

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN
ISSUE N°: 2024/33

REPORTING PERIOD: Dekad 04 - 18 December 2024

ISSUE DATE: 04/12/2024

HIGHLIGHTS

Figure 4 shows that, the third decade of November 2024 was characterized by below average to well below average precipitation conditions over most of the Northern Africa, in the south-eastern of the Gulf of Guinean, most parts of southern Central African and Eastern Africa region, western and eastern of Southern Africa. Above-average to well Above-Average rainfall conditions were observed over Kenya, Tanzania, west of DRC and centre of Angola.

The outlook for the next two weeks, from 4 to 18 December 2024, shows that during the first week, the very wet conditions are expected over Tanzania, south of Kenya, Rwanda and Burundi. The wet conditions are expected in Kenya, Uganda, DRC, north of Malawi, Zambia, Mozambique, Madagascar and Angola. Dry to normal conditions are very likely over Morocco, north of Algeria, south of Angola and Zambia, Zimbabwe, Namibia, Bostwana, south of Mozambique, Lesotho, Swaziland and South Africa.

The second week will be characterized by wet to normal to above conditions over Tanzania, Kenya, Uganda, Congo, DRC, Angola and Madagascar. The normal to dry situation is expected over northern Morocco, south-east of DRC, central and eastern Zambia, southern Tanzania, northern Malawi, northern and southern Mozambique and eastern South Africa. Very Dry conditions are expected over Lesotho, Swaziland, some part of South Africa and south of Mozambique.

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 anticyclone** was observed at a value of 1019hPa. The value decreased an 8hPa as compared to the last dekad and strengthened 1hPa to the climatological average (1991 – 2020). It was located at -48°W and 28°N. It is not very active on the continent.
- **St. Helena High** was observed at a value of 1022hPa. It is decreased to 1hPa from the last dekad and by 1hPa as compared to its climatological average (1991 – 2020). It was located at 2°E and 31°S. It has moved to the east of to the continent.
- **Mascarene High** was observed at a central value of 1023hPa. It is stabilised from the last dekad and increased by 2hPa as compared to its climatological average (1991 – 2020). It was positioned at 75°E and 31°S.
- **Heat Low:** A thermal depression (low pressure zone) was observed over the CAR and South-Sudan with the value of 1012 hPa.

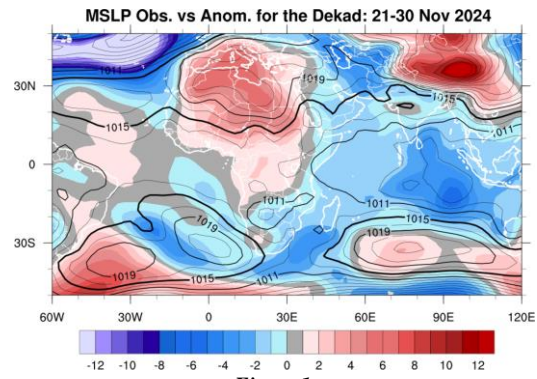


Figure 1.
Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21 - 30 November 2024

1.2 TROPOSPHERE

1.2.1 African Monsoon

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

Figure 2 shows the ten-day average wind at 850 hPa. Negative vortices winds were observed over the northern part of the continent with north-easterly winds crossing East, Central and West Africa. A convergence of oceanic and continental air masses was observed over Namibia and Congo. A negative wind vortex anomaly has been observed over Namibia, South Africa, Malawi, Tanzania and Ethiopia.

At 700hPa level (see figure 2b), the positive wind vortex anomaly was observed over Egypt. Over the rest of the continent, weak variations in the wind anomaly at 700 hPa were observed, with strong winds from the north-east crossing the whole central part of the continent.

At 200hPa level (see Figure 2c), the positive wind vortex anomaly was more active over CAR and Angola. On the other hand, the negative eddy anomaly was observed over northern Angola, western DRC and Congo. The positive anomalies were observed over Namibia and South Africa in the south of the continent and over Algeria and Libya in the north.

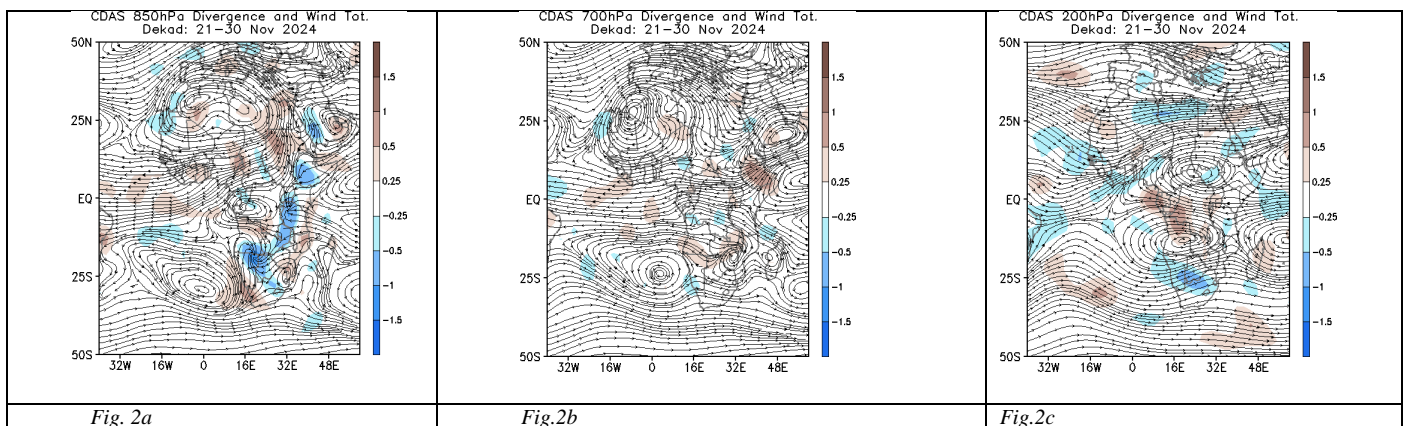


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded; s-1) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the second dekad of October 2024 (from 21th 30th November 2024). Source: NOAA/NCE.

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

Figures 3.a and 3.b respectively shows the observed dekadal relative humidity and associated anomalies at 850hPa and 700hPa for the third decade of November 2024 compared to the reference period 1991-2020.

At 850 hPa (see Fig. 3a), positive anomalies of humid atmospheric conditions were observed over Libya and Egypt. Low positive and negative variations in the relative humidity anomaly were observed over the rest of the continent.

Relative humidity values $\geq 40\%$ were observed over the Central African countries, eastern African region and scattered places in the SADC region.

At 700 hPa (Fig. 3b), relative humidity anomalies for the third dekad of November 2024 were positive over Morocco, west of Algeria, Gabon, Congo, DRC, CAR, Kenya, Tanzania, Rwanda and Burundi. Negative RH anomalies were observed over West and South Africa region.

RH values $\geq 40\%$ were observed over the Central African countries, eastern African areas with the maximum in Congo, Gabon, DRC and Angola.

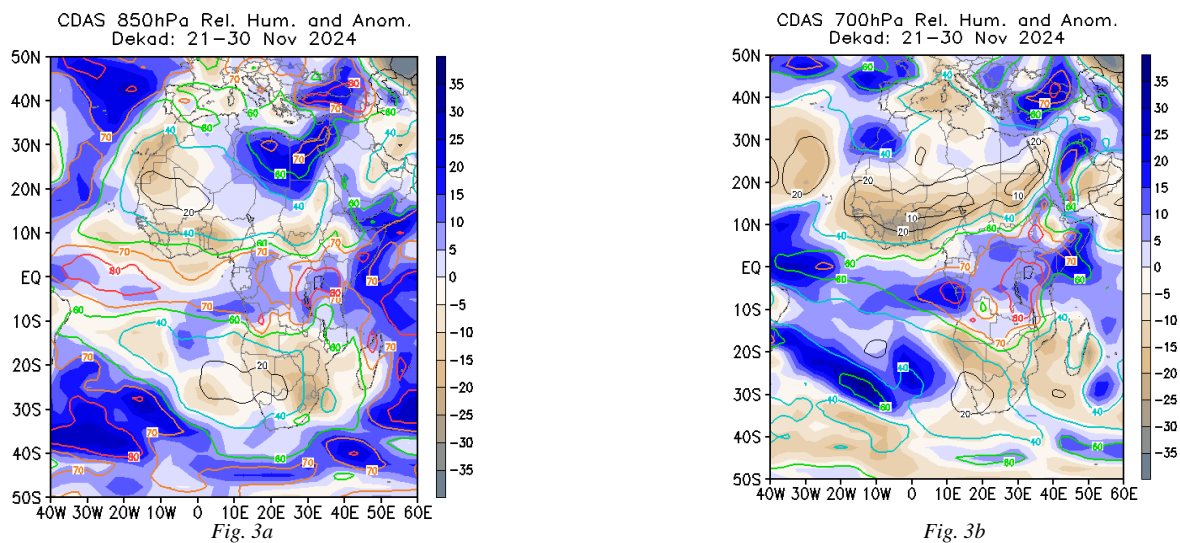


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (Fig.3a) and 700hPa (Fig.3b) during the third dekad of November 2024 (from 21st 30th November 2024) SOUCARE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

Figure 4 shows that during the third decade of November 2024, was characterized by below average to well below average precipitation conditions over most of the Northern Africa, in the south-eastern of the Gulf of Guinean, most parts of southern Central African and Eastern Africa region, western and eastern of Southern Africa. Above-average to well Above-Average rainfall conditions were observed over Kenya, Tanzania, west of DRC and centre of Angola.

Details:

- North Africa: Well below was observed over northern Morocco, north of Algeria and northern of Tunisia.
- Sahel: Near average precipitation observed over the entire region.
- Gulf of Guinea countries: Well Below average precipitation was observed over coast of Liberia, Côte d'Ivoire, Ghana, Cameroon, Gabon, Congo, DRC and Equatorial Guinea. Some parts of Gabon and Congo have Above to Well Above conditions.
- Central African countries: This region experienced below average to well below average rainfall over south and west of Angola.
- East African countries: Well above to above average conditions were observed over most parts of Kenya, west of DRC, Uganda, Tanzania and centre of Angola.

- Southern African countries: Well Below to Below average have been observed over west of Angola, north of Namibia, Botswana, northern South-Africa, Mozambique and some part of Madagascar. Above average was observed over some part of Mozambique and Madagascar.

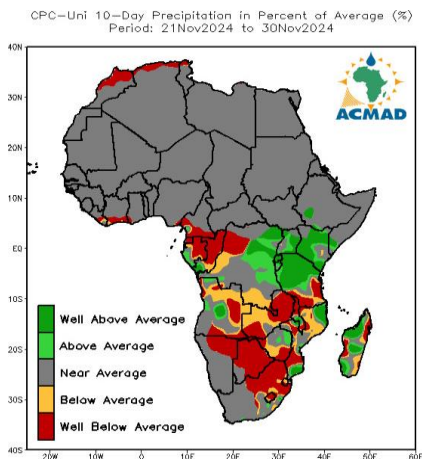


Figure 4: Precipitation in percentage of the average for the third dekad of November 2024. The reference period used is 1991-2020. Source: NOAA/. NCEP/. CPC/. UNIFIED/. Africa/. DAILY/)

3.0 RAINFALL OUTLOOK

The outlook for the next two weeks, from 4 to 18 December 2024, shows that during the first week, the very wet conditions are expected over Tanzania, south of Kenya, Rwanda and Burundi. The wet conditions are expected in Kenya, Uganda, DRC, and north of Malawi, Zambia, Mozambique, Madagascar and Angola. Dry to normal conditions are very likely over Morocco, north of Algeria, south of Angola and Zambia, Zimbabwe, Namibia, Botswana, south of Mozambique, Lesotho, Swaziland and South Africa.

The second week will be characterized by wet to normal to above conditions over Tanzania, Kenya, Uganda, Congo, DRC, Angola and Madagascar. The normal to dry situation is expected over northern Morocco, south-east of DRC, central and eastern Zambia, southern Tanzania, northern Malawi, northern and southern Mozambique and eastern South Africa. Very Dry conditions are expected over Lesotho, Swaziland, some part of South Africa and south of Mozambique.

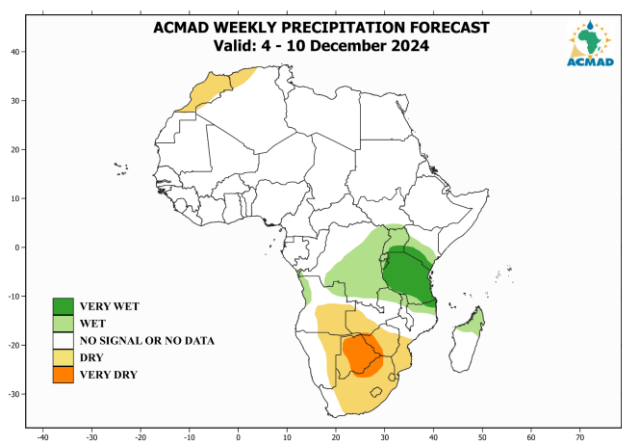


Figure 5a: Precipitation forecast from 4-10 December 2024

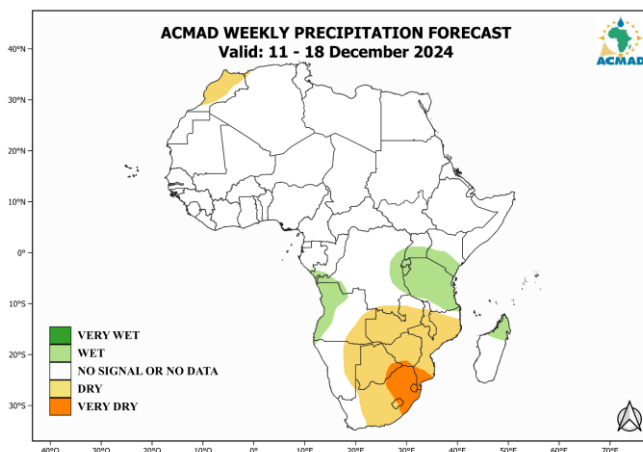


Figure 5b: Precipitation forecast from 11- 18 December 2024