12.119 Problem Set 5

The data in the spreadsheet is the **raw data** from the ICP-MS, the concentration in ppb of the elements in the sample solution. Multiply by the correct dilution factor (eg. 5125/100 for DW samples) to get the concentration in the original leachate and divide by the sample weight to report results in ppm (ug element / g of soil) or ppb (ng element / g of soil).

1. Rearrange elements into groups with similar geochemical behavior. There are several cases that two or three different isotopes of the element were measured, which elements do the two or three isotopes agree with each other in 5%? Which do they disagree? What could be the cause?

2. Make graphs of concentration vs. depth and the concentration correlations (use R^2 instead of R) between different elements. Discuss some elements with similar geochemical behavior that have similar concentration profiles. Are there any that you would expect to be correlated that aren't?

3. What patterns do you see in the concentration profiles? Do any elements correlate with depth? Do any elements have peaks consistent with anthropogenic contamination? Compare the patterns/trends observed in the ICP-MS data with those seen in the INAA data?