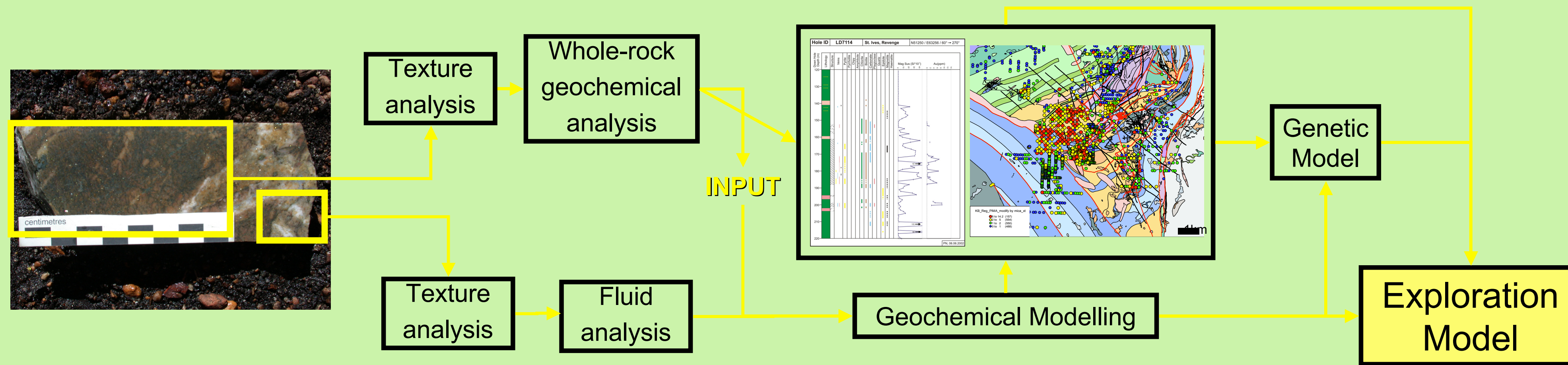


Alteration Mapping and Fluid Identification in the St. Ives Gold Camp

K. Petersen¹, P. Neumayr¹, S.G. Hagemann¹

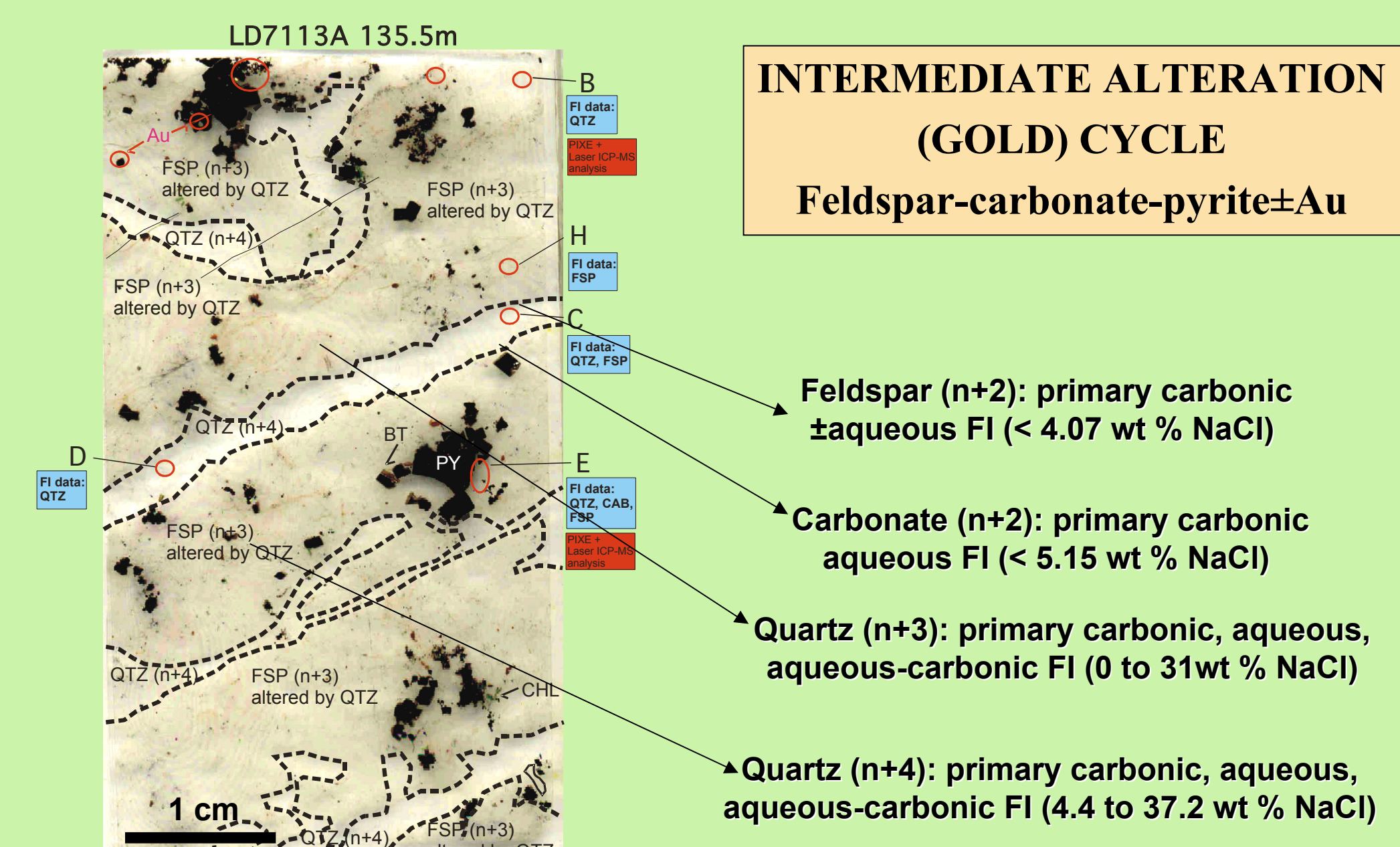
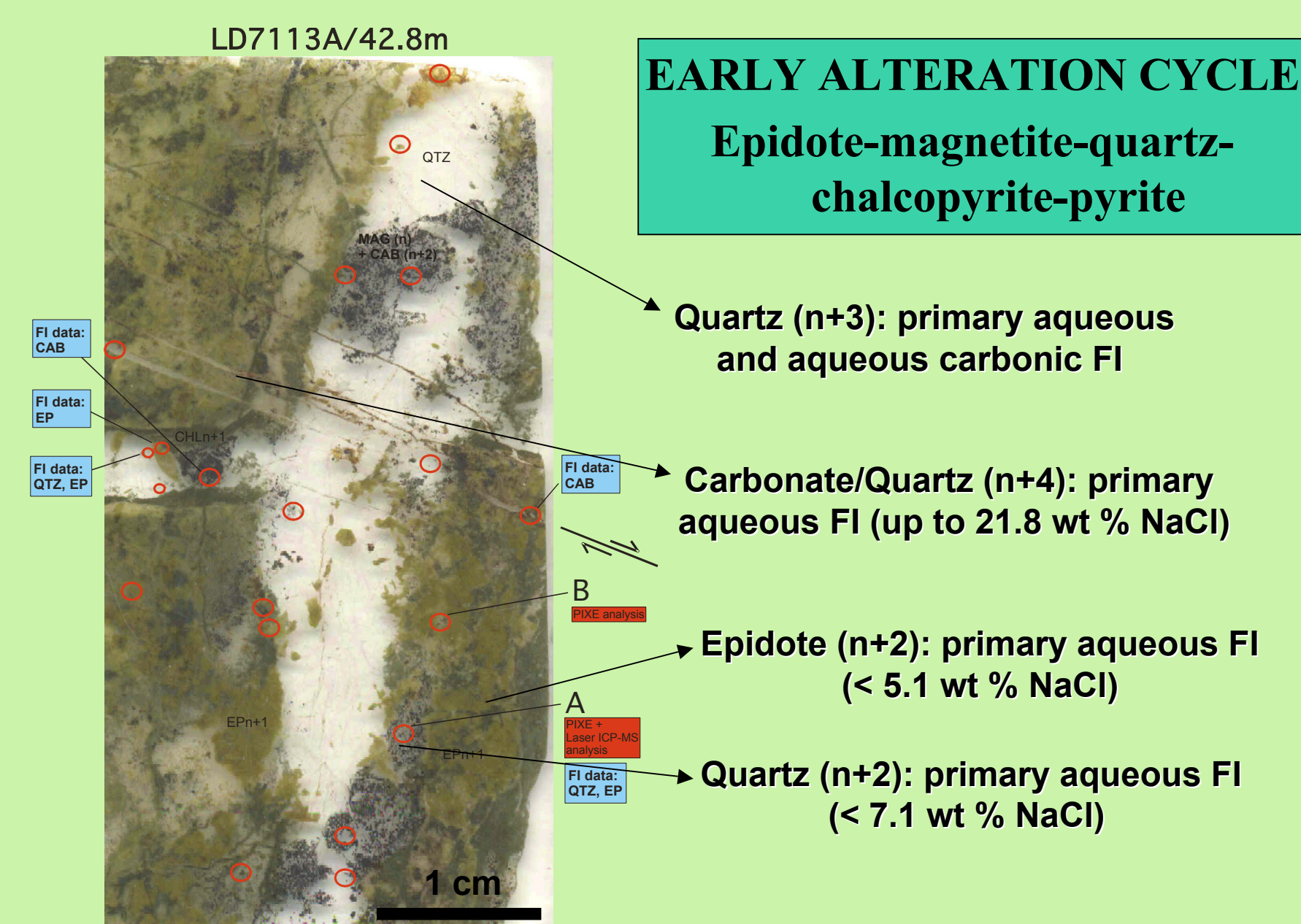
¹ Centre for Global Metallogeny, UWA

Purpose

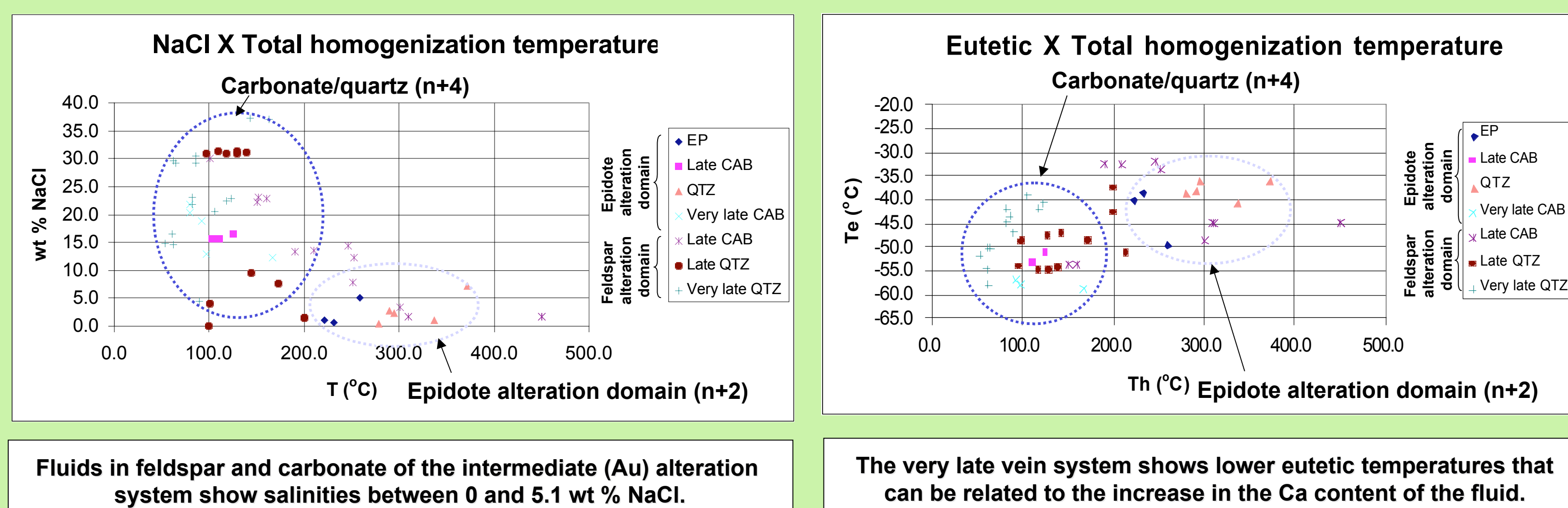


- Detailed texture analysis
- Determine whole-rock and fluid chemical signals for different alteration types
- Input into geochemical modelling
- Use whole-rock and fluid chemistry to constrain alteration type in RC drilling (spatial pattern, bottom of hole sample)
- Constrain chemical genetic models

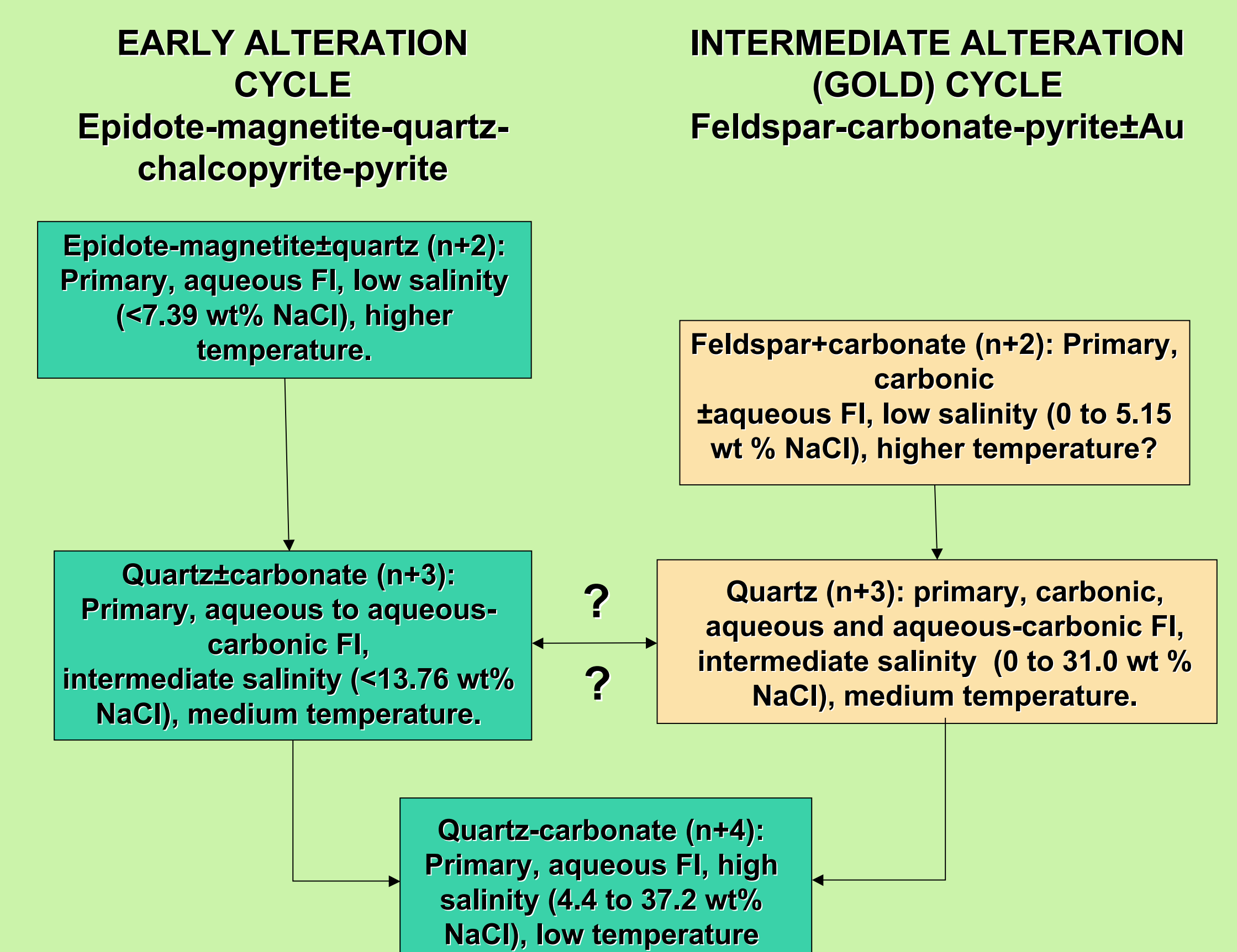
Textural and fluid inclusion analysis of the alteration domains



Fluid inclusion analysis

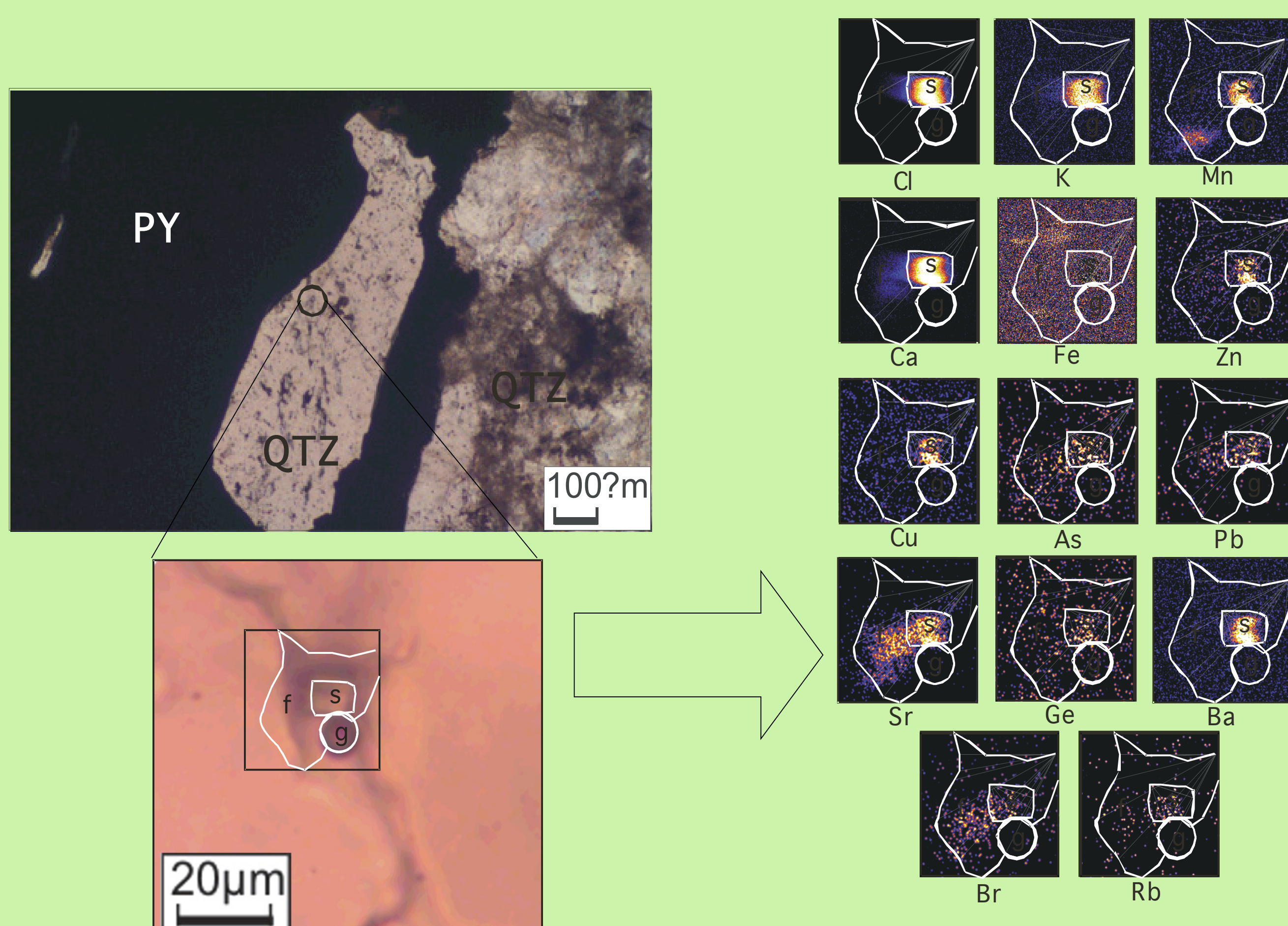


Fluid evolution at both alteration systems



PIXE analysis

FI FROM THE QUARTZ n+3 OF THE INTERMEDIATE ALTERATION (GOLD) CYCLE
Feldspar-carbonate-pyrite±Au



Preliminary Summary/Conclusions

- Epidote-magnetite±quartz alteration shows aqueous fluids with low salinity and high temperatures that evolve to high salinity/high Ca and low temperatures in the late quartz/carbonate system (n+4)
- Feldspar-carbonate alteration (Gold system) shows complex history from CO₂-rich/low salinity in feldspar to Ca-rich/NaCl rich brines in H₂O fluid inclusions in the late quartz quartz/carbonate system (n+4)
- Possible isobaric cooling trend from epidote/feldspar hosted (n+2) to quartz/carbonate (n+4) hosted fluid inclusions
- Fluid inclusion of quartz n+3 contain Cl, K, Mn, Ca, Zn, Cu and Ba preferentially in the daughter crystal and Fe, As, Pb, Sr, Ge, Br and Rb in the fluid phase.