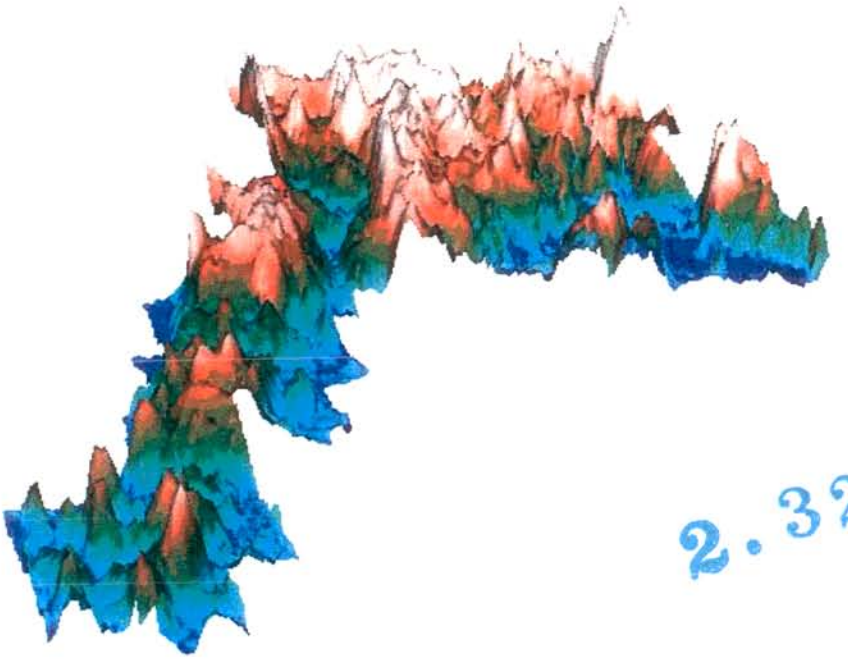
EMERALD FIELDS:

ST ANTHONY PROJECT GEOPHYSICS



For

Emerald Fields Resource Corporation

By

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INTRODUCTION

This report presents a geophysical interpretation of the 2004 Aeromagnetic and Time Domain EM survey carried out by Geotech Ltd. of Ontario over the St. Anthony claim block for Emerald Field Resource Corporation in Northwestern Ontario.

The Airborne Magnetic and Time Domain EM survey was flown in May 2004 over three blocks, referred to as St. Anthony, Scarp Lake and Bridges blocks, and consisted of a total of 1620 line kilometers. In this report, the focus is on providing a further examination of the geophysics as pertaining to geology of the St. Anthony claim block area.

TECHNICAL REVIEW OF AIRBORNE SURVEY

The principal sensors of this helicopter-borne geophysical survey included a Geotech Time Domain Electromagnetic system and cesium magnetometer from Geometrics; secondary equipment included a GPS navigation system and a radar altimeter. For the St. Anthony block, the line spacing was 50m in a N60W flight direction for a total area of 36.1 square kilometers.

Electromagnetic System

TDEM data consists of secondary magnetic field measurements made during numerous preset time windows following turn-off of the primary field. This information can be processed to obtain the vertical distribution of conductivity within the ground because early times indicate near-surface conductivity and late times indicate the conductivity deeper within the earth. The advantages of TDEM over Frequency Domain EM include greater exploration depth, better resolution and less noise.

The Geotech TDEM system consists of concentric receiver and transmitter coils, with a transmitter pulse frequency of 30Hz. EM sensor terrain altitude was 30m above ground (EM bird was towed 40m below the helicopter) with a speed of 80km/h and data recording frequency was 0.1 second for electromagnetics and magnetometer, and 0.2 seconds for GPS and altimeter. A geophysical reading along flight lines was generated approximately every 2 meters.

Time Domain Electromagnetic methods use the principle of magnetic induction to generate a response from the sub-surface features. When a steady current from the transmitter is stopped, a time varying magnetic field is created, and it is as a result of this field that eddy currents are induced in underground conductive materials. The decay of the eddy currents is the property being measured by the receiver coil and used to deduce subsurface properties and features at great depth. The magnitude and decay of eddy currents will depend on the conductivity of the soil as well as the geometry of the conductive layers. In a conductive medium the currents will decay more slowly than in a resistive medium.

In the TDEM the current generated by the transmitter is a sharp pulse, or transient signal. Measurements of the magnetic field are typically made in the time range from 10 micro-seconds to 10 milliseconds following the "turn-off" of the primary field, in this survey ranging from 130 to 6340 microseconds. Because measurements are made while the transmitter current is turned off, the more sensitive measurement of the magnetic field generated by the subsurface can be made. Measurements were made for 25 discrete time intervals following the current phase generated by the transmitter.

Geotech used a three stage filtering process to reject major sferic events and reduce system noise in the data. A 16 point non-linear filter was used for that purpose, and the signal to noise ratio was further improved by the application of a low pass filter. The resulting data was presented as stacked profiles of EM voltages for the time gates.

Airborne Magnetic System
The Geometrics cesium vapor magnetometer was mounted in a separate bird towed 15m below the helicopter. The sampling rate of the magnetometer was 0.1 seconds, and the sensitivity of the sensor was 0.02nT.

LOCATION OF CLAIMS

The St. Anthony claim block is located about 95km east of Sioux Lookout. It is bound by the following coordinates in WGS 84, Zone 15N:

Table 1: St. Anthony Area of Interest Boundaries

Reference	WGS84 Zone 15N Easting	WGS84 Zone 15N Northing	Longitude: Decimal Degrees	Latitude: Decimal Degrees
Corner 1	665033	5561712	-90.68825	50.18459
Corner 2	674318	5561712	-90.55831	50.18193
Corner 3	674318	5551467	-90.56299	50.08987
Corner 4	665033	5551467	-90.69269	50.09252

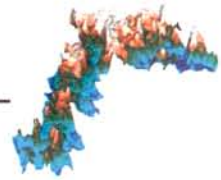
GEOLOGICAL BACKGROUND

The Kenora District is fully underlain by Archean age rocks (greater than 2.5 billion years old) of the Superior Province of the Canadian Shield. As the largest and oldest of the provinces, it consists of alternating belts of predominantly volcanic, sedimentary and gneiss rocks. The greater part of Ontario's metallic mineral abundance such as gold, copper, zinc, etc., is found in the rocks of the Superior Province.

The Archean age rocks are further divided into four general categories which include: English River Subprovince, Winnipeg River Subprovince, Wabigoon Subprovince and Quetico Subprovince rocks.

The Wabigoon Subprovince, a volcano-plutonic subprovince that is characterized by greenstone belts, underlies most of the district. Greenstone belts in this area are narrow, metamorphosed volcanic, sedimentary and intrusive rocks that trend in a northeast direction. They are divided by large intrusives, commonly consisting of granitic rocks. The Wabigoon Subprovince is host to the majority of the gold producers and several gold projects are situated on the western portion of this rock formation.

Volcanogenic massive sulfide (VMS) deposits are a relatively common structure in this area. A combination of base metals occurs in these structures such as copper, lead and zinc as highly conductive sulphides in massive lenses. Pyrrhotite is often, but not always, associated with these deposits, producing a magnetic anomaly and making airborne EM and magnetics surveys the ideal exploration initiative. A thorough understanding of the volganogenic massive sulphide structure and history in NW Ontario can be crucial in defining exploration targets for VMS ore deposits



DATA PROCESSING AND PRESENTATION

All UTM coordinates used in the data were projected to WGS 84, Zone 15N.

Airborne Magnetic and TDEM Data

The data was gridded using the minimum curvature method with a 37.5m cell size, and a Total Magnetic Field grid was created. All of the raw survey data was provided including: x and y coordinates in the above stated UTM projection, elevation of the sensor, helicopter terrain clearance in meters, raw magnetics, total magnetic field corrected for diurnal variations with the basemag data, the raw 130 microsecond time channel and the raw 6340 microsecond time channel.

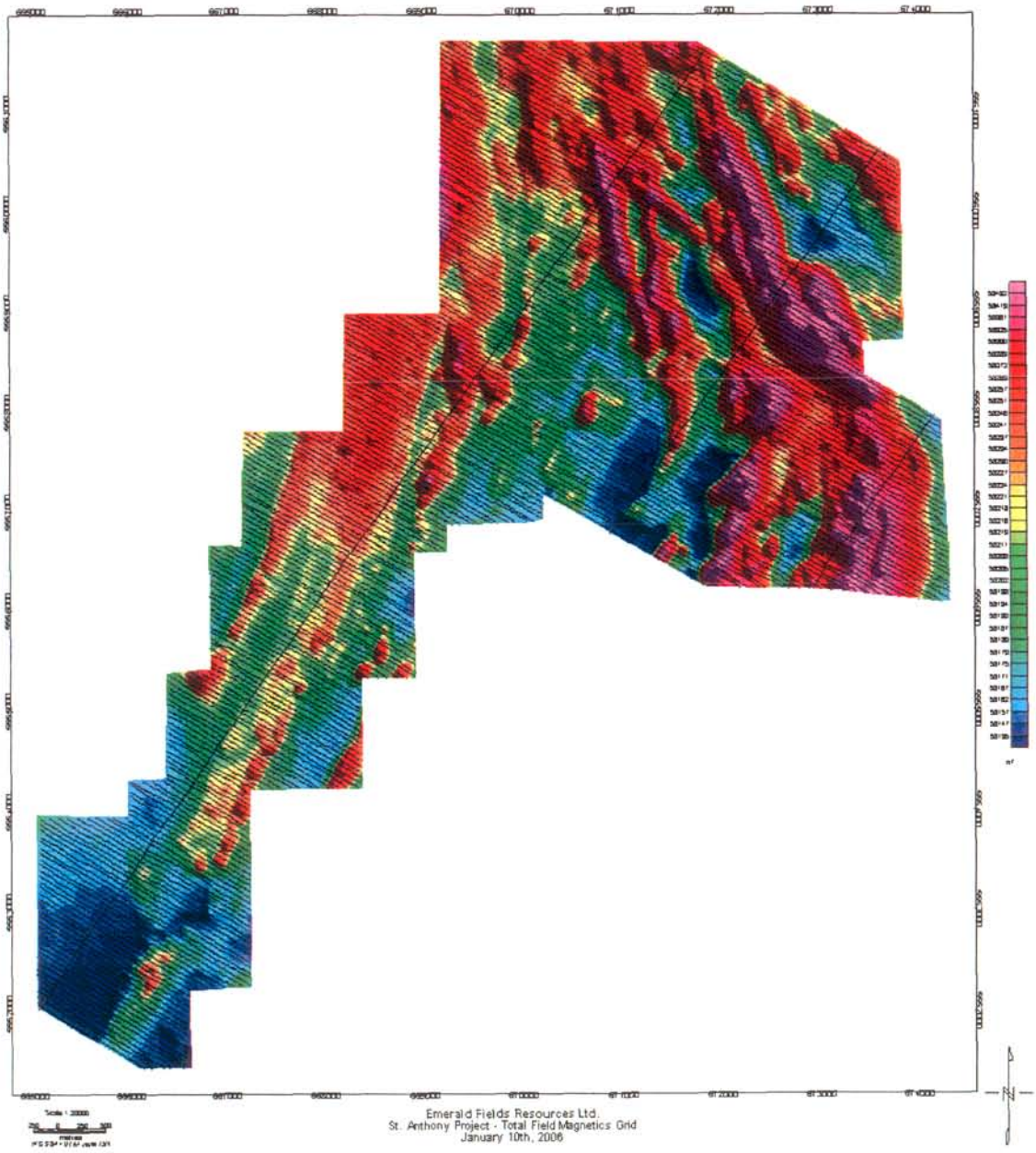


Figure 1: St. Anthony Project, Total Field Magnetics Grid

Two other grids were created from the aeromagnetic data which included the Vertical Derivative and Analytics Signal in order to investigate the magnetic characteristics of the geology in this area.

The Vertical Derivative is commonly applied to total magnetic field data to enhance the shallowest geological sources. Isolating short wavelength magnetic features enhances the response of near surface features at the expense of deeper sources and provides a more direct correlation between magnetic anomalies and geological map units.

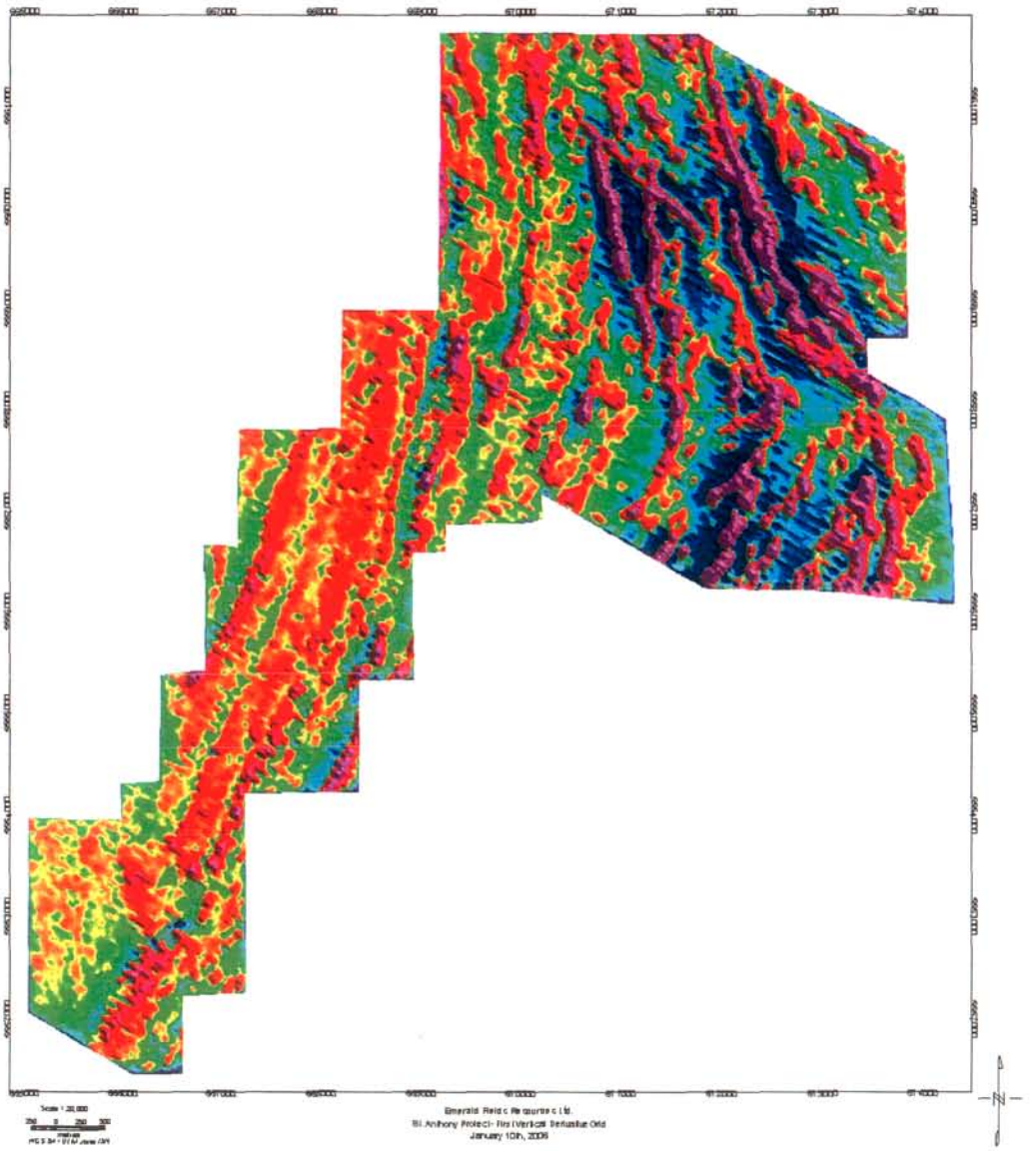
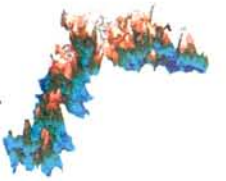


Figure 2: St. Anthony, Vertical Derivative Grid



The Analytic Signal image is a valuable geophysical interpretation tool in locating the edges of magnetic source bodies, particularly where remanence complicates interpretation. The analytic signal is the square root of the sum of the squares of the derivatives in the x, y, and z directions.

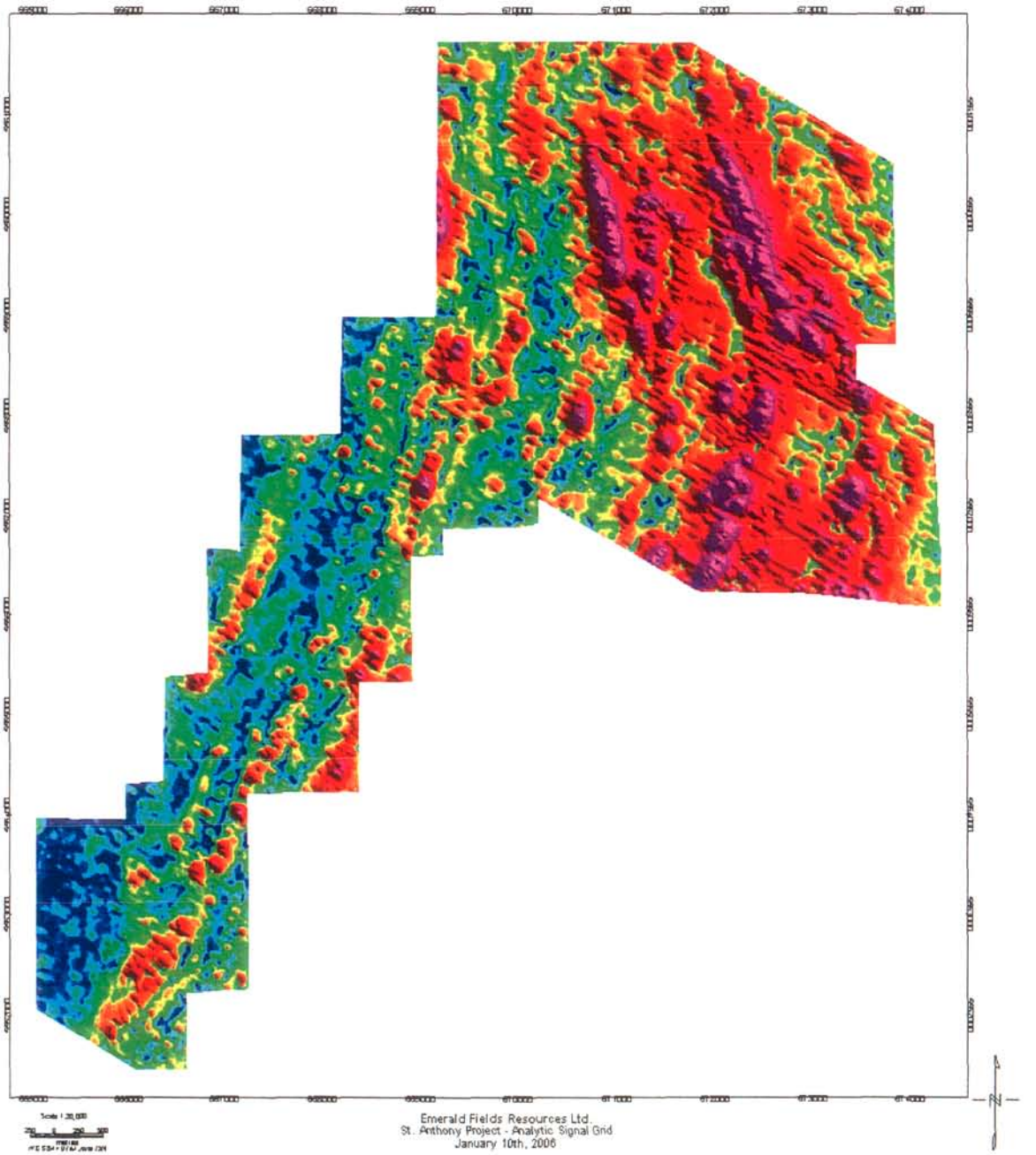


Figure 3: St. Anthony Project, Analytic Signal Grid

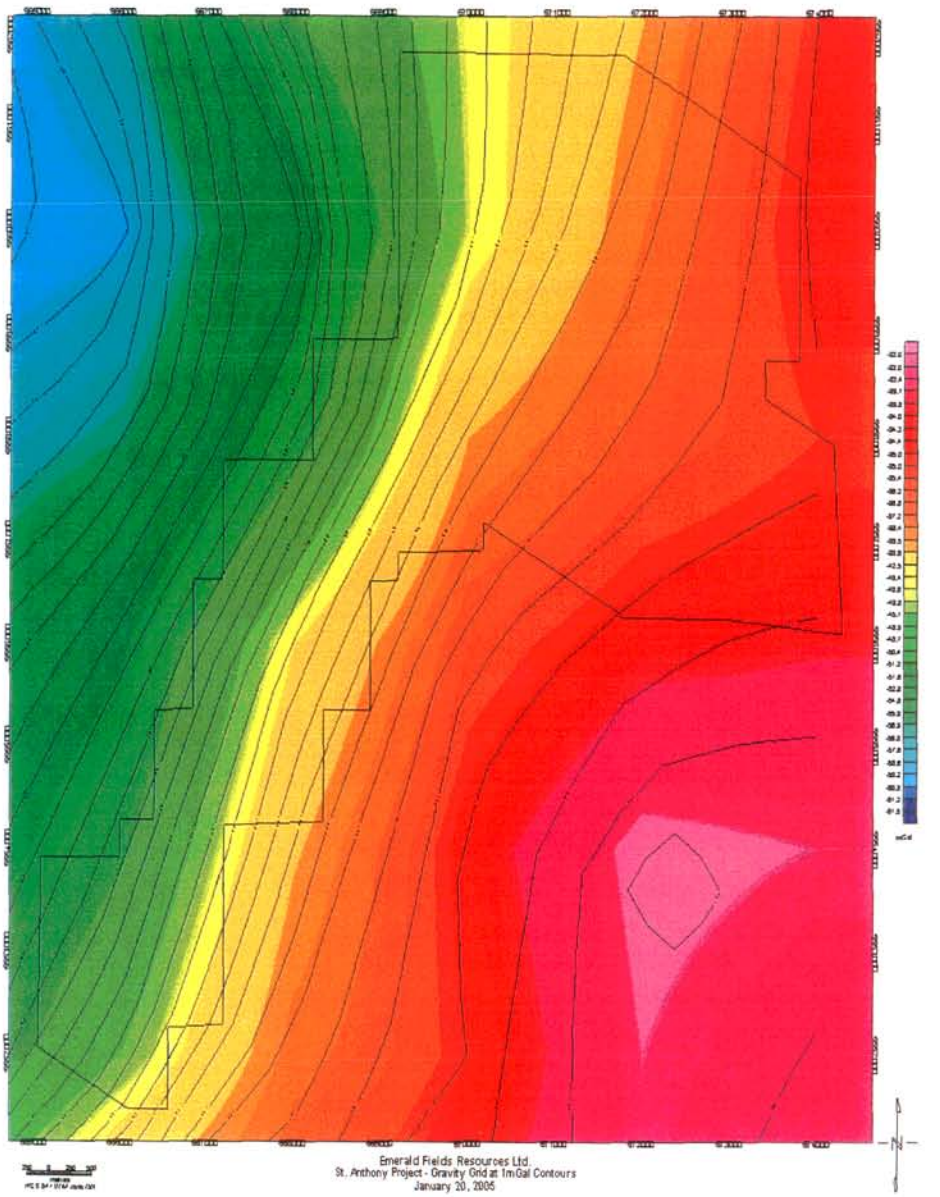


Figure 4: St. Anthony Project, Bouguer Corrected Gravity Grid. Gravity data obtained from the Canadian Geoscience Data Repository at a 200m grid cell size and 1mGal contour interval.

EM profiles were separated into three time interval groups: time gates 0.19 – 0.68 ms, 0.81 – 3.18 ms and 0.22 – 6.34ms. The responses were much stronger in the early time profiles than in the later time profiles, indicating that the conductive source is a shallower one.

The individual profiles of the Time Domain Electromagnetic data were inspected line by line, and the anomalous responses selected and imaged in the following section.

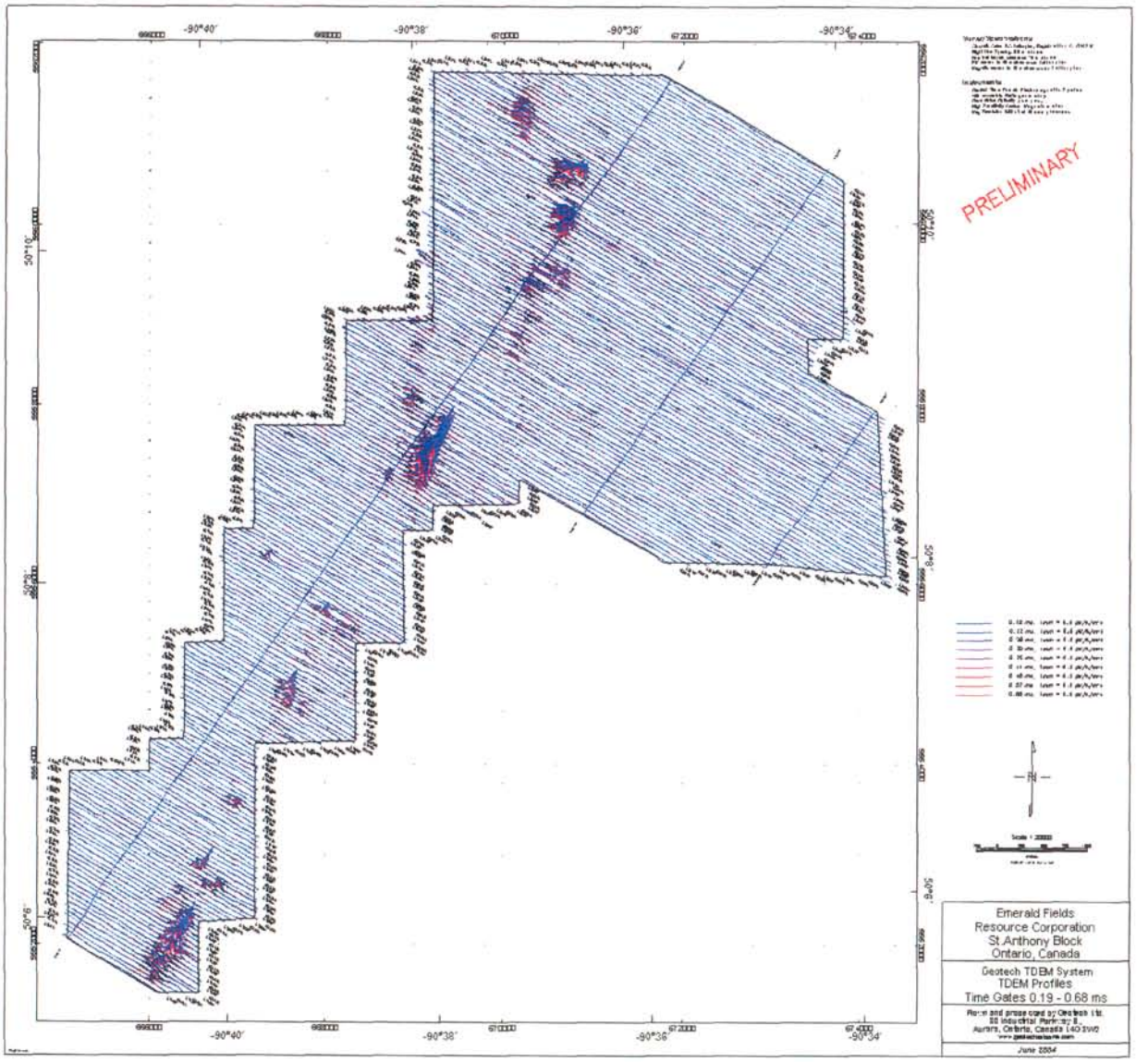


Figure 5: St. Anthony Project: TDEM Profiles, Time Gates 0.19 – 0.68 ms (Geotech)

Figure 6: St. Anthony Project: TDEM Profiles, Time Gates 0.81 – 3.18 ms (Geotech)

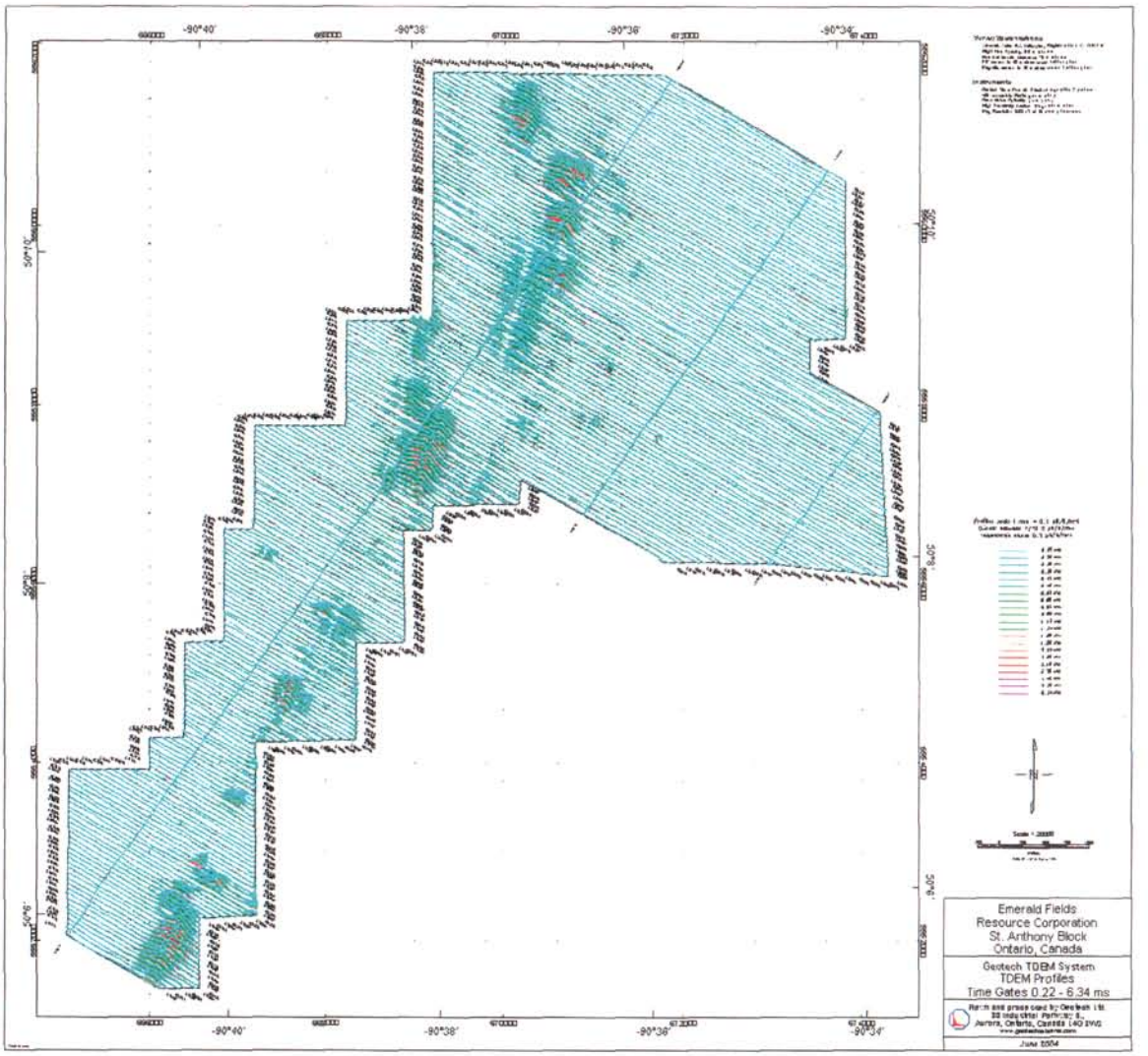
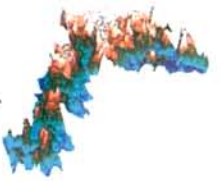


Figure 7: St. Anthony Project: TDEM Profiles, Time Gates 0.22 – 6.34 ms (Geotech)



One of the earlier response channels, 0.19ms, of the Time Domain EM data was gridded using a Minimum Curvature algorithm, producing the following image.

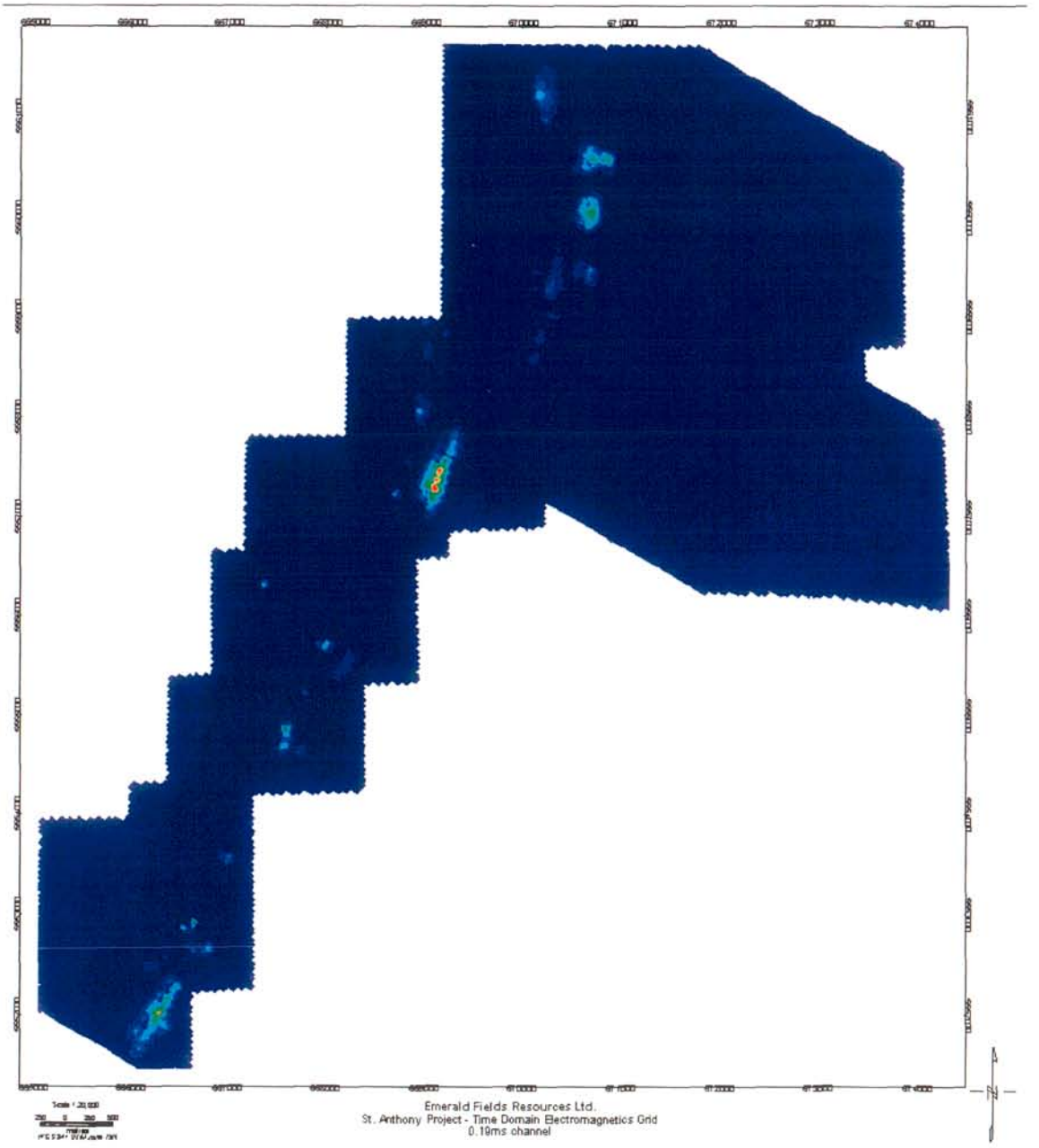
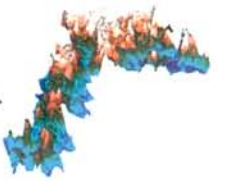


Figure 8: St. Anthony Project: TDEM Grid, Time Gates 0.19ms. Significant anomalies in the EM data are apparent in a northeast trending ridge through the middle of the claim block, indicating a strong conductor.



GEOPHYSICAL INTERPRETATION

As the Time Domain Electromagnetics were profiled one by one, two areas stood out for their strong decay curve responses: lines 1100 to1300 and lines 2300 to 2340. These anomalies were located along the northeast trending ridge through the middle of the St. Anthony claim block.

The EM profiles were separated into two time interval groups: time gates 0.19 – 0.68 ms and time gates 0.81 – 3.18ms. The responses were much stronger in the early time channels than in the later time channels, indicating that the conductive source is shallow.

The asymmetry of the response curves and their variation from channel to channel allows the dip of the conductor to be estimated. A subtle shift in the curves indicates that the conductive anomalies along the northeast trending ridge are dipping to the southeast.

From the northeast trending ridge that runs along the middle of the property, five of the most conductive responses were chosen and displayed in the following images. The top left profile is time gates 0.19 – 0.68 ms which show the highest response. The middle profile window is for time gates 0.81 – 3.18 ms, and finally the profile window on the bottom left is for the total magnetic field. The image on the right is the corresponding Analytic Signal Magnetics Grid with overlaid EM profiles, and the cursor indicates the corresponding EM profile. The conductive sources along this northeast trending ridge of the St. Anthony block mostly correspond to areas of magnetic highs.

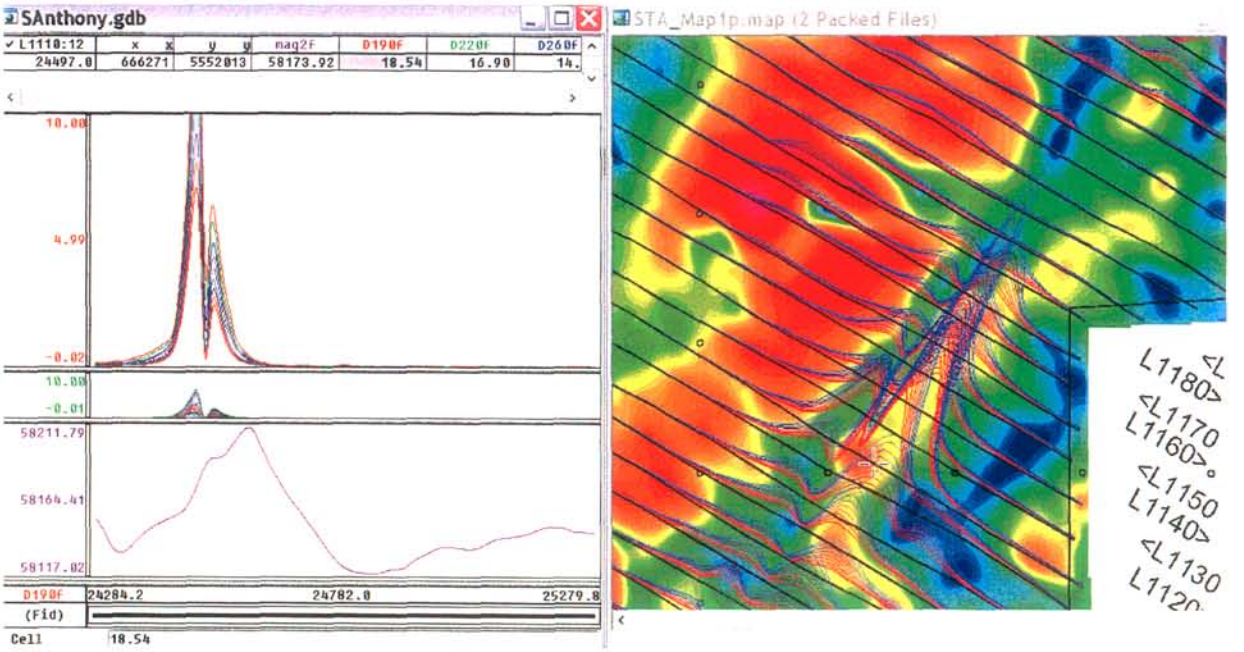


Figure 9: St. Anthony Project: Time Domain Electromagnetic profile for Line 1110. Peaks shift to the left (southeast) with higher time values indicating a southeast dipping conductor. The middle profile window on the left is for time gates 0.81 – 3.18 ms: responses were weaker at higher time intervals indicating a shallow conductive source.

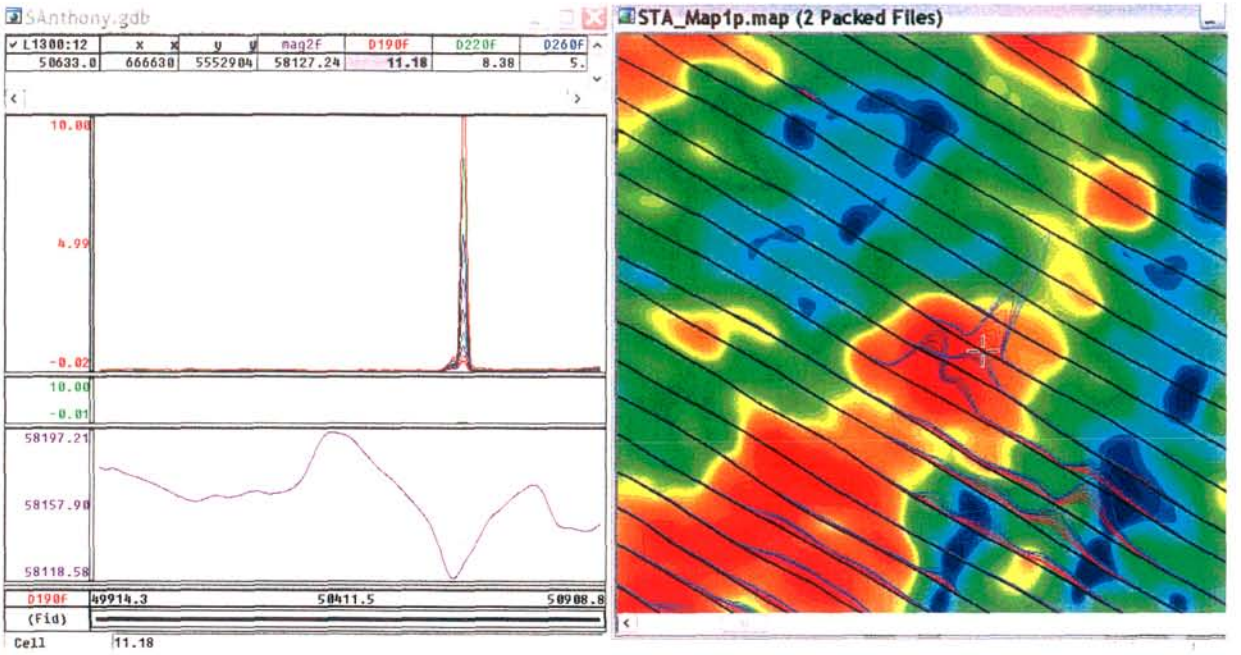


Figure 10: St. Anthony Project: Time Domain Electromagnetic profile for Line 1300.

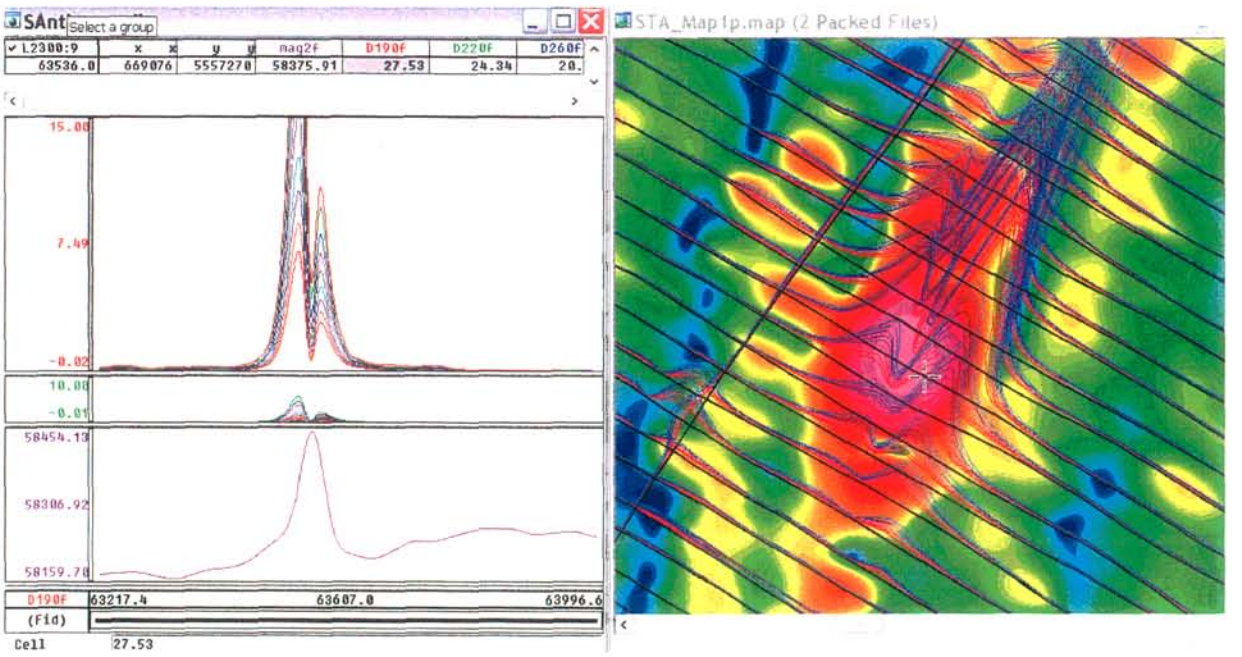


Figure 11: St. Anthony Project: Time Domain Electromagnetic profile for Line 2300. Peaks shift slightly to the left (southeast) with higher time vales indicating a southeast dipping conductor. A strong conductive source represented by the strong decay curve response in lines 2300 to 2340 coincides with a magnetic high.

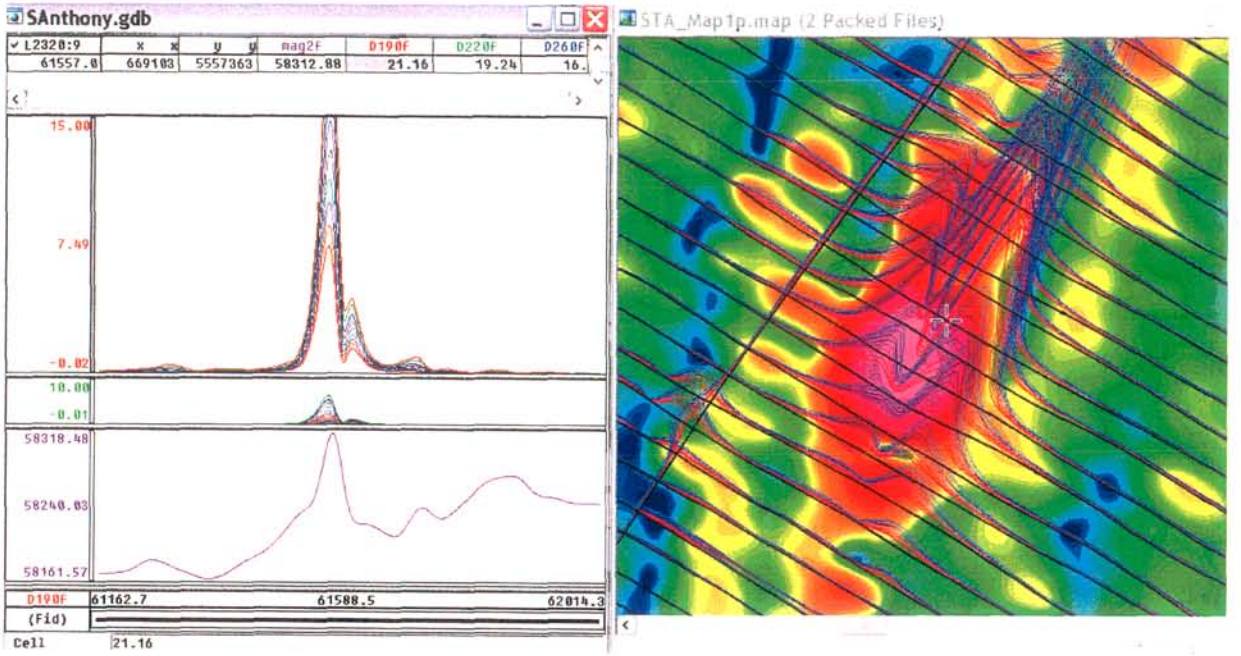


Figure 12: St. Anthony Project: Time Domain Electromagnetic profile for Line 2320. A strong conductive source represented by the strong decay curve response in lines 2300 to 2340.

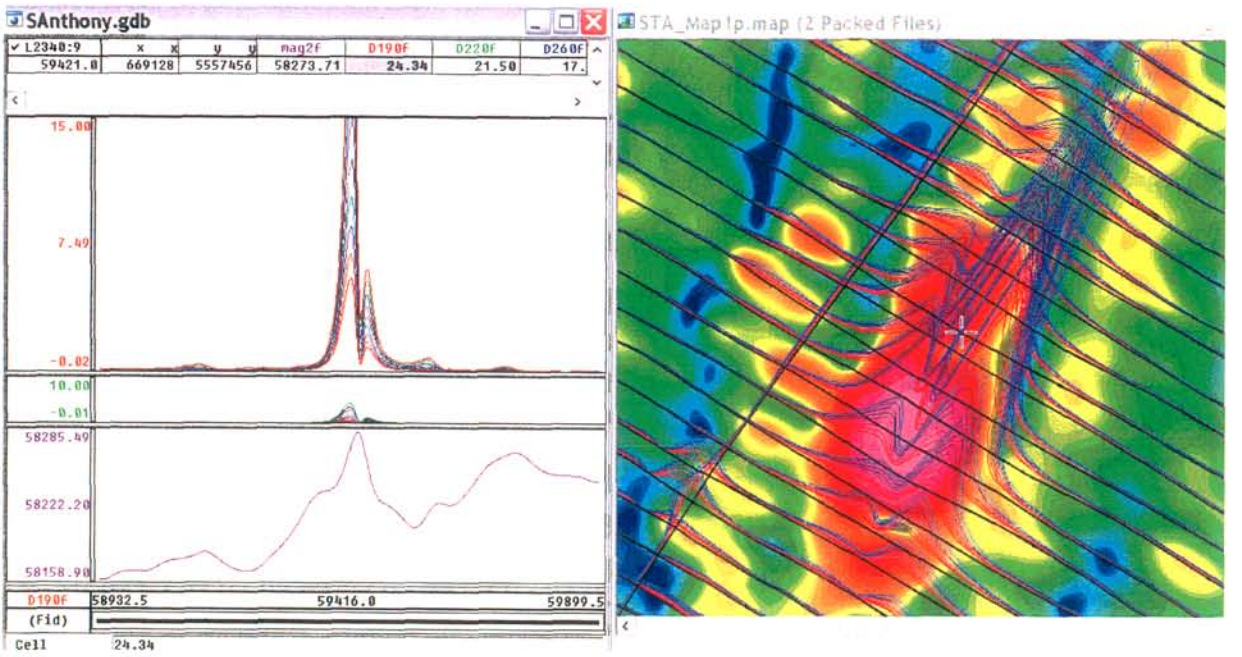


Figure 13: St. Anthony Project: Time Domain Electromagnetic profile for Line 2340. A strong conductive source represented by the strong decay curve response in lines 2300 to 2340.

A regional scale gravity grid was obtained from the Canadian Geoscience Data Repository to demonstrate the general geophysical trend of the area. At this scale there are no apparent anomalies and the gravity data mainly serves a purpose to demonstrate the general direction of the gravity gradient.

The geologic map used in the geophysical interpretation was the 2004 Airborne Survey Scanned Geology map provided by Emerald Fields, as well as other geological data from the Ontario Geological Survey.

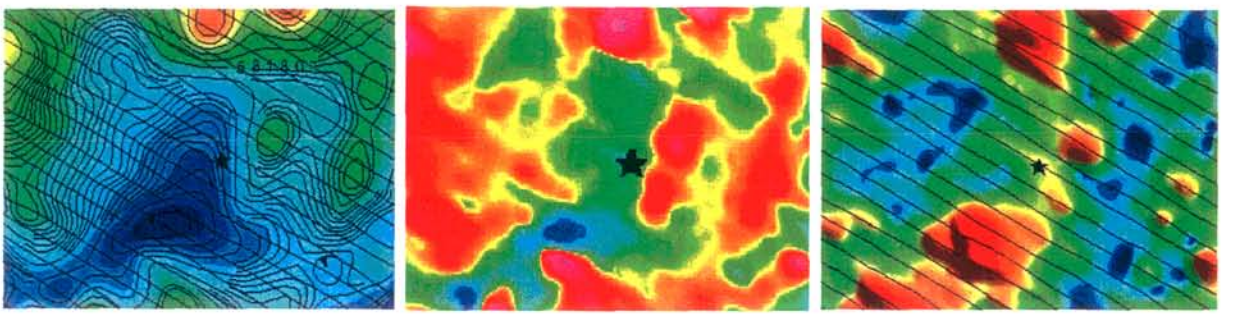


Figure 14: St. Anthony Project: Total Field Magnetics, First Vertical Derivative, and Analytical Signal images. Area of interest at coordinates 66b6737E by 5553097N is marked by a star

The geophysical signal at 666737E by 5553097N was investigated based upon the recommendation of the field geologist. The host rock unit is mainly a granitic porphyry body with NE trending quartz veins. The St. Anthony claim was originally a gold property and the mined unit was a NE trending vein. The gold was nuggety fine to coarse associated with sphalerite (zinc) and sulphides (pyrite and pyrrhotite.) The area of interest is located in surrounding magnetically quiet rock, while the point itself is located over a slight magnetic high. This can be best observed in the Analytic Signal image in Figure 14 (furthest to the right.) The area of interest is located between lines L1340 and L1350 of the EM, along which lines we do not see an immediate response in the EM signal however there is a very strong anomaly in the decay curves directly to the southwest. Due to the fact that these veins are NE trending structures, it is highly likely that the conductive response in lines L1280, L1290 and L1300 (as seen in Figure 15) originates from the same structure that runs through the point of interest above.

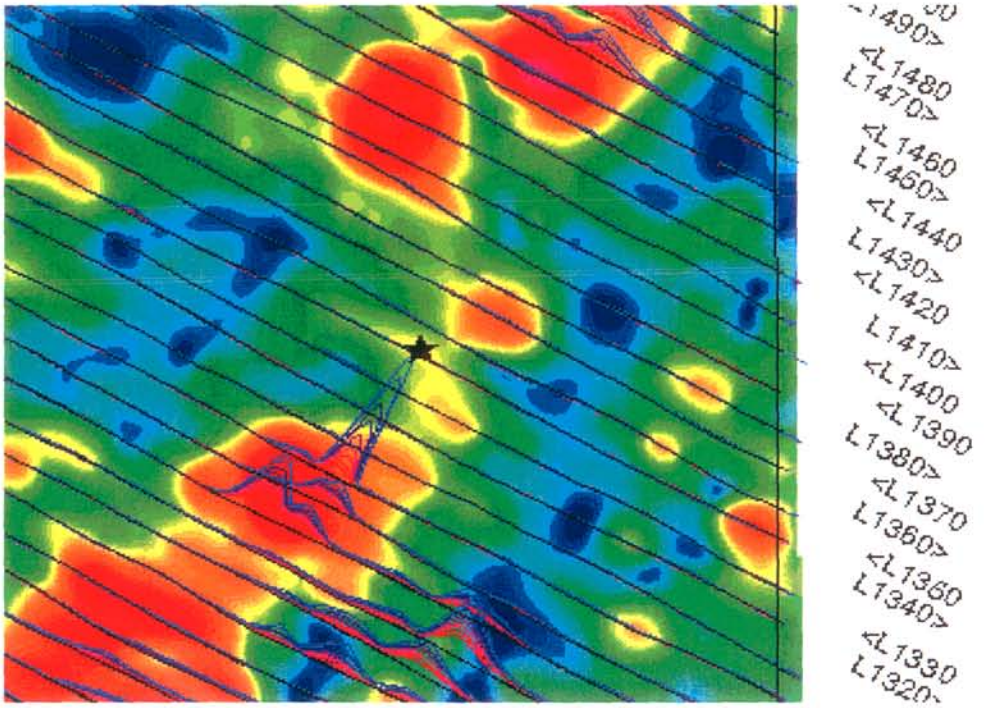


Figure 15: St. Anthony Project: TDEM decay curves. Area of interested is represented by a star.

CONCLUSIONS

The area of most significance within the St. Anthony claim block is the magnetically high ridge that runs through the middle of the property, trending in a northeastern direction. The TDEM data shows a number of anomalous responses in the decay curves, signifying underlying conductors. The asymmetry of the decay curves and their variation from channel to channel allows the dip of the conductor to be estimated which in this case points to a slightly southeast dipping conductor at these points. The EM anomalies are coincident with magnetic highs anomalies in many but not all cases.

In the EM data, the responses were much stronger in the early time profiles than in the later time profiles, which may signify a shallow conductive source. A thorough geophysical depth analysis of the data, as well as geophysical modeling should be carried out to further examine the conductive source.

The geophysical data along with geological mapping of the area indicate a strong possibility of mineralization in vein structures and warrant further investigation in the form of geochemical data mapping and geophysical modeling. Strong EM and magnetic anomalies along the northeast trending ridge in the middle of the property set the stage for a potential mineral exploration target.

STATEMENT OF QUALIFICATIONS

Monika Sumara

I Monika Sumara am a Consulting GIT who is employed by Emerald Fields Resources Ltd. to complete a geophysical interpretation of the St. Anthony project in north-western Ontario.

I am:

- eligible for membership with the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).

I graduated from the University of Calgary in Alberta with a Bachelor of Science in Geophysics in 2002, and I have practiced my profession continuously since.

My geophysics experience has involved:

- seismic survey planning, processing and interpretation in the Western Sedimentary basin with Tikal Resources Inc., an oil and gas exploration company of Calgary, Alberta, from 1998 to 2001;
- oil and gas geophysical research with CREWES (Consortium for Research in Elastic Wave Exploration Seismology) at the University of Calgary under the tutelage of Dr. Gary Margrave, involving seismic processing techniques during 2002
- satellite imagery processing with PhotoSat of Vancouver, British Columbia in 2003 involving GIS mapping and rendering;
- diamond exploration with Arctic Star Diamond in Northern Manitoba and the Northwest Territories since 2004; and
- geophysical aeromagnetic surveys with Universal Wing of Vancouver, British Columbia since 2004.

I am presently a Consulting Geophysicist with diamond exploration clients including Arctic Star Diamond Corp. and an aeromagnetic surveying company, Universal Wing Geophysics. Relevant to this report, I acted as the Consultant Geophysicist for Emerald Fields Resources Ltd., on the St. Anthony project in north-western Ontario.

I am not aware of any material fact or material change with respect to the subject matter of this technical report which is not reflected in this report, the omission to disclose which would make this report misleading.

Dated at Vancouver, BC this 26th day of January, 2006.

"Monika Sumara" January, 2006

2.32322

St. Anthony Property
Claim Map Plan - NTS 52J/02

Figure 2