South African Weather Service
ISO 9001 Certified Organisation

Seasonal Climate Watch

October 2016 to February 2017

Date: Sep 30, 2016

1. Advisory

Current observations show close to the border of weak La-Niña state. The likelihood of weak La-Niña development toward summer season remains low. The forecasting system favours a gradual improvement of chances for above-normal rainfall conditions toward the mid-summer season. However, the uncertainty level remains fairly high with a marginal confidence since most of those climate systems that govern our region are not clearly manifested in favour of the forecast's expectation.

2. Recommendation

Severe drought condition remains over most parts of the country. Irrespective of the prospects for a much-needed wet-spell over the country for the coming seasons, it is highly recommended that this persisting regional drought is cautiously taken into consideration since the circumstance surrounding the current situation is still delicate. As always, it is also highly recommended that the medium- and shorter-range weather forecasts be monitored for the development of conditions that may alter or strengthen the expectation of the current forecast.

3. State of Climate Drivers

Observations show that the state of ENSO (El-Niño Southern Oscillation) is near to the border of weak La-Niña. Most forecast models' predictions indicate the likelihood of a weak La-Niña to neutral state development towards late spring through summer 2016/17. The Indian Ocean Dipole (IOD) still shows a tendency of negative phase development towards spring and is expected to reduce to neutral state during early summer. A negative phase of the IOD usually tends to supress the transport of moisture from the Indian Ocean to the southern Africa region.

The Southern Annular Mode (SAM) has been showing a tendency for a positive phase on average for the last few months with a tendency negative phase for the coming few weeks. The positive phase of the SAM and the strengthening of the polar vortex are often associated with a warmer and drier winter season over most of the region with the exception of the far south western parts, as most of the cold fronts are passing over the ocean and coastal areas.

Generally, it is known that ENSO has a noticeable impact on the climate of our region during the austral summer season while the IOD is also found to influence rainfall activity, particularly during spring. Furthermore, the SAM is believed to affect South African

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climate conditions by regulating the south/northward positioning of the mid-latitude jet stream and transport of associated air masses from the southern Atlantic Ocean. Its impact is more pronounced in winter.

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4. Climate Forecast Details

4.1 Rainfall

The forecasting system shows a huge uncertainty for late-spring season which is presumably an indication of a transition from dry- to wet-spell. As shown in figure 1, the likelihood for above-normal rainfall is rapidly increasing over most parts of the country toward the mid-summer season.

For improved confidence in a probabilistic prediction use is made of skill scores most notably the Relative Operating Characteristic (ROC) which indicates the relative performance of the prediction system. Areas of ROC scores above 0.5 may be considered as areas of added confidence for the prediction (Figure A1).

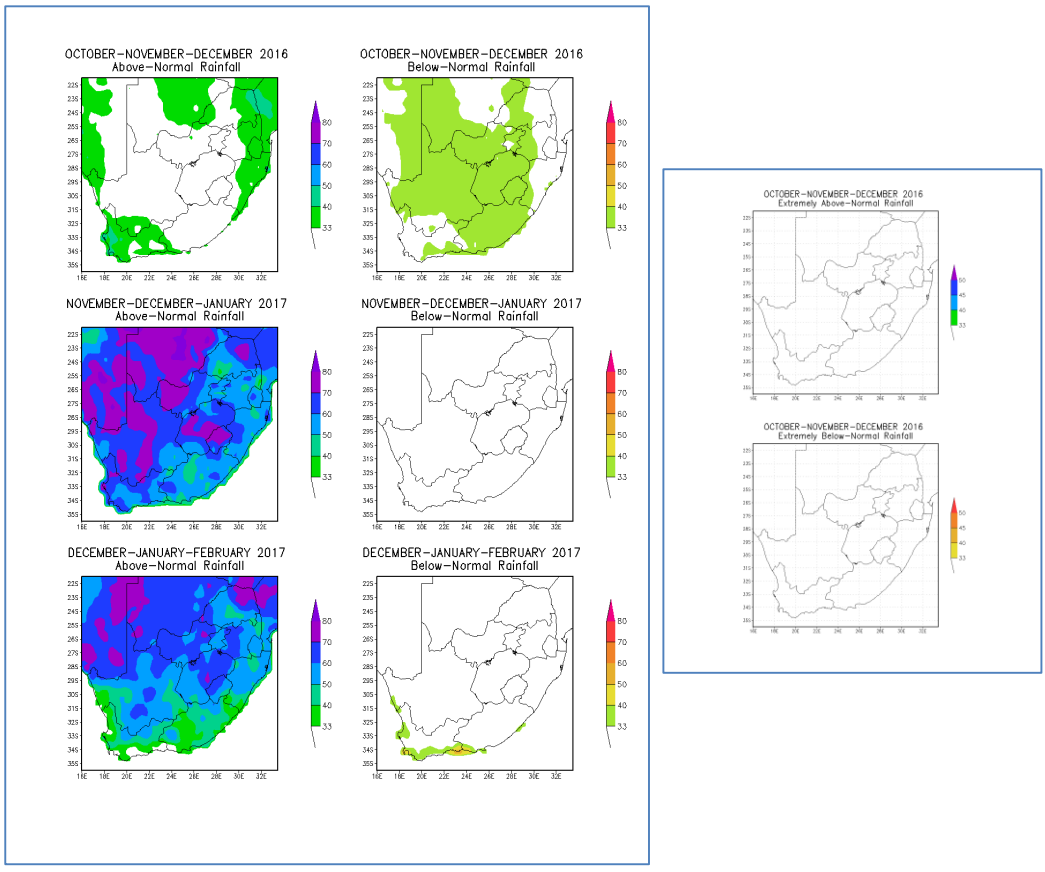

Figure 1: Rainfall forecasts for the three overlapping seasons valid for the period of October 2016 to February 2017 and extreme forecasts for October to December 2016 season (right panel).

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4.2 Minimum and Maximum Temperatures

Mostly warmer than normal temperatures are expected for South Africa in late-spring to mid-summer. The temperature forecast is, however, inconsistent with the expected wet-spell since colder temperatures mostly tend to prevail with a good rainy season. Generally, the summer period is characterized by very hot temperatures and the interpretation should be viewed relative to the long-term average.

For improved confidence in a probabilistic prediction use is made of skill scores most notably the Relative Operating Characteristic (ROC) which indicates the ability of the forecasting system to distinguish events from non-events. As noted earlier, areas of ROC scores above 0.5 may be considered as areas of added confidence for the prediction (Figure A2).

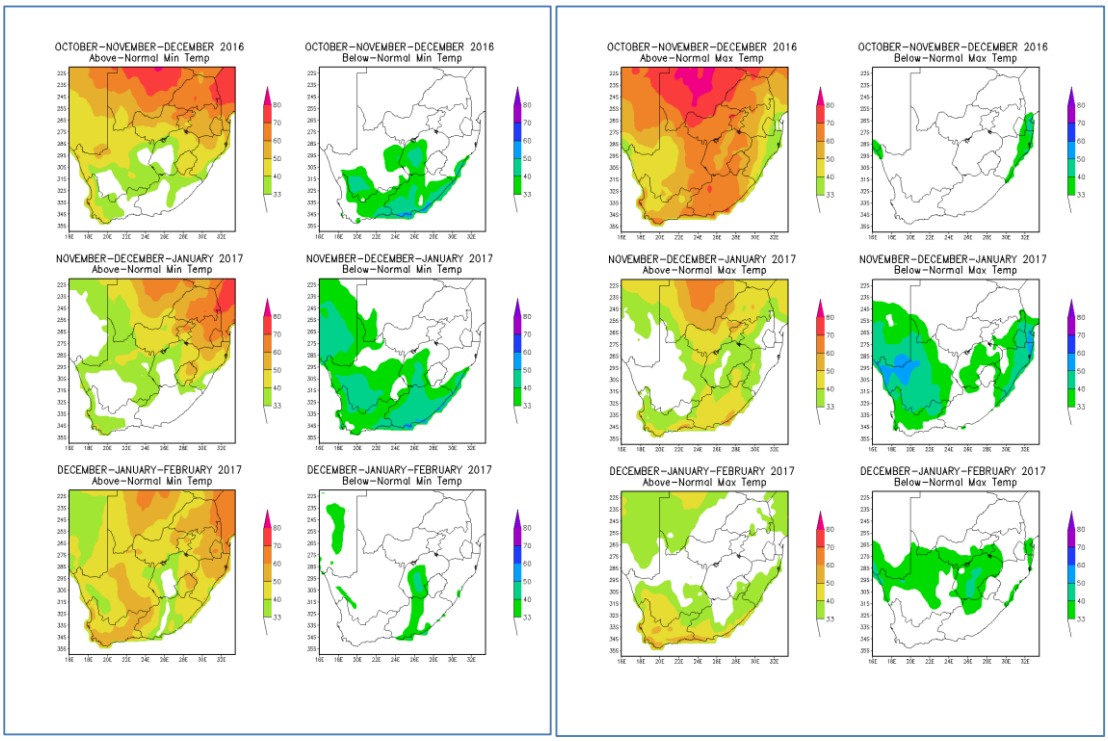

Figure 2: Probabilistic minimum (left panel) and maximum (right panel) temperature forecasts for the three overlapping seasons valid for the period of October 2016 to February 2017.

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Contributing Institutions

All the forecasts are a result of an objective multi-model prediction system developed at the South African Weather Service. This system comprises of long-range forecasts produced by the following institutions:

5. Appendix

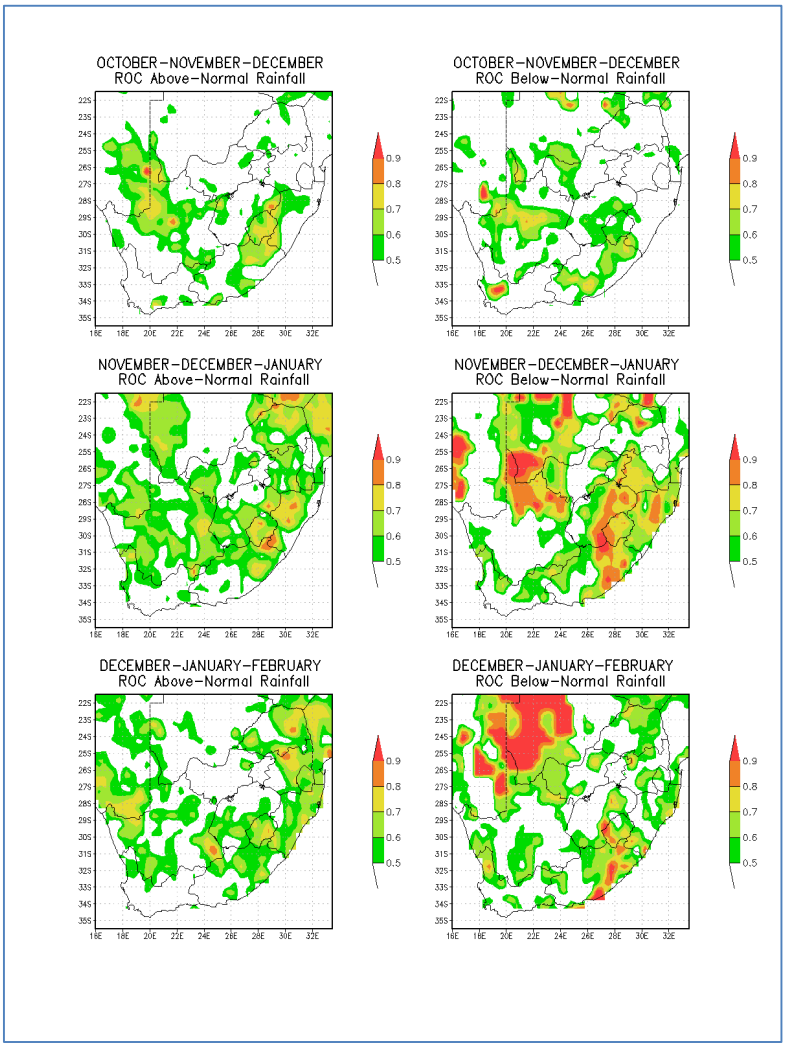

Figure A1: The skill of the forecasting system in discriminating wet or dry events during the forecasting period as shown in the caption of each plot. Those regions with no shades imply that the forecasts are not better than chance.

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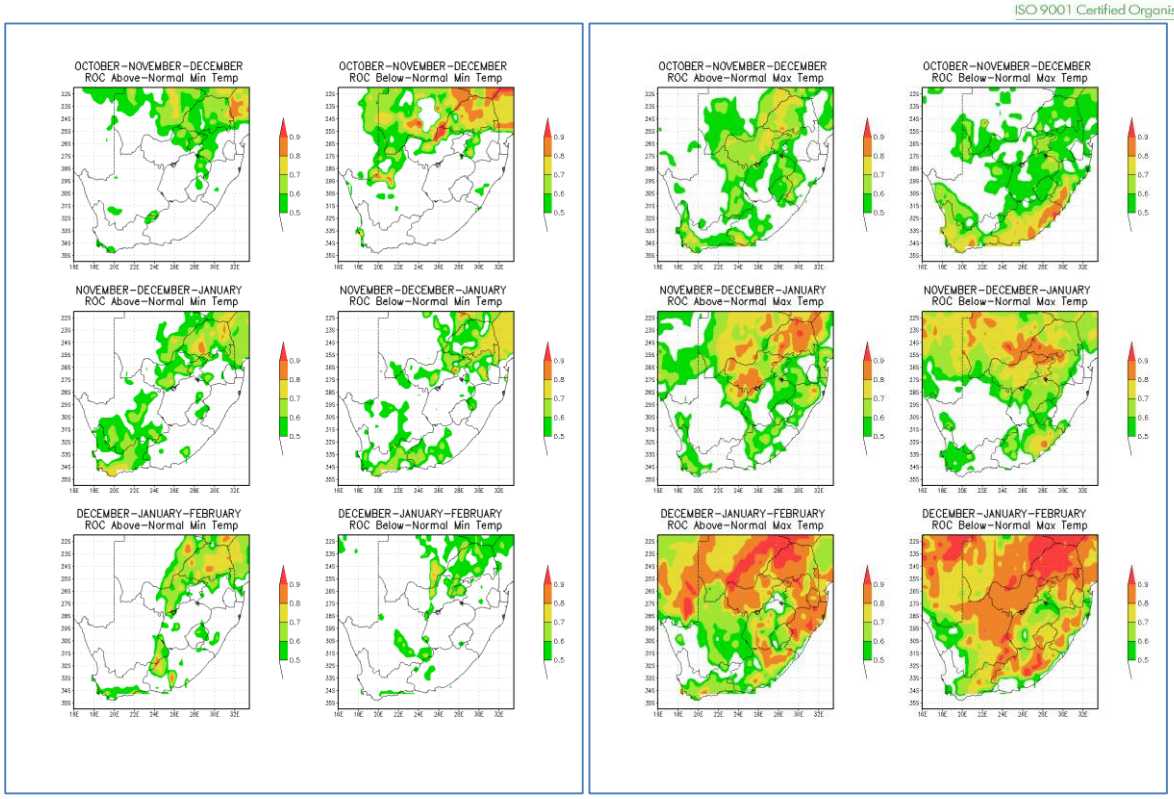

Figure A2: The skill of the forecasting system in discriminating hot or cold events during the forecasting period as shown in the caption of each plot. Those regions with no shades imply that the forecasts are not better than chance.

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