



## **Climate of the European Polar Region on the longest pine tree-ring chronology from Kola Peninsula**

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As is well known trees growing nearby the northern timberline at Polar Regions are very sensitive to climatic variations. Therefore polar tree-ring records are of greatest interest for assessing global and regional climatic changes. We present a 550-year regional chronology based on samples of *Pinus sylvestris* from Kola Peninsula (Northwest Russia; 68.63 N, 33.25 E). The regional chronology included the oldest (1455-2005) living pine tree found up to date at Kola Peninsula. Data analysis permitted us to get some conclusions on the past climate variations at the European North. The regional chronology is significantly correlated with summer temperature in Europe. Moreover it was shown that the past climatic variations at Kola Peninsula were strongly connected to solar variability and volcanic activity. Namely, it is clearly seen that the decreases in tree-ring growth from about 1560 to 1680 coincide to the Little Ice Age and Maunder minimum of solar activity. As well one can see the decrease of temperature in 1780-1830 AD coinciding to combine action of Dalton minimum of solar activity (1801-1816 AD) and Laki (1783 AD) and Tambora (1815 AD) volcanic eruptions. It is interesting that in the period of suggested global warming since the XX century the Kola Peninsula tree-ring chronologies as well demonstrate the strong connection of temperature changes to natural factor impacts (cooling after 1900, warming around 1940 and some cooling after 1970). These chronologies do not indicate any great warming at the end of the XX century. We have to note that the results shown confirm the conclusion on climatic variations at this region obtained earlier using a

676-year long chronology based juniper samples (*Juniperus Siberica* Burgsd). The results obtained give us useful information on the regional climatic variations in the area influenced by the Gulf Stream and Arctic Ocean and located in the vicinity of the very important Shtokman field.

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