



# CUMULUS

31 OCTOBER 2024

by J Malherbe, R Kuschke

1 FUTURE 2 FOCUS 3 AGRICULTURE

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The banner features a dark blue sky over a field of tilled brown earth. On the left, the AgriSeker logo is displayed, consisting of a green leaf and a yellow ear of corn, with the text 'Agri Seker fa' and the tagline 'in Seker Toekoms' below it. The Land Bank logo, featuring a stylized sun and waves, is positioned at the bottom left. The central text reads 'THIS IS OUR CERTAIN FUTURE' in large white letters, followed by the tagline 'Together we can make a contribution to the Future of our Country with a dedicated Focus on Agriculture'. At the bottom, three pillars are listed: '1 FUTURE', '2 FOCUS', and '3 AGRICULTURE'. Small text at the bottom provides regulatory information for AgriSeker and Land Bank Insurance.

# Summary

## Still relatively dry, but thundershowers will become more frequent

The period will start out dry over the interior in the wake of the frontal system that impacted most of the country early this week. With the low-pressure system that developed over the southern parts on Sunday and Monday this week, dry air invaded the interior and is responsible for the sunny and warm conditions with relatively low night-time temperatures. During the next week, current forecasts are indicative of a continuation of this drier pattern. Another cold front is expected to move into the country from the southwest early next week, again associated with a cut-off low moving across the southern parts. If this sequence of events plays out as expected now, it will once again result in the influx of dry air from the southwest over the interior. Thundershowers may however develop over the interior, including the grain-production region, during the weekend ahead of the system. While the central parts will be dry by the middle of next week, isolated to scattered thundershowers may develop over the eastern to north-eastern parts as moisture flows into the interior from the east.

Looking further ahead, forecast models indicate improved chances for the development of thundershowers over the interior into the 2<sup>nd</sup> week of November. However, there is no indication yet of a widespread, significant rainfall event as large-scale patterns remain mostly unfavorable.

### The following is a summary of weather conditions during the next few days (until early next week):

- Temperatures will on average be near normal to above normal over the northern parts, but below normal over the southern parts.
- Cold, dry air will invade the interior from the west on Sunday and Monday, resulting in sunny, windy and cool conditions over the western to southern parts with cool to cold mornings over the southern escarpment.
- Rainfall will be below normal over most of the country, but above normal over isolated areas in the northeast, the Garden Route and winter rainfall region.
- Little to no rain is expected over most of the interior during the next few days. The central to eastern parts of the summer-grain-production region may however receive normal rainfall through thundershowers next week.
- Isolated thundershowers will occur over the central parts next week, but current forecasts are not indicative of significant totals.
- Isolated to scattered thundershowers may develop over the eastern to northeastern parts towards the middle of next week.
- Cool, windy conditions with rain and showers are possible early next week over the winter rainfall region and southern parts of the country while scattered thundershowers may develop over the northeastern parts of the country.
- Current forecasts indicate somewhat more favorable conditions for the development of convective thundershowers over the interior going forward from next week.
- **The winter rainfall region** It will be sunny and mild initially, but it will become cloudy, windy and cold by Monday with showers over the entire region, but only light falls are expected over the northern parts. It should clear by Tuesday when strong south-easterly winds are expected in the southwest.
- **The summer-grain production region** will be partly cloudy to sunny and dry until the weekend when isolated thundershowers are expected and it will become hot. It will be windy over the western parts. Cooler air will invade the

region from the southwest early next week, when it will be mild to cool and sunny in the west and south. Scattered thundershowers may develop over the eastern parts towards the middle of next week.

## Overview of expected conditions over the main agricultural production areas

Another cold front and upper-air low in the south will influence the weather during the next few days. This sequence of events is usually not good for widespread rain over the summer rainfall region but results in dry air invading the interior. Isolated thundershowers will however develop over the interior ahead of the cold front during the weekend when it will be very hot. While dry air will invade the western parts of the grain-production region, moisture from the east as a high-pressure system ridges around the country will support isolated to scattered thundershowers over the central to eastern parts of the region next week according to current forecasts.

### ***Maize production region:***

**It will be dry for the most part, but isolated thundershowers will occur during the weekend until Monday when it will become very hot especially in the west. Cooler, dry air is expected to invade the region early next week when it will be mild to cool and dry over the southern to western areas, but thundershowers are expected over the central to eastern parts of the region.**

- Maximum temperatures over the eastern maize-production areas will range between 21°C and 34°C, with highest temperatures during the weekend and lowest temperatures early next week. Minimum temperatures will be in the order of 7°C to 16°C, with lowest temperatures towards the high-lying areas early next week.
- Maximum temperatures over the western maize-production areas will range between 22°C and 37°C, with lowest temperatures early next week and towards the southwest. Minimum temperatures will be in the order of 6°C to 18°C, with lowest temperatures early next week and also towards the southwest.
- **Thursday to Friday (31<sup>st</sup> – 1<sup>st</sup>):** Sunny to partly cloudy and warm, but hot with moderate to fresh westerly to north-westerly winds over the central to western parts.
- **Saturday to Sunday (2<sup>nd</sup>- 3<sup>rd</sup>):** Partly cloudy and warm with fresh north-westerly winds, but hot in the west. Isolated afternoon thundershowers are expected.
- **Monday to Wednesday (4<sup>th</sup> – 5<sup>th</sup>):** Fresh westerly to southerly winds will bring dry air and lower temperatures to the western and southern parts with residual thundershowers still possible by Monday, but clearing from the west. It should remain dry until Wednesday over the western parts, gradually becoming warmer again over the entire region. Scattered afternoon thundershowers may develop over the eastern half of the region on Tuesday and Wednesday according to current forecasts.

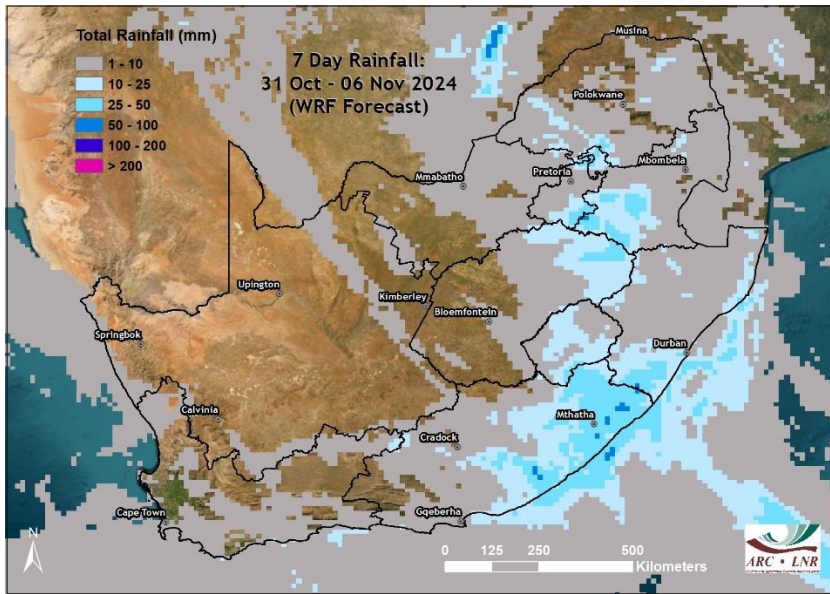
### ***Cape Wine Lands and Ruens:***

The region will be partly cloudy and mild to warm, but it will become cloudy, windy and cool with showers on Monday as a cold front moves through. Only light falls are expected in the north. It will clear by Tuesday with strong south-easterly winds in the southwest while it will become warmer over the northwestern part.

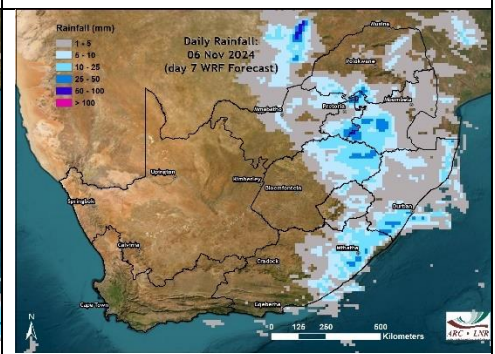
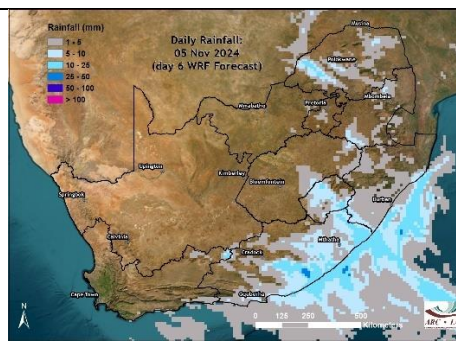
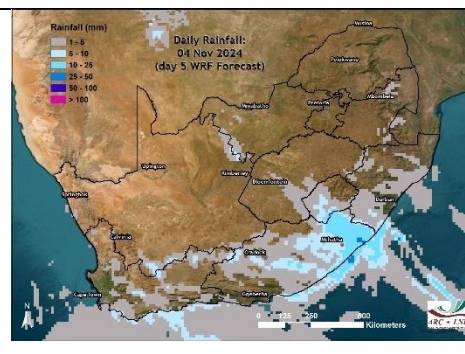
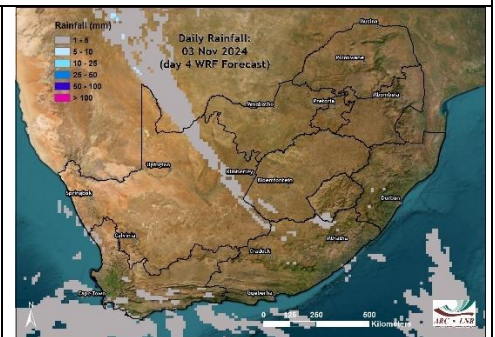
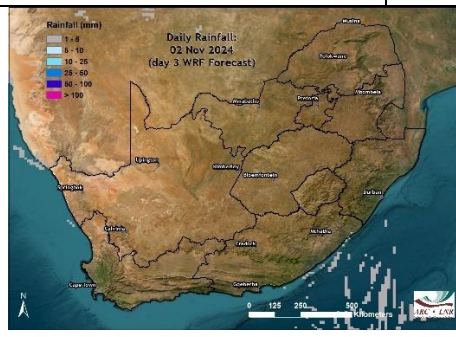
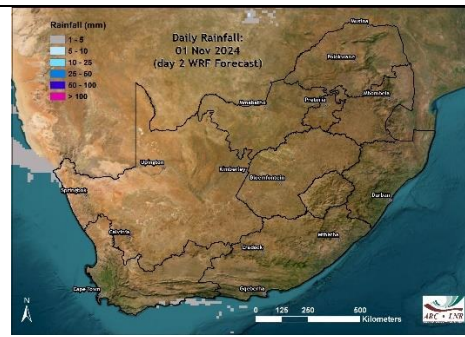
# Daily summary of expected conditions (31 Oct – 6 Nov)

(GFS forecast downscaled using WRF)

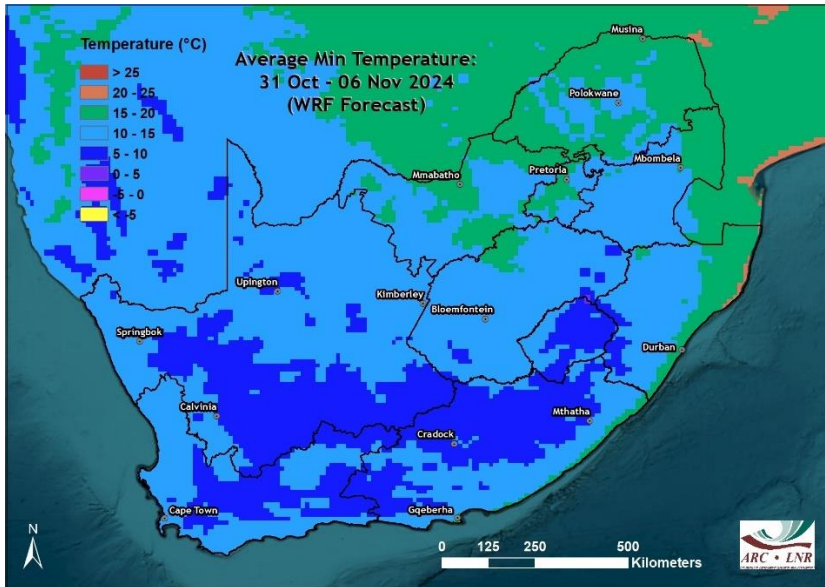
## Rainfall



- Total rainfall over the interior is expected to be relatively low.
- Parts of the eastern summer-grain production region may receive between 10 and 40 mm of rain.
- Significant rainfall totals may occur over the eastern parts of the Eastern Cape.
- Rain is also expected over the winter rainfall region, but totals are expected to remain below 10 mm for the most part.

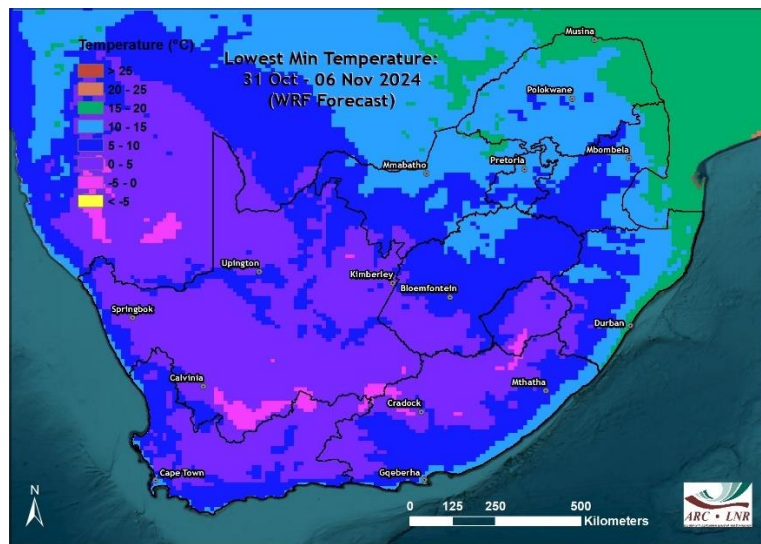


- No rain is expected until Friday (1<sup>st</sup>).
- Isolated thundershowers will occur over the central to eastern parts from Saturday to Monday.
- Scattered thundershowers may occur over the eastern parts on Tuesday and Wednesday.
- Showers are expected over the winter rainfall region and southern parts by Monday, clearing from the west by Tuesday.



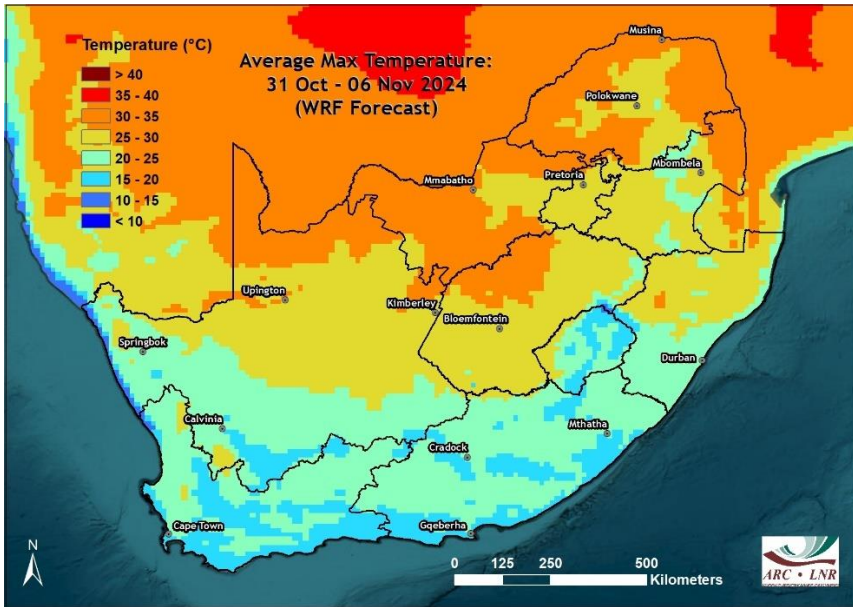
### Average minimum temperatures

- Average minimum temperatures will range between 10 and 20°C over most parts.



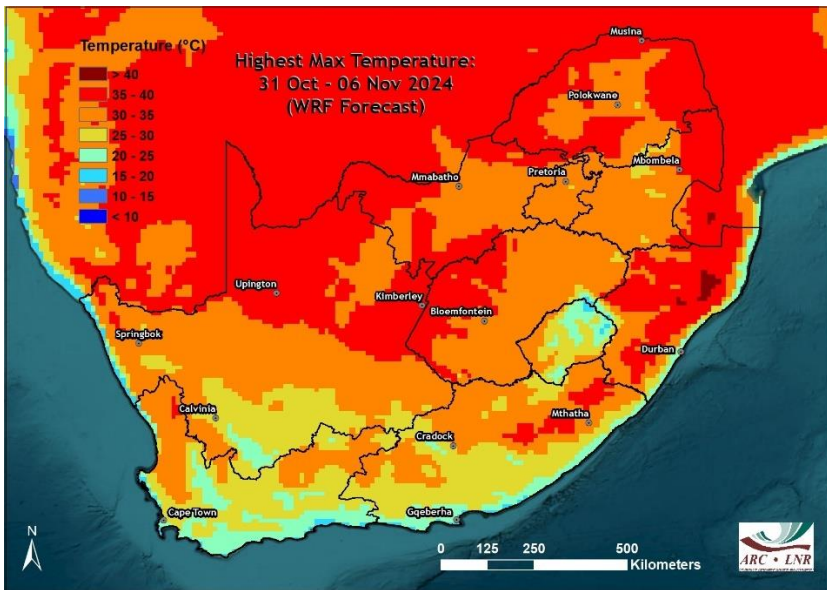
### Lowest minimum temperatures

- Some areas over the southern escarpment may experience minimum temperatures below 0°C early next week.
- Lowest minimum temperatures will remain above 5°C over the summer-grain production region.



**Average maximum temperatures**

- Average maximum temperatures will be above 30°C over the northern parts of the country and below 25°C from the southern escarpment southward.

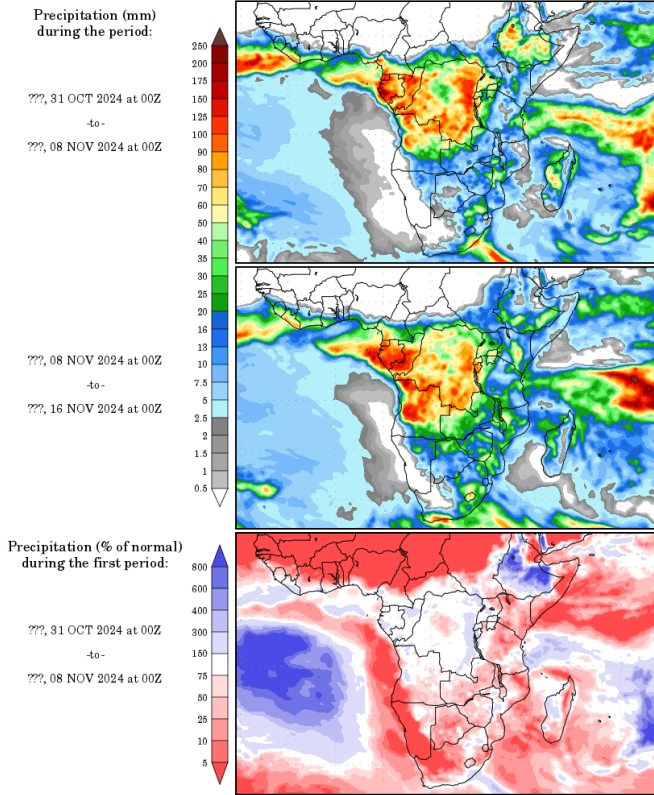


**Highest maximum temperatures**

- Highest temperatures during the next few days are expected to exceed 35°C over the Limpopo River Valley, Lowveld, interior of KZN, northern to eastern parts of the Northern Cape and western parts of the Frede State.

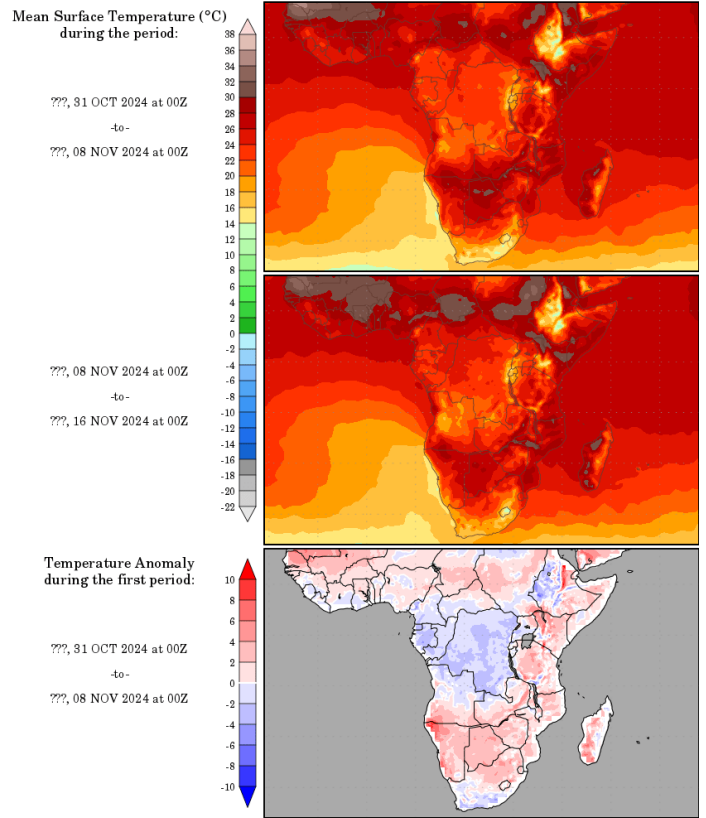
# Medium term rainfall and temperature summary

## Precipitation Forecasts

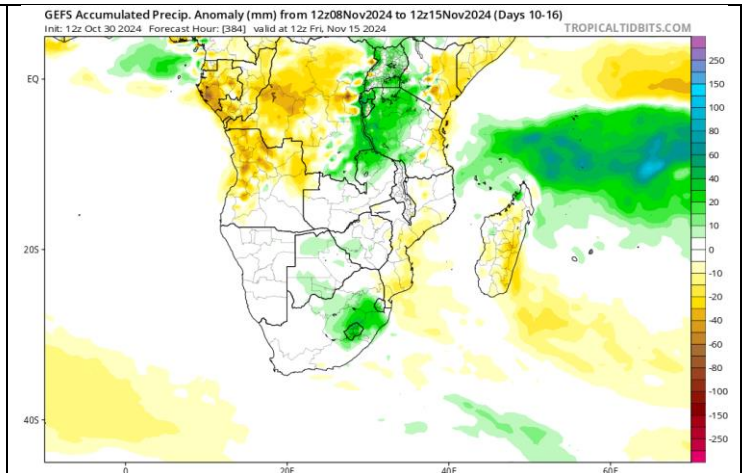
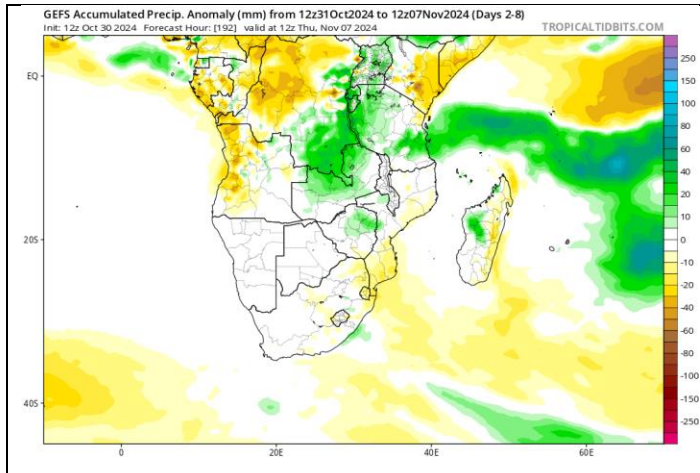


GrADS/COLA

## Temperature Forecasts



GrADS/COLA



**The GFS ensemble forecast (consisting of several forecasts with small initialization differences) favors below-average rainfall in early November over southern Africa. The forecast is somewhat more favorable for rainfall during the 2<sup>nd</sup> week of the month, especially over the eastern Highveld.**



# Possible extreme conditions - relevant to agriculture

The South African Weather Service issues warnings for any severe weather that may develop, based on much more information (and in near-real time) than the output of only 2 weather model (GFS and the ECMWF model) considered here in the beginning of a week-long (starting 31 October) period. It is therefore advised to keep track of warnings that may be issued by the SAWS ([www.weathersa.co.za](http://www.weathersa.co.za)) as the week progresses.

**According to current model projections (GFS / ECMWF models) of weather conditions during the coming week, the following may negatively affect agricultural activities and production:**

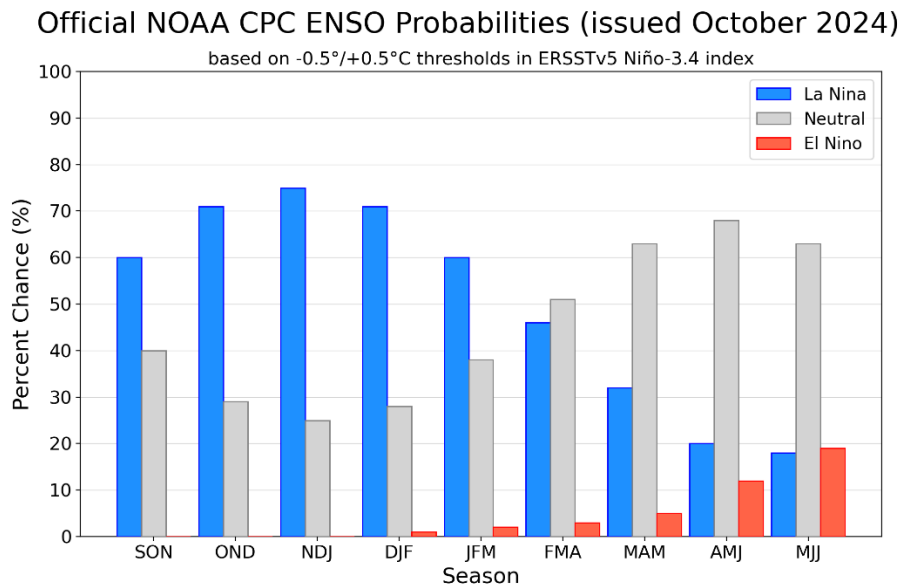
- **Windy conditions will increase the fire hazard where vegetation is dry:**
  - Western to central and southern interior: **Friday to Tuesday (1<sup>st</sup> – 5<sup>th</sup>).**
  
- **It will be hot, with maximum temperatures exceeding 35°C:**
  - Northern to eastern parts of the Northern Cape, western parts of North West and the western to northern parts of the Free State: **Friday to Saturday (1<sup>st</sup> – 2<sup>nd</sup>).**
  - Limpopo River Valley: **Friday to Tuesday (1<sup>st</sup> – 5<sup>th</sup>).**
  - Lowveld: **Saturday to Tuesday (2<sup>nd</sup> – 5<sup>th</sup>).**
  - Northern KZN: **Saturday to Monday (2<sup>nd</sup> – 4<sup>th</sup>).**
  
- **Low minimum temperatures will occur with possible light frost:**
  - Parts of the southern escarpment, over northern parts of the Western and Eastern Cape provinces and southern parts of the Northern Cape: **Tuesday and Wednesday morning (5<sup>th</sup> – 6<sup>th</sup>).**
  
- **Cold, wet and windy conditions may negatively impact small stock:**
  - Western escarpment (northern parts of the Western Cape, western parts of the Northern Cape): **Monday (4<sup>th</sup>).**
  - Garden Route, Karoo, southern escarpment: **Monday to Tuesday (4<sup>th</sup> – 5<sup>th</sup>).**
  - Interior of the Eastern Cape: **Monday to Wednesday (4<sup>th</sup> – 6<sup>th</sup>).**

# Seasonal forecast

## Current ENSO conditions:

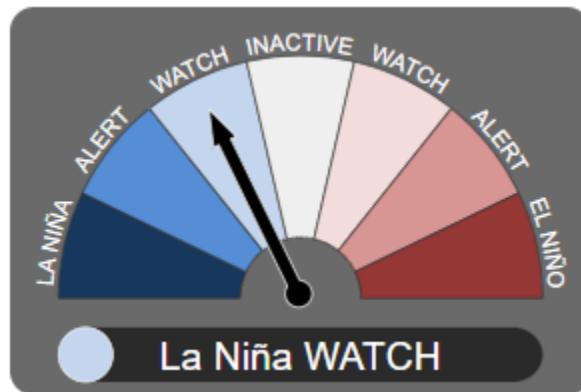
ENSO is in neutral state and while there are still some indications that a La Niña will develop during the next few months, the likelihood of SSTs reaching the La Niña threshold during the next few months has diminished. The atmospheric indicators, such as trade winds along the equator and cloud patterns, have at times been indicative of a developing La Niña, but not consistently. The IRI forecast leans more strongly to the expectation of a La Niña during the coming summer, while the Australian Bureau of Meteorology model data are more indicative of ENSO neutral conditions this coming summer.

The graph below shows the International Research Institute for Climate and Society (IRI)'s latest ENSO forecast which maintains the expectation of borderline La Niña conditions by mid-summer:



International Research Institute for Climate and Society- <http://iri.columbia.edu/>

Likewise, the Australian Bureau of Meteorology keeps their outlook to “La Niña Watch” .....



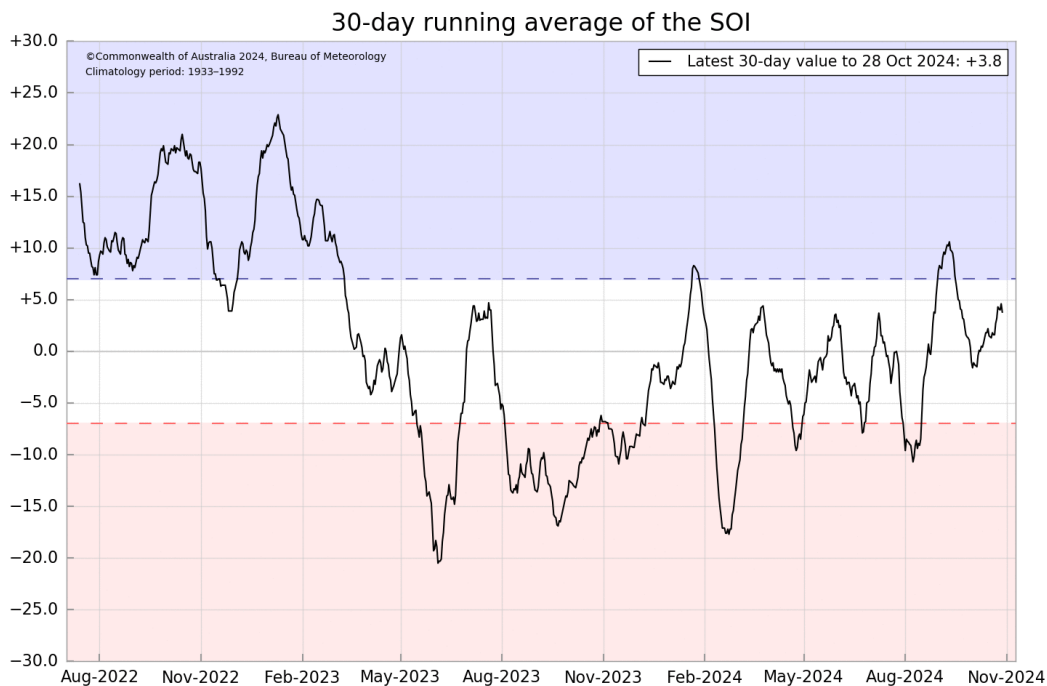
Australian Bureau of Meteorology - <http://www.bom.gov.au>

In their most recent update (issued 10 October), the **IRI** notes that “As of mid-September 2024, ENSO-neutral conditions persist in the western equatorial Pacific, while oceanic and atmospheric indicators started to show signs of La Niña development, including a sustained strengthening of trade winds, and reduced convection over the central-eastern Pacific during last two months. In line with the strengthened trades, the subsurface cold temperature anomalies have also strengthened during recent weeks. The IRI ENSO prediction plume forecasts equal chances for ENSO-neutral conditions and La Nina for Sep-Nov, 2024. Borderline La Niña conditions are forecasted during Oct-Dec (60% chances) that continue during the boreal winter. ENSO-neutral conditions subsequently re-emerge as the most likely during the boreal spring and remain so till the end of the forecast period.”.... <https://iri.columbia.edu>

In their most recent update (29 October), the **Australian Bureau of Meteorology** states that “The El Niño–Southern Oscillation (ENSO) remains neutral, with sea surface temperatures (SSTs) in the central equatorial Pacific Ocean at ENSO-neutral levels. Atmospheric indices, such as those related to patterns of surface pressure, cloud and trade winds, are broadly consistent with an ENSO-neutral state. While some atmospheric indices have displayed La Niña-like signals over recent months, a consistent/sustained shift has not been observed.

The Bureau's model suggests SSTs are likely to remain within the ENSO-neutral thresholds ( $-0.8\text{ }^{\circ}\text{C}$  to  $+0.8\text{ }^{\circ}\text{C}$ ) throughout the forecast period to February 2025. Of the 6 other climate models surveyed, only one model suggests SSTs in the tropical Pacific are likely to exceed the La Niña threshold (below  $-0.8\text{ }^{\circ}\text{C}$ ) throughout November to February, which is sufficient time to be classified as a La Niña event. All models forecast neutral ENSO values by March...” - <http://www.bom.gov.au>.

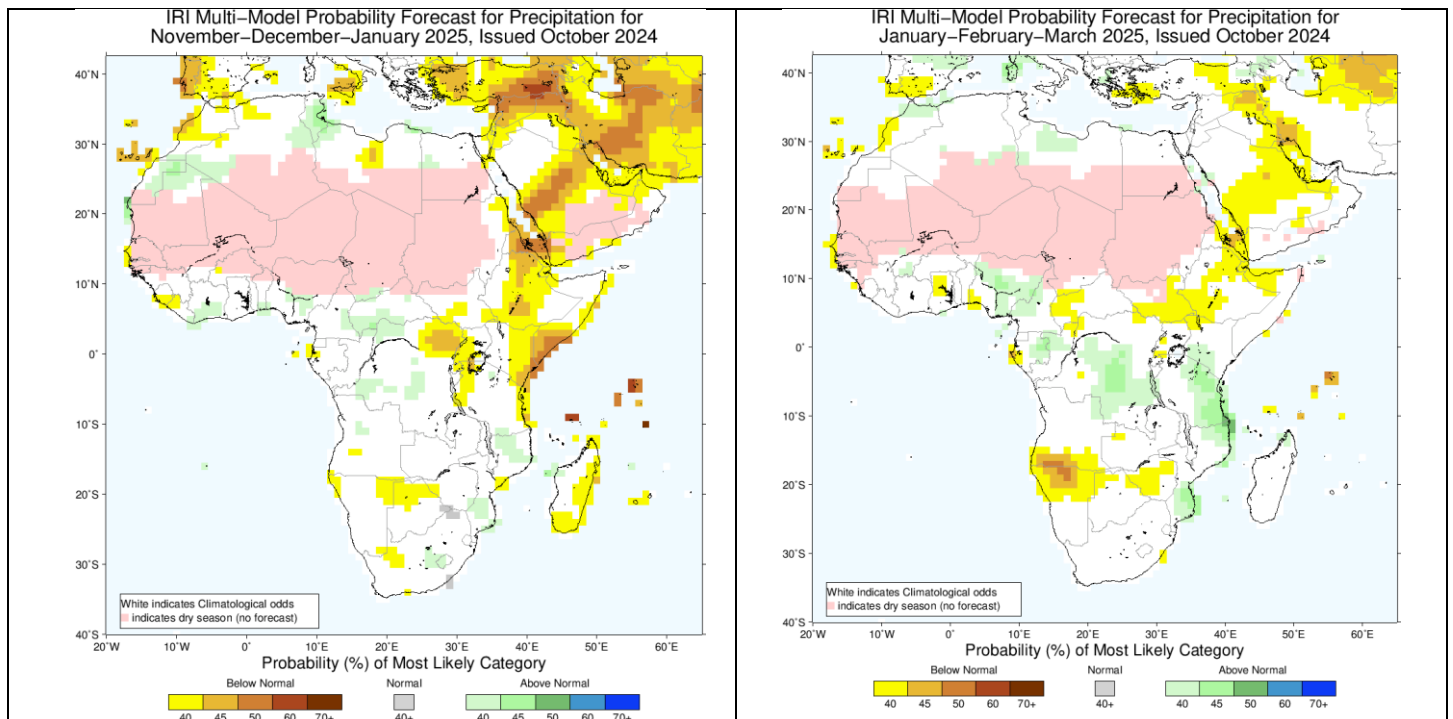
The 30-day Southern Oscillation Index (SOI) is currently +3.8 and therefore representing atmospheric pressure patterns in the Australia – Pacific region indicative of ENSO Neutral conditions. The SOI is however slowly trending more positive.



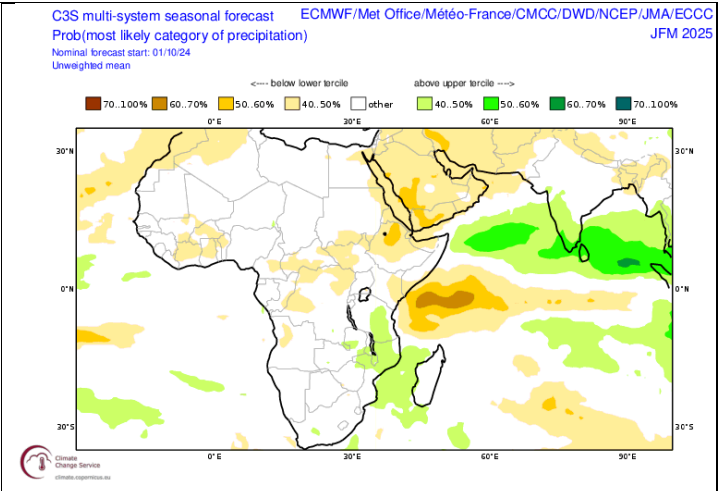
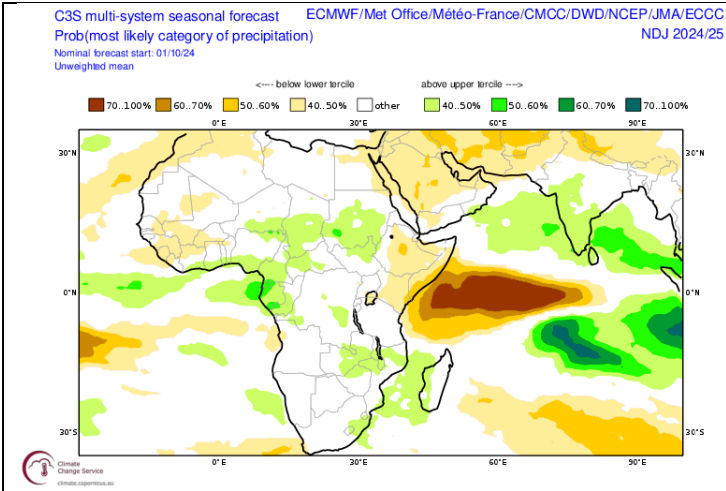
**Australian Bureau of Meteorology** - <http://www.bom.gov.au>

# Seasonal forecasts issued by various international institutions

Seasonal forecasts (updated in October 2024) remain relatively neutral for summer given the weak signal from the Pacific Ocean. For example, the IRI seasonal forecast for January to March doesn't indicate a clear signal for either wet or dry conditions over the summer rainfall region of South Africa. The overall signal over the subcontinent, with a dry bias over northern Botswana and Namibia, is associated with a larger-scale dry signal as would be present during weak El Niño conditions. With the uncertainty regarding further development of a La Niña, these forecasts will likely be adjusted later. The multi-model assimilated forecast (second pair of maps) also doesn't show any strong wet or dry signal over the summer rainfall region.



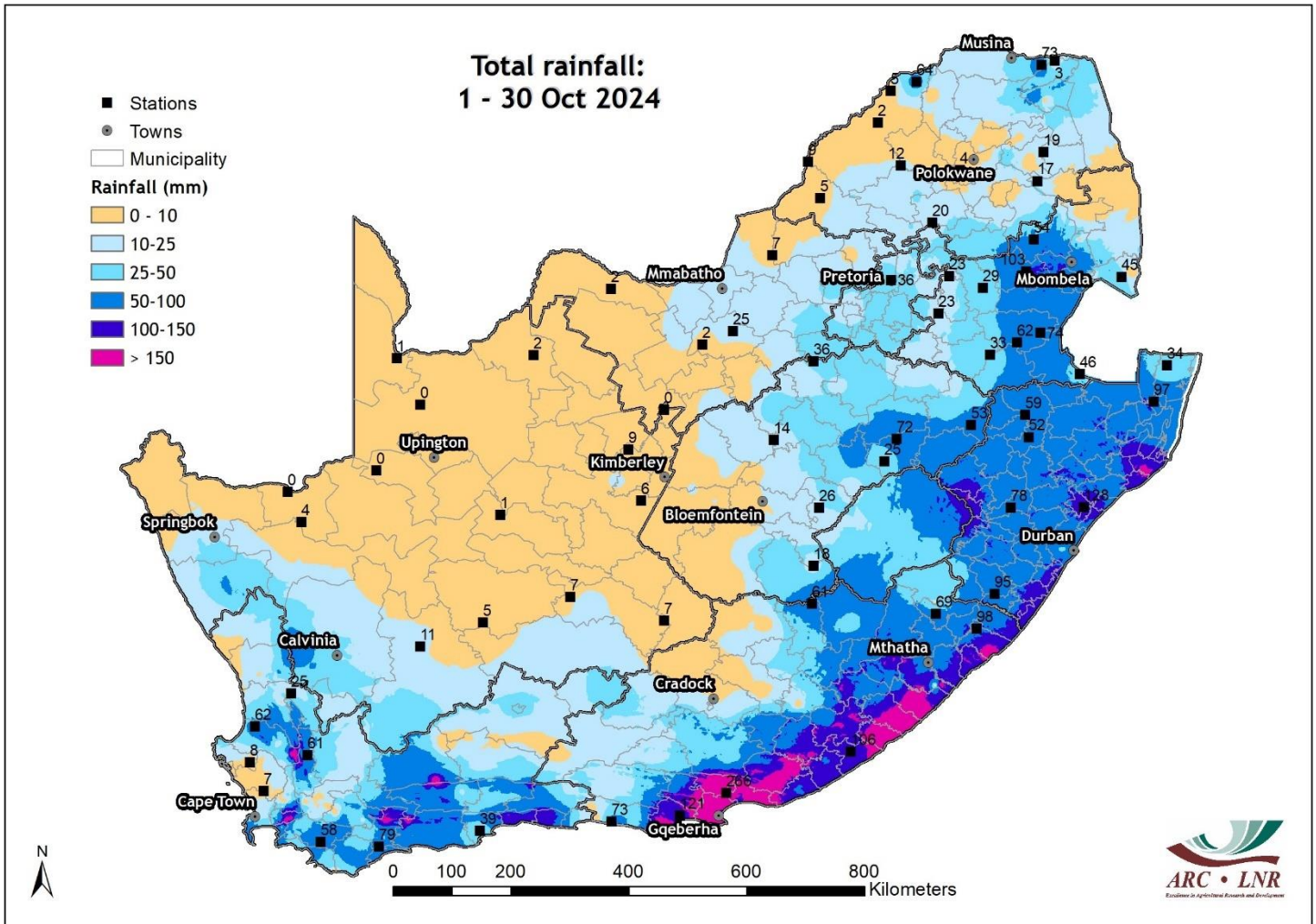
**Probabilistic forecasts by the International Research Institute for Climate and Society (IRI) for rainfall for early summer (November-January 2024/25; left - Forecast issued in 2024-10) and late summer (January to March 2025, right – Forecast issued in 2024-10).**



**Probabilistic multi-model forecasts by the ECMWF COPERNICUS Programme for rainfall for mid-summer (November-January 2024/25; left - Forecast issued in 2024-10) and late summer (January to March 2025, right – Forecast issued in 2024-10).**

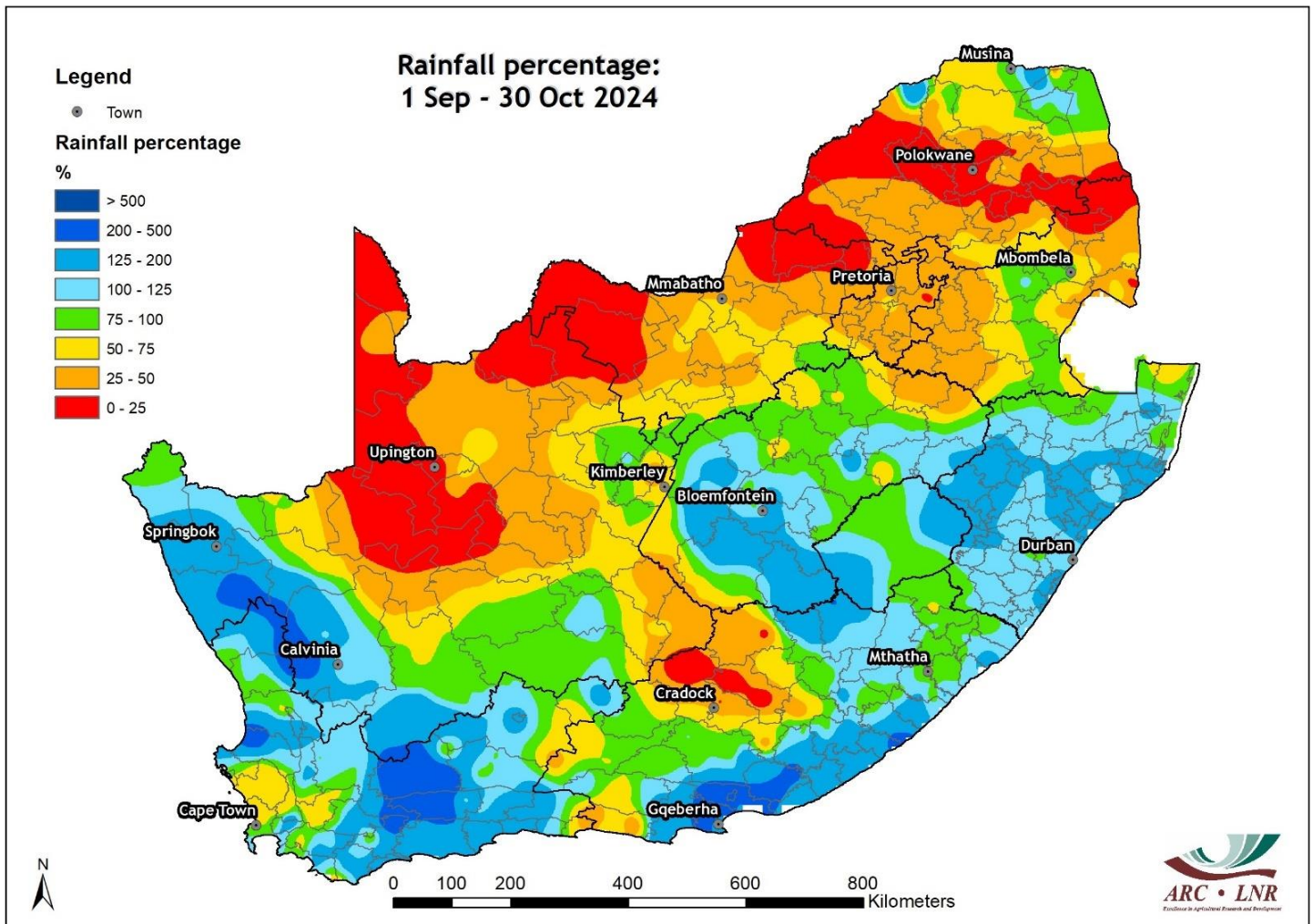
# Observed conditions

## Rainfall (mm): 1 - 30 Oct 2024



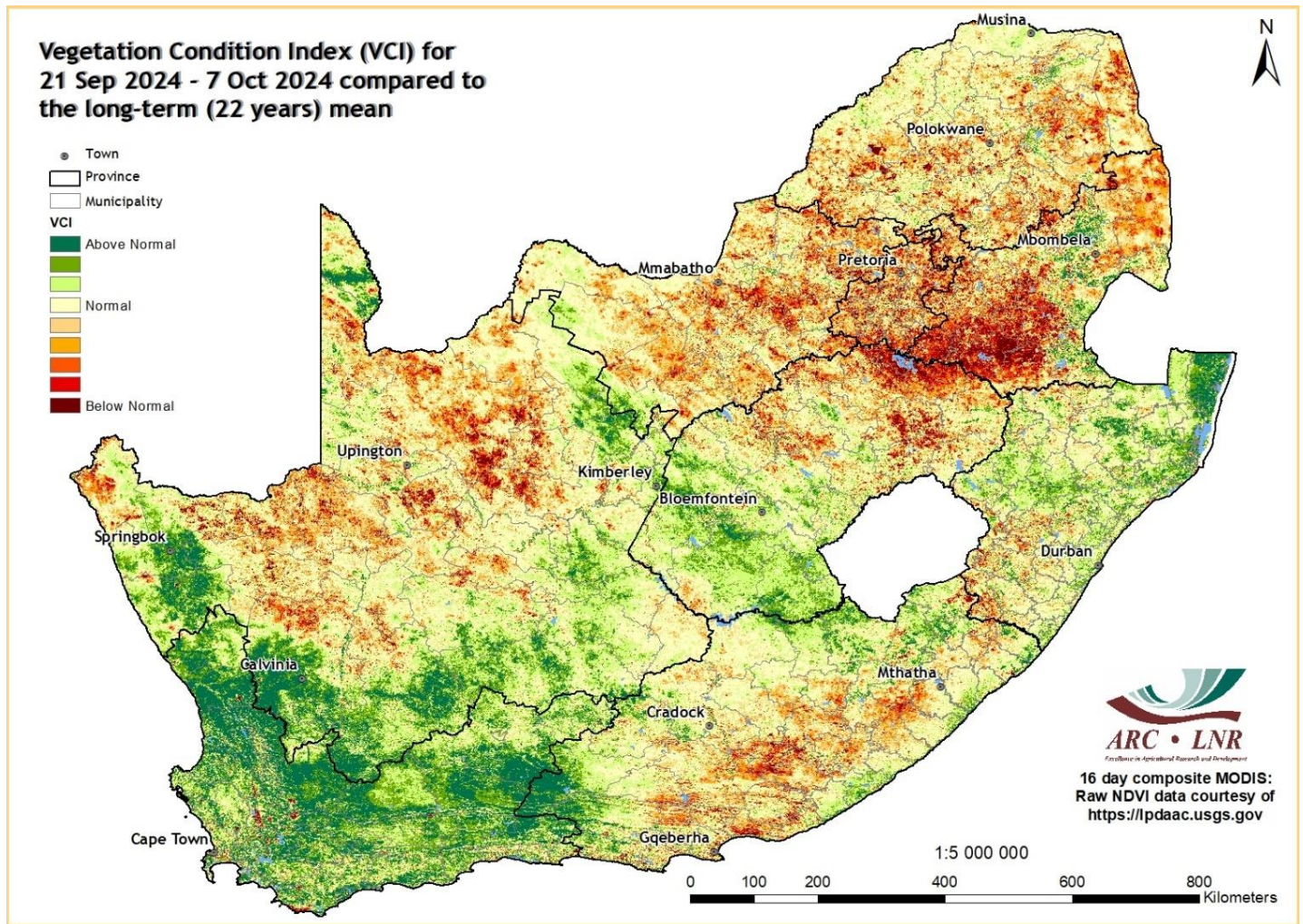
*The coastal belt and adjacent interior of the Eastern Cape received in excess of 150 mm of rain during October so far (until the 30<sup>th</sup>). Most of the summer-grain production region received between 10 and 40 mm of rain, with totals exceeding 50 mm over the far eastern parts of the region.*

# Rainfall (% of long-term mean): 1 Sep - 30 Oct 2024



*The far eastern to southeastern and southern parts of the country received above-average rainfall during September and October in total. Most of the winter rainfall region also received above-average rainfall. Most of the grain-production region of Mpumalanga, Gauteng and North West received less than 50% of the long-term average while the northern parts of the Free State also received below-average rainfall, with less than 50% over the far-north-eastern parts of the Free State. The southern to far-western parts of the Free State received above-average rainfall.*

# Vegetation Condition Index: September 2024



*By early October, vegetation activity is clearly below normal over the northern parts of the Free State and most of the maize region in Mpumalanga, Gauteng and North West. These are some of the areas where the planting window is relatively early, and widespread rain is urgently needed. Vegetation activity is above normal over the western to southern Free State and KZN, where spring rainfall was more favourable. Vegetation activity is also above normal over the winter rainfall region following above-normal rainfall during winter.*



# Sources of information

**Seasonal forecasts:** Published by the COPERNICUS Programme (<https://climate.copernicus.eu/seasonal-forecasts>)

## Rainfall, temperature and wind maps over South Africa for the past week:

Agricultural Research Council - Institute for Soil, Climate and Water (ISCW) – Climate Data Bank. Data recorded by the automatic weather station network of the ARC-ISCW.

**Vegetation condition maps:** Copernicus Global Land service, distributed by VITO.

## Information related to: ENSO, IOD and SOI:

Australian Bureau of Meteorology - <http://www.bom.gov.au>

Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>

International Research Institute for Climate and Society- <http://iri.columbia.edu/>

## Information related to the SAM:

The Annular Mode Website - <http://www.atmos.colostate.edu/ao/index.html>

## SST map:

NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>

## Daily conditions over South Africa:

WRF model downscaling of GFS forecasts.

## Fires:

MODIS data, distributed by the Land Processes Distributed Active Data Center (LP DAAC), located at the US Geological Survey's EROS Data Center

## Soil moisture:

<https://nasagrace.unl.edu/>

## Precipitation and temperature outlooks for the coming week:

Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) – <http://Wxmaps.org>

The advertisement features a background image of a vast agricultural field under a clear blue sky. In the top left corner, the AgriSeker logo is displayed, consisting of a green leaf and a yellow ear of corn, with the text 'AgriSeker' and 'fa' below it. Below the logo is the tagline 'In Seker Toekoms'. In the bottom left corner, the Land Bank logo is shown, featuring a stylized sun and the text 'LAND BANK'. The main text in the center reads 'THIS IS OUR CERTAIN FUTURE' in large, bold, white letters. Below this, a smaller line of text says 'Together we can make a contribution to the Future of our Country with a dedicated Focus on Agriculture'. At the bottom, there are three numbered points: '1 FUTURE', '2 FOCUS', and '3 AGRICULTURE'. At the very bottom, there is a small line of legal text: 'AgriSeker Onderskrywingbestuurder (Pty) Ltd. Reg no. 2014/235270/07 is an Authorised Financial Service Provider FSP no. 45767, underwritten by Land Bank Insurance (SOC) Ltd. Reg no. 2012/115428/30.'