



Extended Data Figure 2 | Raw atmospheric noble gas elemental ratios and relative differences between individual MOT records.

a, Reconstructed atmospheric elemental ratios (orange, $\delta\text{Kr/N}_2$; red, $\delta\text{Xe/N}_2$; purple, $\delta\text{Xe/Kr}$) using $\delta^{40}\text{Ar}$ to correct for gravitational enrichment in the firn, and using the firn thermal gradient scenario

based on our isotope data (see Extended Data Fig. 1) to correct for thermal fractionation. The error bars are 1σ . **b**, Differences in MOT derived from each of the three individual gas ratios relative to the best-estimate (Mix) data (compare with Fig. 1; orange, Kr/N_2 versus Mix; red, Xe/N_2 versus Mix; purple, Xe/Kr versus Mix).