

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN

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REPORTING PERIOD: Dekad 1; 11st –20th October 2022

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HIGHLIGHTS

- ✓ *During the second 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 Western Africa, some parts of Central Africa and Eastern Africa regions. Below-average to well below-average rainfall was recorded over some parts of Central Africa, most parts of East Africa and Southern African 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 22 – 28 October 2022 depicts a general bias for below to normal precipitation over Ghana, Benin, Togo, Nigeria, Tanzania, Kenya and South Sudan. Above average precipitation is expected to be observed over Gabon, Guinea Bissau, southern parts of DRC, southwestern Ethiopia, Botswana, South Africa and Madagascar in the first week. Whereas during the second week normal to above normal precipitation can be expected in Gabon, DRC, South Africa, Lesotho 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 46°W and 45°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 4hPa from the previous dekad and by 7hPa from the climatological mean (1991-2020). It was located at 36°W and 36°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 72°E and 28°S, it moved to the east over the south Indian Ocean.
- **Heat Low:** Thermal low was observed with the value of 1009hPa over eastern parts of Sudan, located at 33°E/16°N stable to its climatological mean.

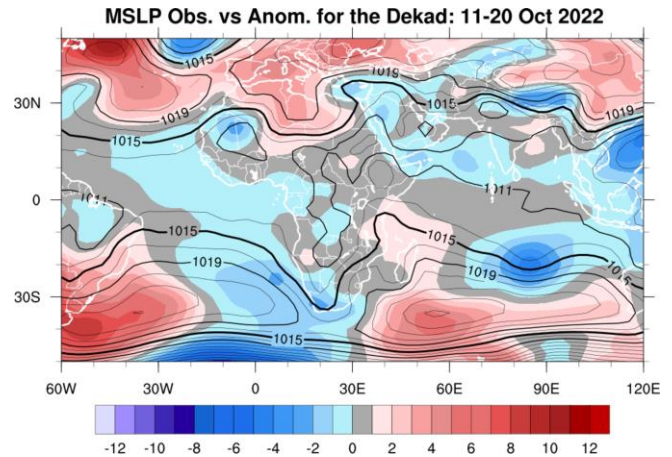


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 11th to 20th October 2022

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 to north-easterly anomalies were observed over Algeria, Libya, Tanzania, Malawi, Mozambique, South Sudan, Angola and South Africa. Negative wind anomalies from east to south easterly and north easterly were observed over Morocco, Algeria, Nigeria, Namibia, Botswana 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 eastern to north-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.

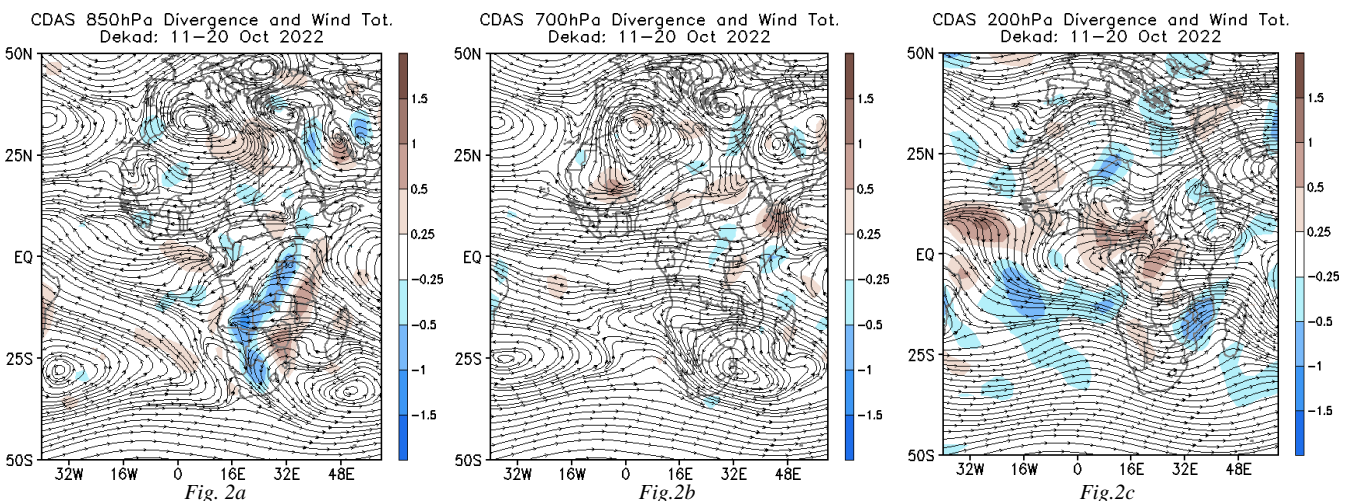


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded; s^{-1}) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the second dekad of October 2022 (from 11th to 20th Oct). Source: NOAA/NCEP

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 second 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 West Africa countries, some of Central Africa and East African regions. The rest of the continent observed RH values $\leq 60\%$. Negative anomalies were observed during the second dekad of October 2022 over most of Gabon, Angola, South Africa, Morocco, Zambia, Zimbabwe, Mozambique, Angola, Congo, Tanzania, DRC 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 Western Africa countries, most parts Central Africa and East African regions. Relative humidity anomalies for the second dekad of October 2022 were negative over Angola, DRC, Kenya, Tanzania, Zambia, Mozambique, Algeria, Libya, Congo, Cameroon, Nigeria, Central Africa, and Madagascar. While the rest of the continent had positive moisture anomalies.

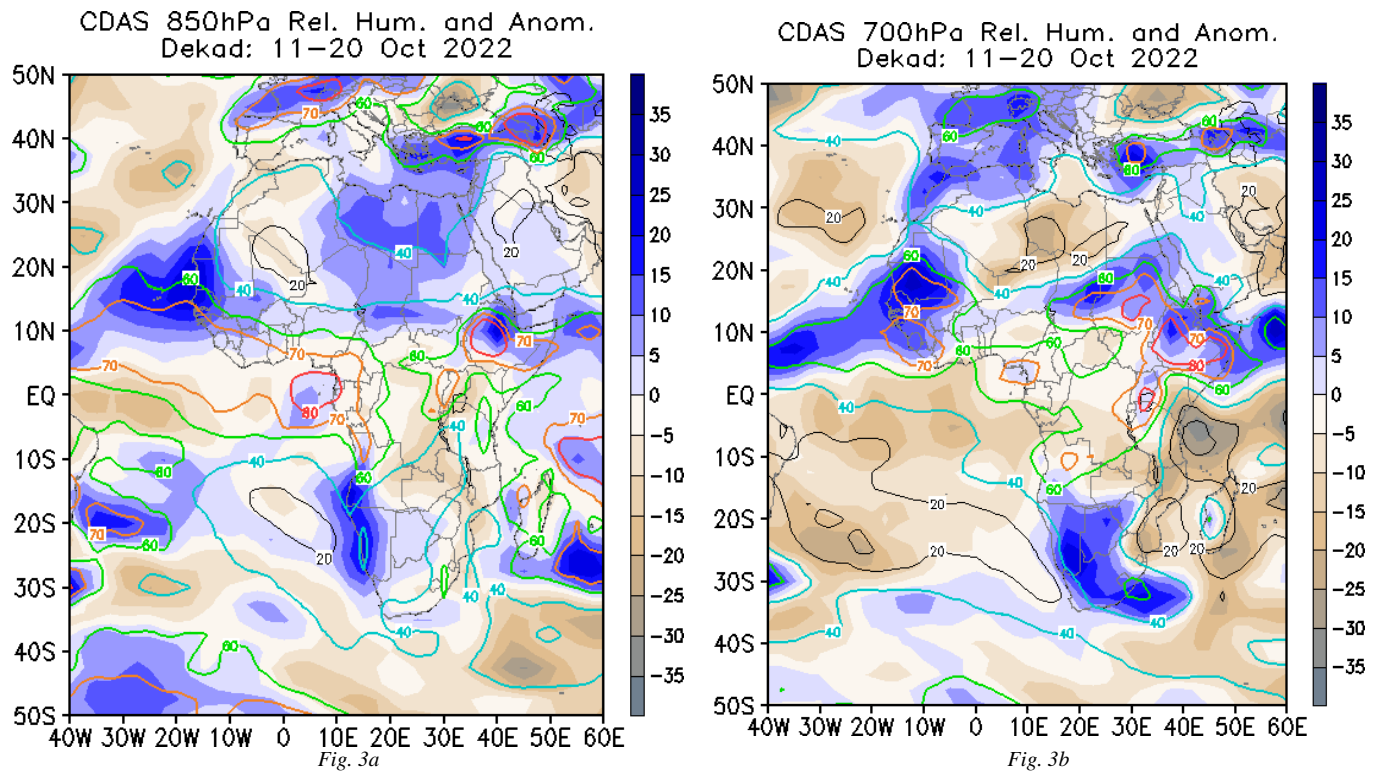


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (Fig.3a) and 700hPa (Fig.3b) during the second dekad of October 2022 (from 11st to 20th Oct). SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 8 shows the observed precipitation as a percentage of average for the second dekad of October 2022. During the second 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 West Africa, some parts of Central Africa and East Africa regions. Below-average to well below-average rainfall was recorded over Central Africa, most parts of East Africa and Southern 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:** Most parts of the region received above to well above-average precipitation over Senegal, Guinea Bissau, Guinea, Ivory Coast, Ghana, Togo, Benin, Nigeria and Cameroon to well below average rainfall over Nigeria and Sierra Leone.
- **Central Africa countries:** experienced Above to well Above normal precipitation over Congo, Central Africa, Equatorial Guinea, DRC and north west parts of Angola.

- **East African countries:** some eastern parts observed above to well above average rainfall conditions over South-Sudan, some pocket areas of Tanzania and Uganda; below to well below average rainfall were observed in Ethiopia, Kenya, Somalia, Rwanda and Burundi.
- **Southern Africa countries:** some parts of the region received below to well below average precipitation over South Africa, Eswatini and Lesotho.

CPC-Uni 10-Day Precipitation in Percent of Average (%)
 Period: 11Oct2022 to 20Oct2022

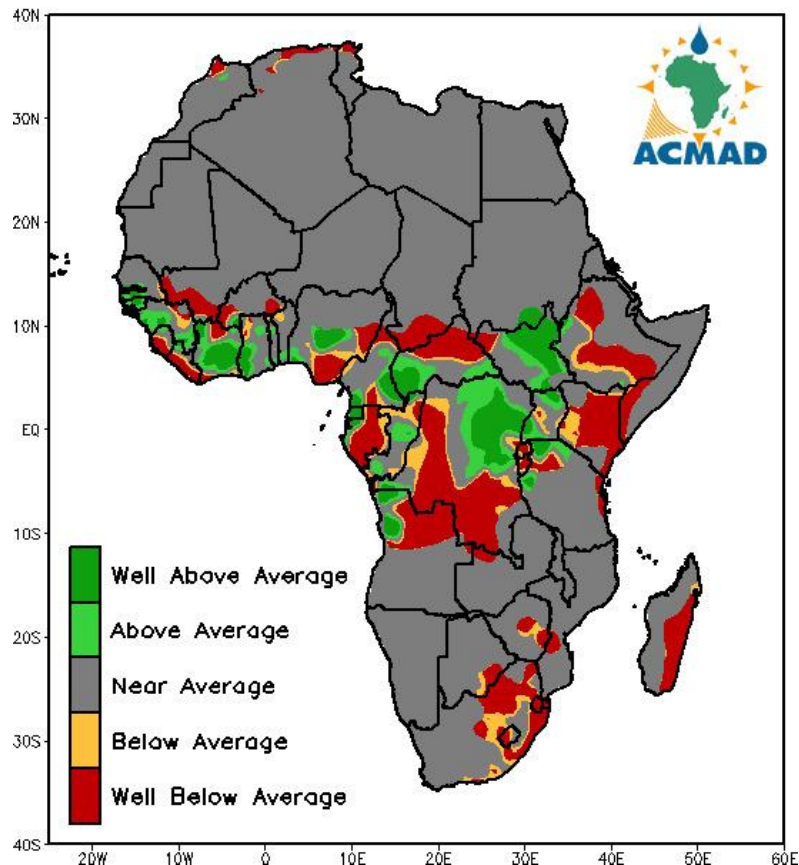


Figure 6: Precipitation in the percentage of the average for the third dekad 11st to 20th October 2022. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)

3.0 RAINFALL OUTLOOK VALID FOR 22 - 28 OCTOBER 2022

The outlook for 22 – 28 October 2022 depicts a general bias for below to normal precipitation over Ghana, Benin, Togo, Nigeria, Tanzania, Kenya and South Sudan. Above average precipitation is expected to be observed over Gabon, Guinea Bissau, southern parts of DRC, south west Ethiopia, Botswana, South Africa and Madagascar in the first week. Whereas during the second week normal to above precipitation can be expected in Gabon, DRC, South Africa, Lesotho and Madagascar.

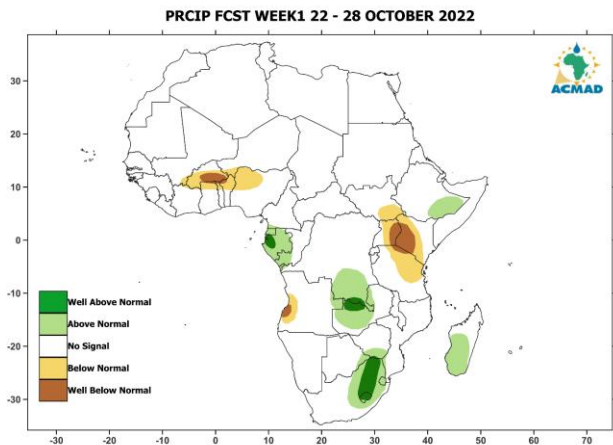


Figure 9a: Precipitation forecast for 22 – 28 October 2022

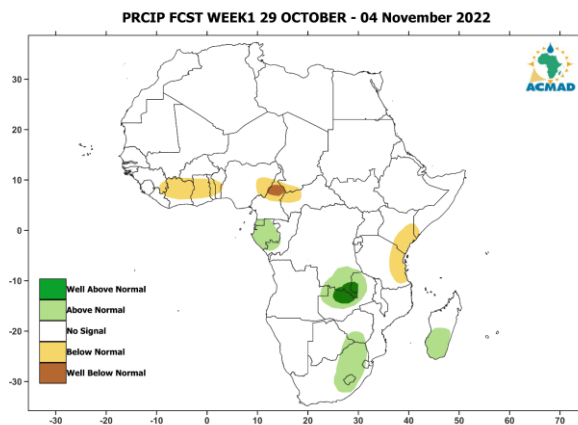


Figure 9b: Precipitation forecast for 29 October – 04 November 2022