

TRACE 2023

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Book of Abstracts

WELCOME

Welcome to TRACE 2023, held in the University of Coimbra, Portugal, and organized by the Dendrochronological lab, MedDendro. The MedDendro lab was founded in 2005, a baby compared with the age of the University of Coimbra, founded in 1290. The MedDendro lab has several research lines, from studying the climate-growth relations of Mediterranean tree species, to the ecological meaning of intra-annual density fluctuations, xylogenesis of conifers, impact of drought on the physiology and growth of trees, and more recently, on archaeological and historical woods.

Associated with the celebration of the 250 years of the Botanical Garden of the University of Coimbra, the MedDendro lab prepared an exhibition about wood anatomy, called INSIDE OUT, that you can visit during the TRACE conference.

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A tale of an orthodox church in a remote mountain village in Epirus, NW Greece

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The current study is a dendroarchaeological examination of an orthodox church, located in a remote village called Pades in Northwest Greece, a few kilometers from the Greek-Albanian border. The village is built on the slopes of Mt. Smolikas (2637 m a.s.l.), the second highest mountain of Greece and falls within the borders of the Northern Pindus National Park, the largest terrestrial national park in the country. The first written reference to the village of Pades dates back to 1692.

The Church of the Assumption of the Virgin Mary is a stone building rectangular in plan with an apse on the east side. It has the form of a basilica with nine irregularly arranged windows and two entrances. According to the inscription at its entrance, the church was built in 1784, but there are many indications that some parts of the church may be older. Dendrochronological study of the building was necessary to clarify the construction history of the church, but also to develop long and well-replicated historical reference chronologies, especially for the mountainous regions of Northwest Greece that have not been sufficiently explored thus far.

The construction of the church standing today was carried out in phases, probably due to economic reasons and difficulties with finding the required building materials. One important aim of our study was to determine the construction date of the walls of the church. This was possible thanks to oak slats and round logs, which provided the walls with the flexibility and resilience required in seismically active areas. Our dendrochronological analysis concluded that the final year of the wall construction was 1792. This is later than the date, the year 1784, mentioned in the inscription at the entrance, which probably refers to the inauguration of the complete rebuilding of the church.

According to our results, roof construction took place in the years 1804-1809. Under the cover of a new roof a wooden barrel vault was constructed over the central nave in the years 1812-1814. The time intervals represent the periods of harvesting, transportation and

seasoning of wood followed by carpentry work, which probably lasted only a few months. The two beams on both sides of the entrance door inside the southern wall indicate the need to build or rebuild the entrance directly to the nave of the church, which must have taken place after 1825. We also reconstructed the dates of the 19th-century repairs to 1855 and the last repair of the floor after 1859.

The species used for the construction of the church are mostly black pine (*Pinus nigra*), Bosnian pine (*Pinus heldreichii*) and oak (*Quercus sp.*). Both Black and Bosnian pine represent most probably local timber, as suggested by the perfect cross-dating against chronologies representing regions of Grevena, Smolikas, or Pindus. The Bosnian pine timber was definitely of local origin and transported from a nearby forest – not more than 80 km from Pades. Due to the topography of the area, it was possible to harvest trees and transport them only within a limited area. A few oaks used exclusively inside the walls originate probably from the lower-altitude forests near Konitsa or areas closer to the Greek-Albanian border.

Dendrochronological study of the church in Pades yielded three new tree-ring chronologies: Bosnian pine covering 1260-1826, black pine covering 1295-1854 and oak chronology covering years 1507-1767. Reused timbers from the 15th and 16th centuries reveal a much longer history of the church than the oldest records known from the village of Pades.

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