

## ***Interactive comment on “Building a long-time series for weather and extreme weather in the Straits Settlements: a multi-disciplinary approach to the archives of societies” by Fiona Williamson***

### **Anonymous Referee #2**

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This is a carefully written article on historical meteorological data from the Straits Settlements. The author has compiled the relevant data and metadata and goes through the list of observers, putting the work in a wider context. This part of the paper is nicely written. It shows the importance of source criticism and of context information that is necessary before climatic interpretations can be undertaken. Conversely, it also shows the possible value of the work for historical studies.

In the final part the author then argues for the value of these historical data for better understanding climate events and effects on society. She uses extreme events for this matter, which I think is important. Also in this part, she shows that it's rarely just climatic

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factors that lead to catastrophes, but a combination of factors. She also argues how meteorological information can help to contextualize historical sources and thus how the two disciplines can co-operate to a mutual benefit. This last part also contains scientific aspects: two figures on the 1877/78 El Niño and related precipitation. These two figures are not only hardly embedded in the text, but there is far too little explanation in general on what is done or shown. As the figures only loosely relate to the text, they may be considered not all that important and could be dropped. However, I do think that these figures nicely could support some of the claims, and that they should be described and better embedded in the text. This is the approach I suggest.

In general, the paper is well written and I do not have many comments on the first, historical part. However, the science part needs a much better description of what has been done.

Specific comments:

- All figures should be cited in the text
- Fig. 3: Only the figure title mentions the data set used (ERSST5). This should be described in the text. An entire paper has been written just about how well this specific El Niño event is depicted in this specific data set (<https://doi.org/10.1175/JCLI-D-19-0650.1>). So there is a lot more to say here. Not only should this paper be cited, but it should also be justified why one panel shows Jul-Sep 1877 and the other Aug-Oct 1877 etc. What was the motivation for this? Why not showing two or three seasons to capture the development? There is a lot missing in terms of scientific description. Generally, the paper actually says very little about this event. There is one sentence pointing to the drought.
- Even more importantly, the WRF simulations should be described. This is a very early period for doing such simulations, so running WRF successfully during these years is in itself an achievement. However, it cannot have been driven by NCEP reanalysis since the NCEP reanalysis does not go back to 1877. Also, it should be described

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how the precipitation field was obtained (arguably an interpolation - but generating an interpolated precipitation field from 7 stations is in itself a difficult task. There are many further questions on the set-up (the WRF model is not even cited), but also on the analysis (simulations should be expressed relative to a reference, a control run or a climatology, otherwise it is difficult to judge how good they are) and on the interpretation (are the results helpful?).

- Are there other comparison data sets (such as 20CRv3) for precipitation in 1877/78?
- Where can the data be downloaded?
- There is no section 3.

Minor

- Is DJF 1877 actually December 1877 to February 1878 or December 1876 to February 1877? Convention would point to the latter, but then the precipitation figure would precede the SST figure.
- Allan et al. 2016 is missing in the reference list.
- References in the text are often not identical to the reference list: Hsiang 2014 should be Hsiang and Burke 2014, Lee 2017 should be Lee et al. 2017, McNair should be McNair and Bayliss etc. Please carefully check the references.
- Please also give a very short summary of what is done in the "Conclusions" section.
- I am not sure about the corresponding policies of the journal, but perhaps the footnotes could be omitted and in turn "Sources" and "References" could be distinguished.

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