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

Ten Days Climate Diagnostics Bulletin
N°29

Dekad, 11-20th October 2021

HIGHLIGHTS

The second dekad of October saw a continuous retreat of the rains from the Sahel and an effective implementation of the season further south of the Equator with above to well above average precipitation observed over eastern Guinea, south of Ghana, north Cameroon, north east of CAR, most of east to central DRC, and north of Tanzania. Below to well below average precipitation dominated the dekad with deficits rainfall observed over most of Ethiopia, South Africa, west DRC, north west of Angola, western Cameroon, south Nigeria, south of Senegal, Côte d'Ivoire and most of western Congo.

This dekad was characterized by persistence of warm SSTs conditions in the Gulf of Guinea region and most of north Atlantic with moderate anticyclone wind vector anomalies at 850hPa and 700hPa in the northern part of Africa and easterlies in the Gulf of Guinea into the Atlantic Ocean

The forecasts show that during the weeks of 27th October -2nd of November and 3rd - 9th of November 2021, low to moderate precipitation is expected to dominate over most of the Central African sub-region, Liberia, Sierra Leone and Madagascar. Moderate to heavy precipitation is expected in the west part of Cameroon, Equatorial Guinea, west of Congo and north-west of Angola. The rest of the continent is expected to receive no significant rainfall scenario.

Both weeks on figure 7a and 7b are showing dominant normal conditions over most areas of the northern and southern part of the continent.

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 1022hPa, relaxing by 1hPa compared to the previous dekad while intensifying by 5hPa to it climatological mean (1991-2020). The high pressure was located at 36°W and 32°N and moving north-east of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1025hPa and has relaxed by 2hPa compared to the previous dekad though maintaining it climatological mean (1991-2020). It was located at 12°W and 32°S. It moved south-west from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1023hPa maintaining its value as to the previous dekad as well as its climatological mean (1991-2020). Located at 69°E and 28°S, it moved south-east of it climatological position over the south Indian Ocean.
- **Low Pressure:** The low-pressure system over Ethiopia in East Africa observed 1014hPa dropping by 1hPa from the previous dekad while maintaining it climatological position at 38°E and 9°N.

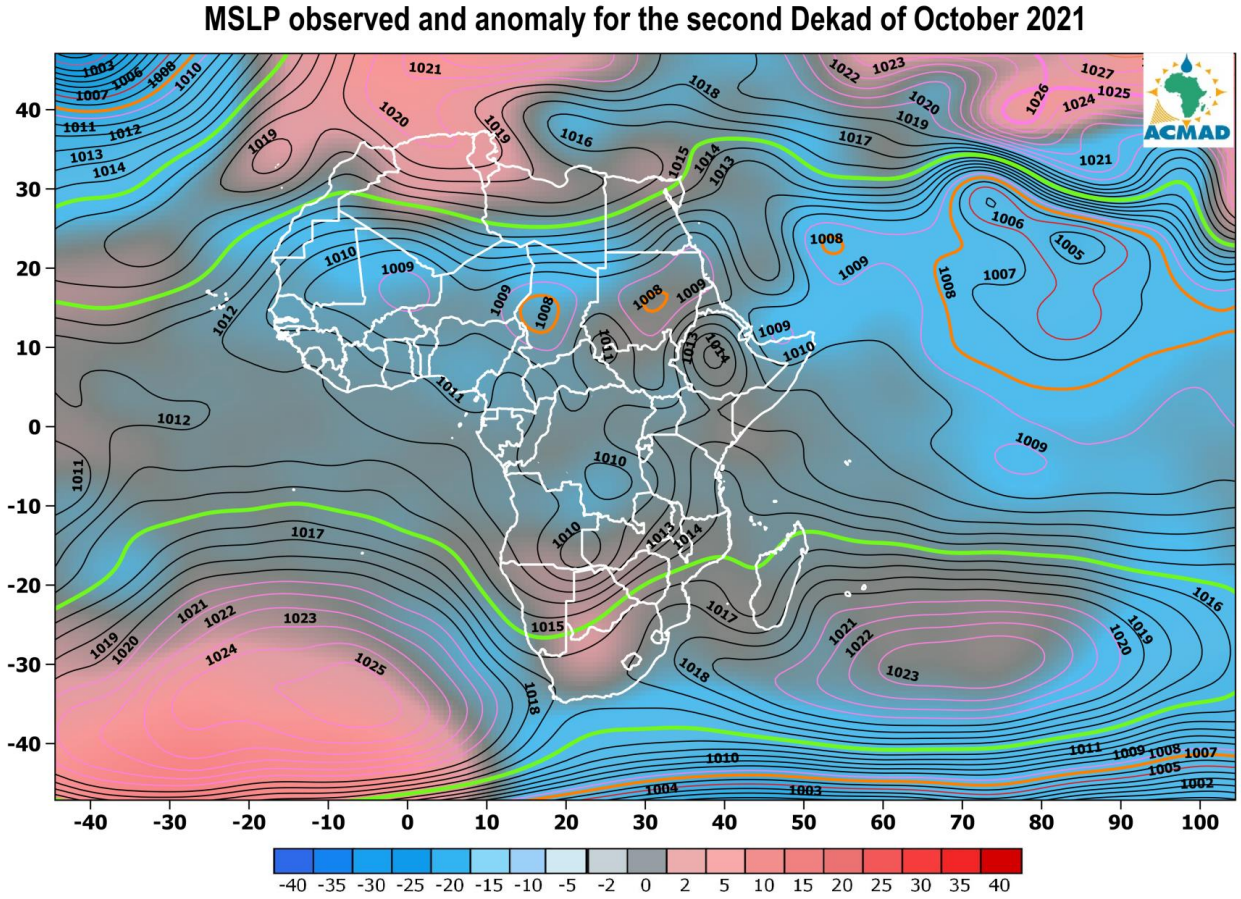

***Figure 1**. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 11st to 20th October 2021*

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 most areas with an anticyclone circulation over northern Africa with an easterly arm of about 6m/s into the Atlantic Ocean

Figure 2b: At the 700hpa level, the pattern persisted with more strength and stronger easterly winds of about 8 m/s extending further west to Senegal, Guinea, Liberia, Sierra Leone and south Mali.

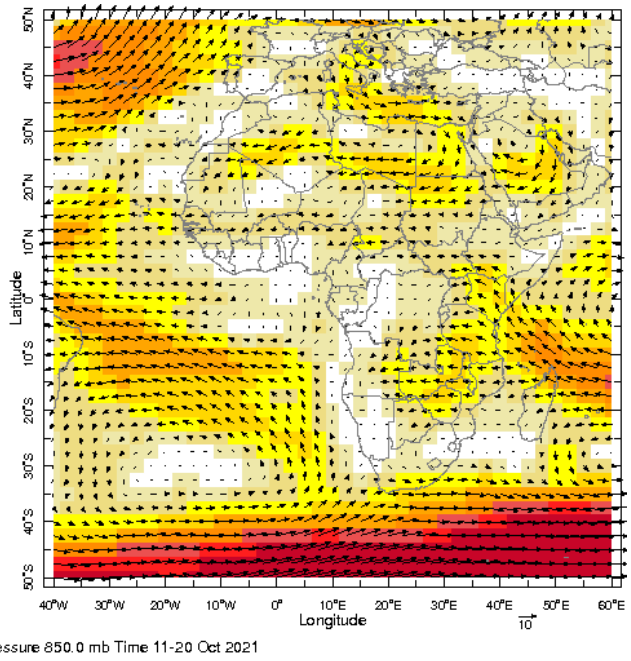

Figure 2a: Mean wind (m/s) at 850hpa from 11 to 20 October 2021
Source: NOAA/NCEP

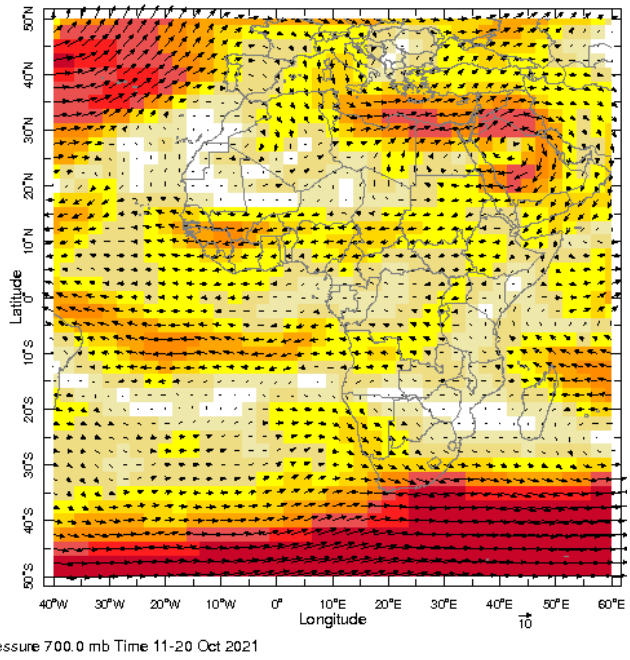

Figure 2b: Mean wind (m/s) at 700hpa from 11 to 20 October 2021
Source: NOAA/NCEP

Figure 2c: shows the wind speed and direction at 200hPa. During the second dekad of October 2021, very strong westerly winds of more than 14m/s were observed mainly over northern and southern African countries. The central band of the continent observed low to moderate westerly winds cutting across to eastern Africa.

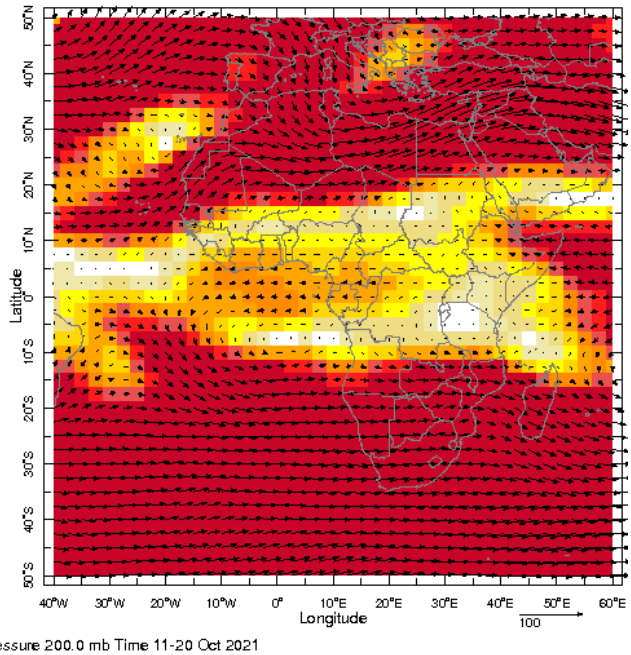

Figure 2c: Mean wind at 200 hPa (m/s) during the period from 11 to 20 of October 2021
(Source: NOAA/NCEP)

1.2.3 Relative Humidity (RH) at 850hPa

Figures 4 presents the dekadal observed relative humidity at 850hPa for the second dekad of October 2021 and anomalies to the reference period 1991-2020. Wet atmospheric conditions (relative humidity ≥ 60%) covered a narrow band in the south of the Gulf of Guinea, Central Africa to the Horn of Africa and along the coast of East Africa down to northern Mozambique.

The relative humidity anomalies for the second dekad of October 2021 were negative over most of West Africa and eastern Ethiopia. The major part of the continent observed a positive anomaly.

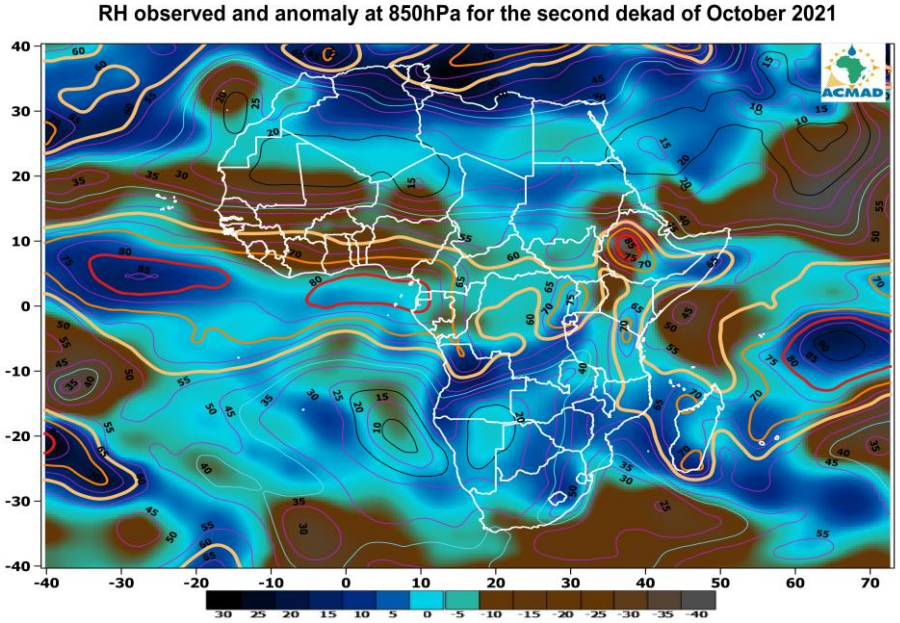

Figure 4. *RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 11^{ttt} to 20th of October 2021 SOURCE/. NOAA/. NCEP-CAR/. CDAS1)*

1.2.4 Relative Humidity at 700hPa

Figure 5 presents the dekadal observed and anomalies of relative humidity at 700 hPa. The figure shows that the high relative humidity belt with values ≥ 60% at 700hPa covered still the Gulf of Guinea but expanding to include part of the Sahel and more of south of Central Africa retreating from Eastern Africa.

The relative humidity anomalies for the second dekad of October 2021 were negative over most of the central band of Africa and the entire Gulf of Guinea countries, most of Mauritania, Cameroon, Nigeria, western DRC and CAR. The rest of the continent observed a positive anomaly.

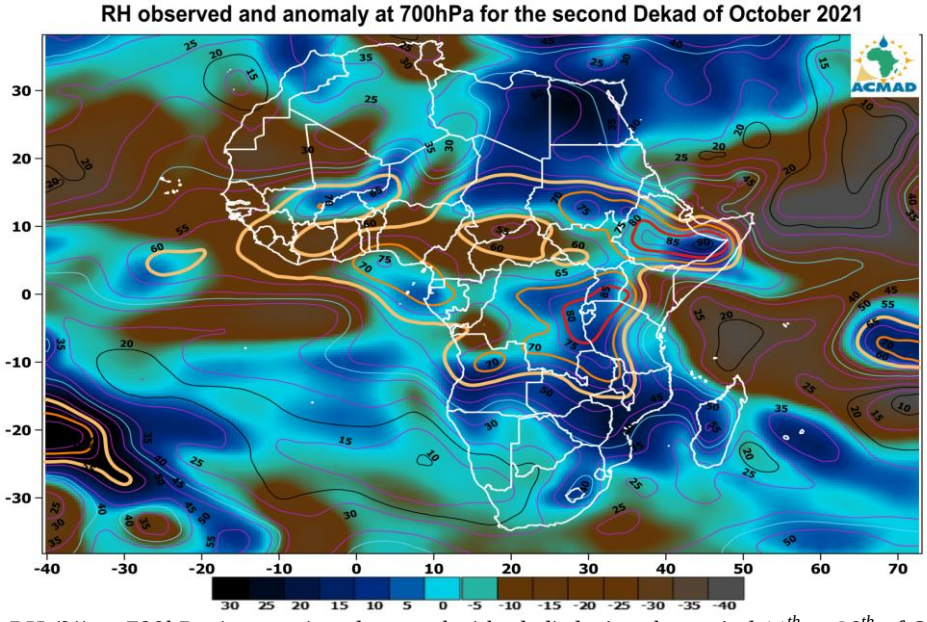

Figure 5. *RH (%) at 700hPa (contour) and anomaly (shaded) during the period 11th to 20th of October 2021 (SOURCE/. NOAA/. NCEP-CAR/. CDAS1)*

2.0 PRECIPITATION

Figure 6 shows the observed precipitation in percentage of average for the second dekad of October 2021.

2.1 Precipitation

The second dekad of October 2021 witnessed a diversity of climatological tendencies across the continent, from a continuous retreat of the rains from the Sahel to an effective implementation of the season further south of the Equator with above to well above average precipitation observed over eastern Guinea, south of Ghana, north Cameroon, north east of CAR, most of east to central DRC, and north of Tanzania. Below to well below average precipitation dominated the dekad with deficits observed over most of Ethiopia, South Africa, west DRC, north west of Angola, western Cameroon, south Nigeria, south of Senegal, Côte d'Ivoire and most of western Congo.

Details:

- **North Africa**: This region experienced mostly near average rainfall conditions during the dekad.
- **Gulf of Guinea countries**: The region observed a dominant well below average precipitation with isolated cases of above to well above average rainfall in Guinea, south Mali, north Côte d'Ivoire and south Ghana.
- **Central Africa countries**: Well below average precipitation dominated in southern Cameroon, Equatorial Guinea, Congo, DRC, Angola and CAR. Above average to well above-average rainfall was observed over parts of CAR, north of Cameroon and most of central to eastern DRC.
- **East Africa countries:** The below to well below average rainfall observed over eastern Kenya, south west of Somalia and most of Uganda**.** The rest of the sub-region observed normal precipitation..
- **Southern Africa countries:** Most of the SADC countries experienced near average rainfall while well below average precipitation was observed over the southeast to north of South Africa.

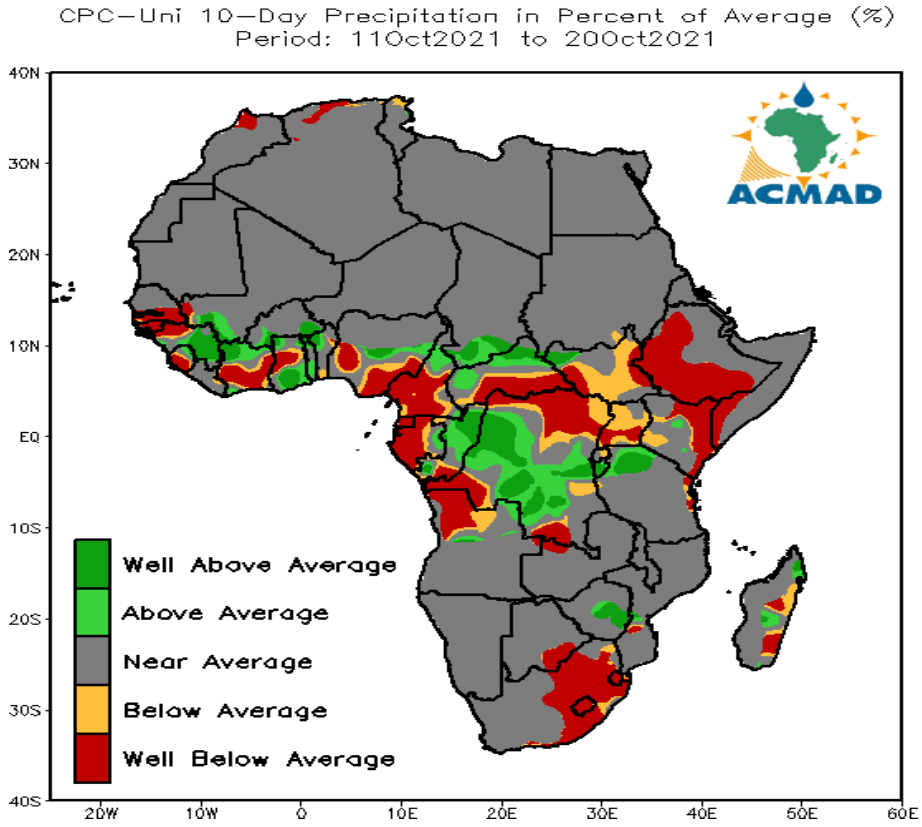

Figure 6: *Precipitation in the percentage of average for the third dekad 11th t to 20th of October 2021. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)*

3.0 OUTLOOK VALID FOR 27th October – 2nd NOVEMBER 2021 AND 3RD – 9TH NOVEMBER 2021

3.1 PRECIPITATION

During the period of 27 October -2nd November 2021, low to moderate precipitation is expected to dominate over most of the Central African sub-region especially in DRC, southern Cameroon, north-east of Angola, most of Congo and Gabon. Moderate to heavy precipitation is expected over the west coast of Cameroon, Equatorial Guinea and north-west of Gabon.

Figure 7b shows that during the week of 3rd - 9th November 2021, the same scenario of low to moderate precipitation like in week one over most of the Central African sub-region, with moderate to heavy precipitation over the south west coast of Cameroon and west Gabon.

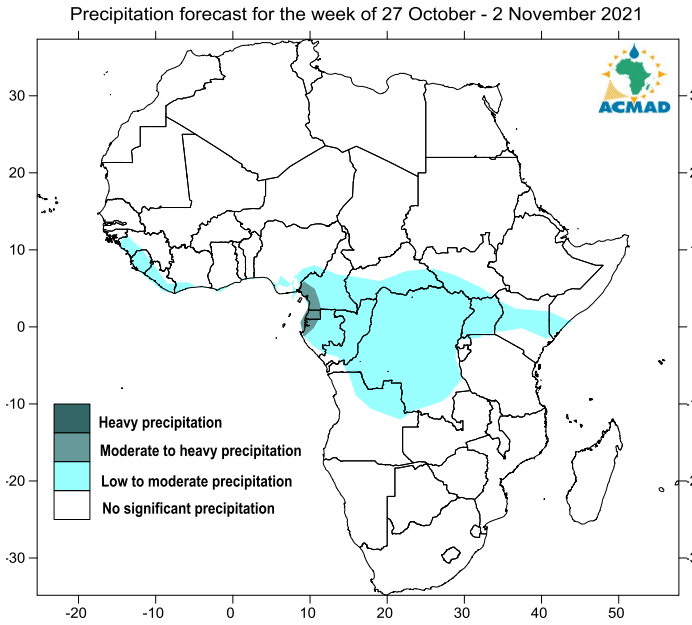

***Figure 7a**: Precipitation forecast for 27th October to 2nd November 2021*

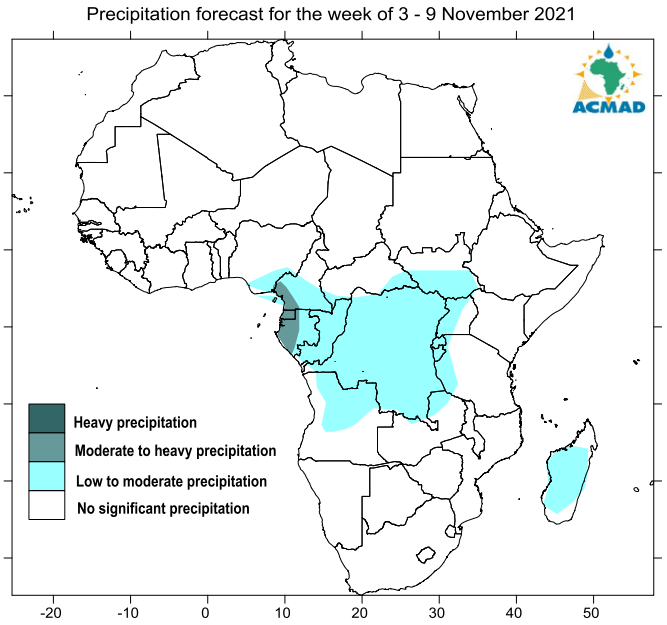

***Figure 7b**: Precipitation forecast for 3rd -9th November 2021*

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecast for the week of 26 October -3rd of November 2021. Temperatures are expected to be above average over most areas of the continent except for the Gulf of Guinea countries and Central Africa.

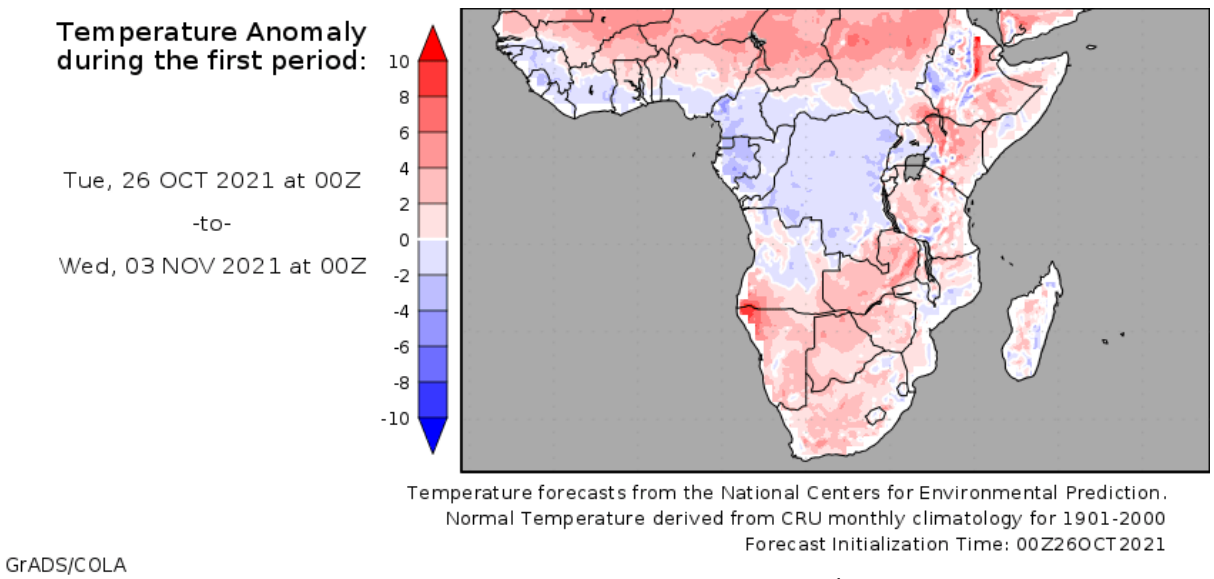

***Figure 8:** Temperature anomalies prospect from 26th October to3rd of November 2021 (Source: COLA)*

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 26 October -3rd November 2021 where positive soil moisture is expected over south of Gabon, all of DRC, most of Angola and Tanzania with parts of South Africa and Botswana. The rest of the continent expects negative soil moisture values during the forecast period.

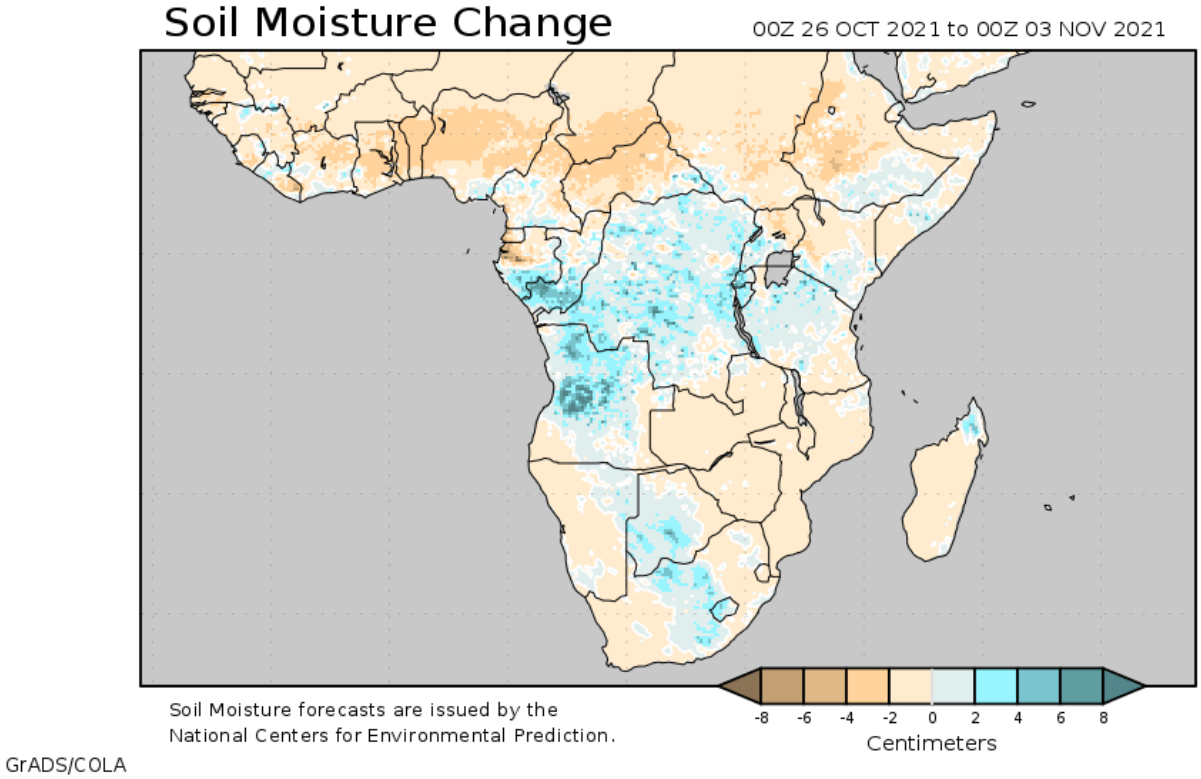

Figure 9: Soil moisture change prospect for the period 26th October to 3rd November 2021 (Source: COLA)