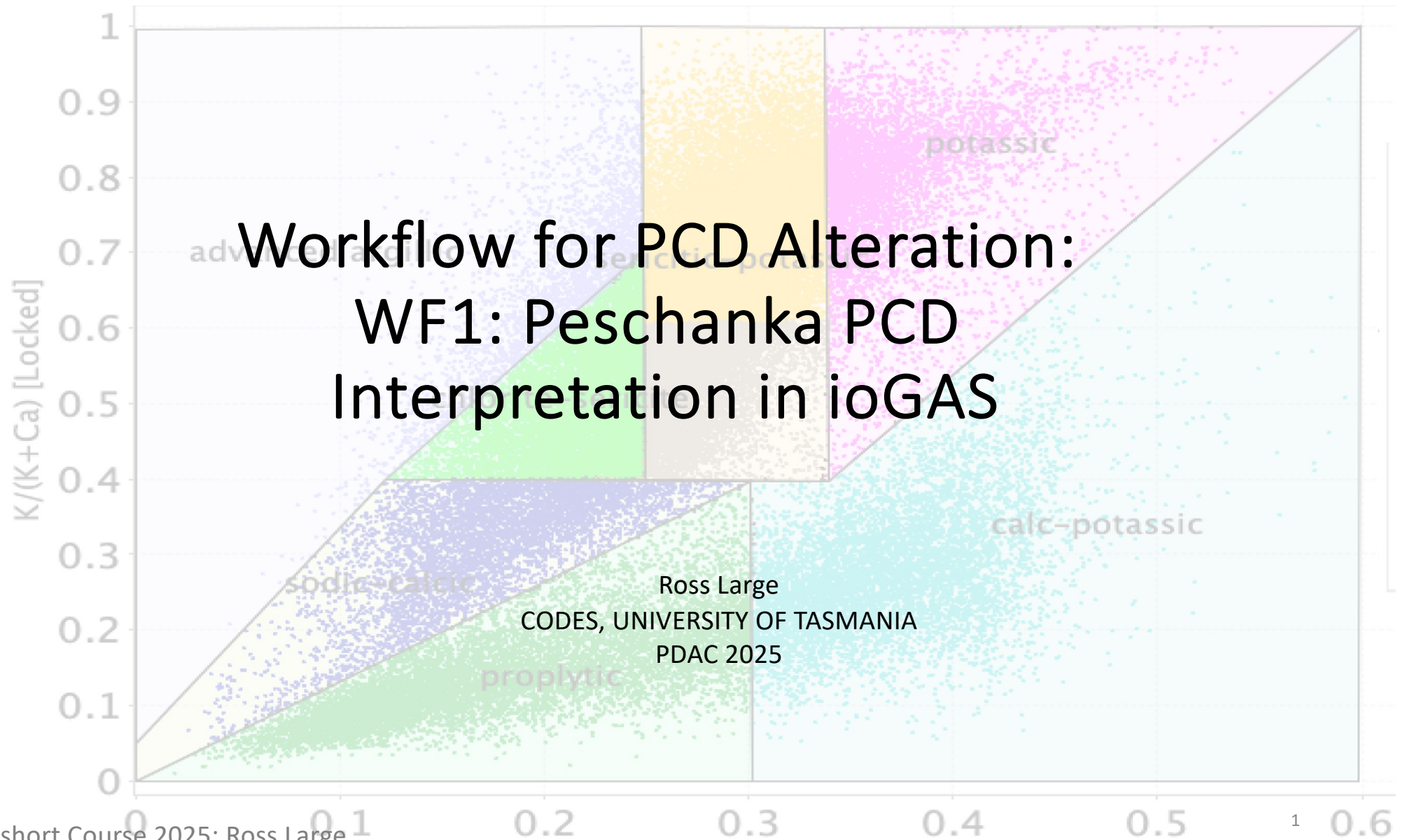


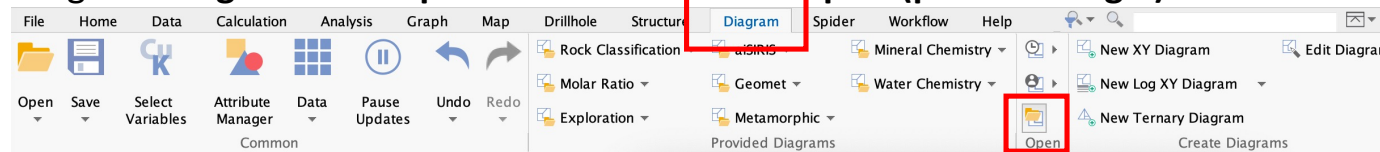
Workflow for PCD Alteration: WF1: Peschanka PCD Interpretation in ioGAS



Steps to Follow

- Upload the database DB1 into iogas
- **Step1**; determine least altered porphyry compositions

➤ go to **Diagram** then **open** then **alteration box plot (produces Fig 1)**



➤ Click **point density** to colour contour

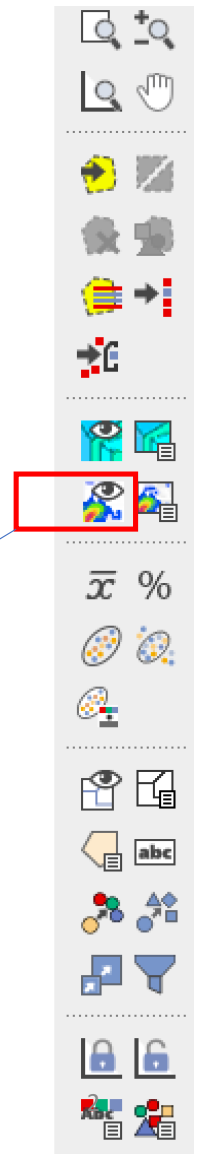
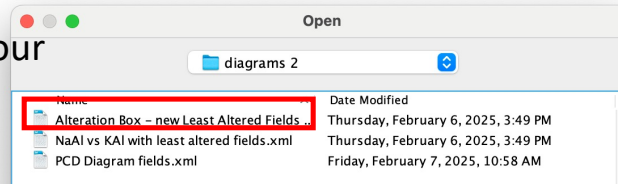
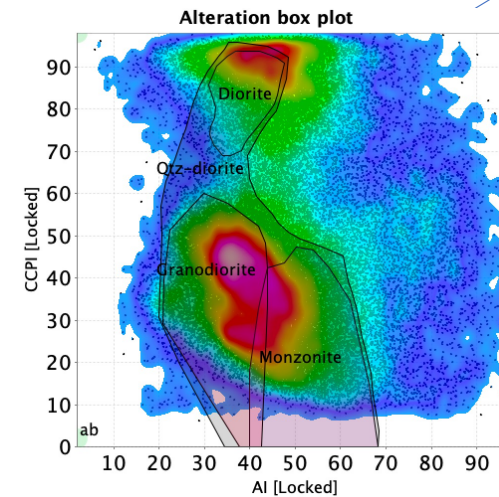
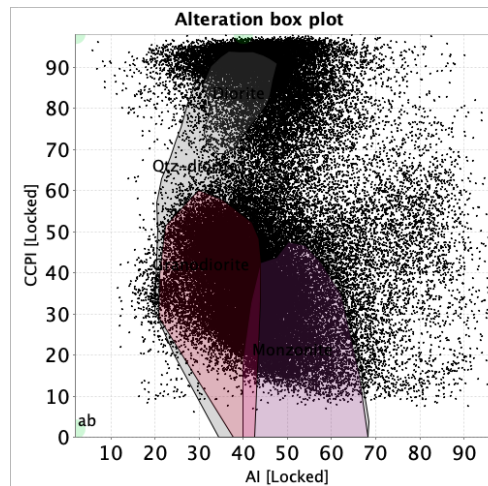
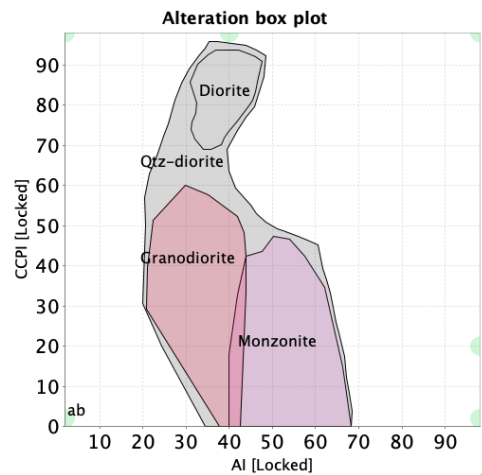
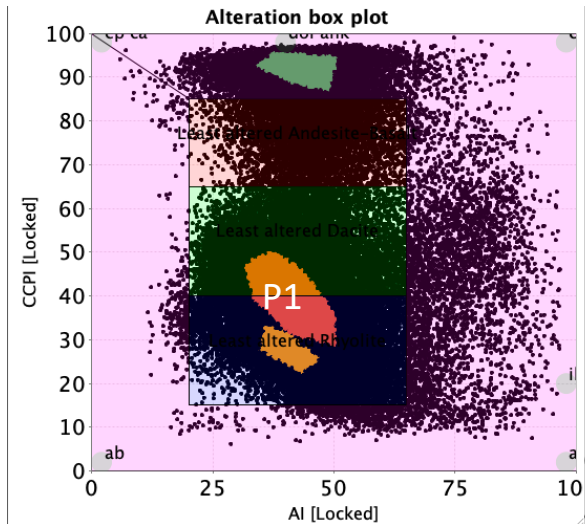
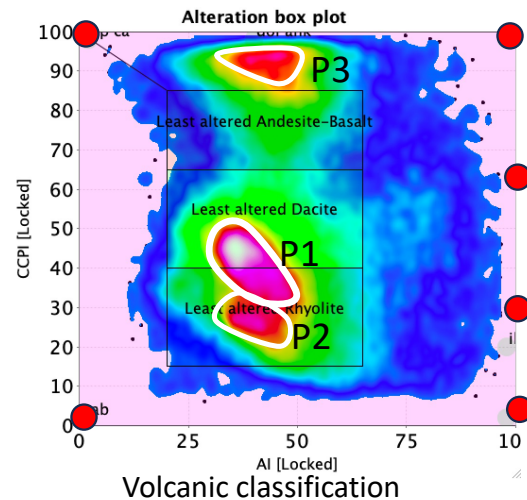
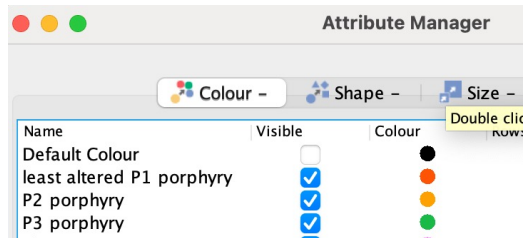


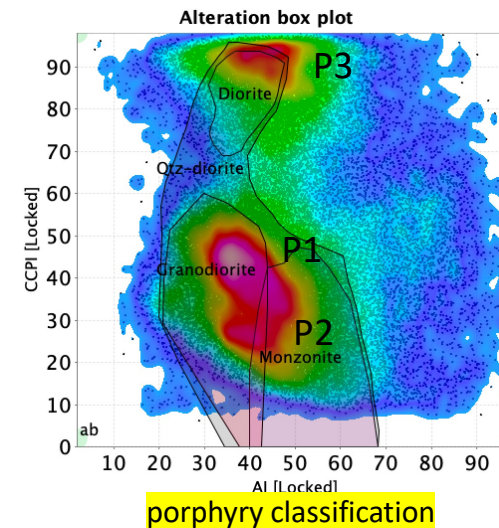
Fig 1



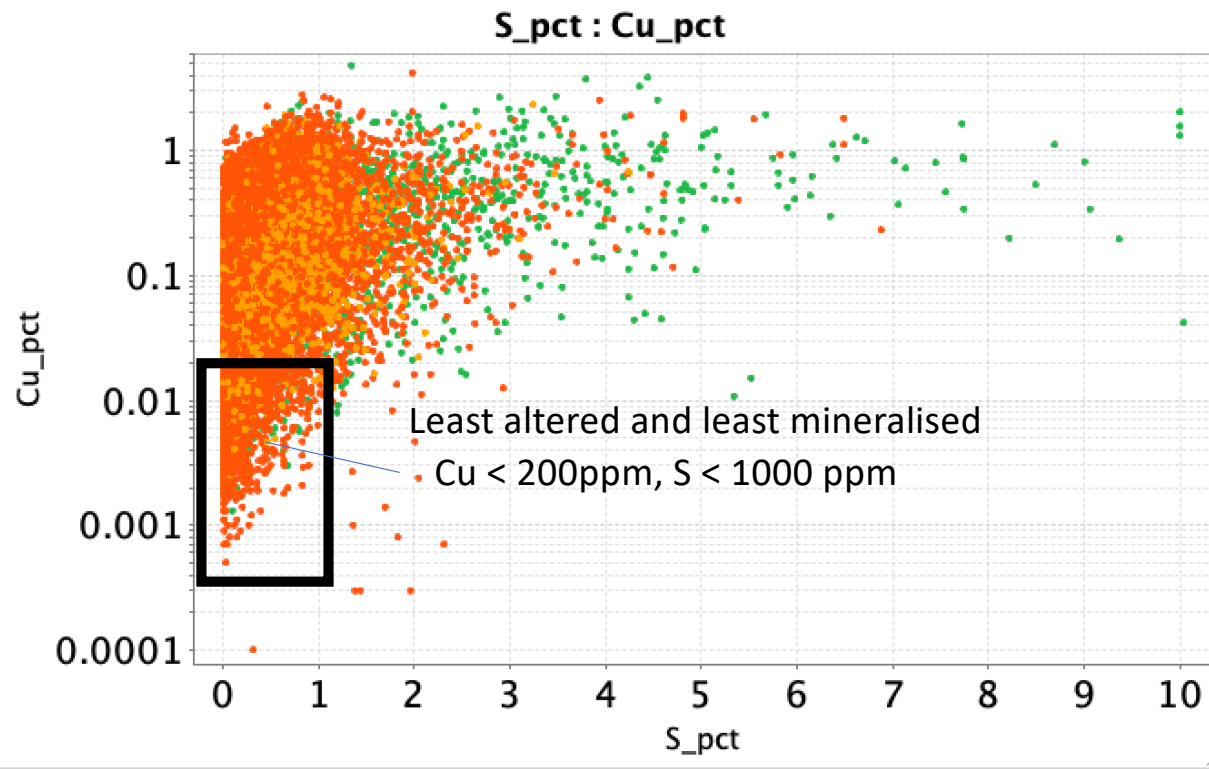
- Add mineral NODES to alteration box plot diagram in power point
- Go to attribute manager and select areas for P1, P2 and P3 with a color each (Fig 3)



What are the compositions of P1, P2 and P3?

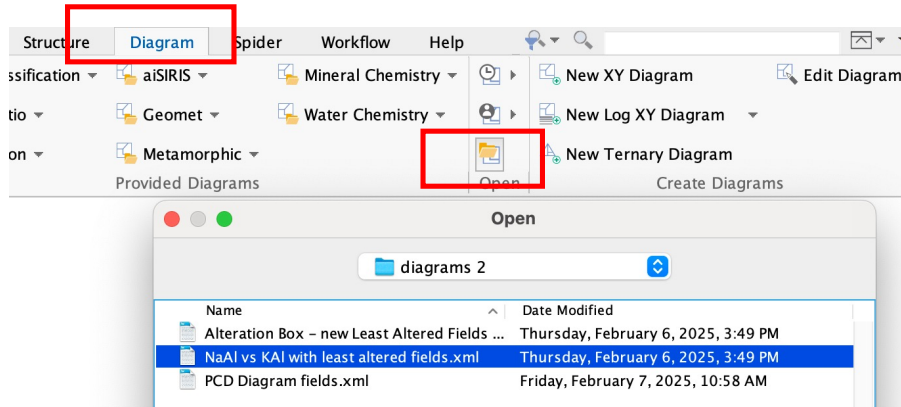


- Eliminate mineralized samples from least altered group by plotting Cu vs S and selecting area with Cu < 200 ppm and S < 1000 ppm

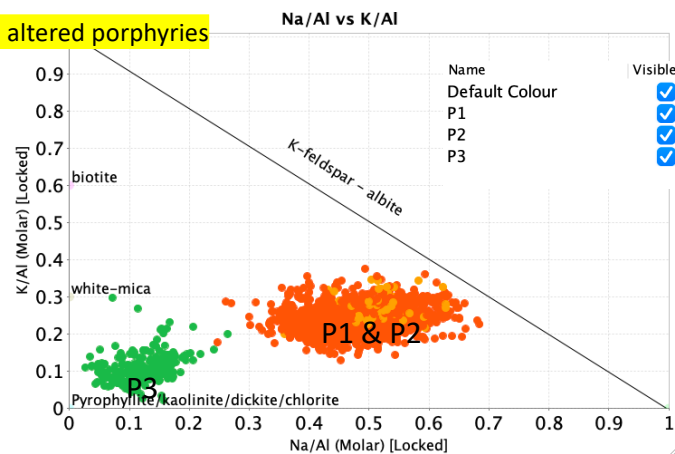


Step 2: Plot Na/K molar vs K/Al molar (Halley Plot)

- Go to Diagram
- Go to **open** then **Na/Al vs K/Al**
- **Add mineral nodes in ppt**



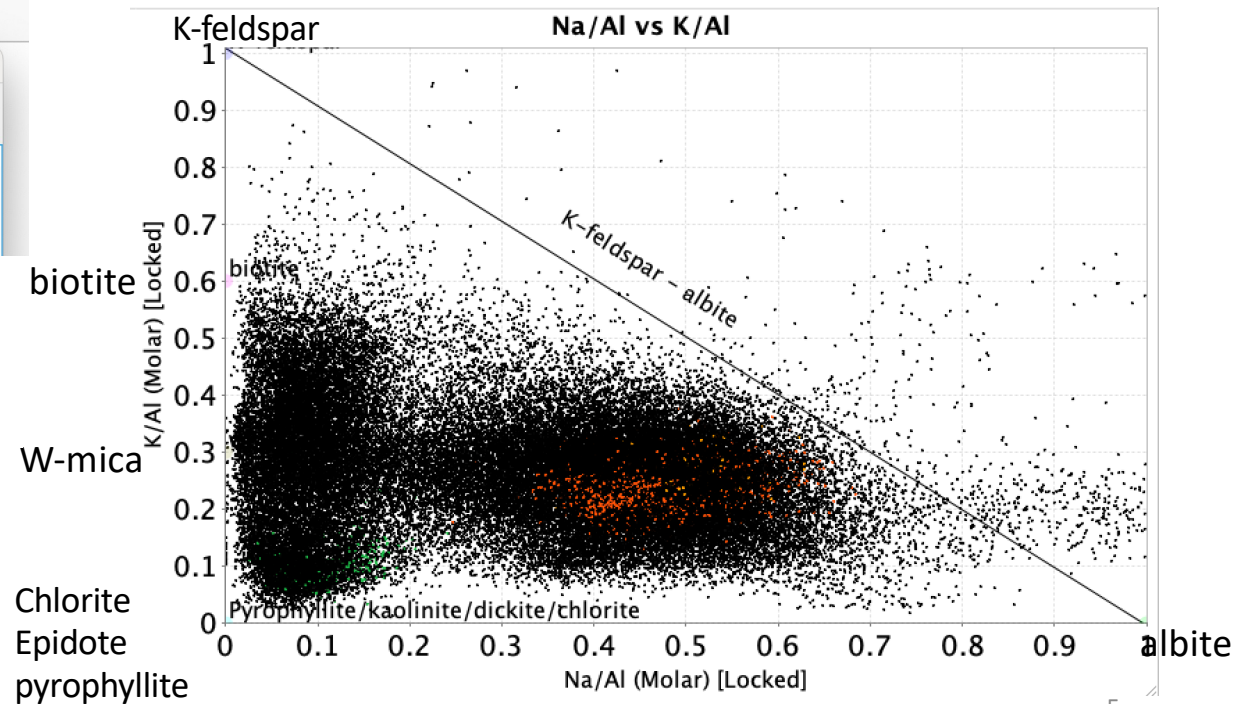
Least altered porphyries




PDAC short Course 2025: Ross Large

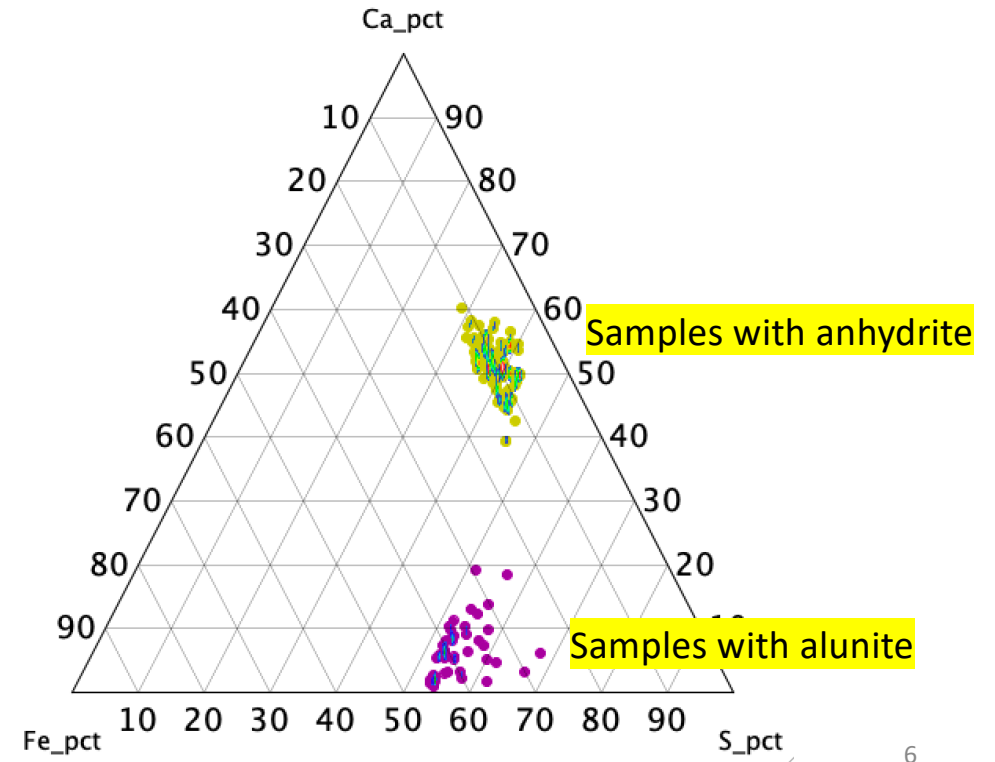
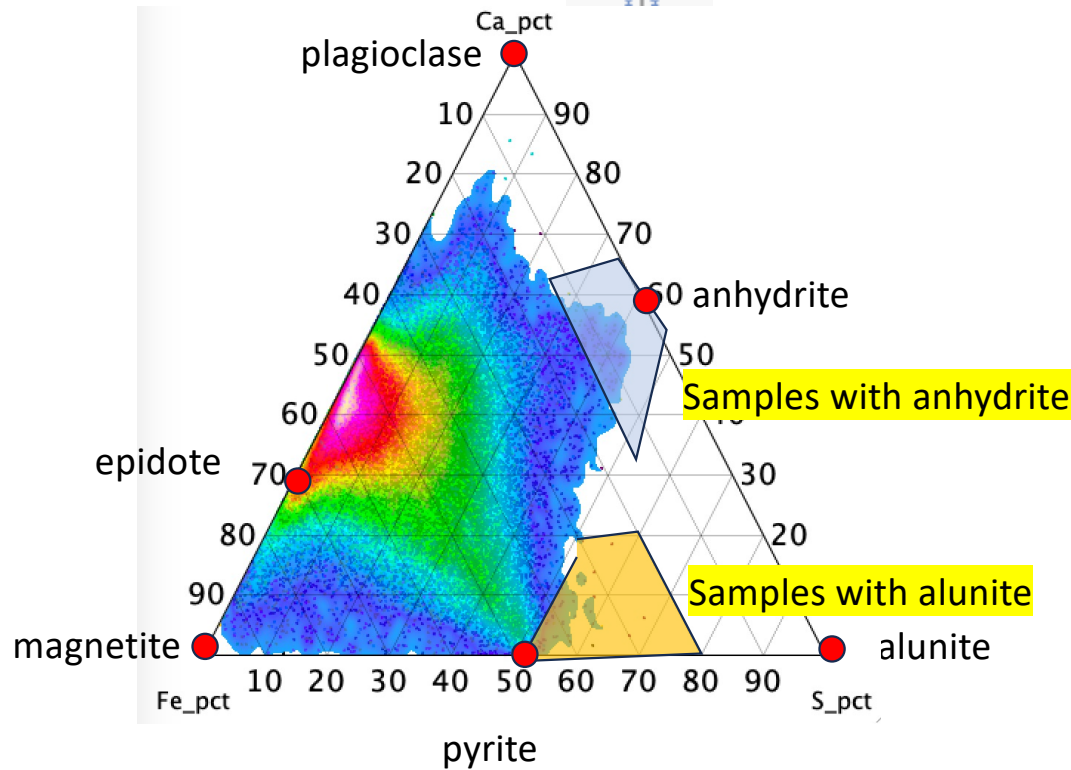
All case study data

Insert the mineral NODES



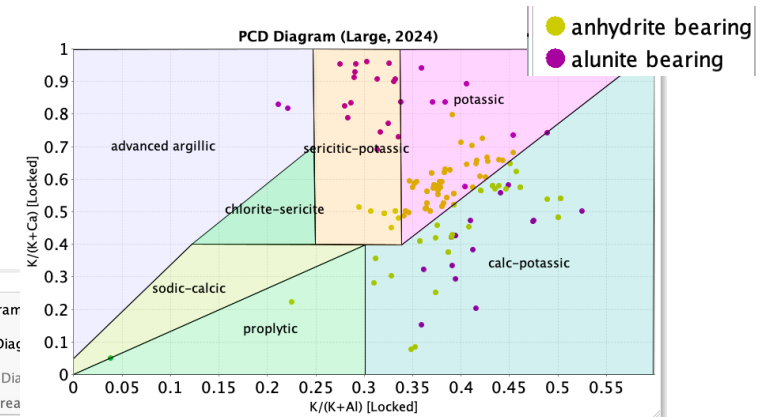
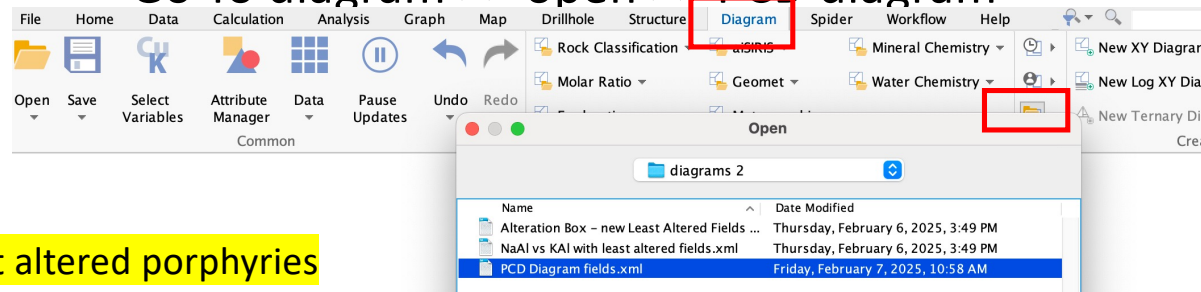
Step 3 : check for alunite and anhydrite

- Plot a Ca-Fe-S triangular diagram
 - Put Ca, Fe and S into select variables
 - Click 

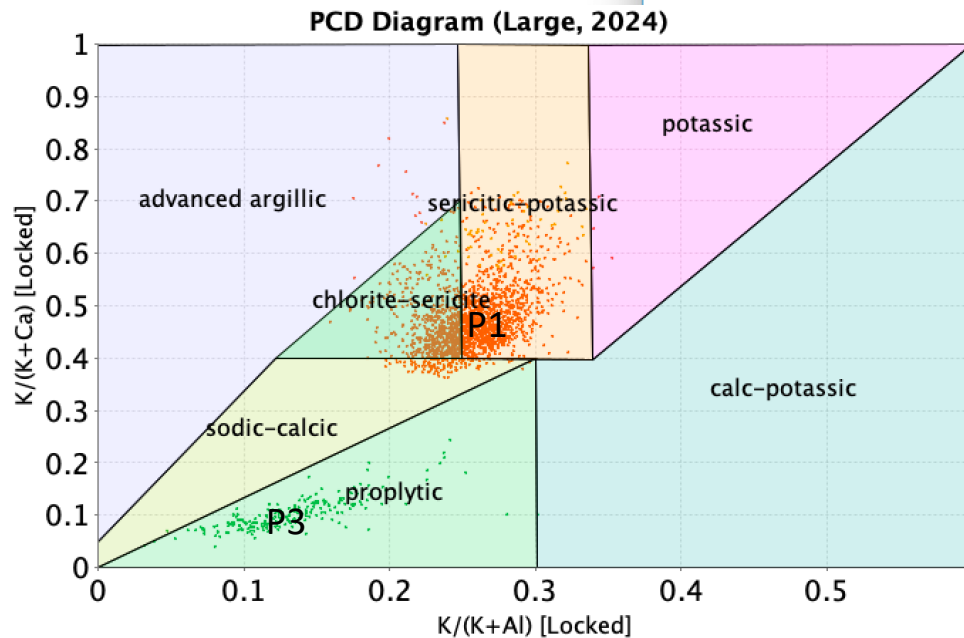


Step 4 : create the PCD alteration Diagram

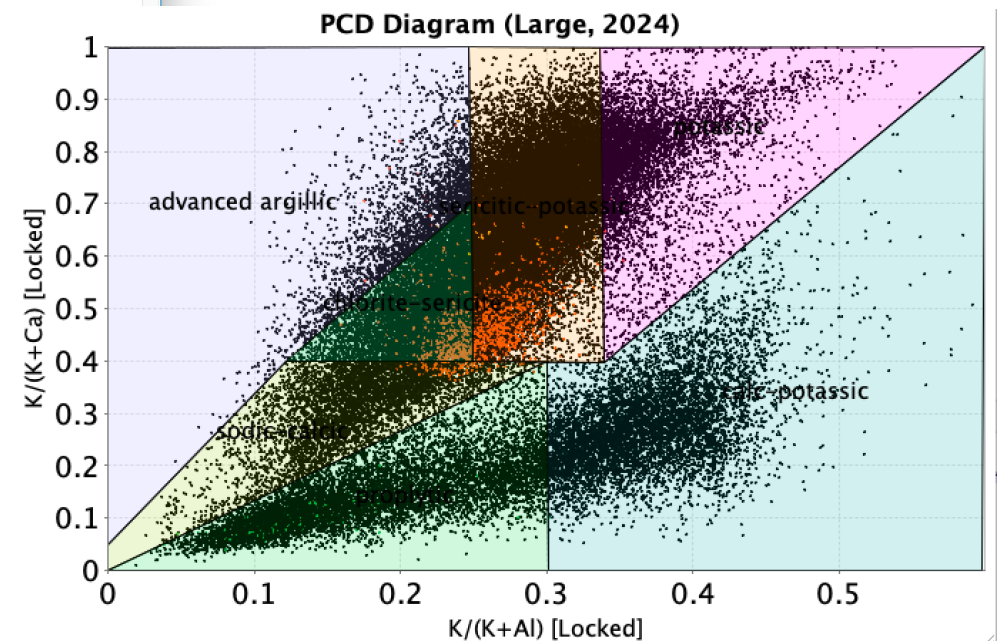
- Go To diagram >> open >> PCD diagram



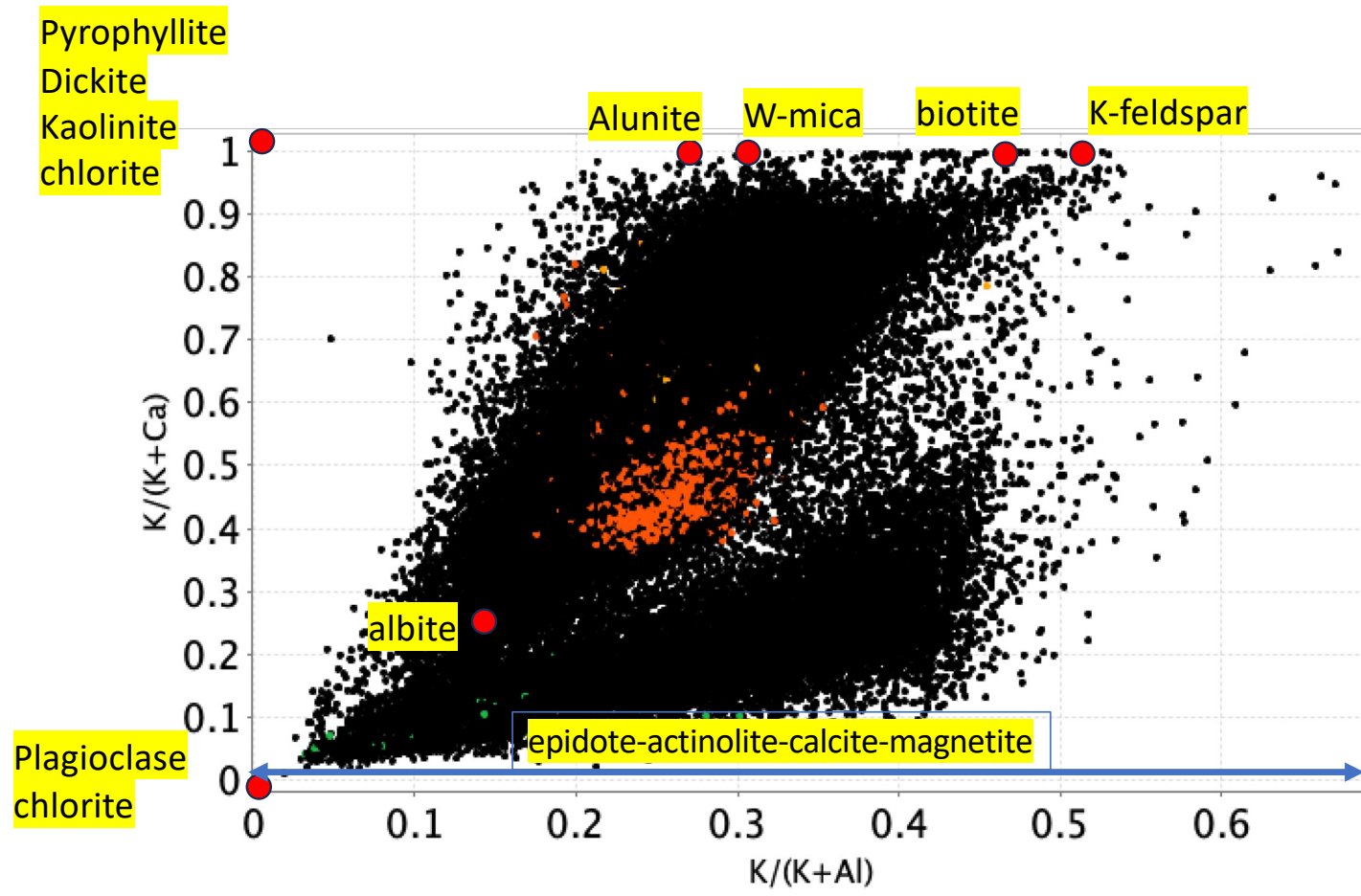
Least altered porphyries

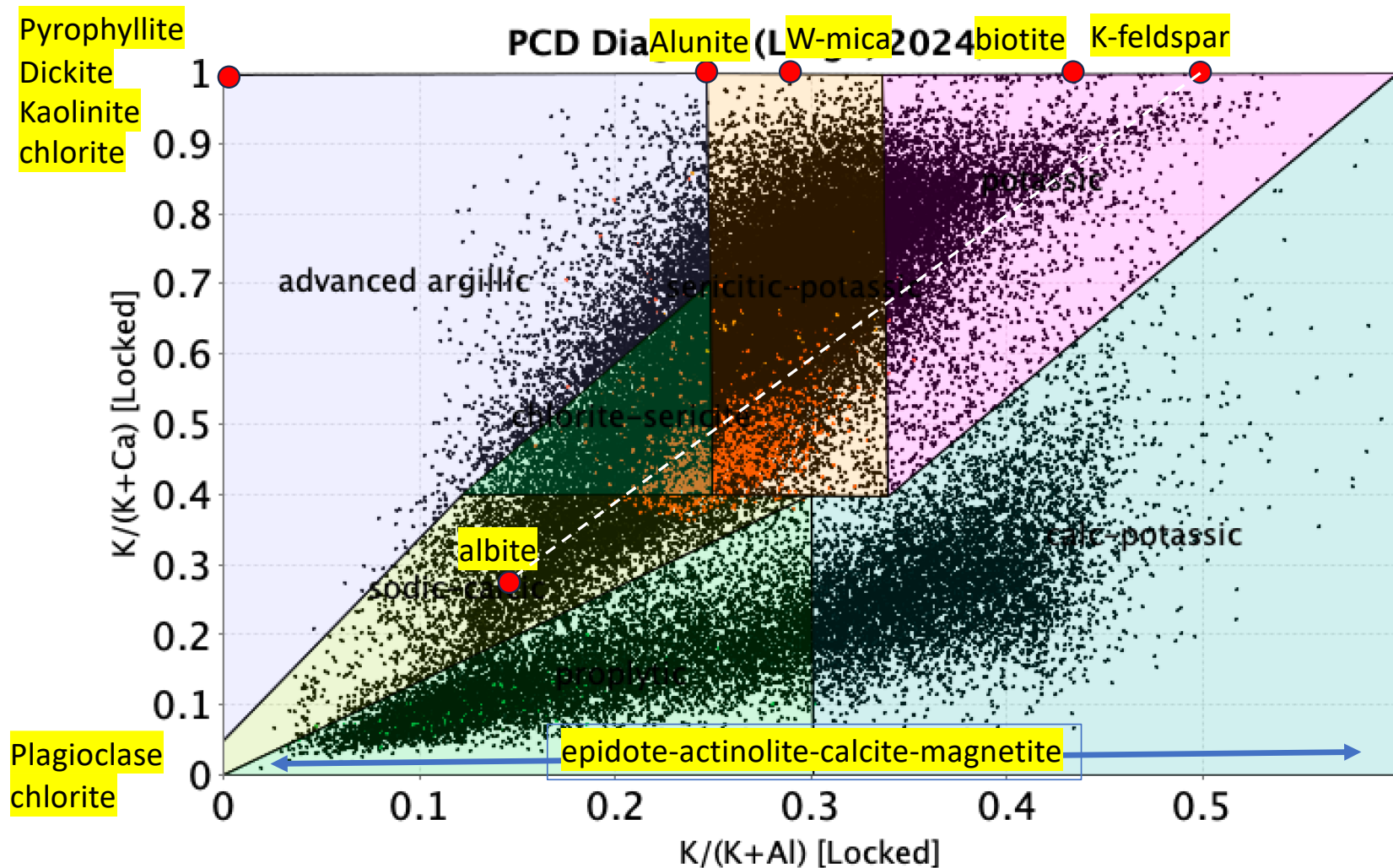


All drill data

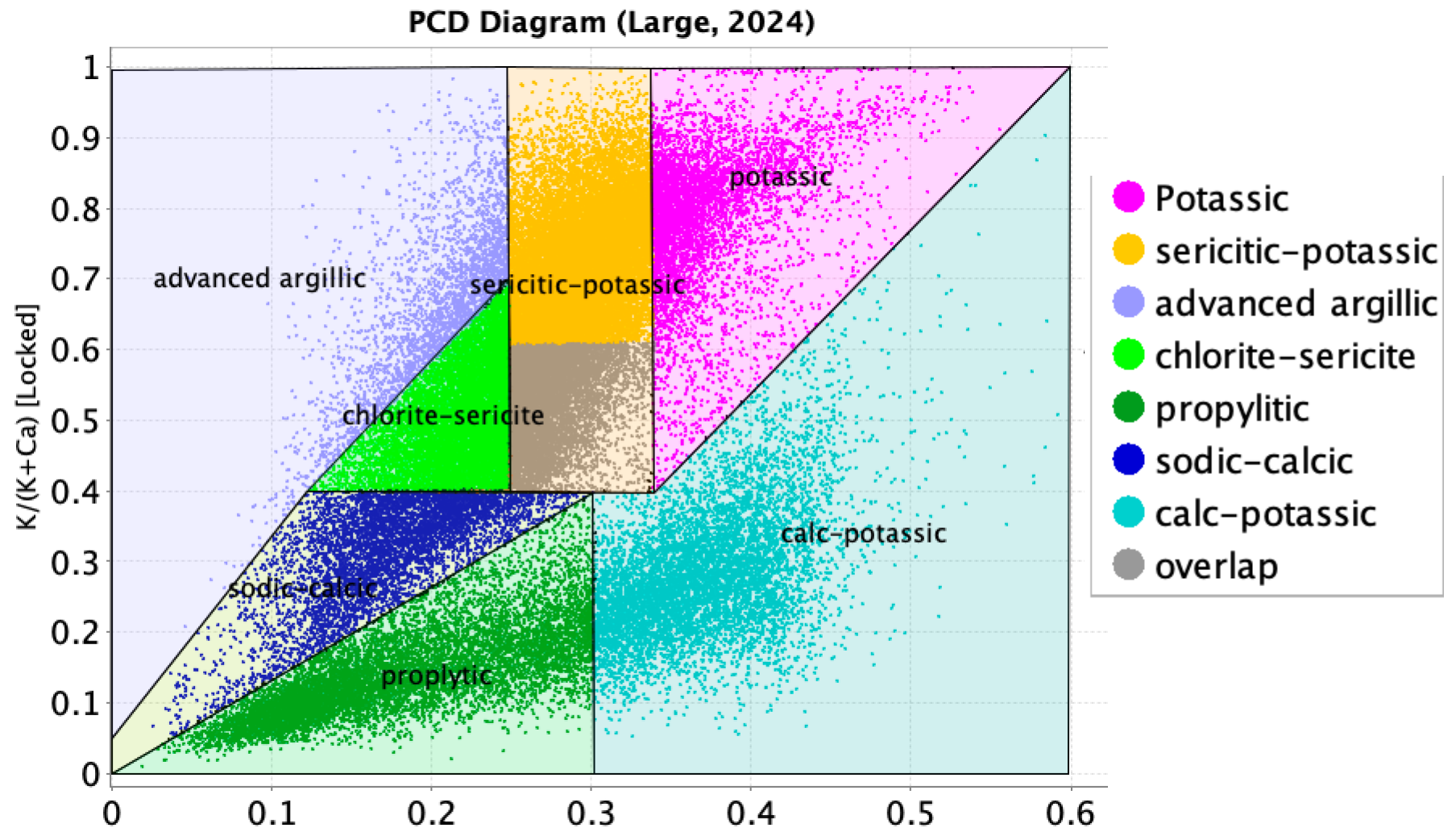


Add mineral NODES in ppt

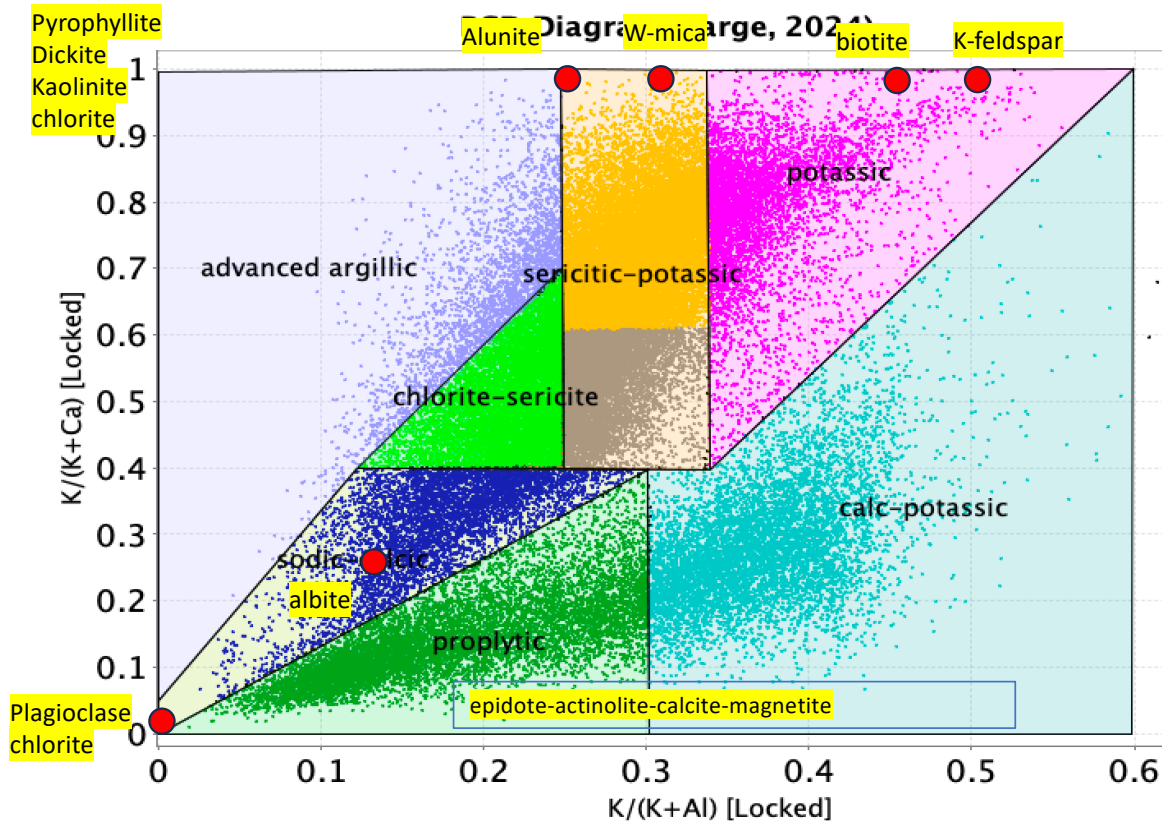




Color the alteration fields via attribute Manager

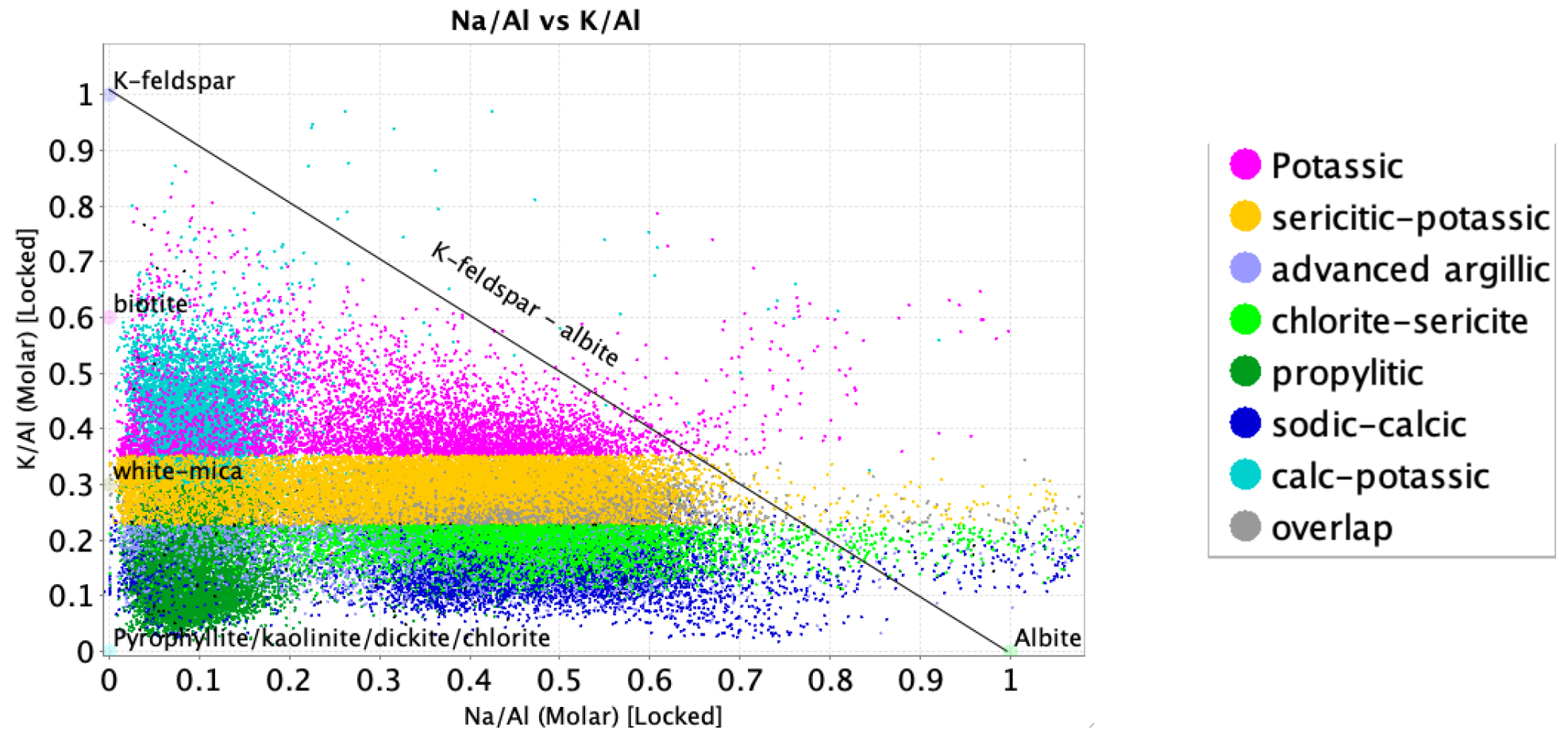


How were the alteration fields selected?



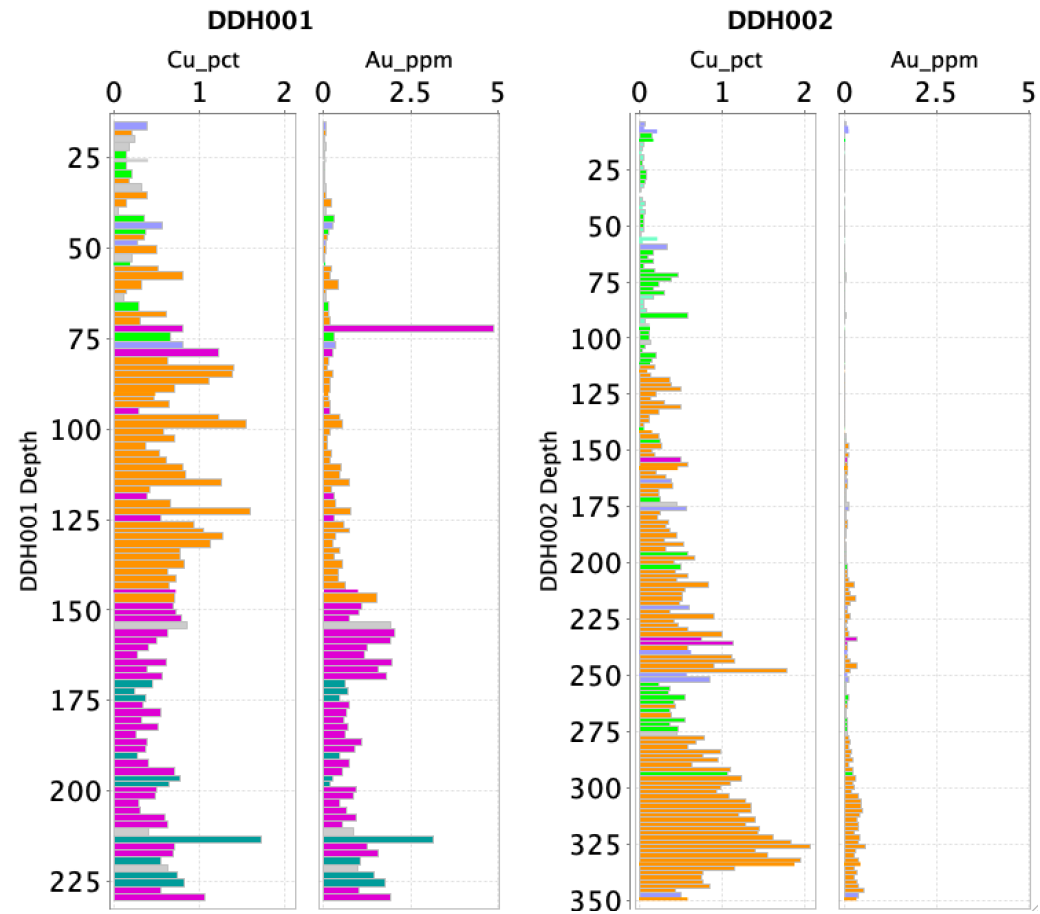
- Position of mineral NODES
- Trial and error using well characterized altered porphyry analyses
- Comparison with mineralogy calculated by MINSQ

Now go back to the Na/Al m vs K/Al m diagram and the colored alteration fields are automatically plotted



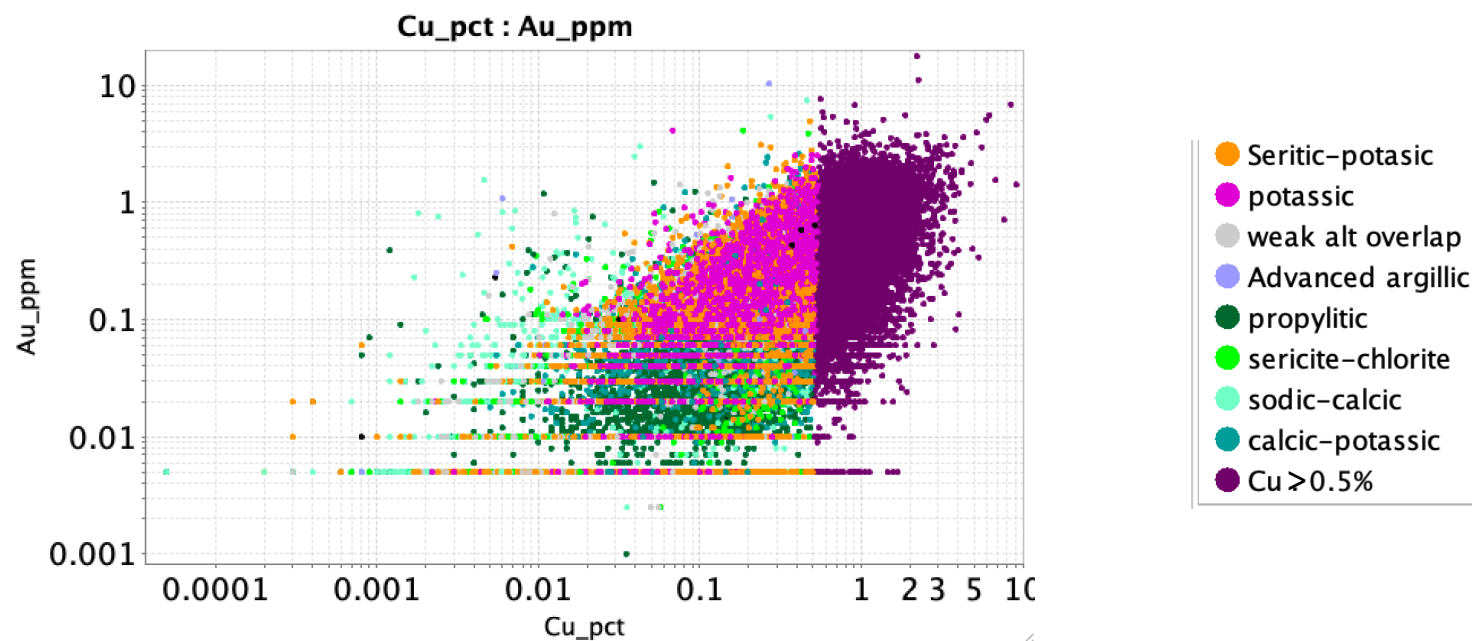
Step 4: Plot alteration down drill holes

- Select Cu and Au for plotting
- Go to **Drillhole** then **select drillhole DDH001 and DDH002**
- Select **group by drillhole**



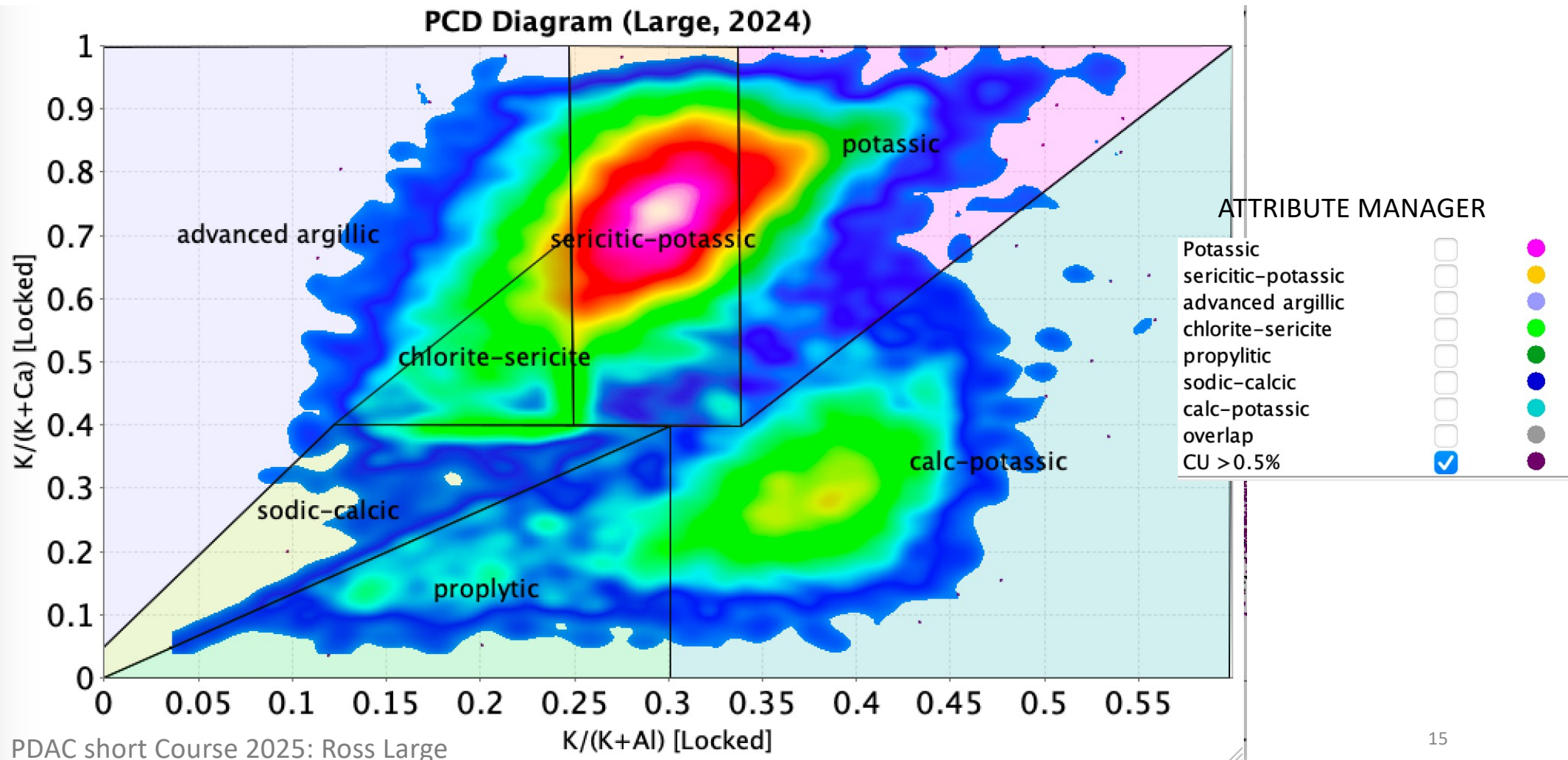
Step 5: Plot Cu > 0.5% on the PCD alteration diagram.

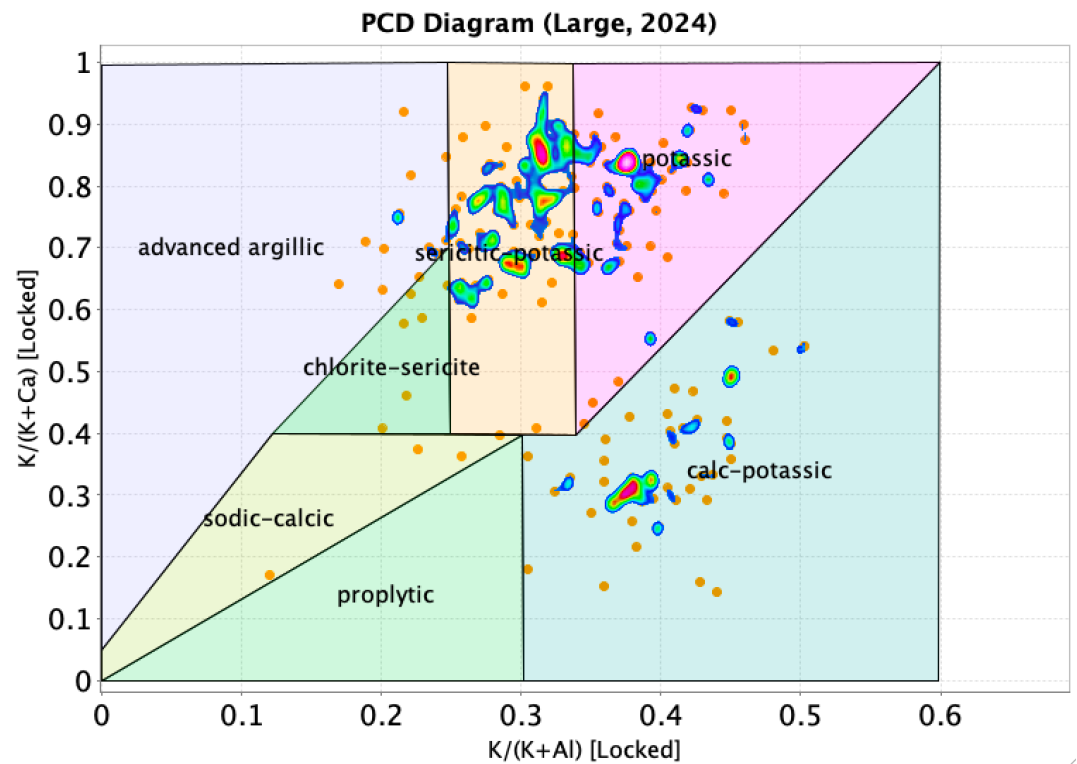
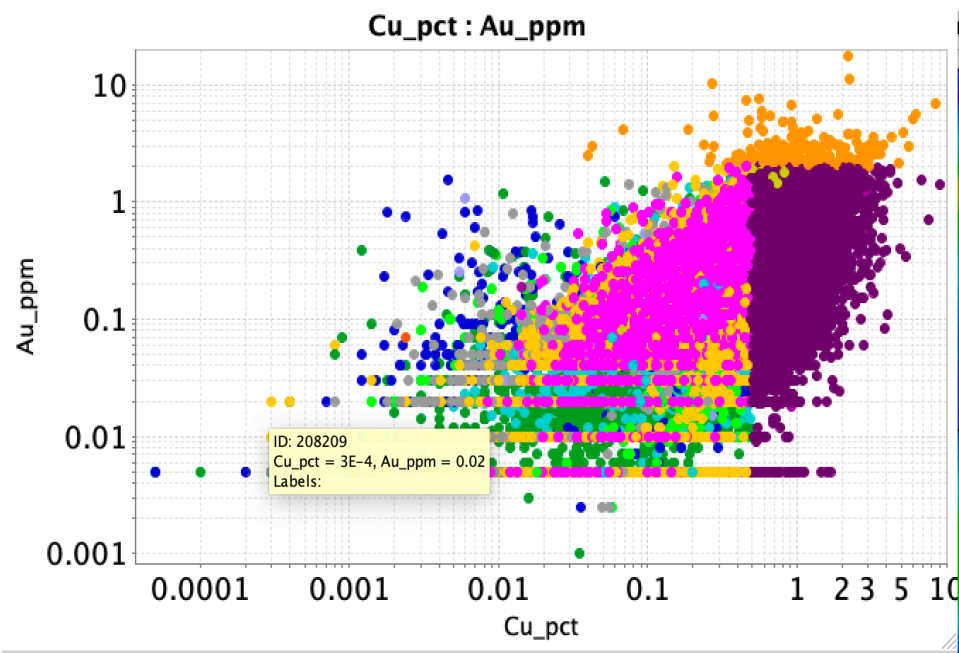
- Plot Cu vs Au
- Select Cu > 0.5% in the graph and attribute manager
- Plot Cu > 0.5% data onto the PCD diagram [K/(K+Al) vs K/(K+Ca)]



Samples with Cu > 0.5% only

PCD Diagram (Large, 2024)





Questions

- What is the composition of the two main least altered porphyry types
- For the Cu-rich samples, what is the principal alteration type for each porphyry system.
- In which alteration type do the alunite and anhydrite samples plot.
- In DDH001, are the best Cu grades in the sericite-bearing alteration, chlorite-bearing or potassic
- Is the AA assemblage in DDH001 likely to be primary or secondary.
- What type of alteration is associated with gold-rich samples ($\text{Au} > 2 \text{ g/t}$)