

A few comments on the Keenan paper submitted to Energy and Environment

1. Blog sites and their associated discussions are not valid references.
2. There are no peer-review publications that criticise Parker (2006).
3. Discussion about grape harvests and hockey sticks are not relevant.
4. The Tao *et al.* (1991) report was published after the two papers from 1990.
5. Two networks (one of 60 and another of 205) were developed around 1990. The 60-station network contained data for 12 meteorological variables and information on the station histories, but the 205-station network contained mean temperatures and precipitation totals only, without station histories. This was because of a lack of resources at the time. The 42-station pairs used in the two 1990 papers were selected by Professor Zeng (who was a co-author on Wang *et al.*, 1990) from the 60 and 205 station networks. In making her decision she did have access to the station histories and the site population values.
6. All but one of the locations (i.e. one out of 34) for which Keenan cites the numbers of likely moves indicated in the site histories (on his web site, from Tao *et al.*, 1991), relate to the 42 sites of urban station data used in Jones *et al.* (1990). It is the rural sites that are crucial to the 1990 study, not the urban ones. The comparison in the Jones *et al.* (1990) paper was between the rural station data and the CRU gridded temperature data available at the time (i.e. 1990).
7. Nowhere in the paper, nor in the Appendix, does Keenan present the result of any analyses of temperature data for any of the two sets of 42 station records. I would have thought that this would be essential for any paper, making a constructive or useful contribution to the discussion of 'urban' biases.
8. Site changes do influence the long-term homogeneity of the temperature series, but the magnitude of such biases can only be assessed by looking at the temperature data. In Brohan *et al.* (2006), we averaged all the homogeneity adjustments for all adjusted stations across the world. The histogram in Figure 4 in that paper shows that applied adjustments are slightly more likely to lead to cooling rather than warming (but this difference is probably not significant).
9. The more recent papers on urbanization in China (i.e. published in the last few years) generally look at differences over the period from the early 1980s or just for the 1990s. Keenan doesn't refer to the paper by Li *et al.* (2004). One of the purposes of peer review is to point out selectivity in referencing. This paper adjusts some of the temperature data and concludes the urbanization effect is of the order of 0.06°C during the last 50 years.

References not on Keenan's paper

- Brohan, P., Kennedy, J., Harris, I., Tett, S.F.B. and Jones, P.D., 2006: Uncertainty estimates in regional and global observed temperature changes: a new dataset from 1850. *J. Geophys. Res.* **111**, D12106, doi:10.1029/2005JD006548.
- Li, Q., Zhang, H., Liu, X. and Huang, J., 2004: Urban heat island effect on annual mean temperature during the last 50 years in China. *Theoretical and Applied Climatology*, **79**, 165-174.