



# CUMULUS

03 OCTOBER 2024

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1 FUTURE 2 FOCUS 3 AGRICULTURE

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# Summary

## Drier conditions continue across the interior

Large-scale atmospheric circulation patterns will remain mostly unfavorable for widespread rain over the interior during the next few days. Little to no rain is expected, especially over the northern interior. It will be cool for this time of the year over the eastern to northeastern parts while warm to hot in the west due to an anticyclonic flow across the country.

There is a chance for some thundershowers over the western parts starting next week. This will be associated with the movement of a low that is developing to the west of the country over the Atlantic Ocean. The current forecast for the exact trajectory and strength of the system together with the extent of rainfall associated with the system is still uncertain.

The cold conditions and snow during the last few days are indicative of large-scale atmospheric circulation patterns being unfavorable for widespread rainfall over the interior. Looking further ahead, current forecasts lean towards a continuation of relatively dry conditions over the interior until at least the middle of October.

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

- It will on average be cooler than normal over the eastern to north-eastern parts, but warmer than normal in the west.
- It will be hot over the west coast and adjacent interior initially. These hot conditions will spread over the southern parts to include most of the Western Cape and Eastern Cape during the weekend.
- It will be cool for this time of the year over the northeastern to eastern parts until Sunday.
- Rainfall will be below normal over most of the country. Isolated areas, mostly concentrated over the southern to central interior, may receive normal to above-normal rainfall in total.
- Isolated to scattered showers and thundershowers may develop over the western parts by Sunday. These may spread to the southern, southeastern and central parts by early next week while clearing in the west.
- It will be windy over the Limpopo until Saturday and over the Northern Cape until early next week. This may enhance the fire danger where vegetation is dry.
- **The winter rainfall region** will be warm initially, becoming hot from Friday to Sunday. Isolated to scattered showers and thundershowers may develop over the region early next week when it will be cooler.
- **The summer-grain production region** will be sunny and mild with little to no rain. It will be cool to cold in the mornings over the eastern parts through the weekend. It will become warm early next week when there is a chance for isolated to scattered thundershowers over the western parts according to current forecasts.

# Overview of expected conditions over the main agricultural production areas

A high-pressure system in the upper air will maintain dry conditions over most of the interior during the period. The influx of cool and relatively moist air from the east and southeast will keep temperatures relatively low over the eastern to northeastern parts of the country. Over the western to southern parts, where the easterly to northerly flow has an off-shore component, it will become hot until early next week. A cut-off low-pressure system that developed to the west of the country may bring showers or thundershowers to the western parts, including the winter rainfall region, early next week. Depending on the trajectory of the upper-air low, showers and thundershowers may subsequently spread into the southern to southeastern and central parts.

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

**It will be sunny and mild, but cool to cold in the mornings over the eastern high-lying areas of the region. Little to no rain is expected, but there is a chance for thundershowers over the western to central parts during the first half of next week if the low-pressure area to the west of the country advances sufficiently far east to influence the area.**

- Maximum temperatures over the western maize-production areas will range between 21°C and 32°C, trending upward during the period. Minimum temperatures will be in the order of 9°C to 16°C.
- Maximum temperatures over the eastern maize-production areas will range between 17°C (early in the period) and 30°C (early next week). Minimum temperatures will be in the order of 4°C (during the weekend, especially the high-lying regions) and 11°C (early next week).
- **Thursday to Saturday (3<sup>rd</sup> to 5<sup>th</sup>):** Sunny and mild. It will be cool in the mornings, but cold for this time of the year over the eastern high-lying areas with temperatures in the low single digits.
- **Sunday to Wednesday (6<sup>th</sup> – 9<sup>th</sup>):** It will gradually become warmer. The presence of the low further west may result in the development of thundershowers over the western to southern and central parts during the first half of the week, depending on the movement and strength of the system. Current forecasts are not indicative of widespread rainfall.

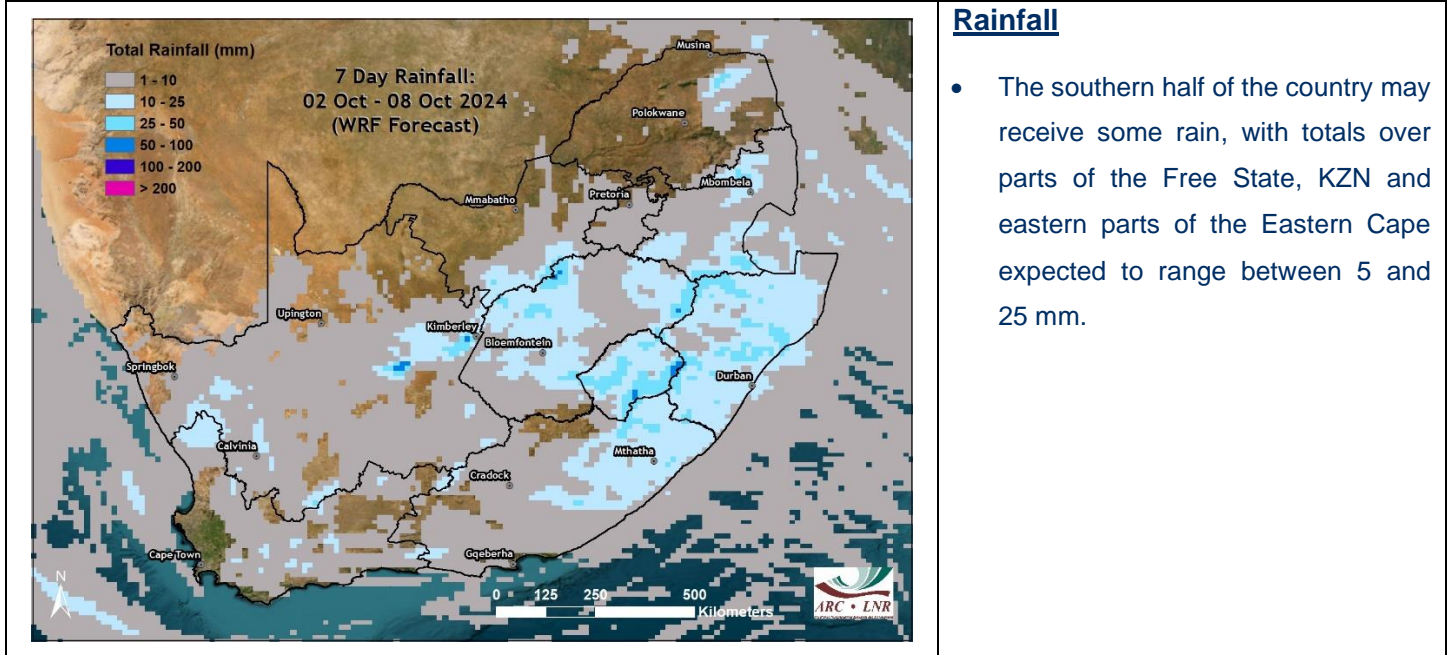
## ***Cape Wine Lands and Ruens:***

It will be hot over the region until Sunday due to the presence of an off-shore flow (easterly to northeasterly winds). It will become partly cloudy to cloudy and cooler with isolated to scattered thundershowers over the region from late Sunday to Tuesday. Strong easterly to southeasterly winds are possible over the southwestern to southern coastal areas on Monday.



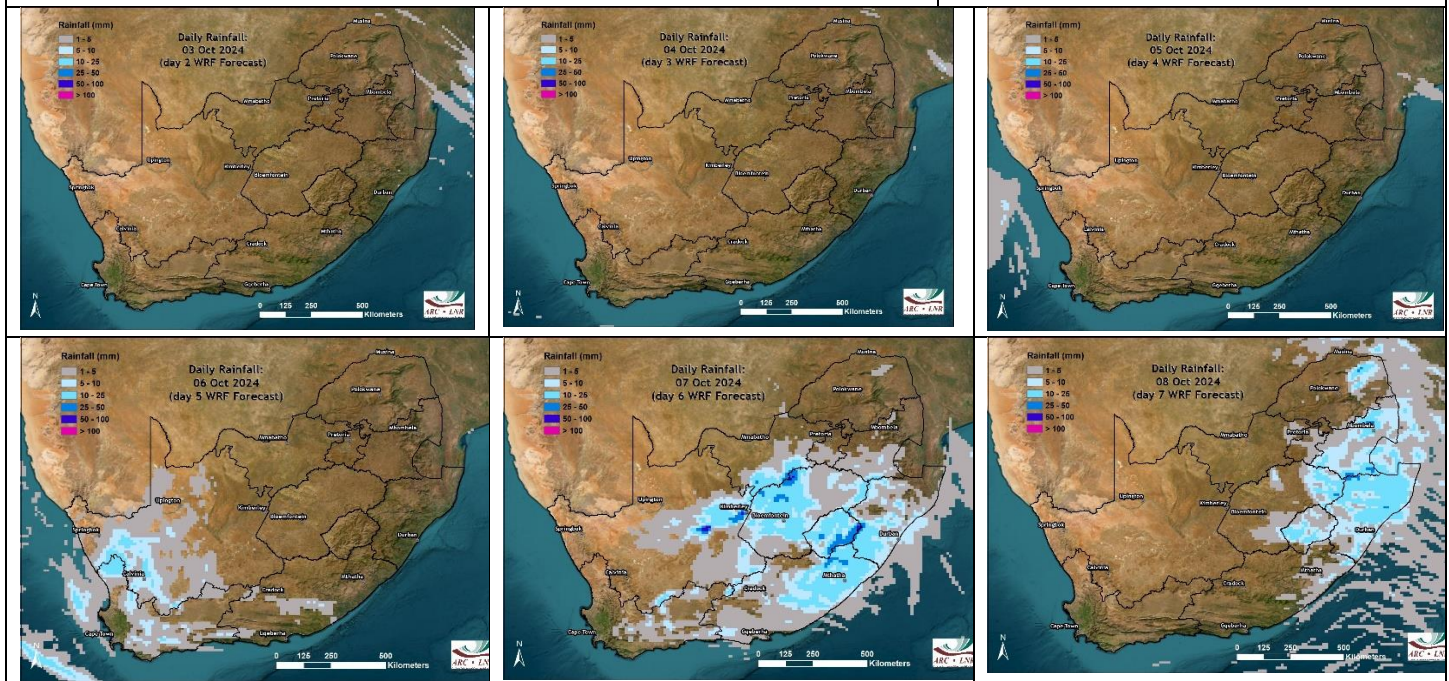
# Daily summary of expected conditions (3 – 8 Oct.)

(GFS forecast downscaled using WRF)

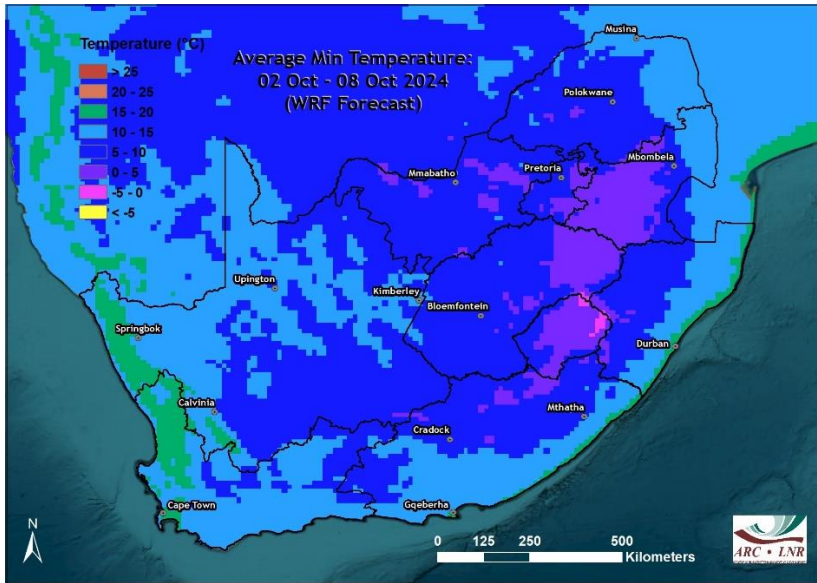


## Rainfall

- The southern half of the country may receive some rain, with totals over parts of the Free State, KZN and eastern parts of the Eastern Cape expected to range between 5 and 25 mm.

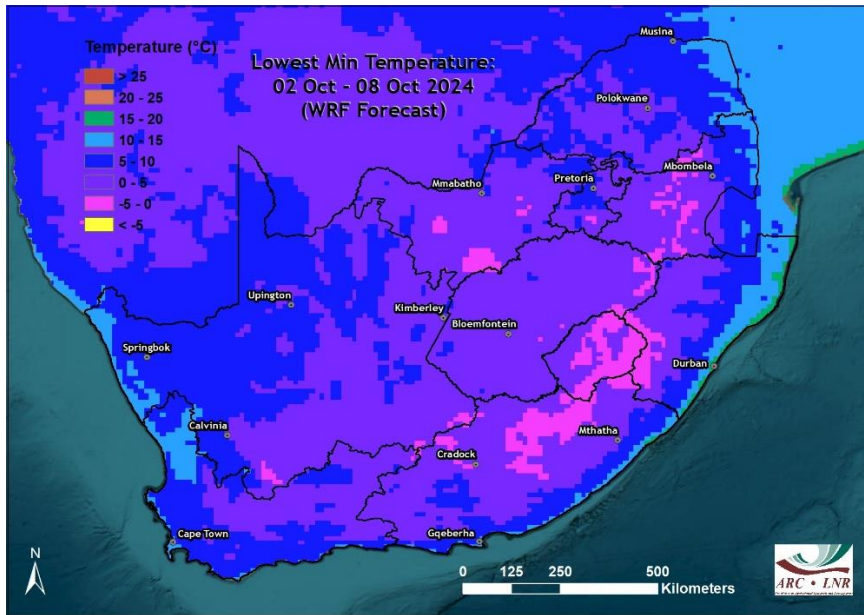


- It will be dry across the country until Saturday.
- Showers and thundershowers may develop over the western parts by late Sunday, possibly spreading eastwards over the southern and into the central parts during next week (depending on the movement of the low to the west).



**Average minimum temperatures**

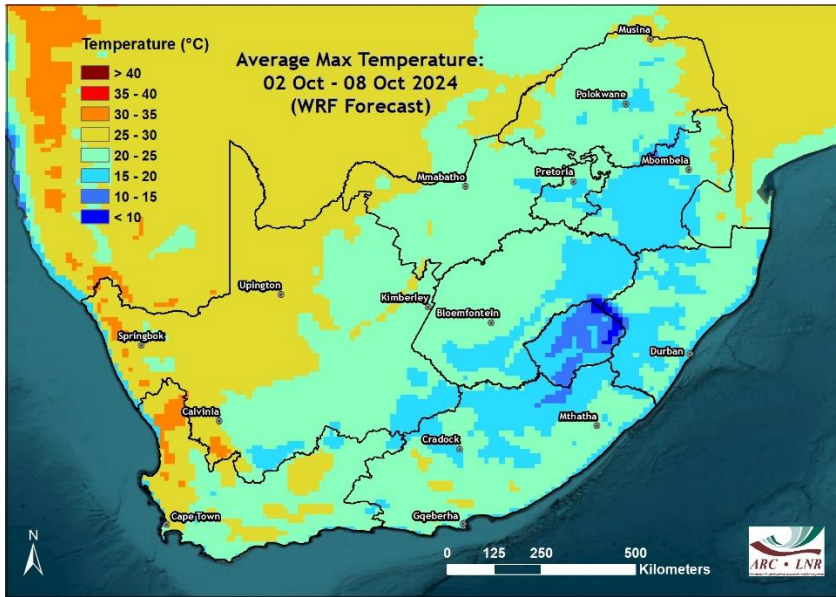
- Average minimum temperatures will be above 10°C over the northeastern to eastern low-lying areas and coastal zone.
- It will be cool over the interior with average minimum temperatures expected to range between 0°C and 10°C.



**Lowest minimum temperatures**

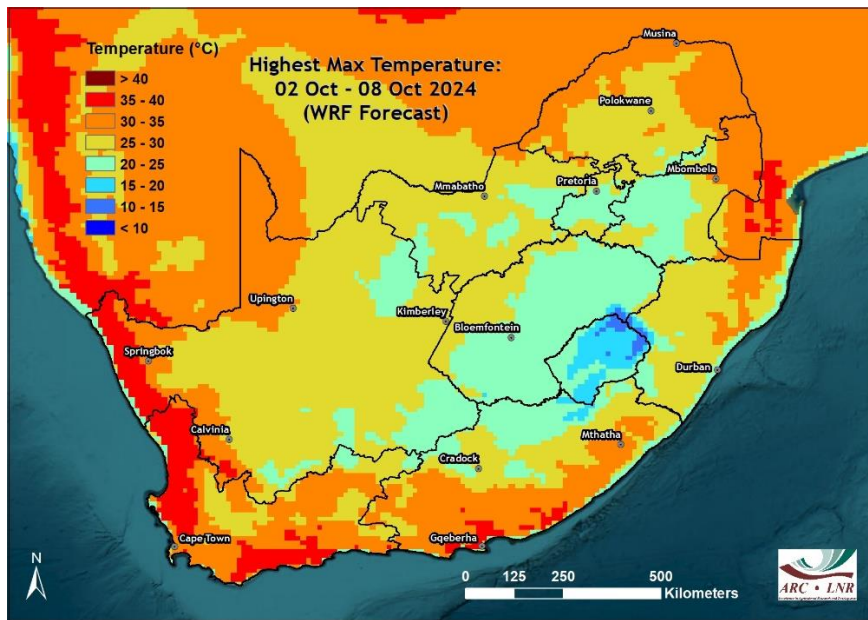
- Lowest minimum temperatures may be in the order of 0°C along the Drakensberg and further north over the Eastern Highveld over parts of Mpumalanga.





### Average maximum temperatures

- Average maximum temperatures will be below 25°C except over the western to northwestern parts of the country.

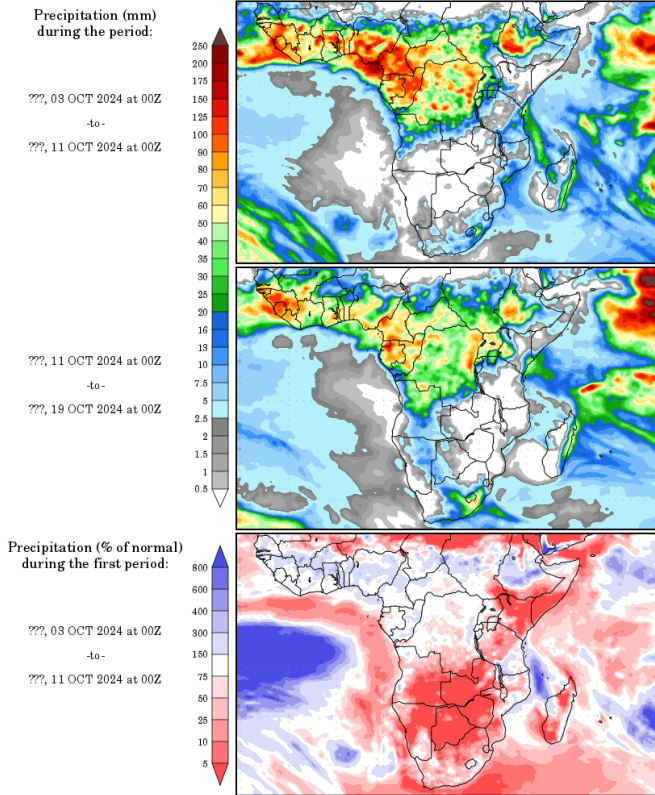


### Highest maximum temperatures

- Highest temperatures during the next few days are expected to exceed 35°C over the western to southern coastal zones and adjacent interior.

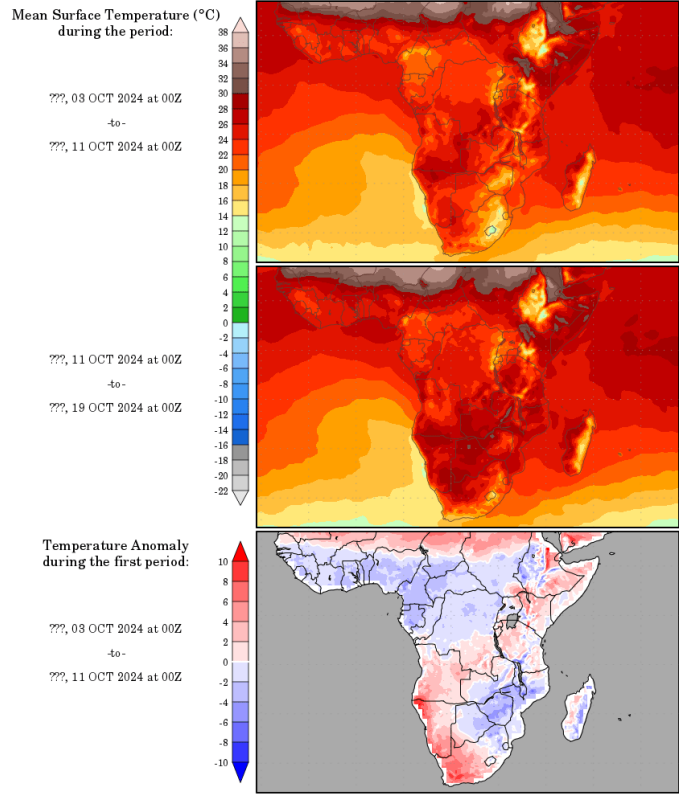
# Medium term rainfall and temperature summary

## Precipitation Forecasts

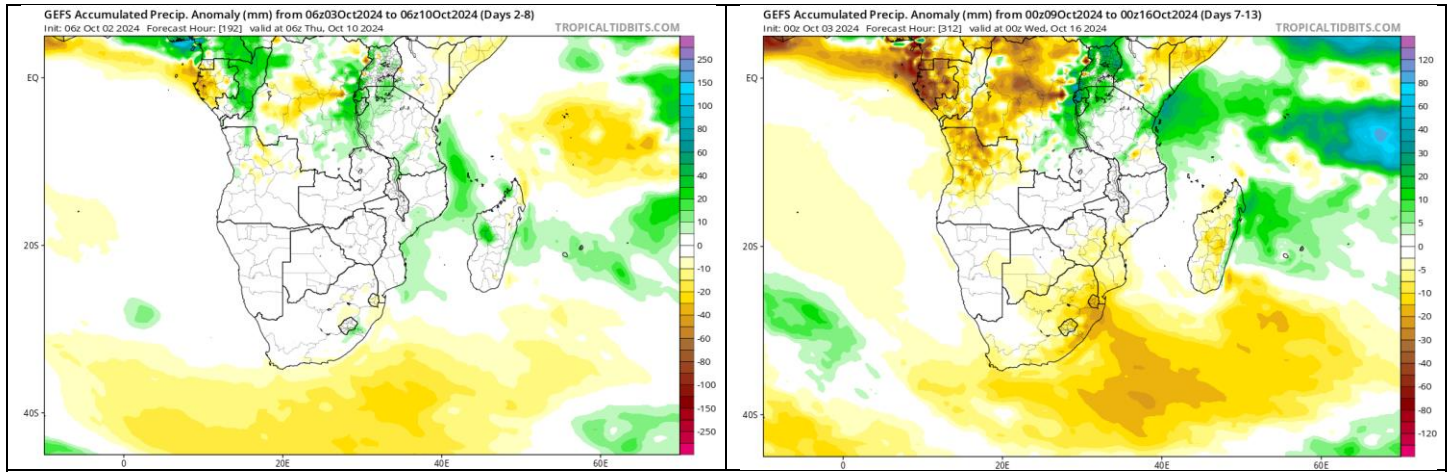


GrADS/COLA

## Temperature Forecasts



GrADS/COLA



**The GFS ensemble forecast (consisting of several forecasts with small initialization differences) favors below-normal rainfall until at least the middle of October, including most of the summer-grain production region.**



# 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 3 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:**

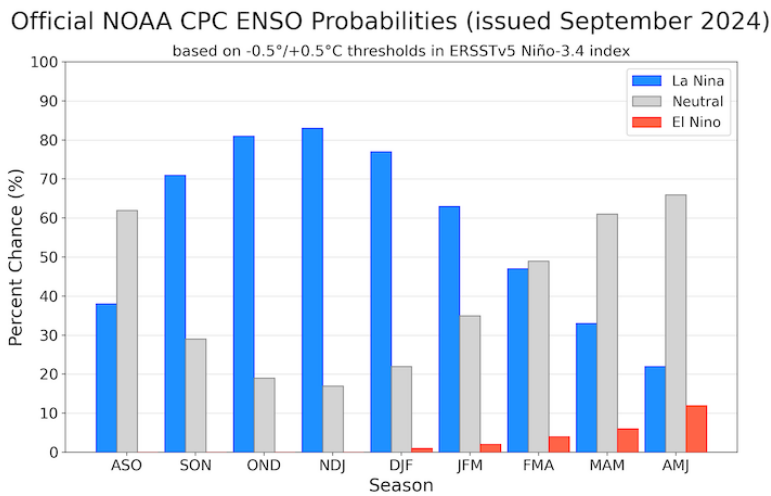
- **Low minimum temperatures will occur with possible light frost:**
  - Isolated areas over the Eastern Highveld, especially along the escarpment: **Thursday to Sunday morning (3<sup>rd</sup> – 6<sup>th</sup>).**
- **It will be hot, with maximum temperatures exceeding 35°C:**
  - West coast, western parts of the Northern Cape, Western Cape: **Thursday to Sunday (3<sup>rd</sup> to 6<sup>th</sup>).**
  - Eastern Cape: **Friday to Sunday (4<sup>th</sup> to 6<sup>th</sup>).**
  - Lowveld: **Monday (7<sup>th</sup>)**
- **Warm, dry and windy conditions will increase the fire hazard where vegetation is dry:**
  - Northern Cape, interior of the Western Cape: **Thursday to Sunday (3<sup>rd</sup> to 6<sup>th</sup>).**
  - Eastern Cape: **Friday to Sunday (4<sup>th</sup> to 6<sup>th</sup>).**
- **Dry, windy conditions will increase the fire hazard where vegetation is dry:**
  - Limpopo: **Thursday to Sunday (3<sup>rd</sup> to 6<sup>th</sup>).**
- **Fresh to strong easterly south-easterly winds are expected:**
  - Southwestern to southern coastal areas of the Western Cape: **Monday (7<sup>th</sup>).**

# Seasonal forecast

## Current ENSO conditions:

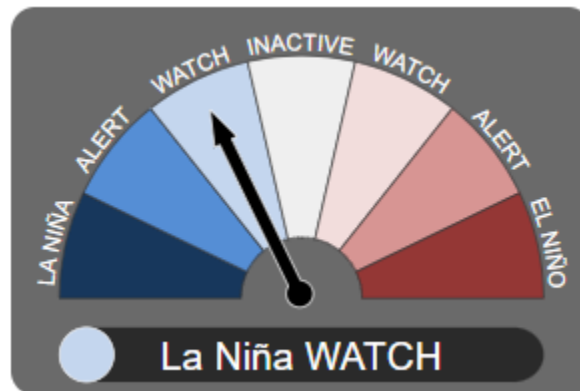
ENSO is in neutral state, but there are several indications that a La Niña will develop during the next few months. Especially the atmospheric indicators, such as trade winds along the equator and cloud patterns, are leaning more strongly towards a developing La Niña.

The International Research Institute for Climate and Society (IRI)'s latest ENSO forecast 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>**

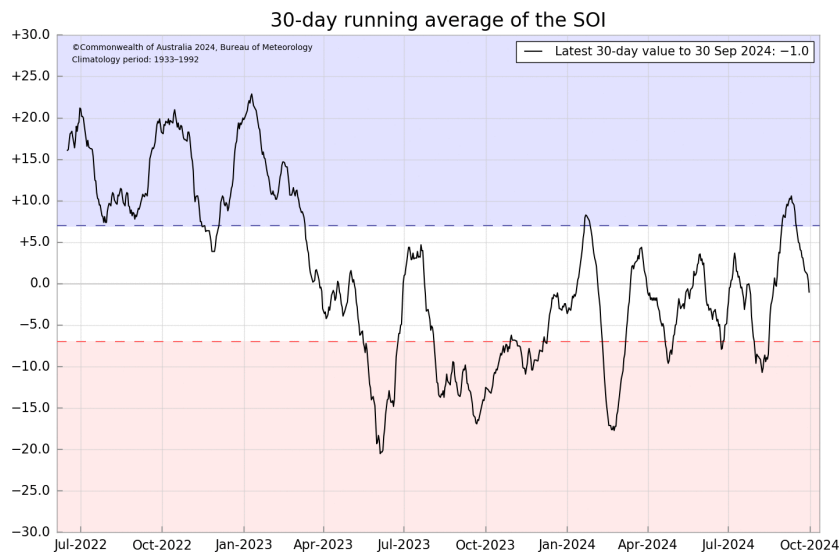
In their most recent update (issued 12 September), the IRI notes that “As of mid-August 2024, ENSO-neutral conditions persist in the western equatorial Pacific, and oceanic and atmospheric indicators also align with an ENSO-neutral state. The IRI ENSO prediction plume forecasts ENSO-neutral conditions for Aug-Oct, and Sep-Nov, 2024. Borderline La Niña

conditions are forecasted during Oct-Dec, and Nov-Jan, but with very weakly elevated probabilities. ENSO-neutral conditions subsequently re-emerge as the most likely during the boreal winter and spring of 2025.”.... <https://iri.columbia.edu>

In their most recent update (1 October), the Australian Bureau of Meteorology states that “The El Niño–Southern Oscillation (ENSO) is neutral, with both sea surface temperatures (SSTs) in the central equatorial Pacific Ocean and atmospheric patterns at ENSO-neutral levels. While some atmospheric indicators such as pressure, cloud and trade wind patterns over the Pacific have been more La Niña-like over the past few weeks, there has yet to be a consistent/sustained signal.

The Bureau's model suggests SSTs are likely to remain within the ENSO-neutral range ( $-0.8\text{ }^{\circ}\text{C}$  to  $+0.8\text{ }^{\circ}\text{C}$ ) throughout the forecast period to February 2025. Of the 6 other climate models surveyed, 3 suggest SSTs in the tropical Pacific are likely to exceed the La Niña threshold (below  $-0.8\text{ }^{\circ}\text{C}$ ) from October, and another 3 models forecast SSTs to fall just short of the threshold from November. Should a La Niña develop in the coming months, it is forecast to be relatively weak (in terms of the strength of the SST anomaly) and short-lived, with all models indicating a return to neutral by February.....”... - <http://www.bom.gov.au>.

The 30-day Southern Oscillation Index (SOI) is currently -1.0 and therefore representing atmospheric pressure patterns in the Australia – Pacific region indicative of ENSO Neutral conditions.



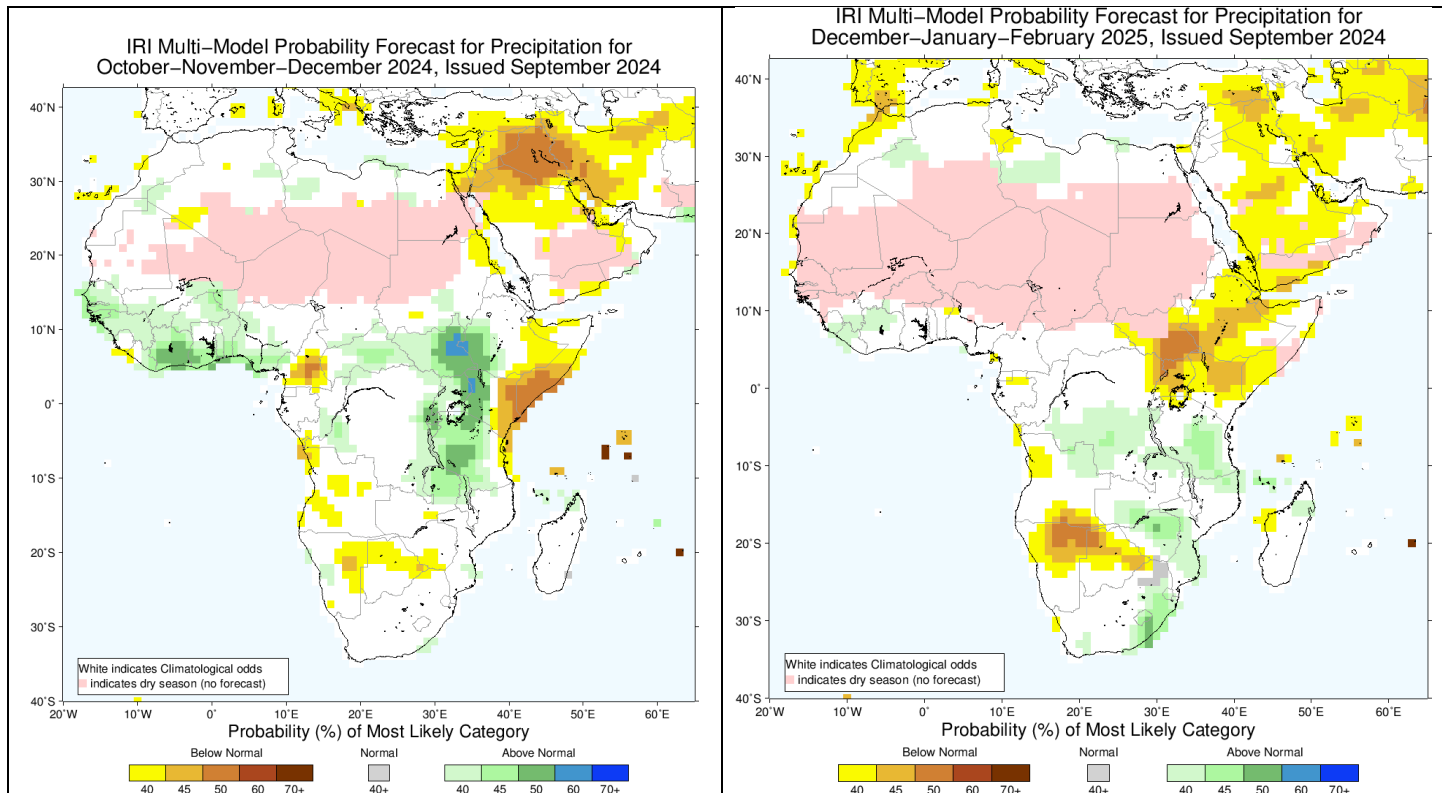
**Australian Bureau of Meteorology - <http://www.bom.gov.au>**

## Seasonal forecasts issued by various international institutions

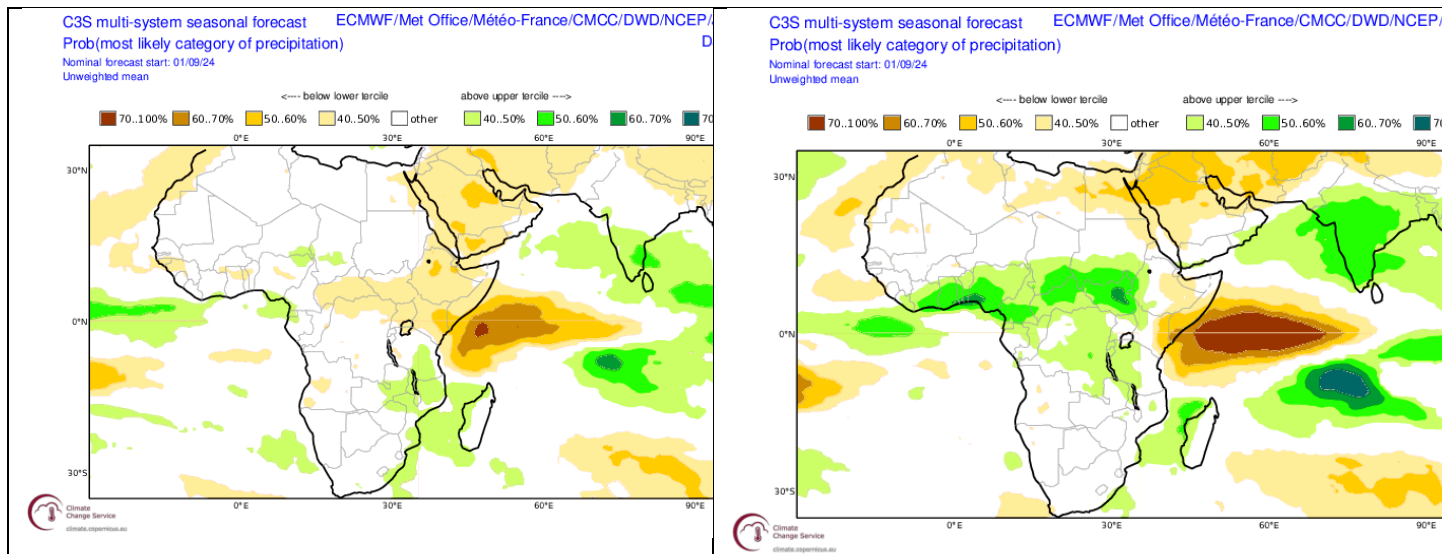
Seasonal forecasts (updated in September 2024) are relatively neutral for summer given the weak signal from the Pacific Ocean. For example, the IRI seasonal forecast for December to February doesn't indicate a clear signal for either wet or dry conditions over the summer rainfall region of South Africa. 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.



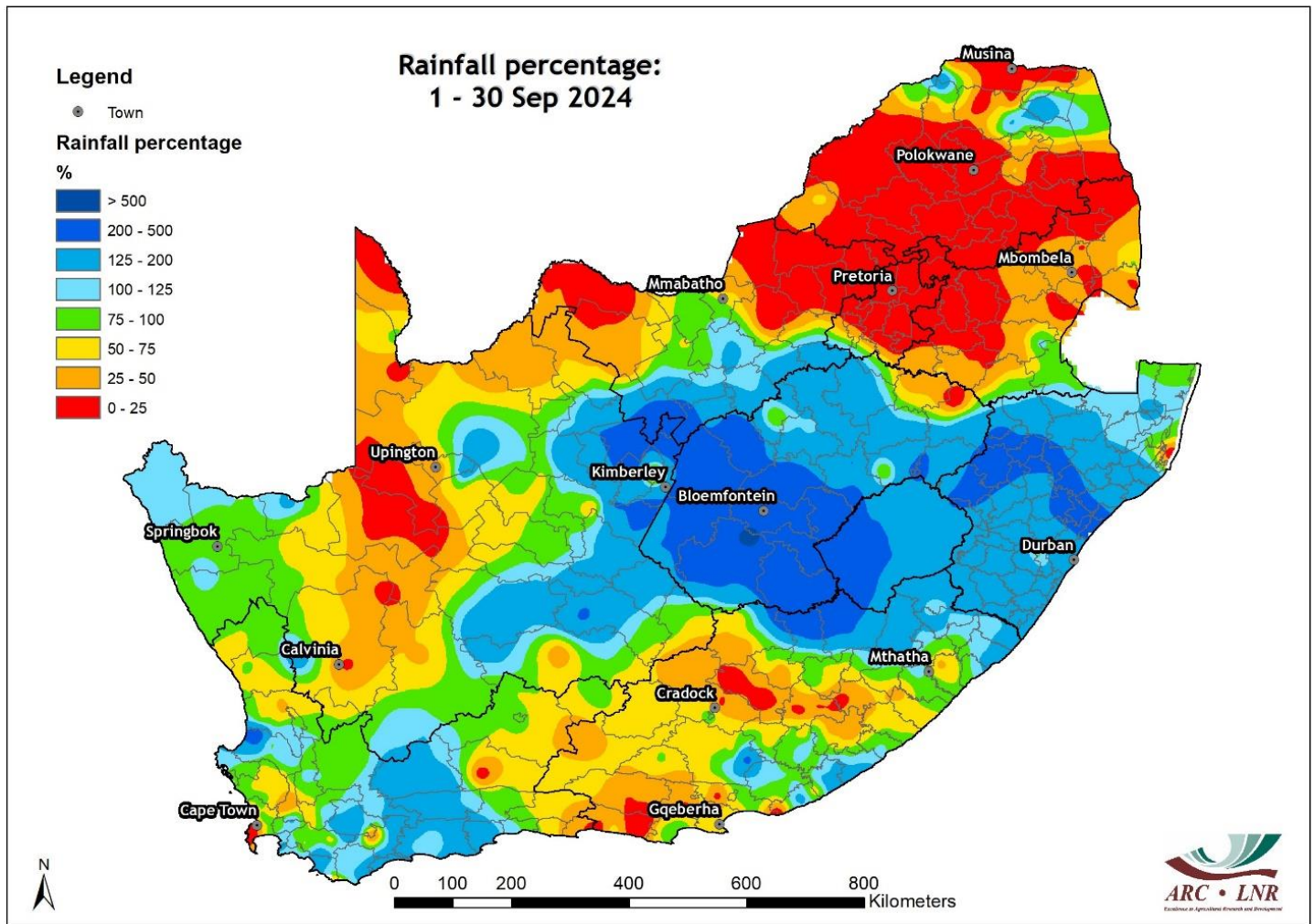
**Probabilistic forecasts by the International Research Institute for Climate and Society (IRI) for rainfall for early summer (October–December 2024; left - Forecast issued in 2024-09) and late summer (December to February 2024/25, right – Forecast issued in 2024-09).**



**Probabilistic multi-model forecasts by the ECMWF COPERNICUS Programme for rainfall for early summer (October–December 2024; left - Forecast issued in 2024-09) and late summer (December to February 2024/25, right – Forecast issued in 2024-09).**

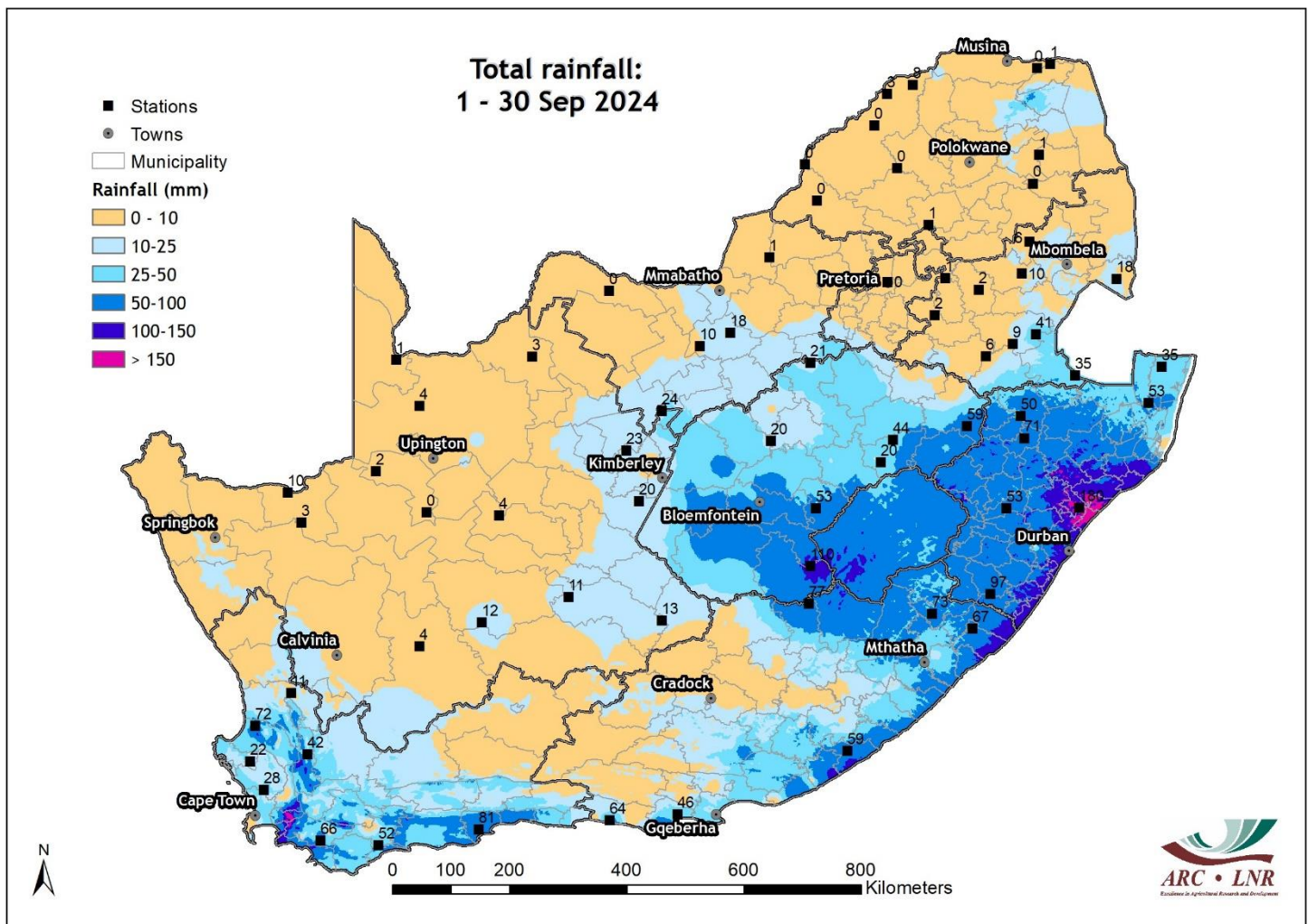
# Observed conditions

## Rainfall (% of long-term mean): September 2024



*Southern North West, the Free State and KZN received above-average rainfall during September. Most of Mpumalanga, Gauteng, northern North West and Limpopo received below-average rainfall. The central to western and southern parts of the summer-grain production region are included in the area that received above-average rainfall in September.*

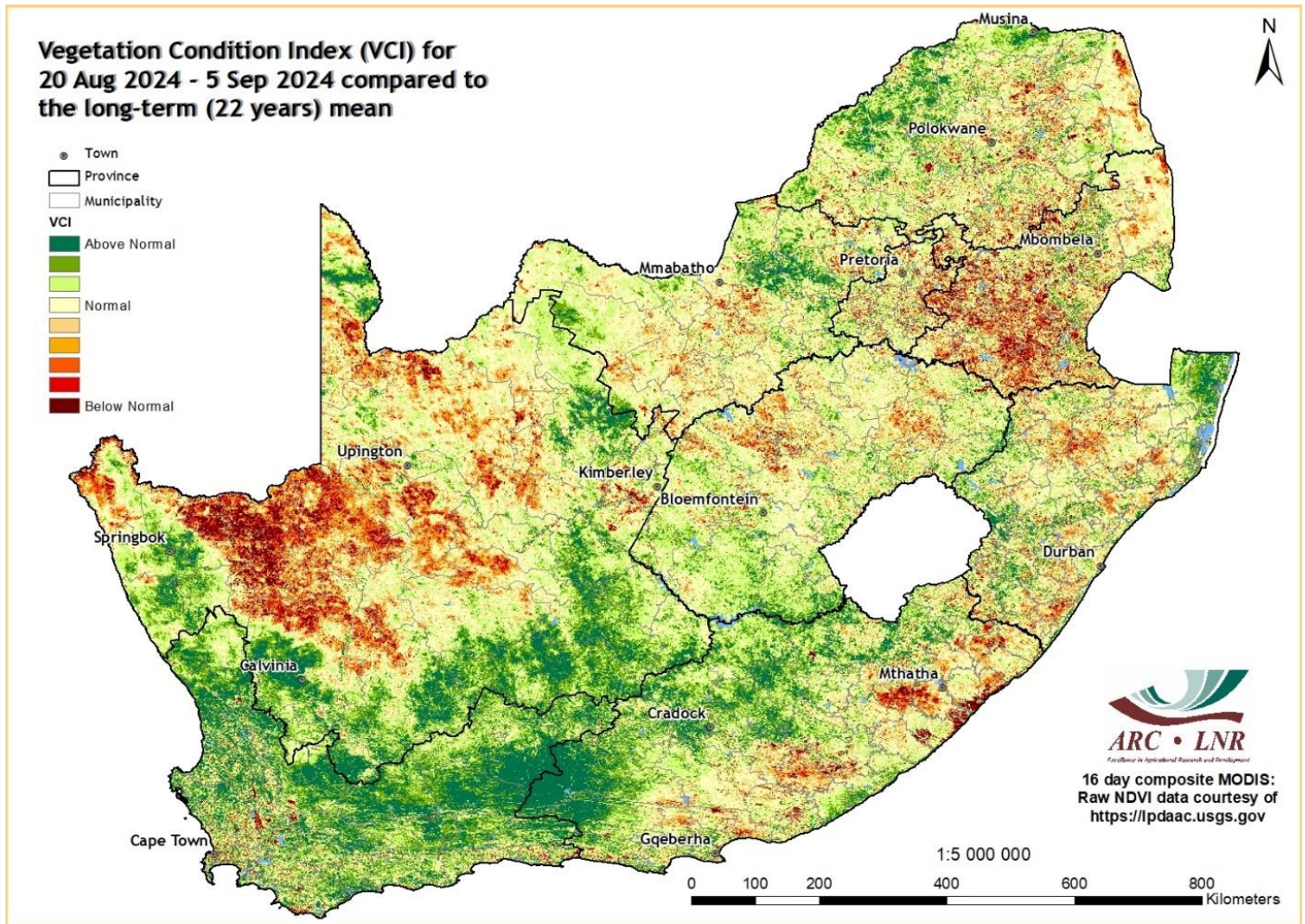
# Rainfall (mm): September 2024



*Large parts of the Free State received more than 25 mm of rain, with higher totals, exceeding 50 mm, over the southern to eastern parts of the province. Large parts of KZN and the north-eastern parts and eastern coastal belt of the Eastern Cape also received more than 50 mm of rain. Little to no rain was recorded over Mpumalanga, Gauteng, northern North West and Limpopo.*



# Vegetation Condition Index: Early September 2024



*By early September, vegetation activity still reflects the drier conditions during mid-to-late summer 2023/24 over parts of the maize-production region, especially western Mpumalanga and northern parts of the Free State. Vegetation activity is also below normal over the central to northern parts of the Northern Cape. Widespread above-normal rainfall over the southwestern parts has resulted in above-normal vegetation activity over these areas, including the winter rainfall region.*

# 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>

**AgriSeker**  
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*'n Seker Toekoms*

THIS IS OUR CERTAIN  
**FUTURE**

Together we can make a contribution to the Future of our Country with a dedicated Focus on Agriculture

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