

Sequential radiocarbon measurement on peaty sediments to reconstruct high precision age model of marsh deposits

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Peat deposits that develop in wetlands are easy to radiocarbon dating because they contain a lot of carbon. However, peat has uncertainty in estimating the age of sedimentation that the source of carbon supply is secondary, because organic matter is not a biological body, but mainly decomposed matter of biological bodies. Biological disturbance is unlikely to occur in an anaerobic environment where peat deposits. In addition, the deposition rate often does not change much. Even if the deposition rate changes, it is guaranteed that the sediments are older than the sediments in the lower layer, according to the law of stratum accumulation, so sampling should be done at period intervals much shorter than the fluctuation cycle of radioactive carbon concentration. If you do, you will be able to determine high precision chronology.

Blaauw et al. (2003, QSR) compares the calendar year calibration curve with the continuously sampled radiocarbon dating values, assuming that the peat layer deposition rate does not change for a certain period, Can be estimated.

Although this approach has been tried (eg Ishizawa et al., 2017, QG) to apply tsunami sediments contained in peat deposits to high precision age dating, verification of accuracy using known age class I have not been touched.

Therefore, in this study, we aimed to verify the age determination accuracy by seeing the age by the peat-wiggle matching method for the tephra containing layer whose eruption age is clear by the history record.

Keywords: Radiocarbon dating, Wiggle matching, Tephra