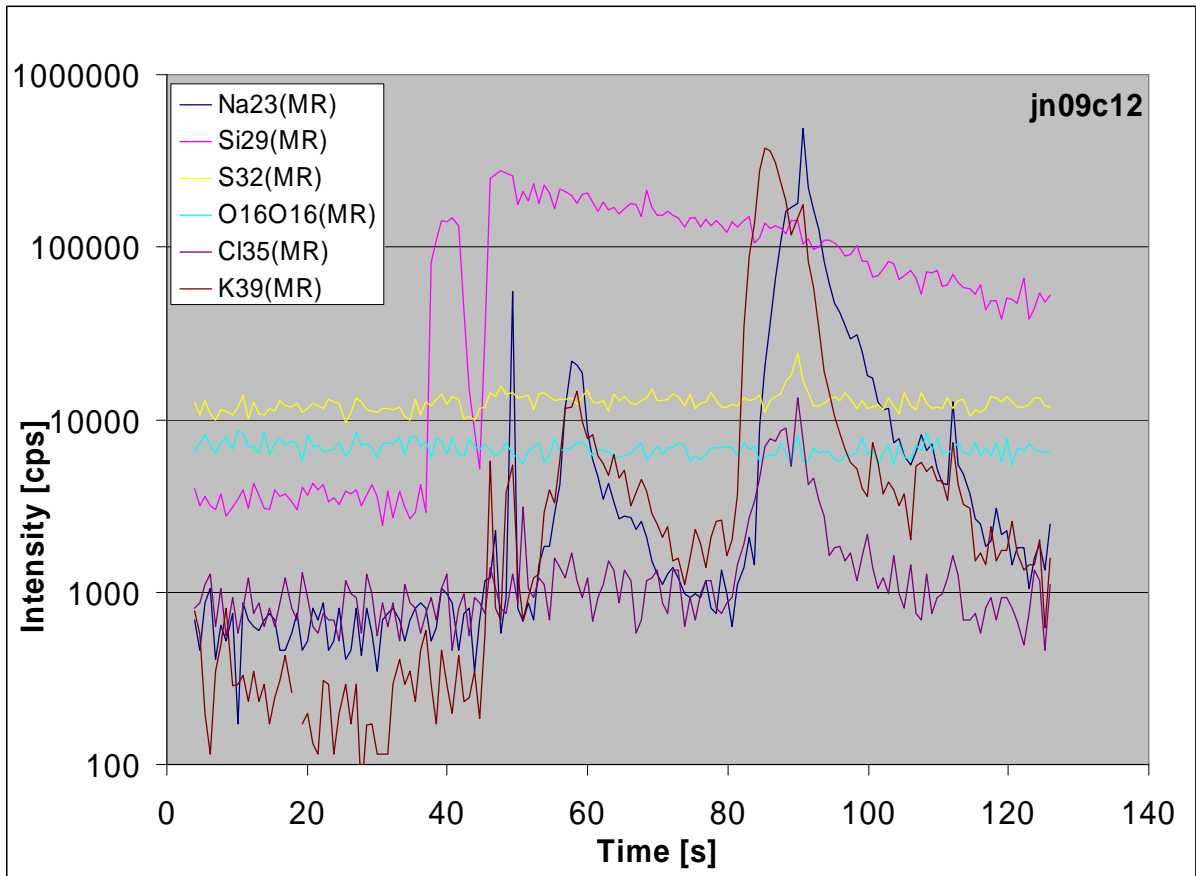


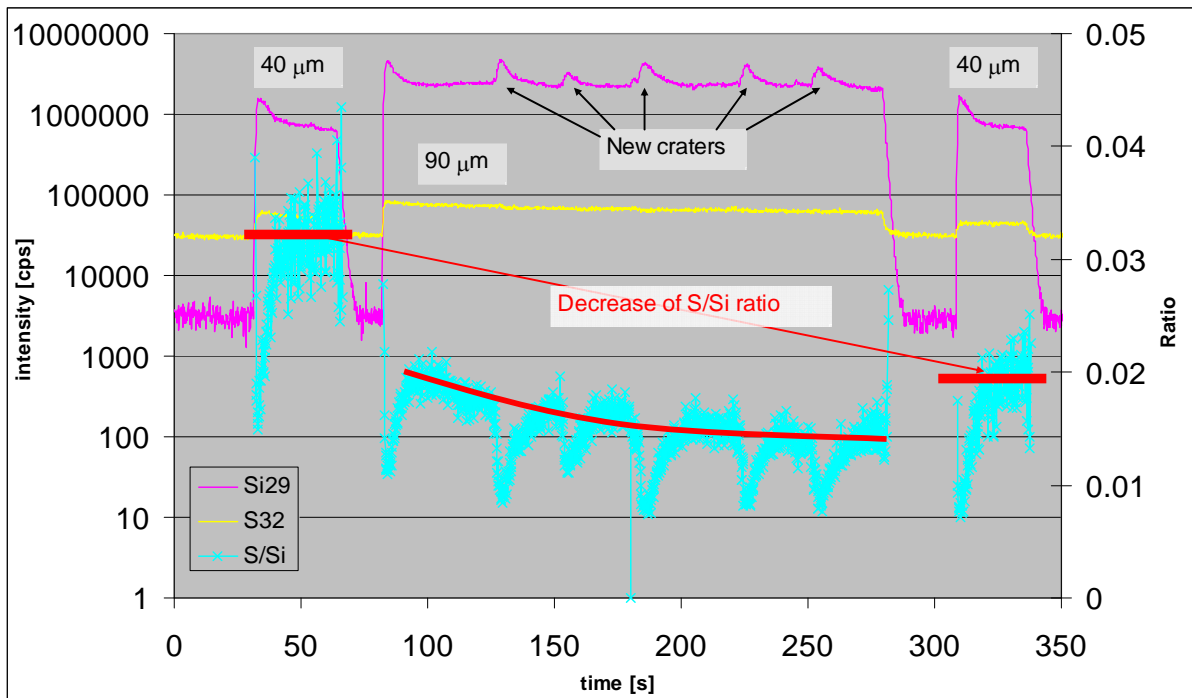
Electronic supplementary information:

ESI Table 1 Apparent concentration of sulfur in 9 different quartz, 3 different fused silica and a pure silicon samples based on the quantification using NIST SRM 610 and Si as internal standard. The STD increases with increasing n due to ablation with different crater sizes and therefore different apparent concentrations. No significant difference was found between the ICP-SF-MS and the ICP-Q-MS.

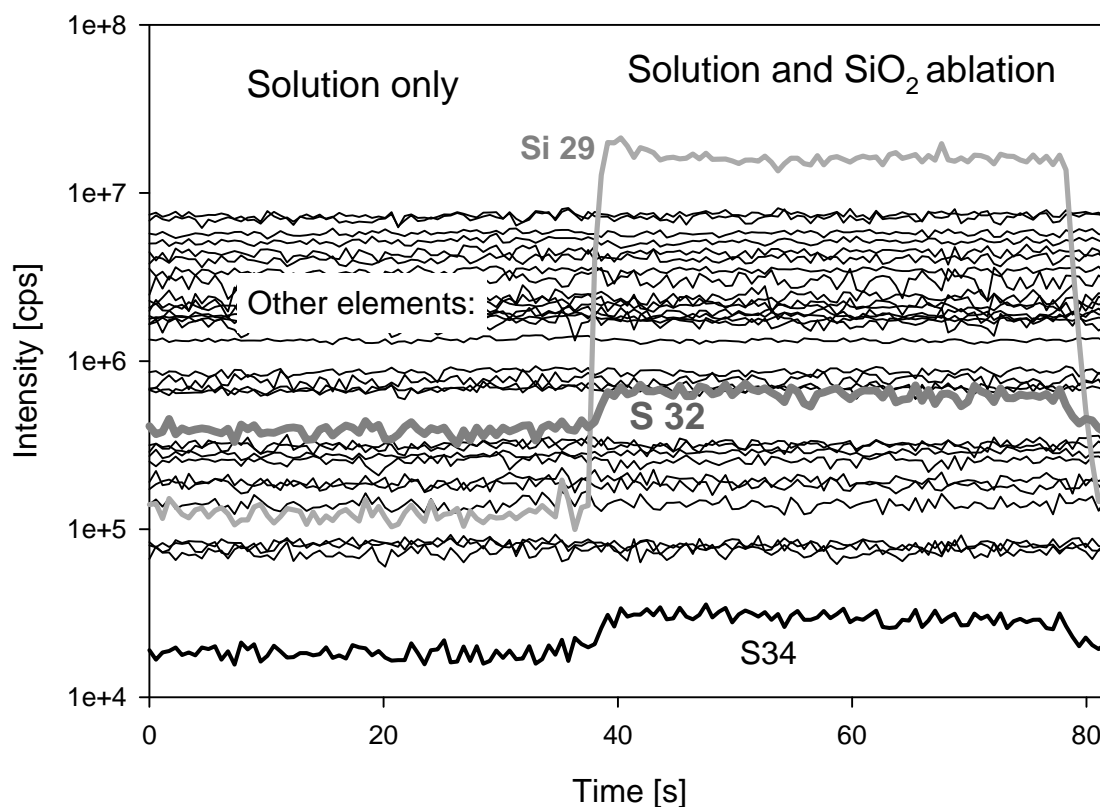
	S ppm (HR)	std	n	S ppm (Quad)	std	n
Quartz 1 (with incl.)	520	70	6	-	-	-
Quartz 2 (with incl.)	320	80	15	-	-	-
Quartz 3 (with incl.)	230	50	15	-	-	-
Quartz 4 (with incl.)	229	47	11	-	-	-
Quartz 5 (Brazil)	227	110	12	239	44	19
Quartz 6 (Swiss)	-	-	-	460	40	3
Quartz 7 (synt. Osc. gr)	465	30	3	350	20	7
Quartz 8 (synt. for synflincs)	-	-	-	330	20	3
Quartz 9 (synt. Osc. kl)	-	-	-	320	20	3
Fused Silica 1 (Mirror)	350	30	3	390	20	3
Fused Silica 2 (Cell window)	300	40	3	310	40	3
Fused Silica 3 (Beamsplitter)	218	66	10	278	60	19
Si wafer	-	-	-	77	12	3
Corundum Al ₂ O ₃	-	-	-	400	90	3
Fluorite CaF ₂	-	-	-	200	50	3



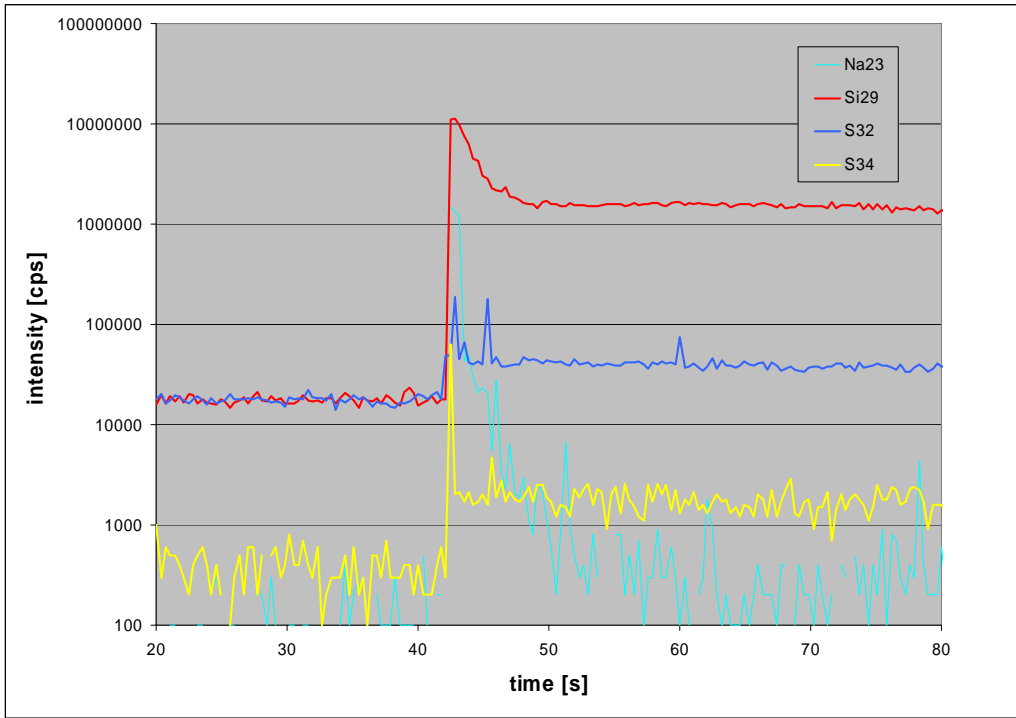
ESI Fig. 1: Transient Signal of the opening of a fluid inclusion with the O2 signal: No change when opening the inclusion was detected.



ESI Fig. 2: Different S/Si ratios for different crater sizes (40 micrometer and 90 micrometer diameter) The S/Si reduced ratio after a prolonged fused silica ablationis reduced by 60%. Parameters: ICP-Q-MS, 10 Hz, 40 J cm⁻² Increased Si signal for new ablation crater due to remobilized deposited material on the surface



ESI Fig. 3: Fused silica ablation recorded while adding a large number of other elements with a MCN 6000 (Cetac Technologies, Omaha, NE, USA) solution nebulization and desolvation unit, showing no variation of any elements during ablation except for Si and S. A plasma effects would likely influence other signals beside S as well. Other measured isotopes are Li7, Be9, C13, Na23, Mg25, Al27, Si29, P31, Cl35, K39, Ca41, V51, Mn55, Co59, Ni62, Cu65, Zn66, Ga69, As75, Se82, Rb85, Sr88, Ag 107, In115, Te125, Cs133, Ba137, Ir193, Pb208, Bi209, U238.



ESI Fig. 4 fused silica ablation in a “plastic/synthetics free” environment. Only aluminum and glass for the ablation cell and metal tubing for the aerosol transport was used. Except a piece of fused silica nothing else was inside the ablation cell. Before this signal was recorded, the ablation cell was cleaned carefully and new cones were inserted. The Signal shows the very first ablation after Instrument start up.