



Figure S1. (A) BSE image of hydroxylapatite crystals from the BIF AL13 and corresponding reflected light optical microscope photo (B) of SIMS analytical points showing lack of zoning, inclusions or cracks in the analyzed areas. (C–F) Reflected light optical microscope images of the SIMS craters in fluorapatite crystals from the BIF AL15B. The $\delta^{37}\text{Cl}$ values collected in these four spots were rejected from further interpretation after detailed inspection of the data due to a crack (C, E, F) or very low Cl signal (D) and corresponding low internal precision of the analysis. Full dataset is included in Table S1.