

High accuracy radiocarbon dating of tephra layers using paleosol samples

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A widespread tephra sedimentary layer is often used as a time marker bed in geology and geography. It means that the age of a tephra layer is used as a criterion to estimate the other layer's age. Therefore, the establishment of the high-precise volcanic eruption dating method has been required.

Ejected sediments from a volcanic eruption in large areas called a widespread tephra layer are used in geology and geomorphology to identify the synchronicity of a geological event observed at different locations. The layer is dated by radiometric method on the organic material for the volcanic event occurred up to ca.50 ka. However lacking of suitable material for radiocarbon dating (ie. organic materials) is often become an obstacle to directly estimate the timing.

Obtaining of the paleosol samples are easy. However, paleosol samples are not easy to remove the modern carbon contamination completely.

We add the density separation process into the pretreatments processes of radiocarbon measurement of paleosol samples. This improvement is effective.