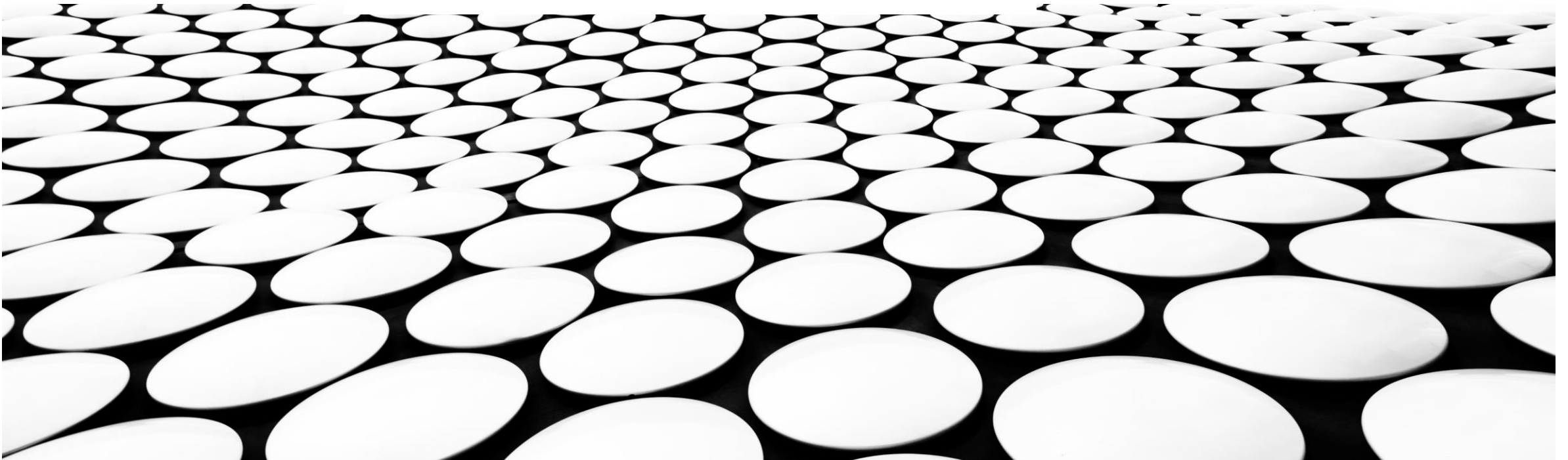


SATELLITE SPECTRAL SURVEYS & ANALYSIS



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Satellite Spectral Surveys:

- Reduce the exploration footprint by delineating target areas for focused exploration.
- Are eco friendly, remote, inexpensive, non-invasive surveys from space requiring no “on-site” or “on-ground” participation thereby reducing the carbon footprint.
- Are designed for mineral exploration to be specific to the mineral/metal sought and utilize various data interpretation techniques to define geographic areas for detailed follow up ground exploration.
- Typically, in a 3,500 square kilometre survey area, the mineral target areas defined by the survey comprise only 10% to 20% of a survey area.

TYPES OF SATELLITE SURVEYS

Short Wave InfraRed (SWIR)

Areas of No Vegetation: Desert; Arctic; Andes

Covered: Forests; Jungle; Glacial Overburden

Long Wave InfraRed (LWIR)

SPECTRAL SURVEY USES – MINERAL; OIL & GAS EXPLORATION

- Base Metals; Copper, Lead, Zinc, Nickel, Vanadium, Iron etc.
- Precious Metals: Gold, Silver
- Industrial Metals/Minerals: REE's; Uranium; Vermiculite: Lithium
- Industrial gasses: Helium: Hydrogen; Methane: Ethane etc.
- Gems: Diamonds – Kimberlites; Emeralds (Beryl)
- Coal & Graphite
- Oil and Gas – Oil & Gas seepages; Biogenic Alteration Minerals



SPECTRAL SURVEY SPECIFICS - SUMMARY

- Each Satellite Tile covers approx. 3,600 sq kms
- The 16 most common spectral endmembers present in the survey area are collected and minerals identified from their LWIR/SWIR spectra using the John Hopkins; USGS; CSIRO and other databases
- Target Vector Minerals (TVM's) are identified for the commodity(ies) sought in the survey tile area.
- Commodity specific TVM Overlap maps are produced and target areas outlined for selected areas within the tile.
- If 3 or more of the Metallic LWIR endmember minerals are identified (e.g. pyrite, sphalerite, goethite, pyrrhotite etc.) then a Metallic TVM Overlap map is produced for selected areas. (Metallic minerals are common in or adjacent to orebodies).
- If mines, mineral deposits, mineral occurrences are present in the tile area then a Quadratic Discriminant Function Classifier (QDFC) and/or Linear Discriminant Function Classifier (LDFC) target maps are produced for specific commodity and/or mineral deposit(s), termed "Spectral Fingerprinting". This is based on the spectral response over selected mines/deposits used to train the computer (artificial intelligence) to produce targets in the tile area having the same spectral fingerprint as the trainer mine(s)/deposit(s).
- If required, SWIR surveys specifically for gases are conducted e.g Helium for uranium; Ethane for oil & gas; Methane for Mississippi Valley Lead-Zinc Deposits (MVZ)
- Testing a new product: Thermal Inertia on areas within 200 kilometres of the Lithosphere Asthenosphere Boundary (LAB) for IOCG, Base Metal Sediment Hosted deposits,

Note: The warmer the colour of the maps, the higher the abundance of the mineral (Tifs); greater the number of minerals overlapping (TVM's); or greater the correlation to a fingerprinted mineral deposit (QDFC/LDFC)



ASTER FUNDS LTD CASE HISTORIES



1. AUSTRALIA – WINU COPPER

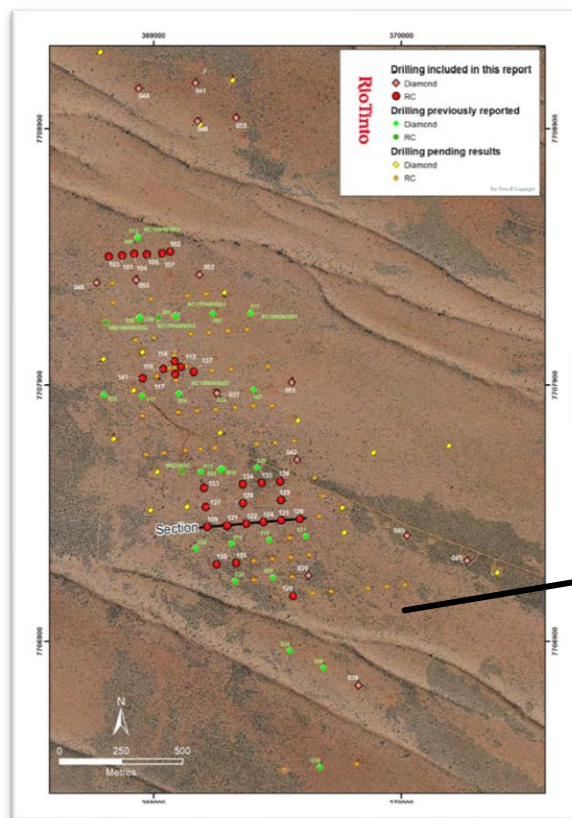
2. CANADA – GOUDREAU GOLD CAMP

3. CANADA – VERMICULITE

4. MIDDLE EAST – ETHANE

1. Winu, a copper- gold deposit with in situ resource of 1.8 million tonnes of copper (+ gold) discovered by RTZ in late summer 2019. A LWIR spectral survey outlined the possible extent of the mineralization (April 2020) based on individual LWIR endmember minerals and TVM Overlap Mapping. AFL also outlined three other copper-gold target areas adjacent to Winu. Thermal Inertia survey returned a TI Anomaly over Winu.
2. Goudreau Gold Camp – home to numerous gold deposits & mines - Alamos Gold: Island Gold with a gold resource and reserves of 4.5+ million ounces; Argonaut Gold: Magino open pit – gold resource of 3+ million ounces. LWIR Gold & Metallic TVM Overlap mapping outlined the gold deposits in the area. LWIR gold QDFC & LDFC fingerprinting of the deposits was successfully used to locate other similar gold deposits in the Camp and elsewhere in the survey area.
3. Southern Ontario – Vermiculite - SWIR survey including vegetation used for LDFC Fingerprint mapping for vermiculite (October 2021) and confirmed by trenching in November 2021
4. Middle East – Mapping Volatile Hydrocarbon and Noble gasses from space to determine; oil & gas well locator, buried pipeline leaks, outline plus oil & gas exploration targets by mapping gas seepages and biogenic alteration minerals over shallow and deep oil/gas deposits.

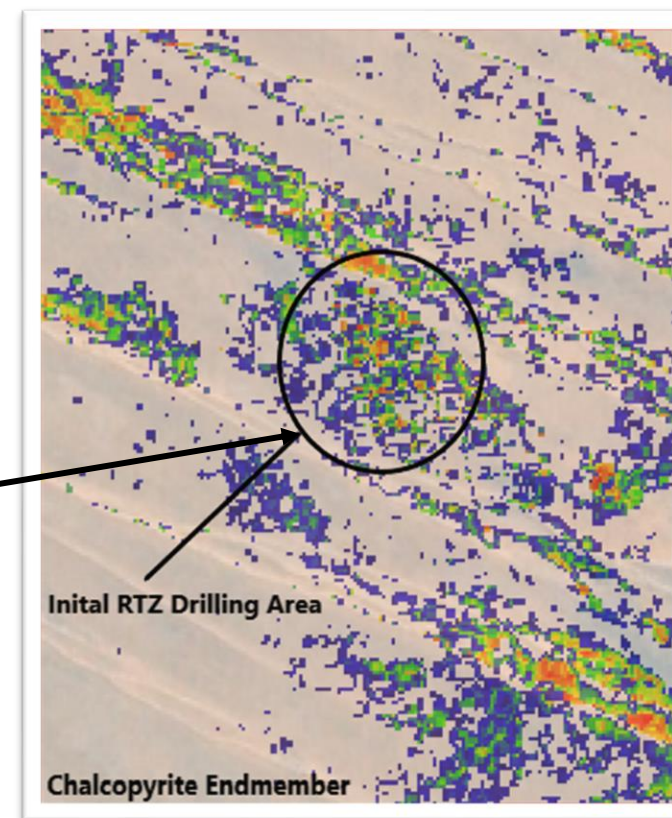
WINU COPPER-GOLD DEPOSIT, WESTERN AUSTRALIA (1.8 MILLION TONNES COPPER)



Initial RTZ drilling at WINU.

Aster Funds commenced a LWIR spectral survey (April 2020) over a 30 sq km area centred on the initial RTZ drilling area. The LWIR Spectral survey identified Chalcopyrite & 15 other minerals.

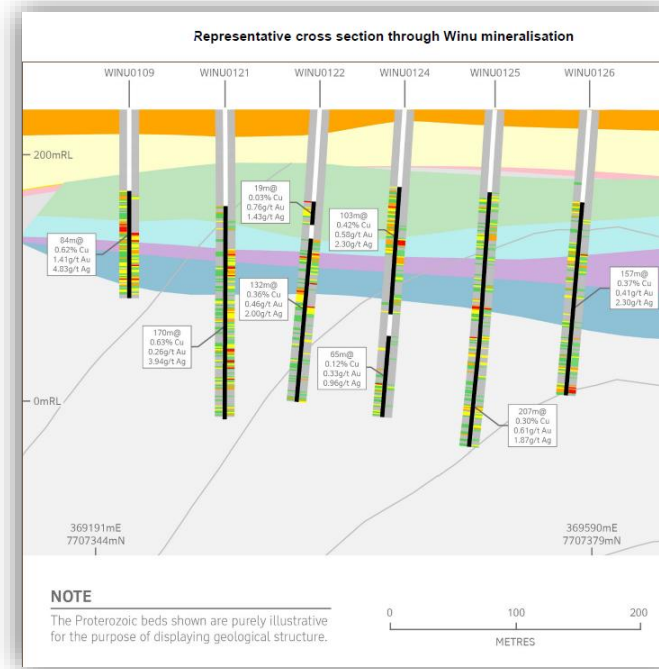
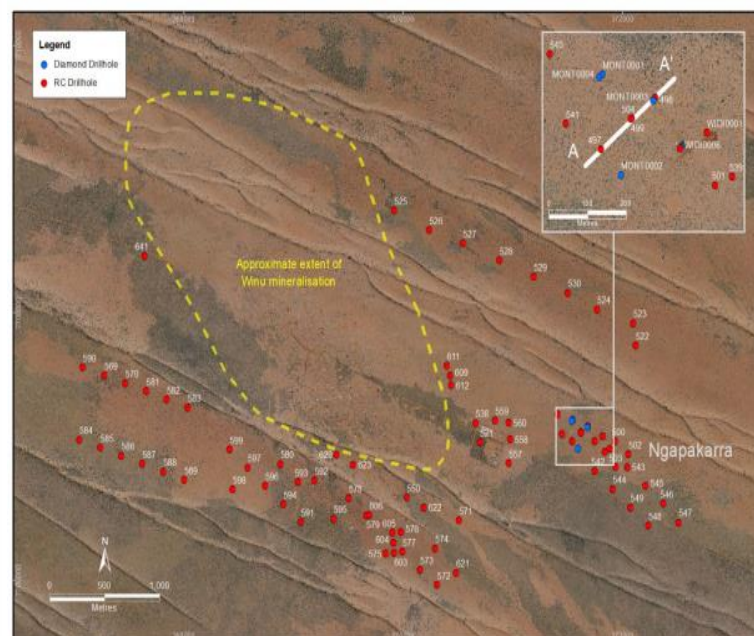
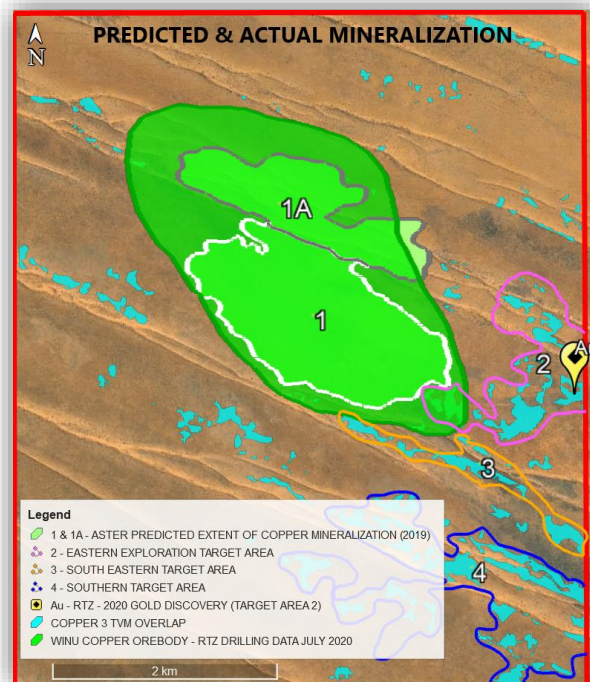
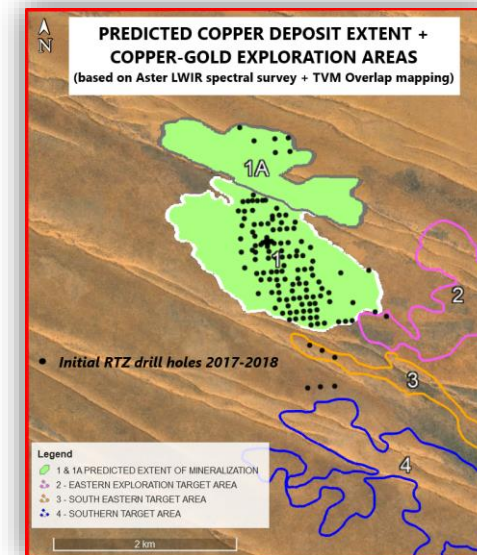
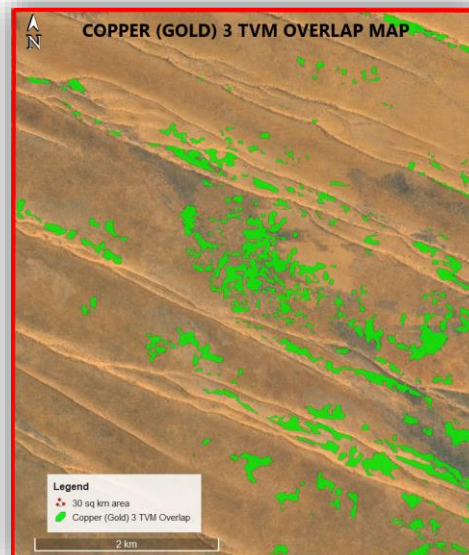
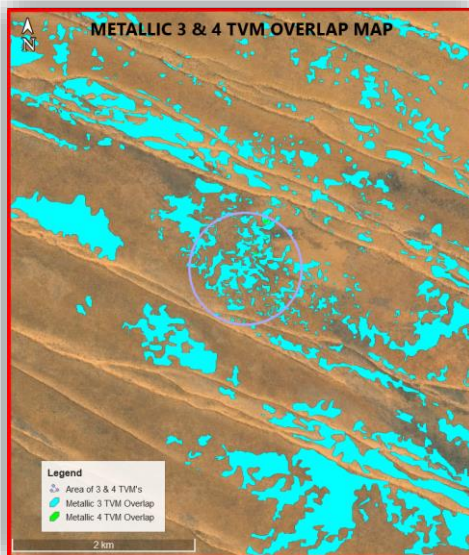
Mineralization is covered by 60 - 100 metres of sand & sandstone.



RTZ Drill holes – August 2019

LWIR abundance map for Chalcopyrite





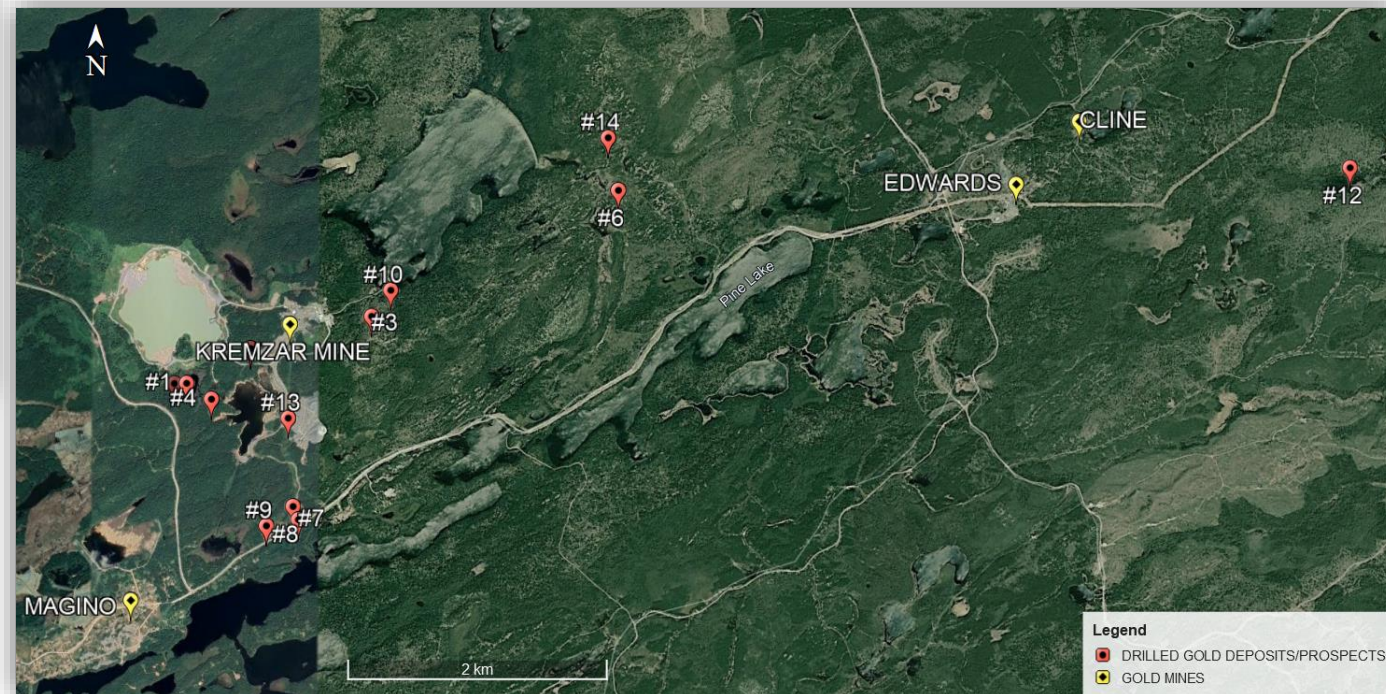
A LWIR SPECTRAL STUDY: TVM OVERLAP & GOLD QDFC/LDFC FINGERPRINT MAPPING – GOUDREAU GOLD CAMP, ONTARIO, CANADA.



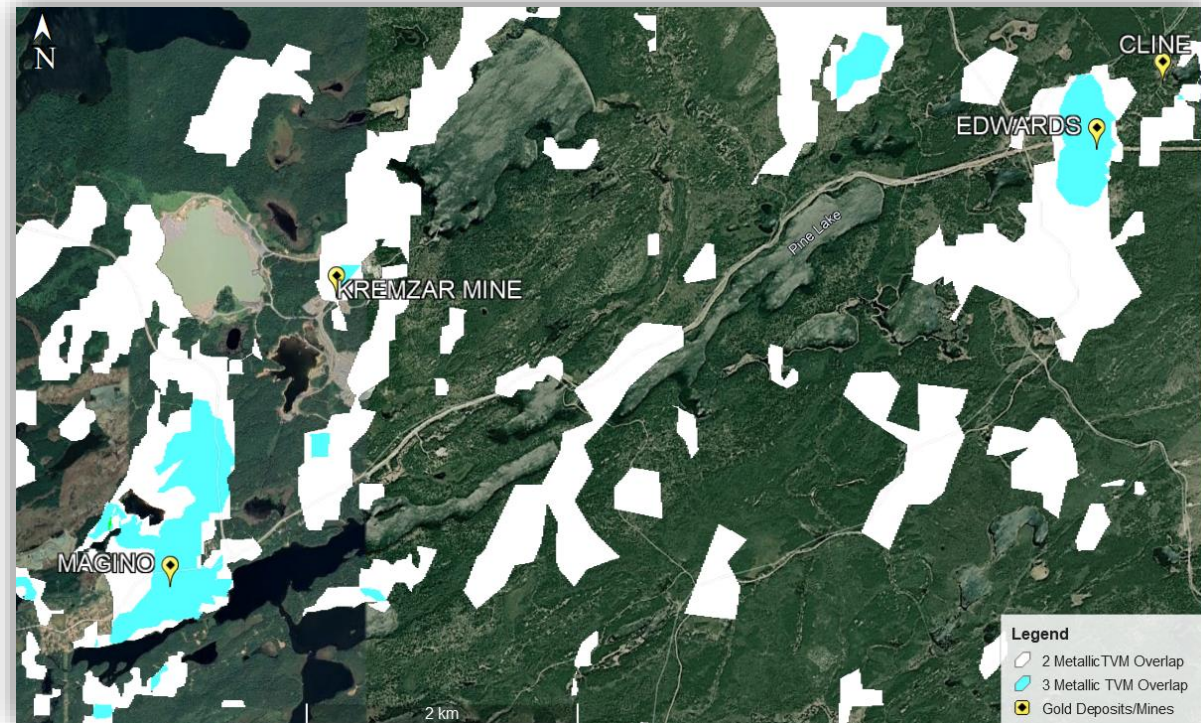
FOUR MAIN GOLD DEPOSITS/MINES

NOTE: The Island Gold Mine is not shown as the deposit lies under the lake east of the Magino mine –there is no spectral response from water. The glacial overburden is <15m in the area.

FOURTEEN DRILLED GOLD PROSPECTS/DEPOSITS

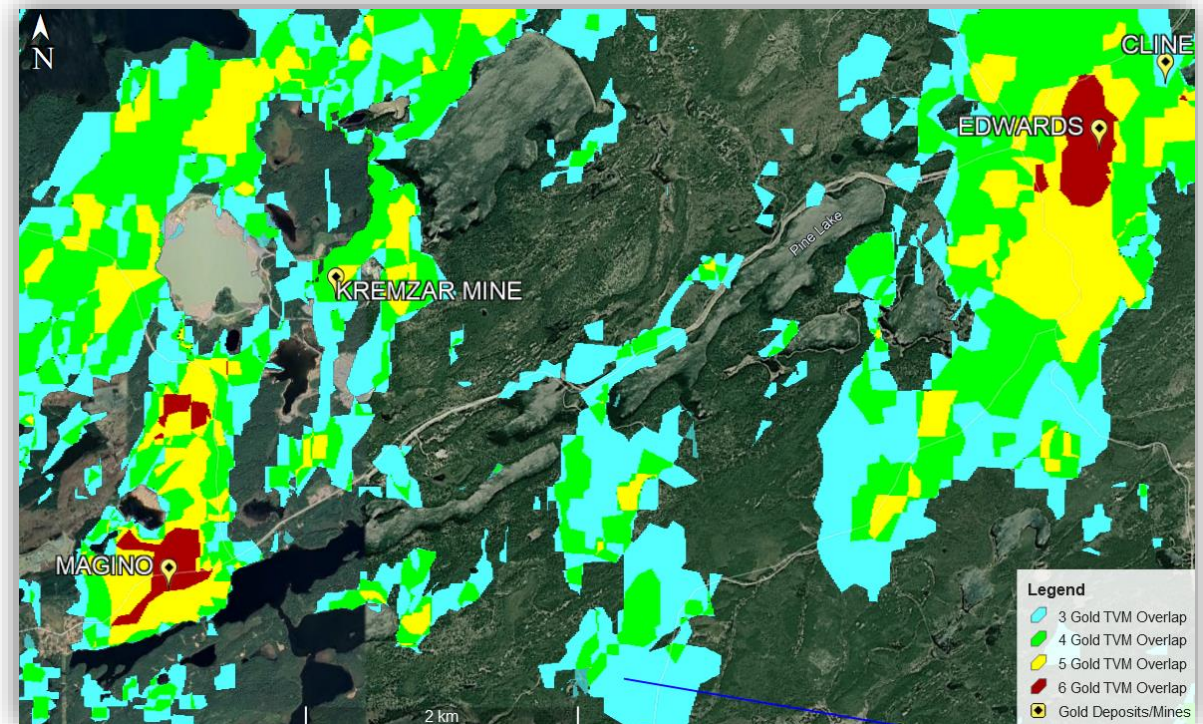


LWIR METALLIC & GOLD TVM OVERLAP MAPS

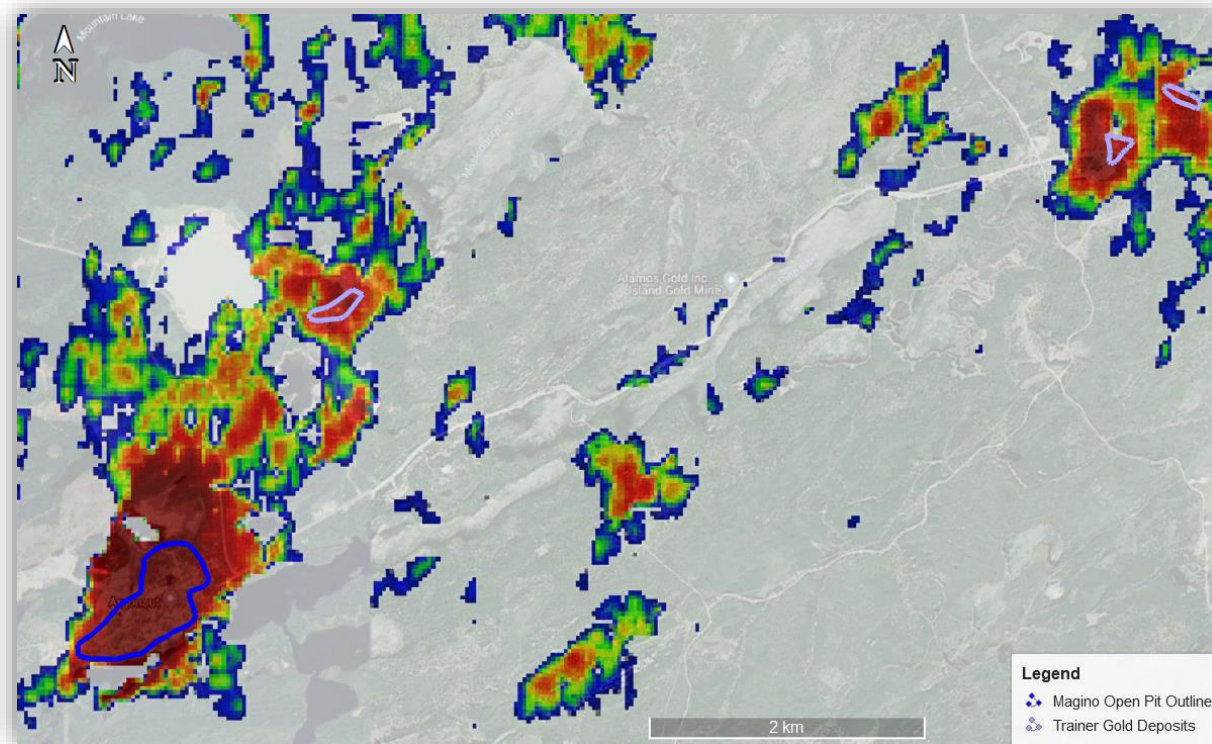


FOUR METALLIC MINERALS IDENTIFIED IN THE 7,000 SQ KM SURVEY AREA . METALLIC TVM OVERLAP MAPPING CORRELATES WELL TO the KNOWN GOLD DEPOSITS.

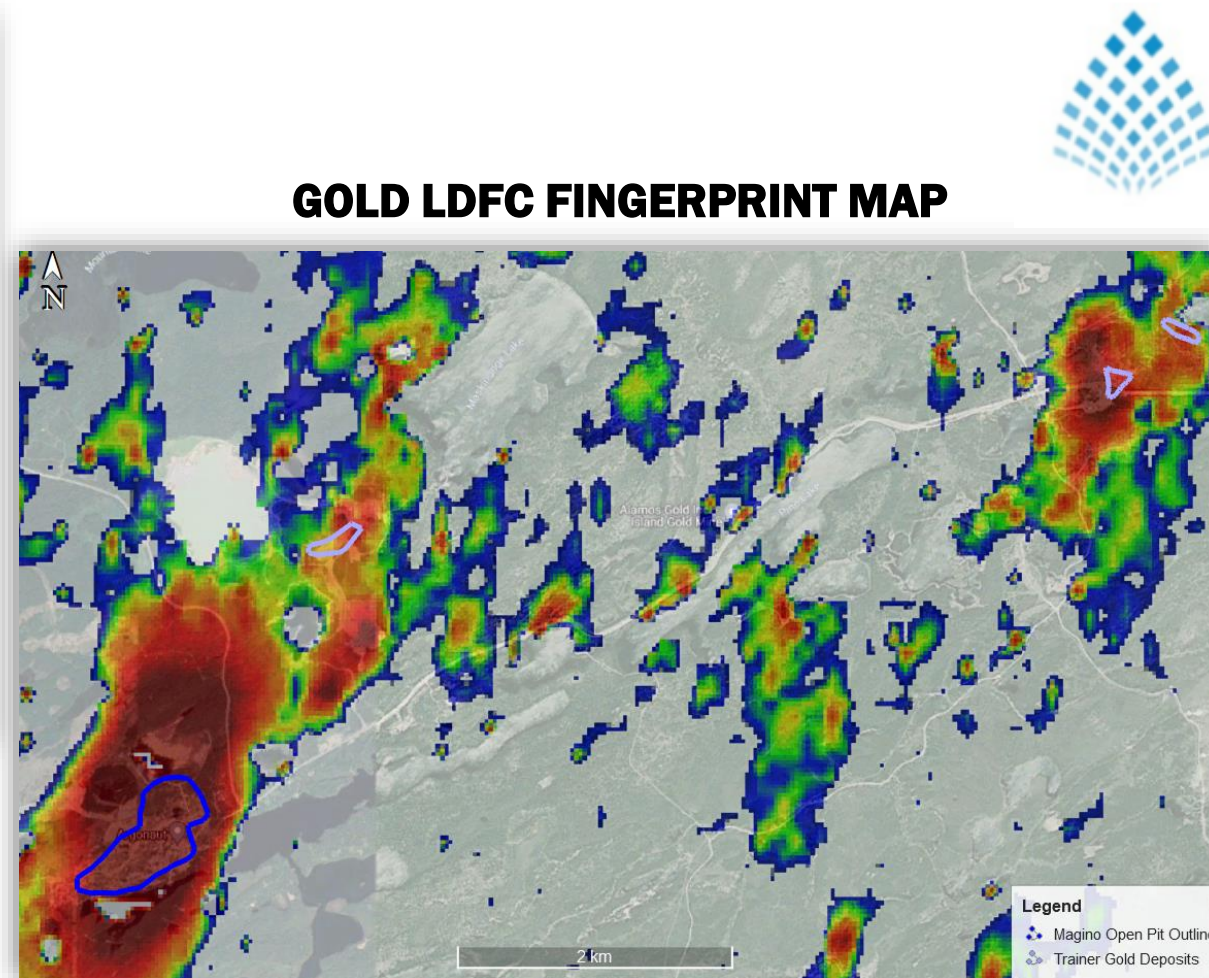
THE LWIR SURVEY IDENTIFIED SIX GOLD TARGET VECTOR MINERALS (TVM's) BASED ON THE SPATIAL ASSOCIATION WITH KNOWN GOLD MINERALIZATION IN THE 7,000 SQ KM SURVEY AREA. GOLD TVM OVERLAP MAPPING SUCCESSFULLY DELINEATED AREAS OF GOLD MINERALIZATION AND DEFINED NEW TARGET AREAS FOR GOLD.



LWIR GOLD QDFC & LDFC FINGERPRINT MAPPING USING FOUR GOLD MINES AS TRAINERS FOR AI LEARNING



GOLD QDFC FINGERPRINT MAP

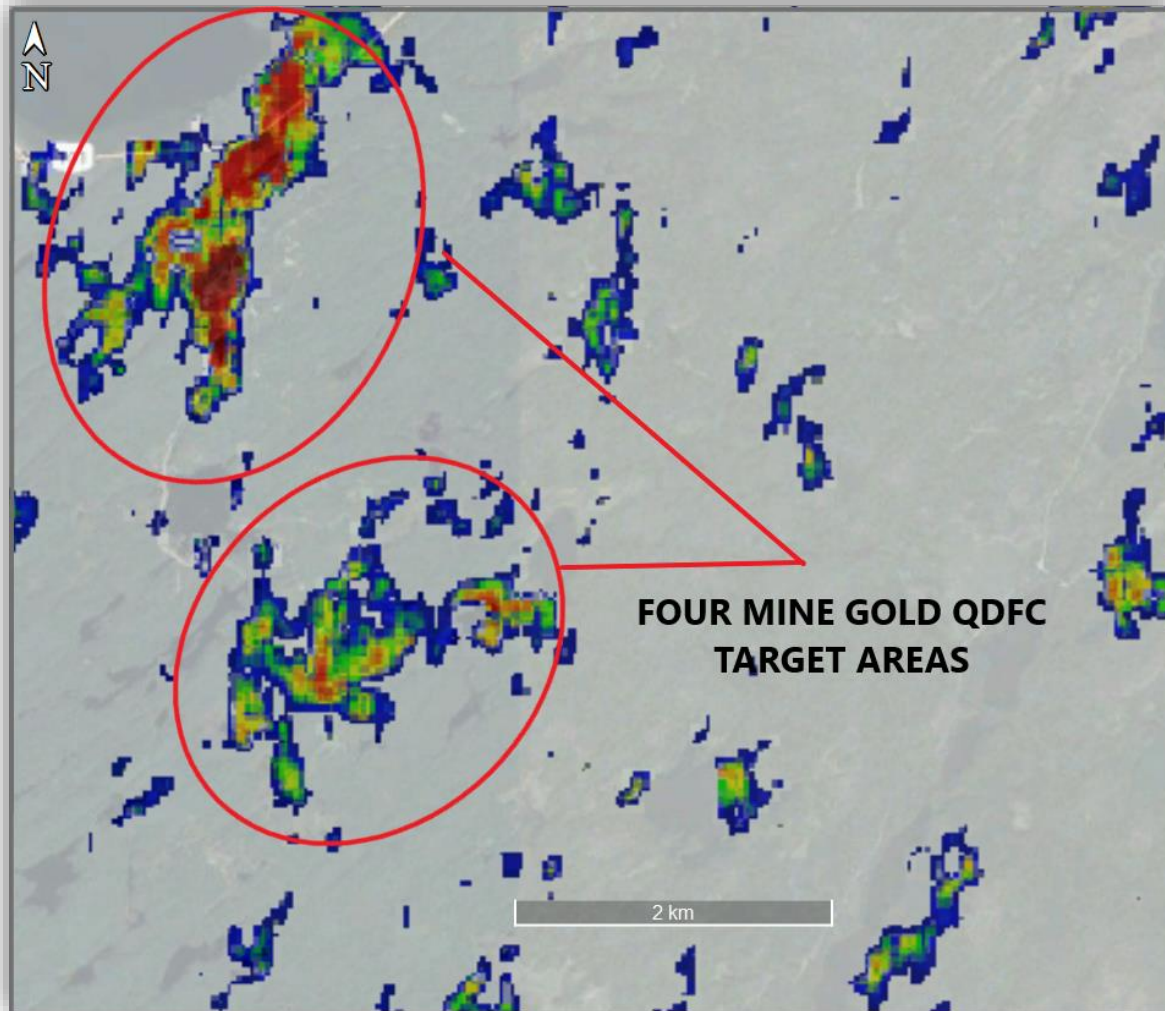


GOLD LDFC FINGERPRINT MAP

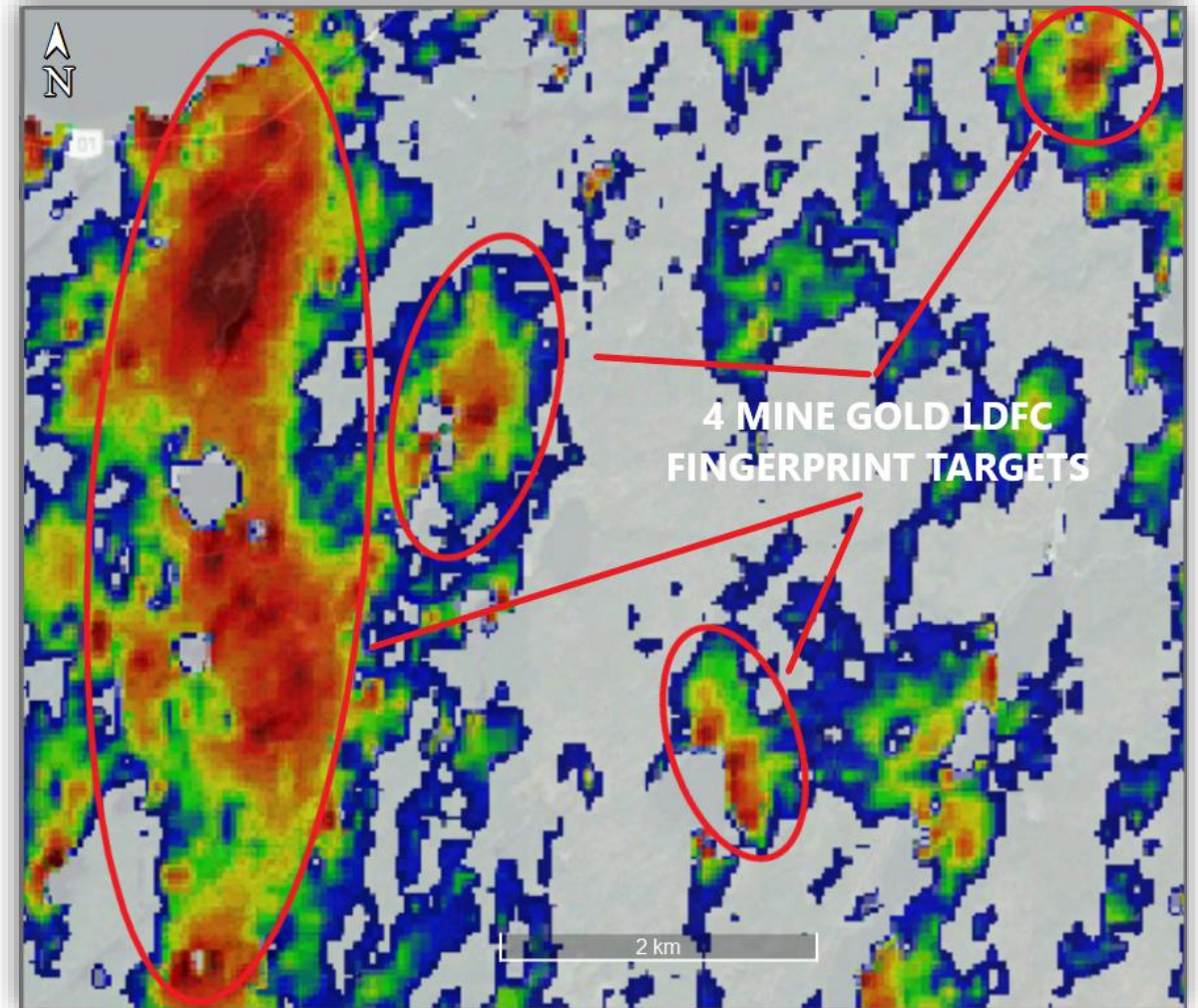
THE LWIR SPECTRAL SURVEY AREA (7,000 sq kms) WAS MAPPED USING THE FOUR GOUDREAU GOLD DEPOSITS AS TRAINERS AND OVER 100+ TARGET AREAS WITH THE SAME QDFC/LDFC GOLD FINGERPRINT WERE OUTLINED IN THE SURVEY AREA. IN ADDITION GOLD QDFC & LDFC FINGERPRINT MAPPING USING THE FOURTEEN GOLD PROSPECTS AS TRAINERS WAS ALSO CARRIED OUT AND A SIMILAR NUMBER OF GOLD TARGETS OUTLINED.

AN AREA 80 KILOMETRES TO THE SOUTH, SURLUGA AREA, A NUMBER OF GOLD QDFC/LDFC FINGERPRINT TARGETS WERE OUTLINED – FOLLOWING SLIDE

FOUR GOLD MINE GOLD QDFC/LDFC FINGERPRINT TARGETS – SURLUGA AREA



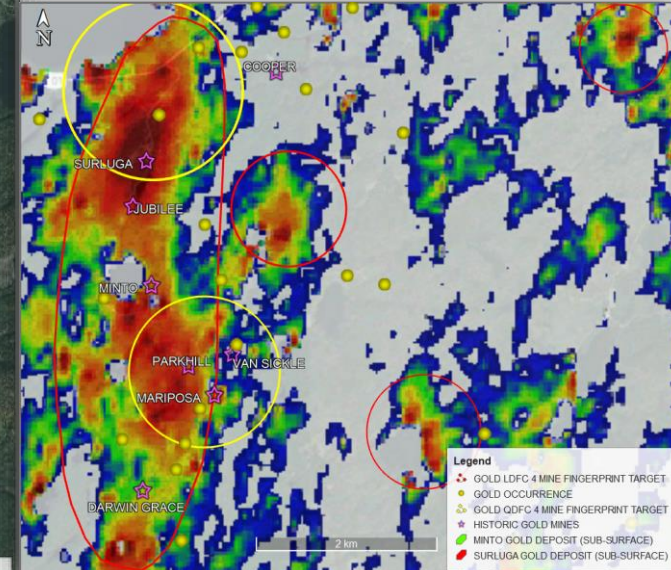
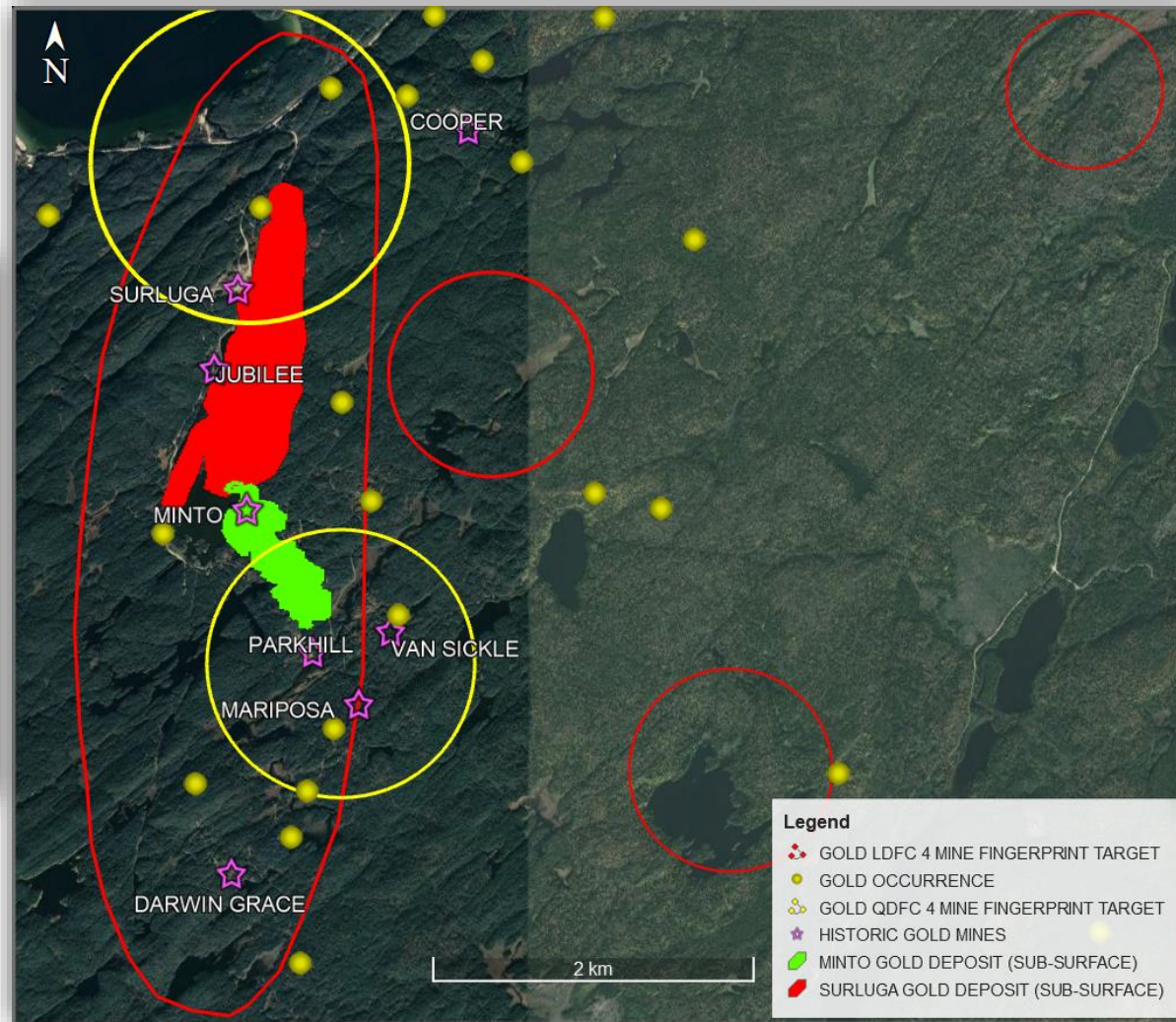
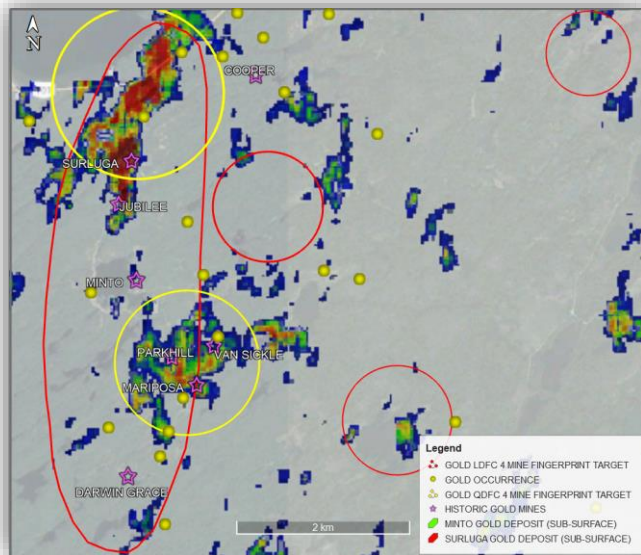
LWIR GOLD QDFC FINGERPRINT TARGETMAP



LWIR GOLD LDFC FINGERPRINT TARGET MAP



GOLD QDFC & LDFC FINGERPRINT MAPPING RE-DISCOVERS GOLD DEPOSITS AT SURLUGA + NEW TARGET AREAS



QDFC & LDFC SPECTRAL FINGERPRINT MAPPING IS AN EXCELLENT & INEXPENSIVE TOOL FOR LOCATING SPECIFIC DEPOSIT-TYPE TARGETS OVER LARGE GEOGRAPHIC AREAS THUS ALLOWING FOR FOCUSED EXPLORATION

VERMICULITE: LDFC FINGERPRINT MAPPING USING 10m RESOLUTION SENTINEL SWIR

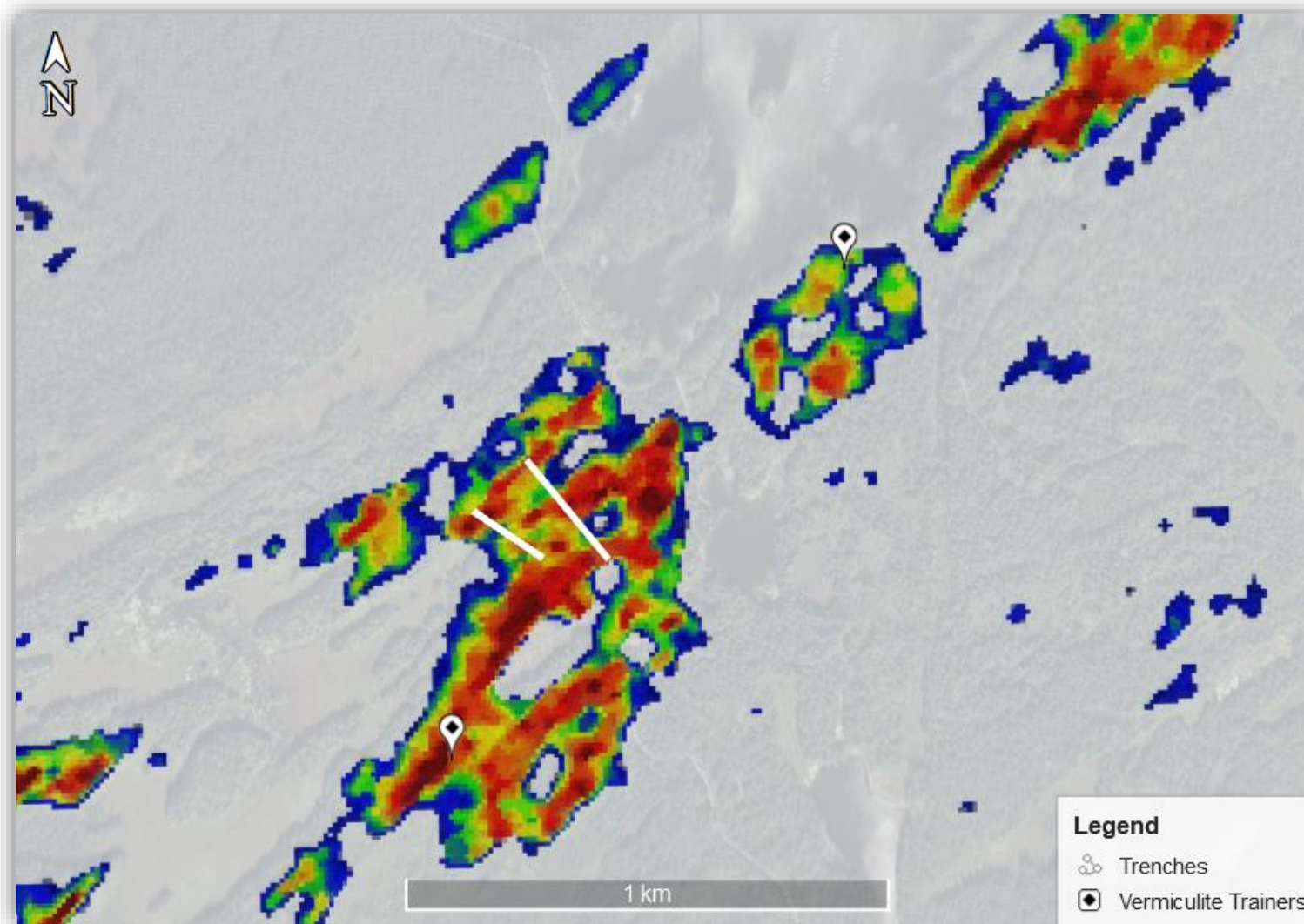
IN EARLY OCTOBER 2021 A CLIENT SUPPLIED ASTER FUNDS WITH THE CO-ORDINATES OF TWO COARSE VERMICULITE SHOWINGS, 1.3 KMS APART.

USING THE TWO SHOWINGS AS TRAINERS, A SWIR VERMICULITE LDFC FINGERPRINT MAP WAS PRODUCED (RHS).

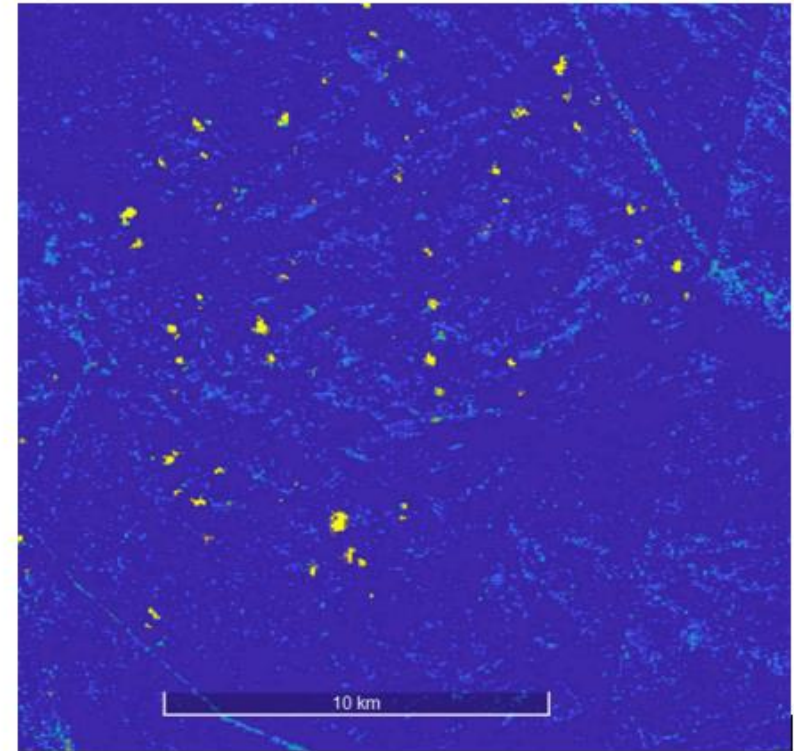
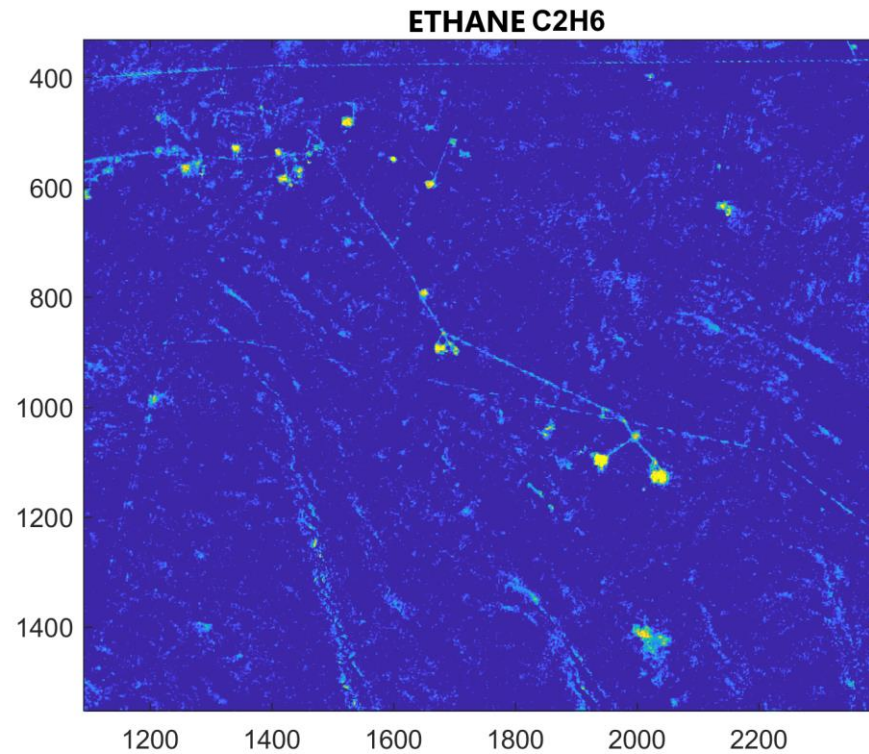
SURFACE PROSPECTING AND MAPPING OVER A THREE KILOMETRE AREA BY THE CLIENT CONFIRMED THE PRESENCE OF VERMICULITE IN THE FINGERPRINT TARGET AREA.

VERMICULITE WAS COMNFIRMED BY TRENCHING (2 TRENCHES) IN THE VERMICULITE FINGERPRINT TARGET AREA (RHS).

NOTE: No glacial overburden; only soil and bedrock; open land marshy/boggy and forested areas with mature deciduous trees – little foliage as autumn. Hence use of SWIR for this particular industrial mineral.

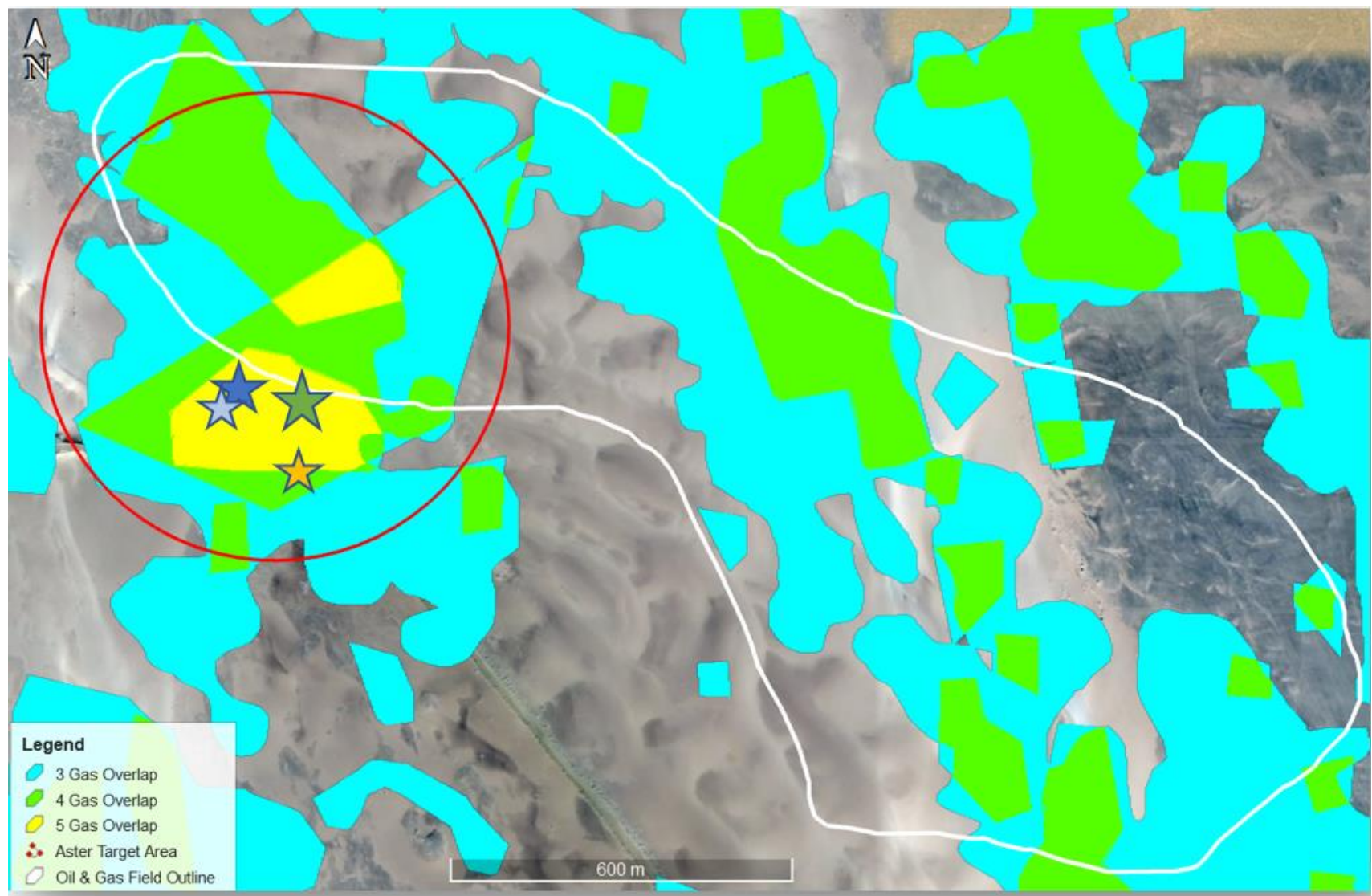


OIL & GAS EXPLORATION – ETHANE GAS

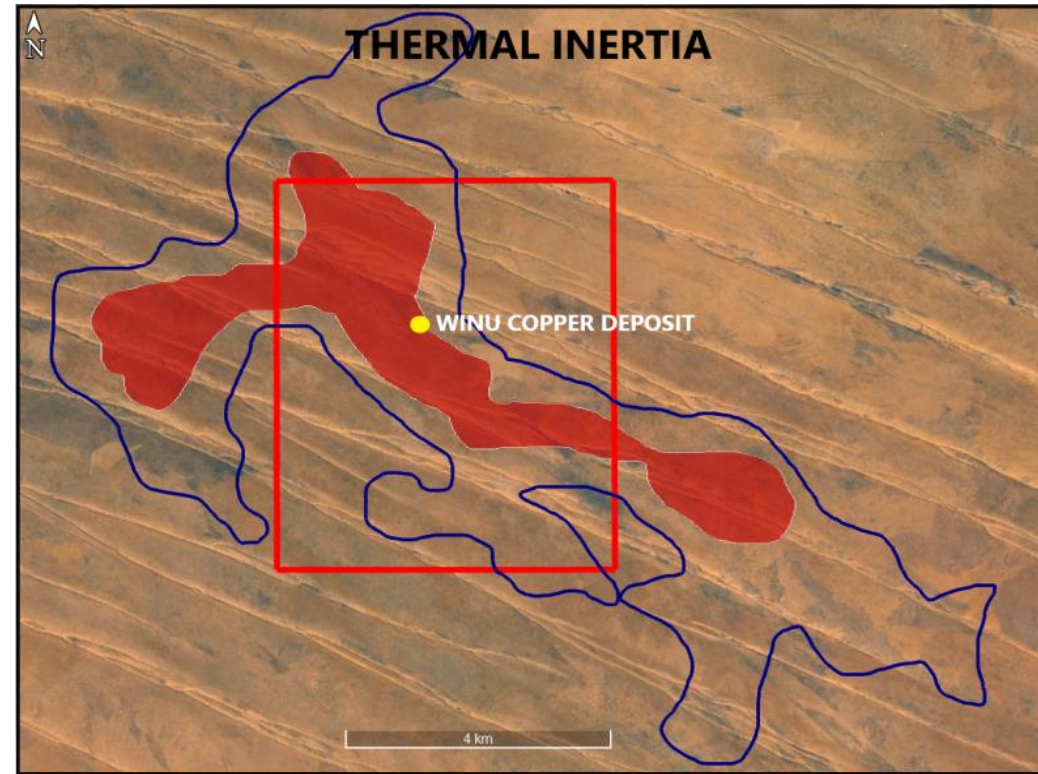
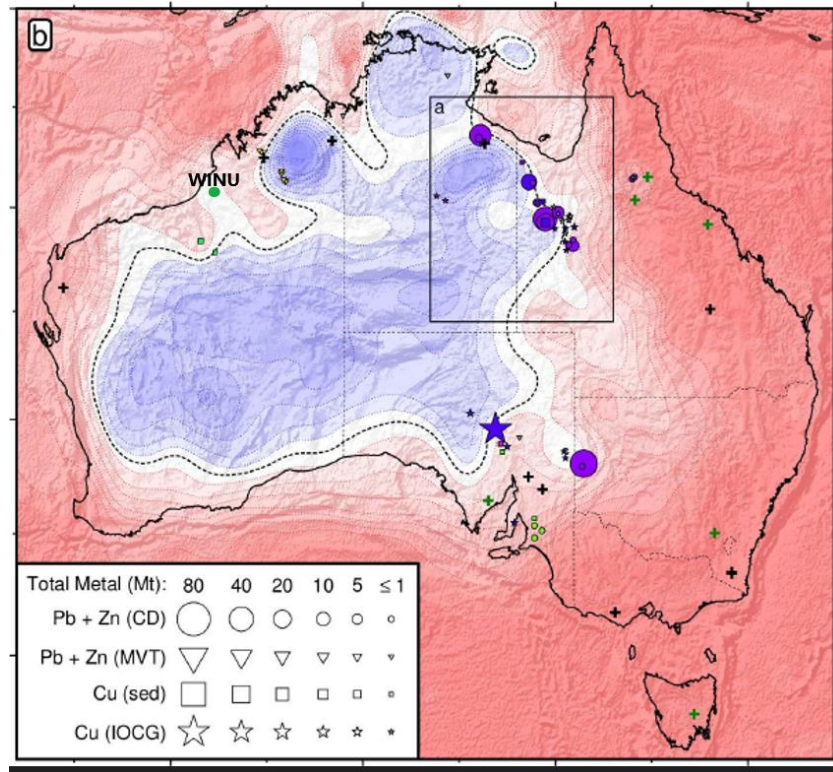


Oil & Gas Target

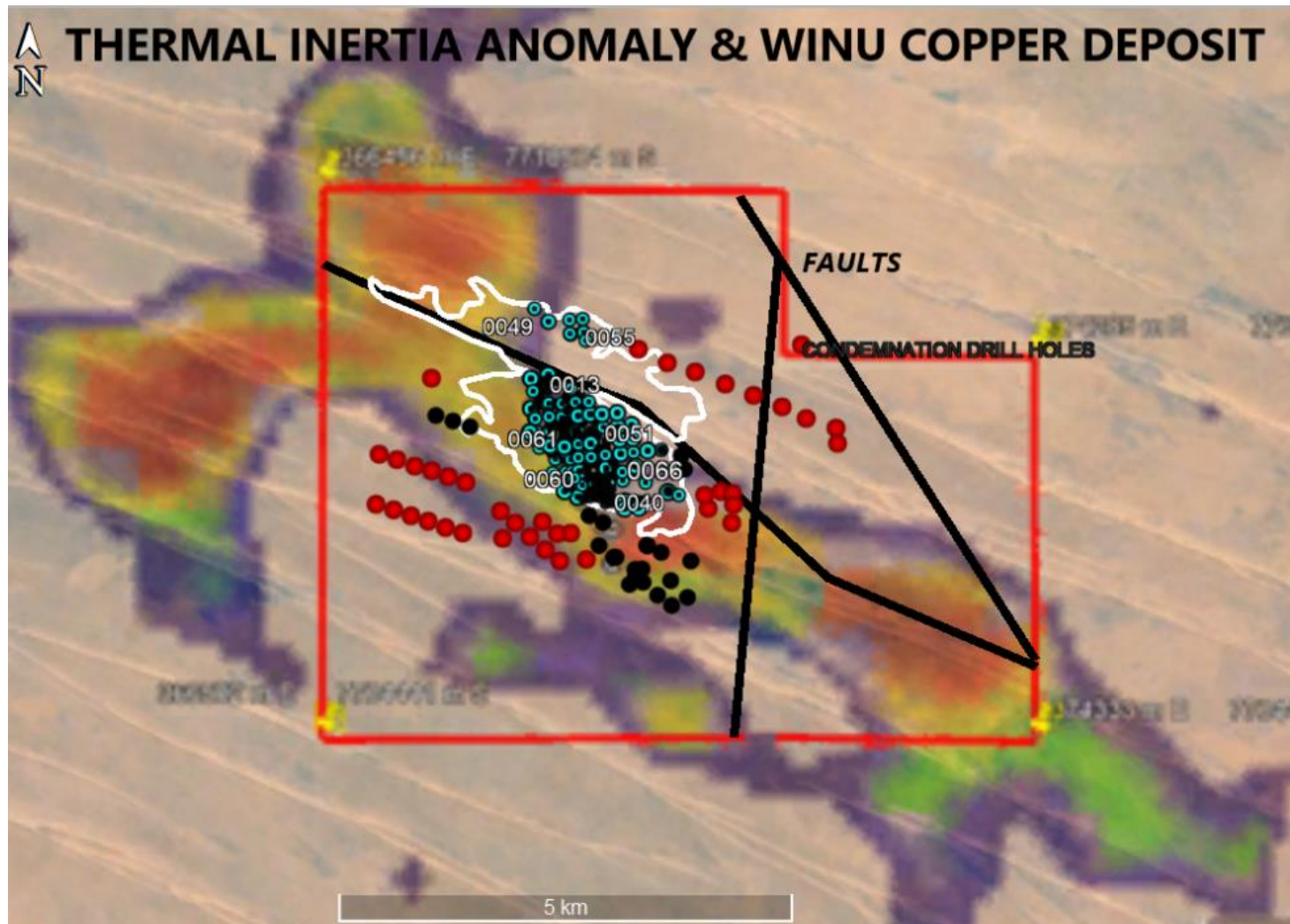
Target was drilled
and 4,100bbl/d of
crude oil and
18mcf/d of natural
gas discovered



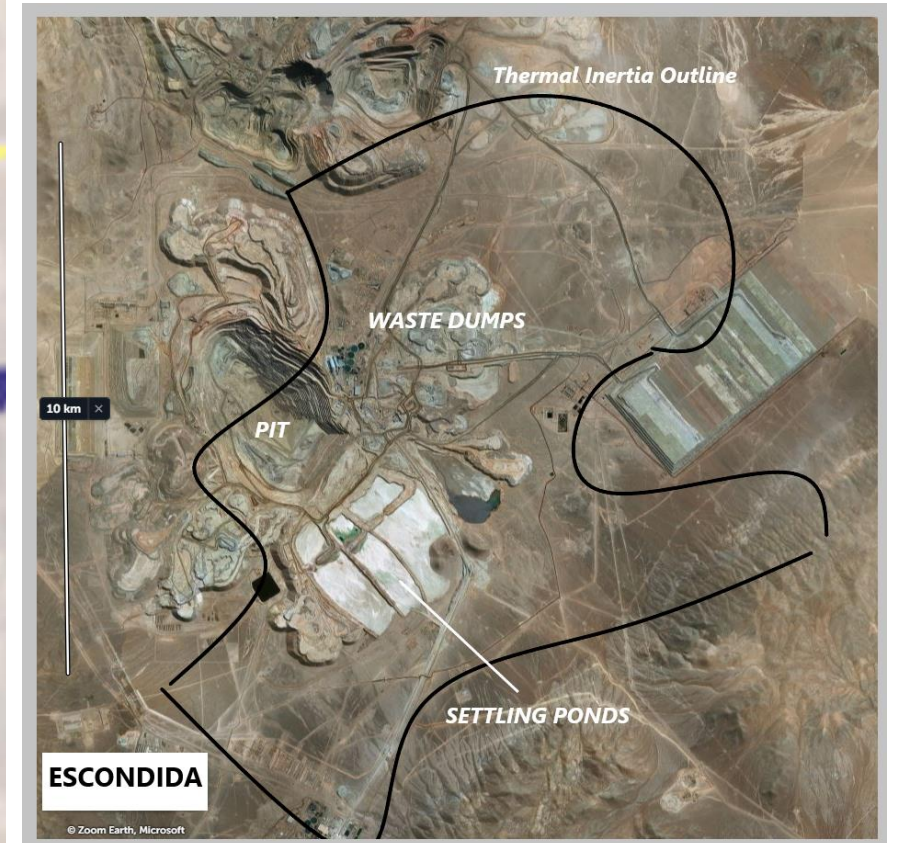
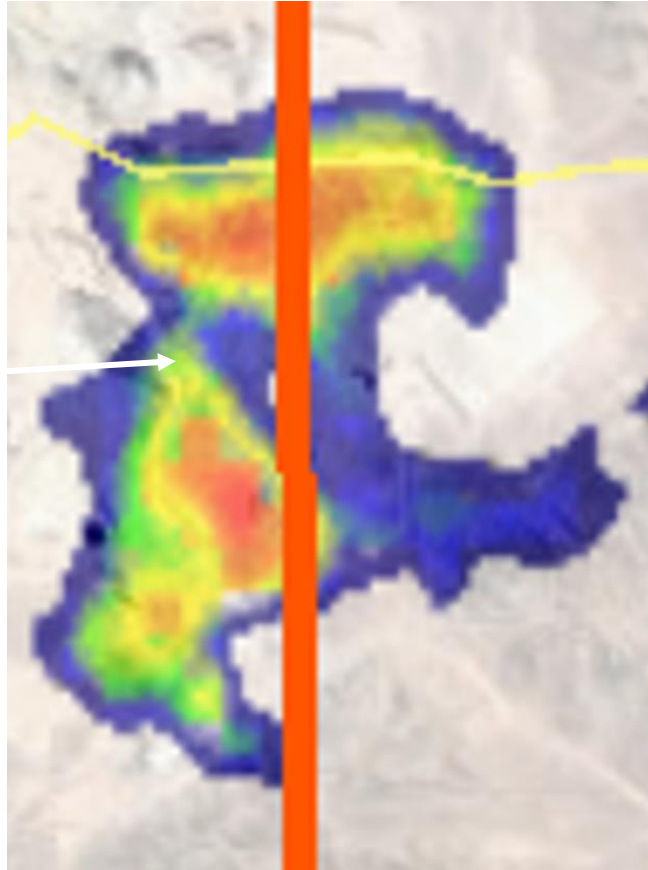
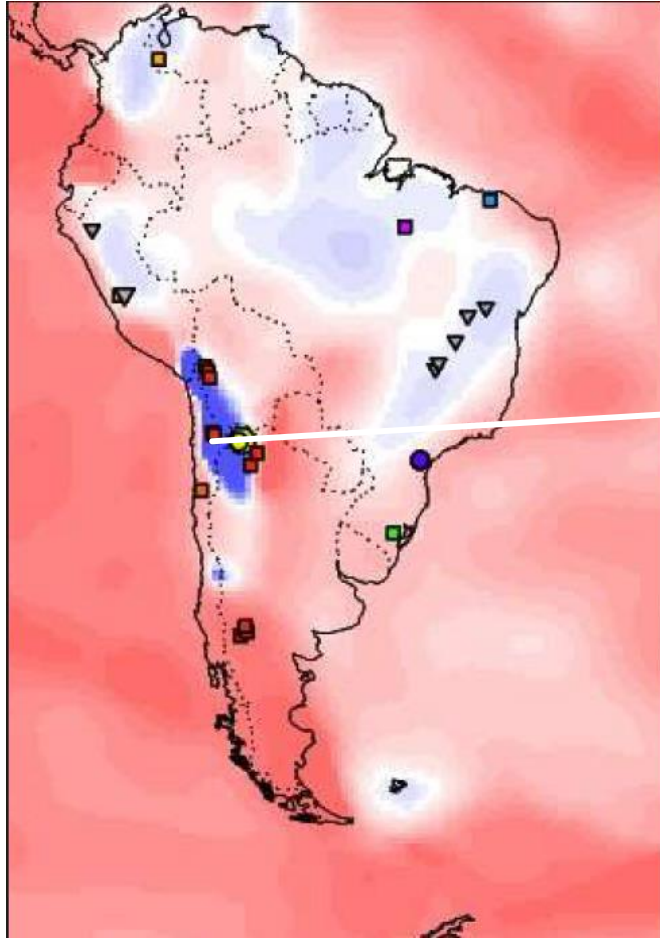
THERMAL INERTIA - AUSTRALIA



The 170km thick Lithospheric-Asthenospheric-Boundary(LAB) associated with 85% of Australia's Tier 1 deposits. It can be applied worldwide



Thermal Inertia Mapping – Escondida Copper Mine, Chile



ASTER FUNDS LTD. SPECTRAL PRODUCTS

1. LWIR MINERAL ABUNDANCE MAPPING
2. LWIR TVM MAPPING
3. LWIR/SWIR MINERAL DEPOSIT LINEAR & QUARDATIC PREDICTOR-FINGERPRINT TARGET © MAPPING
4. SWIR GAS MAPPING MINERAL PLUS OIL & GAS EXPLORATION
5. TYHERMAL INERTIA MAPPING

THANK YOU

