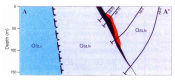
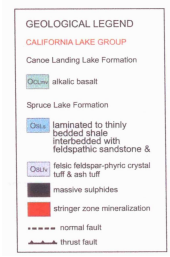
ARMSTRONG

CANADA

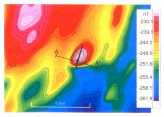
How Magnetic and FDEM Surveys Work Together



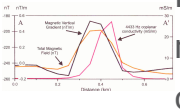


Armstrong is a small, steeply dipping, VMS deposit located in the Bathurst Mining Camp of New Brunswick.

The deposit is hosted by weakly magnetic felsic volcanics.



The magnetic signature of the deposit is clearly visible as an isolated aeromagnetic anomaly.

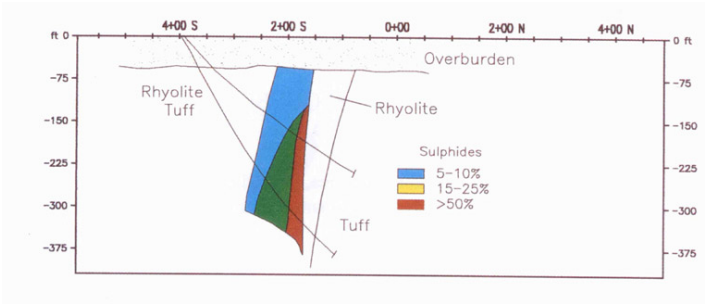


Because the host rock is weakly magnetic and has low conductivity, the massive sulphide deposit produces a well-defined magnetic and conductivity anomaly.

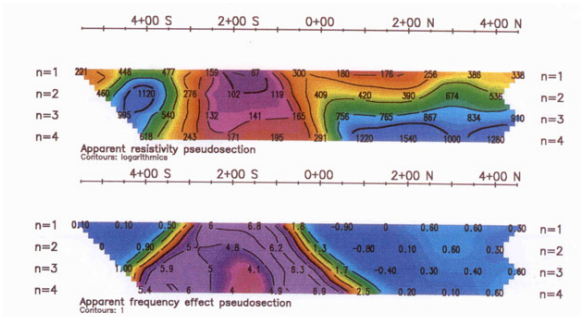
BOUCHARD-HÉBERT

CANADA

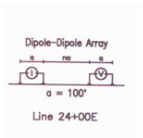
With Image2D™, the DDH target is obvious even if you're not a PhD in geophysics!

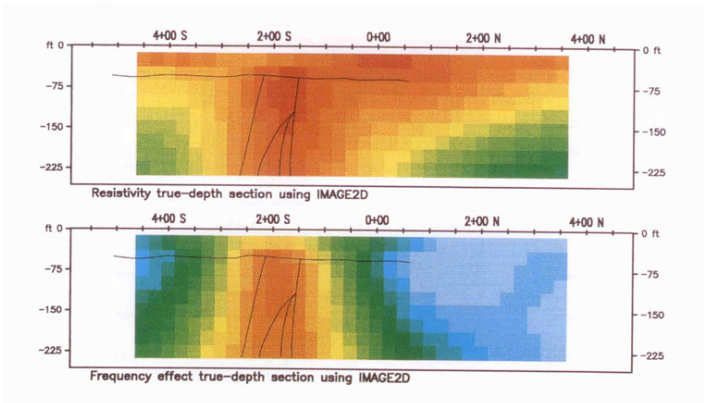


Bouchard-Hébert is a Cu-Zn VMS deposit located in the Abitibi belt at a depth of 100 metres. A wide disseminated 5-25% sulphide halo is located in the footwall of a semi-massive sulphide Lens > 50 %.



The resistivity and IP pseudosections show the typical signature of a polarizable conductor.



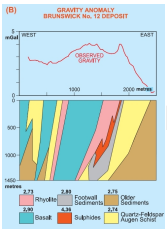


IP is an important tool for base metals exploration. Pseudosections converted through the algorithm of Image2D™ clearly delineate the mineralized zone.

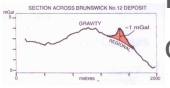
BRUNSWICK N°12

CANADA

Gravimetry proves to be an efficient tool to follow up an EM and Mag anomaly in Bathurst Camp.



Brunswick no 12 is the largest Zn rich VMS deposit of the Bathurst Camp.



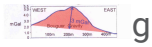
Mafic volcanic rocks produce a large, regional gravimetric Bouguer anomaly. A contrast of density caused by a massive sulphide lens produces a local peak, showing the location of the deposit.

BRUNSWICK N°6

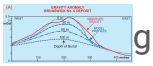
CANADA

Gravimetry is a useful tool in the search for hidden deposits.

Brunswick No. 6 is a large, near surface, Zn rich VMS deposit located within the Bathurst Mining Camp.



Because ZnS is non-conductive EM methods may not have been appropriate. A gravimetric survey was conducted and the massive sulphides produced a 3 mGal gravity anomaly.

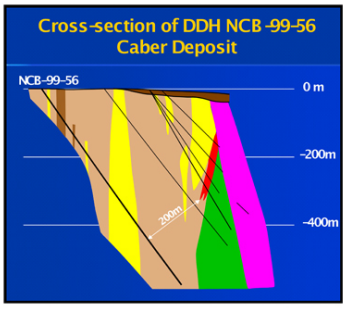


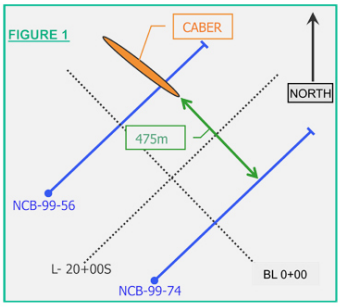
A simulation of the survey data was carried out to determine the sensitivity of the gravity method to this deposit type if it was buried deeper. The Bouguer gravity profile would be anomalous if the deposit was buried to a depth of 100 meters.

CABER

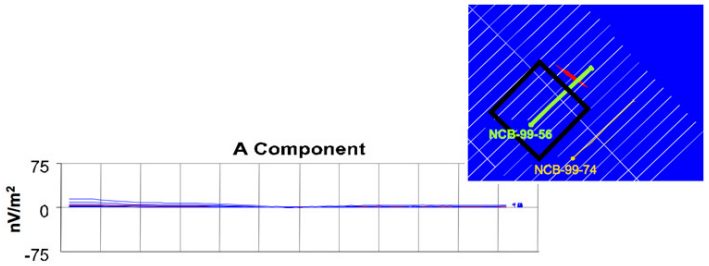
CANADA

Borehole InfiniTEM® detects a conductor as small as Caber at a radius of more than 475 metres. The use of InfiniTEM® can reduce drilling costs by spacing the stratigraphic drill holes up to 800 metres apart, instead of 400 m.

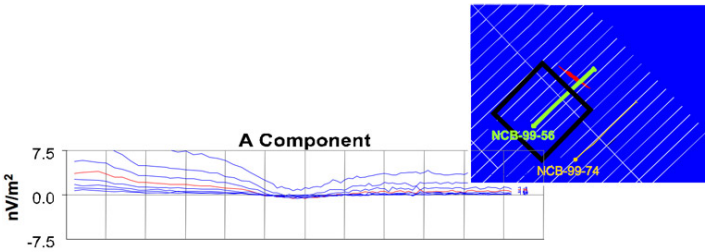


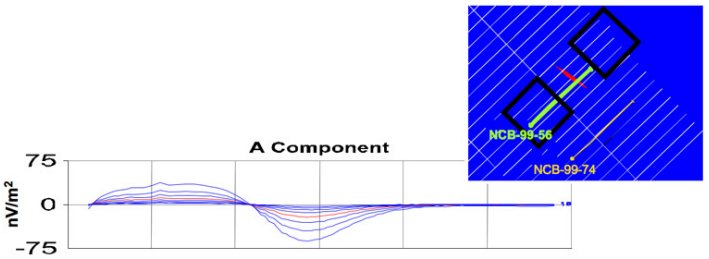


The Caber deposit (0.43 Mt @ 11.7 % Zn, 0.7 % Cu) is located in the Matagami mining camp. A conventional borehole EM survey and borehole InfiniTEM® surveys were tested at 200 metres and 475 m from the deposit.

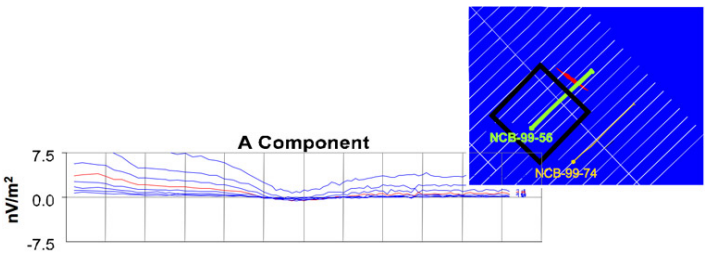


At 200 metres from the deposit (Hole NCB-99-56), conventional BHEM reaches its detection limit. The anomaly is too weak for reliable data interpretation.

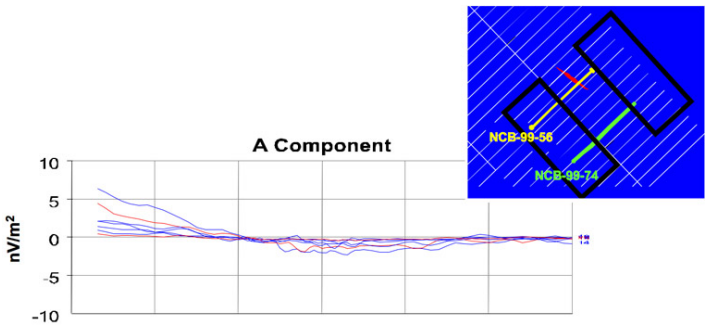




On the other hand, the borehole InfiniTEM® anomaly is outstanding, at least 20 times greater amplitude than that of a conventional BHEM survey. Furthermore, the migrating cross-over indicates that the borehole intersected the conductor at an oblique angle.



At 475 metres from the deposit (Hole NCB-99-74), the conventional borehole EM survey does not show any anomaly.



InfiniTEM® proves its greater radius of investigation by clearly mapping the deposit from a hole that is 475 m from the deposit.

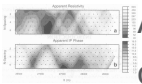
CENTURY

AUSTRALIA

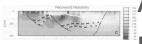
IP Inversion Provides Important Information about both Structure and Mineralization.

The Century deposit is located in NW Queensland, Australia and is hosted by flat-lying siltstone and shale units. Mineralization occurs within black shale units as fine grain sphalerite and galena and is associated with bitumen-rich beds.

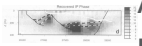
Century is the second largest mine by revenue in Australia.



A dipole-dipole Resistivity / Induced Polarization survey was completed using a configuration of n=1 to 7 with an a spacing of 100 m.



A 2D Inversion of the resistivity data nicely delineates the resistive overburden; however, resistivity does not correlate with mineralization.

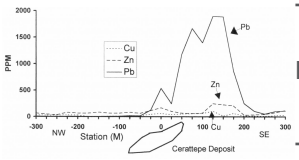


A 2D Inversion of the IP data delineated the horizontal extent and depth of the ore body. It also indicated a major fault which dislocates the ore sequence

CERATEPPE

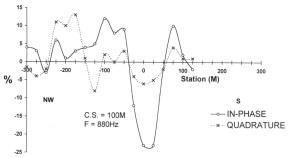
TURKEY

How FDEM Can Help you Find a Mine.



The Cerattepe deposit is a Kuroko type Pb, ZN, Cu VMS deposit located in northeastern Turkey.

The deposit was indicated by a Pb, Zn, Cu soil geochemical anomaly.



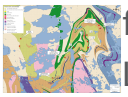
A horizontal loop frequency domain EM survey was conducted over the soil anomaly.

The deposit produces a strong anomaly with a high in-phase to Quadrature ratio.

COULON

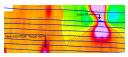
TURKEY

InfiniTEM® detects deep conductive targets because it generates a strong horizontal primary field that couples ideally with steeply dipping VMS targets.

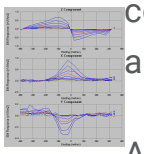


The Coulon property is located within a barely explored archean volcanic belt. Its features are characteristic of a belt fertile with volcanogenic massive sulphide deposits. Lens 43 is a sub-vertical polymetallic body of moderate conductivity discovered using InfiniTEM®.

Virginia Mines drilled this new InfiniTEM® target and discovered Lens 43 at a depth of 120 metres (4.58% Zn, 1.37% Pb, 57.14 g/t AG and 6% Cu over 3.5 m).



A 2003 helicopter-borne EM survey (blue stacked profiles) highlighted several conductors, including Lens 44. The 2006 InfiniTEM® survey (gridded colour map) shows a strong anomaly on Lens 44, plus another intriguing target to the south west.

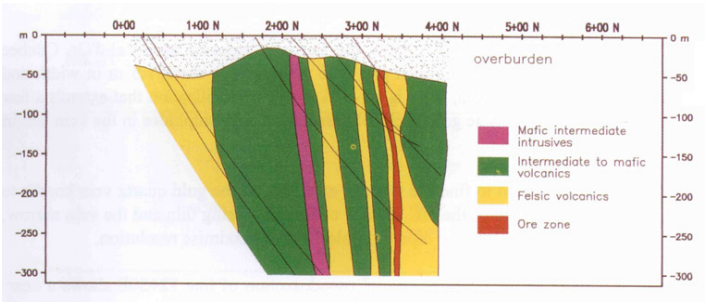


An InfiniTEM® anomaly led to the discovery of Lens 43. This mineralization was not detected by a helicopter TDEM survey.

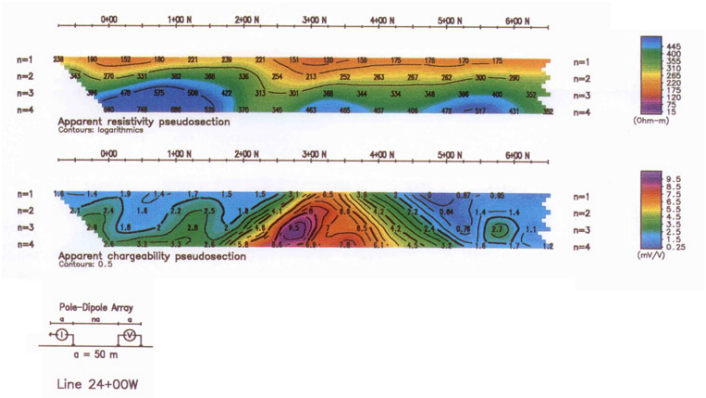
ESTRADES

CANADA

Zinc rich deposits are usually not good EM target. IP is the alternative.



Estrades is a narrow Cu-Zn VMS deposit covered by a layer of conductive overburden, located in the Abitibi Greenstone belt.



The deposit is clearly detected with IP, but is the resistivity data useful?

Yes, according to Image2D™. It helped locate the drill rig where the overburden is thinner (on the South side).

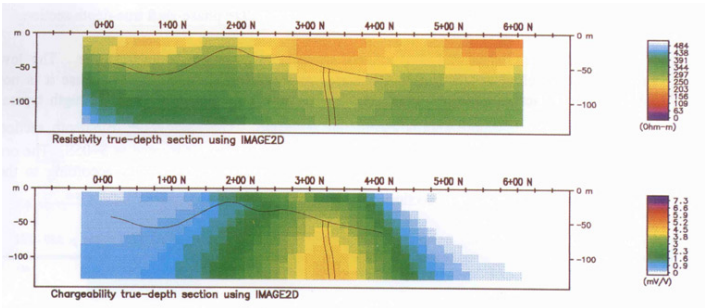
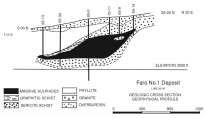


Image2D™ yields more quantitative information than the conventional IP pseudosections.

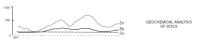
FARO

CANADA

Another gravity success

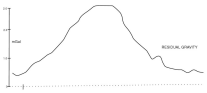


Faro is a Sedimentary Exhalative (SEDEX) Pb-Zn deposit located in Yukon.



Initial exploration lead to the discovery of a geochemical anomaly.

A magnetic anomaly coincided with the geochemical anomalies.



The Faro #1 deposit was best outlined by a gravity survey, where both magnetic and geochemical anomalies coincided.

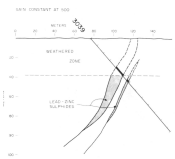
A 2.8 mGal anomaly coincided with the thickest section of the ore body.

Preliminary calculations using the gravity results suggest a mass of 44 MMT. It was later proven to contain about 46 MMT.

FLYING DOCTOR

AUSTRALIA

Borehole TDEM can Detect Mineralization In-hole and Off-hole.



The Flying Doctor Pb-Zn deposit is located in the north Broken Hill area of Australia. The deposit lies beneath 40m of conductive overburden that is saturated with brackish water.

Hole 3039 intersected the weathered section of the sulphide lens.

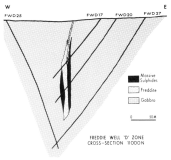
A borehole TDEM survey was conducted in hole 3039. The sulphide lens was detected as a strong off-hole anomaly.

While the weathered zone is non-conductive, the profile confirms the presence of fresh sulphides adjacent to the hole.

FREDDIE WELL

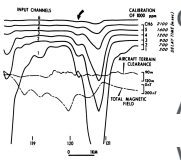
AUSTRALIA

Response of a Sulphide Deposit beneath Conductive Sediment



The Freddie Well deposit is a small VMS body located in the Archean shield of Western Australia. The deposit lies beneath deeply weathered gabbro in an arid environment.

Deeply weathered terrains can be challenging for TDEM, since variable weathering can mask basement conductors.

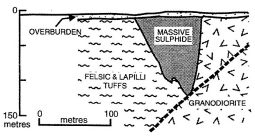


At Freddie Well, the large amplitude broad response is due to conductive sediments, while an adjacent anomaly with a lower decay rate corresponds to the conductive deposit.

GALLEN

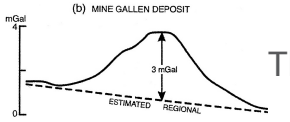
CANADA

Another Example of a Sizable Gravity Anomaly Associated with a Sulphide Body at Surface.



The Gallen deposit is a small zinc VMS lens located in the Noranda Mining Camp of the Abitibi Belt, Canada.

The deposit consists primarily of pyrite, with sphalerite reaching 20% locally.

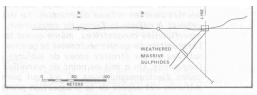


The gravity profile indicates a 3mGal anomaly.

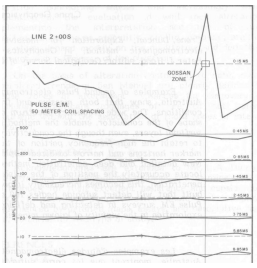
GHAYTH

OMAN

We must look at every anomaly



Ghayth is a narrow Cu-Zn massive sulphide deposit, weathered to considerable depth.



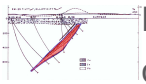
A ground Time Domain EM survey was conducted.

As a result of deep weathering and narrow width, the zone is a poor conductor showing up only in the early times.

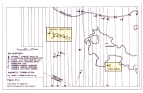
ISO

CANADA

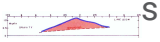
Gravimetry gives good response for a small deposit.



ISO is a moderately dipping, tabular Cu-Zn VMS type deposit located within the Abitibi greenstone belt.



INPUT–EM survey successfully located a 425 meter long conductor (Magusi River (ISO)) beneath 12 meters of conductive overburden.



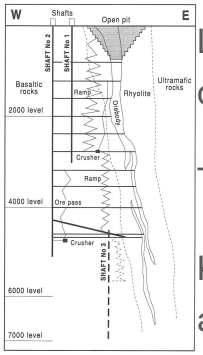
A gravimetric survey was completed along the conductor to determine whether the source was related to graphite or sulphides. A 1 mGal gravity anomaly isolated the sulphide zone to within a 125m section of the conductive zone.

Conductivity and gravimetric anomalies were explained by a small tonnage deposit confirmed by drilling.

KIDD CREEK

CANADA

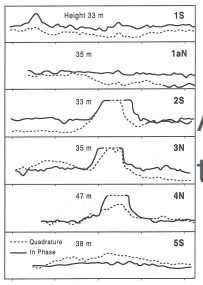
A triumph for early airborne geophysics.



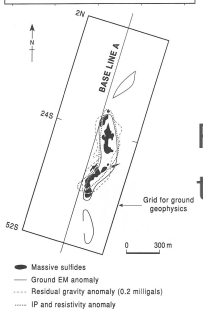
Located north of Timmins Ontario, Kidd Creek is one of the largest Cu-Zn VMS deposits in the Abitibi Greenstone Belt (120Mt).

The deposit, consisting of massive sulphides, stockwork and stringers.

Kidd Creek was hidden from conventional exploration techniques by layers clay and muskeg.

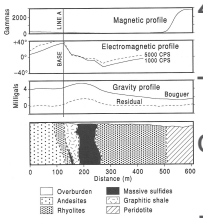


An airborne EM survey successfully detected the Kidd Creek deposit in 1959 on the first day of the geophysical campaign.



Following the success in the air, a ground EM survey was conducted to confirm the location of the anomaly. Gravity and IP surveys were also conducted.

Profiles of line 24S show the EM and gravity response over the massive sulphide zone.



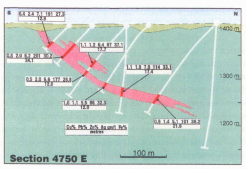
The magnetic response was minimal with the peridotite to the east giving the only significant response.

Drilling was conducted on the EM anomalies, the first hole intersecting 8.37% Zn, 1.24% Cu and 9.3 Oz/t Ag over 177m.

KUDZ ZE KAYAH

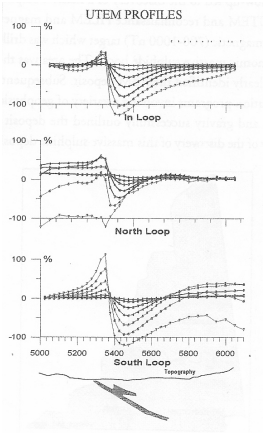
CANADA

Geophysics and Geochemistry Working Together

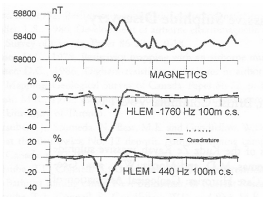


The Kudz Ze Kayah VMS deposit is located in the Yukon, Canada. The deposit is associated with felsic volcanics.

Anomalous regional geochemistry led to the discovery of a massive sulphide boulder grading 9% Zn.

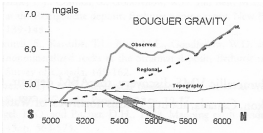


A Time Domain EM survey indicated the presence of a conductor 1 km to the south of the sulphide boulder.



FDEM (HLEM) and magnetic surveys located a strong conductor coincident with a large magnetic anomaly.

These results were used to locate the first drill hole which intercepted a 7.5 m and a 15 m mineralized zone.



The deposit also produces a Bouguer anomaly response of 1.1 to 1.5 mGals.

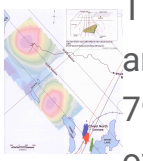
LALOR LAKE

CANADA

At 800 metres deep, Lalor is the deepest target ever discovered with surface TDEM system.

Lalor Lake is a 16 Mt zinc rich VMS deposit. It represents one of the largest base metal deposit discovered in Canada in decades.

In order to test whether the Chisel Mine workings at 600 meters depth can be detected by a ground survey, a 2 square kilometre transmitter loop was laid on the surface. The test successfully detected the known zones.



The same approach was applied on a 20 square kilometre piece of the volcanic Basin and defined two bull's eyes targets. Models indicate a source at 800 metres depth. At 795 metres a drill hole intersected over 24 meters of high grade zinc ore(17.26% Zn over 16.45 m)

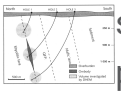
LEMOINE

CANADA

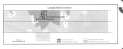
Optimizing Exploration Efficiency with Down-hole EM

The Lemoine property is located in the Chibougamau Mining Camp, northwestern Quebec, Canada.

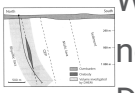
The property is host to a small Zn, Cu, Ag, Au VMS deposit.



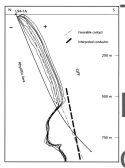
The historical drilling approach at Lemoine, was to drill perpendicular to favourable stratigraphy. Down Hole EM surveys conducted in these holes would test only a small portion of the prospective horizon and many holes would be required to fully explore the region of interest.



Starting with known geology and the effective radius of investigation of the DHEM, a compilation of remaining potential along the favourable contact was completed.



With the objective of maximizing the chance of a discovery while minimizing costs, a new approach was proposed. A deep-hole, sub-parallel to the stratigraphy, would allow Down Hole EM testing of the favourable horizon for the full length of the hole.



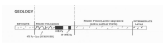
The Down Hole EM survey results indicate an off-hole conductor.

Follow-up drilling targeted the anomalous zone and intersected a network of very conductive stringer zones.

LOUVICOURT

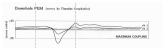
CANADA

Borehole IP can Successfully Locate Zinc-rich Occurrences (Low Conductivity)



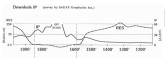
The Louvicourt deposit is a deep VMS deposit located in the Abitibi Greenstone Belt, Canada.

The Borehole Time Domain EM (BHEM) method contributed significantly to its discovery in 1989.



However, the Time Domain EM response is limited to the first and second channels (early times) for the semi-massive pyrite mineralisation. This response is characteristic of a poor conductor.

Because borehole IP is sensitive to the polarisable stringer zone and the sphalerite-rich zones, it can be used to detect massive sulphides at a greater distance than EM methods.



At Louvicourt, the borehole IP survey was successful because the massive sulphide target is surrounded by a halo of non-conductive, polarizable sulphides.

MANAGEM–KHWADRA

MORROCO

ARMIT and InfiniTEM®

ARMIT and InfiniTEM® are the perfect match to characterize a VMS deposit under a conductive cover

INFINITEM ARMIT-TDEM

The InfiniTEM® loop configuration minimized coupling with the conductive overburden and revealed an anomaly associated with the massive sulphide lens, which the conventional in-loop configuration could not achieve.

What our client thinks about our services

"The staff at Abitibi has provided us with the ARMIT-InfiniTEM® technology to help us successfully explore for deeply seated massive sulphide deposits, lying

under a thick conductive cover in the Marrakech area."

Lhou Maacha
General Director
Managem

Abitibi Geophysics would like to thank

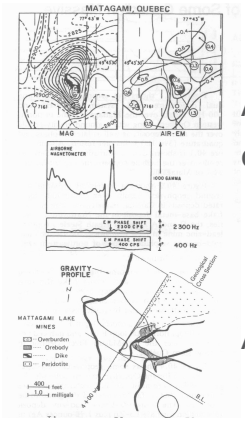
For sharing the data

MATTAGAMI LAKE

CANADA

Magnetic, EM and Gravity Surveys Working Together

The Mattagami Lake VMS deposit is located in the Matagami Mining Camp of northwestern Quebec, Canada.



A 1958 airborne magnetic and dual quadrature survey resulted in the discovery of coincident EM and magnetic anomalies.

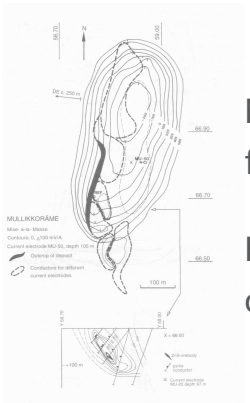
A ground gravity profile registered a significant response above the lenses.

MULLIKKORAME

FINLAND

Strength and Limitation of a Mise-à-la-masse Survey

The Mullikkorame deposit is a sub vertical massive sulphide ore body located in the Pyhasalmi-Vihanti area of Finland.



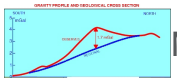
Mise-à-la-masse measurement delineated the extent of the sulphide formation fairly well.

However, it was difficult to distinguish between ores and non-economic pyrite conductors because of similar resistivity.

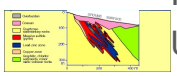
MURRAY BROOK

CANADA

Gravimetry successfully located the VMS deposit and gave insight into the geometry.



Murray Brook is a large VMS deposit located within the Bathurst mining camp.

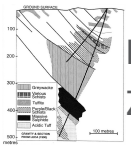


Massive sulphide lenses produce a 1.7 mGal residual anomaly over the deposit. Using the shape of the anomaly, it was also possible to provide information on the orientation of the zone.

NEVES CORVO

PORTUGAL

Without accurate interpretation of the results of geophysical surveys, the world-class Neves Corvo may not have been discovered.



Neves Corvo is located in the western part of the Iberian Pyrite Belt. It is the largest Cu-Zn VMS deposit in the world, with reserves of 27.7 mt Cu rich and 23.1 mt Zn rich ores.

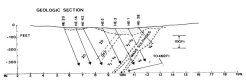
A 0.3 mGal anomaly was tested by drilling which intercepted sulphide rich sediments.

However, the numerical interpretation of the residual could not be explained by the sulphide horizon discovered in the upper sequence in the first hole. Drilling was then deepened. The massive sulphide lenses discovered at 400 metres explained the anomaly.

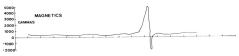
NEW INSCO

CANADA

The combination of Gravimetry, EM and MAG, can be a successful approach for VMS targets, as they are dense, conductive and often associated with magnetic minerals.

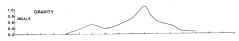


New Insco is a moderately dipping, tabular Cu-Zn VMS type deposit located within the Abitibi greenstone belt.



A MAG survey successfully detected an anomaly with a strong, discrete peak.

HLEM yielded a good response over the sulphide mineralisation and associated graphitic horizon.

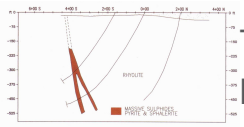


Gravimetry was successful in discriminating the density contrast between sulphides and the graphitic horizon.

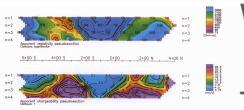
NORMETAL

CANADA

How the IP effect is useful for low conductivity minerals such as Sphalerite. Image2D™ inversion used for target selection.



The Normetal VMS deposit, one of the deepest ever mined in Canada, is located in the Abitibi Greenstone belt of Quebec.



While Sphalerite (ZnS) is a non-conductive mineral, it is often chargeable.

The Induced Polarization technique proved successful at Normetal.

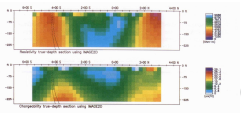
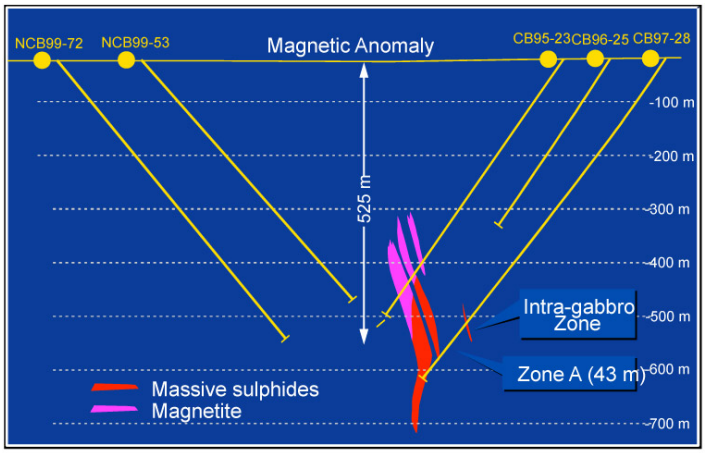


Image 2D™ inversion indicated that the volume of sulphide may increase with depth. This was confirmed by drilling.

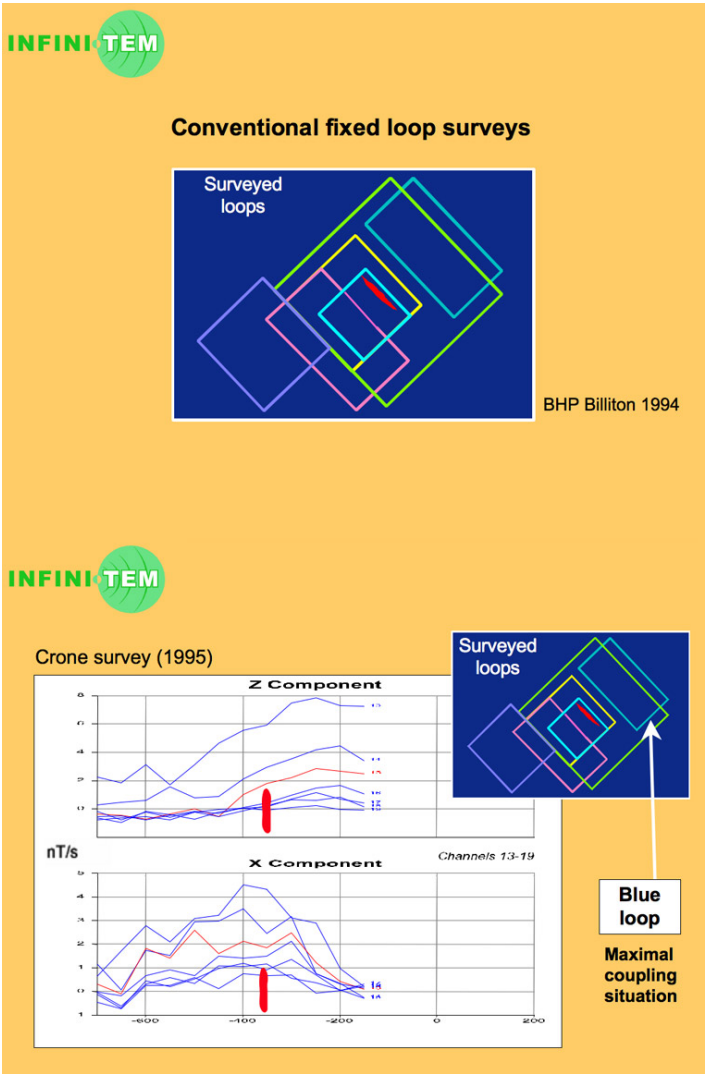
NORTH CABER

CANADA

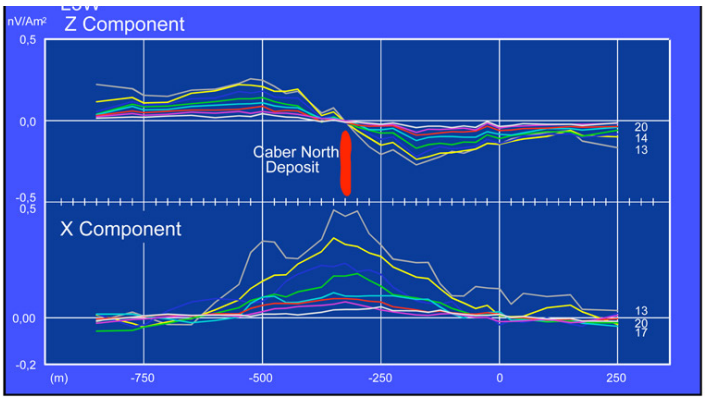
Ground InfiniTEM® easily detects this steeply dipping VMS Cu-Zn lens at 300 metres depth, under conductive overburden. Under these conditions a conventional EM survey reaches its limit



The Caber North deposit (1.3 Mt @ 4.0 % Zn, 1.7% Cu) is buried at > 300 metres depth, under conductive overburden.



A conventional EM survey barely detects the deposit. Detection depends strongly on the loop location relative to the deposit.



InfiniTEM® successfully detects the deposit, regardless of the loop location.

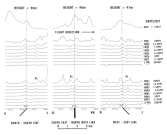
PHOTO LAKE

CANADA

Efficiency of Airborne EM Survey

The Photo Lake deposit is a lens shaped Cu-Zn, VMS deposit located in the Snow Lake area of Manitoba, Canada.

The lens shaped body has a maximum thickness of 40 m and a strike length of 150 m. The top of the deposit occurs 30 m below surface with the full thickness reached below 90 m.



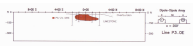
This body was first detected by an airborne TDEM survey flying north-south lines.

Subsequent lines were flown east west and southeast-northwest.

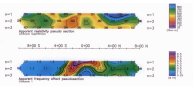
PINE POINT

CANADA

IP is a useful tool in the exploration for Mississippi Valley type lead-zinc deposits.



Pine Point is a flat lying Mississippi Valley type lead zinc deposit located on the south shore of Great Slave Lake.



Pseudo section and true depth section of apparent resistivity showed a weak contrast between resistivity of the lead zinc ore and the limestone.

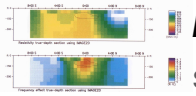


Image2D ^{TM} inversion confirmed the limited depth extension of the ore body and sharply delineated its extension despite the use of an array of only n=1 to 3.

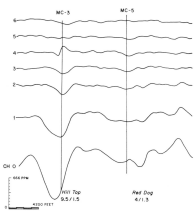
RED DOG

UNITED STATES

How Geophysics Works at Red Dog

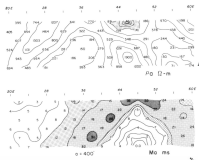
The Red Dog Deposit is a shale-hosted polymetallic massive sulphide body located in the Western Brooks range of Alaska.

This world-class base metal deposit contains reserves of 77M metric tones averaging 17% Zn.

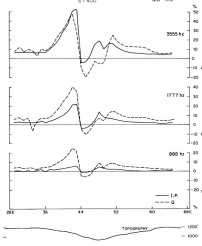


An Airborne EM survey recorded small responses in the early channels, indicating a weak conductor at Red Dog.

Little or no magnetic anomaly was associated with the deposit. The response was dominated by a regional anomaly associated with basement rocks.

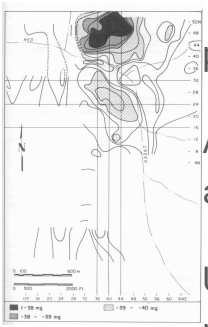


A Dipole-Dipole Time domain IP/Resistivity survey was conducted. The response is interpreted to be from a shallow tabular body.



A FDEM survey was conducted over the deposit.

The response supports the gently dipping tabular deposit that was interpreted from the IP data.



The Red Dog deposit has a relatively high density due to the presence of polymetallic sulphides and barite.

As a result, there is a well-formed gravity anomaly, of approximately 27 mGal associated with the deposit.

Using gravity data and the measured densities of samples collected on the property the ore reserves were calculated to be 66 million tonnes.

SOQUEM–B26

CANADA

Massive sulphide discovery at depth.

The IPower3D® section presents a new massive sulphide intersection at depth under conductive overburden.

IPower3D®

Investigation depth more than 600 m
True 3D acquisition
Resolves multiple structure orientations
Excellent horizontal and vertical resolution

What our client thinks about our services

"Abitibi Geophysics has the best field teams I have seen in my career."

Jacques Simoneau – Integra Gold

Abitibi Geophysics would like to thank

SOQUEM

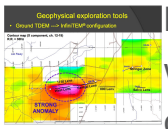
For sharing the data

SCOTT

CANADA

InfiniTEM® detects a conductor at 450 meter depth!

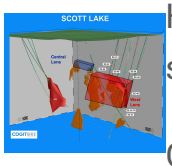
Located 450 m below surface and shielded by 20 m of conductive overburden, the Scott Lake deposit was not detectable by conventional TDEM



During the winter of 2008 Abitibi Geophysics conducted an ***InfiniTEM*** survey to the west of the central lens. Survey results suggested the presence of a conductor at a depth greater than 350m.

This was confirmed by numerical modeling.

(***measured response shown in black, model shown in red***)



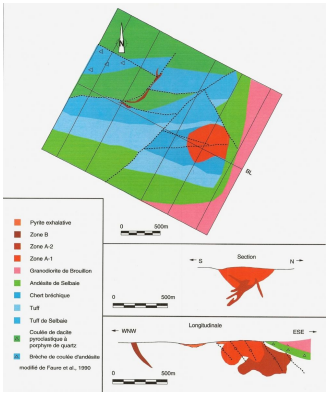
Holes drilled to test the anomaly intercepted a large zone of stringers and massive sulphides at a depth of 450m.

Grades of 2.04% Cu over 25 metres were reported.

SELBAIE

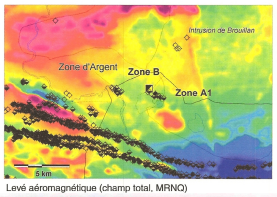
CANADA

Regional Exploration in Areas of Thick Overburden.



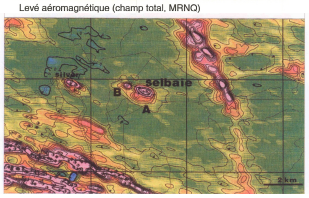
The Abitibi Belt is a region rich in mineral deposits; however, bedrock exposure is limited and overburden can be in excess of 50 m thick.

The Selbaie VMS body is one such deposit.



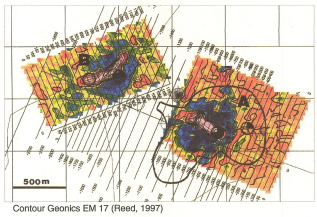
Levé aéromagnétique (champ total, MRNQ)

Starting in the 1950s the GSC conducted regional aeromagnetic surveys to help with geological mapping and mineral exploration in the Abitibi Belt.



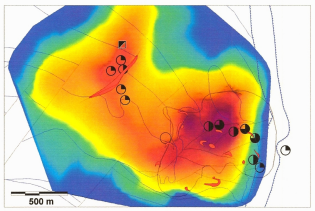
Later the region was covered by Airborne EM surveys.

Investigations of EM anomalies that were roughly coincident with circular magnetic anomalies led to the discovery of the Selbaie deposit.



Contour Geonics EM 17 (Reed, 1997)

Following the discovery a ground based FDEM survey was conducted over the anomalies.



polarisation provoquée, dipôle-dipôle filtré et anomalie EM Input d'après Reed, 1997

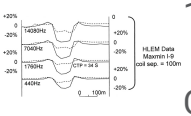
A dipole-dipole IP survey also successfully detected the deposit.

STRATMAT

CANADA

FDEM, Magnetics and Gravity Work Together to Characterize a Deposit

The Stratmat deposit is a 5.5 Mt Zn rich VMS deposit located in the Bathurst Mining Camp of New Brunswick, Canada.



A FDEM (HLEM, MAX-MIN I-9) survey was conducted using a coil separation of 100m and frequencies of 444, 1760, 7040 and 14080 Hz.

Conductivity thickness values of 1 to 2 mhos were calculated reflecting the low conductivity of the sphalerite rich deposit.

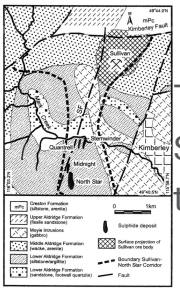
A ground magnetic survey recorded a positive magnetic anomaly indicating that the source is both conductive and magnetic.

A gravity survey outlined the Stratmat sequence. The broad anomaly with no short wavelength features indicates that the deposit has limited depth extent or is flat-lying.

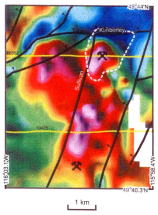
SULLIVAN

CANADA

How Geophysics Works at Sullivan

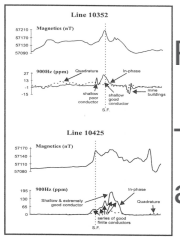


The Sullivan mine, located in British Columbia, Canada, is one of the world's largest Sedimentary exhalative (SEDEX) deposits having produced more than 140 million tonnes of ore.



A distinct, moderately positive, irregularly shaped magnetic anomaly is observed along the trend with zones of higher anomalous values.

The magnetic peak at Sullivan is due to the un-mined massive pyrrhotite replacement body and the network of pyrrhotite-quartz-carbonate veins (90% of the ore has been mined.)



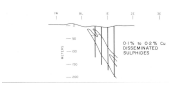
Frequency-domain EM data indicate corresponding zones of high conductivity.

The profiles indicate the presence of a series of good conductors within the anomalous zone.

TAWI RAKAH

OMAN

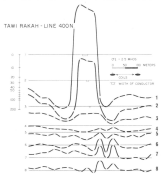
Typical TDEM response of a Cu-Zn deposit beneath laterite.



Tawi Rakah is a Cu-Zn-Au sulphide ore body hosted by andesite and basalt. The deposit is in a semi-arid environment beneath 30-40 meters of laterite cover.

Measurements were made by an eight-channel, ground TDEM system.

The ore body produces the strongest response on the early channels.



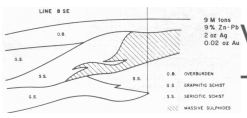
The response on the mid and late channels is of a similar magnitude to the response of the conductive background.

This demonstrates the importance of retaining the high frequency information generated by the TDEM system when searching for weak conductors in a conductive environment.

VAN GORDA

CANADA

Geophysics of a Flat-lying Deposit



Van Gorda is a flat-lying massive sulphide lens located in the Yukon, Canada. The deposit is surrounded by sericitic schist.

A well defined gravity response coincides with a positive magnetic anomaly.

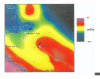
WAGON PASS

AUSTRALIA

Geophysics on a Challenging Deposit

The Wagon Pass Pb-Zn Mississippi valley type (MVT) deposit, located in Western Australia, is characterized by lenses of reticulate fracture filings stratabound within dolomites. The deposit has a strike length of 300m, a width of 30m to 80m and a thickness of up to 36m. The mineralization consists of galena, sphalerite with subordinate iron and copper sulphides.

Regional Gravity and Magnetic surveys show the Wagon Pass deposit as both a magnetic and gravity high.



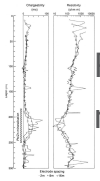
These highs are likely associated with basement highs as with many MVT deposits.

The gravity and magnetic data were used to define prospective areas which were then grid drilled.

Hole NRD-23, the discovery hole intersected the Wagon Pass deposit.

Down-hole logs were recorded in the discovery hole to characterize the mineralization and to assist in stratigraphic correlation.

Chargeability and Resistivity logs were recorded using a pole-dipole array and electrode spacings of 2m, 8m and 16m.



Results in the Discovery hole show elevated chargeability and reduced resistivity in the mineralized zone.

Additional geophysics, including Gravity, IP, TDEM and Misé-a-al-masse were conducted on the deposit with limited success. Responses were considered to be related to local facies changes rather than the mineralization.

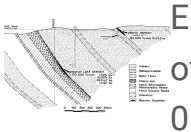
WINSTON LAKE

CANADA

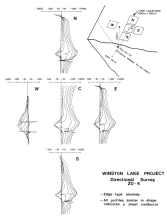
Borehole TDEM Detects an Elusive Deposit

Winston Lake deposit is located 145 km northeast of Thunderbay, Ontario, Canada.

The Winston Lake deposit is a 3.1M tonne Cu, Zn VMS deposit located at the base of a gabbro sill 300m below the surface.



Eight holes were drilled: four tested geophysical targets with negative results, the others tested the geological model. An exhalative horizon was intersected yielding 0.57% Zn and 1% Cu.



Borehole TDEM was conducted in the successful hole and detected a strong edge-type anomaly with a conductor indicated downdip.

Based on these results drilling resumed and intersected 2.1m of massive sulphides at 300m depth grading 1.10% Cu, 19.11% Zn, 22.2g/t Ag and 0.73g/t Au.