



# Food Security Early Warning System Agromet Update



## 2019/2020 Agricultural Season

Issue 01 Month: November

Season: 2019-2020

15-11-2019

### Highlights

- Pasture and water for livestock are in a poor state in some areas due to recurrent droughts
- Seasonal forecasts indicate enhanced chances of below average seasonal rainfall totals, raising concerns on the backdrop of the severe drought of the 2018/19 season.
- Most parts of the region received near-normal rainfall through early November
- Short term forecasts suggest an improvement of rainfall through-mid November in several countries, which may result in a timely onset in some areas.

### Regional Summary

Most parts of the region received near-average rainfall between September and early November, according to satellite data (Figure 1). Negative rainfall anomalies were however noted in Lesotho, eastern South Africa, parts of Zambia, eastern DRC, parts of Madagascar, and western Tanzania. In most areas, early season rains received in October and early November typically facilitate agricultural land preparation and planting. Below average early-season rains experienced this year in Lesotho and parts of South Africa are likely to delay land preparation and planting in some areas. Northern parts of the region received above average rains accumulated from September to early November, particularly Angola, much of DRC and eastern Tanzania (Figure 1).

Planting rains are generally received in November in most southern and central parts of the region. The exception to this is parts of South Africa, Eswatini, Lesotho, and central Madagascar where seasonal rains typically start in October. Figure 2 shows areas where rains were sufficient to commence planting, and the dekad in which the rains were received. In some of the areas that received good rains in late October and early November, such as parts of Angola, central Madagascar, and western Tanzania and eastern South Africa, consistent follow up rains are still required before the end of November in order to avoid early season crop moisture stress that could necessitate replanting.

Parts of eastern South Africa had an onset delay of up to 30 days, but rains were received in early November. Parts of Lesotho and Eswatini had a delay of up to 20 days (Figure 2). In northern/central parts of the region including much of Zambia, where rains typically start in early November, rainfall is at least one dekad late. Short term forecasts from Zambia, Zimbabwe and South Africa's national meteorological centres suggest an

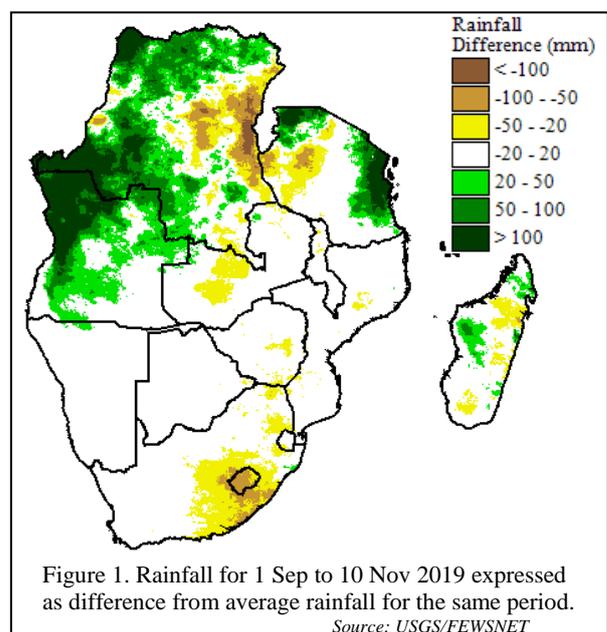


Figure 1. Rainfall for 1 Sep to 10 Nov 2019 expressed as difference from average rainfall for the same period.  
Source: USGS/FEWSNET

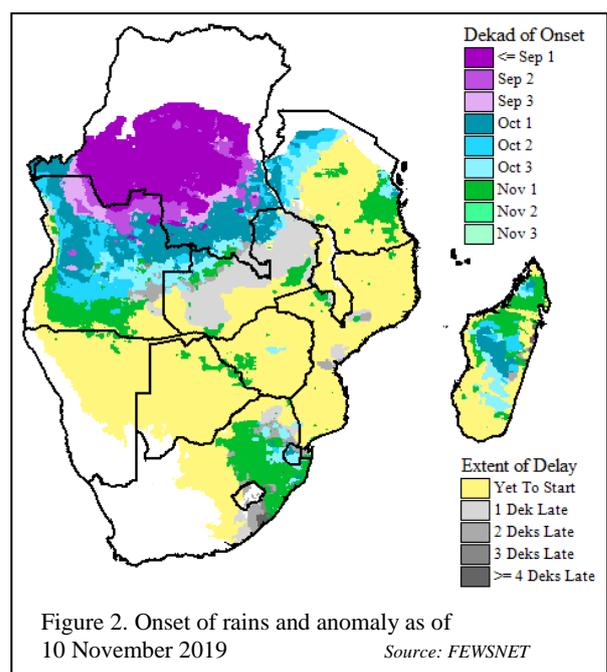


Figure 2. Onset of rains and anomaly as of 10 November 2019  
Source: FEWSNET

intensification of rainfall in these countries in mid-November, indicating possibility of a timely establishment of the onset of rains.

Vegetation conditions are well below average in much of the southern half of the region. The severe drought experienced during the 2018/19 season in many parts of the region, as well as the low rainfall in the last few weeks, has resulted in a slow regeneration of vegetation, including pastures, across the southern half of the region. Figure 3 shows a satellite based vegetation index (NDVI) for late October, expressed as percent of normal. Livestock conditions are generally poor across southern and central areas of the region due to the limited availability of both water and pasture. There are reports of atypically high numbers of drought-related livestock deaths in parts of the region, including southern Angola, northern Namibia, and southern Zimbabwe. Areas with below average NDVI will require close monitoring, especially those areas where livestock is an important source of food and livelihoods, and NDVI is indicative of pasture conditions. These areas include parts of Angola, Botswana, Namibia, South Africa and southern Zimbabwe. Since it is so early in the season and rainfall has not yet fully established, pasture is likely to start regenerating with the full onset of the season. However, drought-affected livestock in poor body condition are likely to continue experiencing the effects of the drought in the short term.

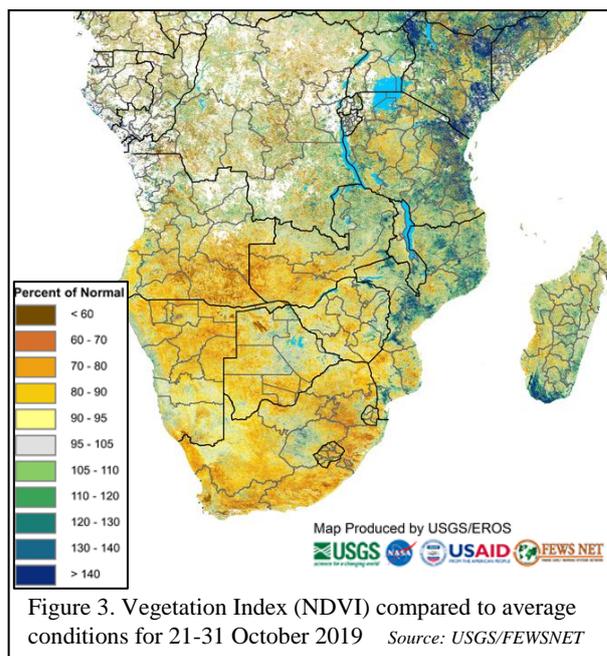


Figure 3. Vegetation Index (NDVI) compared to average conditions for 21-31 October 2019 Source: USGS/FEWSNET

Many parts of the region experienced atypically high temperatures in late October. These high temperatures caused increased rates of evaporation, and subsequently higher rates of water loss from surface water bodies. Recurring droughts experienced in many areas over the last few years, including the severe drought of the 2018/2019 season, had already depleted levels of surface and groundwater resources. Livestock and irrigation have been negatively impacted by the low water levels. Extreme temperatures also cause heat stress on livestock, which were already affected by poor grazing and water conditions in many areas. Warmer than normal temperatures are forecast for the 2019/2020 season. Above-normal temperatures during the rainfall season are typically associated with below average rainfall due to the associated reduced cloud cover, and lower soil moisture which would otherwise be available for evaporative cooling

A series of droughts over the last five years has contributed to poor water, pasture and food security situation in the region. The 2018/2019 rainfall season was one of the driest since at least 1981, in many areas including much of Namibia, southern Angola, southern Zambia, north-western Botswana, north-western Zimbabwe, and western Madagascar (Figure 4). A similar analysis conducted for 5-year cumulative rainfall periods suggested that many western parts of the region, including southern Angola, much of western South Africa and much of western Madagascar, are currently experiencing a severe long-term drought, with likely significant implications on long-term water storage such as surface water reservoirs and groundwater.

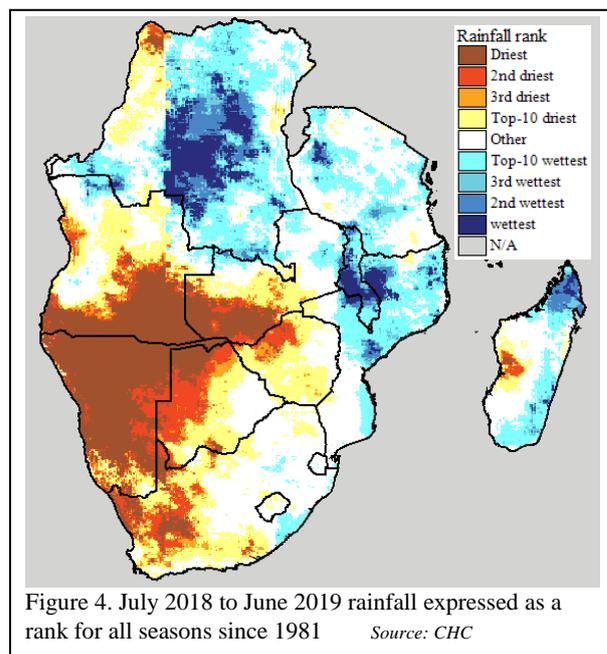
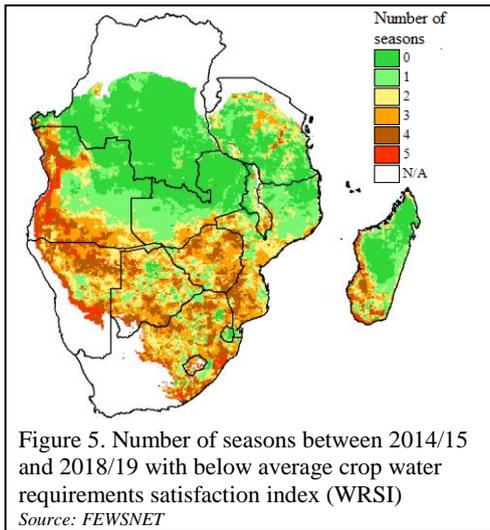
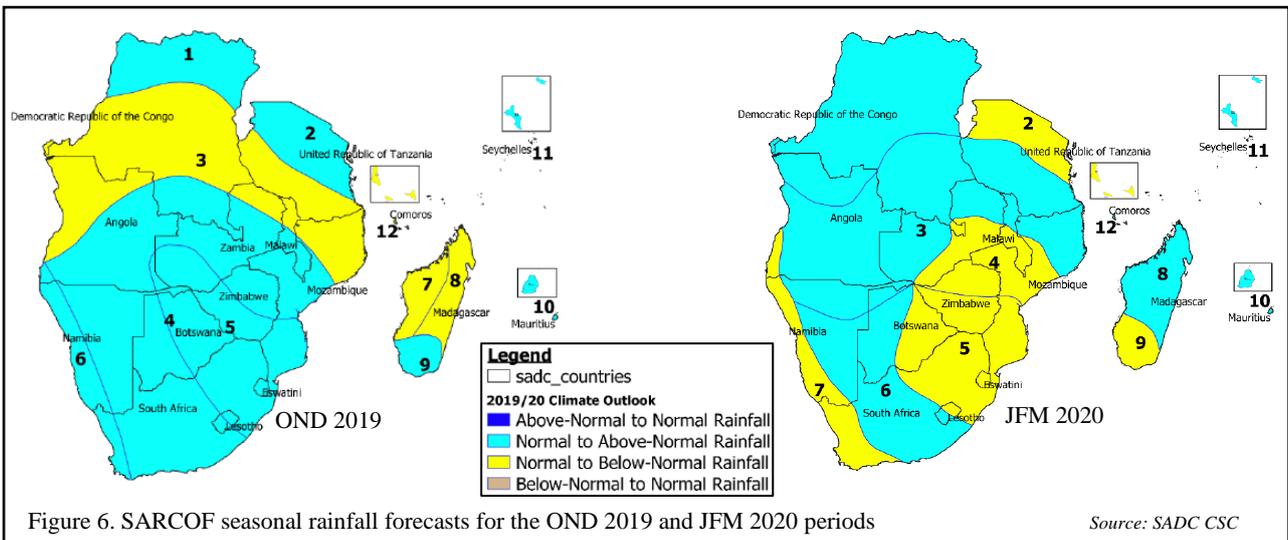


Figure 4. July 2018 to June 2019 rainfall expressed as a rank for all seasons since 1981 Source: CHC

Many areas in the southern half of the region experienced below-average crop water availability in at least 3 of the 5 seasons between 2014/15 and 2018/19



(Figure 5). The crop water availability was calculated for maize using a crop water index called the water requirements satisfaction index (WRSI). Low WRSI values are typically associated with crop yield reductions induced by water deficits experienced during the season. Based on this analysis, many farmers in the southern half of the region have been negatively affected by poor rainfall distribution in most of the last 5 seasons. The areas affected include southern Zambia, southern Angola, Botswana, Lesotho, southern Madagascar, southern Malawi, southern Mozambique, Namibia, South Africa, southern Zambia and Zimbabwe. Recurring droughts reduce the coping capacity and resilience of farming households in the region, and in some cases reduce the ability of households to fully utilize planting opportunities without external assistance.



The SADC seasonal rainfall forecast released at the Southern African Regional Climate Outlook Forum (SARCOF) in August 2019 by the SADC Climate Services Centre predicted that most parts of the region are likely to receive normal to above normal rainfall between October 2019 and March 2020, with exceptions being northern areas during the October-to-December (OND) period, and central-eastern areas during the January-to-March (JFM) period, where normal to below normal rains are expected (Figure 6). Several Member States proceeded to downscale the SARCOF regional forecast, and released detailed national-level forecasts. In these downscaled forecasts, many countries noted enhanced chances of receiving normal to below normal rainfall during the season. These included eastern Botswana, Lesotho, northern Mozambique, north-eastern Zambia and southern Zimbabwe for the OND forecast period. For JFM, the national forecasts indicated enhanced chances of normal to below normal rainfall in southern Mozambique, most of Namibia, southern half of Zambia, and Zimbabwe. Most other areas in the above-mentioned countries indicated forecasts of normal to above normal seasonal rainfall totals, except for north-eastern and south-western Botswana, as well as northern Mozambique and northern Zambia, where above normal rainfall was forecasted to be the most likely outcome. The South Africa national forecasts for OND and JFM were mainly biased towards below normal rainfall, though large areas were noted by the national weather agency to have low model skill discouraging issuance of an assertive seasonal forecast.

The South Africa national forecast report further noted that several international forecasts are indicating high chances of below average seasonal rainfall across the southern half of the SADC region, thus highlighting uncertainties in light of differences with local forecasts. Such uncertainties are characteristic of seasonal forecasting in general, and partly influenced by the state of major climate drivers such as the El Niño Southern Oscillation (ENSO). Between July and November 2019, several international forecasts, which are updated monthly, have become increasingly more confident of below average DJF and JFM seasonal rainfall outcomes over Southern Africa, and above average rainfall over north-eastern parts of the Region. Analysis of sea surface

temperatures and peer-reviewed scientific publications suggest that these models are likely identifying and predicting conditions over the Indian and Pacific Oceans that are typically associated with below average rainfall in Southern Africa.

Rainfall during the first half of the season (OND) is typically associated with the quality of rainfall onsets and the period of crop establishment, while rainfall in the second half (JFM) is associated with the critical period of flowering and ripening for most cereal crops. When extended dry spells occur during the second half of the season, they can greatly decrease crop yields. The official forecasts for normal to below normal rainfall during JFM in some areas as noted above suggest increased chances for crop moisture deficits that can negatively affect crop production in those areas, depending on distribution and amount of rainfall that will occur. It should however be noted that areas typically affected by dry spells will need to prepare for the contingency of such events, regardless of the forecast. Agriculture-related actions that can be taken to mitigate the impacts of dry conditions includes, amongst others, crop diversification, appropriate mix of drought tolerant and high-yield crop varieties, staggered planting, timely availability of agricultural inputs, climate-smart agricultural practices, and drought-related de-stocking mechanisms. Likewise, areas with high vulnerability to flooding and cyclone impacts also need to prepare for the high likelihood of such eventualities on an annual basis.

With regards to winter cereal crops, reports from the GEOGLAM Early Warning Crop Monitor (<https://cropmonitor.org/>) suggest that crop conditions for winter wheat in Lesotho, South Africa, Zambia, and Zimbabwe performed sub-optimally in many areas primarily due to dry conditions.