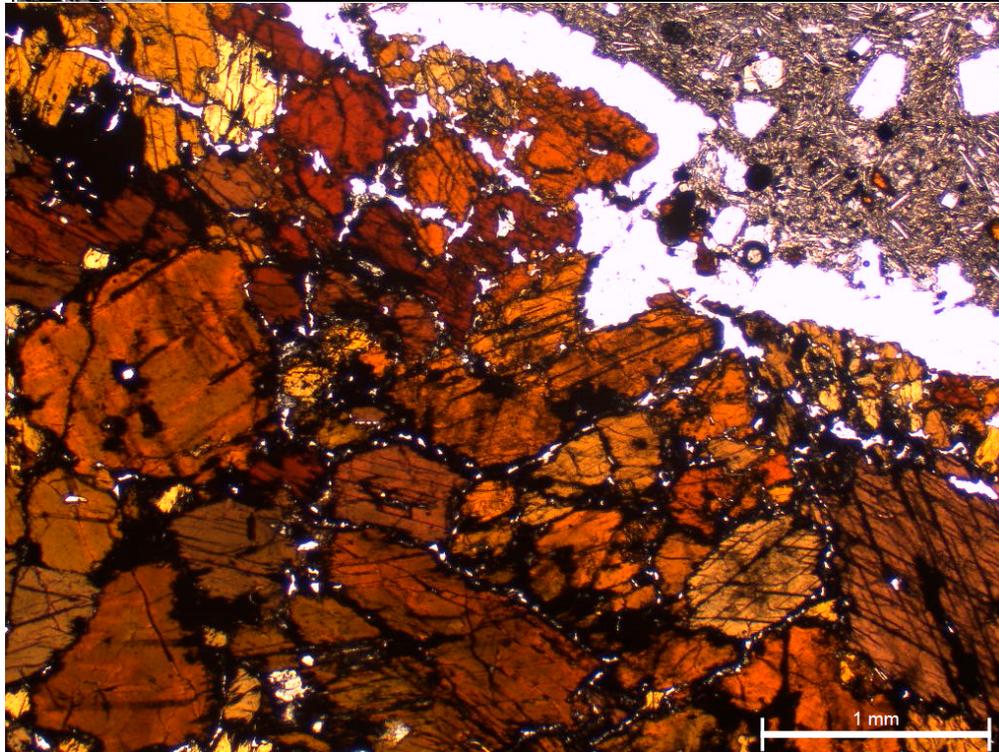
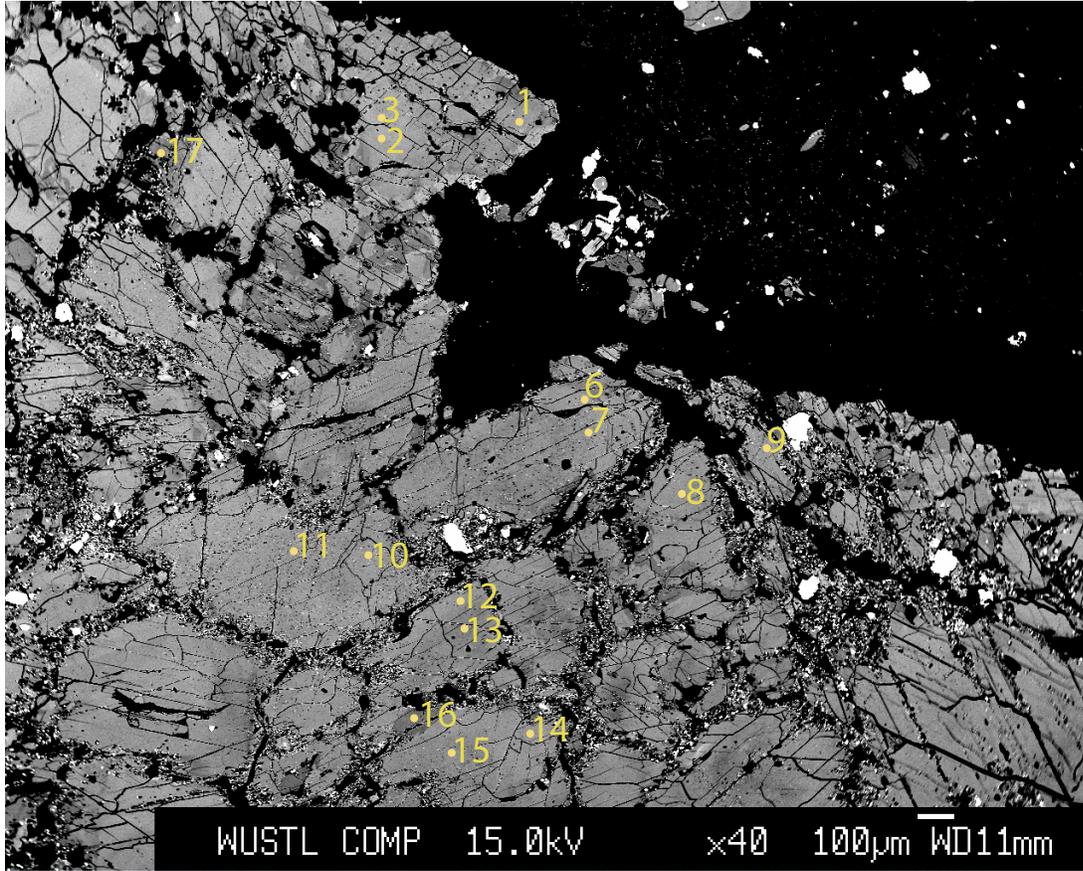


## Images of Oxidized Amphiboles

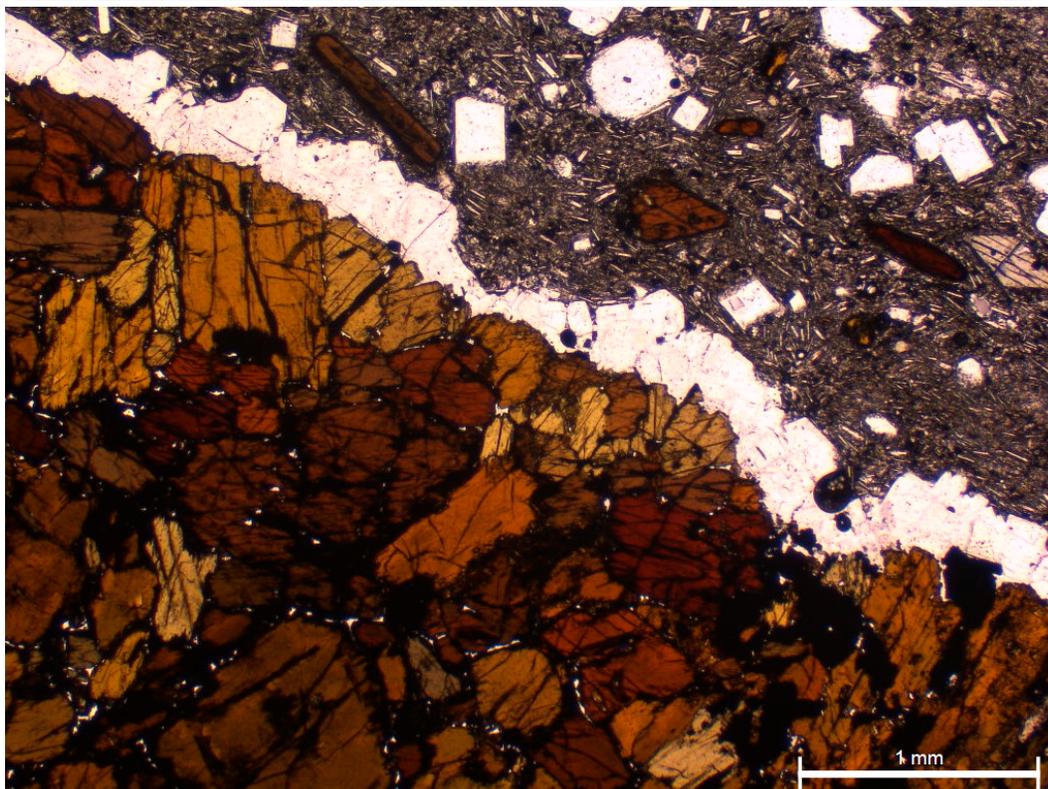
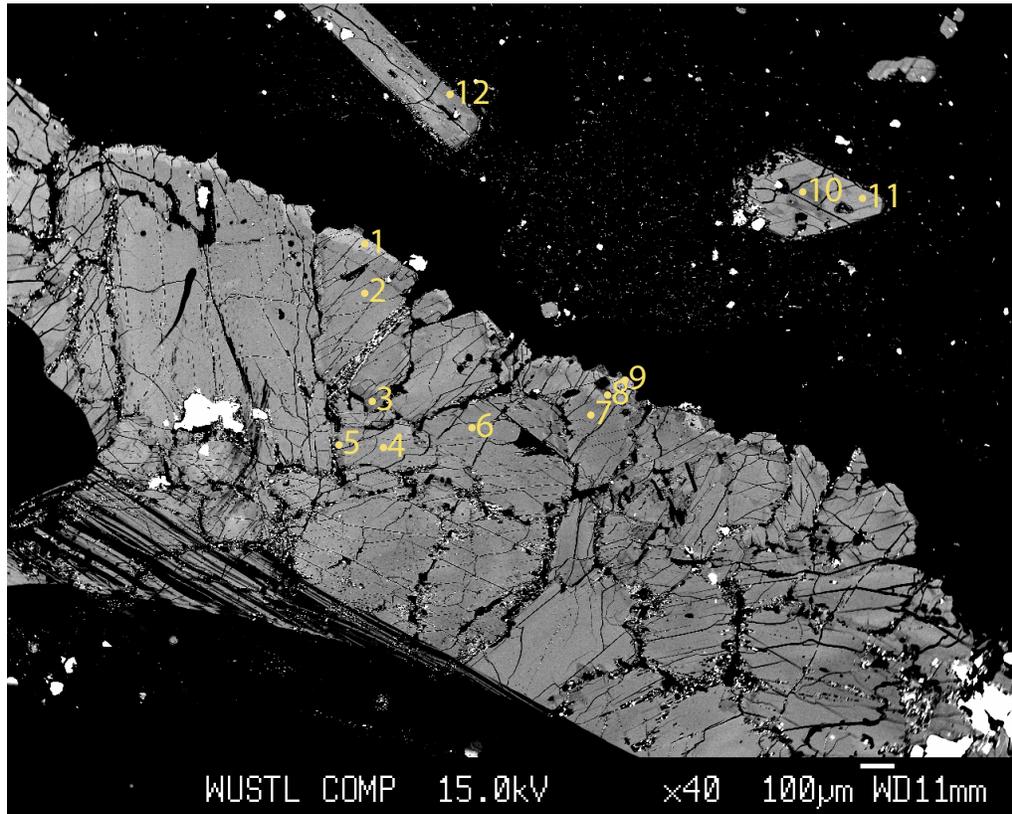
Amphiboles that were considered highly oxidized had  $\text{Fe}^{3+}/\text{Fe}_{\text{Total}} > 90\%$  and were excluded from further discussion, along with any analyses taken within 500 microns of an oxidized point because it is likely that other factors contributed to the oxidation of these amphiboles above and beyond dehydrogenation. We analyzed amphiboles that fall into this category in three samples: one cumulate (04L), one enclave (06A), and in the tephra erupted 3600 years BP. As summarized in our main text, the oxidized amphiboles were found in three petrographic contexts in the samples: (1) at the contact between the cumulate or enclave and the host andesite, (2) in the andesite surrounding the cumulate or enclave, and, in the case of the tephra, (3) as an isolated grain. We did no further analyses on other samples in contexts (1) or (2), assuming they would have been similarly oxidized. In the case of the tephra, only 1 grain of the 17 that we analyzed was highly oxidized (the other 16 points taken on this sample range from 29-55%  $\text{Fe}^{3+}/\text{Fe}_{\text{Total}}$ ), so we assume that the highly oxidized amphibole is xenocrystic in this sample, but we cannot predict which amphiboles are or are not especially oxidized based on petrographic criteria.

Below, we present back-scattered electron (BSE) and plane polarized light images of amphibole in samples 04L, 06A, and the 3600 tephra that were highly oxidized. The BSE images for samples 04L and 06A show the locations of our analyses with point numbers indexed for each analytical area ("Site"). The major element composition and  $\text{Fe}^{3+}/\text{Fe}_{\text{Total}}$  of amphibole at each point is presented in a supplementary Excel file.

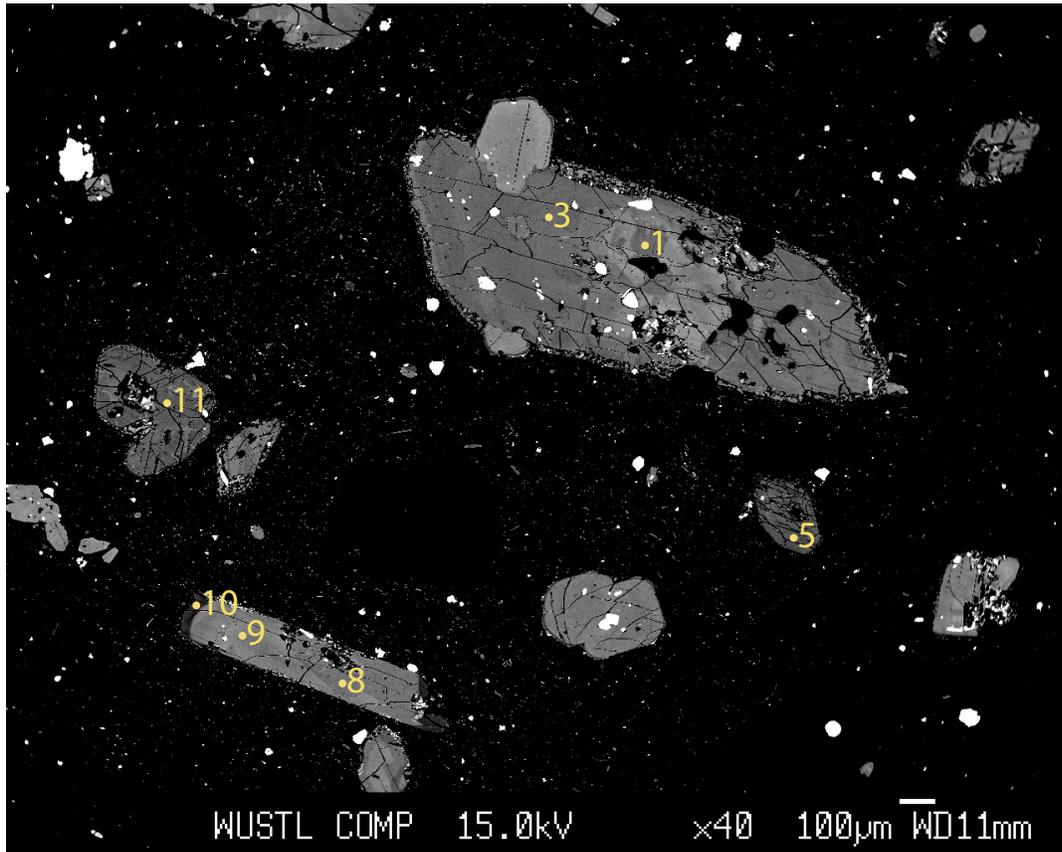
**Sample 04L, Site R1: Context: Contact between cumulate and andesite**

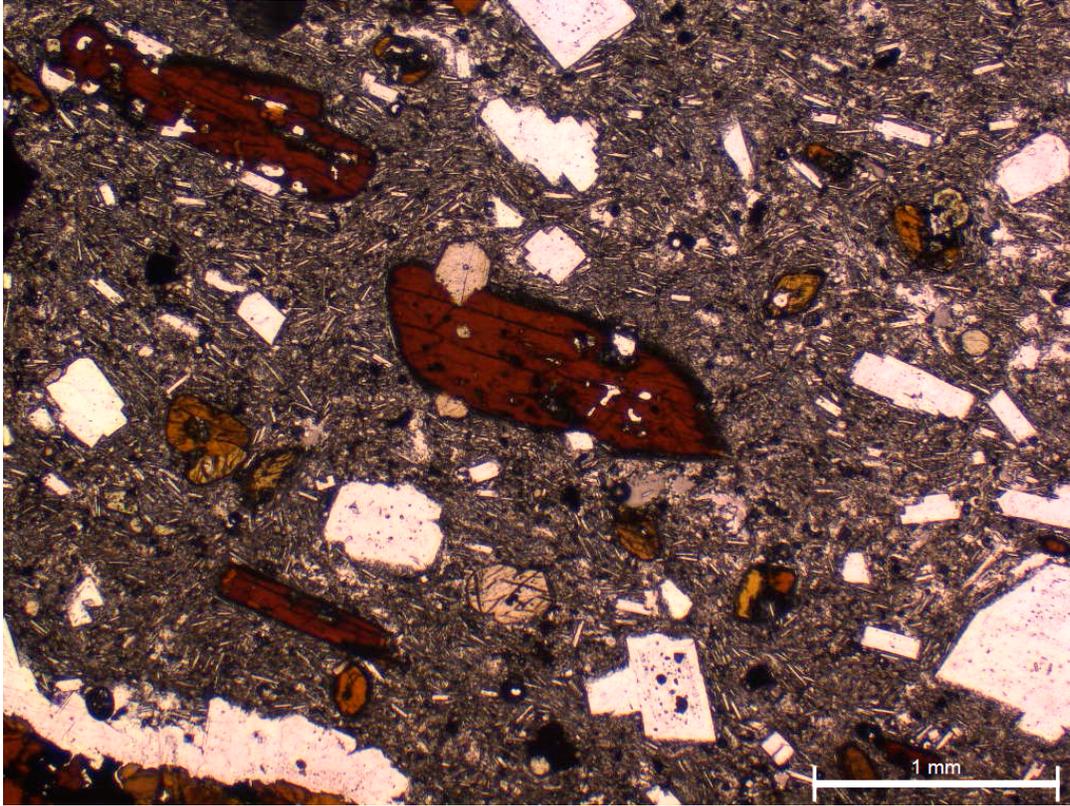


**Sample 04L, Site R2: Contexts: Contact between cumulate and andesite (points 1-9) and in andesite (points 10-12). Black streak on lower left of BSE image is a pen mark**

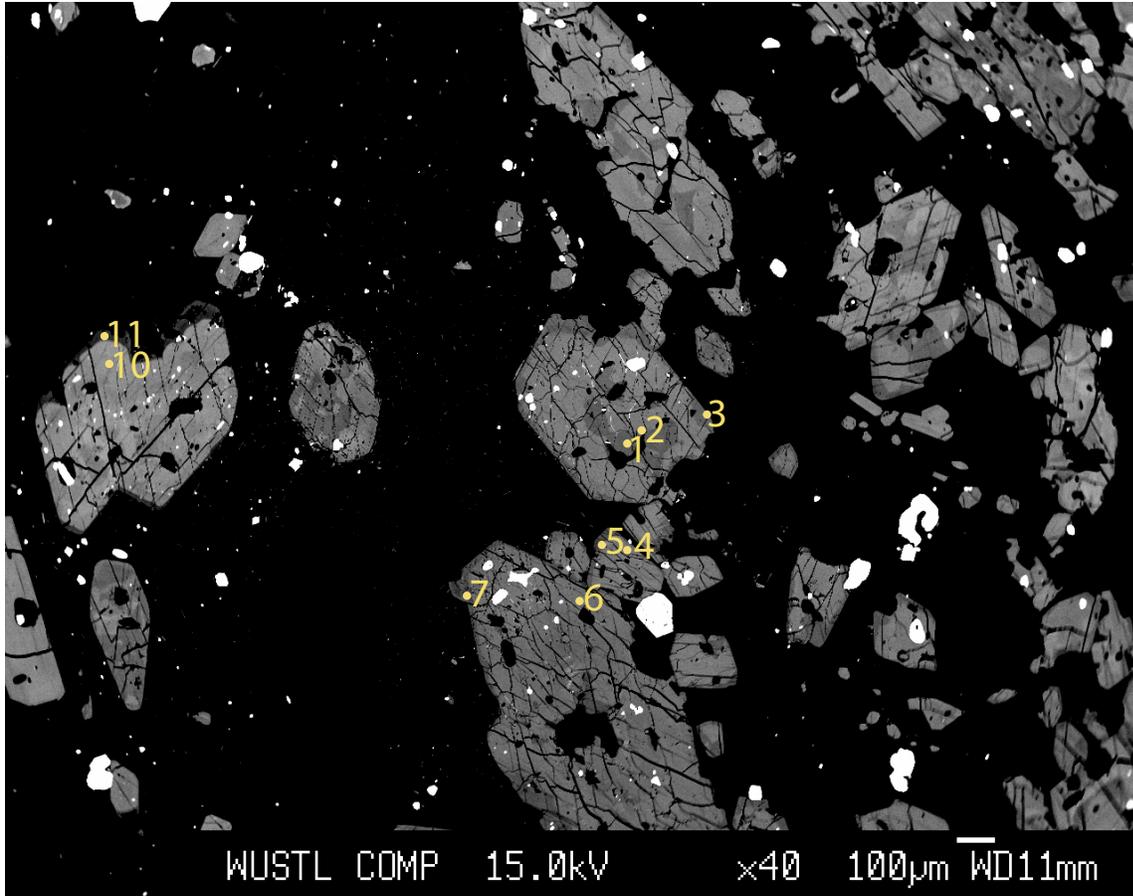


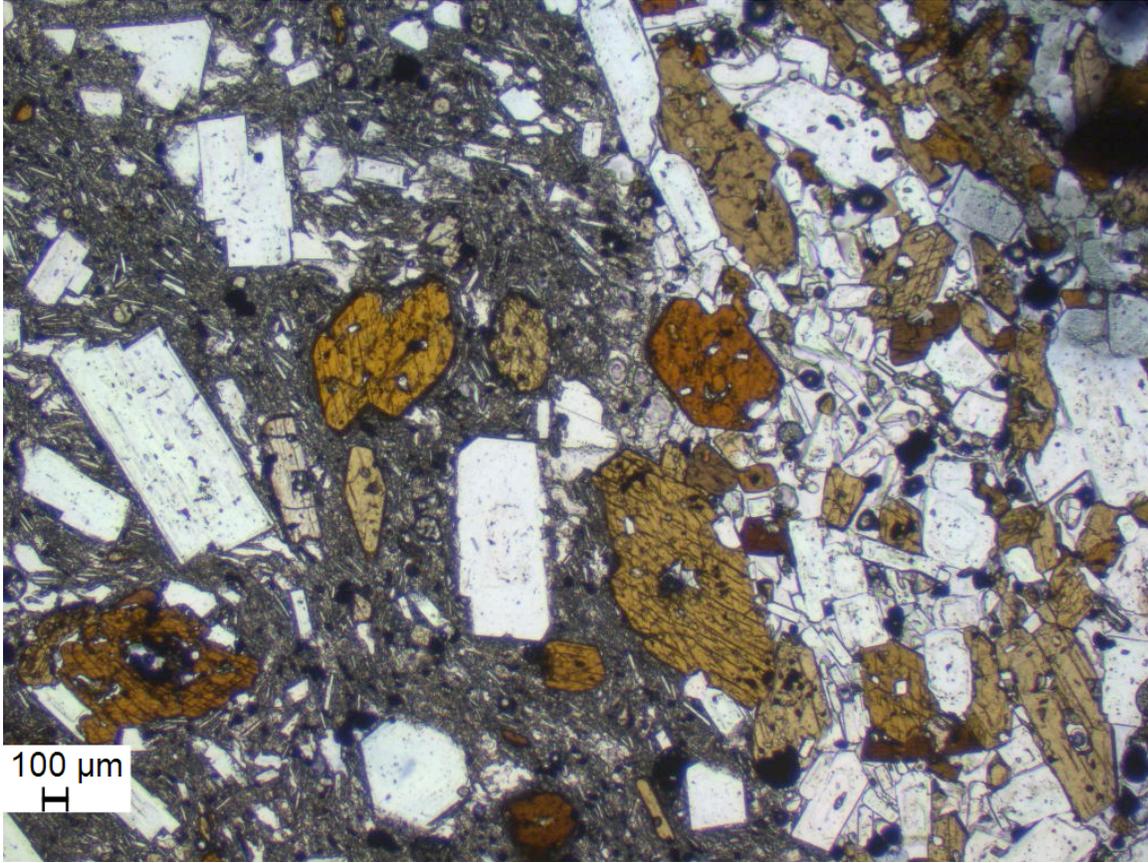
**Sample 04L, Site R3: Context: in andesite**



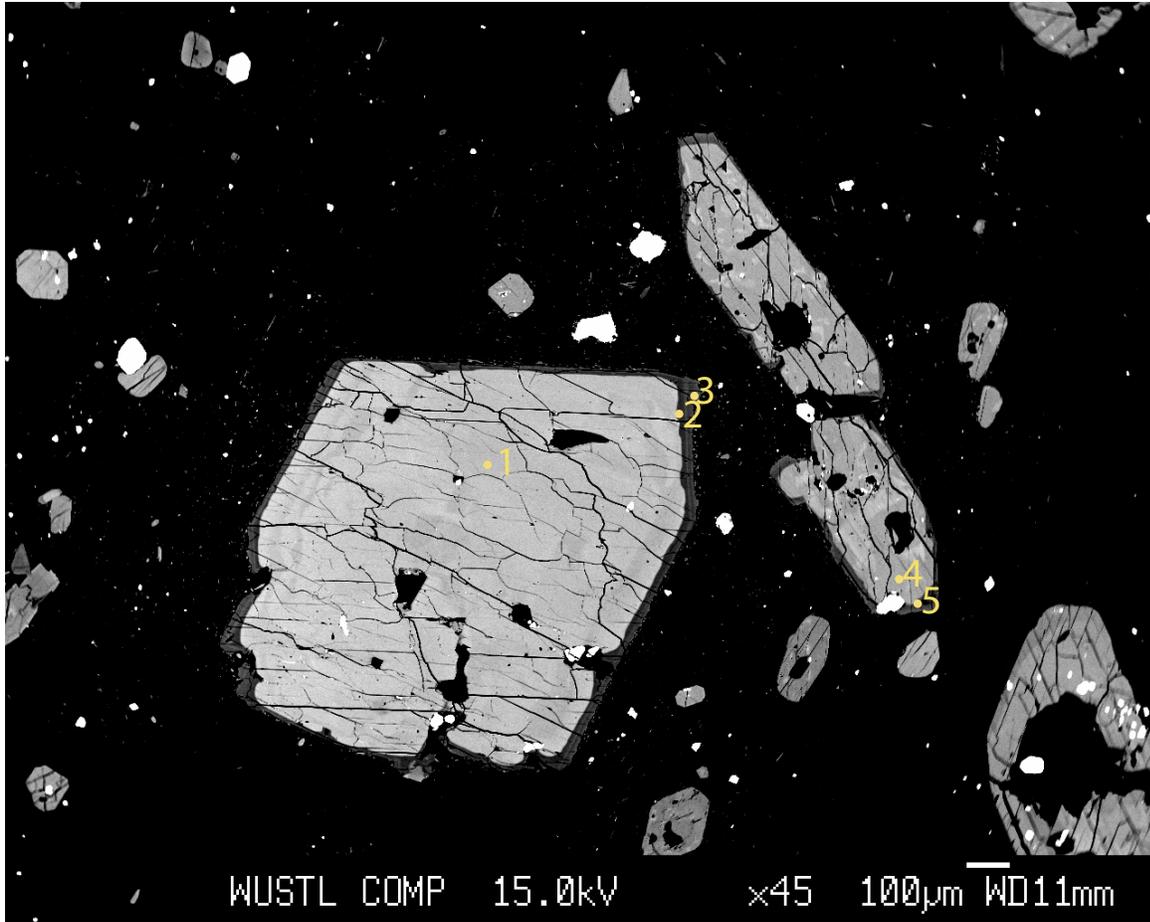


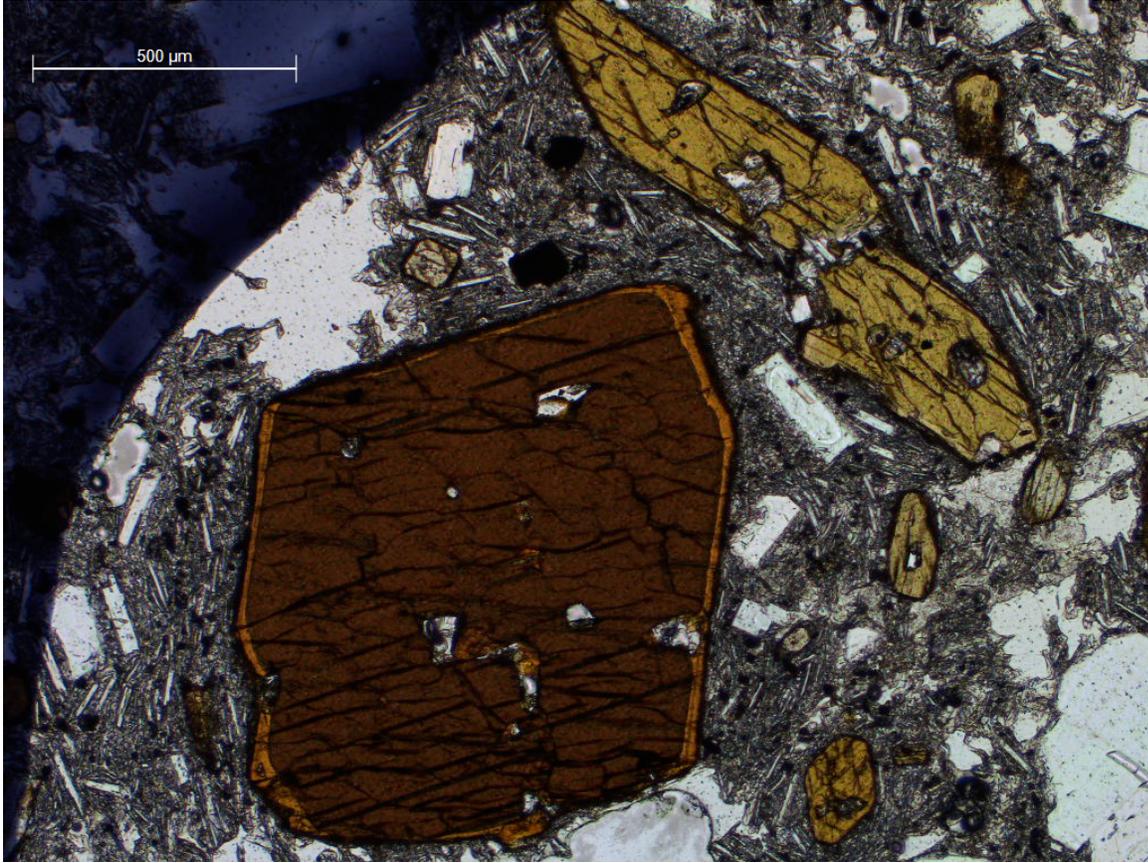
**Sample 06A, Site A4: Contexts: Contact between enclave and andesite (points 1-7) and in andesite (points 10 and 11)**





**Sample 06A, Site A5: Context: in andesite**





**3600 Tephra, Context: Isolated Grain**

