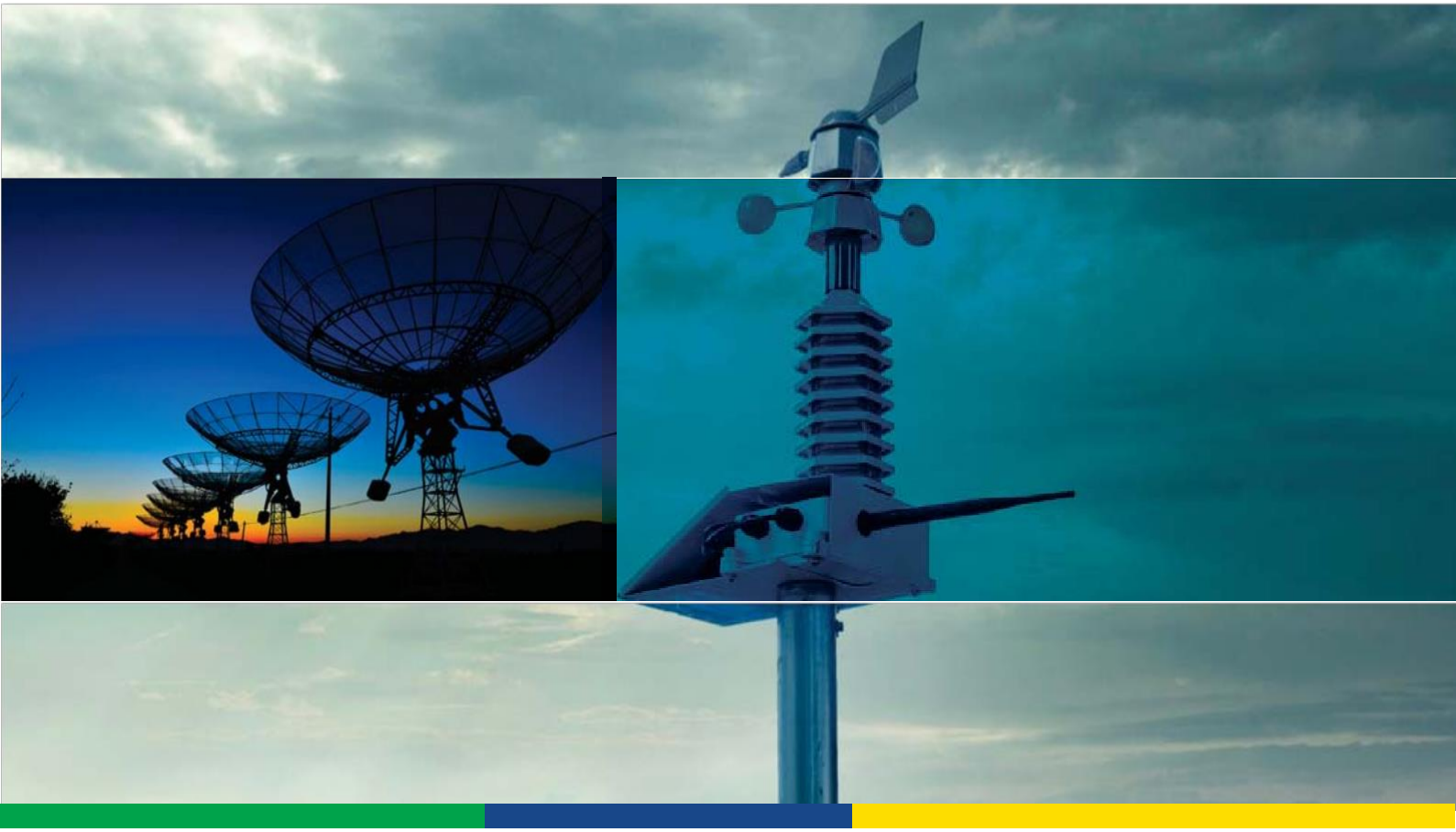
STATEMENT FROM THE THIRTIETH SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-30)

28 to 30 January 2025, Antananarivo, Madagascar



STATEMENT FROM THE THIRTIETH SOUTHERN AFRICAN REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-30) HELD IN ANTANANARIVO, MADAGASCAR, 28 – 30 JANUARY 2025.

SUMMARY

The Southern Africa Development Community (SADC) region is likely to receive normal to above-normal rainfall for most of the period from February to June 2025, except for north-eastern parts of the region and the south-west of the sub-continent where normal to below-normal rainfall is expected. Above normal rainfall is expected over the south-central parts of the region during the February to April (FMA) 2025 period.

INTRODUCTION

The Thirtieth Southern Africa Regional Climate Outlook Forum (SARCOF-30) was held in Antananarivo, Madagascar from 28 to 30 January 2025 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) 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) 2025.

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 the 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 cold phase (weak La Niña). The ENSO is projected to return to neutral 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 2025.

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 emphasized 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 of 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.

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

FEBRUARY-MARCH-APRIL 2025

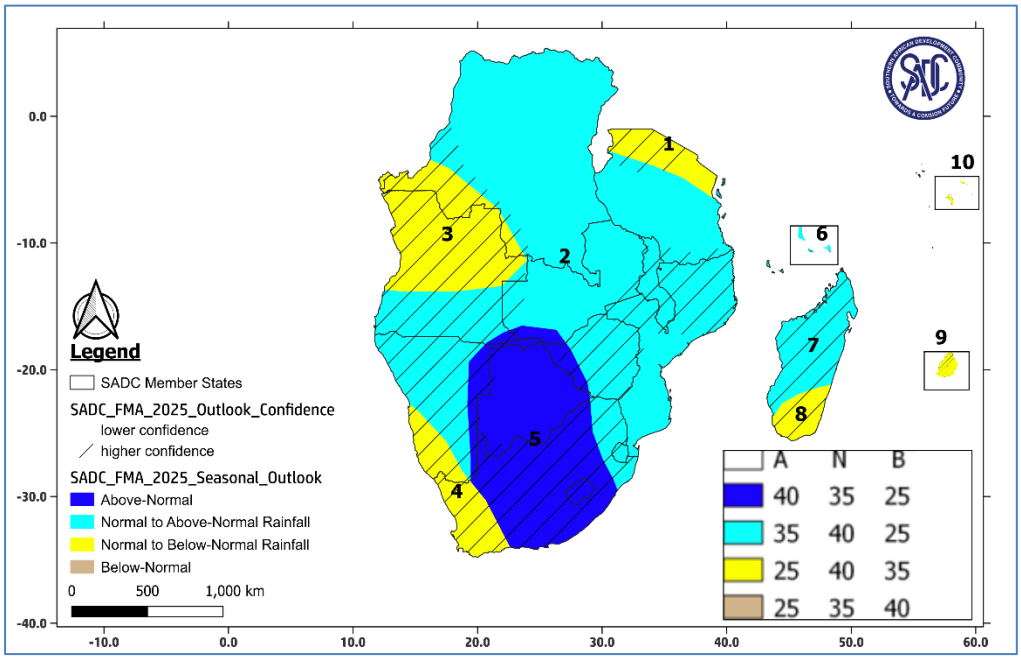


Figure 1: Rainfall forecast for February-March-April 2025

Zone 1: Northern Tanzania.
Normal rainfall with increased chances of below-normal rainfall

Zone 2: Most of DRC, southern half of Angola, most of Namibia, Zambia, Malawi, Mozambique, most of Zimbabwe, Eswatini and eastern South Africa.
Normal rainfall with increased chances of above-normal rainfall

Zone 3: South-eastern DRC and most of northern Angola.
Normal rainfall with increased chances of below-normal rainfall

Zone 4: South-western Namibia and south-western South Africa.
Normal rainfall with increased chances of below-normal rainfall

Zone 5: Eastern fringes of Namibia, Botswana, the extreme south-western parts of Zambia, extreme western parts of Zimbabwe, central parts of South Africa and Lesotho.
Increased chances of above-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

Zone 9: Mauritius.
Normal rainfall with increased chances of below-normal rainfall

Zone 10: Seychelles.
Normal rainfall with increased chances of below-normal rainfall

MARCH-APRIL-MAY 2025

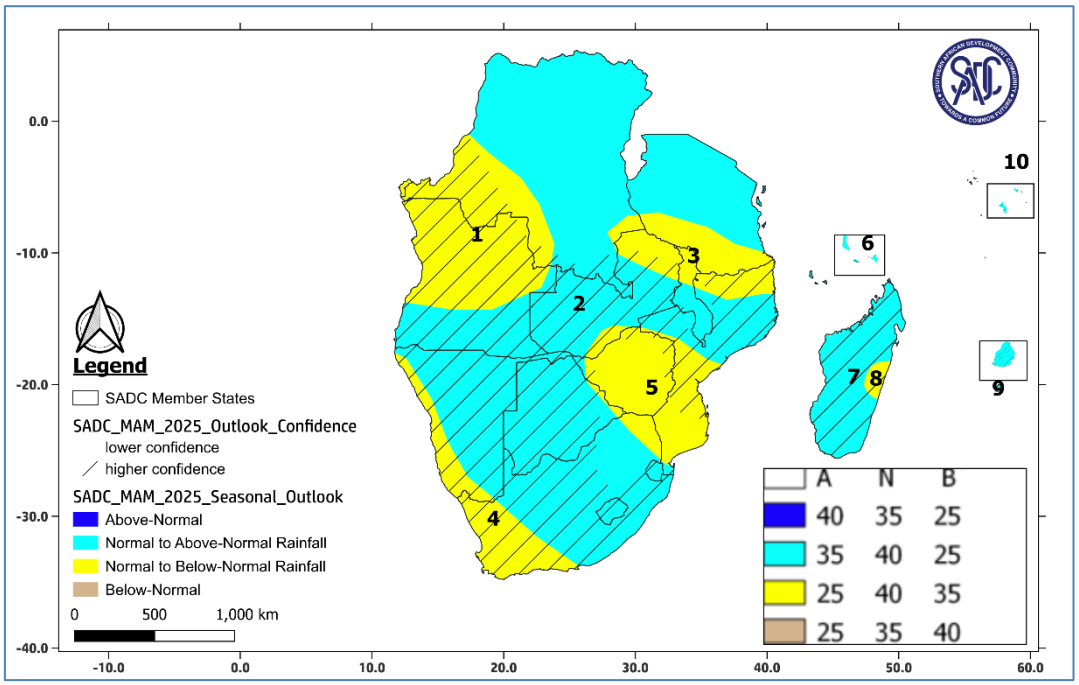


Figure 2: Rainfall forecast for March-April-May 2025

Zone 1: South-western DRC and northern half of Angola.
Normal rainfall with increased chances of below-normal rainfall

Zone 2: Lesotho, Eswatini, most of (Tanzania, Zambia, Namibia, Botswana, Malawi), most of central South Africa, Eastern most of DRC, most of southern Angola, the western tip of Zimbabwe and north-central Mozambique.
Normal rainfall with increased chances of above-normal rainfall

Zone 3: South eastern fringes of DRC, southern Tanzania, extreme north-eastern Zambia, northern Malawi, and northern Mozambique.
Normal rainfall with increased chances of below-normal rainfall

Zone 4: Western fringes of Namibia and south-western South Africa.
Normal rainfall with increased chances of below-normal rainfall

Zone 5: Eastern fringes of Botswana, most of Zimbabwe, southern fringes of Zambia, north-eastern South Africa and most of Mozambique.
Normal rainfall with increased chances of below-normal rainfall

Zone 6: Comoros.
Normal rainfall with increased chances of above-normal rainfall

Zone 7: Most of Madagascar.
Normal rainfall with increased chances of above-normal rainfall

Zone 8: Central eastern Madagascar.
Normal rainfall with increased chances of below-normal rainfall

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 2025

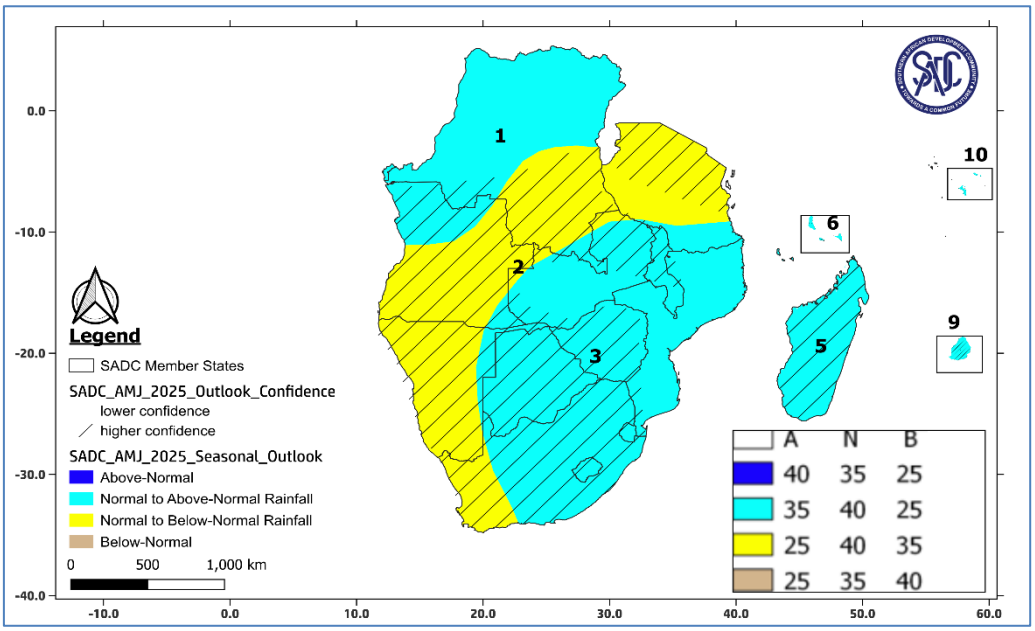


Figure 3: Rainfall forecast for April-May-June 2025

Zone 1: North-western Angola and most of DRC.
Normal rainfall with increased chances of above-normal rainfall

Zone 2: Most of Tanzania, southern-central DRC, southern most of Angola, northern tips of Zambia, most of Namibia and the western parts of South Africa.
Normal rainfall with increased chances of below-normal rainfall

Zone 3: South-eastern tip of Angola, extreme eastern parts of Namibia, Botswana, Zimbabwe, most of Zambia, extreme south-eastern tip of DRC, Malawi, southern Tanzania, most of South Africa, Lesotho, Eswatini and Mozambique.
Normal rainfall with increased chances of above-normal rainfall

Zone 4: Comoros.
Normal rainfall with increased chances of above -normal rainfall

Zone 5: Madagascar.
Normal rainfall with increased chances of above-normal rainfall

Zone 6: Mauritius.
Normal rainfall with increased chances of above-normal rainfall

Zone 7: Seychelles.
Normal rainfall with increased chances of above-normal rainfall

SARCOF outlook maps are annotated with information on confidence of the forecast. Forecasts carry a different level of certainty, which reflects factors such as:

- the relative role of the predictable vs. the non-predictable (random) component of climate
- the strength of climate processes that allow forecasters to make a prediction
- the quality of data and the level of understanding of climate drivers that affects the ability of the forecasting system, model or approach to capture all relevant processes that determine future climate

These factors vary in space and in time - they change slightly every year and depend on location and season that is forecasted.

As presented in the outlook maps, the confidence information has been derived based on:

- numerically assessed level of agreement of various forecasting approaches in terms of direction and magnitude of forecasted anomalies
- numerically assessed level of skill, or ability of these forecasting approaches to correctly forecast conditions during previous forecasts
- level of confidence in the forecast expressed by the forecasters

While the forecast for regions/seasons with higher confidence could be interpreted and acted upon with more assuredness, those with lower confidence should be considered with more caution. In any case, irrespective of confidence, the user is advised that the forecast, as presented in the outlook document, indicates only increased probability that the forecast category will occur (as per probabilities indicated in the maps), rather than give an assurance that it will occur.

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 including those presented by the Global Producing Centres mandated by the World Meteorological Organization.

Increased probability of above normal rainfall conditions are forecasted by the dynamical models over South Africa, Lesotho, Eswatini, Mozambique, Malawi, Zambia, Zimbabwe and over the Mozambican channel including Madagascar. Below normal conditions are forecasted for only northern and north eastern parts of the region.

These forecasts are relatively consistent across the February to June 2025 period, with minor differences between intra-seasons. Different multi-model forecasting systems agree relatively well in the overall direction of the anomalies, although their demonstrated skill varies.

LONG-TERM MEAN SEASONAL RAINFALL (1981-2010)

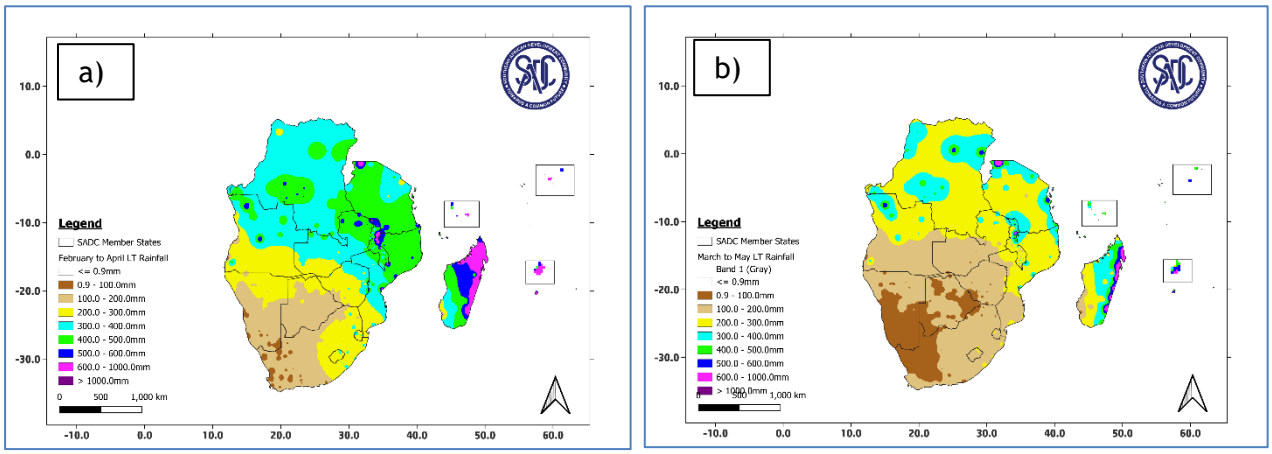


Figure 4, Long-term mean rainfall over SADC countries (a) February-March-April (1981-2010) and (b) March-April-May (1981-2010).

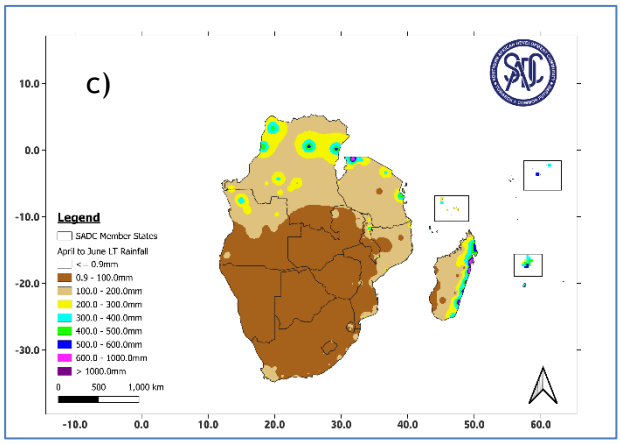


Figure 4 Long-term mean rainfall over SADC countries (c) April-May-June (1981-2010).

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 along the extreme eastern coastal areas.

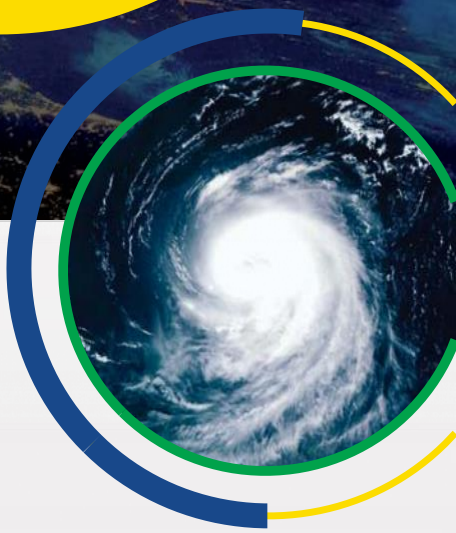
SPONSORSHIP

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

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY
TOWARDS A COMMON FUTURE

ClimSA
INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME

European Union



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