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BC Geological Survey
Assessment Report
39647

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Assessment Report

TOTAL COST: 19,000

AUTHOR(S): James A. Turner, P.Geo.

SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

YEAR OF WORK: 2021

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: PEACOCK

CLAIM NAME(S) (on which the work was done): 1058607, 1063801, 1070420, 1075442

COMMODITIES SOUGHT: COPPER, SILVER

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092I SE 055, 092I SE 123-125, 092I SE 132

MINING DIVISION: NICOLA

NTS/BCGS: 092I

LATITUDE: 50 ° 13 '02 " **LONGITUDE:** 120 ° 18 '14 " **(at centre of work)**

OWNER(S):

1) Chris Delorme.

2) Guy Delorme.

MAILING ADDRESS:

340A Logan Lane
Merritt, BC V1K 0B5

BOX 2252, Merritt, BC
V1K 1B8

OPERATOR(S) [who paid for the work]:

1) Lionheart Exploration Inc.

2)

MAILING ADDRESS:

10 th Foor 355 Burrard Street
Vancouver, B.C.

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
The central part of the property is underlain by northwest trending medium to coarse grained chlorite-sericite altered, foliated diorite and granodiorite up to 1000 metres thick. The diorite hosts a series of multiple and stacked quartz and quartz-feldspar veins and veinlets.North of the diorite is an equi-granular medium to coarse grained granite which in part has intruded the altered diorite. Both rock types make up part of the Nicola Batholith.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 186, *425, 503, 6179, 6180, 6218, 10518, 25283, 28271, 32465, 33375,2460, 2970, 3936, 4409, 6119, 6441, 6742, 7016, 7488, 8036, 12386, 15318, 16625, 18583, 2290

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TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other	Geophysics Interpretation report		19,000.00
Airborne	Magnetics, Radiometrics, 143 line Km/	1058607, 1063801, 1070420, 1075442	
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	19,000.00

Geophysical Interpretation Report

on an

Airborne Magnetic and Radiometric Survey

for

Lionheart Exploration Inc.

on the

Peacock Project

50°12’ N, 120°37’ W

Nicola Mining Division

N.T.S. 92I/02E

British Columbia, Canada

by

E. Trent Pezzot, P.Geo.

October 18, 2021

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1 Summary

The Peacock property is comprised of 4 contiguous mineral claims located approximately 16 km northeast of Merritt, B.C.

Mapping by the BC Geological Survey shows the claims as being underlain by the southern edge of the compositionally zoned early Jurassic Nicola Intrusion which intrudes volcanic and sedimentary rocks of the of the upper Triassic Nicola Group.

There are (5) minfile occurrence mapped within the perimeter of the claim group, including the past producing Turlight deposit which is reported as a Cu +/- Mo +/- Au hydrothermal vein showing. Previous exploration has identified two primary exploration target zones that indicate good potential for copper mineralization.

A helicopter borne geophysical survey was flown on August 31, 2020 on behalf of Lionheart Exploration Inc. Survey lines were flown northeast-southwest with a 100 metre line spacing. Perpendicular tie lines were flown at 1000 metre intervals. A total of 143 line kilometres of survey was recorded, covering approximately 12.8 km^2. Data was registered to the WGS84, Zone 10N, UTM coordinate system.

The data has been processed and interpreted with the intention of identifying any characteristic signatures which might be related to the observed mineralization as well as assisting with the general geological mapping of the area.

High magnetic amplitudes map northerly trending, narrow zones of highly metamorphosed shales in the southeastern corner of the claims. Moderate magnetic highs outline the granitic facies of the Nicola Intrusion and weak magnetic highs delineate northwesterly striking structures, including one of the known copper target zones. Subtle magnetic trends delineate numerous northeasterly trending faults across the property. A large, magnetic low surrounding the Turlight deposit may be mapping a deep, low susceptibility body. Two prominent magnetic low lineaments are mapped, both of which coincide with BCGS mapped regional fault zones and minfile showings.

The radiometric data effectively maps the granitic facies of the Nicola Intrusion with elevated potassium and thorium levels. Numerous localized anomalies are detected where high potassium and low thorium responses infer the presence of potassic alteration, possibly associated with a hydrothermal system.

This report is written as an internal document for Lionheart Exploration Inc. intended to describe a geophysical interpretation of the airborne magnetic and radiometric data gathered across the Peacock claims. The results from this study were compared with historical ground

magnetic, vlf-em, induced polarization, geology and geochemical data. Several areas of interest have been identified that are recommended for further investigation.

Topics included with more formal reports, such as the property description, geology and historical work included with assessment reports, and detailed survey procedures and instrumentation descriptions associated with logistics reports, are not included or discussed briefly as required for the context of this interpretation.

2 Property Location and Access

The Peacock project claims are located along the western flank of Peacock Mountain, approximately 16 kilometres northeast of Merritt, BC and 4 kilometres north of the west end of Nicola Lake. The approximate geographical coordinates of the centre of the study area are 50° 12’ 30”N and 120° 37’ 04”W. The property lies in the Nicola Mining Division and NTS map sheet 92I/02E. The property consists of 4 contiguous mineral claims and covers approximately 1,406 hectares.

Access to the property is from Merritt heading east on the Princeton Kamloops Highway(5A) until reaching Mill Creek road, approximately 7.7 km from the junction off Highway 5. Turn left onto Mill Creek FSR and continue for approximately 6.2 km. At this junction there are two routes to enter the property: either by Dog Forest Service Road (right) or left onto Coyote Forest service Road. Turn right and continue for 3.9 km until coming to a junction, make a left for 750 meters to go to the Turlight mine site.

Within the claim block, logging and old exploration roads provide access to all regions. A 4-wheel drive vehicle is recommended.

The Peacock property is situated in the Thompson Plateau physiographic region of rolling, semi-arid range land, lightly forested with pine and fir. Elevations on the property range between 1200m to 1700m above sea level.

Climate is dry with long pleasant summer periods. Average rainfall is light and the winters are generally moderate, allowing year round operations.

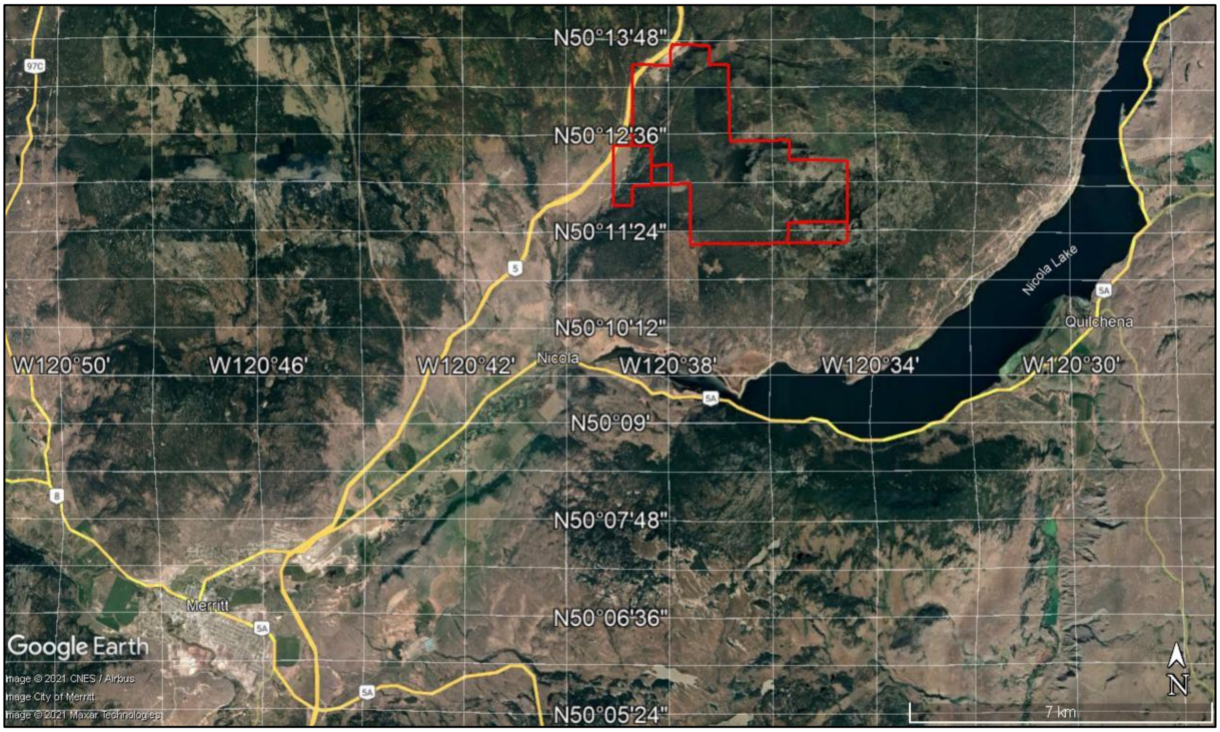


Figure 1: Location Map
Google Earth Image –Peacock Claim group outlined in red.

3 History

In the 1920's copper mineralization consisting of chalcopyrite and bornite was discovered in a high-grade quartz vein known as the Turlight Mine. In 1929, Turlight Mines Ltd. sank a shaft to 60 feet (18 metres) in order to follow the prospective quartz vein. The workings were inactive until 1947 when they were put back into production by Guichon Mines Ltd.

During 1947 and 1948, the property was under option to Anaconda Copper Mining Co. They drilled seven holes for a total of 2,578 feet (786 metres) to test the ore-bearing structure. After the drilling program, the option was dropped. Guichon Mines Ltd. continued operations until the mine was closed in 1951.

The Turlight workings are located within a Crown grant and legacy claim which lies internal to the Peacock property. The Crown Grant has lapsed and the Turlight workings are now part of the Peacock property. Several exploration programs have run on the property since the mine closure.

From 1962 to 1977 several companies conducted geological, geochemical and geophysical surveying in the area. Most results showed the widespread presence of copper and although some narrow zones of stronger enrichment were found, it was determined that there was little economic interest in the results.

From 1997 to 2000, under the direction of Craig Payne of Crest Geological Consultants, 43 line kilometres of survey grid were established in the Turlight area and programs of geological, geochemical, magnetic, vlf-em and induced polarization were conducted.

In 2006, five core holes were drilled to test coincident Cu-Ag-Au soil anomalies and IP chargeability-resistivity anomalies. Four of the holes tested the coincident soil geochemical and geophysical anomalies in the West Zone and one hole in the East Zone. Although historical reports describe the geology and mineralization of the strongly mineralized areas as suggestive of a common link to a buried system, no further work was deemed to be warranted and the claims were allowed to lapse and acquired by Chris and Guy Delorme.

From 2011 to the current date the Delorme has conducted several work programs over the Peacock Claim Group including prospecting, vlf-em, magnetometer, ELF and structural analysis.

4 Geology

4.1 Regional Geology

Geology of the Nicola Lake region has been mapped by Cockfield (1948), Schau (1968), Northcote (1977), Preto (1979), Monger and McMillan (1984), Moore and Pettipas (1990). The regional geology is dominated by the Nicola volcano-sedimentary belt of Triassic Age and three north-south trending batholiths of Jurassic age. To the east is the Wildhorse Mountain batholith, at the centre is the Nicola batholith, and to the west is the Guichon Creek batholith. The batholiths are compositionally zoned from an exterior rim of diorite to a core of quartz monzonite. The intruded country rocks are volcaniclastics, breccias, local bodies of augite porphyry, intercalated argillite, local sandstone, conglomerate and limestone of the Triassic Nicola Group.

The Guichon Creek batholith hosts several world class porphyry copper deposits, including Valley Copper, Bethlehem, Lornex, and Highmont mines, and the Craigmont copper-iron skarn deposit. At the northern end of the Nicola batholith is located the alkalic Iron Mask batholith, which is host to numerous copper resources, including the Afton and Ajax deposits.

4.2 Property Geology

The property is located at the south end of the Nicola batholith. Granitic facies intrusion is mapped in the east–southeast portion of the claims. It is flanked by a rim (up to 1 kilometre wide) of quartz diorite and granodiorites that host quartz veins and veinlets that contain significant copper (malachite, chalcopyrite). This zone is flanked to the west by more volcanics (porphyritic andesite). The granitic intrusion is the youngest, preceded by the quartz diorite, which is preceded by the surrounding volcanics.

There are 5 minfile occurrences within the Peacock property. The Turlight (past producer), Peacock, Copperado – P66 and Copperado –TM1 are reported as Cu +/- Mo +/- Au hydrothermal vein showings. The Copperado-A6 is listed as containing uranium in a disseminated pegmatite.

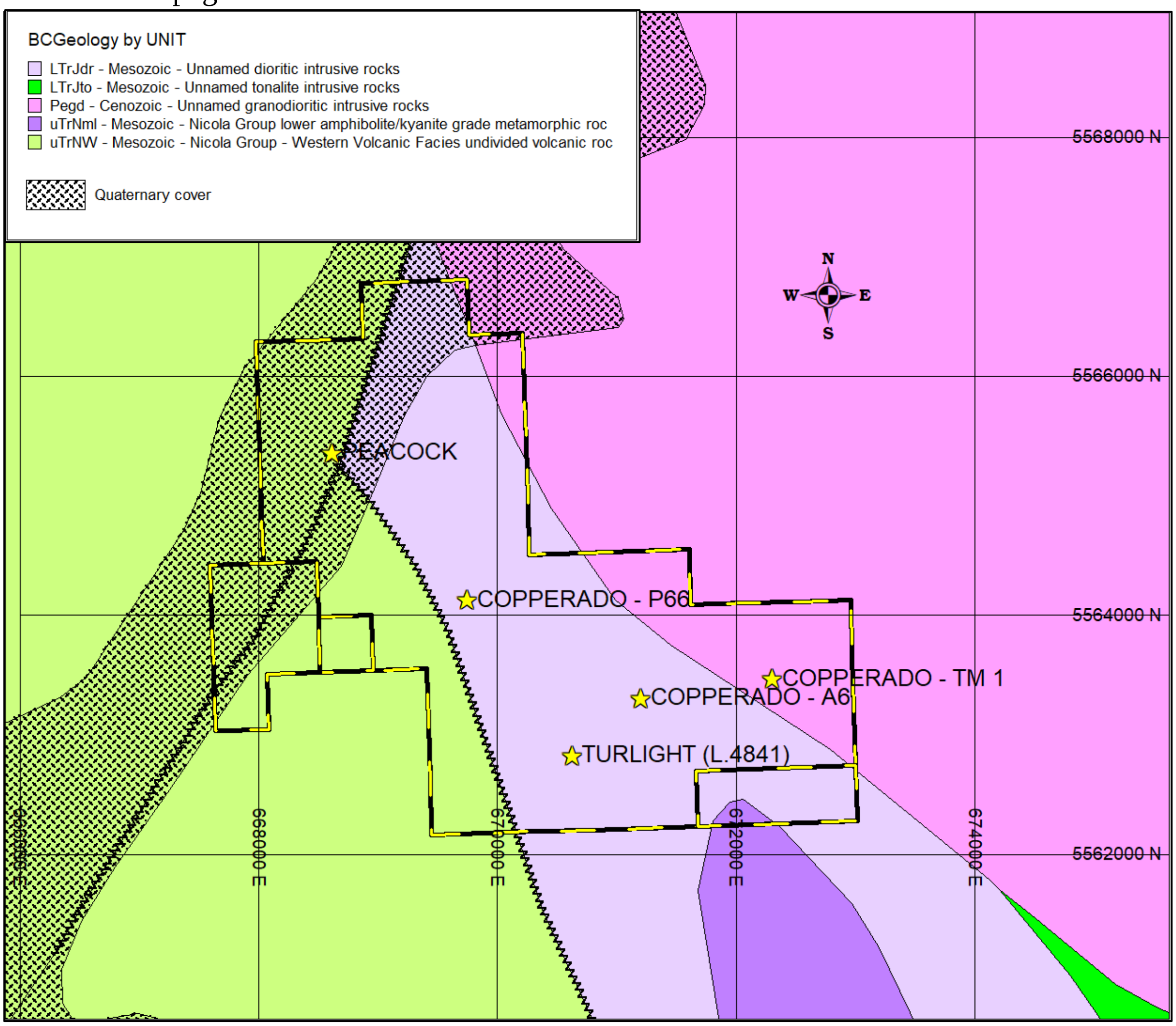


Figure 2: BCGS Geology Map.
Peacock project claims outlined in yellow-black lines.

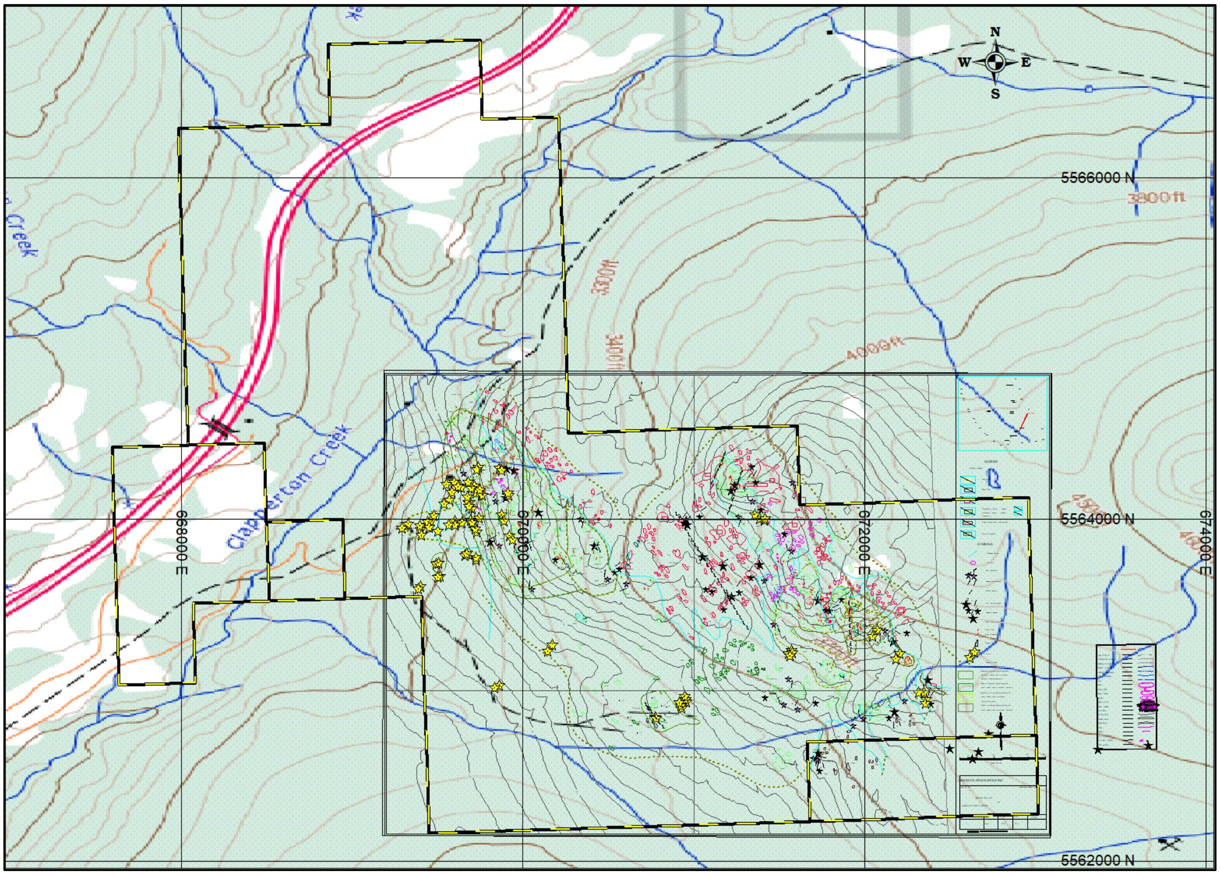


Figure 3: COP property Geology Map.
Simplified version of Crest Geological Consultants Geology Map, circa 2000 covers the southeastern half of the Peacock claims.

Detailed geological mapping by Payne (1997, 2000) covered an approximately 3 km x 2 km area across the southeastern portion of the Peacock property. These efforts produced a detailed trace of the contact between the granodiorite (eJgd) and granitic (eJg) facies along the outer rim of the Nicola Intrusion based on extensive outcrop mapping. In addition to the Turlight deposit and other known minfile occurrences on the property, ground surveying has identified two specific copper target zones referred to as the East Zone and the West Zone. Both Zones are hosted in the granodiorite facies (eJgd) along the outer rim of the Nicola Intrusion.

5 Airborne Survey Data

A helicopter borne geophysical survey was flown on August 31, 2020 by Precision GeoSurveys Inc. on behalf of Lionheart Exploration Inc. over the Peacock claims.

Survey lines were flown northeast-southwest with a 100 metre line spacing. Perpendicular tie lines were flown at 1000 metre intervals. A total of 143 line kilometres of survey was recorded, covering approximately 12.8 km^2. Data was registered to the WGS84, Zone 10N UTM coordinate system.

High resolution total magnetic field data were collected using a split-beam caesium vapour magnetometer mounted in front of the helicopter on a non-magnetic and non-conductive "stinger" configuration boom. Gamma radiation data were collected by an Advanced Gamma Ray Spectrometer (AGRS-5) installed in the rear passenger cabin of the helicopter. A tri-axial fluxgate magnetometer recorded small attitude changes (pitch, roll and yaw) of the aircraft which were used to compensate for magnetic and attitude corrections. Ancillary equipment included a GPS navigation system with GPS base station; a laser altimeter, barometer, temperature/humidity probe, pilot guidance unit (PGU) and dual base station magnetometers.

The nominal terrain clearance of the helicopter was intended to be 40 metres. Due to the terrain and the pilot's judgment of safe flying conditions, the average terrain clearance was 55 metres and radiometric attenuation corrections were based on a survey height of 50 metres.

Details concerning the survey procedures, instrument specifications and post survey processing are included in a logistics and operations report by Precision GeoSurveys Inc. dated September, 2020.

Aeromagnetic surveys measure and record the total intensity of the magnetic field at the magnetometer sensor, which is a combination of the magnetic field generated in the earth as well as small variations due to temporal effects of the constantly varying solar wind and the magnetic field of the survey aircraft. By subtracting the temporal, regional, and aircraft effects, the resulting aeromagnetic maps show the spatial distribution and relative abundance of paramagnetic minerals in the upper levels of Earth's crust, which in turn are related to lithology, structure and alteration of bedrock.

Radiometric surveys are used to determine either the absolute or relative concentrations of uranium (U), thorium (Th) and potassium (K) in surface rocks and soils using natural radioactive emanations. Gamma radiation is utilized due to its greater penetration depth compared with alpha and beta radiation. Radiometric data are useful for mapping lithology, alteration, and structure as well as providing insights into weathering. For example, individual radioelements follow very different pathways of evolution during alteration of rocks. The natural radioactivity of igneous rocks generally increases with SiO2 content and clay minerals tend to fix the natural radioelements.

Surficial debris, vegetation, standing water (lakes, marshes, swamps), and snow can effectively attenuate gamma rays originating from underlying rocks. Therefore, variations in isotope counts must be evaluated with respect to surficial conditions before they are attributed to changes in underlying geology. An increase in soil moisture can also significantly affect gamma radiation concentrations.

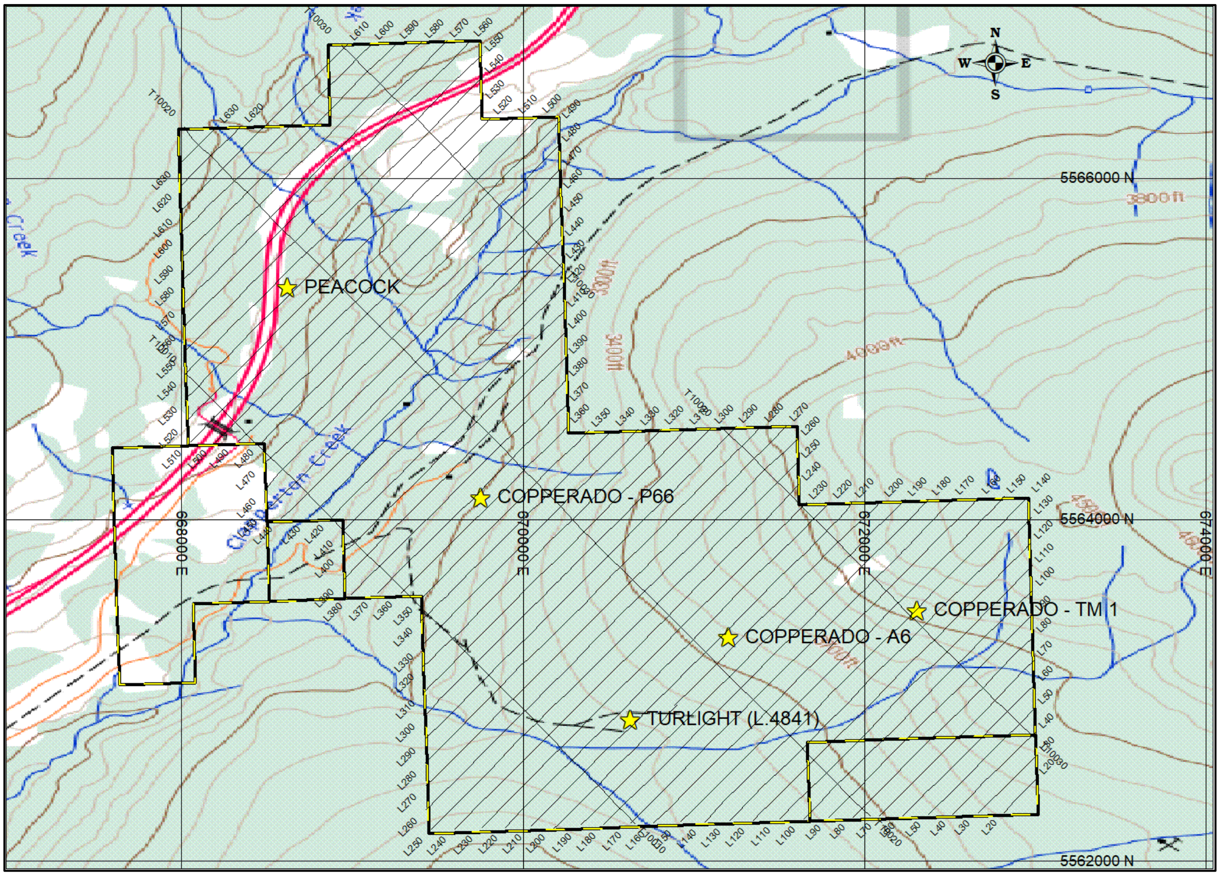


Figure 4: Survey Grid Map
92I/02 Topographic Base Map (1: 50000) –claim outlines as yellow-black lines - airborne survey lines in black – UTM grid at 2000m (NAD83 Zone 10N) – Minfile occurrences as yellow stars.

5.1 <u>Magnetic Data Processing</u>

Standard reduction procedures were applied by Precision, including position corrections, lag corrections, heading corrections, diurnal corrections, noise and spike removal, levelling and micro-levelling. Additional processing included subtracting the International Geomagnetic Reference Field (IGRF) from the corrected Total Magnetic Intensity (TMI) to generate the Residual Magnetic Intensity (RMI). Reduced to Magnetic Pole (RTP) data were computed from the levelled RMI data to migrate the observed data to what it would look like at the north magnetic pole. Horizontal gradient (CHG) and First Vertical Derivative (CVG) data were calculated from the RMI data to enhance shorter wavelength signals, thereby suppressing deep geological source features and highlighting the edges of the magnetic anomalies.

Final levelled data was provided in a digital geosoft formatted database and ASCII XYZ text file. The database also includes base station, raw and intermediate magnetic data, referenced to line, fiducial, GPS time and location coordinates (easting and northing in WGS84, UTM Zone 10N), GPS altimeter, laser altimeter and a calculated digital terrain model. Digital grids and colour contour maps of the total field, residual and calculated horizontal and vertical gradient data have been produced.

The final data provided by Precision was imported to Geosoft Oasis Montaj and Ermapper for further processing and plotting. Final mapping was completed in MapInfo and combined with topographic and geological data acquired from the BC and federal governments and Lionheart.

A digital elevation model for the area was extracted from the Geobase DEM and used for the 3-D draping and 3-D inversion processing.

Presentation of the magnetic data as profiles and stacked profiles is best suited for mapping small, discrete magnetic responses that can be attributed to near surface source bodies. Linear features can often be traced between lines. This type of display often reveals changes in the character of the magnetic response, such as the spatial frequency, that can be attributed to changes in underlying geology not readily apparent on amplitude maps alone.

2D contour maps are useful for displaying the spatial relationship of the magnetic responses outlining lithological variations and delineating structural trends. These contour maps are typically coloured on the basis of amplitude. One of the most useful techniques for viewing these responses is the application of shadow enhancements (sun illumination from different angles) which highlight linear trends that strike perpendicular to the illumination angle. Draping the plan contour maps over a topographic surface to produce a 3-D visualization is useful for differentiating between responses that may be an artefact of the topographic influences from those due to underlying geology.

All of the grids generated by Precision were displayed on colour contour plan maps. They have also been rendered as colour shadow images and illuminated from various angles.

All of the above grids were generated with both linear and equal area colour distributions. Linear colour distributions provide the best overview to show the relative amplitudes of the various responses however they accentuate the extreme highs and lows in the data. Equal area colour distributions are designed to illustrate more subtle variations.

Gridded magnetic data was also processed through a 3-D inversion algorithm designed to produce a 3-D voxel model of the subsurface showing possible distributions of the rocks' magnetic susceptibility that might produce the magnetic responses observed. A coarse inversion across the entire grid and 4 detail inversions were completed. The output from these inversions were analysed in the meshtools3D viewer and reformatted into the vtk file format for more detailed analysis in the Paraview viewer.

Snapshots from these viewing programs are included with the text of this report. The digital files and viewing programs are provided separately.

5.2 Radiometric Data Processing

Standard reduction procedures were applied by Precision, including aircraft and cosmic background corrections, removal of the atmospheric radon, Compton stripping, and attenuation corrections (to nominal survey altitude of 50m). With all corrections applied the potassium, thorium and uranium radiometric data was converted to the apparent radioelement concentration and the total count was converted to the natural exposure rate.

Both raw and corrected radiometric data is provided in a geosoft formatted database.

These data were imported into Oasis Montaj and ERmapper software to generate colour contour and shadow enhanced images of the various isotopes and ratios. In addition, ternary maps combining all three isotope and total count data were generated using RGB and CMY colour palettes. Maps were imported into MapInfo for compilation with the other exploration data.

These maps are used to outline areas with different radiometric properties that might be attributed to changes in the underlying geology. Care must be exercised to avoid data variations caused by non-geological factors such as the thickness or moisture content of overburden and vegetation cover.

6 Discussion of Results

A large number of maps and displays are included as images with the text of this report. All include UTM coordinates (NAD83, Zone 10N), grid lines and/or the claim outline which can be used to reference and scale the applicable features. The digital files (MapInfo format) used to generate these maps are provided to Lionheart and can be used to produce scaled plots. It is noted that the airborne survey data is registered to WGS84, Zone 10N. In this area the NAD83 and WGS84 systems are virtually identical and can be used interchangeably. In any case, the MapInfo software employs an “on the fly” transformation algorithm that automatically converts data from any recognized coordinate system to another.

Based on the geological descriptions provided, it is unlikely that the observed mineralization will be directly detected by a magnetic response. This study is focused on general geological mapping, with particular emphasis placed on delineating geological structures in the vicinity of and related to the known mineral occurrences.

6.1 Magnetic Survey

The magnetic data was interpreted by three methods: 2-D plan contour mapping, line profile analysis and 3-D inversions.

6.1.1 2D Plan Mapping

The magnetic contour maps are best suited for outlining magnetic regimes based on amplitude. The application of sun shading enhances contacts, trends and lineations, both at regional and local scales. Across this property, the IGRF maps as a smooth gradient that decreases approximately 20 nT from the northwest to the southeast. Neither the application of the reduction to the pole algorithm nor the removal of the IGRF (International Geomagnetic Reference Field) made a significant difference to the analysis of the magnetic data. TMI data were used for the plan map and profile analysis. Further analysis with 3D modelling used residual magnetic intensity data, calculated by removing the IGRF from the TMI and subtraction of a suitable base level.

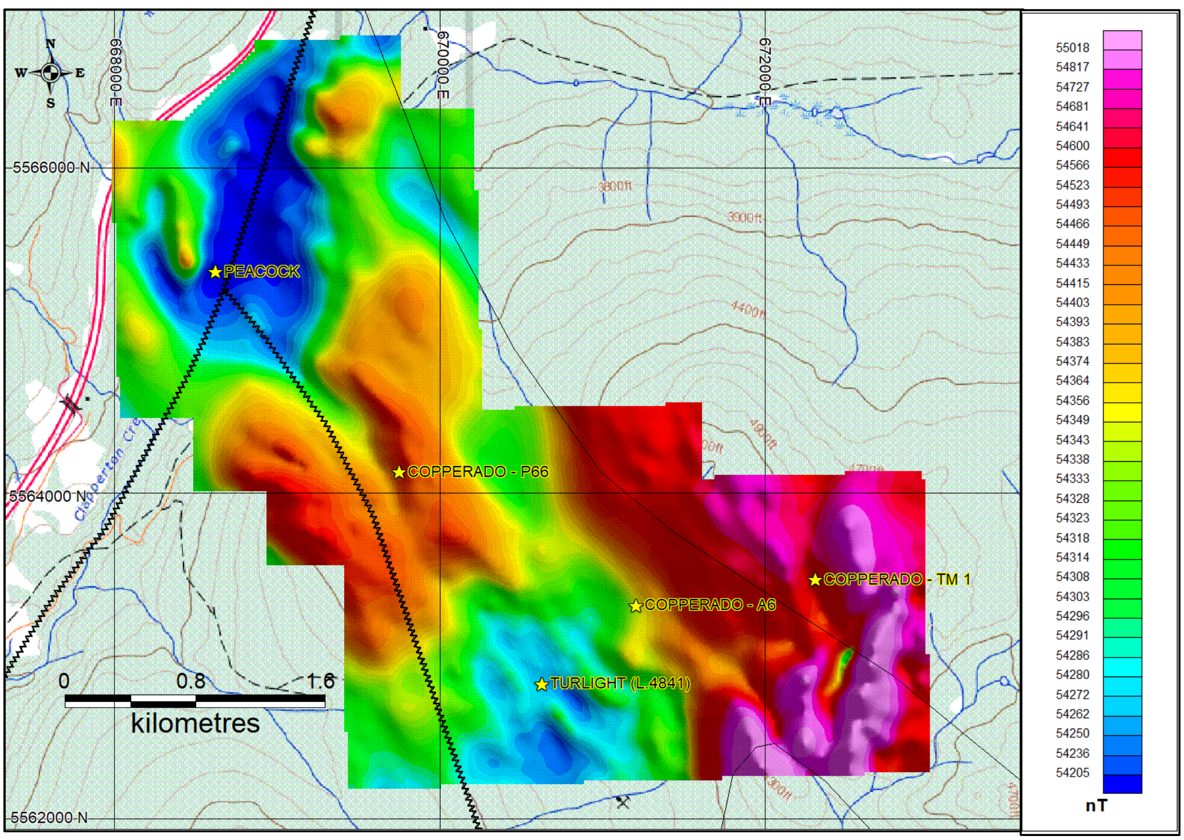


Figure 5: Total Magnetic Field Intensity Colour Contour Map (Equal Area Color Distribution)
Shadow Enhanced with illumination from NE. BCGS Geology contacts as thin black lines. Mineral Showings – Yellow stars.

Figure 5 shows the Total Magnetic Field intensity colour contour map with an equal area colour distribution with sun-shading illumination from the northeast and overlain with BCGS geology contacts (from Figure 2). There is a NW – SE bias evident in the magnetic trends, reflecting the regional geological strikes.

Figure 6 shows the Total Magnetic Field intensity colour contour map with a linear colour distribution, which highlights 5 distinct magnetic amplitude areas that likely reflect changes in the underlying geology.

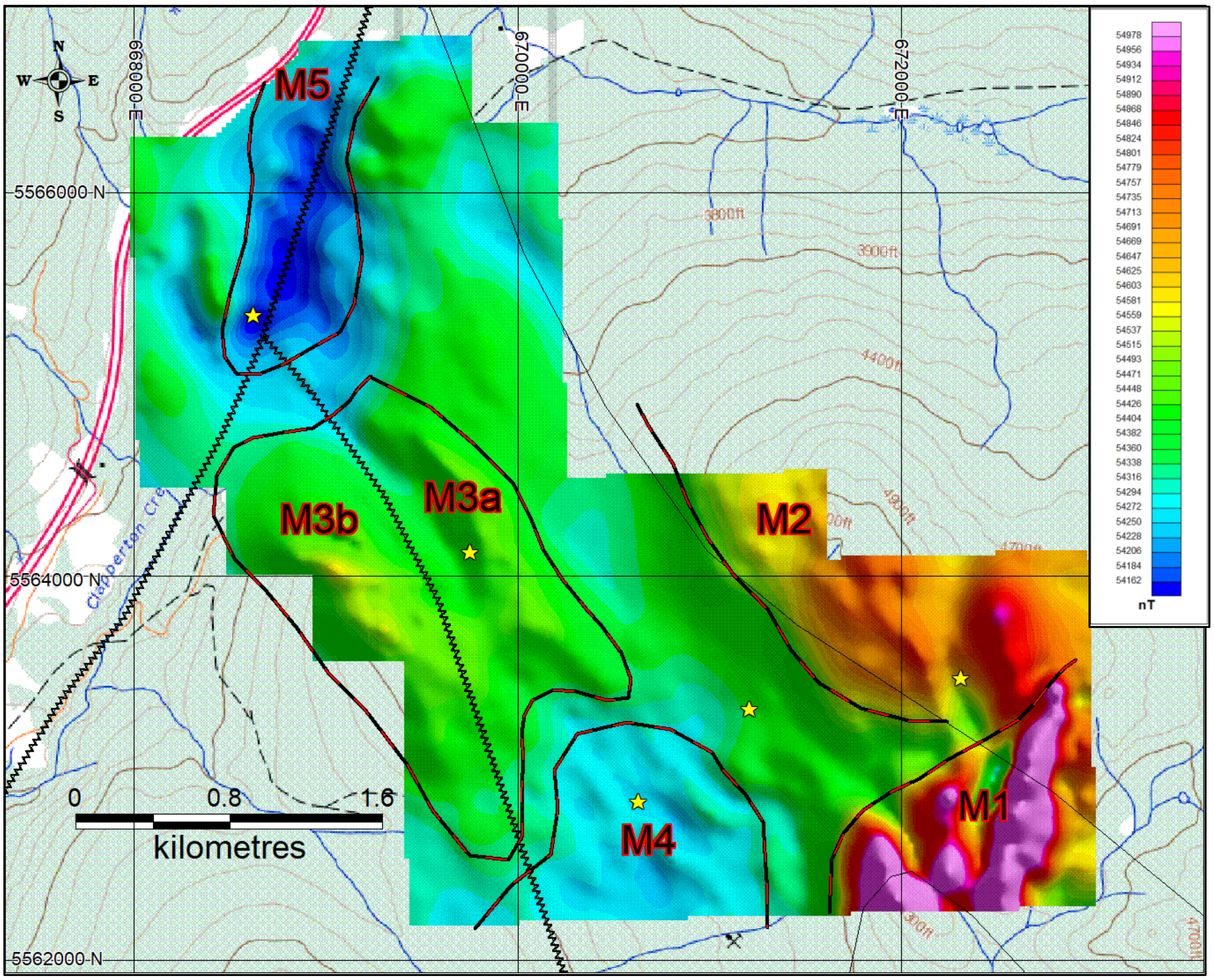


Figure 6: Total Magnetic Field Intensity Colour Contour Map (Linear Color Distribution)
Shadow Enhanced with illumination from NE. Magnetic regimes outlined in red-black lines.
Mineral Showings – Yellow stars.

M1. The M1 area covers the southeast corner of the survey area and hosts three positive, very high amplitude linears. They measure up to 1000 metres long, 300 metres across and are open to the south. They appear to terminate against a northeast trending, low magnetic structure that extends towards the Turlight showing to the

WSW. These high amplitude responses most likely reflect highly metamorphosed shales from the upper Triassic Nicola group (uTNsh).

M2. The M2 zone is located to the north of M1 and consists of a large, high positive amplitude magnetic response. It is only partially defined and likely extends to the north and east. This response closely ties to the Pegd unit (Cenozoic granodiorite) shown on the BCGS mapping. Detailed mapping by Payne (2000) suggests the area is underlain by a granitic phase (eJg) near the outer edge of the Nicola Intrusion. The target zone referred to as the East Zone is located along the southwest edge of this response.

M3. The M3 zone occupies the west central portion of the claims and is comprised of two northwesterly trending weak magnetic high bands, each on the order of 1.5 km long and 300 – 400 metres across. Both appear to be comprised of numerous, narrow lineations. They are separated by a weak magnetic low that coincides with a BCGS mapped fault separating what Payne (2000) describes as the outer rim granodiorite facies of the Nicola Intrusion (eJgd) to the northeast from the Nicola group volcanics uTNv to the southwest.

a. The M3a trend coincides with what has been termed the West Target Zone. The Copperado-P66 minfile occurrence (vein, Cu +/- Mo +/- Au) is located along the southwestern edge of this trend.
b. The M3b trend is similar to M3a but exhibits slightly higher magnetic amplitudes. This area appears to be located within the Nicola Group volcanic-sedimentary unit but was not studied in the 2000 geology mapping.

M4. The M4 zone is outlined by a large magnetic low zone centered on the Turlight deposit and is considered open to the south. It is overprinted with narrow, sinuous northwest trending magnetic lineations, many of which are offset by what appear to be northeast trending faults. The ground magnetic survey completed in 2000 shows even more localized variations and magnetic features which appear to be more random than the northwesterly bias shown in the airborne data.

M5. The M5 zone is located at the north end of the survey and defined by a strong magnetic low forming a northerly trending ellipsoid, some 1600 metres long and 600 metres wide. It is centred along a BCGS defined fault, separating the Nicola Group volcanic-sedimentary rocks to the west from the Nicola Intrusion granodiorite rocks to the east. The Peacock minfile showing (vein and stockwork, Cu +/- Mo +/- Au) is located at the southern end of this feature, at the intersection of two faults. There are a number of weak northwesterly trending magnetic lineations and inflections across the area which likely reflect surface structures. However, this feature lies along the

Clapperton Creek drainage and overburden layers are reducing ability of the magnetic field to map the high frequency variations.

Horizontal Gradient (CHG) and First Vertical Derivative (CVG) data were calculated from the RMI data to enhance shorter wavelength signals, thereby suppressing deep geological source features and highlighting the edges of the magnetic anomalies.

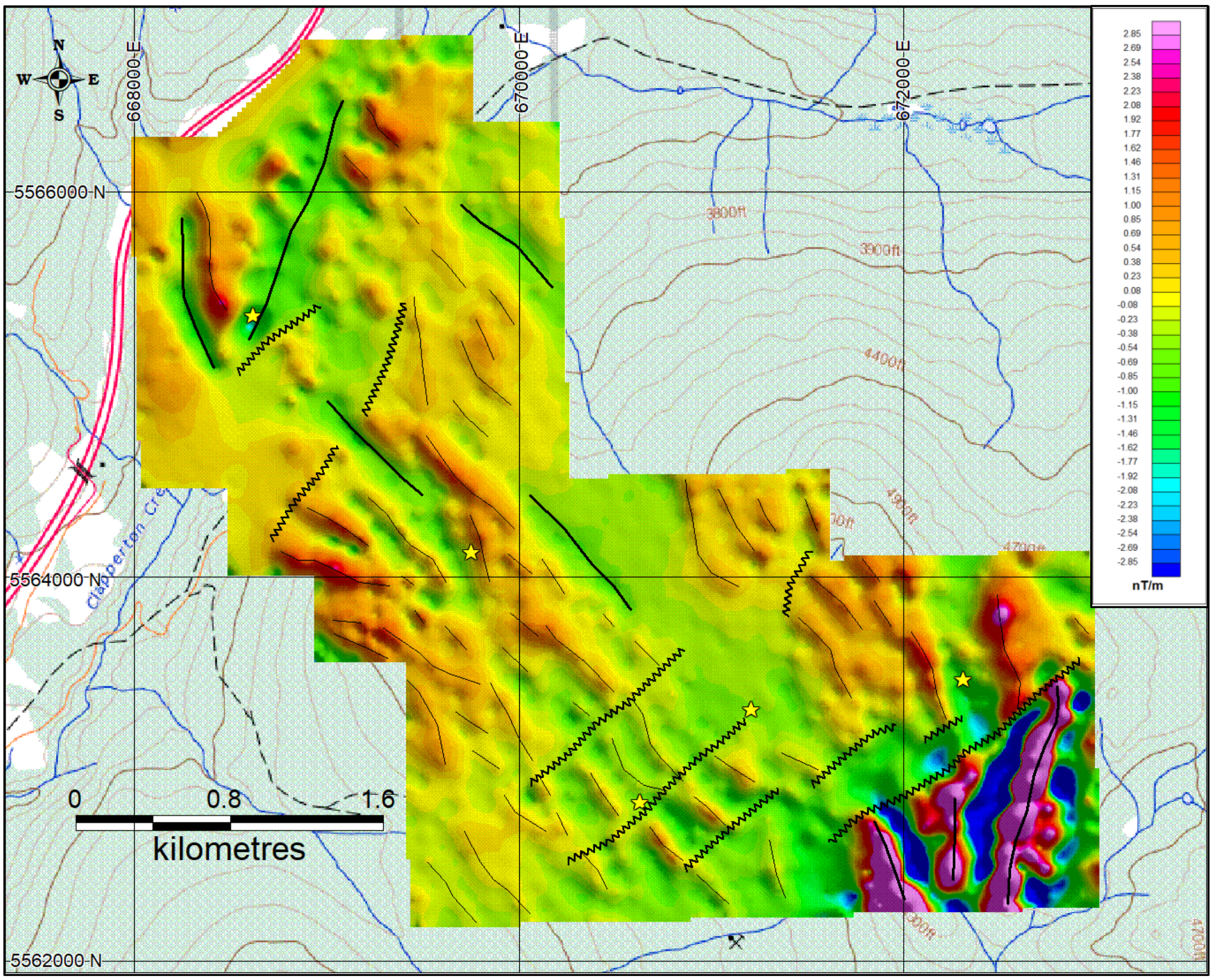


Figure 7: Calculated Vertical Gradient. Sun illumination from NE.

The CVG map (Figure 7) is dominated mainly by narrow, northwesterly trending lineations. Individual lineations are typically < 500 metres in length but many align to form longer trends. A number of northeasterly trending features, defined by breaks in the northwesterly oriented background lineations are likely evidence of faulting. The strongest of these is delineated by the northern termination of the uTNsh magnetic responses in the southeast corner of the survey. One of the weaker of these faults coincides with the Turlight deposit and parallel structures are mapped 400 metres on either side.

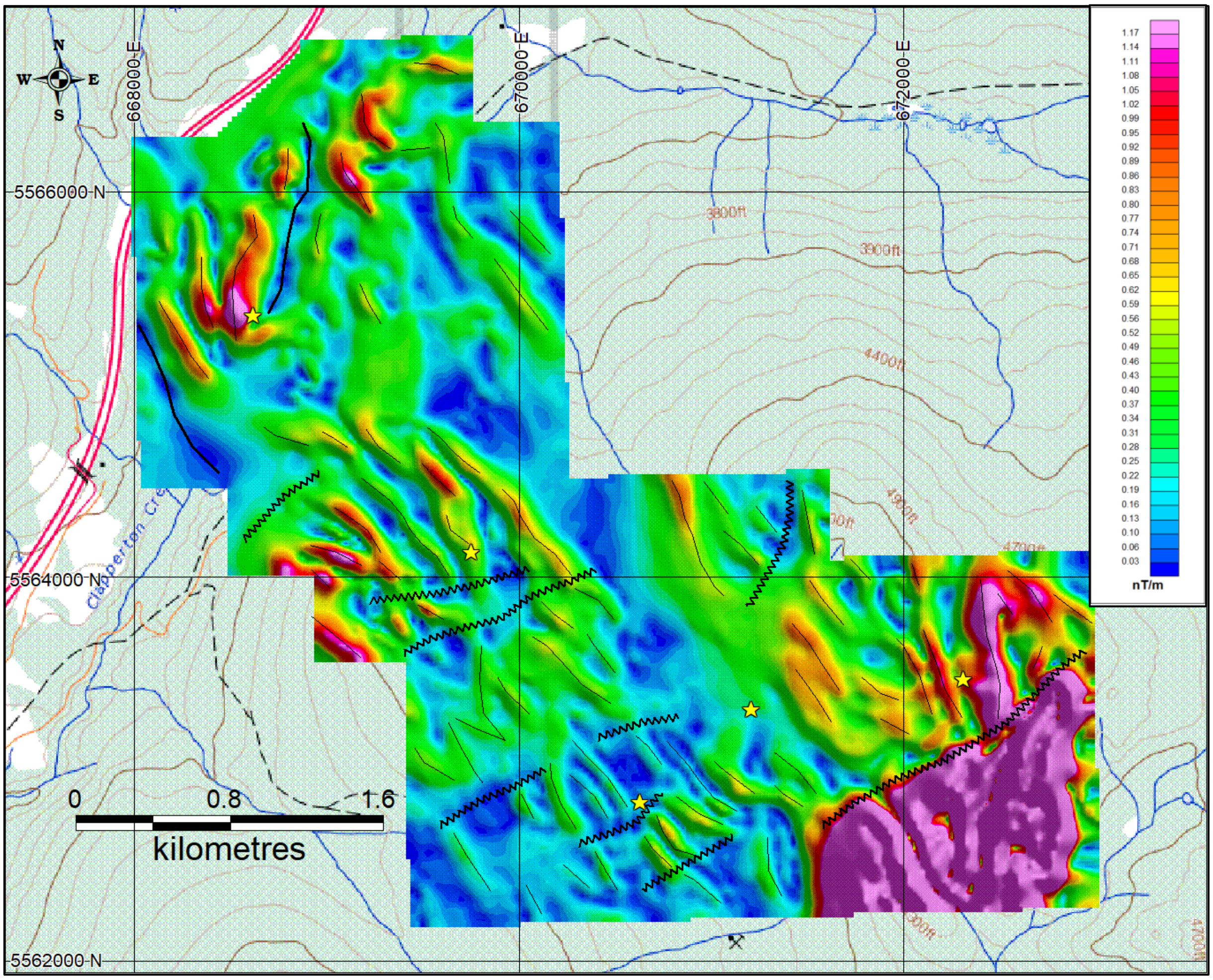


Figure 8: Calculated Horizontal Gradient. Sun illumination from NE.

The CHG map (Figure 8) generally shows the opposite character to the CVG in that a CVG high response, typically coinciding with the ridge of a magnetic high response, is mapped as a CHG low with flanking highs. The CHG high trends more closely map the inflections along the sides of magnetic high and low features. Overall, both maps show the same structures but in a different manner. The CHG map appears to reflect more complex structures.

Draping the magnetic plan maps over topography (Figure 9) provides an effective method of highlighting any correlations between the magnetic responses and terrain. This is particularly important in mountainous areas where ridges and valleys often generate magnetic highs and lows respectively. In this instance, there are two "typical" correlations noted. The M5 low anomaly follows the Clapperton Creek drainage and the M2 high anomaly underlies Peacock Mountain. There is also a subtle correlation between the drainage flowing south off Peacock Mountain and a weak, WSW trending magnetic low response. The other labelled magnetic features (M1, M3, M4) cross topography. In this area, it does not appear that topography has any significant influence on the magnetic data.

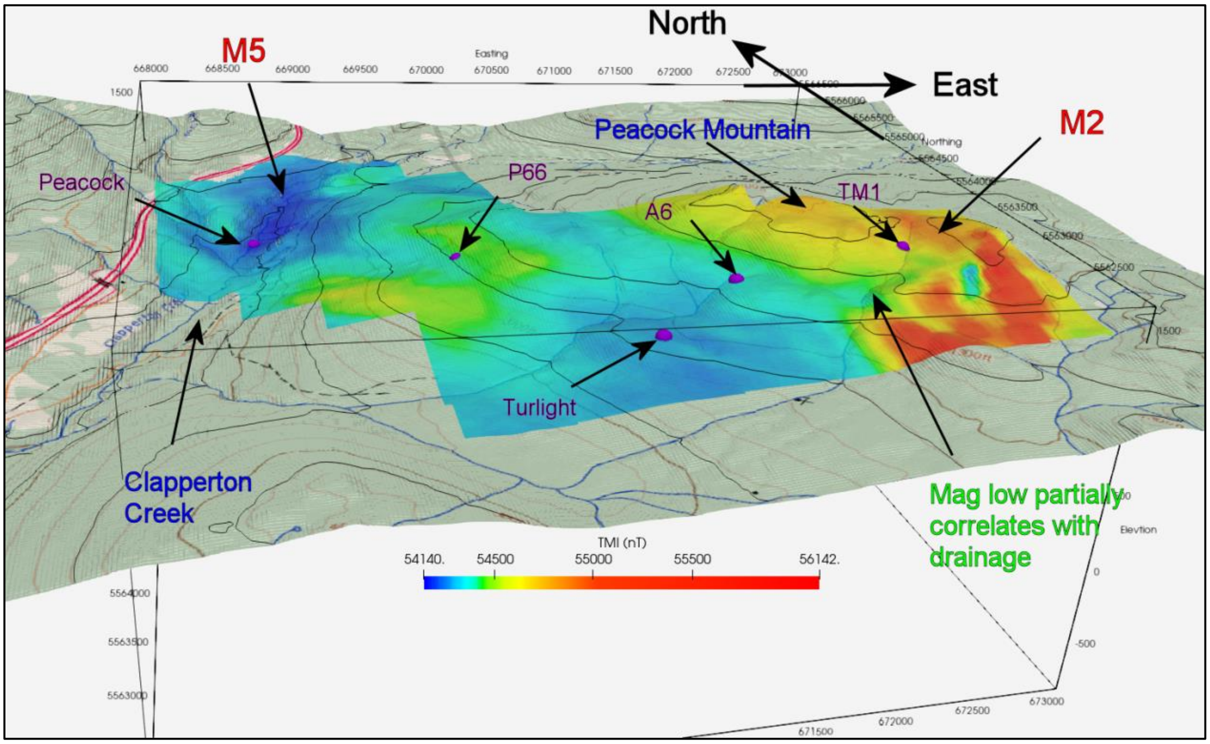


Figure 9: Total Magnetic Field draped over Topography – 3D Perspective elevated view from Southwest. BCGS Geology map and satellite imagery as topographic surface.

6.1.2 Profile Analysis

The Total Magnetic Intensity data is presented in stacked profile format as Figure 10. Survey lines are assigned a base value of 54350 nT and profiles drawn at a vertical scale that allows for 250 nT displacement between the survey lines which are spaced at 100 metres.

The stacked profile display provides a visual representation that illustrates the line to line correlation and line to line variations of magnetic responses across the area. It also allows for the visualization of the magnetic "character" which is often lost in plan maps based solely on the amplitude of the magnetic field. In geological environments such as this, there is often a distinct change in the frequency of the magnetic response associated with sedimentary, volcanic and intrusive rocks. Analysis is done on individual profiles, where the user can optimize the profiles' vertical scale to the local responses. Individual line profiles are also used for curve matching in forward case, 2D modelling studies.

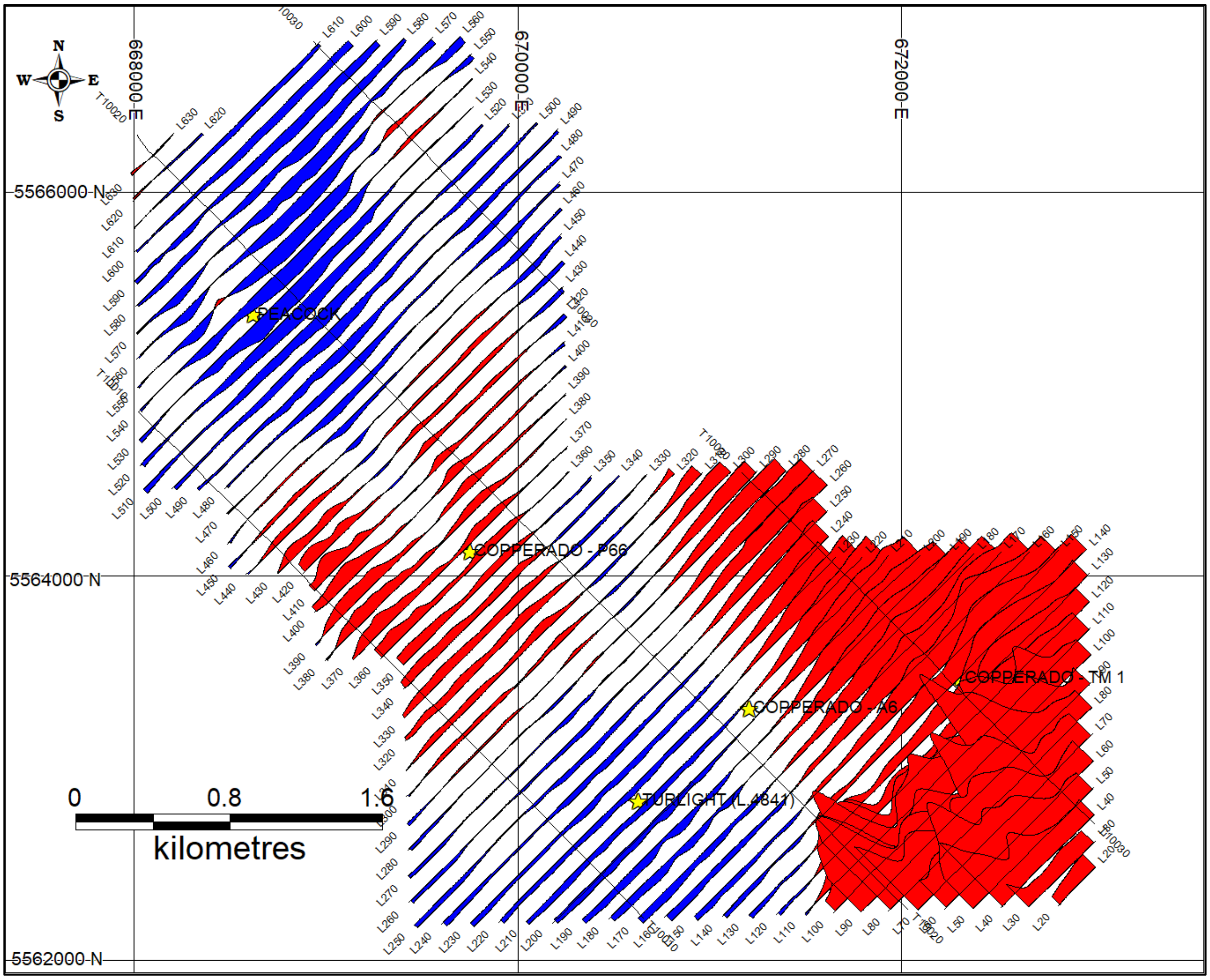
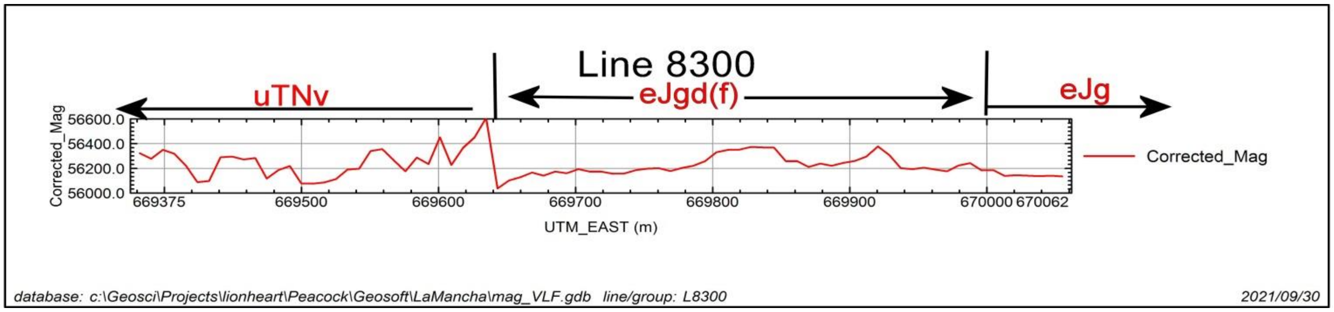
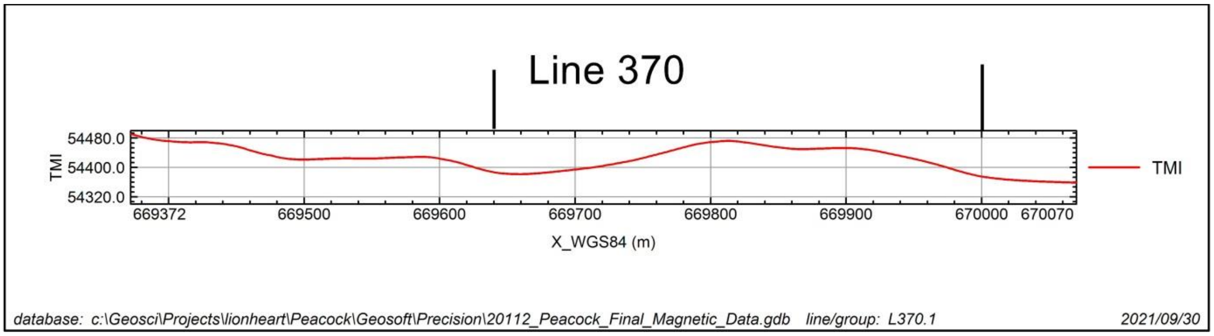


Figure 10: Stacked Profile Map – RMI data.
Survey Lines assigned 54350 nT base level. Vertical Scale = 250nT between survey lines 100 metres apart.

On this survey, the high frequency component of the magnetic field is effectively filtered out due to the nominal 55 metre height of the magnetic sensors above the ground. This effect can be illustrated by comparing an airborne magnetic profile to one from the ground survey completed in 2000. Figure 11 compares the magnetic profiles from line 370 on the airborne survey to that from line 8300E on the 2000 ground survey. The airborne data has been trimmed to cover the same area as the ground survey. The distinct character change seen on Line 8300/near station 10100 (669650E/5564112) maps the contact between the Nicola group volcanics (uTNv) to the southwest and the Nicola intrusion granodiorite (eJgd) to the northeast. There is also a subtle change between the eJgd facies and the granitic facies (eJg) of the Nicola intrusion seen on the right hand side of the profile. The inflection marking the magnetic amplitude change between these lithologies is weakly evident on the airborne data but the more definitive frequency character has been filtered out by the terrain clearance effect.



(a)



(b)

Figure 11: Magnetic Profile Comparison between (a) ground and (b) airborne surveys.

6.1.3 3D Magnetic Inversions

The magnetic data was input to the UBC-GIF Mag3dInv program, a 3D inversion algorithm that generates a 3D voxel model showing one possible subsurface distribution of the rocks' magnetic susceptibility index parameter (SI) that could produce the observed data. A regional inversion, including the entire data set was completed using input data grid to 100 metre cells and modelled with a 50 metre voxel mesh. In addition, four detailed inversions were completed across overlapping windows (Win2 to Win5) using 50 metre input data and a 25 metre voxel mesh (Figure 12). The coarse inversion provides a model comparing the relative magnetic susceptibility across the entire area and the detailed inversions provide greater resolution of the near surface features.

Because relative magnetic values are used as input, the magnetic susceptibility index (SI) values calculated are also relative. Consequently the 3D models produced will normally be centred around the 0.0 SI level, even though negative SI values are not observed in nature (with the exception of diamagnetic minerals). Although there are level shifts in the amplitude of the SI values between the detailed models resulting from base level variations in the input data, the relative high and low trends are consistent between the models.

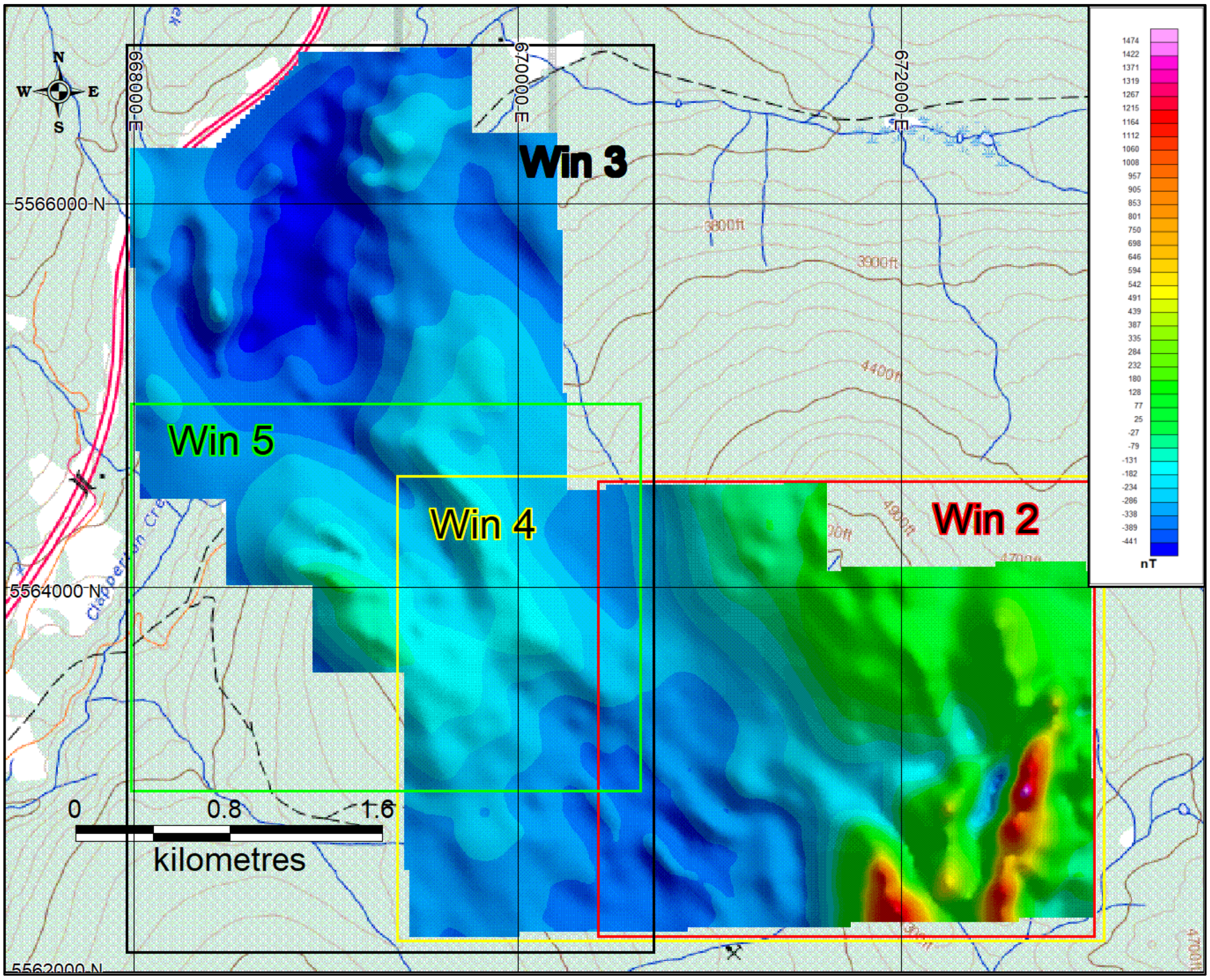


Figure 12: Mag 3D Inversion Blocks – Topo Base with RMI overlay – shadow enhanced from NE.
Coarse Inversion: entire data set. Detail Inversions windows 2-5 (color coded)

The inversion models are best viewed in a 3D viewing program that allows the user to visualize the interpreted model from different angles and perspectives, generate depth slices or cross-sections at any angle and isolate specific responses based on threshold or isocontour values. Snapshots from the Paraview viewer are included as images below.

6.1.3.1 Win 1: Coarse Inversion

The regional inversion model shows a similar surface pattern to the TFM mapping but maps more detailed definitions along and within the broader magnetic features.

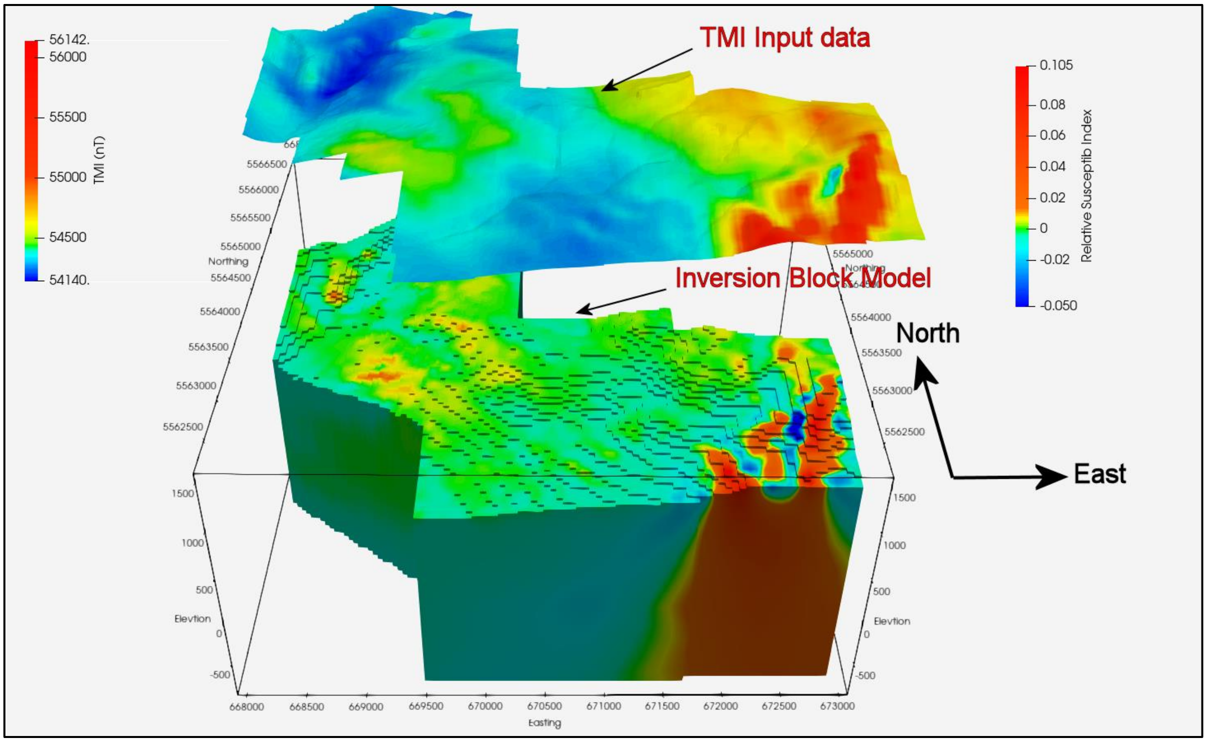


Figure 13: Mag3D Coarse Inversion Block Model – TMI data floating above – Elevated view from South.

By viewing the model as isosurfaces we can reveal the regional features linking the surface anomalies. Figures 14 and 15 provide 3D views showing different isosurfaces of the coarse mag3d inversion model. These images are annotated with comments and the reference numbers described below.

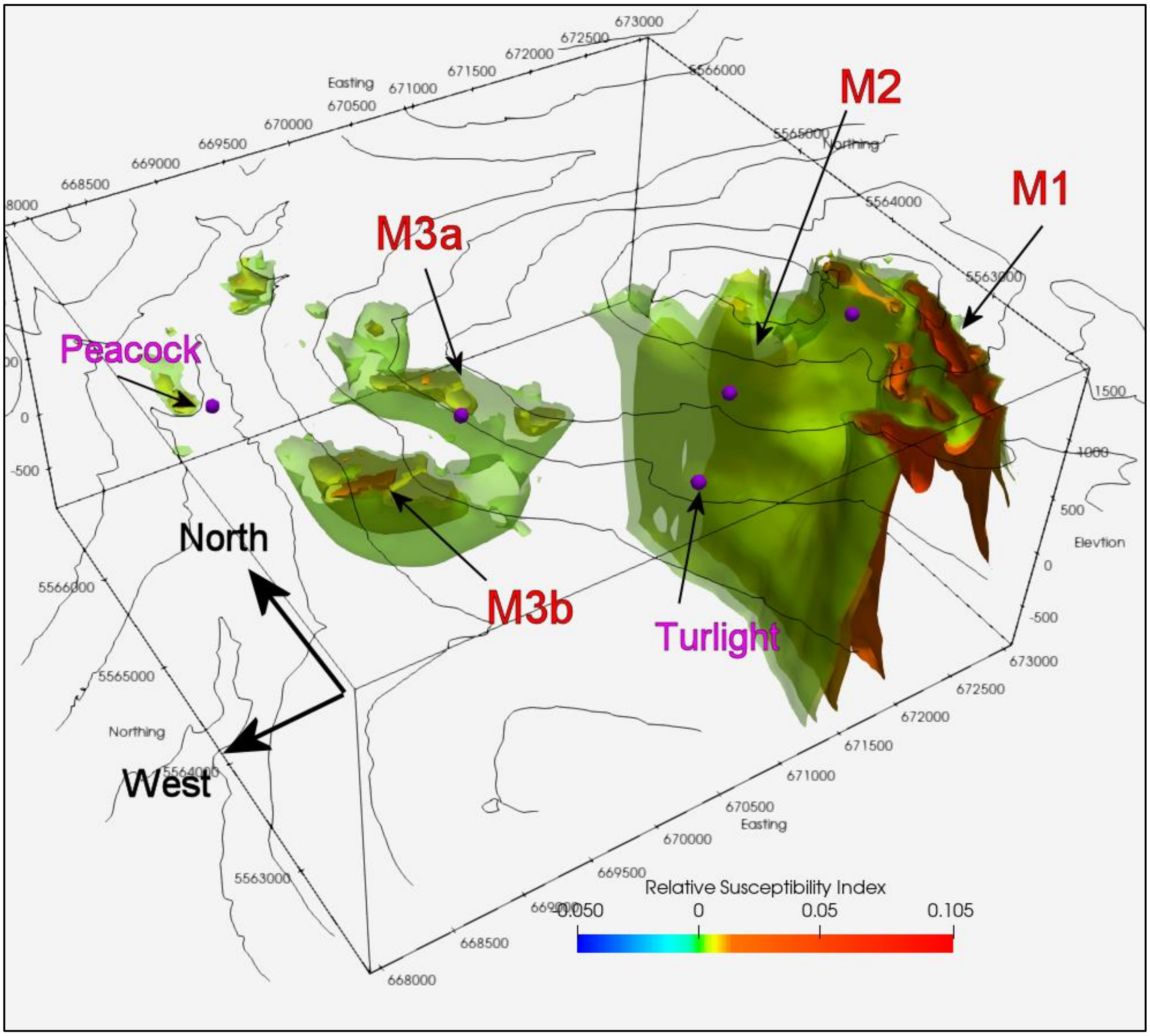


Figure 14: Mag3D Coarse Inversion –High Isosurfaces –Elevated view from SW
Red = +0.05SI, Orange = +0.02 SI, Gold = +0.01 SI, Green = +0.005 SI, Translucent Green = +0.0025 SI. Purple spheres reflect Minfile Occurrences.

Figure 14 displays the higher susceptibility units of the coarse inversion model.

- The +0.05 to +0.02 SI isosurfaces outlines the narrow, northerly trending uTNsh metamorphic bands in the southeast corner of the block (M1). The two outer anomalies model as thin, near vertical plates that extend to depth. The central anomaly models as a surface body with limited depth extent, although this appearance could be attributed to interference from the flanking zones.
- The +0.01 SI isosurface reflects the granitic facies of the Nicola Intrusion (M2) and suggests it dips steeply to the west.
- The +0.005 to +0.0025 SI surfaces map the weak northwest trending magnetic highs M3a and M3b as broad surface lenses which contain small, narrow bands of higher susceptibility.

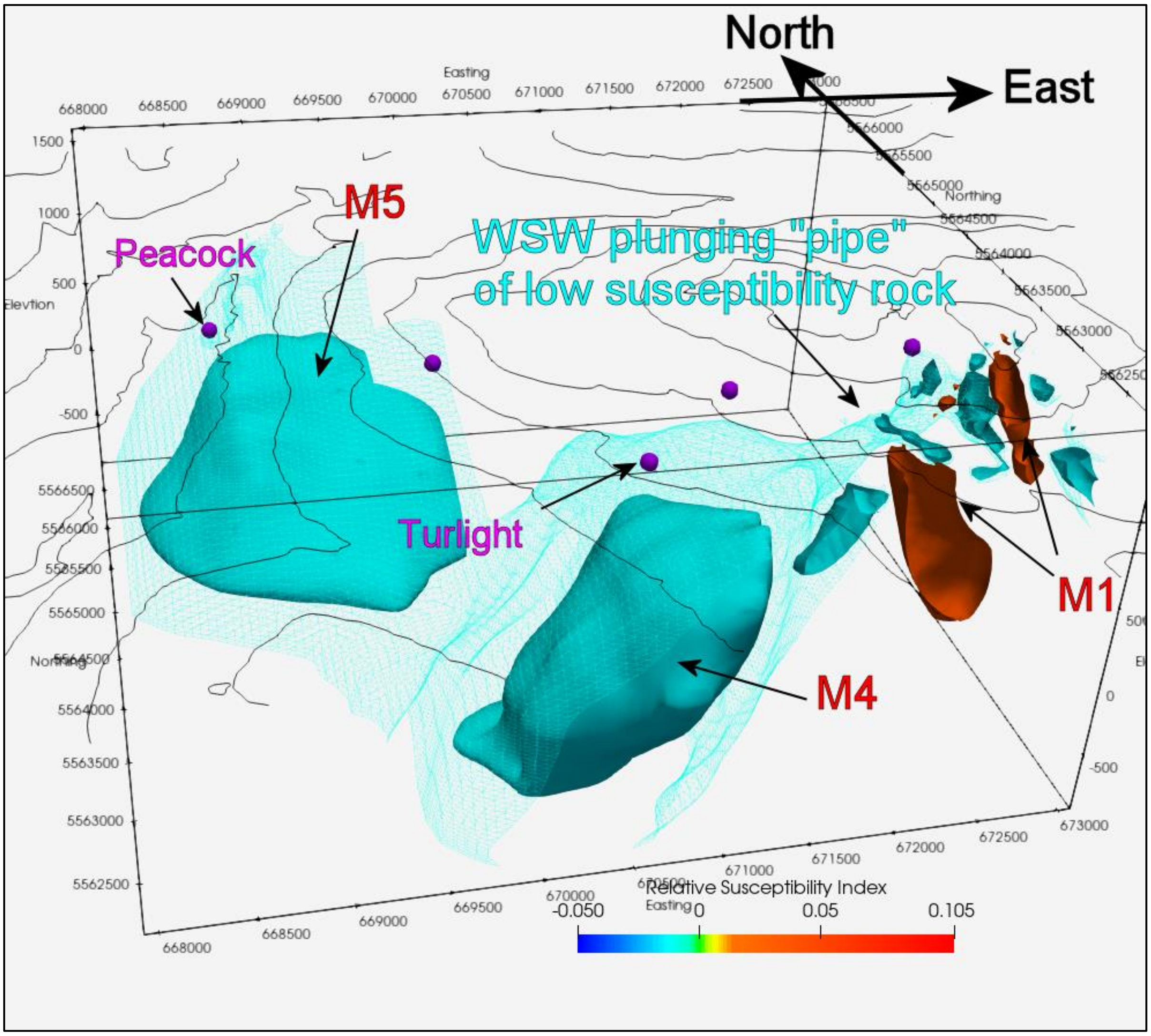


Figure 15: Mag3D Coarse Inversion –Low Isosurfaces –Elevated view from South.
Copper = +0.038 SI, Aqua mesh = -0.01 SI, Aqua = -0.015 SI
Purple spheres reflect Minfile Occurrences.

Figure 15 displays the lower susceptibility units of the coarse inversion model.

- The -0.015 SI isosurface reveals deeply buried low SI bodies underlie the M4 and M5 magnetic low anomalies. The M4 body exhibits a steep westerly plunge.
- The -0.01 SI isosurface reveals a west-southwest plunging low susceptibility zone extending from the southern edge of granitic intrusion to the buried M4 zone. The southern edge of this feature closely ties to the interpreted fault zone marking the northern edge of the uTNsh metamorphic zone. The northern edge of the feature corresponds with the series of smaller NE trending faults mapped on the CVG map (Figure 7).

- The -0.004 to -0.001 SI isosurfaces (not shown on Figure 15) reveal narrow, sinuous low SI trends forming around the edges of the M3b zone. These responses are more clearly mapped by the detailed inversions Win3 and Win5.

6.1.3.2 Detail inversions

Detail inversions were completed to more accurately map the near surface features. The survey area was initially divided into Win2 and Win3. Win4 expanded Win2 to the west in order to provide a larger overlap with Win3 and encompass the entire M4 magnetic low anomaly. Win5 was applied to isolate the response to the M3a and M3b. The models from Win3 and Win4 are discussed below.

Win 4 covers the southern half of the survey block. The large, deep structures shown in the coarse inversion are also evident in the detail model. In addition:

- Isosurfaces of +0.006 to +0.003 SI show the development of outliers of granitic materials around the edge of the main body as localized pods with possible roots that extend to the main body to the north. (Figure 16).
- The very low SI isosurfaces (-0.02 to -0.015 SI) show narrow lineations along the sides of the very high SI uTNsh plates. These are most likely attempts by the inversion to model the magnetic low lobes generated along the flanks of the high spike magnetic responses and are not attributed to discrete geological units.
- The weak positive (+0.001 to +0.002 SI) and weak negative (-0.001 to -0.002 SI) isosurfaces map the weak NW trending magnetic linears around the Turlight shaft as small, near surface pods and lenses. (Figure 17). They also highlight numerous breaks in the northwesterly striking background trends that likely reflect northeasterly striking faults.

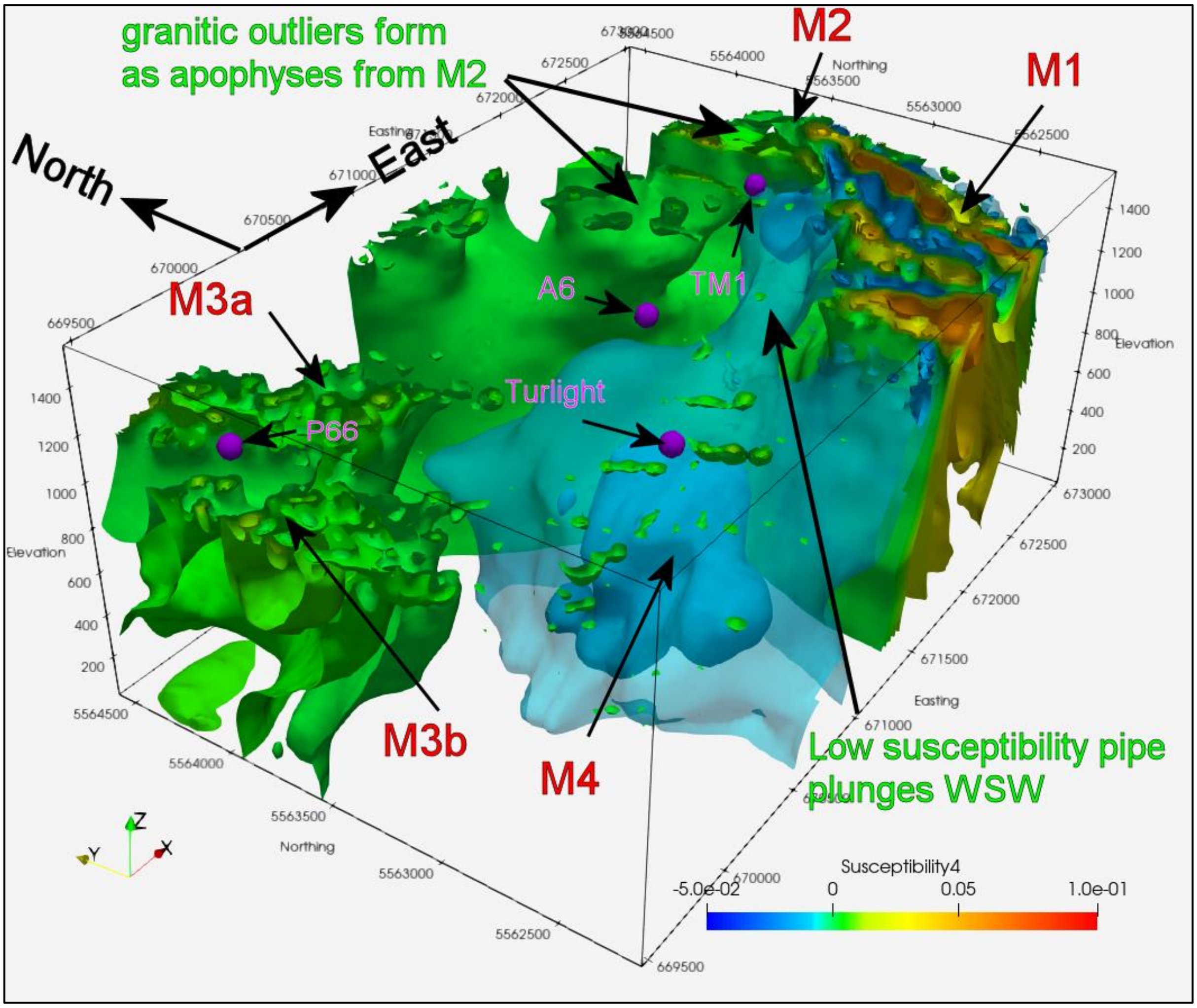


Figure 16: Win4 Detail Mag3D Inversion. Deep structures. Elevated view from SW.
Isocontours: Bright Green = +0.003 SI, Translucent Blue = -0.01 SI, Aqua = -0.015 SI.
Purple spheres reflect Minfile Occurrences.

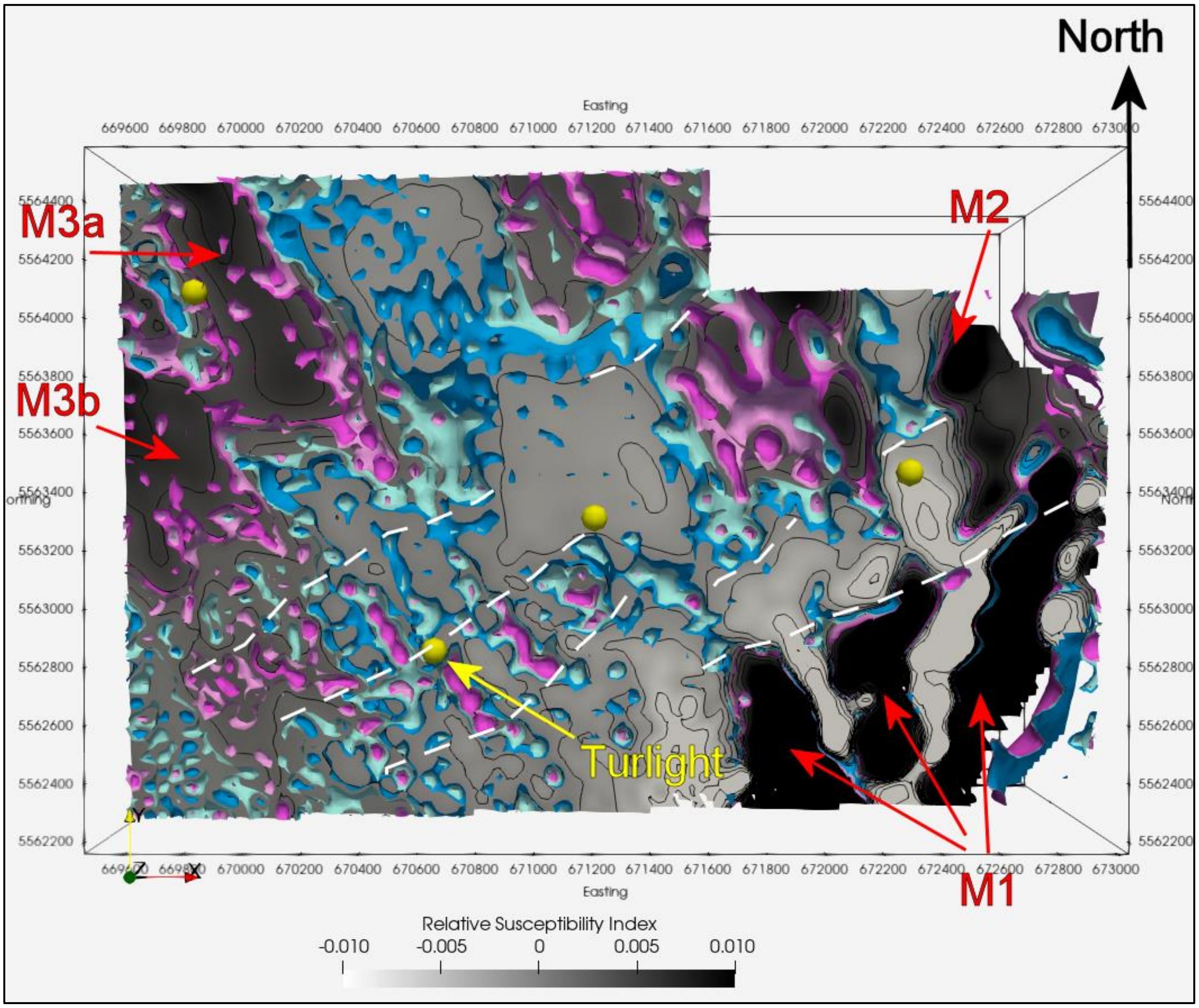


Figure 17: Win4 Detail Mag3D Inversion. Near surface structures. Top View
Isocontours: Pink = +0.002 SI, Light Pink = +0.001 SI, Light Blue = -0.001 SI, Blue = -0.002 SI.
Greyscale background map shows depthslice through inversion model at ~ 50m depth.
Dashed lines reflect interpreted NE faulting. Yellow spheres reflect Minfile Occurrences.

Win 3 covers the western portion of the survey block. It confirms the coarse model of the northern M5 anomaly as a steep sided, northerly elongated plate. Because this block only straddles the southern M4 anomaly it does not provide as clear of an interpretation of this structure as the coarse Win1 and the detailed Win4 models. The Win3 model provides greater details of the near surface features and modifies the interpretation of some of the deeper features.

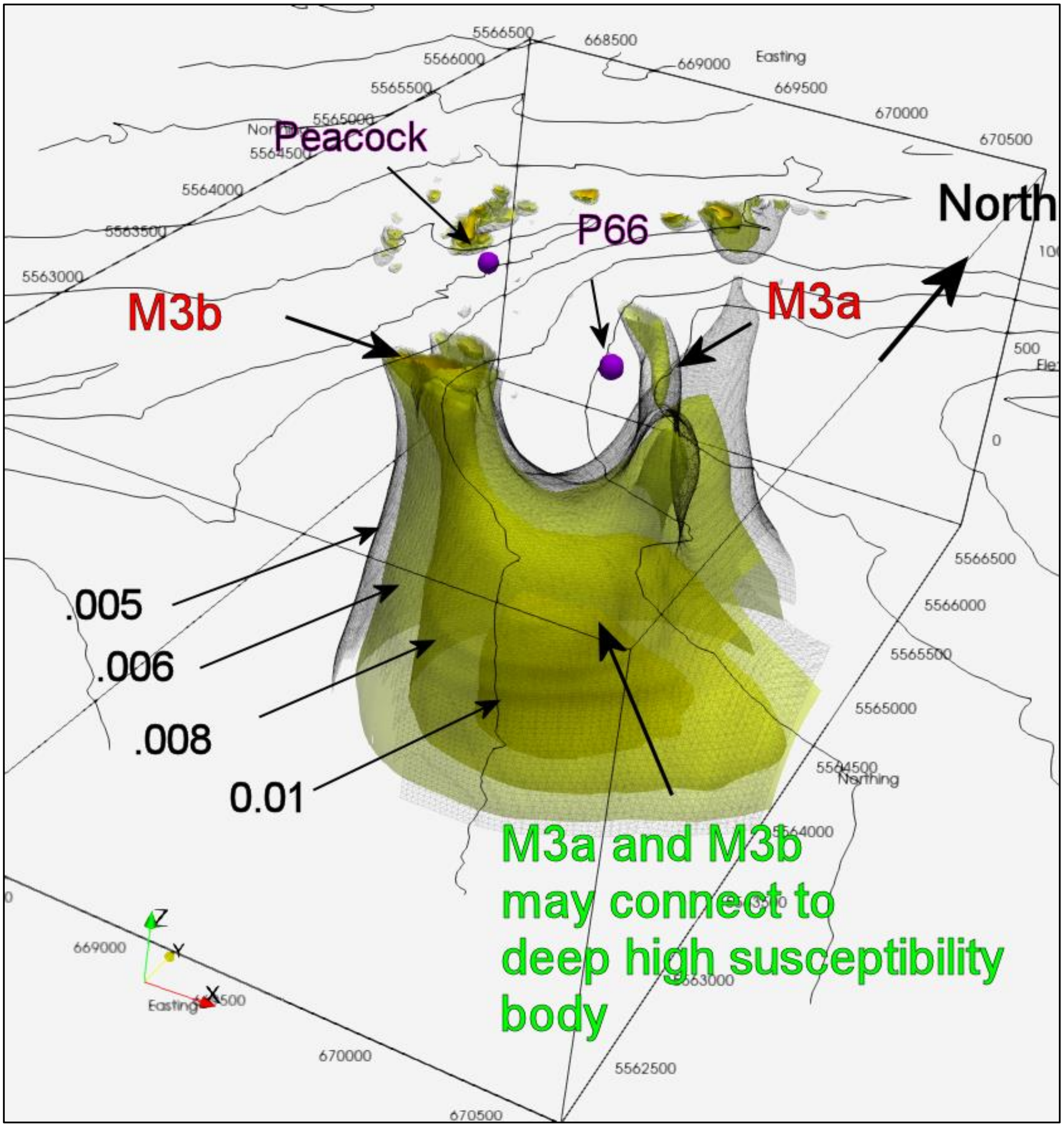


Figure 18: Win 3 Mag3D Inversion –High Isosurfaces –Elevated view from SE
Isosurfaces: Yellow = +0.01 SI, Translucent Greens = +.008 and +.006 SI, Black mesh = +0.005 SI.
Purple spheres reflect Minfile Occurrences.

- The +0.01 to +0.005 SI contours suggest the narrow NW surface pods, M3a and M3b, are underlain by and may connect to a large high SI body at depth (Figure 18). Furthermore it implies the edges of this deep body are reasonably vertical and form NE-SW trending contacts, which parallel the surface faults seen on the calculated gradient maps. This deep body is not evident on the coarse inversion which shows M3a and M3b as surface pods with limited depth extent.

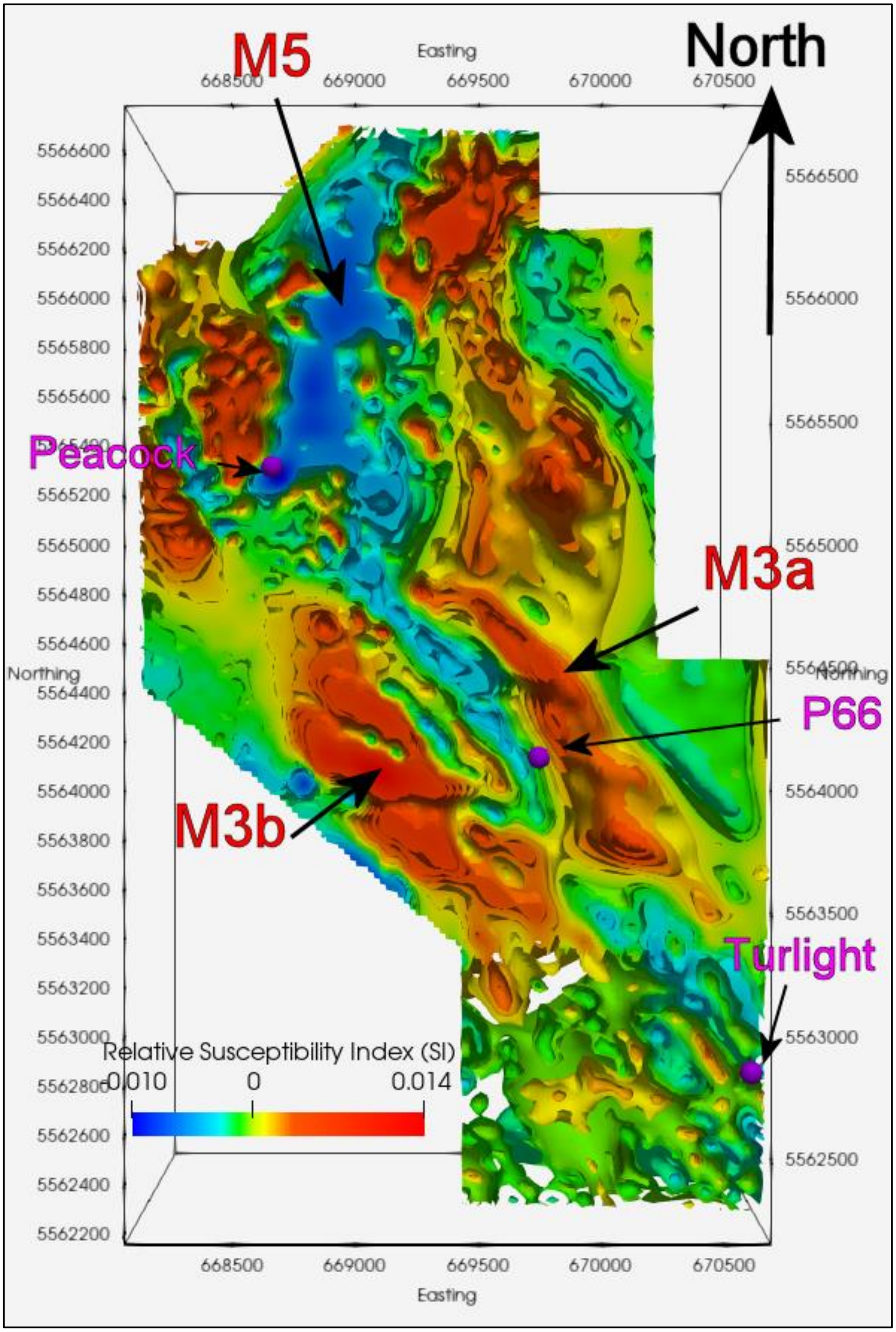


Figure 19: Win 3 Mag3D Inversion –Low amplitude Isosurface contours –Top view
Horizontal slice through inversion block at ~ 50m depth.
Purple spheres reflect Minfile Occurrences.

- The weak positive and weak negative isosurfaces (+0.004 to -0.004 SI) reflect complex patterns of narrow, near surface pods of weakly variable magnetic materials across most of the area. These patterns reflect the dominant northwesterly trending strike of the underlying rocks and significant northeasterly striking cross faulting.

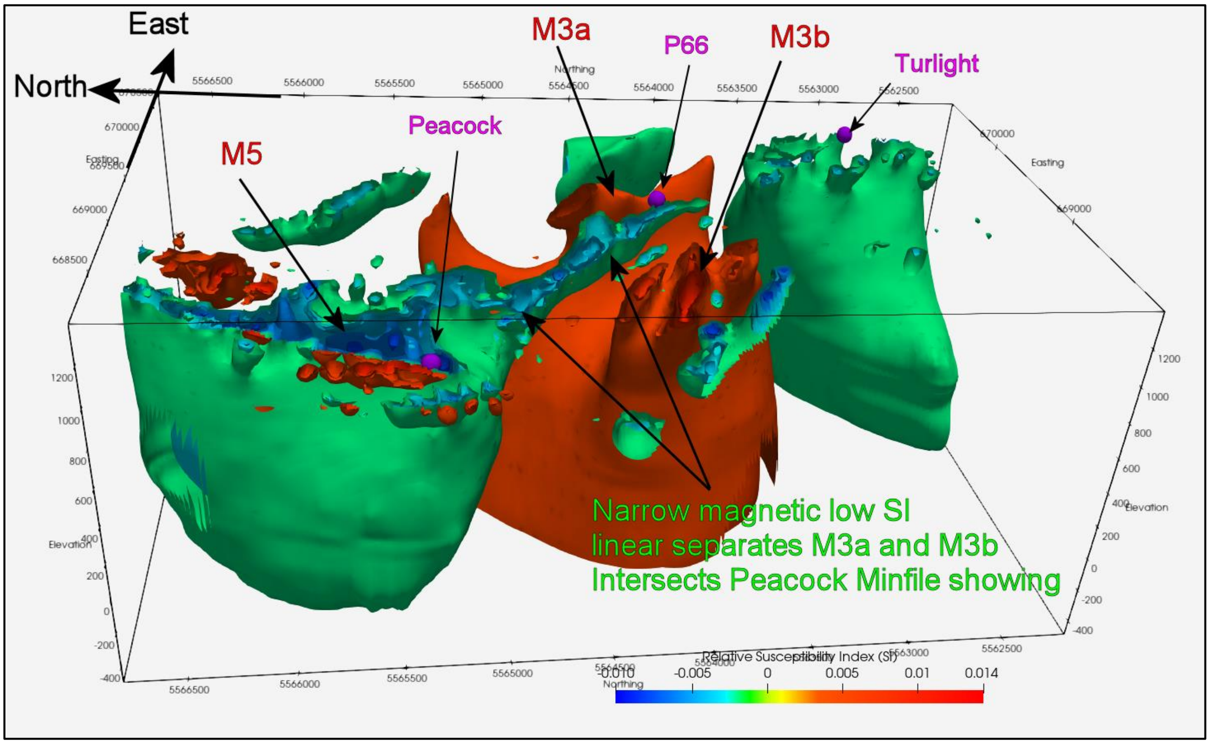


Figure 20: Win 3 Mag3D Inversion –Low amplitude Isosurface contours –View from West
Isosurfaces: Orange >+0.005 SI, Green = -0.004 SI.
Purple spheres reflect Minfile Occurrences.

- The -0.004 to -0.002 SI isosurfaces shows the narrow NW trending magnetic low separating the M3a and M3b zones as a trough like body that thickens to the northwest (Figure 20). This relatively straight magnetic low linear connects the Peacock and the Coronado P66 minfile occurrences and likely reflects a fault zone. It closely follows a BCGS defined fault contact between the Nicola Group volcanics and Nicola Intrusion.

There is a strong correlation noted between the BCGS fault interpretation and 3D inversion modelled low susceptibility plate-like zones. This correlation is noted in the relationship between the Peacock Minfile showing and the M5 low susceptibility plate as well as the Peacock to Coronado P66 structure. This suggests the faults may be associated with alteration zones that include magnetite depletion. With this relationship in mind the low susceptibility pipe or prism-like body that extends east-northeasterly from the Turlight deposit could be interpreted as a similar fault structure. Because this feature is defined by survey lines that closely parallel the structure, the edges are not clearly defined. However, tie line 10030 crosses this structure at a more orthogonal angle. The data along this line shows the target magnetic anomaly as a relatively symmetrical, 200 nT low, approximately 700 metres across and with a slight regional bias that decreases the background from NW to SE. The southeastern side of the profile is not clearly defined as it is overprinted by a very high amplitude response to the strongly metamorphosed shale unit (uTNsh).

The Line 10030 magnetic profile was used as a target profile for the MagMod program, a 2.5D forward modelling software program that allows the user to calculate the theoretical magnetic response to linear structures based on their geometric cross-sections. Two models were completed. Figure 21 shows the results of the first model, constructed with no a priori information. The study suggests the source is a near vertical sided body with a concave top surface. Depth to the surface is estimated between 70 and 100 metres. The body is estimated at approximately 370 metres width. The depth extent is unknown but likely greater than 350 metres. The zone is estimated to have a magnetic susceptibility of ~ 0.17 SI lower than the surrounding rocks.

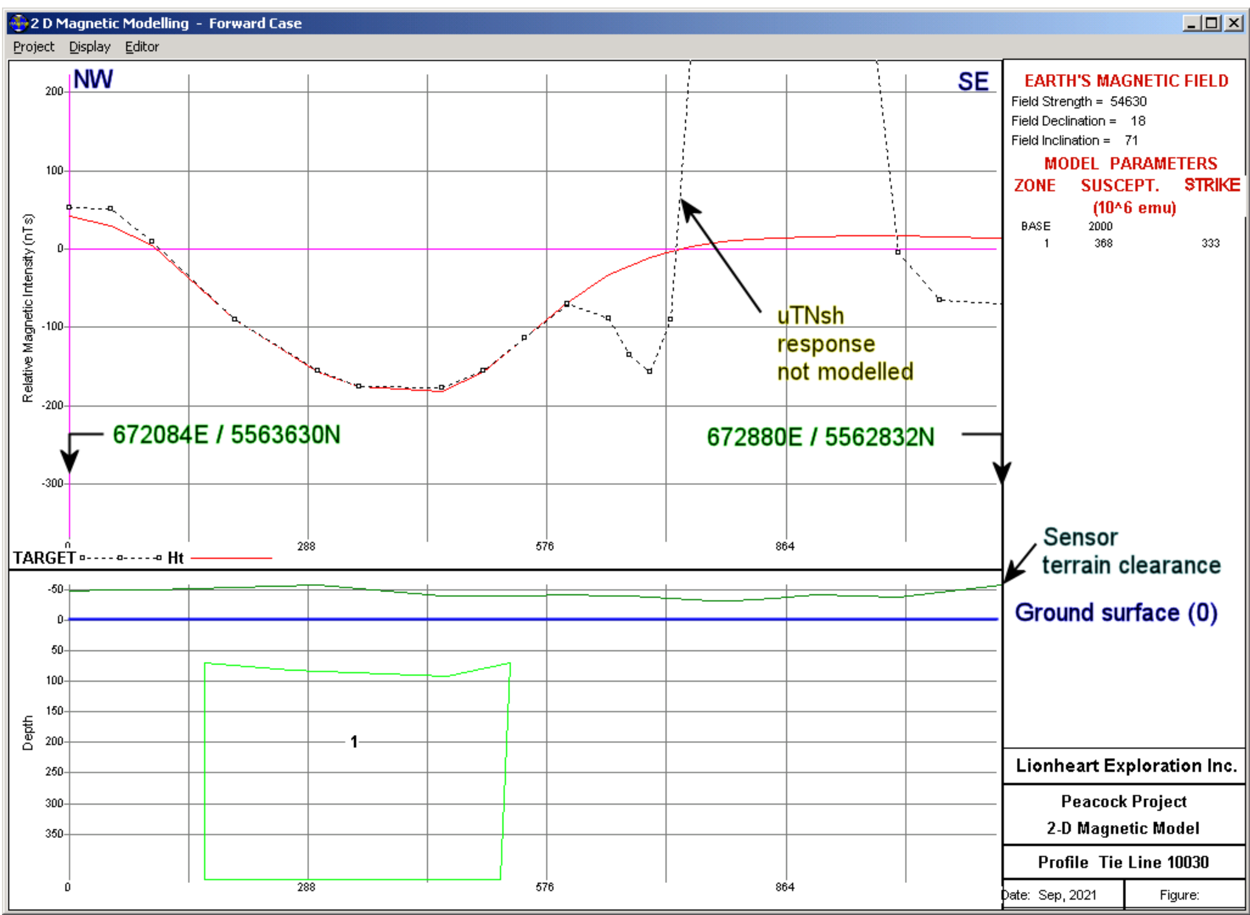


Figure 21: MagMod 2.5 D Model. Tie Line 10030. First Pass.

A cross section through the Win4 3D inversion model along tieline 10030 is presented as Figure 22. This model compliments the first pass 2D forward model but does show some differences.

- The edges of the low SI zone are not as sharp, which is attributed to the smoothing nature of the 3D inversion algorithm.
- The low SI zone is ~ 0.017 SI lower than background to the northwest.
- Low SI zone appears to be slightly asymmetric with the NW flank dipping steeply and the SE flank dipping more moderately to the NW.
- The central core of the anomaly suggests the depth to the top of unit is ~ 50m.
- Width appears wider than 2D model (part of the smoothing nature).

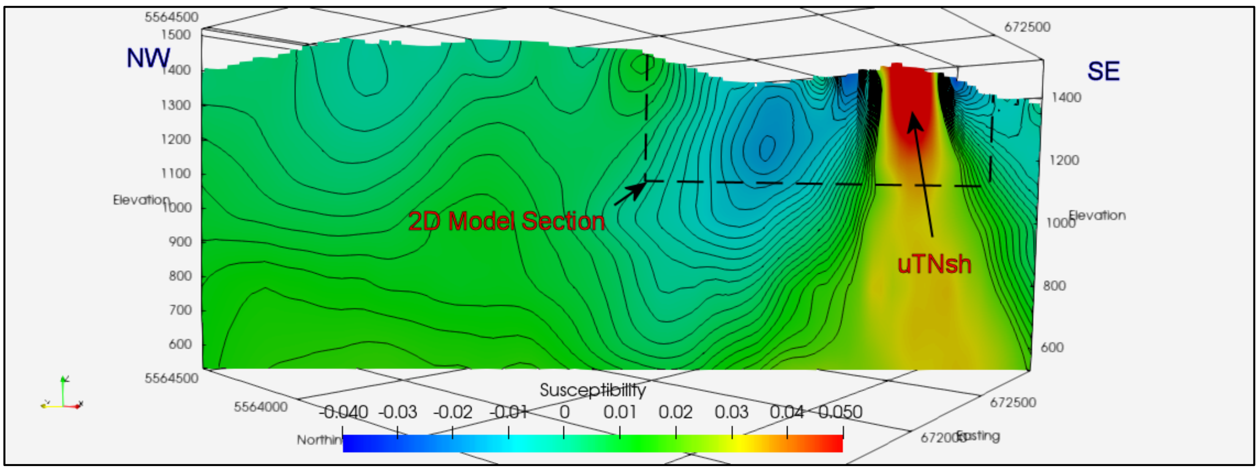


Figure 22: Cross-section through Win 4 Mag3D Inversion Model along Tie Line 10030.

Figure 23 shows the results of a second 2.5D study that reworked the initial results to include some of the features noted in the 3D inversion. This study shows that a suitable "match" to the field profile can also be produced if the source body has a slight northwesterly dip.

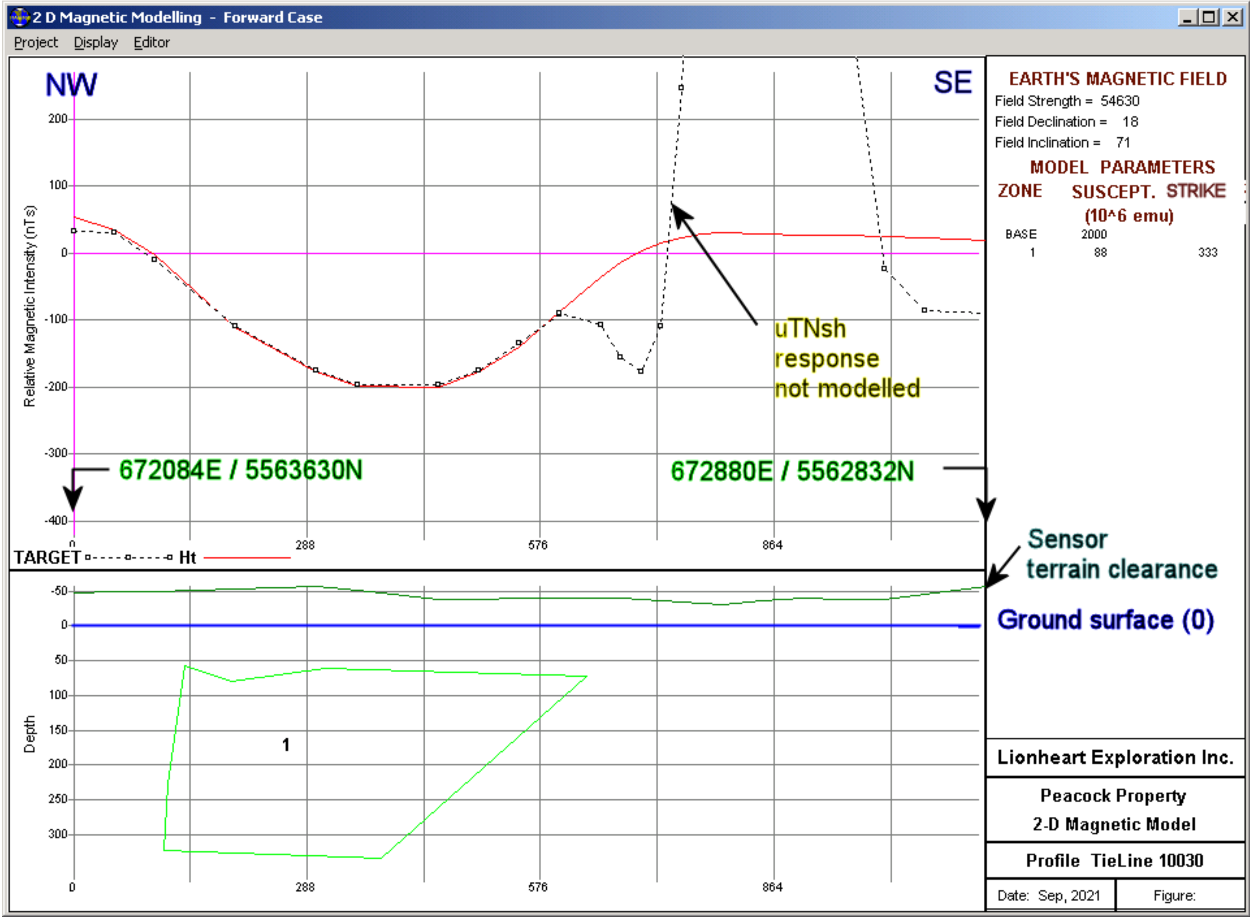


Figure 23: MagMod 2.5 D Model. Tie Line 10030. Second Pass.

The 2D and 3D analysis of this pipe or prism-like feature suggests it could be reflecting a low susceptibility and westerly plunging body, likely controlled by steep, northwesterly dipping faults. The low susceptibility core could be attributed to alteration resulting in magnetite depletion. There are some distinct similarities to this feature and the M5 response associated with the northerly trending fault zone following Clapperton Creek north of the Peacock minfile showing.

The structural interpretation can be enhanced by studying the inversion models as depth slices. The deeper slices produce results comparable to studying low pass filters of the RMI field data. At shallower depths, the inversion slices highlight similar trends to those mapped by the horizontal and vertical gradient displays. Figure 24 overlies the inversion depth slices at 50 metres depth for detail windows 3 and 4 with the interpreted magnetic area anomalies (M1-M5) and the fault and structural lineations interpreted from the calculated vertical gradient. Note that at this depth, the M4 low trend is not evident and the M2 trend (associated with the eJg granitic facies) is outlined as small, variable pods of high susceptibility.

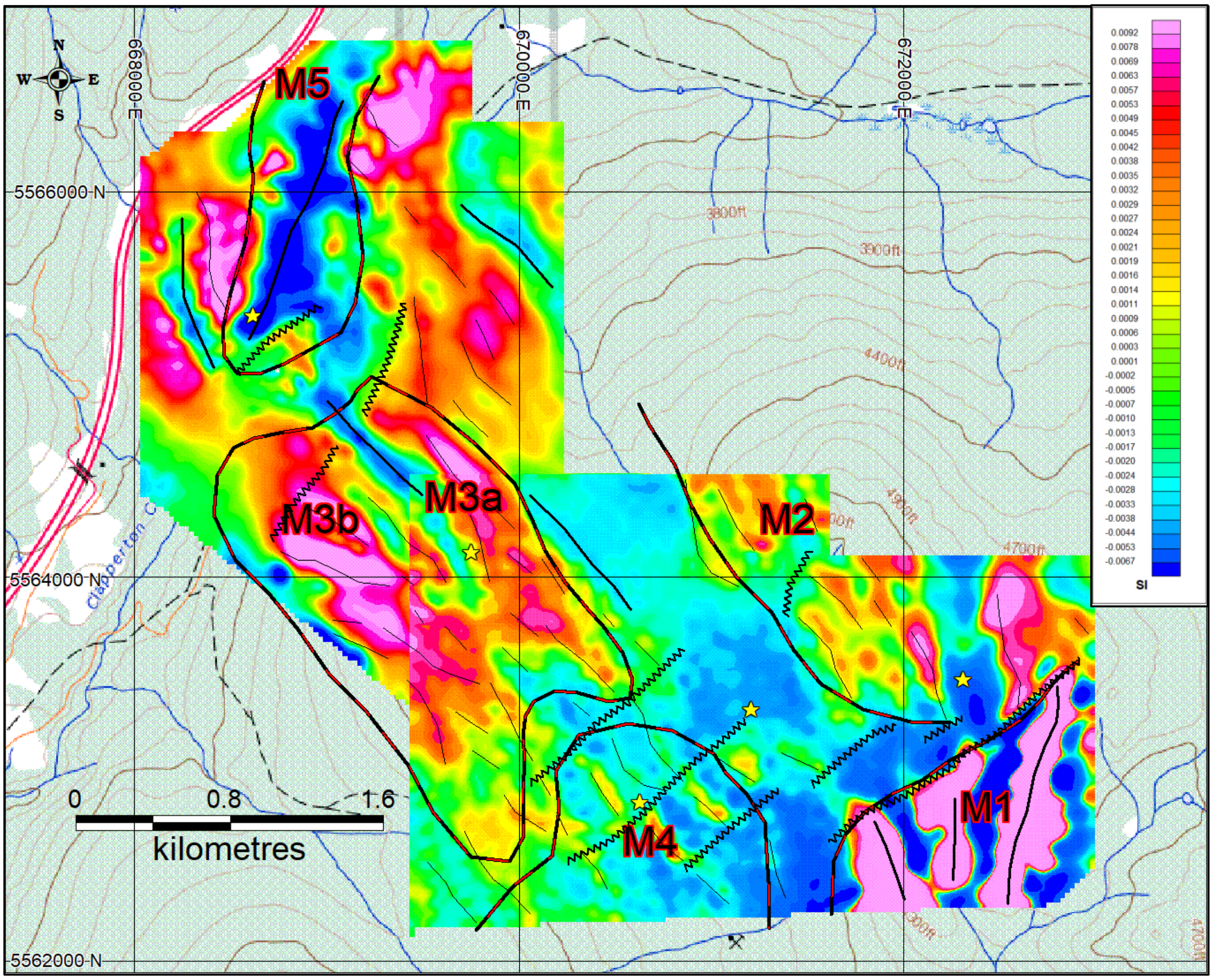
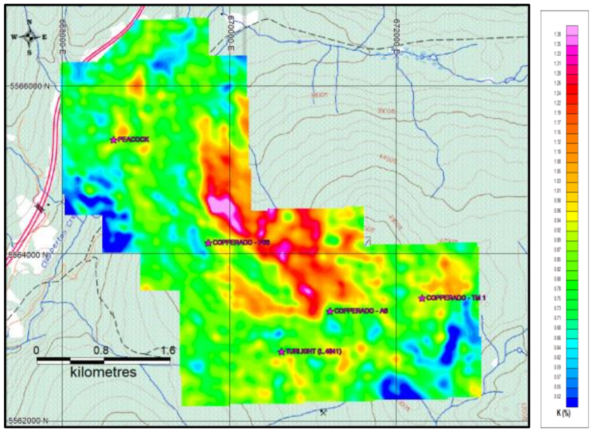


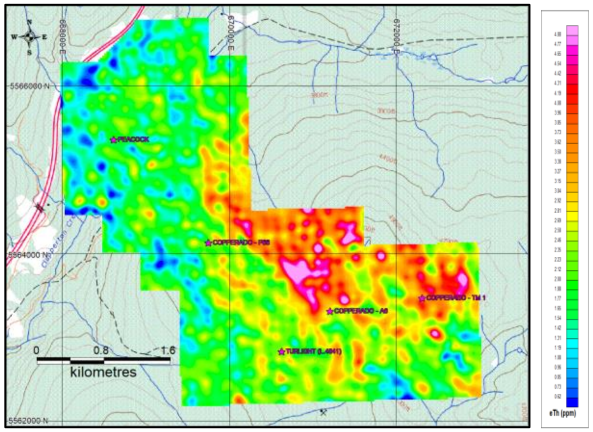
Figure 24: Compilation of Mag3D Detail Inversions Win3 and Win4: Depth Slice at 50m below surface. Interpretation –linear gradient trends (solid lines), faults (www lines). Magnetic trend areas (red-black lines). Normal colour distribution for the Win4 block has been modified to more closely tie with the Win3 model.

6.2 Radiometric Survey

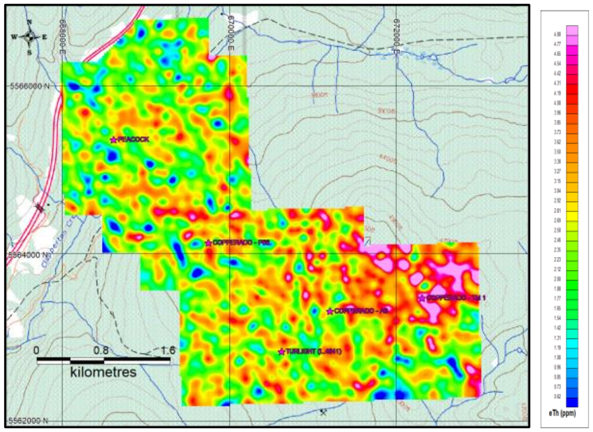
Figure 25 provides a side-by-side comparison of six radiometric colour contour maps. Two ternary displays are provided: KTU-RGB and KTU-CMY. Both show the same features but with different colours. Note that the CMY display is essentially the inversion of the RGB. In the RGB display a bright green zone indicates high thorium. In the CMY display a bright green indicates the reverse, low thorium. Similar effects are noted with red (high potassium on RGB and low potassium on CMY) and blue (high uranium on RGB and low uranium on CMY).



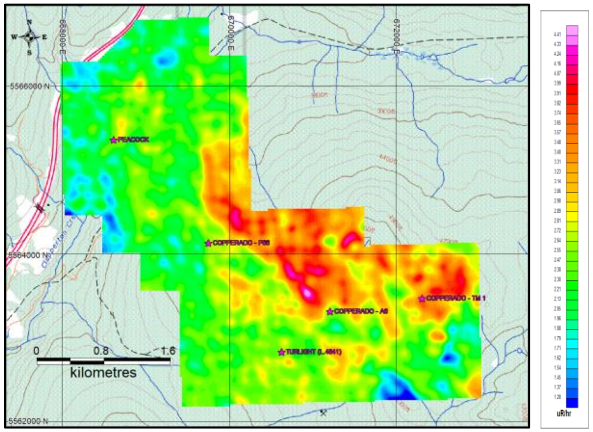
(a) Potassium



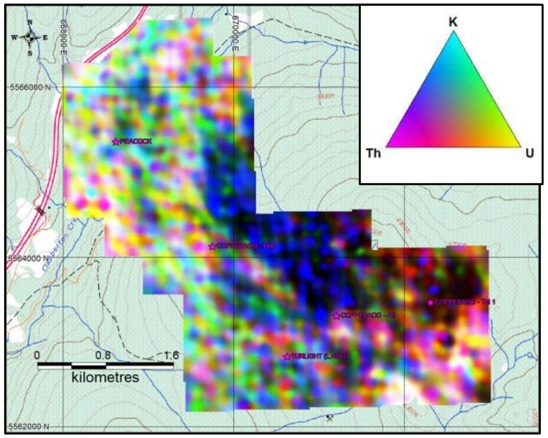
(b) Thorium



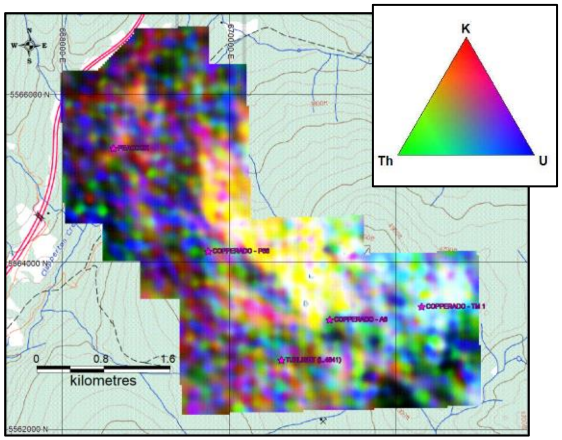
(c) Uranium



(d) Total Count



(e) Ternary KTU = CMY



(f) Ternary KTU = RGB

Figure 25: Radiometric Colour Contour Maps

The radiometric data delineates 5 prominent trends described below as A1- A5 and illustrated on Figure 26. Anomalies A1 – A4 are based primarily on the potassium responses however very similar patterns are seen in the thorium component. The A-5 anomaly is most clearly evident on the ternary maps.

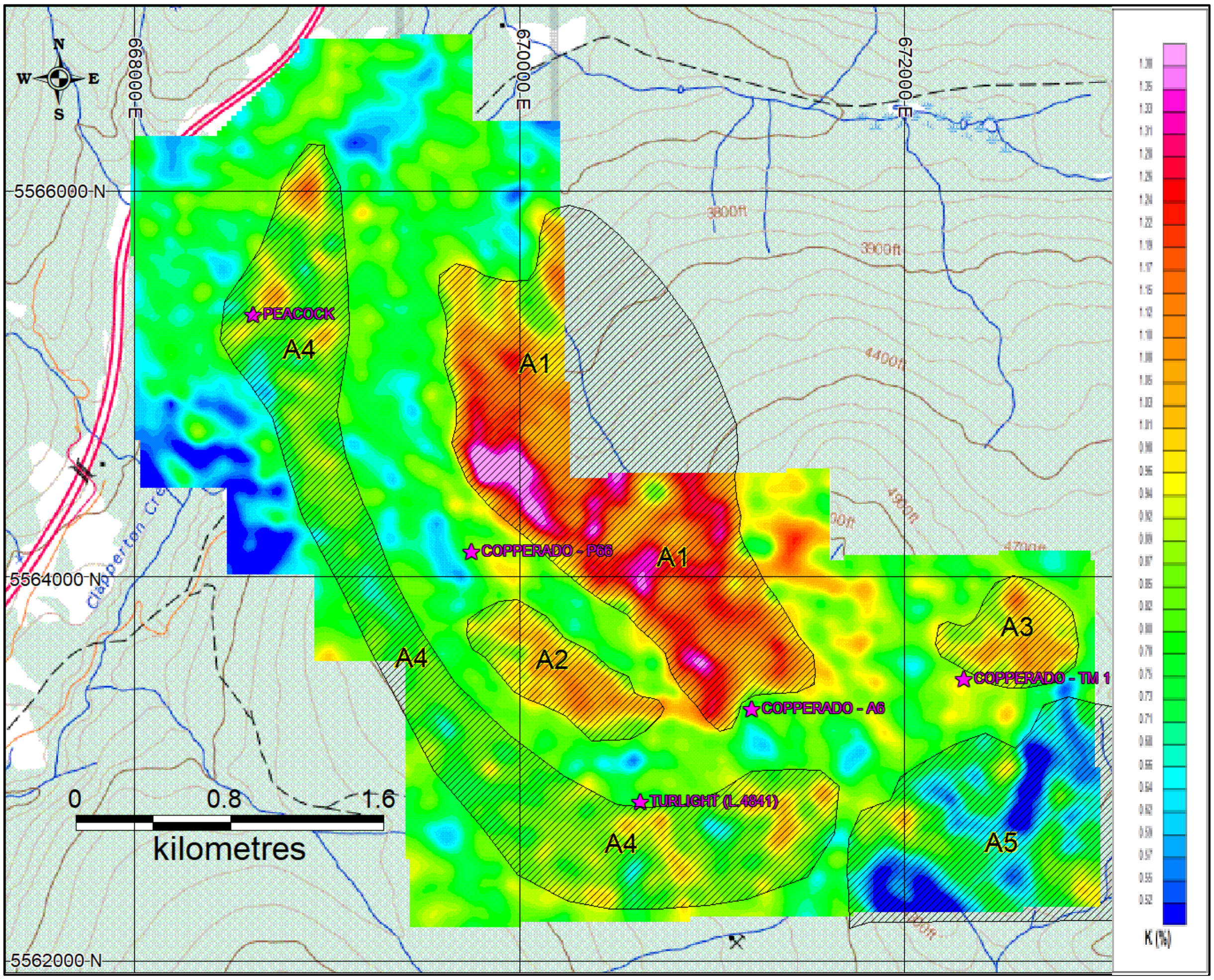


Figure 26: Potassium Count – Linear distribution
Hashed areas outline anomalous trends A1 – A5.

- The A1 trend dominates the potassium and thorium maps as a high count area. It is ~2.7 km long and up to 1 km wide and open on its' northeast side. A1 appears as a very distinct yellow zone on the RGB-KTU and blue zone on the CMY-KTU ternary maps, reflecting relatively low uranium counts. This response closely ties to the area mapped as the granitic facies of the Nicola intrusion by Payne (2000).
- The A2 zone is lower amplitude than A1 and runs parallel to it, some 300m off its' southwest flank. It is ~900m x 300m in size and most clearly evident on the potassium map. On the ternary maps A2 appears to be comprised of inner and outer zones. The

RGB maps a low uranium outer zone (yellow) and high potassium (pink) inner zone. These appear as blue and green zones respectively on the CMY display. Payne (2000) mapping indicates this trend is associated with the outer, granodiorite facies of the Nicola intrusion.

- A3 is a circular shaped zone, some 800m across located east of the southern end of the large A1 anomaly. Separation between these anomalies is enhanced by a northerly trending band comprised of pods exhibiting low potassium and low thorium counts. This anomaly differs from A1 and A2 in that it is also evident in the uranium isotope. On the uranium map the A3 anomaly is part of a larger feature that extends to the west. The northerly trending band of low counts seen in the potassium and thorium components separating A3 from A1 anomaly is not reflected in the uranium component.
- The A4 trend forms a 300 - 600m wide band that lies some 800 - 1000m off the western edge of the A1 trend. It is comprised of numerous small, low amplitude pods of increased potassium. It is also evident on the RGB-KTU ternary map by subtle magenta shades. This trend shows a gradual arc or "ring" shape and generally lies along the west side of a BCGS fault zone mapped as separating Nicola Group volcanic rocks to the west from intrusive granodiorites to the east. High amplitude pods in the northern section of the trend appear to show similar zoning responses as noted on the A2 anomaly. It is noted that these pods are in an area mapped as quaternary overburden on the BCGS mapping so the radiometric data could be compromised. Other pods along the band (to the west and southwest) are not as evident on the ternary displays as they are on the potassium map however the arcuate lineations on these displays suggest the "ring" structures are still evident.
- The A5 trend covers the southeastern corner of the survey and coincides with the high magnetic responses that delineate the northerly trending metamorphic bands (uTNsh). The response is most clearly evident on the KTU-RGB ternary map which highlights this area with a bright green shade, indicating elevated (or background) thorium readings in an area with low potassium and uranium counts. There is some skarn mineralization mapped in this area that could be a source of the increased thorium. There are weak indications of a similar response along the western edge of the survey at Clapperton Creek.

Overburden masking often produces some of the most dominant effects seen in radiometric data. The presence of vegetation and/or soil can significantly reduce the signal from what would be measured over bare outcrop. The presence of standing water (lakes, swamps, marshes) or heavily saturated soils can effectively block all of the gamma radiation originating from the underlying rocks. Consequently, variations in the isotope counts should be evaluated with respect to the overburden conditions before they are attributed to changes in the underlying geology.

Overburden is often associated with topography, commonly forming thicker layers in valleys and thinner layers along slopes. Figure 27 drapes the total count radiometric map over topography. Higher readings are mapped at the higher elevations of Peacock Mountain and there is a general decrease towards the lower elevations. However, there are distinct anomalies scattered across the slopes of Peacock Mountain that cross topographic features and even some localized high TC anomalies mapped along the Clapperton Creek drainage. Overburden does not appear to have a dramatic influence on the radiometric data in this area.

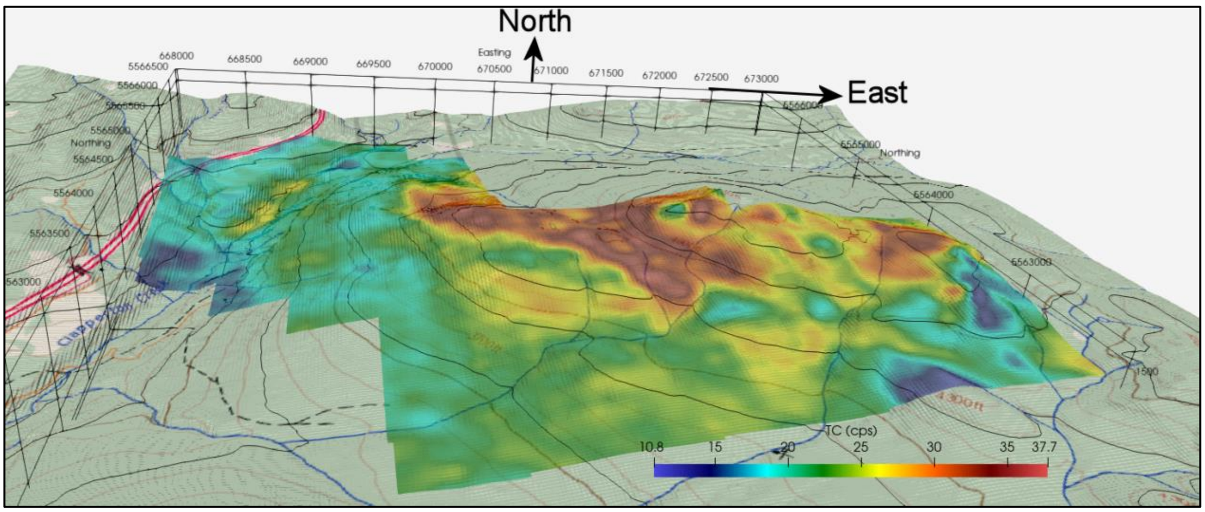


Figure 27: Radiometric Total Count Colour Contour Map – draped over topography - View from South.

Displaying the radiometric data for a particular isotope as a ratio with respect to either the total count or to another isotope is a useful method for mitigating the overburden effects. In this type of display the masking effect from an overburden layer will decrease both isotopes equally, leaving the ratio between different isotopes the same. Changes in the underlying geology however, will likely change the relative amplitude of different isotopes, generating different ratios, regardless of any masking. Th/K, eU/K and eTh/U ratio maps were constructed and examined. No widespread masking effects were noted.

The thorium/potassium ratio map is particularly useful in that hydrothermal alteration commonly results in an increase in potassium levels and a corresponding decrease in thorium levels. Consequently, lows on the Th/K ratio map often map potassic alteration zones which can be associated with intrusion and/or porphyry systems. Figure 28 is a false colour contour map based on the thorium/potassium ratio. There is a distinct change in the background ratio observed between the eastern portion of the map (underlying Peacock Mountain and the mapped granitic facies of the Nicola Intrusion) and the western part of the map.

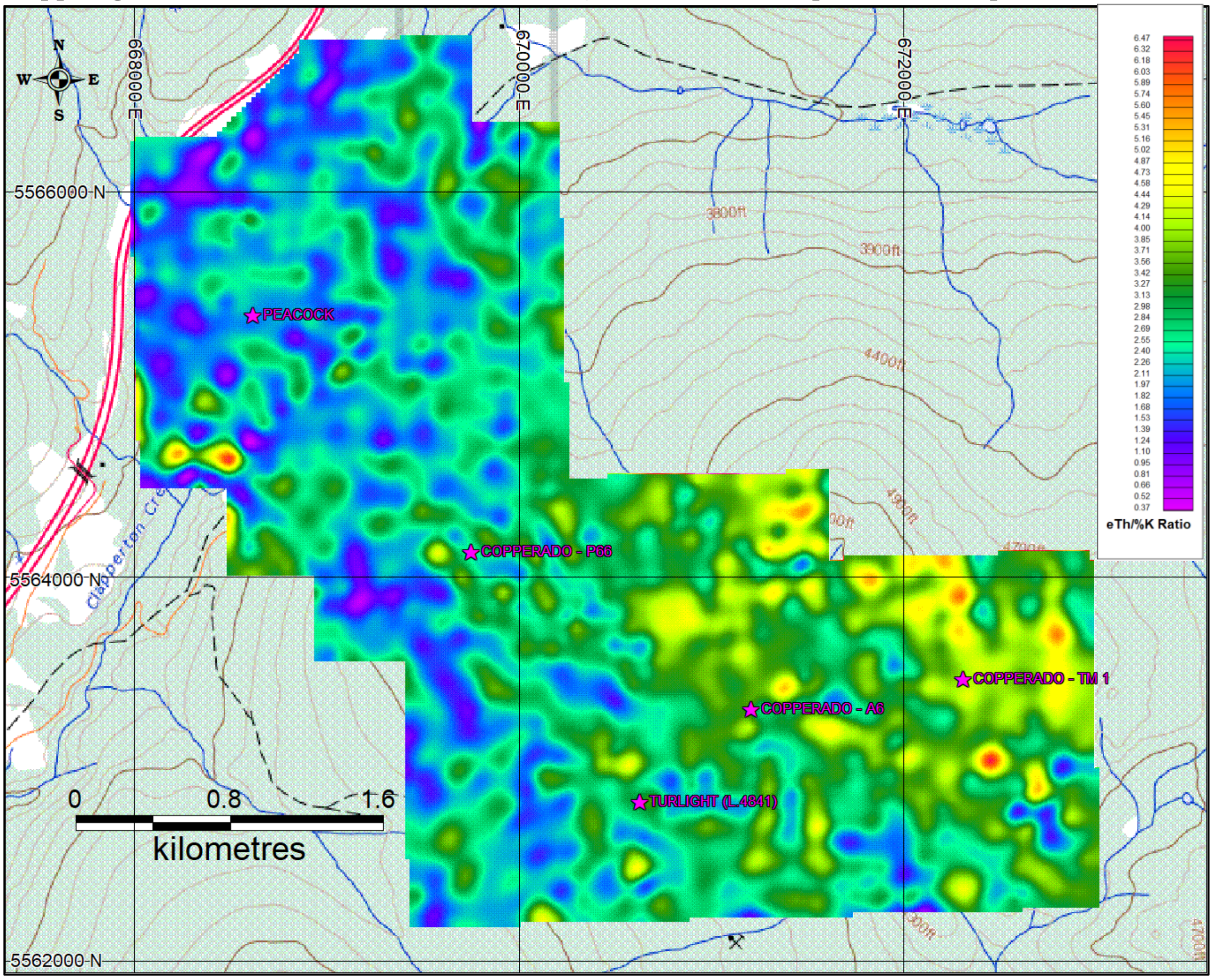


Figure 28: Thorium/Potassium Ratio Color Contour Map

Low Th/K anomalies (purple shades on the west half of the map and green-blue shades on the east) were picked. These anomalies were then compared to the potassium and thorium maps and those anomalies that were evident as both potassium highs and thorium lows were flagged as indicators of potential hydrothermal potassic alteration.

There are no large, widespread Th/K ratio anomalies observed but there are numerous small, localized anomalies that when grouped together suggest significant areas of possible potassic alteration (Figure 29).

- 10 small anomalies are scattered across A1. This suggests this portion of the Nicola intrusion may have been hydrothermically altered.
- 2 small anomalies coincide with A2.

- 10 small anomalies are scattered along the A4 band.
- 3 small anomalies are clustered along the west central border. These anomalies differ from most of the others in that they are in generally low radiometric count areas, likely an influence of the quaternary cover along Clapperton Creek.

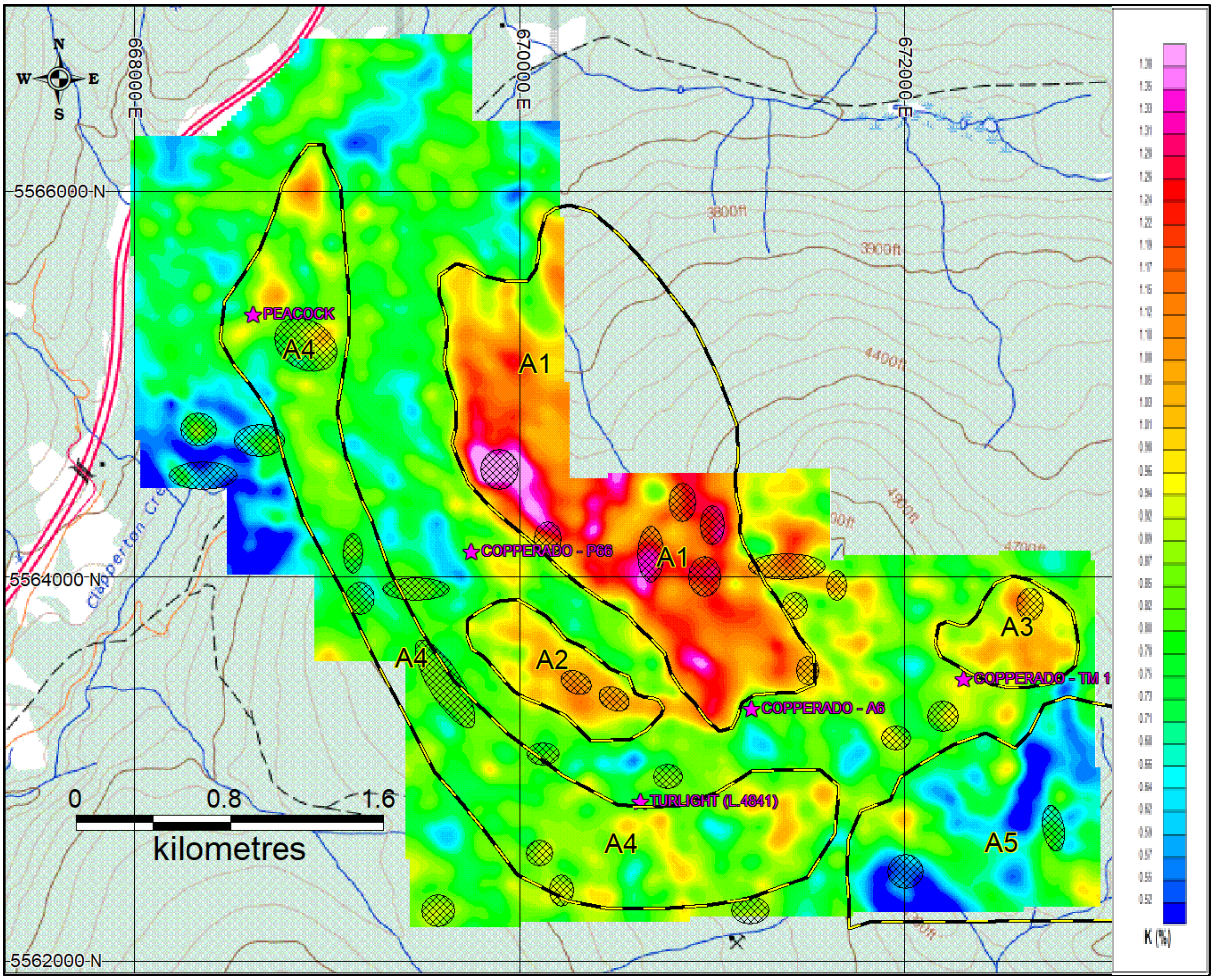


Figure 29: Potassium Count – Linear distribution
Potassic alteration anomalies mapped as cross-hatch areas. Yellow-black lines outline anomalous trends A1 – A5.

6.3 <u>Comparison of Airborne Survey with Historical Data</u>

A considerable amount of exploration work has already been completed across what is now the southern half of the Peacock Property. In 1996, 33.7 km of survey grid was established. Geological mapping, prospecting and soil sampling was completed in early 1997. In 2000, the survey grid was extended to the north to a total of 43 line kilometres and a program of geological mapping, ground magnetic, ground vlf-em, geochemical sampling and induced polarization surveys were supervised by Crest Geological Consultants. Results from these surveys are compared to the recent airborne data.

6.3.1 Geological Mapping (1996, 2000)

A simplified version of the Payne (2000) geology map, outlining four main lithological units and the two target zones is presented as a base map to discuss current and historical exploration data.

On the West Zone target Cu, Ag and Au mineralization is reportedly associated with quartz and quartz-feldspar veining within a NW trending zone some 900m long and up to 250m wide. It extends from approximately 670,300E/5,563,550N to 669,500E/5,564,630N, The West Zone showing is located some 900m NW of the Turlight deposit and centered on the Copperado-P66 minfile showing.

On the East Zone target Cu, Ag, Au and Mo mineralization is reported as trending northwest and extends some 850m long and up to 200m wide (from 671,770E/5,563,250N to 671,190E/5,564,280N) however the true extent is unknown due to overburden. A smaller satellite zone of mineralization located 200m to the southwest is up to 350m long and 100m wide.

Figure 30 compares the airborne and ground magnetic trends (discussed in section 6.3.3) to the detailed geology.

- The M1 anomaly closely outlines the general area of hosting the uTNsh units. It shows the geologically mapped trends extend at least another 500 metres to the south and identifies another zone to the east of the ground mapping. Abrupt inflections at the northern end of these units suggests they terminate against a major ENE trending fault zone that likely extends to the southwest to the Turlight deposit area.
- The M2 anomaly appears to coincide with the granitic facies of the Nicola Intrusion. However, the western edge of the M2 anomaly does not extend as far to the west as the geological mapping indicates. It is possible that this magnetic response is reflecting the inner quartz monzonite unit of the intrusion.

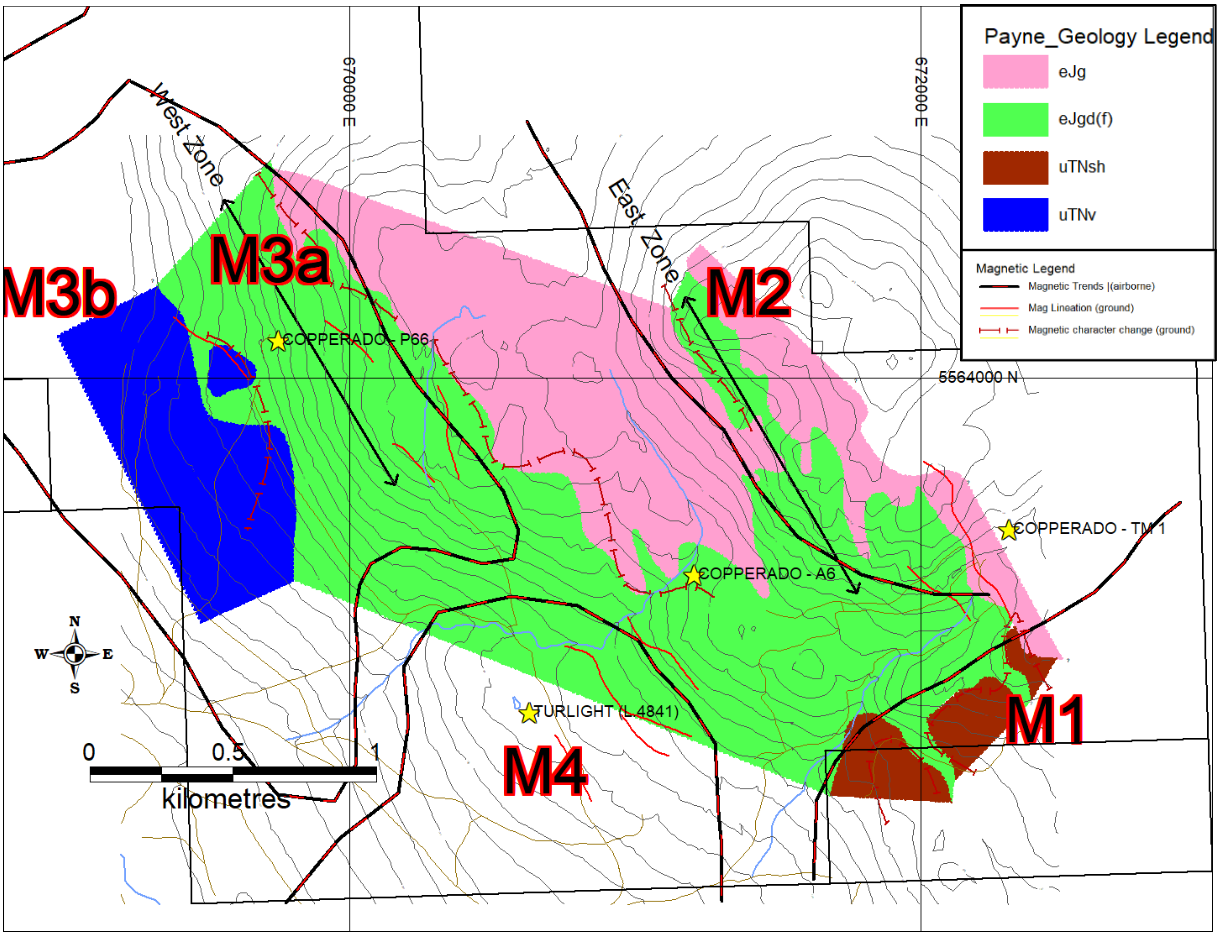


Figure 30: Compilation of Payne Geology, Ground and Airborne Magnetics.

Figure 31 compares the airborne radiometric trends to the detailed geology and soil geochemistry (discussed in section 6.3.2).

- The high potassium and thorium A1 radiometric trend closely follows the eJg granitic facies of the Nicola Intrusion. The radiometric data implies the western edge of this unit swings due north at the northern end of the Payne mapping. The eastern edge of the A1 unit coincides with the East Zone target, which is mapped along a narrow, NW trending finger of eJgd rocks.

- The A3 radiometric trend also appears to be associated with eJg rocks but the high uranium counts in the area suggest there may be a difference between these rocks and the granitic rocks mapped to the northwest.

- Many of the Th/K anomalies indicative of potassic alteration are located near the contacts of the EJgd unit.

- There are no Th/K anomalies mapped along the West Zone surface mineralization but several appear to be surrounding it.

- Conversely, there are three Th/K anomalies that directly coincide with the East Zone, including a large EW elongated anomaly at the north end of the zone, just south of mineralization scattered along a topo ridge.
- Detailed geology does not cover the much of the A4 trend but it appears that the A4 trend is associated with the uTNv unit.

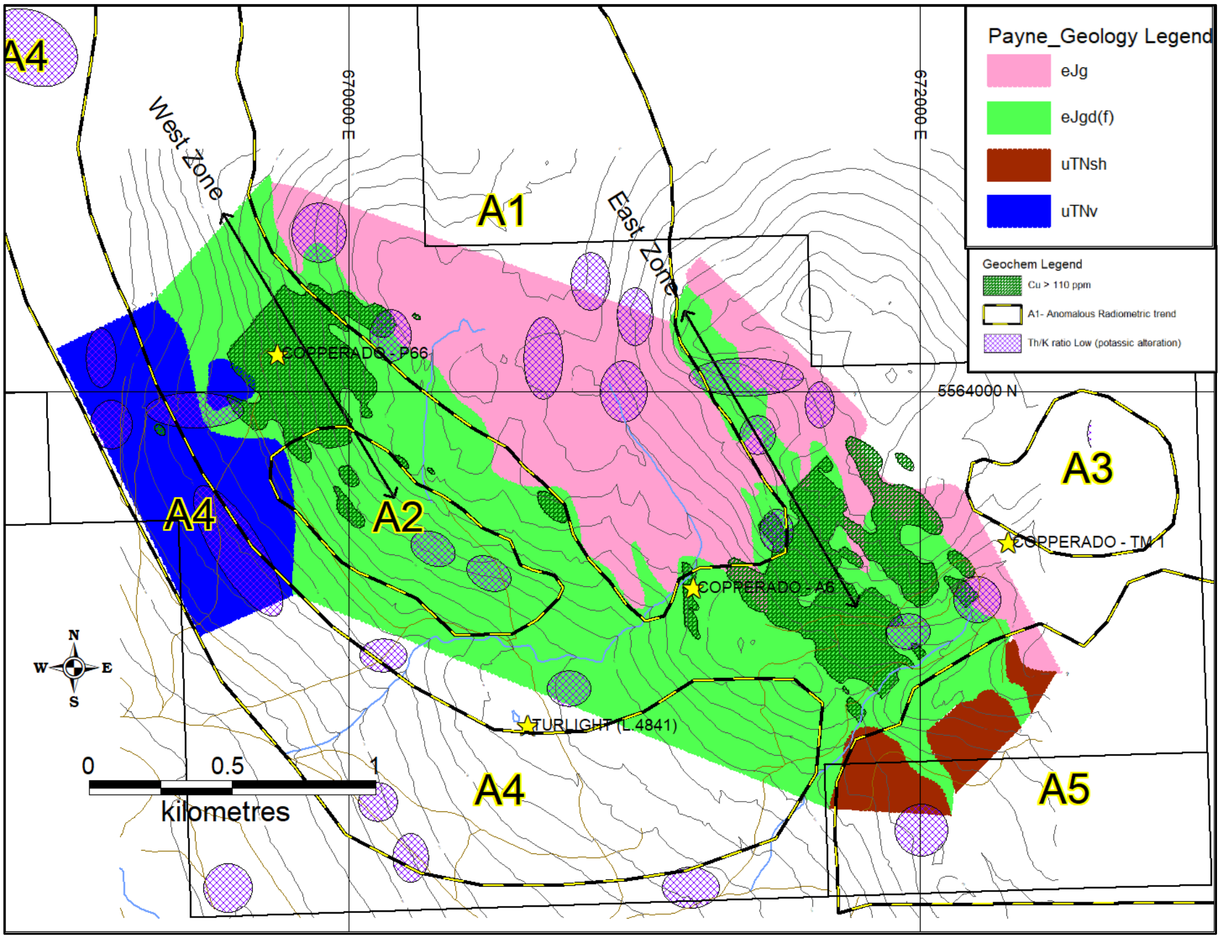


Figure 31: Compilation of Payne Geology, Cu Geochem and Airborne Radiometrics

6.3.2 <u>Geochemistry (1996, 2000)</u>

References were made in historical reports concerning soil geochemistry. A pdf copy of a copper geochemical map was located in a 1996 prospectus for LaMancha Resources Inc., a former owner of the COP property. The image was extracted from the document, georeferenced to the current mapping and the 110 ppm contour was digitized. This contour outlines two main areas of copper mineralization that help define the West and East Zone targets (Figure 31).

A 400 metre wide circular Cu soil anomaly is centred on the axis of the West Zone. This anomaly is positioned between the southwest edge of the A1 and the northern end of the A2 radiometric anomalies. It also coincides with the centre of the M3a magnetic high anomaly.

A larger Cu soil anomaly covers the southern portion of the East Zone target. It is elongated NW and extends for some 800m length and 500m width. It is located along the southern edge of the A2 anomaly and M2 anomaly.

Anomalous low Th/K ratio anomalies are mapped just outside the perimeter of both of these geochemical anomalies but none coincide with them.

6.3.3 Ground Magnetic Survey (2000)

A ground magnetic survey was completed across the entire 43 line kilometre survey grid in 2000 (Figure 30).

- The higher frequency responses observed in the ground magnetic data provides a close tie to the geologically defined contacts of the eJgd unit with both the uTNv rocks to the west and eJg rocks to the east. These frequencies are not evident in the airborne data (Figure 11).
- The ground magnetic data has identified several northwesterly trending magnetic lineations that were not evident in the airborne data. These are likely reflecting near surface sources.
- The large magnetic low (M4) is evident in the ground magnetic data but high frequency, near surface responses superimposed on the background tend to mask it.

6.3.4 Induced Polarization (2000)

An Induced Polarization (IP) survey was completed over the West Zone target area in 2000. The survey was commissioned by Crest Geological on behalf of LaMancha Resources Ltd and completed by SJ Geophysics Ltd. It included 9 variable length, NE-SW oriented survey lines, spaced at 100 metres and 1 tie line and totalled some 10.3 kilometres in length.

Both the resistivity and chargeability components of the IP survey proved to be excellent mapping tools, providing distinct responses to the uTNv, eJgd and eJg lithologies. The IP defined contacts between these lithologies closely tie to the surface geology, magnetic and vlf-em defined contacts and both components trace structures to depth.

A strong high chargeability response was mapped beneath the copper geochemical anomaly overlying the West Zone. A 2DIP inversion study suggested the response could be interpreted as reflecting two separate units. One appears to be a variable horizontal layer, up to 50 m thick at a depth of >20 metres. The second lies beneath the first, offset slightly to the south. The survey detected only the top of this later zone, which is considered open to depth. Another chargeability anomaly was detected on the northeastern ends of the two southernmost lines. This later anomaly is only partially defined.

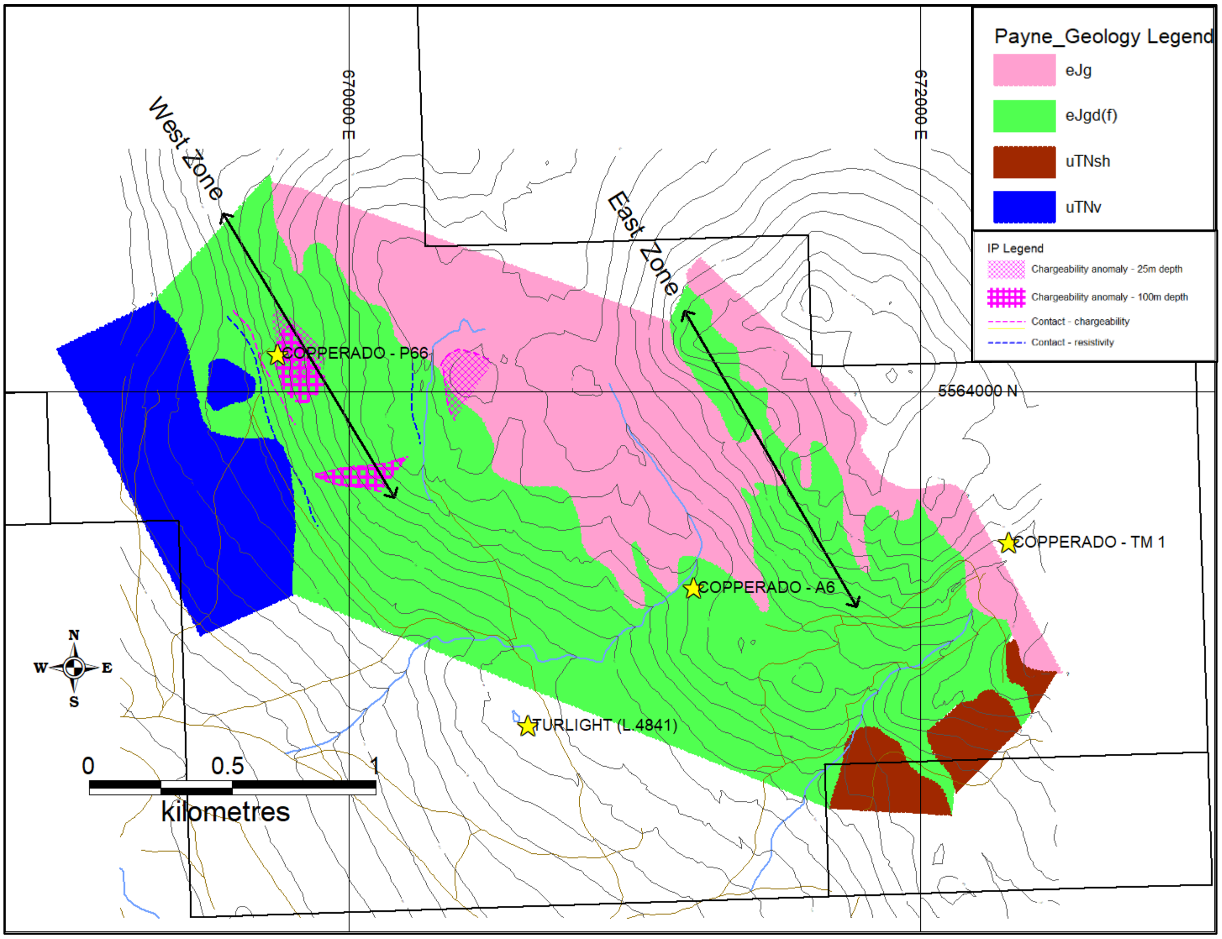


Figure 32: Compilation of Payne Geology and IP Interpretation

The high chargeability anomalies were tested by 4 drill holes in 2006: COP06-01 to COP06-4. Based on Payne's analysis the upper IP anomaly is explained by presence of stringers, clots and disseminated native copper and chalcopyrite-chalcocite in the quartz feldspar veins but the lower anomaly is not explained.

A review of the data and drill logs reveals that there is finely disseminated pyrite and chalcopyrite logged throughout the two holes that tested the deep anomaly. In one of the deep holes, a marked increase magnetite coincided with the deeper anomaly. In the other there was a facies change from diorite to foliated diorite noted in the vicinity of the deeper anomaly.

Based on the results from the 2006 drilling campaign no further work was recommended. It is assumed that the observed mineralization lacked tonnage and/or grade to warrant further work at that time.

The West Zone chargeability anomalies coincide with the M3a magnetic trend. Comparing the 2D IP inversion depthsections to the Win3 Mag3d inversion model (Figure 33), shows the upper chargeability anomaly lies directly above and along the SW flank of the M3a pod. If the two responses are related, this implies the West Zone target area may extend another 500 metres to the northwest.

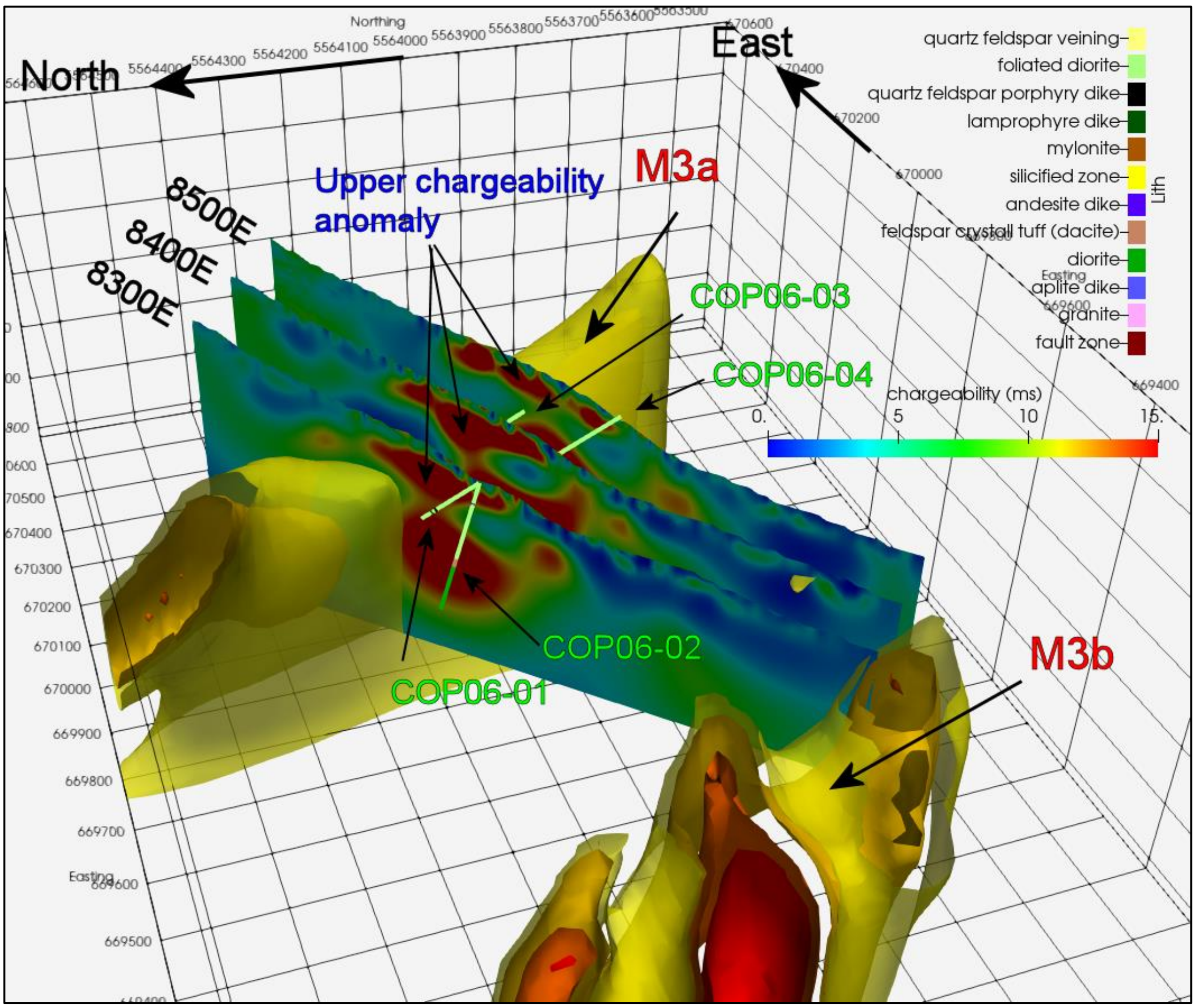


Figure 33: West Zone Target. Win3 Mag3d Isosurface, 2D IP Inversion Depth sections (2000), Drill Lithological Logs (2006). View from Northwest.

No correlation was observed between the IP and resistivity features and any of the radiometric trends or ratios studied.

6.3.5 VLF-EM (2000)

A 43 line kilometre vlf-em survey, recording inphase, quadrature and total field for both the Seattle and Hawaii frequencies was completed in 2000.

Other than a few responses that follow creeks and drainages, the vlf-em conductive anomalies all delineate northwesterly striking features.

- The strongest conductor mapped lies along the western flank of the West Zone target area and coincides with a resistivity lineation. This likely traces the updip edge of a conductive overburden layer that thickens gradually to the southwest.
- Two other significant conductors are mapped that together trace an 800 metre long lineation located 50 metres east of the Turlight deposit. This anomaly shows a left lateral fault offset that coincides with one of the NE trending faults interpreted from the airborne horizontal and vertical magnetic gradient data.
- None of the conductors appear to be related to the major magnetic or radiometric trends mapped by the airborne survey.

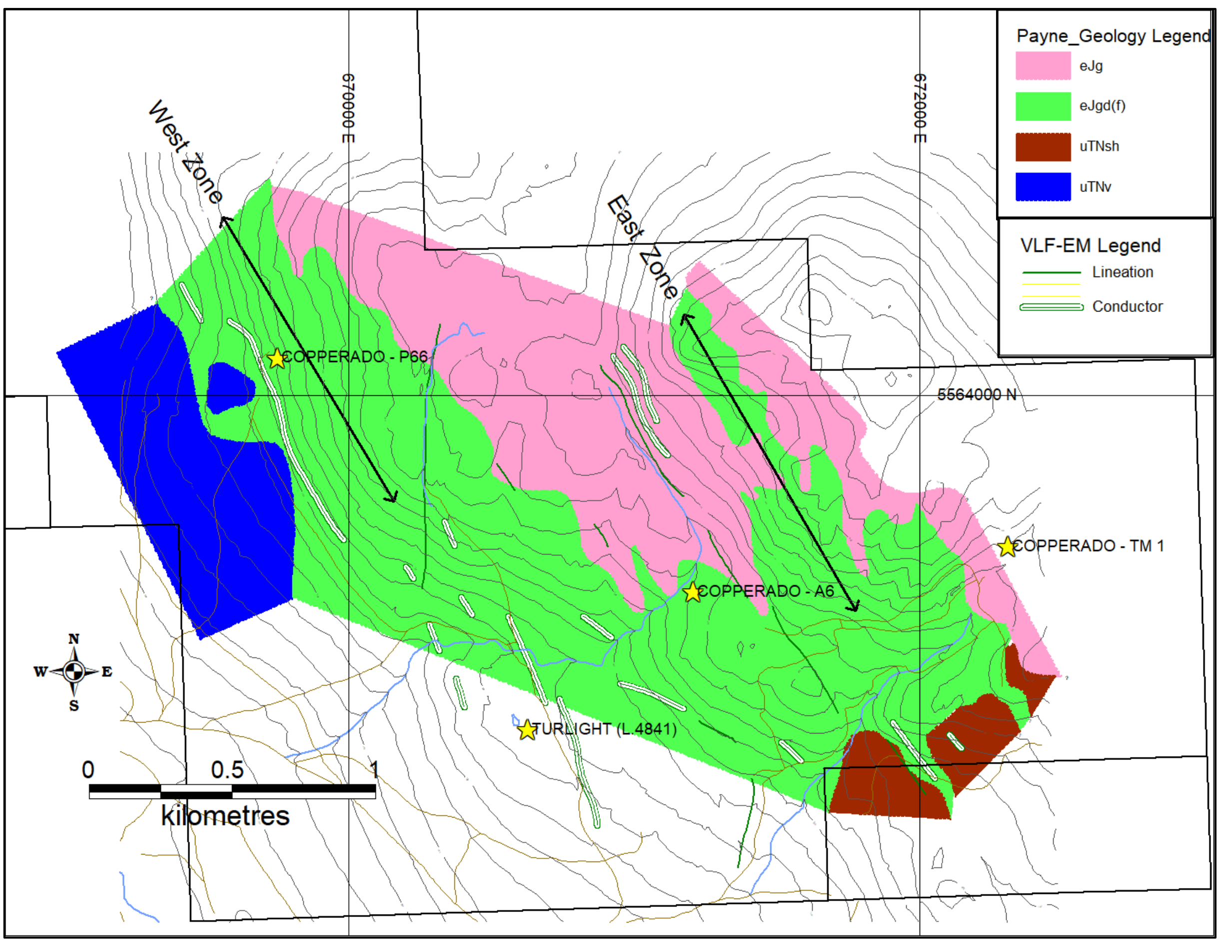


Figure 34: Compilation of Payne Geology and VLF-EM Interpretation

7 Conclusions

The airborne magnetic and radiometric surveys are able to distinguish between several of the major lithologies mapped across the Peacock claims. Ground magnetic surveying, provides even greater resolution for differentiating between volcanic and intrusive rocks. Undulations in the subtle magnetic lineations that reflect the dominant northwesterly striking structures could be reflecting localized folding. Offsets and discontinuities of these subtle responses indicate extensive northeasterly striking cross faulting across the property, much of which appears to suggest relatively short left lateral offsets. Strong magnetic low trends, coincident with geologically indicated regional faulting suggest alteration effects including magnetite depletion are prevalent along these faults. Two of the five minfile showings, Peacock and Copperado P66 coincide with these magnetic low structures.

Numerous thorium/potassium ratio anomalies are mapped, suggesting the granitic facies of the Nicola intrusion mapped along the eastern edge of the property may have been subjected to hydrothermal alteration. This is consistent with the model for intrusive hosted copper porphyries which has been proposed for this area.

Numerous Th/K anomalies are located around the periphery of soil copper geochemical anomalies suggesting the mineralized veins detected in these areas may be related to a hidden hydrothermal or porphyry system.

8 Recommendations

Although one of the stated objectives of the work program that included this airborne survey was to define drill targets, airborne surveys are typically used to identify general geological trends and structures that may be indications of favourable geological environments. Airborne data is normally combined with data acquired from more detailed surface surveying to spot specific drill targets.

Further investigations should start with a review of this interpretation by project geologists familiar with the area. It is understood that efforts to acquire previous exploration data is ongoing.

Geological mapping should be undertaken to confirm the fault interpretations presented in this report.

Several large features are identified that suggest the presence of favourable exploration targets as outlined on Figure 35.

T-1. The M5 zone located in the northwest corner of the property models as a steeply sided low susceptibility plate that lies along a northerly trending fault zone separating Nicola Group volcanics to the west from the Nicola Intrusion to the east. The magnetic response suggests the possibility that an alteration zone, including magnetite depletion, is associated with the fault. The Peacock minfile showing is located at the southern end of this zone, near the intersection with another northwesterly striking fault. A localized thorium/potassium anomaly 300 metres southeast of the Peacock showing supports the alteration hypothesis. The edges of the magnetic anomaly outline a target area some 800 metres wide by 1500 metres long that should be considered prospective for similar copper mineralization to that found at the Peacock showing. The target lies within the Clapperton Creek drainage and may be hidden by overburden so geological prospecting may be limited. Soil geochemistry is recommended as an initial option.

T-2. The narrow magnetic low separating the M3a and M3b magnetic anomalies is interpreted as reflecting a northwest trending fault zone that connects the Copperado P66 and Peacock minfile showings. Significant copper mineralization is mapped across the southeastern end of this fault, included as part of the West Zone target area. The magnetic inversion suggests the low susceptibility zone widens and thickens to the northwest. This structure should be prospected and soil sampled to determine whether the copper mineralization extends to the northwest.

T-3. It is noted that the M3b magnetic trend is similar in many respects to the M3a trend that follows the West Zone target. Outcrop is limited in the area but the current geological maps suggests the M3b zone is underlain by Nicola Group volcanics while the M3a zone is hosted by the granodiorite facies of the Nicola Intrusion. Mapping exercises along the prospective fault zone should include attempts to confirm the lithology along the M3b trend. If the weak magnetic response can be shown to reflect intrusive rocks, this may represent an outlier of the intrusive that hosts the known copper mineralization in the area.

T-4. The cluster of Th/K anomalies crossing the north end of the East zone outline an area some 1000m x 700m that could be associated with a hydrothermal potassic alteration zone. This anomaly is centred across the north end of the East Zone target area where the Payne (2000) geology map denotes numerous outcrops containing copper mineralization and two drill holes. Historical records should be reviewed or the site revisited to determine whether any evidence of hydrothermal alteration can be ascertained. If so, this area should be investigated for a buried porphyry or disseminated sulphide deposit

T-5. The magnetic low marking the northern end of the uTNsh bands in the southeast corner of the property is interpreted as representing a major ENE-WSW trending fault structure. A less clearly defined structure runs parallel to the northwest and the low susceptibility materials between these faults models as a southwesterly plunging pipe, prism or plate-like body. These features are traced some 1.5 km to the southwest where they merge with a large, low susceptibility mass underlying the Turlight deposit. Copper mineralization is found along both of these fault traces at the northeastern updip end of the structure. Efforts should be made to determine whether these faults are related to the mineralization.

T-6. The northeasterly trending fault evident in the magnetic gradient data that intersects the Turlight deposit should be studied to determine whether it has any influence or relationship to the mineralization. If so, the parallel fault zones, some 400 metres on either side should be studied in detail.

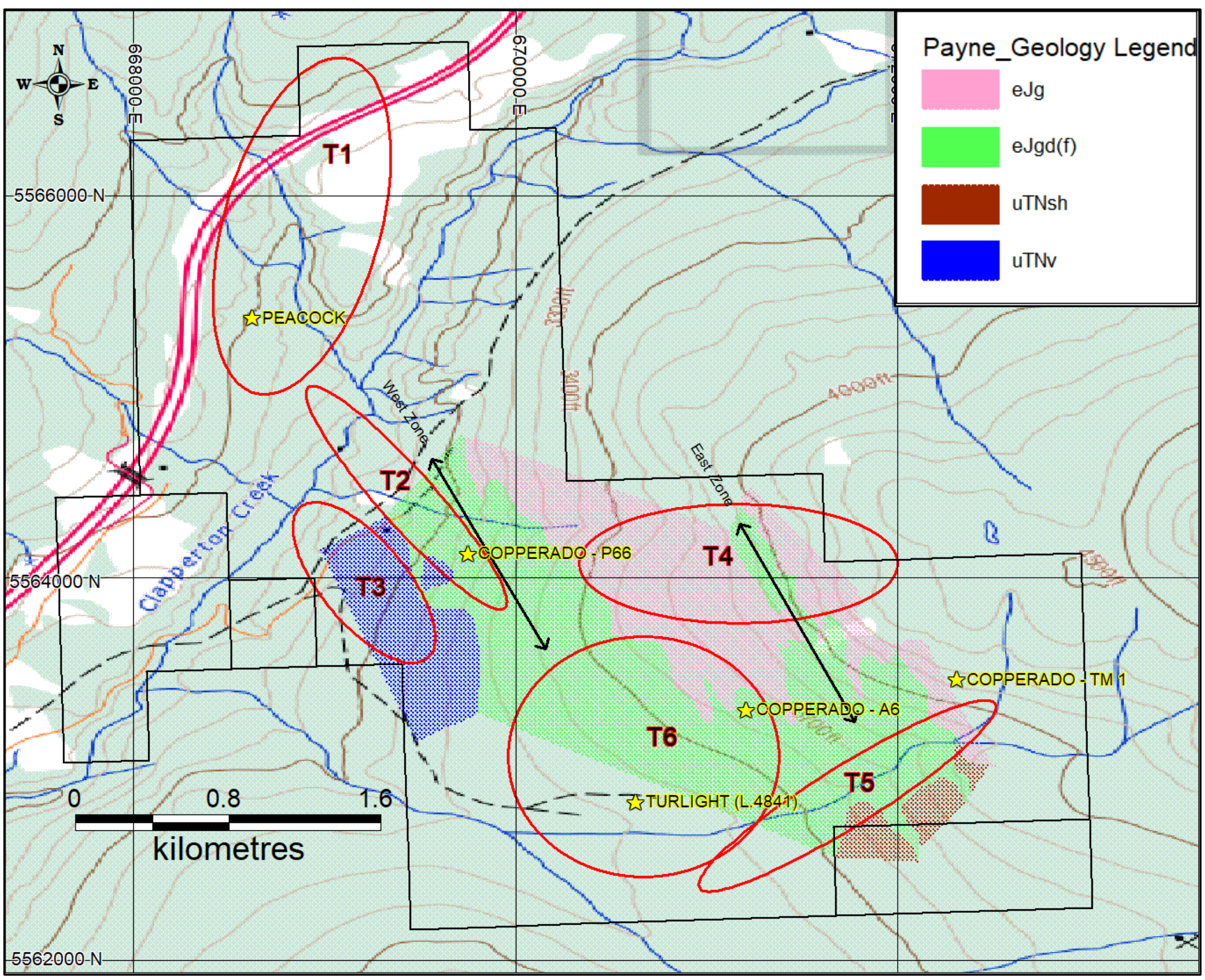
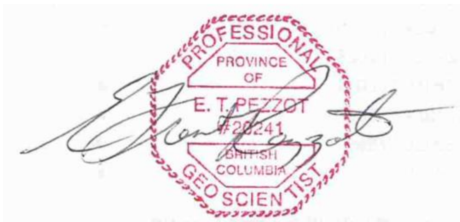


Figure 35: Recommended Target Areas.

Respectfully submitted,

per Geosci Data Analysis Ltd.

Permit to Practice Number 1000533



E. Trent Pezzot, BSc., P.Geo,

Geophysics, Geology

9 Appendix 1 – Statement of Qualifications E. Trent Pezzot

I, E. Trent Pezzot, of the city of Surrey, Province of British Columbia, hereby certify that:

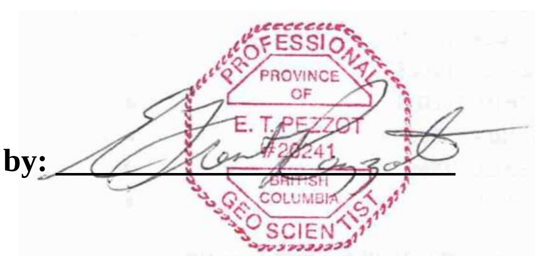
1) I graduated from the University of British Columbia in 1974 with a BSc. degree in the combined Honours Geology and Geophysics program.

2) I have practised my profession continuously from that date.

3) I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia.

4) I have no interest in Lionheart Exploration Inc. or any of their subsidiaries or related companies, nor do I expect to receive any.

Signed by:



E. Trent Pezzot, BSc., PGeo.

Geophysics, Geology

10 References

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Garrow, Terry: BCGS Assessment report 32465, Peacock Property Report, Geophysical Technical Report on mineral claims 774942, 774962, 670804, 670703, 670683, 670623, dated October 20, 2011.

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Payne, Craig W.: Preliminary Report on the Cop Property; dated June 30, 1997.

Payne, Craig W: Assessment Report 2006 Core Drilling Report on the Cop Property, dated November 30, 2006.

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Poon Jenny: Airborne Geophysical Survey Report, Peacock Survey Block for Lionheart Exploration Inc., by Precision GeoSurveys Inc., dated September, 2020.

Turner, James A.: Assessment Report 2021 for the Peacock Property, for Lionheart Exploration Inc., ***WORK IN PROGRESS*** preliminary version dated May 13, 2021

11 Cost Statement for event #5850257 Geophysical Interpretation Report by Trent Pezzot

Exploration Work type	Comment	Days			Totals
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
			$0.00	$0.00	
			$0.00	$0.00	
			$0.00	$0.00	
			$0.00	$0.00	
			$0.00	$0.00	
			$0.00	$0.00	
				$0.00	**$0.00**
Office Studies	**List Personnel (note - Office only, do not include field days**				
Literature search			$0.00	$0.00	
Database compilation			$0.00	$0.00	
Computer modelling			$0.00	$0.00	
Reprocessing of data			$0.00	$0.00	
General research			$0.00	$0.00	
Report preparation			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Airborne Exploration Surveys	**Line Kilometres / Enter total invoiced amount**				
Aeromagnetics			$0.00	$0.00	
Radiometrics			$0.00	$0.00	
Electromagnetics			$0.00	$0.00	
Gravity			$0.00	$0.00	
Digital terrain modelling			$0.00	$0.00	
Airborne Geophysical Interpretation	Report by Trent Pezzot		$0.00	$19,000.00	
				$19,000.00	**$19,000.00**
Remote Sensing	**Area in Hectares / Enter total invoiced amount or list personnel**				
Aerial photography			$0.00	$0.00	
LANDSAT			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Geological mapping					
Regional		*note: expenditures here*			
Reconnaissance		*should be captured in Personnel*			
Prospect		*field expenditures above*			
Underground	Define by length and width				
Trenches	Define by length and width			$0.00	**$0.00**
Ground geophysics	**Line Kilometres / Enter total amount invoiced list personnel**				
Radiometrics					
Magnetics					
Gravity					
Digital terrain modelling					
Electromagnetics	*note: expenditures for your crew in the field*				
SP/AP/EP	*should be captured above in Personnel*				
IP	*field expenditures above*				
AMT/CSAMT					
Resistivity					
Complex resistivity					
Seismic reflection					
Seismic refraction					
Well logging	Define by total length				

Geophysical interpretation					
Petrophysics					
Other (specify)					
				$0.00	**$0.00**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Drill (cuttings, core, etc.)			$0.00	$0.00	
Stream sediment			$0.00	$0.00	
Soil	*note: This is for assays or*		$0.00	$0.00	
Rock	*laboratory costs*		$0.00	$0.00	
Water			$0.00	$0.00	
Biogeochemistry			$0.00	$0.00	
Whole rock			$0.00	$0.00	
Petrology			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Drilling	**No. of Holes, Size of Core and Metres**	**No.**	**Rate**	**Subtotal**	
Diamond			$0.00	$0.00	
Reverse circulation (RC)			$0.00	$0.00	
Rotary air blast (RAB)			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Other Operations	**Clarify**	**No.**	**Rate**	**Subtotal**	
Trenching			$0.00	$0.00	
Bulk sampling			$0.00	$0.00	
Underground development			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Reclamation	**Clarify**	**No.**	**Rate**	**Subtotal**	
After drilling			$0.00	$0.00	
Monitoring			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
Transportation		**No.**	**Rate**	**Subtotal**	
Airfare			$0.00	$0.00	
Taxi			$0.00	$0.00	
truck rental			$0.00	$0.00	
kilometers			$0.00	$0.00	
ATV			$0.00	$0.00	
fuel			$0.00	$0.00	
Helicopter (hours)			$0.00	$0.00	
Fuel (litres/hour)			$0.00	$0.00	
Other					
				$0.00	**$0.00**
Accommodation & Food	**Rates per day**				
Hotel			$0.00	$0.00	
Camp			$0.00	$0.00	
Meals	day rate or actual costs-specify		$0.00	$0.00	
				$0.00	**$0.00**
Miscellaneous					
Telephone			$0.00	$0.00	
Other (Specify)					
				$0.00	**$0.00**

Equipment Rentals					
Field Gear (Specify)			$0.00	$0.00	
Other (Specify)					
				$0.00	**$0.00**
Freight, rock samples					
			$0.00	$0.00	
			$0.00	$0.00	
				$0.00	**$0.00**
TOTAL Expenditures					**$19,000.00**