

# CUMULUS

2 November 2022

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**WE GET**  
AGRICULTURE'S *heartbeat*

# Contents

Summary.....	3
Overview of expected conditions over the main agricultural production areas.....	4
Daily summary of expected conditions.....	5
Medium term rainfall and temperature summary.....	8
Possible extreme conditions - relevant to agriculture.....	9
Seasonal forecast.....	10
Seasonal forecasts issued by various international institutions.....	12
CUMULUS seasonal outlook.....	14
Observed conditions.....	15
<b>Rainfall (% of long-term mean): April to September 2022.....</b>	<b>15</b>
<b>Rainfall (mm): October 2022.....</b>	<b>16</b>
<b>Percentage of Average Seasonal Greenness: June – September 2022.....</b>	<b>17</b>
Sources of information.....	18



Photo credit: Google

# Summary

## *More widespread rain expected*

More rain is expected over most of the country during the next few days, with November starting out much wetter and cooler over the interior than October. Again, increased cloud cover together with periods of widespread showers or thundershowers will keep maximum temperatures on the mild side, in contrast to the hot and dry weather during the first half of October. The summer-grain production areas will be mild to cool for this time of the year, benefitting from above-normal rainfall expected across the country (except for the west coast and far western interior where little to no rain is expected). Due to the position of an upper-air low early in the period, scattered to widespread thundershowers are possible over the southern to southwestern parts of the country too, including the Karoo and winter rainfall region, where little to no rain occurred during October.

### **The following is a summary of weather conditions during the next few days:**

#### **General:**

- Temperatures will on average be near normal, but below normal over the eastern to northeastern interior.
- There will be mild to cool, cloudy conditions at times over the central to eastern parts. These will also at times include the central to eastern summer grain-production region.
- Rainfall will be above normal over most of the country, including the summer-grain production region.
- It will be dry over the west coast and far western interior.
- Scattered to widespread showers and thundershowers will occur over the central to southern and southwestern parts until Thursday, spreading eastwards to focus on the central to northeastern parts from Friday to Saturday.
- Scattered showers and thundershowers are possible over the southwestern parts, on Wednesday and Thursday, with lighter falls also possible over the southwestern winter rainfall region.
- Current forecasts indicate drier weather across the country by Sunday, but another system may result in a redevelopment of showers and thundershowers over most of the summer rainfall region later Monday.
- Cumulative multi-day rainfall totals (until early next week) may exceed 50 mm over extensive areas, covering most of the central to eastern and southeastern parts.
- While there isn't a particularly strong indication for widespread severe storms over the country, some thundershowers may produce hail and strong winds given the time of year, occasional intrusion of dry air from the west as well as atmospheric wind and temperature profiles supportive of thunderstorm development.
- The western to central interior will remain windy initially, especially in the afternoons.
- Strong south-easterlies are expected in the southwest on several days.
- Thundershowers will occur on most days over the summer-grain production region and cloud cover will subdue maximum temperatures:
  - Maximum temperatures over the eastern maize-production areas will be in the order of 20 – 28°C. Minimum temperatures will be in the order of 10 – 16°C.
  - Maximum temperatures over the western maize-production region will range between 24 and 32°C. Minimums will be in the order of 13 – 19°C.

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

Atmospheric circulation patterns will be very favorable for precipitation over large parts during the next few days. A cut-off low in the southwest will support widespread rainfall during the first few days, with rainfall further supported by large amounts of moisture fed into the interior from the east by a ridging high-pressure system as well as from the tropical areas to the north. Rainfall is indicated as far west as the winter rainfall region. While the initial system will move out to the east during the weekend, there are some indications that another upper-air low may result in further rainfall towards early next week over the central to eastern parts.

**Maize production region:** It will be partly cloudy to cloudy and mild with scattered to widespread showers or thundershowers on most days during the period. With temperatures on the lower side together with cloudy weather at times, conditions may sometimes be conducive to the spread of fungal pathogens:

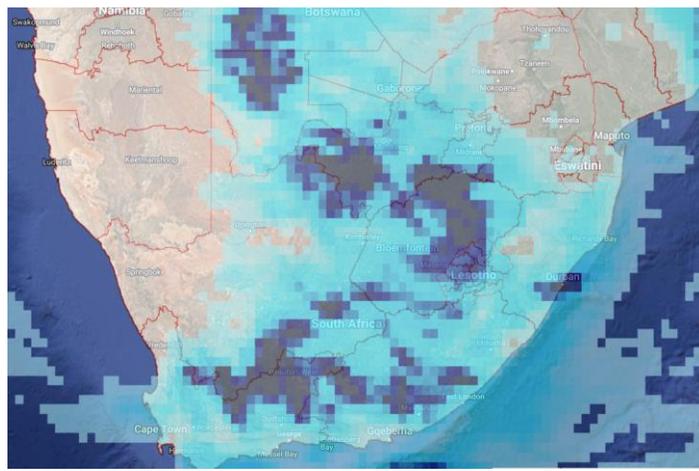
- Maximum temperatures over the eastern maize-production areas will be in the order of 20 – 28°C. Minimum temperatures will be in the order of 10 – 16°C.
  - Maximum temperatures over the western maize-production region will range between 24 and 32°C. Minimums will be in the order of 13 – 19°C.
- **Wednesday (2<sup>nd</sup>):** Partly cloudy and mild to warm with scattered thundershowers over the western to central parts, but isolated in the northeast of this region. Moderate to fresh north-easterly winds are expected in the west.
  - **Thursday to Friday (3<sup>rd</sup> to 4<sup>th</sup>):** Partly cloudy and mild to warm with scattered thundershowers, but widespread over the central to eastern parts. Moderate to fresh northerly winds are expected over the western to central parts.
  - **Saturday (5<sup>th</sup>):** Partly cloudy and warm with isolated thundershowers, but scattered over the northern to eastern parts.
  - **Sunday (6<sup>th</sup>):** Sunny to partly cloudy and warm. Isolated thundershowers are possible in the east.
  - **Monday to Tuesday (7<sup>th</sup>, 8<sup>th</sup>):** Partly cloudy to cloudy with scattered thundershowers, clearing by Tuesday from the west.

**Cape Wine Lands and Ruens:** This region may receive some rain from the upper-air low in the region, also responsible for much of the rain over the interior. Scattered showers and thundershowers are therefore possible on Wednesday and Thursday, especially over the interior. It will be warm to mild most of the time, and apart from the initial occurrence of showers or thundershowers over the region, further showers will be light and be limited to the Garden Route and far-southwest while the rest of the region should remain mild to warm and dry. Strong south-easterlies are expected in the southwest most of the time.

# Daily summary of expected conditions

(GFS forecasted rainfall for indicated periods shown in shades of blue, with darkest shading > 50mm)

## Wednesday to Thursday, 2 - 3 November



It will be partly cloudy to cloudy and mild with scattered to widespread thundershowers over the central parts and isolated falls over the central parts of the Northern Cape as well as the western parts of Mpumalanga and Limpopo.

Little to no rain over the northeastern extremes with only light showers along the northeastern escarpment.

Scattered to widespread showers and thundershowers over the southern to southwestern parts, including the Karoo and winter rainfall region, with lighter falls indicated along the coast.

Light showers Wednesday along the southeastern to eastern coastal belt.

Mild over most of the country with abundant cloud cover, but warm over the Lowveld.

Partly cloudy to sunny and warm over the northwestern parts of the Northern Cape.

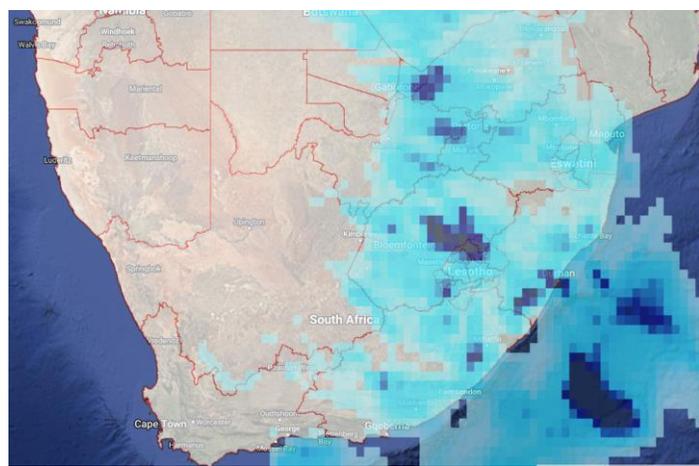
Moderate to fresh north-easterly winds over the central to western and southwestern interior on Wednesday.

Fresh to strong northeasterlies along the southeastern coastal belt.

Strong south-easterlies over the southwestern parts of the Western Cape.

Moderate to fresh northwesterly winds over the central parts on Thursday.

## Friday, 4 November



Rainfall activity will shift eastwards to include the northeastern parts.

Partly cloudy to cloudy and mild to warm with scattered to widespread thundershowers over the central to northeastern parts.

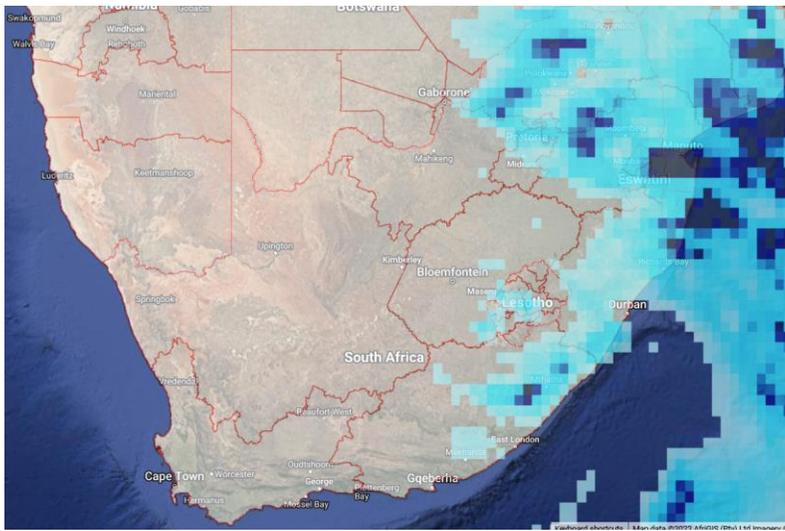
Isolated, residual showers possible over the high-lying southern to western interior.

Scattered showers and thundershowers also over the southeastern parts and along the southern to eastern coastal belt.

Moderate to fresh northwesterly winds over the central parts.

Strong south-easterlies over the southwestern parts of the Western Cape.

## Saturday, 5 November



Rainfall activity will shift further east and be confined to the northeastern to eastern parts, including the Lowveld.

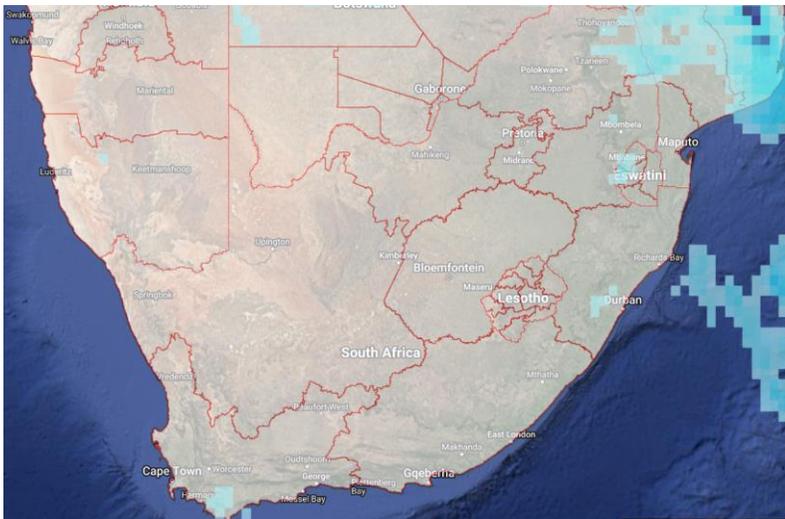
Scattered showers and thundershowers over the northeastern, far eastern and southeastern parts.

Isolated thundershowers over the central parts.

Partly cloudy to sunny, warm and dry over the western to southern parts.

Moderate to fresh south-easterlies in the southwest.

## Sunday, 6 November



Little to no rain is expected over most parts.

Partly cloudy and mild over the Eastern Highveld and Drakensberg with isolated thundershowers.

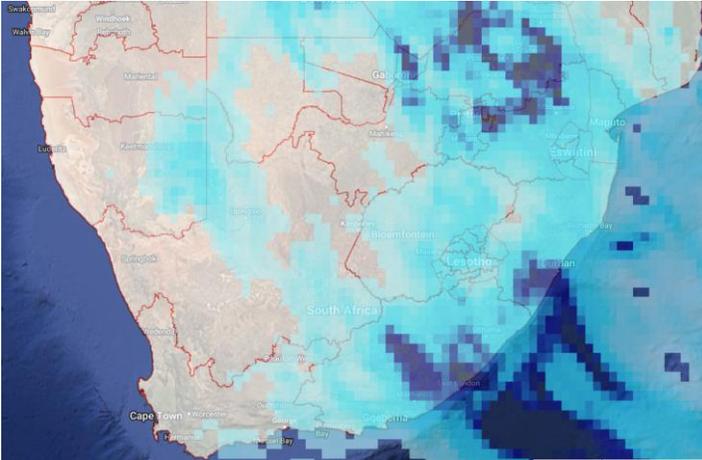
Partly cloudy to sunny and warm over the central to northeastern parts.

Sunny and warm over the western parts, becoming partly cloudy later.

It will become hot over the northern Lowveld.

Fresh to strong south-easterlies in the southwest.

## Monday to Tuesday, 7 – 8 November



Partly cloudy and warm with isolated to scattered thundershowers spreading across the interior from the northwest.

It will be cooler over the western to central parts by Monday.

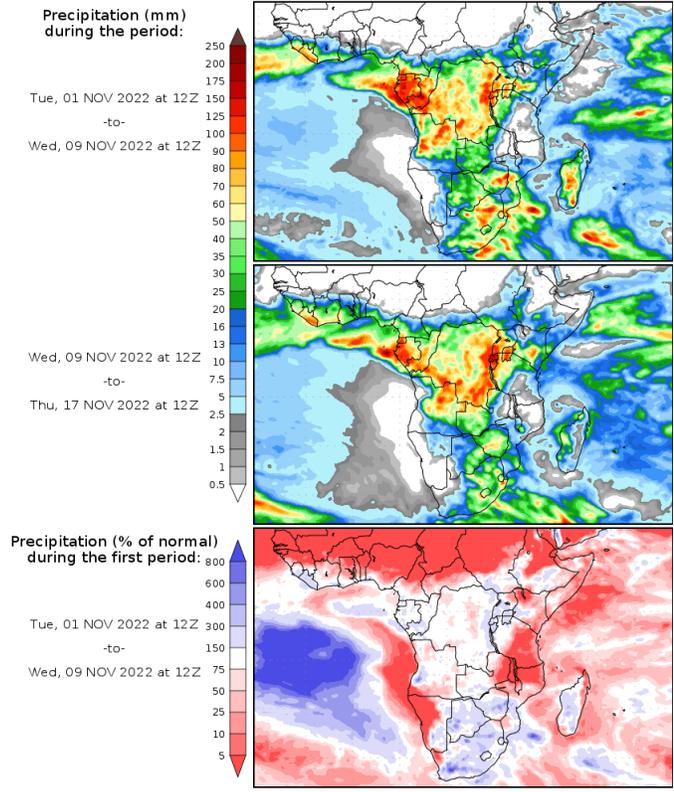
Cloudy, cooler conditions may spread over the northeastern parts according to current forecasts by later Monday with scattered showers and thundershowers.

Light showers are also possible over the southern parts of the winter rainfall region and along the Garden Route.

It should clear from the west over the interior on Tuesday and become sunny over the western to central parts.

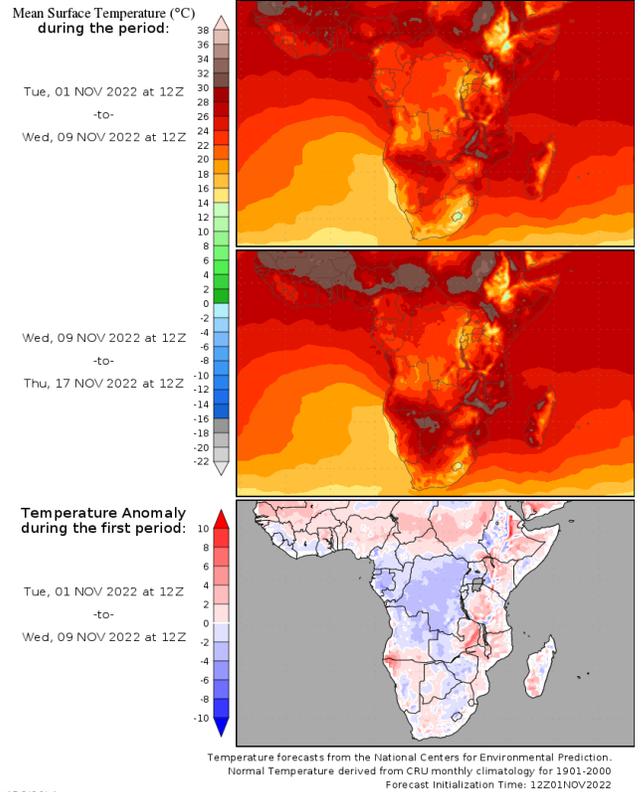
# Medium term rainfall and temperature summary

## Precipitation Forecasts



GRADS/COLA

## Temperature Forecasts



GRADS/COLA

## 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 one single weather model (GFS atmospheric model - *Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES)* – <http://Wxmaps.org>) considered here in the beginning of a week-long (starting 2 November) 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 model) of weather conditions during the coming week, the following may be deduced:**

- **Windy conditions could enhance the fire danger where vegetation is dry:**
  - Southwestern parts of the Western Cape: **Thursday (3<sup>rd</sup>) to Sunday (6<sup>th</sup>).**
- **It will be hot and humid:**
  - Over the northern Lowveld and Limpopo River Valley: **Sunday (6<sup>th</sup>).**
- **Cloudy and cooler conditions with scattered showers or thundershowers may result in the spread of fungal pathogens:**
  - Central to eastern summer-grain production region: **Wednesday (2<sup>nd</sup>) to Saturday (5<sup>th</sup>).**
- **As is typical for thunderstorm-producing systems in spring, some thunderstorms may at times become severe, producing strong winds and hail. However, the intensity and distribution of these are not indicated to be above the norm for this time of the year. Somewhat more unstable conditions may result in an elevated chance for severe storm formation:**
  - Central, southern and eastern Northern Cape, northern parts of the Western Cape interior: **Wednesday (2<sup>nd</sup>).**
  - Central to eastern North West and western half of the Free State and northern parts of the Eastern Cape: **Friday (4<sup>th</sup>).**
  - Western Limpopo, Gauteng and western Mpumalanga: **Saturday (5<sup>th</sup>).**
- **There are currently no indication yet of exceptionally heavy rainfall over extensive areas. In isolated areas however, some thundershowers over the interior may result in rainfall totals exceeding 50mm in 24 hours.**

## Seasonal forecast

**Seasonal forecasts for spring and summer over South Africa** favor wetter conditions over the summer rainfall region, with a bias towards drier conditions over the winter rainfall region in the southwest. A summary of expected conditions over South Africa will be given in the next edition.

**ENSO forecasts** indicate enhanced probabilities for La Niña remaining in place into our summer, with a return to neutral conditions early in 2023. La Niña is associated with above-normal rainfall during mid- to late summer over the summer rainfall region of South Africa.

### **The Australian Bureau of Meteorology points out that the La Niña continues in the tropical Pacific**

(Updated 25 October): La Niña continues. In the tropical Pacific Ocean both atmospheric and oceanic indicators of the El Niño–Southern Oscillation (ENSO) are consistent with an established La Niña, including tropical Pacific sea surface temperatures, the Southern Oscillation Index (SOI), trade wind strength, and equatorial cloudiness.

Models indicate a return to ENSO-neutral conditions (neither La Niña nor El Niño) early in 2023.

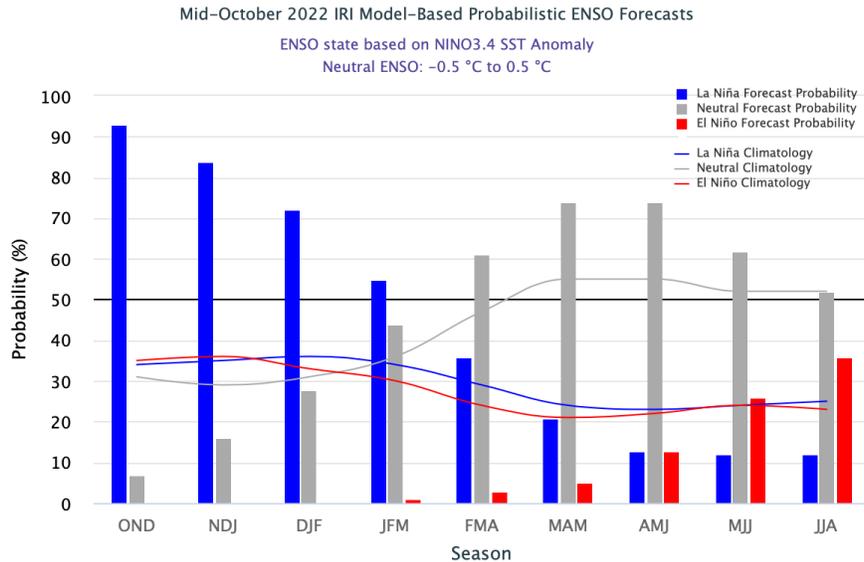
La Niña typically increases the chance of above average rainfall for northern and eastern Australia during spring and summer.

The Southern Annular Mode (SAM) is currently in a neutral phase. However, SAM is likely to return to a positive phase during November and remain generally positive into early summer.....*Australian Bureau of Meteorology* - <http://www.bom.gov.au>

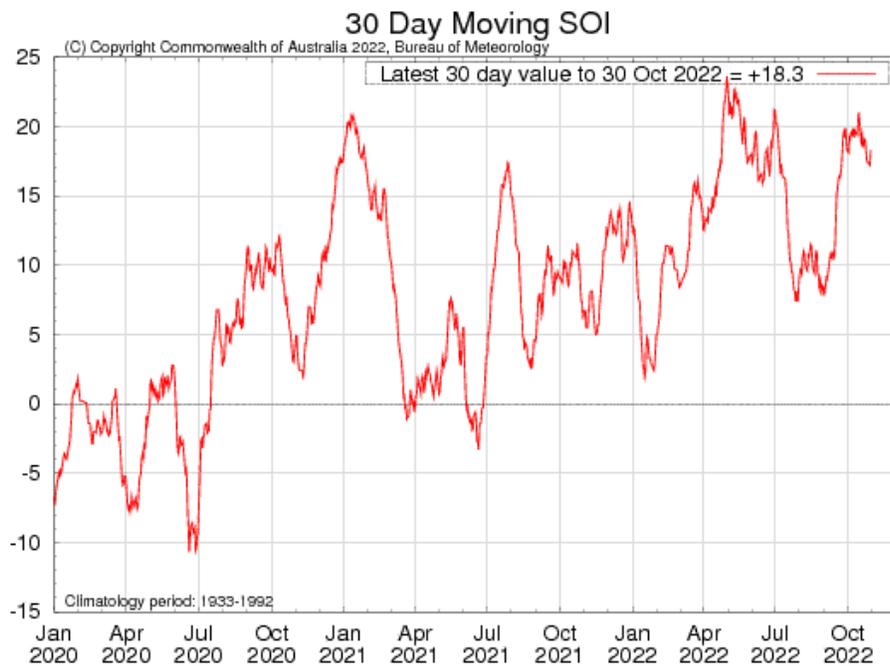
**While La Niña conditions are associated with wetter than normal conditions over the summer rainfall region of South Africa, a positive SAM is associated with above-normal rainfall over the eastern parts during mid to late summer only.**

### **The International Research Institute for Climate and Society (IRI) also expects La Niña conditions to persist into summer**

**According to the IRI** (Updated 19 October): In mid-October, sea surface temperatures in the central-eastern equatorial Pacific remain below-average. Key oceanic and atmospheric variables have remained consistent with La Niña conditions. A CPC La Niña Advisory still remains in place for October 2022. A large majority of the models in the plume predict SSTs to remain below-normal at the level of a La Niña until at least Jan-Mar 2023. Similar to the most-recent official CPC ENSO Outlook issued on October 13, 2022, the objective model-based ENSO outlook forecasts a continuation of the La Niña event with high probability during Nov-Jan, Dec-Feb, and Jan-Mar 2023. Based on objective ENSO forecasts, La Niña is expected to transition into ENSO-neutral during Feb-Apr 2023, which remains the most likely category thereafter.....*International Research Institute for Climate and Society*- <http://iri.columbia.edu/>



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

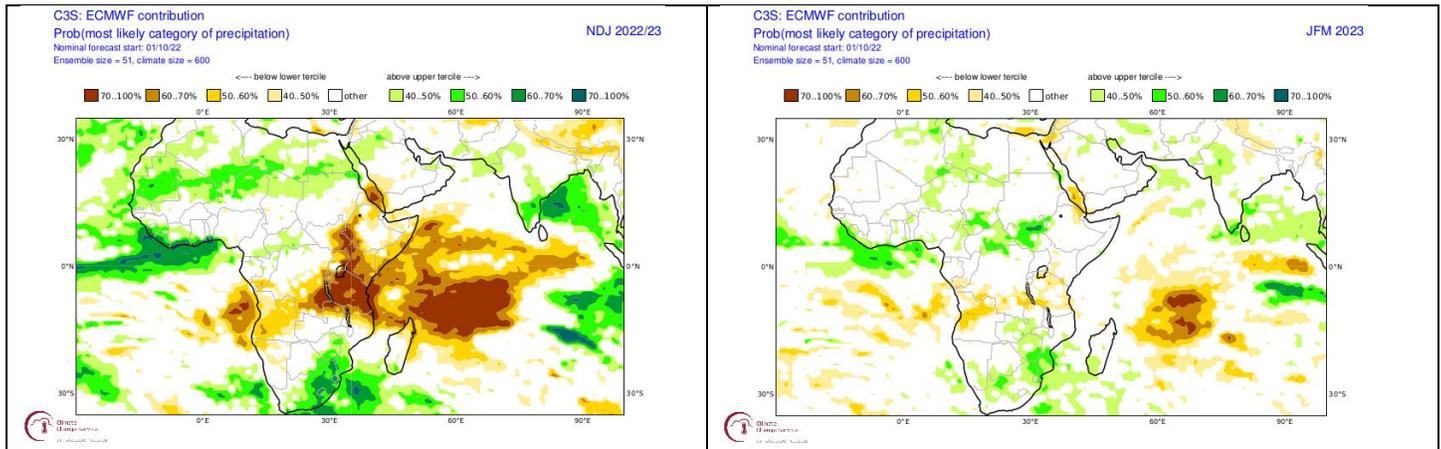


Australian Bureau of Meteorology - <http://www.bom.gov.au>

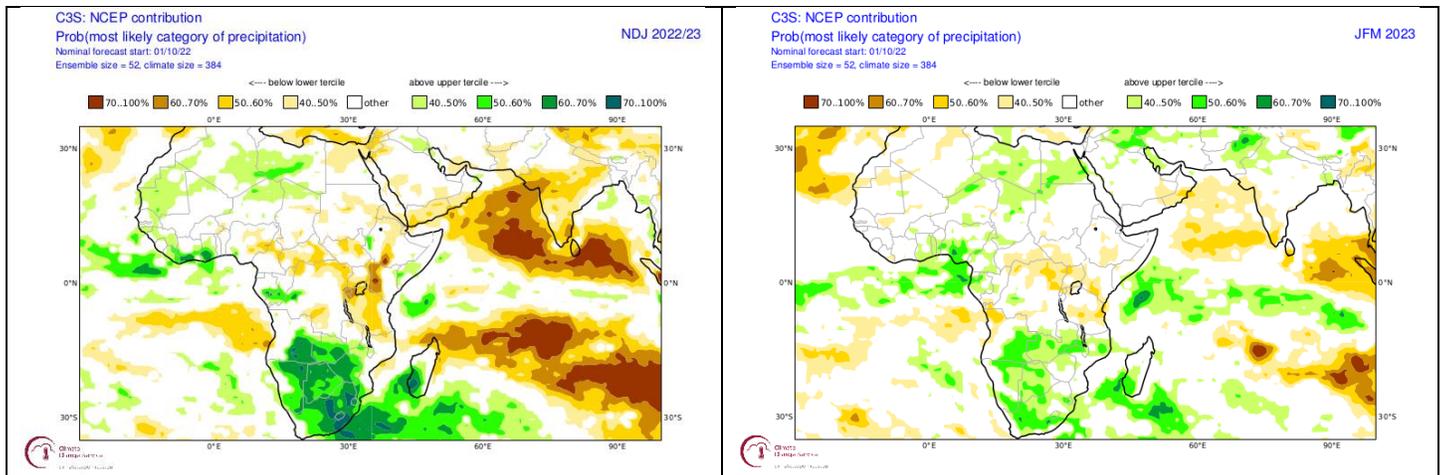
**The Southern Oscillation Index is in positive territory (+18.3). This is indicative of atmospheric circulation patterns reflecting La Niña conditions.**

# Seasonal forecasts issued by various international institutions

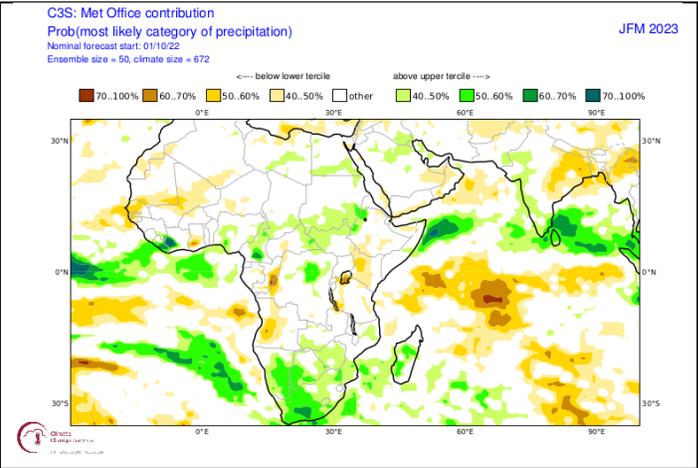
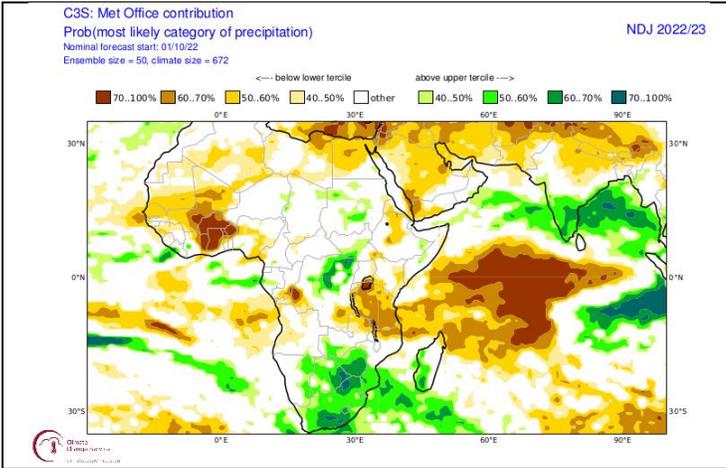
Seasonal forecasts (updated in October 2022) by these institutions, as published by the COPERNICUS Programme (<https://climate.copernicus.eu/seasonal-forecasts>) for both early to mid-summer, and mid-to late summer reflect an expectation for a relatively wet summer over the interior. The signal for relatively wet conditions over the summer rainfall region of South Africa is somewhat stronger for mid-summer (NDJ) than late summer (JFM) according to most of these institutions. The relatively wet conditions expected are partly associated with the observed moderate La-Niña. Similar tendencies are also present in the IRI seasonal forecasts (not shown).



**Probabilistic forecasts by the European Centre for Medium-Range Weather Forecasts for rainfall for mid-summer (November - January 2022/23; left) and late summer (January-March 2023; right) (Forecasts issued in 2022-10).**



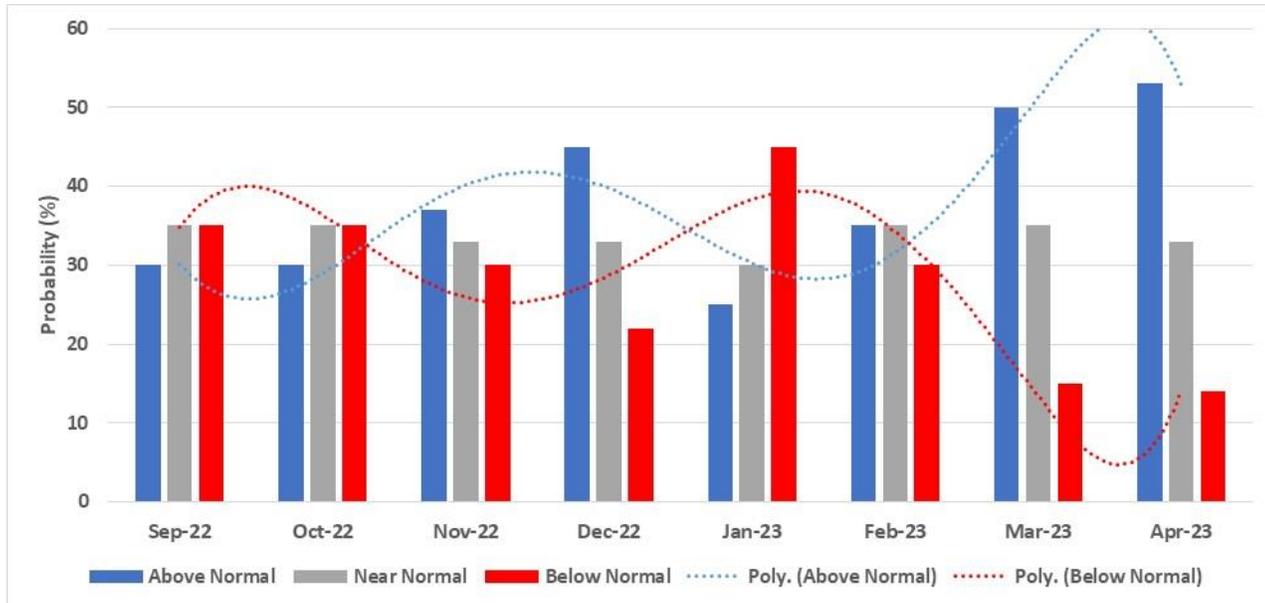
**Same as above, but forecasts issued by the National Centres for Environmental Prediction.**



Same as above, but forecasts issued by the UK Met Office.

## CUMULUS seasonal outlook

This outlook is based on the typical observed rainfall patterns over the **north-eastern half** of the country (including most of the summer grain production region), as associated with the cyclic variability of the global climate system. Summers that are similar to 2022/23 more often experience a seasonal rainfall curve that compares to normal conditions as indicated in the bar graph below, with wetter conditions focussing on November to December and again from mid-February to April while drier than normal conditions focus on October and January to mid-February:



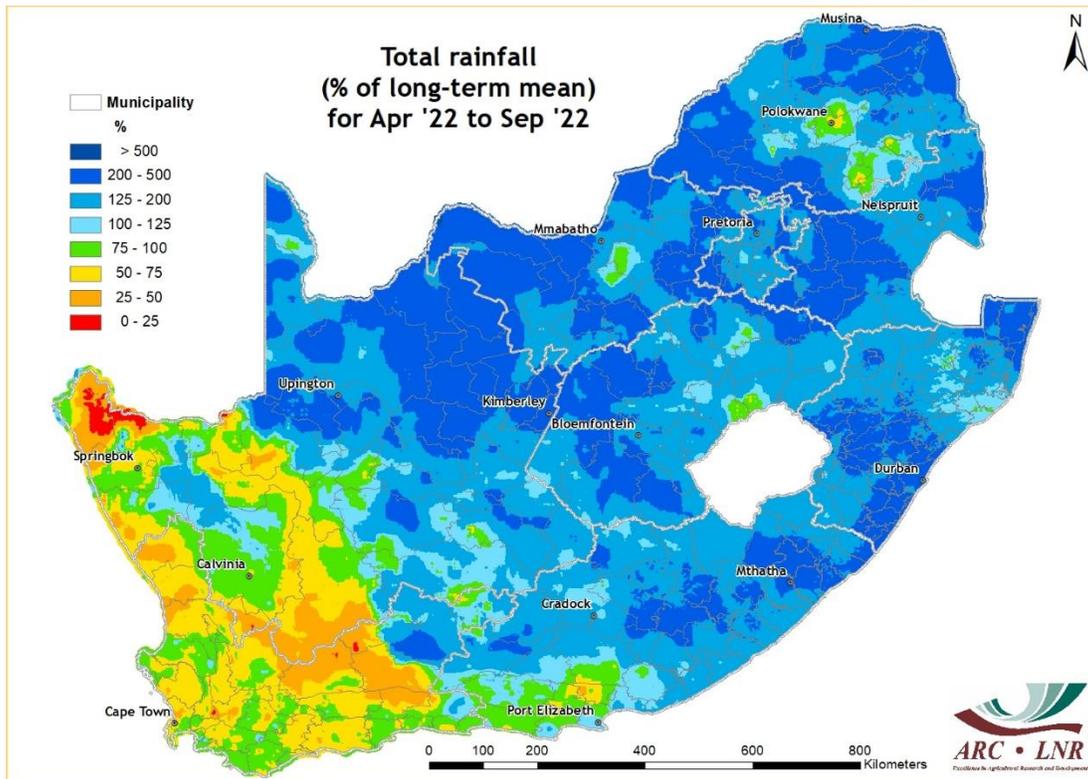
***Probabilistic forecast for rainfall over the summer rainfall region, based on the natural cyclic nature of the climate system as seen in decadal variability, per month for the period September 2022 – April 2023 (Forecast issued in 2022-10).***

Typical patterns during similar summers, over the north-eastern half of the summer rainfall region, are:

- September – 9 October: Relatively dry conditions over the north-eastern half of the summer rainfall region
- 10 October – 10 November: Near-normal rainfall over the north-eastern half of the summer rainfall region
- 10 November – end of December: Near-normal to above-normal rainfall over the north-eastern half of the summer rainfall region
- January – mid-February: Below-normal rainfall over the north-eastern half of the summer rainfall region
- Mid-February - April: Above-normal rainfall over the north-eastern half of the summer rainfall region

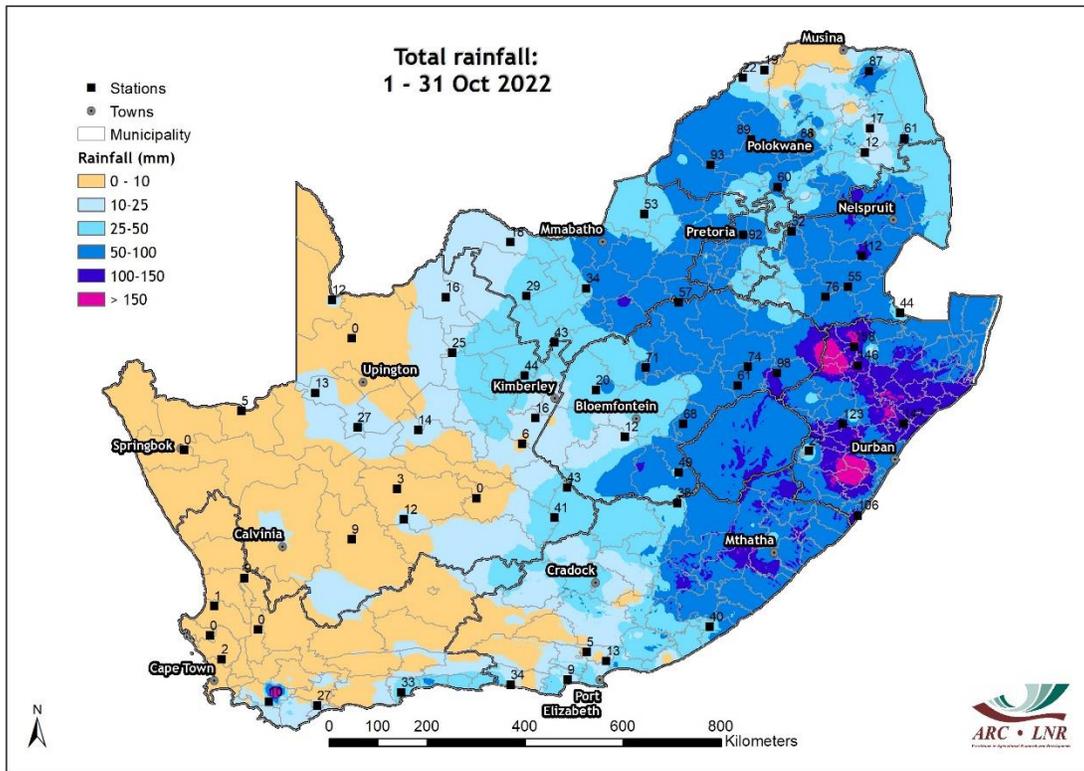
# Observed conditions

## Rainfall (% of long-term mean): April to September 2022



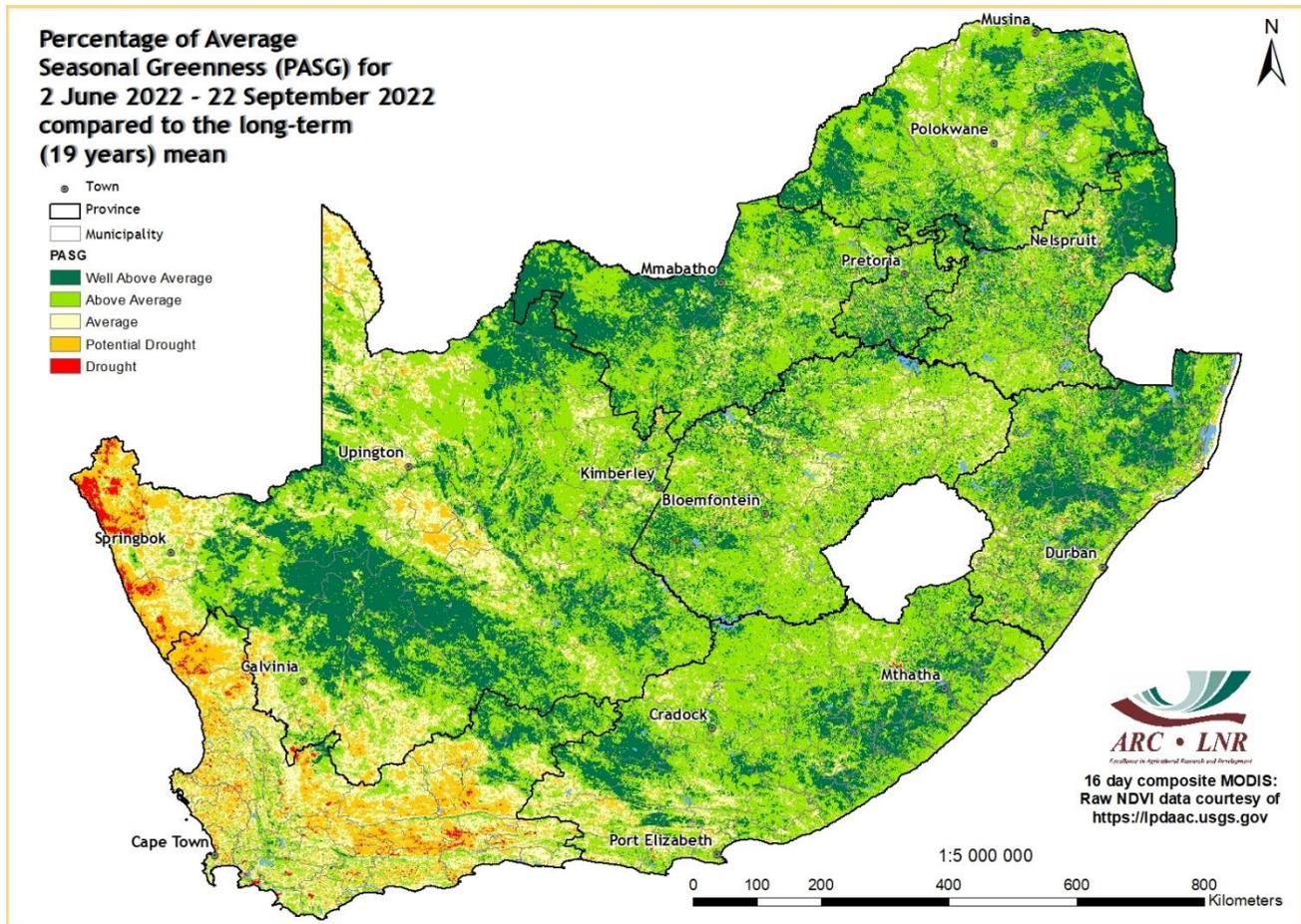
***Rainfall was above average over most of the country during April to September, but below normal over large parts of the winter rainfall region.***

## Rainfall (mm): October 2022



*Rainfall during the second half of October compensated for dry conditions earlier and resulted in totals exceeding 50mm over large parts of the eastern half of the country.*

## Percentage of Average Seasonal Greenness: June – September 2022



*Recent cumulative vegetation activity remains above average over much of the interior, related to wet conditions during autumn and relatively warm conditions during winter. Cumulative vegetation activity is below average over the winter rainfall region, reflecting mostly below-normal rainfall throughout the 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:**

Accumulations of GFS 6-hourly rainfall fields, done in Google Earth Engine

**Tropical cyclone/hurricane/typhoon information:**

Weather Underground - <http://www.wunderground.com>

Cooperative Institute for Meteorological Satellite Studies (CIMMS) - Tropical Cyclone Group -<http://tropic.ssec.wisc.edu/>

Tropical Cyclone Centre La Reunion -[http://www.meteo.fr/temps/domtom/La\\_Reunion/webcmrs9.0/anglais/index.html](http://www.meteo.fr/temps/domtom/La_Reunion/webcmrs9.0/anglais/index.html)

**Information on drought conditions over the USA:**

NOAA National Weather Service - <http://www.weather.gov>

United States Drought Monitor - <http://droughtmonitor.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>

“COLA and IGES make no guarantees about and bear no responsibility or liability concerning the accuracy or timeliness of the images being published on these web pages. All images are generated by COLA and do not represent the actual forecasts issued by the National Weather Service. These products are not a substitute for official forecasts and are not guaranteed to be complete or timely. The underlying data are the direct product of the various operational forecast models.

# YOUNG PEOPLE

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The way in which **young people see the future** speaks of a positive attitude – and of the choice to be relevant in a new era. AgriSeker shares this excitement about the future of agriculture in South Africa. Our motto is 'A certain future', after all.

AgriSeker is motivated to make a contribution to the future of our country with a dedicated focus on agriculture through knowledge, understanding and participation in this sector. Our focus is on producers and young people, because for agriculture to survive, we need you.

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