

# LMSL– Arc Pacific

*Partial Final Presentation*

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# Summary

## 1. Geophysics

- Geophysical signature in adjacent properties
- Regional gravity interpretation
- Regional magnetic interpretation
- Airborne mag 2011 interpretation: linework, inversion and lithologic contacts
- Radiometric: K, U
- IP surveys: chargeability and resistivity interpretation
- Geophysical targets and recommendation

## 2. 3d modeling

## 3. Geochemistry

- Soil geochemistry
- Surface rock
- Drillhole geochemistry

## 4. Integration of interpretations

- Summary and recommendations

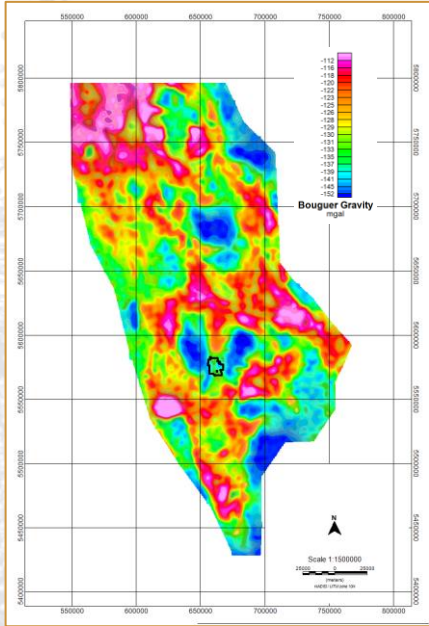
## 5. Machine learning summary

- Structures enhancement
- Feature engineering
- Geological mapping
- Prospectivity analysis

## 7. Targeting

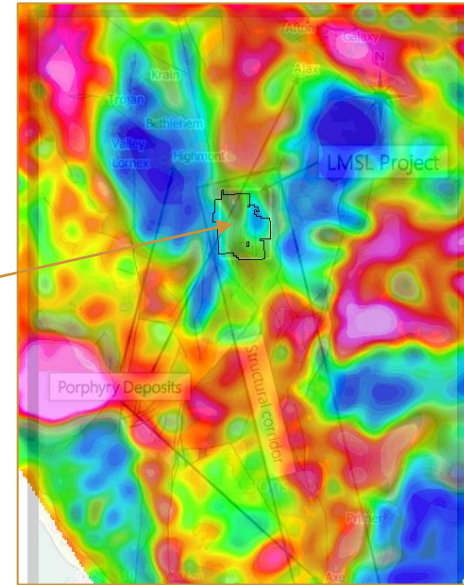
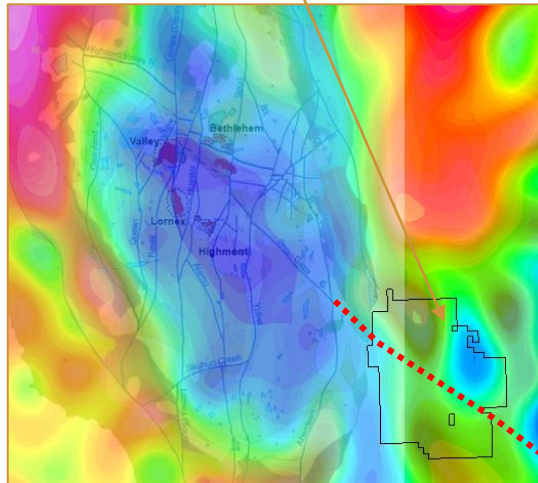
- Top priority targets and recommendations (4)
- High priority targets and recommendations (4)
- Medium priority targets and recommendations (10)
- Low priority targets and recommendations (6)

# Regional Gravity – Quest Data



Quest Bouguer Gravity

Small gravity low within the LMSL area



Bouguer Gravity over the First Vertical Derivative over various images

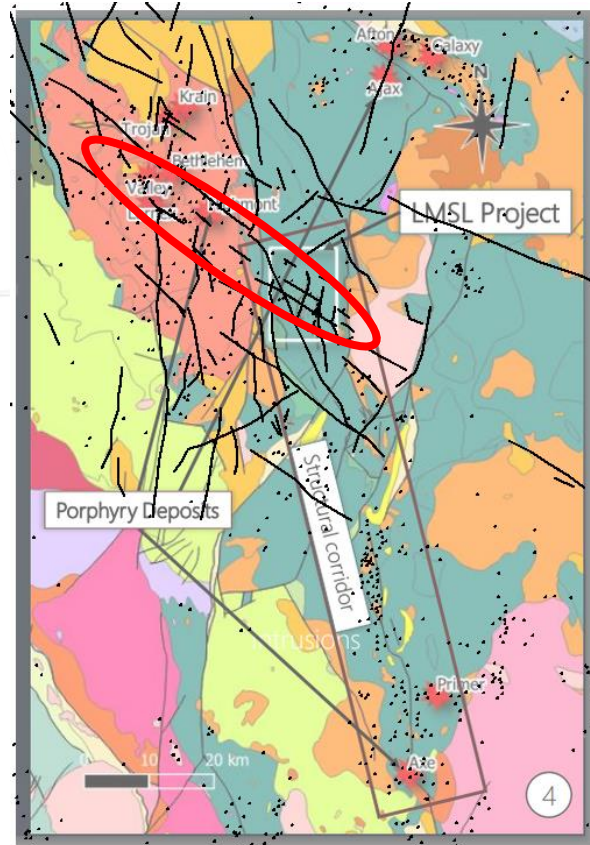
GoldSpot interpreted structure



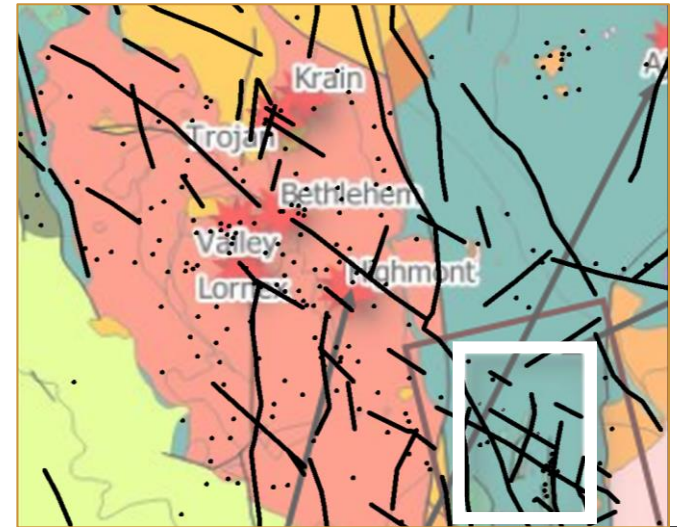
# Regional Mag - BC 3501A dataset

Preliminary linework from the regional mag data

- NW-SE
- NE-SW
- Near N-S
- ENE-WSW



Highmont, Lornex, Valley Bethlehem, Krain are all at the intersection of NW-SE and near N-S structures



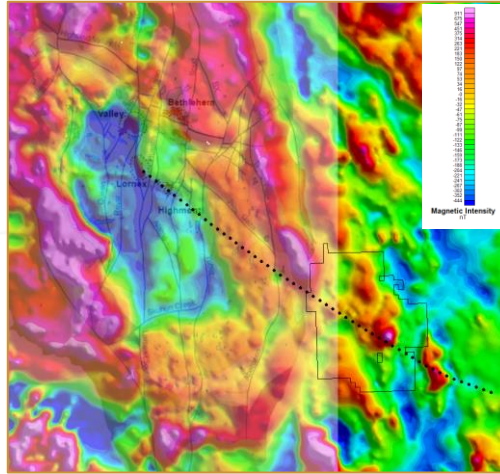


# Regional Mag – BC 3501A dataset

Valley, Lornex and Highmont are located on the flank of the magnetic low (associated with the Guichon intrusive)

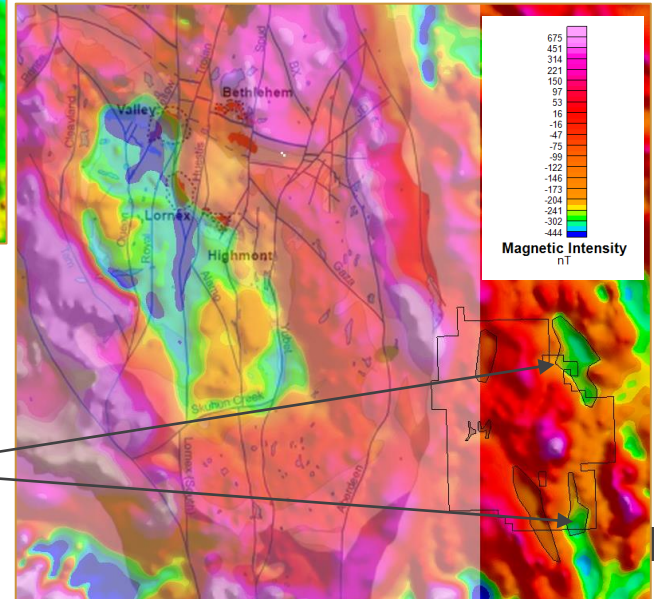
Valley and Lornex lie adjacent to the Lornex N-S fault

Highmont lies on a proposed structure from this interpretation that passes through Lornex and extends into the LMSL claims



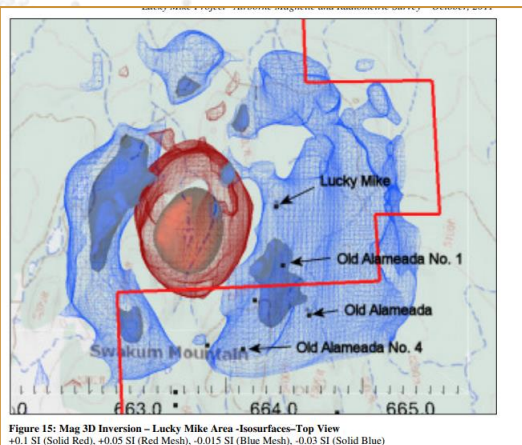
GS interpreted structure

.....



The Highland Valley deposits are located on the flanks of the strong magnetic lows. Several large magnetic low areas are highlighted in the Arc Pacific claims

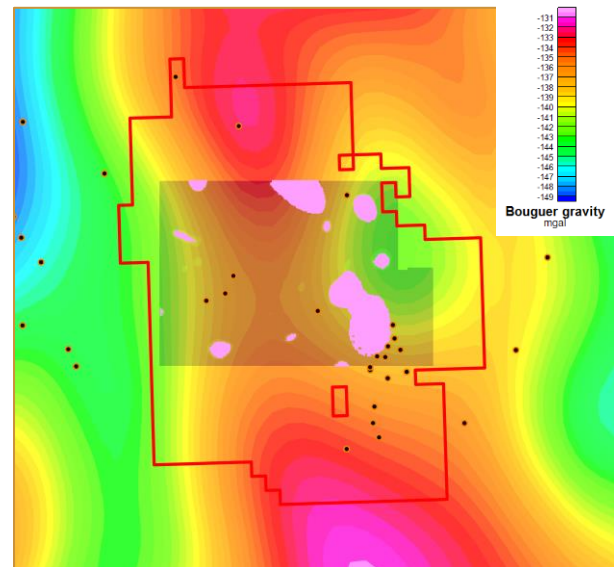
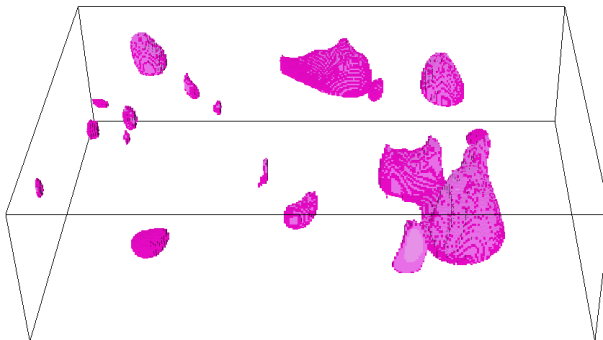
# Airborne Magnetics 2011– GoldSpot Magnetic Inversion



Contrast values above 0.02 –  
potential magnetic intrusive?

Compares well with the Pezzot  
inversion (left)

These higher magnetic contrast  
zones lie adjacent to the gravity  
lows



Magnetic contrast above 0.02 displayed over  
the Bouguer gravity

# Airborne Magnetics 2011- major structures

Pezzot contacts and structures in green

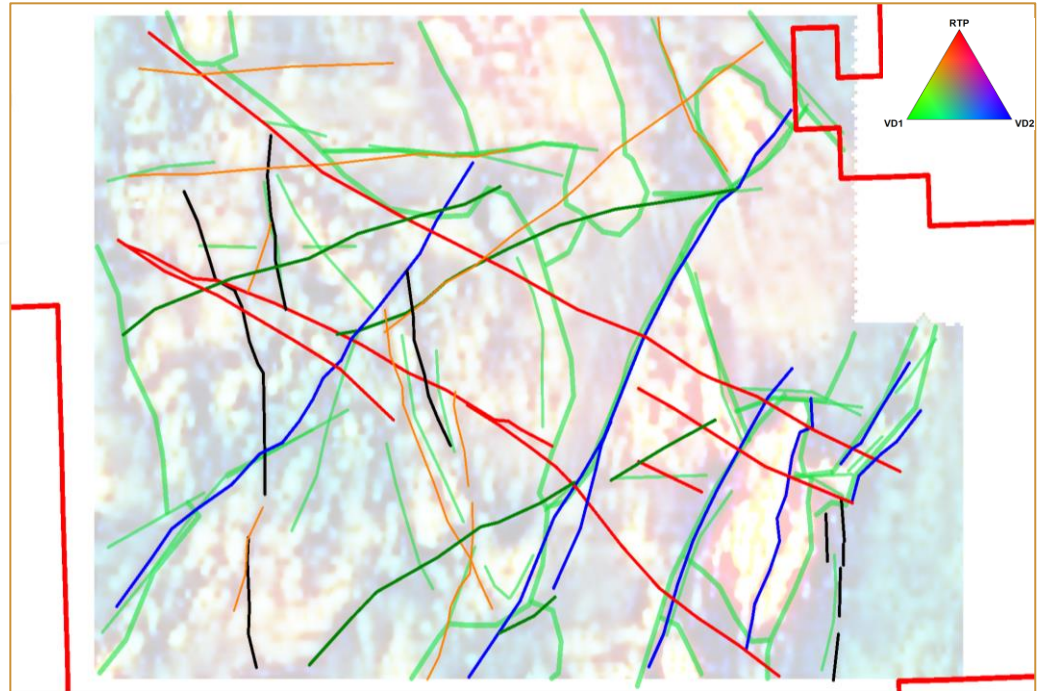
GoldSpot interpreted structures:

NW-SE - red

NE-SW - blue

N-S - black

Remainder - orange



Linework displayed over the ternary image - RTP (red), VD1 (green), VD2 (blue)

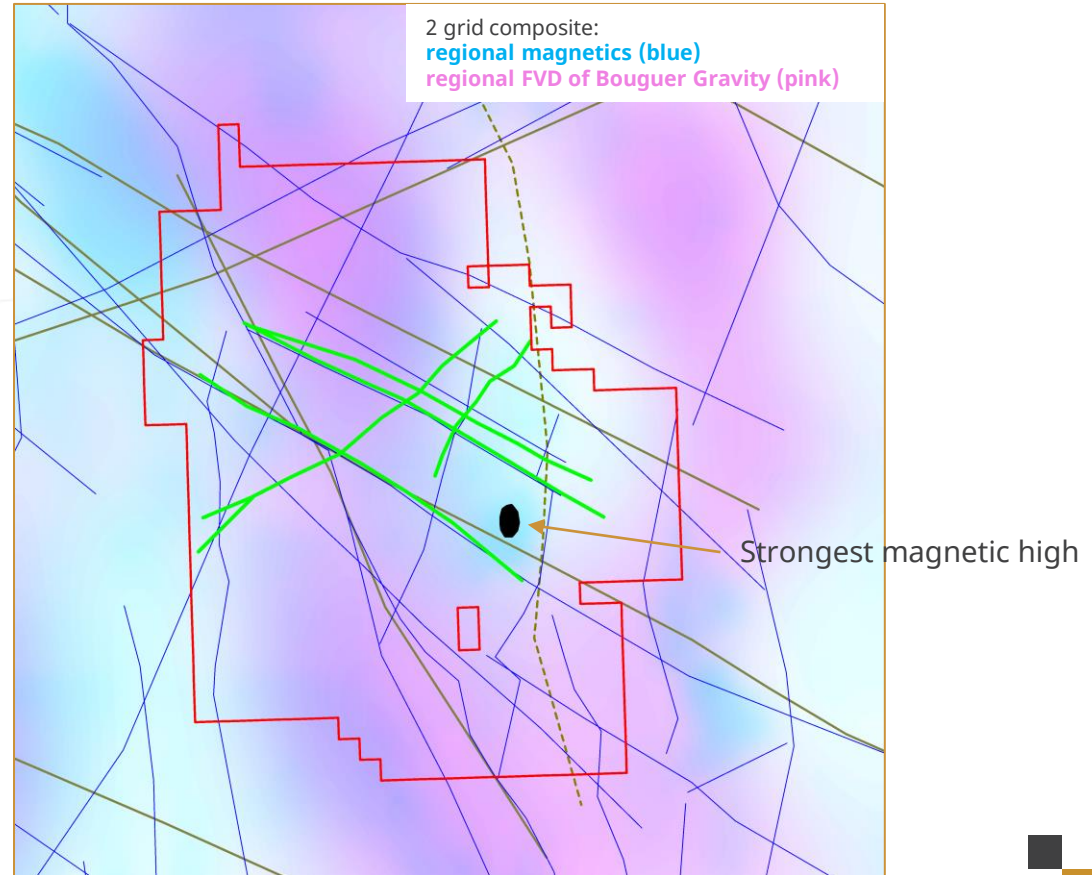


# Airborne Magnetics 2011- structures

The regional magnetic data and inversions serve to highlight potentially deeper structures

- **GS interpreted potential structures from the magnetic inversion AND upward continued grids**
- **Structures interpreted from the regional magnetics**
- **Structures interpreted from the Quest gravity data**

Obvious agreement between local, regional magnetic, magnetic inversion and gravity structures particularly with the GoldSpot newly defined NW-SE structures



# Structures – Newly defined from GS interpretation

GS interpreted structures from:

Gravity

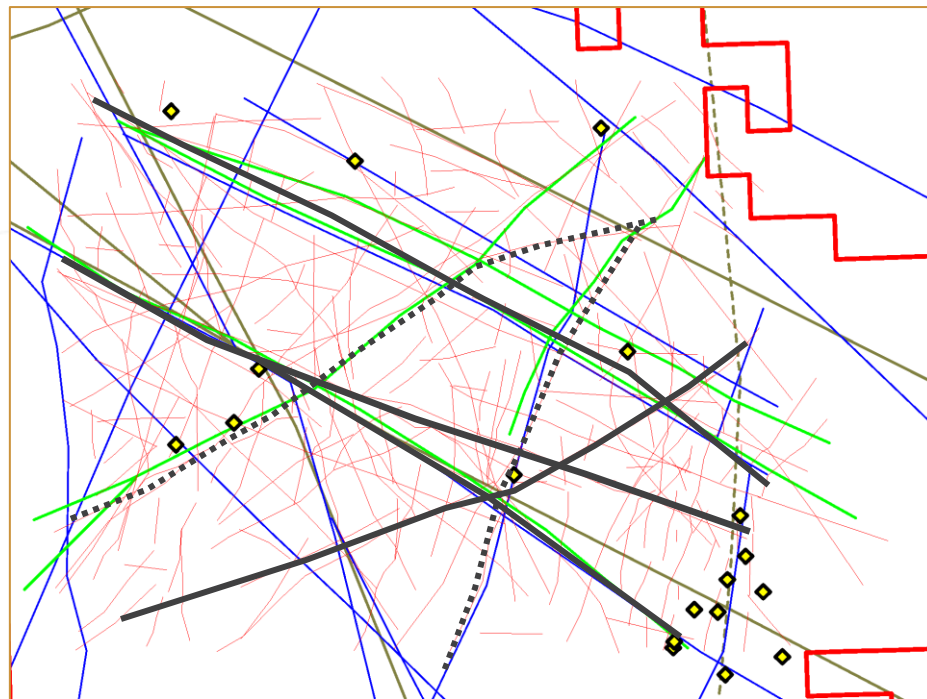
Regional Magnetics

Inversion

Magnetic structures from 2011 survey

Potentially deep structures:

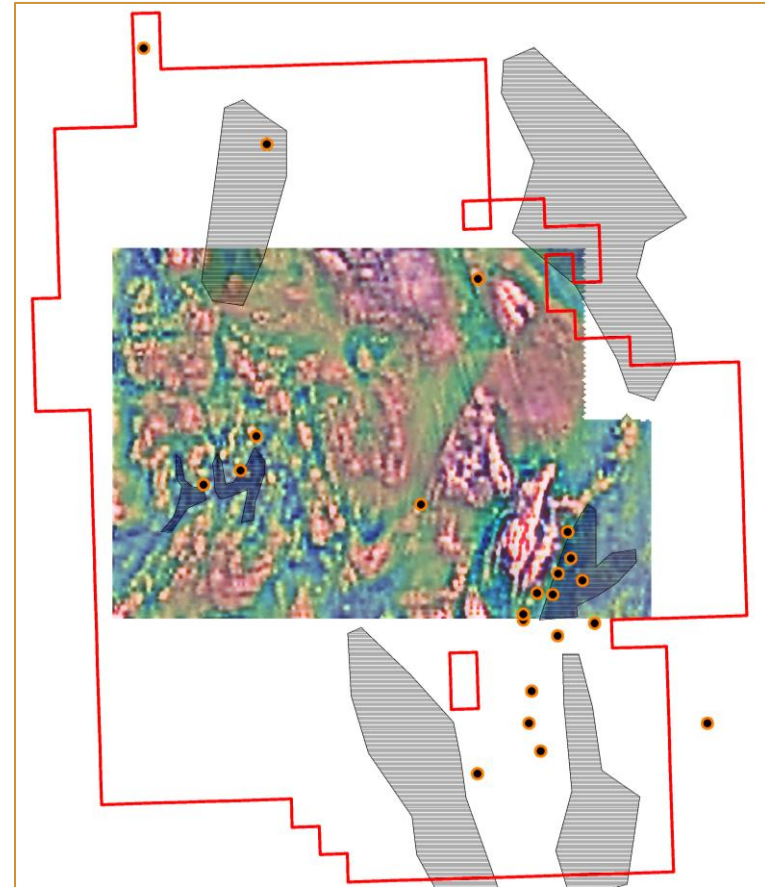
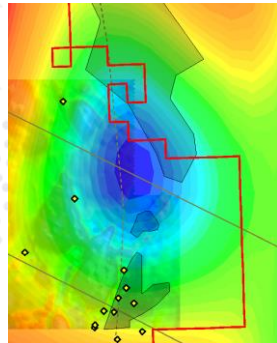
- Dashed lines - common to both Pezzot and GS interpretation
- Solid lines - current interpretation only



# Airborne Magnetics 2011- magnetic lows

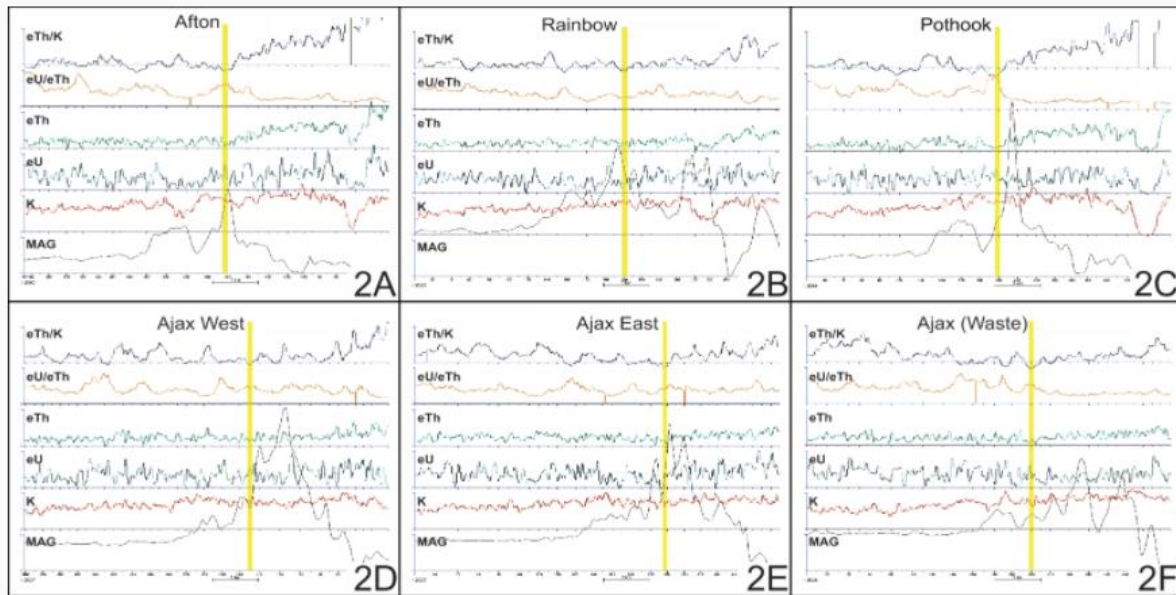
Further exploration warranted around the magnetic lows? Especially in light of the association of the regional gravity low and flanks of magnetic anomalies seen in other areas

Magnetic low areas from the regional data are also displayed





# Geophysical Signatures - Porphyry



Stacked profiles (Figure 2) show flight line responses (Mag, K, eU, eTh, eU/Th, eTh/K) over 6 of the “top 20” mines/prospects. All 20 display similar patterns. Although few occurrences produce an obvious airborne K anomaly, RELATIVE K indicated by the eTh/K ratio (again, this means K concentration in relation to the corresponding eTh concentration) is recognizable in all. In addition, all “top 20” occur on the flanks of prominent magnetic total field highs, as these examples show. Both signatures are required to define potential targets in this geological setting: many low eTh/K responses do not have a corresponding magnetic anomaly and do not overlie known occurrences; conversely, many high-magnetic flanks do not have corresponding eTh/K lows. The profiles in Figure 2F confirm the chemical response over the Ajax mine waste rock (low eTh/K signature of the altered, ore-enveloping rocks) with no corresponding mag-high (the waste rocks do not overlie a deposit!).

# LMSL - Uranium targets

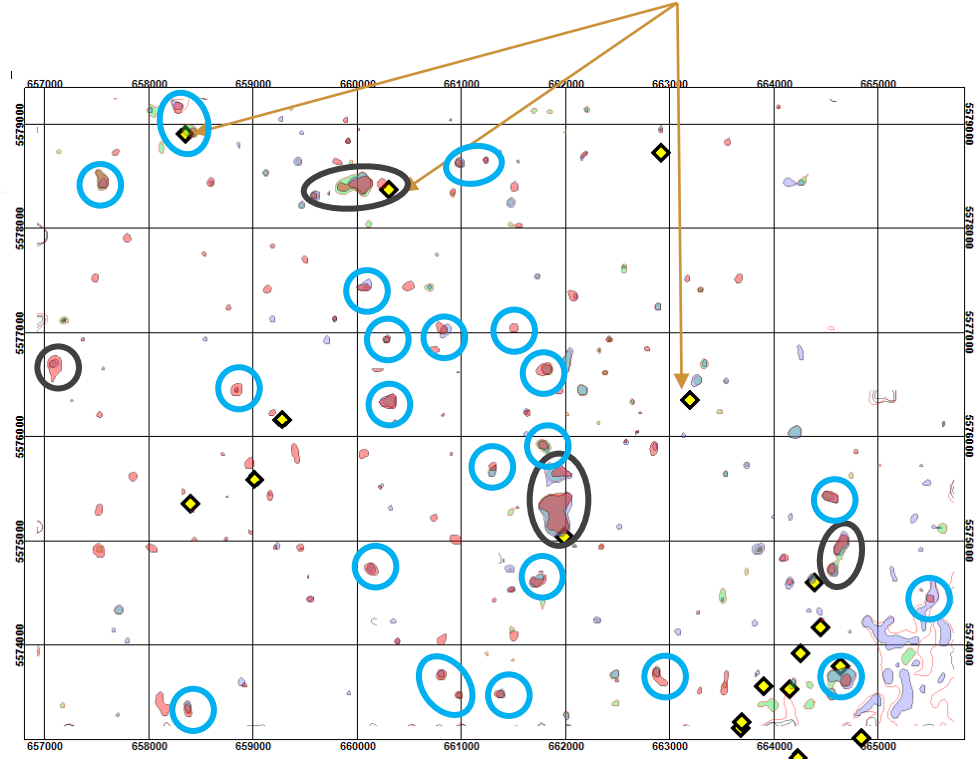
• By creating and filling contours of:

- U-Th ratio
- U-K ratio
- U concentration

Pezzot targets ○

Additional targets? ○

New showings per Turner NI-43-101



# IP survey results and interpretation - Sunshine area

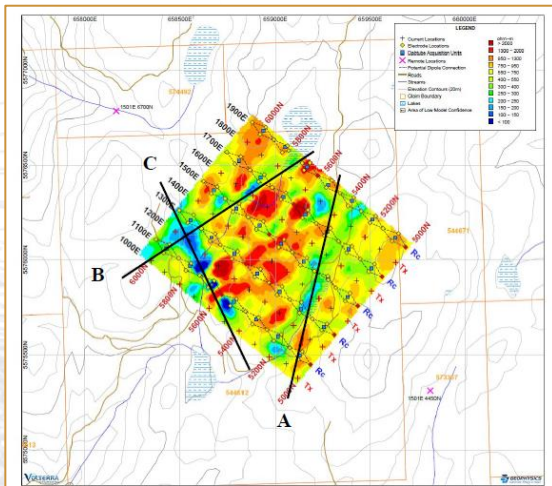


Figure 2: Sunshine resistivity inversion model at 50 m depth below topography with interpreted lineaments.

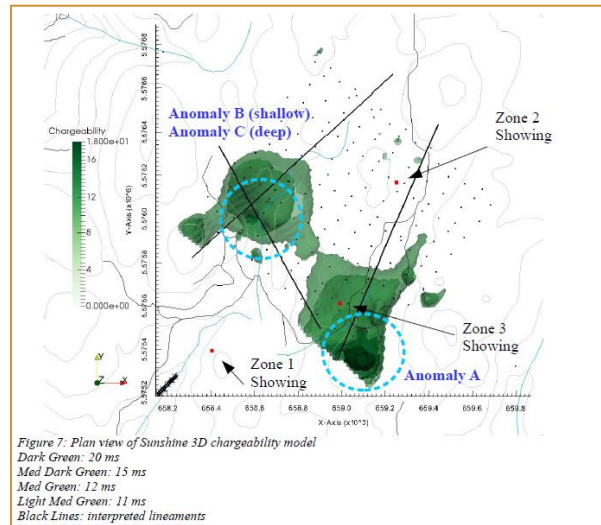


Figure 7: Plan view of Sunshine 3D chargeability model  
 Dark Green: 20 ms  
 Med Dark Green: 15 ms  
 Med Green: 12 ms  
 Light Med Green: 11 ms  
 Black Lines: interpreted lineaments

Difficult to justify these chargeability targets, especially Anomaly A, when they are close to the edge of the survey – they could be amplified edge effects. An extended survey would be warranted

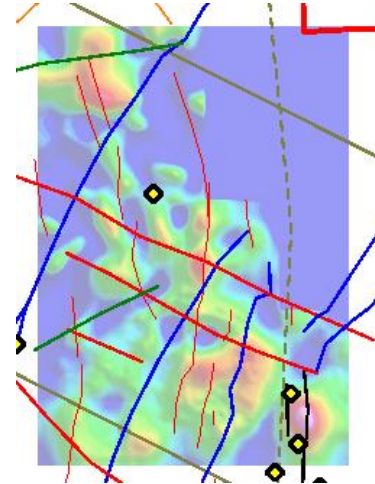
Although no structures from the local or regional mag, or regional gravity align with these proposed structures, A is located over an intense magnetic low, and B correlates with a very weak magnetic low



# IP horizontal slices from Chargeability voxel

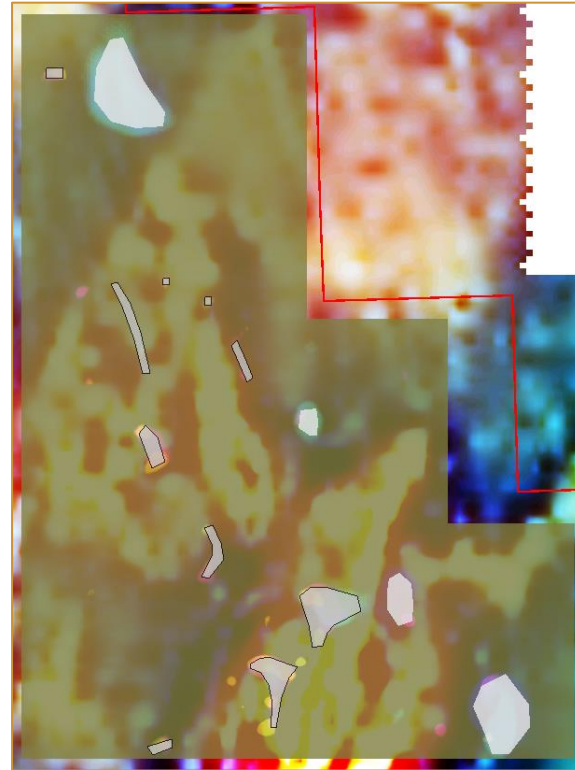
chargeability inversion slice at 1250 m elevation limited to 10 mS

Showing the Minfile, the NS linework, the regional magnetic and gravity structures



# IP horizontal slices from Chargeability voxel

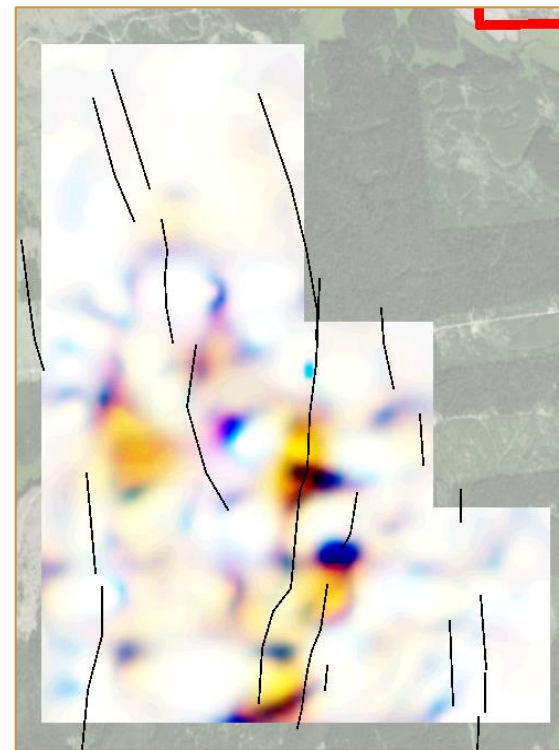
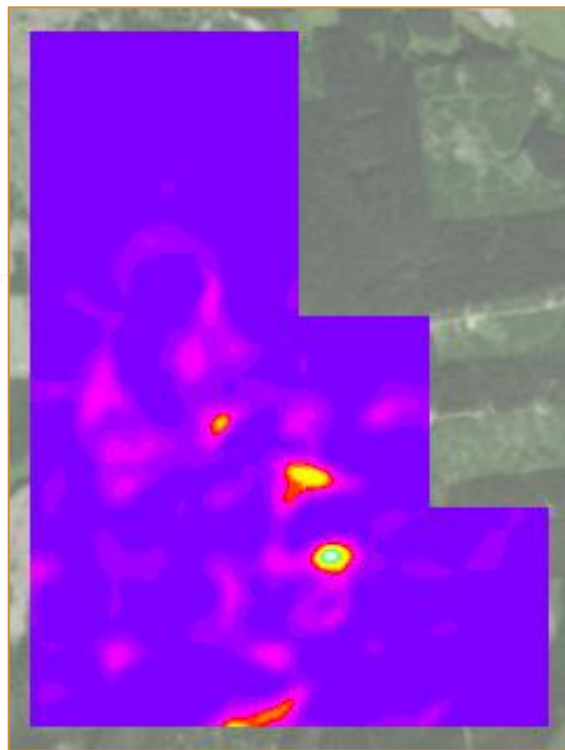
4 grid composite – 50 m, 100 m, 200 m, and 300 m limited to 35 mS over the magnetic data – chargeable anomalies are shown as polygons – a number correlate with small magnetic lows



# IP horizontal slices from Resistivity voxel

Cooler colours – are resistive areas

Correlation with possible near N-S magnetic feature?



100 m depth from resistivity inversion (left) ternary from 50, 100 and 200 m depth

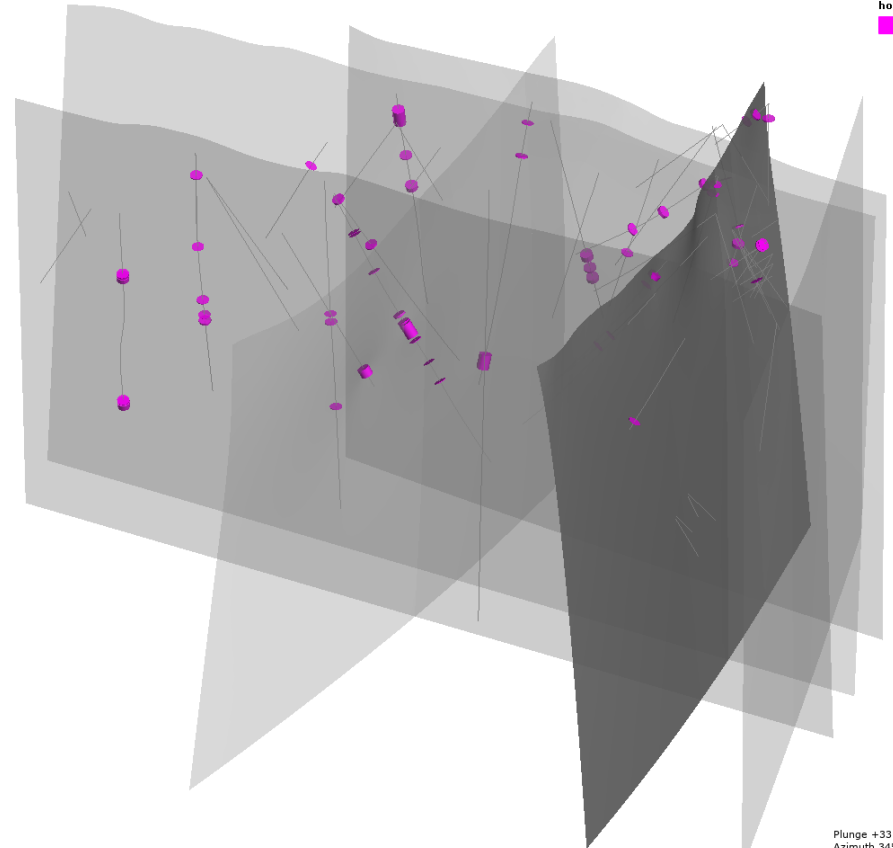


# Recommendations - Geophysics

- The first priority should be the extension of the magnetics/(and) radiometrics to cover the outstanding claims area. Although the radiometric anomalies are weak, and personally I don't see they are adding much to the interpretation, it would make sense to complete coverage of the claims area, with little additional cost. There may be an opportunity, should the survey go ahead, to share mob/demob costs should other surveys be conducted in the vicinity at the same time
- I contacted SJ Geophysics regarding the inversion over Lucky Mike....whether anything would be gained by re-inverting the data, and the cost. By raising the background limits of the resistivity and chargeability values, this has eliminated most of the noise. The survey should be extended to the south, to include the N-S gravity trend and the magnetic low, and potentially to the north to include the Rey Lake deposit. IP lines were run in this area previously but no data is available
- The Sunshine IP survey should be expanded, and if the digital data is not available, either acquired from SJ Geophysics, or recollected over a larger area - and depending on the preferred mineralized structures, potentially with a different grid orientation
- Is the graphite in the drillholes an indicator of mineralization? If so, then an EM survey MIGHT be applicable. ZTEM was used in the southern MPD area, but no results were shared, and this is an expensive system .... New Afton area was covered by a Dighem survey .....mag/rad/EM.... However, this seems to be mainly utilized as an aid in general geological mapping rather than aiding in targeting
- Gravity survey? Given there is a correlation even with the regional gravity data, this may be warranted, however an airborne survey would be expensive, but I feel this would be the best option for quality data

# GM - Faulting

- 6 faults were modelled, based on geophysics and DDH intercepts
- For further geological modelling, only one N-S trending fault was set as active and used as a hard boundary and sub-blocking into two discrete blocks (W block and E block)



Grouped\_lit  
hology

Tectonics

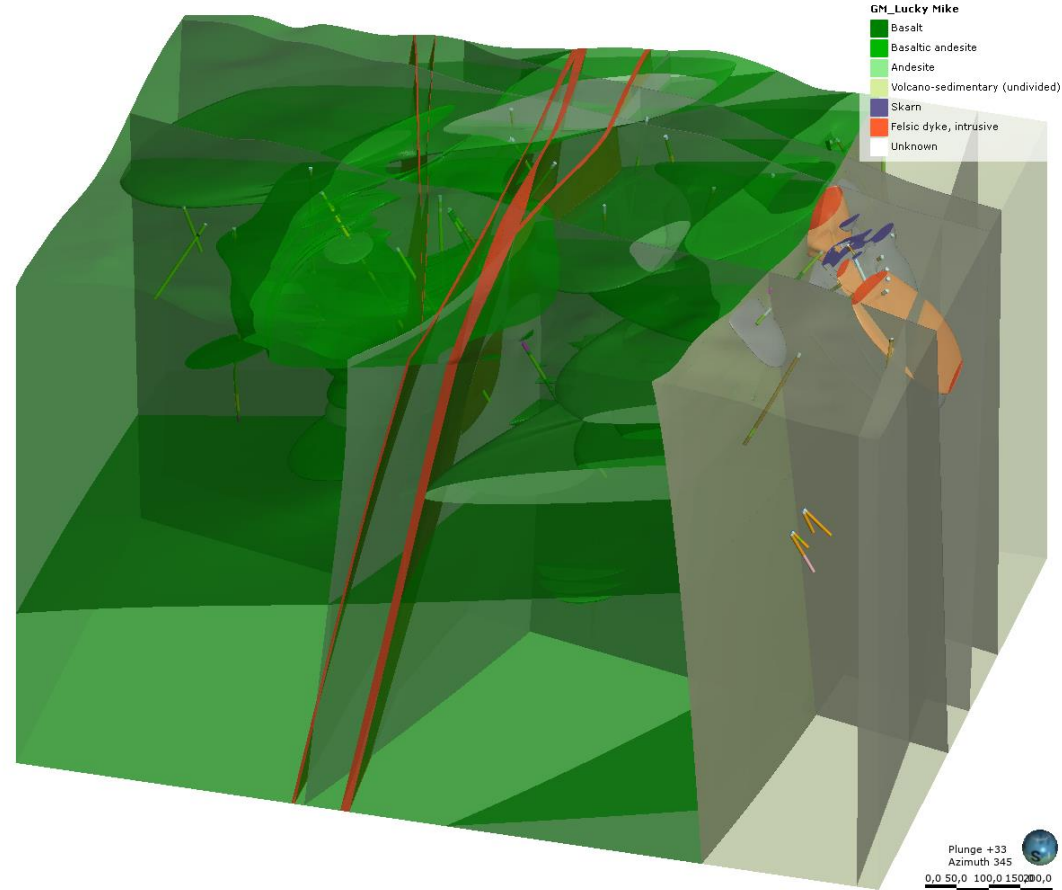
Plunge +33

Azimuth 345

0,0 50,0 100,0 150,0 0,0

# GM - Lithology

- Despite the issues with lithological classes and description, very rough geological model was created, incl. following features
  - E block
    - Skarn body
    - Felsic dyke, intrusive
    - Undivided volcano-sedimentary suite
  - W block
    - Felsic dyke, intrusive
    - Volcanic complex incl. basalt, basalt-andesite and andesite lithotypes (based on geochemical clustering, not original DDH database)
- As mentioned above, the geological modelling is very arduous because of lack of structural data and inconsistent DDH database

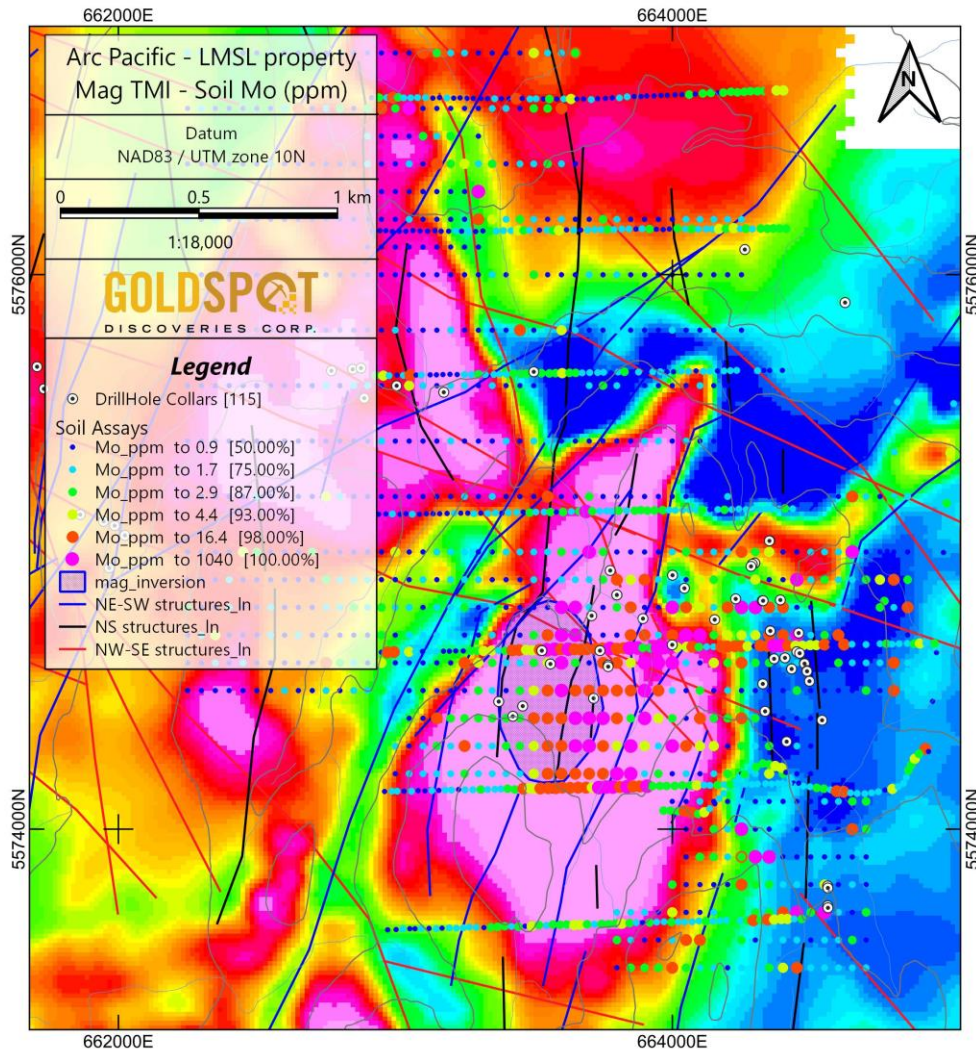




# Soil geochemistry

A nice superposition is observed between the Mo anomalies in the soil samples and the high mag on the TMI map.

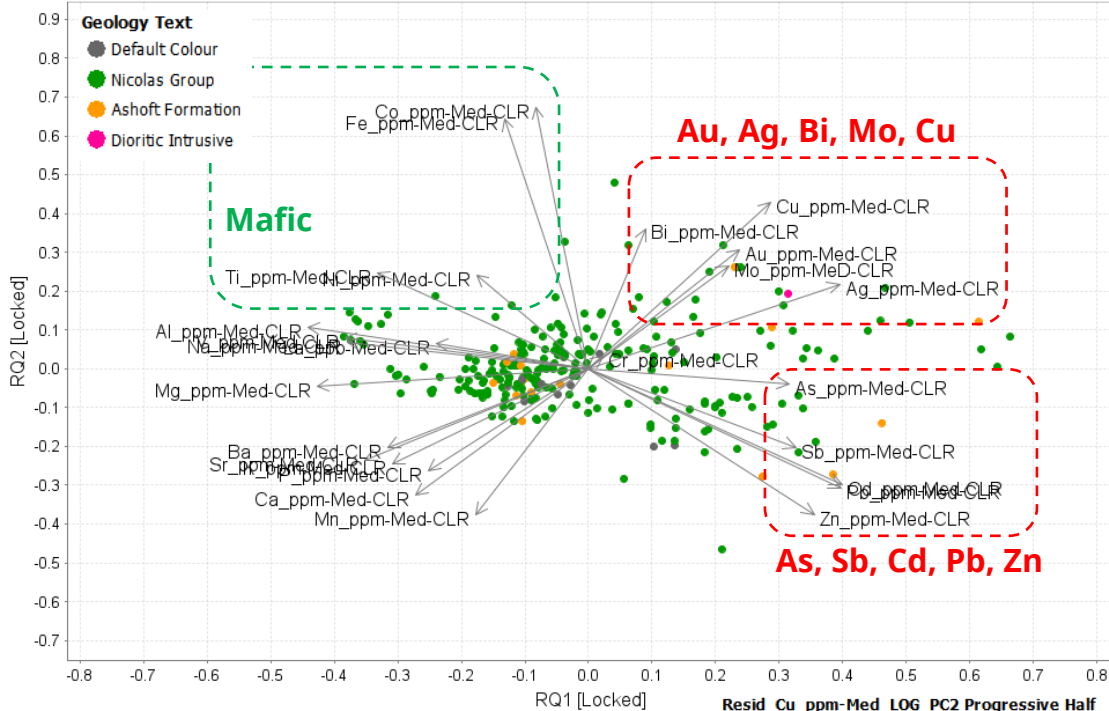
Next slide: Mo values and Cu residuals in the soils are kriged by applying an anisotropy that follow the preferred orientation revealed by the lineament interpretation. Mo anomalies are few and highlight areas of high susceptibility (Lucky Mike and zone to the north). The Cu anomalies follow particularly well the N-S and NE-SW lineaments, especially east of the high mag susceptibility zone. The lineaments are interpreted as faults that allowed Cu-rich fluids from a porphyry body at depth to reach the surface. Some of these faults have been modeled in 3d.



# Geochemistry – Surface rock

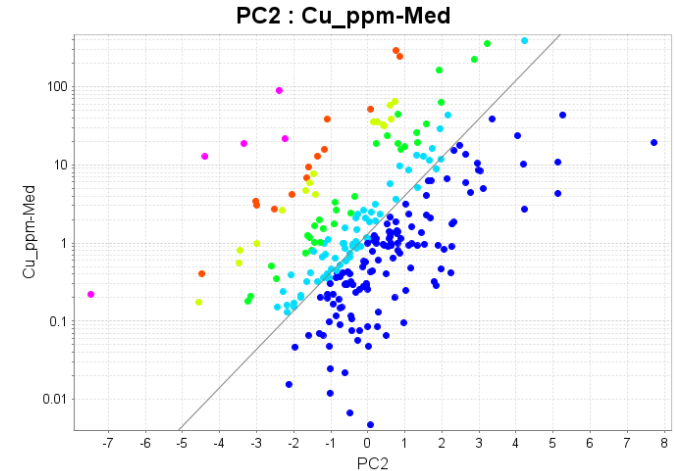
Two types of mineralization are highlighted by the PCA:

1. Porphyry association (Au, Ag, Bi, Mo, Cu): is Cu correlated with mafic units in the Nicolas Group? To overcome a possible effect of mafic lithos, Cu is regressed against PC2, as it shows good correlation with mafic component (Fe, Co, Ni, Ti and Cu). Result of the regression is a residuas that highlight high values considering more felsic lithos.
2. Polymetallic association (As, Sb, Cd, Pb, Zn): Cd (and As?) could reflect a lithological control by the sediments of the Ashoft Formation.



**Resid\_Cu\_ppm-Med\_LOG\_PC2 Progressive Half**

●	Resid_Cu_ppm-Med_LOG_PC2	to -0.092662	[50.00%]
●	Resid_Cu_ppm-Med_LOG_PC2	to 0.479545	[75.00%]
●	Resid_Cu_ppm-Med_LOG_PC2	to 1.131822	[87.00%]
●	Resid_Cu_ppm-Med_LOG_PC2	to 1.481897	[93.00%]
●	Resid_Cu_ppm-Med_LOG_PC2	to 1.995524	[98.00%]
●	Resid_Cu_ppm-Med_LOG_PC2	to 3.140655	[100.00%]



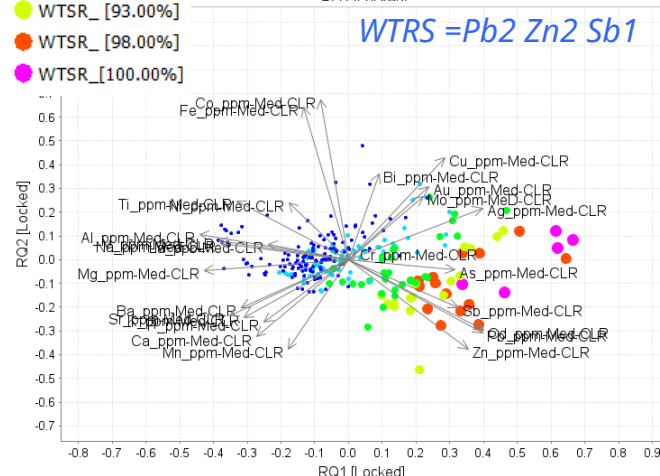
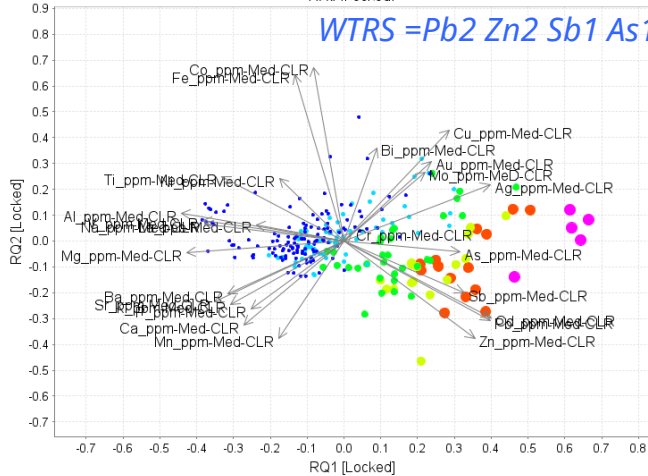
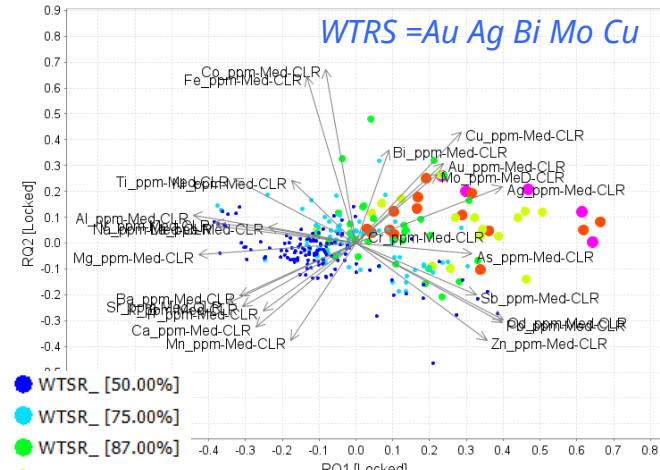
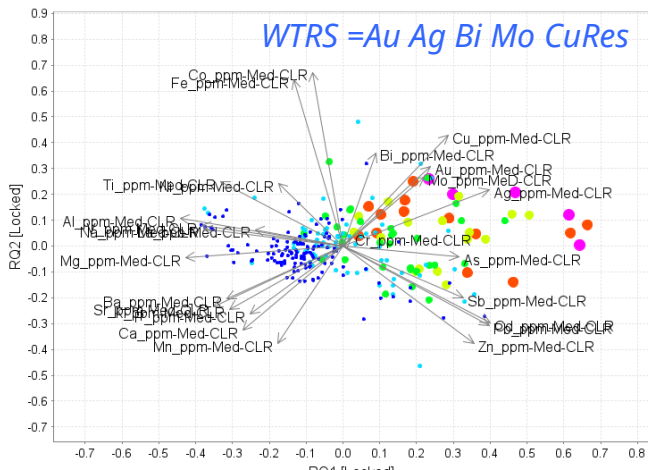
# Mineralization indexes – Weighted sums

## Porphyry association (Au, Ag, Bi, Mo, Cu)

Two weighted sum calculations are provided. One with residuals Cu against PC2, the other with raw Cu.

## Polymetallic association (Pb, Zn, As, Sb)

More weight is given to Zn and Pb while As and Sb are lower weighted. As is not considered for the second calculation

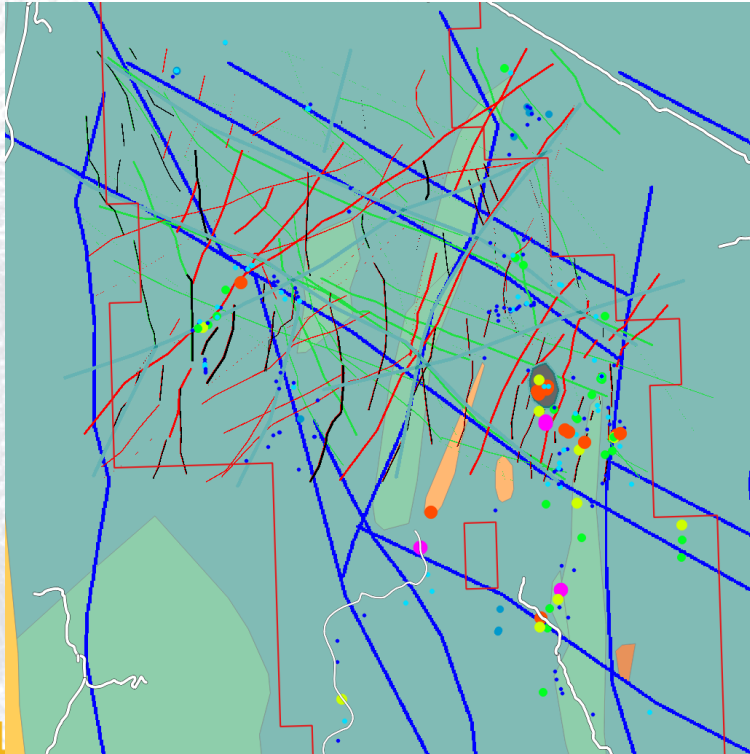


- WTSR\_ [50.00%]
- WTSR\_ [75.00%]
- WTSR\_ [87.00%]
- WTSR\_ [93.00%]
- WTSR\_ [98.00%]
- WTSR\_ [100.00%]

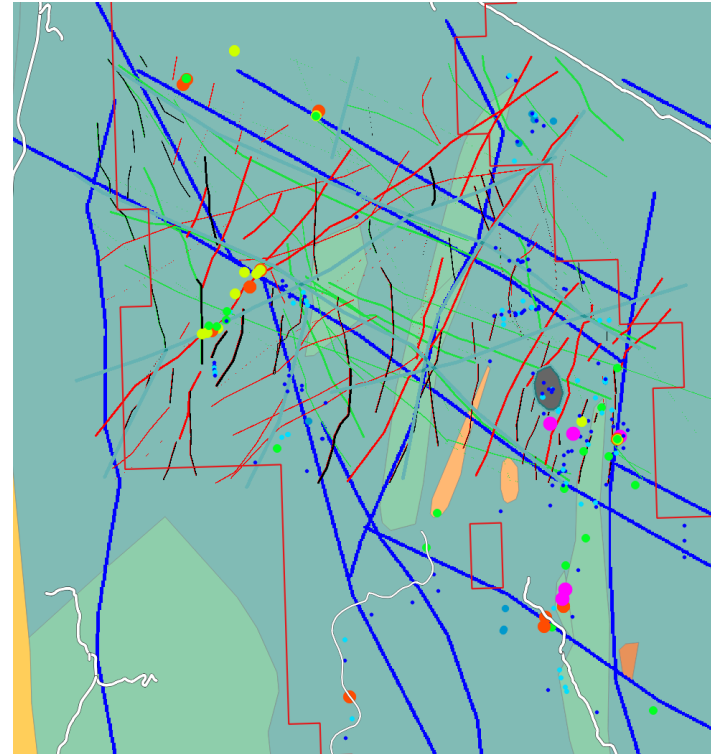


# Geochemistry – Surface rock

WTRS =Au Ag Bi Mo Cu



WTRS =Pb Zn Sb As



- WTSR\_ [50.00%]
- WTSR\_ [75.00%]
- WTSR\_ [87.00%]
- WTSR\_ [93.00%]
- WTSR\_ [98.00%]
- WTSR\_ [100.00%]

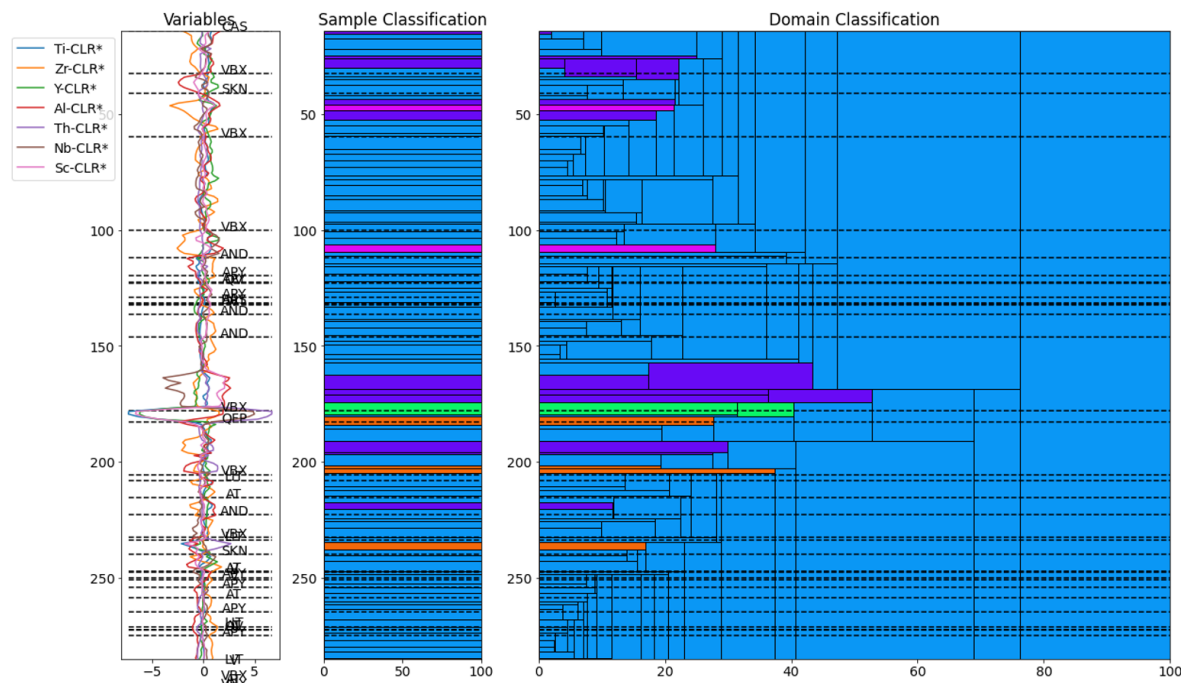
# Drillhole geochemistry

Chemostratigraphy is used to help 3d modeling and better constrain the deposit host rocks. Wavelet Tessellation is a multivariate clustering technique that allow for automated geochemical interpretation of drill hole data.

Result is a domain classification with accurate boundary locations. Each domain represents one lithology. The consistency of the compositional granularity is ensured by the algorithm.

Immobile geochemical elements are used as input

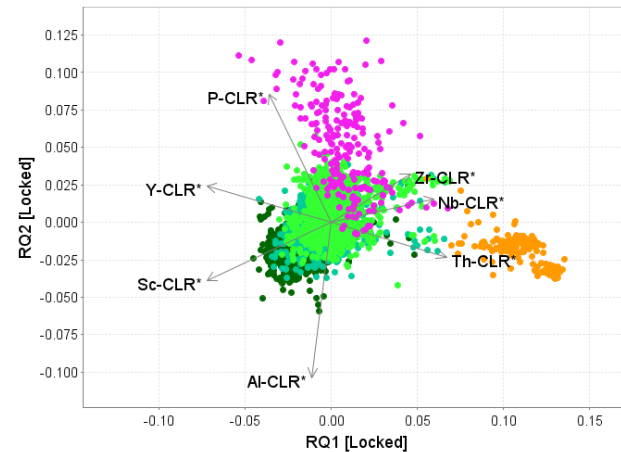
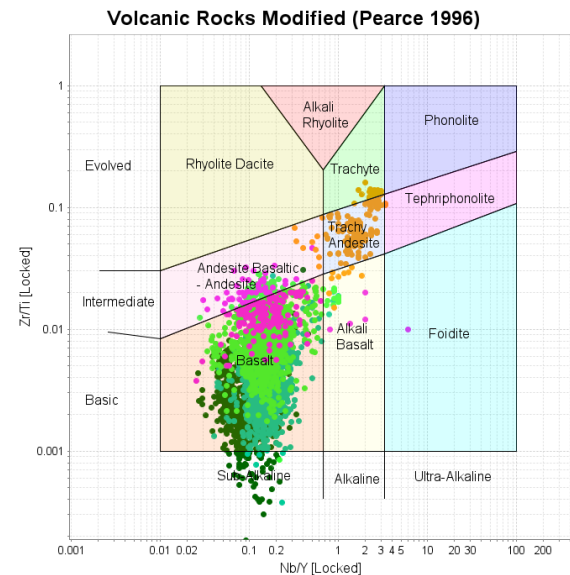
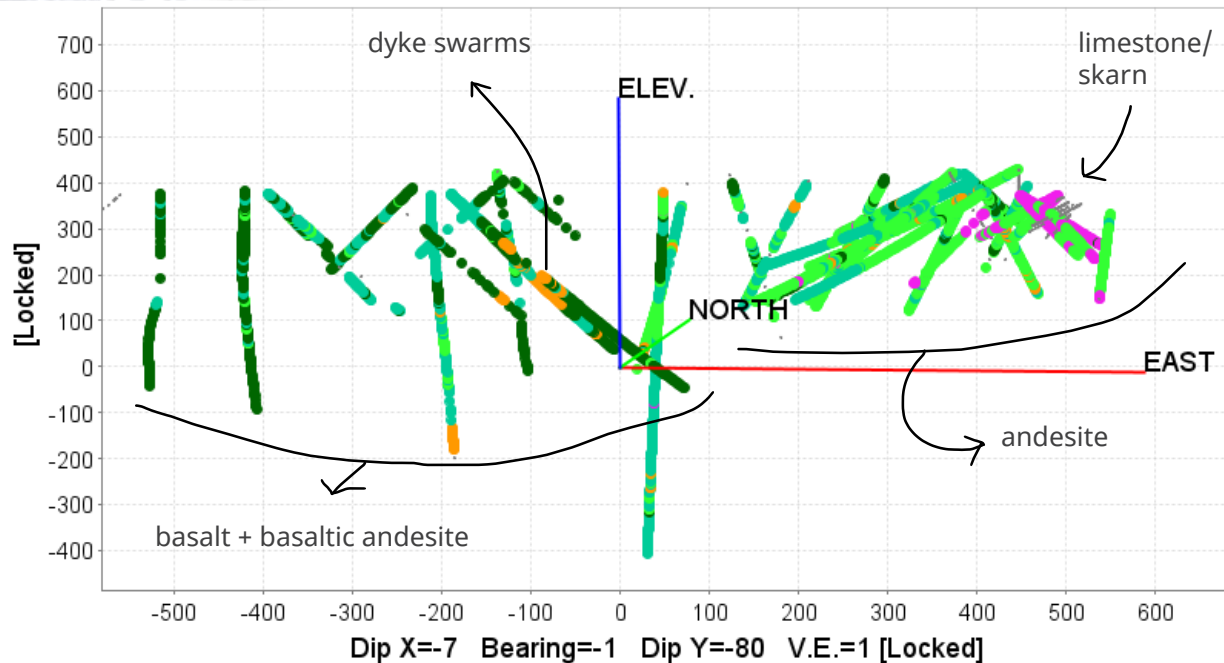
Pseudo-log example:  
Wavelet Tessellation domaining give insights regarding the geochemical consistency along hole. Results are used in 3d geological modeling to help with the numerous lithological intervals that have been logged (displayed by dashed lines).



# Drillhole geochemistry

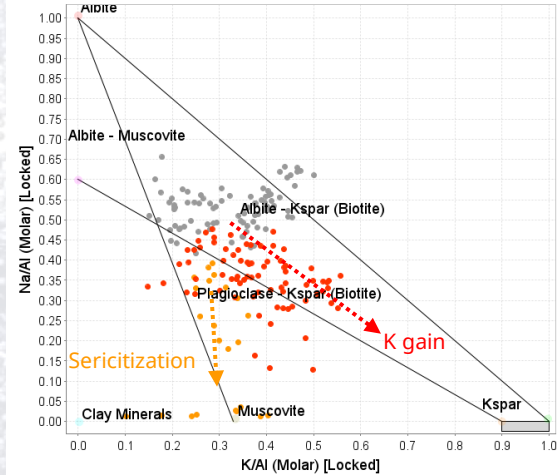
- Unknown
- C2\_felsic dyke
- C3\_limestone\_skarn
- C4\_andesite
- C1\_basaltic andesite
- C0\_basalt

Wavelet Tessellation clustering provided 5 domains. Three of them account for mafic to intermediate composition and show a spatial continuity going from west to east. Alkaline felsic swarms intrude the volcanic domain, while limestone/skarns are found to the eastern part of the drilled area.

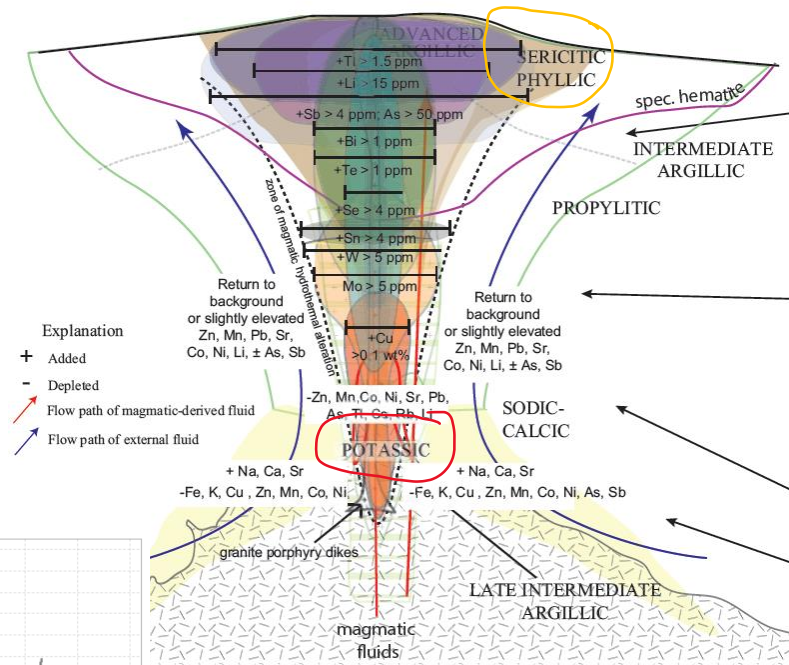
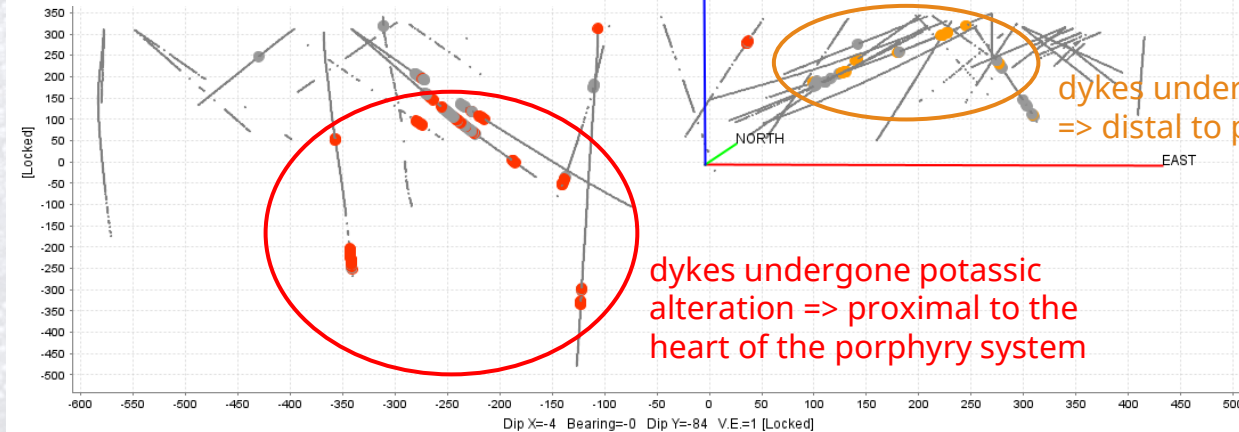




# Drillhole geochemistry



Bulk changes in rock chemistry is track using general element ratio diagrams (GER), where changes in K and Na relative to Al content are considered to reflect potential location in a hydrothermal system. Samples from the same rock type are considered (felsic dyke) in order to avoid mixing different alteration process.

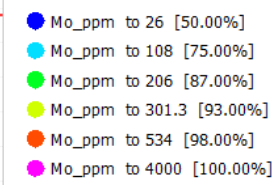
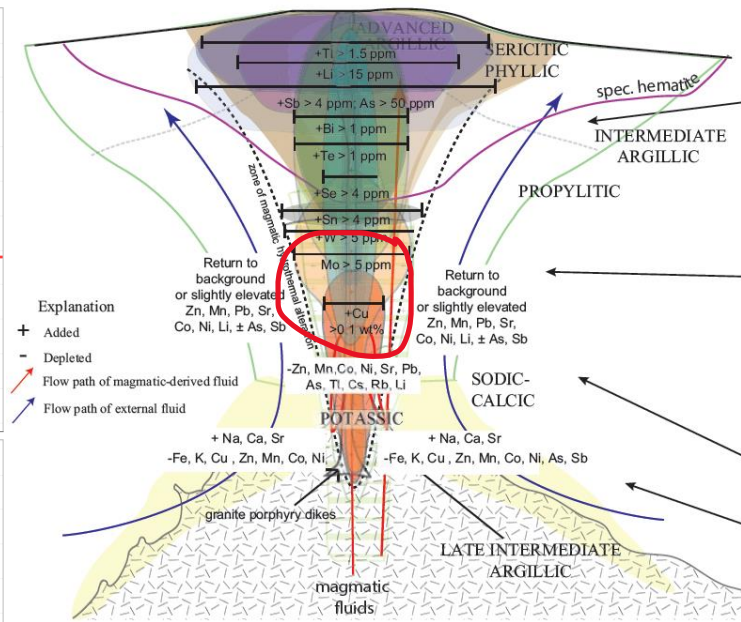
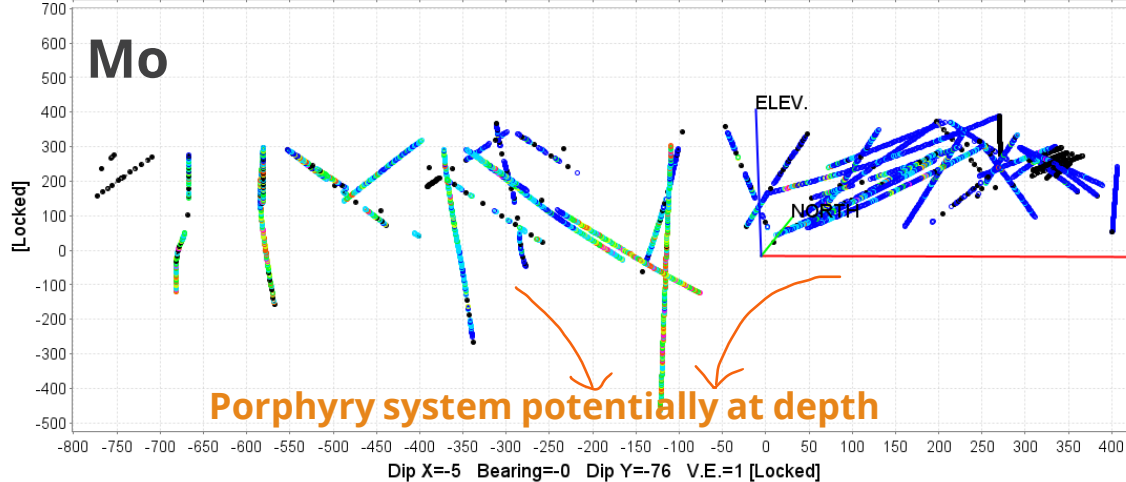
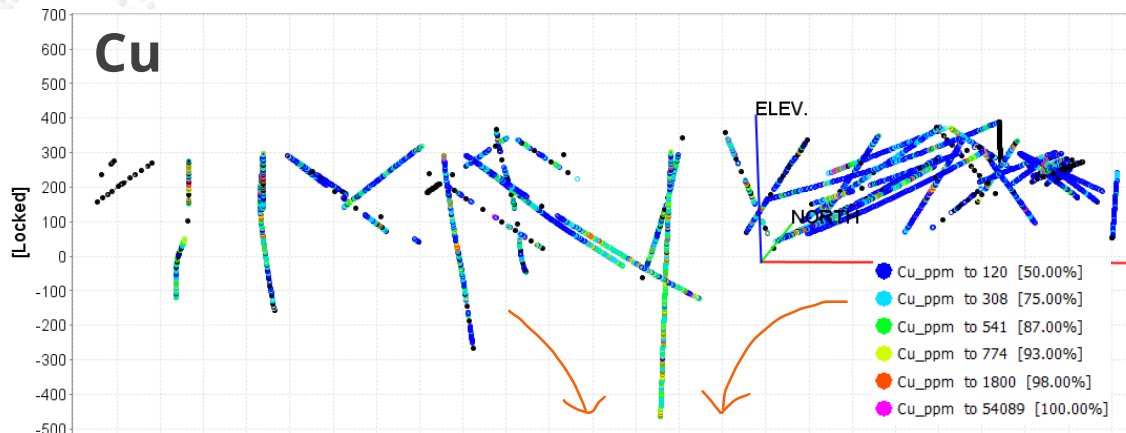


dykes undergo sericitic alteration => distal to porphyry system

dykes undergo potassic alteration => proximal to the heart of the porphyry system

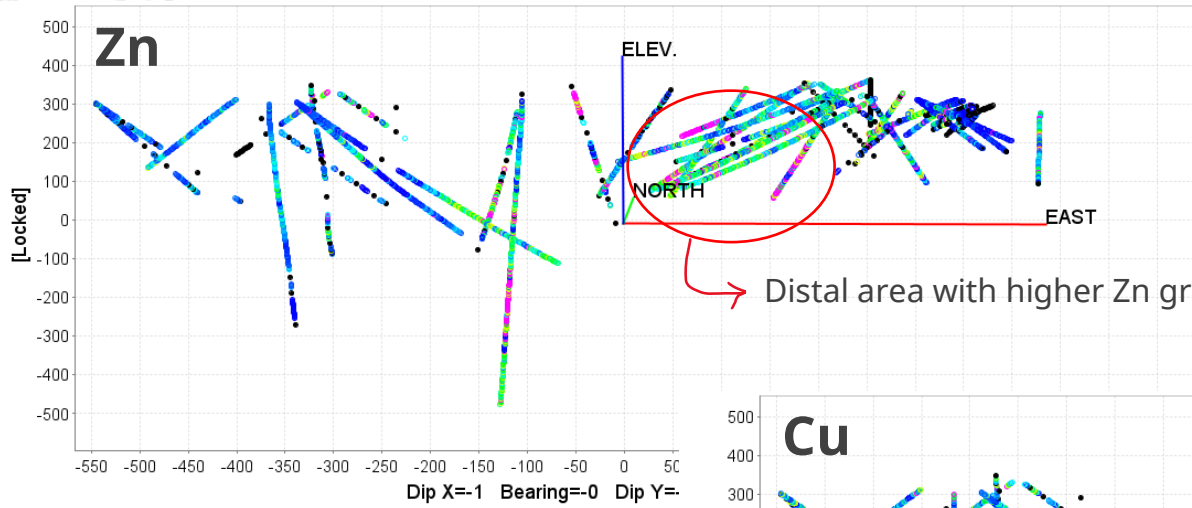
- C2\_felsic dyke\_unaltered
- C2\_felsic dyke\_sericitic alteration
- C2\_felsic dyke\_potassic alteration

# Drillhole geochemistry

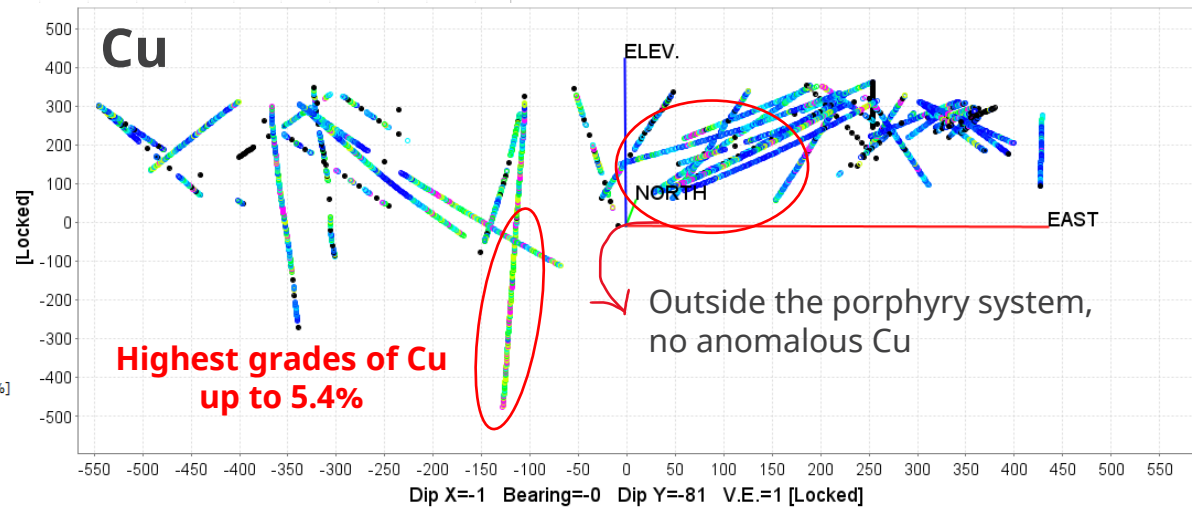


# Drillhole geochemistry

Epithermal vs porphyry/orthomagmatic

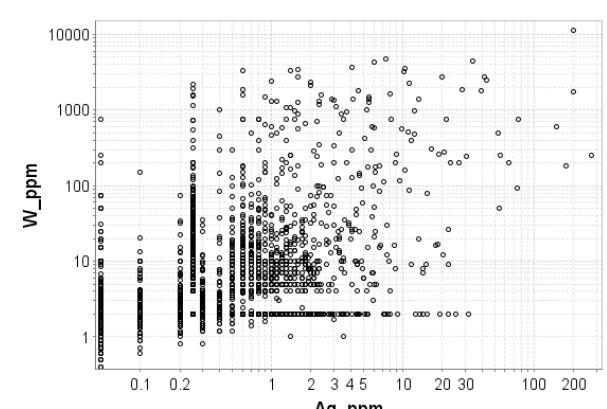
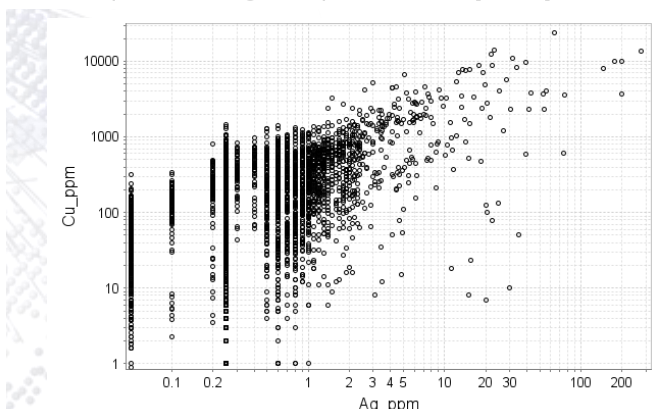
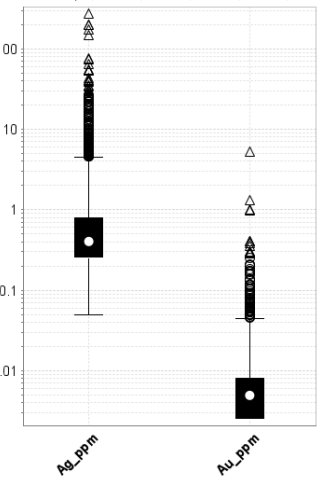
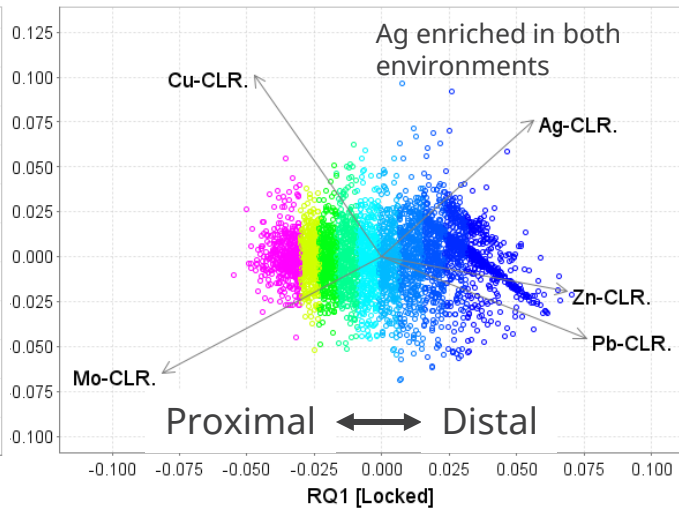
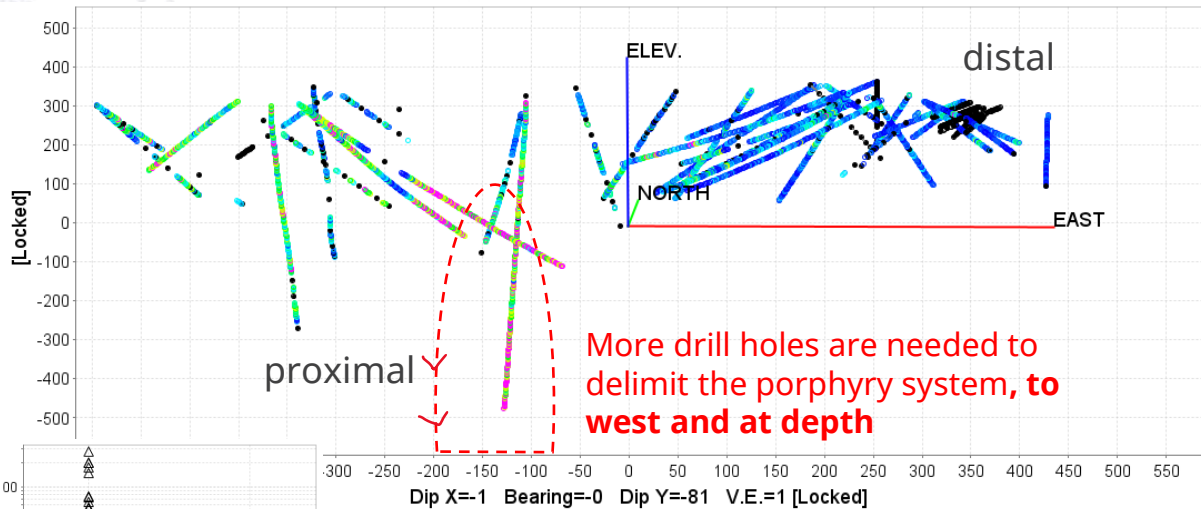


- Zn\_ppm to 61 [10.00%]
- Zn\_ppm to 81 [20.00%]
- Zn\_ppm to 94 [30.00%]
- Zn\_ppm to 106 [40.00%]
- Zn\_ppm to 118 [50.00%]
- Zn\_ppm to 130 [60.00%]
- Zn\_ppm to 142 [70.00%]
- Zn\_ppm to 158 [80.00%]
- Zn\_ppm to 183 [90.00%]
- Zn\_ppm to 10000 [100.00%]



- Cu\_ppm to 12.8 [10.00%]
- Cu\_ppm to 32 [20.00%]
- Cu\_ppm to 54 [30.00%]
- Cu\_ppm to 83 [40.00%]
- Cu\_ppm to 120 [50.00%]
- Cu\_ppm to 172 [60.00%]
- Cu\_ppm to 251 [70.00%]
- Cu\_ppm to 389 [80.00%]
- Cu\_ppm to 628 [90.00%]
- Cu\_ppm to 54089 [100.00%]

# Drillhole geochemistry



High Ag grades (relative to Au). Ag shows good correlations with Cu and W => associated with the porphyry system



# Geochemistry – summary and recommendations

## Soil geochemistry

- Geochemical data (n=4,768) was vetted and levelled according to analytical digestion method.
- Residual values were calculated to overcome the effect of Fe-hydroxides scavenging.
- An anisotropic kriging was applied to Mo and Cu soil values, considering the main structural orientation highlighted by geophysical interpretation.
- Molybdenum and copper anomalous values fit well the boundaries of the high susceptibility body. These values highlight an interesting area as well to follow up in the northern part of the claims.
- Copper anomalous values follow nicely the NS and NW-SE interpreted structures. It is interpreted that these structures are linked to the emplacement of a porphyry body at depth and promoted the circulation of fluids to the surface.

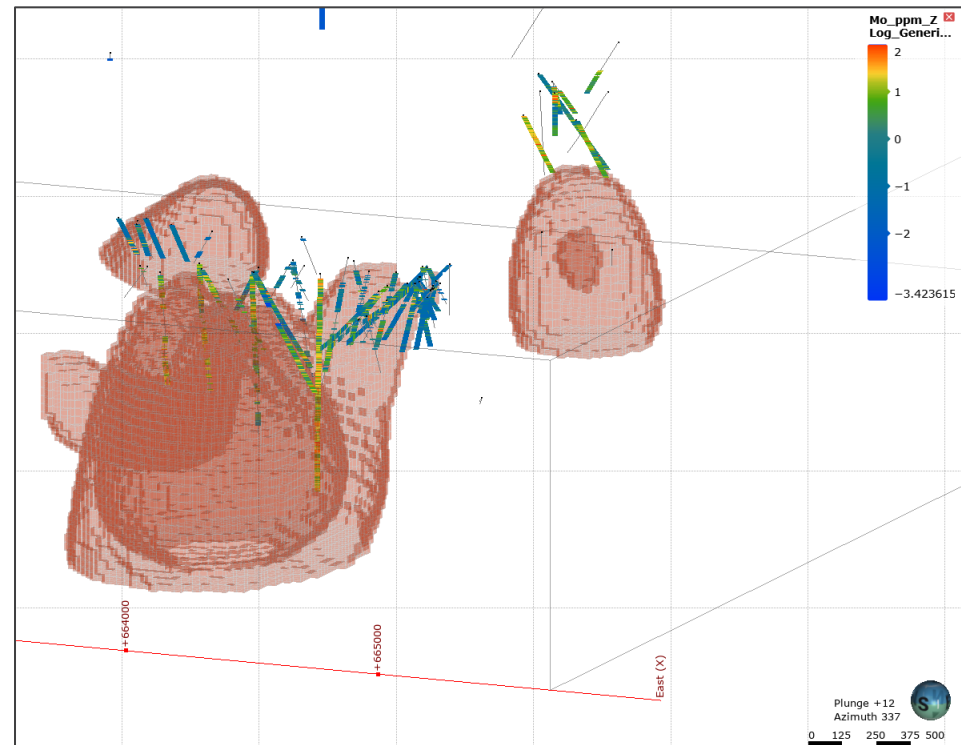
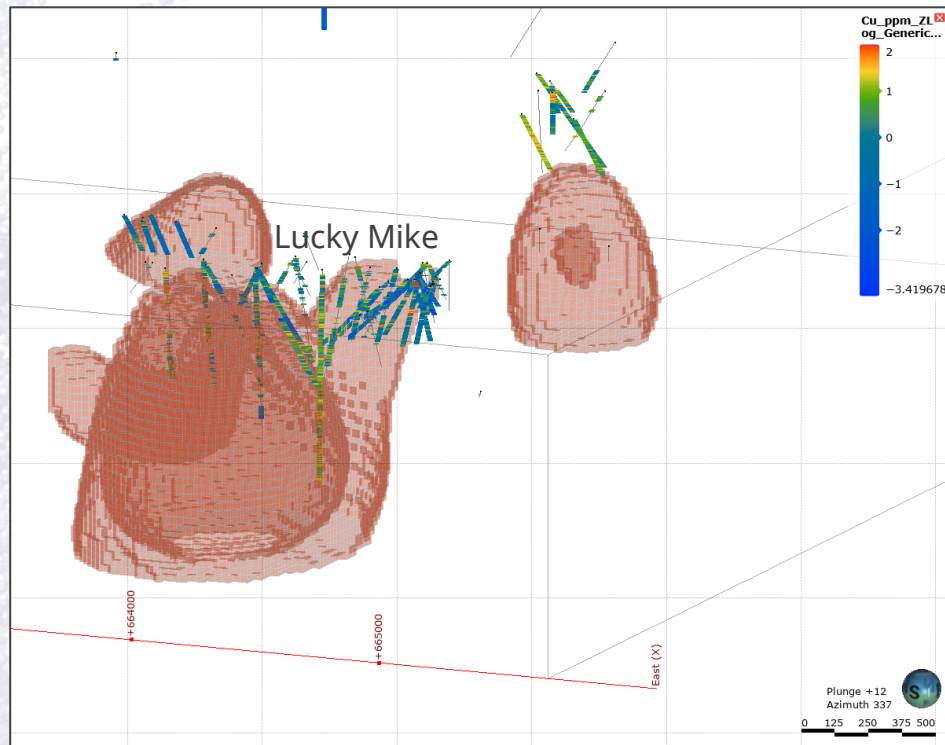
## Rock geochemistry

- Geochemical data (n=289) was vetted and levelled according to analytical digestion method.
- The multivariate statistical analysis (PCA) applied on CLR data demonstrates two metallic associations: one mostly porphyritic (Au, Ag, Bi, Mo, Cu), the other one polymetallic (As, Sb, Cd, Pb, Zn), interpreted as being distal from an intrusive body.
- A mineralization index is calculated for both types, using weighted sum calculation.

## Drillhole geochemistry

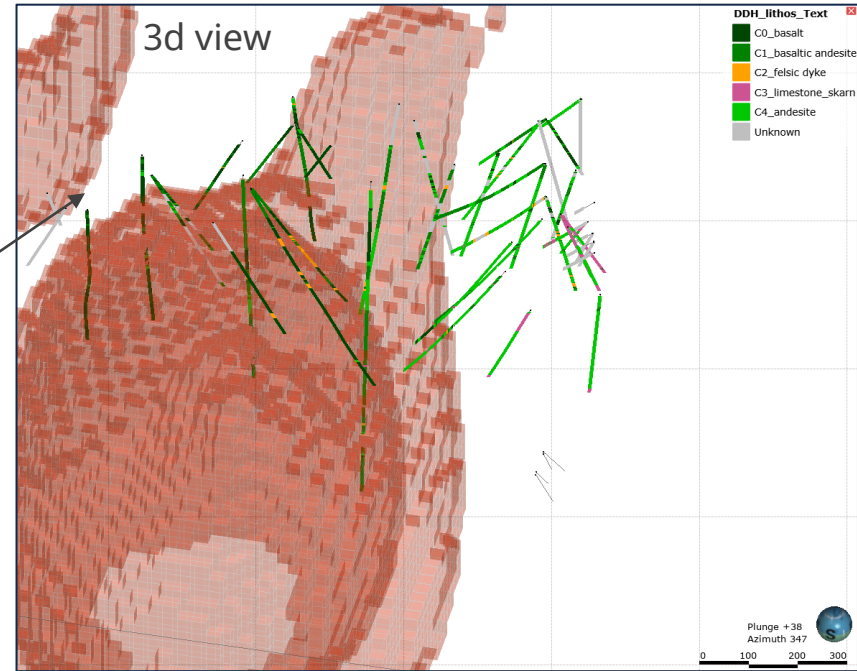
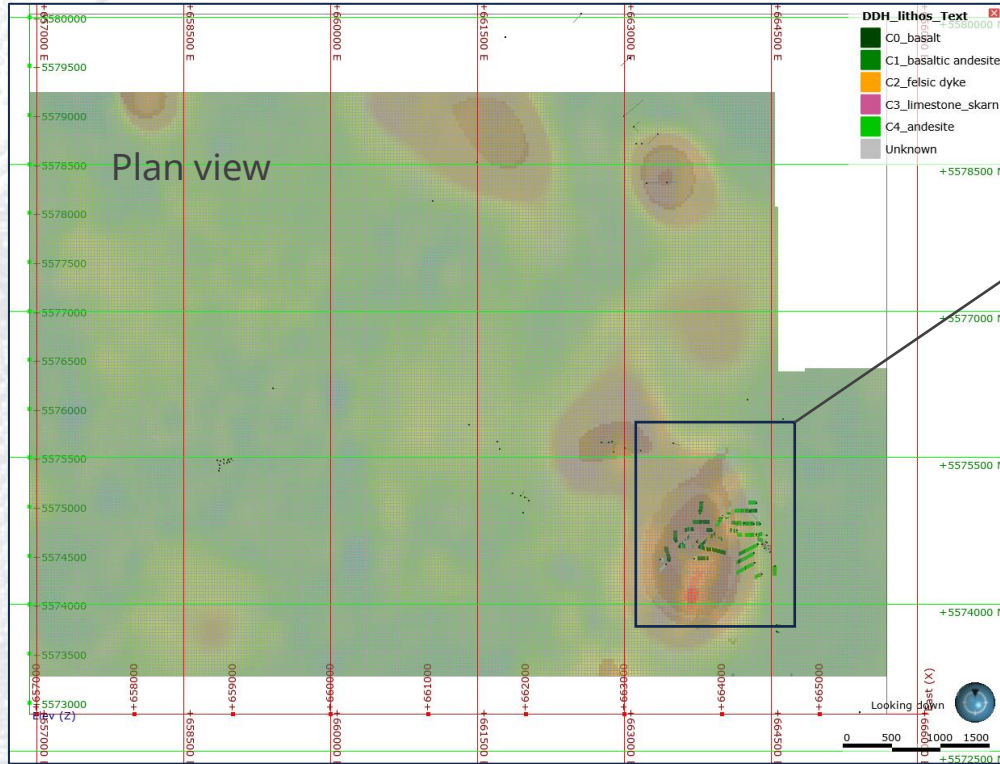
- Geochemical data (n=6,414) was vetted and levelled according to analytical digestion method.
- Wavelet tessellation algorithm (mini-batch k-means) was applied on CLR-ed immobile elements aiming to constrain chemostratigraphic domains.
- Five main lithologies were identified: 3 mafic to intermediate volcanics, 1 skarn and 1 felsic intrusive dyke (trachy-andesite)
- The trachy-andesitic dykes present potassic and sericitic alteration (from molar composition) interpreted as being respectively proximal and distal to a probable porphyry body at depth.
- Copper (levelled by lithology to account for the mafic volcanics primary composition) and molybdenum show increasing values toward depth.
- Drillhole geochemistry suggests the presence of a porphyry body at depth. It is recommended to constrain the position of that probable intrusion by completing more deeper drillholes at west of the LM-2016-01.

# Inversion vs drillhole geochemistry



The drillhole tested areas fit with the areas of high susceptibility shown by the inversion model. However, these drillholes in the northern part do not appear to have reached the intrusion itself. In the Luck Mike area, some of these holes intercepted the probable envelope of the intrusion (these holes also show high Cu and Mo concentrations, supporting the immediate proximity to an intrusion). Other drillholes appear to have intercepted the core of the intrusion, yet the drill logs do not indicate that a porphyry has been reached.

# Inversion vs drillhole geochemistry



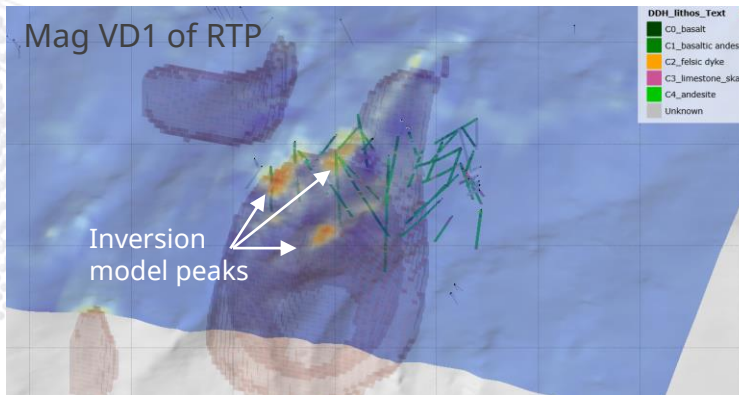
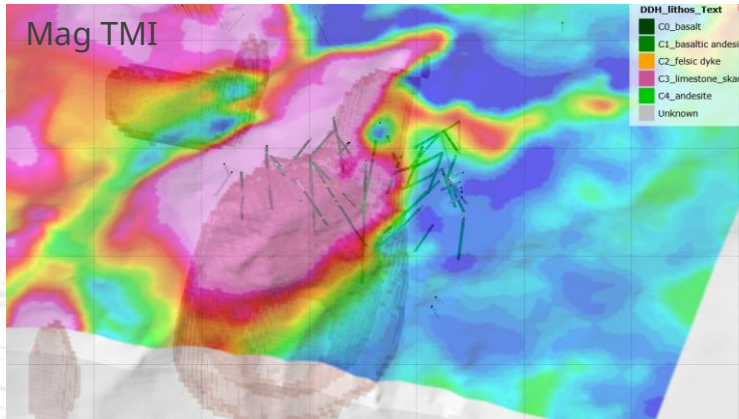
Further examination of the lithologies predicted from the Wavelet Tessellation work shows that the intersections of these drillholes with the high susceptibility zone are interpreted as felsic dykes. It is therefore proposed that the shallow zone of high susceptibility is more likely to represent a dyke swarm (intercepted in drilling) that overlies the intrusion itself.



# Interpretation of the inversion model

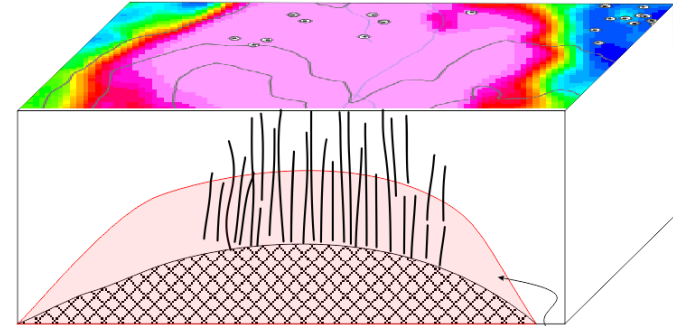
A conceptual model is proposed to explain the response of the VD1 of RTP mag TMI and the inversion model. This conceptual model suggests that the presence of a depth intrusion will have blurred the signal on the mag and on the inversion. The VD1 of RTP allows for more subtle signatures at shallow depths, interpreted as associated with a dyke swarm. An examination of the 3d model inversion shows high susceptibility peaks at shallow depths (that fit the VD1 anomalies) which can also be attributed to the magnetic signature of the dyke swarm.

### 3d view

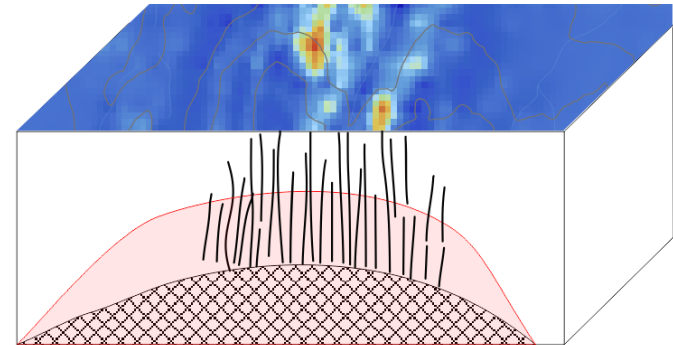


### Conceptual model

#### Mag TMI



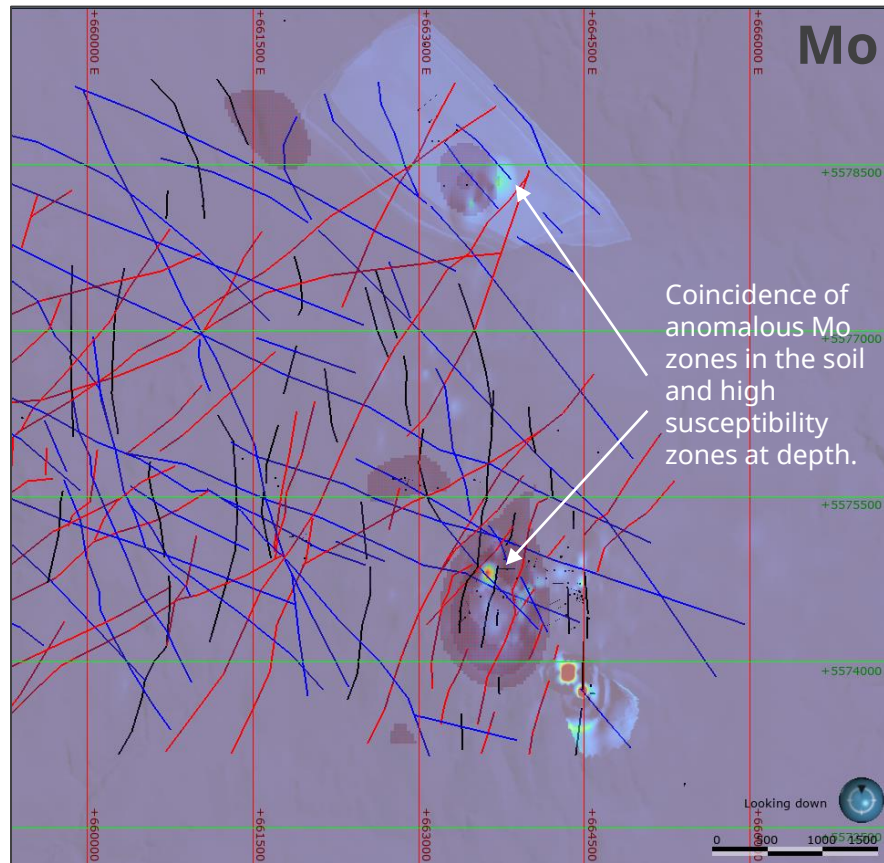
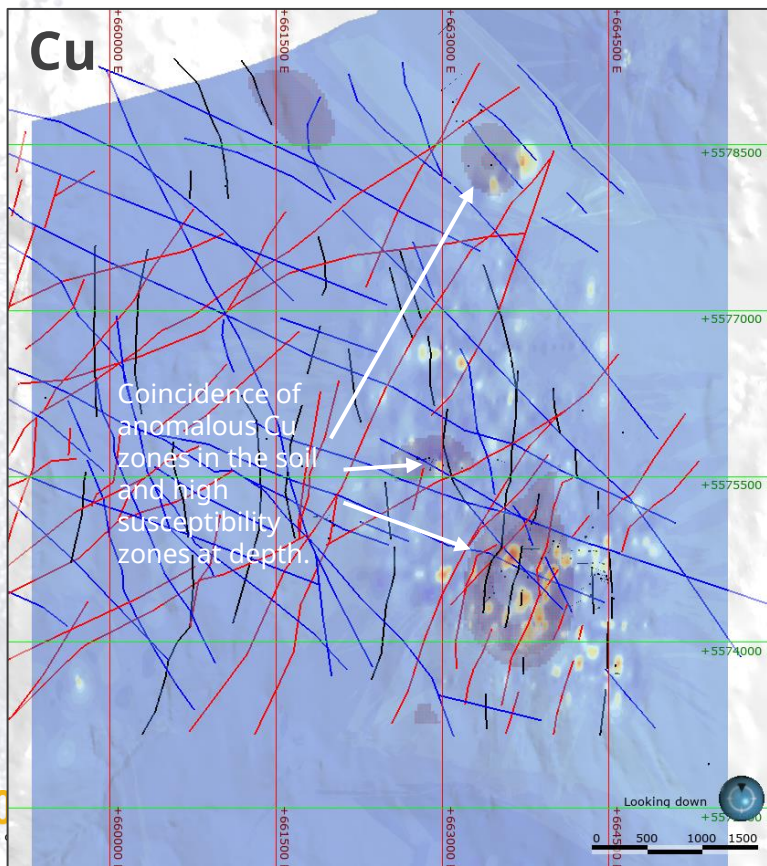
#### Mag VD1 of RTP



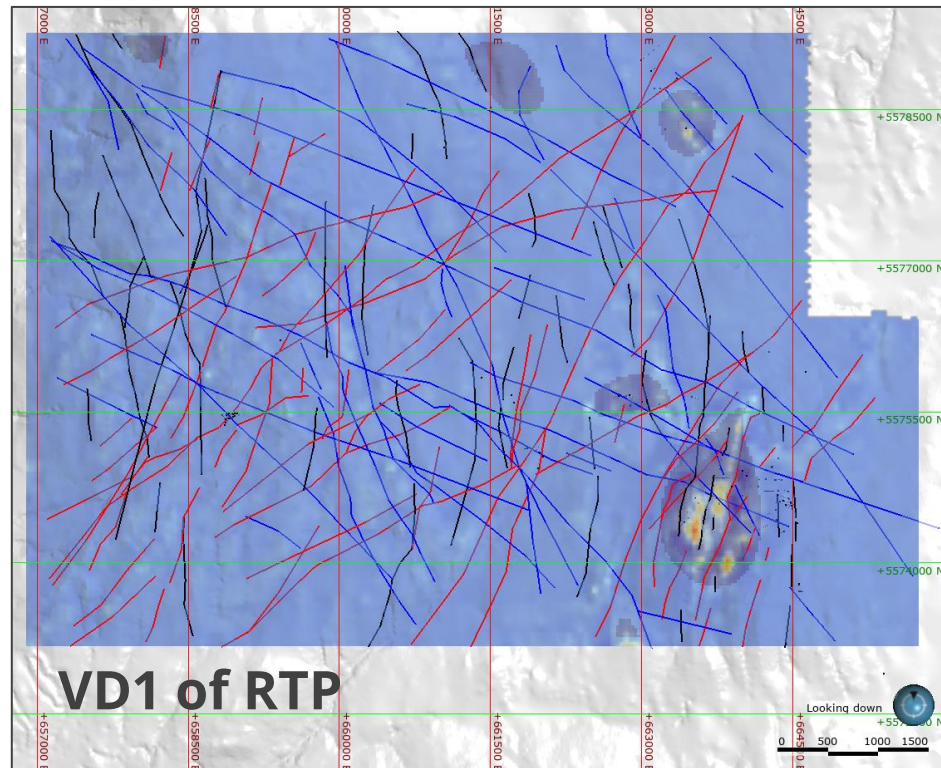
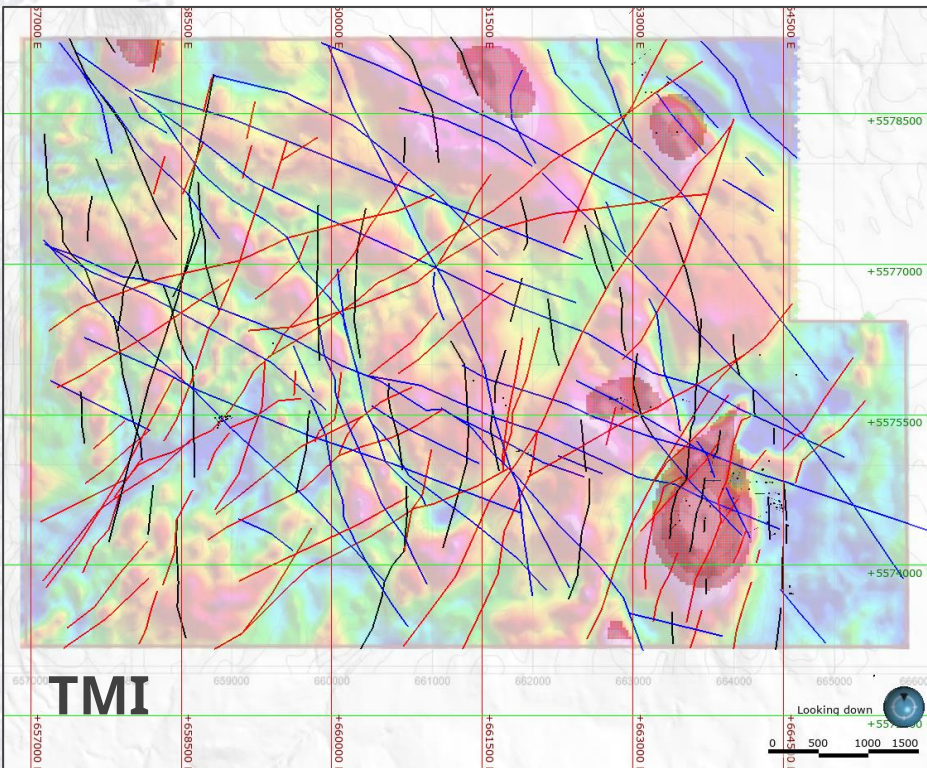


# Inversion vs soil geochemistry

The soil anomalies (Cu and Mo) follow remarkably well the lineaments interpreted in surface and 3d. These lineaments are interpreted as faults that have acted as pathways for mineralizing fluids.



# Inversion vs TMI and VD1 of RTP





# Summary and recommendations

- The drillhole tested areas fit with the areas of high susceptibility shown by the inversion model. However, these drillholes in the northern part do not appear to have reached the intrusion itself. In the Luck Mike area, some of these holes intercepted the probable envelope of the intrusion (these holes also show high Cu and Mo concentrations, supporting the immediate proximity to an intrusion). Other drillholes appear to have intercepted the core of the intrusion, yet the drill logs do not indicate that a porphyry has been reached.
- Further examination of the lithologies predicted from the Wavelet Tessellation work shows that the intersections of these drillholes with the high susceptibility zone are interpreted as felsic dykes. It is therefore proposed that the shallow zone of high susceptibility is more likely to represent a dyke swarm (intercepted in drilling) that overlies the intrusion itself.
- A conceptual model is proposed to explain the response of the VD1 of RTP mag TMI and the inversion model. This conceptual model suggests that the presence of a deep intrusion will have the effect of blurring the signal on the mag and on the inversion. The VD1 of RTP allows for more subtle signatures at shallow depths, interpreted as associated with a dyke swarm. An examination of the 3d model inversion shows high susceptibility peaks at shallow depths (that fit the VD1 anomalies) which can also be attributed to the magnetic signature of the dyke swarm.
- There is a good coincidence of anomalous Cu and Mo zones in soil and high susceptibility zones at depth. The Cu anomalies follow particularly well the N-S and NE-SW lineaments, especially east of the high mag susceptibility zone, in the Lucky Mike area. The lineaments are interpreted as faults that allowed Cu-rich fluids from a porphyry body at depth to reach the surface. Some of these faults have been modeled in 3d.
- A refinement of the inversion model would be possible by acquiring mag-susceptibility measurements on the drill cores.
- It is recommended to constrain the position of the intrusion by completing more deeper drillholes at west of the LM-2016-01, and to test the modeled faults.

# Machine Learning Summary

McLean Trott

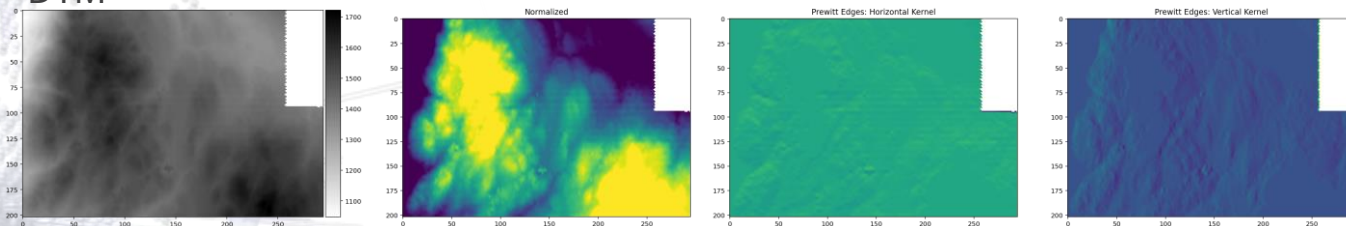


# Executive Summary

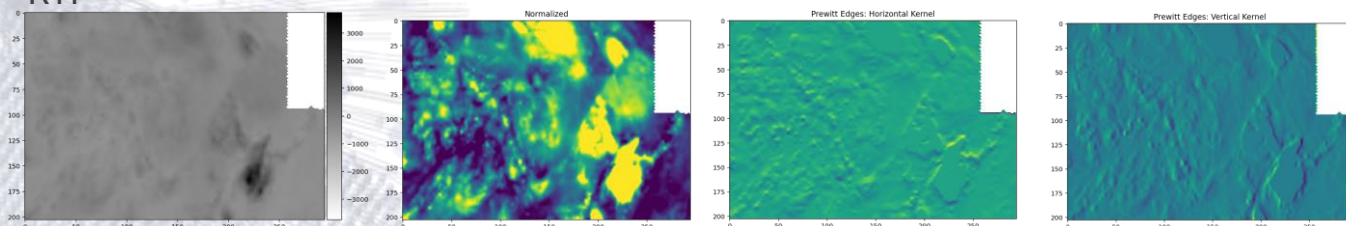
- Machine learning approaches were applied to several tasks in sequence:
  - Enhancement of structural grain
  - Domaining based on geophysical character, as proxy for rock properties
  - Prospectivity assessment based on various training schemes.
- Overall results consist of identification of likely intrusions and several distinct geological domains, subproducts to enhance structural interpretation, and probability maps for prospectivity assessment.
- In general terms, the area is well-located regionally, on-trend with Copper Mountain to the south (calc-alkaline), and the Highland Valley cluster to the west (alkaline). Both of these comparisons utilize similar large scale crustal architecture in a broadly similar timeframe (Late Triassic to Early Jurassic) and leave the study area open for either type of mineral system (or both). See slides 36-39 for details.
- In more specific terms, the study area contains the Lucky Mike system, resembling a porphyry-skarn hybrid, with central porphyry-style ore potential ringed by skarn and/or polymetallic mineralization. This system has been structurally dissected and offset, suggesting potential at distinct topographic levels and structural positions. In addition, the area surrounding the system shows several similar patterns, of predicted copper/molybdenum mineralization ringed by skarn/polymetallic predictions, opening up potential for a cluster scenario. See slides 32-34 for details.

# Schematically

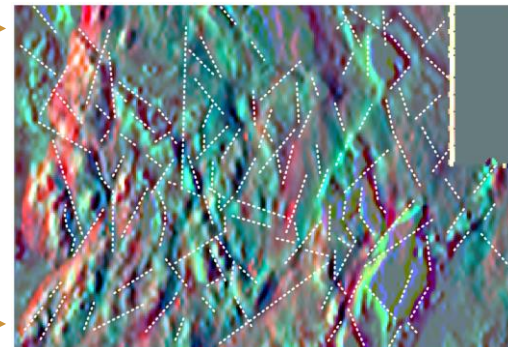
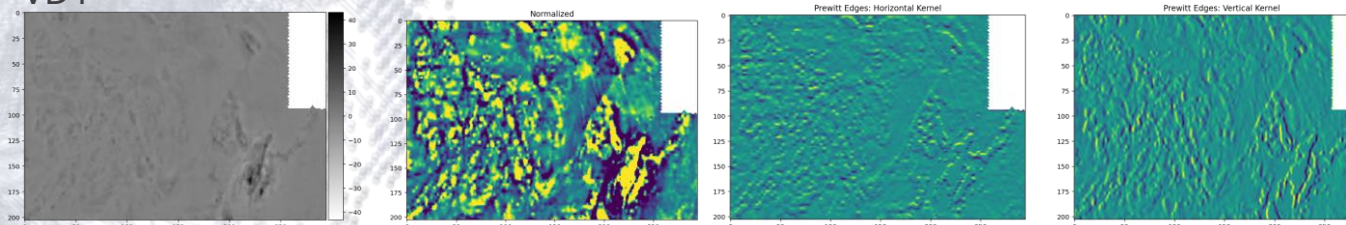
DTM



RTP

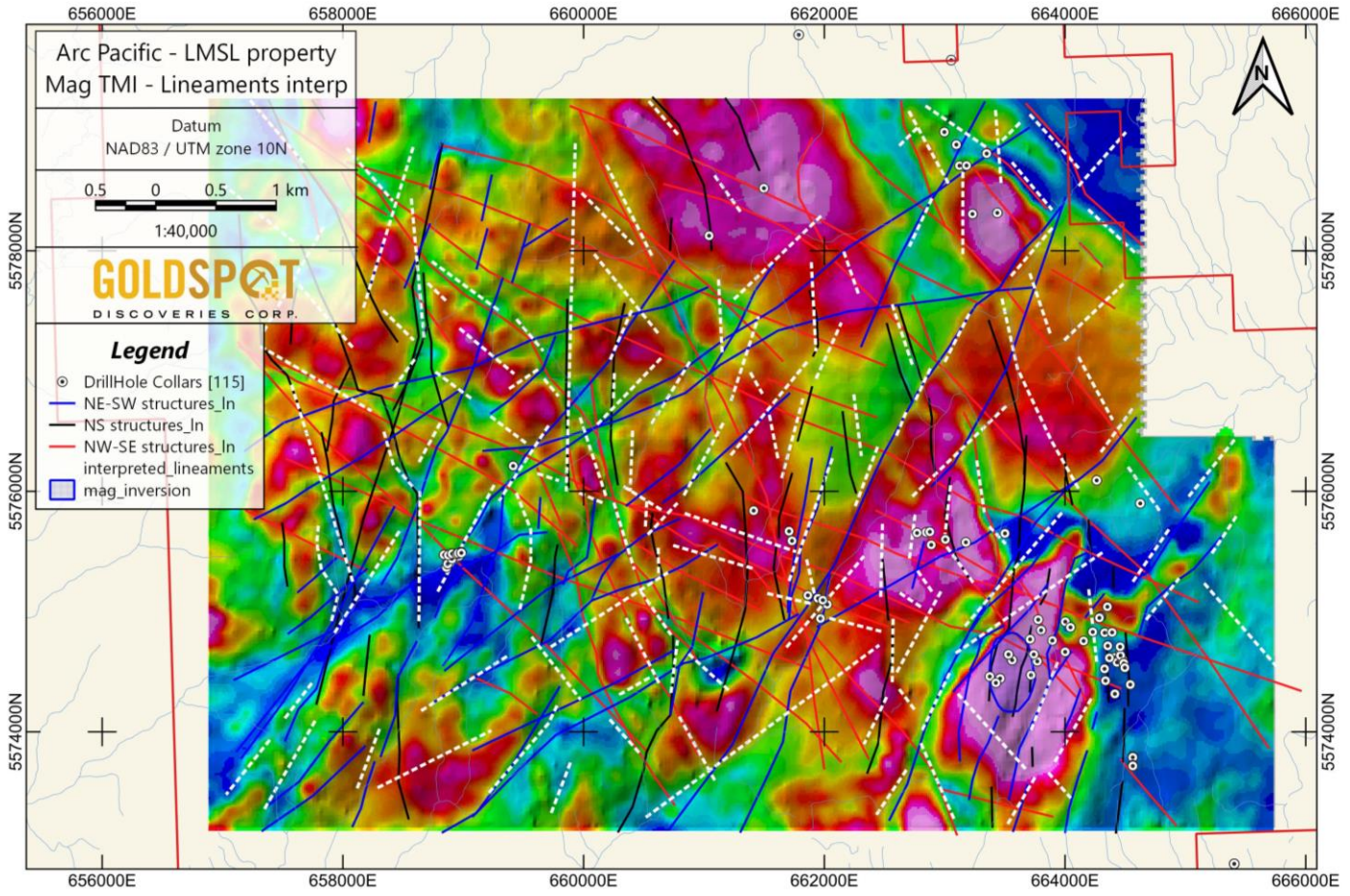


VD1

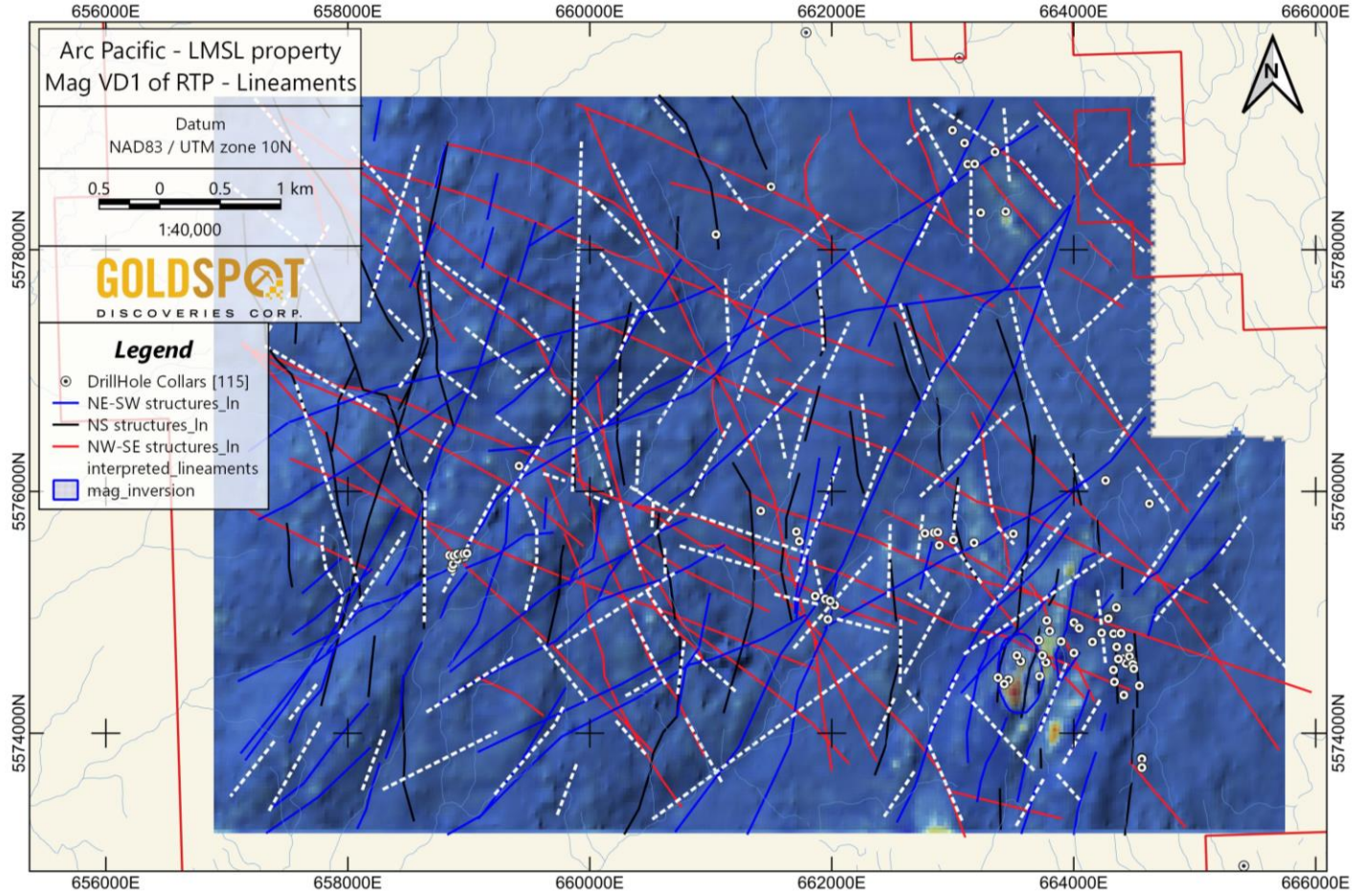




# Combined results

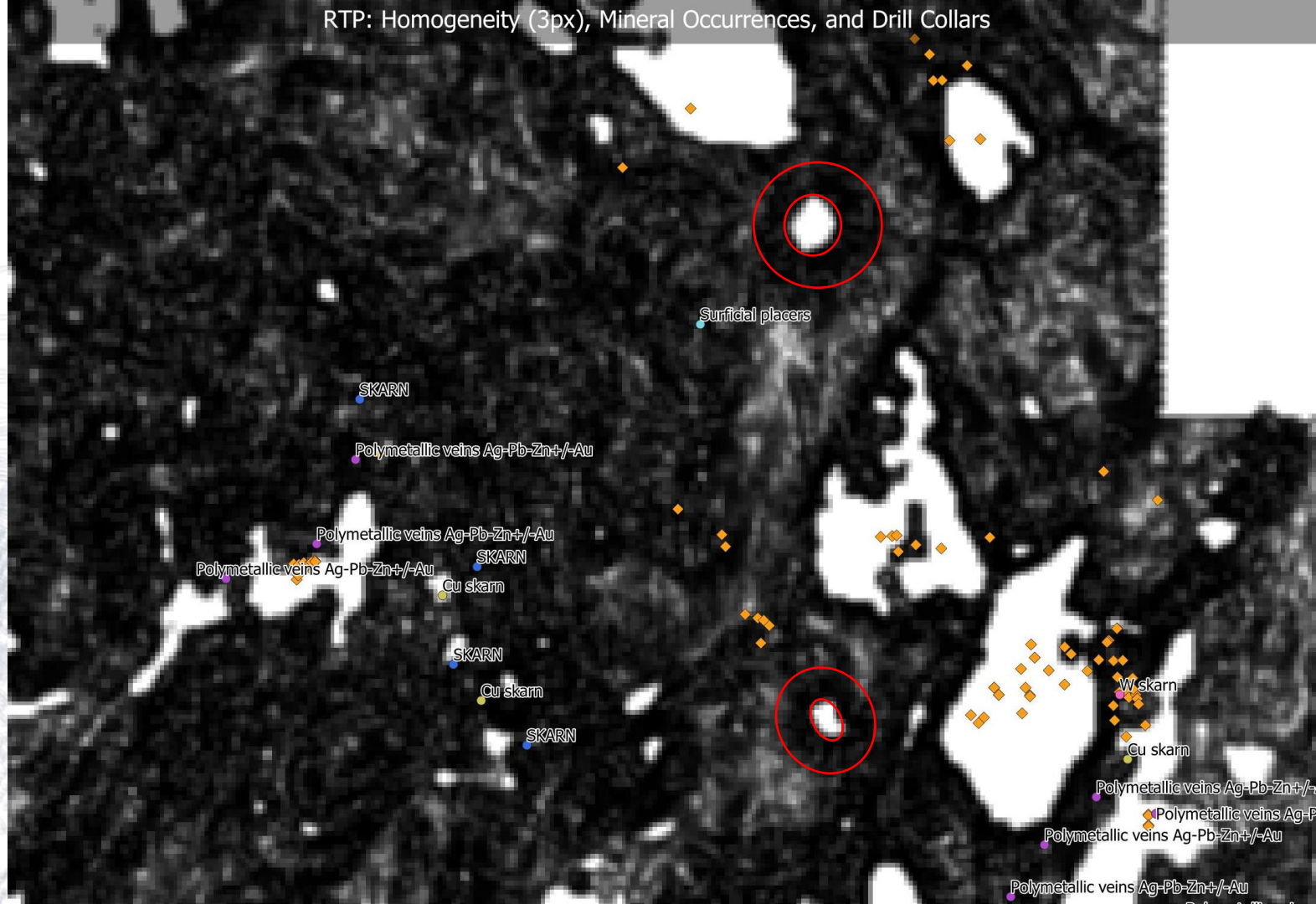


# Combined results



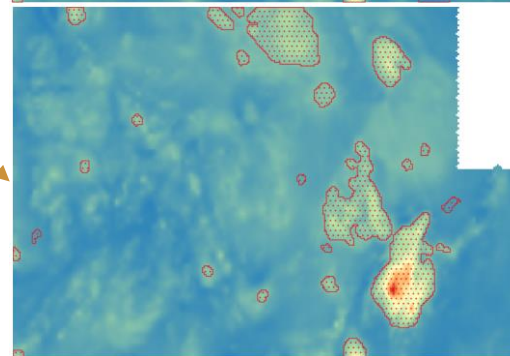
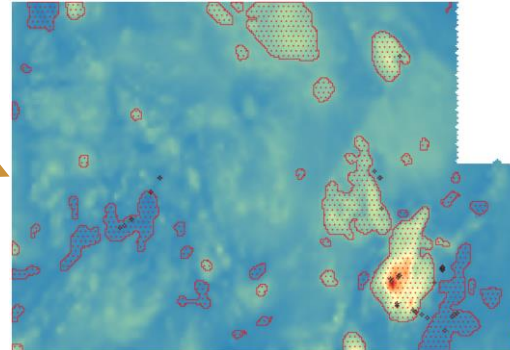
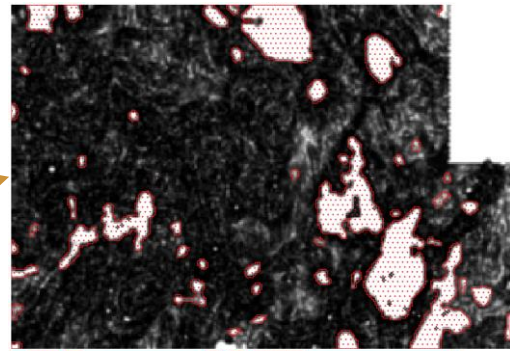


RTP: Homogeneity (3px), Mineral Occurrences, and Drill Collars



# Intrusions

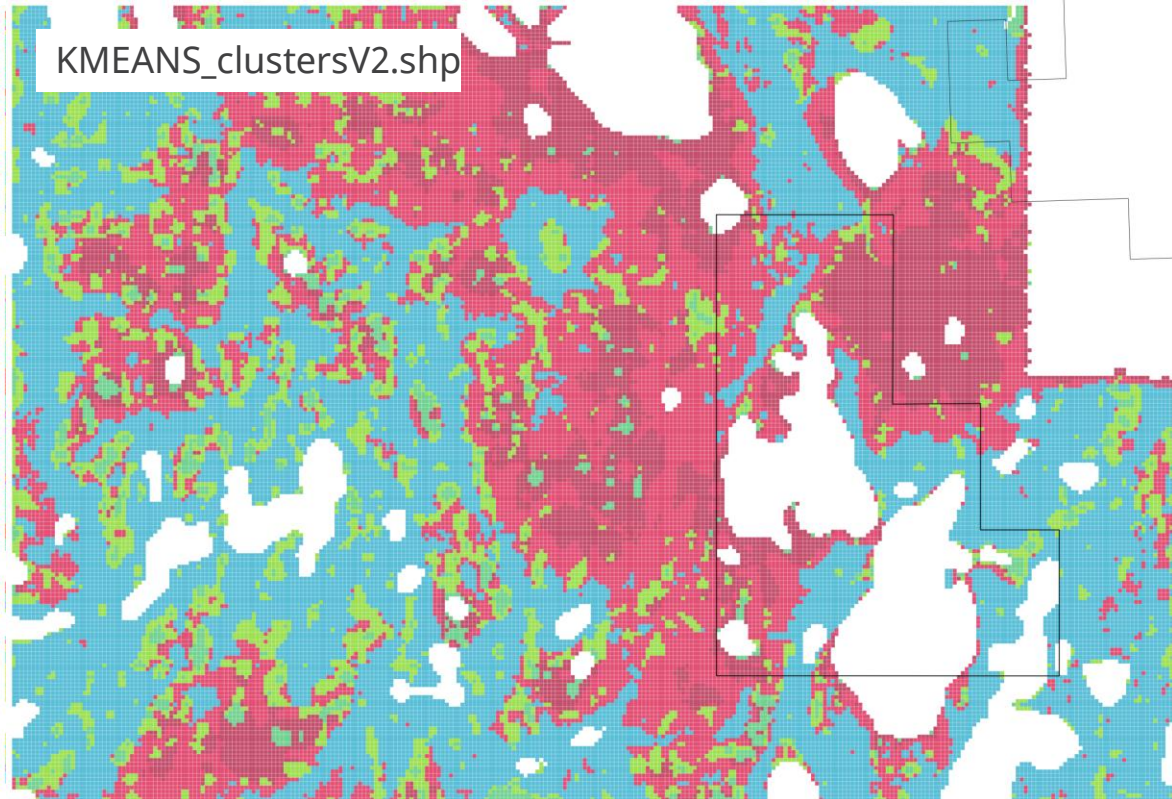
- Not well mapped in the BCGS geology.
- Homogeneity 'blobs' are suggestive of intrusions.
- Many of these correspond to RTP lows, however, and likely another geological phenomena with smooth mag character.
- In any case we're looking for possible porphyry deposits with magnetite in potassic alteration, so magnetic highs.





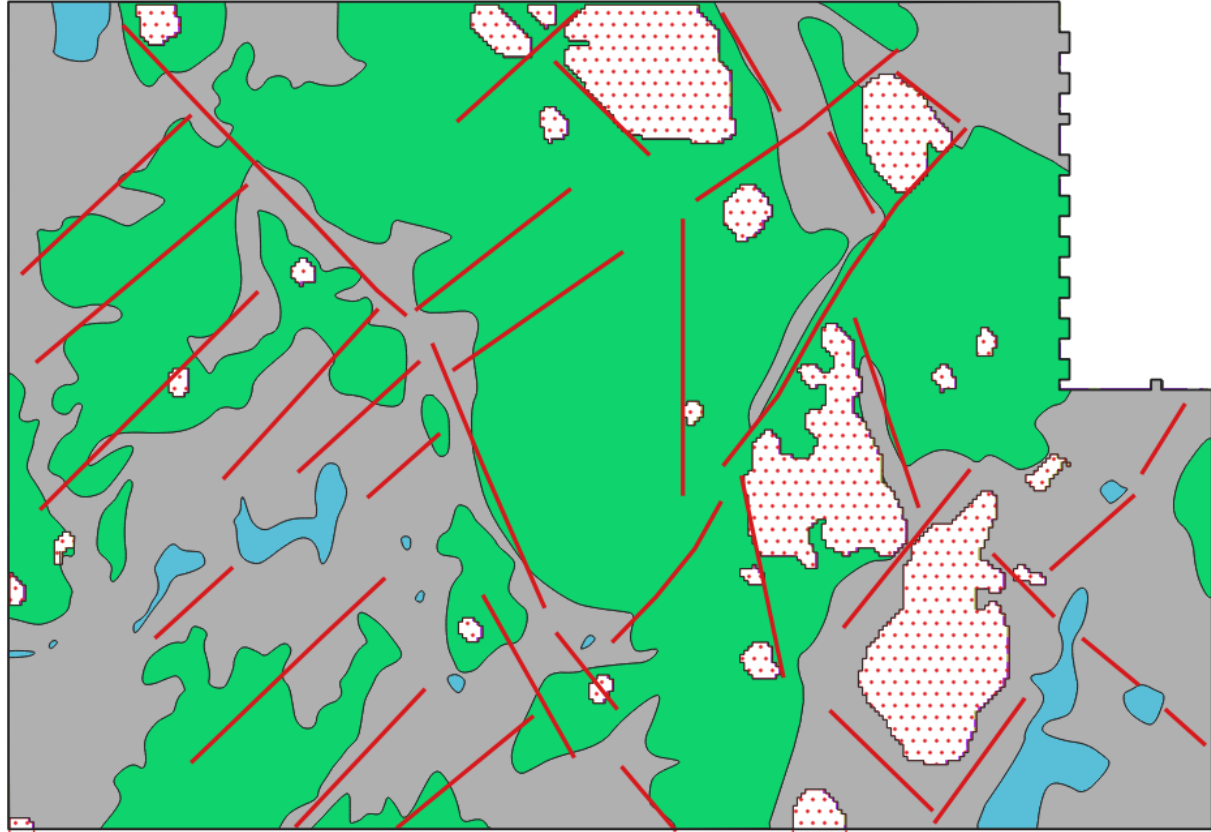
# Clustering Summary

- 2 versions each of K-means and HDBSCAN-based clustering generated.
  - Originals are filtered to exclude the 'intrusions'
  - V2s are filtered to exclude any magnetically homogeneous areas.
  - Filtering this way is intended to draw out stratigraphy/structure better by narrowing the range of available values for clustering (removal of outliers).
- In general they help domain the area and may aid in structural interpretation by highlight trends.



# Semi-Supervision: Domaining

- Derived from PC and clustering work above.
- Lineaments\_kmeans.shp / Unsupervised\_Domains\_Intrusions.shp
- Gray, green and blue represent domains of distinct magnetic character/texture (distinct dominant lithologies?).
- Upcoming supervised work will shed light on validity of results.



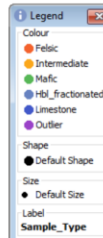
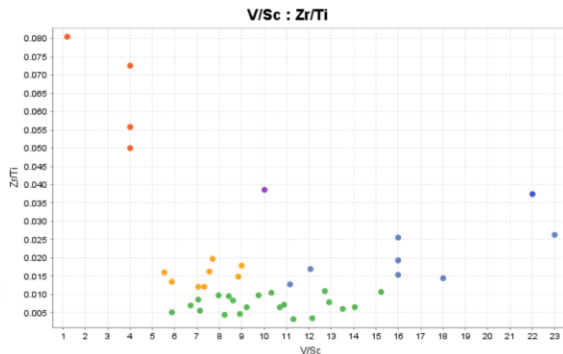
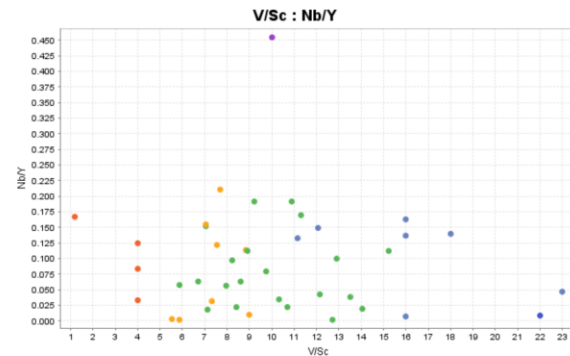
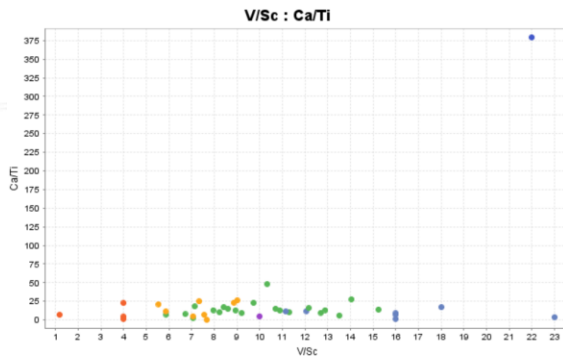
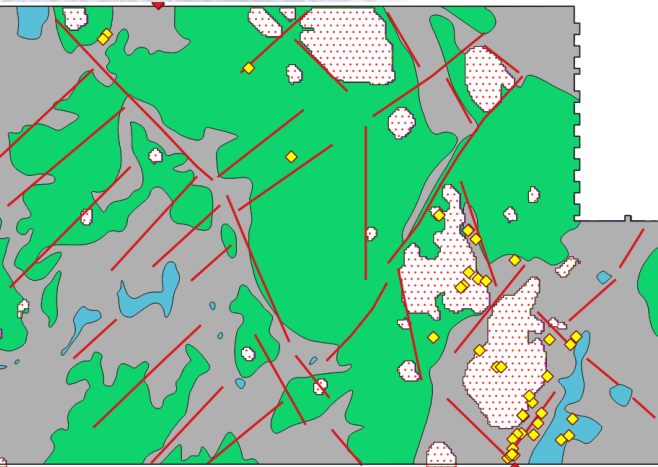


# Supervised Approach

- Define rock types for training using outcrop geochemistry.
- Extrapolate using magnetic character.

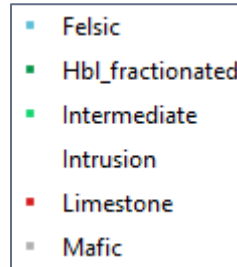
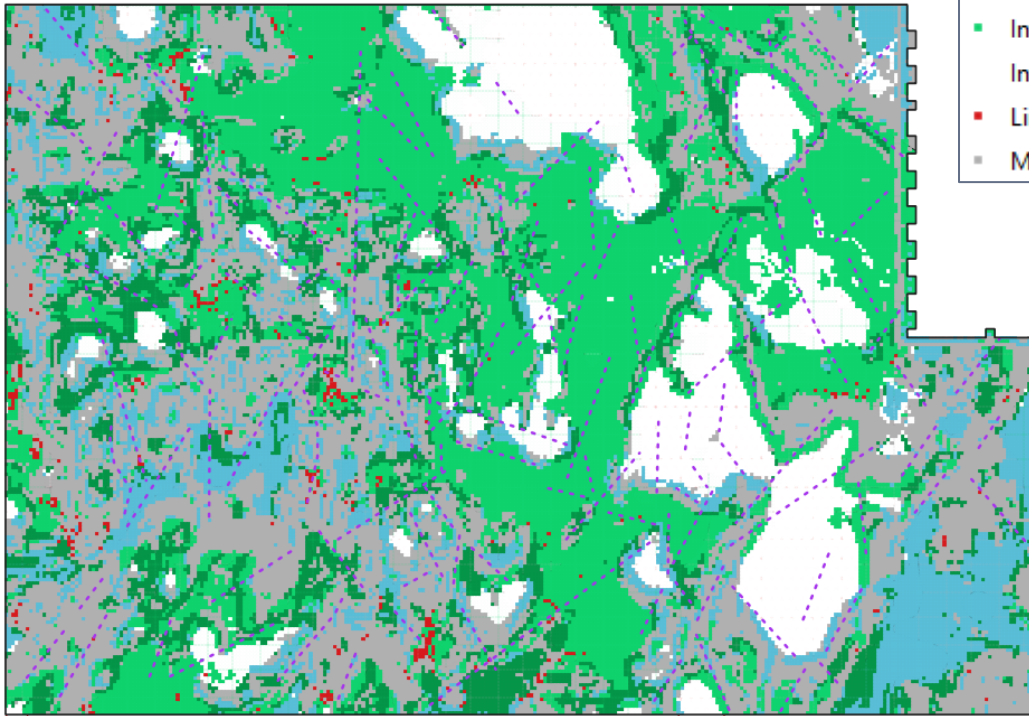
## Definition of Training Set

- Of 56 analyses using a 'near-total' digestion (4 acid digestion ICP-MS finish) 42 fall within the AOI.
- This is a limited subset but may suffice with enough up-sampling and an abundance of caution.



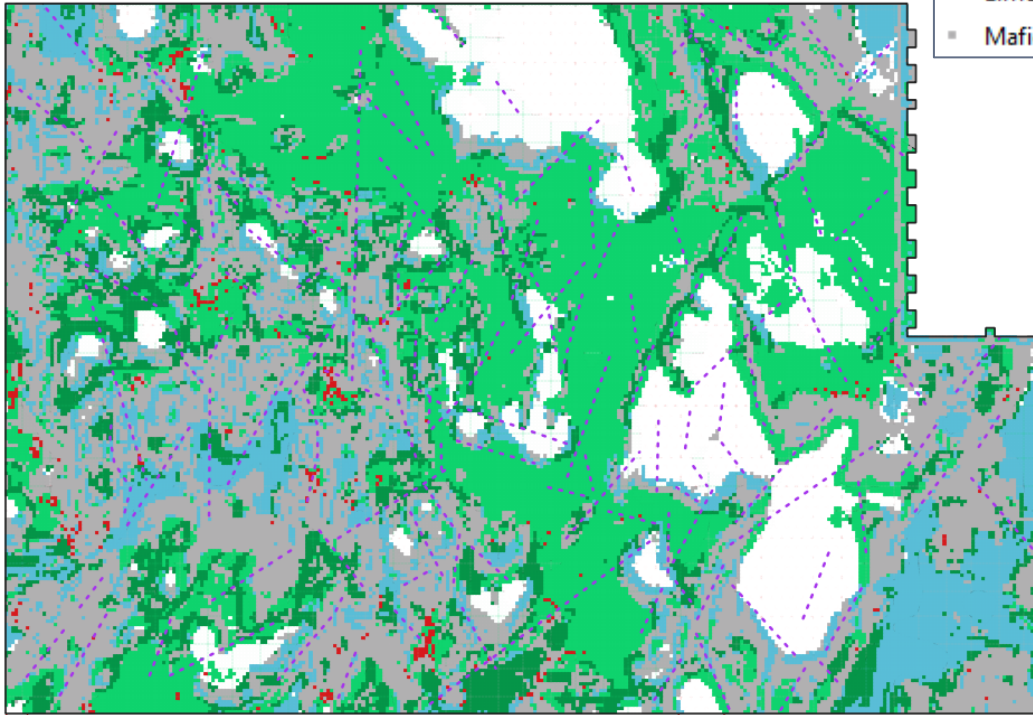
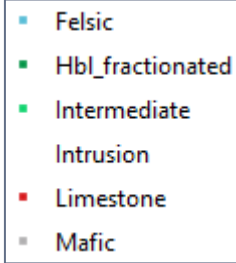
- We can break this into about 5 relevant classes for prediction (ignoring outliers).
- Class membership for limestone is 1 so this will require careful consideration.

# Geology Interpreted



- Supervised\_Domains\_Intrusions.shp
- Supervised\_Domains\_Intrusions\_PROB.shp
  - Class probabilities
- lineaments\_supervised.shp
- Some noise involved
- Limestone category is mainly noise (test subset was too small).
- Hbl\_fractionated and Intermediate can be grouped.
- Intrusions better taken directly from segmented product.

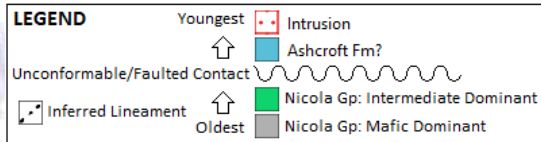
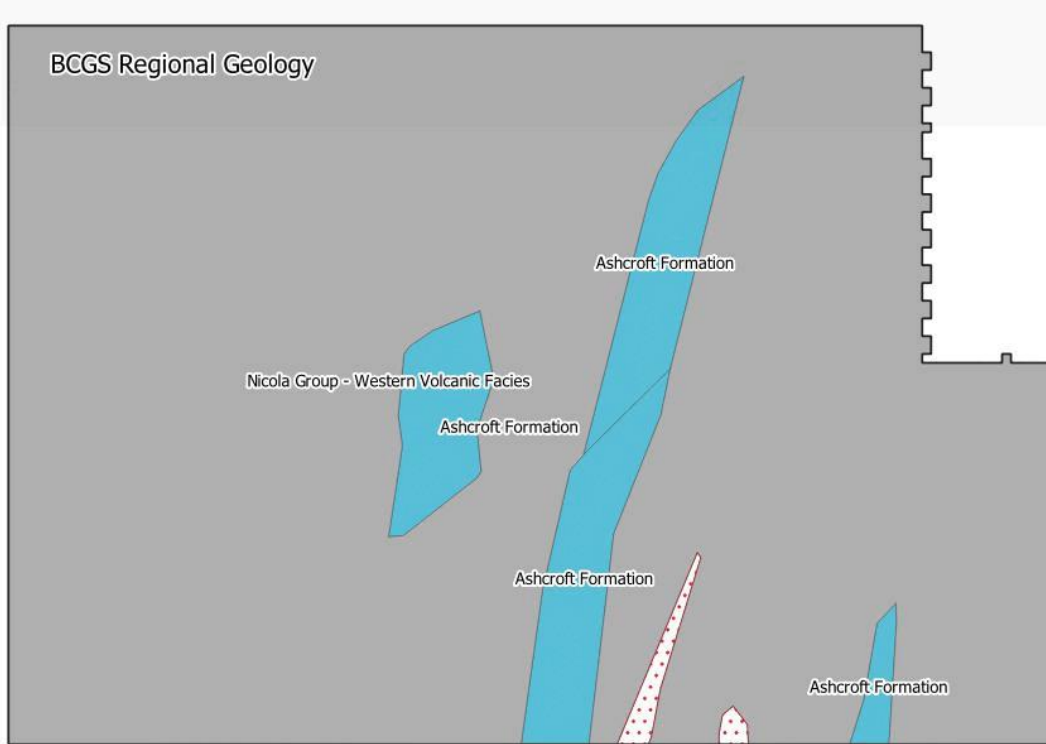
# Domains



- Nicola Group: Triassic, mafic to intermediate volcanoclastic and volcanogenic sedimentary rocks, sandstone, limestone, layered siltstone, calcareous siltstone, and some chert horizons deposited in a submarine setting (Byrne, Lesage et al. 2020).
  - Might infer that the greens are intermediate portions of Nicola, and the gray more mafic portions.
- Ashcroft Formation: Lower Jurassic, carbonaceous marine shale and a few graded sandstones (Travers, 1978), resting unconformably against the Nicola Gp. At times a depositional contact, at other times a faulted contact.
  - Might infer that the blue areas represent Ashcroft?



# ML Geological Mapping Outputs



High degree of uncertainty around rock classifications... we can be relatively certain however that the domains are distinct from one another.

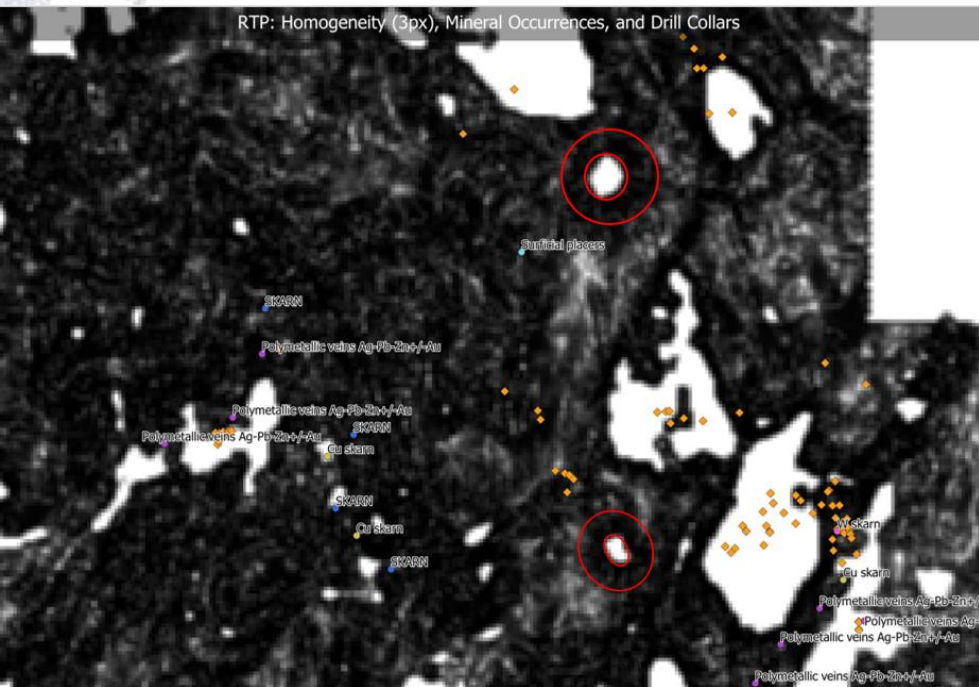
“Ashcroft” domains less certain than the two subtypes of Nicola.

Good certainty around intrusions.

Note that the more mafic version of Nicola surrounds most intrusions: likely related to upward doming of stratigraphy related to emplacement... passes the geological sanity check in that regard.

Good agreement between unsupervised and supervised outputs. Field validation and further sampling of rocks to update this with more training data would be ideal.

# ML Geological Update Conclusions



- Distinct geological domains (based on magnetic character) clear in data.
- The above incorporated with lineaments may aid in understanding offsets/tilting.
- Some extracted intrusions look like reasonable porphyry targets immediately (left)... magnetic highs with homogeneous character surrounded by lows with heterogeneous character: might interpret as magnetic porphyry stock with surrounding magnetite destructive, irregular alteration.

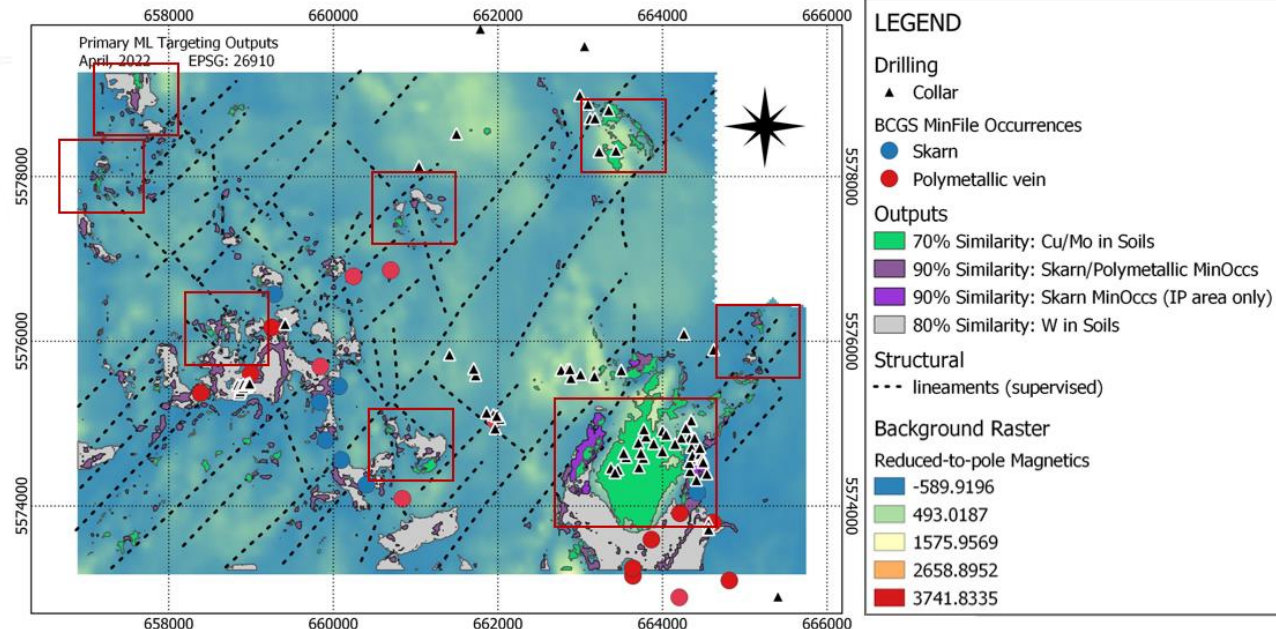
# Prospectivity Analysis



# Executive Summary

- Machine-assisted targeting highlights several attractive targets within the evaluated area, where geophysical character and geometry is consistent with known showings and soil anomalism.
- The Lucky Mike area itself is highlighted by numerous products and warrants further testing in areas with potential structural offsets and lacking historic drill-testing. The system suggests the footprint of a large porphyry-skarn hybrid system and has been structurally dissected, primarily by prominent NE-trending lineaments.

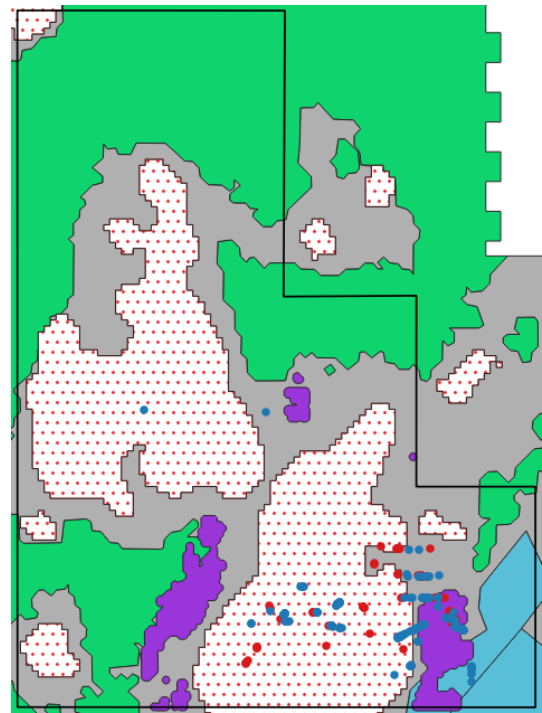
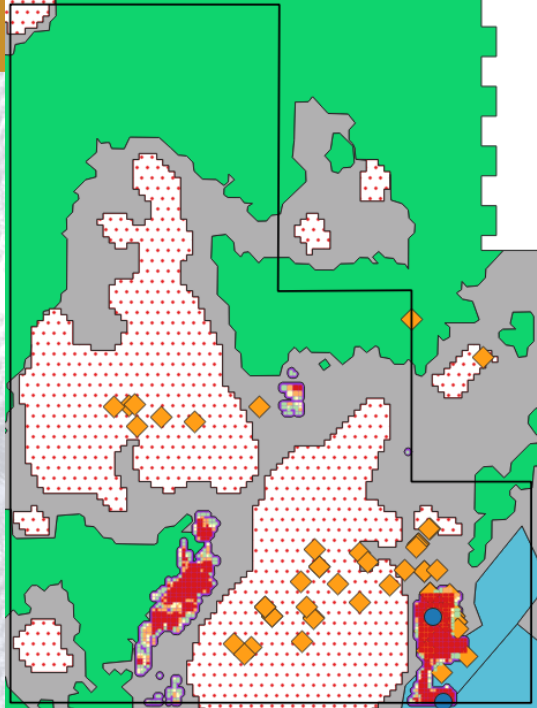
Geometric combinations of predicted Cu/Mo ringed by predictions of skarns or mineral occurrences suggest hydrothermal cells creating patterns which might be expected in a porphyry-skarn environment.



- Skarn Showings (left):
  - Two blue circles.
  - Probability output from skarn\_iter1 shown.

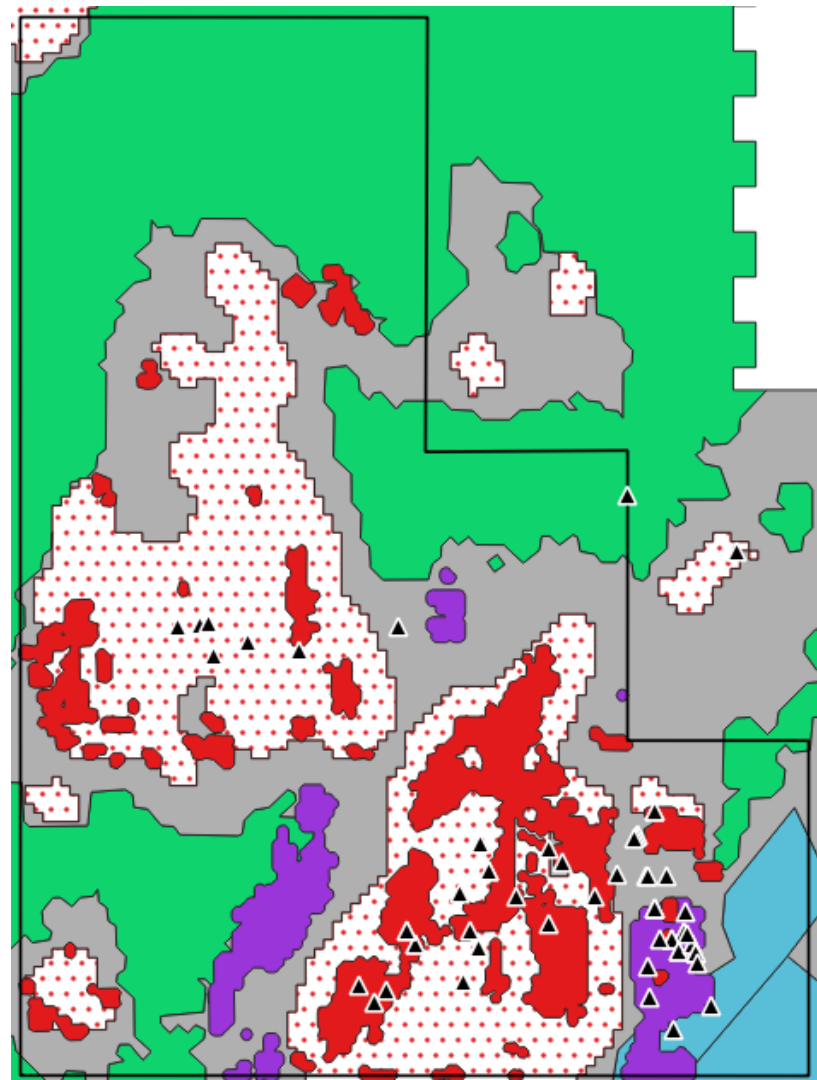
## IP Survey Area: Training Strategies

- Cu from DDH (right):
  - Projecting Cu assays > 2000ppm (blue) and <5ppm (red) to surface as training input.



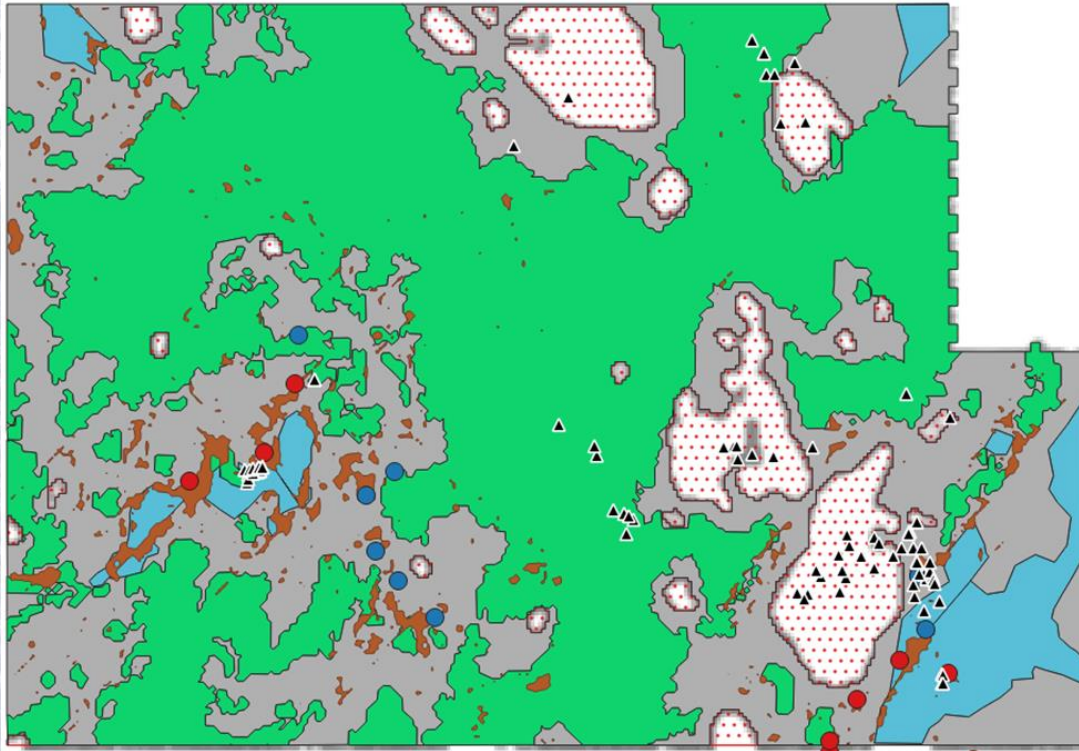
# IP Survey Area Summary

- Some compelling areas emerging.
- Products:
  - Skarn (polygons): skarn\_iter1.shp
  - Copper (polygons): CuDDH\_iter1b.shp





# Mag Survey Area: Training Strategies

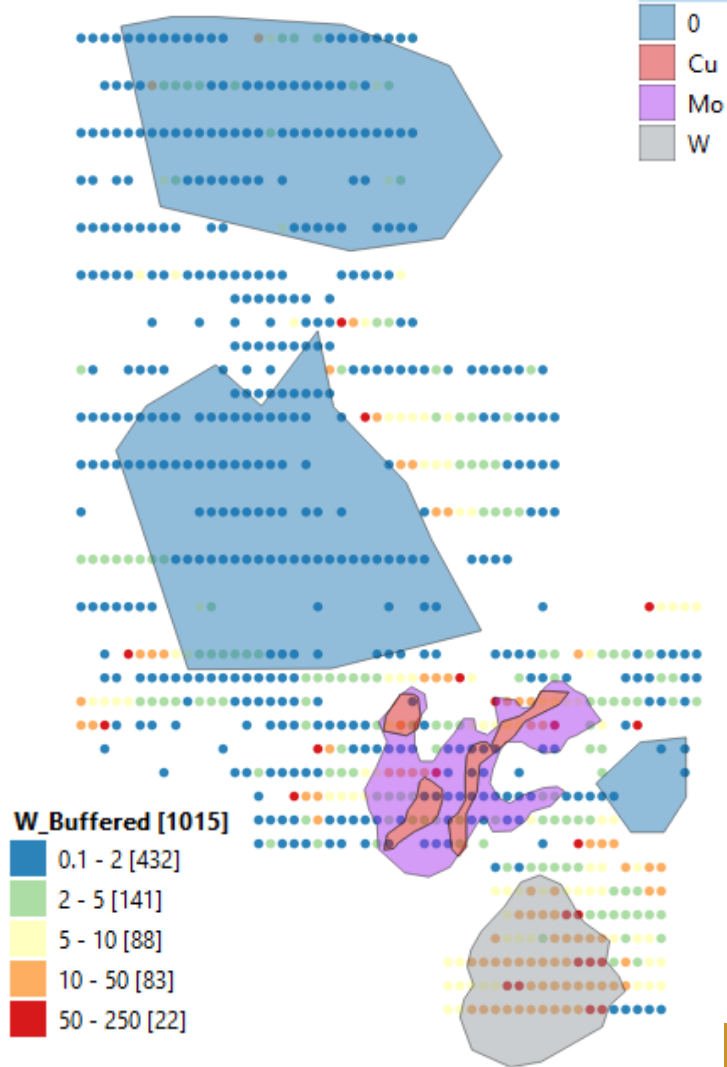


- Polymetallic (red) and Skarn (blue) Showings (Minfile Occurrences).
- Showings\_iter1 results shown polygonized at 70% probability threshold.

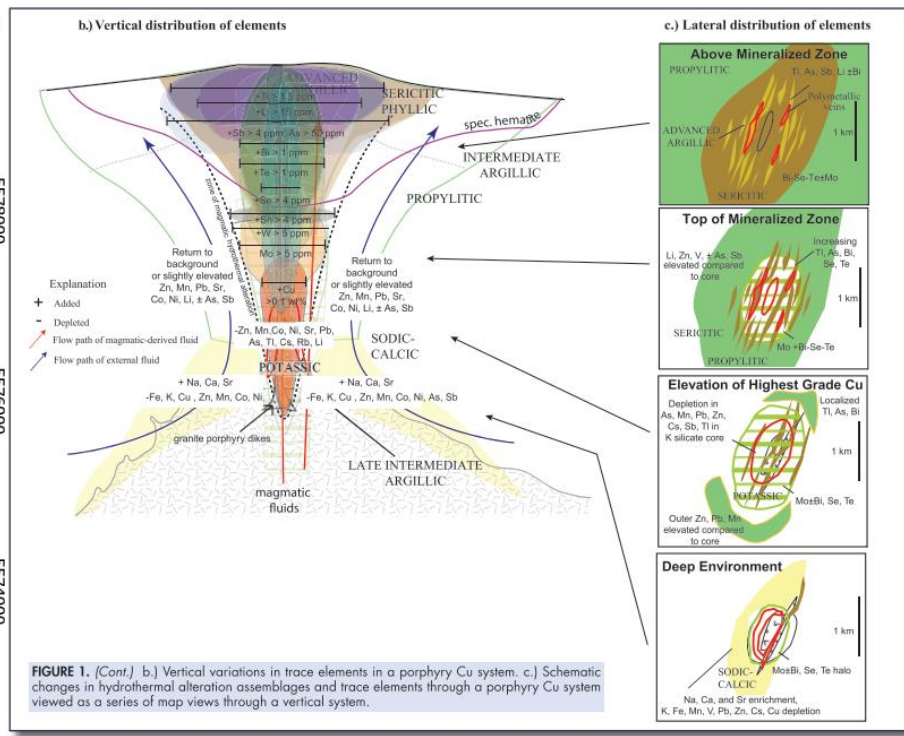
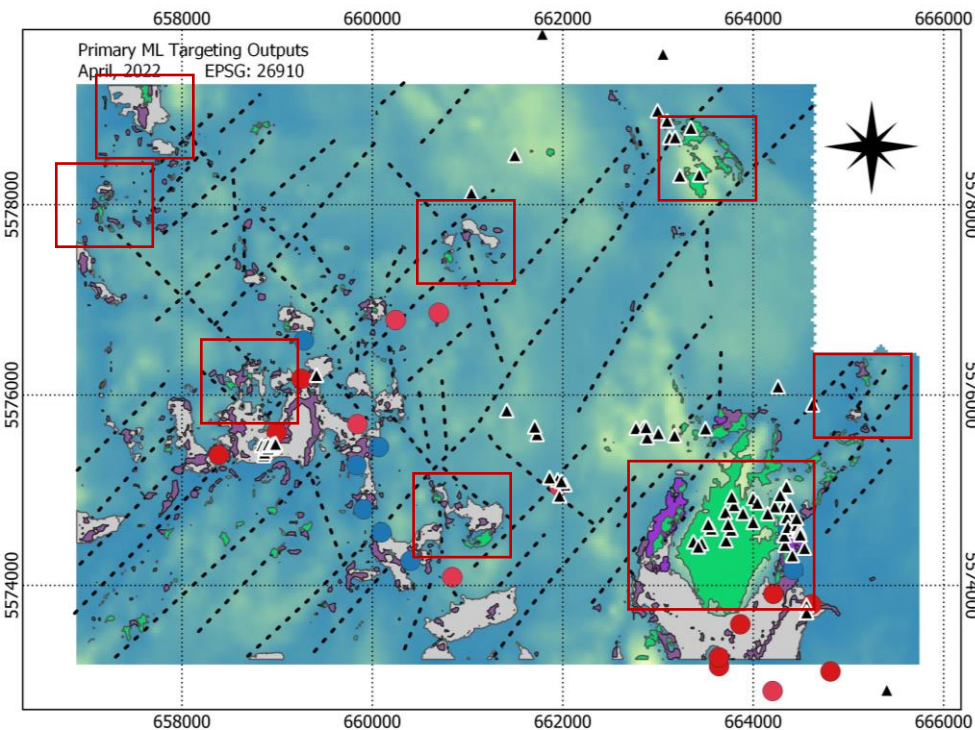
# Regional Prospectivity: Trained on Soil Survey

- Using the 4 acid digest subset from ACME (1015 samples).

Element	Threshold (approx.)	Instances (30m Stack)
Cu (residual vs LogFe)	0.44 units	108
Mo	4 ppm	326
W	5 ppm	413
NULL	n/a	2922



# Output Summary Map





# ML Prospectivity Summary

- Generally the better products resulted from training using showings, or anomalous areas defined using soil geochemistry for CuMo and an underfit version of Cu.
- The main area at Lucky Mike looks, for all intents and purposes, like a large hybrid porphyry-skarn system, not unlike the Las Bambas cluster in Peru (see slide comparing footprints). Skarns and polymetallic showings ring what appears to be an intrusive body with evidence of porphyry copper mineralization. Anomalous patterns nearby support 'brownfields' targets with similar patterns but distinct geometries.
- Products are being delivered as probability rasters (useful for seeing trends), point data (allows for rescaling of color schemes, polygonising at distinct thresholds), and some rasterized and thresholded polygons (for products that seemed most relevant).
- See table in next slide for summary of products.

# ML Prospectivity Summary of products

Source	Name	Points	Probability Raster	Polygonized	Summary / Observations
15x15m Mag/IP	skarn_iter1	Y	Y	Y	Good output, logical placement around intrusions.
15x15m Mag/IP	skarn_iter2	Y	Y	N	Very similar to skarn_iter1.
15x15m Mag/IP	skarn_iter1b	Y	Y	N	Less specific prediction, still passes geological sanity check (generally around intrusions).
15x15m Mag/IP	CuDDH_iter1	Y	Y	N	Overpredicted. Likely mismatch between training and feature resolutions.
15x15m Mag/IP	CuDDH_iter1b	Y	Y	Y	Interestingly much better than CuDDH_iter1. Valid.
30x30m Mag	showings_iter1	Y	Y	Y	Good product. Some agreement with skarn predictions in IP block.
30x30m Mag	showings_iter1b	Y	Y	N	Ringing around intrusions. Valid.
30x30m Mag	showings_iter1b_no domains	Y	Y	N	Similar to showings_iter1b.
30x30m Mag	Soil_MoCu	Y	Y	Y	Good result, validated with known mineralization in the north.
30x30m Mag	Soil_Cu	Y	Y	N	Overfit. Not likely to be useful.
30x30m Mag	Soil_Cu_underfit	Y	Y	Y	Better. Again good match with resource in north.
30x30m Mag	Soil_W	Y	Y	Y	Periferal to Cu/Mo. Did not capture tungsten skarn in NE area of LM.

# Footprint Comparison

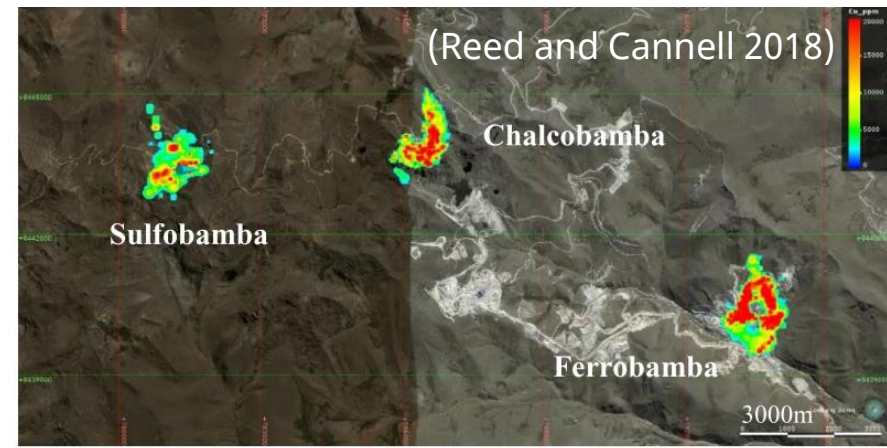
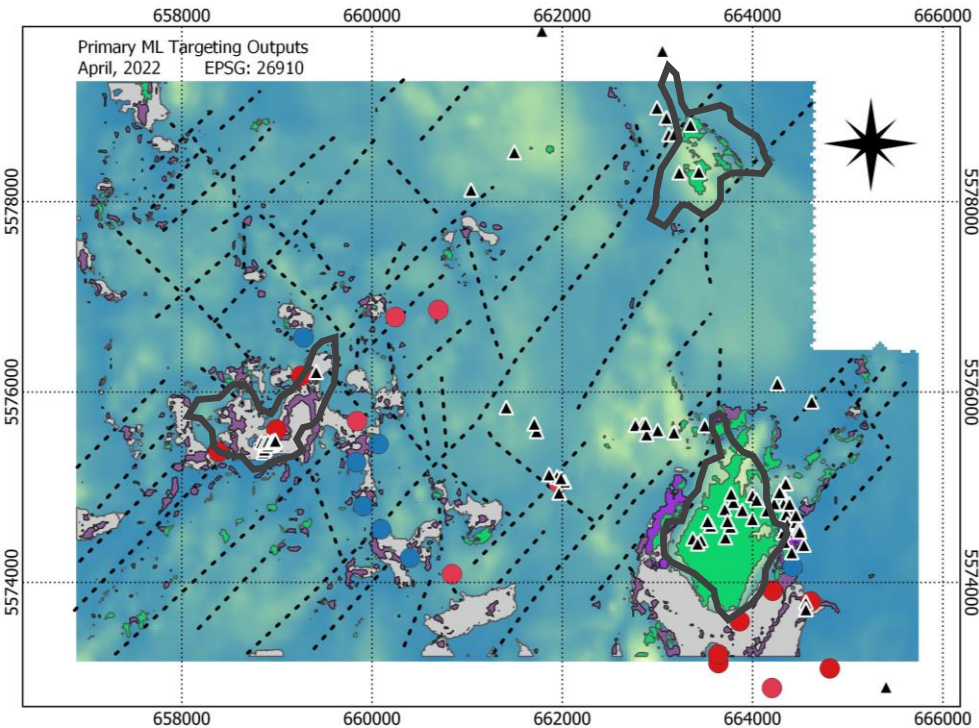


Figure 1. General Location (above), and (below) Las Bambas porphyry skarn deposits. Coloured by maximum vertical Cu grade from drilling (Blue: 0% to Red:  $\geq$  2%).

- The Las Bambas cluster of deposits (MMG) in southern Peru consist of high-grade exoskarns formed at the margins of low-grade porphyry stocks.
- As of 2018 they collectively contained 12.8 Mt of copper.



Cu Mineralization (to scale)



# Regional Setting

- Geographically closer to Bethlehem/Valley Copper/ Lornex.
- Common (regional) structural trend and same host rock (Nicola Group) as Valley Copper.

<https://cumtn.com/operations/copper-mountain-mine/overview/#:~:text=The%20Copper%20Mountain%20mine%20is,claims%20and%2014%20mining%20leases.>

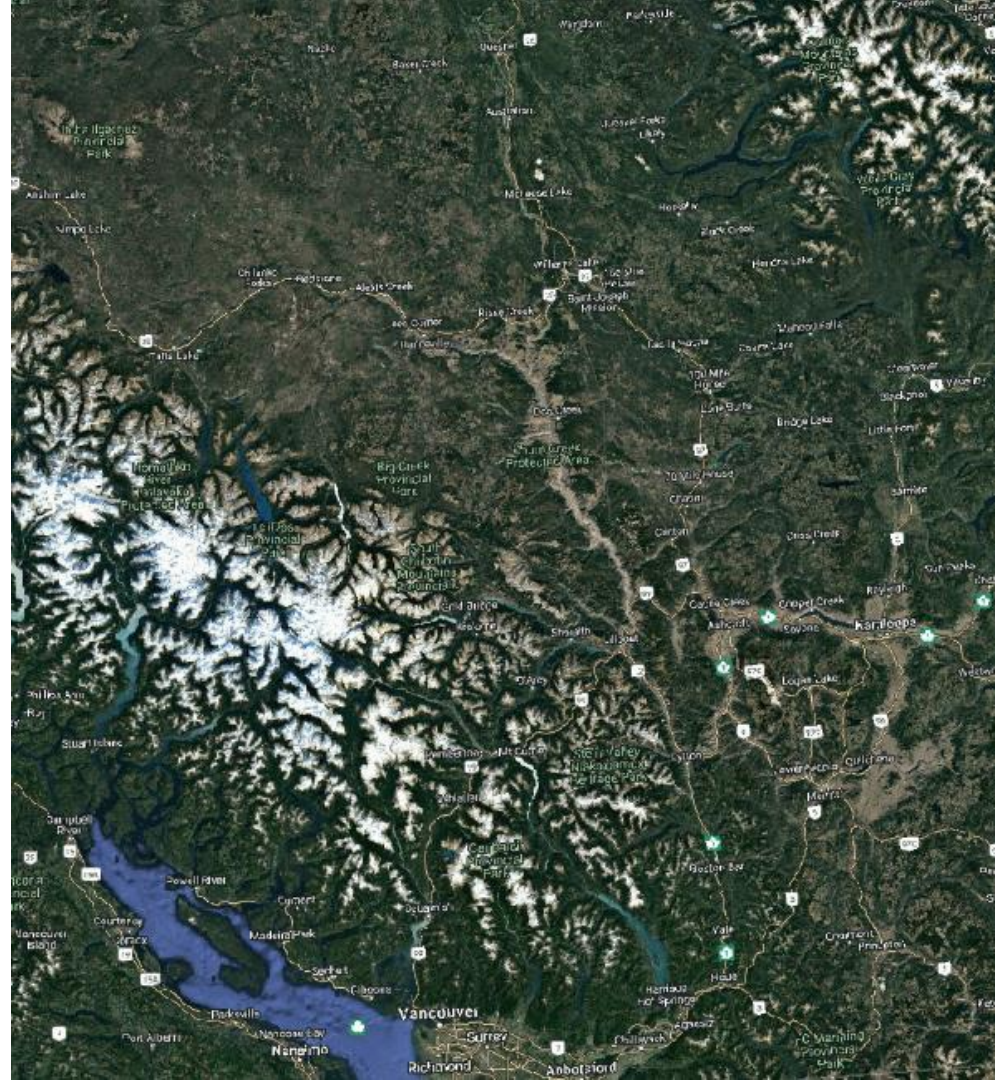
December 31, 2021

## COPPER MOUNTAIN MINE MINERAL RESERVE

	TONNES ('000S)	COPPER (%)	GOLD (G/T)	SILVER (G/T)	COPPER (MLB)	GOLD (KOZ)	SILVER (KOZ)
<i>Proven (Pit Only)</i>	180,101	0.26	0.11	0.85	1,041	644	4,896
<i>Probable (Pit Only)</i>	277,313	0.23	0.11	0.68	1,426	974	6,043
<i>Total Proven and Probable (Pit Only)</i>	457,415	0.25	0.11	0.75	2,466	1,617	10,939
Stockpile	44,094	0.15	0.04	0.45	150	57	638
<i>Total Proven and Probable</i>	501,509	0.24	0.10	0.72	2,615	1,674	11,576

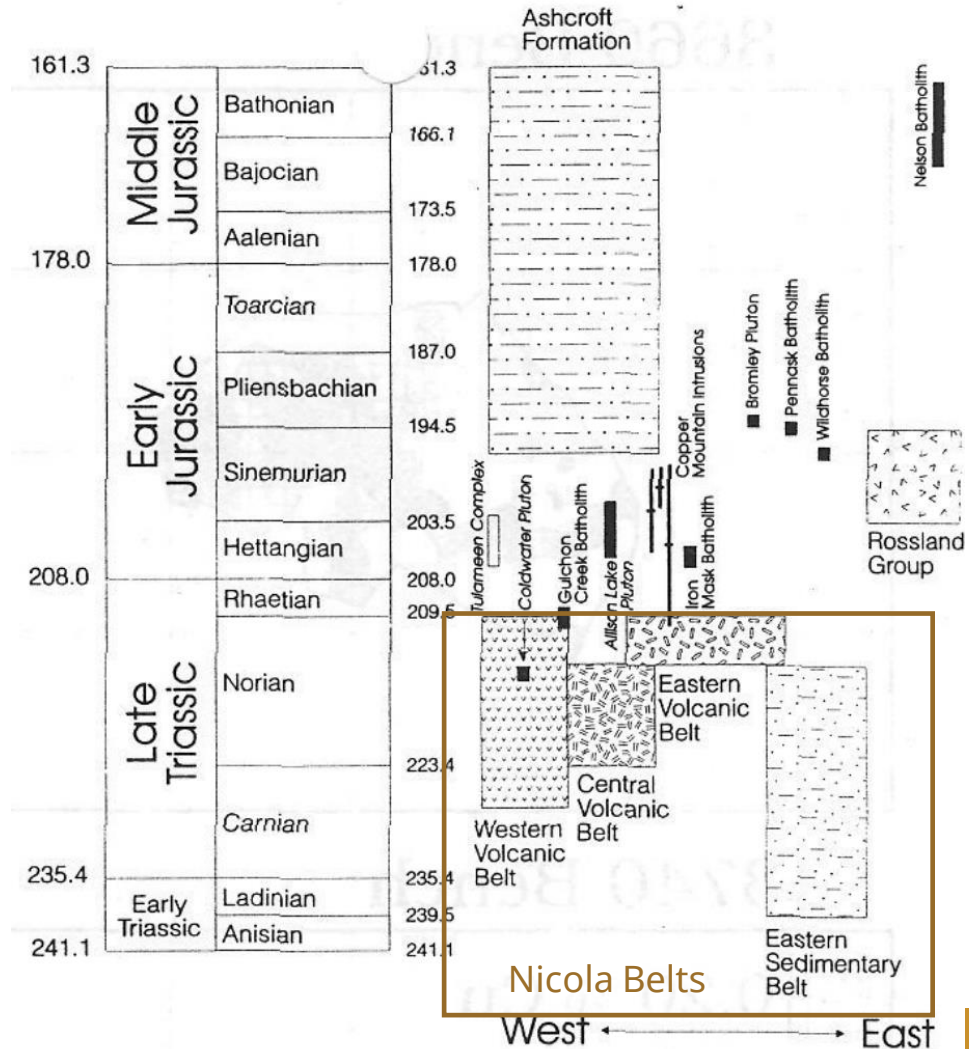
## COPPER MOUNTAIN OPERATION MINERAL RESOURCES (BASED ON A 0.10% CU CUT-OFF GRADE)

	TONNES ('000S)	COPPER (%)	GOLD (G/T)	SILVER (G/T)	COPPER (MLB)	GOLD (KOZ)	SILVER (MOZ)
<i>Measured</i>	258,855	0.24	0.10	0.76	1,360	800	6,330
<i>Indicated</i>	438,834	0.23	0.11	0.61	2,182	1,48	8,980
<i>Total M&amp;I</i>	697,689	0.23	0.10	0.68	3,542	2,28	15,310
<i>Inferred</i>	334,547	0.21	0.10	0.50	1,512	1,030	5,360



# Copper Mountain

- Both LMSL and Copper Mountain (alkalic Cu-Au porphyry) are found in the Quesnellia Terrane (Late Triassic Nicola Gp).
- Quesnellia intruded by early Jurassic alkalic, calc-alkalic, and zoned mafic plutons and batholiths.
- The alkalic intrusions (including the Copper Mountain intrusions) tend to be smaller, fault-bounded stocks and dyke swarms. Calc-alkalic intrusions of similar age tend to form larger stocks and batholiths (including the Guichon Creek Batholith, host to Valley Copper, Lornex, and Bethlehem (Highland Valley)).
- Presence of some Ashcroft on the property suggests a generally appropriate exposure level.

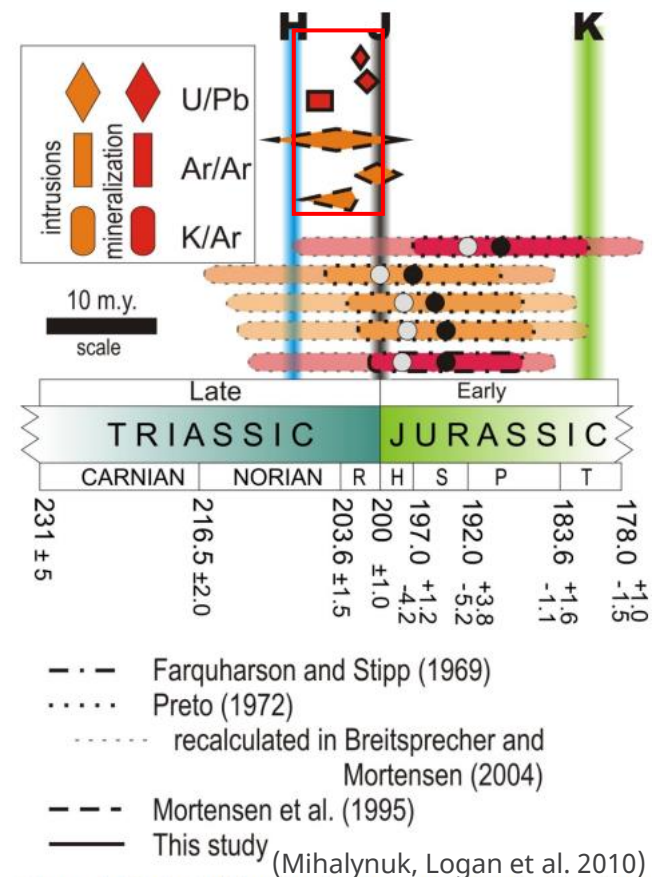
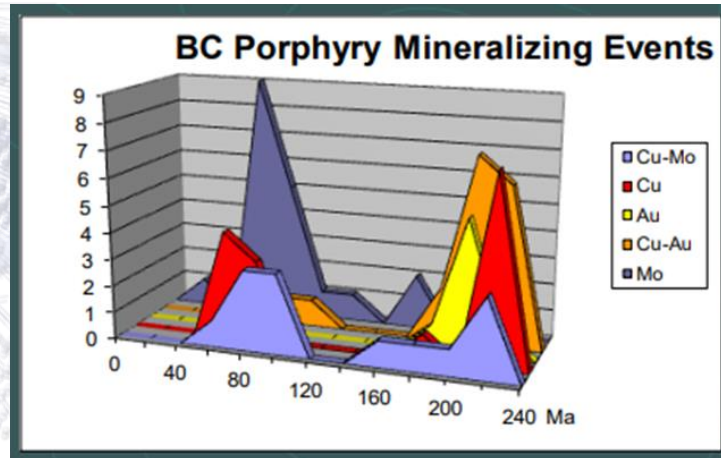




# Age for context

Recommendation for 2022 field season:

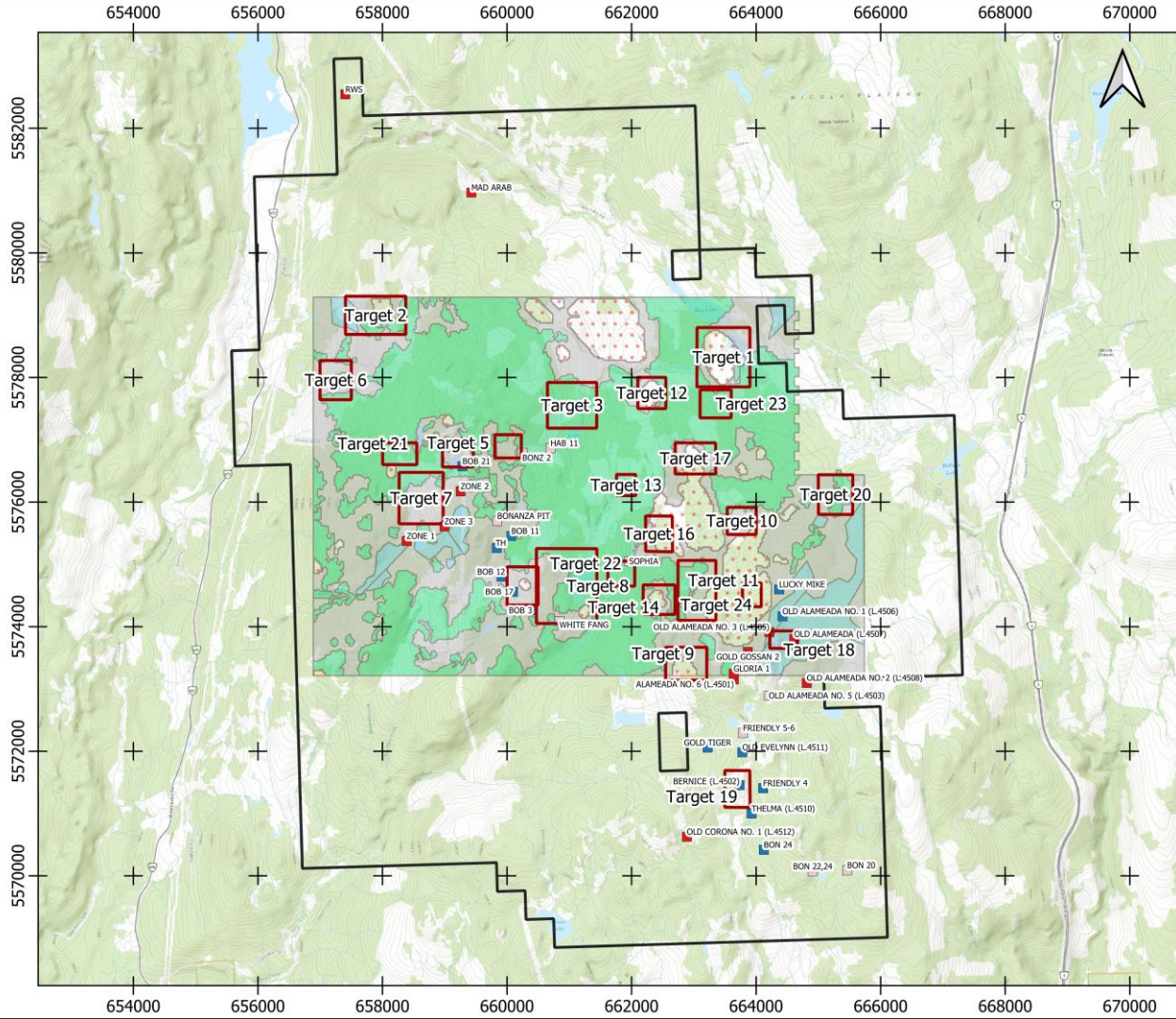
- Pick up some MoS<sub>2</sub> ReOs age dates and/or Zircon U-Pb age dates for intrusions in the area.
- Examine age relationships with BC Porphyry events... emphasis on Triassic-Jurassic transition.



**Figure 4.** Geological timeline showing age determinations from the mineralizing system at Copper Mountain, south-central British Columbia. Triassic-Jurassic boundaries from time scales discussed in the text are H = Harland et al. (1982), J = Pálffy et al. (2000) and K = Kulp (1961). Abbreviations: H, Hettangian; P, Pliensbachian; R, Rhaetian; S, Sinemurian; T, Toarcian. Time scale is from Okulitch (2002), which incorporates the Jurassic time scale of Pálffy et al. (2000).



# Targeting



### Legend

□ LMSL Claims 2021

□ Targets

### BGS Mineral Occurrences

- Skarn, Cu skarn, W skarn
- Fe skarn
- Polymetallic veins  
Ag-Pb-Zn +/- Au
- Pb-Zn skarn
- Porphyry Cu +/- Mo +/- Au
- Unspecified

### Unsupervised Geology

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks

### Target Location LMSL Project

Datum  
NAD83 / UTM Zone 10N



# Targeting process

A total of 24 targets have been identified.

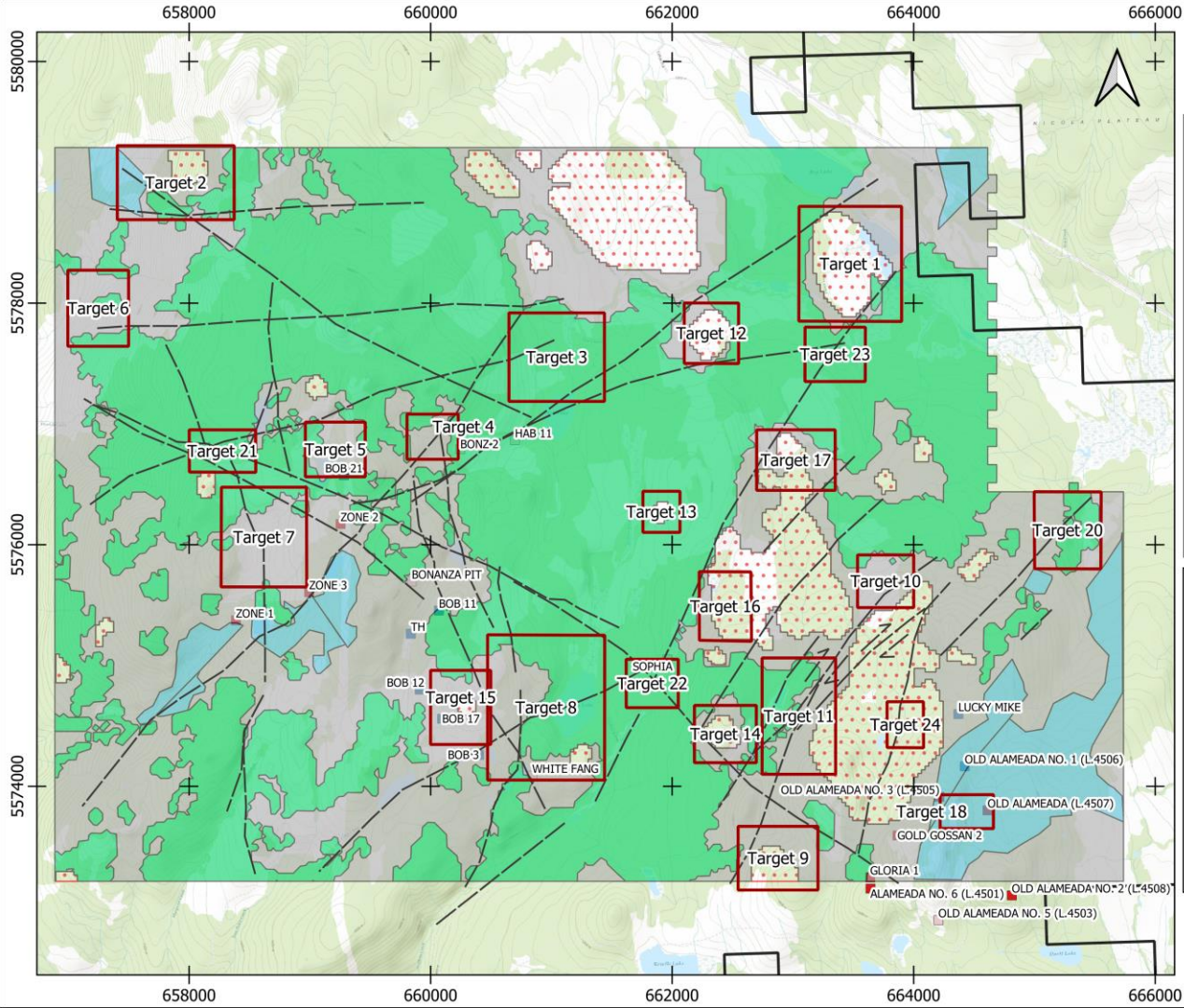
All have been ranked according to objective parameters then normalized given the available data within the target area.

4 targets of top priority, 4 of high priority, 10 of medium priority and 6 of low priority.

All these targets are provided with comments and recommendations for future work.

ID	ML prediction				DDH		Geophysics								Geochemistry				BGS							
	Target ID	Score	Max Possible	Norm. Score	Skarn	Porphyry	Skarn_Poly	Predicted intrusion	DDH interc	MagHigh	RadiomTarg	GRIP targ	LocMg_Inv	LocMg_RgG_r	LocMg_RgMg	LocMag	RgMg_RgGr	Soil Cu	Soil Mo	Rock porph	Rock sk/po	Known occurrence				
	Target ID				0	4	4	2	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1				
2	Target 2	13.5	14.5	93%	NA	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
10	Target 10	14	17	82%	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
11	Target 11	13.5	17	79%	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
9	Target 9	11.5	15.5	74%	NA	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
8	Target 8	11	16.5	67%	NA	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
4	Target 4	9.5	14.5	66%	NA	0	yes	1	yes	1	no	0	NA	0	no	0	no	0	yes	1	no	0	yes	1	no	0
5	Target 5	9.5	14.5	66%	NA	0	yes	1	yes	1	no	0	NA	0	no	0	no	0	yes	1	no	0	yes	1	no	0
19	Target 19	3.5	5.5	64%	NA	0	NA	0	NA	0	no	0	NA	0	NA	0	NA	0	yes	1	NA	0	yes	1	yes	1
1	Target 1	11.5	18.5	62%	NA	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
6	Target 6	9	14.5	62%	NA	0	yes	1	yes	1	no	0	NA	0	no	0	yes	1	no	0	yes	1	yes	1	no	0
7	Target 7	9	14.5	62%	NA	0	yes	1	yes	1	no	0	NA	0	no	0	yes	1	no	0	yes	1	yes	1	no	0
20	Target 20	9	14.5	62%	NA	0	yes	1	yes	1	no	0	NA	0	no	0	no	0	yes	1	NA	0	yes	1	no	0
24	Target 24	10.5	17	62%	no	0	yes	1	no	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1
15	Target 15	10	16.5	61%	NA	0	yes	1	yes	1	yes	1	NA	0	no	0	no	0	yes	1	yes	1	yes	1	yes	1
17	Target 17	11	19	58%	no	0	yes	1	yes	1	yes	1	no	0	no	0	no	0	yes	1	yes	1	yes	1	no	0
18	Target 18	10	18.5	54%	NA	0	no	0	yes	1	no	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1
16	Target 16	9	17	53%	no	0	yes	1	no	0	yes	1	NA	0	no	0	no	0	yes	1	yes	1	yes	1	no	0
23	Target 23	9	17	53%	no	0	yes	1	yes	1	no	0	yes	1	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
3	Target 3	7	16.5	42%	NA	0	yes	1	yes	1	no	0	NA	0	yes	1	no	0	yes	1	no	0	yes	1	no	0
21	Target 21	5	14.5	34%	NA	0	no	0	no	0	yes	1	NA	0	yes	1	yes	1	yes	1	yes	1	yes	1	no	0
14	Target 14	5	17	29%	no	0	yes	1	no	0	yes	1	NA	0	no	0	no	0	yes	1	no	0	yes	1	no	0
22	Target 22	4	14.5	28%	NA	0	no	0	no	0	no	0	no	-1	no	0	yes	1	yes	1	yes	1	yes	1	yes	1
13	Target 13	2	14.5	14%	NA	0	no	0	no	0	yes	1	NA	0	no	0	no	0	yes	1	no	0	yes	1	no	0
12	Target 12	1.5	16.5	9%	NA	0	no	0	no	0	yes	1	NA	0	no	0	no	0	yes	1	no	0	yes	1	no	0





### Legend

- LMSL Claims 2021
- Targets

#### Unsupervised Geology

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks
- Structural Interpretation

#### BGS Mineral Occurrences

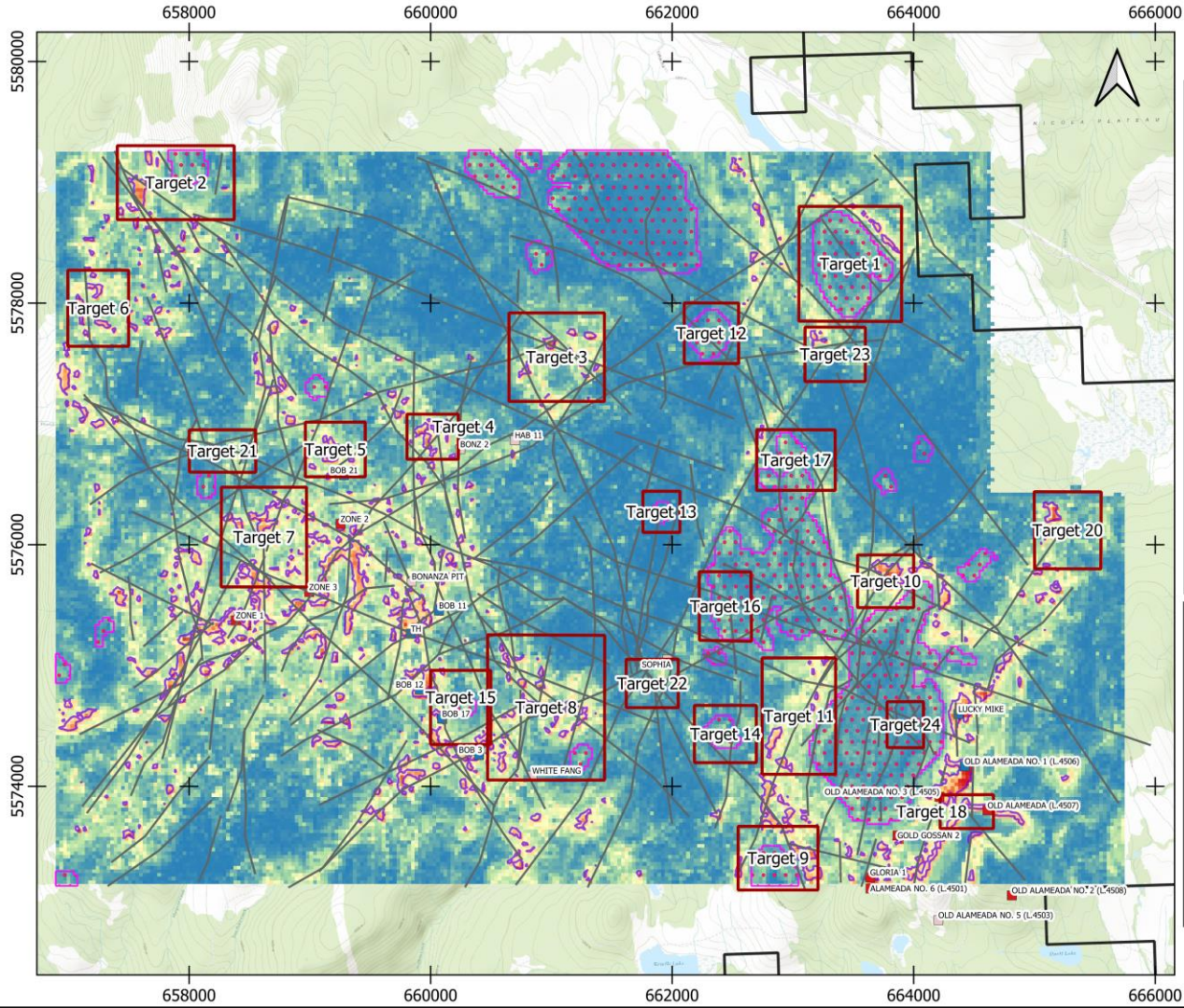
- Skarn, Cu skarn, W skarn
- Polymetallic veins
- Ag-Pb-Zn+/-Au
- Unspecified

### ML Geological Update LMSL Project

Datum  
NAD83 / UTM Zone 10N







### Legend

- LMSL Claims 2021
- Targets
- Intrusion
- Skarn/polymetallic Prospectivity
- N-S, NE-SW, and NW-SE structures

### Skarn/polymetallic Prospectivity



### BGS Mineral Occurrences

- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

### Skarn & Polymetallic Prospectivity LMSL Project

Datum  
NAD83 / UTM Zone 10N

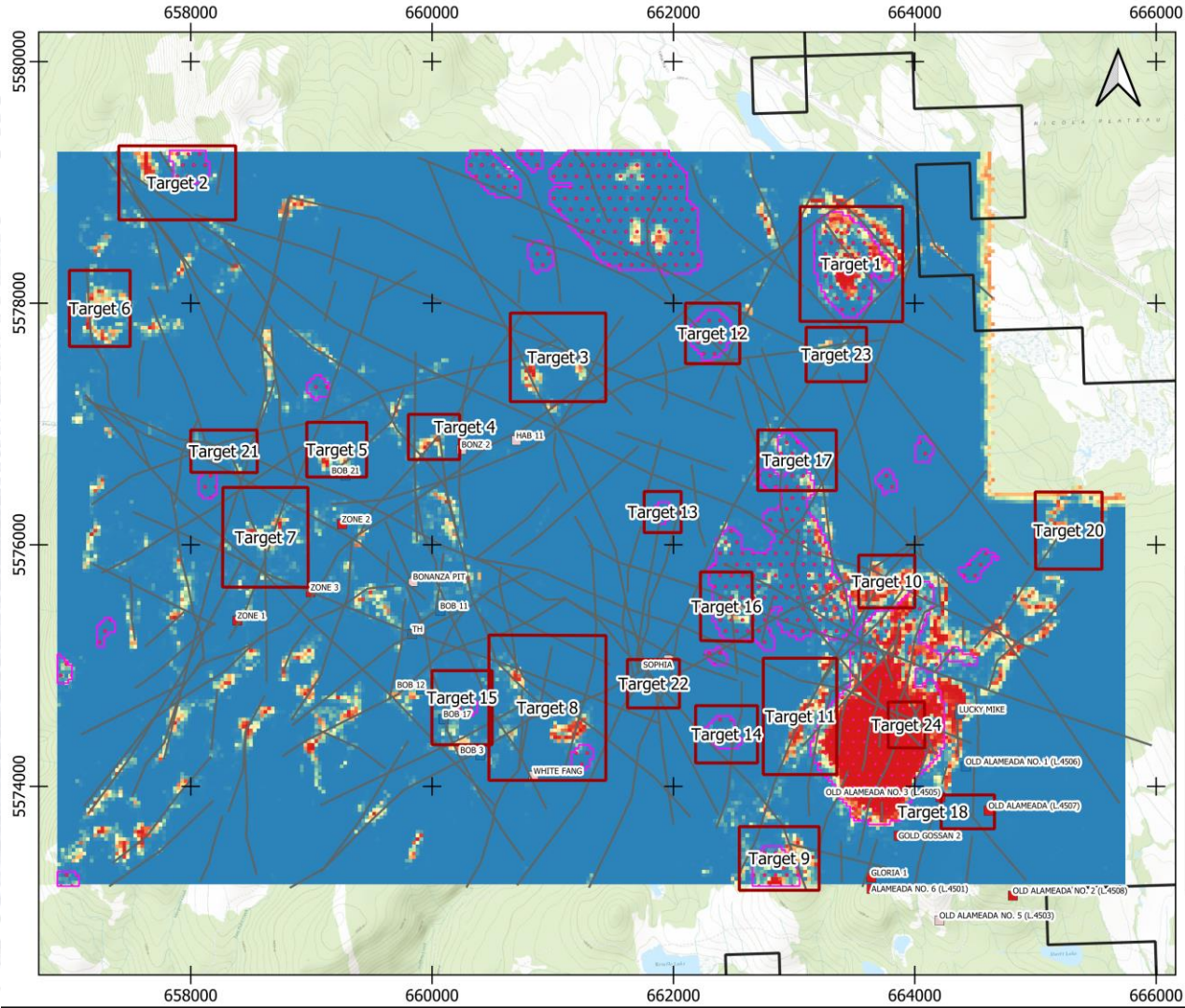
0 1 2 km



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Resources Corp.

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### Legend

- LMSL Claims 2021
- Targets
- Intrusion
- N-S, NE-SW, and NW-SE structures

### Cu Mo Prospectivity (soils)



### BGS Mineral Occurrences

- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

### Cu Mo Soil Regional Prospectivity LMSL Project

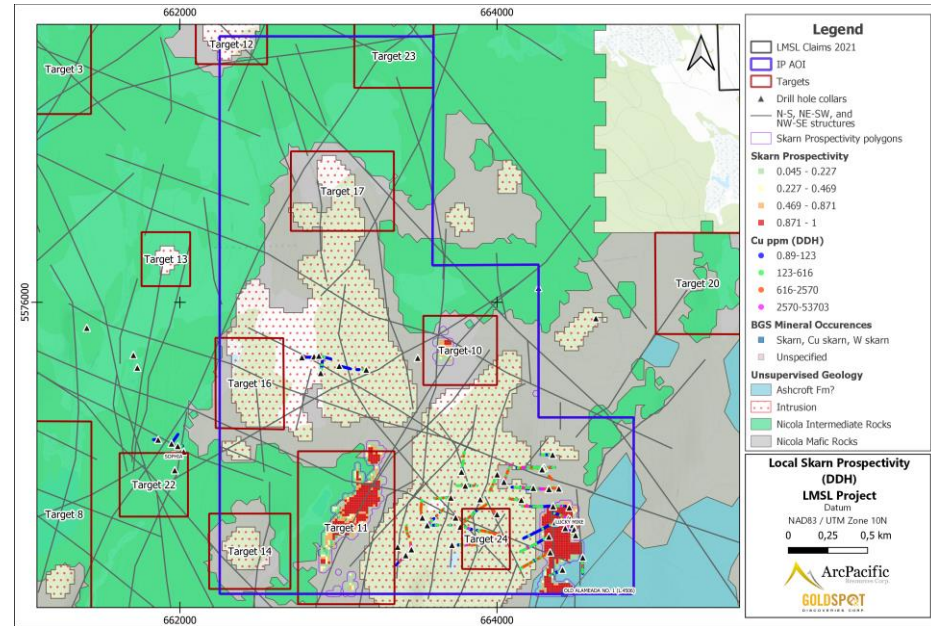
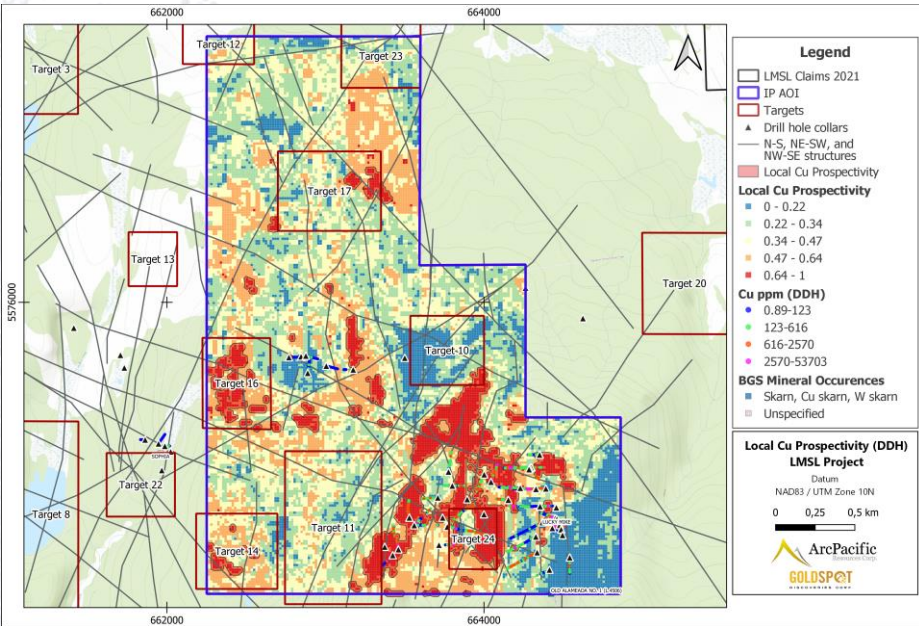
Datum  
NAD83 / UTM Zone 10N

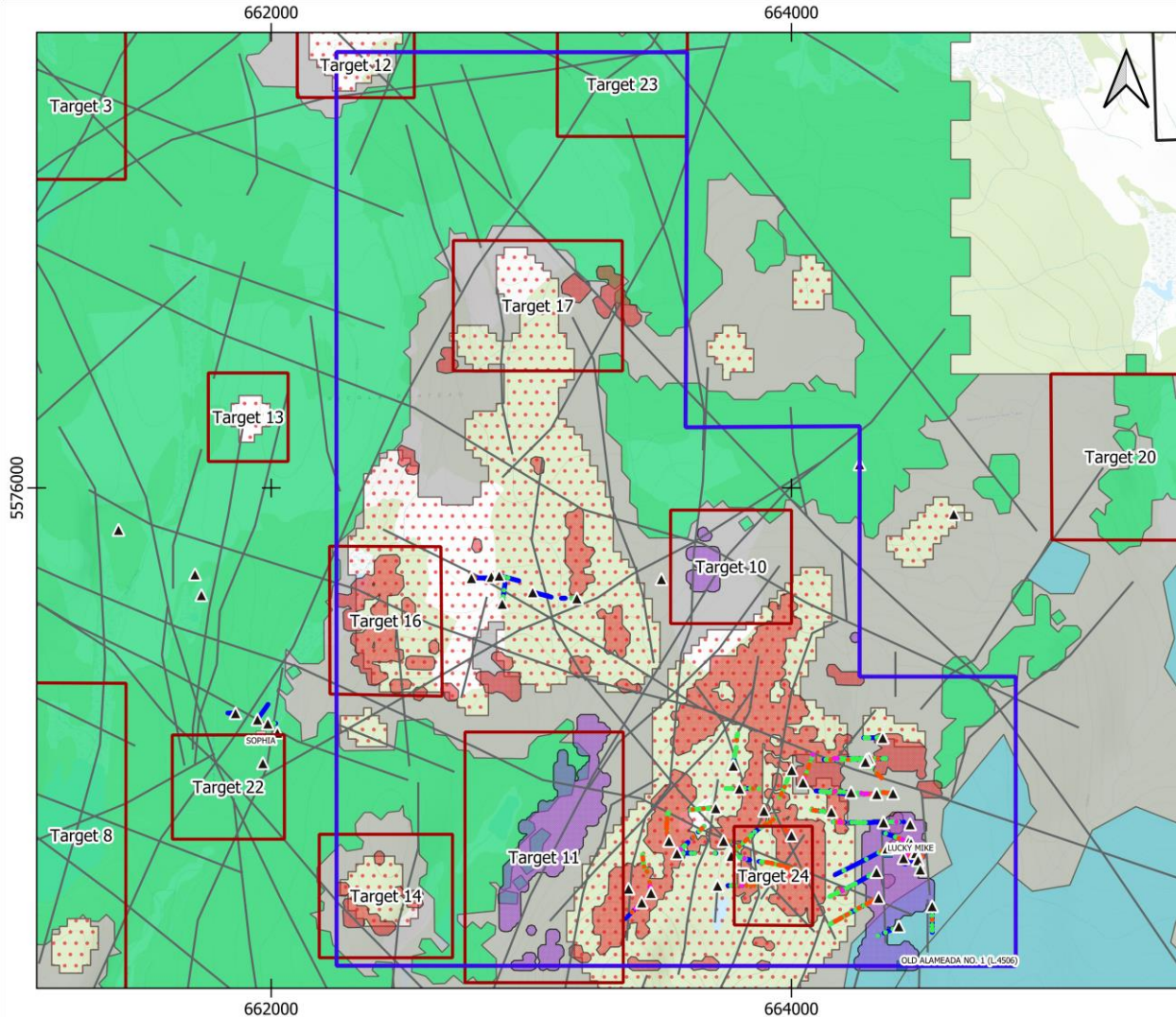


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### Legend

- LMSL Claims 2021
  - IP AOI
  - Targets
  - Drill hole collars
  - N-S, NE-SW, and NW-SE structures
  - Local Cu Prospectivity
  - Local Skarn Prospectivity
- Cu ppm (DDH)**
- 0.89-123
  - 123-616
  - 616-2570
  - 2570-53703
- BGS Mineral Occurrences**
- Skarn, Cu skarn, W skarn
  - Unspecified
- Unsupervised Geology**
- Ashcroft Fm?
  - Intrusion
  - Nicola Intermediate Rocks
  - Nicola Mafic Rocks

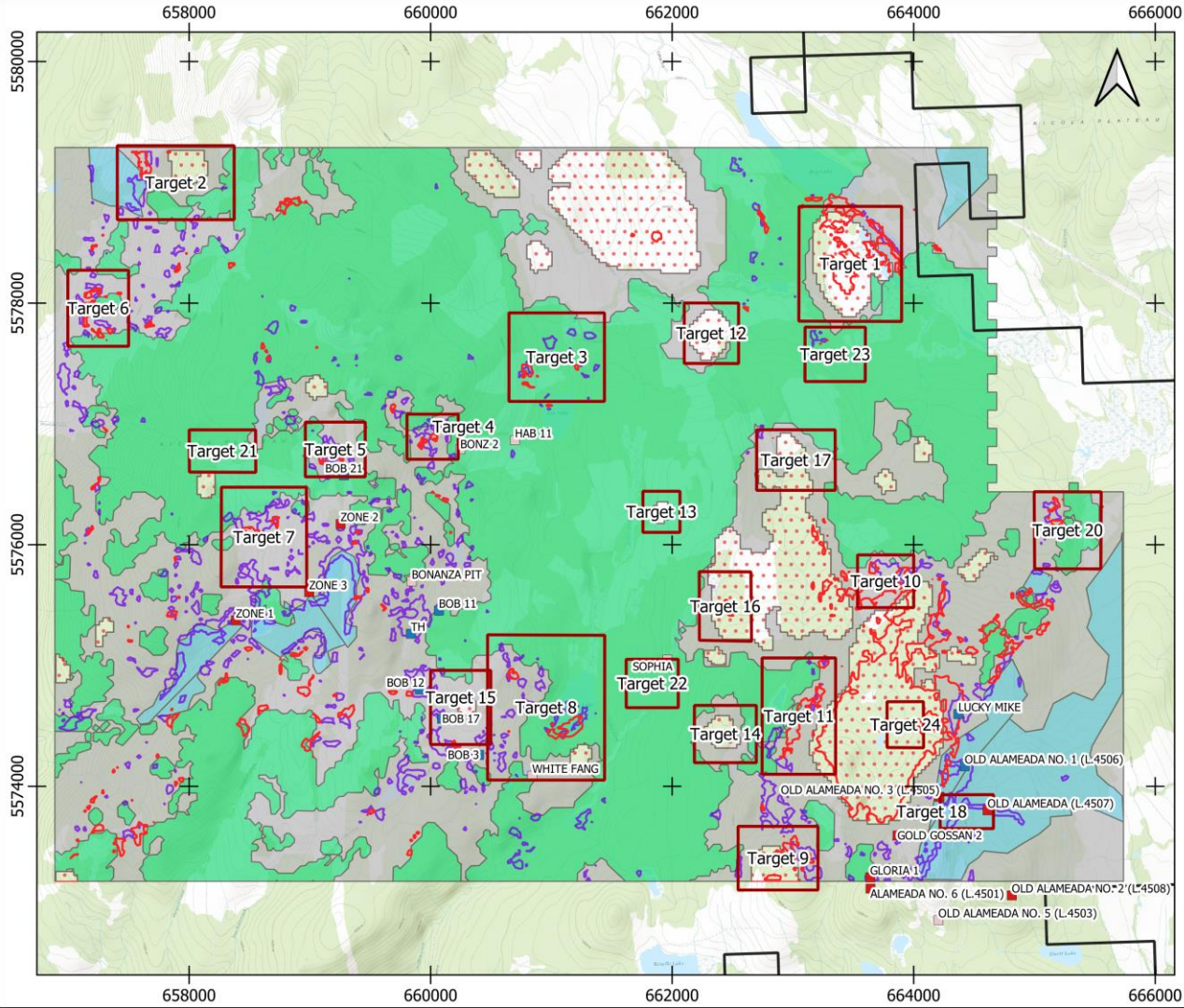
### Local Cu and Skarn Prospectivity (DDH)

#### LMSL Project

Datum  
NAD83 / UTM Zone 10N







### Legend

- LMSL Claims 2021
- Targets
- Skarn prediction (known occurrences)
- Porphyry prediction (soil)

### BGS Mineral Occurrences

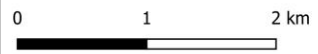
- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

### Unsupervised Geology

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks

### Regional Prospectivity LMSL Project

Datum  
NAD83 / UTM Zone 10N





# Top priority targets

## Target 2

Score: 92%

### **Priority: Top Priority**

*Comment:* Medium footprint, likely an intrusion. No historic drilling. Area of K alteration on southern boundary, U anomaly, mag high in northern target area, local and regional magnetic structures.

*Recommendation:* General mapping, prospecting, soil grid. Easy access.

## Target 9

Score: 74%

### **Priority: Top Priority**

*Comment:* Small footprint. Intrusion indicated. Interesting combination of predictions. Weak to moderate mag high. Cu anomaly in soil sample, in line with interpreted NW-SE structure.

*Recommendation:* Continue the E-W soil sampling survey, detailed mapping and prospecting.

## Target 10

Score: 82%

### **Priority: Top Priority**

*Comment:* Small footprint. Adjacent to large (calc-alkalic?) intrusions. Interesting combination of predictions. Inversion mag low, poss. alteration. Weak K/Th anomaly, U anomaly, IP chargeability and resistivity anomalies. Major local structural intersection, inversion and regional mag structures. Cu anomalies in soil.

*Recommendation:* Mapping, sampling and prospecting. Emphasis on structures.

## Target11

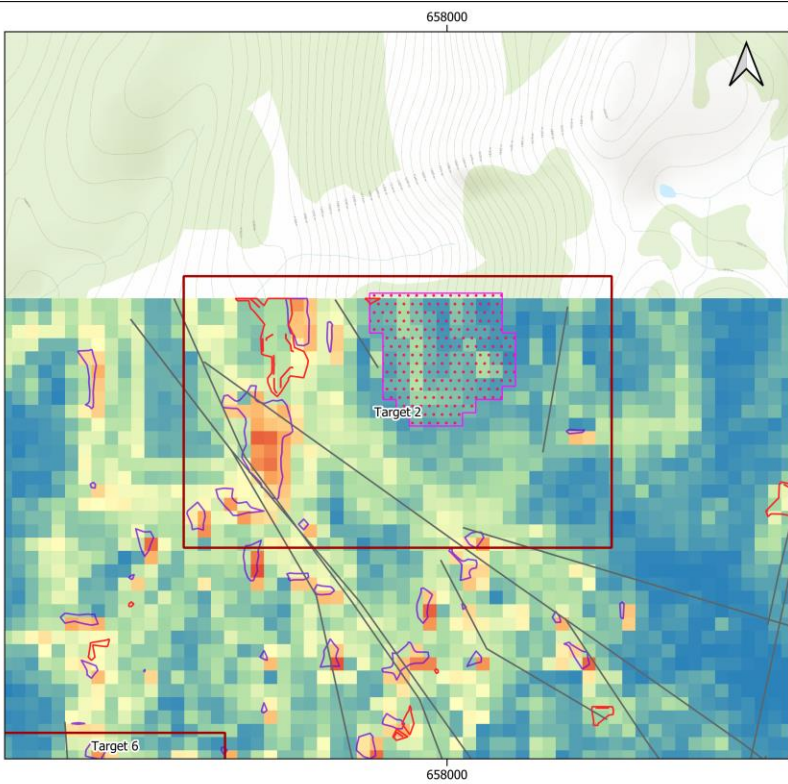
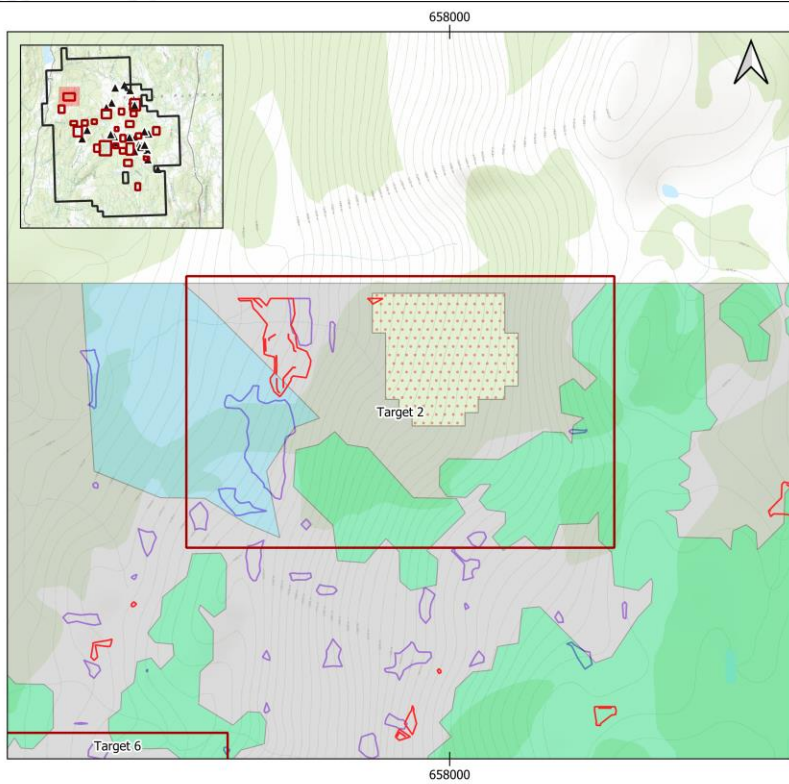
Score: 79%

### **Priority: Top Priority**

*Comment:* Small footprint. Adjacent to large (calc-alkalic?) intrusions. Interesting combination of predictions. Inversion mag low, possible alteration. Adjacent to strong magnetic body, crosscut by regional gravity structure, chargeability anomalies in north and south of target area. High Cu/Mo anomalies in soil, consistent structures and predicted skarn and porphyry.

*Recommendation:* Accommodation fault on top of other anomalies. Mapping, sampling and prospecting. Emphasis on structures.

# Target 2



**Legend**

- Targets
- Skarn prediction
- Porphyry prediction
- Intrusion
- N-S, NE-SW, and NW-SE structures

**BGS Mineral Occurrences**

- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

**Unsupervised Geology**

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks

**Regional Prospectivity**

0  
1

**Target 2  
LMSL Project**

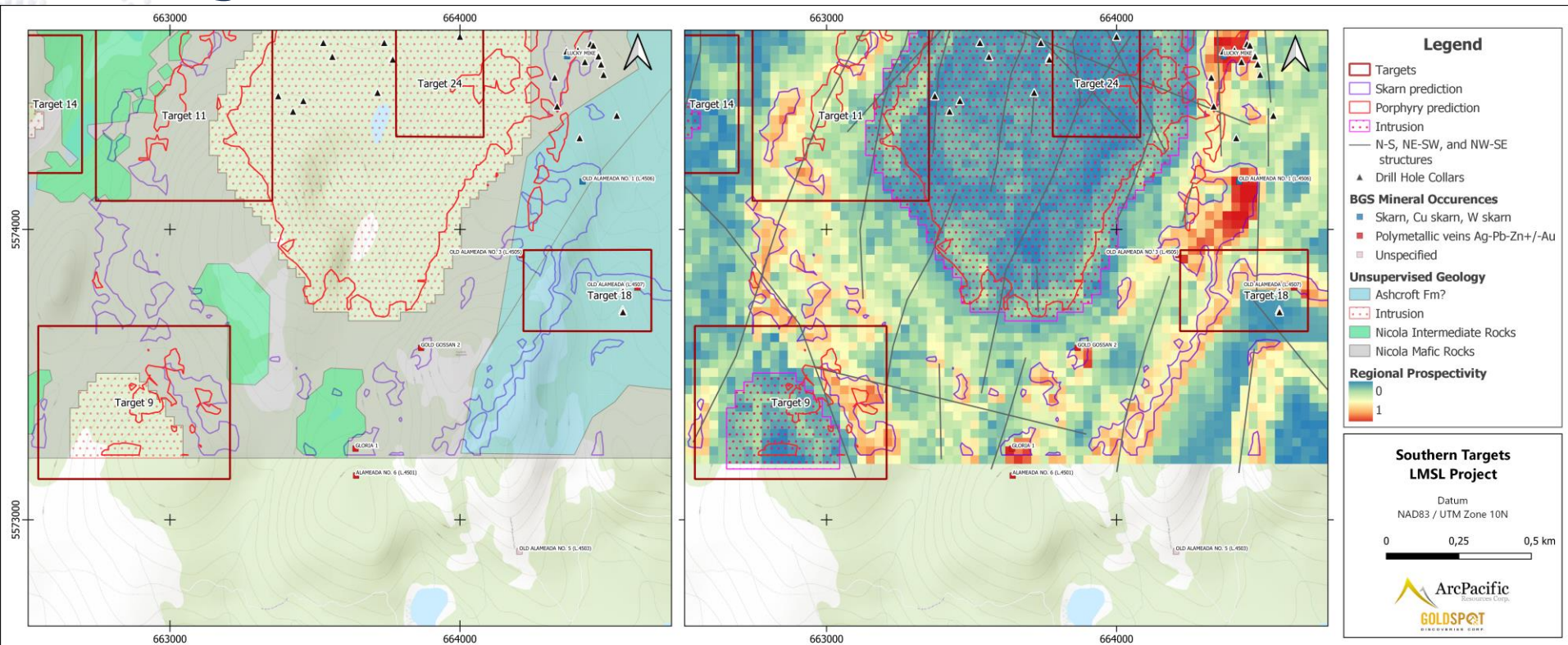
Datum  
NAD83 / UTM Zone 10N

0      0,2      0,4 km

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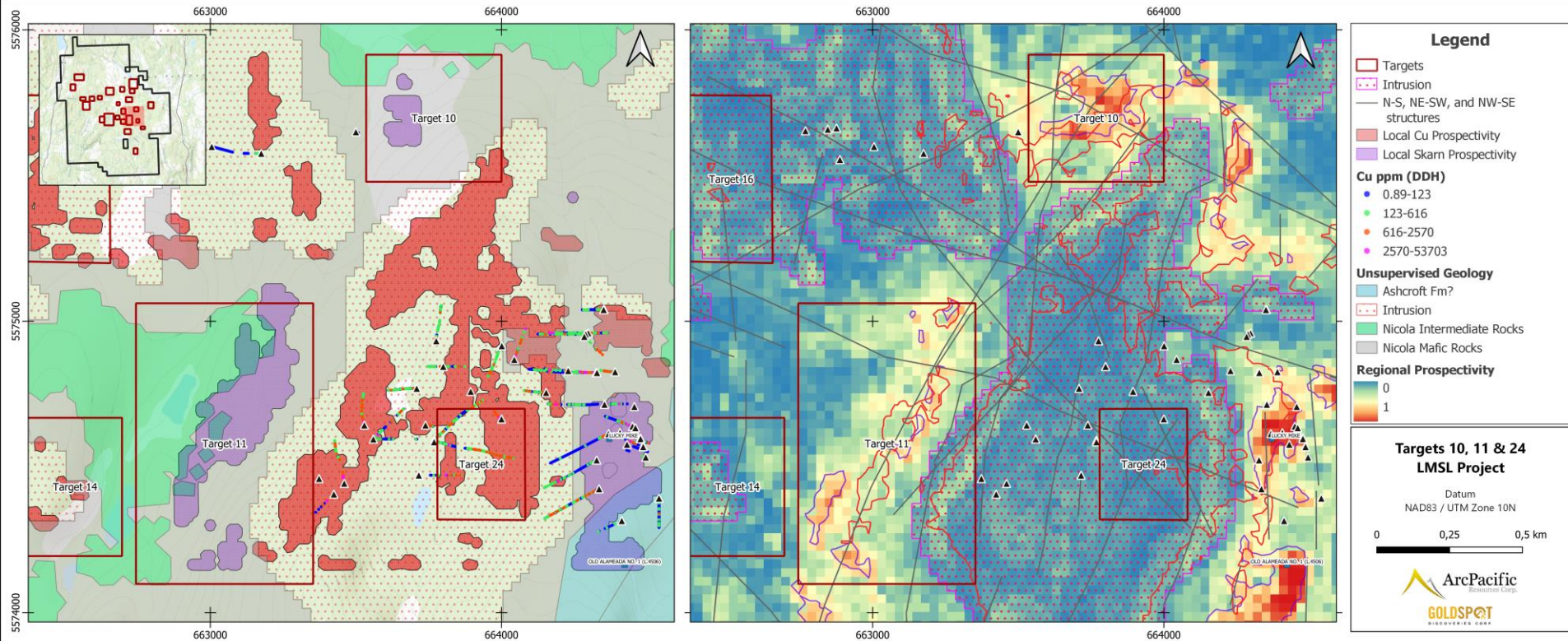
**GOLDSPOT**  
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# Targets 9, 11, 18 and 24

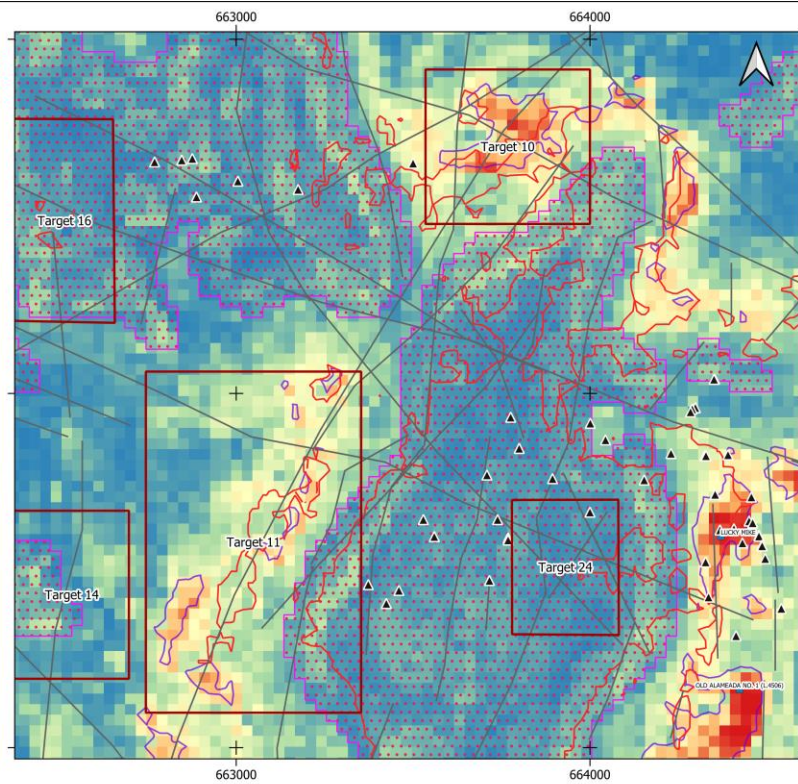
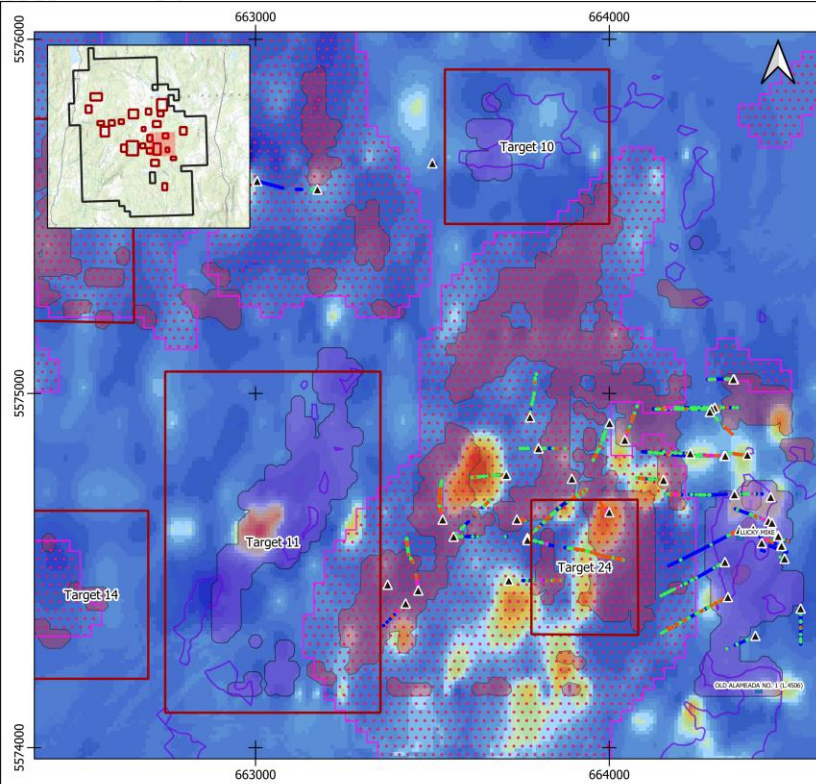




# Targets 10, 11 and 24







**Legend**

- Targets
- Intrusion
- N-S, NE-SW, and NW-SE structures
- Local Cu Prospectivity
- Local Skarn Prospectivity

**Cu ppm (DDH)**

- 0.89-123
- 123-616
- 616-2570
- 2570-53703

**Regional Prospectivity**

0  
1

**Residual Cu**

**Targets 10, 11 & 24  
LMSL Project**

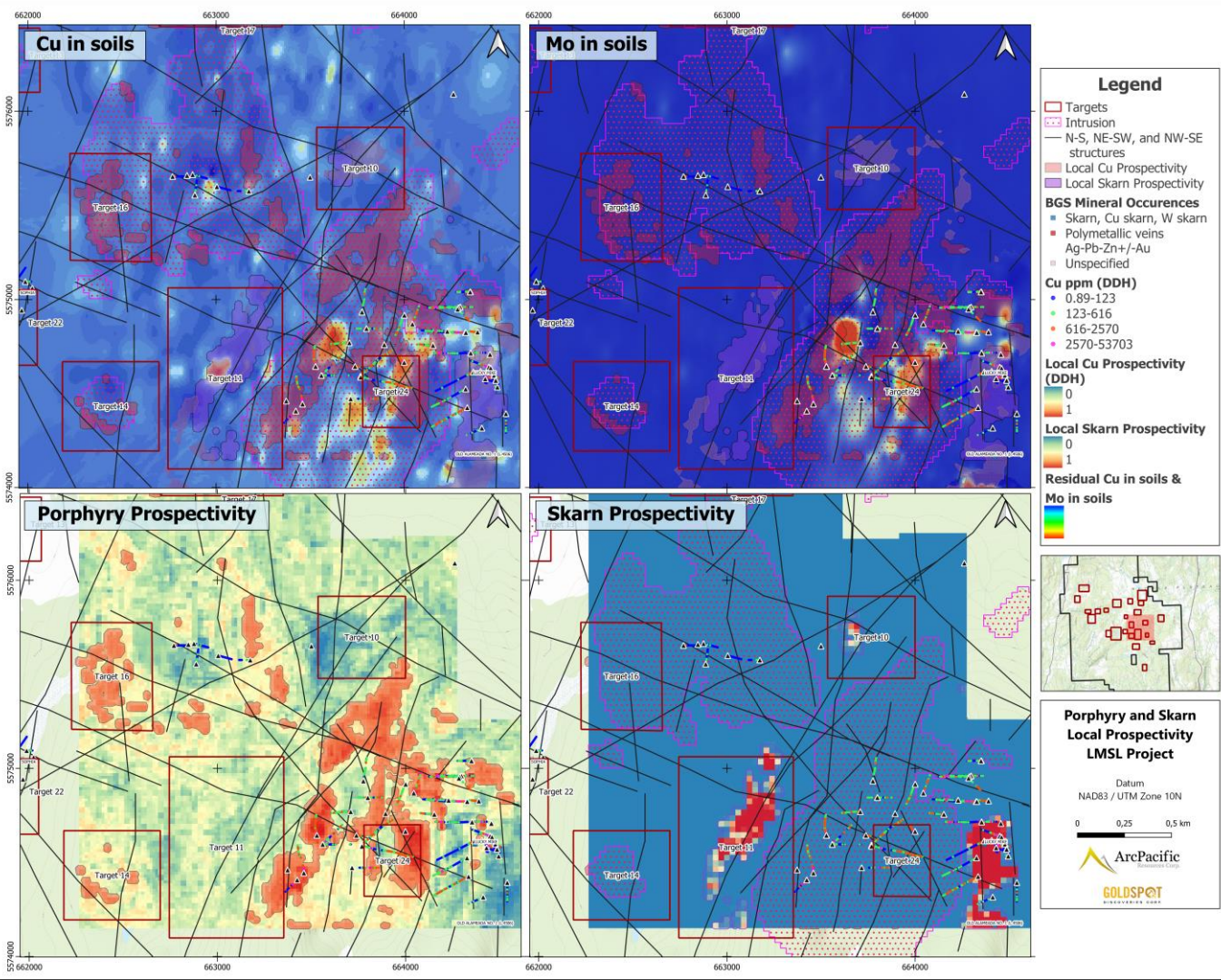
Datum  
NAD83 / UTM Zone 10N

0      0,25      0,5 km

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# High priority targets

## Target 8

Score: 67%

### *Priority: high*

Comment: Small footprint. Small possible intrusion nearby. Interesting combination of predictions. Mag inversion low, local scale mag and regional gravity structures in north of target area. Includes White Fang mineral occurrence.

Recommendation: Targeted mapping and prospecting to follow up on occurrence, intrusion and lake shore. Two traverses from target 15 and target 22.

## Target 5

Score: 66%

### *Priority: high*

Comment: Small footprint. No indicated intrusion. Encouraging pattern, with CuMo prediction central-west and showing predictions. Weak mag low area, crosscut by regional gravity structure. Close to Bob21 mineral occurrence.

Recommendation: Relatively detailed sampling, prospecting. Good access.

## Target 4

Score: 66%

### *Priority: high*

Comment: Small footprint. No indicated intrusion. Encouraging pattern, with CuMo prediction central-west and showing predictions. Intersection of NE-SW and NNW-SSE local major structures creating mag low. Close to Bonz2 mineral occurrence.

Recommendation: Relatively detailed sampling, prospecting. Good access.

## Target 19

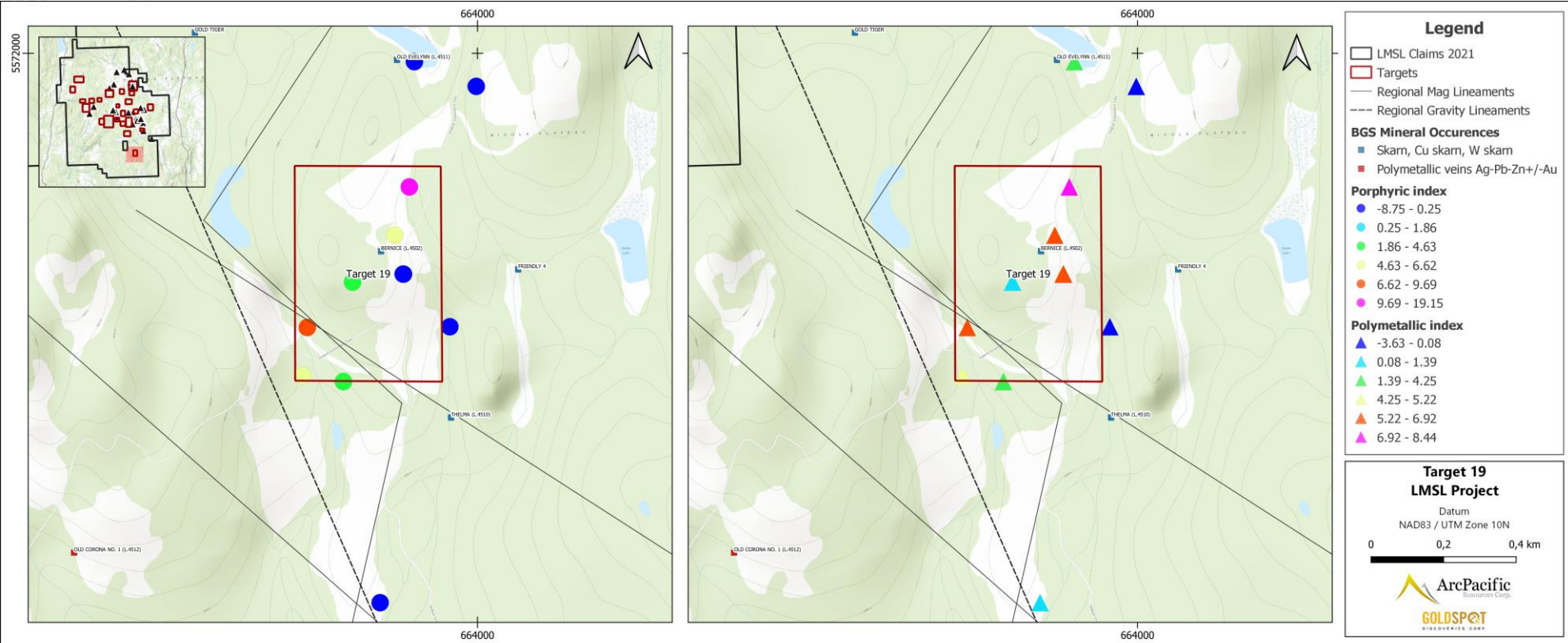
Score: 64%

### *Priority: high*

Comment: Rock anomalies for polymetallic and porphyry regional. NW-SE magnetic structure cross cuts central area.

Recommendation: Relatively detailed mapping (1:2,500), sampling, prospecting. Good access.

# High priority targets



# Medium priority targets

## Target 1

Score: 62%

### **Priority: medium**

Comment: Large footprint, likely intrusion. Some historic drilling. Magnetic body, near intersection of regional gravity structures (NW-SE and NNW-SSE). High Cu anomalies in soil, consistent with the edges of the predicted intrusion.

Recommendation: More drilling on the east side of the target area (good access). General mapping and prospecting.

## Target 20

Score: 62%

### **Priority: medium**

Comment: Medium footprint, local trend, interesting association of predictions. Magnetic high, poss. K alteration NW corner of target, NE-SW major local magnetic structure.

Recommendation: Continue the E-W soil grid mapping and trenching.

## Target 6

Score: 62%

### **Priority: medium**

Comment: Small footprint. No indicated intrusion. Interesting combination of predictions. Adjacent to mag contact, within large K alteration zone, crosscut by regional gravity structure. Small mag low where regional mag and gravity structures intersect.

Recommendation: Relatively detailed sampling, prospecting. Good access.

## Target 15

Score: 61%

### **Priority: medium**

Comment: Central intrusion with surrounding distal indications. Mag high, K/Th anomaly, U anomaly, adjacent to regional gravity structure. Close to Bob 12, Bob 17 and Bob 3 mineral occurrences.

Recommendation: Prospect occurrences and traverses across potential intrusive (mapping, sampling). Good access.

## Target 7

Score: 62%

### **Priority: medium**

Comment: Small footprint. No indicated intrusion. Interesting combination of predictions. K alteration, U anomaly northern boundary, crosscut by N-S/NNW-SSE structure. Weak mag inversion low, major regional magnetic and gravity structures on north-eastern target edge.

Recommendation: Relatively detailed sampling, prospecting. Interesting potential intermediate intrusion from RTP and satellite imagery. Good access.

## Target 24

Score: 62%

### **Priority: medium**

Comment: Target centered on the main intrusion, interesting drill intercept, high prospectivity for a porphyry type deposit. Cu and Mo anomalies in soil along regional structures and in vertical alignment of 3d modeled structures.

Recommendation: constrain the position of the intrusion by completing more deeper drillholes at west of the LM-2016-01



# Medium priority targets

**Target 17** Score: 58%

**Priority: medium**

Comment: Large footprint, likely intrusion. Interesting pattern in RTP homogeneity. Mag high truncated in North by regional mag structure, weak conductive zone. Inversion mag low in southeast corner, weak U anomalies. High Cu/Mo anomalies in soil, consistent with the edges of the predicted intrusion.

Recommendation: Possible trenching by soil anomalies, particular attention to the margins of the predicted intrusion.

**Target 18** Score: 54%

**Priority: medium**

Comment: Cu and Mo anomalous in soil, historic drilling. Radiometric anomaly. Major N-S local mag structure, within magnetically quiet area adjacent to very strong mag high. High Cu and Mo anomalies in soil. Indices for porphyry and polymetallic type of mineralization in rock samples. Close to Old Alameada known occurrences.

Recommendation: Prospecting and possible trenching on the west side of the target (Cu anomalies in soil). Consider drilling on the north of the previous drilling.

**Target 16** Score: 53%

**Priority: medium**

Comment: Large footprint, likely intrusion. High local Cu prospectivity, High soil Cu prospectivity. Mag high, at intersection of local magnetic structures, resistivity anomaly on target area eastern edge. Cu anomalies in soil.

Recommendation: Traverses across potential intrusive (mapping, sampling). Good access.

**Target 23** Score: 53%

**Priority: medium**

Comment: Area of intersection of major geophysical structures: U anomalies regional gravity structure, strong regional and local mag structures. Cu/Mo anomalies in soil.

Recommendation: Extend the soil grid to follow the soil anomalies to east. General mapping and prospecting.

# Low priority targets

**Target 3** Score: 42%  
**Priority: low**  
Comment: Medium footprint. No indicated intrusion. Interesting 'ring' shape to probabilities. Crosscut by inversion and regional mag structures, single U anomaly, weak mag high surround by mag low.  
Recommendation: General mapping and prospecting road including logging road, low Priority target (overlapping anomalies and structures along the road).

**Target 12** Score: 9%  
**Priority: low**  
Comment: Interesting pattern in RTP homogeneity. Magnetic high, weak K/Th anomaly near southern target border.  
Recommendation: Prospect on the road looking for intrusive.

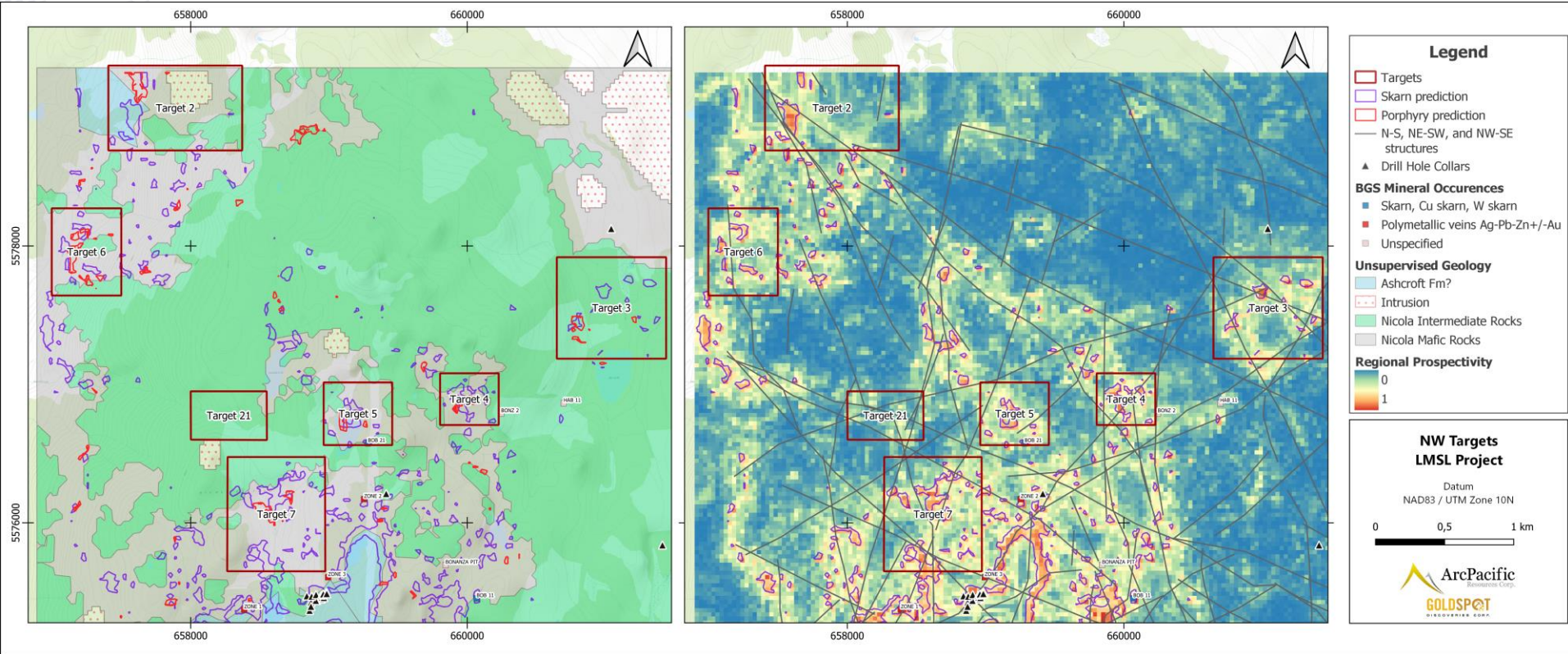
**Target 21** Score: 34%  
**Priority: low**  
Comment: Area of intersection of major geophysical structures. Close vicinity to mag high and a possible intrusive body. Coincident regional magnetic, gravity, inversion, local magnetic NW-SE structure, K/Th anomaly in north. Mag low north of a mag high seen in the inversion.  
Recommendation: N-S oriented soil grid, detailed mapping and sampling.

**Target 13** Score: 14%  
**Priority: low**  
Comment: Interesting pattern in RTP homogeneity. Weak K/Th anomaly along northern target border.  
Recommendation: Few traverses looking for intrusive.

**Target 14** Score: 29%  
**Priority: low**  
Comment: Interesting pattern in RTP homogeneity. Magnetic high flanked by major NW-SE regional magnetic structure in the south, intersects N-S structures, flanked by NW-SE regional gravity structure in the north.  
Recommendation: Few traverses looking for intrusive and porphyry style mineralization.

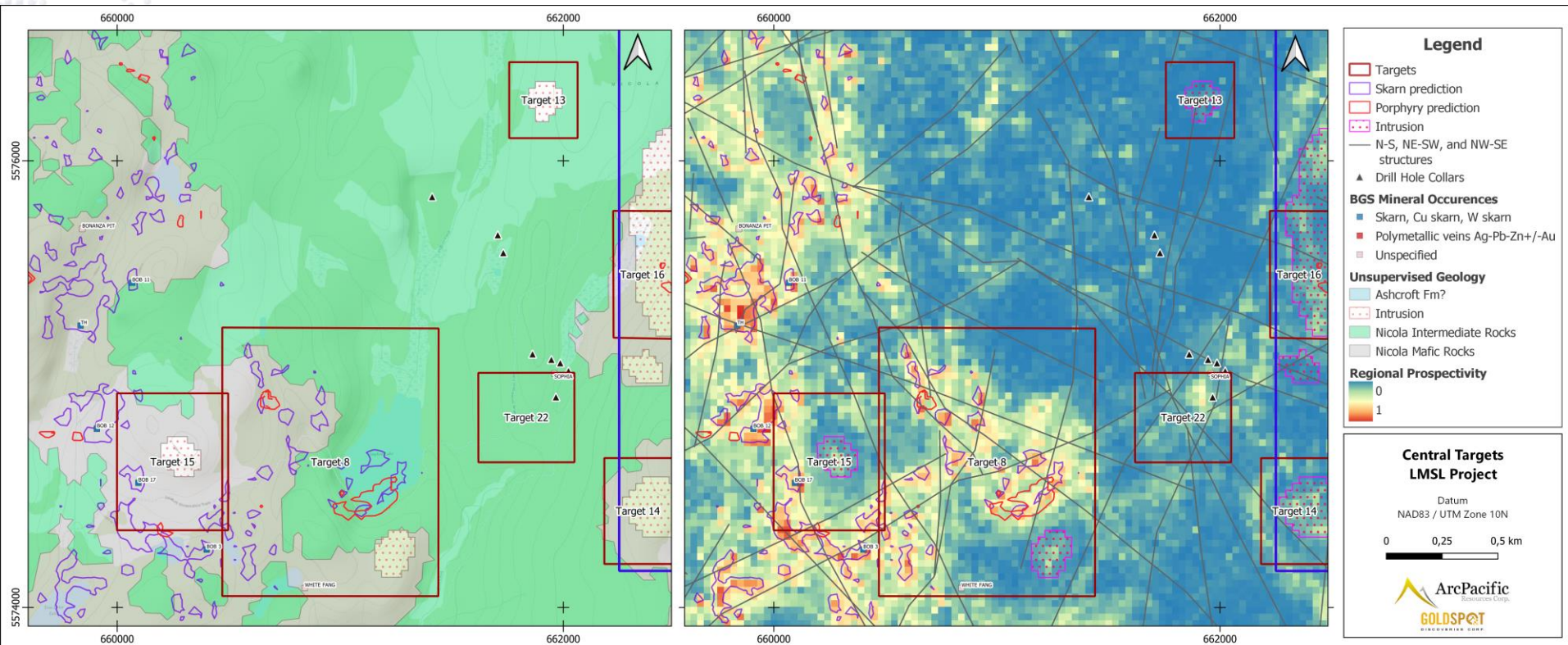
**Target 22** Score: 28%  
**Priority: low**  
Comment: Area of intersection of major geophysical structures: U anomalies north and southern edge, mag inversion structure, gravity regional structure, local mag N-S structures, weak mag high. Close to Sophia occurrence.  
Recommendation: Detailed mapping and sampling. Look for drill core. Prospecting at the occurrence, extend the soil grid across the target.

# North-west area





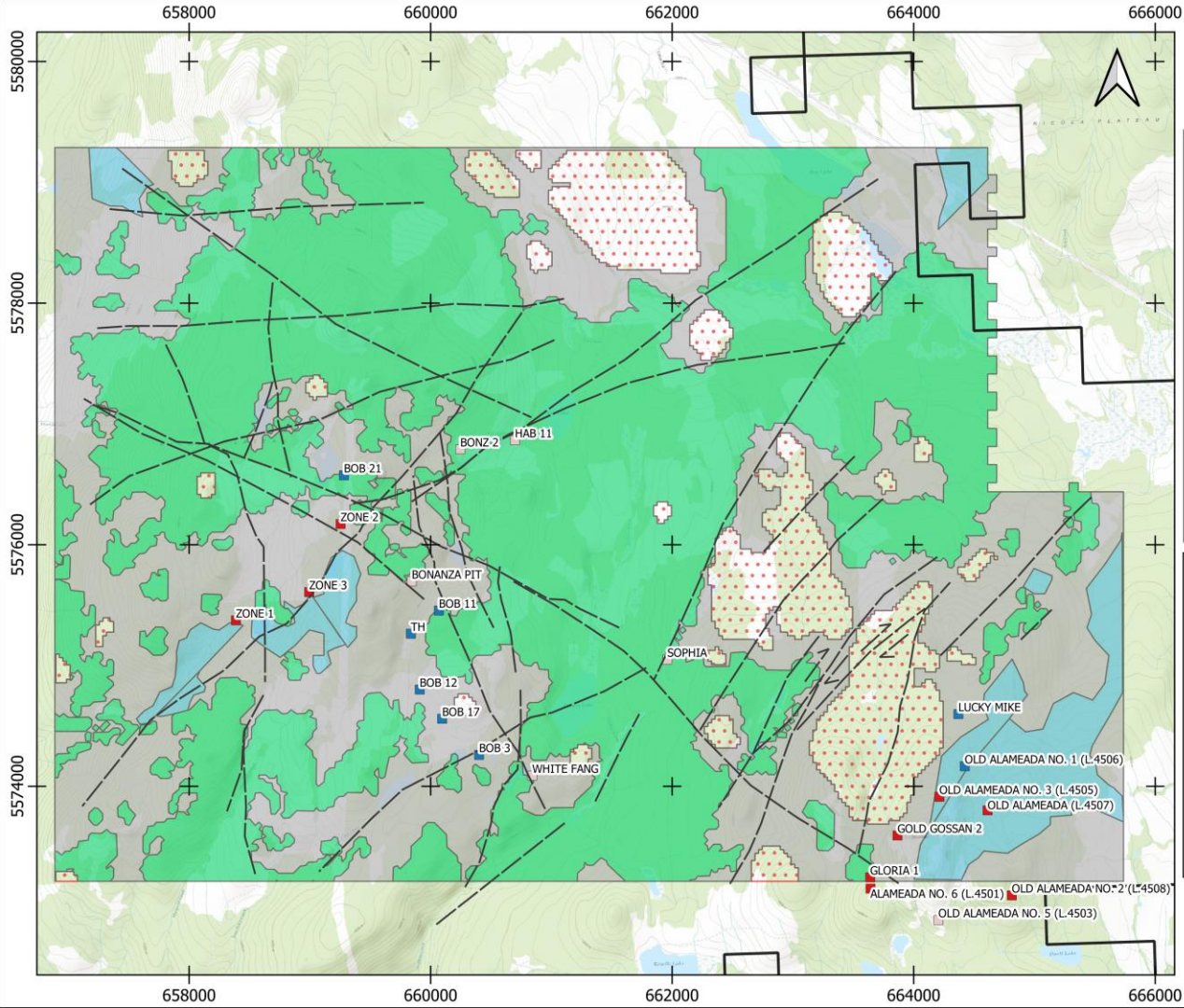
# South-central area





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### Legend

- LMSL Claims 2021
- Unsupervised Geology**
- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks
- Structural Interpretation
- BGS Mineral Occurrences**
- Skarn, Cu skarn, W skarn
- Polymetallic veins  
Ag-Pb-Zn+/-Au
- Unspecified

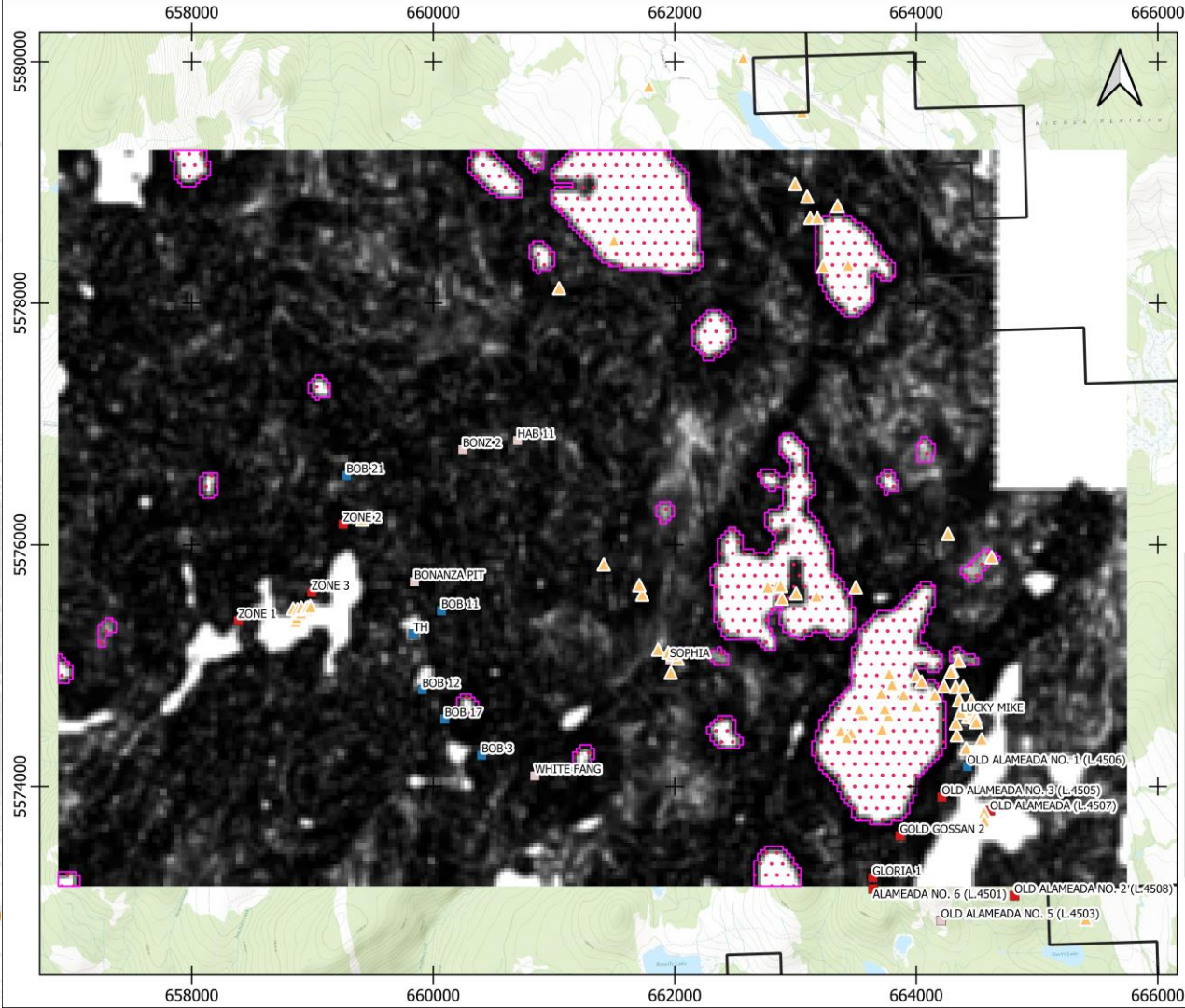
### ML Geological Update LMSL Project

Datum  
NAD83 / UTM Zone 10N

0 1 2 km







### Legend

- LMSL Claims 2021
- Intrusion
- Drill hole collars
- BGS Mineral Occurrences**
  - Skarn, Cu skarn, W skarn
  - Polymetallic veins Ag-Pb-Zn+/-Au
  - Unspecified

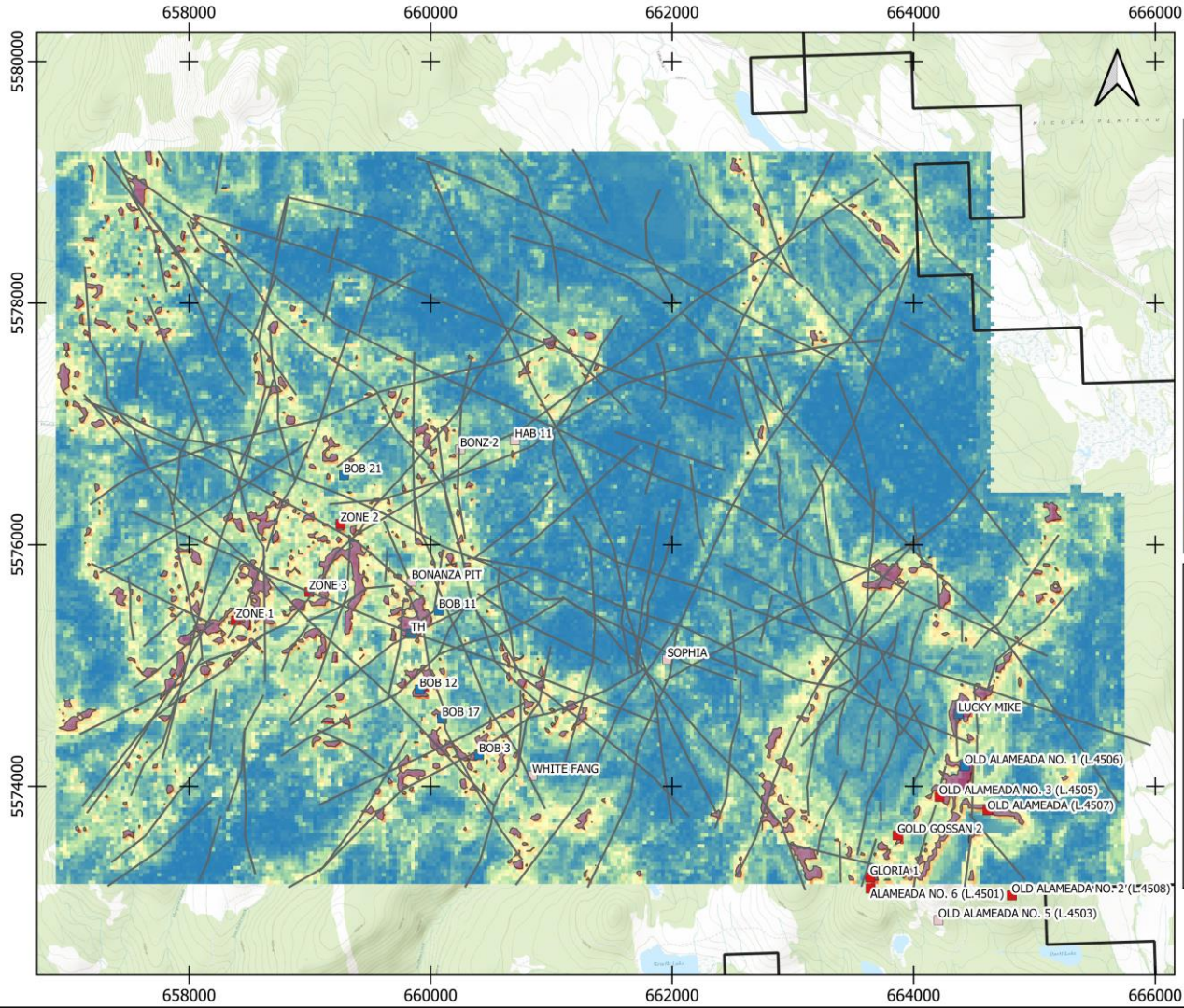
### RTP Homogeneity



### Intrusions, RTP Homogeneity LMSL Project

Datum  
NAD83 / UTM Zone 10N





### Legend

- LMSL Claims 2021
- N-S, NE-SW, and NW-SE structures
- BGS Mineral Occurrences**
- Skarn, Cu skarn, W skarn
- Polymetallic veins  
Ag-Pb-Zn+/-Au
- Unspecified
- Regional Prospectivity polygons
- Regional Prospectivity**
- 0,000
- 1,000

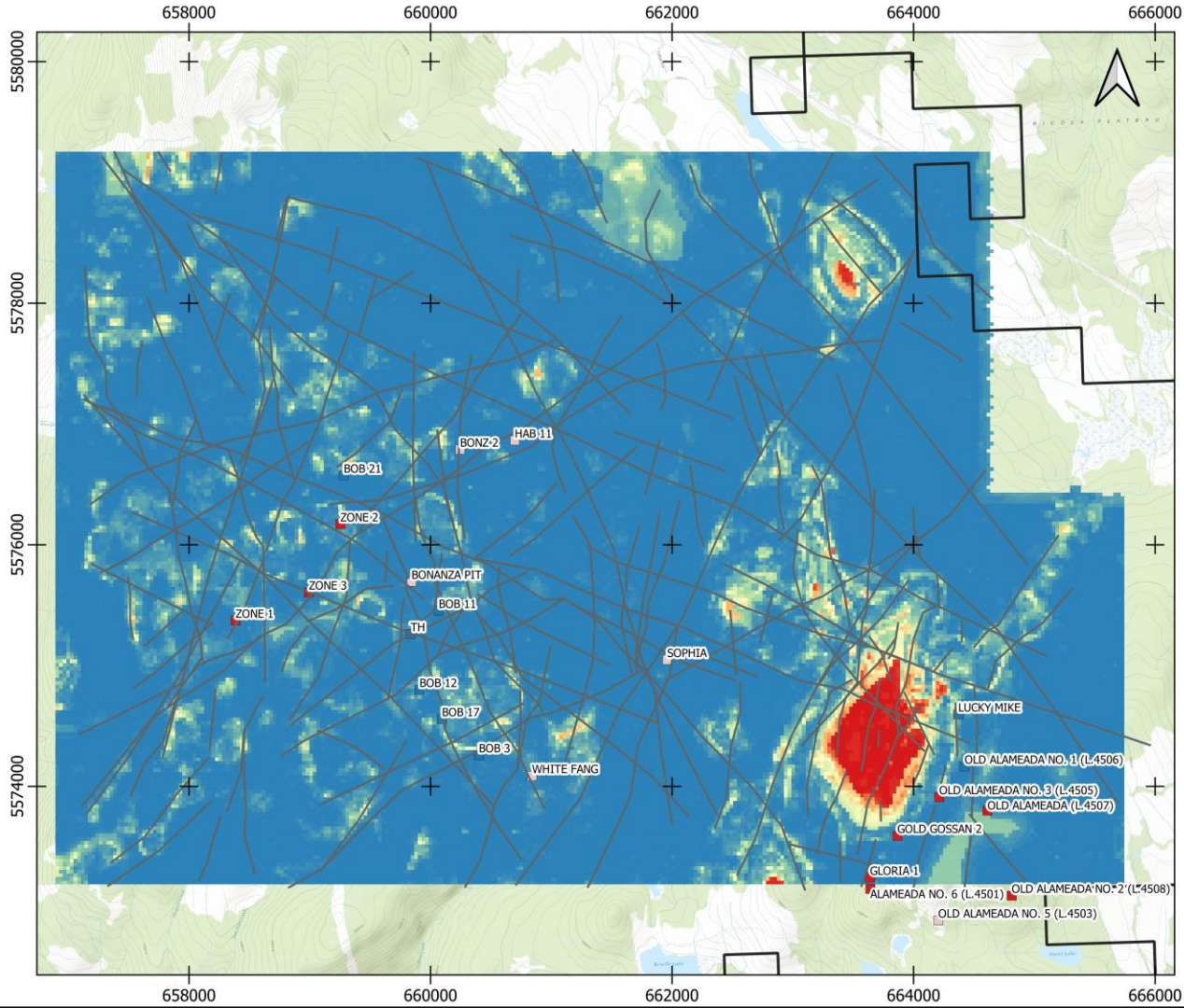
### Regional Prospectivity (Showings) LMSL Project

Datum  
NAD83 / UTM Zone 10N

0 1 2 km







### Legend

- LMSL Claims 2021
- N-S, NE-SW, and NW-SE structures

### BGS Mineral Occurrences

- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

### Prediction on Cu/soils



### Regional Prediction Cu (Soils) LMSL Project

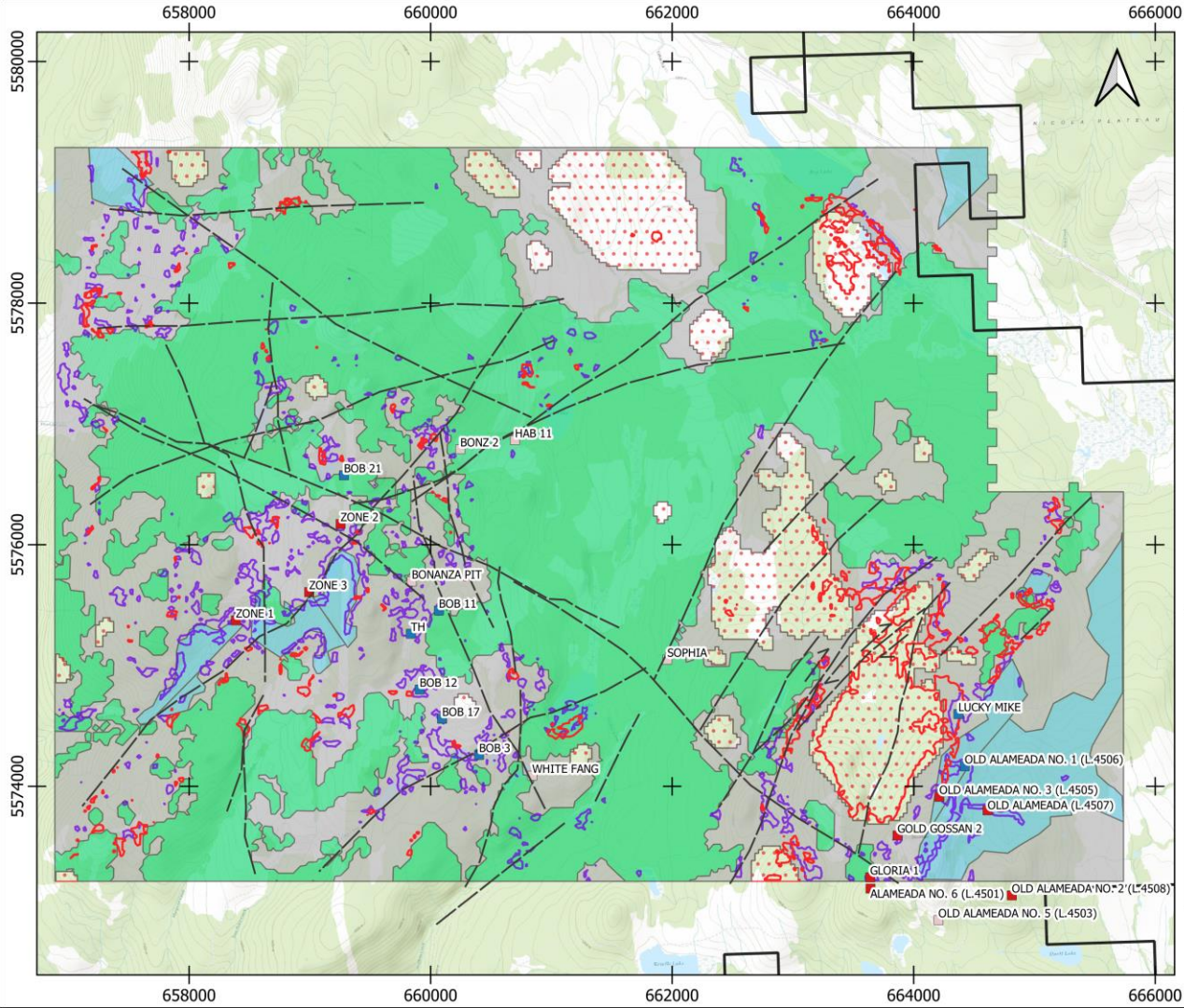
Datum  
NAD83 / UTM Zone 10N



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## Legend

- LMSL Claims 2021
- Skarn prediction (known occurrences)
- Porphyry prediction (soil)
- Structural Interpretation

## BGS Mineral Occurrences

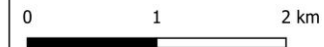
- Skarn, Cu skarn, W skarn
- Polymetallic veins Ag-Pb-Zn+/-Au
- Unspecified

## Unsupervised Geology

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks

## Regional Prospectivity LMSL Project

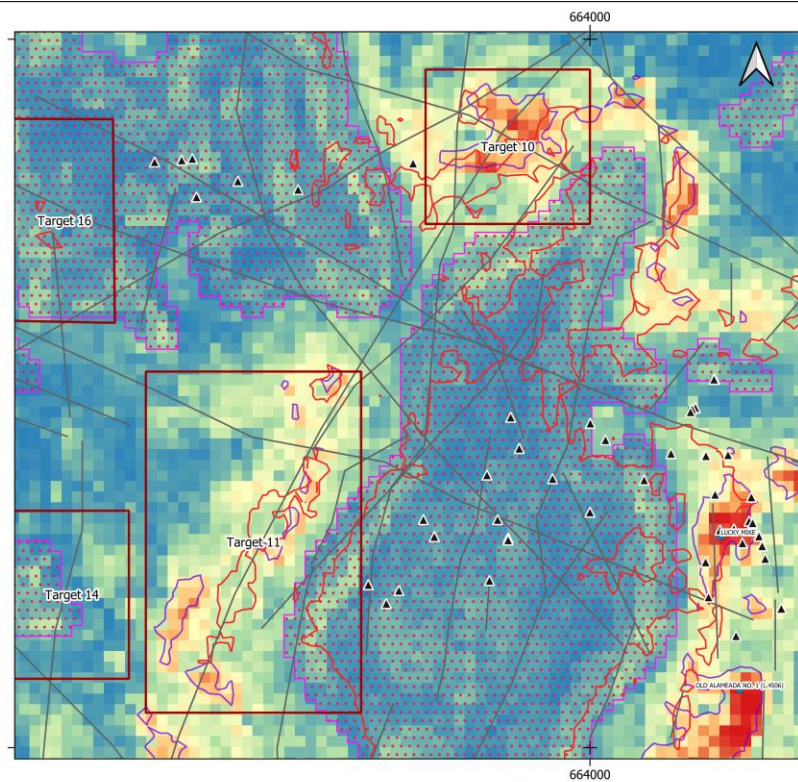
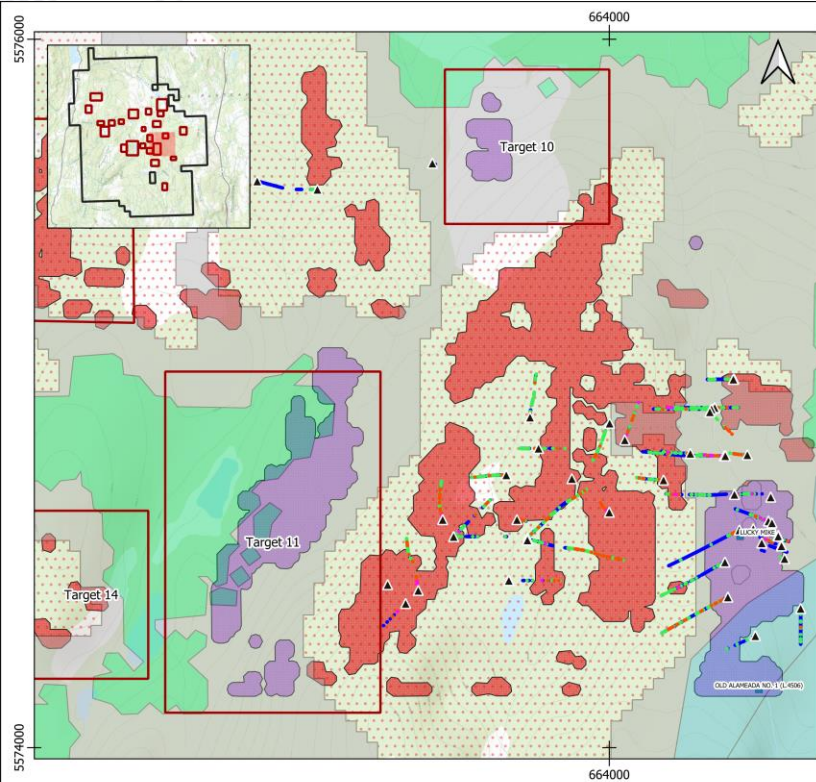
Datum  
NAD83 / UTM Zone 10N



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**Legend**

- Targets
- Intrusion
- N-S, NE-SW, and NW-SE structures
- Cu Prospectivity
- Skarn Prospectivity

**Cu ppm (DDH)**

- 0.89-123
- 123-616
- 616-2570
- 2570-53703

**Unsupervised Geology**

- Ashcroft Fm?
- Intrusion
- Nicola Intermediate Rocks
- Nicola Mafic Rocks

**Regional Prospectivity**

0  
1

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**Targets 10 & 11  
LMSL Project**

Datum  
NAD83 / UTM Zone 10N

0      0,25      0,5 km

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