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GEOL 307
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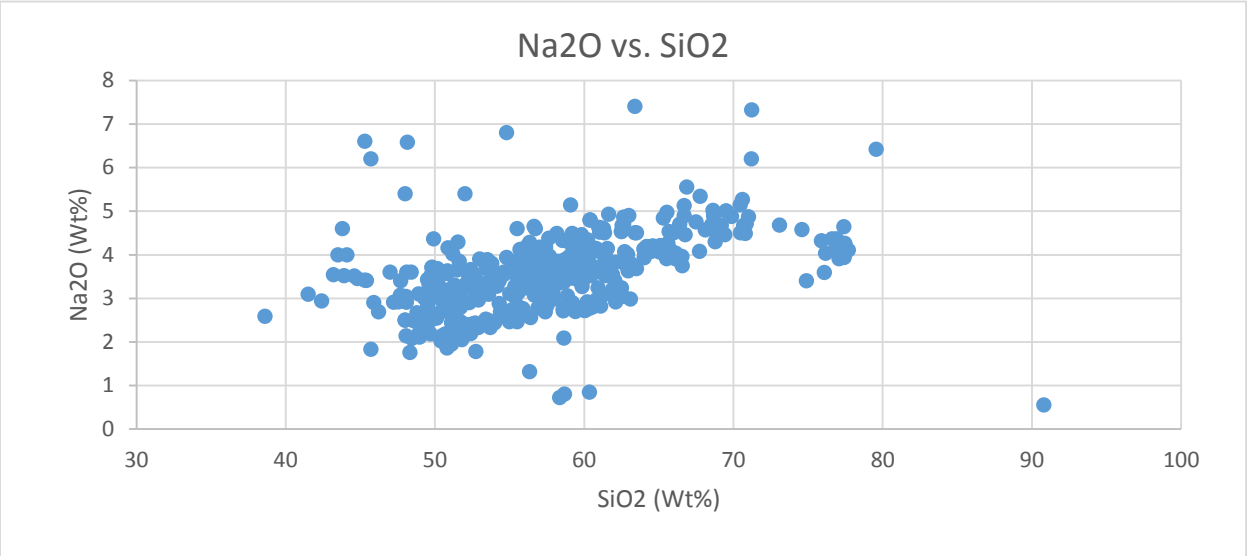

Figure 5: Na appears to have a positive general trend indicating that it becomes more favorable as a cation in a lattice structure at higher silica wt percentages. Thus, Na could be considered to be slightly more incompatible than elements than Fe or Mg. Na-bearing minerals that would be forming include alkali feldspars, albite plagioclase, and clinopyroxenes.

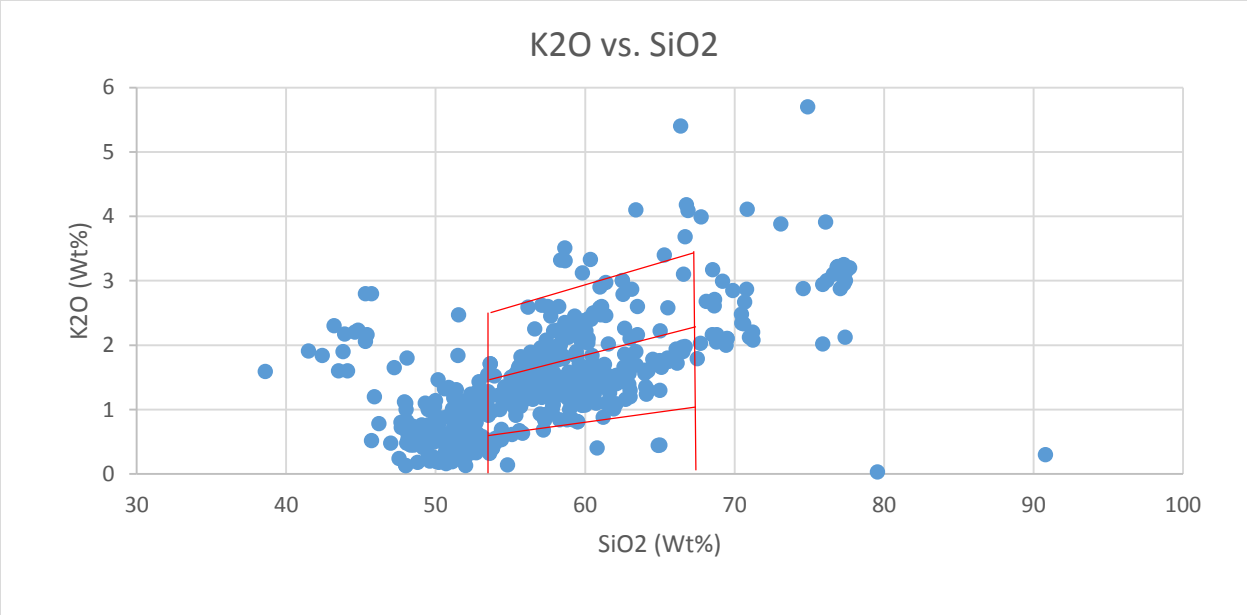

Figure 6: Similar to Na, but with a steeper trend K appears to be incompatible relative to other major elements. At between 45 wt% and 65 wt% SiO2 K is incorporated at its highest concentrations. K-bearing minerals include biotites and potassium feldspars. These minerals do not have more than a single K atom in their empirical formula which is why the wt% of K in the rocks are lower than other major elements. Because of this K can be used as a frame of reference for classifying the nature of primary magmas. The trend with increasing SiO2 content can be tied to differentiation within that magma series. The categories are generalized after Gill, 1981, in Winter, 2001. Because the data fall into the top two areas denominated by the horizontal lines in the red graphic, the rocks can be considered to have medium to high potassium concentrations.