

***Interactive comment on “The “Dirty Weather” diaries of Reverend Richard Davis: insights about early Colonial-era meteorology and climate variability for Northern New Zealand, 1839–1851”***  
**by A. M. Lorrey and P. R. Chappell**

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P3813. This is a good point made by the reviewer. We assume it was an instrument typical of the period, so a mercury-in-glass thermometer. We also have notes about Davis taking measurements around his property and in the soil, and a mercury-in-glass thermometer could have been used to do that.

P3807. Time period for equivalent VCSN temperatures (ie. Davis diary data that were transformed to be comparable to modern VCSN values) are the actual years covered

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by the Davis diary (1839-1844; 1848-1851); the calibration interval for VCSN temperatures used to undertake the transformation is 1972-2012. We will clarify this in the text and in the captions in our corrected version.

P3807, line 6. As to not ... we will change this to “So as to not” as the reviewer recommends. Explanation of this conversion and why it was required to avoid interdependence issues (when comparing our reconstructed temperatures to modern temperatures) will be included in the supplement.

P3815/ Tables 2 and 3 The reviewer has perhaps missed that the extreme 9am minimum temperatures are only single daily values recorded in any February, March, April, June, and October for the entire coverage of the Davis diary, compared to the most extreme daily values and 9am means for the entire coverage of the VCSN. They will have little overall weight on the mean temperature calculations for Daily Tmin, Daily Tmax, and Daily Tmean.

For the average monthly Tmin, Tmax and Tmean, we also note the cooler winters and warmer summer pattern in the Davis record. We do not believe it is an artifact of the method used to convert VCSN data, but there could be local ventilation issues related to the thermometer position OR the fact that significant seasonal climate anomalies (perhaps driven by ENSO/SAM and other drivers) may have been operating when Davis made his observations. We express that sentiment in the text. Also, we can see differences in the quality of the regression relationships through the year used to convert 9am and noon Temperature from Davis to Tmax and Tmin, and for transparency we would advocate including those data in an appendix.

P3821, paragraph 2. This is similar to the question asked above (L3807) and we will address it through the paper in the corrected version noting the period of comparison is 1972-2012 averages. The reviewer has pointed out a typo here, and they are correct that the mean T difference for winter is -0.9C relative to the modern era.

P3834, We think that this subtle set of differences must come from limiting the number

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of significant digits to one place that has created an artifact from the calculations being originally done on daily data to two places. We will ensure in the revisions that the differences are consistent in the table and report all mean calculations to one significant figure.

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