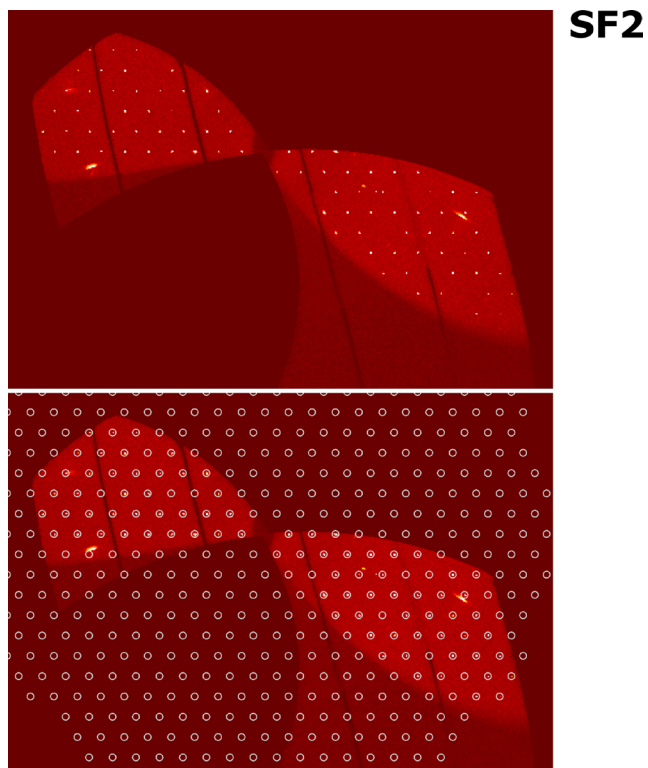
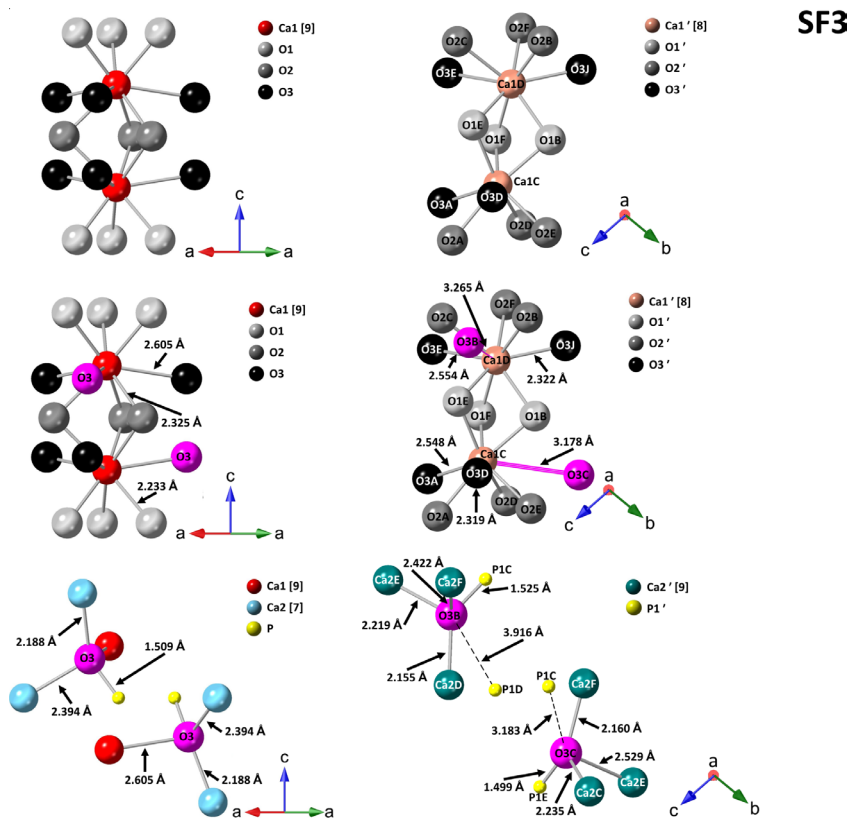


SUPPLEMENTARY FIGURE 1. Ambient Raman spectrum of [001]-oriented Durango apatite used in this study (blue) compared with Durango apatite from the RRUFF database (red) (Lafuente et al., 2015). Data were collected using a 532-nm laser, 20x objective, 30-second collection time with two accumulations, and a 600-gr/mm grating.



SUPPLEMENTARY FIGURE 2. Precession image showing measured reflections at 5.6 GPa in the $hk0$ plane (top) and the same image with an expected reflection overlay (bottom). Precession images are calculated in APEX3.



SUPPLEMENTARY FIGURE 3. The variation between the Ca1 site of FAp (left column) and the Ca1[8] site of FAp-II (right column) is illustrated. The oxygen ions bonded to the Ca cations are colored such that equivalent sites correspond across phases (top). The oxygen involved in the coordination change is highlighted in pink (middle). The bonding environment of this oxygen is shown for each phase (bottom).