



Radiocarbon dating and Dendrochronology for Stratigraphic Units near Tebano, Senio Northern Apennines – Time frame of Climatic Fluctuation at the onset of the Younger Dryas

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The presence of *Pinus [sylvestris]* provides an insight into dramatic events due to climatic changes. Several major and minor climatic fluctuations have had a strong impact on terrestrial and marine environments since the last glacial period to present day (Ravazzi et al. 2006). This study aims to describe the response of a fluvial environment through the use of dendrochronology and stratigraphy. Here, we intend to get a better understanding of how these climatic fluctuations affect the behavior of the Senio River (Lotter et al. 1992). In Tebano, Italy, several *Pinus sylvestris* subfossil trunks were discovered during excavation for an irrigation pool. Subfossil samples were collected to analyze the climate during the Younger Dryas (11,000 years BP) in detail. Charcoal samples from the Bubano clay quarry extend our research to further to 35,500 cal. years BP. The combination of dendrochronology along with stratigraphy allowed us to examine the climate at a detailed local and apply it to a broader spectrum. Tree-ring measurements and cross dating provided a better understanding and verification of extreme events that occurred during the lifespans of the trees. The use of stable isotopes indicates the extreme conditions that occurred. Radiocarbon dating validates the age of the samples and what geological period they come from. Along with stratigraphy, we were able to compile depth data to create a sediment curve. Using various methods throughout this study, we discovered the climatic situation of *Pinus* 11,000 years BP and are able to compare them with samples from today. These present day samples mark two of the southernmost extents of the *Pinus* population. We were then able to comprehend the magnitude of sediment supply and precipitation. Through this collection of methods and data, we are able to understand the influence of climate change in the past and the potential changes of the future.

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