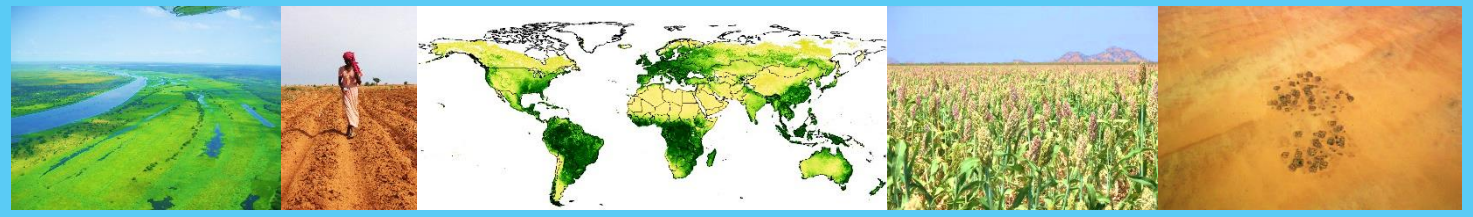

Southern Africa Growing Season 2016-2017:

Recovery After Two Years of Drought?

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HIGHLIGHTS

- **Good performance** of the current **growing season** (October 2016 - April 2017) is **critical** for Southern Africa **after** suffering from **two consecutive droughts** induced by a long lasting El Nino event which led to unprecedented levels of food insecurity.
- The **current growing season is developing** under a **La Nina** event that is forecast to be **short** and **weak.** Historical data shows that La Nina events almost always lead to **favourable rainfall** and **better than average crop** production.
- The **growing season** has been off to an **irregular start**, with delays extending across Mozambique, Zimbabwe and Zambia. On the positive, major cereal producing regions of NE South Africa together with Botswana, Namibia and southern Angola have enjoyed a promising start.
- **Vegetation cover** is still **depressed** across almost the entire region as early rains are mostly used to restore severely depleted soil moisture reserves. **Resulting delays** to crop and pasture development underscore the **need for consistent and abundant rainfall**.
- **Seasonal forecasts** indicate **wetter than average conditions** during the critical **January to March** stage of the growing season, in particular over the most drought affected regions, providing grounds for some optimism for regional recovery.

2016-2017 Growing Season: Context and Perspectives

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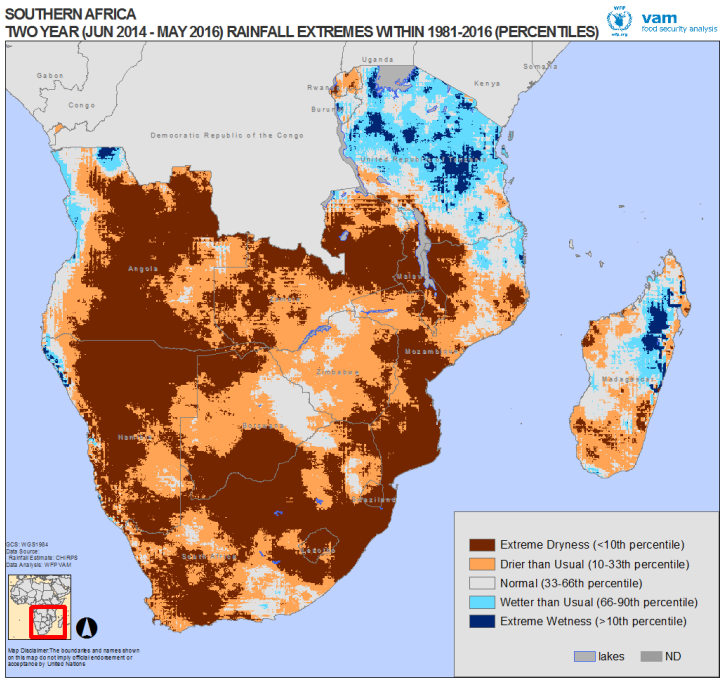
Context: A Two Year Regional Drought (2014-2016)

Southern Africa: The 2016-2017 Season



Two Year Rainfall from June 2014 to May 2016 expressed in terms of how extreme it was within the historical record (1981-present).

Extreme dryness or wetness was defined as amounts falling in the driest or wettest 10% of the record – corresponding to the 3rd driest (wettest) or worse. The map also shows less extreme drier and wetter than average regions.

MAIZE PRODUCTION ('000 MT)

Country	Pre-Drought Average	2015 %Change	2016 %Change
Angola	1205	34%	86%
Botswana	18	-18%	-78%
Lesotho	77	-4%	-67%
Malawi	3661	**-21%**	**-42%**
Mozambique	1602	17%	12%
Namibia	63	-39%	-40%
South Africa	12495	**-16%**	**-38%**
Swaziland	89	6%	-63%
Zambia	2910	-10%	-6%
Zimbabwe	1173	**-37%**	**-56%**
TOTAL	23293	-12%	-26%

Southern Africa regional maize production in two seasons of drought:

2014-15 and 2015-16 maize production is compared to the average of the 5 harvests that preceded the two drought affected seasons.

Highlights: Sharp production drops in large producers (SA) and countries with large food insecure populations (Malawi and Zimbabwe).

Data: SADC / FAO-Stat

Two Year Drought causes a wide range of cross-sectoral impacts

Southern Africa experienced two consecutive droughts. The growing season of October 2014 to April 2015 was characterized by extensive rainfall deficits during key stages of the staple maize crop development. Significant, though localized, flooding in Malawi and northern Mozambique further compounded the problem.

The growing season of 2015-2016 was one of the driest on record, being particularly intense in its earlier stages – this led to major impacts on crop production through extensive decreases in planted area. Where planting was successful, yields were decreased by much drier than average conditions lasting until late February 2016.

Maize Production Hit Hard for Two Consecutive Years

The table above shows maize production for 2015 and 2016 as change from a pre-drought baseline (average of the 5 harvests 2010 to 2014). The region as a whole suffered two major consecutive drops of 12 percent and 26 percent respectively.

The maize production shortfalls in South Africa were of particular significance as the major regional producer – 16 and 38 percent respectively. The sharp maize production drops in Zimbabwe (consecutive drops of 37 and 56 percent) and Malawi (consecutive drops of 21 and 42 percent) were also important as they have the highest number of food insecure people in the region. Also notable are production near wipe outs in Lesotho, Swaziland and Botswana.

Only Mozambique, Angola and Zambia escaped production failures as their northern crop producing areas make them less sensitive to El Niño impacts.

La Nina Outlook

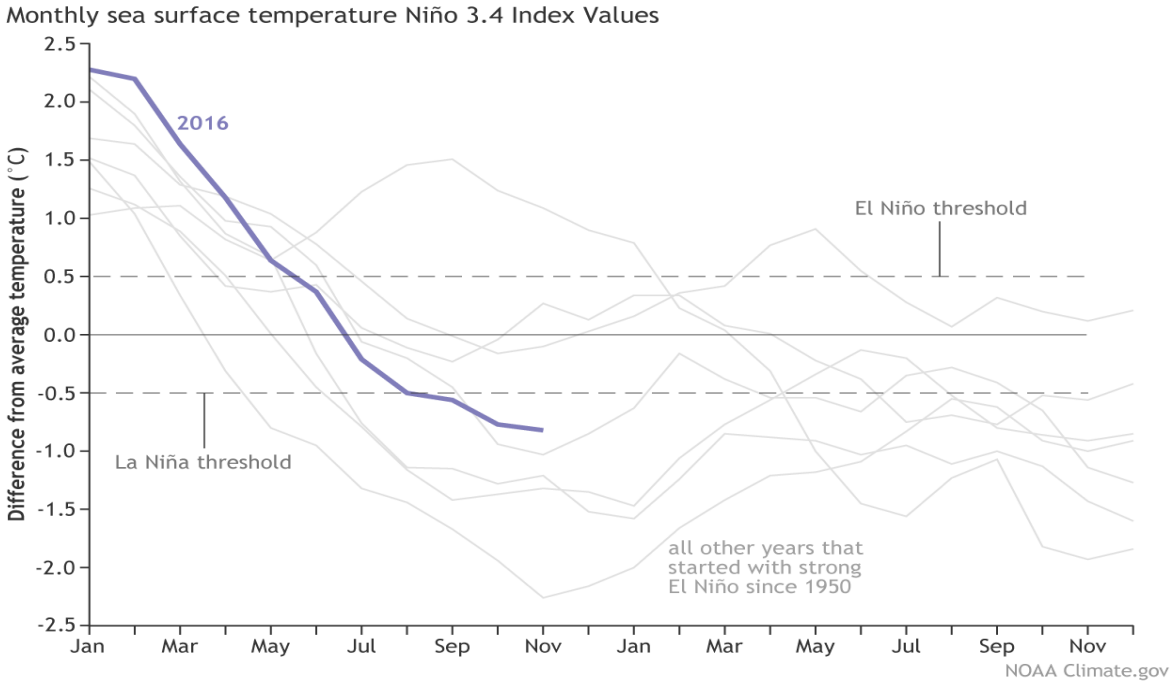
La Nina To Follow a Devastating El Nino…

Following the longest lived and one of the most intense El Nino events on record, a La Nina episode has formed. Historical records offer no guidance as to its intensity or duration. In the past, intense El Ninos have been followed by a variety of conditions, including intense La Ninas or just neutral conditions.

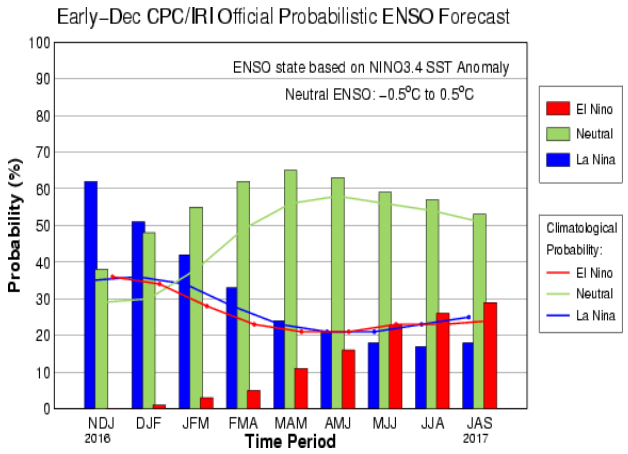
…but not likely to last long.

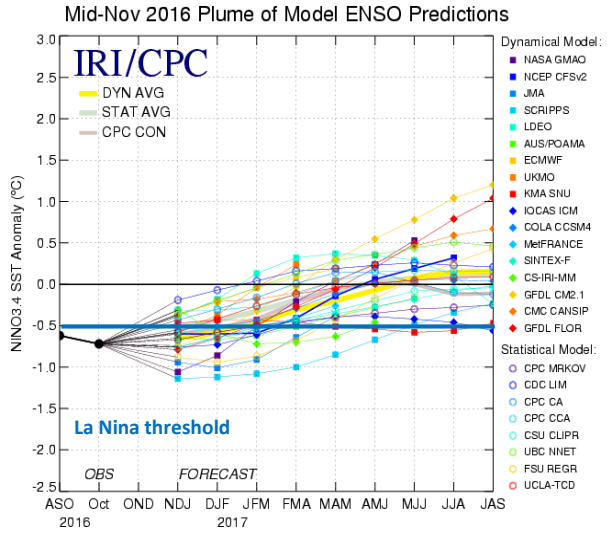
After an uncertain start, La Nina conditions settled in October and have continued normally since then. Forecasts show a return to neutral conditions by February-March 2017 when probabilities of a La Nina come close to average (down from 60% presently).

The intensity of this La Nina is expected to remain weak to borderline throughout its duration. However, it must be noted that a weak La Nina does not mean that its impacts will also be weak.



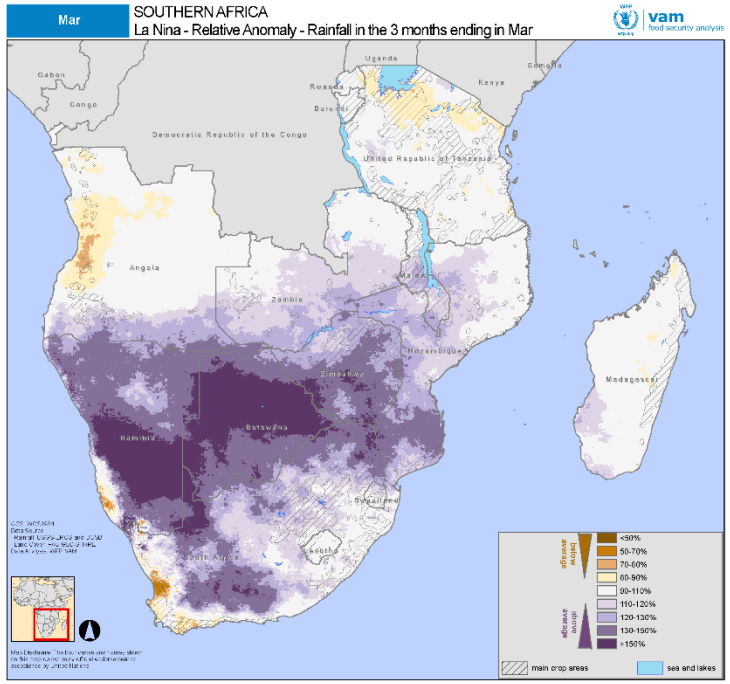
Above: Evolution of central Pacific sea surface temperatures (blue line) Thin grey lines represent this evolution for all years that followed a strong to moderate El Nino.

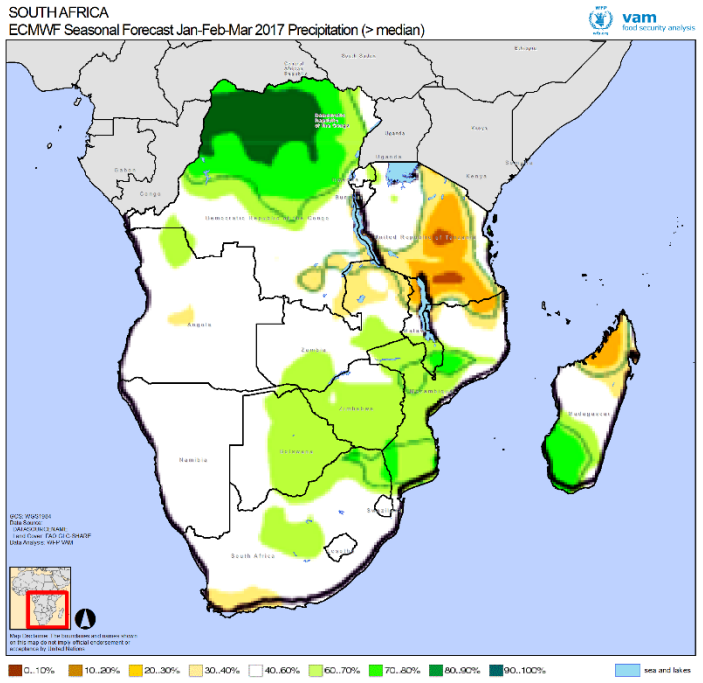


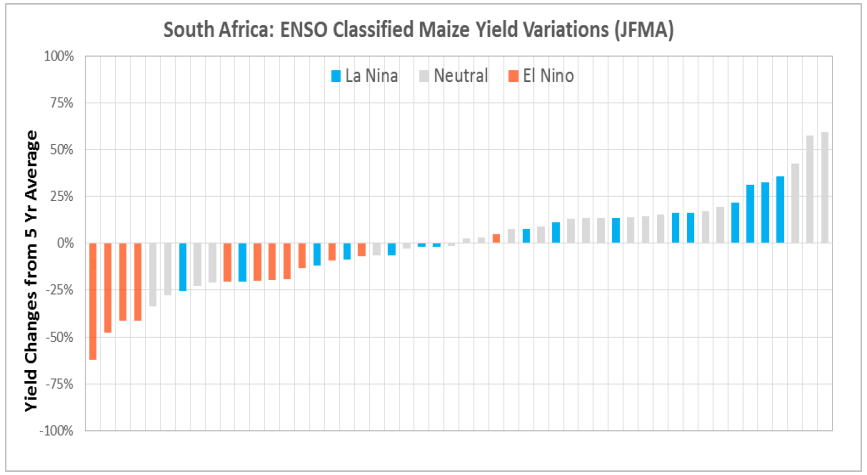


Below: La Nina forecasts from IRI/CPC – overall probabilities of the event (left) and ensemble model forecasts of SST evolution (right)

Optimistic Perspectives for the 2016-17 Growing Season







South Africa: ranked national maize yield variations from the 5 year average, coded according to ENSO phase. Larger positive increases (right side) are preferentially associated with La Niña (blue bars).

Data: FAOSTAT, CPC. Analysis: WFP-VAM

Left: Average January-March rainfall for La Niña seasons 1981-2013 compared to Neutral seasons. Browns: La Niña drier than neutral seasons; Purples: La Niña wetter than neutral seasons
Right: ECMWF rainfall forecast for January-March 2017. Green shades: wetter than average conditions. Orange shades: drier than average conditions.

Long Term Data and Forecasts Underscore Cautious Optimism

Southern Africa's current growing season is now in its first stages and will extend to May 2017, when harvest takes place.

Typically, La Niña seasons are associated with wetter than average conditions: across most of Southern Africa, January to March rainfall amounts in La Niña seasons are higher than in neutral seasons (map above left). Consequently, historical crop production data shows La Niña seasons to lead to increased productivity (see chart above right).

Current seasonal forecasts for January-March 2017 rainfall (map above centre) indicate wetter than average conditions for Mozambique, Zimbabwe, Botswana, southern Malawi, southern Madagascar and the NE South Africa maize growing regions. This could mean significant improvements in crop production *relative to those of the past two seasons*.

In contrast, Tanzania and northern Madagascar can expect drier than average conditions leading to possible poor performance of the main cropping season.

2016-2017 Growing Season: Current Status

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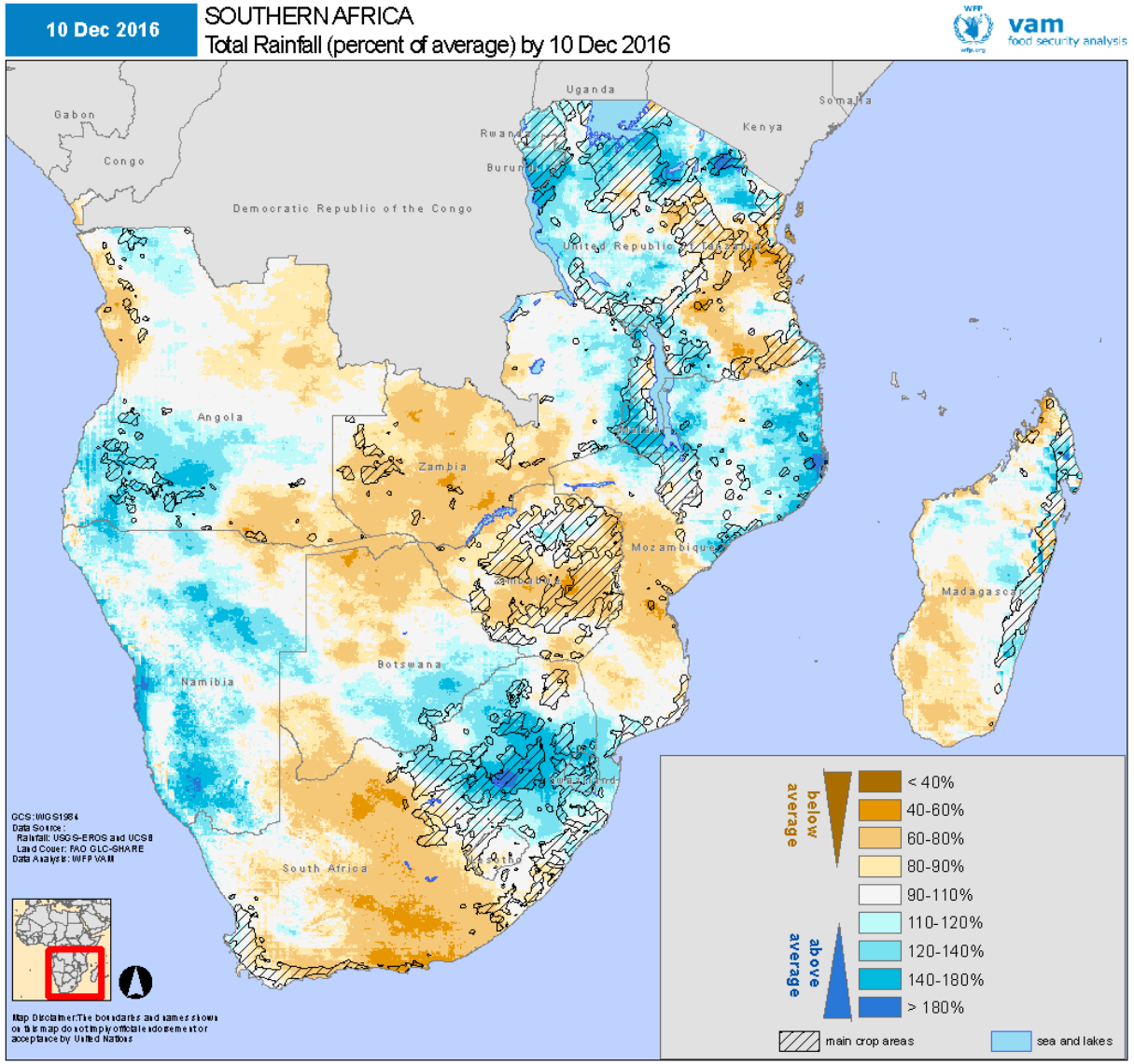
Current Rainfall Patterns



Seasonal cumulative rainfall until early December 2016, as a percentage of the 20-year average.
Hashed pattern indicates main agricultural areas.
Brown shades indicate below-average rainfall; blue shades indicate above-average seasonal rainfall.

An Hesitant Start of the Season

The 2016-2017 season got off to a variable start: maize production areas of NE South Africa have been receiving steady and above average rainfall, which is quickly refilling severely depleted soil moisture storage and allowing a timely start to the growing season.

Above average rainfall has also benefitted northern Mozambique, Malawi, NE Zambia and western and northern Tanzania as well as Namibia and SW Angola.

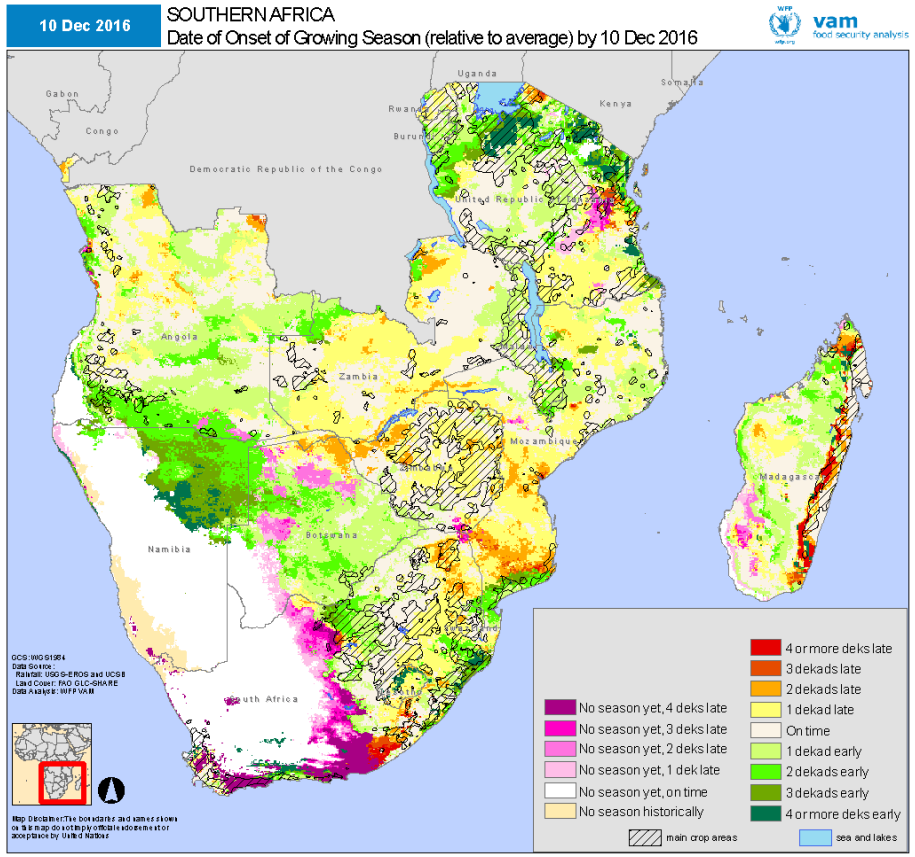
Elsewhere, the first stage of the season is characterized by drier than average conditions in particular in Zimbabwe, central Mozambique and southern Madagascar.

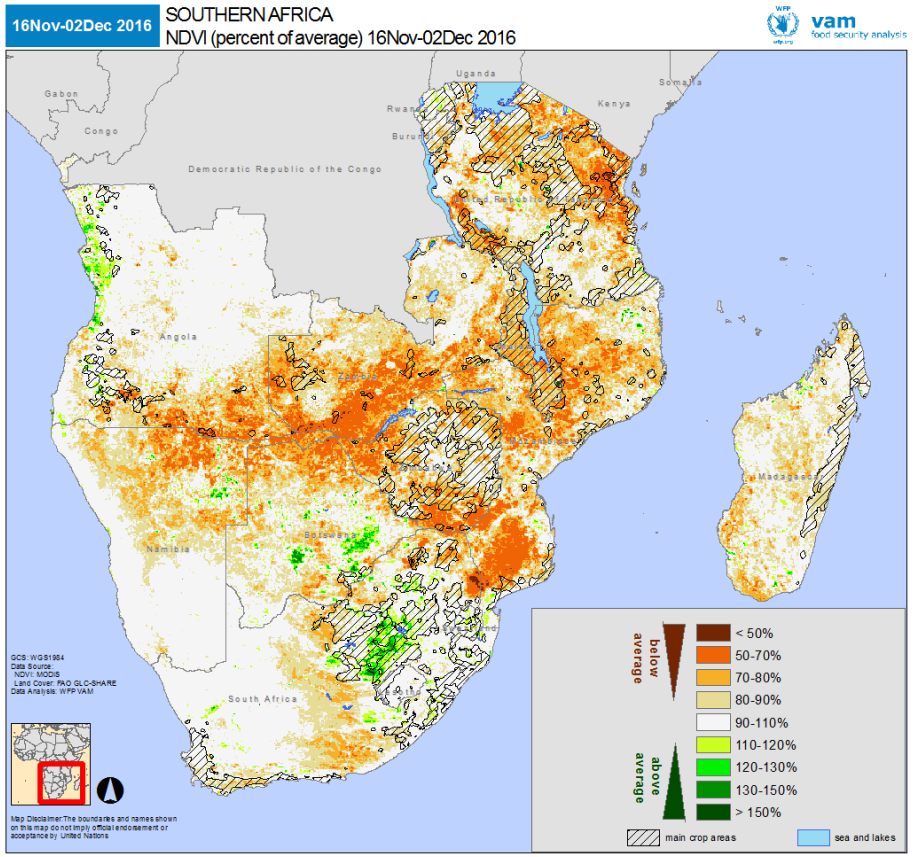
These regions were severely hit by the droughts of the past two seasons – a good performance of the current season is essential to bring meaningful relief to the harsh conditions endured by poor and vulnerable households.

These are very early stages and given the length of the growing season there is time for a full recovery—rainfall forecasts are favorable for first quarter 2017.

Current Start of Season and Vegetation Cover Patterns

Southern Africa: The 2016-2017 Season





Left: Date of start of the growing season by 10 December 2016 compared with average. Oranges and pinks for delayed onsets, greens for earlier then average onsets.

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

Hashed pattern indicates main agricultural areas.

Delayed Start of the Season

Irregular rainfall until now has led to 1-2 week delays in the start of the growing season across Mozambique, Zimbabwe and Zambia.

Earlier than usual starts happened in Botswana, Namibia, southern Angola and northern Tanzania.

Overall, these moderate delays will not have an impact on growing season as long as rainfall remains at average levels from now on.

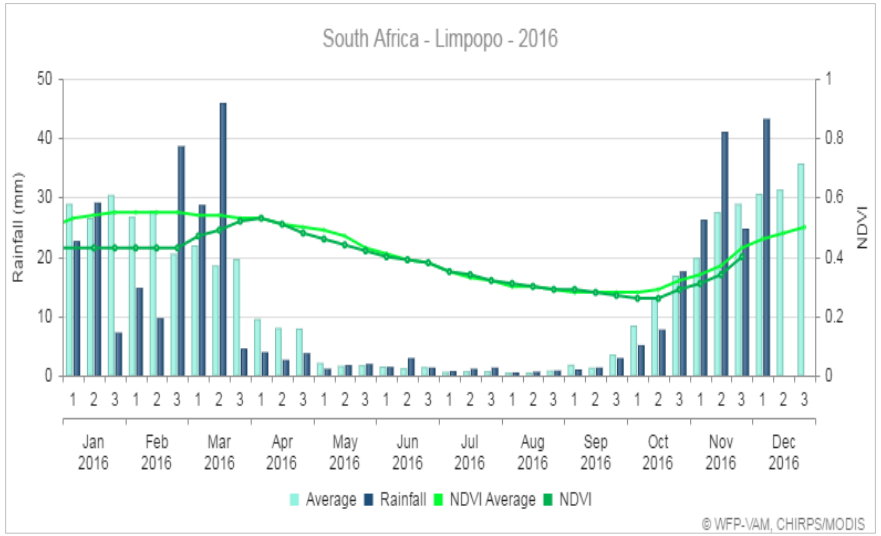
Vegetation Cover Still Reflects Past Drought Conditions

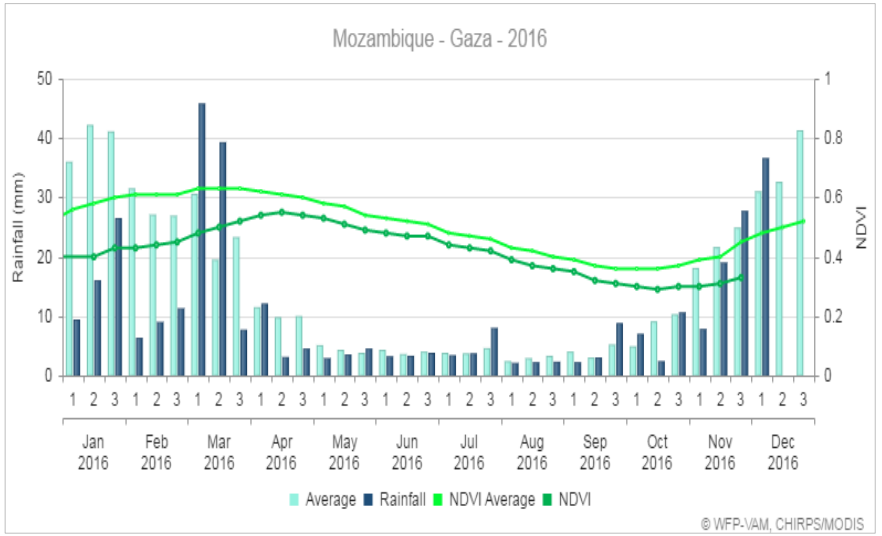
Vegetation cover is currently at extremely low levels – this is mostly the result of the multi-year drought that affected the region, leading to severely depleted soil moisture. Early season rainfall has to make up the deficit before it can kick start significant vegetation growth.

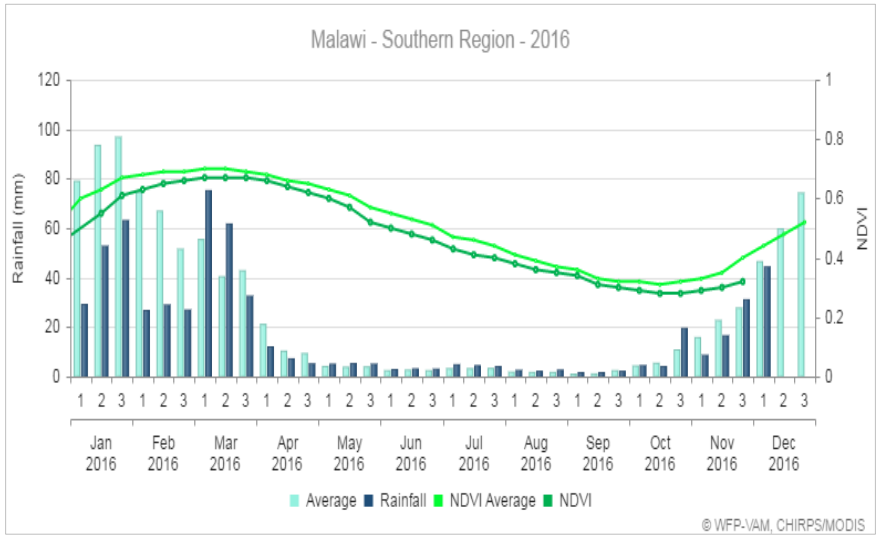
Hence, vegetation will recover slowly unless rainfall is abundant and regular. Thus far this has only happened in eastern South Africa.

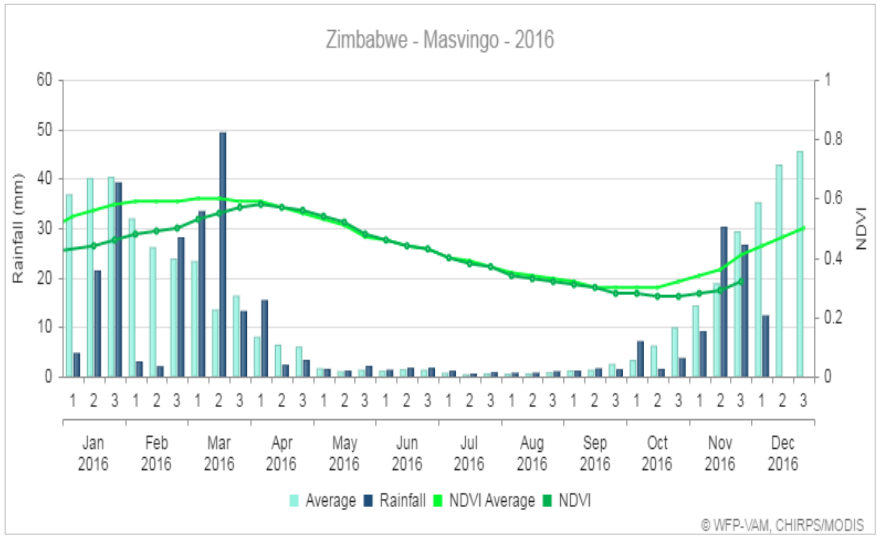
Season 2016-2017: Example Charts

Southern Africa: The 2016-2017 Season









An overview of the progress of the current season is presented for South Africa-Limpopo, Mozambique-Gaza, Zimbabwe-Masvingo and Malawi-South. These locations endured very severe drought conditions during the last two season.

The charts show last season's drier than average conditions and strongly depressed vegetation cover.

They highlight the irregular start of the current season with lower than average rainfall until early November. The vegetation cover therefore has not really taken off yet, which is also partly due to the extremely dry conditions of the last season.

More recently, rainfall has increased across much of the region. Although vegetation cover is expected to recover, it will still take longer given the need to replenish extremely moisture depleted soils.

Dark blue bars: current rainfall season
Light blue bars: long term average (LTA) rainfall
Dark green line: current vegetation index (NDVI)
Light green line: long term average (LTA) NDVI

Get your own plots at:

http://dataviz.vam.org/

Data Sources:

Rainfall: CHIRPS, Climate Hazards Group, UCSB

Vegetation: MODIS NDVI, EOSDIS-NASA

Land Cover: FAO GLC-Share

Processing:

VAM software components, ArcGIS

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