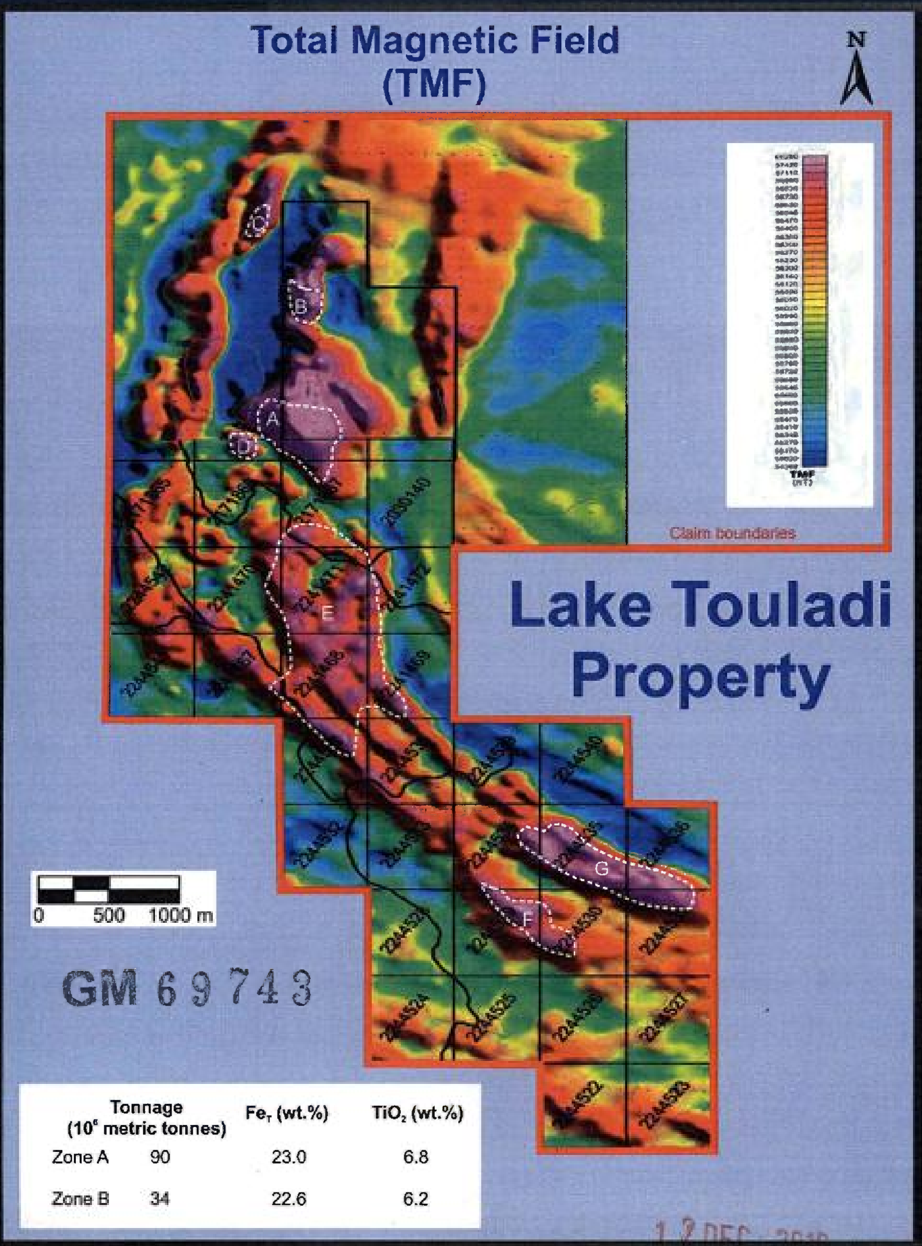
Standard Magnetic Inversion (SMI), Magnetic Vector Inversion (MVI), Probability of Remanence (PR) and 3D modeling of heli-borne magnetic survey data, Lake Touladi property, Saguenay, Quebec

CANAMARA
Iron & Titanium Corporation

February 26, 2015



Tonnage (10^6 metric tonnes)		Fe$_T$ (wt.%)	TiO$_2$ (wt.%)
Zone A	90	23.0	6.8
Zone B	34	22.6	6.2

GM 69743

Michel Boily, PhD., geo

CERTIFICATE OF QUALIFICATIONS

I, Michel Boily, Ph.D., P. Geo. HEREBY CERTIFY THAT:

I am a Canadian citizen residing at 2121 de Romagne, Laval, Québec, Canada.

I obtained a PhD. in geology from the Université de Montréal in 1988.

I am a registered Professional Geologist in good standing with l'Ordre des Géologues du Québec (OGQ; permit # 1097). I have praticed the profession of geologist for the last 38 years.

I had the following work experience:

From 1986 to 1987: Research Associate in Cosmochemistry at the **University of Chicago**, Chicago, Illinois, USA.

From 1988 to 1992: Researcher at **IREM-MERI/McGill University,** Montréal, Québec as a coordinator and scientific investigator in the high technology metals project undertaken in the Abitibi greenstone belt and Labrador.

From 1992 to present: Geology consultant with **Geon Ltée,** Montréal, Québec. Consultant for several mining companies. I participated, as a geochemist, in two of the most important geological and metallogenic studies accomplished by the Ministère des Richesses naturelles du Québec (MRNQ) in the James Bay area and the Far North of Québec (1998-2005). I am a specialist of granitoid-hosted precious and rare metal deposits and of the stratigraphy and geochemistry of Archean greenstone belts.

I have gathered field experience in the following regions : James Bay, Quebec; Strange Lake, Labrador/Quebec; Val d'Or and Rouyn-Noranda, Quebec; Grenville (Saguenay and Gatineau area); Cadillac, Quebec; Otish Mountains, Quebec, Lower North Shore, Quebec,Sinaloa, Sonora and Chihuahua states, Mexico, Marrakech and Ouarzazate, Morocco and San Juan, Argentina

I am the author of the Report entitled : "Standard Magnetic Inversion (SMI), Magnetic Vector Inversion (MVI), Probability of Remanence (PR) and 3D modeling of heli-borne magnetic survey data,Lake Touladi property, Saguenay, Quebec written for CANAMARA IRON AND TITANIUM CORP. with an effective date of February 26, 2015.

As of the date of the certificate, to the best of my knowledge, information and belief, this Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

The Qualified Person, Michel Boily, has written this report in its entirety and is responsible for its content.

I am an independent qualified person, QP, according to NI 43-101. I have no relation to Canamara Iron and Titanium Corp. according to section 1.5 of NI 43-101 and thus I am independent of the Issuer.

As of the effective date of February 26, 2015, to the best of my knowledge, information and belief, this Report contains all scientific and technical information that is required to be disclosed to make the report not misleading.

Michel Boily, PhD., P. Geo.
Dated at Montréal, Qc
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1.0-Introduction

Airborne magnetic surveys constitute an important exploration tool in the detection of Fe-Ti orebodies associated with Proterozoic Anorthosite-Mangerite-Charnokite-Gabbro- complexes (AMCG). Ore minerals consisting of magnetite, titano-magnetite, ilmenite, hemo-ilmenite and occasionally rutile are, to the exception of the latter, ferromagnetic, and display moderate to high magnetic susceptibilities (K_m). Magnetic anomalies associated with Fe-Ti deposits are controlled either by titaniferous magnetite with a strong component of induced magnetism and high magnetic susceptibility, or by hemo-ilmenite with a strong component of remanent magnetism and lower magnetic susceptibility (Rose, 1969).

However, the interpretation of standard Total Magnetic Field (TMF), RMF (Residual Magnetic Field) and First Vertical Derivative (FVD) contour maps is not as simple as correlating magnetic highs with bodies containing a substantial amount of Fe-Ti-oxides. The extremely high susceptibility of magnetite (K_m=0.07-14) compared to that of other Fe-Ti-oxides signifies that a very small mineral content (1 to 3%) can control the intensity of magnetic highs masking the abundance of other oxides with less susceptibility values (i.e. ilmenite, hemo-ilmenite, rutile). Moreover, ilmenite, hemo-ilmenite and potentially magnetite are ore minerals that can manifest a hard component of remanent magnetism. The latter represent a net magnetization persisting when no external magnetic field is present. Remanence is sometimes described as the mineral magnetic memory, because it exhibits the sum of the mineral magnetization history. Natural Remanent Magnetization (NRM) is often acquired during thermal or metasomatic events. As the rocks cool through the Curie point they acquire a remanence along the magnetic field direction of the earth at that time. Commonly, the four main processes contributing to the remanence are: a) Cooling from an initial temperature that exceeds the Curie (magnetic lock-in) point in the presence of an external magnetic field (e.g., the cooling of a magmatic body), b) Chemical changes in the presence of an external field (e.g., the crystallization of magnetite ore in a banded iron formation), c) Exsolved oxide lamellae of hematite in ilmenite during the slow cooling and subsequent metamorphism leaving an unusually strong and stable remanent magnetization and d), The deposition of grains in water in the presence of an external field. Remanence seen in the mineral exploration context is typically due to first three processes listed above. Generally, the effect of remanence is to reduce the intensity of the magnetic anomaly since its polarity is often reverse and inclined in a direction different from that of the magnetic field induced at present. The consequence of remanence is to generate low magnetic values which may be confused with effects due to non-magnetism of the rocks. Nonetheless, small compact bodies, intrusions, topographic changes and structures (i.e. faults) can also generate a dipole field which may result in the type of magnetic anomaly ascribed to superposition of induced and remanent magnetism. An example of this effect would be a faulted vertical magnetic slab/body in contact with non magnetic rocks.

The Lake Touladi airborne surveys generated the standard TMI, RMF and FVD contour maps which interpretations lead to the detection of possible ilmenite/hemo-ilmenite rich targets characterized by significant low magnetic signatures (see Boily, 2014). To resolve the uncertainties brought by various interpretation of similar geophysical airborne signatures (i.e. remanence, magnetic dipole, variable susceptibilities and abundance of Fe-Ti-oxides), the raw geophysical data was sent to MGB Géosolutions for more sophisticated treatment. The data was processed to generate new maps which included: 1) 3D models of Standard Magnetic Inversion (SMI), 2) 3D models of Magnetic Vector Inversion (MVI); a new procedure taking into account the magnetic remanence and 3), 3D models of the probability of remanence (PR). The raw data resulting from this new mathematical treatment was processed through the LeapFrog software to produce 3D viewing. The initial FVD, TMI and RMF and DEM maps provided by GPR Geophysics were also incorporated into the 3D models. The ultimate goal of this approach is to narrow the possible target zones for future drilling.

2.0- Standard Magnetic Inversion (SMI), Magnetic Vector Inversion (MVI), Probability of Remanence (PR) and 3D modeling

2.1- Standard Magnetic Inversion (SMI)

Inversion is a numerical process whereby an initial model is adjusted in order to improve the degree of agreement, or fit, between the measured geophysical data and the corresponding calculated data. At minimum, a geophysical model must define a distribution of one or more physical properties in the sub-surface, in the case of magnetic surveys the magnetic susceptibility (K_m). Inversions are applied to a residual magnetic field. The Residual Magnetic Field (RMF) is known as the result of removing the International Geomagnetic Reference Field (IGRF) from the Total Magnetic Field Intensity (TMI). However, Huber (2014) has, according to the method specified by Geosoft, removed a trend based on local data which includes the IGRF in order to further eliminate the low frequency effect of deep magnetic formations. The removed trend is an approximation of the regional component of the TMI and can be seen as the zero level of the local, or residual, anomalies. But as the trend is subjectively selected, the zero level is approximate and the calculated susceptibilities are labeled *apparent* and should be considered *relative* rather than absolute.

Standard Magnetic Inversion is based on the premise that, in the presence of the Earth's geomagnetic field, the magnetic domains in all rocks orient themselves parallel to the Earth's geomagnetic field. This can be the case in isotropic homogeneous surroundings.

The first stage of SMI is to construct a 3D mesh of prismatic cells (here 25 x 25 x 25m) underlying the observed data, usually the TMI or RFM. The cell size affects the output from the inversion. The larger the cell, the poorer the fit to the data. During magnetic inversion, the starting model of subsurface magnetization is altered via a succession of iterations until there is satisfactory agreement between the predicted magnetic field and the observed data. There are many models which satisfy the geophysical and geological data. Potential field 3D models are inherently non-unique and subjective, they must take into account all geological controls (rock types, structure, outcrop positions, drillhole intersections etc...).

2.2- Magnetic Vector Inversion (MVI)

The magnetic vector inversion (MVI) takes into account both remanent and induced magnetizations (Huber, 2014). MVI tries to recover the amplitude and the direction of the magnetization. In the resulting model, the amplitude of the magnetization vector is normalized to the Earth's geomagnetic field to provide a value comparable to the susceptibility. The amplitude of the resultant normalized vector is equal to the corresponding susceptibility in case that the Earth is homogeneous and isotropic, and if magnetic domains were all aligned with the Earth's geomagnetic field. In general, the magnetization amplitude includes both the induced and remanent magnetization.

The induced magnetization and the remanent magnetization cannot be divided correctly, but strong evidence of the remanence is provided. MVI was applied to the Residual Magnetic Field (RMF). MVI normalizes the amplitude of the magnetization vectors by the Earth's Magnetic Field. During the normalization, the amplitude of the magnetic vectors will be equal to the corresponding susceptibility.

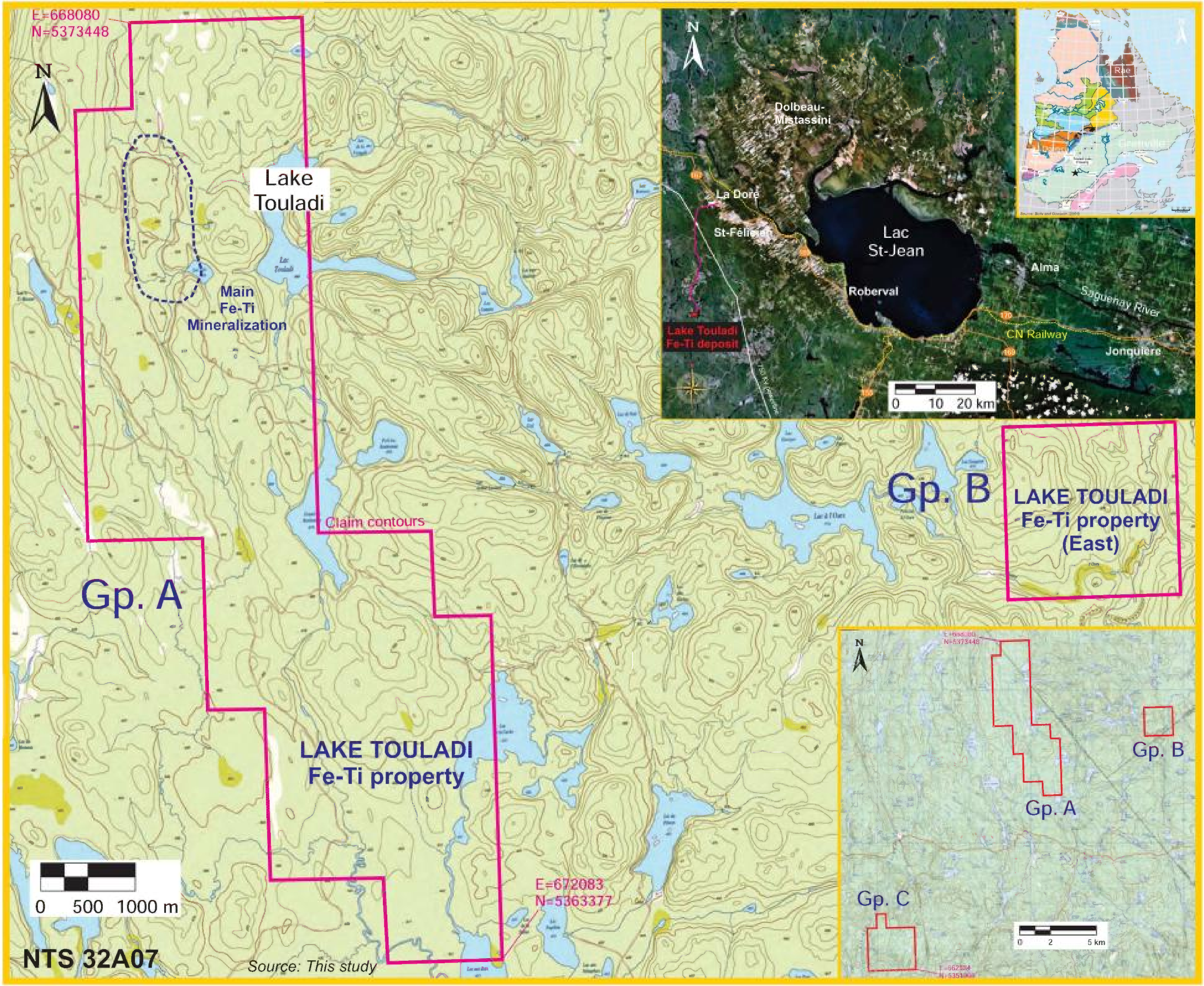
2.3- The Probability of Remanence (PR)

There is no process to separate the remanent and induced magnetism as the Earth's Magnetic Field induces magnetization in the remanent magnetic formations. However, a new computation, developed by MB Géosolutions, was applied to the magnetic data and to the susceptibility models to enhance and locate high probability volumes carrying remanent magnetization (Huber, 2014). The 3D Probability of Remanence (PR) model is a relatively new and experimental mathematical procedure which results must be interpreted carefully. We can consider the Probability of Remanence values as an estimate of the anisotropy of the total magnetic field of the rock or the variation in direction between the remanent and current magnetic field vectors. The stronger the deviation the larger the remanent probability numbers.

3.0- The Touladi Property

3.1- Location and Access

The Lake Touladi Property is located in the province of Quebec in the regional municipality of Le Domaine du Roy, and covers part of the Lyonne and Chabanel Townships in the NTS map sheet 32A07. The main property claims lie on the NW side of Lake St-Jean about 30 km from the town of St-Félicien and 37 km from the town of Roberval (Figure 1). The Lake Touladi



Source: This study

Figure 1. Claim contours of the Lake Touladi Fe-Ti Property. UTM Coord.; NAD83; Zone 18; E=Easting; N=Northing.

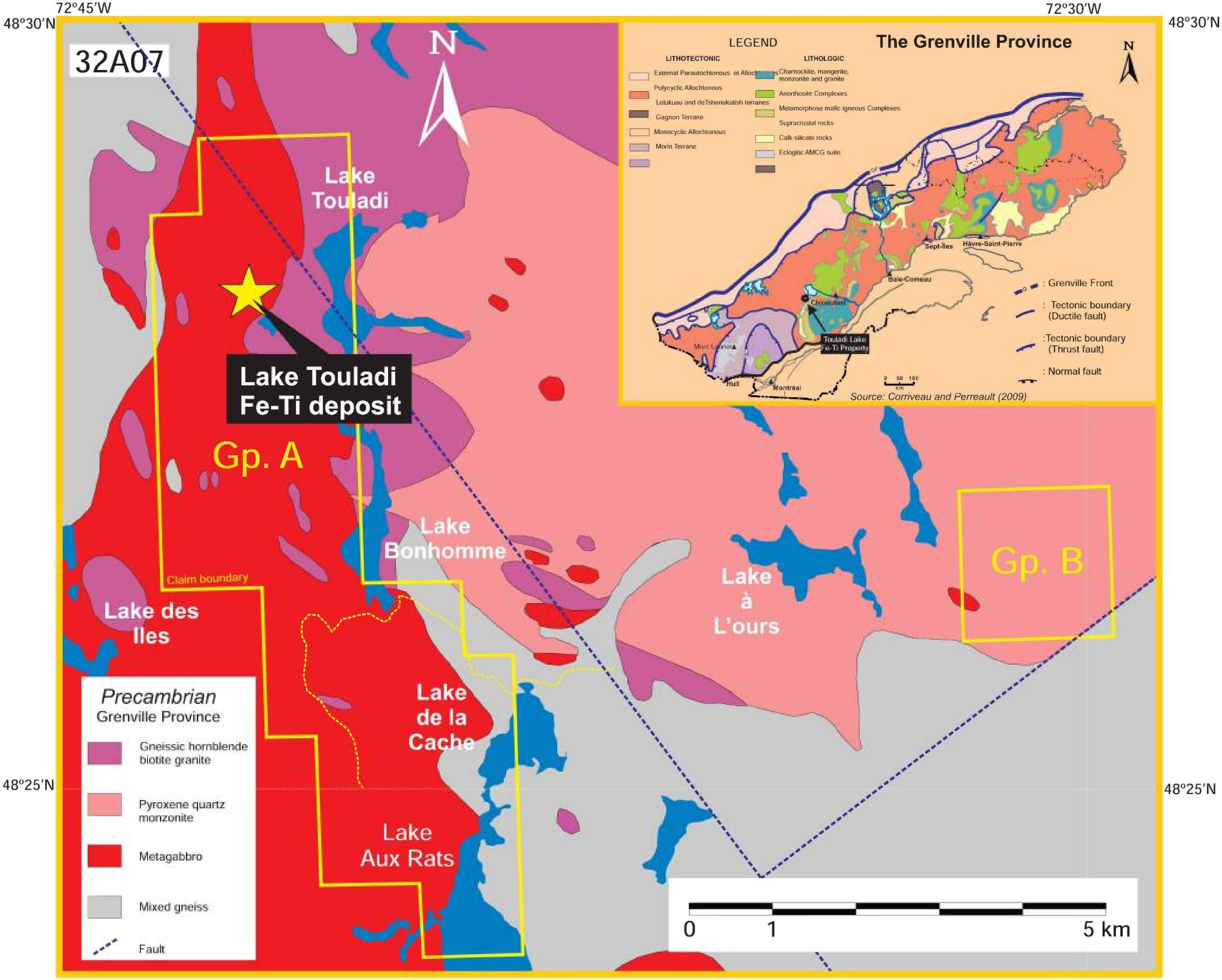
property consists of three groups of claims, the larger group consisting of 42 claims covering 2,399 ha and encompassing the principal Ti-Fe mineralization discovered west of Lake Touladi (Figure 1). Access to the property from Montreal, Quebec, is via Highway #40 east to the city of Trois-Rivière, where we proceed to Highway 55 north and provincial road 155 until we reach the shore of Lake St-Jean at the village of Chambord. From the intersection, we turn north on Provincial Route 169 and travel 17 km to the city of Roberval. Logging roads built by Abitibi Bowater are accessible from provincial road 167 and lead to less than 1 km north of the Touladi main mineralization. The topography of the Lake Touladi area is typical of the Canadian Shield i.e. rolling hills reaching between 60 to 350 m in height with an abrupt network of rivers and numerous lakes of irregular shapes.

3.2- Regional Geological Setting

The Precambrian rocks underlying the Lake Touladi property are part of the Canadian Grenville Province (Figure 2). The Lake Touladi area is underlain by high-grade plagioclase-rich gneiss and amphibolites, along with quartzites and pyroxenites derived from limestone. Metamorphosed sub-concordant gabbroic intrusions are found throughout the gneisses (Bray, 1959, 1977). These rocks are typically medium to coarse-grained, and composed of plagioclase, pyroxene and iron oxides (magnetite, ilmenite) with hornblende and biotite, near the contact with the gneisses. They show little foliation but the larger bodies may show some compositional layering. Some aplitic gabbros accompany many of the largest bodies and generally intrude the coarser rocks. Gabbros rich in titaniferous magnetite are similar in mineralogy, but apatite is more abundant. Plagioclase (labradorite or calcic andesine) may reach 80% in the anorthositic gabbros. Microcline granites come in a variety of types, from small lenses or bands in gneiss to large bodies of igneous appearance. Most of the foliations plunge to the NE and are moderately steep. This suggests a general isoclinal folding with overturning to the SW.

3.3-Property Geological Setting and Mineralization

The Lake Touladi Fe-Ti deposit forms a large N to SSE-trending elongated body of meta-gabbros, which are locally anorthositic. The gabbro outcrops span a width of 1.2 to 1.6 km west



Source: Corriveau and Perreault (2009)

Figure 2. Geology of the Lake Touladi area.

of Lake Touladi, but magnetite concentrations are found near the eastern margin only. This is a medium to coarse-grained (3-10 mm), dark grey rock with sub-ophitic to hypidiomorphic texture. It has considerable bluish plagioclase mixed with grey or mauve plagioclase, pyroxene, hornblende, biotite magnetite and ilmenite. On the east side, the gabbro is in contact with a coarse, locally pegmatitic, microcline granite.

The mineralized rock consists of concentrations of medium-grained magnetite and ilmenite, with feldspar and ferromagnesian silicates, forming dense layers or lenses several cm-thick, separated by narrow bands of silicate-rich material. Lenticular banding is distinctive because of segregation and marked differences in the proportions of mafic silicates and iron or titanium oxides. This rock is dark grey and weathers to a rusty color. In several places, concentrations of apatite were associated with the magnetite.

There are five previously identified mineralized zones (A to E) principally composed of magnetite and subordinate ilmenite (Bergmann, 1957a, b). Zone A is 575 m long and 130 to 350 m wide with a visual estimate of 30 to 50% magnetite. The zone may extend to 975 m in length. Zone B strikes NE and measures 575 X 250 m over a low positive magnetic reading. Field observations yielded gabbroic outcrops with 30 to 50% magnetite. Zones C (280 X 50 m), D (200 x 175 m; 35-40% magnetite) and E (a small circular bodies containing 20% magnetite) were secondary targets and were not investigated thoroughly (Figure 3).

Recent petrographic descriptions of selected ore-bearing Touladi rock samples indicate a gabbroic composition typified by a granular, coarse-grained texture (LUMINX, 2008). The rocks are composed of clinopyroxene, orthoyroxene, altered olivine, amphibole, plagioclase, biotite, apatite, zircon and opaque phases. The opaque phases form 30-45% of the samples and include: magnetite, magnetite with ilmenite exsolution, ilmenite with hematite exsolution and pure ilmenite, with minor to trace abundances of gahnite, rutile, goethite, pyrite, pentlandite, chalcopyrite and Co-bearing Fe-Ni sulfide, in decreasing order. The relative content of Fe-Ti-oxide phases vary significantly. Some samples contain 70-75 % magnetite, 25-30% ilmenite (titano-magnetite present with exsolution lamella) and 0-5% titano-magnetite/Ti-rich hematite

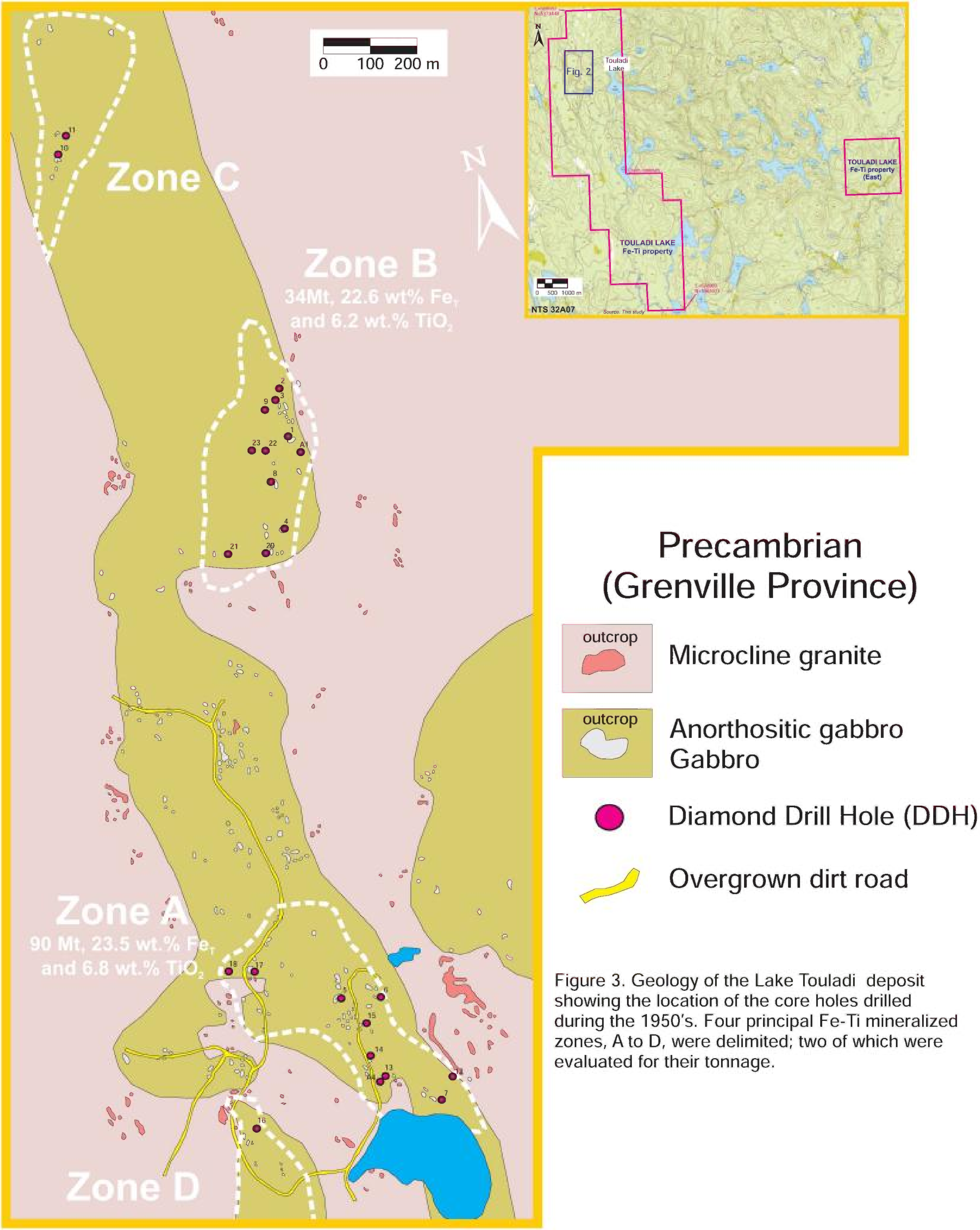


Figure 3. Geology of the Lake Touladi deposit showing the location of the core holes drilled during the 1950's. Four principal Fe-Ti mineralized zones, A to D, were delimited; two of which were evaluated for their tonnage.

(as exsolution lamellae). Others include 50-65% ilmenite (mainly pure individual or paired phases) and 35-50% magnetite (mainly with ilmenite striations).

Over 1800 m of diamond drill core was extracted by the Roberval Mining Corporation, concentrated mainly in the A and B zones (Bergmann, 1958; O'Neill, 1975). A total of 18 short holes, totaling 350 m, were drilled to depths ranging from 18 to 30 m in widely separated sites. The average grade was established at 23.6 wt. % Fe and 6.92 wt. % TiO_2. A further 1480 m of core has been collected in six long holes (A1 to A6) across zones A and B, testing them for vertical continuity over 275 m in depth.

3.4-Historical Mineral Resources

Surface mapping, magnetic surveys and drilling defined the length of the mineralized body in the A zone at 275 m. Using an economic depth cut off of 160 m, O'brien et al. (1975) obtained an historical tonnage of 90 Mt available for open pit mining running at 23.5 wt. % total Fe and 6.8 wt. % TiO_2. The mineralized body of the B Zone has a length of 550 m with an average width of 92 m. Again, using a depth cut off of 160 m, there is an historical tonnage of 34 Mt at approximately 22.6% wt. % total Fe and 6.2 wt. % TiO_2. There is a possible 124 Mt of mineralization in these two zones down to a minimum depth which an economical mining operation normally attains, grading 23.3 wt. % total Fe and 6.6 wt. % TiO_2. Another historical estimation given in Kennedy and Volin (1959) asserts a value of 85 Mt for the A and D zones averaging 17 wt. % total Fe and 5.97 wt. % TiO_2, whereas Zone B has an historical reserve of 24 Mt grading 19 wt. % total Fe and 5.99 wt. % TiO_2.

3.5- Heliborne Magnetic Survey (2008 and 2010)

The results of the airborne geophysical survey flown over the northern segment of the Lake Touladi property (Létourneau, 2008) can be best summarized in key contour maps which illustrate the First Vertical Derivative (FVD) and Total Magnetic Intensity (TMI) field variations in linear mode (Figures 4, 5). In the area of the main Fe-Ti showings, the maps reveal an alternating pattern of strong high and low NS-oriented magnetic signatures. This corresponds to

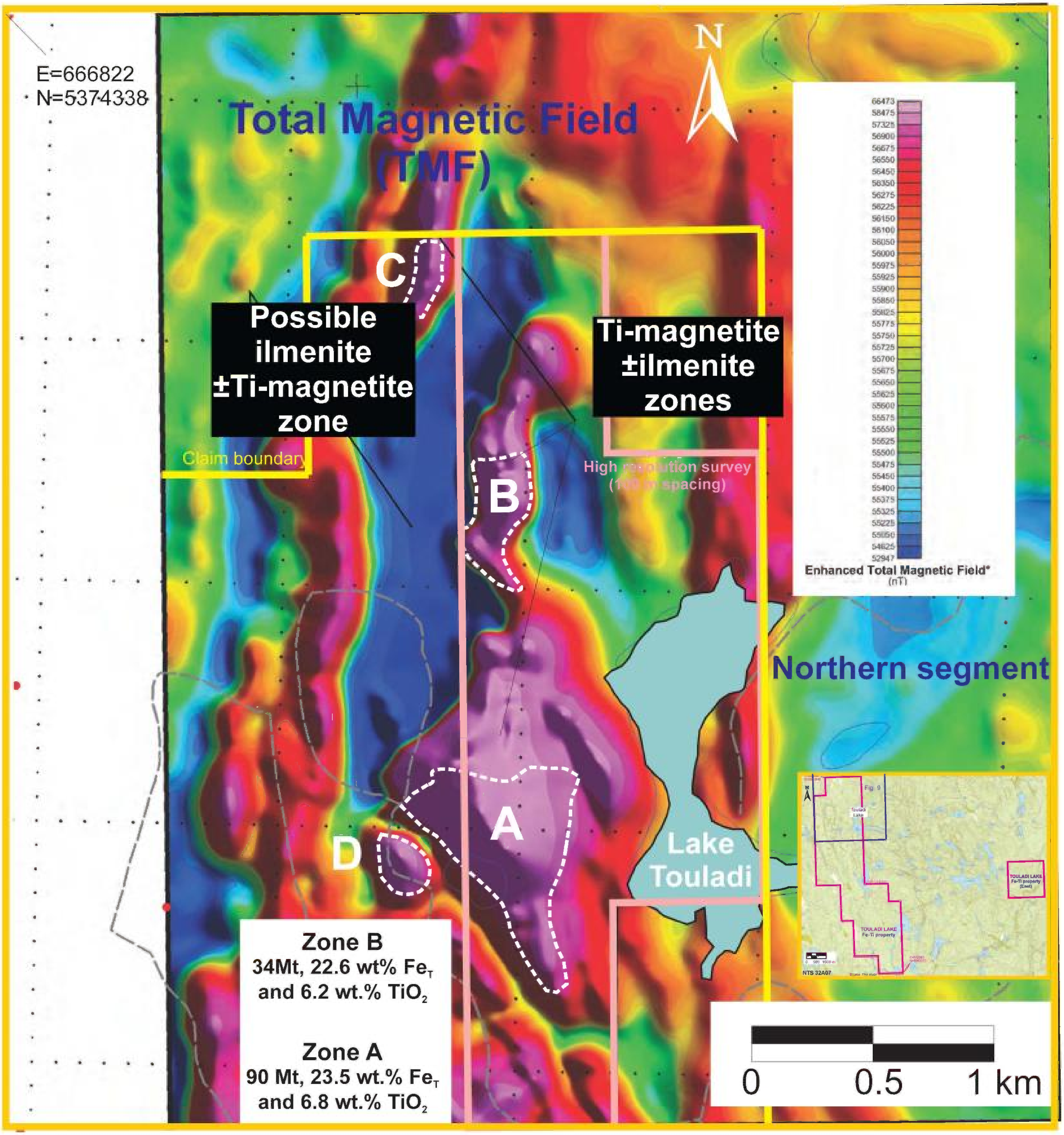


Figure 4. Enhanced Total Magnetic Field (TMF) contour map in linear mode showing the NS-oriented alternating patterns of strong high and low magnetic signatures associated with the Lake Touladi Fe-Ti deposit, northern segment. UTM Coord.; NAD83; Zone 18N; E=Easting; N=Northing.

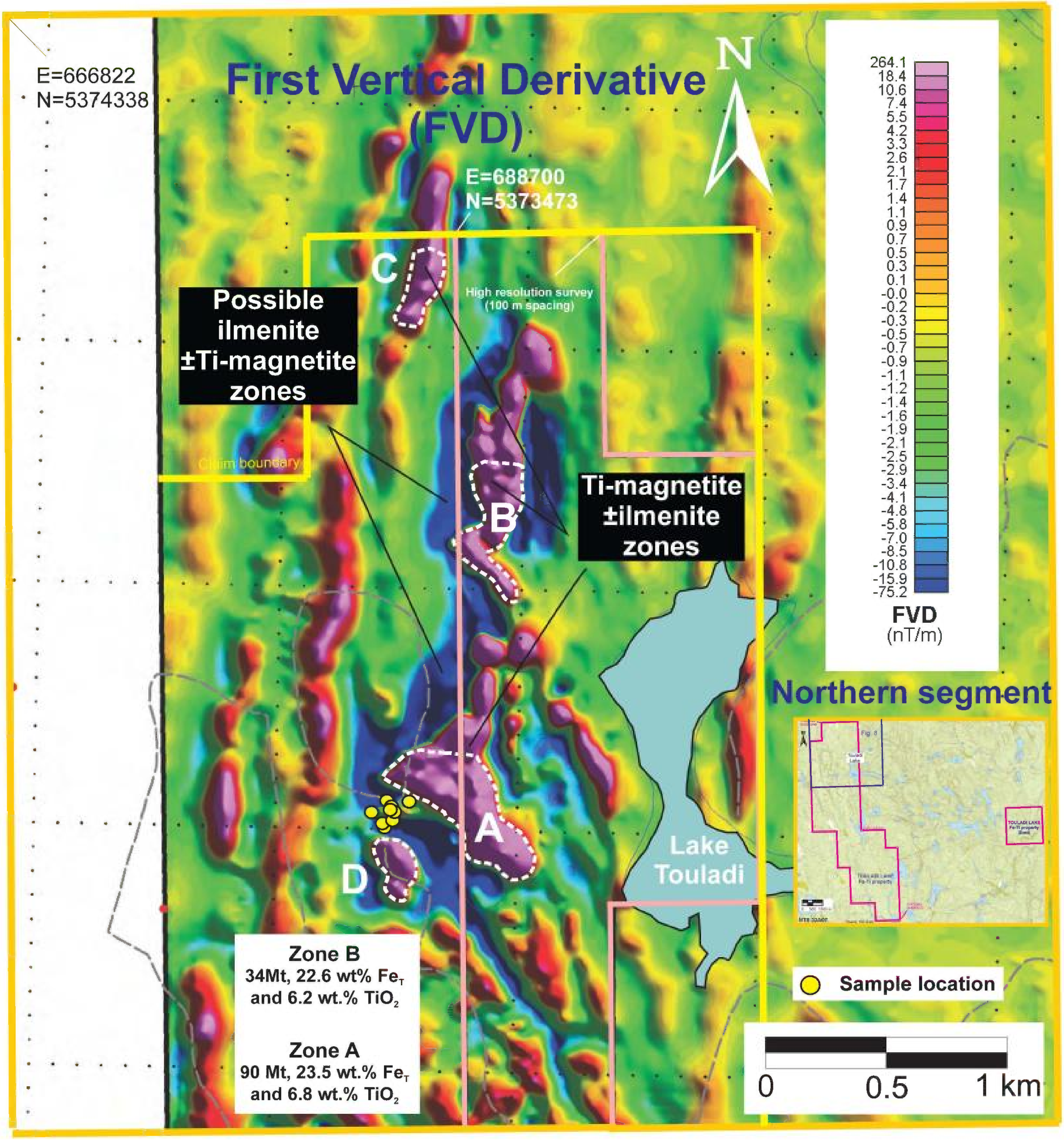


Figure 5. First Vertical Derivative (FDV) contour map in linear mode showing the NS-oriented alternating patterns of strong positive and negative signatures associated with the Lake Touladi Fe-Ti deposit, northern segment. UTM Coord.; NAD83; Zone 18N; E=Easting; N=Northing.

nT/m intervals of -67.2 to 264.1 in the FDV plot which translate into a 13,400 nT difference in the Total Magnetic Intensity field. There are two NS-oriented zones of magnetic highs juxtaposed on their western side by parallel zones of strong magnetic lows. The FDV linear map allows the recognition of the four mineralized zones (A to D) associated with magnetic highs defined by earlier ground-based magnetic surveys and deemed interesting enough to be submitted to drilling (Bergmann, 1958). The zone of magnetic low juxtaposed west to the four main positive anomalous zones extends for nearly 3.3 km with a maximum width of 475 m. This extensive area seems to have been largely ignored during the previous exploration work.

Another important anomalous area, albeit less well contrasted within the background readings, appears to the west. It extends in a SSW-NNE direction for ~3.2 km and is characterized by several small-scale areas of positive anomalous readings, some of them juxtaposed to the west by strong negative lows. The airborne mag survey indicates that most of the magnetite-rich zones submitted to drilling are associated with high positive nT values (Figures 4, 5).

The southern segment of the Touladi property (Létourneau, 2010) displays overall comparable magnetic signatures to their northern counterparts, with zones of elevated magnetic values ranging to 60,000 nT (pink hues), up to 5,000 nT above typical background values (green-yellow hues) (Figure 6). The Total Magnetic Field (TMF) contour map reveals high magnetic values extending for more than 10 km in a SSE direction, closely corresponding to the occurrence of metagabbroic rocks (Bray, 1977). There is no pronounced negative anomalous zone such has observed in the northern segment (Figures 4, 5) and there are few anomalous zones (deep blue hues) with less than 1,000 nT below background values. However, we can identify at least three major zones characterized by elevated magnetic values (Zones E, F and G; Figure 6) possibly representing metagabbroic rocks containing high magnetite contents. Zone E is the largest (4 km x 1.8 km) but has a more diffuse character, whereas zones F (2 km x 500 m) and G (2.8 km x 800 m) are more sharply defined with a clear core of high magnetic values.

As mentioned in the preceding sections, there are several possible interpretations of strong magnetic lows occurring adjacent to magnetic highs; one being an artifact caused by a dipole effect (Huber, 2014) or a "magnetic shadow" Boily (2014). The dipole effect is an artifact

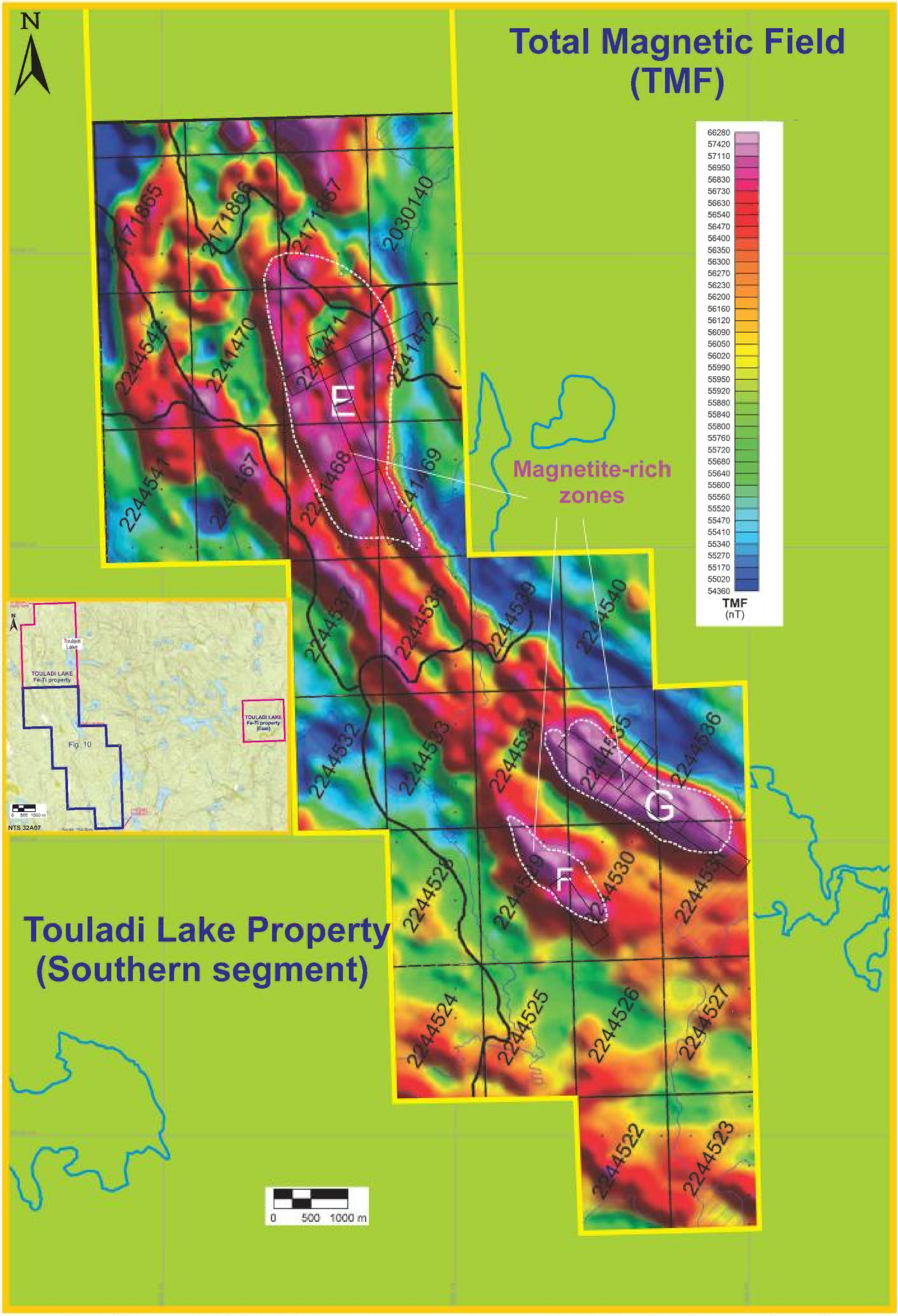


Figure 6. Total Magnetic Field (TMF) contour map showing the NS to SE-oriented alternating patterns of strong positive and negative signatures associated with the Lake Touladi Fe-Ti deposit, southern segment. UTM Coord.; NAD83; Zone 18N; E=Easting; N=Northing.

usually expressed in low magnetic values occurring at the edge of strong magnetic highs associated with vertical to sub-vertical magnetic layers such as dykes, mineralized strata or in this case mineralized layers.

Boily (2014) suggested that the strong magnetic lows observed in the northern segment of the Lake Touladi property could reflect: a) Mineralized bodies consisting of reversely polarized Ti-magnetite accompanied by subordinate amount of hemo-ilmenite having remanent signatures, b) Mineralized bodies dominated by remnant hemo-ilmenite with secondary amount of normally polarized Ti-magnetite or c), Magnetic shadows (dipole effect)

4.0- Standard Magnetic Inversion (SMI), Magnetic Vector Inversion (MVI), Probability of Remanence (PR): Results and Interpretations.

Conventional susceptibility (K_m) 3D maps created by the Standard Inversion Model (SMI) reproduces closely all high magnetic signatures provided by the First Vertical Derivative contour map (Figure 7a, b). Conventional susceptibilities >0.2 define rock volumes occupied by a magnetic gabbro/gabbronorite containing from 20 to 50% magnetite and titano-magnetite (Bergen, 1957a, b; Boily, 2014). The four main zones, A to D, investigated by sampling and drilling (O'Brien et al., 1975; Bergen, 1958) are clearly identified. Zone A is the largest reaching various thicknesses of 320 to 580 m with the overall expression of a saddle-shaped body dipping gently to the east. To the north, a N-S-oriented tubular-shaped body underlie Zone B mineralization with a maximum thickness of 150 m. Two other zones C and D are smaller in extent and volume with maximum thicknesses of 100 m.

When the susceptibilities calculated from the Standard Inversion Model (K_m >0.2) and that computed from the Magnetic Vector Inversion (MVI; K_m > 0.1) are superposed, there is significant overlap for the volumes occupied by mineralized zones A and B (Figure 8). West of the two main zones, the high MVI susceptibility volumes are shifted up to 50 m either to the east or west of a NNE-oriented band of high conventional susceptibility values. However, when the MVI susceptibility values become greater than 0.2, the western zone disappear.

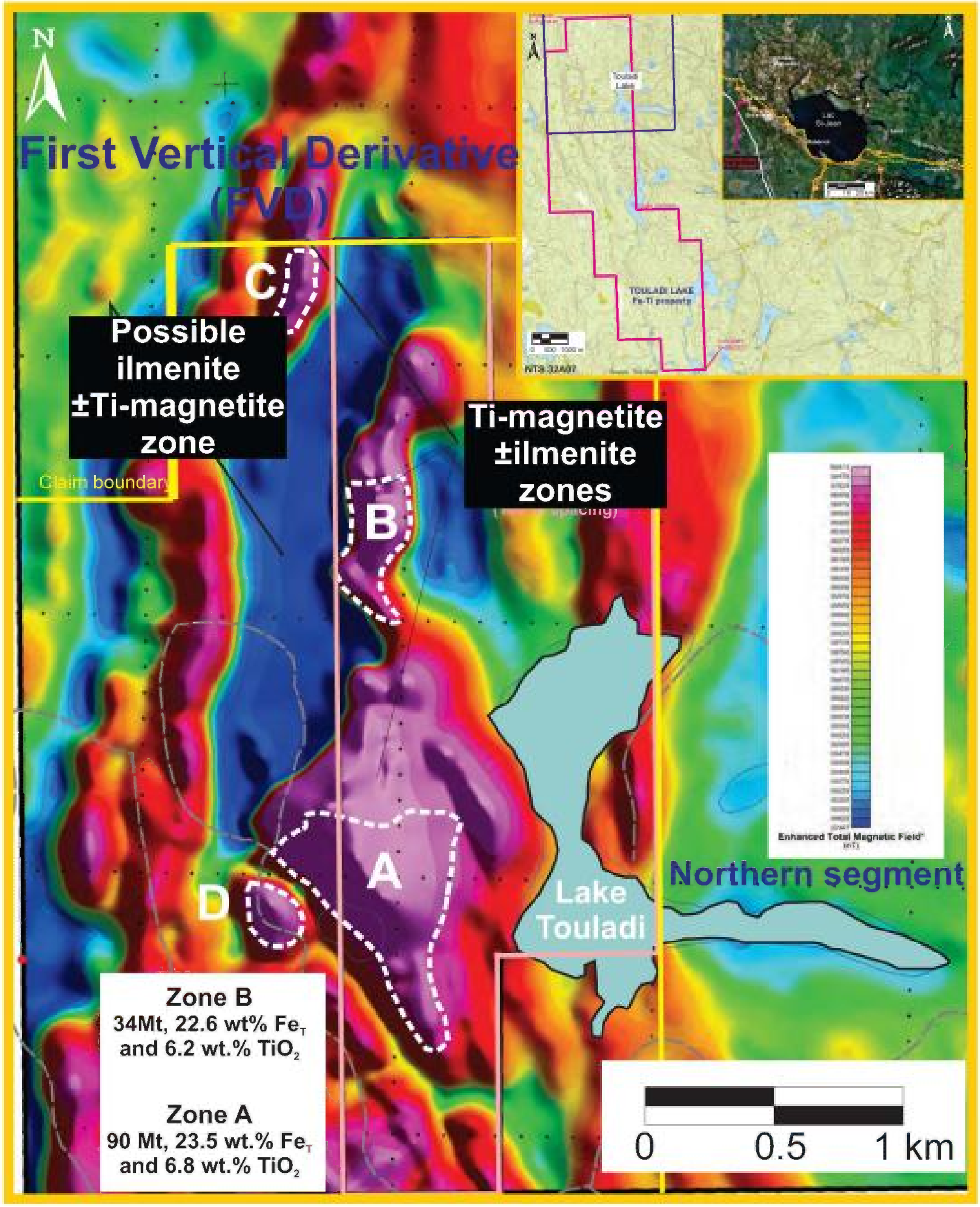


Figure 7a. Enhanced Total Magnetic Field (TMF) contour map, Touladi Lake Fe-Ti deposit, northern segment.

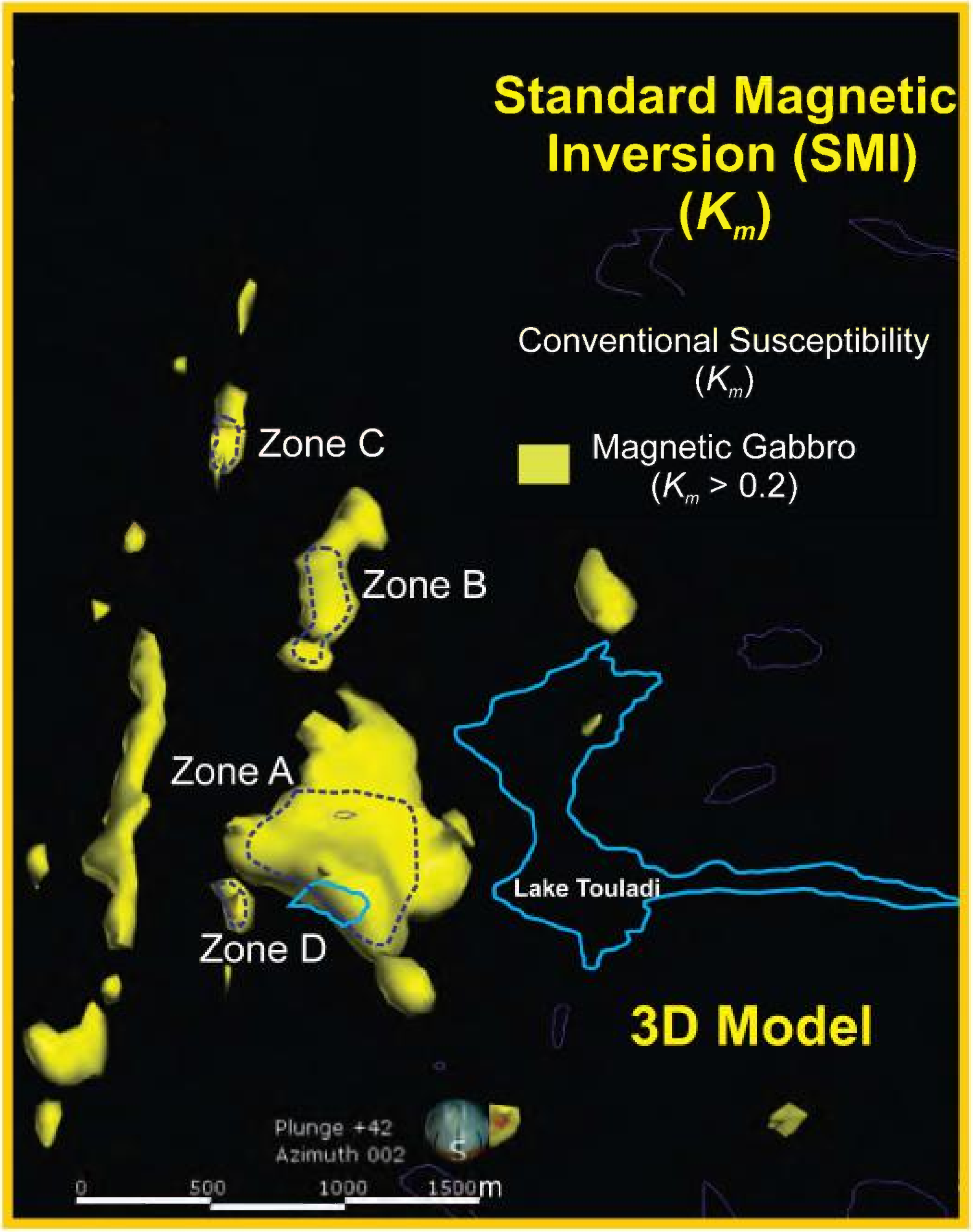


Figure 7b. Conventional susceptibility 3D model generated by the Standard Magnetic Inversion (SMI) modeling. K_m > 0.2 reveals magnetic volumes of rocks defined by the Lake Touladi magnetite-bearing gabbros. Note the similar profiles from the FVD and SMI maps including the mineralized zones.

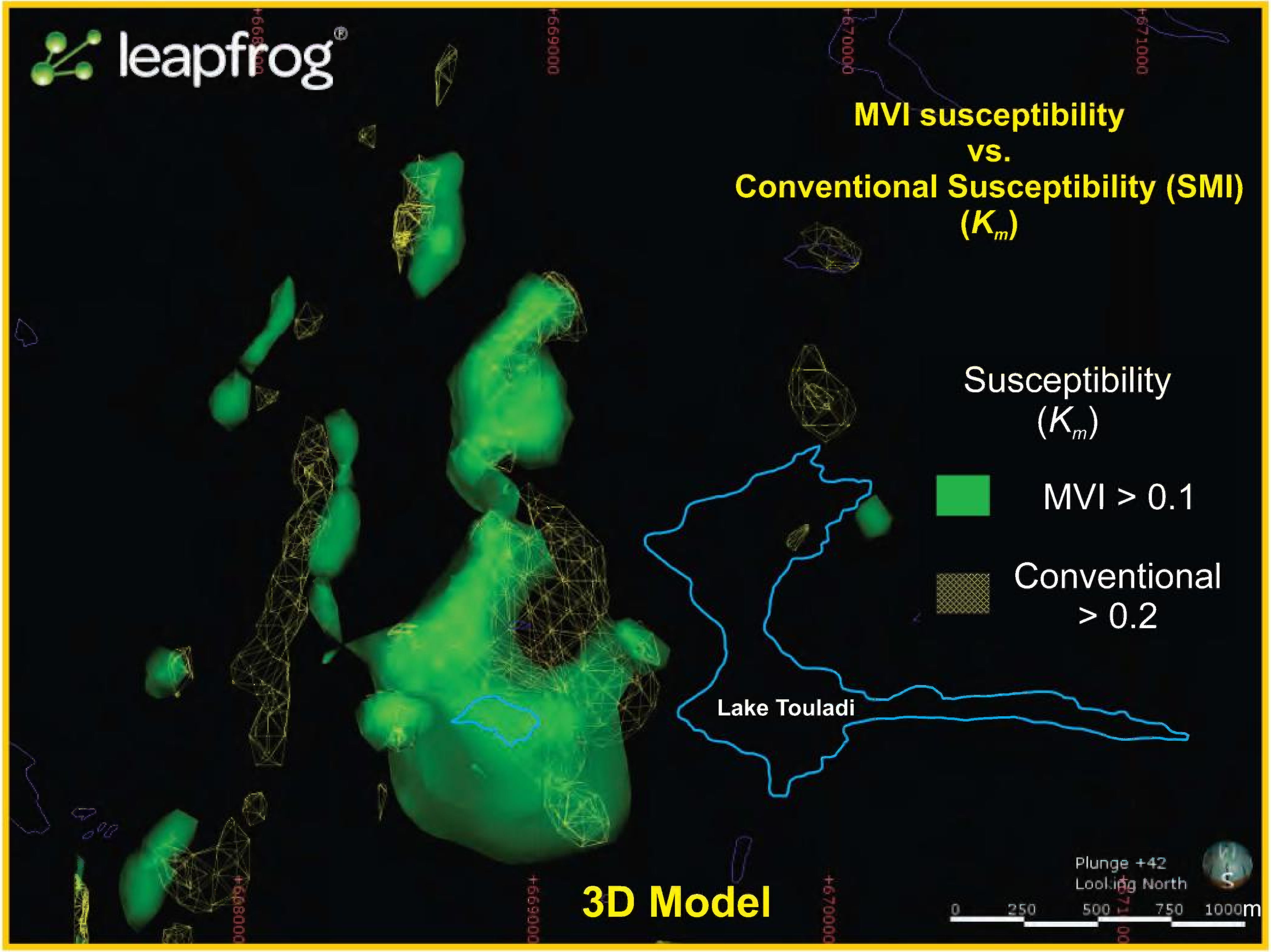


Figure 8. Superposition of susceptibility volumes generated by SMI and MVI modeling and showing some significant overlap, especially immediately west of Lake Touladi where the main magnetite-rich bodies are located. However, the MVI computation expands the zone of susceptibility (K_m) > 0.1 and creates some adjacent zones to the SMI susceptibility values > 0.2.

There is a strong spatial correspondence between volumes generated by MVI susceptibility values > 0.2 and Probability of Remanence numbers > 0.3 (Figure 9). This indicates that the magnetism in these rocks is largely controlled by high concentrations of ilmenite and/or hemo-ilmenite which show a strong remanent component relative to magnetite or titano-magnetite which magnetism is principally induced. Furthermore, zones with high probability of remanence and high MVI susceptibilities are generally characterized by conventional susceptibility values < 0.2, strengthening the hypothesis of ilmenite-rich bodies.

The 3D modeling also reveals two remanent (ilmenite-rich?) bodies in contact with magnetite-rich gabbroic layers (?) (Figure 10). In Zone A, these are located to the west and underneath the saddle-shaped volume, dipping steeply to the NE and SE respectively. Zone B presents a tubular N-S-oriented shape magnetite-rich gabbro wrapped by a remanent envelope. The superposition of ilmenite and magnetite-rich "layers" may indicate mineralogical and compositional zoning within the gabbroic/gabbronorite body. Although the Lake Touladi area is characterized by poor rock exposures, Bray (1959, 1977) observed examples of sill-like gabbroic outcrops, primary layering of oxide-rich zones and lenticular banding due to segregation and marked differences in the proportions of mafic silicates and iron-titanium oxides. Perhaps the Touladi gabbroic rocks define a series of thick sill-like differentiated intrusions containing lower layers of ilmenite-rich rocks overlain by magnetite-rich zones. The various shapes revealed by the 3D modeling might also be related to multi-phase folding of the gabbroic intrusives. The main foliations in the Touladi area plunge to the NE and are moderately steep. Bray (1959) suggests a general isoclinal folding of the Grenvillian rocks with overturning to the SW.

Comparison with the 3D modeling results provided by the Peninsula magnetic data (see Boily, 2015) shows the former containing high volumes of remanent rocks (i.e. PR > 0.2) extending to nearly 10^1 to 10^2 X those generated for the Lake Touladi property. Furthermore, there are significant differences in ore mineralogy and composition of the mafic rock containing the mineralization. The Touladi mineralization is hosted by a large layered gabbroic/gabbronorite crescent-shaped intrusive or a succession of parallel differentiated gabbroic/gabbronoritic sheets or sills. The intrusive and/or sills are encased in plagioclase-rich gneiss and amphibolites. The Peninsula ore is concentrated in ilmenitite or ilmenitite norite layers/ bodies injected in barren

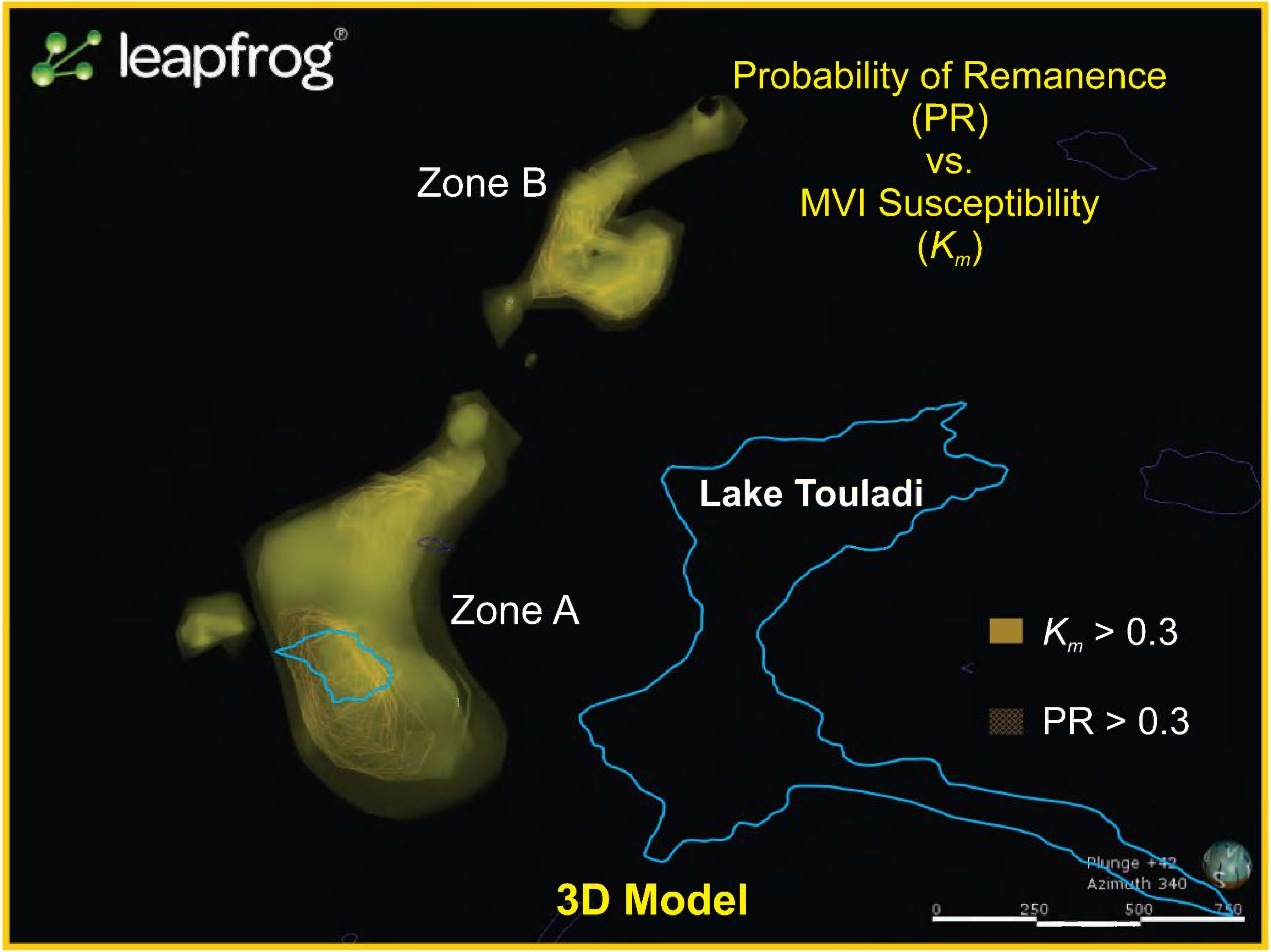


Figure 9. Probability of Remanence (PR) vs. MVI susceptibility (K_m) 3D modeling showing the inclusion of PR rock volumes > 0.3 within the susceptibility volumes > 0.3.

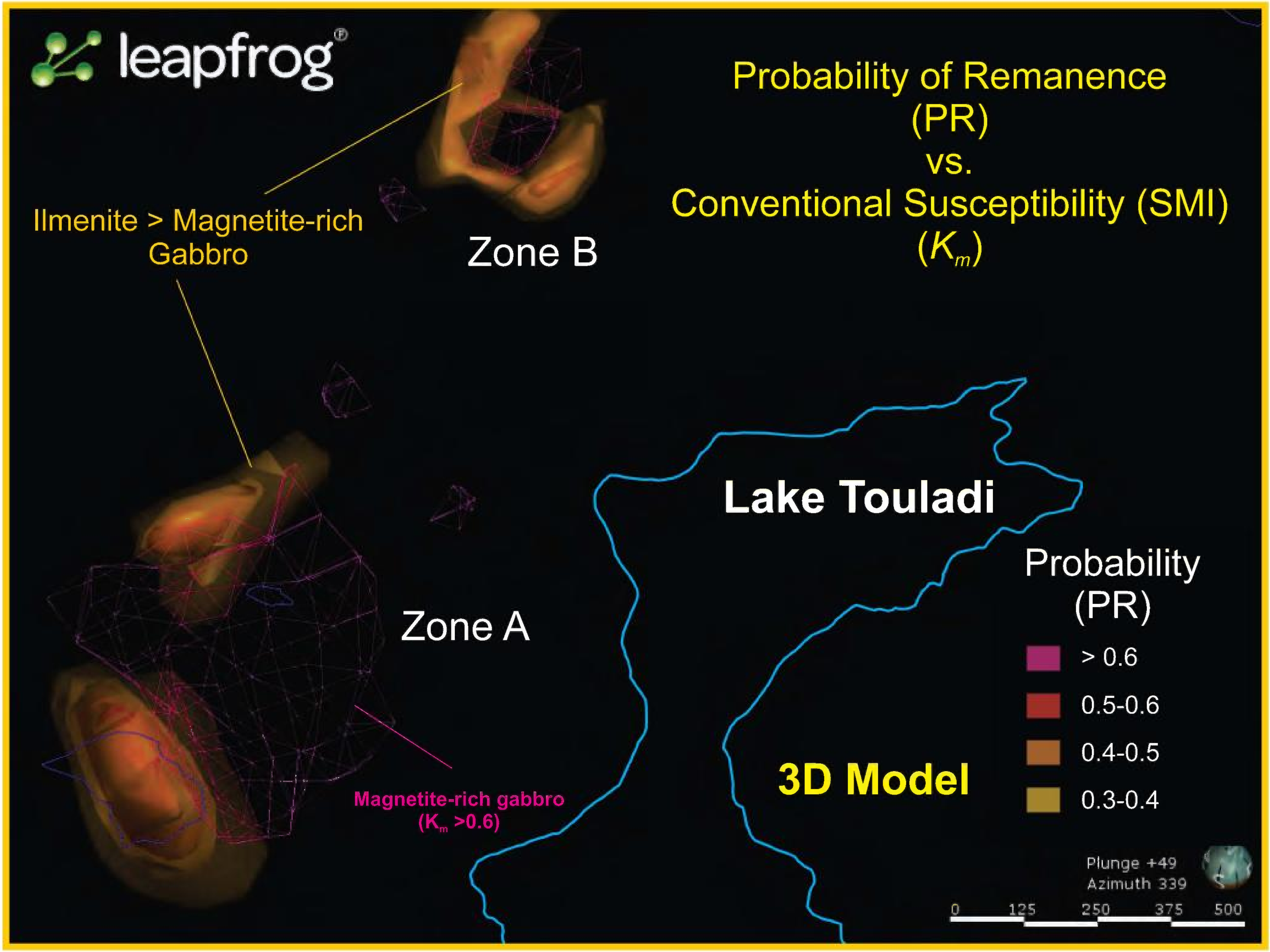


Figure 10. Probability of Remanence (PR) vs. Conventional Susceptibility (SMI) 3D modeling showing probable volumes of rocks rich in magnetite (SMI) and rich in ilmenite (PR) associated with mineralized zones A and B.

coarse-grained coeval anorthosite. It contains > 95% of magnetically remanent hemo-ilmenite with the rest constituted of rutile and magnetite (2-3%). The Lake Touladi ore mineralogy is complex (see Boily, 2014) comprising 30-65% Fe-Ti-oxides in various proportions of magnetite, magnetite with ilmenite exsolution, hemo-ilmenite and pure ilmenite. It is therefore more difficult to interpret the remanent and induced magnetic signatures of the Touladi gabbroic body/sills since at least three minerals, magnetite with ilmenite exsolution, pure ilmenite and hemo-ilmenite, may show different but an increasing remanent component relative to that of induced magnetism.

There are two possible ilmenite-rich drilling targets revealed by the highest probability values (Figure 11) and located within formerly explored zones A and B. Five vertical holes each having a maximum depth of 400 m are considered, with four holes collared at the west end of Zone A and a single hole investigating Zone B. The UTM coordinates, elevation, azimuth, plunge and depth of each hole are given in the table below.

Holeno	**Easting***	**Northing**	**Elevation**	**Azimuth**	**Plunge**	**Depth**
TOU2015_01	668770	5372566	527	---	-90	400
TOU2015_02	668722	5371542	511	---	-90	400
TOU2015_03	668732	5371082	502	---	-90	400
TOU2015_04	668781	5370994	501	---	-90	400
TOU2015_05	668875	5370881	501	---	-90	400

* NAD83; Zone 18N

Table 1. Proposed diamond drill holes for the investigation of ilmenite-rich zones within the Lake Touladi property.

We can summarily calculate an approximate tonnage for titanium using the results of the 3D modeling, particularly that of the MVI and Probability of Remanence. We need to set some parameters and assumptions: 1) Volumes of rocks showing PR > 0.3 are considered titanium ore, 2) The titanium ore-bearing Touladi gabbroic body/sills contain a maximum of 55% Fe-Ti oxides (see Bray, 1959; Bergen, 1957a, b) of which 80% would be constituted of ilmenite/ hemo-

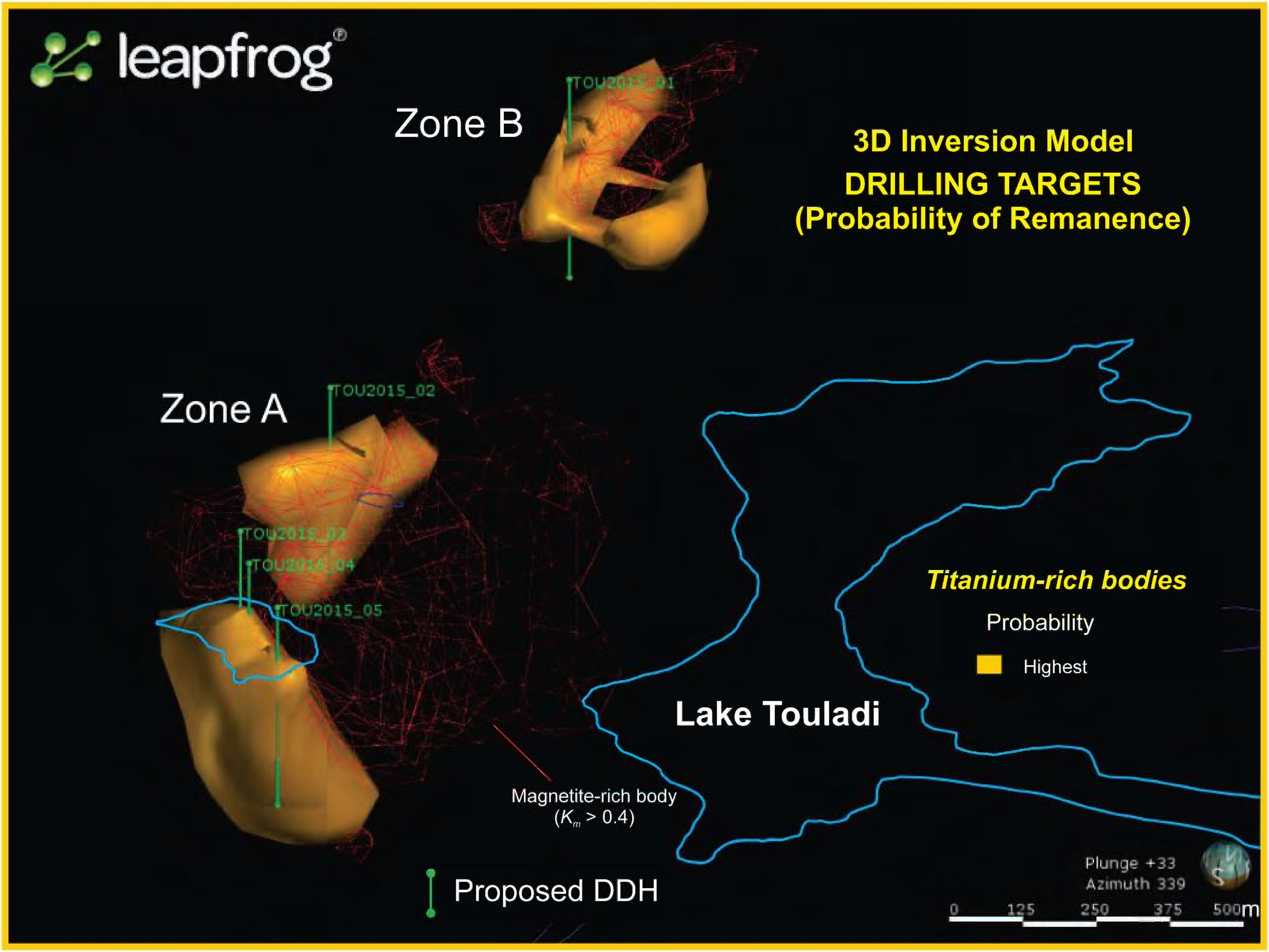


Figure 11. Proposed diamond drillholes investigating titanium-rich bodies within mineralized zones A and B, Lake Touladi property.

ilmenite and a maximum content of 20% magnetite, 3) An average density of 3.83 g/cm^3 for the ore bearing rock is adopted and 4), Semi-quantitative SEM analyses of the Lake Touladi oxides yielded concentrations of 50 wt.% TiO_2 for the ilmenites (Boily, 2014)

An estimate of 177Mt is then calculated with grades of 22 wt. % TiO_2 for the ilmenite-rich volumes comprised within zones A and B. This is an upper estimate since the maximum depth reached by the mineralized rocks under Zone A is -100 m ASL, with an upper intercept of 400-425 m. Therefore, there is a large tonnage of potentially mineralized rocks sitting at a depth bracket which would be deemed "uneconomic" for open pit mining. If Probability of Remanence values > 0.6 are chosen, then the "ore" volume is considerably less, generating a tonnage of only 22 Mt with the same titanium oxide grade. The author believes the real tonnage is probably in the lower bracket range (50-60 Mt).

Future exploration work, including a drilling campaign, initiated in the southern segment of the Lake Touladi property should focus on areas which display the following geophysical signatures: 1) Negative anomalies of the TMI or RMF, 2) Low or negative conventional susceptibilities underlying these anomalies accompanied by, 3) Rock volumes with strong MVI susceptibility values (> 0.2) and, 4) Narrower volumes surrounded by high MVI susceptibility envelopes and characterized by elevated remanent probability numbers (i.e. > 0.3).

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