23.4	24.0	23.7
	Ukwa West	20.1	22.9	23.9	24.2	23.9
	Umuahia	21.9	24.1	24.4	24.2	23.7
	Umunneochi	18.6	21.8	23.3	24.0	23.7
Adamawa	Ganye	14.4	17.6	20.3	21.8	21.6
	Madagali	13.6	17.3	21.4	24.2	25.3
	Numan	15.9	19.8	23.5	25.4	25.2
	Yola	17.6	20.9	25.0	27.3	26.4
Akwa-Ibom	Eket	22.6	24.0	24.3	24.1	23.5
	Oni	19.3	22.2	23.4	24.0	23.7
	Oron	25.2	26.8	27.2	27.3	26.9
	Oruk	20.1	22.9	23.9	24.2	23.9
	Uyo	21.8	23.9	24.2	24.2	23.7
Anambra	Anambara West	18.5	22.0	23.4	24.1	23.9
	Awka	21.2	24.5	25.0	24.7	24.0
	Idemili South	19.0	22.2	23.5	24.1	23.9
	Ogbaru	19.0	22.2	23.5	24.1	23.9
Bauchi	Bauchi	13.9	16.8	21.4	24.0	24.6
	Bogoro	14.7	18.0	20.6	21.7	21.7
	Darazo	13.5	17.2	21.5	24.3	25.2
	Zaki	13.1	16.6	20.8	23.8	25.5
Bayelsa	Brass	22.2	24.6	25.1	25.3	24.9
	Ekeremor	21.9	24.7	25.3	25.5	25.1
	Southern Ijaw	22.2	24.6	25.1	25.3	24.9
	Yenegoa	20.9	23.7	24.4	24.6	24.3
Benue	Katsina Ala	17.2	20.8	23.0	24.2	23.9
	Makurdi	18.5	22.7	25.4	25.7	24.5
	Oturkpo	17.3	21.2	23.3	24.4	24.0
	Vandeikya	17.4	20.8	22.9	24.0	23.8
Borno	Abadam	13.1	16.7	21.2	25.1	27.5
	Dikwa	14.8	18.4	22.5	25.7	27.4
	Maiduguri	12.5	16.0	20.6	24.7	26.8
	Nganzai	13.9	17.6	21.9	25.3	27.1
Cross-river	Abi	18.8	21.9	23.5	24.3	24.0
	Calabar	22.6	24.3	24.1	24.0	23.7

	Ikom	20.2	22.7	23.8	24.0	23.2
	Obudu	18.4	21.3	23.0	23.9	23.7
	Ogoja	20.4	22.5	23.8	24.0	23.4
Delta	Asaba	21.5	24.3	24.8	24.7	24.0
	Ndoka East	19.9	23.0	24.0	24.4	24.1
	Patani	20.9	23.7	24.4	24.6	24.3
	Warri	23.2	24.9	25.2	25.0	24.2
	Warri North	21.9	24.8	25.6	25.8	25.4
Ebonyi	Abakaliki	18.0	21.3	23.1	24.1	23.9
	Afikposi South	18.6	21.8	23.3	24.0	23.7
	Ishielu	18.0	21.3	23.1	24.1	23.9
Edo	Akoko Edo	18.3	21.6	23.2	23.8	23.3
	Benin	22.7	24.9	24.8	24.7	24.3
	Esan East	18.6	21.9	23.2	23.7	23.5
	Ovia Southwest	19.8	23.1	24.1	24.5	24.1
Ekiti	Ado Ekiti	19.0	22.3	23.1	23.2	22.6
	Ide Orun	18.1	21.2	22.5	23.1	22.7
	Ijero	17.6	21.1	22.6	23.0	22.6
	Ikole	18.0	21.4	23.0	23.7	23.1
Enugu	Aninri	18.6	21.8	23.3	24.0	23.7
	Enugu	21.0	23.9	25.1	25.0	23.9
	Igboeze North	17.5	20.9	22.6	23.7	23.4
	Uzo Uwani	18.5	22.0	23.4	24.1	23.9
FCT	Abaji	16.8	20.2	22.6	24.2	23.9
	Abuja	17.9	21.4	23.4	24.5	23.7
	Bwari	16.5	19.7	22.1	23.3	23.0
	Kuje	17.5	20.9	23.2	24.4	23.9
Gombe	Balanga	16.1	20.0	23.5	24.8	24.6
	Dukku	13.5	17.2	21.5	24.3	25.2
	Gombe	15.2	18.4	22.3	24.7	24.4
	Shomgom	15.2	19.2	22.9	24.6	24.4
Imo	Ideato North	19.0	22.2	23.5	24.1	23.9
	Ngor Okpala	19.7	22.6	23.7	24.2	23.9
	Obowo	19.3	22.2	23.4	24.0	23.7
	Owerri	21.7	23.8	24.3	24.2	23.6
Jigawa	Dutse	13.0	16.5	20.8	24.3	25.8
	Gwaram	13.3	16.9	21.1	24.1	25.1
	Gwiwa	12.3	15.6	19.7	22.7	24.5
	Suletankarkar	12.7	16.1	20.5	23.8	25.8
Kaduna	Birnin Gwari	13.2	16.6	20.0	22.0	22.6
	Kachia	14.9	18.3	20.8	21.7	21.8

	Kaduna	13.2	16.6	20.9	24.4	25.7
	Lere	13.1	16.4	19.6	21.3	21.7
	Zaria	14.1	17.3	21.2	23.3	23.0
Kano	Dambatta	12.3	15.6	20.0	23.2	25.3
	Gwarzo	11.9	15.2	19.4	22.3	24.0
	Kano	13.2	16.6	20.9	24.4	25.7
	Sumaila	11.9	15.3	19.5	22.5	24.1
Katsina	Danmusa	12.4	15.7	19.7	22.2	23.5
	Katsina	13.3	16.4	20.6	24.6	26.0
	Sabuwa	13.1	16.5	20.1	22.2	22.9
	Zango	12.6	16.1	20.4	23.9	26.0
Kebbi	Arewa	15.7	18.9	22.7	26.3	27.1
	Dokonwasagu	14.6	18.1	21.8	24.0	24.2
	Suru	15.5	19.0	22.9	26.0	26.2
	Yelwa	16.0	19.6	24.1	26.7	25.9
Kogi	Ibaji	18.4	21.8	23.3	24.1	23.8
	Lokoja	19.4	24.0	26.1	26.3	25.1
	Yagba West	18.0	21.4	23.0	23.7	23.1
Kwara	Baruten	17.7	20.9	22.8	23.4	23.1
	Ekiti	17.6	21.1	22.6	23.0	22.6
	Ilorin	19.5	22.6	23.8	24.0	23.0
	Pategi	18.1	21.9	24.0	24.9	24.3
Lagos	Badagry	23.0	25.3	26.0	26.1	25.7
	Ikeja	23.1	25.1	25.5	25.4	24.6
	Ikorodu	22.9	25.4	26.1	26.3	25.9
	Lagos Island	24.4	26.3	26.5	26.2	25.4
Nasarawa	Akwanga	17.4	20.7	22.9	23.7	23.3
	Awe	17.1	20.9	23.4	24.7	24.4
	Doma	17.5	21.3	23.7	24.8	24.4
	Lafia	18.6	22.7	25.6	26.0	24.8
Niger	Bida	20.9	24.2	26.2	26.3	24.9
	Borgu	16.2	20.0	23.9	26.0	25.8
	Lapai	16.8	20.2	22.6	24.2	23.9
	Magama	15.0	18.6	22.5	24.7	24.8
	Mashigi	16.7	20.6	23.7	25.1	24.8
	Minna	20.7	23.3	25.6	25.7	24.3
	Rijaw	25.9	25.9	26.6	27.8	28.7
Ogun	Abeokuta	21.6	24.6	25.3	25.2	24.4
	Ijebu Ode	21.9	24.3	24.9	24.8	23.9
	Imeko Afon	19.0	22.3	23.5	23.7	23.4

	Ogun Waterside	21.8	24.6	25.4	25.7	25.3
Ondo	Akoko Northwest	18.1	21.2	22.5	23.1	22.7
	Akure	18.9	22.4	23.2	23.3	22.7
	Ilaje Eseodo	21.9	24.8	25.6	25.8	25.4
	Ondo	21.6	23.5	24.0	23.8	23.3
	Ose	18.8	21.8	23.0	23.6	23.2
Osun	Atakumosa East	18.1	21.2	22.5	23.0	22.6
	Ifedayo	17.6	21.1	22.6	23.0	22.6
	Ife North	19.5	22.6	23.6	24.0	23.6
	Oshogbo	17.9	22.0	23.1	23.3	22.6
Oyo	Ibadan	22.2	24.3	24.6	24.3	23.6
	Iseyin	20.7	22.5	23.6	23.5	22.8
	Iwajowa	18.4	21.7	23.2	23.5	23.2
	Oluyole	20.0	23.1	24.0	24.3	23.9
	Shaki	19.6	22.2	23.2	23.2	22.4
Plateau	Bokkos	17.6	20.5	22.3	22.8	22.4
	Jos	11.5	14.3	17.0	18.6	18.6
	Langtang South	17.3	21.2	24.2	25.1	24.7
	Wase	18.3	21.7	24.2	24.9	24.5
Rivers	Akukutor	22.2	24.6	25.2	25.4	25.0
	Ogba Egbe	19.7	22.6	23.7	24.2	23.9
	Opobo Nkoro	23.6	25.9	26.4	26.5	26.1
	Port Harcourt	21.1	23.3	23.9	24.0	23.6
Sokoto	Gudu North	14.8	18.0	21.7	25.6	27.6
	Illela	14.3	17.6	21.6	25.2	27.2
	Isa	14.0	17.3	21.4	24.6	26.2
	Kebbe	15.2	18.6	22.4	25.3	25.8
	Sokoto	17.0	19.9	23.8	27.0	27.8
Taraba	Bali	17.7	21.2	23.6	24.3	23.4
	Jalingo	19.1	22.4	25.0	26.0	24.3
	Sardauna	15.3	17.8	19.4	19.8	19.4
Yobe	Gulani	14.9	18.4	22.2	24.4	24.7
	Nguru	13.7	16.3	20.8	24.5	26.1
	Potiskum	12.8	16.3	21.0	24.5	26.0
	Tarmuwa	13.3	16.9	21.2	24.9	26.7
	Yunusari	12.9	16.4	20.8	24.6	26.7
Zamfara	Gummi	15.2	18.6	22.4	25.3	25.8
	Gusau	15.5	18.4	22.5	25.1	25.2
	Maru	14.1	17.6	21.1	23.2	23.7
	Shinkafi	14.0	17.3	21.4	24.6	26.2

Chapter Six

Detailed 774 Local Government Area Seasonal Rainfall Prediction

Nigeria is a country with vast expanse of land, with different climatic and agroecological zones. Most states have about 2 or 3 agroecological zones and this has implications on the rainfall distribution such as onset, cessation, length of season and annual rainfall amount over each state. Below is a detailed breakdown of the forecast over the 774 local government areas of the country.

Table 9: Summary of Predicted Onset Date, Cessation Date, Length of Season and Annual Rainfall Amounts for States and Local Government Areas of Nigeria

State	City	Onset date	Season end	Season Length Days	Annual Rainfall mm
Abia	Aba North	11-Mar	15-Dec	278	2556
	Aba South	11-Mar	15-Dec	279	2569
	Arochukwu	17-Mar	11-Dec	269	2354
	Bende	19-Mar	10-Dec	266	2309
	Ikwuano	15-Mar	12-Dec	272	2427
	Isiala Ngwa North	15-Mar	13-Dec	273	2439
	Isiala Ngwa South	14-Mar	13-Dec	275	2475
	Isuikwuato	21-Mar	9-Dec	263	2247
	Obioma Ngwa	12-Mar	14-Dec	278	2544
	Ohafia Abia	19-Mar	10-Dec	266	2301
	Osisioma Ngwa	12-Mar	14-Dec	277	2519
	Ugwunagbo	10-Mar	15-Dec	280	2596
	Ukwa East	9-Mar	16-Dec	282	2632
	Ukwa West	9-Mar	16-Dec	281	2619
	Umuahia North	18-Mar	11-Dec	268	2343
	Umuahia South	16-Mar	12-Dec	270	2388
	Umu-Nneochi	23-Mar	8-Dec	259	2173
Adamawa	Demsa	25-May	11-Nov	182	1097
	Fufore	9-May	12-Nov	187	1143
	Ganye	29-Apr	18-Nov	204	1320
	Girie	24-May	4-Nov	165	965
	Gombi	13-May	10-Nov	182	1095
	Guyuk	19-May	7-Nov	172	1020
	Hong	25-May	4-Nov	162	951
	Jada	2-May	16-Nov	198	1258
	Jimeta	11-May	12-Nov	185	1127
	Lamurde	15-May	9-Nov	178	1068
	Madagali	3-Jun	30-Oct	149	881
	Maiha	19-May	7-Nov	172	1016
	Mayo-Bel	4-May	15-Nov	195	1220
	Michika	30-May	1-Nov	155	909

	Mubi North	26-May	3-Nov	161	943
	Mubi South	24-May	4-Nov	164	961
	Numan	14-May	10-Nov	180	1084
	Shelleng	20-May	6-Nov	170	1001
	Song	19-May	7-Nov	173	1021
	Toungo	6-May	14-Nov	192	1188
	Yola North	27-May	17-Oct	185	1124
	Yola South	24-May	21-Oct	186	1138
Akwa Ibom	Abak	10-Mar	15-Dec	281	2605
	Eastern Obolo	3-Mar	19-Dec	292	2853
	Eket	4-Mar	18-Dec	289	2792
	Esit - Eket	5-Mar	18-Dec	289	2783
	Essien Udim	11-Mar	15-Dec	278	2558
	Etim Ekpo	9-Mar	16-Dec	281	2620
	Etinan	7-Mar	17-Dec	285	2695
	Ibeno	3-Mar	19-Dec	291	2831
	Ibesikpo Asutan	8-Mar	16-Dec	283	2648
	Ibiono Ibom	13-Mar	14-Dec	276	2507
	Ika	10-Mar	15-Dec	280	2597
	Ikono	13-Mar	14-Dec	276	2507
	Ikot Abasi	3-Mar	19-Dec	291	2830
	Ikot Ekpene	13-Mar	14-Dec	276	2511
	Ini	15-Mar	12-Dec	272	2431
	Itu	12-Mar	14-Dec	278	2544
	Mbo	4-Mar	18-Dec	289	2795
	Mkpat Enin	4-Mar	19-Dec	290	2809
	Nsit Atai	7-Mar	17-Dec	284	2689
	Nsit Ibom	8-Mar	16-Dec	283	2658
	Nsit Ubium	6-Mar	17-Dec	286	2726
	Obot Akara	13-Mar	13-Dec	275	2488
	Okobo	7-Mar	17-Dec	285	2702
	Onna	4-Mar	18-Dec	289	2792
	Oron	6-Mar	17-Dec	287	2738
	Oruk Anam	7-Mar	17-Dec	285	2691
	Udung Uko	6-Mar	17-Dec	286	2729
	Ukanafun	8-Mar	16-Dec	283	2649
	Uruan	9-Mar	15-Dec	281	2612
	Urue -Offong/Oruko	5-Mar	18-Dec	287	2750
	Uyo	10-Mar	15-Dec	281	2604
Anambra	Aguata	24-Mar	8-Dec	259	2158
	Anambra East	29-Mar	5-Dec	252	2028
	Anambra West	1-Apr	3-Dec	247	1947
	Anaocha	25-Mar	7-Dec	256	2115

	Awka North	29-Mar	5-Dec	251	2016
	Awka South	27-Mar	6-Dec	254	2074
	Ayamelum	1-Apr	3-Dec	246	1933
	Njikoka	27-Mar	6-Dec	253	2059
	Ekwusigo	24-Mar	8-Dec	258	2155
	Idemili North	26-Mar	7-Dec	256	2101
	Idemili South	25-Mar	7-Dec	257	2124
	Ihiala	22-Mar	9-Dec	262	2214
	Dunukofia	27-Mar	6-Dec	254	2074
	Nnewi North	24-Mar	7-Dec	258	2154
	Nnewi South	23-Mar	8-Dec	260	2177
	Ogbaru	22-Mar	8-Dec	261	2202
	Onitsha North	26-Mar	7-Dec	256	2102
	Onitsha South	25-Mar	7-Dec	256	2114
	Orumba North	26-Mar	7-Dec	256	2111
	Orumba South	24-Mar	7-Dec	258	2153
	Oyi	27-Mar	6-Dec	253	2062
Bauchi	Alkaleri	20-May	6-Nov	160	904
	Bauchi	25-May	4-Nov	152	851
	Bogoro	16-May	9-Nov	166	950
	Damban	13-Jun	24-Oct	123	674
	Darazo	7-Jun	28-Oct	133	705
	Dass	22-May	6-Nov	158	890
	Gamawa	20-Jun	21-Oct	113	657
	Ganjuwa	2-Jun	31-Oct	140	786
	Giade	12-Jun	25-Oct	125	681
	Itas/Gadau	17-Jun	22-Oct	117	662
	Jama'are	15-Jun	23-Oct	120	669
	Katagum	14-Jun	24-Oct	122	672
	Kirfi	28-May	2-Nov	149	780
	Misau	11-Jun	26-Oct	126	683
	Ningi	5-Jun	29-Oct	135	713
	Shira	12-Jun	25-Oct	125	680
	Tafawa -Balewa	20-May	6-Nov	160	903
	Toro	27-May	3-Nov	150	839
	Warji	7-Jun	28-Oct	133	704
	Zaki	23-Jun	19-Oct	108	603
Bayelsa	Brass	1-Mar	20-Dec	293	2890
	Ekeremor	8-Mar	16-Dec	284	2668
	Kolokuma/Opokuma	11-Mar	15-Dec	279	2575
	Nembe	2-Mar	19-Dec	292	2860
	Ogbia	6-Mar	17-Dec	287	2740
	Sagbama	12-Mar	14-Dec	277	2535

	Southern Ijaw	4-Mar	19-Dec	290	2818
	Yenegoa	11-Mar	15-Dec	279	2562
Benue	Ado	25-Apr	1-Dec	190	1824
	Agatu	10-May	23-Nov	167	1487
	Apa	7-May	25-Nov	172	1549
	Buruku	3-May	26-Nov	177	1630
	Gboko	3-May	27-Nov	178	1646
	Guma	10-May	23-Nov	167	1482
	Gwer East	3-May	26-Nov	177	1629
	Gwer West	7-May	24-Nov	171	1546
	Katsina -Ala	3-May	27-Nov	178	1639
	Konshisha	28-Apr	29-Nov	185	1752
	Kwande	25-Apr	1-Dec	190	1822
	Logo	8-May	24-Nov	169	1521
	Makurdi	21-May	28-Nov	161	1210
	Obi	28-Apr	30-Nov	186	1764
	Ogbadibo	28-Apr	30-Nov	186	1760
	Ohimini	1-May	28-Nov	181	1684
	Oju	26-Apr	1-Dec	189	1806
	Okpokwu	28-Apr	29-Nov	186	1760
	Oturkpo	2-May	27-Nov	180	1669
	Tarka	7-May	25-Nov	172	1559
	Ukum	7-May	25-Nov	172	1551
	Ushongo	28-Apr	29-Nov	185	1748
	Vandeikya	26-Apr	1-Dec	189	1817
Borno	Abadam	12-Jul	9-Oct	78	495
	Askira/Uba	31-May	31-Oct	141	848
	Bama	13-Jun	25-Oct	122	477
	Bayo	28-May	2-Nov	146	873
	Biu	1-Jun	31-Oct	140	842
	Chibok	2-Jun	30-Oct	138	733
	Damboa	7-Jun	28-Oct	131	703
	Dikwa	19-Jun	21-Oct	113	459
	Gubio	30-Jun	15-Oct	96	456
	Guzamala	2-Jul	14-Oct	92	461
	Gwoza	7-Jun	28-Oct	130	702
	Hawul	29-May	2-Nov	145	771
	Jere	18-Jun	22-Oct	114	462
	Kaga	14-Jun	24-Oct	120	473
	Kala/Balge	22-Jun	20-Oct	108	455
	Konduga	15-Jun	23-Oct	119	469
	Kukawa	4-Jul	13-Oct	89	466
	Kwaya Kusar	28-May	2-Nov	147	779
	Mafa	20 Jun	21 Oct	110	457

	Magumeri	22-Jun	19-Oct	107	454
	Maiduguri	18-Jun	22-Oct	114	461
	Marte	25-Jun	18-Oct	102	453
	Mobbar	7-Jul	12-Oct	84	475
	Monguno	28-Jun	17-Oct	99	454
	Ngala	24-Jun	19-Oct	105	453
	Nganzai	27-Jun	17-Oct	100	453
	Shani	25-May	4-Nov	151	806
Cross River	Abi	23-Mar	8-Dec	260	2191
	Akamkpa	15-Mar	13-Dec	273	2439
	Akpabuyo	7-Mar	17-Dec	285	2705
	Bakassi	6-Mar	17-Dec	287	2737
	Bekwarra	3-Apr	2-Dec	243	1881
	Biase	18-Mar	11-Dec	268	2347
	Boki	28-Mar	5-Dec	252	2035
	Calabar Municipal	10-Mar	15-Dec	281	2611
	Calabar South	7-Mar	17-Dec	285	2702
	Etung	22-Mar	9-Dec	262	2219
	Ikom	25-Mar	7-Dec	257	2123
	Obanliku	31-Mar	4-Dec	247	1953
	Obubra	24-Mar	7-Dec	258	2151
	Obudu	2-Apr	3-Dec	245	1916
	Odukpani	12-Mar	14-Dec	277	2521
	Ogoja	1-Apr	3-Dec	247	1944
	Yakurr	22-Mar	9-Dec	262	2225
	Yala	1-Apr	3-Dec	246	1928
Delta	Aniocha North	29-Mar	5-Dec	251	2015
	Aniocha South	26-Mar	6-Dec	255	2094
	Bomadi	13-Mar	14-Dec	276	2499
	Burutu	14-Mar	13-Dec	274	2457
	Ethiope East	23-Mar	8-Dec	260	2187
	Ethiope West	20-Mar	10-Dec	265	2284
	Ika North East	27-Mar	6-Dec	253	2057
	Ika South	27-Mar	6-Dec	254	2074
	Isoko North	17-Mar	11-Dec	269	2367
	Isoko South	16-Mar	12-Dec	272	2412
	Ndokwa East	19-Mar	10-Dec	267	2311
	Ndokwa West	21-Mar	9-Dec	262	2231
	Okpe	19-Mar	10-Dec	266	2295
	Oshimili North	29-Mar	5-Dec	252	2028
	Oshimili South	26-Mar	7-Dec	256	2113
	Patani	13-Mar	14-Dec	276	2506
	Sapele	22-Mar	9-Dec	262	2213
	Udu	17-Mar	12-Dec	270	2377
	Ughelli North	17-Mar	11-Dec	269	2360
	Ughelli South	15-Mar	12-Dec	272	2426
	Ukwuani	22-Mar	9-Dec	262	2228
	Uvwie	18-Mar	11-Dec	268	2339
	Warri North	21-Mar	9-Dec	263	2232

	Warri South	19-Mar	10-Dec	267	2317
	Warri South West	18-Mar	11-Dec	268	2343
Ebonyi	Abakaliki	28-Mar	5-Dec	252	2044
	Afikpo North	22-Mar	8-Dec	261	2201
	Afikpo South	22-Mar	9-Dec	261	2209
	Ebonyi	31-Mar	4-Dec	248	1959
	Ezza North	28-Mar	5-Dec	253	2049
	Ezza South	26-Mar	6-Dec	255	2099
	Ikwo	25-Mar	7-Dec	256	2118
	Ishielu	30-Mar	4-Dec	249	1989
	Ivo	23-Mar	8-Dec	260	2191
	Izzi	31-Mar	4-Dec	247	1952
	Ohaozara	24-Mar	8-Dec	259	2161
	Ohaukwu	31-Mar	4-Dec	248	1966
	Onicha	25-Mar	7-Dec	256	2117
Edo	Akoko -Edo	13-Apr	27-Nov	227	1633
	Egor	29-Mar	5-Dec	250	2007
	Esan Central	4-Apr	2-Dec	242	1866
	Esan North East	4-Apr	1-Dec	241	1847
	Esan South East	2-Apr	3-Dec	245	1916
	Esan West	3-Apr	2-Dec	243	1885
	Etsako Central	7-Apr	30 -Nov	237	1775
	Etsako East	11 -Apr	28 -Nov	231	1684
	Etsako West	8-Apr	30 -Nov	236	1767
	Igueben	31 -Mar	4-Dec	247	1950
	Ikpoba-Okha	27 -Mar	6-Dec	254	2071
	Oredo	28 -Mar	6-Dec	253	2051
	Orhionmwon	26 -Mar	6-Dec	255	2090
	Ovia North East	31 -Mar	4-Dec	248	1971
	Ovia South West	31 -Mar	4-Dec	248	1972
	Owan East	9-Apr	29 -Nov	234	1738
	Owan West	6-Apr	30 -Nov	238	1795
	Uhunmwonde	31 -Mar	4-Dec	247	1954
Ekiti	Ado -Ekiti	17 -Apr	25 -Nov	222	1556
	Efon	17 -Apr	24 -Nov	221	1539
	Ekiti East	19 -Apr	24 -Nov	219	1513
	Ekiti South West	16 -Apr	25 -Nov	224	1579
	Ekiti West	18 -Apr	24 -Nov	220	1531
	Emure/Ise/Orun	14 -Apr	26 -Nov	226	1607
	Aiyekire (Gbonyin)	17 -Apr	25 -Nov	222	1553
	Ido/Osi	20 -Apr	23 -Nov	216	1476
	Ijero	20 -Apr	23 -Nov	217	1493
	Ikere	15 -Apr	26 -Nov	225	1593
	Ikole	21 -Apr	23 -Nov	216	1472

	Ilejemeji	21 -Apr	22 -Nov	215	1456
	Irepodun/Ifelodun	18 -Apr	24 -Nov	220	1528
	Ise/Orun	14 -Apr	26 -Nov	226	1607
	Moba	22 -Apr	22 -Nov	214	1445
	Oye	20 -Apr	23 -Nov	216	1477
Enugu	Aninri	25 -Mar	7-Dec	257	2132
	Awgu	27 -Mar	6-Dec	255	2083
	Enugu East	1-Apr	3-Dec	246	1922
	Enugu North	31 -Mar	4-Dec	248	1965
	Enugu South	30 -Mar	4-Dec	249	1983
	Ezeagu	30 -Mar	4-Dec	249	1986
	Igbo-Etiti	3-Apr	2-Dec	243	1880
	Igbo-Etiti	3-Apr	2-Dec	243	1880
	Igbo-Eze North	8-Apr	29 -Nov	235	1751
	Igbo-Eze South	7-Apr	30 -Nov	237	1776
	Isi -Uzo	4-Apr	2-Dec	242	1860
	Nkanu East	28 -Mar	5-Dec	252	2034
	Nkanu West	29 -Mar	5-Dec	251	2013
	Nsukka	6-Apr	1-Dec	239	1815
	Oji -River	27 -Mar	6-Dec	254	2076
	Udenu	6-Apr	1-Dec	239	1811
	Udi	31 -Mar	4-Dec	248	1966
	Uzo -Uwani	4-Apr	2-Dec	242	1868
FCT	Abaji	13 -May	15 -Nov	195	1220
	Abuja Municipal	16 -May	14 -Nov	191	1186
	Bwari	19 -May	12 -Nov	187	1141
	Gwagwalada	17 -May	13 -Nov	190	1169
	Kuje	11 -May	16 -Nov	198	1258
	Kwali	12 -May	16 -Nov	197	1242
Gombe	Akko	3-Jun	22 -Oct	129	717
	Balanga	30 -May	24 -Oct	135	761
	Billiri	30 -May	23 -Oct	134	755
	Dukku	13 -Jun	16 -Oct	114	632
	Funakaye	12-Jun	16 -Oct	114	633
	Gombe	5-Jun	20 -Oct	125	693
	Kaltungo	30 -May	24 -Oct	134	755
	Kwami	9-Jun	18 -Oct	120	663
	Nafada	17 -Jun	14 -Oct	107	606
	Shomgom	27 -May	25 -Oct	139	789
	Yamaltu/Deba	5-Jun	3-Nov	140	696
Imo	Aboh-Mbaise	16 -Mar	12 -Dec	271	2396
	Ahiazu-Mbaise	18 -Mar	11 -Dec	268	2348
	Ehime -Mbano	20 -Mar	10 -Dec	265	2289
	Ezinihitte	17 -Mar	12 -Dec	270	2380

	Ideato North	22 - Mar	9 - Dec	261	2212
	Ideato South	21 - Mar	9 - Dec	263	2238
	Ihitte/Uboma	19 - Mar	10 - Dec	266	2305
	Ikeduru	18 - Mar	11 - Dec	268	2347
	Isiala Mbano	20 - Mar	10 - Dec	265	2289
	Isu	20 - Mar	10 - Dec	265	2287
	Mbaitoli	18 - Mar	11 - Dec	267	2329
	Ngor- Okpala	14 - Mar	13 - Dec	273	2449
	Njaba	20 - Mar	10 - Dec	265	2273
	Nkwerre	20 - Mar	10 - Dec	264	2264
	Nwangele	20 - Mar	10 - Dec	265	2276
	Obowo	18 - Mar	11 - Dec	268	2350
	Oguta	19 - Mar	10 - Dec	266	2305
	Ohaji/Egbema	16 - Mar	12 - Dec	271	2407
	Okigwe	21 - Mar	9 - Dec	263	2233
	Orlu	21 - Mar	9 - Dec	263	2234
	Orsu	22 - Mar	8 - Dec	261	2208
	Oru East	20 - Mar	10 - Dec	264	2264
	Oru West	21 - Mar	9 - Dec	264	2254
	Owerri - Municipal	17 - Mar	12 - Dec	270	2377
	Owerri North	16 - Mar	12 - Dec	271	2393
	Owerri West	16 - Mar	12 - Dec	271	2403
	Onuimo	21 - Mar	9 - Dec	263	2247
Jigawa	Auyo	24 - Jun	18 - Oct	98	603
	Babura	29 - Jun	16 - Oct	91	605
	Biriniwa	1 - Jul	15 - Oct	88	608
	Birnin Kudu	13 - Jun	25 - Oct	116	828
	Buji	13 - Jun	25 - Oct	116	827
	Dutse	17 - Jun	23 - Oct	110	814
	Gagarawa	27 - Jun	17 - Oct	94	603
	Garki	25 - Jun	18 - Oct	97	603
	Gumel	28 - Jun	16 - Oct	92	605
	Guri	29 - Jun	16 - Oct	91	605
	Gwaram	9 - Jun	27 - Oct	122	745
	Gwiwa	30 - Jun	15 - Oct	90	606
	Hadejia	26 - Jun	18 - Oct	96	603
	Jahun	21 - Jun	20 - Oct	104	606
	Kafin Hausa	22 - Jun	20 - Oct	101	604
	Kaugama	26 - Jun	17 - Oct	95	603
	Kazaure	29 - Jun	16 - Oct	91	605
	Kiri Kasamma	28 - Jun	17 - Oct	93	604
	Kiyawa	17 - Jun	22 - Oct	109	712
	Maigatari	30 - Jun	15 - Oct	89	607
	Malam Madori	27 - Jun	17 - Oct	93	604

	Miga	23 - Jun	19 - Oct	101	604
	Ringim	22 - Jun	20 - Oct	102	605
	Roni	28 - Jun	16 - Oct	92	605
	Sule Tankarkar	29 - Jun	16 - Oct	90	606
	Taura	23 - Jun	19 - Oct	100	604
	Yankwashi	30 - Jun	15 - Oct	89	607
Kaduna	Birnin - Gwari	3 - Jun	16 - Oct	127	879
	Chikun	27 - May	20 - Oct	159	931
	Giwa	7 - Jun	14 - Oct	143	856
	Igabi	31 - May	18 - Oct	153	901
	Ikara	9 - Jun	13 - Oct	140	844
	Jaba	13 - May	27 - Oct	181	1086
	Jema'a	11 - May	28 - Oct	184	1116
	Kachia	19 - May	24 - Oct	173	1022
	Kaduna North	30 - May	18 - Oct	156	912
	Kaduna South	29 - May	19 - Oct	157	919
	Kagarko	13 - May	28 - Oct	182	1097
	Kajuru	26 - May	20 - Oct	162	947
	Kaura	16 - May	26 - Oct	177	1055
	Kauru	24 - May	21 - Oct	164	964
	Kubau	4 - Jun	16 - Oct	148	875
	Kudan	9 - Jun	13 - Oct	140	846
	Lere	26 - May	20 - Oct	161	945
	Markafi	10 - Jun	12 - Oct	139	841
	Sabon - Gari	7 - Jun	14 - Oct	142	852
	Sanga	9 - May	29 - Oct	187	1143
	Soba	5 - Jun	15 - Oct	146	867
	Zango - Kataf	18 - May	24 - Oct	173	1024
	Zaria	6 - Jun	14 - Oct	144	860
Kano	Ajingi	19 - Jun	21 - Oct	113	709
	Albasu	15 - Jun	24 - Oct	119	720
	Bagwai	21 - Jun	20 - Oct	109	506
	Bebeji	13 - Jun	25 - Oct	122	726
	Bichi	24 - Jun	19 - Oct	105	503
	Bunkure	15 - Jun	24 - Oct	119	720
	Dala	20 - Jun	21 - Oct	111	607
	Dambatta	26 - Jun	18 - Oct	102	503
	Dawakin Kudu	17 - Jun	23 - Oct	116	714
	Dawakin Tofa	22 - Jun	20 - Oct	108	505
	Doguwa	4 - Jun	29 - Oct	135	840
	Fagge	20 - Jun	21 - Oct	111	708
	Gabasawa	21 - Jun	20 - Oct	109	505
	Garko	14 - Jun	24 - Oct	121	624
	Garum Mallam	15 - Jun	24 - Oct	119	620

	Gaya	17 - Jun	23 - Oct	116	614
	Gezawa	20 - Jun	21 - Oct	110	507
	Gwale	19 - Jun	21 - Oct	112	608
	Gwarzo	18 - Jun	22 - Oct	113	610
	Kabo	18 - Jun	22 - Oct	114	611
	Kano Municipal	19 - Jun	21 - Oct	112	609
	Karaye	16 - Jun	23 - Oct	116	615
	Kibiya	12 - Jun	25 - Oct	123	628
	Kiru	14 - Jun	24 - Oct	120	622
	Kumbotso	19 - Jun	22 - Oct	113	610
	Kunchi	26 - Jun	18 - Oct	102	503
	Kura	16 - Jun	23 - Oct	116	615
	Madobi	17 - Jun	22 - Oct	115	613
	Makoda	25 - Jun	18 - Oct	103	503
	Minjibir	23 - Jun	19 - Oct	107	504
	Nasarawa	20 - Jun	21 - Oct	111	507
	Rano	12 - Jun	25 - Oct	122	628
	Rimin Gado	19 - Jun	22 - Oct	113	610
	Rogo	13 - Jun	25 - Oct	121	626
	Shanono	20 - Jun	21 - Oct	110	506
	Sumaila	11 - Jun	26 - Oct	125	635
	Takai	12 - Jun	25 - Oct	123	631
	Tarauni	19 - Jun	21 - Oct	112	608
	Tofa	20 - Jun	21 - Oct	111	607
	Tsanyawa	23 - Jun	19 - Oct	105	503
	Tudun Wada	9 - Jun	27 - Oct	127	642
	Ungogo	20 - Jun	21 - Oct	110	507
	Warawa	19 - Jun	22 - Oct	113	610
	Wudil	16 - Jun	23 - Oct	117	616
Katsina	Bakori	14 - Jun	24 - Oct	118	722
	Batagarawa	3 - Jul	14 - Oct	89	512
	Batsari	1 - Jul	15 - Oct	91	509
	Baure	2 - Jul	15 - Oct	91	509
	Bindawa	30 - Jun	15 - Oct	93	507
	Charanchi	29 - Jun	16 - Oct	96	505
	Dandume	11 - Jun	26 - Oct	122	733
	Danja	11 - Jun	26 - Oct	123	734
	Dan Musa	23 - Jun	19 - Oct	104	554
	Daura	4 - Jul	13 - Oct	87	466
	Dutsi	3 - Jul	14 - Oct	89	463
	Dutsin - Ma	26 - Jun	18 - Oct	100	553
	Faskari	15 - Jun	24 - Oct	117	670
	Funtua	12 - Jun	25 - Oct	121	820
	Ingawa	29 - Jun	16 - Oct	95	455
	Jibia	4 - Jul	13 - Oct	87	466
	Kafur	14 - Jun	24 - Oct	117	721
	Kaita	7 - Jul	12 - Oct	83	474
	Kankara	19 - Jun	21 - Oct	110	558
	Kankia	26 - Jun	17 - Oct	99	453

	Katsina	4 - Jul	13 - Oct	86	466
	Kurfi	30 - Jun	15 - Oct	93	457
	Kusada	27 - Jun	17 - Oct	98	553
	Mai'adua	6 - Jul	12 - Oct	83	473
	Malumfashi	17 - Jun	22 - Oct	113	562
	Mani	3 - Jul	14 - Oct	89	462
	Mashi	6 - Jul	12 - Oct	83	473
	Matazu	24 - Jun	19 - Oct	103	453
	Musawa	21 - Jun	20 - Oct	108	456
	Rimi	2 - Jul	14 - Oct	90	460
	Sabuwa	10 - Jun	26 - Oct	124	588
	Safana	27 - Jun	17 - Oct	98	454
	Sandamu	3 - Jul	14 - Oct	89	463
	Zango	4 - Jul	13 - Oct	87	465
Kebbi	Aleiro	1 - Jul	19 - Oct	89	603
	Arewa - Dandi	7 - Jul	16 - Oct	81	605
	Argungu	7 - Jul	16 - Oct	81	605
	Augie	11 - Jul	14 - Oct	75	613
	Bagudo	10 - Jun	26 - Oct	117	636
	Birnin Kebbi	4 - Jul	18 - Oct	86	603
	Bunza	29 - Jun	20 - Oct	93	605
	Dandi	17 - Jun	22 - Oct	107	613
	Danko Wasagu	12 - Jun	25 - Oct	115	630
	Fakai	12 - Jun	25 - Oct	115	628
	Gwandu	4 - Jul	17 - Oct	85	603
	Jega	29 - Jun	20 - Oct	93	605
	Kalgo	23 - Jun	19 - Oct	97	603
	Koko/Besse	11 - Jun	25 - Oct	116	633
	Maiyama	19 - Jun	21 - Oct	104	609
	Ngaski	30 - May	1 - Nov	134	706
	Sakaba	8 - Jun	27 - Oct	122	650
	Shanga	9 - Jun	27 - Oct	120	645
	Suru	15 - Jun	23 - Oct	110	617
	Yauri	5 - Jun	29 - Oct	127	669
	Zuru	13 - Jun	25 - Oct	114	627
Kogi	Adavi	25 - Apr	24 - Nov	188	1547
	Ajaokuta	22 - Apr	26 - Nov	193	1607
	Ankpa	22 - Apr	26 - Nov	193	1618
	Bassa	27 - Apr	24 - Nov	186	1516
	Dekina	23 - Apr	25 - Nov	191	1582
	Ibaji	13 - Apr	1 - Dec	207	1834
	Idah	17 - Apr	29 - Nov	201	1739
	Igalamela - Odolu	17 - Apr	29 - Nov	201	1741
	Ijumu	28 - Apr	23 - Nov	184	1491
	Kabba/Bunu	1 - May	21 - Nov	180	1429
	Kogi	3 - May	20 - Nov	176	1380
	Lokoja	3 - May	20 - Nov	176	1382
	Mopa - Muro	2 - May	21 - Nov	177	1402
	Ofu	21 - Apr	27 - Nov	195	1647

	Ogori/Magongo	23 - Apr	26 - Nov	192	1600
	Okehi	26 - Apr	24 - Nov	187	1529
	Okene	22 - Apr	26 - Nov	192	1605
	Olamabolo	18 - Apr	28 - Nov	199	1700
	Omala	27 - Apr	23 - Nov	186	1509
	Yagba East	2 - May	21 - Nov	177	1399
	Yagba West	4 - May	20 - Nov	175	1368
Kwara	Asa	7 - May	18 - Nov	170	1317
	Baruten	18 - May	12 - Nov	153	1136
	Edu	14 - May	14 - Nov	160	1202
	Ekiti	1 - May	21 - Nov	179	1416
	Ifelodun	9 - May	17 - Nov	167	1276
	Ilorin East	9 - May	17 - Nov	168	1285
	Ilorin South	7 - May	18 - Nov	170	1314
	Ilorin West	7 - M ay	18 - Nov	170	1307
	Irepodun	3 - May	20 - Nov	176	1388
	Isin	4 - May	20 - Nov	175	1368
	Kaiama	20 - May	11 - Nov	149	1102
	Moro	13 - May	15 - Nov	161	1211
	Offa	3 - May	20 - Nov	177	1394
	Oke - Ero	2 - May	20 - Nov	177	1397
	Oyun	3 - May	20 - Nov	177	1392
	Pategi	10 - May	16 - Nov	165	1260
Lagos	Agege	3 - Apr	2 - Dec	244	1891
	Ajeromi - Ifelodun	31 - Mar	4 - Dec	248	1959
	Alimosho	2 - Apr	3 - Dec	245	1905
	Amuwo - Odofin	30 - Mar	4 - Dec	249	1975
	Apapa	30 - Mar	4 - Dec	249	1977
	Badagry	30 - Mar	4 - Dec	249	1978
	Epe	31 - Mar	4 - Dec	247	1952
	Eti - Osa	31 - Mar	4 - Dec	248	1970
	Ibeju/Lekki	31 - Mar	4 - Dec	248	1973
	Ifako - Ijaye	3 - Apr	2 - Dec	243	1876
	Ikeja	2 - Apr	2 - Dec	244	1900
	Ikorodu	2 - Apr	3 - Dec	244	1903
	Kosofe	2 - Apr	3 - Dec	245	1906
	Lagos Island	1 - Apr	3 - Dec	246	1936
	Lagos Mainland	1 - Apr	3 - Dec	247	1942
	Mushin	1 - Apr	3 - Dec	246	1925
	Ojo	31 - Mar	4 - Dec	248	1967
	Oshodi - Isolo	2 - Apr	3 - Dec	245	1920
	Shomolu	1 - Apr	3 - Dec	246	1924
	Surulere	1 - Apr	3 - Dec	247	1944
Nasarawa	Akwanga	16 - May	13 - Nov	182	1171
	Awe	4 - May	20 - Nov	200	1368
	Doma	3 - May	20 - Nov	202	1392
	Karu	17 - May	13 - Nov	180	1152
	Keana	3 - May	20 - Nov	201	1382
	Keffi	13 - May	15 - Nov	186	1218

	Kokona	14 - May	14 - Nov	184	1193
	Lafia	11 - May	16 - Nov	189	1251
	Nasarawa	6 - May	19 - Nov	197	1338
	Nassarawa Egon	11 - May	16 - Nov	189	1241
	Obi	5 - May	19 - Nov	197	1340
	Toto	5 - May	19 - Nov	199	1354
	Wamba	15 - May	13 - Nov	182	1174
Niger	Agaie	14 - May	9 - Nov	180	1200
	Agwara	10 - Jun	26 - Oct	138	889
	Bida	16 - May	8 - Nov	176	1161
	Borgu	4 - Jun	29 - Oct	147	934
	Bosso	23 - May	4 - Nov	165	1060
	Chanchaga	24 - May	4 - Nov	164	1055
	Edati	15 - May	9 - Nov	177	1177
	Gbako	19 - May	7 - Nov	172	1122
	Gurara	19 - May	6 - Nov	171	1115
	Katcha	16 - May	8 - Nov	176	1161
	Kontagora	5 - Jun	28 - Oct	146	929
	Lapai	13 - May	10 - Nov	180	1208
	Lavun	17 - May	7 - Nov	174	1146
	Magama	4 - Jun	29 - Oct	147	937
	Mariga	8 - Jun	26 - Oct	140	899
	Mashegu	26 - May	3 - Nov	160	1026
	Mokwa	17 - May	7 - Nov	174	1147
	Muya	26 - May	2 - Nov	160	1025
	Paikoro	22 - May	5 - Nov	167	1081
	Rafi	1 - Jun	30 - Oct	152	965
	Rijau	13 - Jun	24 - Oct	132	863
	Shiroro	29 - May	1 - Nov	156	992
	Suleja	18 - May	7 - Nov	173	1139
	Tafa	19 - May	7 - Nov	172	1124
	Wushishi	24 - May	4 - Nov	163	1049
Ogun	Abeokuta North	11 - Apr	28 - Nov	230	1675
	Abeokuta South	10 - Apr	28 - Nov	232	1699
	Ado - Odo/Ota	2 - Apr	3 - Dec	244	1901
	Egbado North	10 - Apr	28 - Nov	233	1713
	Egbado South	5 - Apr	1 - Dec	240	1829
	Ewekoro	7 - Apr	30 - Nov	237	1774
	Ifo	4 - Apr	1 - Dec	241	1845
	Ijebu East	6 - Apr	30 - Nov	238	1802
	Ijebu North	4 - Apr	1 - Dec	241	1843
	Ijebu North East	8 - Apr	29 - Nov	235	1755
	Ijebu Ode	5 - Apr	1 - Dec	240	1837
	Ikenne	7 - Apr	30 - Nov	237	1786
	Imeko - Afon	17 - Apr	24 - Nov	221	1541
	Ipokia	2 - Apr	3 - Dec	244	1901
	Obafemi - Owode	7 - Apr	30 - Nov	237	1775
	Odeda	12 - Apr	27 - Nov	229	1658
	Odogbolu	5 - Apr	1 - Dec	240	1824

	Ogun waterside	30 - Mar	4 - Dec	249	1988
	Remo North	8 - Apr	29 - Nov	236	1759
	Shagamu	5 - Apr	1 - Dec	240	1825
Ondo	Akoko North - East	16 - Apr	25 - Nov	223	1571
	Akoko South - East	14 - Apr	26 - Nov	225	1605
	Akoko South - West	14 - Apr	26 - Nov	227	1621
	Akoko North - West	18 - Apr	24 - Nov	220	1534
	Akure North	11 - Apr	28 - Nov	230	1678
	Akure South	11 - Apr	28 - Nov	231	1687
	Ese - Odo	28 - Mar	5 - Dec	252	2035
	Idanre	8 - Apr	30 - Nov	236	1768
	Ifedore	13 - Apr	27 - Nov	228	1639
	Ilaje	26 - Mar	7 - Dec	256	2113
	Ile - Oluji - Okeigbo	12 - Apr	27 - Nov	229	1662
	Irele	1 - Apr	3 - Dec	246	1931
	Odigbo	4 - Apr	2 - Dec	242	1862
	Okitipupa	1 - Apr	3 - Dec	245	1921
	Ondo East	9 - Apr	29 - Nov	234	1736
	Ondo West	8 - Apr	29 - Nov	235	1756
	Ose	9 - Apr	29 - Nov	234	1735
	Owo	10 - Apr	28 - Nov	233	1714
Osun	Atakumosa East	13 - Apr	27 - Nov	228	1642
	Atakumosa West	16 - Apr	25 - Nov	223	1577
	Aiyedade	13 - Apr	27 - Nov	228	1644
	Aiyedire	16 - Apr	25 - Nov	223	1571
	Boluwaduro	21 - Apr	22 - Nov	215	1458
	Boripe	20 - Apr	23 - Nov	217	1481
	Ede North	18 - Apr	24 - Nov	220	1522
	Ede South	17 - Apr	24 - Nov	221	1542
	Egbedore	19 - Apr	23 - Nov	218	1503
	Ejigbo	19 - Apr	23 - Nov	218	1500
	Ife East	13 - Apr	27 - Nov	228	1641
	Ife North	11 - Apr	28 - Nov	230	1675
	Ife South	11 - Apr	28 - Nov	230	1676
	Ife Central	15 - Apr	26 - Nov	225	1601
	Ifedayo	22 - Apr	22 - Nov	214	1450
	Ifelodun	21 - Apr	22 - Nov	215	1462
	Ila	22 - Apr	22 - Nov	214	1451
	Ilesha East	16 - Apr	25 - Nov	222	1560
	Ilesha West	17 - Apr	24 - Nov	221	1545
	Irepodun	20 - Apr	23 - Nov	216	1478
	Irewole	14 - Apr	26 - Nov	227	1625
	Isokan	12 - Apr	27 - Nov	229	1663
	Iwo	17 - Apr	24 - Nov	221	1545
	Obokun	19 - Apr	23 - Nov	218	1505
	Odo - Otin	22 - Apr	22 - Nov	214	1442
	Ola - Oluwa	19 - Apr	24 - Nov	219	1515
	Olorunda	20 - Apr	23 - Nov	217	1483
	Oriade	16 - Apr	25 - Nov	224	1580

	Orolu	21 - Apr	22 - Nov	216	1470
	Osogbo	19 - Apr	24 - Nov	219	1509
Oyo	Afijio	19 - Apr	23 - Nov	219	1508
	Akinyele	16 - Apr	25 - Nov	224	1578
	Atiba	26 - Apr	20 - Nov	207	1365
	Atigbo	28 - Apr	19 - Nov	205	1339
	Egbeda	13 - Apr	26 - Nov	227	1627
	Ibadan North	14 - Apr	26 - Nov	226	1617
	Ibadan North East	13 - Apr	27 - Nov	227	1630
	Ibadan North West	14 - Apr	26 - Nov	226	1620
	Ibadan South East	13 - Apr	27 - Nov	228	1642
	Ibadan South West	13 - Apr	27 - Nov	228	1635
	Ibarapa Central	14 - Apr	26 - Nov	226	1607
	Ibarapa East	17 - Apr	25 - Nov	222	1551
	Ibarapa North	17 - Apr	24 - Nov	221	1543
	Ido	15 - Apr	26 - Nov	224	1589
	Irepo	7 - May	14 - Nov	190	1178
	Iseyin	20 - Apr	23 - Nov	217	1484
	Itesiwaju	25 - Apr	20 - Nov	209	1383
	Iwajowa	22 - Apr	22 - Nov	214	1443
	Kajola	23 - Apr	21 - Nov	212	1424
	Lagelu	15 - Apr	26 - Nov	225	1595
	Ogbomosho North	25 - Apr	20 - Nov	210	1392
	Ogbomosho South	24 - Apr	21 - Nov	211	1412
	Ogo Oluwa	22 - Apr	22 - Nov	214	1450
	Olorunsogo	4 - May	15 - Nov	195	1228
	Oluyole	11 - Apr	28 - Nov	231	1690
	Ona - Ara	12 - Apr	27 - Nov	230	1666
	Orelope	4 - May	15 - Nov	195	1221
	Ori Ire	27 - Apr	19 - Nov	206	1345
	Oyo East	21 - Apr	23 - Nov	216	1472
	Oyo West	21 - Apr	22 - Nov	215	1464
	Saki East	3 - May	16 - Nov	197	1248
	Saki West	1 - May	17 - Nov	200	1275
	Surulere	24 - Apr	21 - Nov	211	1414
Plateau	Barikin Ladi	20 - May	1 - Nov	165	861
	Bassa	27 - May	29 - Oct	155	788
	Bokkos	15 - May	4 - Nov	173	936
	Jos East	24 - May	30 - Oct	159	818
	Jos North	25 - May	30 - Oct	158	806
	Jos South	23 - May	31 - Oct	161	829
	Kanam	19 - May	2 - Nov	167	878
	Kanke	18 - May	3 - Nov	169	897
	Langtang North	13 - May	5 - Nov	177	969
	Langtang South	6 - May	9 - Nov	186	1070
	Mangu	18 - May	3 - Nov	169	896
	Mikang	12 - May	5 - Nov	177	973
	Pankshin	16 - May	4 - Nov	172	926
	Qua'an Pan	10 - May	7 - Nov	181	1018

	Riyom	20 - May	1 - Nov	165	866
	Shendam	9 - May	7 - Nov	182	1021
	Wase	13 - May	5 - Nov	176	965
River	Abua/Odual	8 - Mar	16 - Dec	284	2678
	Ahoada East	10 - Mar	15 - Dec	280	2585
	Ahoada West	10 - Mar	15 - Dec	280	2597
	Akuku Toru	3 - Mar	19 - Dec	291	2841
	Andoni	3 - Mar	19 - Dec	291	2840
	Asari - Toru	6 - Mar	17 - Dec	287	2735
	Bonny	3 - Mar	19 - Dec	291	2845
	Degema	4 - Mar	19 - Dec	290	2811
	Eleme	6 - Mar	17 - Dec	287	2740
	Emohua	7 - Mar	17 - Dec	284	2689
	Etche	10 - Mar	15 - Dec	280	2582
	Gokana	5 - Mar	18 - Dec	288	2778
	Ikwerre	10 - Mar	15 - Dec	280	2584
	Khana	4 - Mar	18 - Dec	289	2789
	Obia/Akpor	7 - Mar	17 - Dec	285	2704
	Ogba/Egbema/Ndoni	15 - Mar	12 - Dec	272	2422
	Ogu/Bolo	5 - Mar	18 - Dec	288	2778
	Okrika	5 - Mar	18 - Dec	289	2780
	Omumma	11 - Mar	15 - Dec	279	2564
	Opobo/Nkoro	3 - Mar	19 - Dec	291	2846
	Oyigbo	7 - Mar	17 - Dec	284	2681
	Port - Harcourt	6 - Mar	17 - Dec	286	2729
	Tai	6 - Mar	17 - Dec	287	2736
Sokoto	Binji	7 - Jul	29 - Sep	72	525
	Bodinga	2 - Jul	1 - Oct	79	510
	Dange - Shuni	2 - Jul	1 - Oct	79	511
	Gada	14 - Jul	25 - Sep	61	558
	Goronyo	10 - Jul	27 - Sep	68	535
	Gudu	11 - Jul	26 - Sep	65	543
	Gwadabawa	11 - Jul	26 - Sep	66	541
	Illela	14 - Jul	25 - Sep	61	557
	Isa	8 - Jul	28 - Sep	71	527
	Kebbe	19 - Jun	8 - Oct	100	509
	Kware	6 - Jul	29 - Sep	73	522
	Rabah	5 - Jul	30 - Sep	75	518
	Sabon Birni	12 - Jul	26 - Sep	64	546
	Shagari	27 - Jun	4 - Oct	86	504
	Silame	4 - Jul	30 - Sep	76	516
	Sokoto North	5 - Jul	29 - Sep	74	519
	Sokoto South	5 - Jul	30 - Sep	75	518
	Tambuwal	25 - Jun	5 - Oct	90	503
	Tangaza	12 - Jul	26 - Sep	64	545
	Tureta	28 - Jun	4 - Oct	86	504
	Wamako	5 - Jul	30 - Sep	75	518
	Wurno	8 - Jul	28 - Sep	70	530
	Yabo	1 - Jul	2 - Oct	81	508

Taraba	Ardo - Kola	5 - May	7 - Nov	171	966
	Bali	24 - Apr	13 - Nov	188	1165
	Donga	17 - Apr	16 - Nov	198	1291
	Gashaka	14 - Apr	18 - Nov	203	1360
	Gassol	28 - Apr	11 - Nov	182	1083
	Ibi	27 - Apr	11 - Nov	183	1098
	Jalingo	6 - May	6 - Nov	170	950
	Karim - Lamido	10 - May	4 - Nov	164	891
	Kurmi	10 - Apr	20 - Nov	209	1459
	Lau	9 - May	4 - Nov	164	897
	Sardauna	6 - Apr	23 - Nov	216	1564
	Takum	14 - Apr	18 - Nov	203	1363
	Ussa	7 - Apr	22 - Nov	215	1540
	Wukari	22 - Apr	14 - Nov	190	1186
	Yorro	5 - May	7 - Nov	170	955
	Zing	6 - May	6 - Nov	170	952
Yobe	Bade	30 - Jun	1 - Oct	79	507
	Bursari	30 - J un	1 - Oct	80	506
	Damaturu	17 - Jun	8 - Oct	99	512
	Fika	11 - Jun	11 - Oct	108	532
	Fune	17 - Jun	8 - Oct	99	512
	Geidam	29 - Jun	2 - Oct	81	506
	Gujba	10 - Jun	12 - Oct	110	537
	Gulani	5 - Jun	15 - Oct	118	568
	Jakusko	26 - Jun	3 - Oct	85	503
	Karasuwa	3 - Jul	30 - Sep	74	513
	Machina	5 - Jul	28 - Sep	71	519
	Nangere	17 - Jun	8 - Oct	99	513
	Nguru	3 - Jul	29 - Sep	74	514
	Potiskum	15 - Jun	9 - Oct	102	517
	Tarmua	24 - Jun	5 - Oct	89	503
	Yunusari	7 - Jul	28 - Sep	69	523
	Yusufari	7 - Jul	27 - Sep	68	527
Zamfara	Anka	20 - Jun	7 - Oct	95	607
	Bakura	27 - Jun	3 - Oct	83	604
	Birnin Magaji	27 - Jun	3 - Oct	84	603
	Bukkuyum	19 - Jun	7 - Oct	96	608
	Bungudu	22 - Jun	6 - Oct	92	604
	Gummi	19 - Jun	7 - Oct	96	708
	Gusau	19 - Jun	8 - Oct	97	710
	Kaura Namoda	27 - Jun	3 - Oct	84	604
	Maradun	1 - Jul	1 - Oct	78	608
	Maru	16 - Jun	9 - Oct	102	717
	Shinkafi	4 - Jul	29 - Sep	72	616
	Talata Mafara	25 - Jun	4 - Oct	86	603
	Tsafe	18 - Jun	8 - Oct	97	610
	Zurmi	3 - Jul	30 - Sep	75	612

Glossary

1. **Accumulated Rainfall**: The total amount of rainfall collected over a specific period, which may be relevant when assessing pre-season rainfall and its sufficiency for early crop growth or water management.
2. **Adaptation:** Adjusting systems, practices, and policies to reduce vulnerabilities and improve resilience to current or expected climate impacts.
3. **Agro-meteorological information:** Weather and climate information that, if applied to guide agricultural activities, improves yields and enhances coping strategies against the adverse impact of climate-related hazards in the sector.
4. **Annual rainfall amount:** the total amount of rainfall observed and recorded in the year under reference.
5. **Antibiotics:** Medications used to prevent and treat bacterial infections by killing the bacteria or inhibiting their growth.
6. **Antimicrobial Resistance (AMR):** The ability of microorganisms (bacteria, viruses, fungi, parasites) to resist the effects of medications that once successfully treated infections.
7. **Aquaculture:** The cultivation of aquatic organisms (e.g., fish, shellfish, seaweed) in controlled environments for food, research, or restoration.
8. **Cessation date of rainy season**—it marks the end of the season in a state and occurs when the water content in the soil's root zone drops below 20% needed for plant growth without supplemental irrigation.
9. **Climate change** refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer due to natural and human-induced changes in climate. It could result to changes in temperature, precipitation, wind patterns, and other climate system elements.
10. **Climate variability** refers to **fluctuations in climate conditions** that occur over short to medium time scales (e.g., from months to decades) and are caused by both natural processes and phenomena. These variations can result in periods of **warmer or cooler** temperatures, **wetter or drier conditions**, and other shifts in climate patterns.
11. **Comfort Index** is a measure used to assess how comfortable the environment is for human health and activity. It combines various environmental factors such as **temperature, humidity, and sometimes wind speed, and solar radiation** to evaluate overall comfort.
12. **Decision Support System for Agrotechnology Transfer (DSSAT):** is an advanced, comprehensive computer-based simulation model used for crop modelling and agricultural research.
13. **Dehydration**: is a condition that occurs when the body loses more fluids than it takes in, resulting in an inadequate amount of water and electrolytes necessary for normal body functions.
14. **Departure:** It describes how much a current climatic condition deviates from the expected or Normal climatic conditions for a specific period, such as a month, season, or year.
15. **Diarrhoea** is characterized by **frequent, loose or watery stools** that occur three or more times per day than normal.
16. **Drought:** A prolonged period of low or no

rainfall that leads to a shortage of water, affecting ecosystems, agriculture, and human activities.

17. **Dry-season farming** refers to cultivating crops during the dry or non-rainy period.
18. **Dry Spells**: Periods of minimal or no rainfall within a season, often occurring due to suppressed phases of oscillations. This potentially impacts crop growth and water availability for farming.
19. **Early Warning System (EWS)**: is a comprehensive system designed to provide timely information to help reduce the risk and impact of natural hazards such as severe weather, climate, or hydrological events.
20. **Ecological Zones**: Refer to regions or areas characterized by distinct climatic and environmental conditions that influence the types of ecosystems within them.
21. **El Niño** is a complex climate phenomenon characterized by the periodic warming of sea surface temperatures in the **central and eastern Pacific Ocean,** significantly impacting global weather patterns, climate variability, and ecosystems.
22. **El Niño-Southern Oscillation (ENSO)** is a climate pattern representing the interaction between the **ocean and atmosphere** in the **tropical Pacific Ocean**. ENSO significantly influences global weather and climate, leading to variations in temperature, precipitation, and atmospheric pressure patterns worldwide.
23. **ENSO-Neutral**: A phase when sea surface temperatures and atmospheric conditions in the tropical Pacific do not show significant deviations from average, resulting in normal climate patterns.
24. **Extreme Rainfall Event:** A weather event where rainfall exceeds the typical annual or daily average in a short period, often leading to flooding.
25. **Extreme weather** refers to unusual, severe, or unseasonal weather conditions that deviate significantly from the typical climate of a region. Extreme weather events are characterized by their intensity, duration, and impact on human life, ecosystems, and infrastructure.
26. **Flash floods** are sudden surges of water that can submerge areas quickly, often resulting from localized, intense rainfall over a short period, or from the sudden release of water from a dam.
27. **Global warming** refers to the long-term increase in the Earth's average surface temperature due to human activities, primarily the emission of greenhouse gases such as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O).
28. **Greenhouse effect:** refers to the natural process by which the Earth's atmosphere traps some of the energy from the Sun, warming the planet and making it suitable for life.
29. **Harmattan:** Cold, dry, dusty, north-easterly trade wind from the Sahara predominant during the winter season over West Africa.
30. **Heat stress** occurs when the body cannot effectively cool itself and maintain a healthy temperature due to excessive heat.
31. **Heat stroke** is a serious medical emergency resulting from prolonged exposure to extreme heat, where the body fails to regulate its temperature, which can lead to critical damage to organs, dehydration, and even death if untreated.
32. **Heat waves:** are typically defined as prolonged periods of excessively high temperatures, often accompanied by high humidity.
33. **High-intensity rainfall:** Rainfall that is characterised by a high amount of precipitation, often lasting more than 10 hours, and may be accompanied by strong winds above 20 knots.
34. **Hydroelectric Power**: Electricity generated by harnessing the kinetic and potential energy of moving or falling water, typically using turbines and generators.
35. **Intergovernmental Panel on Climate Change (IPCC)**: An international body established by the United Nations and the World Meteorological Organization (WMO) to assess the science related to climate change, its impacts, and potential adaptation and mitigation strategies.
36. **Indian Ocean Dipole (IOD):** is a climate phenomenon characterized by the difference in sea surface temperatures (SSTs) between the western and eastern parts of the equatorial Indian Ocean.
37. **Intra-seasonal rainfall patterns** refer to variations in rainfall distribution and intensity that occur within a single season.
38. **La Niña** as a climate pattern characterized by the periodic cooling of sea surface temperatures in the central and eastern tropical Pacific Ocean.
39. **Length of rainy season:** The number of days between the **onset** and **cessation** of the rainy season
40. **Madden-Julian Oscillation (MJO):** A major driver of intra-seasonal variability in the tropics, characterized by an eastward-moving wave of enhanced and suppressed convection (rainfall)

that travels around the globe along the equator over 30 to 60 days.

41. **Meningitis:** is an inflammatory condition of the meninges, the protective membranes covering the brain and spinal cord. It can be caused by bacterial, viral, fungal, or parasitic infections, as well as non-infectious factors like certain drugs or diseases. Meningitis, particularly **cerebrospinal meningitis**, is viewed as a climate-sensitive disease.
42. **Mitigation:** Actions to reduce the rate or magnitude of climate change by curbing greenhouse gas emissions or enhancing carbon sequestration.
43. **Modulators** generally refer to variables or factors that can influence or modify atmospheric conditions and weather patterns.
44. **Monsoon**: A large-scale seasonal wind system characterized by a reversal of prevailing wind directions, usually accompanied by significant changes in precipitation.
45. **Northeasterly winds:** are winds that blow from the northeast towards the southwest.
46. **Normal**: A term refers to a period where observed climate parameter is referenced over a standard baseline period, typically 30 years. **It could also be termed long-term average** or **climatological norm.**
47. **Near Normal**: a condition where a particular climate variable (such as temperature, precipitation, or atmospheric pressure) falls within a range that is close to the long-term average for that location and time period.
48. **Neutral signal:** a state or condition that indicates neither an increase nor a decrease in the parameters being observed.
49. **Onset date of rainy season:** is the date at which the available water content of the root zone at the beginning of the cropping season reaches 50%.
50. **Pathogen:** are microorganism (such as bacteria, viruses, fungi, or parasites) that can cause disease in plants, animals, or crops.
51. **Pre-Season Rainfall**: The term refers to rainfall that occurs before the official start of a designated rainy season or monsoon period. They are usually short-lived and could come because of periodic incursion of extra-tropical modulators
52. **Perishable Goods**: Agricultural products that have a limited shelf life and can decay or spoil quickly if not stored or handled properly. Examples include fruits, vegetables, dairy products, meat, and seafood.
53. **Rainfall Anomaly**: The deviation of observed rainfall from the long-term average or expected value during a specific period.
54. **Renewable Energy:** Energy from natural sources like solar, wind, and hydro, which produce little to no greenhouse gas emissions.
55. **Ruminant Animal**: A unique type of livestock that is capable of regurgitating and re-chewing its food to aid in digestion through its four-chambered stomach.
56. **Sustainable Development Goals** (**SDG**): A collection of 17 global objectives established by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development.
57. **Sea Surface Temperature Anomaly (SSTA):** The difference between the observed SST and the average SST for a specific period (the baseline or climatology). Positive anomalies indicate warmer-than-average conditions, while negative anomalies indicate cooler-than-average conditions.
58. **Seasonal Climate Prediction:** The process of forecasting climate variables (such as temperature, precipitation, and drought) over a period of weeks to months (usually 1-12 months) ahead, typically focused on the upcoming season.
59. **Seasonal Forecasts**: Predictions made for a specific season based on meteorological data, including rainfall totals and distribution projections.
60. **Short-duration rainfall** is defined as rainfall that occurs over a short time period, typically less than an hour.
61. **Teleconnections**: large-scale, long-distance climate interactions that occur between different regions of the globe. These interactions are essential for understanding how weather patterns in one part of the world can influence weather and climate in other, often distant, regions.
62. **Warmer-than-Normal** refers to a period in which the average temperature is higher than the baseline or reference value for a specific region and time of year. The baseline is typically defined based on a 30-year period (e.g., 1991–2020) and is used to assess long-term climate trends.
63. **Wind shear** refers to the variation in wind speed and/or direction over a short distance in the atmosphere. It can occur in both the vertical and horizontal dimensions and is a critical factor in weather and aviation safety.

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Certech Registration Inc.

Certificate of Registration

Quality Management System

ISO 9001:2015

This is to certify that:

Nigerian Meteorological Agency

The Weather and Climate Research Center, Bill Clinton Road, Abuja Airport, Nigeria

Has earned certificate number: 17/2082

The Nigerian Meteorological Agency quality management system conforms to the requirements of ISO 9001:2015 for the following scope:

The provision of meteorological services to the aviation industry

Signed for and on behalf of Certech Registration Inc.

Director

Certificate granted on: May 16, 2017
Last revision date: July 29, 2023
Last scope change: N/A
Certificate renewal date: July 29,2023
Certificate expiry date: July 28, 2026

File number: GNG310O

Dependent locations

Murtala Muhammed International Airport Lagos, Nigeria.	**The provision of meteorological services to the aviation industry**
Mallam Aminu Kano International Airport Kano, Nigeria.	**The provision of meteorological services to the aviation industry**
Port Harcourt International Airport Omagwa, Port Harcourt, Nigeria.	**The provision of meteorological services to the aviation industry**
Nnamdi Azikiwe International Airport Abuja, Nigeria.	**The provision of meteorological services to the aviation industry**
Akanu Ibiam International Airport, Enugu Enugu State, Nigeria.	**The provision of meteorological services to the aviation industry**

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