

# Climate Hysteria and Climate reality: a comparison of inter-glacials

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Climatology and social forces

Cybershed

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## ABSTRACT

Much has been made in the past of the original hockey-stick curve of Mann and collaborators and various attempts to either support or denigrate this work. Here, I do neither. Multiple proxied data reaching back only 1,000 years ago is a poor substitute for the fact that we have 800,000 years of consistent measurement data in the Vostok Ice Cores. Here, I simply compare the interglacial onset of the current interglacial and the last interglacial as they marched out of their preceding Ice Ages. The data presented is taken straight from the Vostok Ice Cores and has not been processed in any way.

It is assumed that whatever effect *Homo Sapiens* may have had, it cannot have affected the interglacial of 130,000 years ago.

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## 1 REPRODUCIBILITY

As with all my previous projects, independent reproducibility is a *sine qua non*. Without this, it is simply not science [1, 2].

In this case, the raw data is openly available thanks to its researchers and it can be found here<sup>1</sup>. Just plot it. I used perl to extract the two sets of interglacial data and gnuplot to plot them. No processing was done.

## 2 INTRODUCTION

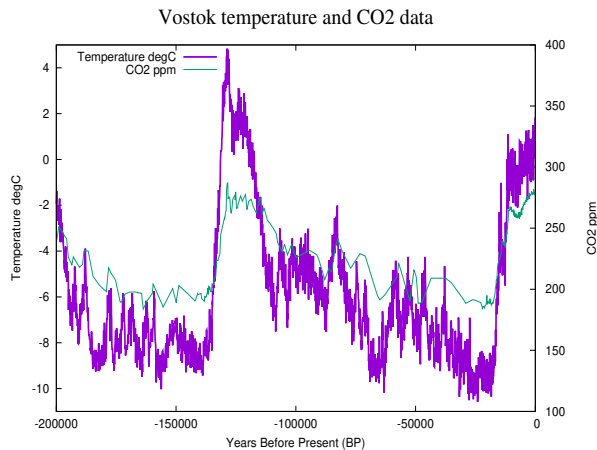
### 2.1 The Vostok Ice Core dataset

Perhaps the first thing to stress is that its a dataset, subject to quantifiable measurement error but its not perfect. The data is sampled in a way which only really allows a measurement every century. What happens between (with a time-scale of 50 years or less according to the Nyquist<sup>2</sup> theorem), we simply can't say. In fact faster changes can fold down into affecting slower changes in a process known as *aliasing*, but I will not pursue this here and focus only on the data as presented.

The data is itself also a proxy, although a close one. The temperature and CO2 levels at a particular level in the ice-core are inferred from oxygen isotope levels in the tiny bubbles trapped in the ice as the surface snow is buried and compacted over the centuries. Finally, the measurements pertain to just one small region of the globe. There are a few others reaching back perhaps a couple of hundreds of thousands of years but altogether they represent a fairly small part of the earth's

<sup>1</sup> <http://www.climatedata.info/proxies/data-downloads/>.

<sup>2</sup> [https://en.wikipedia.org/wiki/Nyquist-Shannon\\_sampling\\_theorem](https://en.wikipedia.org/wiki/Nyquist-Shannon_sampling_theorem)



**Figure 1.** The Vostok ice core dataset for the last 200,000 years. This dataset has not been processed in any way and is a pure subset of the original dataset.

surface, although they are broadly consistent with each other even though separated by thousands of miles<sup>3</sup>.

However, these are relatively minor quibbles. The dataset remains one of the few handles we have on what was actually happening in the last 800,000 years. This may sound an age by the way, but if we represent life on earth by one hour on a clock, this measurement dataset tells us what happened in the last second. We do not as yet have any better measurement data either more fine-grained or longer lasting, partly of course because the Vostok ice-core datasets in Antarctica where the ice is on average around 2km. thick, are as deep as it is possible to go on earth.

The last 200,000 years of temperature and CO2 data are shown as Fig. 1.

The peaks of this graph are the interglacial peaks and the troughs are the intervening Ice Ages. As you can see, the Earth spends more of its time cold than warm on this scale.

## 2.2 Comparing interglacials

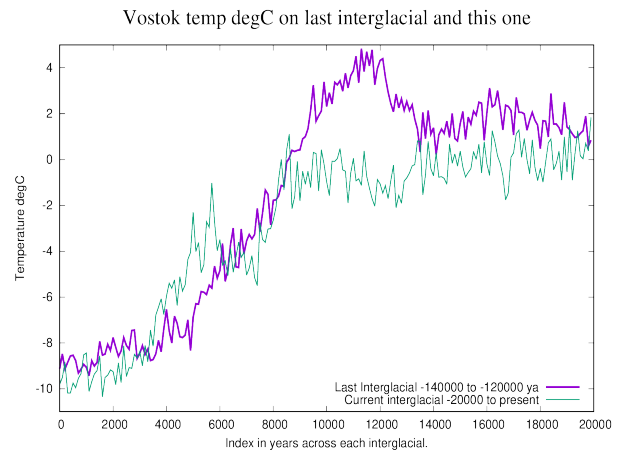
In view of the huge amount of discussion of the last 200 years of this dataset and the possible effects of anthropogenically introduced CO2, it is useful to compare the current interglacial with the previous interglacial some 130,000 years ago, sufficiently far in the past as to be entirely beyond any anthropogenic influence.

To do this, we march out of the preceding Ice Age for the current interglacial starting 20,000 years ago and for the previous interglacial starting 140,000 years ago, marching forward in lockstep for 20,000 years, in the case of the current interglacial, taking us into the present day. We then simply overlay these datasets for a direct temperature anomaly comparison. The result is shown as Fig. 2.

## 3 CONCLUSIONS

Studying Fig. 2, the only obvious conclusion is that the current interglacial is nothing special. It is currently considerably cooler than the peak of the last one (which was by assumption entirely free of anthropogenic effect) and the degree of variability in this data (it is sampled once every 100 years in the Vostok dataset) is much the same now as then.

We can say little about anthropogenic contributions. There are certainly none in the preceding interglacial as this terminated some



**Figure 2.** The 20,000 year march out of the preceding Ice Age for the last interglacial and the current interglacial, comparing the temperature anomaly in deg. C. The current interglacial data takes us to the present day.

110,000 years ago. Even in the current interglacial, such influence could only appear in the last couple of data points in any case. Given the enormous time-scale of the natural climate variations in this data, drawing conclusions about anthropogenic contributions over a period of perhaps 200 years is likely to be wildly uncertain.

### About the author

\*Les Hatton Ph.D. is a mostly retired mathematician, geophysicist and computer scientist who started his career in numerical weather prediction and climatology.

<sup>3</sup> [https://wiki.icecoredata.org/mediawiki/index.php/Ice\\_Core\\_Wiki](https://wiki.icecoredata.org/mediawiki/index.php/Ice_Core_Wiki)

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