**Supplementary Data S1: Flame atomic absorption spectrometry of samples from KOLBHI-04 borehole**

For the analysis of Mg, Ca, Na, P, Sr, Ba, Al, approximately 3g of powdered rock samples were subjected to digestion using Aqua Regia. Samples were digested for >16 hours before being transferred to a heating block, with further digestion at 80˚C for a further 3 hours. Cooled distillates were filtered and 1ml of 10% potassium chloride solution was added as an ionization suppressant. Duplicate blanks and test samples utilizing a standardized modern soil sample were also prepared for each batch analysed. Distillates were subsequently analysed in a Perkin Elmer flame atomic absorption spectrophotometer using air/Acetylene and Nitrous Oxide/Acetylene to atomize the samples (Allen, 1989). One sample was duplicated for every twenty analysed with an additional seven standards.