MAKING A DIFFERENCE

Strategic electromagnetic geophysical prospecting across a belt- an example over the Albany Fraser Orogeny

Andrew Fitzpatrick

Chief Geophysicist

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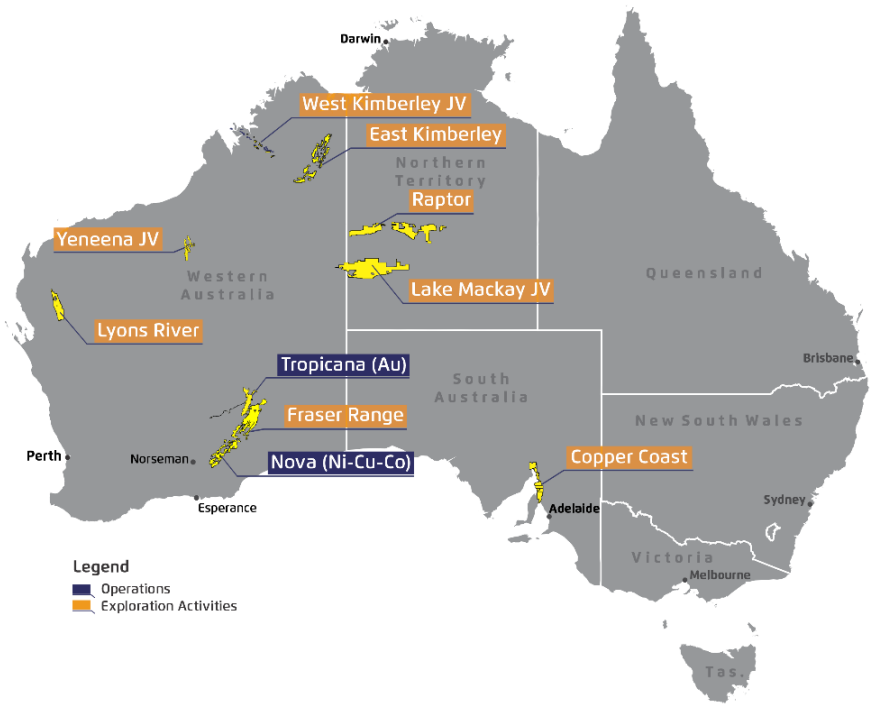
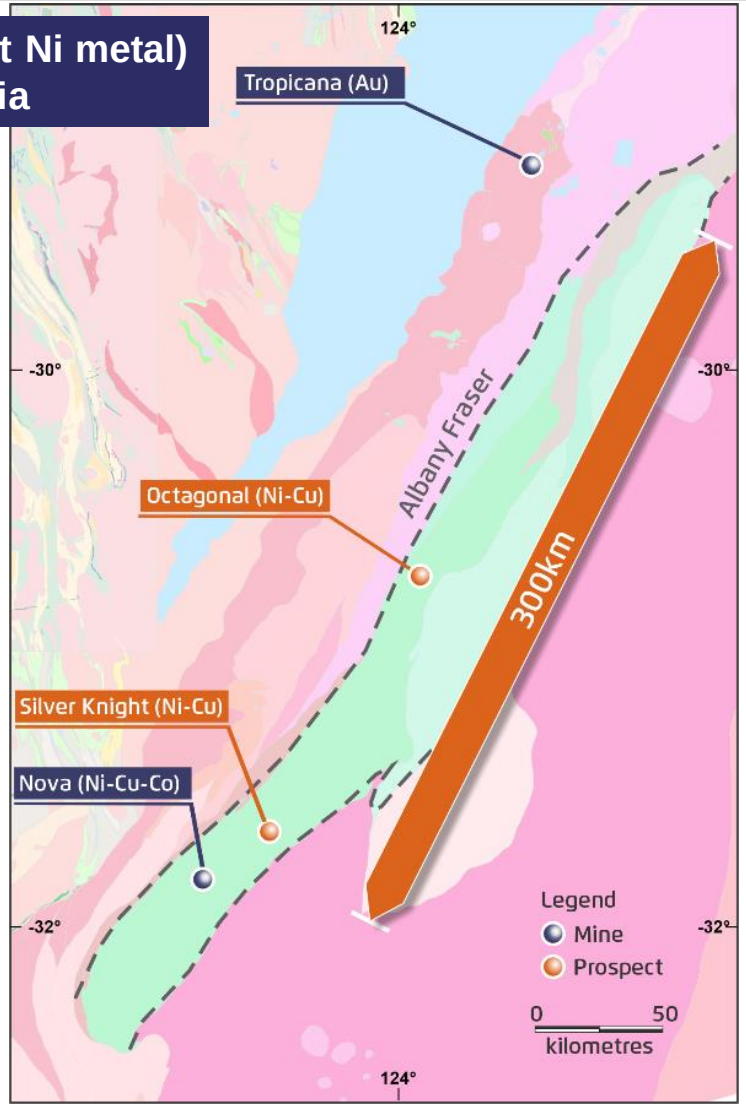
Why Explore in the Albany Fraser Belt?

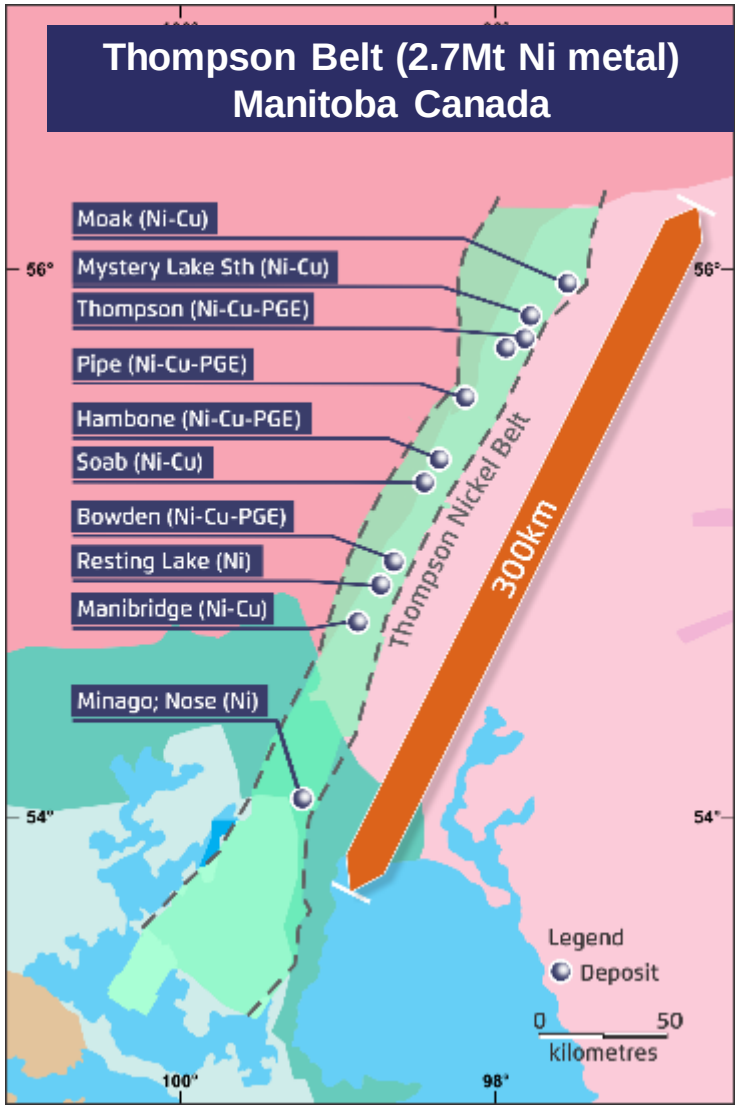
There are very few other belts with as much upside as the Albany Fraser Belt

Albany Fraser Belt (0.3Mt Ni metal)
Western Australia





Thompson Belt (2.7Mt Ni metal)
Manitoba Canada

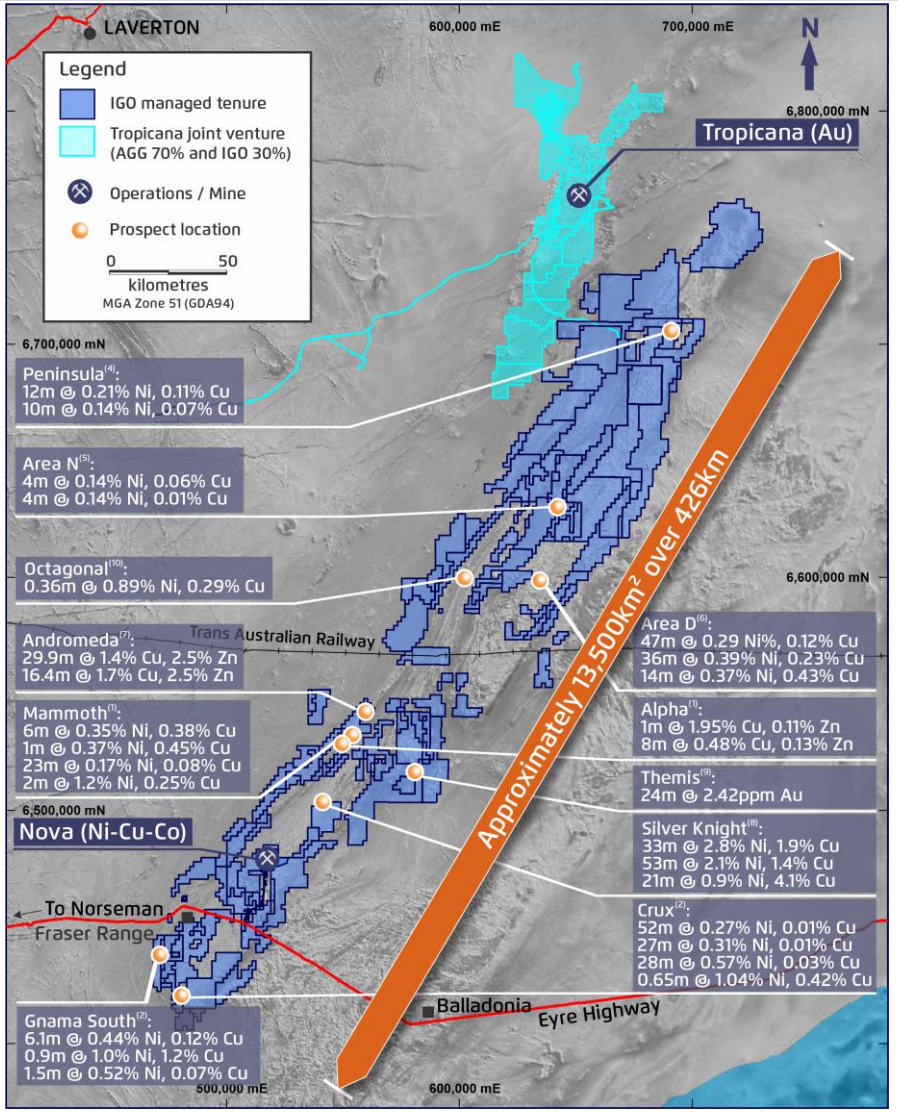


Silver Knight details released by Creasy Group Application for M28/395 20 July, 2018; Octagonal details released by Legend Mining ASX Release 9 July, 2019

The challenge

Belt wide exploration

- Several mafic/ultramafic intrusions are known to occur along the Albany Fraser Belt
- Multiple companies have reported magmatic Ni-Cu sulphides in mafic and ultramafic rocks along the entire belt
- Sulphide occurrences range from disseminated to blebby to massive
- The presence of multiple mafic/ultramafic intrusions, some with Ni-Cu sulphides is typical for belts that host multiple Ni-Cu deposits
- Recent discoveries highlight the potential for VMS Cu-Zn and Au

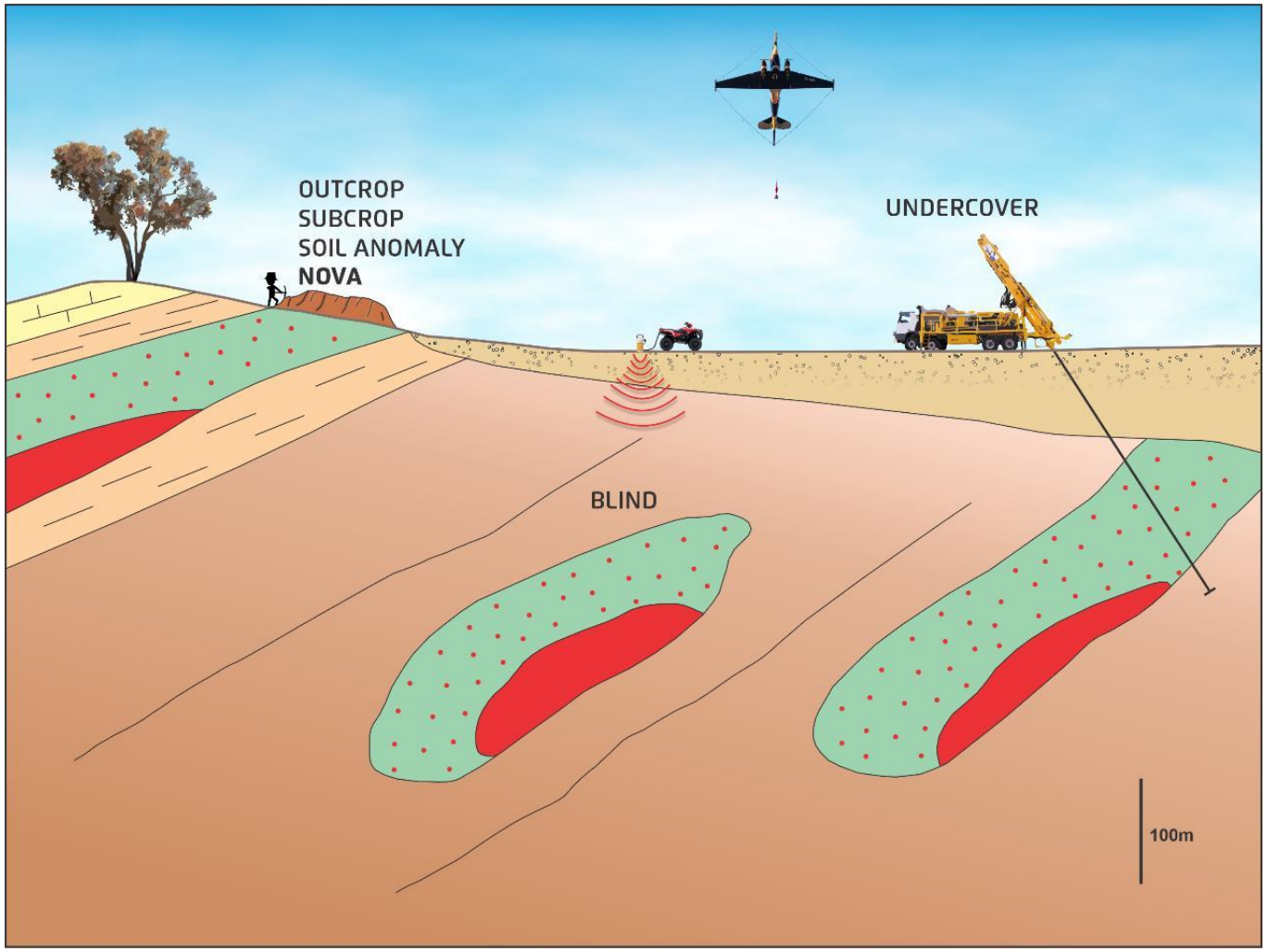


1) Refer to IGO ASX release dated 20 February 2019: Annual Update of Exploration Results, Mineral Resources and Ore Reserves

How to explore for Magmatic Sulphide Mineralisation

Exploration methodologies change with the search space

- Different ideas and technologies are required to explore the whole Albany Fraser Belt
- The mineral explorers ‘toolbox’ changes with the ‘search space’ (depth to target, cover thickness and cover type)
- We need and have used a range of systematic approaches/technologies and ideas to make the next discovery
- These include:
  - Airborne and ground Electromagnetics
  - Systematic Aircore drilling for geology and geochemistry
  - Gravity data
  - Diamond and RC drilling
  - R&D through tested institutions



AEM- System Selection

Forward model response of basement conductor underlying conductive overburden

	Regolith Conductivity 62.5 mS/m				Regolith Conductivity 330 mS/m			
	Target depth 40m		Target depth 200m		Target depth 40m		Target depth 200m	
AEM System	Model 1	Line	Model 2	Line	Model 3	Line	Model 4	Line
SPECTREM	Yes	7000	Yes	7010	Yes	7020	Yes - weak	7030
TEMPEST 25 Hz	Yes	8000	Yes	8010	Yes	8020	Yes - weak	8030
TEMPEST 12.5 Hz (*)	Yes	9000	Yes	9010	Yes	9020	Yes	9030
VTEM Super Max	Yes	1000	No	1010	Yes – weak	1020	No	1030
XCite	No	2000	No	2010	No	2020	No	2030
SkyTEM^{516} 25 Hz High Mom	Yes	5000	No	5010	Yes – weak	5020	No	5030
SkyTEM^{516} 12.5 Hz High Mom	Yes	6000	No	6010	Yes	6020	No	6030
HeliTEM 25 Hz	Yes	3000	No	3010	Yes – weak	3020	No	3030
HeliTEM 12.5 Hz (*)	Yes	4000	Yes (X)	4010	Yes	4020	Yes (X)	4030

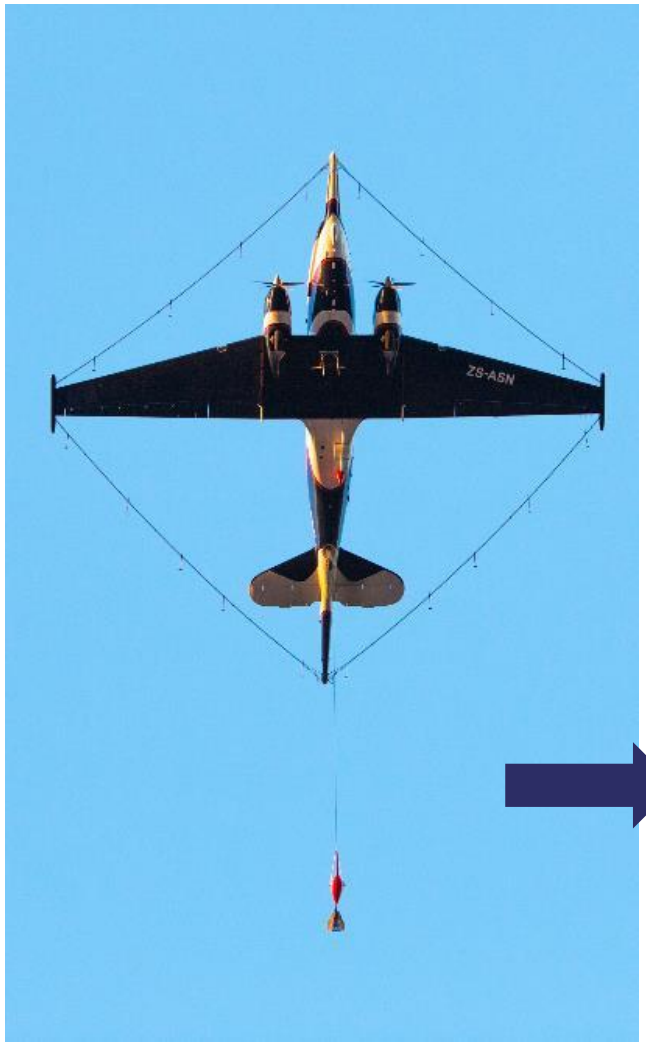
*Noise levels assumed

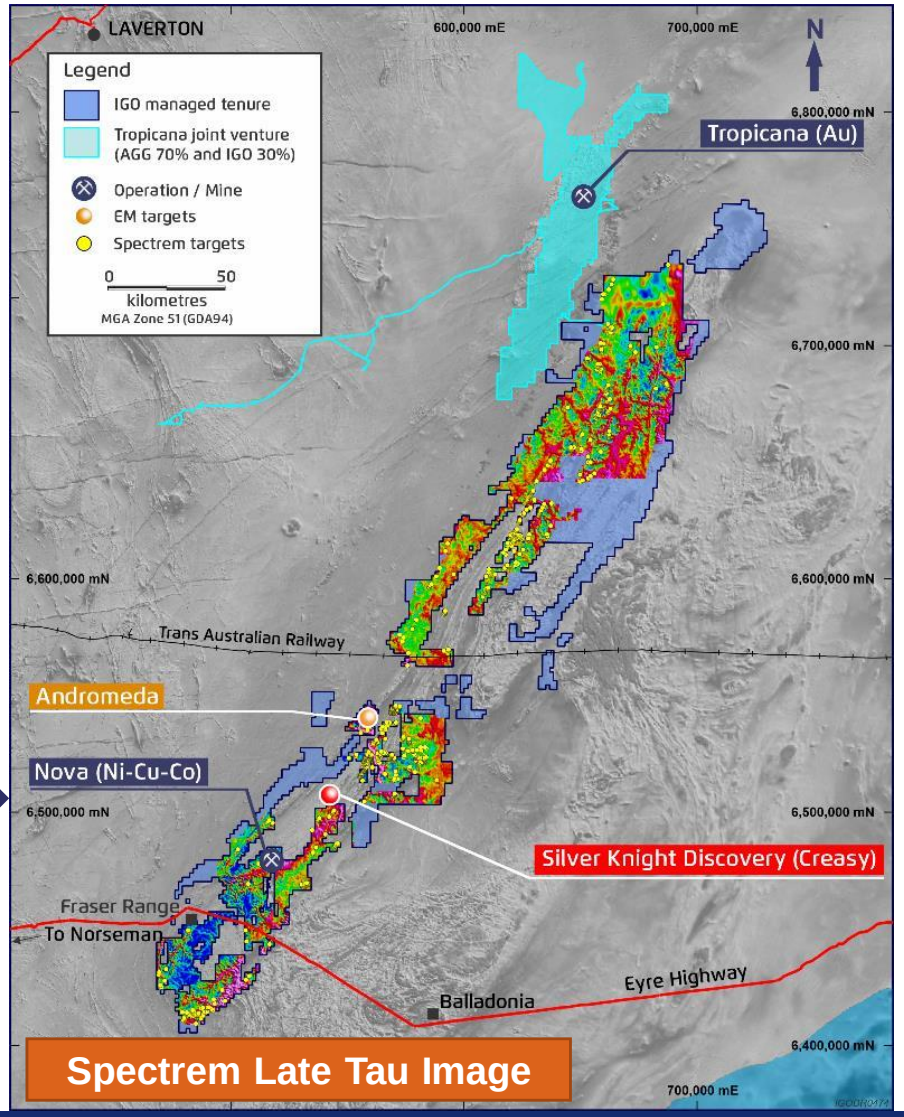
Completed by Mira Geoscience

Regional Exploration

Electromagnetic Surveying

- SpectremAir completed the ~46,000 line km survey of airborne EM in the Fraser Range
- Numerous targets generated that need to be followed up using ground MLEM systems
- Spectrem has demonstrated that it can detect EM conductors associated with massive sulphides to >300m where transported cover is thin and basement is resistive
- No basement conductors have been detected beneath paleo-channels > 50m thick

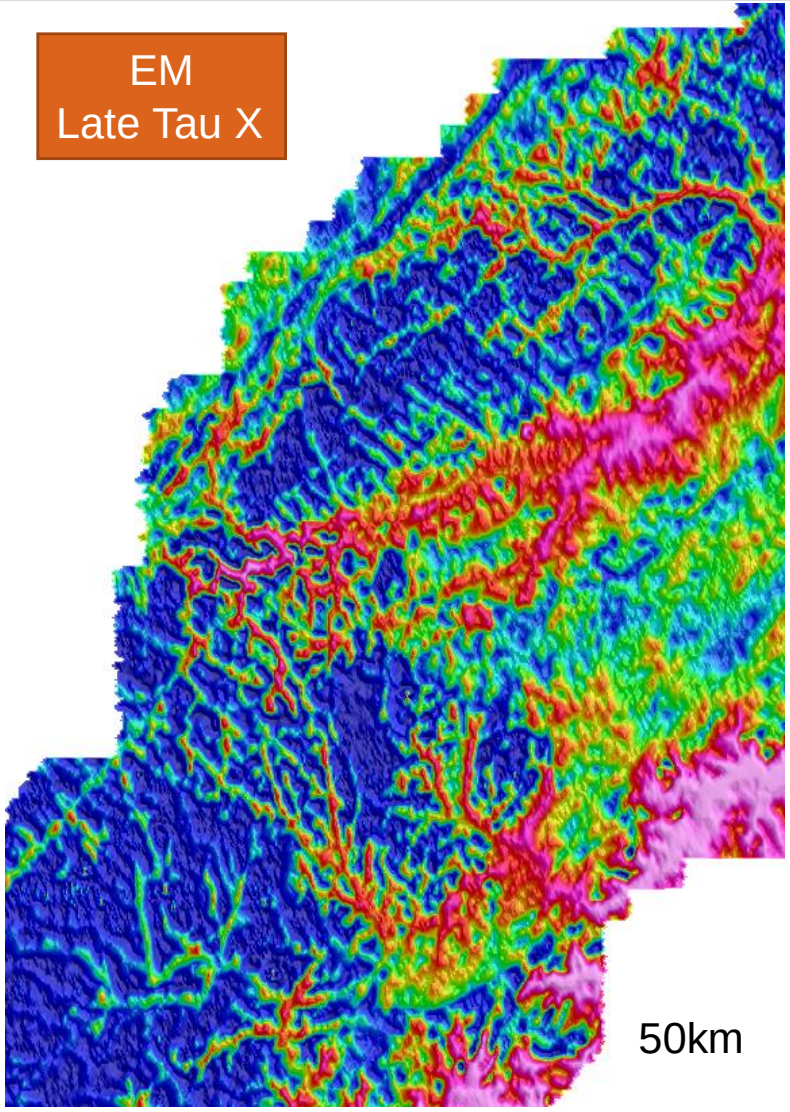




Survey Products

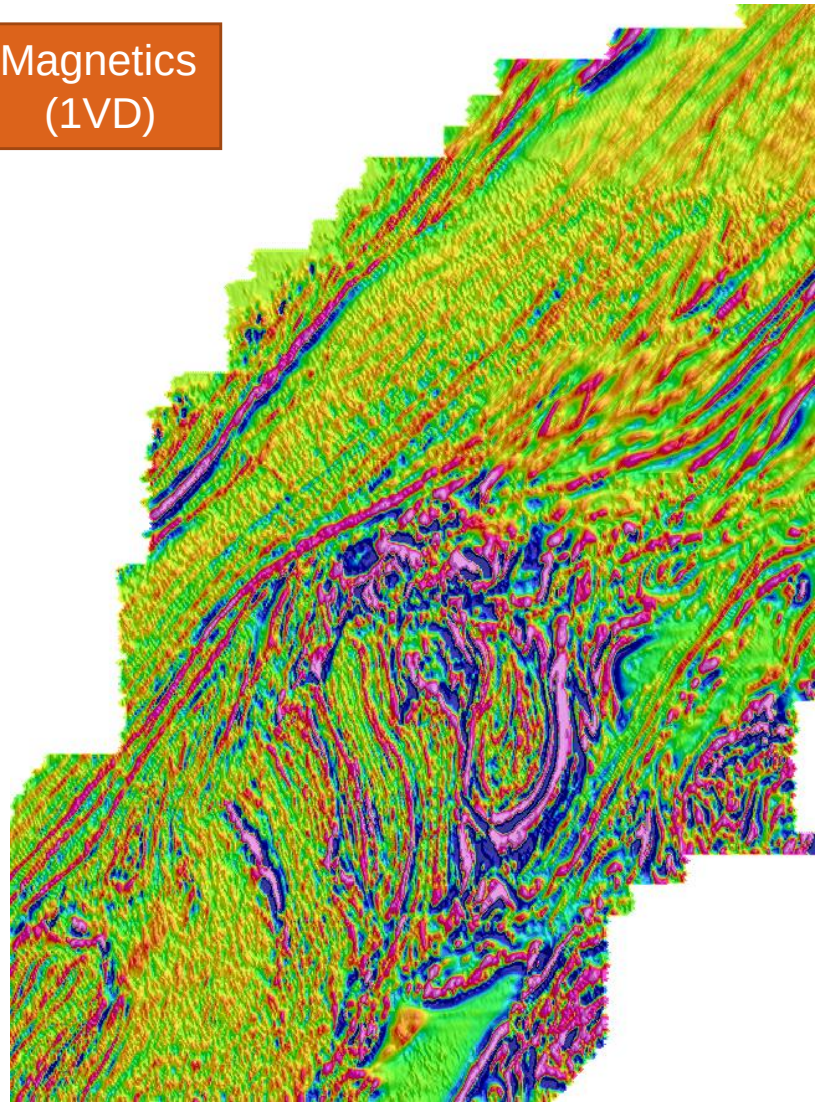
Multiple datasets- one platform

EM
Late Tau X



50km

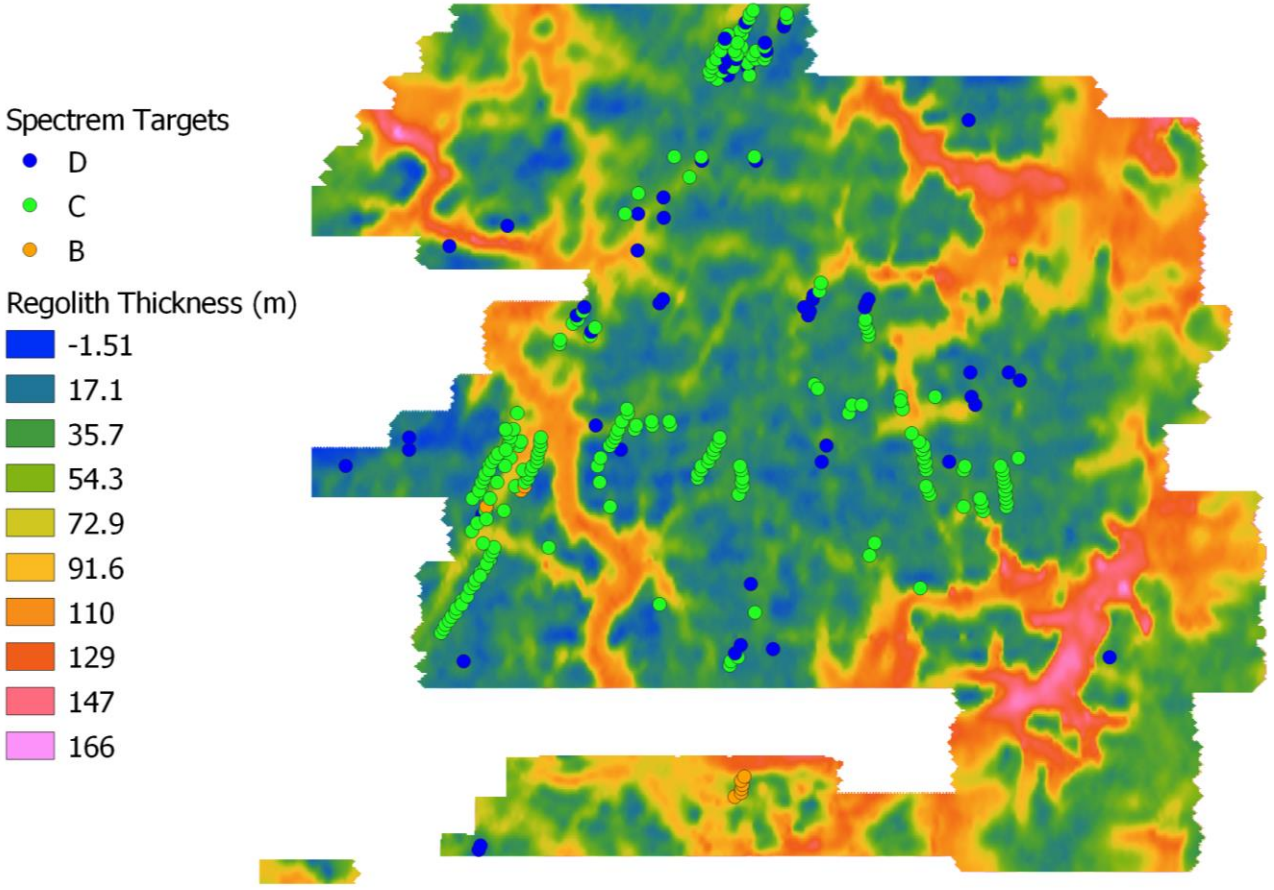
Magnetics
(1VD)



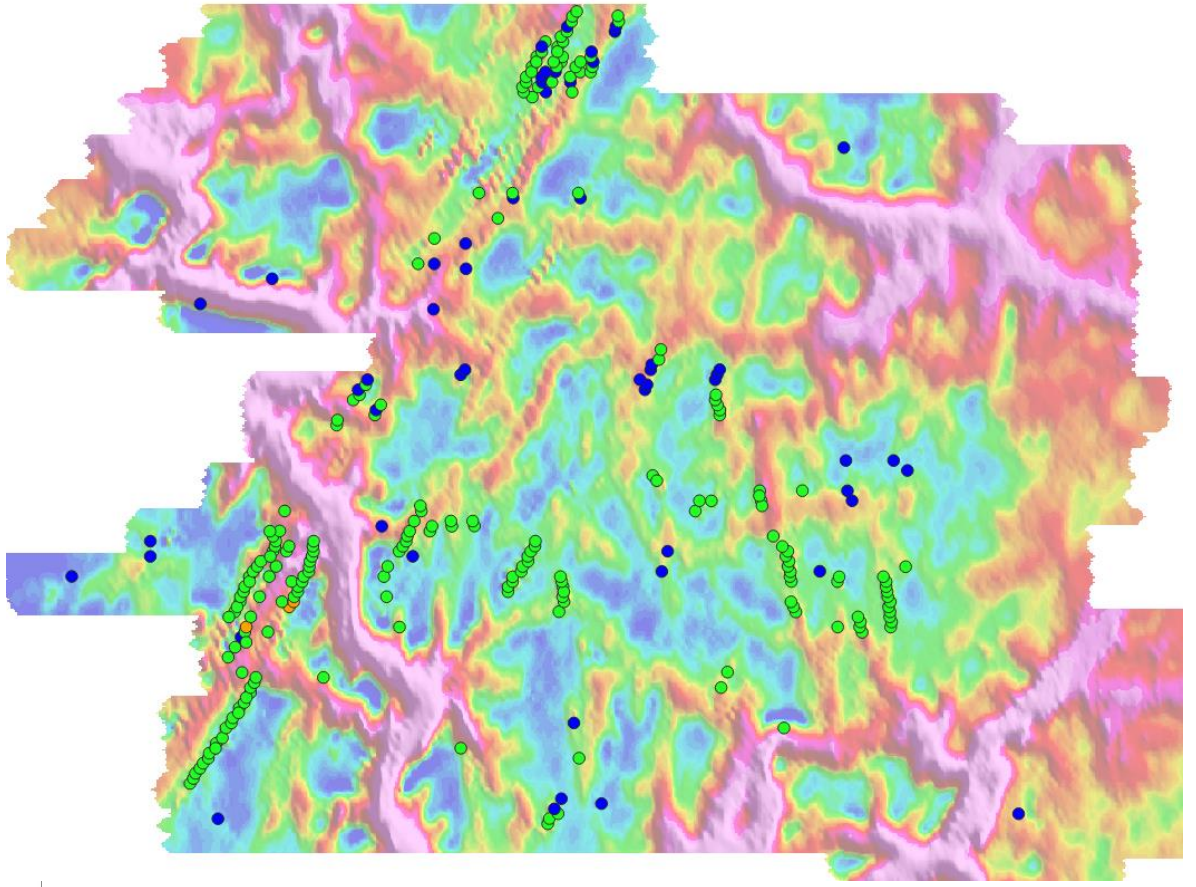
Radiometrics
(Ternary)

Interpretation Products

Regolith thickness and anomaly picks



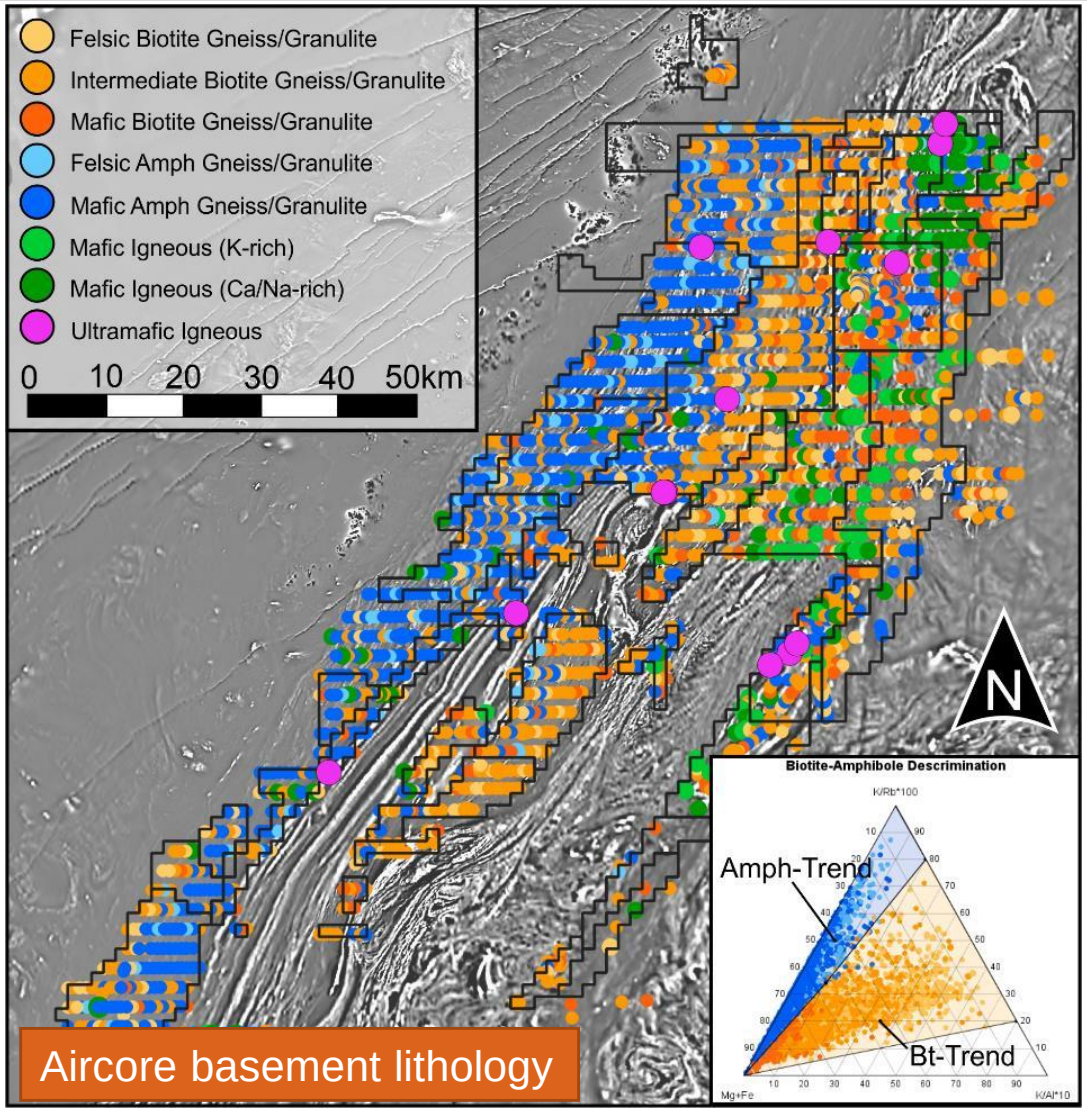
Interpreted regolith thickness



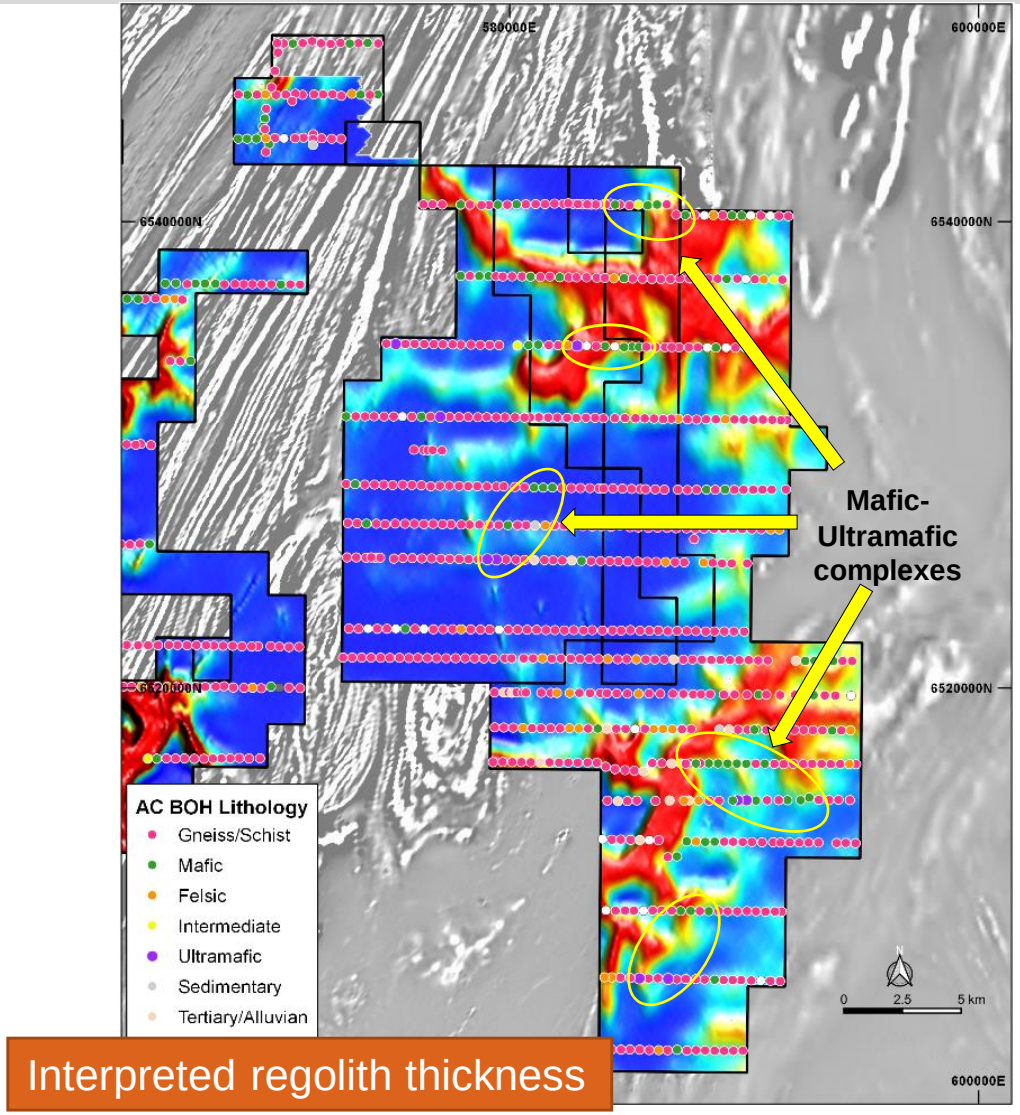
Anomaly picks overlying late-Tau Image

Integrated interpretation

Aircore drilling and Spectrem



Aircore basement lithology

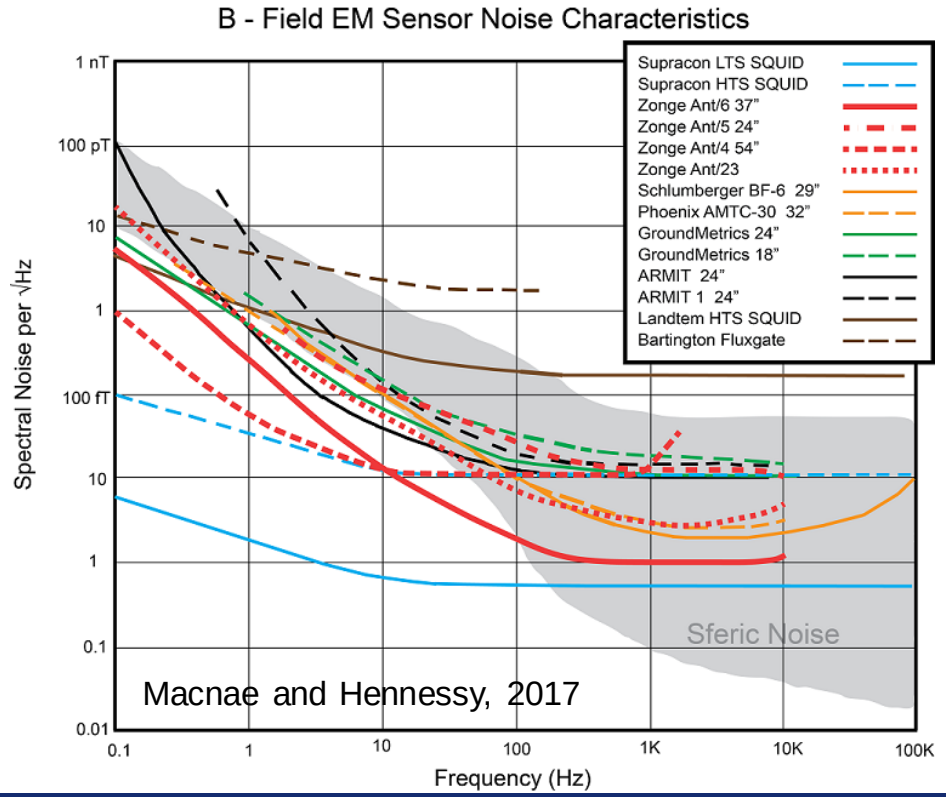


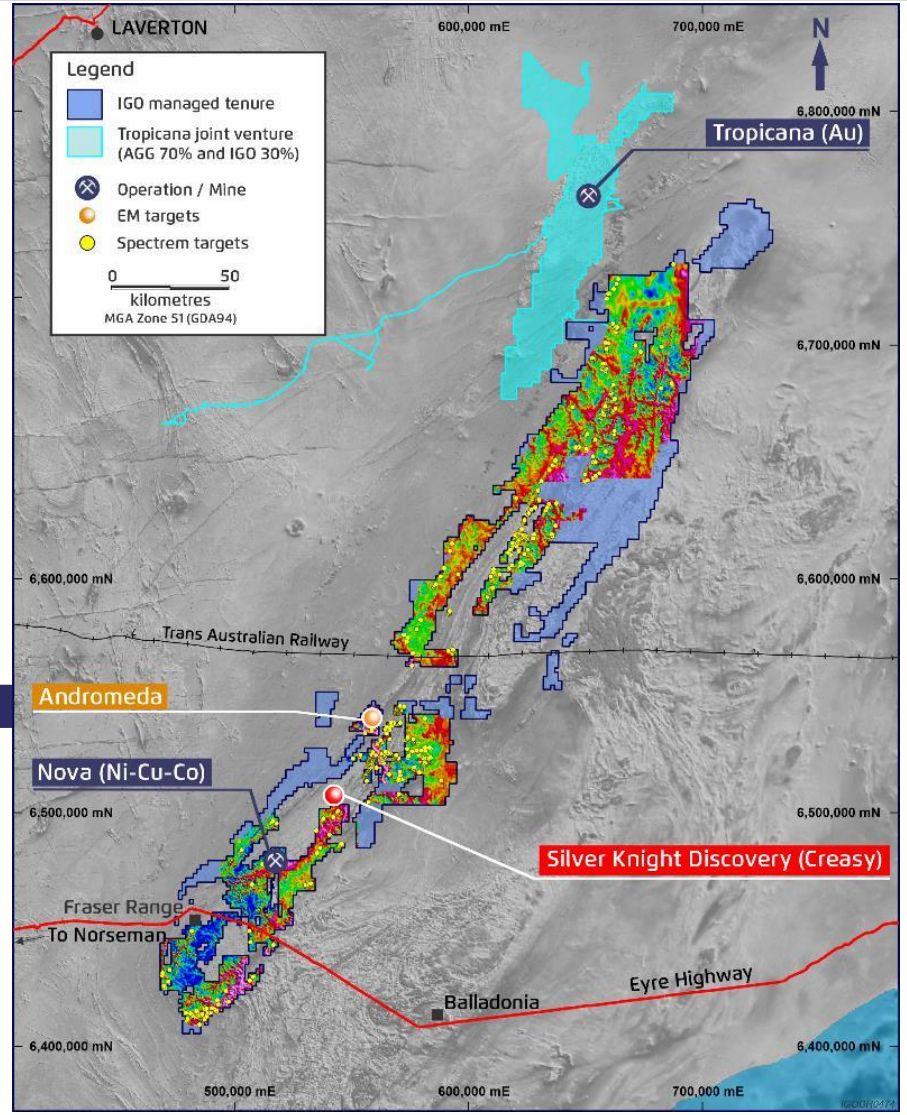
Interpreted regolith thickness

Regional Exploration

Ground MLEM surveys

- One LT SQUID and three HT SQUID sensors are following-up the Spectrem targets to test for drill-worthy EM conductors in Slingram MLEM configuration (400 x 400 and 200 x 200m)
- The SQUIDs can detect conductors to >600m beneath thick cover and >1200m in resistive areas





Ground EM Target size, depth and detection

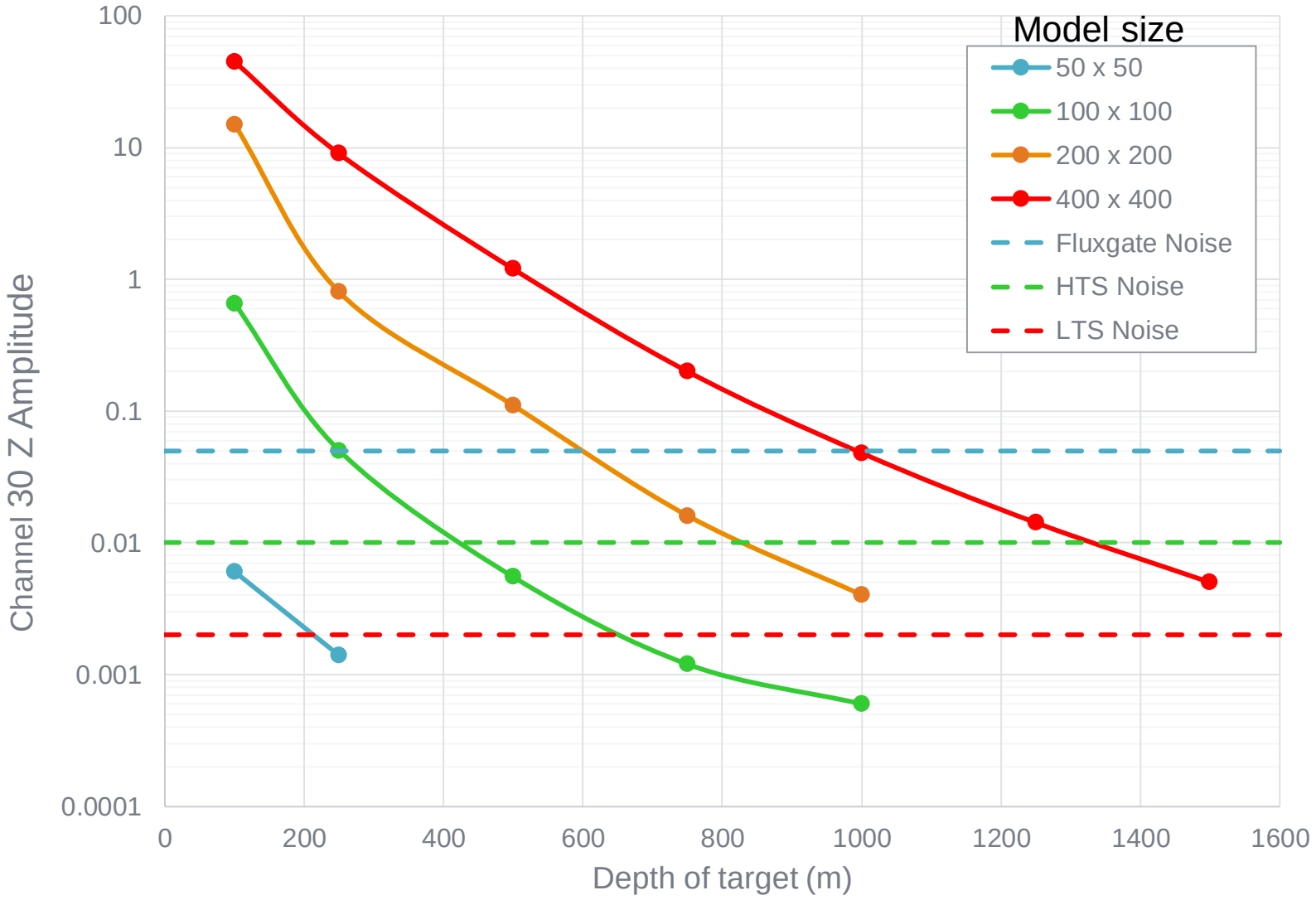
Forward models to assist geologists

Survey configuration

- 400 x 400m Slingram
- 0.167 Hz

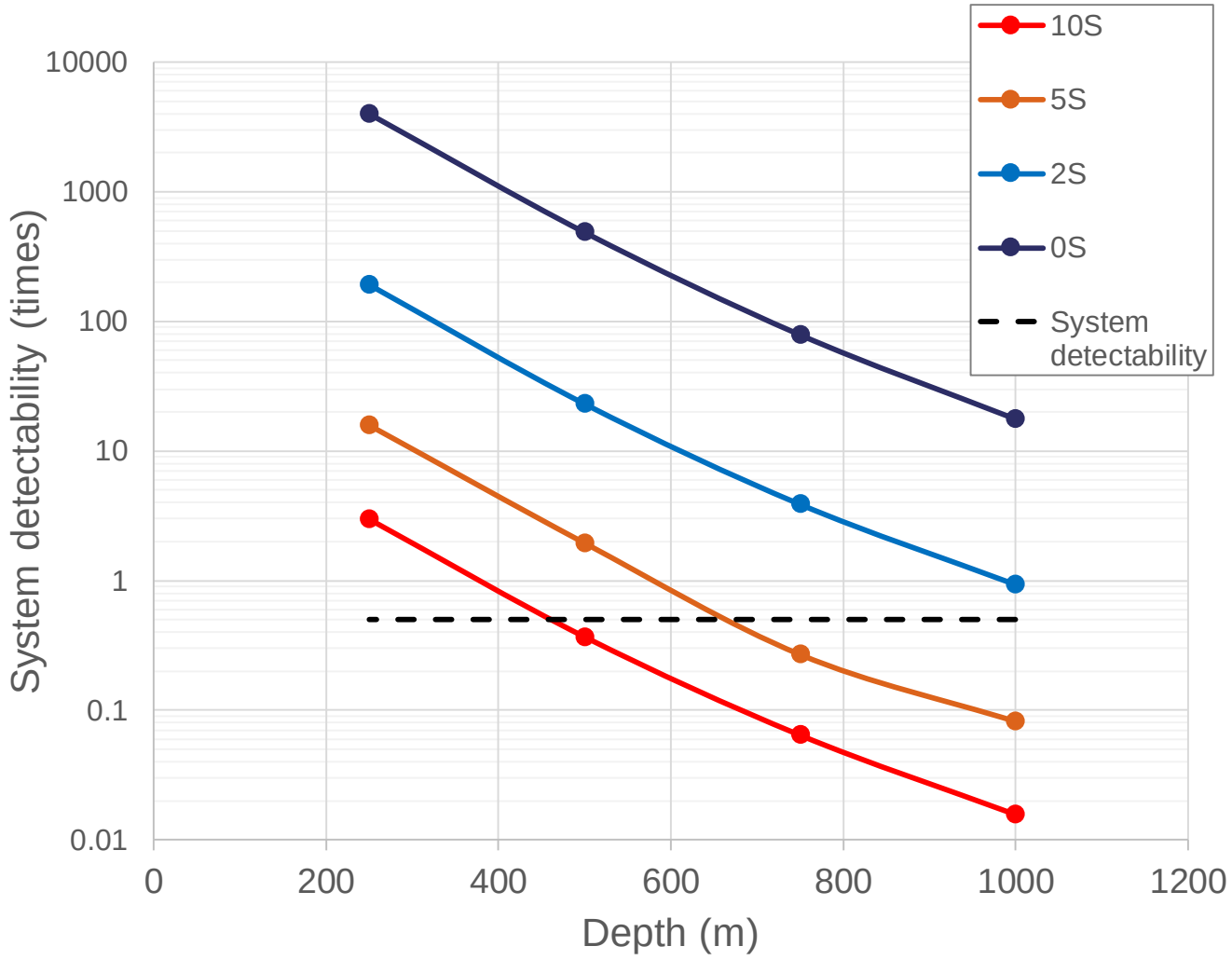
Target plate

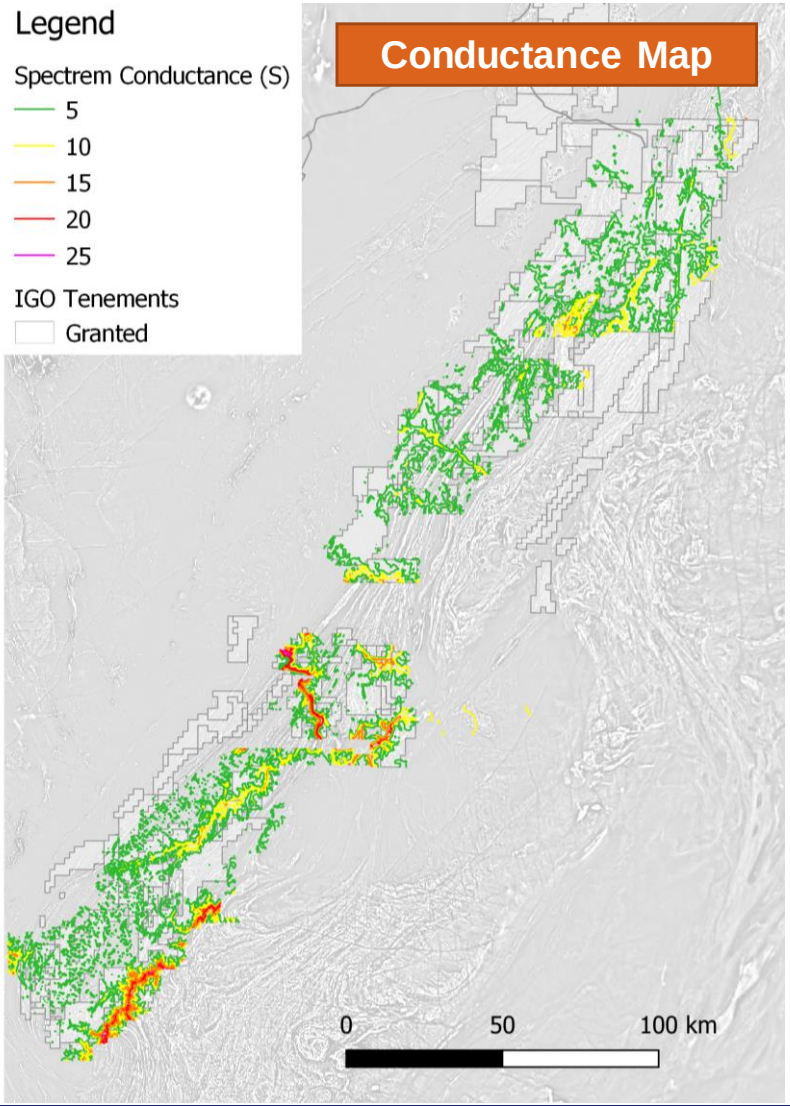
- 2000S
- Flat lying



Conductance of Regolith

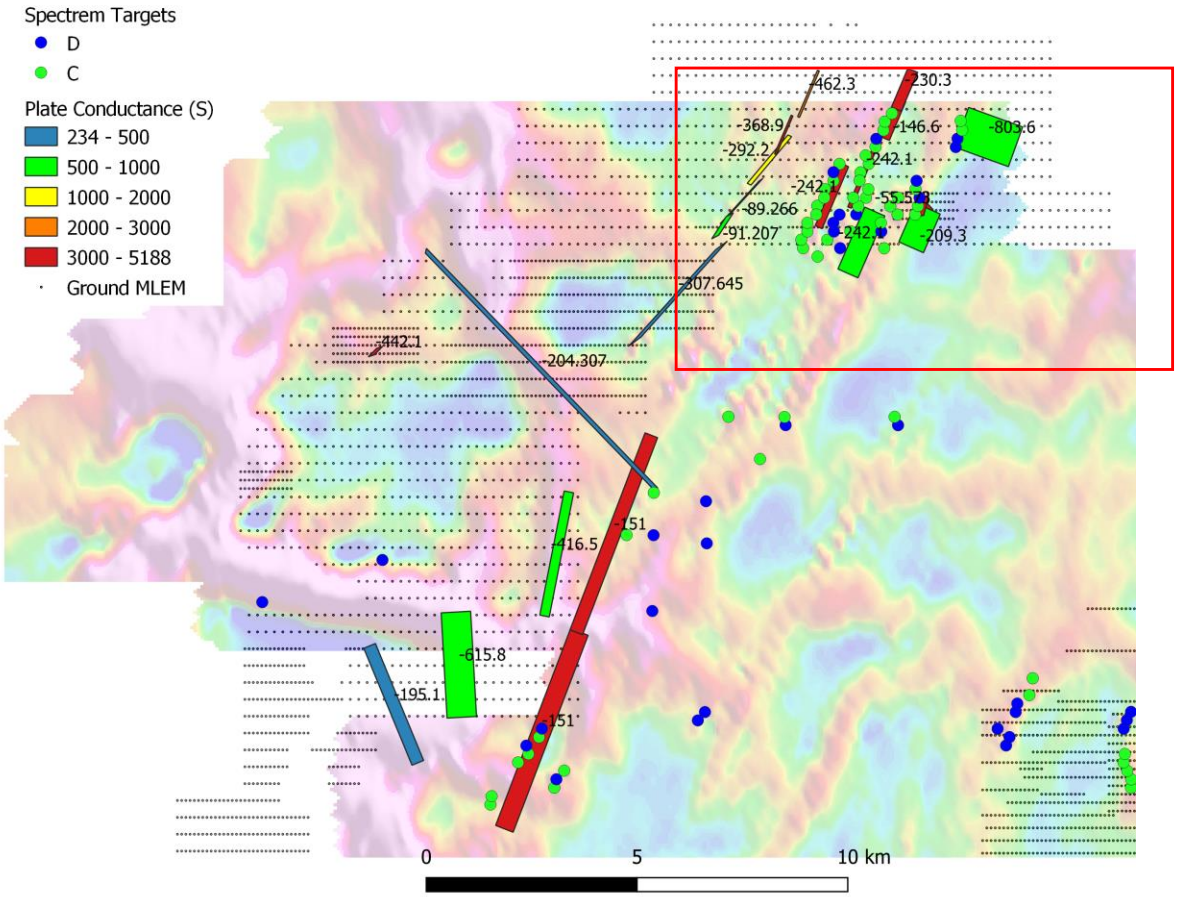
400 x 400m Plate 0.167 Hz Tx, 2000S horizontal plate model



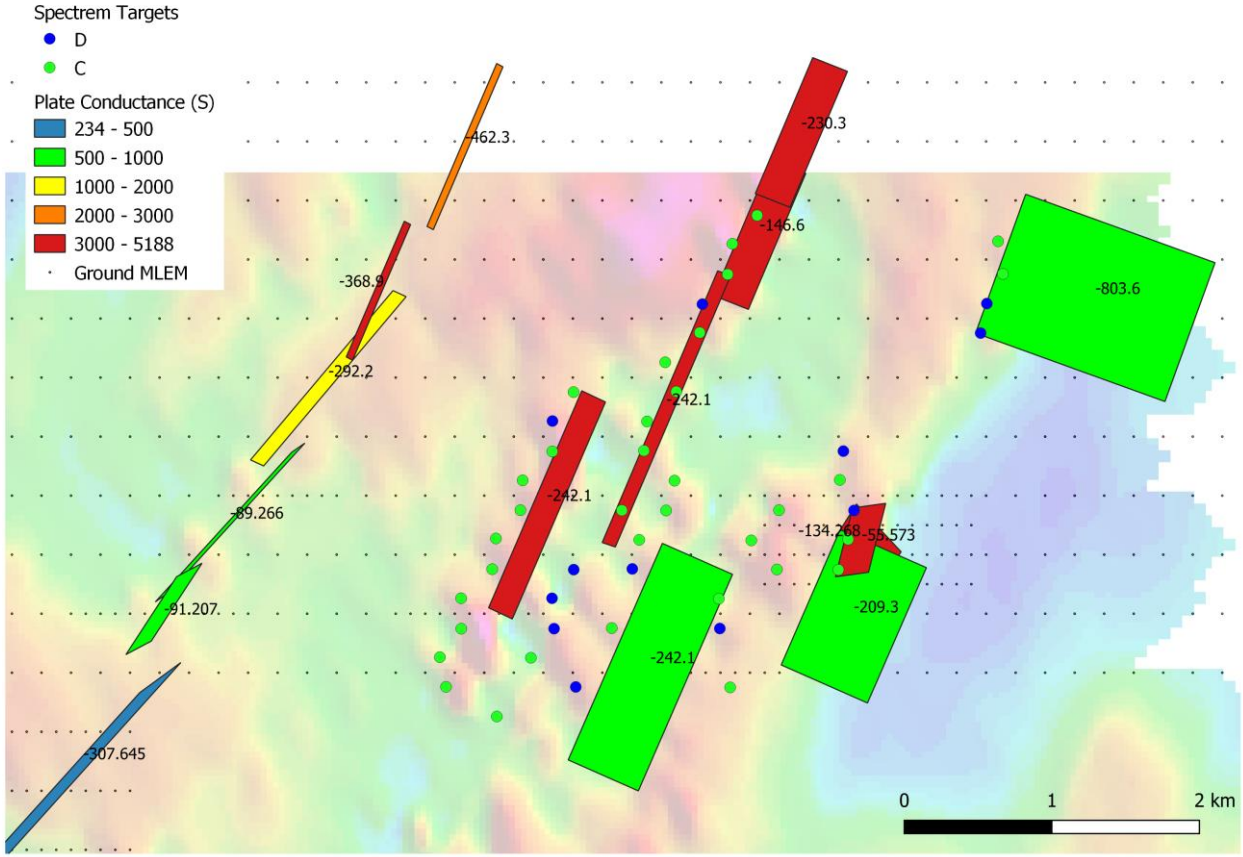


Reconciling AEM with Ground EM

Follow-up ground EM confirms geometry and conductance of targets



Spectrem Late Tau X image

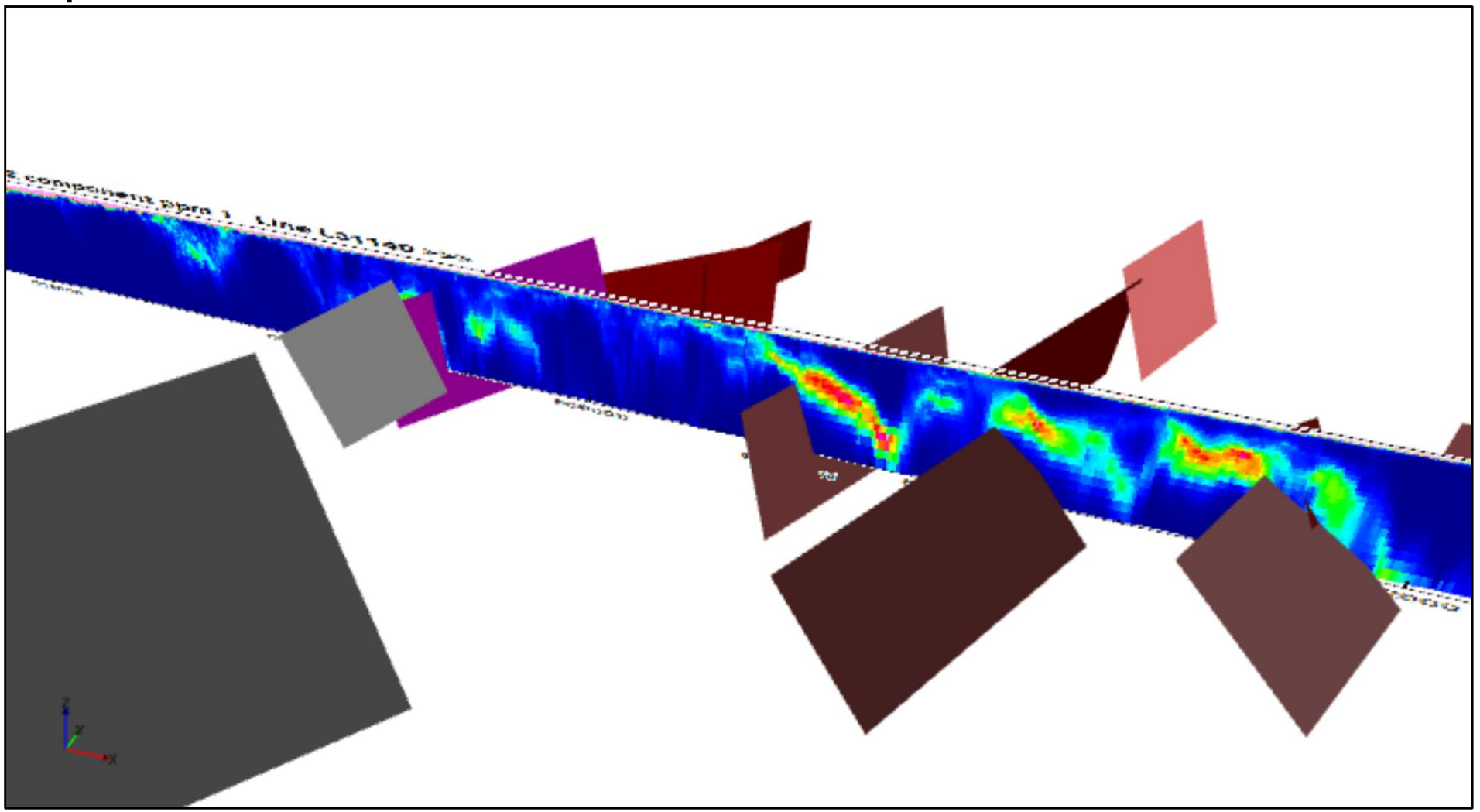


Spectrem Late Tau X image

Wooley Section

3D View of GALEI section and Ground EM plates

3D Map

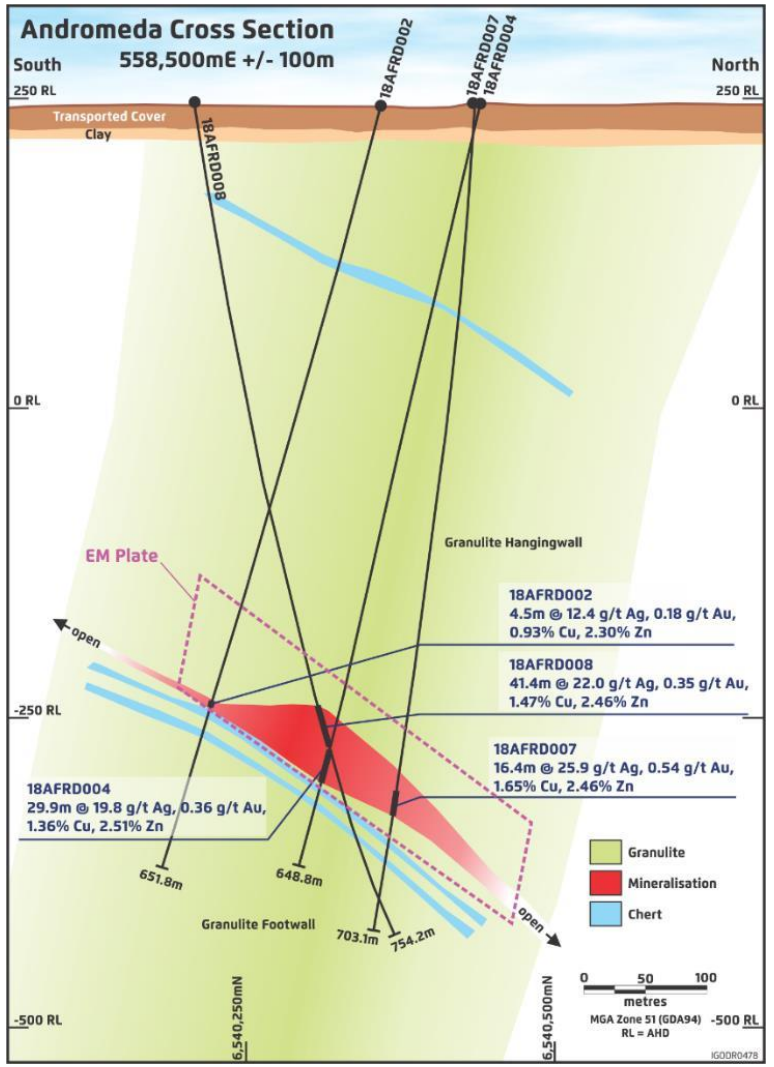


Fraser Range

Andromeda Discovery

- Four diamond drill holes completed with DHEM
- DHEM indicates massive sulphide conductor is open in three directions and may extend 100m (the limit of DHEM) in any direction
- Assay results include:

Hole ID	From (m)	To (m)	Width (m)	Cu %	Zn %	Au ppm	Ag ppm
18AFRD002[1]	510.50	515.00	4.5	0.93	2.30	0.18	12.4
18AFRD004[1]	548.10	578.00	**29.90**	**1.36**	**2.51**	**0.36**	**19.8**
18AFRD007 upper[1]	539.06	542.69	3.63	2.06	2.25	0.67	32.2
18AFRD007 main[1]	547.61	564.00	**16.39**	**1.65**	**2.46**	**0.54**	**25.9**
18AFRD008 #1[1]	435.02	438.54	3.52	2.51	2.32	0.38	31.6
18AFRD008 #2[1]	499.57	504.24	4.67	0.63	1.92	0.38	12.1
18AFRD008 #3[1]	531.18	572.54	41.36	1.47	2.46	0.35	22.0
18AFRD008 #4[1]	576.70	584.55	7.85	0.77	2.11	0.68	13.3



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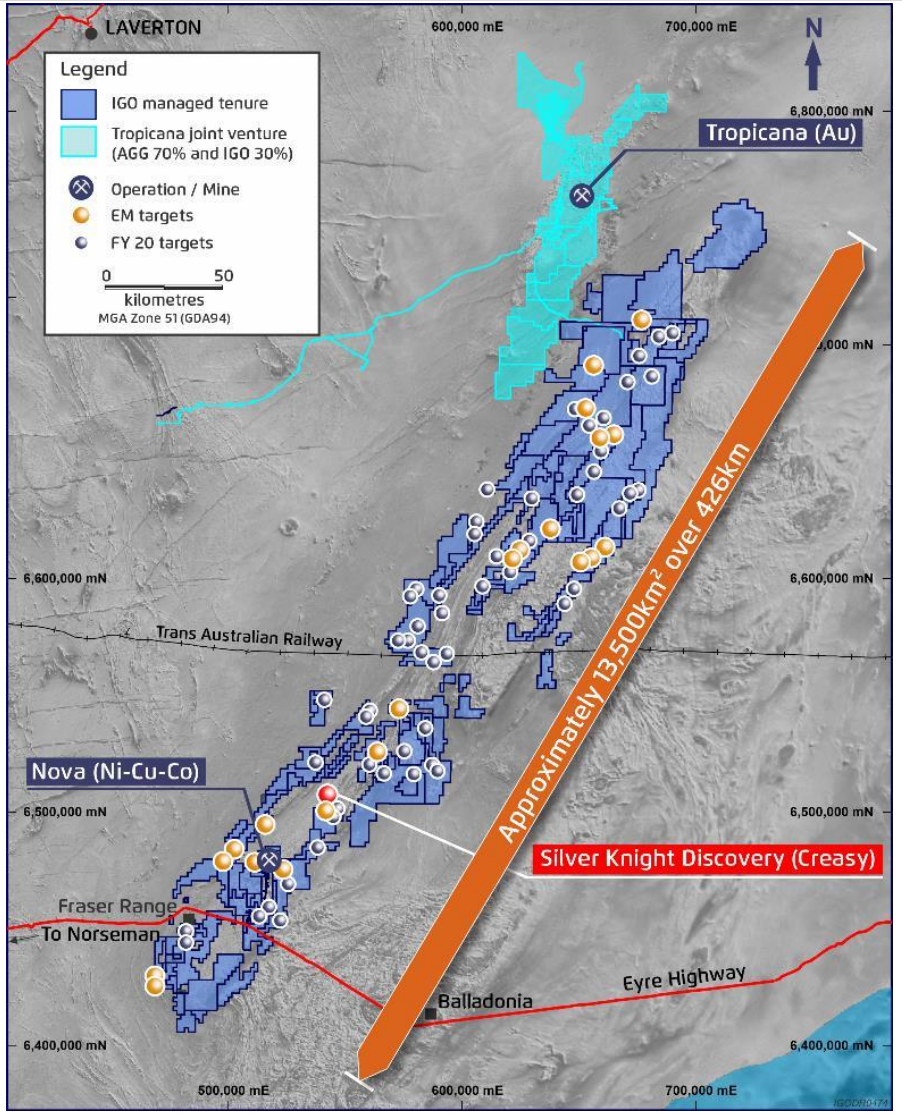
Conclusions

Strategic electromagnetic geophysical prospecting across a belt

- Use of geophysical technologies is a key component of exploration
- Successful application of regional airborne EM and aircore geochemical programme for identifying prospective areas and targets
- Ground EM utilising SQUID's is providing drill-ready targets to maximum depth of penetration
- Future developments include upgrading EM systems to increase their effectiveness and efficiencies



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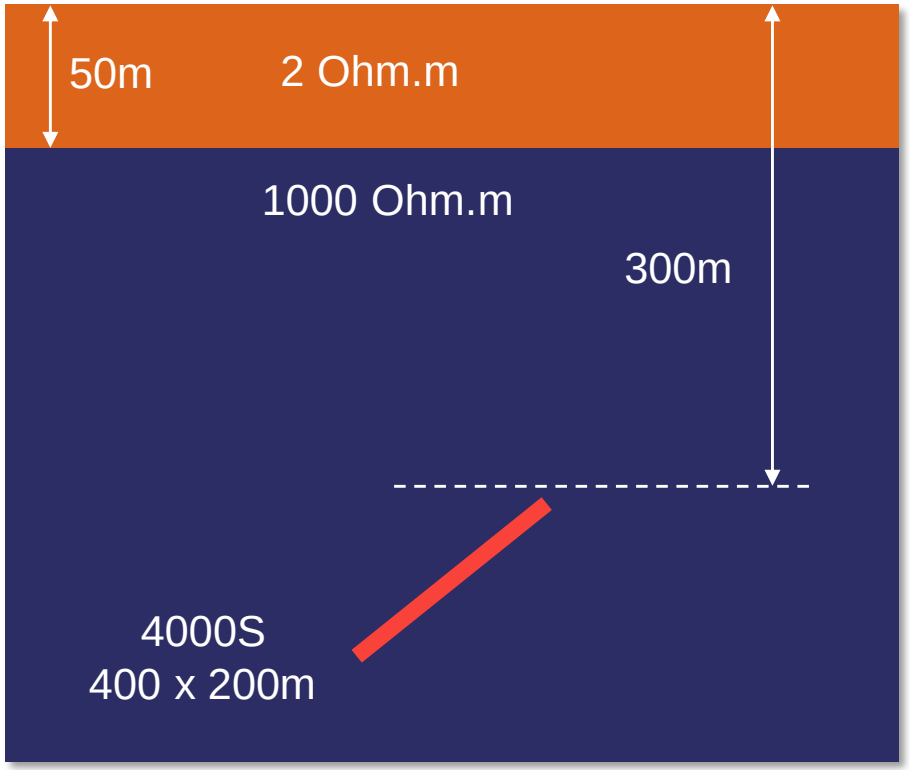
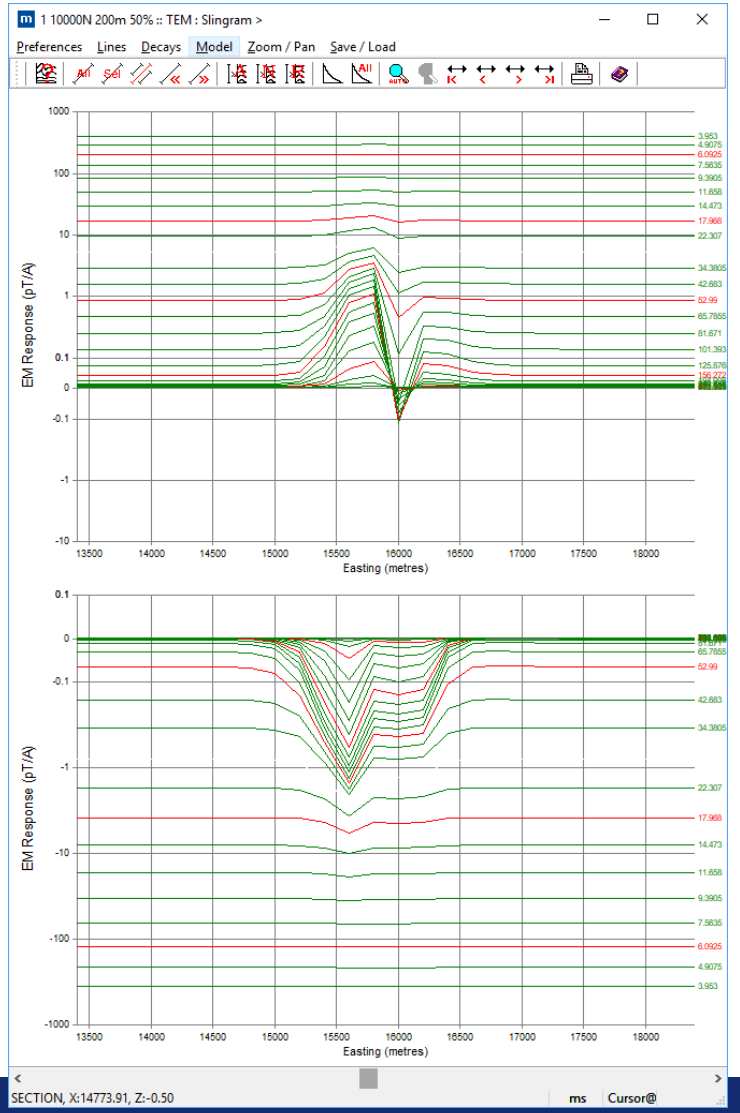
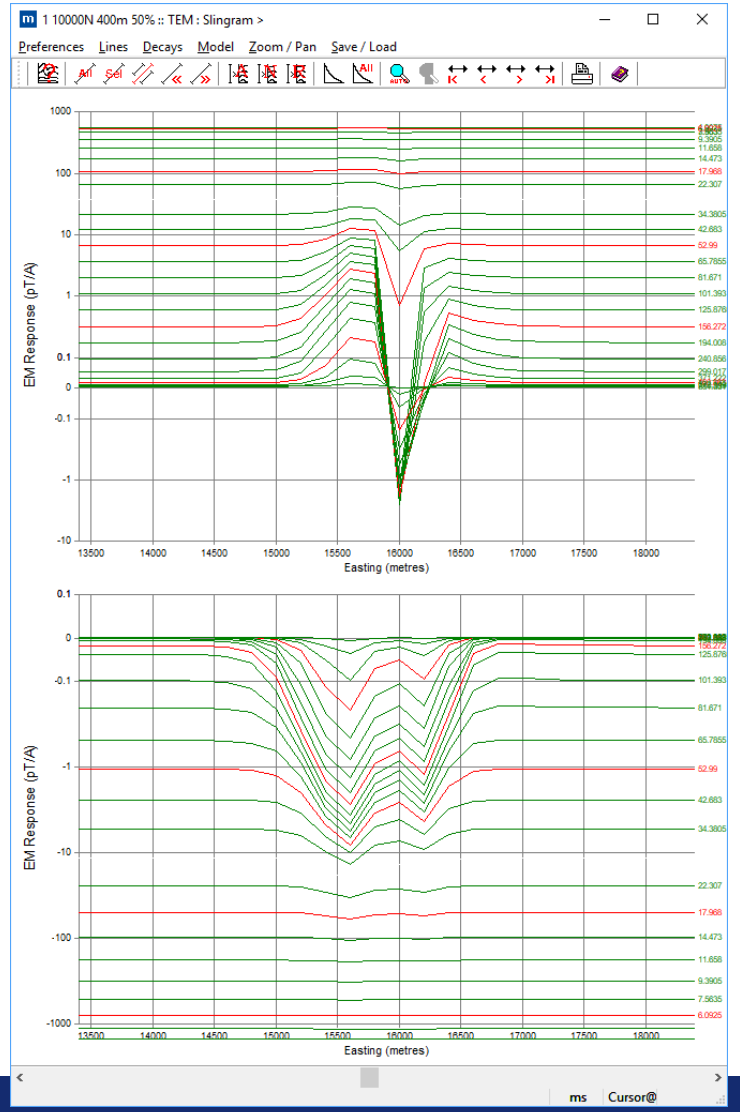
New transmitter development

Rationale- Increase moment to 400 x 400m x 100 Amp for 200m loop







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