Supplementary Data

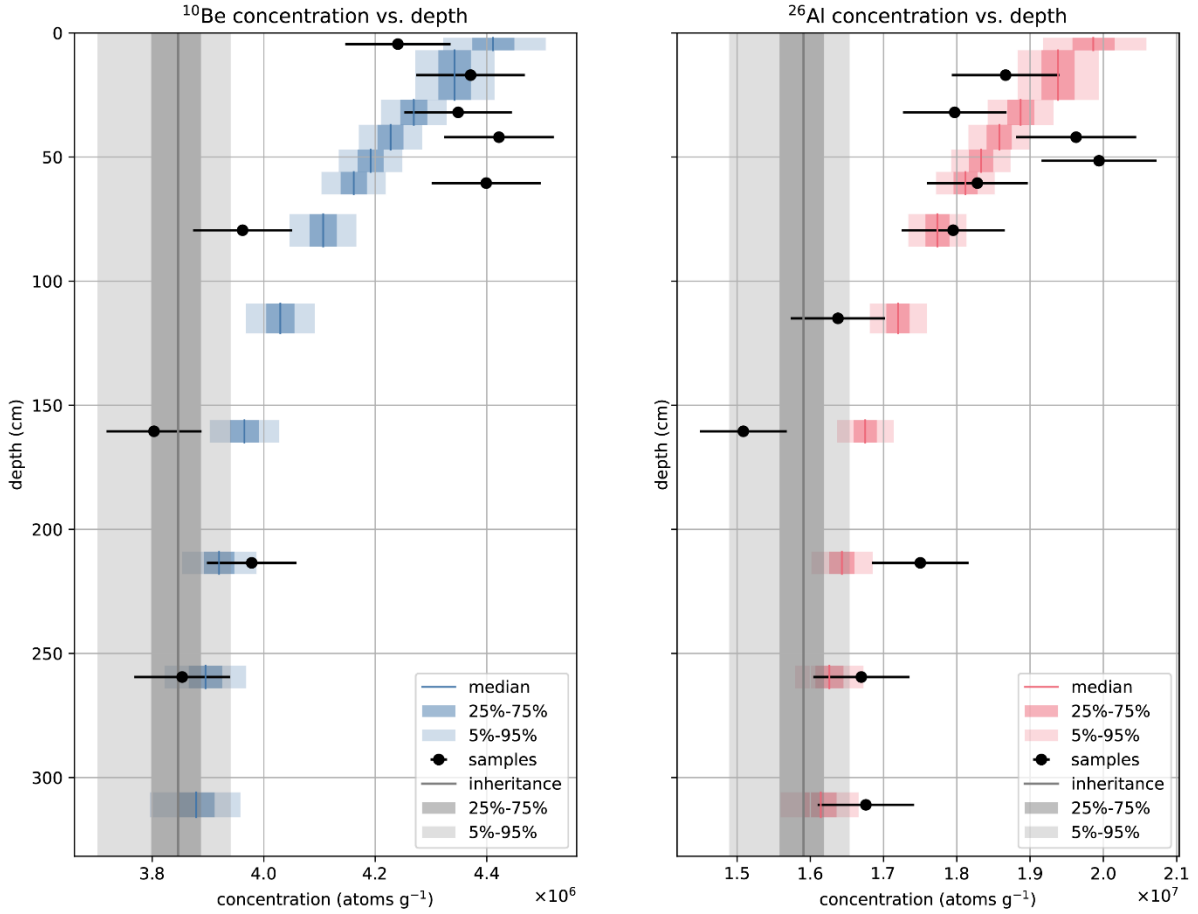

Figure S1. Pearse Valley (PV14-A) permafrost core depth profiles with measured ^{10}Be and ^{26}Al concentrations (black data points) with 1σ uncertainties for all samples between 0.02–3.16 m depth. Blue (^{10}Be) and red (^{26}Al) boxes show simulated nuclide concentrations at each sample depth.

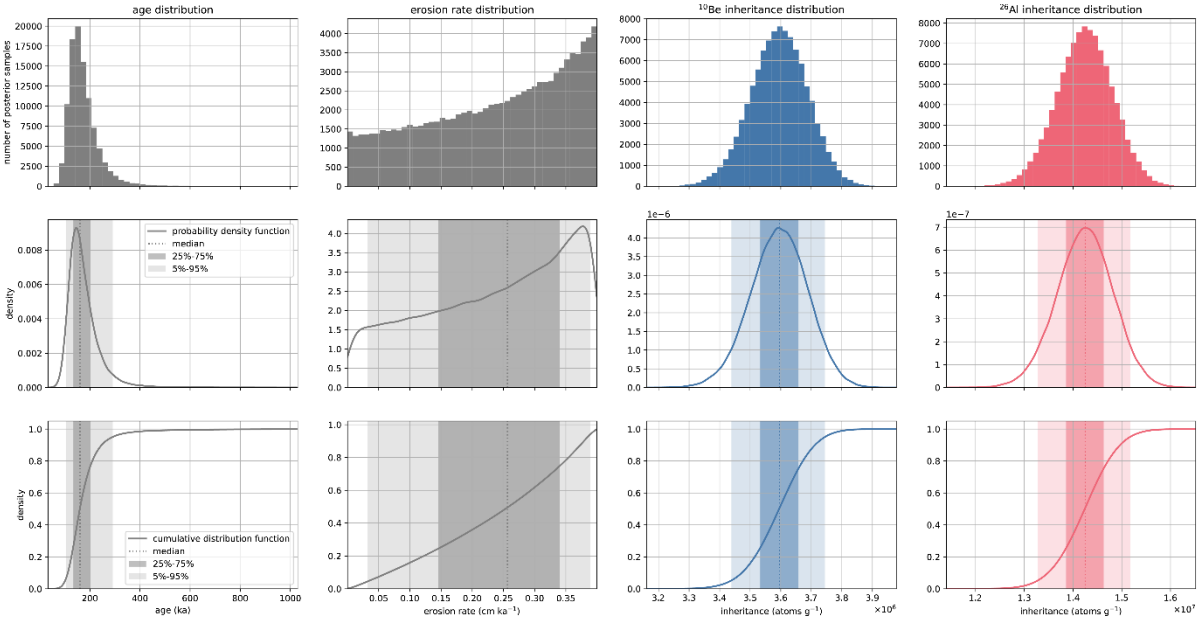

Figure S2. Probability density function, and cumulative distribution function for exposure age, erosion rate and inheritance using dual-nuclide depth profile modelling for PV14-A (0.02 – 1.65 m). Showing 25th to 75th and 5th to 95 percentiles. For all samples between 0.02 – 0.65 m depth, we used the average concentration of all measurements for model outputs.

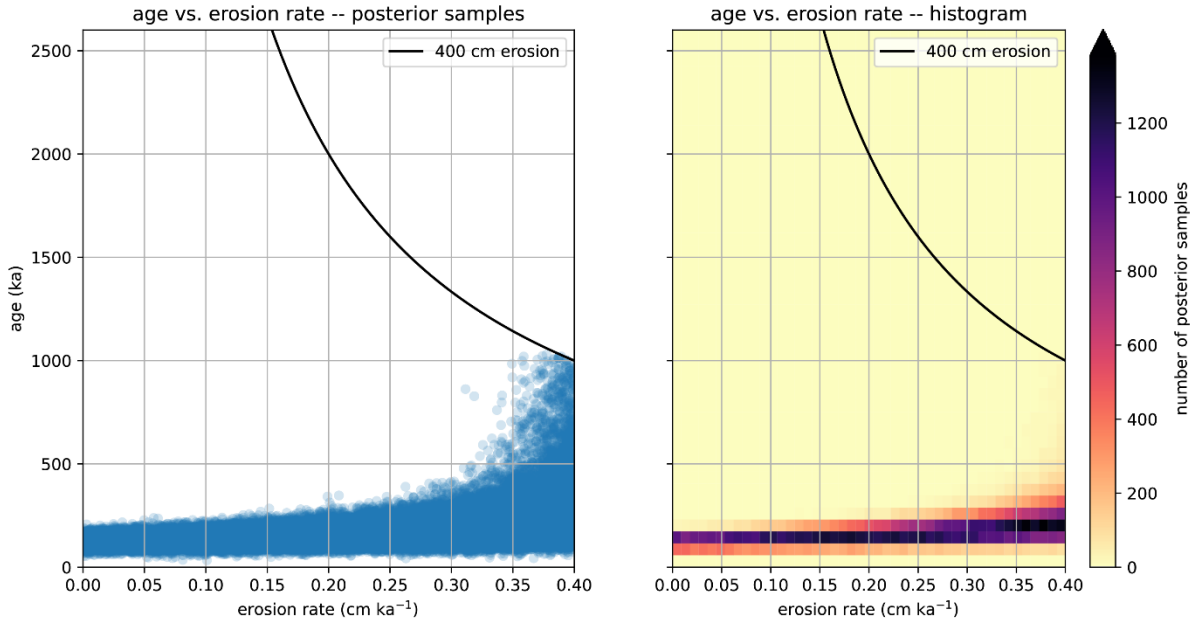

Figure S3. Age-erosion rate solution spaces using dual-nuclide depth profile modelling for PV14-A. Left panel shows all posterior profile solutions while right panel shows a histogram of these solutions. Black line indicates 400 cm net erosion limit based on geologic constraints described in Sect. 4.3.

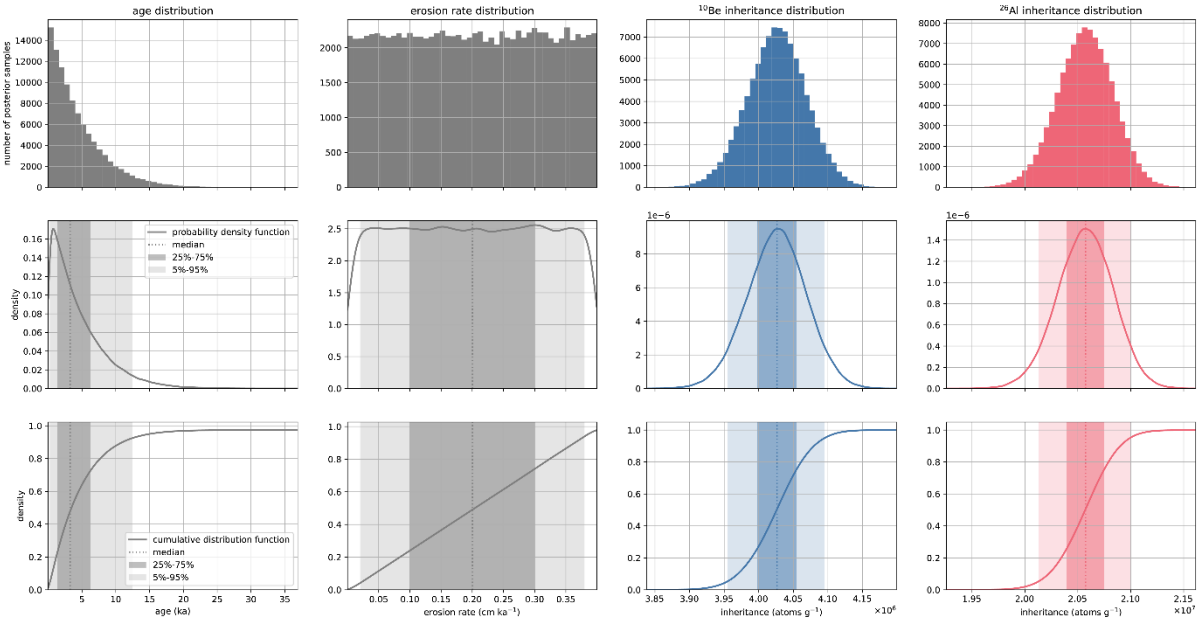

Figure S4. Probability density function, and cumulative distribution function for exposure age, erosion rate and inheritance using dual-nuclide depth profile modelling for WV14-I. Showing 25th to 75th and 5th to 95 percentiles.