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MESA
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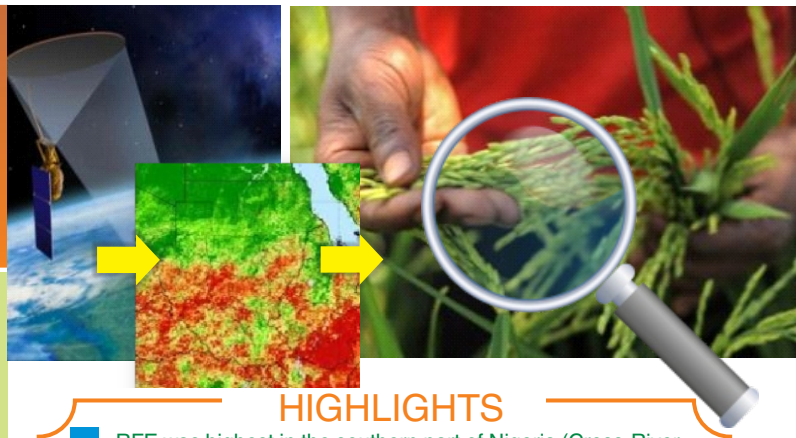

DEFINITIONS OF ACRONYMS

RFE = Rainfall Estimate
NDVI = Normalized Difference Vegetation Index
SDVI = Standardized Difference Vegetation Index
ADVI = Absolute Difference Vegetation Index
LTA = Long Term Average (Historical Mean from 2000 - 2016)
Dekad = 10-day period

HIGHLIGHTS

- RFE was highest in the southern part of Nigeria (Cross-River, Akwa-Ibom and Ebonyi States) but lowest in the northeastern region (Jigawa, Yobe, and Bauchi States) during October, 2017
- NDVI was highest in the northcentral (Taraba, Ekiti, Kwara and Nassarawa Sates) during and poor vegetation development was observed in Yobe, Bayelsa, Sokoto and Rivers States
- Negative NDVI anomaly observed in Etinan LGA of Akwa-Ibom State may have negative implications for rain-fed Agriculture in the area.

Nigeria RFE and RFE Anomaly (October, 2017)

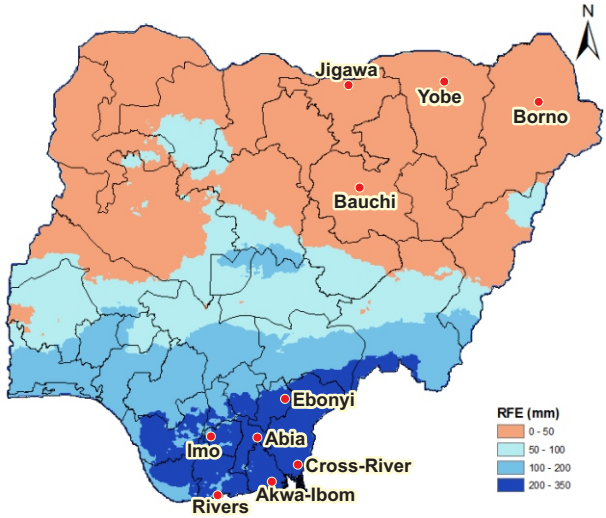

Figure 1: Nigeria Rainfall Estimate (October, 2017)

During the month of October, 2017, Satellite images revealed that relatively high rainfall was prominent across several states in the southern part of Nigeria (Figure 1). Exceptionally high rainfall, much of which was received during the first dekad of the month (Figure 2a), occurred in Cross-River (288.45 mm), Akwa-Ibom (253.98 mm), Ebonyi (231.73 mm), Abia (219.49 mm), Rivers (216.54 mm) and Imo (2019.47 mm) States. It was observed that rainfall drastically reduced across the country during the second and third dekads (Figures 2b and 2c respectively)of the month, compared to the quantity received during the first dekad. This may indicate a wrapping up of the rainy/wet season for the Nigeria 2017 crop year.

States in Northeast Nigeria such as Jigawa, Yobe, Bauchi and Borno were observed to have recorded very low rainfall during this period, with estimates of 2.68 mm, 4.90 mm, 6.68 mm and 10.63 mm respectively. Aridity was also found to progress across the norhern landscape during the month.

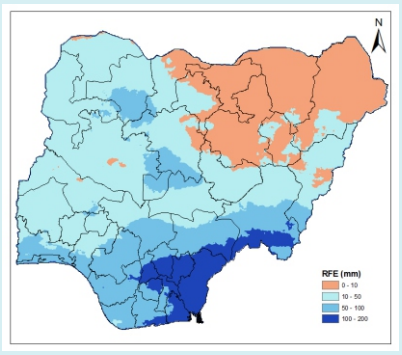

Figure 2a: Nigeria Rainfall Estimate- October, 2017 1st dekad (October 01-10)

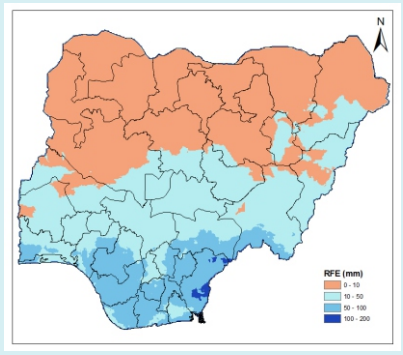

Figure 2b: Nigeria Rainfall Estimate- October, 2017 2nd dekad (October 11-20)

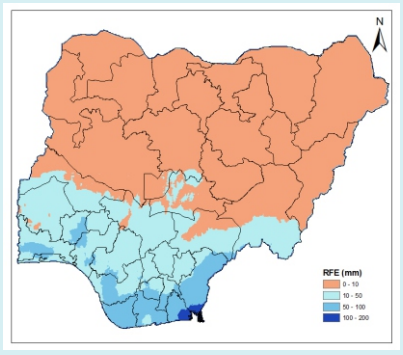

Figure 2c: Nigeria Rainfall Estimate- October, 2017 3rd dekad (October 21-31)

Highly positive anomaly for RFE was observed in Lagos Island LGA of Lagos State, Bakassi LGA of Cross-Rivers State, Opobo LGA of Rivers State and in Maigatari LGA of Jigawa State among other areas during the first and second dekads of October, 2017 (Figures 3a-3b). During the third dekad however, virtually all parts of Nigeria recorded negative RFE anomaly to varying degrees (Figure 3c). This observation could be indicative of significant rise in temperature when compared to historical years. Extreme negative RFE anomaly occured in Potiskum and Nangere LGAs of Yobe State, Ngala LGA of Borno State, as well as Damban LGA of Bauchi State.

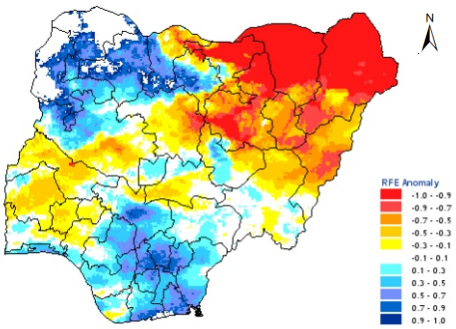

Figure 3a: Nigeria RFE Anomaly- October, 2017
1st dekad (October 01-10)

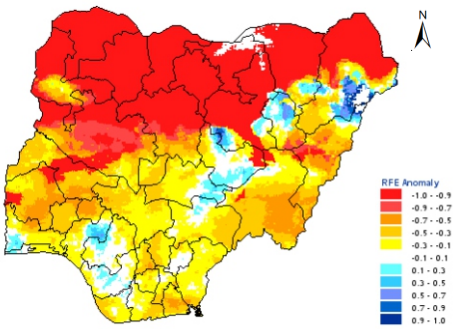

Figure 3b: Nigeria RFE Anomaly- October, 2017
2nd dekad (October 11-20)

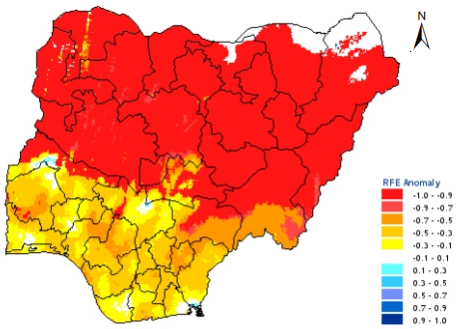

Figure 3c: Nigeria RFE Anomaly- October, 2017
3rd dekad (October 21-31)

Nigeria NDVI and NDVI Anomaly (October, 2017)

NDVI from satellite images showed Nigeria vegetation development for October, 2017 (Figure 4) to be highest along the north-central (middle-belt) region. Highest greenness was observed in Taraba, Kwara, Nassarawa, Kogi and Ekiti States, as well as in the FCT (Abuja). On the other hand, areas where vegetation developed poorly in all the three dekads of the month (Figures 5a-5c) include most interior northern states such as Yobe, Jigawa, Sokoto, Katsina and Borno States. Other parts of the country where low NDVI persisted during this period are the South-South States, comprising Bayelsa, Rivers, Akwa-Ibom and Delta States. The Lake Chad area in the northeastern region was also found to retain relatively high greenness, even though much of the host State (Borno) experienced harsh vegetation conditions. Harvesting of rain-fed crops in most Nigerian States is expected to have started, while late harvesting of certain crops such as rice in Northern Nigeria is expected to commence by November/December.

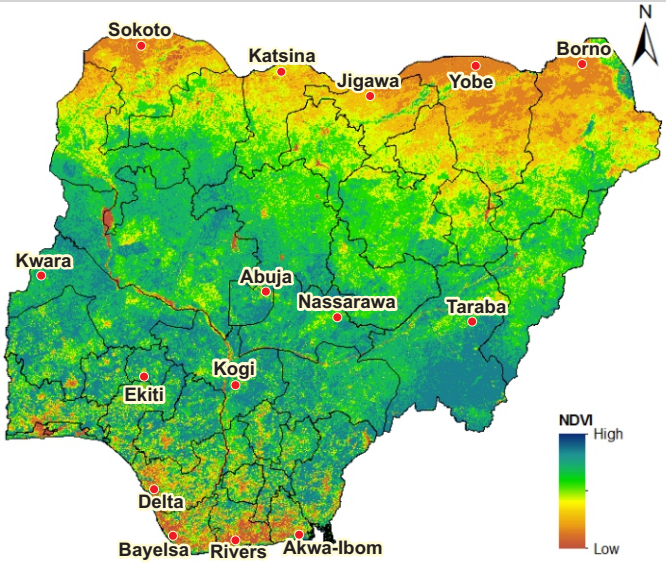

Figure 4: Nigeria NDVI (October, 2017)

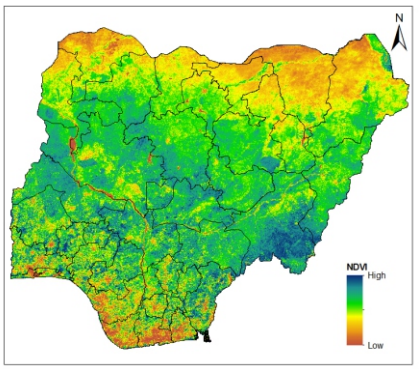

Figure 5a: NDVI of Nigeria- October, 2017
1st dekad (October 01-10)

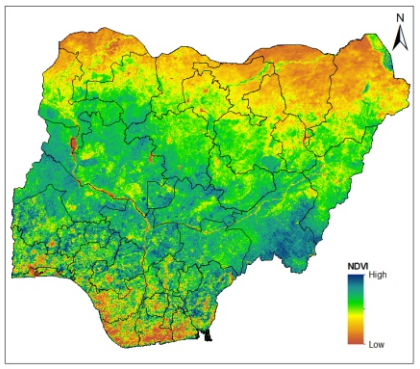

Figure 5b: NDVI of Nigeria- October, 2017
2nd dekad (October 11-20)

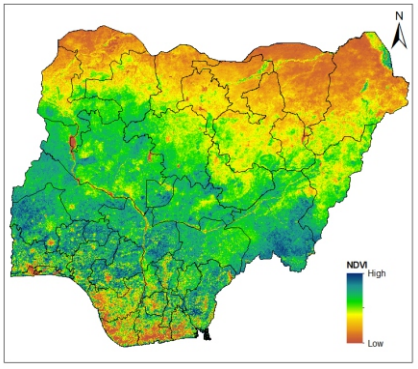

Figure 5c: NDVI of Nigeria- October, 2017
3rd dekad (October 21-31)

Highly positive NDVI anomaly was largely observed in many northern States during the three dekads of October, 2017 (Figures 6a-6c). These include: Kebbi, Zamfara, Sokoto, Katsina, Kaduna and Kano States. However, negative departure from historical mean NDVI (2000-2016) was recorded in Southern States like Akwa-Ibom, Bayelsa, Rivers, Delta, Imo, Abia, Ekiti, Ondo, Ogun, Osun, Edo and Imo. Prolonged negative anomaly in observed NDVI may result in reduced cropland output over a long period of time, and might be indicative of impending drought in an area.

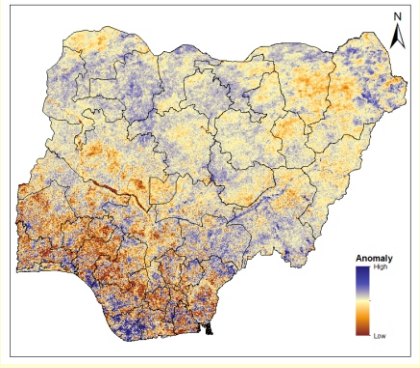

Figure 6a: Nigeria NDVI Anomaly- October, 2017
1st dekad (October 01-10)

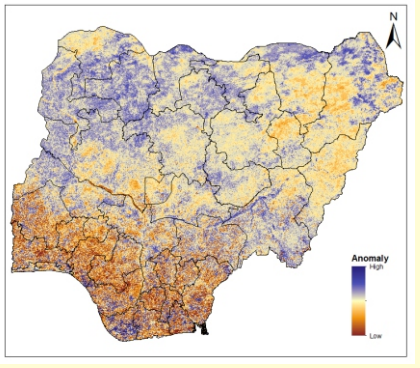

Figure 6b: Nigeria NDVI Anomaly- October, 2017
2nd dekad (October 11-20)

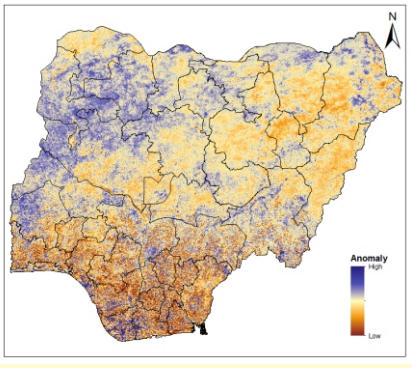

Figure 6c: Nigeria NDVI Anomaly- October, 2017
3rd dekad (October 21-31)

RFE and NDVI Anomalies in Selected Local Council Areas (October, 2017)

(1) Shagari Local Government Area, Sokoto State

Long-term RFE and NDVI analyses for the three dekads of October, 2017 (Figure 7) showed that Shagari Local Government Area of Sokoto State recorded highly positive NDVI anomaly, especially during the third dekad, due to a sudden spike in rainfall during the first and second dekads of September. The NDVI anomaly for the LGA was in the negative during the months of June, July and August due to RFE significantly lower than historical mean RFE during these periods, but started to pick up towards positive anomaly from the first dekad of October.

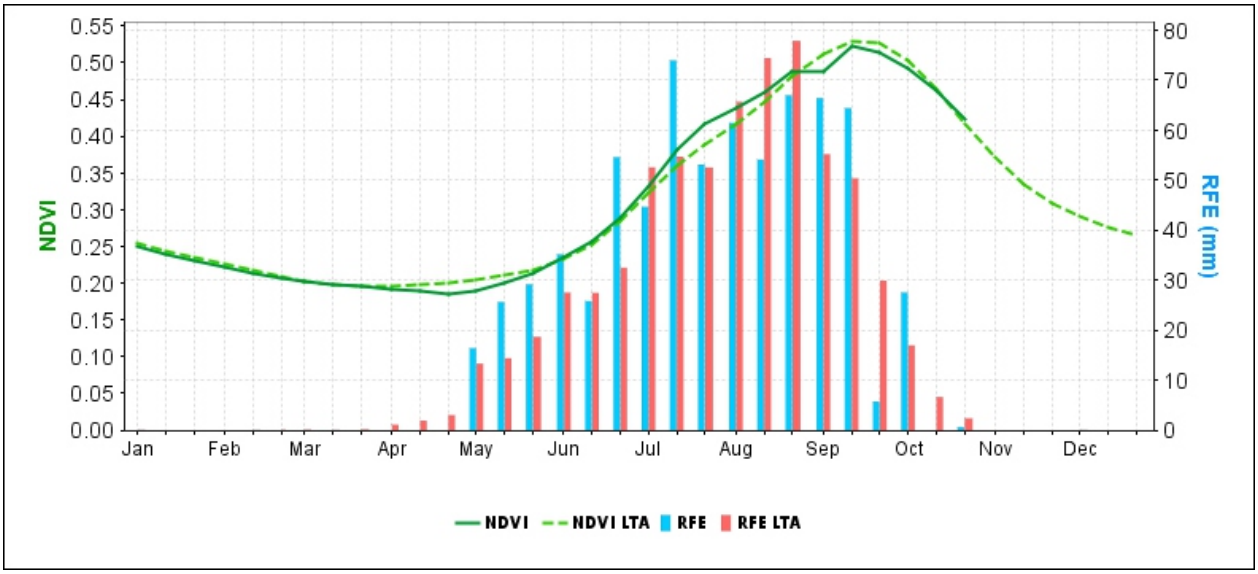

Figure 7: NDVI and RFE Anomalies of Shagari LGA, Sokoto State

(2) Etinan Local Government Area, Akwa-Ibom State

On the other hand, negative NDVI anomaly was recorded in Etinan Local Government Area of Akwa-Ibom State during this period (Figure 8). Since the LGA did not receive lower rainfall compared to the long-term average in most of the preceding dekads of 2017, this could be attributed to the possibility of flooding or other factors that could trigger poor vegetation development in the area. Nevertheless, the implication of this on rain-fed agriculture in the area is negative, and if prolonged, may threaten the production capacities of croplands and food security at large.

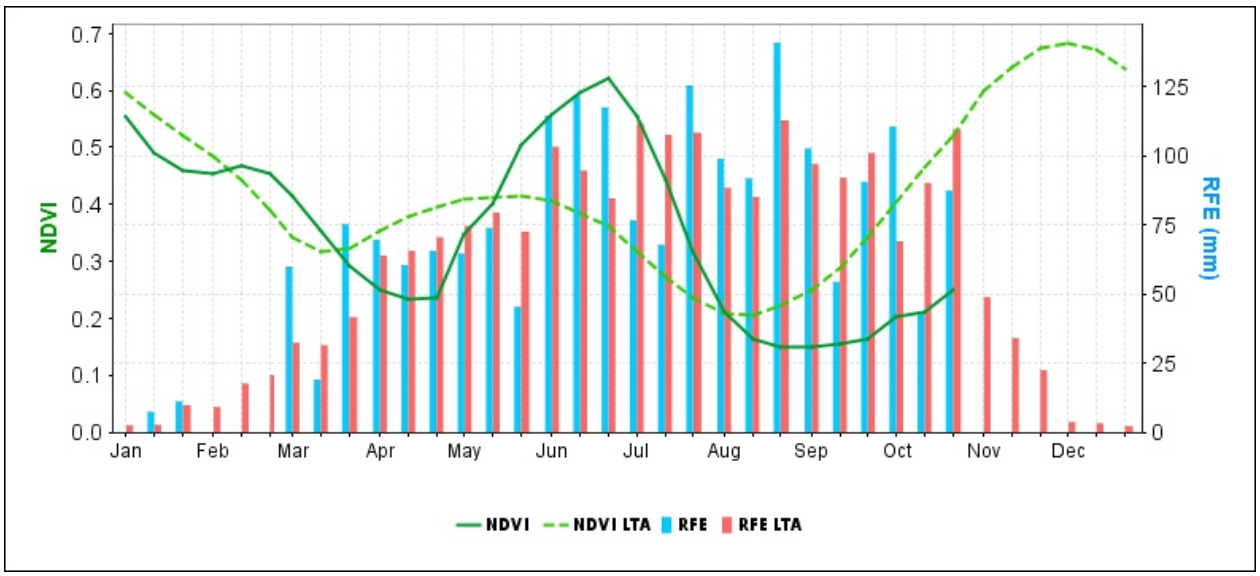

Figure 8: NDVI and RFE Anomalies of Etinan LGA, Akwa-Ibom

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