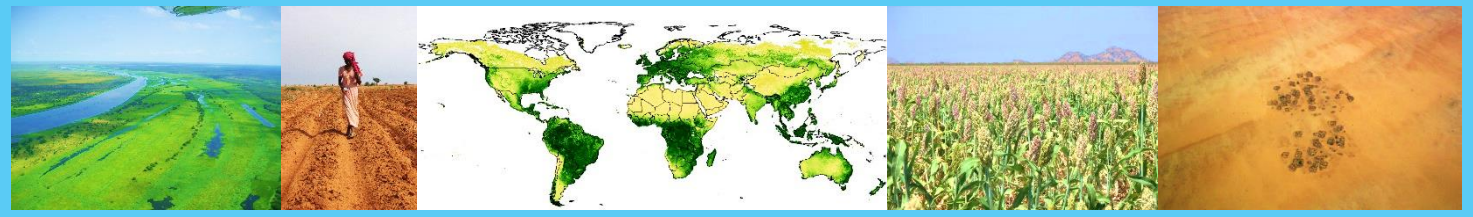


Southern Africa Growing Season 2015-2016:

Heading for a Record Drought?

WFP
wfp.org

vam
food security analysis

Southern Africa: Heading for a Record Drought?

HIGHLIGHTS

- The current growing season (October 2015 – April 2016) in Southern Africa is developing **under the peak phase of El Nino** that is about to become the **strongest** on the record.
- The first phase of the growing season is characterized by **severe** and **widespread rainfall deficits**. Across vast areas of South Africa, Zimbabwe, Zambia and Botswana, this has been the **driest October-December** since at least **1981**.
- Hence widespread **delays in the start of the season**, especially in South Africa, Mozambique and Zimbabwe are observed. **Vegetation** cover is also **particularly affected** given the cumulative effects of the previous season's poor rainfall.
- **Seasonal forecasts** for the next stages of the growing season remain **very pessimistic**, raising the possibility of **extensive crop failures** despite some recent improvements in rainfall.
- The region's **vulnerability** is already **enhanced** before **a shock of this magnitude,** particularly since the last growing season was also affected by drought. This means **depleted regional stocks**, **high food prices** and substantially **increased numbers of food insecure** people.
- **Major concerns** are now **Zimbabwe**, **Mozambique**, **Lesotho** and **Malawi** but other countries are also being affected.

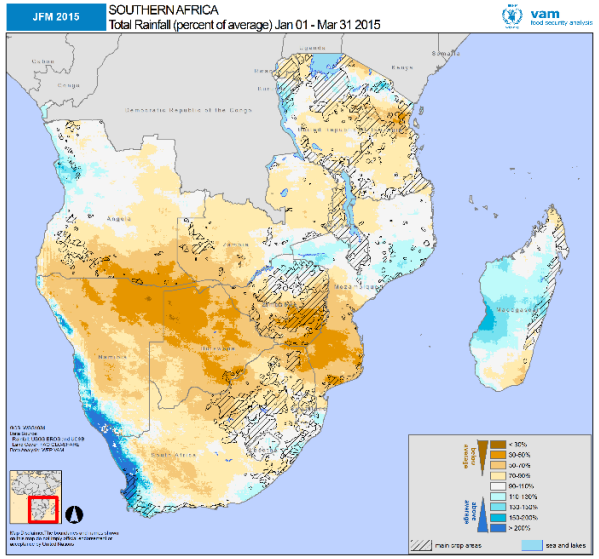
Current Status and Near Future Perspectives

WFP
wfp.org

vam
food security analysis

A Poor Starting Point: Difficult Context and Unfavourable Historical Evidence

Southern Africa: Heading for a Record Drought?



January to March 2015 cumulative rainfall as a proportion of a 20 year average (1994-2013).

Country	2014/15	5yr Avg	Ratio
Angola	1749	1110	58%
Botswana	15	62	-75%
Lesotho	81	92	-12%
Malawi	2945	3883	**-24%**
Mozambique	2255	2338	-4%
Namibia	51	126	-60%
RSA	13149	14420	-9%
Swaziland	82	78	5%
Tanzania	7382	6973	6%
Zambia	2846	2943	-3%
Zimbabwe	800	1373	**-42%**

2014-15 all cereal production vs 5 year average. The two countries of most concern are highlighted: sharp falls on important production volumes (and requirements). SADC figures

Low Regional Stocks and High Market Prices

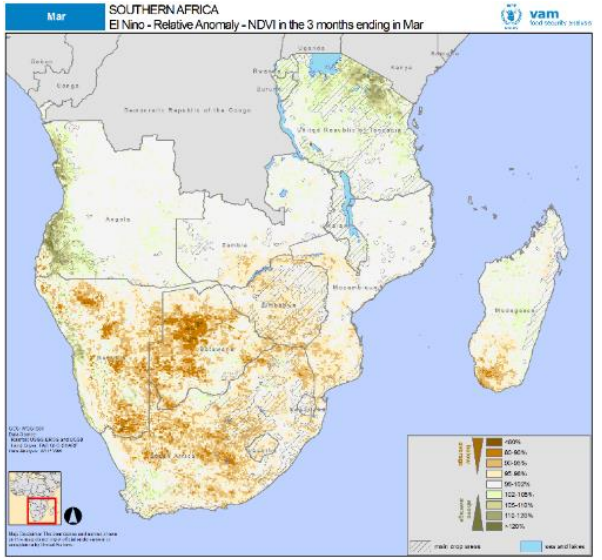
Drier than average conditions during the key stages of the previous growing season (October 2014 – April 2015) resulted in crop production shortfalls across the region which were particularly acute in South Africa, Zimbabwe and Malawi. This was one of the main drivers behind the increase in the numbers of food insecure people in the region.

Much of the negative impacts were mitigated by the large stocks from the bumper crop production of the 2013-2014 season. These stocks are now much lower (from 4400 to an estimated 1750 million tons, SADC) when the region is facing one of its worst seasons in the recent record. Market prices are already much higher than average, and many markets across the region are at stressed levels.

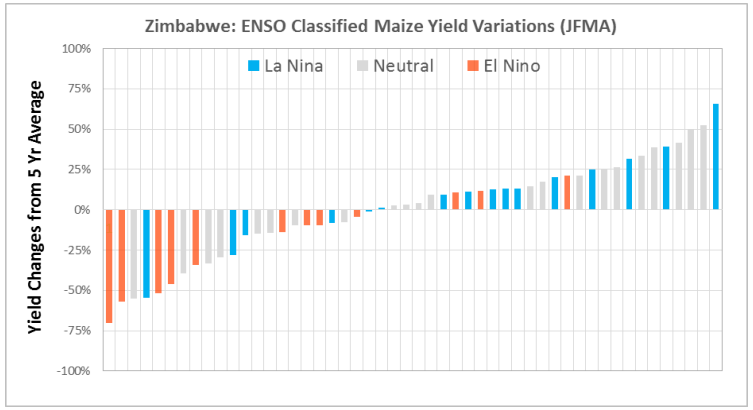
El Nino linked to low rainfall, maize yield drops.

El Nino affected seasons are linked to the occurrence of widespread drier than average conditions and lower vegetation cover across the region. This is shown by comparisons of average January-March rainfall and vegetation between El Nino and neutral seasons (map left).

These tendencies are reflected in maize production: long term crop production statistics show that drops in maize yield are clearly more frequent during El Nino seasons (see plot on the left), particularly for South Africa (largest producer) and Zimbabwe (most food insecure).



Average January-March vegetation in El Nino seasons compared to Neutral Seasons. WFP-VAM based on NASA data (NDVI GIMMS 1981-2011)

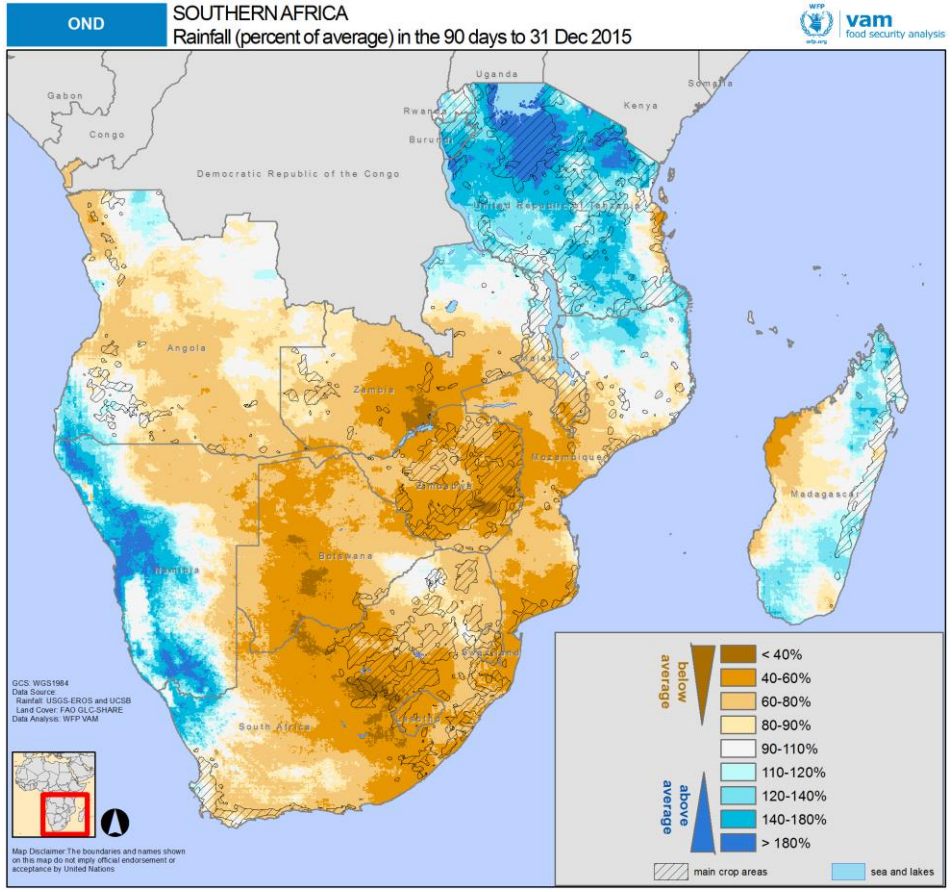


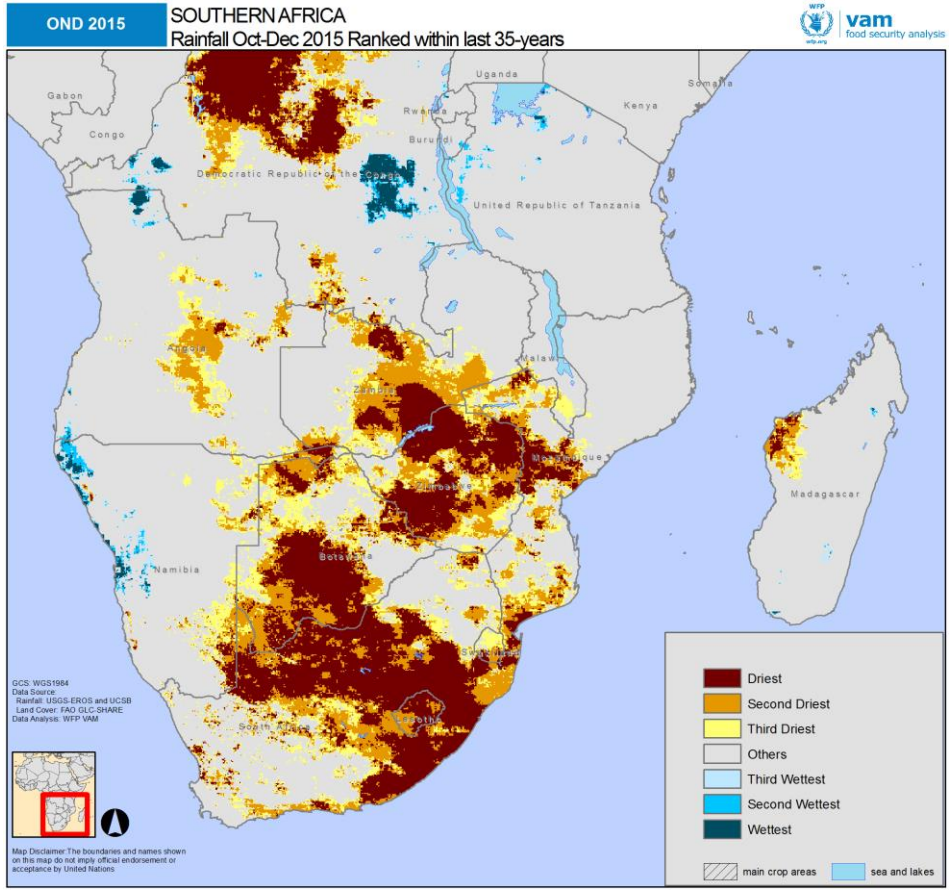
Zimbabwe ranked national maize yield variations from the 5 year average, coded according to ENSO phase

Note how largest drops (on the left) are systematically associated with El Nino (coded in orange)

WFP-VAM based on data from CPC and FAOStat

Current Rainfall Patterns: October-December 2015





Left: October-December 2015 rainfall, as a percentage of the 20-year average. Brown shades indicate below-average rainfall; blue shades indicate above-average seasonal rainfall.

Right: October-December 2015 rainfall, ranked within the 35 year rainfall estimate record.

Hashed pattern are main agricultural areas.

The driest start of the season for at least 35 years

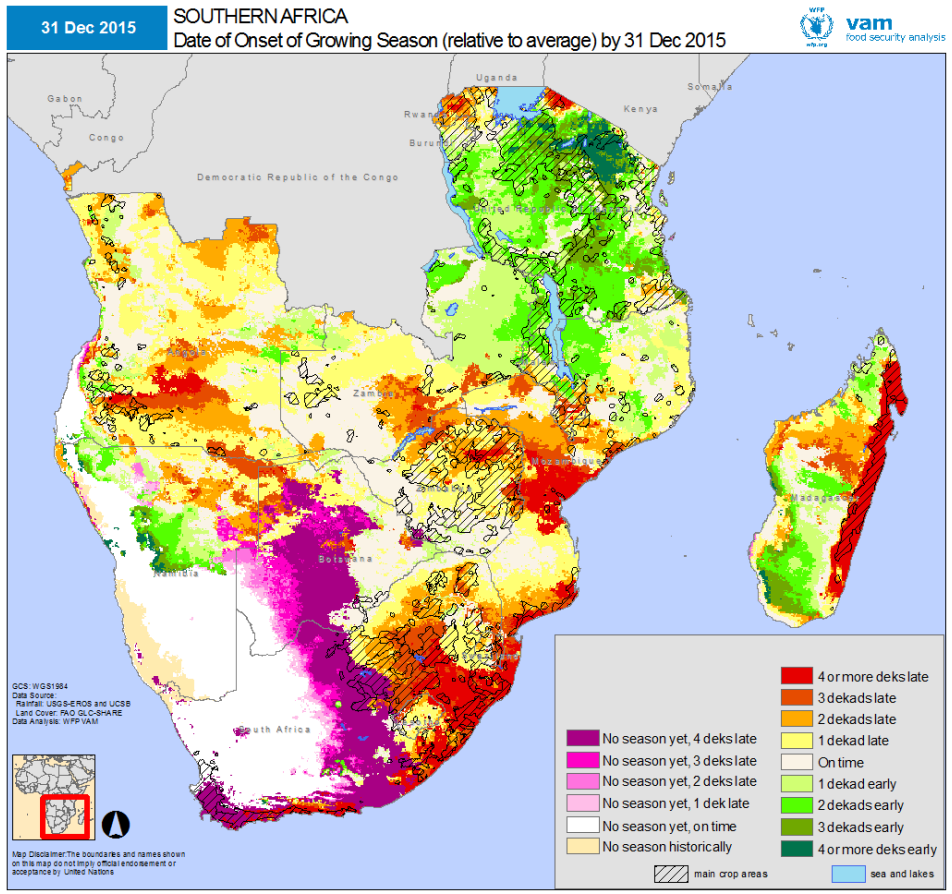
The first phase of the season (October to December 2015) when most planting should have taken place was dominated by severe rainfall deficits. Across many areas of Southern Africa this period has been the driest on record since 1981 (map above right).

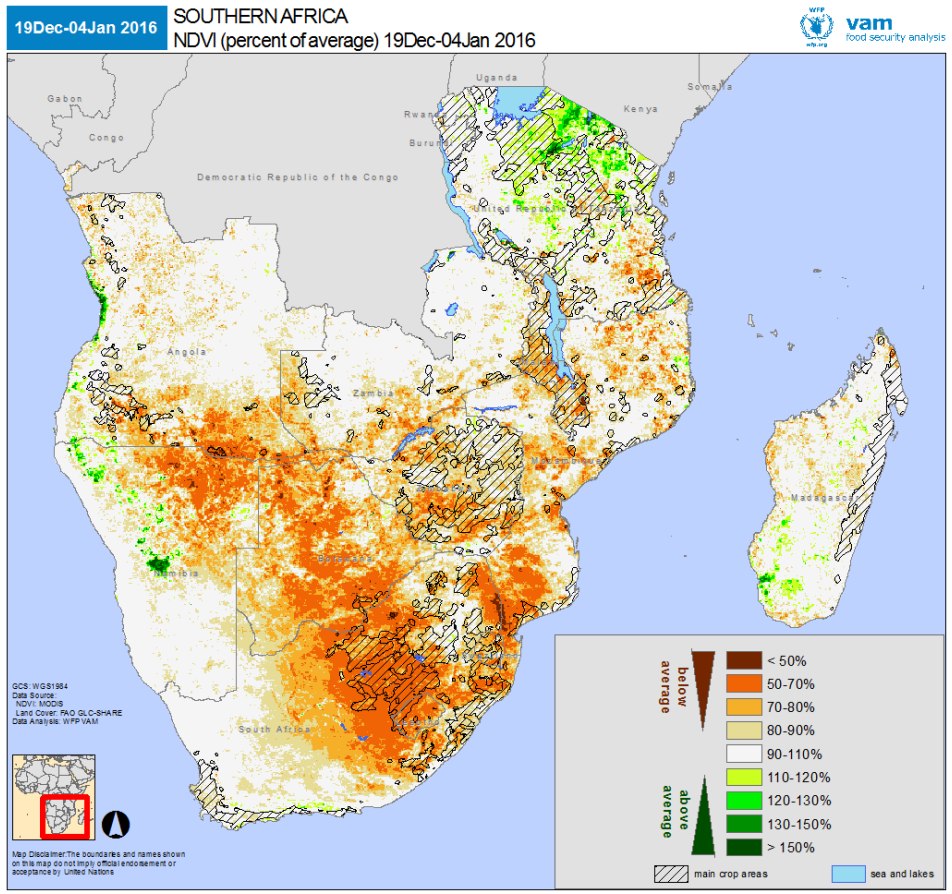
The regions affected by these most extreme conditions include vast areas of central South Africa (including Lesotho), southern Botswana, southwest and northern Zimbabwe and neighbouring areas of south central Zambia as well as central Mozambique. Elsewhere, although such extremes have not been reached, much drier than average conditions have prevailed affecting most cereal producing areas of the region.

The only exceptions are coastal areas of Namibia, and most of Madagascar as well as northern regions of Zambia, Malawi, Mozambique and Tanzania. These areas benefit from the El Nino induced rainfall that usually results in wetter than average conditions across East Africa.

Current Vegetation and Growing Season Patterns

Southern Africa: Heading for a Record Drought?





Left: Date of onset of the growing season by 31 December 2015 compared with average. Oranges and pinks for delayed onsets, greens for earlier then average onsets. Hashed pattern indicates main agricultural areas.

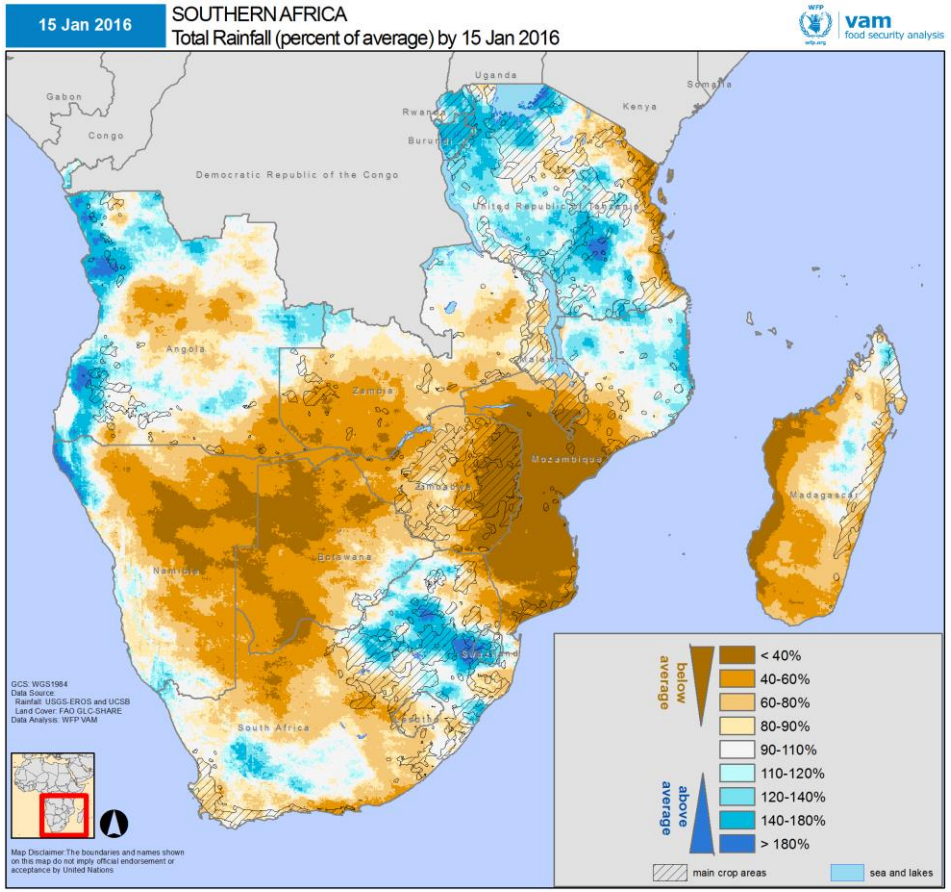
Right: NDVI in late December 2016, as a percentage of a 12-year average. Orange shades indicate below-average vegetation; green shades indicate above-average vegetation.

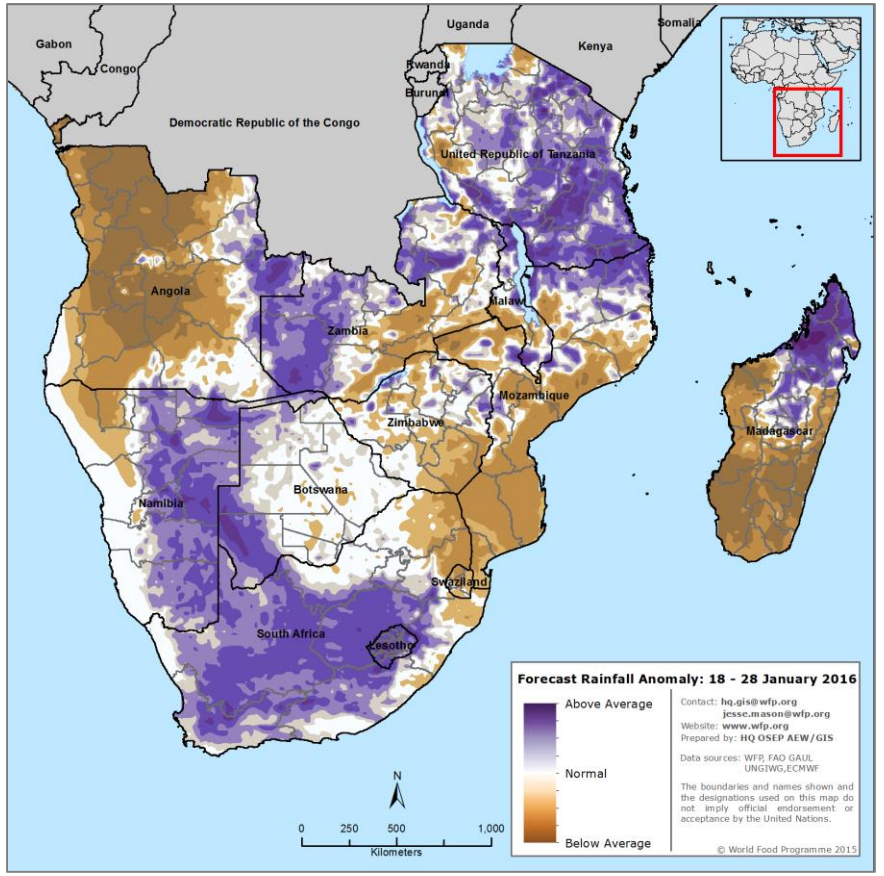
Major delays to the start of the season, very low vegetation cover

Vegetation development is at record low levels due to the widespread drought. Long delays of up to 5-6 weeks at the onset of the season dominated across the region. By late December, the season had not even started in central South Africa and southwest Botswana. Similar delays can be seen across the eastern half of South Africa where most maize is grown and parts of Botswana. Somewhat shorter delays were observed across Mozambique into Zimbabwe and Zambia as well as Angola. The planting time window that would allow crops to conclude the production cycle is closing fast. Only Madagascar has had a good start to the season. This is reflected in widespread below average vegetation cover.

In NE Zambia, N Mozambique and Tanzania, wetter than average conditions, typical of the El Nino influence in these areas, allowed an earlier than usual start to the season.

Short Range Perspectives: January 2016





Left: Rainfall 1-15 January 2016 as a percent of average. Blue shades for wetter than average, brown shades for drier than average.

Right: Forecast for 18-28 Jan 2016 rainfall as a percent of average (purple = wetter than average, brown drier than average). From WFP-AEW

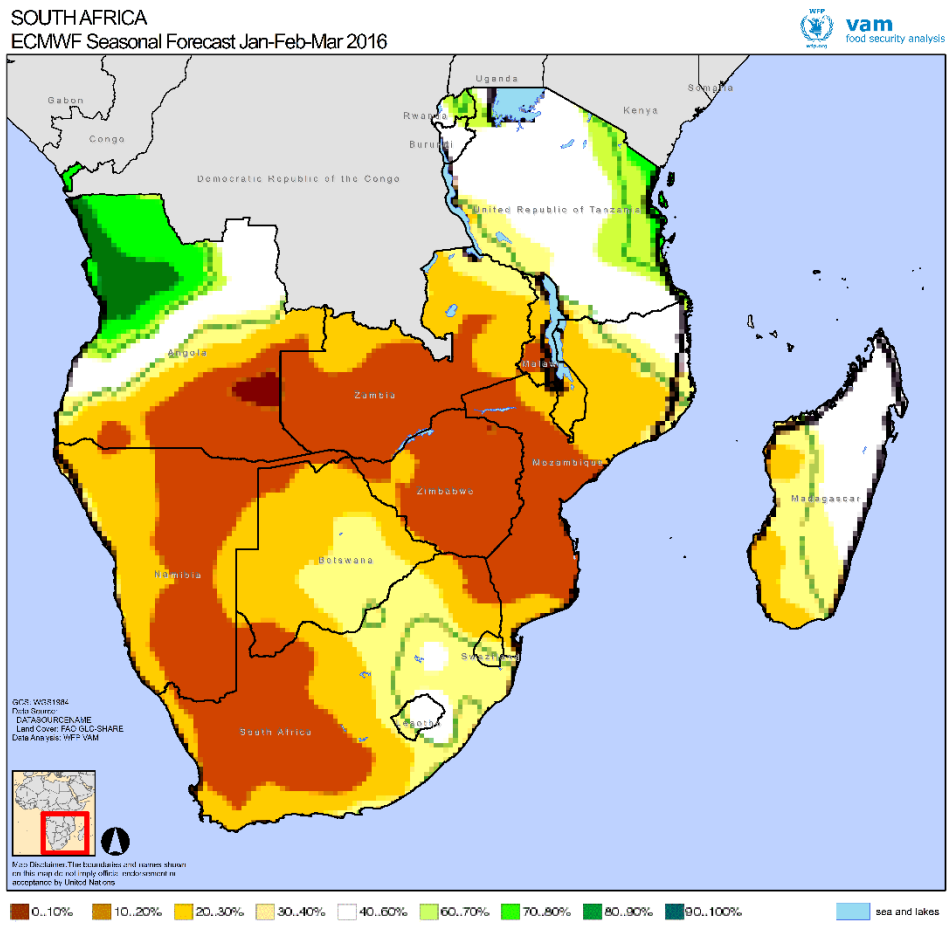
January brings only limited improvements

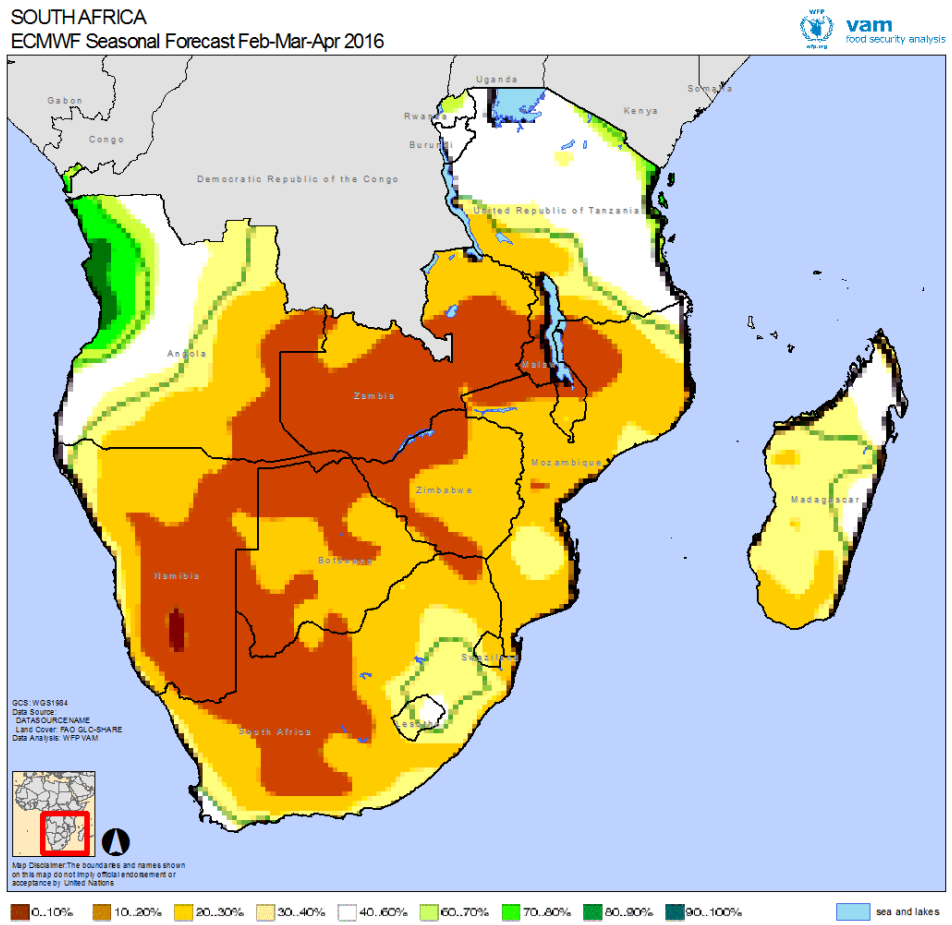
The first half of January (left map) saw drier than average conditions that have been the norm this season. However, there were some improvements in NE South Africa registering above average rainfall. This trend will have to continue over the next couple of months to have a significant impact on the current negative maize production outlook. On the other hand, drier than average conditions have spread into Madagascar which until recently had had a moderately good early season. Northern Mozambique and northern Malawi remain wetter than average with recent reports of localized flooding.

The rainfall forecast until the end of the month (right map) indicates wetter than average conditions extending from western Zambia, through Namibia and into western and central South Africa. However, over easternmost South Africa, Swaziland, Mozambique, Zimbabwe, SE Zambia and Madagascar as well as Angola, drier than average conditions are forecast.

Outlook for the Rest of the Growing Season 2015-2016

Southern Africa: Heading for a Record Drought?





ECMWF forecast :
Left: January-March 2016 rainfall
Right: February-April 2016 rainfall
Green shades = wetter than average conditions more likely.
Orange shades = drier than average conditions more likely
The darker the shade the higher the likelihood

No respite from drought conditions in sight until the end of the season

The rainfall forecasts for the months ahead show a high likelihood of continued extremely difficult conditions for crop development.

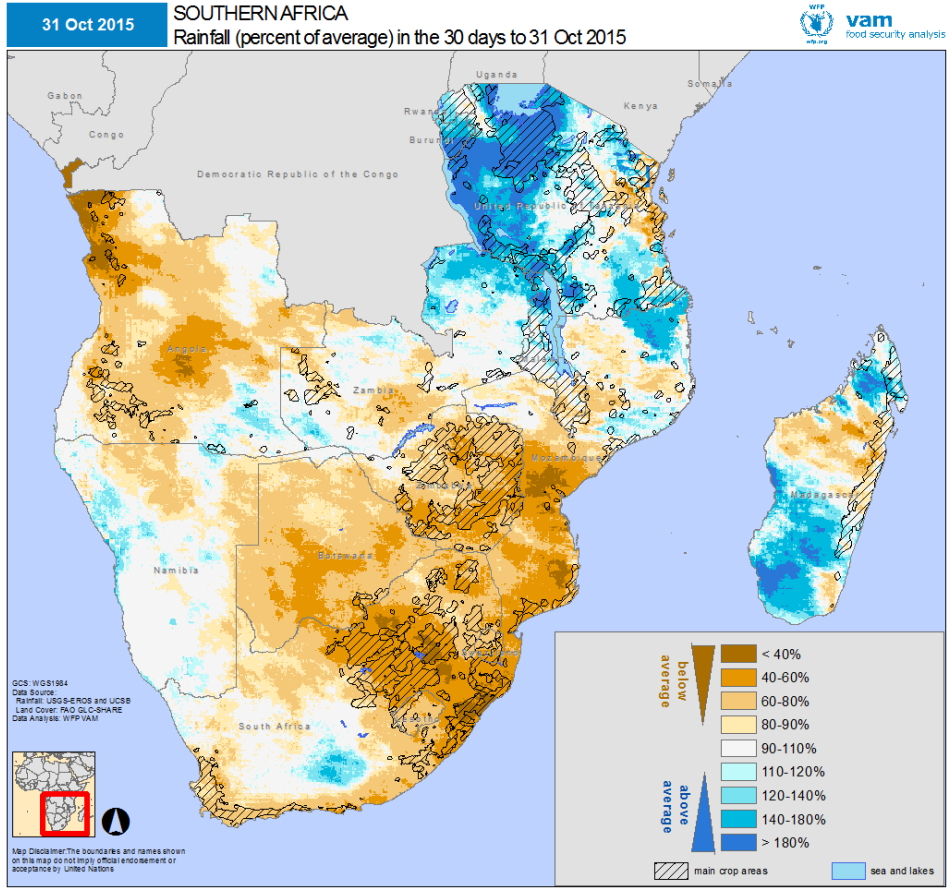
The forecast for the January-March period indicate markedly drier than average conditions in many areas of the region, particularly across most of Zimbabwe, southern half of Mozambique, southern Zambia, southeast Angola, eastern Namibia and western South Africa. Although the forecasts show relatively better perspectives for eastern South Africa, the outlook remains pessimistic, specially considering the very poor early season performance. Similar conditions are also forecast for the February-April and March-May periods.

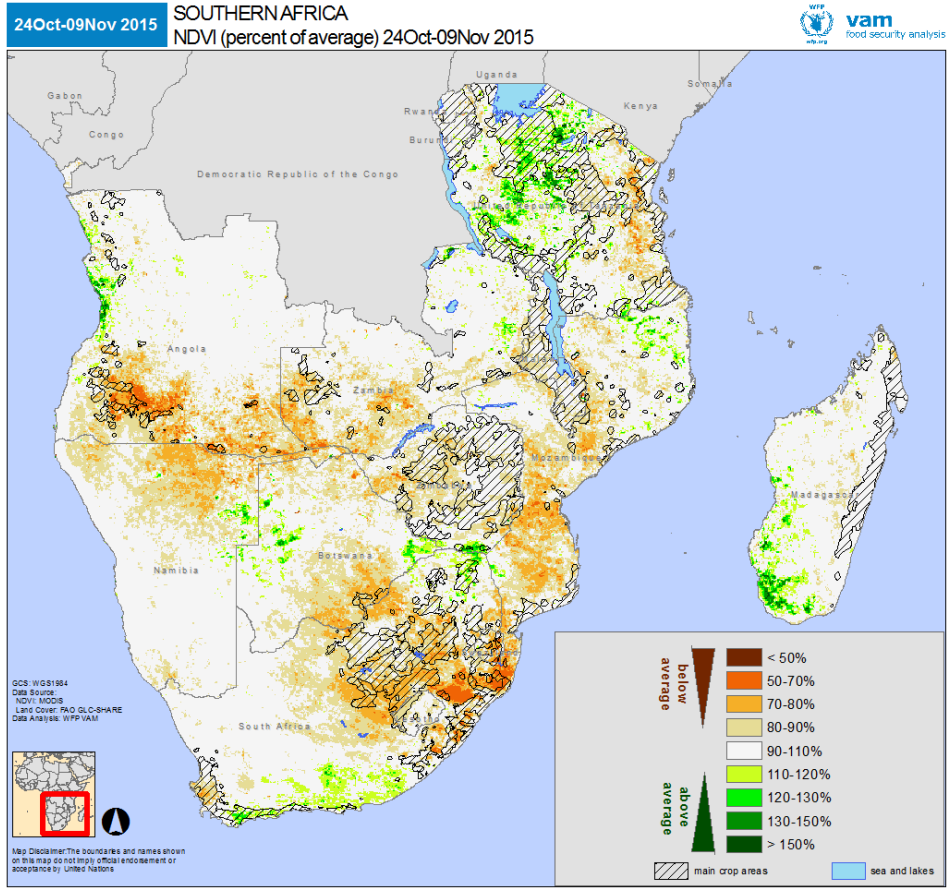
Given the accuracy of these forecasts thus far, massive and widespread crop losses across the region is becoming the most likely scenario.

The Season: Month by Month

October 2015

Southern Africa: Heading for a Record Drought?





October 2015 rainfall as a percentage of the 20-year average (left).

Brown shades for drier than average, blue shades for wetter than average conditions.

Early November 2015 vegetation index as a percentage of the 12-year average (right).

Orange shades for below-average, green shades for above-average vegetation.

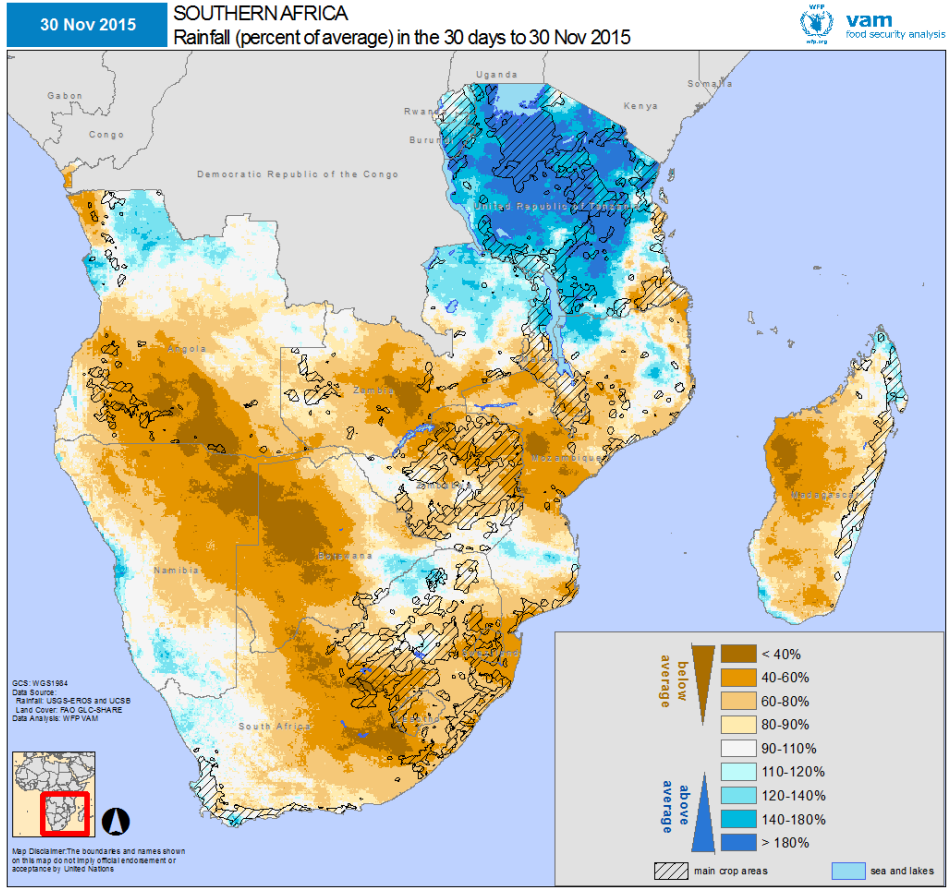
Hashed pattern indicates main agricultural areas.

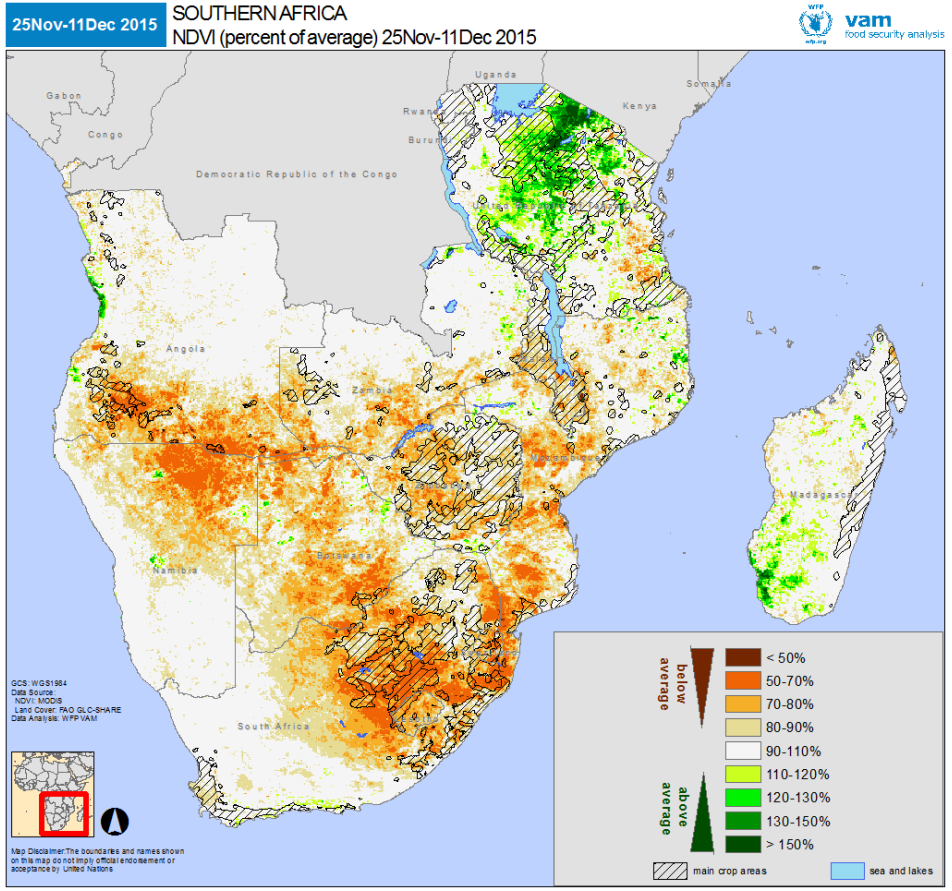
October marks the beginning of the growing season across Southern Africa – the earliest starts are usually in eastern South Africa and then progress towards north and west. Drier than average conditions were already developing from early October.

Vegetation cover at this stage is usually close to dry season average levels. Across the region, incipient patterns of below average vegetation are largely due to last season's poor rainfall. In eastern South Africa however, they signal the first delays in the onset of the growing season. In Tanzania, however, a good performance of the first season in northern bimodal areas was observed. Elsewhere the sporadic above average vegetation is largely due to localized early rainfall events of little significance.

November 2015

Southern Africa: Heading for a Record Drought?





November 2015 rainfall as a percentage of the 20-year average (left).

Brown shades for drier than average, blue shades for wetter than average conditions.

Early December 2015 vegetation index as a percentage of the 12-year average (right).

Orange shades for below-average, green shades for above-average vegetation.

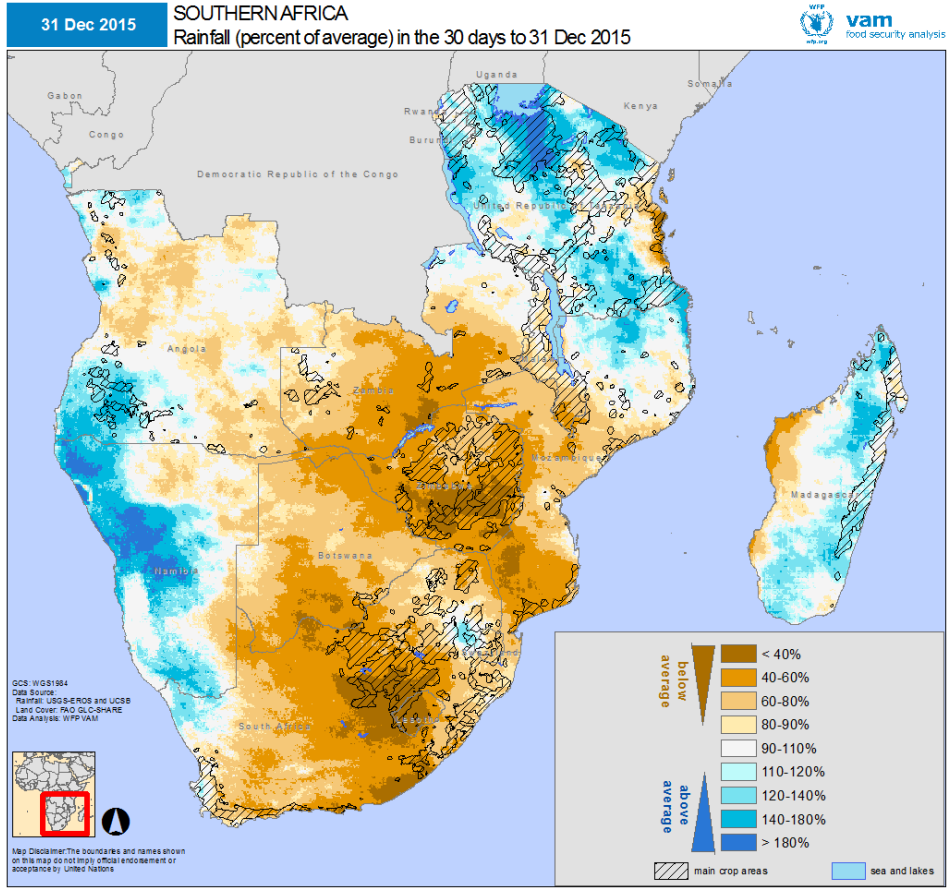
Hashed pattern indicates main agricultural areas.

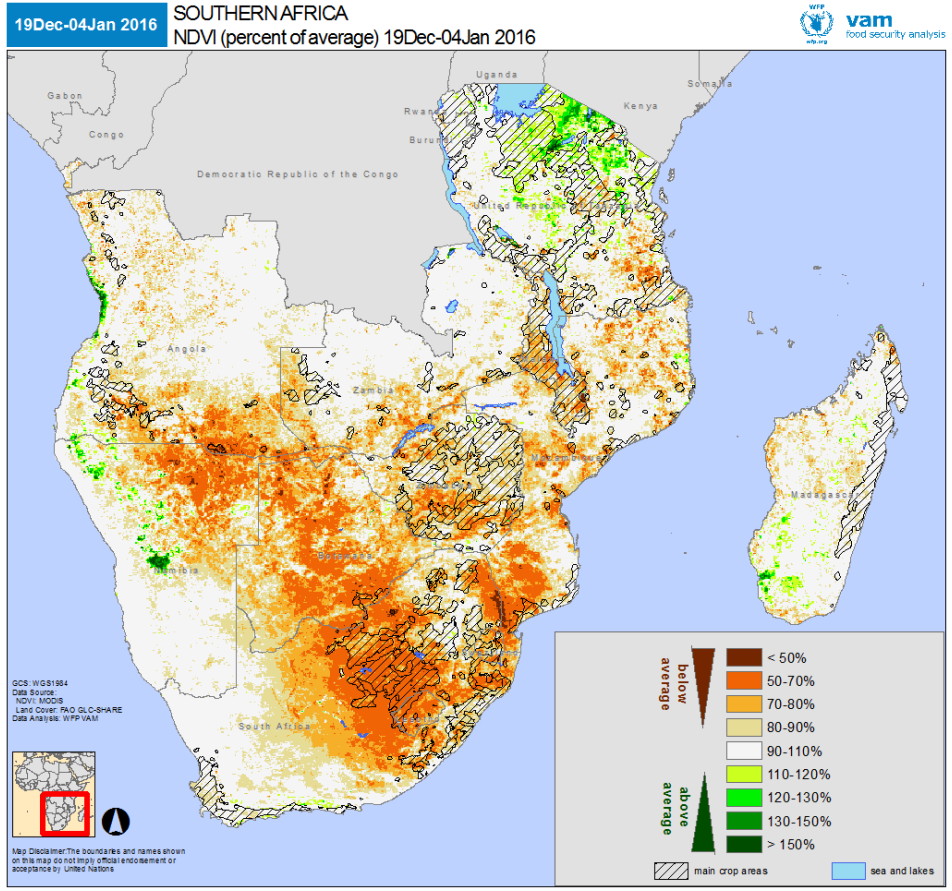
In November, planting activities usually start across the region. In a continuation of the October patterns, drier than average conditions remained in place across most of the region, except for Tanzania, which is mostly influenced by El Nino related rainfall enhancements common to East Africa. As a result, delays in the start of the growing season became well defined – at this stage these posed little worry, since they were within the normal inter annual variability in areas with a relatively long season.

The vegetation cover deficits of October became more pronounced as a result of the drier than average conditions and confirm the late arrival of significant rainfall. Again Tanzania departs from this general trend given the differences in seasonality (November being the peak of the first season in bimodal areas) and the opposite influence of El Nino on rainfall in this area.

December 2015

Southern Africa: Heading for a Record Drought?





December 2015 rainfall as a percentage of the 20-year average (left).

Brown shades for drier than average, blue shades for wetter than average conditions.

Early January 2016 vegetation index as a percentage of the 12-year average (right).

Orange shades for below-average, green shades for above-average vegetation.

Hashed pattern indicates main agricultural areas.

In December, drier than average conditions continued, bringing early season cumulative rainfall to historically low levels. This resulted in delayed start of agricultural activities and therefore early crop development was at the very least problematic. The only regions spared these extreme conditions were Madagascar and northern Mozambique as well westernmost Namibia and SE Angola. Tanzania continued to benefit from the opposite El Nino influence leading to wetter than average conditions.

Correspondingly, vegetation cover also remained at historically low levels, reflecting the very poor ground conditions across most of the region.

Data Sources:

Rainfall: CHIRPS, Climate Hazards Group, UCSB

Vegetation: MODIS NDVI, EOSDIS-NASA

Land Cover: FAO GLC-Share

Processing:

VAM software components, ArcGIS

For more information, please contact:

Rogerio Bonifacio

rogerio.bonifacio@wfp.org

+39 06 6513 3917

WFP

wfp.org

vam

food security analysis