

Ten Days Climate Diagnostics Bulletin

N°23

Dekad 1, 1th to 10th August 2021

HIGHLIGHTS

The first dekad of August observed a variety of climatological events and variations across the continent, ranging from onset, 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 dominant below-average to well-below-average rainfall in the Sahel band of Western Africa as well as southern Sudan and Chad. In eastern Ethiopia and central Africa, rainfall was dominated by well above average. Rainfall was near average in both North and South Africa. Countries in the southern hemisphere started receiving onset during this dekad.

The mean sea level pressure observed an increasing trend over most of the continent with near normal trend in Central Africa and the Gulf of Guinea. Significant positive relative humidity at 850hPa was observed over Sudan, Chad, Nigeria and some areas of the Gulf of Guinea. Warm SSTs conditions continued to be observed in the Gulf of Guinea regions.

The forecasts show that during the weeks of 18th to 24th and 25th to 31st August 2021, low to moderate/moderate to heavy precipitation is expected over the equatorial band extending to the Sahel and countries of the southern hemisphere. Some isolated areas of heavy precipitation is expected over the west coast of Africa around Guinea, Sierra Leone and Liberia, the west coast of Cameroon, Equatorial Guinea, Congo Brazzaville, western Ethiopia and south east Sudan.

The forecast for the week 2 of 25th – 31st August (Figure 7b) indicates the likelihood of a reduction in precipitation from the previous week, over the Sahel and countries of central Africa. Countries in the southern hemisphere will continue to experience onset with low to moderate/ moderate to heavy precipitation expected as the season progresses.

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 1030hPa, being intensified by 3hPa compared to the previous dekad and by 7hPa compared to the climatological mean (1991-2020). The high pressure was located at 39°W and 37°N and moving North West of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1031hPa strengthened by 2hPa compared to the previous dekad and by 7hPa compared to the climatological mean (1991-2020). It was located at 35°W and 33°S. It moved south westwards from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1028hPa relaxing by 9hPa compared to the previous dekad. It equally moved north east of its climatological position over the Indian Ocean and was located at 67°E and 30°S with a 2hPa increase from climatology.
- **Heat Low:** The low-pressure system at the east of Chad with a central value of 1009hPa filled by 2hPa compared to the previous dekad, position 12°E and 18°N moving westward over the border of Chad and Niger.
- **Heat Low:** The low-pressure system at the boundary of Mali and Algeria with a central value of 1007hPa deepened by 1hPa compared to the previous dekad, at a position of 1°W and 28°N.

MSLP Anomaly for the first dekad of August 2021

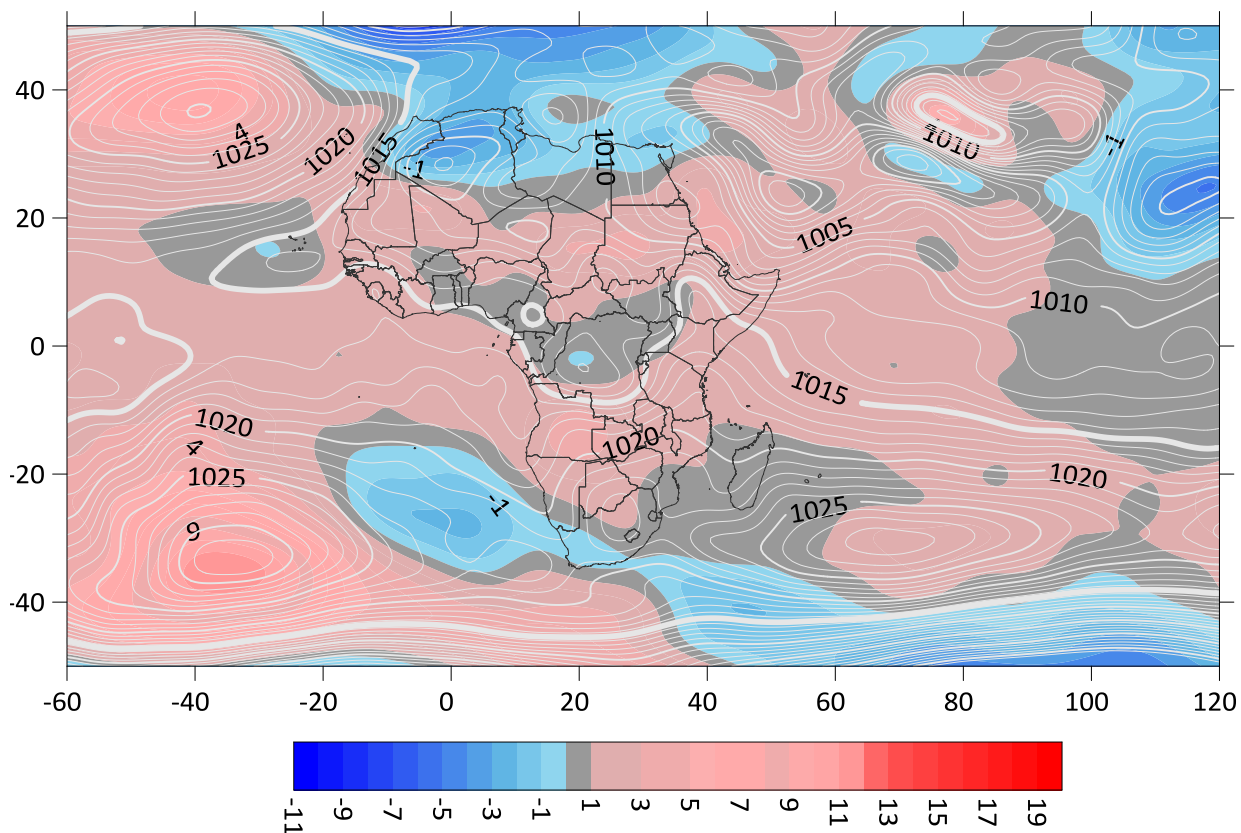


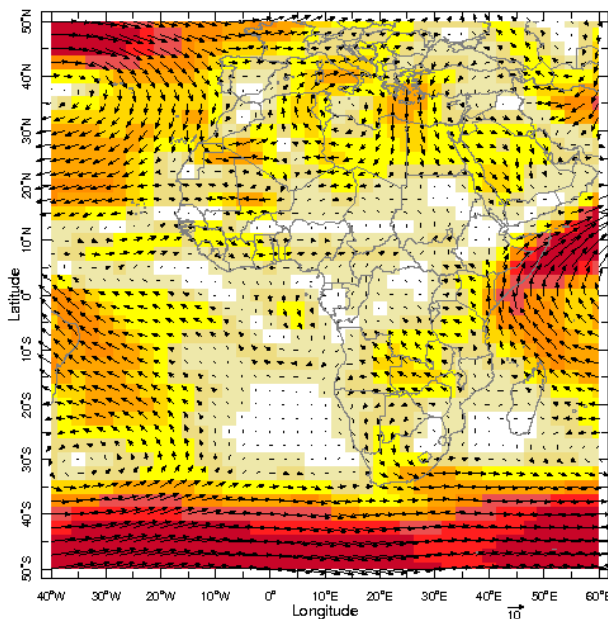
Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 1 to 10 August 2021

1.2 TROPOSPHERE

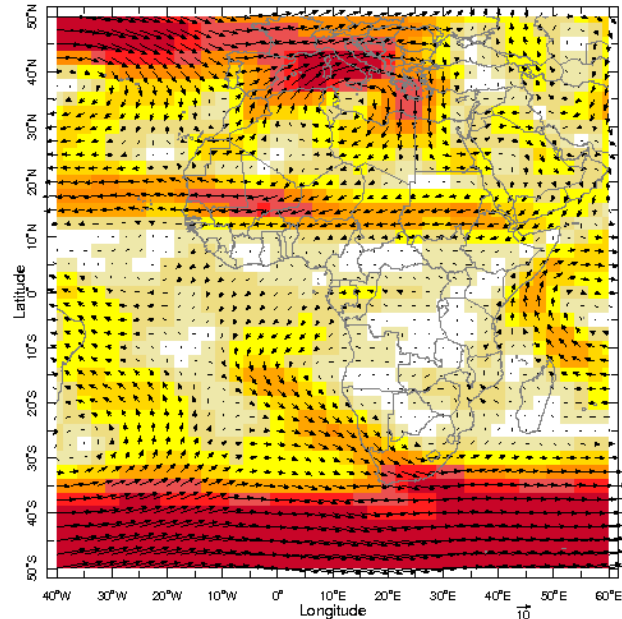
1.2.1 African Monsoon

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

Figure 2b: At the 700hpa level, strong Easterly winds of 14 m/s were observed across the Sahelian band from Ethiopia to Senegal. Stronger anticyclonic circulation continued over northern Africa.

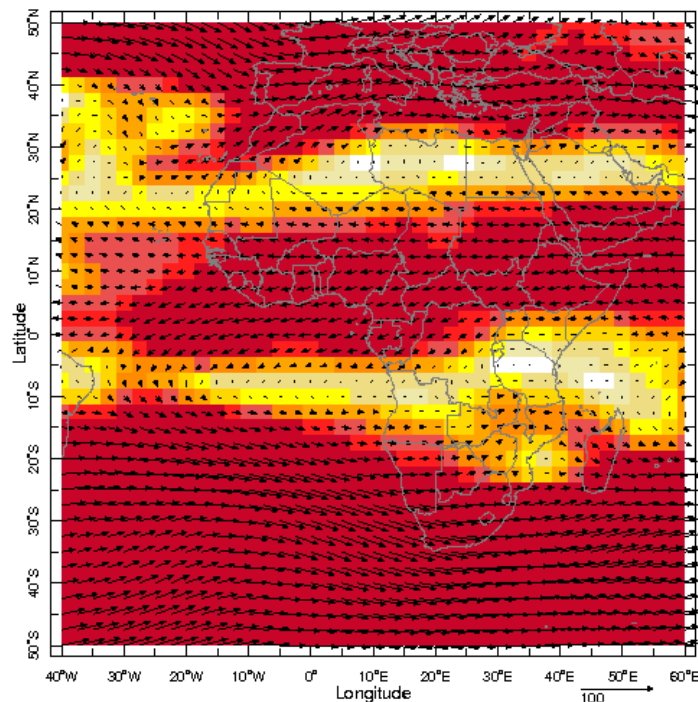


Pressure 850.0 mb Time 1-10 Aug 2021
Figure 2a: Mean wind (m/s) at 850hpa from 1 – 10 August 2021
 Source: NOAA/NCEP



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

Figure 2c: shows the wind speed and direction at 200hPa. During the first dekad of August 2021, very strong westerly zonal winds were observed over North and south Africa while the Centre observed easterly wind flow. Countries slightly north of the Sahel and further south of central Africa observed comparatively weaker winds of about 8 m/s.



Pressure 200.0 mb Time 1-10 Aug 2021
Figure 2c: Mean wind at 200 hPa (m/s) during the period from 1 to 10 of August 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 August 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 cutting across to East Africa as well as Mozambique and Madagascar.

The relative humidity anomalies for the first dekad of August 2021 were negative over northern Africa, part of central Africa and the tip of southern Africa.

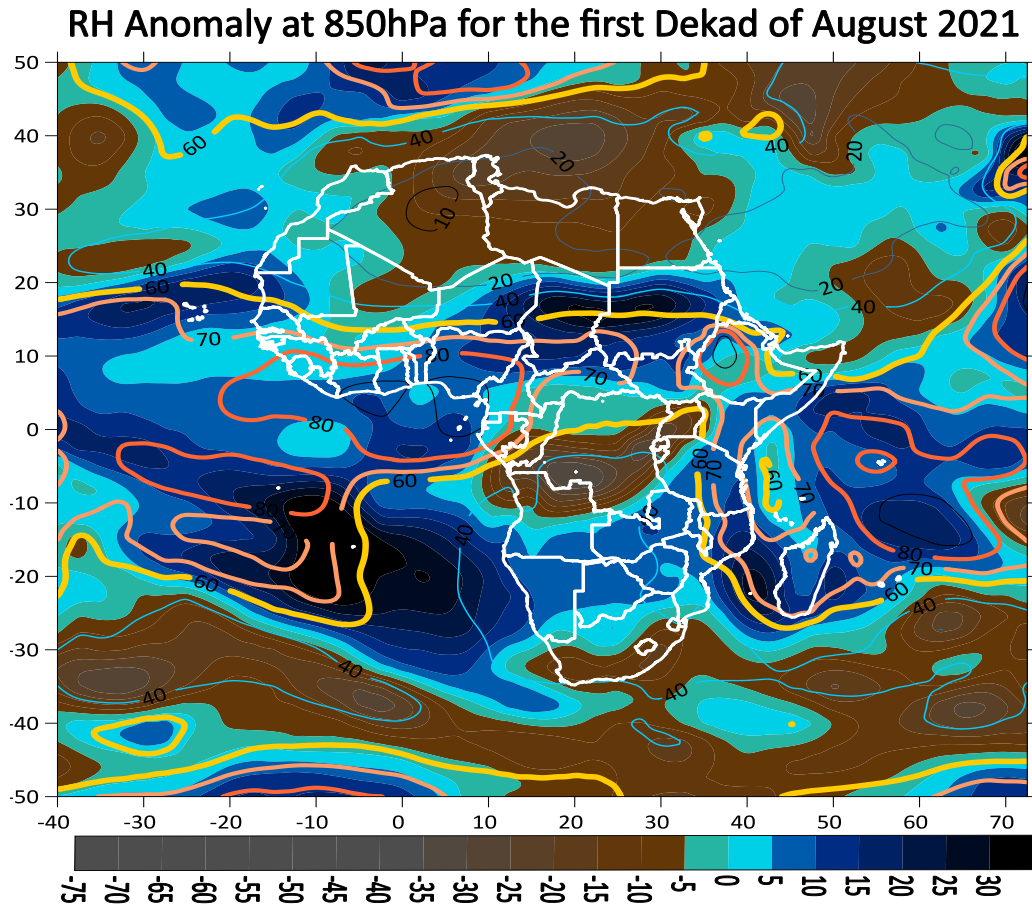


Figure 4. RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 1st to 10th of August 2021
SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

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, widening to cover most of central Africa and then narrowing towards western Africa to Senegal.

The relative humidity anomalies for the first dekad of August 2021 were negative over most of southern Africa, part of central Africa and North West of Africa in Algeria and down to Mali.

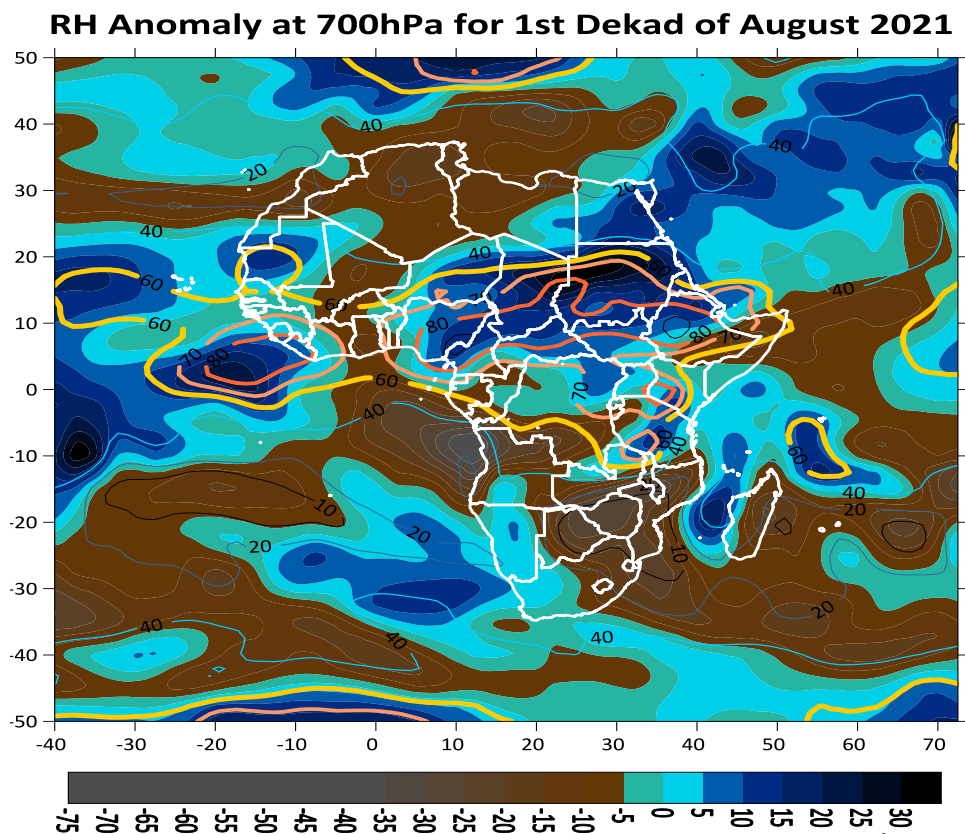


Figure 5. RH (%) at 700hPa (contour) and anomaly (shaded) during the period 1st to 10th of August 2021
(SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

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 August witnessed a variety of climatological variations across the continent, ranging from onset, 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 southern Cameroon. The Sahel band of western Africa observed most of below to well below average precipitation. 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 mostly 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. Some areas recorded their onset.
- **East Africa countries:** The easternmost flank of East Africa observed well below 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 during the dekad.

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

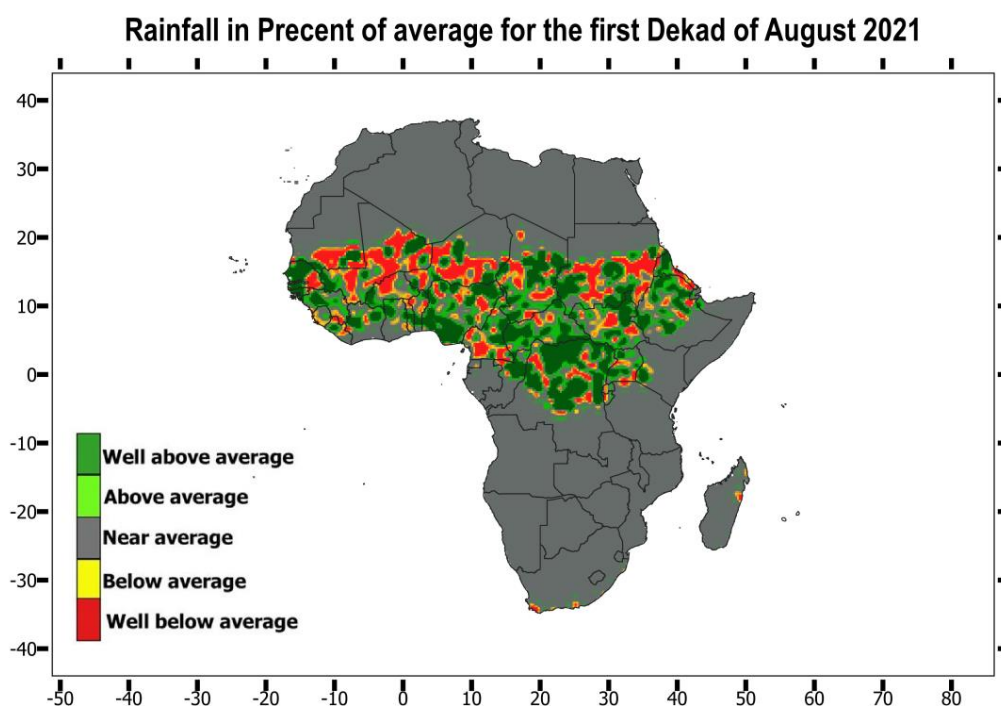


Figure 6: Precipitation in the percentage of average for the first dekad (1st to 10th) of August 2021. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. FEWS/. Africa/. DAILY/)

3.0 OUTLOOK VALID FOR 18th - 24th AND 25th -31st OF AUGUST 2021

3.1 PRECIPITATION

During the period of 18th to 24th August 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, north of Liberia, western Ethiopia and south east of Sudan.

Figure 7b shows that during the week of 25th to 31st of August, there is likelihood of reduction in precipitation over central Africa and countries of the Gulf of Guinea. Countries will continue to observe low to moderate/ moderate to heavy precipitation during the forecast week.

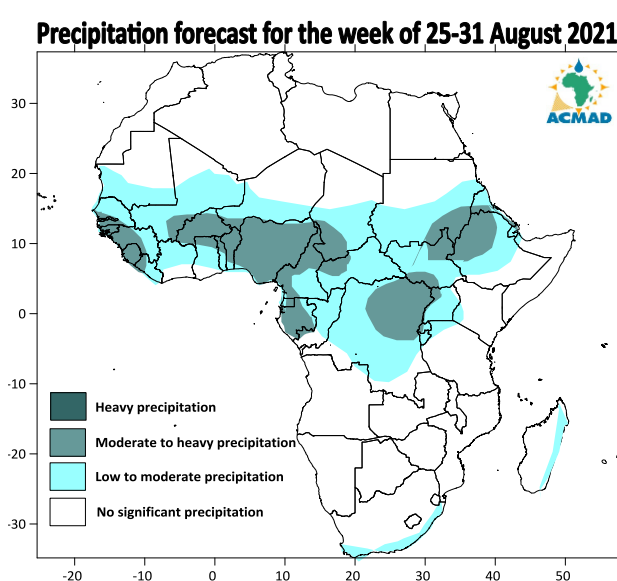
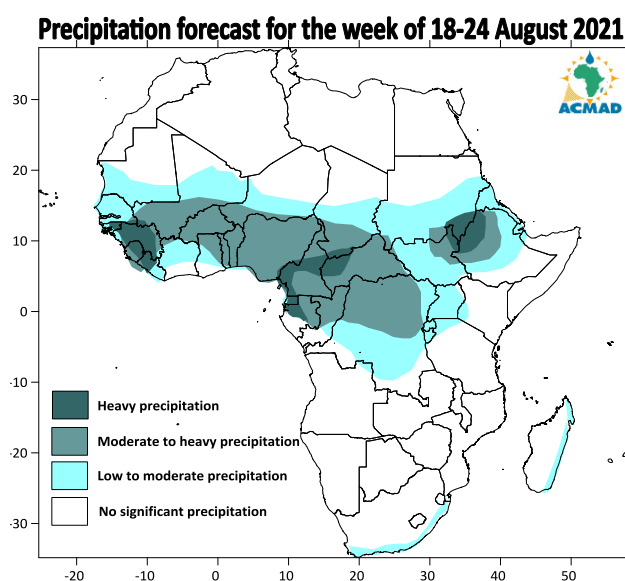


Figure 7a: Precipitation forecast for 18th - 24th August 2021

Figure 7b: Precipitation forecast for 25th -31st August 2021

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecast for the week of 17th to 25th August 2021. Temperatures are expected to be above average over the northern part of the Sahel countries of Niger, Mali, Mauritania and Chad. Most of Central Africa like Cameroon, Central Africa Republic, north of DRC, Congo and countries of the west African coast are expected to be observe Cooler than normal temperature. The entire eastern Africa is expected to be warmer than normal alongside Madagascar.

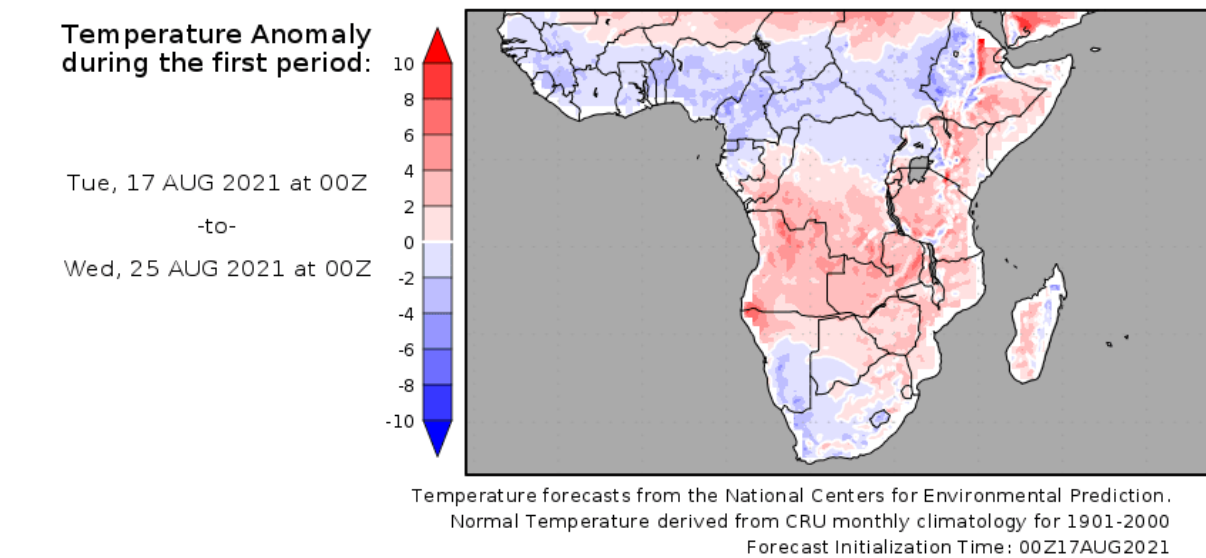


Figure 8: Temperature anomalies prospect from 19th to 27th of July 2021
(Source: COLA)

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 17th to 25th August 2021 where an increase in soil moisture is expected over western to the eastern parts of the continent mostly shifting towards the coastal with most of the Congo forest area.

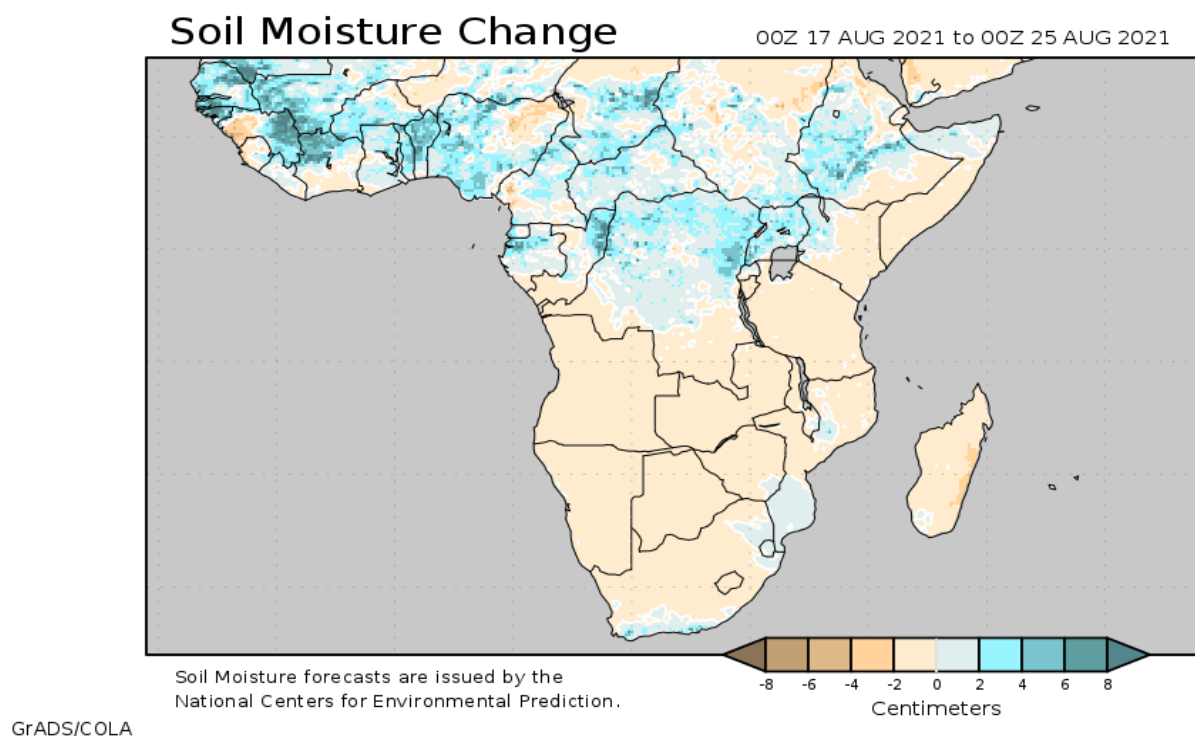


Figure 9: Soil moisture change prospect for the period 19th to 27th July 2021
(Source: COLA)