



## **STATEMENT FROM THE TWENTIETH ANNUAL SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-20), HARARE INTERNATIONAL CONFERENCE CENTRE, HARARE, ZIMBABWE, 24 – 26 AUGUST 2016.**

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### **SUMMARY**

The bulk of Southern African Development Community (SADC) is likely to receive normal to above-normal rainfall for most of the period October to December (OND) 2016 and the January to March (JFM) 2017. However, northernmost Democratic Republic of Congo (DRC) northern Angola, most Tanzania, northern Mozambique, the islands states of Seychelles and eastern-most Madagascar are more likely to receive normal to below-normal rainfall most of the season.

### **THE TWENTIETH ANNUAL SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM**

The Twentieth Annual Southern Africa Regional Climate Outlook Forum (SARCOF-20) was held in Harare, Zimbabwe 24 to 26 August 2016 to present a consensus outlook for the 2016/2017 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 outlook. 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 outlook covers the major rainfall season from October 2016 to March 2017. The outlooks are presented in overlapping three-monthly periods as follows: October-November-December (OND); November-December-January (NDJ); December-January-February (DJF); and January-February-March (JFM)

**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 4) for overlapping three-monthly periods i.e. October-November-December (OND), November-December-January (NDJ); December-January-February (DJF); and January-February-March (JFM). 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 El Niño-Southern Oscillation (ENSO) is foreseen to be shifting from the warm, through neutral to cold phase, also referred to as La Niña, during the bulk of the rainfall season.

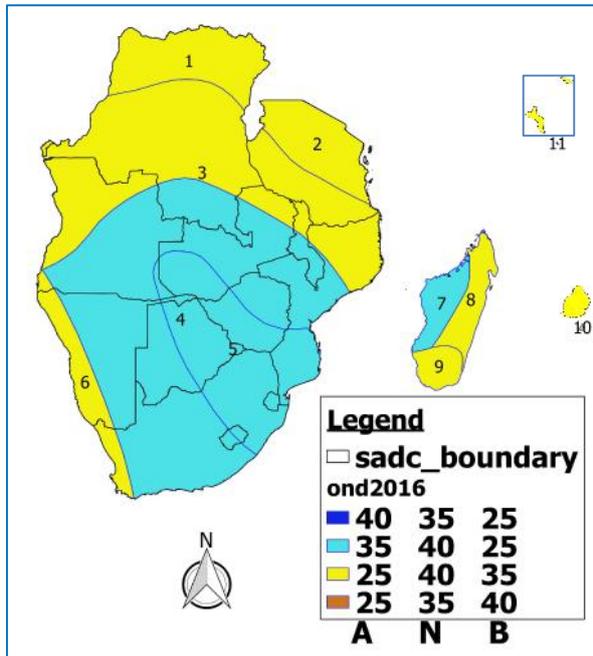
## **OUTLOOK**

The period October to March is 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 four overlapping three-month periods (i.e. OND, NDJ, DJF and JFM as defined above).

## **SPONSORSHIP**

The Twentieth Annual Southern Africa Climate Outlook Forum was hosted by the Meteorological Services of Zimbabwe. Support was provided by Government of the Republic of Zimbabwe, SADC, United Nations Development Programme (UNDP), African Development Bank, Food and Agricultural Organization of the United Nations, and other partners.

**OCTOBER-NOVEMBER-DECEMBER 2016**



**Fig 1: Rainfall forecast for October-December 2016**

**Zone 1:** Northern Democratic Republic of Congo (DRC).  
**Increased chances of normal to below-normal rainfall**

**Zone 2:** Northern Tanzania.  
**Increased chances of normal to below-normal rainfall**

**Zone 3:** Northern Mozambique, southern Tanzania, northern Malawi, northernmost Zambia, bulk of DRC and north-western half of Angola.  
**Increased chances of normal to below-normal rainfall**

**Zone 4:** Central Mozambique, southern Malawi, northern half of Zimbabwe, most of Zambia, southernmost DRC, south-eastern half of Angola, bulk of Namibia, western half of Botswana, most of central and western parts of South Africa, western parts of Lesotho.  
**Increased chances of normal to above-normal rainfall**

**Zone 5:** Extreme south-western Zambia, Caprivi area, south-easternmost Angola, south-western half of Zimbabwe, eastern half of Botswana, most of northern South Africa, Swaziland and southern Mozambique.  
**Increased chances of normal to above-normal rainfall**

**Zone 6:** South-westernmost Angola and western coastal areas of Namibia and South Africa.  
**Increased chances of normal to below-normal rainfall**

**Zone 7:** Western Madagascar.

**Increased chances of normal to above-normal rainfall**

**Zone 8:** Eastern Madagascar.

**Increased chances of normal to below-normal rainfall**

**Zone 9:** Southern Madagascar

**Increased chances of normal to below-normal rainfall**

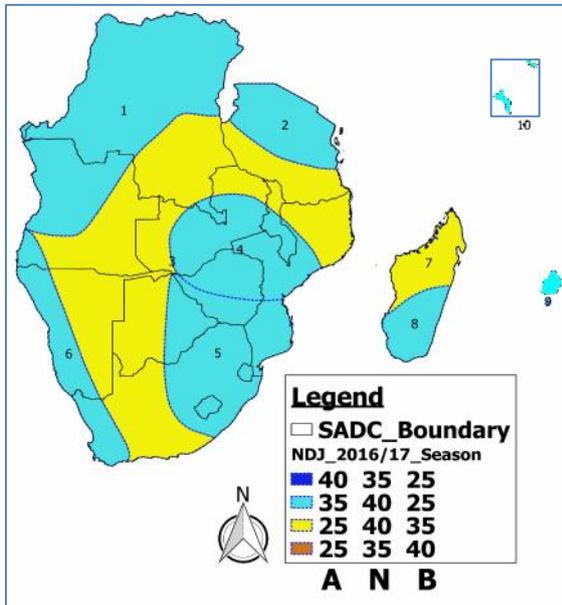
**Zone 10:** Mauritius.

**Increased chances of normal to below -normal rainfall**

**Zone 11:** Seychelles.

**Increased chances of normal to below-normal rainfall**

**NOVEMBER-DECEMBER 2016-JANUARY 2017**



*Fig 2: Rainfall forecast for November-December 2016-January 2017*

**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 and eastern Zambia.  
**Increased chances of normal to below-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.  
**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, 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:** Western of Madagascar.

**Increased chances of normal to above-normal rainfall**

**Zone 9:** Eastern Madagascar.

**Increased chances of normal to above-normal rainfall**

**Zone 10:** Southernmost Madagascar.

**Increased chances of normal to above-normal rainfall**

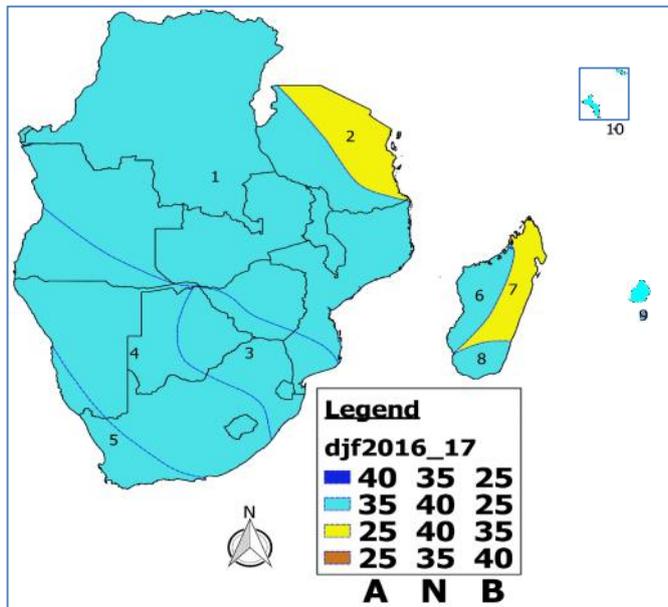
**Zone 11:** Mauritius.

**Increased chances of normal to above-normal rainfall**

**Zone 12:** Seychelles.

**Increased chances of normal to above-normal rainfall**

**DECEMBER 2016-JANUARY-FEBRUARY 2017**



*Fig 3: Rainfall forecast for December 2016-January-February 2017*

**Zone 1:** DRC, Zambia, Malawi, bulk of Angola, most of Zimbabwe, greater part of Mozambique and western half of Tanzania.

**Increased chances of normal to above-normal rainfall**

**Zone 2:** Eastern half of Tanzania.

**Increased chances of normal to below-normal rainfall**

**Zone 3:** South-western Angola, most of Namibia, western half of Botswana, most of central and western parts of South Africa and Lesotho.

**Increased chances of normal to above-normal rainfall**

**Zone 4:** Southern third 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 5:** South-western fringe of Namibia and south-western South Africa.

**Increased chances of normal to above-normal rainfall**

**Zone 6:** Bulk of Madagascar.

**Increased chances of normal to above-normal rainfall**

**Zone 7:** Southernmost Madagascar.

**Increased chances of normal to below-normal rainfall**

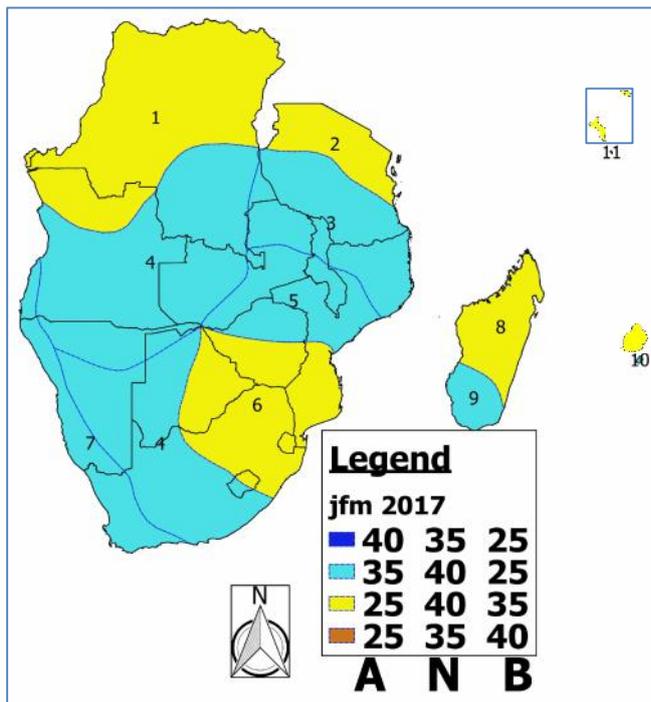
**Zone 8:** Mauritius.

**Increased chances of normal to above-normal rainfall**

**Zone 9:** Seychelles.

**Increased chances of normal to above-normal rainfall**

#### JANUARY-FEBRUARY-MARCH 2017



*Fig 4: Rainfall forecast for January-February-March 2017*

**Zone 1:** Bulk of DRC and northernmost Angola.

**Increased chances of normal to below-normal rainfall**

**Zone 2:** Northernmost Tanzania.

**Increased chances of normal to below-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 below-normal rainfall**

**Zone 7:** South-westernmost Angola, western fringes of Namibia and South Africa.

**Increased chances of normal to above-normal rainfall**

**Zone 8:** Bulk of Madagascar.

**Increased chances of below-normal to normal rainfall**

**Zone 9:** Southernmost Madagascar.

**Increased chances of normal to above-normal rainfall**

**Zone 10:** Mauritius.

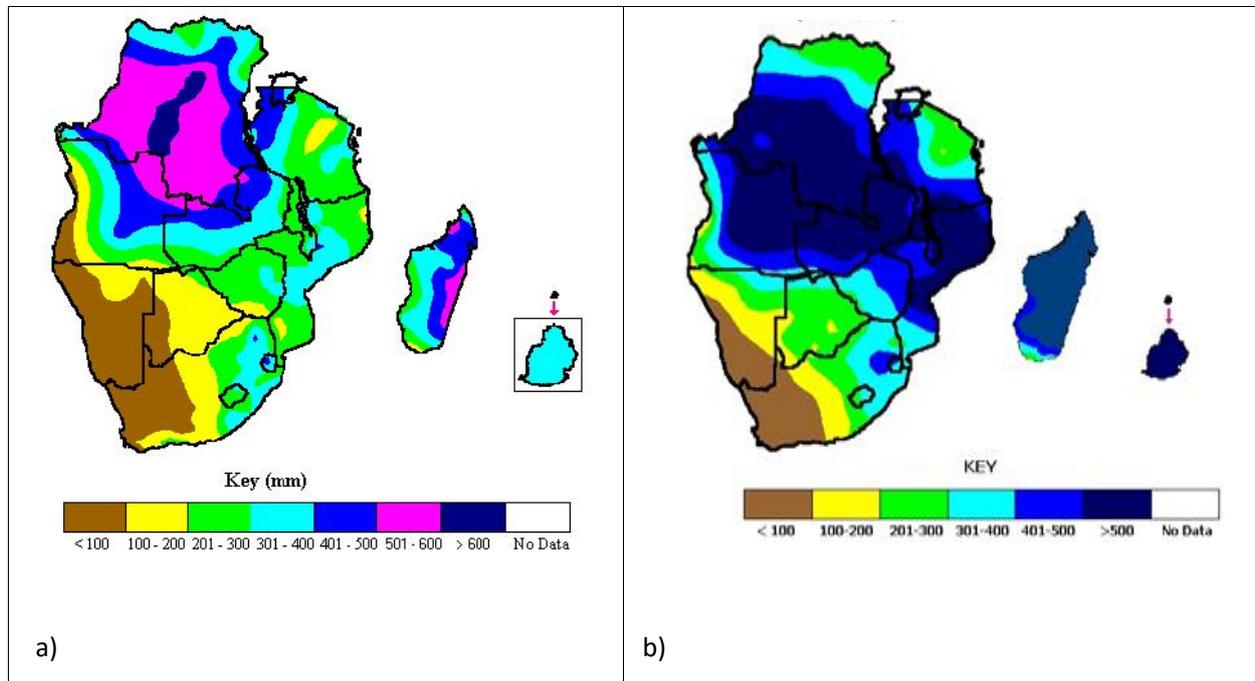
**Increased chances of normal to below-normal rainfall**

**Zone 11:** Seychelles.

**Increased chances of normal to below-normal rainfall**

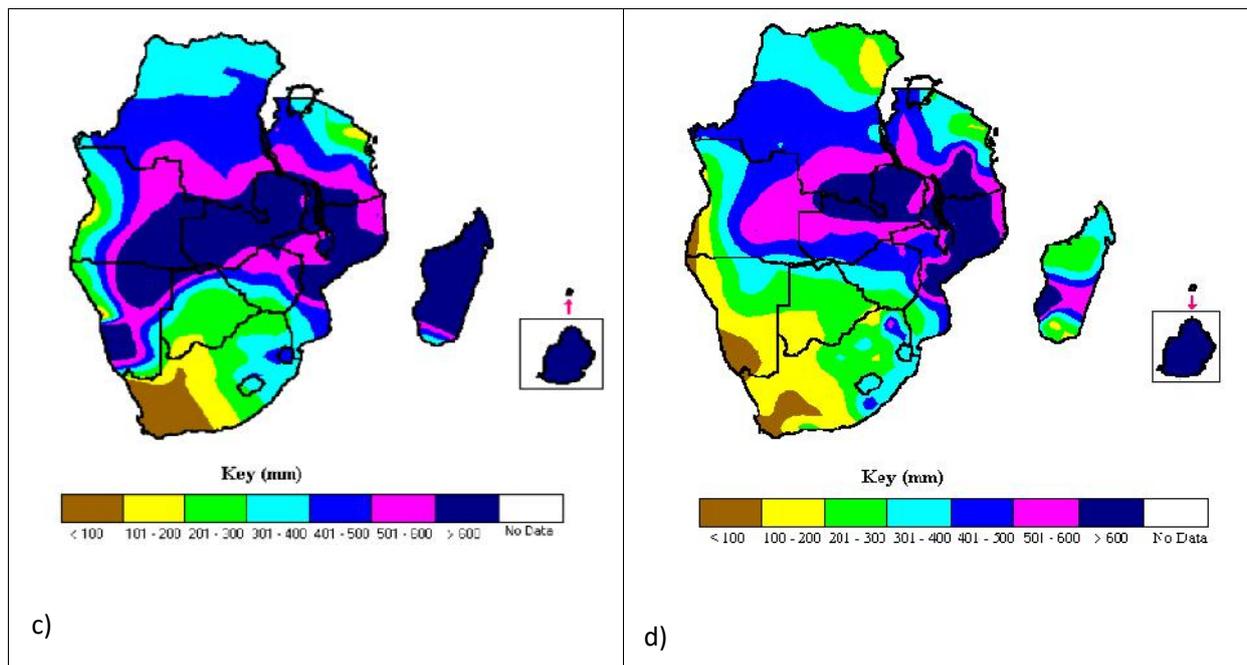
### ***FIGURE CAPTION***

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 for each zone indicate the probabilities of rainfall in each of the three categories, below-normal, normal and above-normal. The top number indicates the probability of rainfall occurring in the above-normal category, the middle number is for normal and the bottom number is for below-normal. For example in Figure 4, for Zone 6, there is a 25% probability of rainfall occurring in the above-normal category; a 40% probability in the normal category; and 35% probability in the below-normal category.



**Figure 5 Long-term mean rainfall over SADC countries (a) October-November-December (1971-2000), (b) November-December-January (1961-1990)**

The long-term mean October-November-December rainfall increases from southwest to northeast over contiguous SADC in either case. Over Madagascar the rains increase from west to east, while the rains are more uniformly distributed in Mauritius, Figure 5(a). The November-December-January long-term mean total rainfall shows maxima of above 500 millimetres over much of Malawi, Zambia, Angola, southern half of DRC, central and northern Mozambique as well as Mauritius, Madagascar and Seychelles, Figure 5(b). The remainder of the region receives rainfall less than 400 millimetres gradually decreasing south-westwards to southwest South Africa and Namibia where the mean rainfall is below 100 millimetres. The legend shows the amounts in millimetres.



**Figure 5 Long-term mean rainfall over SADC countries (c) December-January-February (1961-2000) and (d) January-February-March (1971-2000)**

The long-term mean for December-January-February rainfall shows maxima of above 600 millimetres over much of Malawi, Zambia, Angola, southern half of DRC, central and northern Mozambique as well as Mauritius, Madagascar and Seychelles, Figure 5(c). The remainder of the region receives rainfall less than 400 millimetres gradually decreasing south-westwards to southwest South Africa and Namibia where the mean rainfall is below 100 millimetres. The January-February-March shows a significant reduction in the rainfall received in most of the southern parts of the region with the central and eastern parts remaining wet, Figure 5(d). Mauritius shows sustained rainfall pattern over the while Madagascar shows a decline of rainfall in most parts except the extreme south western parts of the country.