African Centre of Meteorological Applications for Development
Centre Africain pour les Applications de la Météorologie au Développement

Ten Days Climate Diagnostics Bulletin
N°21

Dekad 3, 21-31st July 2021

HIGHLIGHTS

The third dekad of July saw a generally well above average rainfall over most of the equatorial countries and the Sahel areas while Below to well below average precipitation was observed over North west of Kenya, south of Nigeria Cameroon Mali and Mauritania. The third dekad experienced above average to well above average précipitation over the equatorial countries, western Uganda and Congo. During the third dekad there has been an improvement in rainfall activities compared to the second dekad of July.
It has also been noted that the spatial distribution has increased as now rains are being experienced over parts of Kenya and DRC. Over the coast of Gulf of Guinea, there's a reduction of precipitation compared to the last three dekad.

This situation was characterized by precipitable water conditions and the persistence of warm SSTs conditions in the Gulf of Guinea regions.

The forecasts show that during the week of 7-13th August 2021, low to moderate/moderate to heavy precipitation are expected over western, central and eastern African countries with locally heavy precipitation over Ethiopia, Guinea, south of Cameroon and south of Chad. The spatial distribution is expected to increase during the period of 14-20th August 2021 as the rain belt is expected to shift southwards covering more areas in DRC.

Both weeks on figure 7a and 7b are showing dry conditions over areas like north of Niger, Mali and south of Nigeria and Cameroon.

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 1027hPa, compared to the previous dekad it has increased with 2hPa and by 4hPa compared to the climatological mean (1991-2020). The high pressure was located at 38°W and 36°N and moving south west of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1029hPa and has maintained its strength as the previous dekad with an increase of 4hPa compared to the climatological mean (1991-2020). It was located at 5°E and 36°S. It moved north eastwards from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1037hPa intensifying by 8hPa compared to the previous dekad. It equally moved north east of its climatological position over the Indian Ocean with a 4hpa increase from climatology and was located at 60°E and 36°S.
- **Heat Low:** The low-pressure system at the boundary of Mali and Algeria with a central value of 1008hPa deepened by 1hPa compared to the previous dekad, at a position of 5°E and 22°N.
- **Low pressure:** observed 895hPa over the coast of Egypt at 49°E and 24° N with a decrease of 1hPa from its climatological value.

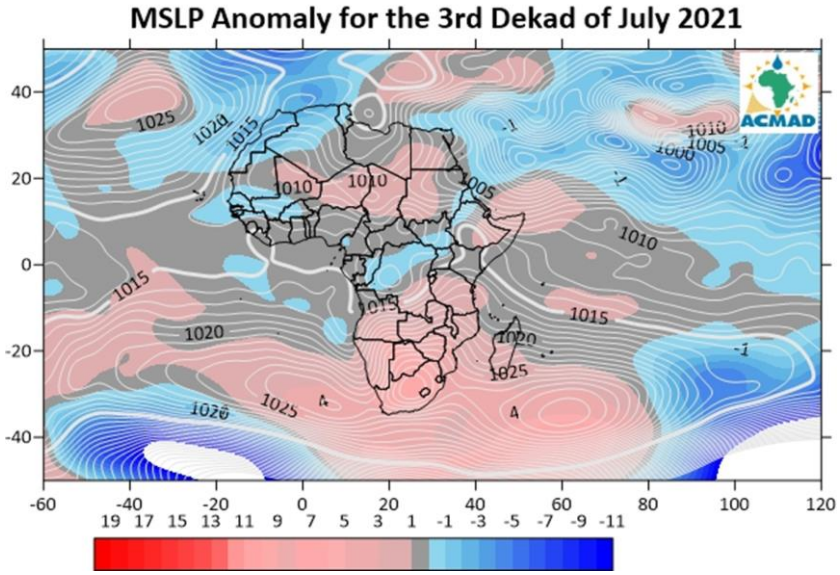


***Figure 1**. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21st to 31st July 2021*

1.2 TROPOSPHERE

1.2.1 African Monsoon

Figure 2a: This figure shows the average dekadal wind (m/s) at 850hPa. Light to moderate winds were observed over more areas. The highest intensity of the zonal winds was about 10-12m/s, it has shifted eastwards compared to the last dekad.

Figure 2b: At the 700hpa level, strong easterly winds of 10-12 m/s were observed over Chad, Sudan, Niger and Mali. Most areas observed light to moderate winds.

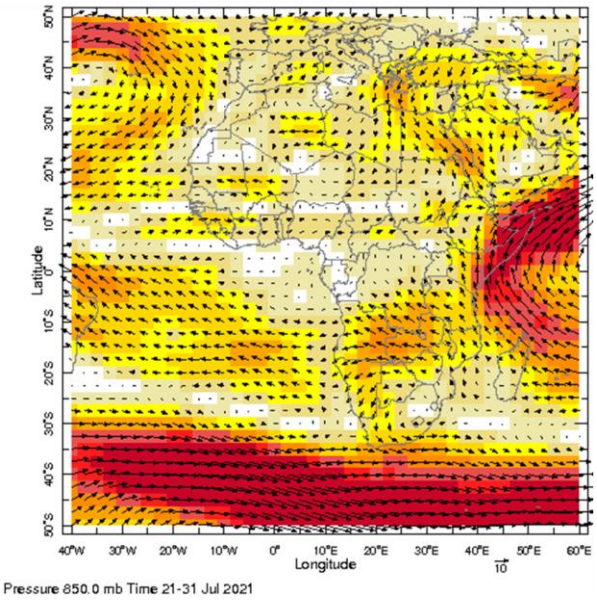


Figure 2a: Mean wind (m/s) at 850hpa from 21 to 31 July 2021
Source: NOAA/NCEP

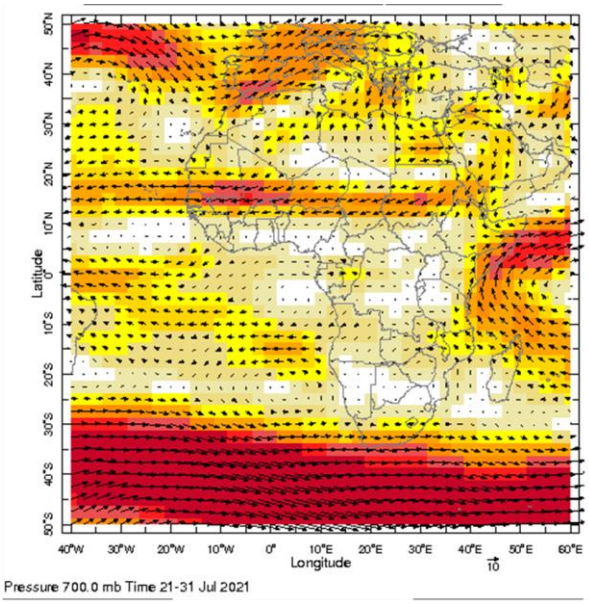


Figure 2b: Mean wind (m/s) at 700hpa from 21 to 31 July 2021
Source: NOAA/NCEP

Figure 2c: shows the wind speed and direction at 200hPa. During the third dekad of July 2021, very strong easterly zonal winds were observed mainly over the equatorial area and the winds were diverging to the north and south with a window over Tanzania, DRC and Gabon which has moderate wind. Countries over the south experienced strong westerly winds of about 14 m/s.

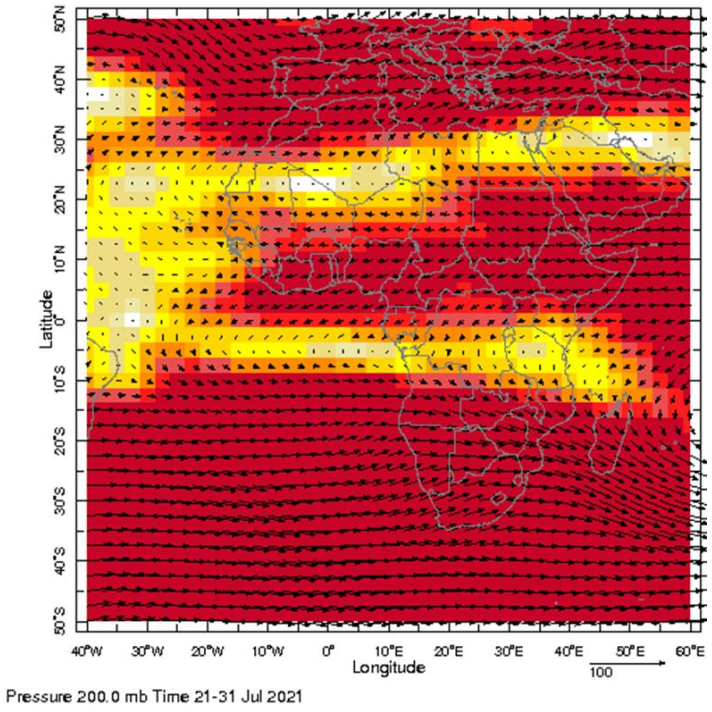


Figure 2c: Mean wind at 200 hPa (m/s) during the period from 1 to130 of July 2021
(Source: NOAA/NCEP)

1.2.3 Relative Humidity (RH) at 850hPa

Figures 4 presents the dekadal mean of relative humidity at 850hPa for the third dekad of July 2021 and anomalies compared to the reference period 1991-2020. Wet atmospheric conditions (relative humidity ≥ 60%) covering the whole equatorial area and extending up to south east of Africa.

The relative humidity anomalies for the third dekad of July 2021 were negative over part of Congo and DRC and the positive anomalies were observed over Chad and Sudan, as well as Mozambique, Malawi, Zambia, Madagascar and east of Ethiopia.

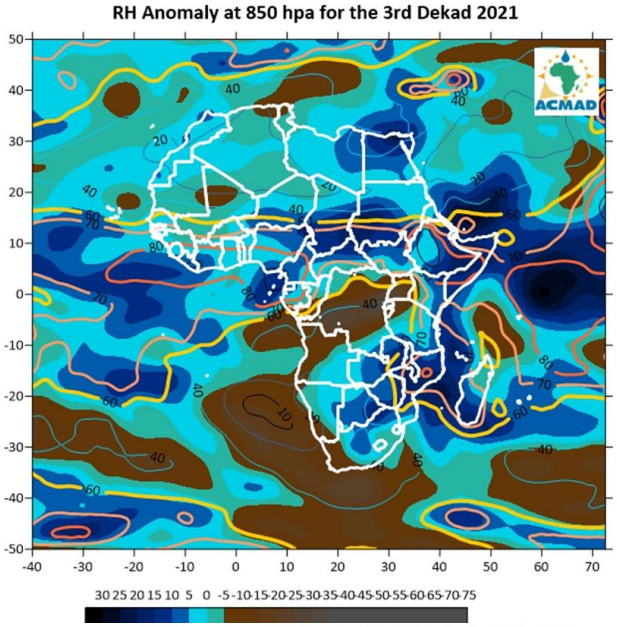
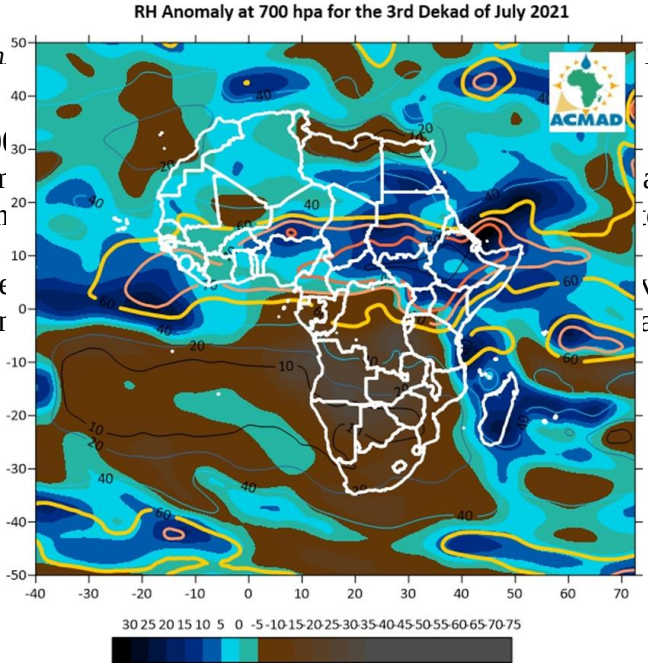


Figure 4. *RH (%) at 850h* *1th to 10th of July 2021*



1.2.4 Relative Humidity at 70

Figure 5 presents the dekadal r a. The figure shows that the high relative humidity belt with orial area.

The relative humidity anomalie ve over the whole Southern part of Africa with an exceptior a.

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 third dekad of July 2021.

2.1 Precipitation

The second dekad of July witnessed a variety of climatological variations across the continent, above average to well above average precipitation was observed over equatorial and Sahel areas. Below to well below average precipitation was observed over North West of Kenya, south of Nigeria and Cameroon and Mali. Near average precipitation was observed over the rest of Africa during the 3rd Dekad of July 2021.

Details:

- **North Africa**: This region experienced near average rainfall conditions during the dekad.
- **The Sahel countries:** The region observed above average to well above-average rainfall conditions.
- **Gulf of Guinea countries**: The region observed above average to well above with some spots of well below average rainfall conditions like Sierra Leon and south of Guinea.
- **Central Africa countries**: Above average to well above-average rainfall was observed over more areas of this region like the northern part of the Democratic Republic of Congo, Central Africa Republic and south of Chad. Southern Cameroon and some handful of areas recorded below-average rainfall to well below rainfall.
- **East Africa countries:** The easternmost flank of East Africa observed near average rainfall. Well below average rainfall was experienced around the Southern part of Uganda and the west of Kenya. Most areas over Ethiopia and Sudan observed well above average rainfall during the last dekad.
    - **Southern Africa countries:** Most of the SADC countries experienced near average rainfall.

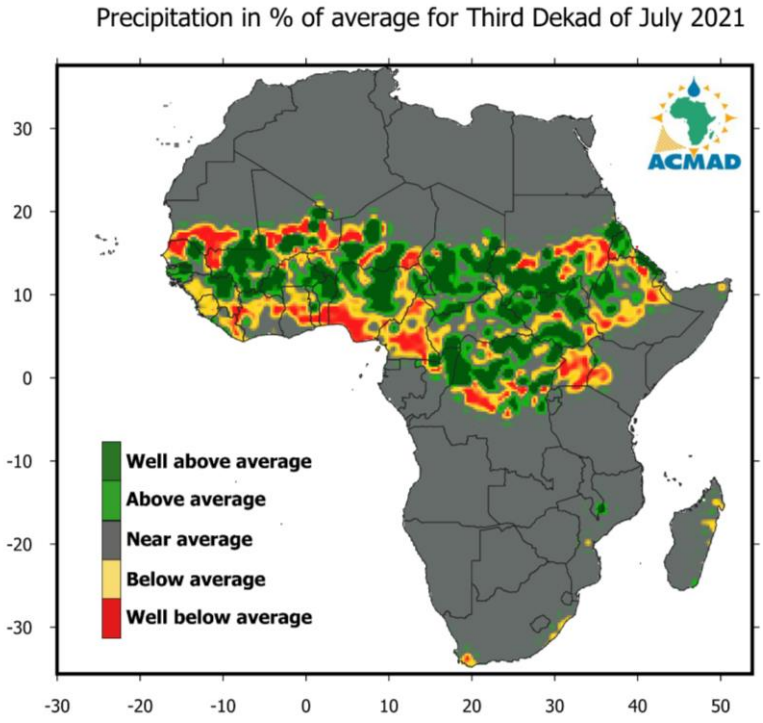


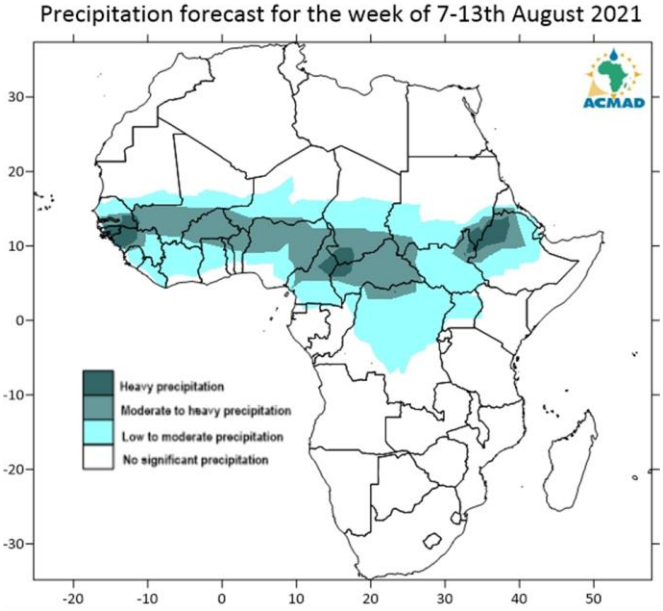
Figure 6: *Precipitation in the percentage of average for the third dekad 21st to 30th of June 2021. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. FEWS/. Africa/. DAILY/)*

3.0 OUTLOOK VALID FOR 7th-13th AND 14th-20th AUGUST 2021

3.1 PRECIPITATION

During the period of 7-13th August 2021, low to moderate/moderate to heavy precipitation is expected to dominate over western, central and eastern African countries with locally heavy over Ethiopia, part of Cameroon and Ghana.

Figure 7b shows that during the week of 14-20th August 2021, there is likelihood of reduction in precipitation over the coastal cities over the west like south of Nigeria and Cameroon. Countries will continue to observe low to moderate/moderate to heavy precipitation.



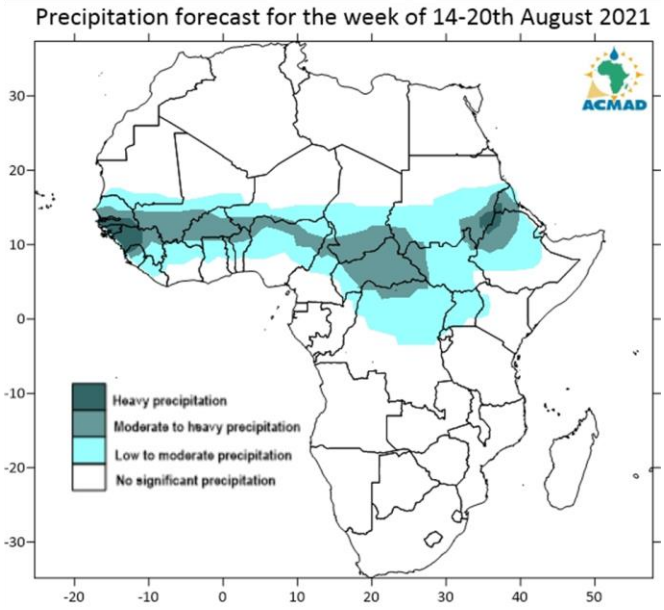


***Figure 7a**: Precipitation forecast for 26th July to 2nd August 2021 **Figure 7b**: Precipitation forecast for 3rd to 9th August 2021*

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecasted for the week of 6-14th August 2021. Temperatures are expected to be above average over more areas over the tip north of Africa and the southern part of Africa. Cooler than normal temperatures are expected over countries along the Gulf of Guinea, central Africa, north of Democratic Republic of Congo.

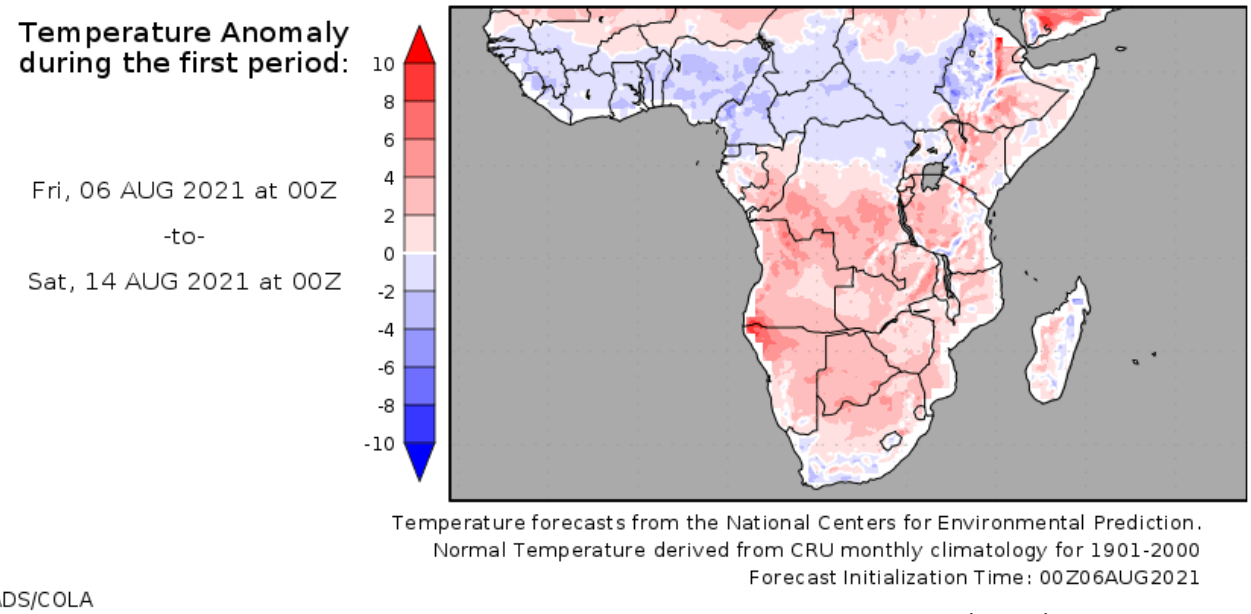


***Figure 8:** Temperature anomalies prospect from 19th to 27th of July 2021 (Source: COLA)*

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 6-14th August 2021 where an increase in soil moisture is expected over equatorial area mainly over the western part of Africa.

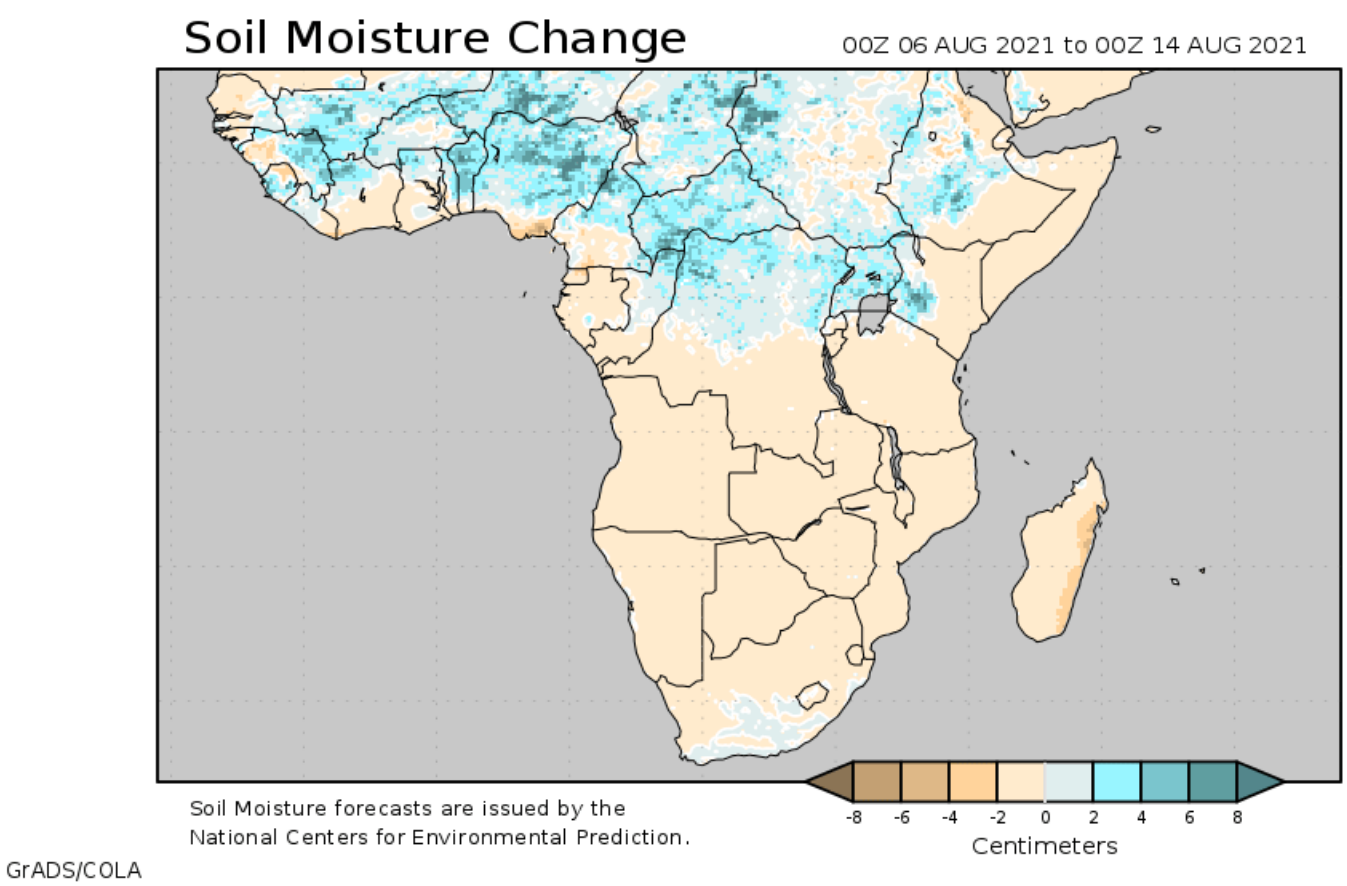


Figure 9: Soil moisture change prospect for the period 27th July to 4th August 2021 (Source: COLA)