Scots pine (*Pinus sylvestris*, L.) immigrated to Finnish Lapland by 9.5 - 9 ka calBP and spread in favourable climatic conditions to a larger area than that occupied by pine forests today. The time of the maximum extent was between 7 and 4.5 ka calBP.

A large number of subfossil tree trunks and stumps have preserved in small lakes in Lapland in the present treeline area and also beyond it. The area is situated between 68° and 70° N, 20° and 30° E, located in the northern part of the boreal forest belt in Fennoscandia, between the Swedish Scandes and the Kola Peninsula.

Tree-ring samples of Scots pine were collected from living trees, dead standing logs, old buildings, and subfossil wood from small lakes, the selected dataset containing 1081 tree-ring series in all. The 7520-year pine tree-ring chronology, completed in 1999 by professor Marti Ersson’s research group in the ADVANCE-10K project, extended to 5519 B.C. An update of the material continued it to 5633 B.C., thus the series is now 7639 years long.

The long pine tree-ring curve indicates interannual variations of June-July temperatures in northern Fennoscandia. The annual resolution has made it possible to reconstruct a high-frequency record of temperature variability over thousands of years. It gives also a potential to study many of past climatic and environmental variables.

The Finnish supra-long pine chronology is so far not long enough to overlap the specific cooling period observed in northern hemisphere about 8200 years ago. It seems there was a drastic drop of 1-5 °C in annual mean temperatures lasting for a few hundred years. The event is connected to a slowdown of the Gulf stream, which was probably caused by the cold pent up waters in Hudson Bay releasing into the North Atlantic. It is possible that similar "flip-flop" event might take place as resulted by global warming.

Our plan is try to find over 8000 year pine megafossils and analyse from tree-rings, how Finnish climate changed in those days. In theory we can conclude the following: if the westerlies prevailed during the cool Gulf stream, the summers were cooler than normal, thus resulting reduced growth in trees. In the case of the easterlies prevailing, continental weather caused warm, even hot summers. This should be seen as increased growth in trees.

**Some parameters of the Finnish 7639-year chronology.**

- The smallest number of samples in the chronology appears from 2300 B.C. to 250 B.C.
- Large correlation of samples made it difficult to bridge the gap between the absolute and the floating part of the record from 1856 to 2002 (Jones et al.)

**A closer view over the supra-long Scots pine tree-ring record for Finnish Lapland.**

- The Finnish tree-ring record was built from 1887 samples. The material was collected from over 45 lakes (triangles and circles). The red line shows the present pine distribution.
- The smallest number of samples in the chronology appears from 2300 B.C. to 250 B.C. Low correlation of samples made it difficult to bridge the gap between the absolute and the floating part of the record from 1856 to 2002 (Jones et al.)
- The average ring-width is about 0.6 mm.

**The timing power of the NAO (North Atlantic Oscillation) is usually strong in Finland, e.g mid-winter temperatures (SWP) coincide study with NAO indices. But concerning tree rings we always have more than the last 1970’s - early 1980’s and the NAO were clear exceptions.