**Supplementary Figure SF2.** Ne isotope ratios measured in all heating steps for all Mackay Glacier erratic samples. Ellipses are 68% confidence regions. The black dot is the isotope composition of atmospheric Ne and the black lines show the atmospheric-cosmogenic mixing line (Niedermann, 2000; the separation of the lines reflects the uncertainty in the isotope composition of cosmogenic Ne). The color-coding reflects extraction temperature: light blue,  $<1000^{\circ}$ C; light red,  $1000^{\circ}$ .

