

Ten Days Climate Diagnostics Bulletin

N°19

Dekad 1, 1th to 10th July 2021

HIGHLIGHTS

The first dekad of July observed a variety of climatological variations across the continent, ranging from an increase in precipitation in some regions to a decrease in others. The majority of Central Africa and the Gulf of Guinea countries received above-average to well-above-average rainfall, with pockets of below-average to well-below-average rainfall in some locations in southern Sudan, Chad and south of Niger. In eastern Ethiopia, rainfall was well above average. Rainfall was near average in both North and South Africa.

This situation was characterized by low pressure activities over mid-latitude and equatorial regions with warm SSTs conditions in the Gulf of Guinea regions.

The forecasts show that during the weeks of 20th to 26th July 2021, and 27th July to 02 August 2021, low to moderate/moderate to heavy precipitation is expected over western, central and eastern African countries. Heavy precipitation is expected over Guinea, Gambia, Sierra Leone, Senegal, Liberia, south west Ethiopia and north east of Sudan.

Figure 7b shows that during the week of 20th to 26st of July, there will be a reduction in precipitation over some coastal cities because of the set in of the short dry Season. Countries will continue to observe low to moderate/ moderate to heavy precipitation as in the previous week.

1.0 GENERAL CLIMATOLOGICAL SITUATION

Subsection 1.1 provides the strength of the surface pressure systems, ITD, CAB and ITCZ displacements, while subsection 1.2 is on the troposphere and gives a brief summary on monsoon and relative humidity thresholds.

1.1 SURFACE

Pressure Systems

- **The Azores High** observed a central value of 1025hPa, intensified by 1hPa compared to the previous dekad and relaxed by 1hPa compared to the climatological mean (1991-2020). The high pressure was located at 54°W and 31°N and moving south west of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1024hPa strengthened by 6hPa compared to the previous dekad and less by 1hPa compared to the climatological mean (1991-2020). It was located at 23°W and 12°S. It moved north eastwards from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1027hPa intensifying by 2hPa compared to the previous dekad. It equally moved north east of its climatological position over the Indian Ocean and was located at 64°E and 29°S with 2hPa increase from climatology.
- **Heat Low:** The low-pressure system at the east of Chad with a central value of 1007hPa deepened by 2hPa compared to the previous dekad, maintaining its position of 15°E and 16°N over the border of Chad and Niger.

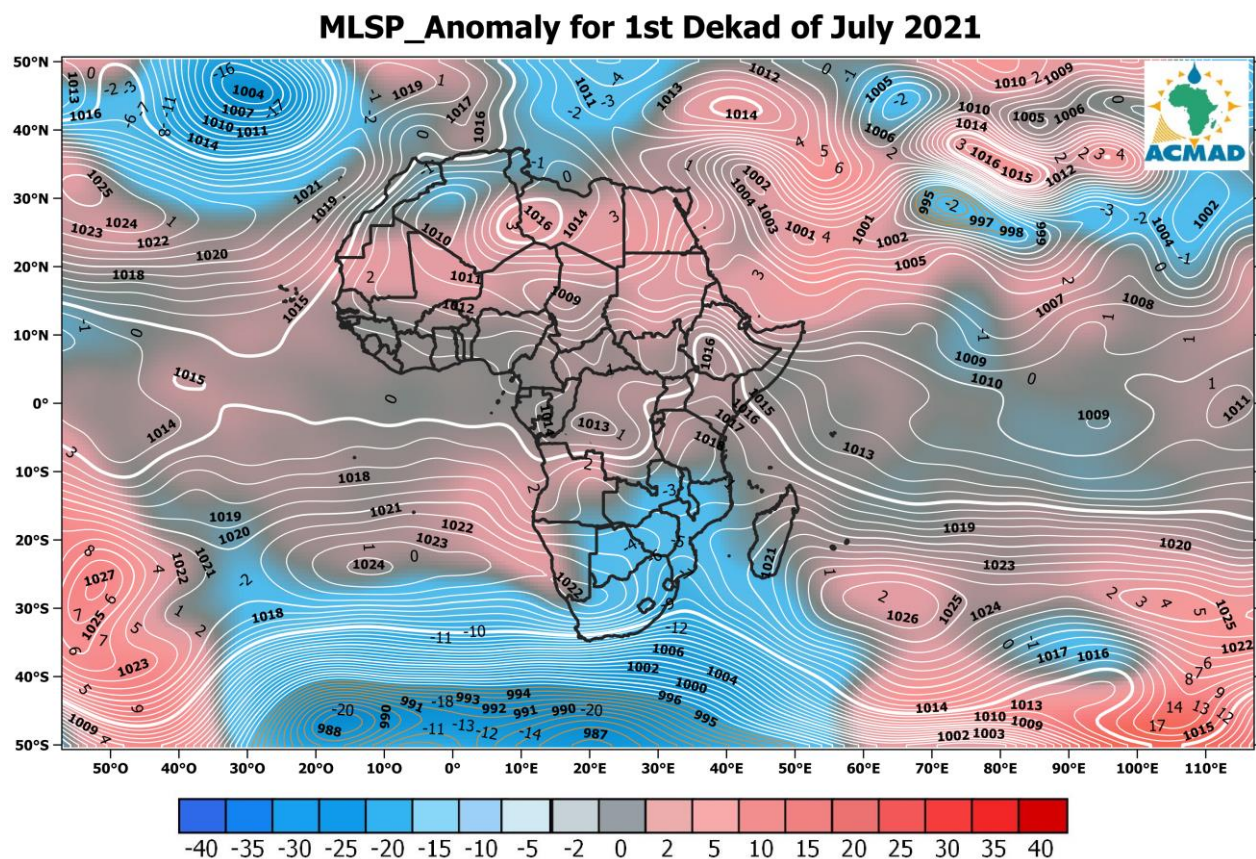


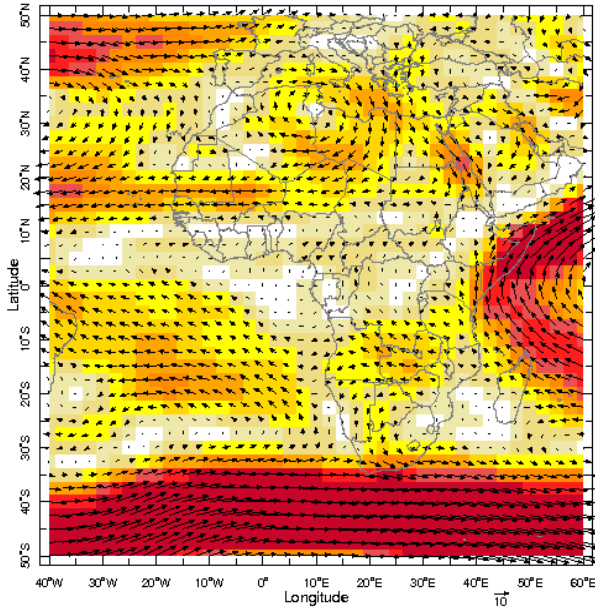
Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 1 to 10 July 2021

1.2 TROPOSPHERE

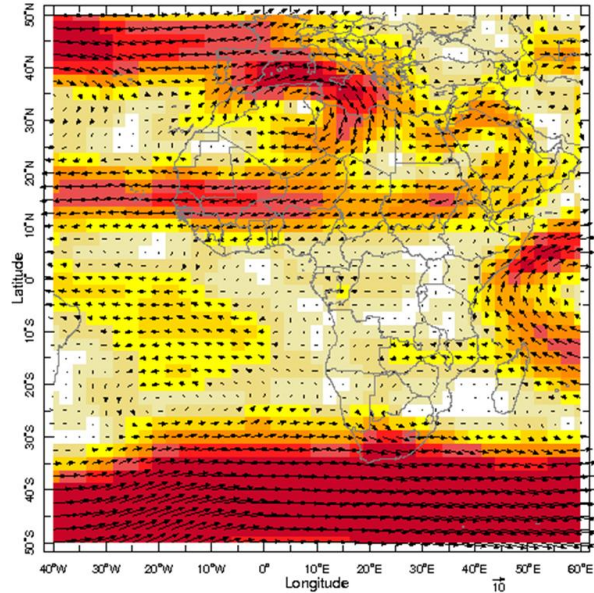
1.2.1 African Monsoon

Figure 2a: This figure shows the average dekadal wind (m/s) at 850hPa. Strong anticyclone (high pressure) winds observed over Libya, Algeria and Tunisia. The intensity of the zonal winds was about 10m/s. Very strong cyclonic circulation was observed over the Indian Ocean at the East coast of Somalia.

Figure 2b: At the 700hpa level, strong westerly winds of 14 m/s were observed over Libya, Algeria and Tunisia. Strong easterly flows were observed over the countries along the Gulf of Guinea.

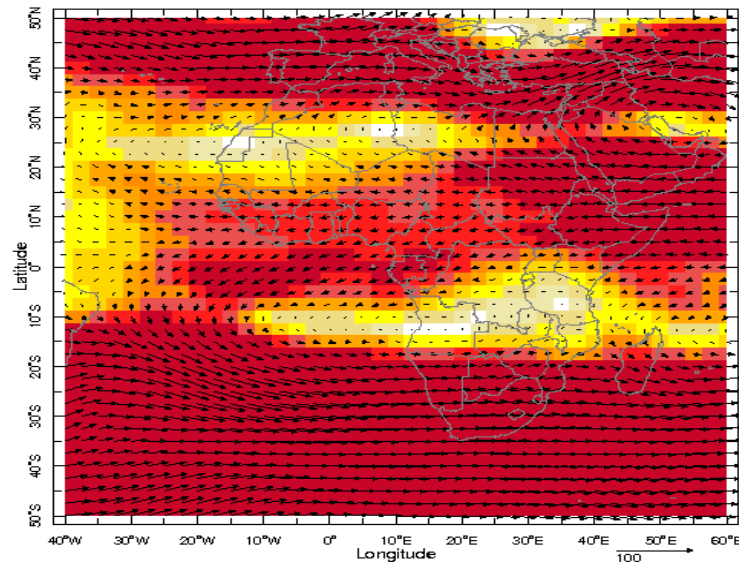


Pressure 850.0 mb Time 1-10 Jul 2021
Figure 2a: Mean wind (m/s) at 850hpa from 1 – 10 July 2021
Source: NOAA/NCEP



Pressure 700.0 mb Time 1-10 Jul 2021
Figure 2b: Mean wind (m/s) at 700hpa from 1 – 10 July 2021
Source: NOAA/NCEP

Figure 2c: shows the wind speed and direction at 200hPa. During the first dekad of July 2021, very strong westerly zonal winds were observed over North and South Africa. Countries along the Gulf of Guinea observed south-westerly winds while the Sahelian countries observed westerly winds of about 8 m/s.



Pressure 200.0 mb Time 1-10 Jul 2021
Figure 2c: Mean wind at 200 hPa (m/s) during the period from 1 to 10 of July 2021
(Source: NOAA/NCEP)

1.2.3 Relative Humidity (RH) at 850hPa

Figure 4 presents the dekadal mean of relative humidity at 850hPa for the first dekad of July 2021 and anomalies compared to the reference period 1991-2020. Wet atmospheric conditions (relative humidity $\geq 60\%$) were observed over countries along the Gulf of Guinea, Central Africa, East Africa as well as Tanzania, Mozambique and Madagascar.

The relative humidity anomalies for the first dekad of July 2021 were negative over most of the Sahel, Gulf of Guinea cutting across to the Horn of Africa over countries like Sierra Leone, Liberia, Cote d'Ivoire, Gabon, the coast of Ghana, Togo, Benin, Nigeria and Cameroon and some parts of Ethiopia, Kenya and Tanzania.

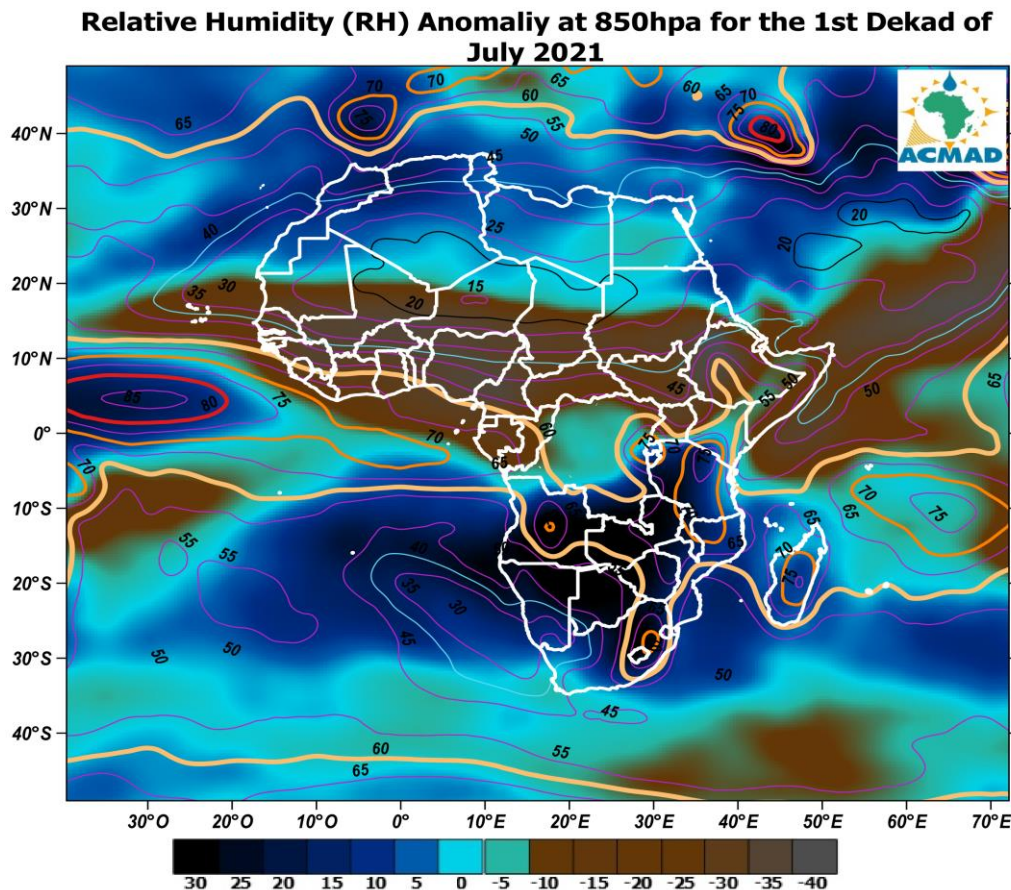


Figure 4. RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 1th to 10th of July 2021
SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

1.2.4 Relative Humidity at 700hPa

Figure 5 presents the dekadal mean and anomalies of relative humidity at 700 hPa. The figure shows that the high relative humidity belt with values $\geq 60\%$ at 700hPa extended from Ethiopia in the East narrowing towards the southern part of the Sahel to Senegal in the West.

The relative humidity anomalies for the first dekad of July 2021 were negative over parts of the coast of West African countries of Nigeria, Togo, Benin, Ghana, and Côte d'Ivoire up to Sierra Leone.

Relative Humidity (RH) Anomaly at 700hpa for the 1st Dekad of July 2021

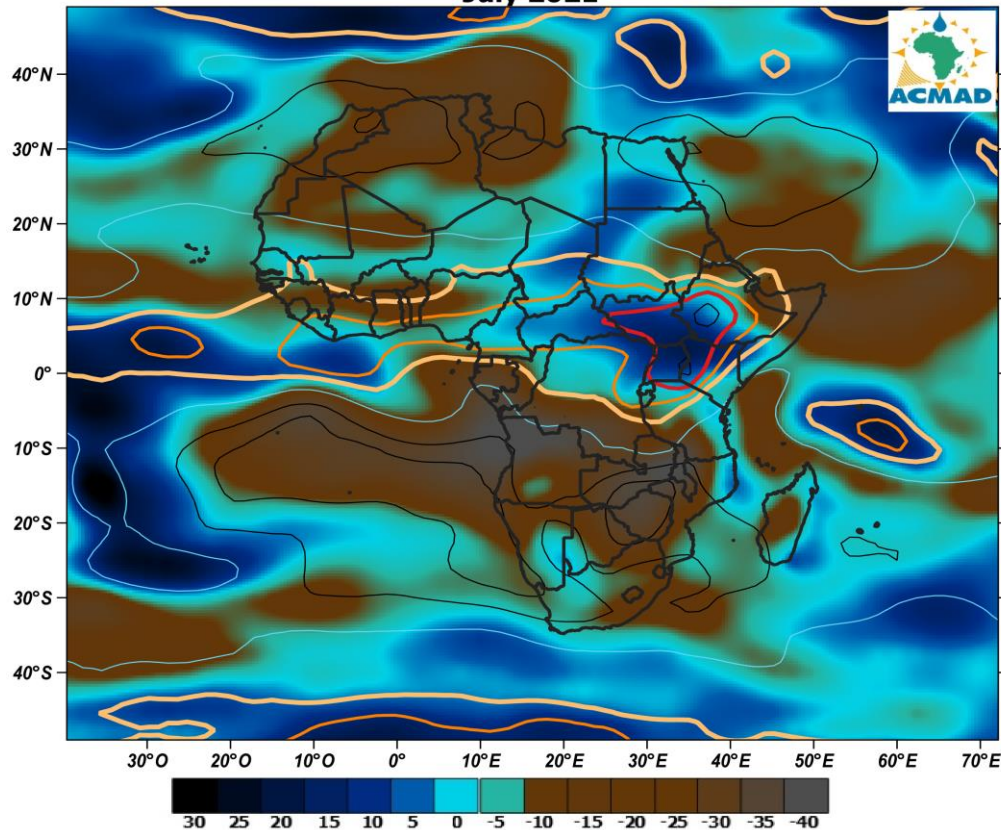


Figure 5. RH (%) at 700hPa (contour) and anomaly (shaded) during the period 1st to 10th of July 2021 (SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 6 shows the observed precipitation estimated in the percentage of average for the first dekad of July 2021.

2.1 Precipitation

The first dekad of July witnessed a variety of climatological variations across the continent, ranging from an increase in precipitation in some regions to a decrease in others. The majority of Central Africa and the Gulf of Guinea countries received above-average to well-above-average rainfall, with pockets of below-average to well-below-average rainfall in locations like southern Sudan, Chad and of Niger. In western Ethiopia, rainfall was well above average. Rainfall was near average in both North and South Africa.

Details:

- **North Africa:** This region experienced near average rainfall conditions during the dekad.
- **The Sahel countries:** The region observed below average to well below-average rainfall conditions.
- **Gulf of Guinea countries:** The region observed above average to well above average rainfall conditions. Some pockets of near to below average rainfall activities were equally observed.
- **Central Africa countries:** Above average to well above-average rainfall was received in many parts of this region. The northern part of the Democratic Republic of Congo, southern Cameroon and some handful of areas recorded below-average rainfall.
- **East Africa countries:** The easternmost flank of East Africa observed near average rainfall. Well below average rainfall was experienced around the western part of Uganda and South Sudan and a pocket of areas in the region. Most of Ethiopia observed well above average rainfall in the dekad.

- **Southern Africa countries:** Most of the SADC countries experienced near average rainfall, except for eastern Madagascar that observed below-average rainfall.

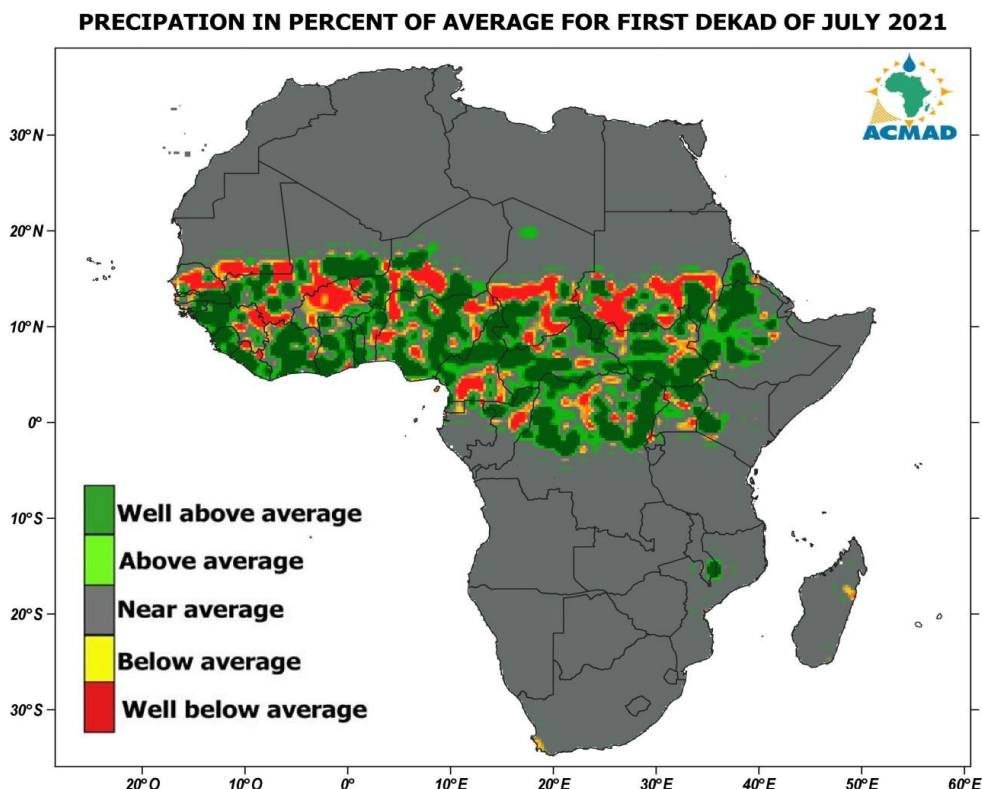


Figure 6: Precipitation in the percentage of average for the third dekad 21st to 30th of June 2021. The reference period used is 1991-2020. Source: NOAA/ NCEP/ CPC/ FEWS/ Africa/ DAILY/)

3.0 OUTLOOK VALID FOR 20th – 26th OF JULY AND 27th OF JULY-02nd OF AUGUST 2021

3.1 PRECIPITATION

During the period of 01st to 10th July 2021, low to moderate/moderate to heavy precipitation is expected to dominate over western, central and eastern African countries. Heavy precipitation is expected over Sierra Leone, most of Guinea, Senegal, north of Liberia, western Ethiopia and north east of South Sudan.

Figure 7b shows that during the week of 20th to 26th of July, there is likelihood of reduction in precipitation over the coastal cities because of the Little Dry Season that may likely set in. Countries will continue to observe low to moderate/ moderate to heavy precipitation as in the previous week.

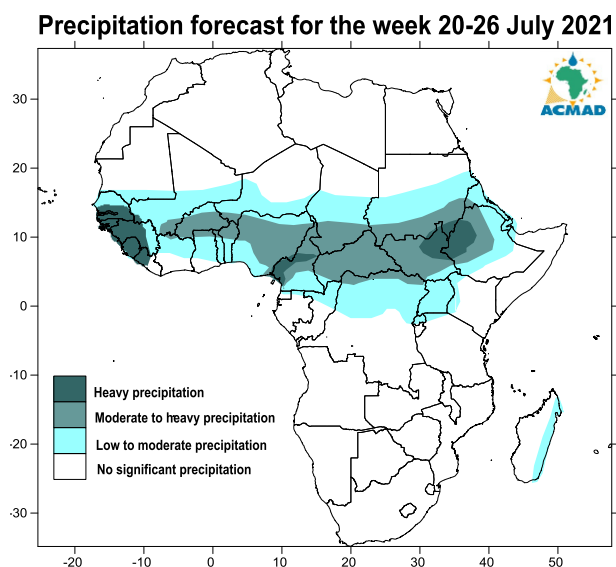


Figure 7a: Precipitation forecast for 20th - 26th July 2021

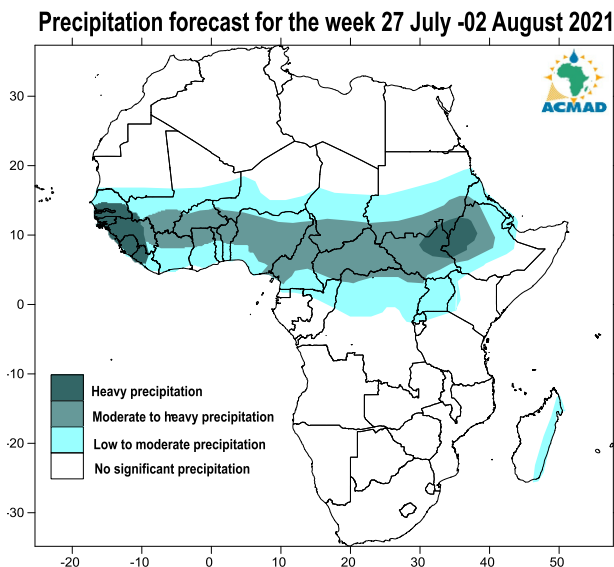
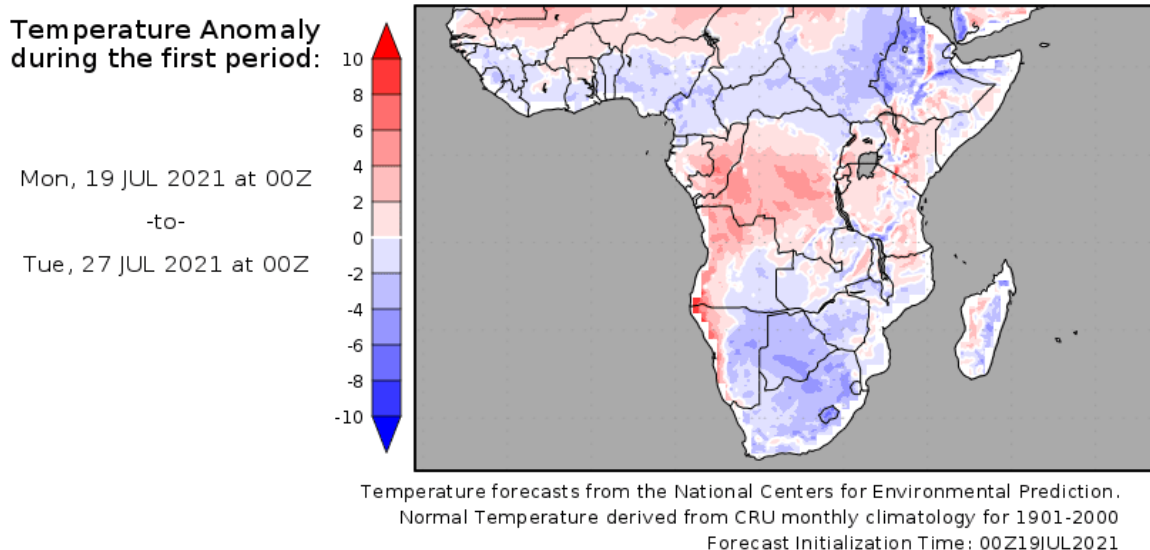


Figure 7b: Precipitation forecast for 26th July to 2nd August 2021

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecasted for the week of 19th to 27th July 2021. Temperatures are expected to be above average over the northern part of the Sahel countries of Burkina Faso, Niger, Mali, Mauritania, Chad, most of Central Africa like DR Congo, Congo Brazzaville, Gabon, Angola, Kenya and Tanzania. Cooler than normal temperature are expected countries along the Gulf of Guinea, north of central and eastern Africa, parts of Namibia, South Africa and east of Madagascar.



GrADS/COLA

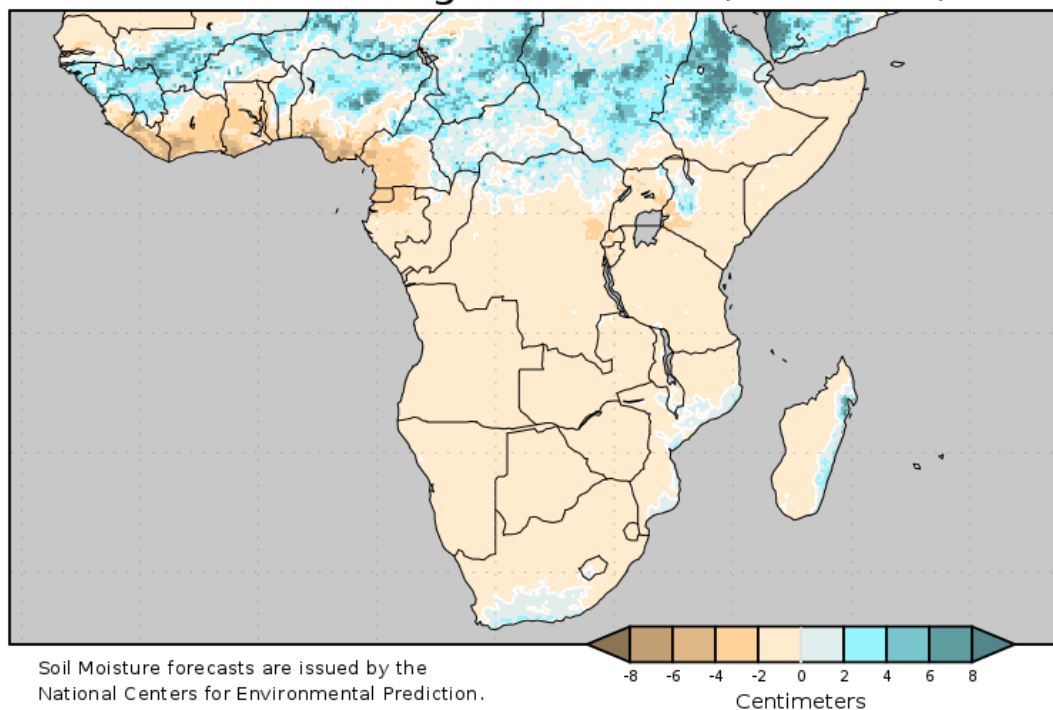
Figure 8: Temperature anomalies prospect from 19th to 27th of July 2021
(Source: COLA)

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 19th to 27th July 2021 where an increase in soil moisture is expected over western to the eastern parts of the continent mostly along the Sahelian band.

Soil Moisture Change

00Z 19 JUL 2021 to 00Z 27 JUL 2021



GrADS/COLA

Figure 9: Soil moisture change prospect for the period 19th to 27th July 2021
(Source: COLA)