Geochronometria

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14th International Conference
"METHODS OF ABSOLUTE CHRONOLOGY"
17-19th May 2023
Gliwice, Poland

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ABSTRACTS & PROGRAMME

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Dendrochronological and radiocarbon analysis of the subfossil oaks from riverine sediments of the Seda River in Latvia

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The study presents an investigation of subfossil oaks from the riverine sediments of the Seda River in northern Latvia. The first attempt to date the subfossil trunks on the Seda River was made in 2006. The radiocarbon dating of seven cross-sections sampled in 2005 has shown that oaks grew c. cal AD 544–1402. Much more oak trunks were sampled in 2018 and 2021. Their radiocarbon dating shows that oaks grew in the first and the second millennium BC. Our study revealed that the oldest oak grew 1898–1784 cal BC, and the youngest tree was absolutely dated to AD 1193–1287. The longest chronology, covering 636 years, was absolutely dated to AD 652–1287 against various oak chronologies of Belarus/Baltic origin. The absolute-dated chronology demonstrates germination phases in AD 652–670 and AD 1048–1065. The rapid dying-off phase observed in AD 1250–1287 coincides with climate cooling throughout Europe. Dendrochronological analysis has shown that most oaks were slow-growing, and tree-ring widths of less than 2 mm per year are typical for most trees. In addition, highly variable characteristics of tree-ring widths of subfossil oaks indicate that sampled trees grew in the heterogeneous stands.