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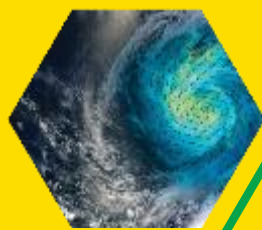


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A. HIGHLIGHTS

- During the month of October 2023, **anomalously above average rains fell over most** of Zambia, most of Zimbabwe, central Mozambique, and eastern Madagascar.
 - **Dry conditions prevailed** over south-western (southern Angola, most of Namibia, western South Africa, and Botswana) parts of the contiguous SADC, south-western Madagascar, and northeastern parts of the region, such as most of Tanzania and northern Mozambique.
 - The **start of the 2023/24 rainfall season was detected** in north-western parts of the SADC (Democratic Republic of Congo and Angola) and south-eastern coastal areas such as in South Africa, Lesotho, Eswatini, parts of Mozambique and over parts of Zimbabwe.
 - **Persistent long term drought conditions** continued over much of the southwestern parts of the sub-continent with much of Namibia, southern Angola, north-western Botswana and southwestern Zambia.
 - There were **no significant extreme rainfall events (more than 50mm)** recorded during the month of October 2023.
 - **Minimum temperatures above 20°C** which are above the long-term average were recorded over most parts of the SADC region.
 - **Maximum temperatures above the 95th percentile consecutively over a 3-day period (heatwaves)** were recorded over parts of DRC, Tanzania, Namibia, Botswana, South Africa, and Madagascar. Over Madagascar, such heatwave conditions lasted more than 10 days.
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1. REGIONAL RAINFALL PERFORMANCE

October marks the beginning of the rainfall season over most parts of the Southern African region. Rainfall during the month of October 2023, shown in Figure 1 below, was above average over most of Zambia, most of Zimbabwe, central Mozambique, and eastern Madagascar. Dry conditions were observed over the south-western parts (southern Angola, most of Namibia, western South Africa, and Botswana) of contiguous SADC region, south-western and northeastern parts of Madagascar, most of Tanzania and northern Mozambique. The remainder of the region received near average rainfall.

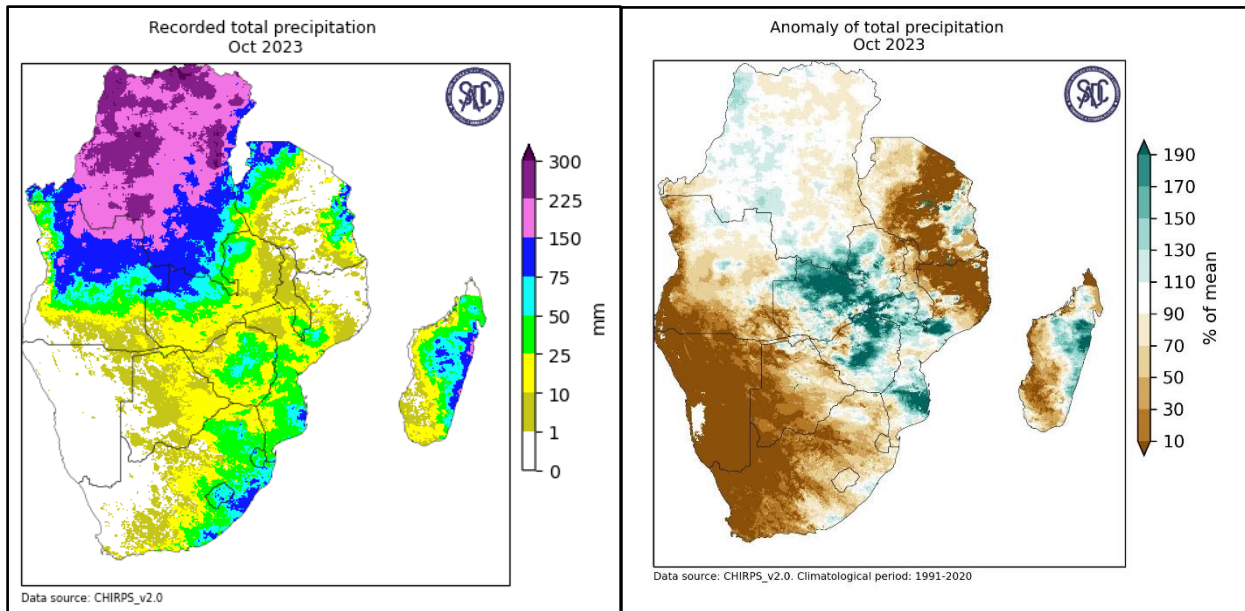


Figure 1: Observed rainfall (left) and rainfall anomaly (right) for the month of October 2023

1.1 Onset of the Rainfall Season

The onset of the 2023/24 season, defined as accumulation of at least 20mm of rainfall over three days, which are not followed by a dry spell in the next 10 days (i.e. there is at least one rainfall event in the next 10 days), was observed over north-western parts of the SADC region and south-eastern coastal areas (such as in South Africa, Lesotho, Eswatini, parts of Mozambique and also over parts of Zimbabwe). In the north-western parts of the region, the onset was mostly on time, while in the south-eastern parts of the SADC region, the onset was early (Figure 2 below). Seasonal rainfall onset was not observed in the remainder of the SADC region during the month of October 2023.

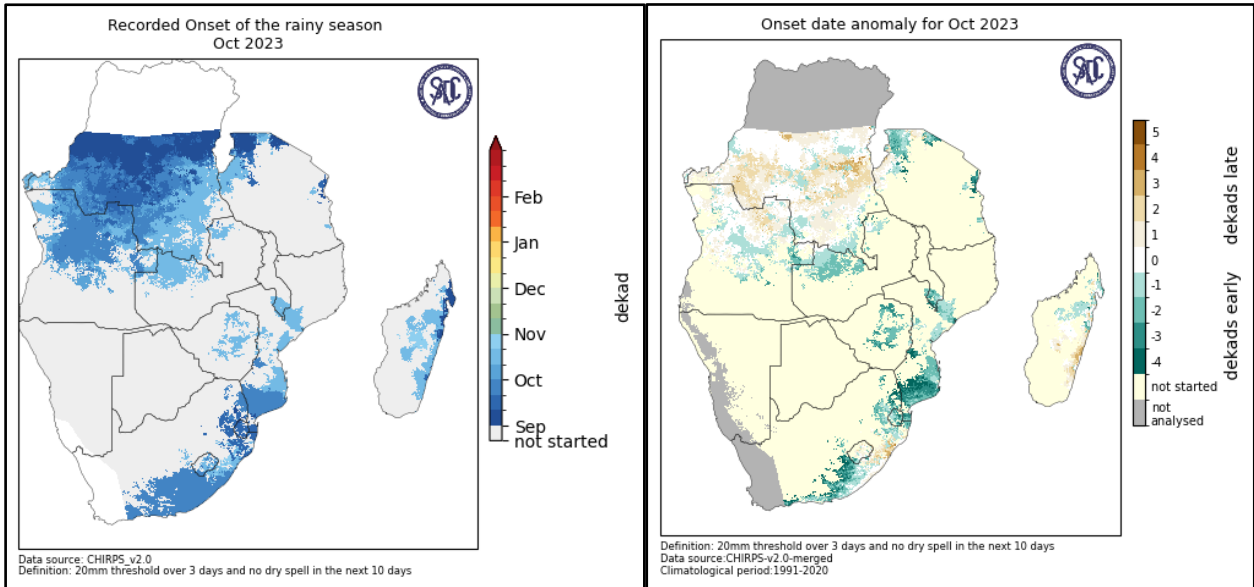


Figure 2: Onset of the 2023/24 rainfall season over the SADC region

1.2 Drought Monitoring

1.2.1 Long-Term Drought Assessment

Persistent long term drought conditions, defined by 12-month SPI (SPI12) continued over much of the southwestern parts of the sub-continent covering much of Namibia, southern Angola, north-western Botswana, and southwestern Zambia (Figure 3 below). Early season drought, defined by 3-month SPI, was detected over most of the western parts of the SADC region stretching from coastal Angola all the way down to coastal South Africa, encroaching inwardly to most of Namibia and Botswana. Tanzania, Mozambique, and Madagascar on the eastern parts of the SADC region, were also experiencing an early season drought as can be seen in the figure below.

The extreme south-western part of South Africa is currently showing an early season drought, (Figure 3 below), but its impact is likely compensated by the anomalously high rainfall received in the previous seasons, manifested by positive SPI12 values.

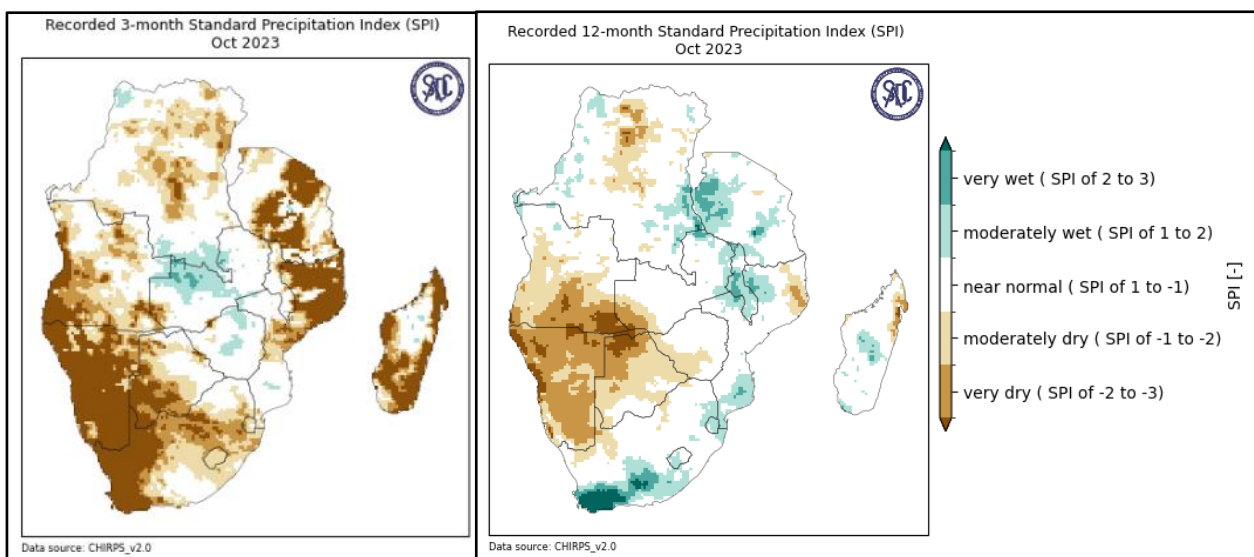


Figure 3: Drought assessment: SPI for 3-months (left) and 12-month SPI (right)

1.2.2 Short term drought (dry spells)

Southwestern and northeastern parts of the region were in extended short-term dry spells for more than 25 days (Figure 4 below) with no rainfall events through the entire month of October 2023. The south-western coastal regions recorded dry spells in the range of 6-12 days while north-western parts of the SADC region experienced dry spells of less than 6 days.

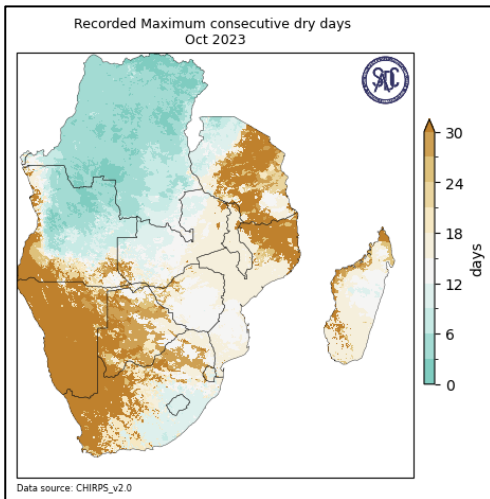


Figure 4: Dry spells prevalence during the month of October 2023

1.3 Extreme Rainfall

There were no significant extreme rainfall events (more than 50mm) recorded during the month of October 2023, save for a small portion of coastal Tanzania (Figure 5). Most of the rainfall amounts between 25mm to less than 50mm per day were prevalent over most of DRC, coastal Tanzania, southern Mozambique, and eastern parts of South Africa.

Note: Other datasets (TAMSAT and ARC) registered scattered, small extent events with rainfall up to 100mm per day in regions associated with higher monthly rainfall.

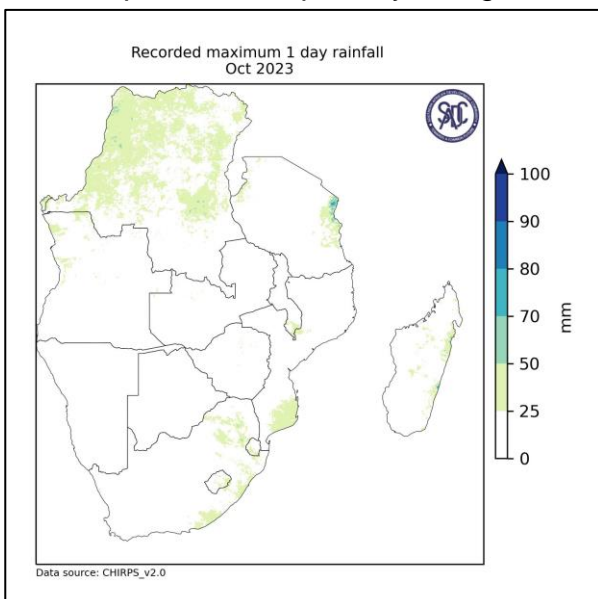


Figure 5: Maximum rainfall recorded over a one-day period during the month of October 2023

2. STATE OF REGIONAL TEMPERATURE

2.1 Minimum Temperature

Most of the SADC region recorded minimum temperatures above 20°C (Figure 6), which was 1-2°C above the long-term average over most parts of the region. Anomalous high minimum temperatures (anomaly above 2°C) were recorded in southern parts of Angola, central Namibia, eastern Zambia, southern Tanzania, Malawi, north-western Mozambique, and central Madagascar. Colder than normal minimum temperatures were recorded in central South Africa, while southern Botswana, southern Zimbabwe, Lesotho, Eswatini and southern Madagascar recorded average minimum temperatures during the month of October 2023.

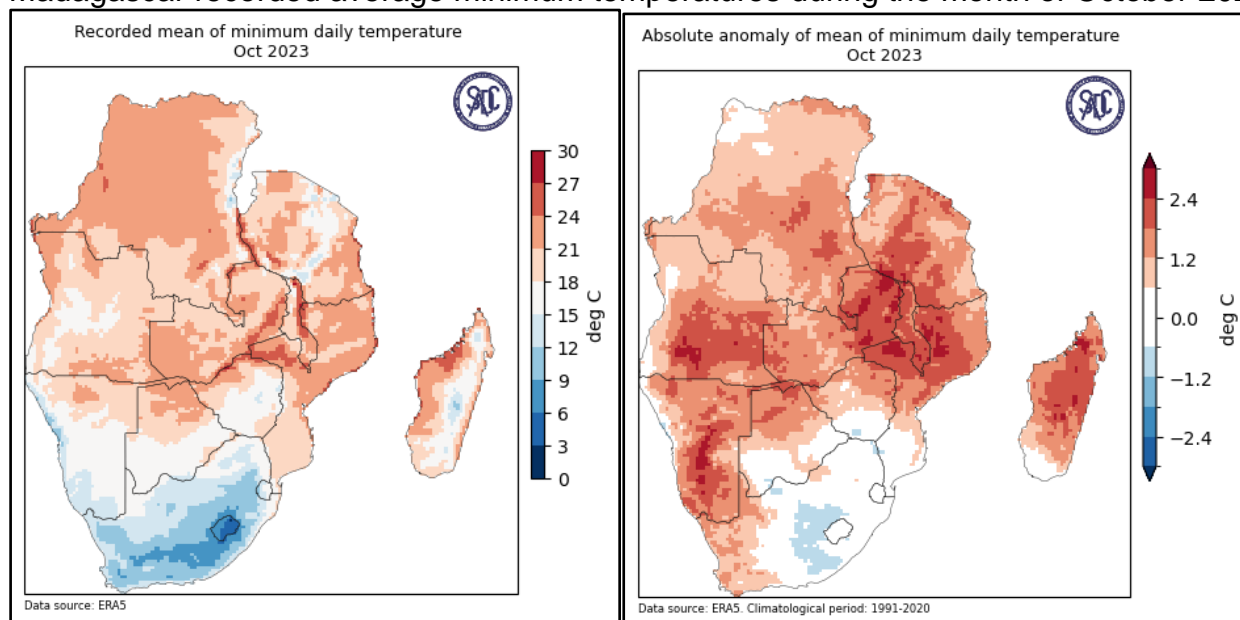


Figure 6: Observed average minimum temperature (left) and minimum temperature anomaly (right) for October 2023

2.2 Maximum Temperature

Anomalously high maximum temperatures, 1-4 deg C above average (Figure 7), were recorded over most of central to northern Namibia, Botswana, north-western South Africa, central Democratic Republic of Congo (DRC), southern Tanzania, north-eastern Zambia, northern Malawi, north-central Mozambique, and most of Madagascar during the month of October 2023. Negative anomalies (cooler than normal) were recorded over the east-coastal areas of the SADC region.

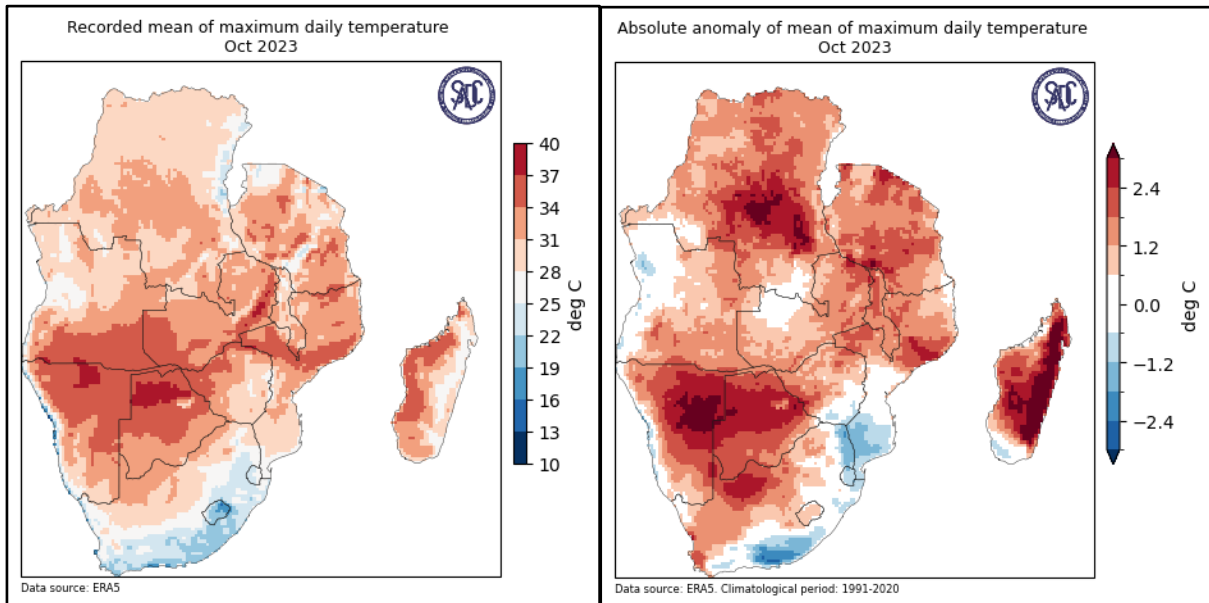


Figure 7: Observed maximum average temperature (left) and anomalies (right) for October 2023

2.3 Heat waves

Heatwaves defined by maximum temperatures above the 95th percentile consecutively over a 3-day period were recorded over central to eastern DRC, central to eastern Tanzania, over parts of central Namibia, parts of Botswana, central South Africa, and most of Madagascar (Figure 8). In most of Madagascar, coastal southern Tanzania and south-central DRC, more than 10 days of heat wave conditions were recorded.

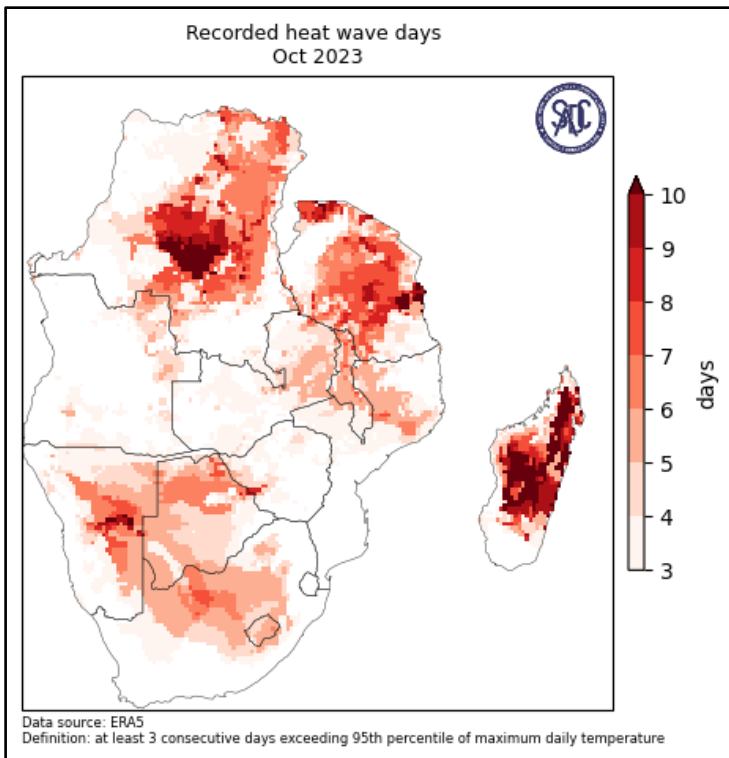


Figure 8: Heatwave detected during the month of October 2023

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 NMHSs for local conditions and detailed interpretation of the contents of this bulletin.



ClimSA

INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME



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APPENDIX: ADDITIONAL MAPS

