

Ten Days Climate Diagnostics Bulletin

N°30

Dekad, 21 - 31 October 2021

HIGHLIGHTS

The third dekad of October saw a continuous retreat of the rains from the Northern hemisphere and an effective implementation of the season further south of the Equator with above average to well above average precipitation observed over most of Gulf of Guinea areas. Below to well below average precipitation dominated over most of the east African countries from Ethiopia, Somalia, Kenya, east of Tanzania, Mozambique and north of Zambia. Areas of above to well above average precipitation are observed further south in most of Angola, south of Zambia, north east of Namibia, south Botswana and central part of S. Africa. Below to well below average precipitation was observed in the eastern part of the continent with countries like Ethiopia, Somalia, Mozambique and Madagascar mostly affected.

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 5th - 11th and 12th - 18th of November 2021, low to moderate precipitation is expected to dominate over most of the southern Cameroon, Congo, DRC, Angola and south east of S. Africa. The rest of the continent is expected to receive no significant rainfall event.

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, thereby maintaining its value compared to the previous dekad while intensifying by 4hPa to its climatological mean (1991-2020). The high pressure was located at 27°W and 33°N and moving north-east of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1024hPa and has relaxed by 1hPa compared to the previous dekad and intensified by 1hPa to its climatological mean (1991-2020). It was located at 9°W and 30°S. It moved north-west from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1027hPa, intensifying by 4hPa compared to the previous dekad and by 4hPa to its climatological mean (1991-2020). Located at 79°E and 33°S, it moved south-west of its climatological position over the south Indian Ocean.
- **Ethiopian High:** The high-pressure system over Ethiopia in East Africa observed 1015hPa dropping by 1hPa from the previous dekad while maintaining its climatological position at 39°E and 9°N.

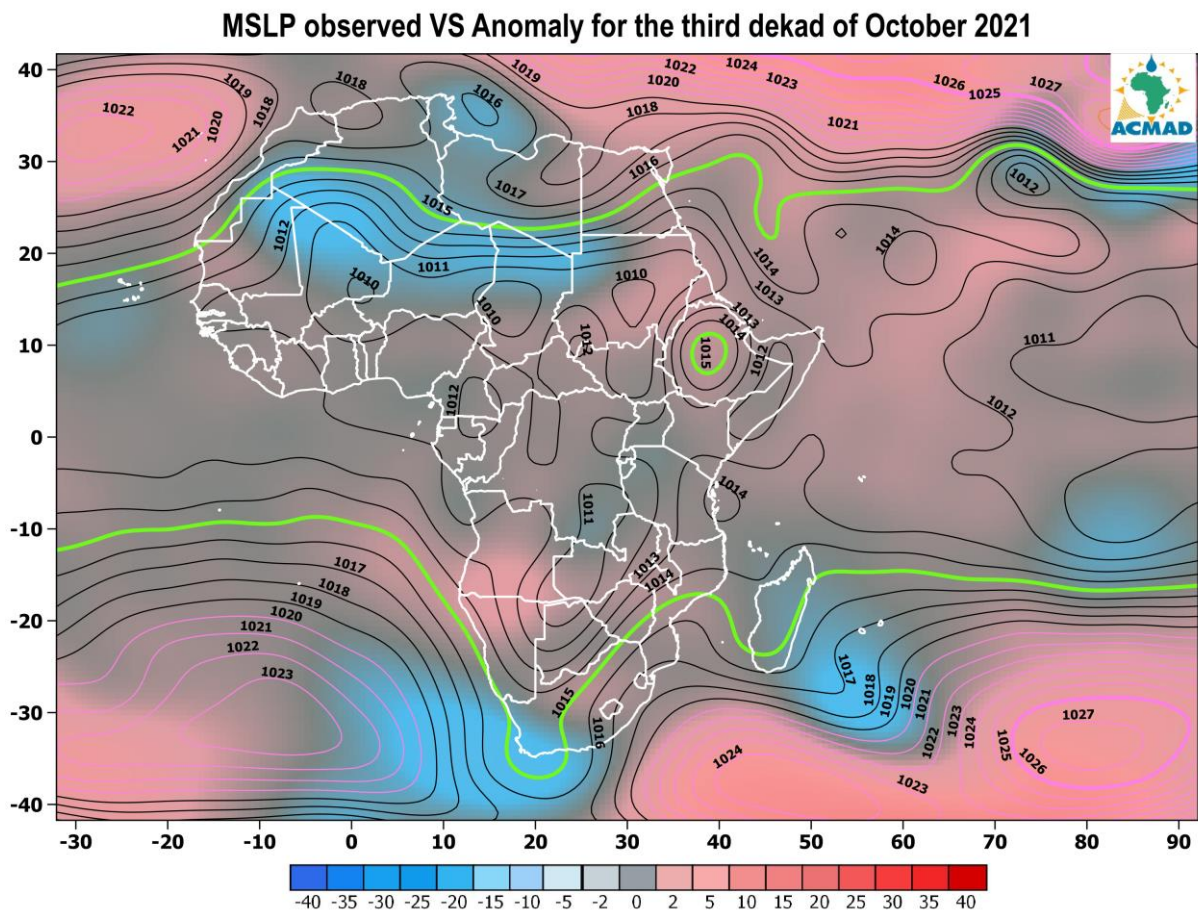


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21st to 31st October 2021

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 average wind anomaly of about 5m/s.

Figure 2b: At the 700hpa level, the western wind anomaly dominated circulation over northern Africa while Central Africa observed easterly wind anomalies. The southern part of Africa observed westerly to north westerly wind anomalies with varying speed of 4m/s to about 6m/s of Namibia and S. Africa.

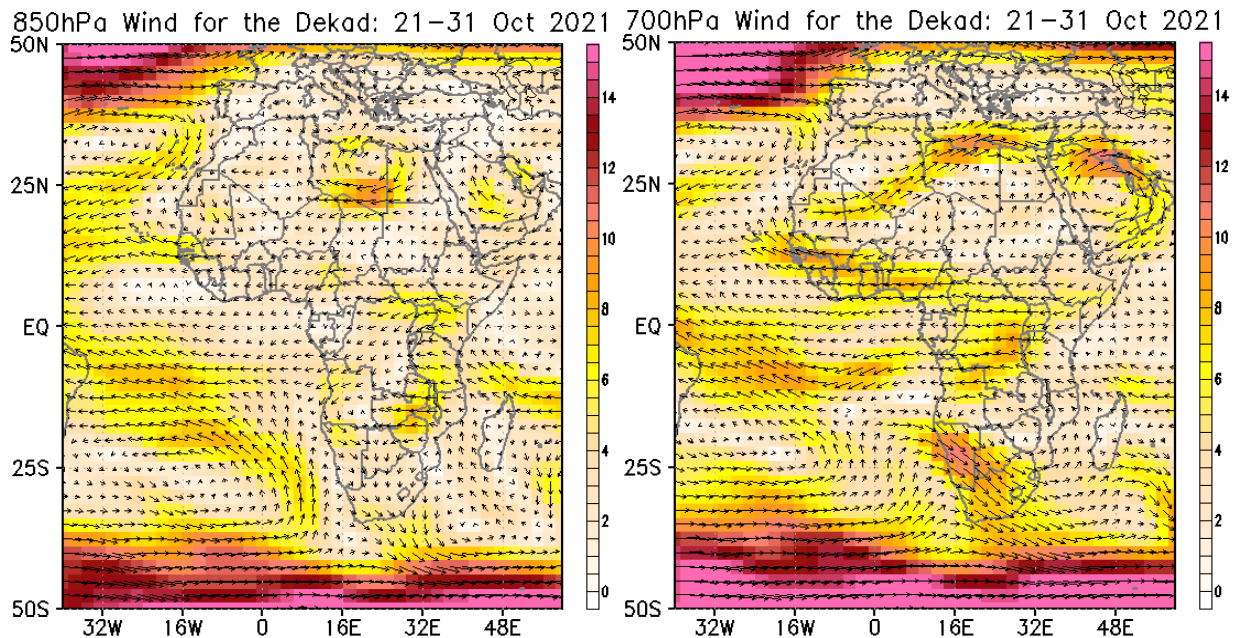


Figure 2a: Mean wind (m/s) at 850hpa from 21 to 31 October 2021
Source: NOAA/NCEP

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

Figure 2c: shows the wind vector anomaly at 200hPa. During the third dekade 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 cyclonic winds in the southern Atlantic cutting across to eastern Africa.

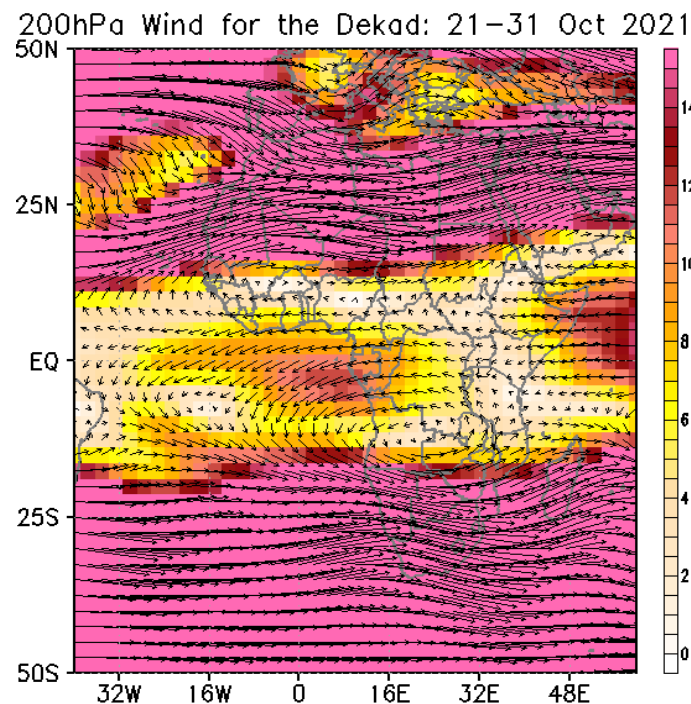


Figure 2c: Mean wind at 200 hPa (m/s) during the period from 11 to 20 of October 2021

1.2.3 Relative Humidity (RH) at 850hPa

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

The relative humidity anomalies for the third dekad of October 2021 were positive over most of the continent and negative over Ethiopia, Somalia, South Sudan and Uganda.

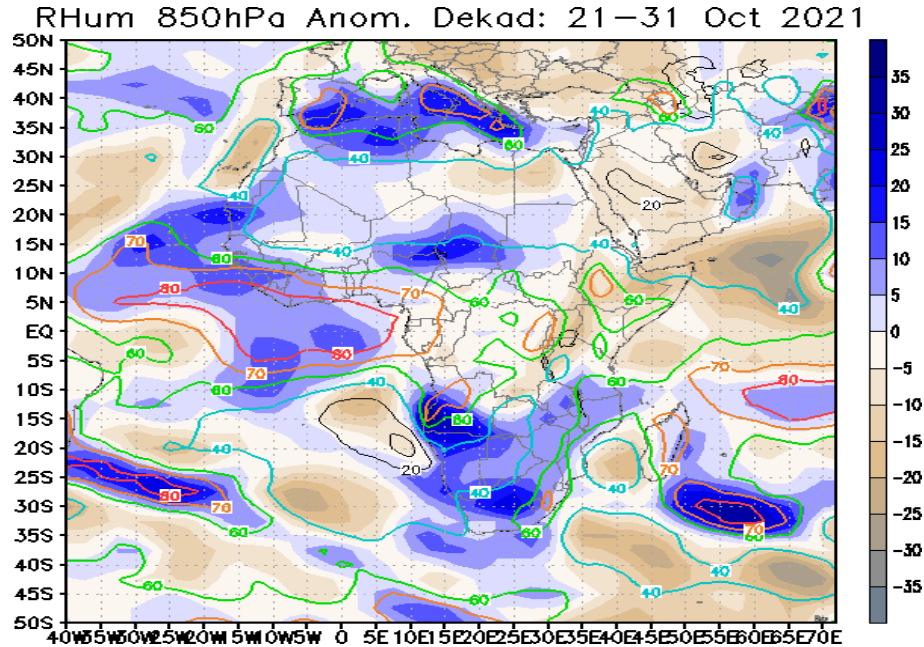


Figure 4. RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 21st to 31st of October 2021
(SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

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 $\geq 60\%$ at 700hPa covered still the Gulf of Guinea but expanding to entire Central and southern Africa.

The relative humidity anomalies for the second dekad of October 2021 were negative over most of the central band of Africa and the part of East Africa. The rest of the continent observed a positive anomaly.

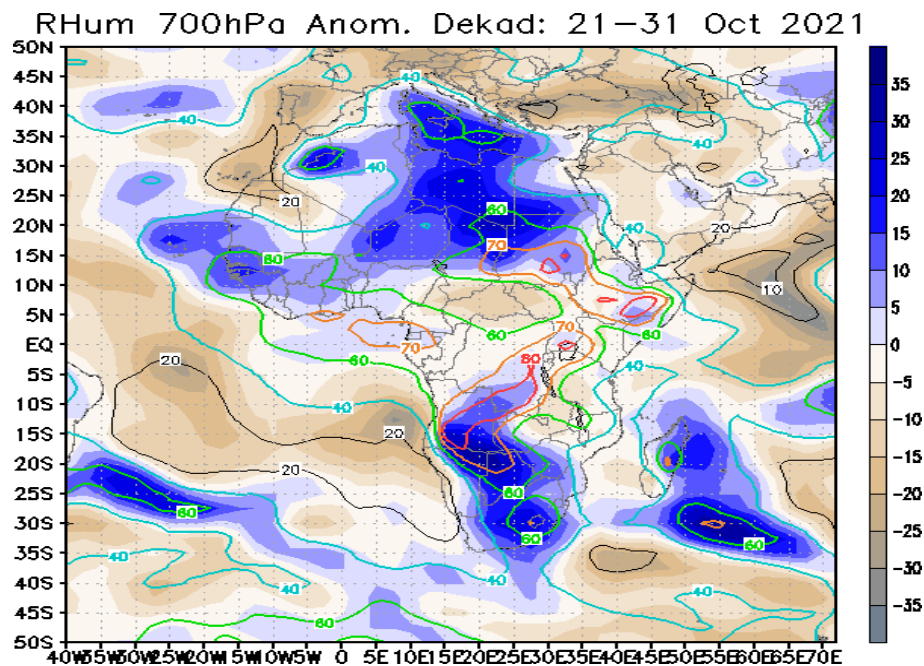


Figure 5. RH (%) at 700hPa (contour) and anomaly (shaded) during the period 21st to 31st of October 2021
(SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

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

2.1 Precipitation

The third dekad of October saw a continuous retreat of the rains from the Northern hemisphere and an effective implementation of the season further south of the Equator with above average to well above average precipitation observed over most of Gulf of Guinea areas. Below to well below average precipitation dominated over most of the east African countries from Ethiopia, Somalia, Kenya, east of Tanzania, Mozambique and north of Zambia. Areas of above to well above average precipitation are observed further south in most of Angola, south of Zambia, north east of Namibia, south Botswana and central part of S. Africa. Below to well below average precipitation was observed in the eastern part of the continent with countries like Ethiopia, Somalia, Mozambique and Madagascar mostly affected.

Details:

- **North Africa:** This region experienced mostly near average rainfall conditions meanwhile below to well below average rainfall was recorded over Morocco, northern Algeria and north of Libya.
- **Gulf of Guinea countries:** The region observed a dominant above to well above average precipitation with isolated cases of below to well below average over Equatorial Guinea and Gabon.
- **Central Africa countries:** Well below average precipitation dominated in central and southern Cameroon, south of Chad, north east of CAR and north of DRC. Above to well above average precipitation was observed in north Cameroon, west of CAR, central Congo and Angola and west of DRC.
- **East Africa countries:** The below to well below average rainfall dominated over Kenya, Ethiopia, east of Tanzania, Somalia and most of Uganda. The rest of the sub-region observed normal precipitation..
- **Southern Africa countries:** The SADC countries experienced above to well above average rainfall most of S. Africa, Zambia, Zimbabwe and south of Botswana. Below to well below average rainfall was observed over most of Mozambique, Madagascar and north of S. Africa.

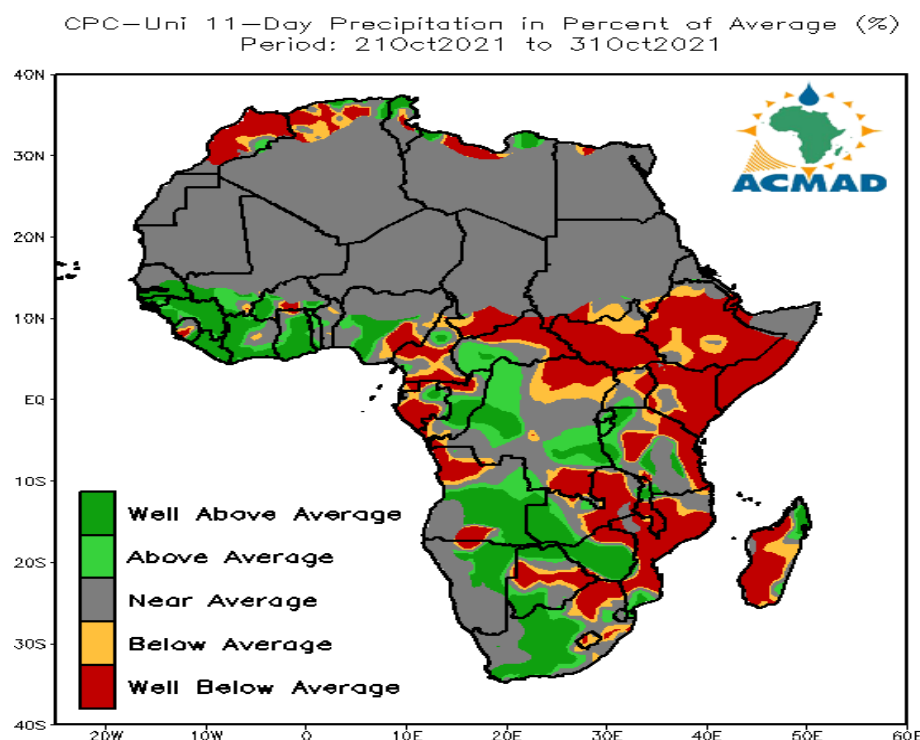


Figure 6: Precipitation in the percentage of average for the third dekad 11th to 20th of October 2021. The reference period used is 1991-2020. Source: NOAA/ NCEP/ CPC/ UNIFIED/ Africa/ DAILY/

3.0 OUTLOOK VALID FOR 5th – 11th AND 12TH –18TH NOVEMBER 2021

3.1 PRECIPITATION

During the period of 5th -11th November 2021, low to moderate precipitation is expected to dominate over most of the Central African sub-region especially in DRC, southern Cameroon, most 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 Equatorial Guinea.

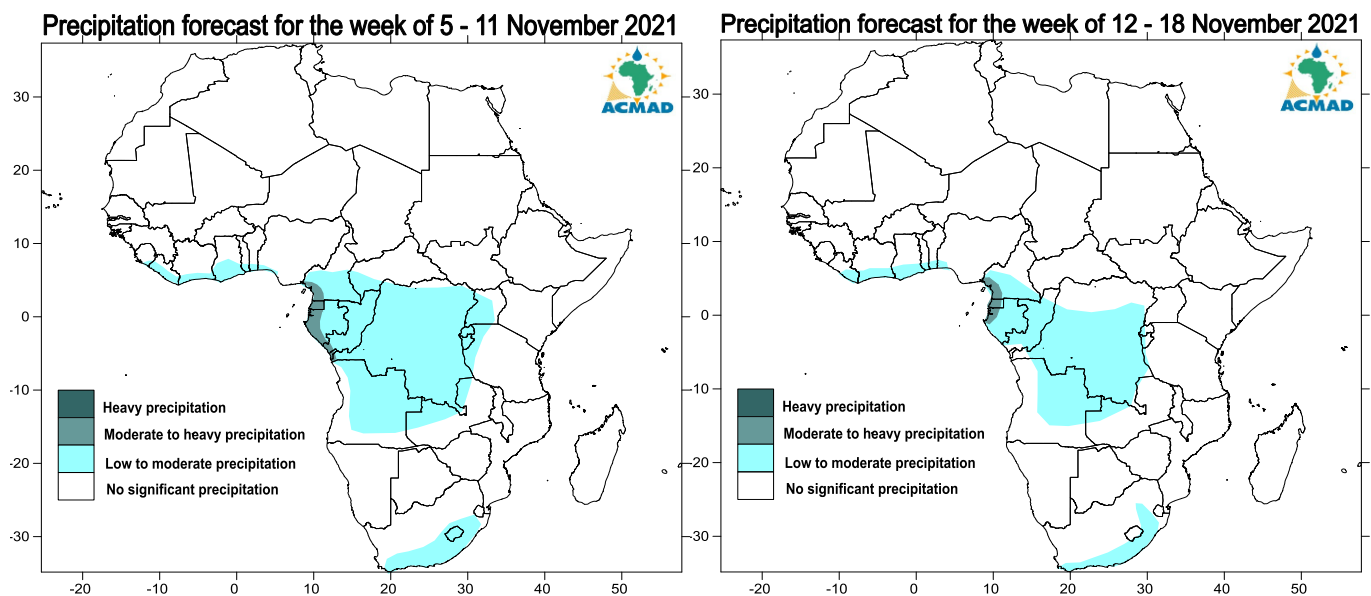


Figure 7a: Precipitation forecast for 5th -11th November

Figure 7b: Precipitation forecast for 12th - 18th November 2021

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecast for the week of 4th – 12th of November 2021. Temperatures are expected to be above average over most areas of the continent except for the south part of the Gulf of Guinea countries and Central Africa.

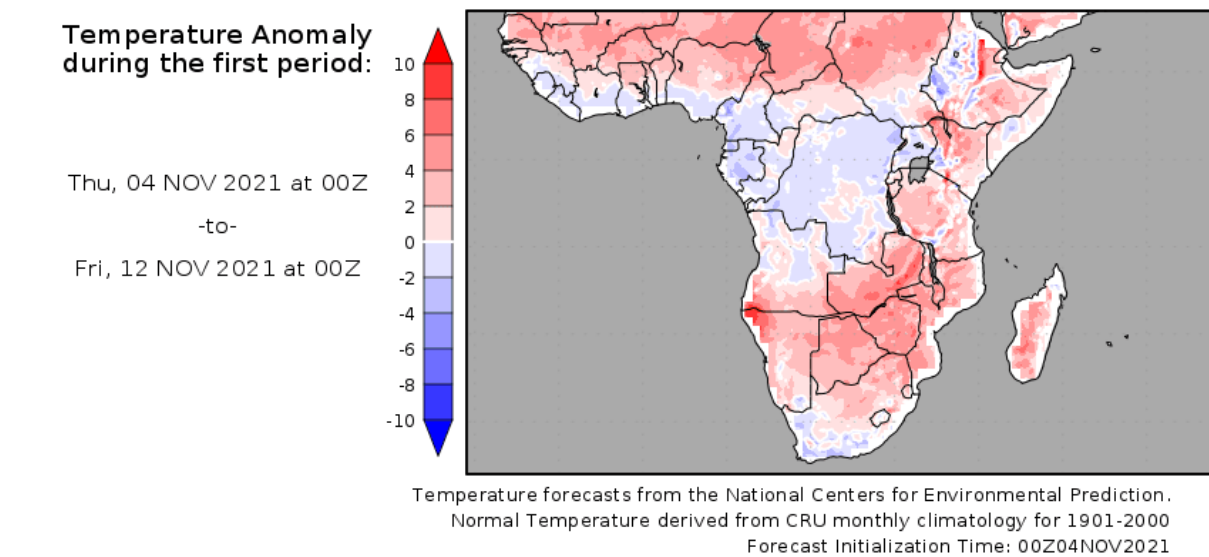
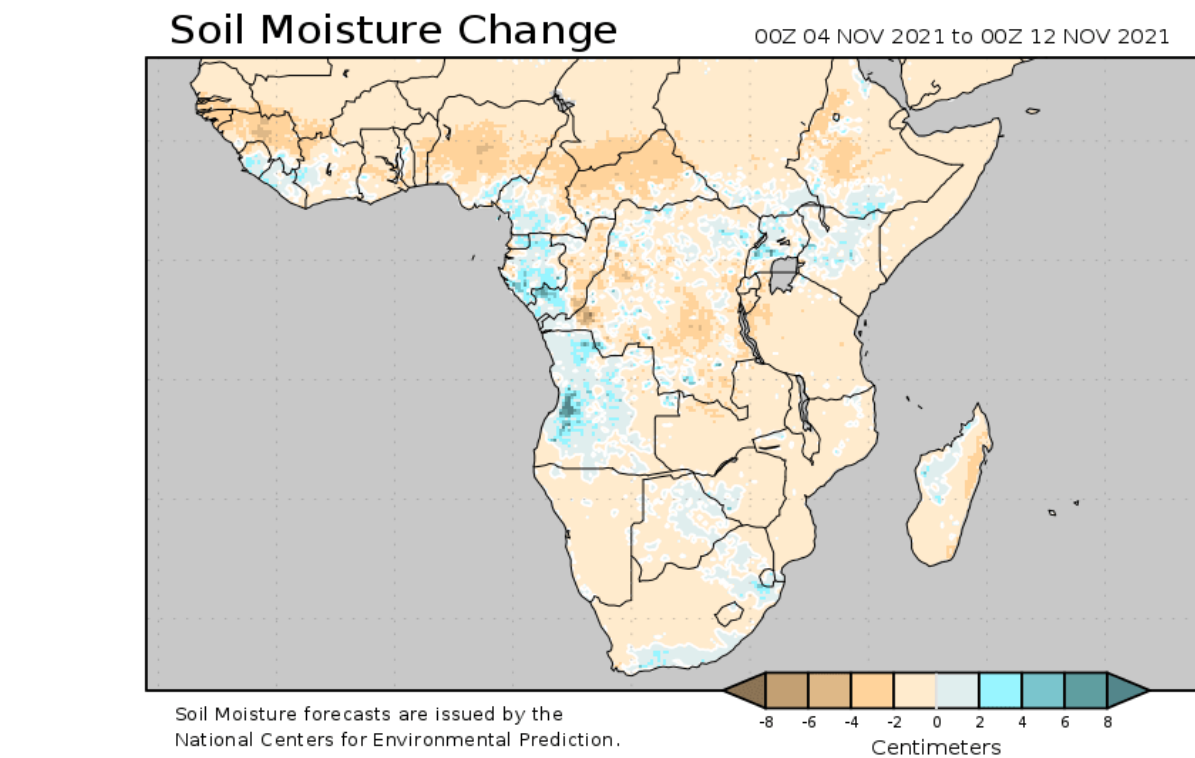


Figure 8: Temperature anomalies prospect from 4th – 12th of November 2021
(Source: COLA)

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 4th – 12th November 2021 where positive soil moisture is expected over Gabon, most of Angola, parts of Kenya, south Ethiopia, Uganda Botswana and north east of S. Africa. The rest of the continent expects negative soil moisture values during the forecast period.



*Figure 9: Soil moisture change prospect for the period 4th – 12th November 2021
(Source: COLA)*