

Ten Days Climate Diagnostics Bulletin
N°11

Dekad 2, 11th to 20th April 2021

HIGHLIGHTS

During the second dekad of April 2021, above average and well above average rainfall were observed over fringing areas of north Africa, most of the southern coastal section of Gulf of Guinean countries, most part of central Africa, south of east Africa sub-region and north of Madagascar. Below average rainfall was observed over most parts of the east African sub regions, pocket of south Africa, pocket of northern Angola and central Namibia. Near average rainfall was observed over the rest of the continent.

During the period from 26th April to 2nd May 2021, low to moderate precipitation is very likely over most of Liberia, Sierra Leone and the northern fringing of Mozambique, and Malawi. Moderate to heavy rainfall are very likely over northern Coastal area of Morocco, Algeria, and Tunisia, southern CAR, south western South Sudan, northern and southern tip of DRC, Eastern margin of Madagascar. Heavy precipitation is mainly anticipated over southern tip of Cameroon, Equatorial Guinea, Gabon, south of Congo, Rwanda, Burundi, Uganda and southern and central Rift valley of Ethiopia.

Over the same period, the temperature anomalies prospect for the week from 22-30 April 2021 indicates negative temperature anomaly (cooler than average) condition is expected over the southern parts of Gulf of Guinea, most of southern half of Cameroon, Equatorial Guinea, parts of Congo, DRC, Uganda, parts of Somalia and Ethiopia, Tanzania, north of Zambia, north of Angola, northern half of Mozambique, and Madagascar. Areas expected to experience positive temperature anomaly (warmer than average) conditions are the Sahelian zone and places in the SADC region. The rest of the continent is expected to experience normal temperature anomaly (no change) conditions.

During the period from 03rd to 09th May 2021, northern Coastal area of Morocco, Algeria, and Tunisia, Heavy rainfall is very likely over west of Cameroon, part of Gabon, south of Congo, Rwanda, Burundi and Central and south west of Ethiopia.

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 on monsoon and relative humidity thresholds.

1.1 SURFACE

Pressure Systems

- **The Azores High:** The pressure systems at the Azores high recorded 1028 hPa, a weakend by 4hPa compared to the previous dekad whiles it strengthened by 7hPa compared to its climatological mean (1981-2010). It was located at 3°W and 52°N. It moved northward compared to the climatology position over the North Atlantic Ocean.
- **St. Helena High:** The pressure systems at the St. Helena High high recorded 1021 hPa, a weakend by 9hPa compared to the previous dekad and by 4hPa compared to its climatological mean (1981-2010). It was located at 28°E and 36°S. It mostly moved to northward compared to the climatology position over the South Atlantic Ocean.
- **Mascarene High** The pressure systems at the Azores high recorded 1028hPa, strengthening by 1hPa compared to the previous dekad whiles it strengthened by 6hPa compared to its climatological mean (1981-2010). It was located at 94°E and 34°S and it made a slight shift toward the west compared to the climatological position over the Indian Ocean.
- **Heat Low:** The low pressure at Sudan, recorded 1006 hPa, was nither strengthening nor weakening compared to the previous dekad whiles it remaind at same magnitude and position compared to its climatological mean (1981-2010). It was located at 29°E and 11°S.

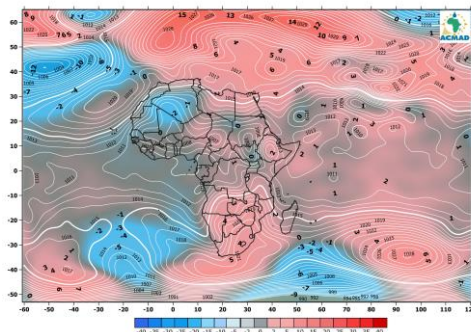


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) during the period from 11th to 20th April 2021

1.2 TROPOSPHERE

1.2.1 African Monsoon

In Figure 2, the left pannel shows the average wind velocity during the second dekad of April at 850 hPa atmospheric level. Strong to moderate north-easterlies winds were prevailed over Egypt, Libya, south-west Ethiopia and north of Kenya. Whilst, strong to moderate south easterlies have dominated across the south parts of the continent including northern Madagascare, Mozambique, south of Tanzania, south of DRC, Zambia, Botswana, Angola and Nambie.

The right pannel in figure 2 shows the observed mean dekadal wind velocity at 700 hPa. The figure indicates a moderate to strong westerly wind were observed over the south fring of Morocco, Mauritana, north Mali, south and north of Algeria, Tunisia, Chad and Sudan. Whereas, moderate easterlies dominated over the DRC and most of Gulf Guinea countries. The weak to moderate wind were observed over the rest of continent.

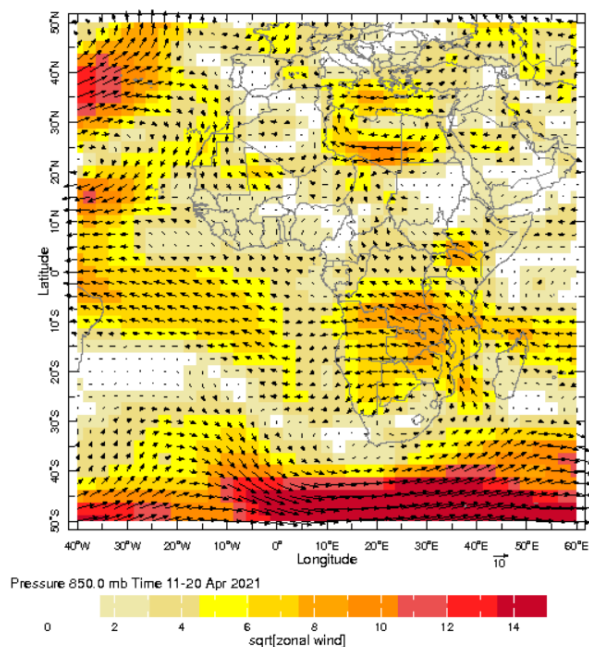


Figure 2: Mean wind at 850 hpa (m/s) during the period from 11th to 20th April 2021.
Source: NOAA/NCEP

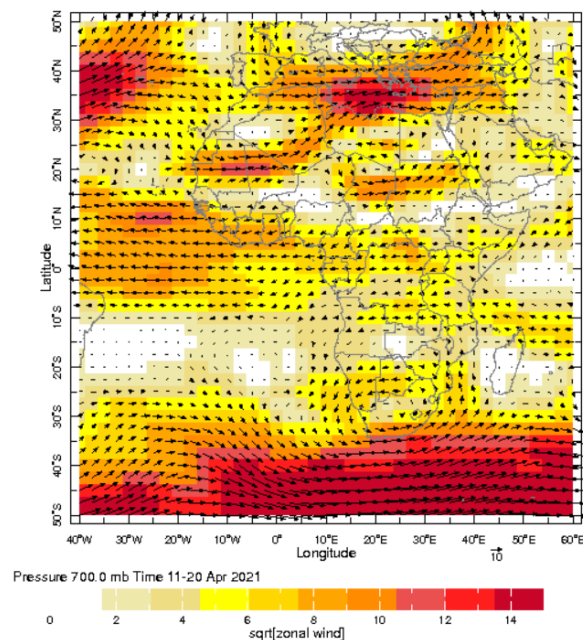


Figure 2: Mean wind at 700 hpa (m/s) during the period from 11th to 20th April 2021.
Source: NOAA/NCEP

1.2.3 Relative Humidity (RH) at 850 hPa

Figures 4 presents the dekadal relative humidity anomalies for the second dekad of April 2021 at 850 hPa to the reference period 2002-2011. Negative relative humidity anomalies were observed over Eastern part of South Sudan, western Ethiopia, southern Angola, Namibia, western Botswana and South Africa. Positive RH (Indicating moist condition) was observed over the rest most parts of the continent was subjected under normal relative humidity. The anomalies were determined based on the reference period: 2002-2011.

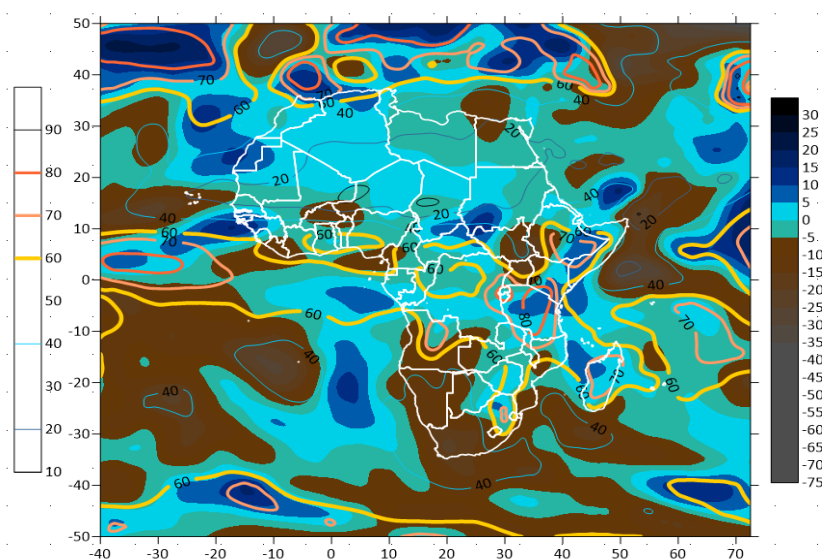


Figure 4. RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 11th to 20th April 2021. SOURCE/. NOAA/. NCEP-CAR/. CDAS1

1.2.4 Relative Humidity at 700hPa

Figures 5 presents the dekadal relative humidity anomalies for the second dekad of April 2021 at 700 hPa to the reference period 2002-2011. Negative relative humidity anomalies were observed over north of Mourtina, north of Gulf of Guinea, south of the Sehal region, most of eastern Africa region and most of Egypt. Most of the SADAC region and some of northern and north western parts of the continent was subjected under positive relative humidity. The anomalies were determined based on the reference period: 2002-2011.

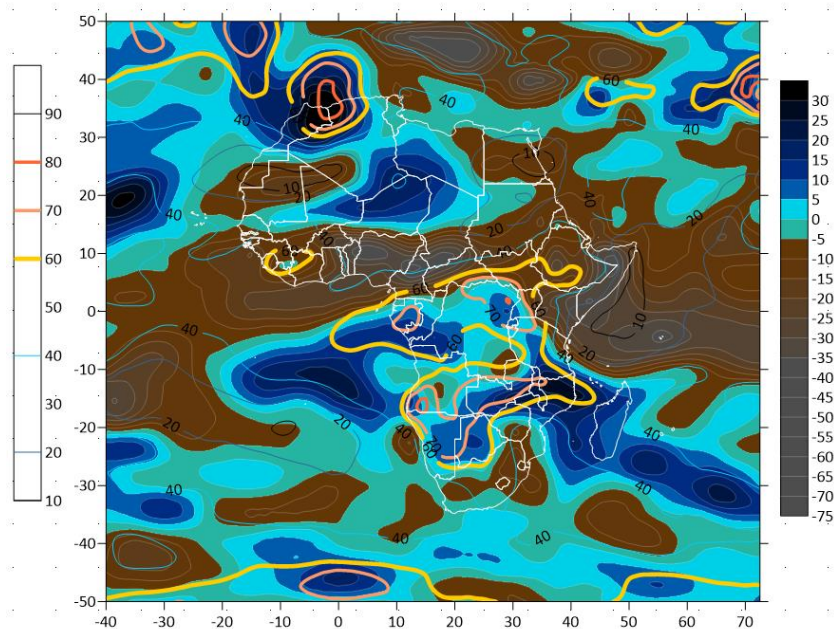


Figure 5. RH (%) at 700hPa (contour) and anomaly (shaded) during the period 11th to 20th April 2021. (SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

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

2.1 Precipitation

During the second dekad of April 2021, above average and well above average rainfall were observed over fringing areas of north Africa, most of the southern coastal section of Gulf of Guinean countries, most part of central Africa, south of east Africa sub-region and north of Madagascare. Below average rainfall was observed over most parts of the east African sub regions, pocket of south Africa, pocket of northern Angola and central Namibia. Near average rainfall was observed over the rest of the continent.

Details:

- **North Africa:** fringing area of north Morocco, Algeria, Tunisia and Libya received above average rainfall, while some pockets of areas of these countries also experienced below to well below average precipitation. The rest of the region experienced near average rainfall.
- **The Sahel countries:** Most of the sub-region received near average rainfall.
- **Gulf of Guinea countries:** except some pocket places in northern section, most of the sub region experienced above to well-above average precipitations.
- **Central Africa countries:** Above average to well above average rainfall was observed over most of DRC, south of CAR and southern half of Cameroon. Near average rainfall was observed over the rest of the sub-region.
- **East Africa countries:** Above to well above average rainfall was recorded at some of south Somalia, part of west Ethiopia and part of South Sudan. Below average to well below average precipitation was observed over north of Nigeria, part of CAR, most parts of Ethiopia. The near average precipitation was observed over the rest of this region.
- **Southern Africa countries:** Above to well above average precipitation was observed over few places in northern Angola, pocket places in north Zambia, few places of Mozambique and

northern half of Madagascar. Below to well below average precipitation was observed over pocket areas of east of South Africa and Swaziland. The rest of the region experienced near average average precipitations.

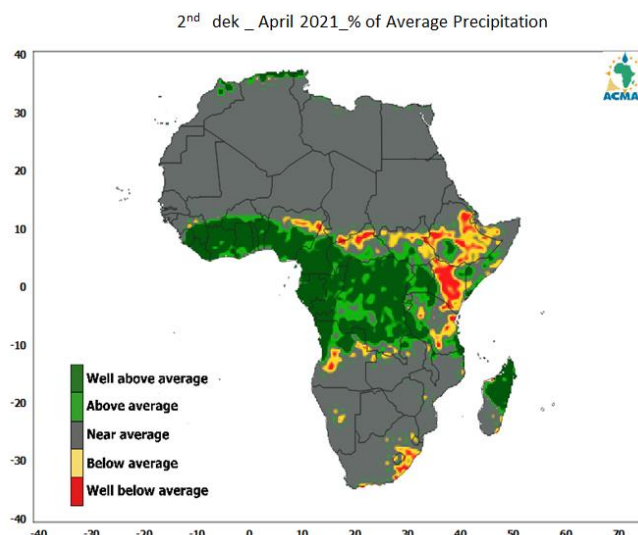


Figure 6: Precipitation in percent of average for second dekad of April 2021. The reference period used is 1981-2010. Source: NOAA/. NCEP/. CPC/. FEWS/. Africa/. DAILY/)

2.2. Impact of the previous dekad

In north Africa subregion, mostly above to well above average precipitation around the fringing and coastal areas of north Africa were generally favourable to sustain the growth of partly or fully rain fed crops, particularly those which have been planted in October, November and February. These crops are currently found in different growth stage ranging from vegetative to reproductive phase so the rainfall received during the last 10-days can sustain the development of these crops as well as for the provision of pasture and drinking water for livestock. On the other hand, the enhanced rainfall might trigger floods particularly at the low lying areas and could damage different infrastructures and eroded crop fields.

In west Africa (Sudan Shale zone), the region mostly received near average precipitations and this might assist farmers and pastoralists to conduct business as usual agricultural activities.

In west Africa (Guinea Gulf zone), the observed above to well above average precipitation across the southwest to the northeast part of the subregion are positively impacting for recently planted crops as well as crops to be planted between April and May. The received moisture has also supported the food crops like cassava, plantain, yam, etc., grown mostly in the southern areas as most of them are at the maturing stage. It has also benefited pastoral and agro pastoral community toward accessing fresh pasture and drinking water. However, the condition might cause water logging and soil erosion over heavier soils and low lying areas of the region.

In Central Africa, the received near average to well above average precipitation in the region are generally favourable for early land preparation and planting of various cereals and other crops during April. The wet condition is favourable for crops that were planted during March and now are found at vegetative stage. Conversely the above average condition might cause flood and river overflow over prone areas of the subregion. The prevailed dry conditions could be favourable to harvest some crops such as Rice, which were mostly planted last November and December. However, the dry conditions over the northern section of the subregion might delay sowing of second season crops as well as affecting the availability of fresh forage and drinking water for livestock production.

In east Africa region, the received above average rainfall are generally favourable toward sustaining the growth of crops planted from February to March. However, the observed consecutive below average precipitation in part of the subregion has raised a concern of moisture stress for early planted crops as well as on the availability of fresh pasture and drinking water.

In the Southern Africa region, the prevailed near average condition across most parts of the region are generally might assist farmers and pastoralist to conduct business as usual agricultural activities.

3. OUTLOOK FOR PRECIPITATION, AIR TEMPERATURE AND SOIL MOISTURE

3.1 PRECIPITATION

During the period from 26th April to 02 May 2021, low to moderate precipitation is very likely over most of Liberia Sera Leon and the northern fring of Mozambique, and Malawi. Moderate to heavy rainfall are very likely over northern Coastal area of Morocco, Algeria, and Tunisia, southern CAR, south western South Sudan, northern and southern tip of DRC, Eastern margen of Madagascar. Heave precipitation is mainly anticipated oversouthern tip of Cameroon, Eq. Guinea, Gabon, south of Congo, Ruwanda, Burundi, Uganda and southern and central Rift valley of Ethiopia.

During the period from 03rd to 9th May 2021, northern Coastal area of Morocco, Algeria, and Tunisia, Heavy rainfall is very likely over weast of Cameroon, part of Gabon, south of Congo, Ruwanda, Burundi and Central and south west of Ethiopia.

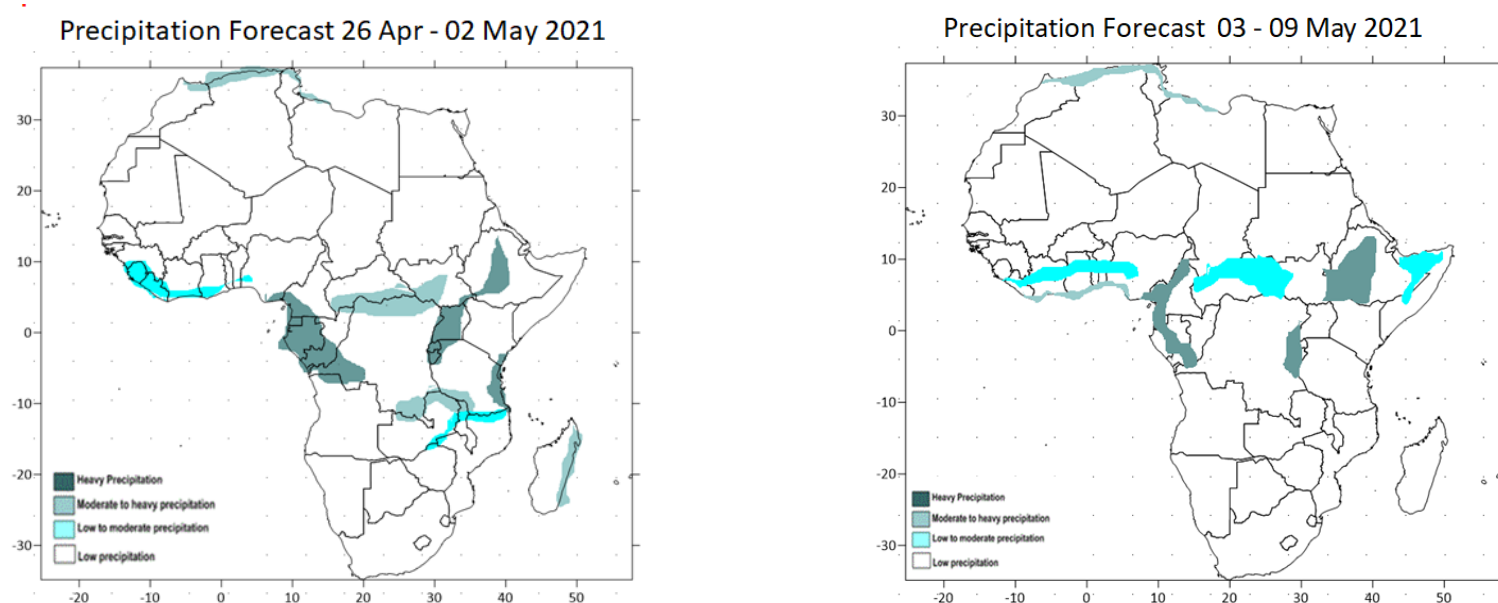


Fig 7: Precipitation forecast for weeks one (left pannel) & two (right pannel) (Source: ACMAD)

3.2 Temperature

Figure 8 presents the temperature anomalies prospect for the week from 22-30 April 2021. As shown in the map, negative temperature anomaly (cooler than average) condition is expected over the the south parts of Gulf of Guinea, most of southern half of Cameroon, Eq.Guinea, parts of Congo, DRC, Uganda, parts of Somalia and Ethiopia, Tanzania, north of Zambia, north of Angola, northern half of Mozanbique, and Madagascar. Areas expected to experience positive temperature anomaly (warmer than average) conditions are the Sahelian zone and places in the SADC region. The rest of the continent is expected to experience normal temperature anomaly (no change) conditions.

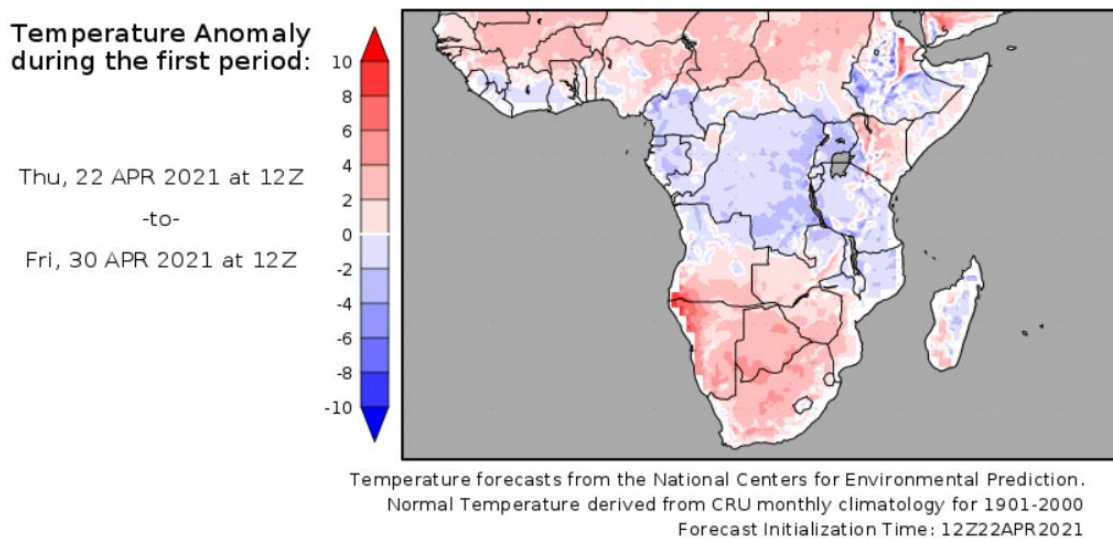


Figure 8: Temperature anomalies prospected from 22 - 30 April, 2021: (Source: COLA)

3.3. Soil Moisture

Figure 9 shows soil moisture anomalies prospect for the week from 22 -30 April 2021. As depicted in the map, positive soil moisture change is predicted over most parts of Gulf of Guinea, northern parts of Congo, northern half of Angola, parts of DRC, most parts of Ethiopia, north-east Somalia, Uganda, Rwanda, Burundi and part of Tanzania. Areas experiencing soil moisture deficit includes most of Mozambique, most of Zambia, Malawi and Angola. The rest of the continent is expected to experience soil moisture deficit during the coming week of April.

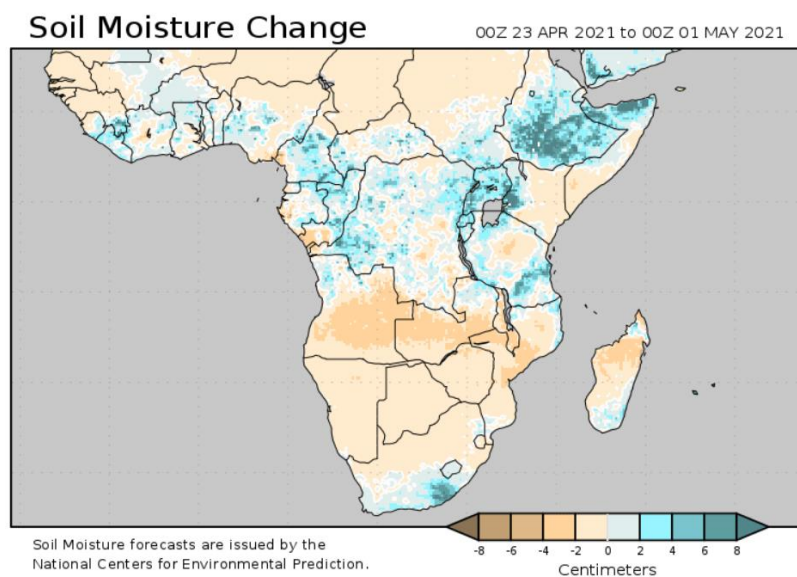


Figure 9: Soil moisture change prospected for the period 22-30 April, 2021 (Source: COLA)