

Ten Days Climate Diagnostics Bulletin

N°31

Dekad 1, 1 - 10 November 2021

HIGHLIGHTS

- ✓ The first dekad of November saw a continuous retreat of the rains from the northern Africa. General tendency of below to well below average rainfall conditions dominated most of the continents, except for the southern parts of Gulf of Guinea countries, abroad area of Cameroon, CAR, Congo Republic, DRC, Zambia and Tanzania.
- ✓ 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 outlook for 13th-26th November 2021, depict a general tendency of an increase chance for low to moderate precipitation. Moderate to heavy precipitation are expected over central Angola, eastern Congo Republic, western DRC and Lesotho.

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 summary of monsoon and relative humidity thresholds.

1.1 SURFACE

Pressure Systems

- **The Azores High** observed a central value of 1026hPa, intensifying by 4hPa compared to the previous dekad while intensifying by 8hPa to its climatological mean (1991-2020). The high pressure was located at 20°W and 42°N and moving north-east of its climatological position over the North Atlantic Ocean.
- **St. Helena High** observed a central value of 1023hPa and has relaxed by 1hPa compared to the previous dekad, however maintaining the same value as its climatological mean (1991-2020). It was located at 14°W and 30°S. It moved eastward from its climatological position over the South Atlantic Ocean.
- **Mascarene High** observed 1023hPa, weakening by 4hPa compared to the previous dekad and maintaining the same value as its climatological mean (1991-2020). Located at 90°E and 35°S, it moved eastward of its climatological position over the south Indian Ocean.
- **Heat Low:** Low-Pressure system over southwestern Chad and southern North Sudan observed the same value of 1009hPa, deepening by 1hPa compared to the previous month. The pressure system over Chad had a location of 15°E and 15°N while the system over North Sudan was located at 32°E and 15°N. A third heat low was located at 25°E and 20°S over the borders of Zambia, Botswana and Angola with a central value of 1009.

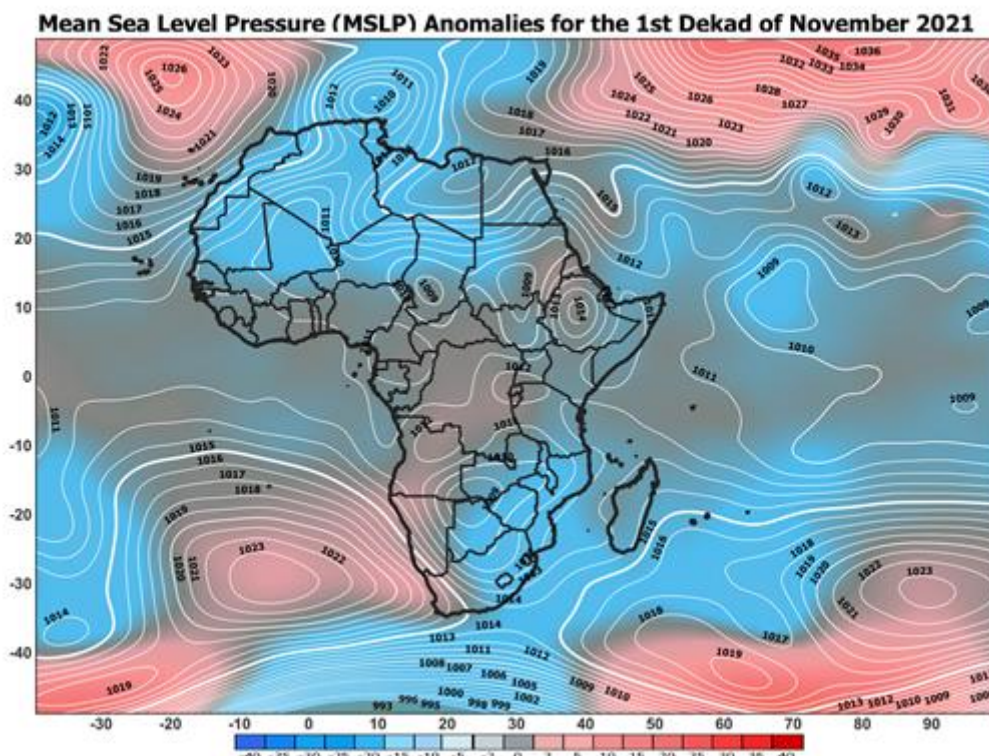


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 1st to 10th November 2021

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 was observed over most areas with an anticyclone circulation over Tunisia and Algeria with an average wind anomaly of about 8m/s.

Figure 2b: At the 700hPa level, the western wind anomaly dominated circulation over northern Africa while the southern part of the Gulf of Guinea countries observed easterly wind anomalies of 8m/s to about 10m/s. The southern part of Africa observed westerly to north-westerly wind anomalies with varying speeds of 10m/s to about 14m/s of Namibia and S. Africa.

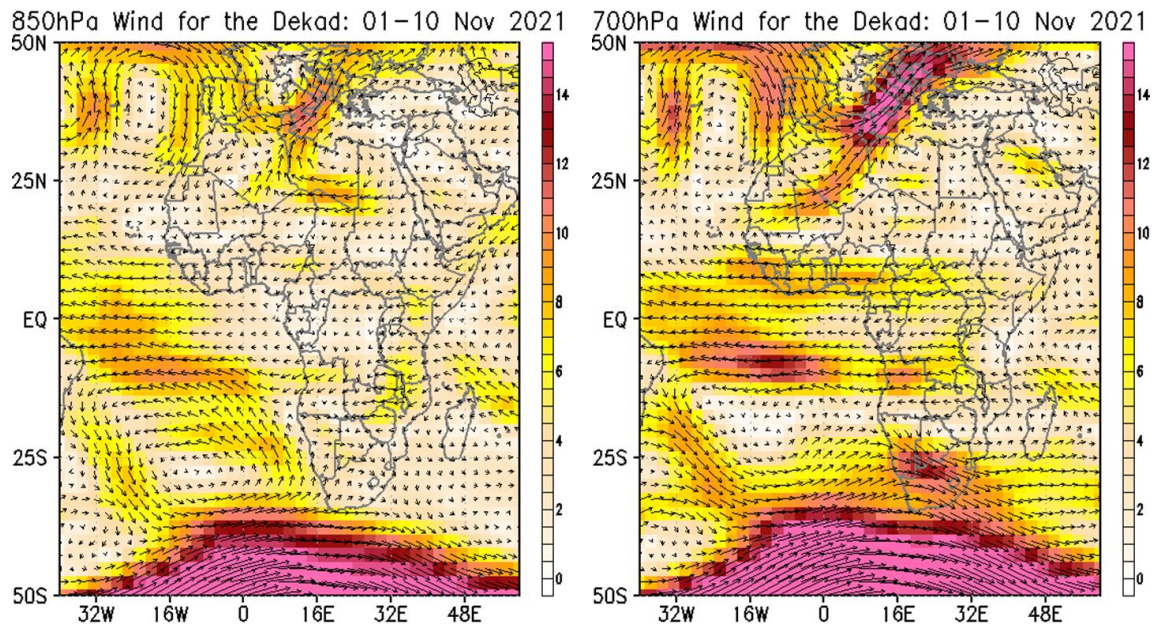


Figure 2a: Mean wind (m/s) at 850hpa from 1-10 November 2021
Source: NOAA/NCEP

Figure 2b: Mean wind (m/s) at 700hpa from 1-10 November 2021
Source: NOAA/NCEP

Figure 2c: shows the wind vector anomaly at 200hPa. During the first dekad of November 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.

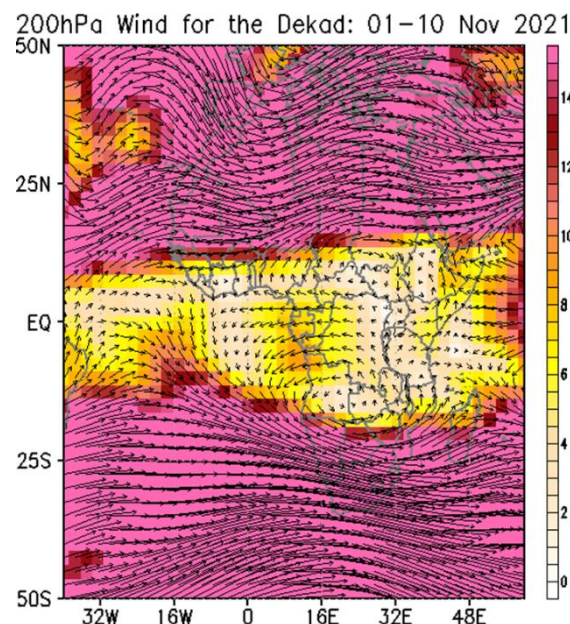


Figure 2c: Mean wind at 200 hPa (m/s) during the period from 1-10 November 2021
(Source: NOAA/NCEP)

1.2.3 Relative Humidity (RH) at 850hPa

Figure 4 presents the dekadal observed relative humidity at 850hPa for the first dekad of November 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 to Madagascar and the southern fringes of South Africa.

The relative humidity anomalies for the first dekad of November 2021 were negative mostly over the northern part of the continent, central, eastern and southern Africa. Positive anomalies were observed over the north of Nigeria and part of the Sahel.

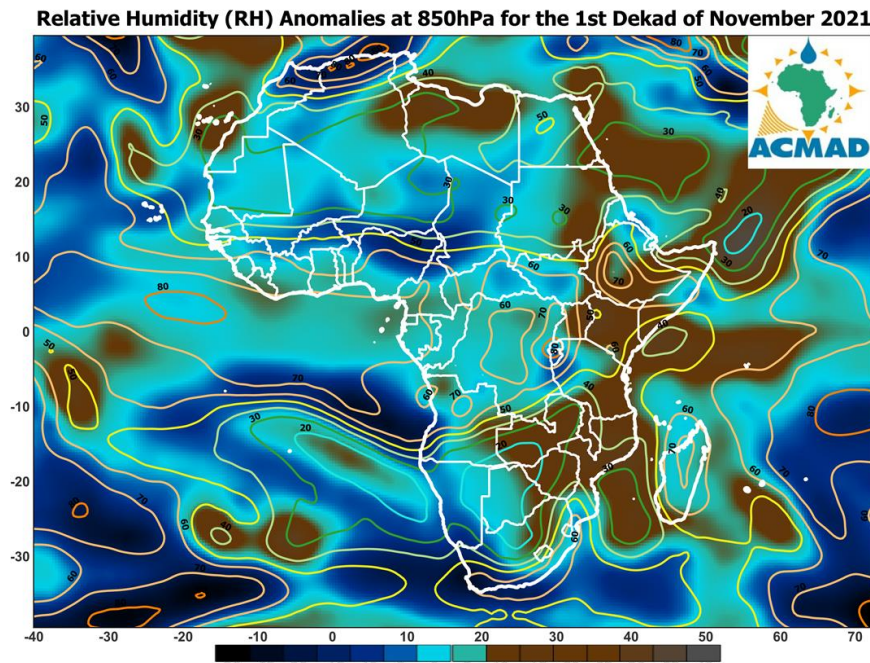


Figure 4. RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 1st to 10th November 2021
SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

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 was mostly observed over east and central Africa. In West Africa, only southeast of Mali and western Burkina Faso observed RH of 60%.

The relative humidity anomalies for the first dekad of November 2021 were negative over most of the central, southern and part of East Africa. The rest of the continent observed positive anomalies.

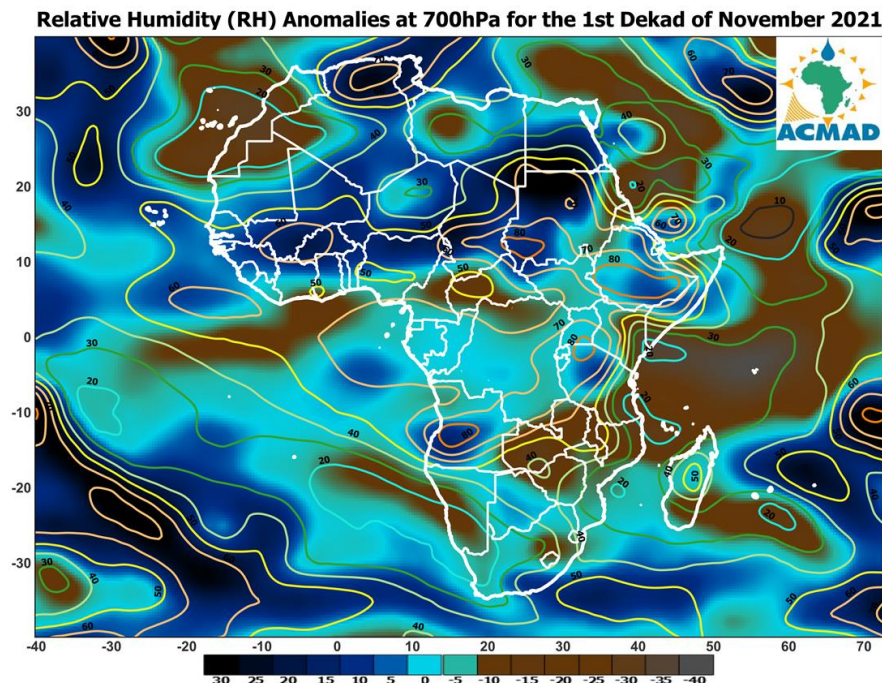


Figure 5. RH (%) at 700hPa (contour) and anomaly (shaded) during the period 1st to 10th November 2021
(SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

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

2.1 Precipitation

The first dekad of November saw a continuous retreat of the rains from the northern Africa and effective implementation of the season further south of the Equator with above-average to well above-average precipitation observed over the southern part of the Gulf of Guinea countries as well as over parts of central, eastern and southern African countries such as Cameroon, CAR, Congo, DRC, Tanzania, Zambia, South Africa and Madagascar. Below to well below average rainfall conditions dominated most of central Africa to parts of eastern and southern Africa region.

Details:

- **North Africa:** This region experienced mostly near average rainfall conditions meanwhile pockets of below to well below average rainfall was recorded over the northern fringes of Morocco, Algeria, Tunisia and Libya.
- **Gulf of Guinea countries:** Above average to well above average precipitation was observed over the southwestern part of Nigeria, southern Benin, Ghana and Ivory Coast and Liberia. Northern Liberia, southern Sierra Leone and the south-eastern part of Nigeria observed below average to well below average rainfall.
- **Central Africa countries:** Below average to well below average rainfall was observed over Equatorial Guinea and Uganda, central and southern Cameroon, southern Congo as well as over most parts of the DRC and Gabon. Above to well above-average precipitation was observed over the southeast of Cameroon, central CAR, north, central and south-east of DRC, and also over the northern part of Congo.
- **East Africa countries:** Below to well below-average rainfall dominated parts of this region especially over Kenya, southern parts of South Sudan, Ethiopia, Somalia and east of Tanzania. West of Tanzania had above to well above average rainfall conditions.
- **Southern Africa countries:** For the SADC countries, central to the north of Angola, eastern South Africa and Madagascar, most of Zimbabwe and parts of Zambia, Mozambique and Lesotho experienced below to well below average rainfall. Zambia, South Africa and Madagascar observed pockets of above to well above average rainfall.

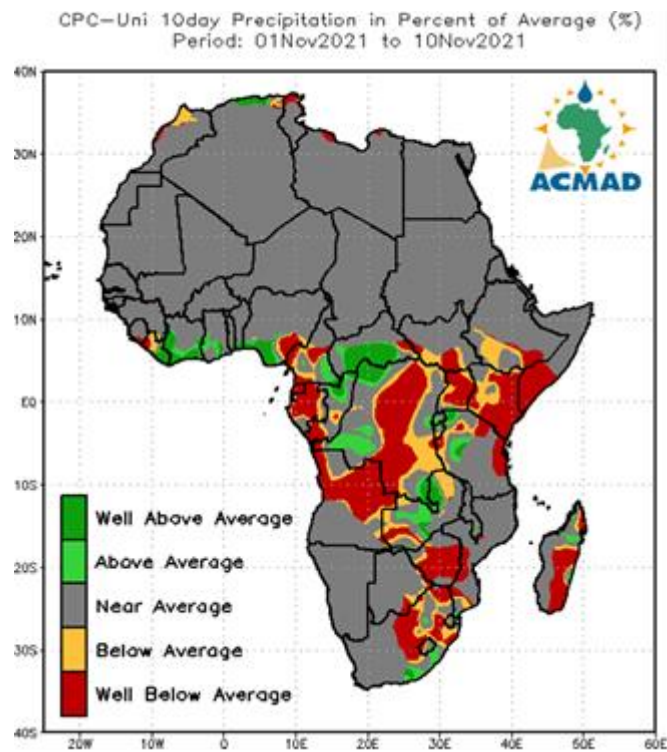


Figure 6: Precipitation in the percentage of average for the third dekad 1st to 10th November 2021. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)

3.0 OUTLOOK VALID FOR 13th-19th AND 20th-26th NOVEMBER 2021

3.1 PRECIPITATION

During the period of 13th-19th November 2021, low to moderate precipitation is expected over most of the Central African sub-region especially over Angola, Gabon, Equatorial Guinea, most of DRC, southern parts of Ghana, Ivory Coast, Liberia, Cameroon, CAR, South Africa and over the eastern part of Zambia. Moderate to heavy precipitation is expected over central Angola, west of DRC and east of Congo Republic. Figure 7b shows that during week 2 of 20th – 26th November 2021, the same scenario of low to moderate precipitation as Week 1 is expected over the Central African and southern African region, with moderate to heavy precipitation over central Angola, the border of DRC and Congo Republic as well as over southern part of South Africa.

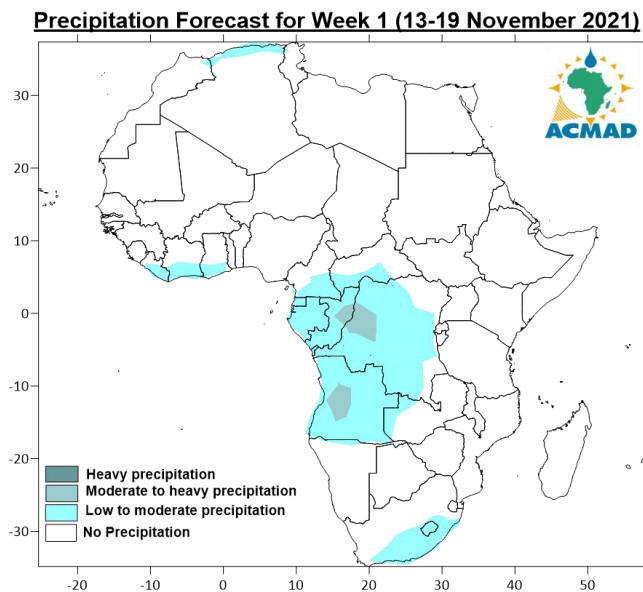


Figure 7a: Precipitation forecast for 13th -19th November 2021

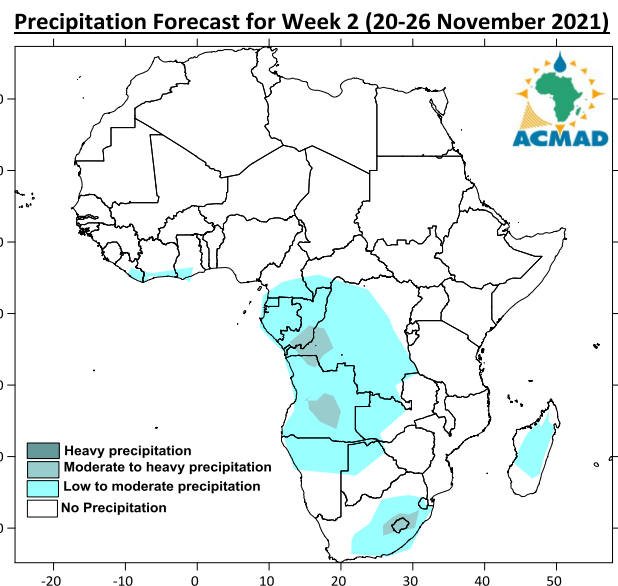


Figure 7b: Precipitation forecast for 20th - 26th November 2021

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecast for the week of 13th – 21st November 2021. Temperatures are expected to be above average over most areas of the continent except for the southern part of the Gulf of Guinea countries, Central Africa, most of Angola and over parts of Ethiopia and southern South Africa.

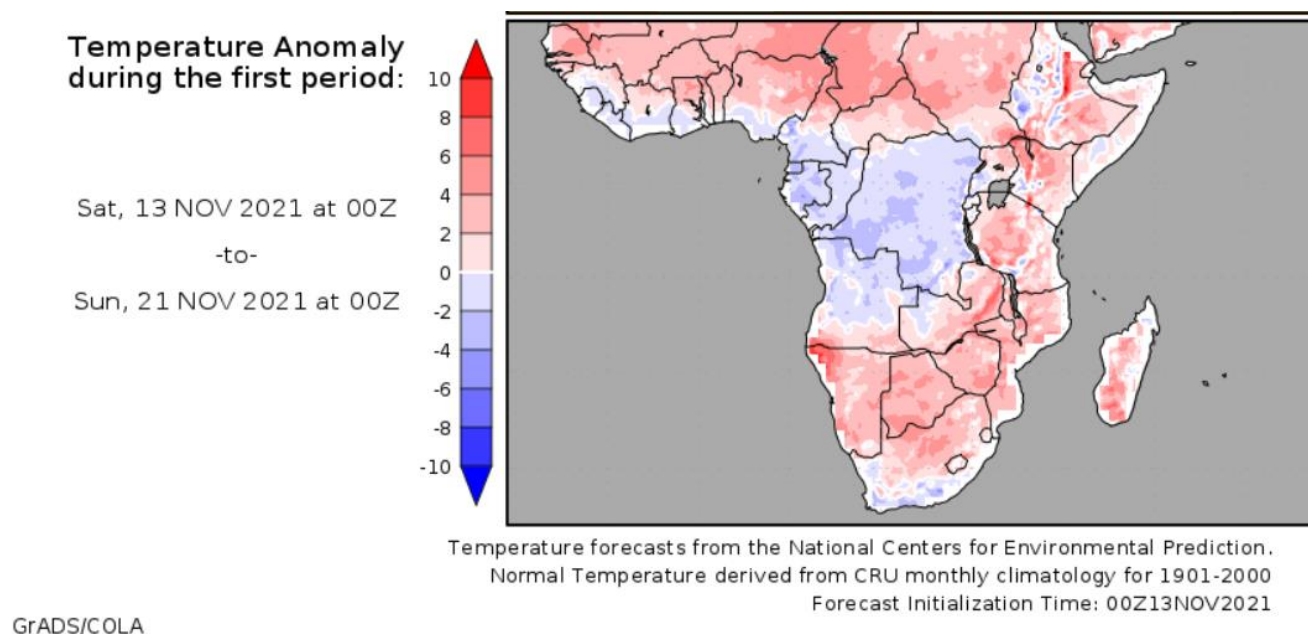


Figure 8: Temperature anomalies prospect from 13th – 21st November 2021
(Source: COLA)

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of 13th – 21st November 2021 where positive soil moisture is expected over Burundi and Rwanda, southern parts of Ghana, Ivory Coast and Gabon, most of Angola, Congo and DRC, parts of Cameroon, Kenya, Uganda, Tanzania, Zambia, Botswana, Zimbabwe, Namibia, South Africa, Mozambique and Madagascar. The rest of the continent is expected to observe negative soil moisture values during the forecast period.

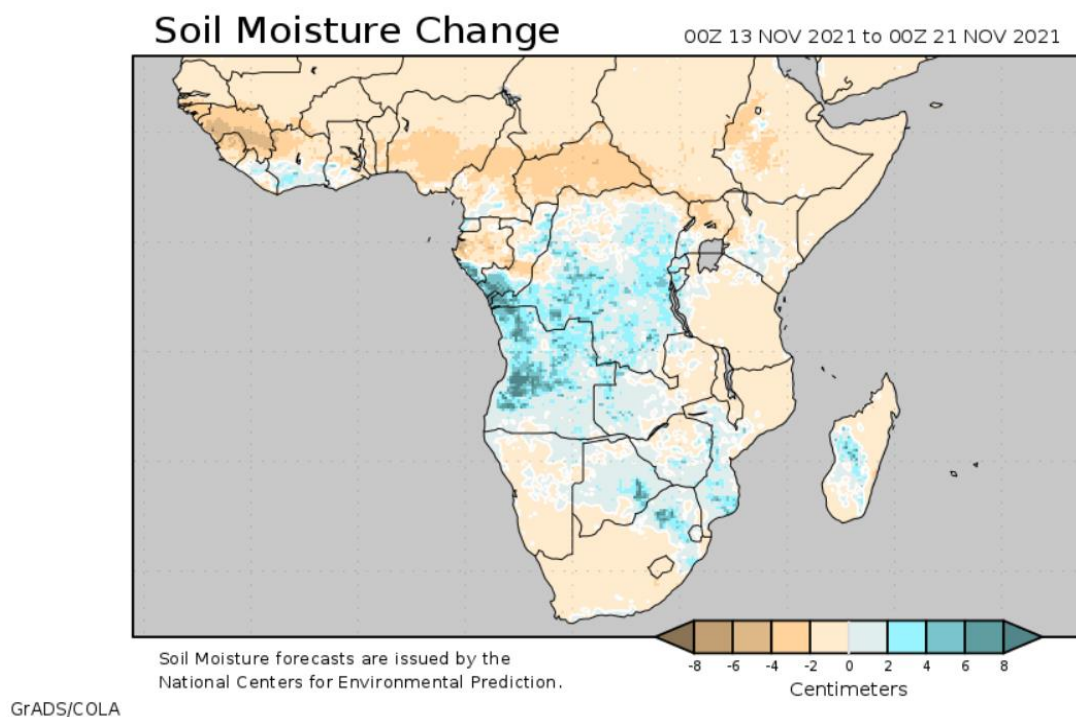


Figure 9: Soil moisture change prospect for the period 13th – 21st November 2021
(Source: COLA)