Climate change presents a significant threat to the Pacific Northwest environment, its communities, and its economy. This fact is based on more than a decade of research by the Climate Impacts Group (CIG) and hundreds of peer-reviewed studies, and is not altered in any way by the recently published emails at the Climatic Research Unit at the University of East Anglia in the United Kingdom. The CIG Washington Climate Change Impacts Assessment conclusions would not be any different if the CRU data did not exist. CIG agrees with the position expressed by the American Meteorological Society (AMS) on this issue. The AMS said, among other things:

“For climate change research, the body of research in the literature is very large and the dependence on any one set of research results to the comprehensive understanding of the climate system is very, very small. Even if some of the charges of improper behavior in this particular case turn out to be true — which is not yet clearly the case — the impact on the science of climate change would be very limited.”

The results from CRU that are the issue of the leaked materials relate to narrow issues in climate science and a small group of scientists. These results are not important to the scientific basis of our understanding of anthropogenic climate change. One dataset produced by the CRU and discussed in some of the published material was used in the recent Washington Climate Change Impacts Assessment. These data were used to rank climate model performance, and model projections were weighted according to this ranking. We have verified that the choice of CRU data does not in any way affect the conclusions we reached in the 2009 Washington Climate Change Impacts Assessment.

Moreover, CIG remains committed to a firm policy that all the work done by the CIG is open and fully transparent and it shall remain so.
DETAILS

There are likely to be at least four main questions arising from the published CRU emails, each related to email text that is of potential concern regardless of the context. Here are example questions, paraphrased from the critiques levied in the blogosphere and the media.

1) Do the UEA CRU emails indicate a broad climate science conspiracy?

No. There are dozens of independent climate research groups in the world who do not have any connection with CRU or the released emails. However, these groups do independently reach many of the same conclusions as those published in the past by CRU. These facts alone indicate that there is no broad collusion to propagate an unsound science – in fact the science is quite robust, much more so than the skeptical arguments that the emails have been used in the media to underscore.

2) Do the UEA CRU emails undermine the science underpinning climate change and climate projections?

No. The files that have been made public primarily deal with scientific products specific to CRU as well as e-mail exchanges among a small group of researchers at CRU and elsewhere.

One product is a paleoclimatological reconstruction of temperature from proxy records including tree rings (Mann et al., Nature, 1998; the “hockey stick” curve). This reconstruction and subsequent reconstructions have been frequently cited as indicating that current temperatures are unprecedented over the last 1000 years, providing clear evidence of anthropogenic climate change. However, this result is just one small part of the evidence for the human influence on the global climate, and has been the subject of subsequent research by scientists who likely would agree that little is settled about where and when it was warmer in the medieval optimum than now.

Some files released indicate that CRU employees grappled with organizing a dataset of gridded temperature and precipitation observations from around the world (CRU TS). But nothing that has come to light indicates that modern observations were inappropriately handled – the methods detailed in the file indicate screening of observations for the problems that sometimes affect weather observations and for erroneous readings. This dataset was used in the WACCIA to compute model bias relative to the observed climate over the past 30 years. Model bias was then used to form weighted model averages used in model composite results used in the delta-method downscaling. The CRU data for the Pacific Northwest are based on publically available station observations and does not differ substantially from similar archived and gridded observations. Thus we have no reason to question the quality of this data for our region.
Nevertheless, the model weighting has a trivial effect on the computed climate changes in temperature and precipitation and thus no effect on the conclusions of the report. The difference between the unweighted data and the REA based on CRU is, on average, 0.01 C°. Given the precision of the data in significant figures (0.1 degree), this is not a difference. The difference between the REA based on CRU and the REA based on the Reanalysis is 0.20 C° - the REA based on CRU and used in the WACCIA Executive Summary is slightly cooler than the REA based on the reanalysis. Precipitation differences are between 0.07% and 0.36%.

The CRU also produces a global-mean temperature record for the 20th century (HadCRUT), which represents one of three independent (and highly competitive) efforts to produce hemispheric and global temperature trends. The others, NASA GISS and NOAA NCDC are similar to the CRU dataset and are not affected by the accusations levied at CRU.

3) Aren’t the emails collectively proof that scientists engaged in “trickery” and deliberately altered, eliminated, or “hid” data to bolster scientific evidence for increasing temperatures?

No. The text that refers to “trick” and “hiding” is from Phil Jones, and points to an approach to paleoclimate temperature reconstruction from tree rings. In about 1960, the tree rings used for these reconstructions become uncoupled from temperature as a primary limiting factor, likely because their thermal requirements were saturated and something else (e.g., water, light, nitrogen, etc.) became more limiting. Tree growth actually declined after this point when temperature continued to increase. This result was actually published in Nature in 1998, and the paper specifically recommended NOT using the proxy data after 1960 because it would bias the reconstruction. The “trick” was to “hide the decline” by truncating the series at 1960 and splice in the instrumental observations between 1960 and 1998. Anyone familiar with this literature is not bothered by this approach because the authors were quite open about what was done. The text referring to “containing the putative MWP (Medieval Warm Period)” from Mike Mann refers to the fact that initial temperature reconstructions published in 1998 and 1999 only extended back to 1000 AD, but independent evidence from other proxies suggested that the MWP period might have encompassed the entire five centuries from about 800 to 1300, so a longer reconstruction was required to put the earlier part of this in context. Mann subsequently published a 2000 year reconstruction to do just that. The reason for the word “putative” is likely that the MWP is not uniformly expressed globally. It was warmer in many places, but it was not a global event like the current trend in temperature increases, and the forcing mechanisms were therefore likely different.

Most importantly, the paleoclimatic reconstruction published in Mann et al. 1998 (Nature) has little bearing on anything relevant to future climate impacts assessment. What it has bearing on is the fidelity of paleoclimate reconstructions
and our understanding of past climate. But clearly it is less important whether the temperature was higher around 1000 AD than now and much more important that CO2 in the atmosphere and temperature appear to be increasing over the last century and are projected to continue to do so such that it is likely to be substantially warmer in the mid 21st century than it was in 1000 AD.

4) The emails suggest that scientists abused the peer review process and refused to share data. What do the emails mean for the future of climate science?

The emails broadly indicate that there may have been interference with the peer review process and that data sharing may not have been as timely as it should have been. These are two of the pillars of science (peer review and data sharing), and the fallout of this is that the way the scientific community handles scientific review and the ways it shares data may evolve. It is well known that scientists are competitive, and like any other segment of the population, some scientists exercise inappropriate judgment when it comes to that competitive aspect of their work. Perhaps the most problematic part of this is that the peer review process was possibly used for other means than those for which it was intended. So far, there is no indication of a broader attempt to “hijack” the peer review process, but that some scientists may have used it to limit opposing publications. Luckily, the peer review process is exercised across many journals, editors, and reviewers and good science almost always eventually gets published. The data sharing issues relate to requests from outsiders (frequently, they are not themselves scientists) for data. Not all of CRU's data was open access because some of it was proprietary data from the British Met Service. CRU claims they were trying to remedy that situation, but none of this really matters. What really matters is that there is abundant climate data, both raw and processed, available on the WWW and accessible to anyone. Some of it asks that users pay nominal fees to cover the costs of processing, but most also have exceptions for research – open requests for stated purposes of valid research are unlikely to be refused. What the leaked emails mean for the future of climate science is hopefully a more open approach to peer review and data sharing.

The Climate Impacts Group has always worked to maintain an open and transparent process in the data, methods, and assessments we produce. Our data are publicly available. Where possible, we use models whose source code is open, such as CCSM3 (a global climate model) and WRF (a regional model) from the National Center for Atmospheric Research (NCAR) and ECHAM5 (a global climate model) from the Max Planck Institute. The source code for the hydrologic model (VIC) and downscaling methods developed at the UW are also available to other researchers.