Comment on cp-2021-178

Neil Macdonald (Referee)

Referee comment on "Wet season rainfall characteristics and temporal changes for Cape Town, South Africa, 1841–2018" by Nothabo Elizabeth Ndebele et al., Clim. Past Discuss., https://doi.org/10.5194/cp-2021-178-RC1, 2022

I enjoyed reading through the manuscript. It is well written and covers the topic well, its context is well stated and engages with a range of pertinent literatures. I have identified a couple of points below that the authors should consider within the revisions.

My two main comments are that the authors need to justify the significance of this work more powerfully, why is this important and to whom, and demonstrate the quality of the data at this station early on, recognising human activities and management of the station are also important.

There is little assessment of the data quality at the site, you are using a long series, have there been changes in instrument, rainfall recording practice, location, even when to human recorders change – these are all likely/certain to varying degrees, but are important points to consider and can help explain potential changes in the data. This might explain why there was a change in pentads in the 1930s and 2010s, or it might be climatic variability. Irrespective of cause, demonstrating this understanding will strengthen your arguments and conclusions (easy to add around line 140).

The significance of the paper is commented upon by the authors, but my key point on completing the paper was it fails to demonstrate the need for the study – the 'so what' question. The paper would be much stronger if you could demonstrate why a ~5-day shorter rainy season is important, what impact will this have? This should be quite easy to add, but demonstrate it rather than just stating it will have an impact on water management...

I would encourage you to separate the discussion and conclusions – this will permit you to discuss the findings within the context of the wider literature and then highlight and reiterate the key points from this study.

I think you can reduce the number of tables and figures presented, some appear to offer limited additional information on that already presented within the text (comments below).

Minor comments to consider:

Line ~35   Do you get any hail/snowfall? It might be worth adding a sentence stating as a justification for the use of rainfall rather than precipitation.

Line ~140   What about trace precipitation measurements >0mm but <1mm. Please clarify.

Line 171   add space between '1and'

Line 219 remove ' from 1940's, so 1940s

Line 226   end sentence after …(1950s). delete at all stations since 1900.

Line~320-23   is this shift in dates significant or just noise?

Tables – are all these needed, I think there may be an opportunity to reduce the number presented. Reconsider Tables 2, 4, 5, 7 & 9, particularly Tables 2 & 7 – do these add anything not within the text?

Figure 3 – Difficult to see red line (A-O 5-year Gaussian filter)

Figure 5 MSL – is this days?

Figure 6 – would these benefit from a 10 or 30 year running mean? I ask as looking at >3 days there looks to be an underlying pattern that is deviated from in ~1870-1910 and ~1940-1960.

Figure 8 – remove?

Figure 9 – I think this is a powerful graphic, but the caption could be revised to be more explicit and help the reader see more clearly what is being presented. Revise x-axis label – time units?