

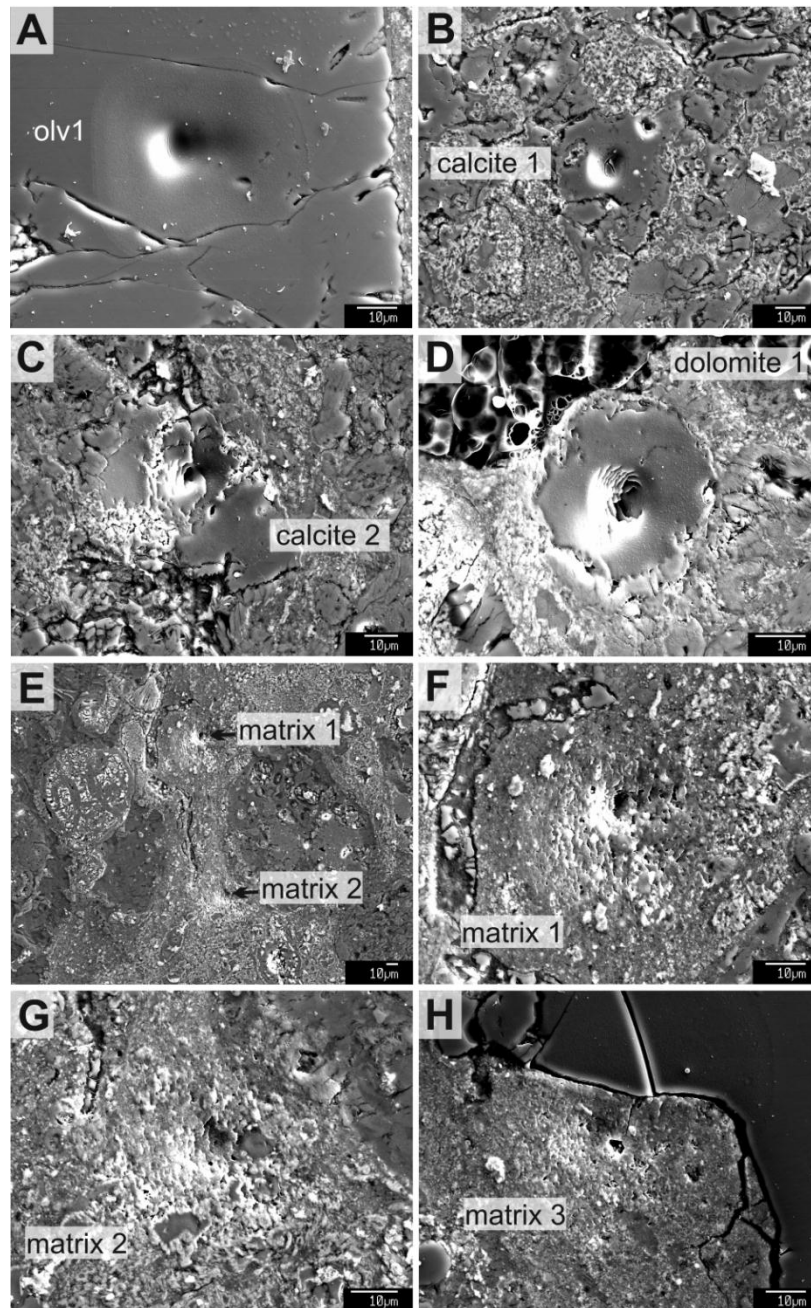


Figure S1: Secondary electron images of Cameca ims 1280 ion microprobe analysis pits in Sutters Mill. The extent of the 30 μm pre-sputtering raster is clearly visible as a slightly lighter grey area around the central 10 μm analysis pit of olivine (olv) 1 (A). Due to their smaller grain size, the pre-sputtering raster goes beyond the boundaries of calcites 1 and 2, and dolomite 1, but the central pit is within these carbonates (B-D). The heterogeneous nature of the matrix in Sutter's Mill makes it more difficult to distinguish the extent of the analysis pits (E-H). However, our data suggest that despite this heterogeneity the matrix is relatively uniform with respect to boron.