The Northwestern Sector of the Skeena Arch in Central British Columbia

A Geophysical Targeting Assessment

Prepared for:
Jaxon Mining, May 2020

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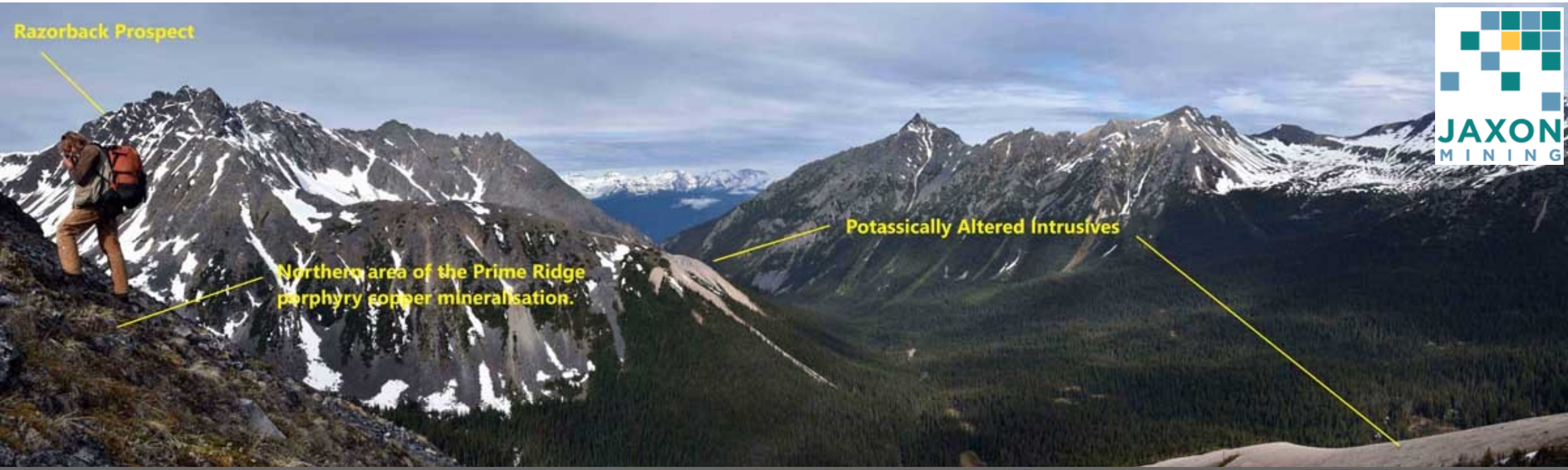


View from the west end of the Red Spring porphyry copper prospect with Red Spring Cirque and the quartz-sericite-pyrite alteration on the right of the photograph.

STUDY OVERVIEW

Background and Purpose

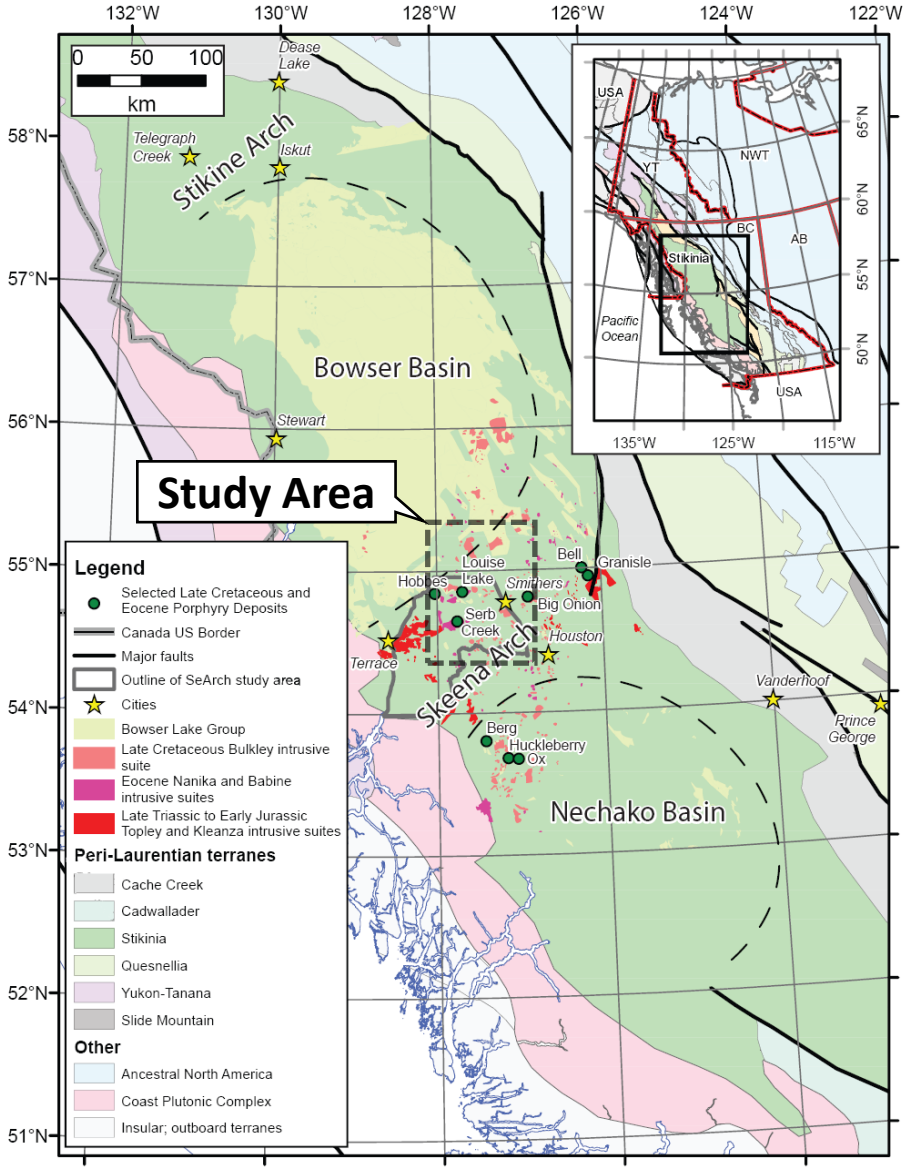
- The purpose of this study was to provide a geophysics-based assessment of a part of the **Skeena Arch** in central British Columbia that surrounds Jaxon Mining's Hazelton Property. The principal motivation of the study is to assist in exploration targeting for porphyry copper and related ore deposits.

- More specifically, the study aimed to characterize the following:

  (1) the **geophysical signatures** of covered or partly-exposed **intrusive centers or belts**;
  (2) the **controlling structures** on porphyry emplacement at a regional and local scale, and
  (3) direct **deposit-scale signatures** of potential porphyry systems.

  Additionally, the study is intended to assist in designing an appropriate geophysical program for the targeting of porphyry copper systems and ultimately help to vector in on drill targets, both within and adjacent to the Hazelton Property.

- The work program included the compilation, processing and assessment of various open-source geophysical, geological and geochemical datasets and the delivery of interpreted products in the form of a GIS data package and summary report (PowerPoint format).



Location of the study area in the context of the Skeena Arch and distribution of significant porphyry copper deposits.

Angen et al., 2017

WORK PROGRAM

Data Acquisition, Processing and Interpretation Steps

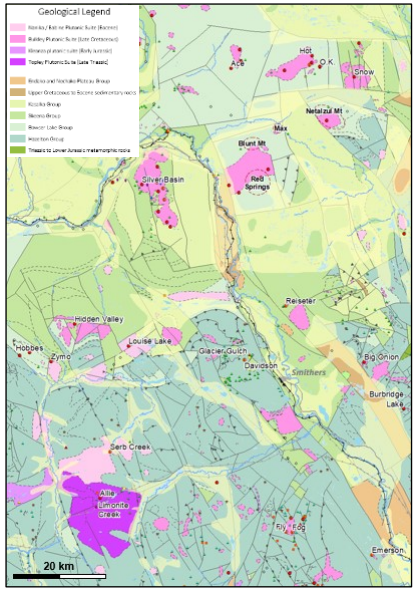
1. Acquisition of regional geophysical data for the area-of-interest (AOI) comprising all government-sourced magnetic and gravity products, followed by the production of merged and levelled mosaics at the best possible resolution.

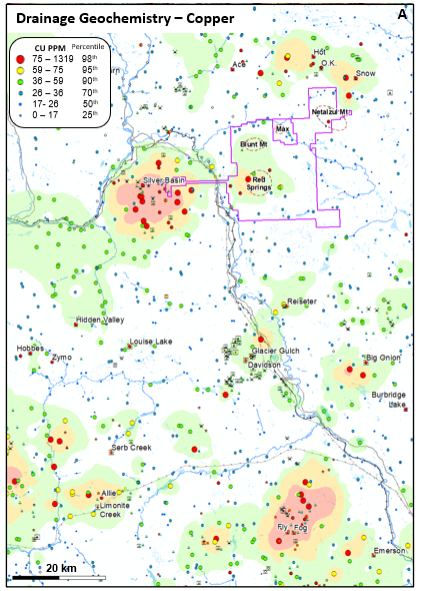
2. Processing of the geophysical data to produce a comprehensive set of filtered products for interpretive purposes and conversion of the outputs into ArcGIS compatible formats. Processing involved conventional data filtering and enhancement techniques in combination with proprietary, multi-scale edge-detection and structure delineation workflows.

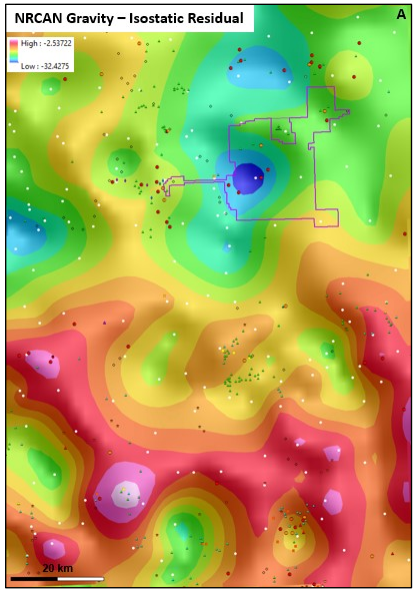
3. Compilation of a seamless geological coverage from government sources (e.g. Provincial GIS data) combined with detailed geological and geochemical data provided by Jaxon Mining or otherwise obtained from sources in the public domain.

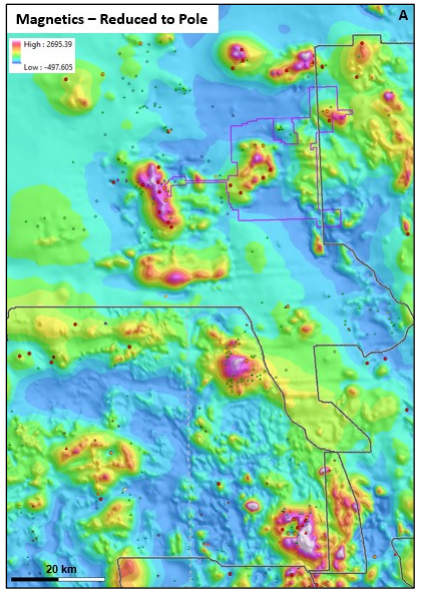
4. Provision of a qualitative interpretation of the geophysical data aimed at identifying regional to district scale features that can assist in porphyry targeting, including the delineation of potential causative intrusions and associated geophysical features.

5. Assimilation of the outcomes of the study with results of prior exploration work undertaken by Jaxon Mining and provision of GIS data package and a summary document that details the nature of each dataset and main conclusions.





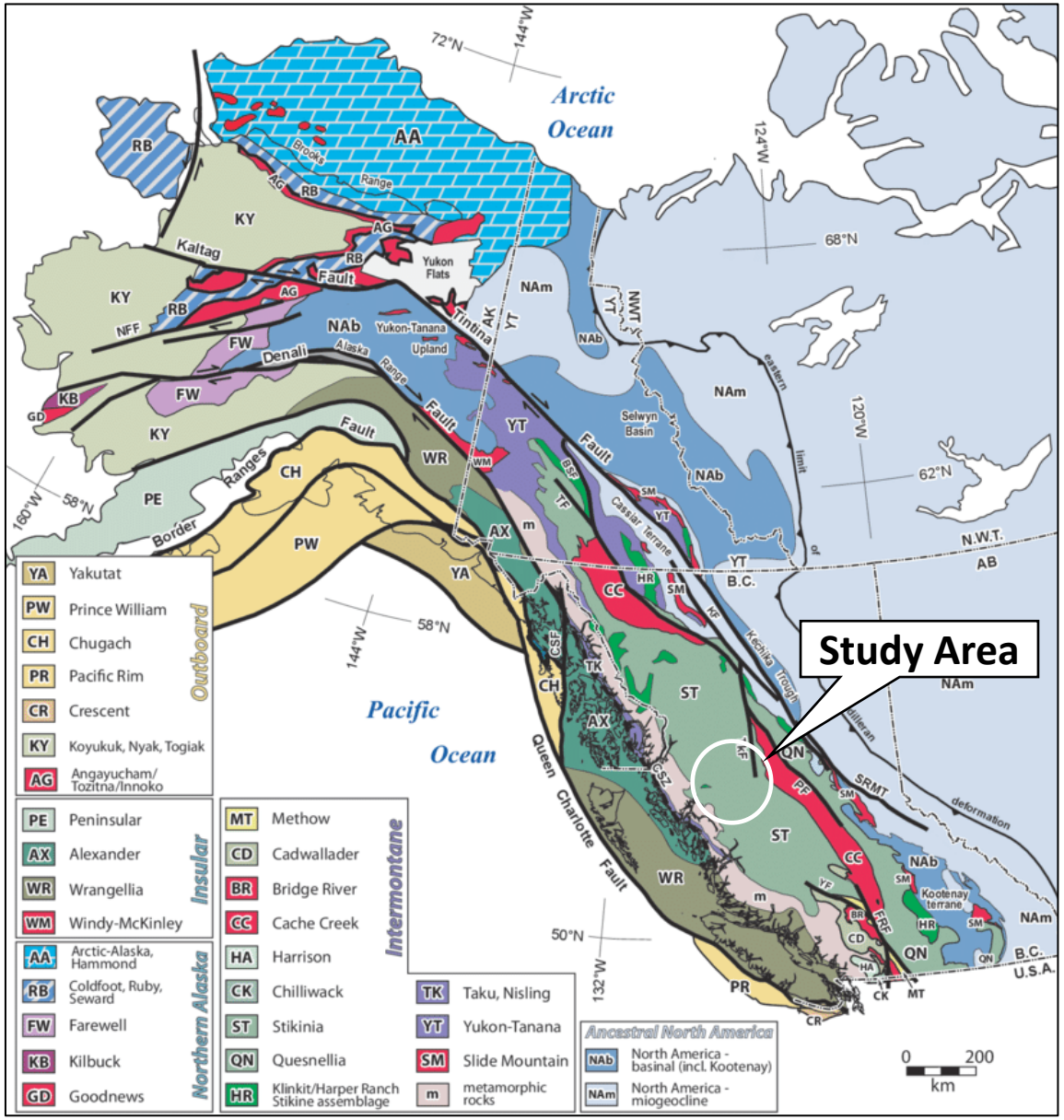




REGIONAL GEOLOGICAL SETTING

Tectonic Assemblage of the Canadian Cordillera

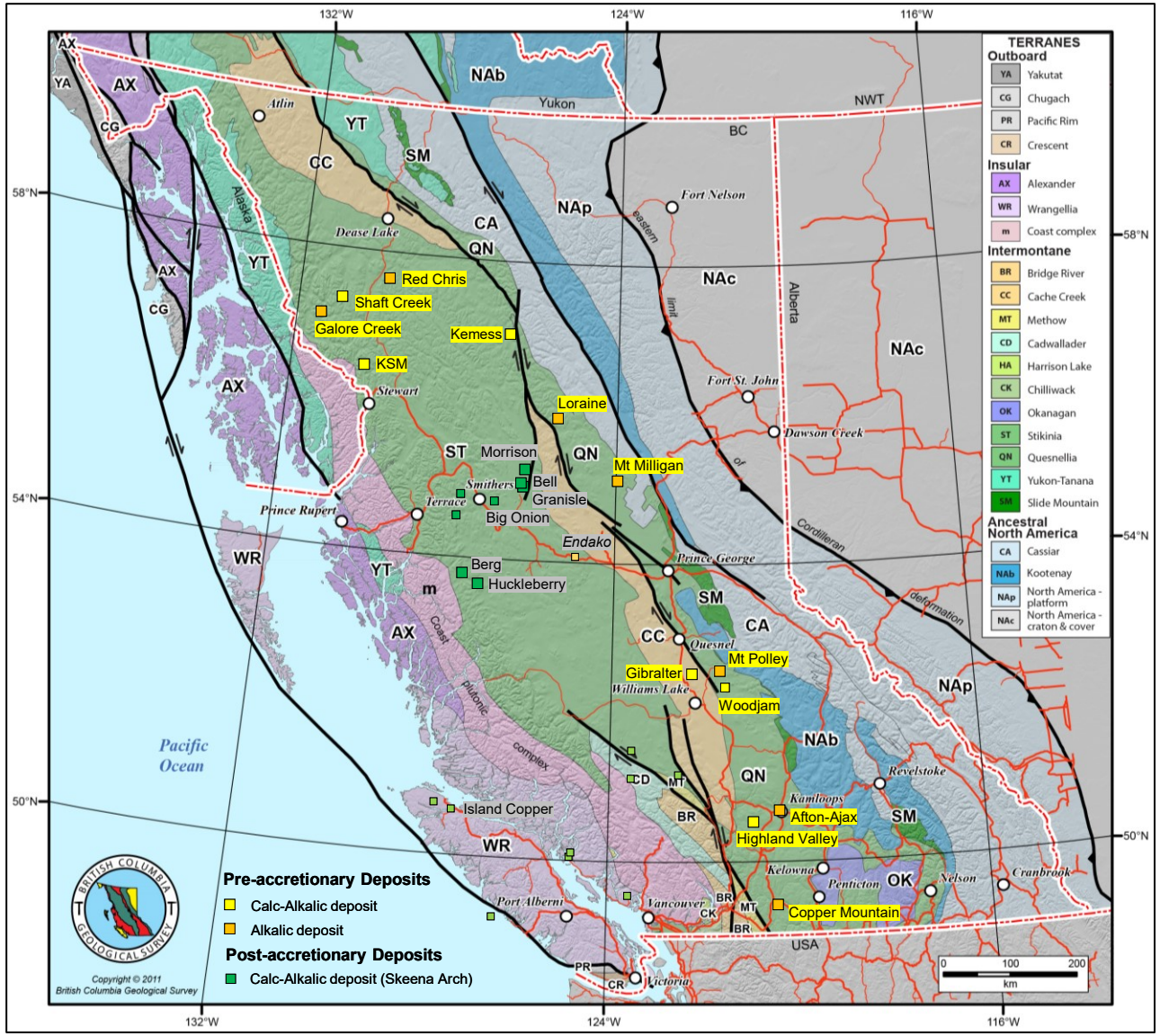
- The study area is located approximately 700 km NNW of Vancouver, centered on the town of Smithers in the central part of the Canadian Cordillera.
- The Canadian Cordillera consists of an assemblage of accreted superterranes comprising the Intermontane, Coastal and Insular belts. This assemblage is bounded to the east by elements of ancestral North America (i.e. Laurentia)
- The study area is underlain by the **Intermontane belt** comprising the Late Paleozoic to Mesozoic Quesnel and Stikine terranes, both representing island arc assemblages that envelop an axial zone of ocean-floor affinity known as the Cache Creek terrane. The **Stikine terrane** is the dominant assemblage within the confines of the study area.
- This collage of superterranes (a.k.a. 'The Great Terrane Wreck') is bounded to the east by the Northern Rocky Mountain Trench and Tintina Fault systems, and to the west by the offshore Queen Charlotte fault and associated onshore Danali fault.
- The bounding transcurrent fault systems have accommodated several hundred kilometers of mainly right-lateral strike slip motion since the middle Cretaceous. Structural events within the study area are manifest as Late Cretaceous shortening (thrust faults and folds) overprinted by a major phase of Eocene extension (normal faults).



PORPHYRY DEPOSITS IN BC

Deposit Distribution, Classification and Age

- Most of the porphyry copper deposits in BC are hosted by the Quesnel and Stikine terranes of the Intermontane Belt.
- Major deposits can be divided according to their emplacement age into **pre-accretionary** or **post-accretionary**, and in terms of host rock chemistry into **calc-alkalic** (Cu±Mo±Au) and **alkalic** (Cu±Au) subtypes*.
- The **Pre-accretionary deposits** range in age from Late Triassic to Middle Jurassic and comprise a mix of calc-alcalic and alkalic subtypes. Most were emplaced during a 15 Ma mineralizing epoch between 210 Ma and 195 Ma, centered on about 205 Ma.
- The younger, **post-accretionary deposits** (i.e. post-175 Ma) are generally of Late Cretaceous to Eocene in age and dominantly calc-alkalic in composition. Many of these are concentrated along the Skeena Arch in central BC. In comparison to the older porphyry deposits, relatively few are of economic significance yet still account for almost 30% of the regions total known copper resources (USGS, 2011).



* Note that the terms calc-alkaline, calc-alkalic; alkaline, alkalic are commonly used in a non-rigorous manner to refer to plutonic igneous rocks of granitoid composition, namely quartz diorite, granodiorite, or quartz monzonite (calc-alkaline or calc-alkalic) and of syenitoid through dioritoid to gabbroid composition (alkaline or alkalic), and their volcanic equivalents.

SELECTED CRETACEOUS TO EOCENE PORPHYRY DEPOSITS

Cretaceous Cu-Mo-Au Porphyries - Central & Southern Stikine Terrane

Deposit	Reserves/Resources (Mt)	Cu (%)	Mo (%)	Au (g/t)	Contained Au (M oz)
Glacier Gulch	77.2	-	0.16	-	-
Huckleberry*	88.9	0.46	0.004	0.02	-
Ox Lake	16.1	0.3	0.04		-
Prosperity	831	0.23	-	0.41	10.9
Poison Mountain	280	0.26	0.007	0.14	1.2
Taseko	6.7	0.73	-	0.83	-

Huckleberry* past production Milled tonnes and grades calculated from metal produced 1997-2011 (BCMINFILE)

Huckleberry, 2000

Eocene Cu-Mo-Au & Mo Porphyries - Central Stikine Terrane

Deposit	Reserves/Resources (Mt)	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)
Bell Copper*	77.1	0.39	-	0.16	0.49
Granisle*	52.2	0.4	-	0.13	1.33
Morrison	224.2	0.6	0.004	0.16	-
Hearne Hill	4.2	0.6	-	0.18	-
Bell Moly	32.5	-	0.06	-	-
Kitsault	298.8	-	0.07	-	4.2
Lucky Ship	65.6	-	0.06	-	-
Berg	557.8	0.3	0.03	-	-

* Milled tonnes and grades calculated from past production (BCMINFILE)

Logan, 2011 (GSBC)

THE SKEENA ARCH

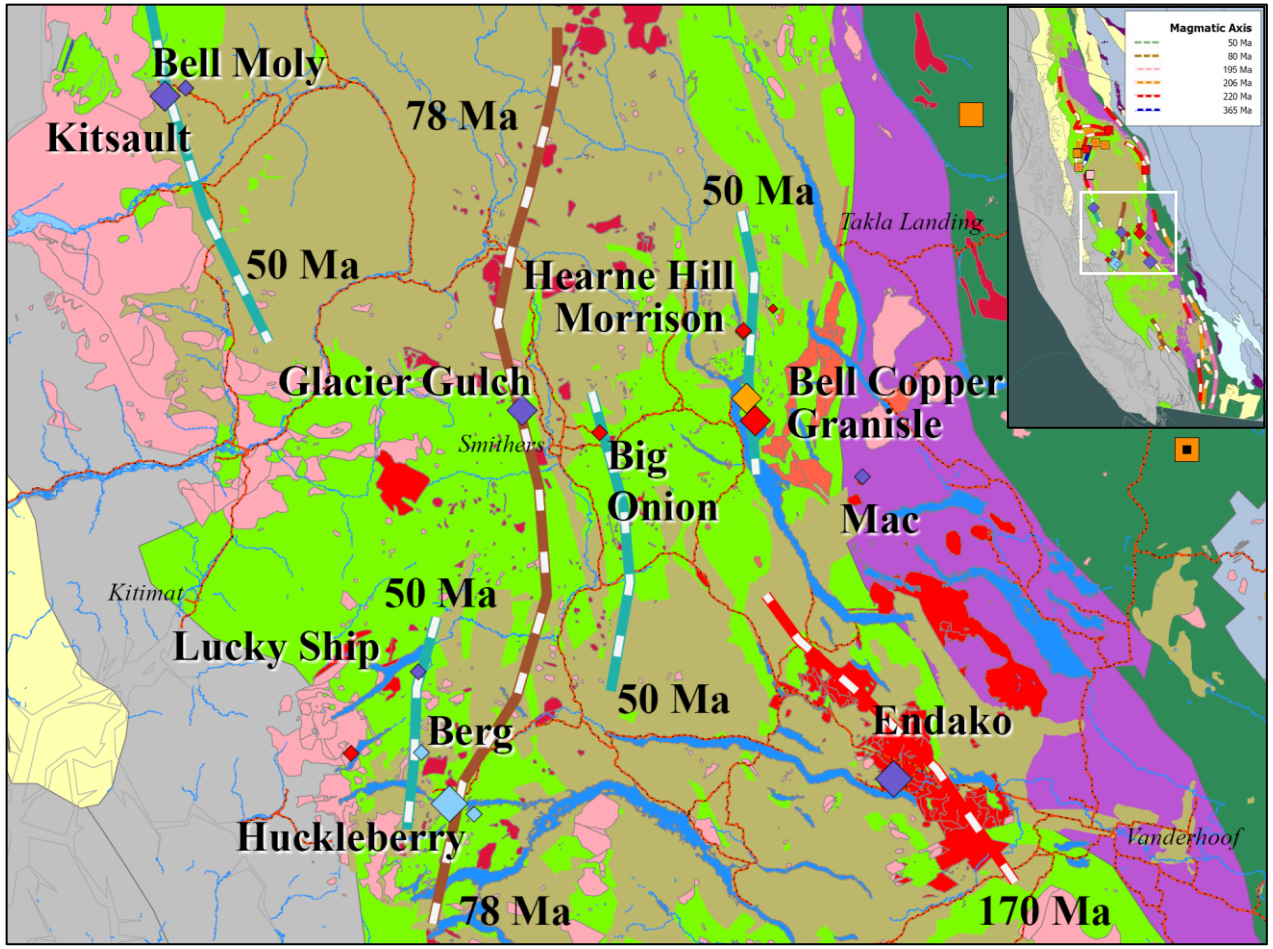
Significance of the Skeena Arch

- The Skeena Arch is a NE-trending (i.e. arc-transverse) topographic high that hosts several important post-accretionary, calc-alkaline Cu-Mo and Mo porphyry deposits. Most are related to a series of Late Cretaceous and Eocene intrusive rocks that are spatially restricted to this region.

- The topographic high is thought to be a manifestation of a fundamental arc-transverse structural anisotropy that developed in the Middle to Late Jurassic, prior to NW-SE shortening that commenced in the Early Cretaceous. Lower Jurassic and older rocks exposed along its crest are flanked by Jurassic to Lower Cretaceous units deposited in the Bowser basin to the north and the Nechako basin to the south.

- Although the overall distribution of magmatic axes define N-S trends, individual intrusions are commonly elongate along NE-trends, parallel to the axis of the Skeena arch. Associated NE-trending folds and faults are also common. However, in contrast to the inverted basins that flank it, the Skeena Arch exhibits relatively minor deformation.

- The orientation of the Skeena Arch potentially reflects the inversion of older extensional structures that remained as magma conduits into the late Cretaceous and Eocene, thereby leading to widespread porphyry and related mineralization (Angen et al., 2017). Similar arc-transverse controls are a common feature of many productive porphyry belts.



Logan, 2011 (GSBC)

Note that elsewhere in the Stikine terrane, large porphyry and related deposits are more commonly associated with Late Triassic and Early Jurassic plutons (bright red in above figure). The reason for the absence of comparable deposits in the Skeena Arch remains poorly understood.

GEOTECTONIC EVOLUTION

Geotectonic Evolution of Central Stikinia

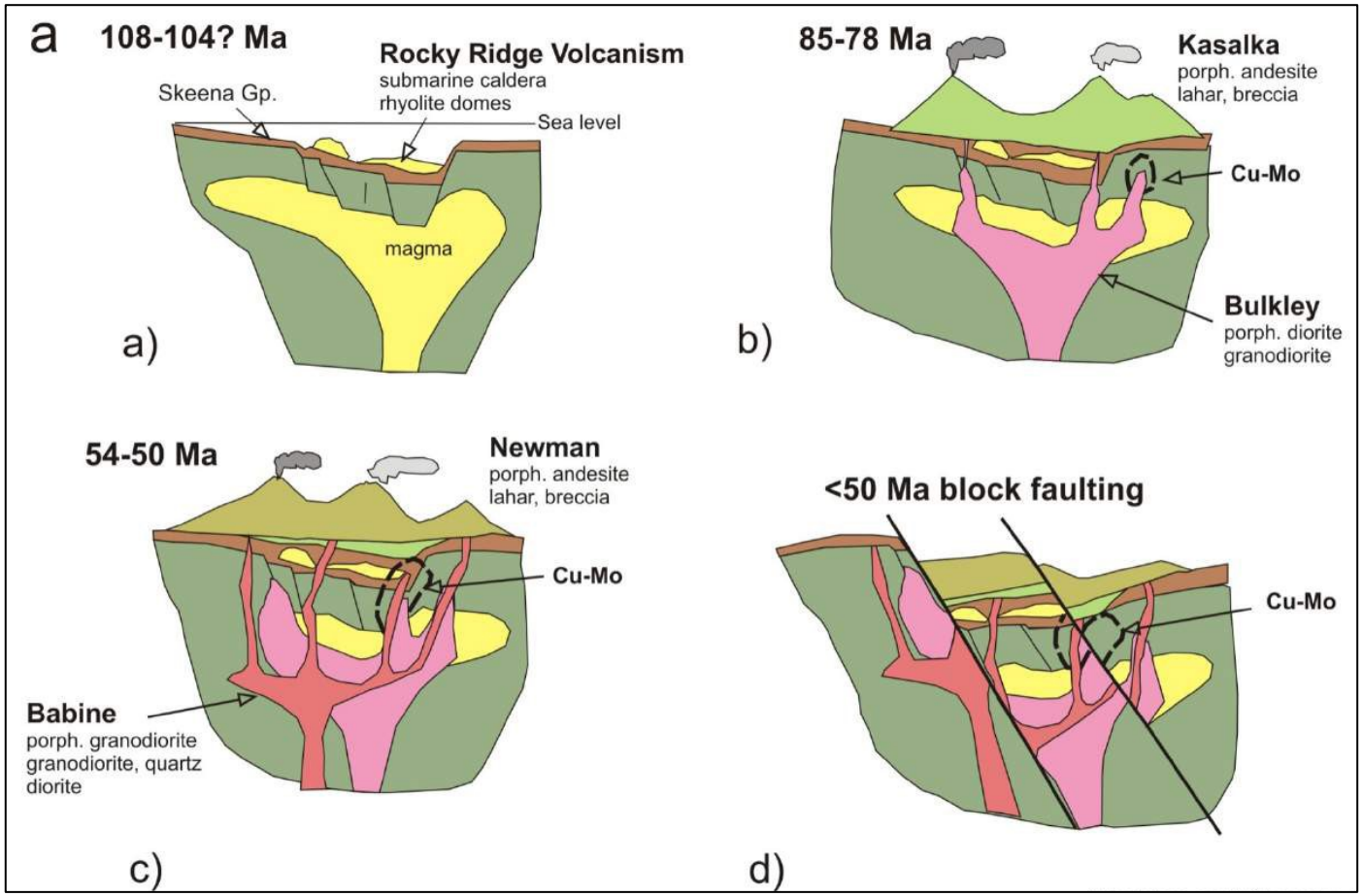
- The basement rocks of the Skeena Arch are comprised mainly of Upper Triassic to Lower Jurassic volcanics (Hazelton Gp) and their intrusive equivalents (Topley and Kleanza suites). This arc terrane was accreted to western North America during the Middle Jurassic producing SW-vergent folds and thrusts.

- Accretion was followed by marine sedimentation in the Nacheko and Bowser basins (e.g. Bowser Lake and Skeena Gps). The presence of unconformities along the Skeena Arch suggest the existence of a topographic high by at least the Early Cretaceous.

- Discrete intrusive events occurred during the Late Cretaceous (Bulkley Suite) and Eocene (Nanika and Babine suites). Both host significant porphyry mineralization. Their overall distribution defines a NW-trend, but individual intrusions are commonly aligned along the NE-trend of the Skeena Arch.

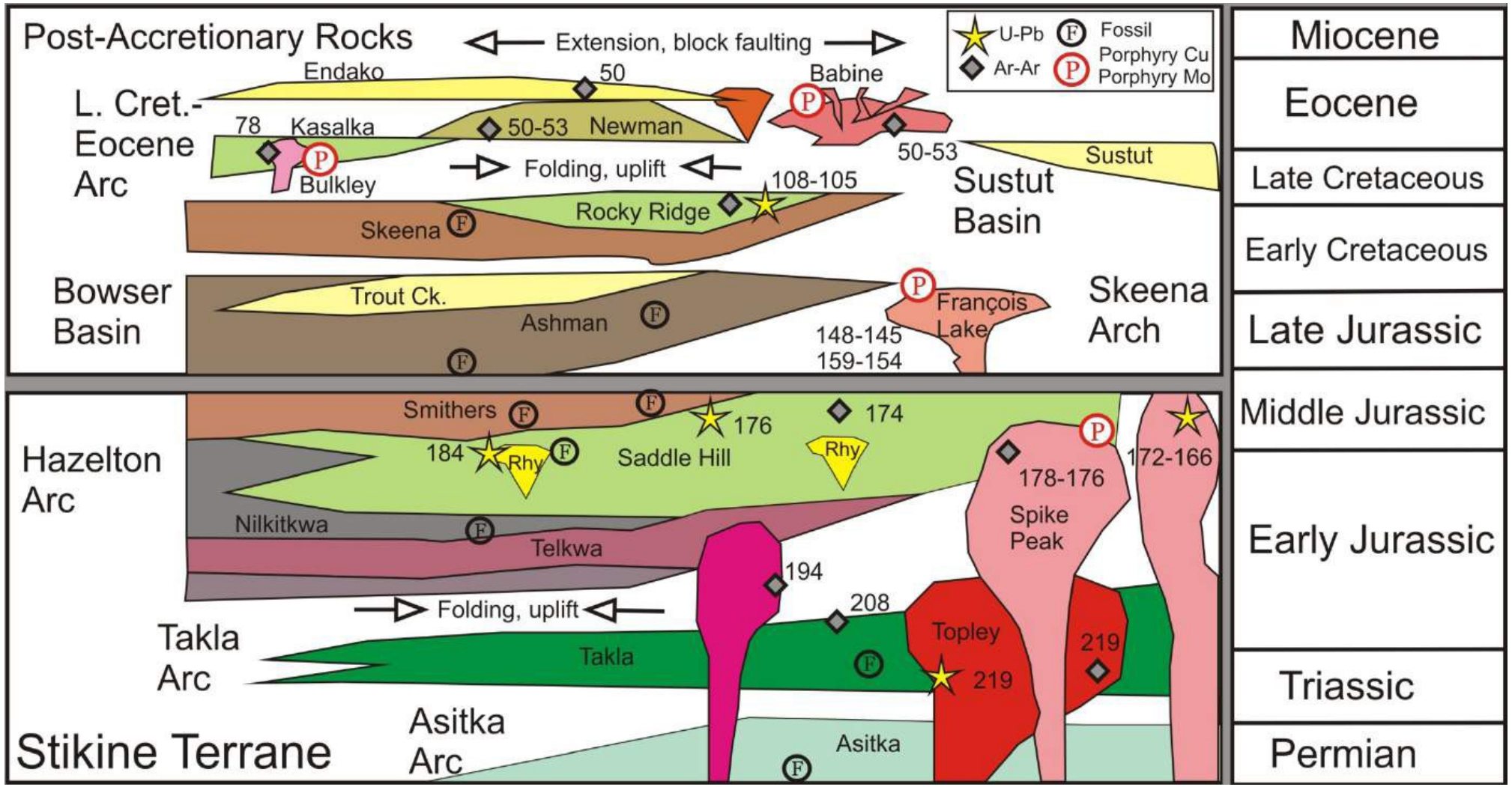
- Compressional structures suggest Early Cretaceous sinistral transpression occurred prior to the Mid- to Late Cretaceous orthogonal shortening. However, the western part of the Skeena Arch is relatively unaffected by NE-vergent deformation. Instead, the dominant structural features are NW-trending grabens formed during an Eocene extensional event (Angen, 2017).

Central Stikinia: Middle Cretaceous to Eocene volcanic/magmatic evolution



MacIntyre and Villeneuve, 2001

SUMMARY OF STRATIGRAPHY AND MAGMATISM



MacIntyre, Villeneuve and Schiarizza, 2001

PORPHYRY PROSPECTIVITY

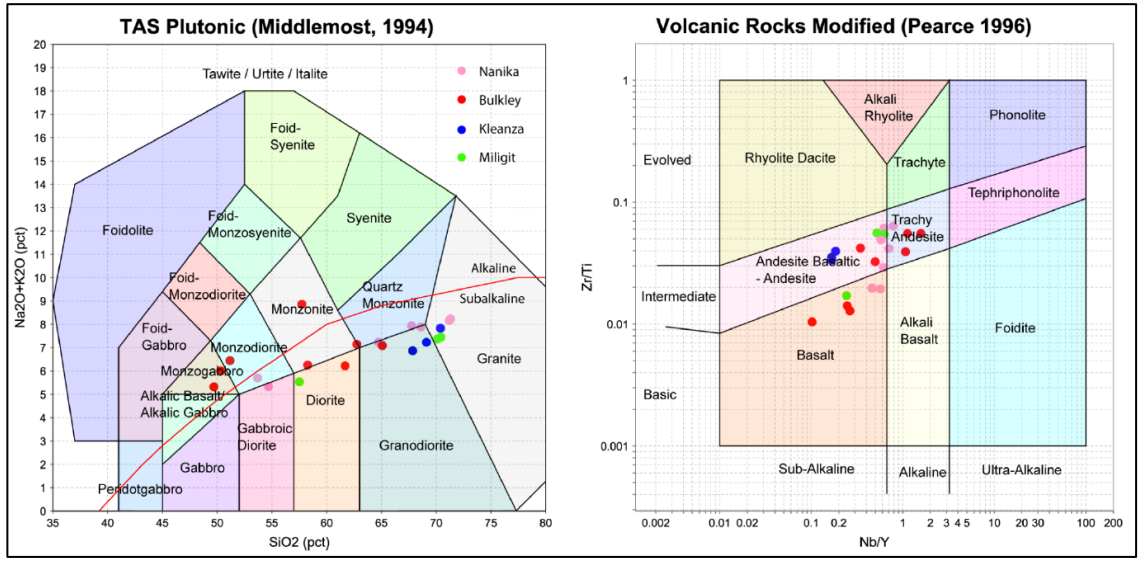
Classification of Plutonic Suites and Fertility

- Four main magmatic events are recognized in the Skeena Arch AOI, namely the:
  (1) Late Triassic Miligit (~Topley) Suite
  (2) Early Jurassic Kleanza Suite
  (3) Late Cretaceous Bulkley (~Kasalka) Suite, and
  (4) Eocene Nanika and Babine Suites

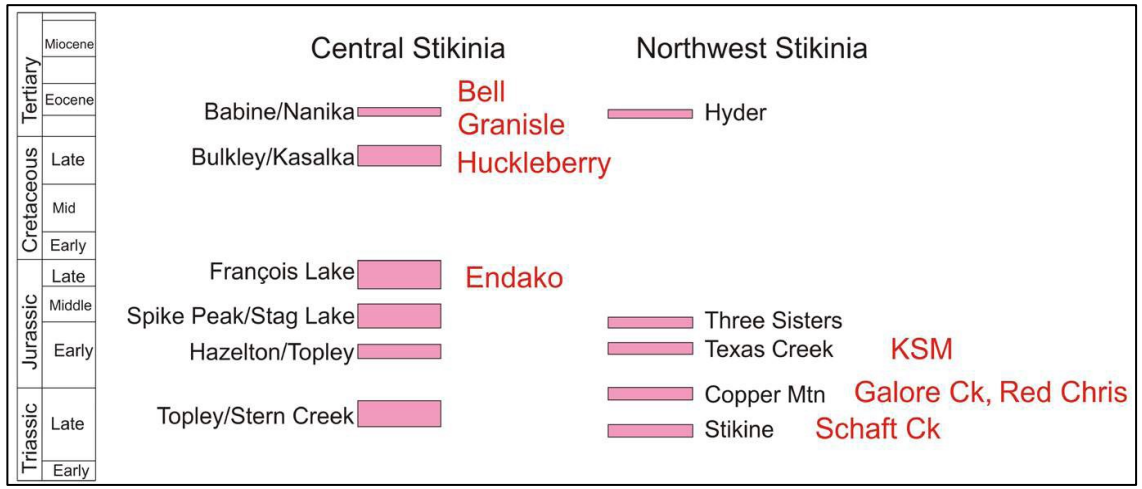
- Whole rock geochemistry indicates that the Bulkley, Nanika and Miligit suites formed under high water contents and are therefore prospective for hydro-thermal systems. In contrast, the Kleanza Suite indicates a low water content and is thus less likely to be mineralized. Geochemical compositions also indicate that subalkaline compositions are dominant. The exception is the Bulkley Suite which is locally differentiated by a mildly alkaline composition.

- The Bulkley/Kasalka Suite hosts the Huckelberry and Berg porphyry Cu deposits and, within the study area, the Hobbes, Hidden Valley and Glacier Gulch prospects. The Nanika or Babine Suites host the Bell, Granisle and Morrison porphyry Cu deposits, and within the study area, the Big Onion Cu deposit and Louise Lake prospect. In some cases, these data are poorly constrained.

- The episodic nature and similar ages of magmatic activity in the northwest and central parts of Stikinia suggests an equal potential for porphyry deposit formation. However, to-date there have been no significant deposits older than the Late Jurassic found within the Skeena Arch.



Angen, 2017



Logan, 2011 (GSBC)

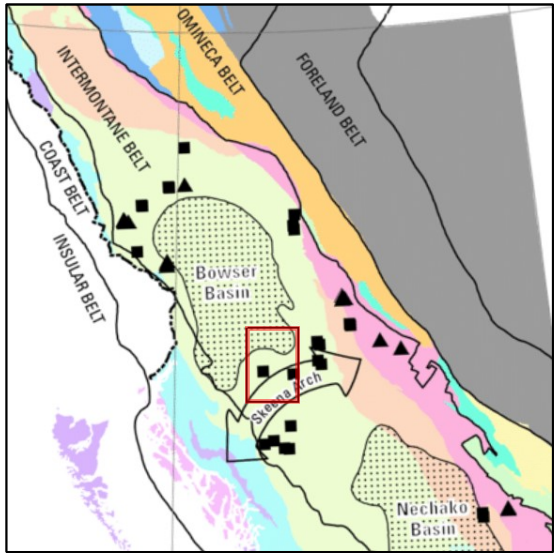
REGIONAL GEOLOGY OF THE STUDY AREA

- The study area (~90 x 125 km) straddles the northwestern margin of the Skeena Arch. The oldest rocks of this region are comprised of Lower Jurassic volcanics of the Hazelton Group (southern sector), along with small inliers of Triassic and older metamorphic rocks. This assemblage is progressively covered northward by Middle Jurassic to Early Cretaceous sedimentary and volcanic strata of the Bowser basin.

- Intrusive rocks, ranging in age from Late Triassic to Eocene, are widely distributed in the study area. Late Cretaceous plutons of the Bulkley Suite are the most common, followed in abundance by Eocene plutons of the Nanika (SW sector) and Babine Suites (NE sector). Older intrusive rocks of the Topley and Kleanza Suites are each confined to single large plutons (SW margin).

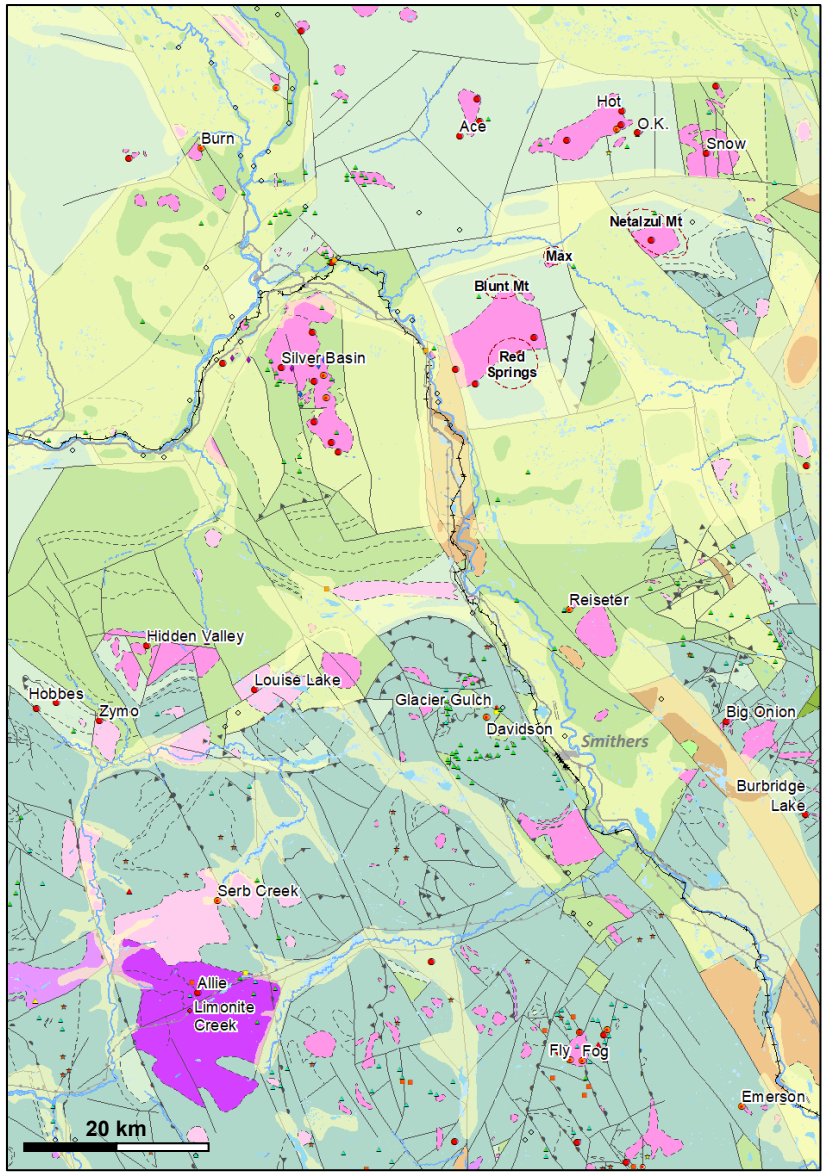
- NNW-trending block faults are the dominant structural features. Such features are generally observed to cut and offset an older set of ENE- to NE-trending faults (and associated folds), some of which are recognized as N- to NE-vergent thrusts.

- Many of the larger plutons display elongate shapes that are consistent with either a NE or NW structural control on their emplacement. The NE-trend is arguably associated with the more significant porphyry deposits (e.g. Louise Lake and Big Onion).



Geological Legend

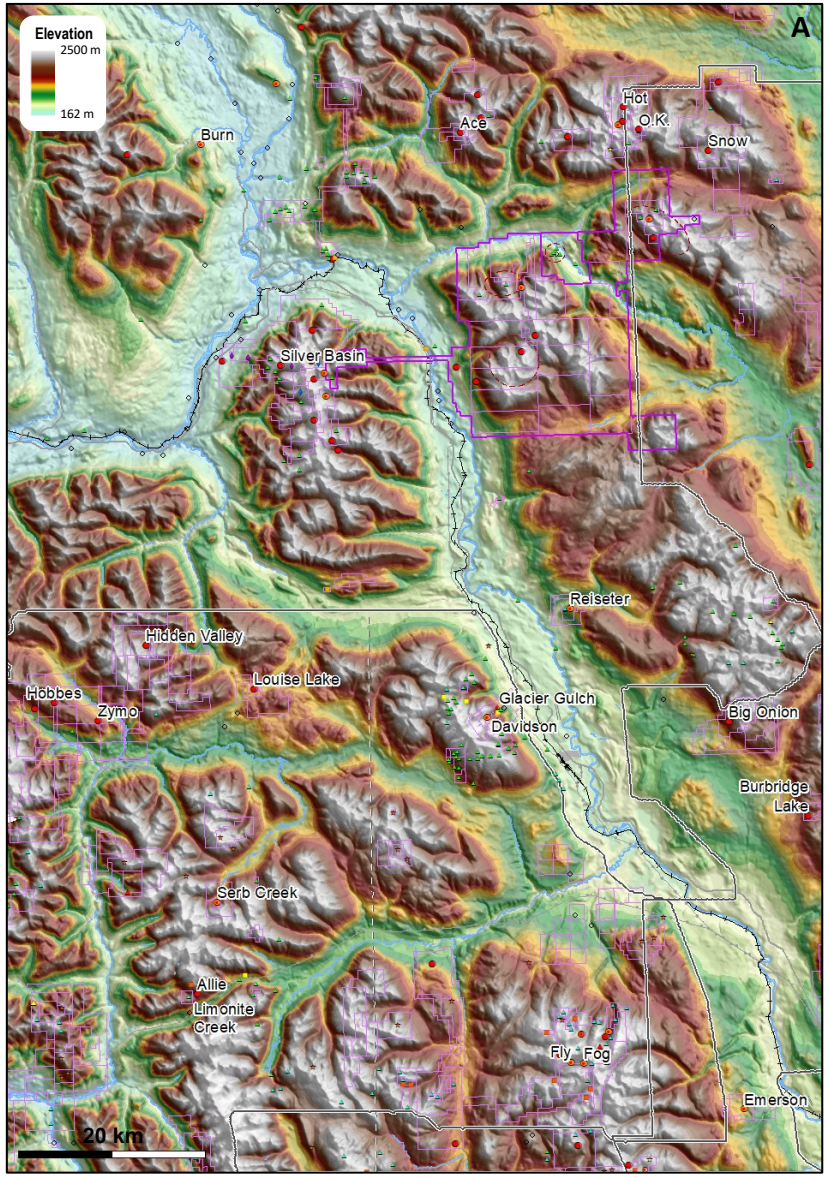
- Nanika / Babine Plutonic Suite (Eocene)
- Bulkley Plutonic Suite (Late Cretaceous)
- Kleanza plutonic suite (Early Jurassic)
- Topley Plutonic Suite (Late Triassic)
- Endako and Nechako Plateau Group
- Upper Cretaceous to Eocene sedimentary rocks
- Kasalka Group
- Skeena Group
- Bowser Lake Group
- Hazelton Group
- Triassic to Lower Jurassic metamorphic rocks

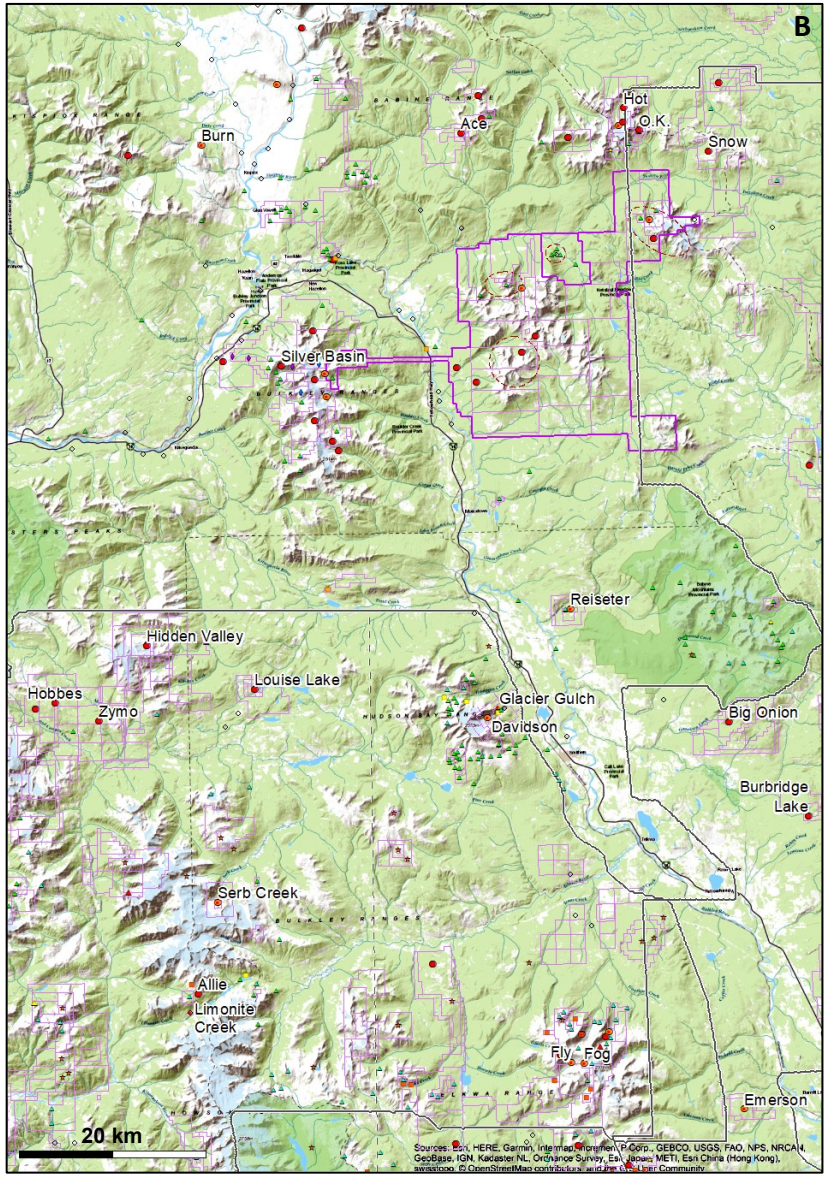


Massey, N.W.D, MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T. (2005): Digital Geology Map of British Columbia: Whole Province; B.C. Ministry of Energy and Mines, Geofile 2005-1
https://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/GeoFiles/Pages/2005-1.aspx

TOPOGRAPHY AND INFRASTRUCTURE

- The elevation of the study area ranges from several hundred meters to a maximum of 2,500 meters (a.m.s.l.).
- Figure A shows a digital elevation model derived from SRTM data. Note that most of the known porphyry occurrences (red circles) occur at the high elevations. This relationship generally reflects a greater degree of exposure (of the host intrusions) and the common presence of cover rocks or alluvium at lower elevations.
- Figure B shows a topographic map with infrastructure. The study area is well serviced by a transport and power network despite its relative remoteness and mountainous terrain.





MINERAL OCCURENCES AND CONCESSIONS

- Porphyry and related mineralization is widely distributed in the study area. Examples include several small porphyry Cu or Mo deposits and numerous polymetallic vein and manto systems, many of which were mined for Ag, Pb, Zn or Au (Note that such occurrences are commonly classified as Porphyry Cu +/- Mo +/- Au; Polymetallic veins Ag-Pb-Zn+/-Au or Cu+/-Ag quartz veins). The most significant mineral occurrences are invariably associated with the Late Cretaceous intrusive rocks of the Bulkley Plutonic Suite or Eocene Nanika and Babine Plutonic Suites (even where these occurrences are positioned within older intrusions).

- The most significant porphyry Cu occurrences are the Big Onion (Cimbria) and Louise Lake deposits. Other porphyry and related prospects include Hobbes, Zymo, Hidden Valley, Glacier Gulch and Burbridge Lake. Most of these occur within a W-E trending belt that spans the south-central parts of the study area.

- Several porphyry Mo (low F-type) prospects are also recognized in the southern part of the area. These are similarly associated with both Late Cretaceous and Eocene intrusions. Examples include Davidson, Serb Creek and Fly/Fog.

- Porphyry prospects in the northern half of the study area are exclusively associated with the Late Cretaceous Bulkley Suite. Outside of the Hazelton project area (Jaxon Mining), the most advanced prospects are Silver Basin, Burn, Ace, Hot and Snow.

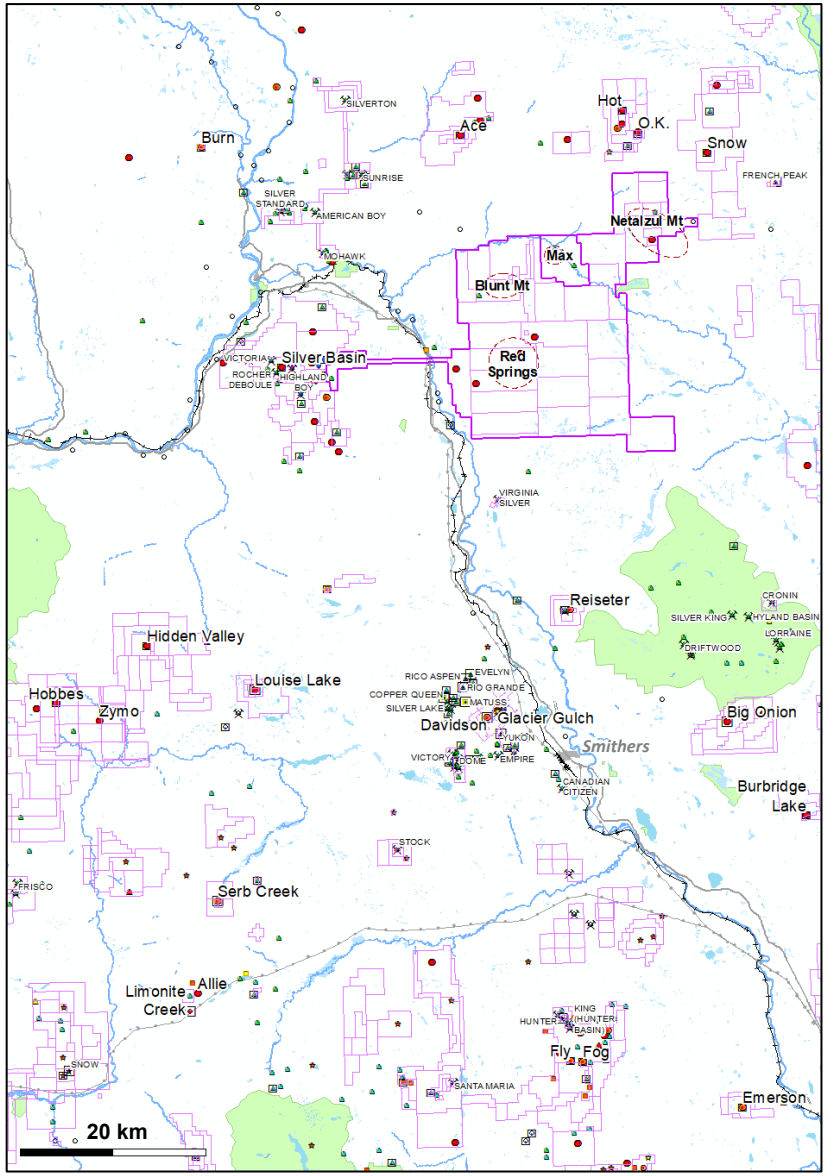
- Nearly all known porphyry occurrences in the study area are currently held under exploration or mining licenses. The only exceptions occur in the far northwestern parts of the area (e.g. Burn).

Mineral Occurrences

- Porphyry Cu +/- Mo +/- Au
- Porphyry Mo (Low F- type)
- Alkalic porphyry Cu-Au
- Cu skarn
- Cu+/-Ag quartz veins
- Epithermal Au-Ag-Cu: high sulphidation
- Porphyry-related Au
- Volcanic redbed Cu
- Au skarn
- Au-quartz veins
- Intrusion-related Au pyrrhotite veins
- Sulphide manto Au
- Polymetallic veins and manto Ag-Pb-Zn+/-Au
- Subvolcanic Cu-Ag-Au (As-Sb)
- W veins
- Flood Basalt-Associated Ni-Cu
- Noranda/Kuroko massive sulphide Cu-Pb-Zn

- Developed Prospect
- Past Producer
- Prospect
- Showing

- Exploration or Mining Concession



MINFILE (2010): MINFILE B.C. mineral deposits database; B.C. Ministry of Energy, Mines and Petroleum Resources, https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/mineralinventory

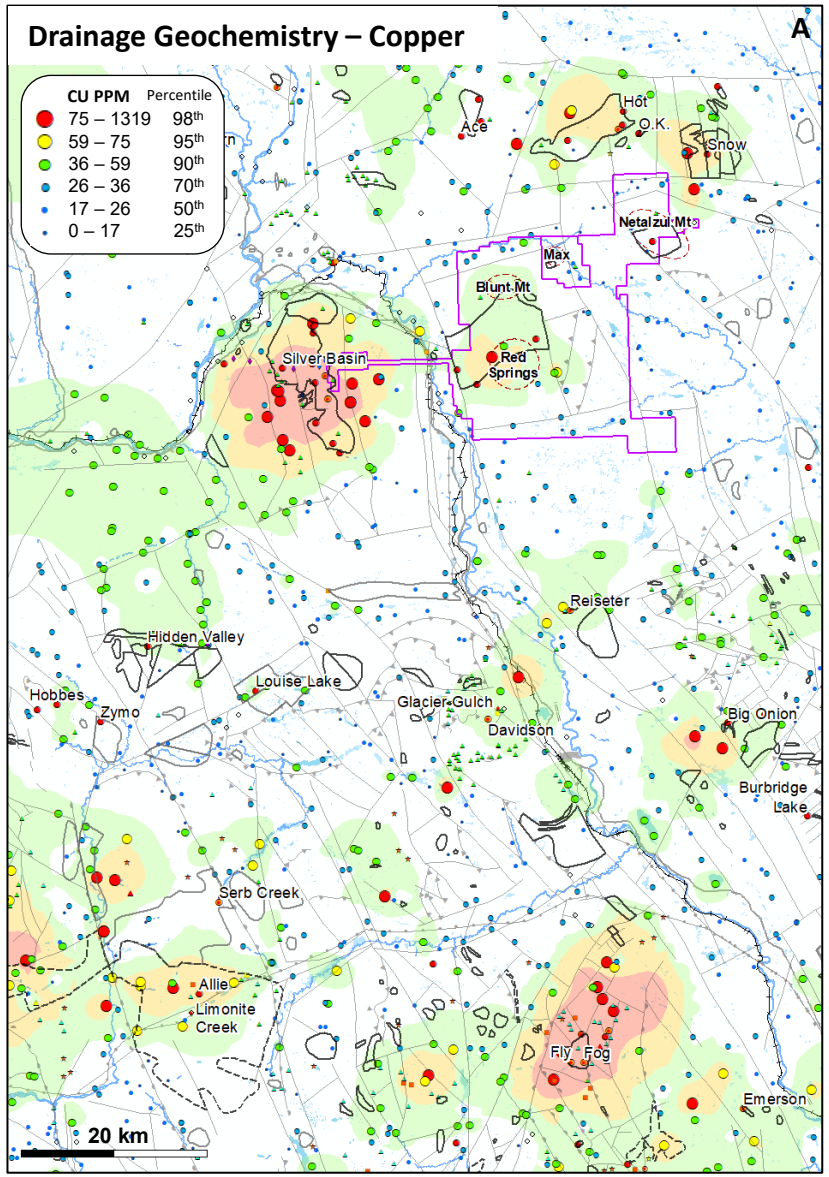
GEOCHEMICAL DATA

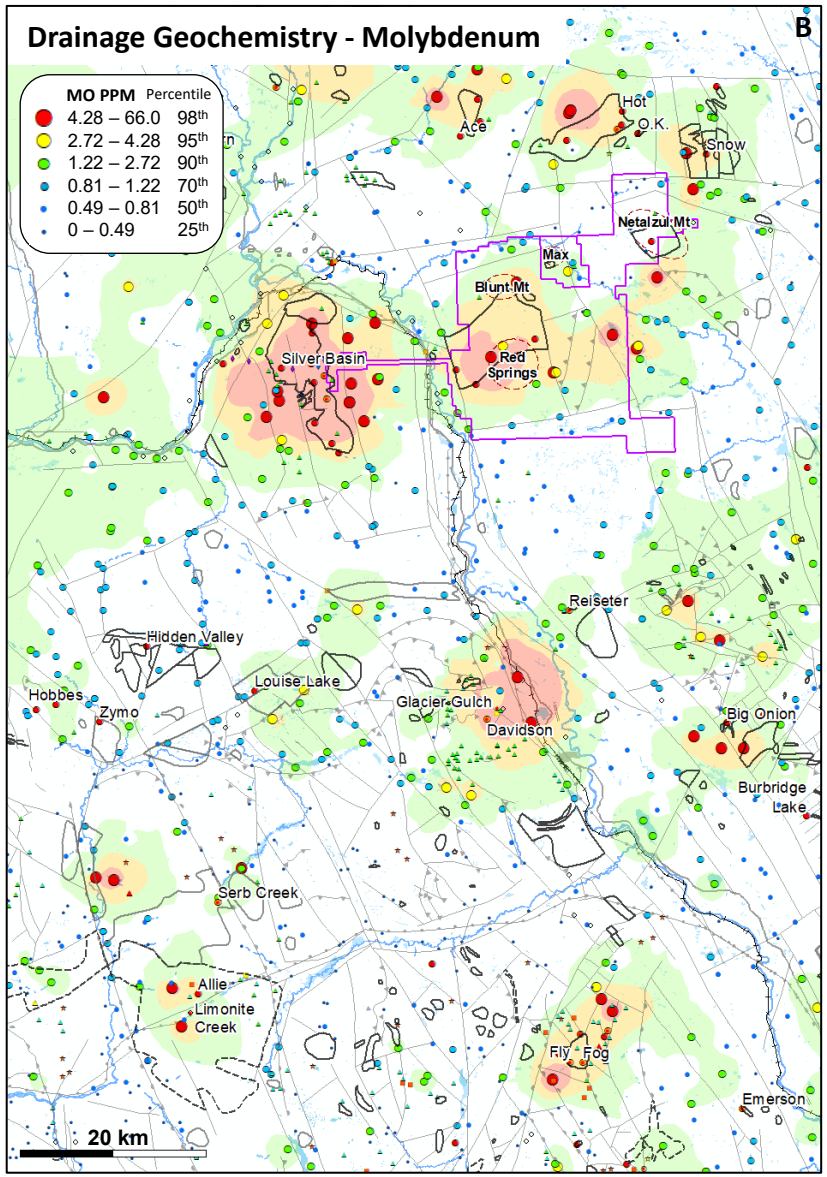
- The study area is additionally covered by regional drainage geochemical data compiled by the BC Geological Survey (BCGS) and Geological Survey of Canada (GSC).

- Regional sampling in the Skeena Arch was undertaken between 1993 and 2002, initially comprising a total of 2122 drainage sediment and water samples. Additional sampling and the reanalysis of older samples was restarting in 2005 under the auspices of Geoscience BC. Final datasets were released in 2009 as part of the QUEST-West Project.

- The study area includes 823 samples analyzed for 36 elements by ICP-MS. The average sample density is about 1 sample every 10 to 15 km^2.

- The adjacent figures show copper (Fig. A) and molybdenum (Fig. B), both as individual values and as interpolated (gridded) data. The regional geology is shown as an overlay (with intrusive rocks as bold polygons).





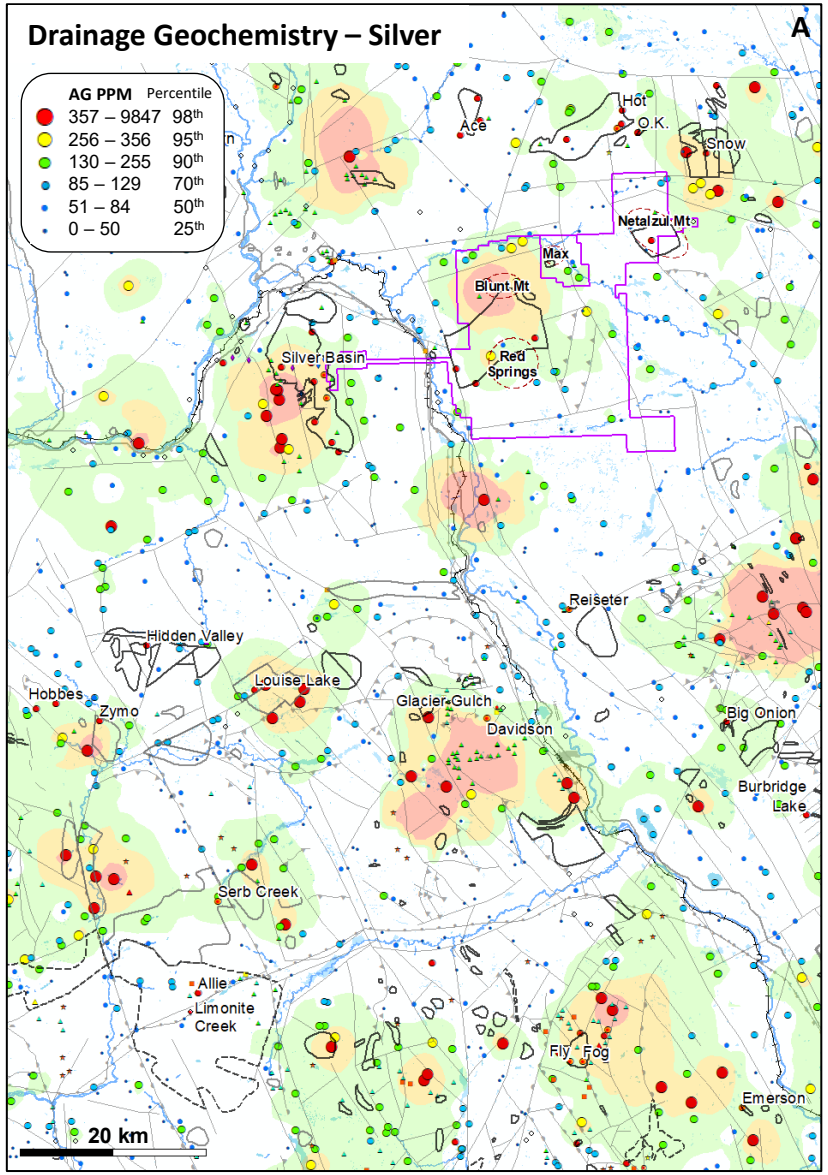
Jackaman, W. (2009): Regional drainage sediment and water geochemical data, central British Columbia (parts of NTS 93E, F, G, J, K, L, M, N & O); Geoscience BC, Report 2009-1, 347 p.

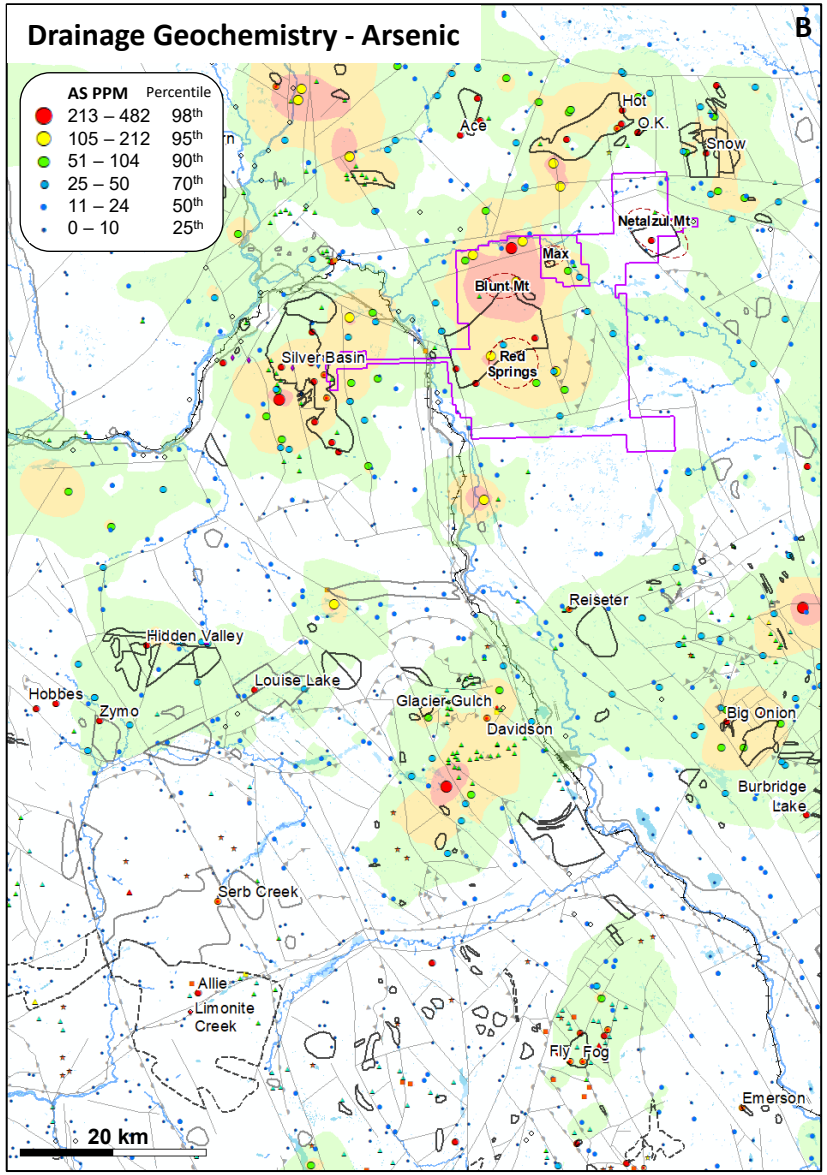
Jackaman, W. (2009): QUEST-West Project sample reanalysis; Geoscience BC, Report 2009-5, 4p.

GEOCHEMICAL DATA

- Shown here are the silver (Fig. A) and arsenic (Fig. B) geochemical data. Equivalent products for several additional elements are provided in the accompanying GIS to this report.

- Note that no interpretation of these geochemical data has been undertaken as part of this report. However, such products provide essential data for the selection and prioritization of targets that may be identified in other datasets.





GRAVITY DATA

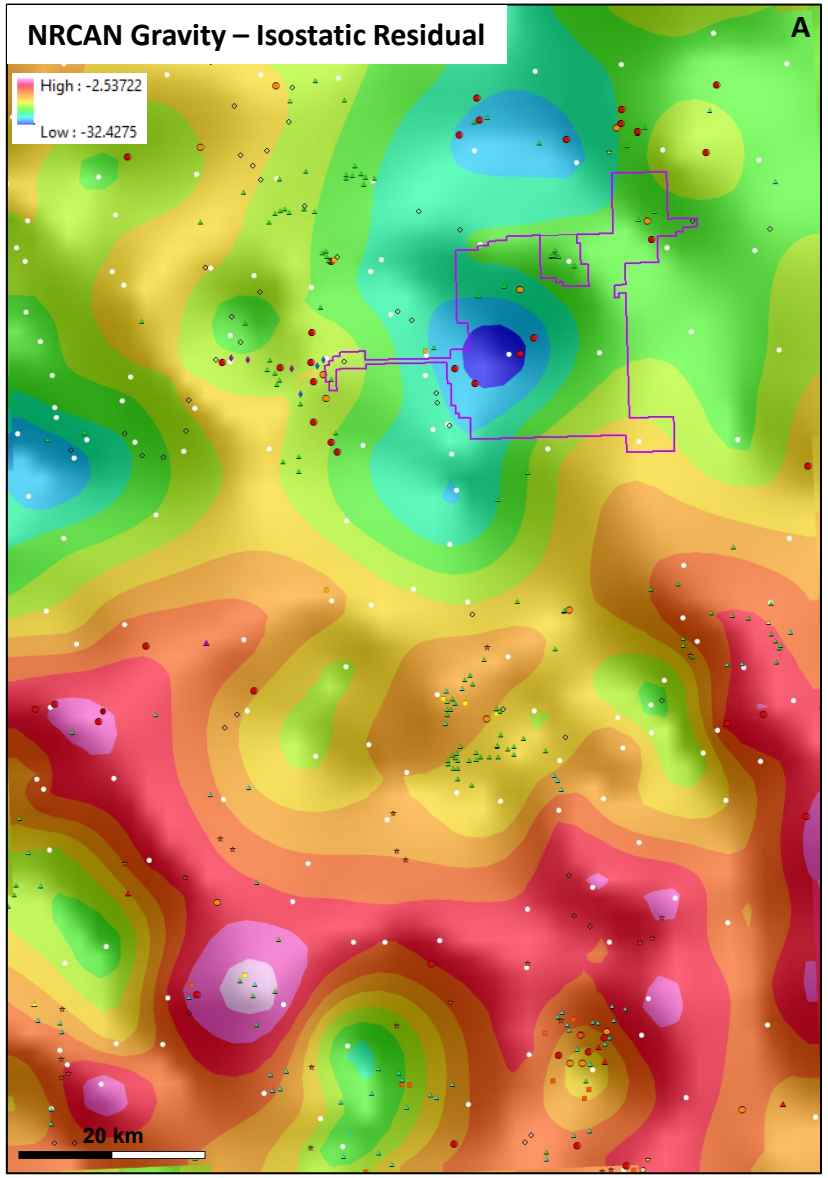
- Gravity data in the study area include:

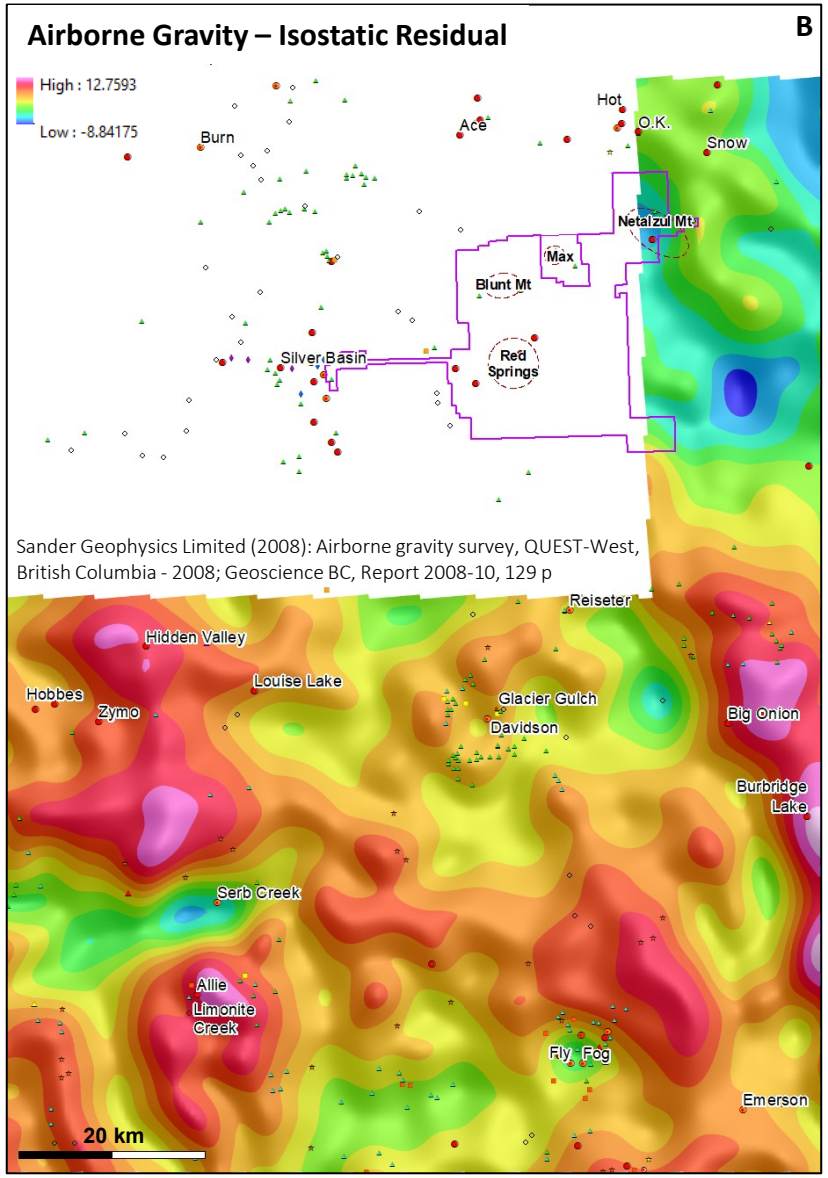
  1. Regional ground gravity provided by Natural Resources Canada (2009) at a grid cell-size of 2 km.

  2. Airborne gravity acquired by Sander Geophysics Limited (SGL) on behalf of Geoscience BC during the 2008 QUEST West program. This survey comprised 25,500 line-km of data acquired using SGL's Airborne Inertially Referenced Gravimeter (AIRGrav). Traverse lines were flown at 2 km spacing (E-W) with control lines (N-S) at 17 km spacing. The survey was flown at an average ground speed of about 90 knots with a target height of 200 m above a drape surface. The data were released in November 2008 as Geoscience BC Report 2008-10.

- Figure A shows the NRCAN isostatic residual grid with gravity stations illustrated as white dots. Note that station spacings range from a minimum of about 5 km to more than 10 km. As an example, the Hazelton project area (purple outline) contains just 4 stations.

- Figure B shows an equivalent isostatic gravity product derived from the airborne gravity data. Note the differences between figures A and B, particularly in the SW quadrant (e.g. around the Serb Creek porphyry occurrence).



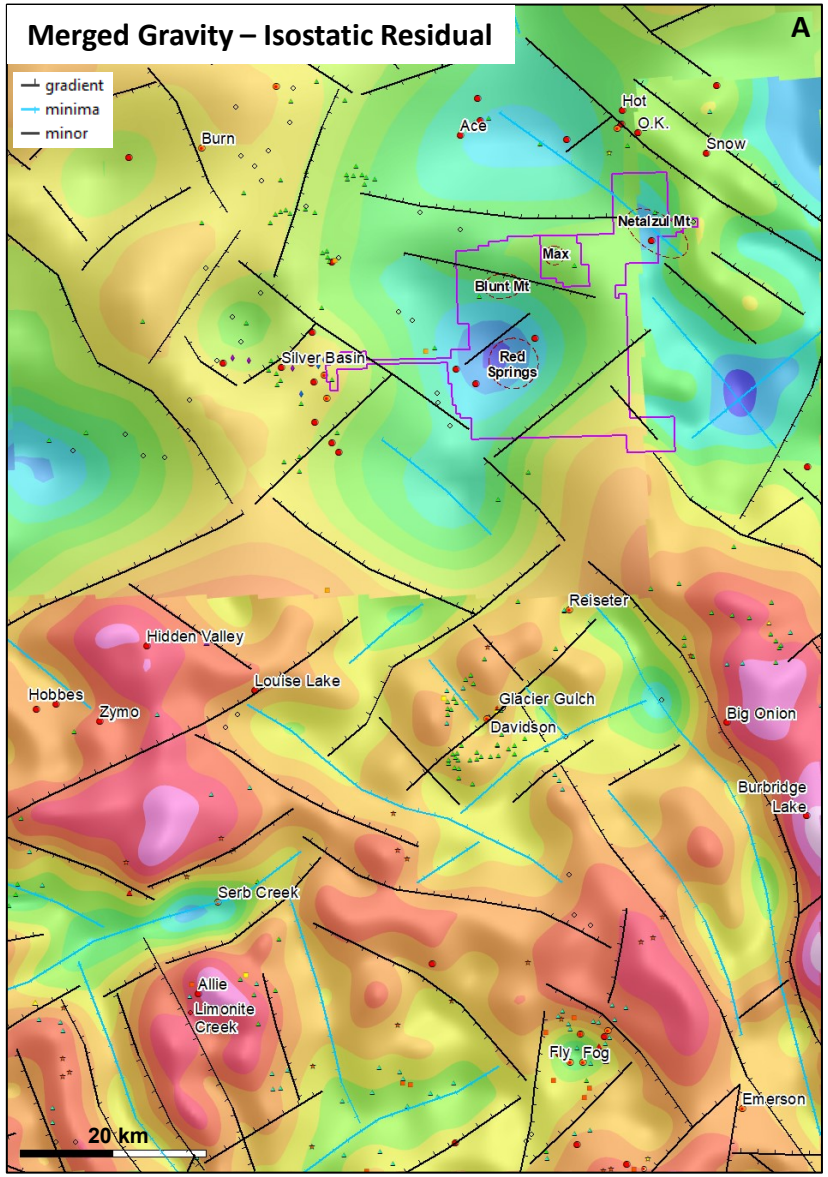


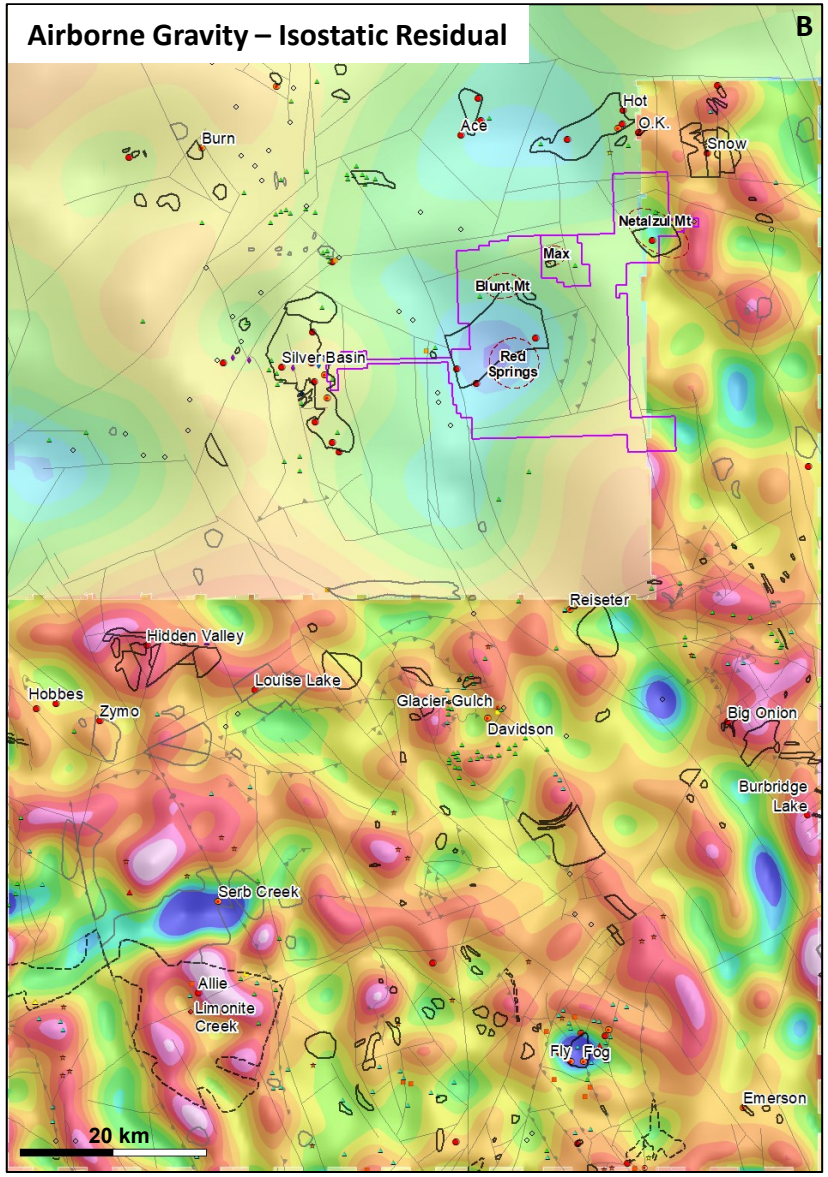
GRAVITY PRODUCTS

- Figure A shows an interpreted structural sketch overlain on a gravity image comprised of both ground and airborne data. Prominent gravity lows in the northern part of area coincide with the Bowser basin. In contrast, the uplifted basement rocks of the Skeena Arch are reflected by gravity highs in the southern parts.

- The NW- and NE-trending orthogonal gradients are interpreted as deep-seated structural and lithological discontinuities. Note that NE-trending gradients and minima commonly coincide with significant porphyry occurrences (e.g. Louise Lake, Davidson/Glacier Gulch and Serb Creek).

- Figure B shows the first vertical derivative of the airborne gravity data with a geological overlay. Intrusive rocks are shown as thick lines; dashed are Triassic/Jurassic, bold are L. Cretaceous, light grey are Eocene. While no consistent signature for intrusive rocks is indicated, several significant porphyry occurrences are positioned within discrete lows or occur on the margins of such lows (e.g. Serb Creek, Fly/Fog and possibly, Red Springs). Gravity lows are typical features of calc-alkaline porphyry systems and their host rocks.





MAGNETIC DATA

- Magnetic data compiled for the study area includes regional and property-scale surveys.

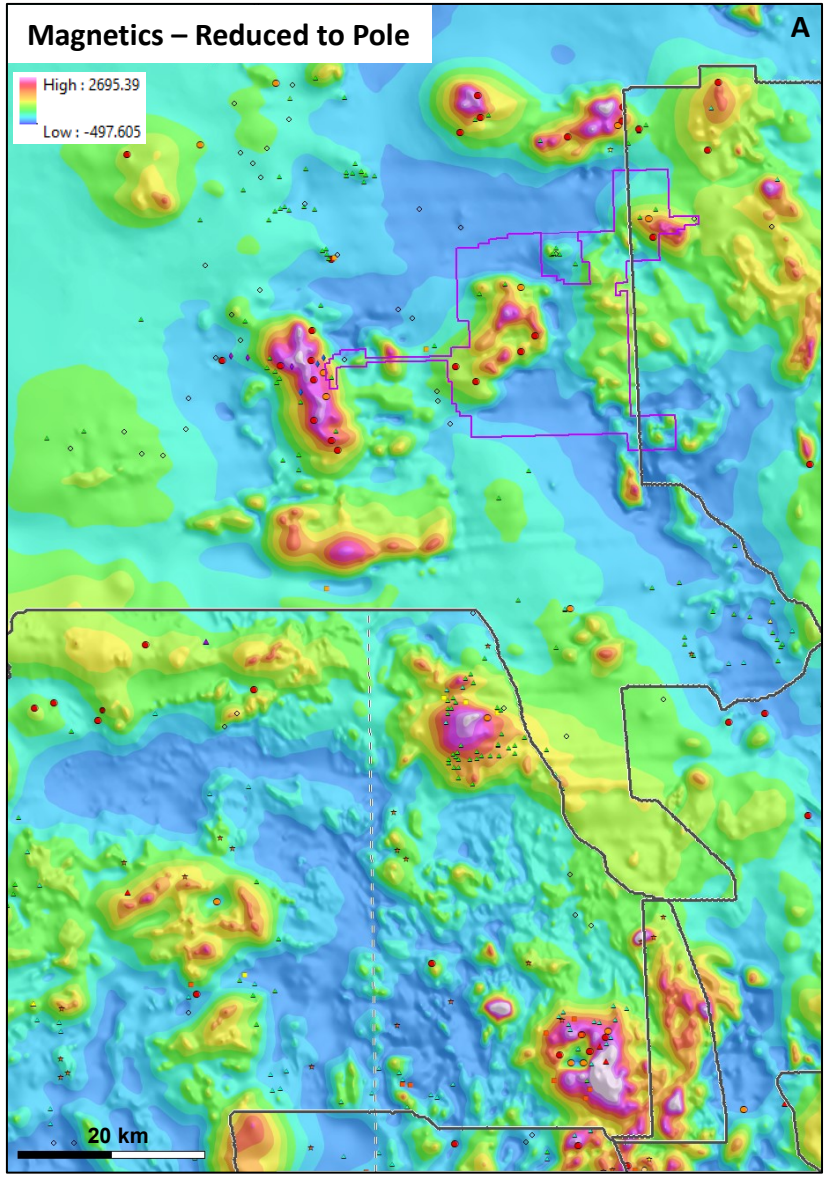
- Figure A shows a magnetic mosaic derived from 3 separated data sources, namely:

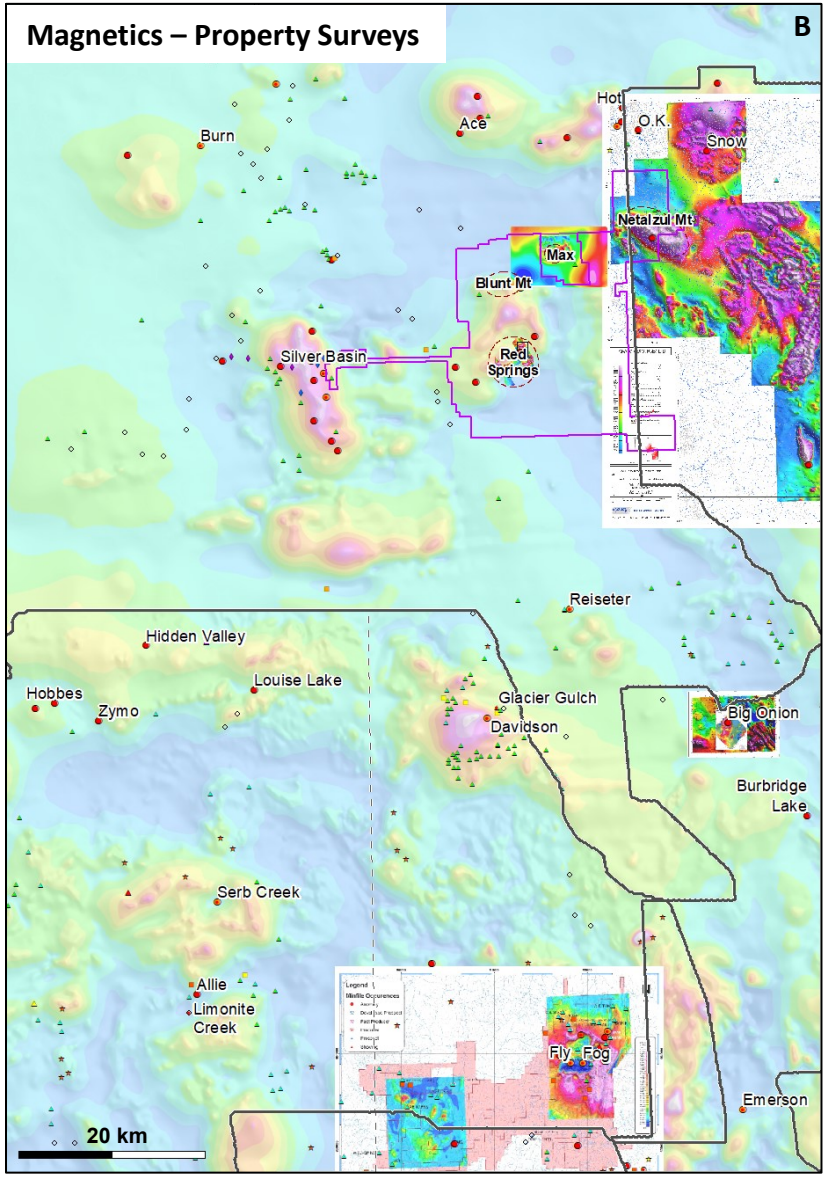
  1. Regional magnetics (2009) provided by Natural Resources Canada at a grid cell size of 200 m.

  2. A magnetic survey flown by Precision GeoSurveys in 2015 on behalf of Geoscience BC as part of 'Search Phase 1' (SW sector of AOI). The data were collected at a survey line spacing of 250 m (E-W), a tie line spacing of 2500 m (N-S), and a ground clearance of 100 m. Data were gridded with a cell size of 62.5 m.

  3. An aeromagnetic and gamma-ray survey flown by Sander Geophysics Limited (SGL) in 2016 on behalf of Geoscience BC as 'Search Phase 2' (E margin of AOI). These data were collected at a survey line spacing of 250 m (E-W), a tie line spacing of 2500 m (N-S) and a target clearance of 80 m above ground level. The data were gridded with a cell size of 50 m.

- Figure B shows located images of property-scale surveys obtained from a preliminary compilation of assessment reports provided by Jaxon Mining (along with survey data acquired within the Hazelton Property). The existence of additional such surveys is considered highly likely.



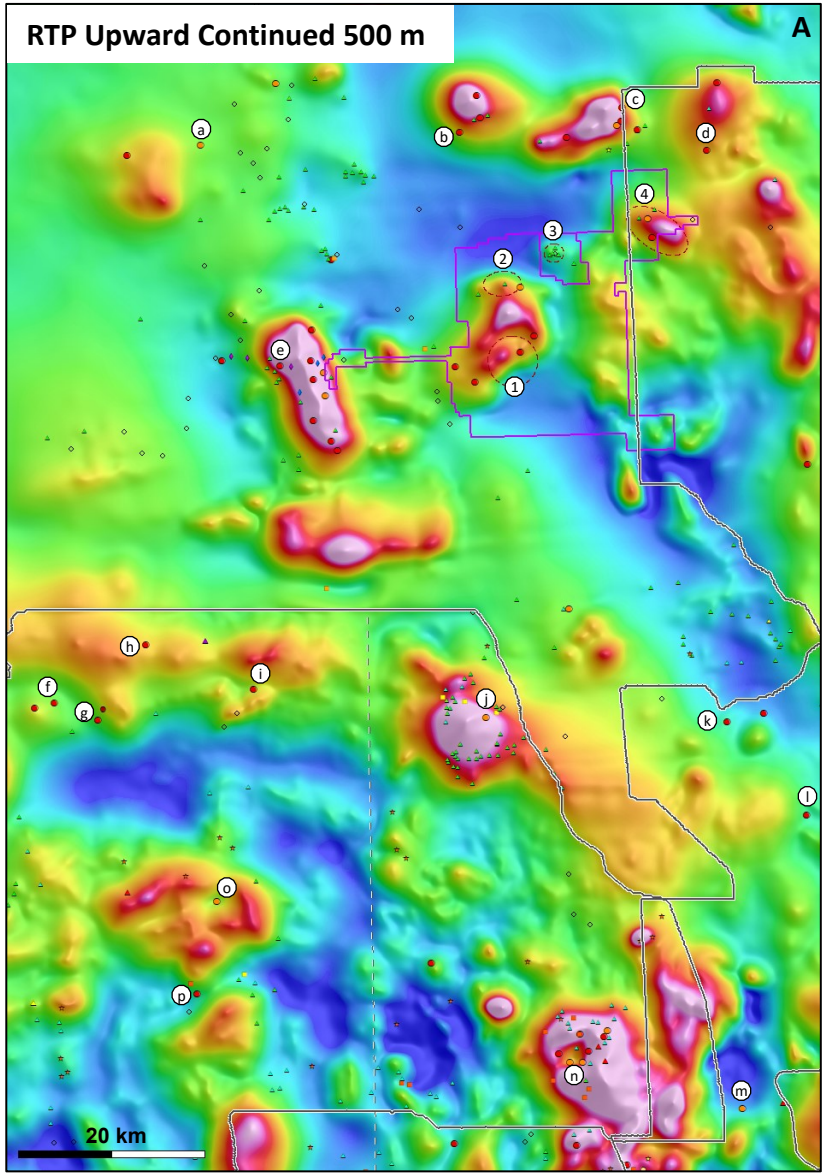


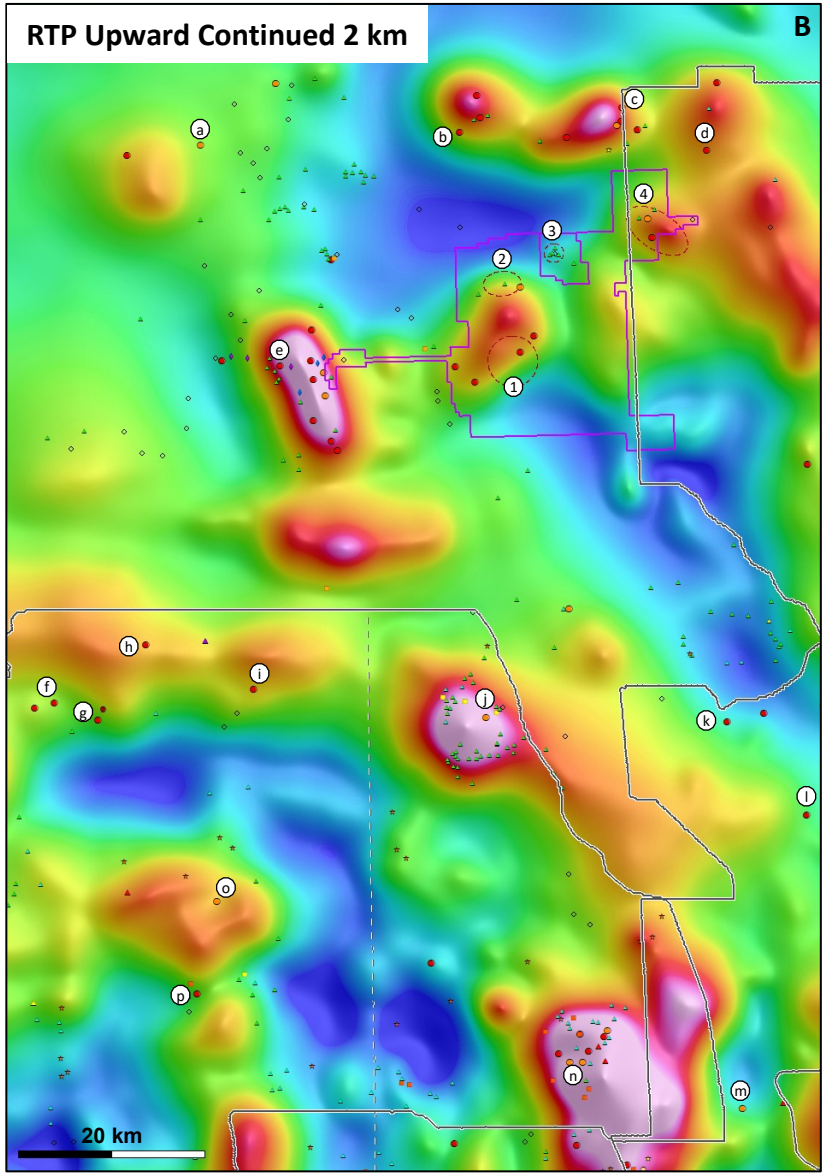
MAGNETIC PRODUCTS

- Upward continuation (UC) of magnetic data approximates the outcomes that would be obtained if the survey was flown at different heights above the ground. This is achieved by enhancing the long wavelengths (deep) at the expense of shorter wavelengths (shallow).

- The effect is to simplify the magnetic image and identify 'deep-seated' sources. The latter assumes that longer wavelengths generally reflect deeper sources. The adjacent figures show UC products using values of 500 m (Fig. A) and 2 km (Fig. B).

- The UC products reveal a dominant NW-trend that, for the most part, is interpreted to reflect the more strongly magnetic Bulkley Suite intrusions, albeit locally comprised of individual sources that are highly discordant to this trend (e.g. at Red Springs). Also revealed is an arcuate trend in the SW quadrant. Lower amplitudes in this area probably reflect the more moderately magnetized Nanika Suite intrusions (along with even more weakly magnetic Triassic/Jurassic plutons).



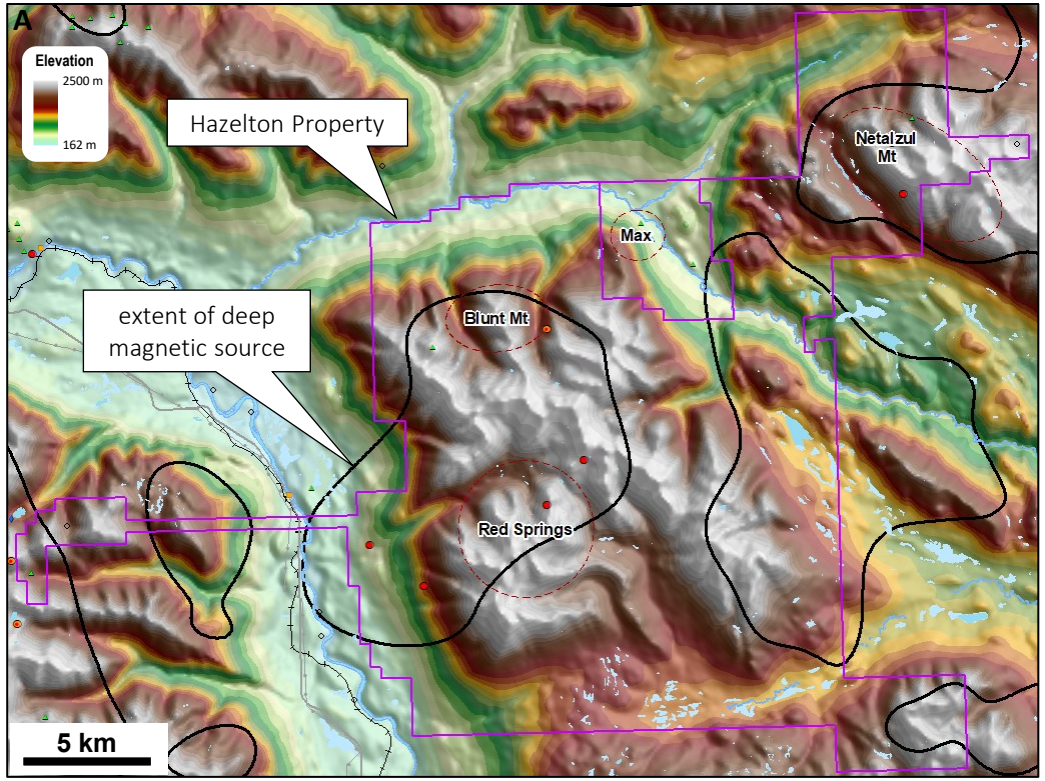


Significant porphyry prospects: (a) Burn, (b) Ace, (c) Hot, (d) Snow, (e) Silver Basin, (f) Hobbes, (g), Zymo FM (h) Hidden Valley, (i) Louise Lake, (j) Glacier Gulch, (k) Big Onion, (l) Burbridge Lake, (m) Emerson, (n) Fly-Fog, (o) Serb Creek, (p) Allie; Jaxon Mining prospects: (1) Red Springs, (2) Blunt Mt, (3) Max, (4) Netalzul.

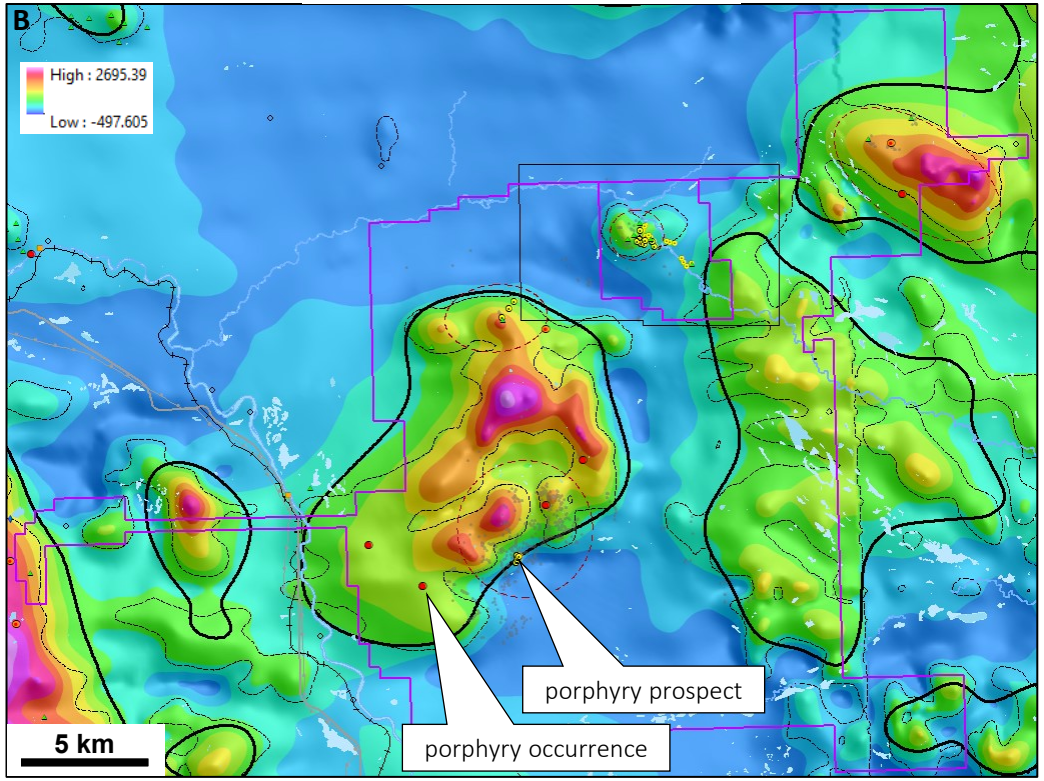
HAZELTON PROPERTY CASE STUDY

- The next several illustrations show the application of the magnetic products to porphyry targeting in the Hazelton Property. Note that a full compilation of property-scale data acquired by Jaxon Mining is provided in the accompanying GIS package.

Topography



Reduced to Pole Magnetics

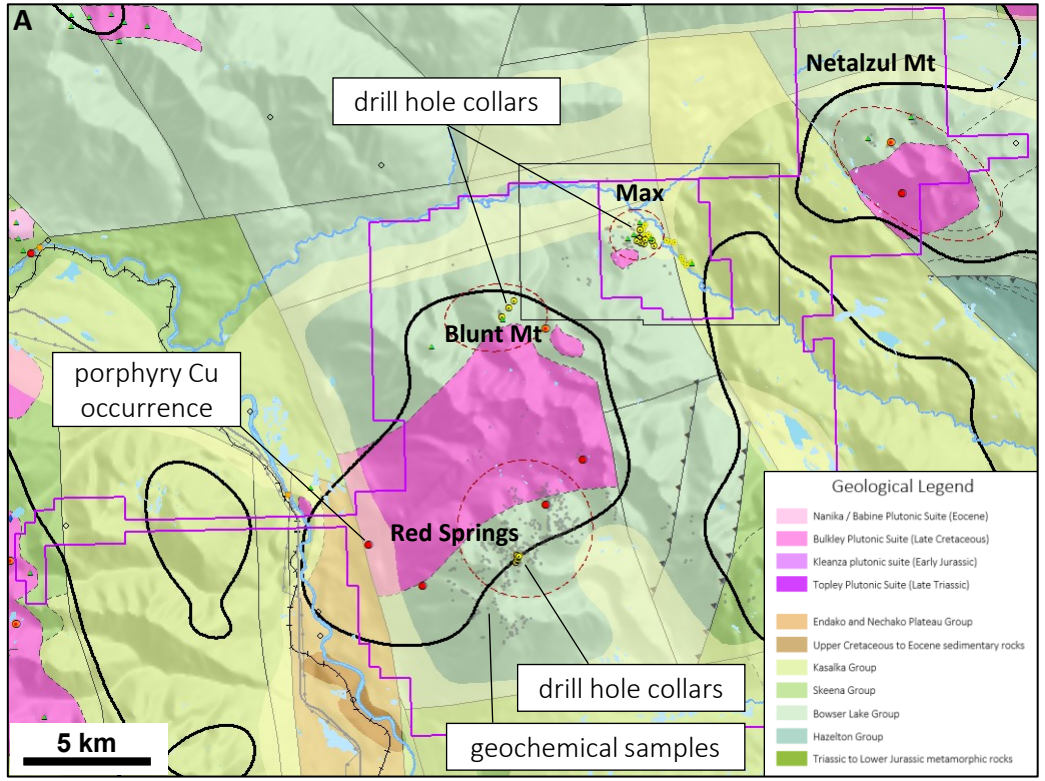


Note the potential topographic effect on magnetic responses. Magnetic lows that coincide with valleys could potentially reflect either structurally controlled zones of demagnetization or topographic artifacts in the data. As an example, the donut-shaped anomaly in the Red Springs-Blunt Mt magnetic feature (i.e. central low surrounded by a concentric zone of high amplitude) is considered typical of a zoned porphyry intrusion but may also be partly caused by the presence of a central topographic low.

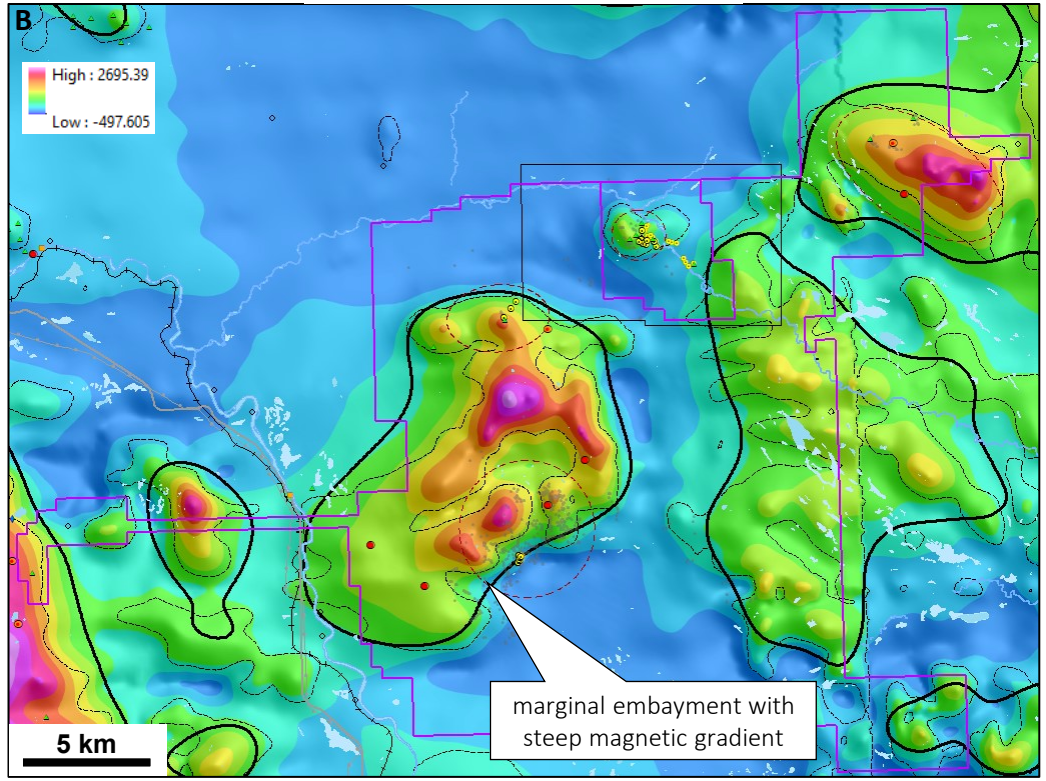
HAZELTON PROPERTY CASE STUDY

- These figures show the regional geology of the Hazelton property and reduced to pole magnetics.

Regional Geology



Reduced to Pole Magnetics

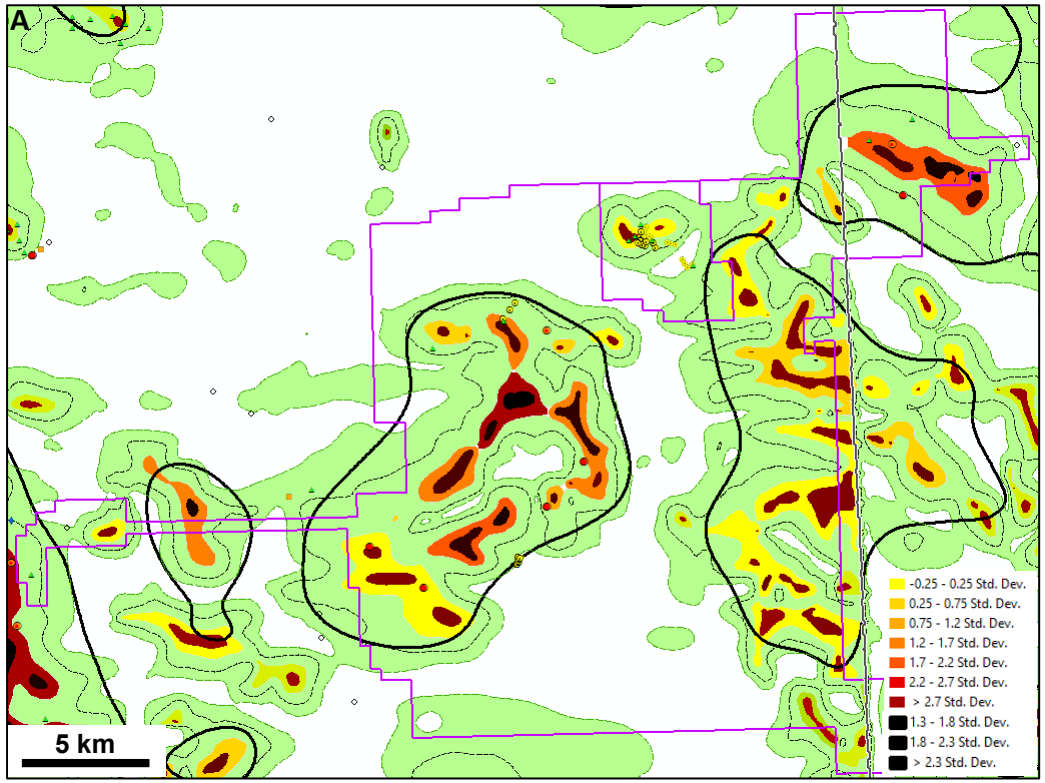


Note that high magnetic amplitudes commonly correspond to prominent exposures of Bulkley Suite intrusive rocks (e.g. Red Springs and Netalzul Mt). Magnetic features with lower amplitude reflect either deeper sources (not exposed) or potentially, volcanic strata. Note also the interpreted extent of the intrusion at Red Springs verses its mapped extent. The former coincides with the position of prior drilling. The Red Springs prospect occupies a prominent (low) embayment on the southeast margin of the of the Red Springs-Blunt Mountain magnetic feature.

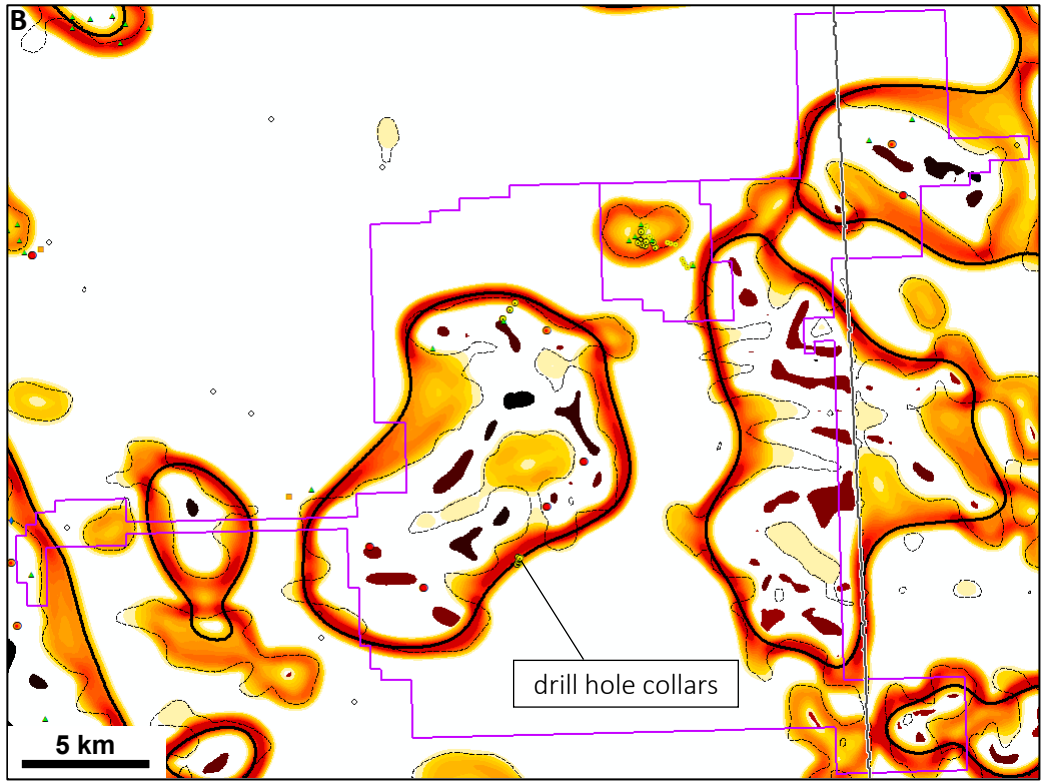
HAZELTON PROPERTY CASE STUDY

- These figures show simplified representations of magnetic domains. Figure A shows the relative magnetic maxima and the interpreted maximum extent of prospectivity (in green); assuming each magnetic source represents an intrusion. Figure B highlights the marginal zones and shallow embayments that occur adjacent to each source, here considered to represent a prospective zone for porphyry mineralization.

Maximum Prospective Zone



Minimum Prospective Zone

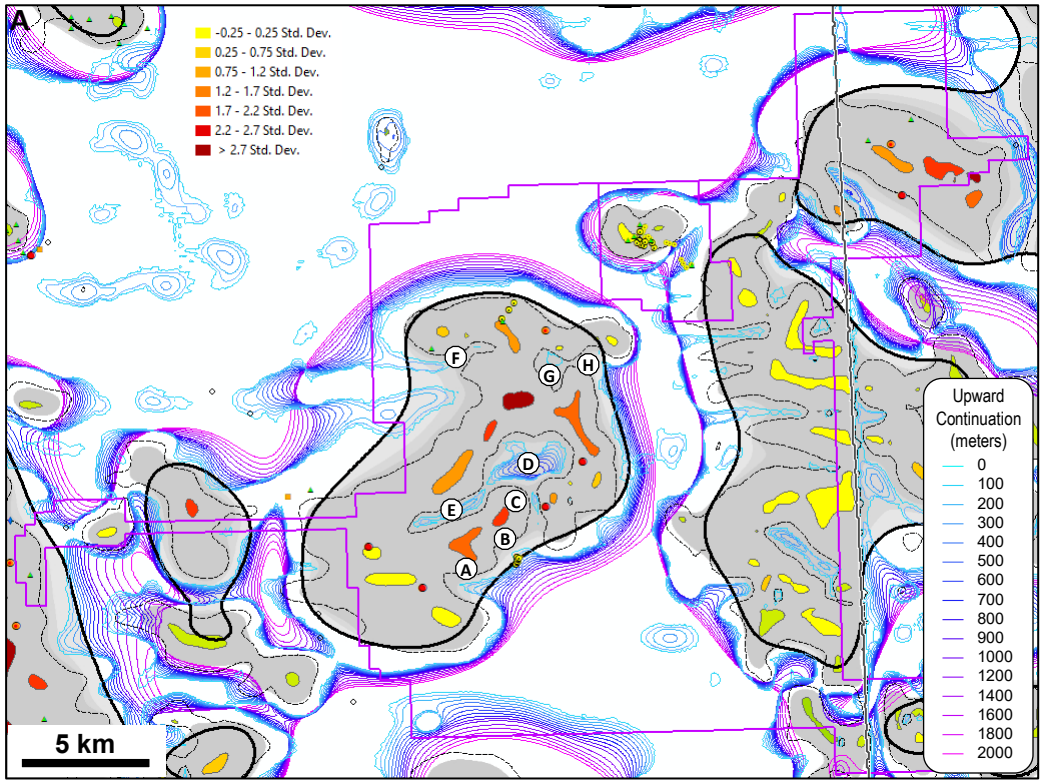


Note that the known porphyry occurrences are commonly positioned adjacent to prominent (high-order) magnetic anomalies. In detail, however, developed prospects (as indicated by drill hole collars) are more distal from such anomalies. Unless associated with magnetite-bearing skarn, or indicative of a deep porphyry setting, the magnetic highs themselves are rarely coincident with mineralization (at least in calc-alkalic porphyries).

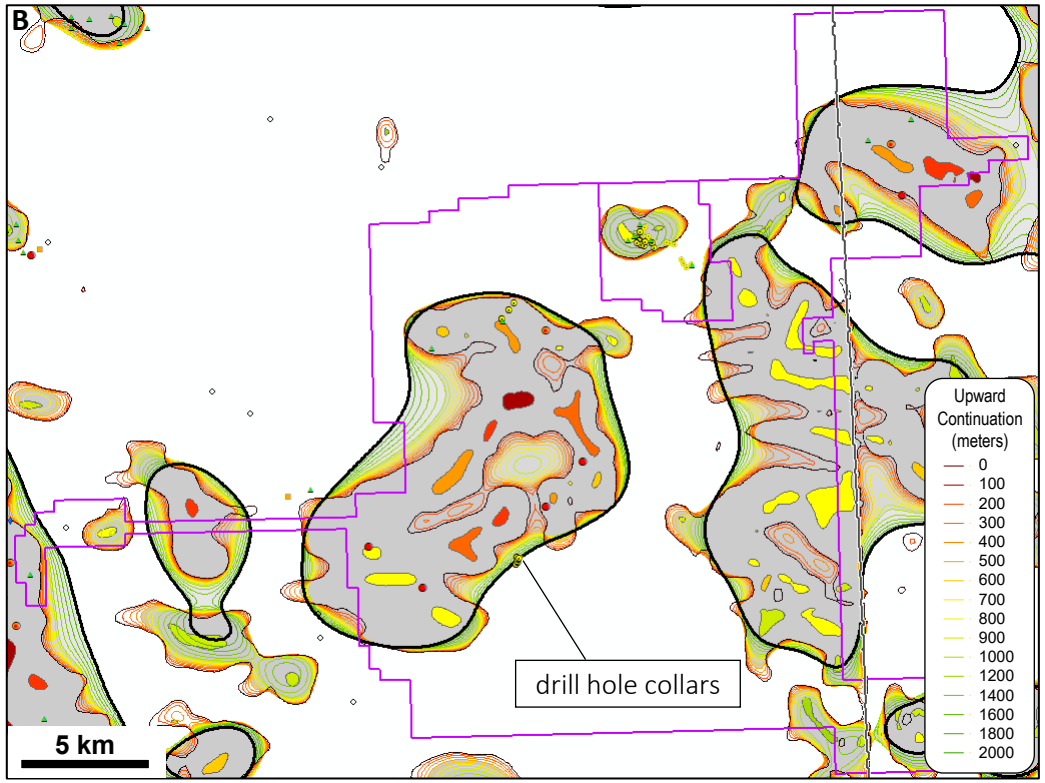
HAZELTON PROPERTY CASE STUDY

- Lastly, these figures show the potential 3D extent of the edges or margins of each magnetic source at various positions with respect to the main body. Figure A shows the outmost position of this margin, while figure B shows the innermost interpreted margin.

Outer Margin of Magnetic Domains



Inner Margin of Magnetic Domains



Note the presence of discrete magnetic lows (Fig. A.: blue-purple lines) that occur along the margins of, and within, the interpreted plutons (i.e. bold black polygons). Such features would be identified as potential target areas in these data (e.g. A to H). However, the accurate delineation of prospective localities needs to consider also the relative ambiguity and resolution of these magnetic data. (Note that certain W-E-trending features in these images are potentially flight line artifacts).

CONCLUSIONS & RECOMMENDATIONS

- This study of the northwestern sector of the Skeena Arch has shown that geophysical data in the public domain, particularly magnetics, can be effectively utilized to identify and prioritize porphyry targets – both in the well-exposed and covered parts of the area.

- The geophysical signatures of porphyry mineralization are recognized as discrete magnetic lows and low 'embayments' along the margins of much larger magnetic domains that reflect the deeper extent of partly-exposed plutons. The latter are commonly indicated by high-amplitude magnetic anomalies at a variety of scales.

- A GIS data package compiled as a component of this study provides a 'tool kit' for selecting and prioritizing new targets in combination with geochemical and mineral occurrence data, and complementary geophysical surveys (gravity and EM).

- It is recommended that a more regional assessment of the Skeena Arch be undertaken to further refine and confirm the above signatures within and around the known porphyry deposits to the east and south of the current study area. Such an assessment would aim to jointly determine the most prospective corridors in the Skeena Arch as a whole, and potentially identify significant untested localities.

- Finally, it is suggested that a 'data mining' exercise be undertaken using all available data in the Skeena Arch (i.e. geology, geophysics, geochemistry etc.) to build on the outcomes of this study. The abundance of high-quality, regional-scale geoscience data in central and southern BC provides an ideal opportunity to effectively apply newer data science technologies for exploration targeting purposes.