Section 5 - Figures 17–22 Six full-term records and half-degree values:

Fig 1a, b & c, on the main page served as a centennial baseline for this study focussed more on the quality of data in recent decades. That figure is now modified and further elaborated with yet another issue, together with a few more full-term records showing the previously noted ‘Hole-In-The-Middle’ (as bounded by the red and blue ellipses in fig 17). Fig 19 is quite spectacular in this respect.

In all six long time-series examples here, following 1972 decimalization there was significant increase in integer value counts. This is counterintuitive given that decimals are easier to read with 9/5 larger centigrade units. Thus, conversion from the original Fahrenheit temperatures has somehow gone painfully awry...

Fig - 17 Merredin (Fig 1 background station revisited):

To recapitulate; Fig 1a showed that nearly half of the record since 1912 had an incidence of around 10% of whole-degree (integer) values, which is to be expected in any time-series measured accurately to one tenth of a degree. However, at other times, the distribution deviated from expectations very badly from around 6.6% to 45%, in prolonged periods.

The distribution of decimal fractions and missing data (99999.9 in ACORN) is inserted as a detail to the left, and whilst it shows that the EXCEL-counts of integers are dominant, there is also a strong propensity at this manual station for ½°C values. (EXCEL searched for wildcards **.n in 0.1 increments).

Critics might accuse that this is a cherry-pick or that the period sampled is rather small, but figure 18 counters such a claim. (And remember, these stations are assured to be of; “World’s best quality practice”.... and presumably that means all 112 of them?)

The two large central ellipses also frame a strange feature of thinly distributed integers herein dubbed as “hole-in-the-middle”, which is evident in all six examples in this section, more so in the minima.

Fig - 18 Gabo Island:

Here is a bigger example of a predominance of ½°C fractions alongside the whole-degree values. This large sample is taken prior to the introduction of the AWS. It can be speculated that with the smaller Fahrenheit units prior to decimalisation, ocular factors would increase the tendency (or even intent) to read in halves, but that has not been explored in this study.
Fig - 19  Wilsons Promontory:

These records show an extreme “hole-in-the-middle”, which as noted elsewhere, is more prolonged in the minima than the maxima. It is really weird that there are some fifteen years where the smallest recorded units are in 1x5°C! (values of 2,3,4,6,7,8&9° are absent). The original manual measurements were presumably in Fahrenheit units before decimalisation so it would appear to be a data handling problem rather than a measurement issue.

Fig - 20  Bathurst:

Here is another manual station, this time with the last four decades showing excessive integer value counts.
A better thing is that the “Hole-in-the-middle” is less pronounced this time, but with careful inspection it remains evident. Again, it is interesting to speculate as to why the weird data in the middle, but such speculation is not within the focus of this study.

**Fig 20** Katanning:

This is another manual station with integer problems and the hole-in-the-middle in the maxima extends a decade or so beyond the decimalization date of 1972. It is not clear why some other AWS’ do not show the integer problem, which the BoM claims was a software coding problem.

**Fig 21** Katanning:

History from ACORN site catalogue: There are documented site moves in July 1987 (100 m north), January 1952 (200 m) and December 1942 (10 m north). A new screen was installed on 11 February 1980. An automatic weather station (010916) has been operating since December 1998 about 5 km east of the town, and is expected to eventually replace the existing site.

**Fig 22** Moruya Heads:
Another hole-in-the-middle biased to the minima. The ellipse frames a tendency for records in steps of five degrees C (derived from Fahrenheit measurement conversions?) similar to Fig 19. The very high scatter in extremes in maxima integers above 30°C is interesting and rather constant over the past century.

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