

## Abstract

We have analyzed a large amount of temperature proxy data, covering the globe, for the last 2000 years/1/. The climate reconstruction thus obtained shows the historically known extrema and the temperature rise from 1850 to 1990. Fourier analysis of the proxy data reveals 3 overwhelmingly dominant cycles . These alone represent the climate history surprisingly precisely (correlation 0.85 ). They also yield the temperature rise 1850 to 1990, which is consequently not attributable to CO2 emission. The continuation of the cycles beyond present yields a temperature decrease to a value as the 1850 minimum by 2070. /2/

## Locations of Temperature Proxies

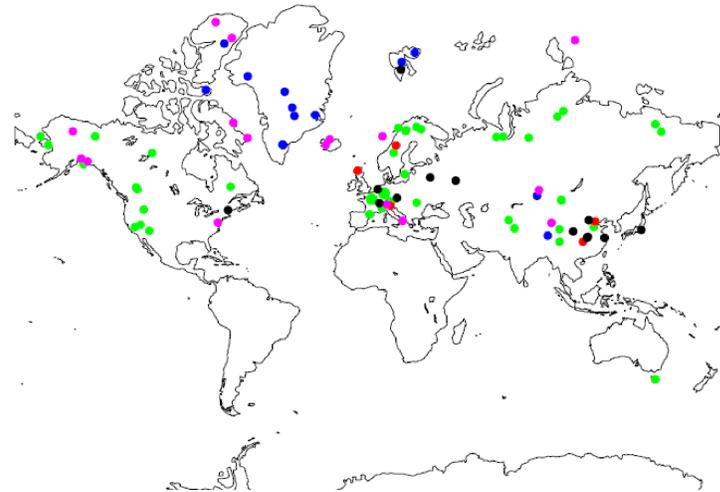
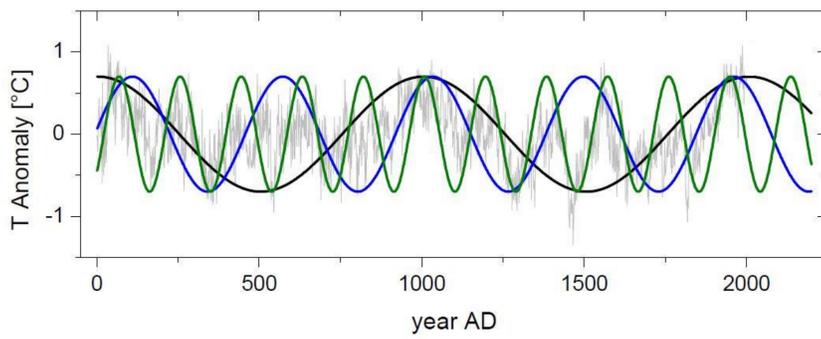


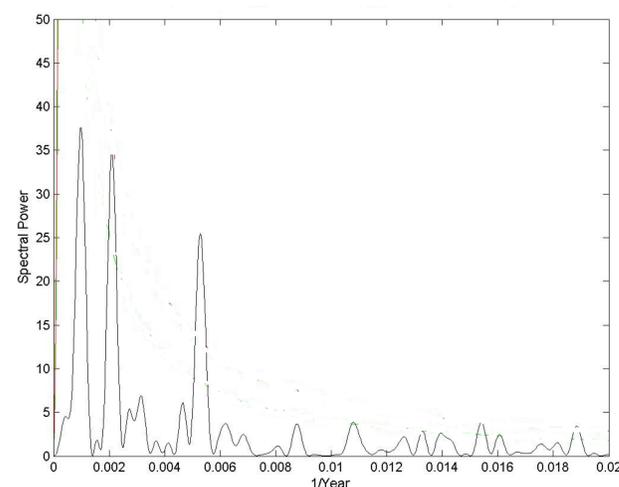
Chart 1. Label in 24pt Calibri.

Green: tree rings, Blue: ice cores, Red: speleothems ( stalagmites etc. ),  
Magenta: sediments, Black: other



Proxy temperatures ( grey ), and principal cycles.

Eddy cycle: black, Babich cycle: blue, De Vries cycle: green



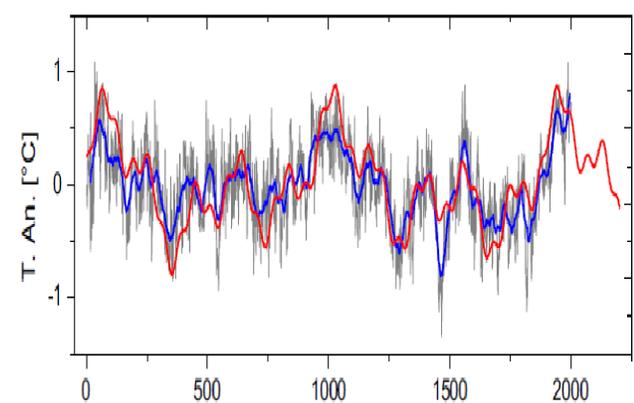
The 3 natural cycles: Eddy cycle 1033 years; Babich cycle 463 years;  
De Vries cycle 190 years

## Conclusions

Averaging a large number of proxy temperature data which cover the globe, yields a global temperature history of the past 2000 years. The global climate history is obtained ( as by definition ) as the 30 year running average. The climate history shows all maxima, minima ( roman optimum, medieval optimum, little ice age, the well-known deep minimum at 1450 ) known historically. Equally the warming from 1850 to 1990 Thus the temperature reconstruction appears realistic. Fourier analysis of the proxy data yields three dominant cycles ( already known from local studies ), whose sum represents the climate history closely. The cycle sum also yields the temperature rise from 1850 to 1990. Consequently this warming ( which is usually claimed as the proof of climate warming due to industrial CO2 emission ) is predominantly natural. The continuation of the principal cycles into the near future indicates cooling to 2070, compatible with the temperature stagnation of the last 20 years.

Evidently the limited precision of the analysis would not exclude a small human influence on global climate.

The results of our study are confirmed by neural network analysis of other worldwide proxy data/3/.



2000 Year Temperatures; Proxies: grey; Climate from Proxies: blue,  
Sum of 3 principal cycles: red

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## References

1. For the sources of the temperature data used see /2/
2. H.-J. Luedecke, C.O.Weiss The Open Atmospheric Science Journal, 11, (2017) 44 -53
3. J. Abbot, J. Marohasy Geo Research Journ. 14, (2017) 36 - 46