Section 4 - Figures 7–16) Nine more problem sites in recent decades:

Fig 7 – Cape Leeuwin:

This is somewhat similar to Fig 2 Larapuna on the main page. For some twenty years from mid-1983, the record has either missing or substandard integer data. For a little over three years from 3/Feb/1993, the AWS appears to have operated well (or its data were not used) and then suddenly the maxima record has no data for over four years. In the same period, the minima were in integers rather than to a tenth of a degree.

This is a relatively early AWS from before the widespread adoption of AWS’ circa late 1996. It seems that there is no mention in the ACORN station catalogue of software changes with the early AWS’, only hardware changes …..e.g. quoting:

*Meekatharra: A new type of automatic weather station using the same screen was commenced under the site number 007204 in 1998 and took over the main site number in 2001 (with the old automatic weather station ceasing).*

These two different hardware types at Meekatharra did not exhibit any of the malfunctions discussed here.

Cape Leeuwin is a further example of an early installation that seemingly ran for almost six years before being associated with bad data for ~4 ½ years.

![Fig 7a Cape Leeuwin](image)

> From the ACORN station catalogue: An automatic weather station was installed on 3 February 1993. It moved again to the west-northwest on 14 April 1999; the distance of the move appears to be small but increased the exposure of the site.

![Fig 7b Cape Leeuwin](image)

Fig 8 – Alice Springs:

This example has increased colour contrast to better show the small clusters of two or more integers (in dark colours) that are quite uniformly distributed over the full twenty years, suggesting that this AWS had no issues. Otherwise, there was widespread adoption of AWS’ circa late 1996 and it is interesting that this early installation seems to have been of better performance than many of the later installations (No mention of any hardware or software changes). It is not clear why it did not replace the manual system for almost six years and it is odd that nine of the mostly later stations exampled (Fig’s 2/3/4/5/9/10&11) had a variety of prolonged bad data outcomes immediately upon employment.
Fig 9 - Deniliquin:
This one is nice and tidy with both maxima and minima sharing the same uncorrected problem for over five years. Similarly to the examples in figures 2, 3, 4, 5, 8, 9, 10, & 11, and after widespread adoption of AWS' from around late 1996, there is no or little delay in problems from day-one of the installation, (and it would seem that only a staffing issue would prevent continued use of the hitherto OK manual gear).

Fig 10 - Camooweal:
A later AWS installation with a problem for 4 ½ years:
Other examples follow but employ an alternative method of presentation, giving much the same sort of information but offering different visualization potentials. These charts combine decimal fraction temperatures, whole-degree clusters (two or more integers) and missing ACORN (99999.9) data in common graphs. They are line-plots so cannot show single point integers, only clusters of two or more. For charts showing all integers including single points, see § 6.

For additional perspective, these charts cover the full term records, not just recent decades. Note that the plotting sequence 1-2-3 is important

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Fig 11 - Marree:
The greatest concentration of temperatures in integer clusters and of missing data is from about 1993 till end of current record, and there is a typical lesser increase after about 1972. Again, it seems strange that records are apparently worse after decimalization, (nominally 1972).

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• There are limitations in pixel definition because of the high compression of daily data and fig 11b illustrates an expanded detail as bounded in orange. However, despite these limitations it enables visual comprehension of changes in distributions that otherwise cannot be well comprehended in about 38,000 lines of mixed data•
**Fig 12 – Georgetown:**
The introduction of an AWS in May 2004 coincided with increased integer cluster count, and increased missing data. The earlier decimalization period was relatively good if missing data (dark green) are ignored.

A potential underlying decadal wave seems to exist in Fig 12 but has not been explored.

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**Fig 13 Marble Bar:**
Data records deteriorate somewhat after decimalisation, and more so after AWS adoption.

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**Fig 14 Cape Moreton:**
Introduction of the AWS in Aug/1995 saw a sharp increase in missing data. Prior to that, from the nominal start of decimalization data were severally bad in the minima. Strange that.
Fig 15 Charters Towers:

Ditto, but seems to be a manual site according to the site record. A mousing error item passed unnoticed with EXCEL harmlessly indicating a value at day number 13,178.

Fig 16 Normantown:

AWS strong in missing data compared with times after about 1940.

From the ACORN site catalogue: The current site (029063) is an automatic weather station over natural grass on the east side of the airport, about 2 km south of the town centre. History: The original site was in the town (029063). Screens which had been in poor condition were replaced in May 1917 and November 1940. The only documented move in this site took place in October 1956 (45 m southwest). In its later years, there was a watered lawn and trees and a car park nearby. The current site replaced the previous site in 2001; there are only three months of overlapping data, insufficient to be used in adjustment.