

Supplementary material to accompany 'Evaluating accuracy improvements of laser ablation ICPMS element analysis in silicate glasses and carbonates via downhole fractionation correction – an old problem re-assessed'

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1. Comparison of downhole fractionation factors estimated with respect to NIST SRM 610 and NIST SRM 612

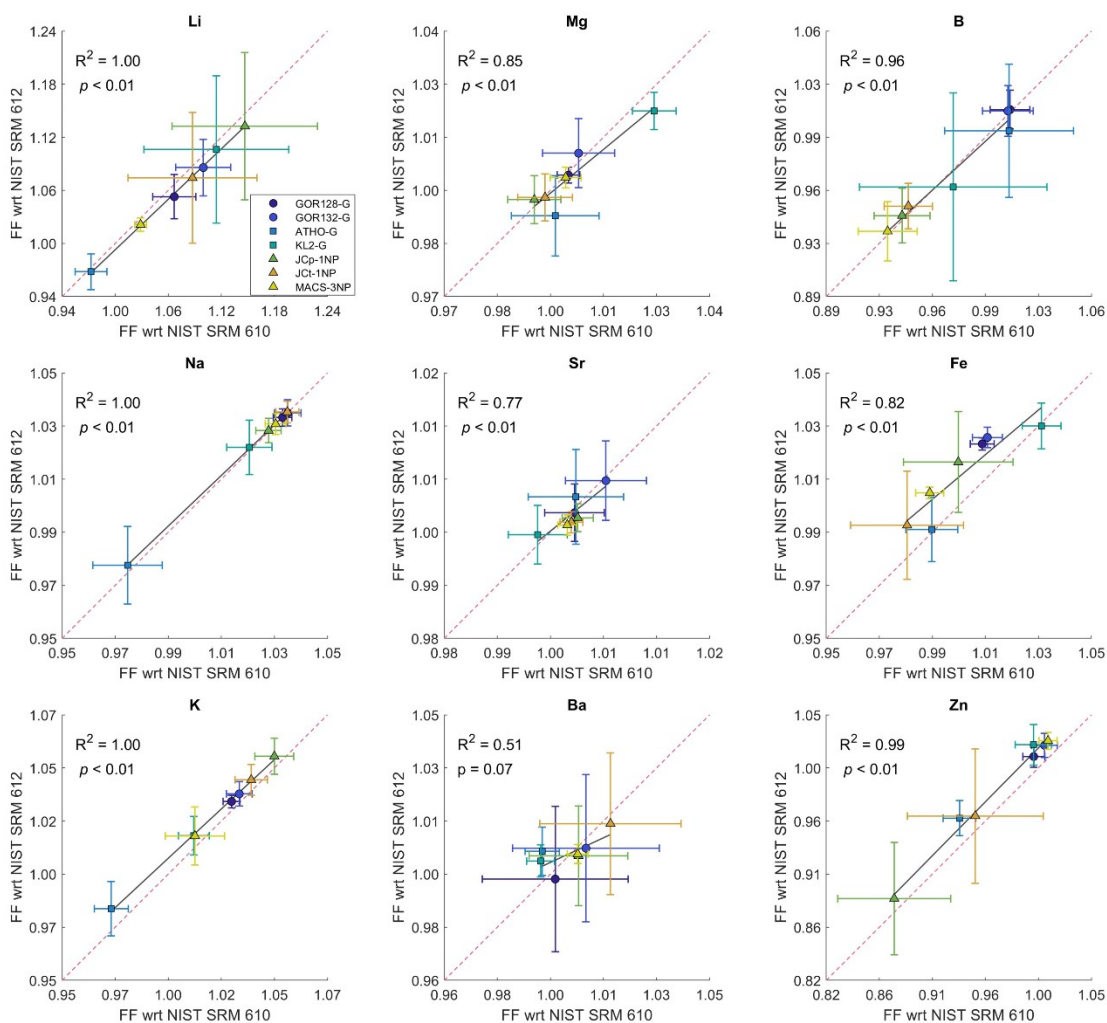


Figure S1. The relationship between downhole fractionation factors of different elements normalised to Ca in a range of geological reference materials relative to NIST SRM612 and NIST SRM610. The solid and dashed lines represent the linear least-squares regression and 1:1 line, respectively. The error bars are 2SE of all individual analyses (see main text figures for n).

2. Long-term average of downhole fractionation with respect to NIST SRM 612

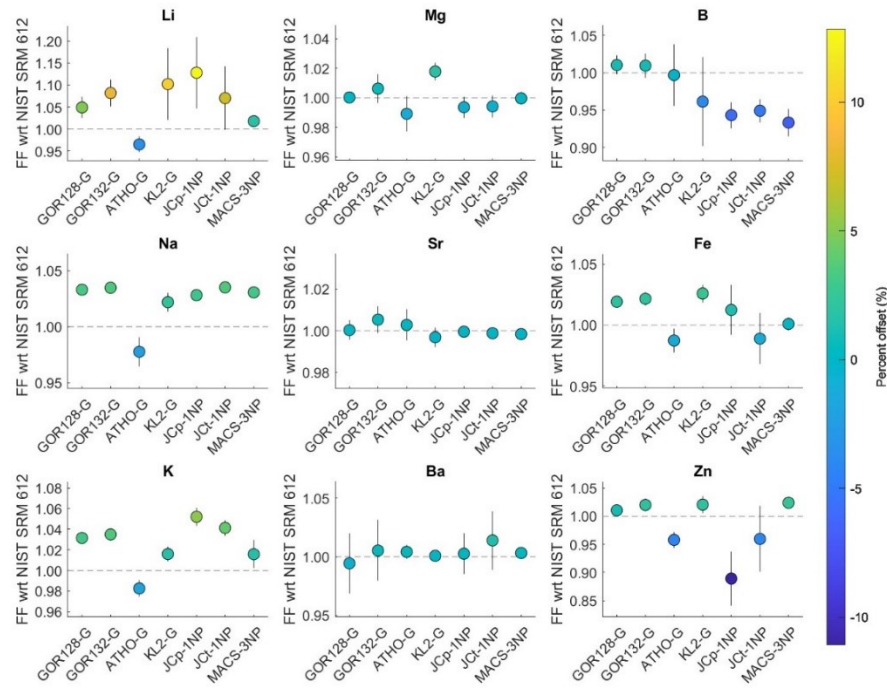


Figure S2. Long-term average of downhole fractionation of different elements normalised to Ca in a range of reference materials, with respect to NIST SRM612. The error bars show 2SE estimated over all individual data points from different sessions spanning ~18 months. The dashed line represents the ideal case for which no fractionation relative to the NIST glass occurs. Symbol colour shows the percentage offset of fractionation from the ideal case. The number of sessions (s) and replicates/spots (r) were: GOR 128-G (s=14, r=150); GOR 132-G (s=14, r=146); ATHO-G (s=2, r=23); KL2-G (s=2, r=25); JcP-1NP (s=14, r=148); JcT-1NP (s=14, r=148) and MACS-3NP (s=14, r=147).

3. Shift in the percent offset of measured EI/Ca values from reference values in seven common reference materials following downhole fractionation correction

Table S1. Percent offset of EI/Ca values from reference values in different reference materials. EI/Ca and EI/Ca_{FF_{corr}} represent values before and after downhole fractionation correction, respectively. Values are provided only for data where the downhole fractionation correction resulted in a significantly different mean EI/Ca value (based on student's t-test at the 95% confidence interval).

	Percent offset from the reference values						
	GOR128-G	GOR132-G	ATHO-G	KL2-G	JcP-1NP	JcT-1NP	MACS-3NP
Li/Ca	18.7	23.9	-	-	-	-	-3.9
Li/Ca _{FF_{corr}}	10.2	14.4	-	-	-	-	-6.2
B/Ca	-	-	-	-	-0.8	-8.2	8.6
B/Ca _{FF_{corr}}	-	-	-	-	6.7	-2.7	18.2
Na/Ca	11.6	9.0	21.6	9.5	3.7	11.1	-4.0
Na/Ca _{FF_{corr}}	7.9	5.4	25.0	7.4	1.2	7.4	-6.4
Mg/Ca	-	-	-	-1.7	-	-	-
Mg/Ca _{FF_{corr}}	-	-	-	-4.0	-	-	-
K/Ca	9.6	17.2	10.3	-	8.4	8.8	-
K/Ca _{FF_{corr}}	6.9	13.8	13.5	-	3.7	5.5	-
Fe/Ca	-	-	-	1.7	-	-60.8	11.3
Fe/Ca _{FF_{corr}}	-	-	-	-0.9	-	-59.1	13.0
Zn/Ca	-	-	7.8	-	-27.4	-	-
Zn/Ca _{FF_{corr}}	-	-	16.1	-	-6.0	-	-