

# Conifer radial growth responses to climate variability and change since the Little Ice Age, northern Norway and Kola Peninsula

MSc project within PPS Arctic Norway, funded by the Research Council of Norway

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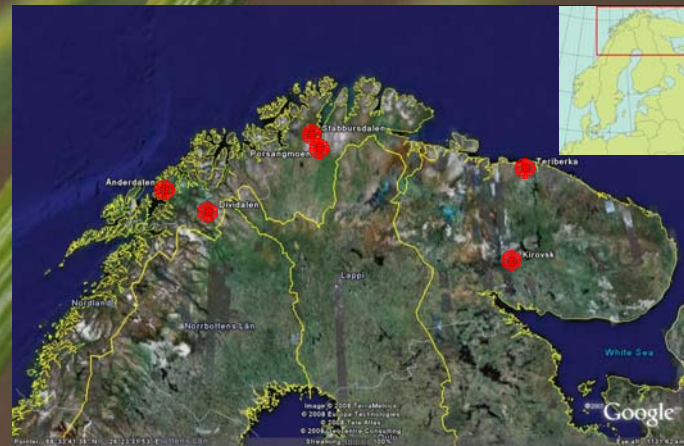
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## Aims

To analyze how radial growth of Scots pine (*Pinus sylvestris*) at its northern distribution limit has responded to climate variability and change during the last 130 years.

## Rational and study region

The past provides useful and essential information to deduce forest-tundra ecotone responses to climate change. In this context, comparison of Scots pine radial growth along major environmental gradients is a helpful tool. The study is carried out in three regions of northern Europe: two in Northern Norway (Troms and Finnmark) and one in North-Western Russia (Kola Peninsula). In each region two sites, one continental and one coastal are sampled. The chosen sites represents variation along two major climatic gradients: one primary gradient following the west-east transition in decreasing impact of Atlantic air masses; and secondary coast-inland gradients.



## How

30 trees, growing on mesic ground, are sampled per site. Two cores are extracted per tree in perpendicular and opposite directions. Selected trees have to be at least 150 years old. Standard dendrochronological methods are used in the project:

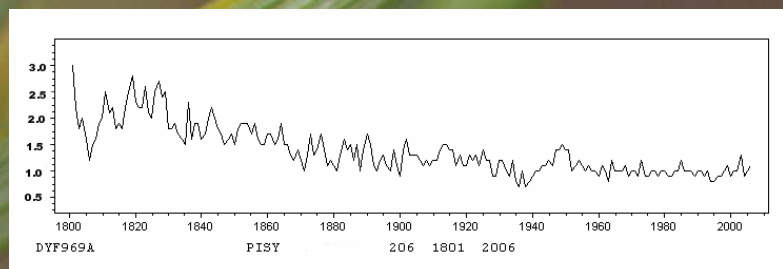
- Chronology building is done with TSAP.
- Cross dating is done visual and statistical with TSAP.
- ARTSTAN is used for the standardisation.
- Cores with correlation less than 0.5 to the main chronologies are excluded.
- The main chronologies are used for analyses of growth-climate relationships

## The road forward

The fieldwork in Norway, preparation of the cores and some measurements was done during 2007.

The fieldwork in Russia, will be done in the summer 2008.

Preliminary results will be available in late 2008.



Example of growth pattern extracted from a 206 year old Scots pine from Dividalen, Troms. Ring width is given in mm.