SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

CLIMATE SERVICES CENTRE (SADC-CSC)

REGIONAL CLIMATE MONTHLY MONITOR

REPORTING MONTH: NOVEMBER 2023

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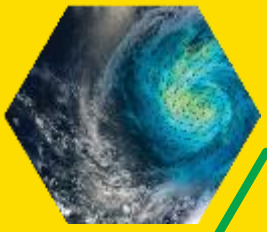

FINANCIAL RESOURCES

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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 November 2023 **was below the monthly mean** over the bulk of the contiguous SADC region and over most of Madagascar.

- As of November 2023, seasonal **rainfall onset** was not yet observed over parts of central and western Tanzania, south Angola, southwest Zambia, Namibia, most of Botswana, west Zimbabwe, northern and western south African and southwest Madagascar.

- **Persistent long term drought conditions** continued over much of the southwestern parts of the sub-continent covering Namibia, southern Angola, north-western Botswana and southwestern Zambia.

- **Sporadic extreme rainfall events** (more than 50mm) were recorded over a small portion of coastal Tanzania during the month of November.

- **Minimum temperatures close to above the long-term average** over most parts of the SADC region. Some regions (southern parts of Angola, most parts of Namibia, north Botswana and eastern Zambia) had anomalous high minimum temperatures (anomaly above 2^{o}C).

- **Anomalously high maximum temperatures**, 2-4 deg C above average, were recorded over the southern half of the contiguous SADC region and over west Madagascar.

- **Maximum temperatures above the 95th percentile consecutively over a 3-day period (heatwaves)** were recorded over east Angola, west Zambia, central Namibia, most of Botswana, central and eastern South Africa and most of Madagascar.

1. REGIONAL RAINFALL PERFORMANCE

Rainfall during the month of November 2023 was below the monthly normal over the bulk of the contiguous SADC region. Over the extreme northern parts of Democratic Republic of Congo (DRC), the extreme northwest of Angola, eastern, extreme north and west of Tanzania received above average rainfall. Most of Madagascar received below normal rainfall except for the extreme northeastern region which received close to slightly above normal precipitation.

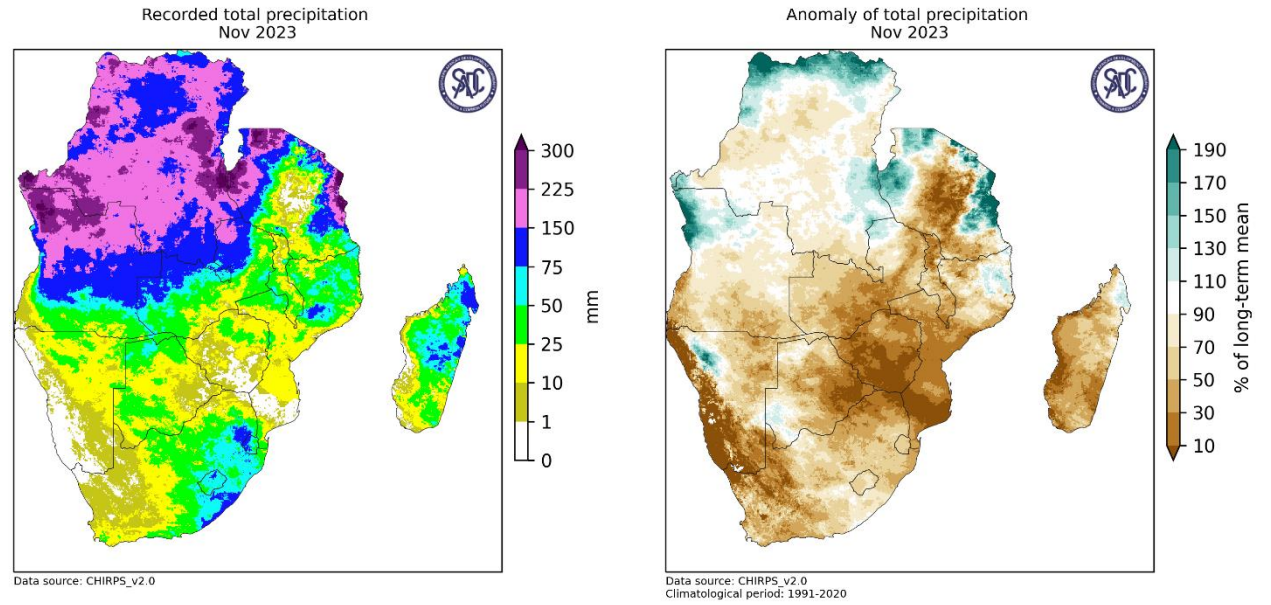


Figure 1: Observed rainfall (left) and rainfall anomaly (right) for the month of November 2023

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 triggered during the months of October 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) The region of rainfall onset expanded to most of Mozambique, over central Angola and parts of Zambia during the month of November.

Seasonal rainfall onset was not yet observed in the remainder of the SADC region during November 2023.

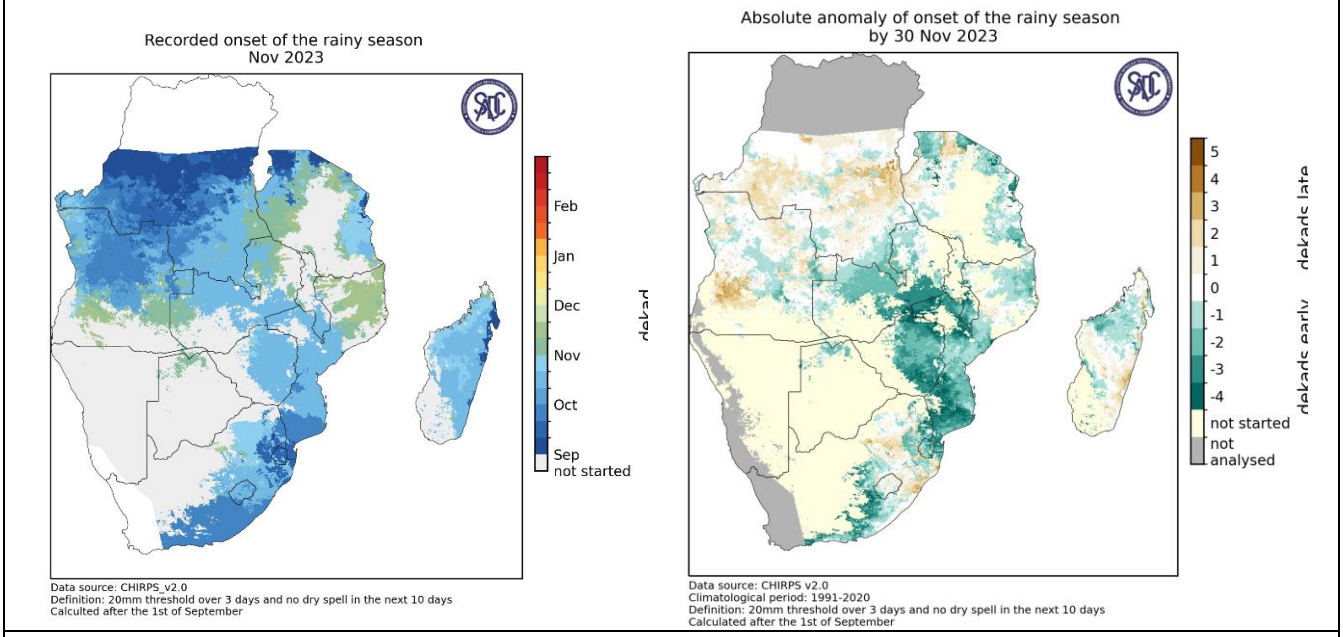


Figure 2: Onset of the 2023/24 rainfall season over the SADC region

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 Namibia, southern Angola, north-western Botswana and southwestern Zambia (figure below).

Early season drought, defined by 3-month SPI, was detected over most of the western parts of the SADC region stretching from south Angola all the way down to northern parts of South Africa, encroaching inwardly to most of Namibia, Botswana, and west Zimbabwe. Central Tanzania, some parts of 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.

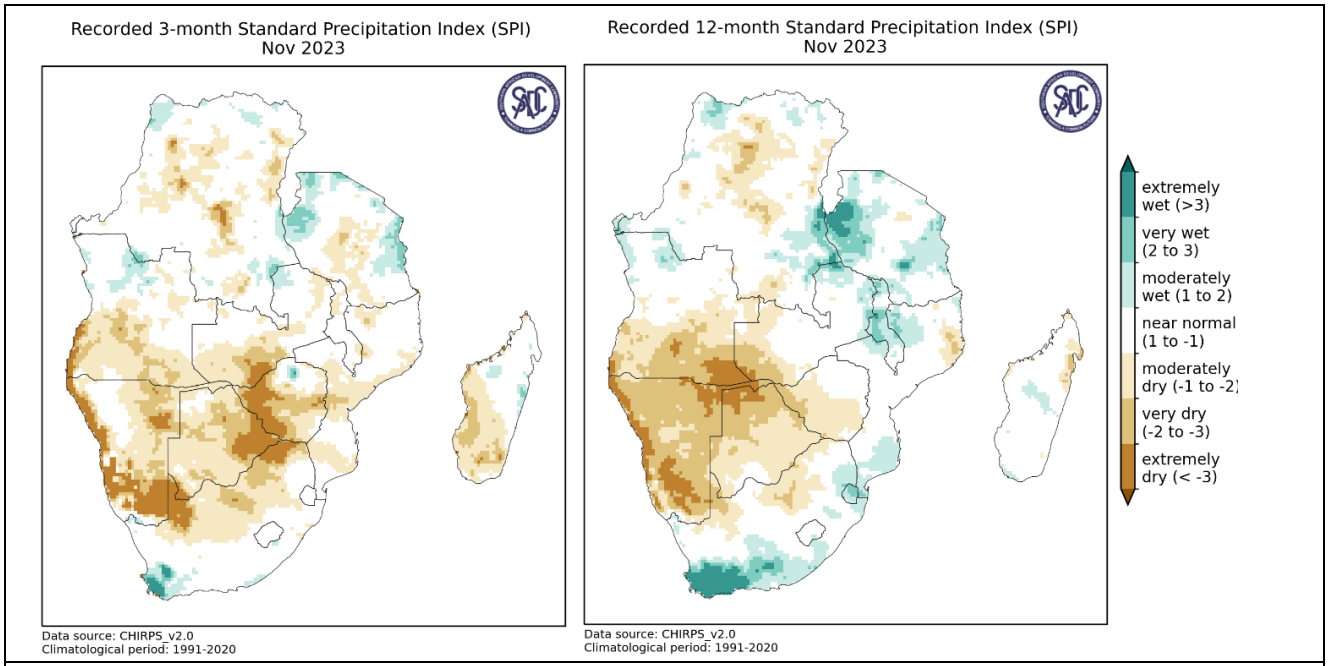


Figure 3: Drought assessment: SPI for 3-months (left) and 12-month SPI (right)

1.2.2 Short term drought (dry spells)

The Figure below shows that the consecutive number of dry days were ranging from 25 to 30 over the western parts of Namibia, southeastern Botswana, south Zimbabwe, extreme south of Mozambique and some parts of central Tanzania indicating an extended short-term dry spell with no rainfall events almost through the entire month of November 2023. Most of Madagascar recorded dry spells in the range of 10-20 days.

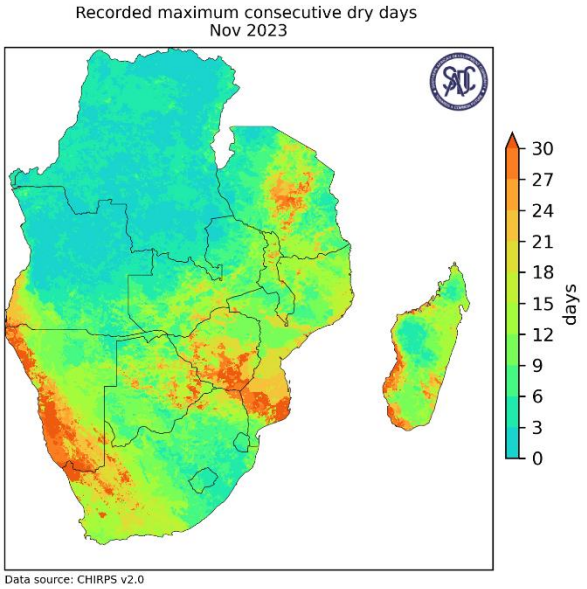


Figure 4: Dry spells prevalence during the month of November 2023

1.3 Extreme Rainfall

Sporadic extreme rainfall events (more than 50mm) were recorded over a small portion of coastal Tanzania during the month of November. Most of the rainfall amounts between 25mm to less than 50mm per day were prevalent over most of DRC, coastal and northern Tanzania, extreme northern Angola.

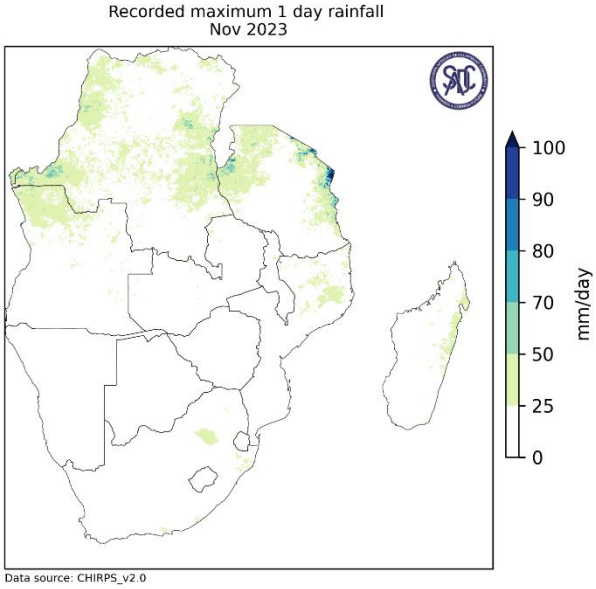


Figure 5: Maximum rainfall recorded over a one-day period during the month of November 2023

2. STATE OF REGIONAL TEMPERATURE

2.1 MINIMUM TEMPERATURE

Most of the SADC region recorded minimum temperatures above 20ºC (Figure 9), which was 1-2 degC above the long-term average over most parts of the region (Figure 10). Anomalous high minimum temperatures (anomaly above 2ºC) were recorded in southern parts of Angola, most parts of Namibia, north Botswana and eastern Zambia. However, most of DRC, Zimbabwe, Mozambique and southern Madagascar recorded close to normal minimum temperatures.

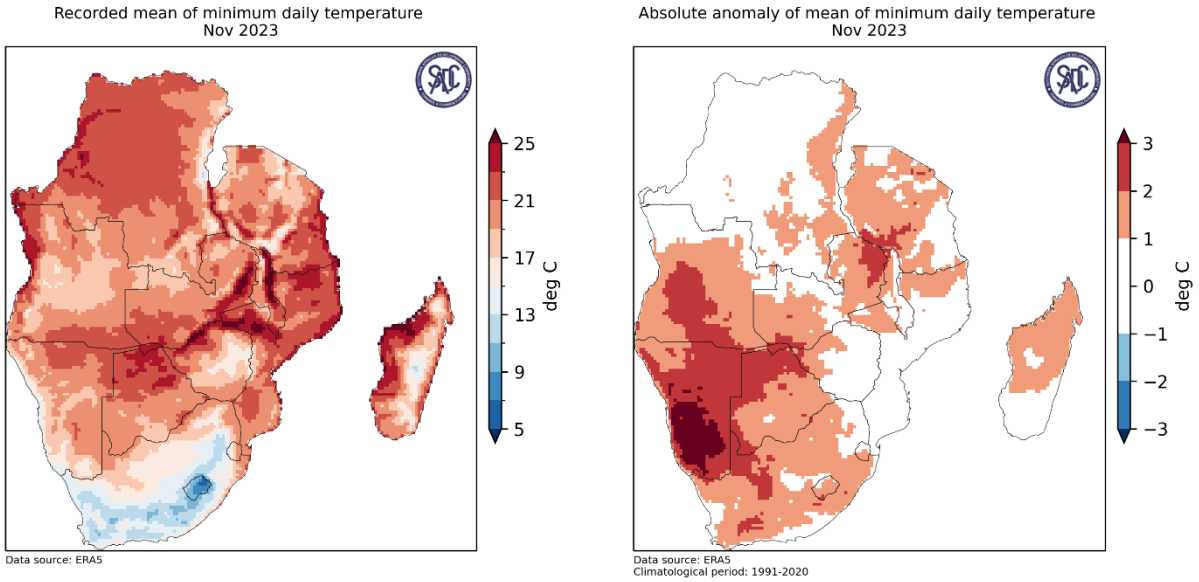


Figure 6: Observed average minimum temperature (left) and anomalies (right) for November 2023

2.2 Maximum Temperature

Anomalously high maximum temperatures, 2-4 deg C above average, were recorded over the southern half of the contiguous SADC region and over west Madagascar. With the exception of eastern Tanzania, the rest of the northern parts of the SADC region recorded mostly close to normal temperature during the month of November.

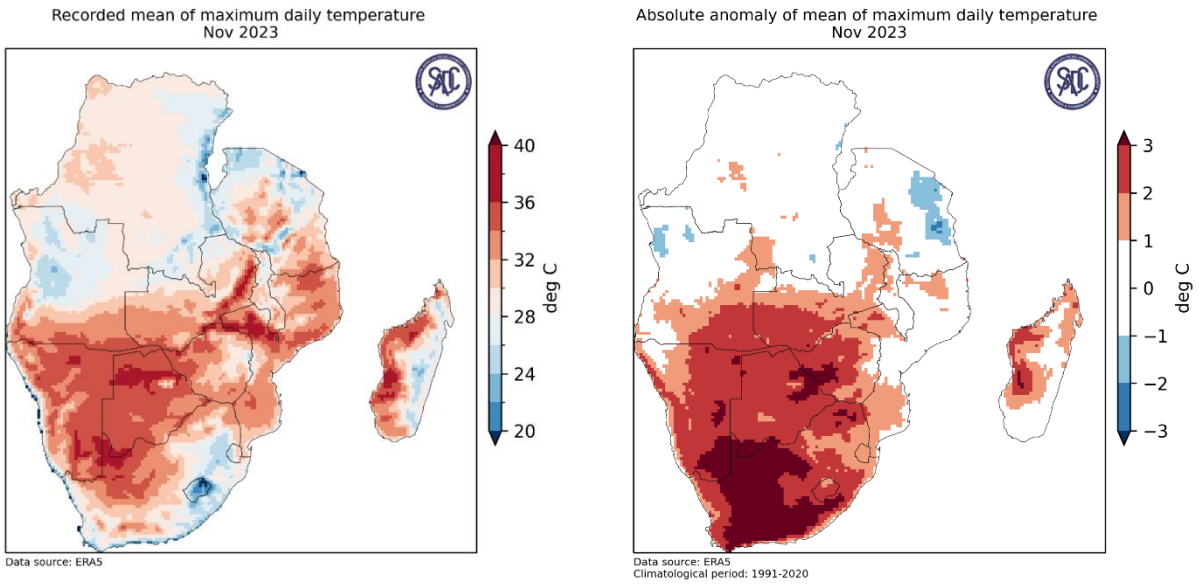


Figure 7: Observed maximum average temperature (left) and anomalies (right) for November 2023

2.3 Heat waves

Heatwaves defined by maximum temperatures above the 95th percentile consecutively over a 3-day period were recorded over east Angola, west Zambia, central Namibia, most of Botswana, central and eastern South Africa, and most of Madagascar. In west Madagascar, east Botswana, northeastern South Africa and South Zimbabwe and central Zambia, 10 to 15 days of heat wave conditions were recorded.

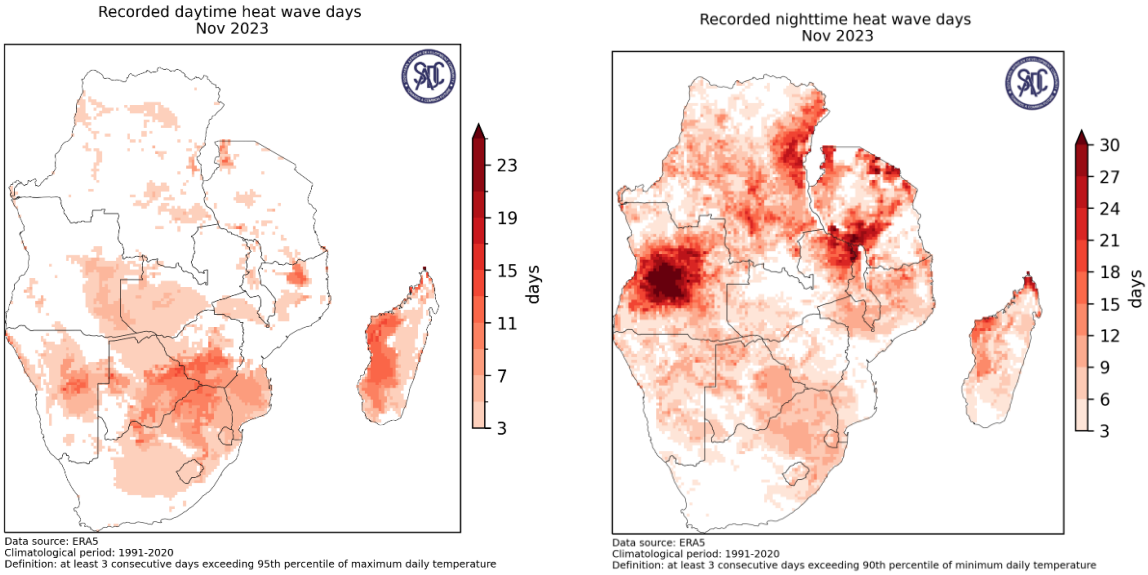
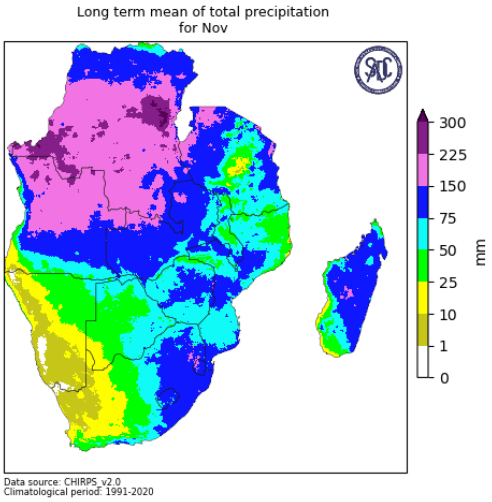
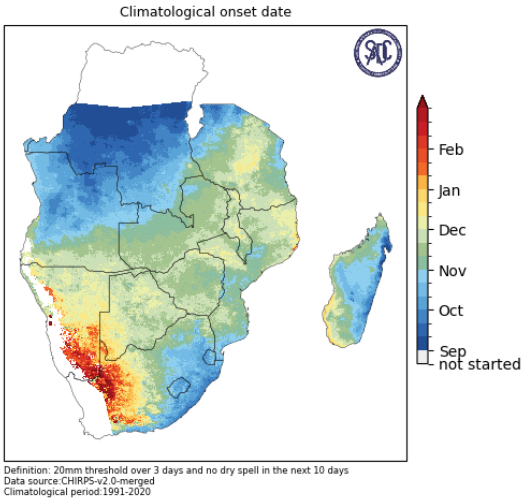
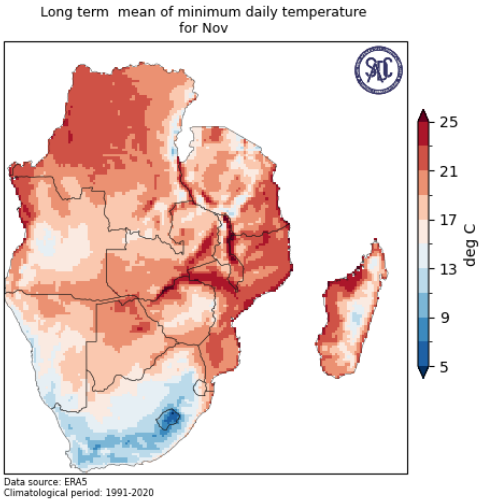


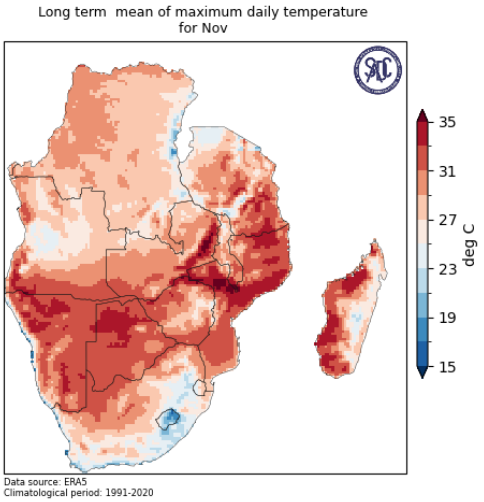
Figure 8: Heatwave detected during the month of November 2023

APPENDIX 1: ADDITIONAL MAPS









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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