



INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME

# SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

## CLIMATE SERVICES CENTRE (SADC-CSC)

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**ClimSA**

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 March 2024 was below the monthly long-term average** over most of the contiguous SADC region, except over northern Angola, southeastern parts of Tanzania, extreme southern parts of DRC, extreme south Mozambique, Eswatini and locally over central parts of South Africa
- **A very delayed agricultural rainfall season was observed over most of Botswana and Namibia with the recorded onset being observed in February.** In regions such as west Zambia, most of Namibia, Botswana, west Zimbabwe, and over central South Africa onset was delayed by up to 5 dekads.
- **Persistent long term drought conditions continued over much of the central and western parts of the sub-continent** covering Namibia, central and southern Angola, Botswana, western Zambia, most of Zimbabwe, central and southern Mozambique and northern South-Africa.
- **Under the influence of severe tropical storm Filipo the eastern fringes of Madagascar recorded extreme precipitation of around 100mm in 24 hours.**
- The minimum temperature anomalies were of the order **3 °C above the long-term average over north east DRC, most of Namibia, Botswana, and locally over extreme northern and western Zimbabwe**
- Positive **maximum temperatures anomalies of 3-4°C**, were recorded locally over north and central DRC, south Angola, south Zambia, most of Botswana, central South Africa and most of Namibia.
- **Daytime heatwaves conditions were observed over South Angola, North DRC, most of Zambia and north Zimbabwe for around 25 days of the month.**

## 1. REGIONAL RAINFALL PERFORMANCE

Rainfall during the month of March 2024 was below the monthly long-term average over most of the contiguous SADC region, except over northern Angola, southeastern parts of Tanzania, extreme southern parts of DRC, extreme south Mozambique, Eswatini and locally over central parts of South Africa where it was close to slightly above normal. Over the southwestern and northern tip of Madagascar, the accumulated rainfall was above normal and over the rest of the island it was mostly slightly below normal. Most of Zimbabwe, Botswana, Namibia, south Zambia, south Angola, western fringes of South Africa were highly deficient in rainfall with less than 30% of the monthly mean precipitation (Figure 1).

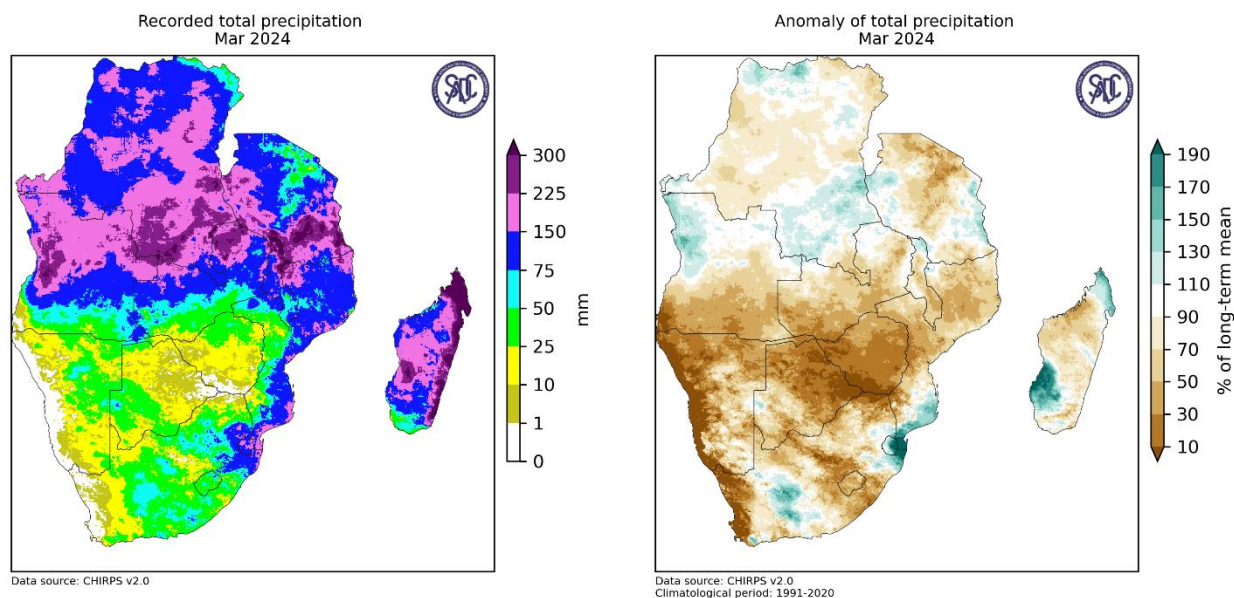


Figure 1: Observed rainfall (left) and rainfall anomaly (right) for the month of March 2024

### 1.1 Onset of the Rainfall Season

The onset of the 2023/24 season is defined here from agricultural perspective 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). According to this definition, the agricultural rainy season was triggered during the month 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 over eastern parts of Zimbabwe) and some eastern and northern parts of Tanzania. The region of rainfall onset expanded to most of Mozambique, over central Angola, and some parts of Zambia during the month of November and covered the rest of Tanzania and Malawi in December. By late December and January onset was also triggered over the extreme northern part of Namibia and southwestern Zambia, the rest of Zimbabwe, some parts of Botswana and northern parts of South Africa. (Figure 2).

Very delayed agricultural rainfall season was observed over most of Botswana and Namibia with the recorded onset being observed in February. The anomaly map shows that in southern Angola, west Zambia, most of Namibia, Botswana, west Zimbabwe, central South Africa onset has been delayed by up to 5 dekads.

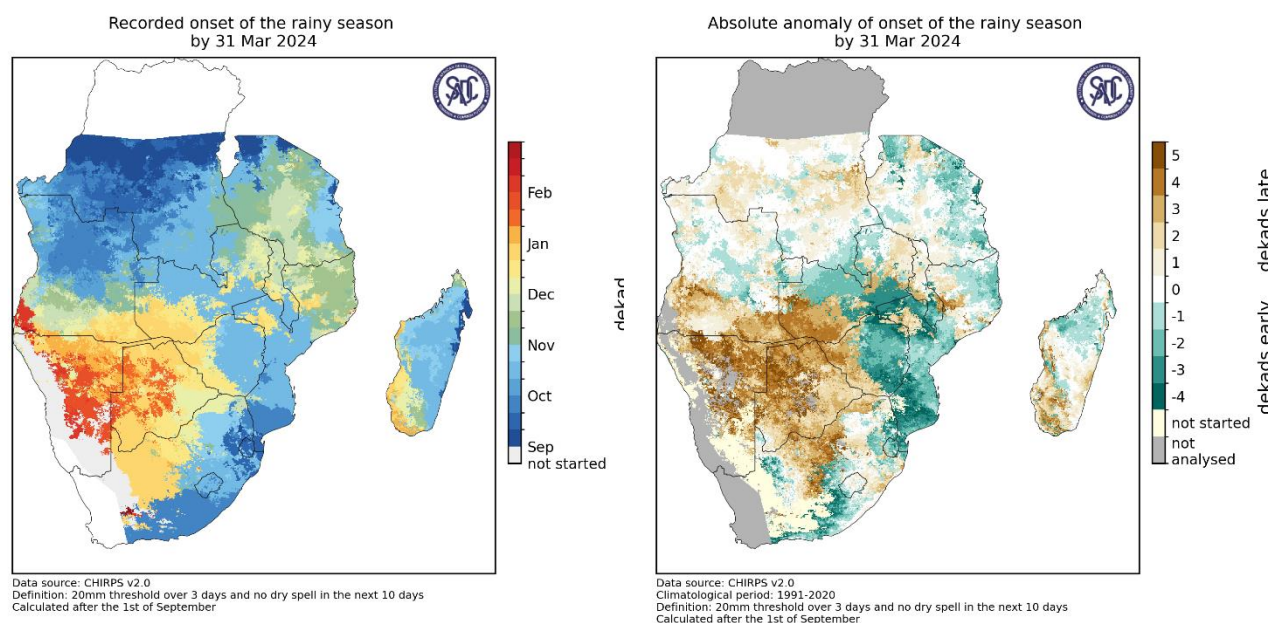


Figure 2: Onset of the 2023/24 rainfall season over the SADC region

## 1.2 Drought Monitoring

### 1.2.1 Seasonal and Annual Drought Assessment

Persistent drought conditions, defined by 12-month SPI (SPI-12) continued over much of the central and western parts of the sub-continent covering Namibia, central and southern Angola, Botswana, western Zambia, most of Zimbabwe, central and southern Mozambique and northern South-Africa.

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. Very dry to extreme dry conditions were observed over central Angola, south Zambia, central Mozambique, some parts of Zimbabwe, Botswana, some parts of west DRC and particularly over Namibia (Figure 3).

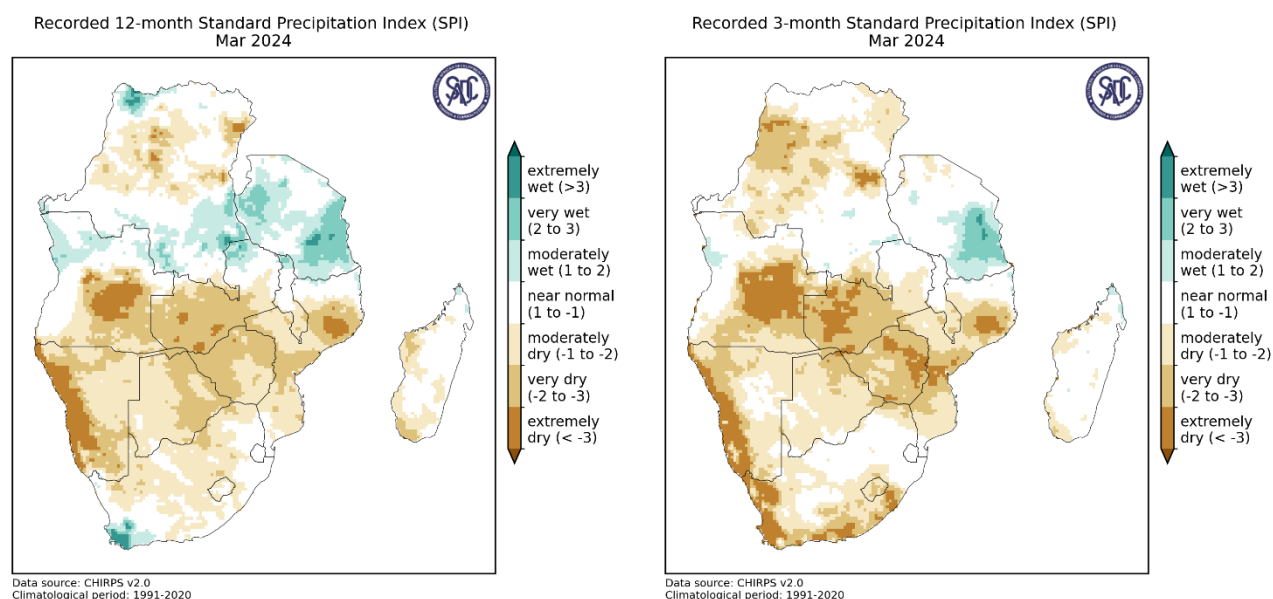


Figure 3: Drought assessment: SPI for 3-months (left) and 12-month SPI (right)

### 1.2.2 Short term drought (dry spells)

Figure 4 shows that the consecutive number of dry days were ranging from 20 to 25 over western



and southern Namibia, western half of South Africa, most of Botswana, most of Zimbabwe, western Mozambique and southern parts of Zambia. Certain regions such as extreme southern Zimbabwe, locally parts of eastern Botswana and western fringes of Namibia and South Africa had no rainfall events almost through the entire month of March 2024.

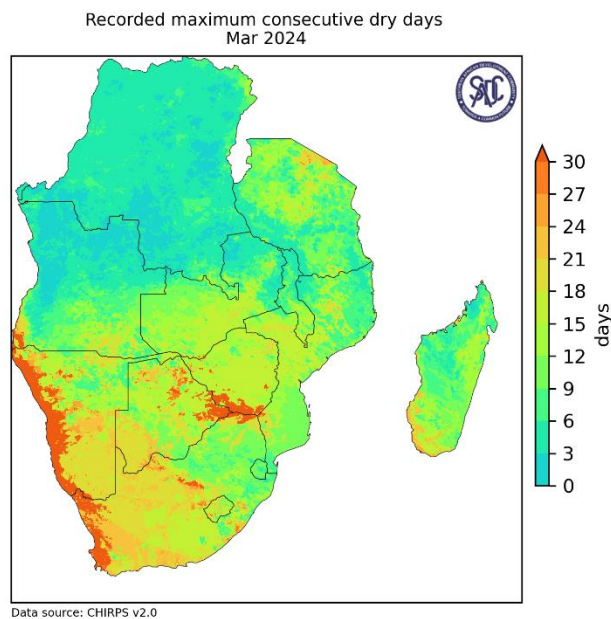


Figure 4: Dry spells prevalence during the month of March 2024

### 1.3 Extreme Rainfall

Sporadic rainfall events of 25-50mm were recorded over some parts of southern DRC, extreme north Zambia, north Malawi, southern Tanzania, north and south Mozambique, and Eswatini (Figure 5). Over most of Madagascar the recorded maximum one day rainfall was of the order of 25mm. The latter also recorded extreme precipitation of around 100mm in 24 hours over the eastern fringes of the island. Most of this precipitation was associated with the passage of the severe tropical storm Filipo along its eastern coast.

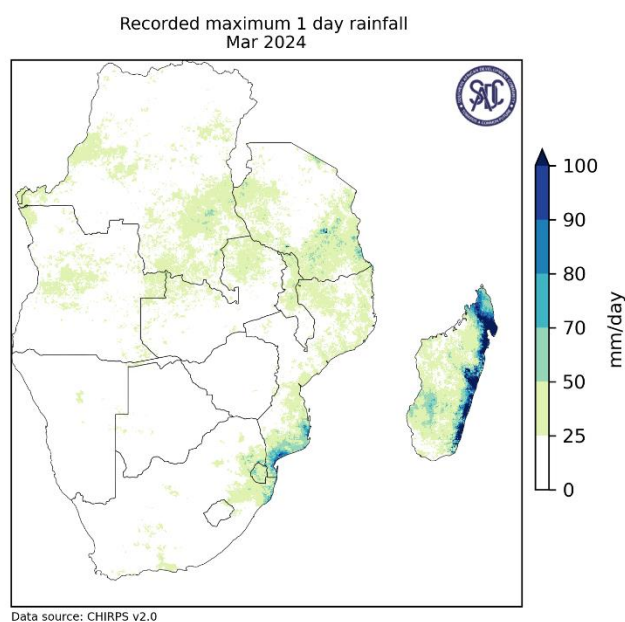


Figure 5: Maximum rainfall recorded over a one-day period during the month of March 2024

## 2. REGIONAL TEMPERATURE

### 2.1 Minimum Temperature

Except for Lesotho and the central and western parts of South Africa, most of the SADC region recorded mean minimum temperatures of above 20°C. Over most of DRC, Mozambique, Malawi, north Zimbabwe, Botswana, Namibia, western fringes of Angola, and most of Madagascar the mean minimum temperatures hiked to 25 °C.

The minimum temperature anomalies were of the order 3 °C above the long-term average over north east DRC, most of Namibia, Botswana, and locally over extreme northern and western Zimbabwe (Figure 6).

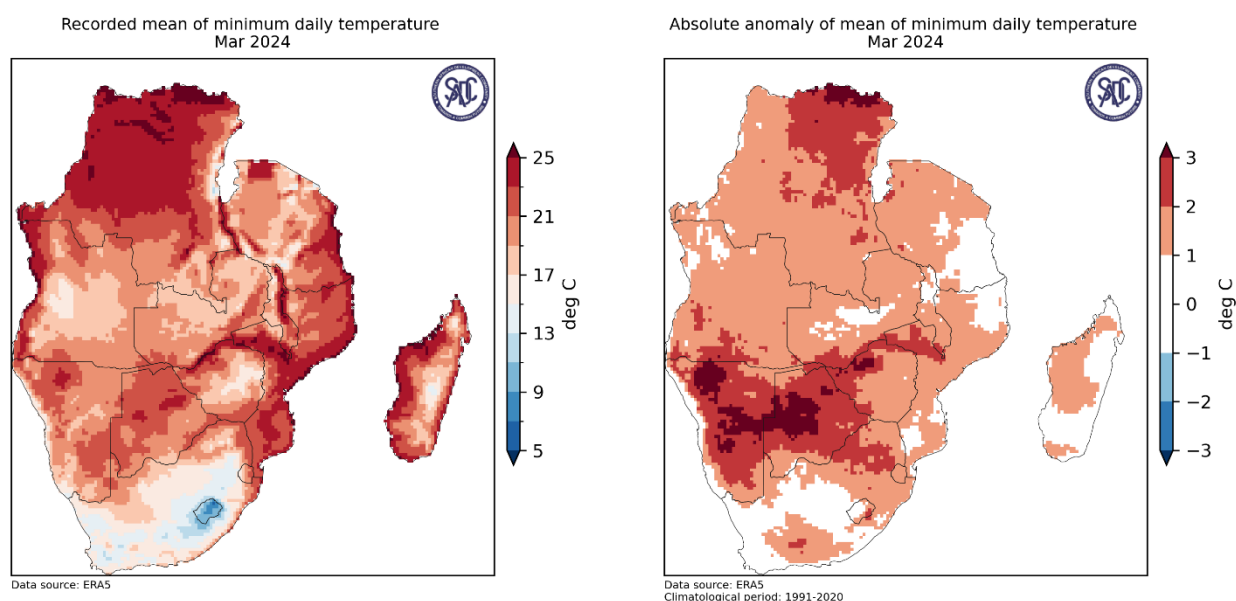


Figure 6: Observed average minimum temperature (left) and anomalies (right) for March 2024

### 2.2 Maximum Temperature

The average maximum temperatures peaked around 35°C over north DRC, most of Namibia, most of Botswana, extreme northern western parts of South Africa and locally over extreme northern parts of Zimbabwe. Maximum temperatures, 3-4°C above average, were recorded locally over north and central DRC, south Angola, south Zambia, most of Botswana, central South Africa and most of Namibia. The rest of the SADC region recorded close to slight above normal temperature during the month of March 2024 (Figure 7).

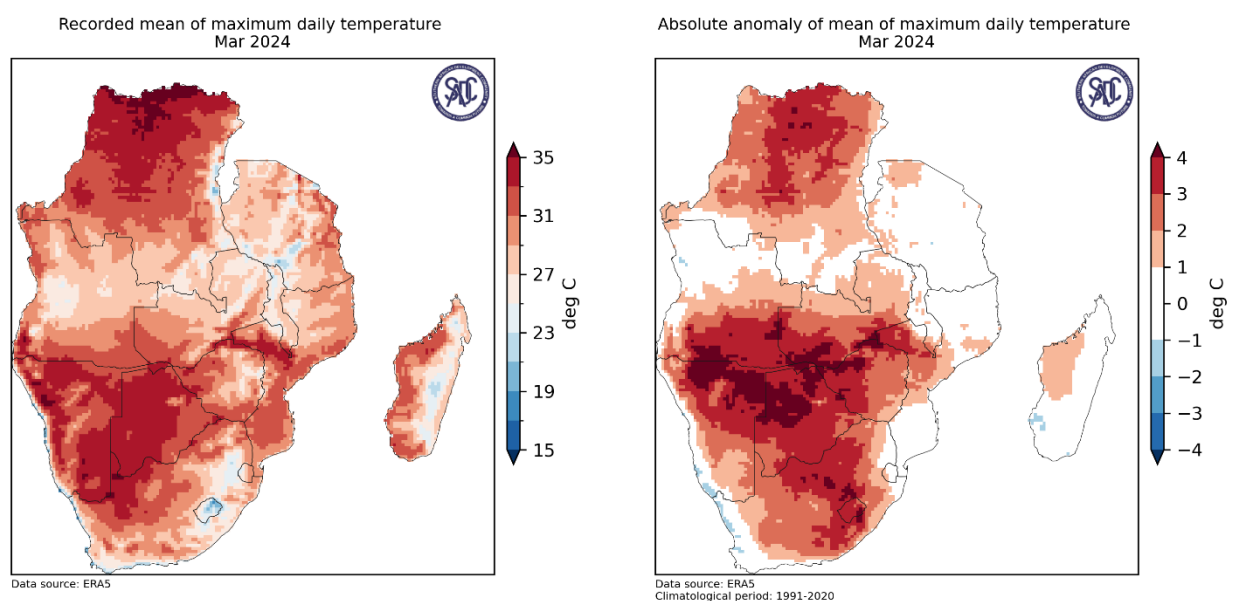


Figure 7: Observed maximum average temperature (left) and anomalies (right) for March 2024

### 2.3 Heat waves

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. Approach to derive these indices is described in the Appendix.

Daytime heat waves were recorded over north and central DRC and over most of the central contiguous SADC region extending from south Angola, Zambia, through Namibia, Botswana and Zimbabwe extending to central South Africa. These regions including northwest Madagascar had recorded around 15 days of daytime heat wave conditions in March (Figure 8). South Angola, North DRC, most of Zambia and north Zimbabwe recorded around 25 heat wave days.

Night-time heatwaves were recorded for over 15 days over most of the contiguous SADC region except for South Africa, Lesotho, central Zimbabwe and south Tanzania. (Figure 8). Some regions such as east DRC, extreme north Zambia and south Angola recorded night time heat wave condition for almost the whole month of March 2024.

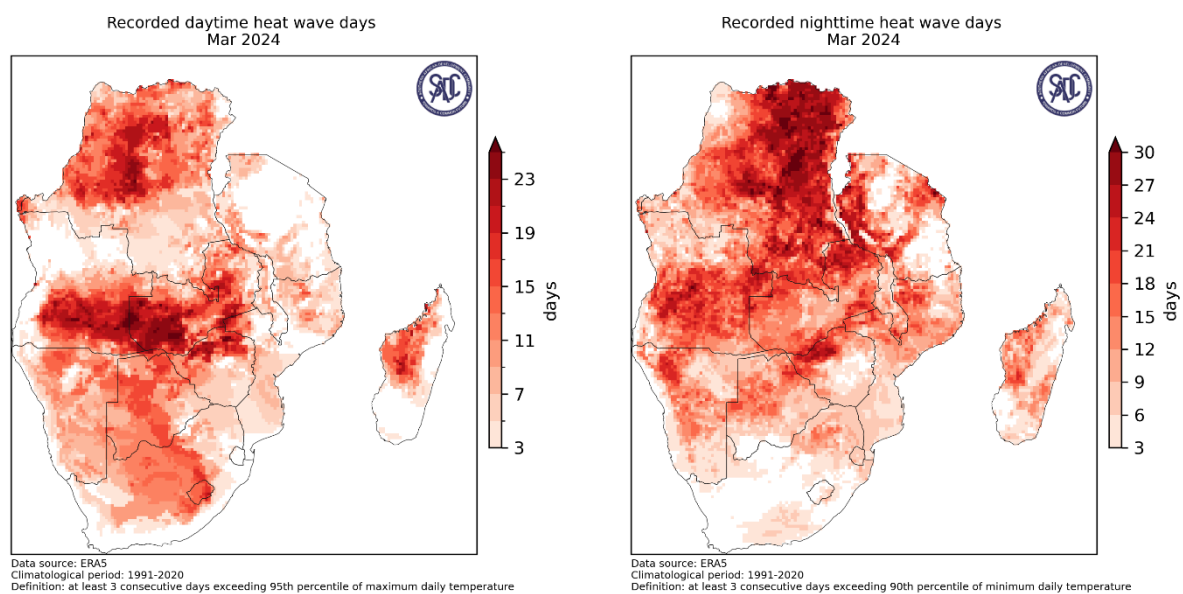


Figure 8: Heatwaves detected during the month of March 2024

### **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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