



Inter-Institutional Workshop on the use of Space-Based Information for Flood Response and Early Warning

A Presentation by:

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**DIRECTOR-GENERAL/CEO,
NIGERIAN METEOROLOGICAL AGENCY**

&

**PERMANENT REPRESENTATIVE OF NIGERIA
WITH WORLD METEOROLOGICAL ORGANISATION (WMO)**

Monday 12th September 2022

The Nigerian Meteorological Agency is a parastatal of the Federal Ministry of Aviation, with the statutory responsibility of providing meteorological services (weather, climate and hydrological data and information) for **all sectors of the Nigerian economy**



Our Mandate



Our core mandate is to **observe**, **collate**, and **analyze** meteorological data to provide *timely and accurate* reporting of weather and climate information for socio-economic development and safety of lives and property

Our Vision

To be a **World Class** provider of Weather and Climate services for safety and sustainable national socio-economic development

Our Mission

To observe Nigerian Weather and Climate and provide Meteorological, Hydrological and Oceanographic services in support of National needs and international obligations



We have presence in every state of the Federation

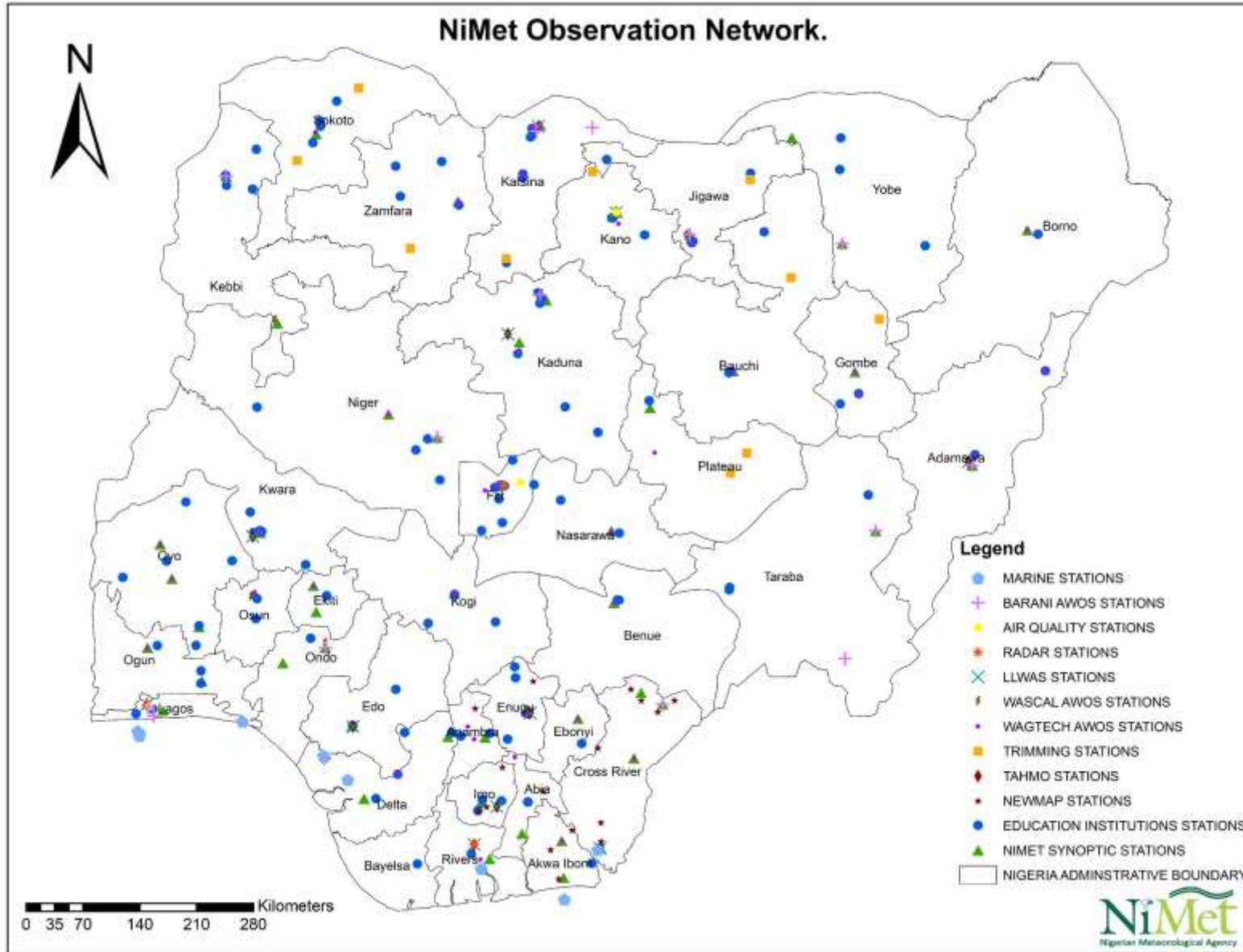
We have built infrastructure and acquired certifications for quality of service and competency

Our services covers Telecommunications, Power & Energy, **Disaster Risk Reduction, Building & Construction, Aviation, Oil & Gas, Agriculture, Water Resources, Marine & Maritime, Education, Defence, Health , Finance and Insurance etc.**

Though, we are indigenous, our service is international.



- ❖ Advise the government on all aspects of meteorology
- ❖ Project, prepare and interpret government policy in meteorology
- ❖ Issue weather forecasts for the safe operation of the aircrafts, ocean going vessels and oil rigs
- ❖ Promote the service of meteorology in agriculture, drought and desertification activities
- ❖ Keep in safe custody all meteorological records in the National Meteorological Archive
- ❖ Ensure uniform standards of observation of all meteorological phenomena in Nigeria
- ❖ Regulate the standards and performance of meteorological services and service providers across the nation





Water Resources



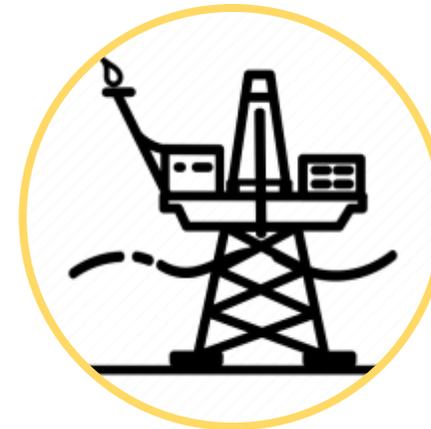
Power & Energy



Building & Construction



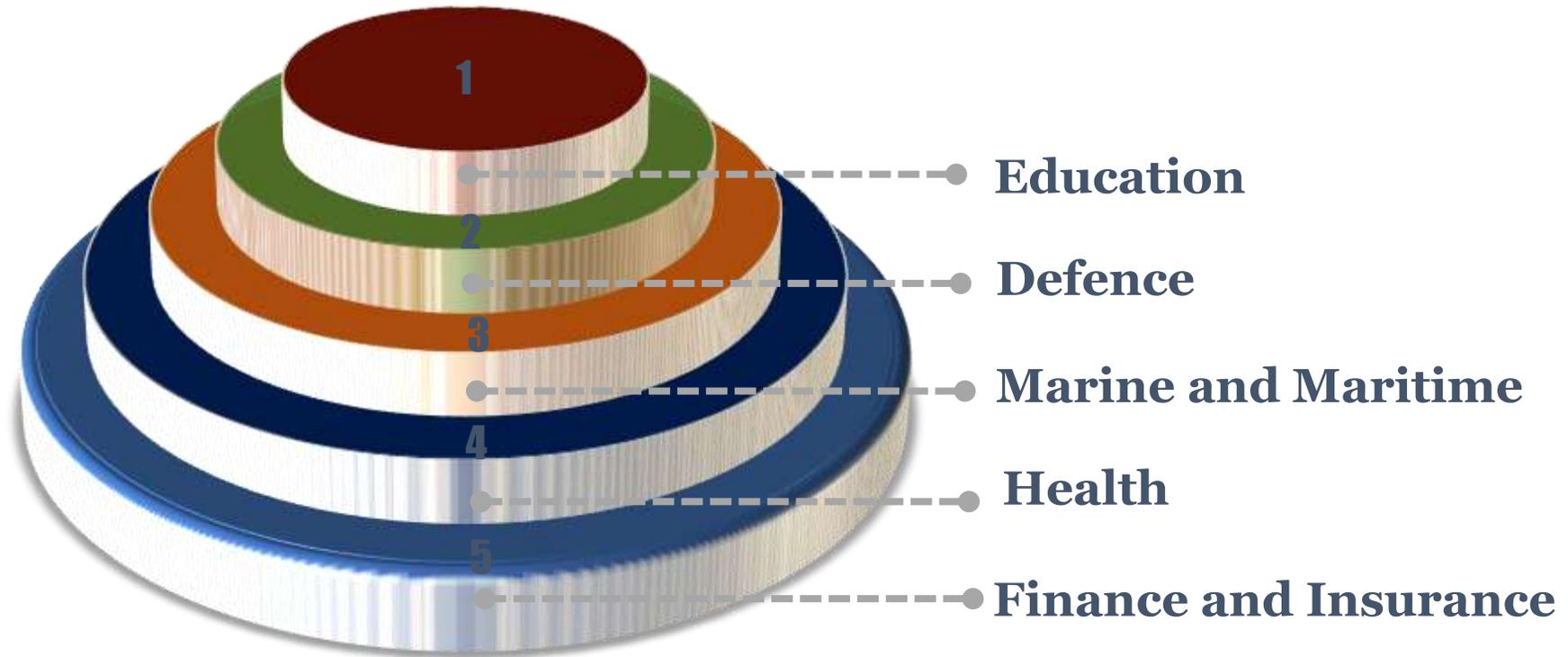
Aviation



Oil & Gas



Agriculture



*We also Provide Daily Public Weather Services to **Liberia** and **Sierra Leone** under WMO Voluntary Cooperation Programme and Nigeria's Technical Assistance*



**Our
PRODUCTS &
The Farmer**

❖ **SEASONAL CLIMATE PREDICTION (SCP)-**

- Onset and Cessation dates of the cropping season,
- Length of growing period,
- Rainfall amount
- Dry spell and Little Dry Season, and
- Socio-Economic Implications
- Temperature forecasts for the hot season (January- April).

- ❖ Farmers Guide
- ❖ Drought and Flood Monitoring Bulletin
- ❖ Marine Bulletin
- ❖ Crop-Weather- Calendar (CWC)
- ❖ In-Season SCP Updates
- ❖ State Downscaled SCP
- ❖ Tailored/On-demand User-focused products
- ❖ Agricultural Bulletins released every ten days
- ❖ Annual State of the Climate in Nigeria

A close-up photograph of a person's hand reaching out over a surface of severely cracked and parched soil. The cracks in the earth are deep and irregular, forming a network of polygonal shapes. The hand is positioned in the upper right quadrant, with fingers slightly spread. The lighting is dramatic, highlighting the textures of the skin and the parched earth. A semi-transparent dark blue horizontal band is overlaid across the middle of the image, serving as a background for the text.

Extreme Weather Events, Climate Variability:

A Message from Climate Change to the Living

Source: NiMet, 2022

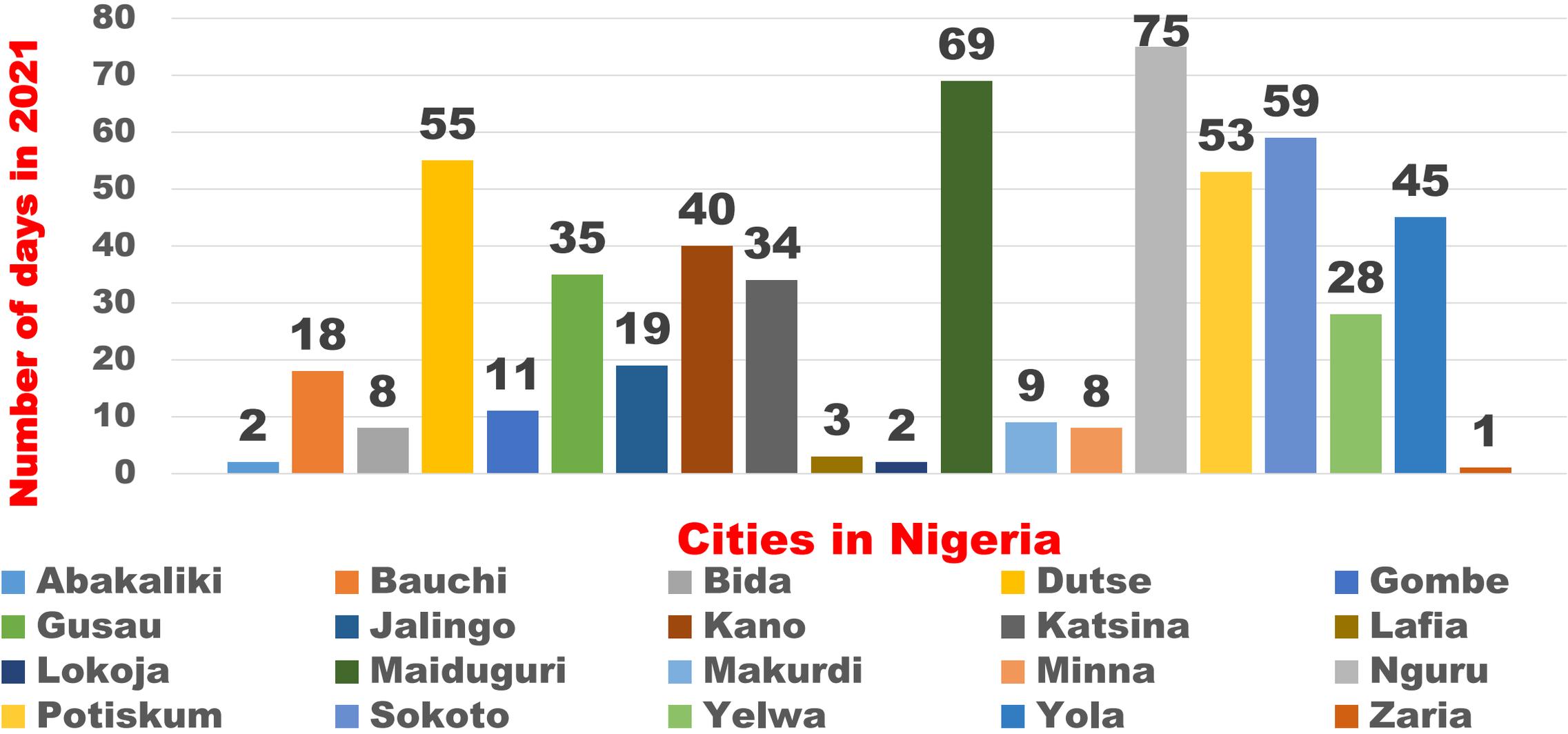


Figure1: Extreme Weather: Number of Days and Cities in Nigeria in 2021 Temperature Exceeded 40° C

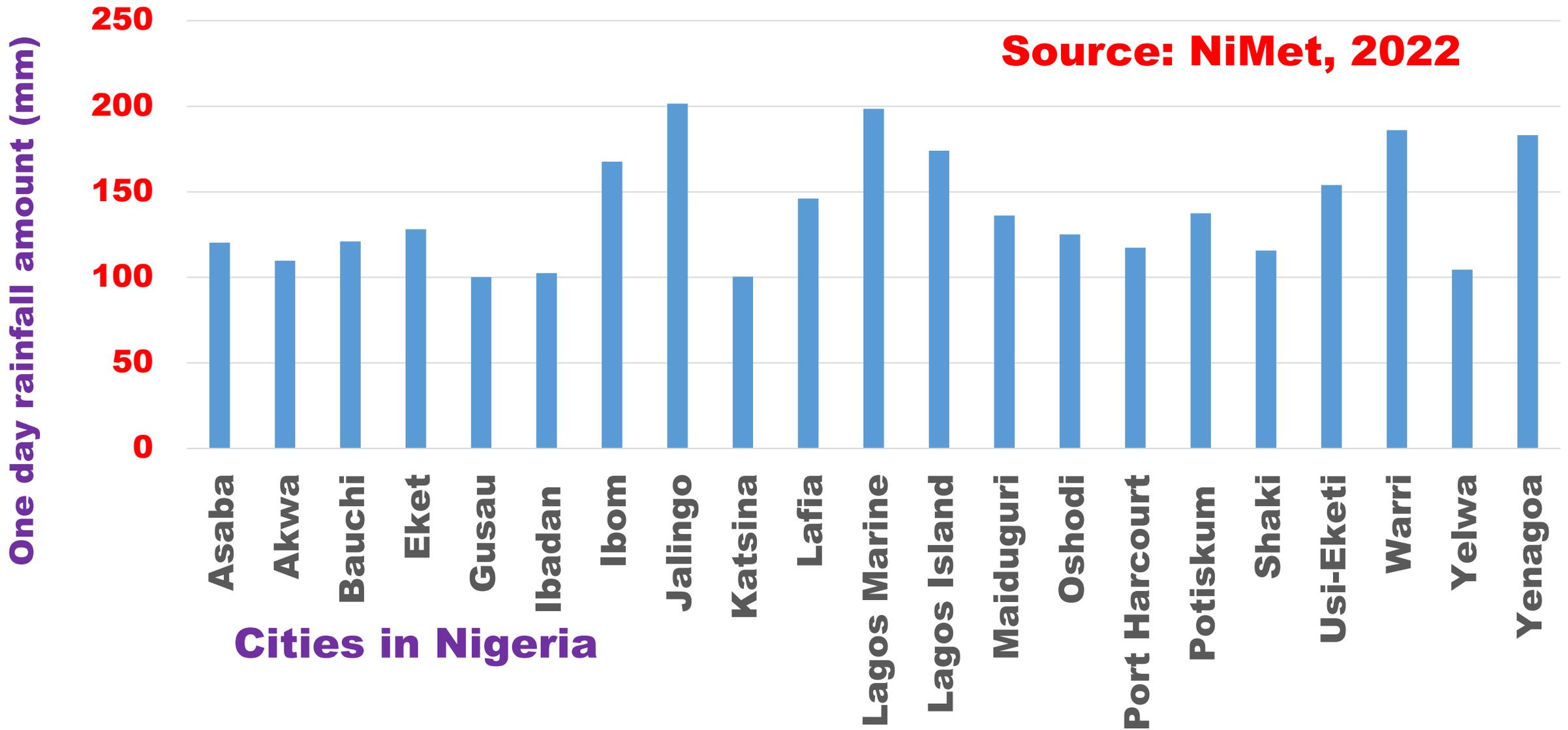
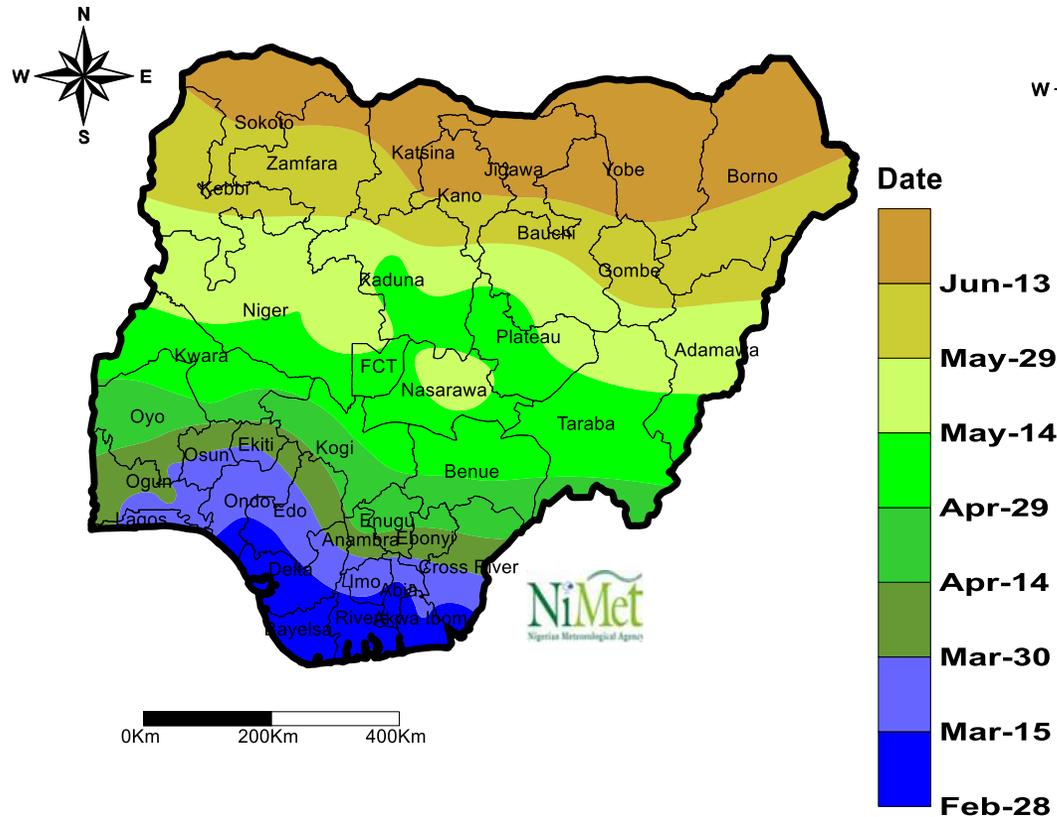


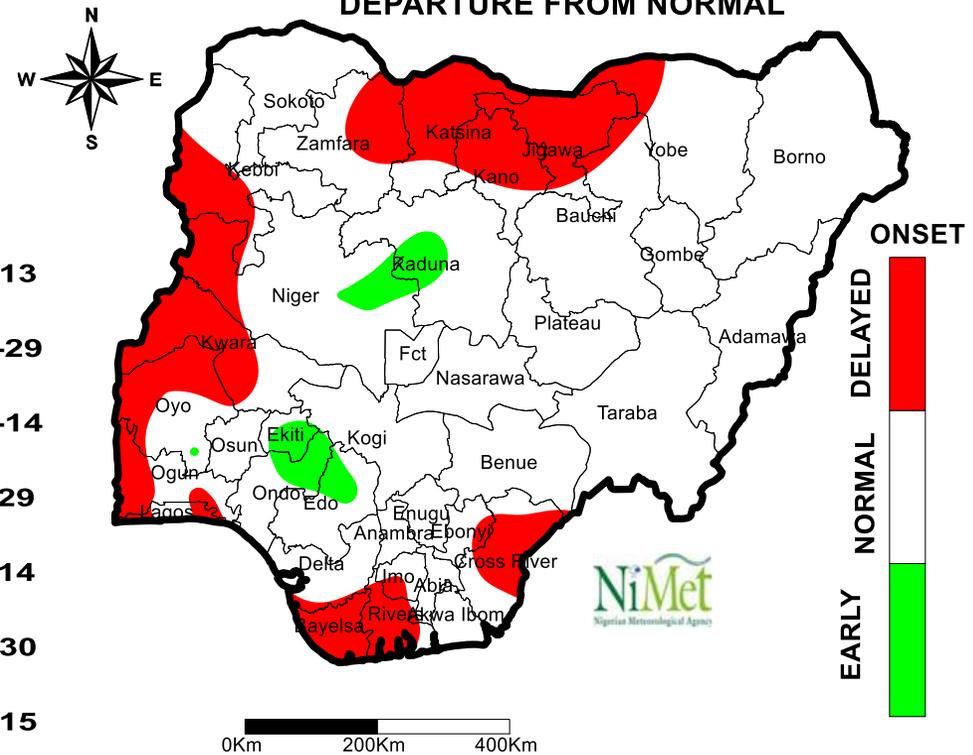
Figure 2: Weather Event: One Day Rainfall Amount (mm) Recorded in Cities in Nigeria in 2021

2022 PREDICTION Onset of Rainy Season

2022 PREDICTED ONSET OF RAINY SEASON



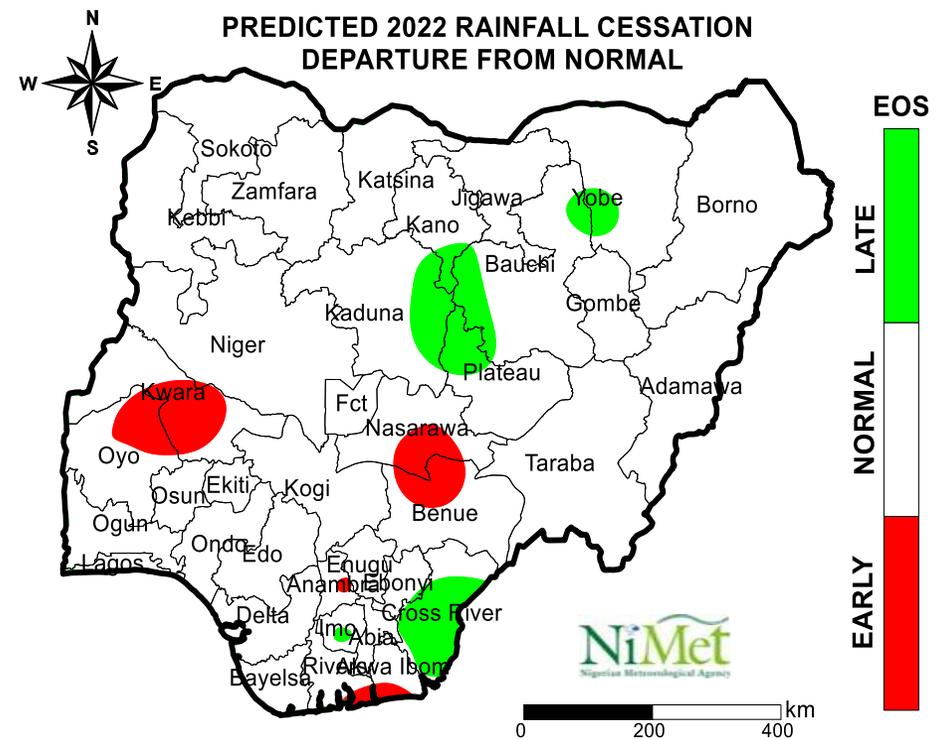
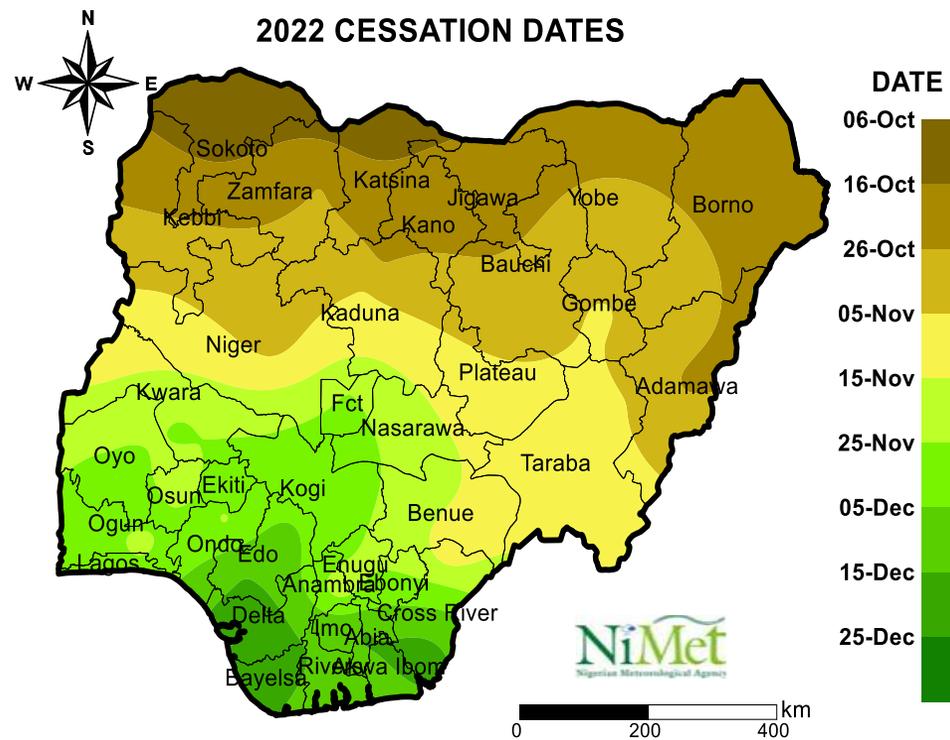
2022 PREDICTED ONSET OF RAINY SEASON
DEPARTURE FROM NORMAL



2022 ONSET OF RAINY SEASON

- Earliest onset to occur on the 28th of February 2022 in and around the Coastal States of Bayelsa, Rivers and Akwa Ibom. The onset dates are expected to progress latitudinally with the ITD northwards oscillation as the year progresses.
- Areas around the Central States are expected to have their onset between April and May.
- Extreme Northern States expected to have their onset between June and July, with the northern fringes of Sokoto, Kebbi, Zamfara, Kano, Katsina, Jigawa, Yobe and Borno states predicted to likely have onset of rains between 13th June and 4th of July 2022.
- The 2022 Onset of rains is predicted to be normal in most parts of the country with parts of Ekiti, Ondo, Edo, Niger and Kaduna that are likely to experience earlier than normal onset when compared to the long-term averages in these locations.
- Zamfara, Katsina, Kano, Jigawa, parts of Kebbi, Niger, Kwara, Oyo, Ogun, Cross River, Bayelsa and Rivers States are predicted to likely experience a delayed onset when compared to their long-term averages.

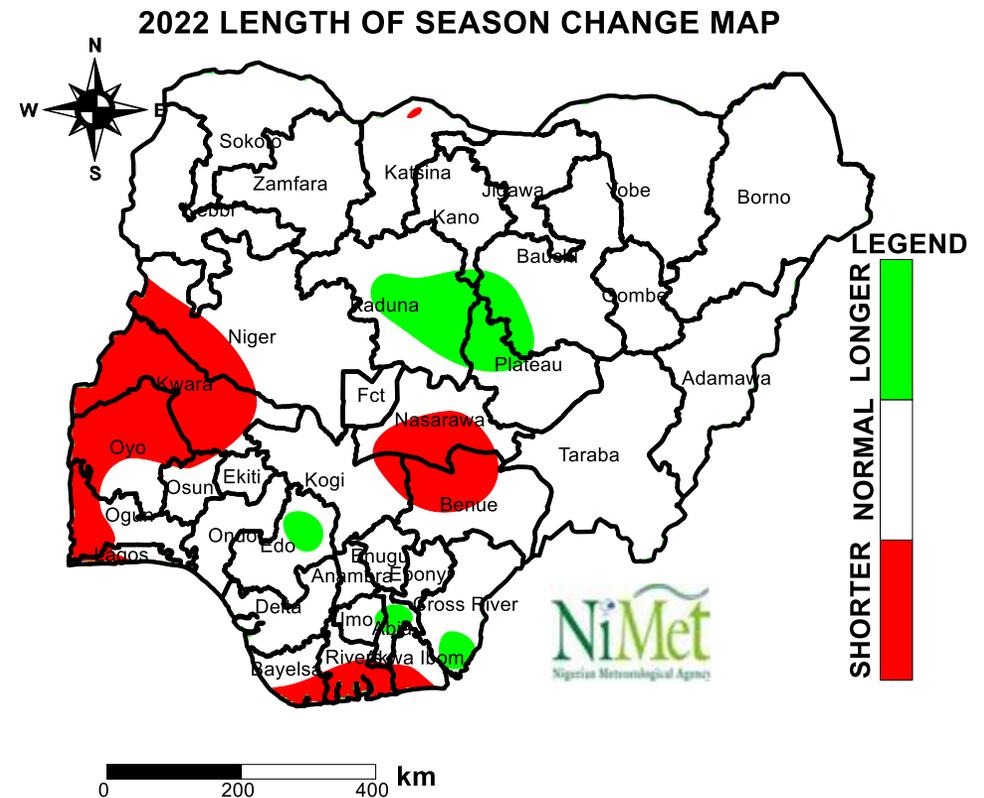
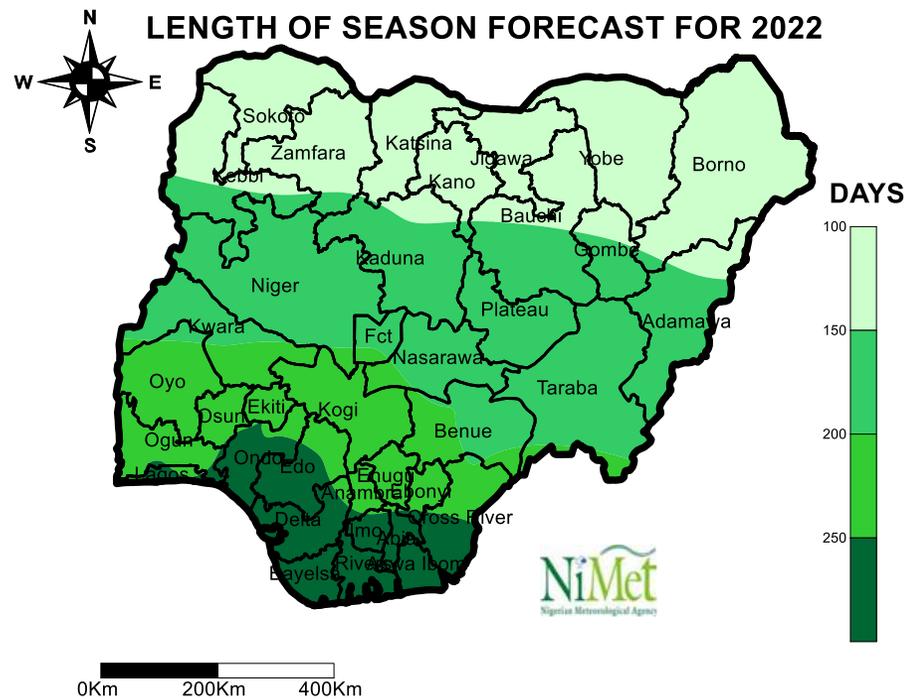
2022 PREDICTION Cessation of Rainy Season



2022 PREDICTION Cessation of Rainy Season

- Rainfall cessation is anticipated to begin in the North, from early-October to mid-November and gradually progress southward.
- In Central States, to begin mid-November and finally ceasing around mid-December in the Southern most parts of the country.
- Cessation dates predicted across most parts of Nigeria for 2022 is near long-term average conditions (normal). It is expected to be delayed over parts of Cross River, Imo in the South and parts of Plateau, Kaduna, Kano, Bauchi and Yobe in the north.
- Areas of considerable concern are parts of Nasarawa, Benue, Kwara, Oyo and Anambra where cessation is predicted to occur earlier than the long-term averages.

2022 PREDICTION Length of Rainy Season

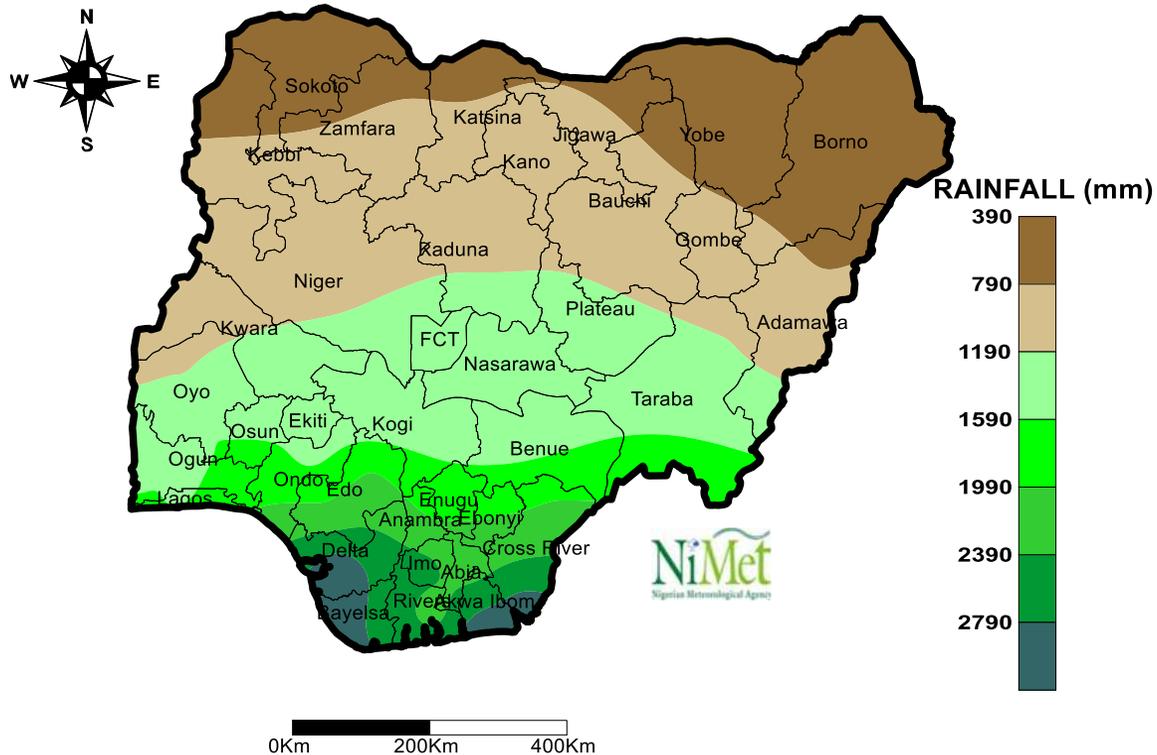


2022 PREDICTION Length of Rainy Season

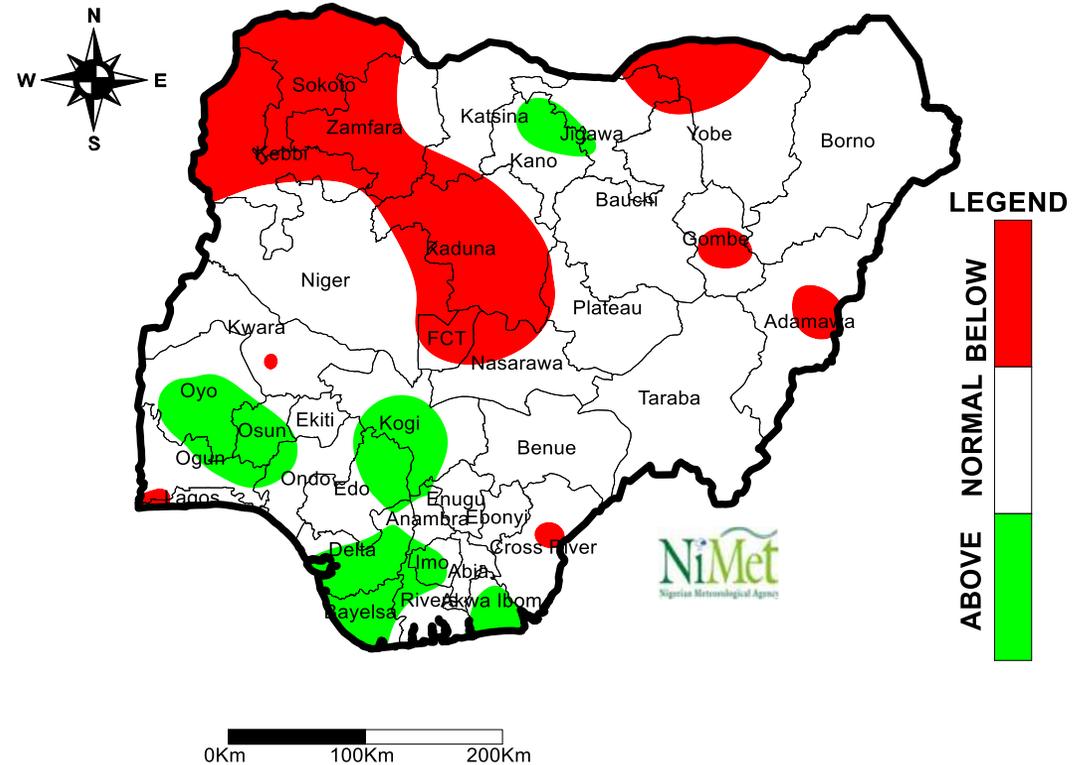
- The length of growing season usually increases Southwards from the North, For the Year 2022 in the Southern States, the length of season is likely to expand above 250 days but not more than 300 days.
- The Sahelian region is likely to have length of growing season between 90 to 200 days.
- The predicted length of growing season shows a large area of the country is expected to have length of season similar to the long-term average (normal), depicted by white shading in the map.
- Some areas around the southwestern region of Kwara, Oyo, Lagos, Nasarawa, Benue, Bayelsa, and Rivers are likely to experience length of growing season shorter than the long-term averages for these areas, (portions of the plot denoted in red).
- However, the areas in green (northern Plateau, southern Kaduna, Edo, Imo) will have longer length of season than the long-term average for these areas

2022 PREDICTION Rainfall Amount

2022 PREDICTED ANNUAL RAINFALL TOTAL



2022 PREDICTED RAINFALL DEPARTURE

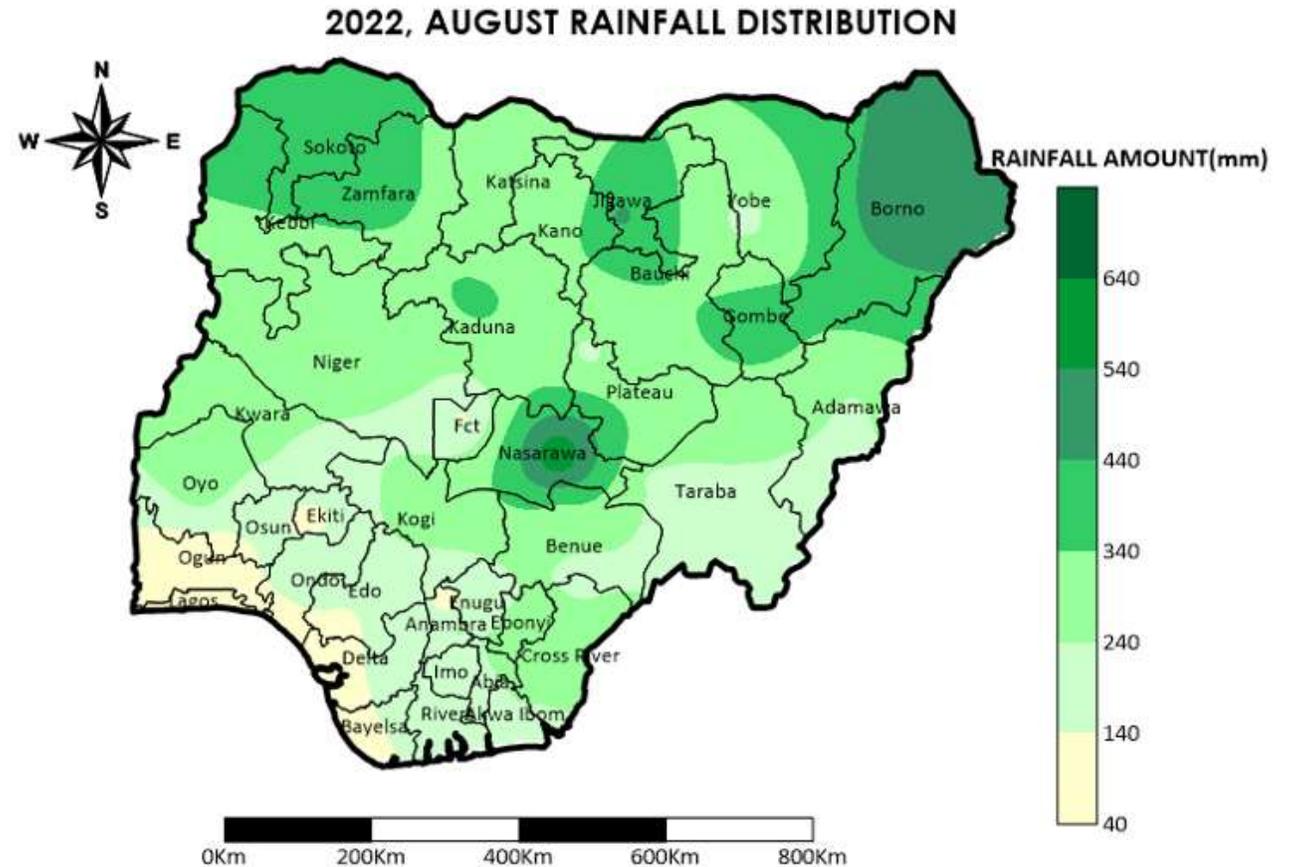


2022 PREDICTION Rainfall Amount

- Predicted annual rainfall amount for the year 2022 is likely to range from 390 mm in the far North to over 2790 mm in the Coastal States.
- Rainfall amount ranging from 390 mm – 790 mm is likely in some parts of Borno, Yobe, Jigawa, Katsina and Sokoto states.
- The Central States such as FCT, Nassarawa, Taraba, Kogi, Benue as well as Ekiti, Osun and Oyo are expected to have 1190 mm to 1590 mm. However, parts of Bayelsa, Akwa-Ibom, Delta, and Cross River states are predicted to have annual rainfall amounts of 2700 mm and above.
- In 2022, as depicted in the departure map, rainfall amount close to the long-term average (normal) is predicted for most parts of the country, with exceptions to areas in and around **Yobe, Sokoto, Zamfara, Gombe, Adamawa, Niger, Kebbi, Kaduna and FCT** which are predicted to experience rainfall amount below annual long-term rainfall average.
- Areas around Katsina, Jigawa, Oyo, Ogun, Osun, Kogi, Delta, Imo, Bayelsa, parts of River and Akwa-ibom are predicted to record rainfall amount above their annual long-term average

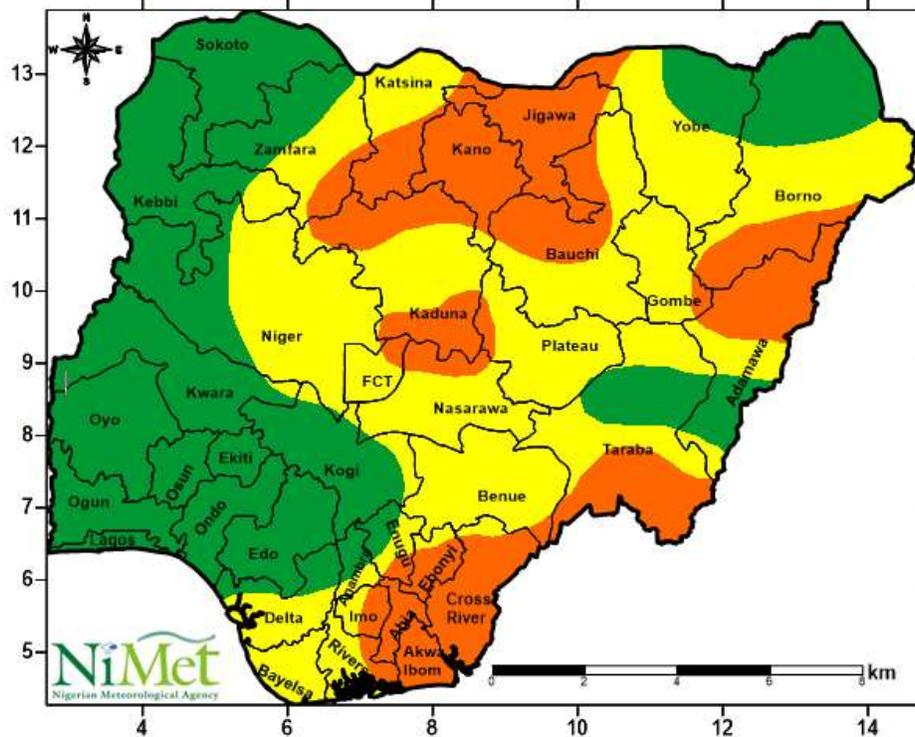
Rainfall Distribution and Prediction

- Based on the Rainfall distribution map, represents the rainfall amounts recorded in the country during the month of August, 2022. The map shows that Sokoto, Zamfara, Kaduna, Jigawa, Bauchi, Kano, Borno, Gombe and Nasarawa states recorded over 300mm, which represent over 40% of Long - term Normal of those places in one month. Places around the southwestern part of the country however recorded less than 200mm as a result of the long dry spell associated with August Break over those areas.



Rainfall Prediction (High Impact-Based Forecast)

Heavy Rainfall Hazard: Tuesday 6th September, 2022



Legend

No Hazard is expected
(Light or no rainfall is expected)

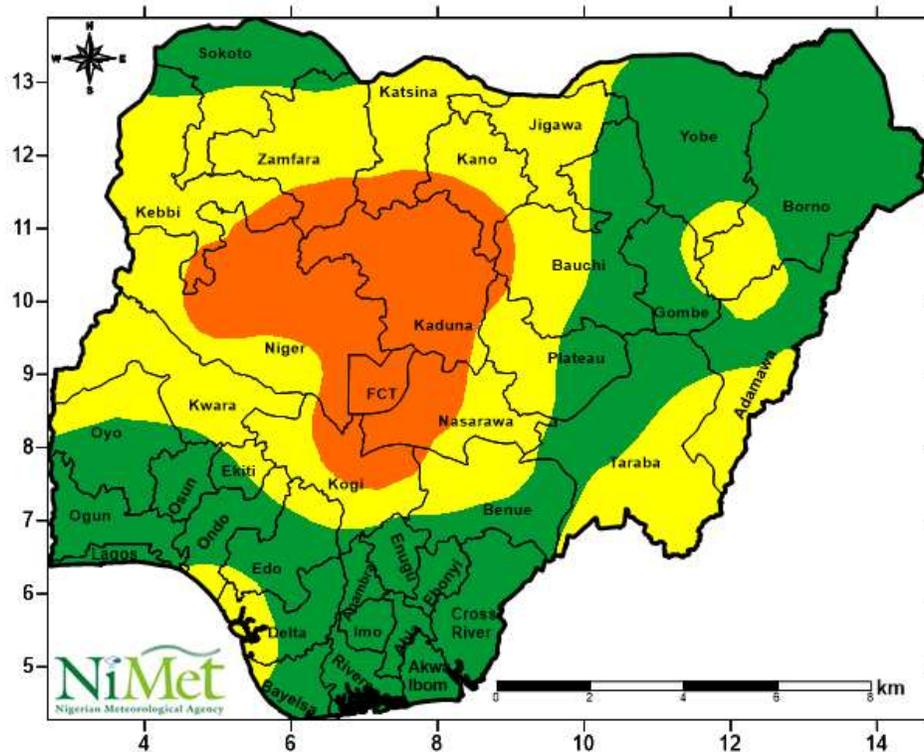
Be aware of possible hazard
(Low rainfall amount is expected)

Be prepared for action
(Moderate Rainfall amount is expected)

Take action
(Heavy Rainfall amount is expected)

High Impact-Based Forecast

Heavy Rainfall Hazard: Wednesday 7th September, 2022



Legend

No Hazard is expected
(Light or no rainfall is expected)

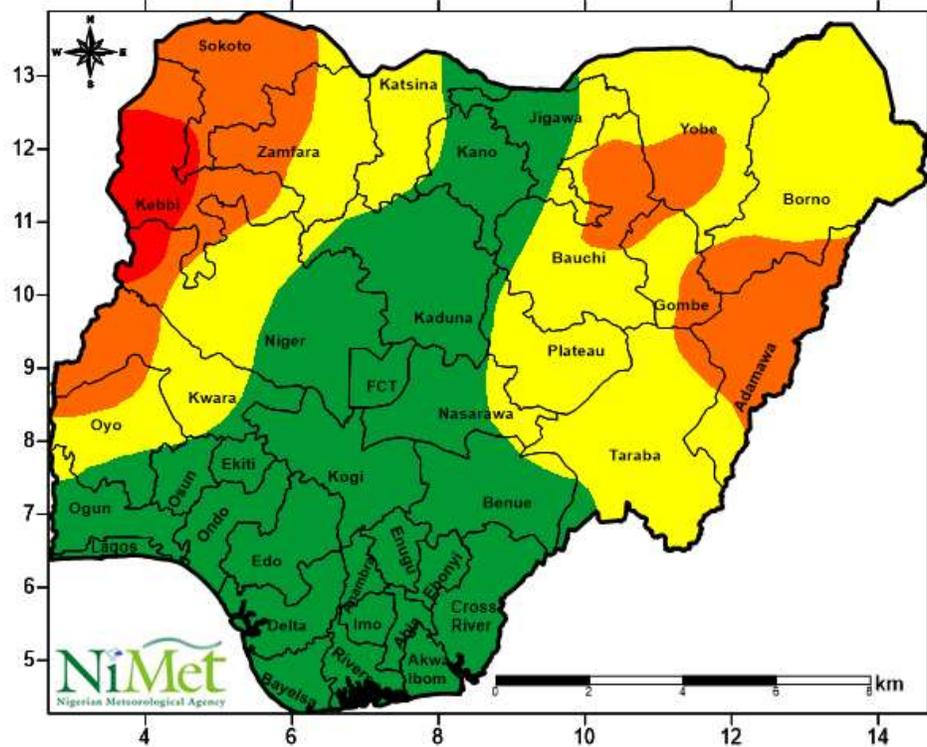
Be aware of possible hazard
(Low rainfall amount is expected)

Be prepared for action
(Moderate Rainfall amount is expected)

Take action
(Heavy Rainfall amount is expected)

High Impact-Based Forecast

Heavy Rainfall Hazard: Thursday 8th September, 2022



Legend

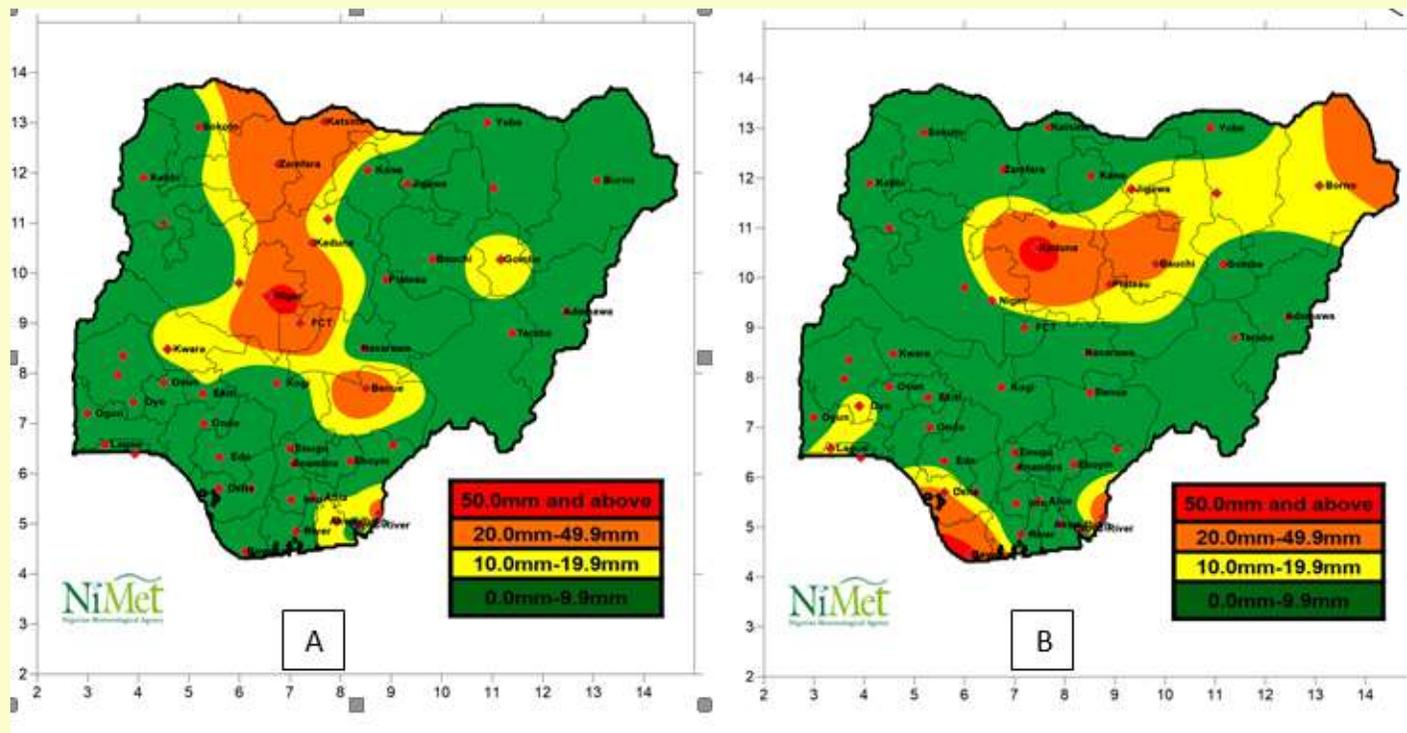
No Hazard is expected
(Light or no rainfall is expected)

Be aware of possible hazard
(Low rainfall amount is expected)

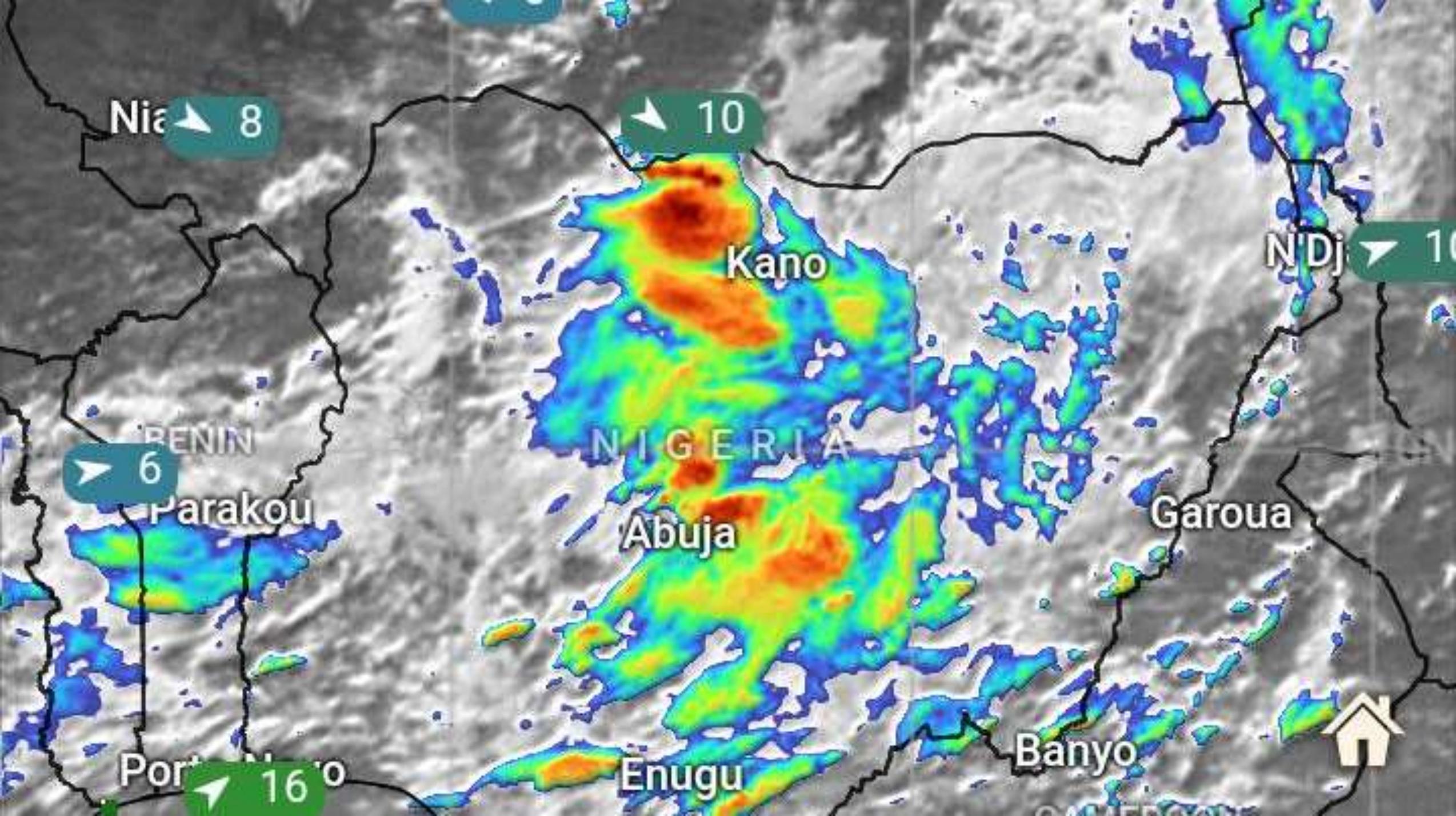
Be prepared for action
(Moderate Rainfall amount is expected)

Take action
(Heavy Rainfall amount is expected)

Observed Cumulative Rainfall Amount Across the Country

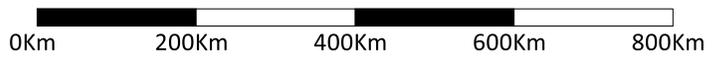
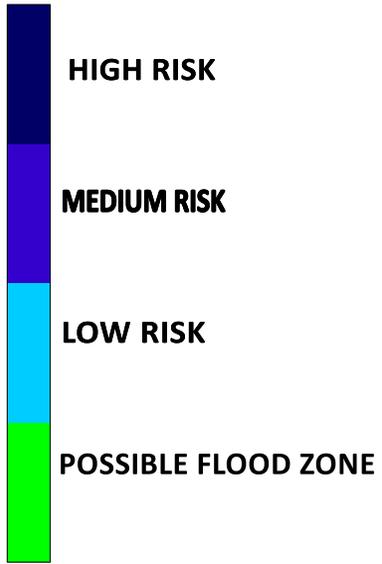
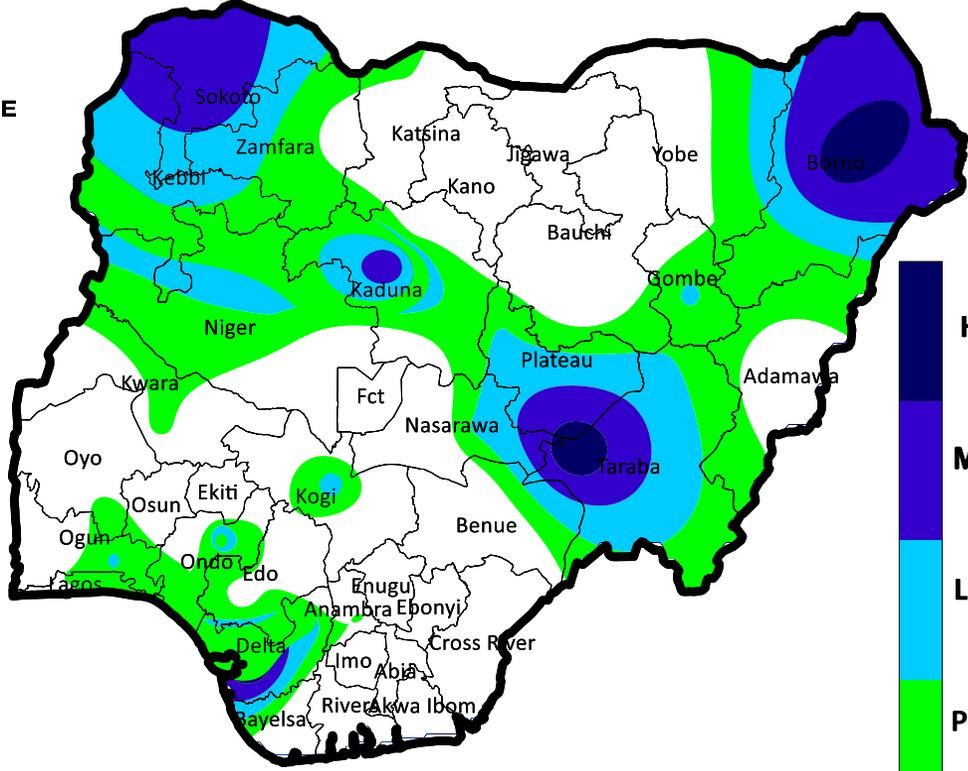
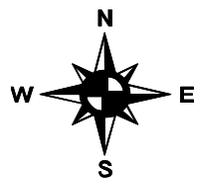


- The Figures above “A” and “B” show places that witnessed moderate to heavy rainfall on 2nd and 4th September 2022 respectively. 60.4mm and 57.6mm were recorded in parts of Kaduna and Bayelsa State respectively on 4th September while on 2nd September, 51.9mm, 46.4mm, 42.3mm and 39.0mm were recorded in parts of Niger, Katsina, the FCT and Zamfara State respectively.



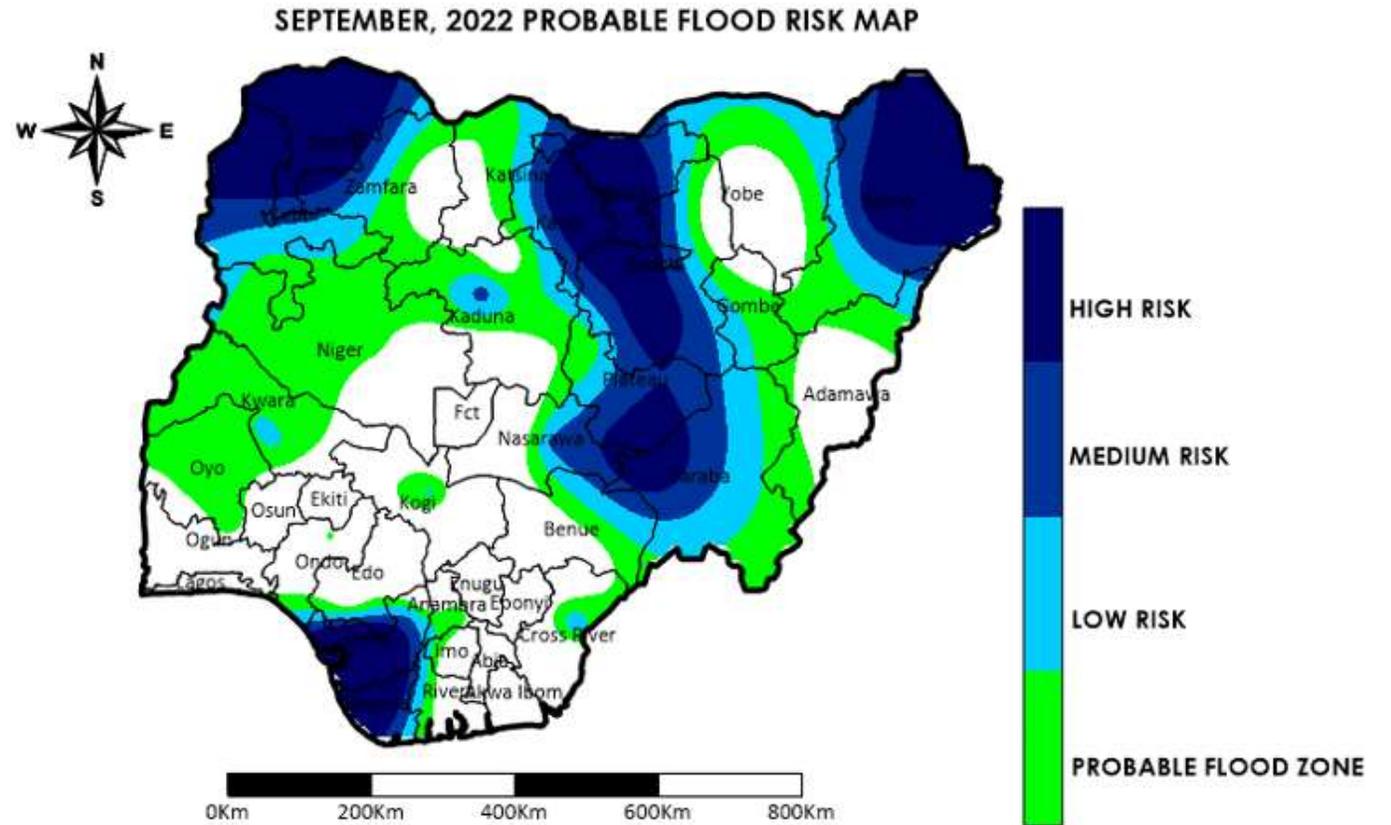
August 2022
Probable
Flood Risk
zones in the
Country

AUGUST, 2022 PROBABLE FLOOD RISK MAP

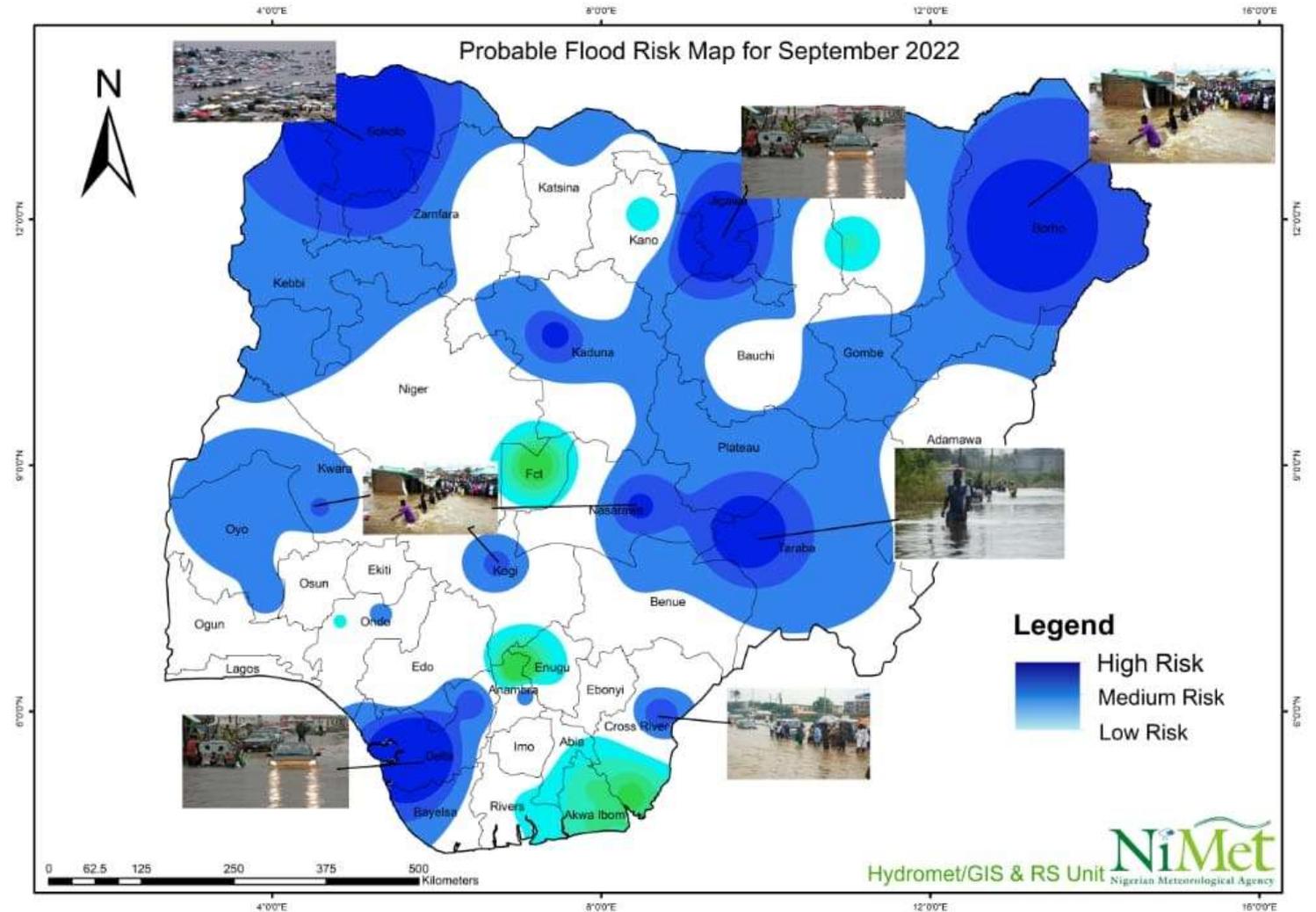


September, 2022 Probable Flood Risk zones in the Country

The saturated state of the soil moisture across the country in the month of July and also heavy rainfall recorded in August (northern and central parts) may put most places to experiences varying degrees of flooding activities ranging from high, medium, low and flash flood as indicate in Flood Risk Early Warning analysis for the month of September. while places with major rivers channel may experience probable high risk of flood events due to accumulation of water already on the river channels which may not able to contains any additional water.



Probable Flood Risk Map for September 2022



PARTNERSHIPS FOR PRODUCT DISSEMINATION



The Agency through its operations develops and sustains working relationship with key national and international institutions such as:



**MDAs,
State Governments**



World Meteorological Organisation



United Nations Framework Convention on Climate Change



ICAO



IFAD
INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT



Food and Agriculture Organization of the United Nations

Some Recently Established Weather Stations across Universities, Polytechnics, COEs and Secondary Schools in Nigeria for improved Forecasting Services: **113 so far..**

 **Faculty of Agriculture, University of Abuja**

 **University of Abuja (Geography Department)**

University of Jos, Plateau State	North Central	8.8892° E	9.9497° N
Bayero University Kano, Kano State	North West	8.4753° E	11.9836°N
University of Maiduguri, Borno State	North East	13.1981°E	11.8038°N
University of Calabar, Cross River State	South South	8.3410° E	4.9738° N
University of Ibadan, Oyo State	South West	3.8995° E	7.4443° N
Federal University of Technology, Owerri, Imo State	South East	6.9916° E	5.3866° N
Federal University of Technology Minna, Niger State	North Central	6.434362	9.524778
Department of Geography, Ahmadu Bello University Zaria, Kaduna State	North Central	7.6559° E	11.1517° N
Abubakar Tafawa Balewa University Bauchi, Bauchi State	North East	9.7968° E	10.2784°N
University of Benin, Edo State	South South	5.6037° E	6.3350° N
Obafemi Awolowo University, Ile – Ife, Osun State	South West	4.530315	7.520767
University of Nigeria Nsukka, Enugu State	South East	7.4083° E	6.8645° N
University of Ilorin, Kwara State	North Central	4.5950° E	8.4912° N
Federal University Dutsinma, Katsina State	North West	7.4883° E	12.4722°N



In NiMet, we have built infrastructure, develop competencies for effective service delivery

Our service is international in nature with global relevance and visibility

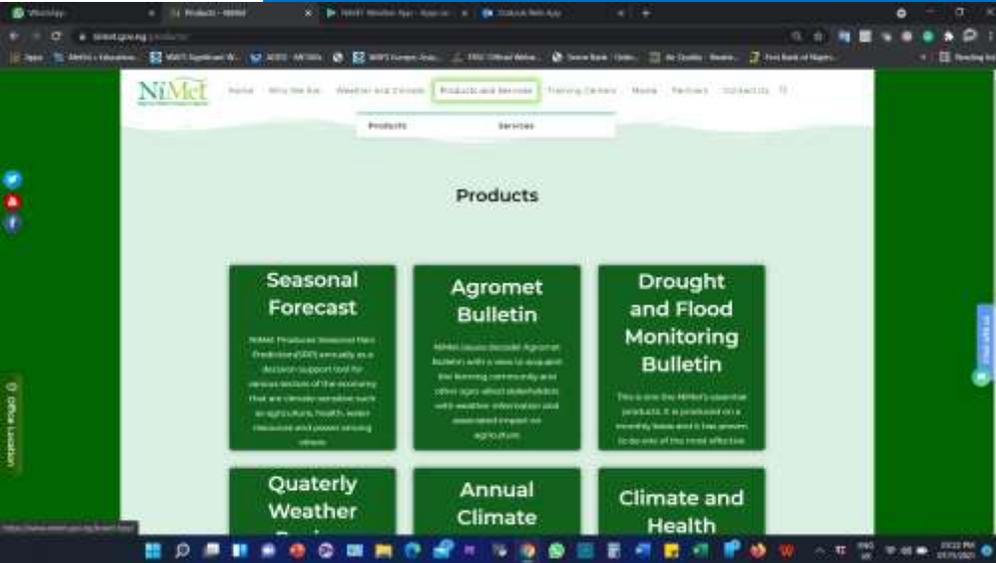


With Government support, our products and services are multi-sectoral in applications.

The Wide range of applications of our products and services made weather and climate information a relevant input in tackling extreme weather events

It is increasingly important to understand Government alone cannot do it, hence the need for effective collaborative partnerships.

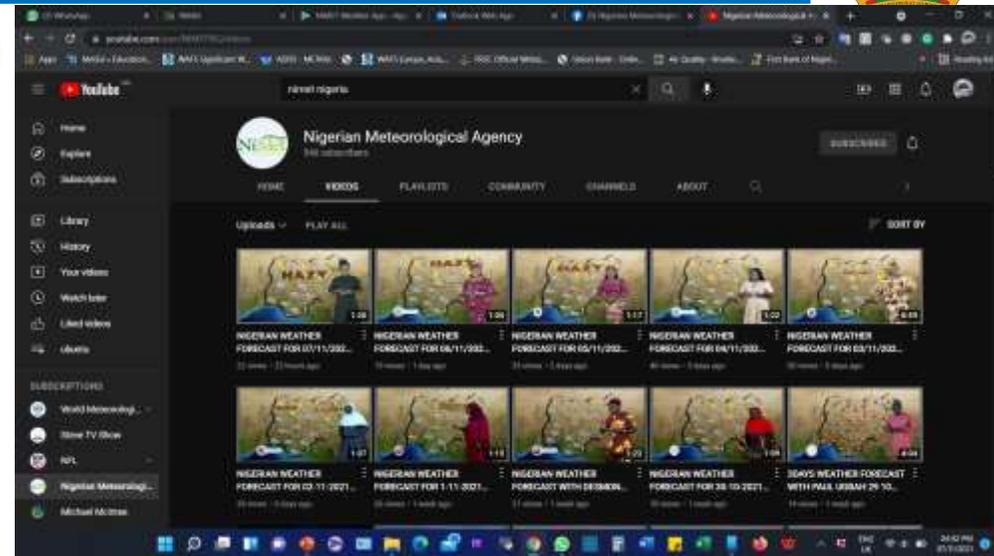




NiMet website: www.nimet.gov.ng

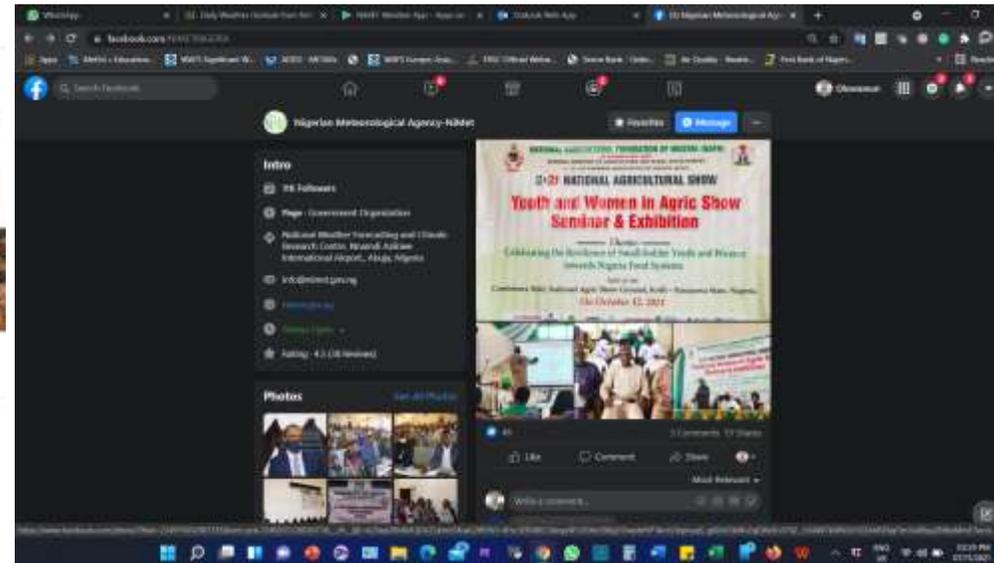
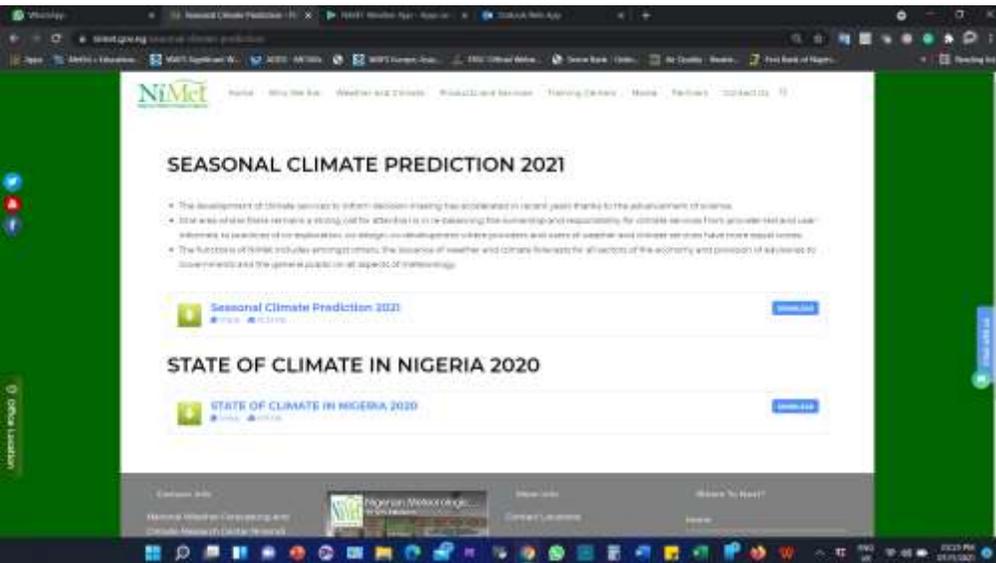


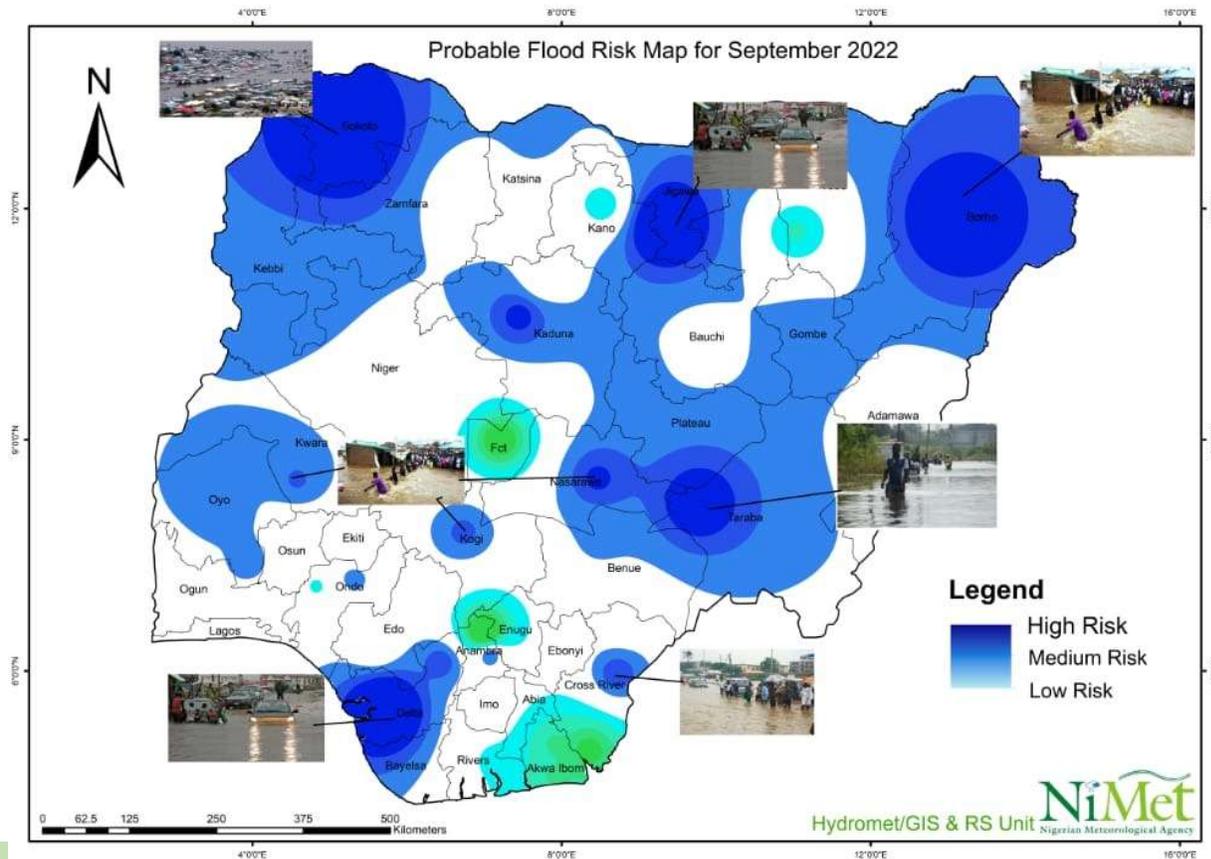
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Thank You for Listening!!!

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