

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN

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REPORTING PERIOD: Dekad 3; 21th –30th September 2022

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HIGHLIGHTS

- ✓ During the third dekad of September 2022, rainfall activities were observed over most of subtropical and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over most of Western Africa, some of Central Africa and some parts of Eastern Africa regions. Below-average to well below-average rainfall was recorded over central parts of Central Africa and some eastern parts of East Africa.
- ✓ 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 have 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 reduced rainfall over most of the eastern side of East African countries.
- ✓ The outlook for 04 – 10 October 2022 depicts a general tendency for below to normal precipitation over DRC, Tanzania, Kenya, southern Ethiopia and Somalia. Above average precipitation is expected to be observed over Senegal, Gambia, Guinea Bissau, Guinea, Burkina Faso, northern Benin, Nigeria, Cameroon, Chad, southern Sudan, South-Sudan, Uganda and western Ethiopia in the first week. Whereas during the second week normal to above precipitation can be expected in Nigeria, Cameroon, Sudan, Uganda, Rwanda and Burundi, and with below normal precipitation over Kenya, Tanzania, Malawi and Zambia.

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 1029hPa, a 11hPa strengthened compared to the climatological mean (1991-2020). It was located at 28°W and 47°N.
- **St. Helena High** observed a central pressure value of 1021hPa; a 5hPa weakened from the previous dekad and strengthened from the climatological mean (1991-2020). It was located at 15°W and 34°S.
- **Mascarene High:** The central value for Mascarene High was 1027hPa. It weakened by 3hPa from the previous dekad and strengthened by 5hPa from the climatological means (1991-2020). Positioned at 73°E and 30°S, it moved to the east over the south Indian Ocean.
- **Heat Low:** Thermal low was observed with the value of 1009hPa over western parts of Chad, located at 15°E/16°N stable to previous dekad and its climatological mean.

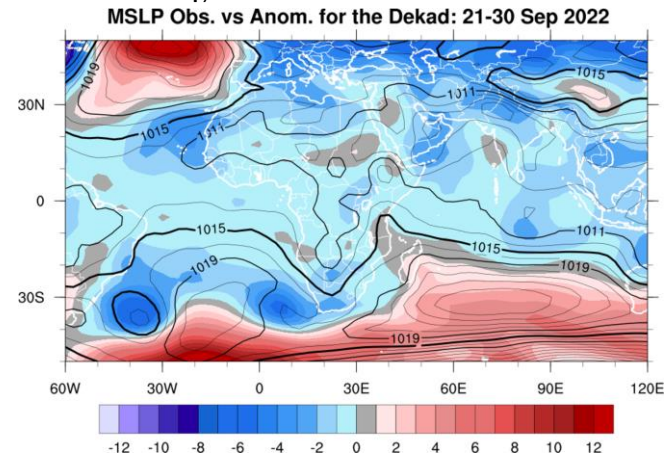


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 21st to 30th September 2022

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.

This figure 2.a shows the dekad average wind at 850hPa. Positive wind from north to south easterly and southerly anomalies observed over Angola, Botswana, South Africa, DRC, Tanzania, Rwanda, Uganda, Cameroon, Chad, and Algeria. Negative wind anomalies were observed over Mozambique, Zimbabwe, Malawi, Tanzania, Kenya, Libya, northern Angola and southeaster parts of South Africa.

At the 700hPa level (see Fig.2b), the vortex wind anomaly was observed over northern parts of North Africa and in the central parts of the Continent neutral easterlies were observed.

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

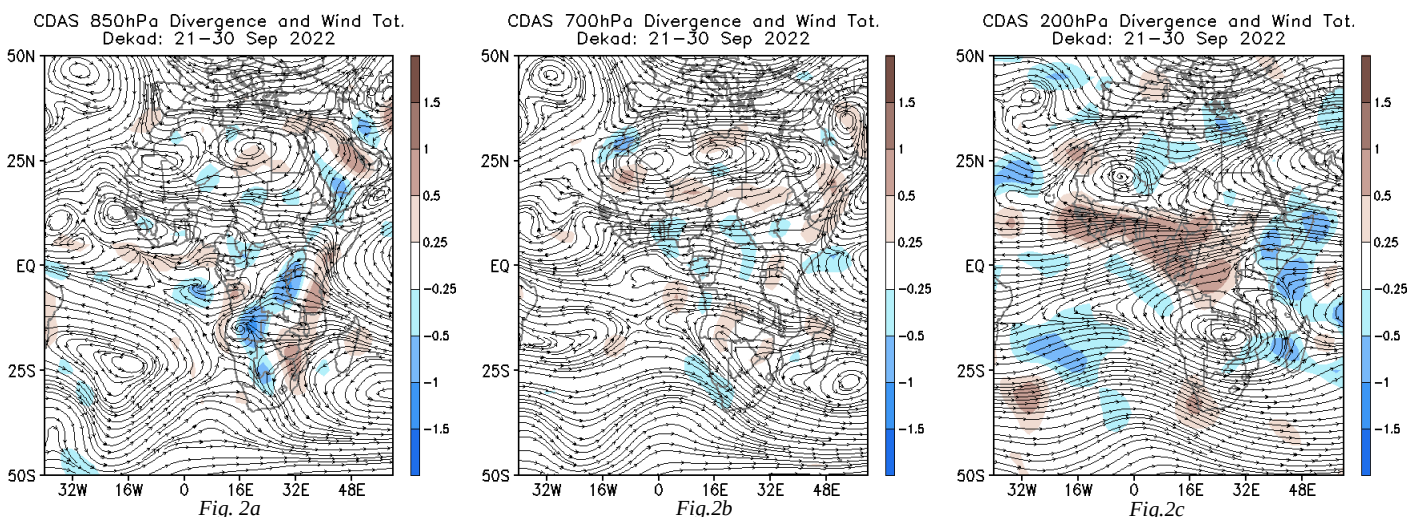


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded: s⁻¹) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the first dekad of September 2022 (from 21st to 30th Sep). Source: NOAA/NCEP

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

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

At 850hPa (see Fig.3a), wet atmospheric conditions (relative humidity $\geq 60\%$) were observed over Western Africa countries, most of Central Africa and most parts of the East African region. The rest of the continent observed RH values $\leq 60\%$. Negative anomalies were observed during the third dekad of September 2022 over most of DRC, Gabon, Congo, eastern Angola, southern South Africa, Libya, Morocco and Botswana, whilst 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, Central Africa and East African regions. Relative humidity anomalies for the third dekad of September 2022 were negative over north eastern Angola, Cameroon, Congo, Gabon, DRC, eastern Libya south western parts of South Africa, Eswatini, and Madagascar. While the rest of the continent received a surplus of moisture.

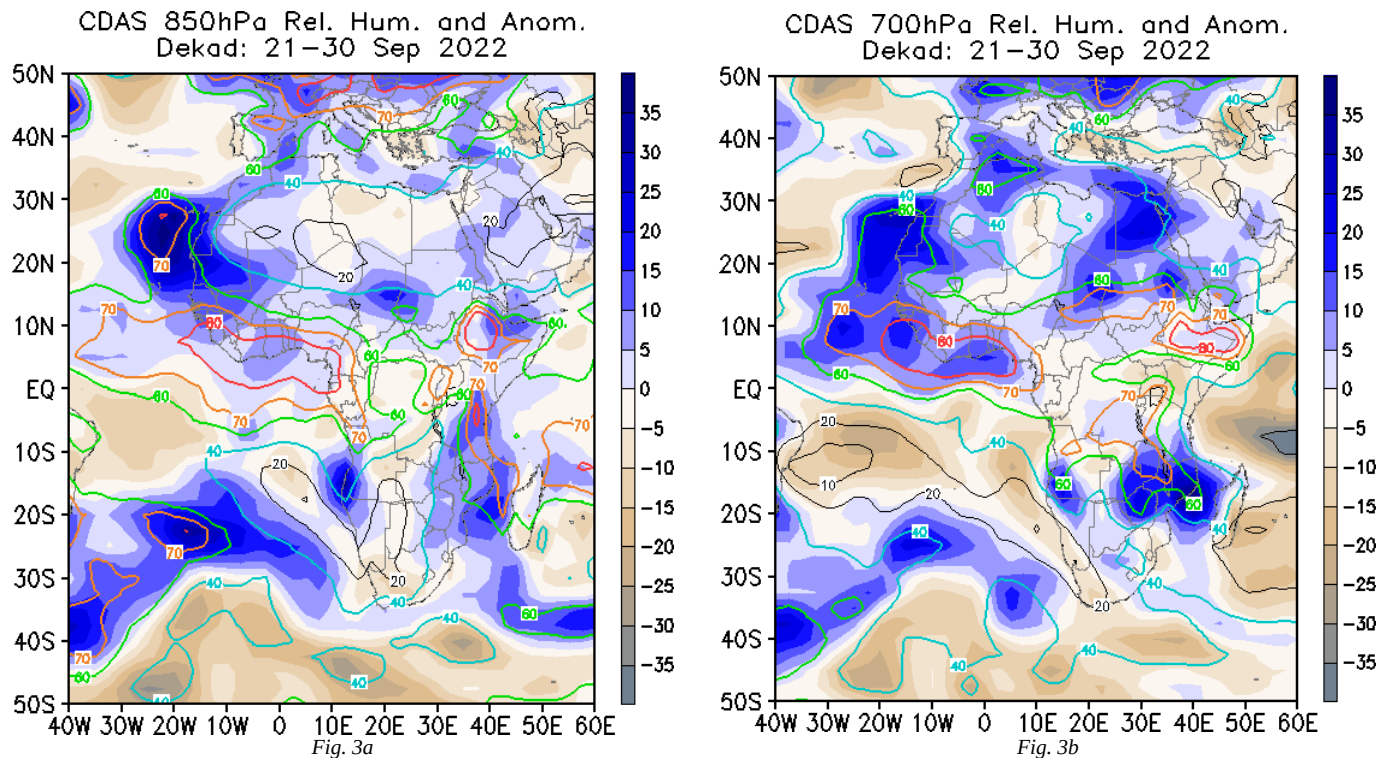


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (Fig.3a) and 700hPa (Fig.3b) during the period 21st to 30th September 2022. SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

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

During the third dekad of September 2022, rainfall activities were observed over most of subtropical and tropical bands of the Continent, with above-average to well above-average rainfall conditions observed over most of Western Africa, some of Central Africa and some parts of Eastern Africa regions. Below-average to well below-average rainfall was recorded over central parts of Central Africa and some eastern parts of East Africa.

Details:

- **North Africa:** This region experienced mostly near average rainfall conditions.
- **Sahel:** Above to well above average rainfall conditions were experienced over south eastern parts of Mauritania, Mali, Niger, Chad and Sudan, during the same dekad below to well below average precipitation over some areas in Chad and Sudan.

- **Gulf of Guinea countries:** Some parts of the region received above to well above-average precipitation over Senegal, Guinea Bissau, Guinea, Ivory Coast, Ghana, Togo, Benin, Nigeria Gabon and Cameroon, below to well below average rainfall over Nigeria and Sierra Leone
- **Central Africa countries:** experienced below to well below normal precipitation over Gabon, Equatorial Guinea and DRC.
- **East African countries:** some of eastern parts observed above to well above average rainfall conditions over southern parts of Sudan, eastern South-Sudan and Uganda, below to well below average rainfall were observed in the western parts of South-Sudan and southern parts of Ethiopia, northern Tanzania, southern and eastern Uganda.
- **Southern Africa countries:** most parts of the region are still off-season.

CPC-Uni 10-Day Precipitation in Percent of Average (%)
Period: 21Sep2022 to 30Sep2022

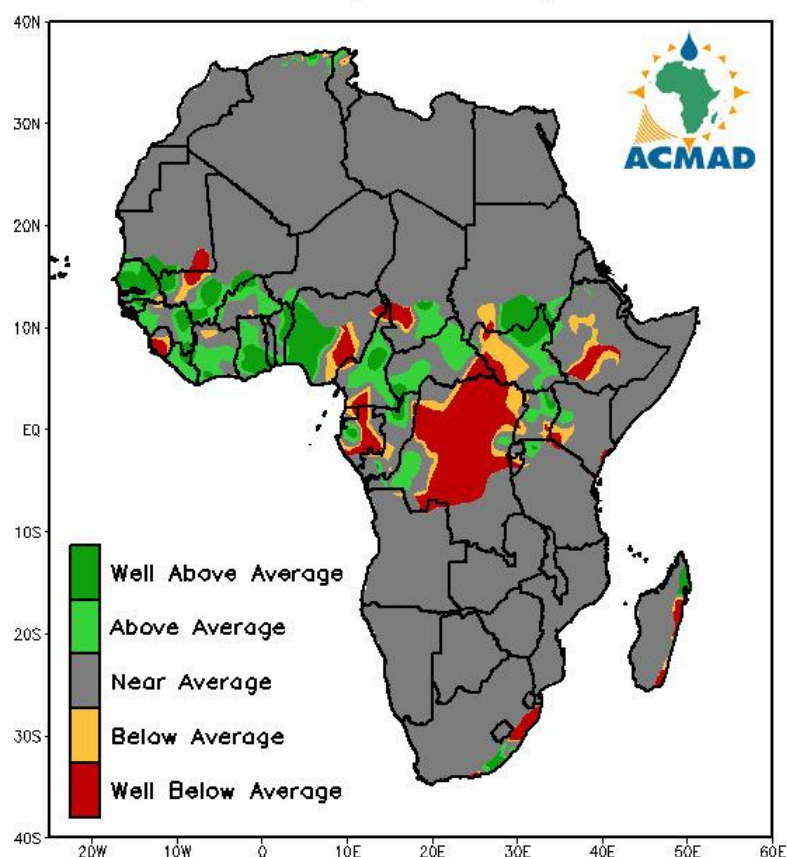


Figure 6: Precipitation in the percentage of the average for the third dekad 21th to 30th September 2022. The reference period used is 1991-2020. Source: NOAA/, NCEP/, CPC/, UNIFIED/, Africa/. DAILY/)

3.0 RAINFALL OUTLOOK VALID FOR 04 - 17 OCTOBER 2022

The outlook for 04 – 10 October 2022 depicts a general tendency for below to normal precipitation over DRC, Tanzania, Kenya, southern Ethiopia and Somalia. Above average precipitation is expected to be observed over Senegal, Gambia, Guinea Bissau, Guinea, Burkina Faso, northern Benin, Nigeria, Cameroon, Chad, southern Sudan, South-Sudan, Uganda and western Ethiopia in the first week. Whereas during the second week normal to above precipitation can be expected in Nigeria, Cameroon, Sudan, Uganda, Rwanda and Burundi, and with below normal precipitation over Kenya, Tanzania, Malawi and Zambia.

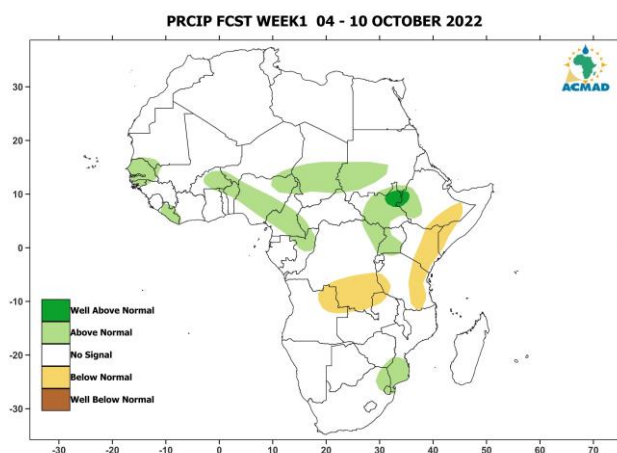


Figure 9a: Precipitation forecast for 04 – 10 October 2022

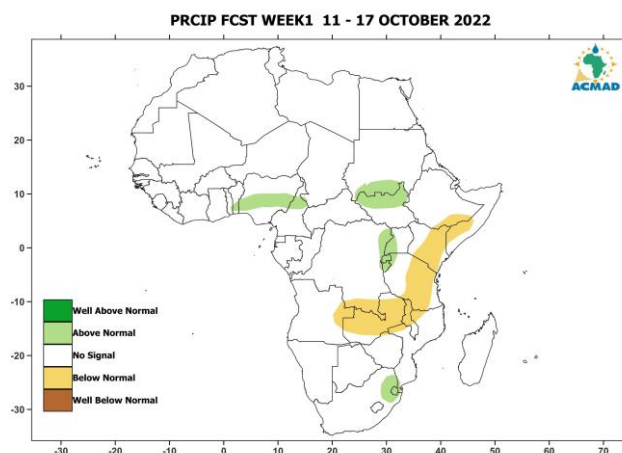


Figure 9b: Precipitation forecast for 11 - 18 October 2022