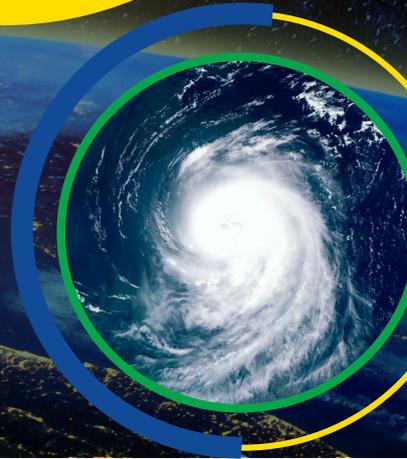


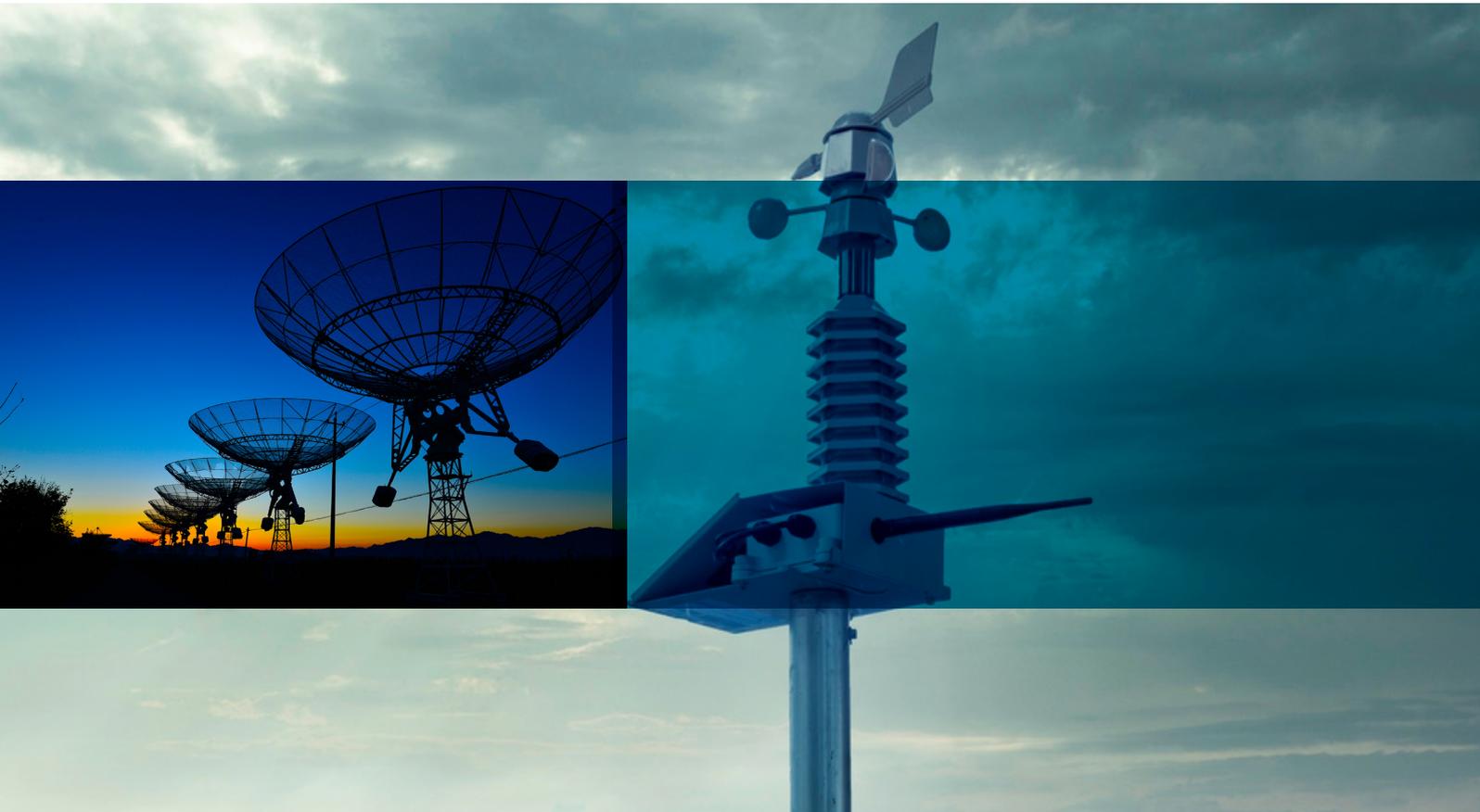


STATEMENT FROM THE TWENTY-EIGHTH SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-28)

29 to 31 January 2024, Maputo, Mozambique



**STATEMENT FROM THE TWENTY-SEVENTH
SOUTHERN AFRICA REGIONAL CLIMATE
OUTLOOK FORUM (SARCOF-28)**



**STATEMENT FROM THE TWENTY-EIGHTH
SOUTHERN AFRICAN REGIONAL CLIMATE
OUTLOOK FORUM (SARCOF-28) HELD IN
MAPUTO, MOZAMBIQUE, 29 – 31 JANUARY 2024.**

SUMMARY

Bulk of the northern half of the SADC region and the southeastern parts are likely to receive normal to above-normal rainfall for most of the period from February to June 2024, except for central parts of the region and south-western parts where normal to below-normal and below-normal rainfall are expected. Above normal rainfall is expected over the north-eastern parts of the region during the March to May (MAM) 2024 period.

Normal to below-normal rainfall is expected during the April to June (AMJ) 2024 rainfall season over the north-western and south-eastern parts of the region, whilst central parts of the region are expected to receive normal to above-normal rainfall. Below normal rainfall conditions are expected to persist over the western regions of the Southern African region, mostly in Botswana, Namibia, southern Angola and south-western South Africa throughout the forecast period.





**STATEMENT FROM THE TWENTY-SEVENTH
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The Twenty-Eighth Southern Africa Regional Climate Outlook Forum (SARCOF-28) was held in Maputo, Mozambique from 29 to 31 January 2024 to present a consensus outlook for February–March–April (FMA), March–April–May (MAM) and April–May–June (AMJ) rainfall seasons over the SADC region. Climate forecasters from the SADC National Meteorological and/or Hydrological Services (NMHSs), the SADC Climate Services Centre (CSC) and SADC ClimSA Technical Assistance formulated this Outlook. Additional inputs were acquired from African Centre for Meteorological Application for Development (ACMAD) and Global Producing Centres (GPCs) namely, European Centre for Medium Range Weather Forecast (ECMWF), National Oceanic and Atmospheric Administration (NOAA), Beijing Climate Centre (BCC), Météo-France, Australian Bureau of Meteorology (BoM), UK Met Office (UKMO), Japan Meteorological Agency (JMA) and Korea Meteorological Agency (KMA). Inputs from International Research Institute for Climate and Society (IRI) and National Centre for Atmospheric Research (NCAR) were also used in this work. This outlook spans the period of February to June covering the transition from summer wet season to winter dry season over most of the SADC region, “long rains” season in regions characterised by bi-modal rainfall (northern part of DRC and eastern part of Tanzania) and transition from summer dry season to winter wet season in the south-western tip of the continent. The Outlook is presented in overlapping three-monthly periods as follows: February–March–April (FMA), March–April–May (MAM) and April–May–June (AMJ) 2024.

NOTE: This Outlook is relevant only to seasonal (overlapping three-monthly) timescales and relatively large areas and may not fully account for all factors that influence regional and national climate variability, such as local and month-to-month variations (intra-seasonal). As such, it must not be interpreted as indicating probable rainfall anomalies at sub-regional, country-level and local spatial scales, and at shorter - sub-seasonal (monthly) time scales.

Users are strongly advised to contact the National Meteorological and Hydrological Services for interpretation of this Outlook, additional guidance, and updates.

METHODOLOGY

Using statistical analysis expert interpretation of current status of global climate system, and outputs from dynamical models run by Global Producing Centres the forecasters determined likelihoods of above-normal, normal, and below-normal rainfall for broad regions (Figures 1 to 3) for overlapping three-monthly periods i.e. February–March–April (FMA), March–April–May (MAM) and April–May–June (AMJ). Above-normal rainfall is defined as rainfall lying within the wettest third of recorded (30 years, that is, 1981–2010 mean) rainfall amounts; below-normal is defined as within the driest third of rainfall amounts and normal is the middle third, centred on the climatological median. Figure 4 shows the long-term (1981–2010) mean rainfall for February–March–April (FMA), March–April–May (MAM) and April–May–June (AMJ) seasons over SADC region.

The forecasters considered oceanic and atmospheric factors that influence the climate over the SADC region, including the El Niño–Southern Oscillation (ENSO), which is currently in its warm phase (El Niño). The ENSO is projected to remain in the El Niño phase during the forecast period. There exists an increased chance of a neutral Indian Ocean Dipole (IOD) and a positive Sub-tropical Indian Ocean Dipole (SIOD) by the end of March 2024.



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OUTLOOK

The period of February to June covers the occurrence of bimodal type of rainfall season and the transition to winter season over most of Southern Africa. Owing to the differences and evolution patterns in the predominant rainfall-bearing systems, the seasons have been subdivided into three overlapping three-month periods (i.e. FMA, MAM and AMJ as defined below).

FIGURE CAPTION

It is emphasised that boundaries between zones should be considered as transition areas. Outlook information is provided only for countries that comprise the Southern Africa Development Community (SADC) region.

The colours for each zone indicate four forecast categories (above normal, normal to above normal, normal to below normal and below normal) representing different probabilities of rainfall anomalies.

- The first colour (blue) indicates that the above normal rainfall has the highest probability of occurring.
- The second colour (cyan) indicates the highest probability of normal rainfall, but with increased probability of above normal.
- The third colour (yellow) indicates the highest probability of normal rainfall but with increased chance for below-normal rainfall.
- The last colour (brown) indicates that the below normal rainfall has the highest probability of occurring.

The probabilities associated with each category are listed in inset in the bottom-right corner of the figure. For example, Figure 1, for Zone 2 with the colour yellow, depicts that there is the highest probability of normal rainfall (40% chance), but with increased probability of below normal (35% chance) and lower probability of above normal rainfall (25% chance).

In addition to forecast categories, the outlook maps present information about forecast confidence. This has been derived based on 1) level of agreement of various forecasting approaches in terms of direction and magnitude of forecasted anomalies, 2) ability of these approaches to correctly predict anomalies during previous forecasts and 3) level of confidence in the forecast expressed by the forecasters based on their knowledge and understanding of the regional climate system. Increased level of confidence in the forecast reflects the higher likelihood that the forecast is correct.



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FEBRUARY-MARCH-APRIL 2024

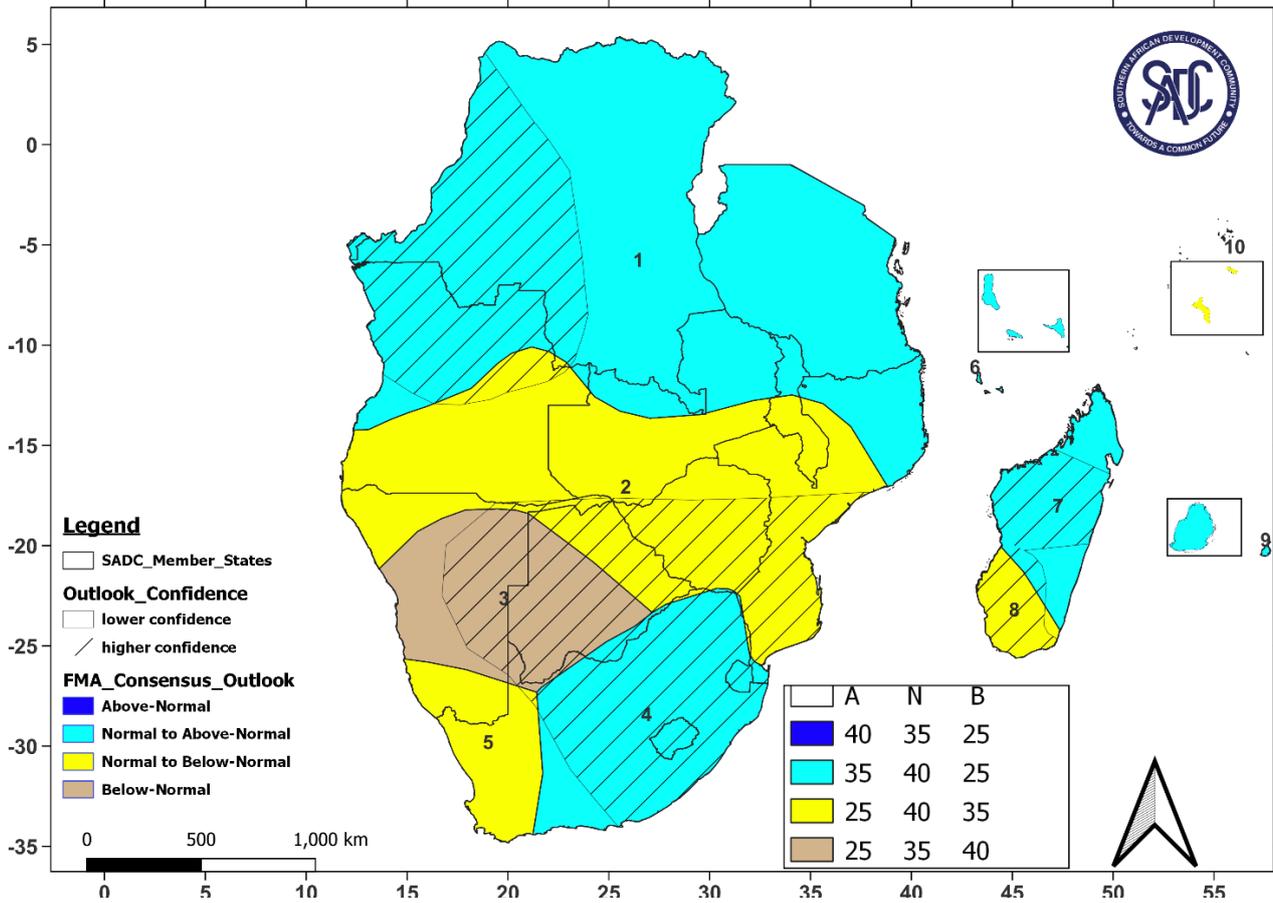


Figure 1: Rainfall forecast for February-March-April 2024

- Zone 1:** Northern half of Angola, DRC, northern Zambia, northern Malawi, Tanzania, and northern Mozambique.
Normal rainfall with increased chances of above-normal rainfall
- Zone 2:** Southern half of Angola, northern fringes of Namibia, north-eastern Botswana, southern Zambia, Zimbabwe, southern Malawi, and most of Mozambique.
Normal rainfall with increased chances of below-normal rainfall (High Confidence)
- Zone 3:** Most of central Namibia and most of western Botswana and northwestern fringes of South Africa.
Increased chances of below normal rainfall (High Confidence)
- Zone 4:** Southern fringes of Botswana, extreme southern parts of Zimbabwe, most of South Africa, Lesotho, Eswatini and southern fringes of Mozambique.
Normal rainfall with increased chances of above-normal rainfall (High Confidence)
- Zone 5:** Southern Namibia and south-western South Africa.
Normal rainfall with increased chances of below-normal rainfall
- Zone 6:** Comoros.
Normal rainfall with increased chances of above-normal rainfall
- Zone 7:** North and central Madagascar.
Normal rainfall with increased chances of above-normal rainfall
- Zone 8:** Southern Madagascar.
Normal rainfall with increased chances of below-normal rainfall (High Confidence)
- Zone 9:** Mauritius.
Normal rainfall with increased chances above-normal rainfall
- Zone 10:** Seychelles.
Normal rainfall with increased chances of below-normal rainfall

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MARCH-APRIL-MAY 2024

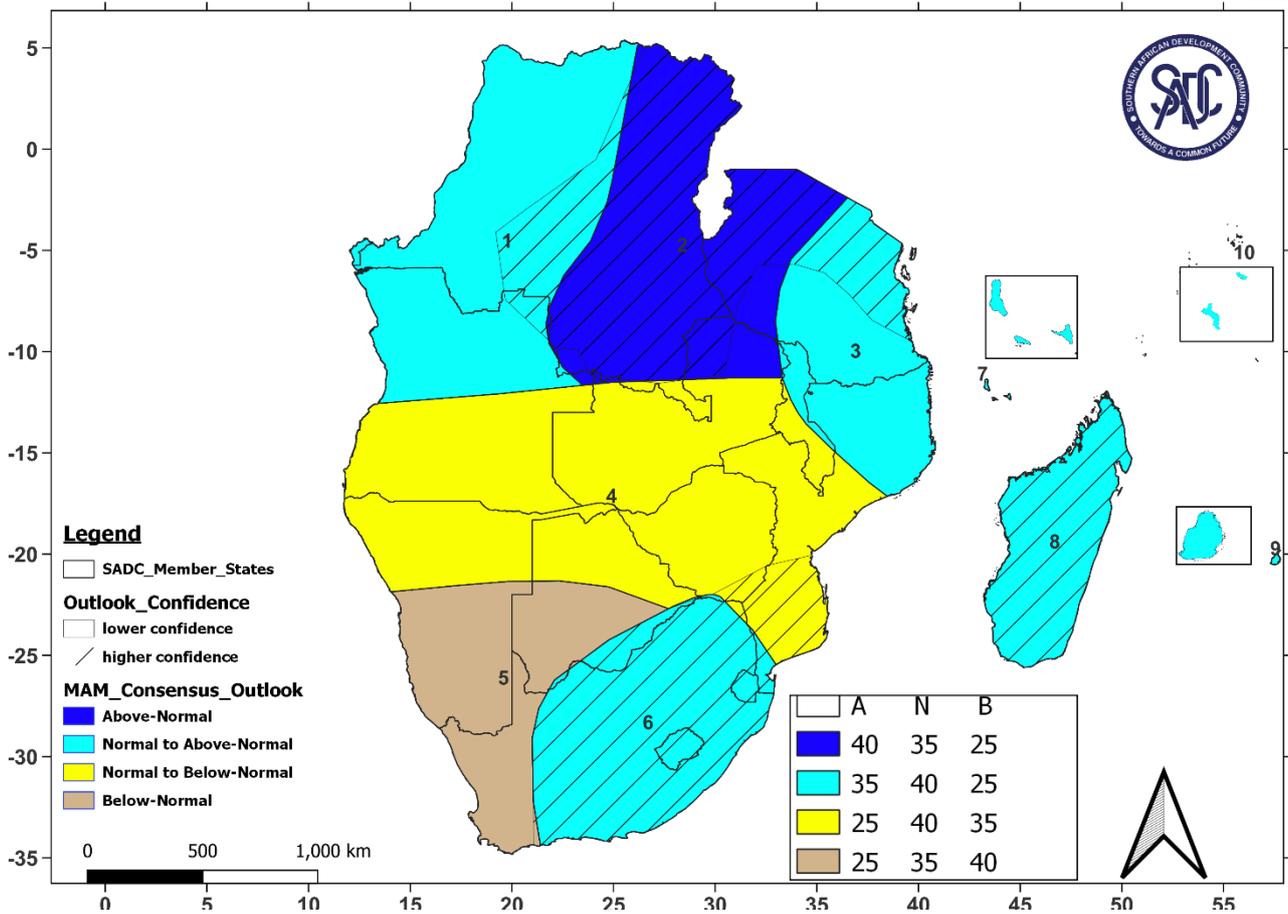


Figure 2: Rainfall forecast for March-April-May 2024

- Zone 1:** Western half of DRC and northern half of Angola.
Normal rainfall with increased chances of above-normal rainfall
- Zone 2:** Eastern half of DRC, western half of Tanzania, northern Zambia, and north-eastern fringes of Angola.
Increased chances of above normal rainfall (High Confidence)
- Zone 3:** Eastern Tanzania, eastern Malawi, and northern Mozambique.
Normal rainfall with increased chances of above-normal rainfall
- Zone 4:** Most of southern half of Angola, northern Namibia, central and southern parts of Zambia, south-eastern fringes of DRC, south-western Malawi, northern Botswana, the bulk of Zimbabwe, extreme north-eastern fringes of South Africa and central and southern parts of Mozambique.
Normal rainfall with increased chances of below-normal rainfall
- Zone 5:** Central and southern parts of Namibia, western Botswana, and western South Africa.
Increased chances of below normal rainfall



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- Zone 6:** Southern fringes of Botswana, extreme southern tip of Zimbabwe, most of South Africa, Lesotho, Eswatini, and southern fringes of Mozambique.
Normal rainfall with increased chances of above-normal rainfall (High Confidence)
- Zone 7:** Comoros.
Normal rainfall with increased chances of above-normal rainfall
- Zone 8:** Madagascar.
Normal rainfall with increased chances of above-normal rainfall (High Confidence)
- Zone 9:** Mauritius.
Normal rainfall with increased chances of above-normal rainfall
- Zone 10:** Seychelles.
Normal rainfall with increased chances of above-normal rainfall

APRIL-MAY-JUNE 2024

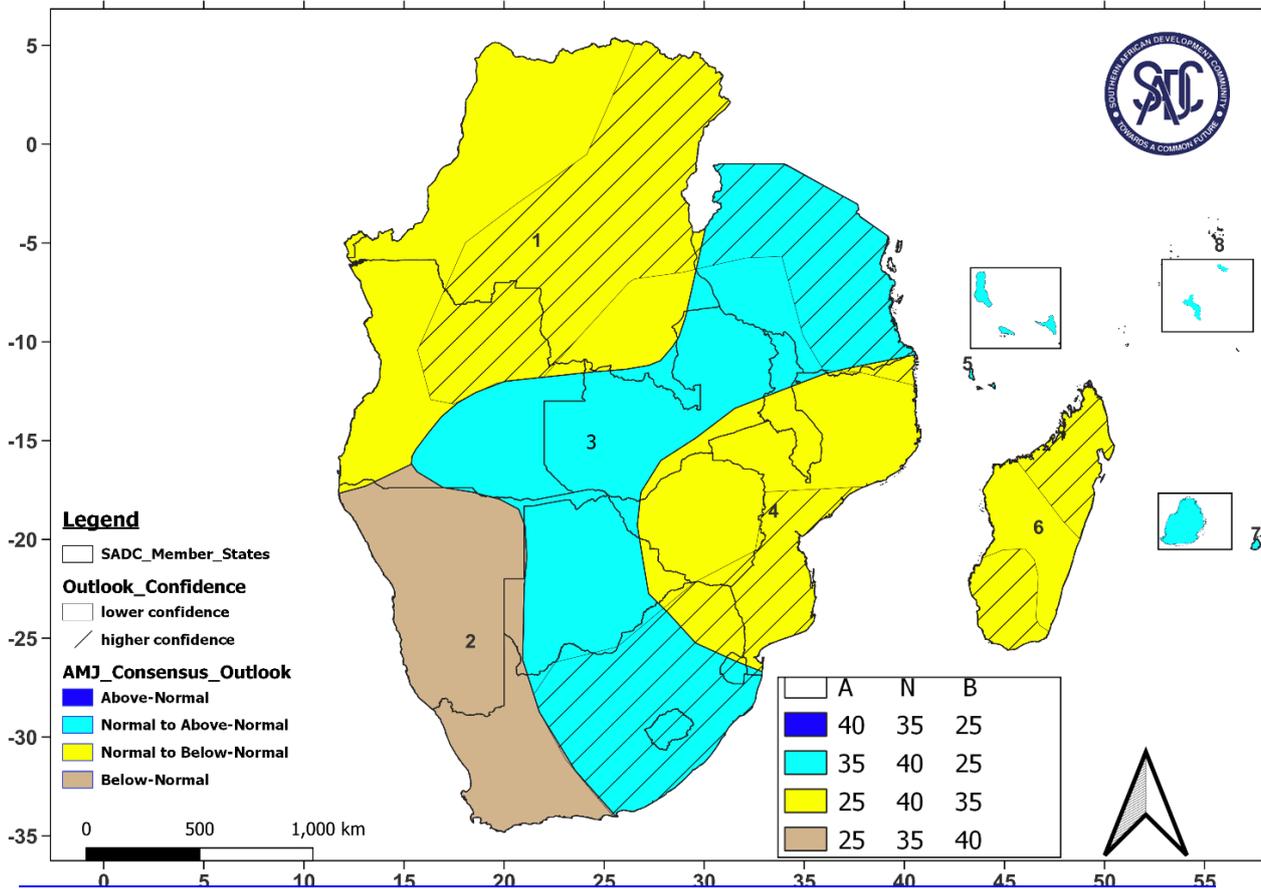


Figure 3: Rainfall forecast for April-May-June 2024





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- Zone 1:** North-western tip of Namibia, most of Angola, DRC, northern tip of Zambia and western tip of Tanzania.
Normal rainfall with increased chances of below-normal rainfall (High Confidence)
- Zone 2:** Southern tip of Angola, most of Namibia, western fringes of Botswana and western parts of South Africa.
Increased chances of below normal rainfall
- Zone 3:** South-eastern Angola, southern tip of DRC, extreme north-eastern part of Namibia, extreme western tip of Zimbabwe, most of Botswana, most of Zambia, northern Malawi, most of Tanzania, most of South Africa, Lesotho, most of Eswatini, northern and southern tips of Mozambique.
Normal rainfall with increased chances of above-normal rainfall (High Confidence)
- Zone 4:** Northern Eswatini, north-eastern South Africa, eastern part of Botswana, most of Zimbabwe, southern fringes of Zambia, southern Malawi, most of Mozambique.
Normal rainfall with increased chances of below-normal rainfall
- Zone 5:** Comoros.
Normal rainfall with increased chances of above-normal rainfall
- Zone 6:** Madagascar.
Normal rainfall with increased chances of below-normal rainfall (High Confidence)
- Zone 7:** Mauritius.
Normal rainfall with increased chances of above-normal rainfall
- Zone 8:** Seychelles.
Normal rainfall with increased chances of above-normal rainfall

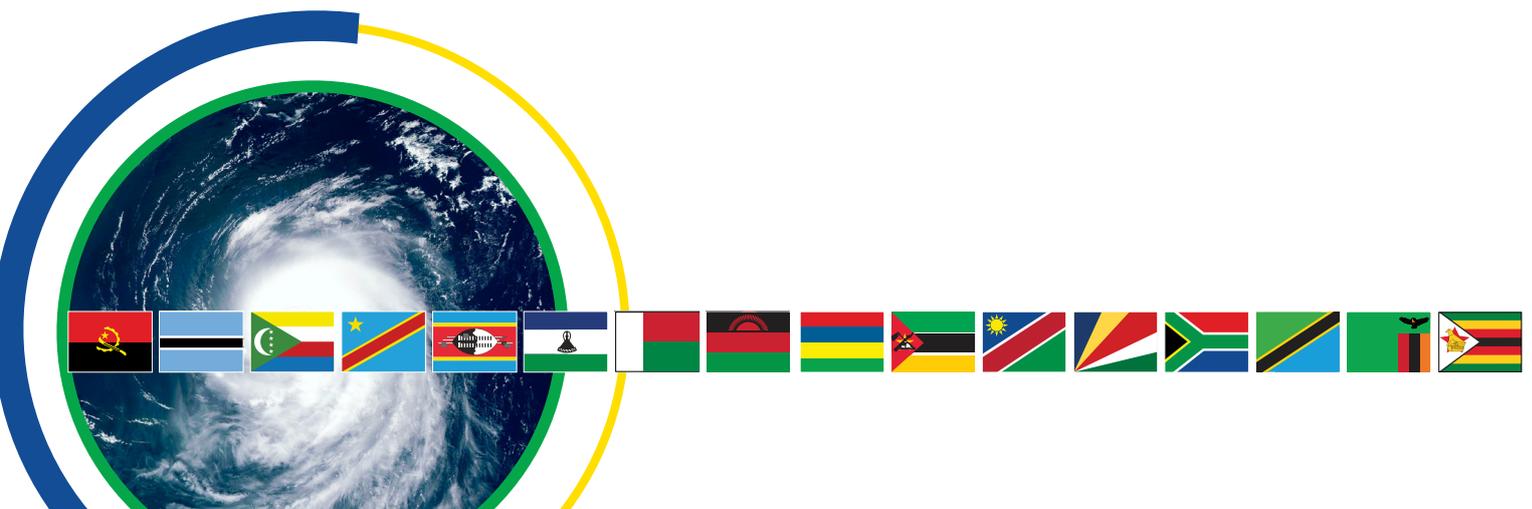
OVERVIEW OF DYNAMICAL MODELS FORECAST FROM GLOBAL PRODUCING CENTRES

The outlook presented above is broadly consistent with the forecasts generated with the multi-model ensemble of international dynamical climate forecast models presented by the Global Producing Centres mandated by World Meteorological Organization.

In summary, increased probability of above normal rainfall conditions are forecasted by the dynamical models over Tanzania and eastern DRC as well as over*small island states. Below normal conditions are forecasted for all other countries within the continental part of SADC, apart from the south-eastern coast of South Africa, where normal conditions are expected. The dry anomalies are forecasted to be particularly strong over the central-western part of SADC region - southern Angola, Namibia, western Botswana, and western South Africa.

Over Madagascar - above normal conditions are forecasted for its northern part, while below normal for its southern part

These forecasts are relatively consistent across the February to June 2024 period, with minor differences between sub-seasons. Different multi-model forecasting systems agree relatively well in the overall direction of the anomalies, although their demonstrated skill varies.



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LONG-TERM MEAN SEASONAL RAINFALL (1981-2010)

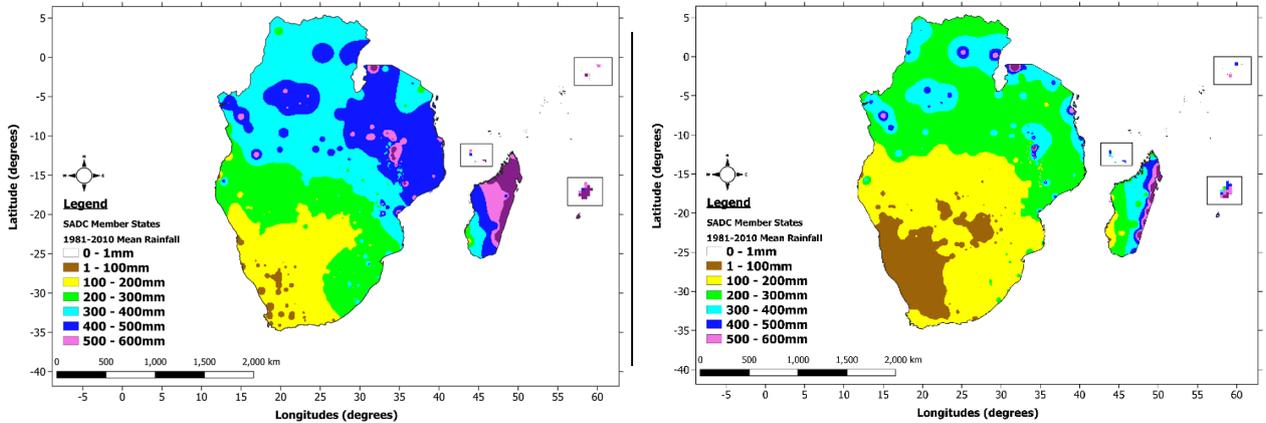


Figure 4, Long-term mean rainfall over SADC countries (a) February-March-April (1981-2010) and (b) March-April-May (1981-2010).

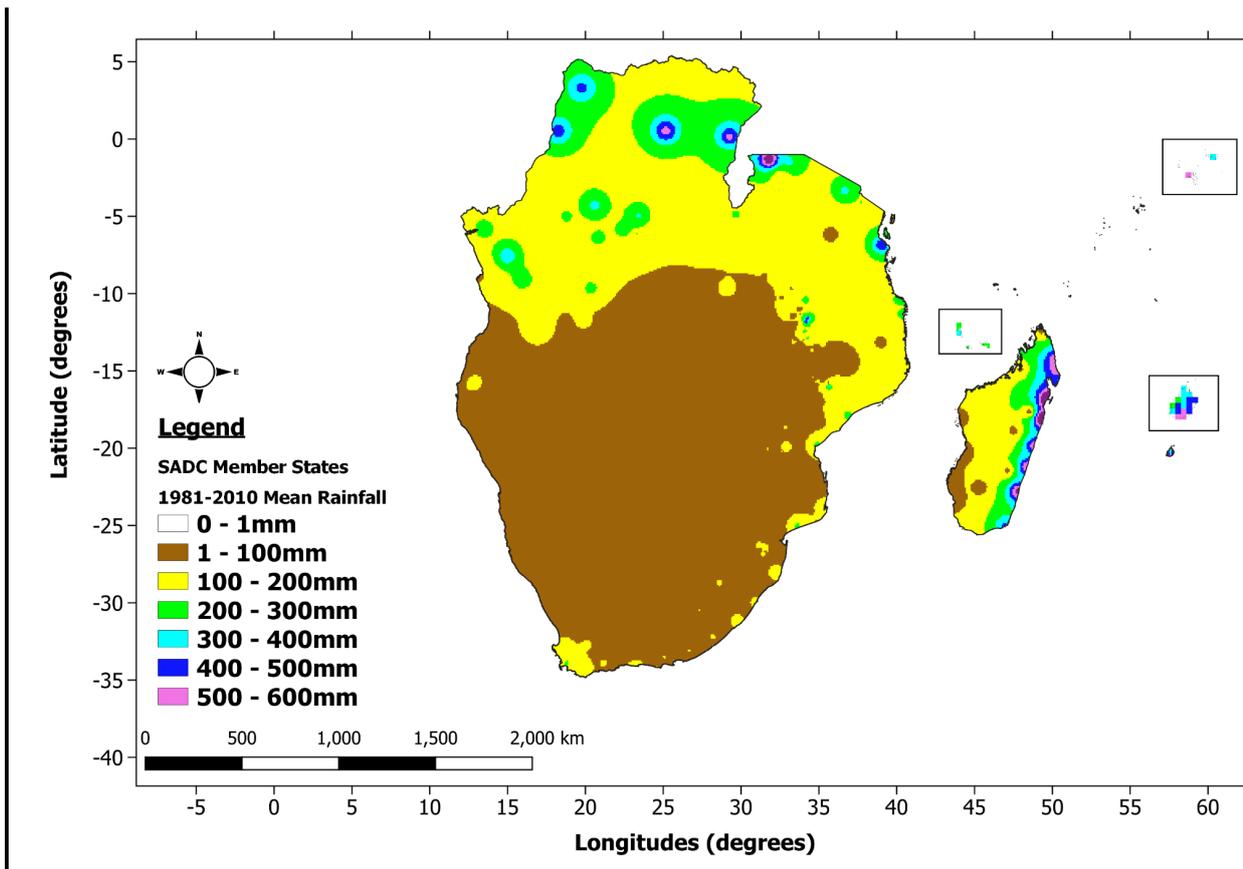


Figure 4 Long-term mean rainfall over SADC countries (a) February-March-April (1981-2010) and (b) March-April-May (1981-2010) (c) April-May-June (1981-2010).



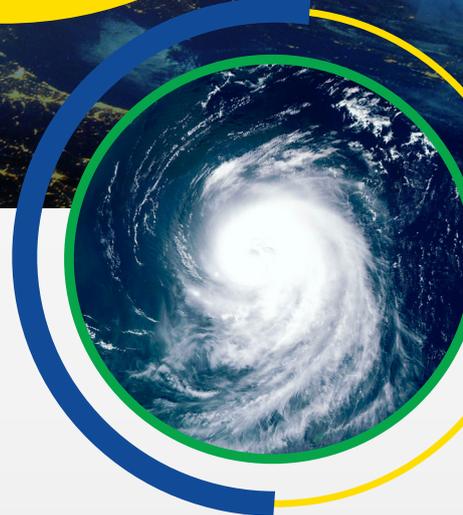
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The long-term mean for February–March–April rainfall (Figure 4a) shows maxima of above 600 millimetres over much of Angola, southern half of DRC, northern Zambia, Malawi, southern Tanzania central and northern Mozambique as well as Madagascar. The remainder of the region receives rainfall gradually decreasing south–westwards from about 400 millimetres in the north/north-east towards southwest South Africa and Namibia where the mean rainfall is below 100 millimetres. The March–April–May (Figure 4b) shows a significant reduction in the rainfall received in most of the southern parts of the region with the northern and eastern parts remaining wet. DRC and northern Angola, Malawi, Zambia, and Mozambique show sustained rainfall patterns, while Madagascar and Tanzania show sustained rainfall in the extreme eastern coastline. The April–May–June (Figure 4c) shows further reduction in the rainfall received in most southern parts of the region with the north and north-eastern parts relatively wet. DRC, Madagascar, and Tanzania show sustained rainfall in the extreme north for DRC and Tanzania while for Madagascar it is mostly extreme eastern coastline.

SPONSORSHIP

The Twenty-Eighth Southern Africa Climate Outlook Forum Update was hosted in Maputo, Mozambique with support from SADC Member States, European Union through the Intra-ACP Climate Services, and related Applications (ClimSA) project, and other partners.





European Union

Intra-ACP Climate Services and Related Applications Programme (ClimSA) is funded by the EU.



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