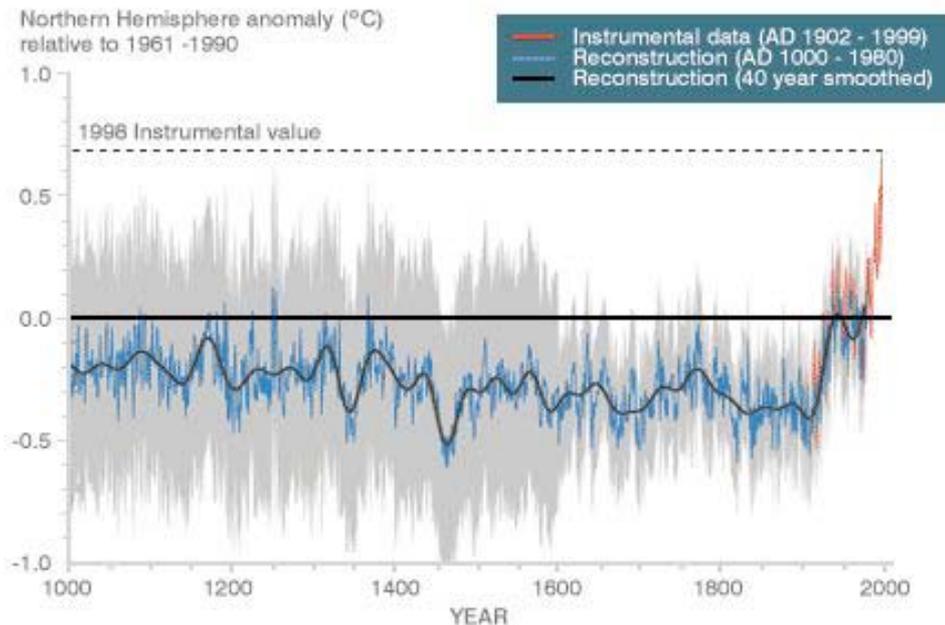


## Backing for 'hockey stick' graph



**The Earth was hotter in the late 20th Century than it had been in the last 400 or possibly 1,000 years, a report requested by the US Congress concludes.**

It backs some of the key findings of the original study that gave rise to the iconic "hockey stick" graph.

The diagram, which shows a sharp upturn in temperatures in recent decades, has been a prime target for groups who doubt humans are warming the planet.

These sceptics had challenged the way the hockey stick data was assembled.

They argued it had been massaged to produce the distinctive shape.

The fall-out culminated in one US politician demanding to see financial and research records from the three scientists who had put the data together: Michael Mann, Raymond Bradley, and Malcolm Hughes (sometimes referred to simply as MBH).

### **'Plausible' assessment**

The new report, carried out by a panel of the US-based National Research Council (NRC), largely vindicates the researchers' work, first published in 1998.

The review looked at large-scale surface temperature reconstructions from different research groups, together with instrumental records, to try to establish the Earth's surface temperature over the last 2,000 years.

Because thermometer records extend no further back than 150 years ago, scientists have to rely on "proxy data" to glean information about Earth's climate prior to that time.

Tree rings, corals, ocean and lake sediments, cave deposits, ice cores, bore holes, and glaciers are all used to infer the climate of the distant past.

The NRC report concludes: "Based on the analyses presented in the original papers by Mann et al and this newer supporting evidence, the

committee finds it plausible that the Northern Hemisphere was warmer during the last few decades of the 20th Century than during any comparable period over the preceding millennium."

The report says it has very high confidence that the last few decades of the 20th Century were warmer than any comparable period in the last 400 years.

However, it added that climate estimates between the years AD 900 and AD 1600 were less reliable, and less still before AD 900. It called for more research to gain better proxy data for these periods.

And the report's panel also said it was unable to confirm the original conclusion of Professor Mann's work that the 1990s were the hottest decade and that 1998 was the hottest year - because of the difficulties in estimating the past climate over such short timescales.

### **Body of evidence**

Professor Phil Jones, director of the Climatic Research Unit at the University of East Anglia, UK, and a collaborator with Professor Mann, disagreed with this conclusion, but told the BBC News: "I am mostly happy with the report, but there wasn't much need for it amongst palaeoclimatologists. The vast majority believe we are at our warmest temperature levels for at least 1,000 years.

"The report makes one good point. This is that there is a lot more science behind the projected warming expected in the 21st Century than just the palaeo-record of the last few millennia."

Professor John Zillman, president of the Australian Academy of Technological Sciences and Engineering, added: "The conclusions of the National Research Council committee seem entirely plausible and responsible.

"The significance of the so-called hockey stick controversy has been blown out of all proportion since the IPCC's (Intergovernmental Panel on Climate Change) Third Assessment Report in 2001.

"Our confidence in the reconstruction of past climates is gradually increasing but it is of the nature of scientific research that our knowledge of past climates has accumulated in fits and starts."

### **Debate goes on**

The climate sceptics, however, said they were also encouraged by the panel's findings.

The Canadian minerals consultant Stephen McIntyre has been at the forefront of a campaign to expose what he sees as methodological flaws in the use of proxy data.

He told BBC News that he felt the report had upheld "virtually all of our technical criticisms of MBH and did not reject or refute any direct points that we made. This is obviously encouraging on a personal level.

"They also set out some recommended statistical practices and guidelines, which largely correspond to our suggestions.

"While the panel drew comfort from findings of other studies in their 'big picture' conclusions, many of these other studies suffer from similar problems as MBH, although the panel did not appear to be aware of this."

McIntyre, who runs the [climateaudit.org](http://climateaudit.org) blog, said his campaign would now apply these guidelines and methods to the other proxy studies.

"Rather than putting an end to the debate, we think that the [NRC report] has served an important and perhaps overdue function in focusing issues and steering the debate."