Food Security Early Warning System

Agromet Update

2015/2016 Agricultural Season

Issue 03 Month: November (second half) Season: 2015-2016 10-12-2015

Highlights

- **Rains are still well below normal in the southern half of the region, with deficits strengthening in some areas in recent weeks.**
- **Onset of rains is delayed by at least 30-40 days in parts of Angola and South Africa**
- **Moderate relief is expected in some of these drought-affected areas, according to short term rainfall forecasts**
- **Vegetation conditions in many areas are among the worst in 15 years. These conditions have some negative implications for pastures, livestock and hydrology**
- **Very high temperatures have continued in the southern half of the region, with respite unlikely in the near future, according to temperature forecasts**
- **High rainfall continues to be received in Tanzania, DRC and northern Angola**

Regional Summary

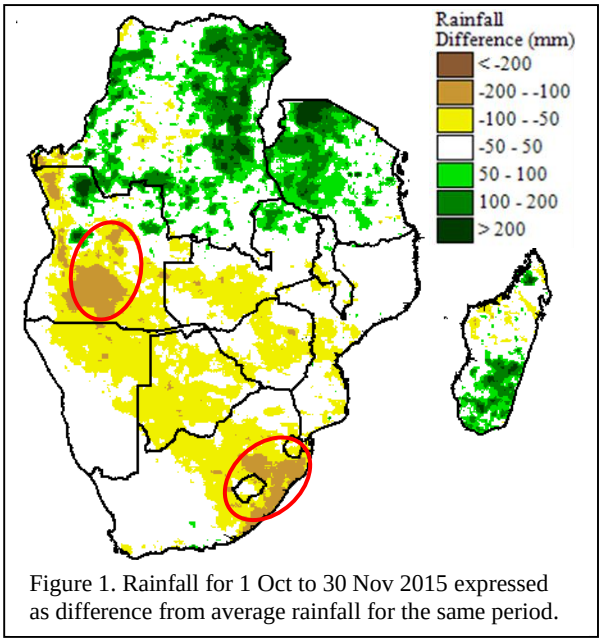

Figure 1. Rainfall for 1 Oct to 30 Nov 2015 expressed as difference from average rainfall for the same period.

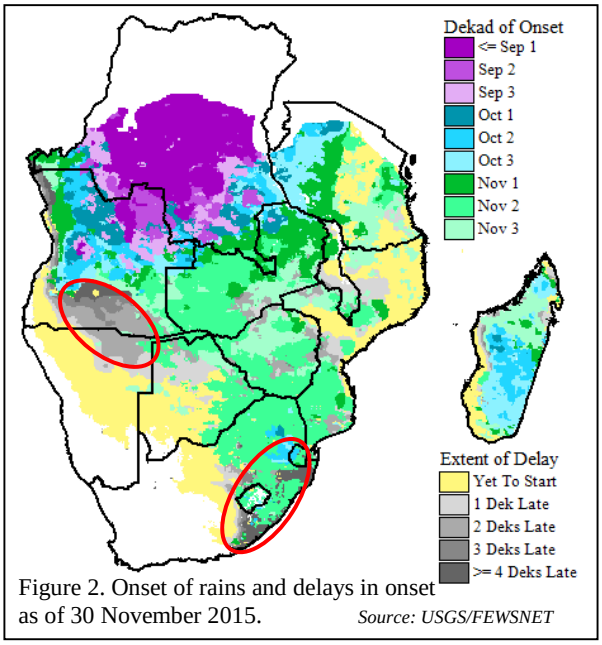

Figure 2. Onset of rains and delays in onset as of 30 November 2015. *Source: USGS/FEWSNET*

The slow start of the rainfall season continued in the southern half of the region, with below average rainfall being received in many areas over the course of October and November (Figure 1, brown and yellow colours). The brown colours are indicative of larger rainfall deficits compared to normal conditions, which have intensified over the last 2 weeks of November, particularly in southern/central Angola and eastern South Africa, as indicated by the red circles in Figure 1.

The generally low rains have been associated with a delayed start of season in some areas, particularly in Angola and South Africa, where the onset of rains is forty or more days late in some cases (Figure 2, dark grey colours, circled in red). Slow and erratic onsets and delays in planting were also reported in parts of Mozambique, Swaziland, Zambia and Zimbabwe. This delay in planting shortens the rainfall season, thereby reducing the chances for planted crops to successfully reach maturity. Despite the delayed onset in some areas, most parts of the region received sufficient rains to register an onset of rains in November (green colours, Figure 2). Although these rains were deemed sufficient to facilitate planting in most areas, subsequent rains

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are required for successful emergence and establishment of planted crops. In parts of northern South Africa, southern Zimbabwe, eastern Botswana, Lesotho, and western Zambia, good rainfall in the second half of November has reduced some of the cumulative rainfall deficits. Although sufficient rainfall in areas including parts of Swaziland and South Africa has facilitated planting, subsequent rainfall levels have been low and soil moisture levels are sub-optimal. In contrast to the low rainfall received in most southern parts of the region, northern areas including much of Tanzania, DRC, and northern Zambia have generally received good rains, as has southern Madagascar. The rains are generally good for cropping, raising potential for good harvests if the rains are consistent throughout the season. However, heavy rains raise fears of flooding in flood prone areas.

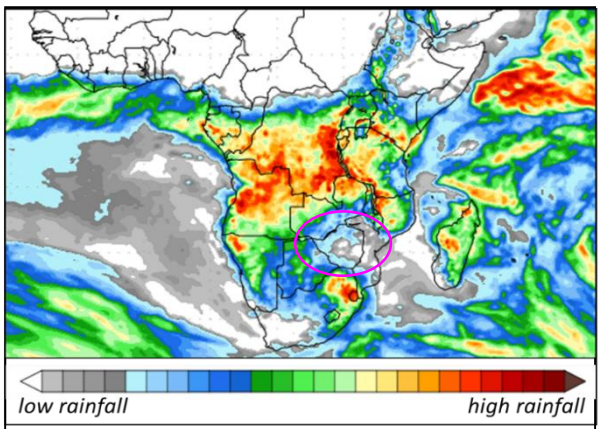
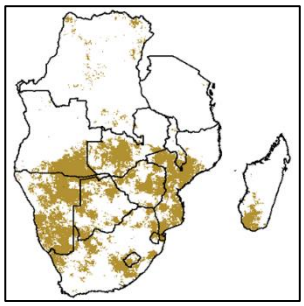


Figure 3. Rainfall forecast for the period 3-11 December 2015
Source: IGES/COLA

Short term rainfall forecasts are suggesting that the dry areas in eastern South Africa and parts of southern Angola may experience some relief in early December, with good rains forecast for these areas from 3-11 December (Figure 3). Heavy rains are also expected to continue in much of Tanzania, DRC, northern Zambia, and northern half of Angola, while parts of northern Mozambique are expected to experience an onset of rains during this time. In contrast, dry conditions are expected in most of Zimbabwe, central and southern Mozambique, southern Zambia and part of Botswana (pink circle, Figure 3). The dry conditions in these areas are likely to be exacerbated by the high temperatures that are forecast across much of the southern half of the region.



The current El Niño event remains on track to be one of the strongest on record, based on measurements of sea surface temperatures in the Pacific Ocean. Historical analysis of rainfall patterns in southern Africa during past El Niño events has suggested that there is little relationship between the strength of an El Niño and its impacts on rainfall in southern Africa. Rather, the presence or absence of the El Niño historically appears to have more influence on rainfall performance, in certain areas. The brown areas in the map on the left show the areas which have been more frequently (but not always) and intensely affected by low Dec-Mar rainfall during the last 10 El Niño events, starting with the 1982 El Niño. It should be noted that the exact influence of any given El Niño event on regional rainfall will always be modified by other climatic factors such as the state of the Indian Ocean and Atlantic Ocean, as well as other local climatic features. As such, national and regional forecasts, which constantly incorporate and update the status of these climate features, should always take precedence over historical statistical analysis for seasonal planning.

Vegetation conditions continue to fare poorly in the southern half of the region due to the low rainfall received since last year, as well as the high temperatures. In many areas, vegetation conditions are the worst that they have been in the last 15 years (red colours, Figure 4), which is the period with available satellite-based vegetation index data used to produce Figure 4. While most areas experience below average vegetation conditions at one time or another, it is uncommon for such a large area to experience such poor vegetation conditions concurrently. In many areas, the poor vegetation is indicative of the stressed state of pasture, which has been reported in several countries. In addition, limited water availability for domestic use and for livestock has been reported in many areas. The current drought has negatively impacted the livestock sector in parts of Angola, Botswana, Namibia, South Africa, Swaziland and Zimbabwe, with impacts ranging from poor livestock condition to drought-related cattle deaths in some

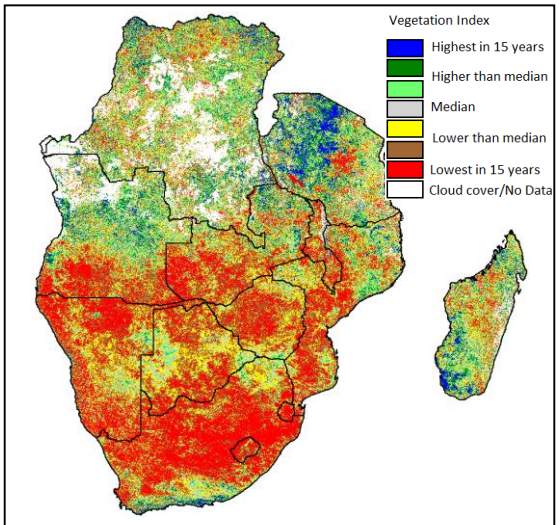


Figure 4. Vegetation Index (NDVI) for 21-30 Nov 2015 expressed in context of past 15 years
Source: USGS/FEWSNET

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areas. Farmers are being actively encouraged to sell their livestock assets due to the drought situation, and some reports indicate distress-sales of cattle at well below the market value.

The high temperatures being experienced in many parts of the region are forecast to continue, with potential negative consequences. Temperatures have been well above normal in many areas, particularly the southern and central parts of the region, with some areas experiencing daily average temperatures of above 30 degrees Celsius. These high temperatures drive up the rate of evapotranspiration, and consequently, the amount of water that crops need. In addition, many crops, including some maize varieties, experience heat stress and subsequent reductions in yield when temperatures are continuously above 30-32 degrees Celsius. Maize does not reproduce at temperatures above 35 degrees Celsius. In contrast, small grains like millet and sorghum are more heat tolerant, and millet is able to reproduce at temperatures up to 42 degrees Celsius.

Communities in drought-affected parts of several countries including Angola, Botswana, Namibia, South Africa, and Swaziland are facing challenges with water availability due to low river and dam levels. Short-term forecasts suggest the likelihood of moderate rainfall in some of these areas. This will provide some relief, but more rainfall will be needed through the remainder of the season to significantly reduce the long-term water deficits which began with last year's poor rains. However, seasonal rainfall forecasts are suggesting a high likelihood of below average rainfall this season. Combined with the seasonal temperature forecasts for continued high temperatures, this will likely cause increased strain on water resources, crop production and livestock. Continued close monitoring of the situation and appropriate contingency planning will be required.

National Agrometeorology Summaries

Angola
Rainfall in southern Angola was well below normal in October and December. This was in part caused by a delay in the onset of rains, where in many areas, the rainfall season is now 40 days late or more. Moderate rains that are forecast for some areas in early December are expected to initiate the onset of rains. Pasture for livestock is currently in poor condition due to the poor rainfall that has been received to date and poor rainfall performance last season.

Botswana
Eastern parts of Botswana received good rains in the second half of November, which helped to marginally reduce the rainfall deficits in some areas. Much more rainfall is needed to replenish surface and groundwater supplies, which are currently at low levels. Rangeland conditions are currently poor in many areas, affecting livestock. Compounded by the limited water supply available, livestock conditions have deteriorated, and drought-related cattle deaths have been reported in some areas. High temperatures are also contributing to high rates of evapotranspiration from surface water sources and vegetation including pasture.

Malawi
The onset of rains in Malawi typically occurs in late November in the northern and southern areas, and early December in central Malawi. To this end, rains were timely and fell as expected in late November, encouraging farmers to start planting. The November rains improved water resources, and provided sufficient soil moisture to support crop development. Land preparation and procurement of farm inputs were reported to be still in progress in most areas. A delay in acquisition of inputs could affect yields due to a reduced window available for crops to reach maturity. Pastures are in moderate condition, and expected to improve with the recent rains. Livestock are also in moderate condition.

Mozambique
According to satellite-based estimates, rainfall has been delayed by 10 to 20 days in some parts of southern Mozambique, which typically experience an onset in mid-November through early December. Most central and southern areas received good rains in mid-November, although some of the southern areas that were affected by drought in the previous season did not receive sufficient rainfall. Some of the central parts have also experienced below average rains, which may cause mild moisture stress. The high temperatures being currently experienced increase evapotranspiration rates. In the southern Mozambique, satellite vegetation data suggests that pastures have been affected by the dryness. Poor pastures and limited water availability could negatively affect livestock conditions.

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South Africa
After very low rainfall across the country in early November, the eastern half of the country received moderate to heavy rainfall in mid-to-late November. This rainfall was characterized by destructive hailstorms in some areas. The rainfall in many areas was sufficient to facilitate planting, which has been delayed by a late start of season for up to 30 days in some of the main maize-growing areas. Some eastern and central cropping areas have not yet received rains. Due to the dry conditions since last year, pasture is in poor condition, and limited water is available. Livestock are generally in moderate condition, though there have been reports of drought-related cattle deaths in some of the worse-affected areas. Dam levels are reported to be at 62% of full supply capacity, 16% lower than at the same time last year. Above-normal temperatures are expected to continue across most parts of the country.

Swaziland
After receiving some rainfall in mid-October, November saw well below-normal rainfall in many parts of the country. Land preparation and planting was delayed due to the erratic rainfall, in some areas by as much as 40 to 50 days. In areas where planting has taken place, crops were reported to be experiencing high levels of moisture stress. Due to the poor rainfall since the previous season, pasture is reported to be in poor condition, and water supply for livestock as well as for domestic use is in short supply. As a result, livestock is in very poor condition, and many drought-related cattle deaths have been reported.

Tanzania
Since the onset of season, good rains have been received in most parts of Tanzania. In the bimodal areas in the northern part of the country, where the season typically starts as early as September or October in some areas, crops were reported to be performing well. Planting was reported to be ongoing in the north-east by November. In most unimodal areas, farmers were generally involved in land preparation, while planting had started in the north/central areas. Pasture conditions were reported to be moderate in most parts of the country, except in the north-east where conditions were still poor, but are expected to improve with the recent rains. A good season is expected with the forecast for above-normal seasonal rains. However, floods may occur if rainfall becomes excessive.

Zambia
Most parts of Zambia received their first seasonal rains in November, with some western areas experiencing a delay in the onset of rains of up to 20 days. Some central/southern areas had not experienced an onset by the end of November, with delays of up to 20 days. Short-term forecasts expecting little rainfall in those areas by early December. Farmers have started planting, although high input prices are proving to be a constraint, which could affect total planted area. Zambia is expecting normal to below normal rainfall in many areas, which may still be sufficient to support good crop production in many areas depending on the timing of the rains. Due to the delayed onset and the poor 2014/2015 rainfall season, pasture conditions are poor, particularly in the southern and western areas. The recent rains should help to improve pasture conditions.

Zimbabwe
After not receiving the pre-season rains that normally facilitate land-preparation, most parts of the country experienced the start of season in mid-to-late November. In some areas however, including parts of central and eastern Zimbabwe, the season is now 20 days late. With the good rains that were received in some parts, farmers have started planting. However, reports indicate that planting activities are being delayed due to the high temperatures, which are leading to high rates of evapotranspiration. Crops were reported to be in emergence to vegetative stage. The unfavourable climate has contributed to poor pasture conditions in south-eastern parts of the country. These conditions, combined with poor water availability, have resulted in very poor livestock conditions. Distress-sales of cattle at have been reported, as well as drought-related cattle deaths.

Acknowledgements:
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