

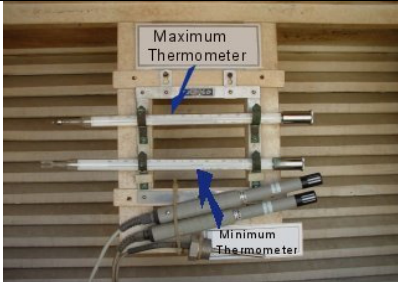


# CASE STUDY: Global Warming - the forest from the trees

## 2. Long term temperature records

Canberra Airport is one of about 370 land surface meteorological stations in Australia useful for national climate monitoring purposes. It has been recording daily maximum and minimum temperatures in a Stevenson Screen since 1939, the year the Second World War broke out. As you would expect of the nation's capital, the meteorological station at the airport is of high quality and has been reliably recording the daily weather for 68 years. In all that time, there have been only 19 days on which an accurate measurement of the maximum daily air temperature failed to be taken. Canberra airport is one of the 100 or so meteorological stations comprising "**Australia's Reference Climate Stations Network (RCS)**" selected for high quality monitoring of the long term climate.

		
<b>Canberra airport met station</b> (BOM, 2009 a)	<b>A Stevenson Screen</b> (Wikipedia, 2009)	<b>Maximum and minimum thermometers inside a Screen</b>

### ACTIVITY: The quality of the meteorological network

Examine the information in Table 1 then answer the questions below.

**Table 1: The location and characteristics of six meteorological stations in eastern Australia (BOM, 2009b)**

	Wagga	Canberra	Sydney	Newcastle	Charleville	Boulia
<b>BOM No.</b>	072150	070014	066062	061055	044021	038003
<b>WMO No.</b>	94910	94926	94768	94774	94510	94333
<b>Latitude</b>	-35.16	-35.30	-33.86	-32.92	-26.41	-22.91
<b>Longitude</b>	147.46	149.20	151.21	151.80	146.26	139.90
<b>Purpose of station</b>	RCS, Synoptic	RCS, Synoptic	Synoptic only	Synoptic only	RCS, Synoptic	Synoptic only
<b>Altitude (m)</b>	212 m	578 m	39 m	33 m	303 m	162 m
<b>Year opened</b>	1941	1939	1858	1862	1942	1886
<b>Completeness of temperature record (%)</b>	99.8	99.9	99.9	-	99.4	96.8
<b>Days missed</b>	37	19	16	-	136	949
<b>Quality rank *</b>	2	-	3	2	2	3

\* Quality of records ranked on a scale of 1 to 5 with rank 1 being very good, 5 being very poor (Della-Marta et al., 2004)

### QUESTIONS:

1. Which of the six stations in this Table is the most northerly?
2. Which station has the longest record of daily temperature readings?
3. Which of these stations has the largest amount of missing data in the temperature record?

### EXTENSION (based on Appendix 1 in the separate Appendices document):

1. Of the 18 meteorological stations detailed in **Appendix 1 (a)**, which are likely to have temperature records influenced by an "Urban Heat Island" effect?
2. Based on the information in **Appendix 1 (a)**, what is the purpose of a "synoptic" met station?
3. On the basis of the information provided in **Appendix 1(b)**, can you suggest a reason why the Sydney meteorological station at Observatory Hill is not included in the Reference Climate Station (RCS) network?