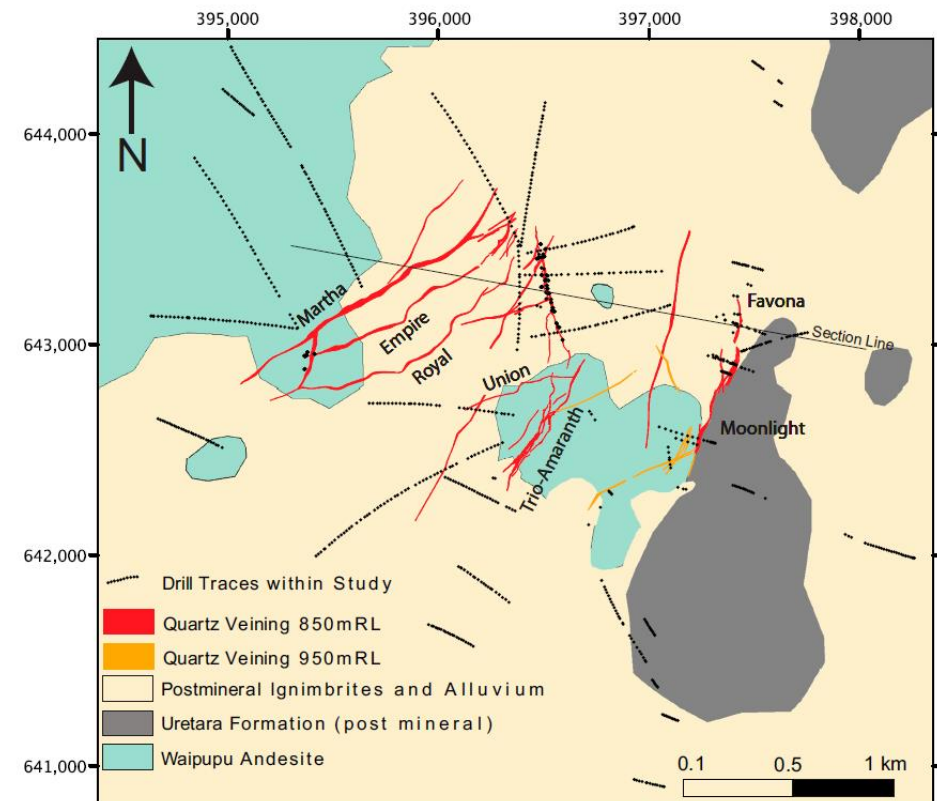


Evaluation of Comet using open file data from the Waihi low sulfidation epithermal deposit.



Shaun L.L. Barker, Shawn Hood, Rosie M. Hughes & Shannon Richards (2019) The lithogeochemical signatures of hydrothermal alteration in the Waihi epithermal district, New Zealand, *New Zealand Journal of Geology and Geophysics*, 62:4, 513-530,

The data used in this study was provided as an appendix to the published paper.

615 WR analyses, with Li borate fusion XRF data including SiO₂ and Carbon.

We can test the veracity of Comet for calculating mineralogy from 4 acid digest ICP assays that do NOT have SiO₂ or C.

Comet was run twice; first time including all elements, second time excluding C and SiO₂.

This provides a check of how well mineral% estimations can be made when Si and C were not analysed.

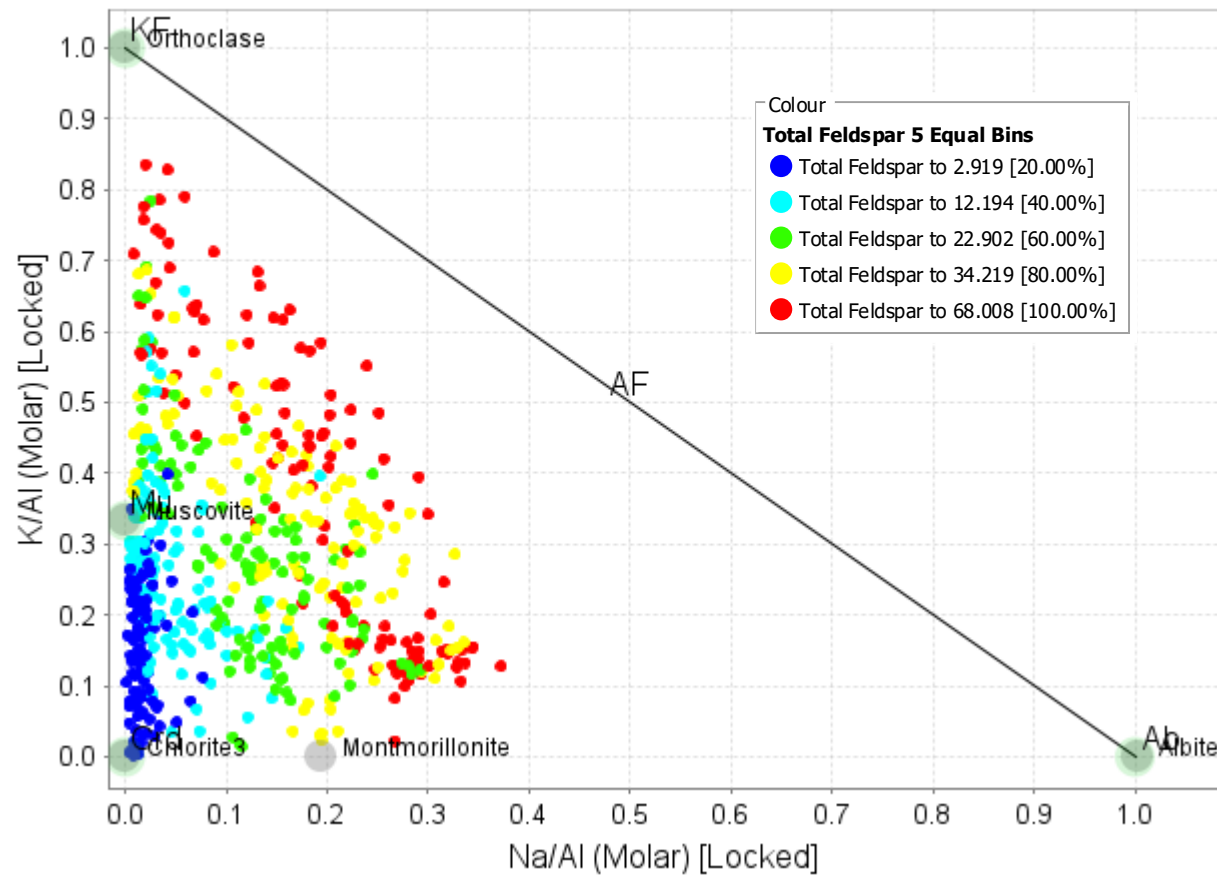
In the truncated assay suite, compare back-calculated whole rock SiO₂ with measured SiO₂

All the C is in calcite, so plot calculated Calcite% vs measure C

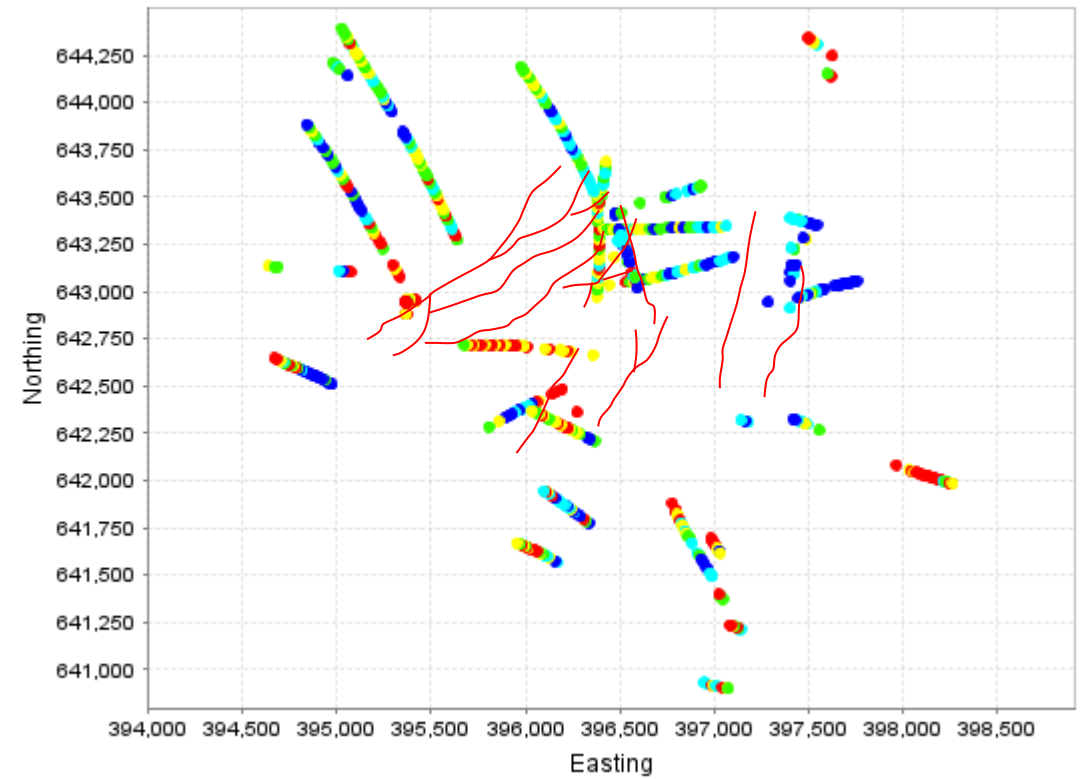
Total Feldspar

Adularia is the trend of points with low Na, plotting between the muscovite and orthoclase nodes

K/Al vs Na/Al (molar)



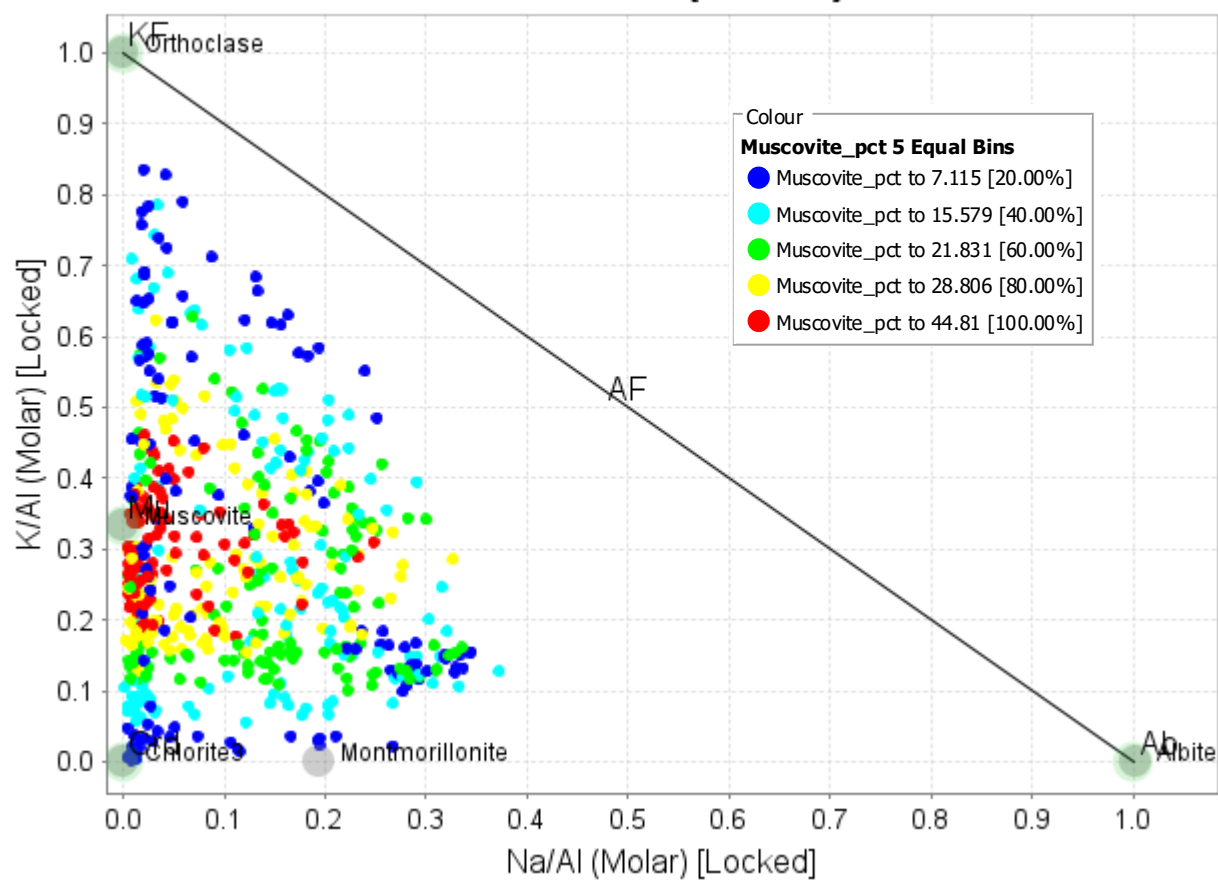
Attribute Map



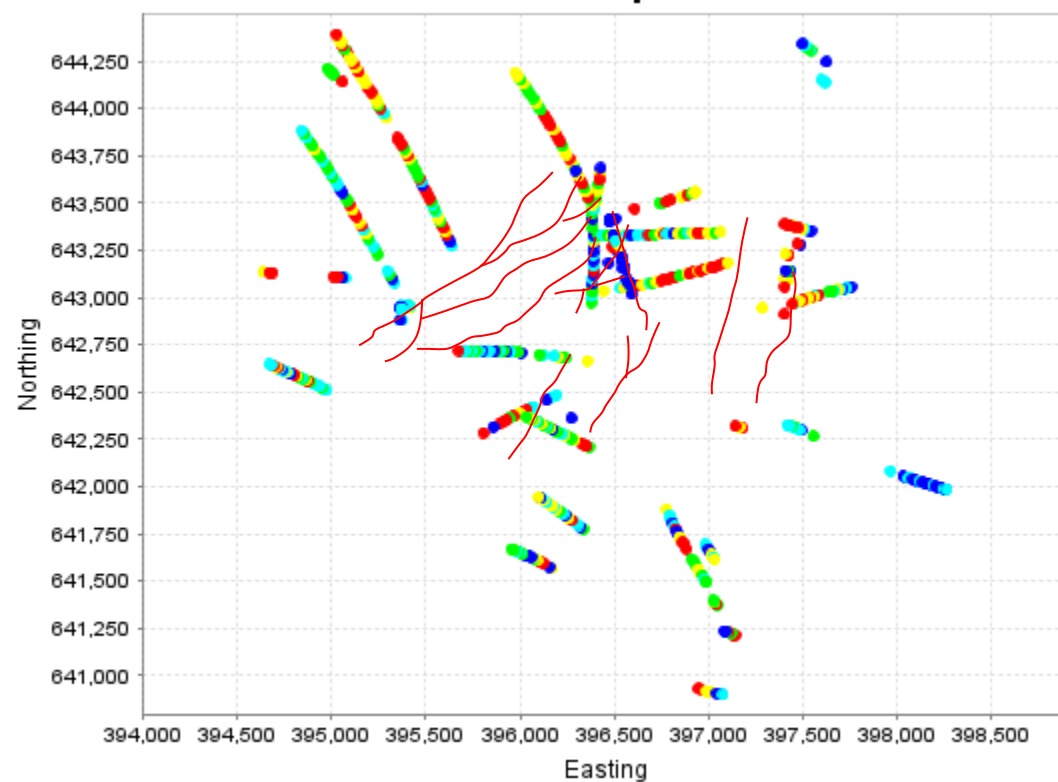
Illite

Note how the estimated illite content drops off away from the muscovite node, except for the blue, quartz-rich samples plotting near the node.

K/Al vs Na/Al (molar)

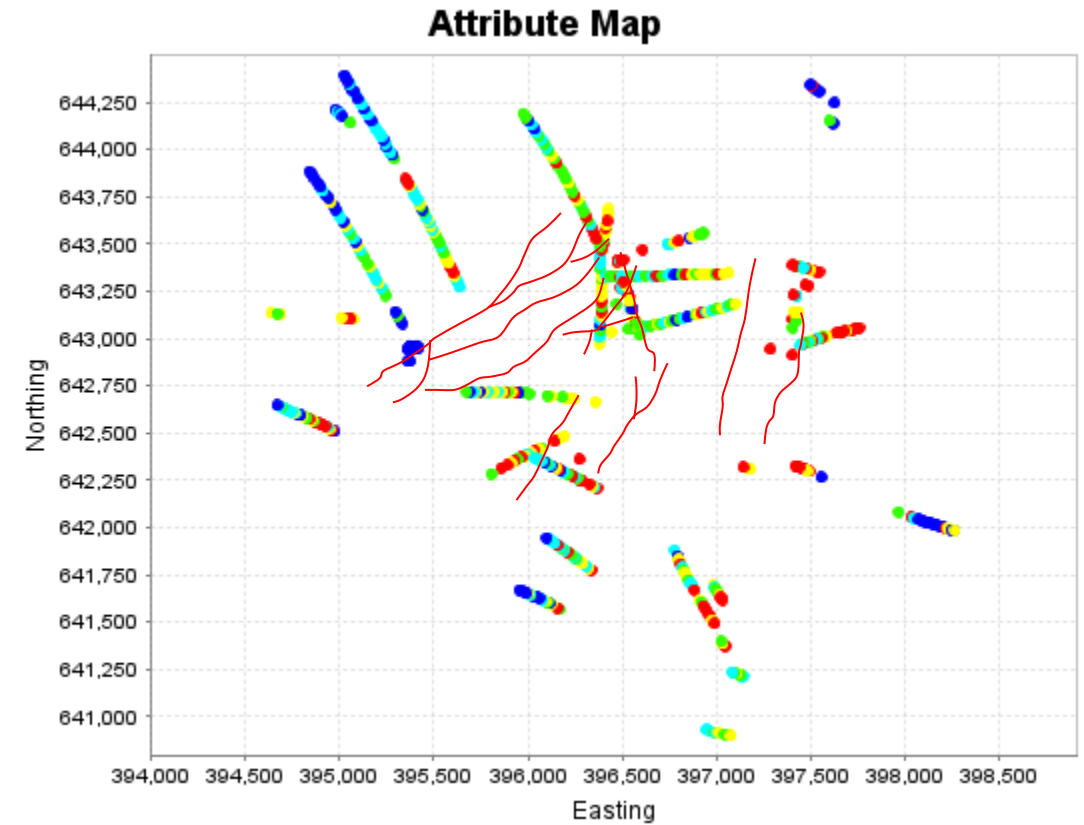
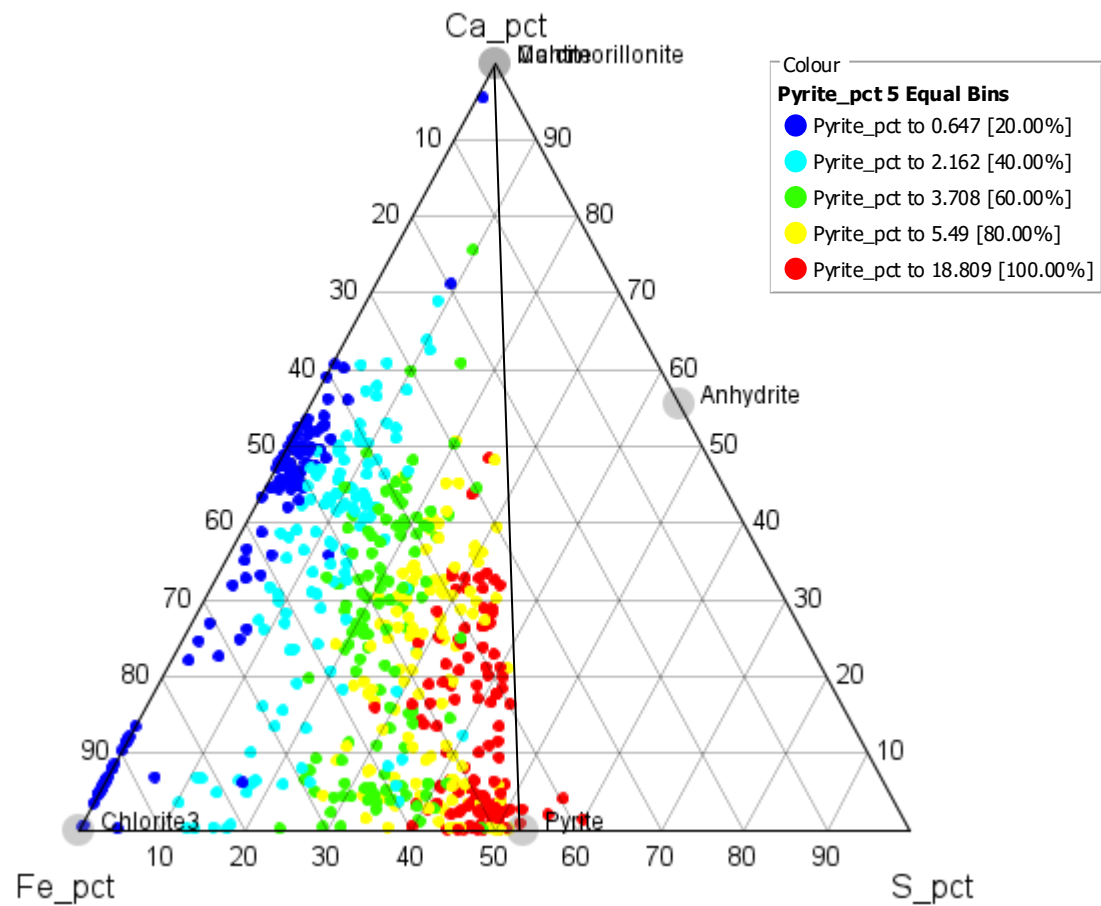


Attribute Map

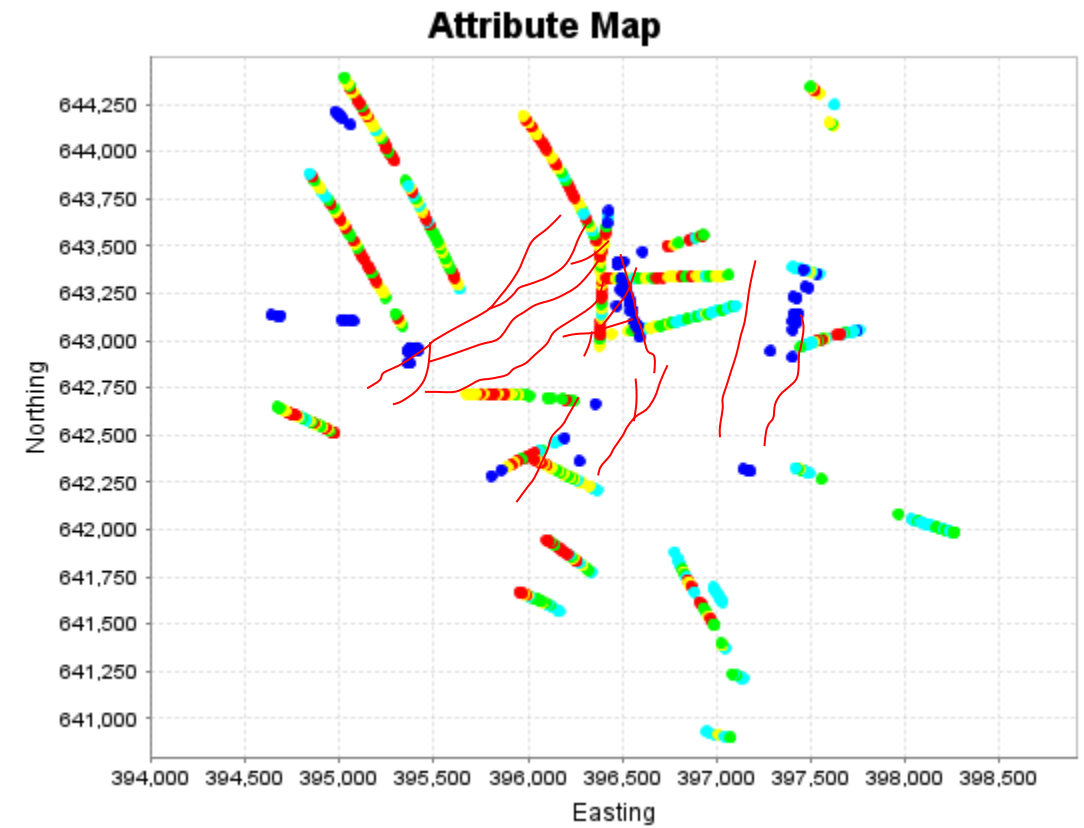
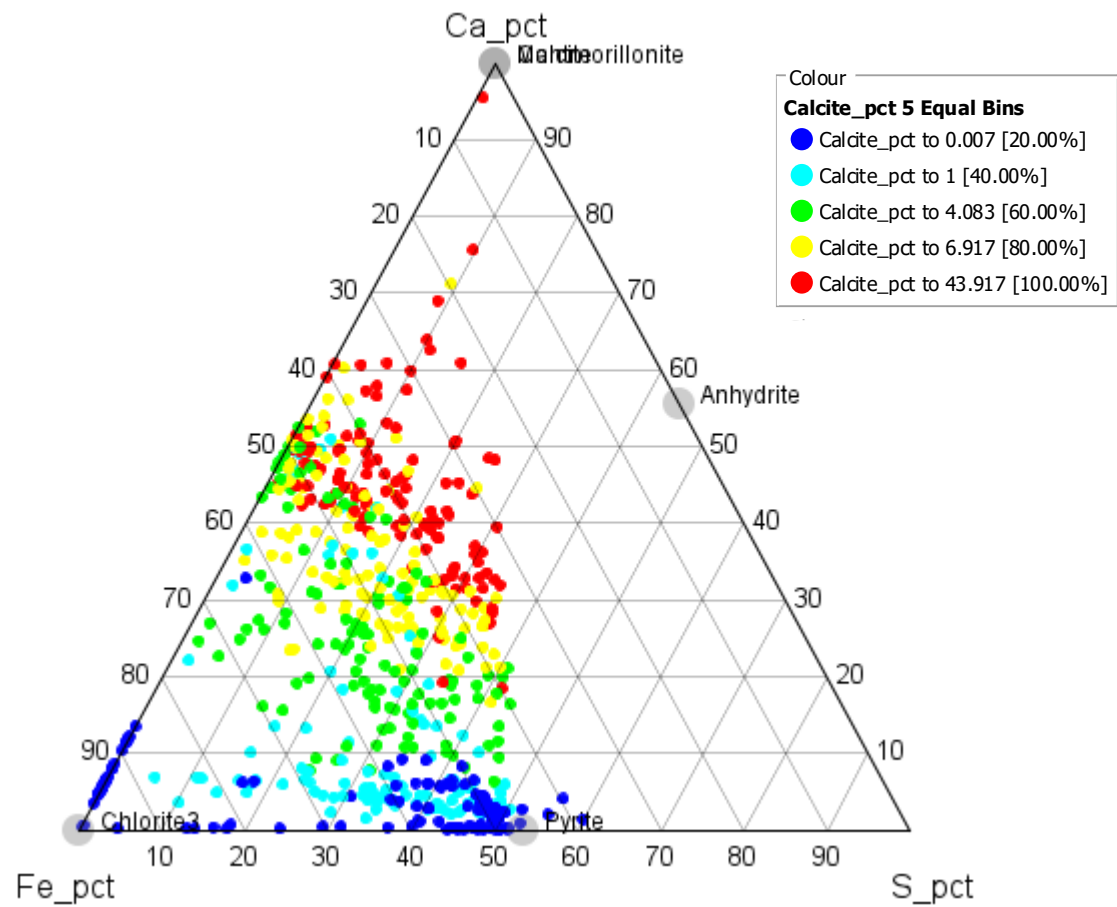


Pyrite

The edge of the data cloud along the join from the pyrite node to the Ca apex is controlled by samples where all the Fe is in pyrite and all the Ca is in calcite.

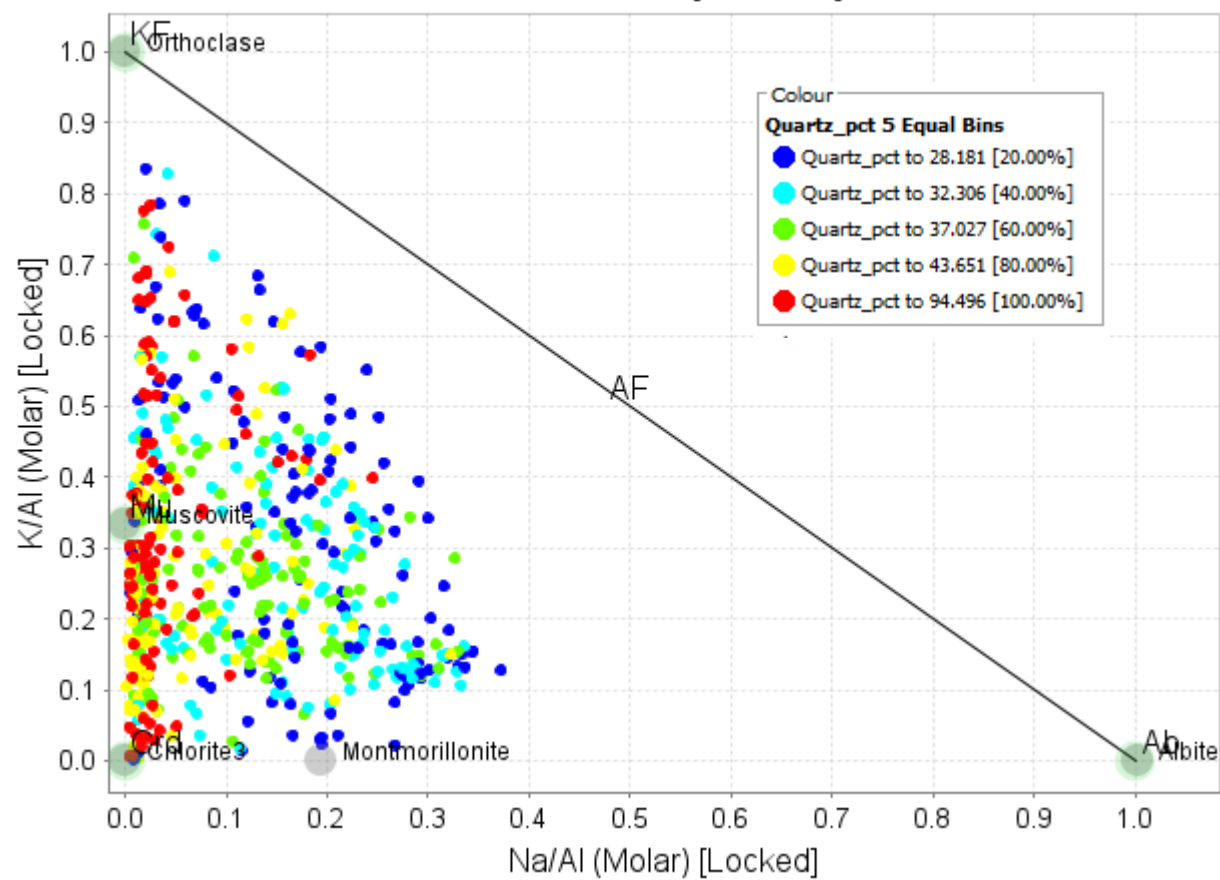


Calcite

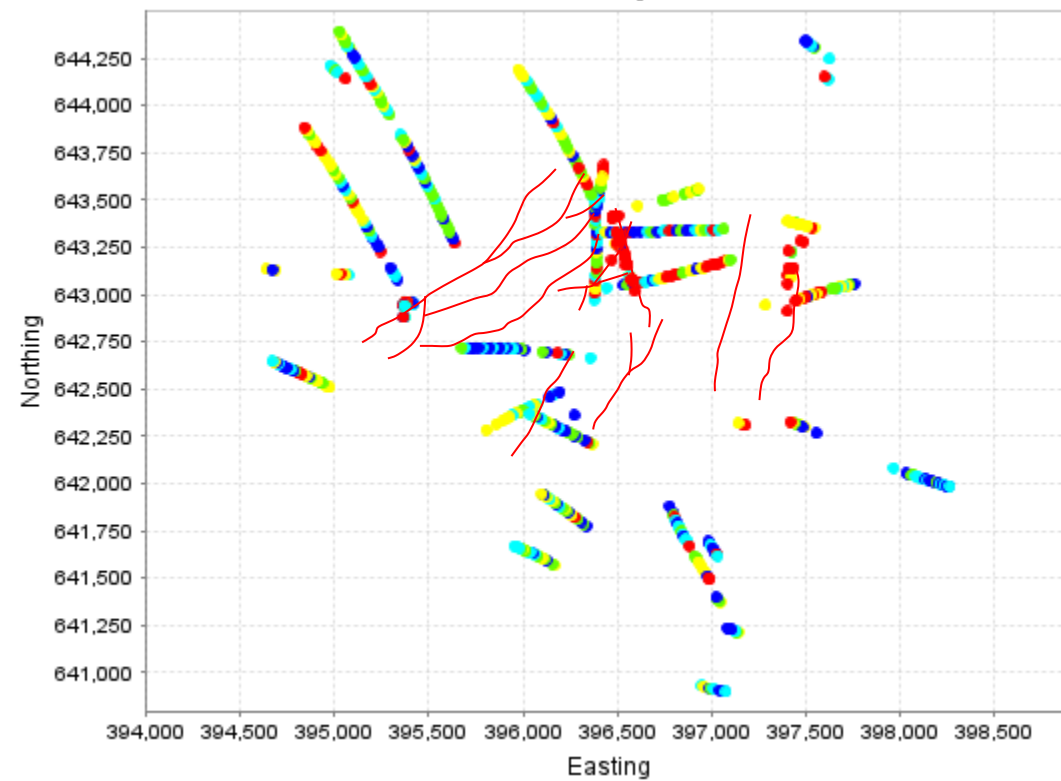


Quartz

K/Al vs Na/Al (molar)

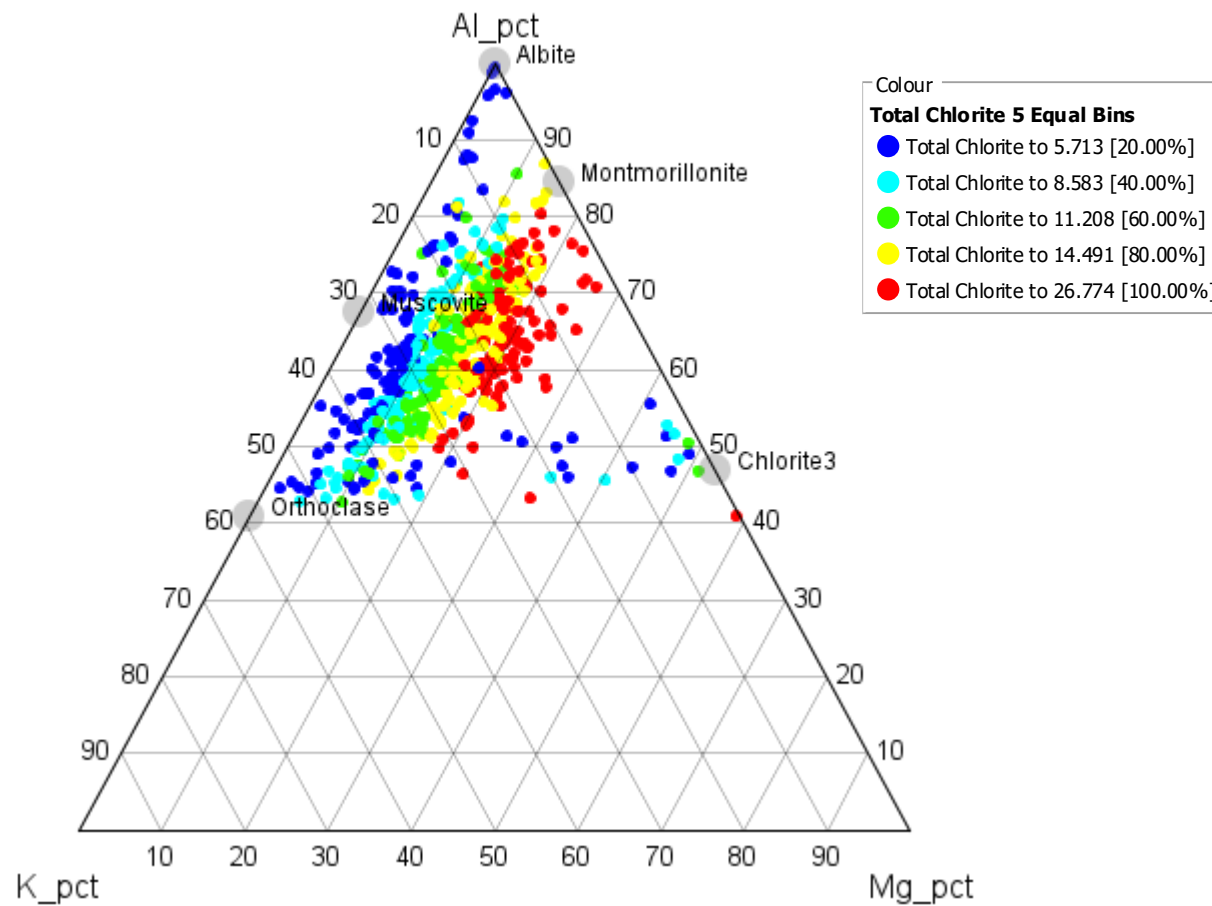


Attribute Map

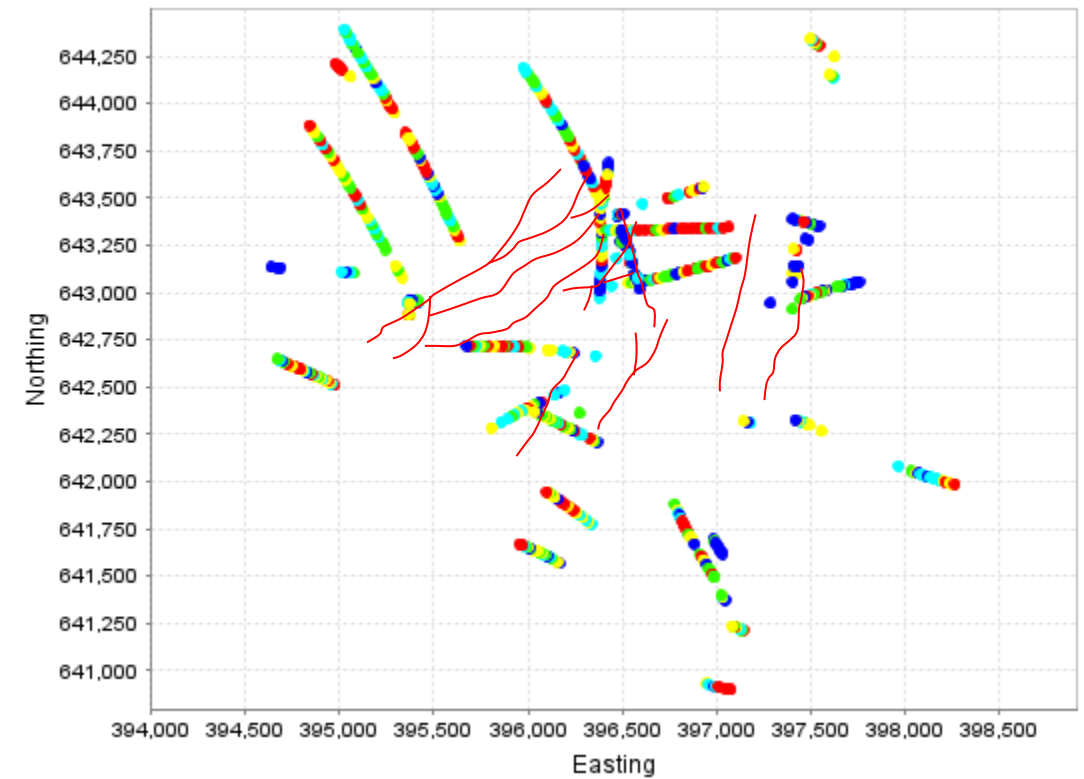


Chlorite

Sericite vs Chlorite

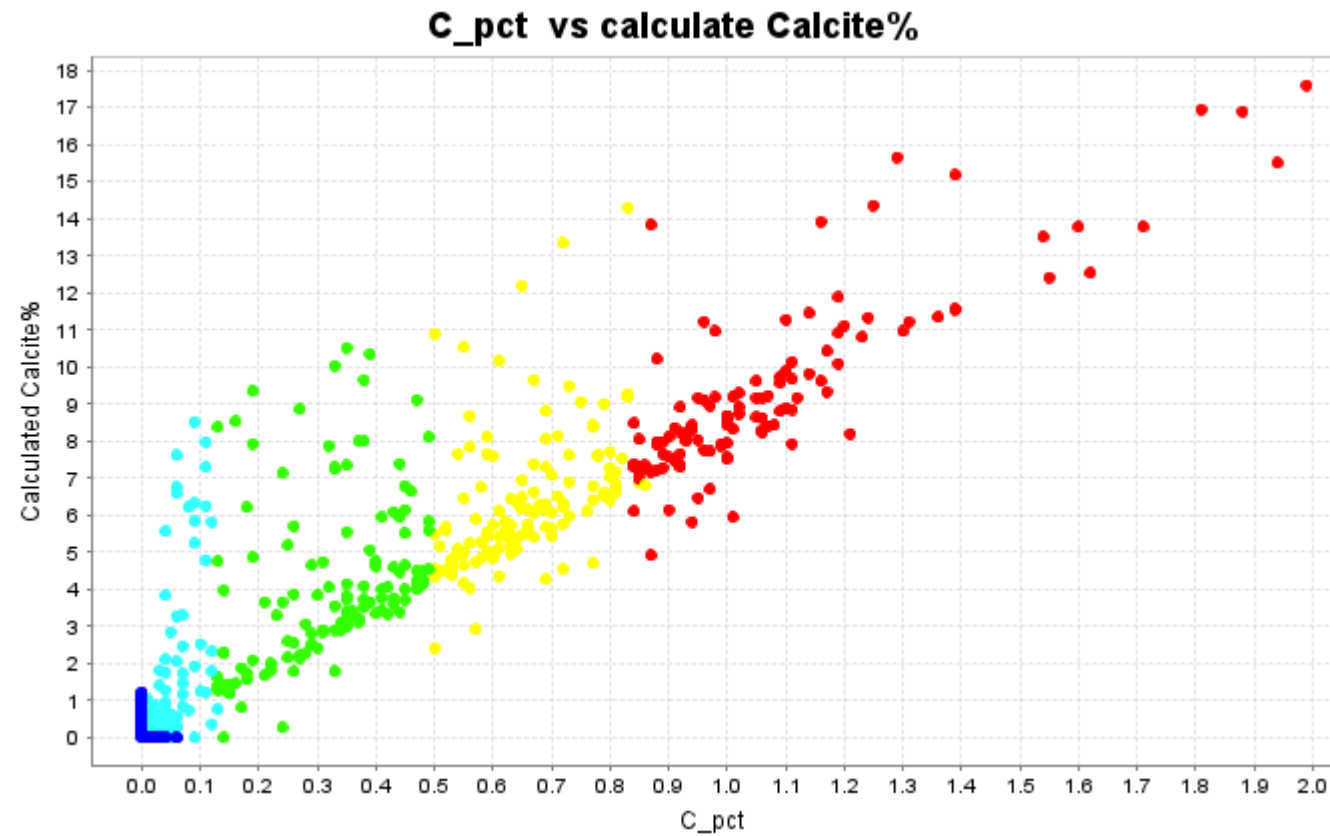


Attribute Map



Calcite

This shows the percentage of calcite calculated without using C assays
This is a test of how well Comet would work on an assay suite that did not include carbon analyses.



Calculated SiO2

This shows back-calculated SiO2 versus measured SiO2

This is a test of how well Comet would work on an assay suite that did not include SiO2 analyses.

