

Clim. Past Discuss., author comment AC2
<https://doi.org/10.5194/cp-2021-178-AC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Reply on RC2

Nothabo Elizabeth Ndebele et al.

Author 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-AC2>, 2022

Thank you for the valuable comments and suggestions. We appreciate the feedback and believe the changes suggested will strengthen the manuscript.

Minor Comments

- Lines 17–18: Is a decline of 3 days statistically significant? If so, it should be mentioned.

We will write the statistical significance of this.

- Bottom of page 2: Could a gauge reading of 0.1mm also indicate dew, rather than rainfall?

Although this may be possible, it is likely to be rare. The records do not specify the type of precipitation (i.e. as drizzle, fog or dew).

- Line 98: 'and also some' rather than 'as also some'

Noted

- Line 130–135 could be expanded a little, with more detail added. Perhaps a table can be included to provide more specific detail about the climate mode indices used, their frequency, and the exact dataset used for their derivation. Which dataset was used to extend the Gong and Wang SAM index back to 1851, for example? Presumably 20CR, but it would be good to clarify this, particularly because there may be some quality issues examining SAM that far back.

Yes, we can provide a table for this.

- Line 189: Can you please spell out CWT?

Will do

- Lines 280-287: interesting analysis!
- Line 318-319: Are the lengths significantly shorter as well? It would be good to clarify this.

We will expand and clarify.

- Line 326: Is 17 October Julian day 290, not 289?

Yes it is Julian day 290.

- Line 329-330: This is a dramatic statistic that might go better in the abstract than the current information provided in lines 17–18.

Sure, we can include in the abstract.

Figures

- Figure 3: Is it possible to replot these graphs to be longer, with the same x-axis and stacked on top of each other as four long plots rather as a 2x2 of square plots? I think this would allow for easier comparison across the stations, and make it easier to see the interannual variability.

Yes – we can do that.

- Figure 8: Presumably this figure is for SAOO?

We will specify this in the caption.

Major comment

With regards to the major comment on solar variability – much has been written in the literature on relationships between solar variability and climate variables for several parts of the world. In this study we highlight observations made on correlations between seasonal characteristics and solar variability where they are significant. However, we acknowledge that the mechanisms and the extent to which solar variability influences rainfall is not included in the study and was not our intent. Indeed, considerable additional investigations would be required to more fully understand these links – this is worthy of a full length paper on its own. Nonetheless, we still feel that these relationships are worthy of mention, not only because they are statistically significant, but also because they have been observed using other climate variables. To this end, our longer observed data set allows the study to consider variability before 1900 (i.e. before the strong influence of human-induced global climate change – i.e. warming) and how this compares to more recent relationships. To address the concern raised, we can add more specific detail on previous findings and how these compare to the observations in this study. In relation to the climate indices: ENSO and SAM, we can expand the information given in terms of the data sets as mentioned in the minor comments and elaborate on their influence as described in previous published studies for the Western Cape region.