



**MAKING A
DIFFERENCE**

Application of Electrical Geophysics to Exploration at the Lake Mackay Project

Mike Whitford

20th March 2019



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- The information in this presentation that relates to Exploration Results is extracted from the ASX announcement dated 23rd March 2016 and entitled “Geophysical Survey results enhance Bumblebee Prospect” and the announcement dated 20th December 2016 and entitled “Exploration update-Grapple Prospect drill intersections” and for which Competent Person’s consents were obtained.
- The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements released on 23rd March 2016 and 20th December 2016 and, (i) the Competent Person’s consents remain in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent, and (ii) the form and context in which the Competent Person’s findings are presented have not been materially modified from the original ASX announcement.

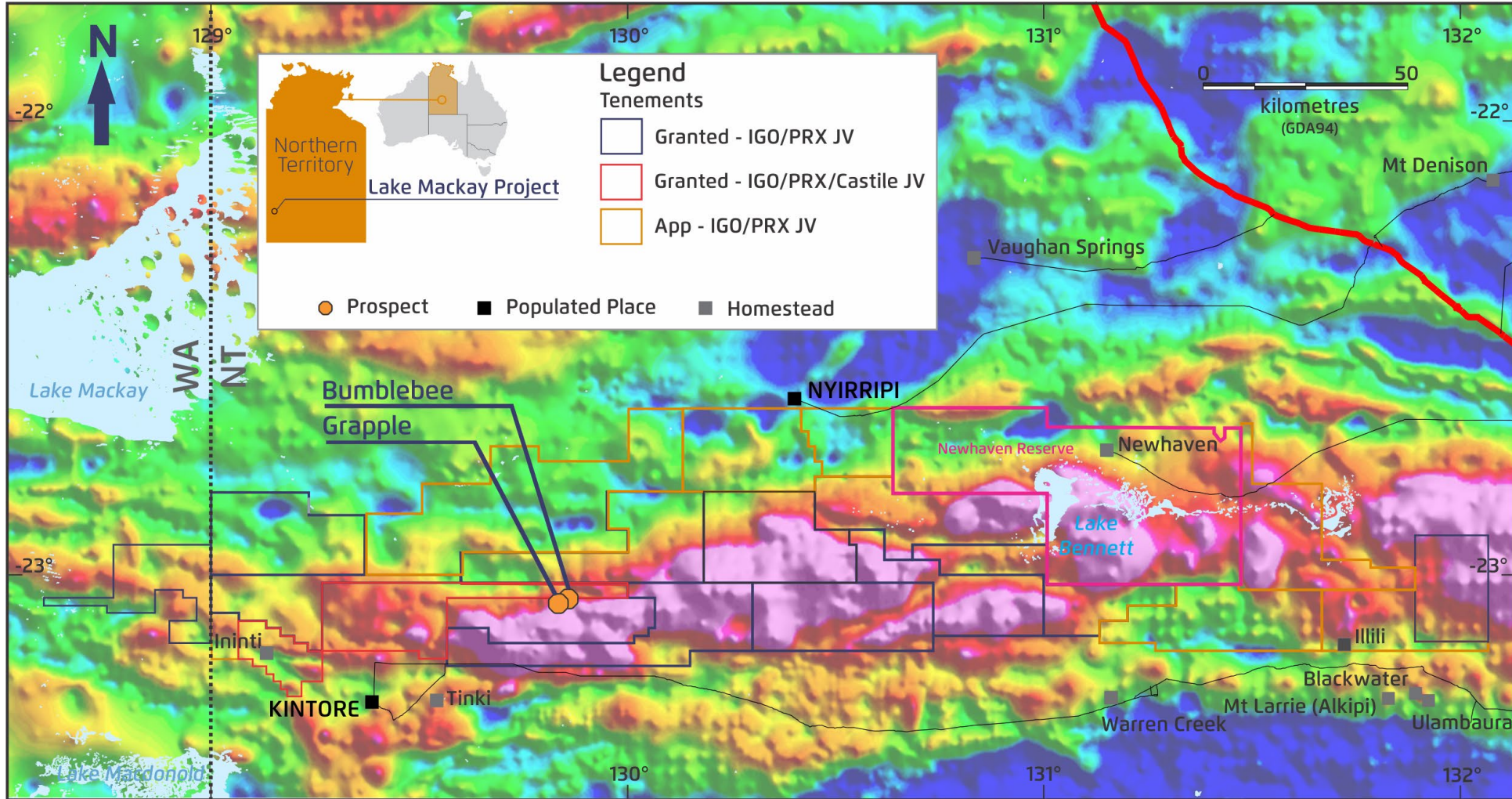


- **Project Location**
- **Historical Geophysical Exploration**
- **Bumblebee Prospect Geophysics**
- **Application of EM to Grapple – Comparisons, DHEM**
- **Application of AEM to Lake Mackay Project- Forward Modelling, Decisions, Comparisons**
- **Results and Products from the AEM**
- **Conclusions**



Project Location

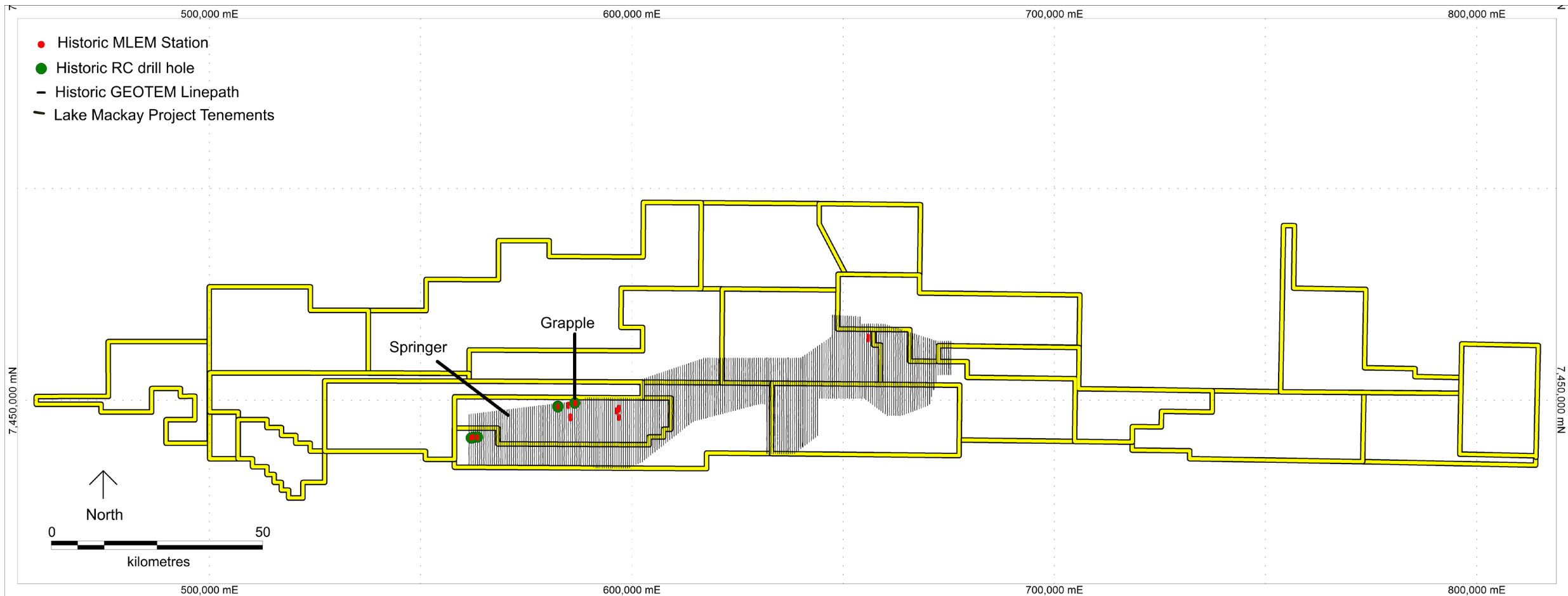
JV Between IGO, Prodigy Gold, Castile Resources over 13000km² in the Aileron



- Located ~400km north west of Alice Springs
- Project is a JV between IGO, Prodigy Gold, and Castile Resources Pty Ltd
- Consists of 8,058 km² of granted tenure and 4,900km² of tenements in application
- Located in the south western Aileron Province with tenements covering a continental scale gravity ridge



Historical Exploration

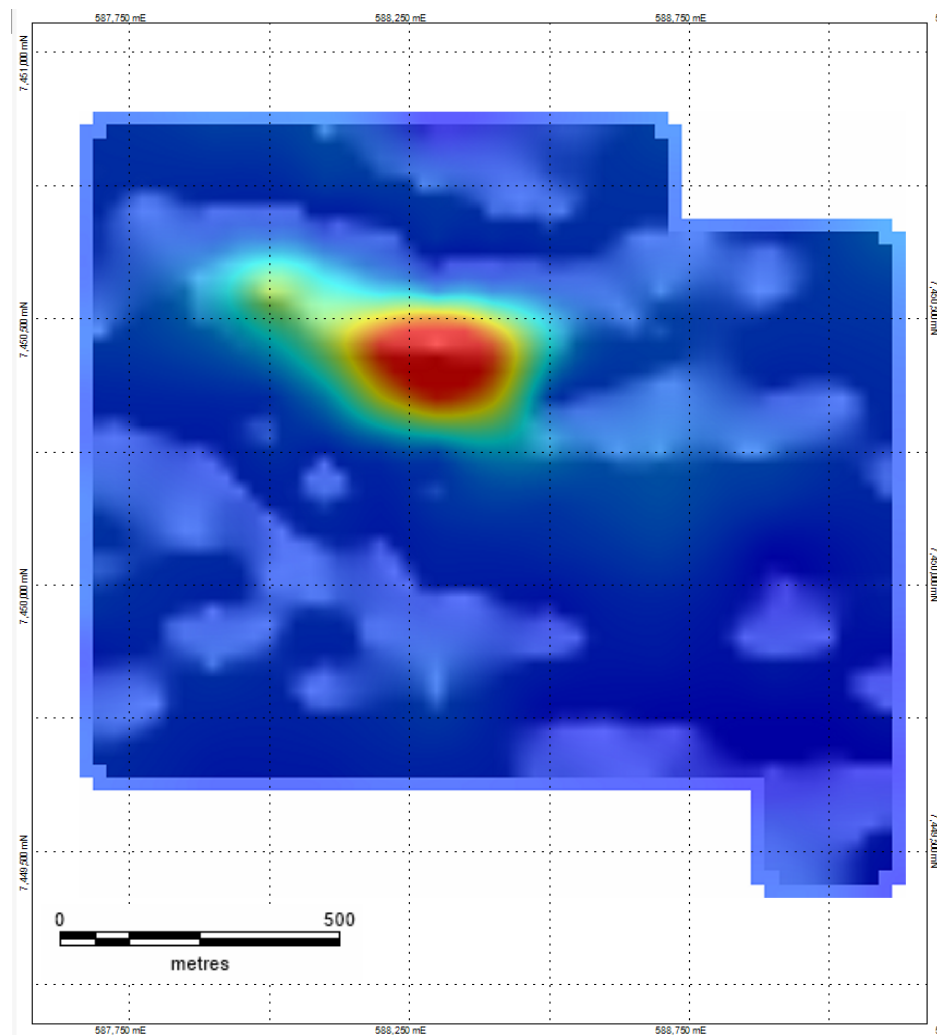


- 1999 - AEM system (GEOTEM) flown over a large area
- 2003 - 13 lines of single component dB/dt moving loop EM
- 2004 - 10 RC drill holes, only 3 logged with DHEM
- Huge area of effectively unexplored tenure



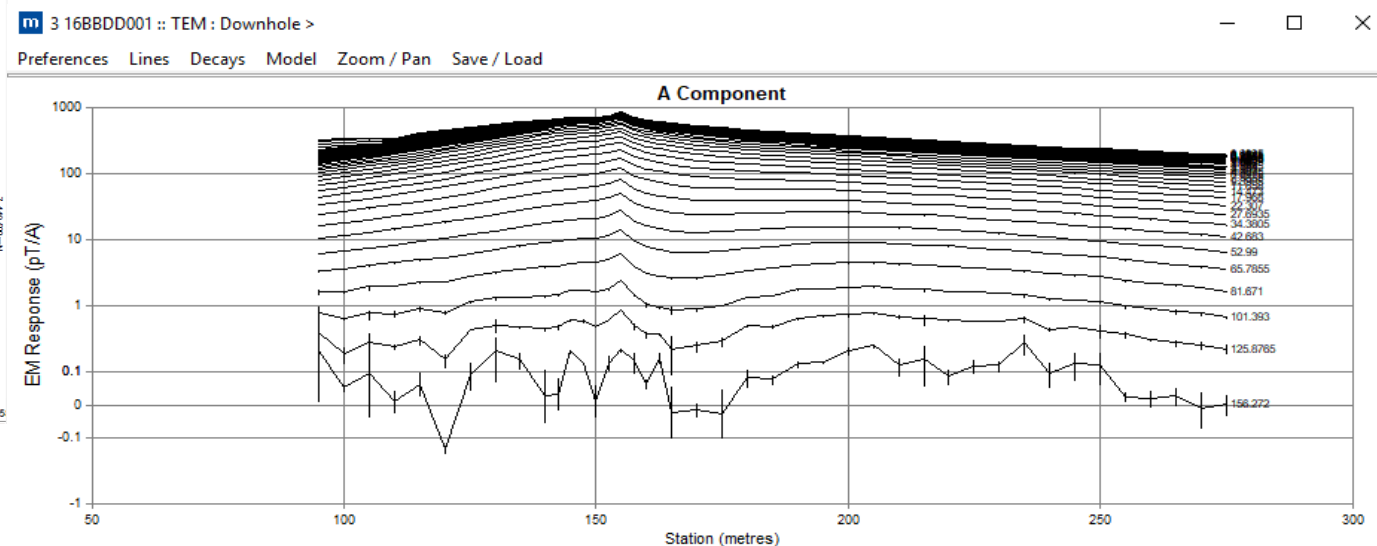
Bumblebee Discovery

Exploration 2015/2016 – EM proved to be effective tool to guide discovery

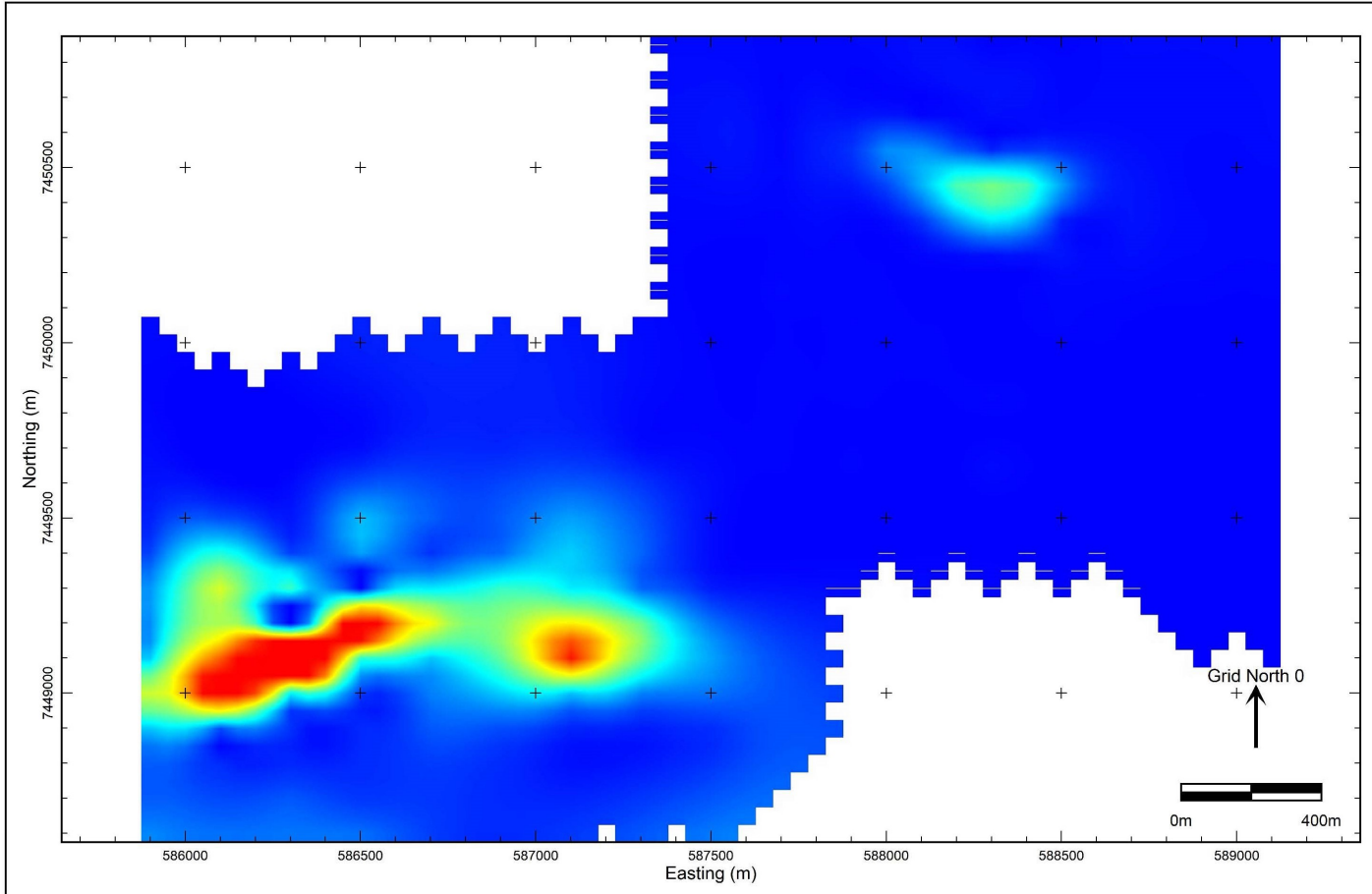


MLEM X component 15.7-20.2ms time channel

- Drilling following up on soil geochemical anomalism intersected a best result of 7m @ 3.29 g/t Au, 37.7 g/t Ag, 3.25% Cu, 0.87% Pb, 1.34% Zn, 0.09% Bi and 0.08% Co ⁽¹⁾
- Orientation MLEM using fluxgate sensor and high currents. Grid of 200m lines, 100m stations completed over soil geochemical anomaly
- MLEM clearly delineated a moderate conductance target coincident with the anomalous geochemical response
- Dominantly pyrite and pyrrhotite sulphides intersected when drill testing conductor
- DHEM confirms the source is due to these sulphides-strong in hole response at 160m depth
- Although no economic intersections-this discovery highlighted that EM could be an effective tool



1) Refer to ABM ASX release dated 23rd March 2016: Geophysical survey results enhance Bumblebee prospect



MLEM X component 15.7-20.2ms time channel

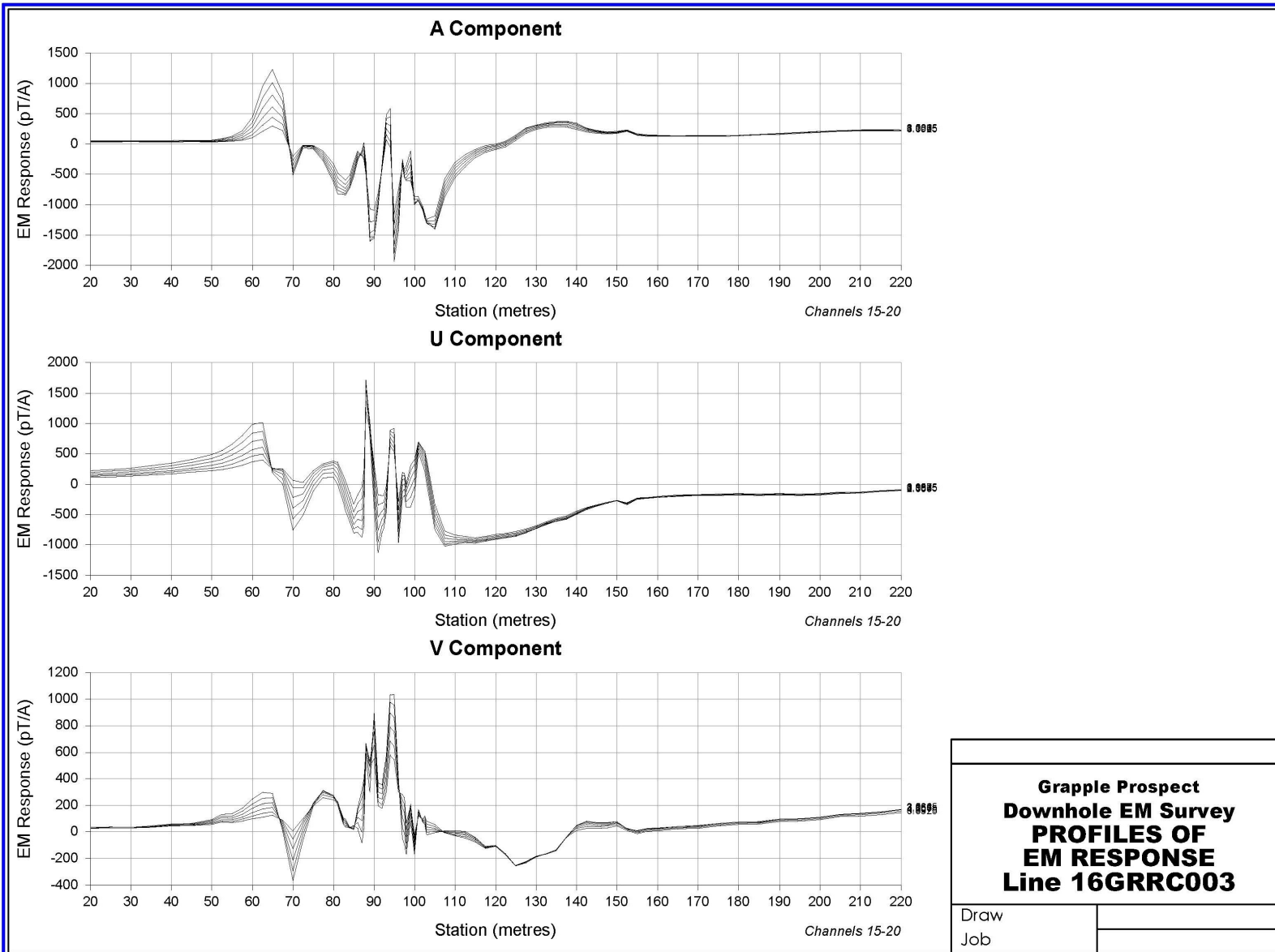
- EM programme extended to cover other soil geochemical anomalies
- Same survey configuration and parameters employed as at Bumblebee
- Extended the survey covering a much larger area than previous at this target
- Two drill holes sited into the anomaly, third tested under peak soil geochemical response associated with ironstone outcrop
- DHEM conducted on all holes, confirms dominantly pyrrhotite mineralisation in first two holes
- Third hole⁽¹⁾ intersects zones of dominantly pyrrhotite mineralisation but also 9m @ 1.81 g/t Au, 49.1g/t Ag, 3.26% Cu, 3.63% Zn

1) Refer to ABM ASX release dated 20th December 2016: Exploration Update-Grapple prospect drill intersections



Grapple Discovery

2016-2018 – Bumblebee and Grapple discoveries demonstrate that EM is an effective tool for this type of mineralisation

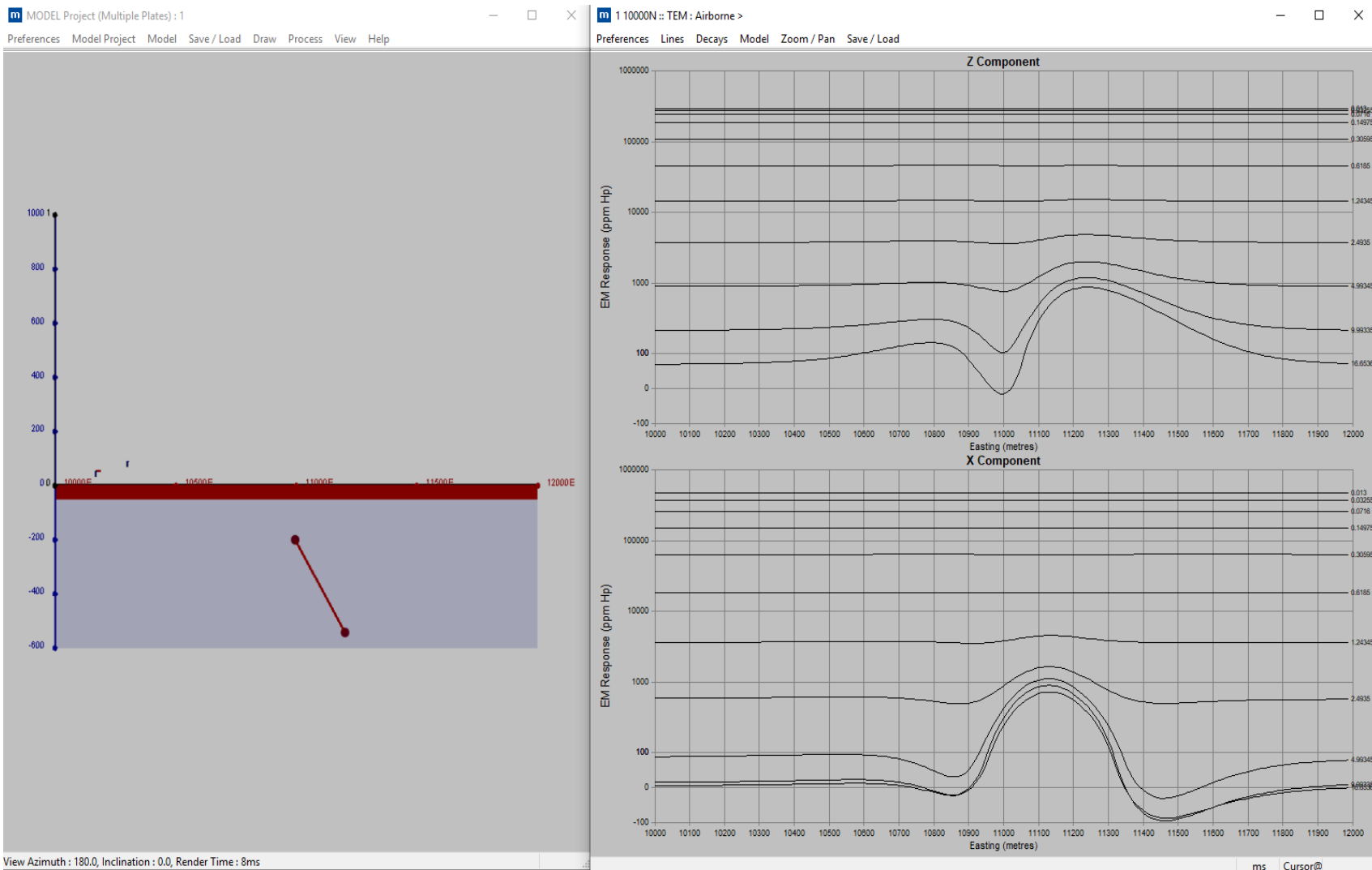


- In hole response from 85m corresponding to chalcopyrite mineralisation
- Numerous other conductors however these are effectively unmineralised
- DHEM key to understanding the source of the EM anomalism. Target has to be explained before moving on
- Empirically established through Bumblebee and Grapple that EM should be an effective tool for detecting “Grapple” style mineralisation



Airborne EM for rapid screening-but which System?

Forward Modelling



- Synthetic forward modelling of a number of systems
- Use available information to estimate a realistic noise level for each system, and define a point at which the anomaly would be considered detectable
- Geologically reasonable scenario created. Conductive (16 ohm m) overburden with thickness of 50m, against a resistive basement of 250 Ohm m, with a highly conductive target at 200m depth
- Repeated with multiple different scenarios for all systems
- Shortlisted systems we wanted to test



Airborne EM for rapid screening-but which System?

Brief Comparison of Systems



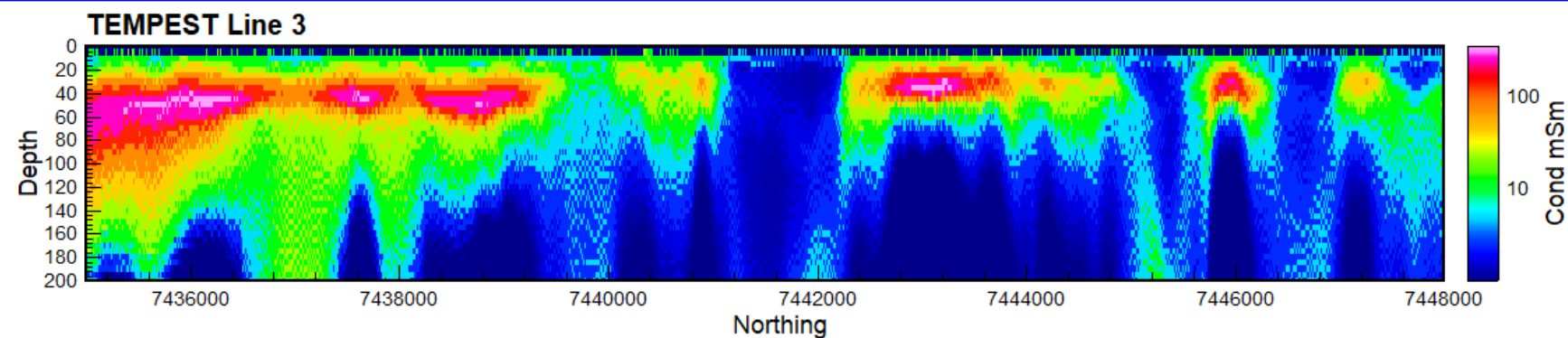
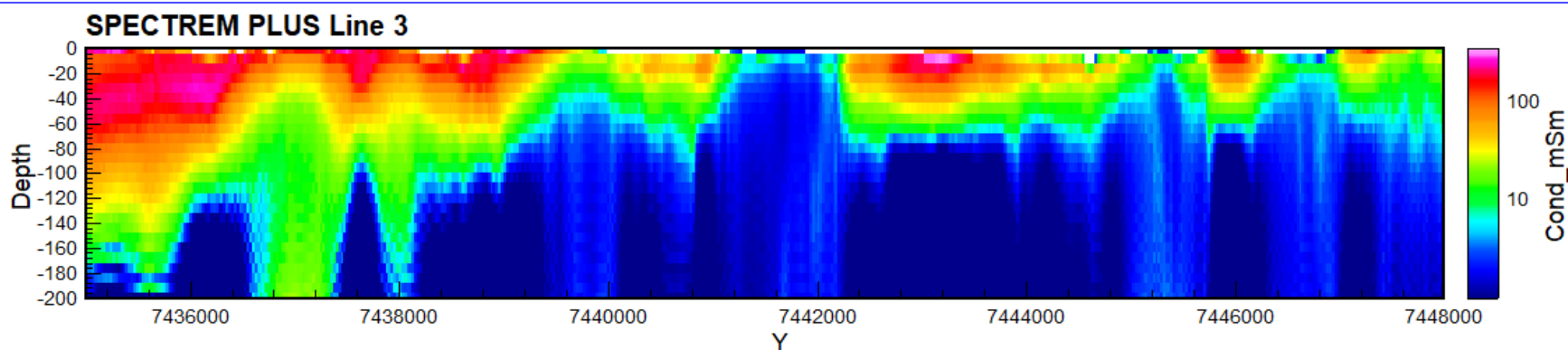
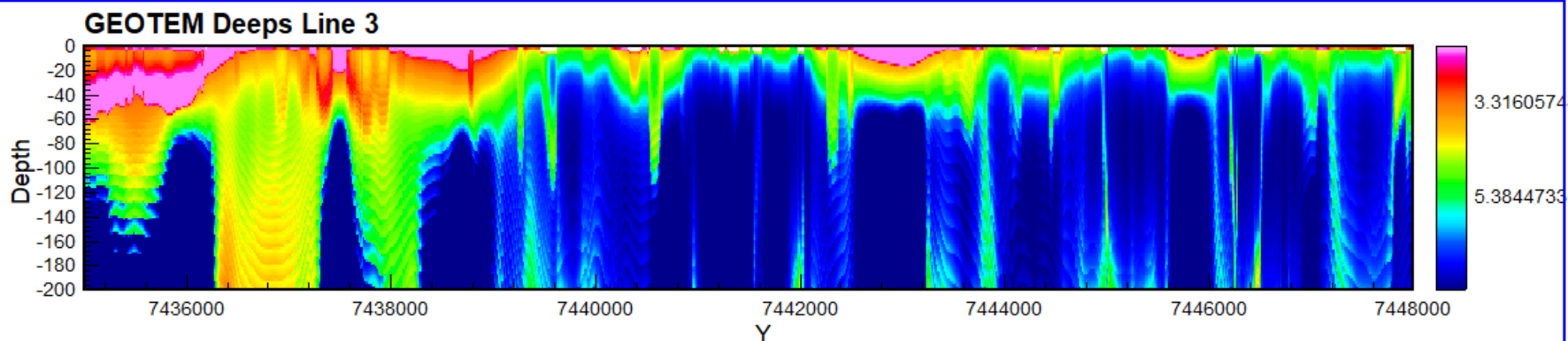
	GEOTEM DEEPS	TEMPEST	SPECTREM
Frequency	25	25	25
Tx Height	105	120	90
Bird Height	54	73	72
Tx Waveform	Half Sine	Square 50%	Square 100%
Loop Area	231	154	420
Turns	6	1	1
Current	480	560	1600
Dipole Moment	665000	86000	672000

- Considering power only (dipole moment) GEOTEM should be comparable to SPECTREM and much better than TEMPEST
- Not all about system power - lots of contributing factors



Airborne EM for rapid screening-but which System?

A comparison of CDIs on concurrent line



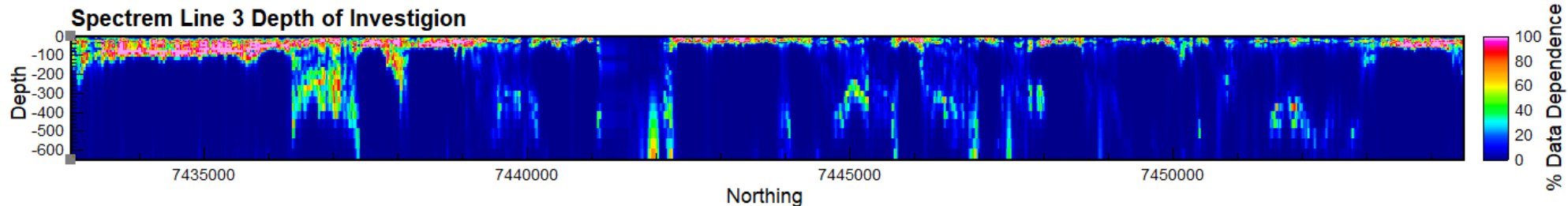
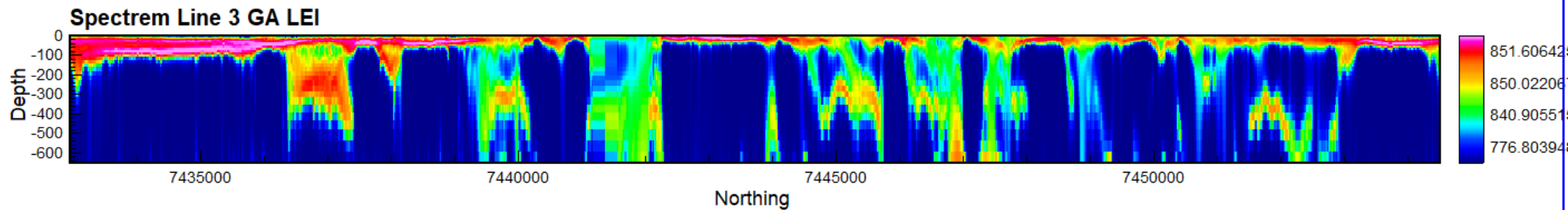
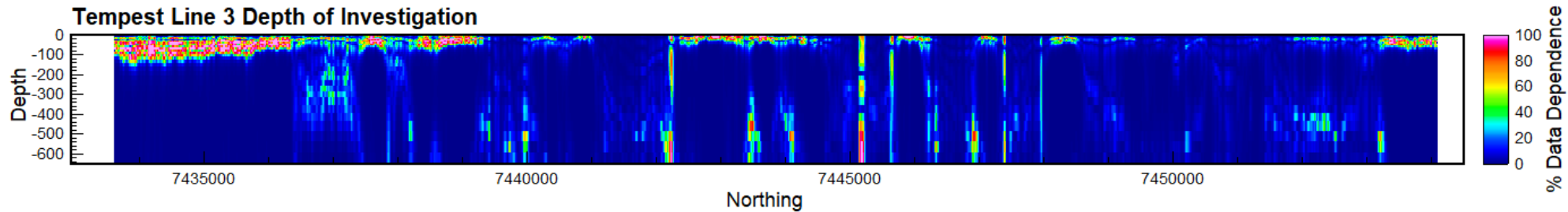
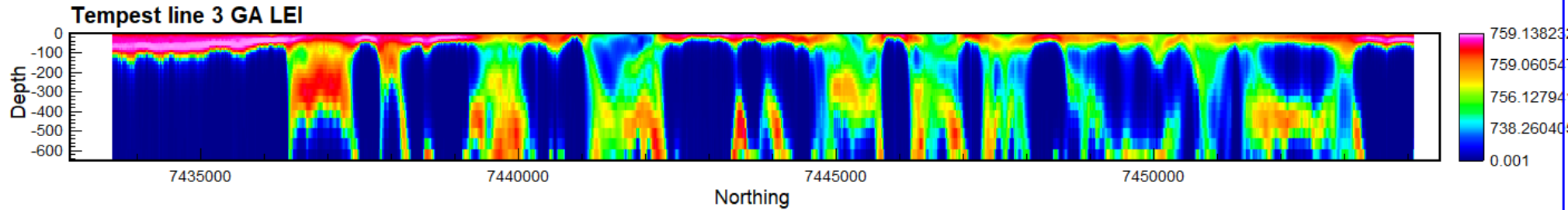
- Based on the historical GEOTEM, orientation surveying flown with SPECTREM and TEMPEST
- Springer prospect consists of barren iron sulphides, and shows a good EM response
- Prospect not identified in historical GEOTEM survey-good place for orientation survey



Airborne EM for rapid screening-but which System?

Depth of Investigation

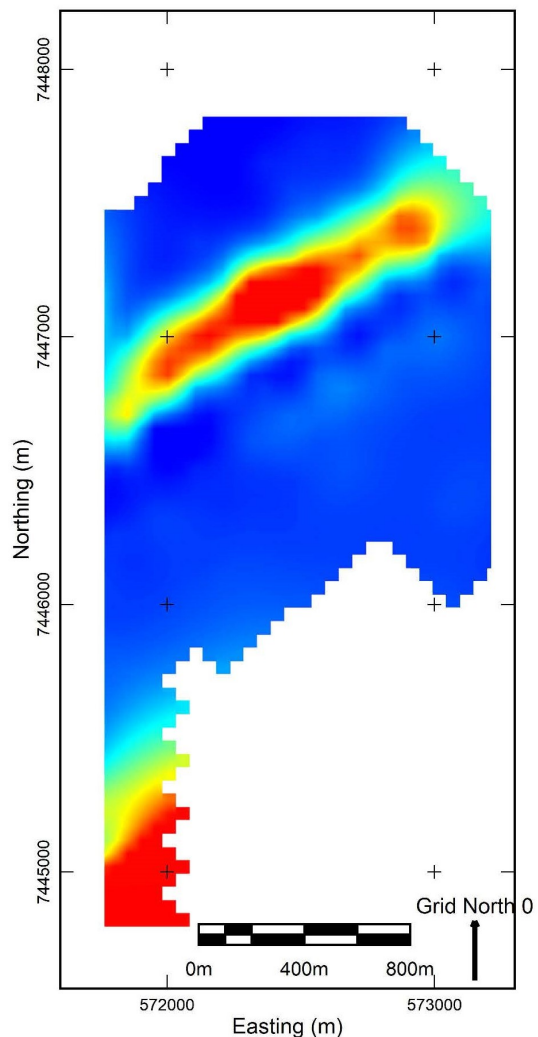
- Comparison of SPECTREM and TEMPEST AEM Systems
- Inversion run multiple times to understand the features in the layered earth inversion



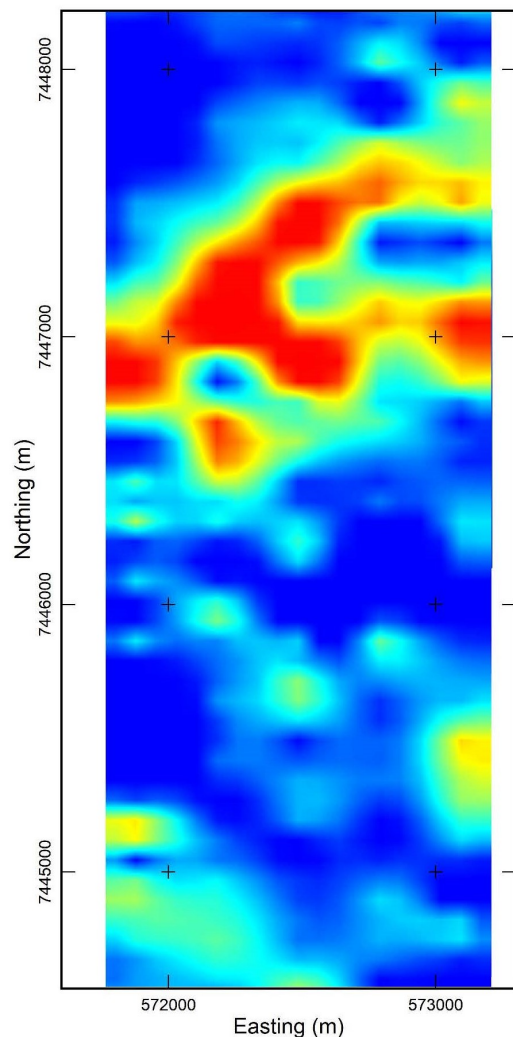


Airborne EM for rapid screening-but which System?

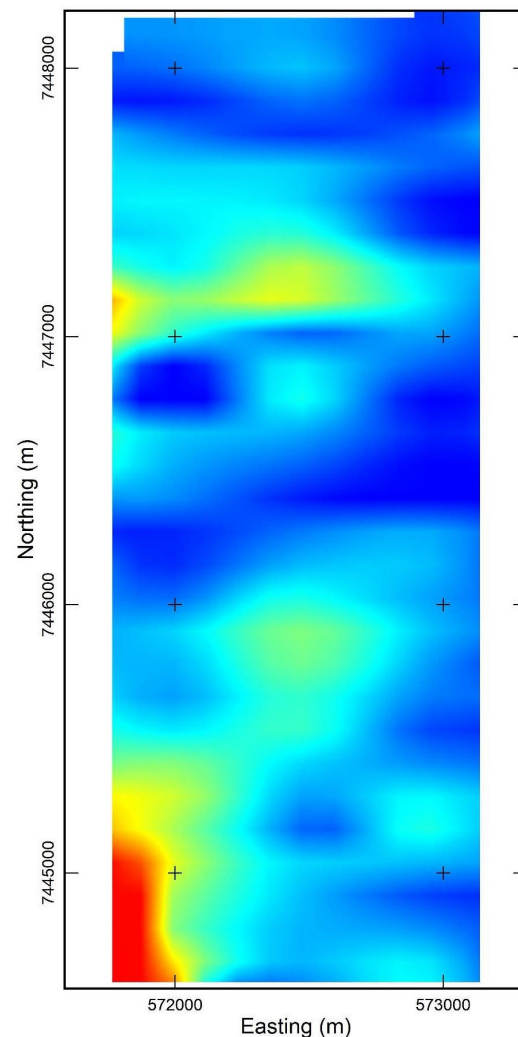
Ground EM - SPECTREM - GEOTEM comparison



MLEM Z component 1.8-2.3ms channel



SPECTREM Z component 1.6-3.3ms channel



GEOTEM Z component 2.3-2.7ms channel

- Comparison of ground EM and SPECTREM shows very similar responses over Springer prospect
- Partly due to the GEM out of loop configuration
- GEOTEM shows hints of the anomaly – amplitude not considered large enough to identify as a target

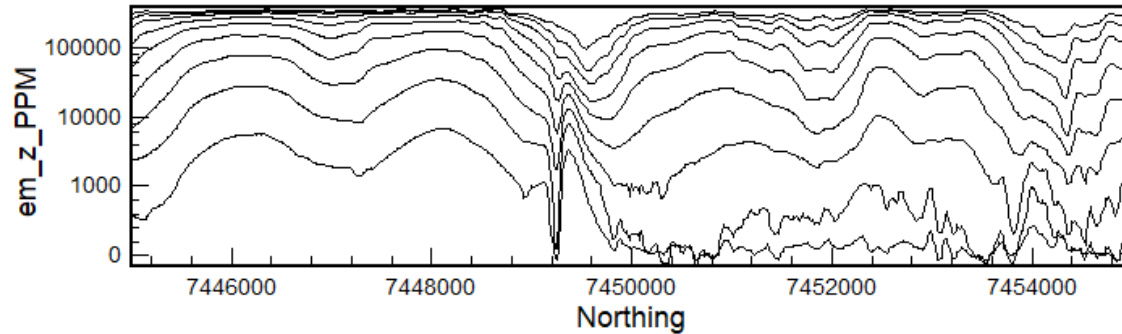


SPECTREM Survey Results

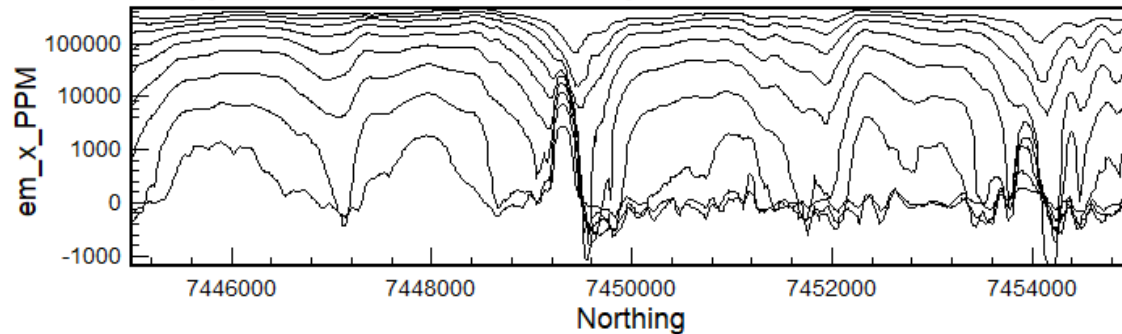
What are we going to do with this information?

- Coverage over most of the tenure fantastic data set that will live throughout the life of the project
- Targets that could represent Grapple style mineralisation-direct detection of sulphides
- 63 conductors defined to follow up with MLEM and re-prioritise

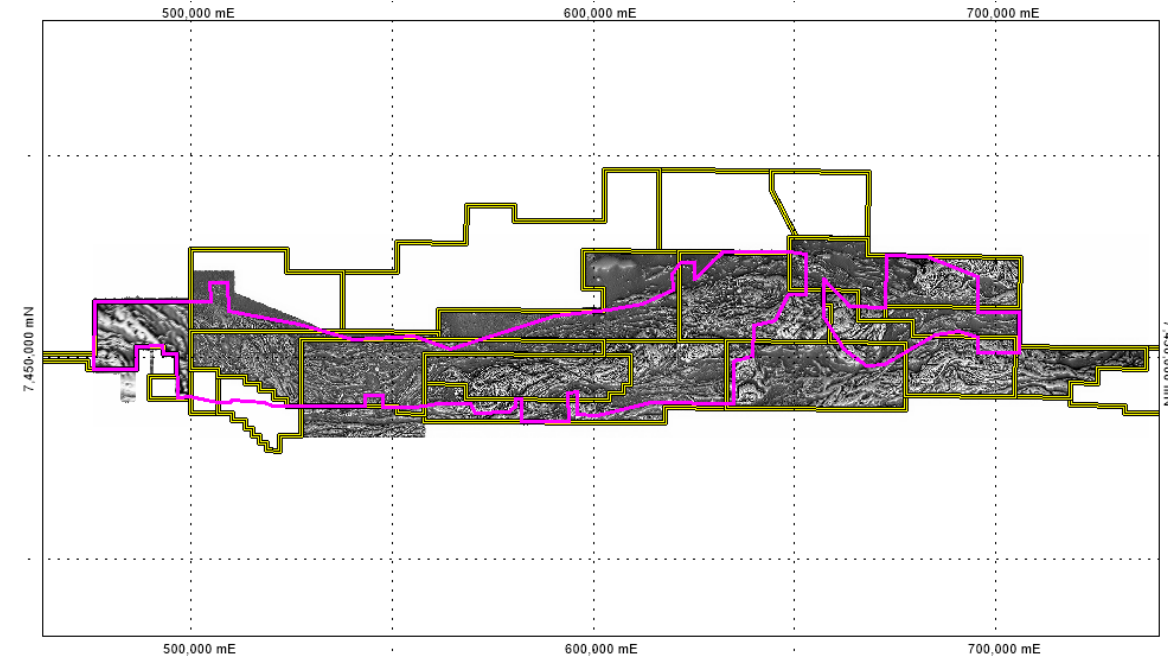
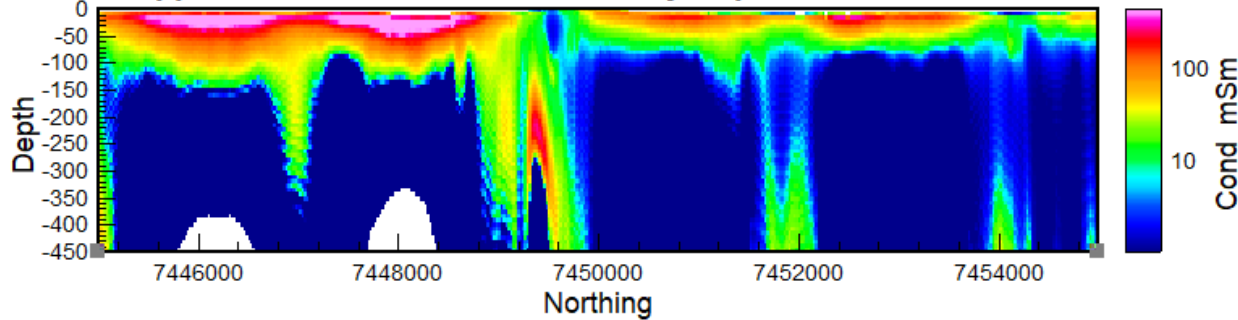
Grapple Line SPECTREM Z Component



Grapple Line SPECTREM X Component



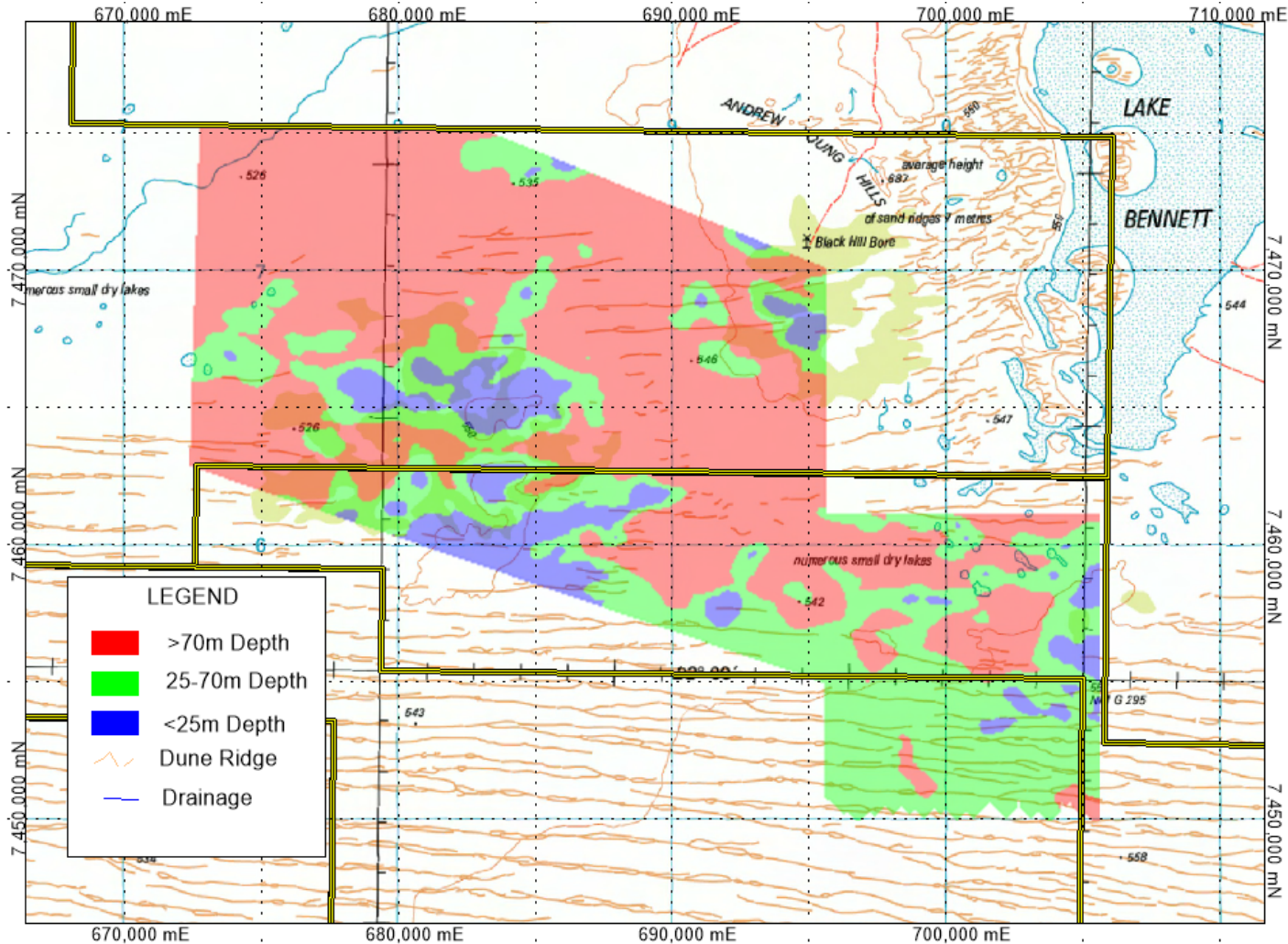
Grapple Line SPECTREM Conductivity Depth Section





SPECTREM Survey Results

What are we going to do with this information?



- Invert data to conductivity depth sections
- Define the areas we can effectively explore
- Design programs to explore – will a soil sample be effective in areas of up to 150m of cover?

Conclusions

- Strategy developed for geophysics, AEM to generate the targets, MLEM to follow up the targets and rank, drill targets explained via DHEM
- Successive orientation surveys allow us to gain good understanding of the systems we are using and the limitations
- Products derived from the AEM will be used to make sure our exploration is effective
- Targets will be ranked with geochemical information for context and prioritising





Acknowledgements

- Northern Territory Geological Survey are thanked for co-funding of much of the geophysics that has been completed at the project
- Our JV partners Prodigy Gold and Castile Resources
- Doug Winzar, Andrew Fitzpatrick and the IGO Exploration team past and present are thanked for the effort
- Both the Spectrem Air team and the CGG team for their efforts in getting this work completed





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We are bold, passionate, fearless and fun – a smarter, kinder, more innovative company. Our work is making fundamental changes to the way communities all over the world grow, prosper and stay sustainable.

Our teams are finding and producing the specialist metals that will make energy storage mobile, efficient and effective enough to make long-term improvements to the lifestyle of hundreds of millions of people across the globe.

How? New battery storage technology is finally unleashing the full potential of renewable energy by allowing power produced from sun, wind and other sources to be stored and used when and where it's needed.

This technology will impact future generations in ways we cannot yet imagine, improving people's quality of life and changing the way we live.

We believe in a green energy future and by delivering the metals needed for new age batteries, we are making it happen.

This is the IGO Difference.