

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

CLIMATE CHANGE E-MAILS REVIEW

ISSUES FOR EXAMINATION

1. The Review Team's remit is set out in its terms of reference as follows:

“The Independent Review will investigate the key allegations that arose from a series of hacked e-mails from the University of East Anglia's Climatic Research Unit (CRU). The review will:

 - 1.1 Examine the hacked e-mail exchanges, other relevant e-mail exchanges and any other information held at CRU to determine whether there is any evidence of the manipulation or suppression of data which is at odds with acceptable scientific practice and may therefore call into question any of the research outcomes.
 - 1.2. Review CRU's policies and practices for acquiring, assembling, subjecting to peer review and disseminating data and research findings, and their compliance or otherwise with best scientific practice.
 - 1.3. Review CRU's compliance or otherwise with the University's policies and practices regarding requests under the Freedom of Information Act ('the FOIA') and the Environmental Information Regulations ('the EIR') for the release of data.
 - 1.4. Review and make recommendations as to the appropriate management, governance and security structures for CRU and the security, integrity and release of the data it holds.”
2. The remit reflects the reaction to the e-mails that became public, much of it questioning and critical. In following up those questions and criticisms the Team stresses that it has formed no view on whether they are fair or justified. In formulating in its own words an expression of the issues for examination the Team is not adopting those issues as its own criticisms.
3. The Team's approach is to distill the questions and criticisms into the broad questions set out below. Using its own enquiries and experience, it has added questions about the handling and dissemination of data, including the response to FOI requests. The issues addressed in the first three paragraphs of the terms of reference will inform recommendations for paragraph four, as to the appropriate management, governance and security structures for CRU and the release of data.
4. The Team will invite CRU and other parts of UEA to respond in writing to these questions, and will follow up those responses as required. The Team expect the CRU to provide original documentary evidence to support its responses.
5. The Team invites those with an interest in the matter to comment on this Issues paper. The Team stresses that its remit does not involve re-evaluation of the scientific conclusions of the CRU work, still less a reappraisal of the scientific debate about the existence and suggested causes of global warming. Please

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

confine any comments on this paper to matters within the remit at paragraph 1 of this paper.

6. Written responses from CRU and others are requested by 1 March 2010 to the address below:

Email: correspondence@cce-review.org

Or post to,

Climate Change E-Mails Review
Box 18
196 Rose Street
Edinburgh
EH2 4AT

ISSUES ARISING ON Para 1.1 OF THE TERMS OF REFERENCE

1. The allegation of ignoring potential problems in deducing palaeotemperatures from tree ring data that might undermine the validity of the so-called “hockey-stick” curve.

In the late 20th century, the correlation between the tree ring record and instrumental record of temperature change diverges from that for the earlier period. The cause of this divergence does not appear to be understood. If the method used to deduce temperatures from tree ring proxy metrics for the earlier tree ring record is applied to the late 20th century tree ring series, then declining temperatures would be deduced for the late 20th century. It is alleged that if the cause of divergence between the tree ring and instrumental temperature record is unknown, it may have existed in earlier periods. Therefore if tree rings had similarly failed to reflect the warming of the early Middle Ages, they may significantly underestimate the warming during the Medieval Warm Period, thus falsely enhancing the contrast between the recent warming and that earlier period. (It is this contrast that has led to statements that the late 20th century warming is unprecedented during at least the last 1000 years.)

QUESTIONS TO ADDRESS:

- *What method do you use to deduce palaeotemperatures from tree ring data?*
- *Does not the problem of divergence for the late 20th century record invalidate the deduction of tree ring palaeotemperatures for the period prior to the instrumental record?*
- *How open have you been about this issue?*
- *What attempts have you made to resolve it?*
- *What is the evidence that the amplitude of warming during the Medieval Warm Period (MWP) is not underestimated by tree ring evidence?*
- *How does the tree ring evidence of the MWP compare with other proxy data? Have you showed how data from different sources compare or have you conflated them? If the latter, what is the justification?*

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

- *If tree ring proxies are removed from reconstructions, what evidence remains of the MWP?*
- *Have you been selective in utilizing tree ring evidence from Yamal in Siberia; and if so, what is the justification for selectivity and does the selection influence the deduced pattern of hemispheric climate change during the last millennium?*

2. The allegation that CRU has colluded in attempting to diminish the significance of data that might appear to conflict with the 20th century global warming hypothesis

The CRU group, in consultation with Professor Michael Mann, is alleged to have systematically attempted to diminish the significance of the Medieval Warm Period, evidenced by an email from Mann 4th June 2003: "I think that trying to adopt a timeframe of 2K, rather than the usual 1K, addresses a good earlier point that Peck made w/ regard to the memo, that it would be nice to try to "contain" the putative "MWP", even if we don't yet have a hemispheric mean reconstruction available that far back [Phil and I have one in review--not sure it is kosher to show that yet though--I've put in an inquiry to Judy Jacobs at AGU about this]." The use of the words "contain" and "putative" are alleged to imply an improper intention to diminish the magnitude and significance of the MWP so as to emphasise the late 20th century warming.

QUESTIONS TO ADDRESS

- *What does the word "contain" mean in this context?*
- *What involvement have you had in "containing" the MWP?*
- *How important is the assertion of "unprecedented late 20th century warming" in the argument for anthropogenic forcing of climate?*

3. It is alleged that proxy temperature deductions and instrumental temperature data have been improperly combined to conceal mismatch between the two data series

An attempt to hide the difficulty of combining these two data series and to mislead is alleged to be revealed in the following sentence in a November 1999 email from Professor Phillip Jones which is alleged to imply a conscious attempt to mislead: "I've just completed Mike's Nature trick of adding in the real temps to each series for the last 20 years (i.e. from 1981 onwards) and from 1961 for Keith's to hide the decline".

QUESTIONS TO ADDRESS

- *What is the meaning of the quotation from the 1999 email?*
- *How do you justify combining proxy and instrumental data in a single plotted line?*
- *What method do you use?*

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

4. It is alleged that there has been an improper bias in selecting and adjusting data so as to favour the anthropogenic global warming hypothesis and details of sites and the data adjustments have not been made adequately available

It is alleged that instrumental data has been selected preferentially to include data from warmer, urban in contrast to rural sites; that the rationale for the choice of high/low latitude sites is poor; and that the processes by which data has been corrected, accepted and rejected are complex and unclear.

QUESTIONS TO ADDRESS

- *What is the rationale for the choice of data stations worldwide?*
- *How has this choice been tested as appropriate in generating a global or hemispheric mean temperature (both instrumental and proxy data)?*
- *Describe as clearly as possible the protocols you have followed in selecting, correcting and rejecting data and stations.*
- *Has this been an orderly and objective process applied to all datasets?*
- *To what extent have different procedures for data of different vintages and different sources been unified?*
- *What means do you use to test the coherence of the datasets?*

ISSUES ARISING ON Para 1.2 OF THE TERMS OF REFERENCE

5. It is alleged that there have been improper attempts to influence the peer review system and a violation of IPCC procedures in attempting to prevent the publication of opposing ideas.

It is alleged that there has been an attempt to subvert the peer review process and exclude publication of scientific articles that do not support the Jones-Mann position on global climate change. A paper by Soon & Balunias was published in the Journal *Climate Research* arguing that the 20th century was not abnormally warm. An email from Professor Michael Mann on 11th March 2003 contained the following: "I think we have to stop considering *Climate Research* as a legitimate peer-reviewed journal. Perhaps we should encourage our colleagues in the climate research community to no longer submit to, or cite papers in, this journal." The allegation is that journals might be pressured to reject submitted articles that do not support a particular view of climate change.

In an email to a fellow researcher in June 2003, Briffa wrote: "Confidentially I now need a hard and if required extensive case for rejecting (an unnamed paper) to support Dave Stahle's and really as soon as you can."

In an email to Mann on 8th July 2004, Jones wrote: "The other paper by MM is just garbage. [...] I can't see either of these papers being in the next IPCC report. Kevin and I will keep them out somehow — even if we have to redefine what the peer-review literature is!" The allegation is of an attempt to prevent ideas being published and the author being prepared to subvert the peer review process for a journal and to undermine the IPCC principle of accounting properly for contradictory views.

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

QUESTIONS TO ADDRESS

- *Give full accounts of the issue in relation to the journal Climate Research, the June 2003 email, and the March 2004 email to Mann (“recently rejected two papers (one for Journal of Geophysical Research & one for Geophysical Research Letters) from people saying CRU has it wrong over Siberia. Went to town over both reviews, hopefully successfully. If either appears I will be very surprised”.*
- *Are the first two instances evidence of attempts to subvert the peer review process?*
- *In relation to the third, where do you draw the line between rejecting a paper on grounds of bad science etc, and attempting to suppress contrary views?*
- *To what extent is your attitude to reviewing conditioned by the extent that a paper will set back the case for anthropogenic global warming and the political action that may be needed to mitigate it?*
- *What is the justification for an apparent attempt to exclude contrary views from the IPCC process?*

6. The scrutiny and re-analysis of data by other scientists is a vital process if hypotheses are to rigorously tested and improved. It is alleged that there has been a failure to make important data available or the procedures used to adjust and analyse that data, thereby subverting a crucial scientific process.

It is alleged that there has been a systematic policy of denying access to data that has been used in publications, referring to an email from Jones to Mann on 2nd February 2005 which contains the following:

"And don't leave stuff lying around on ftp sites - you never know who is trawling them. The two MMs have been after the CRU station data for years. If they ever hear there is a Freedom of Information Act now in the UK, I think I'll delete the file rather than send to anyone. Does your similar act in the US force you to respond to enquiries within 20 days?—our does! The UK works on precedents, so the first request will test it. We also have a data protection act, which I will hide behind”.

QUESTIONS TO ADDRESS

- *Do you agree that releasing data for others to use and to test hypotheses is an important principle?*
- *If so, do you agree that this principle has been abused?*
- *If so, should not data be released for use by those with the intention to undermine your case, or is there a distinction you would wish to make between legitimate and illegitimate use?*
- *If not, do others have reasonable access to the data at all levels and to the description of processing steps, in order to be able to carry out such a re-analysis?*

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

- *Can you describe clearly the data-sets and relevant meta-data that have been released; what has not been released and to what extent is it in useable form? Where has it been released?*
- *Where access is limited, or not possible, or not meaningful, for legitimate reasons please explain why?*

7. The keeping of accurate records of datasets, algorithms and software used in the analysis of climate data.

A key concern expressed by a number of correspondents and commentators has been as to whether datasets, and analyses based thereon, were deleted.

QUESTIONS TO ADDRESS

- *Were formal 'data dictionaries' kept of the data sets acquired by the CRU at various times from other bodies such as the UK Meteorological Office Hadley Centre and its equivalents around the World?*
- *Were comprehensive records kept of the way these various data sets were used, the statistical and other algorithms used in processing them, and the various software programmes and modules used to carry out that processing?*
- *Does a formal library of algorithms and software used by the CRU exist?*
- *What quality control measures were used to test the various algorithms and software modules developed by the CRU?*
- *What techniques did members of the CRU employ to ensure the integrity of the various applications used to process climate data?*
- *What policies are in place to ensure the formal archiving of data sets and resultant analyses for future use and review.*

ISSUES ARISING ON Para 1.3 OF THE TERMS OF REFERENCE

8. Response to Freedom of Information requests.

A number correspondents and commentators assert that requests under the Freedom of Information Act (FOIA) and the Environmental Information Regulations (EIR) were incorrectly denied by the University of East Anglia on advice from the CRU. This is the subject of a separate inquiry by the Data Protection Commissioner, but does fall within the terms of reference of the Review Team.

QUESTIONS TO ADDRESS

- *What formal processes were in place both centrally and within the CRU to ensure fair and impartial assessment of FOIA requests?*
- *Were there any processes in place centrally to review recommendations from the CRU that information should not be released?*
- *Over the five years to November 2009:*
 - *how many requests were received?*
 - *how many were rejected, and on what grounds?*
 - *how many received full release of information?*

**INDEPENDENT CLIMATE CHANGE EMAIL REVIEW
ISSUES FOR EXAMINATION
UNDER EMBARGO UNTIL 1200 HRS, THURSDAY 11 FEBRUARY 2010**

- *how many received partial release of information?*

Climate Change E-Mails Review

February 2010