**Supplementary Figure SF1**. Ne isotope ratios measured in all heating steps for all core 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,  $<500^{\circ}$ C; light purple, 500-1000°; light red, 1000°. The data in the two panels are the same; only the axis limits differ.

