

## ***Interactive comment on “Expanding HadISD: quality-controlled, sub-daily station data from 1931” by R. J. H. Dunn et al.***

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Review comments on Dunn et al., ‘Expanding HadISD’

This manuscript is generally sound and I have no major issues with its publication. My main comments relate to providing more information about the pre-1973 component of the dataset – in particular, what has happened to make it feasible to extend the data set back to 1931, and what the coverage is like in the early years.

The question of whether the update to the dataset warrants a new paper (which I note has been raised by another reviewer) is one I take no position on and will leave to the editor.

Specific comments:

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- The paper does not explain anywhere why the first data release started in 1973 but the new version extends to 1931 – I think this would be useful for readers to know. (Is it because ISD itself has expanded – and if so, is it known why? (has additional digitisation contributed?) – or because more work has been done to incorporate older ISD data in the HadISD dataset?).

- I think it would be useful to indicate the coverage of the earlier data – this could be done, for example, by having maps showing snapshots of the data coverage in some representative years (say, 1940, 1960, 1980, and 2000). It is useful information as to whether the older data drawn mostly/entirely from the developed world, or whether there is also some coverage in Africa, South America and Asia.

- There is a sharp drop in the number of available stations between 1965 and 1972, and especially around 1972. Is there a reason for this?

- A potential issue with annual updates is that sometimes stations close and are replaced (for example, a city station might be replaced with an airport station, sometimes with a period of overlapping observations, sometimes not). Is there any process to manage this? (e.g. to search for potential composites if a station has closed, even if the ‘new’ station does not have 15 years in its own right?).

- P4573 1st paragraph – somewhere here it would be worth noting potential limitations in the accuracy or precision of coordinates (if coordinates are only available to one decimal place, as is sometimes the case, this implies precision in the order of +/- 5 km). Could also be worth mentioning (line 10) that differences in spelling could arise from language differences (especially in countries with multiple languages, or those which do not use the Roman alphabet).

- P4574 line 4 – ‘in HadISD.2.0.0 there are fewer stations in central and southern Africa...’ – is this in comparison to Europe and North America, or in comparison to earlier HadISD versions? This needs to be clarified.

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- Section 3.1 distributional gap – while specific processes for tropical cyclones are mentioned later, it still appears to me as if the distributional gap check might produce false positives for extreme low MSLP values in tropical cyclones (especially if there is only one instance of the station concerned receiving a direct hit from a tropical cyclone). I'm not sure if there is a good automated way to address this, but it might be useful to have some kind of process in place where users can report data which they believe have been inappropriately flagged (either positively or negatively).

- P4581 lines 6-8 – would the higher density of observations (and hence presumably more effective neighbour checks) explain the high frequency of flagged observations in eastern North America and western and central Europe?

- Figure 3 – this figure doesn't seem to match the caption – the legend suggests that the bottom figure shows both composites and non-composites but the caption only mentions composites? Also, does the overwhelming 'red' signal in North America and Europe indicate that almost all stations in those regions are composites, or is it because the mapping tools used overwrite blue dots with red ones?

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Interactive comment on Clim. Past Discuss., 11, 4569, 2015.

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