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Agri Seker fa
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CUMULUS
09 OCTOBER 2024
by J Malherbe, R Kuschke
1 FUTURE 2 FOCUS 3 AGRICULTURE
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AgriSeker Onderskrywingsbestuurder (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. 2012/115426/30.

Contents

Summary

Dry conditions continue across the interior

Large-scale atmospheric circulation patterns will remain unfavorable for widespread rain over the interior during the next few days. Even though thundershowers will occur over the central to eastern parts during this week, only isolated falls are expected. Most areas will receive very little in the way of rain. Temperatures will gradually increase and it will be hot especially over the northern parts. By early next week there is a possibility for the development of a low-pressure system over the southern parts of the country. Current forecasts favor mostly the southern to southeastern parts for rain and thundershowers with the possibility of cold air advancing once again into the interior and re-enforcing the dry conditions over the northern parts. Forecasts this far in advance are less reliable and the exact evolution of the system may still change from what is currently forecasted.

The recent cold conditions and snow 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 late October, but thundershowers will become more frequent and it is possible that some of the Highveld areas may receive normal rainfall due to the occurrence of isolated to scattered thundershowers later this month. Parts of Mpumalanga may receive normal rainfall in total, but because precipitation will be in the form of isolated to scattered thundershowers, distribution of rainfall will be uneven. The overall pattern though remains unfavorable for widespread rain over the country according to current forecast.

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

- It will on average be warmer than normal.
- Hot, windy conditions over the western to central and southern parts will cause a high fire danger at times.
- It will be hot over large parts of the interior, but it will become cool to cold over the southern parts early next week when widespread precipitation is possible in the south and southeast according to current forecasts.
- Rainfall will be below normal over most of the country.
- The southern to southeastern parts and parts of the Eastern Highveld may receive above-normal rainfall according to current forecasts, but rainfall over these areas are only expected early next week.
- Isolated to scattered thundershowers will develop over the central to eastern parts on early in the period, mostly on Wednesday.
- It will be sunny and dry during most of the rest of the period until early next week across the interior.
- Widespread showers may occur over the southern to southeastern parts early next week, spreading along the Drakensberg when isolated to scattered falls over the central to eastern interior according to current forecasts.
- **The winter rainfall region** will be mild to cool with little to no rain and light to moderate westerly to northwesterly winds. There will be a change next week when an on-shore flow from the south may result in widespread showers, currently expected to occur in the south. Strong southeasterlies may then also develop in the southwest.
- **The summer-grain production region** will be dry and warm to hot for the most part. Isolated to scattered thundershowers may develop initially and possibly again early next week. Total rainfall should remain below normal for this time of the year over most of the region.

Overview of expected conditions over the main agricultural production areas

An upper-air high will keep the interior hot and dry most of the time. The possible development of an upper-air low in the south may again cause widespread rain over the southern to southeastern parts and some thundershowers over the eastern interior. The system may however result in the influx of dry air from the south over the interior and a reinforcement of dry conditions later next week.

Maize production region:

It will be warm to hot during this period. Isolated to scattered thundershowers are possible initially, but it should be mostly dry from Friday to Sunday. Thundershowers are possible early next week, mostly confined to the central to eastern parts according to current forecasts. Thundershowers will produce strong and gusty winds and possibly hail in some cases. While most thundershowers will only produce little rainfall, some areas over Mpumalanga may receive normal rainfall in total.

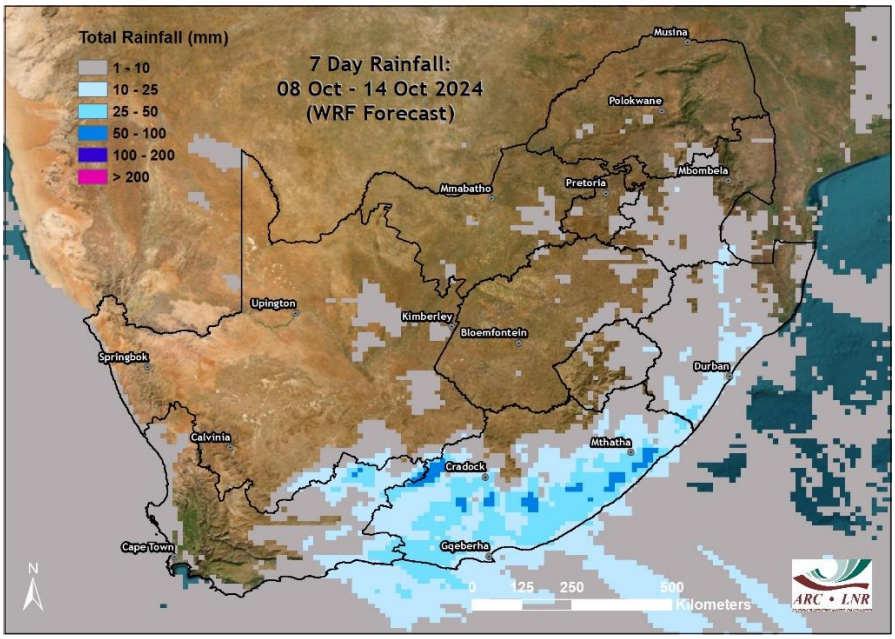
- Maximum temperatures over the eastern maize-production areas will range between 25°C and 34°C. Minimum temperatures will be in the order of 9°C to 16°C.
- Maximum temperatures over the western maize-production areas will range between 29°C and 37°C, with highest temperatures from Friday to Sunday. Minimum temperatures will be in the order of 15°C to 19°C.
- **Wednesday (9th):** Partly cloudy and warm with isolated thundershowers. Thundershowers may produce strong and gusty winds.
- **Thursday to Sunday (10th to 13th):** Sunny to partly cloudy and hot. Isolated thundershowers will be very isolated in nature if they occur over the region. It should be dry for the most part.
- **Monday to Wednesday (14th – 16th):** It may become somewhat cooler and windy across the region due to the development of the low to the south and a ridging high. Current forecasts indicate the possibility of thundershowers developing over the central to eastern parts if the system develops. Drier southerly to westerly winds may then penetrate the region when the mornings will be cool to cold.

Cape Wine Lands and Ruens:

The region will be mild to cool with westerly to northwesterly winds. Southernly winds may dominate from Sunday, with showers possible in the south. The wind will be strong southeasterly in the southwest. It should clear by Tuesday according to current forecasts when it may become warm in the northwest while strong southeasterlies persist in the southwest, weakening by Wednesday.

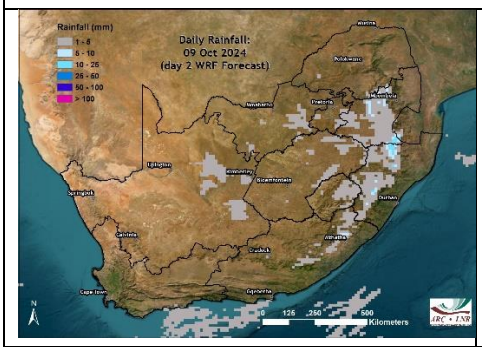
Daily summary of expected conditions (3 – 8 Oct.)

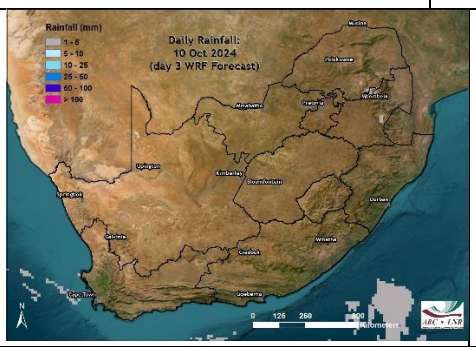
(GFS forecast downscaled using WRF)

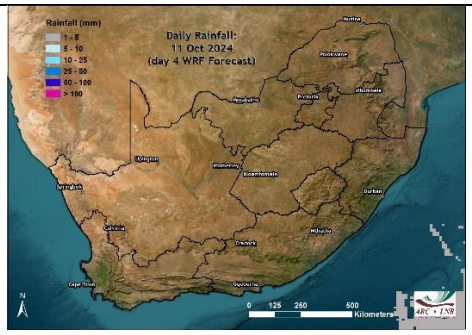


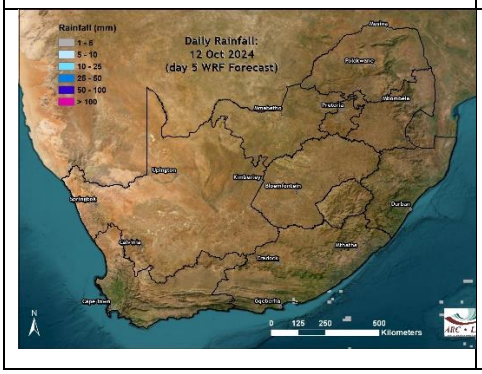
Rainfall

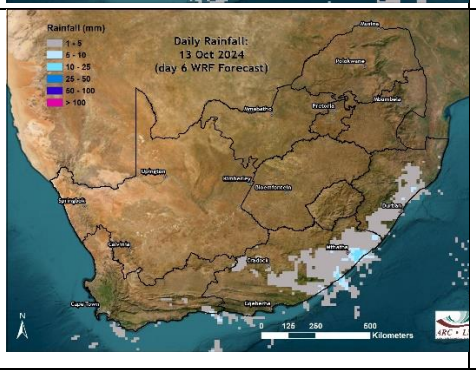
- Rainfall totals over the interior will be low. Totals over the southern to southeastern parts will be higher and will be associated mainly with the system early next week if it occurs.

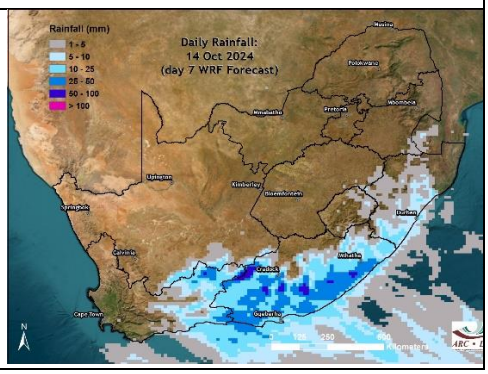




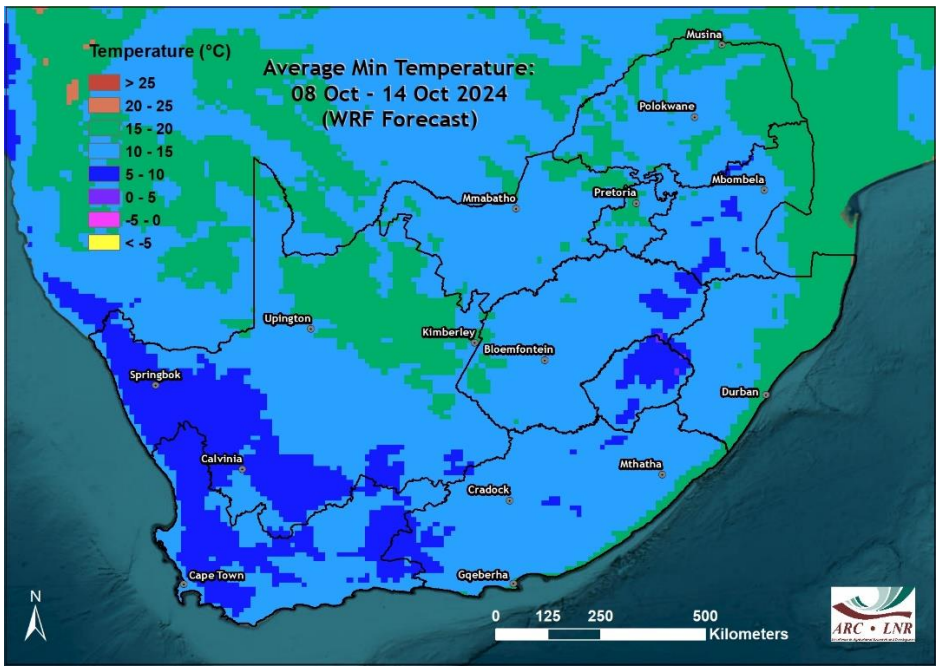






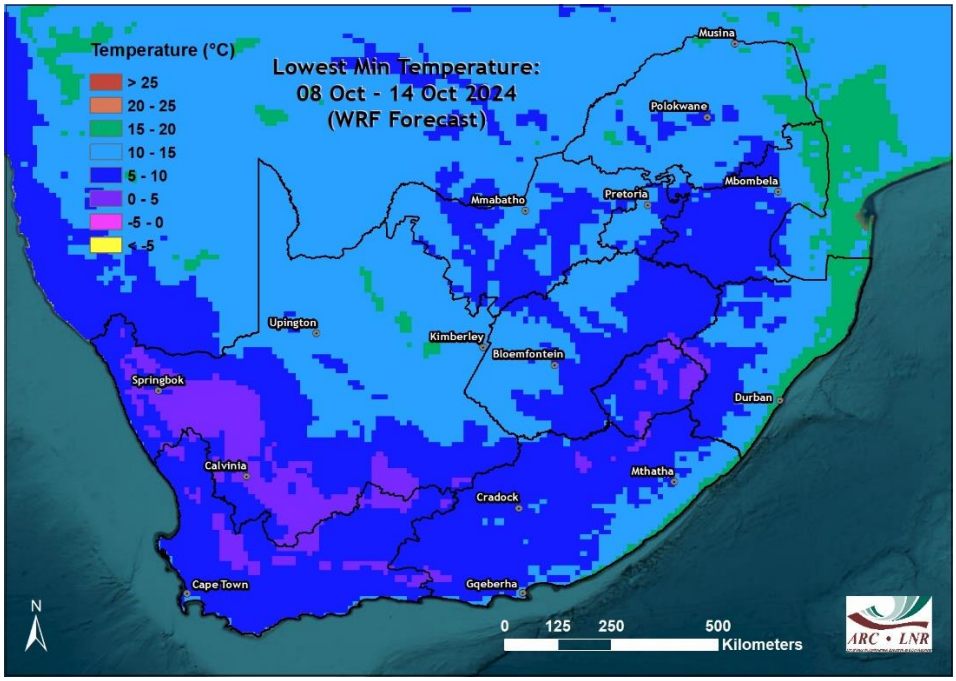


- Isolated thundershowers will occur over the central to eastern parts initially (Wednesday).
- Little to no rain is expected from Thursday to Sunday.
- Showers are possible over the southeastern parts later on Sunday.
- Scattered to widespread thundershowers are possible over the southern, southeastern and far-eastern parts on Monday. This may continue until Tuesday (not shown), with isolated to scattered thundershowers also possible over the eastern interior.



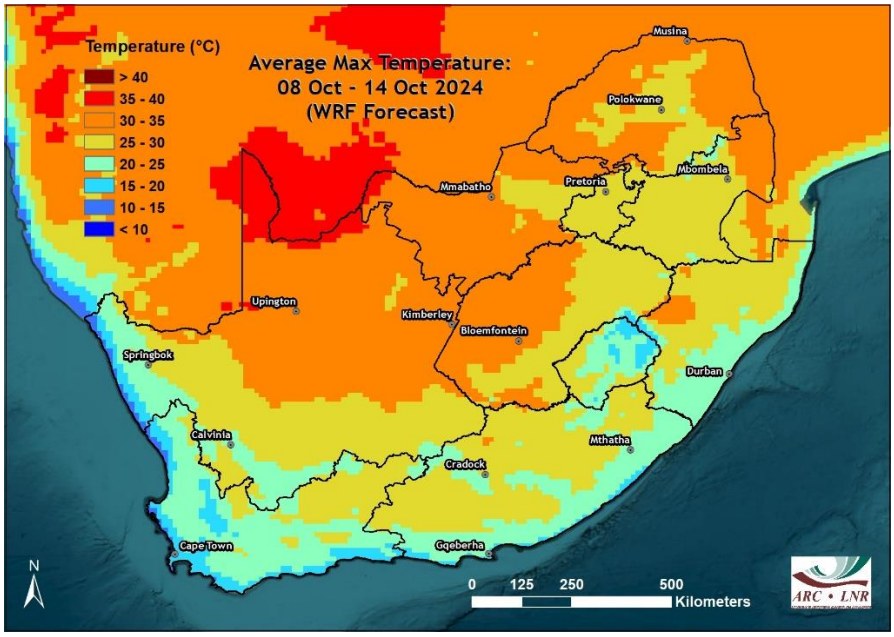
Average minimum temperatures

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



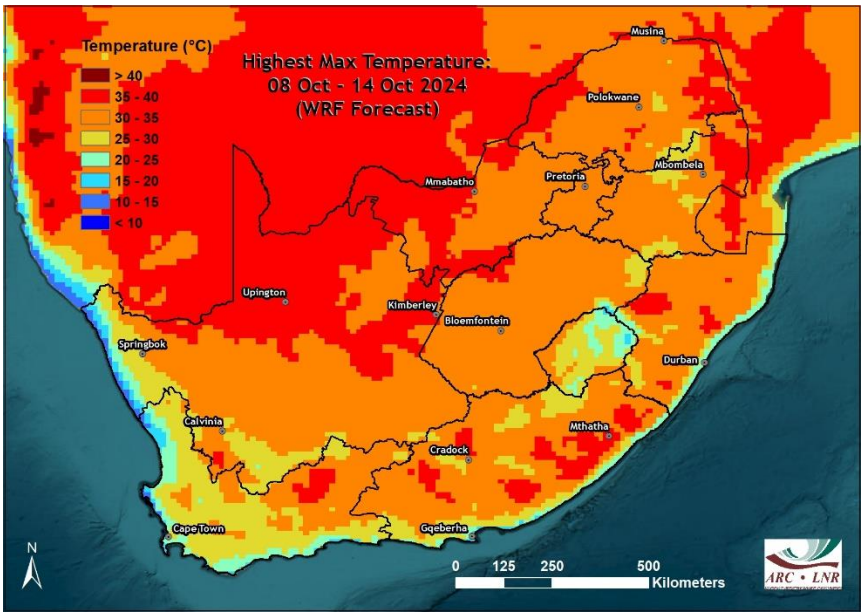
Lowest minimum temperatures

- Lowest minimum temperatures will remain above 5°C over the summer-grain production region.



Average maximum temperatures

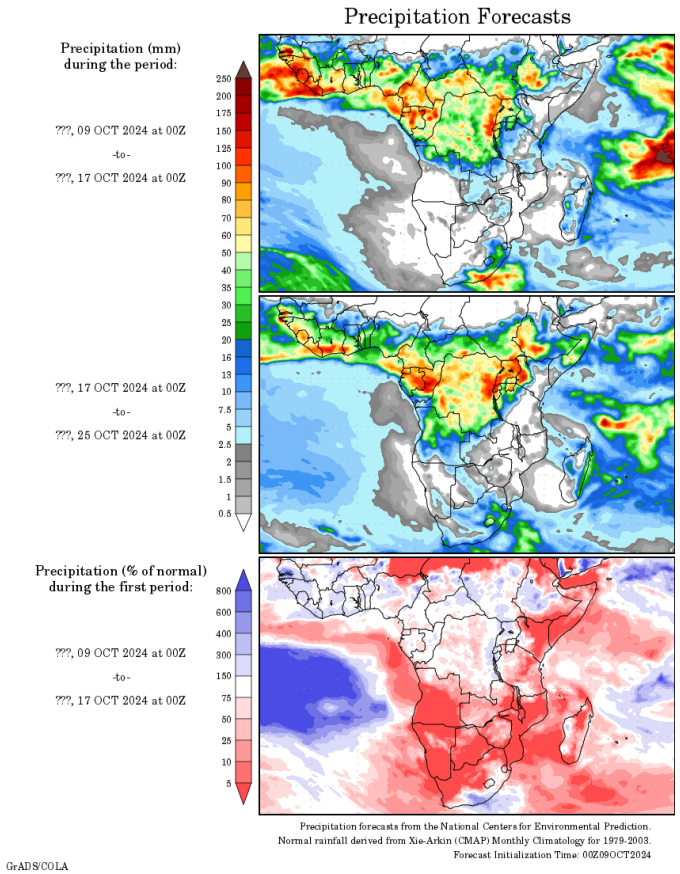
- Average maximum temperatures will be above 30°C over the northern parts of the country and below 25°C over the southern coastal areas and southern escarpment into the Drakensberg.

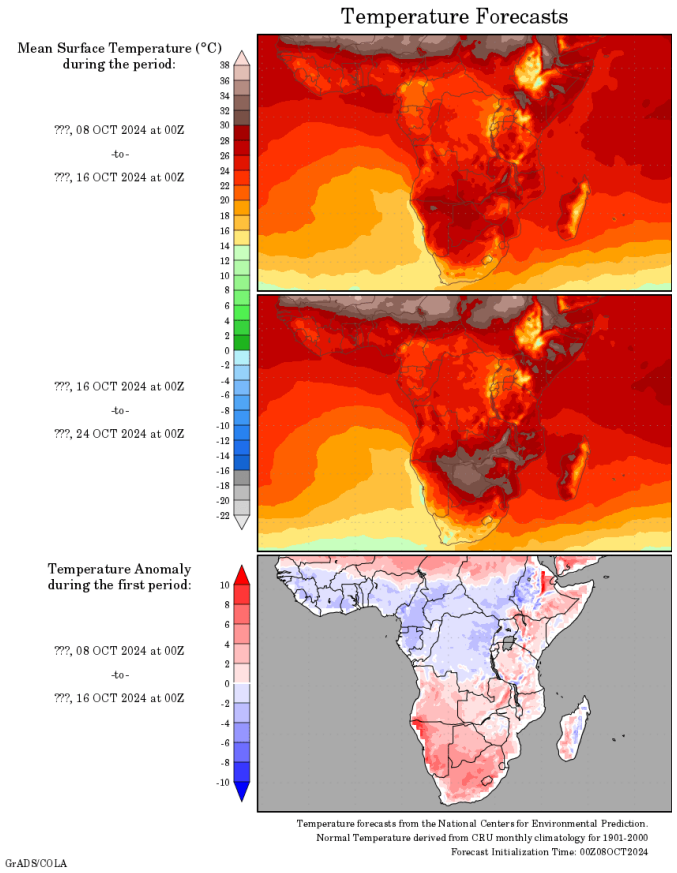


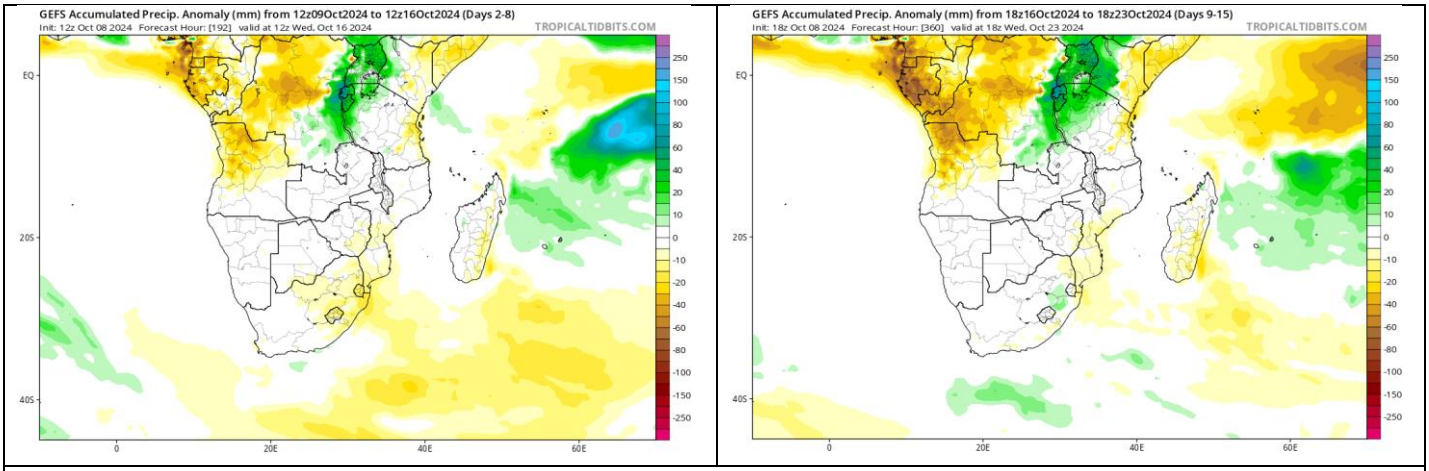
Highest maximum temperatures

- Highest temperatures during the next few days are expected to exceed 35°C over the lower-lying northern to eastern parts as well as the region between the escarpment and coastal zone in the south and east.

Medium term rainfall and temperature summary







The GFS ensemble forecast (consisting of several forecasts with small initialization differences) favors below-normal rainfall through most of October, but marginal improvements are expected over the Highveld by late October according to current forecasts.

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 9 October) period. It is therefore advised to keep track of warnings that may be issued by the SAWS (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:

- **Warm, dry and windy conditions will increase the fire hazard where vegetation is dry:**
  - Western to central, southern and south-eastern interior: **Wednesday to Thursday (9th, 10th) and Sunday to Monday (13th, 14th).**
  - Southwestern coastal areas: **Early next week.**

- **It will be hot, with maximum temperatures exceeding 35°C:**
  - Northern Cape interior: **Wednesday to Sunday (9th to 13th).**
  - Eastern Cape and eastern half of the Western Cape interior: **Wednesday, Thursday (9th, 10th) and Saturday (12th).**
  - Lowveld and Limpopo River Valley: **Wednesday to Monday (9th – 14th)**
  - Central to north-eastern KZN: **Friday to Sunday (11th – 13th)**

- **Low minimum temperatures will occur with possible light frost:**
  - Southern interior: **Early next week.**

- **Thundershowers may become severe:**
  - Central to eastern and northeastern parts, producing strong winds and gusts: **Wednesday (9th).**
  - Eastern to southeastern interior, including the Drakensberg region, where thundershowers develop: **Early next week.**

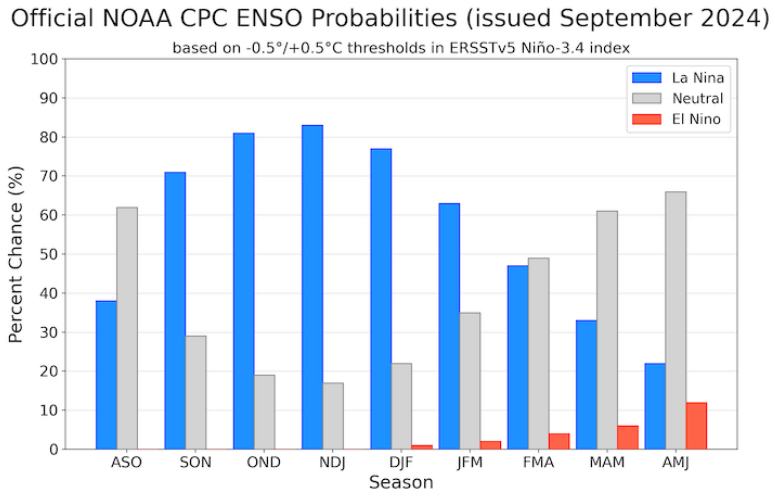
- **Cold, wet and windy conditions may negatively impact small stock:**
  - Interior of the Western Cape, southern parts of the Northern Cape, interior of the Eastern Cape, Drakensberg: **Early next week.**

Seasonal forecast

Current ENSO conditions:

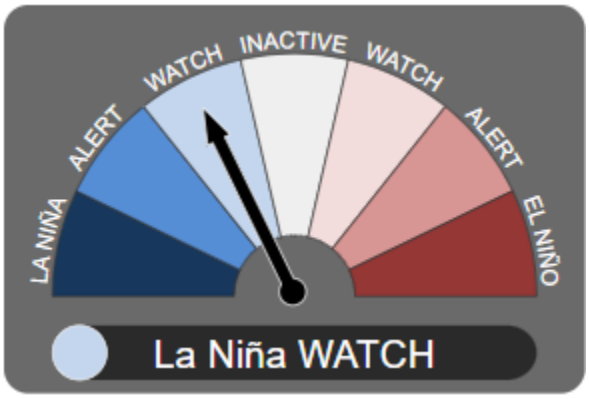
ENSO is in neutral state, but there are several indications that a La Niña will develop during the next few months. Especially the atmospheric indicators, such as trade winds along the equator and cloud patterns, are leaning more strongly towards a developing La Niña.

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" ……



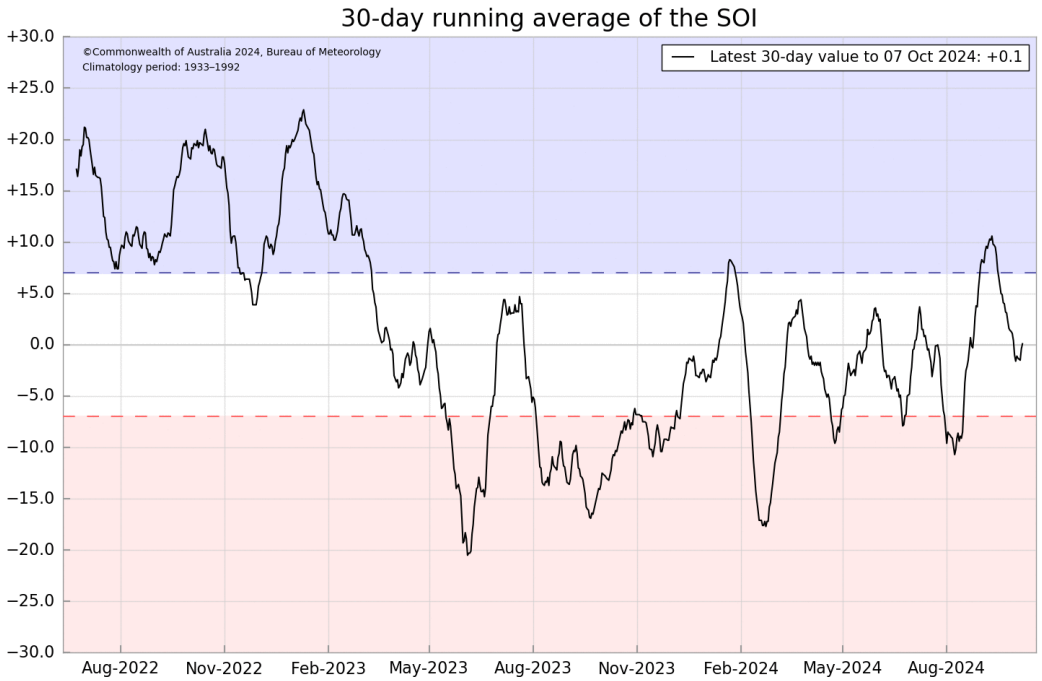
***Australian Bureau of Meteorology* - http://www.bom.gov.au**

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 °C to +0.8 °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 °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.

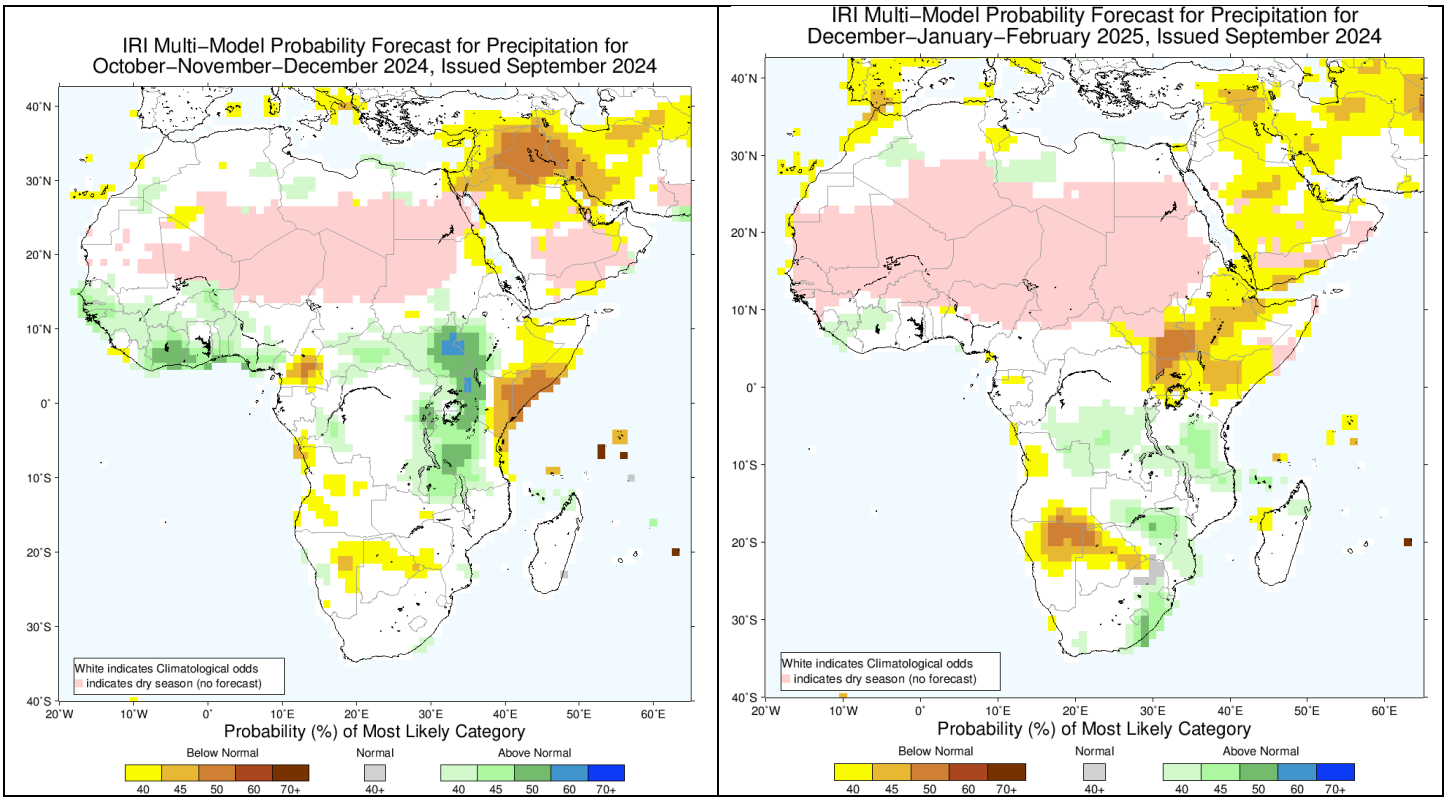
The 30-day Southern Oscillation Index (SOI) is currently +1.0 and therefore representing atmospheric pressure patterns in the Australia – Pacific region indicative of ENSO Neutral conditions.



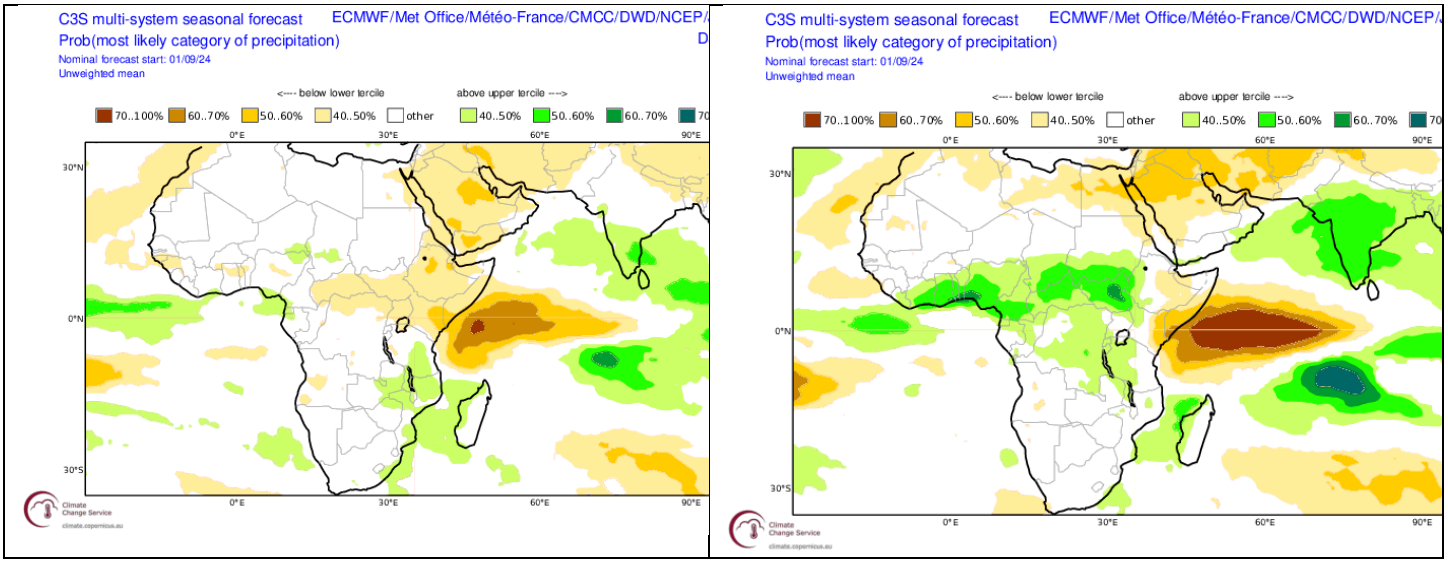
Australian Bureau of Meteorology **- http://www.bom.gov.au**

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.



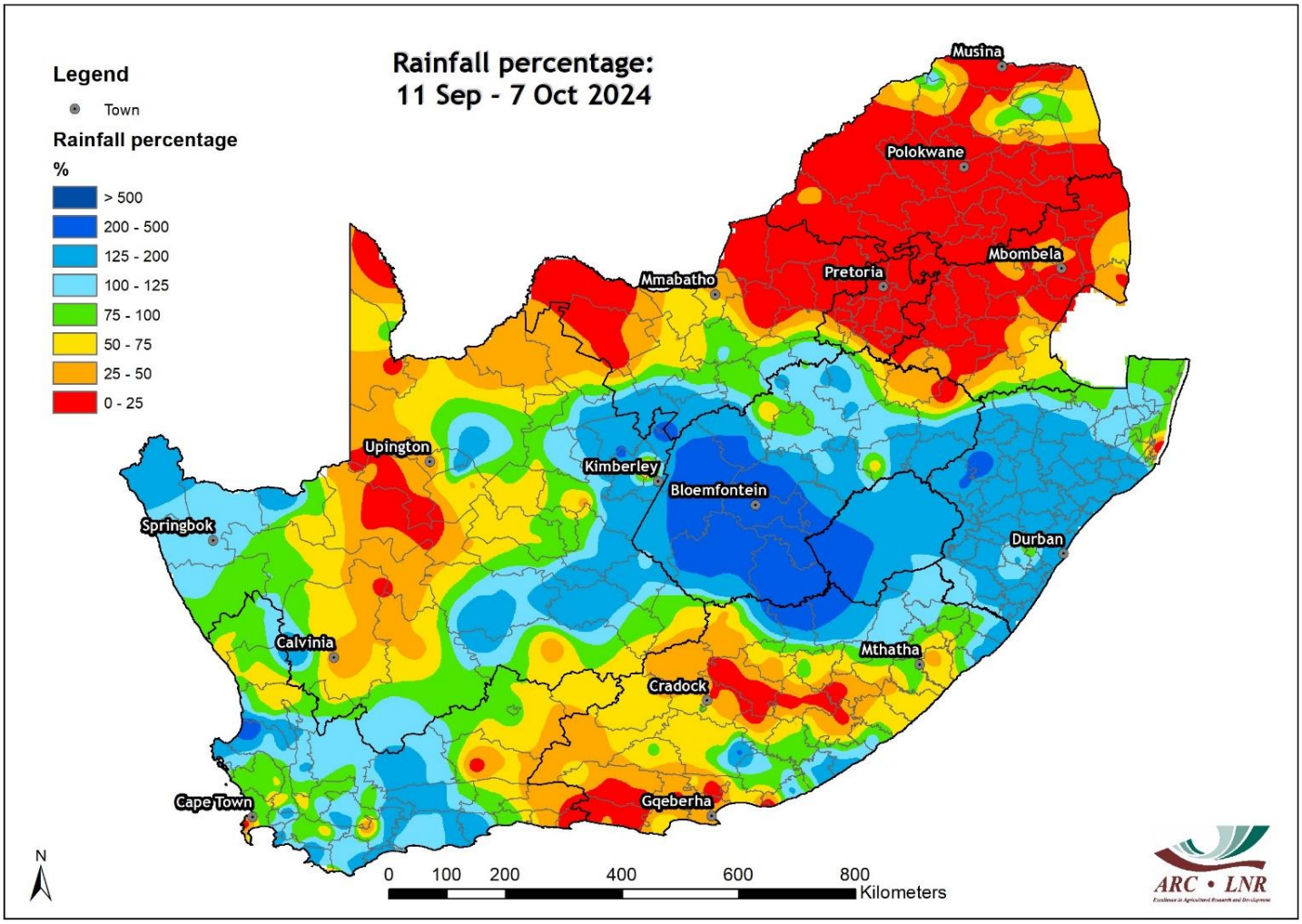
Probabilistic forecasts by the International Research Institute for Climate and Society (IRI) for rainfall for early summer (October-December 2024; left - Forecast issued in 2024-09) and late summer (December to February 2024/25, right – Forecast issued in 2024-09).



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).

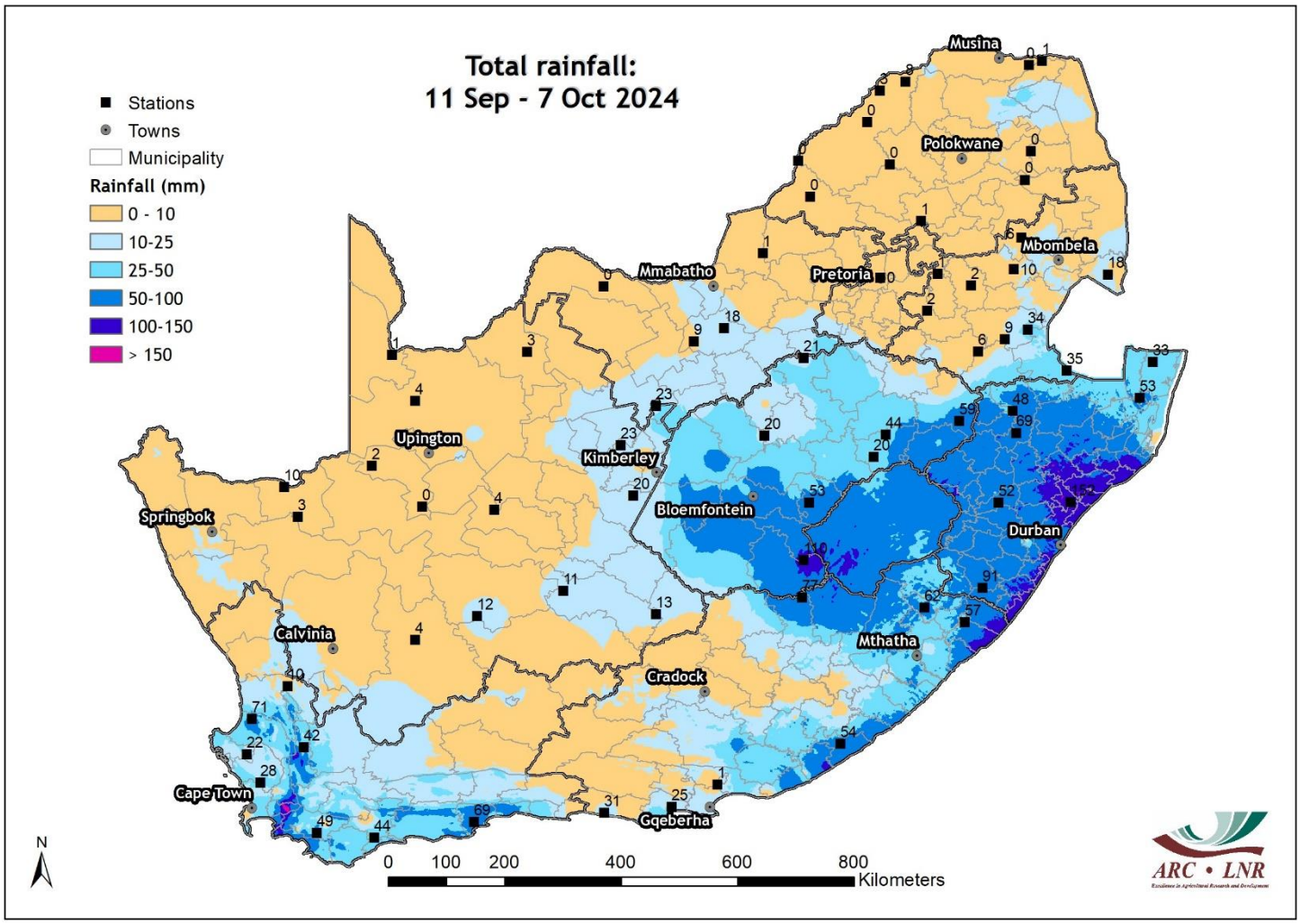
Observed conditions

Rainfall (% of long-term mean): 11 Sep – 7 Oct 2024



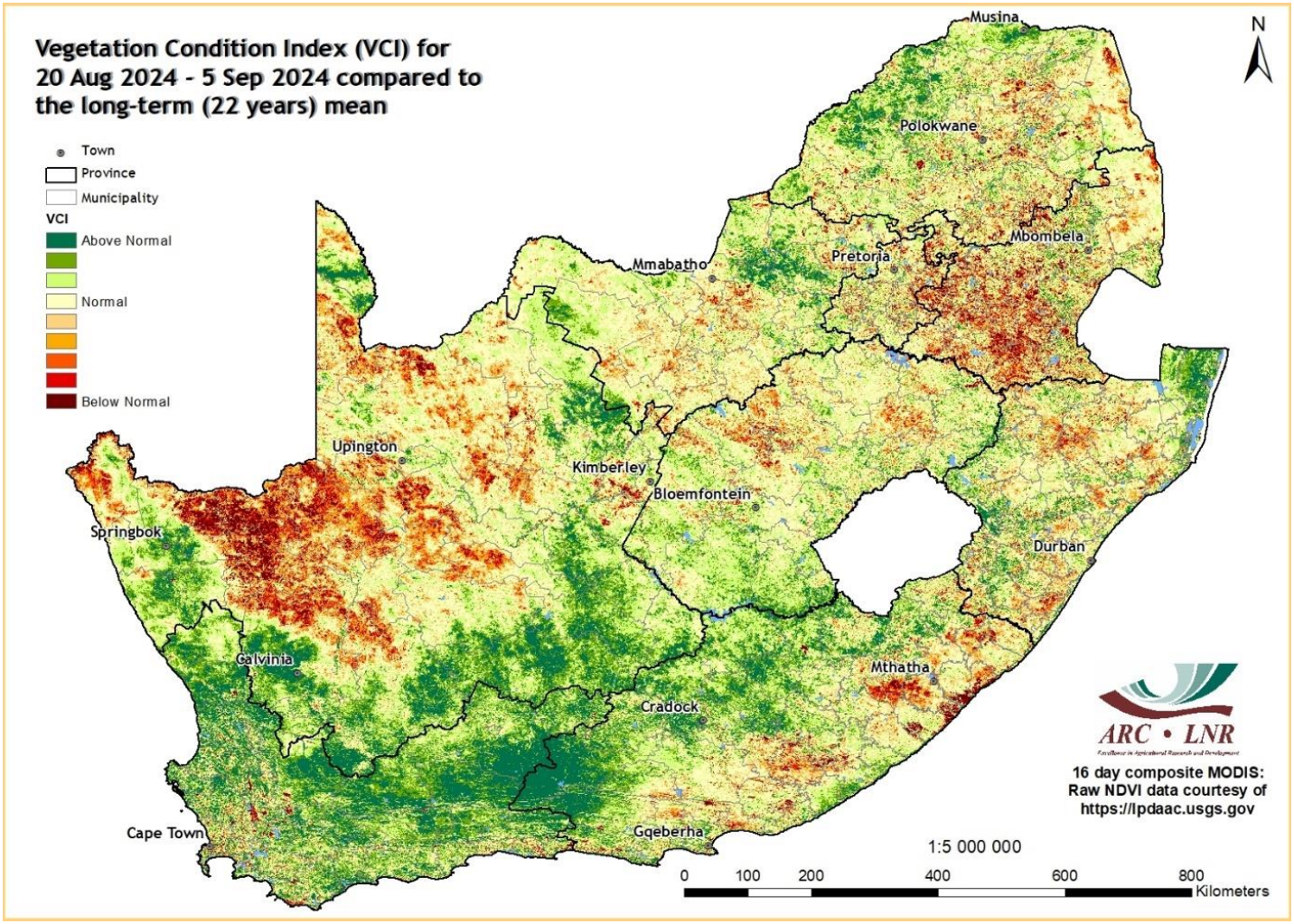
Southern North West, the Free State and KZN received above-average rainfall during the period, mostly occurring between 16 and 25 September. Most of Mpumalanga, Gauteng, northern North West and Limpopo received below-average rainfall. The central to western and southern parts of the summer-grain production region are included in the area that received above-average rainfall. The winter rainfall region received near average to above average rainfall.

Rainfall (mm): 11 Sep – 7 Oct 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