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Status of Climate in South Africa and predictions for the 2020-2021 summer season

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Reflection on the 2020 winter season

Rainfall departures from normal for the individual months of the extended winter season, defined as the months from May to September are shown in Figure 1. After good rainfall over the winter rainfall region (southwestern part of the country) during the 2019-2020 summer, the winter rainfall season over the winter rainfall area started off slowly as seen in the May rainfall departures from normal (Figure 1). May is usually the month of the onset of the winter rainfall season. The first cold front associated with good rainfall only arrived at the very end of the month of May (not shown here). From then onwards during the winter rainfall period and in particular during the mid-winter months (June, July and August) above-normal rainfall occurred over the winter rainfall region (Figure 1). The areas further eastwards along the Cape south coast and over the catchment regions of the Nelson Mandela Metropole have unfortunately not benefited from the cold fronts, and experienced in general a winter of below-normal rainfall (Figure 1) and above-normal daytime temperatures (Figure 6).

Figures 2 to 3 show the relative observed occurrence of rainfall events exceeding 1 mm, 10 mm and 20 mm respectively as compared to their long term mean. These figures convey an important observation relevant for in particular the months of June and July (two of the three important rainfall months for the winter rainfall region), namely that rainfall events > 1 mm occurred less frequently than normal, whilst rainfall events > 10 mm as well as rainfall events > 20 mm occurred more frequently than normal over the largest part of the winter rainfall region. These observations of the 1 mm, 10 mm and 20 mm rainfall events translate to less rainfall events than normal, but that the rainfall events were more intense and that the latter attribute contributed to the observed above-normal rainfall that was experienced over most of the winter rainfall region during those months. The month of August experienced a higher frequency than normal for all three rainfall thresholds and these events also occurred further eastwards along the coast during August compared to the preceding winter months. The maximum temperatures were warmer than normal over the largest part of the country during all the months, except during the month of August when colder than normal conditions occurred over large parts of the country, in particularly the western parts. The warmer than normal maximum temperatures over the winter rainfall region occurred during the months with a below-normal occurrence of rainfall events > 1 mm. It can therefore be concluded that in between the occurrence of the more intense rainfall events (as deduced from the above-normal occurrence of rainfall events > 10 mm and rainfall events > 20 mm), temperatures recovered relatively quickly resulting in those months to have experienced warmer than normal conditions, even though snow accompanied some of those rainfall events. The mid-winter season (June-July-August) ended strong with the month of August that was characterised by good rainfall over the winter rainfall region and cold conditions over large parts of the country. It may be noted that in terms of early morning temperatures as represented by the minimum temperatures (Figure 5), large parts of the interior experienced cooler than normal early mornings. The relatively higher frequency of the rainfall events > 10 mm and > 20 mm over the southwestern parts of the country very likely contributed to good runoff that aided in the replenishment of dam levels over those areas in combination with snow events. The Theewaterskloof Dam reached full capacity over the past week for the first time in many years.

The start of the 2020 spring rainfall season

The onset of the summer rainfall season over the summer rainfall region usually starts towards the end of September. The observed rainfall for the month of September 2020 is shown in Figure 1 (far right). The far northeastern parts of the country that receives summer rainfall had above-normal rainfall during the month of September. The number of rainfall days over these parts of the country during the month of September is more than normal for both 1 mm (Figure 2) and 10 mm (Figure 3) rainfall events. Similarly, parts of the southern interior of the country that receives summer rainfall had above-normal rainfall during the month of September.

Eastern Cape drought

Large parts of the Eastern Cape are experiencing water shortages in both urban and rural areas. Climatologically, the Eastern Cape is a diverse region with the western coastal belt that receives all-year rainfall, whilst the remainder of the province receives summer rainfall. Some of the water catchment regions to strategically placed dams that supply water to Nelson Mandela Bay are transboundary catchments and can therefore benefit from all-year rainfall as well as summer rainfall. As rainfall during the winter of 2020 failed mostly within the catchment regions of these dams, a recovery in dam levels will be dependent on good spring and summer rainfall.

Rainfall and temperature outlook for the 2020-21 summer season

During the spring and summer of 2020-2021, the current rainfall outlook indicates enhanced probabilities of above-normal rainfall over large parts of the country, but less so over the far northeastern parts of the country (Figure 7). The coming summer season is also predicted to be cooler than normal (Figure 8) in association with the enhanced probabilities of above-normal rainfall. It may be noted that the skill of seasonal outlooks is generally valid for the summer rainfall region during the mid-summer period. Current ENSO predictions show La Niña conditions to be present during the 2020-21 summer, hence the confidence of the rainfall predictions for the summer period to realize is higher compared to during neutral ENSO seasons.

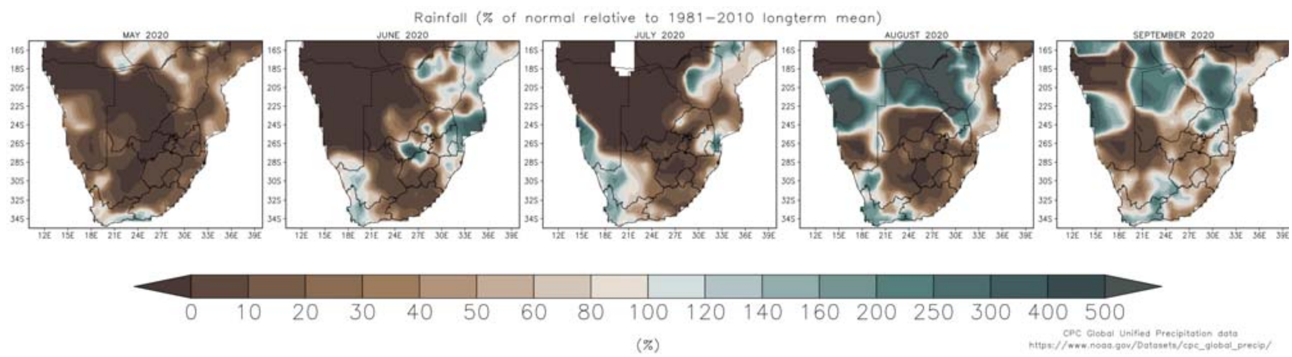

Figure 1. Rainfall anomalies (expressed as the percentage of normal relative to the respective 1981-2010 longterm mean) for the months of May, June, July, August and September of 2020.

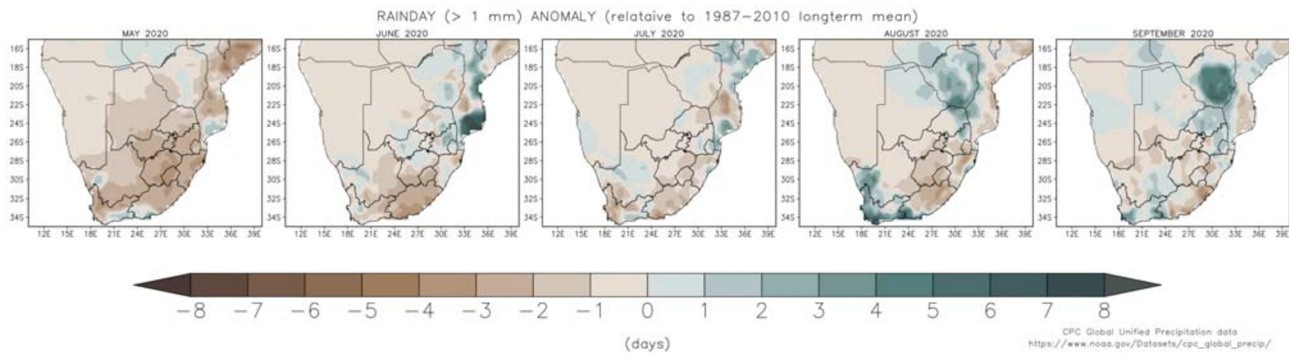

Figure 2. Rainday anomalies for rainfall events > 1 mm (expressed as the difference in the number of days relative to the respective 1981-2010 long term mean) for the months of May, June, July, August and September of 2020.

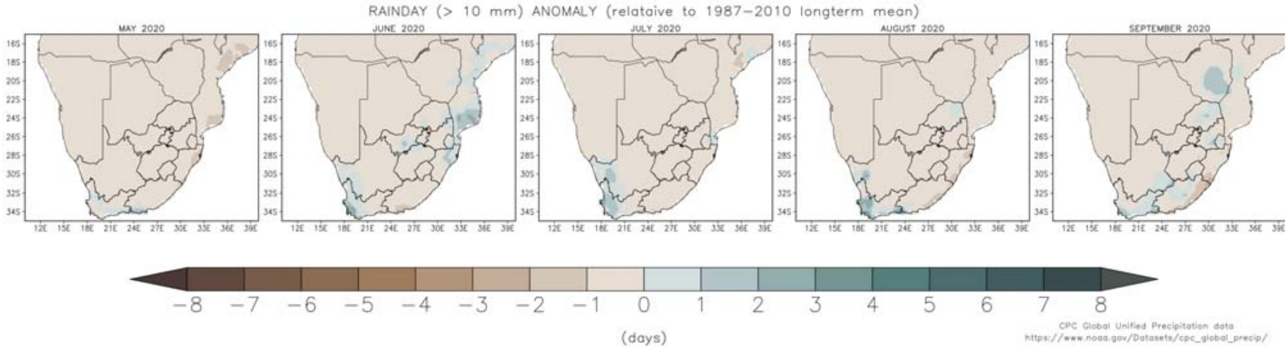

Figure 3. Rainday anomalies for rainfall events > 10 mm (expressed as the difference in the number of days relative to the respective 1981-2010 long term mean) for the months of May, June, July, August and September of 2020.

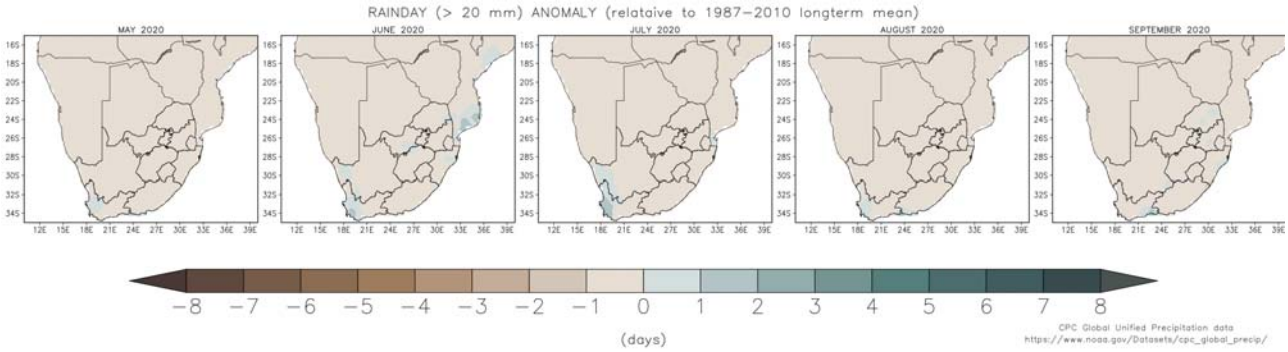

Figure 4. Rainday anomalies for rainfall events > 20 mm (expressed as the difference in the number of days relative to the respective 1981-2010 longterm mean) for the months of May, June, July, August and September of 2020.

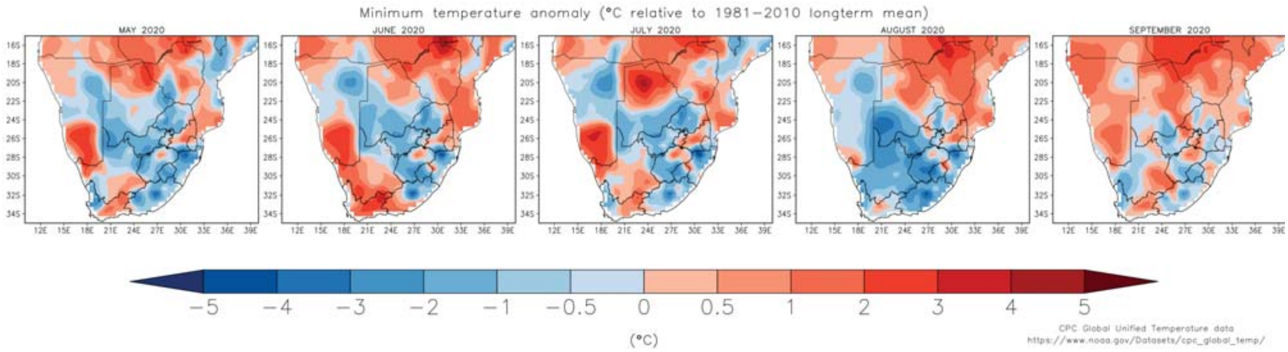

Figure 5. Minimum temperature anomalies (relative to the respective 1981-2010 long term mean) for the months of May, June, July, August and September 2020.

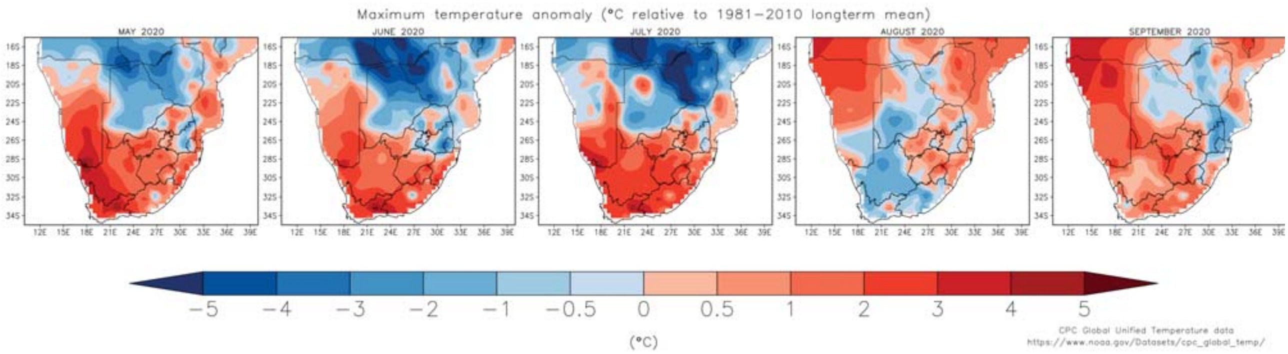

Figure 6. Maximum temperature anomalies (relative to the respective 1981-2010 long term mean) for the months of May, June, July, August and September 2020.

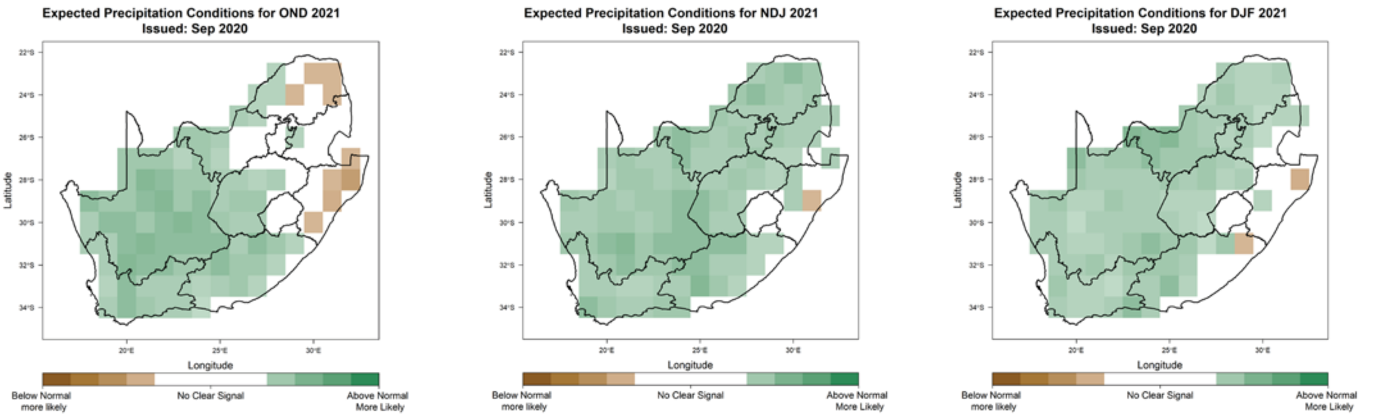

Figure 7. Rainfall predictions for October-November-December 2020-2021 (left), November-December-January 2020-2021 (middle) and December-January-February 2020-2021 (right).

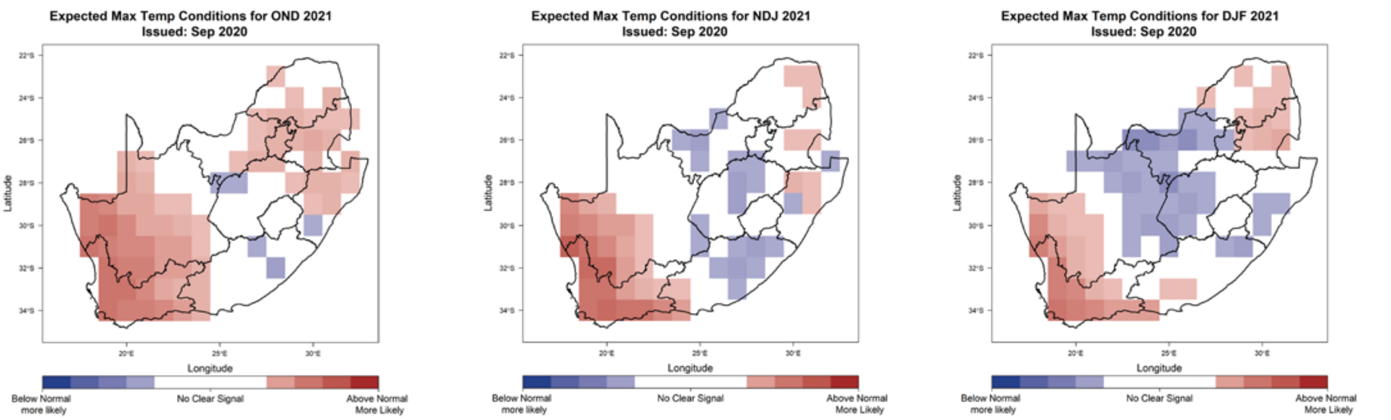

Figure 8. Maximum temperature predictions for October-November-December 2020 (left), November-December-January 2020-2021 (middle) and December-January-February 2020-2021 (right).

Observed conditions and outlook for the summer season – 2020/21: agricultural perspective

Contributors: Teboho Masupha, Johan Malherbe and Mokhele Moeletsi (ARC-SCW)

Current agrometeorological observations

The winter rainfall region welcomed the onset of its rainy season at the end of May and more intensely during the early days of June. This was mainly due to the passage of numerous cold fronts over the southwestern parts of the country. Atmospheric circulation patterns were such that frontal systems battered especially the southwestern winter rainfall region and along the West Coast, a pattern that has been lacking during the previous few winters and especially during the drought of 2015-2017. Widespread above-normal rainfall therefore occurred over the winter rainfall region with concomitant improved prospects for a good wheat crop.

These good rainfall conditions continued into the month of July, which started promisingly with heavy rain that resulted in localized flooding over some areas. Favourable conditions remained in place over the winter rainfall region through August and September also. The rainfall map for April-August 2020, given as a percentage of the long-term mean (Figure 1) indicates near- to above-normal conditions over the winter rainfall region. This was an improvement of up to 100 mm considering the same period last year. It is evident that significant amounts of rainfall occurred over the surface water sources of the Western Cape, important for agricultural water storage.

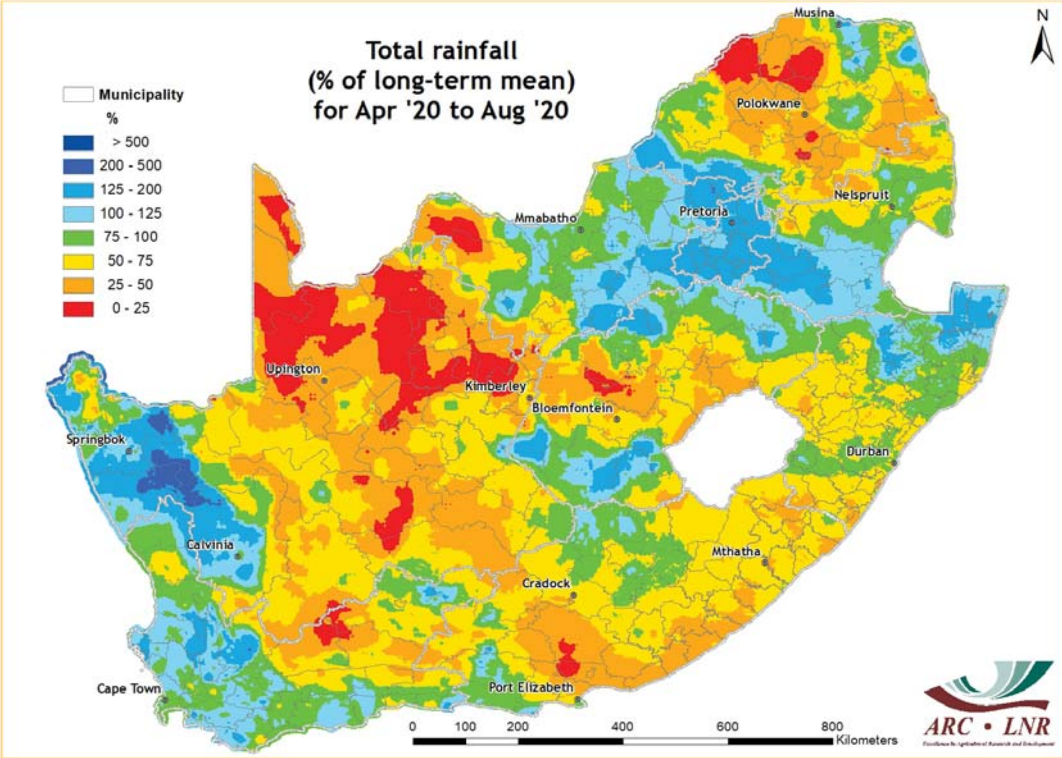

Figure 1: Total rainfall from April – August 2020.

A series of very strong cold fronts moved across the interior starting from late May. These resulted in the aforementioned widespread rain over the southwestern parts while bringing cold, dry conditions to most of the central to northeastern interior. Frontal systems moved across the interior from the southwest and advected cold, dry air that settled over the interior resulting in very cold conditions, particularly with regard to minimum temperatures (which tend to be most strongly impacted under cold, dry conditions). Figure 2 shows that large parts of the interior, particularly the Highveld, experienced temperatures more than 2°C below the long-term average for that period, increasing the potential susceptibility of veld fires over those regions. Subsequent to these cold conditions, temperatures started picking up over the country before decreasing again towards the end of August 2020. Minimum temperatures returned to normal by the middle of September.

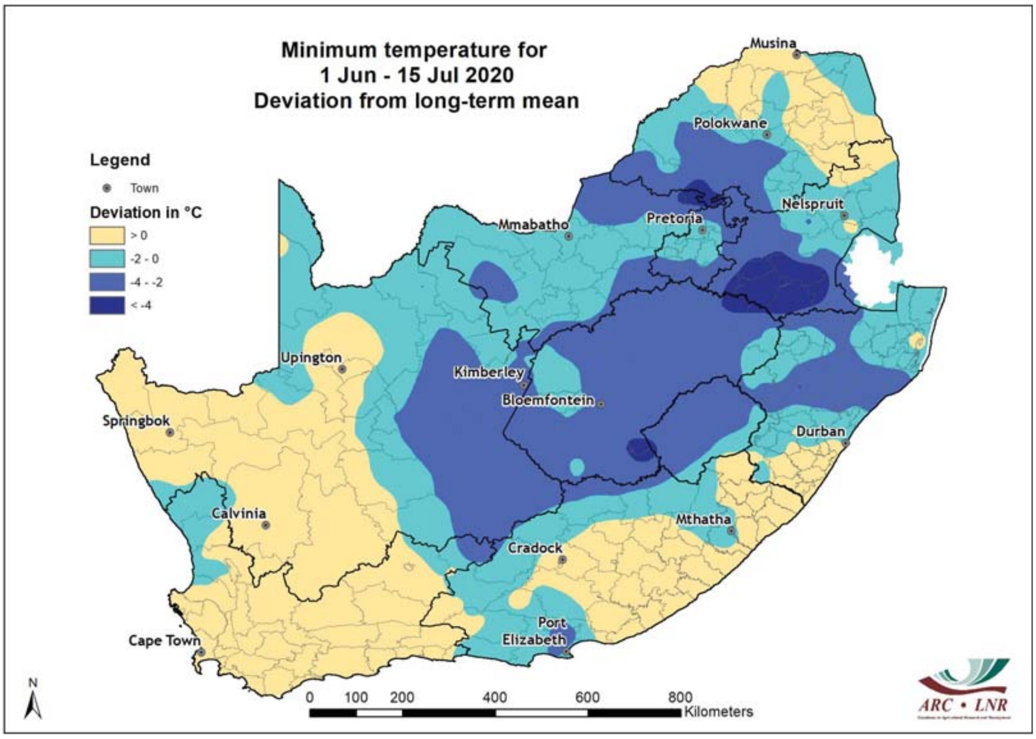

Figure 2: Minimum temperature anomaly map for 1 June to 15 July 2020.

Considering the drought situation given by the Standardized Precipitation Index (SPI) ending in August 2020, areas of drought concern were notable over the southern Free State, the Karoo and greater parts of the Eastern Cape. Following extreme drought conditions over the Eastern Cape during the latter months of 2019, welcome rains were observed during January to April 2020. This is normal as the greater part of the province is situated in the mid- to late-summer rainfall region. However, only short-term relief was experienced as these rains were not enough to rehabilitate grazing conditions from the previous drought period. Mild drought conditions became apparent in the area in May and, as depicted in Figure 3, these have since intensified, implying a risk of severe widespread impending drought. Currently, dam water levels in the province remain low and common agricultural practices such as cattle and sheep production are most likely to be negatively affected should these conditions persist. When considering the all-year rainfall region which is situated in the southern belt of the province, the mildly wet conditions that were observed reflect above-normal rainfall experienced during August.

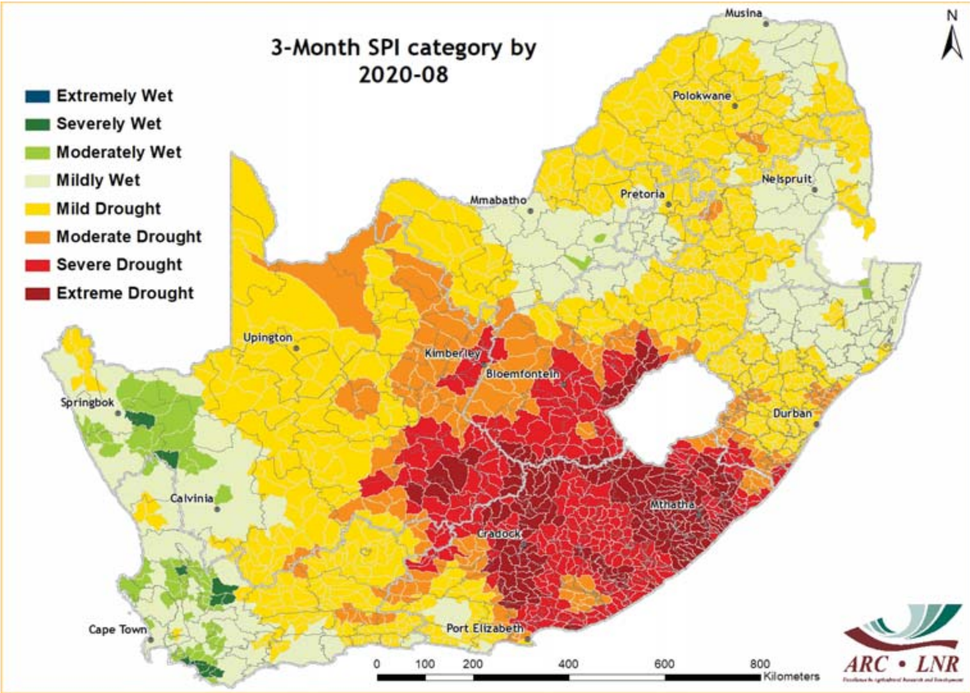

Figure 3: Short-term (3-month) Standardized Precipitation Index (SPI) map ending in August 2020.

Vegetation activity, as reflected by the Normalized Difference Vegetation Index (NDVI) relative to the long-term mean NDVI (Figure 4 left) indicates near-normal vegetation conditions over most parts of the country's interior, with below-normal conditions the southern to eastern sea-board as well as the southern to western interior and along the West Coast. Much of the southwestern winter rainfall region, including the grain-production areas there, experience above-normal vegetation activity. Rainfall should start to pick up during early summer, as the summer rainfall season gets underway. As compared to the previous year, the NDVI difference map for August (Figure 4 right) show positive difference values for 2020 compared to 2019 over most parts of the drought-stricken areas. This implies an improvement of grazing as compared to the same period in 2019.

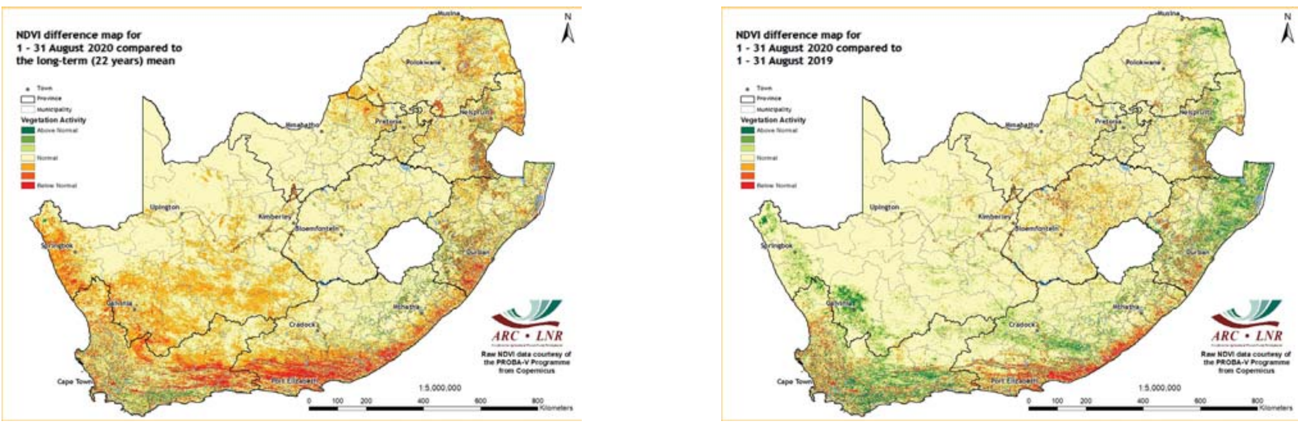

Figure 4: Vegetation activity given by NDVI for August 2020 (left) and relative to August 2019 (right).

Implications and recommendations of the seasonal outlook for the 2020/21 summer rainfall season

The September seasonal forecast issued by the South African Weather Service (SAWS) shows that the El Niño-Southern Oscillation (ENSO) is currently in a weak La Niña state and the forecast indicates that it will most likely remain and strengthen towards a moderate La Niña state during early- and midsummer. The forecast indicates enhanced probabilities of normal to above-normal rainfall over much of the summer rainfall region, implying favorable conditions over most of the grain-production region. Given the above-normal rainfall over the summer rainfall region during autumn of the 2019/20 water year, soil water should not be below normal. This, combined to a mostly favorable outlook for rain during early summer, imply support for planting and early vegetative development.

The forecast for minimum temperatures does not indicate extreme cold relative to the norm during the next few months. This longer-term outlook is at odds with the medium-term outlook which calls for late frost during early October over the central parts of the country. The expected low minimum temperatures during early October over the central interior may result in frost damage in irrigated spring crops over the Northern Cape and surrounding areas. In association with relatively wet conditions expected, seasonal forecasts indicate mostly near-normal maximum temperatures, leaning towards below normal over the central parts where the expectation for above-normal rainfall is relatively large. The Northern Cape and Western Cape is expected to be warmer than normal with regards to maximum temperatures. Near-normal maximum temperatures, coupled with normal to above-normal rainfall expected, will support crop production over the summer rainfall region and could speed up regeneration of pasture yields. Warmer conditions over the winter rainfall region during this part of the year may support harvesting winter crops.

Farmers should be prepared for relatively good rains that imply satisfactory crop performance over the summer rainfall region. However, the possibility of poor rainfall distribution resulting in wet- and dry spells should not be overlooked. It is worthy to note that there are possible risks of localized flooding, which can wash away seeds or damage developing crops. Below-normal maximum temperatures (NE regions) imply low soil temperatures (might affect crop germination and emergence). Problems due to increased insect activity are likely to become widespread, particularly if preceding seasons have been dry. Farmers should periodically check for insects, diseases and ticks on livestock and consult local extension services so that preventative measures can be put in place to prevent disease outbreaks on the farm.

With regards to planting, it is recommendable to (1) plant within the normal planting window, (2) adjust planting date in accordance to the onset of rains, (3) consider various cropping strategies based on soil moisture content, (4) increase planting area (5) plant high yielding cultivars, and (6) plant in contours, if farm is in mountainous area. In order to minimize the risk of potential drought damage during the season, farmers should practice rainwater harvesting, increase water infiltration by adding organic material to improve soil structure, and minimize compaction of topsoil. It is also recommended that farmers prepare for hailstorms, destructive winds and heatwaves by practicing rotational grazing and keeping animals in small camps with water and shade.

Reflections from the current state of water security in South Africa

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Introduction

The current state of water security (or insecurity) in South Africa is due to natural climate variability and change as well as the result of non-climatic human induced impacts. South Africa has a high evaporation rate primarily due to high solar radiation under natural conditions (i.e. prior to factoring climate change effects), which further impacts on runoff and groundwater recharge. Le Maitre et al. (2020) projected that by 2032 increases in reduction of water due to invasive plants will spread through the mapped areas of the Eastern Cape, Kwa-Zulu-Natal and the Western Cape. It is noteworthy that these areas are also high mean annual runoff catchments and as such the invasive plants have significant impacts on water security. With regard to drought, the jury is still out to reach consensus on what almost led to "Day Zero" in Cape Town. Some researchers argue that it was a climate caused related event while others put the blame on poor water management. For instance, Muller (2018) assert that notwithstanding the 3 year drought the city endured, poor management was a major cause of drought. On other hand Masante et al. (2018) and Burls et al. (2019) contend that the extreme 3 year drought event characterised by deficit in rainfall and heat waves were the main causes of the then Cape Town's water crisis. These stress factors are some of the water security challenges that continue to bedevil water availability in South Africa.

Predicted rainfall and temperature for South Africa during the next spring and summer

There was relatively fairly good rainfall in June, July and August over much of the winter rainfall region of Western Cape as well as the western parts of the Northern Cape (Figure 1-3).

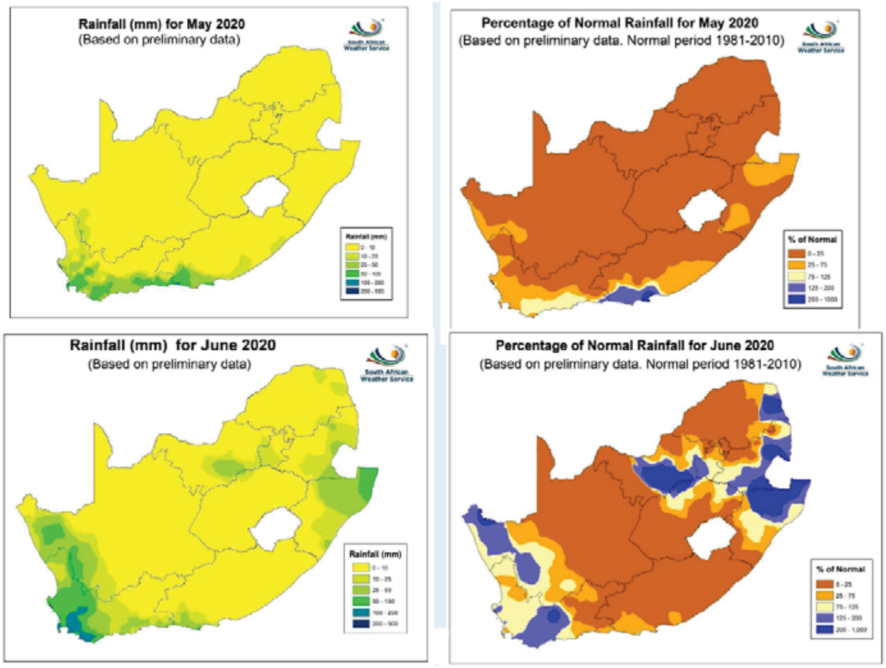

Figure 1: Fairly good rainfall in the Western Cape, parts of Gauteng and to the eastern parts of the country

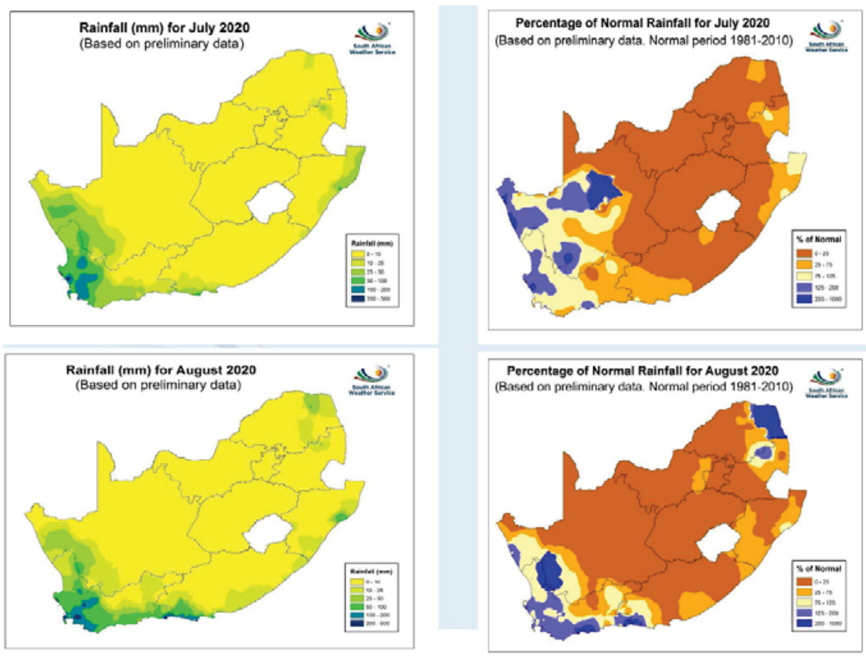

Figure 2: Persistently good rainfall in the Western Cape and west of the Northern Cape region

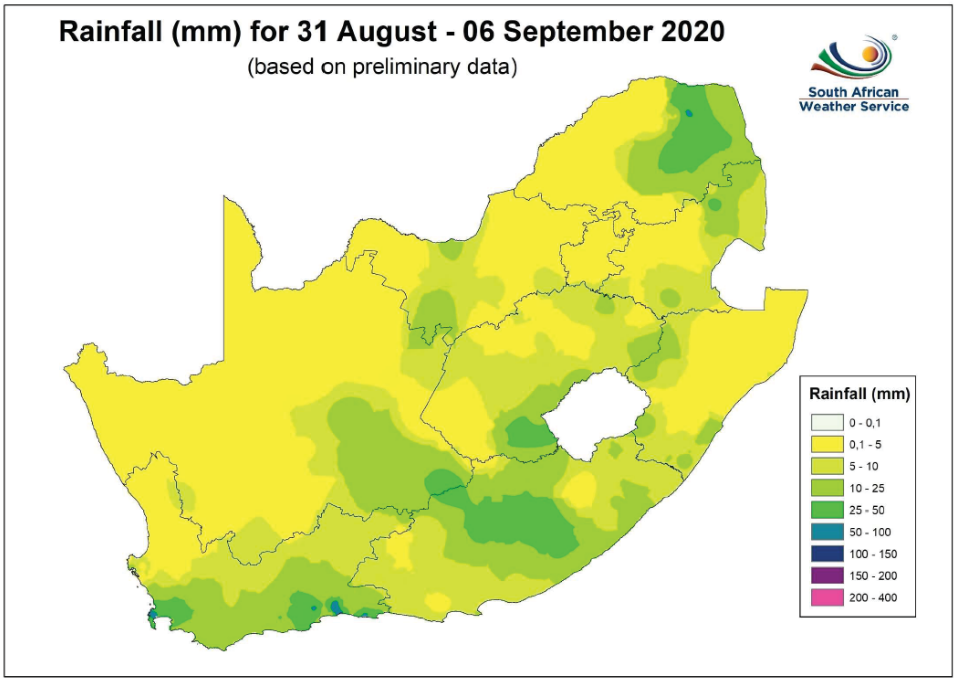

Figure 3: Rainfall at end of August – early September

The rainfall forecasts by South African Weather Service (SAWS) for the spring season and early summer indicate increased chances of above-normal rainfall over most parts of the country particularly in the north east. SAWS also predict below-normal maximum temperatures in the same area. Above-normal temperature is predicted for most of the country during spring (Figure 4).

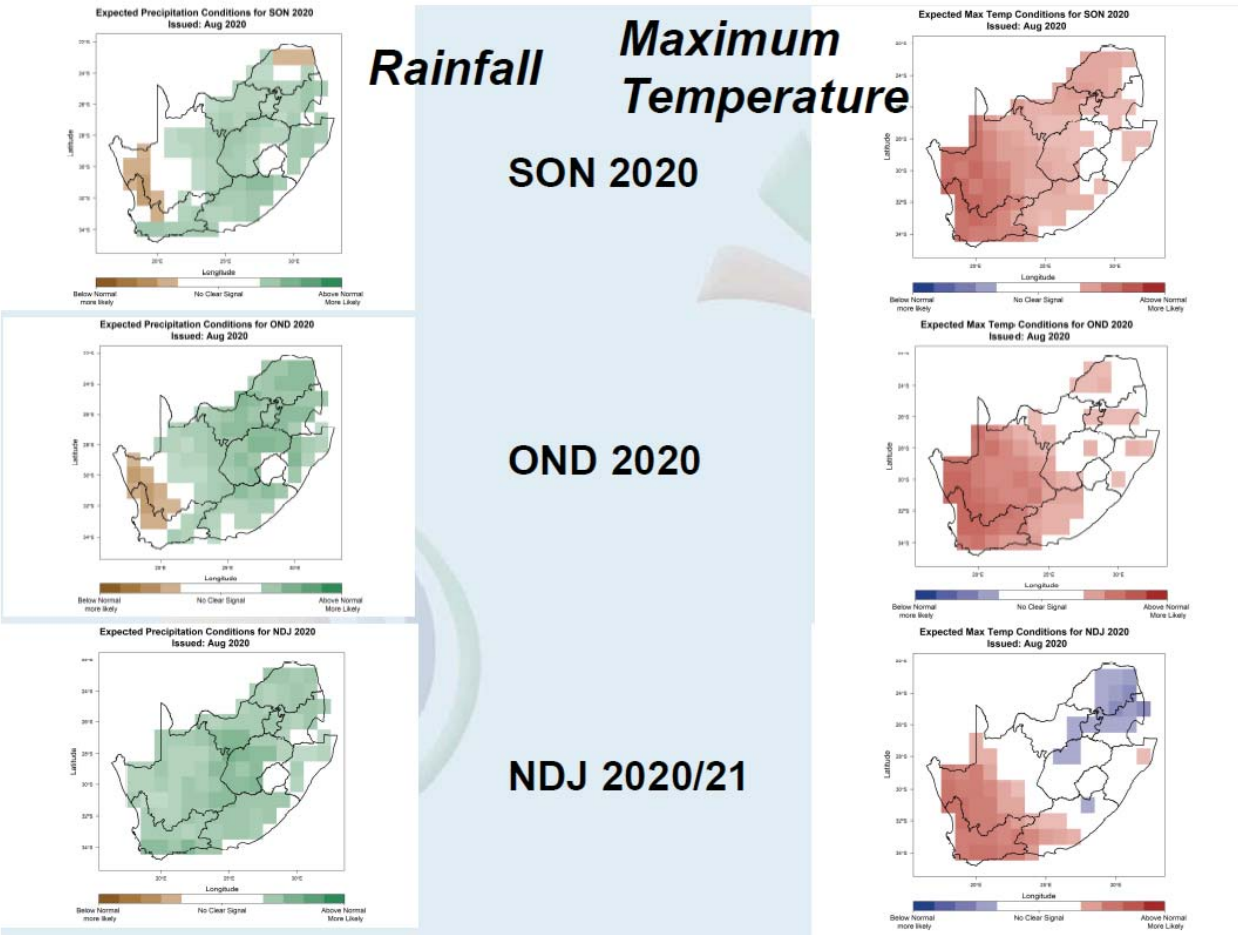

Figure 4: Projected maximum rainfall and temperature

The state of dam water levels and observed trends

Figure 5 depicts the observed storage trends of the current hydrological year (from October 2019 to September 2020) compared to the historical trends. The current (2019/2020) hydrological year's storage is generally below the previous year's (2018/2019) storage. In other words, on average there was slightly more water in storage during 2018/19 compared to the current hydrological year.

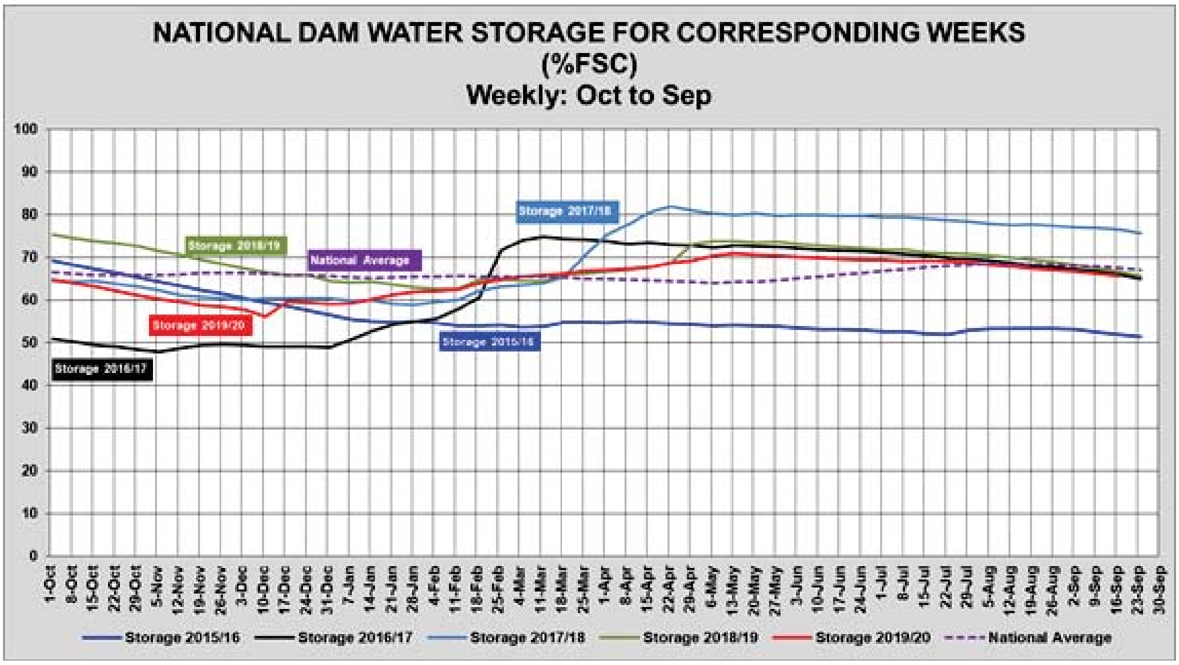

Figure 5: National storage dams

Figure 6 shows the current (as at 14 September 2020) week's average vs. previous year's average. There are 6 Provinces (viz. Limpopo, North West, Gauteng, Northern Cape, Western Cape, and Mpumalanga Province) which have their current week's storage higher than that of the same time last year. The other three provinces, KwaZulu-Natal, Eastern Cape and Free State have the current week's storage lower than the same time last year. Table 1 depicts details on Provincial dam storage.

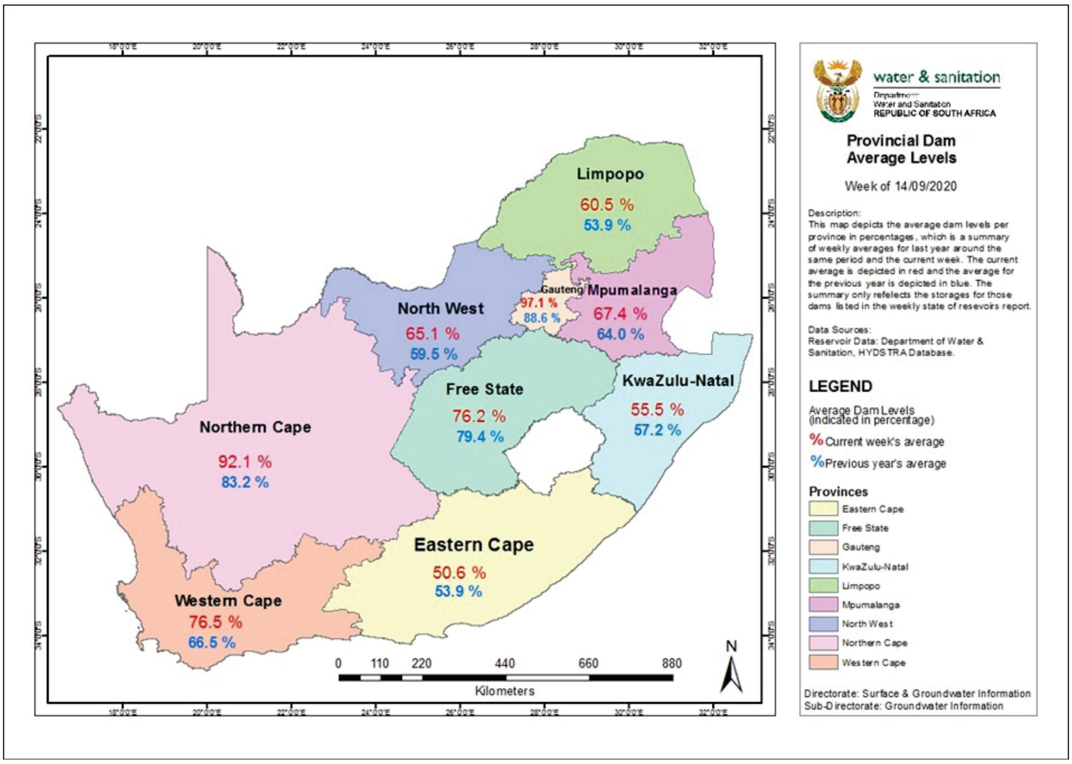

Figure 6: Map of current dam water level compared to same time last year

Provinces Summary	Full Supply Capacity (Million Cubic Metres)	Water in Storage (Million Cubic Metres)	Last Year (%Full)	Last Week 07/09/20 (%Full)	This Week 14/09/20 (%Full)
EC Eastern Cape	1809.6	916.5	53.9	50.6	50.6
FS Free State	15653.0	11930.6	79.4	76.9	76.2
G Gauteng	128.1	124.4	88.6	97.4	97.1
KZN Kwazulu-Natal	4784.0	2652.9	57.2	56.0	55.5
L Lesotho	2362.6	429.1	22.1	18.8	18.2
LP Limpopo	1522.3	921.5	53.9	60.9	60.5
M Mpumalanga	2538.6	1711.6	64.0	68.0	67.4
NC Northern Cape	147.3	135.6	83.2	95.5	92.1
NW North West	867.3	564.3	59.5	65.9	65.1
S Swaziland	333.8	212.6	79.7	65.2	63.7
WCo Western Cape – Other rainfall	268.9	66.3	20.7	24.2	24.7
WCw Western Cape – winter rainfall	1596.8	1361.2	74.2	84.2	85.2
WC Western Cape - Total	1865.7	1427.5	66.5	75.5	76.5
Grand Total	**32012.2**	**21026.7**	**66.8**	**66.2**	**65.7**

Table 1: Provincial dam storage

The national storage, as at 14 September 2020, was 65.7% on average while it was 66.8% the same time last year. Figure 7 and 8 show trends in dam water storage in various water management areas for the current (2019/20) compared to the four previous hydrological years (i.e. 2015/16, 2016/17, 2017/18, 2018/19). The low level of storage for Pongola-Mtavuna and Mzimvubu-Tsitsikamma water management areas evoke no surprises since drought has been persistent in the Eastern Cape.

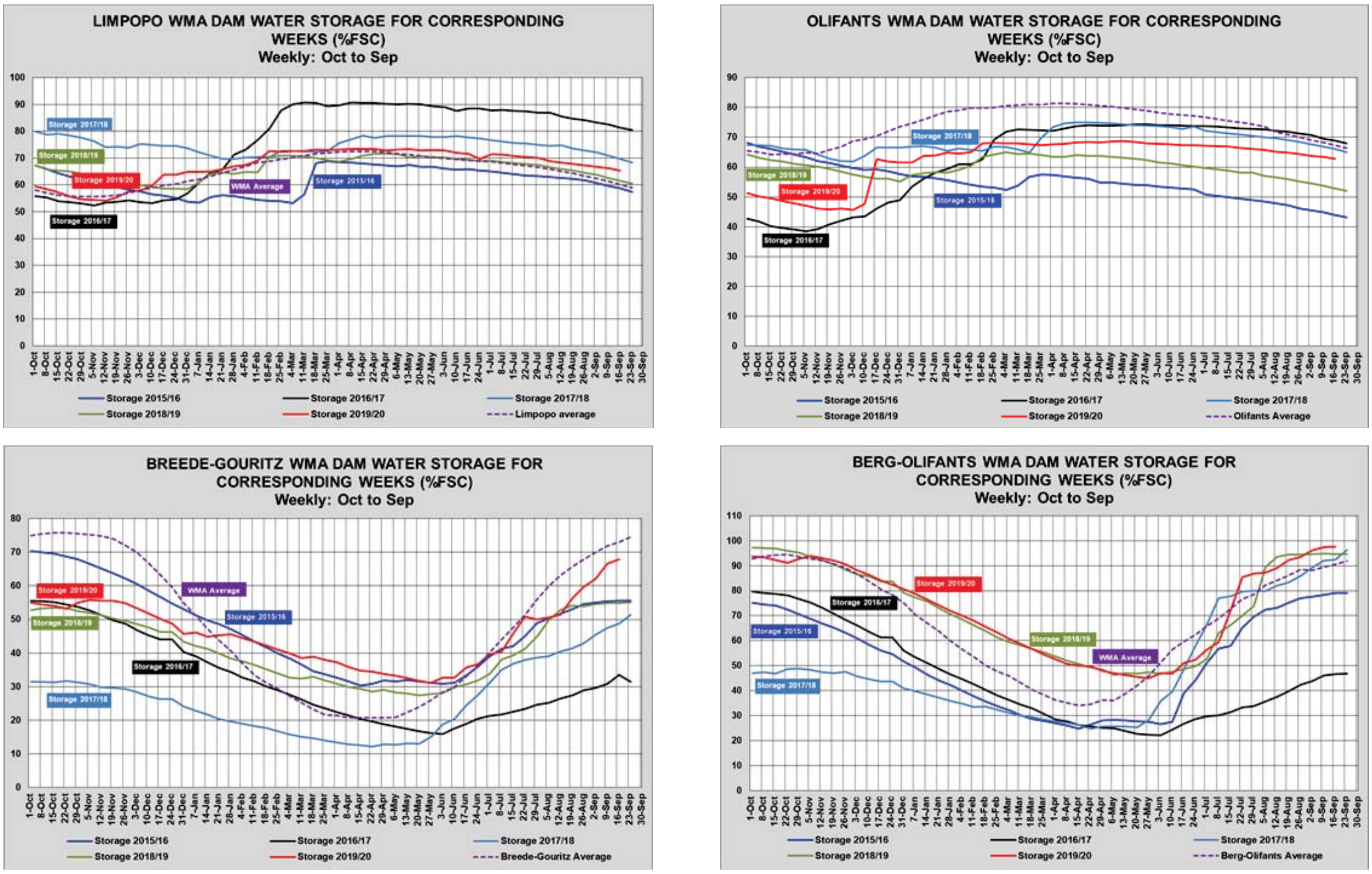

Figure 7: The dam water storage for the current hydrological year (2019/20) for each of these 4 water management areas is higher than the storage for the previous hydrological year (2018/19)

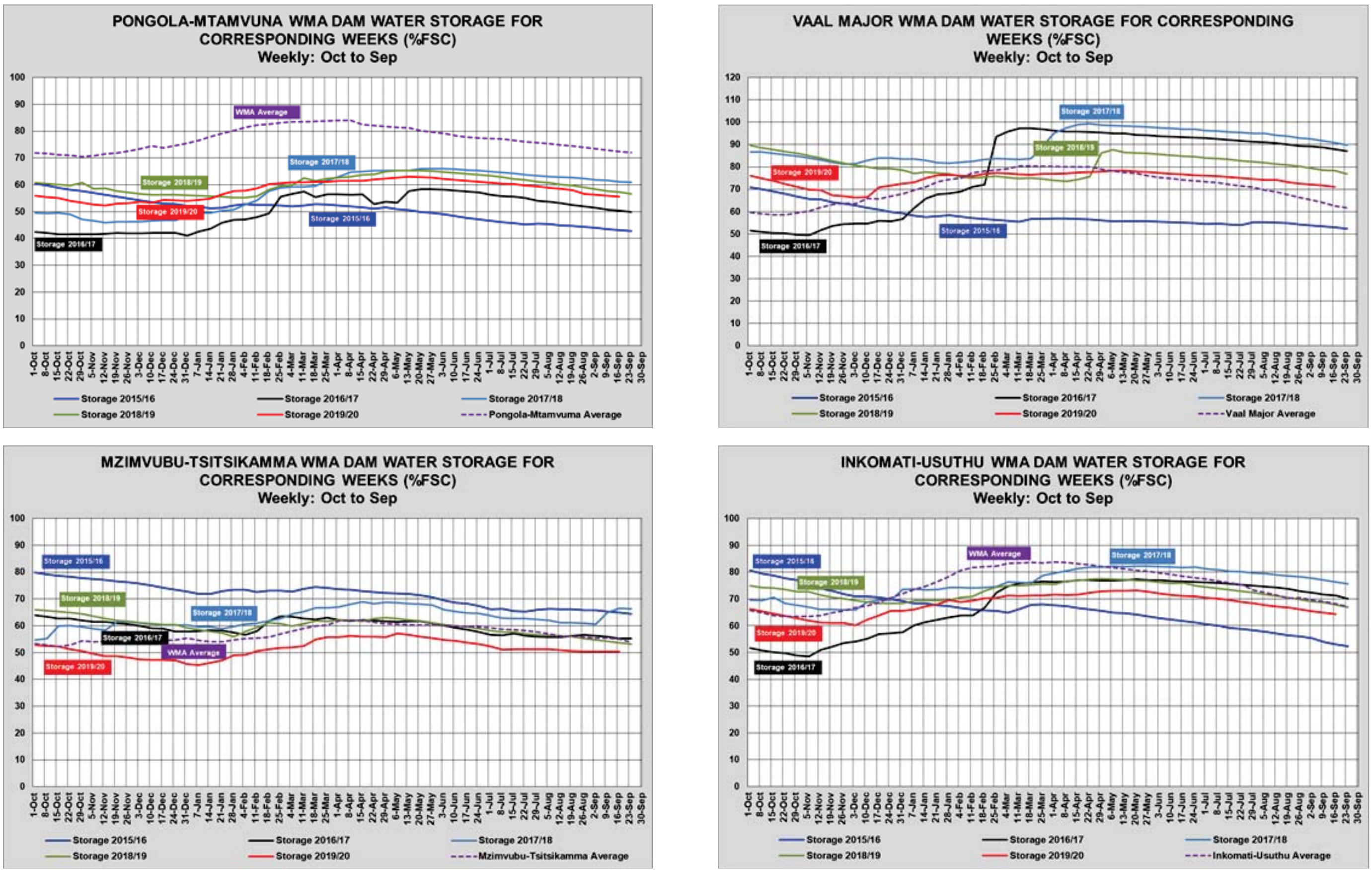

Figure 8: The dam water storage for the current hydrological year (2019/20) for each of these 4 water management areas is higher than the storage for the previous hydrological year (2018/19)

On the other hand, for Gauteng it is noteworthy that although the Vaal dam water level is currently (as at 17 September 2020) quite low at 35.6%, it is a relief that Sterkfontein and Grootdraai dam water levels are 94% and 77.6% respectively and these dams are used as storage for Vaal. Currently the Integrated Vaal River System is at 59.1% (Table2). The average water level of the Integrated Vaal River System (IVRS) is currently 59.1%. Figure 9 shows trends in the current IVRS dam water storage compared to previous hydrological years.

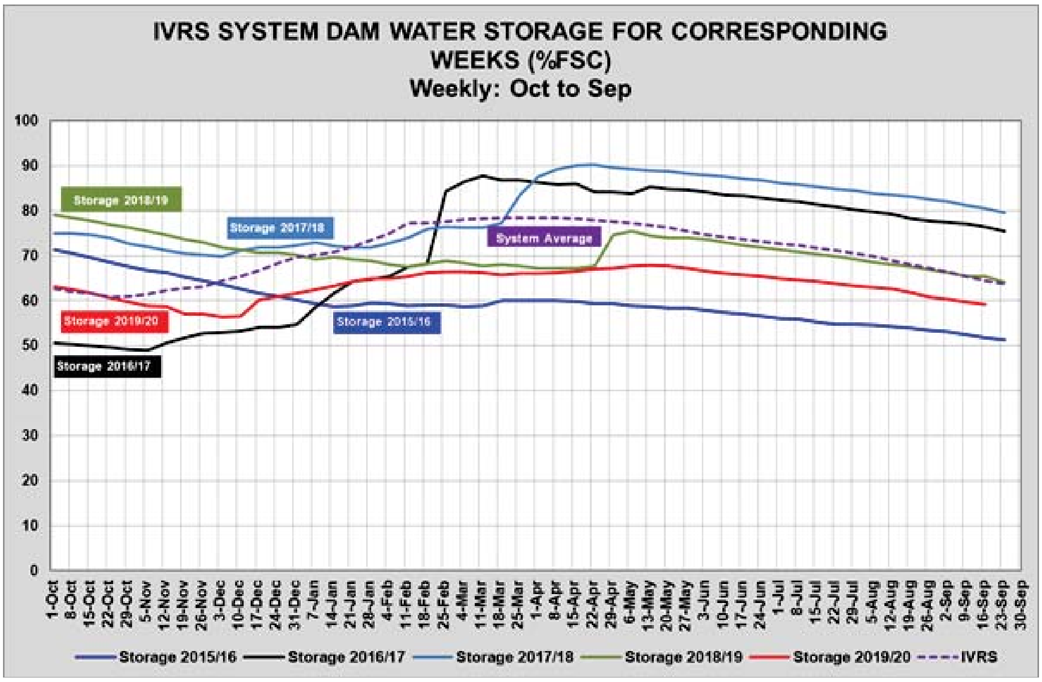

Figure 9: IVRS dam water storage

Implementation of the operating rules to ensure sustainability of water in the system

2020/21 Operating Rules for the summer rainfall areas are currently being implemented in various areas. The following systems are still experiencing drought and as a result, the water restrictions were recommended and are being implemented and monitored:

Algoa Water Supply System comprising of 5 dams for Nelson Mandela Bay Metro, Sarah Baartman (SB) DM, Kouga LM and Gamtoos Irrigation: Compliance with overall 30% domestic & industrial restrictions, 80% irrigation restrictions and varying levels of restrictions for groundwater abstractions were recommended. The water committee has been established and meets monthly to monitor the situation.

Amathole Water Supply System, comprising of 6 dams for Bisho & Buffalo City, East London: There is 10% restrictions on Domestic 30% on Irrigation. Buffalo City Metro implemented also level 2 restrictions. Kliplaat System comprising of 3 dams for Queenstown: 30% Irrigation restrictions are still in place. Chris Hani District Municipality is maximising its water use from Xonxa Dam. Butterworth System comprising of Xilinxa Dam and Gcuwa weir supplying water for Domestic water use: Restrictions of 20% are still in place. Further interventions such as augmenting river flows from upstream Dams have been implemented.

Umhlathuze Water Supply System comprises of one Dam (Goedertrouw Dam) with a number of lakes supplying Richards Bay, Empangeni, Ngwelezane, kwaDlangezwa, Esikhaleni towns as well as irrigation, industries and mines: The restrictions that are in place are 26% Irrigation, 7.5% Industries and 20% Domestic. The Joint Operations Committee has been established and meets monthly to monitor the situation. Bloemfontein Water Supply System comprising of 3 dams serving Bloemfontein, Botshabelo and Thaba Nchu: Compliance to the 15% Domestic restrictions happens. Crocodile East comprised of Kwena Dam supplies Nelspruit, Kanyamazane, Matsulu, Malelane and Komatipoort areas and Surroundings: 20% domestic and 60% Irrigation restrictions.

Integrated Vaal River System comprises of 14 dams serving Gauteng, Sasol, and ESKOM. Although Vaal Dam and Lesotho Dams are low in storage, no restrictions are required for this water year as the state of storage within the entire system is still in a healthy state with Sterkfontein Dam, the second largest Dam within the IVRS sitting at 94% of its Full Supply Capacity (FSC).

For winter rainfall areas, 2019/2020 operating rules are still in place and will be reviewed at their November decision date. The Western Cape Water Supply system comprises of 6 dams for the City of Cape Town: no restrictions are in place and the state of storage is quite healthy with Bergriver dam being 100% of its FSC. The Water Supply System Summary is presented in the Table 2.

Water Supply System Summary	Full Supply Capacity (Million Cubic Metres)	Water in Storage (Million Cubic Metres)	Last Year (%Full)	Last Week 07/09/20 (%Full)	This Week 14/09/20 (%Full)
Algoa	281.6	53.2	39.3	18.9	18.9
Amathole	240.9	89.5	51.9	37.3	37.1
Bloemfontein	219.4	110.4	51.7	49.1	50.3
Crocodile East	158.7	77.2	45.2	50	48.6
Cape Town	889.3	857.3	81.4	95.6	96.4
Crocodile West	443.4	411.3	84.3	94.4	92.8
Integrated Vaal River (IVRS)	10535.8	6229.5	65	59.7	59.1
Klipplaat/Queenstown	57.1	20.8	37.9	35.8	36.5
Luvuvhu	224.8	213.4	88	94.9	94.9
Orange	7995.8	6755.8	83	85.3	84.5
Polokwane	254.3	179	55	71.2	70.4
Umgeni	923.4	590.8	65.3	64.9	64

Table 2: Summary of the Water Supply Systems.

There hasn't been any change in groundwater levels since the previous report was done. The groundwater levels of the Karroo, Namaqualand, Limpopo and the West coastal are still lower compared to the historical levels (Figure 6). Hopefully the expected above normal rainfall in spring and early summer will help improve water levels in these areas.

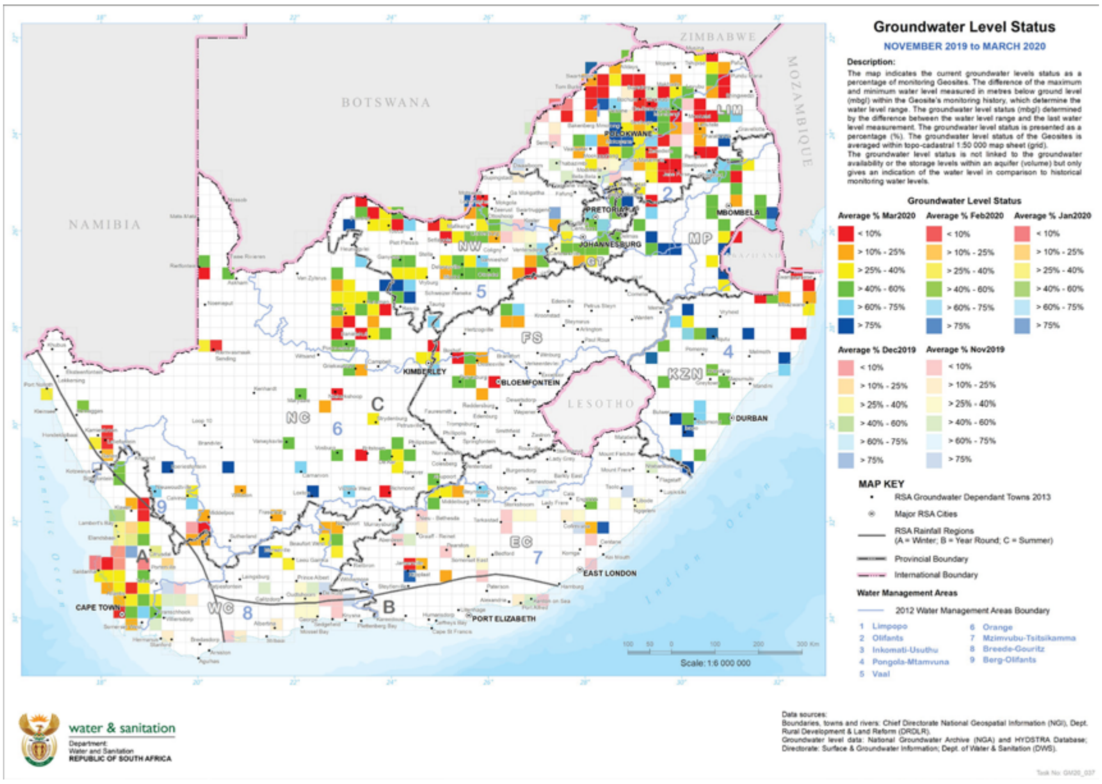

Figure 10: Groundwater level

Conclusions

It is important for the entire country, regardless of whether water use restrictions are in place or not, to use water sparingly, particularly while the country is under the Covid 19 pandemic. The Eastern Cape region has severely been impacted by the COVID-19 crisis with almost 20% of South Africa's total of about 400,000 cases by late July 2020 as compared to having less than 12% of the national population (Mahlalela et al., 2020).

References

- Burls, N.J.; Blamey, R.C.; Cash, B.A.; Swenson, E.T.; al Fahad, A.; Bopape, M-J.M.; Straus, D.M. and Reason, C.J.C. (2019) The Cape Town "Day Zero" drought and Hadley cell expansion https://www.researchgate.net/publication/335039966 DOI: 10.1038/s41612-019-0084-6
- Le Maitre, D.C.; Blignaut, J.N.; Clulow, Dzikiti, A.S.; Everson, C.S.; Görgens, A.H.M. and Gush, M.B. (2020) Impacts of Plant Invasions on Terrestrial Water Flows in South Africa. Invading Nature - Springer Series in Invasion Ecology Volume 14. https://doi.org/10.1007/978-3-030-32394-3_15
- Mahlalela, P.T.; Blamey, R.C.; Hart, N.C.G and Reason, C.J.C (2020) Drought in the Eastern Cape region of South Africa and trends in rainfall characteristics Climate Dynamics https://doi.org/10.1007/s00382-020-05413-0
- Masante, D.; McCormick, N.; Vogt, J.; Carmona-Moreno, C.; Cordano, E. and Ameztoy, I. (2018) Drought and Water Crisis in Southern Africa, European Commission, Ispra, ISBN 978-92-79-85851-2, doi:10.2760/81873, JRC111596
- Muller, M. (2018) Cape Town's drought: Don't blame climate change DOI: 10.1038/d41586-018-05649-1 Nature Vol 559 174-176

About the Advisory Panel on Weather and Climate for the Water Sector

South Africa's climate is characterized by severe spatial and temporal fluctuations in rainfall with a record decline and an increasing trends of temperature. This affects issues relating to development, food security, crop production and water resource management and planning. Policy makers and decision makers are often required to respond to drought and other disasters without having demystified scientific information available. The distribution of rainfall in the country is skewed with high solar radiation and high evaporation rate resulting in decreased water availability. Evaporation rates far exceeds precipitation (relatively higher in areas where it rains less) coupled with increased occurrence of extreme climate events. Despite the fact that our country is naturally water scarce, there is an increase in the frequency of droughts. Observed trends confirm the projected changes in rainfall and temperature. It is upon this premise that an advisory panel has been established for a provision of a regular bulletin which will talk to the water situation in the country while providing outlook and advisory. Climate plays a significant role to the country's economic development. Regular communication of weather and climate issues will enable government and various development sectors' decision making for climate change response, risk reduction and resilient approach for tackling the challenges in order to sustain economic growth. The focus is largely on climate resilient developmental response over and above management of risks brought by the changing climate. The primary purpose of the panel is to convene a climate and weather summit regularly that will discuss amongst other weather and climate risks at hand and issue for the water sector a bulletin which will provide an outlook and advisory in order to inform planning, risk reduction and adaptive response. Different experts are drawn from a variety of institutions across South Africa and they together constitute a community of practice.

Multi-Institutional Panel

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