

## ***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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Page 3802 – We thank the reviewer for this comment and for recognizing the breadth of the rescue efforts ACRE is undertaking. The statement made in the paper, just prior to the one the reviewer focused on (underlined below), actually recognizes that ACRE is recovering all available data. It states:

“Of significance, historic weather observations are being sought by the Atmospheric Circulation Reconstructions across Earth (ACRE) initiative (Allan et al., 2011), which

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is recovering, digitizing and feeding old synoptic pressure observations into the 20th Century Reanalysis Project (20CR), a reanalysis without data input from radiosondes, aircraft or satellites (Compo et al., 2011; Cram et al., 2015).

An edit we can include could state: “Of significance, all types of historic weather observations are being sought by the Atmospheric Circulation Reconstructions across Earth (ACRE) initiative (Allan et al., 2011), which includes recovery, digitization and supply of old synoptic pressure observations to the 20th Century Reanalysis Project (20CR), a reanalysis without data input from radiosondes, aircraft or satellites (Compo et al., 2011; Cram et al., 2015).

Page 3806- This is a basic and important question that we have previously been asked about. It is evident that the temperature data from the Davis diary has the least amount of associated metadata. As such, an assessment of those data in their native format was warranted prior to undertaking a correction that could introduce additional errors or biases to the pressure series. We are still discussing the most appropriate way to undertake this correction – one way is to obtain enough overlapping data to be able to develop an informed correction using associated local temperature data, but this should only be done with full knowledge of the potential biases those temperature observations might include, in addition to any inherent technique errors. In terms of the altitude and gravity corrections, this can be applied directly on submission of the pressure series to the International Surface Pressure Databank, which accepts different formats of pressure observations (some native, some corrected, some not).

Page 3806- We recognize that the balance in any paper is difficult to get right for a range of readers. That said, we can see how a bit more information could be warranted for the international audience here about the New Zealand Virtual Climate Station Network (VCSN). We can include extra details about the station spread, the period of observations, and the thin-plate smoothing spline that is used in the interpolation as employed in making the VCSN dataset.

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Page 3815 – This is a very useful comment by the reviewer. Our reading of their remarks is that a comparison using the VCSN rainfall climatology from the grid overlapping Davis' site could be brought to bear here. Space permitting (and with the editor's approval), this could be added with only a few sentences.

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Interactive comment on Clim. Past Discuss., 11, 3799, 2015.

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