

INDEPENDENT CLIMATE CHANGE EMAIL REVIEW

COMMENT ON ISSUES PAPER

Professor Rob Wilby, Department of Geography, Loughborough University, 24/02/10

Declaration of interests and scope of response

1. This note is submitted to the Independent Climate Change Email Review in response to the 11 February 2010 call for comments on the Issues for Examination paper.
2. My professional relationship with UEA spans 1995 to present. These interactions have taken many forms including: project partnerships, examination of PhD students, managing research projects, membership of technical committees, development of public domain scenario tools and data sets (Annex 1). In addition, collaborations with CRU have led to 10 peer-reviewed publications since 1996 (Annex 2).
3. Given the above strong ties, this submission addresses just two of the allegations listed in the Issues paper. These refer to [4] the alleged preferential selection of temperature records from urban areas and [5] the alleged manipulation of the peer review process. I am not qualified to comment objectively on the remaining Issues.

[4] Allegation that instrumental data has been selected preferentially to include data from warmer urban sites in contrast to rural sites

4. The possibility that the temperature records of built environments may be biased by urban heat island (UHI) effects has attracted considerable attention and controversy. CRU [1222285054.txt](#) pertains to an email exchange initiated by Geoff Jenkins, and involving myself and Phil Jones. Geoff had recognised apparent contradictions between the findings in Jones and Lister (2009) and a series of earlier papers on Central London's UHI (Lee, 1992; Wilby 2003; 2008). The former asserts that temperature increases at urban sites were no more than those at rural sites since 1901; the latter found significant intensification of the nocturnal temperature gradient between urban and rural sites since the 1960s.
5. Possible explanations for the discrepancy amongst studies of London's heat island are far from straightforward but are likely to involve differences in periods of analysis, use of monthly rather than daily raw data, and/or different temperature indices. Not surprisingly, the conclusions also diverge. Jones and Lister (2009) assert that the St James's Park (SJP) record could be used in global temperature datasets *provided* that anomalies from a common reference period (rather than absolute temperatures) are used. Wilby (2003; 2008) is more concerned that air quality hazards and heat stress could increase with future intensification of the UHI.
6. The evaluation of Central London's heat island is pertinent to the Review because it demonstrates that urban sites are not universally warming more than rural sites. Jones and Lister (2009) challenge and extend existing understanding by using the longest available records for urban and rural records in the vicinity of London. Their study also revisits earlier work using accepted methods of scientific enquiry. In fact, of the six stations examined it is the *rural* site at Rothamsted that exhibits most rapid nocturnal summer warming over the period 1981-2006. Over the same period, the SJP record actually shows the smallest (yet significant) temperature trend in the annual maximum and mean, summer and autumn minimum. This is a clear case where the proposed use of the urban site would actually downplay recent warming trends.

7. Rather than supporting wider allegations of bias towards the use of urban sites, CRU's London heat island study is a model of archival scholarship and analysis. The fact that the study finds less warming in Central London is not necessarily at odds with earlier research. Instead, it highlights that potential confounding influences on meteorological records should be considered in depth, on a site by site, period by period basis. In particular, the impact of long-term variations in the frequency of weather patterns favouring development of strong UHI's remains an open question.

[5] Allegation of improper attempts to influence the peer review system

8. The release of the CRU emails has re-invigorated debate about the transparency, consistency and rigour of scientific peer review processes. CRU [1051156418.txt](#) and CRU [1051202354.txt](#) refer to a controversial paper by Soon and Baliunas (2003) published by the journal *Climate Research*. The discontent about the paper is readily apparent in the emails and subsequent correspondence. The official position of the publisher was set out by Kinne (2003).
9. Despite common knowledge of my Review Editor status (1997 to present), I have never felt pressured into taking a particular line with regards to any articles sent for my evaluation. Nor did I feel obligated to join the resignation of several *Climate Research* Editors in 2003. I do recollect explaining to some CRU staff my reasons for remaining with the journal (namely the publication's broad authorship, strongly multi-disciplinary, and applied emphasis of the published works). My lasting impression is that this decision was unquestioned and respected by all concerned.

Closing remarks

10. Like many others in the UK climate science community, I have benefited from a variety of collaborative ventures with UEA, and especially CRU. Over the course of 15 years, I can recall no incident that has caused me to question the integrity or rigour of the research at CRU. Furthermore, a significant fraction of UK climate research activity could not have been undertaken without the data provided freely by CRU.
11. Given the high level of demand for their services and products, the Review Team might usefully consider the extent to which CRU is sufficiently resourced by UEA to handle the growing number of requests under the Freedom of Information Act.

Supporting references

- Jones, P.D. and Lister, D.H. 2009. The urban heat island in central London and urban-related warming trends in Central London since 1900. *Weather*, **64**, 323-327.
- Kinne, O. 2003. Climate Research: an article unleashed worldwide storms. *Climate Research*, **24**, 197-198.
- Lee, D.O. 1992. Urban warming? – An analysis of recent trends in London's urban heat island. *Weather*, **47**, 50-56.
- Soon, W. and Baliunas, S. 2003. Proxy climatic and environmental changes of the past 1000 years. *Climate Research*, **23**, 89-110.
- Wilby, R.L. 2003. Past and projected trends in London's urban heat island. *Weather*, **58**, 251-260.
- Wilby, R.L. 2008. Constructing climate change scenarios of urban heat island intensity and air quality. *Environment and Planning B: Planning and Design*, **35**, 902-919.

ANNEX 1 Declaration of interests

My professional association with UEA began in 1995 and has taken various forms to the present day. For sake of transparency, the following interests are listed in good faith:

- i. Academic research project partnerships with CRU (EPRI, EU ACCORD & STARDEX)
- ii. Project management of research consortia including CRU
- iii. Three PhD examinations of UEA students
- iv. Invited speaker at research seminars and workshops (hosted by CRU and Tyndall)
- v. In partnership with CRU and others the development of public climate data sets (such as long-term river flow reconstructions, and predictor variables for statistical downscaling)
- vi. In partnership with CRU and others the development of public domain weather generator tools (EARWIG, UKCP09)
- vii. Technical steering committees for CRU projects (Environment Agency, UKCP09)
- viii. Co-authorship of peer-reviewed research publications and reports (see Annex 2)
- ix. Unfunded collaborative ventures (such as work with Tyndall to develop modules for the Community Integrated Assessment System [CIAS])
- x. Academic references obtained from CRU in support of professional appointments and promotions

ANNEX 2 Peer-reviewed publications with CRU

- Conway, D., Wilby, R.L. and Jones, P.D. 1996. Precipitation and airflow indices over the British Isles. *Climate Research*, **7**, 169-183.
- Haylock, M.R., Cawley, G.C., Harpham, C., Wilby, R.L. and Goodess, C.M. 2006. Downscaling heavy precipitation over the UK: a comparison of dynamical and statistical methods and their future scenarios. *International Journal of Climatology*, **26**, 1397-1415.
- Jones, P.D., Lister, D.H., Wilby, R.L. and Kostopoulou, E. 2006. Extended river flow reconstructions for England and Wales, 1865-2002. *International Journal of Climatology*, **26**, 219-231.
- Kilsby, C.G., Jones, P.D., Burton, A., Ford, A.C., Fowler, H.J., Harpham, C., James, P., Smith, A. and Wilby, R.L. 2007. A daily weather generator for use in climate change studies. *Environmental Modelling and Software*, **22**, 1705-1719.
- Wilby, R.L. and Harris, I. 2006. A framework for assessing uncertainties in climate change impacts: low flow scenarios for the River Thames, UK. *Water Resources Research*, **42**, W02419, doi:10.1029/2005WR004065.
- Wilby, R.L. and Wigley, T.M.L. 1997. Downscaling General Circulation Model output: a review of methods and limitations. *Progress in Physical Geography*, **21**, 530-548.
- Wilby, R.L. and Wigley, T.M.L. 2000. Precipitation predictors for downscaling: observed and General Circulation Model relationships. *International Journal of Climatology*, **20**, 641-661.
- Wilby, R.L. and Wigley, T.M.L. 2002. Future changes in the distribution of daily precipitation totals across North America. *Geophysical Research Letters*, 10.1029/2001GL013048.
- Wilby, R.L., Conway, D. and Jones, P.D. 2002. Prospects for downscaling seasonal precipitation variability using conditioned weather generator parameters. *Hydrological Processes*, **16**, 1215-1234.
- Wilby, R.L., Wigley, T.M.L., Conway, D., Jones, P.D., Hewitson, B.C., Main, J. and Wilks, D.S. 1998. Statistical downscaling of General Circulation Model output: a comparison of methods. *Water Resources Research*, **34**, 2995-3008.