STATEMENT FROM THE TWENTY SECOND SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-22) MID-SEASON REVIEW AND UPDATE,

CRESTA MAUN HOTEL, MAUN, BOTSWANA,
13 – 14 DECEMBER 2018.

SUMMARY

The bulk of the Southern African Development community (SADC) is likely to persist in receiving normal to below-normal rainfall for the period January to March (JFM) 2019, with the exception of central South Africa, south-western Botswana, south-eastern Namibia, northern Angola, Tanzania, Madagascar, a bulk of Democratic Republic of Congo (DRC), Mauritius, and Seychelles where normal to above-normal rainfall conditions are expected. For the period February to May 2019, the bulk of SADC is expected to receive normal to above-normal rainfall conditions with the exception of the south-western and most of the south part of the region where normal to below-normal rainfall conditions are expected.

THE TWENTY SECOND SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM MID-SEASON REVIEW AND UPDATE

The Twenty Second Southern Africa Regional Climate Outlook Forum (SARCOF-22) midseason review and update was held in Maun, Botswana from 13 to 14 December 2018 to review and update the seasonal outlook released in August as well as present a consensus seasonal climate outlook for March to May (MAM) 2019 rainfall season over the SADC region. Climate scientists from the SADC National Meteorological and Hydrological Services (NMHSs), together with experts from the SADC Climate Services Centre (CSC) reviewed and formulated this update. Additional inputs were used from other Global Climate Prediction Centres. This update covers the review of the first two months of the rainfall season (October-November) and the rainfall outlook for January to May 2019 period, which are presented in overlapping three-monthly periods as follows: January-February-March (JFM); February-March-April (FMA) and March-April-May (MAM).

This Outlook is relevant only to seasonal (overlapping three-monthly) time-scales 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). Users are strongly advised to contact the National Meteorological and Hydrological Services for interpretation of this Outlook, additional guidance and updates.

REVIEW AND UPDATE METHODOLOGY

The midseason review considered the October- November rainfall performance. The data used for review were the Africa Rainfall Climatology Version 2 (ARC2) satellite rainfall estimates (blended with station observed data), from the NOAA.

This update used Consensus Forecasts from the national seasonal forecasts and the Global Producing Centre output. Statistical models were built using the potential relationship between rainfall and teleconnection predictors such as geopotential height and sea surface temperatures over the Atlantic, Indian and Pacific Oceans. The climate scientists took into account oceanic and atmospheric variations that influence the climate over the SADC region, in particular, the El Niño-Southern Oscillation (ENSO).

The climate scientists used the tercile method to explore statistical downscaling performances at regional and national levels. Considering climate prediction schemes from Global Producing Centres and expert judgement, the climate experts determined the likelihoods of above- normal, normal and below-normal rainfall condition[1] for each climatic homogeneous zones.

To reduce the uncertainty of the model outputs, SADC-CSC adopted an approach to advise the users to focus on the two highest probabilities of the tercile method, i.e., giving the forecast of the high probability with the bias toward the second highest probability. The forecast will be read: either normal to above normal, or normal to below normal according to probability of the forecast.

SPONSORSHIP

SARCOF-22 Review and Update Forum was convened by SADC Secretariat through SADC Climate Services Centre. The support was provided by the Government of the Republic of Botswana through its Meteorological Services Department (BDMS). The meeting was also sponsored by 11th European Development Fund (EDF) through the management of African Development Bank (AfDB) under the ClimDev Special Fund (CDSF).

[1] Above normal rainfall is defined as rainfall lying within the wettest third of recorded (30 years, that is, 1971-2000 or 1981-2010) rainfall amounts; below normal is defined as within the driest third of rainfall amounts and normal is the middle third, centered on the climatological median.

REVIEW OF THE CURRENT SEASON (OCTOBER AND NOVEMBER 2018)

Four climate driver patterns significant for SADC rainfall behaviour were active since the beginning of the rainy season:

1. The inter-tropical convergence zone (ITCZ) is still very active and centred over the northern and eastern parts of SADC region and over the southern Indian Ocean;

2. Neutral ENSO conditions prevailed during October - November 2018 despite observations showing widespread above average sea surface temperatures across Equatorial Pacific Ocean;

3. The Sub-tropical Indian Ocean Dipole (SIOD) and Indian Ocean Dipole (IOD) have shifted from neutral to a positive phase;

During October and November, the rainfall received was normal to above normal in most areas of the north-western, most of the eastern, some south-western parts of the sub-region and eastern Madagascar. Whereas the bulk of the central and south-eastern parts of the region had experienced normal to below normal rainfall condition. In the north east of Tanzania, northern part of Mozambique and the extreme west coastal area of Angola and Namibia, below normal rainfall conditions were observed. Figure 1 depicts the spatial distribution of the percentage of the long-term average of the cumulative rainfall during the first two months of the rainfall season.

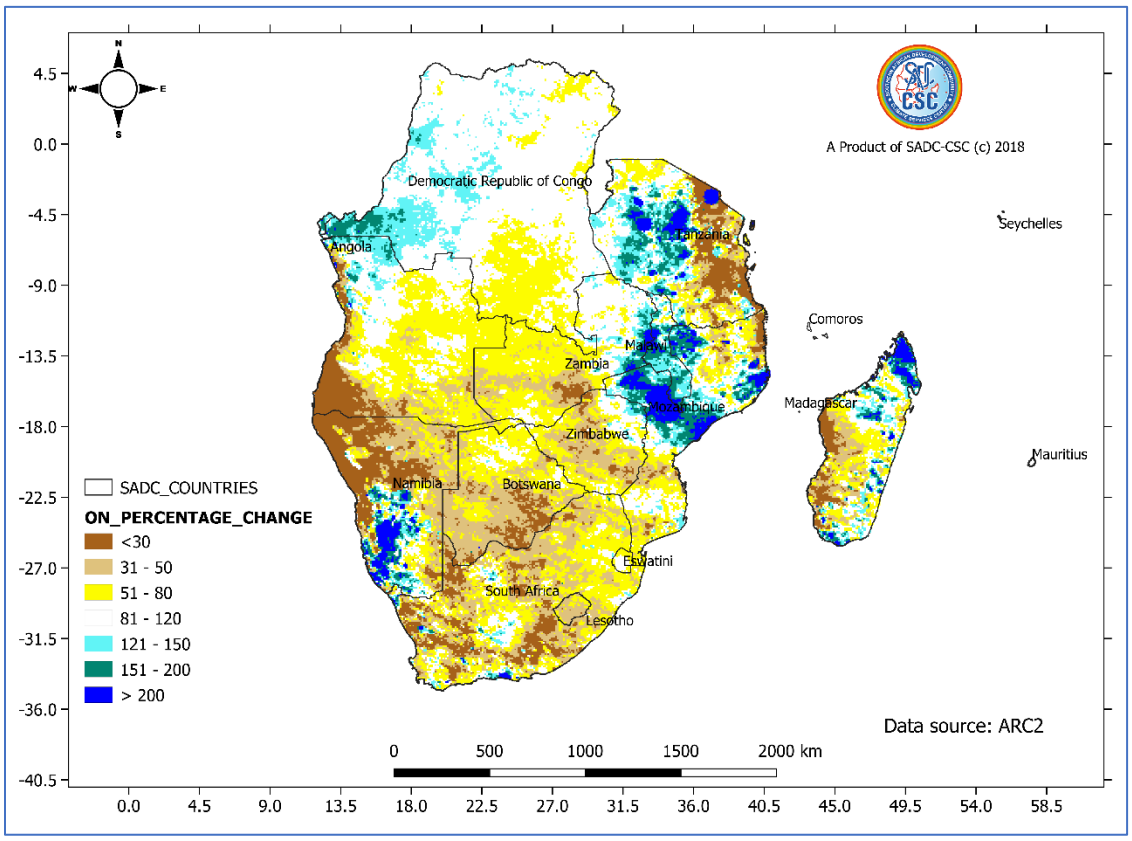

Figure 1: Percentage of average rainfall for 1 October to 30 November 2018

This review of the first two months of the current 2018/19 rainfall season so far shows consistencies in various areas with the forecasted OND 2018 rainfall outlook that was released at SARCOF-22 in August.

UPDATED OUTLOOK

Outlook information is provided only for countries that comprise the Southern Africa Development Community (SADC) region. The outputs of the update are presented in overlapping three-monthly periods i.e. January- February-March (JFM), February-March-April (FMA) and March-April-May (MAM) 2019. The colours for each zone indicate the probabilities of rainfall in each of the three categories, i.e., below-normal, normal and above normal rainfall conditions. The first colour (blue) indicates the probability of rainfall occurring in the above normal category, the second colour (cyan) is for normal to above normal rainfall conditions, while the third colour (yellow) represents the probability for normal to below normal rainfall and the last colour (brown) is for below-normal rainfall conditions.

INTERPRETATION OF THE OUTLOOK

Figures below show the outlook over overlapping three-monthly periods and the long-terms average for each period. The outlook has to be interpreted and understood in comparison with the long-term average of the area. For example, the yellow colour in Figure 2 depicts a high probability of rainfall occurring in the normal to below-normal category during January to March 2019 period. In the case over Zimbabwe, the high probabilities of the outlook implies that it's expecting to receive normal rainfall i.e. in the range of 200 to 300 mm (Fig.3) with a bias toward below-normal conditions (less than the above range of rainfall). In other words, Zimbabwe is expecting to receive normal rainfall between 200 and 300 mm. However there is a high risk that less than normal condition will be observed.

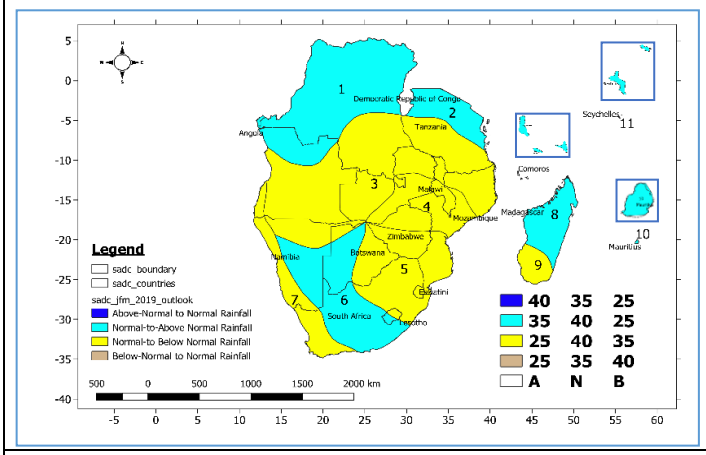

Figure 2: Rainfall forecast for January-February-March 2019

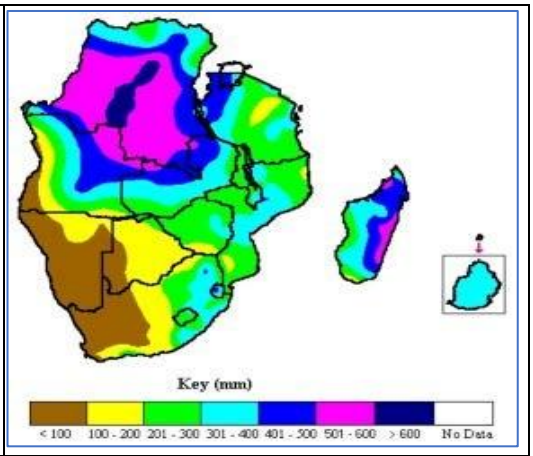

Figure 3: JFM Average rainfall (1971 - 2000)

Zone 1: Bulk of DRC and northernmost Angola.
Increased chances of normal to above-normal rainfall

Zone 2: Northernmost Tanzania.
Increased chances of normal to above-normal rainfall

Zone 3: Northern Mozambique, bulk of Tanzania, northern Malawi, northern and western Zambia, bulk of Angola, south eastern DRC, north-western tip of Botswana and northernmost Namibia.
Increased chances of normal to below-normal rainfall

Zone 4: Central Mozambique, southern Malawi, central Zambia and northern half of Zimbabwe.
Increased chances of normal to below- normal rainfall

Zone 5: Southern Mozambique, southern half of Zimbabwe, eastern half of Botswana, central and northern South Africa, Eswatini and eastern Lesotho.
Increased chances of normal to below-normal rainfall

Zone 6: Western half of Botswana, central to southern Namibia, western Lesotho and central South Africa.
Increased chances of normal to above-normal rainfall

Zone 7: South-western tip of Angola, western fringes of Namibia and South Africa.
Increased chances of normal to below-normal rainfall

Zone 8: Central and Northernmost Madagascar.
Increased chances of normal to above-normal rainfall

Zone 9: Southernmost Madagascar.
Increased chances of normal to below-normal rainfall

Zone 10: Mauritius.
Increased chances of normal to above-normal rainfall

Zone 11: Seychelles.
Increased chances of normal to above-normal rainfall

Zone 12: Comoros.
Increased chances of normal to above-normal rainfall

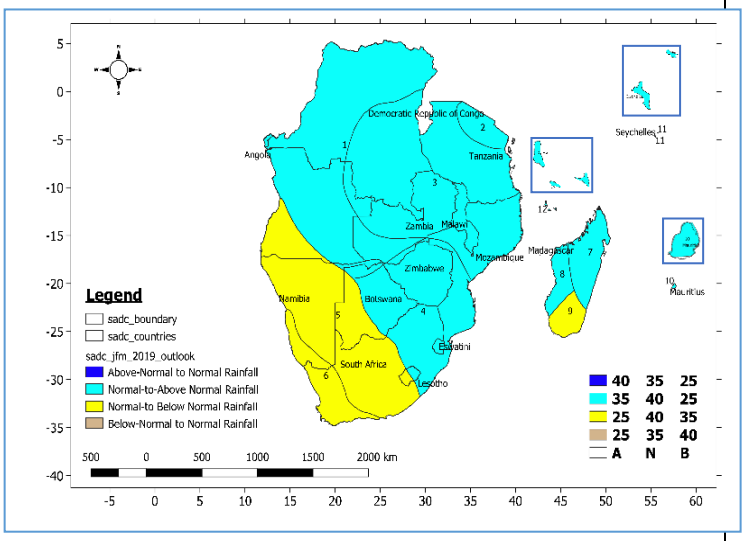

Figure 4: Rainfall forecast for February-March-April 2019

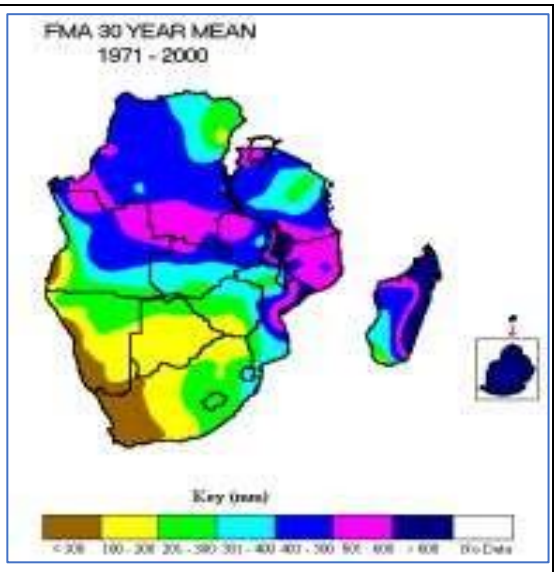

Figure 5: February-March-April long-term average rainfall

Zone 1: North-western of DRC, central Angola, north-eastern Namibia, north-western most Botswana and southern Zambia.
Increased chances of normal to above-normal rainfall

Zone 2: North-eastern Tanzania.
Increased chances of normal to above-normal rainfall

Zone 3: Northern half of Mozambique, bulk of Tanzania, Malawi, bulk of Zambia, eastern most Angola and south-eastern DRC
Increased chances of normal to above-normal rainfall

Zone 4: Southern fringes of Zambia, eastern half of Botswana, Zimbabwe, southern half of Mozambique, Eswatini, eastern parts of South Africa and eastern parts of Lesotho.
Increased chances of normal to above-normal rainfall

Zone 5: South-western Angola, bulk of Namibia, south-western half of Botswana, central South Africa and western Lesotho
Increased chances of normal to below-normal rainfall

Zone 6: Western fringes of Namibia and South Africa.
Increased chances of normal to below-normal rainfall

Zone 7: North-eastern Madagascar.
Increased chances of normal to above-normal rainfall

Zone 8: Western Madagascar.
Increased chances of normal to above-normal rainfall

Zone 9: Southernmost Madagascar.
Increased chances of normal to below-normal rainfall

Zone 10: Mauritius
Increased chances of normal to above-normal rainfall

Zone 11: Seychelles.
Increased chances of normal to above-normal rainfall

Zone 12: Comoros.
Increased chances of normal to above-normal rainfall

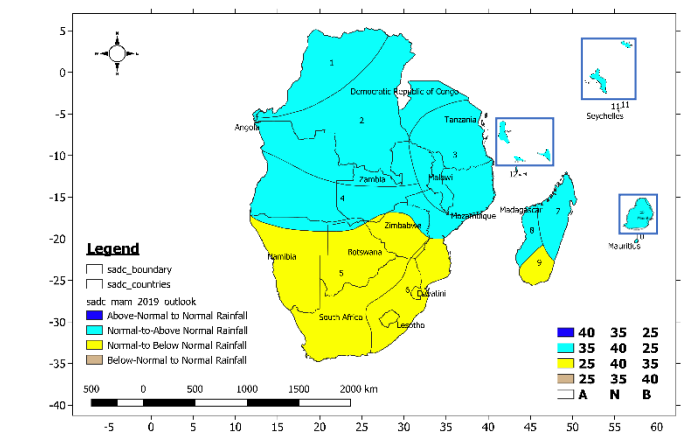

Figure 6: Rainfall forecast for March-April-May 2019

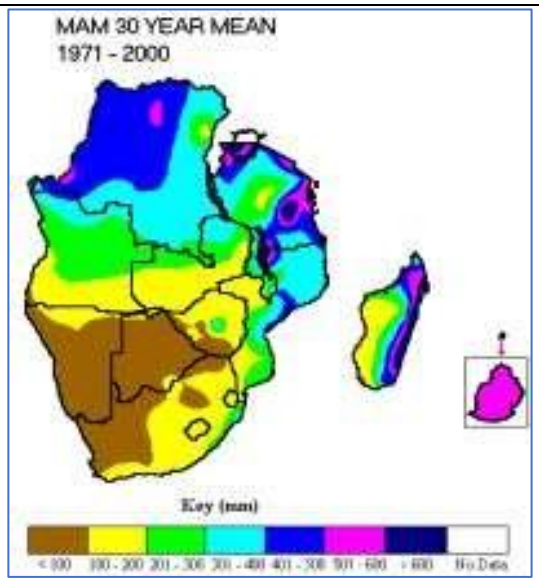

Figure 7: March-April-May long-term average rainfall

Zone 1: North-western most DRC.
Increased chances of normal to above-normal rainfall

Zone 2: North-eastern most of Tanzania, bulk of DRC, northern half of Angola and northern Zambia.
Increased chances of normal to above-normal rainfall

Zone 3: Northern Mozambique, bulk of Tanzania, Malawi and eastern Zambia.
Increased chances of normal to above-normal rainfall

Zone 4: Southern Zambia, north-eastern Zimbabwe, central parts of Mozambique, northernmost Botswana, northernmost Namibia and half of Angola.
Increased chances of normal to above-normal rainfall

Zone 5: Southern half of Zimbabwe, bulk of Botswana, bulk of South Africa and bulk of Namibia.
Increased chances of normal to below-normal rainfall

Zone 6: Southern Mozambique, eastern fringes of Zimbabwe, eastern parts of South Africa Lesotho and Eswatini.
Increased chances of normal to below-normal rainfall

Zone 7: North-eastern Madagascar.
Increased chances of normal to above-normal rainfall

Zone 8: Western Madagascar.
Increased chances of normal to above-normal rainfall

Zone 9: Southernmost Madagascar.
Increased chances of normal to below-normal rainfall

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Zone 12: Comoros.
Increased chances of normal to above-normal rainfall.

[i] **For more details, contact SADC CSC in Gaborone, Botswana Tel: +267-3951863; E-mail: registry@sadc.int.**