



House of Commons  
Science and Technology  
Committee

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# The Reviews into the University of East Anglia's Climatic Research Unit's E-mails

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## *Volume II*

*Additional written evidence*

*Ordered by The House of Commons  
to be published 8 September, 13 and 27 October,  
1 and 15 December 2010, and 17 January 2011*

## The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Government Office for Science and associated public bodies.

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Additional written evidence may be published on the internet only.

### Committee staff

The current staff of the Committee are: Glenn McKee (Clerk); Ed Beale (Second Clerk); Farrah Bhatti (Committee Specialist); Xameerah Malik (Committee Specialist); Andy Boyd (Senior Committee Assistant); Julie Storey (Committee Assistant); Pam Morris (Committee Assistant); Jim Hudson (Committee Support Assistant); and Becky Jones (Media Officer).

### Contacts

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# Witnesses

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## Wednesday 8 September 2010

Page

Lord Oxburgh, Chair, Scientific Assessment Panel

Ev 1

## Wednesday 27 October 2010

Sir Muir Russell, Head of the Independent Climate Change E-mails Review,  
Professor Edward Acton, Vice-Chancellor, University of East Anglia, and  
Professor Trevor Davies, Pro Vice-Chancellor for Research, University of East  
Anglia

Ev 8

## List of printed written evidence

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1	University of East Anglia (UEA Reviews 00 and 00a)	Ev 20, Ev 34
2	Lord Oxburgh (UEA Reviews 04)	Ev 35
3	Independent Climate Change E-Mails Review (UEA Reviews 07)	Ev 35

**All the oral and written evidence is published in HC 444 and on the Committee website at [www.parliament.uk/science](http://www.parliament.uk/science)**

## List of additional written evidence

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(Published in Volume II on the Committee's website [www.parliament.uk/science](http://www.parliament.uk/science))

1	David Holland (UEA Reviews 01, 01a and 01b)	Ev W1, Ev W3, Ev W15
2	Douglas J Keenan (UEA Reviews 02 and 02a)	Ev W5, Ev W12
3	Bob Critchlow (UEA Reviews 05)	Ev W5
4	Mr & Mrs L Black (UEA Reviews 06)	Ev W5
5	Information Commissioner (UEA Reviews 08)	Ev W7
6	Andrew Montford (UEA Reviews 09)	Ev W11
7	Graham Stringer MP (UEA Reviews 10)	Ev W18

# Written evidence

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## Memorandum submitted by David Holland (UEA Reviews 01)

### THE INDEPENDENT CLIMATE CHANGE EMAIL REVIEW (ICCER)

I note that your Select Committee is proposing to invite Sir Muir Russell to give evidence before you next month and am writing to you and your colleagues to ask that you look at the disgraceful and deceitful way my submission<sup>1</sup> to the ICCER has been treated. I attach a copy of a letter of complaint that I have sent to Sir Muir Russell.

Despite his assurances and the clear views that your predecessor Committee expressed in relation to the enquiries initiated by the University of East Anglia, the ICCER has been a sham, refusing to openly publish my submission which is a more detailed version of that published<sup>2</sup> by your predecessor Committee (HC 387-II pages EV 115–119).

After advising me that “*there would be a significant risk of legal action if your submission is published in whole or in part on the Review website*”, the Review has surreptitiously published a speciously edited “version” of it in an Annex to a rebuttal statement<sup>3</sup> by Professor Briffa and Dr Osborn. This is incorrectly indexed on one of the Review’s 16 byzantine evidence pages. It is not possible to determine from the ICCER website when this document was added but its “file properties” indicate it was last modified on the same day as the Final Report of the Review was published, 7 July 2010. Should it be of assistance to you, I have produced an Excel sheet<sup>4</sup> of the ICCER evidence with document dates.

Paragraphs 17 to 33 of the evidence that I presented, with copious documentation, to your predecessor Committee point to a determined effort by climate scientists to suppress information on the IPCC assessment process which the British and other governments has agreed was to be open and transparent.

The plain fact is that information, which the Information Commissioner has ruled<sup>5</sup> should have been disclosed, was wrongly refused by the public authority employers of Professors Mitchell, Hoskins, Allen, Jones and Briffa, who with many other IPCC participants had been advised by the American Co-Chair of IPCC Working Group One, Dr Susan Solomon, to disclose nothing that was not already in the public domain concerning the disputed inclusion of the Wahl and Ammann 2007 paper in the IPCC Fourth Assessment Report.

Despite his assurance to your predecessor Committee, it appears that Sir Muir Russell delegated the overwhelming majority of the evidence gathering to Professor Geoffrey Boulton, who had worked for UEA for 18 years and has made public presentations of his alarming views on anthropogenic global warming. No one at the UEA appears to have been interviewed individually on the record by the Review team as a whole, or even by more than two of the team, let alone in public. The most serious of all the allegations received by the ICCER, which I made, were pared down to eight paragraphs referred to on page 77 to 79 of the Review Report<sup>6</sup> simply as “The Allegations” and “Evidence in Support of the Allegations”. No submission was cited as the source of “The Allegations”.

“The Allegations” were rebutted by Briffa and Osborn’s evidence, together with Boulton’s hearsay evidence of what Mitchell and Hoskins said to him in telephone conversations. Briffa and Osborn’s evidence was a written reply to a one page letter from Boulton asking just two specific questions, to which was attached my submission, or part of it. In addition to their “version” of my submission, Briffa and Osborn attached to their evidence an unsigned and unattributed document purporting to be statements provided by IPCC AR5 WGI TSU, prepared in consultation with the former Co-Chair, Susan Solomon and TSU of WGI for the AR4.

Remarkably, this AR5 document confirms for the first time that Jones was directly involved in the improper decision to change the IPCC “in press” deadline and allow the citation of the Wahl and Amman 2007 paper, the validity of which had been disputed by the Reviewer for the United States of America and other Expert Reviewers. This information, and also that contained on the final page of Briffa and Osborn’s evidence, was a significant part of the information that I originally requested two days before Jones asked Professor Mann to delete any AR4 emails he had with Briffa.

Thus, without openly publishing my evidence and using “show trial” standards for the rebuttal evidence, Sir Muir Russell’s Review concluded:

*On the specific allegations made against the behaviour of CRU scientists, we find that their rigour and honesty as scientists are not in doubt.*

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<sup>1</sup> <http://tinyurl.com/2656ppl>

<sup>2</sup> <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmstech/387/387ii.pdf>

<sup>3</sup> <http://www.cce-review.org/evidence/6%20May%20Briffa%20Osborn%20response.pdf>

<sup>4</sup> <http://tinyurl.com/3x6u4cf>

<sup>5</sup> [http://www.ico.gov.uk/upload/documents/decisionnotices/2010/fer\\_0238017.pdf](http://www.ico.gov.uk/upload/documents/decisionnotices/2010/fer_0238017.pdf)

<sup>6</sup> Page 78.

In the 3,000 word limit of my submission to your predecessor Committee, I had been unable to include the full detail that I submitted to Russell's ICCER and I particularly wish to draw your attention to paragraphs 62 and 63 of that submission. With two pieces of evidence disclosed by the ICCER these paragraphs explain the extraordinary efforts made by a group of scientists to keep secret matters which the Principles Governing IPCC Work as well as the Environmental Information Regulation requires to be disclosed.

The email sent by the Technical Support Unit of IPCC Working Group One on 3 July 2006 contained a fabricated reason for changing the deadline by which papers that were to be cited had to be at least "in press" with a "final preprint" available for Expert Reviewers to consider. The original deadline was, quite logically, before the review process started and the guidelines sent out were clear that citations of papers that missed the deadline would be deleted from the text sent out for review. The change to the deadline that allowed Wahl and Amman 2007 to be cited, allowed any paper "in press" two months after the end of the review process to be cited, and many were. This made a nonsense of peer review.

In their evidence to the ICCER Professors Briffa, Osborn Mitchell Hoskins, Jones and AR5 WGI with Dr Susan Solomon all defend the decision and their entitlement to have made it. This is besides the point. What was being concealed by the concerted refusal of UEA, the Met Office, Reading and Oxford Universities was the fabrication in the email that "many" Expert Reviewers had asked for the change. With the release of all the Reviewers' comments and Lead Authors' responses in electronic form, it is possible to search all 11,289 of them and I found that only one actually suggested a change and that request was rejected.

In my FoIA request, of 27 May 2008, to which UEA gave the reference FOI\_08-31, and which by two days preceded Jones email request that Mann delete any AR4 emails, I specifically asked to be informed of which Expert Reviewers had asked for the "new guidelines". This request is missing from ICCER evidence item 116.<sup>7</sup> The same question was asked of the Met Office, Reading and Oxford.

Page 26 of the ICCER evidence of Briffa disclosed that the decision to send the email of 3 and 4 July 2006 was made by the Coordinating Lead Authors, one of whom was his boss, Jones, who sought to delete "any emails re AR4" two days after I asked for them. In ICCER evidence item 122<sup>8</sup> Mitchell discloses that he missed the start of the meeting at which the decision to change the "in press" deadline was made and was "not aware of the debate about whether the Wahl and Amman paper had or had not met the deadline for the 2nd order draft for chapter 6 until after the event." This may explain the unusual way in which he dealt with my request for information.

Accordingly I am hoping that you might consider some of the appended questions for Sir Muir Russell when he next attends your Committee hearing. I should also add that I will, of course, be willing to appear before you if asked.

*David Holland*

*3 September 2010*

## APPENDIX

### QUESTIONS FOR SIR MUIR RUSSELL

- (a) What was the "legal advice" you received that precluded the Review from publishing in whole or in part on the Review website the evidence you received from Mr Holland?
- (b) To whom did you distribute Holland's submission, and was any of it redacted before distribution?
- (c) Did UEA, any employee of UEA, or anyone else indicate to you that they would take legal action if you published the submission.
- (d) Given that you had advised Holland that you would not publish his submission in whole or in part, and that on page 125 of your Report you state that you have not published it, how do you account for and justify its selective unattributed publication in the Annex to Briffa and Osborn's evidence?
- (e) Briffa and Osborn's evidence, item 120, posted on the ICCER website, has electronic document properties that state it was last modified on 07/07/2010. When was it first put on your evidence pages and, if it was subsequently modified, why?
- (f) In paragraph 108 of Holland's submission he refers to his request of 27 May 2008, which was made two days before Professor Jones asked Professor Mann by email to assist him in deleting the AR4 emails Holland had requested. This was given the reference FOI\_08\_31 in UEA's acknowledgement letter of 3 June 2008 but is not mentioned in your Report or listed in your written evidence item 116, "A list of all FOI and EIR requests received relating to the Climatic Research Unit since 2005". Why is this?
- (g) The electronic document properties of the "list of all FOI and EIR requests" also that state it was last modified on 07/07/2010. When was it first put on your evidence pages and, if it was subsequently modified, why?

<sup>7</sup> <http://www.ccereview.org/evidence/02%20July%20CRU%20FOI%20&%20EIR%20requests.pdf>

<sup>8</sup> <http://www.ccereview.org/evidence/02%20July%20IPCC%20fourth%20assessment%20report.pdf>

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- (h) On what date did you activate the auto answer email at the ICCER website advising “we will no longer be accepting submissions or responding to questions raised?”
- (i) How can you conclude that the “rigour and honesty as scientist is not in doubt” for individuals that planned to delete lawfully requested information that they now seek to claim concealed no improper breach of the IPCC review process?
- (j) In your Report, why do you not even give the Internet references of the IPCC Principles and Procedures, which regulate the IPCC assessment process?
- (k) Why did you take the evidence from the individuals, accused by Holland and others of breaching the IPCC Principles and Procedures under which the IPCC assessments should be carried out, on how to interpret these rules instead of the officials at the Department of Energy and Climate Change, who on behalf of HMG and in conjunction with other governments, wrote and agreed them?
- (l) Why did Mitchell, Hoskins, Jones, Osborn and Allen, as is described in paragraphs 94 to 117 of Holland’s submission, all act in concert and defy the Environmental Information Regulations 2004 in order to avoid the disclosure of the emailed instruction from WGI TSU that Holland reproduces in paragraphs 60 and 61 and which set out the “new guidelines” for “in press” papers? If, as Jones, Briffa, Osborn, Mitchell and Hoskins now claim, this was not a breach of IPCC Principles and Procedures, why on earth did they spend so much time and effort to suppress it?
- (m) Given the documentary evidence that exists that Jones, Briffa, Mitchell and Hoskins were collaborating to “resist” Holland’s FoIA requests, how can you justify, in terms of natural justice, using their evidence against Holland without publishing his evidence or giving him the opportunity to respond?
- (n) What was UEA’s case for using the Ministerial veto in Section 36 of the FoIA to refuse disclosure of what Briffa and Osborn now claim to be entirely proper instructions from the WGI TSU?
- (o) Why have you not investigated and reported on who or what persuaded UEA’s Information Officer, David Palmer, to reverse his original decision to treat Holland’s original request under the EIR as he had underlined in his first reply that he “must” do?
- (p) Why were the eight emails that Holland identified in his paragraph 118 together with the email to, and the one from, Briffa, which were appended to Holland’s submission, not disclosed under the subject access request he made under the Data Protection Act?

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### Supplementary memorandum submitted by David Holland (UEA Reviews 01a)

#### DELIBERATE ACTIONS BY UEA TO AVOID RELEASING INFORMATION SUBJECT TO FOIA REQUEST

On reviewing my earlier memoranda I realise that I failed to focus sufficiently upon the single most compelling reason that you should reject the Report of Sir Muir Russell and the recent memorandum from the University of East Anglia submitted by Professor Acton as blatant works of fiction.

Sir Muir’s Report states in paragraph 28 on page 92,

“There seems clear incitement to delete emails, although we have seen no evidence of any attempt to delete information in respect of a request already made.”

This finding is utterly perverse.

The Report then shows the infamous email Jones sent to Mann asking him to delete precisely the information I had specified just two days earlier. I must stress that what I was asking for was procedural information relating to the IPCC Fourth Assessment and nothing whatever to do with UEA surface temperature record which the Russell Review and UEA keep returning to. Also bear in mind that my request was, at the time it was being dealt with, the only one that had been made to the Climatic Research Unit at UEA during 2008. Also it was made more than a year before the FOIA request deluge that is alleged by some to have provoked the scientists to misbehave.

Jones clearly indicated to Mann that data would be deleted at UEA and Mann’s reply makes no suggestion that he might not comply in the USA. The email went beyond incitement.

In the interview on 13 February 2010, reported by Roger Harrabin at <http://news.bbc.co.uk/1/hi/8511670.stm>, Jones made it clear that his infamous email was a direct consequence of my 27 May 2008 request. Harrabin asked,

“Why did you ask a colleague to delete all e-mails relating to the Fourth Assessment Report of the IPCC?”

Jones replied,

“This was an e-mail sent out of frustration at one FOI request that was asking for the e-mail correspondence between the lead authors on chapter six of the Working Group One Report of the IPCC. This is one of the issues which the Independent Review will look at.”

The same email correspondence was covered by my formal request to UEA of 5 May 2008 and by my original email to Professor Briffa on 21 March 2008. The evidence I presented to Sir Muir's Review and your predecessor Committee is that the scientists directly involved in the writing of the IPCC Working Group One assessment of the science of climate change were advised by their Co-chairperson, in March 2008, not to make any new disclosures at all. So far almost nothing new has been disclosed without it being leaked or my having to appeal refusals and engage the Information Commissioner's Office. This is despite clear prior FOIA rulings that everything requested should have been disclosed.

I note that, in his most recent submission to you, Professor Acton is now trying to imply that no information was deleted as a result of FOIA requests but simply routinely deleted prior to the requests. He states:

We have established that the potential email deletion which gave rise to the ICO's concern did not take place, and the University has received undertakings from the CRU staff most notably involved in the emails that they will fully comply with the letter and spirit of Freedom of Information requests. Extracts from statements they have made on this subject are provided in appendix F.

This is utter nonsense and the Report of Sir Muir Russell provides no evidence to support his claim. Nor are these statements signed or published at the Review Website. On the other hand, what is reported to have been said to Sir Muir on 18 December 2009, suggests very strongly that Professor Briffa expected information that was subject to FOI requests might well be deleted. UEA's Director of Information Services Colam-French is reported as having stated:

For example Keith Briffa took home emails that were subject to FOI to ensure their safekeeping.

This report of Sir Muir's meeting with IT staff and Colam was not properly indexed at the Russell Review website until long after the Review report was published and includes other evidence that information may well have been taken off-site and deleted from the CRU computers.

Information that I requested was deleted according to a letter sent to me by UEA and available to the public at [http://www.whatdotheyknow.com/request/spreadsheet\\_of\\_review\\_comments\\_f](http://www.whatdotheyknow.com/request/spreadsheet_of_review_comments_f)

The leaked UEA emails had revealed that information I had requested was held in a spreadsheet that had been attached to one of them sent by Jonathan Overpeck from the USA. In a response refusing to disclose an FOIA request to UEA that I had made on 28 November 2009 for this spreadsheet, UEA replied:

We believe that Regulation 12(4)(a) applies to your request because the only location that this information was held on was on a backup server as the original information had been 'deleted' some years ago.

On 21 March 2010 I asked Overpeck for a copy. I sent copies of my email request to Susan Solomon, Renate Christ, Rajendra Pachauri and my MP, Tim Boswell. I received no reply. A few days later the Information Commissioner's Office phoned me to advise that Professor Briffa had found a copy of the spreadsheet on a memory stick. On 26 March 2010 UEA disclosed the spreadsheet.

We are not told when Briffa first started preserving information that was subject to FOIA requests, if he has more, or when any of the information which I requested was actually deleted. The implication from UEA that information I requested was already deleted makes no sense.

Why would UEA have gone to the trouble of invoking the Ministerial veto of FOIA section 36 to refuse disclosure if it no longer held the information I requested? Several of the leaked UEA emails and others disclosed to me under the DPA and other FOIA requests show that after I first requested the information considerable discussion took place on how to use the FOIA to avoid disclosure.

On 15 July 2008 Sir Brian Hoskins at the University of Reading told his Information Officer to contact UEA who were collaborating with the Met Office to "resist" my requests. Why would UEA be "resisting" requests for information that had been lawfully deleted before it had been asked for? It only had to state "the information is not held". At any time Briffa could have said the information had been deleted.

We are also asked to believe that UEA carried out a careful review of its refusal to disclose information to me, as is required by the FOIA section 45 code of practice, but never found out that the information was already deleted. Clearly to review a decision to refuse disclosure other than on the grounds of it not being held the information the information must be physically seen.

UEA's claim is nonsense and you should be aware that the Information Commissioner's Office conducted a far more thorough and independent investigation of my information request. In his Decision Notice Decision Notice FER0238017, issued shortly before Sir Muir Russell's ICCER report on 7 July 2010, there is no report that UEA ever claimed to the ICO that the information I requested was deleted prior to me asking for it.

Despite the reprimand of your predecessor Committee, the Commissioner himself signed the Decision Notice after adding a rider to the effect that he remained satisfied that prima facie evidence existed of an offence which was not investigated only because it was time barred.

Thus no rational person, regardless of their views on the science of climate change, can doubt that information on the assessment of climate change, which was lawfully requested under our freedom of information laws, was deleted blocked or concealed from Information Officers to prevent it becoming public. The documentary evidence of this is easily available on the Internet and fully understood by many thousands of people worldwide.

The rigour or honesty of all who deny what happened will remain in doubt.

*David Holland*

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**Memorandum submitted by Douglas J Keenan (UEA Reviews 02)**

This letter concerns the upcoming oral evidence sessions on the Climatic Research Unit (CRU) at the University of East Anglia. I am the sole person to have made a substantiated allegation of fraud against a researcher at CRU. The allegation was published in a peer-reviewed paper. It has also received substantial media coverage; in particular, The Guardian had a front-page story about my allegation: the story was positive, despite The Guardian being a strong advocate of action on global warming. Indeed, the evidence for fraud is conclusive—and it does not require scientific training to understand.

The report by Lord Oxburgh *et al* claimed to assess the integrity of the researchers at CRU. Yet it ignored the allegation.

The report by Sir Muir Russell *et al* does discuss the allegation: Section 6.6 is devoted to this. That section, however, does not consider any of the evidence for the allegation. Instead, the section claims that the head of CRU, Phil Jones, denied the allegation. The claim is false, and would be obviously irrelevant even if it were true.

Neither Oxburgh nor Russell contacted me.

*Douglas J Keenan*

*September 2010*

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**Written evidence submitted by Bob Critchlow (UEA Reviews 05)**

I have been following the actions of this committee in the hopes that there would be a proper investigation into Climategate and it appears that the committee wants to sweep the issue under the rug. Where is the scientific consensus? There is none and a lot of the work cannot be replicated. You should know that by dragging your feet the public will never believe you. Were emails destroyed from UEA? The answer is we don't know since there was investigation into that. Did the "so called" scientists interfere with Peer Review? The answer is quite obvious when they said in the emails they would redefine what peer review was. Are we just supposed to sit back pay more money than is necessary on a science that can't be proven and some of the "so called" scientists wish to have their research remain in the dark. The public will continue to fight you until you wake up and smell the coffee and realize there must be real investigation done. None of the crap we have seen thus far. You have completely wasted the people's time. I'm not paying out money to help the third world countries. I'm on a limited income and be damned if I'll see politics and science get into bed with each other. You will simply have to wake up and do a proper investigation none have done anything thus far to make the public agree with the climate wackos. Climate does change, but since they can't predict weather, then how are they going to predict climate? They can't.

*Bob Critchlow*

*September 2010*

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**Written evidence submitted by Mr & Mrs L Black (UEA Reviews 06)**

During The Science and Technology Select Committee inquiry 31 March 2010 regarding; The disclosure of climate data from the Climatic Research Unit at the University of East Anglia Professor Acton, Vice-Chancellor, University of East Anglia said:

The CRU had only three staff to deal with FOI and develop science [Climate] "... May I point out, Chairman, that this is a very small unit. There are three fulltime members of academic staff within it ..." ie only three staff were in a position to oversee, what effectively will result in the expenditure of public funds in the billions, in implementing Governmental Public Policy.

Source: <http://www.publications.parliament.uk/pa/cm200910/cmsselect/cmsctech/387/387ii.pdf>

Q92 *Professor Acton's response to Chairman:*

"May I point out, Chairman, that this is a very small unit. There are three fulltime members of academic staff within it and the manpower involved in exactly what has just been described is actually very considerable."

Richard Thomas CBE, former Information Commissioner also said:

There were only 60 or so FOI requests which in his experience "... does not strike me as being an absolutely huge number..." ie it was NOT excessive [and in any case it appears they binned them anyway or spent more time trying to avoid fulfilling them than it actually would have taken to answer them properly!

Source: <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmsctech/387/387ii.pdf>

Q68 *Ian Stewart to Mr. Thomas*

"I am also bound to say that I think a figure of around 60 has been mentioned. That does not strike me as being an absolutely huge number. We estimated in the first four or five years of the legislation about half a million requests across all public authorities were being made. Undoubtedly, it has been quite popular legislation, it has been heavily used, not just by the media and by researchers and campaigners, also by the general public, and so we would be reluctant to label a request as vexatious. I do recall one example—I think it involved Birmingham City Council—where an individual made about 200 requests about a particular allotment site in Birmingham and how that was being developed."

## THE SCIENCE AND TECHNOLOGY SELECT COMMITTEE MEETING 8 SEPTEMBER 2010

The intention in this communication is not to dwell on the selection and suitability of Lord Oxburgh as the head of the inquiry [that has been widely questioned] ie his impartiality and other interests. However his responses to the panels' questions were equivocal, incomplete and somewhat obfuscated; quiet frankly we were astounded. It concerns us that Lord Oxburgh [in the Science and Technology Select Committee meeting 8th Sep] drew attention to the FOI requests as being an issue for the CRU [to deal with] and asked the panel Chairman to revisit FOI requests in respect of scientific establishments in the future ["...I do think that there are very interesting questions to be asked about the interface between the Freedom of Information Act and scientific research..."] UNCORRECTED TRANSCRIPT OF ORAL EVIDENCE <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmsctech/uc444-i/uc44401.htm>

In respect of the CRU's difficulties in complying with them/or not as the case has been shown, it appears he wanted to throw another red herring back into the cooking pot!

We wish to draw attention here [rather than repeat the reasons for the FOIA] to Heather Brooke's excellent book, which we read last week, "*The Silent State*" isbn 978-0-434-02026-3. It demonstrates her attempts to garner information from the UK establishment ie MP's expenses and other revelations, via the use of FOI's [and other disclosures including the massaging of publicly funded data, statistics and PR Spin, etc.]. We also suggest it should be on the list of essential reading for all publicly funded employees; MPs included.

We do not wish to spell out the [obvious] reasons for this provision [FOIA—see your own document <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmsctech/387/387ii.pdf> **Richard Thomas CBE Memorandum submitted by Richard Thomas CBE (CRU 53) Freedom of Information Aspects**].

Funded research is paid for by our taxes and as such no public body should be able to hide behind exemptions unless it can be guaranteed that divulging it affects NATIONAL SECURITY or some other such criteria listed as relevant.

We accept some of this data was not owned by the CRU but it can be clearly seen it was using these FOI denials to ensure others were unable to do a "like for like" comparison using the same methodologies with the same raw data.

How can it be that the CRU, with only three employees had to deal with "*The Science*" and only 60 FOI's yet the whole of Governmental Public Policy, costing potentially billions, depended on the results and performance of only **three fulltime staff** [who were also not as statistically competent as they ought to have been given it's significance]?

How can we be in a situation where:

1. Only three staff were in a position to oversee, what effectively will result in the egregious use of public funds in the billions, in implementing [or improperly supporting!] Governmental Public Policy within the UK [and elsewhere]?
2. How can it be, that the analysis of this data has not been overseen or performed by a recognised statistical body, team or organisation?

3. At each and every public pronouncement of the launch of these inquiries in to this matter [climategate, or during such inquiries] each of those heading or speaking on its/their behalf, imply or state the science is being dealt with else where. We have seen no such confirmation of the science [of the CRU's data cleaning/analysis input and output] as a result of these inquires [or 3rd party peer review] and furthermore given that:

[source: [http://www.ecowho.com/articles/42/Climategate,\\_what\\_is\\_going\\_on?.html](http://www.ecowho.com/articles/42/Climategate,_what_is_going_on?.html) which is a "warmist" web site]

Quote:

- CRU takes raw data as measured from various sources, processes and 'cleans' it and makes it available for monthly updated download on their FTP site for other climate change academics to use. So, if CRU is found to be in error, then all these dependent academics must be considered in error as well.
- CRU processed data is used to calibrate satellite proxy temperature readings, so if CRU is found to be in error, then all usage of said calibrated satellite proxy temperature data readings will be in error also.
- CRU data is one of four key data sets used by the majority of climate change researchers—2 ground based, 2 satellite data based (to which said calibrations have been applied)—in essence up to 75% of the climate data in use is at risk of being shown to be invalid if CRU are found to be in error.

These 4 data sets have been used by the IPCC (Intergovernmental Panel on Climate Change) as core data in their research and conclusions—so if the CRU is found to be in error, the IPCC conclusions are also likely to be in error.

Un-Quote

It is of great concern that we are currently dependant on the CRU's output of temperature data, which it has "processed", consequently justifying the expenditure of vast amounts of public funds to *support* Governmental Public Policy [assuming the notion of Anthropogenic Global Warming] based on such doubtful and questionable data!

The reasons for the implementation of sound ecological and environmental mechanisms and policies we accept.

We look forward to *sound science* producing findings that will allow policy makers to put in place such mechanisms so as to preserve what we have now and for future generations.

Climate Change, we *now* believe, is not due to human CO<sub>2</sub> emissions [CO<sub>2</sub> follows temperature rise it does not precede it] but by Solar radiation and Planetary cycles [Milankovitch Theory—see footnote]. The Carbon Emission Ponzi Scheme/Tax Gravy Train, or put more diplomatically Carbon Trading Derivatives Scheme, is an inappropriate method of financing the changes as the public are being misled by chicanery which is only going to line the pockets further of the miscreants that lead to the recent collapse of the financial industry.

The CRU has been the complier of data on which governmental "public policy" is based and subsequently on which these financial schemes are also based. The CRU was under investigation for violation of The Freedom of Information Act 2000, fraud and other possible violations of British and International law and indeed may have been found guilty of breaking the law had not a technicality prevented prosecution, causing further doubts about their methods and ethics.

Instead we should be validating the science and if necessary spending these funds on *adapting* to Climate Change, which has existed for millennia.

It seems there is a "Lobby" element operating in the scientific community along with the finance industry, NGOs and other advocacy groups directing public policy on Climate Change which is totally unacceptable.

*Mr & Mrs L Black*

Note: Source [http://en.wikipedia.org/wiki/Milankovic\\_cycles](http://en.wikipedia.org/wiki/Milankovic_cycles)

**Milankovitch Theory** describes the collective effects of changes in the Earth's movements upon its climate, named after Serbian civil engineer and mathematician Milutin Milanković, who worked on it during First World War internment. Milanković mathematically theorised that variations in eccentricity, axial tilt, and precession of the Earth's orbit determined climatic patterns on Earth.

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#### Written evidence submitted by the Information Commissioner (UEA Reviews 08)

I would like to provide a brief update to the Committee on the work that my office has undertaken since the Committee last reported.

My office worked closely with Muir Russell Inquiry and welcomes the recommendations in the report relating to Freedom of Information (FOI) and transparency. We are now working with the Higher Education sector to take forward the general recommendations in report. I attach a note of a recent meeting I attended

with senior members of the HE community (29 September), hosted by Universities UK. The meeting was constructive with a good exchange of views on both sides, and a commitment to improve dialogue between the ICO and the sector and look at a number of issues arising from compliance with the legislation in the HE sector.

Around of the time of Muir Russell report I also issued a section 50 decision notice (FER0238017)<sup>9</sup> related to the University of East Anglia's compliance with a particular series of FOI requests from one applicant. Further section 50 cases remain under consideration by my office.

Since the Muir Russell report was published we have also met with the Vice Chancellor and Registrar of UEA to discuss the specific recommendations related to compliance with the Freedom of Information and Environmental Information Regulations (EIR) at the university. We were generally impressed by the processes in place and actions taken to improve the culture related to FOI and EIR. There are some areas where we agreed improvements can still be made and discussions are ongoing about how we will take this forward.

*Christopher Graham*  
Information Commissioner

21 October 2010

## APPENDIX

### ROUNDTABLE MEETING BETWEEN INFORMATION COMMISSIONER'S OFFICE AND HIGHER EDUCATION SECTOR TO DISCUSS THE IMPLICATIONS OF FREEDOM OF INFORMATION FOR THE SECTOR

29 SEPTEMBER 2010, WOBURN HOUSE CONFERENCE CENTRE, LONDON

#### NOTE OF MEETING

##### *Attending*

- Professor David Eastwood, Vice-Chancellor, University of Birmingham (Chair)
- Christopher Graham, Information Commissioner
- Professor Janet Beer, Vice-Chancellor, Oxford Brookes University
- Professor Peter Gregson, Vice-Chancellor, Queen's University, Belfast
- Mr Nigel Babb, Director of Strategic Developments, University of Wolverhampton
- Mr Steve Bailey, Senior Adviser, JISC InfoNet
- Ms Helen Bowles, Policy Adviser and Deputy CEO, GuildHE
- Mr Ian Creagh, Head of Administration and College Secretary, King's College London
- Mr Roger Gair, University Secretary, University of Leeds
- Mr Paul Gemmill, Director of Communications and Information Management, Biotechnology and Biological Science Research Council, representing Research Councils UK
- Mr David Evans, Strategic Liaison Unit, Information Commissioner's Office
- Dr Michael Jubb, Director, Research Information Network
- Professor Roger Kain, Dean and Chief Executive, School of Advanced Study, University of London
- Ms Olivia Kew-Fickus, Assistant Registrar, University of Birmingham (Rapporteur)
- Mr Rex Knight, Vice-Provost (Operations), University College London, representing the Association of Heads of University Administration
- Professor Kerstin Mey, Director, Department for Research and Enterprise, University for the Creative Arts
- Ms Julie Tam, Senior Policy Analyst, Russell Group
- Professor Tom Ward, Pro-Vice-Chancellor (Academic), University of East Anglia
- Mr Steve Wood, Head of Policy Delivery, Information Commissioner's Office

##### *Background*

The Independent Climate Change E-Mails Review ("Muir Russell Report"), released in July 2010, recommended that the Information Commissioner's Office (ICO) and the Higher Education (HE) Sector re-engaged with each other around the Freedom of Information Act 2000 (FOIA) and the Environmental Information Regulations 2004 (EIR).

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<sup>9</sup> [http://www.ico.gov.uk/media/documents/decisionnotices/2010/FER\\_0238017.ashx](http://www.ico.gov.uk/media/documents/decisionnotices/2010/FER_0238017.ashx)

Following a preliminary meeting on 22 July 2010 between the ICO and representatives from the HE Sector, it was agreed to organise a sector/ICO roundtable to kick off work towards enhanced guidance for the sector on working within the FOIA and EIR.

The meeting on 29 September was that roundtable, brought together by Universities UK (UUK) under the chairmanship of Professor David Eastwood, who had volunteered for this role. The individuals invited were selected to ensure representation from a cross-section of universities and sector organisations with an interest in this area.

The agreed agenda for the meeting focused on issues of research data, teaching materials, intellectual property rights, commercial interest and proactive dissemination. Three cases were highlighted as of particular concern to the sector: the “climate e-mails” case from the University of East Anglia (UEA) which were the subject of the Muir Russell Report; a decision with regards to releasing teaching materials from a BSc Homeopathy course from the University of Central Lancashire (UCLAN); and a decision with regards to releasing a longitudinal set of tree ring data from the Queen’s University Belfast (QUB).

### *Discussion*

All parties welcomed the opportunity to begin a dialogue about the HE sector and freedom of information.

SW from the ICO provided a summary of the three cases of most concern to the sector. In particular he focused his comments on areas of further action and key learning points from these cases.

Further to this summary, DE opened the floor. The resultant discussion covered all the topics listed for discussion in the agenda.

During this discussion, the ICO representatives made a number of germane points.

- Role of the ICO
  - The ICO is a regulator which implements and does not make the law. The ICO’s role is to ensure that institutions which the law defines as “public authorities”, which for the purposes of this law include all universities receiving public funding, adhere to the letter and the spirit of the law as written. The ICO can also work with the sector to assist it in understanding the implications of the law, including both its requirements and the protections it already affords.
  - The assumption of the FOIA and EIR is for release of information. Where a public authority believes information should be exempt from disclosure under the Act and that such disclosure would be against the public interest and the onus is on the public authority to make the case for rejecting a request. The ICO will rule based on the case put forward by the public authority; it will not make the case for the public authority.
- Case-by-case approach
  - Each case which comes before the ICO and the Information Tribunal (IT) is considered on its own merits, and it is difficult to draw blanket inferences from previous cases. The ICO urges public authorities to consider carefully the specifics of each case, rather than trying to construct a case to reject a request based on general principles or assertions.
  - Public authorities should respond to cases brought to the ICO or the IT in a timely and considered manner. Universities should deploy their strongest and best arguments at the earliest possible stage in the process.
- Competitive market and commercial interests
  - The ICO recognises that universities operate in a global competitive context which may be different from the context of other organisations affected by FOIA and EIR.
  - The ICO accepts the finding of the Information Tribunal (IT) in the UCLAN case that universities can have commercial interests, not just financial interests.
  - The existence of a commercial interest or competitive environment alone is not enough to warrant exemption from release of information such as teaching materials. Decisions are made on a case-by-case basis, and universities must demonstrate the reality of potential commercial harm to them in each case by release of such information.

<sup>10</sup> Independent Climate Change E-mails Review Report (2010), pp 94–95 in particular. The US “Shelby Amendment” in 1998 required all data produced under federally funded research to be made available under the US Freedom of Information Act. After discussion with the scientific community, the final guidelines gave a precise definition of “research data” as “*the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues*”.

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- Research data and IPR
    - There is no definition of “research data” currently in the law. The Muir Russell report encourages the ICO to look at the US example in this area, including the “Shelby amendment”.<sup>11</sup> The ICO has investigated this, but the example itself is not straightforward due to the complex federal legislative environment in the US. Additionally, any change along these lines would require a change to the primary legislation. Currently, any information held by a university (including laboratory notebooks, simulations, etc.) is subject to the FOIA/EIR.
    - The ICO acknowledged that further work needed to be done around understanding IPR as it resides in research data, and SW confirmed that his team has already begun to explore this question.
  - Existing protections within the law: their potential and limitations
    - Several exemptions weigh the public’s right to know against the public authority’s interest in not releasing information, and judgement calls must be made in cases using these exemptions. Universities should recognise that the outcome of certain cases may be strongly influenced by the public’s right to know about the subject matter in question.
    - There are acknowledged tensions between the Data Protection Act (DPA) and the FOIA/EIR. The onus is on the public authority to implement the requisite checks and controls to ensure that DPA is not breached by release of information under FOIA/EIR.
    - Conclusive proof does not exist around the alleged “chilling effect” of FOIA/EIR around management discussions. In some instances it is possible to use s 36 of FOIA (“prejudice to the effective conduct of public affairs”) to avoid release of information pertinent to live and sensitive management discussions, although there must be judgement calls made about when a discussion moves from “live and sensitive” to “in the past” when disclosure of the information should be made.
    - The Muir Russell report suggests that there may be better strategies for universities to cope with sustained campaigns of the sort UEA experienced. The ICO would like to work with universities around this area.
    - Further discussions may also be useful to elaborate what is covered by s 22 of FOIA (“intent to publish”) within the academic context.
    - The law assumes that information being released under FOIA and EIR is going into the public domain, so the identity of the individual requesting the information is not pertinent to any decision around release of information. Information released under the FOIA or EIR is subject to and protected by existing Copyright laws.
  - Sector initiatives
    - The sector has an existing initiative to openness and collaboration, as evidenced by the Open Access and Open Data agendas implemented through the research councils.
    - The ICO encouraged sector initiatives that might provide further guidance for universities around complying with FOIA and EIR in general and around specific relevant issues concerning research data and outputs and teaching materials. JISC and the Research Councils have done work in this area and greater collaboration with the ICO in this area could be productive.

DE noted the following items emerging from the discussion.

- The role and use of research data
  - The public has an interest in universities contributing to the UK’s economic and reputational standing globally. Open data-sharing at too early a stage of research could dissuade international collaborators from working with UK colleagues, which would weaken UK research and “UK plc”. It could also remove the internal incentives for researchers, resulting in less innovative research with less long-term impact.
- Lessons to draw from recent experience
  - Although there have been some recent cases which have caused concern for universities, there have been other cases where the ICO and/or the IT have upheld the universities’ arguments.
  - Universities can draw on various exemptions if they believe it is necessary to reject information requests, and they must expect that these approaches to the exemptions will be tested.

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<sup>11</sup> Independent Climate Change E-mails Review Report (2010), pp 94–95 in particular. The US “Shelby Amendment” in 1998 required all data produced under federally funded research to be made available under the US Freedom of Information Act. After discussion with the scientific community, the final guidelines gave a precise definition of “research data” as “*the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues*”.

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- Management functions versus academic functions of universities
    - While the academic core of university functions (as defined largely by research and teaching) is quite different from the core work of other “public authorities” as defined by the law, the management aspect of universities arguably has more parallels with public sector bodies. This distinction may be useful in shaping the discussion around FOI/EIR guidance for the HE sector.
  - Effective use of the existing legislation
    - Universities are increasingly expected to contribute to UK plc, as has been made explicit in recent policy speeches (eg, Vince Cable speech of 8 September 2010). Ensuring a level of protection around research data and teaching materials may be an important aspect of ensuring that universities can meet this political imperative, but it must also be established that universities are deploying effectively the full protections already existing within the law.
    - Establishing a robust publication scheme will be an element in demonstrating that universities are seeking to operate within the spirit of the law. ICO encourage sector involvement in elaborating the publication scheme. However, issues around research data and IPR must be explored in more detail before productive attention can be paid to a revised publication scheme.

### *Actions*

It was agreed to establish a working group representing the HE sector to work with the ICO in developing sector-led and sector-specific guidelines around the issues of research data, teaching materials and IPR.

After this work has been concluded, then the group might work with the ICO to inform any proposed amendments to the existing sector publication scheme in order to consider whether a framework for proactive dissemination of research data and /or teaching materials which still protected universities’ necessary interests might be feasible. Research council initiatives around open access might provide a model in these discussions.

The ICO and Universities UK, working with JISC, RIN and other key stakeholders, have agreed to take this process forward.

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### **Written evidence submitted by Andrew Montford (UEA Reviews 09)**

Your committee recently heard evidence from Lords Oxburgh and Russell and the Professors Acton and Davies. As you consider your next steps I would like to draw together in summary form some of the key features of the inquiries, which I hope you will find useful. In their evidence, several of the witnesses made highly controversial statements and I would also like to clarify some of what was said.

#### **UNDISPUTED**

As a result of the inquiries and the subsequent evidence sessions before the committee, many facts are now clear and apparently undisputed. In summary these are as follows:

1. The Oxburgh panel did not investigate the science, but only looked for evidence of dishonesty. We do not know if CRU science is a reliable basis for public policy.
2. Oxburgh told the committee that Acton’s claim that the science would be investigated was “inaccurate”.
3. Oxburgh reported that the Royal Society chose the papers for his panel to examine. This was incorrect and the list was chosen by UEA itself.
4. Oxburgh said the papers sent to the panel were chosen on the advice of the Royal Society. In fact the list was sent to panel members before any such approval had been received.
5. The Oxburgh panel did not look at CRU’s controversial work on the IPCC reports. Because of this, many of the most serious allegations were not examined.
6. Oxburgh did not look at Keenan’s fraud allegation, although the relevant paper was on the list his team was to examine. Oxburgh seemed not to have heard of Keenan.
7. None of the key CRU critics were interviewed by Oxburgh or Russell.
8. Neither of the panels gave CRU critics the opportunity to challenge evidence from CRU or others.
9. Russell did not investigate the most serious allegations—those relating to deletion of emails.

## DISPUTED

While CRU purport to dispute some of the key allegations made against them, on closer examination there is little or nothing to support the case they are making. I list below three key examples.

1. The list of papers for Oxburgh did not include any of the key multiproxy temperature reconstructions. In his evidence, Professor Davies said that he disputed this, but this claim can be shown to be false. CRU has produced three multiproxy temperature reconstructions—Jones et al 1998, Mann and Jones 2003, and Osborn and Briffa 2006. None were on the list of papers for the Oxburgh panel and Professor Davies offered no evidence to support a claim that they were.

2. McKittrick's allegation of fabrication against Jones was disputed by Russell on the grounds that the IPCC authors had other reasons why they felt McKittrick's paper was wrong. Russell presented no evidence that Jones original claim—that McKittrick's results were statistically insignificant—was supported in the peer-reviewed literature. McKittrick's claim that Jones fabricated this statement therefore stands rebutted.

3. Russell claimed to have examined Keenan's fraud allegation, but failed to mention or dispute the evidence central to Keenan's case—the Yan et al. paper that showed that the source documents behind Jones' findings did not exist.

## NO INVESTIGATION APPARENT

Several of the key allegations have not apparently been investigated at all.

1. It appears that Russell did not ascertain if CRU staff actually contacted any of the journals they discussed threatening, and if so what they said to them.

2. Russell was told that Briffa took home emails for safekeeping. Acton told the committee that this was probably because Briffa was unwell, although this contradicts the statement that his reason was "safekeeping". No further investigation appears to have been made.

3. Questions of cherry-picking of data and the use of ad-hoc adjustments to data appear to have gone largely uninvestigated.

There can be little doubt that neither the Oxburgh or the Russell panels performed their tasks in an even-handed and thorough way. Some of the most fundamental questions arising out of the East Anglia emails have yet to be addressed—an extraordinary state of affairs after so much time has passed. I believe it is vital that your committee now state plainly that the University of East Anglia has failed to properly investigate the allegations arising out of the emails, and either launch your own investigation or call upon the government to set up a formal public inquiry.

*Andrew Montford*

*22 November 2010*

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**Supplementary memorandum submitted by Douglas J Keenan (UEA Reviews 02a)**

Pursuant to the reviews of the Climatic Research Unit at the University of East Anglia, oral evidence was heard from Lord Oxburgh, on 8 September 2010, and from Sir Muir Russell, Vice Chancellor Edward Acton, and Pro Vice Chancellor Trevor Davies, on 27 October 2010. Each hearing considered the fraud allegation against CRU Professor Phil Jones. The allegation was made by me. The following describes some issues that pertain to the allegation, and proposes a means of resolution.

## THE 1990 STUDY

In 1990, the following study was published in the leading scientific journal *Nature* (note that Jones is the first author).

Jones P D, Groisman P Y, Coughlan M, Plummer N, Wang W-C, Karl T R, "Assessment of urbanization effects in time series of surface air temperature over land", *Nature*, 347: 169–172 (1990).

This study concerns an issue with measurements of global temperature. As a simple example of the issue, consider a thermometer in the middle of a large field. Suppose that there was a city nearby, and over time, the city expanded to replace the field with asphalt and buildings. Then the temperatures recorded by the thermometer would tend to be higher, because asphalt, buildings, cars, etc give off extra heat.

Many thermometers used by weather stations are in areas that have undergone urbanization. Thus, such thermometers might show temperatures going up, even if the global climate was unchanging. It is widely accepted that some of the increase in measured temperatures during the past century is due to many weather stations being located in areas where urbanization has occurred. A critical issue is this: how much of perceived global warming is due to such urbanization effects?

The latest (2007) assessment report by the Intergovernmental Panel on Climate Change considers this issue. The IPCC does not do original research itself; rather, it assesses research previously published in scientific journals. The IPCC assessment of the urbanization effects concluded that such effects are insignificant overall. One of the main studies cited by the IPCC to justify that conclusion is the 1990 study of Jones *et al.* The study of Jones *et al.* looked at urbanization effects in eastern China (as well as eastern Australia and western Russia). It found that urbanization effects there were insignificant. Eastern China has had much urbanization; so if the temperature measurements from there were essentially unaffected by urbanization, then that would suggest the temperatures records from other countries around the world were also little affected, in general. Hence urbanization effects are probably insignificant globally.

The study of Jones *et al.* is not the sole study relied upon by the IPCC report for its conclusion about the global insignificance of the urbanization effects. Hence even if the study were wholly invalidated, that would not imply that the conclusion was unsupported. On the other hand, arguments made in some of the other main studies have been strongly criticized (both in the peer-reviewed literature and on scholarly blogs). The Russell report rightly states that the study of Jones *et al.* “is important”.

#### FRAUDULENT CLAIMS

A problem with analyzing temperature measurements from weather stations is that the stations sometimes move, and that can affect the measurements. For example, one of the stations used in the 1990 study was originally located upwind of a city and later moved, 25 km, to be downwind of the city; such a move would be expected to increase the measured temperatures, because a city generates heat. It is obvious that when a station moves, the temperature measurements from before the move are not, in general, directly comparable with the measurements from after the move.

The 1990 study of Jones *et al.* claims that the weather stations that were studied “were selected on the basis of station history: we chose those with few, if any, changes in instrumentation, location or observation times”. That claim is essential for the study.

Jones *et al.* asserted that they obtained the Chinese data from a report that was jointly published by the U.S. Department of Energy and the Chinese Academy of Sciences. The DOE/CAS report states that its purpose is to present “the most comprehensive, long-term instrumental Chinese climate data presently available”. The report also states, though, that for a majority of the stations studied by Jones *et al.*, “station histories are not currently available” and “details regarding instrumentation, collection methods, changes in station location or observing times . . . are not known”. For a minority of the stations, histories are available: over half of those had substantial moves. Thus, there is strong evidence that the claim of Jones *et al.* to have selected stations on the basis of their histories is fraudulent.

Potential problems with the claim of Jones *et al.* were first raised on the Climate Audit blog of Steve McIntyre. I subsequently investigated. It became clear that fraud had occurred, but that Phil Jones was innocent: the evidence strongly indicates that, for the Chinese data, Jones trusted and relied upon one of his co-authors, Wei-Chyung Wang.

Wang is a professor at the State University of New York at Albany. In 2007, I filed a formal allegation of research fraud with the University. Details are given in a peer-reviewed article that I published in the journal *Energy & Environment* (2007), entitled “The fraud allegation against some climatic research of Wei-Chyung Wang”. The University conducted an investigation, which concluded that Wang was not guilty. There were, however, serious procedural irregularities during the investigation. For example, I was not contacted during the investigation: a breach of the University’s own policies, U.S. federal regulations, and obvious natural justice. Moreover, when asked to produce the station histories, Wang claimed, in effect, that he had plagiarized the work and that the person from whom he had plagiarized had since lost the information; yet the university ignored the admission of plagiarism. Details are on my web site, at [www.informath.org/apprise/a5620.htm](http://www.informath.org/apprise/a5620.htm).

The U.S. Congress’ Committee on Oversight and Government Reform has contacted me about the irregularities in the investigation. In November 2010, the Committee informed me that it is considering whether to investigate the matter. Final status of the allegation against Wang thus remains to be decided.

#### IPCC MISREPRESENTATION

Although Jones was innocent in 1990, he was no longer so by 2001, when the following research paper was published (note that Jones is one of the authors).

Yan Z, Yang C, Jones P, “Influence of inhomogeneity on the estimation of mean and extreme temperature trends in Beijing and Shanghai”, *Advances in Atmospheric Sciences*, 18: 309–321 (2001).

The paper of Yan *et al.* studied two weather stations, one in Beijing and one in Shanghai. The Beijing station had five locations spread over 41 km. The Shanghai station had only a single move, but that move caused a *doubling* of the long-term warming trend there (according to Yan *et al.*). The station movements imply that the temperature measurements from the stations cannot be directly used in analysis, as discussed above. Yet the measurements had been used in the analysis of Jones *et al.* (1990). And given that this problem arose for both the stations that were studied by Yan *et al.*, then it must be suspected for at least some of the other stations used in 1990.

Thus, by 2001, Jones must have known that the 1990 study should not be relied upon. As the lead author of the 1990 study, Jones should have then tried to have had the study retracted: it is clear that that is the ethical thing to do. Indeed, the UK Research Integrity Office now has guidelines stating that a retraction may be necessary “when there is clear evidence that the reported findings are unreliable, either as a result of misconduct, such as fabrication of data, or honest error, for example, miscalculation or experimental error”. Jones, however, did not try to have the 1990 study retracted.

In 2007, the IPCC published its most-recent assessment report on climate change. The IPCC reports are widely considered to be the most authoritative assessment of the science of global warming. For the 2007 report, there were two scientists with final responsibility for the chapter in the report on “surface and atmospheric climate change” (here “surface” refers to the surface of the Earth, ie where people live). Those two were Phil Jones and an American colleague, Kevin Trenberth.

The chapter of Jones & Trenberth cites the 1990 study for its assessment of the issue of urbanization effects. Thus, in 2007, Jones was responsible for having the IPCC cite the 1990 study even though he knew that the study should not be relied upon. This constitutes fraud—fraud in the writing of the most important reference that there is on global-warming science.

On 19 June 2007, I e-mailed Jones about this, citing Yan *et al* and saying “this proves that you knew there were serious problems with Wang’s claims back in 2001; yet some of your work since then has continued to rely on those claims, most notably in the latest report from the IPCC”. I politely requested an explanation. I did not receive a reply.

In August 2007, I submitted a draft of my article on these allegations to the journal *Energy & Environment*. The journal editor then sent the draft to Jones. Jones replied with many comments, but he did not attempt to rebut the allegation against him.

On 2 February 2010, in the wake of Climategate, *The Guardian* published a front-page story that reported on my allegations. *The Guardian* is a major advocate for global warming; yet the report was highly positive. The story was re-reported around the world. Later that day, the University of East Anglia issued a press release to clarify some issues. Yet the press release did not attempt to rebut the allegation.

Jones has never publicly attempted to deny the fraud allegation against him.

Note that the allegation against Jones is separate from the allegation against Wang. The allegation against Wang relies on the DOE/CAS report. The allegation against Jones is independent of that and relies on the paper of Yan *et al*.

#### THE 2008 STUDY

In 2008, Jones and two colleagues (neither of which was Wang) published a study that claimed to verify the conclusion of the 1990 study. Jones, and others, have since cited the 2008 study to argue that issues with the 1990 study are therefore immaterial.

The 2008 study, however, relies upon *the same station histories as the 1990 study*. The histories that are not extant. Indeed, Jones discussed my fraud allegation in an interview with *Nature* (published on 15 February 2010), and in the interview Jones acknowledged that the histories had been lost long ago. In the same interview, however, Jones reasserted that the 2008 study verified the conclusions of the 1990 study/which is obviously impossible.

Moreover, in 2008, Wang made a submission to the University at Albany during the university’s investigation of my allegation against him. His submission (which was leaked as part of Climategate) included a letter from a colleague in China who co-authored the DOE/CAS report. The letter stated that the relevant histories had been lost long ago. Indeed, it is manifest that if the histories were available in 2008, Wang would have produced them to defend himself.

Jones’ story about the 2008 study is plainly false. Jones changed that story in a second interview with *Nature* (published on 15 November 2010). In the second interview, Jones claimed that the histories had not been lost, but “the authorities [in China] have not released the full station-history data”. Jones’ change of story seems highly suspicious. Moreover, the changed story has a problem: what reason do the authorities have for not releasing the histories? The histories are not state secrets; their release, if they were extant, would benefit science; and CAS undertook a project with DOE to publish them.

#### OXBURGH AND RUSSELL PANELS

The Oxburgh panel had, as its remit, to assess the integrity of work done at CRU. The allegation that I made against Jones is the sole explicit allegation of fraud that has been made against anyone at CRU. Yet the report of the Oxburgh panel does not consider the allegation. Indeed, Lord Oxburgh stated, when giving oral evidence to the Committee on 8 September 2010, that he did not recall looking at the allegation.

The Russell panel did consider the allegation: Section 6.6 of their report is devoted to this. Neither that section nor any other section of their report, however, cites Yan *et al.* In other words, the Russell panel did not consider the evidence for the allegation.

The Russell panel claimed, though, that the 2008 study by Jones *et al.* “verified the original conclusions for the Chinese data”. As discussed above, this claim is extremely dubious. Additionally, my allegation is that Jones committed fraud. The allegation does not concern the validity, or otherwise, of the 1990 conclusions. If those conclusions were invalid, that might potentially have consequences for global-warming science, but it is of little consequence for the central issue: the integrity of Jones’ research.

The panel further claimed that Wang being found not guilty by the University at Albany implied that Jones was not guilty. As discussed above, the allegation against Wang is independent of the allegation against Jones.

It is also notable that the Russell panel had, in its remit, the investigation of e-mails that were released in Climategate and that three of those e-mails included copies of my e-mail to Jones on 19 June 2007, which cited Yan *et al.* and requested for an explanation for his actions (the e-mails were #1182342470, #1182346299, #1182361058). If every member of the Russell panel read all the Climategate e-mails, as Sir Muir asserted in his oral evidence to the Committee on 27 October 2010, then surely they would have seen the reference to Yan *et al.* That is particularly so given the publicity that my e-mail to Jones received. For example, the Associated Press had a report on the Climategate e-mails in December 2009. That report highlighted my e-mail to Jones as one of the most significant (though regarding Wang rather than Jones). The report was apparently published in over 1000 newspapers around the world, often of the front page. A Climategate e-mail given that much publicity would be expected to have gotten the attention of a panel investigating the Climategate e-mails.

#### CONCLUSIONS

From this summary account, two main conclusions emerge. First, there is good evidence to support the allegation that Jones committed fraud in some of his research—including research which influenced a chapter of the principal report upon which governments rely for a scientific assessment of global warming. Second, the evidence for the allegation was not considered by either the Oxburgh panel or the Russell panel; indeed, it has not been properly investigated by any competent and authorized body.

It would be much in the public interest if the Committee were to commission an investigation.

If there is to be an investigation, I believe that this should not be undertaken by a scientist or other academic: because scientists generally seem to be reluctant to find one of their own guilty. As evidence, consider that there are tens of thousands of non-medical scientists in the UK; yet in the past quarter century, there do not seem to have been any convictions for fraud. Such a record is not credible: even among much smaller groups of highly respected people/police detectives, Catholic priests, members of parliament—frauds do occur. The evidence against Jones can be understood without scientific training. If there is to be an investigation, then, I suggest that it be undertaken by someone skilled in the rules of evidence, such as a senior judge or barrister.

*Douglas J Keenan*

*1 December 2010*

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#### Supplementary memorandum submitted by David Holland (UEA Reviews 01b)

##### TAMPERING WITH EVIDENCE BY THE RUSSELL REVIEW

###### MY EARLIER CORRESPONDENCE

I regret the need to write again to your Committee with a further and far more serious allegation of deliberate misconduct by the Review Team looking into the leaked UEA emails chaired by Sir Muir Russell. This arises from what was released by UEA on 19 November 2010 in response to a Freedom of Information request that I had made on 22 October 2010, shortly before your last evidence hearing at which Sir Muir claimed, in relation to my submission:

“But I think the substance of the issues has all been dealt with. The team went into that pretty carefully.”

With my letter to the Committee of 3 September 2010, I had provided a copy of the letter of complaint, which I had sent to Sir Muir Russell. His Review had refused to publish my submission to it, citing legal concerns, which they refused to detail beyond, “as it makes references to, and comments upon, a large number of individuals”. The review also refused to publish an alternate summary letter because I would not allow it to redact the two paragraphs which, without mentioning any names, summarised my allegations.

Sir Muir responded on 6 September 2010 indicating that he would reply to my letter on return from his holiday—but has not. In my letter to Sir Muir I had pointed out that despite his Review insisting that, “there would be a significant risk of legal action if your submission is published in whole or in part on the Review

website”, a speciously edited part of it was indeed published at the Review website as the Annex to the reply of Professor Briffa and Dr Osborn (B&O) to a letter from Professor Boulton dated 6 May 2010. B&O’s reply is available here:

[http://www.cce-review.org/evidence/6 May Briffa Osborn response.pdf](http://www.cce-review.org/evidence/6%20May%20Briffa%20Osborn%20response.pdf)

My original submission is available here:

<http://tinyurl.com/2656ppl>

#### THE B&O ANNEX AND ITS FALSEHOOD

Although the recent release from UEA shows that B&O’s reply to Boulton was emailed to Russell, Boulton and Hardie on 19 May 2007, the “properties” of the pdf file at the Review website indicate that it was modified 10 minutes before midday on 7 July 2010 and was, therefore, unlikely to have been published before the Review Report. B&O’s evidence is incorrectly referenced in the Report of the Review and in its byzantine evidence pages. I only came across it by accident.

Less than a quarter of my submission is shown in B&O’s Annex. The background context and evidence is almost wholly omitted effectively leaving only the bare allegations, to which unsurprisingly B&O’s rebuttal seems reasonable to the uninformed. In doing so B&O make a significant statement relating to my submission which is false and which, if they had access to my original submission—as Sir Muir Russell told your Committee they did—they would know was false. They say of a reference in my paragraph 45 to a sentence “put in parentheses above”, that my statement “it is in error”. It is not in error. The error—if that is what it is—is that my previous paragraph is omitted as anyone could see from the paragraph numbers. Clearly the “rigour and honesty” of B&O, as the Review Report puts it, is in considerable doubt.

#### THE “RIGOUR AND HONESTY” OF THE RUSSELL REVIEW

If B&O’s Annex casts doubt on the rigour and honesty of its authors what does this say for the Review itself? I watched and heard Sir Muir tell you “the team went into that pretty carefully”. I also emailed my concerns to the two Review Team members, who are Fellows of the Institution to which I have belonged for nearly 50 years, and are bound by a Rule of Conduct to “exemplify professional behaviour generally and specifically in their relationships with the Institution, its employees and their fellow members.” The only response I have elicited is:

“I can confirm that all submissions were read by all the Review Team’s members.”

Clearly if we are to believe the Review Team they would know how comprehensive my submission to them was, and how inconsequential were those parts of it to which B&O responded. Had all of them read both the original and the emasculated version in B&O’s Annex, as it is claimed, could they all have failed to notice that Paragraph 44 was missing from B&O’s version and that B&O’s response to paragraph 45 was untrue and grossly unfair to me?

#### UEA FOI\_10-122; EIR\_10-16

There were obviously unanswered questions and having had little success with the Review team I asked a number of questions of the University of East Anglia, who I am pleased to say now seem to be handling information requests in accordance with best practice even if they do not always release all that I think they should. The request and their responses are available here:

[http://www.whatdotheyknow.com/request/outstanding\\_questions\\_regarding#incoming-131775](http://www.whatdotheyknow.com/request/outstanding_questions_regarding#incoming-131775)

#### WHO AT UEA SAW MY ORIGINAL SUBMISSION?

Among other things, I asked UEA to tell me who at the University had access to the submission that I had made to the Russell Review. You will recall that Sir Muir Russell told you:

“Yes, and you will see that Mr Holland’s recent comments do acknowledge that in fact Briffa and colleagues saw his submission and commented on it.”

From this one might have concluded, as one would indeed have expected, that the Russell Review would have sent it to the UEA individuals named, Briffa 43 times, Jones 32 times, and Osborn 7 times. I would also have expect the Vice Chancellor to have insisted upon seeing exactly what his staff were being accused of.

Initially UEA responded:

“The University never received directly a copy of your submission to the Russell Review. We only had access to the information included with Prof. Boulton’s letter to Keith Briffa.”

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#### BOULTON'S ANNEX SHOWS THAT B&O HAD MY SUBMISSION

I had also requested a copy of the of the Annex that had been sent by Professor Boulton for Briffa to answer. UEA disclosed it and it is available here:

<http://tinyurl.com/35flw4j>

Although Boulton's Annex contained exactly the same text character as the B&O's Annex, it did not contain any of my paragraph numbers or references, whereas in B&O's Annex, all the references and, with one minor error, all the paragraph numbers were correctly shown. This alone meant that it was impossible for B&O not to have had access to my submission and, no doubt after noticing the Internet discussions on the matter, UEA issued a correction:

"This is incorrect due to a misunderstanding on my part. While the University itself did not receive a copy of your submission from Muir Russell, Professor Keith Briffa acquired a full copy of your submission by way of a request made to you by a third party."

#### THE RUSSELL REVIEW EMASCULATED MY SUBMISSION

Thus, and assuming that Boulton's letter to Briffa was copied to his fellow team members, the entire Russell Review team were aware of and acquiesced in the emasculation of my submission. Recall that the Review had told me that it might face legal action if my "submission is published in whole or in part on the Review website". Recall also that Sir Muir had told you:

"The only issue, I think, turns on whether the full submission was appropriate to publish, given some elements of the terms in which it was written."

It may of course be that the Review had promised someone that my submission would not be published and indeed if you examine Boulton's Annex it does not look remotely like mine. In addition to the most important evidence being missing, being less than a quarter in length, and stripped of paragraph numbers and references, in Boulton's Annex seven of my paragraph breaks had been removed and one, not in my original submission, had been added. This could not conceivably be accidental and I can not think of a proper reason for having done this or for the other team members to have agreed to it. It is no exaggeration to say that it is scandalous.

#### B&O PARTLY RESTORE MY SUBMISSION

A question of some importance is whether B&O added into Boulton's Annex the paragraph numbers and references that had been stripped out and put back the paragraph breaks to where they originally were—or removed from my original submission exactly what Boulton had. Of the two approaches I think the latter is easier, and would also answer the other question of why on earth would they want to do it, given the "get out of jail free card" that Boulton's Annex was. The first paragraph of page 2 of B&O's evidence submission also suggests the latter.

The questions are important, as is why would Boulton have spent the time to mess about with the paragraphs anyway? The answer may lie in the only paragraph break that B&O do not correct in their version of Boulton's version of my submission. In paragraph 42, not only did Boulton remove the paragraph break at the end of it in my text, but also the double quote mark (") that began the next. Why this would be of great advantage to B&O's reply is explained in detail in a document in which I have identified, within my full submission, that text upon which B&O were invited to comment, and added B&O's rebuttal comments and my replies and observations. It is available at:

<http://tinyurl.com/374ncm4>

#### B&O'S RESPONSES IN FULL CONTEXT WITH MY REPLIES

When B&O's responses to my emasculated submission are considered in the context of my original submission and my responses to them are taken into account, I believe most objective observers will conclude that neither B&O nor the Russell Review have begun to answer the allegation that I made.

#### CONCLUSION

I feel sure that many who witnessed the public evidence sessions you and your predecessor Committee held on Climategate are left with the feeling, as my MP Mr Boswell, hypothetically, put it that "something fishy was going on". The reputation of UEA, and more importantly British Science, and even more importantly the British tradition of natural justice will not be restored so long as the Russell Review remains free from the criticism of your Committee for its scandalous lack of rigour and honesty in dealing with my submission.

*David Holland MIET*

*9 December 2010*

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## Notes submitted by Graham Stringer MP (UEA Reviews 10)

INPUT FOR THE CRU REVIEW: M J KELLY 25.111.10

COMMENTS ON BRIFFA PAPERS (NOS 2–6 ON LIST)

*Initial Response after First Reading:* (will reread and comment on each)

All papers are involved with trying to extract past climate information from tree-ring data. There are two stages in this, the first trying to take the raw data and remove features that have their origin outside what is known or thought to be relevant, such as that older trees tend to grow more slowly. At this stage the choice of initial data accepted is also important. Because of other factors (precipitation, hours of sunlight, attitude (north facing etc)) all have a bearing on tree growth whatever the climate, trees are used only from high latitudes and near the tree-line where any actual climate dependence is likely to be more prominent. The second stage is to try to extract climatic inferences from this suitably prepared input data.

My overriding impression that this is a continuing and valiant attempt via a variety of statistical methods to find possible signals in very noisy and patchy data when several confounding factors may be at play in varying ways throughout the data. It would take an expert in statistics to comment on the appropriateness of the various techniques as they are used. The descriptions are couched within an internal language of dendrochronology, and require some patience to try and understand.

There is no evidence, as far as I am concerned, of anything other than a straightforward scientific exercise within the confines described above. The papers are full of suitable qualifications about the limitations of the data and the strength of the inferences to be drawn from them. I find no evidence of blatant mal-practice. That is not to say that, working within the current paradigm, choices of data and analysis approach might be made in order to strain to get more out of the data than a dispassionate analysis might permit.

There are however some more detailed qualifications:

- (i) I take real exception to having simulation runs described as experiments (without at least the qualification of “computer” experiments). It does a disservice to centuries of real experimentation and allows simulations output to be considered as real data. This last is a very serious matter, as it can lead to the idea that real “real data” might be wrong simply because it disagrees with the models! That is turning centuries of science on its head.
- (ii) The reading of the papers was made rather harder by the quality of the diagrams, and the description of the vertical axes on a number of graphs. When numbers on the vertical axis go from  $-2$  to  $+2$  without being explicitly labelled as percentage deviations, temperature excursions, or scaled correlation coefficients, there is potential for confusion.
- (iii) I think it is easy to see how peer review within tight networks can allow new orthodoxies to appear and get established that would not happen if papers were written for and peer-reviewed by a wider audience. I have seen it happen elsewhere. This finding may indeed be an important outcome of the present review.

*More detailed comments on the Briffa papers, by paper, on a second reading:*

(2) “Reduced sensitivity of recent tree-growth to temperatures at high northern latitudes”, K R Briffa *et al*, *Nature* 391 678–82 (1998)

This is a short contribution to the “divergence debate”. Samples are taken from 300 sites, although there is no hard-and-fast rule that is used to discriminate what is and what is not included. A range of statistical analyses are done, with particular correlations ranging from 34% to 85% (with average 60%) in the period 1881–1960 which drop by about 20% when the period is extended to 1881–1981. To an untrained eye, the raw data is very noisy, and even then the raw data has been detrended of age-trends in individual trees, and the subsequent data is scaled to have zero average and unit variance over the time period before being plotted. This means that correlations can only be qualitative and temporal. A variety of suggestions are made for the growing divergence of the tree-ring and the instrumental record over the last 50 years, each of which could be convolved in the data further back, but no one thing is concluded to be the primary cause. While it may be a laudable intent to make these correlations, it would be easy to remain sceptical as to their real value, and especially if one tried to make and insist upon quantitative conclusions.

(3) “Trees tell of past climates: but are they speaking less clearly today”, K R Briffa *et al*, *Phil Trans Roy Soc London B* 353 65–73 (1998)

This is a longer version of the previous paper. “Inferring the details of past climate variability from tree-ring data remains a largely empirical exercise, but one that goes hand-in-hand with the development of techniques that seek to identify and isolate the confounding influence of local and larger-scale non-climatic factors.” Figure 2 shows dramatic differences in long time-scale temperature information reconstructed from the same tree-ring data using two different techniques to removed localized age biases/they differ by a factor of five in scale! Because the one with the larger excursion retains greater long-time-scale changes, (eg the medieval warm period and the little ice age) it is regarded as superior. I remain worried about how the actual absolute scale of temperature excursion is decided upon, as shown in Figure 3. Figure 5 has no vertical axis description: it says it is a plot of standardised anomalies, but it has an average of  $-0.3$  and a standard deviation of 1.1, but what? Section 5 raises the “divergence” issue. Section 6 looks at basal area increments

and maximum density, showing that the former rises linearly from 1850 to 1950 and flattens, while the latter is flat from 1850 to 1950 and then falls. It is hard directly to correlate this aspect with the anthropogenic hypothesis of climate warming. Some features do correlate—others don't—so where is the rigorous test of the significance of correlation or lack of it?

(4) “Annual climate variability in the Holocene: interpreting the message of ancient trees”, K R Briffa, *Quaternary Sciences Reviews* 19 87–105 (2000)

This is a major paper reviewing and updating his work over the 1990s. Referring to dendroclimatology supporting the notion that the last 100 years have been unusually warm in the context of the last 2000 years, Briffa says: “However, this evidence should not be considered unequivocal.” He also states “The interrelationships between large-scale patterns of temperature, precipitation and atmospheric pressure variability also mean that networks of climate sensitive tree-ring chronologies can be used to make statistical inferences about the past behaviour of circulation patterns or important circulation indices.” The Figure 1 shows several selected reconstructions of summer temperatures over the last 2,000 years. I am not sure just how the vertical scale (temperature) is calibrated, other perhaps (but not stated explicitly) than by correlation with the recent instrument record. I have trouble with the vertical axis of Figure 3, relating to moisture reconstructions. The major sections 3 and 4 of this paper work to reconstruct the major circulation patterns in the northern and southern hemisphere in so far as this can be done from tree-ring data. In terms of a chronology of events (eg volcanic eruptions) there are some correlations, but the actual excursions of temperature etc are less convincing. He points out the need for more data from the Himalayas and other regions. He also points out that the 20th century data seems anomalous, and speculates on what is happening, but does not conclude why it is happening.

(5) “Low-frequency temperature variations from a northern tree-ring density set” K R Briffa *et al*, *Journal of Geophysical Research* 106 2929–41 (2001)

This paper uses a new statistical technique “age band decomposition” to examine northern hemisphere climate change over the last 600 years with the intent of preserving some of the longer-timescale variability that is lost by other techniques. The reconstruction results in generally lower temperatures for earlier times, notably the 17th century, but the northern Siberia had 15th century summers warmer than those in the 20th century. The Figure 1 shows the full gamut of raw data which is described as climate signal + age signal + noise, and what happens when all the data from trees that are 21–40 and 51–70 years old are averaged, and then combined. This is yet another technique for detecting a weak signal in noisy and patchy data. Plate 2 contains averaged data from nine different regions, and there is really not much inter-correlation signifying either short events or multidecadal events. Further on, plate 4 shows a range of reconstructions compatible with the same input data, and while results from 1700 to 1950 look mutually consistent, the results before then or after are certainly not. Their plate 3 is an often quoted diagram of six large-scale reconstructions, with a standard deviation of 0.1C variability at 1900, increasing to 0.3C at 1700.

(6) “Trends in recent temperature and radial tree growth spanning 2000 years across northwest Eurasia”, K R Briffa *et al*, *Phil Trans R Soc B* 363 2271–84 (2008)

The first sentence of the text refers to climate model experiments, which offends me! This more recent paper looks at regional reconstructions over the last 2,000 years, showing strong regional variations. “A set of long tree-ring chronologies provides empirical evidence of association between inter-annual tree growth and local, primarily summer, temperature variability at each location. These data show no evidence for the recent breakdown in this association as has been found at other high-latitude Northern Hemisphere locations.” That means, there is no divergence here! Yet another technique, Kendall's concordance, is used to “show strong evidence that the extent of recent widespread warming across northwest Eurasia, with respect to 100- to 200- year trends, is unprecedented in the last 2,000 years.” This involves data from three regions, Fennoscandia, Yamal and Avam-Taimyr. Many of the vertical scales are described as “index values” so that the chronologies can show events but the absolute excursion amplitudes of any parameters are not calibrated. Figure 5 show that the various trend parameters and means show that the observations that are two or more standard deviations positive are mainly from 1900–1946. In section 5 it is shown how correlation plots between the regional curve standardized chronologies and (i) monthly mean temperatures over 1950–1994 and (ii) a sequence of temperatures averaged over successive periods of five days. In the final section, one reads: “These results are superficially consistent with the expected patterns of increasing high-latitude warming suggested by GCM simulations of possible future climates under enhanced atmospheric GHG emissions. However, a simple analysis of one such experiment, under natural and GHG forcing for the last 250 years, while showing consistently increasing concordance between simulated temperatures in the regions of our chronologies, failed to produce results that could be distinguished from the results of a similar experiment driven only with natural (ie nonanthropogenic) forcings.” The line between positive conclusions and the null hypothesis is very fine in my book.

## COMMENTS ON JONES PAPERS (7–9) 25.III.10

(7) “Hemispheric and Large-scale surface air temperature variations: an extensive revision and an update to 2001”, P D Jones et A Moberg, *Journal of Climate* 16 209–223 (2003)

The title describes the contents. Section 2 focuses on data, section 3 on interpolation onto a grid, section 4 analyses the land data and section 5 looks at combined marine and land data. I worry about the sheer range and the ad hoc/subjective nature of all the adjustments, homogenisations etc of the raw data from different places. If Australia changes its way of calculating average temperature (from the average of max and min daily temperatures to a hourly or three-hourly average of the data) and get a  $-0.2\text{C}$  change, how representative is that change over the times before and after the switch in method of calculation? What if some of the eliminated outliers are genuine? There is plenty of openness about the limitations of the data. There is no evidence of overt scientific malpractice. That is not to absolve the authors of conscious or unconscious bias in making all the choices referred to above.

(8) “Northern Hemisphere surface air temperature variations: 1851–1984”, P D Jones *et al*, *Journal of Climate and Applied Meteorology* 25, 161–179 (1986a)

An attempt to get a database of 5(lat)x10(long) gridded temperature time series for the Northern Hemisphere over the period given. A long section 2 deals with inhomogeneity in the data and changes in the way data is calculated and presented, and urban heat island effects. Section 3 assesses the homogeneity of the data, and 4 presents the homogeneity results. Section 5 grids the temperatures data, 6 compares the results with other sources, 7 is concerned with incomplete data in earlier years, and 8 draws conclusions. All this happens before the latest concerns about rising temperature, so the main point of note was that 1921–1984 was  $0.4\text{C}$  warmer than 1851–1920!

(9) “Southern Hemisphere surface air temperature variations: 1851–1984”, P D Jones *et al*, *Journal of Climate and Applied Meteorology* 25, 1213–1230 (1986b)

An attempt to get a database of 5(lat)x10(long) gridded temperature time series for the Southern Hemisphere over the period given, a companion and complement to the previous paper. Section 2 deals with the previous work, which is scarce and not as well characterised as for the NH. The section 3 deals with the data, its homogenization and gridding, section 4 discusses the effects of incomplete data. Section 5 deals with the results under headings such as comparisons with other temperature estimates, high-latitude and low latitude links, interhemisphere comparisons and temperature trends. Section 6 concludes. I am concerned about section 4: only 27% of the area is covered by land or adjacent land. Then there are correlations within models by selecting subsets of data showing downward trends as the “distance” in time increases. I would be surprised at anything else. The handling of Antarctica is crude. Section 5c points out a number of correlations, and concludes that fluctuations in the NHT data do not need to be heeded too much. Even though only a few months later in submission there is a big change in emphasis on the global warming implications, showing no hint of significant cooling anywhere in the southern hemisphere. In neither of these papers is there any overt malpractice, but one can’t eliminate the possibility of conscious or unconscious bias in the choices of data. I just do wonder if a different hypothesis was being tested whether the same approach could give a very different answer.

*Subsequent thoughts:*

(1) My second reading reinforces my initial observations and concerns.

(2) On a personal note, I chose to study the theory of condensed matter physics, as opposed to cosmology, precisely on the grounds that I could systematically control and vary the boundary conditions of my object of study as an integral part of making advances. An elegant theory which does not fit good experimental data is a bad theory. Here the starting data is patchy and noisy, and the choices made are in part aesthetic, or designed to help a conclusion. rather than neutral. This all colours my attitude to the limited value of complex simulations that cannot be exhaustively tested against “real” data from independent experiments that control all but one of the variables.

(3) Up to and throughout this exercise, I have remained puzzled how the real humility of the scientists in this area, as evident in their papers, including all these here, and the talks I have heard them give, is morphed into statements of confidence at the 95% level for public consumption through the IPCC process. This does not happen in other subjects of equal importance to humanity, eg energy futures or environmental degradation or resource depletion. I can only think it is the “authority” appropriated by the IPCC itself that is the root cause.

(4) Our review takes place in a very febrile atmosphere. If we give a clean bill of health to what we regard as sound science without qualifying that very narrowly, we will be on the receiving end of justifiable criticism for exonerating what many people see as indefensible behaviour. Three of the five MIT scientists who commented in the week before Copenhagen on the leaked emails, (see <http://mitworld.mit.edu/video/730>) thought that they saw prima facie evidence of unprofessional activity.

(5) I think we should consider using the opportunity to make entirely positive recommendations that would improve the situation, such as (i) wider peer review to prevent narrow and premature orthodoxies being developed unchallenged and (ii) more effective engagement with the end-users of their findings beyond politicians and policy makers. Engineers seem more sceptical than others on the implications of the findings to date.

(6) There is late-breaking news about attempts to suborn the workings of the Journal of Geophysical Research, which I think we should examine and comment upon having heard from one of the co-authors before I was approached on this mission. See <http://icecap.us/images/uploads/McLeanetalSPPIpaper2Z-March24.pdf>

*MJK*

My overall sympathy is with Ernest Rutherford: "If your experiment needs statistics, you ought to have done a better experiment."

#### *Questions to Jones*

(1) How can we be reassured about the choice of which raw data from which stations are to be homogenised and then included in the gridded temperature data bases? Is there an algorithm that establishes the inclusion/exclusion of particular stations? If I were setting out to establish the lowest possible net temperature rise over the last century is consistent with the available data, what fraction of stations would then be included/excluded? Indeed, could the same data be "coerced" to support a null hypothesis on global warming? Incidentally, how much lower could that temperature be?

(2) What is a sceptical outsider to make of "degrees of rigour of homogenisation" of the data, and also the variety of adjustments that have to be made on an ad hoc basis? How do you ensure that adjustment of adjustments do not introduce biases that are a significant fraction of the century temperature rise?

(3) When updating database and redoing calculations, the scientific sceptics can point to adjustments of past data starting look like rewriting history (c.f. <http://wallstreetpit.com/20710-climategate-goes-back-to-1980>). How do you respond?

(4) How does the initial formation and subsequent management of the various databases compare with best practice in general, and in the sector?

(5) In presenting data and graphs, do you have a policy of always using the latest and best data, no matter what the message you are trying to convey? A 2006 Met Office diagram of central England Temperature, and not yet showing any turnover or turn down in five-year averaged temperatures was used in an official report in 2009. when data showing the turn down was already available.

(6) How, over time, have the overall results trended as more reliable data from Antarctica has been incorporated into the calculations? Has this incorporation made much difference?

(7) Given that the outputs of your work are being used to promote the largest revolution mankind has ever contemplated, do you have any sense of the extent to which the quality control and rigour of approach must be of the highest standards in clear expectation of deep scrutiny?

(8) Your critique of the paper by McLean, Freitas and Carter (2009) hinges on arcane aspects of statistical analysis, and they stand by their comments. I have recommended publication of data with a controversial explanation precisely to get the debate going. In other areas of science the best winds out by attrition: why not here?

#### *Questions to: Briffa*

(1) How can we be reassured about the choice of which raw data from which stations are to be selected, detrended and then included in the tree-ring data bases? Is there an algorithm that establishes the inclusion/exclusion? If I were setting out to establish the lowest possible net temperature rise over the last century is consistent with the available data, what fraction of tree-ring-data would then be included/excluded? Could I coerce the data to support a null hypothesis on global warming?

(2) In the range of papers we have reviewed, you have used a variety of statistical techniques in what is a heroic effort to get signals from noisy and patchy data. To what extent has this variety of techniques been reviewed and commented upon by the modern statistical community for their effectiveness, right use and possible weaknesses?

(3) Precisely how do you take a chronology and establish the actual amplitude of temperature excursions at a given time, especially at times that are outside the instrumental record.

(4) Do you think that if your papers had been regularly reviewed by a wider scientific community (ie outside dendrochronology) some of the current orthodoxies might have been tested more robustly? I am thinking of the comments raised by Gerd Burger in Science in 2007.

(5) What responsibility do you think that we, as a scientific community, have to ensure that the caveats in our papers are not glossed over by our scientific colleagues trying to formulate policy agendas?

(6) Have you had the opportunity to cross-correlate any of your findings with analogous studies of coral, giant claims, or any other temperature proxies? If so, what has emerged?

(7) Given that the outputs of your work are being used to promote the largest revolution mankind has ever contemplated, do you have any sense of the extent to which the quality control and rigour of approach must be of the highest standards in clear expectation of deep scrutiny?

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