

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN

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REPORTING PERIOD: Dekad 3; 21st –31th October 2022

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HIGHLIGHTS

- ✓ During the third dekad of October 2022, rainfall activities were observed over some parts of subtropical and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over parts of Central Africa and South Africa regions. Below-average to well below-average rainfall was recorded over Central Africa, East Africa and Central Africa countries.
- ✓ The dekad was characterized by neutral to cold SSTs conditions in the eastern parts of the Atlantic Ocean closer to the western coastline of the Continent. In addition, in the equatorial pacific region, La Nina conditions persisted during most of the last four weeks. Over the Indian Ocean, the SSTs were mostly dominated by neutral to warm conditions over western parts that led to enhance rainfall over some parts of the eastern side of East African countries.
- ✓ The outlook for 02 – 08 November 2022 depicts a general bias for below to normal precipitation over Ivory Coast, Ghana, Benin, Togo, Nigeria, Cameroon, Tanzania, Kenya, Algeria and Morocco. Above average precipitation is expected to be observed over Gabon, Guinea Bissau, Congo, DRC, Zambia, Zimbabwe, Botswana, Lesotho, Swaziland, South Africa and Madagascar in the first week. Whereas during the second week normal to above precipitation can be expected in Gabon, Guinea Bissau, Congo, DRC, Zimbabwe, South Africa, Lesotho, Swaziland and 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 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 1023hPa, a 9hPa strengthening compared to the climatological mean (1991-2020). It was located at 45°W and 43°N. It moved to the North West over the northern Antarctic Ocean.
- **St. Helena High** observed a central pressure value of 1025hPa; it strengthening by 3hPa from the climatological mean (1991-2020). It was located at 3°W and 33°S.
- **Mascarene High:** The central value for Mascarene High was 1027hPa. It strengthening by 2hPa from the previous dekad and by 6hPa from the climatological means (1991-2020). Positioned at 75°E and 31°S, it moved to the east over the south Indian Ocean.
- **Heat Low:** Thermal low was observed with the value of 1011hPa over Sudan, Chad, DRC, Mali and Southern parts of Africa Country's and stable to its climatological mean.

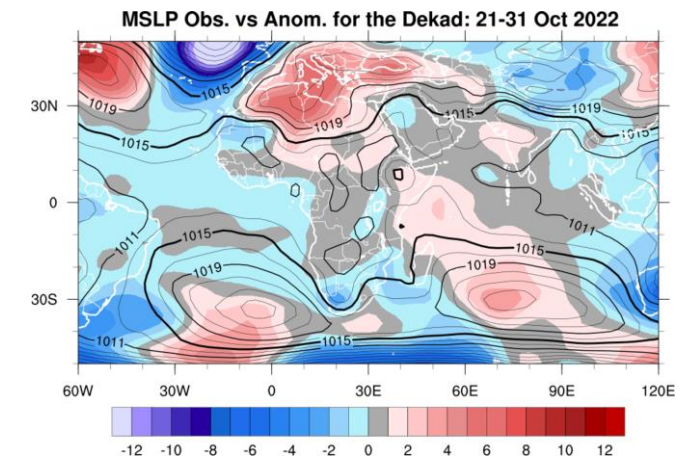


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21st to 31st October 2022

1.2 TROPOSPHERE

1.2.1 African Monsoon

The African Monsoons combined influence of the Indo-Pacific and the Atlantic Oceans drive the inter-annual and the decadal monsoon variability over these regions.

Figure 2.a shows the dekad average wind at 850hPa. Positive wind from north-easterly to easterly anomalies were observed over Algeria, Libya, Ethiopia, Kenya, Nigeria, Tanzania, South Sudan and Zambia. Negative wind anomalies from east to south easterly and north easterly were observed over Morocco, Mali, Nigeria, DRC, Sudan, Mozambique and South Africa.

At the 700hPa level (see Fig.2b), the vortex wind anomaly was observed over northern parts of North Africa, in the southern parts of the Continent neutral wind from west to south-western were observed.

At 200hPa level (see Fig.2c), the vortex wind anomaly was observed over north-western parts of North Africa. Very strong westerly wind vector anomalies at 200hPa observed mainly over central parts of Central Africa region.

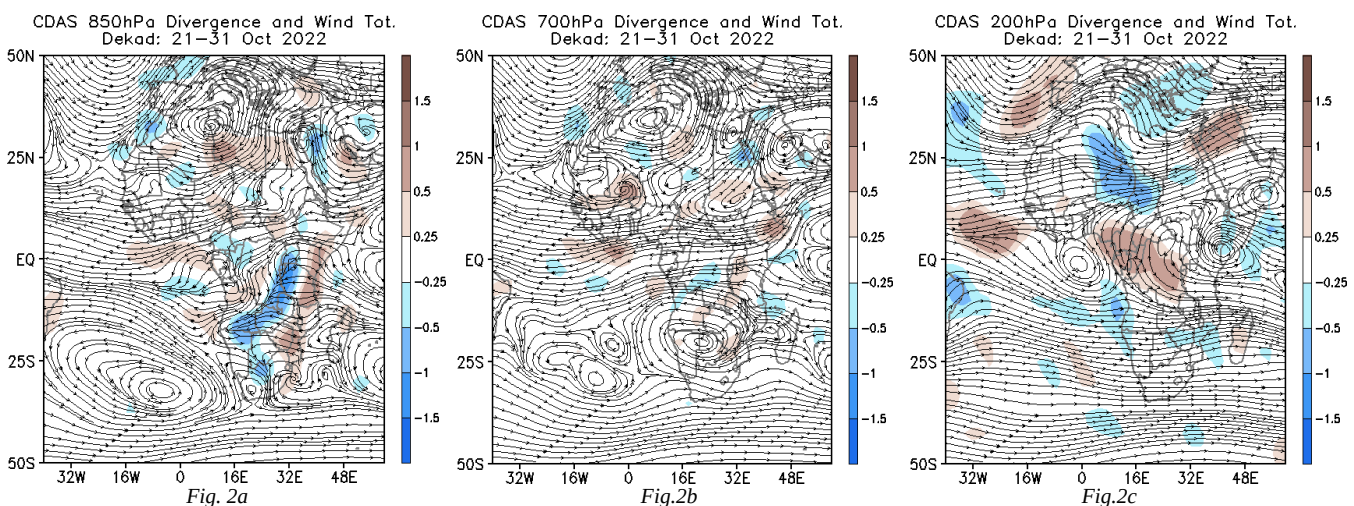


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded: s⁻¹) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the third dekad of October 2022 (from 21st to 31st Oct). Source: NOAA/NCEP

1.2.2 Relative Humidity (RH) at 850hPa and 700hPa

Figure 3.a and 3.b respectively show the dekadal observed relative humidity and related anomalies at 850hPa and 700hPa for the third dekad of October 2022 compared to the reference period of 1991-2020.

At 850hPa (see Fig.3a), wet atmospheric conditions (relative humidity $\geq 60\%$) were observed over Gulf of Guiana, some of Central Africa and East African regions. The rest of the continent observed RH values $\leq 60\%$. Negative anomalies were observed during the third dekad of October 2022 over most of Algeria, Morocco, Tunisia, Ghana, Ivory Coast, Benin, Togo, Nigeria, Gabon, South Africa, Zambia, Zimbabwe, Mozambique, Congo, Tanzania, DRC, Uganda, Rwanda, Burundi and Kenya, while positive anomalies were recorded over the rest of the continent.

At 700hPa (Fig.3b), high relative humidity ($\geq 60\%$) were observed over South Africa countries, Central Africa and East African regions. Relative humidity anomalies for the third dekad of October 2022 were negative over Angola, DRC, Kenya, Tanzania, Zambia, northern Mozambique, Algeria, Libya, Tunisia, Ghana, Ivory Coast, Benin, Togo, Nigeria, Niger, Cameroon, Central Africa, Uganda, Somalia and Madagascar. While the rest of the Continent had positive moisture anomalies.

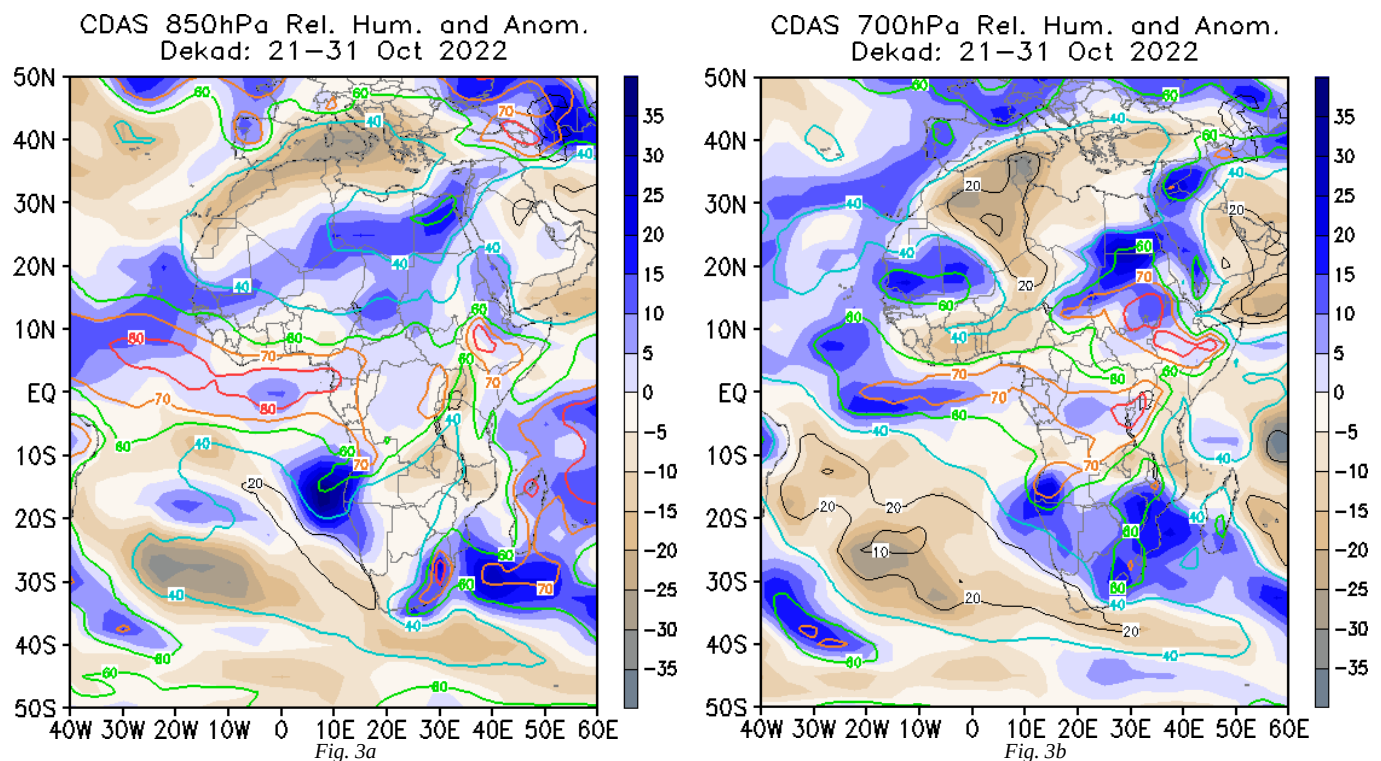


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (Fig.3a) and 700hPa (Fig.3b) during the third dekad of October 2022 (from 21st to 31st Oct). SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 8 shows the observed precipitation as a percentage of average for the third dekad of October 2022. During the third dekad of October 2022, rainfall activities were observed over some parts of subtropical and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over parts of Central Africa and South Africa regions. Below-average to well below-average rainfall was recorded over Central Africa, East Africa and Central Africa countries.

Details:

- **North Africa:** This region experienced mostly near average rainfall conditions.
- **Sahel:** This region received near average rainfall conditions.
- **Gulf of Guinea countries:** Some parts of the region received above to well above-average precipitation over Senegal, Guinea Bissau, Guinea, southern parts of Ghana, Togo and Benin, and western Cameroon; below to well below average rainfall over Liberia, Ivory Coast, most parts of Ghana, Togo, Benin, Gabon and Nigeria.

- **Central Africa countries:** experienced above to well above normal precipitation over Congo and Angola.
- **East African countries:** some eastern parts observed above to well above average rainfall conditions over eastern parts of South-Sudan and western part of Ethiopia; below to well below average rainfall were observed the rest of the country.
- **Southern Africa countries:** Most parts of the region received above to well above average precipitation over Botswana, Zimbabwe, Namibia, South Africa, Eswatini and Lesotho.

CPC-Uni 11-Day Precipitation in Percent of Average (%)
Period: 21Oct2022 to 31Oct2022

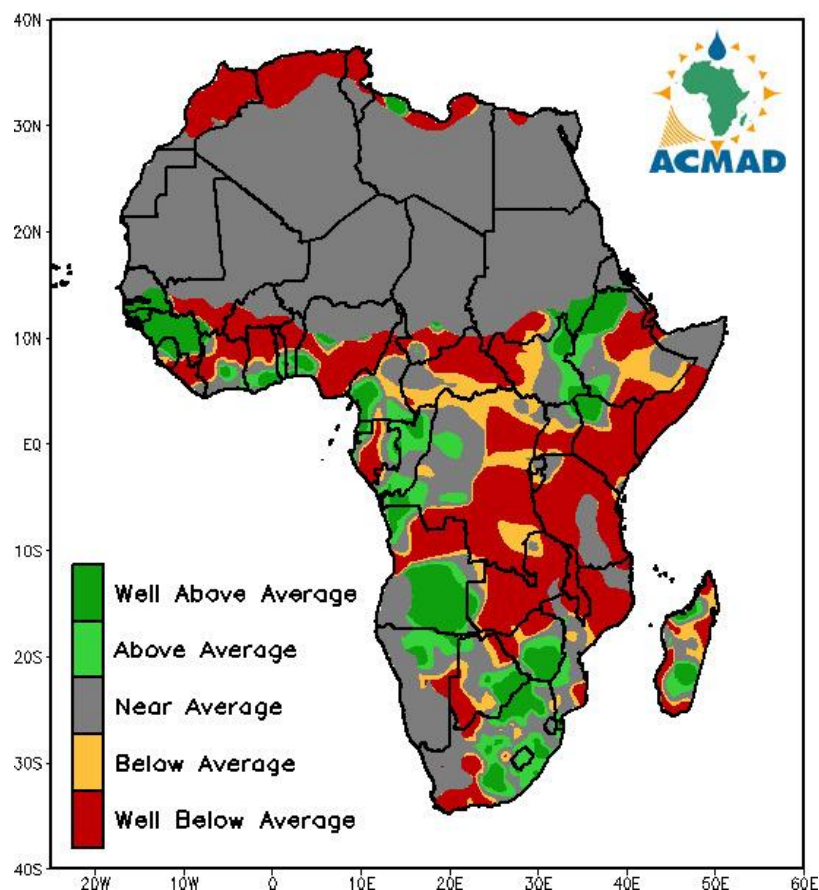


Figure 6: Precipitation in the percentage of the average for the third dekad 21st to 31st October 2022. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)

3.0 RAINFALL OUTLOOK VALID FOR 02 - 15 November 2022

The outlook for 02 – 15 November 2022 depicts a general bias for below to normal precipitation over Ivory Coast, Ghana, Benin, Togo, Nigeria, Cameroon, Tanzania, Kenya, Algeria and Morocco. Above average precipitation is expected to be observed over Gabon, Guinea Bissau, Congo, DRC, Zambia, Zimbabwe, Botswana, Lesotho, Swaziland, South Africa and Madagascar in the first week. Whereas during the second week normal to above precipitation can be expected in Gabon, Guinea Bissau, Congo, DRC, Zimbabwe, South Africa, Lesotho, Swaziland and Madagascar.

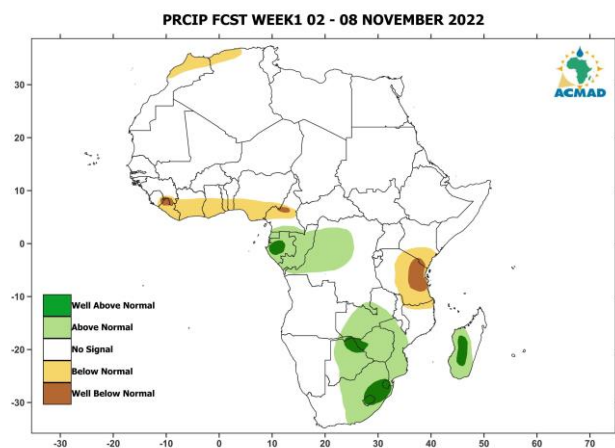


Figure 9a: Precipitation forecast for 02 – 08 November 2022

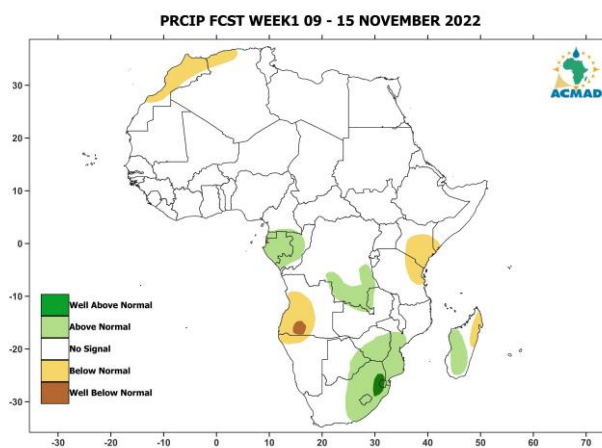


Figure 9b: Precipitation forecast for 09 – 15 November 2022