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Radiocarbon dating of AT ash

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Tephra layers formed by large volcanic eruptions have often been used as time markers in geology and archeology to correlate spatially distant events. Exact timing of tephra depositions therefore a key parameter in these studies. There are several radiometrical methods to date tephra layers. Radiocarbon (14C) measurements on buried wood are conducted for the sample whose age is younger than 50,000 years. Direct dating on tephra layer itself can be done using K-Ar dating for the samples older than approximately 100,000 years old. However several lines of problems are arisen for these radiometric methods. Radiocarbon results older than 20,000 years which was conducted for buried woods and charcoal scattered and did not give a precise age of the tephra layer due to secondary contamination after its deposition. It has been reported that the choice of measurement methods, namely 14C measurement by liquid scintillation counter (LSC) and accelerator mass spectrometry (AMS), produces inconsistent age results on same samples.

Keywords: radiocarbon diting, AT ash, tephra