

Hockeysticks, the tragedy of the commons and sustainability of climate science.

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The "hockey stick" was elevated to an icon-status by the IPCC. While in the technical part of the TAR, the reconstruction of the last millennium's temperature was presented with the proper caveats and uncertainties, in the publicly more visible parts of the TAR these caveats were less and less emphasized. The result is that in many quarters the hockey stick is considered to be an unquestionable indication of the detection and attribution of anthropogenic climate change.

The problem was, and is, that the methodology behind the hockey stick has not been adequately tested. The methodology was not properly explained in the original "Nature" publication. Scientists still have difficulties what exactly is "in" the method. We have tested the method in the artificial laboratory of the output of a global climate model, and found it to significantly underestimate both low-frequency variability and associated uncertainties.

Our work focuses on multi-century simulations with two global climate models to generate a realistic mix of natural and externally (greenhouse gases, solar output, volcanic load) forced climate variations. Such simulations are then used to examine the performance of empirically based methods to reconstruct historical climate. This is done by deriving "pseudo proxies" from the model output, which provide incomplete and spatially limited evidence about the global distribution of a variable.

These pseudo proxies serve as input in reconstruction methods - the result of which is then compared with the true state simulated by the model. Obviously, this is a valid test of the reconstruction method, independently of the ability of the model to capture accurately the historical temperature record.

Our simulation study was published in "Science" after proper review. The response was surprising - almost no open response, a bit in the media, and many colleagues who indicated privately that such a publication would damage the good case of a climate protection policy. It would play into the hands of the "sceptics".

It seems that exaggerating claims pass the internal quality checks of science relatively easily, whereas more reasoned and scientifically accurate claims find an unwelcome audience among scientists. The practice of scientists exaggerating threatening perspectives of anthropogenic climate change and its implications serves not only the purpose of supporting a policy perceived as "good" but also personal agendas of career and public visibility. The problem is, however, that the desired public attention can only be achieved if these perspectives are continuously topped by even more threatening perspectives. Thus, the credibility of climate science is endangered, and its important role of advising policy (in the naive sense of "knowledge speaks to power") becomes an unsustainable practice. We have a situation similar to the case of "tragedy of the commons".

In this talk I first present the methodical critique of the hockey stick methodology then engage in a rather personal discussion about the problem of post-normal climate science operating in a highly politicized environment.