



**Figure S1** Cumulative distribution of 10,000 fitted Monte Carlo simulation results for the inherited nuclide concentration (a)  $^{10}\text{Be}$ , (b)  $\text{Ne}$ , and (c)  $\text{Al}$ , (d) the fitted  $\text{Chi}^2$  value for each Monte Carlo iteration, (e) debris concentration by weight in the sublimated ice mass, and (f) the ice mass elevation loss. Also showing is the 50th percentile (red line) with error bounds given by the 16th and 84th (pink lines), and the horizontal axes are truncated to the 98% (0.01 and 0.99) confidence interval