

Natural climate change may be larger than commonly thought

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A new study of climate in the Northern Hemisphere for the past 2000 years shows that natural climate change may be larger than generally thought. This is displayed in results from scientists at the Stockholm University, made in cooperation with Russian scientists, which are published in Nature on 10 Feb 2005.

The most widespread picture of climate variability in the last millennium suggests that only small changes occurred before the year 1900, and then a pronounced warming set in. The new results rather show an appreciable temperature swing between the 12th and 20th centuries, with a notable cold period around AD 1600. A large part of the 20th century had approximately the same temperature as the 11th and 12th centuries. Only the last 15 years appear to be warmer than any previous period of similar length.

This study builds on an analysis of indirect climate data, such as information from ocean and lake bottoms, ice sheets, caves and annual tree rings. The use of this kind of material to reconstruct climate far back in the past is nothing new in itself. The difference between the new study from previous ones, is the selection of data series and the method used to estimate temperatures from them.

A 1000-year long climate simulation, undertaken (by another research group) with a computer model for the physics of the atmosphere and the oceans, show large similarities with the new reconstruction. The climate in this model is governed by reconstructed variations of solar radiation

and the amount of volcanic dust in the atmosphere (which reflects sunlight back into space). The fact that these two climate evolutions, which have been obtained completely independently of each other, are very similar supports the case that climate shows an appreciable natural variability - and that changes in the sun's output and volcanic eruptions on the earth may be the cause.

This means that it is difficult to distinguish the human influence on climate from natural variability, even though the past 15 warm years are best explained if one includes human influence in the simulations. The new study underscores the importance of including natural climate variability in future scenarios. It is not only the humans that can cause appreciable climate changes - nature does it all the time by itself.

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