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, 11 – 20 January 2022

HIGHLIGHTS

- ✓ *During the second dekad of January 2022, there was an increase in the temporal as well as spatial coverage of rainfall activities over the central and southern regions with above-average to well above-average rainfall conditions observed over Zambia, Malawi, most of Rwanda, Tanzania, Madagascar, the northern edges of Libya, eastern Congo, South Africa, Namibia and Botswana, southern and western DRC, and parts of Kenya, Uganda and Mozambique. In the same dekad, below-average to well below-average rainfall was observed over Equatorial Guinea, Gabon, northern Morocco, Algeria, Tunisia, most of Angola, western DRC, southern Botswana, and parts of Uganda, Tanzania, Mozambique, Zimbabwe, South Africa and Madagascar.*

- ✓ *This dekad was characterized by neutral to warm SSTs conditions in the Eastern parts the Continent. These SST conditions contributed to above normal precipitation in the above regions. In addition, in the equatorial pacific region, below normal conditions have persisted for the past four weeks. Over the Atlantic, the SSTs were mostly neutral to warm.*

- ✓ *The outlook for 24th -30th January AND 31st January – 6th February 2022, depict a general tendency of low to moderate precipitation over parts of the northern, central and the southern African sub-region of the continent. In Week 1, moderate to heavy precipitation is expected over Zambia, Malawi, and Zimbabwe, most of Mozambique, parts of Angola, DRC, and Madagascar. During the Week 2, the same is expected over Malawi, most of Tanzania, northern Mozambique, Zambia and Angola.*
  Heavy precipitation is likely over central Zambia and Mozambique, northern Zimbabwe and southern Malawi during Week 1.

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 discussing the state of 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 1033hPa, intensifying by 6hPa when compared to the previous dekad and by 9hPa compared to the climatological mean (1991-2020). Over the North Atlantic Ocean, the high pressure was located at 10°W and 50°N. The Azores High moved north-westward of its climatological position.
- **St. Helena High** observed a central pressure value of 1018hPa, a 1hPa decrease from the previous dekad and the climatological mean (1991-2020). It was located at 33°W/25°S. It moved westward of its climatological position over the South Atlantic Ocean.
- **Mascarene High:** The central value for Mascarene High was 1022hPa. It maintained the same value as the previous dekad and the climatological means (1991-2020). Positioned at 53°E and 40°S, it moved westward of its climatological position over the south Indian Ocean.
- **Heat Low:** No heat low was located over the continent during the dekad under review.

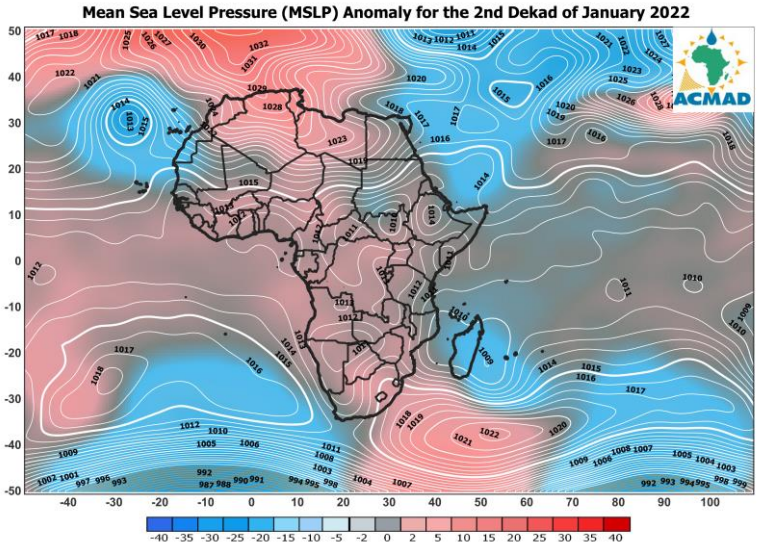

***Figure 1**. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 11th to 20th January 2022*

1.2 TROPOSPHERE

1.2.1 African Monsoon

Figure 2a: This figure shows the average dekadal wind at 850hPa. Light to moderate easterly wind anomalies of about 5m/s - 8m/s average wind speed was observed over northern Africa, Somalia, Botswana, southeastern Ethiopia, northern/southern Chad, northern Cameroon, Kenya, western Nigeria, and parts of Angola, Mozambique and Madagascar.

Figure 2b: At the 700hpa level, western wind anomalies of 10m/s-14m/s dominated the Sahelian belt, the western part of northern Africa and Gabon while the rest of the continent observed light to moderate wind anomalies of about 2m/s to 8m/s.

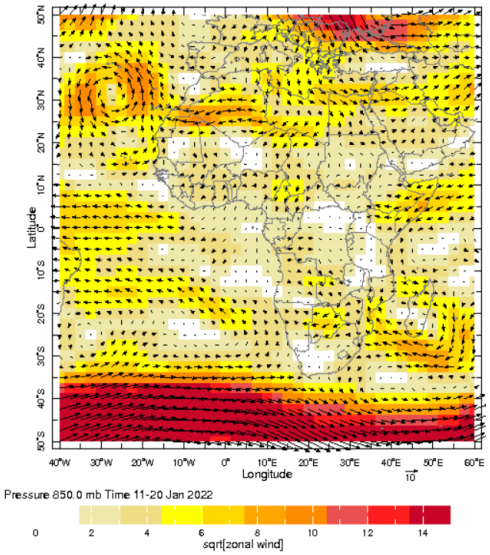

Figure 2a: Mean wind (m/s) at 850hPa from 11-20 January 2022
Source: NOAA/NCEP

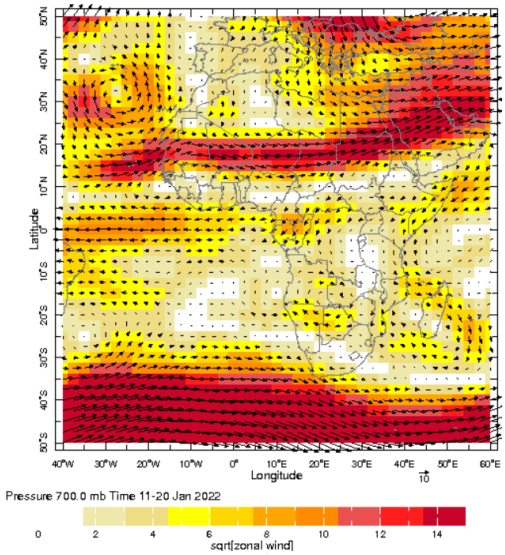

Figure 2b: Mean wind (m/s) at 700hPa from 11-20 January 2022
Source: NOAA/NCEP

Figure 2c: shows very strong westerly wind vector anomalies ≥14m/s at 200hPa observed mainly over the continent except for parts of the central and southern region that observed moderate wind speeds of about 6m/s-8m/s.

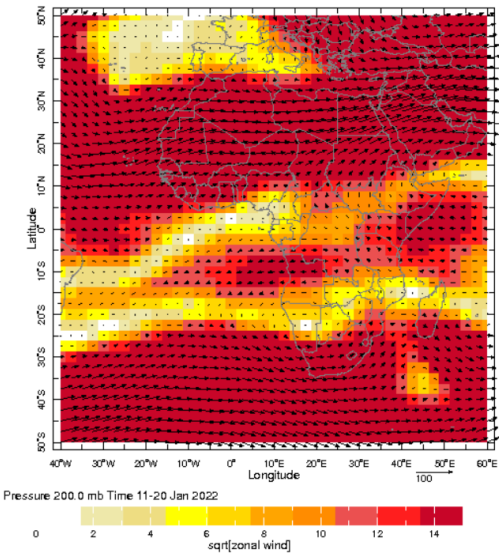

***Figure 2c: Mean wind at 200 hPa (m/s) during the period* 11-20 January 2022**
(Source: NOAA/NCEP)

1.2.3 Relative Humidity (RH) at 850hPa

Figure 4 presents the dekadal observed relative humidity and anomalies at 850hPa for the second dekad of January 2022 for the reference period 1991-2020. Wet atmospheric conditions (relative humidity ≥ 60%) were observed over most of northern and southern Africa as well as parts of central and eastern Africa. The rest of the continent observed RH values ≤ 60%.

Negative anomalies were observed during the second dekad of January 2022 in north-eastern North Sudan, western CAR, as well as the southern and eastern fringes of Chad and Cameroon respectively. Positive anomalies were recorded over the rest of the continent.

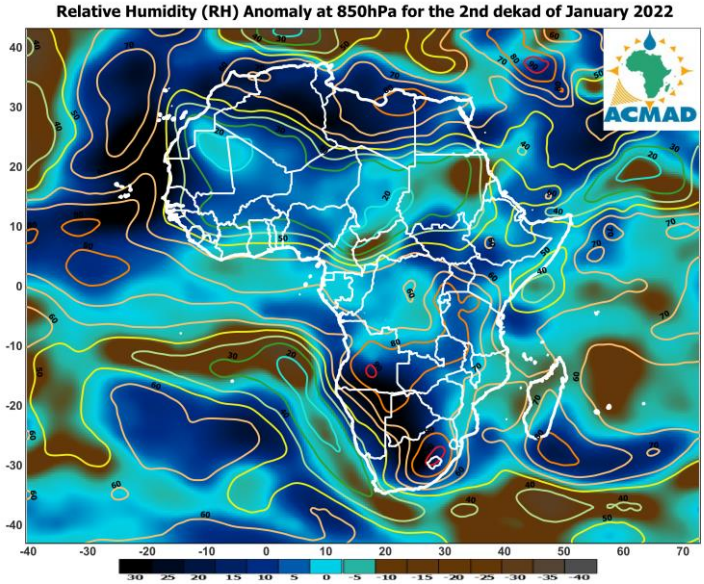

Figure 4. *RH (%) at 850hPa (contour) and anomaly (shaded) during the period* 11-20 January 2022
SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

1.2.4 Relative Humidity at 700hPa

Figure 5 presents the dekadal observed and anomalies of relative humidity at 700hPa. The figure shows that high relative humidity values ≥ 60% at 700hPa were observed over part of eastern and central Africa and most of southern Africa. The rest of the continent observed RH values < 60%.

The relative humidity anomalies for the second dekad of January 2021 were negative over most of the countries north of the equator i.e. over the eastern, western and northern Africa. Positive anomalies were reported in countries south of the equator, with the exception of Somalia.

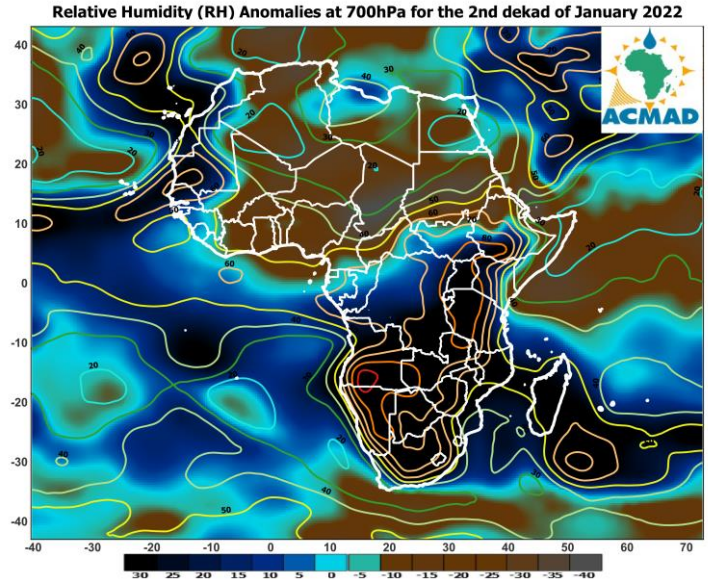

Figure 5. *RH (%) at 700hPa (contour) and anomaly (shaded) during the period 11*-20 January 2022
(SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 6 shows the observed precipitation as a percentage of average for the second dekad of January 2022.

2.1 Precipitation

During the second dekad of January 2022, there was an increase in the temporal as well as spatial coverage of rainfall activities over the central and southern regions with above-average to well above-average rainfall conditions observed over Zambia, Malawi, most of Rwanda, Tanzania, Madagascar, the northern edges of Libya, eastern Congo, South Africa, Namibia and Botswana, southern and western DRC, and parts of Kenya, Uganda and Mozambique. In the same dekad, below-average to well below-average rainfall was

observed over Equatorial Guinea, Gabon, northern Morocco, Algeria, Tunisia, most of Angola, western DRC, southern Botswana, and parts of Uganda, Tanzania, Mozambique, Zimbabwe, South Africa and Madagascar.

Details:

- **North Africa**: This region experienced mostly near average rainfall conditions. Below-average to well below-average rainfall was recorded over the northern fringes of Morocco, Algeria and Tunisia while above average rainfall conditions were observed over the northern edges of Libya.
- **Gulf of Guinea countries**: The region received near-average precipitation.
- **Central Africa countries**: Equatorial Guinea, Gabon, most of Angola and western DRC received below-average to well below-average precipitation while above-average to well above-average precipitation was observed over Rwanda, most of Tanzania, eastern Congo, and southern and western DRC.
- **East African countries** most of Rwanda, Tanzania, and parts of Kenya and Uganda observed above average to well above average rainfall conditions while parts of Uganda and Tanzania observed below average to well below average rainfall conditions.
- **Southern Africa countries:** Northern Mozambique, Zimbabwe most parts Malawi, Zambia, South Africa and Madagascar observed above-average to well above-average precipitation. Below-average to well below-average rainfall was experienced in south-eastern Angola, north-eastern Namibia, northern Botswana, southern Zimbabwe, Mozambique, eastern South Africa and western Madagascar.
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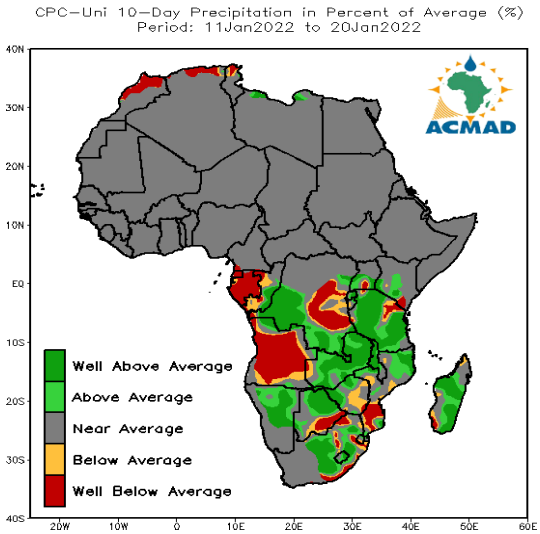

Figure 6: *Precipitation in the percentage of average for the third dekad 11th – 20th January 2022. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)*

3.0 OUTLOOK VALID FOR 24th -30th January AND 31st January – 6th February 2022

3.1 PRECIPITATION

The outlook for 24th -30th January AND 31st January – 6th February 2022, depict a general tendency of low to moderate precipitation over parts of the northern, central and southern African sub-region of the continent. In Week 1, moderate to heavy precipitation is expected over Zambia, Malawi, and Zimbabwe, most of Mozambique, parts of Angola, DRC, and Madagascar. During Week 2, the same is expected over Malawi, most of Tanzania, northern Mozambique, Zambia and Angola.

Heavy precipitation is likely over central Zambia and Mozambique, northern Zimbabwe and southern Malawi during Week 1.

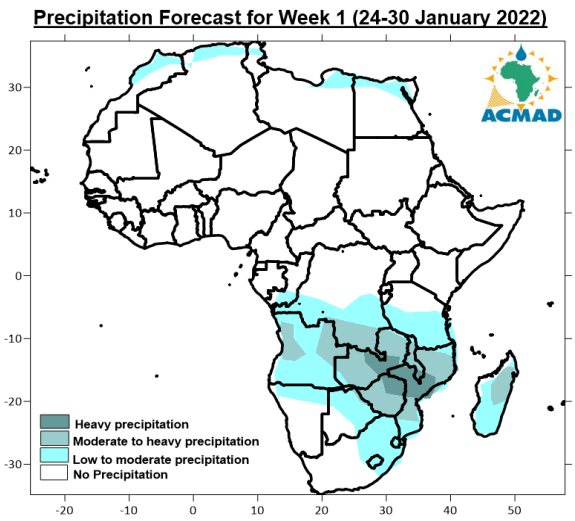

***Figure 7a**: Precipitation forecast for 24th - 30th January 2022*

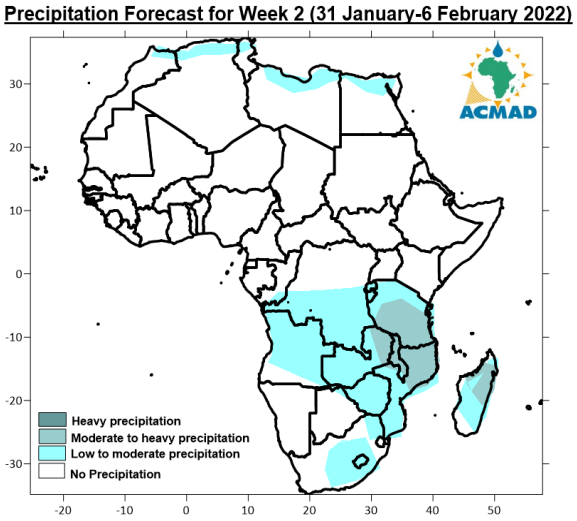

***Figure 7b**: Precipitation forecast for 31st January- 6th February 2022*

3.2 TEMPERATURE

Figure 8 presents the temperature anomalies forecast for the week of *25*th January - *02 February 2022*. Temperatures are expected to be below average over the Sahel, most of central Africa as well as over parts of eastern and southern Africa. The remaining part of the continent is expected to observe above-average temperatures.

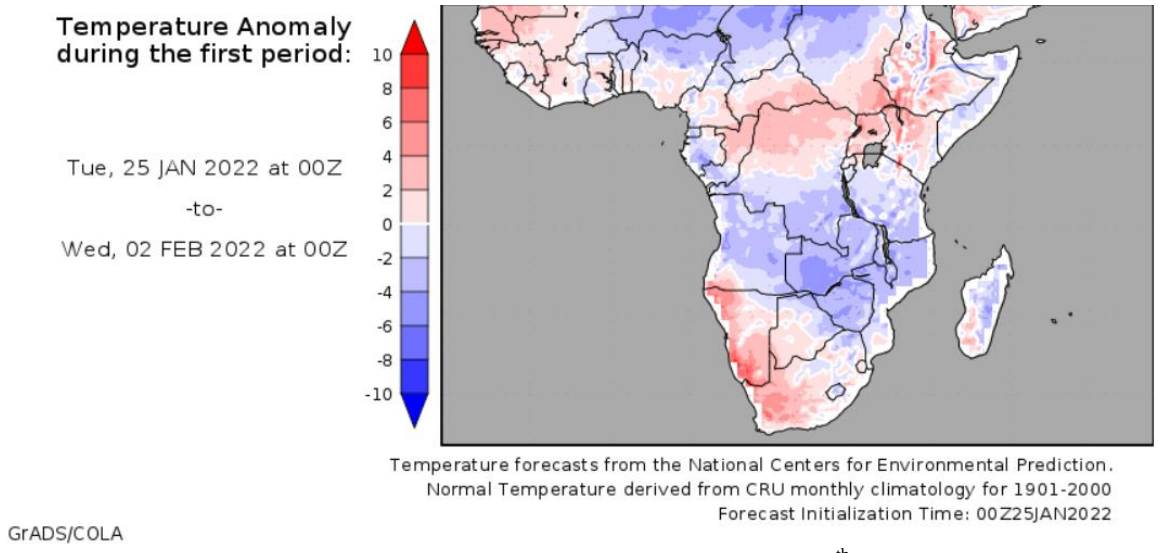

***Figure 8:** Temperature anomalies prospect from 25*th January - *02 February 2022 (Source: COLA)*

3.3 SOIL MOISTURE

Figure 9 shows soil moisture anomalies forecast for the week of *25*th January - *02 February 2022. P*ositive soil moisture is expected mostly over Zambia and Malawi, most of Mozambique, Zimbabwe, Angola, Tanzania, Lesotho, and parts of DRC, South Africa, Namibia and Botswana. The rest of the continent is expected to observe negative soil moisture values during the forecast period.

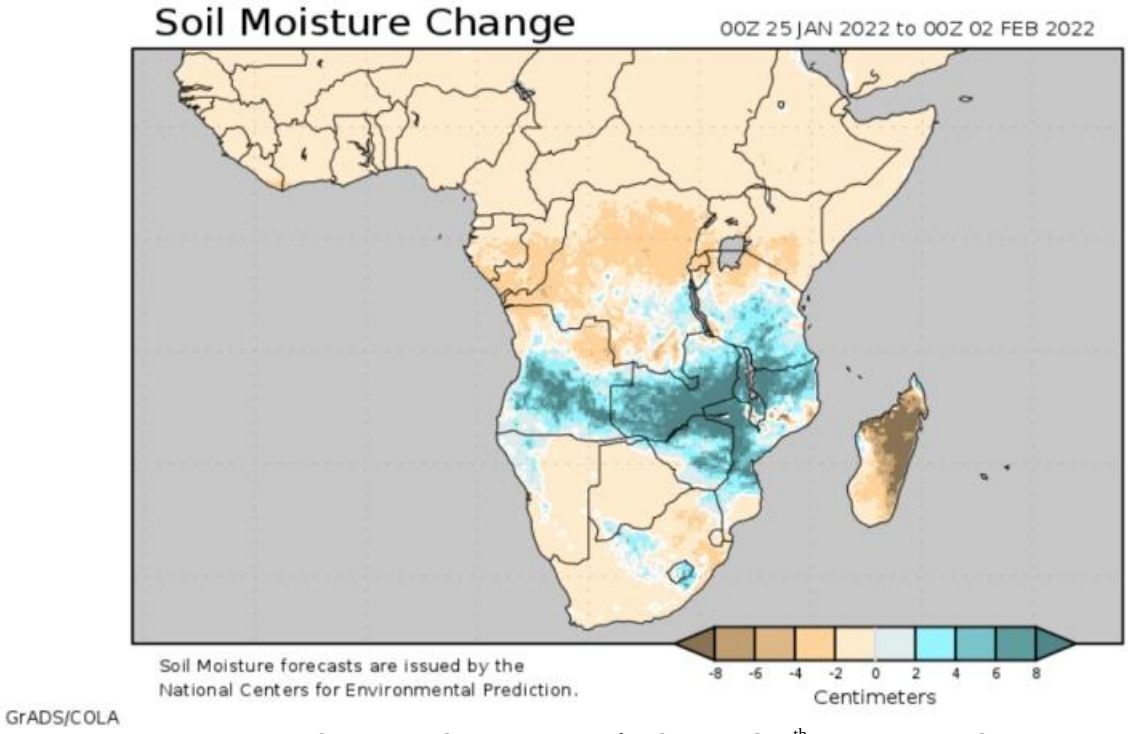

Figure 9: Soil moisture change prospect for the period 25th January - 02 February 2022 (Source: COLA)