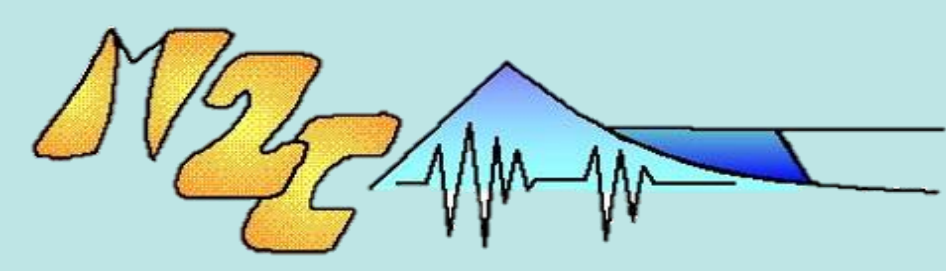


# Climate variability in the subarctic-North Atlantic area from the last two millenia to present from high resolution arctic records: geographical pattern and forcing factors.



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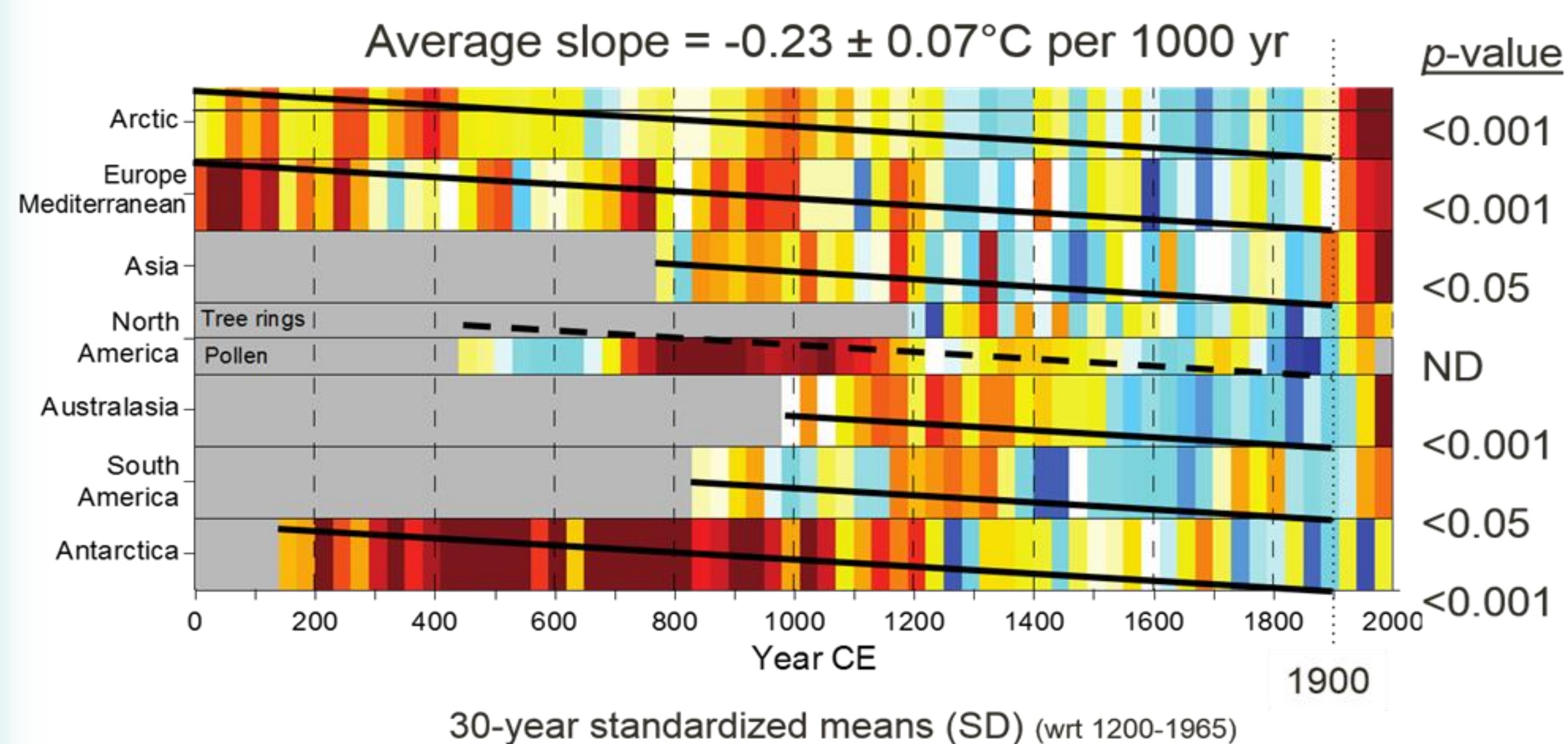
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## Introduction

For the two last millenia, trend observed in temperature shows a decrease, excepted for the last decennia. Recent warming observed in temperature appeared to be stronger for the poles. The Arctic is a key region for its sensitivity to climate change.



PAGES 2k Network, 2013

This project aims to define *higher resolution of climate variability*, from *millennial to decadal scale*, during the last two millenia and from temperature and precipitation proxies.

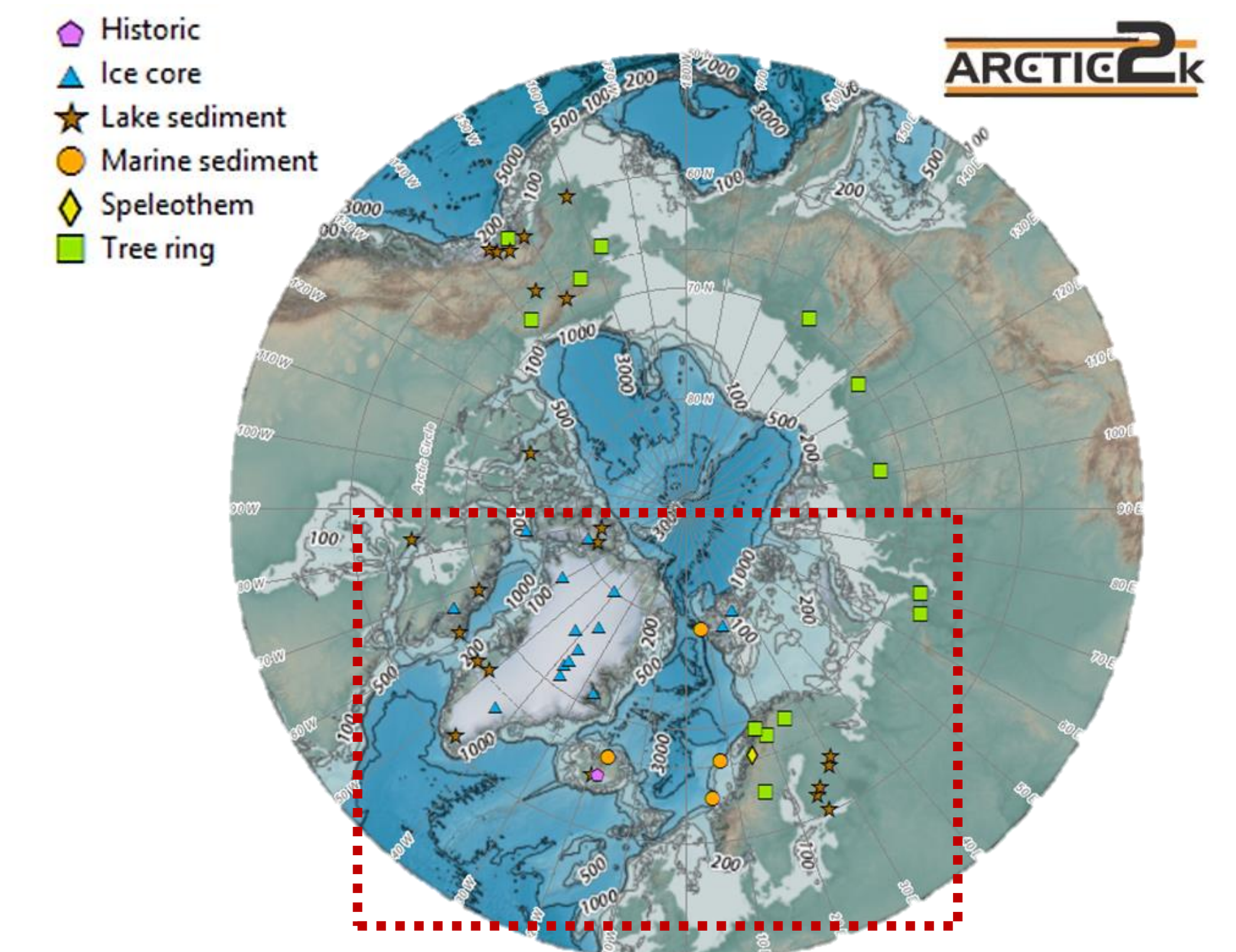
Subarctic-North Atlantic area is rich in *continental, glacial and marine paleoclimate records* and as such is particularly well studied. The data presented here are extracted from the database compiled by the Arctic2k workgroup of the PAGES 2k Network.

The records selected were required to meet *several criteria* (ref) :

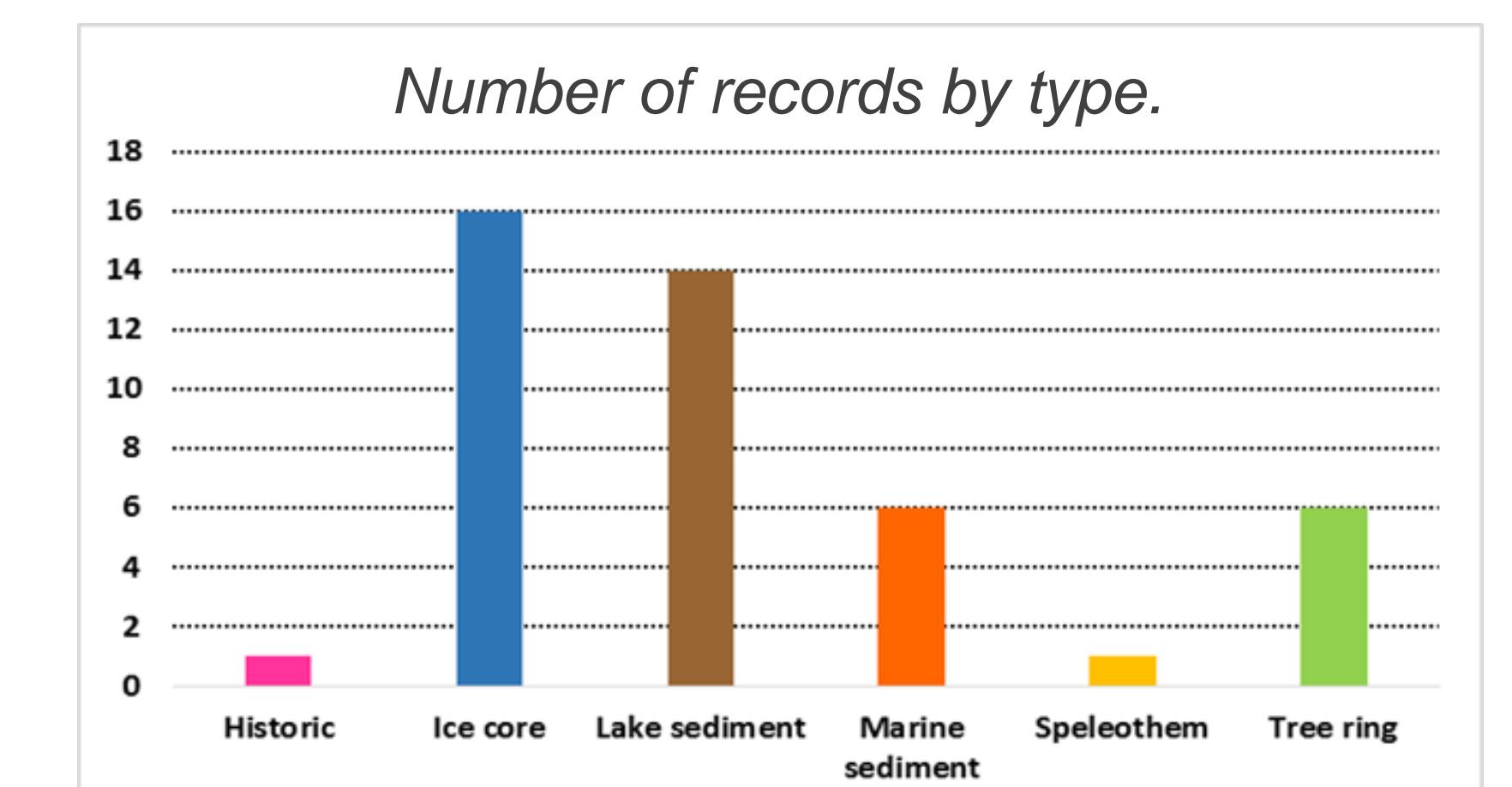
1. are from north of 60°N;
2. extend back in time to at least 1500 AD;
3. have an average sample resolution less than 50 years;
4. have at least one age control point every 500 years;
5. have been published in a peer-reviewed journal, where evidence statistical or mechanistic is presented documenting that the record is sensitive to temperature.

44 recordings are available on the study area, mainly ice cores, tree rings and lake sediments.

Note that 22 of them are at *annual resolution*.



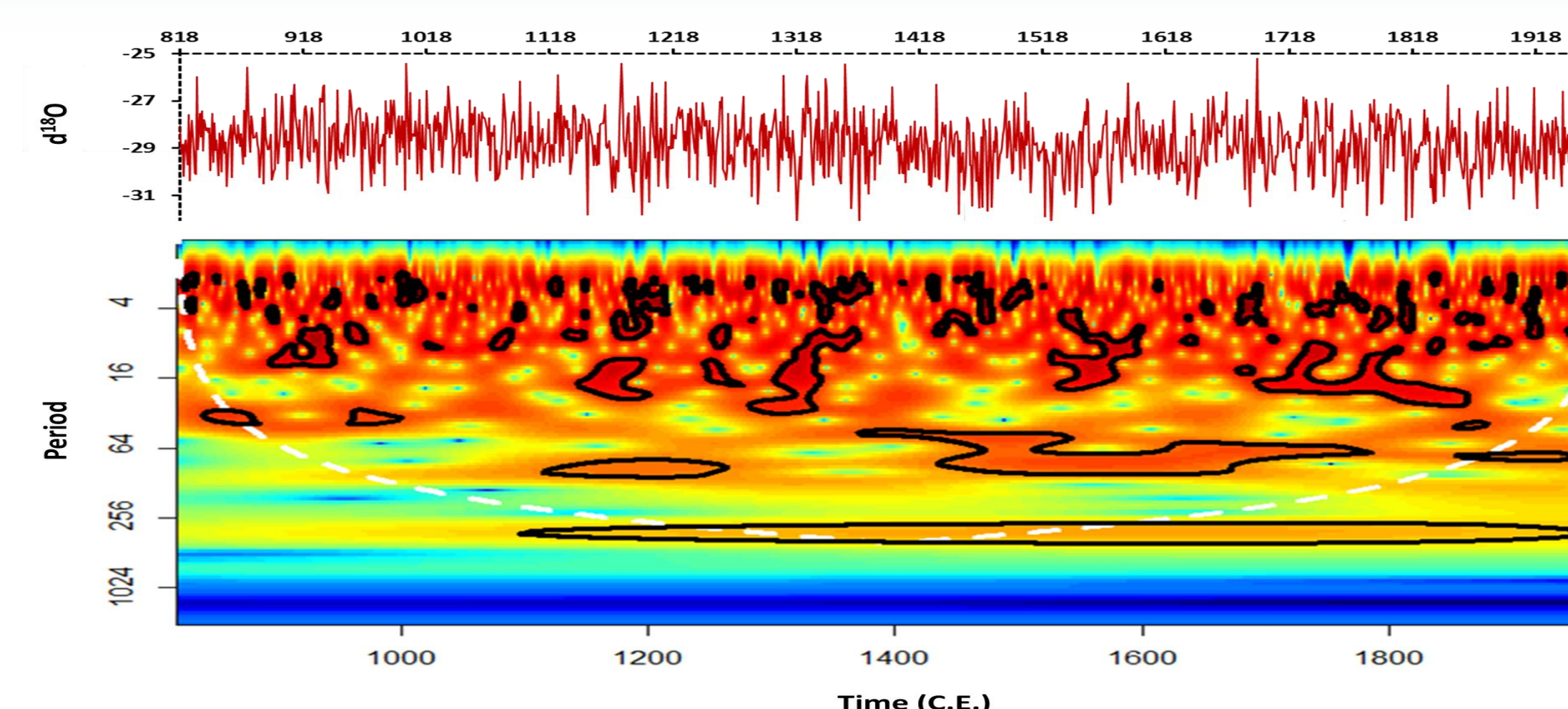
Localisation of Arctic2k database records.



## Methodological Approach

Analysis of paleoclimatic signals by different methods (wavelet transform, cross multi-resolution analysis, ...) allows a study of climate variability beyond linear trends.

It is used and applied to the description of the variability in series with aperiodic components, noise and transitions (breaks).



Exemple of wavelet analysis spectrum obtained for ice core record

This approach characterizes the continental series, marine and glacial by *different modes of variability* present in recordings and taking into account their *non-linear characteristic*.