

Key messages and extracts from the EPA investigation of the CRU hacked emails

The United States Environmental Protection Agency (EPA) determined in December 2009 that climate change caused by emissions of greenhouse gases threatens the public's health and the environment. Since then, EPA received 10 petitions challenging this determination. These petitions claim that climate science cannot be trusted. These claims are based largely, though not exclusively, on the emails and documents illegally hacked from the computers of the Climatic Research Unit (CRU) at the University of East Anglia (UEA) in November 2009.

After months of serious consideration of the petitions and of the state of climate change science, EPA found no evidence to support these claims.

The petitions prompted an extensive and thorough investigation by the EPA of the evidence provided by the petitioners to support their claims, including an exhaustive consideration of all of the CRU hacked emails and most of the hacked documents.

This investigation supplements and complements other inquiries, such as the Independent Climate Change E-mail Review led by Sir Muir Russell and the Science Assessment Panel led by Lord Oxburgh.

It considered each and every hacked email and its context, resulting in hundreds of pages of detailed reporting. It was not commissioned by UEA, and indeed we were not even aware that it was being undertaken. Its focus was on any implications for the scientific findings of CRU and, particularly, the much more voluminous body of climate science work as a whole.

Thus it was independent, comprehensive and addressed the question that is perhaps of most importance for the wider world: do any of the issues raised from the CRU hacked emails actually matter? It complements the UEA-commissioned inquiries, which were focused more keenly (though not exclusively) on questions of most importance to UEA and CRU.

After months of serious consideration of the petitions and of the state of climate change science, EPA found no evidence to support the claims that the CRU hacked emails and documents, and other recent developments in climate change science assessment, undermined the scientific evidence for climate change.

The full response of the EPA is available online:

<http://www.epa.gov/climatechange/endangerment/petitions.html>

The EPA investigated a broad range of issues and claims, many not directly involving CRU.

The findings quoted below have been extracted from the EPA documents, with a focus on those that are directly or closely related to the work of CRU.

Decision document: Denial of petitions to reconsider the EPA’s Endangerment Finding

Page	Quote
8	“petitioners’ claims and the information they submit do not change or undermine our understanding of how anthropogenic emissions of greenhouse gases cause climate change and how human-induced climate change generates risks and impacts to public health and welfare.”
10	“As EPA’s review and analysis shows, the petitioners routinely take these private e-mail communications out of context and assert they are “smoking gun” evidence of wrongdoing and scientific manipulation of data. EPA’s careful examination of the e-mails and their context shows that the petitioners’ claims are exaggerated, are often contradicted by other evidence, and are not a material or reliable basis to question the validity and credibility of the body of science”
11	“Their conclusions are in line with EPA’s review and analysis of these same CRU e-mails. The inquiries have found no evidence of scientific misconduct or intentional data manipulation on the part of the climate researchers associated with the CRU e-mails. The recommendation for more transparent procedures concerning availability of underlying data appears appropriate, but it has not cast doubt on the underlying body of science developed by these researchers.”
77	“they [the petitioners] do not rely on an in-depth and comprehensive analysis of the science and make arguments on that basis. Instead they largely rely on a small number of statements from the CRU e-mails in which certain scientists expressed various thoughts and feelings, such as frustration and disrespect for other scientists, along with strong views on scientific issues”
78	“Other than the conduct of sending e-mails that evidence strong emotions or unprofessional language, the petitioners present almost no evidence of any actual conduct by the scientists that support their conclusion that the science was assessed inaccurately.”
78	“Petitioners’ claims of distortion of data, withholding of temperature data, or abuses in data analysis also do not withstand scrutiny.”
78	“Petitioners have shown no evidence that the HadCRUT temperature record based on the underlying raw temperature data was flawed in any way”
83	“Petitioners claim the CRU e-mails provide new reason to highlight this [tree-ring] divergence issue as it may undermine the use of historical temperature reconstructions. EPA disagrees, and finds that the CRU e-mails demonstrate that the scientists were well aware of the divergence issue and addressed it appropriately in their research and publications.”
85	“petitioners allege that a number of the CRU e-mails suggest that these temperature reconstructions were manipulated and that data has been hidden. ... quotes provided by the petitioners do not support a claim of “deliberate manipulation” or “artificial adjustments” when considered in context.”
87	“EPA has not claimed that current warming is “unprecedented”; the Administrator’s Endangerment Finding stated that “The second line of evidence arises from indirect, historical estimates of past climate changes that suggest that the changes in global surface temperature over the last several decades are unusual.” ... EPA found the scientific evidence “supports” this conclusion ..., not that it compels it, as petitioners incorrectly assert.”

Page	Quote
97	“The code fragment BRIFFA_SEPT98_E.PRO that includes a comment in the header for the code that states that the code “APPLIES A VERY ARTIFICIAL CORRECTION FOR DECLINE” is over a decade old and appears to be provisional test code. ... The petitioners do not show that the BRIFFA_SEPT98_E.PRO code has any relationship to the HadCRUT temperature record or that it was actually used for any public final product.”
97-98	“The HARRY_READ_ME.txt debugging notes are a record of attempts to update the CRU TS product by merging six years of additional data to an old data set and migrating the code to a new computer system at the same time. The petitioners fail to acknowledge that the CRU TS products are different from the HadCRUT temperature record that is referred to in the [IPCC] assessment reports ... The full debugging log demonstrates that a number of the identified problems were successfully fixed. Many of the quotes highlighted by petitioners were expressions of frustration that were not related to the quality of the product. ... In sum, the HARRY_READ_ME.txt file is focused on issues that do not relate to the HadCRUT temperature record and contains no evidence of any attempts to bias any output data.”
100	“Petitioners also do not support their claim that CRU selectively picked [temperature] stations. EPA has found no evidence in the CRU e-mails or the information provided by petitioners to indicate that stations were chosen by CRU scientists.”
124	“EPA finds that the evidence and arguments provided by petitioners do not support their serious allegation that the peer-review and assessment report processes employed by the IPCC were “fundamentally corrupt” and policy prescriptive. The petitioners’ arguments, which heavily rely on the selective use and narrow reading of CRU e-mails, as well as some newspaper articles, do not demonstrate that the IPCC peer-review and report development processes were inadequately designed or that they were not properly implemented.”
125	“EPA finds that there is no basis for the claim that IPCC reviewer and author procedures were circumvented.”
128	“Petitioners do not highlight the specific statements in the IPCC AR4 that are supposedly “policy prescriptive,” never explain what policy agenda was being advanced, and never describe how the CRU e-mails support their claim that the science was actually manipulated in service of this unspecified agenda.”
139	“petitioners have routinely misunderstood or mischaracterized the scientific issues, drawn faulty scientific conclusions, resorted to hyperbole, impugned the ethics of climate scientists in general, characterized actions as “falsification” and “manipulation” with no basis or support, and placed an inordinate reliance on blogs, news stories, and literature that is often neither peer reviewed nor accurately summarized in their petitions. Petitioners often “cherry-pick” language that creates the suggestion or appearance of impropriety, without looking deeper into the issues or providing corroborating evidence that improper action actually occurred.”
152-153	“The petitioners rely upon some CRU e-mails (typically taken out of context), a small number of papers, and both actual and alleged events regarding scientific journals to claim that leading climate scientists conspired to keep dissenting views of climate change out of the broad body of peer-reviewed literature ... Petitioners do not address the possibility that these papers were scientifically inadequate and that the scientists were justified in recommending that they not be published.”

Page	Quote
153-154	“Our review of the full discussion of the e-mails indicates, again, that petitioners have exaggerated the significance of actual or purported events in an attempt to cast doubt on the underlying science”
156	“Petitioners fail to address the breadth and depth of the scientific evidence and instead rely on an assumption of inaccuracy in the science that they extend even to the body of science that is not directly addressed by information they provide or by arguments they make.”
156	“Petitioners routinely take private e-mail communications out of context and assert they are “smoking gun” evidence of wrongdoing and scientific manipulation of data. In contrast, EPA’s careful examination of the e-mails and their full context shows that the petitioners’ claims are exaggerated and are not a material or reliable basis to question the validity and credibility of the body of science”

Volume 1: Issues related to climate science and data

Page	Quote
24	“With regard to the Mann quote about containing the MWP, petitioners do not explain why the word “contain” is not a reference to timeframe rather than, as they imply, data manipulation. The full quote is: “I think that trying to adopt a timeframe of 2K [2000 years], rather than the usual 1K [1000 years], 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.’” A 1,000-year-long reconstruction would only cover (i.e., “contain”) part of the MWP, whereas 2,000 years would contain the entire MWP. In sum, although petitioners read into the quotes evidence of artificial adjustment of data, when examined in their entirety the quotes do not support this conclusion.”
28	“It is important to point out that, in drawing the conclusion that multiple lines of evidence indicate GHGs are the root cause of recently observed climate change, EPA does not claim that any individual line of evidence by itself necessarily forms the “compelling” evidence of human-induced climate change. Rather, the multiple lines of evidence collectively form the compelling evidence.”
31	“The IPCC ... appropriately reflected the uncertainty involved in temperature reconstructions, including those for the MWP [Medieval Warm Period] and the early Holocene. This involved considering the entire body of evidence, including the kinds of evidence and arguments presented by petitioners. Petitioners’ evidence and arguments do not warrant any revisions to these conclusions and their related caveats on degree of certainty. In general, petitioners have not considered the breadth of evidence on these issues and the clear recognition and documentation of the uncertainty concerning temperature reconstructions of the past.”
31	“The assessment literature did not conclude that the current warming is definitively unique or unprecedented, but that it is unusual, properly accounting for the uncertainty associated with temperature reconstructions.”
66	“No original raw data were destroyed, the original raw data are and remain the property of the NMS that collected them and can be obtained from the original stations (or national meteorological offices), subject to their procedures.”
66	“With respect to the code and log files, the quotes selected by the petitioners are not evidence of deliberate data manipulation and are mainly the result of quality control processes determining how to best address the vast quantities of data collected from different sources”

Page	Quote
68	“Petitioners have not conducted an independent analysis to determine global temperature trends, although the data are available, and they do not provide any global analysis that yields a different result. They have provided no evidence that an additional or different analysis using the publicly available temperature data would yield a result that differs substantively from the warming over the century reflected in the HadCRUT and other analyses of global surface temperature. In contrast, the recent Independent Climate Change E-mails Review (2010) ... produced results similar to the HadCRUT temperature record and other independent analyses, working with publicly accessible data.”
69	“There is a long record of peer-reviewed publications explaining the process of preparing the raw data for analysis, presenting the results of the analyses, and evaluating the magnitude of various possible sources of error. It is an unwarranted leap in logic to assume these analyses have no merit just because a small percentage of the underlying raw data is no longer in CRU’s possession.”
73	“None of these e-mails provide evidence of or support the conclusion that the e-mail authors conducted inappropriate “massaging” or manipulating of the data or suppressed their own data”
74	“the HARRY_READ_ME.txt is a long, multi-year log of expressed frustrations with old codes, merging datasets from different sources, changing computer systems, and the arduous process of performing quality control. This file reflects both specific technical terminology and the personality of the researcher. Taken out of context, as done by petitioners, the quotes from the file can provide misleading impressions.”
83	“HARRY_READ_ME file is a massive and comprehensive QA/QC [Quality Assurance/Quality Control] endeavor. There is no “appalling series of manipulations.” Instead, there is clear evidence of a researcher attempting to do the best job possible of bringing together large disparate databases into one product with as much integrity as possible”

Volume 2: Issues related to the IPCC

Page	Quote
41	“Given the technical nature of this field of climate science, it is reasonable and expected that IPCC authors might require detail or clarification regarding some of the underlying studies. Therefore they might need to consult the authors of specific studies to better understand how the results were achieved or to ask questions regarding how the data were applied, as was the case in this situation. Petitioners have not explained how the mere fact that this type of correspondence occurred between Crowley and Briffa/Overpeck lead to the conclusion that bias was introduced to the chapter development process.”
42	“We find that Chapter 6 [<i>of the IPCC report, assessing paleoclimatic evidence, and to which CRU authors Briffa and Osborn contributed</i>] was developed in an objective manner, is accurate, and represents the best available scientific information”
51	“Thus, these e-mails do nothing more than indicate that three scientists were trying to present a figure that was comprehensive and offered key contextual information on temperature trends over the past several centuries. There is nothing inappropriate or biased about that, and the petitioner has not provided evidence suggesting that there was. When examined in their full context, the e-mails do not indicate any wrongdoing by the three scientists or support the petitioner’s claims”

Page	Quote
57	“Although the petitioners draw broad conclusions of unethical and biased conduct from the e-mail between Phil Jones and Michael Mann, this e-mail does not show that the two IPCC authors acted unethically, or that they took any actions to suppress dissenting views”
63	“The petitioner is taking Briffa’s statement that he “tried hard to balance the needs of the science and the IPCC, which were not always the same” completely out of context and making unsupported allegations. Although he describes some frustrations with the challenges of the IPCC’s rigorous and robust report development procedures, Briffa’s e-mail does not indicate that he was not satisfied with the final version, that he did not agree with the conclusions, nor that he felt pressured in any way to “present a unified front.””
73	“IPCC authors did not manipulate deadlines for receipt of new literature”

Volume 3: Issues related to scientific processes (peer-review etc.)

Page	Quote
5	“petitioners allege that the surface temperature record produced by CRU is flawed, but our review indicates that the surface data is sound”
7	“Our examination of the CRU e-mails in light of the current science shows that the petitioners routinely misunderstand or mischaracterize the scientific issues they are raising, and draw faulty conclusions on the state of the science”
7	“petitioners have resorted to hyperbole, broadly impugned the ethics and scientific integrity of climate scientists in general, and characterized actions as “falsification” and “manipulation” with no basis or support”
7	“petitioners most often rely on “cherry-picked” language from select e-mails that creates the suggestion or appearance of impropriety, without looking deeper into the issues or providing corroborating evidence that improper action actually occurred”
28	“Most of the quotes from the e-mails that petitioners allege shows impropriety are taken out of context from the e-mails. Further, petitioners do not provide corroborating evidence that improper action actually occurred, let alone evidence that any alleged improper action led to biased or inaccurate science”
51	“We disagree with the petitioner’s claim that the CRU e-mail authors acted like “activists” and not like scientists. Their focus was clearly on the scientific merits of the study at issue and the scientific integrity of the peer review process. There is no evidence to suggest that the CRU e-mail authors were attempting to manipulate the peer-reviewed literature. If anything, their actions aimed to police the peer review process and rectify a problem that threatened its scientific integrity”
53	“The evidence does not suggest that the CRU e-mail authors were attempting to manipulate the peer-reviewed literature, nor that they engaged in any actions that were unethical or otherwise outside the norms of scientific practice”
63	“The evidence presented by petitioners does not support the claims that the CRU e-mail authors acted as “gatekeepers” to the literature to advance their views or were motivated by an activist agenda.”
63-64	“the CRU scientists identified what they believed was flawed science in specific papers, and responded by publishing peer-reviewed, scientific rebuttals in professional journals. This is standard practice in the scientific community and in no way constitutes bias in the literature.”

Page	Quote
65	“The publisher of <i>Climate Research</i> later admitted that the Soon and Baliunas paper was flawed and should not have been published (Kinne, 2003). Scientists, including Jones, did no more than challenge the scientific validity of the Soon and Baliunas (2003) paper, which is an appropriate response within the scientific community and appears scientifically warranted in this case.”
75	“The petitioners ... claim that leading climate scientists successfully conspired to keep dissenting views of climate change out of the broad body of peer-reviewed literature and create an artificial consensus about anthropogenic climate change. They claim these e-mails show the broad body of scientific literature is biased and can not credibly be relied upon ... The examples proved by petitioners are extremely limited ... In all cases it appears the scientists involved were basically making their scientific objections known, and were basing their objections on the science and not on assumptions or speculation.”
88	“The evidence they point to does not support their claims that the ability of other researchers to independently review or replicate paleoclimate studies has been limited, that their scientific conclusions are unsupported, or that these specific incidents are a sound basis on which to characterize the practices of hundreds, if not thousands, of scientists across the much broader body of climate science. These leaps of logic are not supported by sound reasoning or evidence.”
89	“the petitioner’s allegation that key climate science studies could not be replicated and critiqued is not accurate. It remains the case that the HadCRUT temperature record is legitimized by peer reviewed methodology, its replicability, and its similarity with other global temperature records”
90	“EPA agrees with the recommendations of the UK House of Commons Science and Technology Committee investigation and the Independent Climate Change E-mails Review that both CRU and the greater scientific community should make more of an effort to provide public access to raw data and detailed methodologies”
106-107	“The petitioner does not provide evidence or reasons why EPA should not interpret this statement at face value—that Osborn was sincere in asking for only a general answer as to whether or not Amman considered their private communications to be confidential. It is reasonable for Osborn to tell Amman not to waste time digging through his e-mails, as he meant for his question to be a general one. We find that the petitioner has no basis for its negative characterization of Osborn’s intentions.”