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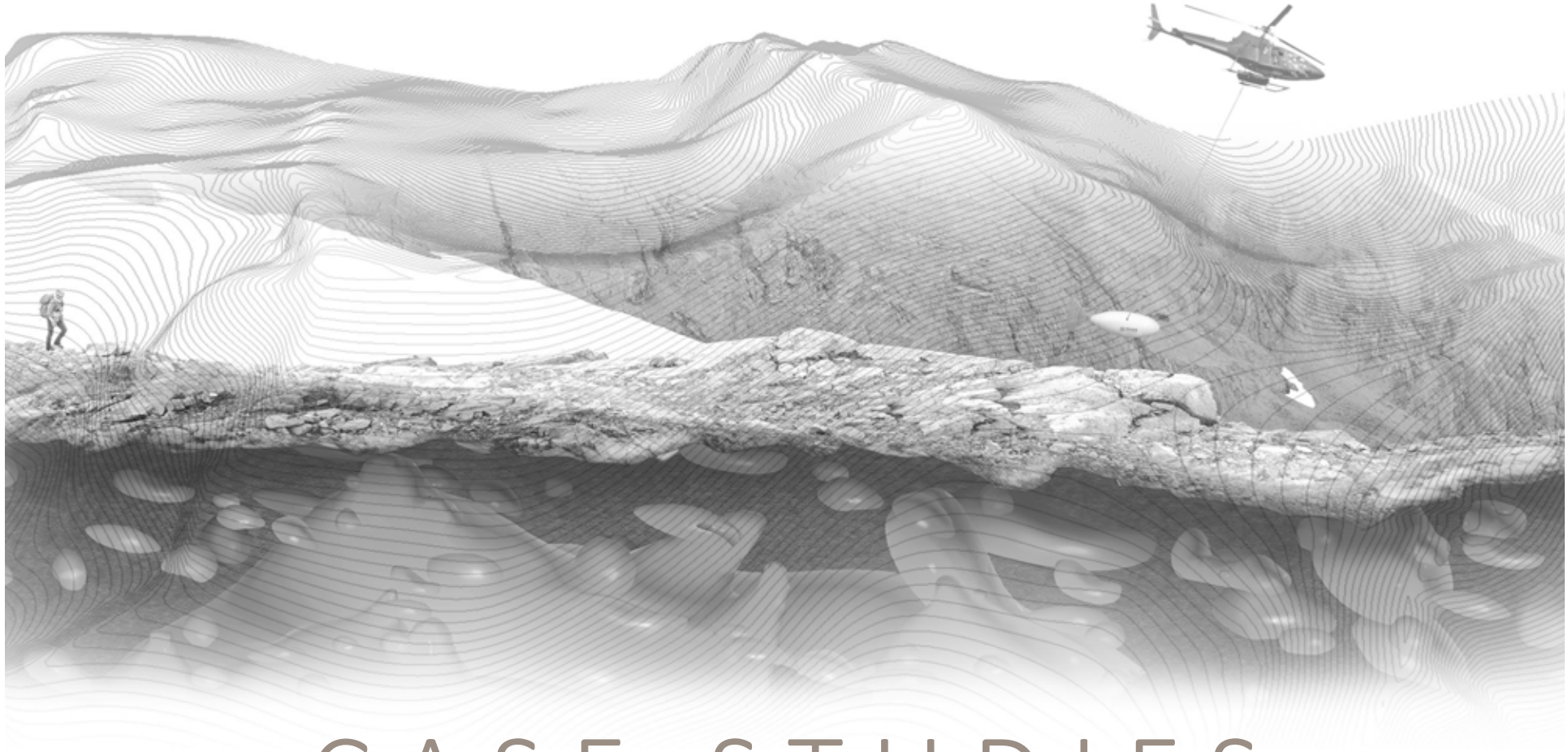
LEADING GROUND AND AIRBORNE GEOPHYSICAL



CASE STUDIES

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AIRBORNE CASE STUDY

"The ability of the QMAG^T system to detect very weak magnetic signals, and image complex directional patterns is very important to exploration for this type of challenging target."

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PROJECT

LITTLE NAHANNI PEGMATITE PROJECT

Lake Winn Resources

Little Nahanni, NT, Canada

TECHNOLOGY

QMAG^T

Airborne Full-Tensor Magnetic Gradiometry

TARGET

LITHIUM

Little Nahanni Pegmatite Project, NT, Canada

SITUATION

Dias' QMAG^T system completed a survey over Lake Winn Resources' 100% owned Little Nahanni Pegmatite project in the Northwest Territories. The project covers 7,080 hectares that encompasses a 7 km long, and up to 500 m wide, lithium, tantalum, and tin pegmatite dyke swarm. Historical drilling and channel sampling on the Project confirms the presence of significant Lithium, Tantalum, Tin, and Cesium. Historic drilling and channel sampling has proven numerous intervals of mineralized pegmatite grading >1% LiO2 over 1 m to 16.65 m intervals. Lake Winn reports that they believe that the QMAG^T system has successfully mapped the LCT pegmatite dyke swarm. Anomalies coinciding with the known dykes appear to coalesce into numerous larger anomalies which range from 10 m to 100 m widths and can be intermittently traced along strike for up to 7 km. The QMAG^T results are being integrated with other data sets to accelerate exploration through the project area.

QMAG^T System

The QMAG^T system is a helicopter-borne magnetic survey system utilizing a SQUID (superconducting quantum interference device) sensors that measure the complete gradient tensor of the Earth's magnetic field. The SQUID system was developed by Supracon AG of Jena, Germany. Operating within a liquid helium bath, the sensors measure the magnetic gradients with great sensitivity. The survey delivers 6 tensor components, each of which highlights different magnetic directions in the survey area.

QMAG^T Results and Interpretation

Figure 1 shows a colour image of the Bzz data channel from the survey. The colour palette is reverse, so the zones of low gradient are the "hot" red colors and the high gradients are the cold colours (blue). The current thinking is that the LCT pegmatites have very little magnetic response, so they should image as zones of low gradient. However, when they were intruded into the surrounding sandstones, a hornfels was formed causing the relatively high vertical gradient response. Therefore, the red colors (magnetic low response) is thought to map directly the LCT pegmatite dykes. This is an exciting result.

The other QMAG^T tensor images (like Bxy, not shown) support this interpretation with coincident anomalies matching the linear features in the Bzz image. The results show a dense swarm of pegmatites, tens of metres across near the northern drill holes. Drill hole MAC06 encountered 17.96 m of LCT pegmatite

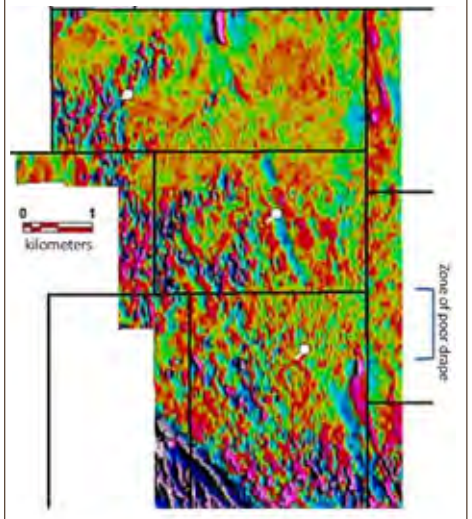
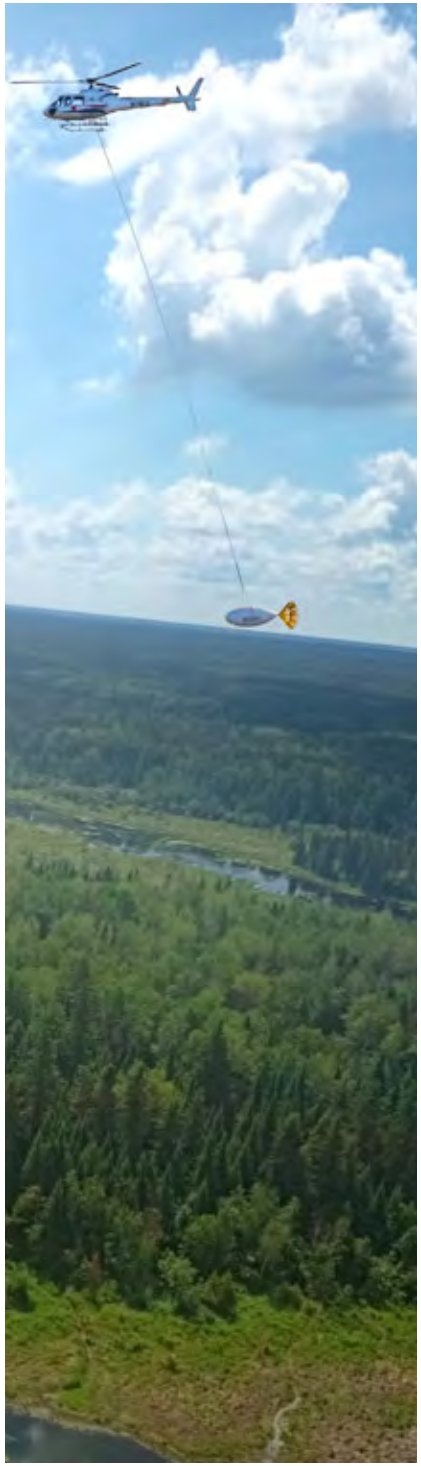


Figure 1: Bzz tensor image (measured vertical gradient of the vertical component) flown over the central portion of the LNPG project. Historic drilling is shown in white. Colours are reversed with low magnetic response in reds and high magnetic response in blue.

grading 1.03% LiO2 and drill MAC07 drilled from the same site at a 60° dip encountered 10.94 m of LCT pegmatite grading 1.47% LiO2 (Figure 2). Figure 1 also illustrates an 80 m to 100 m wide magnetic signature that traverses the entire data set for several kilometers. This anomaly has been named Alpha Prime. Close inspection of nearby historic collars suggest they drilled near, but did not test this target. Lake Winn plans to ground truth these anomalies in the



summer of 2023.

Figure 2 illustrates the northern part of the surveyed area, around drill holes MAC 06 and 07, as a reverse-colored image and overlain by topographic contours. The interpreted LCT pegmatite dykes have been traced out with lines of white dots. They seem to get cut-off by the cirques, but Lake Winn knows from mapping that they persist in the cliff faces of the cirques. The apparent cut-off in the magnetic imaging is caused by the loss of sensitivity due to the increased height of the sensor. Signal drops off more rapidly with increased flight height because it is a gradient system. On the upper plateau, a swarm of anastomosing dykes can be interpreted, including the dyke that was sampled by drill holes MAC 06 & 07. This magnetic data will aid in guiding further drilling across these target pegmatites.

The concept that the Alpha Prime target is part of the LCT pegmatite swarm is supported by soil sampling undertaken in the south end of the property in 2006 and 2007.

The concept that the Alpha Prime target is part of the LCT pegmatite swarm is supported by soil sampling undertaken in the south end of the property in 2006 and 2007.

Figure 3 shows the sampling results in relation to the Alpha Prime target. The trace of the Alpha Prime anomaly has a strong, coincident Li-in-soil anomaly.

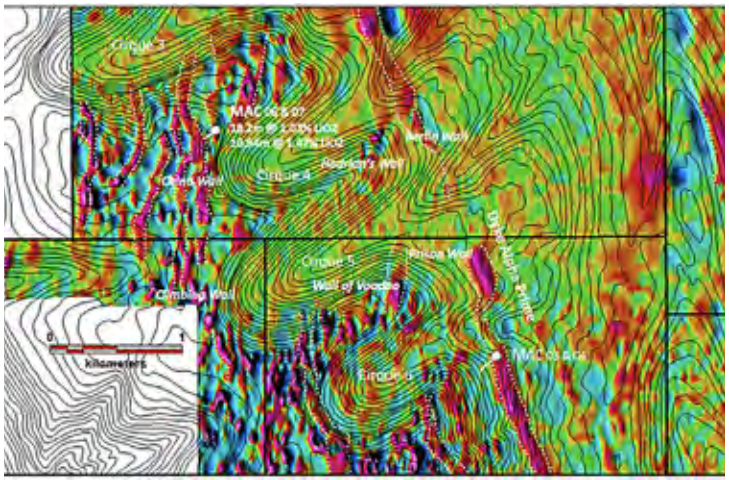


Figure 2: A zoomed in view of the Bzz data in reverse colour over the NW portion of the property. Topography contours are shown in black. The red linears are thought to map out the LCT pegmatite dykes.

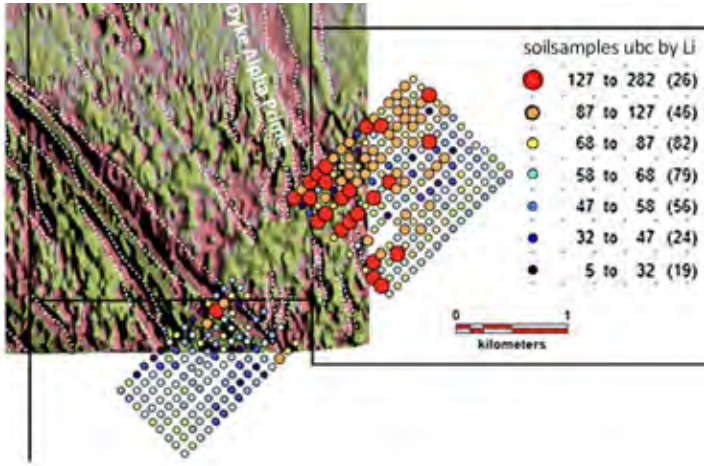


Figure 3 Southwest portion of the QMAG^T Bzz image in reversed pastel colours, with the Li in soil geo-chem results as colour symbols. The Alpha Prime dyke target is labeled.

CONCLUSIONS

The QMAG^T system appears to be effective in imaging an anastomosing series of LCT pegmatite dykes on Lake Winn Resources' Little Nahanni project. The dykes, as expected, are showing as low magnetic response. Weak magnetic high responses on the sides of these dykes are interpreted to be reflecting hornfels alteration during emplacement of the dykes in the sedimentary host rocks. The ability of the QMAGT system to detect very weak magnetic signals, and image complex directional patterns is very important to exploration for this type of challenging target.

DIAS
AIRBORNE CASE STUDY

PROJECT
SHATFORD LAKE LITHIUM PROJECT
ACME Lithium Inc.
Manitoba, Canada

TECHNOLOGY
QMAG^T
Airborne Full-Tensor Magnetic Gradiometry

TARGET
LITHIUM

"The drill program demonstrated the QMAG^T magnetic survey mapped both stratigraphy and structure related to the LCT pegmatite targets."

Shatford Lake Lithium Project, Manitoba, Canada

SITUATION

ACME's 100% owned Shatford-Birse project area in southeastern Manitoba, Canada, is within the southern limb of the Bird River Greenstone Belt. The project is immediately south of Sinomine's world-class Tanco Mine property, a Lithium, Cesium and Tantalum (LCT) producer since 1969. The region hosts hundreds of individual pegmatite bodies, many of which are classified as complex rareelement LCT pegmatites – known to account for a quarter of the world's lithium production. The Shatford – Winnipeg River structure, which extends through the project area, is analogous to the Bernic Lake high strain zone that is interpreted to be related to the Tanco pegmatite. One priority area for exploration, referred to as Shatford East, is part of an approximately 7 km long curvilinear structural feature with multiple observations of pegmatites containing anomalous lithium.

The Shatford Lake property has abundant overburden, but in the broad deformation zones where most of the pegmatites occur, outcrop is virtually non-existent. In these deformation zones, overburden cover ranges up to 30 m thick.LCT pegmatites generally do not contain any ferromagnetic minerals, so do not produce an anomalous magnetic response unless they occur in host rocks that are magnetic. The host rocks are usually also non-magnetic or have very low magnetization, so provide virtually no contrast to aid detection and delineation with conventional magnetic systems.

However, it is possible that a highly sensitive gradient magnetic system could detect weak contrasts, and image structures and folding within the host rocks. Through interpretation of structure and lithology, prospective targets for pegmatite emplacement could be determined.

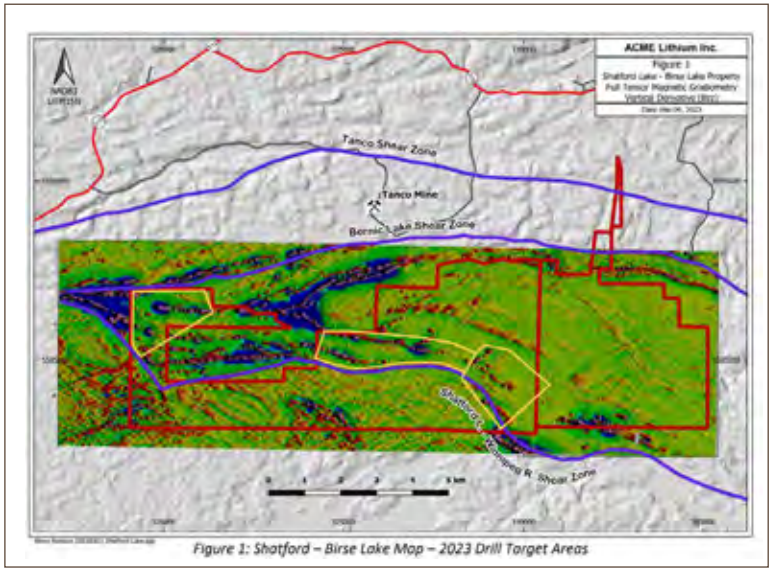


Figure 1: Shatford – Birse Lake Map – 2023 Drill Target Areas

SOLUTION

In the summer of 2022, ACME contracted Dias Airborne to complete a helicopter-borne QMAG^T full tensor magnetic gradiometry (FTMG) survey across the property. QMAG^T is the most advanced airborne magnetic system currently commercially available. The survey comprises 1,991 line-km with a line spacing of 65 m. The FTMG survey was designed to map and characterize the variation in magnetization throughout the survey area towards interpreting structure, lithology, and alteration.

The QMAG^T system measures all independent tensor components of the magnetic field using low temperature SQUID (superconducting quantum interference device) sensors. The QMAG^T system provide greater sensitivity to weakly magnetic sources, higher resolution, and the directional information that allows for accurate modeling and detailed interpretation of the data sets.

ACME Drill Targeting

ACME designed its initial 2023 drill program using the basic responses in the vertical magnetic gradient of the vertical component (Bzz). Now, modelling confirms the initial targeting and delineates additional targets. Mira Geoscience Limited (Mira) performed modelling of the FTMG data. After a preliminary interpretation, Mira performed a computationally intense Magnetic Vector Inversion (MVI) integrated with ACME and regional geological data.

Taken together with the area geology, the

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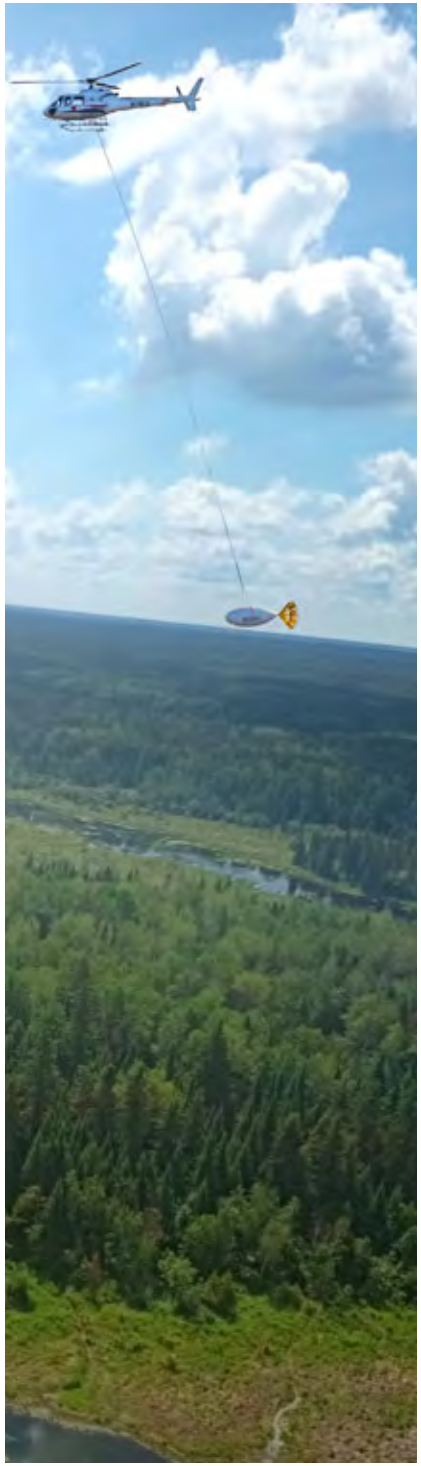

priority areas for drilling are as follows (see Figure 1):

The Central Shatford area (left ellipse in the image below) is adjacent to the Tin Island pegmatite cluster. Through this area, subparallel NE trending magnetic low lineaments cross the Shatford Lake – Winnipeg Lake Shear Zone. Many prospective targets occur where NE lineaments cross the shear zone. Note the east-west, northeast and northwest trends in the batholith to the south.

The Southeast Shatford area (right ellipse Fig. 2) encompasses a substantial flexure in the Shatford Lake – Winnipeg Lake Shear Zone. This area contains a broad zone of en-echelon magnetic responses, indicating splays and dilatant zones on the northeast side of the principal shear zone, representing highpriority exploration targets.

CONCLUSIONS

The extensive glacial till cover is transparent to the QMAG^T magnetic survey. The detailed FTMG data detects magnetite iron formation across the entire survey area and delineates the major G2 fold structures that envelope the Birse Lake pluton. A NE to ENE fracture set is evident across the entire span of the survey area, as detected in the Bzz tensor component in Figure 1.

Fine details in the vertical gradient (Bzz) adjacent to the Shatford Lake – Winnipeg River shear zone identify dilatant jogs and fold structures favourable for pegmatite intrusion. Magnetic low gaps in the high magnetic response of basalt and magnetite iron formation delineate probable pegmatite intrusion.

Vertical Derivative (Bzz) indicates that the path of the prolific Bernic Lake Shear Zone is more southerly than mapped in previous regional studies and more proximal to the Company's property.

Low contrast between the magnetic response of the pegmatites and their typical host lithologies limits the use of conventional magnetic surveys. ACME states that, "the sensitivity of Dias Airborne's QMAG^T system and Mira Geoscience's MVI modelling significantly alters this convention."

Drilling commenced at Shatford Lake in January 2023 based on findings from the Summer Exploration Program and the Winter 2023 Drill Program was completed in April 2023. Eight holes were completed totaling 3,280 m of diamond drilling. Drill targets from multiple sites identified include numerous pegmatites, some of which were undocumented prior to the Summer Exploration Program. 235 samples have been cut for assay, with results pending.

Pegmatites were encountered in 6 of 8 holes and previously unknown relatively fine-grained intrusive rocks indicate the possible occurrence of unexposed potential source plutons for lithium-bearing pegmatites. The drill program demonstrated QMAG^T magnetic survey mapped both stratigraphy and structure related to the LCT pegmatite targets.

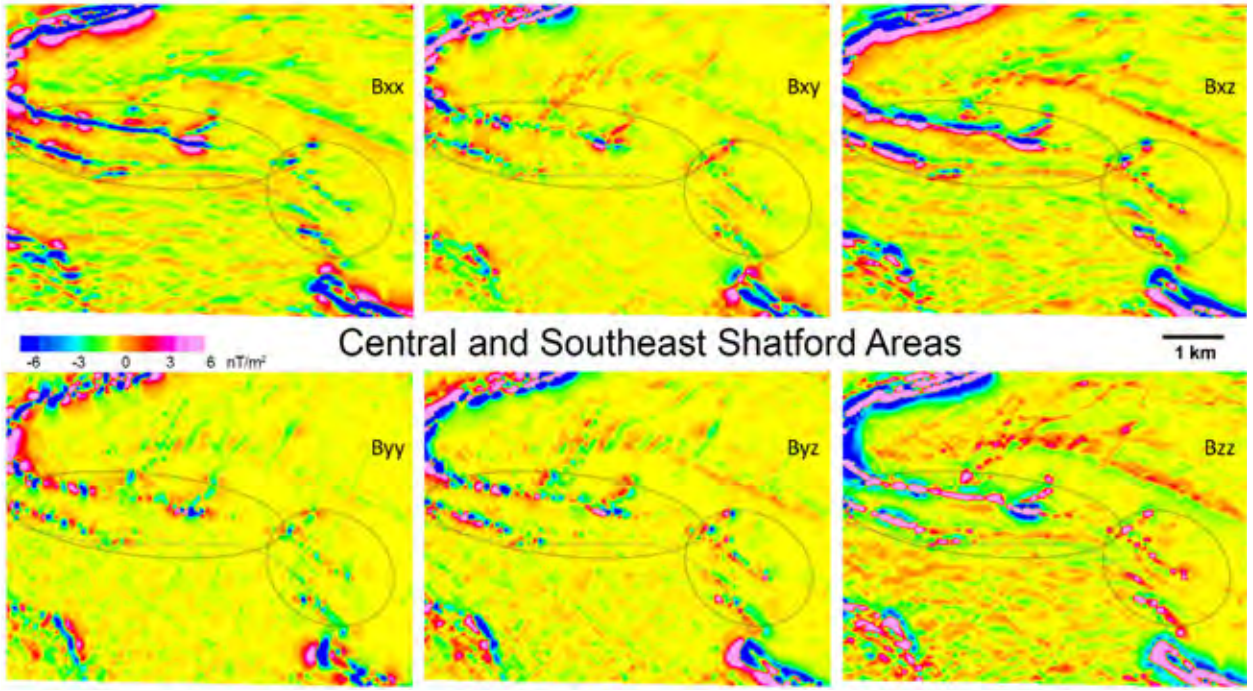

Figure 2: Central and Southeast Shatford Areas

DIAS GROUND CASE STUDY

"We contracted Dias to carry out an IP survey of near surface silver mineralization, however the resolution and depth achieved by Dias Geophysical's DIAS32 3D IP system resulted in the detection of a large chargeability anomaly below the silver target. Testing resulted in the discovery of one of the most significant porphyry copper deposits in recent times - the Leviathan Porphyry.

Dias' surveys have opened up an entirely new district for porphyry exploration where younger geological cover had previously masked all potential."

Chris Paul, CEO, Hercules Metals Corp

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PROJECT
LEVIATHAN DISCOVERY
Porphyry Copper

TECHNOLOGY
DIAS32
3DIP and Resistivity

TARGET
Copper/Molybdenum/Silver

Hercules Metals Corp, Idaho, USA

OVERVIEW

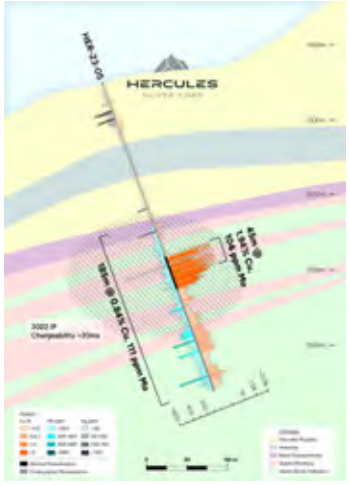
The Hercules Project is located in western Idaho. A series of stacked thrust sheets emplaced rhyolite-hosted silver (+/- lead-zinc) mineralization through the property. Historical drilling up to 1988 defined several zones of silver mineralization at depths generally less than 90 meters. Prior to Hercules, the project had never seen a modern, systematic exploration program.

SITUATION

In 2022, Hercules completed soil and rock chip sampling, hyperspectral analysis, geological mapping, drone magnetics, and 3D IP surveying, followed by an initial drill program to twin historic holes. These programs were designed to further explore the existing silver vein systems and to identify potential extensions laterally and to depth.

The 2022 DIAS32 3D IP survey identified near-surface chargeability responses as expected over the known mineralized zones, but also identified a large chargeability anomaly at depth, below historical drilling, and over a continuous strike length of 1.8 kilometres.

The Phase II drill program in the summer of 2023 tested extensions of the existing silver mineralization, new silver targets, a potential near-surface porphyry target in the Hercules Rhyolite, and the large, untested chargeability anomaly at depth. Five deep drill holes extending below the Hercules Rhyolite encountered strong phyllic alteration typical of the margins of a porphyry system over approximately 450 m x 500 m. Drillhole HER-23-05, designed to test the large blind chargeability anomaly, intersected Ag-Pb-Zn-Mn mineralization in the near surface but then intersected 185 m of 0.84% Cu and 111 ppm Mo from 246 m to 431.2 m at the end of the hole. Additional step-out holes drilled to test the chargeability anomaly to the southeast of HER-23-05, intersected similar alteration, veining and copper mineralization. This drilling confirmed the presence of a large mineralized porphyry system at Hercules.

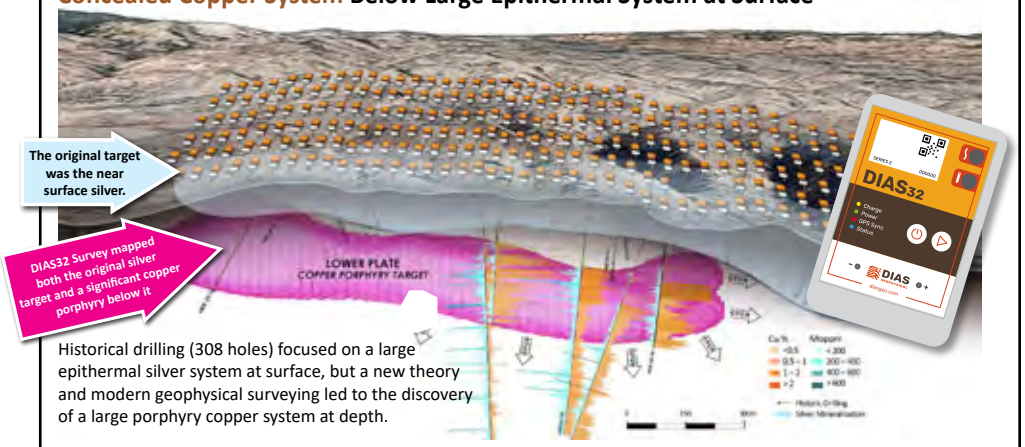


Original discovery hole

This deep drilling confirmed a thin conglomerate layer, likely a paleo-erosional surface, that separates the overlying Hercules Rhyolite from the underlying porphyry system. Molybdenum mineralization begins immediately below the conglomerate, but the copper appears to have been leached within the paleo-weathered zone. The copper is enriched below this leach zone, and then the mineralization transitions to a typical pyrite-chalcopyrite (phyllic) assemblage which extends to the bottom of the hole.

Following the discovery in 2023, a property-wide deep-seeking DIAS32 3D IP survey was designed to explore the new Leviathan Porphyry laterally and to greater depth than the original survey. The 3D resistivity and chargeability models from this survey have been integrated with the magnetic model and other geological and geochemical data sets to produce a complete model of the porphyry system. This 3D block model reveals a coherent, kilometer-scale NE-SW trending, southeast dipping, porphyry system. Strong correlation with both the chargeability and magnetic models provides confidence in drill targeting of the significant expansion potential of the deposit.

BLIND DISCOVERY OF LEVIATHAN PORPHYRY
Concealed Copper System Below Large Epithermal System at Surface



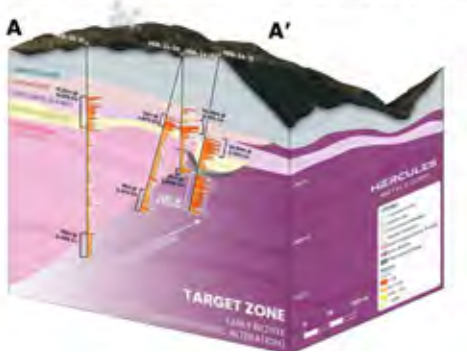
Historical drilling (308 holes) focused on a large epithermal silver system at surface, but a new theory and modern geophysical surveying led to the discovery of a large porphyry copper system at depth.

The resolution & depth achieved by the patented, industry-leading DIAS32 3DIP system resulted in detection of a the most significant porphyry copper deposits in recent times.

CONCLUSIONS

The discovery of the Leviathan porphyry resulted in Barrick injecting $23M in equity into the exploration program at Hercules. An unprecedented staking rush has occurred as a direct result of the Hercules Metals' discovery, and 1,000's of new claims have been staked, demonstrating the potential regional implications of the discovery.

- HER-24-12, the northernmost hole below, confirmed a trend of increasing alteration and mineralization to the north.
- North of HER-24-12, the untested Grade Creek Zone represents a priority target for a **high-grade potassic center**
- A large magnetic high and chargeability anomaly indicate both magnetite and sulfide mineralization within Grade Creek



DIAS
GROUND CASE STUDY

"The ground 3D resistivity survey conducted by Dias Geophysical was key in elevating South Arrow as a high priority target that has now returned off-scale radioactivity associated with a large and robust alteration system."

NexGen Energy Press Release

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PROJECT
ARROW URANIUM DEPOSIT PROJECT
NexGen Energy
Saskatchewan, Canada

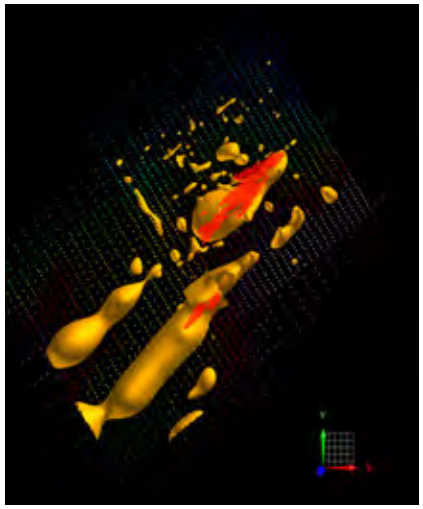
TECHNOLOGY
DIAS32
3DIP and
Resistivity

TARGET
Uranium

NexGen Energy, Saskatchewan, Canada

OVERVIEW

Dias Geophysical successfully imaged alteration related to a known uranium deposit from 100 m depth to over 600 m depth. A similar conductive response 400 m south of the known deposit led to the discovery of the South Arrow uranium deposit.



50 Ω-m resistivity iso-surface in plan view

SITUATION

Canada's Athabasca Basin hosts the vast majority of high-grade uranium deposits. NexGen Energy's Arrow deposit in Saskatchewan, Canada, is the largest undeveloped uranium deposit in the world. Direct detection of unconformity uranium deposits is virtually impossible with conventional geophysical exploration techniques. The DIAS32 DCIP survey was designed to image the alteration related to the high-grade uranium mineralization at Arrow, and by integration with other geologic and geophysical data sets, improve exploration efficiency.

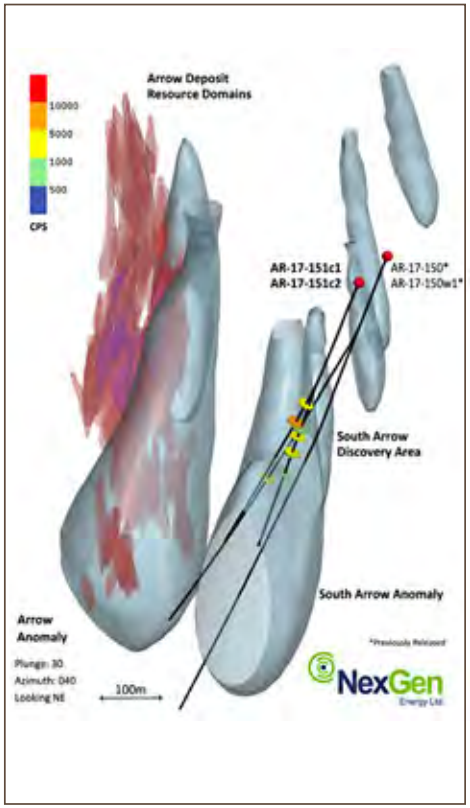
SOLUTION

A full 3D resistivity survey was completed across a 1.4 by 1.4 km area centered over the known deposit. A portion of the survey was completed over a large open-water lake. The multi-azimuth, and multi-scale data set was processed and inverted to generate a high-resolution 3D resistivity model of the survey area from surface to 600 m depth.

CONCLUSIONS

The DIAS32 3D survey successfully imaged the alteration related to the Arrow high-grade uranium deposit with a high degree of correlation. A similar response in the data, 400 m south of the Arrow Deposit was drill tested and high-grade uranium mineralization was discovered. This discovery of the South Arrow deposit **confirms the effectiveness of the resistivity method in the exploration** for basement-hosted unconformity-related uranium deposits in and around the Athabasca basin.

- **Unconformity-related uranium deposit**
- **Imaged alteration related to a highgrade, basement-hosted uranium deposit to 600 m depth**
- **The South Arrow deposit was discovered from the DIAS32 data set**



DIAS GROUND CASE STUDY

• High-grade, unconformity-related Uranium

• Imaged alteration plume related to uranium mineralization

• Imaged basement lithologies below 900 m depth.”

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PROJECT
VIRGIN RIVER URANIUM
Athabasca Basin
Saskatchewan, Canada

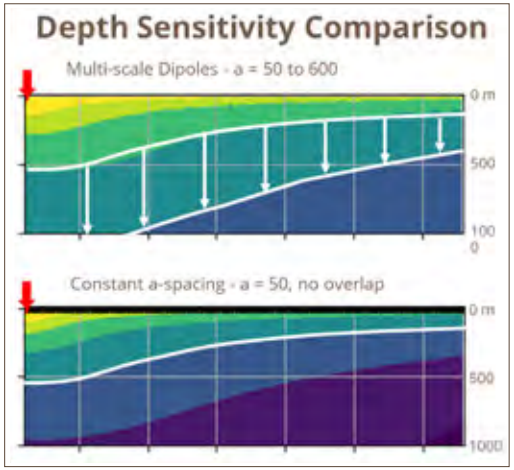
TECHNOLOGY
DIAS32
2DIP and Resistivity

TARGET
Uranium

Virgin River Uranium, Saskatchewan, Canada

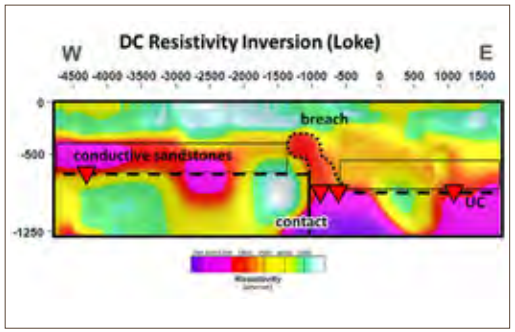
OVERVIEW

Dias Geophysical successfully imaged the geological structure, lithology and alteration related to a known mineralized structure at a depth of 700 m to 900 m. The survey identifies an alteration plume emanating up from a mineralized basement fault structure.



SITUATION

Canada’s Athabasca Basin hosts the vast majority of high-grade uranium deposits. The Virgin River Uranium project occurs along a major structural corridor which hosts several world-class uranium deposits. The 2D survey line was completed to demonstrate the depth capabilities of the DIAS32 system in the Athabasca Basin environment. While direct detection of uranium deposits is not possible with geophysical methods, it is possible to image associated features such as the conductive graphite common in the host structures and the alteration plume that often emanates upward into the overlying sandstones.

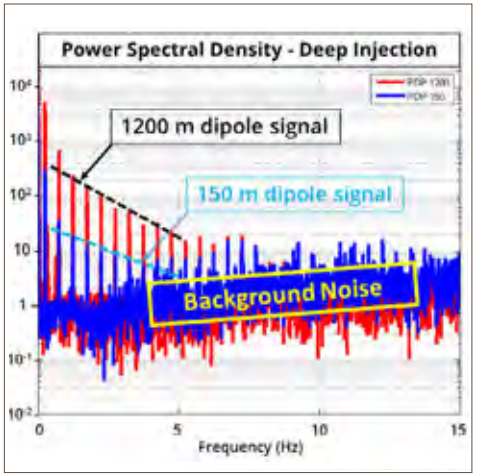


DIAS32 SOLUTION

A 12.5 km 2D line was surveyed with the DIAS32 system across the Virgin River structure. A receiver spacing of 150 m and a current injection spacing of 75 m produced a relatively high data volume of 2D data with a-spacings of 150 m, 300 m, 450 m, etc. up to 1,200 m. This multi-scale data set was processed and inverted with the UBC-GIF and Loke RES3DINV codes to generate high-resolution 2D resistivity sections from surface to a depth of 1.2 km.

CONCLUSIONS

The DIAS32 2D test survey successfully imaged the alteration related to potential uranium mineralization in an area of the Athabasca basin where the unconformity lies at a depth of 700 m to 900 m. The survey mapped variation in the bedrock beneath the unconformity and hosted unconformity-related uranium deposits.



DIAS
GROUND CASE STUDY

- High-grade, intrusion related gold (skarn)
- Imaged sulphides associated with gold mineralization to a depth of 300 m
- Identified several high priority targets for further exploration

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PROJECT
WEEDNANNA GOLD DEP
Alliance Resources Limited
South Australia

TECHNOLOGY
DIAS32
ROLLING 3D SURVEY
3DIP and Resistivity

TARGET
Gold

South Australia

OVERVIEW

Dias Geophysical successfully imaged geological structure, lithology and mineralization at the Weednanna Gold Deposit in South Australia. A rolling 3D DIAS32 survey images the sulphide mineralization beneath ubiquitous surficial sediments with great clarity and to a depth of over 300 m. The survey generated several high priority targets.

SITUATION

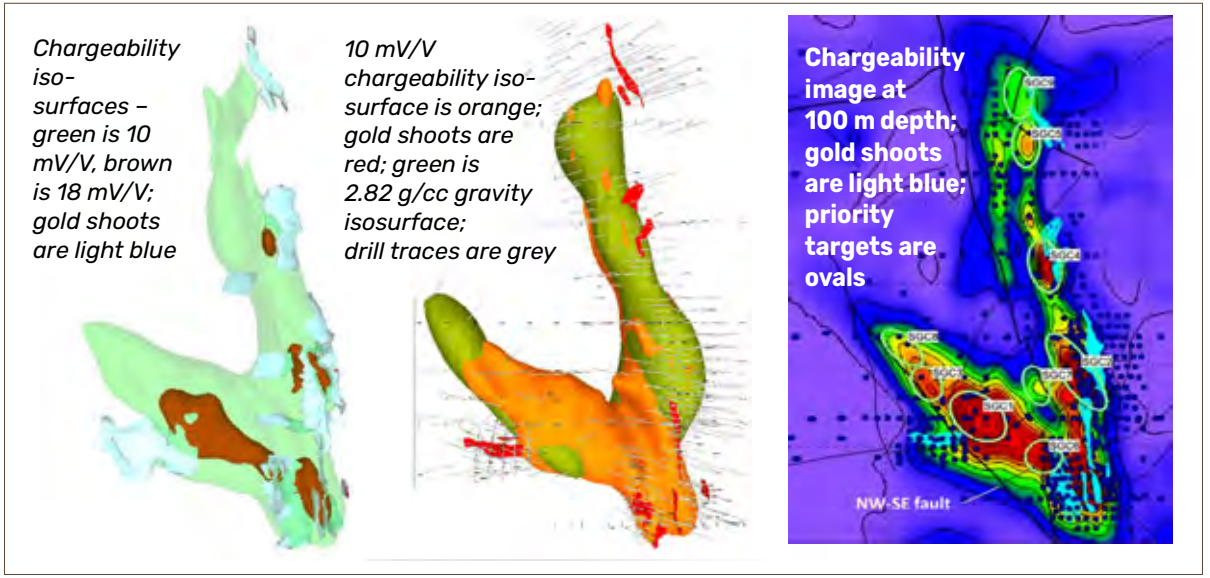
The Weednanna deposit is a magnetite breccia in carbonate altered rocks forming a skarn near the contact with a granite intrusion and containing elevated gold, bismuth, tin, uranium, lead and zinc. High grade gold is associated with sulphide replacement of magnetite. The survey area is covered by a veneer of transported sediments that makes exploration challenging. Prior to the DIAS32 survey little was known about the potential for mineralization below 200 m. The strong association of gold with sulphides makes the IP method an effective tool for imaging potential mineralization.

DIAS32 SOLUTION

A rolling 3D survey with CVR was completed over the 1.1 km by 1.5 km survey area with the DIAS32 system. A line spacing of 50 m and a receiver spacing of 25 m provided for detailed 3D imaging of the subsurface. The CVR data set provided multi-scale and multi-azimuth data for 3D inversion. The final 3D models of resistivity and chargeability were resolved to 5 m.

CONCLUSIONS

The DIAS32 3D survey successfully imaged the mineralized system to a depth of approximately 300 m. The final 3D models of resistivity and chargeability provided insight into structure, lithology and mineralization, and several high priority targets were interpreted from integration of the survey results with other geophysical, and geological data sets.



DIAS
GROUND CASE STUDY

- Imaged resistive features that were successfully tested for epithermal vein mineralization
- Imaged a deep conductive and chargeable feature currently beingtested as a possible porphyry source
- The DIAS32 data set assisted in upgrading the geologic knowledge of this project, moving from epithermal to porphyry

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PROJECT
QUARTZ RISE PROJECT
Seabridge Gold Inc.
Northern British Columbia, Canada

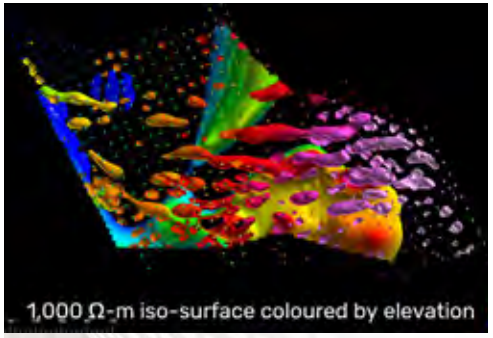
TECHNOLOGY
DIAS32
ROLLING 3D DIAS32 SURVEY
3DIP and Resistivity

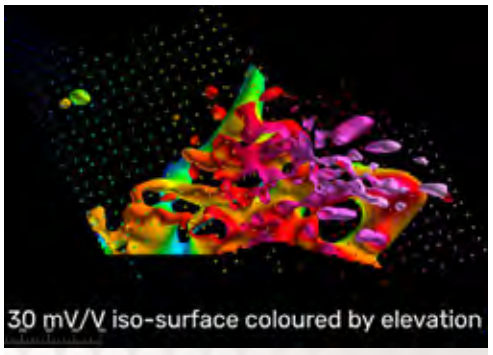
TARGET
GOLD

Northern British Columbia, Canada

OVERVIEW

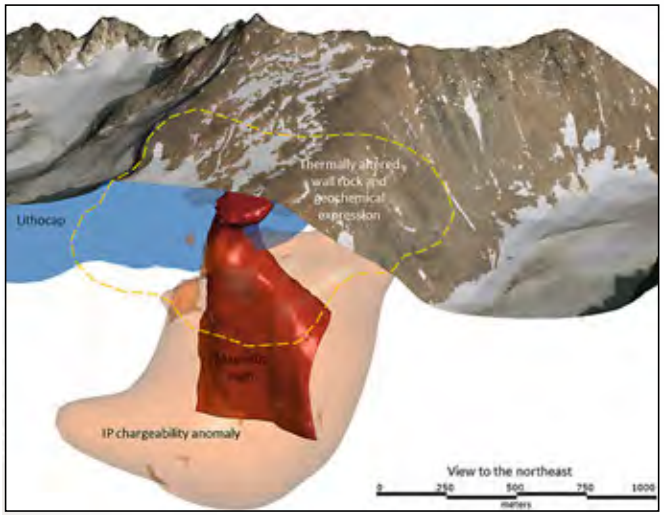
Dias Geophysical successfully imaged geological structure, lithology and mineralization at the Quartz Rise project in British Columbia's Golden Triangle region. A rolling 3D DIAS32 survey images the epithermal vein systems in the near-surface, and when combined with geology and magnetic data, identifies a potential porphyry source at depth.





SITUATION

Three years of exploration work at Quartz Rise have isolated a promising source of the lithocap above the old, high-grade Johnny Mountain Mine. Further geophysical, geochemical and geological mapping surveys have been completed, and an initial drill program totaling up to 8,000 meters has been designed to test the large intrusive system that is likely responsible for the lithocap and elevated gold and copper concentrations. This area has a geological environment astonishingly similar to KSM.



DIAS32 SOLUTION

A rolling 3D survey with CVR was completed over the 1.5 km by 0.8 km survey area with the DIAS32 system. A line spacing of 50 m and a receiver spacing of 25 m provided for detailed 3D imaging of the subsurface given the epithermal vein target. The CVR data set provided multi-scale and multi-azimuth data for 3D inversion. The final 3D resistivity and chargeability models were resolved to 5 m.

CONCLUSIONS

The DIAS32 3D survey imaged the vein system and identified an unexpected east-west trend. Targeting of the high resistivity features was successful, and analysis of the core identified a breccia vein, which suggests a proximal porphyry source. A successive DIAS32 survey was completed in 2019 to close out the chargeability anomaly, and integration of this data with geology, geochemistry and magnetic data, a priority target for a porphyry source was interpreted and is currently being drill tested.

DIAS
GROUND CASE STUDY

The IP anomaly correlates with the strongest surface sulfur anomaly and is the principal target for pyritic quartz vein stockwork with gold and silver mineralization.

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PROJECT
BIG TEN - AMSEL PROJECT
VR Resources
Nevada, USA

TECHNOLOGY
DIAS32
3DIP and Resistivity

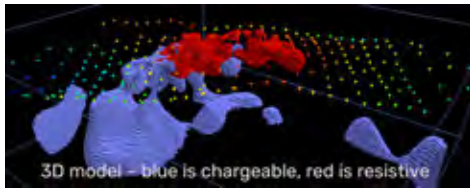
TARGET
GOLD/SILVER

VR Resources, Nevada, USA

SITUATION

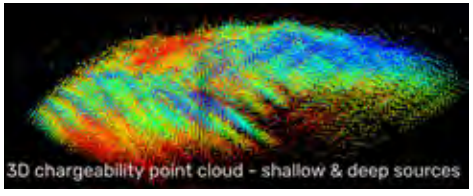
The Big Ten caldera is a Tertiary-aged volcanic complex approximately 20 km in diameter in west-central Nevada. It occurs in an extensional rhyolite volcanic centre, which is analogous in age and setting to the Round Mountain Mine.

The Amsel project area lies within the Big Ten complex. Prior work has defined a 2 km X 3 km airborne radiometric potassium anomaly with a coincident robust Au-Ag-Sb-Mo soil anomaly. These anomalies plus a hilltop of silica-clay altered volcanic tuff with gold-bearing quartz veins indicates potential for a large epithermal gold system analogous to the Round Mountain deposit, where mineralization is found below an alteration cap in a welded tuff.



DIAS32 SOLUTION

The DIAS32 survey was designed to identify where sulphide-bearing quartz veins are concentrated within the large alteration cap and geochemical anomaly. The 3D CVR survey using 200 m line spacing and 100 m station spacing generated more than 225,000 data records from which a final data set of 95,000 data records were used for 3D inversion modelling. The survey was designed to image toover 600 m depth.

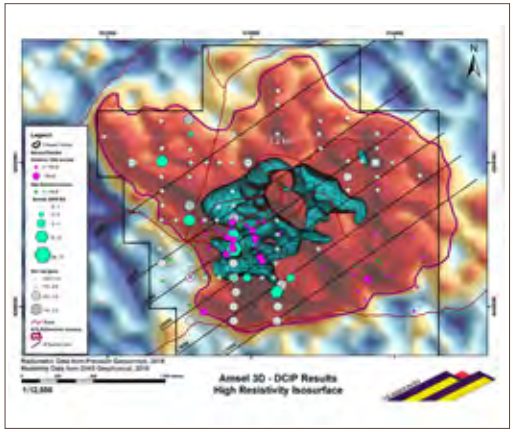


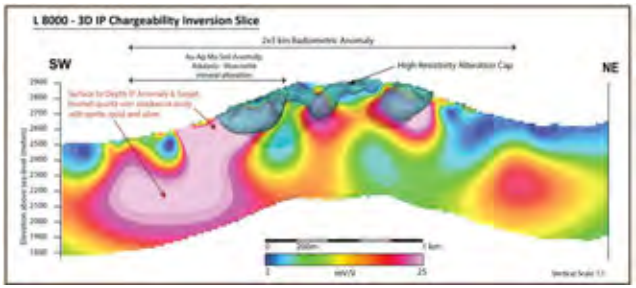
OUTCOME

The 3D resistivity model identifies a large, nearsurface high resistivity anomaly covering a 700 m by 900 m area in the southwest quadrant of the radiometric anomaly and surface alteration zone. The high resistivity zone appears to form a cap directly above an underlying IP anomaly. The high resistivity correlates with high temperature adularia and muscovite alteration in rocks, and the strongest multi-element soil geochemical anomaly.

A section along line 8000 through the 3D IP model depicts the chargeability anomaly directly below the high resistivity zone interpreted as an alteration cap. The anomaly extends from surface to a depth of at least 600 vertical metres. The anomaly occurs below the main multi-element soil geochemical anomaly and below the area where muscovite and adularia alteration minerals are identified in rock samples.

The IP anomaly from the 3D inversion model correlates directly with the overlying high resistivity alteration cap. It is also co-spatial with the silver soil geochemistry anomaly, and with sulfur, because the IP is expected to relate to pyrite associated with secondary hydrothermal silica. The IP anomaly correlates with the strongest surface sulfur anomaly and is the principal target for pyritic quartz vein stockwork with gold and silver mineralization.





DIAS
GROUND CASE STUDY

- The DIAS32 survey produced significantly higher resolution and deeper results than conventional surveys
- From the survey outcome, targeted drilling from 3D chargeability models to a depth of approximately 900 m

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PROJECT
HAT PROJECT, Golden Triangle
Doubleview Gold
Britsh Columbia, Canada

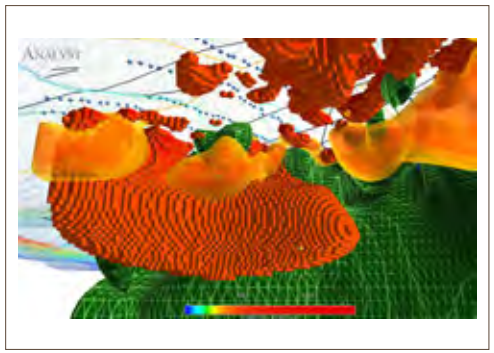
TECHNOLOGY
DIAS32
3DIP and Resistivity

TARGET
GOLD

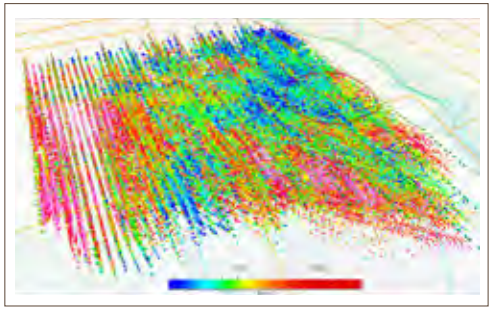
Doubleview Gold - British Columbia, Canada

SITUATION

The Hat Property is situated in the prolific Golden Triangle of northern British Columbia, Canada, which hosts many significant gold and copper deposits. The Hat Property is thought to host an Alkalic Copper Gold porphyry. The property is structurally complex; generally, the southwestern portion of the property has a large dioritic intrusion which is interpreted to sit on top of Stuhini group volcanics. Soil



sampling has outlined several zones of copper, gold and silver near the margin of the intrusion. Historical 2D geophysical surveys have shown the IP method to be effective in detecting mineralization, but limited depth and poor resolution have hampered drill targeting.



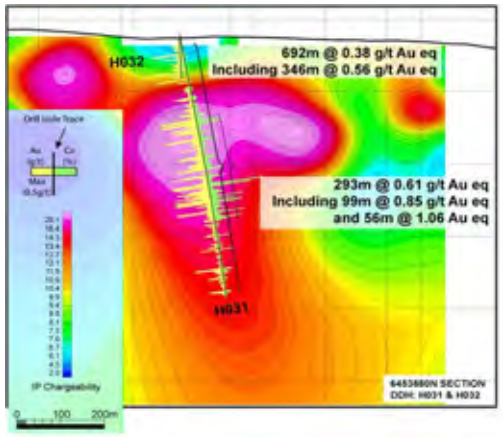
DIAS32 SOLUTION

In 2018, Dias Geophysical was contracted to carry out a 3D DIAS32 survey across the priority portion of the property. The 9 sq. km. survey comprises 12 lines with a 250 m line spacing and 100 m station spacing. The survey was carried out in a pole- dipole configuration with common voltage referencing.

The depth of investigation was designed to be 500 m or more, and high resolution was achieved through multi-azimuth acquisition. During the QC process, approximately 10% of the DC data and 15% of the IP data were removed, leaving a high volume data set of over 100,000 data points.

OUTCOME

Unconstrained 3D inversions for the resistivity and chargeability parameters produced robust 3D models with a near-surface resolution of 25 m. The DIAS32 survey identified an extensive chargeability high which occurs below the Lisle Zone, which had yielded encouraging drill results prior to the DIAS32 survey. The DIAS32 3D models were integrated with geological, geochemical and magnetic data sets to produce a prioritized list of targets. The subsequent drill program produced significant results in the Lisle Zone where



mineralization was found to occur to depths of over 700 m. Visible gold was encountered in one hole. Drill testing of hole H036 revealed an occurrence of visible gold which was accompanied by chalcopyrite, bornite and magnetite.

DIAS
Airborne CASE STUDY

• HeliSAM has demonstrated the ability to detect and characterise the Lalor VMS deposit using airborne acquisition and an inductive ground loop. It is a rapid, cost effective, deep search technology.

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PROJECT
LALOR
Hudbay
Snow Lake, Manitoba, Canada

TECHNOLOGY
HeliSAM

TARGET
GOLD

Hudbay - Manitoba, Canada

SITUATION

Dias performed a trial survey over Hudbay's Lalor deposit near Snow Lake, Manitoba, Canada.

The deposit was discovered in 2007 using a Crone EM system with large, multi-turn loops and long stack times. The deposit lies 700m – 1000m below the surface. The deposit is made up of primarily gold, zinc and copper. As of Janurary 2014, the proven base metal resource was 1,332,000 tonnes with a probable resource exceeding 10,000,000 tonnes.

Hudbay have made the deposit available to geophysical contractors to survey in order to improve understanding of the deposit and to evaluate technologies for use in deep exploration.

The HeliSAM data acquisition system utilised comprised of a Gap GeoPhysics TM-7 SAM Receiver, Cesium magnetometer towed bird (B-Field), Hemisphere R320 GPS, laser altimeter and base station magnetometer. The transmitter system was a Phoenix TXU-30 that was generously provided by Hudbay.

CONCLUSIONS

HeliSAM easily detected Lalor using an inductive loop source with a low base frequency and a total field airborne receiver.

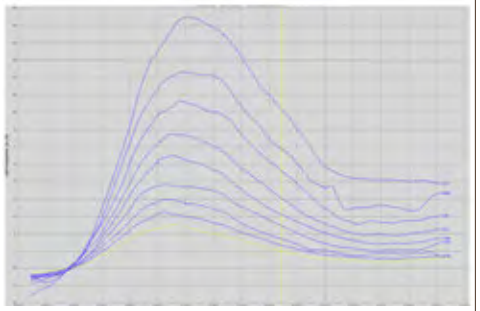
HeliSAM combines the production rate of airborne surveys with detection capabilities similar to a ground based system.

HeliSAM is more cost effective than a ground survey of similar size and has a smaller environmental impact as survey lines do not need to be cut.

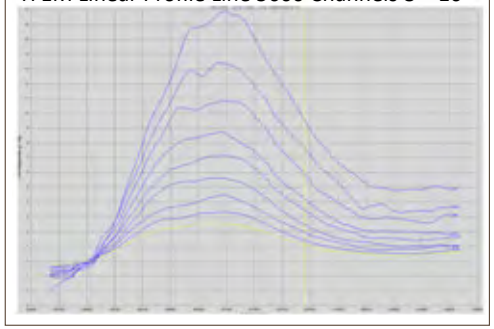
HeliSAM is an ideal tool for regional exploration as up to 18 sq km of surveying can be completed in a single day.

This system is a huge step forward for deep, rapid, airborne exploration.

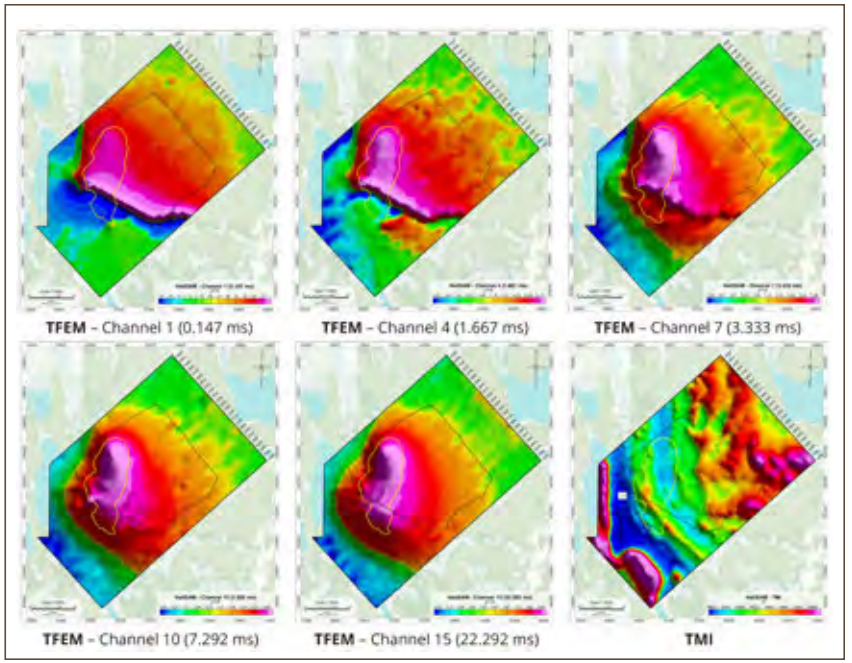
TFEM Linear Profile Line 5350 Channels 8 – 16



TFEM Linear Profile Line 5600 Channels 8 – 16



A selection of TFEM Channels with the ore body outlined in yellow and the survey loop outlined in black. With the progression of channels there is a clear correlation between the observed anomaly and the known mineralisation. The magnetics data set is also included for reference.



DIAS
GROUND CASE STUDY

The DIAS32 distributed array approach to surveying provides a higher level of confidence in the final model images because the method removes bias caused by the direction of current flow. The method provides coverage to great depth and can be used with confidence for drill targeting.

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PROJECT
ROSEMONT
Hudbay
Arizona, USA

TECHNOLOGY
DIAS32

TARGET
Copper/Molybdenum/Silver

Arizona - USA

SITUATION

The Laramide belt is a major porphyry province that extends for approximately 600 miles (1,000 km) from Arizona to Sinaloa, Mexico, and hosts a number of world class deposits. The Rosemont deposit, which comprises 869 MT at 0.51% Cu equivalent measured and indicated with a further 128 MT at 0.49% Cu equivalent inferred, falls within this belt.

The Rosemont Deposit consists of skarn-hosted copper-molybdenum-silver mineralization related to quartz-monzonite porphyry intrusions. Genetically, it is a style of porphyry copper deposit, although intrusive rocks are minor within the resource area. The skarns formed as the result of alteration of Paleozoic carbonate and, to a lesser extent, Mesozoic clastic rocks.

Mineralization is mostly in the form of primary (hypogene) copper-molybdenum-silver sulphides, found in

stockwork veinlets and disseminations in the altered host rock. Some oxidized copper mineralization is also present in the upper portion of the deposit. The oxidized mineralization occurs as mixed copper oxide and copper carbonate minerals. Locally, minor amounts of enriched, supergene chalcocite and associated secondary mineralization are found in and beneath the oxidized mineralization.

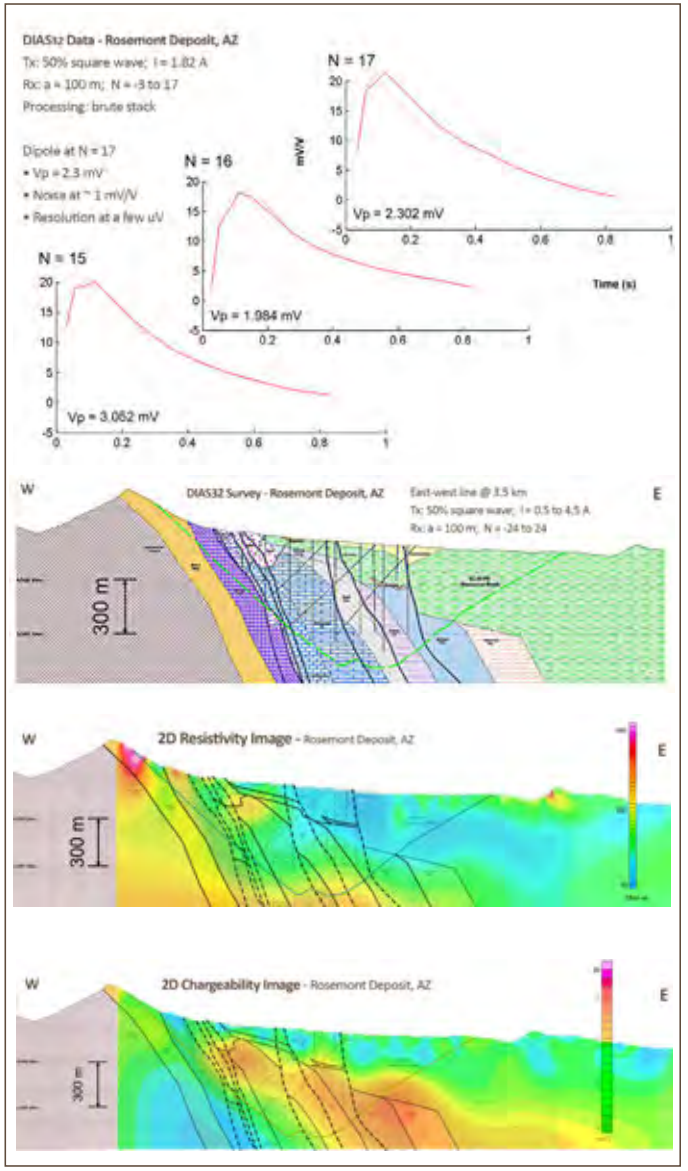
DIAS32 SOLUTION

A DIAS32 distributed dipole-pole-dipole array survey was conducted along the section shown above. This 2D DC/IP survey was carried out using 25 receivers along the survey line, all of which are recording for each current injection point. The receivers are distributed along the line with a 100 m spacing. Current was injected every 100 m along the line at the midpoint of each adjacent receiver electrode pair. In this way for each current injection up to 24 dipoles are recorded simultaneously. One of the strengths of this approach is that measurements are being taken in both directions along the line relative to the injection point. The current waveform is a 50% duty cycle square wave with a base frequency of 0.25 Hz, which delivers a 1 s on-time during which we measure the resistivity parameter, and a 1 s off-time during which we measure the induced polarization parameter.

The data were processed and interpreted using the UBC-GIF inversion routine DCINV2D. The inversion accounts for the topographic relief along the survey line, which is important to consider given the rugged terrain across the survey area.

CONCLUSIONS

The DIAS32 demonstration survey over the Rosemont deposit was successful in mapping the resistivity and chargeability characteristics along the survey line over the known mineralization. Both the resistivity and chargeability data sets clearly map the unconformity between the volcanic cover and the host limestone units. This contact varies from a depth of approximately 150 m in the western portion of the deposit to over 500 m in the eastern portion. The chargeability data set clearly identifies the known sulphide mineralization across this section and appears to map this parameter to a depth of several hundred metres, particularly in the central and eastern portions of the pit area. The chargeability also appears to map variability in the tenor of the sulphide mineralization from unit to unit within the deposit area.



DIAS

- In DIAS32 surveys, dipoles are built in-line and crossline and with varying azimuths for dense, rich data sets
- DIAS32 data sets combine high resolution and depth sensitivity for robust and accurate 3D models
- Accurate models reduce exploration risk

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PROJECT

3D vs 2D COMPARISON

Comparison of DIAS32 3D Survey with conventional 2D

TECHNOLOGY

DIAS32

OVERVIEW

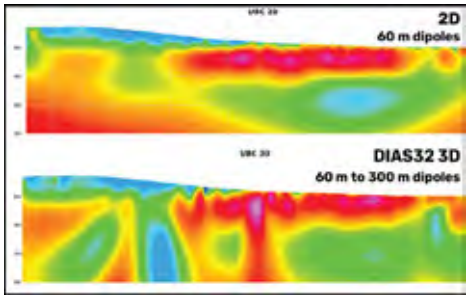
Dias Geophysical's DIAS32 3D induced polarization and resistivity (DCIP) system is unique in its ability to deliver high volume data sets that include both multi-azimuth and multi-scale dipoles. These data sets support highly resolved and accurate 3D models of resistivity and chargeability.

OUTCOME

In the figure below, note the significant resolution difference between the DIAS32 3D resistivity survey model (left) and the 2D model (right). In several places the apparent geologic features and trends differ significantly. In the image to the right, note the significant differences between the 2D and 3D models. The vertical sources at depth are known vertical conductive basement units. DIAS32 CVR data sets provide accurate, high resolution models for confident interpretation and follow-up.

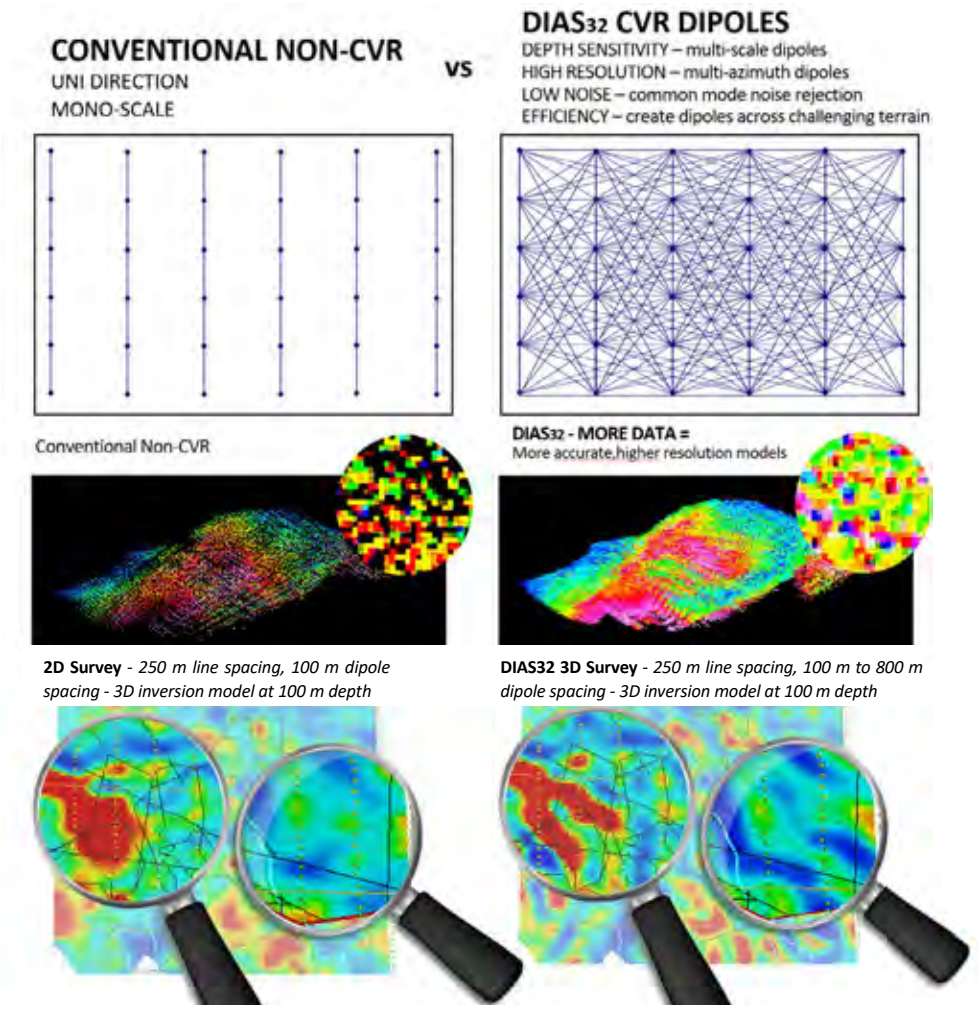
SITUATION

In many environments, conventional 2D DCIP surveys image the geology with a high degree of uncertainty. 2D surveys generally produce a relatively low data density and lack the ability to confidently image sources between the survey lines. As a result, there is significant risk in targeting drill holes in complex geologic environments and the ability to accurately image deep sources is limited.



DIAS32 SOLUTION

Dias has patented a completely new mode of acquiring IP and resistivity data called CVR. The DIAS32 system measures the response from individual electrode sensors relative to a common voltage reference (CVR) wire. DIAS32 provides advantages in safety, operational efficiency, data volume and data quality. The DIAS32 system can be deployed in any array configuration at any scale, both in 3D and 2D. CVR allows for the computation of a dipole from any two electrodes across the survey area. This yields a rich, high volume data set that contains multi-azimuth and multi-scale dipoles. Most DIAS32 surveys yield data sets of several million possible dipoles.



2D Survey - *250 m line spacing, 100 m dipole spacing - 3D inversion model at 100 m depth*

DIAS32 3D Survey - *250 m line spacing, 100 m to 800 m dipole spacing - 3D inversion model at 100 m depth*

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there is a Dias crew hard at work somewhere in the world

mapping the subsurface of the earth.

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