Geophysical Overview of the VTEM dataset Maseres Project, Quebec, Canada

For:

Melkior Resources Inc.

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Submitted by

Sharp Geophysical Solutions

Contents

Disclaimer

Sharp Geophysical Solutions has made every attempt to ensure the accuracy and reliability of the information provided in this report. However, given that this is an “interpretation” the information is provided "as is" without warranty of any kind.

Introduction and Objectives

During late January to mid February 2018, a helicopter-borne geophysical survey (VTEM™ plus and horizontal magnetic gradiometer) was conducted by Geotech Ltd. over the Maseres Project in the Urban-Barry mineral area of Quebec (Figure 1). The line spacing was 100 m with lines oriented N-S, and the tie-line spacing was 1000 m with lines oriented E-W. A small area in the northeast of the property was flown with lines oriented E-W and tie-lines flown N-S to acquire the data over the NNW arm of a possible fold.

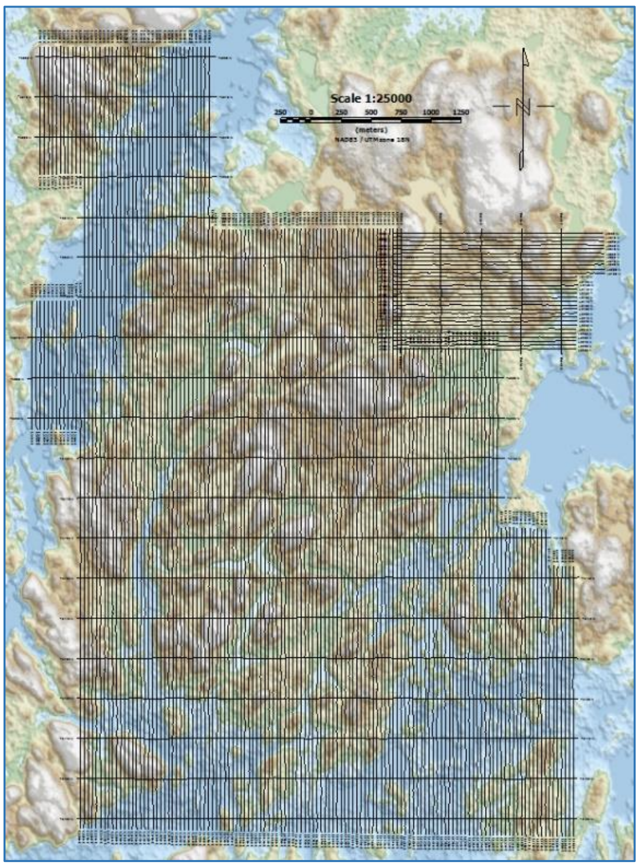


Figure 1 - 2018 airborne survey over the Maseres Property

The purpose of this review is to:

- Provide a geophysical overview of the EM data and provide a structural interpretation from the magnetics, terrain and EM where such features impact the EM data.
- Provide areas of interest for future focus.

General Geologic Setting and Mineralization

Figure 2 shows the location of the Maseres property in relation to the prolific Urban Barry Greenstone Belt. The mapped geology suggests the area consists mostly of metasediments, and felsic and mafic intrusvies, with gabbro dykes striking NNE-SSW to NE-SW. However, as will be seen within this report, it seems likely that given the magnetic signature of the regional data that the geology may be similar to the Urban Barry Greenstone Belt to the north.

Figure 3 the regional magnetics of the area. It seems the Maseres Property lie in a disrupted zone within an overall NE-SW fabric, as seen by the NE-SW dykes, the obvious NE-SW structure cutting through the property and strong magnetic signature to the southeast.

Figures 4 and 5 show the location and definition of the mineralization in the Urban Barry with respect to the important structural trends that likely affect/influence the mineralization as well as the different styles. The most important influences appear to be:

VMS deposits
Shear zone hosted
Intrusion related

From the images it seems the important directions are NE-SW and ENE-WSW, and from Red Dog, potentially N-S. Windfall gold mineralization zones are oriented subparallel to the Maseres shear zone.

Melkior provided material from a 2017 soil sampling test grid over the northeastern part of the formational conductor covered by the VTEM survey. These images were brought in as an overlay (approximately located) to aid in the determination of targets. These assays yielded results of 121 ppb Au, 59 ppm Ag, 93 ppm Cu, 78 ppm Zn, and 30 ppm Pb. A mineralized boulder is located approximately 4 km to the northwest along the formational conductor that was covered by a historic VTEM survey.

The southeast section of the Maseres Project included two historic gold in sediment samples of 84 ppb and 120 ppb. These samples have been approximately located. The northern of these although showing a nice B-field EM response also coincides with a building on the edge of a lake, so the EM reponse likely has more to do with the structure rather than a potential target. The southern sample coincides with a questionable weaker, earlier time anomaly. These will be discussed further in the report.

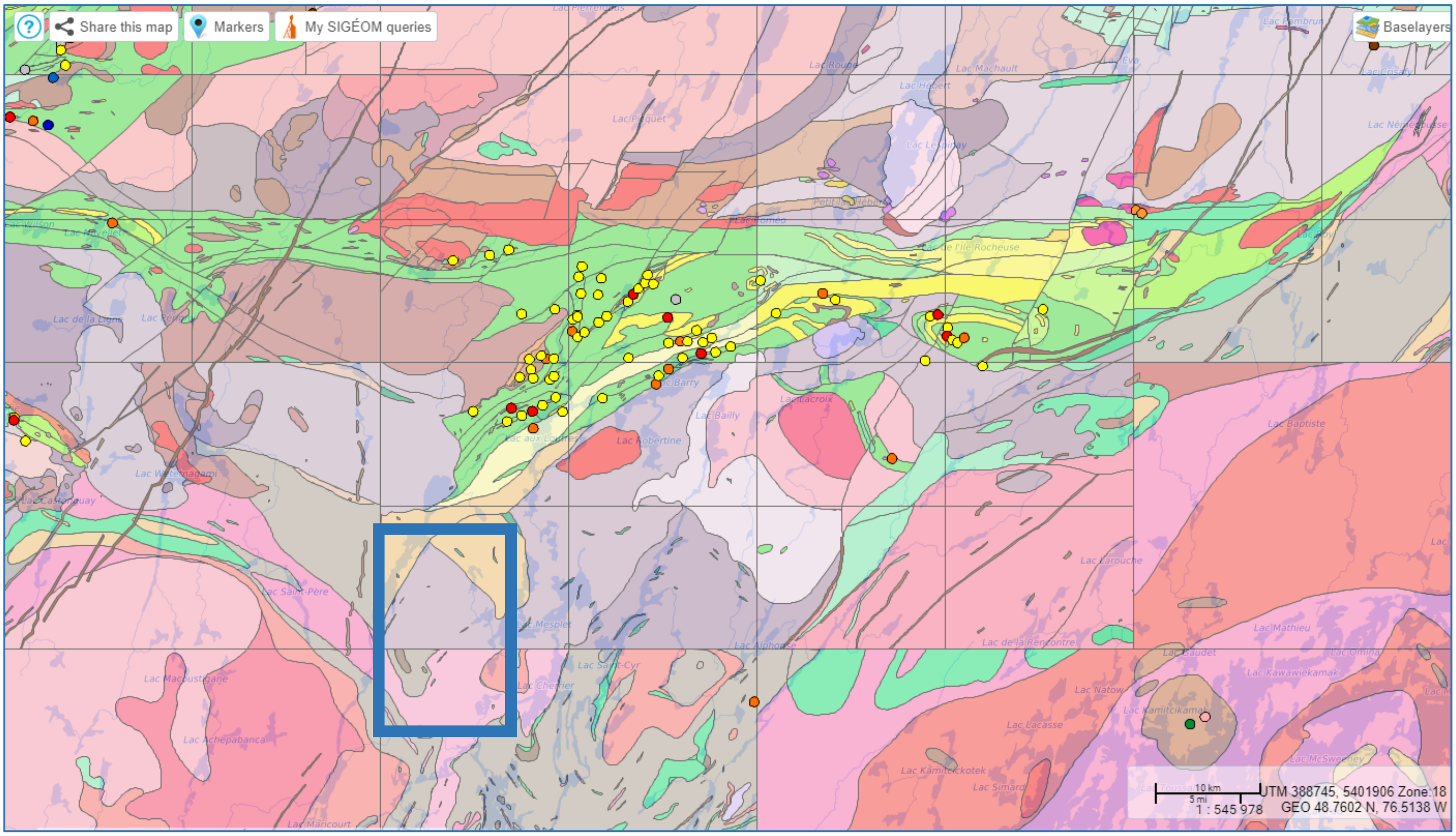


Figure 2- Regional Geology with outline of survey area – with known occurrences

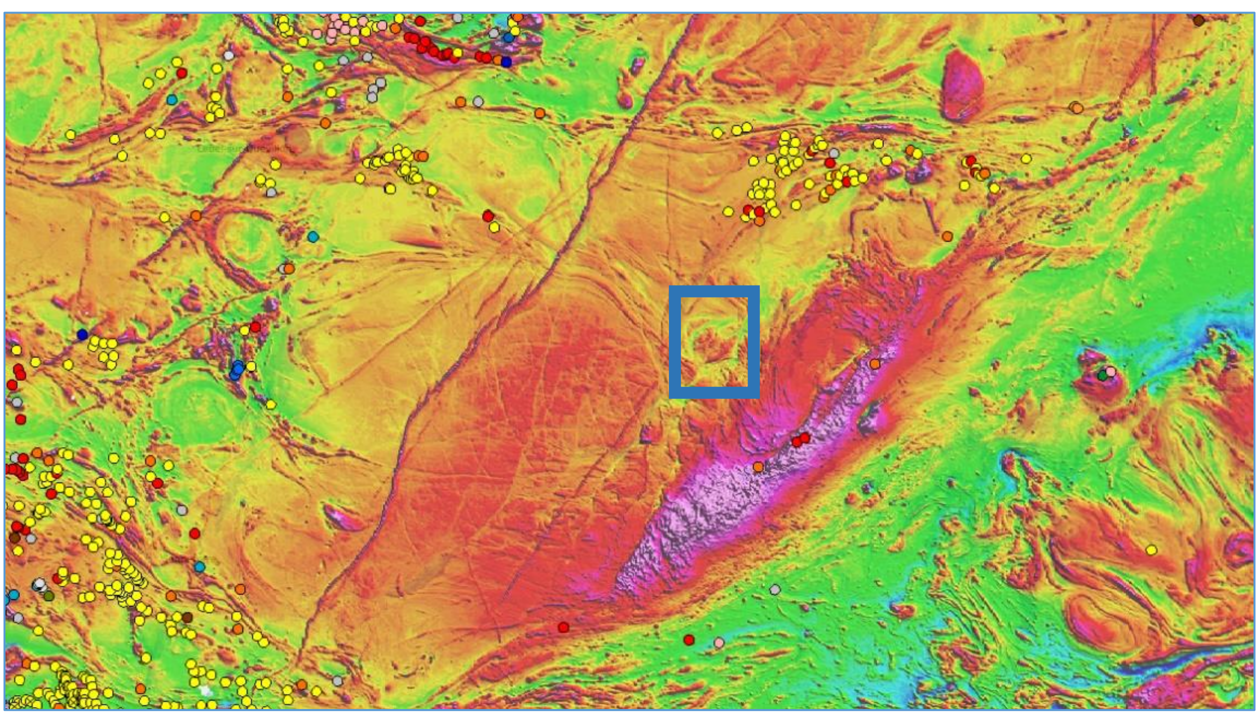
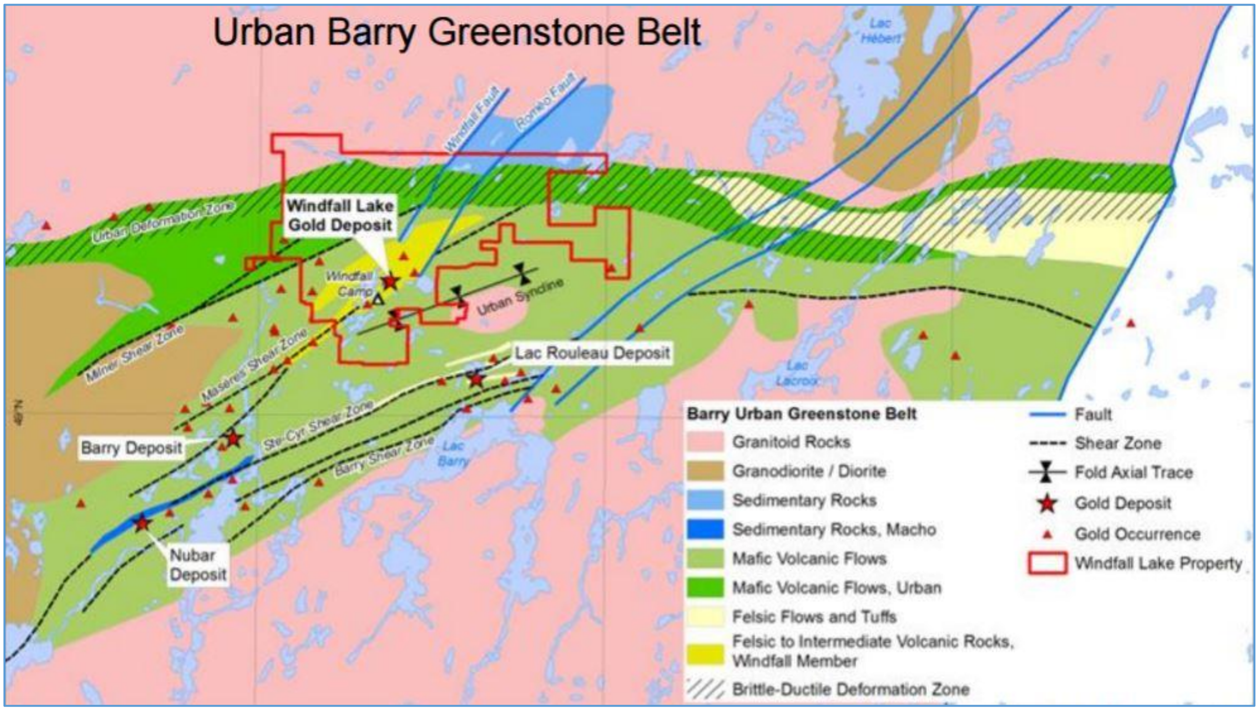
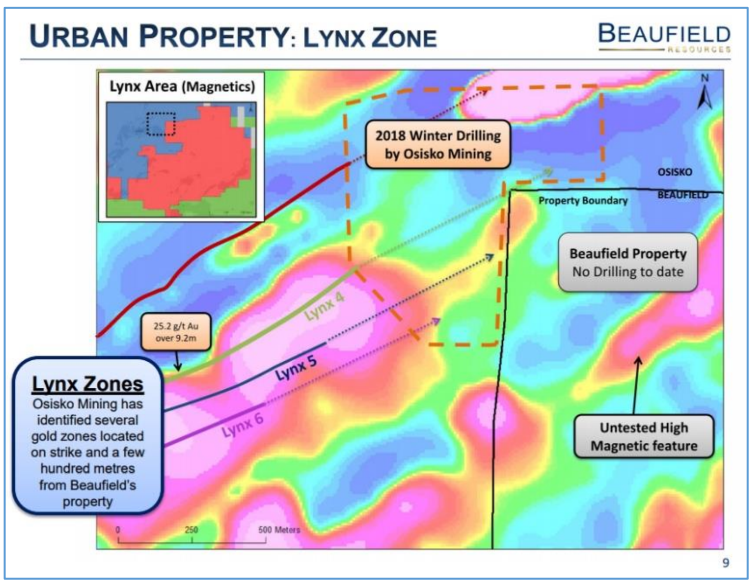


Figure 3- Regional magnetic image with the outline of the survey area - with known occurrences





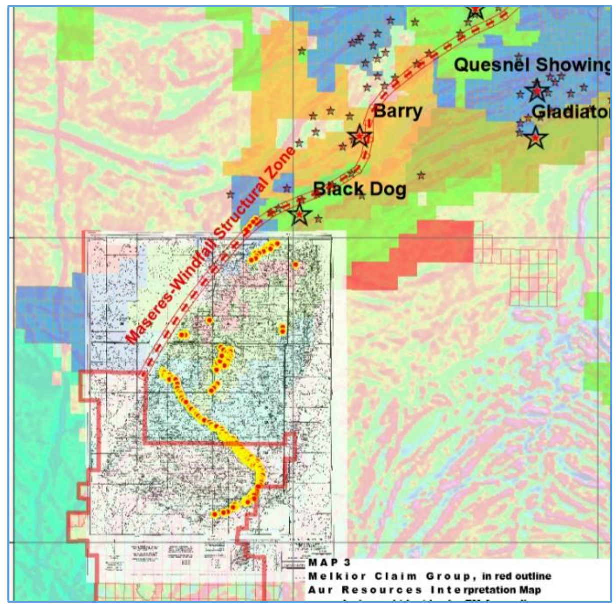
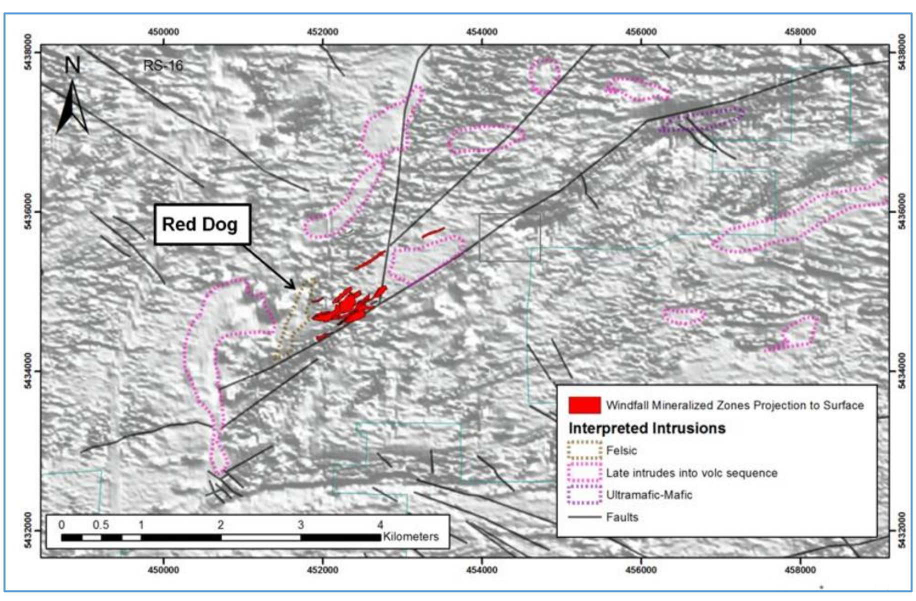


Figure 4- Images showing known occurrences, geology and the main structural trends – obtained from various websites, and from Melkior Resources Inc.



The Property is located in the Urban-Barry greenstone belt in the central-eastern part of the Abitibi sub-province. The Urban-Barry belt is an E-W trending band of mafic to felsic volcanic and volcanoclastic rocks extending one hundred thirty five (135) kilometres along strike with a maximum width of twenty (20) kilometers north-south. The belt is bounded to the north, south and west by large granitoid and tonalite batholiths and to east by the Grenville geological province.

A number of syn-volcanic to post-tectonic intrusive rocks of ultramafic to mafic to felsic composition intrude volcanic rock units of the Urban-Barry belt.

The entire Urban-Barry volcano-sedimentary sequences are affected by a series of E-W and NE-SW striking faults and shear zones.

Regional metamorphism is typically in the lower greenschist facies. To the east near the Grenville Front the metamorphism reaches lower amphibolite facies.

Numerous styles of mineralization have been identified in the Urban-Barry Belt (see Figure 2.2). These include:

(1) VMS with Au, Ag, As, Cu and Zn: Lac Kent
(2) Orogenic Shear Zone Hosted Gold: e.g., Barry Deposit
(3) Intrusion-related (Atypical) Gold: e.g., Windfall Lake

A summary of key features for the gold deposits in the Urban Barry is shown on Table 1.1.

Figure 5- Above and below - taken from the2016 GM70100 report – Targeting and Field Validation in the Urban-Barry Belt for Osisko Mining

Table 1.1 Summary of major gold deposits in the Urban-Barry Belt

Name	Company	Type	Comments
Windfall	Osisko Mining	Atypical Intrusion-related	Associated with alteration at the lithological boundary of volcanics and porphyry dykes
Barry	Metanor Resources	Structurally controlled in typical orogenic gold veins	Alteration extends 20m from dykes. Hosted in a shear zone in mafic volcanics with abundant mafic dykes and quartz and feldspar porphyry masses. Gold in quartz-carbonate-albite-pyrite veins associated with sheared zones
Gladiator/ Arena/Spartacus	Bonterra Resources	Atypical Intrusion-related	Hosted in a highly silicified and altered sheared mafic volcanic, locally exhibiting intrusions of syenite and quartz porphyry. Smoky quartz vein hosted with tourmaline and chlorite occupying fractures. Veins mostly occurring at interface of units of differing hardness
Lac Rouleau (Zone 18)	Beaufield Resources	Au-rich shear zones - Structurally controlled in typical orogenic gold veins	Silicified breccia zone in felsic volcanic rocks. Locally rich ankerite and disseminated sulfides with quartz-albite-carbonates-tourmaline-fuchsite and mafic to intermediate dykes
Nubar-Souart	Osisko Mining	Structurally controlled in typical orogenic gold veins	Felsic to mafic volcanic and volcanosedimentary lithological rock units with local younger felsic to mafic intrusives. A major structure hosts mineralization characterized by strong brecciation and intense tourmaline alteration, this structure hosts numerous subvertical auriferous quartz-carbonate-tourmaline veins and mineralization.

What are the targets and how would they present in the geophysical data?

Interpretation of the High Resolution magnetic survey

A detailed interpretation of the high resolution magnetic survey (with integration of the SkyTEM data) was completed by D. Giovenazzo in July 2016. This included identification of major and minor structures, identification of different geological domains and different stratigraphic zones, identification of mafic and felsic intrusions, and development of a new geological interpretative map. Importantly, areas of magnetic destruction were noted that may represent alteration zones (Figure 4.2). These alteration corridors overlap with significant mineralization including Windfall, Barry, Gladiator and Lac Rouleau (Zone 18). Later felsic intrusives, such as the Red Dog Porphyry, were also observed and interpreted by D. Giovenazzo (see Figure 4.3). In particular, clusters were noted. These may represent favorable areas for Au mineralization.

grabs/DDH/Channel samples (treatments outlined in Section 4), alteration vectors, geophysically identified alteration zones (from broken conductor features from SkyTEM and mag destruction) and gold occurrences (Table 5.1). B zone soil Au anomalies were also noted however data were very limited.

Figure 6- Excerpts taken from the GM70100 report

Magnetic Data

Gold is almost always found in magnetic lows or flat zones (due to magnetite destruction associated with carbonate alteration, silicification etc.) not the magnetic highs that are normally considered anomalies (see Appendix 3 for magnetic susceptibilities of common rocks and minerals). Serpentinization is the only common alteration that may increase the percentage of magnetite but it is not commonly associated with gold deposition. As seen from the GM70100 report (excerpts shown in Figure 6) areas of magnetic lows which may represent alteration were identified from an interpretation of the magnetic data collected with the SkyTEM system in the Windfall area and correlates with areas of mineralization.

From Figure 5, both the Windfall and Barry deposits are believed to be associated with dykes.

EM Data

Electromagnetic methods (EM) can be used to map faults, contacts and alteration and on a local scale with ground geophysics - veins. Airborne techniques can identify areas of interest, for further follow up by ground work. Resistivity lows (conductors) may be associated with sulphides, graphitic zones, argillic alteration or sericite alteration, whereas carbonate/silicate alteration normally presents as resistivity highs (see Appendix 2). Graphite is a true conductor and is very conductive even at very low concentrations. It is also chargeable and is difficult to distinguish from metallic ore minerals.

Typically, with gold deposits, the target would be more resistive, however if the focus is for Au within a VMS type deposit, then if Cu is present the EM target would likely be more conductive. Therefore, the focus is for resistive zones along the formational conductors, small shoulders, or for VMS targets - areas of slightly higher conductivity along the formational features, or small strike length isolated anomalous zones.

Induced Polarization (IP)

When current is injected into the ground it causes some materials to become polarized. The phenomenon is called induced polarization and the physical property that is measured is called chargeability.

IP effects are normally seen in metallic sulphides, graphitic zones and clays. Therefore, chargeability is often used as a product in the exploration for different types of mineralization, and in groundwater investigations to identify clay zones.

Airborne IP Effect in Electromagnetic Data

The following can all produce Airborne IP effect:

- Faults
- Erosion of crystalline base
- Permafrost
- Clays
- Alteration
- Graphitic rock
- Metallic mineralization

Negative transients observed in airborne TDEM (Smith and Klein, 1996 etc.) are attributed to airborne induced polarization effects. However, the absence of negative transients does not preclude the presence of IP effects because the IP effect can take time to build up, or it may be obscured by conductive ground. The IP effect in the airborne data is generally seen in the early-mid off-time data, as a negative deflection in areas where there is a positive response in the on-time/early off-time EM data. It can usually only be identified in resistive areas.

Caution should be exercised when viewing the profile data, as the IP effect can be artificially created by levelling, filtering, residual spikes, and conductive zone geometry edge effects.

Geotech provided airborne IP anomaly selections in their overview. For the most part these lie within drainage areas and therefore are likely to be attributed to clays. However, where they lie along interesting magnetic features – low zones, dykes, faults, fold hinges etc., these should be considered for ground truthing.

Regional Magnetic Data

Figures 7, 8, 9 and 10 show the regional magnetic data with respect to the project area and Urban Barry mineralization and mapped structures. From the images it seems entirely possible that the Maseres Project lies along the same folded feature as the Urban Barry. However due to the disruption in the claim areas it is difficult to define the exact path, through the majority of area, at least from a regional scale. The NE-SW structure that disrupts the area has parallel features to the northwest (the Maseres Windfall structure zone) and near the Windfall zone 30 km to the NNE.

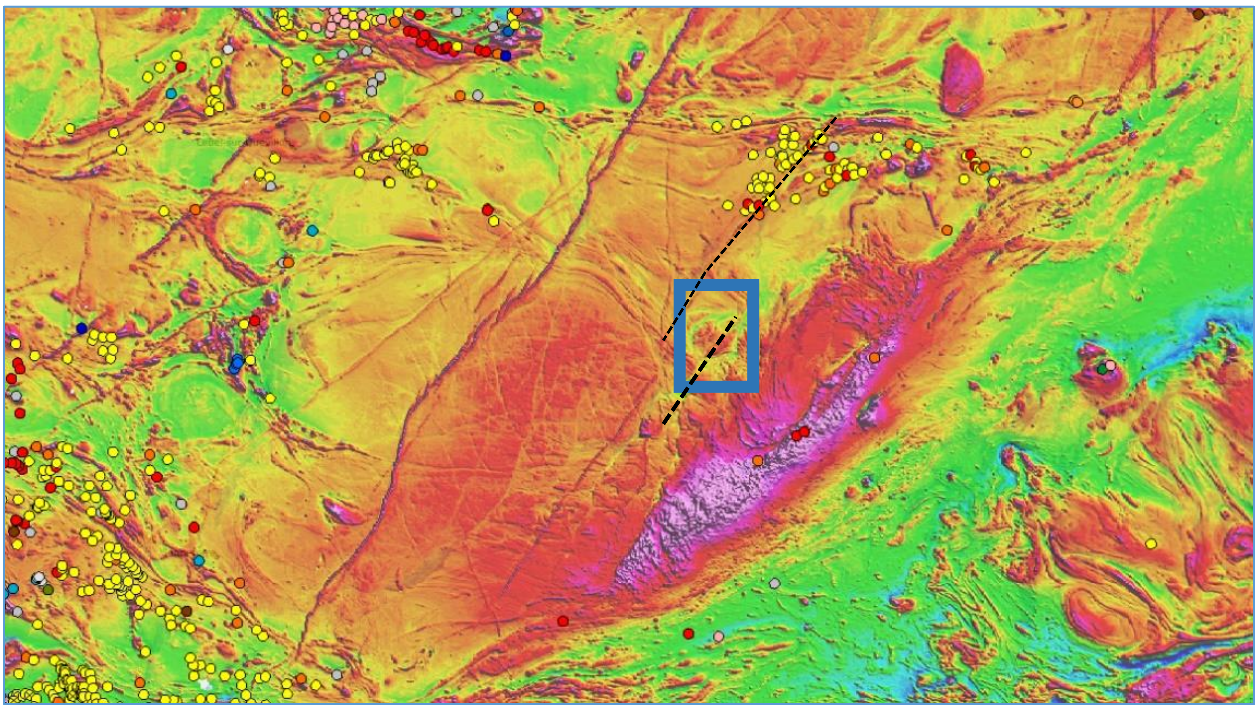


Figure 7- Regional magnetic data showing the structures in the Urban Barry relative to the mineralization and the large-scale structure of similar orientation in the Maseres Project area

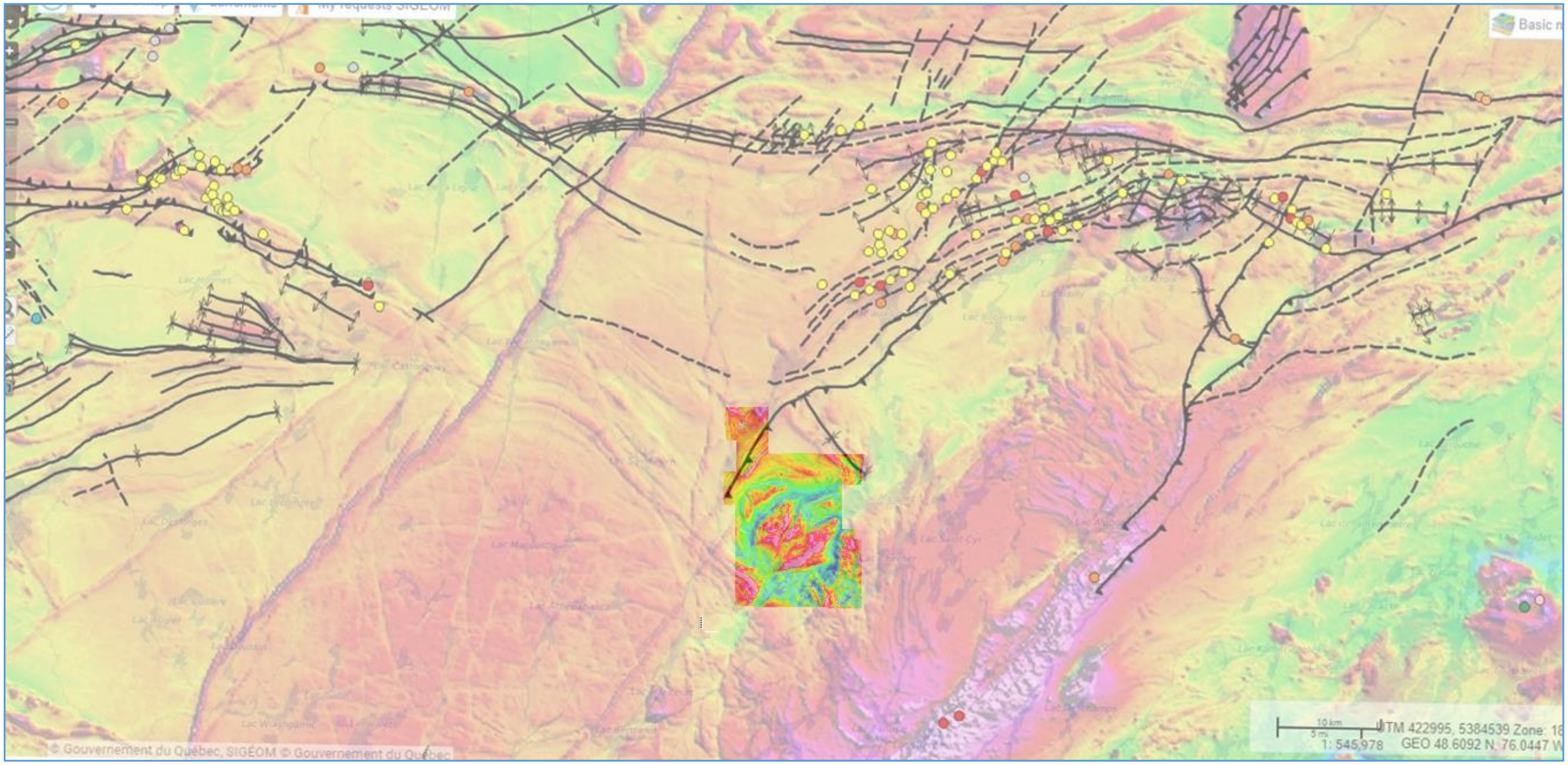


Figure 8- Regional magnetic data - approximately located with respect to the current survey area

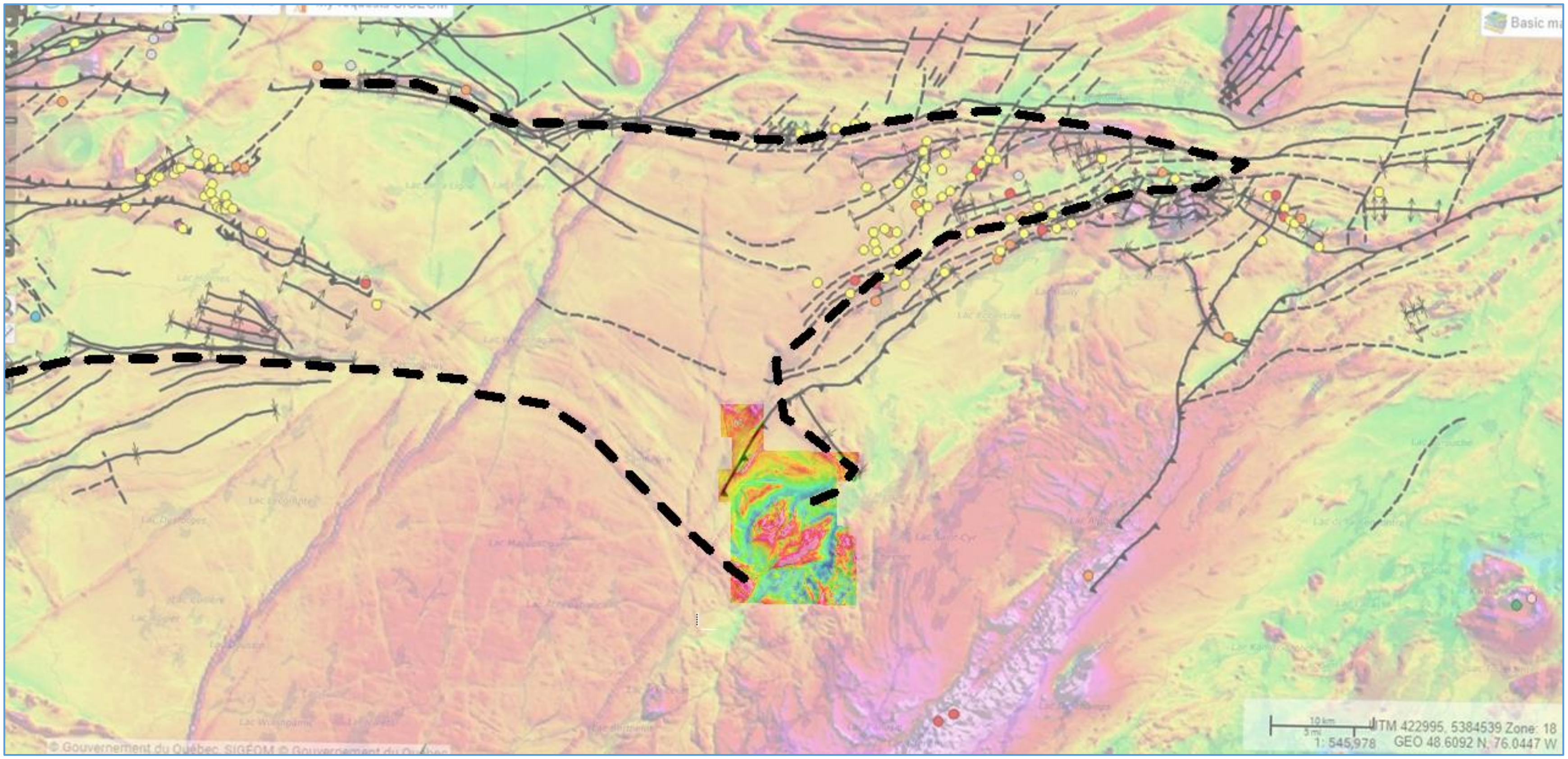


Figure 9- Regional magnetic data (this is an image overlay so it is only approximately located). The black dashed line represents a possible structural feature including the Urban-Barry mineralization to the north and its possible association with the Maseres Project.

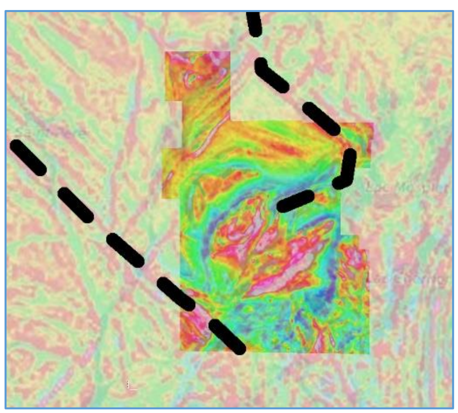


Figure 10- A closer look at the survey area - it is difficult to determine the exact location of the trend from the magnetic data

Review of new geophysical data from the VTEM survey

Quality of the Geophysical Data

Geotech provided a report, a GEOSOFT database, grids, maps, RDI sections and slices, and anomaly picks. A sample of the grids provided are shown in Figure 11.

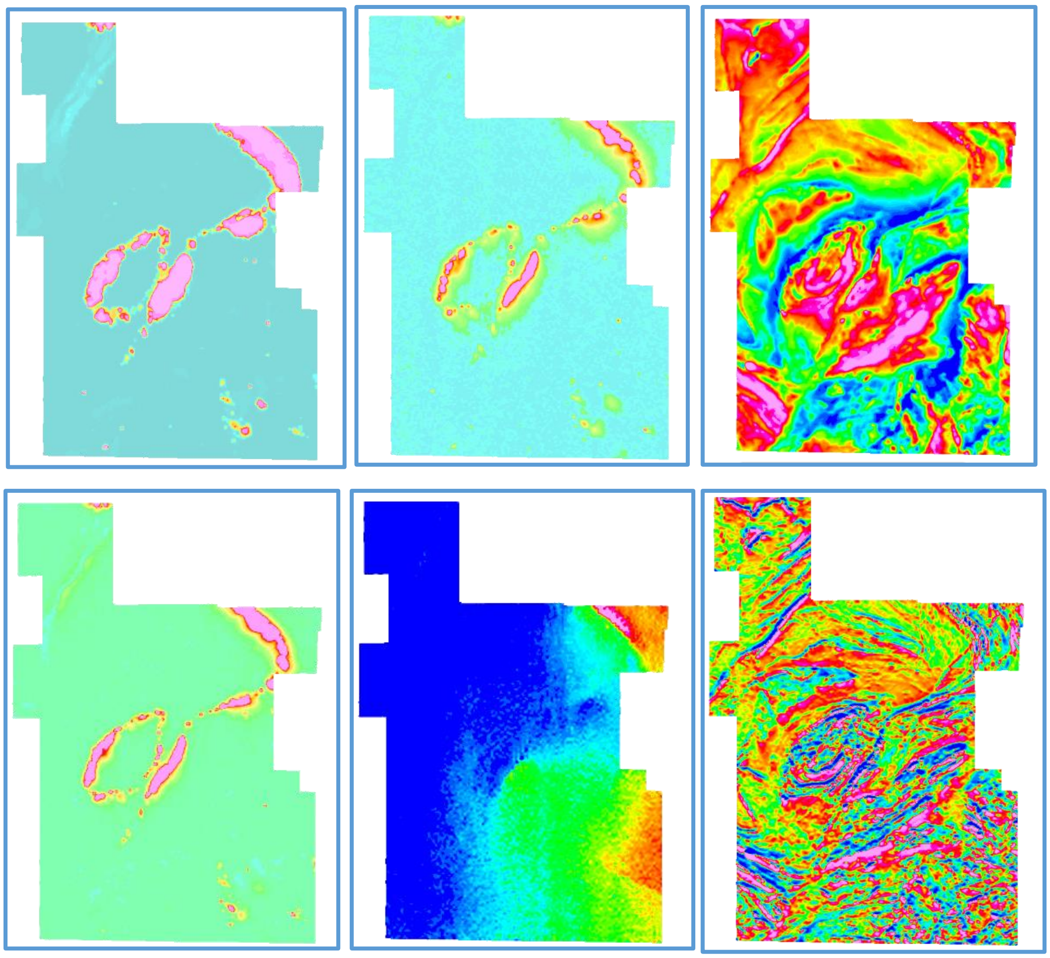


Figure 11- Sample of the grids provided by Geotech

The data is of good quality, however there is considerable "ringing" in the early EM data – likely due to the conductive overburden. Because unfiltered data is not provided, anomalies in the early time data may be questionable, since the degree of filtering is unknown. See Figure 12 as an example – this lies over the southernmost gold in sediment sample.

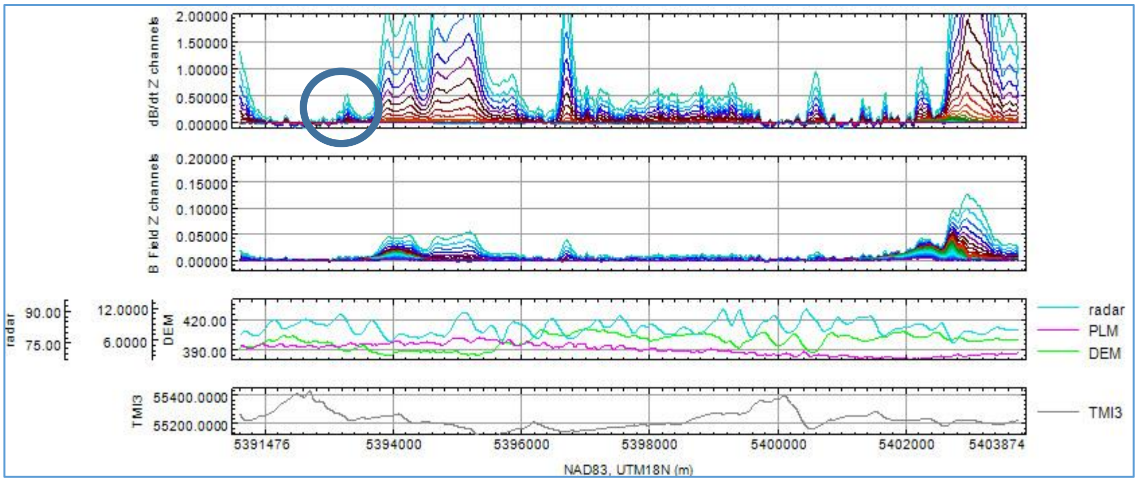


Figure 12 - Profile of the TDEM data- Line 1310 - the circled area shows the anomaly adjacent to the southern most historic Au sediment sample

All anomalies have been checked using Bing maps to determine if the features are due to culture and checked against the radar altimeter to determine validity. Radar fluctuations can falsely introduce anomalies or reduce the response of real features.

The majority of the anomalies are weak, and therefore do not have an X component response which can help provide a sense of the dip of an anomaly. This combined with the flight direction (with respect to the central survey region where the formational conductor and oval response lie near parallel to the flight direction) makes it difficult to not only determine dip directions but also to determine whether the anomaly is flat lying or dipping. In some cases where the sense is completely unknown the anomaly is solely located over the peak of the Z signature and shown by a zone which should encompass the entire feature.

Often the conductor axes are closely spaced and parallel to each other (as is the case of the formational conductor to the northeast of the claims), making definition of individual axes extremely difficult and therefore questionable.

Since the B-field component is calculated from the dB/dt data, it is therefore only as good as the data going into the calculation. Therefore, any single line B-field anomalies should be considered questionable as they may simply be due to noise from the original dB/dt data.

Geotech suggested that there were two kinds of anomalies in the area and provided anomaly picks which although are extremely helpful are not able to provide strike and dip information.

The two types of anomalies they suggest are:

- Strong conductors possibly associated with pyrrhotite and/or pyrite in iron formation
- or airborne IP associated with clays in low lying areas.

The magnetic data in this basic overview is only reviewed with respect to the EM data as an aid to defining structures (faults, contacts, dykes) which may provide conduits for mineralization. That being said, the magnetic data provided was of excellent quality, and should aid in the definition of lithologic units throughout the survey area.

Structures – Faults, Contacts, Dykes

It is important to point out the issue with determining faults, contacts or dykes – if the survey line direction is close to the angle of the structure, obviously less lines are available to validate the lineament. The more perpendicular the survey line direction is to the geology and/or faulting, more geophysical data is available to validate the features.

Drawing in lineaments is subjective unless a particular feature is obvious across all lines. Often with older faults the offsets can be less visible and thus are more subjective. It is also important to remember that faulting can be seen as a change in amplitude, an offset in a body or just a subtle change in direction.

In areas of either little magnetic expression or an extremely complex area (as is the case with the Maseres Project area), the structures can be extremely difficult to not only identify – but to correctly determine directions and offsets. However, the topography and EM data can also be utilised to determine structures, but in the case of topography these are likely to be more recent or reactivated faults.

Please note that many of the structural lineaments are dashed – this is could be for two reasons – either they are weak and are suspect or they are strong but the exact location is difficult to determine due to the complexity.

Digital Terrain Data

The Digital Terrain data (Figure 13 and Figure 14) is used as a tool to help define recent or perhaps reactivated faults. The images clearly show NW-SE, NNE-SSW, NE-SW structures.

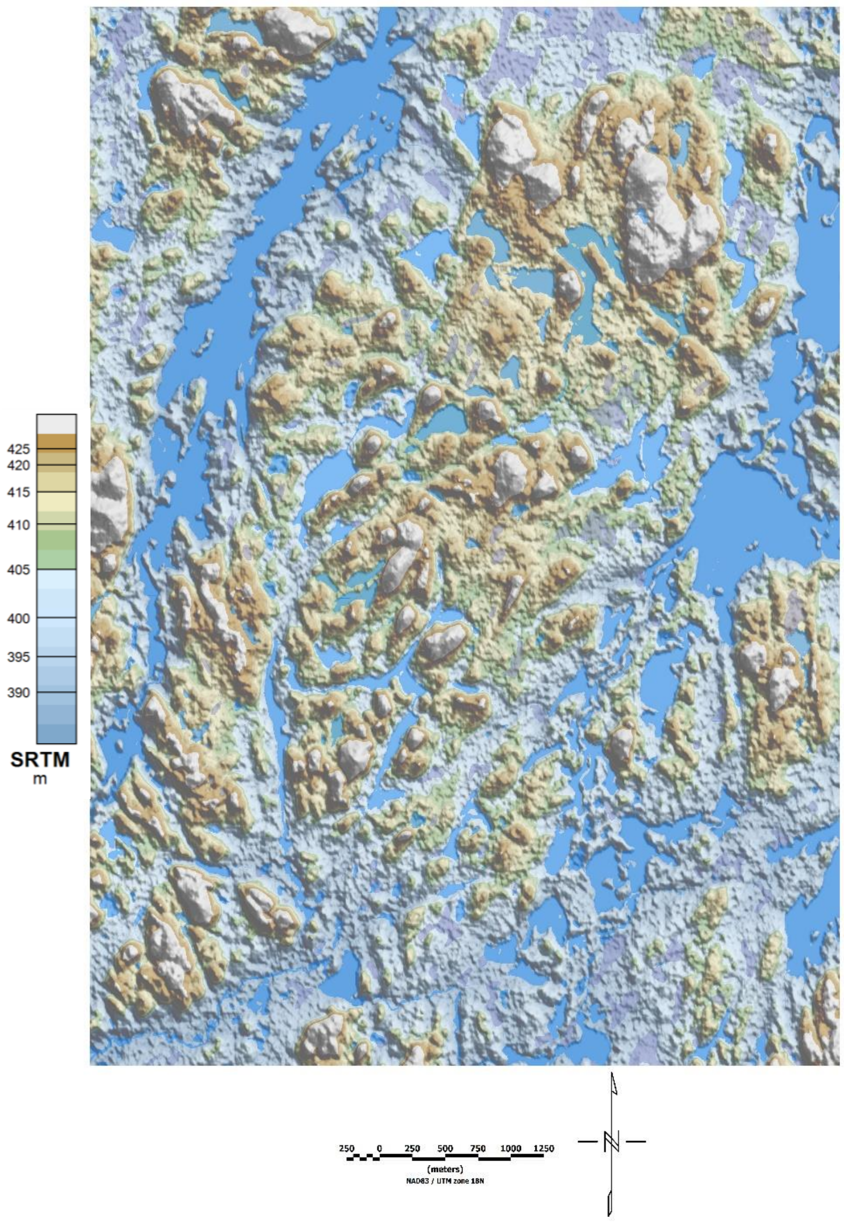


Figure 13 - Digital Terrain

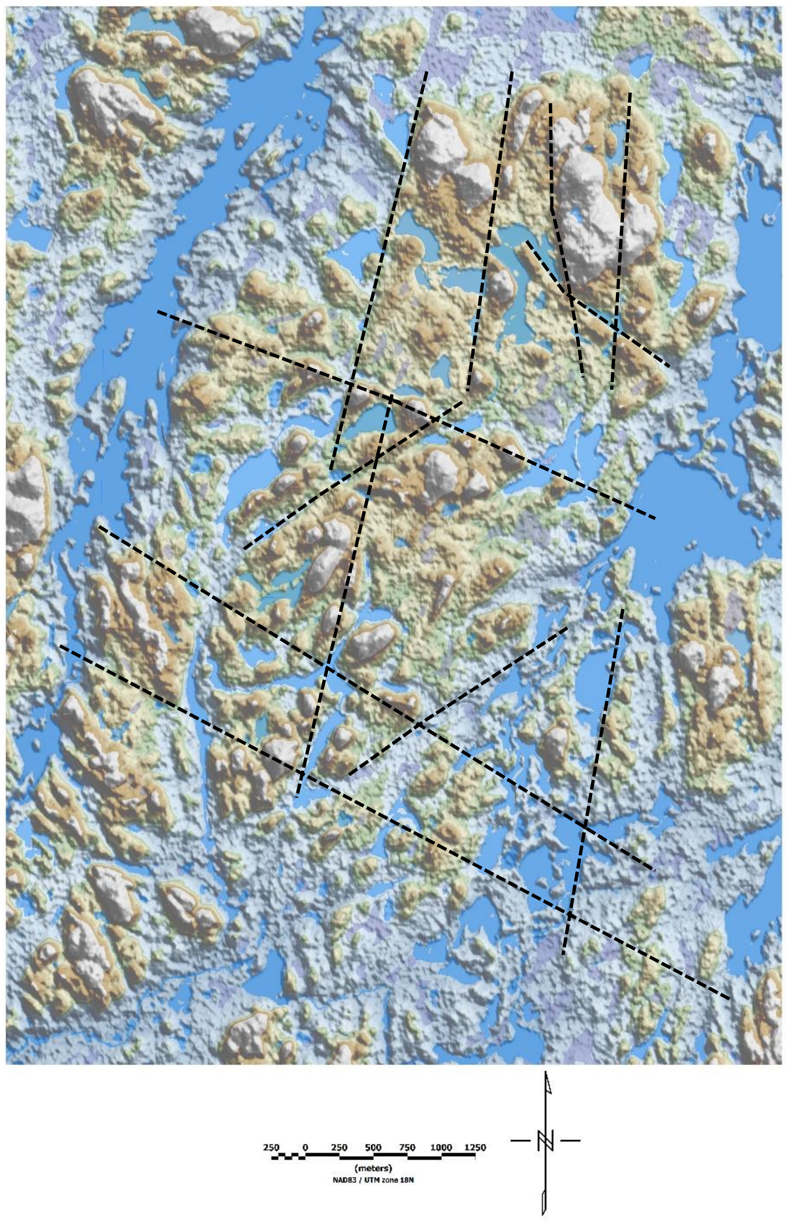


Figure 14 - Digital Terrain with some of the obvious potential structural directions

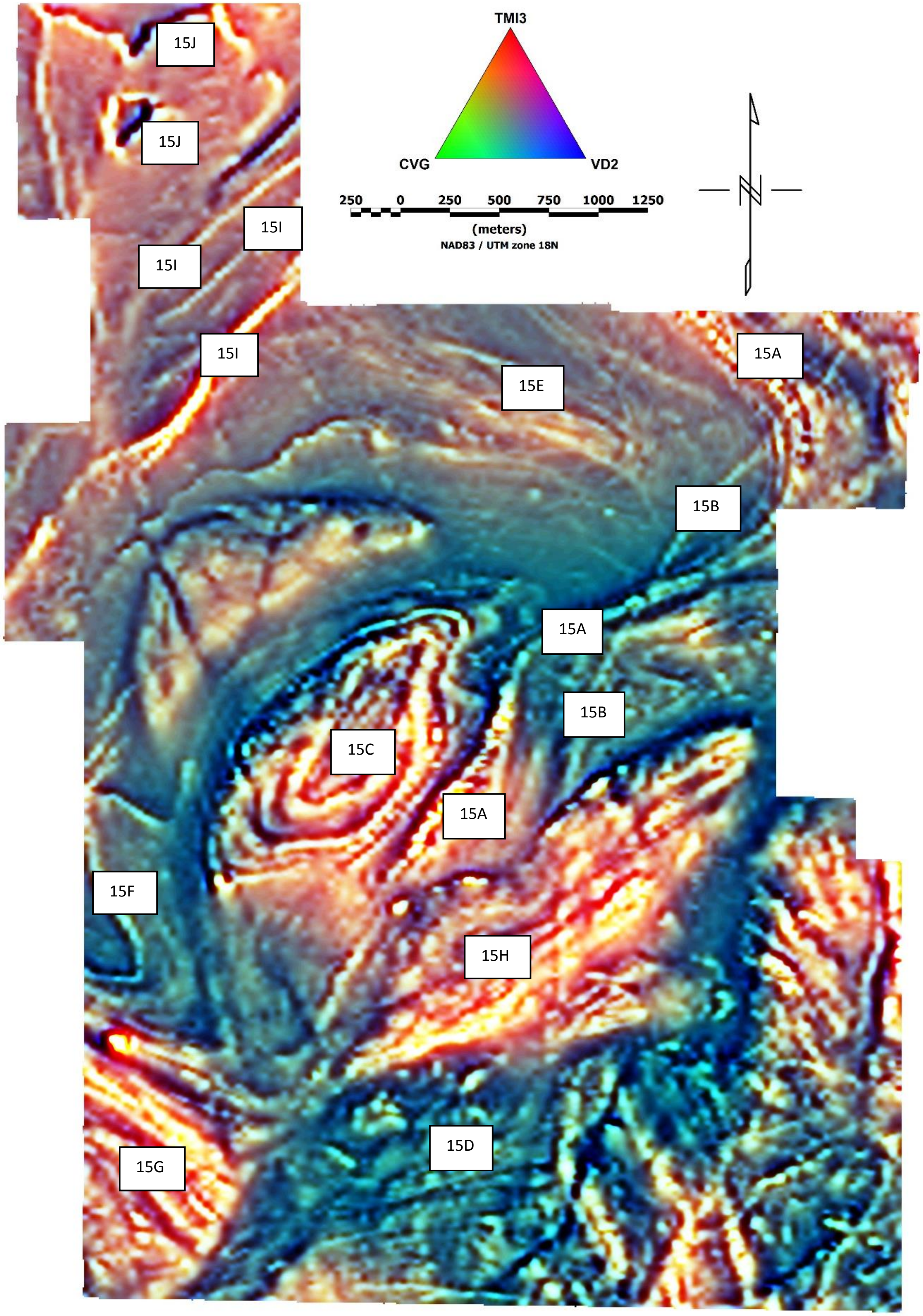


Figure 15 - Magnetic Ternary – TMI – Total Magnetic Intensity, CVG – Calculated Vertical Gradient, VD2 – 2nd Vertical Gradient. 15A-15J refer to items mentioned in the report

Magnetic Data

The magnetic data in this review, as mentioned, is only reviewed with respect to the EM features, looking for isolated magnetic highs and lows especially in areas surrounding the conductors. That being said, (see Figure 15) a quick overview of the magnetic data shows:

- the narrow curve of the magnetic signature associated with the formational conductor trending from the northeast through to the central part of the survey (**15A** – in Figure 15);
- a dyke crosscutting the formational conductor (**15B** in Figure 15),
- an oval magnetic feature (**15C** in Figure 15),
- the magnetic signature is more active in the central and southern portion of the survey (**15D** and **15E** in Figure 15)
- folding along the western border (**15F** in Figure 15)
- the regional scale NE-SW structure shows offset of foliated magnetic bodies (**15G** and **15H** in Figure 15)
- what appear to be other NE-SW dykes (**15I** in Figure 15)
- multiple structures
- an area of unusual magnetic signature (very low magnetic signature) that could be folded through a N-S axis? (**15J** in Figure 16) – or remanently magnetized or haematitic alteration?

TDEM Data

A comparison has been made between the magnetic and EM responses and the satellite imagery provided by Bing Maps through GEOSOFT. Those obviously due to culture are labelled as such, and any questionable features that are likely due to culture (lying on roads, tracks etc.) are shown with a question mark beside the culture symbol. Conversely, there are anomalies that may lie on a road, for instance, however the response is such that they appear to be a valid anomaly – these are also labelled with a question mark.

Other EM anomalies may also be labelled with a question mark, as they are weak, or show some indication of noise in the X component and thus may be the result of a noise artefact.

Neither the **culture?** or the **anomaly?** should be discounted, but obviously there needs to be some ground truthing in the area to either validate or negate these features.

Early-time conductors

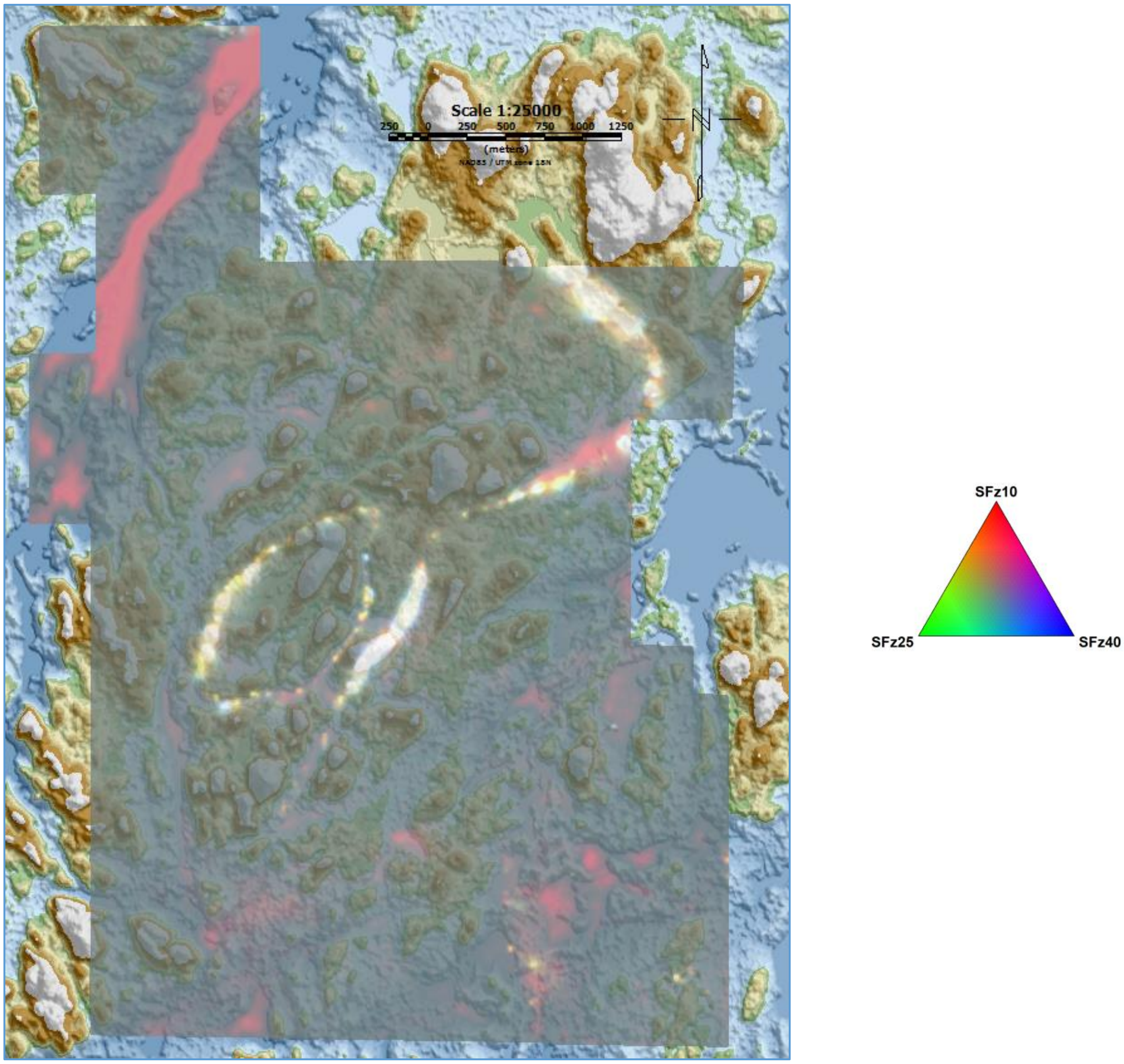
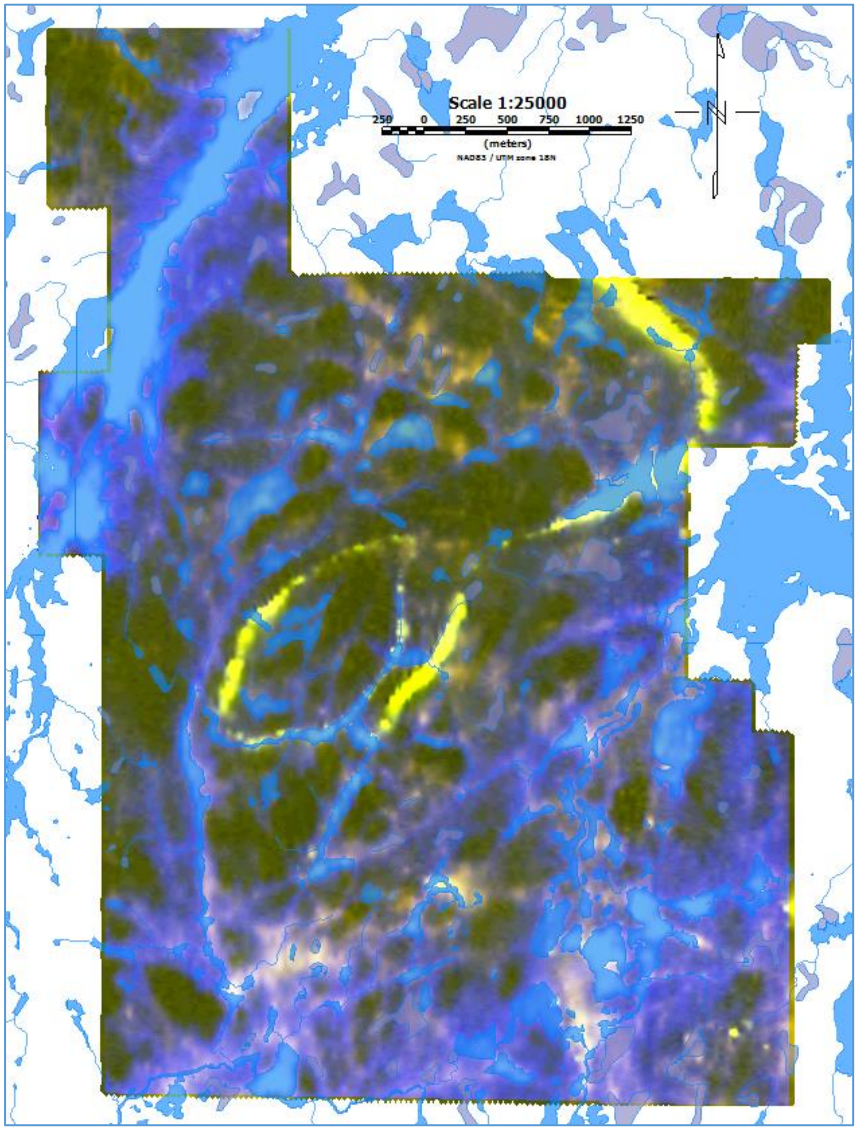


Figure 16- EM ternary of early, mid- and late time channels displayed over the SRTM.

The early time response is compared with the SRTM (Shuttle Radar Topography Mission) data (Figures 16-18). Most of the early time conductive response correlates with low terrain, (see the redder colouration in Figure 16) but there are other areas that are anomalous. These anomalous regions are mostly associated with the formational conductors or the response can seem elevated above what would be expected from the low-lying terrain. These early responses are shown on the interpretation map and on Figure 18. Only those anomalies that are separate from the late time formational conductors shown in the next section have been outlined.



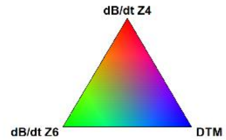


Figure 17-Ternary image of two early time db/dt Z channels (red, green) and the DTM (blue - light blue represents lower terrain)

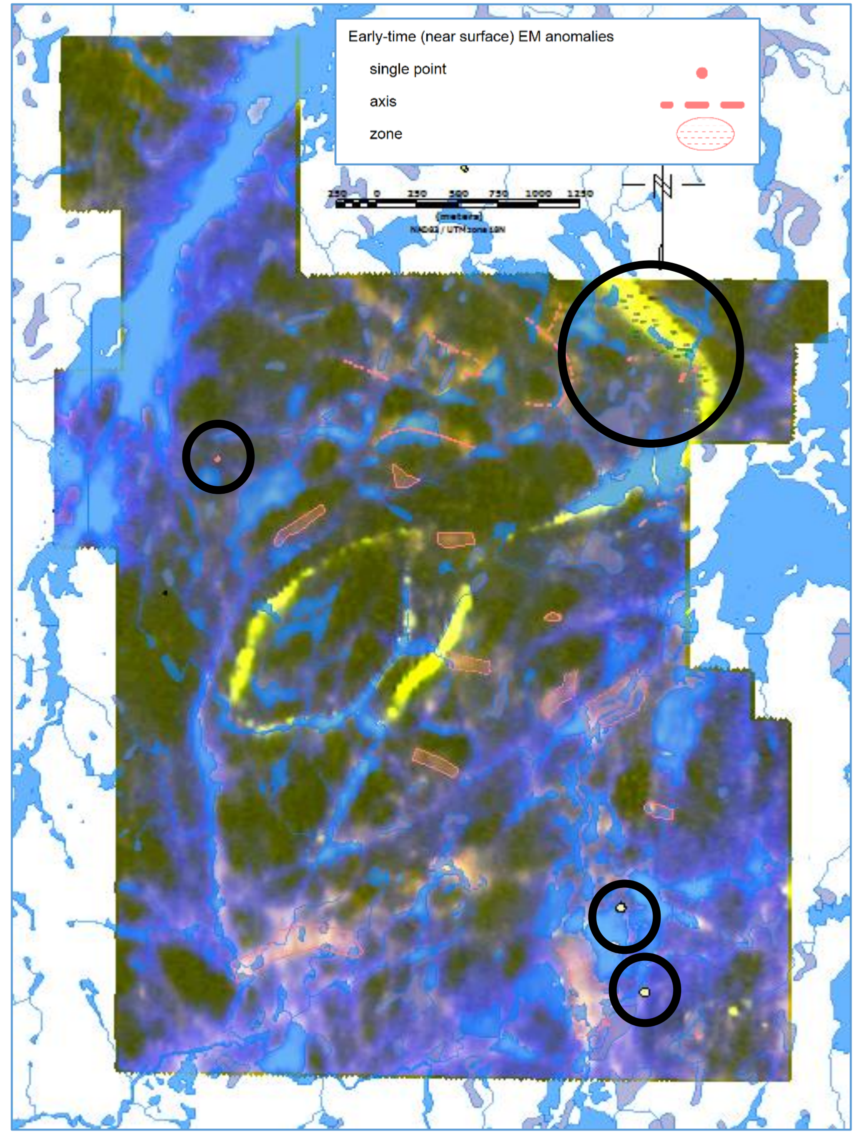


Figure 18 -Anomalous areas of early time response- the black circled areas indicate areas with known mineralization – soil samples, stream sediments etc.

It is interesting to note the difference in colour between the conductor associated with the published structural zone that extends through the Black Dog deposit and continues NE to the Windfall deposit. This means that most of the response is due to surficial material, likely corresponding to sediments in the lake associated with the structure. There is some variation within it, which will be discussed later in this report.

Late-time conductors

The brighter colours in Figure 16 show the formational or isolated stronger conductor anomalies, axes or zones. Figure 19 is a ternary image of the vertical and horizontal derivatives of B-Field Z channel 12. This image serves to highlight narrow anomalies but has the added advantage of determining potential culture responses (**19A** in Figure 19) and late-time deeper anomalies (**19B** in Figure 19). Unfortunately, the noise is also amplified, but each anomaly has been checked with respect to the profile data including the radar altimeter.

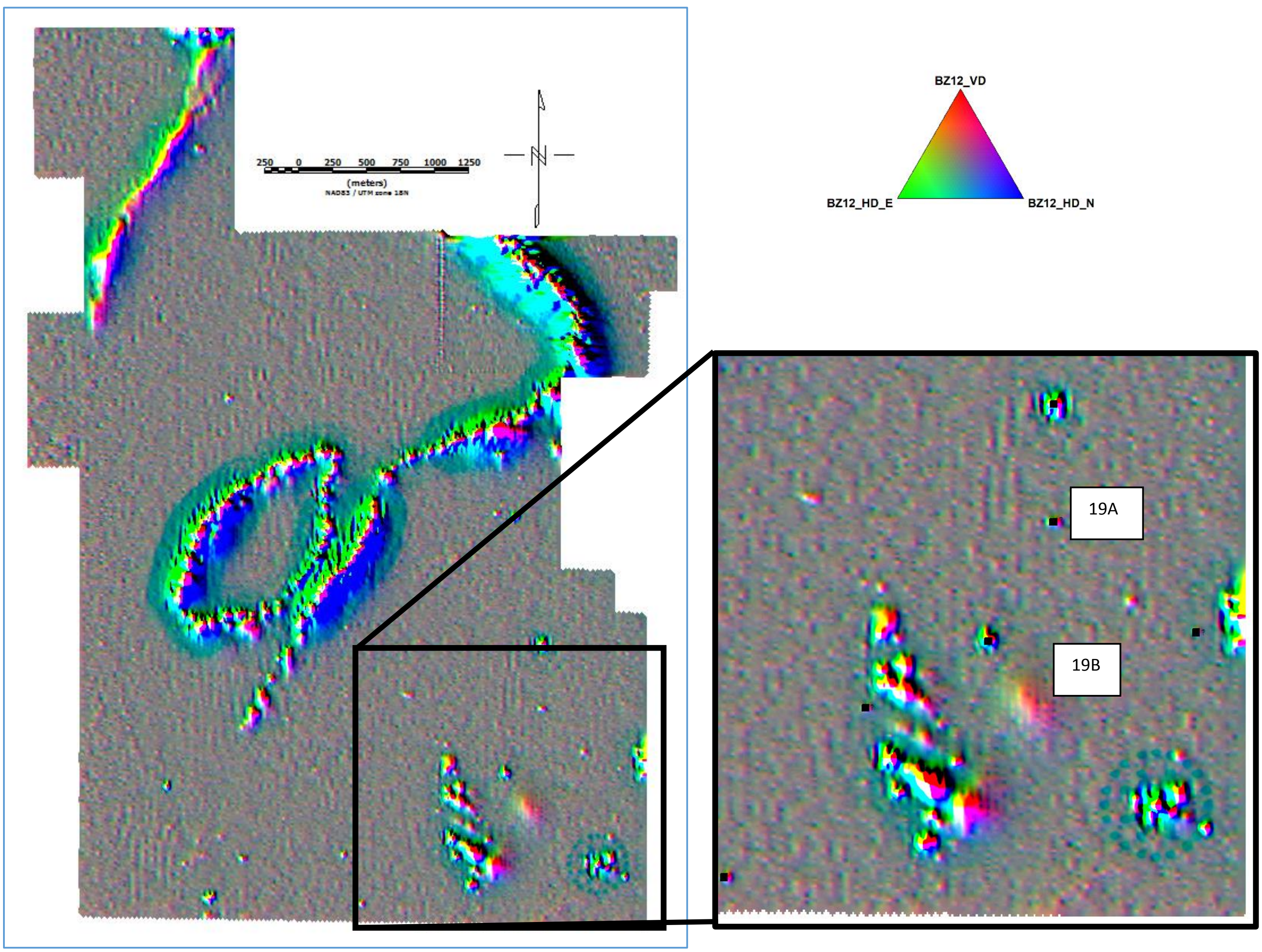


Figure 19- Ternary image of the derivatives of B-Field channel 12. 19A and 19B refer to items mentioned in the report

A report by SRK for Southern Arc Minerals Inc. in 2014, noted that a historic ground magnetic and EM survey in 1987 lead to the discovery of an Au-bearing graphitic argillite zone – in the western half of the Windfall Lake Property. This is significant given the presence of the formational (likely graphitic) conductors.

The obvious strong formational features are seen in both early and late time data. Along the formational conductors there are areas which are more conductive - perhaps representing higher base metal potential or alternatively indicating higher graphitic content, and more resistive — perhaps caused by overburden, alteration, less graphitic material or a deepening of the conductor. From the terrain information, these resistive areas are located mostly in low lying areas. Since the low-lying areas tend to be more conductive, this suggests then the cause is due to alteration, a deeper conductor or slightly less graphitic material.

Combined Interpretation – EM and coincident Magnetic data

As mentioned the conductor associated with the northwestern structural trend that potentially extends up towards the Windfall deposit lies within the lake, and thus the response appears to be mostly due to conductive sediments. At depth the response seems to be near vertical but this may due solely to the geometry of the anomaly. As can be seen from Figure 20, the response changes along its length. In the northeast the change is due to the width of the lake.

At the northern end of the survey, a conductive feature is identified along the northern shore.

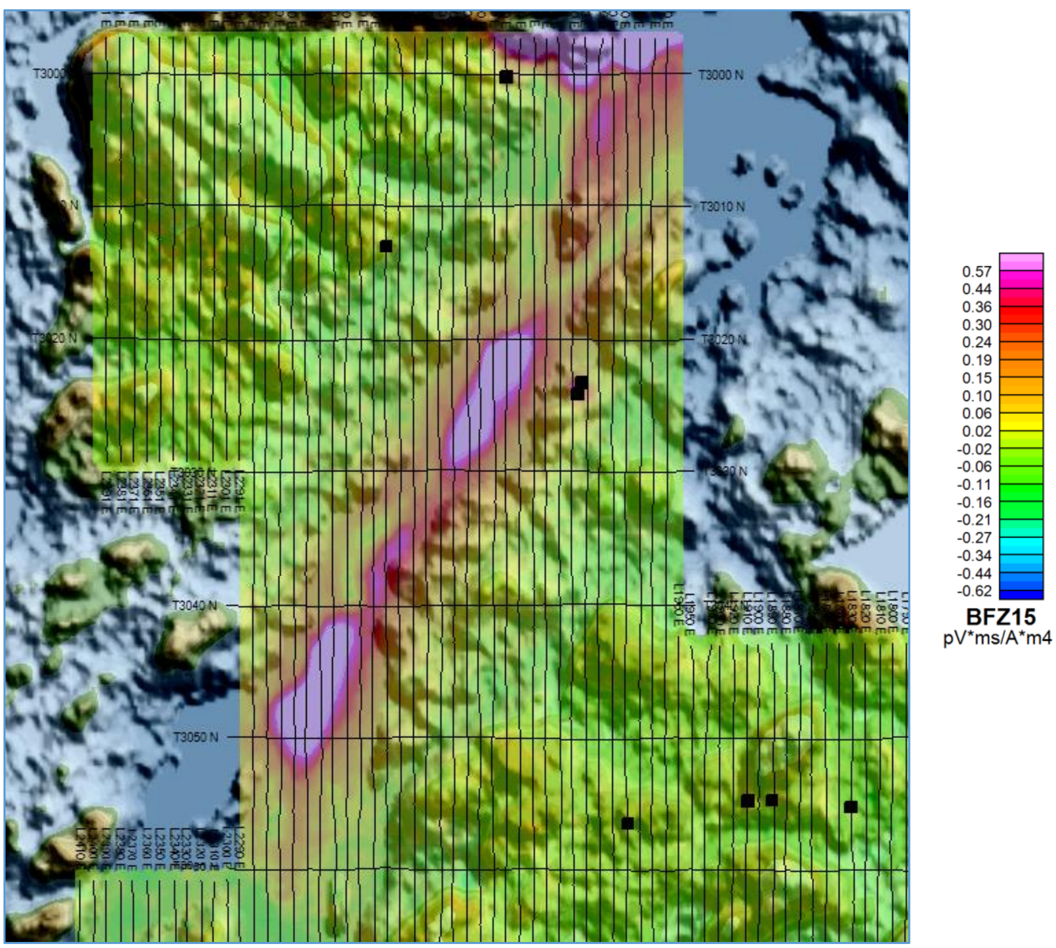


Figure 20 - B-Field Z channel 15

The response further to the southwest seems quite flat lying and then changes to more dipping. However, this may simply be due to the narrowing of the lake in this vicinity.

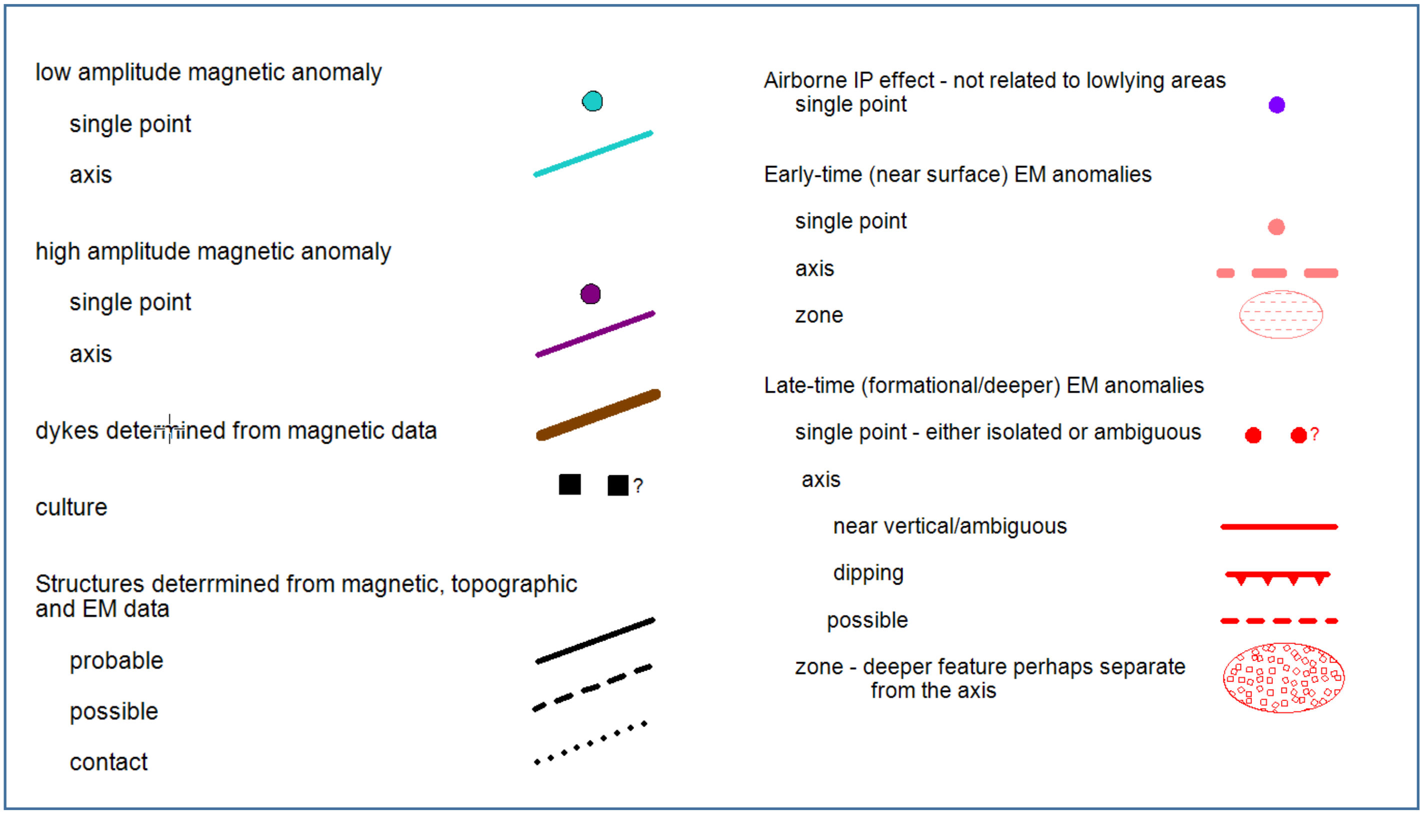


Figure 21- Interpretation legend for the images to follow

Figure 22 shows the magnetic ternary image over the section of the lake covered by the current survey. What is not readily obvious from the EM data shown in Figure 20 is there is a definite offset in the conductor axes. The magnetic data indicates a series of dykes, some which may pre-date others given the offset along their lengths. The magnetic lows previously mentioned lie on strike with the southern of the conductor sections – these lows may represent areas of remanent magnetization or perhaps rocks with significant hematite content (such as seen in the Caribou mineralized zone?). The cause of the sinuous magnetic feature near the survey boundary is unknown.

The area seems cross cut by structures striking NNW-SSE to NW-SE.

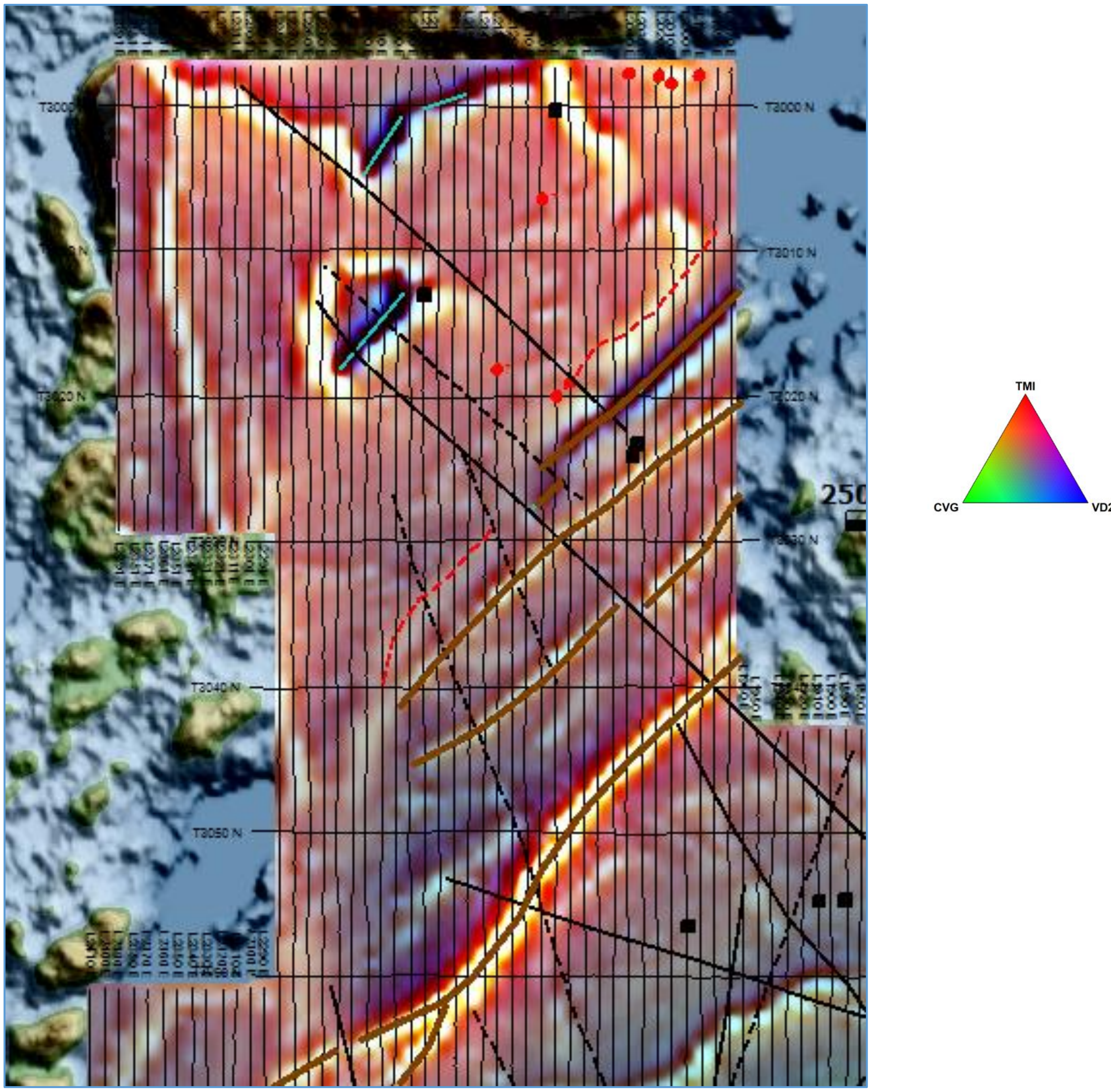


Figure 22 - Ternary of the magnetic data with the interpretation layers – refer to Figure 21 for the legend

Figure 23 shows the extension of the formational conductor and magnetic trends from the north, where the angular mineralized boulder is located containing 11 g/t gold and 2% copper. It is interesting to note that the formational conductor in this region appears as two separate conductor axes but this may be explained by dip-slip faulting along the prominent NW-SE structure. The A-Horizon soil analysis was conducted in the area and much of the mineralization seems to be controlled by a series of ENE and N-S structures (Figure 24). In particular the Pb, Cu and Ag seem to be confined to the northern half of the soil survey, above an ENE interpreted lineament. The Au samples seem to somewhat lie in a north-south direction adjacent to the N-S interpreted structures.

Figure 25 shows the early and late-time conductor axes, dykes, structures and the single point anomalies which are located where the extrapolation from point to point is ambiguous (**25A** on Figure 25) or the anomaly is isolated. In the area where the anomalies are shown as single point features, the dip direction of the conductor changes from SW dipping in the north, to near E dipping in the south. This indicates that there may be another structure in this region, but if so it is not easily identifiable.

25B and **25C** are locations where there seems to be either a weaker or deeper conductor. **25B** in particular shows very good decays.

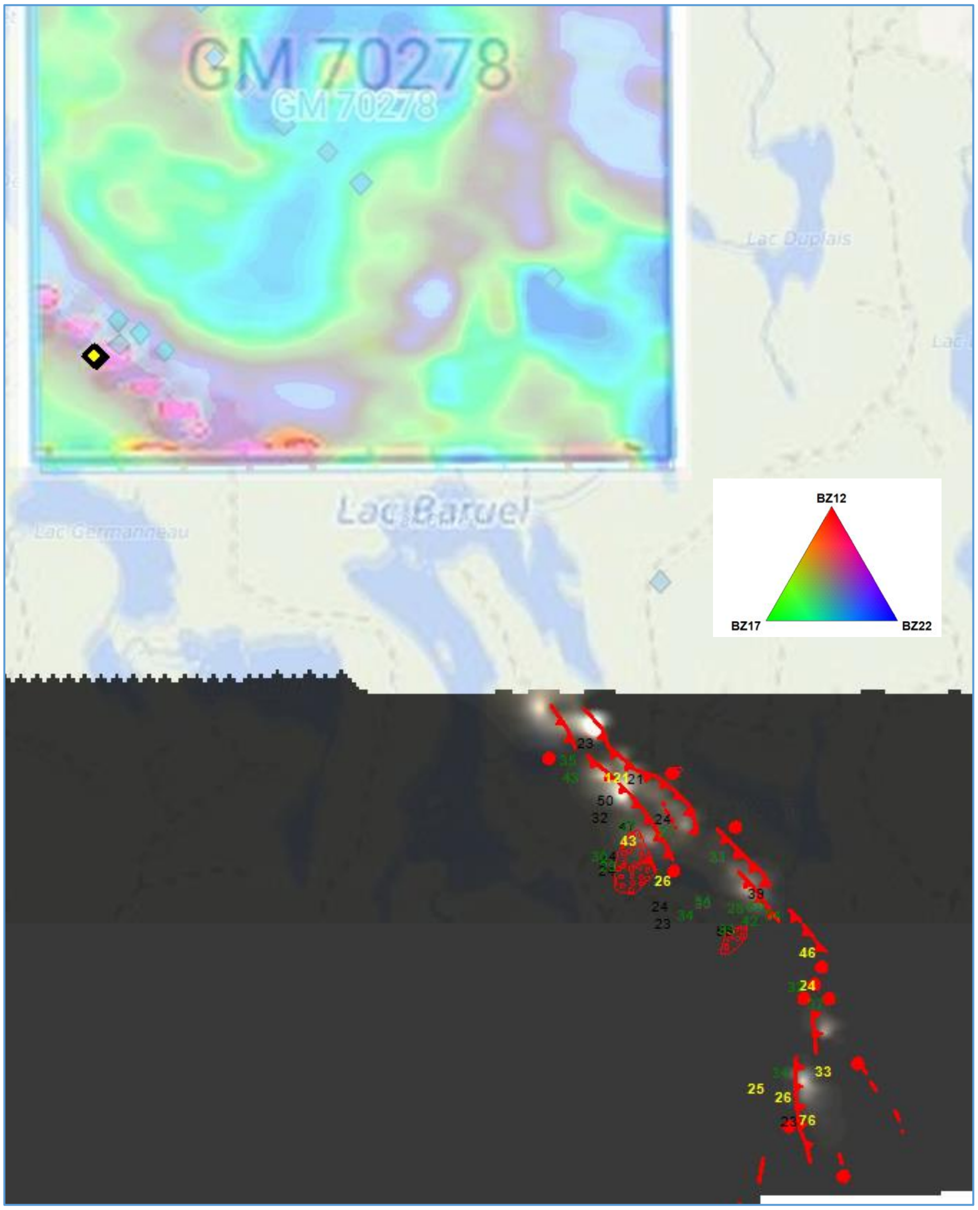
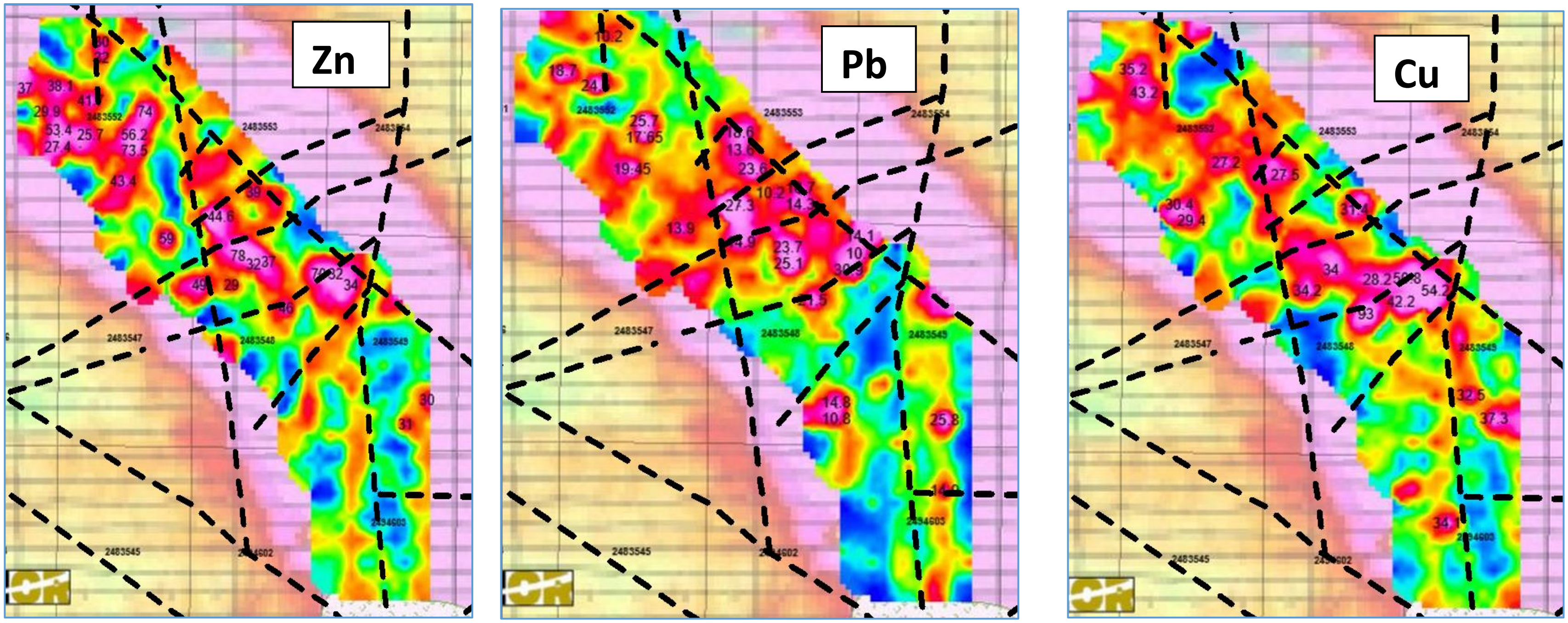


Figure 23- Magnetic and EM images from the VTEM survey near the mineralized boulder to the north (yellow diamond) and the extension of the formational conductor into the Maseres Project area, with the approximate location of stronger Au (yellow), Ag (grey) and Cu (green) anomalies in the 2017 A-Horizon soil analysis. The white colouration shows stronger decays and the interpreted conductor axes are shown on top in red. Please refer to Figure 21 for the interpretation legend.



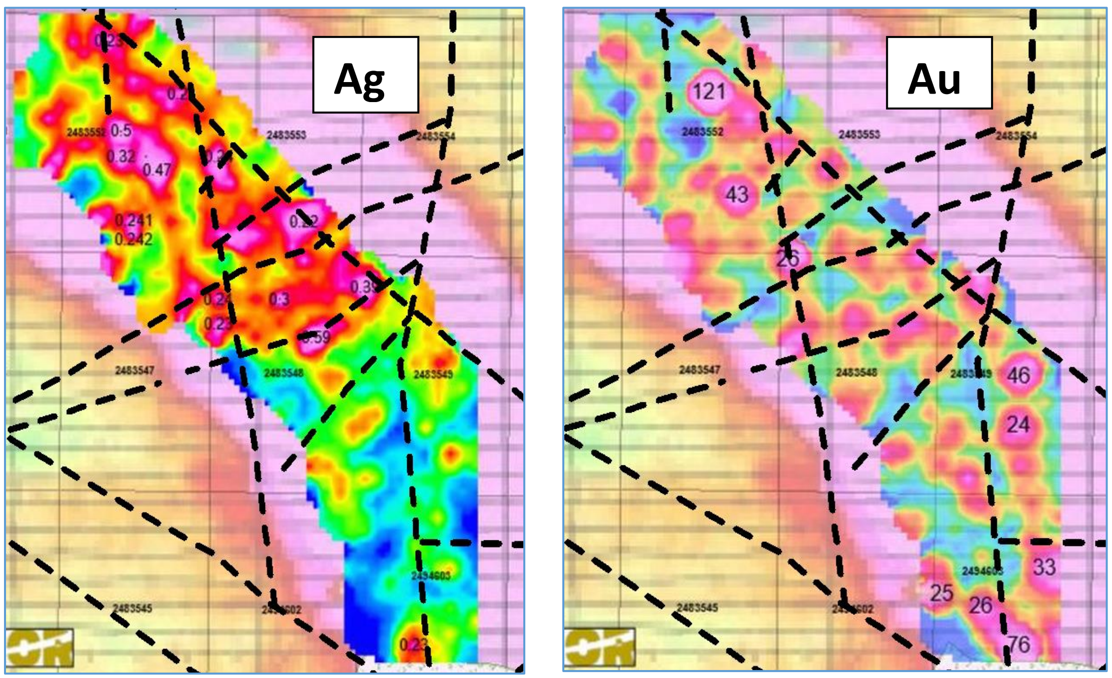


Figure 24- the images showing the results from the A-Horizon sampling with the interpreted structures from the current geophysical survey

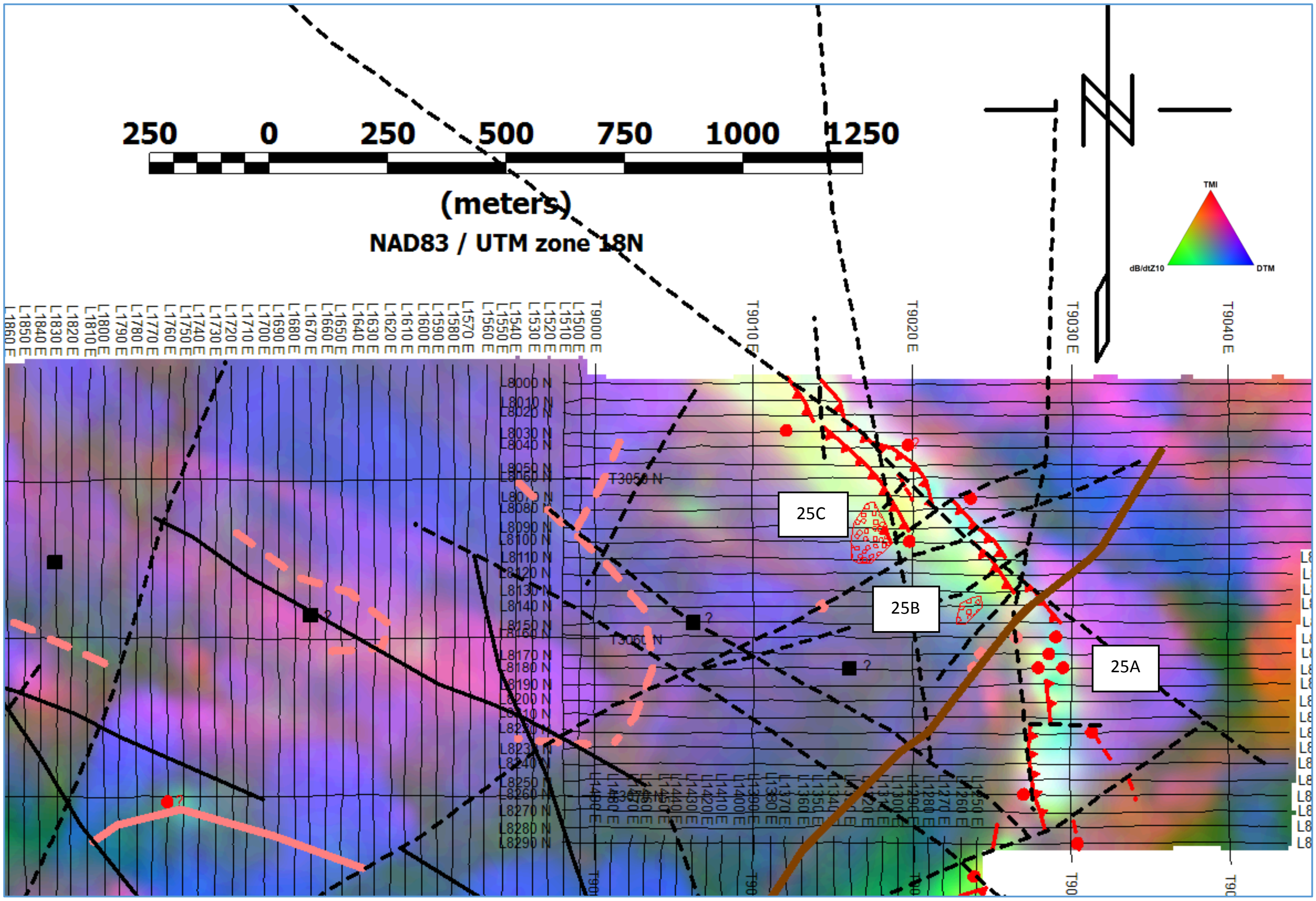


Figure 25 - Ternary of the magnetic, EM and the digital terrain data with the EM interpretation – 25A-25C are items discussed in the report. Please refer to Figure 21 for the legend

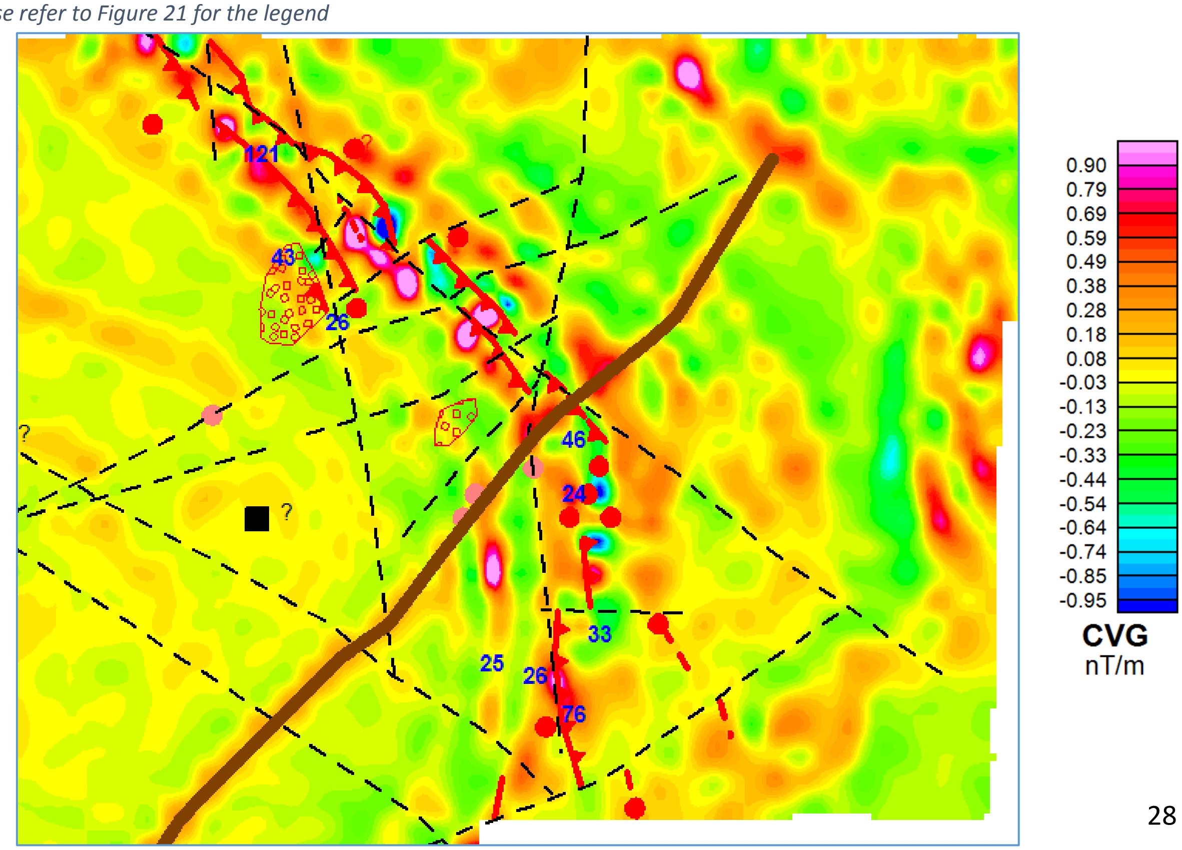


Figure 26 - Calculated Vertical Gradient with the EM conductors and structures and approximate locations of higher Au content samples

Figure 26 shows the magnetic data. From this image the conductor axes, for the most part, correlate with either weak magnetic anomalies, or somewhat with magnetic lows. The samples containing higher Au content do correlate with lower magnetic signatures, however north of the dyke along the NW structure are several stronger magnetic low signatures with no indication of higher Au content in the samples. This may be because the sampling grid did not extend far enough to the east to encompass this area.

Following the conductor axis now to the southwest along the southern side of the fold, it appears along its length to be sometimes near flat lying (east of the dyke – see **27A** in Figure 27) or sometimes a dipping wedge (at the eastern border – **27B** in Figure 27), others near vertical (west of the dyke – **27C** in Figure 27). Isolated anomalies lie adjacent to the main conductor – it is somewhat difficult to determine if these are separate bodies or faulted sections of the main axis.

27D on Figure 27 shows a relatively strong B-field zone which at first seems like it may be the deeper portion of the main conductor, however its strike (WNW-ESE) negates this theory. It is easily located at either extreme, but questionable through the central part of the zone. It seems truncated and offset by two NE-SW structures.

27E on Figure 27 is a stronger short-strike length anomalous feature that is parallel to the main conductor axis. Several weak on-time anomalies may extend this zone to the northeast. **27F** indicates regions where the response along the conductor axis becomes very weak. This may be due to faulting or line orientation, or perhaps alteration?

The oval shaped conductor will be discussed later in the report, however the main conductor changes direction from ENE-WSW to NNE-SSW. For approximately 3 km the responses along the conductor are very strong, similar to what is observed in the NE section of the claims area, then for the next 3.5 km to the southwest the responses are weaker. The cause of the changes in conductivity are not clear.

There are regions along the conductor that seem to show increased signal along dip – to the ESE (**27G** in Figure 27). These may be of potential interest for base metal enrichment. Near the southern extent of the conductor axis (**27H**) the strike changes from NNE to NNW and the short strike length conductor now dips to the southwest. Isolated B-field responses are located (**27I**) at the intersection of several structures.

Figure 28 shows the EM interpretation over the magnetic ternary image. East of the dyke (**28A**) the main conductor partially coincides with a magnetic contact, which becomes more apparent west of the dyke (**28B**). An area of lower magnetic intensity lies to the south of the conductor (see **28C**), but it strikes close to E-W. Another small magnetically low area (seen on two lines only) lies to the south of the anomalous zone defined by the B-Field (**28D**) striking ENE-WSE. Where the strike of the main conductor changes to NNE-SSW the conductor correlates with the edge of a complex magnetic body, see Figure 29, and in places is associated with lower magnetic intensity.

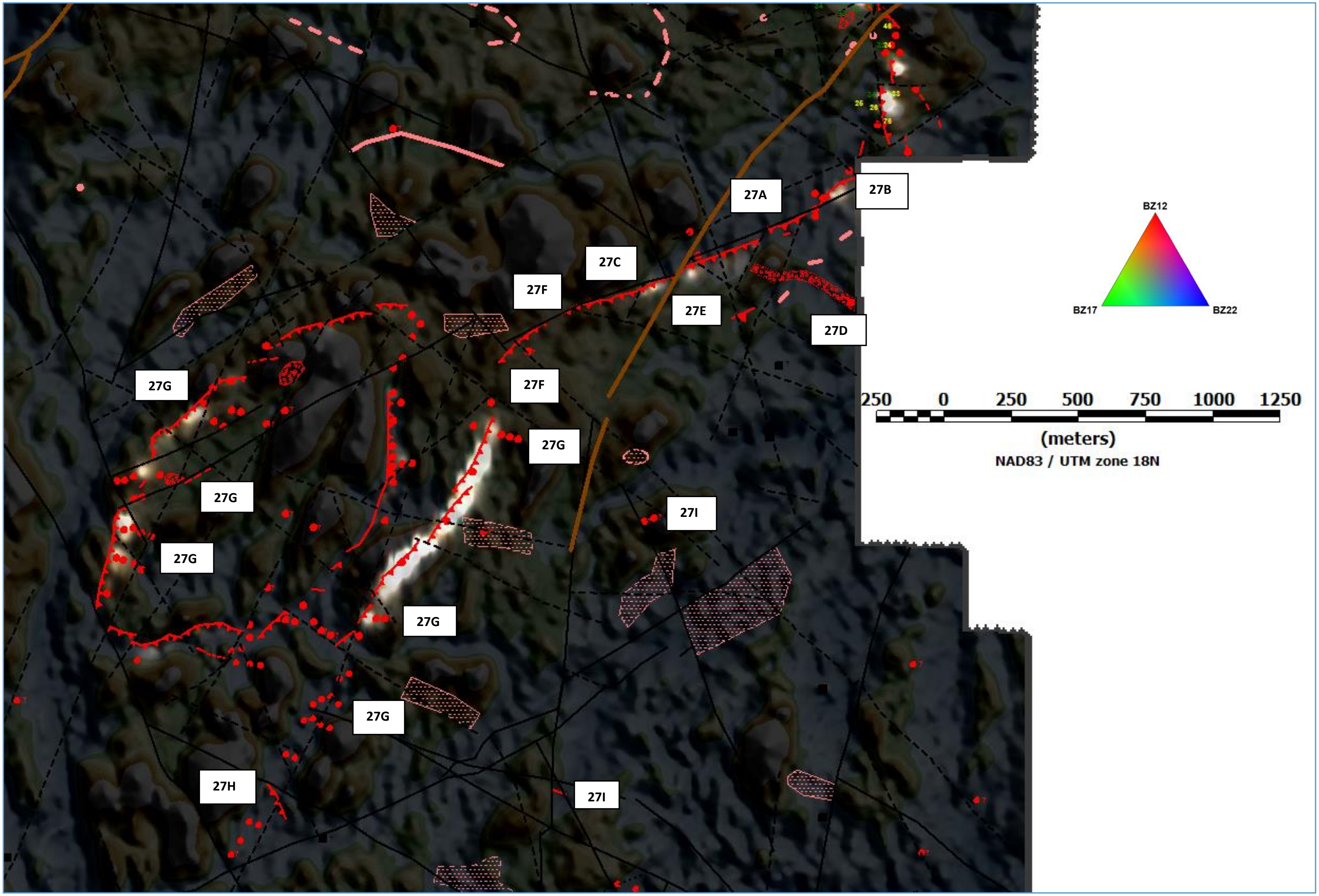


Figure 27- EM ternary over the digital terrain with the EM interpretation shown as an overlay. 27A-27I refer to items discussed in the report. Please refer to Figure 21 for the interpretation legend

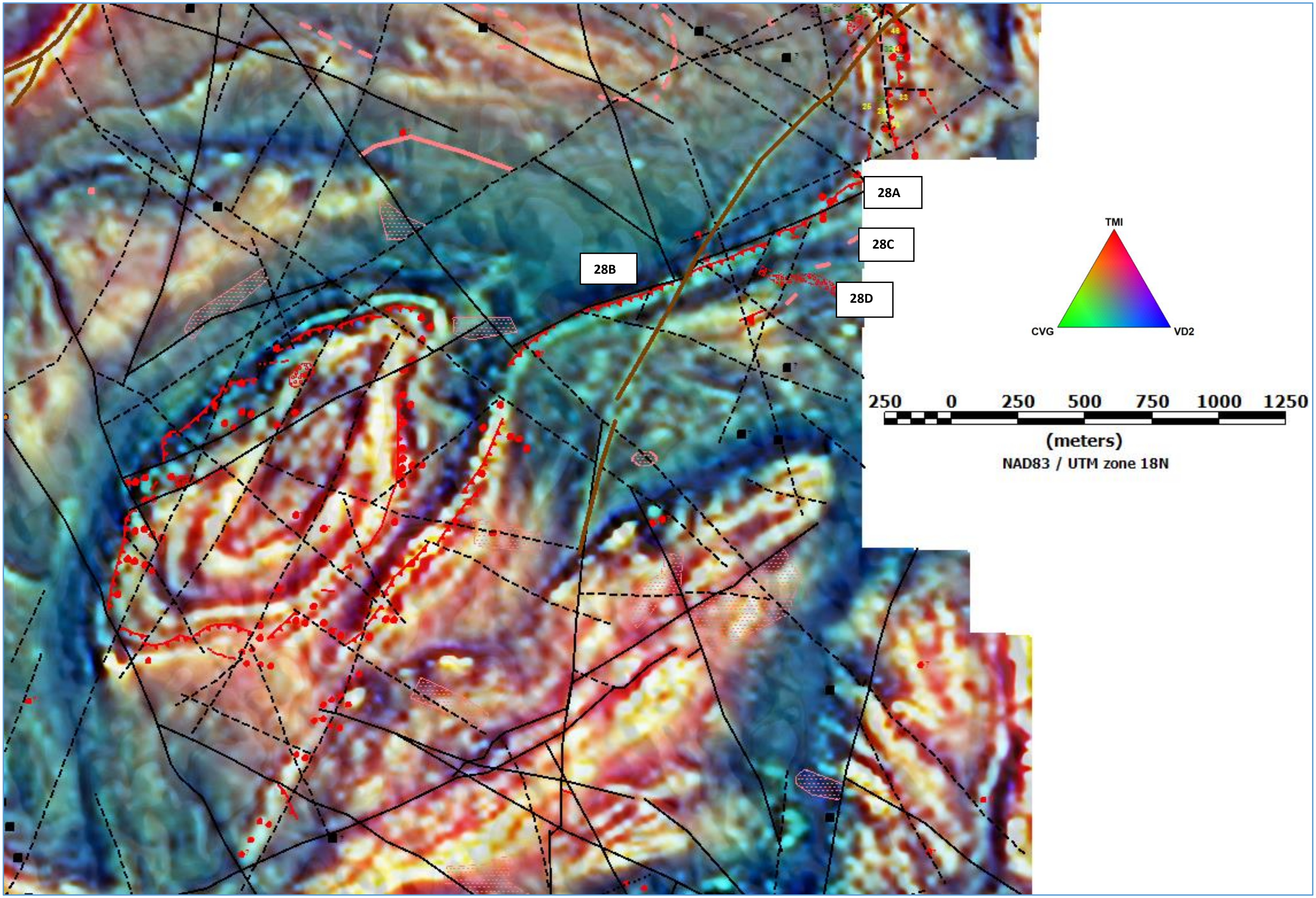


Figure 28 - Magnetic ternary superimposed over the digital terrain with the EM interpretation shown as an overlay – 28A-28D are items discussed in the report. Please refer to Figure 21 for the interpretation legend

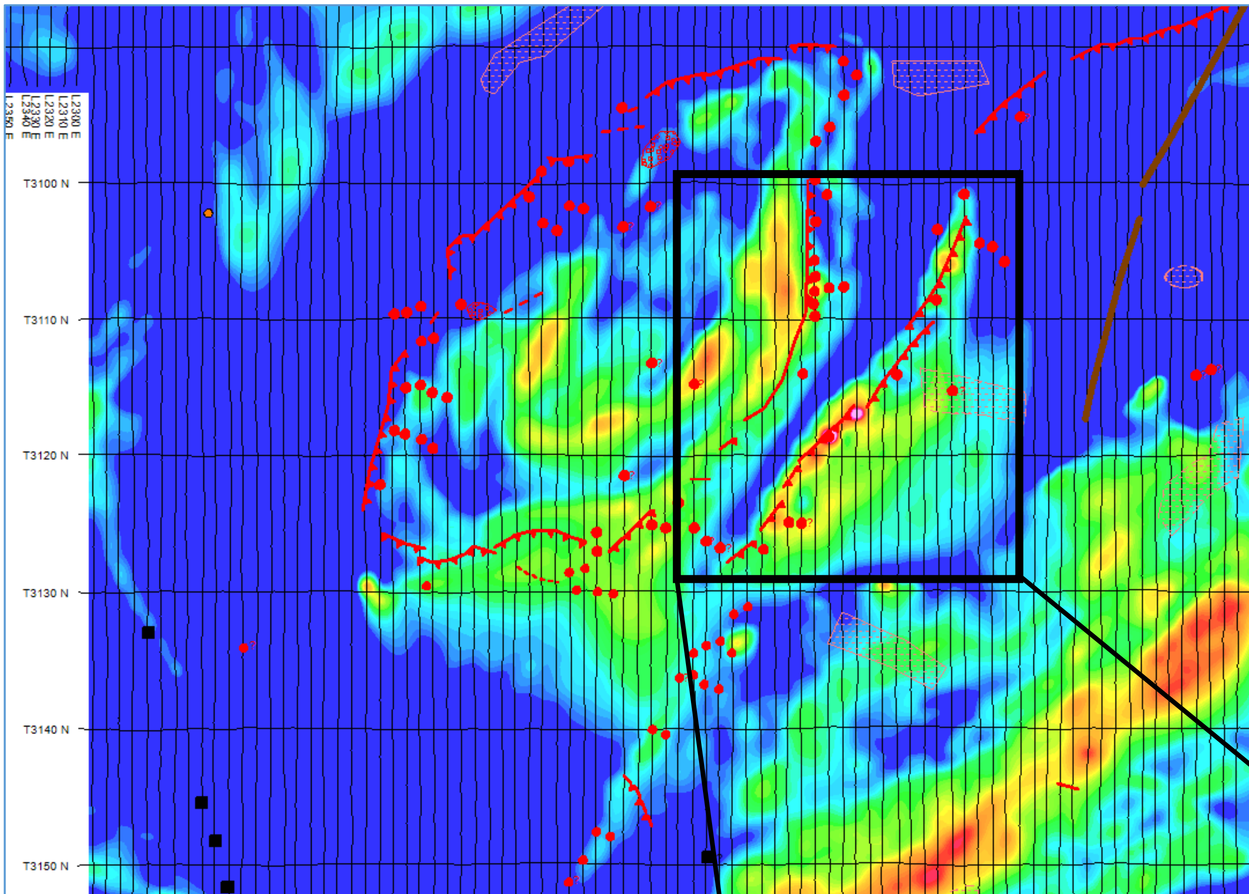
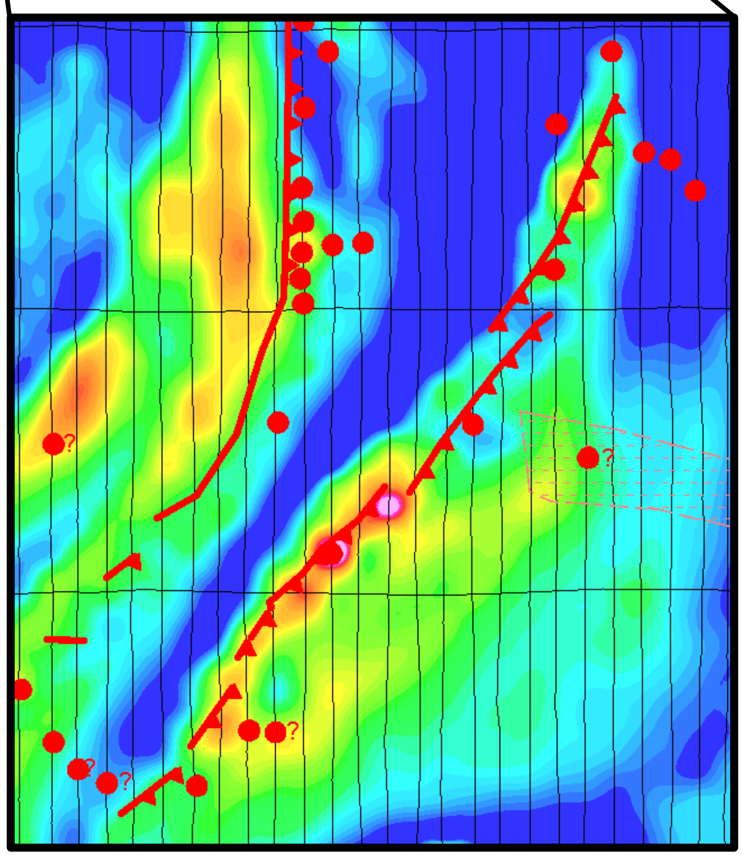
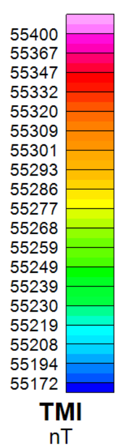


Figure 29- EM Interpretation displayed over the Total Magnetic Intensity. Please refer to Figure 21 for the interpretation legend





Now to the discussion of the NE-SW trending oval shaped magnetic body with a rim of conductive material (Figures 27 and 28).

The concentric rings within the body of the magnetic feature suggest some type of zoning. At first glance it may be folded, however this could pose a problem with respect to the EM data given that the dip around the concentric feature is consistently oriented to the east. Figure 30 may explain this if indeed the feature is folded.

Or the other explanation may be that the conductor is a sill (Figure 31), but there is no elevation in the background of the EM data over the elliptical feature to support this.

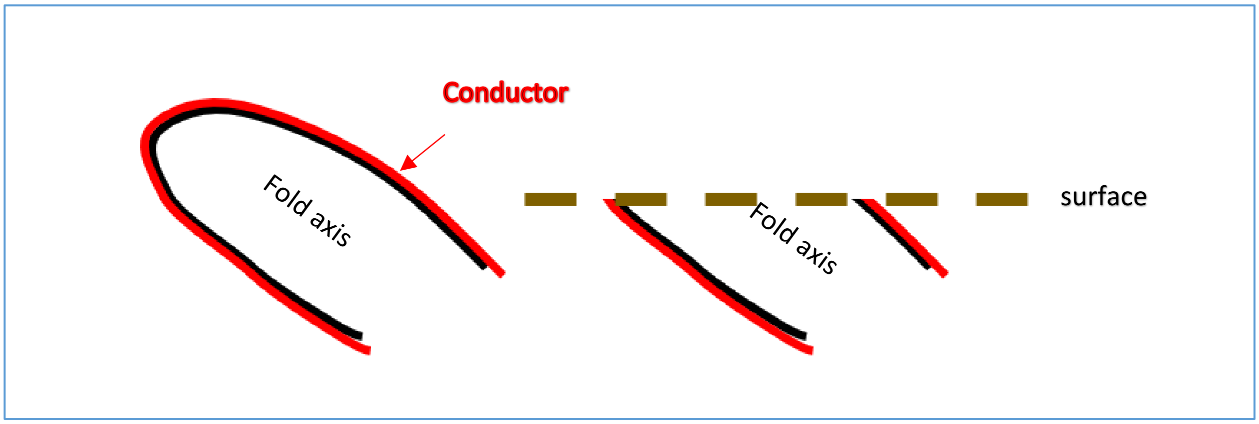


Figure 30 – Drawing of a folded axis, which may produce a conductor dipping in the same direction

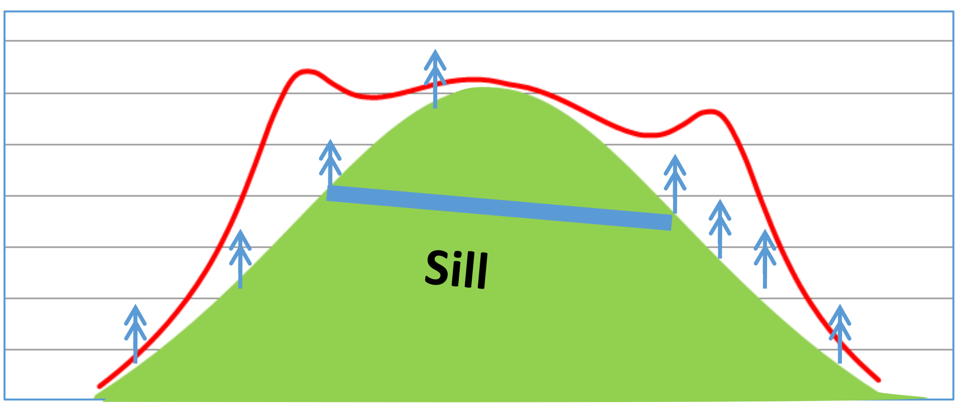


Figure 31- Sketch of how a sill would appear on the magnetic data – this also would produce a conductor dipping in the same direction

Locally the western side of the oval shows stronger responses and in places, as mentioned previously, there are areas that show potential features extending along dip, these are usually the areas of increased response (see the symbol **27G** on Figure 27). The oval is crosscut by many structures and weak questionable anomalies can occur along these structures.

The ellipsoid conductor is located, for the most part, on the outer edge of the magnetic body. The conductor appears to correspond with lower magnetic signature, however the northwestern and central western axes appear to correspond with more intense magnetic low zones. The reason for this is not clear.

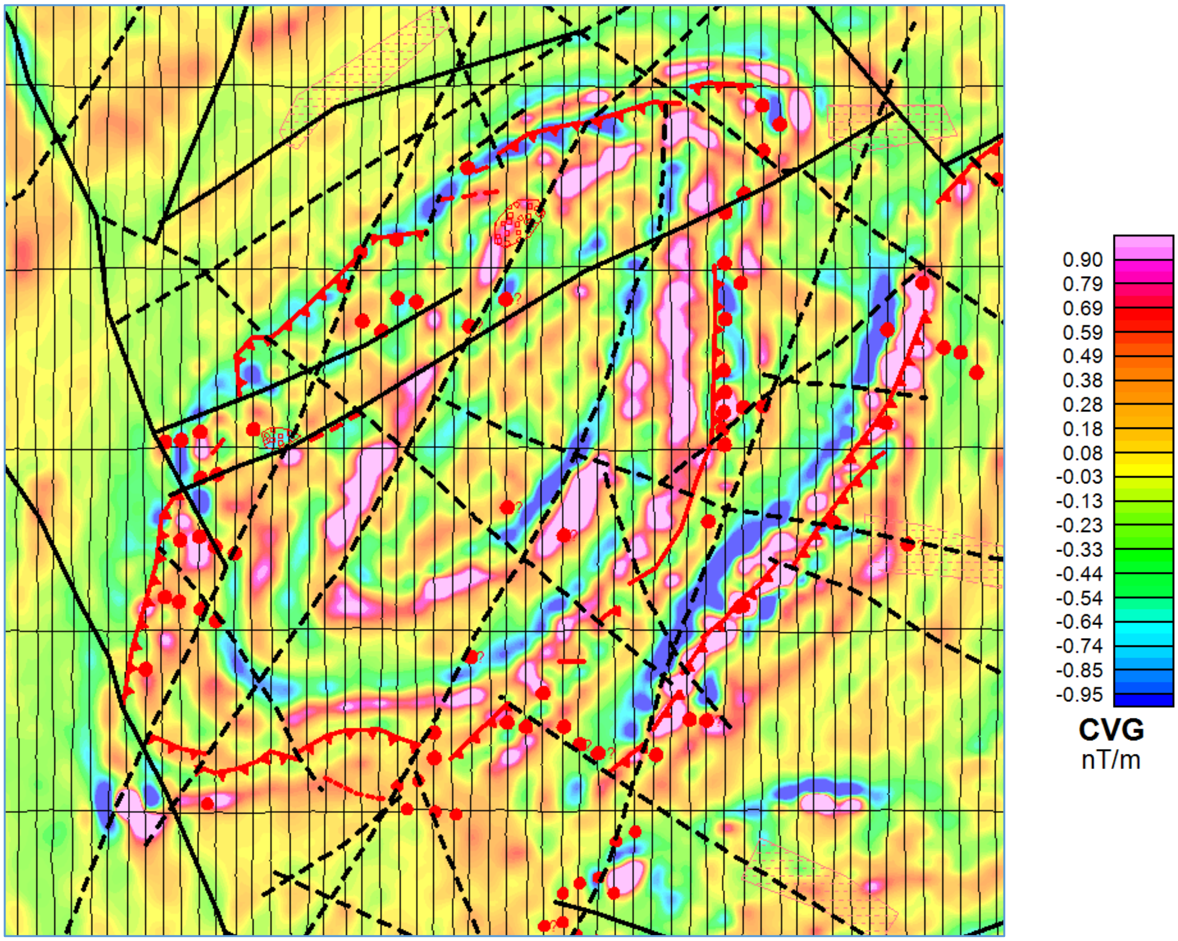


Figure 32- Calculated Vertical Gradient with the EM interpretation displayed. Please refer to Figure 21 for the interpretation legend

The structural information has bee determined mostly from the magnetic data, however in some cases there are structures that must offset the EM conductor that cannot be identified in either the magnetic or digital terrain data (see Figure 33).

The southern section of the claims is considerably more complex. Figures 34 and 35 show the magnetic and EM data in this region.

34A on Figure 34 shows an anomalous early time-fast decaying/airborne IP zone striking ENE-WSW. Immediately to the southwest of this zone (**34B** - approximately 500 m along strike of the major NE-SW structure) near the intersection of the NE-SW structure and an ESE-WNW structure (possibly part of the southern structural arm in Figures 9 and 10) are several narrow

B-field responses showing good decays. These were not picked as original anomaly selections. It is doubtful that they are solely due to residual noise as it is unlikely they would be grouped together. There is no obvious response on the powerline monitor, there are no obvious correlations to radar altimeter fluctuations which could amplify the response, nor is there any evidence of culture from the Bing satellite imagery.

They also lie on strike with the main conductor axis to the northeast, and lie at a contact that can be identified in the magnetic data (**35A** – Figure 35).

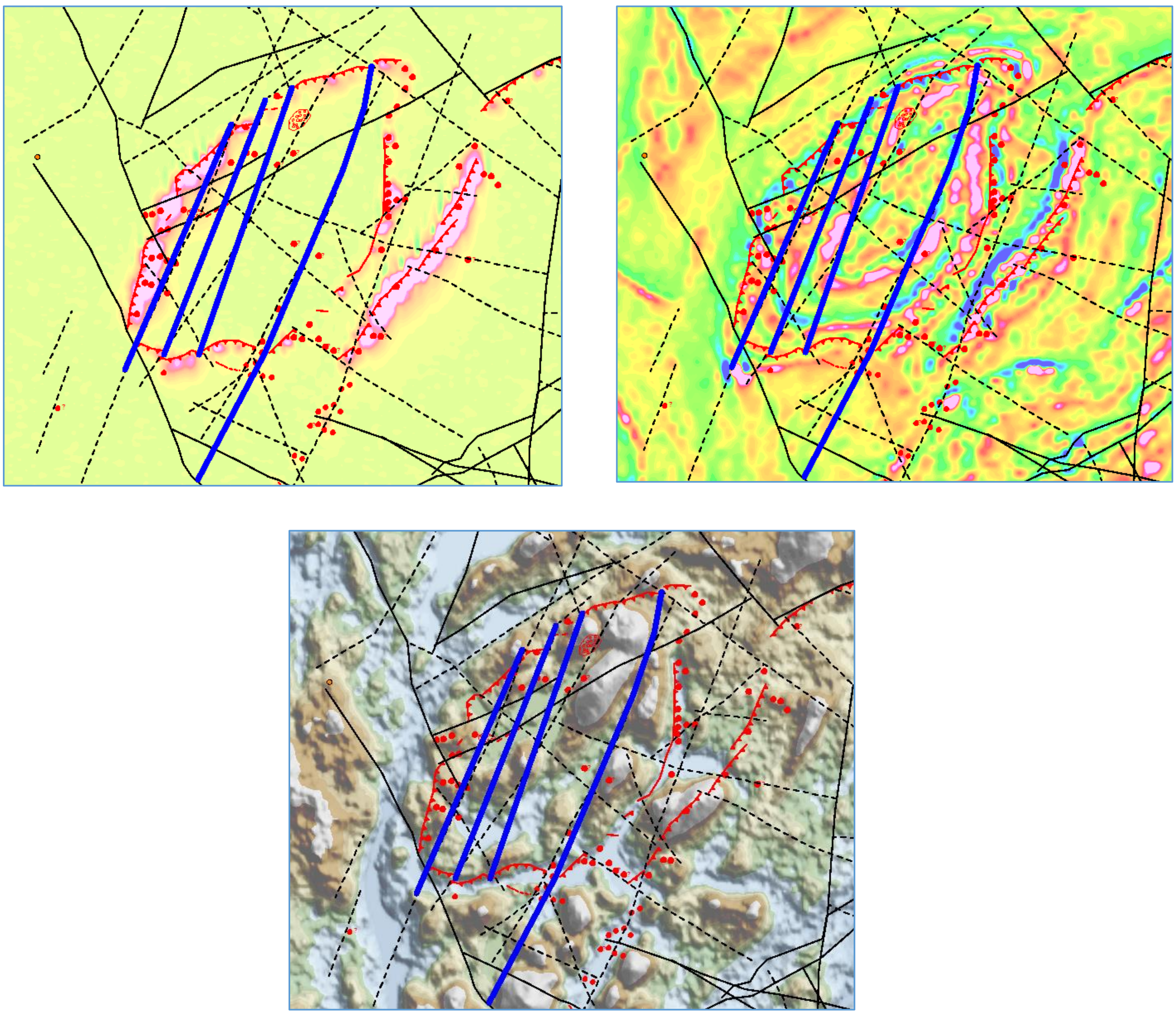


Figure 33 - Possible structural directions from the EM data that cannot be easily identified in either the magnetic or digital terrain data. Please refer to Figure 21 for the interpretation legend

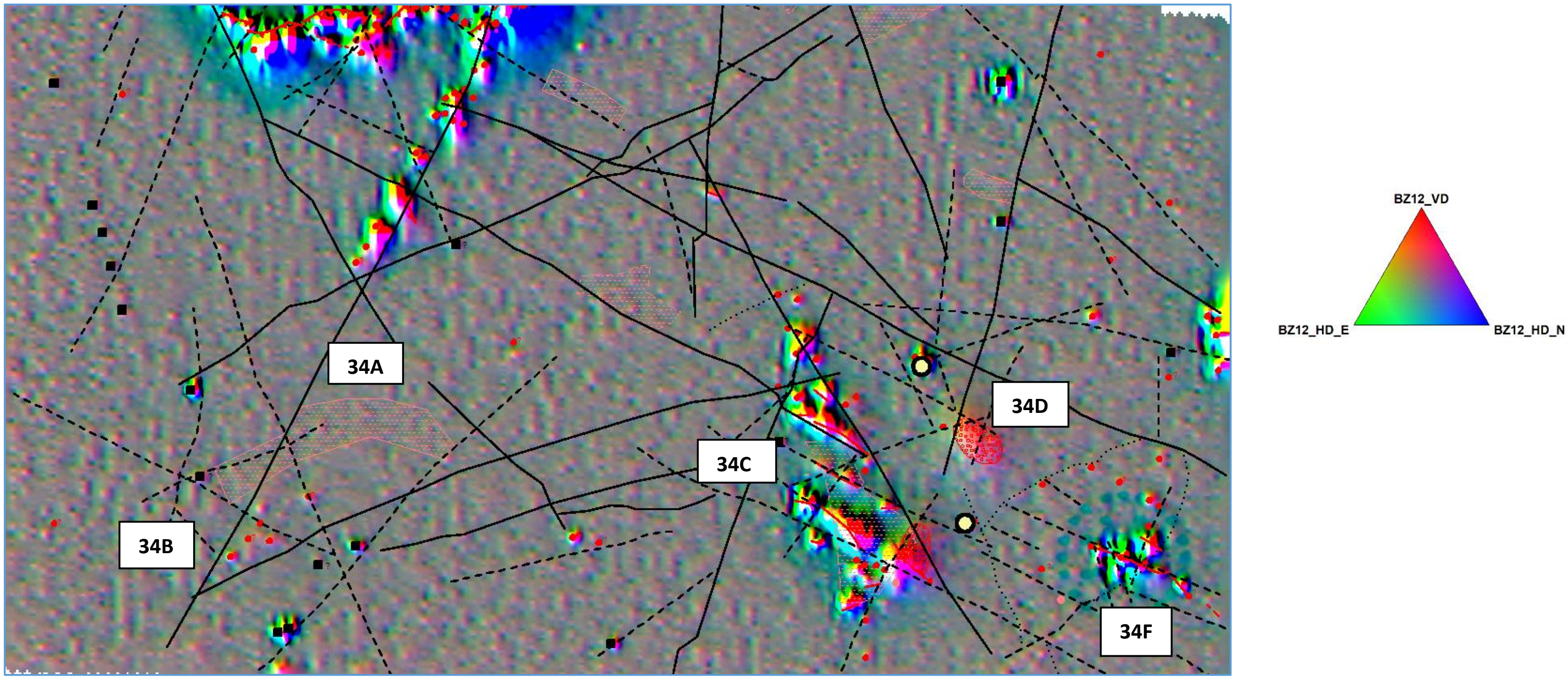
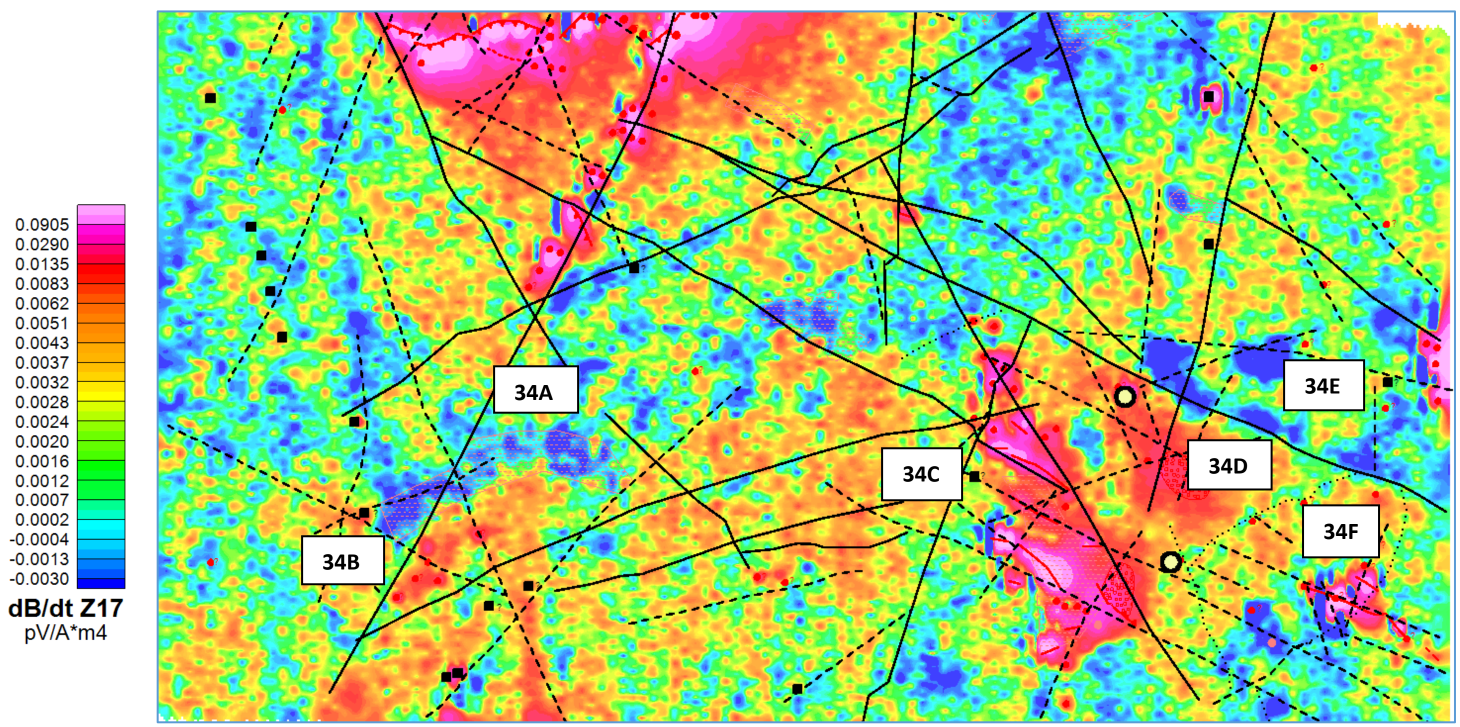


Figure 34 - Ternary of B-field channel 12 derivatives (above) and B-field channel 17 (below). Refer to Figure 21 for the interpretation legend. The yellow circles show the approximate locations of historic Au in sediment samples.



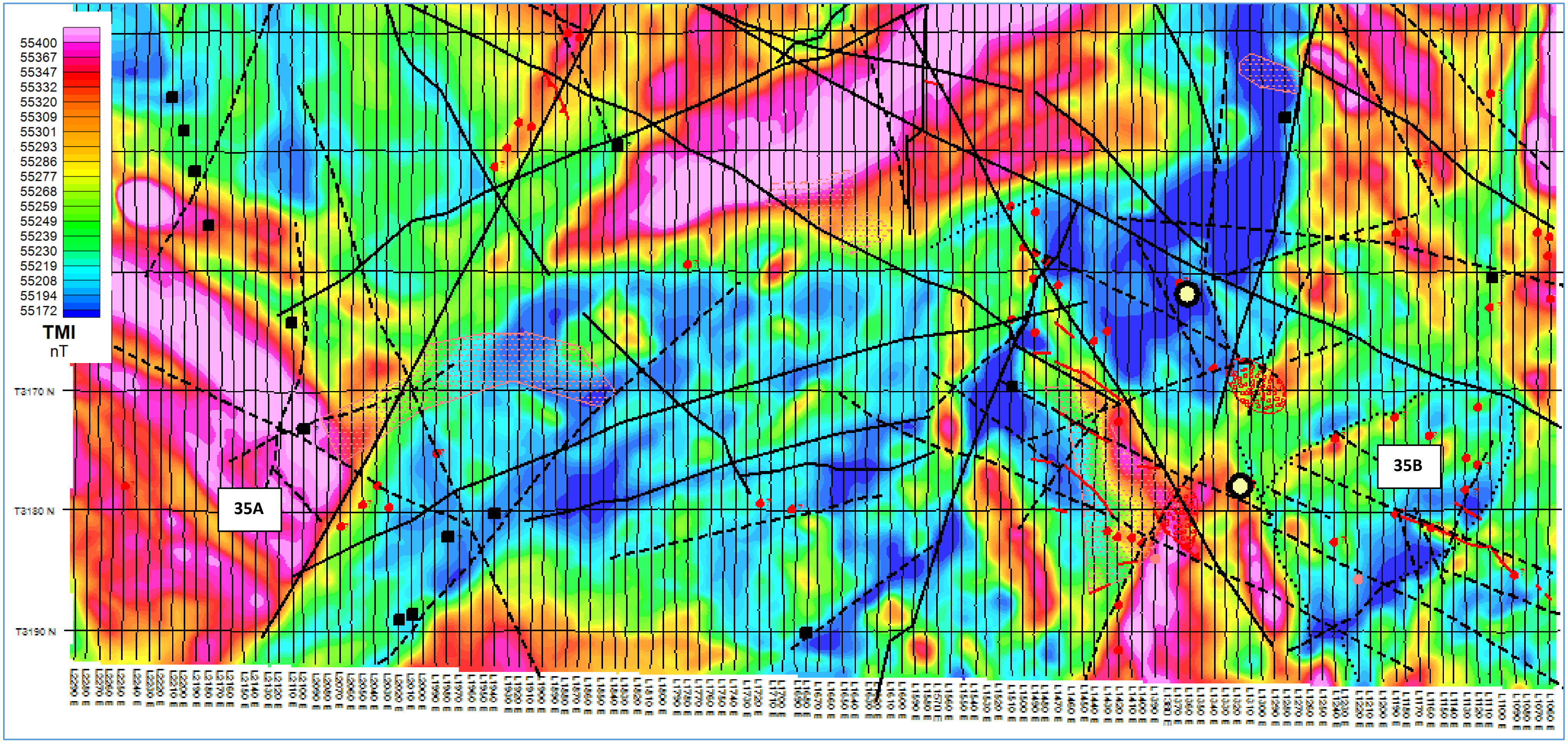


Figure 35 - Total Magnetic Intensity – please refer to Figure 21 for the interpretation legend. The yellow circles show the approximately locations of historic Au in sediment samples

34C in Figure 34 is a series of mostly NW-SE trending conductors strike along similar trending structures. The conductors are terminated in the east by an NNW-SSE structure. **34F** which is similar in character lies approximately 3 km to the southeast.

34D in Figure 34 is a deeper conductive zone best seen on the B-field data (see also the profile in Figure 37). It can be seen in the earlier time dB/dt data but is relatively non-descript. It is located at the junction of several structures and equidistant between the historic Au in sediment samples.

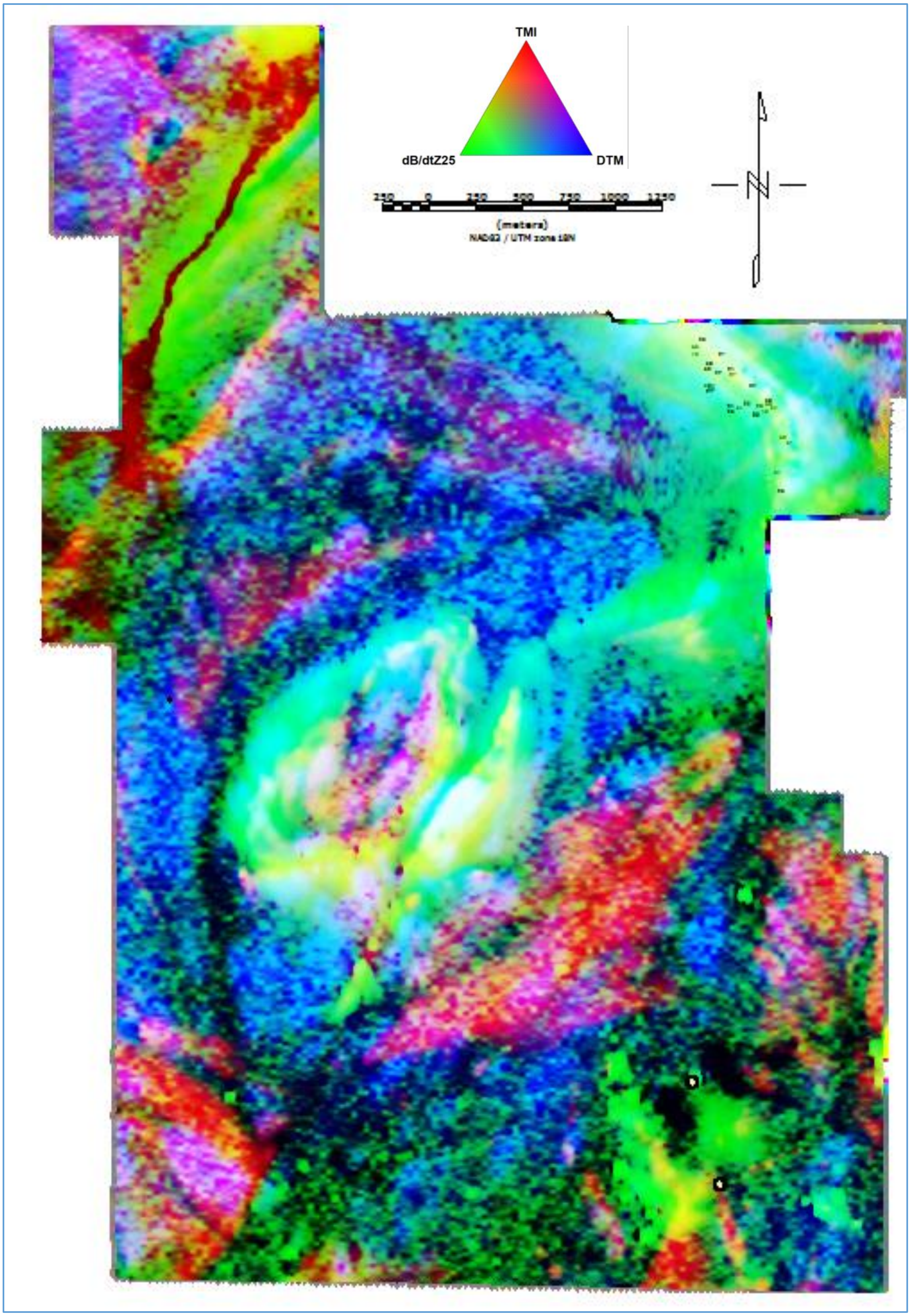


Figure 36 - ternary of the TMI, EM, and digital terrain. The yellow circles show the approximately locations of historic Au in sediment samples

Figure 36 shows a ternary image of the TMI, a late time dB/dt Z channel and the digital terrain. The historic gold in sediment samples are located on this image, and it appears that they may lie along parallel trends of NW-WNW (see also the structure separating **34D** and **34E** in Figure 34). From Figures 34 and 35 they may also lie along an NNW structure.

34E is an area of airborne IP that likely corresponds to clays in the low-lying areas and along the structures. One of those lineaments is the NW-WNW structure that strikes through close to the northern historic Au in sediment sample.

In Figure 35, **35B** is centred in a region that is outlined by a dotted line. This seems to be a small intrusive, with very weak mostly questionable anomalies in or around it. At first glance it seemed to be a fold, but the magnetic signature does not seem to support this theory. 34**F** lies on the southern edge of this, and like **34C** strikes NW-SE, but again like **34C** it seems to be a series of short strike length features, aligned along a NE-SW structure.

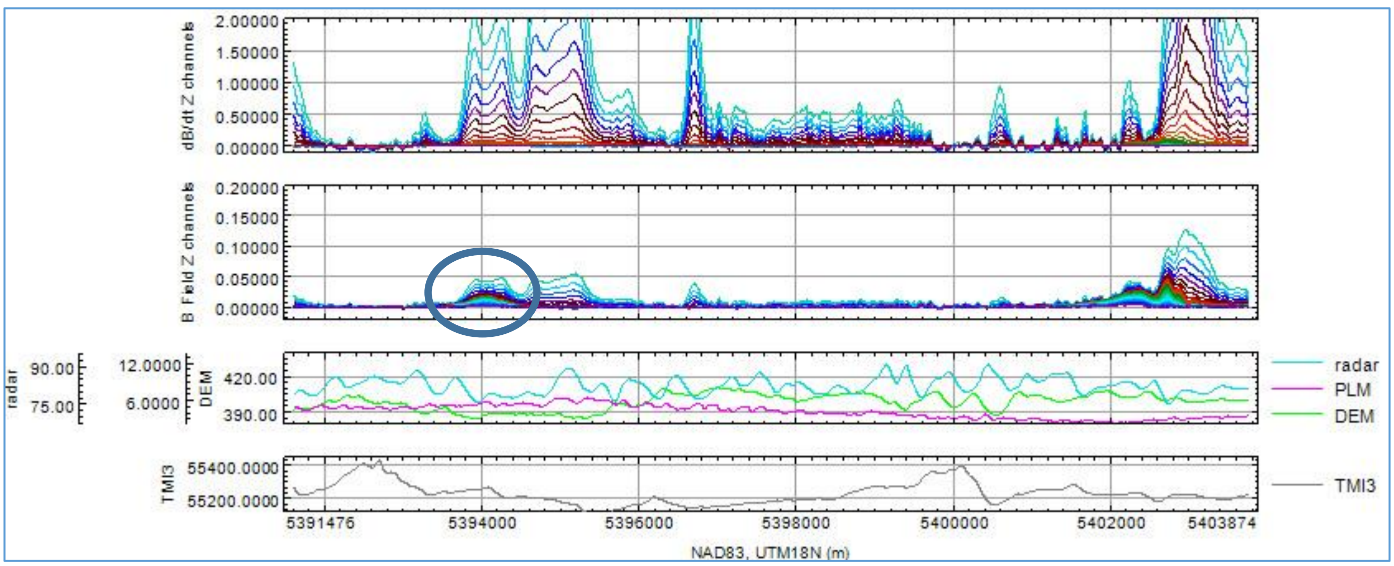


Figure 37 - Profile of the TDEM data- Line 1310 - the circled area shows the deeper conductor shown in Figure 34 as 34D

Areas of Interest

With so many possible EM targets it is difficult to isolate a select few. The obvious targets would be:

- areas of increased conductivity potentially indicating a potential for base metal mineralization, e.g. **27G**,
- areas of a reduction in the conductivity, e.g. **27F,27H**
- along faults, especially fault intersections
- surficial conductor in elevated terrain possibly indicating alteration e.g. near **34C**
- late time B-Field anomalies/zones, e.g. **25B,25C, 28D, 34D**
- isolated anomalies/small strike-length features, e.g. **27I, 34B, 34F**
- anomalies close to cross-cutting dykes
- anomalies close to soil/sediment samples containing mineralization

In the northeastern area, some additional features stand out. In the northeast it seems that much of the A-horizon results indicate the better Cu, Zn, Pb indicators lie north of the ENE structures and seem controlled also by N-S structures. Therefore, this should be an area of interest, especially where it seems there are deeper conductors e.g. **25B,** or at the intersection of the ENE and N-S structures. Likewise, in the area showing considerable disruption and the change in the dip direction (where the strike changes from NW-SE to N-S) – close to the dyke may also be of interest, even though the A-horizon results weren't as promising.

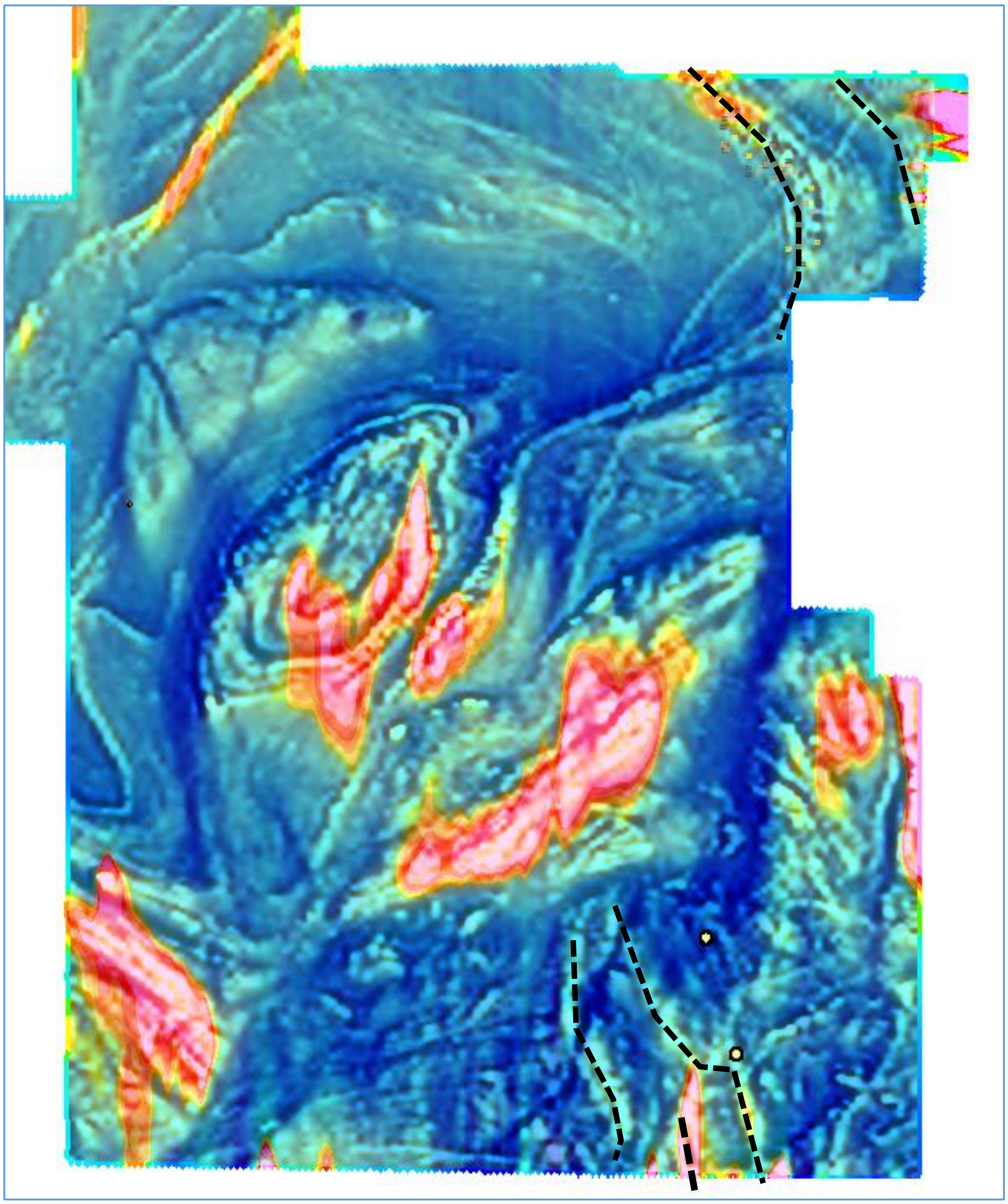
The deeper B-field anomaly **34D** in the southeast of the survey area which lies equidistant between the two Au in sediment samples is of interest, and lies at the junction of several structures. Likewise, the two potential structures striking NW-SE that lie adjacent to these samples and flank either side of **34D** are interesting.

The oval shaped feature is intriguing and although essentially identical in nature, its relationship to the formational conductor is unknown. It is of similar intensity, strike and dip.

It is important to note that the airborne surveys are typically designed to indicate areas of interest but are not optimum surveys for direct targeting. It is recommended that ground follow-up be performed to better define these areas for more focused targeting.

Unverified trend in the Magnetic data – an observation only ......

The image below shows an upward continued grid from the magnetic data, superimposed over the ternary image of the magnetics – TMI, CVG and 2VD. The black lines are drawn in to show a possible path of the formational conductor on the southern part of the survey – but if that is the case, there is no corresponding EM signature. The second thought is that this could also just be a small narrow fold with the axis striking NNW-SSE.



Appendix 1 – General Magnetic Theory

General Magnetic Theory

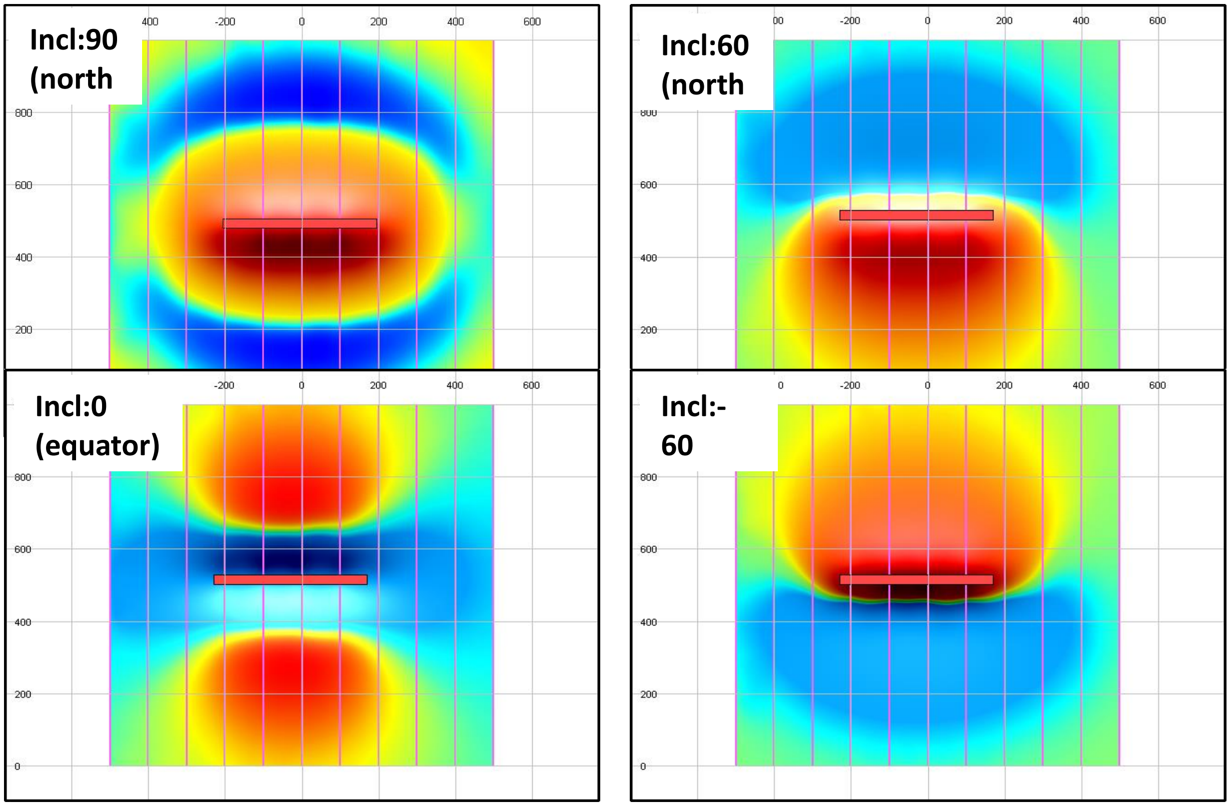
The Earth's magnetic field, which changes from over 60,000 nT in a vertical direction at the poles to about 30,000 nT in a horizontal direction at the equator, induces a secondary magnetic field in rock bodies containing magnetic minerals.

Some rocks contain a natural or thermoremanent magnetization that was acquired when the rock was last heated above the Curie point and then cooled. The direction of this magnetization is parallel to the magnetic field that prevailed during the cooling period.

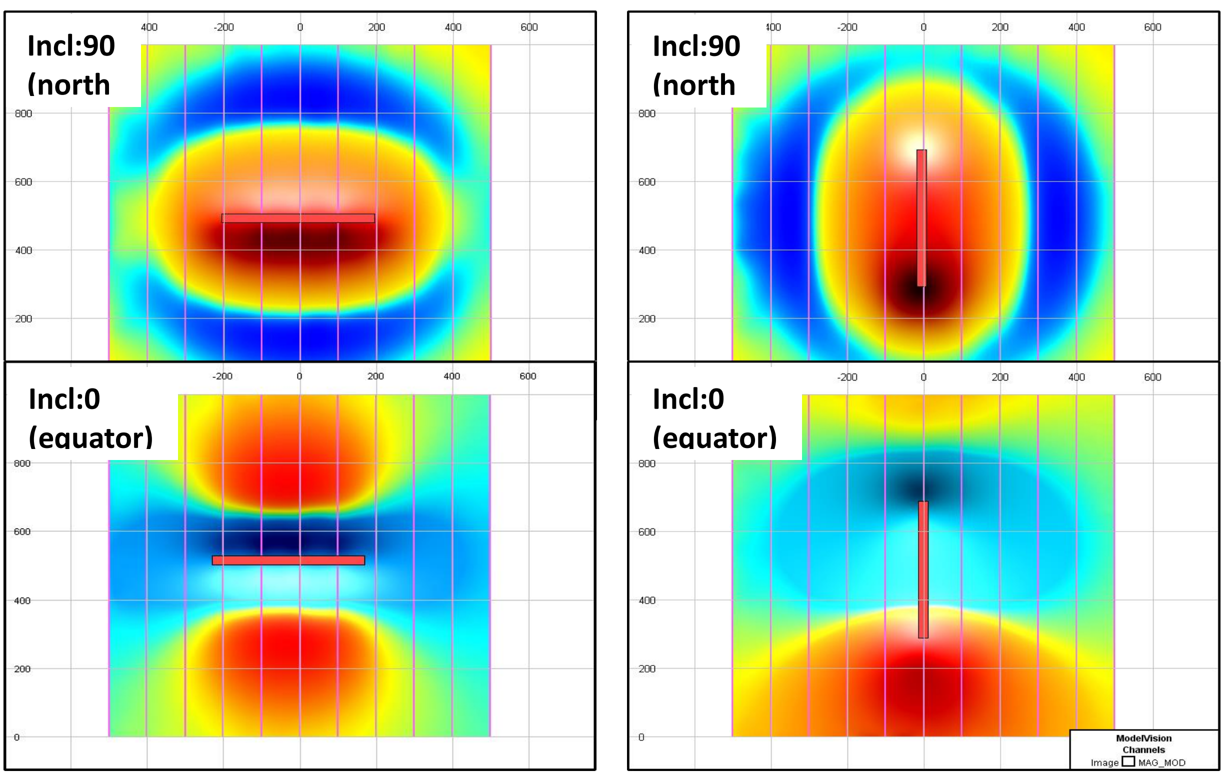
The crystalline rocks of igneous or high-grade metamorphic origin – e.g. granite, basalt, gneiss and schist, usually contain sufficient quantities of magnetic minerals (mainly magnetite) that their influence on the earths field can be observed even when covered by extremely thick sections of sedimentary rocks.

The magnetic pattern over large areas of a single rock type is generally consistent throughout, and whenever the magnetic character changes, it usually implies a change in the rock composition. As an example, the contact between granite (usually quiet in character) and an ultrabasic unit (varying or disturbed pattern).

The study of magnetic anomalies does, to some degree, depend upon the latitude (see Figure 4 below); in high latitudes attention is devoted to positive anomalies, while at the equator negative anomalies are of prime interest. This is due to the inclination of the earths magnetic field, which is near vertical at the poles and horizontal at the equator.



Effect of Magnetic Inclination (above) and Effect of Magnetic Inclination and Strike (below)

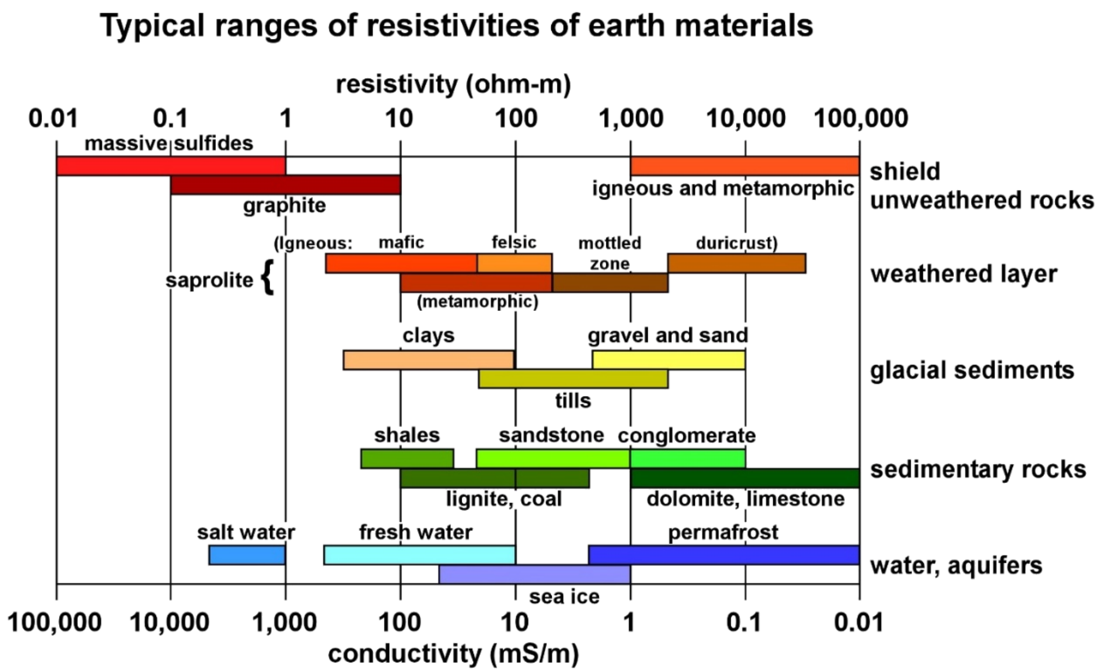


Appendix 2 – Resistivity of rocks & minerals

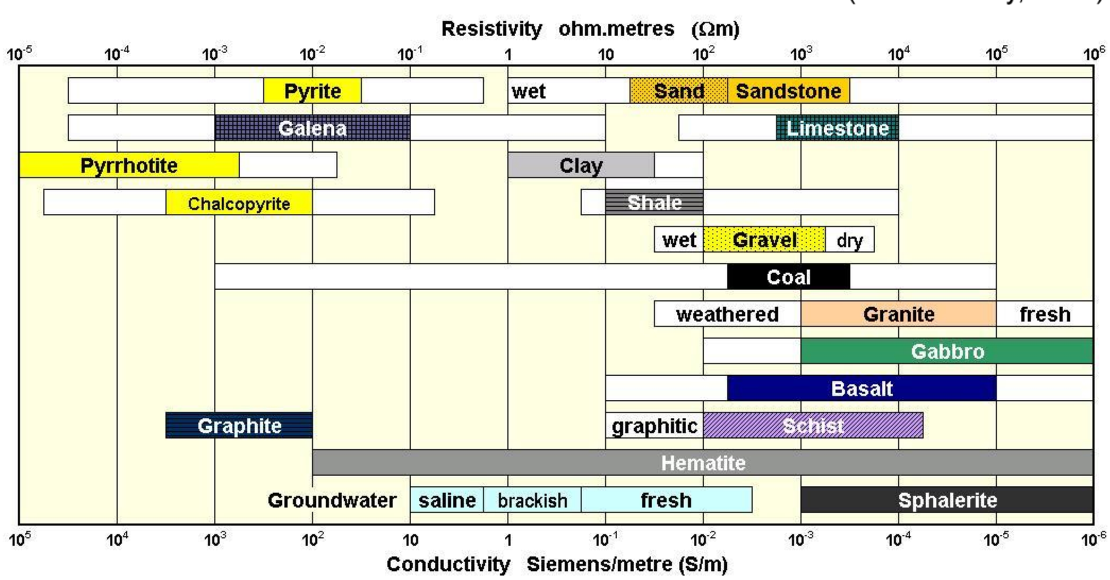
Alteration

- **Chlorite, sericite decrease resistivity**
- **Silicification, carbonate increases resistivity**

Conductivity depends as much on form and bulk as on conductivity of the mineral.



(from Palacky, 1988)

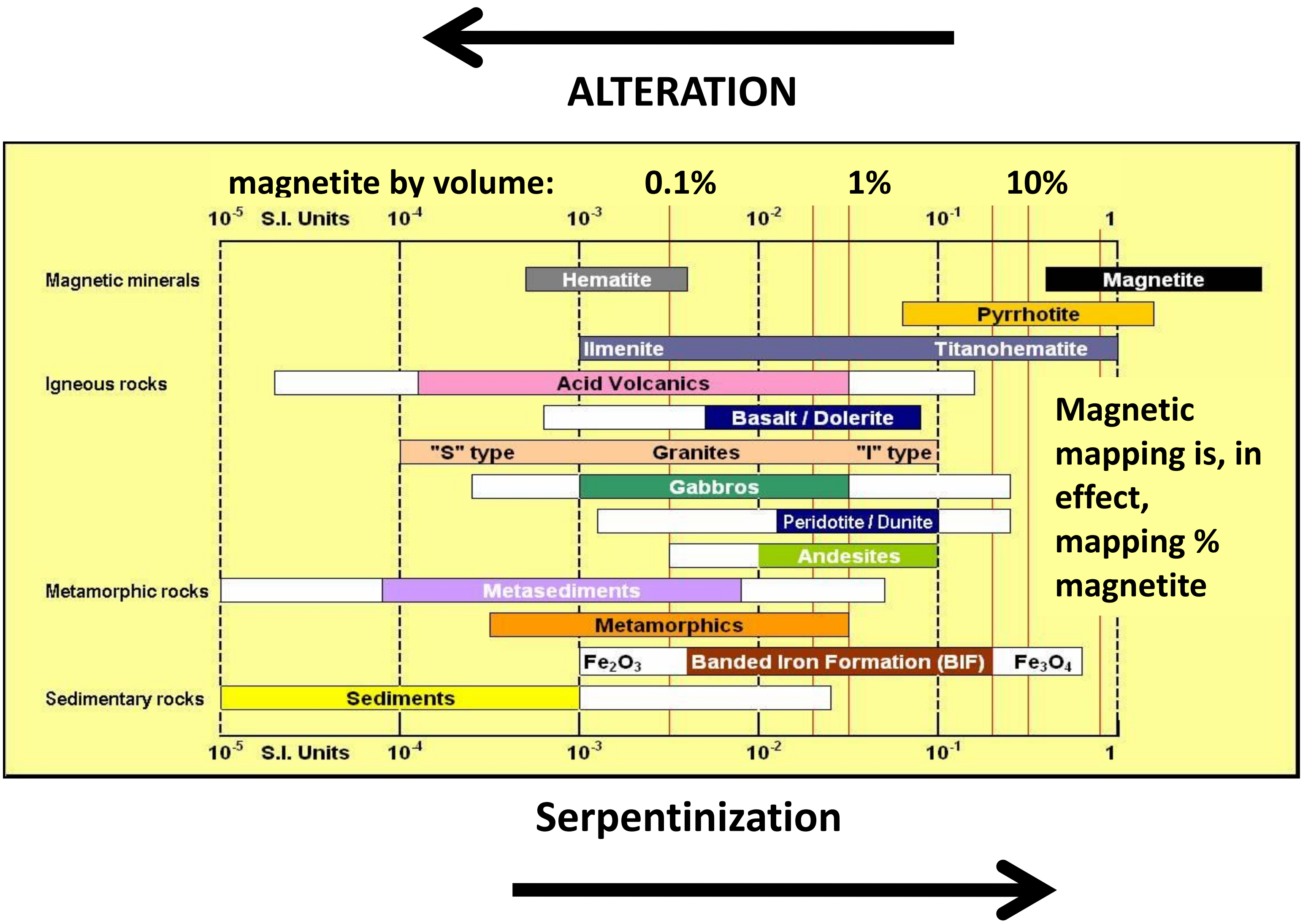


Conductive ↓	**Metal Sulphides (Fe, Cu, Pb, Ni, Mo)** (not Zn, Sb)
	Metal Oxides(Fe, Mn)
Resistive ↓	**Carbonates**
Very Resistive	**Silicates**

	Graphitic
Conductive ↓	**Clay-rich sedimentary**
	Carbonates
Resistive ↓	**Sandstone (+/-water)**
	Metasediment (un altered)
Very Resistive	**Metavolcanic**
	Igneous (un altered*)

* mafic and ultramafic rocks alter much faster – sometimes years.

Appendix 3 - Magnetic susceptibilities



Appendix 4 – Magnetic Models

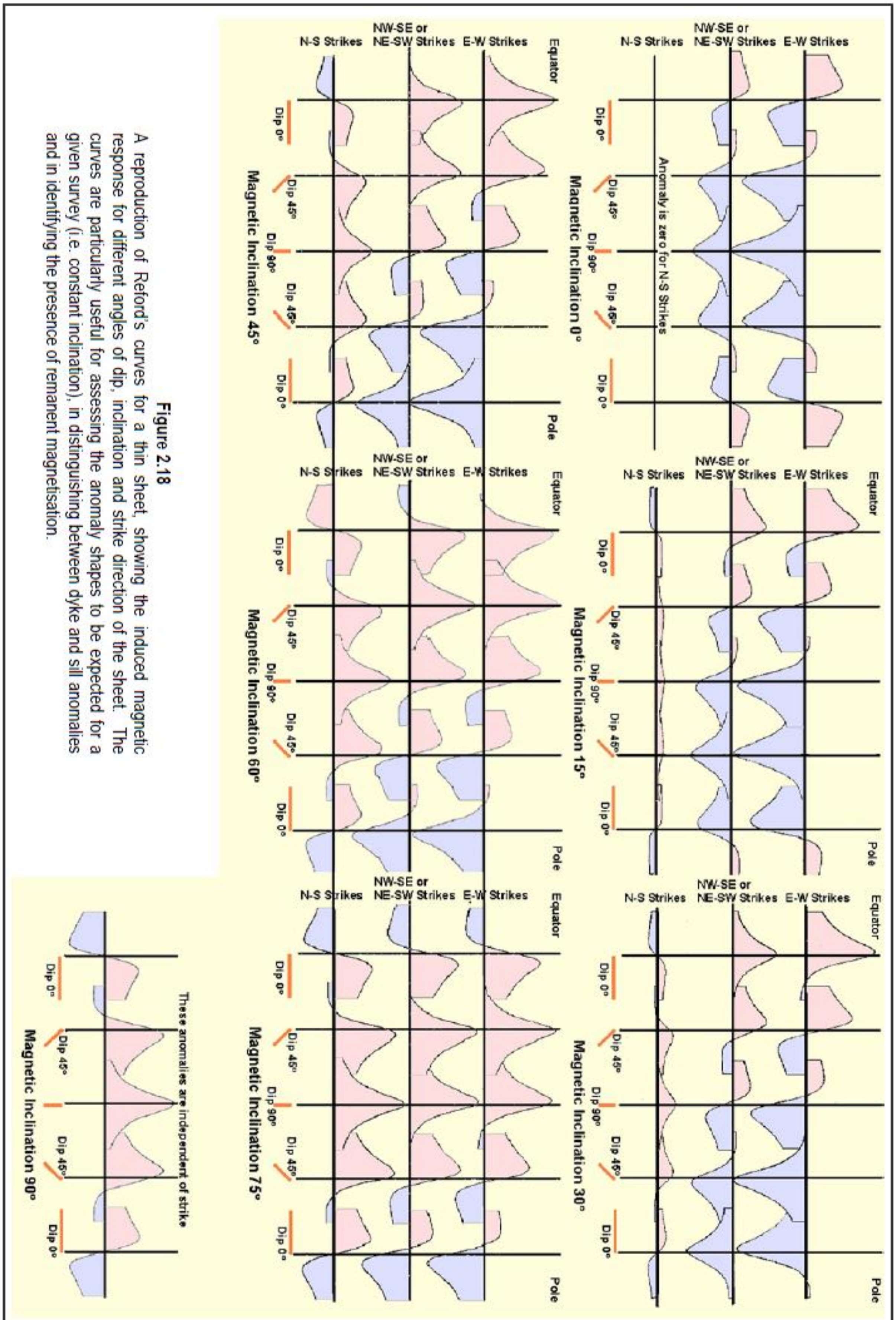
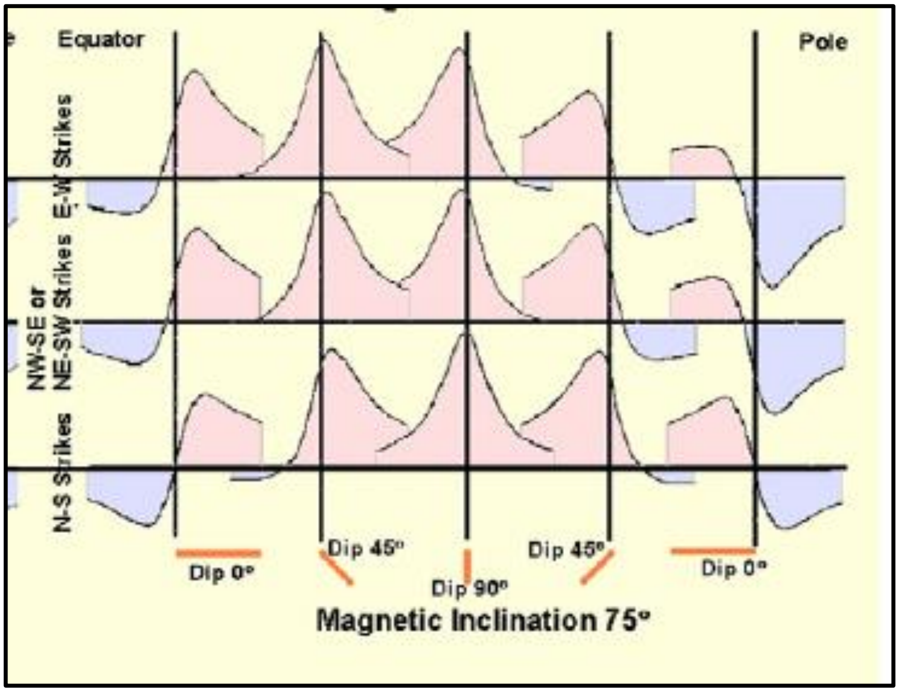


Figure 2.18

A reproduction of Reford's curves for a thin sheet, showing the induced magnetic response for different angles of dip, inclination and strike direction of the sheet. The curves are particularly useful for assessing the anomaly shapes to be expected for a given survey (i.e. constant inclination), in distinguishing between dyke and sill anomalies and in identifying the presence of remanent magnetisation.


Equator
Pole
E-W Strikes
NW-SE or
NE-SW Strikes
N-S Strikes
Dip 0°
Dip 45°
Dip 90°
Dip 45°
Dip 0°
Magnetic Inclination 75°