

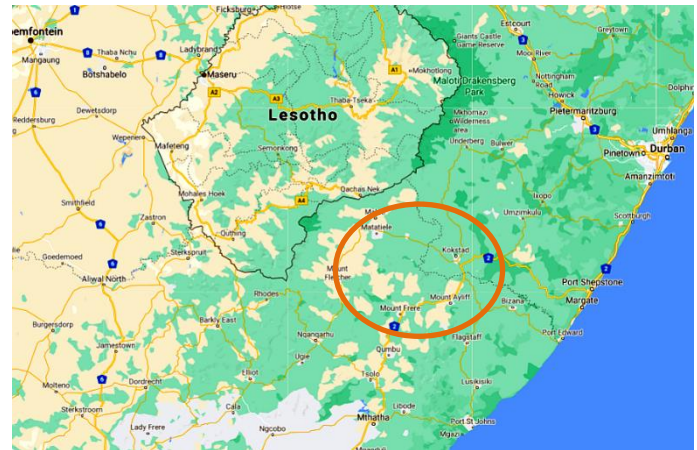
BUILDING CLIMATE RISK RESILIENCE FOR MAIZE FARMING – FACT SHEET

Eastern Cape – Kokstad region

Characteristics: Mixed farming region, with some irrigation. Common crops are maize, wheat, oats, potatoes, sugar beans and vegetables. Livestock in the form of cattle, sheep are very common with goats and pigs also kept.

Planting dates for maize vary between mid-October to mid-December. If the rainfall onset is after December, then less maize is planted; Oats, beans or teff are options for cultivation in the extreme event of no rain until January. Average **maize yields** vary between 2 – 4 t/ha for rainfed maize.

Existing climatic threats include: Late-onset; drought; early frost (in April); hail; very hot days; late rain during the grain drying period.



Rainfall averages around 770mm per annum (more or less elsewhere in the region), with a slight increasing trend detectable over the last 80 years. Variability is not high with a minimum annual rainfall of 480mm (2015/16) and a maximum of 1150mm (1975/76) per annum. Rainfall occurs between September and April, with over 70% of annual rainfall being recorded between October and March.

Temperatures are generally mild, varying between average maxima of 18 degrees in Jun (winter), and 26 degrees in January. Very hot days (over 32 degrees) are not common (<2 per month in summer).

Existing rainfall averages of selected stations in the region

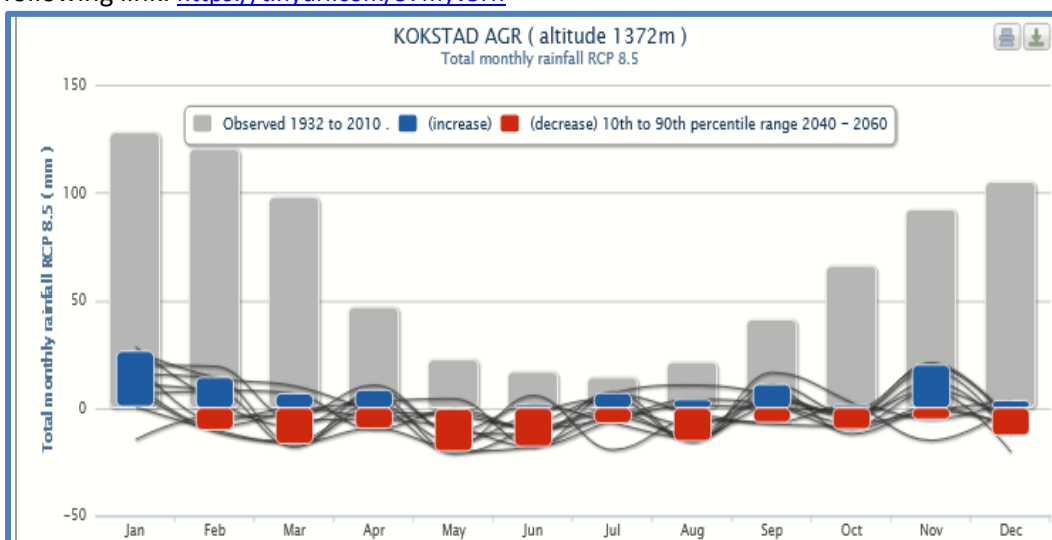
Kokstad RAINFALL	
Month	Average
Jan	128
Feb	120
Mar	98
Apr	47
May	23
Jun	16
Jul	14
Aug	21
Sep	41
Oct	66
Nov	92
Dec	105
Total	771

Matatiele RAINFALL	
Month	Average
Jan	123
Feb	108
Mar	91
Apr	39
May	17
Jun	11
Jul	10
Aug	20
Sep	32
Oct	59
Nov	79
Dec	103
Total	692

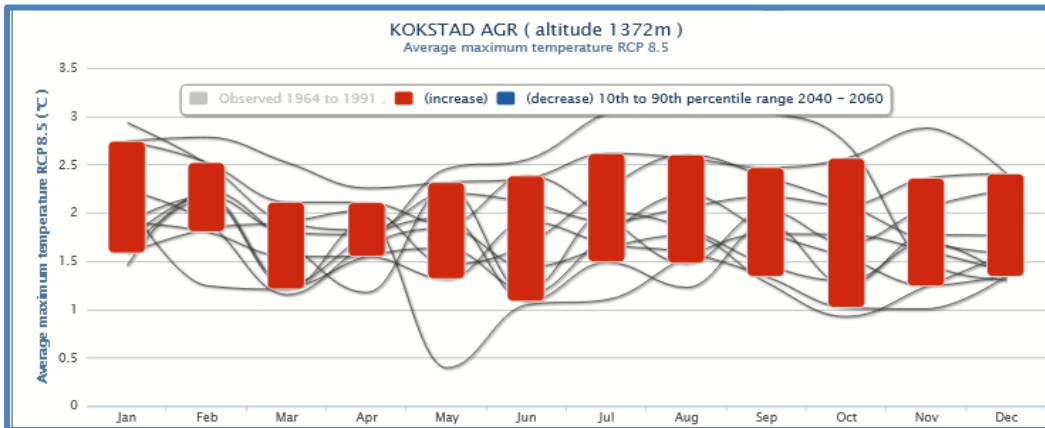
Halcyon drift RAINFALL	
Month	Average
Jan	132
Feb	126
Mar	116
Apr	46
May	17
Jun	14
Jul	11
Aug	23
Sep	34
Oct	77
Nov	86
Dec	115
Total	797

Expected Future Conditions:

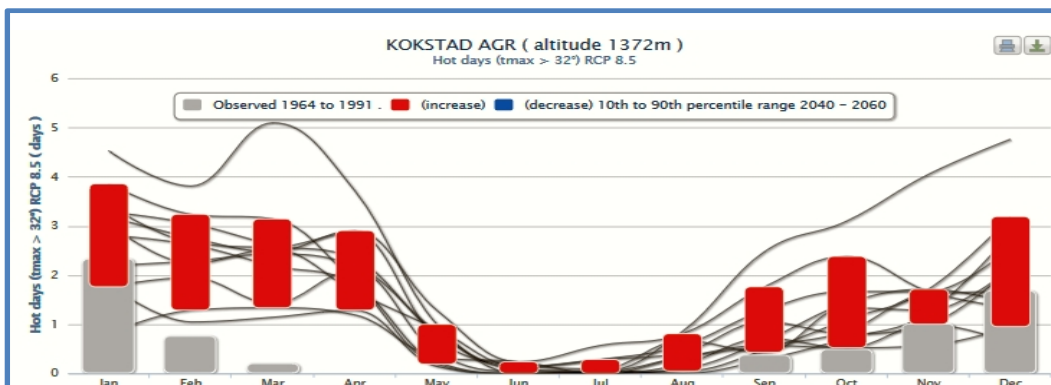
Rainfall: Overall, lower rainfall is predicted for the region but with significant uncertainty. Projections show that rainfall is expected to **increase (blue bars)** by about 20mm (with high confidence) in **January**, and similar **decreases (red bars)** in **May** and **June** by 2040-2060. Other months show degrees of uncertainty (both red and blue bars). Where both red and blue bars are present, it indicates a likelihood of increase but also the likelihood of decrease rainfall projected. Different models predict varying projections as seen by the black lines. To adjust timeframe and regions, see the following link: <https://tinyurl.com/57myv5rf>.



Temperature: Projections show **increases** of maximum temperature in all months of between 1 – 2.7 degrees by 2040-2060



Very hot days: Projections show that the number of **very hot days** (>32 degrees) will **increase** in all months, with **2-4 more such days in January** and 1-3 more in February March, April and December, by 2040-2060. (Grey bars show the existing frequency)



Impacts and responses expected in the future

- Later rainfall onset means that sunflowers are becoming a more possible alternative in this region
- A shorter planting window means there is an urgency to plant quickly and efficiently
- Appropriate seed breeding and selection for warmer temperatures is required
- Pests and diseases are becoming resistant to existing treatments and warmer temperatures can lead to more frequent outbreaks
- Fires are becoming more likely in the dry season and during dry spells in late summer
- More appropriate climate information is becoming available
- Suitability for maize remains high for this region

Recommendations

- Conservation agriculture which focuses on soil health and soil water conservation is becoming more important to build resilience to climatic risk
- Farmers need to cooperate with each other and various input supplies, marketing agents, and keep up to date with the latest research
- Climate forecasts and information are available and should be accessed and compared to records kept.

Resources

Seasonal forecasts: University of Pretoria: <https://www.up.ac.za/geography-geoinformatics-and-meteorology/article/2872667/seasonal-forecast-worx>
 International Research Institute: <https://tinyurl.com/df3kr46k>
 SA Weather Service: <https://www.weathersa.co.za/home/seasonalclimate>
 Climate change projections and impacts: Graphs above: <https://tinyurl.com/57myv5rf>
 El Nino Southern Oscillation update: <https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>