



COMMONWEALTH of VIRGINIA

Office of the Attorney General

Kenneth T. Cuccinelli, II
Attorney General

September 29, 2010

900 East Main Street
Richmond, Virginia 23219
804-786-2071
FAX 804-786-1991
Virginia Relay Services
800-828-1120
7-1-1

VIA CERTIFIED U.S. MAIL;
RETURN RECEIPT REQUESTED

John O. Wynne, Rector
University of Virginia
One Commercial Place
Suite 1420
Norfolk, VA 23510

RE: Civil Investigative Demand No. 3-MM

Dear Mr. Wynne:

Please find attached a Civil Investigative Demand ("CID") directed to the Rector and Visitors of the University of Virginia. It has been sent to you in your capacity as Rector.

If you have any questions related to the CID, please feel free to contact me at 804-786-6731.

Thank you for your attention to this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Wesley G. Russell, Jr.".

Wesley G. Russell, Jr.
Deputy Attorney General

cc: Chuck Rosenberg, Esquire ✓

**OFFICE OF THE ATTORNEY GENERAL
COMMONWEALTH OF VIRGINIA
900 EAST MAIN STREET
RICHMOND, VIRGINIA 23219**

CID NO. 3-MM

TO: The Rector and Visitors of the University of Virginia
SERVE: John O. Wynne, Rector
University of Virginia
One Commercial Place, Suite 1420
Norfolk, VA 23510

CIVIL INVESTIGATIVE DEMAND

The Attorney General of the Commonwealth of Virginia, pursuant to the authority conferred upon him by the Virginia Fraud Against Taxpayers Act ("FATA"), *Virginia Code* § 8.01-216.1, *et seq.*, hereby commands your production of the information and documentary materials described in the Attachment A hereto at the Office of the Attorney General, 900 East Main Street, Richmond, Virginia 23219, on the 29th day of October, 2010 at 10:00 a.m.

This Civil Investigative Demand (CID) is issued in connection with an investigation by the Attorney General into possible violations by Dr. Michael Mann of §§ 8.01-216.3(A) (1), (2), and (3) of FATA.

The nature of the conduct constituting the alleged violation of the false claims law is that, based on claims made in Dr. Mann's CV, he participated in the application for and claims for payment under the grant listed below. Upon information and belief, the grant application references Dr. Mann's prior work, including two papers, "Global-scale Temperature Patterns and Climate Forcing over the Past Six Centuries" and "Northern Hemisphere Temperatures During the Past Millennium: Inferences, Uncertainties, and Limitations," which have come under significant

criticism (see Attachment B, which is incorporated herein by reference) and which Dr. Mann knew or should have known contained false information, unsubstantiated claims and/or were otherwise misleading. Specifically, but without limitation, some of the conclusions of the papers demonstrate a complete lack of rigor regarding the statistical analysis of the alleged data, meaning that the result reported lacked statistical significance without a specific statement to that effect. To the extent that Dr. Mann did reference or rely on his past work in these papers (or others like them) to aid in the winning of the grant when he knew or should have known of the potential of the papers (or others like them) to mislead the grantor, such actions would subject him to potential FATA liability. *See, e.g., Harrison v. Westinghouse Savannah River Co.*, 176 F.3d 776, 786 (4th Cir. 1999)(“each and every claim submitted under a contract, loan guarantee, or other agreement *which was originally obtained* by means of false statements or other corrupt or fraudulent conduct, *or in violation of any statute or applicable regulation*, constitutes a false claim.”) (internal quotation and citation omitted)(emphasis in original). Further, if the work on the grant built on any prior work that suffered from the same or a similar flaw, Dr. Mann would also be subject to liability. This would apply to any claims for payment or payments made under the grant listed below after January 1, 2003. Based upon information and belief, claims for payment and at least some payment under the grant occurred after January 1, 2003.

The investigation specifically relates to data and other materials that Dr. Mann presented in seeking the award of or claims for payment under the following grant:

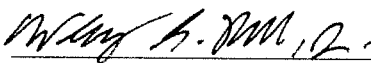
Resolving the Scale-wise Sensitivities in the Dynamical Coupling Between Climate and the Biosphere, University of Virginia-Fund for Excellence in Science and Technology (FEST) [Principal Investigator: J.D. Albertson; Co-Investigators: H. Epstein, M.E. Mann] U.Va internal award: \$214,700 (the “grant”).

Based on representations of the University during the investigation, 100% of the referenced grant was paid with funds belonging to the Commonwealth.

Consistent with Va. Code § 8.01-216.10, the Attorney General has “reason to believe” that the University is in possession of the documents/things sought because of the nature of the grant application process, the requirements and best practices of a government institution when it comes to the disbursal of funds, and discussions and conversations that have occurred with counsel for the University of Virginia at various points during the investigation.

Please refer any questions you may have about this CID to Wesley G. Russell, Jr., Deputy Attorney General, 900 East Main Street, Richmond, Virginia 23219, (804) 786-6731

This CID is issued at Richmond, Virginia, this 29th day of September 2010.


WESLEY G. RUSSELL, JR.
DEPUTY ATTORNEY GENERAL

cc: **John O. Wynne, Rector**
University of Virginia
One Commercial Place, Suite 1420
Norfolk, VA 23510

Chuck Rosenberg, Esq.
HOGAN LOVELLS US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004

ATTACHMENT A

INSTRUCTIONS

1. Unless otherwise indicated, each paragraph of this Civil Investigative Demand (CID) relates to the period from January 1, 1999 through December 31, 2006. Any documents prepared during this time period, or before this time period but which relate thereto, are also to be produced.

2. If any document requested was, but is no longer in your possession, subject to your control, or in existence, state for each such document:

- (a) the type of document;
- (b) whether it is missing, lost, has been destroyed, or has been transferred to the possession, custody, or control of other persons;
- (c) the circumstances surrounding, and the authorization for, the disposition described in (b) above;
- (d) the date or approximate date of the disposition described in (b) above;
- (e) the identity of all persons having knowledge of the circumstances described in (c) above; and
- (f) the identity of all persons having knowledge of the document's contents.

3. With respect to each document produced, identify the person producing the document and the paragraph number of the request in response to which such production is being made.

4. All uses of the conjunctive should be interpreted as including the disjunctive and vice versa in order to bring within the scope of this CID any information or documents that might otherwise be construed to be outside of its scope.
5. Words in the singular should be read to include the plural and vice versa.
6. Each document request contemplates production of the entire document without redaction, abbreviation or deletion.
7. If you have a document retention/destruction program, you are asked to suspend it immediately. Regardless of whether you have a document retention/destruction program, you should take precautions to ensure that no documents called for by this CID are inadvertently or intentionally destroyed.
8. To the extent that any of the documents or data are stored in an encrypted fashion, the documents and data should be produced in such a way that this Office can decrypt and read such documents or data.
9. The scope of this CID is intended to reach any of the described items which are stored for you by a third party organization, and/or stored at an offsite location.
10. The scope of this CID is to reach any and all data, documents and things in your possession, including those stored or residing on any computer, hard drive, desktop, laptop, file server, database server, email servers or other systems where data was transmitted or stored on purpose or as a result of transient use of a system or application in the course of day to day research or product processing work that is owned or contracted for by you or any of your officers, managers, employees, agents, board members, academic departments, divisions, programs, IT department, contractors and other representatives.

11. Regarding Documents to be Produced in number 8 below, the CID is limited in the following way:

(1) Regarding non-electronically archived correspondence, the request only applies to the following Departments, Schools, Programs or persons:

- a. Computer Engineering,
- b. Computer Science,
- c. Engineering and Applied Science,
- d. Engineering Physics,
- e. Engineering Science,
- f. Environmental Engineering,
- g. Environmental Sciences,
- h. Environmental Thought and Practice,
- i. Interdisciplinary Computer Science,
- j. Public Policy Program,
- k. Science, Technology and Society,
- l. Statistics,
- m. Administration,
- n. IT Department, and
- o. Any person who assisted Dr. Mann regarding any of the Grants as defined in the CIDs.

(2) Regarding electronically archived correspondence (primarily e-mail), the request applies to any and all central repositories/e-mail servers. However, to the extent that a Department, School, or Program has its own server or archive system, only the following Departments, Schools, and Programs need be searched:

- a. Computer Engineering,
- b. Computer Science,
- c. Engineering and Applied Science,
- d. Engineering Physics,
- e. Engineering Science,
- f. Environmental Engineering,
- g. Environmental Sciences,
- h. Environmental Thought and Practice,
- i. Interdisciplinary Computer Science,
- j. Public Policy Program,
- k. Science, Technology and Society,
- l. Statistics,
- m. Administration,
- n. IT Department.

12. Optional methods of compliance.

A. This CID requires the personal appearance of a representative(s) of the Rector and Visitors of the University of Virginia when the documents herein described are produced. The purpose of the appearance is to testify under oath as to the fact and manner of compliance herewith. At your option, you may substitute the filing of an affidavit for the personal appearance. Such affidavit must set forth the matter contained in the form affidavit delivered herewith. Any alteration of the form except to complete it as indicated may be treated as a refusal to comply with this CID.

If you elect to exercise this option, please notify the Office of the Attorney General no later than seven (7) days prior to the time you are required to appear.

B. This CID also requires generally the production of original documents. At your option, you may substitute a readable duplicate of an original writing or a printout of electronically stored material, if you identify it as a duplicate or as a printout of electronically stored material and if you agree without qualification that thereafter, at anytime during the course of this investigation or any litigation arising therefrom, the original document will be delivered for inspection by the Attorney General within five (5) days after receipt by you or your attorney of a demand therefor.

DEFINITIONS

1. As used herein, the words “The Rector and Visitors of the University of Virginia,” “you,” and “your” mean the entity to which this CID is addressed, the University of Virginia, and includes all of the officers, managers, employees, agents, board members, academic departments, divisions, programs, IT department, contractors and other representatives of the Rector and Visitors of the University of Virginia and/or the University of Virginia.

2. As used herein, the words “document” or “documents” mean the original and any copies of any written, printed, typed, electronic, or graphic matter of any kind or nature, however produced or reproduced, any book, pamphlet, brochure, periodical, newspaper, letter, correspondence, memoranda, notice, facsimile, e-mail, manual, press release, telegram, report, study, handwritten note, working paper, chart, paper, graph, index, tape, data sheet, data processing card, or any other written, recorded, transcribed, punched, taped, filmed or graphic matter now in your possession, custody or control.

3. As used herein, the words “identify,” “identity,” or “identification” when used in reference to a natural person mean to state his or her full name, present or last known address, telephone number, last known position and business affiliation, and each of his or her positions during the relevant time period. When used in reference to any other type of person, these words mean to state the name of the entity, its present or last known address, and its telephone number.

4. When used in reference to a document kept or prepared in the course of business the words “identify” or “identification” mean to state its date, author, the type of document (e.g., letter, memorandum, telegram, chart, photograph, sound reproduction, etc.) or, if the above information is not available, some other means of identifying it; its present location; and the name of each of its present custodians.

5. As used herein, the words “person” or “persons” include any individual, firm, partnership, association, trust, joint venture, corporation, limited liability company, or other legal or commercial entity.

6. As used herein, the word “relating” means to make a statement about, discuss, describe, reflect, identify, deal with, consist of, establish, comprise, list, or in any way pertain, in whole or in part, to the subject.

DOCUMENTS TO BE PRODUCED

1. All documents that constitute or are in any way related to correspondence, messages or e-mails sent to or received by Dr. Michael Mann from any of the following persons:

- a. Dr. Caspar Ammann,
- b. Dr. Raymond Bradley,
- c. Dr. Keith Briffa,
- d. Dr. John Christy,
- e. Dr. Edward Cook,
- f. Dr. Thomas Crowley,
- g. Dr. Roseanne D'Arrigo,
- h. Dr. Valerie Masson-Delmotte,
- i. Dr. David Douglass,
- j. Dr. Jan Esper,
- k. Dr. Melissa Free,
- l. Dr. Chris de Freitas,
- m. Dr. Vincent Grey,
- n. Dr. James Hack,
- o. Dr. Malcolm Hughes,
- p. Dr. Eystein Jansen,
- q. Dr. Phil Jones,
- r. Dr. Thomas Karl,
- s. Dr. Otto Kinne,
- t. Dr. A.T.J. de Laat,
- u. Dr. Murari Lal,
- v. Dr. Stephen Mackwell,
- w. Dr. Glenn McGregor,
- x. Stephen McIntyre,
- y. Dr. Ross McKittrick,
- z. Dr. Patrick Michaels,
- aa. Dr. Jonathan Overpeck,
- bb. Dr. Tim Osborn,
- cc. Dr. Roger Peilke, Jr.,
- dd. Dr. Benjamin Santer,
- ee. Dr. Gavin A. Schmidt,
- ff. Dr. Stephen Schneider,
- gg. Dr. Olga Solomina,
- hh. Dr. Susan Solomon,
- ii. Dr. Kevin Trenberth,
- jj. Dr. Eugene Wahl,
- kk. Dr. Edward Wegman,
- ll. Dr. Thomas Wigley,

- mm. Dr. Vincent Gray, and
- nn. All research assistants, secretaries or administrative staff with whom Dr. Mann worked while he was at the University of Virginia.

2. All documents that constitute or that are in any way related to correspondence, messages or e-mails sent from Dr. Michael Mann to any of the following persons:

- a. Dr. Caspar Ammann,
- b. Dr. Raymond Bradley,
- c. Dr. Keith Briffa,
- d. Dr. John Christy,
- e. Dr. Edward Cook,
- f. Dr. Thomas Crowley,
- g. Dr. Roseanne D'Arrigo,
- h. Dr. Valerie Masson-Delmotte,
- i. Dr. David Douglass,
- j. Dr. Jan Esper,
- k. Dr. Melissa Free,
- l. Dr. Chris de Freitas,
- m. Dr. Vincent Grey,
- n. Dr. James Hack,
- o. Dr. Malcolm Hughes,
- p. Dr. Eystein Jansen,
- q. Dr. Phil Jones,
- r. Dr. Thomas Karl,
- s. Dr. Otto Kinne,
- t. Dr. A.T.J. de Laat,
- u. Dr. Murari Lal,
- v. Dr. Stephen Mackwell,
- w. Dr. Glenn McGregor,
- x. Stephen McIntyre
- y. Dr. Ross McKittrick,
- z. Dr. Patrick Michaels,
- aa. Dr. Jonathan Overpeck,
- bb. Dr. Tim Osborn,
- cc. Dr. Roger Peilke, Jr.,
- dd. Dr. Benjamin Santer,
- ee. Dr. Gavin A. Schmidt,
- ff. Dr. Stephen Schneider,
- gg. Dr. Olga Solomina,
- hh. Dr. Susan Solomon,
- ii. Dr. Kevin Trenberth,

- jj. Dr. Eugene Wahl,
- kk. Dr. Edward Wegman,
- ll. Dr. Thomas Wigley,
- mm. Dr. Vincent Gray, and
- nn. All research assistants, secretaries or administrative staff with whom Dr. Mann worked while he was at the University of Virginia.

3. All documents that constitute or that are in any way related to correspondence, messages or e-mails sent to or from Dr. Michael Mann that reference the following people:

- a. Dr. Caspar Ammann,
- b. Dr. Raymond Bradley,
- c. Dr. Keith Briffa,
- d. Dr. John Christy,
- e. Dr. Edward Cook,
- f. Dr. Thomas Crowley,
- g. Dr. Roseanne D'Arrigo,
- h. Dr. Valerie Masson-Delmotte,
- i. Dr. David Douglass,
- j. Dr. Jan Esper,
- k. Dr. Melissa Free,
- l. Dr. Chris de Freitas,
- m. Dr. Vincent Grey,
- n. Dr. James Hack,
- o. Dr. Malcolm Hughes,
- p. Dr. Eystein Jansen,
- q. Dr. Phil Jones,
- r. Dr. Thomas Karl,
- s. Dr. Otto Kinne,
- t. Dr. A.T.J. de Laat,
- u. Dr. Murari Lal,
- v. Dr. Stephen Mackwell,
- w. Dr. Glenn McGregor,
- x. Stephen McIntyre
- y. Dr. Ross McKittrick,
- z. Dr. Patrick Michaels,
- aa. Dr. Jonathan Overpeck,
- bb. Dr. Tim Osborn,
- cc. Dr. Roger Peilke, Jr.,
- dd. Dr. Benjamin Santer,
- ee. Dr. Gavin A. Schmidt,
- ff. Dr. Stephen Schneider,

- gg. Dr. Olga Solomina,
 - hh. Dr. Susan Solomon,
 - ii. Dr. Kevin Trenberth,
 - jj. Dr. Eugene Wahl,
 - kk. Dr. Edward Wegman,
 - ll. Dr. Thomas Wigley,
 - mm. Dr. Vincent Gray, and
 - nn. All research assistants, secretaries or administrative staff with whom Dr. Mann worked while he was at the University of Virginia.
4. Any and all documents, things or data that were submitted as part of the award/grant process for the grant.
 5. Any and all documents, drafts, things or data that were generated as a result of any activities conducted pursuant to the grant.
 6. Any checks, purchase orders, agreements, documents or other things that evidence any amounts paid under the grant.
 7. Any and all policies, procedures, manuals, documents or other things that describe or regulate the retention or destruction of any of the above-referenced documents/things from January 1, 1998 until the present day.
 8. Any and all e-mails or pieces of correspondence from or to Dr. Michael Mann since he left the University of Virginia that are in your possession, including but not limited to, those stored on any computer, hard drive, floppy drive, tape drive, optical drive, desktop, laptop, file server, database server, email servers or any other systems, and all backup copies used for archive, continuity or disaster recovery purposes, where data was transmitted or stored on purpose, or captured as a result of transient use of a system or application in the course of day to day research or to produce any work product or result. Include messages that may have been kept by individuals who interacted on the grant.

9. Any and all computer algorithms, programs, source code or the like created or edited by Dr. Michael Mann, in the time period from January 1, 1999, to through December 31, 2006.that are in your possession, including but not limited to, those stored on any computer, hard drive, floppy drive, tape drive, optical drive, desktop, laptop, file server, database server, email servers or any other systems, and all backup copies used for archive, continuity or disaster recovery purposes, where data was transmitted or stored on purpose, or captured as a result of transient use of a system or application in the course of day to day research or to produce any work product or result. Include messages that may have been kept by individuals who interacted on the grant.
10. Any data, information or databases, structured or unstructured information, source code and formulas that may be stored in any format or media type, including but not limited to, back up copies used for archive, continuity or disaster recovery purposes that was used in any way in connection with the application for or as a result of the grant.

INTERROGATORIES

1. To the extent that you are no longer in possession of any portion of the correspondence, messages, e-mails, documents or things referenced above, please identify when such of the correspondence, messages, e-mails documents or things referenced above were removed from University of Virginia servers or other systems, who removed said items and under what authority the removal was undertaken.
2. Identify any person who is currently employed at the University of Virginia or performing work for the University of Virginia as a contractor, grantee or agent who played any role in the applications for the grant.
3. Identify any person who conducted any research or other work in support of the award of or as a result of the grant.
4. Identify any person who played any role in awarding/making the grant.
5. Identify all persons known to you who are familiar with the data, information or databases, structured or unstructured information, source code, raw or underlying data, and formulas that were used in any way in connection with the application for or as a result of any of the grant.
6. For each person identified in response to the foregoing Interrogatories, specifically identify a description of what role each such person played regarding the grant.

**FORM OF AFFIDAVIT OF COMPLIANCE
WITH CIVIL INVESTIGATIVE DEMAND**

The undersigned, [insert name and job title of person responsible for producing documents on behalf of the Rector and Visitors of the University of Virginia], has [conducted or supervised, whichever is appropriate] a complete and comprehensive search of all files and records of the Rector and Visitors of the University of Virginia, at [state the location(s) where search was conducted]. All documents and things that are responsive to Civil Investigative Demand No. 2-MM are included in the return. All documents produced herewith are authentic and genuine.

The Rector and Visitors of the
University of Virginia

By: _____
Signature

Printed Name

Title: _____

STATE/Commonwealth of _____:

CITY/COUNTY OF _____:

Sworn to and subscribed before me, a notary public in and for the jurisdiction aforesaid, this ____ day of _____, 2010.

/s/ Notary Public

My Commission expires: / /

ATTACHMENT B

Michael E. Mann (“Mann”) obtained his Ph.D from the Department of Geology and Geophysics of Yale University in 1998. He was the lead author of a paper entitled “Global-scale Temperature Patterns and Climate Forcing over the Past Six Centuries” published in *Nature*, April 23, 1998. (hereinafter “MBH98”). He was also the lead author of “Northern Hemisphere Temperatures During the Past Millennium: Inferences, Uncertainties, and Limitations,” *Geophysical Research Letters*, Vol. 26, No. 6, Pages 759-762, March 15, 1999. (hereinafter “MBH99”). Thereafter, between 1999-2005, he was an Assistant Professor in the Department of Environmental Sciences of the University of Virginia, where he obtained funding related to the grant that is the subject of the CID.

MBH98 and MBH99 gave rise to the now notorious “hockey stick” graph which purported to show a slight cooling trend from 1000AD onward, with temperature rising sharply in the twentieth century. Two points should be noticed. First, this conclusion was contrary to what had been previously regarded as the known historical record: a Medieval Warm Period, followed by the Little Ice Age, followed by warming after 1850. In the twentieth century, there had been warming from the 1920s through the 1930s, cooling between the 1940s and 1970s, followed by a warming trend through 1998. Not only did MBH98 and MBH99 purport to show warming in the twentieth century that was unprecedented, with the hockey stick graph, the Medieval Warm Period and Little Ice Age disappeared.

The second thing to be noticed is that MBH98 and MBH99 were freighted with enormous public policy implications and appeared at a time when climate science was subject to unique

political pressures and influences. Although theories of Green House Warming were discussed in the nineteenth century, *see* Arrhenius, “On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground,” *Philosophical Magazine and Journal of Science*, Series 5, volume 41, April 1896, pages 237-276, the issue did not achieve significant public policy salience prior to the creation of the Intergovernmental Panel on Climate Change (IPCC) in November 1988. The mission of the IPCC is to assess the science regarding the existence of man-made global warming, to assess the effects, dangers and consequences of man-made global warming, and to assess policy responses to it. Because the IPCC is not a scientific body itself, climate scientists, funded mostly by governmental grants, have provided scientific input and have written the periodic assessment reports. Those climate scientists who control the final product are few in number. Hulme & Mahony, “Climate Change: what do we know about the IPCC?,” Review Article For *Progress in Physical Geography*, at 10-11 (12 April 2010) (“Claims such as ‘2,500 of the world’s leading scientists have reached a consensus that human activities are having a significant influence on the climate’ are disingenuous. That particular consensus judgment, as are many others in the IPCC reports, is reached by only a few dozen experts in the specific field of detection and attribution studies; other IPCC authors are experts in other fields”). Ex. B. Not only are they few in number, but through connections with Mann, they formed a mutually supporting and reinforcing group; peer reviewing and co-authoring each other’s papers. Wegman, Scott, & Said, “Ad Hoc Committee Report on the ‘Hockey Stick’ Global Climate Reconstruction” at 41-45 (2006) (Commissioned by the Chairman of the Committee on Energy and Commerce and the Chairman of the Subcommittee on Oversight and Investigations, hereinafter “Wegman Report”). Because neither the IPCC nor governmental grants to climate

scientists would likely continue were it to be determined that man-made global warming was not a serious threat, potential conflicts of interest flow predominantly in one direction.

The public policy significance of the hockey stick lies in its potential to counter the argument that the world should not accept the massive costs of mitigation of CO₂ if the temperature is presently within the normal range of fluctuation as measured by the extremes of the Medieval Warm Period and the Little Ice Age. Presented with the hockey stick, the IPCC ran with it vigorously, giving it central billing in the 2001 “Third Assessment Report.” Under the influence of the Third Assessment, nations made energy policy decisions that will increase costs for years to come inasmuch as all alternative renewable energy sources are prohibitively expensive without governmental subsidies of the type that have proved unsustainable in Denmark and Spain.

For a time the hockey stick carried all before it, perhaps because it seemed to correlate well with the observed increase in atmospheric carbon dioxide in the twentieth century over its 10,000 year baseline. Still, Mann’s papers were soon criticized as outliers. *See* Soon & Baliunas, “Proxy climatic and environmental changes of the past 1000 years,” *Climate Research*, Vol. 23, pages 89-110 (2003) (an analysis of 140 proxy studies of climate history “establishes both the Little Ice Age and Medieval Warm Period as climatic anomalies with worldwide imprints” and “reveal that the 20th Century is probably not the warmest nor a uniquely extreme climatic period of the last millennium.”) (Abstract). More explosively, Stephen McIntire and Ross McKittrick published “Corrections to the Mann et al. (1998) Proxy Data Base and Northern Hemispheric Average Temperature Series,” *Energy & Environment*, Vol. 14, number 6 (November 2003), concluding that the hockey stick “is primarily an artifact of poor data

handling, obsolete data and incorrect calculation of principal components.” (Abstract). Further information provided by Mann revealed the existence of an algorithm that sought out any hockey stick pattern in any data and imposed it upon the data set as a whole. McKitrick, “What is the ‘Hockey Stick’ About,” APEC Study Group, Australia April 4, 2003, at 10. The algorithm is so strong that it depicts random noise as a hockey stick 99% of the time. *Id.* The hockey stick in Mann’s work had been generated and imposed on the data set by some Bristlecone Pine tree ring chronologies published by Graybill and Idso in 1993. “They all turned out to exhibit a 20th century growth spurt that has not been fully explained, but is likely to be at least in part due to CO₂ fertilization and is known not to be a temperature signal since it does not match nearby temperature records.” *Id.* at 11. Indeed, “[t]he original authors . . . have stressed that they are not proper climate proxies.” *Id.* Not only did the algorithm use the Bristlecone Pine Series to corrupt the data set but McKitrick concluded that Mann

did this very experiment himself and discovered that the [principal components] lose their hockey stick shape when the Graybill-Idso series are removed. In so doing he discovered that the hockey stick is not a global pattern, it is driven by a flawed group of U.S. proxies that experts do not consider as climate indicators.

Id. at 12. According to McKitrick, after Mann performed the operation he stored it in a folder called CENSORED. *Id.*

The authors of MBH98 corrected some errors in a short corrigendum in 2004 in *Nature*, while denying that “these errors affect our previously published results.” *Nature*, 430, 105. Subsequent exchanges between Mann et al. and McIntyre & McKitrick are collected and analyzed in the Wegman Report. *Compare* McIntyre & McKitrick, “The M&M critique of MBH98 Northern hemisphere climate index: Update and implications,” *Energy and*

Environment, 16 (1), 69-100 (2005) and McIntyre & McKittrick, “Hockey Sticks, principal components, and spurious significance,” *Geophysical Research Letters*, 32, L03710, doi: 10.1029/2004 GL 021750 (2005), with Mann, Rutherford, Wahl & Ammann, “Testing the Fidelity of Methods used in proxy-based reconstructions of past climate,” *Journal of Climate*, 18, 4097-4107 (2005), and Rutherford, Mann, Osborn, Bradley, Briffa, Hughes & Jones, “Proxy-based Northern Hemisphere surface reconstructions: sensitivity to method, predictor network, target season, and target domain,” *Journal of Climate*, 18, 2308-2329 (2005).

The Wegman Report found the McIntyre and McKittrick papers “to be valid and their arguments to be compelling.” Wegman Report at 48. Its analysis of MBH98 led to other conclusions as well: the data relied on in published articles can be “poorly documented and archived” and insufficiently “robust to withstand intense public debate,” with publication too dependent “on peer review, which seem[s] not to be sufficiently independent,” while some authors tend to be grudging and haphazard in sharing data, and unwilling to “interact[] with the mainstream statistical community.” *Id.* at 51. The Wegman Report concluded that the use of proxy climate data is “still in its infancy,” incapable at this time of reaching “definitive conclusions.” *Id.* at 27. The Wegman Report left open the question of whether or not “Mann and associates realized the error of their methodology at the time of publication.” *Id.* at 4.

In addition to proxy data, Mann employed land temperature data. The first data base established for such information was maintained by the Climate Research Unit (“CRU”) at the University of East Anglia (“UEA”). The scientists of the CRU have been central players in the IPCC process and historically have been closely associated with Mann. In late 2009, certain e-mails and code files from the CRU were posted on the internet, having been hacked or leaked.

Dubbed “Climate Gate” by the press, the e-mails generated charges that the CRU was operated by a small clique of scientists who viewed their mission to include attempts to silence critics in a way that made the practice of science adversarial and biased. Those e-mails include notable ones from Mann.

In writing about the Chief Editor of the Journal of Geophysical Research, Mann said,

It seems clear we have to go above him. I think that the community should, as Mike Hulme has previously suggested in this eventuality, terminate its involvement with this journal at all levels – reviewing, editing, and submitting, and leave it to wither way[sic] into oblivion and disrepute.

On October 26, 2003, Mann wrote:

This has been passed along to me by someone whose identity will remain in confidence. Who knows what trickery has been pulled or selective use of data made. It’s clear that “Energy and Environment” is being run by the baddies -- only a shill for industry would have republished the original Soon and Baliunas paper as submitted to “Climate Research” without even editing it. Now apparently they’re at it again. . .

My suggested response is: 1) to dismiss this as stunt, appearing in a so-called “journal” which is already known to have defied standard practices of peer-review. It is clear, for example, that nobody we know has been asked to “review” this so-called paper 2) to point out the claim is nonsense since the same basic result has been obtained by numerous other researchers, using different data, elementary compositing techniques, etc. Who knows what sleight of hand the authors of this thing have pulled. Of course, the usual suspects are going to try to peddle this crap. The important thing is to deny that this has any intellectual credibility whatsoever and, if contacted by any media, to dismiss this for the stunt that it is.

Thanks for your help,
mike

On September 30, 2009, Mann wrote to Phil Jones,

Hi Phil, lets not get into the topic of hate mail. I promise you I could fill your inbox w/ a very long list of vitriolic attacks, diatribes, and threats I’ve received. Its part of the attack of the corporate-funded attack machine, i.e. it’s a direct and highly Intended outcome of a highly orchestrated, heavily-funded corporate

attack campaign. We saw it over the summer w/ the health insurance industry trying to defeat Obama's health plan, we'll see it now as the U.S. Senate moves on to focus on the cap & trade bill that passed congress this summer. It isn't coincidental that the original McIntyre and McKittrick E&E paper w/ press release came out the day before the U.S. senate was considering the McCain Lieberman climate bill in '05. we're doing the best we can to expose this. I hope our Realclimate post goes some ways to exposing the campaign and pre-emptively deal w/ the continued onslaught we can expect over the next month. thanks for alerting us to that detail of Kaufman et al which I'd overlooked.

Notoriously, although Mann did not write it, he was a recipient of an e-mail from Phil Jones of the CRU in which Jones wrote of Mike's trick to hide the decline.

Dear Ray, Mike and Malcolm,

Once Tim's got a diagram here we'll send that either later today or first thing tomorrow. I've just completed Mike's Nature trick of adding in the real temps to each series for the last 20 years (ie from 1981 onwards) and from 1961 for Keith's to hide the decline. Mike's series got the annual land and marine values while the other two got April-Sept for NH land N of 20N. The latter two are real for 1999, while the estimate for 1999 for NH combined is +0.44C wrt 61-90. The Global estimate for 1999 with data through Oct is +0.35C cf. 0.57 for 1998. Thanks for the comments, Ray

In response to Climate Gate, several investigations were commenced, some of which have been concluded. The House of Commons Science and Technology Committee published a report entitled "The disclosure of climate data from the Climatic Research Unit at the University of East Anglia" on March 31, 2010. The committee specifically declined to review the scientific validity of the CRU work, and MBH98 and MBH99 were not evaluated either. *Id.* at 4, 46. A nine page "Report of the International Panel set up by the University of East Anglia to examine the research of the Climatic Research Unit" was issued on April 12, 2010. Although the report found eleven articles produced by the CRU did not represent scientific impropriety, none were written by Mann, who has never been formally affiliated with the CRU. The report also stated,

“We cannot help remarking that it is very surprising that research in an area that depends so heavily on statistical methods has not been carried out in close collaboration with professional statisticians.” *Id.* at 5.

On June 4, 2010, a report was issued by the Pennsylvania State University entitled “RA-10 Final Investigation Report involving Dr. Michael E. Mann.” The committee accepted Mann’s explanation that the “trick” to hide the decline was nothing more than easily misunderstood benign scientific jargon. *Id.* at 9. The committee, based in part upon his success in obtaining grants and in publishing a large number of papers, concluded “that Dr. Michael E. Mann did not engage in, nor did he participate in, directly or indirectly, any actions that seriously deviated from accepted practices within the academic community for proposing, conducting, or reporting research, or other scholarly activities.” *Id.* at 17-19.

Most recently a UEA committee chaired by Sir Muir Russell issued a report entitled “The Independent Climate Change E-mails Review, July 2010.” At 1.3.2 (23) of the Executive Summary, the following appears:

On the allegation that the references in a specific e-mail to a ‘trick’ and to ‘hide the decline’ in respect of a 1999 WMO Report figure show evidence of intent to paint a misleading picture, we find that, given its subsequent iconic significance (not least the use of a similar figure in the IPCC Third Assessment Report), the figure supplied for the WMO Report was misleading.

Id. at 13. *See also id.* at 60. The conclusion to be drawn from this, at the very least, is that Mann devised a method of splicing data which could be misleading, was told that it was being used in a manner now found by UEA to be misleading, and said nothing about it.

It should also be noticed that Climate Gate has produced an apparent recognition at UEA that the interaction between science and the IPCC has the potential to corrupt science while

misleading both the public and their leaders through the systemic suppression of the extent of uncertainty in the science. The committee found “a consistent pattern of failing to display the proper degree of openness, both on the part of the CRU scientists and on the part of the UEA,” *Id.* at 11, “that e-mails might have been deleted in order to make them unavailable should a subsequent request be made for them,” *Id.* at 14, and that peer review “should not be overrated as a guarantee of the validity of individual pieces of research.” *Id.* at 15. *See also id.* at 64 (“Peer review is not a ‘gold standard’ that ensures validity, as some claim.”). With respect to the communication of scientific uncertainty, the committee wrote:

Climate Science is an area that exemplifies the importance of ensuring that policy makers . . . understand the limits on what scientists can say and with what degree of confidence. Statistical and other techniques for explaining uncertainty have developed greatly in recent years, and it is essential that they are properly deployed. But equally important is the need for alternative viewpoints to be recognized in policy presentations, with a robust assessment of their validity, and for the challenges to be rooted in science rather than rhetoric.

Id. at 14-15. The committee ended its Executive Summary by “welcom[ing] the IPCC’s decision to review its processes, . . . stress[ing] the importance of capturing the range of viewpoints and reflecting appropriately the statistical uncertainties surrounding the data it assesses.” *Id.* at 16. No review of the CRU science as a whole was undertaken and no view on that subject was expressed. *Id.* at 23, 36.

A final contextual matter should be discussed, which may elucidate the report’s contrast between “science” and “rhetoric.” Mike Hulme and Martin Mahony of the UEA, raise the question whether “the IPCC is an example of how the philosophy of post-normal science is reflected in practice.” “Climate Change: what do we know about the IPCC?” at 9 (citing

Funtowicz & Ravetz, 1993). The inventors of Post Normal Science have described it in this fashion:

In the sorts of issue-driven science relating to the protection of health and the environment, typically facts are uncertain, values in dispute, stakes high, and decisions urgent. The traditional distinction between ‘hard’, objective scientific facts and ‘soft’, subjective value-judgments is now inverted. All too often, we must make hard policy decisions where our only scientific inputs are irremediably soft. The requirement for the “sound science” that is frequently invoked as necessary for rational policy decisions may affectively conceal value-loadings that determine research conclusions and policy recommendations. In these new circumstances, invoking ‘truth’ as the goal of science is a distraction, or even a diversion from real tasks. A more relevant and robust guiding principle is quality, understood as a contextual property of scientific information.

Funtowicz & Ravetz, “Post Normal Science,” page 1-2.

<http://www.ecoeco.org/pdf/pstnormsc.pdf> . Scientific quality under this theory is achieved through consensus in a peer community. *Id.* at 7, 9-11. Paradoxically, if a practitioner of Post Normal Science claims consensus, he thereby admits that he is operating in an environment of objective uncertainty.

Mike Hulme, a lead author for the IPCC Third Assessment Report, believes that Climate Science is and should be Post Normal. Writing in *The Guardian* newspaper on Wednesday, March 14, 2007, he expressed the following opinions:

Climate change is happening, but it appears that science is split on what to do about it. One of the central reasons why there is disagreement about how to tackle climate change is because we have different conceptions of what science is, and with what authority it speaks – in other words, how scientific “knowledge” interacts with those other realms of understanding brought to us by politics, ethics and spirituality.

. . . .

At one level, it is as simple as this. Science as a means of inquiry into how the world works has been so successful because it has developed a series of principles, methods and techniques for being able to make such judgments.

. . . .

The other important characteristic of scientific knowledge – its openness to change as it rubs up against society – is rather harder to handle. Philosophers and practitioners of science have identified this particular mode of scientific activity as one that occurs where the stakes are high, uncertainties large and decisions urgent, and where values are embedded in the way science is done and spoken.

It has been labeled “post-normal” science. Climate change seems to fall in this category. Disputes in post-normal science focus as often on the process of science – who gets funded, who evaluates quality, who has the ear of policy – as on the facts of science.

....

... Too often with climate change, genuine and necessary debates about these wider social values – do we have confidence in technology; do we believe in collective action over private enterprise; do we believe we carry obligations to people invisible to us in geography and time? – masquerade as disputes about scientific truth and error.

The danger of a “normal” reading of science is that it assumes science can first find truth, then speak truth to power, and that truth-based policy will then follow.

...

If only climate change were such a phenomenon and if only science held such an ascendancy over our personal, social and political life and decisions. In fact, in order to make progress about how we manage climate change we have to take science off centre stage.

....

What matters about climate change is not whether we can predict the future with some desired level of certainty and accuracy; it is whether we have sufficient foresight, supported by wisdom, to allow our perspective about the future, and our responsibility for it, to be altered. All of us alive today have a stake in the future, and so we should all play a role in generating sufficient, inclusive and imposing knowledge about the future. **Climate change is too important to be left to scientists – least of all the normal ones.**

<http://www.guardian.co.uk/society/2007/mar/14/scienceofclimatechange.climatechange>

(emphasis added). Ex. C.

Mann’s reference to “the community” when writing to Hulme in the first e-mail quoted above appears to be Post Normal jargon. As recently as September 16, 2009, Mann posted this

remark to his blog *RealClimate*: “More than anything else, the book attempts to show us what the **community** is doing wrong in our efforts to communicate our science to the public.”

(emphasis added). This is also probably Post Normal jargon.

Academics are free to follow any philosophy of science they wish. Nonetheless, Post Normal Science has produced jargon which might be misleading/fraudulent in the context of a grant application if its specialized meaning is not disclosed or otherwise known to the grant maker.