

# Northern Hemisphere Extratropical 2000-Year and 500-Year Temperature Reconstructions

**SND-ID:** ecds0083-1.

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## **Creator/Principal investigator(s)**

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## **Description**

We present two new multi-proxy reconstructions of the extra-tropical Northern Hemisphere (30-90°N) mean temperature: a two-millennia long reconstruction reaching back to 1 AD and a 500-yr long reconstruction reaching back to 1500 AD. The reconstructions are based on compilations of 32 and 91 proxies, respectively, of which only little more than half pass a screening procedure and are included in the actual reconstructions. The proxies are of different types and of different resolutions (annual, annual-to-decadal, and decadal) but all have previously been shown to relate to local or regional temperature. We use a reconstruction method, LOCal (LOC), that recently has been shown to confidently reproduce low-frequency variability. Confidence intervals are obtained by an ensemble pseudo-proxy method that both estimates the variance and the bias of the reconstructions. The two-millennia long reconstruction shows a well defined Medieval Warm Period, with a peak warming ca. 950-1050AD reaching 0.6°C relative to the reference period 1880-1960 AD. The 500-yr long reconstruction confirms previous results obtained with the LOC method applied to a smaller proxy compilation; in particular it shows the Little Ice Age cumulating in 1580-1720AD with a temperature minimum of -1.0°C below the reference period. The reconstructed local temperatures, the magnitude of which are subject to wide confidence intervals, show a rather geographically homogeneous Little Ice Age, while more geographical inhomogeneities are found for the Medieval Warm Period. Reconstructions based on different subsets of proxies show only small differences, suggesting that LOC reconstructs 50-yr smoothed extra-tropical NH mean temperatures well and that low-frequency noise in the proxies is a relatively small problem.

The dataset can be downloaded from:

[ftp://ftp.ncdc.noaa.gov/pub/data/paleo/contributions\\_by\\_author/christiansen2012/christiansen2012.txt](ftp://ftp.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/christiansen2012/christiansen2012.txt)

## **Data contains personal data**

No

## **Time period(s) investigated**

1 - 2000

## **Research area**

[Natural sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Climatology / meteorology / atmosphere](#) (INSPIRE topic categories)

## Keywords

[Common sense climate index](#), [Air temperature reconstruction](#), [Climate indicators](#)

## Publications

Christiansen, B., and Ljungqvist, F.C. 2012: The extra-tropical Northern Hemisphere temperature in the last two millennia: reconstructions of low-frequency variability. *Climate of the Past*, 8: 765-786, [www.clim-past.net/8/765/2012/](http://www.clim-past.net/8/765/2012/), doi:10.5194/cp-8-765-2012.

If you have published anything based on these data, [please notify us](#) with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

## Polygon (Lon/Lat)

-180, 90

-180, 30

180, 30

180, 90

-180, 90

## Accessibility level

Access to data through an external actor

Data are freely accessible

## Contacts for questions about the data

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