

**BC Geological Survey
Assessment Report
33995**

AN ASSESSMENT REPORT

ON

**Z-AXIS TIPPER ELECTROMAGNETIC (ZTEM)
AND AIRBORNE MAGNETIC SURVEY**

**Silver Hope Property
Near Houston, BC**

**54.16° N, 120.27° W
N.T.S. 93L/01**

**Claims Surveyed: 518057-064, 530080-530084
705773, 705774, 834782-784**

Survey Dates: February 13th-14th, 2012

FOR

**Owner/Operator: FINLAY MINERALS LTD.
Vancouver, B.C.**

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Coquitlam, B.C.

MAY 2013

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REPORT ON A HELICOPTER-BORNE Z-AXIS TIPPER
ELECTROMAGNETIC (ZTEM) AND AEROMAGNETIC
GEOPHYSICAL SURVEY

INTRODUCTION

Between February 13th and 14th, 2012 Geotech Ltd. conducted helicopter-borne Z-Axis Tipper Electromagnetic and magnetic geophysical surveying over Finlay Minerals Ltd. Silver Hope Property, located some 40 kilometres southeast of Houston, British Columbia.

The survey was designed to expand the mineralized zones from their known association with resistive intrusive units.

A total of 467 line kilometres of Ztem and magnetics were flown on east-west flight lines, along with 5 north-south tie lines.

PROPERTY, LOCATION & ACCESS.

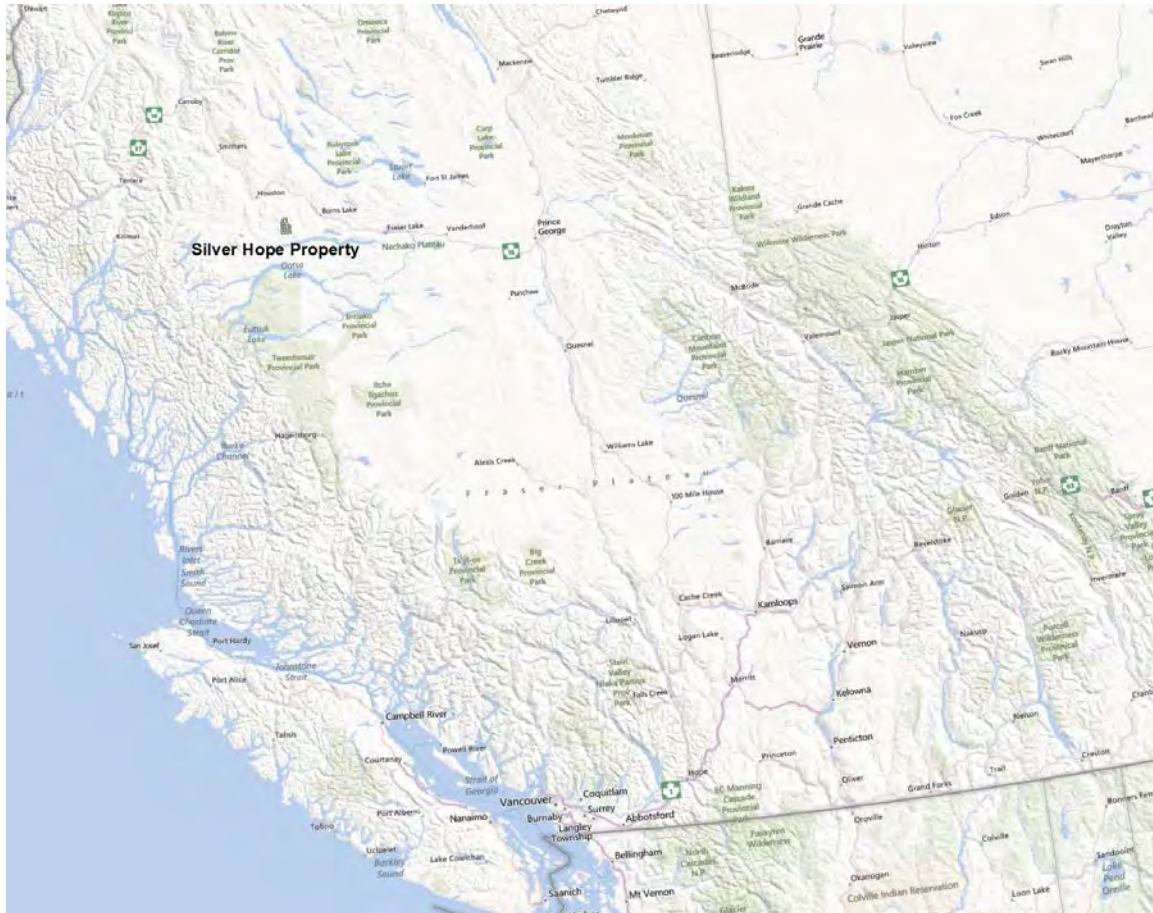
The property, known as the Silver Hope Property, is located in the Omineca Mining Division of British Columbia and consists of the following claims:

<u>Tenure Number</u>	<u>Anniversary</u>
518057	January 17 th
518058	“
518059	“
518060	“
518061	“
518062	“
518063	“
518064	“
530080	March 15 th
530081	“
530082	“
530083	“
530084	“
705773	“
705774	“
835782	October 13 th
835783	“
835784	“

The claims are some 40 kilometres southeast of the town of Houston, British Columbia, in the gentle hills of the Nechako physiographic region between elevations of 800 to 1400 metres, immediately south of the Equity Mine.

Access can be obtained from Houston via the Equity Silver Mine road, and then along the Goosly North road and road 481 to the property.

PROPERTY, LOCATION & ACCESS con't.



Property Location

PREVIOUS WORK.

Previous work on the property consisted of regional mapping and geochemistry surveys by Kennco Explorations in the sixties, property scale mapping, geochemistry, magnetic and induced polarization surveys, and limited diamond drilling by Maverick Mining in the late sixties, followed by further diamond drilling by Teck Explorations in the early seventies.

A second phase of drilling on the property was conducted by Teck between 1985 and 1988 with some 3000 metres undertaken in 16 holes.

In 2004 Canadian Empire Explorations optioned the property and conducted a diamond drilling programme completing some 2150 metres in 8 drill holes.

In 2006 Finlay Minerals carried out a ground magnetic, induced polarization and gravity survey programme on three pairs of widely spaced lines over the Hope, Superstition and Gaul showings. This was followed by additional IP and magnetic surveying in 2008 and 2011.

Finlay completed a six hole diamond drill programme in 2010 with encouraging results, and continued follow-up drilling in 2011.

For further information the reader is referred to reports held by Finlay Minerals and in particular to reports of the 2004 drilling by Janice Fingler, P.Geo., the 2006 and 2008 geophysics by Peter E. Walcott, P.Eng. and the 2011 report by Warner Gruenwald, P.Geo.

GEOLOGY.

This is excerpted from the previously mentioned report by J. Fingler, P.Geol.

“The lower Cretaceous Goosly sequence in the area of the Silver Hope and Equity Silver Mine properties trends AZ015 and dips moderately to shallowly to the west. Similar to the Skeena Group, the sequence consists of three stratigraphic divisions: a lower clastic sequence, an interbedded and overlying pyroclastic division, and an upper sedimentary-volcanic division. The middle pyroclastic division hosts the main mineral deposits of the Equity-Silver Hope trend, and may be correlatable with the Rocky Ridge Formation identified to the north of the Skeena Arch.

In the area of the Equity Mine and Silver Hope properties, the Goosly Sequence hosts the main mineral deposits and has a general strike of AZ015 and dips moderately to shallowly to the west. A lower clastic division (unit 1) consists of a basal conglomerate, chert pebble conglomerate and argillite. A middle pyroclastic division (unit 2) consists of heterogeneous sequence of tuff, breccia and reworked pyroclastic debris. This division hosts the main mineral deposits. An upper sedimentary-volcanic division (unit 3) consists of tuff, sandstone and conglomerate. There are notable facies variations within the stratigraphy, with overall increased sediment component in south, also finer to reworked tuffaceous sequence in the pyroclastic division. As well the dip of the strata is variably steep” – see Geology map in Appendix I.

“The Goosly sequence in the mine property area is cut to the west by a Paleocene quartz monzonite stock (58 ma) and to the east by an Eocene gabbro-monzonite complex (48 ma). Post mineral andesite and quartz latite dykes of Eocene age (49 ma) cut the Cretaceous strata on both the mine and Silver Hope properties, and also cut the gabbro-monzonite complex on the mine property (Cyr et al., 1984).

It has been interpreted by Cyr et al., 1984, that the copper-silver-gold mineralization at the Equity Mine is epigenetic in origin and may be related to the emplacement of the Paleocene quartz monzonite stock to the west. Coincident K-Ar ages were obtained for both the quartz monzonite and the sericitized tuffs hosting the mineralization. However, given the interpretations by Church and Barakso, 1990 and D. MacIntyre et al., 2003, of the Goosly volcanics (which hosts mineralization) as being correlative with the Lower Cretaceous Skeena Group, it is possible that age dates of the volcanics may have been

GEOLOGY cont'd

thermally resetting by a later intrusive episode. The results of U-Pb dating of samples of volcanics collected from the Equity Mine site in 2003 by D. MacIntyre, are unknown to the author.

At the Equity mine, erosion has exposed the upper part of the Goosly stock and subvolcanic structures. A thickened zone of disseminated and massive sulphides rich in pyrite, chalcopyrite and tetrahedrite, with some pyrrhotite, minor sphalerite and magnetite, is mostly adjacent to the stock. Aluminous alteration, characterized by andalusite, scorzalite, pyrophyllite and corundum, accompanies much of this mineralization. A narrow tail-like appendage to the ore zone strikes south and away from the orebody.”

Further and updated geology is contained in the previously mentioned report by W. Gruenwald, P.Geo.

PURPOSE

The purpose of the survey was to compare the ZTEM with the limited induced polarizations surveying done of the property to date, in particular the resistivity component, where recent drilling had identified significant mineralization of interest, and to use these results in a property scale coverage to better understand the regional geology and potential structural controls towards future targeting of additional mineralization.

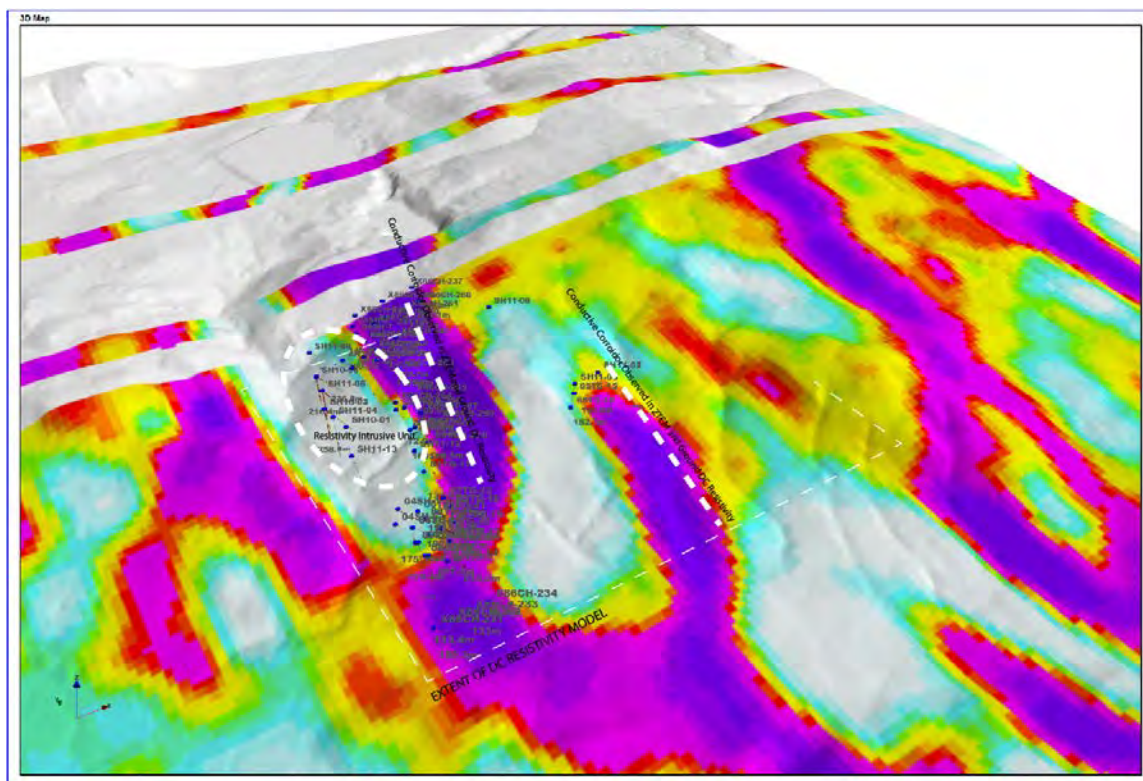
SURVEY SPECIFICATIONS

The author will refer the reader to the Geotech Ltd Logistic Report located in the appendix of this report, for a detailed overview of the system, and survey parameters.

DISCUSSION OF RESULTS

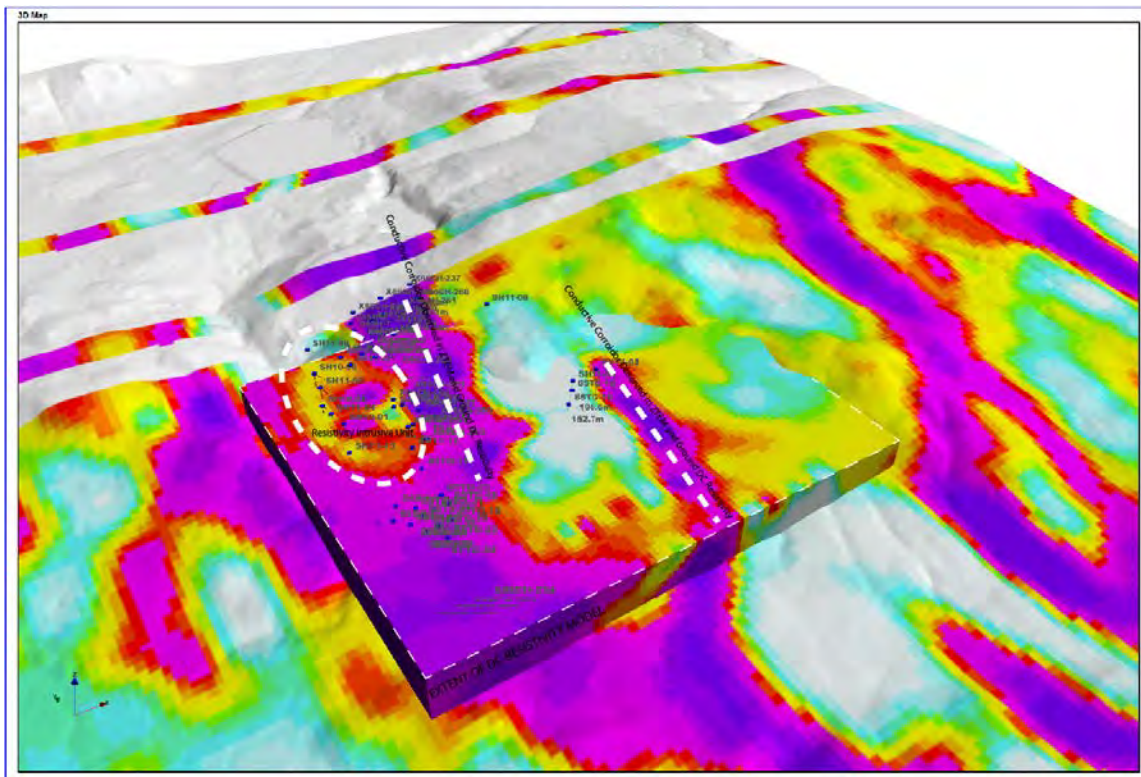
The Z-Axis Tipper Electromagnetic (ZTEM) and magnetic survey yielded a number of regional features of interest. The ZTEM survey is useful in defining lateral resistivity charges, along with pseudo depth information utilizing the responses of the respective frequencies.

While limited additional processing was undertaken on the ZTEM data, the total divergence plots indicate a number of conductive and resistive units of interest which can also be readily observed in 3-dimensional modeling of recent induced polarization surveying as illustrated below.



ZTEM 360 Hz DT

DISCUSSION OF RESULTS con't



*ZTEM 360 Hz DT
Overlain with 3D DC RESISTIVITY MODEL*

The results shows very good correlation with known resistivity units defined in the DC resistivity component of previous induced polarization surveying.

The survey was successful in identifying a higher resistivity unit, known as the west horizon, as illustrated above where recent drilling has identified a copper/molybdenum porphyry system.

DISCUSSION OF RESULTS con't

Flanking the west horizon, and to the east, the main horizon is situated on the contact between the porphyry on the west and a lower resistivity unit on the east. Within this horizon a number of mineralized zones - Hope, Superstition and Gaul - are situated proximal to this contact..

While resistive units can be readily identified, the causative cause of these features cannot be readily determined, as the tipper only measures relative lateral contrast rather than absolute resistivities.

Both the ZTEM and magnetic survey were successful in defining, a number of structural features of potential interest within the property boundaries which can be readily identified within the attached data set.

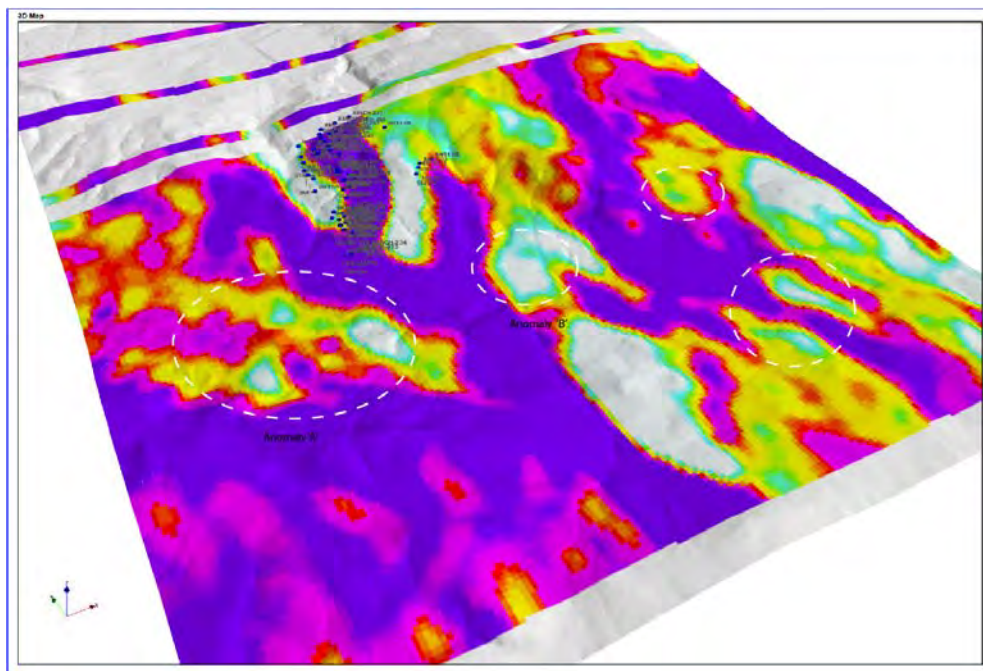
While a detailed compilation should be undertaken to fully understand the ZTEM data, a number of targets outside of known minerals can be observed.

Anomaly A is situated within a north westerly corridor. This cluster of elevated resistivity features, as illustrated on the 90 Hz DT below, is bisected by a north northwesterly trending magnetic feature. It also envelopes a number of small magnetic features and may warrant additional follow up.

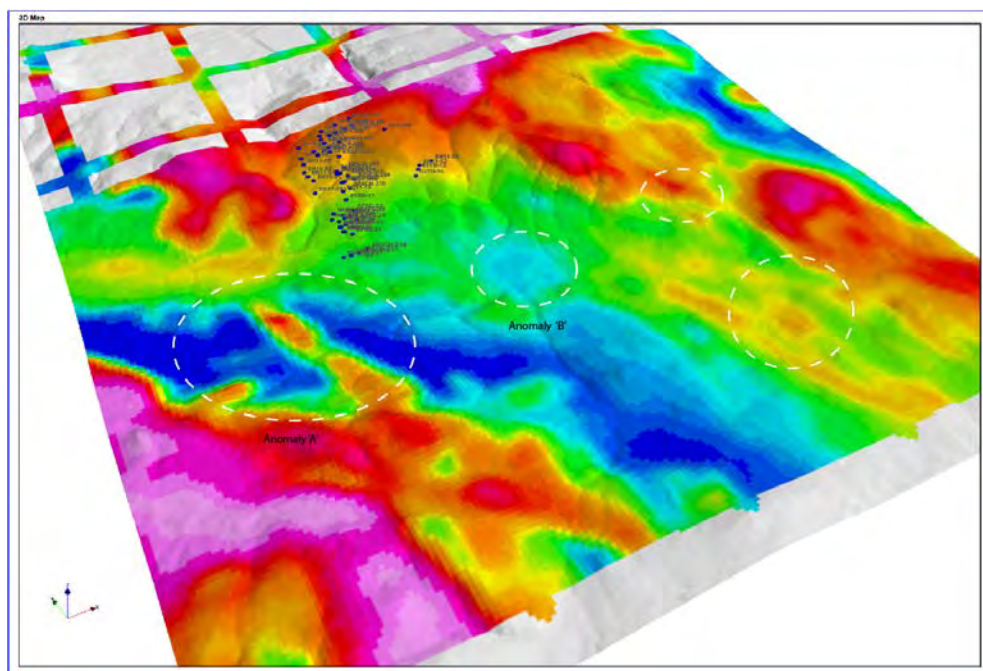
Anomaly B is a large zone of elevated resistivity. The feature is to the immediate north of the northern edge of the aforementioned corridor. The resistivity feature is associated with a slightly weaker magnetic low associated with the core of the western resistivity high.

A number of additional features can also be observed in the dataset, however comments will be reserved at this time, until additional compilation has been undertaken.

DISCUSSION OF RESULTS con't



ZTEM 90Hz DT



RTP Magnetics

SUMMARY, CONCLUSIONS & RECOMMENDATIONS.

Between February 13th and 14th, 2012 Geotech Ltd. carried out heli-borne ZTEM and magnetic surveying over the Silver Hope property for Finlay Minerals Ltd.

The Silver Hope property is located some 40 kilometres southeast of Houston, B.C., and is adjacent to the past-producing Equity Silver Mine.

The survey was designed to augment existing geophysical coverage over the property, in an effort to locate additional porphyry systems, and define structural corridors.

The survey was successful in identifying a number of resistive features, however due to the nature of the ZTEM survey only relative lateral resistivity contrasts are mapped with pseudo depth information derived from the respective reading frequencies.

The west horizon, which contains a recently discovered copper/molybdenum porphyry system, is readily apparent as a zone of elevated resistivity. Flanking this feature is a contact between a less resistive unit is readily apparent. Proximal to this contact, a number of mineralized zones – Hope, Superstition, and Gaul – are situated.

A number of secondary targets should be investigated further – Anomaly A and B.

Additional 3D inversion should also be undertaken on the ZTEM data utilizing ground DC resistivities values to help constrain resistivities in order to generate additional targets. Additional compilation of existing data should be extended outside the scope of this report to aid in targeting.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

**Alexander Walcott
Geophysicist**

**Peter E. Walcott, P.Eng
Geophysicist**

**Coquitlam, B.C.
May 2013**

**Peter E. Walcott & Associates Limited
Geophysical Services**

**Airborne ZTEM And Magnetic Surveying
Finlay – Silver Hope**

APPENDIX

COST OF SURVEY

The total cost of the surveying, data processing and reporting was \$126,232.03 . This amount includes services from both Geotech Ltd. and Peter E. Walcott & Associates Limited.

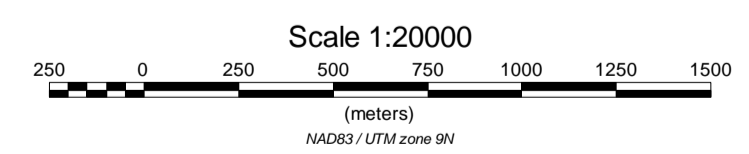
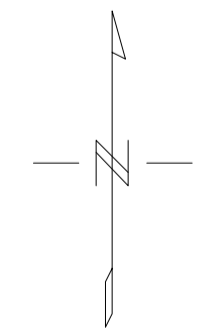
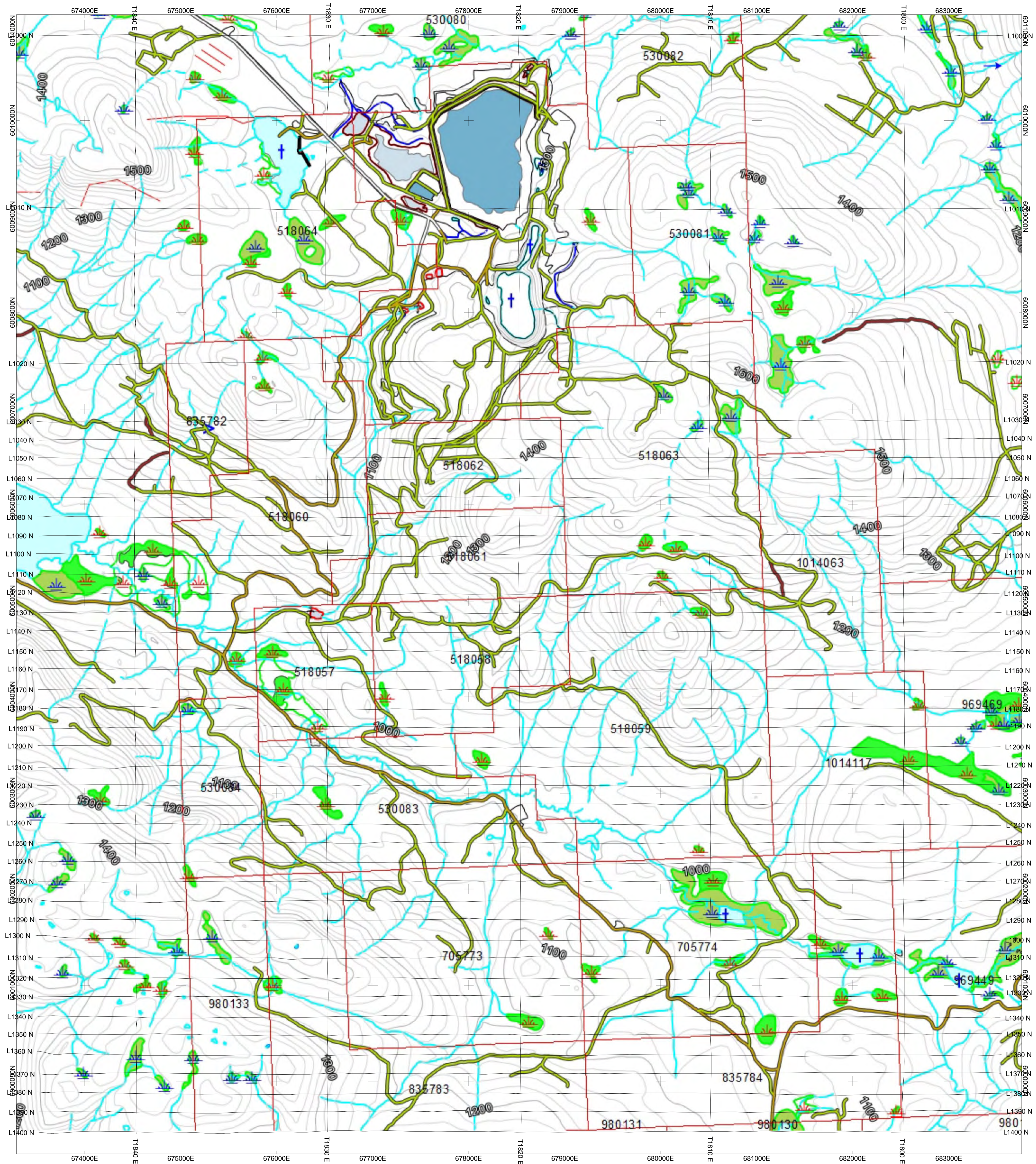
CERTIFICATION.

I, Peter E. Walcott of 605 Rutland Court, Coquitlam, B.C., hereby certify that:

1. I am graduate of the University of Toronto in 1962 with a Bachelor of Applied Science degree in Engineering Physics – Geophysics Option.
2. I have been practicing my profession for the last 50 years.
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.
4. I hold no interest, direct nor indirect, in Finlay Minerals Ltd., nor do I expect to receive any.

Peter E. Walcott, P.Eng.

**Coquitlam, B.C.
May 2013**



FINLAY MINERAL LTD.
CLAIM AND LINE LOCATION MAP
ZTEM AND MAGNETIC SURVEY
 SILVER HOPE PROPERTY
 HOUSTON AREA,
 BRITISH COLUMBIA
PETER E. WALCOTT & ASSOCIATES LIMITED

APPENDIX II

REPORT ON A HELICOPTER-BORNE Z-AXIS TIPPER ELECTROMAGNETIC (ZTEM) AND AEROMAGNETIC GEOPHYSICAL SURVEY

Silver Hope Property
Houston, British Columbia

For:
Finlay Minerals Ltd.

By:

Geotech Ltd.

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Survey flown February 2012
Project 1136
March, 2012



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relative to equivalent MT Tipper Quadrature polarity convention ($e+i\omega t$) for a graphitic conductor in Athabasca Basin, SK. 13

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REPORT ON A HELICOPTER-BORNE Z-AXIS, TIPPER ELECTROMAGNETIC (ZTEM) AND AEROMAGNETIC GEOPHYSICAL SURVEY

Silver Hope Property
Houston, British Columbia

Executive Summary

During February 13th to February 14th 2012 Geotech Ltd. carried out a helicopter-borne geophysical survey for Finlay Minerals Ltd. over the Silver Hope Property situated 34 kilometres southeast of Houston, British Columbia.

Principal geophysical sensors included a Z-Axis Tipper electromagnetic (ZTEM) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 467 line-kilometres of geophysical data were acquired during the survey.

The survey operations were based out of Burns Lake, British Columbia. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as the following maps:

- Total Magnetic Intensity
- Reduced to Pole of Total Magnetic Intensity
- 3D View of In-Phase Total Divergence versus Skin Depth
- In-Phase Total Divergence (30Hz, 90Hz and 360Hz)
- Tzx In-line In-Phase & Quadrature Profiles over 90Hz Phase Rotated Grid
- Tzy Cross-line In-Phase & Quadrature Profiles over 90Hz Phase Rotated Grid

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set. 2D inversions over selected lines were performed in support of the ZTEM survey results.

1. INTRODUCTION

1.1 General Considerations

These services are the result of the Agreement made between Geotech Ltd. and Finlay Minerals Ltd. to perform a helicopter-borne geophysical survey over the Silver Hope Property located 34 kilometres southeast of Houston, British Columbia (Figure 1).

Robert Brown represented Finlay Minerals Ltd. during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne AFMAG Z-axis Tipper electromagnetic (ZTEM) system and aero magnetics using a caesium magnetometer. A total of 467 line kilometres of geophysical data were acquired during the survey. The survey area is shown in Figure 2.

In a ZTEM survey, a single vertical-dipole air-core receiver coil is flown over the survey area in a grid pattern, similar to regional airborne EM surveys. Two orthogonal, air-core horizontal axis coils are placed close to the survey site to measure the horizontal EM reference fields. Data from the three coils are used to obtain the Tzx and Tzy Tipper (Vozoff, 1972) components at six frequencies in the 30 to 720 Hz band. The ZTEM is useful in mapping geology using resistivity contrasts and magnetometer data provides additional information on geology using magnetic susceptibility contrasts.



Figure 1 - Property Location

The crew was based out of Safford, Arizona for the acquisition phase of the survey. Survey flying was started on February 13th 2012 and finished on February 14th 2012.

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final reporting, data presentation and archiving were completed from the Aurora office of Geotech Ltd. in March, 2012.

1.2 Survey Location

The Block is located 34 kilometres southeast of Houston, British Columbia as shown in Figure 2.



Figure 2 - The Block, with ZTEM and Magnetic Base Station Locations

The block was flown in an east to west ($N 90^{\circ} E$ azimuth) direction, with a flight line spacing of 200 metres, as depicted in Figure 3. Tie lines were flown perpendicular to the lines in a north to south ($N 0^{\circ} E$ azimuth) direction with spacing of 2000 metres for this survey. For more detailed information on the flight spacing and direction see Table 1.

1.3 Topographic Relief and Cultural Features

Topographically, the block exhibits a rugged relief with an elevation ranging from 915 to 1605 metres above mean sea level over an area of 114 square kilometres (Figure 3).

The survey area has various rivers and streams running throughout which connects various lakes. There are visible signs of culture such as roads and buildings (Figure 3). Special care is recommended in identifying any potential cultural features from other sources that might be recorded as data.



Figure 3 - Google Earth image of the survey

2. DATA ACQUISITION

2.1 Survey Area

The survey block (see Location map in Appendix A and Figure 2) and general flight specifications are as follows:

Table 1 - Survey Specifications

Survey block	Traverse Line spacing (m)	Area (Km ²)	Planned Line-km	Actual ¹ Line-km	Flight direction	Line numbers
Silver Hope Property	Traverse: 200	114	467	411.4	N 90° E / N 270° E	L1000 – L1400
	Tie: 2000			57.2	N 0° E / N 180° E	T1800 – T1840
TOTAL		114	467	468.6		

Survey block boundaries co-ordinates are provided in Appendix B.

2.2 Survey Operations

Survey operations were based out of Burns Lake, British Columbia on January 30th, 2012 until February 14th, 2012. The following table shows the timing of the flying.

Table 2 - Survey Schedule

Date	Flight #	Flown km	Block	Crew location	Comments
30-Jan-2011				Burns Lake, BC	Crew mobilized
31-Jan-2011				Burns Lake, BC	Crew arrived
01-Feb-2011				Burns Lake, BC	System assembly
02-Feb-2011				Burns Lake, BC	System assembly
03-Feb-2011				Burns Lake, BC	System assembly
04-Feb-2011				Burns Lake, BC	System Testing
05-Feb-2011				Burns Lake, BC	System Testing
06-Feb-2011				Burns Lake, BC	System Testing
07-Feb-2011				Burns Lake, BC	System testing Helicopter arrived
08-Feb-2011				Burns Lake, BC	System Testing
09-Feb-2011				Burns Lake, BC	Ground and air testing
10-Feb-2011				Burns Lake, BC	No testing due to weather
11-Feb-2011				Burns Lake, BC	No testing due to weather
12-Feb-2011				Burns Lake, BC	No testing due to weather
13-Feb-2011	1	50	Silver Hope	Burns Lake, BC	50km flown testing completed
14-Feb-2011	2,3,4	417	Silver Hope	Burns Lake, BC	Remaining kms were flown – flying complete

¹ Actual line-km represents the total line-km contained in the final databases. These line-km normally exceed the Planned line-km's, as indicated in the survey NAV files.

2.3 Flight Specifications

During the survey the helicopter was maintained at a mean height of 157 metres above the ground with a nominal survey speed of 80 km/hour for the survey block. This allowed for a nominal EM sensor terrain clearance of 87 metres and a magnetic sensor clearance of 102 metres.

The on board operator was responsible for monitoring the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by trained personnel.

2.4 Aircraft and Equipment

2.4.1 Survey Aircraft

The survey was flown using a Eurocopter Aerospatiale (Astar) 350 B3 helicopter, registration number C-GTEQ. The helicopter was operated by Geotech Aviation. Installation of the geophysical and ancillary equipment was carried out by a Geotech Ltd crew.

2.4.2 Airborne Receiver

The airborne ZTEM receiver coil measures the vertical component (Z) of the EM field. The receiver coil is a Geotech Z-Axis Tipper (ZTEM) loop sensor which is isolated from most vibrations by a patented suspension system and is encased in a fibreglass shell. It is towed from the helicopter using an 85 metre long cable as shown in Figure 4. The cable is also used to transmit the measured EM signals back to the data acquisition system.

The coil has a 7.4 metre diameter with an orientation to the Vertical Dipole. The digitizing rate of the receiver is 2000 Hz. Attitudinal positioning of the receiver coil is enabled using 3 GPS antennas mounted on the coil. The output sampling rate is 0.4 seconds (see Section 2.4.7)

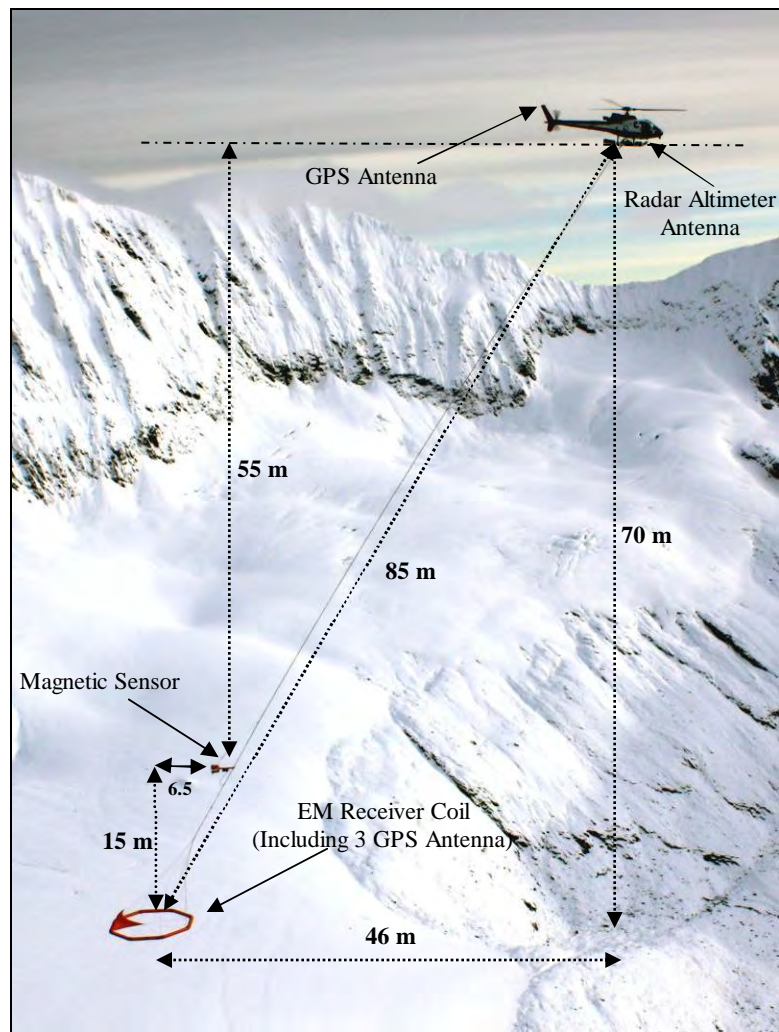


Figure 4 - ZTEM System Configuration

2.4.3 Base Station Receiver

The two Geotech ZTEM base station receiver coils measure the orthogonal, horizontal X and Y components of the EM reference field. They are set up perpendicular to each other and roughly oriented according to the flight line direction. The orientation of both units is not critical as the horizontal field can be further decomposed into the two orientations of the survey flight. The orientation of the base stations were measured using a compass.

The base station coils each have a diameter of 3.5 meters, with the coil orientations to the horizontal dipole, as shown in Figure 5.

The base station for the survey were installed in a meadow field on top of a hill (126°10'04.2"W, 54° 14' 17.4"N) away from any cultural sources. The azimuth of the reference coil was N45°E (named as A) and for the orthogonal component it was N135°E (named as B). Angles A and B are taken into account together with the survey lines azimuth to calculate the in-line (Tzx) and cross-line (Tzy) field utilizing a proprietary software.



Figure 5 - ZTEM base station receiver coils.

2.4.4 Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics split-beam optically pumped caesium vapour magnetic field sensor, mounted in a separate bird, and towed on a cable at a mean distance of 55 metres below the helicopter (Figure 4). The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer will perform continuously in areas of high magnetic gradient with the ambient range of the sensor approximately 20k-100k nT. The Aerodynamic magnetometer noise is specified to be less than 0.5 nT. The magnetometer sends the measured magnetic field strength as nanoTesla to the data acquisition system via the RS-232 port.

2.4.5 Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit.

2.4.6 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel CDGPS (Canada-Wide Differential Global Positioning System Correction Service) enabled Propak V3-RT20 GPS receiver. Geotech's Navigate software, using a full screen display with controls in front of the pilot, allows him to direct the flight. 5 NovAtel GPS antennas are utilized during the survey; one is mounted on the helicopter tail (Figure 4), one installed with the Receiver Base Station (Figure 5) and three are mounted on the airborne receiver (Figure 4). As many as 14 GPS and two CDGPS satellites may be monitored at any one time. The horizontal positional accuracy or circular error probability (CEP) is 1.8 m, with CDGPS active, it is 0.6 m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

2.4.7 Digital Acquisition System

The power supply and the data acquisition system are mounted on an equipment rack which is installed into the helicopter. Signal and power wires are run through the helicopter to connect on to the tow cable outside. The tow cable supports the ZTEM and magnetometer birds during flight via a safety shear pin connected to the helicopter hook. The major power and data cables have a quick disconnect safety feature as well. The installation was undertaken by the Geotech Ltd. crew and was certified before surveying.

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The data type and sampling interval as provided in Table 3.

Table 3 - Acquisition and Processing Sampling Rates

DATA TYPE	ACQUISITION SAMPLING	PROCESSING SAMPLING
ZTEM Receiver	0.0005 sec	0.4 sec
Magnetometer	0.1 sec	0.4 sec
GPS Position	0.2 sec	0.4 sec
Radar Altimeter	0.2 sec	0.4 sec
ZTEM Base station	0.0005 sec	--

2.4.8 Mag Base Station

A combined magnetometer/GPS base station was utilized on this project. A Geometrics Caesium split-beam vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer.

The base station magnetometer sensors for the block were installed on the airport property in a field (125° 57' 23.1114"W, 54° 22' 54.372"N) away from electric transmission lines and moving ferrous objects such as motor vehicles. The base station data were backed-up to the data processing computer at the end of each survey day.

3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field:

Project Manager:	Adrian Sarmasag (Office)
Data QC:	Nick Venter (Office)
Crew chief:	Ioan Serbu
Operator:	Jan Dabrowski

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – Geotech Aviation.

Pilot:	Guy Tremblay
Mechanical Engineer:	n/a

Office:

Preliminary Data Processing:	Eugene Druker
Final Data Processing:	Eugene Druker and Ali Latrous
Final Data QC:	Ali Latrous
2D Inversions:	Ali Latrous
Reporting/Mapping:	Liz Mathew

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Chief Operating Officer. Processing and 2D Inversions were under the supervision of Carlos Izarra, PhD, ZTEM Data Processing and Interpretation Manager and Jean Legault, P. Geo, P. Eng, Chief Geophysicist (Interpretation). The overall contract management and customer relations were by Blair Walker.

4. DATA PROCESSING AND PRESENTATION

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

4.1 Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the NAD83, UTM Zone 9 North coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM easting's (x) and UTM northing's (y).

4.2 In-field Processing and Quality Control

In-Field data processing and quality control are done on a flight by flight basis by a qualified data processor (see Section 3.0). Processing steps and check up procedures are designed to assure the best possible final quality of ZTEM survey data. A general overview of those steps is presented in the following paragraphs.

The In-Field quality control can be separated into several phases:

- a. GPS Processing Phase: GPS Data are first examined and evaluated during the GrafMov processing.
- b. Raw data, ZTEM viewer phase:

Data can be viewed, examined for consistency, individual channel spectra examined and overall noise estimated in the viewer provided by the ZTEM proprietary software, on the raw flight data and raw base station data separately, on the merged data, and finally on the data that have undergone ZTEM processing.
- c. Field Geosoft phase:

Magnetic data, Radar altimeter data, GPS positioning data are re-examined and processed in this phase. Prior to splitting the lines EM data are examined flight by flight and the effectiveness of applying the attitude correction evaluated. After splitting the lines, a set of grids are generate for each parameter and their consistency evaluated. Data profiles are also re-evaluated on a line to line basis. A power line monitor channel is available in order to identify power line noise.

4.3 GPS Processing

Three GPS sensor (mounted on the airborne receiving loop) measurements were differentially corrected using the Waypoint GrafMov™ software in order to yield attitude corrections to recorded EM data.

4.4 ZTEM Electromagnetic Data

The ZTEM data were processed using proprietary software. Processing steps consist of the following preliminary and final processing steps:

4.4.1 Preliminary Processing

- a. Airborne EM, Mag, radar altimeter and GPS data are first merged with EM base station data into one file.
- b. Merged data are viewed and examined for consistency in an incorporated viewer
- c. In the next, processing phase, the following entities are taken into account:
 - the Base station coils orientation with respect to the Magnetic North,
 - the Local declination of the magnetic field,
 - Suggested direction of the X coordinate (North or line direction),
 - Sensitivity coefficient that compensates for the difference in geometry between the base station and airborne coils.
 - Rejection filters for the 60 Hz and helicopter generated frequencies.
- d. Six frequencies (30, 45, 90, 180, 360, and 720 Hz) are extracted from the airborne EM time-series coil response using windows of 0.4 seconds and the base station coils using windows of 1.0 seconds.
- e. The real (In-Phase) and imaginary (Quadrature) parts of the tipper transfer functions are derived from the In-line (X or Tzx) and Cross-line (Y or Tzy) components.
- f. Such processed EM data are then merged with the GPS data, magnetic base station data and exported into a Geosoft xyz file.

4.4.2 Geosoft Processing

Next stage of the preliminary data processing is done in a Geosoft™ environment, using the following steps:

- a. Import the output xyz file from the AFMAG processing, as well as the base Mag data into one database.
- b. Split lines according to the recorded line channel,
- c. GPS processing, flight path recovery (correcting, filtering, calculating Bird GPS coordinates, line splitting)
- d. Radar altimeter processing, yielding the altitude values in metres.
- e. Magnetic spike removal, filtering (applied to both airborne and base station data). Calculation of a base station corrected mag.
- f. Apply preliminary attitude corrections to EM data (In phase and Quadrature), filter and make preliminary grids and profiles of all channels.

4.4.3 Final Processing

Final data processing and quality control were undertaken by Geotech Ltd headquarters in Aurora, Ontario by qualified senior data processing personnel.

A quality control step consisted of re-examining all data in order to validate the preliminary data processing and to allow for final adjustments to the data.

Attitude corrections were re-evaluated, and re-applied, on component by component, flight by flight, and frequency by frequency bases. Any remaining line to line system noise was removed by applying a mild additional levelling correction.

4.4.4 ZTEM Profile Sign Convention

Tzx and Tzy tipper components do not exhibit maxima or minima above conductors, resistors or at contacts; in fact they produce cross-over type anomalies (Ward, 1959; Vozoff, 1972; Labson, 1985). The crossover polarity sign convention for ZTEM is according to the right hand Cartesian rule (Z positive –up) that is commonly used for multi-component transient electromagnetic methods.

For the north to south lines of the Block the sign convention for the Tzx in-line component crossover is positive-negative pointing south to north for tabular conductors perpendicular to the profile (Figure 6). The corresponding Tzy component in-phase cross-over polarity is positive-negative pointing east to west (90 degrees counter clockwise to Tzx) according to the right hand Cartesian rule.

Conversely, tabular resistive bodies produce In-Phase cross-over's that are opposite in sign to conductors. A brief discussion of ZTEM and AFMAG, along with selected forward model responses is presented in Appendix D.

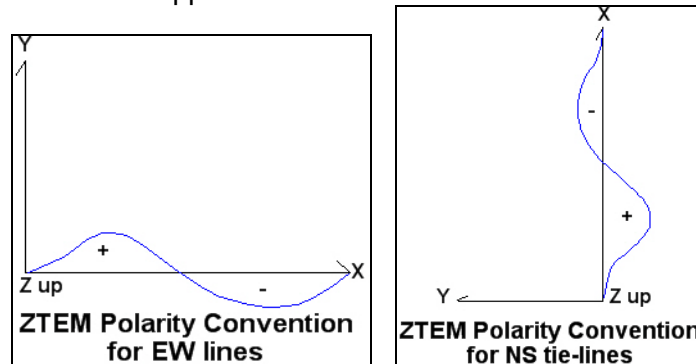


Figure 6 - ZTEM Crossover Polarity Convention for Tzx and Tzy for the block.

4.4.5 ZTEM Quadrature Sign Dependence

One important note regarding the sign of the ZTEM Quadrature, relative to the In-Phase component, particularly with regards to computer modeling and inversion.

The sign of the magnetotelluric Quadrature relative to the In-Phase tipper transfer function component pertains to the Fourier transformation of the time series to give frequency domain spectra. There are two widely used conventions for time dependence in the transformations,

exp(+iwt) and **exp(-iwt)**. That which is implemented largely is a matter of personal preference and precedent. The importance of the In-Phase and Quadrature sign convention is not critical, provided that it is known and documented.

In ZTEM, the data processing code used for the Fourier transformation the time-series data to frequency domain spectra adopts a **exp(-iwt)** time dependence (J. Dodds, Geo Equipment Manufacturing, pers. comm., Nov-2009). Whereas in the forward modeling and inversion program Zvert2d, the sign of the Quadrature relative to the In-Phase transfer function assumes an **exp(+iwt)** dependence².

As a result, for users interested in computer modeling and inversion of ZTEM data, the sign of the Quadrature will need to be reversed, relative to the In-Phase component, in order to provide a proper result (Figure 7). Indeed this reverse Quadrature polarity convention is assumed in all forward modeling and inversion of ZTEM data, as described in Figures 5-7 in Appendix D.

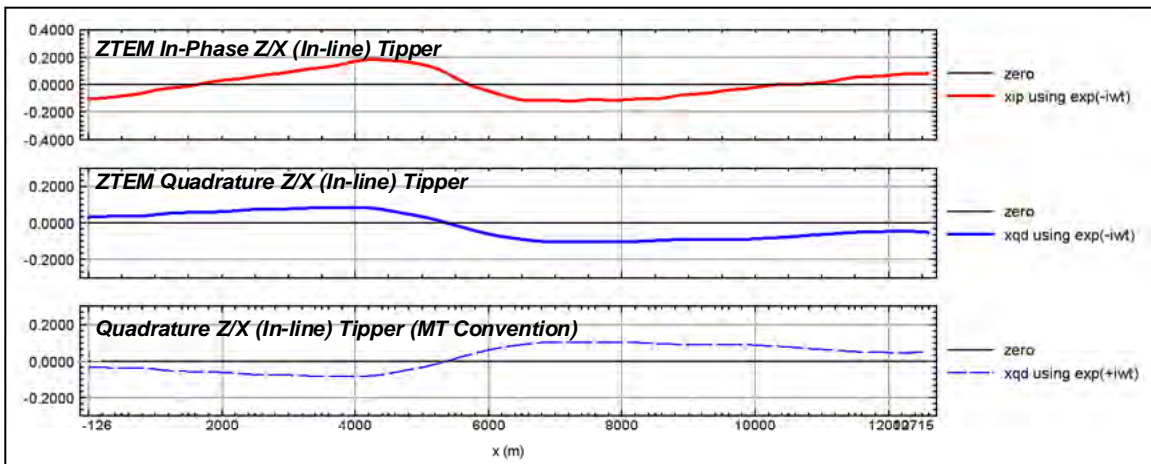


Figure 7 - Illustration of ZTEM In-Phase & Quadrature Tipper transfer function polarity convention (e-iwt) relative to equivalent MT Tipper Quadrature polarity convention (e+iwt) for a graphitic conductor in Athabasca Basin, SK.

4.4.6 Total Divergence and Phase Rotation Processing

In a final processing step DT (Total Divergence) and PR (Phase Rotation) processing are applied to the multi-frequency In-phase and Quadrature ZTEM data. This is due to the crossover nature of the Tipper Responses; these additional processing steps are applied to convert them into local maxima for easier interpretation.

To present the data from both tipper components into one image, the Total Divergence parameter, termed the DT is calculated from the horizontal derivatives of the Tzx and Tzy tippers (Lo and Zang, 2008). It is analogous to the “Peaker” parameter in VLF (Pedersen, 1998).

<p><u>Total Divergence DT:</u></p>	$DT = DIV (Tzx, Tzy)$ $= d(Tzx)/dx + d(Tzy)/dy$
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² Phillip E. Wannamaker (2009): Two-dimensional Inversion of ZTEM data: Synthetic Model Study and Test Profile Images, Internal Geotech technical report by Emblem Exploration Services Inc., January 22, 2009, 32 pp.

This DT parameter was introduced by Petr Kuzmin (Milicevic, 2007, p. 13) and is derived for each of the In Phase and Quadrature components at individual frequencies. These in turn allow for minima over conductors and maxima over resistive zones. DT grids for each of the extracted frequencies were generated accordingly, using a reverse colour scheme with warm colours over conductors and cool colours over resistors.

The DT gives a clearer image of conductor's location and shape but, as a derivative, it does not preserve some of the long wavelength information and is also sensitive to noise.

As an alternative, a 90 degree Phase Rotation (PR) technique is also applied to the grids of each individual component (Tzx and Tzy). It transforms bipolar (cross over) anomalies into single pole anomalies with a maximum over conductors, while preserving long wavelength information (Lo et al., 2009). The two orthogonal grids are then usually added to obtain a Total Phase Rotated (TPR) grid for the In-Phase and Quadrature.

$$\text{Total Phase-Rotation TPR: } = PR (Tzx) + PR (Tzy)$$

A presentation of the ZTEM test survey results over unconformity uranium deposits that illustrates DT and TPR examples, as documented by Lo et al. (2009) is provided in Appendix E.

4.4.7 2D EM Inversion

2d inversions of the ZTEM results were performed over selected lines using the Geotech Av2dtopo software developed by Phil Wannamaker, U. of Utah, for Geotech Ltd. The inversion algorithm is based on the 2D inversion code with Jacobians of de Lugao and Wannamaker (1996), the 2D forward code of Wannamaker et al (1987), and the Gauss-Newton parameter step equations of Tarantola (1987). Av2dtopo has been developed/modified for use with our ZTEM platform by taking into account the ground topography and the air-layer between the receiver bird and the ground surface.

The 2D code only considers the In-Line (Tzx) data and assumes that the strike lengths of bodies are infinite and orthogonal to the profile. The code is designed to account for the ZTEM vertical coil receiver and fixed base station reference measurements. The inversion uses a model-mesh consisting of 440 cells laterally and 112 cells vertically. Typically the ZTEM data are de-sampled to 192 pts, in order to allow the inversion to run in 20 minutes or less. Typically, between 1-2% errors are added to the In-line in-phase (XIP) and Quadrature (XQD) data obtained at 30,45,90,180,360 & 720Hz. Errors are adjusted until numerical convergence (<1.0 rms) is attained in 5 iterations or less. All inversions are based on an a priori homogeneous starting half-space model, usually between 100 – 1000ohm metres, as determined by the interpreter.

4.5 Magnetic Data

The processing of the total magnetic field intensity (TMI) data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along traverse lines. A micro-levelling procedure was applied to remove persistent low-amplitude components of flight-line noise remaining in the data.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of 50 metres. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

5. DELIVERABLES

5.1 Survey Report

The survey report describes the data acquisition, processing, and final presentation of the survey results. The survey report is provided in two paper copies and digitally in PDF format.

5.2 Maps

Final maps were produced at scale of 1:15,000. The coordinate/projection system used was NAD83, UTM Zone 9 North. All maps show the flight path trace and topographic data; latitude and longitude are also noted on maps.

The preliminary and final results of the survey are presented as profile plans for the EM data that were generated for individual real (In-Phase) and imaginary parts (Quadrature) of the Tzx and Tzy components. Colour contour maps of the corresponding DT (Total Divergence) or TPR (Total Phase Rotated) grids for three of the six frequencies, (30, 45, 90, 180, 360Hz), as well as for corresponding Phase Rotated Grids for individual components.

3D views have been constructed by plotting the either DT or TPR grids at their respective penetration depths using a 1000 ohm-m half space, using the Bostick skin depth rule (Bostick, 1977) see Appendix D.

Sample maps of the related 3D view, Magnetic and Total Divergence are included in this report and presented in Appendix C.

5.3 Digital Data

- Two copies of the data and maps on a DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj.
- DVD structure.
 - There are two (2) main directories;
 - Data** contains databases and grids, as described below.
 - Report** contains a copy of the report and appendices in PDF format.

Databases in Geosoft GDB format, containing the channels listed in Table 4.

Table 4 - Geosoft GDB Data Format

Column	Description
X	UTM Easting NAD83 Zone 9N, (Centre of the ZTEM loop) (meters)
Y	UTM Northing NAD83 Zone 9N , (Centre of the ZTEM loop) (meters)
Longitude	Longitude – WGS84 (Centre of the ZTEM loop) (Decimal degree)
Latitude	Latitude – WGS84 (Centre of the ZTEM loop) (Decimal degree)
Z	Elevation- WGS84 (Centre of the ZTEM loop) (metres)
Radar	Helicopter terrain clearance from radar altimeter (metres - AGL)
Alt_B:	Calculated ZTEM Bird terrain clearance (metres)
DEM	Digital Elevation Model (above mean sea level, meters)
Gtime	UTC Time (seconds of the day)
basemag	Magnetic base station data, nT
Mag1	Measured total magnetic field, nT
Mag2	Diurnally-corrected total magnetic field, nT
Mag3	Levelled total magnetic field, nT
xlp_030Hz	Tzx In-Phase 30 Hz final corrected
xlp_045Hz	Tzx In-Phase 45 Hz final corrected
xlp_090Hz	Tzx In-Phase 90 Hz final corrected
xlp_180Hz	Tzx In-Phase 180 Hz final corrected
xlp_360Hz	Tzx In-Phase 360 Hz final corrected
xlp_720Hz	Tzx In-Phase 720 Hz final corrected
xQd_030Hz	Tzx Quadrature 30 Hz final corrected
xQd_045Hz	Tzx Quadrature 45 Hz final corrected
xQd_090Hz	Tzx Quadrature 90 Hz final corrected
xQd_180Hz	Tzx Quadrature 180 Hz final corrected
xQd_360Hz	Tzx Quadrature 360 Hz final corrected
xQd_720Hz	Tzx Quadrature 720 Hz final corrected
ylp_030Hz	Tzy In-Phase 30 Hz final corrected
ylp_045Hz	Tzy In-Phase 45 Hz final corrected
ylp_090Hz	Tzy In-Phase 90 Hz final corrected
ylp_180Hz	Tzy In-Phase 180 Hz final corrected
ylp_360Hz	Tzy In-Phase 360 Hz final corrected
ylp_720Hz	Tzy In-Phase 720 Hz final corrected
yQd_030Hz	Tzy Quadrature 30 Hz final corrected
yQd_045Hz	Tzy Quadrature 45 Hz final corrected
yQd_090Hz	Tzy Quadrature 90 Hz final corrected
yQd_180Hz	Tzy Quadrature 180 Hz final corrected
yQd_360Hz	Tzy Quadrature 360 Hz final corrected
yQd_720Hz	Tzy Quadrature 720 Hz final corrected
PLM	Power Line Monitor (60Hz)

- Grids in Geosoft GRD format, as follows:

TMI:	Total Magnetic Intensity
DEM:	Digital Elevation Model
PLM:	Power Line Monitor
RTP:	Reduced to Pole
XIP_30Hz:	Tzx In-Phase Component grid at 30 Hz
XIP_45Hz:	Tzx In-Phase Component grid at 45 Hz
XIP_90Hz:	Tzx In-Phase Component grid at 90 Hz
XIP_180Hz:	Tzx In-Phase Component grid at 180 Hz
XIP_360Hz:	Tzx In-Phase Component grid at 360 Hz
XIP_720Hz:	Tzx In-Phase Component grid at 720 Hz
XQd_30Hz:	Tzx Quadrature component grid at 30 Hz
XQd_45Hz:	Tzx Quadrature component grid at 45 Hz
XQd_90Hz:	Tzx Quadrature component grid at 90 Hz
XQd_180Hz:	Tzx Quadrature component grid at 180 Hz
XQd_360Hz:	Tzx Quadrature component grid at 360 Hz
XQd_720Hz:	Tzx Quadrature component grid at 720 Hz
YIP_30Hz:	Tzy In-Phase Component grid at 30 Hz
YIP_45Hz:	Tzy In-Phase Component grid at 45 Hz
YIP_90Hz:	Tzy In-Phase Component grid at 90 Hz
YIP_180Hz:	Tzy In-Phase Component grid at 180 Hz
YIP_360Hz:	Tzy In-Phase Component grid at 360 Hz
YIP_720Hz:	Tzy In-Phase Component grid at 720 Hz
YQd_30Hz:	Tzy Quadrature component grid at 30 Hz
YQd_45Hz:	Tzy Quadrature component grid at 45 Hz
YQd_90Hz:	Tzy Quadrature component grid at 90 Hz
YQd_180Hz:	Tzy Quadrature component grid at 180 Hz
YQd_360Hz:	Tzy Quadrature component grid at 360 Hz
YQd_720Hz:	Tzy Quadrature component grid at 720 Hz
XIP_30Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 30 Hz
XIP_45Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 45 Hz
XIP_90Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 90 Hz
XIP_180Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 180 Hz
XIP_360Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 360 Hz
XIP_720Hz_PR:	Tzx In-Phase Component Phase Rotated grid at 720 Hz
XQd_30Hz_PR:	Tzx Quadrature component Phase Rotated grid at 30 Hz
XQd_45Hz_PR:	Tzx Quadrature component Phase Rotated grid at 45 Hz
XQd_90Hz_PR:	Tzx Quadrature component Phase Rotated grid at 90 Hz
XQd_180Hz_PR:	Tzx Quadrature component Phase Rotated grid at 180 Hz
XQd_360Hz_PR:	Tzx Quadrature component Phase Rotated grid at 360 Hz
XQd_720Hz_PR:	Tzx Quadrature component Phase Rotated grid at 720 Hz
YIP_30Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 30 Hz
YIP_45Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 45 Hz
YIP_90Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 90 Hz
YIP_180Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 180 Hz
YIP_360Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 360 Hz
YIP_720Hz_PR:	Tzy In-Phase Component Phase Rotated grid at 720 Hz
YQd_30Hz_PR:	Tzy Quadrature component Phase Rotated grid at 30 Hz
YQd_45Hz_PR:	Tzy Quadrature component Phase Rotated grid at 45 Hz
YQd_90Hz_PR:	Tzy Quadrature component Phase Rotated grid at 90 Hz

YQd_180Hz_PR: Tzy Quadrature component Phase Rotated grid at 180 Hz
 YQd_360Hz_PR: Tzy Quadrature component Phase Rotated grid at 360 Hz
 YQd_720Hz_PR: Tzy Quadrature component Phase Rotated grid at 720 Hz
 IP_30Hz_DT: Total Divergence grid from In-phase components at 30 Hz
 IP_45Hz_DT: Total Divergence grid from In-phase components at 45 Hz
 IP_90Hz_DT: Total Divergence grid from In-phase components at 90 Hz
 IP_180Hz_DT: Total Divergence grid from In-phase components at 180 Hz
 IP_360Hz_DT: Total Divergence grid from In-phase components at 360 Hz
 IP_720Hz_DT: Total Divergence grid from In-phase components at 720 Hz
 QD_30Hz_DT: Total Divergence grid from Quadrature components at 30 Hz
 QD_45Hz_DT: Total Divergence grid from Quadrature components at 45 Hz
 QD_90Hz_DT: Total Divergence grid from Quadrature components at 90 Hz
 QD_180Hz_DT: Total Divergence grid from Quadrature components at 180 Hz
 QD_360Hz_DT: Total Divergence grid from Quadrature components at 360 Hz
 QD_720Hz_DT: Total Divergence grid from Quadrature components at 720 Hz
 IP_30Hz_TPR: Total Phase Rotated grid from In-phase components at 30 Hz
 IP_45Hz_TPR: Total Phase Rotated grid from In-phase components at 45 Hz
 IP_90Hz_TPR: Total Phase Rotated grid from In-phase components at 90 Hz
 IP_180Hz_TPR: Total Phase Rotated grid from In-phase components at 180 Hz
 IP_360Hz_TPR: Total Phase Rotated grid from In-phase components at 360 Hz
 IP_720Hz_TPR: Total Phase Rotated grid from In-phase components at 720 Hz
 QD_30Hz_TPR: Total Phase Rotated grid from Quadrature components at 30 Hz
 QD_45Hz_TPR: Total Phase Rotated grid from Quadrature components at 45 Hz
 QD_90Hz_TPR: Total Phase Rotated grid from Quadrature components at 90 Hz
 QD_180Hz_TPR: Total Phase Rotated grid from Quadrature components at 180 Hz
 QD_360Hz_TPR: Total Phase Rotated grid from Quadrature components at 360 Hz
 QD_720Hz_TPR: Total Phase Rotated grid from Quadrature components at 720 Hz

A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 50 metres was used.

- Maps at 1:15,000 scale in Geosoft MAP format, as follows:

11369_15K_3D_IP_DT: 3D view of In-Phase Total Divergence versus Skin Depth (30-360Hz)
 11369_15K_TMI: Total Magnetic Intensity (TMI)
 11369_15k_RTP: Reduced To Pole of Total Magnetic Intensity (RTP)
 11369_15K_30Hz_IP_DT: 30Hz In-Phase Total Divergence Grid
 11369_15K_90Hz_IP_DT: 90Hz In-Phase Total Divergence Grid
 11369_15K_360Hz_IP_DT: 360Hz In-Phase Total Divergence Grid
 11369_15K_XIP_profiles_XIP_PR: Tzx (In-line) In-Phase Profiles over 90Hz Phase Rotated In-Phase Grid
 11369_15K_XQD_profiles_XQD_PR: Tzx (In-line) Quadrature Profiles over a 90Hz Phase Rotated Quadrature Grid.
 11369_15K_YIP_profiles_YIP_PR: Tzy (Cross-line) In-Phase Profiles over 90Hz
 11369_15K_YQD_profiles_YQD_PR: Tzy (Cross-line) Quadrature Profiles over 90Hz Phase Rotated Quadrature Grid.

- 2D Resistivity Sample Inversion maps:
L1080_inv_res: resistivity inversion of line 1080
L1250_inv_res: resistivity inversion of line 1250
L1360_inv_res: resistivity inversion of line 1360
- Maps are also presented in PDF format.
- 1:50,000 topographic vectors were taken from the NRCAN Geogratis database at;
<http://geogratis.gc.ca/geogratis/en/index.html>.
- A Google Earth file "*11369_Silver Hope_FP.kml*" is included, showing the flight path of each block. Free versions of Google Earth software from:
<http://earth.google.com/download-earth.html>

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

A helicopter-borne ZTEM and aeromagnetic geophysical survey has been completed over the Silver Hope Property located approximately 34 kilometres southeast of Houston, British Columbia.

The total area coverage is 114 km². Total survey line coverage is 468.6 line kilometres. The principal sensors included a Z-Axis Tipper electromagnetic (ZTEM) system and a caesium magnetometer. Results have been presented as stacked profiles and contour colour images at a scale of 1:15,000.

There is no summary interpretation included in this report, however 2D inversions over selected lines have been provided in Appendix F, and to view all of the final inversions please refer to the final DVD.


6.2 Recommendations

Based on the geophysical results obtained, a number of interesting conductive structures were identified across the property. The magnetic results also contain worthwhile information in support of exploration targets of interest. We therefore recommend a more detailed interpretation of the available geophysical data, including additional 2D or 3D inversion in conjunction with the geology, prior to ground follow up and drill testing.

Respectfully submitted⁶,

For 

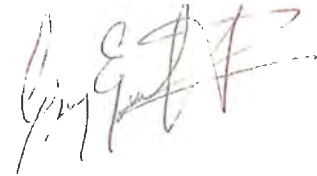
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Geotech Ltd.



Ali Latrous
Geotech Ltd.



Jean Legault, P. Geo, P. Eng
Geotech Ltd.



Carlos Izarra, PhD
Geotech Ltd.



March 2012

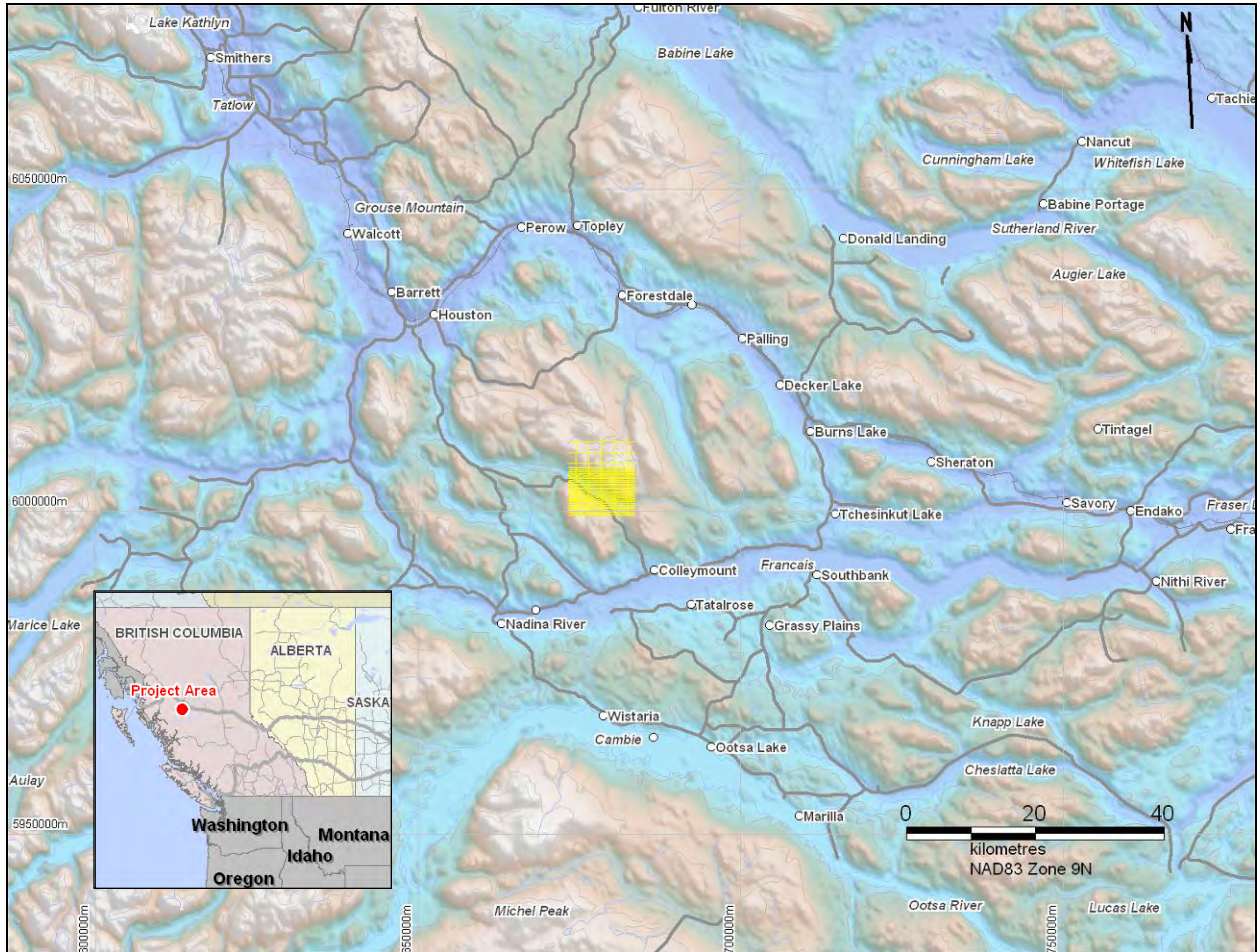
⁶Final data processing of the EM and magnetic data were carried out by Eugene Druker and Ali Latrous. 2D inversions were carried out by Ali Latrous from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Carlos Izarra, PhD, ZTEM Data Processing and Interpretation Manager and Jean Legault, P. Geo, P. Eng, Chief Geophysicist (Interpretation)

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APPENDIX A

SURVEY BLOCK LOCATION MAP



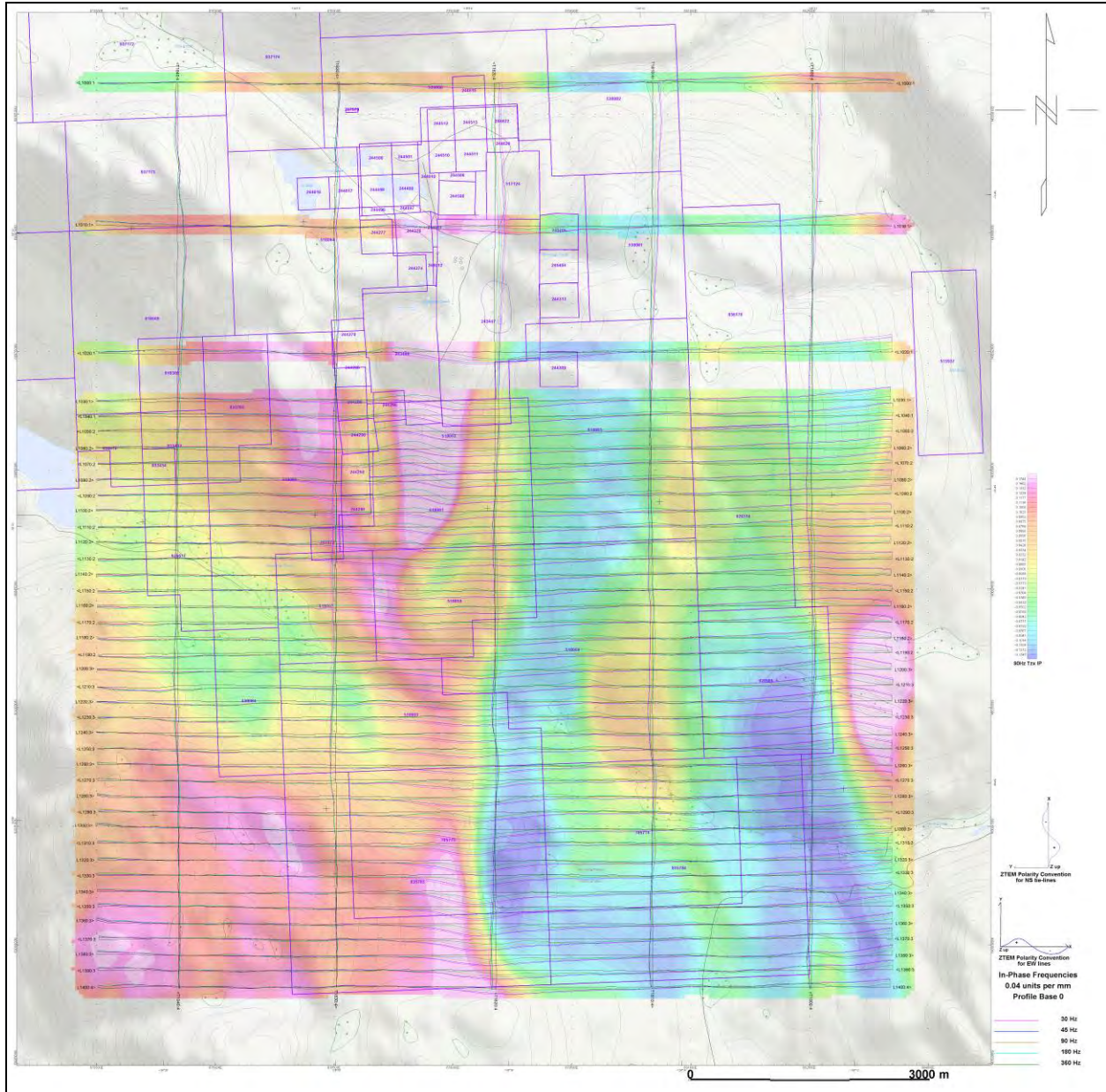
Survey Overview Location Map

APPENDIX B

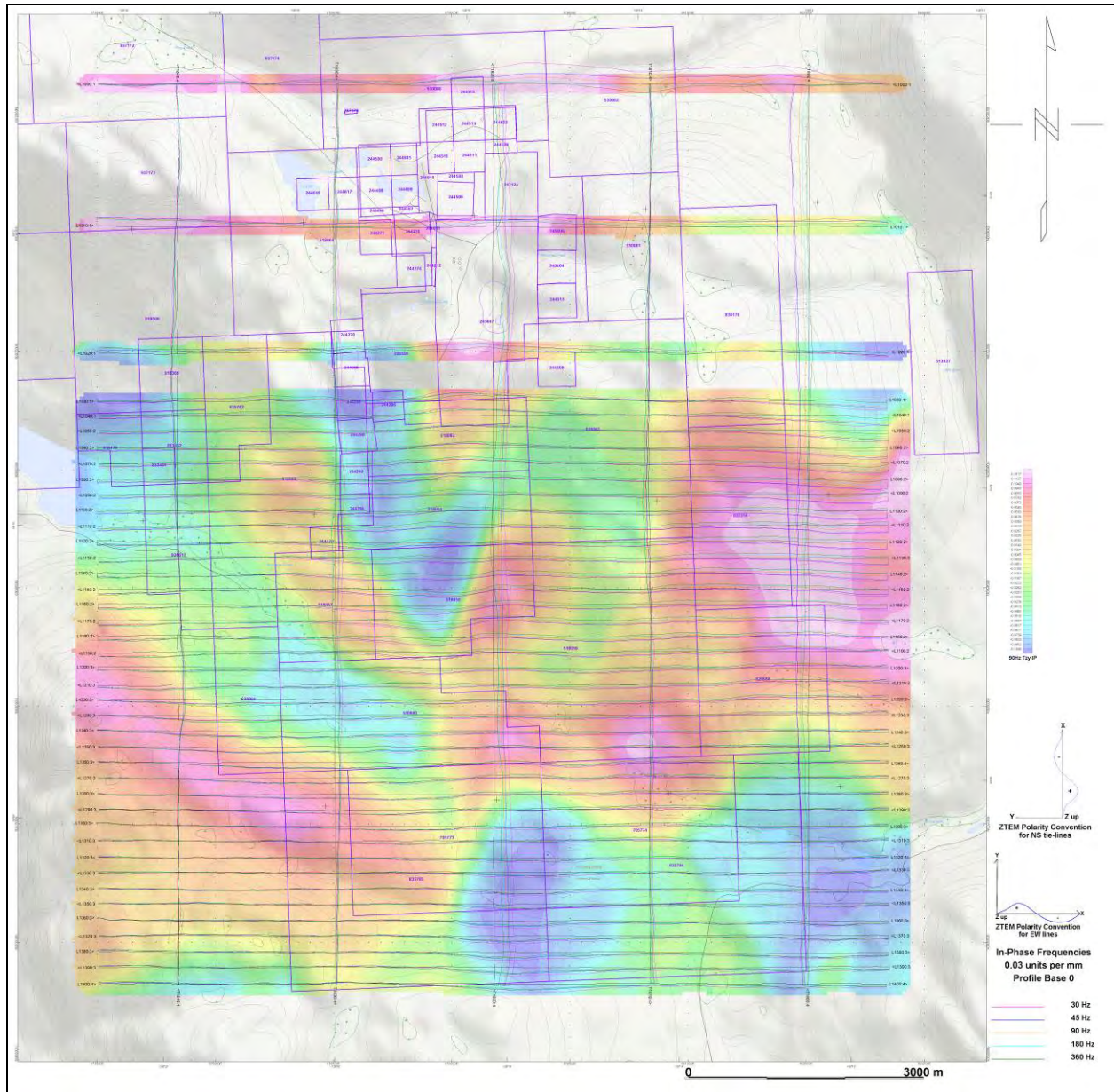
SURVEY BLOCK COORDINATES (WGS84 Zone 9N)

WGS84 UTM Zone 9N	
X	Y
673521.1	6010882.0
673521.1	5999481.0
683521.1	5999481.0
683521.1	6010882.0

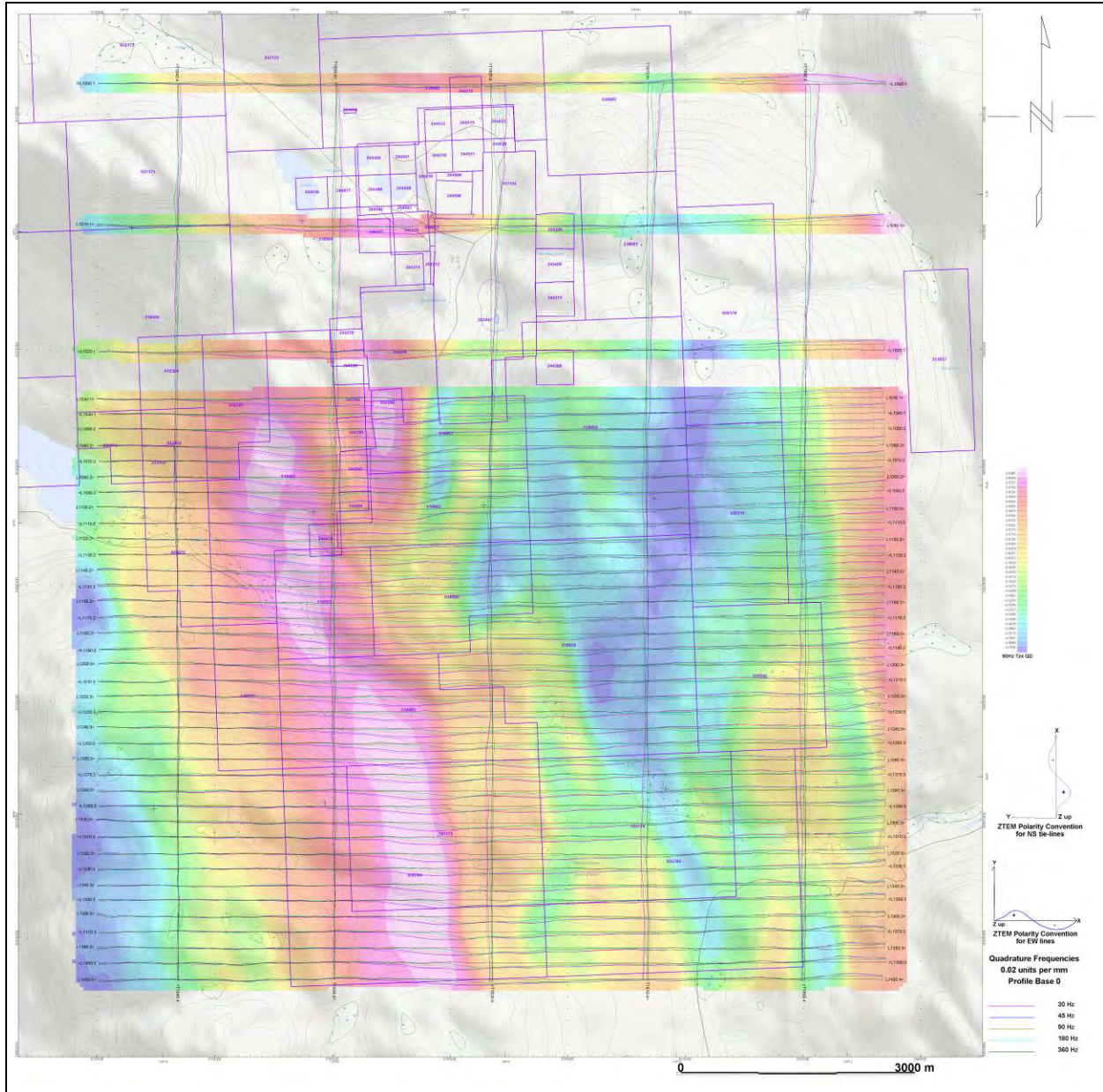
APPENDIX C GEOPHYSICAL MAPS¹



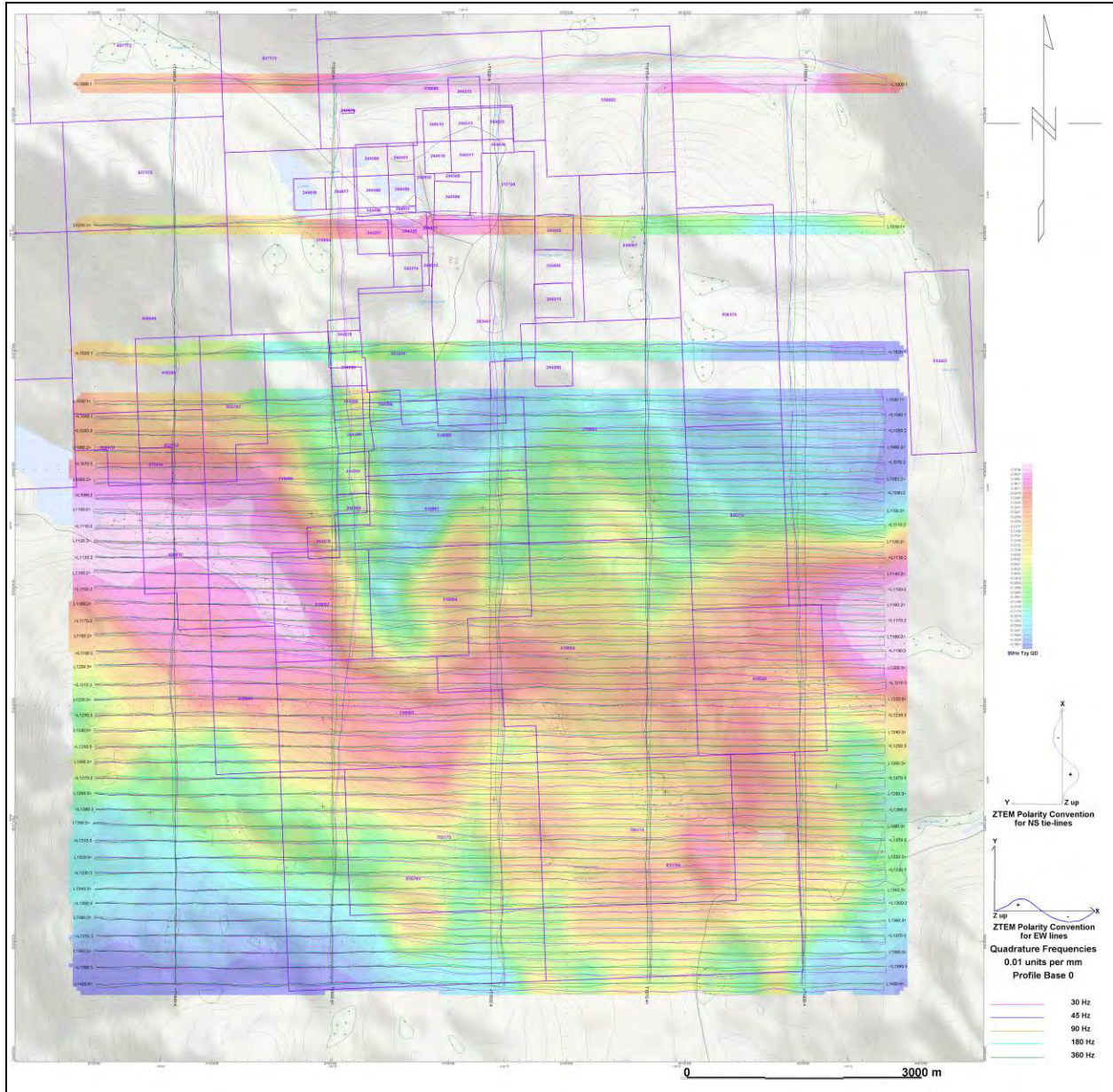
¹ Full size geophysical maps are also available in PDF format on the final DVD



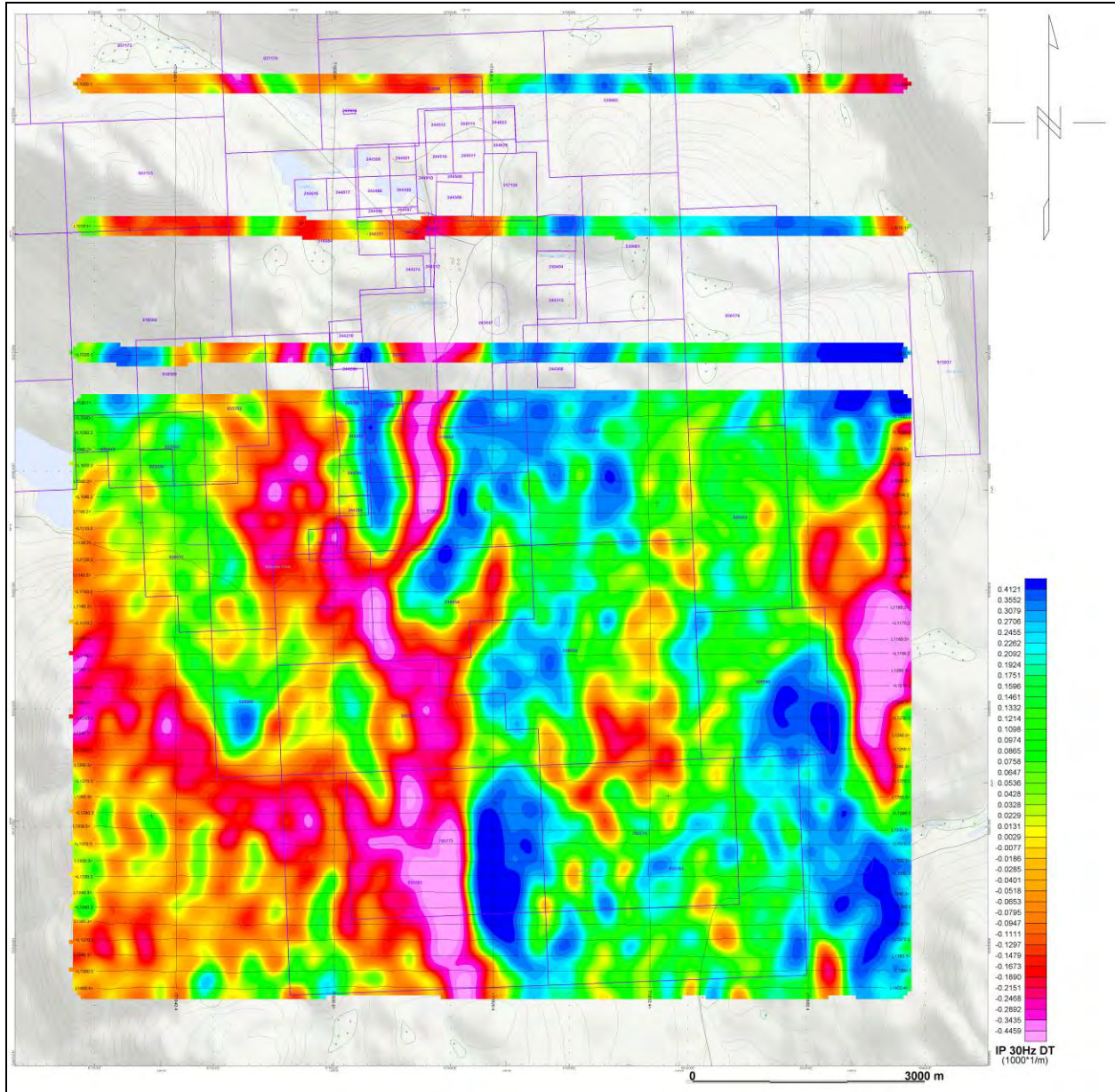
Tzy (Cross-line) In-Phase Profiles over 90Hz Rotated Tzy In-Phase Grid



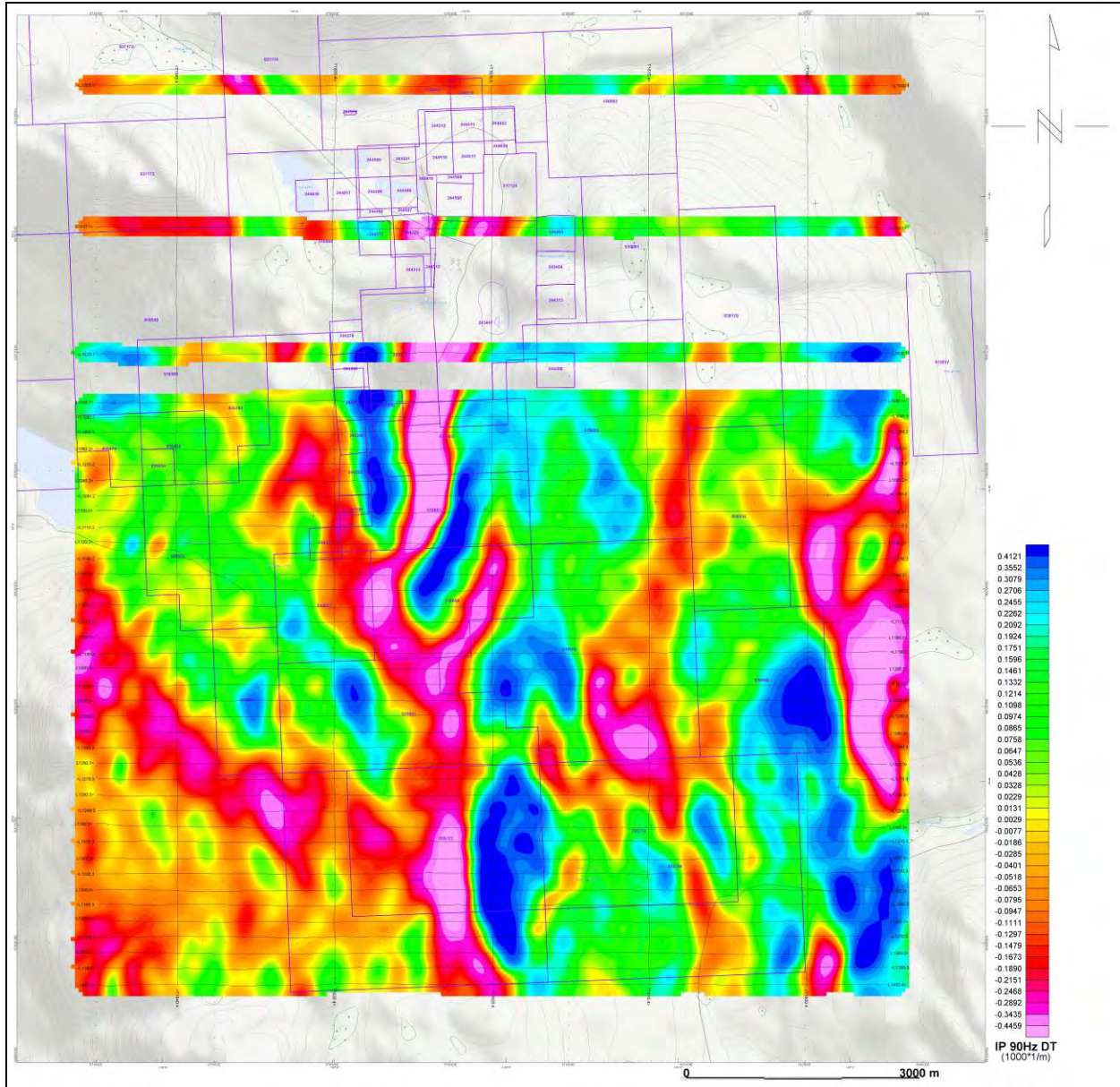
Tzx (In-line) Quadrature Profiles over 90Hz Rotated Tzx Quadrature Grid



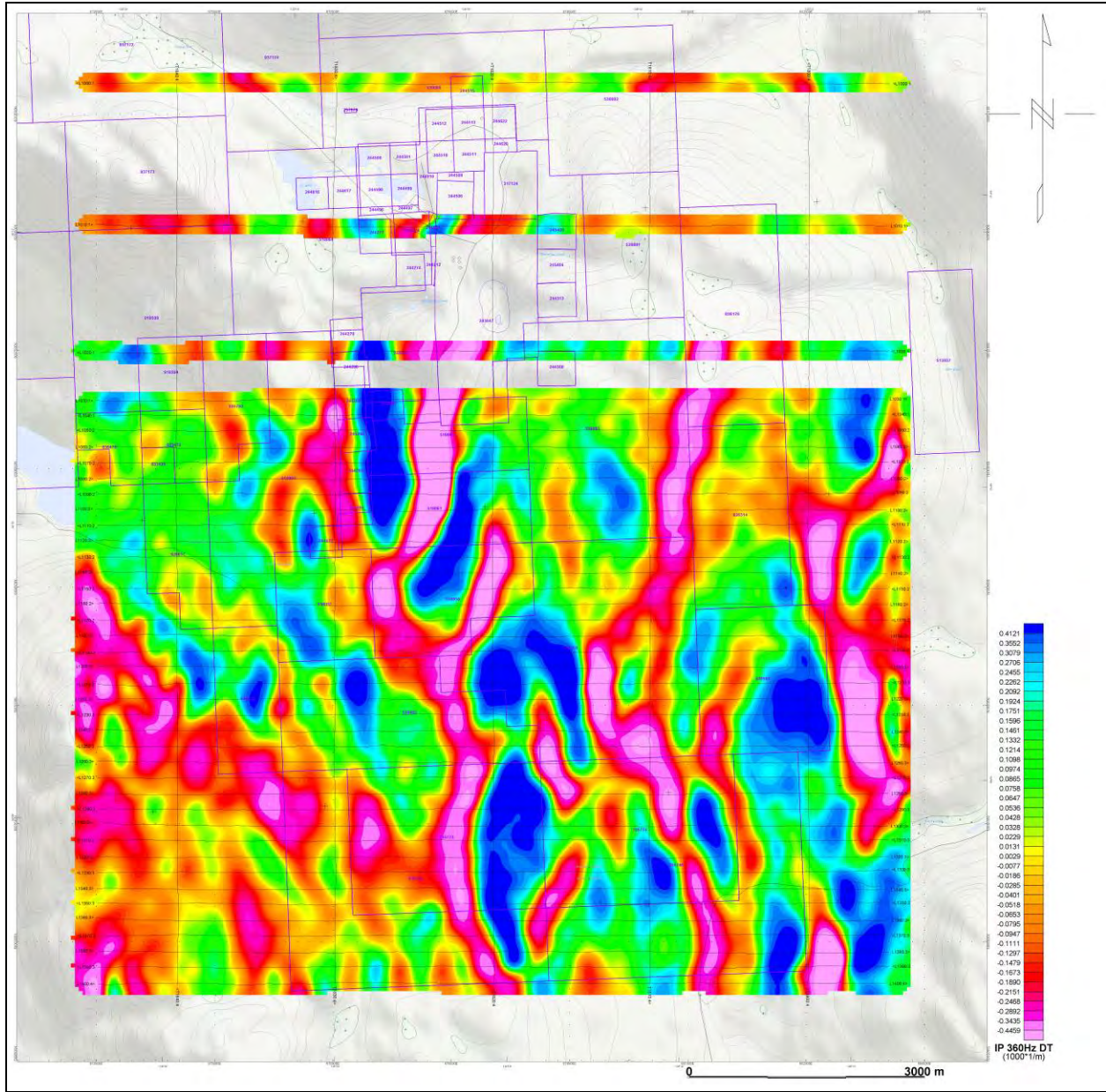
Tzy (Cross-line) Quadrature Profiles over 90Hz Rotated Tzy Quadrature Grid



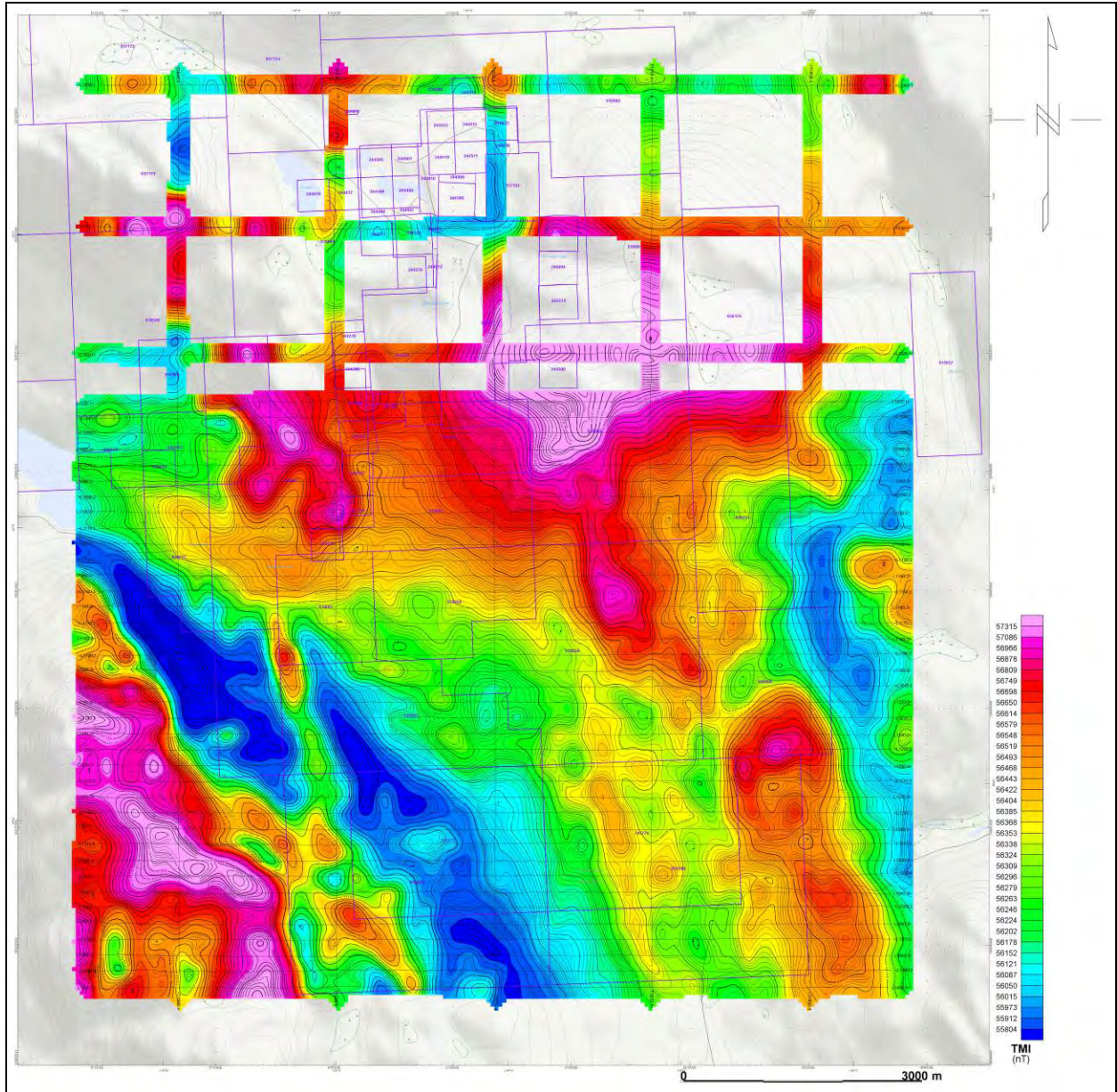
30Hz Total Divergence In-Phase (DT) Grid



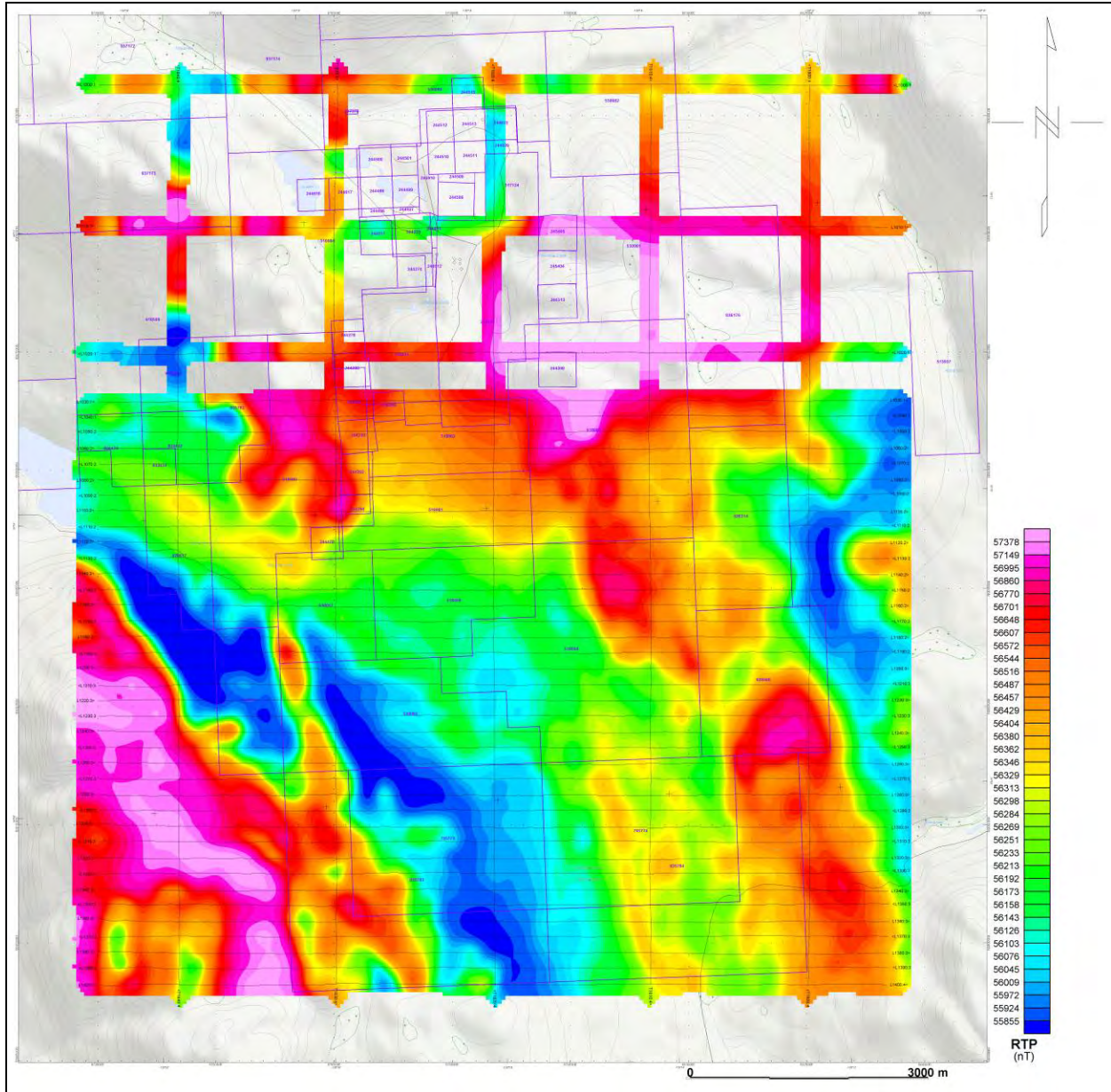
90Hz Total Divergence In-Phase (DT) Grid



360Hz Total Divergence In-Phase (DT) Grid



Total Magnetic Intensity (TMI)



Reduced to Pole of Total Magnetic Intensity (RTP)

APPENDIX D

ZTEM THEORETICAL CONSIDERATIONS

A brief section on the theory behind the AFMAG technique is provided for completeness and a more comprehensive development of the theory can be found in standard texts. The natural EM field is normally horizontally polarized. Subsurface lateral variations of conductivity generate a vertical component, which is linearly related to the horizontal field. Although the fields look like random signals, they may be treated as the sum of sinusoids. At each frequency the field can be expressed as a complex number with magnitude and argument equal to the amplitude and phase of the sinusoid. The relation between the field components can then be expressed by a linear complex equation with two complex coefficients at any one frequency. These coefficients are dependent upon the subsurface and not upon the horizontal field present at any particular time and are appropriate parameters to measure (Vozoff, 1972).

$$H_z(f) = T_x(f) H_x(f) + T_y(f) H_y(f), (1)$$

Where

$H_x(f)$, $H_y(f)$ and $H_z(f)$ are x, y and z components of the field,
 $T_x(f)$ and $T_y(f)$ are the “tipper” coefficients.

In the case of a horizontally homogeneous environment, T_x and T_y are equal to zero because $H_z = 0$. They show certain anomalies only by the presence of changes in subsurface conductivity in the horizontal direction. The real parts of the coefficients correspond to tangents of tilt angles measured with a controlled source. The complex tensor $[T_x, T_y]$ known as the “tipper” defines the vertical response to horizontal fields in the x and y directions respectively.

T_x and T_y are two unknown coefficients in one equation, and we therefore must combine two or more sets of measurements to solve them. To reduce effects of noise, multiple sets of measurements can be made, and the coefficients, which minimize the squared error in predicting the measured Z from X and Y, can be found. This leads to next formulas for estimating the coefficients.

$$T_x = ([H_z H_x^*] [H_y H_y^*] - [H_z H_y^*] [H_x H_x^*]) / ([H_x H_x^*] [H_y H_y^*] - [H_x H_y^*] [H_y H_x^*]), (2)$$

and

$$T_y = ([H_z H_y^*] [H_x H_x^*] - [H_z H_x^*] [H_y H_y^*]) / ([H_x H_x^*] [H_y H_y^*] - [H_x H_y^*] [H_y H_x^*]). (3)$$

Where

$[H_x H_y^*]$ (For example) denotes a sum of the product of H_x with the complex conjugate of H_y .

In practical processing algorithms, all numbers Hx, Hy and Hz can be obtained by applying the same digital band-pass filters to three incoming parallel data signals. FFT algorithms are also applicable. All sums like [HxHy*] can be calculated on the basis of a discrete time interval in the range from 0.1 to 1 sec or on a sliding time base.

Using platform attitude data in the EM data processing can be done at different stages of the signal processing. The most obvious idea is to transform parallel data from local coordinates of the platform into absolute geographical coordinates before the main signal processing procedure. Unfortunately, the proper algorithms of attitude data obtained, often require some post-processing algorithms such as using post-calculated accelerations based on GPS data etc. That is why it is preferable to treat x-y-z coordinates in formulas above in the local coordinate system of the platform and to recalculate resulting local tilt angles into a geographical or global coordinate system later, during the data post processing.

In weak field conditions where the level of the signal is comparable with input noise levels in preamplifiers, the bias in the estimated values of Tx and Ty caused by noise in the horizontal signals become substantial and can not be reduced by any averaging. This bias can be removed by the use of separate reference signals containing noise uncorrelated with noise in signals Hx and Hy. (Anav et al., 1976).

$$T_x = ([H_z R_x^*] [H_y R_y^*] - [H_z R_y^*] [H_x R_x^*]) / ([H_x R_x^*] [H_y R_y^*] - [H_x R_y^*] [H_y R_x^*]), \quad (4)$$

and

$$T_y = ([H_z R_y^*] [H_x R_x^*] - [H_z R_x^*] [H_x R_y^*]) / ([H_x R_x^*] [H_y R_y^*] - [H_x R_y^*] [H_y R_x^*]). \quad (5)$$

Where:

Rx is the reference field x component,

Ry is the reference field y component.

An additional two electromagnetic sensors, providing these reference signals can be placed at some distance away from the main x, y and z sensors. Currently, though, no additional remote-reference processing are applied to ZTEM data.

Numerical Modelling

In order to understand the airborne AFMAG responses to conductors for a variety of geological environments, EMIGMA™ modelling code from PetRos EiKon (Toronto, ON) was obtained to conduct the formulated model studies.

Below are some of the modelling results from their study.

Modelling assumption:

The assumptions for the modelling are that:

3 components of the magnetic field are measured and they are processed according to:

$$H_z(f) = T_x(f) H_x(f) + T_y(f) H_y(f)$$

The vector (T_x , T_y) is usually referred to as the 'tipper' vector and is determined in the frequency domain through processing. This is normally done by determining transfer functions from an extended time series.

For the modelling exercise, the 3 components of the magnetic vector (H_x , H_y , and H_z) are modelled twice for 2 orthogonal polarizations of a plane wave source field and then the tipper is calculated from a matrix calculation using the results of the 2 source polarizations' models. For the 2D forward modelling results, the tipper vectors are shown as a function of frequency.

Basic Model Response

For the initial models, we assume a thin plate-like model. The model is perpendicular to the flight direction. Initially, we will assume very long strike directions. From this quasi-2D model, there are 2 basic responses. The so-called TE response and the so-called TM response.

For the initial models, we will assume the strike is in the y (North) directions and the flight is in the x (East) direction. Sensor heights are 30m above ground.

TE Mode: For the TE response, the electric field excitation flows along strike (current channelling) and the horizontal H field (H_x) flows perpendicular to strike thus causing induction through Faraday's law. The H_z response is generated both from channelling and induction.

TM Mode: For this response, the electric field excitation flows perpendicular to strike generating quasi-static charges on faces and the horizontal H field (H_x) flows parallel to strike. Since, the XZ face is very small for this model, little current is induced. The charges on the faces have a small dipole moment due to the thinness of the model.

For the rest of the models unless otherwise noted, the parameters used are:

Strike Length: 1km

Depth Extent: 1km

Conductance: 100S

Depth to Top: 10m

Background: Thin-overburden (10m), Resistive Basement (1000 Ohm-m)

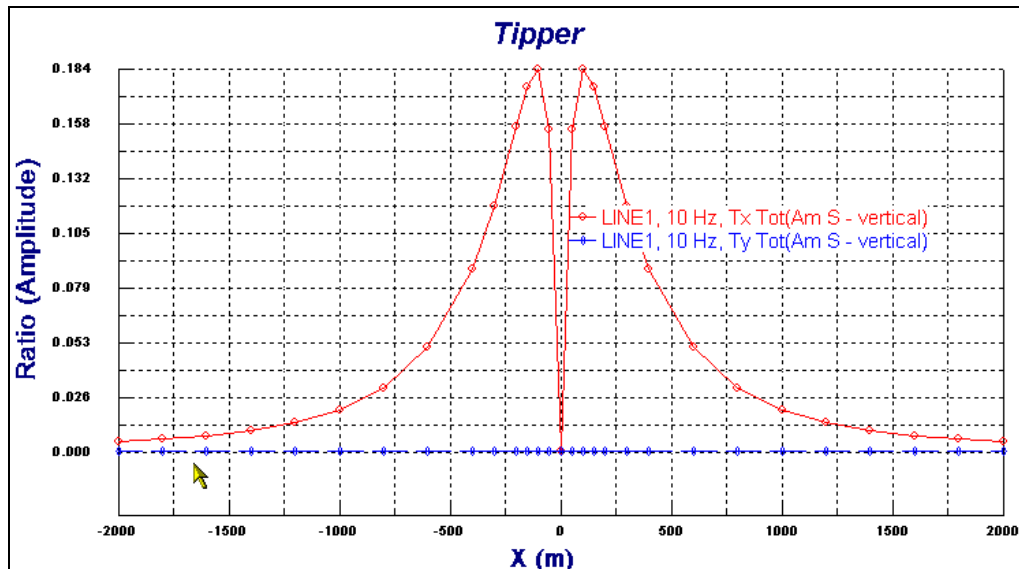


Figure D-1 – Calculated Tipper components at 10 Hz for above model parameters.

Figure D1 shows the Tipper (Tx,Ty) Amplitudes at 10Hz using a 10Ωm overburden. Note small Ty (ie quasi-TM response)

Amplitude Response

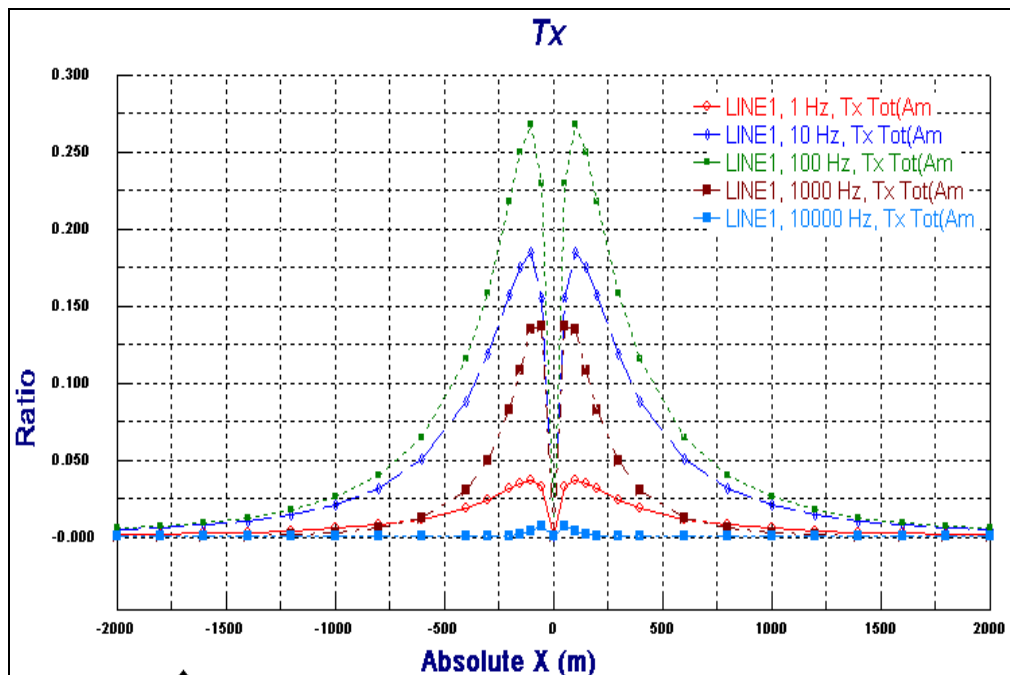


Figure D-2 – Calculated Tx component of the Tipper at various frequencies

The (Tx) response amplitude at 1,10,100,1000,10000 Hz. Peak amplitude at 100Hz

Inphase and Quadrature Response

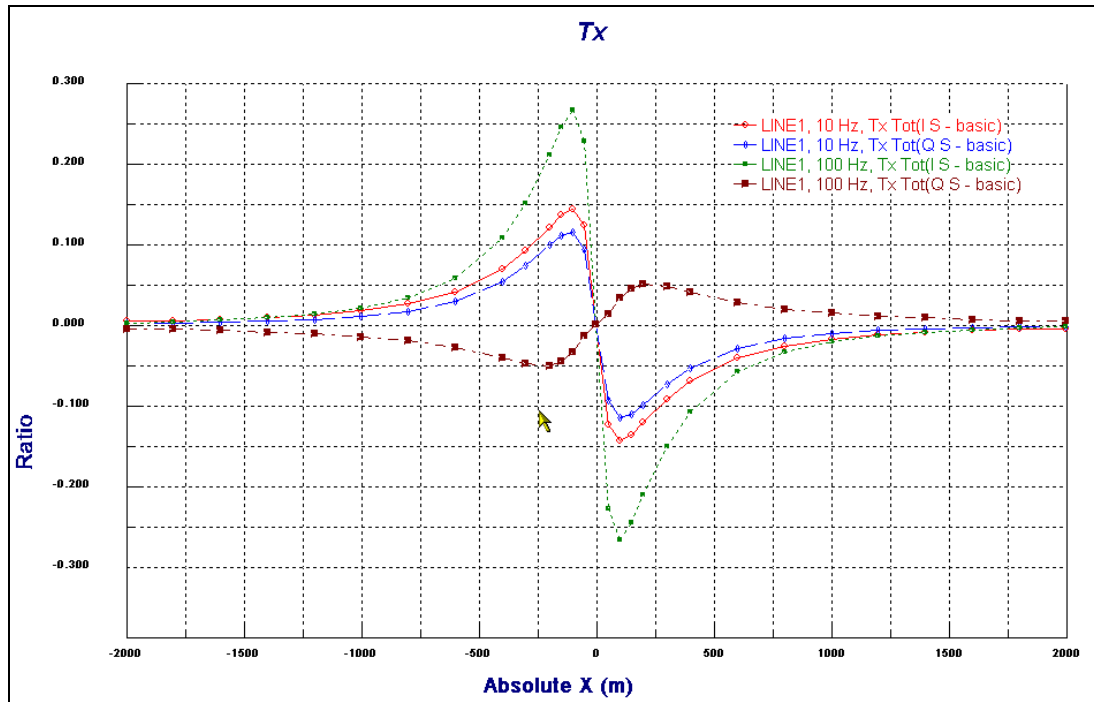


Figure D-3 – Calculated In-phase and Quadrature of the Tx component at various frequencies

Figure D-3 shows the In-phase and Quadrature response at 10 and 100Hz. Note the crossovers in the In-phase and Quadrature, and the phase reversal in the Quadrature responses from low to high frequencies.

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Geotech Ltd.
September, 2007

AFMAG Source Fields and ZTEM method¹

AFMAG uses naturally occurring audio frequency magnetic fields as the source of the primary field signal, and therefore requires no transmitter (Ward, 1959). The primary fields resemble those from VLF except that they are lower frequency (tens & hundreds of Hz versus tens of kHz) and are usually not as strongly directionally polarized (Labson et al., 1985). These EM fields used in AFMAG are derived from world wide atmospheric thunderstorm activity, have the unique characteristic of being uniform, planar and horizontal, and also propagate vertically into the earth – to great depth, up to several km, as determined by the magnetotelluric (MT) skin depth (Vozoff, 1972), which is directly proportional to the ratio of the bedrock resistivity to the frequency (Figure D4).

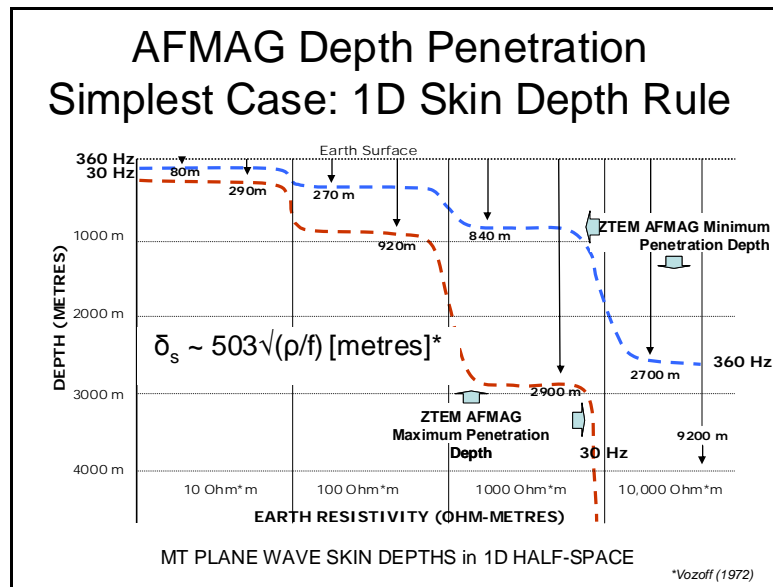


Figure D4: MT Skin Depth Penetrations for ZTEM in 30-360Hz and 10-1000 ohm resistivity

At the frequencies used for ZTEM, the penetration depths likely range between approx. 600m to 2km in this region (approx. 1k ohm-m avg. resistivity assumed), according to the following equation for the Bostick skin depth $\delta_B = 356 * \sqrt{\rho / f}$ metres (Bostick, 1977), which is considered appropriate as a rule of thumb equivalent depth estimate.

The other unique aspect of AFMAG fields is that they react to relative contrasts in the resistivity, and therefore do not depend on the absolute conductance, as measured using inductive EM systems, such as VTEM. Hence poorly, conductive targets, such as alteration zones and fault zones can be mapped, as well as higher conductance features, like graphitic units. Conversely, resistive targets can also be detected using AFMAG– provided they are of a sufficient size and contrast to produce a vertical field anomaly. Indeed resistors produce reversed anomalies relative to conductive features. Hence AFMAG can be effective as an all-round resistivity mapping tool, making it unique among airborne EM methods. A series of 2D

¹ From: Legault, J.M., Kumar, H., and Milicevic, B. (2009): ZTEM tipper AFMAG and 2D inversion results over an unconformity uranium target in northern Saskatchewan, Expanded Abstract submitted to Society of Exploration Geophysics SEG conference, Houston, Tx, Nov-2009, 5 pp.

synthetic models that illustrate these aspects have been created using the 2D forward MT modelling code of Wannamaker et al. (1987) and are presented in figures D5-D7.

The tipper from a single site contains information on the dimensionality of the subsurface (Pedersen, 1998), for example, in a horizontally stratified or 1D earth, $T=0$ and as such H_z is absent. For a 2D earth with the y-axis along strike, $T_y=0$ and $H_z = T_x^*H_x$. In 3D earths, both T_x and T_y will be non-zero. H_z is therefore only present, as a secondary field, due to a lateral resistivity contrast, whereas the horizontal H_x and H_y fields are a mixture of secondary and primary fields (Stodt et al., 1981). But, as an approximation, as in the telluric-magnetotelluric method (T-MT; Hermance and Thayer, 1975) used by distributed MT acquisition systems, the horizontal fields are assumed to be practically uniform, which is particularly useful for rapid reconnaissance mapping purposes. By measuring the vertical magnetic field H_x , using a mobile receiver and the orthogonal horizontal H_x and H_y fields at a fixed base station reference site, ZTEM is a direct adaptation of this technique for airborne AFMAG surveying.

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Geotech Ltd.

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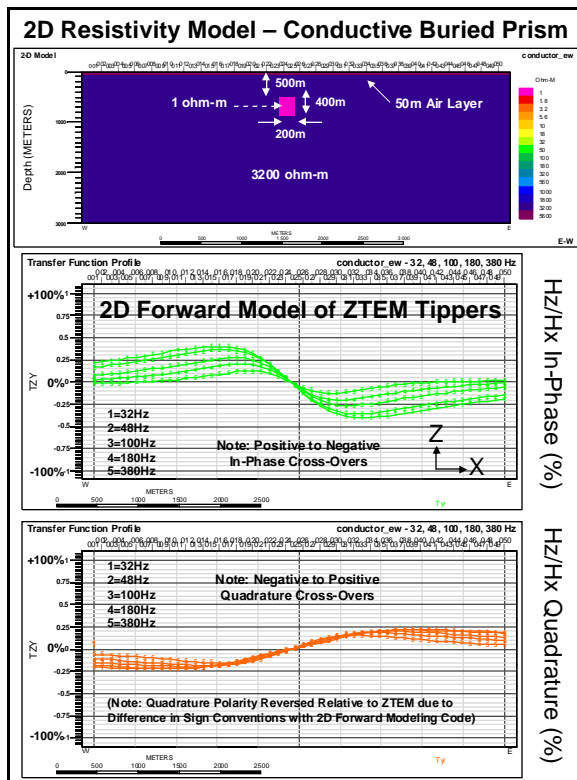


Figure D5: 2D synthetic forward model Tipper responses (Tzy) for conductive brick model.

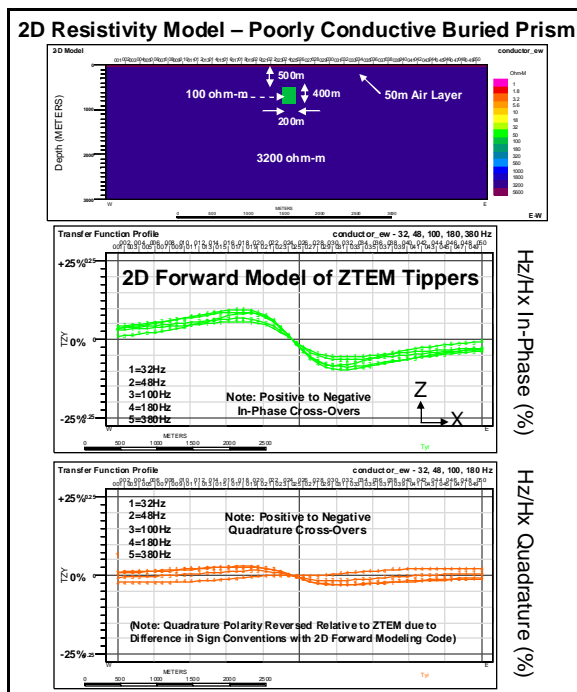


Figure D6: 2D synthetic forward model Tipper response (Tzx) for poorly conductive brick model.

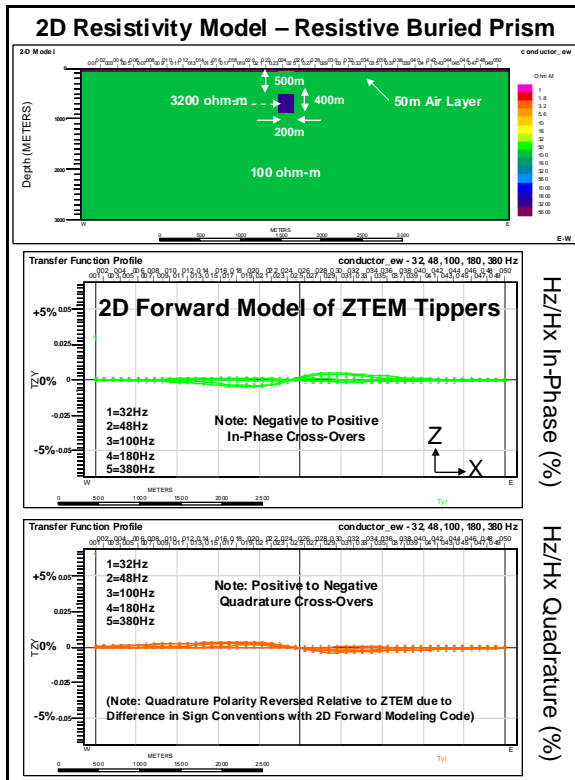


Figure D7: 2D synthetic forward model Tipper response (Tzx) for resistive brick model.

APPENDIX E

ZTEM (AIRBORNE AFMAG) TESTS OVER UNCONFORMITY URANIUM DEPOSITS⁵

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Key Words: ZTEM, AFMAG, electromagnetic, airborne, uranium, Athabasca.

INTRODUCTION

A series of demonstration tests were conducted using the ZTEM, airborne AFMAG system over deep targets in the Athabasca Basin of Saskatchewan, Canada. These tests were conducted in mid-2008 and were flown to test ZTEM's ability to detect large conductive targets at depth; deeper than conventional airborne EM methods. Data are presented over areas where the conductors are located 450-600 metres beneath the surface. As well, a case of ZTEM following the plunge of a conductor to over 800 metres depth is shown.

BACKGROUND

The ZTEM system is the latest implementation of an airborne AFMAG system first commercialized in late 2006. ZTEM uses a large, 8 metre diameter airborne air core coil, slung from a helicopter, to measure the vertical component of the AFMAG signal. Two 4 metre square coils are deployed on the ground to measure the horizontal field. The ZTEM system has flown successful demonstration surveys over porphyry copper deposits in the southwest USA (Zang et al., 2008).

ZTEM was tested in the Athabasca Basin in Canada in May of 2008 to determine its depth of investigation and to determine its suitability for mapping deep conductors in the crystalline basement. Over 30% of the world's U3O8 is mined in the Athabasca Basin from unconformity uranium deposits. Unconformity uranium deposits of the Athabasca Basin are often associated with conductors located in the crystalline basement. The search for economic uranium deposits is moving to areas of the basin which are deeper and beyond the detection limits of modern airborne instrumentation. This creates the requirement for a system which can detect conductivity past the detection limits of modern traditional EM systems. This was the motivation behind the field trials of the ZTEM system in the Athabasca Basin. Several areas where known deep conductors (450-600m+) were located were flown. Also, a test survey block in the northern part of the basin was able to trace a deep and plunging conductor to depths that no other airborne EM system has been able to achieve.

ATHABASCA BASIN GEOLOGY

The high-grade uranium deposits within the Athabasca Basin are associated with the unconformity between the essentially flat-lying Proterozoic Athabasca Group sandstones and the underlying Archean-Paleoproterozoic metamorphic and igneous basement rocks. The deposits occupy a range of positions from wholly basement-hosted to wholly sediment-hosted, at structurally favourable sites in the interface between the deeply weathered basement and overlying sediments of the Athabasca Basin (Ruzicka, 1997). The locations of These deposits are lithologically and structurally controlled by

⁵ Extended abstract submitted to 20th ASEG International Geophysical Conference & Exhibition, Adelaide, AU, 22-26 Feb, 2009.

the sub-Athabasca unconformity and basement faults and fracture zones, which are localized in graphitic pelitic gneisses that may flank structurally competent Archean granitoid domes (Quirt, 1989).

In general, most of the known important deposits tend to occur within a few tens to a few hundred metres of the unconformity and within 500 m of the current ground surface. This may be more of a limitation of exploration techniques. There is no reason to believe that the distribution of the deposits is dependent on the modern day depth of burial.

Empirically, the geophysical exploration for unconformity type uranium targets have been to search for large basement structures which post date the sandstone deposition of the basement (Matthews et al, 1997). All the deposits located so far are associated with fault structures associated with a graphitic conductive basement. An alteration zone of clay silicification and enrichment around the deposits probably leads to magnetite destruction causing the magnetic low observed around the deposits. The clay alteration should give rise to a resistivity low signature about the deposits. The low conductivity of the clay alteration makes it a difficult target for airborne EM if it is buried at significant depth.

ZTEM INSTRUMENTATION AND PRESENTATION

ZTEM is an airborne AFMAG system introduced by Geotech Ltd. of Canada in early 2007 (Lo et al., 2008). In a ZTEM survey, a single vertical dipole air-core coil is flown over the survey area in a grid pattern similar to other airborne electromagnetic surveys. Two orthogonal, air-core, horizontal axis coils placed close to the survey site measures the horizontal EM fields for reference. A GPS array on the airborne coil monitors its attitude for post-flight corrections.

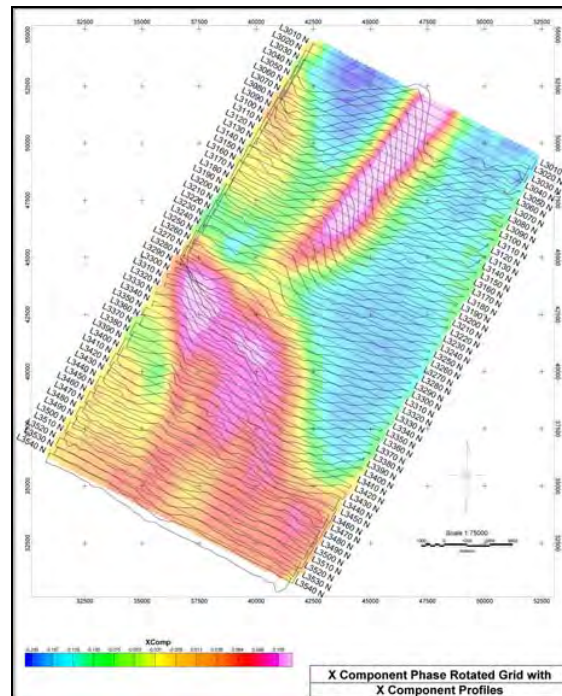


Figure 1 – Stacked profiles of the x-component Tipper over the gridded values of the phase rotated x-component data. Note that the cross-overs in the profiles are now peaks on the image.

As the source field is assumed to be far away, the excitation of the ground is more or less uniform. For large structures, the signal fall-off will be much slower than from a dipole source, such as those energized by traditional airborne systems. With the ZTEM system being less susceptible to terrain clearance, the planned ground clearance height is higher and the terrain drape is looser as compared to standard helicopter EM surveys.

The two Tippers obtained from the relationship between the vertical airborne coil and the two ground coils have a cross-over over a steeply dipping, plate-like body. The cross-overs can be made into local maxima via a 90 degree phase rotation which allows for easier interpretation of the gridded values. Figure 1 is an example of this transformation.

To present the data of both Tippers as one image, we calculate a parameter termed the DT which is the horizontal divergence of the two Tippers, much in the same manner as the “peaker” parameter in VLF (Pedersen, 1998). The DT is typically plotted with an inverted colour bar as it is negative over a steeply dipping thin body.

ZTEM RESULTS – NORTHERN ATHABASCA BASIN

Figure 2 shows gridded values from a number of ZTEM lines over an area where the sedimentary cover is approximately 450-600 metres thick. A number of traditional EM systems have also been flown over this block. While they were able to detect conductors, the resolution of the conductive features is not nearly as detailed as the information provided by ZTEM.

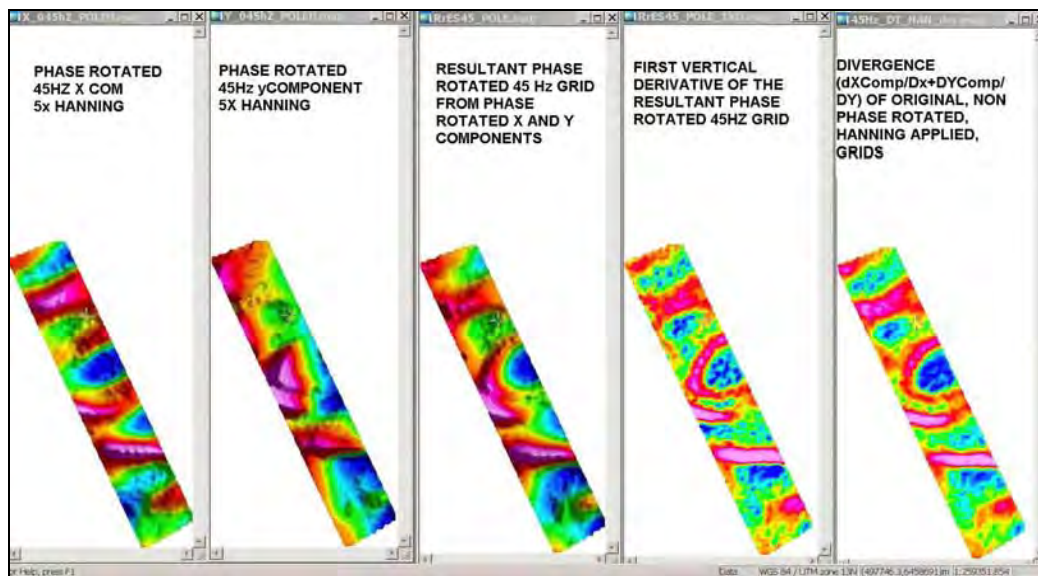


Figure 2 – ZTEM results over an area of 450-600 metre thick sedimentary cover.

Figure 3, from another area, shows the data from one of the larger blocks that was flown. It is a 3D composite image of the DT at various frequencies plotted at the equivalent skin depth assuming a 1,000 ohm-m average resistivity.

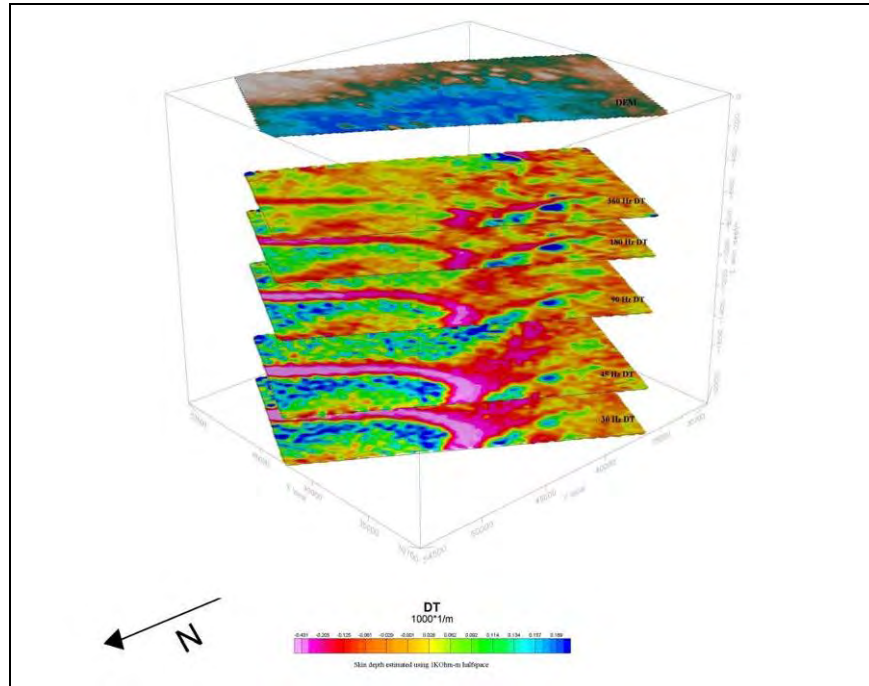


Figure 3 - Perspective view of DT's of different frequencies plotted at the skin depth (using a 1,000 ohm-m Earth).

The data in Figure 3 come from a survey over the north rim of the Athabasca Basin. The sandstone cover is about 500m on the left hand side of the image, and progressively getting deeper to the right. It is about 700m in the middle part of the image and over 800 metres thick on the right middle portion where exploration drilling is concentrated. Starting in the middle left and trending to the right of the image, there is a known graphitic shear.

In the uppermost (600m) "depth slice", Figure 3 shows a linear conductive feature that progressively weakens as one moves to the right until it is no longer seen. This is interpreted to be due to the graphitic shear conductor plunging deeper past the depth of investigation of the 360 Hz data. The lower frequencies penetrate more into the sedimentary cover that is deeper towards the right. DT's of decreasing frequency show the linear conductive feature extending more and more to the right. The feature also strengthens/sharpens into a synformal shape with lower frequencies. This fits with what the known geology of a plunging conductor at depth is doing.

At the nose of the fold, in the right third of the images, we also see another, broader anomalous zone that trends towards the back of the image. At this location, two radioactive springs are situated. These spring waters which are anomalously high in uranium and radon may reflect the upward migration of deep waters along faults, suggesting structural targets in areas where basinal waters may have tapped a radioactive source. This broad DT trend might be the plunge of the fold axis that is aligned away from the front of the image. An anomaly along this trend, at the highest frequency, that steadily grows with each decreasing frequency can be seen. This might represent an alteration zone in

the sandstone that is detected at the shallowest depth. By about the 90Hz DT depth slice or so, we are possibly in the deeper basement and into a basement graphitic unit.

CONCLUSIONS

A number of successful ZTEM tests were conducted over the Athabasca Basin. The tests demonstrated that ZTEM can easily detect conductivity to 800 metres beneath relatively resistive sedimentary cover. Assuming a 1,000 ohm-metre resistivity, the skin depth of the 30 Hz data is approximately 2,000 metres. The 30 Hz data presented have good signal to noise ratios indicating a deep depth of exploration. The observation that ZTEM may be detecting the clay alteration above the crystalline basement is a significant advantage for exploration of unconformity uranium deposits.

More demonstration surveys are planned in the Athabasca Basin later this year. And more target types for testing are also planned.

ACKNOWLEDGEMENTS

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APPENDIX F



GEOTECH LTD. AIRBORNE
GEOPHYSICAL
SURVEYS



2D ZTEM Inversion Test Results

For
Finlay Minerals Ltd.
Silver Hope Property
Burns Lake, British Columbia

Job: 11369

By
Geotech Ltd.

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March, 2012

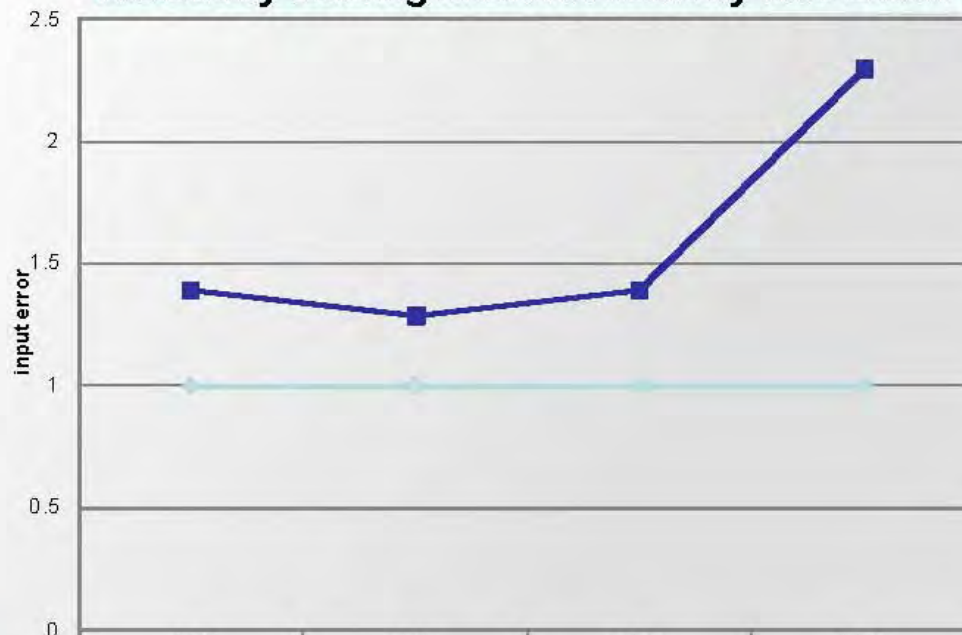


Summary

- Geotech Av2Dtopo program was used to perform the inversion of ZTEM data with topography and receiver altitude effects considered. While we collected both in-line (Tzx) and cross-line (Tzy) tippers, inversion makes use only of Tzx (In-phase and Quadrature).
- Slide 3 show the summary of the half-space apriori resistivity model sensitivity test for line L1080. 4 different starting models were tested, spanning 100 to 3000 $\Omega.m$ (slide 4 to slide 7). The model whose apriori resistivity requires the lowest error is determined to be the "best" or most realistic. In this case, 300 $\Omega.m$ was retained for inverting the remaining lines within the survey block.
- Following slides show the inversion results and the inversion parameters for the remaining lines.



resistivity starting model sensitivity test L1080

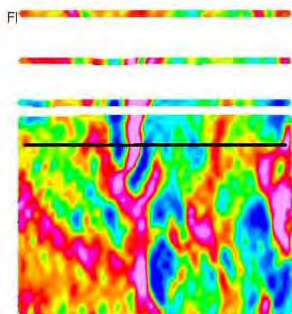


	100	300	1000	3000
Input error	1.39	1.29	1.39	2.3
RMS	0.999	0.999	0.999	0.999

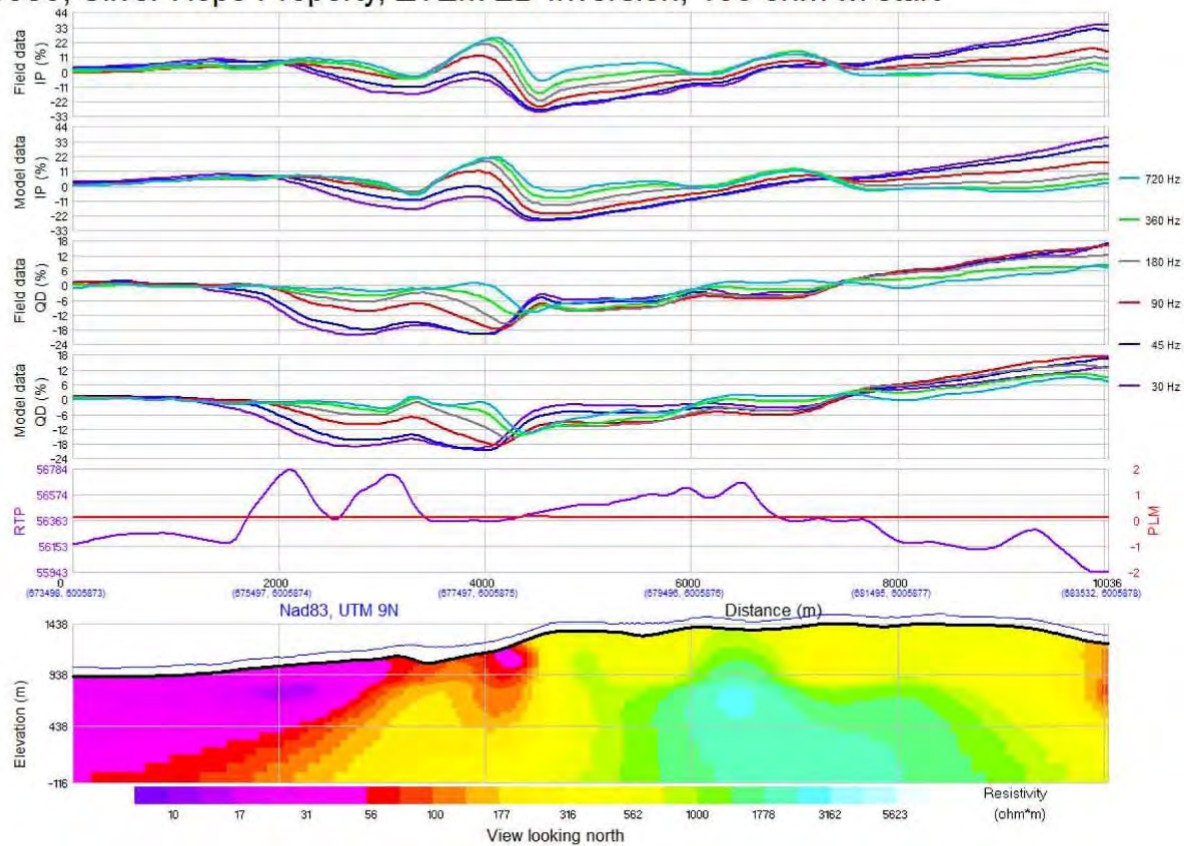


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2D INVERSION PARAMETERS
 Inversion code: Geotech AV2DITOPO
 Model Mesh: 440 wide x 112 vertical.
 Average cell width: 13.14 m
 2 cells between sites
 Input Data: In-Phase & Quadrature,
 Tzx In-line (only)
 Average sampling rate: 4.450 points,
 Total data points: 2304
 Frequencies: 30 45 90 180 360 720
 Input error(%): 1.39 1.39 1.39 1.39 1.39 1.39
 Half-space resistivity: 100 ohm-m,
 Output error: 0.999 RMS in 5 iterations



L1080, Silver Hope Property, ZTEM 2D Inversion, 100 ohm-m start



Finlay Minerals Ltd. Silver Hope Property Burns Lake, British Columbia
Geotech ZTEM System Resistivity-Depth Image Project 11369, Line 1080 Flight 2, 2012/02/14
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2012/3/8



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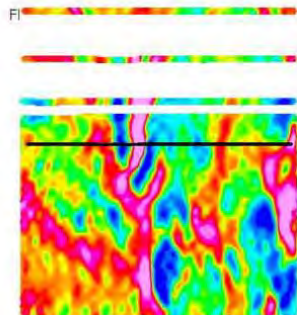
**AIRBORNE
GEOPHYSICAL
SURVEYS**



GEOTECH LTD.

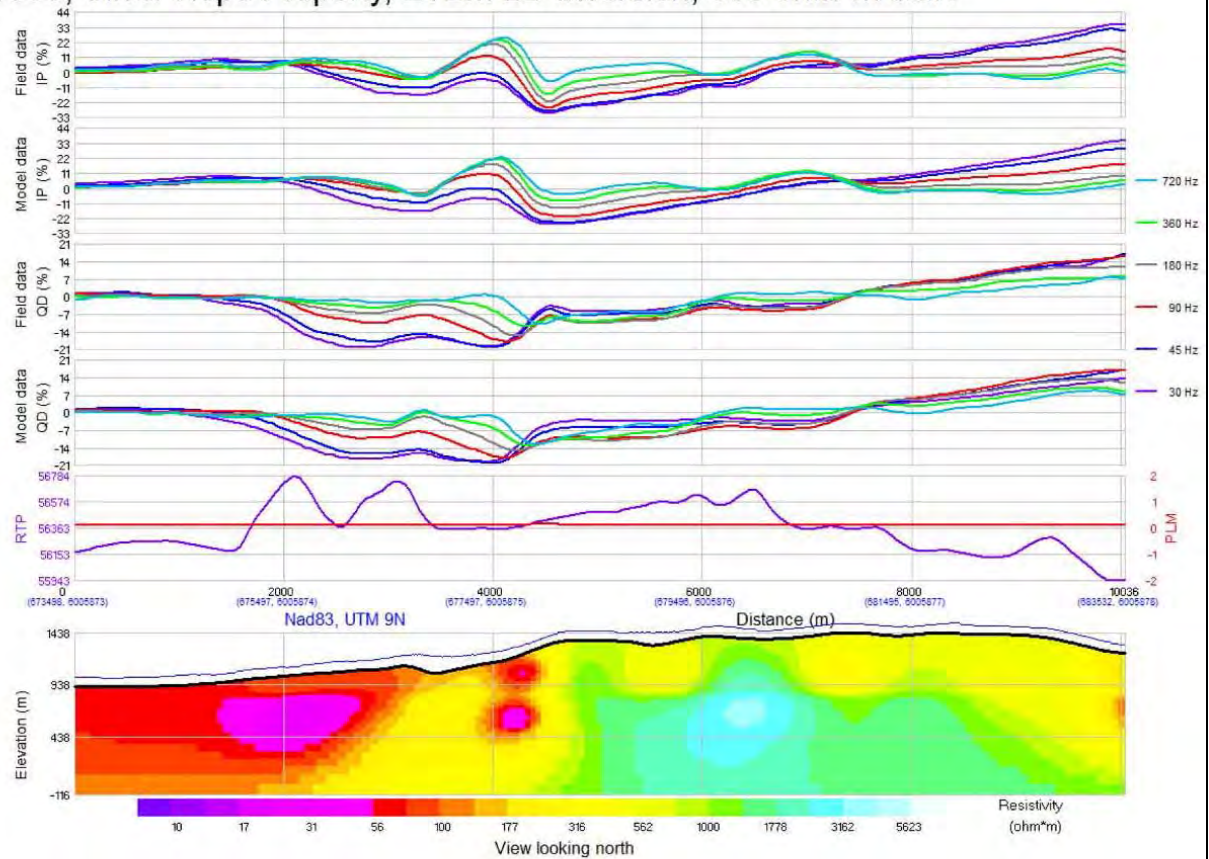
2D INVERSION PARAMETERS

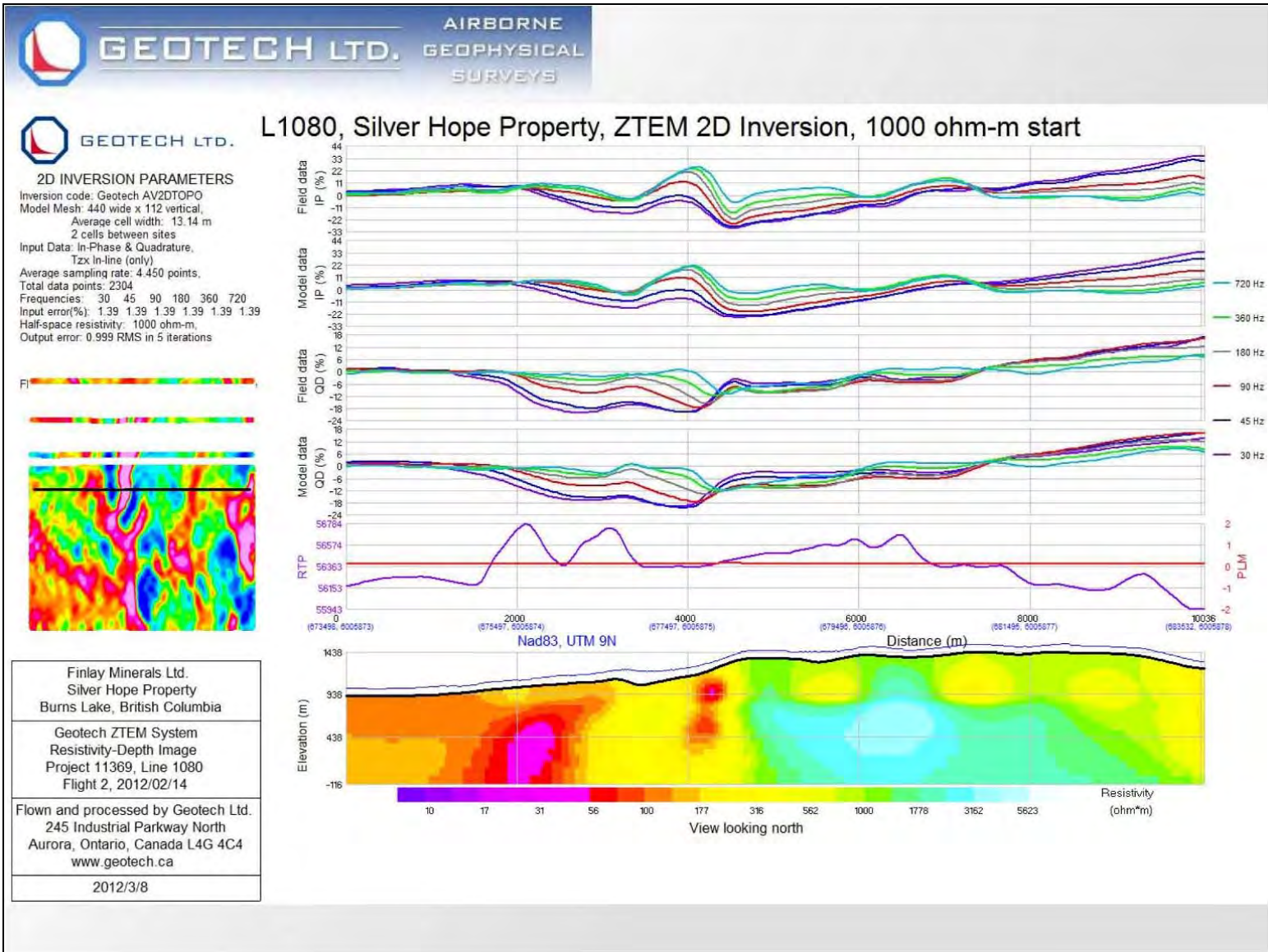
Inversion code: Geotech AV2DTopO
Model Mesh: 440 wide x 112 vertical,
Average cell width: 13.14 m
2 cells between sites
Input Data: In-Phase & Quadrature,
Txz In-line (only)
Average sampling rate: 4.450 points,
Total data points: 2304
Frequencies: 30 45 90 180 360 720
Input error(%): 1.29 1.29 1.29 1.29 1.29 1.29
Half-space resistivity: 300 ohm-m,
Output error: 0.999 RMS in 5 iterations



Finlay Minerals Ltd. Silver Hope Property Burns Lake, British Columbia
Geotech ZTEM System Resistivity-Depth Image Project 11369, Line 1080 Flight 2, 2012/02/14
Flown and processed by Geotech Ltd. 245 Industrial Parkway North Aurora, Ontario, Canada L4G 4C4 www.geotech.ca
2012/3/8

L1080, Silver Hope Property, ZTEM 2D Inversion, 300 ohm-m start





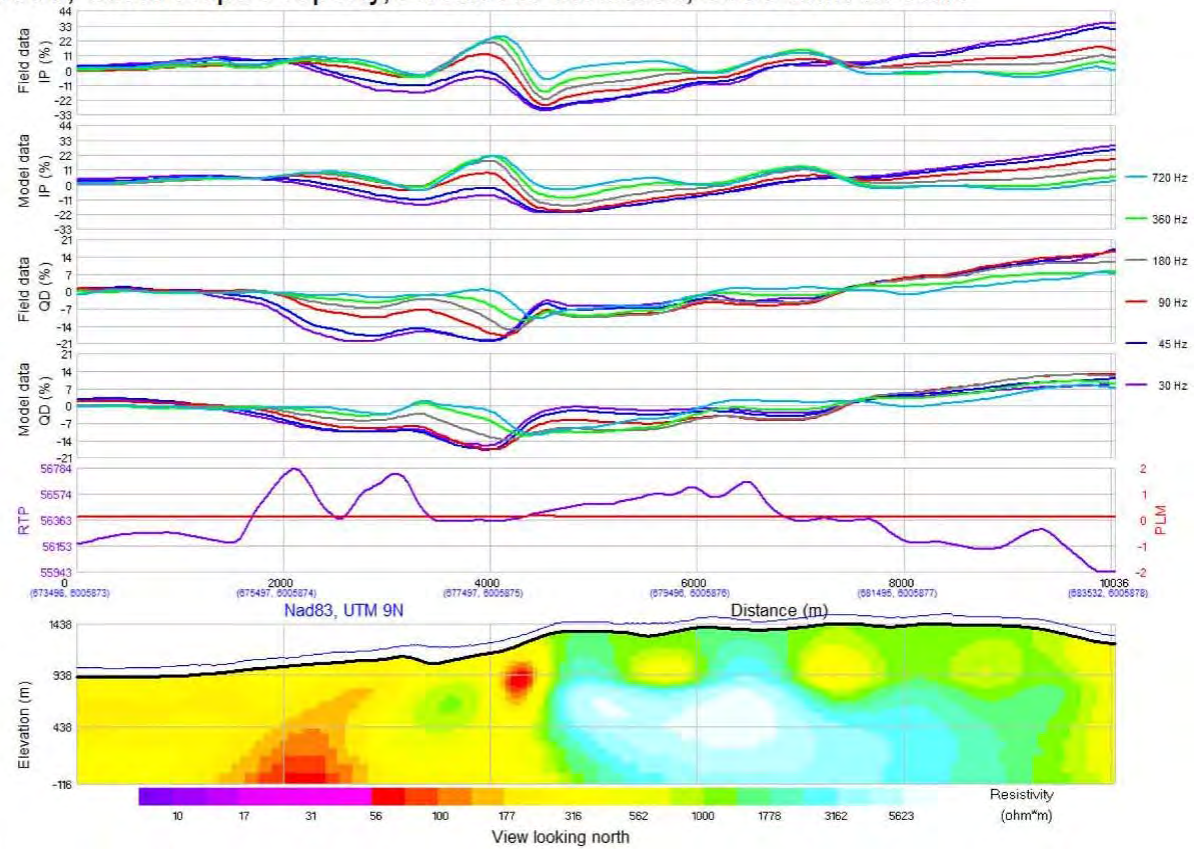
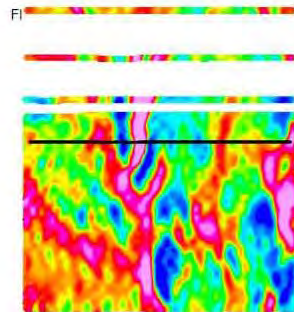


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L1080, Silver Hope Property, ZTEM 2D Inversion, 3000 ohm-m start

2D INVERSION PARAMETERS

Inversion code: Geotech AV2DITOPO
 Model Mesh: 440 wide x 112 vertical,
 Average cell width: 13.14 m
 2 cells between sites
 Input Data: In-Phase & Quadrature,
 Tzx: In-line (only)
 Average sampling rate: 4.450 points,
 Total data points: 2304
 Frequencies: 30 45 90 180 360 720
 Input error(%): 2.30 2.30 2.30 2.30 2.30 2.30
 Half-space resistivity: 3000 ohm-m,
 Output error: 0.999 RMS in 5 iterations



Finlay Minerals Ltd. Silver Hope Property Burns Lake, British Columbia
Geotech ZTEM System Resistivity-Depth Image Project 11369, Line 1080 Flight 2, 2012/02/14
Flown and processed by Geotech Ltd. 245 Industrial Parkway North Aurora, Ontario, Canada L4G 4C4 www.geotech.ca
2012/3/8



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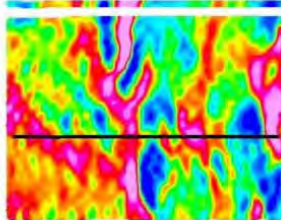


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2D INVERSION PARAMETERS

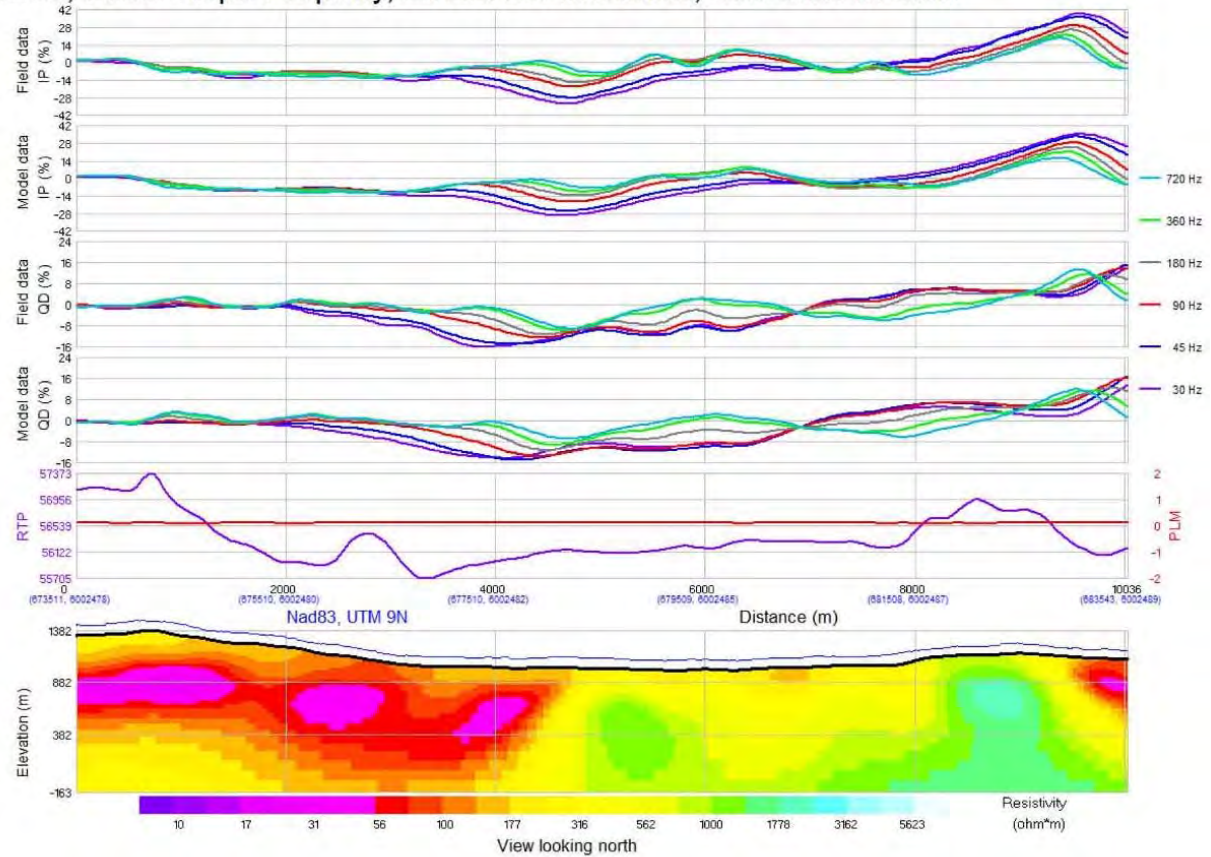
Inversion code: Geotech AV2DPTOPO
Model Mesh: 440 wide x 112 vertical,
Average cell width: 13.14 m
2 cells between sites
Input Data: In-Phase & Quadrature,
Tzx In-line (only)
Average sampling rate: 5.140 points.
Total data points: 2304
Frequencies: 30 45 90 180 360 720
Input error(%): 1.06 1.06 1.06 1.06 1.06 1.06
Half-space resistivity: 300 ohm-m,
Output error: 0.999 RMS in 5 iterations

FI



Finlay Minerals Ltd. Silver Hope Property Burns Lake, British Columbia
Geotech ZTEM System Resistivity-Depth Image Project 11369, Line 1250 Flight 3, 2012/02/14
Flown and processed by Geotech Ltd. 245 Industrial Parkway North Aurora, Ontario, Canada L4G 4C4 www.geotech.ca
2012/3/8

L1250, Silver Hope Property, ZTEM 2D Inversion, 300 ohm-m start





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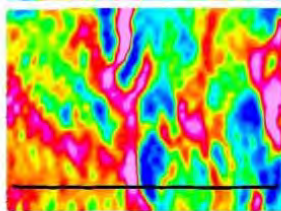


GEOTECH LTD.

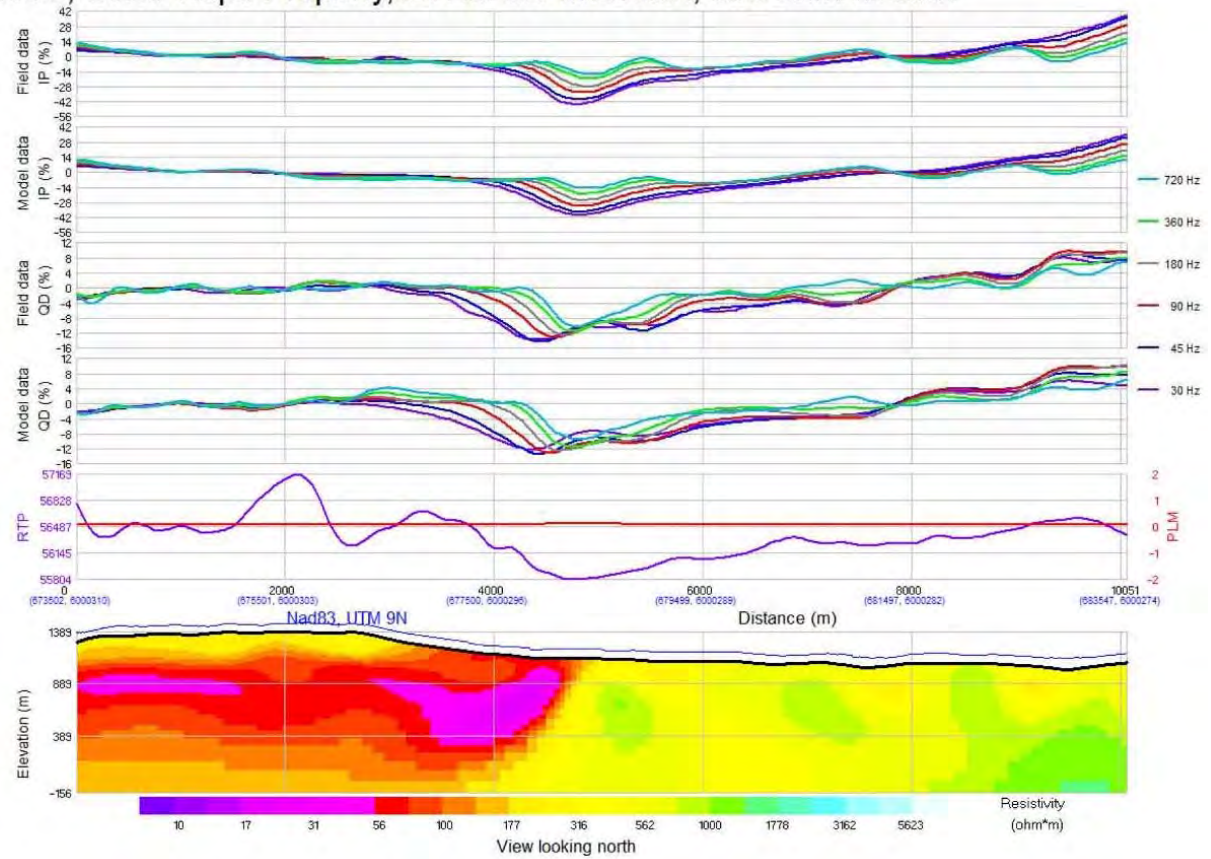
2D INVERSION PARAMETERS

Inversion code: Geotech AV2DPOPO
Model Mesh: 440 wide x 112 vertical,
Average cell width: 13.16 m
2 cells between sites
Input Data: In-Phase & Quadrature,
Txz In-line (only)
Average sampling rate: 4.600 points,
Total data points: 2304
Frequencies: 30 45 90 180 360 720
Input error(%): 0.95 0.95 0.95 0.95 0.95 0.95
Half-space resistivity: .300 ohm-m,
Output error 0.999 RMS in 4 iterations

FI



L1360, Silver Hope Property, ZTEM 2D Inversion, 300 ohm-m start



Finlay Minerals Ltd. Silver Hope Property Burns Lake, British Columbia
Geotech ZTEM System Resistivity-Depth Image Project 11369, Line 1360 Flight 3, 2012/02/14
Flown and processed by Geotech Ltd. 245 Industrial Parkway North Aurora, Ontario, Canada L4G 4C4 www.geotech.ca
2012/3/8



SURVEY SPECIFICATIONS:
 Survey Date: February 13th - 14th, 2012
 Survey Operations: Base Burns Lake, British Columbia
 Normal Survey Line Spacing: 200 Meters
 Normal Survey Line Direction: N 0° E / N 20° E
 Normal Survey Tie Line Spacing: 2000 Meters
 Normal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 150 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

HELICOPTER SPECIFICATIONS:
 Helicopter Type: ASTAR 3000 C-325C
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM) magnetic towed Bird
 GPS Receivers: 4x Novatel GENIE3 real-time Post-Processed Kinematic (RTK) GPS Receivers
 GPS Receiver Location: One on the helicopter, three on EM coil
 Radar Altimeter: Terra TRA-3000TRI 40
 Navigation: GEONAV-3

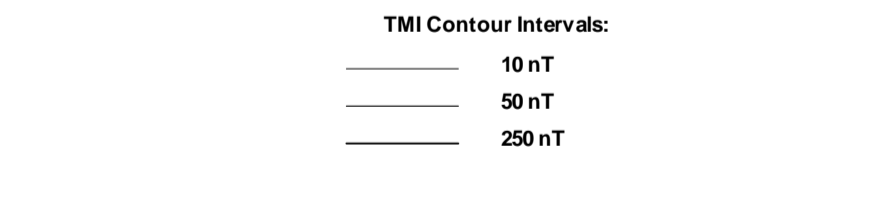
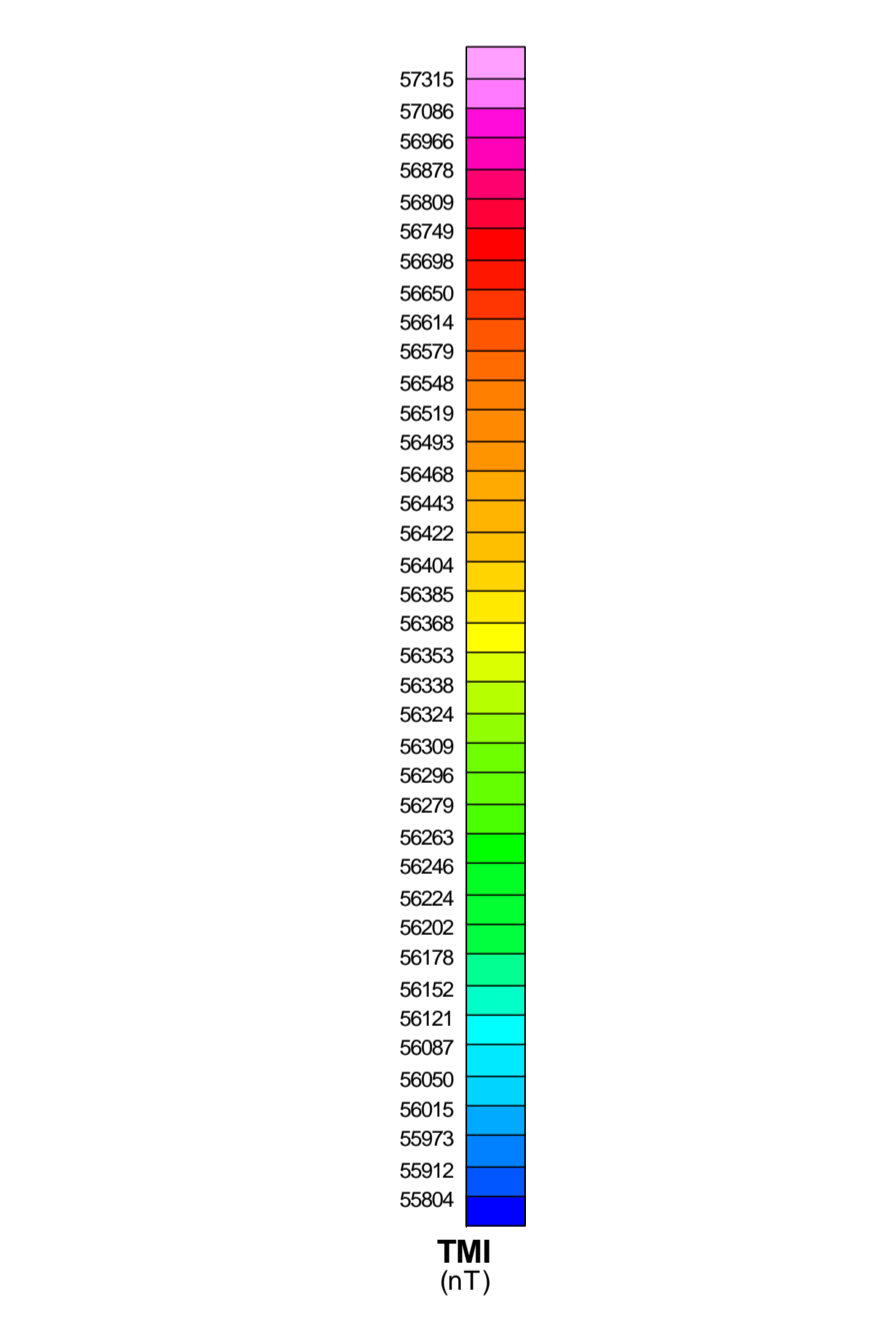
AIRBORNE ELECTROMAGNETIC SYSTEM:
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole

AIRBORNE MAGNETOMETER:
 Magnetometer System: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Digitizing rate: 2000Hz

GROUND INSTRUMENTATION:
 MAGNETIC BASE STATION
 Magnetometer System: GEOMETRICS
 Base Station Location: On airport property in a field (125° 57' 23.114" W, 54° 22' 54.372" N)
 EM BASE STATION
 Terrain: orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: In a meadow on a hill (120° 10' 04.2" W, 54° 14' 17.4" N)

PROCESSING SUMMARY:
 MAGNETICS:
 Diurnal Subtraction: microleveling
 ZTEM:
 Frequencies selected: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec
 Rotation of the magnetic part of the in-line and orthogonal components (Z/000 and Z/Y000) to UTM Eastings and Northings.
 Airborne correction applied, (calculated from GPS receivers installed on airborne coil).
 DWT(0) calculated, (discontinuity-free) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION:
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 18Q)
 Central Scale Factor: 0.9996
 False Easting/ Northing: 500,000m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 000.01



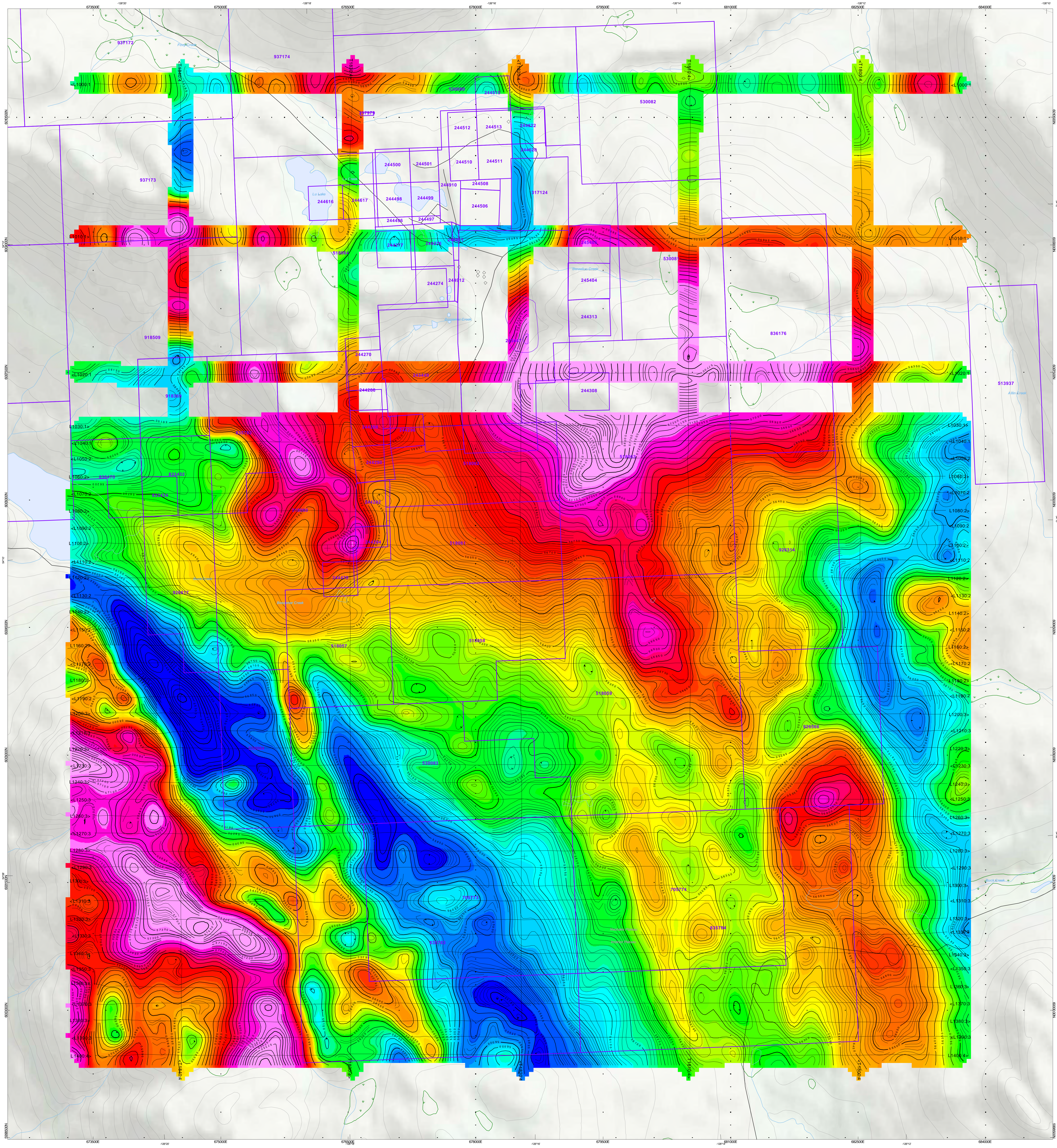
The topographic data base was derived from 1:50,000 NRC (Natural Resources Canada) NTDB data.
 www.geogatis.ca
 Background shading is derived from NASA SRTM30plus (Shuttle Radar Topography Mission) data.
 Inset data derived from GeoCommunity 1:250,000 (http://data.geocomm.com)
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse
 (http://apps.gov.bc.ca/pub/lewd/home.asp)

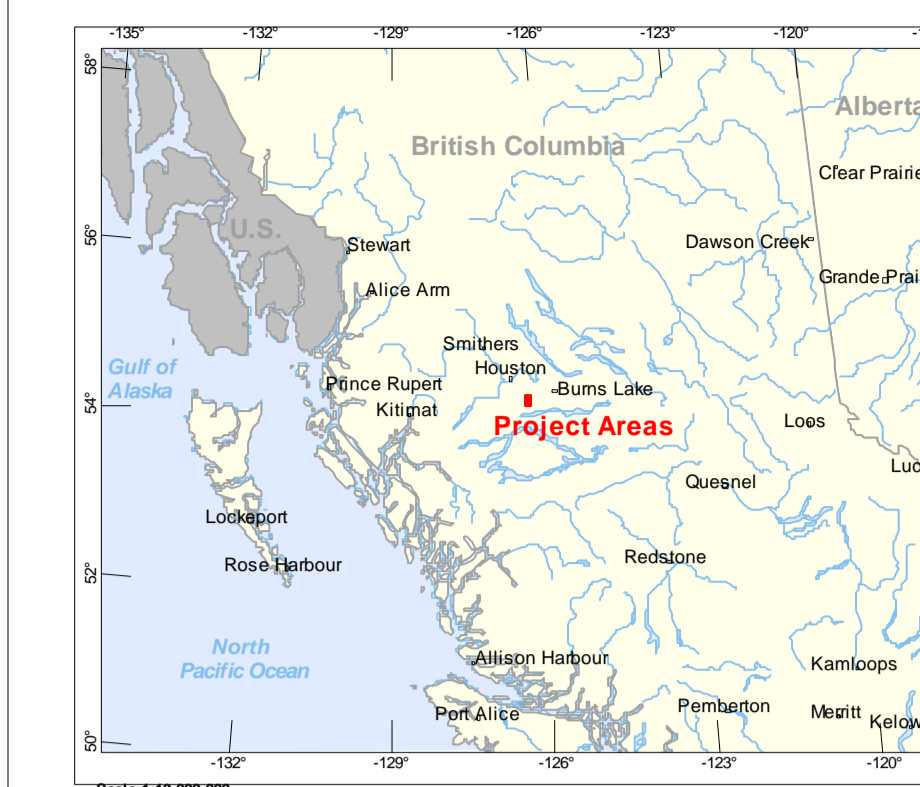
Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 Total Magnetic Intensity (TMI)

Drawn and processed by Geotech Ltd.
 245 Industrial Parkway North,
 Aurora, Ontario, Canada L4G 4C4
 www.geotech.ca

March 2012





SURVEY SPECIFICATIONS:
 Survey Flight Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Nominal Survey Line Spacing: 200 Meters
 Nominal Survey Line Direction: N 0° E / N 20° E
 Nominal Survey Tie Line Spacing: 2000 Meters
 Nominal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 120 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

HELICOPTER SPECIFICATIONS
 Helicopter Type: ASTAR 3000 C-325D

AIRBORNE INSTRUMENTATION
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM), Magnetic towed Bird
 GPS Receivers (4): Novatel GPS-720
 GPS Receivers Location: One on the helicopter, three on EM coil
 Radar Altimeter: Terra TRA-3000TRI 40
 Navigation: GSCOM-3

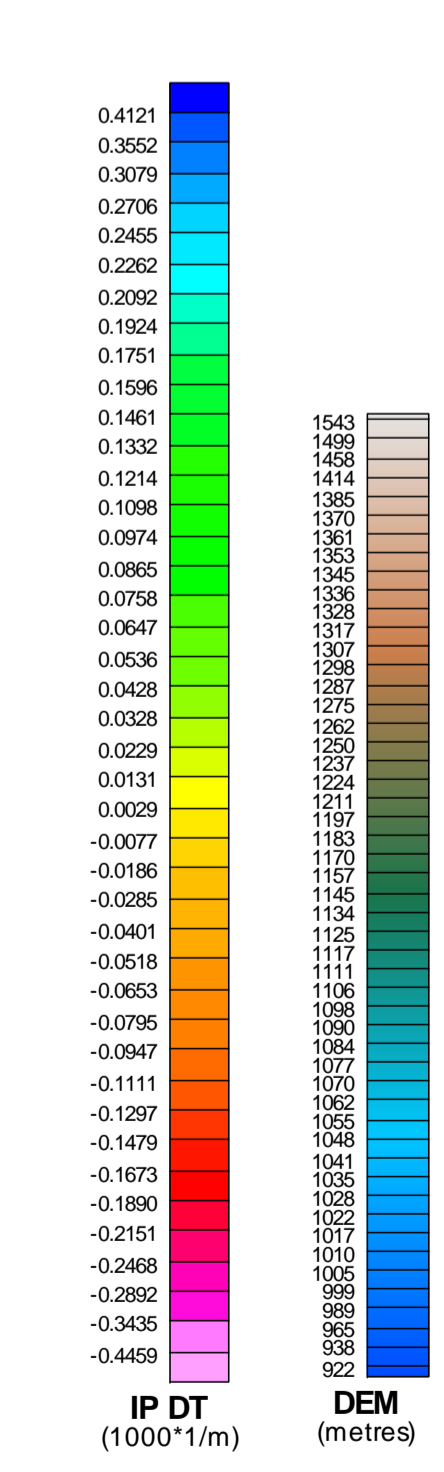
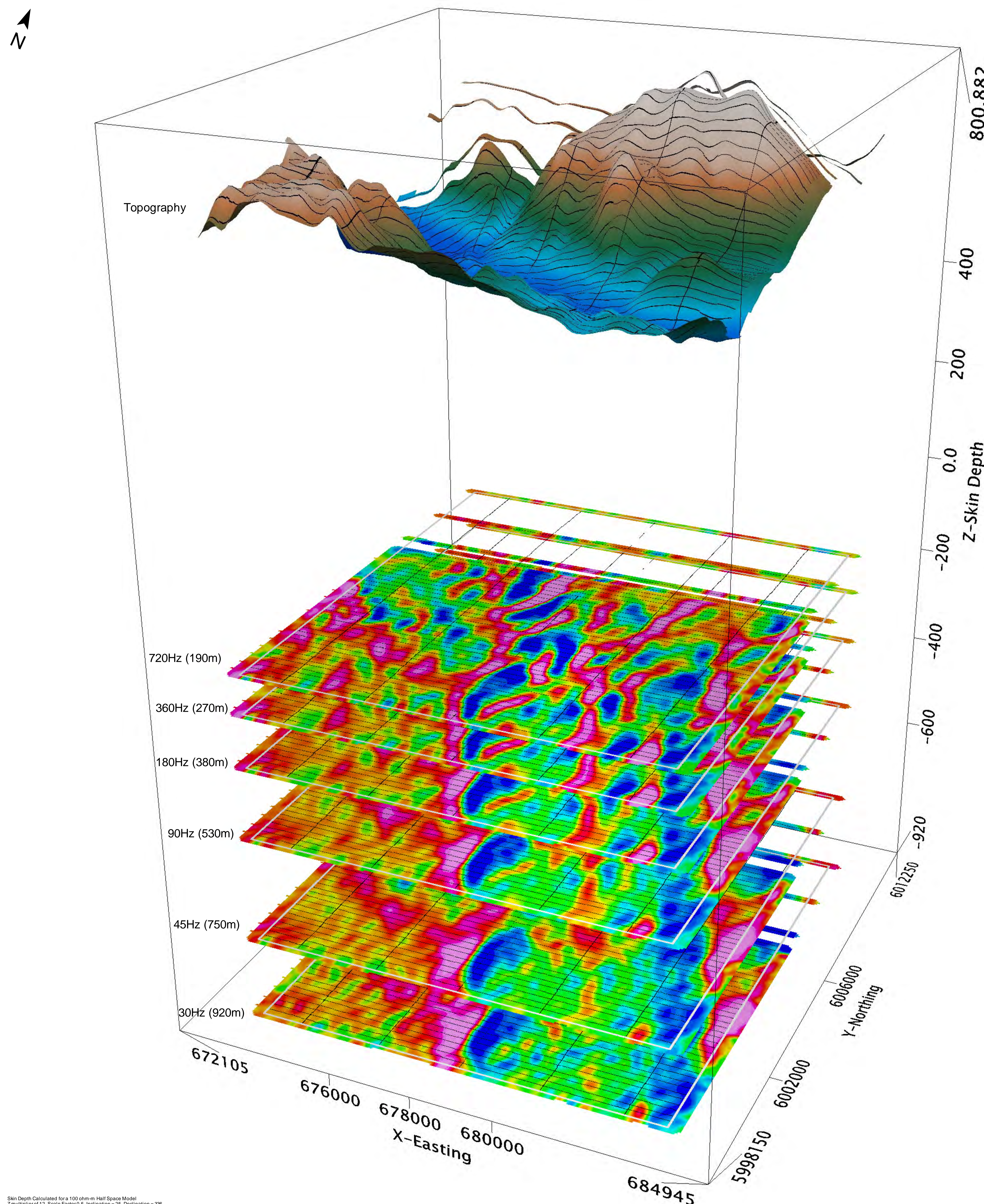
AIRBORNE ELECTROMAGNETIC SYSTEM
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole

AIRBORNE MAGNETOMETER
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT

GROUND INSTRUMENTATION
 MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (125° 07' 23.114" W, 54° 22' 54.372" N)
 EM BASE STATION
 Tetra-orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: in a meadow on top of a hill (120° 10' 04.2" W, 54° 14' 17.4" N)

PROCESSING SUMMARY
 MAGNETICS:
 ZTEM:
 Diurnal Subtraction, microlevelling
 Frequencies extracted: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the in-phase part of the in-line and orthogonal components (Z100c and Z2100c) to UTM Eastings and Northings.
 Absolute correction applied, (calculated from 3 GPS receivers installed on airborne coil).
 DWT(D) calculated, discarding frequency for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 125°W (Zone 18K)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000/0m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 0.00101



Skin Depth Calculated for a 100 ohm-m Half Space Model
 Z multiplier of 12, Scale Factor 0.5, Inclination = 25, Declination = 336

Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 3D View of In-Phase
 Total Divergence
 versus Skin Depth (30-720Hz)

Flown and processed by Geotech Ltd.
 245 Industrial Parkway North,
 Aurora, Ontario, Canada L4G 4C4
 www.geotech.ca

March 2012



SURVEY SPECIFICATIONS:
 Survey Flight Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Normal Survey Line Spacing: 200 Meters
 Normal Survey Line Direction: N 87° E / N 20° E
 Normal Survey Tie Line Spacing: 2000 Meters
 Normal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 150 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer towed at a mean distance of 55 m below the helicopter

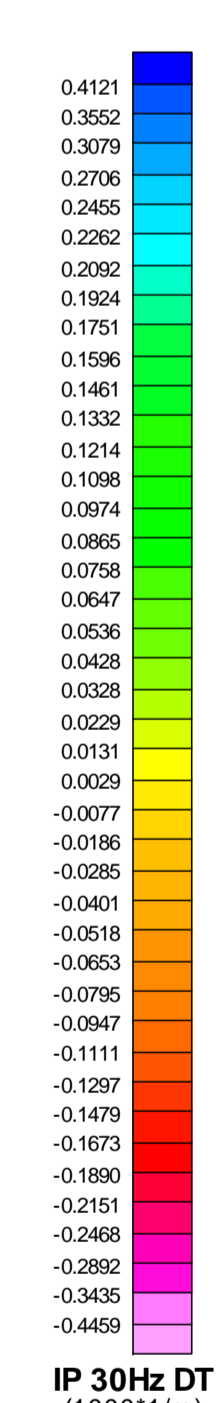
HELICOPTER SPECIFICATIONS:
 Helicopter Type: AS350 B3
AIRBORNE INSTRUMENTATION:
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM) magnetic towed bird
 GPS Receivers (4): Novatel ZEPHYRUS mounted Protek 150-R120
 GPS Receivers Location: One on the helicopter, three on EM coil
 Raster Altimeter: Terra TRA 3000TRI 40
 Navigation: GEONAV-3

AIRBORNE ELECTROMAGNETIC SYSTEM:
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole
AIRBORNE MAGNETOMETER:
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Sensing Rate: 0.2 Hz

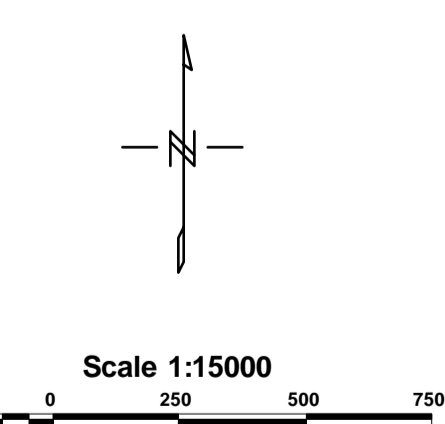
GROUND INSTRUMENTATION:
MAGNETIC BASE STATION:
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (125° 57' 23.114" W, 54° 22' 54.372" N)
EM BASE STATION:
 Terrain: Orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: In a meadow on top of a hill (120° 10' 04.2" W, 54° 14' 17.4" N)

PROCESSING SUMMARY:
MAGNETICS:
 ZTEM: Diurnal Subtraction, microleveling
 Frequencies extracted: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the inphase part of the inline and orthogonal components (Z00c and Z100c) to UTM Eastings and Northings.
 Altitude correction applied, (calculated from 3 GPS receivers installed on airborne coil).
 DWT(D) calculated, (discrete-wavelet) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION:
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120° W (Zone 18Q)
 Central Scale Factor: 0.9996
 False Easting/ Northing: 500,000.0m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 0.00101



TOPOGRAPHIC LEGEND:
 Building
 Roads
 Contours
 Rivers / Lake Outlines
 Wetlands
 Lakes / Ponds
 Mining claims
 Mining areas

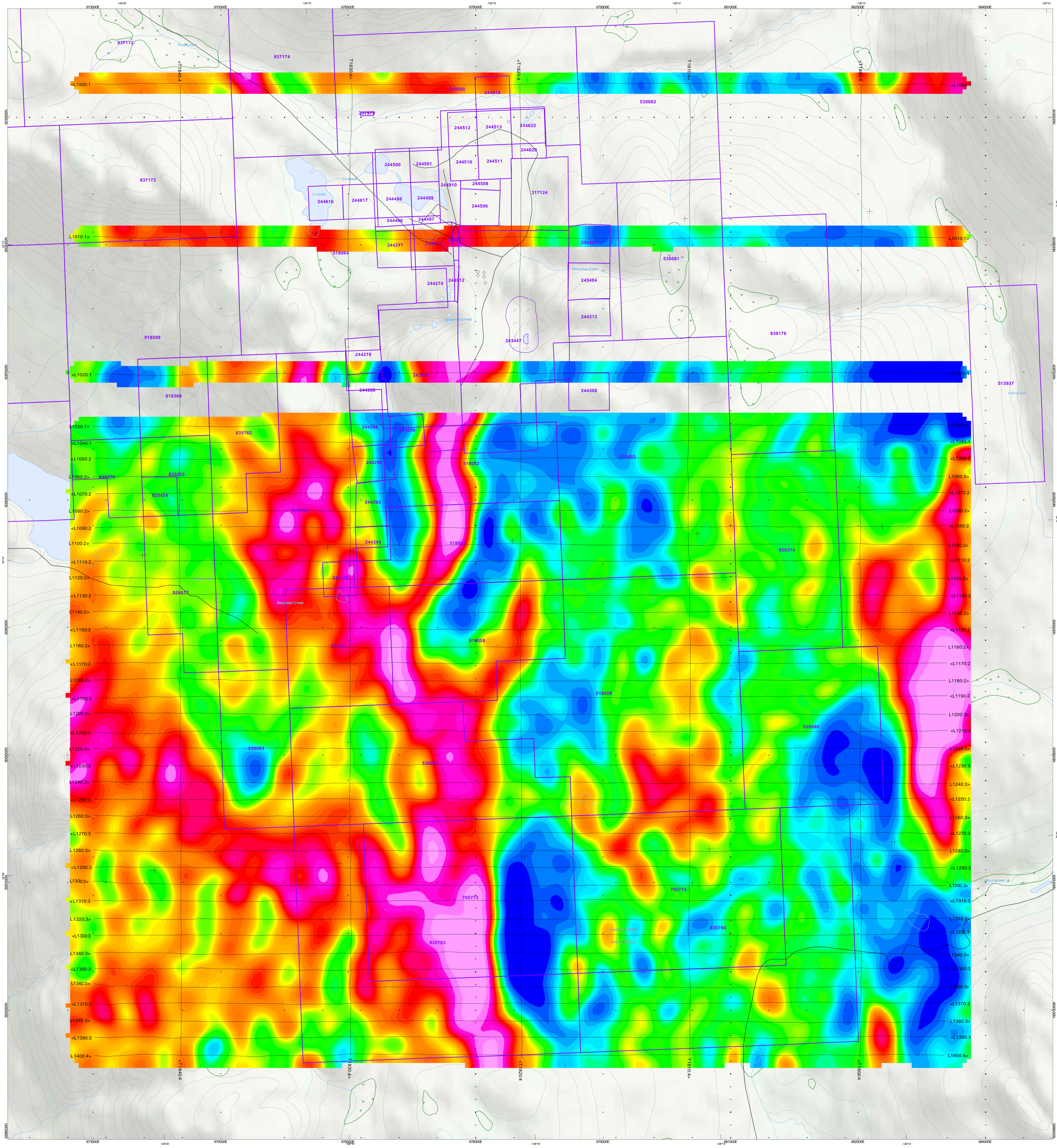


The topographic data base was derived from 1:50,000 NRC Natural Resources Canada NTDB data.
 www.geogatis.ca
 Background shading is derived from NASA SRTM30plus Radar Topography Mission data.
 Inset data derived from Geocommunity 1:250,000 (http://data.geocomm.com)
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse.
 (http://apps.gov.bc.ca/pub/ldr/home.asp)

Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 30Hz In-Phase
 Total Divergence
 (DT) Grid

Drawn and processed by Geotech Ltd.
 245 Industrial Parkway North,
 Aurora, Ontario, Canada L4G 4C4
 www.geotech.ca
 March 2012





SURVEY SPECIFICATIONS:
 Survey Flight Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Normal Survey Line Spacing: 200 Meters
 Normal Survey Line Direction: N 0° E / N 20° E
 Normal Survey Tie Line Spacing: 2000 Meters
 Normal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 150 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

HELICOPTER SPECIFICATIONS
 Helicopter Type: ASTAR 3000 C-125C2
HELICOPTER INSTRUMENTATION
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM) magnetic towed bird
 GPS Receivers (4): Novatel ZCDGPS model ProPak V5-R120
 GPS Receivers Location: One on the helicopter, three on EM coil
 Radar Altimeter: Terra TRA 3000TRI 40
 Navigation: GEONAV-3

AIRBORNE ELECTROMAGNETIC SYSTEM
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole
 Digitizing rate: 2000Hz

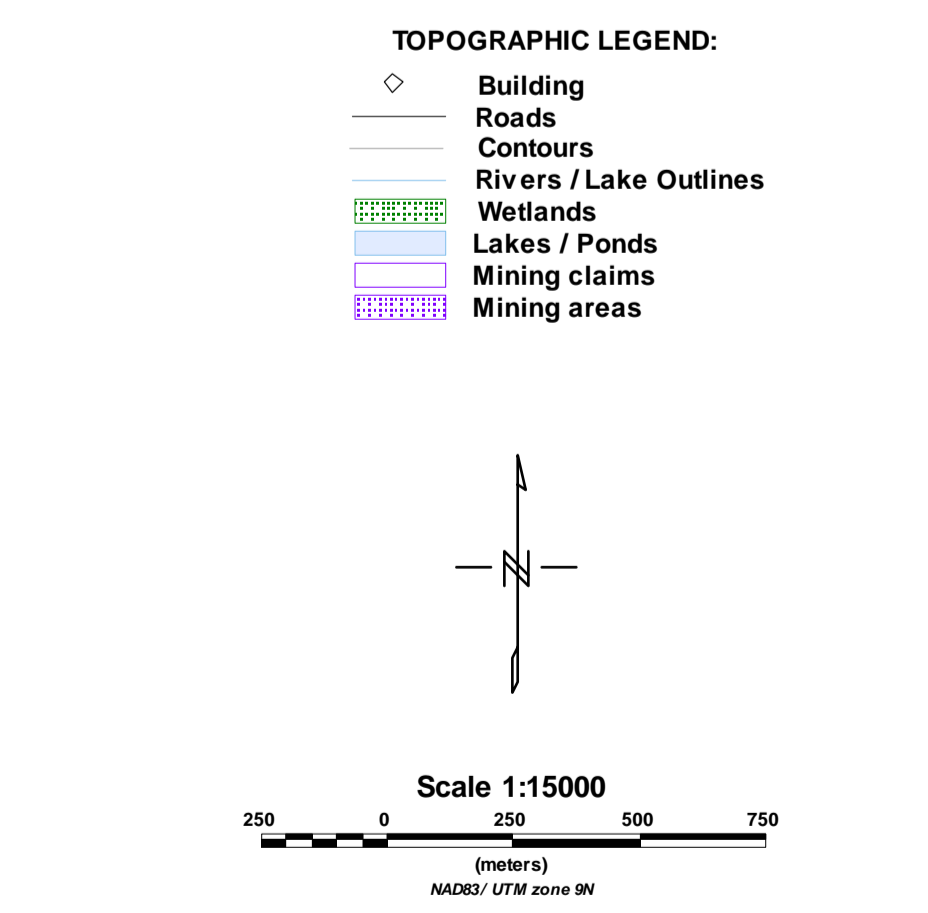
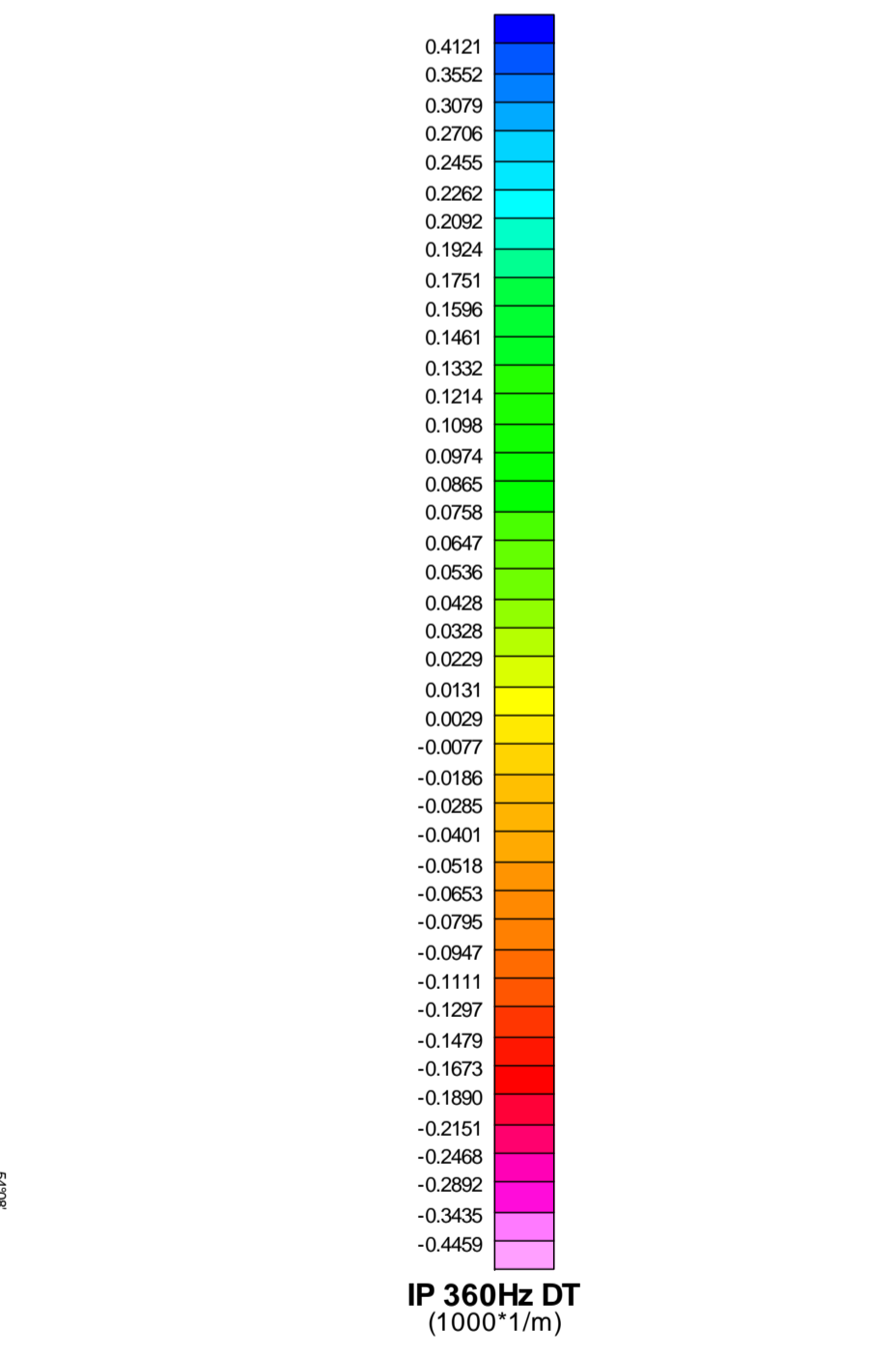
AIRBORNE MAGNETOMETER
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Sensing Rate: 0.2 Hz

GROUND INSTRUMENTATION
MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (125° 57' 23.114" W, 54° 22' 54.372" N)

EM BASE STATION
 Tetrahedral square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: in a meadow on top of a hill (120° 10' 04.2" W, 54° 14' 17.4" N)

PROCESSING SUMMARY
MAGNETICS:
 Journal Subtraction, microleveling
ZTEM:
 Frequencies selected: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the inphase part of the inphase and orthogonal components (2000c and Z)/rotation to UTM Eastings and Northings.
 Airborne correction applied, (calculated from 3 GPS receivers installed on airborne coil).
 DWT(5) calculated, (complete/through) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 18Q)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 000,01

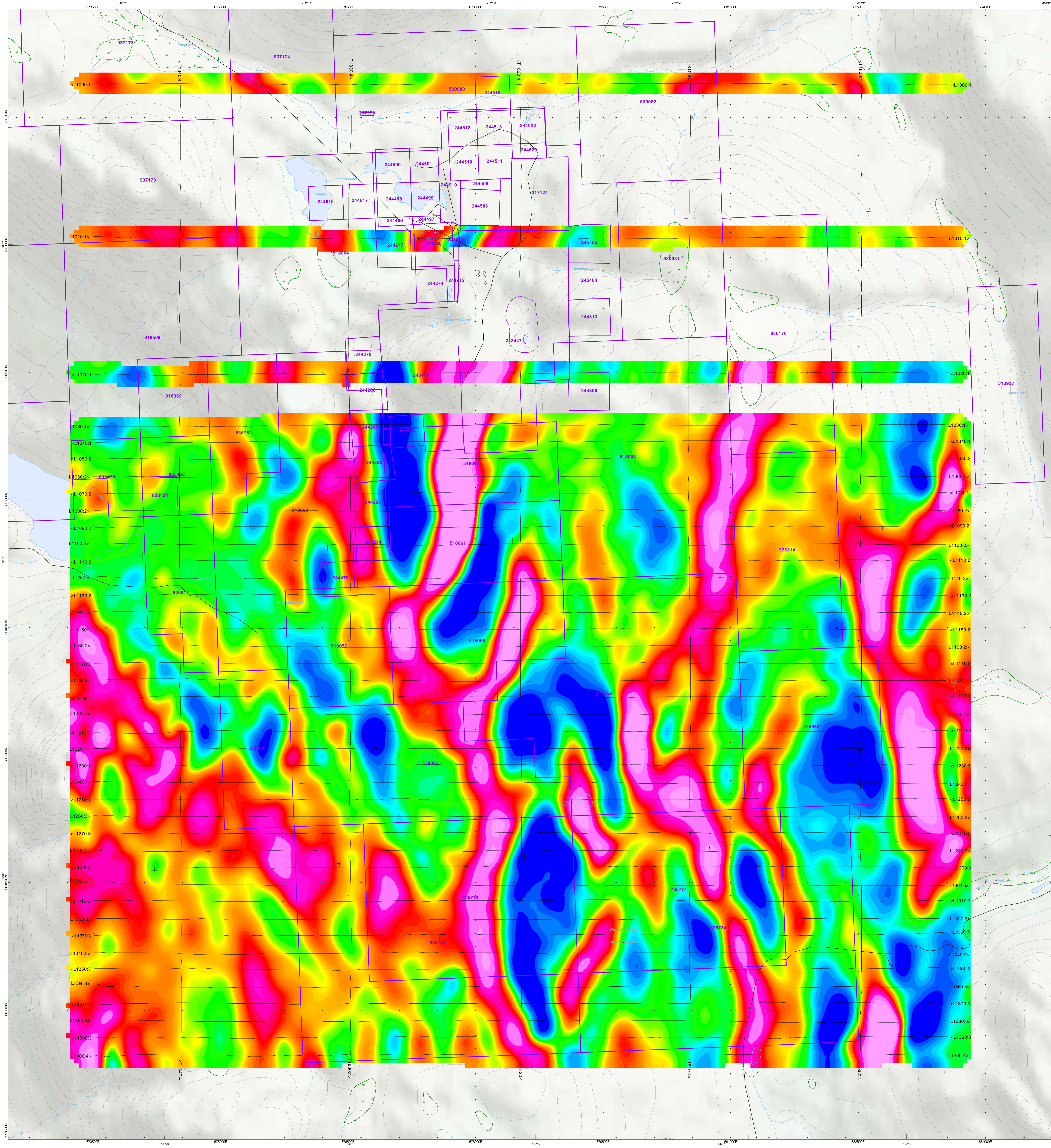


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 www.geogatis.ca
 Background shading is derived from NASA SRTM30plus Radar Topography Mission data.
 Inset data derived from Geocommunity 1:250,000 (http://data.geocomm.com)
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse.
 (http://apps.gov.bc.ca/pub/ldrwhome.ssf)

Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 360Hz In-Phase
 Total Divergence
 (DT) Grid

Drawn and processed by Geotech Ltd.
 245 Industrial Parkway North,
 Aurora, Ontario, Canada L4G 4C4
 www.geotech.ca
 March 2012





SURVEY SPECIFICATIONS:
 Survey Date: February 13th - 14th, 2012
 Survey Operations: Base Burns Lake, British Columbia
 Normal Survey Line Spacing: 200 Meters
 Normal Survey Line Direction: N 0° E / N 20° E
 Normal Survey Tie Line Spacing: 2000 Meters
 Helicopter Mean Terrain Clearance: 125 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

HELICOPTER SPECIFICATIONS:
 Helicopter Type: AS350 B3
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM) magnetic towed bird
 GPS Receivers: 4x Novatel ZEPHYRUS 560
 GPS Receivers Location: One on the helicopter, three on EM coil
 Raster Altitude: Terra TRA 3000TRI 40
 Navigation: GEONAV-3

AIRBORNE ELECTROMAGNETIC SYSTEM:
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 meter diameter
 Coil orientation: Vertical Dipole
 Digitizing rate: 2000Hz

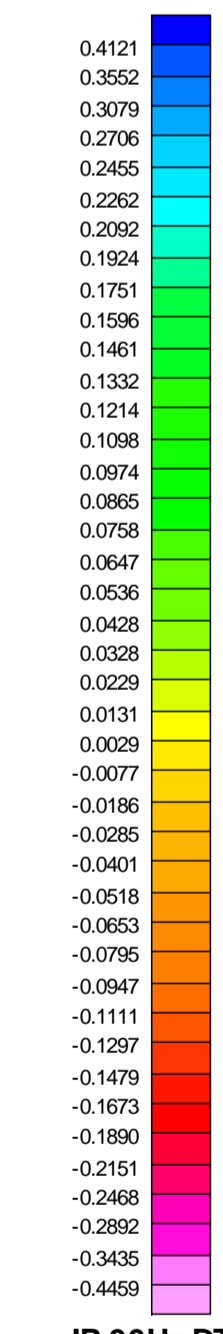
AIRBORNE MAGNETOMETER:
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Sensing Rate: 0.2 Hz

GROUND INSTRUMENTATION:
 MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (125° 57' 23.114" W, 54° 22' 54.372" N)

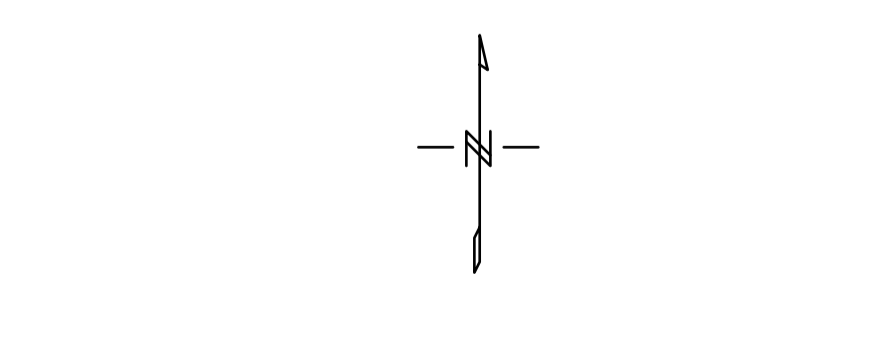
EM BASE STATION:
 Tetrapod square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: in a meadow on top of a hill (120° 10' 04.2" W, 54° 14' 17.4" N)

PROCESSING SUMMARY:
 MAGNETICS:
 Diurnal Subtraction, microleveling
 ZTEM:
 Frequencies selected: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the inphase part of the in-line and orthogonal components (2000c and 2000o) to UTM Eastings and Northings.
 Airborne correction applied, (calculated from 3 GPS receivers installed on airborne coil).
 DWT(D) calculated, (dipole-dipole) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION:
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 18Q)
 Central Scale Factor: 0.9996
 False Easting/Origin: 500,000.0m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 000.01



TOPOGRAPHIC LEGEND:
 Buildings
 Roads
 Contours
 Rivers / Lake Outlines
 Wetlands
 Lakes / Ponds
 Mining claims
 Mining areas

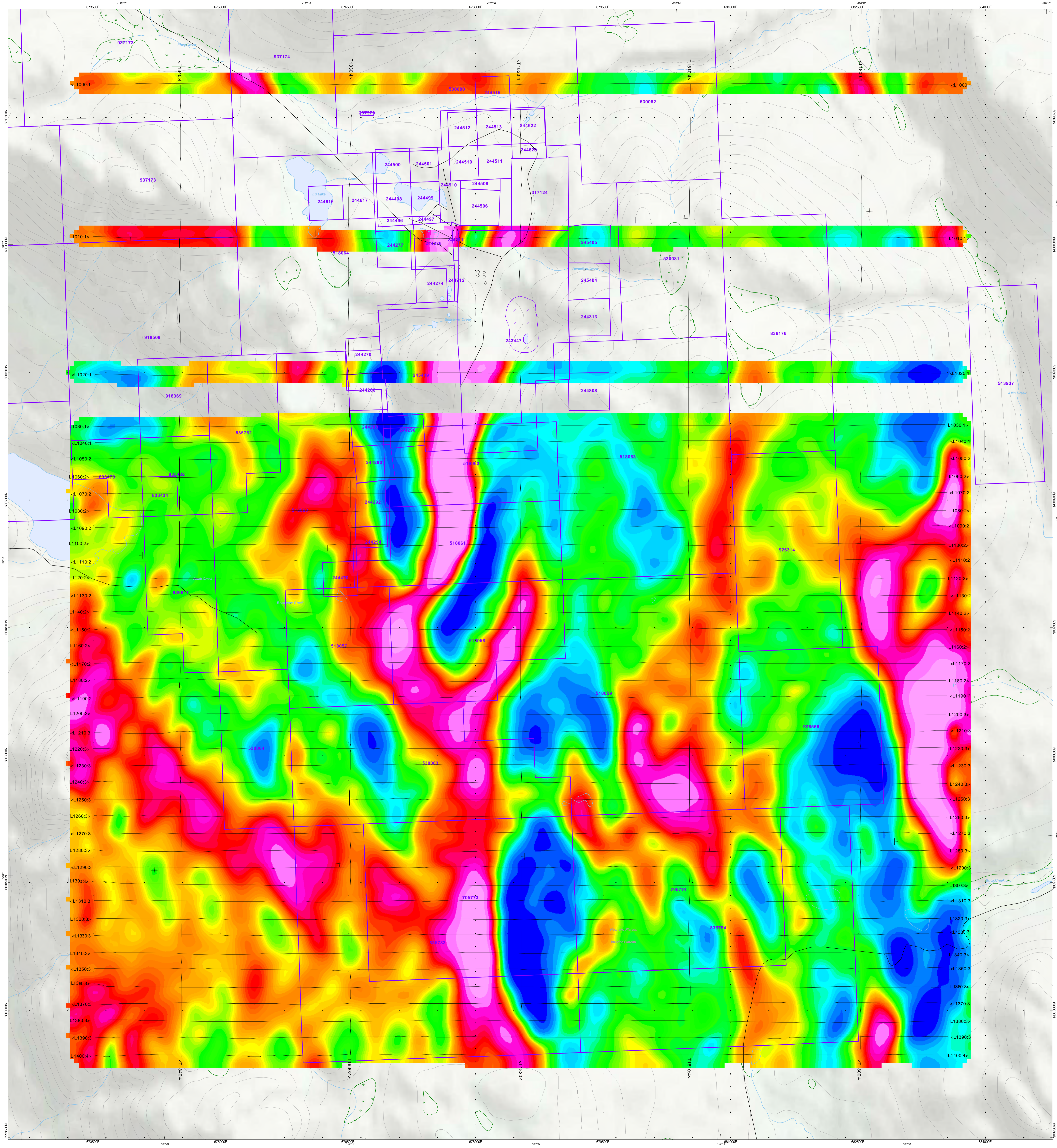


The topographic data base was derived from 1:50,000 NRC (Natural Resources Canada) NTDB data.
 www.geogatis.ca
 Background shading is derived from NASA SRTM30plus Shuttle Radar Topography Mission data.
 Inset data derived from Geocommunity 1:250,000 (http://data.geocomm.com/).
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse.
 (http://apps.gov.bc.ca/pub/ldrwhome.ssf)

Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 90Hz In-Phase
 Total Divergence
 (DT) Grid

Drawn and processed by Geotech Ltd.
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 www.geotech.ca
 March 2012





SURVEY SPECIFICATIONS:
 Survey Flying Date: February 13th - 14th, 2012
 Survey Operators: Base: Burns Lake, British Columbia
 Nominal Survey Line Spacing: 200 Meters
 Nominal Survey Line Direction: N 89° E / N 270° E
 Nominal Survey Tie Line Spacing: 2000 Meters
 Nominal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 507 metres
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: based at a mean distance of 95 m below the helicopter

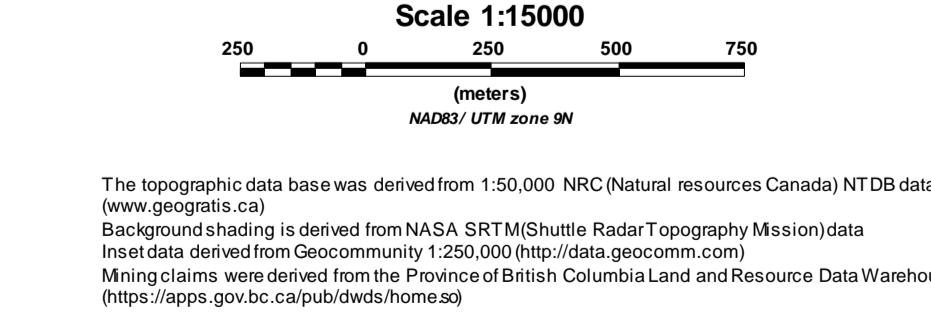
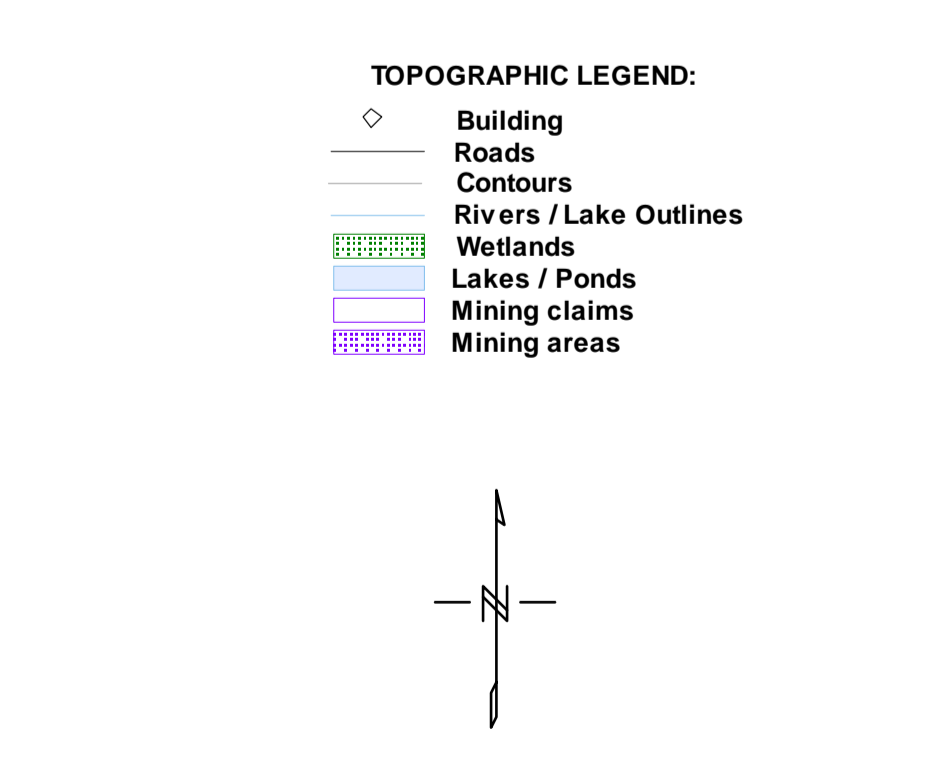
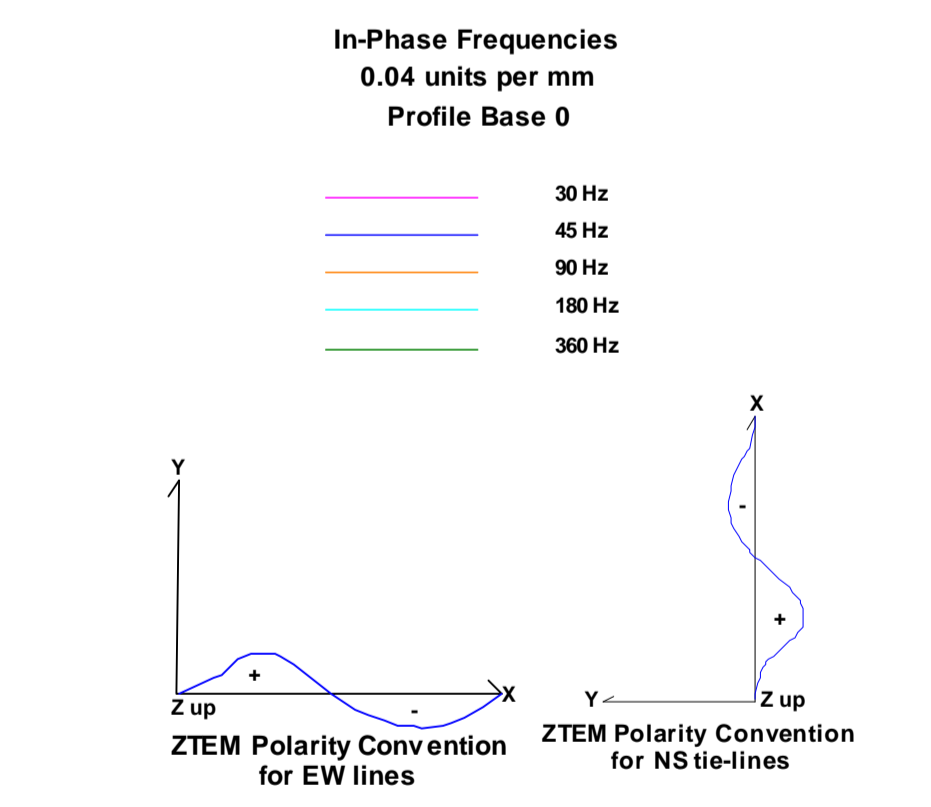
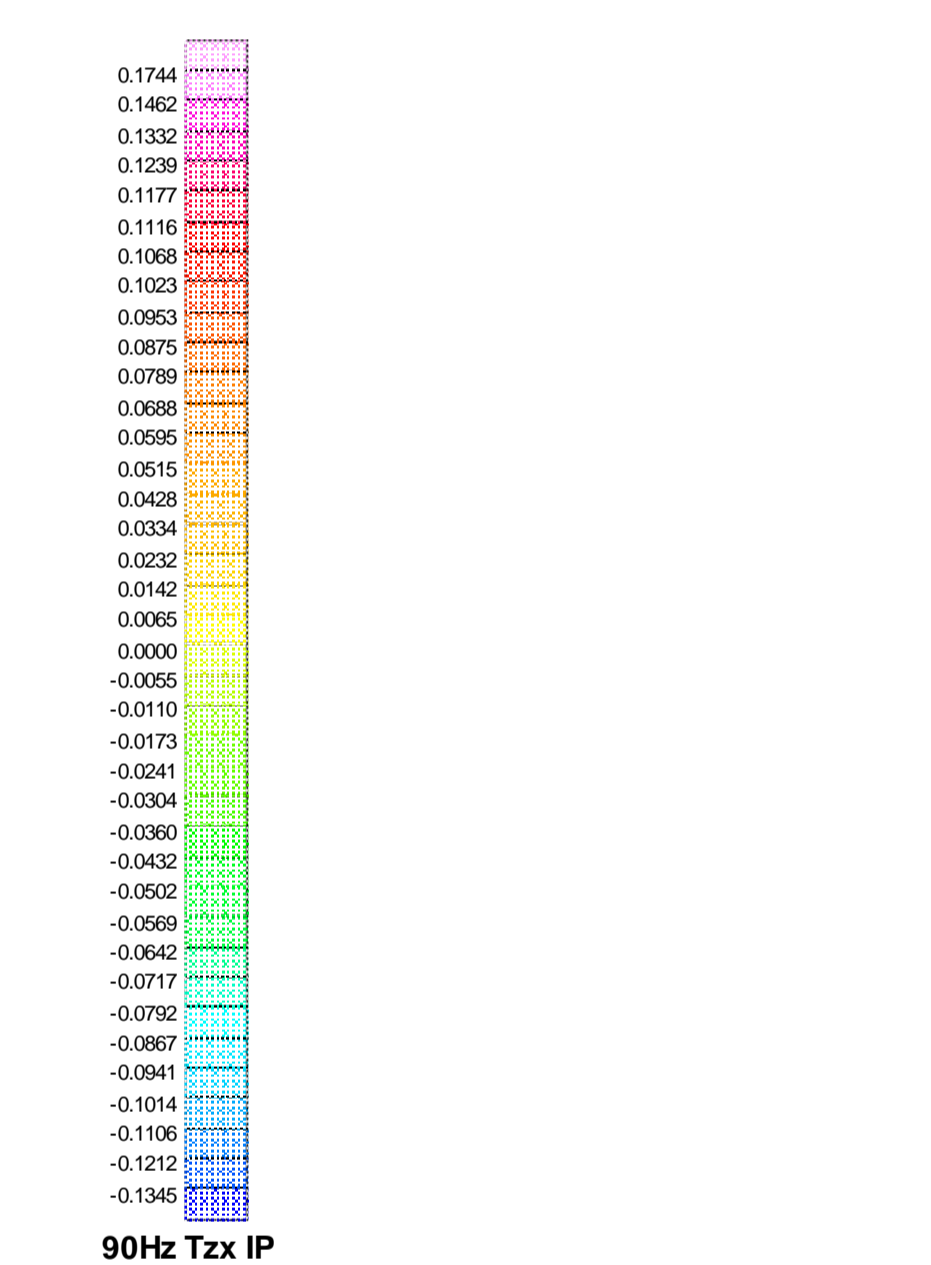
HELICOPTER SPECIFICATIONS
 Helicopter Type: AS350 B3
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM), Magnetic towed Bird
 GPS Receivers (6): Novatel C120S installed Preproq 130-RT20
 GPS Receivers Location: One on the helicopter, three on EM coil
 Radar Altimeter: Terra TRA3000TRI 40
 Navigation: GEOMIN

AIRBORNE ELECTROMAGNETIC SYSTEM
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole
 Digitizing rate: 2000Hz
AIRBORNE MAGNETOMETER
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Sampling Rate: 0.2 Hz

GROUND INSTRUMENTATION
MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (129° 57' 23.114" W, 54° 22' 54.372" N)
EM BASE STATION
 Two orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: In a meadow on top of a hill (128°10'04.2" W, 54° 14' 17.4" N)

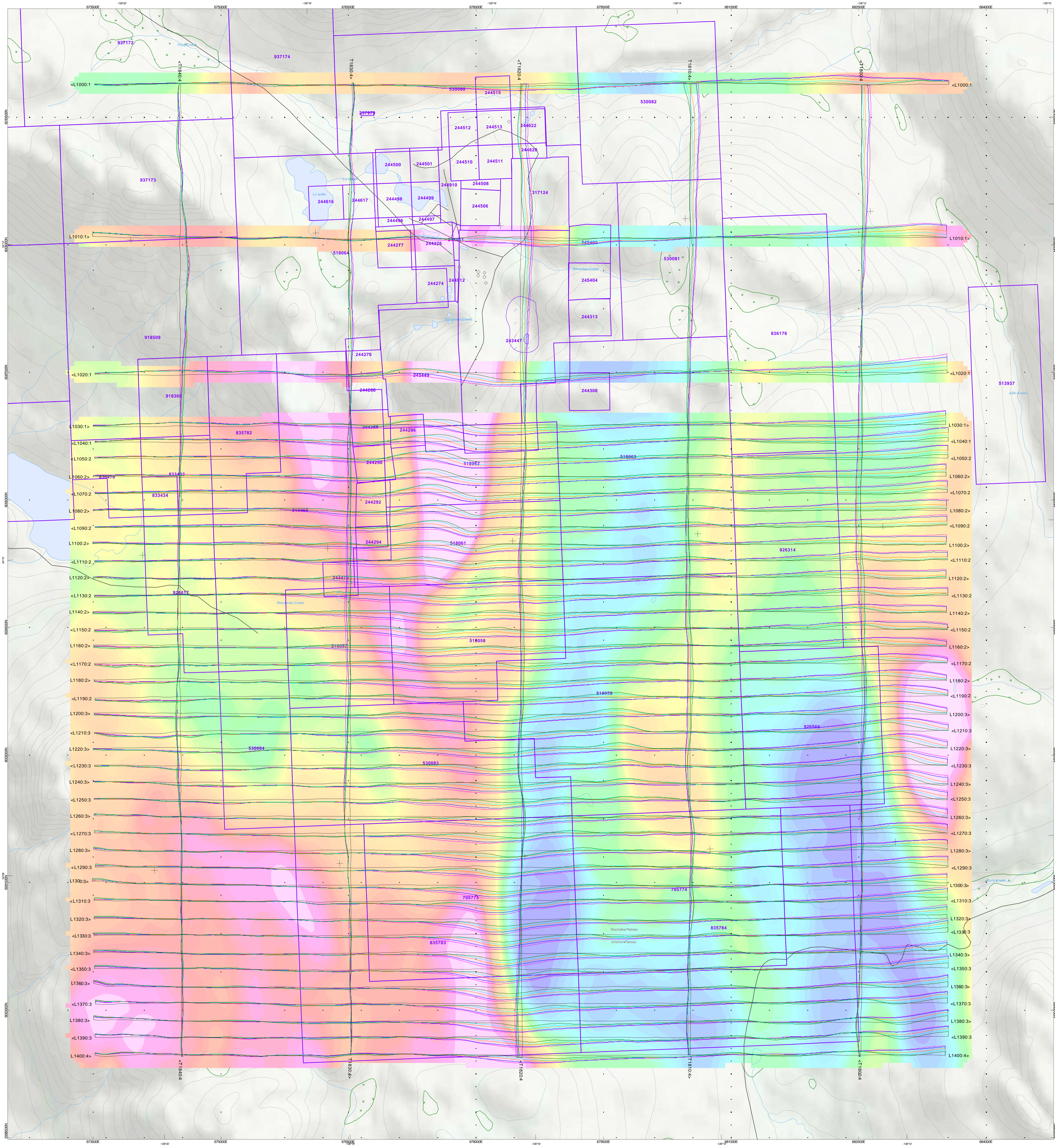
PROCESSING SUMMARY
MAGNETICS:
 Diurnal Subtraction, microlevelling
ZTEM:
 Frequencies extracted: 30, 45, 90, 180, 300, 720 Hz
 Sampling rate: 0.4 sec
 Rotation of the in-phase part of the inline and orthogonal components (200Hz and Z/Y to X/Z to Y/Z to X/Z to Y/Z to X/Z to Y/Z)
 Altitude correction applied, (calculated from 3 GPS receivers installed on airborne coil)
 DMTM calculated: $\frac{d(\text{magnetic field})}{d(\text{altitude})}$ for all 6 frequencies
 Phase Rotated Grid: (90 deg) calculated from each individual X and Y component grids, for each individual frequency

MAP PROJECTION
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 8N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000.00m
 Meris Axis: 500,000.00m
 Eccentricity: 0.0818181818181818
 NTS: 0.001



The topographic data base was derived from 1:50,000 NRC Natural Resources Canada (NRC) DTB data (www.geogratis.ca)
 Background shading is derived from NASA SRTM30plus Radar Topography Mission data (free data download from <http://seamless.usgs.gov>)
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse (<http://apps.gov.bc.ca/pub/lands/home.asp>)

**Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia**
 Geotech ZTEM System
 Tzx (In-line) In-Phase Profiles over
 90Hz Phase Rotated
 In-Phase Grid
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 March 2012



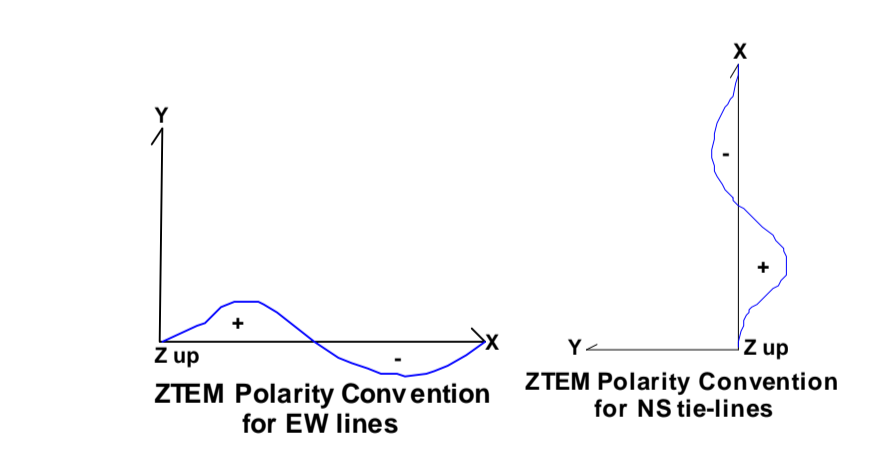
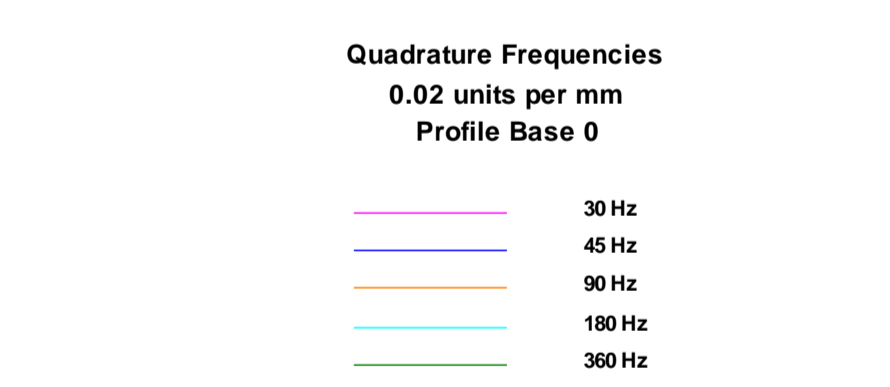
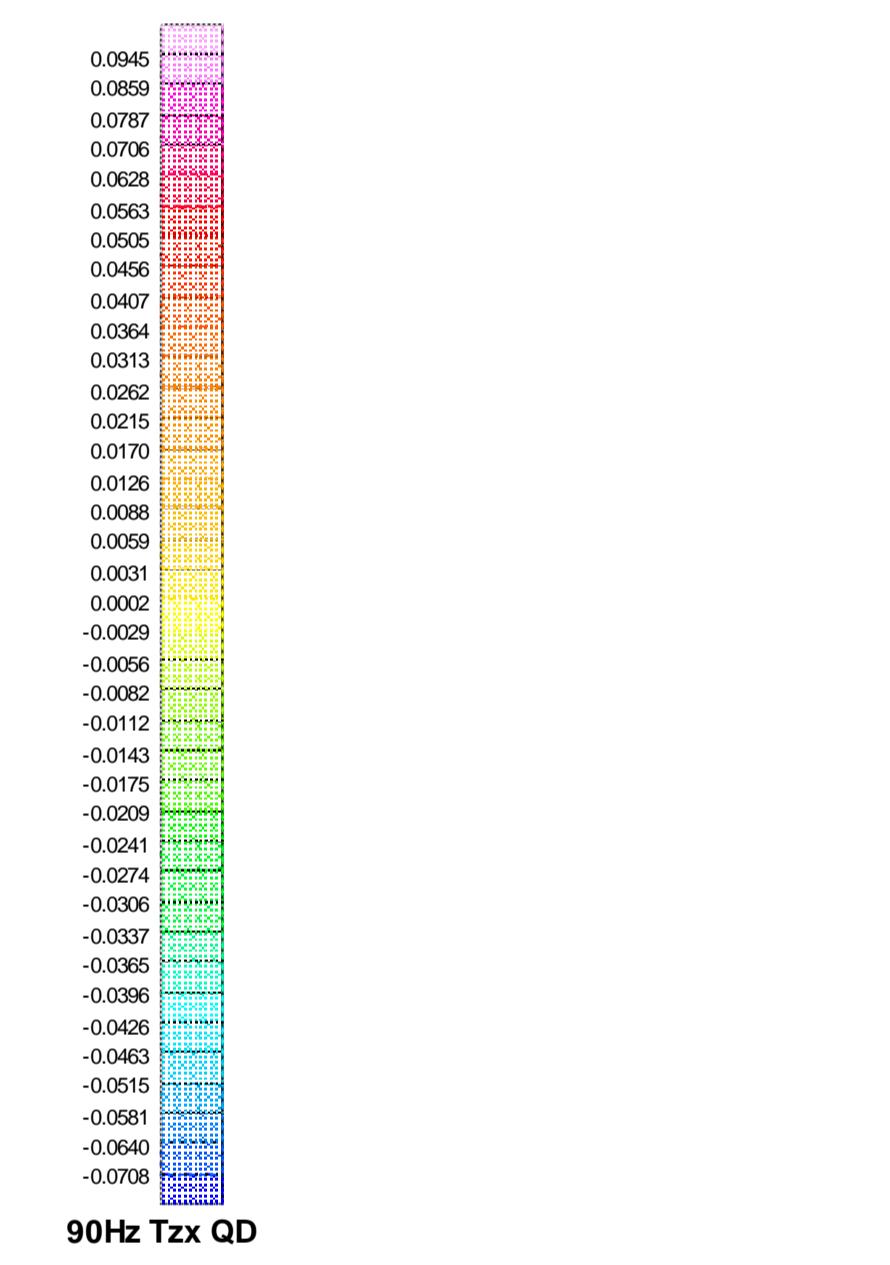


SURVEY SPECIFICATIONS:
 Survey Flng Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Nominal Survey Line Spacing: 200 Meters
 Nominal Survey Line Direction: N 0° E / N 20° E
 Nominal Survey Tie Line Spacing: 2000 Meters
 Nominal Survey Tie Line Direction: N 0° E / N 180° E
 Helicopter Mean Terrain Clearance: 150 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

HELICOPTER SPECIFICATIONS
 Helicopter Type: ASTAR 3000 C-132G
AIRBORNE INSTRUMENTATION
 Survey Type: Helicopter Z-Axis Tipper Electromagnetic (ZTEM) magnetic towed Bird
 GPS Receiver: 4x Novatel ZEPHYRUS mounted Protek 154-R120
 GPS Receiver Location: On the helicopter, three on EM coil
 Radar Altimeter: Terra TRA 3000TRI 40
 Navigation: GEONAV-3
AIRBORNE ELECTROMAGNETIC SYSTEM
 Electromagnetic System: Geotech Z-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 meter diameter
 Coil orientation: Vertical Dipole
 Digitizing rate: 2000Hz
AIRBORNE MAGNETOMETER
 Magnetometer: GEOMETRICS
 Magnetometer Sensitivity: +/- 0.02 nT
 Sensing Rate: 0.2 Hz

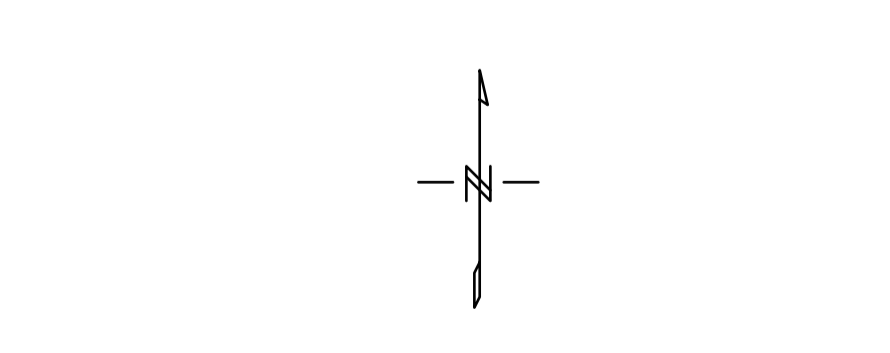
GROUND INSTRUMENTATION
MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (129° 57' 23.114" W, 54° 22' 54.372" N)
EM BASE STATION
 Terrain: Orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: in a meadow on top of a hill (120° 10' 04.2" W, 54° 14' 17.4" N)
PROCESSED SUMMARY
MAGNETICS:
 ZTEM:
 Frequencies selected: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the inphase part of the inline and orthogonal components (270cc and Z/T) to UTM Eastings and Northings.
 Airborne correction applied, (calculated from 3 GPS receivers installed on airborne coil).
 DWT(D) calculated, (discrete/transform) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 18Q)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m
 Major Axis: 6300137.0
 Eccentricity: 0.081819191
 NTS: 0.00101



TOPOGRAPHIC LEGEND:

- Building
- Roads
- Contours
- Rivers / Lake Outlines
- Wetlands
- Lakes / Ponds
- Mining claims
- Mining areas



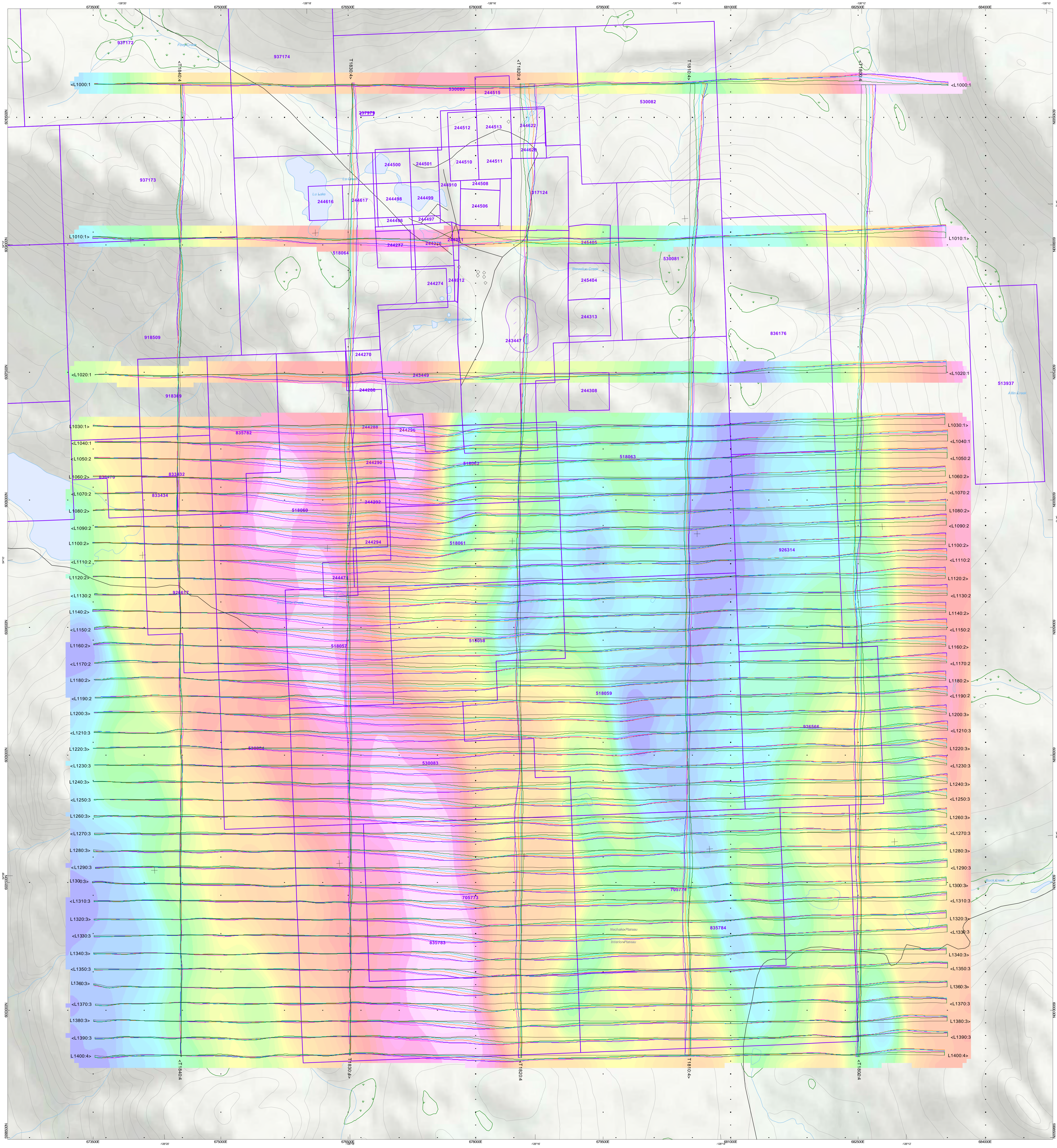
The topographic data base was derived from 1:50,000 NRC Natural Resources Canada NTDB data.
 www.geogatis.ca
 Magnetic fieldings is derived from NASA SRTM30plus Radar Topography Mission data.
 Inset data derived from Geocommunity 1:250,000 Topographic Map data.
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse.
 https://apps.gov.bc.ca/pub/ldw/home.asp

Finlay Minerals Ltd.
 Silver Hope Property
 Houston, British Columbia

Geotech ZTEM System
 Tzx (In-line) Quadrature Profiles
 over 90Hz Phase Rotated
 Quadrature Grid

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March 2012





SURVEY SPECIFICATIONS:
 Survey Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Normal Survey Line Spacing: 200 Meters
 Normal Survey Line Direction: N 60° E / N 20° E
 Normal Survey Tie Line Spacing: 2000 Meters
 Normal Survey Tie Line Direction: N 17° E / N 180° E
 Helicopter Mean Terrain Clearance: 107 meters
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: towed at a mean distance of 55 m below the helicopter

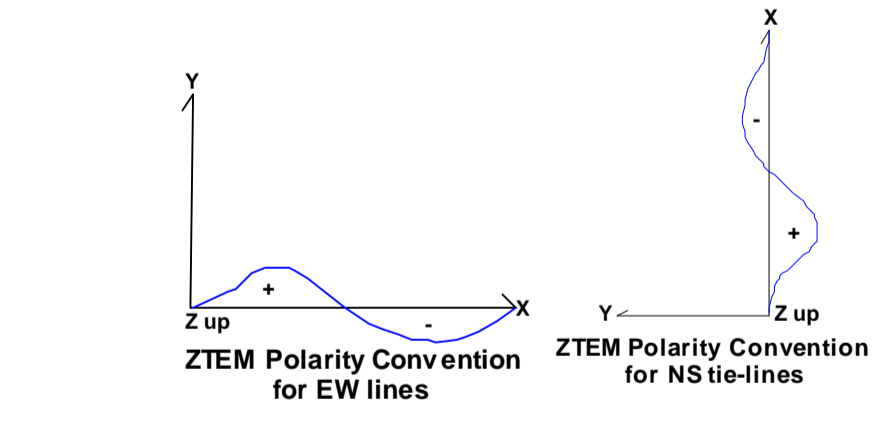
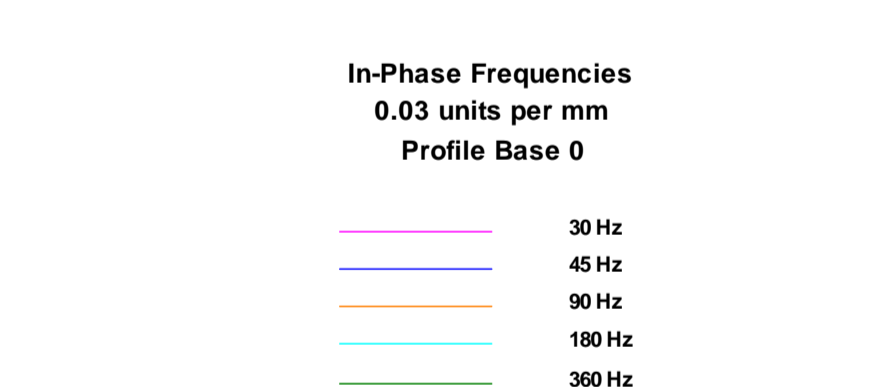
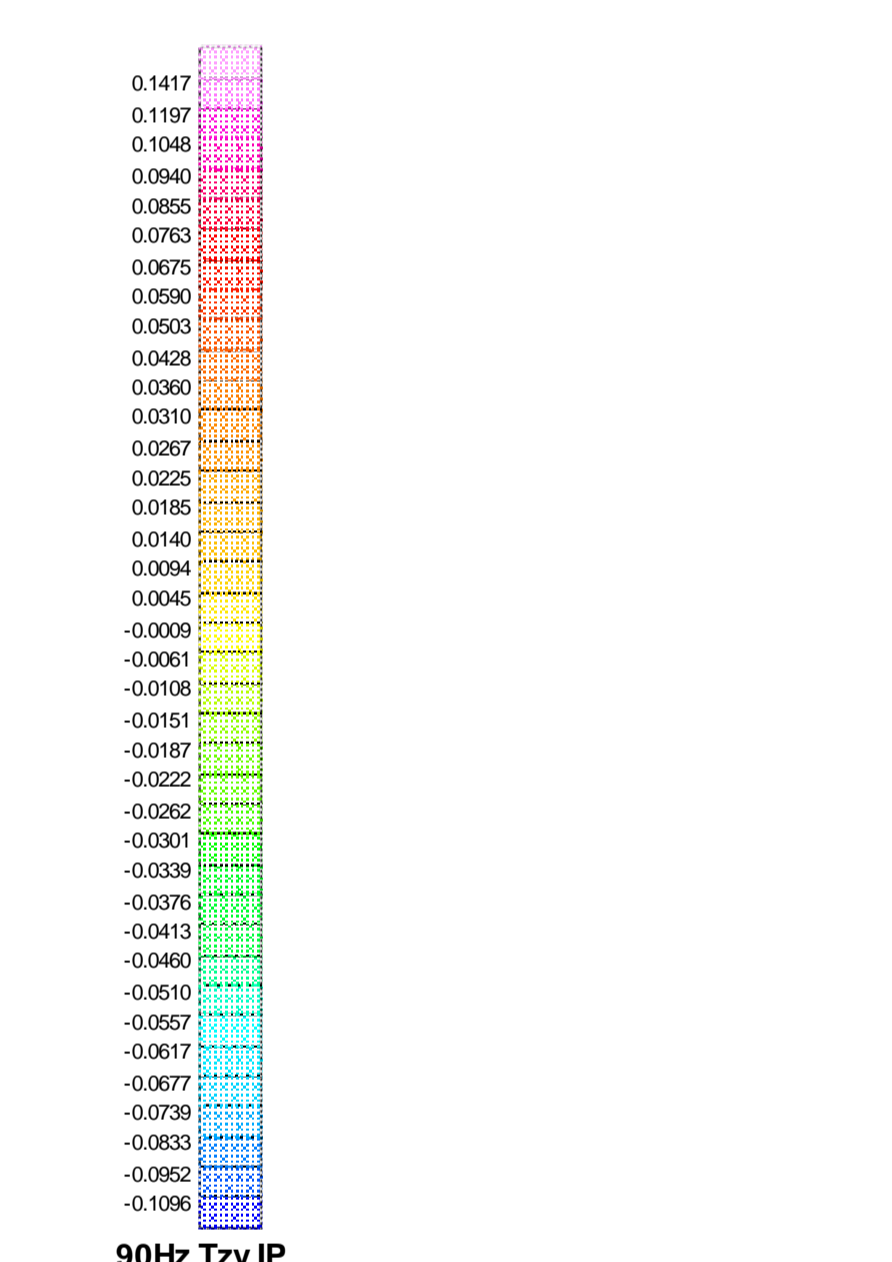
HELICOPTER SPECIFICATIONS
 Helicopter Type: AS349 3000S C-135EG
HELICOPTER INSTRUMENTATION
 Survey Type: Helicopter 2-Axis Tipper Electromagnetic (ZTEM), magnetic towed Bird
 GPS Receivers (4): Novatel OEM6P enabled Proxim 10-RT20
 GPS Receivers Location: One on the helicopter, three on the rotor hub
 Radar Altimeter: Terra TRA 3000TRI 40
 Navigation: GEONAVIS

AIRBORNE ELECTROMAGNETIC SYSTEM
 Electromagnetic System: Geotech 2-Axis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole
 Digitizing rate: 2000Hz
AIRBORNE MAGNETOMETER
 Magnetometer: Sensitivity: +/- 0.02 nT
 Sampling Rate: 0.2 Hz

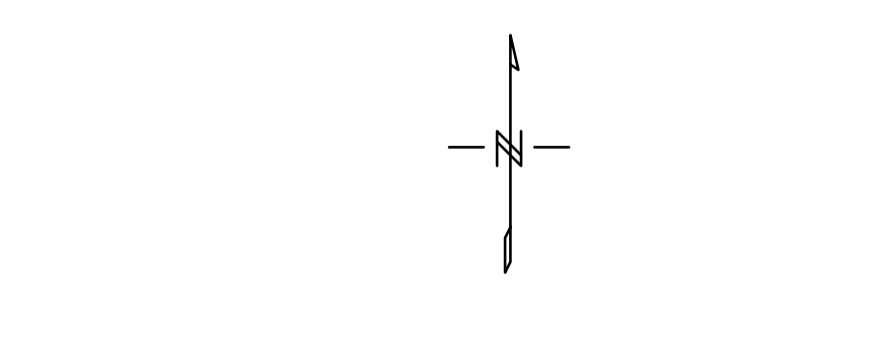
GROUND INSTRUMENTATION
MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (125° 27' 53.114" W, 54° 22' 54.322" N)
EM BASE STATION
 Two orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: In a meadow on top of a hill (120°10'04.2" W, 54° 14' 17.4" N)
 Azimuth: AUA = N 45° E AUB = N 135° E

PROCESSING SUMMARY
MAGNETICS:
 Diurnal Subtraction, microediting
ZTEM:
 Frequencies extracted: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec
 Rotation of the separate part of the inline and orthogonal components (ZTxx and ZTyy) to UTM Eastings and Northings
 Altitude correction applied (calculated from 3 GPS receivers installed on airborne coil)
 (DWTM) calculated: dipole-dipole for all frequencies
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component
 90Hz for each individual frequency

MAP PROJECTION
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 9N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Arc: 630,912.7m
 Eccentricity: 0.081818181
 NTS: 0.0001

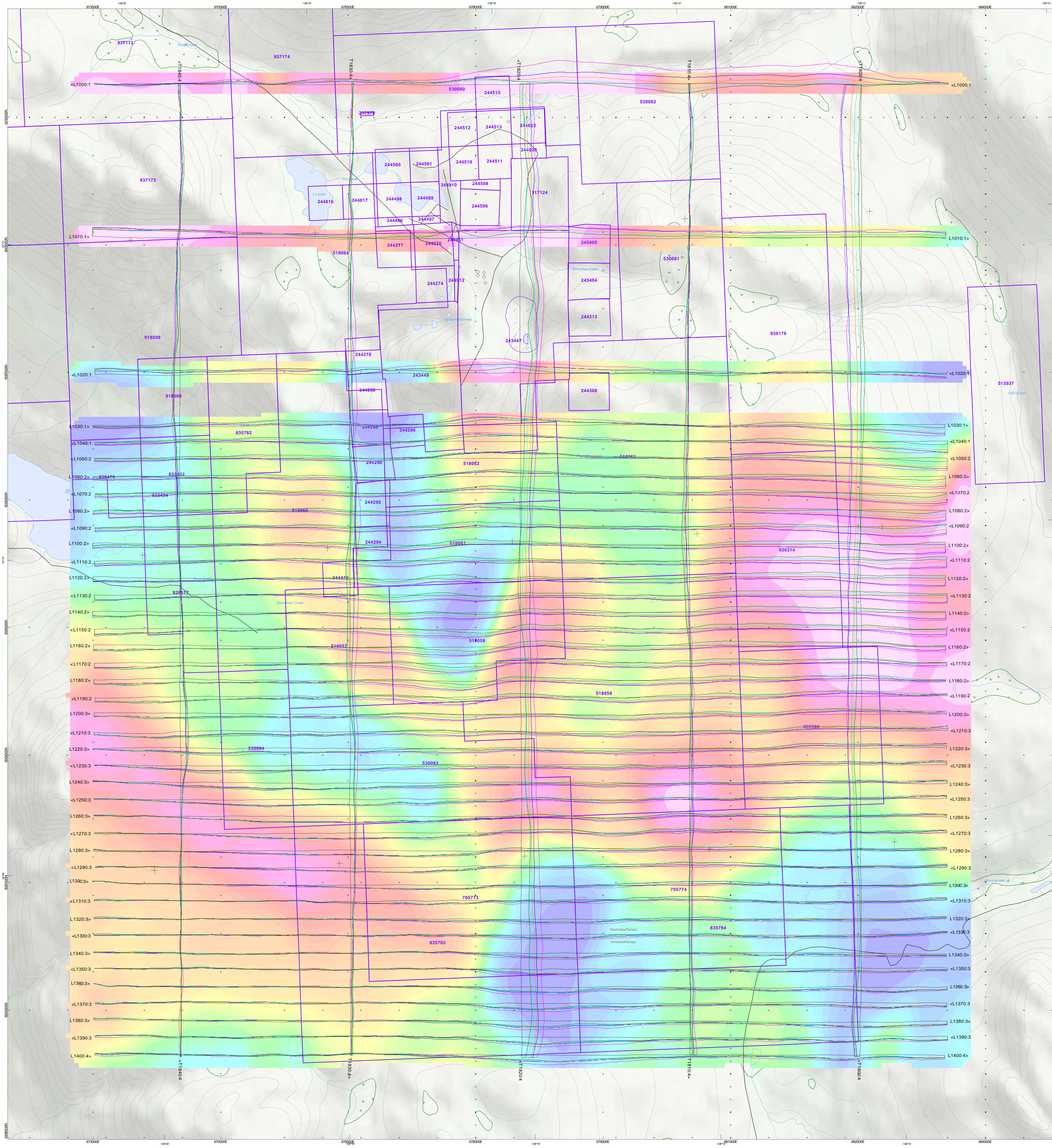


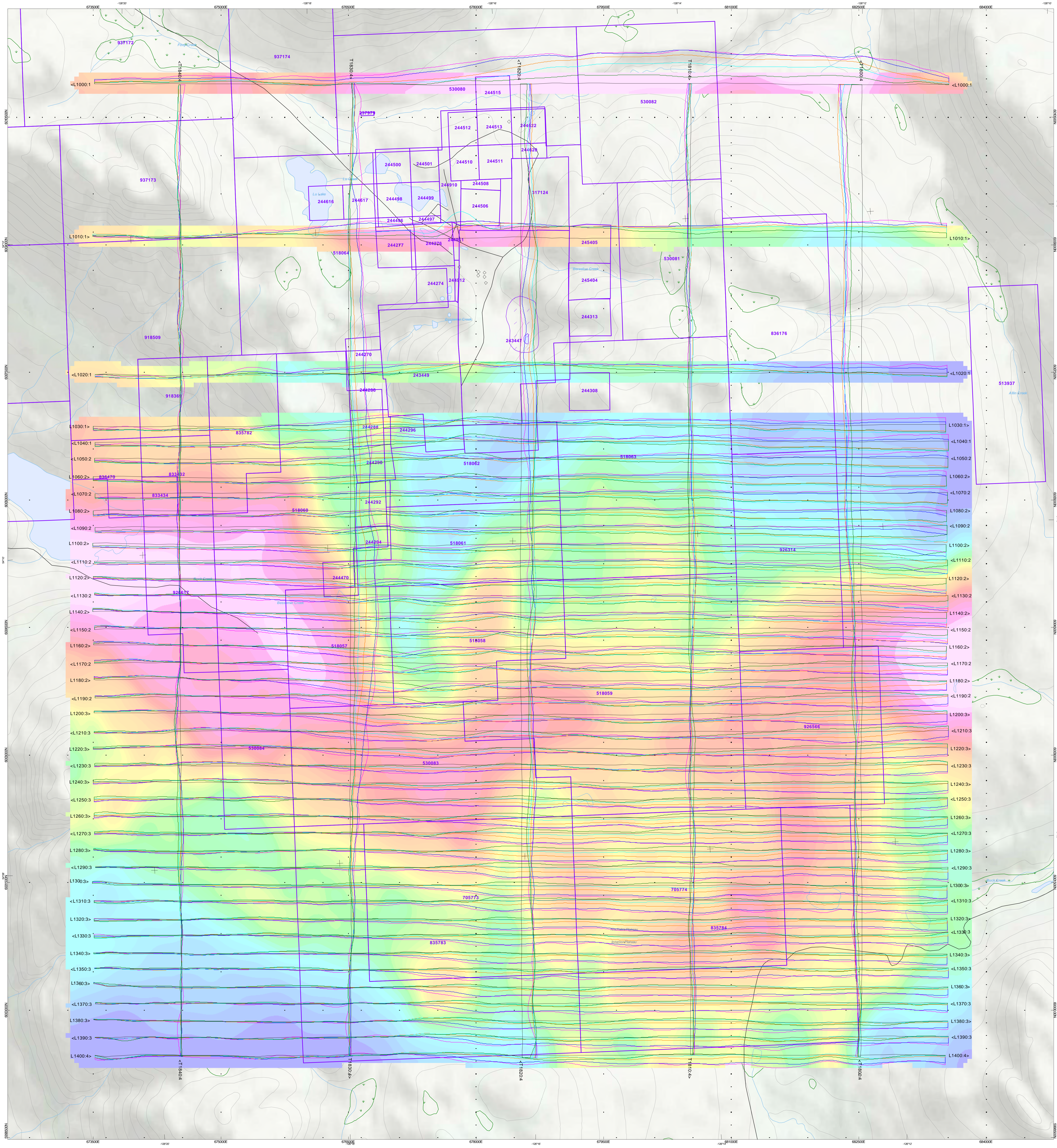
TOPOGRAPHIC LEGEND:
 Building
 Roads
 Contours
 Rivers / Lake Outlines
 Wetlands
 Lakes / Ponds
 Mining claims
 Mining areas



The topographic data base was derived from 1:50,000 NRC (Natural Resources Canada) NT DB data.
 (www.geogratis.ca)
 Background shading is derived from NASA SRTM30plus Radar Topography Mission data.
 (data derived from Geocommunity 1:250,000 http://data.geocomm.com)
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse.
 (http://apps.gov.bc.ca/pub/brdw/home.asp)

Finlay Minerals Ltd.
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 Geotech ZTEM System
Tzy (Cross-line) In-Phase Profiles
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In-Phase Grid
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March 2012





SURVEY SPECIFICATIONS:
 Surveying Date: February 13th - 14th, 2012
 Survey Operations Base: Burns Lake, British Columbia
 Nominal Survey Line Spacing: 200 Meters
 Nominal Survey Line Direction: N 00° E / N 270° E
 Nominal Survey Tie Line Spacing: 2000 Meters
 Nominal Survey Tie Line Direction: N 07° E / N 180° E
 Helicopter Mean Terrain Clearance: 107 metres
 Mean Ground Air Speed: 25 metres/sec
 ZTEM airborne coil: towed at a mean distance of 70 m below the helicopter
 Airborne Magnetometer: 3rd level at a mean distance of 50 m below the helicopter

HELICOPTER SPECIFICATIONS:
 Helicopter Type: AS376 3000S C-310D

AIRBORNE INSTRUMENTATION:
 Survey Type: Helicopter Z-Asis Tipper Electromagnetic (ZTEM), Magnetic towed Bird
 GPS Receivers: 16, Novatel CDPGPS enabled Pippak 12S-RT20
 GPS Receivers Location: One on the helicopter, three on EM coil
 Radar Altimeter: Terra TRA 3000TRI 40
 Navigation: GEONAVIG

AIRBORNE ELECTROMAGNETIC SYSTEM:
 Electromagnetic System: Geotech Z-Asis Tipper (ZTEM)
 Coil dimensions: 7.4 metres diameter
 Coil orientation: Vertical Dipole

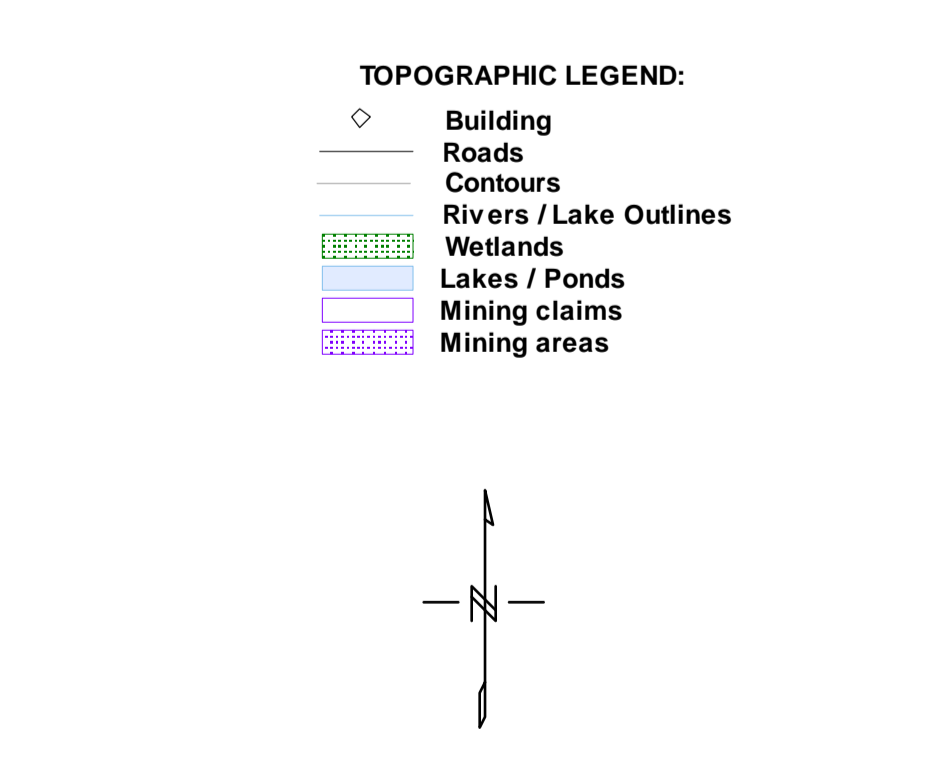
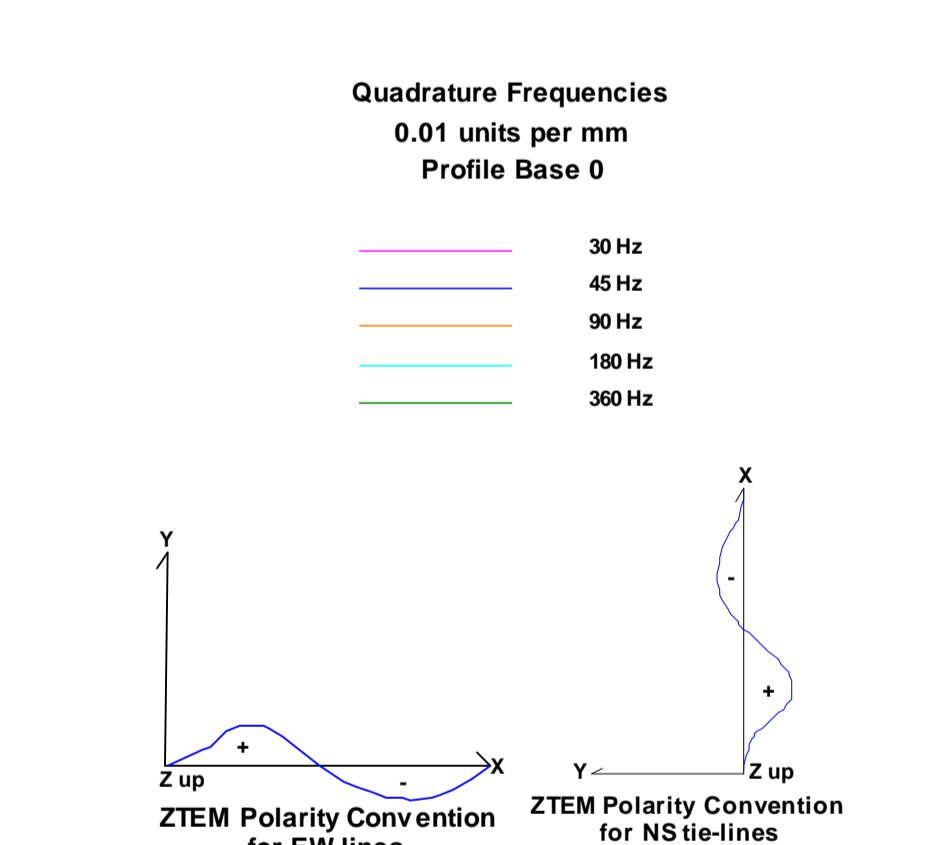
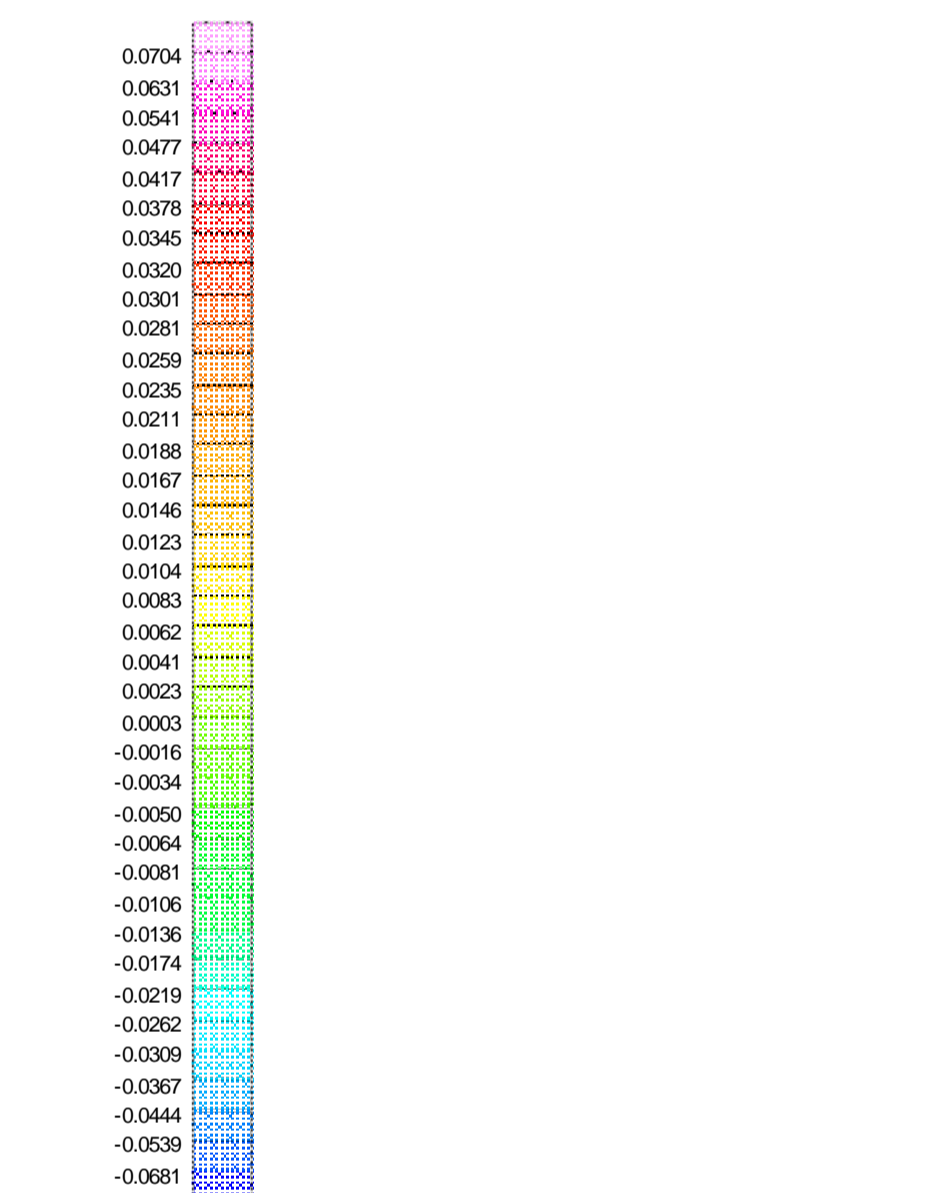
AIRBORNE MAGNETOMETER:
 Magnetometer: GEOMETRICS
 Digitizing rate: 2000Hz
 Sampling Rate: 0.2 Hz

GROUND INSTRUMENTATION:
 MAGNETIC BASE STATION
 Magnetometer: GEOMETRICS
 Base Station Location: On airport property in a field (120° 57' 23.114" W, 54° 22' 54.372" N)

EM BASE STATION:
 Two orthogonal square coils
 Coil dimensions: 3.5 metres each side
 Coil orientation: Horizontal Dipole
 Base Station Location: In a meadow on top of a hill (120°10'04.2" W, 54° 14' 17.4" N)
 Azimuth: ASA = N 40° E ASB = N 130° E

PROCESSING SUMMARY:
 MAGNETICS:
 Diurnal Subtraction, microdewelling
 ZTEM:
 Frequencies selected: 30, 45, 90, 180, 360, 720 Hz
 Sampling rate: 0.4 sec.
 Rotation of the in-phase part of the in-line and orthogonal components (Z10c and Z210c) to UTM Eastings and Northings.
 Altitude correction applied. (calculated from 3 GPS receivers installed on airborne coil).
 DNT10c calculated (dipole/dipole component) for all 6 frequencies.
 Phase Rotated Grids (90 deg) calculated from each individual X and Y component grids, for each individual frequency.

MAP PROJECTION:
 Datum: NAD83
 Projection: Universal Transverse Mercator
 Central Meridian: 120°W (Zone 9W)
 Central Scale Factor: 0.9996
 False Easting/ Northing: 500,000m
 Major Area: 620327.0
 Eccentricity: 0.081819191
 NTS: 0003.01



TOPOGRAPHIC LEGEND:
 Building
 Roads
 Contours
 Rivers / Lake Outlines
 Wetlands
 Lakes / Ponds
 Mining claims
 Mining areas

Scale 1:15000

The topographic data base was derived from 1:50,000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)
 Background shading is derived from NASA, SRTM30plus Radar Topography Mission data (input data derived from Geocommunity 1:250,000 (http://data.geocomm.com))
 Mining claims were derived from the Province of British Columbia Land and Resource Data Warehouse (http://mapr.gov.bc.ca/public/claims.html)

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 Silver Hope Property
 Houston, British Columbia

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 Tzy (Cross-line) Quadrature Profiles
 over 90Hz Phase Rotated
 Quadrature Grid

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March 2012