

PD1.03 Poster

A millennium history of pine growth fluctuations in the surroundings of Vilnius (Lithuania): Natural forcing versus human impact

Rutile Pukiene¹

¹*National Museum the Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania,* ²*Vytautas Magnus University, Kaunas, Lithuania*

PD1.03

During dendrochronological investigation of wooden constructions from the Vilnius Lower Castle archaeological site as well as wood from historical houses located in the territory of the Castle and in Vilnius old town a millennium – length pine chronology ZPMLPSC8 has been constructed. The chronology covers 1010–2009 period. Dendrochronological series from waterlogged archaeological wood cover the 11th–16th centuries. Series from historical houses represent the 17th–20th centuries. Tree ring width information of the 19–21 centuries. comes also from living pine trees.

The chronology has been constructed using 336 sample series. The best replication of the chronology is in the 13–14th centuries: up to 142 samples. Lower replication is in the 17th– 9th centuries part. In this period the chronology sample depth fluctuates mostly between 10 and 20.

Despite the heterogeneity of the replication it is evident that age curves of the trees and mean increment rates vary in different periods of the second millennium AD. Major shift to higher increment rates happens in the second half of the 15th–16th centuries. This is coincident with changes in forest use and intensified timber export. Two signals are obvious in the long-term dynamics of pine tree growth: the climatic signal and increment rate changes because of forest exploitation dynamics in the timber supply region. These signals should be separated when using chronology for long-term climatic reconstructions. The human impact signal would be of interest for economic history studies.