



Supplementary Figure S1: Isotopic composition (a) and absolute $\delta^{18}\text{O}$ deviation (b) from the certified value (dashed line) for three in-house standards measured at different water volumes (symbols). The measured and corrected $\delta^{18}\text{O}$ of crystalline water extracted from variable amounts of gypsum sample KV09-505 are also shown. (c) A 2nd polynomial fit surface to the measured deviations in $\delta^{18}\text{O}$ as a function of sample $\delta^{18}\text{O}$, showing minimal deviation at the positive $\delta^{18}\text{O}$ values of the gypsum crystalline water.