



# Food Security Early Warning System

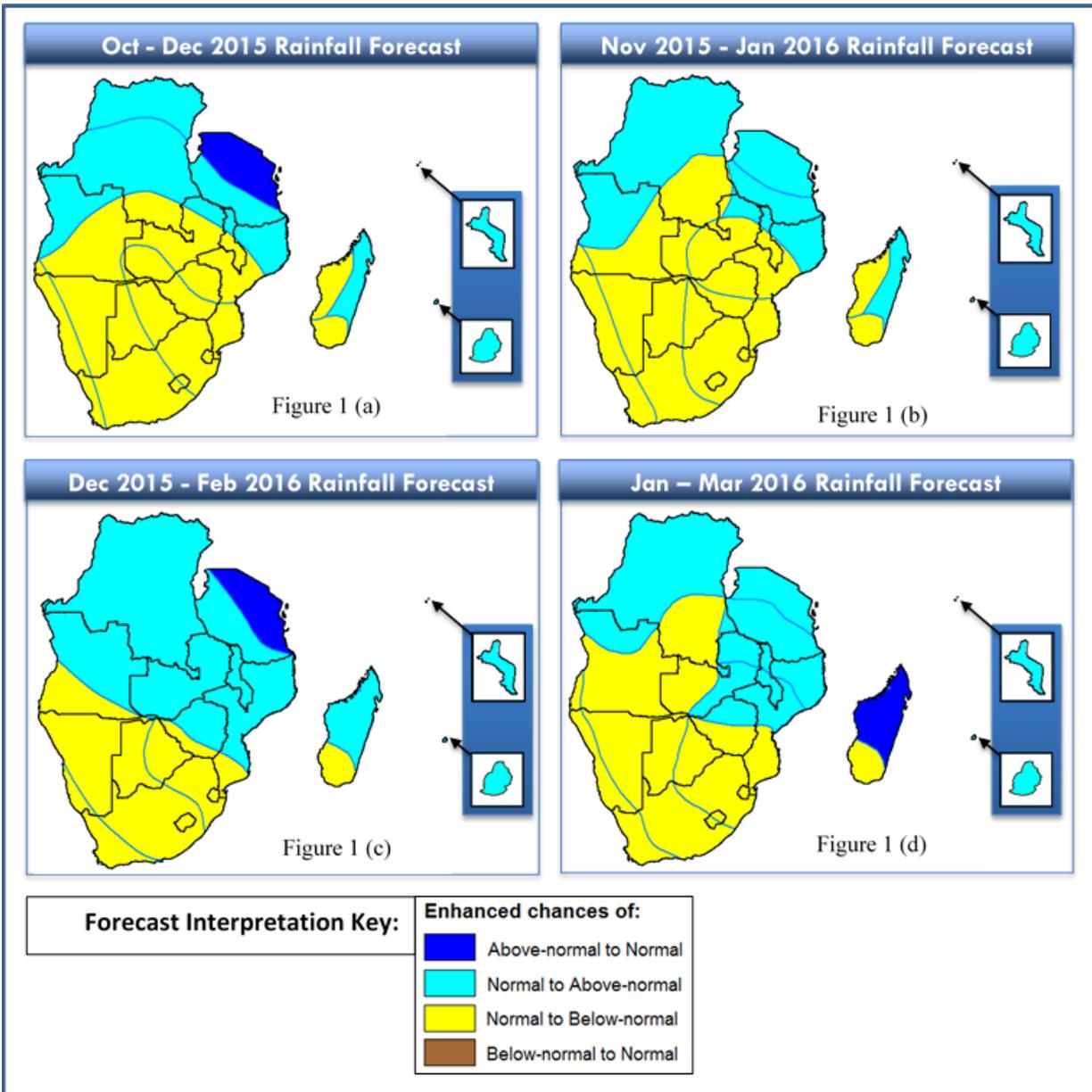
## Agromet Update

### 2015/2016 Agricultural Season



Issue 01 Month: September Season: 2015-2016 Release date: 29-09-2015

## Rainfall Forecast for the 2015/2016 Agricultural Season



Source: Forecast graphics derived from forecast issued by SARCOF.

This bulletin is prepared in collaboration with USAID/FEWSNET. For more details, contact SADC FANR Directorate, Gaborone, Botswana. Tel: +267-3951863; E-mail: [registry@sadc.int](mailto:registry@sadc.int); Web: [www.sadc.int/fanr](http://www.sadc.int/fanr)

## Overview of the SARCOF Forecast

The Nineteenth Southern Africa Regional Climate Outlook Forum (SARCOF-19) was convened from 26 to 28 August 2015 in Kinshasa, Democratic Republic of Congo, by the SADC Climate Services Centre (CSC) to formulate consensus guidance for the 2015/2016 rainfall season over the SADC region. A series of rainfall outlooks covering the period October 2015 to March 2016 was prepared by climate scientists from the National Meteorological and Hydrological Services of the SADC region and the SADC CSC.

Four seasonal forecasts were issued at the SARCOF, covering the periods October to December 2015 (figure 1a), November 2015 to January 2016 (figure 1b), December 2015 to February 2016 (figure 1c), and January to March 2016 (figure 1d). According to the SARCOF, the northern part of the SADC region is expected to receive normal to above-normal rainfall (light blue colours) throughout the forecast period, while the southern and central parts of the region are expected to receive normal to below-normal rainfall throughout the forecast period. The exceptions are as follows:

1. North-eastern Tanzania was determined to have higher chances of receiving above-normal to normal rainfall in the October-December period, which covers the short *Vuli* season in the bi-modal parts of Tanzania.
2. Areas in northern and central Madagascar have enhanced chances for above-normal to normal rainfall in January to March.
3. Much of Angola, Malawi, Mozambique, Zambia and Zimbabwe have increased chances of receiving normal to above-normal rainfall during the December-February period.
4. Malawi, northern/central Mozambique, eastern/central Zambia and northern Zimbabwe have greater chances of receiving normal to above-normal rainfall during the January to March period.

The potential impacts of these most likely outcomes need to be considered in the context of normal rainfall amounts, rain bearing systems, soil moisture levels, water availability, grazing conditions, and current food security status in the different areas where the forecast is being applied.

## Interpretation of Forecast Maps (Figure 1)

Figure 1 is a simplification of the SARCOF forecast. The figure represents chances of 3 different rainfall scenarios occurring, namely above-normal, normal, or below-normal rainfall. The rainfall scenarios considered are focusing on 3-month rainfall totals (total rainfall for October to December, November to January, December to February, and January to March, for figures 1a, 1b, 1c, and 1d, respectively). The colours on the maps can be interpreted as follows:

: The dark blue areas (“Above-to-normal”) are areas where the highest likelihood is for above-normal rainfall, though there are significant chances of normal rainfall occurring. Below-normal rainfall is less likely in these areas, though there are still some chances that it can occur.

: The light blue areas (“Normal-to-above”) are areas where the highest likelihood is for normal rainfall, though there are significant chances of above-normal rainfall. Below-normal rainfall is less likely in these areas, though there are still some chances that it can occur.

: The yellow areas (“Normal-to-below”) are areas where the highest likelihood is for normal rainfall, though there are significant chances of below-normal rainfall occurring. Above-normal rainfall is less likely in these areas, though there are still some chances that it can occur.

## Using SARCOF Forecasts:

Users should note that the SARCOF forecast is a consensus forecast designed for a regional audience. The forecast zone-boundaries shown in the map are not exact, and can transition over large areas due to the variability of rain-bearing climate systems. Users requiring higher accuracy, national-level forecasts should contact the respective national meteorological agencies for downscaled national seasonal forecasts, as well as updates to those forecasts, which can increase in accuracy as the lead time to the forecast decreases.

Users are advised when applying the forecast, to take into account the relative lead times associated with the different forecasts. Due to various factors, forecast models generally have lower accuracy for longer lead times, though this is not always the case. The SADC CSC will issue updates throughout the rainfall season.

## Agrometeorological Interpretation of SARCOF Forecast in the Context of Current Conditions

The normal to below-normal rainfall forecast in most southern and central parts of the region suggests moderate prospects for agriculture in parts of the region. In general, most areas in the SADC region experience an onset of rains between October and December, and the October-November-December (OND) forecast can therefore be associated with the start of the rainfall season. From this perspective, the expected normal to below-normal rains may be associated with a possibly slow or erratic start to the rainfall season for most southern areas. The current normal to above-normal OND forecast for the northern parts of the region suggests better chances of a good onset of rains for most areas. However, it should be noted that the forecast does not address the timing or intensity of the rains, but only rainfall totals, summed over the three-month period from October to December.

The forecasts that cover the December-March periods give an indication of the rainfall performance at the time of the season when most of the SADC region generally receives the greater part of its rainfall. This is indicative of general season potential from a perspective of seasonal rainfall totals. The normal to below-normal rainfall forecast in the central and southern areas suggests the potential for average to reduced rainfall totals. Areas that usually experience low annual rainfall totals, and have a forecast for normal to below-normal rainfall for the coming season, need to consider drought-tolerant agricultural activities, such as planting of drought tolerant crops and short maturing varieties, conservation agriculture, and destocking strategies.

Climate-smart agricultural decisions for the coming season are particularly important in light of the poor rainfall received in many areas during the 2014-2015 season. Figure 2 shows the January to March 2016 rainfall forecast overlaid with the areas that received low rainfall in 2014-2015, based on an analysis of satellite rainfall estimates. The areas in red stripes in

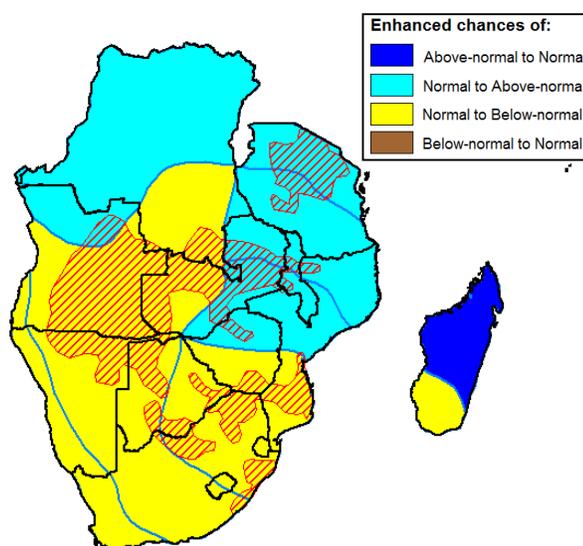


Figure 2. JFM 2016 rainfall forecast overlaid with areas that in 2014/2015 received some of their lowest Oct-Mar seasonal rainfall totals since 2001 (red striped areas).

Figure 2 received in 2014-2015 some of their lowest Oct-Mar seasonal rainfall totals since 2001. The low rains received in these areas had major impacts on crop production, rangeland condition, water availability, and energy supplies in many areas, with some areas experiencing water rationing and increased load-shedding, while others had notable deterioration in livestock condition due to reduced pasture. Satellite imagery of vegetation indices also show below average vegetation conditions in many parts of the region, with negative implications for grazing conditions in areas that are predominantly rangeland. Most countries also experienced a reduction in crop production in 2014/2015, and an overall regional cereal deficit of over 6 million tons was recorded.

The potential for reduced rains in the coming season implies a possibility for the continuation or intensification of these negative conditions. Compounding this is the fact that most international forecasting centres are forecasting high chances for above-normal temperatures during the 2015-2016 season. Such high temperatures will increase evapotranspiration rates, thereby decreasing soil moisture and increasing the amount of water required by crops (and therefore, the amount of rainfall needed), and will also increase the rate of water loss from reservoirs. High temperatures also increase chances of heat stress to crops and livestock, particularly in areas with a hot climate. Seasonal preparedness and planning activities in these areas will need to take into account the possibility for receiving low rainfall, without overlooking the potential for flooding in flood-prone areas. It should be noted though that in most areas, the most likely outcome, according to the SARCOF forecast, is for normal conditions. Normal rainfall in traditionally high-rainfall areas will help to alleviate the dry conditions; however, in marginal areas, above-normal rainfall may be needed in the coming season to offset the prevailing dry conditions arising from the previous season.

Despite the somewhat depressed nature of the forecast in the southern half of the region, it should be noted that this remains a probabilistic forecast, and the less likely outcomes presented in the forecast can still occur. For example, weather systems that are highly unpredictable months in advance, such as tropical cyclones and persistent low pressure systems, have the potential to completely change seasonal rainfall totals in some areas. Seasonal planning processes should therefore take cognizance of the possibility for a successful season if the opportunity to plant on time is utilized.

In areas that were affected by low rainfall last year, and where normal to above-normal rainfall is forecast (red-striped, light-blue areas in Figure 2), there is an increased opportunity for recovery from the dryness of the previous season. This is more likely in the northern parts of the region, which generally have a higher chance of normal to above-normal rainfall.

## **El Niño**

The ongoing El Niño event has high chances of continuing throughout the 2015/2016 rainfall season. El Niño influences rainfall patterns in many parts of the world, and in southern Africa El Niño generally tends to be associated with reduced precipitation in *some* southern and central parts of the region, and enhanced precipitation in some of the northern parts of the region, although the impacts can vary from year to year. For example, some southern areas have received good rains during a few El Niño years. Conditions of the atmosphere and the oceans in the Indian Ocean and other areas can modify the El Niño impacts, so a comprehensive assessment of the potential impacts should ideally be undertaken by, or in consultation with, climatologists. In producing the SARCOF forecast, climate experts from the SADC countries considered oceanic and atmospheric factors that influence climate over SADC region, including the El Niño.