Vegetation and land-use history in Nellim, Finnish Lapland, as revealed by near-annual pollen analysis

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The land-use history in the area of the village of Nellim in Northern Finnish Lapland was investigated through high resolution pollen analysis. The study area is located in the northern boreal forest zone and the dominant tree species in the area is *Pinus sylvestris*. A peat monolith was analysed in a near-annual resolution and the results are presented in pollen accumulation rates (PAR, number of palynomorphs per cm^2 per year). The peat monolith was ^{14}C dated in Poznan Radiocarbon Laboratory using AMS (Accelerator Mass Spectrometry) technique and the results were compared to the atmospheric ^{14}C concentrations in pre- and post-bomb periods. A robust age-depth chronology was created from the results. Samples for pollen analyses were cut according to the age-depth chronology from a frozen $4*4$ cm^2 block so that the thickness of each sample was as close to one year as possible. For technical reasons samples thinner than 2 mm were not cut. 47 contiguous samples were prepared and analysed with their thickness varying between 2-10 mm and each sample representing a time interval of 1-4 years (the two lowermost samples were cut at 10 year interval). The lowermost sample at the depth of 117 mm is from around the year 1890. The main events e.g. extensive logging in the beginning of the 1930's, which effect the composition of the forest around the village, can be seen in the pollen diagram. The interpretation of the diagram was tested by simulating the pollen loading on the site in different kind of land-use scenarios. The simulations were carried out by using the HUMPOL suite of programs. Simulated results were in agreement with the actual pollen data from the site.