

TEN-DAY CLIMATE DIAGNOSTICS BULLETIN

ISSUE N°: 2022/28

REPORTING PERIOD: Dekad 1; 01st –10th October 2022

ISSUE DATE: 15/10/2022

HIGHLIGHTS

- ✓ *During the third dekad of September 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 some 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 and western 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 warm conditions over western parts that led to enhance rainfall over some parts of the eastern side of East African countries.*
- ✓ *The outlook for 12 – 18 October 2022 depicts a general tendency for below to normal precipitation over Tanzania, Kenya and Somalia. Above average precipitation is expected to be observed over Senegal, Gambia, Guinea Bissau, Guinea, Nigeria, Cameroon, eastern parts of DRC, Botswana and western Ethiopia in the first week. Whereas during the second week normal to above precipitation can be expected in Morocco, Cameroon, Gabon, Rwanda, Burundi, South Africa and Somalia.*

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 6hPa strengthened compared to the climatological mean (1991-2020). It was located at 18°W and 40°N.
- **St. Helena High** observed a central pressure value of 1021hPa; a 2hPa weakened from the climatological mean (1991-2020). It was located at 1°W and 27°S.
- **Mascarene High:** The central value for Mascarene High was 1025hPa. It weakened by 2hPa from the previous dekad and strengthened by 5hPa from the climatological means (1991-2020). Positioned at 68°E and 33°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.

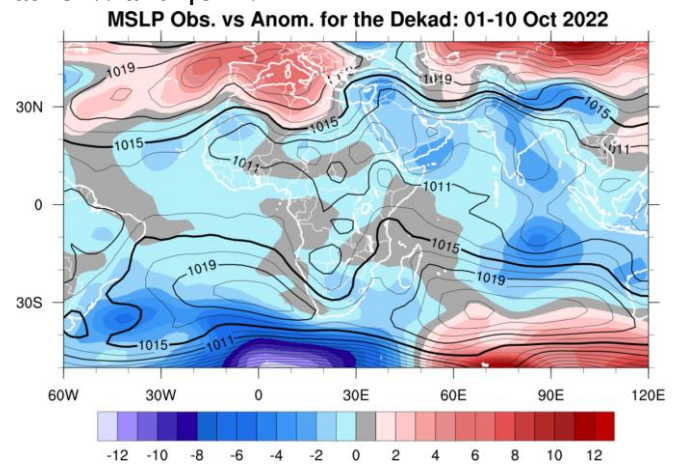


Figure 1. Observed Mean Sea Level Pressure (Contour) and anomaly (shaded) from 01st to 10th October 2022

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.

This figure 2.a shows the dekad average wind at 850hPa. Positive wind from north to north easterly and south easterly anomalies observed over Algeria, Libya, Gabon, Kenya, Tanzania, Malawi, Mozambique, Zimbabwe and South Africa. Negative wind anomalies from east to south easterly and north easterly were observed over Morocco, Algeria, Chad, Sudan, Ethiopia, Uganda, Rwanda, Burundi, Tanzania, Angola, Namibia, Botswana and South Africa.

At the 700hPa level (see Fig.2b), the vortex wind anomaly was observed over northern parts the North Africa, in the southern parts of the Continent the neutral wind from eastern to north-western have been 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 north parts of Eastern Africa region.

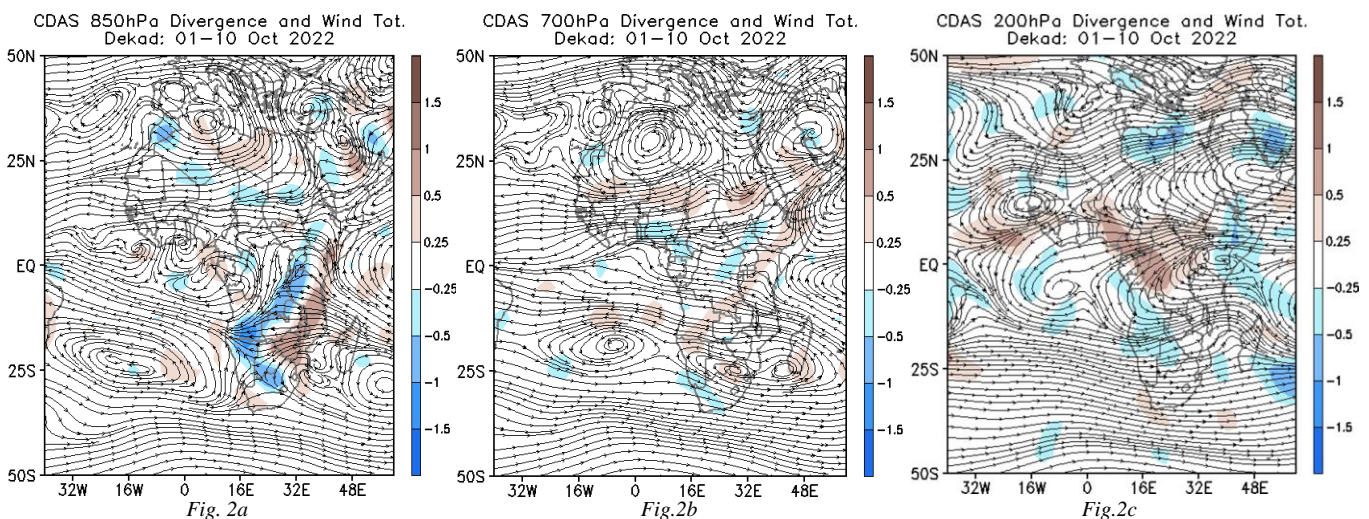


Figure 2: Mean wind (streamlines: m/s) and divergence (shaded; s^{-1}) observed at 850hPa (Fig.2a), 700hPa (Fig.2b) and 200hPa (Fig.2c) during the first dekad of October 2022 (from 01st to 10th Oct). Source: NOAA/NCEP

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 first 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 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 first dekad of October 2022 over most of Gabon, Angola, South Africa, Morocco, Zambia, Zimbabwe, Mozambique and Botswana, 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, some parts Central Africa, some parts of Northern Africa Countries and East African regions. Relative humidity anomalies for the first dekad of October 2022 were negative over Angola, DRC, Kenya, Tanzania, Zambia, Zimbabwe, Mozambique, Libya, South Africa, Eswatini, and Madagascar. While the rest of the country received a surplus moisture.

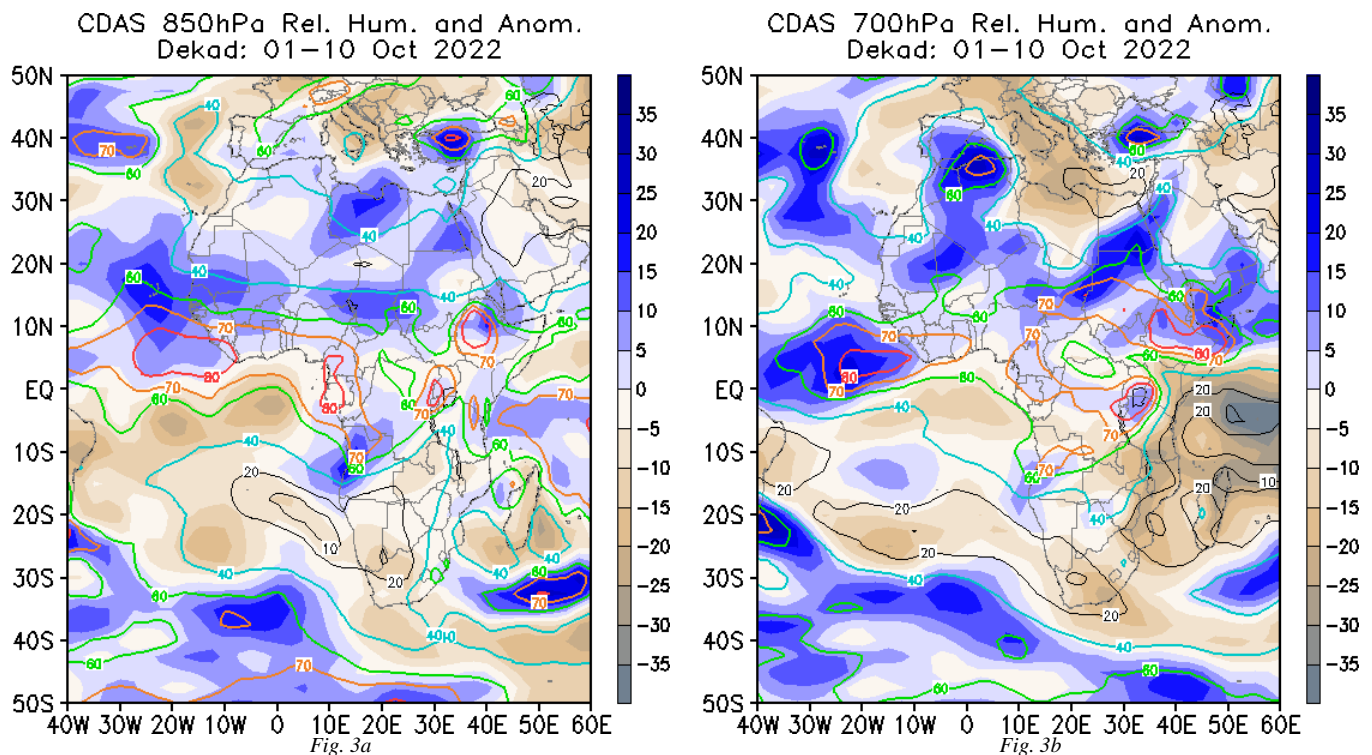


Figure 3. Relative Humidity (contour; %) and associated anomalies (shaded) observed at 850hPa (Fig.3a) and 700hPa (Fig.3b) during the first dekad of October 2022 (from 01st to 10th Oct). SOURCE/. NOAA/. NCEP-CAR/. CDAS1)

2.0 PRECIPITATION

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

During the third dekad of September 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 some 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 and western parts of Central Africa and some eastern parts of East Africa.

Details:

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

- **Central Africa countries:** experienced below to well below normal precipitation over Chad, Central Africa, 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 Sudan and southern parts of Ethiopia, northern Tanzania and Burundi.
- **Southern Africa countries:** most parts of the region are still off-season.

CPC-Uni 10-Day Precipitation in Percent of Average (%)
 Period: 01Oct2022 to 10Oct2022

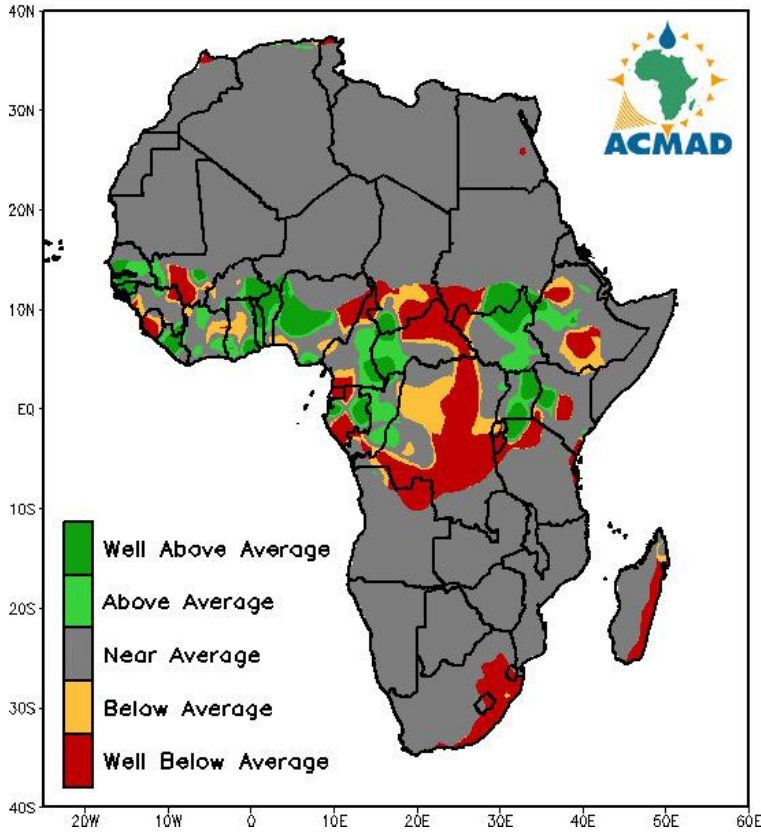


Figure 6: Precipitation in the percentage of the average for the third dekad 01st to 10th October 2022. The reference period used is 1991-2020. Source: NOAA/ NCEP/ CPC/ UNIFIED/ Africa/ DAILY/

3.0 RAINFALL OUTLOOK VALID FOR 12 - 25 OCTOBER 2022

The outlook for 12 – 18 October 2022 depicts a general tendency for below to normal precipitation over Tanzania, Kenya and Somalia. Above average precipitation is expected to be observed over Senegal, Gambia, Guinea Bissau, Guinea, Nigeria, and Cameroon, eastern parts of DRC, Botswana and western Ethiopia in the first week. Whereas during the second week normal to above precipitation can be expected in Morocco, Cameroon, Gabon, Rwanda, Burundi, South Africa and Somalia.

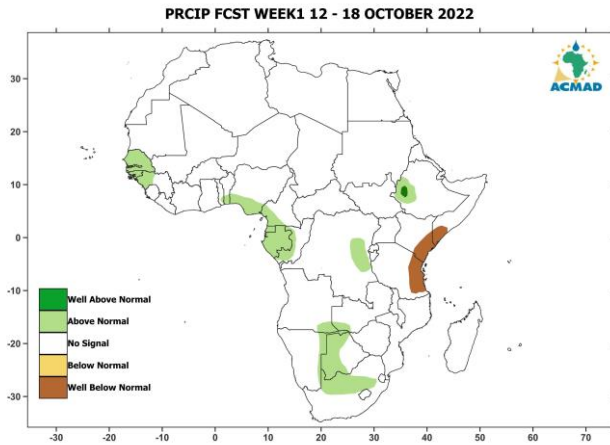


Figure 9a: Precipitation forecast for 04 – 10 October 2022

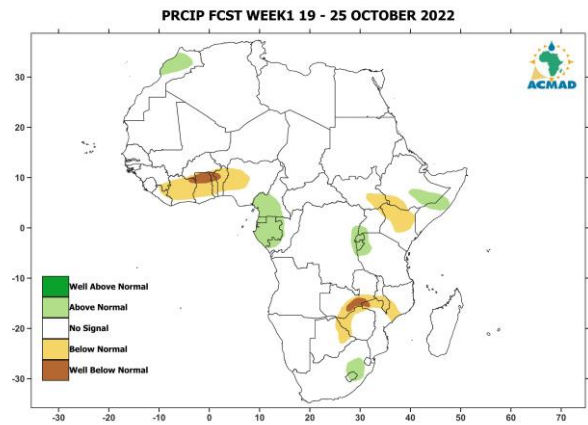


Figure 9b: Precipitation forecast for 11 - 18 October 2022