

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN

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HIGHLIGHTS

- ✓ *During the third dekad of November 2022, rainfall activities were observed over some parts of subequatorial and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over central western parts of Central Africa, Southern Africa and East Africa regions. Below-average to well below-average rainfall was recorded over DRC, Kenya, northern parts of Mozambique north-western Namibia and central Madagascar.*
- ✓ *The dekad was characterized by neutral to cold SSTs conditions in the over northern b and equatorial the Atlantic, warm SSTs over southern Atlantic. 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 cold conditions over western parts that led to suppress rainfall over parts of the eastern side of East African countries. While over south-western of the SSTs was warm and conducted the above rainfall most of Southern Africa region.*
- ✓ *The outlook for 07 – 20 December 2022 depicts a general bias for below to normal and normal to below precipitation southern parts of DRC, Tanzania, Zambia, Malawi, Mozambique and northern Madagascar. Above average and Normal to above precipitation is expected over Morocco, Angola, eastern DRC, Gabon, Congo, Lesotho, Swaziland, east of South Africa, Uganda, Rwanda, Burundi and northern tips of Tanzania Madagascar during first to second week.*

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 1024hPa, a 1hPa strengthening compared to the climatological mean (1991-2020). It was located at 17°W and 36°N. It moved to the East over the northern Antarctic Ocean.
- **St. Helena High** observed a central pressure value of 1026hPa; it strengthening by 2hPa from previous dekad and the climatological mean (1991-2020). It was located at 17°W and 37°S.
- **Mascarene High:** The central value for Mascarene High was 1021hPa. It weakened by 6hPa from the previous dekad and strengthening by 2hPa from the climatological means (1991-2020). Positioned at 97°E and 37°S, it moved to the east over the south Indian Ocean.
- **Heat Low:** Thermal low was observed with the value of 1007hPa over north of the South-Sudan and deepened to its climatological mean.

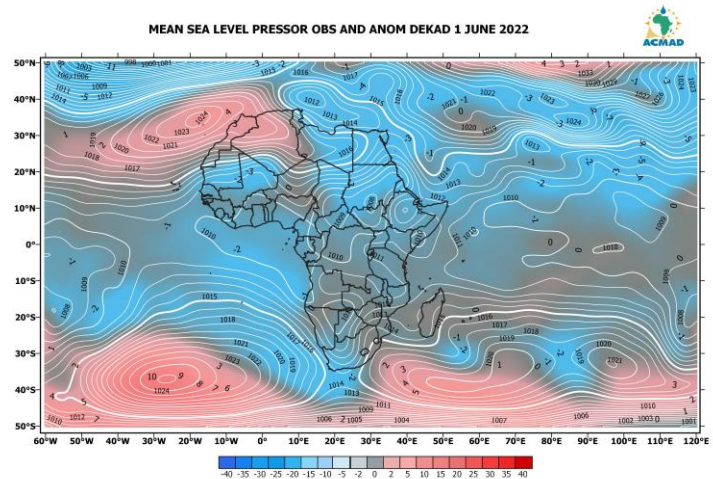


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21th to 30th November 2022

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 Libya, Egypt, Sudan, Chad, Kenya, Somalia, Nigeria, Tanzania, Mozambique, Zimbabwe and Angola. Negative wind anomalies from east to south easterly and north easterly were observed over Chad, Uganda, Burundi, Rwanda, Namibia, Tanzania, Botswana, Zambia, Cameroon, Mali and South Africa.

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

At 200hPa level (see Fig.2c), the vortex wind anomaly was observed over south west parts of East Africa. Very strong westerly wind vector anomalies at 200hPa observed mainly over Northern and Southern parts of Africa region.

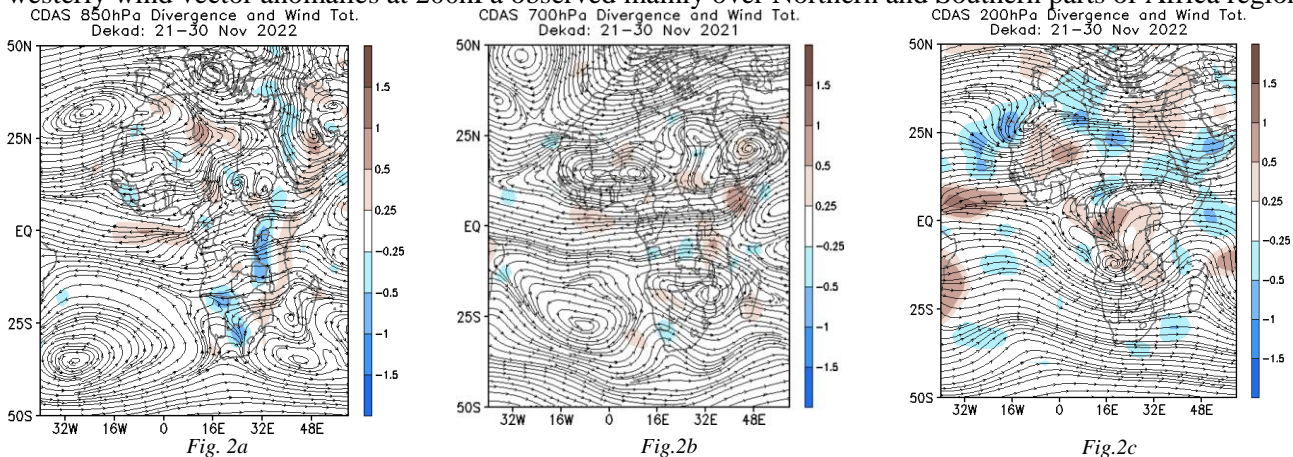


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded; s^{-1}) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the third dekads of November 2022 (from 21th to 30th Nov). Source: NOAA/NCEP

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 November 2022 compared to the reference period of 1991-2020.

At 850hPa (*see Fig.3a*), wet atmospheric conditions (relative humidity $\geq 60\%$) were observed over northern parts of Algeria, Tunisia, Libya and Egypt, southern Gulf of Guinea, Central Africa, Southern Africa and East African regions. The rest of the continent observed RH values $\leq 60\%$. Negative anomalies were observed during the third dekad of November 2022 over most of Morocco, Ghana, Ivory Coast, Cameroon, Nigeria, Tanzania, Uganda, Ethiopia, Sudan 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 African countries, Central Africa and East African regions. Relative humidity anomalies for the third dekad of November 2022 were negative over Morocco, Algeria, Tunisia, Nigeria, Benin, Togo, Ghana, Côte d'Ivoire, Niger, Cameroon, and Chad. While the rest of the Country had positive moisture anomalies observed.

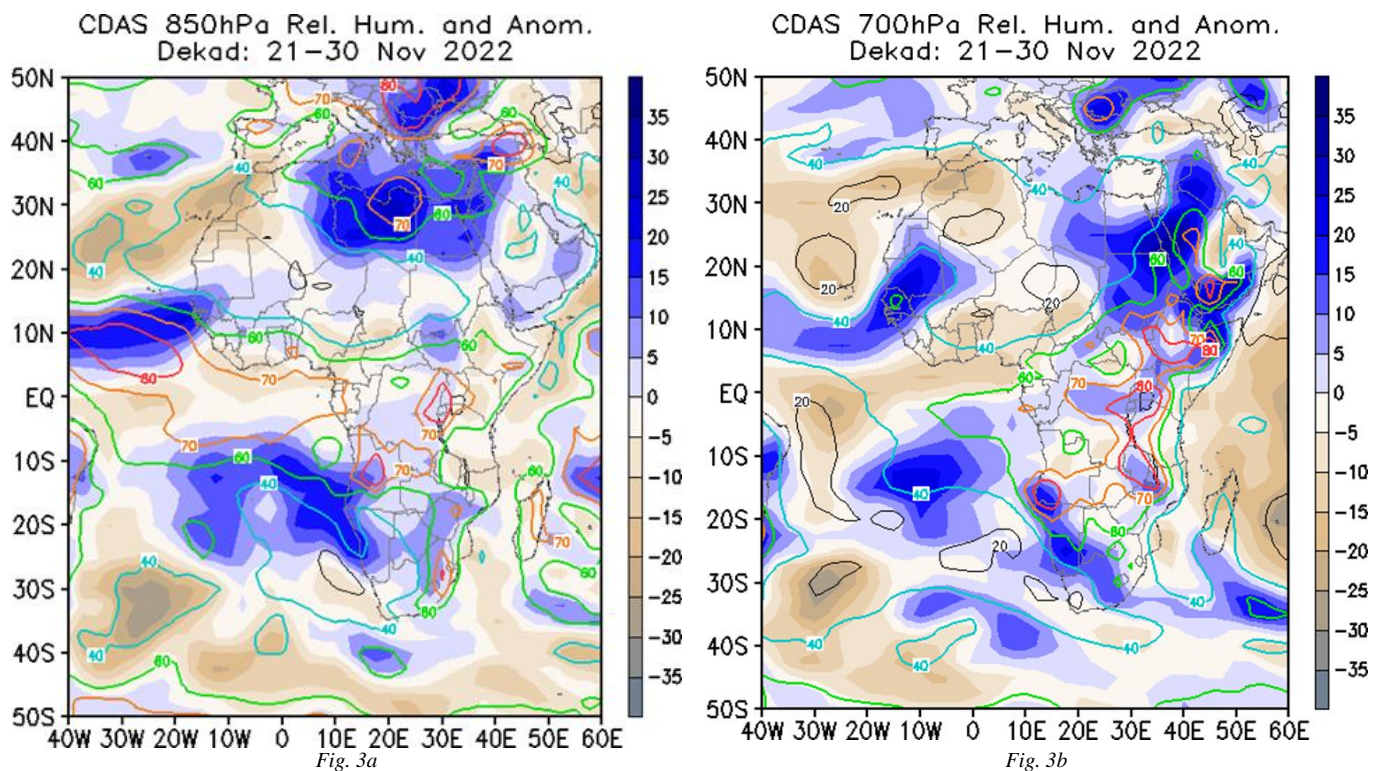


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (*Fig.3a*) and 700hPa (*Fig.3b*) during the third dekad of November 2022 (from 11th to 20th Nov). SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 8 shows the observed precipitation as a percentage of average for the third dekad of November 2022.

During the third dekad of November 2022, rainfall activities were observed over some parts of subequatorial and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over central western parts of Central Africa, Southern Africa and East Africa regions. Below-average to well below-average rainfall was recorded over DRC, Kenya, northern parts of Mozambique north-western Namibia and central Madagascar.

Details:

- **North Africa:** This region experienced below average rainfall conditions over Morocco, north-western of Algeria and above average over north-eastern Algeria and Tunisia.
- **Sahel:** This region received near average rainfall conditions.
- **Gulf of Guinea countries:** Southern parts of the region received above to well above-average precipitation over Ghana, Côte d'Ivoire; below to well below average rainfall over Liberia.

- **Central Africa countries:** experienced above to well above normal precipitation over Southern Cameroon, Gabon, Congo and western DRC; below average rainfall over central parts of DRC and northern and eastern Angola.
- **East African countries:** some eastern parts observed above to well above average rainfall conditions over Uganda, Rwanda and Tanzania; below to well below average rainfall were observed over Kenya and eastern parts of Tanzania.
- **Southern Africa countries:** Some parts of the region received above to well above average precipitation over Angola, east of Zambia, southern Mozambique, much of Zimbabwe and Botswana, eastern parts of South Africa southern Madagascar. Below average over eastern Angola, north-eastern Namibia, central and north-east of South Africa, northern parts of Mozambique and central of Madagascar.

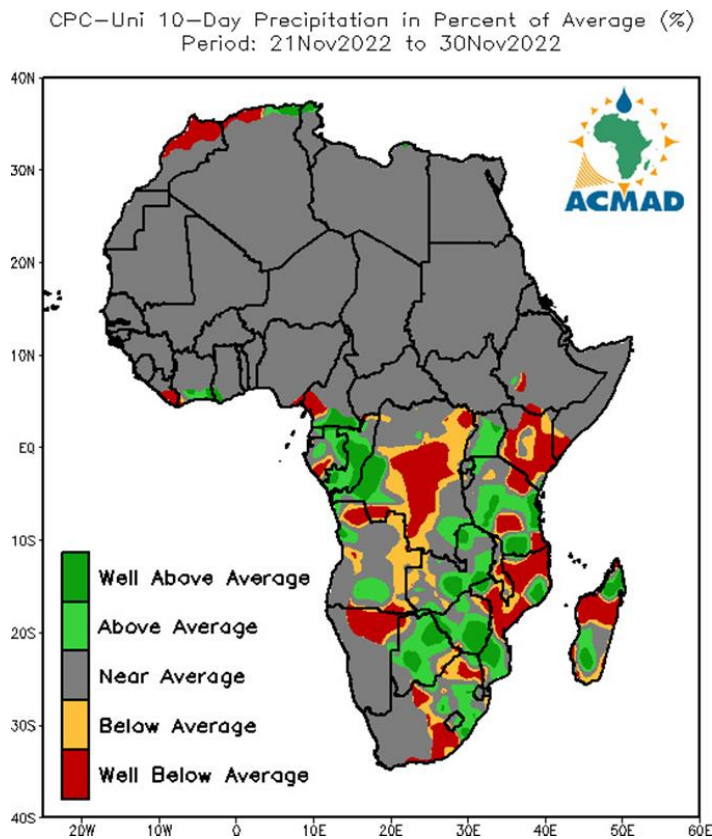


Figure 6: Precipitation in the percentage of the average for the first decade 21th to 30th November 2022. The reference period used is 1991-2020. Source: NOAA/ NCEP/ CPC/ UNIFIED/ Africa/ DAILY/

3.0 RAINFALL OUTLOOK VALID FOR 07 - 20 December 2022

The outlook for 07 – 20 December 2022 depicts a general bias for below to normal and normal to below precipitation southern parts of DRC, Tanzania, Zambia, Malawi, Mozambique and northern Madagascar. Above average and Normal to above precipitation is expected over Morocco, Angola, eastern DRC, Gabon, Congo, Lesotho, Swaziland, east of South Africa, Uganda, Rwanda, Burundi and northern tips of Tanzania Madagascar during first to second week..

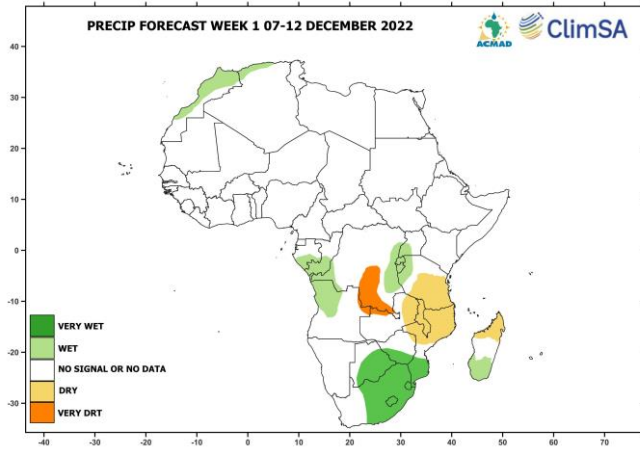


Figure 9a: Precipitation forecast for 07 – 12 December 2022

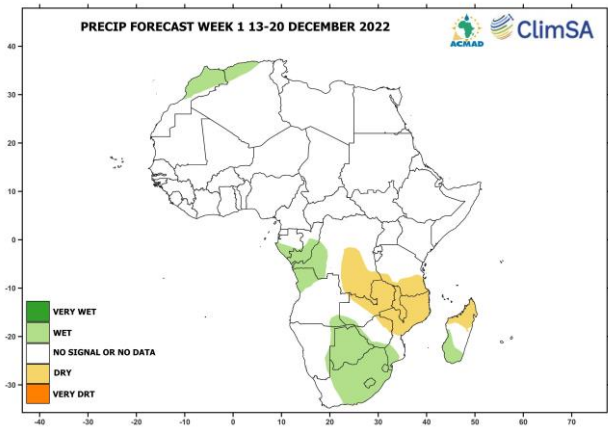


Figure 9b: Precipitation forecast for 13-20 December 2022