

Figure S1. Age-Depth models of the cores ABH and ABHHX based on the CRS model

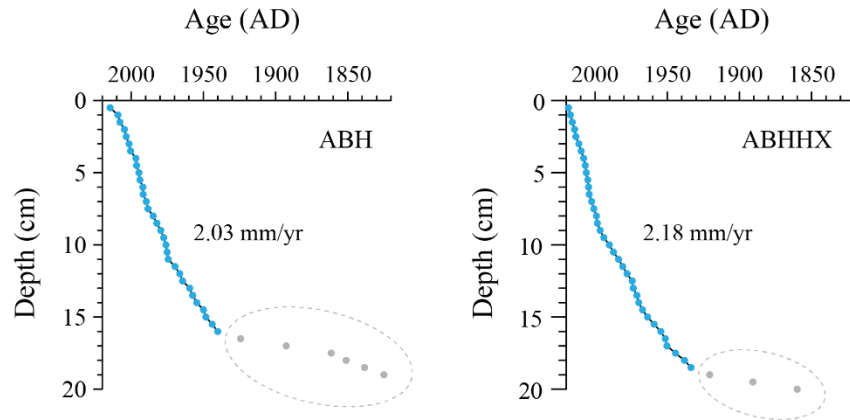
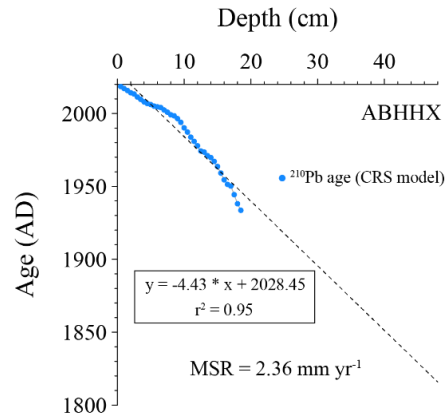


Figure S2. Linear extrapolation age of the core ABHHX



Formula (1)

$$t = \frac{1}{\lambda} \ln \frac{A_{(0)}}{A} \quad (\text{Appleby and Oldfield, 1978})$$

λ : the decay constant of ^{210}Pb (0.0311 yr^{-1}); $A_{(0)}$: the total, integrated $^{210}\text{Pbex}$ activity in the core ($\sum^{210}\text{Pbex}$); A : the cumulative $^{210}\text{Pbex}$ below the level representing time t .

Formula (2)

$$\text{TOC}_{\text{act.}} = \text{TOC}_{\text{mea.}} * (\text{sample weight after carbonate removal} / \text{sample weight before carbonate removal})$$