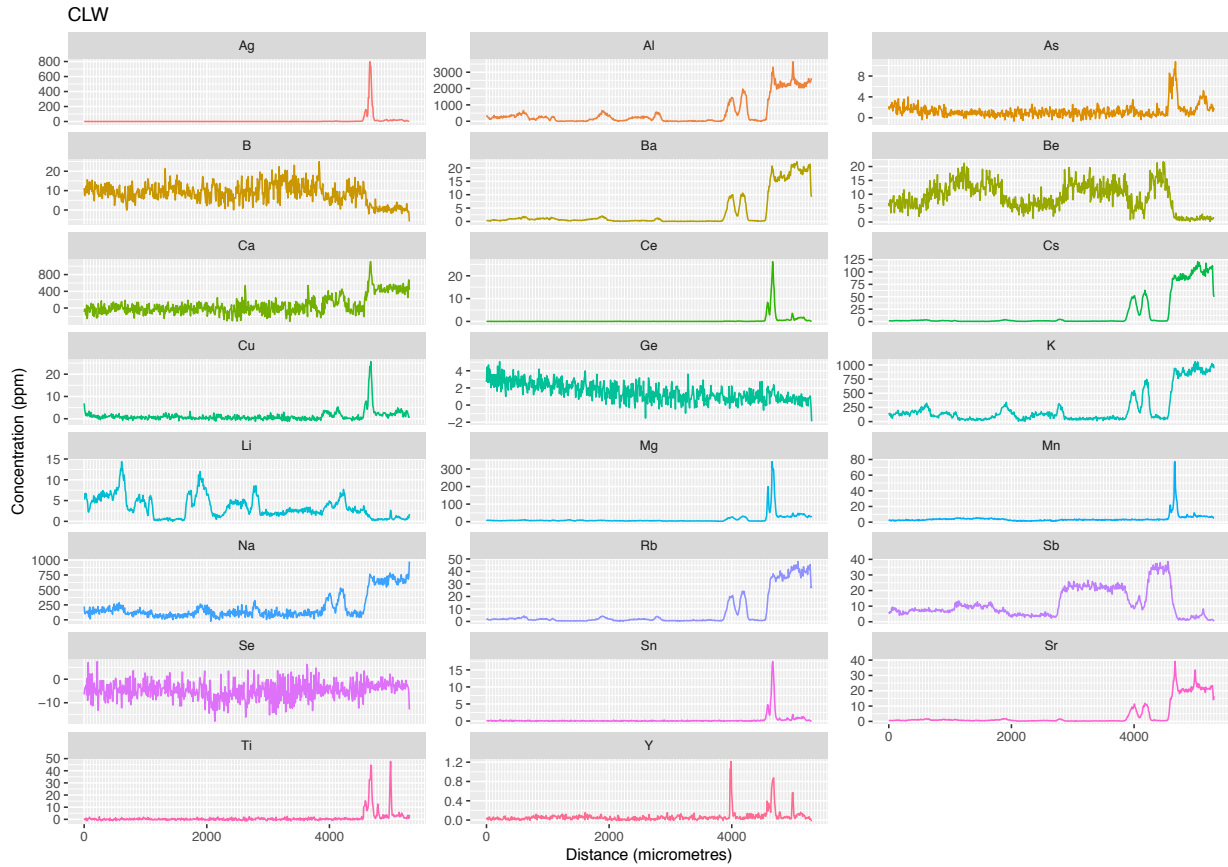
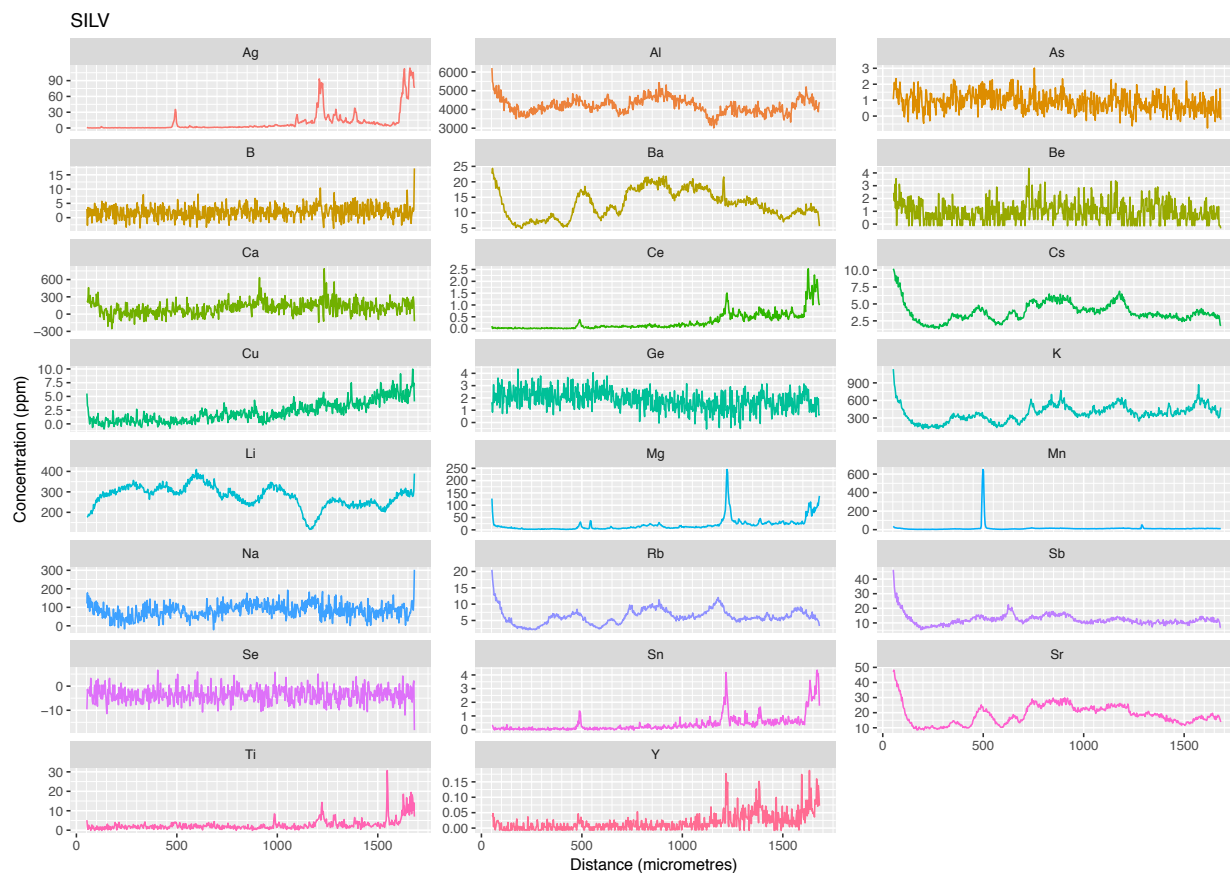


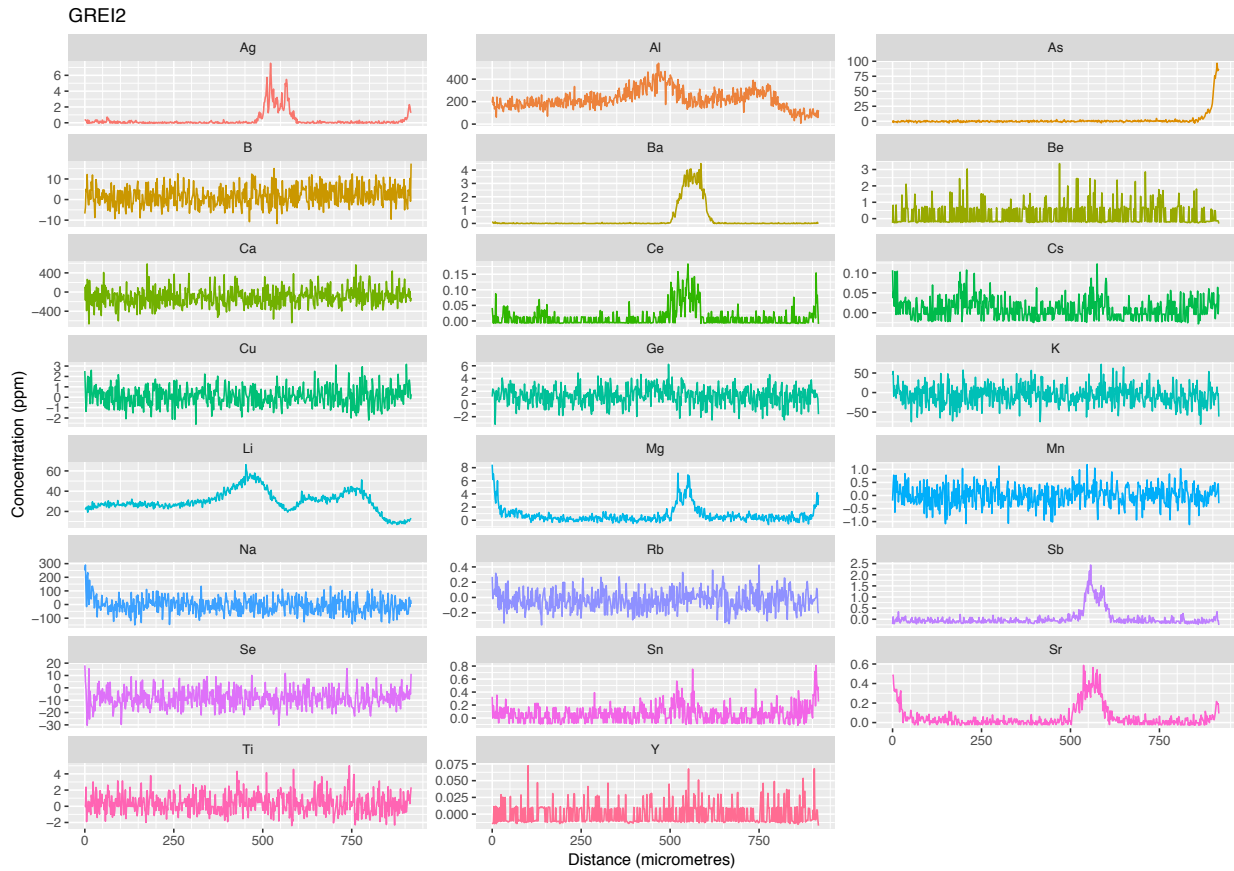
SUPPLEMENTARY FIGURE OM1. (a and b) Optical images with annotated Raman spectrography analysis in EPI-CS, (c) Raman spectra from spots in EPI-CS, and (d) the region from within the same Raman spectra used to distinguish silica phases.



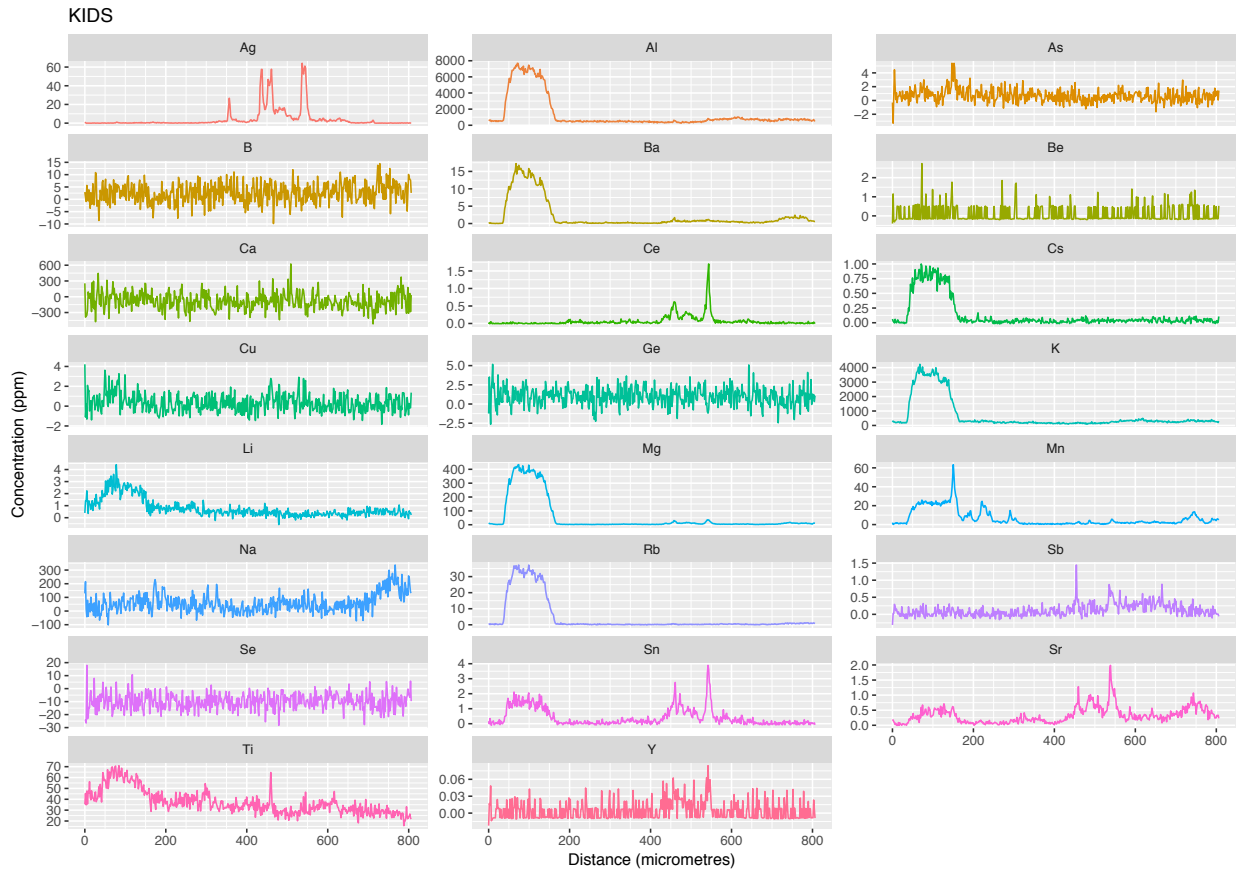
SUPPLEMENTARY FIGURE OM2. Element concentration values in UST-Q from a LA-ICP-MS traverse.



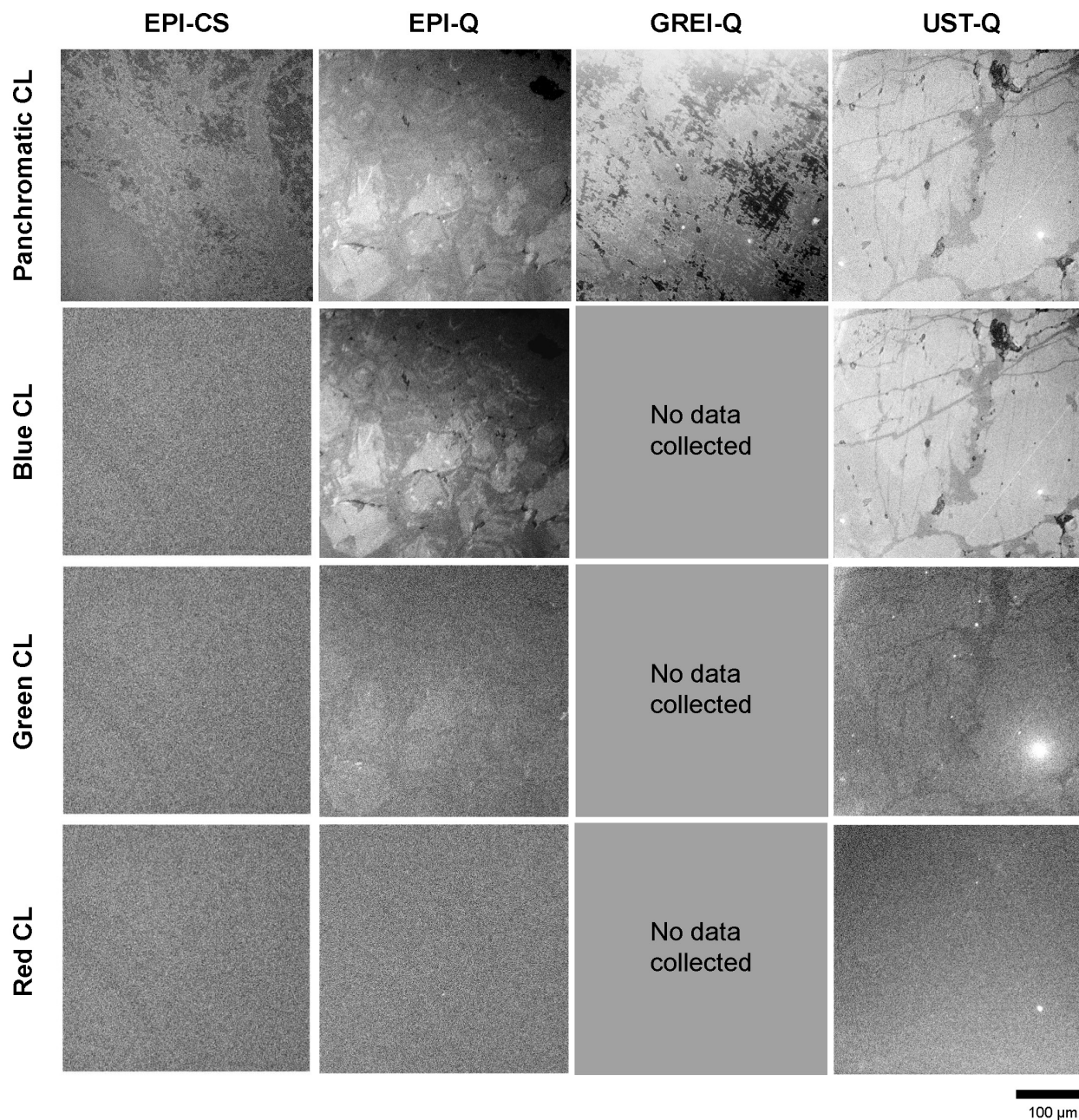
SUPPLEMENTARY FIGURE OM3. Element concentration values in GREI-Q from a LA-ICP-MS traverse.



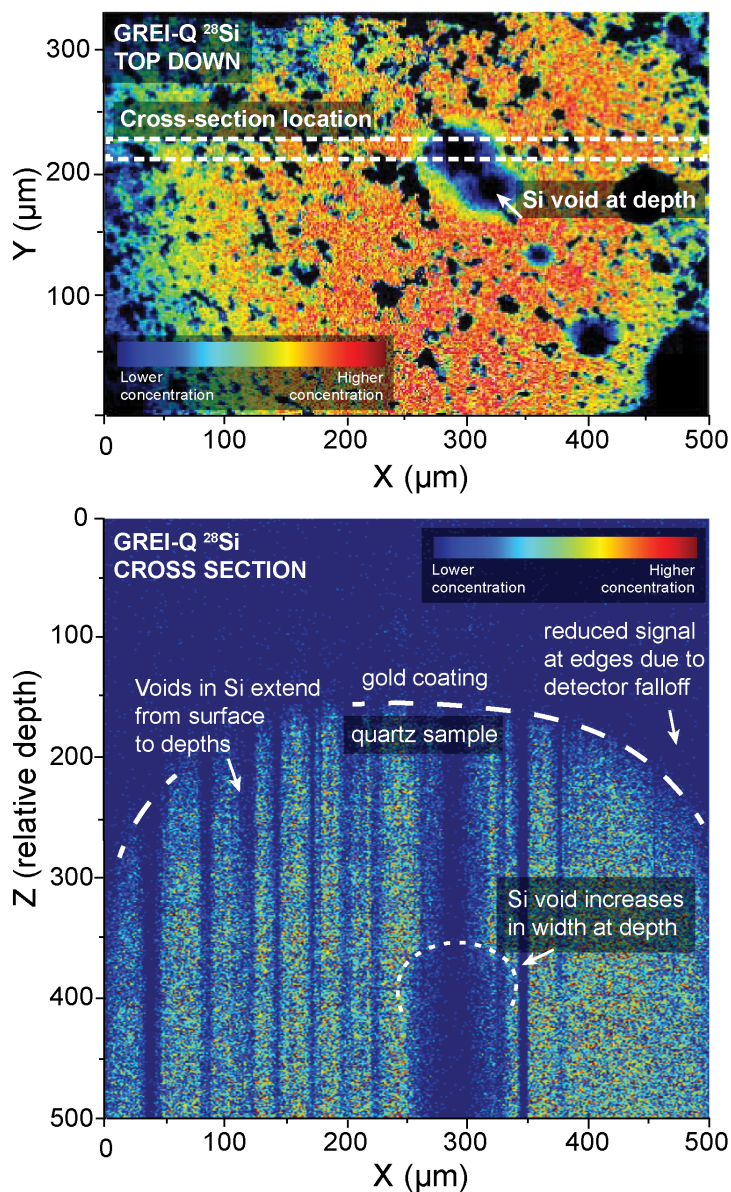
SUPPLEMENTARY FIGURE OM4. Element concentration values in EPI-Q from a LA-ICP-MS traverse.



SUPPLEMENTARY FIGURE OM5. Element concentration values in EPI-CS from a LA-ICP-MS traverse.



SUPPLEMENTARY FIGURE OM6. Panchromatic and color-filtered CL images of the four silica samples.



SUPPLEMENTARY FIGURE OM7. TOF-SIMS Z-section (cross-section) of ²⁸Si in GREI-Q sample intersecting voids that extend from the surface to depth (trapping polishing media residue) and a distinct spherical void contained at depth (hosting Al- and K-rich fluid). The cross-section is obtained in a similar manner to the top down images, where a representative section of data is averaged from a perpendicular axis. The cross-section here is a stack of cross-sections from Y-axis data in the area denoted “Cross-section location.”