SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

CLIMATE SERVICES CENTRE (SADC-CSC)

REGIONAL CLIMATE MONTHLY MONITOR

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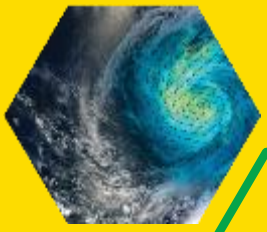

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INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME

An initiative of the Organisation of African, Caribbean and Pacific States funded by the European Union

BENEFICIARIES

A. HIGHLIGHTS

- **Rainfall during the month of October 2024 was well below the monthly long-term average** over most of the contiguous SADC region, except over the extreme north of DRC, and parts of northwest Mozambique, Malawi and Zambia.
- **Persistent long term drought conditions continued** over most of the sub-continent, including Madagascar. However, parts northwest Mozambique, Malawi, Zambia and Tanzania experienced moderately wet conditions.
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- The **minimum temperature anomalies** of above **3ºC** were recorded everywhere including in Madagascar, but not within the central parts of the region, where negative anomalies of -**3ºC** were recorded.

- Positive **maximum temperatures anomalies of above 3ºC above,** were recorded almost everywhere within the subcontinent, during the month of October 2024, except on the east of the subcontinent and south of Madagascar where negative anomalies of -**3ºC** and below were recorded.
- Day time heat waves were less than 10 days in most of the region except within the central DRC, west of Madagascar and parts of Tanzania where above 20 **days of daytime heat wave conditions were observed** in October. Night-time heat waves were mainly in DRC, and northwestern Angola where more than 27 days were recordec.

1. REGIONAL RAINFALL PERFORMANCE

The rainfall during the month of October 2024 was well below the monthly long-term average over most of the of the SADC region, except over most parts of the of the DRC and north Angola where above normal rainfall was observed. Most of the parts of SADC countries received precipitation below normal or no precipitation at all, [Figure 1 left]. This relative increase of precipitation in comparison with the previous month can be related to the southward's migration of the Intertropical Convergence Zone in summer.

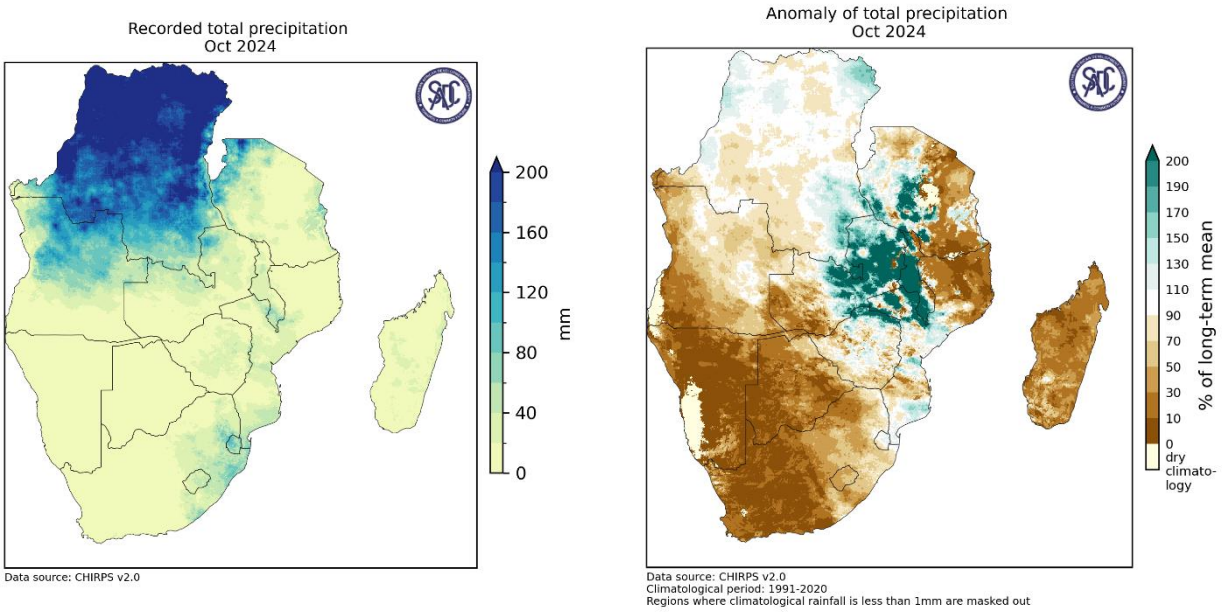

Figure 1: Observed rainfall (left) and rainfall anomaly (right) for the month of October 2024

1.1 Drought Monitoring

1.1.1 Seasonal and Annual Drought Assessment

Persistent drought conditions, defined by 12-month SPI (SPI-12) were prevalent over the whole region, mainly within most of the subcontinent. Extremely dry conditions were observed within most of the western fringes of South Africa and Namibia, northern Mozambique, central Angola and central DRC. Very dry to near normal conditions dominated most of the region, except most of Tanzania that recorded moderately wet to very wet conditions in most of the country, [Figure 2 left].

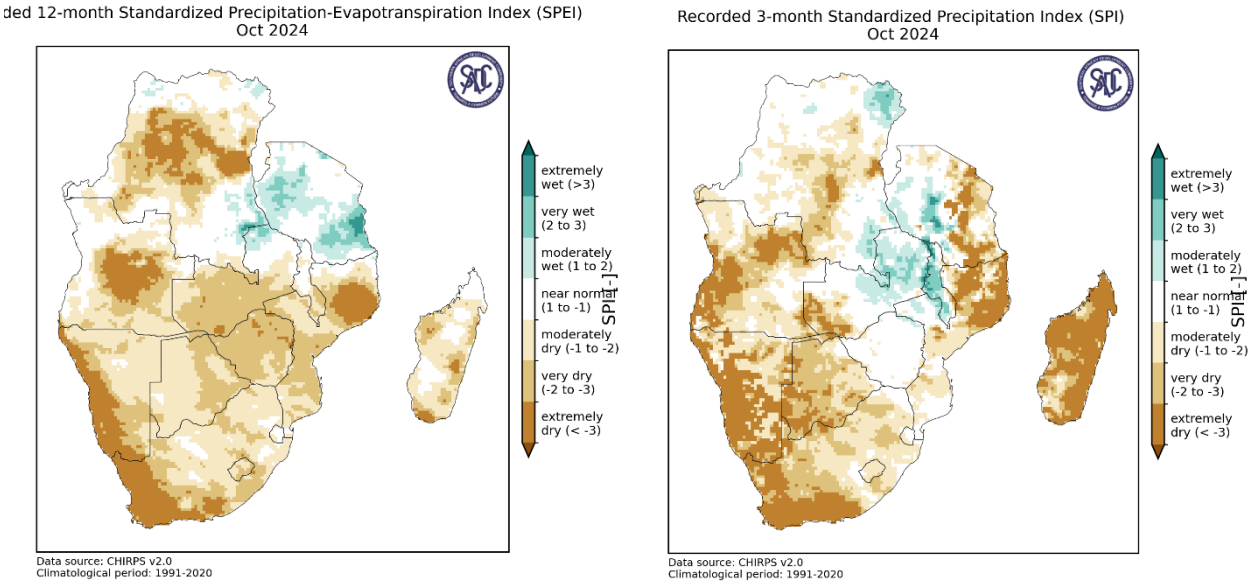

Figure 2: Drought assessment: SPI for 12-months (left) and 3-months SPI (right)

The 3-month Standardized Precipitation Index (SPI-3) is a meteorological drought indicator to monitor precipitation anomalies over 3-month accumulation periods and is a proxy indicator for immediate impacts of droughts including reduced soil moisture.
It highlights that the drought was more severe over most of the region especially on the western side of the subcontinent covering Angola, Namibia, South Africa and Madagascar. The eastern part of the subcontinent covering the north of Mozambique also recorded similar condition according to SPI-3. Parts of Malawi, East Zambia, western Tanzania, and inconspicuous areas in DRC were moderately or very wet according to SPI-3, [Figure 2 right].

1.1.2 Short term drought (dry spells)

Consecutive number of dry days ranging from 25 to 30 were recorded over most of the subcontinent including Madagascar in October, except most of DRC, north of Angola and parts of northwest South Africa and west Tanzania where dry days between 0 to 9 days, were recorded [Figure 3].

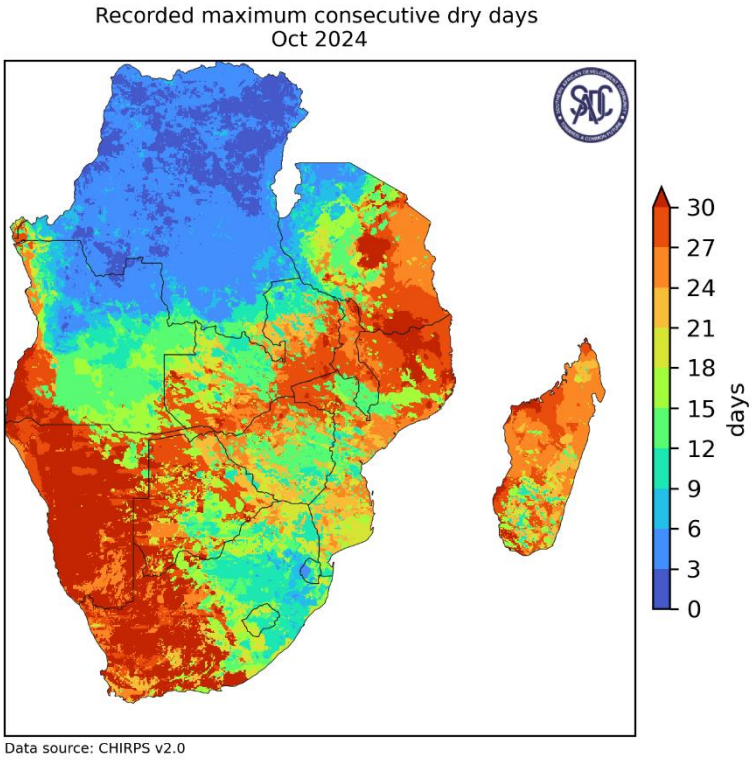

Figure 3: Dry spells prevalence during the month of October 2024

1.2 Extreme Rainfall

The whole subcontinent recorded no extreme precipitation in one day period. Conspicuous areas within most of the DRC, patchy areas within south Africa, Malawi and Tanzania, recorded one day precipitation between 25 and 50mm in one day. The whole subcontinent recorded null precipitation [Figure 4].

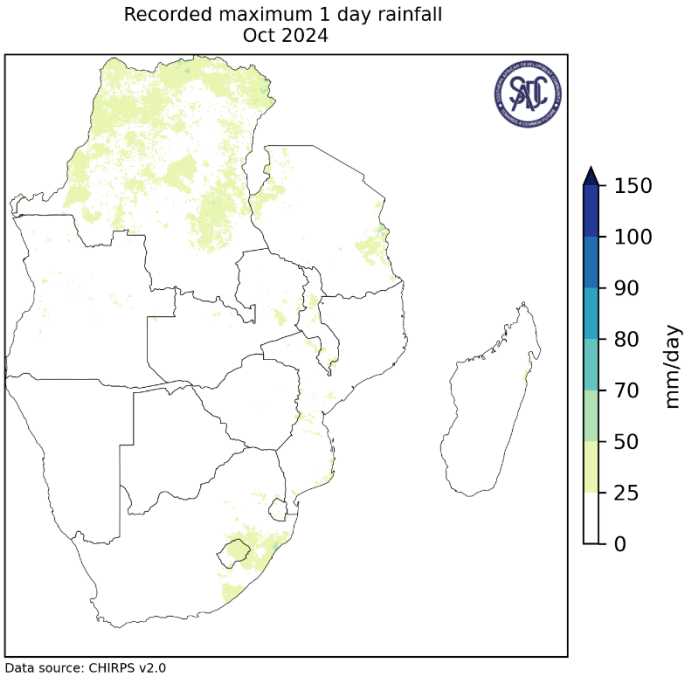

Figure 4: Maximum rainfall recorded over a one-day period during the month of October 2024

2. REGIONAL TEMPERATURE

2.1 Minimum Temperature

Average minimum of daily temperatures of above 25^{0}C were recorded within most of region except most of South Africa, Zimbabwe, southwest of Namibia, and central Madagascar, where minimums 10^{0}C, [Figure 5 left]. The absolute anomaly of minimum temperatures shows that in October there were positive signals of 3^{0}C over most of the region and the island of Madagascar, but not within the central parts of the sub-continent covering most of Zambia, South Africa, Botswana and some inconspicuous areas north of Namibia, where negative signals of -1 to -2^{0}C were recorded [Figure 5 right].

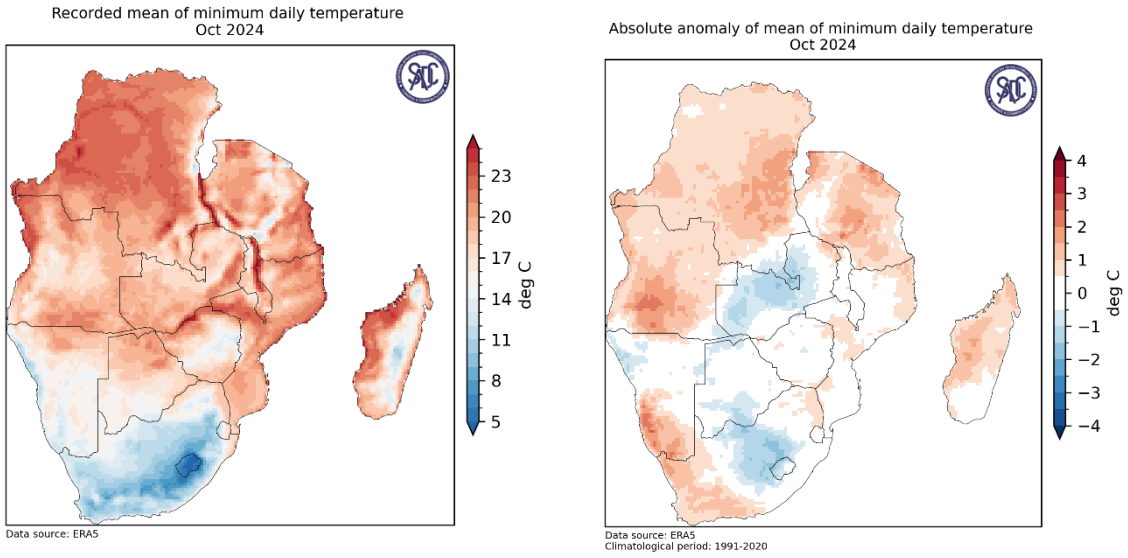

Figure 5: Observed average minimum temperature (left) and anomalies (right) for October 2024

2.2 Maximum Temperature

The average of maximum temperatures in October, peaked to above 35^{0}C over the whole sub-continent except southeast South Africa and parts of east Madagascar where the averages of the maximum temperatures were close to 20^{0}C. Patchy areas on the east of DRC and inconspicuous parts of Tanzania also recorded temperatures of around 20^{0}C [Figure 6 left].

Positive absolute of maximum temperatures anomalies above 3^{o}C were recorded over most of the western strip of the subcontinent, but not on the east, especially on areas covering Mozambique South of Tanzania, Malawi Zambia and Zimbabwe where negative anomalies close to -2^{0}C were registered, [Figure 6 right]. The positive anomalies clearly indicate that the western side of the sub-region has undergone an increase of temperatures by comparison with the climatological average.

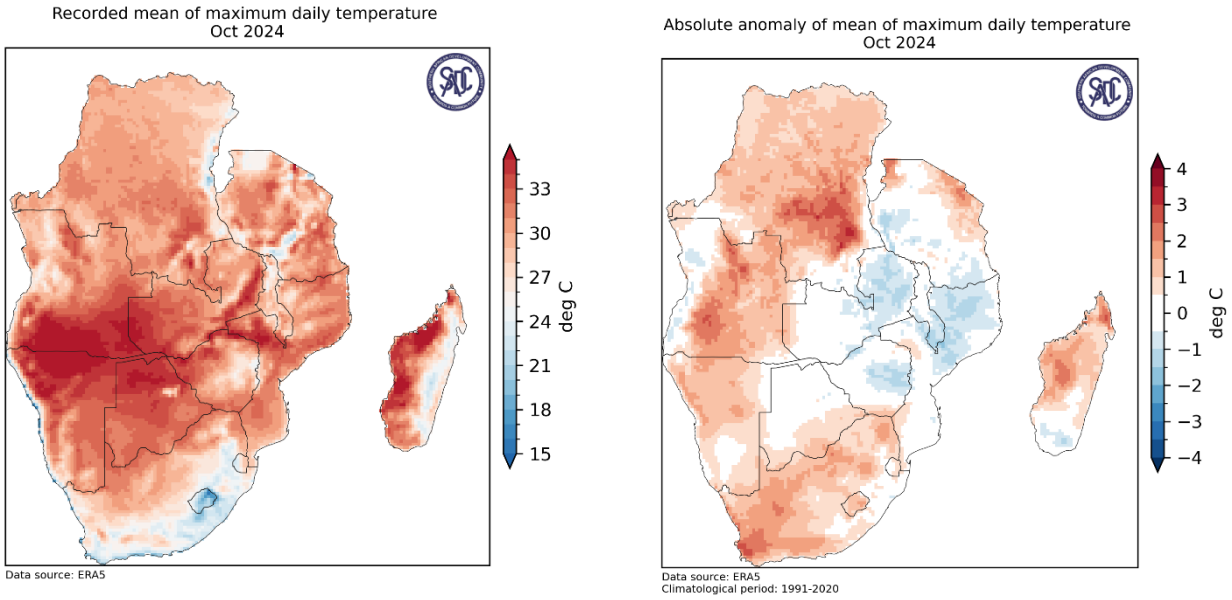

Figure 6: Observed maximum average temperature (left) and anomalies (right) for October 2024

2.3 Heatwaves

We distinguish here two types of heatwaves which differ in economic and human health impacts – daytime defined based on maximum temperature recorded during daytime, and night-time, defined based on minimum temperature recorded during nighttime.
Daytime heat waves of below 07 days were recorded over most of region and western Madagascar. Inconspicuous areas located in the central DRC and west Madagascar have recorded heat waves between 19-30 days, [Figure 7 left].
Night-time heatwaves of around 25-30 days were recorded within the eastern parts of the DRC, and the northwesternmost parts of Angola, whereas the rest of the region recorded night time heat waves below 9 [Figure 7 right].

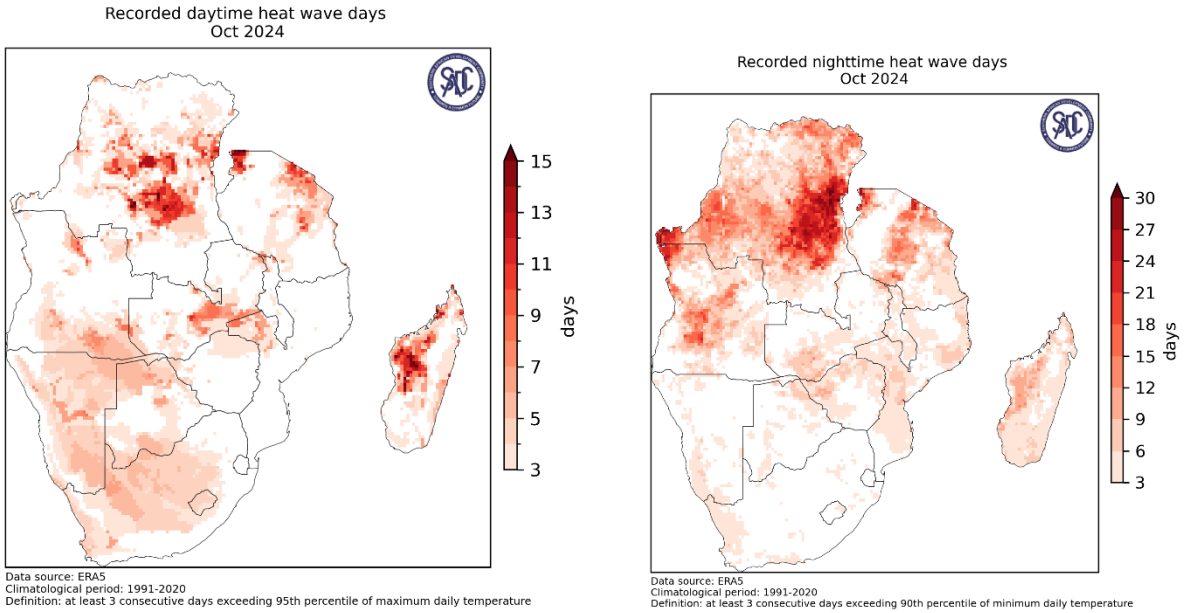

Figure 7: Heatwaves detected during the month of October 2024

NOTE:

This bulletin used CHIRPS and ERA5 data. While these datasets are considered broadly representative to local conditions over the SADC region, the results presented here may differ from those derived using local observations from Member States.

Users are therefore, urged to consult the local National Meteorological and Hydrological Services (NMHSs) for local conditions and detailed interpretation of the contents of this bulletin.

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