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

Ten Days Climate Diagnostics Bulletin
N°02

Dekad 2, 11st to 20th *January* 2021

HIGHLIGHTS

During the second dekad of January 2021, above average and well above average rainfall were observed over SADC region countries and . Below average rainfall was observed over across most northern Marocco and Angola. As the same period near average rainfall was observed over western Africa countries and Eastern Africa countries.

During the period from the 25th to 31th January 2021, low to moderate precipitation is expected very likely over northern Congo, northern DRC, Burundi, Rwanda, Gabon, Equatorial Guinea, southern Cameroon, southern Uganda, southern Kenya, Swaziland, western Angola, western Namibia and central parts of South Africa. Moderate to heavy precipitation is very likely over eastern Angola, North-eastern Namibia, southern DRC, southern Congo, Madagascar, southern Tanzania, Botswana, southern Zimbabwe, western Zambia and Lesotho. Heavy precipitation is very likely over across most northern Zimbabwe, northern Mozambique, central Madagascar, southern Zambia and Malawi.

As the same period, the positive anomaly temperature is likely over the northern Central Africa region, southern parts of the SADC region and southern of Guinea gulf countries. The negative temperature anomaly is very likely over central Sahel part, the costal countries of the Central Africa region, North-Eastern Namibia, Zambia, Botswana, Burundi, Rwanda, Malawi, Tanzania, southern Congo, Lesotho, Mozambique, southern Somalia, Northern Madagascar and Northern Chad. The increase in soil moisture is expected over Botswana, northern Namibia, Malawi, Swaziland, Lesotho, southern Zimbabwe, southern Mozambique, southern Tanzanian, northern and eastern South Africa.

During the period from the 1st to 7th February 2021, low to moderate precipitation is expected over Namibia, western Angola, northern Congo, northern DRC, Burundi, Rwanda, Gabon, Equatorial Guinea, southern Cameroon, southern Uganda, southern Kenya, Swaziland and central parts of South Africa. Moderate to heavy precipitation is very likely over across most southern and costal DRC, Botswana, southern Tanzania, north-eastern of South Africa, Lesotho, eastern Angola, southern Madagascar, southern Zimbabwe. Heavy precipitation is very likely over across most Zambia, Malawi, Mazambique, northern Zimbabwe and central parts Madagascar.

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 of 1030hPa strengthened to 10hPa compared to the climatological means (1981-2010). It was located at 17°W and 37°N. It was in the south-westen to the climatology position over the North Atlantic Ocean.
- **St. Helena High** of 1019hPa strengthened to 3hPa compared to the climatological mean (1981-2010). It was located at 31°W and 32°S; it was North-eastern to the climatological position over South Atlantic Ocean.
- **Mascarene High** of 1023 hPa strengthened to 11hPa compared to the climatological means (1981-2010). It was located at 106°E and 39°S , it was North-western to the climatological position over the Indian Ocean.
- **Heat Low** with 1005 hPa, weakened to 2hpa compared to the climatological means (1981-2010). It was located over South Sudan at 30°E and 7°N. It was south-western to the climatological position.
- **Heat Low** with 1007 hPa. It is stable compared to the climatological mean (1981-2010). It is located over the border Namibia-Botswana at 21°E and 19°S; it was stable compared to the climatological position.

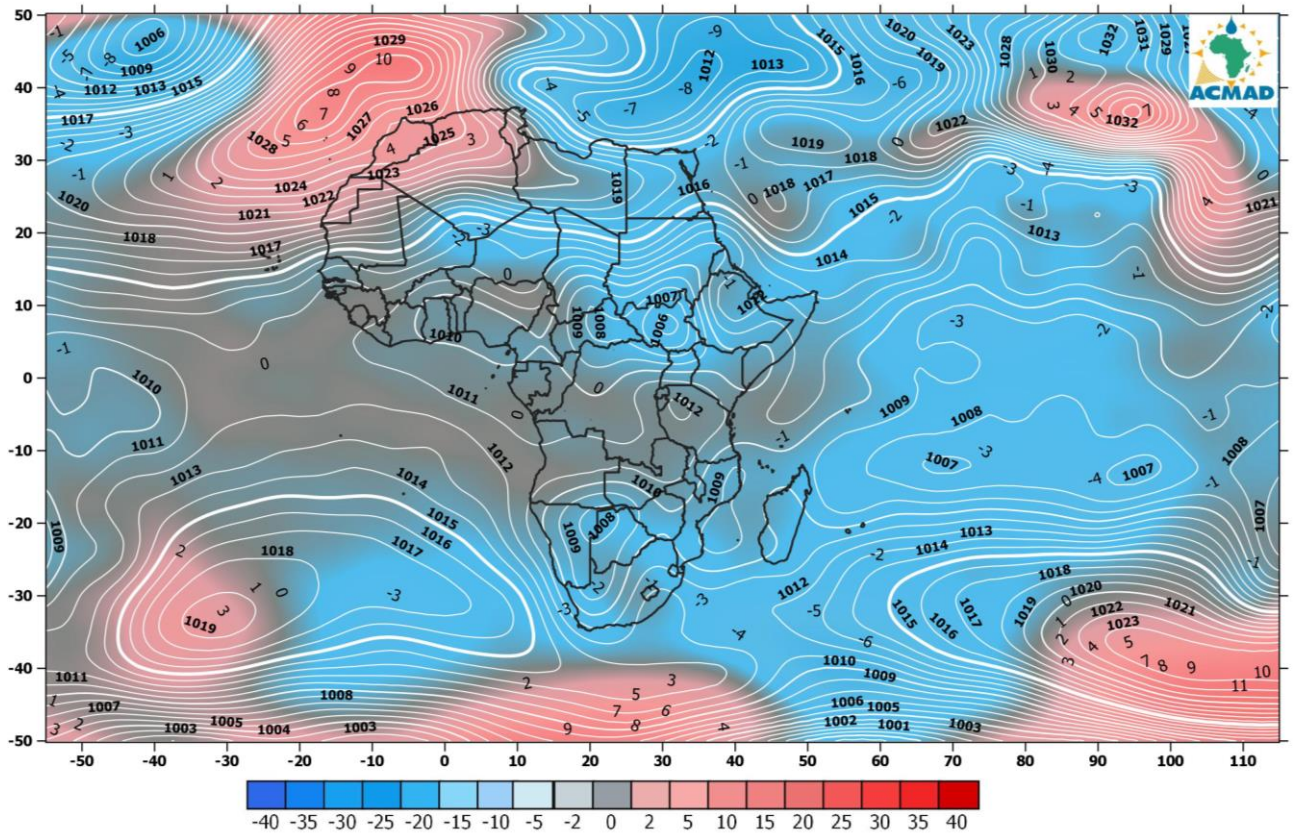


***Figure 1**. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) during the period from 11th to 20th January 2021.Source:*

1.2 TROPOSPHERE

1.2.1 African Monsoon

Figure 2a shows the average wind dekadal at 850 hPa. North-Eastern and North-western wind with the moderate intensity was observed over Chad, Sudan, Northern Nigeria, Burkina Fasso, southern Niger, northern Mauritania, Tinusia, Somalia, Botswana and northern parts of the North Africa countries. The weak wind from north-eastern and eastern was prevailed over the rest of the continent.

Figure 2b shows the observed dekadal mean wind at 700 hPa. The figure indicates a moderate to strong wind from western and north-western was prevailed over the Senegal, northern Mali and Niger, Libya Egypt, Tinusia, northern Marocco and Algeria. The weak to moderate from north-eastern and eastern was observed over the rest of the continent**.**

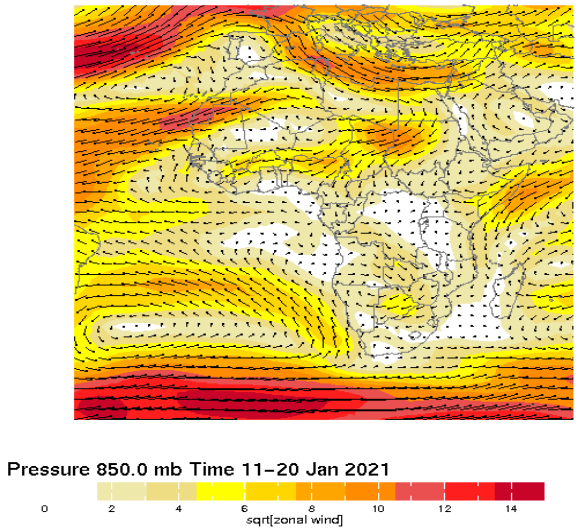


Figure 2 a: Mean wind at 850 hpa (m/s) during the period from 11th to 20th January 2021. Source: NOAA/NCEP

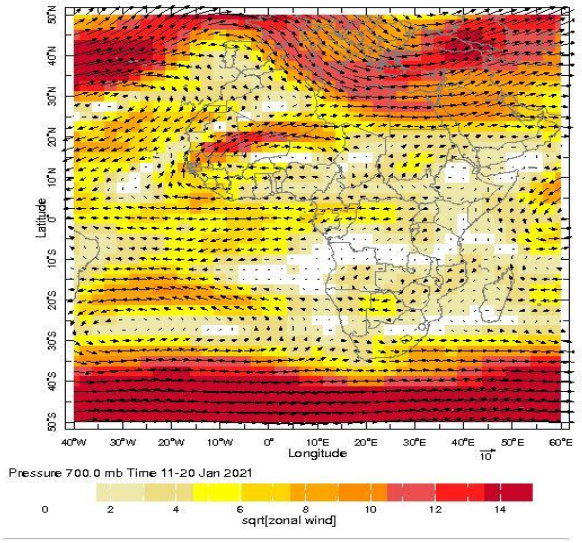


Figure 2b: Mean wind at 700 hpa (m/s) during the period from 11th to 20th January 2021. Source: NOAA/NCEP

1.2.2 Wind at 200 hPa.

Figure 3 shows the wind speed and direction at 200 hPa. During the second dekad of January 2021, moderate to weak winds were observed over southern of gulf Guinea countries, CAR, South Sudan, Somalia, Madagascar, Cameroon, southern Mozambique, Namibia, Botswana and Zimbabwe. The strong westerly winds prevailed over the rest of the continent.

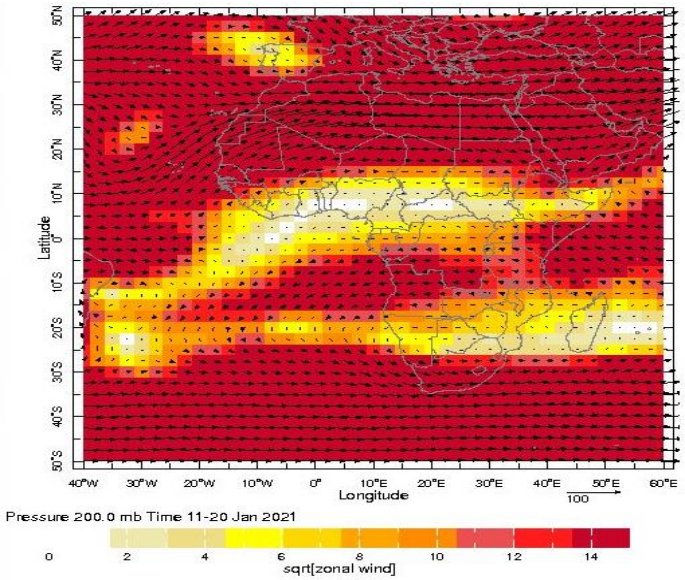


Figure 3: Mean wind at 200 hPa (m/s) during the period from 11th to 20th January 2021. *(Source: NOAA/NCEP)*

1.2.3 Relative Humidity (RH) at 850 hPa

Figures 4 presents the dekadal mean of relative humidity at 850 hPa the second dekad of January 2021 and anomalies compared to the reference period 2002-2011. Wet atmospheric conditions (humidity relative ≥60%) were observed over the central region countries, SADC region countries, southern of East Africa region and southern of the Guinea Gulf countries. Dry air (humidity relative between 20 and 40%) was observed over the rest of continent.

The relative humidity anomalies for the second dekad of January 2021 were positive over Senegal, North-western Guinea, Gambia, Bissao Guinea, southern Mauritania, Lesotho, northern Namibia, southern Angola.

Negative anomalies of relative humidity were observed over Cameroon, Nigeria, Equatorial Guinea, CAR, South Sudan, Ethiopia, Somalia, Erytrea, the northern Gabon, DRC, Uganda, Kenya and Congo.

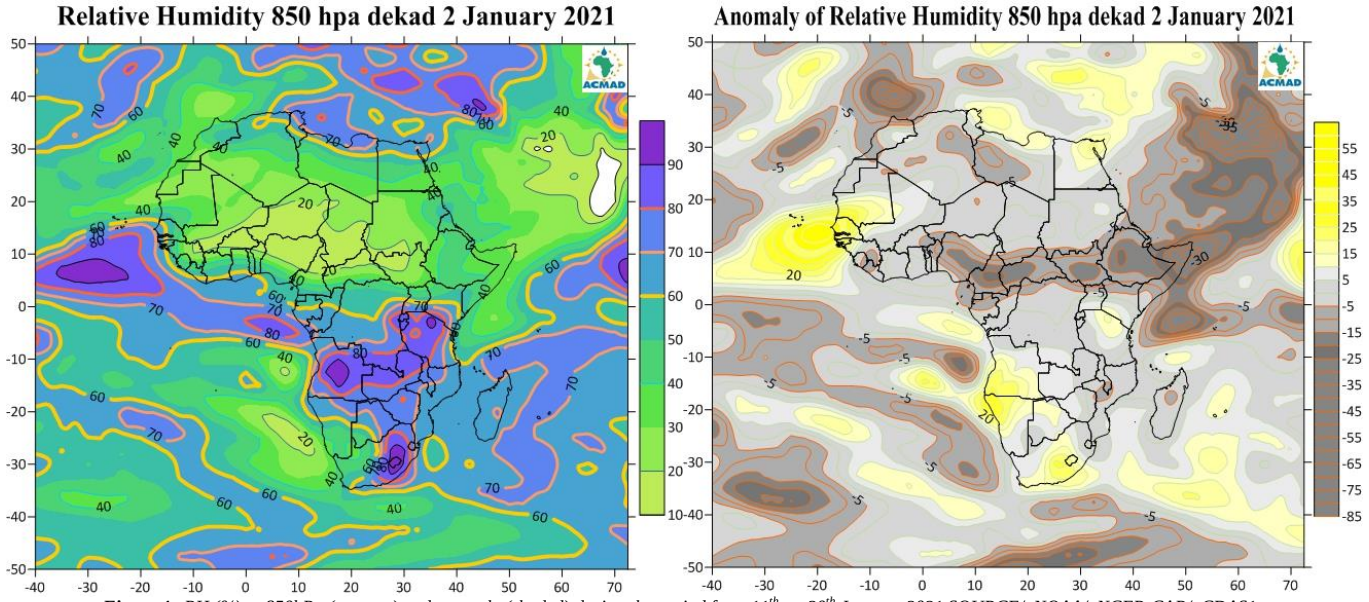


Figure 4. *RH (%) at 850hPa (contour) and anomaly (shaded) during the period from 11th to 20th January 2021.SOURCE/. NOAA/. NCEP-CAR/. CDAS1)*

1.2.4 Relative Humidity at 700hPa

Figure 5 presents the dekadal mean and anomalies of relative humidity at 700 hPa. The figure shows that the High relative humidity with values ≥ 60% at 700hPa were observed over southern Cameroon, Uganda, western Kenya, southern CAR, DRC, Angola, Zambia, Zimbabwe, Botswana, western Tanzania, Swaziland, Lesotho, Malawi, north-eastern South Africa, costal parts liberia. Elsewhere over the continent, relative humidity with values ≤ 50% were observed.

The relative humidity anomalies for the second dekad of January 2021 were positive over Senegal, Gambia, costal parts of Liberia and Sierra Leone, southern Libya, Namibia, Lesotho and western Kenya. The negative relative humidity were observed over Marocco, northern Mauritania, Nigeria, Burkina Faso, South Sudan, Sudan, Erytrea, Djiboutia, Malawi, Madagascar, CAR, Ethiopia, costral Angola, Cameroon, Chad, northern DRC, southern Niger, southern Mali, North-western Algeria. The anomalies were determined based on the reference period: 2002-2011

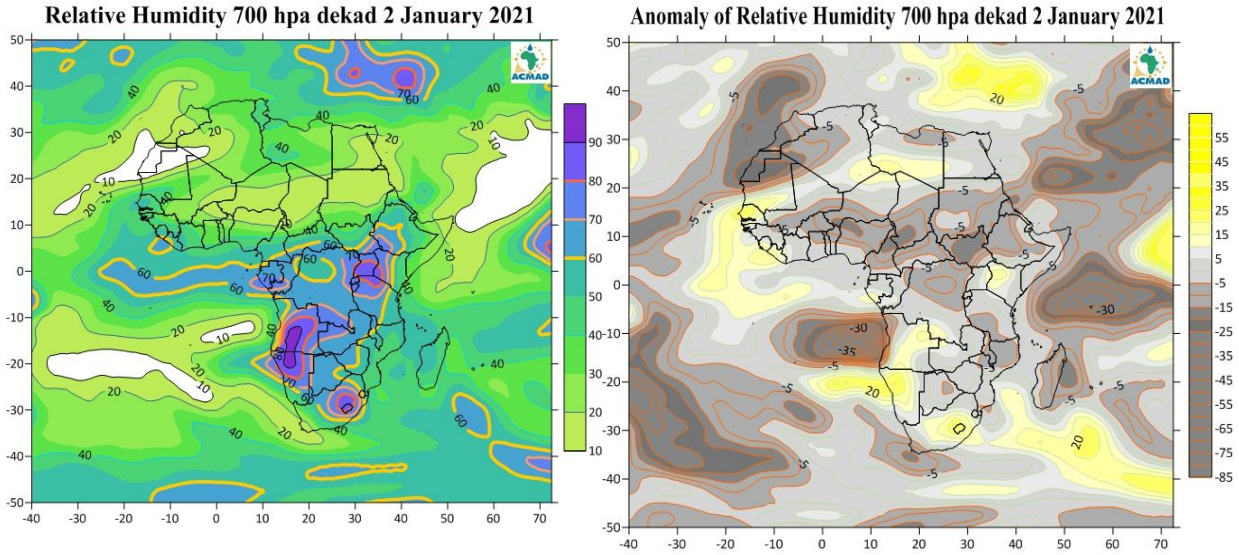


Figure 5. *RH (%) at 700hPa (contour) and anomaly (shaded) during the period 11th to 20th January 2021. (SOURCE/. NOAA/. NCEP-CAR/. CDAS1)*

2.0 PRECIPITATION

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

2.1 Precipitation

During the second dekad of January 2021, above average and well above average rainfall were observed over SADC region countries and . Below average rainfall was observed over across most northern Marocco and Angola.

As the same period near average rainfall was observed over western Africa countries and Eastern Africa countries.

Details:

- **North Africa**: Northern Marocco, Nothern Tinusia saw observed below to well below average rainfall. The rest of the region saw registered generally near average rainfall.
- **The Sahel countries: Well above average rainfall was observed over parts** Senegal, Mauritania, Mali, Guinea and Gambia. The rest parts of the region saw observed near average rainfall.
- **Gulf of Guinea countries**: Above average rainfall were observed over south-easter Liberia. The rest of the region saw registered near average rainfall
- **Central Africa countries**: Near average rainfall was observed over Chad, CAR, Cameroon. The Below average rainfall to well below average rainfall were observed over Angola, Gabon, Equatorial Guinea, costal parts Congo and western DRC. The near average to above average precipitations was energized over the rest of the region.
- **East Africa countries:** The below average to well below average precipitation was observed over north-eastern Tanzania and south-western Kenya. The near average and above average precipitation were observed overs southern Uganda and western Tanzania. Near average precipitations was observed over the rest of this region.
- **Southern Africa countries:** The Above average and well above average precipitation were observed Botswana, eastern Namibia, Zambia, Malawi, Zimbabwe, central Madagascar, central parts Mozambique and central parts of the Souh-Africa. The below average and well below average precipitations was prevailed over north-western Namibia, Lesotho, souh-eastern South-Africa and central-eastern Madagascar. The near average erage rainfall were observed over the rest of the region.

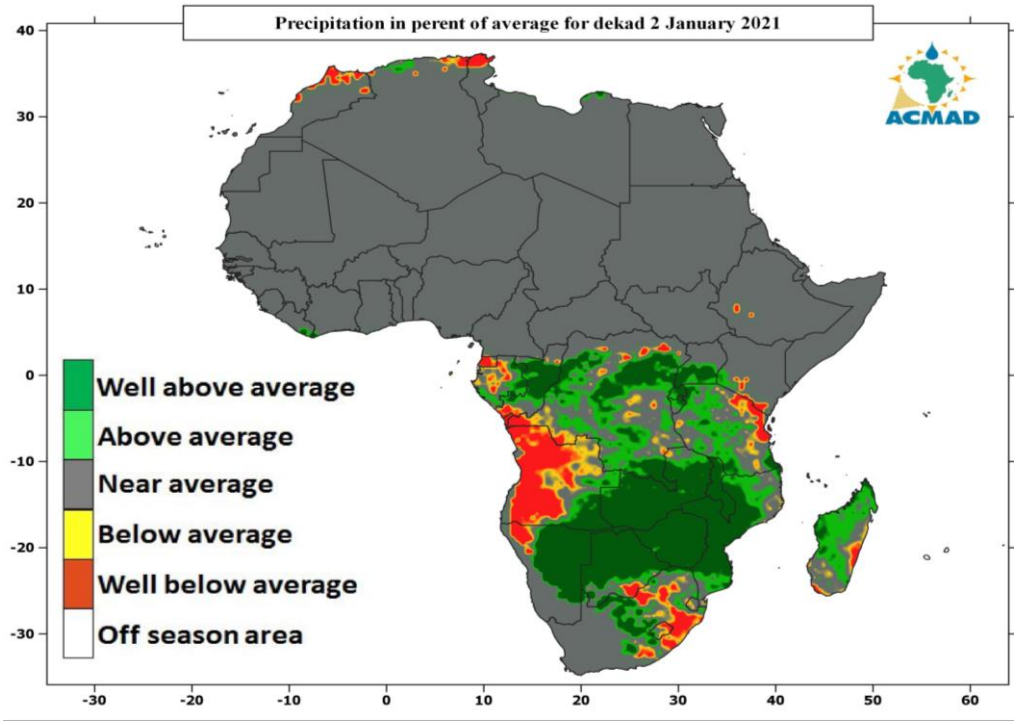


Figure 6: *Precipitation in percent of average for first dekad 11th to 20 January 2021. The reference period used is 1981-2010. Source: NOAA/. NCEP/. CPC/. FEWS/. Africa/. DAILY/)*

3. Outlook valid from

3.1 PRECIPITATION

During the period from the 25th to 31th January 2021, low to moderate precipitation is expected very likely over northern Congo, northern DRC, Burundi, Rwanda, Gabon, Equatorial Guinea, southern Cameroon, southern Uganda, southern Kenya, Swaziland, western Angola, western Namibia and central parts of South Africa. Moderate to heavy precipitation is very likely over eastern Angola, North-eastern Namibia, southern DRC, southern Congo, Madagascar, southern Tanzania, Botswana, southern Zimbabwe, western Zambia and Lesotho. Heavy precipitation is very likely over across most northern Zimbabwe, northern Mozambique, central Madagascar, southern Zambia and Malawi.

During the period from the 1st to 7th February 2021, low to moderate precipitation is expected over Namibia, western Angola, northern Congo, northern DRC, Burundi, Rwanda, Gabon, Equatorial Guinea, southern Cameroon, southern Uganda, southern Kenya, Swaziland and central parts of South Africa. Moderate to heavy precipitation is very likely over across most southern and costal DRC, Botswana, southern Tanzania, north-eastern of South Africa, Lesotho, eastern Angola, southern Madagascar and southern Zimbabwe. Heavy precipitation is very likely over across most Zambia, Malawi, Mozambique, northern Zimbabwe and central parts Madagascar.

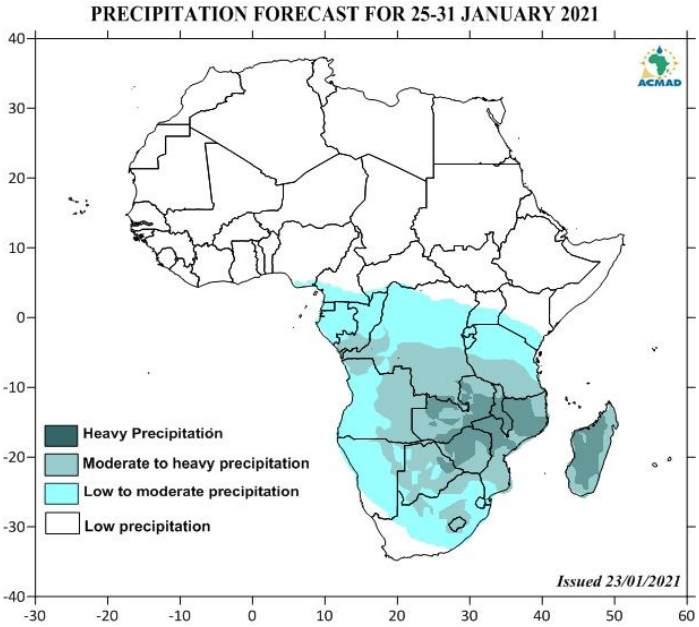


***Figure 7a**: Precipitation forecast from 25th to 31th January 2021 (Source: ACMAD)*

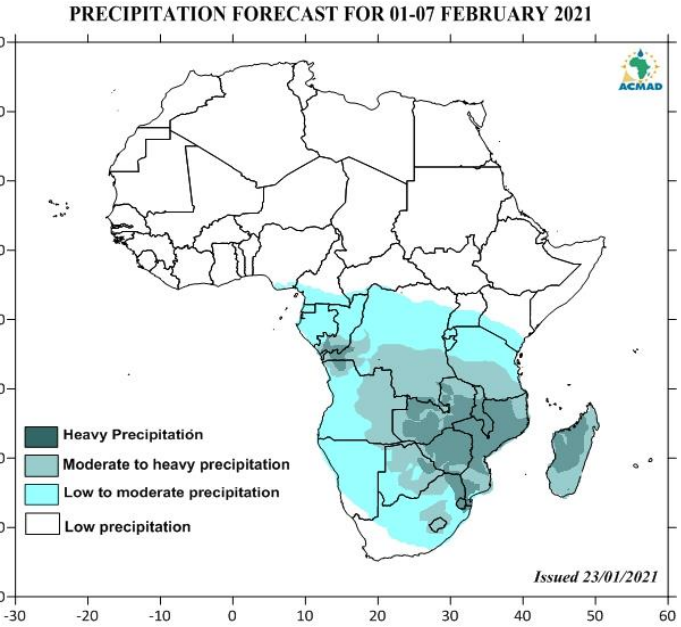


***Figure 7b**: Precipitation forecast from 1st to 7th February 2021. (Source: ACMAD)*

3.2 Temperature

Figure 8 presents the temperature anomalies prospected for the week from the 23thto 29th January 2021. This figure shows that positive anomaly temperature is expected over across the northern DRC, CAR, South Sudan, Uganda, southern Namibia, South-Africa, southern Madagascar, southern of Guinea gulf countries, Senegal, Mali, souhhern Chad northern Kenya, south en central parts Ethiopia, Gambia. The negative temperature anomaly is very likely over Niger, Burkina Faso, northern Nigeria, northern Benin, Gabon, Equatorial Guinea, eastern Angola, Central parts and southern DRC, North-Eastern Namibia, Zambia, Botswana, Burundi, Rwanda, Malawi, Tanzania, southern Congo, Lesotho,Mozambique, southern Somalia, Northern Madagascar and Northern Chad.

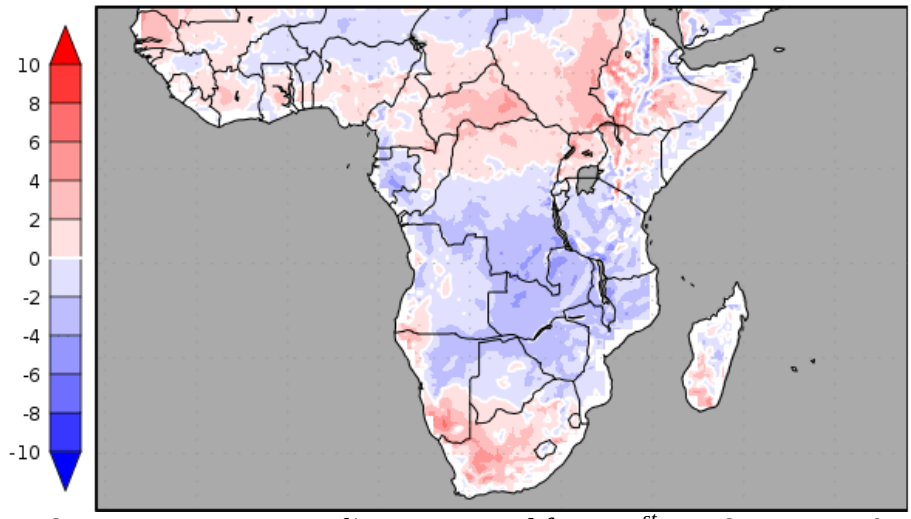


Figure 8: *Temperature anomalies prospected from 21st* to 29 January 2021 *(Source: COLA)*

3.3 Soil Moisture

Figure 9 shows soil moisture anomalies prospect for the week from 23th to 29th January 2021. The map indicate that during this period an increase in soil moisture is expected over over Botswana, northern Namibia, Malawi, Swaziland, Lesotho, southern Zimbabwe, southern Mozambique, southern Tanzanian, northern and eastern South Africa . The rest of the area represented in this figure could indicate dry soil moisture.

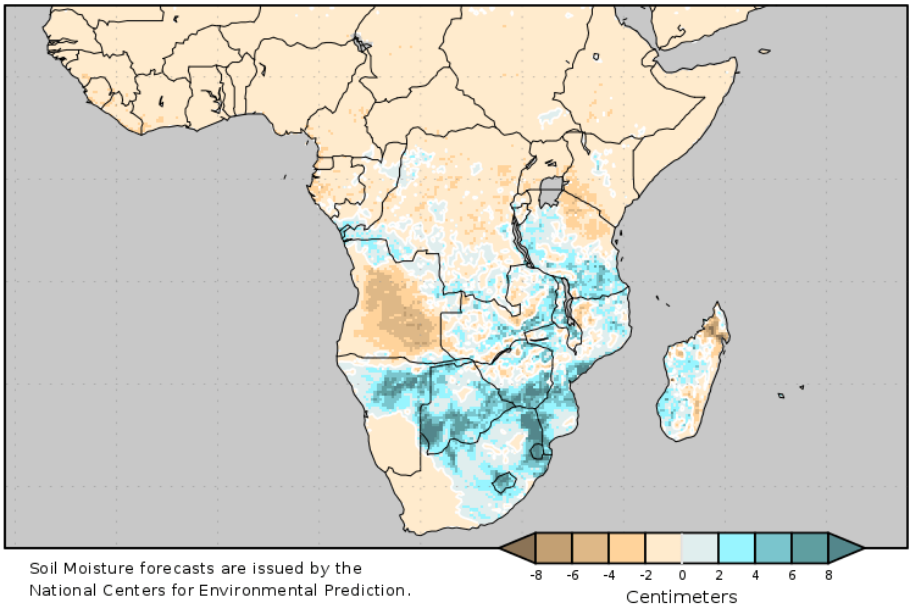


Figure 9: Soil moisture change prospected for the period 21st to 29th January 2021 *(Source: COLA)*