STATEMENT FROM THE TWENTY FIRST ANNUAL SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-21) MID-SEASON REVIEW AND UPDATE, SADC HEADQUARTERS, GABORONE, BOTSWANA, 5 – 8 DECEMBER 2017.

SUMMARY

The bulk of Southern African Development Community (SADC) is likely to receive normal to above-normal rainfall for most of the period January to May 2018. However, the extreme western part of Angola, Namibia, south-western part of South Africa, extreme northwest of DRC and eastern Madagascar are more likely to receive normal to below-normal rainfall for some of the seasons.

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

The Twenty first Annual Southern Africa Regional Climate Outlook Forum (SARCOF-21) mid-season review was held in Gaborone, Botswana 5 to 8 December 2017 to present a consensus outlook update for the 2017/2018 rainfall season over the SADC region. Climate scientists from the SADC National Meteorological and/or Hydrological Services (NMHSs), the SADC Climate Services Centre (CSC) formulated this update. Additional inputs were acquired from other global climate prediction centres namely, European Centre for Medium Range Weather Forecast (ECMWF), National Oceanic and Atmospheric Administration (NOAA), Beijing Climate Center (BCC), Météo-France and Bureau of Meteorology, Australia (BoM), Famine Early Warning Systems Network (FEWS NET), International Research Institute for Climate and Society (IRI), Korea Meteorological Agency, Japan Meteorological Agency (JMA) and UK Met Office. This update covers the rainfall season from January to May 2018. The outlooks are presented in overlapping three-monthly periods as follows: January-February-March (JFM); February-March-April (FMA); 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.

METHODOLOGY

Using statistical, other climate prediction schemes and expert interpretation, the climate scientists determined likelihoods of above-normal, normal and below-normal rainfall for each area (Figures 1 to 3) for overlapping three-monthly periods i.e. January-February-March (JFM); February-March-April (FMA); March-April-May (MAM). Above-normal rainfall is defined as lying within the wettest third of recorded (30 year, that is, 1971 -2000 and 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. The climate scientists took into account oceanic and atmospheric factors that influence our climate over SADC region. In particular, the Eastern and Central Tropical Pacific Ocean have cooled to weak La Nina level. Based on the predictions and expert assessment, the chance of La Niña continuing into the first quarter of 2018 is 70-75%.

SPONSORSHIP

The SADC Secretariat hosted the Twenty-First Annual Southern Africa Climate Outlook Forum (mid-season review and update). SADC Member States, African Development Bank, UNDP, and other partners provided support.

OUTLOOK

The period January to May is the second part of the main rainfall season over most of southern Africa. Owing to the differences and evolution patterns in the predominant rainfall-bearing systems, the rainy season has been subdivided into three overlapping three-month periods (i.e. JFM, FMA and MAM as defined above).

REVIEW OF THE CURRENT SEASONAL RAINFALL TREND (OCTOBER TO NOVEMBER 2017)

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 centered over the northern and eastern parts of SADC region.

2. Weak La Niña conditions were observed during October - November 2017. Negative sea surface temperature (SST) anomalies stretching across most of the eastern and central equatorial Pacific Ocean, will persist up to the first quarter of 2018.

3. The Indian Ocean Dipole (IOD) at a standstill neutral condition will evolve with a weak positive trend index (+0.1), as the monsoon trough transitions into the southern hemisphere. The strong positive IOD is associated with augmentation of rainfalls in parts of southern Africa.

4. An active Madden Julia Oscillation (MJO), which is defined as an eastward moving 'pulse' of cloud and rainfall near the equator that typically recurs every 30 to 60 days. Strong MJO activity is often observed during weak La Niña years or during ENSO-neutral years. The wet phase of enhanced convection and precipitation is followed by a dry phase where thunderstorm activity is suppressed. The current phase seven (7) of MJO (as of 10 December 2017) is associated with suppression of rainfall over northeast of the SADC region in the intra-seasonal scale.

The rainfall pattern associated with the climate driver induced the start of season during September in the northern part of the region. It progressed to the bulk of the region in October and November 2017. Above normal rains were received in most areas of the northern part and northeastern part of the sub-region. Whereas the central and southwestern parts of the region experienced normal to below normal rainfall condition during the normal start of the season months of October and November 2017 period. The figure one (1) below depicts the spatial distribution of percentage cumulative rainfall compared to normal during the first two months of the rainfall season and it is in contrast to what was observed last year during the same period of a weak La Nina condition.

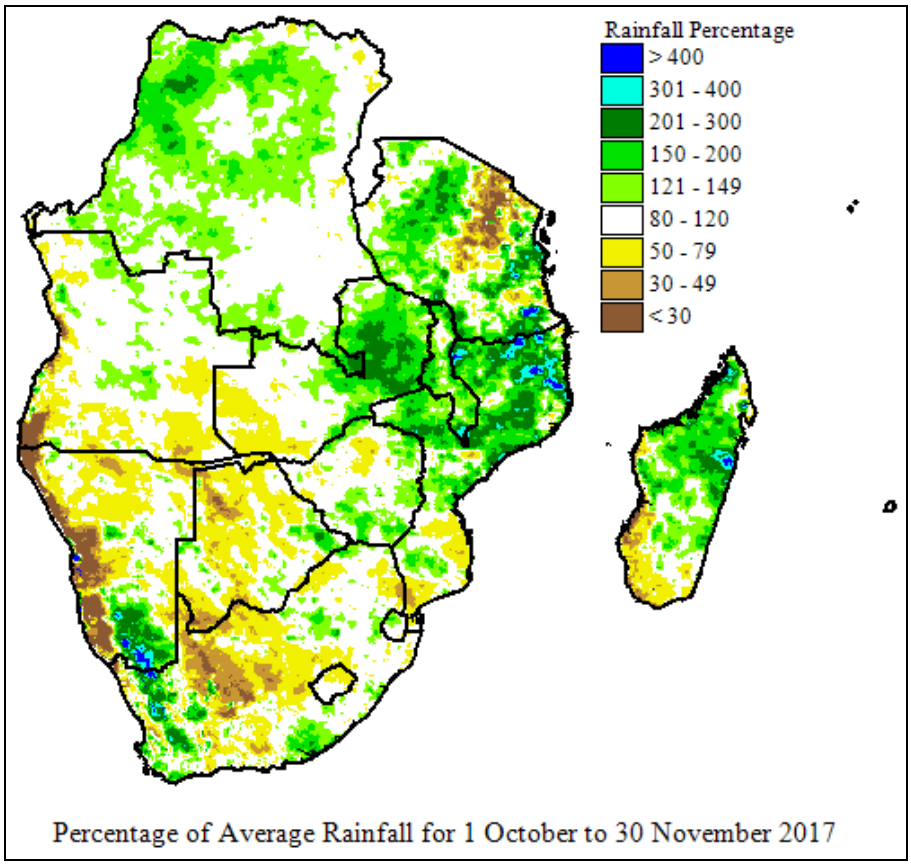

Fig.1: Percentage of average rainfall for 1 October to 30 November 2017

This review of the first two months of the current 2017/18 rainfall season so far shows various consistencies in some areas between the observed rainfall trend and the OND 2017 rainfall outlook released at SAR-COF-21.

OUTLOOK UPDATE

The current ENSO 2017-18 La Niña event is forecast to be short-lived and weak. As a result, the updated outlook with the recent climate driver factors gave the same outputs as those released in August 2017. Below are depicted the outlooks for January to March 2018, February to April 2018 and March to May 2018 periods.

JANUARY-FEBRUARY-MARCH 2018

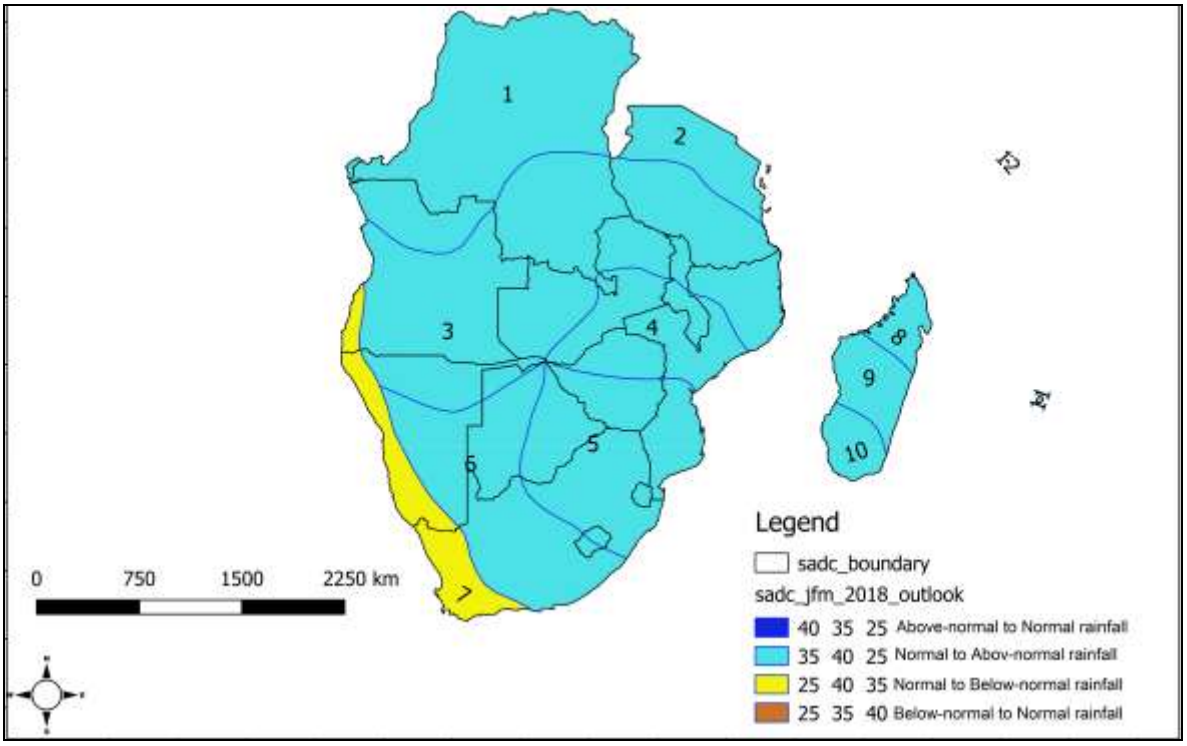

Fig 2: Rainfall forecast for January-February-March 2018

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, eastern Zambia, southern DRC.
Increased chances of normal to above-normal rainfall

Zone 4: Southern DRC, bulk of Angola, most of Namibia, western half of Botswana, most of central and western parts of South Africa and western parts of Lesotho.
Increased chances of normal to above-normal rainfall

Zone 5: Southern Zambia, southern Malawi, northern half of Zimbabwe and central parts of Mozambique.
Increased chances of normal to above-normal rainfall

Zone 6: Southern half of Zimbabwe, eastern half of Botswana, north and central South Africa, eastern Lesotho, Swaziland and southern Mozambique.

Increased chances of normal to above-normal rainfall

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

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

Zone 9: Central Madagascar.
Increased chances of normal to above-normal rainfall

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

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

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

FEBRUARY-MARCH - APRIL 2018

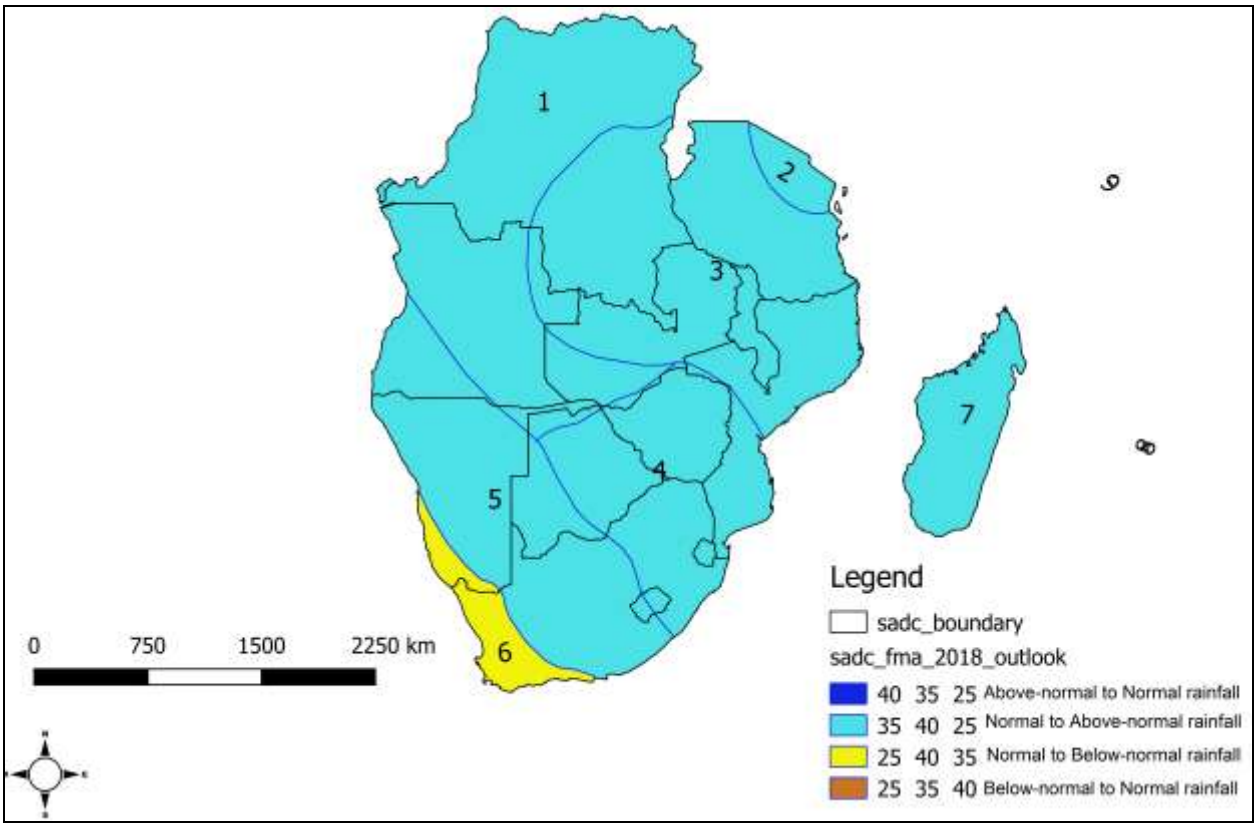

Fig 3: Rainfall forecast for February-March-April 2018

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

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

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

Zone 5: Southwestern Angola, bulk of Namibia, southwestern half of Botswana, north and central South Africa and eastern Lesotho
Increased chances of normal to above-normal rainfall

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

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

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

Zone 9: Seychelles.
Increased chances of normal to above-normal rainfall

MARCH-APRIL-MAY 2018

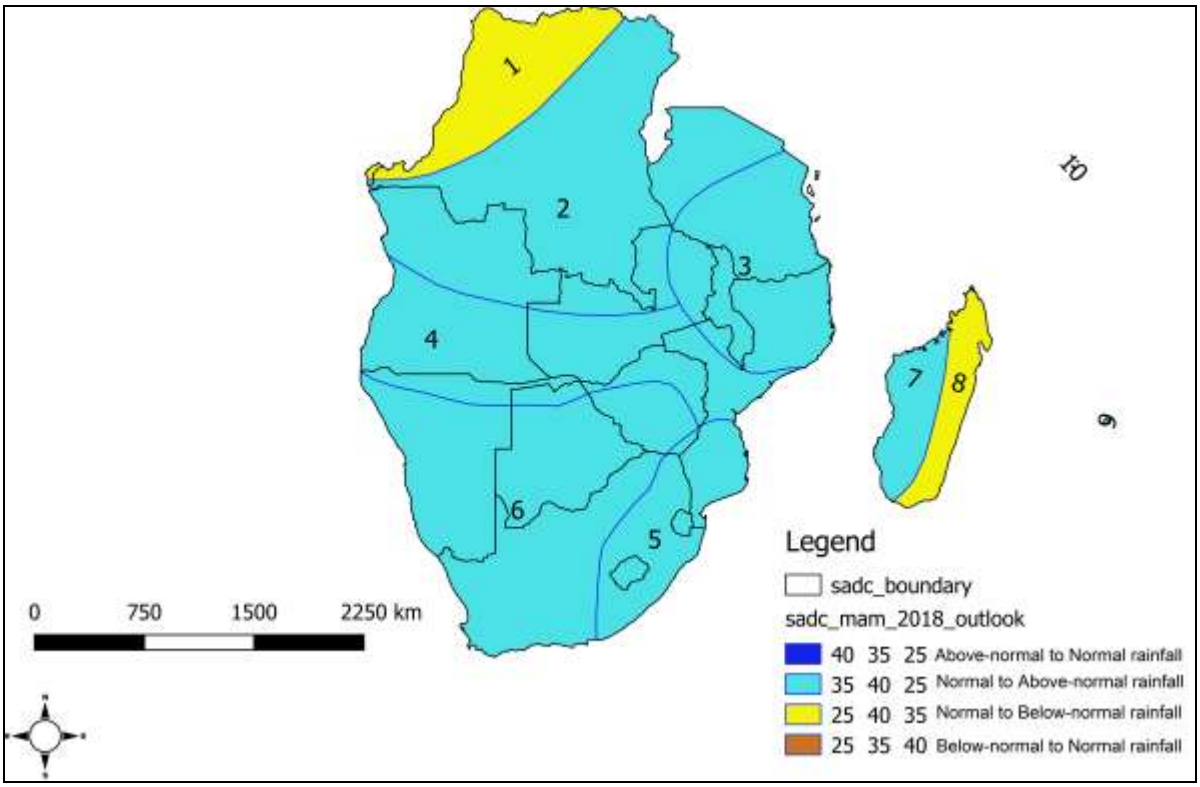

Fig 4: Rainfall forecast for March-April-May 2018

Zone 1: North-western most DRC.
Increased chances of normal to below-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, northern half of Zimbabwe, central parts of Mozambique, northernmost Botswana, northernmost Namibia and half of Angola.
Increased chances of normal to above-normal rainfall

Zone 5: Southern Mozambique, eastern fringes of Zimbabwe, eastern parts of South Africa Lesotho and Swaziland.
Increased chances of normal to above-normal rainfall

Zone 6: Southern half of Zimbabwe, bulk of Botswana, bulk of South Africa and bulk of Namibia.

Increased chances of normal to above-normal rainfall

Zone 7: Western half of Madagascar.
Increased chances of normal to above-normal rainfall

Zone 8: Easternmost Madagascar.
Increased chances of normal to below-normal rainfall

Zone 9: Mauritius.
Increased chances of normal to above-normal rainfall

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

FIGURE CAPTION

It is emphasized that boundaries between zones should be considered as transition areas. Forecast information is provided only for countries that comprise the Southern Africa Development Community (SADC) region. The numbers on the legend indicate the probabilities of rainfall in each of the three categories, above-normal, normal and below-normal. The left number indicates the probability of rainfall occurring in the above-normal category, the middle number is for normal and the right number is for below-normal. For example in Figure 4, for Zone 6, there is a 35% probability of rainfall occurring in the above-normal category; a 40% probability in the normal category; and 25% probability in the below-normal category.

Long-term Rainfall Means

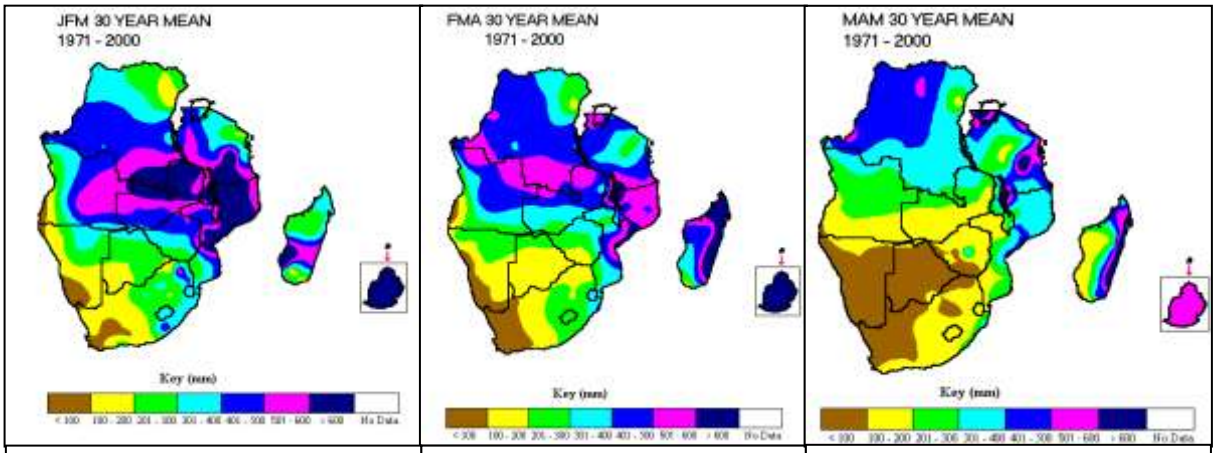

Figure 5a: Mean 30-Year rainfall over SADC countries for JFM (1971-2000)

Figure 5b: Mean 30-Year rainfall over SADC countries for FMA (1971-2000)

Figure 5c: Mean 30-Year rainfall over SADC countries for MAM (1971-2000)

Rainfall increases from southwest to northeast over contiguous SADC during the JFM and FMA periods. During MAM, most of the region receives little rainfall except in northwestern DRC, eastern Tanzania, eastern Madagascar and Mauritius. Over Madagascar, the rains increase from west to east, while the rains are more uniformly distributed in Mauritius during the January-February-March (JFM) period (Figure 5a). There is a northward shift in the rainfall during the February-March-April (FMA) period over contiguous SADC with east to west increases in rainfall over Madagascar and uniformly distributed rainfall in Mauritius (Figure 5b). In the March-April-May (MAM) period, the rainfall is significantly reduced over contiguous SADC. An east to west decrease is also evident over Madagascar and Mauritius continues to have uniformly distributed rainfall (Figure 5c). The legend shows the amounts in millimetres.