

# How to interpret Temperature trends

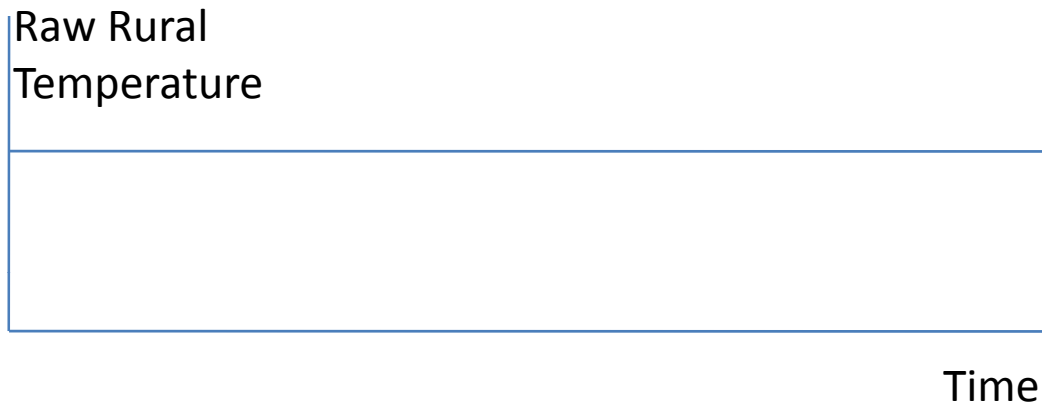
Sandy McClintock

Rev 2

# Surface Station Temperature Trends

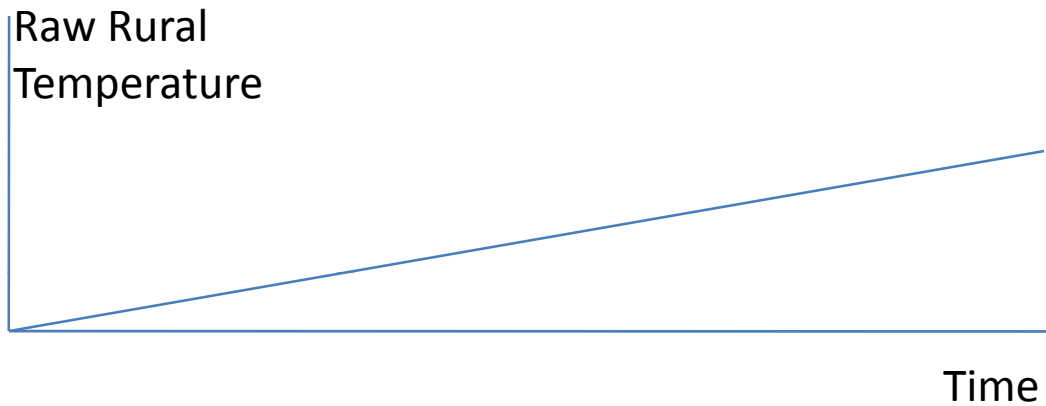
- Let us assume that, in the absence of an Urban Heat Island (UHI) effect that an upward temperature trend is due to Anthropogenic Global Warming (AGW). This may not actually be true
- Let us assume that population size in rural communities has not grown substantially so there is no reason to expect UHI trends.

# No AGW trend



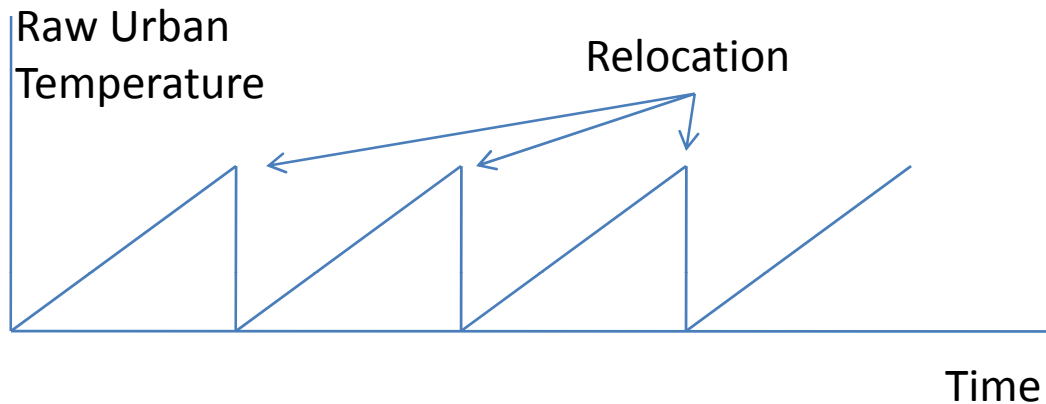
- If Rural temperatures do not go up with time we suspect that AGW is not an important effect

# AGW trend



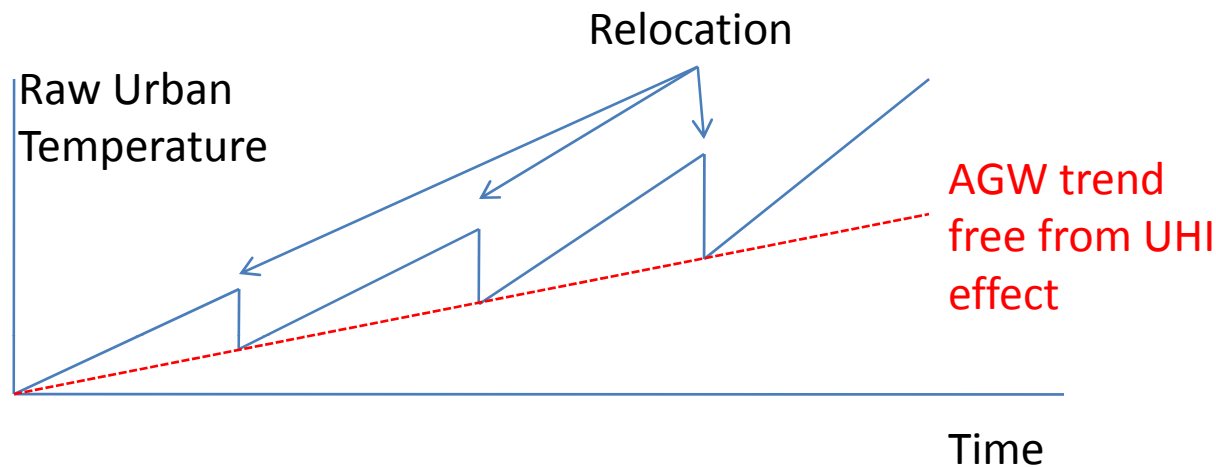
- If Rural temperatures go up with time we suspect it **is** due to AGW

# Urban warming but no AGW trend



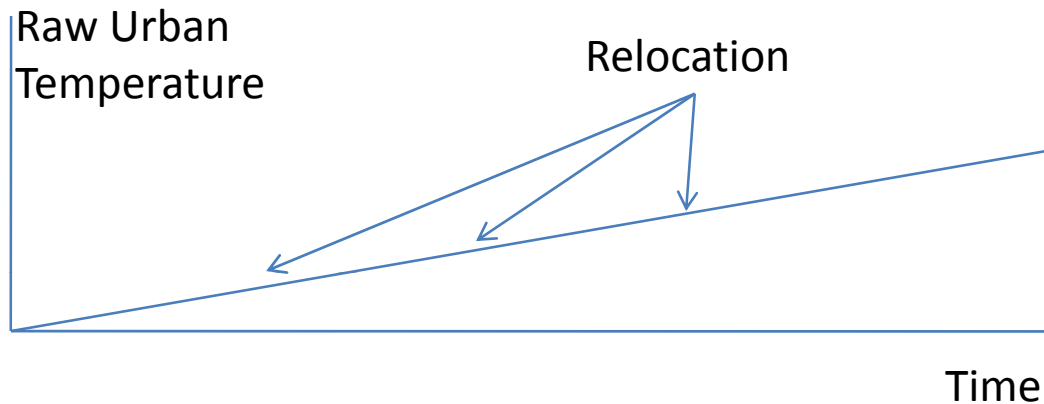
- The weather station is relocated to the edge of the steadily growing city.  
If temperatures fall back to where they used to be, we suspect that there is **no** important AGW trend.

# Urban warming and AGW trend



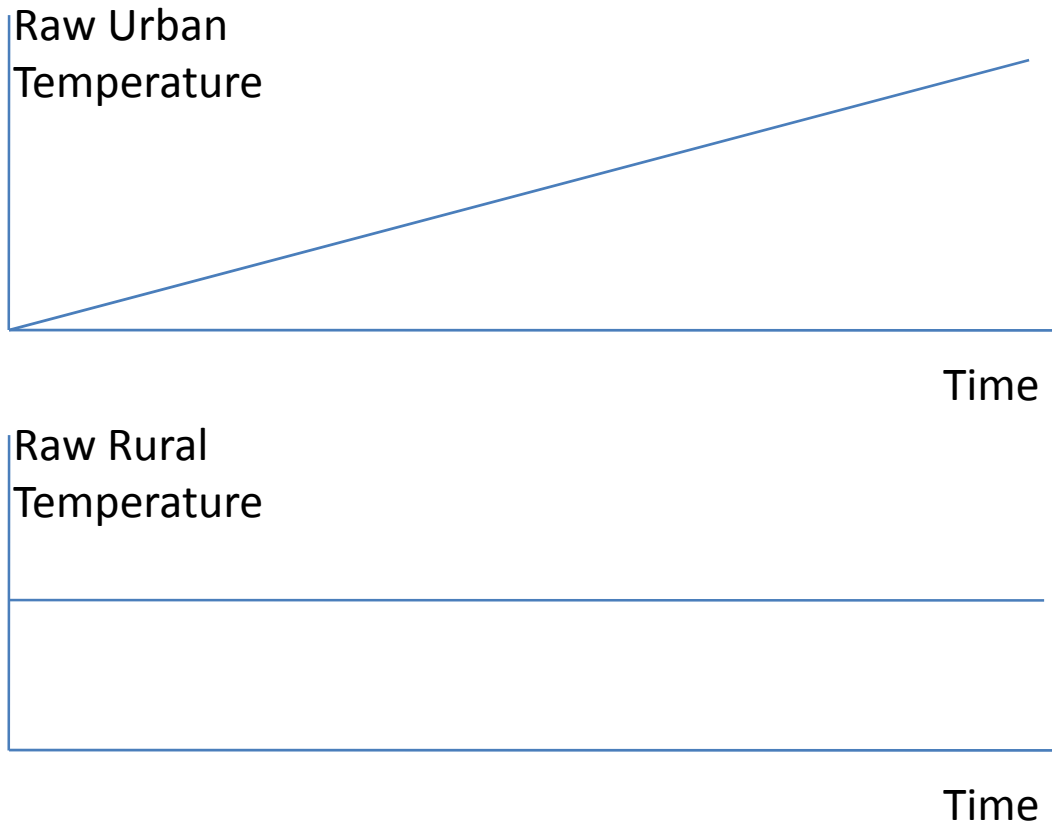
- The weather station is relocated to the edge of the steadily growing city.  
If temperatures do **not** fall back to where they used to be, we suspect that there is both an AGW trend and a UHI trend.

# AGW trend but no Urban warming



- The weather station is relocated to the edge of a city that is not growing (static UHI effect).
- If temperatures do not fall back when a move take place, we suspect that UHI effects are negligible and AGW is important.
- Note that the each move has to be to a site that is very unlikely to be affected by UHI until the city grows larger

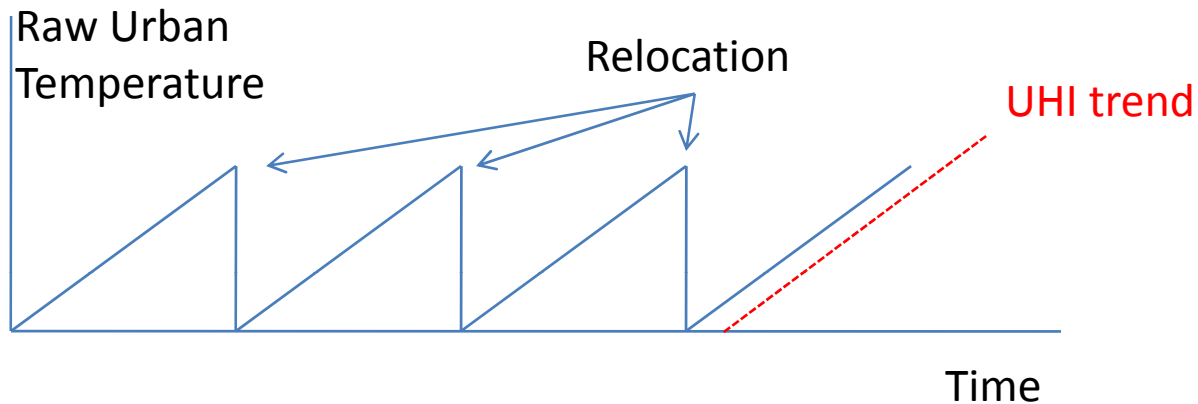
# Urban warming but no AGW



- This is the typical pattern seen in Australia.
- Static rural temperatures but dramatic warming of cities.
- We suspect that AGW may not be affecting Australian temperatures



# BEST Time-Slice Technique



- The three sharp relocation changes are detected. The trends within the 4 time-slices are calculated and these 4 trends are 'averaged'.
- This technique estimates the UHI effect but presents it as an AGW effect where none exists.