

quarterly weather bulletin

1.0 JANUARY, 2016

1.1 SYNOPTIC FEATURES

The Inter-Tropical Discontinuity (ITD):

The position of the Inter-Tropical Discontinuity (ITD) in the month of January, 2016 was observed to be at approximately latitude **6.6°N**. However, it assumed the following estimated dekadal positions (latitudinally); **6.9°N** in the 1st dekad, maintaining approximately the same position in the 2nd dekad but it retreated southward to **6.1°N** in the 3rd dekad.

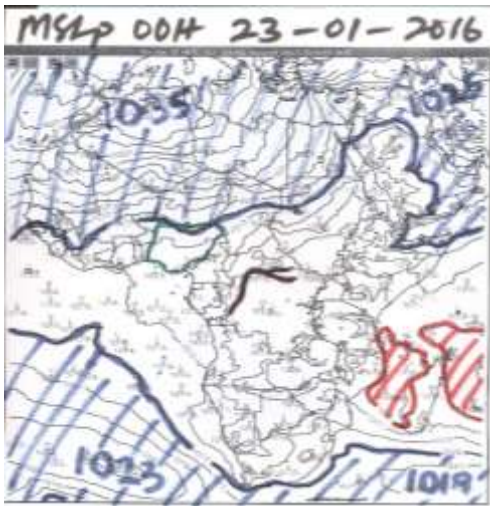


Fig1a: MSLP Chart for 23rd January, 2016.



Fig1b: Tdp (15°C) Chart for 30th January, 2016.

The Mean Sea Level Pressure (MSLP): In the month of January, 2016, Mean Sea Level Pressure (MSLP) values over Nigeria oscillated between; **1011-1017hPa** in the 1st dekad, **1009-1015hPa** in the 2nd dekad and **1010-1021hPa** in the 3rd dekad.

Therefore, throughout this month, the MSLP values ranged between **1009-1021hPa** within the country.

The Azores High Pressure Cell: The average pressure values at the center of Azores high pressure cell were as follows: **1026hPa** in the 1st dekad, **1026hPa** in 2nd dekad and **1034hPa** in 3rd dekad. The daily values ranged between **1021hPa** and **1039hPa**, while the average for the month was **1029hPa**.

St Helena High Pressure Cell: The average pressure values at the center of St. Helena high pressure cell in January 2016 were as follows: **1026hPa** in the 1st dekad, **1025hPa** in 2nd dekad and **1024hPa** in 3rd dekad. The daily values ranged between **1019hPa** and **1026hPa**, while the average for the month was **1025hPa**.

The Equatorial Trough at 925hPa Level which is about 750m (Above Mean Sea Level) for the month of January 2016 was located at **3.0°N**, **6.6°N** and **2.5°N** in the 1st, 2nd and 3rd dekad respectively; however, the average position of the monsoon trough for the month was **4.0°N**. This implies that the entire country at this level was still under the influence of warm/dry Northeasterly winds.

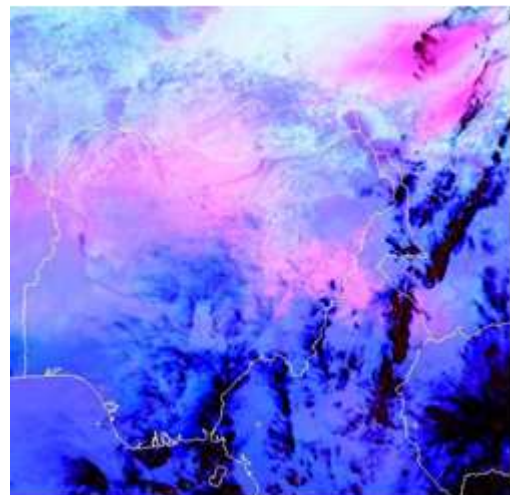
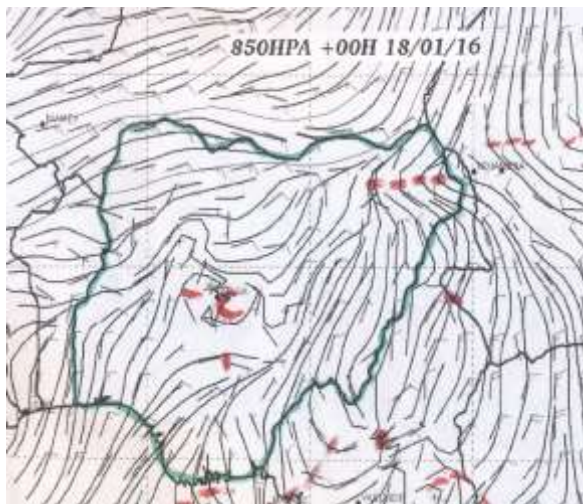


Fig 1c: Wind Flow at 850hPa (750m) level on 1st Jan, 2016.

Fig 1d: Satellite Image for 7th January, 2016.

At **850hPa** level (1500m), there were four (4) vortices located within the country during this period of the year which brought about the activities recorded in the month

Satellite Imagery

The above Satellite imagery shows the occurrence of dust haze that was raised over the source regions and transported to the country in January, 2016. This led to the occasional reduction of visibility across the country for the month.

1.2 TEMPERATURES

1.2.1 Maximum Temperature

The maximum temperatures observed over the country in January, 2016 ranged between 23.3°C over Jos and 39.4°C over Abeokuta and Ogoja.

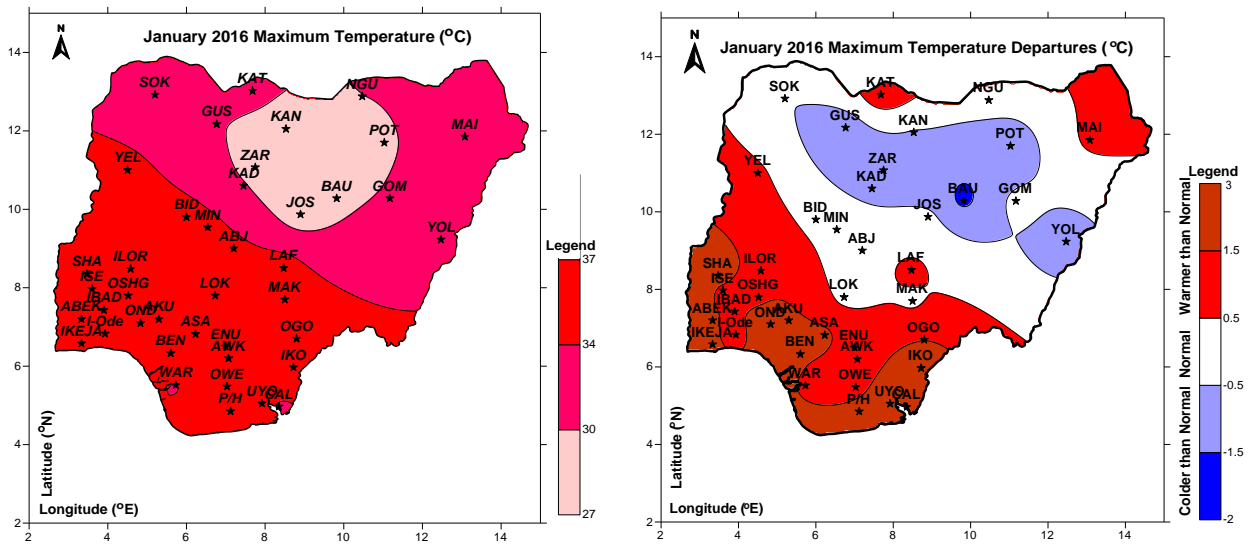


Fig. 2a: Maximum Temperature in Jan. 2016. Fig. 2b: Max. Temperature Departure from normal

Generally, the distribution of the average maximum temperatures as plotted on Figure 3a shows that apart from cities South of Yelwa, Bida Minna, Abuja and Lafia that recorded average maximum temperatures above 34°C, the rest of the Northern cities except those highland cities (that recorded less than 30 °C) are observed to have had average maximum temperatures that ranges between 30 - 34 °C.

From Figure 3b, the deviations of the observed maximum temperature from long-term averages for the month of January 2016 can be seen here, while some cities such as Maiduguri, Katsina, Yelwa, Lafia, Ilorin, Oshogbo, Ibadan, Abeokuta, Ijebu Ode, Enugu, Awka, Warri, and Ogoja were warmer than normal. Areas like Bauchi,

Gusau, Kano, Potiskum, Zaria, Kaduna and Yola were colder than normal. However, the stations that were observed to have had normal maximum temperatures (with departures within $\pm 0.5^{\circ}\text{C}$) include Sokoto, Nguru, Gombe, Jos, Bida, Minna, Abuja, Lokoja and Makurdi.

1.2.2. Minimum Temperature

From Figure 4a, the average night time temperatures across the country decreases from the coast towards the North, with PortHarcourt, Calabar, Ikom, Uyo, Warri, Benin, Asaba, Owerri, Ikeja, Ijebu-Ode, Shaki, Ibadan, Enugu, Awka, Lokoja, Bida and Minna having average minimum temperatures that range between 10°C - 14°C ; Akure, Oshogbo, Ilorin, Ogoja, Makurdi, Lafia, Abuja, Yelwa, Sokoto, Gusau, Kaduna and Gombe recorded 14°C - 19°C , while Kano, Zaria, Jos, Bauchi, Potiskum, Nguru and Maiduguri recorded between 20°C - 24°C .

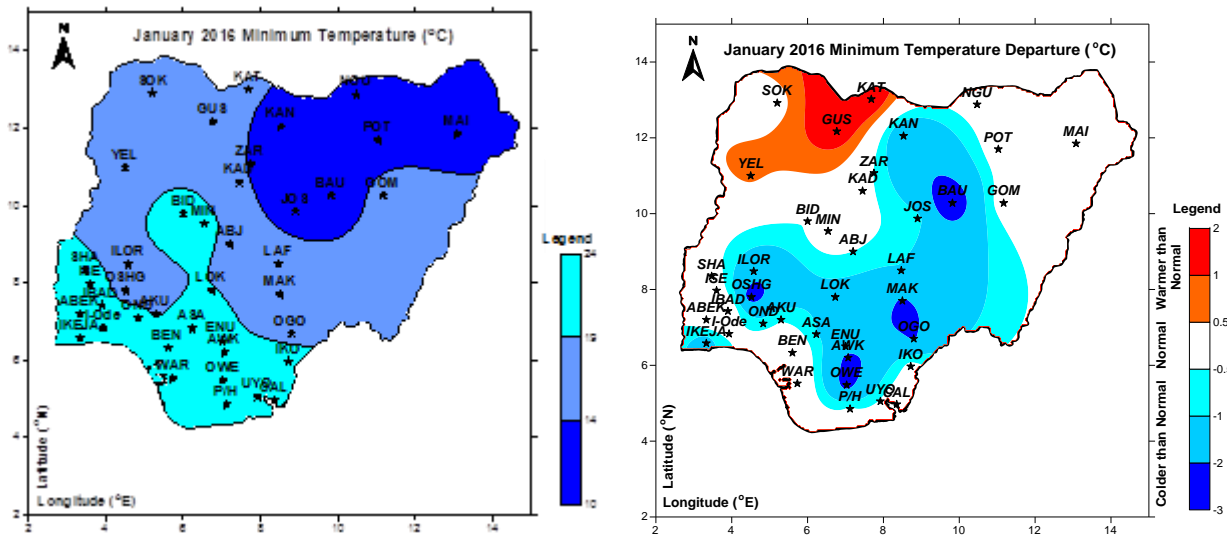


Fig.3a: Minimum Temperatures for Jan. 2016. Fig.3b: Min. Temperatures Departure from normal

Furthermore, with Figure 4b showing the departures of minimum temperatures from the normal across the country, colder than normal night temperatures were observed over Kano, Zaria, Jos, Bauchi, Abuja, Lafia, Makurdi, Ogoja, Ilorin, Oshogbo, Ibadan, Akure, Ondo, Asaba, Enugu, Awka, Owerri, PortHarcourt and Ikeja. However, warmer than normal night temperatures were observed over Yelwa and Gusau while Katsina, Sokoto, Nguru, Potiskum, Maiduguri, Gombe.

Kaduna, Bida, Minna, Shaki, Iseyin, Abeokuta, Ijebu-Ode, Benin, Warri, Uyo and Calabar recorded normal night temperatures.

1.2.3. The Mean Temperature

As shown in Figure 5, the mean temperature departure shows that warmer than normal mean temperatures were observed over Katsina, Yelwa, Shaki, Iseyin, Abeokuta, Ijebu-Ode, Ondo, Akure, Benin, Warri, Port Harcourt, Uyo, Calabar and Ikom. Normal temperatures were experienced over Sokoto, Gusau, Nguru, Maiduguri, Gombe, Bida, Minna, Abuja, Lafia, Ilorin, Asaba, Ogoja and Enugu while Kano, Potiskum, Zaria, Kaduna, Bauchi, Jos, makurdi, Lokoja, Oshogbo, Awka and Owerri recorded colder than normal temperatures in January, 2016.

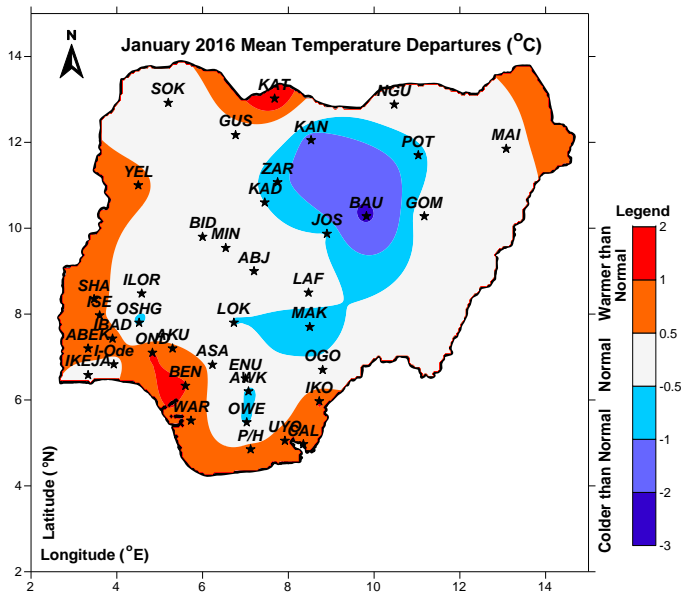


Fig.4: Mean temperature departure for January, 2016.

1.3 Rainfall

The total rainfall amount recorded in the month of January, 2016 ranged between 0.0mm over majority of the cities and 25.5mm over the Southwestern axis of the country.

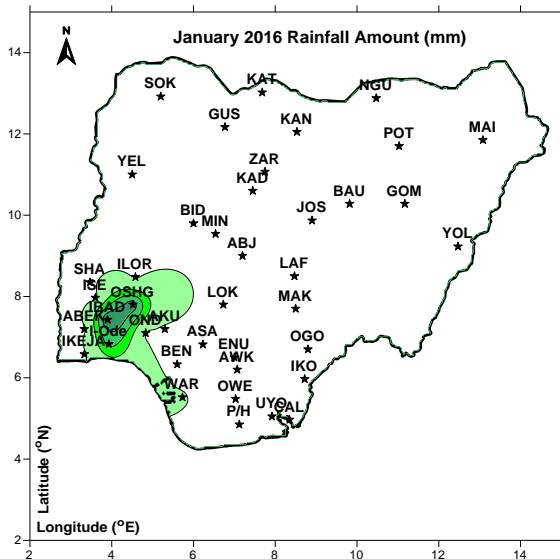


Fig5a: Rainfall distribution for January 2016.

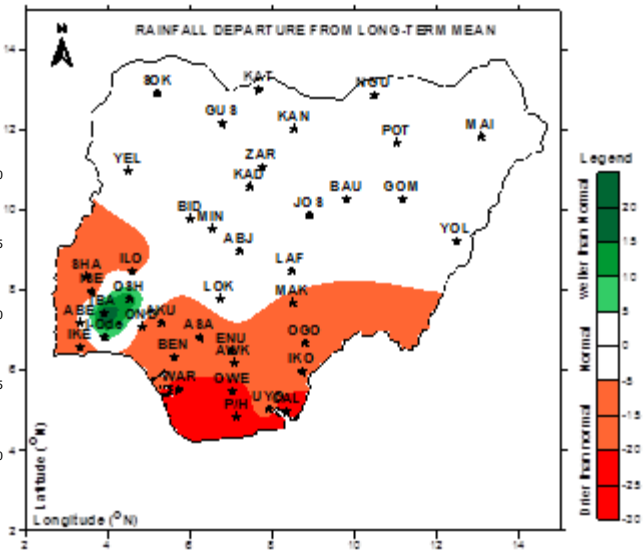


Fig5b: Rainfall anomaly for Jan. 2016.

From figure 6a, majority of the cities had no rains in the month of January except some cities in the southwestern part of the country which include; Ijebu Ode with rainfall between **15mm – 20mm**, Oshogbo between **20mm – 25mm**, Ibadan was between **25mm – 30mm**, and few cities in the Southeast such as Enugu and Warri with rainfall values which ranged between **1mm – 10mm**.

From figure 6b, while majority of the cities recorded rainfall amounts that appear drier than normal (i.e. less than 90%), others such as Ijebu Ode, Ibadan and Oshodi, had rainfall amounts that are wetter than normal (i.e. more than 110%). However, no city recorded amount(s) that are normal with the long term averages (i.e. between 90% - 110%).

Table 1: Rainfall surplus and deficit across the country in January, 2016.

Station	Long term average (mm)	2016 Rainfall (mm)	Rainfall Departure from Long term mean (mm)	Rain days (days)	One-day exceptional Rainfall (mm)	
					Amount	Day
Surplus:						
Abuja	1.5	0.0	-1.5	0.0		
Akure	12.2	0.0	-12.2	0.0		
Asaba	12.4	0.0	-12.4	0.0		
Awka	13.2	0.0	-13.2	0.0		
Bauchi	0.0	0.0	0.0	0.0		
Bida	2.1	0.0	-2.1	0.0		
Benin	18.6	0.0	-18.6	0.0		
Calabar	29.4	0.0	-29.4	0.0		
Enugu	8.0	1.0	-7.0	0.0		
Gombe	0.0	0.0	0.0	0.0		
Gusau	0.0	0.0	0.0	0.0		
Ijebu Ode	10.6	16.6	6.0	2.0		
Ibadan	4.4	25.5	21.1	2.0	10.5	19 th
Ikeja	13.5	0.0	-13.5	0.0		
Ilorin	6.4	0.0	-6.4	0.0		
Iseyin	11.8	0.0	-11.8	0.0		
Jos	0.2	0.0	-0.2	0.0		
Kaduna	0.0	0.0	0.0	0.0		
Kano	0.0	0.0	0.0	0.0		

Katsina	0.0	0.0	0.0	0.0		
Lafia	2.4	0.0	-2.4	0.0		
Lokoja	2.1	0.0	-2.1	0.0		
Maiduguri	0.0	0.0	0.0	0.0		
Makurdi	6.6	0.0	-6.6	0.0		
Minna	0.7	0.0	-0.7	0.0		
Nguru	0.0	0.0	0.0	0.0		
Ogoja	13.2	0.0	-13.2	0.0		
Ondo	7.5	0.0	-7.5	0.0		
Oshogbo	8.0	22.8	14.8	1.0	22.8mm	18 th
Owerri	25.3	0.0	-25.3	0.0		
Port Harcourt	24.4	0.0	-24.4	0.0		
Potiskum	0.0	0.0	0.0	0.0		
Shaki	9.3	0.0	-9.3	0.0		
Sokoto	0.0	0.0	0.0	0.0		
Uyo	15.7	0.0	-15.7	0.0		
Warri	22.2	1.2	-21.0	1.0		
Yelwa	0.0	0.0	0.0	0.0		
Yola	0.0	0.0	0.0	0.0		
Zaria	0.0	0.0	0.0	0.0		

From table 1 above, which shows the rainfall amount recorded at some selected cities across Nigeria the highest positive and negative departures from long-term averages were over Ibadan (21.1mm) and Calabar (-29.4mm) respectively.

1.4 Socio-economic Impacts of January Weather

The impact of weather across the country in January as regards various aspects of the country's economy especially in the areas of Agriculture, Health, Environment and Water management are enumerated below.

1.4.1 Agriculture

During this month, little agricultural activities were carried out except for irrigation farming in the Northern part of the country. Cities with colder than normal temperatures during this month, had higher plants' cross pollination favouring higher fruit productions.

Therefore, Nigerian Meteorological Agency (NiMet) and Federal Government (FG) should continue partnership with a view to establishing more mechanized irrigation farming systems in most areas to assist in dry season farming to boost food production and security under these harsh weather conditions. Examples of cities with warmer than normal temperature departures are Katsina, Maiduguri, Lafia, Yelwa and most parts of the Southern cities.

1.4.2 Health

January 2016 was characterized by occasional raising of harmattan dust haze which brought about nationwide cases of heat rashes, dehydration, cough and breathing related problems caused by the high particles of aerosols in the air.

1.4.3 Environment

This month was characterized by frequent reduction of horizontal visibility by the occurrence of dust haze arising from dust plumes raised at the various source regions or locally within the country. These had challenges of impaired vision, occasional cancellation of flights by airline operators, etc. Also due to the occurrence of harmattan dry winds during this month in review, the atmosphere was predominantly dry and cold.

1.4.4 Water Resources

As a result of the high temperatures, dry and dusty climatic conditions experienced resulted in shortage/depletion of the Dam water level, which could be one of the

reasons there was drop in power generation witnessed in January. Also as a result of little or no rainfall during this month, there was pressure on the available water both for irrigation and other water uses.

2.0 February 2016

2.1. Synoptic Features

The **Intertropical discontinuity** (ITD) started its Northwards oscillation from **6.1°N** mean position in 3rd dekad of January to approximately **6.7 °N** in the **1st dekad** of February. It proceeded further Northwards to about latitude **7.7°N** in the **2nd dekad** of the month and eventually attained **8.3 °N** in the **3rd dekad**. It therefore oscillated between **6.7 °N** and **8.3°N** which gave a mean latitudinal position of **7.6°N** for the month. This made Southern parts of the country to be under the influence of moist South-westerly at the surface while the Northern and central states were under the influence of dry North-easterly winds. This brought about sunny and dust haze conditions during the month.

The Mean Sea Level Pressure values over the country ranged between **1005hPa – 1017hPa** within the month with the **1015hPa** line at lowest position at latitude **10°N**. The mean center value of **Azores High** pressure belt over the Northern hemisphere was **1032hPa, 1030hPa, and 1028hPa** for the **1st, 2nd and 3rd** dekad respectively. And the monthly mean value was **1030hPa** with daily fluctuation between **1024hPa – 1035hPa**. While that of **St. Helena** at Southern hemisphere fluctuated daily between **1019hPa – 1031hPa** with mean dekad values of **1023hPa, 1027hPa and 1023hPa** for **1st, 2nd and 3rd** dekad respectively. The monthly mean value was **1024hPa**.

On the **925hPa Chart (about 750m)** as shown on Figure 7b, influx of moist South Westerly (SW) winds is restricted mainly to the Southern cities and occasional Northward surge during the month. Also a strong North Easterly winds prevailed with occasional dust plume over the North and the Central areas of the country, especially during the 1st and 3rd dekad of the month. The intrusion of the plume in the month reduced horizontal visibility drastically to as low as about 200m, 400m and 500m over some places in the North and Central states during the month.

A close study of **850hPa chart (1500m)** revealed that a total number of **5 vortices** traversed the country during the month. Though the wind flow were mostly Easterly to North easterly but there were few cases with prevalence of Westerly to South westerly winds over the Southern states during the month.

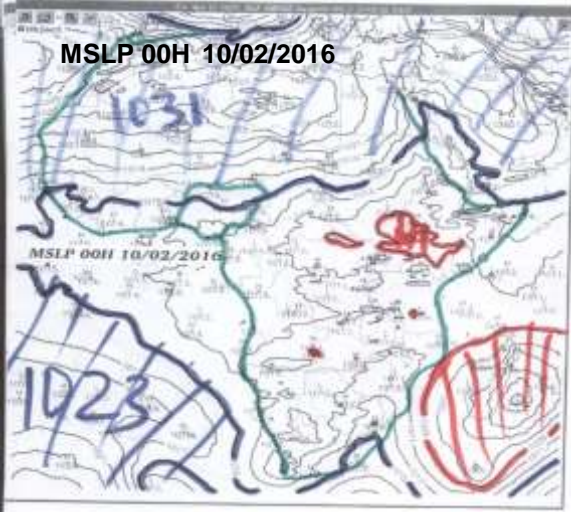


Fig6a: MSLP charts during the month



Fig6b: 925hPa Chart in Feb. 2016

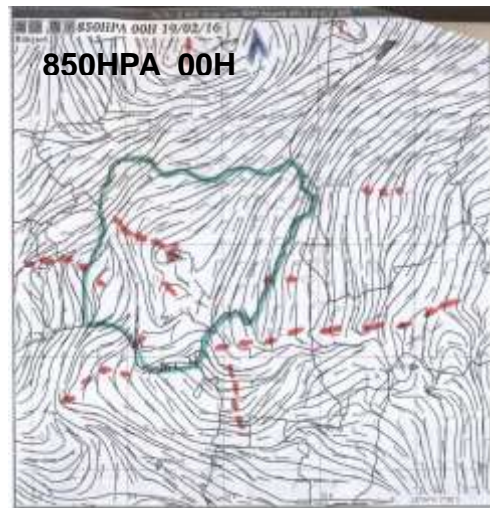


Fig 6c: 850hPa Chart in Feb 2016

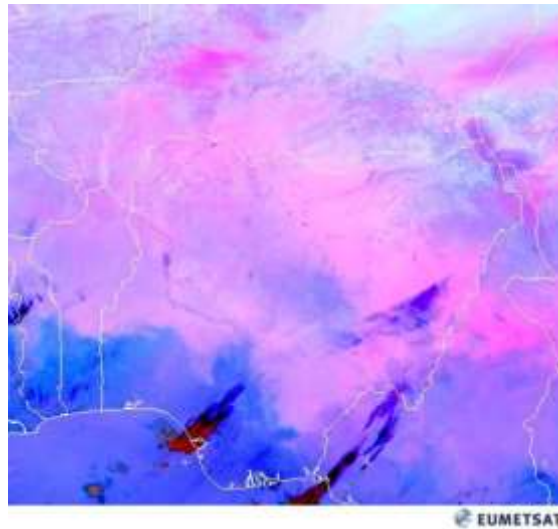


Fig 6d: Satellite imagery showing Dust plume over country in February

2.1. Temperatures

2.1.1 Maximum temperature

The average maximum temperatures recorded ranged from 31.1 – 38.7°C across the country (Fig.9a). The lowest values in the range of 31.0°C– 33.0°C were observed over Jos, Kano, Bauchi and Katsina. The coastal cities with exception of Port Harcourt, the North east and some cities like Sokoto, Gusau and Kaduna in the North-West recorded temperature within 33°C and 36°C while the highest temperatures (36°C-39.0°C) were recorded over the Central states, Port Harcourt and some parts of the inland cities of the South such as Abeokuta, Iseyin, Oshogbo, Enugu, Awka, Ogoja and Ikom.

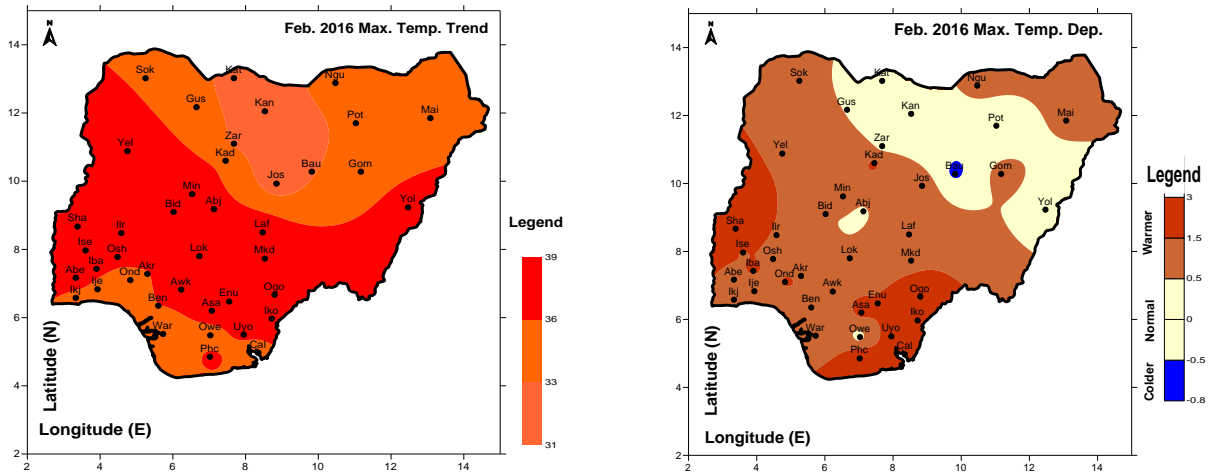


Fig 7a: February 2016 Maximum Temperature **Fig 7b: Departures from- long-time averages**

From Figure 9b, the deviation of the maximum temperatures from long-term average show that the larger parts of the country recorded warmer than normal maximum temperatures during the day. Abuja, Kano, Potiskum, Gusau, Katsina, Yola and Owerri in the South observed normal maximum temperatures. Apart from Bauchi that depicted colder than normal, elsewhere from the coastal cities up to the Central cities including Yelwa, Sokoto, Nguru and Maiduguri in the North experienced varying degrees of warmer than normal maximum temperatures.

2.1.2 Minimum temperature

Minimum temperatures in the month generally ranged from 13.0 – 25.8°C as seen in Fig. 10a. The lowest range of night time temperature values between 13.0 – 17.0°C were recorded over the North Eastern region while the Northwest states and other places like Abuja, Lafia, Makurdi, Gombe and Yola had minimum temperatures values between 17°C and 22°C. Aside from Oshogbo which also recorded a low minimum temperature, the whole Southern half of the country including Minna, Bida, and Lokoja fell within a range of 22 - 26°C.

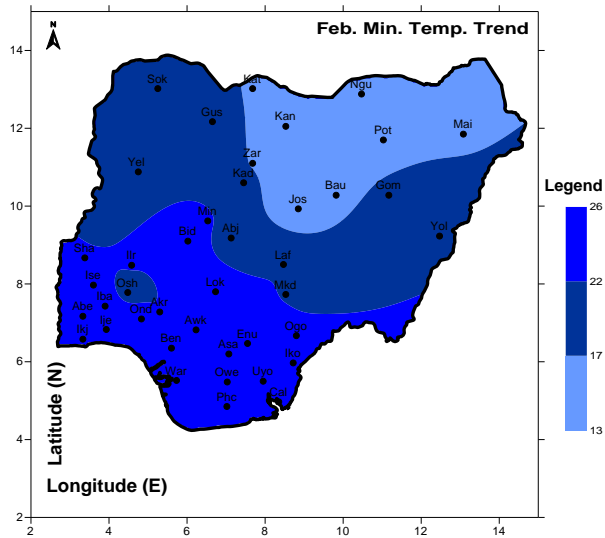


Fig 8a: March 2015 Minimum Temperature

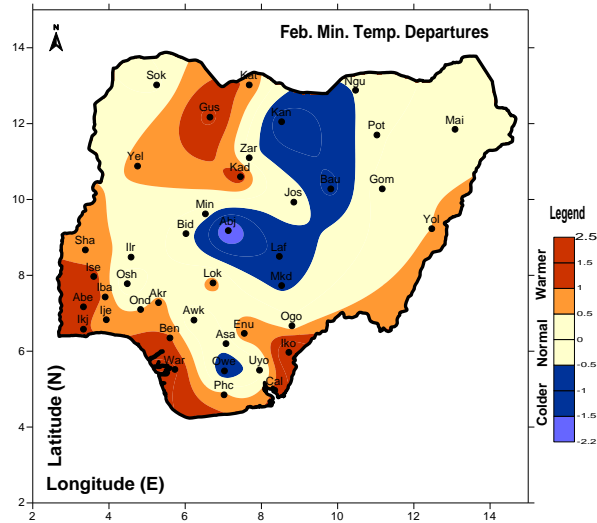


Fig 8b: Departures from- long-time averages

Minimum temperature deviation from long-term averages depicted colder than normal in the range of 0.5°C- 2.2°C over Abuja, Kano, Bauchi, Lafia and Owerri. Areas with different degrees of warmer than normal include the Coastal cities like Port Harcourt, Calabar, Warri, and Lagos including parts of the inland cities such as Abeokuta, Ilorin, Shaki, Enugu and some places in the North which are Gusua, Yelwa, Katsina and Kaduna. The remaining parts of the country experience normal minimum temperatures during the month.

2.1.3 The Mean Temperature

Figure 11 shows that Sokoto, Nguru, Potiskum, Maiduguri, Yola, Bida, Makurdi, Lafia, Zaria, Owerri, Akwa and Oshogbo observed normal temperature conditions during the month under review. However, Abuja, Kano and Bauchi were colder than normal. The rest of the country experienced warmer than normal temperatures as Shaki, Ikom and Port harcourt took the lead.

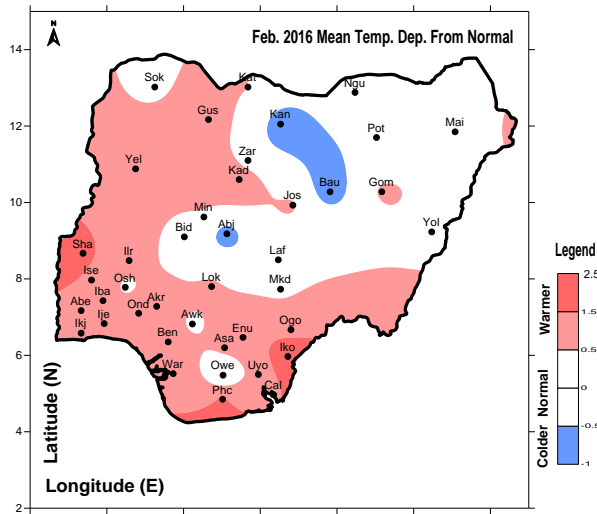


Fig 9: Departures of Mean Temperature from long Time Average

2.2. Rainfall

Rainfall amounts in the month ranged between 0.0mm (over the North, the Central and parts of the Southern states) to 29.4mm which was the highest rainfall value in the month and it was recorded over Owerri. (Fig.12a) Larger part of the country from the cities in the extreme North through to the Central states down to the Southern cities such as Ogoja, Ikom, Shaki, Iseyin and Akure observed rainfall amount ranging between 0.0mm – 2.0mm during the month under review. Oshogbo, Benin, Part of Ondo and Calabar observed rainfall values between 2.0mm and 10.0mm. Ijebu Ode, Awka, Asaba and Owerri recorded values that ranged between 10.0mm and 30.0mm. Rainfall observation in the month revealed that the first rainfall recorded was on 20th over Ijebu Ode (4.6mm) while the second was on 22nd over Marine (5.4mm). Third rainfall occurred on 23rd over Owerri (5.9mm).

Rainfall in February compared with long term average values Fig 12b. Rainfall in February compared with 1981-2010 average values showed that all the Northern states, the central cities including Asaba in the South experience normal in term of rainfall. Only Awka had positive departure (wetter than normal) during the month. With the exception of Akwa, other places in the South experienced rainfall deficit varied in degrees with higher degree to the coastal cities such as Port Harcourt, Calabar, Yenagoa, Warri, Lagos and Ondo while lesser degree of deficit were recorded as we move inland to places like Oshogbo, Iseyin, Ilorin, Enugu Ogoja and its environs.

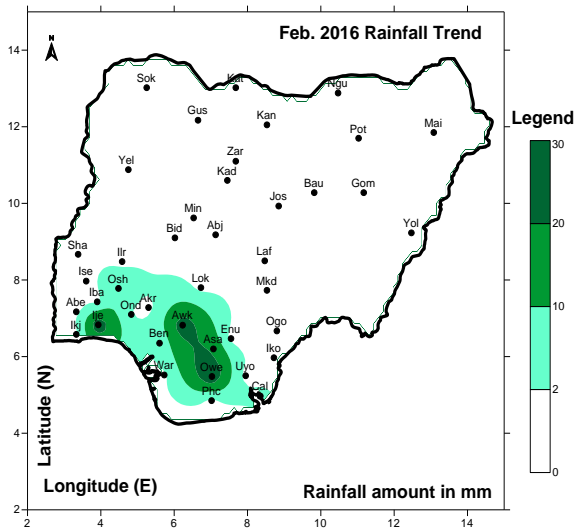


Fig 10a: February 2016 Rainfall Trend

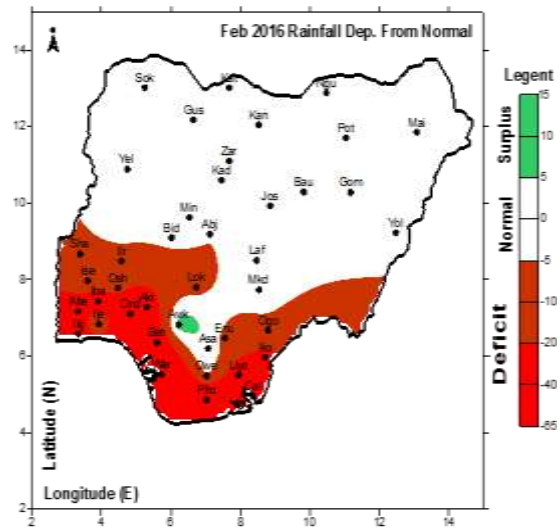


Fig 10b: February 2016 Rainfall Anomaly

Information on rainfall amount: Departure from long term average and rain days for some selected stations is as presented in Table 2 below:

Table 2: Information on cases of rainfall surplus and deficit in February.

City	Rainfall (mm)	Long-term means (mm)	Departures from long-term means (mm)	Rain days
Surplus				
Awka	26.0	15.1	10.9	1
Deficit				
Abeokuta	0.0	25.3	25.3	nil
Akure	0.0	33.8	33.8	nil
Benin	2.4	41.9	39.5	1

Calabar	3.5	37.6	34.1	2
Ibadan	0	27.0	27.0	nil
Ijebu-Ode	22.1	31.8	9.7	4
Ikeja	0.0	29.2	29.2	nil
Ikom	0.0	24.3	24.3	nil
Owerri	29.4	33.0	3.6	2
Warri	0.7	57.1	56.4	1
Port Harcourt	0.0	51.9	51.9	nil

The table above shows that the month was largely characterised by rainfall deficit. Most of the Southern states where some reasonable amounts of rainfall were expected during the month under review recorded little or nothing. Hence, all the states in the South had negative departures (deficits) from long-term averages.

2.4. Socio-economic impacts

2.4.1. Agriculture

Rainfall deficit recorded over the Southern cities delayed the commencement of agricultural activities like planting; also a few places where they commenced there were possibilities of spending more money on irrigation and this affected the yield and the prices of farm produce.

2.4.2 Health

Higher than normal temperature conditions that prevailed over larger parts of the country in the month coupled with intrusion of dust reduced comfort and increased the possibility of heat related diseases like heat stroke.

2.4.3. Environment

The intrusion of dust haze into the country from the dust source region and constant injection of dust particle into the atmosphere reduced horizontal visibility considerably. Hence resulting in flight delays/cancellations during the month under review.

2.4.4. Water Management

The deficit of rainfall observed over most places around the South during the month led to shortage of water usage, most especially the rural dwellers in and around the Southern areas that depend on perennial streams and river waters for their house chores. The migration of herds men in search of water for their animals also increased in the month and brought about conflict with host communities. The drier than normal conditions recorded within the country in the month had a negative effect on ground water level over some areas with chain impact on Marine, Agriculture and Hydrology sub-sectors.

3.0 March 2016

3.1 Synoptic Features

The **Intertropical Discontinuity (ITD)**, which is the meeting point between the **dry North easterly winds** and the **moist South westerly winds** surged Northwards from its mean latitudinal position of 8.3°N in the 3rd dekad of February to latitude 10.6 °N in the 1st dekad of March. The ITD further moved Northward to latitude 11.7°N in the 2nd dekad then retreated Southwards to rest at latitude 10.1°N by the 3rd dekad of the month. The ITD therefore fluctuated between latitude 10.1°N and latitude 11.7°N and maintained a mean monthly latitudinal position of 10.8°N. This Northward surge was responsible for the unprecedented rainfall recorded within the month.

The Mean Sea Level Pressure values over the country ranged between **1005hPa – 1014hPa** within the month with the **1015hPa** line at an approximate latitudinal position of **18.0°N** above the Country. The mean center value of **Azores high** Pressure belt over the Northern hemisphere was **1028hPa, 1023hPa, and 1025hPa** for the **1st, 2nd and 3rd** dekad respectively. The mean monthly value was **1025hPa** with daily fluctuation between **1019hPa – 1031hPa**. While that of **St. Helena** at Southern hemisphere fluctuated daily between **1021hPa – 1033hPa** with mean dekad values of **1026hPa, 1028hPa and 1027hPa** for **1st, 2nd and 3rd** dekad respectively. The monthly mean value was **1027hPa**.

The center of the **Equatorial Low Pressure** was located regularly in the country most especially from the middle to the end of the month with Pressure values of **1009hPa** and below and the lowest value recorded over the country within the month was **1005hPa**.

The 925hPa Chart (about 750m). Moisture laden South Westerly (SW) winds dominated a greater part of the country. This moist winds extended as far as the northern parts aiding rainfall activities over parts of the north. Dry north easterly winds were observed on the 14th, 15th and 16th, with some haziness reported over the northeastern part of the country on the 14th day of the month.

The 850hPa chart (1500m above the surface): The prevailing winds at this level was the dry North easterly winds. However, there was incursion of moist Southwesterly winds over the South, which extended to parts of the central states and the North during the first 4 days of the 2nd dekad. 3 vortices traversed the country during the

month. These aided copious rainfall amounts in many places including ijebu-Ode, Iseyin, Benin, Shaki and Port Harcourt.

3.2 Temperatures

3.2.1 Maximum Temperature

Maximum Temperature distribution within the month ranged between 32.0°C – 41.0°C (Fig 13a). The highest and least maximum temperature values of 41.0°C and 32.0°C was recorded over Yola and Jos respectively. Temperatures were generally within the range of 32.0°C -35.0°C over the South and part of the central (Jos), 35.0°C -38.0°C over the central cities and 38.0°C -41.0°C over the North.

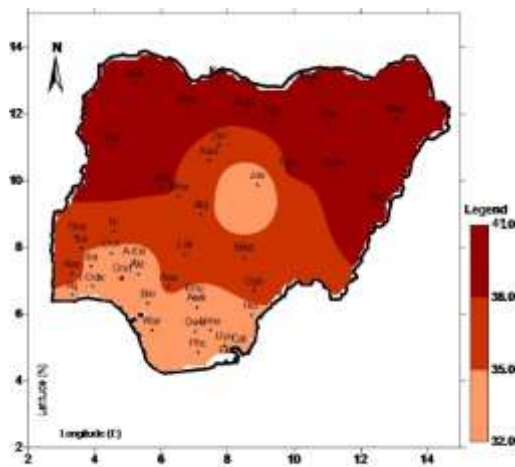


Fig 13a: March 2016 maximum temperature

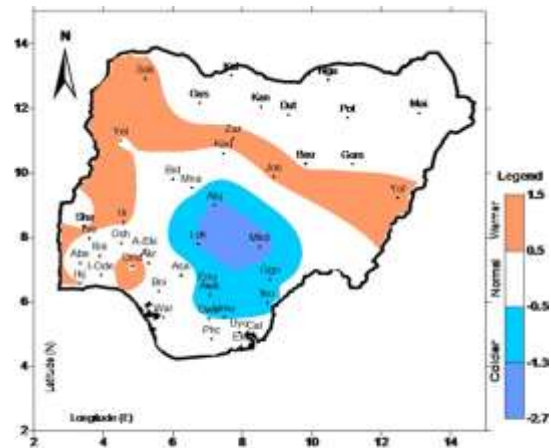


Fig 13b: March 2016 maximum temperature departure

Maximum temperature departure from its long term normal showed more of a normal temperature distribution. There was however a warmer than normal temperature distribution over Sokoto, Zaria, Jos, Yola, Ilorin and Ikeja. The cities of Abuja, Lokoja, Makurdi, Ogoja, Enugu, Umuahia and Ikom had colder than normal maximum temperatures by as much as -0.5 – 2.7 °C (Fig 13b).

3.2.2. Minimum temperature

Minimum temperature distribution ranged between 19.0 – 30.0°C (Fig c). The city of Jos recorded the least minimum temperature of 19.1°C. The cities of Katsina, Kano, Dutse, Nguru, Potskum, Bauchi, Zaria, Kaduna, and Abuja, and the Southern cities

excepting Ogoja, Enugu, Warri, Abeokuta, Ikeja, and Ijebu-Ode recorded minimum temperatures between 21.0°C-25.0°C.

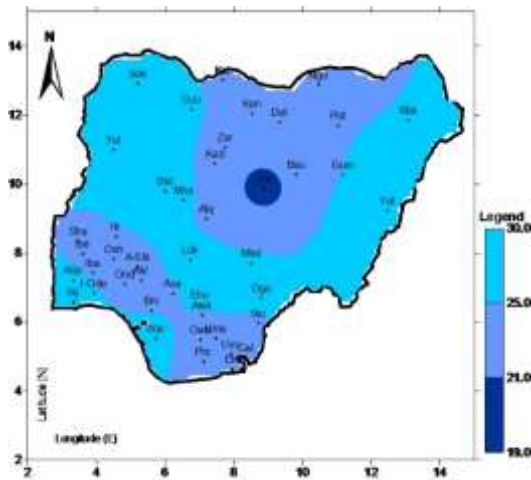


Fig 14a: March 2016 minimum temperature

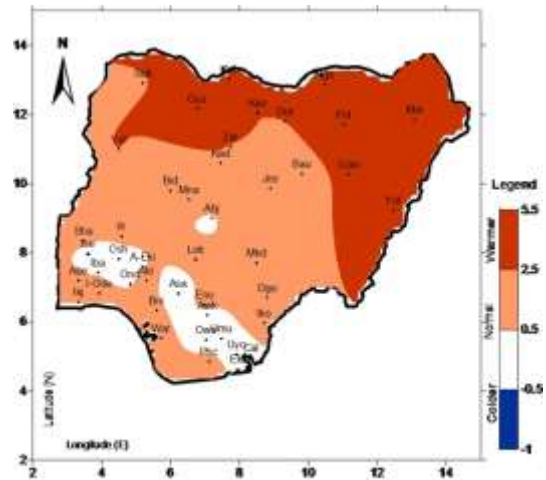


Fig 14b: March 2016 minimum temperature departure

The departures of minimum temperature from its long term average showed temperatures were more on the hot side as warmer than normal minimum temperatures prevailed. Very striking is the departures over Maiduguri, Gusau, Gombe, Katsina and Postiskum that were warmer by as much as 5.3°C, 4.0°C, 3.0°C, 4.2°C and 4.1°C respectively (Fig 14b). This is reflective of WMO’s claim that 2015 is the hottest year on instrumental record.

3.2.3 Mean temperatures

The average temperature distribution for the month is quite similar to the minimum temperature departures showing more of warmer than normal temperature conditions. The South and cities in the central states such as Minna, Lokoja and Bida had normal temperatures while Abuja and Makurdi were colder than normal (Fig 15).

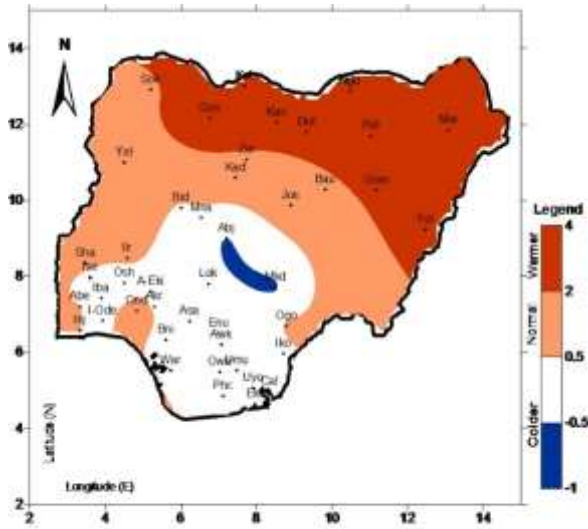


Fig 15: March 2016 Mean temperature departure

3.3 Rainfall

The month recorded rainfall amounts up to 383.2mm. The distribution was broad as the Northern cities excluding Katsina, Nguru and Maiduguri recorded 0.5mm which was negligible. This shows that rains came quite early this year. Rainfall was heavier over the delta region and the South with distribution of about 120.0 – 390.0mm. The Central cities and parts of the North recorded rainfall amount less than 120.0mm (Fig 16a).

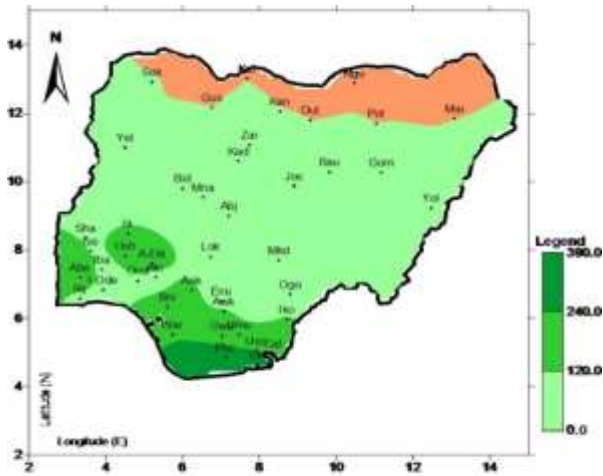


Fig 16a: March 2016 rainfall

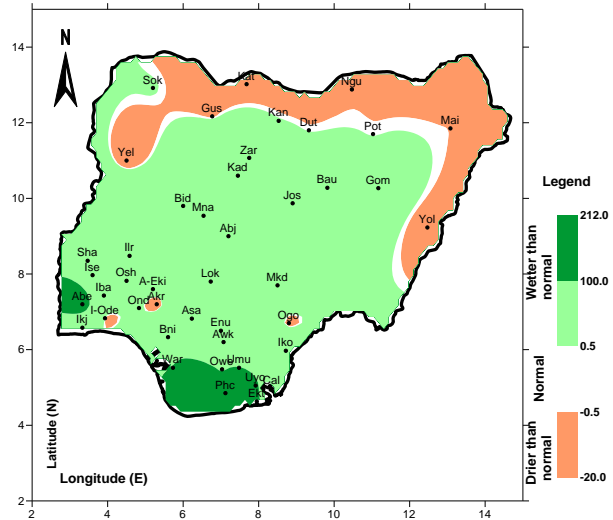


Fig 16b: March 2016 Rainfall departure

There was ample rainfall within the month and bulk of this rainfall was concentrated over the Southern cities. Places such as Port Harcourt, Uyo, Eket and Abeokuta had rainfall exceeding 100.0 mm above their long term values. Wetter than normal rainfall distribution prevailed over most places except Ijebu-Ode, Akure, Ogoja, Yola, Yelwa, Gusau, Katsina, Nguru and Maiduguri that had drier than normal conditions. Dutse and Potiskum had normal rainfall conditions (Fig 16b).

Table 3: Below is a summary table for the rainfall of March 2016.

City	Rainfall (mm)	Long-term means (mm)	Departures from long-term means (mm)	Raindays
Abeokuta	232.9	64.4	168.5	9
Gombe	15.5	2.9	12.6	1
Bauchi	11.8	2.9	8.9	1
Nguru	0.0	0.5	-0.5	0
Sokoto	1.5	0.0	1.5	1
Makurdi	52.6	13.9	38.7	5
Enugu	53.8	52.3	1.5	8
Ikeja Lagos	71.0	67.9	3.1	6
Lokoja	81.8	21.9	59.9	4
Ilorin	137.4	40.1	97.3	6
Kaduna	95.1	7.9	87.2	4
Port Harcourt	309.7	99.0	210.7	16
Abuja	52.7	21.6	31.1	8
Zaria	33.2	7.9	25.3	5

The table above shows copious rainfall amounts were received in many parts of the country, both in the South and the North. Most places were wetter than normal. Nguru however was drier than normal.

3.4. Socio-economic impacts

3.4.1. Agriculture.

Most parts of the country had deficit soil moisture conditions while normal to surplus conditions were recorded in and around Awka, Benin, Calabar, Eket, Ijebu-Ode, Ilorin, Iseyin, Kaduna, Lokoja, Oshogbo, Umuahia and Uyo. In line with the soil moisture conditions, farming activities were favourable for farmers in the South West, Niger Delta and South East while farmers in the Central states commenced bush clearing and other preparatory activities in view of the onset of the growing season expected to commence in a few dekads. Farmers across the northern flank of the country continued irrigation farming.

3.4.2. Water Management

Many parts of the country especially in the southwest, southeast, south-south and the north central recorded above normal rainfall due to unprecedented early rains. The situation in the southern parts is indication of good start of the 2016 rainy season. There was a gradual relaxation of dry conditions in the South as the onset dates of the growing season approached. Agricultural and hydrological activities were expected to pick up especially in the central states during April. There was equally a gradual pick-up of flow over rivers and streams in the South.

3.4.3 Environment

A drier-than-normal condition following high temperatures and increased evaporation effects in the northern flank of the country would probably create water stress for animal breeding, and this has impacted negatively in the sector during the month under review. The Fulani herdsmen would travel far and wide to get fodders for their cattle and this would result into clash/dispute with the host communities because of trespasses on their farmlands.

3.4.4. Health

High temperatures persisting for several days in many parts of the north was likely to create the condition for increased heat related ailments in these states.

3.5. March 2016 ENSO Update

The strong El Niño of 2015/16 is on the decline, and the CPC/IRI forecast says it's likely that conditions will transition to neutral by early summer, with about a 50% chance of La Niña by the fall.

El Niño has begun to weaken, with sea surface temperature anomalies across most of the equatorial Pacific decreasing over the past month. The large amount of warmer-than-average waters below the surface of the tropical Pacific (the

“heat content”) also decreased sharply, despite getting a small boost in January. The heat content is the lowest it’s been in over a year, and since the subsurface heat feeds El Niño’s warm surface waters, this is another sign that the event is tapering off.

That said, there’s still a lot of extra heat in the tropical Pacific, and we expect El Niño’s impacts to continue around the world through the next few months. So far this winter, global rain and snow patterns have mostly been consistent with the expected patterns of El Niño, with some exceptions.