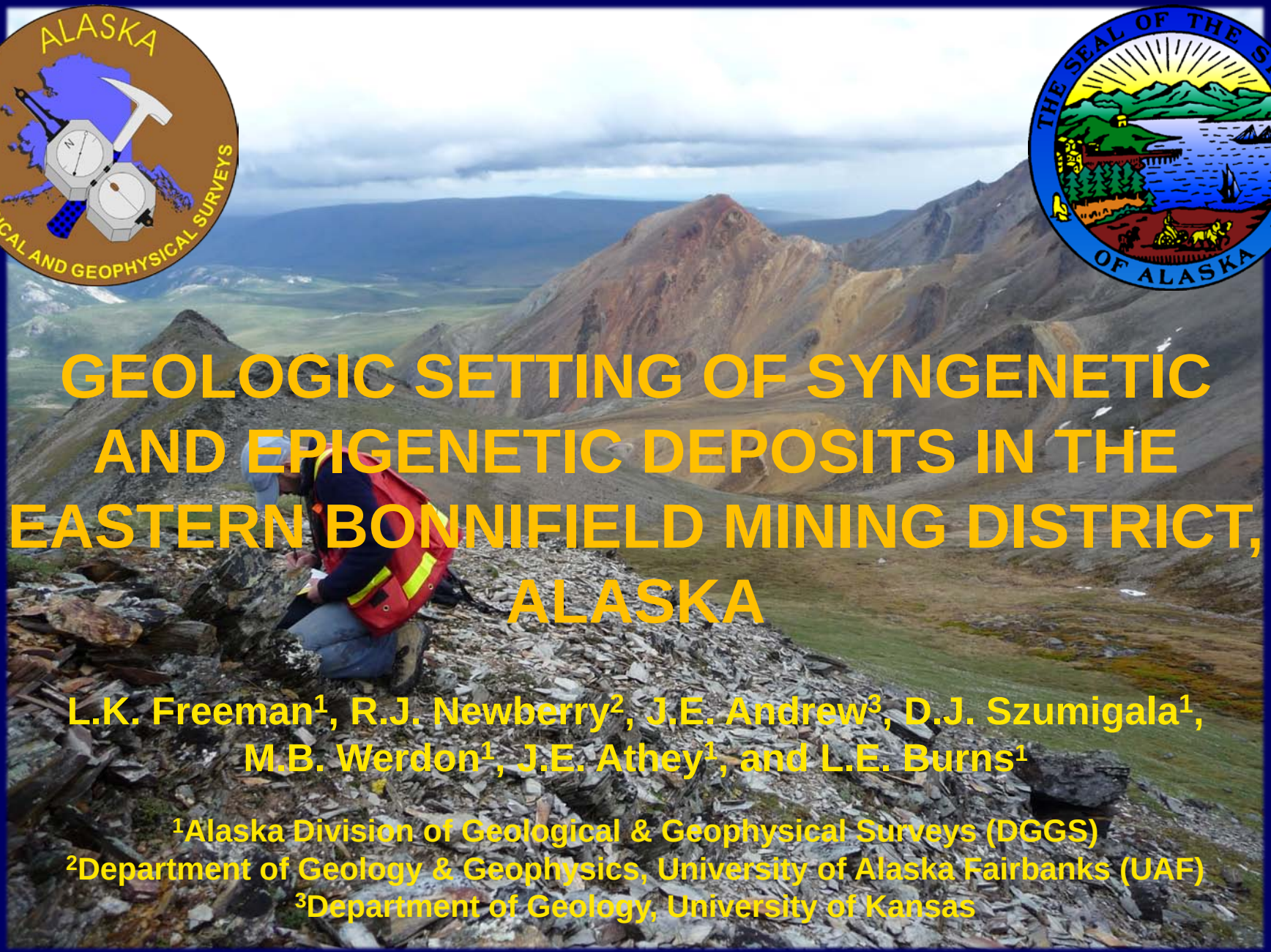
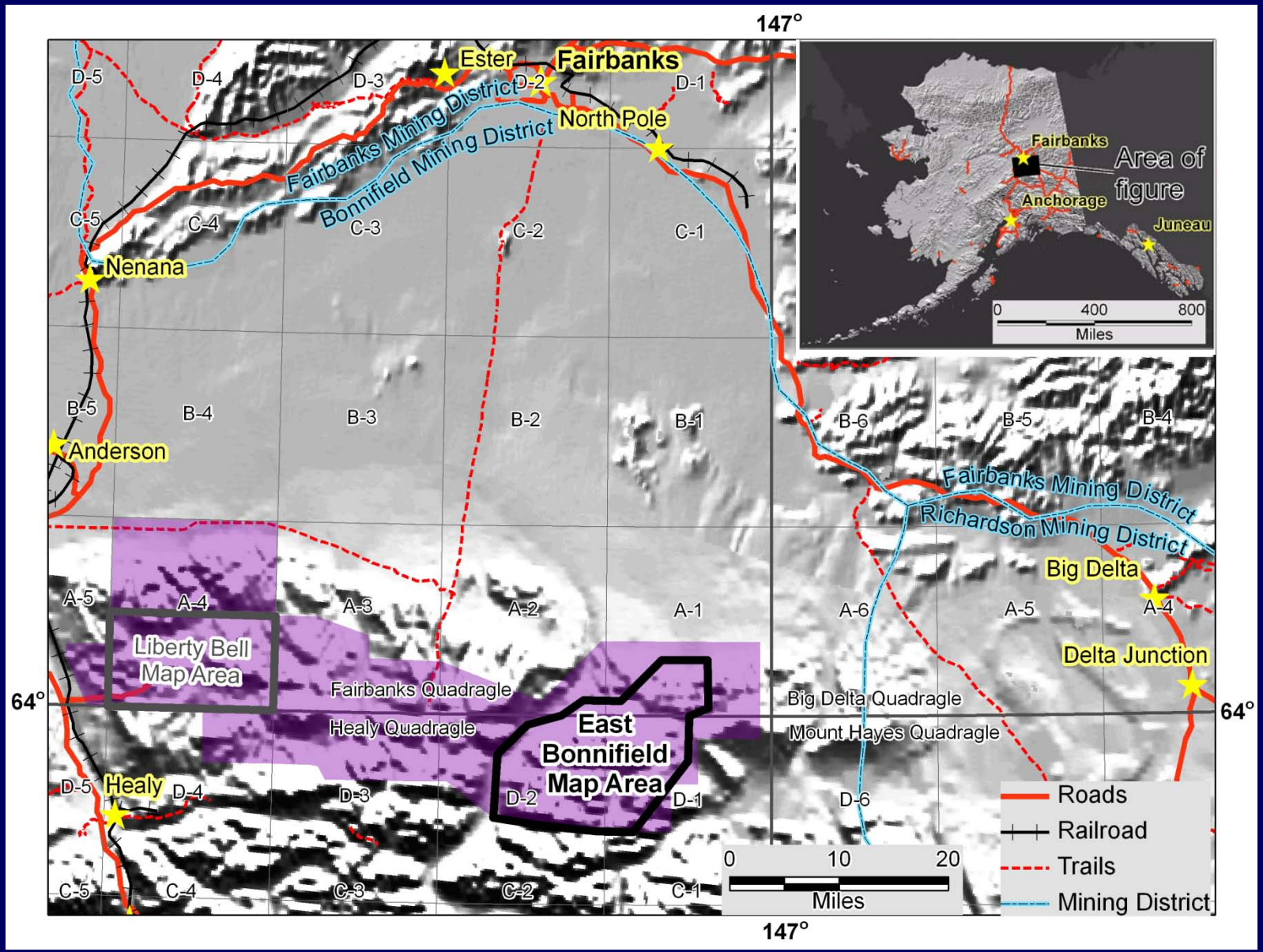


GEOLOGIC SETTING OF SYNGENETIC AND EPIGENETIC DEPOSITS IN THE EASTERN BONNIFIELD MINING DISTRICT, ALASKA

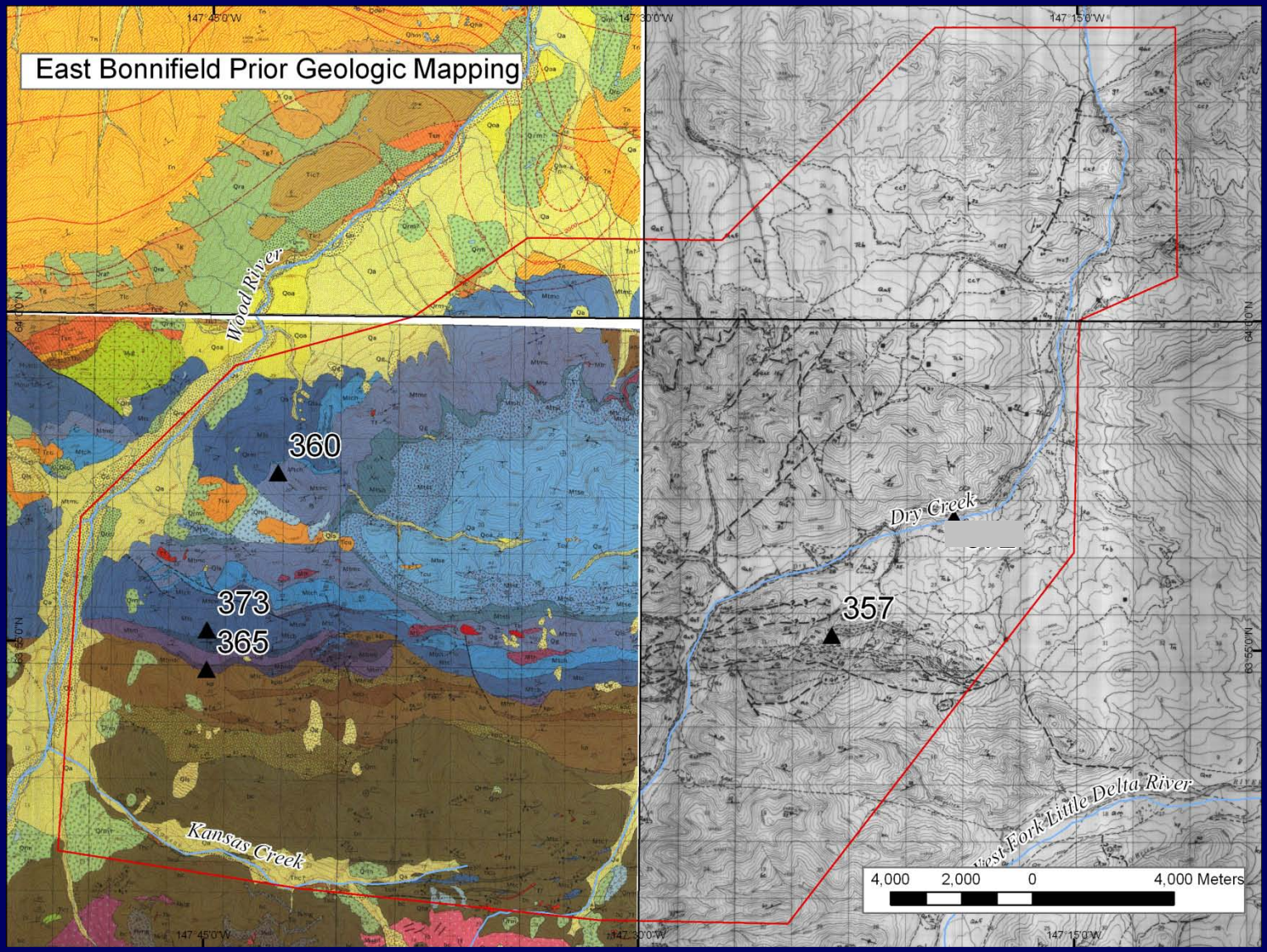
L.K. Freeman[1], R.J. Newberry[2], J.E. Andrew[3], D.J. Szumigala[1], M.B. Werdon[1], J.E. Athey[1], and L.E. Burns[1]

[1]Alaska Division of Geological & Geophysical Surveys (DGGS)
[2]Department of Geology & Geophysics, University of Alaska Fairbanks (UAF)
[3]Department of Geology, University of Kansas

Bonnifield Mining District -- AGGMI

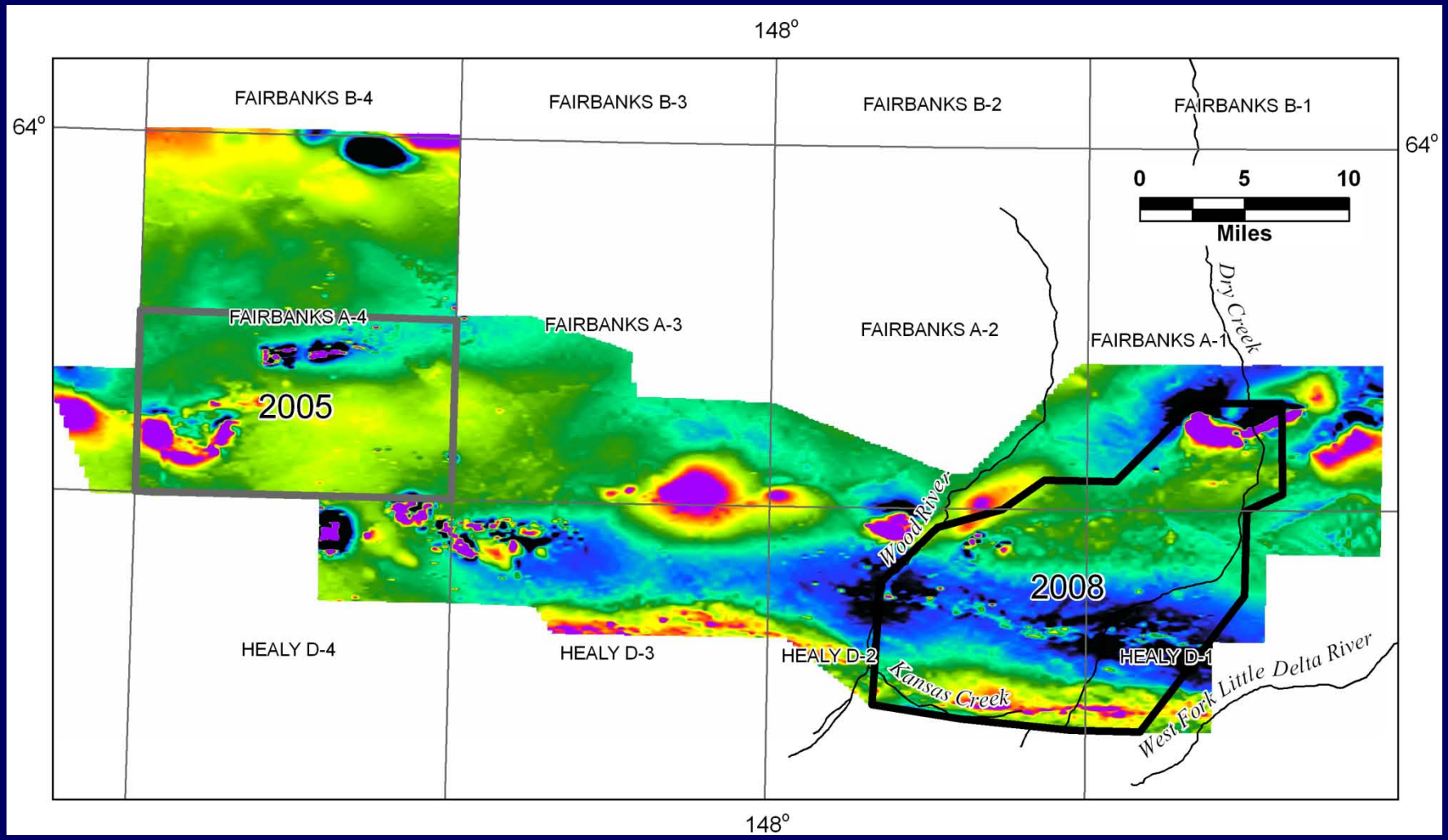


Prior geologic studies



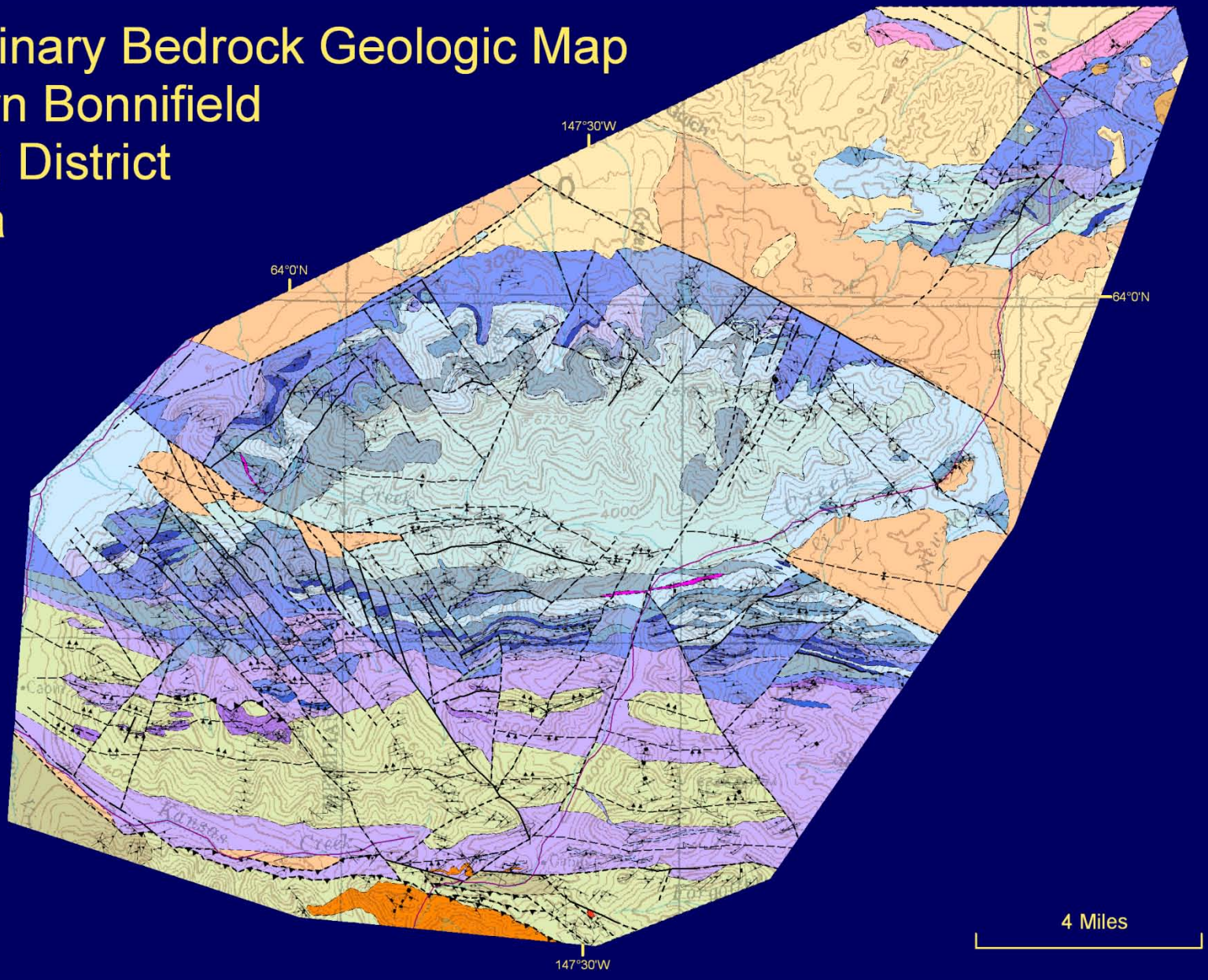
(Wahrhaftig, 1970 a & b, Gilbert, 1977, Dusel-Bacon, etal, 2004)

2007 Airborne Geophysical Survey



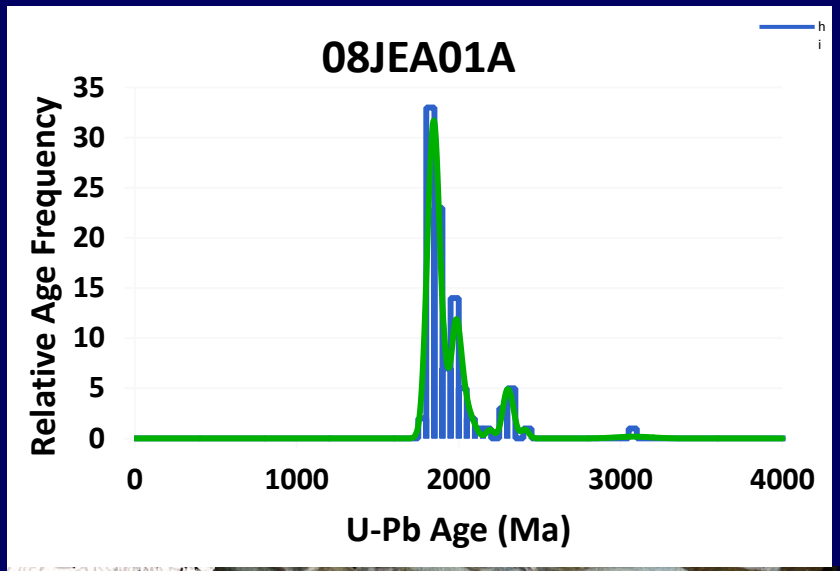
(Burns, et al, 2007)

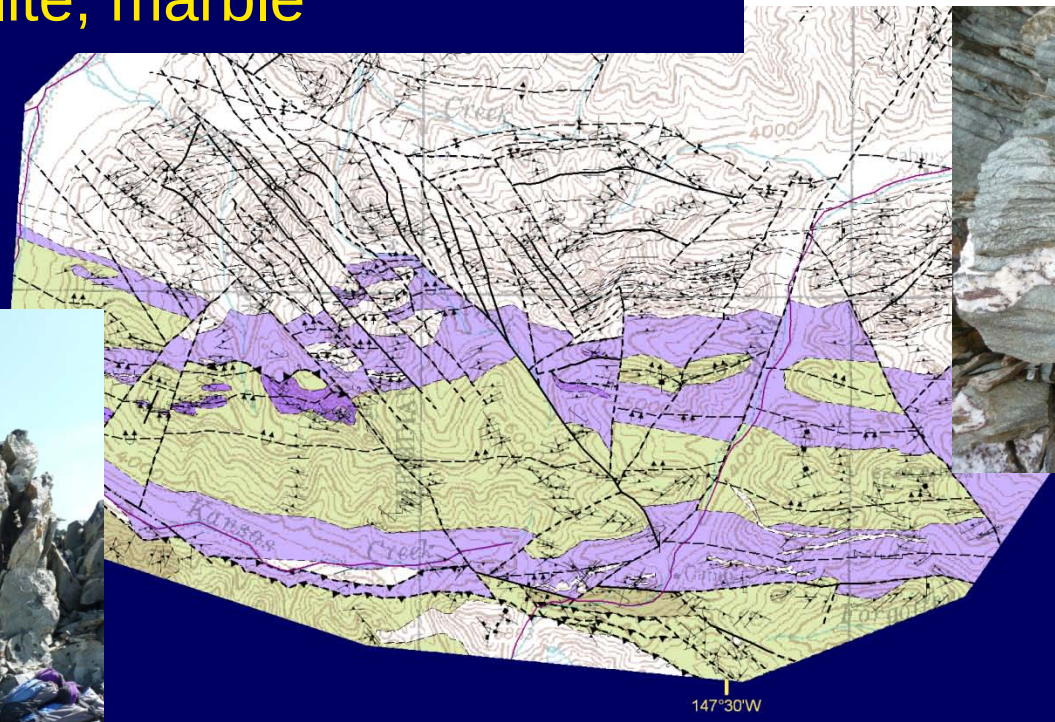
Preliminary Bedrock Geologic Map
Eastern Bonnifield
Mining District
Alaska



Healy schist

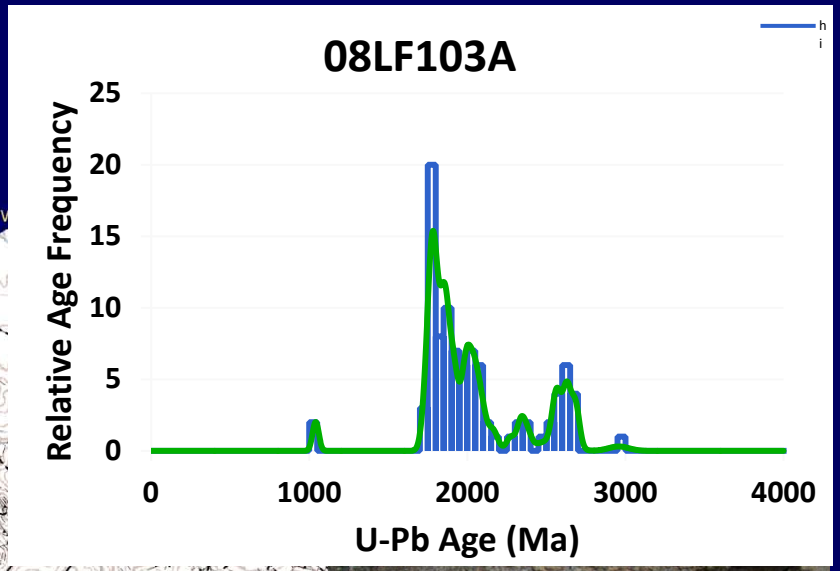
- Devonian (?) to Proterozoic
- Low conductivity and magnetic susceptibility
- Quartzite, metagrit, quartz schist, green and maroon phyllite, marble

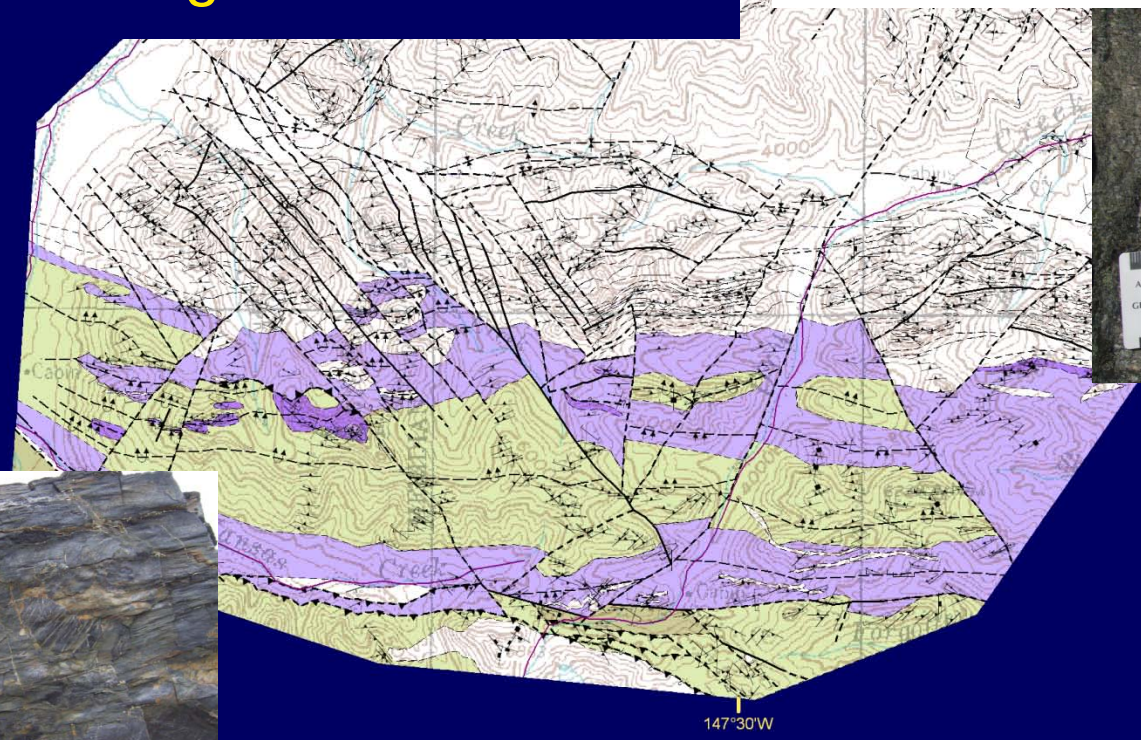




Keevy Peak Formation

- Devonian (?) to Proterozoic
- Distinctly conductive
- Gray metagrit/quartzite, graphitic phyllite, quartz/chert pebble conglomerate





Totatlanika Schist subdivisions

Previous mapping:

- Sheep Creek Member
  - Epiclastic
  - Tuffaceous
  - Black carbonaceous phyllite
- Mystic Creek Member
- Chute Creek Member
- California Creek Member
- Moose Creek Member

(Wahrhaftig, 1970 a & b, Gilbert, 1977, Dusel-Bacon, et al, 2004)

This study:

- Quartzite-metagrit
- Green, gray, maroon phyllite/slate
- Meta-volcaniclastic rocks
- Peralkaline meta-rhyolite
- Meta-mafic rocks
- Meta-rhyodacite
- Meta-granite
- Meta-arkosic wacke
- Black graphitic phyllite/slate

Totatlanika Schist meta-sedimentary rocks

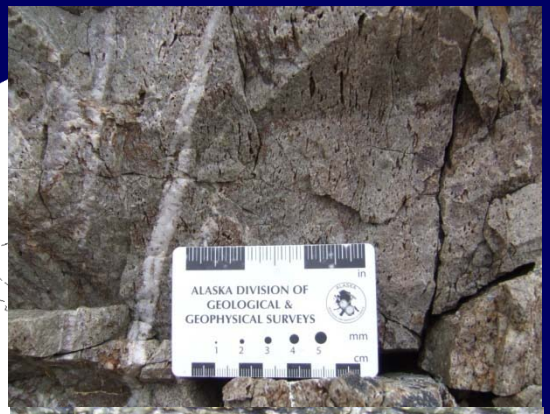
- Green metagrit
- Meta volcaniclastics
- Meta-arkosic wacke
- Graphitic phyllite
- Phyllite-slate

Totatlanika Schist Meta-igneous rocks

- Tablular to lensoidal
- Contacts typically cleavage-parallel
- Local relict primary textures/structures

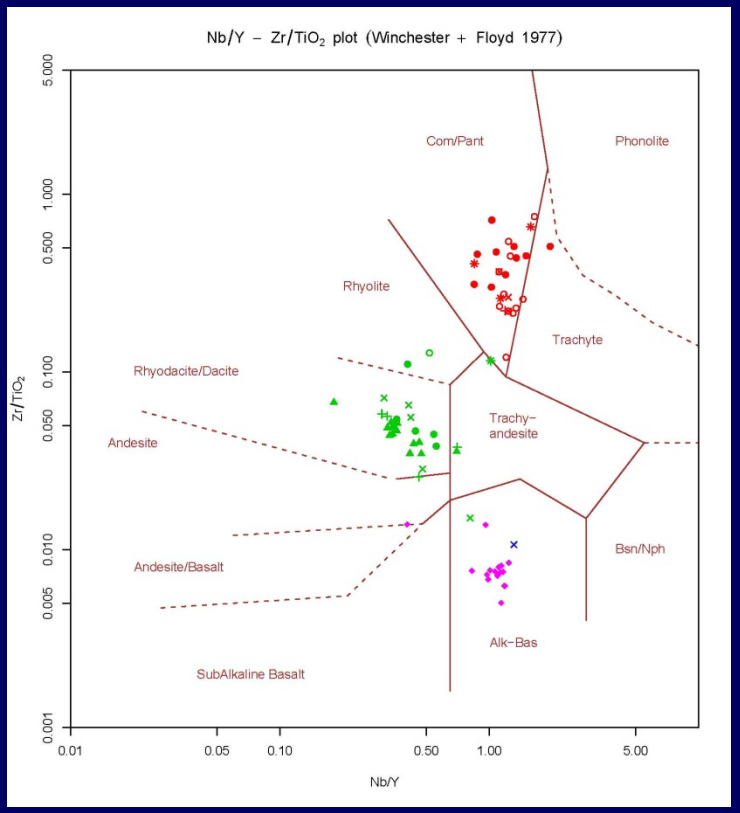
Metafelsic textural varieties

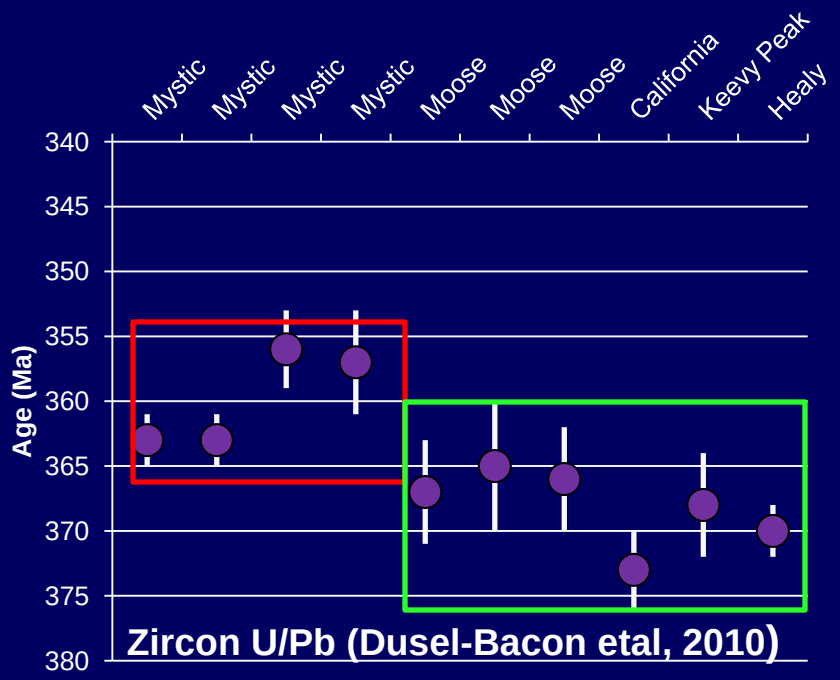
- Aphanitic - aphyric
- Porphyritic quartz/feldspar
- Megacrystic potasium feldspar-bearing

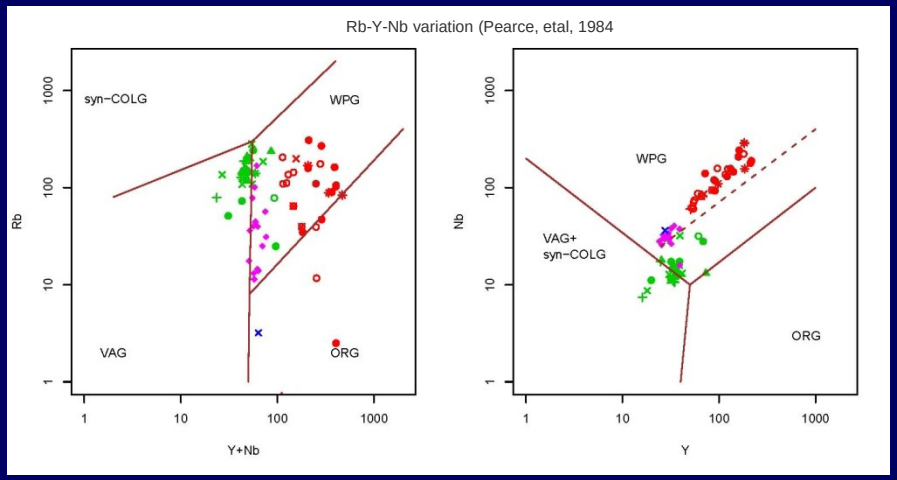


Totatlanika Schist

- Bimodal volcanism
- Alkali-basalt
- Rhyodacite/granite
- HFSE enriched peralkaline rhyolite





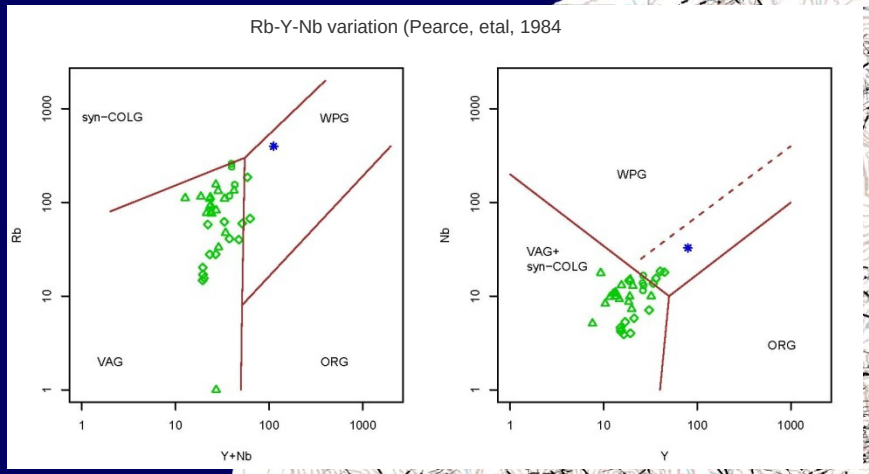


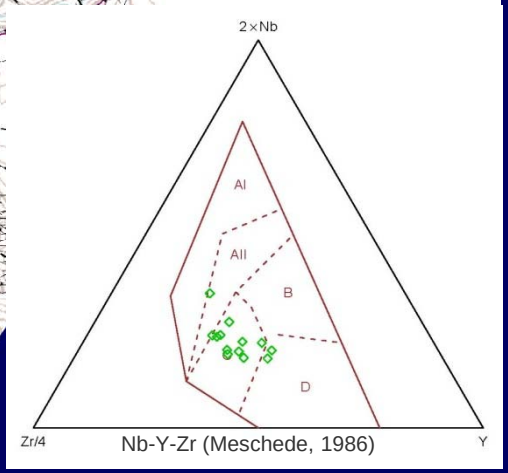
Cretaceous Plutons & Dikes
Eastern Bonnifield
Mining District
Alaska

Quartz Monzonite
92.3±0.5 Ma (biotite)

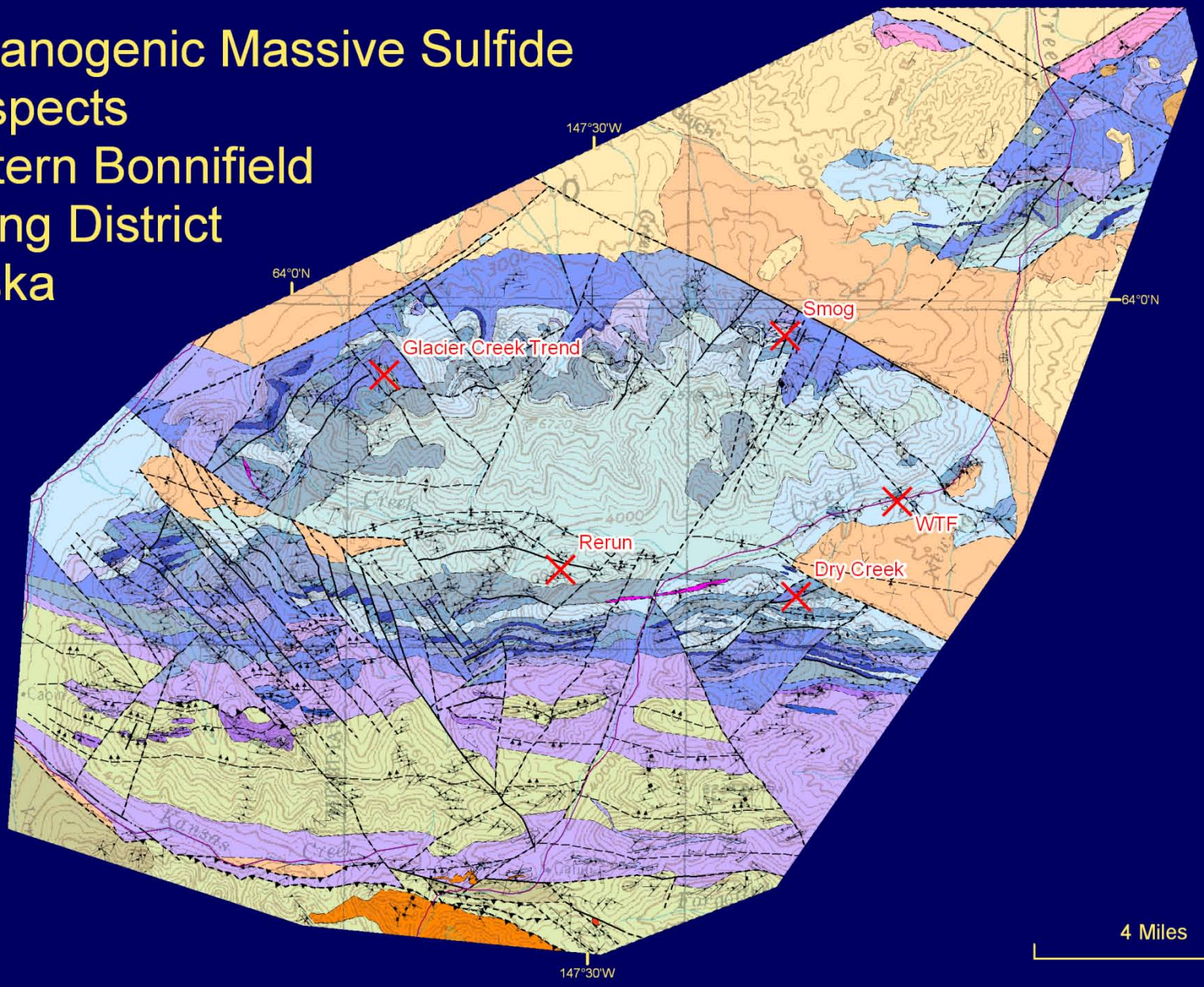
Gabbro dike
102.5±0.6 Ma
(whole rock)

Granodiorite
93.1±0.6 Ma (biotite)
92.0±1.0 (hornblende)

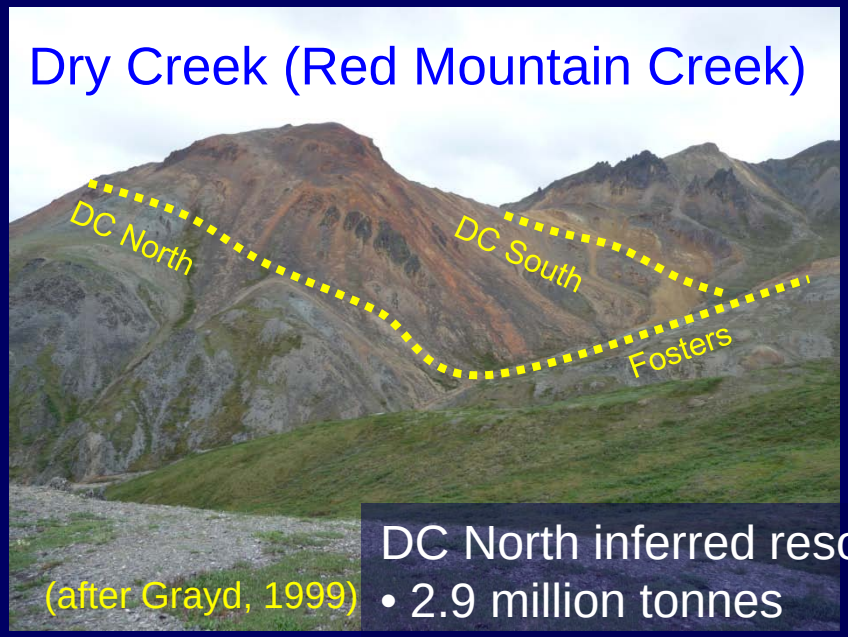




Volcanogenic Massive Sulfide Prospects Eastern Bonnifield Mining District Alaska

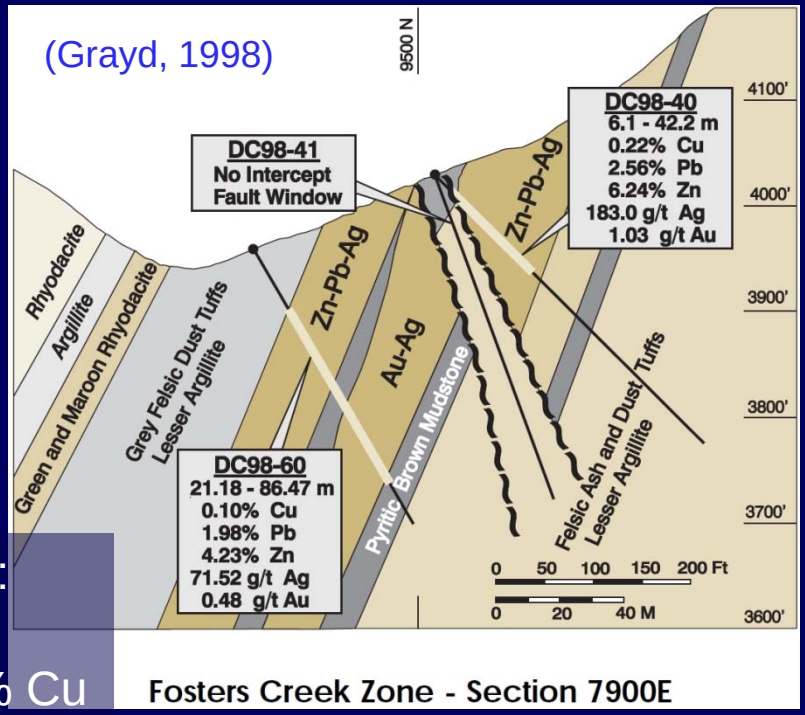


Dry Creek (Red Mountain Creek)



(after Grayd, 1999)

(Grayd, 1998)

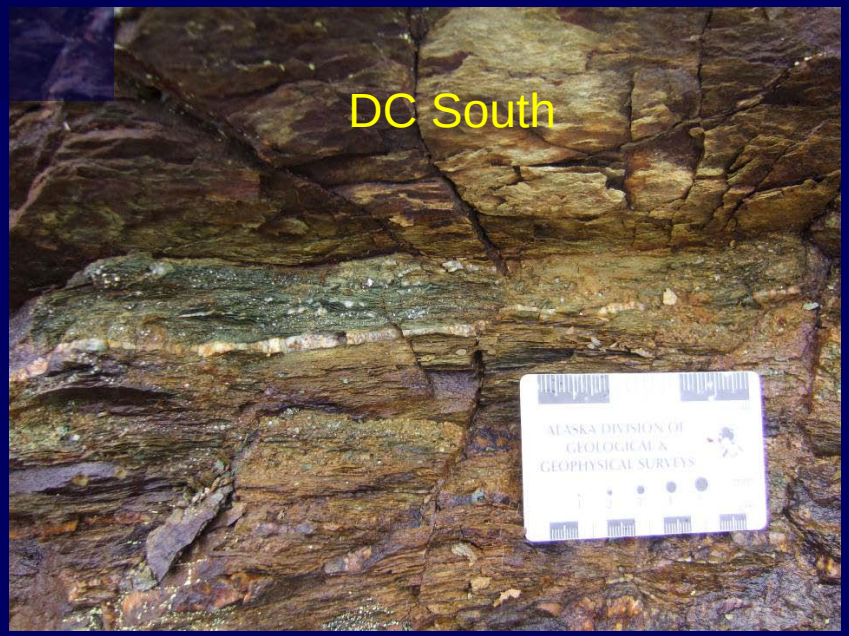


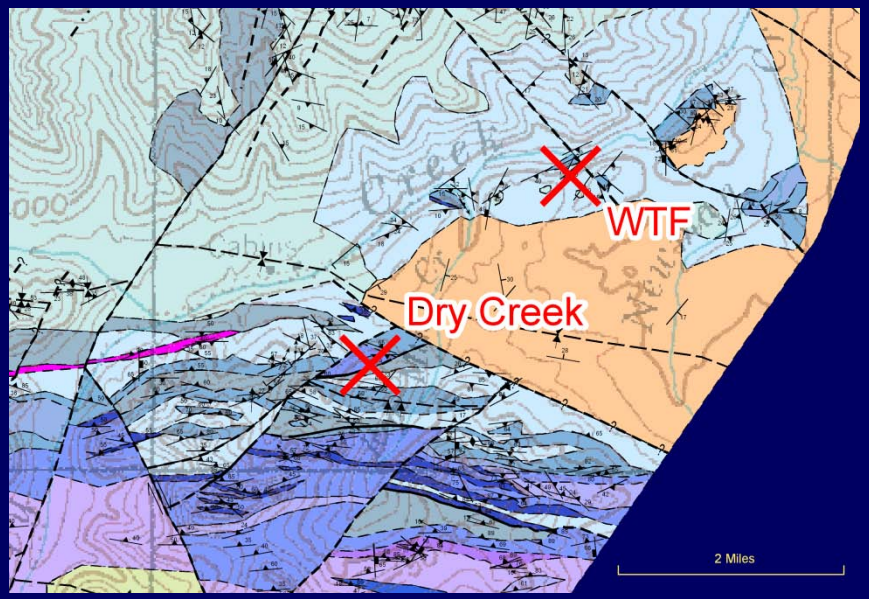
Fosters Creek Zone - Section 7900E

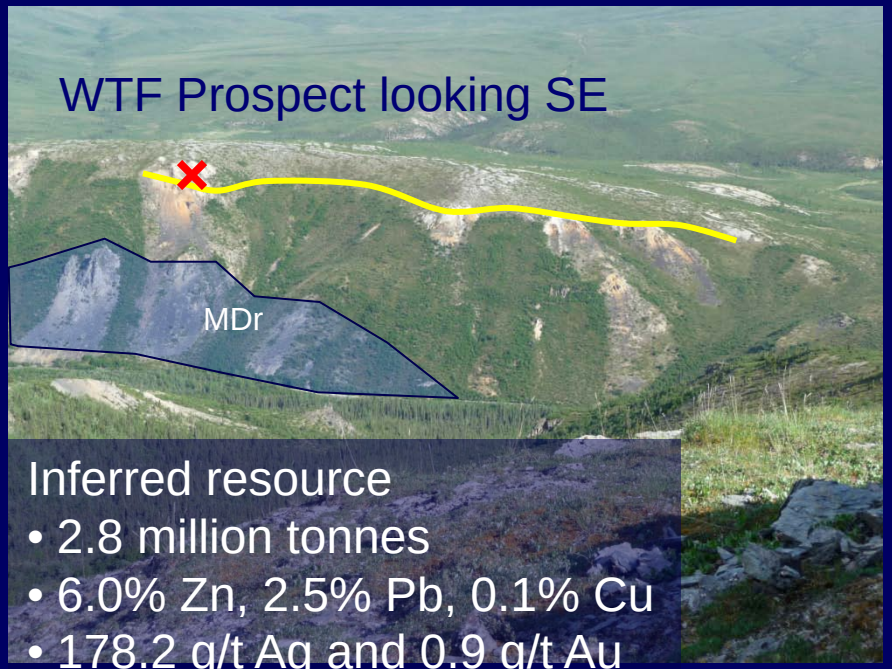
DC North inferred resource:

- 2.9 million tonnes
- 4.4 % Zn, 1.9 % Pb, 0.2 % Cu
- 93.6 g/t Ag, 0.55 g/t Au

(Grayd, 1999)

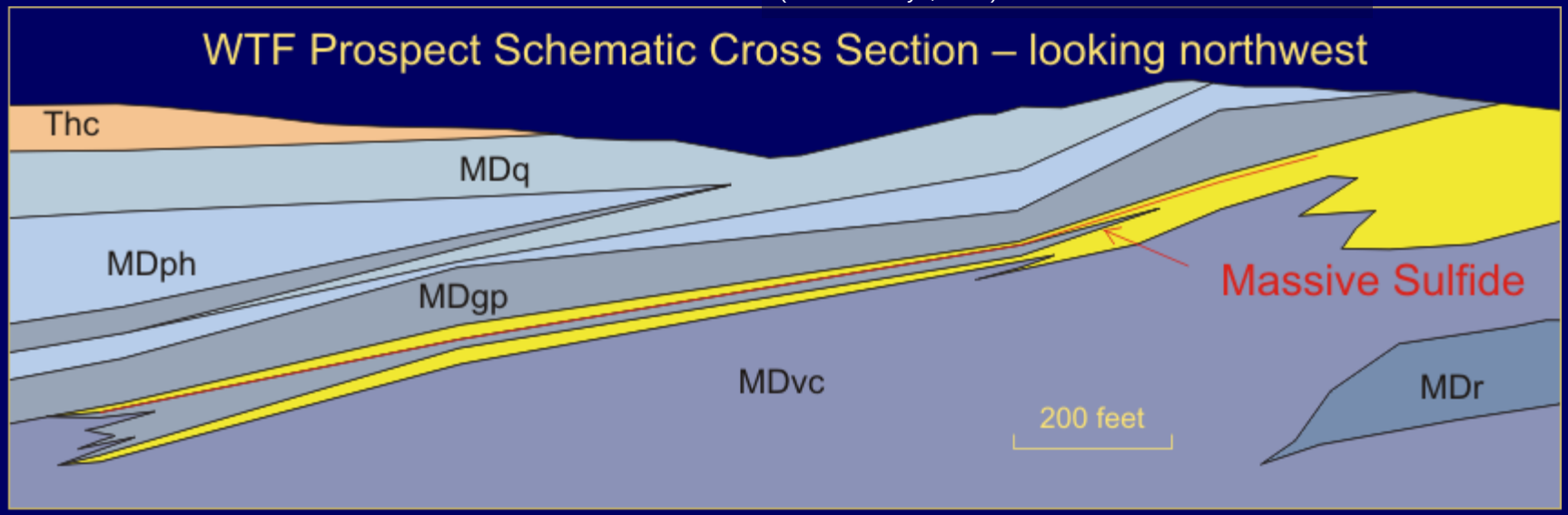






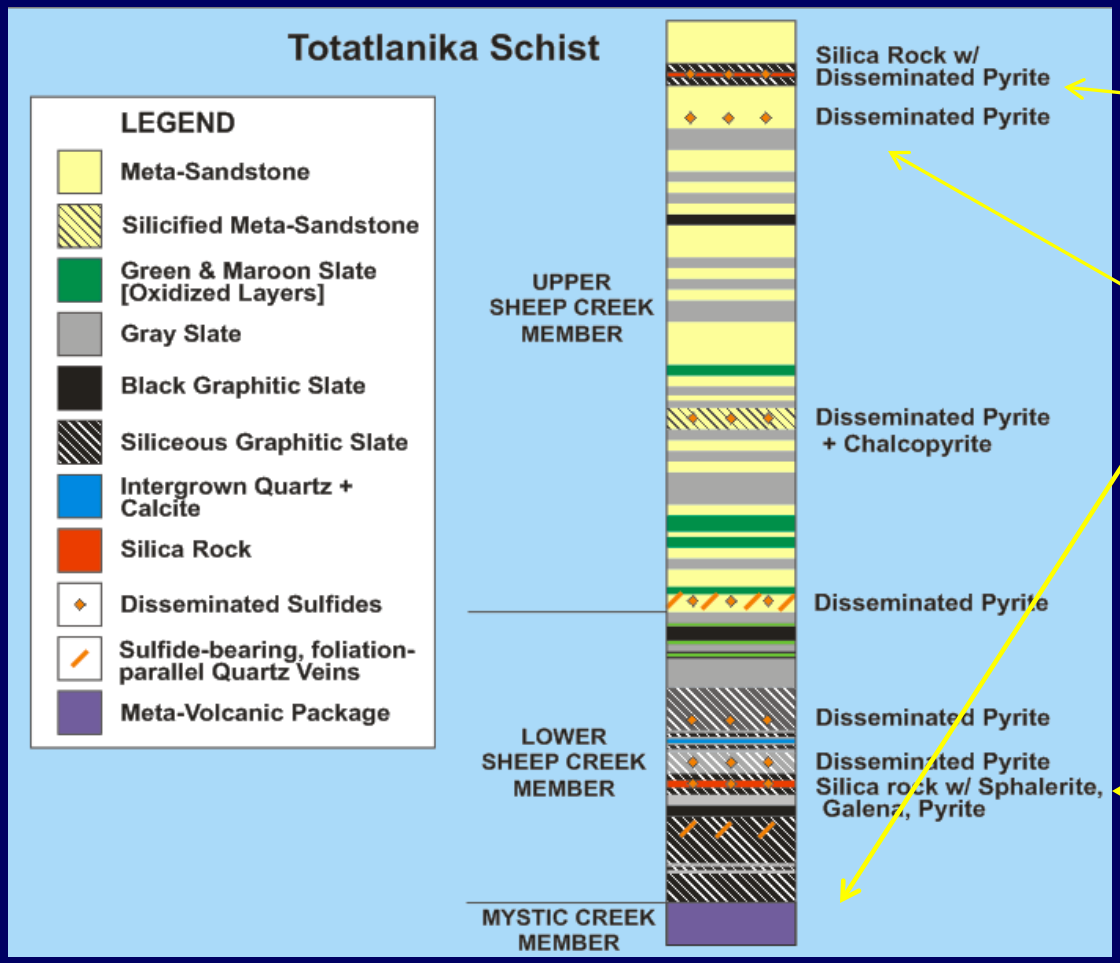
Inferred resource
- 2.8 million tonnes
- 6.0% Zn, 2.5% Pb, 0.1% Cu
- 178.2 g/t Ag and 0.9 g/t Au

(RAA via Grayd, 1999)

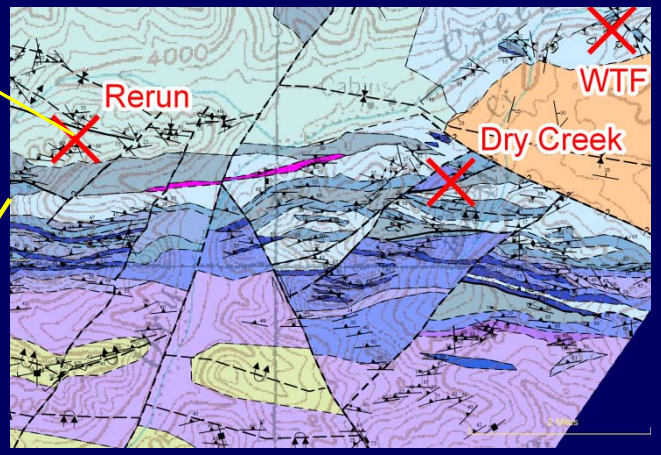


Rerun Prospect

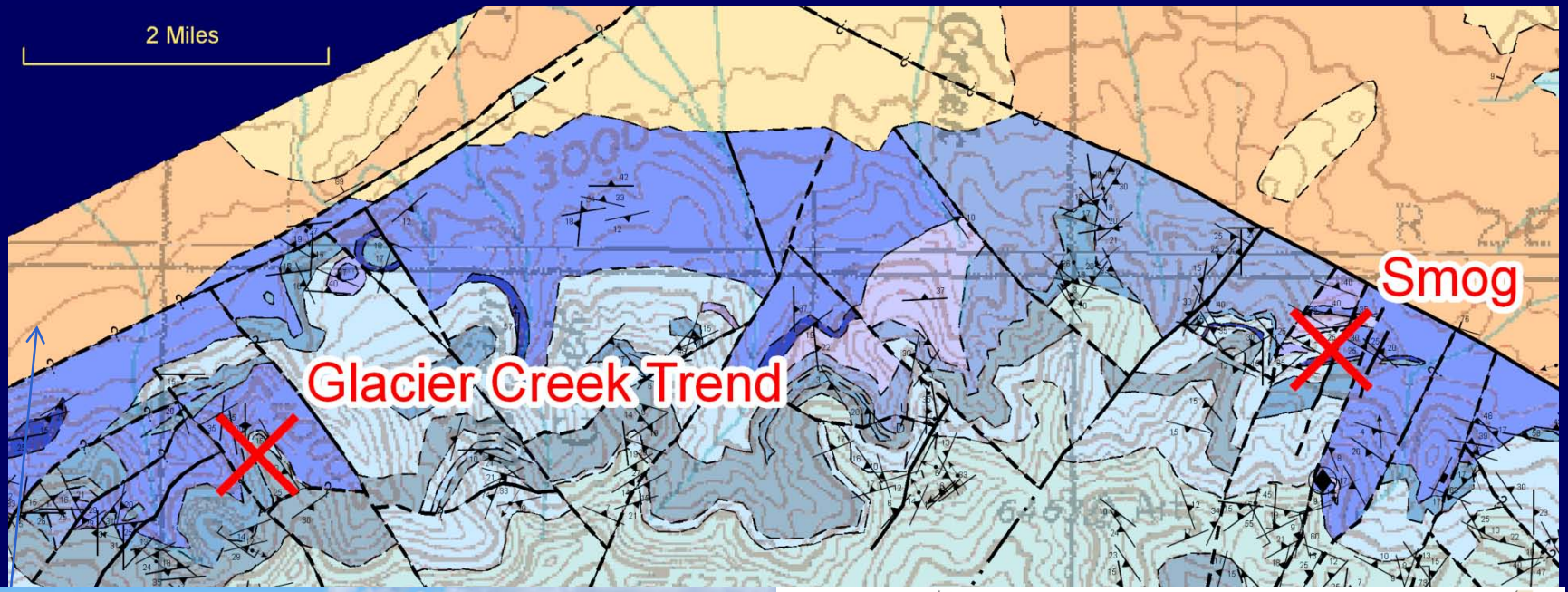
- Sediment hosted, multiple horizons
- Symmetrical silicification halos
- Mineralization displaced from meta-rhyolites

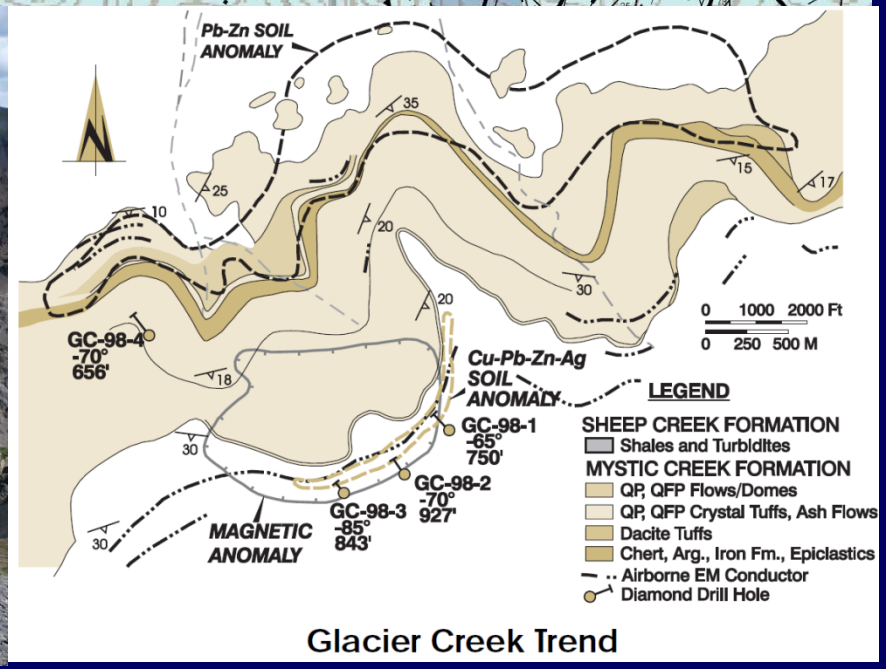


43.1 ppm Ag
3930 ppm Cu



25.2 ppm Ag
3670 ppm Pb

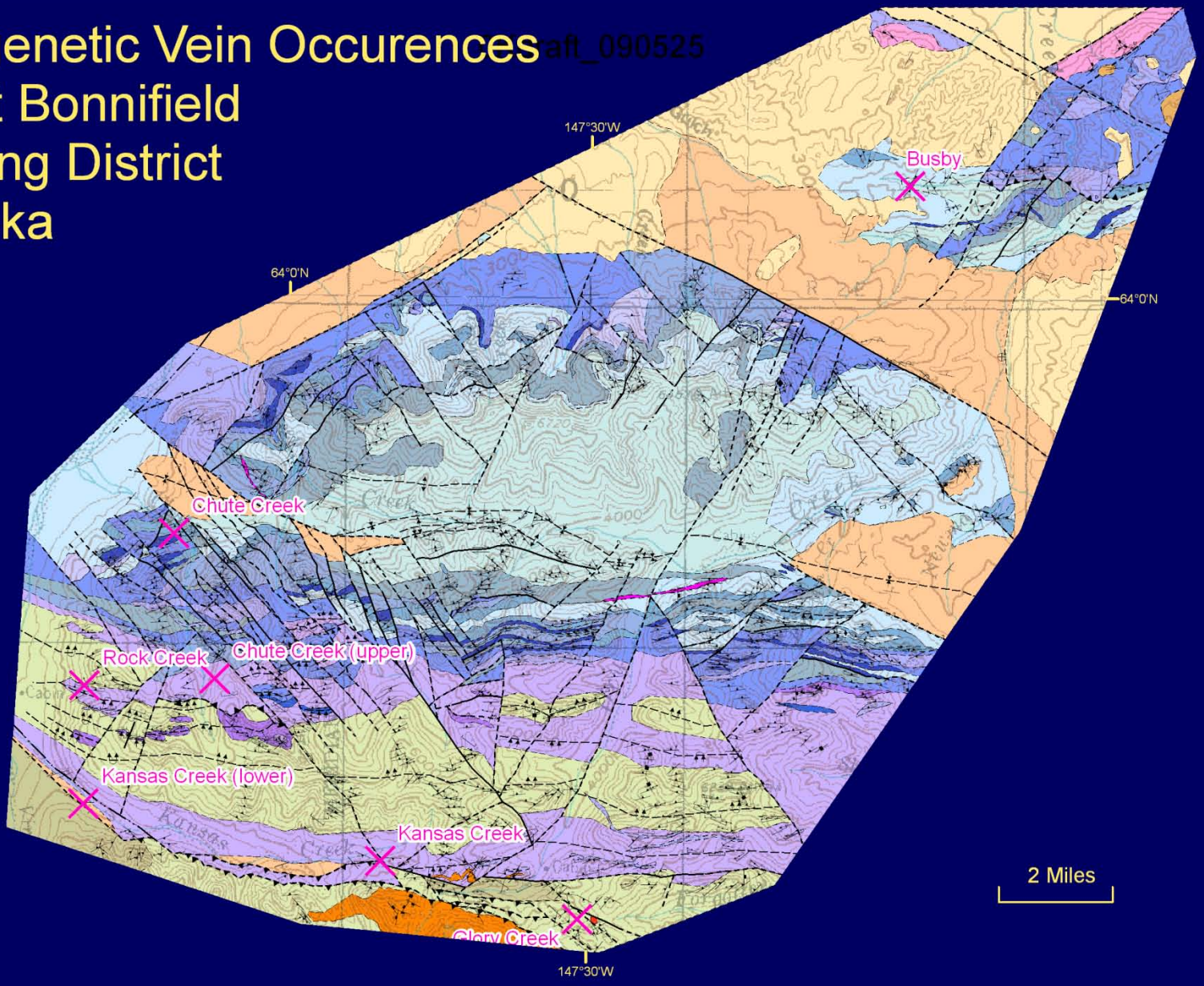

2 Miles
Glacier Creek Trend
Smog


Pb-Zn SOIL ANOMALY
35
25
10
20
15
17
30
20
0 1000 2000 Ft
0 250 500 M
GC-98-4 -70° 656'
18
Cu-Pb-Zn-Ag SOIL ANOMALY
LEGEND
GC-98-1 -65° 750'
SHEEP CREEK FORMATION
Shales and Turbidites
MYSTIC CREEK FORMATION
QP, QFP Flows/Domes
QP, QFP Crystal Tuffs, Ash Flows
Dacite Tuffs
Chert, Arg., Iron Fm., Epiclastics
Airborne EM Conductor
Diamond Drill Hole
GC-98-2 -70° 927'
GC-98-3 -85° 843'
MAGNETIC ANOMALY
30
30
Glacier Creek Trend

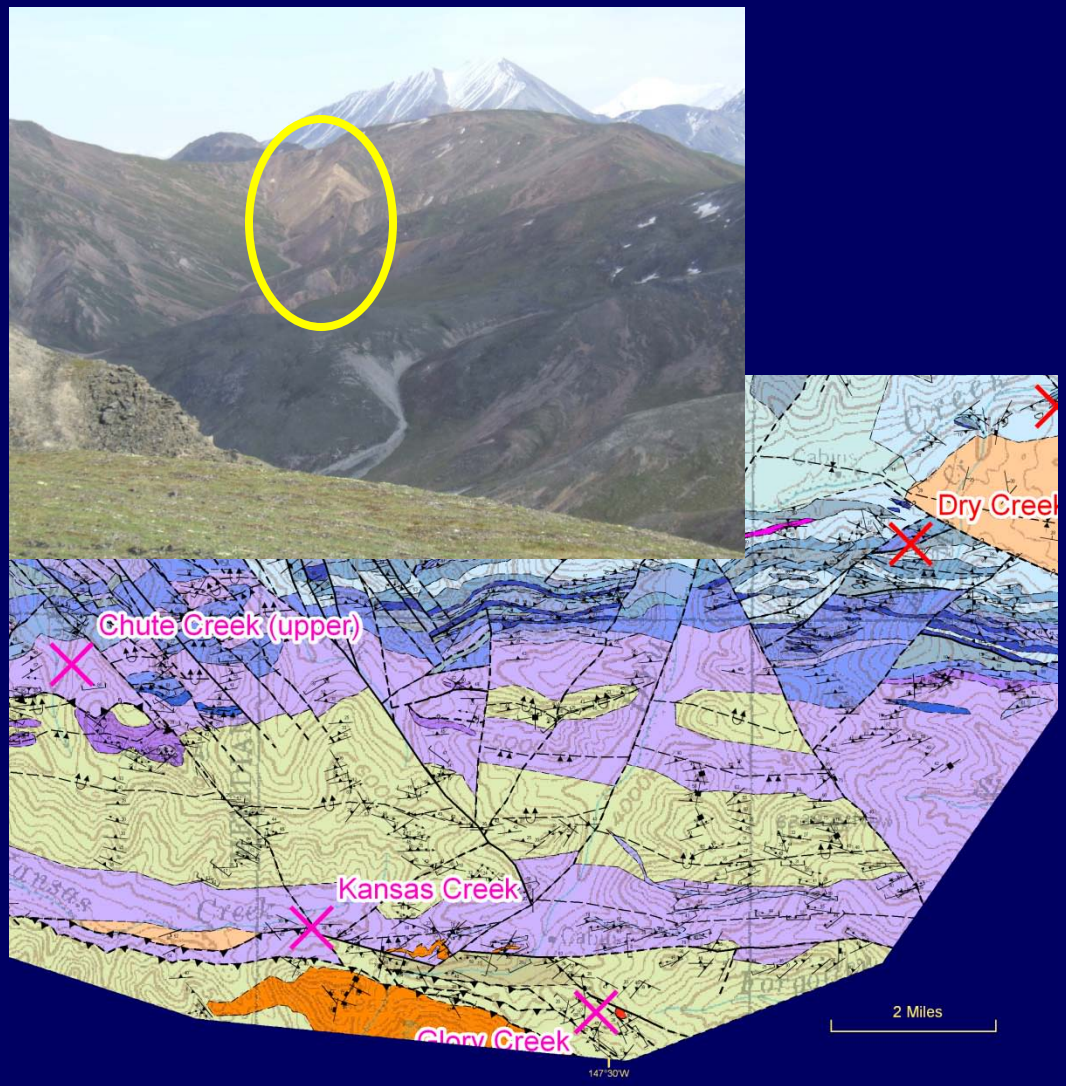
East Bonnifield VMS

- Bimodal Volcanic suite continental arc/rift geochemistry
- YTT siliciclastic basement and cap
- Sediment & volcaniclastic hosted VMS
- Zn>Pb>Cu, significant silver values
- Hangingwall Ba anomalies
- Drill inferred resources
  - (5.7 million tonnes, 5.2 % Zn, 2.2 % Pb, 0.2 % Cu, 125.9 g/t Ag, 0.7 g/t Au – Grayd, 1999)
- Finlayson Lake district similarities

Epigenetic Vein Occurences
East Bonnifield
Mining District
Alaska

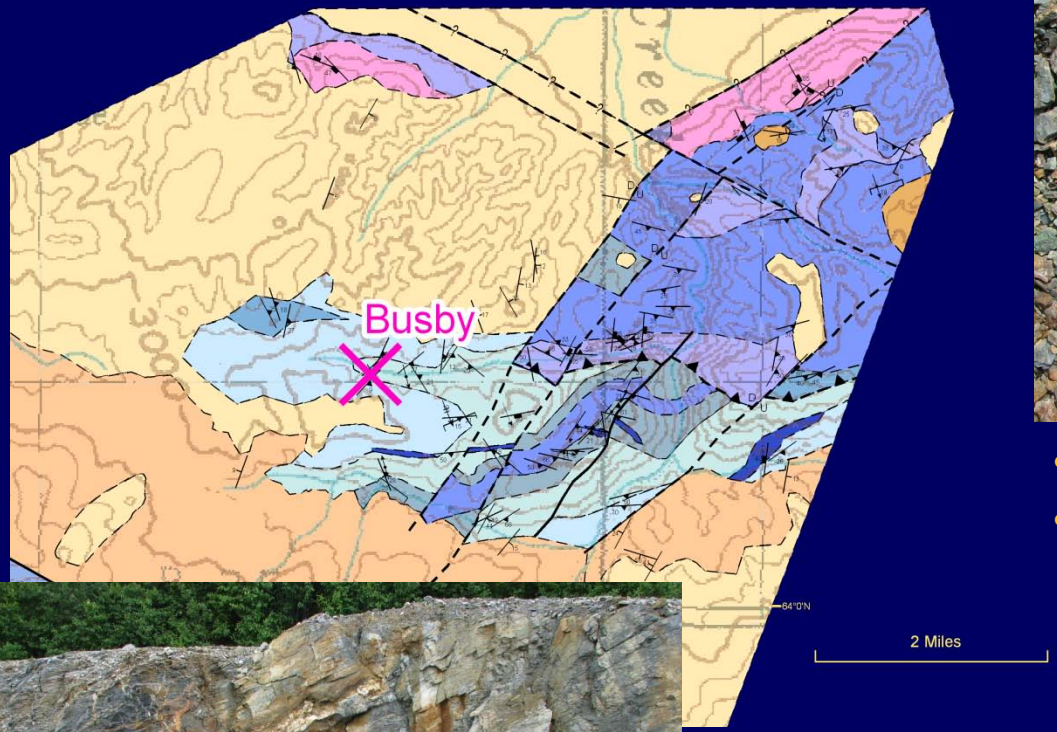


Glory Creek



- Au-Ag-As-Pb-Sb veins
- Granodiorite stock 94.1 ± 0.6 Ma (biotite)
- Vein sericite 91.4 ± 0.7 Ma
- 11 samples, 7 > 1 g/t Au

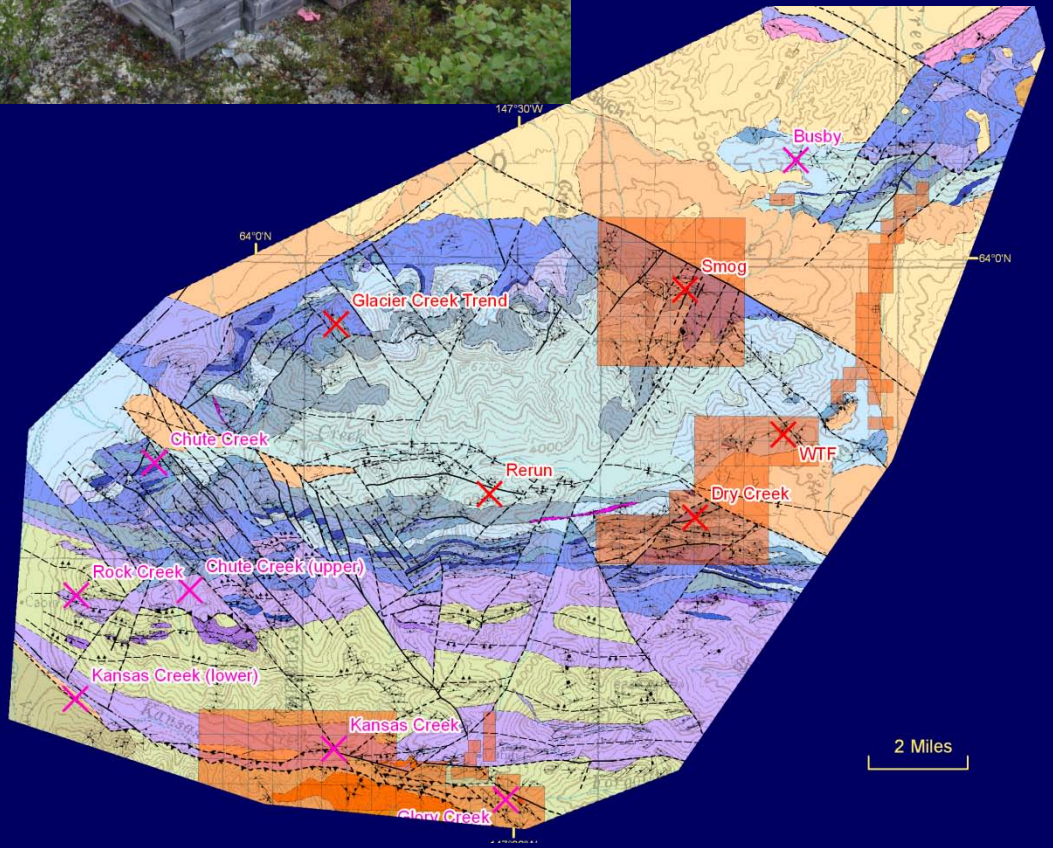
Buzby Prospect



•Chalcopyrite lenses in phyllite
•Up to 19.8 % Cu, 233 g/t Ag

• Galena veins in trench
•Up to 12.9 % Pb, 304 g/t Ag

Opportunities?



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