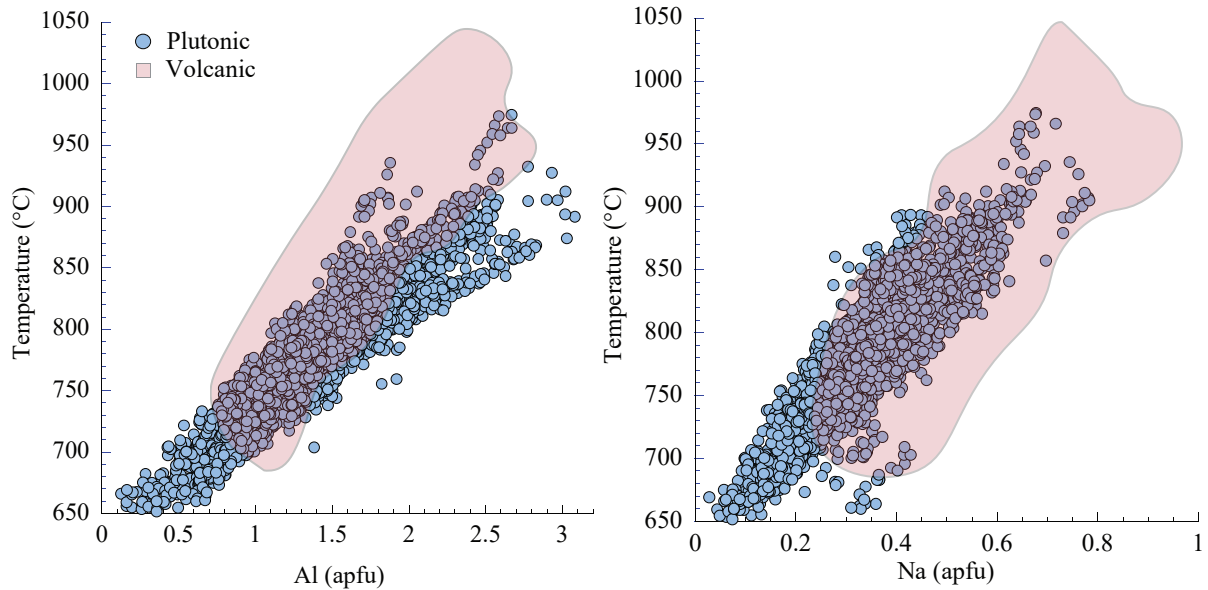


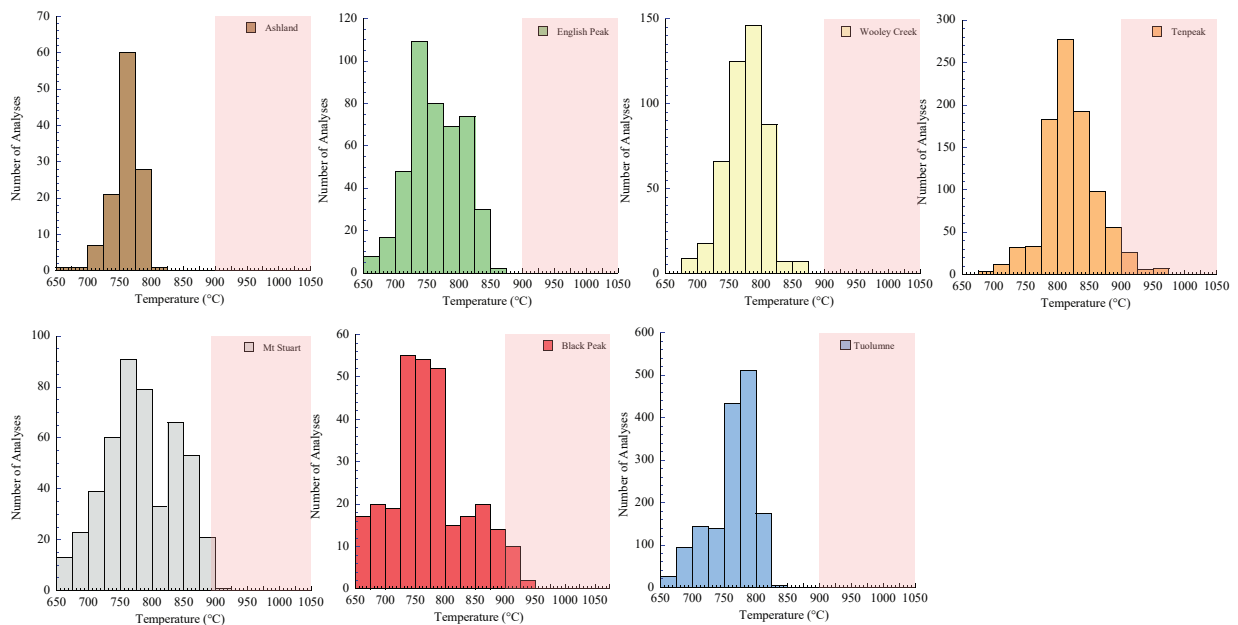
Supplementary Figure 1: Plots of Hornblende Si (apfu) vs major elements (Ti, Al, Mg, Na, K) and calculated temperature (Putirka, 2016a) for the twelve volcanic and seven plutonic systems (see Table 1 for details). The red shaded field encompasses > 99% of the hornblende compositions (n = 7513) from the volcanic systems.

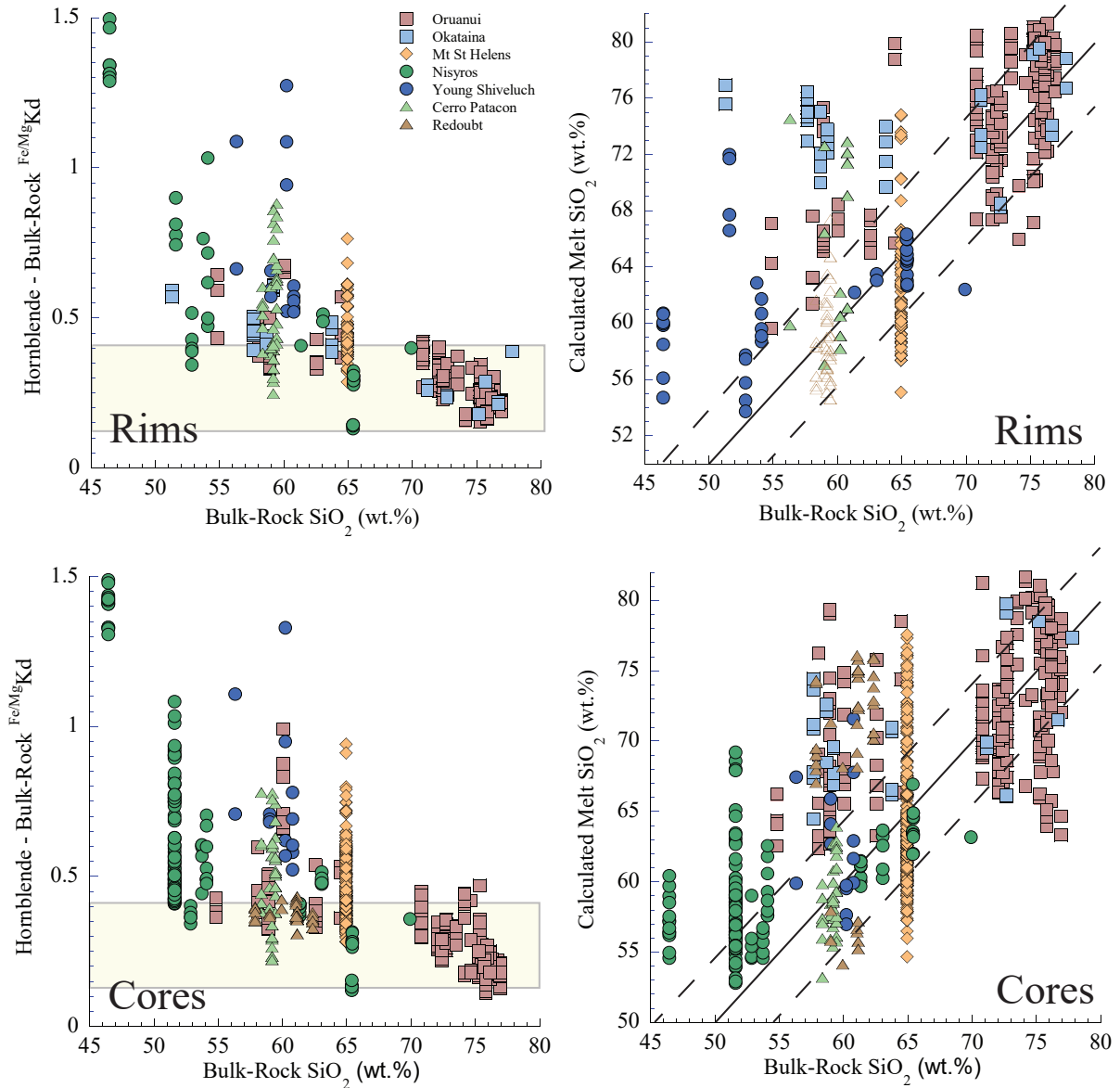


Supplementary Figure 2. Plots of Al (apfu) and Na (apfu) versus temperature (°C). At a given temperature value, Hbl from volcanic systems is typically characterized by lower Al and higher Na compared to Hbl from plutonic systems.

Supplementary Figure 3. Temperature histograms for plutonic and volcanic systems. The red shaded regions highlight Hbl temperatures that are above 900°C. High temperature analyses are rare in plutonic systems. Hornblende from several of the volcanic systems have temperature peaks above 900°C and many of these systems also display bimodality in their temperature distributions.

### Plutonic Systems





Supplementary Figure 4.. Bulk-rock  $\text{SiO}_2$  vs Hbl-bulk-rock  $\text{Fe/MgKd}$  and calculated anhydrous melt composition for Hbl cores and rims from volcanic systems. The yellow shaded box highlights analyses which are in Fe/Mg equilibrium with their host bulk-rock composition and the solid and dashed lines represent the errors associated with the chemometric equations.