



# Food Security Early Warning System Agromet Update



## 2018/2019 Agricultural Season

Issue 02 Month: December

Season: 2018-2019

20-12-2018

### Highlights

- Well-below average rainfall has been received in most parts of the region since October, although recent improvements were experienced in some eastern areas
- The low rains have been associated with a delayed season onset in western, central and southern parts of the region. Some areas experienced delays in season onset of 30 to 40 days
- Pasture and livestock conditions deteriorated, and drought-related livestock deaths were reported
- Seasonal forecasts for reduced rainfall continue to raise concerns of potentially negative impacts on crop harvests

### Regional Summary

Total rainfall from October to early December 2018 was below average in most parts of the region, particularly the central and western parts of the region (Figure 1). Angola, southern DRC, western Zambia, south-eastern South Africa, and western/central parts of Madagascar had the largest negative rainfall anomalies. These dry spells generally came around the time when the season typically starts, resulting in a delay in onset. Most parts of the region typically receive planting rains in November. Little to no rain fell in the first 20 days of November in most parts of the region, excluding northern parts of the region, central and eastern Madagascar, Eswatini, and eastern South Africa, where significant rainfall was received (Figure 3a). From late November to early December, rainfall increased significantly in most parts of the region, particularly Malawi, central and southern Mozambique, eastern Zambia, and parts of Zimbabwe (Figure 3b), where above normal rainfall was received. The high rains however led to flooding in parts of Malawi.

The above normal rains received in some parts of the region in late November and early December signified the onset of rains (Figure 2, light green colours and orange colours, respectively). Most parts of the region have by now experienced a start of the rainfall season, except for a number of areas in the south-western parts of the region (Figure 2, yellow and grey colours). In a number of these no-start areas, the season is now 30 days late or more (Figure 2, dark grey colours). These include parts of southern Angola, northern Namibia, central and southern South Africa, and western Zambia. The ongoing delay in establishment of planting rains is likely to cause reductions in end-of-season crop harvests if it continues much longer. If planting occurs very late in the season, the seasonal cycle of rainfall may end before the

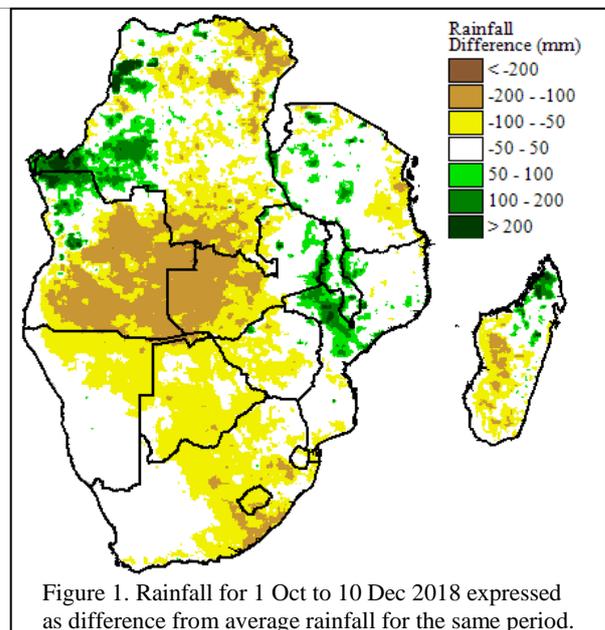


Figure 1. Rainfall for 1 Oct to 10 Dec 2018 expressed as difference from average rainfall for the same period.

Source: USGS/FEWSNET

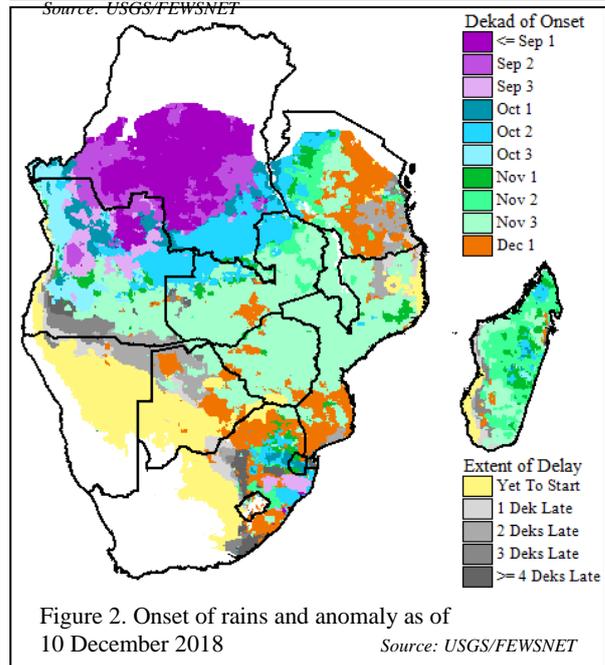


Figure 2. Onset of rains and anomaly as of 10 December 2018

Source: USGS/FEWSNET

crops have reached maturity and before harvesting is possible. Additionally, in cold areas such as Lesotho and parts of South Africa, the onset of frost may occur before crops have reached maturity, thereby causing significant reductions in yield. Agronomic advisory departments in different countries have established a range of thresholds for different areas, specifying the latest dates on which farmers can plant maize with a reasonable chance for good harvests – agronomists generally recommend that farmers avoid planting maize after these cut-off dates, due to the previously outlined risks. These dates generally range from mid-December to mid-January, varying by area. Despite the increased risk in reduced yields with late planting, the last few seasons have had several incidents in which farmers planted as late as January in some cases, but rains extended late into the season, and favourable overall national production was realized. These observations have prompted theories of the possibility of a shift in seasons in some areas. Relevant national research institutions may investigate this further in order to determine whether there is a need to update recommended practices. However, the commonly held view is that significant delays in planting increase risk of reduced yields, and appropriate measures should be taken where possible.

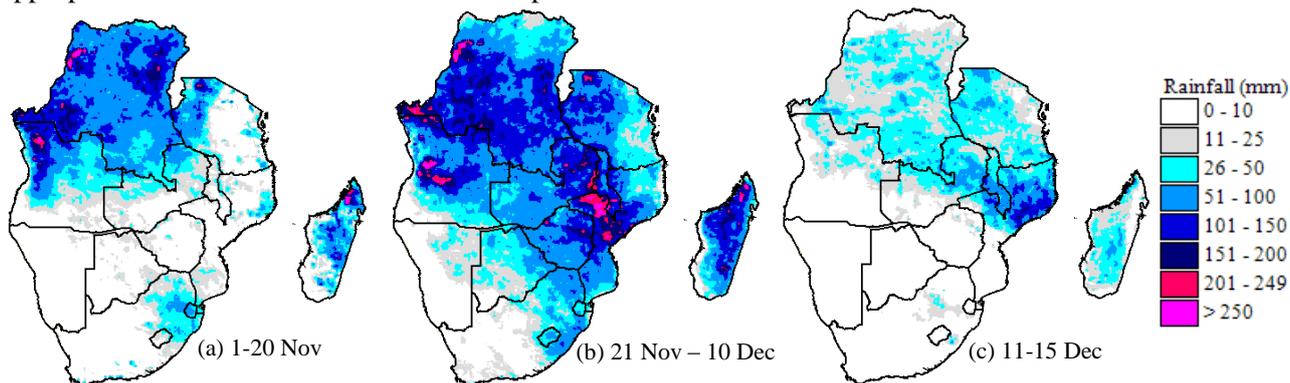


Figure 3. Rainfall for the 1 Nov to 15 Dec 2018 period.

Source: USGS/FEWSNET

It should be further noted that the recent onset of rains that occurred and were noted in Figure 2 have not yet been confirmed in many areas. Planting is assumed to have occurred after significant rains occur (at least 25mm of rainfall over one dekad), but follow-up rains are required within 2 dekads of the initial planting rains in order to ensure good germination and establishment of the crop. In cases where follow-up rains have not occurred, a false start is assumed, and replanting may be required where farmers had planted. From the 11<sup>th</sup> to the 15<sup>th</sup> of December 2018 (Figure 3c), follow-up rains were received in much of Malawi, northern Mozambique and eastern Zambia, promoting potential establishment of any field crops planted in late November/early December. In contrast, rainfall reduced significantly during the same period in central parts of the region, including southern Mozambique, eastern South Africa, Botswana, southern and western Zambia, and Zimbabwe. Short term forecasts suggest the likely continuation of the dry trend in many of these areas, and close field-based monitoring is required to check the status of early crop growth, as some crops could potentially be affected by early moisture stress if the dryness continues as forecast.

The below-average rainfall received in many parts of the region since October has resulted in a reduction in vegetation greenness compared to average conditions, as shown by the satellite-based normalized difference vegetation index, or NDVI (Figure 4, brown areas). Some of the most affected regions for the agricultural sector are those areas that are primarily grazing lands, as this implies a reduction in the pastures typically available at this phase of the season. Many parts of southern Angola, Namibia, Botswana, South Africa, Lesotho, Zambia, Zimbabwe, Mozambique and Madagascar registered well-below average NDVI. An assessment done in early November by the Botswana government identified poor grazing conditions and expectations for continued deterioration of livestock

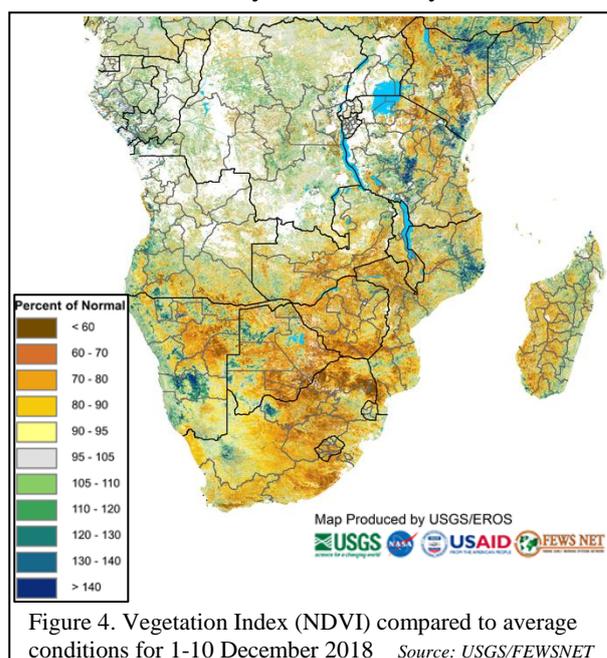


Figure 4. Vegetation Index (NDVI) compared to average conditions for 1-10 December 2018 Source: USGS/FEWSNET

conditions. A November national report from South Africa also noted poor veld and livestock conditions in most provinces, including some reports of drought-related livestock deaths. Livestock in poor condition due to the dry conditions and low pasture availability were also recently noted in parts of Botswana and Namibia. With the currently reported status of pastures and livestock, the low rainfall received so far this season, and the forecasts for continued low rainfall in both the short term and at the seasonal scale, the prevailing situation is a cause for concern in the livestock sector.

A heat wave in mid-November negatively affected agricultural production in some countries. Botswana and South Africa meteorological agencies both issued heat wave warning during this period. The Botswana Department of Meteorological Services reported that temperatures of over 40 °C were recorded during the heat wave. In a monthly report covering November, the South African Department of Agriculture, Forestry and Fisheries noted that a heatwave had damaged the wheat crop in central parts of the country.

An updated seasonal rainfall forecast for the remainder of the 2018-2019 rainfall season was released in mid-December by the SADC Climate Services Centre (CSC), based on analysis by climate experts of the latest available data on climate drivers for the region. The forecast maintained high probabilities of normal to below-normal rainfall in most southern and central parts of the SADC region, and southern Madagascar. The forecast for reduced rainfall also aligns with expectations based on El Niño, which usually results in below average rainfall in many central and southern parts of the region. The state of the Indian and Atlantic Ocean can modify the regional influence of El Niño, and these and other considerations are typically accounted for in the regional forecast by SADC CSC. The latest official El Niño forecast from NOAA indicates a 96% chance that El Niño will occur this season. Additionally, international forecasts are anticipating that temperatures will be above normal this season, a situation which also typically occurs during El Niño. High temperatures raise evapotranspiration rates, thereby potentially increasing the possibility of crop moisture stress, particularly during dry spells. The higher temperature anticipated also raise the risk of heat stress to humans, crops, and livestock.

Given the prevailing status of rainfall received to date, the official regional rainfall forecast and related indicators suggesting higher likelihood of below average rainfall during the 2018-2019 season, and the forecast above-normal temperatures, chances for negative climatic impacts on both crop and livestock production this season are high. Appropriate preparedness and contingency measures are required. However, as the forecast is probabilistic, favourable cropping outcomes in some areas are still possible, as has sometimes happened in the past under similar conditions. As such, the outlook should not deter cropping activities, particularly for short maturing and drought tolerant varieties, in appropriate areas, grown using climate-smart agriculture approaches. Surface and ground water resources for human and agricultural use may also be negatively affected by anticipated low rainfall and high temperatures in some areas, depending in part on the current status of these water resources. Close monitoring of the seasonal progress, and sector-specific contingency measures will be required this season.