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TECHNICAL REPORT

on the

Melchett Lake Property

174 Mining Cells

564105-564138, 564479-564548, 624491-624508, 631552-631572, 637881, 531689-531690, 554331-554354 and 704130-704330

Thunder Bay Mining District

Northwestern Ontario, Canada

Prepared for:

Ben Kuzmich, Alex Pleson and Nathan Brandon

Thunder Bay, ON

and

Silver Spruce Resources Inc.

Bedford, NS

Prepared by:

Greg Davison, P.Geo.,

Consulting Geologist,

Montrose, BC

November 22nd, 2022

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1.0 SUMMARY

Greg Davison, P.Geo. Qualified Person ("QP"), Vice-President and Director of Silver Spruce Resources prepared the current Technical Report on the Melchett Lake Property ("the Property"). Pleson Geoscience ("Pleson") was retained by Silver Spruce Resources Inc. ("the Company") and Ben Kuzmich, Alexander Pleson and Nathan Brandon ("the Vendor") to manage and conduct the preliminary work program starting in late 2020 on the Melchett Lake project in preparation for the multi-phase follow-up work program currently and recently contracted to Pleson Geoscience, MPX Geoscience, Quantec Geoscience, In3D Geoscience and Eagle Mapping.

In conjunction with Pleson's activities, Silver Spruce Resources and the author provided technical personnel, program direction and oversight, arranged the major third-party contracts and onsite expertise in camp construction, operation and site management, led negotiations with the First Nations, and provided data verification on the project during the multi-faceted 2021-2022 exploration campaign.

Additionally, exploration agreements were signed with both Aroland First Nation and Ginoogaming First Nation, and Western Heritage, pursuant to said FN agreements, initiated an archeological and cultural study on the Melchett Lake area requisite to both groups prior to detailed ground exploration on the property.

Extensive First Nations discussions, with the Aroland and Ginoogaming FN, were carried out by Greg Davison and Kevin O'Connor representing Silver Spruce Resources with the respective chief, council and legal counsel from both groups. Direct communications with three additional First Nations located within the area of influence were managed by the ENDM.

Exploration agreements were signed in March and September 2021 with Aroland and Ginoogaming, respectively. The specific terms of the Agreements remain confidential between the Company and the FN, at the request of the latter. A summary of the Agreement, released to the public by the Company, is included herein.

Due to delays for winter, spring and summer weather conditions, three series of First Nations negotiations delayed by COVID-19, personal tragedies with the FNs, elections and council changes, ENDM permit applications and revisions due to additional FNs reporting to the region, forest fires and COVID-19 constraints, technical and labour shortages and scheduling constraints, and transport logistics, a portion of the planned preliminary program for 2020-2021 was completed but some of the operating aspects of the programs were deferred to 2022 and 2023 and an airborne survey was planned to advance the follow-up 2021 program.

This report was prepared for filing assessment work performed on the property during 2021 and 2022 and includes logistical support of the ground exploration programs contracted to Pleson Geoscience and Quantec Geoscience, detailed geophysical (first-time) interpretation of the 2021 MPX Geophysics airborne survey and incorporation of all historical geophysics carried out without detailed consolidation of the potential targets by In3D Geoscience, airborne LiDAR by Eagle Mapping and subsequent re-processing by GeoCloud Analytics, and the Western Heritage

archeological and cultural study carried out as per the Agreements with Aroland First Nation and Ginoogaming First Nation, these latter Agreements having been signed in 2021. The 2021 MPX airborne geophysical survey discussed herein was documented in the previous assessment report (Davison, 2021).

The total eligible expenditures for the planning, execution and reporting of the above work completed to date are CAD$362,273 and are documented in Appendices III, IV, VI and VII.

The Melchett Property currently consists of 168 single cell and 6 multi-cell mineral claims covering approximately 5,022 hectares located in Thunder Bay Mining District of Northwestern Ontario, Canada. The Melchett Lake property lies 110 km north of Geraldton and 60 km north of Nakina at approximately 50°45' north latitude and between 86°56' and 87°02' west longitude. Silver Spruce has the option to acquire 100% of the Mineral Claims by making cash payments, issuing shares and carrying out exploration work for a syndicate led by Ben Kuzmich. To date, signing payments and those due at the first anniversary have been paid in full with cash and shares. The 3rd anniversary payments are due and payable on or by November 20th, 2022. The Agreement was amended as of October 31, 2022 to defer the November 2022 cash payment to November 20th, 2023 and add an additional payment of $50,000 (to a total of $100,000) and issuance of 2,000,000 additional shares in November 2023.

The Melchett Lake property lies within the Archean-age English River Sub-province of the Superior Province. The Property comprises part of the northern metavolcanic subzone of the Melchett metasedimentary-metavolcanic belt, which is interpreted to be approximately five kilometres (5km) thick and extends for at least fifty kilometres (50km) east-west.

Metamorphism in the Melchett belt ranges from middle to upper amphibolite (almandine amphibolite). The belt consists of schists and gneisses flanked by several phases of acidic to mafic intrusive rocks. The schists and gneisses represent original mafic to acidic pyroclastic tuffs and flows with associated greywackes, siltstones and argillites with local iron formations.

The data and discussion presented in this report is based on the current and historical exploration work results, unpublished and published assessment and literature reports available from the Vendor, Silver Spruce Resources, in3D Geoscience, Eagle Mapping, Western Heritage, Ontario MNDMF, Geological Survey of Canada, and Ontario Geological Survey.

The principal target area for the program has extensive soil and rock geochemical anomalies, known VMS style mineralization from surface to >500 metres depth, highly favorable alteration type and intensity, increasing Cu to Zn with depth, and deep Maxwell modelled plates off-hole from borehole EM surveys.

Highlights of the prospective geology, alteration and mineralization include multiple folded or stacked horizons of coincident alteration and metal mineralization, high Zn/Cu, Zn/Pb and Ag/Au ratios, extensive remobilization of major and trace elements with defined enrichment (Fe, Mg, Co, Cr, Cd) and depletion (Na, Sr, Ca) zones, and continuity, increased alteration and anomalous

metal values over large intervals (up to 245 metres in DDH SB-07-01 from 345-590 metres) with strong electromagnetic (BHTEM) 20 channel off-hole responses in the 2007-2008 drilling.

Three principal zones of sulphide mineralization have been outlined on the Property to date, the Nakina 1, Nakina 2 and Relf zones.

The historical exploration data available for the Property area includes numerous geophysical surveys, geological mapping, trenching, sampling, and several periods of diamond core drilling. This work was carried out during the period from 1959 to 2019.

The most recent diamond drilling conducted in 2007 and 2008 on the Property included two drill hole SB7-01 and SB08-02 which were drilled to over 600 metres in depth. A strong BHTEM conductor identified in drill hole SB07-01, the latter drilled in 2007. Additional geophysics (BHTEM) was carried out in 2012 by on SB-02 which reported several conductive zones with sphalerite and chalcopyrite in the corresponding core intervals and was interpreted as increasing in intensity downhole and proximal to a VMS source (Webster, 2012).

Zinc values from 2019 sampling range up to 14.7%, lead to 0.96%, copper to 0.52%, silver to 301 g/t, and gold to 0.737 g/t and clearly represent the polymetallic nature of the mineralization from both targets, particularly the Relf Zone. The samples exhibit low alkali content, favourable pathfinder ratios, e.g., Zn/Na, and elevated values of heavy metals, including Te, Bi, Se, Sb, Hg, Cd and In. Where associated with visible sphalerite, galena, chalcopyrite and pyrite, these alteration and mineralization patterns were observed in the current and comparable historical rock samples.

Primary copper mineralization appears to be associated with both disseminated sulphides and possible later quartz vein hosted structurally controlled by both metamorphic fabric and remnant stockwork style mineralization. Intense alteration at depth associated with higher copper values, and the Maxwell modelled plates identified in the recently acquired BHTEM data, is consistent with vectoring toward a VMS source.

The geochemical samples verified and confirmed the intense alteration in the principal mineralization with extensive major and minor element mobilization and replacement consistent with hydrothermal and metamorphic effects, the former associated with subsea potassic alteration to a very thick sericite-muscovite-silica dominant package, and accompanied by the expected sodium depletion and correlative high Zn/Na ratios among others. There was no clear local evidence observed of the high Mg enrichment associated with a chloritic vent or pipe hosting the core of the mineralization though there are units represented by felsic in mafic (FIM) breccias east of the principal Relf targets observed by the second author which may indicate amphibole-rich matrices after early hydrothermal chlorite.

Preliminary analysis of the MPX airborne survey confirmed and provided considerable detail over and above the 2002 and 2010 property scale and regional scale airborne surveys, respectively. Numerous NW-trending faults, some parallel to late diabase dykes, transected and offset the Melchett Lake metavolcanics, in some areas by hundreds of metres, with complementary NE-trending faults, typically with lesser amounts of displacement.

Tracking of the metavolcanic package from east to west indicates a potential imbricated displacement pattern moving further north going westward. The western and parts of the eastern metavolcanics are characterized by strong magnetic and VLF/EM response attributed to the presence of pyrrhotite and other sulphides associated with chemical metasediments or other exhalite horizons peripheral to the Zn-Ag core of the alteration system. The core area has much less defined VLF/EM response though the magnetics suggest that several parallel east-west trending units or limbs are present though discontinuous and offset by branching northwesterly faults.

The eastern area of the belt clearly indicates tight isoclinal folding with steeply dipping trends based on the symmetry of the magnetics in total field and vertical derivative maps, though the transition into the core of the metavolcanics loses clarity in part due to the paucity of iron formation and magnetic sulphide units, and in part by intersecting, variably magnetized diabase dykes transecting the metavolcanics.

In3D carried out individual and multiple data processing on each of the datasets from the 2002, 2010 and 2021 geophysical surveys, with derivatives, filters and inversions to visualize trends and patterns not necessarily shown with any specific individual parameter (Appendix V). The purpose of the data visualization was clarity and/or identification of features with emphasis on vertical variance and continuity of expression through the 100-500m depth ranges. A clear understanding of the potential displacements of the principal mineralized target horizons across the fault sets and given the multitude of late dyke activity and later remobilization of the faults is key to the proposed drilling programs across the Property and to future interpretation of the contracted Spartan MT survey and planning of deep drilling for the Relf Lake target in Q2 2023.

Examples of the In3D interpretations are provided which clearly identify numerous structural details associated with folding, with tight, plunging and linear limb features, several generations of faulting and intrusions likely transecting the older base metal and gold mineralization, moderate to deep continuity of the magnetic features associated with the known areas of mineralization shown particularly well at Relf Lake, and several additional patterns coincident or along strike with 2002 EM anomalies, particularly along the northern zones north of the Nakina showings and west towards the Key Lake targets, and potential folding of said units, potential stacking and/or fold repetition of EM anomalies associated with the core of the Relf Lake target area and the Nakina 1 and 2 targets, and clarity of offsets related to the strike breaks of known geochemical and geological anomalies among others.

In summary, based on its favourable geological setting indicating surface and subsurface presence of base metal mineralization with gold potential, and the results of current study, it is concluded that the Property is a property of merit and possesses potential for discovery of economic concentration of zinc, copper, silver and gold through further exploration. Good road access, availability of exploration and mining services in the vicinity makes it a worthy mineral exploration target.

As per current exploration data analysis, the Property clearly has significant target potential for precious and base metal mineralization. The next portion of the program is recommended and currently are in the design stage concurrent with updated 2D and 3D GIS compilation, data acquisition from previous regional and property scale geophysics, and geochemical modelling prior to ground programs and drilling.

The program costs are estimated initially to be $500,000 with a second tranche of $2,000,000 centred on the line cutting grid and Quantec deep penetrating geophysics deferred since spring 2021 and once results are compiled and interpreted, a first round of diamond drilling during Q2 2023 with logistical, geological and GIS support.

2.0 INTRODUCTION

2.1 Purpose of Report

Silver Spruce Resources ("the Company") prepared this report on behalf of the claim holders Ben Kuzmich, Alexander Pleson and Nathan Brandon (the "Vendor") for the purposes of exploration, assessment reporting and data management on the Melchett Lake Property. This report is an accurate reflection of the work done and has been prepared for filing for assessment credit with the MNDM based on 2021 and 2022 exploration work.

2.2 Sources of Information

The current report is based on the findings of the exploration campaigns performed by the author, Vendor, third party contractors specifically MPX Geophysics Ltd., In3D Geoscience, Pleson Geoscience and Silver Spruce Resources Inc., published assessment reports available from the Ministry of Northern Development, Mines and Forestry (MNDMF) Ontario, and published reports by the Ontario Geological Survey (OGS), the Geological Survey of Canada ("GSC"), various research documents, websites, corporate press releases and personal observations by contractors during the Property visits. All consulted sources are listed in the References section. The sources of the maps are noted either in the References or on the individual figures.

The author has reviewed and relied upon ownership information provided by the Vendor (claims held by Benjamin Kuzmich, Alexander Pleson and Nathan Brandon) and Silver Spruce Resources (claims held by James Gregory Davison and included under the Area of Interest in the amended Agreement), which to the author's knowledge is correct. A limited search of tenure data on the MNDMF Database Online website conforms to the data supplied by the Vendor. However, the limited research by the author does not express a legal opinion as to the claim ownership status of the Melchett Lake Property. This disclaimer applies to ownership information relating to the Property, and the information is available in Section 1 (Summary) and Section 4 (Property Description and Location) of this report.

The author has no reason to doubt the reliability of the information provided by the Vendor or third party contractors. The author reserves the right but will not be obliged to revise the report and conclusions if additional information becomes known subsequent to the date of this report.

3.0 RELIANCE ON OTHER EXPERTS

For the purpose of this report, in the strictest of terms, there was no reliance on other experts. However, as a footnote to this statement, MPX Geophysics Ltd. provided the bulk of the third party expertise for the recent exploration program comprising the airborne survey. In3D Geoscience, a consulting geophysicist was contracted to carry out the detailed interpretation study of the 2002, 2010 and 2021 geophysical surveys. Eagle Mapping, a remote sensing and aerial mapping services company, was contracted to provide LiDAR survey while GeoCloud Australia, a data processing consultant, was contracted to carry out detailed re-processing and 2D and 3D interpretation of the LiDAR LAS point source data. Western Heritage, a specialist

consulting group with respect to archeological and cultural studies of First Nation current and historical activities, were contracted to meet the requirements of the Exploration Agreements signed with the Aroland and Ginoogaming FN. Quantec Geoscience, a geophysical specialist contractor signed an agreement to conduct and interpret a deep penetrating Spartan survey on the Property.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Melchett Lake property is comprised of 168 single cell and six (6) multi-cell mining claims covering approximately 5,022 hectares land located in Thunder Bay Mining District, Northwestern Ontario, Canada (Figure 1). The property lies 110 km north of Geraldton and located in Thunder Bay Mining District 60 km north of Nakina at approximately 50°45' north latitude and between 86°56' and 87°02' west longitude. Locally the Property claims are situated north and east of Melchett Lake extending from Key Lake north of Kapikotongwa Lake in the west to Iron Lake and Colpitts Lake in the east.

The 62 core property claims were staked originally on ground by erecting physical posts as required by claim staking regulations in Ontario and have since been replaced and supplemented by map-based mining cells (103 single cells + 2 multi-cell). Amalgamation of 89 single cells into four (4) multi-cell claims was completed during 2022. The majority of the claims (144) were map staked by a representative of Silver Spruce Resources during 2019 and 2020 and are subject to the Area of Interest clause in the amended Agreement.

In Ontario, all mineral claims staked are subject to $400 per unit worth of eligible assessment work to be undertaken before the year 2 anniversary, followed by $400 per unit per year thereafter. Claim data is summarized in the Table 1, while maps showing the claims package at two scales are presented in Figures 2, 3, 4 and 5.

There is no past-producing mine on the Property and there were no historical mineral resources or mineral reserve estimates documented by any of the historical exploration.

There are remnants of an abandoned historical exploration camp at Relf Lake and drill core at Relf and Kapikotongwa Lakes which may require cleanup and may or may not be considered an environmental liability for the Property.

An exploration work permit (PR15-412660) was issued for the core claims of the Property. The permit was issued to carry out trenching, stripping, line cutting, and drilling. That permit has since expired and application for a new permit was applied for by Pleson and received as Permit PR-21-000036 on January 14, 2022 and is active through January 13, 2025 (see Appendix 1).

Aboriginal communities potentially affected by the exploration permit activities were consulted by the Company during the exploration permit application process and at the beginning of the work program. However, those discussions were preliminary in nature, did not provide adequate consultation and engagement of the First Nations was incomplete. During 2021, formal negotiations individually with the Aroland First Nation and Ginoogaming First Nation and Silver

Spruce Resources resulted in the completion of two exploration agreements finalized in April 2021 and September 2021. The documents are confidential between the parties though public disclosure of their existence was reported by Silver Spruce Resources and each of the First Nations. Additional notification of the permit application was provided to the Eabametoong (Fort Hope) First Nation, the Long Lake #58 First Nation, and the Marten Falls First Nation, all of which are located in the region from the Ogoki area in the north to the Geraldton-Longlac (Greenstone) area. ENDM reported that, after their recent inquiries, no further Exploration Agreements were required or requested at the time of this report. Operating permits for the Melchett Lake property by the ENDM were approved after government communication with these parties.

Table 1. Claim List - Durer, Ogoki and Tennant Lakes and Speckled Trout Rapids Area

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status	Holder	Tenure %	Work Required
DURER LAKE AREA	637881	Single Cell Mining Claim	2023-02-17	Active	Davison	100	400
DURER LAKE AREA	631572	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631571	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631570	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631569	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631567	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631565	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631562	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631561	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631560	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631558	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631557	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631556	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631555	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	631554	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	564544	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564543	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564539	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564536	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564535	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564534	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564530	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564528	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564523	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564522	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564520	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564519	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE AREA	564138	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564137	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564136	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564135	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564134	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564133	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564132	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564131	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564130	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564129	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564128	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564127	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564126	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564125	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564124	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564123	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564122	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564121	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564120	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564119	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564118	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564117	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564116	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564115	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564114	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564113	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564112	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564111	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564110	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564109	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564108	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564107	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE AREA	564106	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400

Table 1 cont. Claim List - Durer, Ogoki and Tennant Lakes and Speckled Trout Rapids Area

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status	Holder	Tenure %	Work Required
DURER LAKE AREA	564105	Single Cell Mining Claim	2022-11-12	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564546	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564537	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564533	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564529	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564527	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564525	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	564521	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
DURER LAKE,TENNANT LAKE AREAS	631568	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE,TENNANT LAKE AREAS	631553	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
OGOKI LAKE AREA	624495	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
OGOKI LAKE AREA	624492	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
OGOKI LAKE AREA	624491	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
OGOKI LAKE AREA	564518	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564517	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564516	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564514	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564512	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564511	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564510	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564509	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564508	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564507	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564506	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564505	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564504	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564503	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564502	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564501	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564500	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564499	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564498	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564497	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564496	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564495	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564494	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564493	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564492	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564491	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564490	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564489	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564488	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564487	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564486	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564485	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564484	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564483	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564482	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564481	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564480	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE AREA	564479	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE,SPECKLED TROUT RAPIDS AREAS	624504	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
OGOKI LAKE,SPECKLED TROUT RAPIDS AREAS	624497	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
OGOKI LAKE,TENNANT LAKE AREAS	564515	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
OGOKI LAKE,TENNANT LAKE AREAS	564513	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624508	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624507	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624506	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624505	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624503	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400

Table 1 cont. Claim List - Durer, Ogoki and Tennant Lakes and Speckled Trout Rapids Area

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status	Holder	Tenure %	Work Required
SPECKLED TROUT RAPIDS AREA	624502	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624501	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624500	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624499	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624498	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624496	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624494	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	624493	Single Cell Mining Claim	2023-12-16	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564548	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564547	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564545	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564542	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564541	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564540	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564538	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564532	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564531	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564526	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
SPECKLED TROUT RAPIDS AREA	564524	Single Cell Mining Claim	2022-11-24	Active	Davison	100	400
TENNANT LAKE AREA	631566	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
TENNANT LAKE AREA	631564	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
TENNANT LAKE AREA	631563	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
TENNANT LAKE AREA	631559	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
TENNANT LAKE AREA	631552	Single Cell Mining Claim	2023-01-19	Active	Davison	100	400
DURER LAKE AREA	554354	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554353	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554352	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554351	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554350	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554349	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554348	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	554347	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
DURER LAKE AREA	531690	Multi-cell Mining Claim	2023-03-11	Active	Kuzmich	65	3200
DURER LAKE AREA	531689	Multi-cell Mining Claim	2023-03-11	Active	Kuzmich	65	9600
DURER,OGOKI & TENNANT LAKES, SPECKLED TROUT RAPIDS AREAS	704130	Multi-cell Mining Claim	2023-03-03	Active	Kuzmich	100	7200
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	704133	Multi-cell Mining Claim	2023-03-03	Active	Kuzmich	100	6400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	704132	Multi-cell Mining Claim	2023-03-03	Active	Kuzmich	100	6400
DURER LAKE,SPECKLED TROUT RAPIDS AREAS	704131	Multi-cell Mining Claim	2023-03-03	Active	Kuzmich	100	4800
OGOKI LAKE AREA	554340	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
OGOKI LAKE AREA	554339	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
OGOKI LAKE AREA	554333	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
OGOKI LAKE,SPECKLED TROUT RAPIDS AREAS	554343	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
OGOKI LAKE,SPECKLED TROUT RAPIDS AREAS	554336	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554346	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554345	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554344	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554342	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554341	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554338	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554337	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554335	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554334	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554332	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400
SPECKLED TROUT RAPIDS AREA	554331	Single Cell Mining Claim	2023-07-13	Active	Kuzmich	65	400

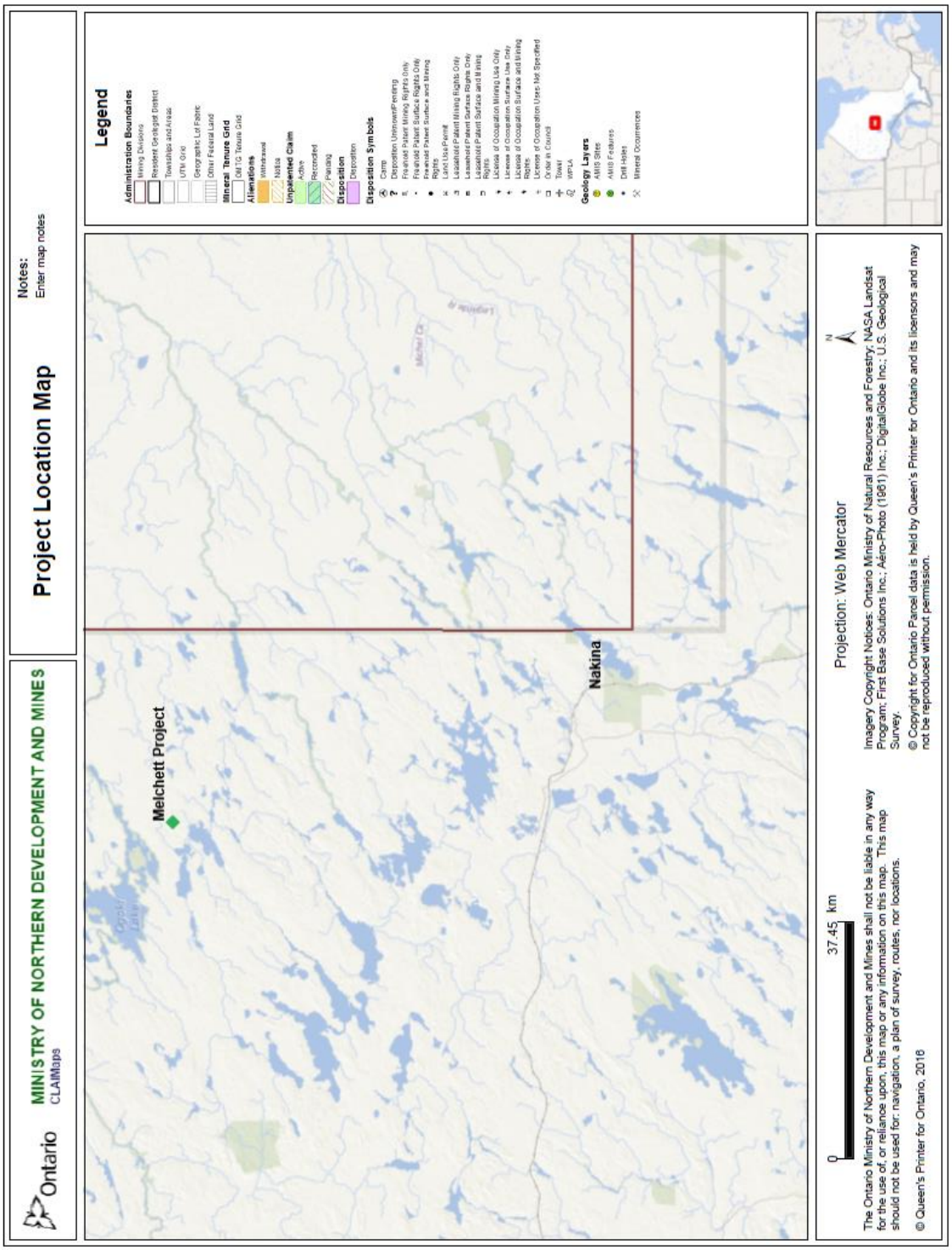

Figure 1. Property Location Map

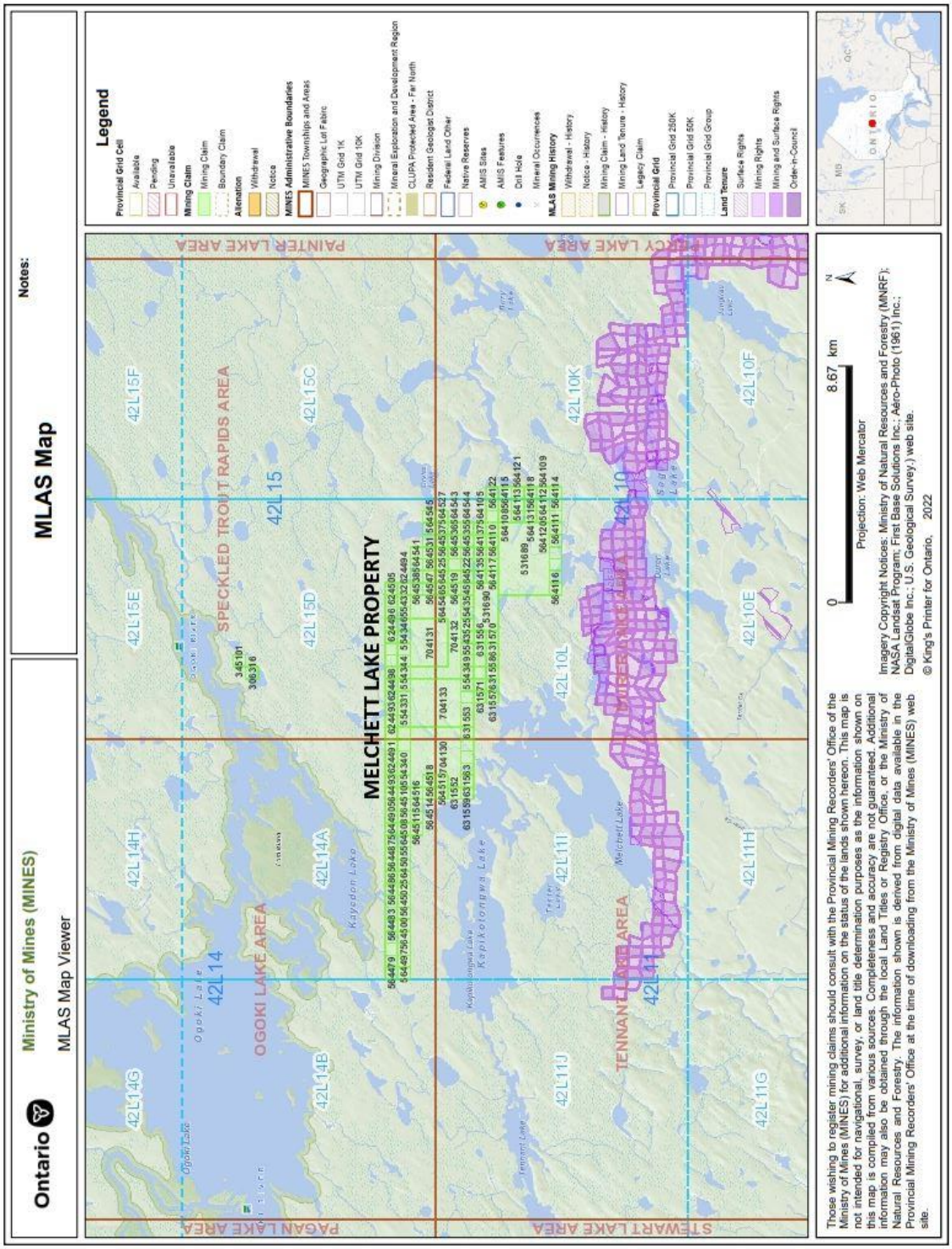

Figure 2. Mineral Claim Map

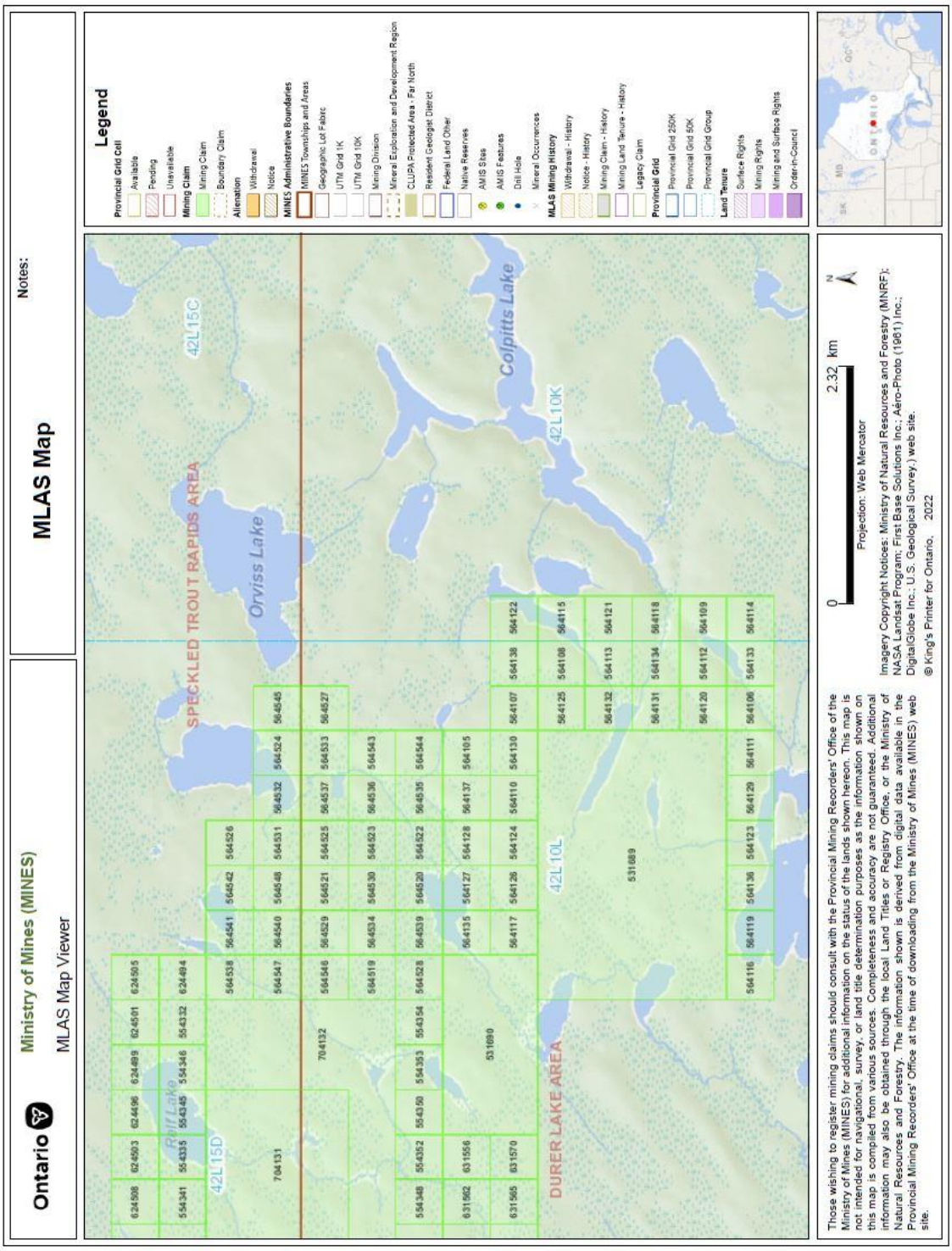

Figure 3. Mineral Claim Map – Eastern Claims

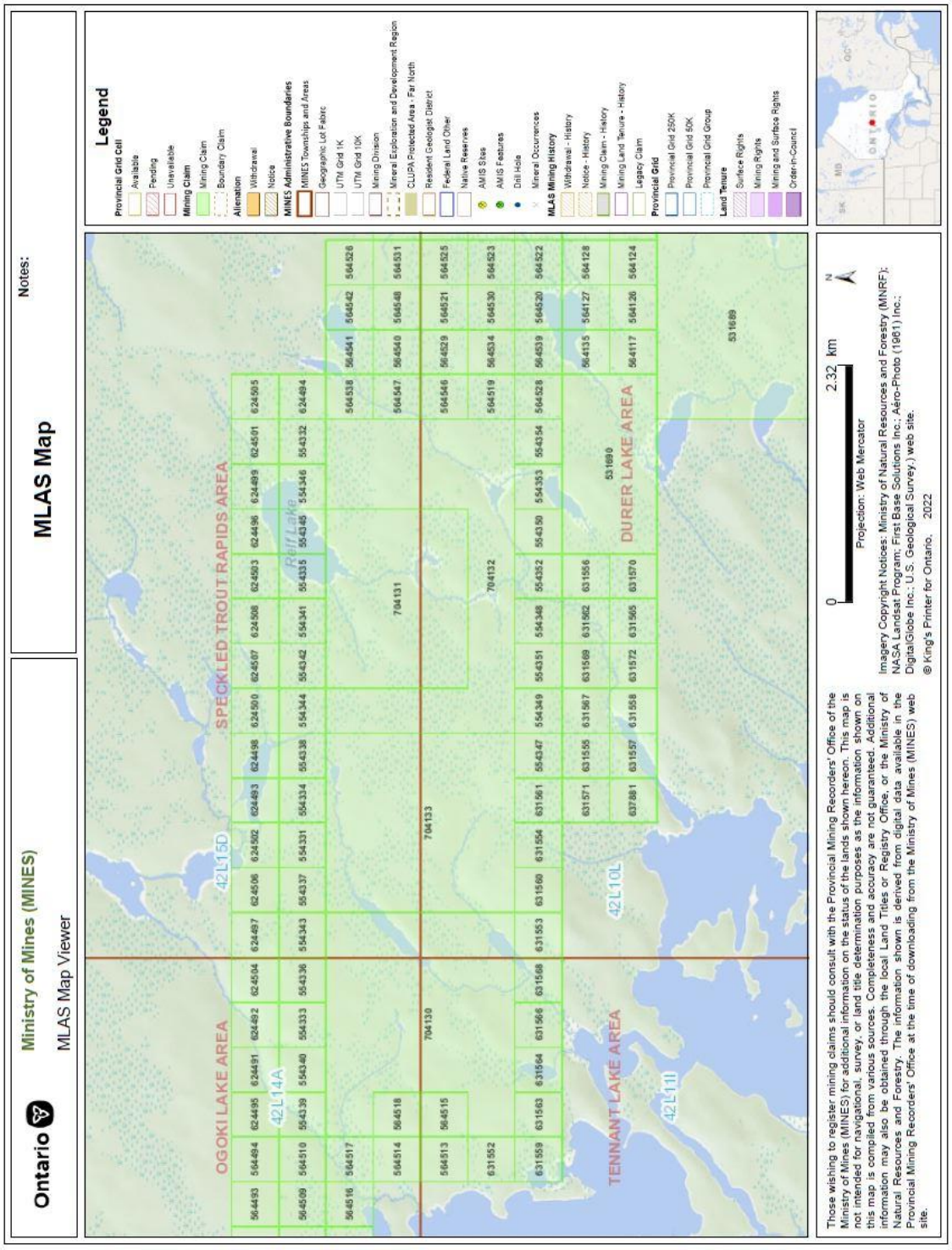

Figure 4. Mineral Claim Map – Central Claims (updated for amalgamations)

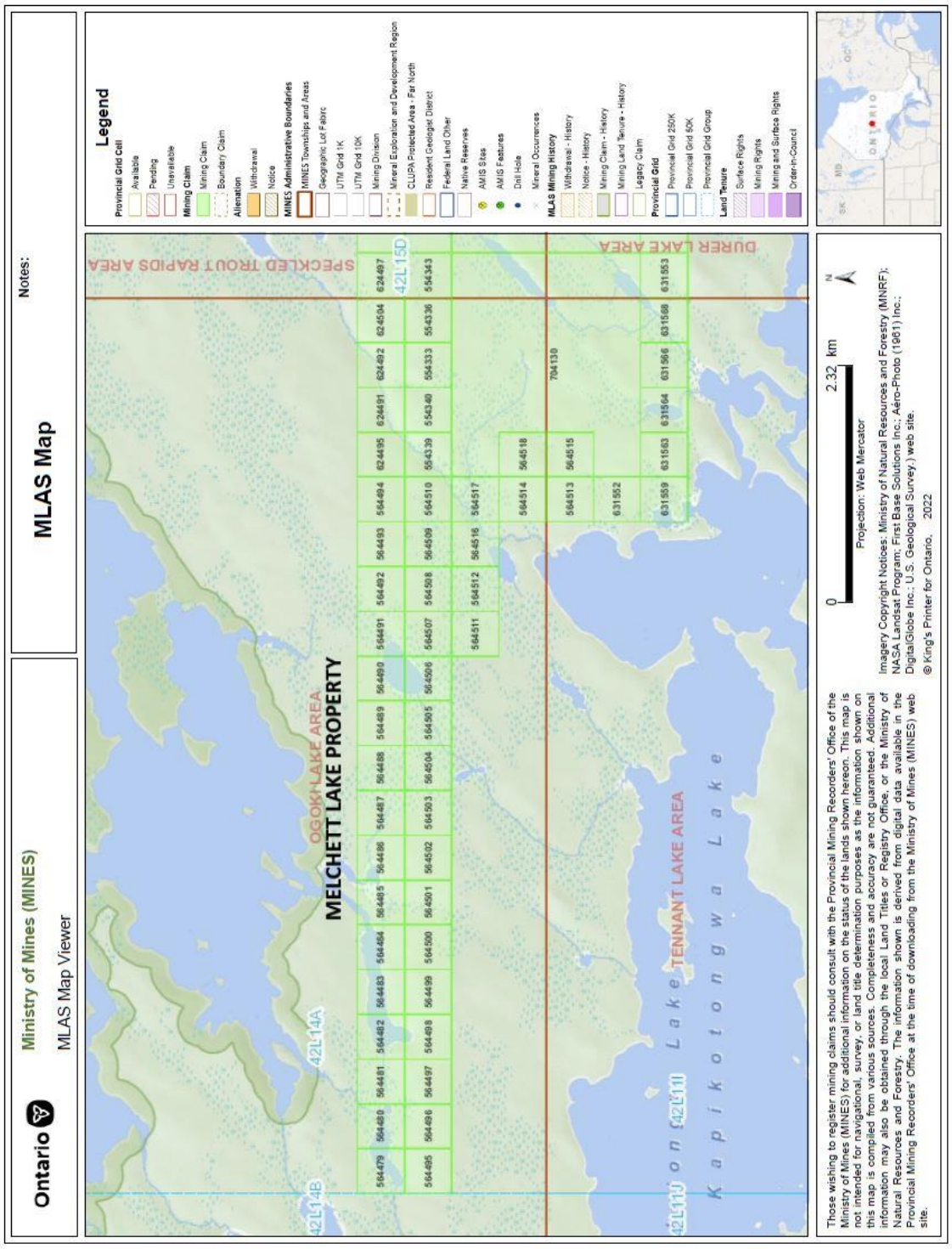

Figure 5. Mineral Claim Map – Western Claims

5.0 ACCESS, CLIMATE, PHYSIOGRAPHY, LOCAL RESOURCES, AND INFRASTRUCTURE

5.1 Access

The Melchett Lake property is accessible via ski or float equipped aircraft from Nakina or Jellicoe to Kapikotongwa Lake, Melchett Lake or Relf Lake. At present, an all-weather road in part owned historically by Dofasco-Anaconda exists between Nakina and that company's inactive iron ore mine site at Melchett Lake. The distance by road from the abandoned mine site to Nakina is approximately 90 kilometres with the last 15 kilometres identified as the Anaconda Road. The main road currently is being extended from the old airport site to Marten Falls to the north and passes within 4-5 kilometres from the southeast corner of the Melchett Lake property, and approximately 8 kilometres northwest to the Relf Zone.

5.2 Climate

The Property area is part of Greenstone community which experiences a humid continental climate, with long, brutally cold winters and warm summers (Figure 6). The highest temperature ever recorded was 40.0 C (104 °F) on July 11 & 12, 1936 (at Longlac). The coldest temperature ever recorded was −50.2 C (−58.4 F) on 31 January 1996 (at Geraldton Airport). December 2017 brought bitterly cold weather to the region, with nearly a week of temperatures near -50°C.

The summer period is approximately 97 days in length extending from the beginning of June to the beginning of September; autumn lasts about 60 days and commonly extends into November.

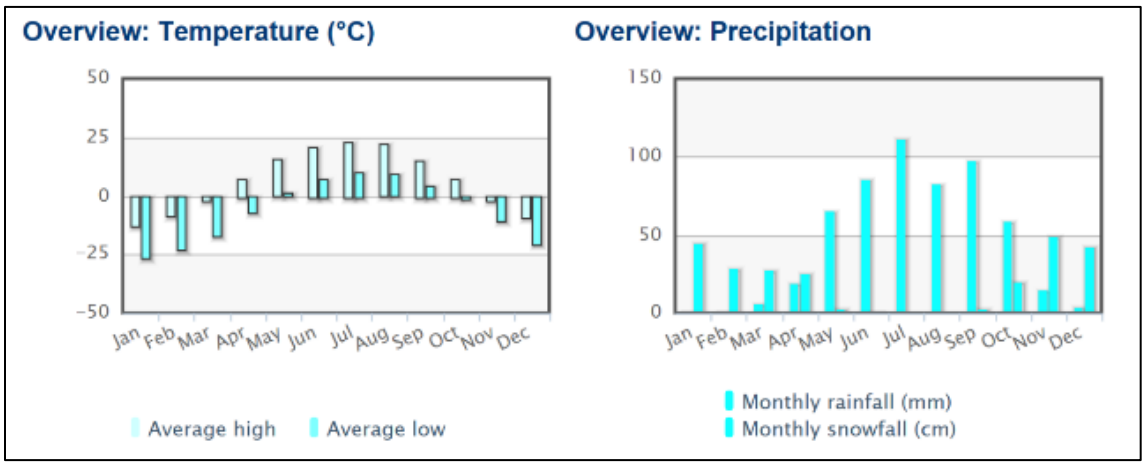

Figure 6. Climate Data

The winter season lasts approximately 6 months extending from November through to May. Although the area normally has about six months of snow-free conditions, exploration and mining work typically can be carried out throughout the year.

5.3 Physiography

The relief on the property is generally subdued, with areas of moderate relief. These areas are represented by outcrops which may range between 5 metres and 35 metres in relief with commonly steeply-sloping faces on the north, and ridges of glacial deposits. Subvertical to sloping cliffs up to 15 metres high often are found on the north and northeast facing margins of bedrock highs. Location of bedrock highs is apparently controlled by proximity to structural lineaments, metamorphic fabric, glacial drift orientation and lithological contrasts. The latter is evidenced particularly by distinct northwest and north-trending patchy ridges dominated by Late Precambrian diabase dykes. A number of elongated, discontinuous sinuous north to northeast-trending ridges across the Melchett property consist solely of glacial outwash with well-defined esker deposits.

The drainage pattern trends south and southwest, which is parallel to the direction of the last glaciation to affect the area. Although elongate finger lakes are common, many of the streams and lakes simply wrap around bedrock and glacial ridges. Many lakes and streams are modified by an abundance of beaver dams. Recent sedimentation in the lakes, especially the predominance of sandy spits on the northeast shoreline of Kapikotongwa and the corresponding bedrock cliffs surrounding the northern shores of Melchett Lake, shows a distinct relationship to the local availability of glacially derived detritus.

Photo 1. Aerial view of the Key Lake area showing typical bog and low ridge physiography

The vegetation on the property (Photo 1) is controlled by both lithological and glaciological parameters. The glacial ridges support mixed forests of fir, poplar, birch, black spruce and jack pine, whereas the lowlands are covered by sparse black spruce and sphagnum mosses. The bogs

and wetlands support alder and cedar. The outcrops are commonly covered by deadfall from the vegetation in the surrounding area. Vegetation and surficial geology maps were documented in Wahl and Davison (1984) and validated using the current aerial imagery.

5.4 Local Resources and Infrastructure

The property is part of Greenstone area which is an amalgamated town in the Province of Ontario with a population of 4,636 according to the 2016 Canadian census. Greenstone Town stretches along Highway 11 from Lake Nipigon to Longlac and covers 2,767.19 square kilometres (1,068.42 sq mi). The town was formed in 2001, by combining the former Townships of Beardmore and Nakina, the Towns of Geraldton and Longlac with large unincorporated portions of Unorganized Thunder Bay District.

The Town of Geraldton has a population of 1,893 (2011). Geraldton is situated in northwestern Ontario on the Canadian National Railway, 282 km northeast of Thunder Bay was established in the early 1930s during the Little Long Lac gold rush. At the height of the boom in the later 1930s, Geraldton acted as a service center to a dozen gold mining camps as well as to the developing pulpwood industry in the area. The area has seen exploration booms in the 1980's and more recently with the advance of gold exploration and development projects near Geraldton (e.g., Greenstone Gold - Hard Rock) and several gold and base metal projects (e.g., Marshall Lake) in the region.

Photo 2. Seasonal access to Melchett Lake by float plane

Limited services are available in Nakina (Photo 2) but include the principal base for transportation by float plane and an airport capable of handling private airplanes and charter helicopter operations. Several business ventures, joint ventures and development companies, in whole and

in part owned by the local First Nations (e.g., Aroland, Ginoogaming, AZA, etc.) are operating through the Greenstone region, provide a number of potential service relationships and partnerships through technical, logistical and human resource opportunities.

The city of Thunder Bay, located via a major highway about 300 kilometres to the southwest of the Property, has most of the required supplies for exploration work including drilling and geophysical survey companies, grocery stores, hardware stores, exploration equipment supply stores, restaurants, hotels and a hospital. Many junior exploration and mining companies are based in Thunder Bay, and thus the city is a source of skilled mining labour.

There are several lakes, rivers and creeks in and around the Melchett Lake Property area which can be used for access and as a source of potable water. There is no electrical power in the vicinity of the Property. An onsite temporary camp will be required for longer term exploration work such as drilling, geophysical surveys and geochemical sampling. Float plane or winter trail access to potential camp locations has been used for past exploration though boat or Skidoo access via Melchett Lake to the adjoining lakes may be utilized with the improved road conditions. The Marten Falls all-season road is under construction from Nakina and has passed the Melchett Lake access points. A left spur to the north past the Kapikotongwa River crossing currently extends to within five kilometres of the Property southeast of Iron Lake and south of Colpitts Lake.

6.0 HISTORY

6.1 1959-2022 – Summary of Exploration

Data on file with the Ontario Geological Survey (OGS) assessment library and ENDM indicates that the first reported work in the Melchett Lake area was carried out in 1959. Subsequent to this time, work has been ongoing incrementally in 1-4 year campaigns over 60 years. Listed below in Table 2 is a summary of work on file and pending as it applies to the Melchett Lake property.

Table 2. Summary of Exploration History

Year	*Operator*	*Work*
1959-63	Kerr-Lund and Little Long Lac Mines Option	• discovery of zinc mineralization • trenching, geophysics (S.P.) and geochemistry • drilling 6 holes at Relf Lake
1964	Shawmin Exploration	focused on Relf Lake area (Kerr-Lund showing) • trenching main zone 45 feet wide • average results: 9.43 oz/t Ag, 13% Zn, 1.2% Pb, 0.26% Cu • best results: 16.4 oz/t Ag, 19.1% Zn, 2.2% Pb, 0.40% Cu • drilling of four holes

Table 2 continued. Summary of Exploration History

Year	*Operator*	*Work*
		•
1967-1968	Nakina Mines Ltd.	• magnetics and EM, geochemistry • best results: 0.84 oz/t Au, 14.85% Zn
1968-1970	Chimo Gold Mines	• magnetics and EM at Relf Zone • no conductors, magnetically flat • were unable to join Nakina Mines zones and Relf Zone
1975	Falconbridge	• airborne magnetics and EM survey • numerous (40) conductors but none related to known mineralization
1978-1981	Cominco	• magnetics, I.P. and geologic mapping • drilled 10 holes on I.P. anomalies • intersected disseminated pyrite • did not drill known sulphide zones
1983-1987	Kerr Addison Mines Ltd.	• magnetics, VLF, geologic mapping, whole rock geochemistry, soil geochemistry • diamond drilling, down hole EM
1997-1998	Redbird Gold Corporation	• magnetics and HLEM (horizontal loop electromagnetics) • results indicate low mag and no conductors on the eastern part; and high mag plus multiple conductors on the west side
2000-2002	Tribute Minerals Corp.	• airborne HeliTEM (DighemV); significant number of conductors and magnetic lineaments
		•
2002-2006	Melchett Syndicate	• limited reporting on geophysics, Max-Min, magnetics
		•
2007-2010	Stratabound Minerals	• drilling 2 DDH, BHTEM on 1 hole
		•
2011-2013	Anconia Resources	• BHTEM on 1 hole, core geochemistry, no records filed
		•

Table 2 continued. Summary of Exploration History

Year	*Operator*	*Work*
		•
2017-2019	Kuzmich Syndicate	• limited geology, geochemistry and data compilation
		•
2019-2022	Silver Spruce Resources	• site due diligence, rock and core sampling, rock lithogeochemistry, prospecting, GIS verification analysis of historical drill hole locations, Phase 1 archeological studies, airborne geophysical surveys and interpretations, base camp construction, initiated line cutting, contracted Spartan geophysics, completed Eagle LiDAR survey, 2D and 3D interpretation of LiDAR data

Significant results from the early historical work provide the impetus for continued exploration on the Melchett Lake property including Kerr Addison from 1983-1987 (Wahl, 1985, Ottone, 1987). A selection of Relf and Nakina Zone samples collected in 1983 and 1984 by Kerr Addison geologist and current Silver Spruce director G. Davison is shown below in Table 3.

Table 3. Historical Assays – Kerr Addison

Sample No. Relf	Zinc ppm	Lead ppm	Copper ppm	Silver ppm	Gold ppb	Zinc %	Silver g/t
A-244	>10000	5400	1900	>100	78	**7.03**	**120.7**
A-245	>10000	5600	3500	>100	**900**	**8.65**	**133.7**
A-246	>10000	>10000	2600	>100	110	**7.97**	**181**
A-247	>10000	5500	7000	>100	**1700**	**6.19**	**160.2**
A-248	>10000	3700	3200	>100	250	**8.65**	**133.7**
A-249	>10000	1900	2100	64	97	**10.3**	
A-250	>10000	1500	620	11	34	4.23	
A-253	>10000	300	610	7	84	**5.13**	
A-923	>10000	2480	1420	62	70	NR	
A-925	>10000	645	2120	29	57	NR	
A-926	>10000	420	2500	23.2	15	NR	

Table 3 continued. Historical Assays – Kerr Addison

Sample No. Nakina	Zinc ppm	Lead ppm	Copper ppm	Silver ppm	Gold ppb	Zinc %	Silver g/t
A-215	>10000	300	46	NR	**720**	2.89	
A-437	>10000	2500	420	14.2	270	NR	
A-439	>10000	2600	89	17.4	**560**	NR	
A-441	>10000	210	1950	10.6	**1000**	NR	
A-505	>10000	>10000	660	6.8	230	NR	
A-512	>10000	1900	39	3.8	42	NR	

Selected grab samples taken from the Relf Zone by Shawmin averaged 13.0% zinc (Zn), 1.2% lead (Pb), 0.26% copper (Cu) and 325g/t silver (Ag); best results received were 19.1% Zn, 2.2% Pb, 0.40% Cu, 565g/t Ag and 1.72g/t gold (Au) (Table 4). At the Nakina 1 Zone, Nakina Mines reported (Table 4), in separate samples, 14.85% Zn and 28.8g/t Au from a pyritized felsic volcanic unit. Rock sampling of a pyritized felsic volcanic unit in the Nakina 2 Zone by Kerr Addison returned a value of 15.08 g/t Au.

Table 4. Historical Assays (* values from diamond drilling, ** values from trenching)

Zone	Length (m)	Au (g/t)	Ag (g/t)	Zn (%)	Cu (%)	Pb (%)
Nakina	1.67 *	--	12	2.37	--	--
Nakina	0.61*	0.6	24	**8.25**	--	1.08
Nakina	Grab	**9.3**	29	**14.85**	0.23	--
Nakina	Grab	**26.1**	**123**	0.15	**1.65**	--
Nakina	Grab	0.9	60	2.97	0.05	**5.5**
Nakina	Grab	0.3	12	**7.65**	0.10	--
Relf	6.65*	--	**--**	**0.84**	**--**	**--**
Relf	13.71**	--	**293**	**13.0**	0.26	1.2
Relf	Grab **	--	**510**	**19.1**	0.40	**2.2**
Relf	Grab	1.7	**160**	**6.19**	0.70	1.02
Relf	Grab	0.1	58	**10.3**	0.20	0.19

A selection of Relf Zone samples collected in 1996 and 1997 by Redbird Gold is shown in Table 5.

Table 5. Historical Assays – Redbird Gold

Sample No. Relf	Zinc %	Lead %	Copper %	Silver g/t Relf
1061	12.90	1.920	0.288	552
1064	11.60	0.866	0.507	278
1065	16.80	2.400	0.075	655
1066	8.26	0.330	0.972	170
1067	11.10	1.300	0.142	394
1068	9.88	0.558	0.154	179

A selection of Nakina and Relf Zone samples collected by Silver Spruce Resources in 2019 are reported in Section 6.6.

Gold mineralization in the Iron Lake area is reported to be traced for at least 600 metres within a sheared, sericite-silica altered felsic metavolcanic and contains 3-8% pyrite, with lesser chalcopyrite and sphalerite. Historical grab samples reported 7.7g/t Au, 13.05g/t Au and 13.48g/t Au.

No exploration in the Iron Lake area has been conducted since Rio Tinto in the early 1990's.

6.2 2007 Drill Program

In 2007, a single deep, 619-metre BQ drill hole (KAR-09, later SB07-01) tested the downward extension of mineralization associated with the Relf zone. The hole was begun at -75° dip, completed at -56.2° dip on a collar azimuth of 180°. Diamond drilling was performed by Boart-Longyear of Haileybury, Ontario, between October 22 and November 10, 2007. Drilling indicated that mineralization to be continuous and open at depth. This drill hole ended in a 7metre interval of a highly silicified lithology which was interpreted as associated with the untested anomaly.

6.3 2008 Drill Program

In 2008, another BQ drill hole was drilled on the Property by Layne Christensen of Sudbury, Ontario. Hole SB08-02 was terminated at 688 metres in depth and its purpose was to test the down-dip extension of an intense geochemical anomaly present in the Relf Zone and to attempt to determine the causative source of a strong BHTEM conductor identified in drill hole SB07-01. The hole was begun at -80° dip, completed at -56.1° dip on a collar azimuth of 180°.

The whole rock geochemistry of the felsic volcanics indicated that alteration within the was more intense than that reported in the near-surface drill hole KAR-03. Geochemically anomalous Cu mineralization was reported within the immediate footwall to the "mineralized sequence".

The whole rock geochemistry of the felsic volcanics in SB-08-02 were found to be more intense indicating an increasing proximity to a source vent. The richest Zn mineralization intersected to date was reported in drill hole SB-08-02 and copper mineralization was characterized by fine interconnected veinlets of chalcopyrite, which is consistent with a stockwork zone found to underlie VMS deposits.

6.4 Downhole Geophysical Interpretation of 2007 and 2008 Drilling

A down the hole BHTEM survey was completed on hole SB-07-01. The downhole EM survey carried out by Quantec (Coulson, 2002) outlined a 'strong conductive anomaly' past the current extent of drilling.

Though the reports by the geophysical contractor (Coulson, 2002) identified three in-hole and off-hole conductors in SB-07-011, Webster (2012) indicated that there were no in-hole conductors, either related to the Zn horizons within the "mineralized sequence" nor the Cu mineralization in the immediate footwall felsic volcanics though one significant moderate intensity anomaly was detected off the bottom of hole SB-07-01 and was interpreted to be located 100m to the east.

In 2012, Anconia (Webster, 2012) completed a BHTEM survey of drill hole SB-08-02 and identified numerous conductive zones. Within the footwall felsic volcanics, five conductive zones were identified with increased Cu mineralization. As per SB-07-01, another off-hole conductor was identified at depth and potentially to the east.

The interpretation is consistent with a plunging zone with increasing Zn and Cu values and may vector to a vent stockwork zone.

6.5. 2018-2019 Kuzmich Syndicate (Vendor)

The work included reconnaissance prospecting, trail cutting, data compilation, core storage inventory, and infrastructure analysis. Phase 1 focused on the Nakina Trend, while Phase 2 focused on the Relf Showing. The program confirmed the presence of zinc mineralization at the Relf showing. The data compilation has provided an invaluable insight into the structural and style of zinc mineralization on the Property.

The rock and core sampling program (Table 6) also defined a mineralized trend associated with the historical location of the Nakina Zone.

Table 6. 2018-2019 Kuzmich Syndicate Grab and Drill Core Sampling

Sample ID	Sampler	Location ID	Easting	Northing	Type	Description
152901	A. Pleson	West Nakina Trend	498854	5622211	Grab	4% blebby po, minor diss py, very rusty, silceous felsic volcanic, wk magnetic
152902	A. Pleson	Nakina Trend	498875	5622202	Grab	50-60% quartz. Quartz flooded felsic volanic, 2% disseminated po, weakly magnetic
152903	A. Pleson	Nakina Trend	499212	5622197	Grab	Sercite schist, quartz flooded, mod foliation, trace biotite, 1% diss pyrite, tr po,
152904	A. Pleson	Nakina Trend	499212	5622197	Grab	Strong ankerite orange alteration on weather surface, with patches of pure black oxidation, felsic vol, 2% diss f.g. py.
152905	A. Pleson	Nakina South	498216	5621163	Grab	gossaned outcrop, highly siliceous biotite-serecite schist, 3% po diss, trace diss py, minor blebs of coarse grained py throughout, mod folition
152906	A. Pleson	Nakina Trend	499629	5622335	Grab	rusty felsic volcanic, similar to the rest of the trend, disseminated po and py (~2% combined) fine grained, weak foliation E-W trend, 10% of sample is white quartz vein, not mineralized
152907	A. Pleson	Nakina Trend	499629	5622335	Grab	same as previous but ~ 0.5% more po, weakly magnetic
152908	A. Pleson	Nakina Trend	499615	5622326	Grab	gossaned outcrop, highly siliceous biotite-serecite schist, 3% po diss, trace diss py, minor blebs of coarse grained py throughout, mod folition
294251	Afzaal Pirzada	Relf Trench	503703	5622234	Grab	Tr sulphides
294252	Afzaal Pirzada	Relf Trench	503744	5622241	Grab	serecite schist
294253	Afzaal Pirzada	Relf	503774	5622241	Grab	Zn, argillite
294254	Afzaal Pirzada	Relf	503744	5622241	Grab	Massive sulphide zone
294415	Afzaal Pirzada/Alex Pleson	Relf Core	503715	5622249	Drill Core	Serecite schist, silceous, tr cpy blebs, ~2% diss py, bands or stringers of sphalerite cross-cut foliation (5-8%)
294416	Afzaal Pirzada/Alex Pleson	Relf Core	503715	5622249	Drill Core	Serecite schist, siliceous, massive blebs of cpy + py associated to very silica flooded layer, spacradic crystals of sphalerite

Sample ID	Sampler	Location ID	Easting	Northing	Type	Description
152901	A. Pleson	West Nakina Trend	498854	5622211	Grab	4% blebby po, minor diss py, very rusty, silceous felsic volcanic, wk magnetic
152902	A. Pleson	Nakina Trend	498875	5622202	Grab	50-60% quartz. Quartz flooded felsic volanic, 2% disseminated po, weakly magnetic
152903	A. Pleson	Nakina Trend	499212	5622197	Grab	Sercite schist, quartz flooded, mod foliation, trace biotite, 1% diss pyrite, tr po,
152904	A. Pleson	Nakina Trend	499212	5622197	Grab	Strong ankerite orange alteration on weather surface, with patches of pure black oxidation, felsic vol, 2% diss f.g. py.
152905	A. Pleson	Nakina South	498216	5621163	Grab	gossaned outcrop, highly siliceous biotite-serecite schist, 3% po diss, trace diss py, minor blebs of coarse grained py throughout, mod folition
152906	A. Pleson	Nakina Trend	499629	5622335	Grab	rusty felsic volcanic, similar to the rest of the trend, disseminated po and py (~2% combined) fine grained, weak foliation E-W trend, 10% of sample is white quartz vein, not mineralized
152907	A. Pleson	Nakina Trend	499629	5622335	Grab	same as previous but ~ 0.5% more po, weakly magnetic
152908	A. Pleson	Nakina Trend	499615	5622326	Grab	felsic volcanic, wk foliation E-W, minor rusty along fractures, tr diss py assciated to fractures, v.wk silica alteration, disseminated py, with odd random blebs of slightly coarser py, tr po;

6.6. 2019 Silver Spruce Resources - Geochemistry and DDH GPS Survey

The 2019 Melchett Lake project work was performed to verify the multi-kilometre strike length of the known areas of mineralization, broad intervals of mineralization, intense alteration profile similar to well-known polymetallic deposits, and presence of high-grade values of both precious metals and base metals reported from the historical exploration.

A key aspect of the program was the identification and verification of GPS co-ordinates for the historical drill collars to develop an accurate plan map and 3D Leapfrog model of the target areas for future drilling plans, to confirm the distribution of geochemical anomalies downhole and relative to the surface geological and geochemical mapping, and to confirm the xyz-coordinate location of downhole EM anomalies associated with 2007-2008 drilling. In addition to the important task of georeferencing historic drill hole locations and determining the correct collar identification, the program also included reconnaissance sampling, prospecting and geological investigations on both the Nakina showing and Relf showing.

The GPS survey noted that minor to major differences in the collar positions were evident and deviation of diamond drill holes from the MNDM database to the corrected position ranged to more than 225 metres. Plans and section views (Pleson and Davison, 2020) document the collar locations. Additional GPS acquisition and collar surveying for the historical collars will be a requisite adjunct to the follow-up ground exploration program. It was very apparent that 2D and 3D modelling would inherit significant diversions from the true locations had this survey not been completed prior to re-interpretation of the BHTEM, positioning of the proposed follow-up deep penetrating geophysical surveys, and Leapfrog modelling for drill holes and Maxwell plates prior to proposed follow-up diamond drilling programs.

The team examined the principal showings and trenches, and drill core storage conditions at the Relf and Nakina targets separated by five kilometres along the principal mineralized trend. Limited ground truthing of geochemical and geophysical targets was conducted by prospecting over areas peripheral to the known mineralization. Limited time was available for stripping of outcrops, including quartz veins, but was conducted in both Nakina and Relf Zones and included searching for mineralized float. The area is covered by glacial debris, albeit thin in places, consisting of outwash, esker and lacustrine deposits, much of which can be closely correlated with the vegetation and surficial geology maps (Wahl and Davison, 1984).

Drill core were reviewed from two holes in 2007 and 2008 at Relf Lake and Kerr Addison core from the 1983-1987 programs stored near the Kapikotongwa Lake ("Kap") camp location, two kilometres west of the Nakina showings. Most of the well mineralized intervals were sampled in their entirety by Kerr Addison, Redbird, Melchett Syndicate, Stratabound and Anconia Resources.

Rock sampling was carried out at both the Nakina and Relf targets at known trench locations. The Nakina targets are characterized by high silica-pyrite and a well foliated micaceous fabric. The Relf trenches are intensely altered and well oxidized with extensive gossans with friable to silicified quartz-sericite schists, and massive to spongy ferroan sphalerite with pyrite in stringers to lenses of several centimetres, now exposed over an area of forty by twenty metres.

A total of seventy-two (72) rock and core samples were collected analysis of Cu, Zn, Pb and multi-element geochemical analysis and Au.

Zinc values range up to 14.7%, lead to 0.96%, copper to 0.52%, silver to 301 g/t, and gold to 0.737 g/t and clearly represent the polymetallic nature of the mineralization from both targets, particularly the Relf Zone.

A selection of the significant precious and base metal assay data is tabulated below in Table 7.

Table 7. Select Results from 2019 Sampling Program

Sample No. Nakina	Zinc ppm	Lead ppm	Copper ppm	Silver ppm	Gold ppm	Zinc %	Silver g/t
108101	20	10.6	16.5	1.1	0.031		
108102	2	0.4	0.7	0.02	0.002		
108103	3310	892	58.6	1.6	0.088		
108104	>10000	6690	399	4.06	0.383	3.24	
108105	108	63.8	11.8	0.31	0.022		
108106	230	22.5	52	1.04	0.012		

Table 7 continued. Select Results from 2019 Sampling Program

Sample No. Relf	Zinc ppm	Lead ppm	Copper ppm	Silver ppm	Gold ppm	Zinc %	Silver g/t
108201	203	12.4	51.7	1.02	0.012		
108204	>10000	622	1465	27	0.053	3.98	
108205	>10000	634	1470	27.5	0.03	1.08	
108207	>10000	1185	2250	52.7	0.034	4.42	
108210	>10000	2740	5180	>100	0.737	9.12	131
108211	>10000	863	2050	39.1	0.054	4.89	
108217	>10000	9650	1600	>100	0.119	14.7	301

The complete analytical certificates and QA/QC documents are reported in Pleson and Davison (2020). All the above metal values were reported by past operators including Silver Spruce Resources in the Melchett Lake area, from core and/or grab samples which may not be representative of the metal grades and are historical in nature.

The trench and core samples exhibit low alkali content, favourable pathfinder ratios, e.g., Zn/Na, and elevated values of heavy metals, including Te, Bi, Se, Sb, Hg, Cd and In, associated with sphalerite, galena, chalcopyrite and pyrite observed in the rock samples. The geochemical data from the samples confirm the intense alteration in the principal mineralization with extensive major and minor element mobilization and replacement consistent with hydrothermal and metamorphic effects, the former associated with subsea potassic alteration to a very thick sericite-muscovite-silica dominant package and accompanied by the expected sodium depletion and correlative high Zn/Na ratios.

Primary copper mineralization appears to be associated with both disseminated sulphides and possible later quartz vein hosted structurally controlled by both metamorphic fabric and remnant stockwork style mineralization. Intense alteration at depth associated with higher copper values, and the Maxwell modelled plates identified in the recently acquired BHTEM data, is consistent with vectoring toward a VMS source. There was no local evidence observed of the high Mg enrichment associated with a chloritic vent or pipe hosting the core of the mineralization though there are units represented by felsic in mafic (FIM) breccias east of the principal Relf targets observed by the second author which may indicate amphibole-rich matrices after early hydrothermal chlorite. Given the paucity of structural and younging directions in the volcanics, and given the additional in-house interpretation of the 2002 and 2010 magnetic and EM surveys, it is entirely possible that the sequence has been repeated and thickened by folding of an isoclinal nature, and is less likely to be represented as a simple homoclinal section from south to north.

6.7 2022 Silver Spruce Resources - MPX Geophysical Survey

The MPX Geophysics survey was carried out to meet assessment requirements of the project claims prior to the deferred, ground-based line cutting and Quantec Spartan survey given constraints of personnel and services company schedules, lengthy periods of time through January to September 2021 required for ENDM and FN communications, exploration agreement timelines completed in late September 2021 with the Ginoogaming FN (GFN) in part due to COVID-19 and multiple events affecting members of GFN, exploration permit timelines required for COVID-19 extensions, reclassification of the exploration permit extension by ENDM due to additional FNs within the area influenced by the Melchett lake property and ENDM policies regarding information requests and disclosure from the Ginoogaming FN, among others including shortages of labour for technical and logistical aspects of the planned work programs.

The airborne survey comprised a 927 line-km along N-S flight lines with 100 metre nominal line spacing, and 91 line-km of E-W oriented tie lines with 1,000 metre nominal line spacing (see Davison, 2021 for full description of the survey parameters). The Property grid (Figure 7) covered a total area of approximately 18 km E-W along the general strike of the VMS mineralization and 5km N-S with three 1 km steps to encompass the claim location. The Piper Navajo PA31 aircraft flew daily from Thunder Bay 310 km SW of the Property. The survey collected magnetic, radiometric and VLF EM data supported by leading-edge positioning and processing equipment, both in the aircraft cabin and on the ground with the GEM Systems GSM-19 Base Station Magnetometer and a field data processing workstation. Additional maps and survey parameters are provided with the MPX report (Davison, 2021).

Preliminary analysis of the MPX airborne survey confirmed and provided considerable detail and additional survey data (radiometrics and VLF) over and above the aging 2002 DighemV survey carried out by a Fugro predecessor, and the regional 2010 magnetic gradiometer survey (OGS, 2010) carried out at 200 metre line spacing and regional scale airborne surveys, respectively.

All of the past and present surveys clearly show numerous NW-trending faults, some parallel to late diabase dykes, transected and offset the Melchett Lake metavolcanics, in some areas by hundreds of metres, with complementary NE-trending faults, typically with lesser amounts of displacement as indicated in Figure 8 from the 2010 survey (Stott and Rainsford, 2010) and in Figures 9 and 10 showing preliminary TMI and 1VD images from the MPX survey in 2021. Figure 8 illustrated and confirmed the general regional 2010 picture but the scale and data spacing requires more focus for enhanced exploration of the belt, hence the current study and the planned re-analysis of the 2002 and 2010 digital data.

The preliminary total field magnetics and the calculated horizontal field magnetics from the latter clearly define the complex structure of the Melchett Lake metavolcanic belt (Davison, 2021) and further detailed interpretation to apply for drill planning is recommended and was contracted to a third-party consulting geophysicist for analysis.

The movement is clearly noted in the various groups of diabase dykes which occurred with several major orientation sets and differing levels of magnetic character from strong positive to moderate negative relative to the metavolcanic package. Tracking of the metavolcanic package from east to west indicates a potential imbricated displacement pattern moving further north going westward. Stott and Rainsford (2010) utilized the gradient enhanced magnetics and 2nd vertical derivative to define the regional offset patterns.

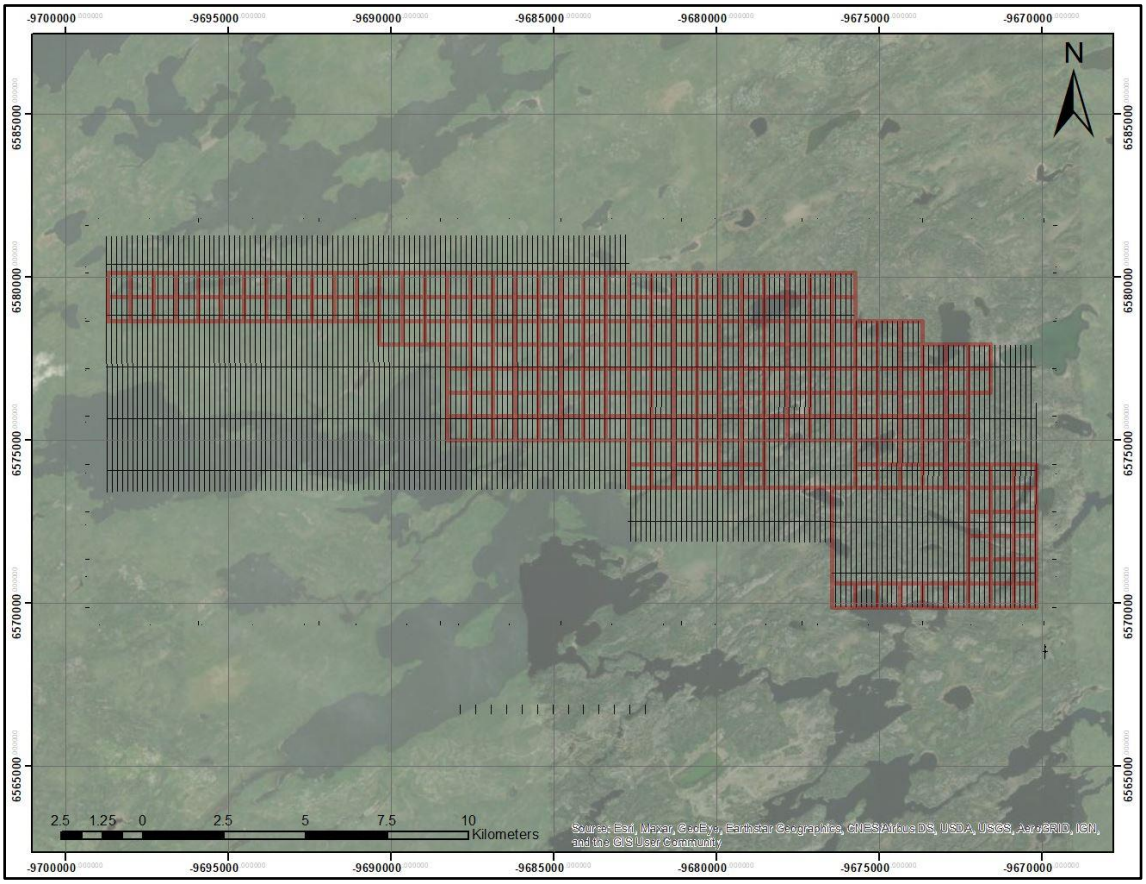

Figure 7. Location map of MPX Geophysics airborne survey (UTM WGS 84) using 100m N-S flight lines and 1000m E-W tie lines. Base map - World Imagery.

The current study determined the 1st vertical derivative and the 2nd vertical derivative maps were calculated during the In3D Geoscience analysis and interpretation. Faulting and folding are clearly evident as compared to early geological interpretations of simple block tectonics with a single younging direction. The digital data requires further focus on the principal targets with compilation of the three surveys.

The western and parts of the eastern metavolcanics are characterized by strong magnetic and VLF/EM response attributed to the presence of pyrrhotite and other sulphides associated with chemical metasediments or other exhalite horizons peripheral to the Zn-Ag core of the alteration system. The core area has much less defined VLF/EM response though the magnetics suggest that several parallel east-west trending units or limbs are present though discontinuous and offset by branching northwesterly faults.

The eastern area of the belt clearly indicates tight isoclinal folding with steeply dipping trends based on the symmetry of the magnetics in total field and vertical derivative maps, though the transition into the core of the metavolcanics loses clarity in part due to the paucity of iron formation and magnetic sulphide units, and in part by intersecting, variably magnetized diabase dykes transecting the metavolcanics.

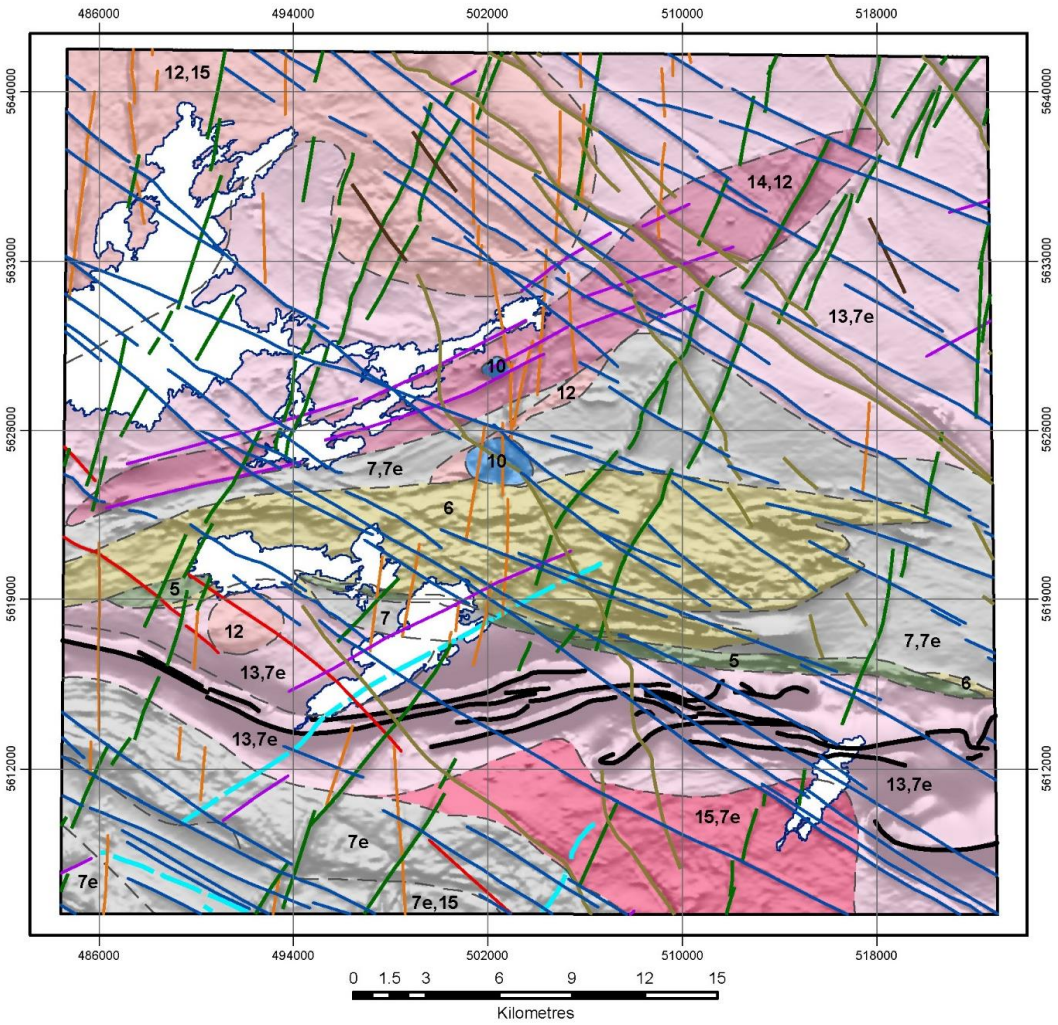

Figure 8. General bedrock and major structures of the Melchett Lake area from 2010 regional geophysical survey (Stott and Rainsford, 2010).

The western and parts of the eastern metavolcanics are characterized by strong magnetic and VLF/EM response attributed to the presence of pyrrhotite and other sulphides associated with chemical metasediments or other exhalite horizons peripheral to the Zn-Ag core of the alteration system.

The core area has much less defined VLF/EM response though the quadrature indicates anomalies over both the Nakina and Relf showings and significant trends around Key Lake and southeast of Iron Lake (Davison, 2021).

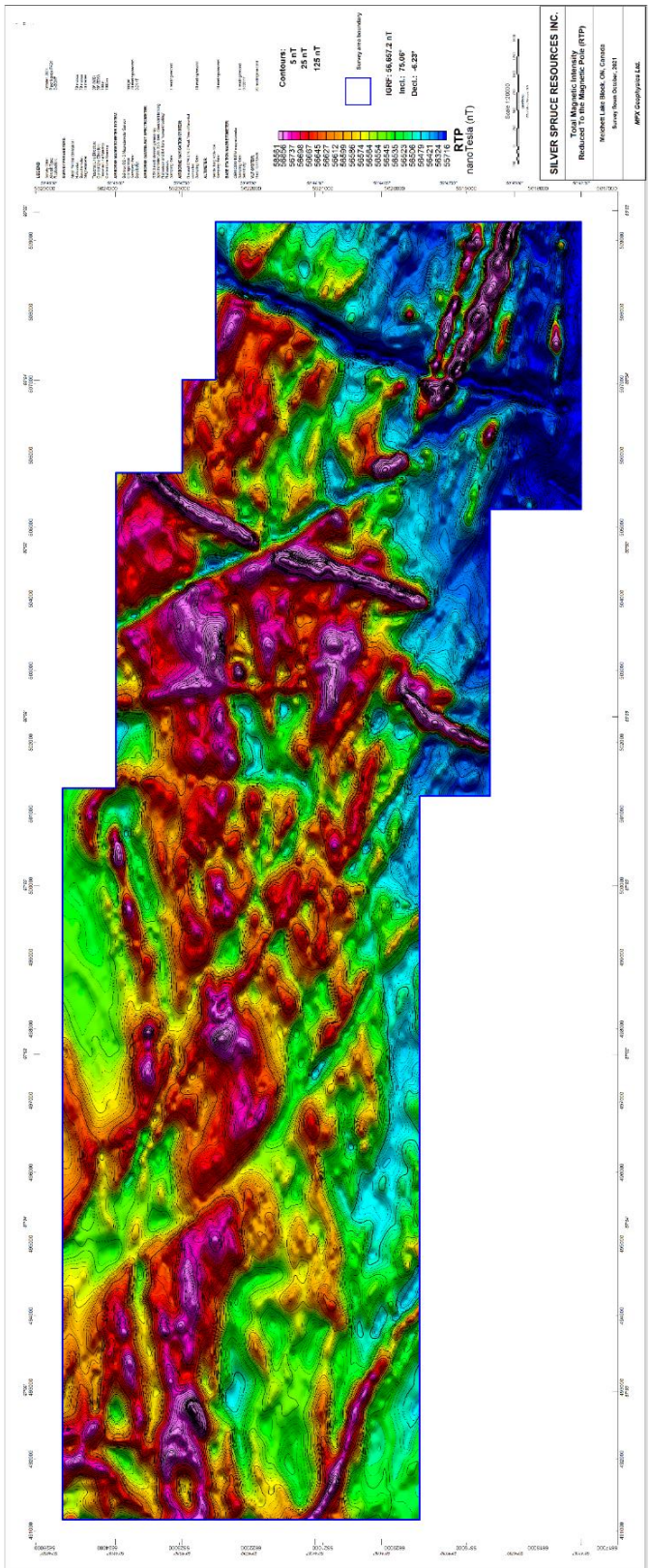

Figure 9. Preliminary map of total field magnetics reduced to pole over Melchett Lake property (MPX, 2021).

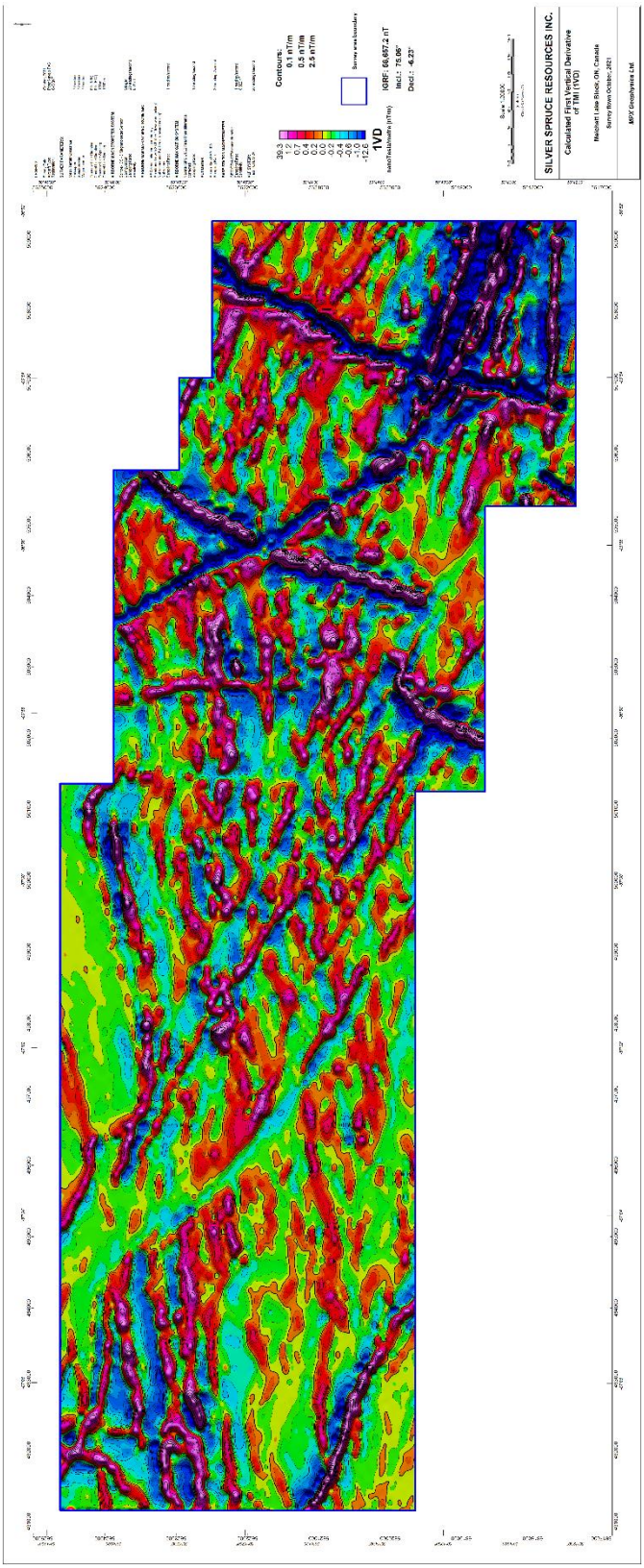

Figure 10. Preliminary map of 1st vertical derivative over Melchett Lake property (MPX, 2021).

Magnetic interpretation also suggests that several parallel east-west trending units or limbs are present though discontinuous and offset by branching northwesterly faults. The eastern area of the belt clearly indicates tight isoclinal folding with steeply dipping trends based on the symmetry of the magnetics in total field and vertical derivative maps, though the transition into the core of the metavolcanics loses clarity in part due to the paucity of iron formation and magnetic sulphide units, and in part by intersecting, variably magnetized diabase dykes transecting the metavolcanics.

Radiometrics indicate variance in geology to the west from Melchett Lake across Kapikotongwa Lake consistent with a major northwesterly fault identified on the current and historical geophysical surveys.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Melchett Lake property (Figure 11) lies within the English River Sub province of the Superior Province, which is of Archaean age. The property comprises part of the northern metavolcanic subzone of the Melchett metasedimentary-metavolcanic belt, which is some 5 kilometres thick and extends for at least 50 kilometres in an east-west direction (Thurston and Carter, 1969, Bond and Foster, 1981a, 1981b, Devaney, 1999, Devaney and Nacha, 1994). The belt consists of amphibolite grade schists and gneisses flanked by several phases of acidic to mafic intrusions. The schists and gneisses represent original mafic to acidic pyroclastic tuffs and flows with associated greywackes, siltstones and argillites with local iron formations.

The Melchett Lake metavolcanic assemblage (shown in pale yellow coloration) has been estimated to contain approximately 10% mafic rocks, 80% intermediate rocks and 10% acidic rocks, and was interpreted initially to form a northwards-younging sequence with a 500-metre thickness of massive and pillowed mafic volcanic flows grading upwards into a 1500-metre thickness of a well layered, thickly bedded sequence of intermediate tuffs and pyroclastics. Above these lies a unit of felsic tuff-breccias and flows, this is extensively mineralized with pyrite and some sphalerite. This unit is estimated to reach a thickness of 700 metres in the centre of the property but thins markedly both to the east and west to a few metres in thickness over a distance of some 15km in each direction. A thickness of between 750 and 900 metres of intermediate tuffs, breccias and flows overlies this sequence, and marks the onset of a new volcanic cycle.

The supracrustal succession exhibits easterly trending schistosity with steeply to moderately dipping linear structures and has clearly been strongly folded. Several lineaments can be interpreted from aerial photographs, but the consistent outcrop pattern of the late diabase dykes suggest a minimum of late faulting. Many of the observed lineaments may reflect only erosion resulting from the latest glaciation.

Metamorphism in the Melchett belt ranges from middle to upper amphibolite (almandine amphibolite). Local areas of partial anatexis are developed proximal to granitoids.

The supracrustals are characterized by porphyroblasts of garnet, hornblende, and biotite. Schistosity surfaces with well-developed micaceous mineralogy often contain lineated to grabenschiefer hornblende prisms. Crenulation cleavages with fine micaceous layers were developed in the pelitic horizons.

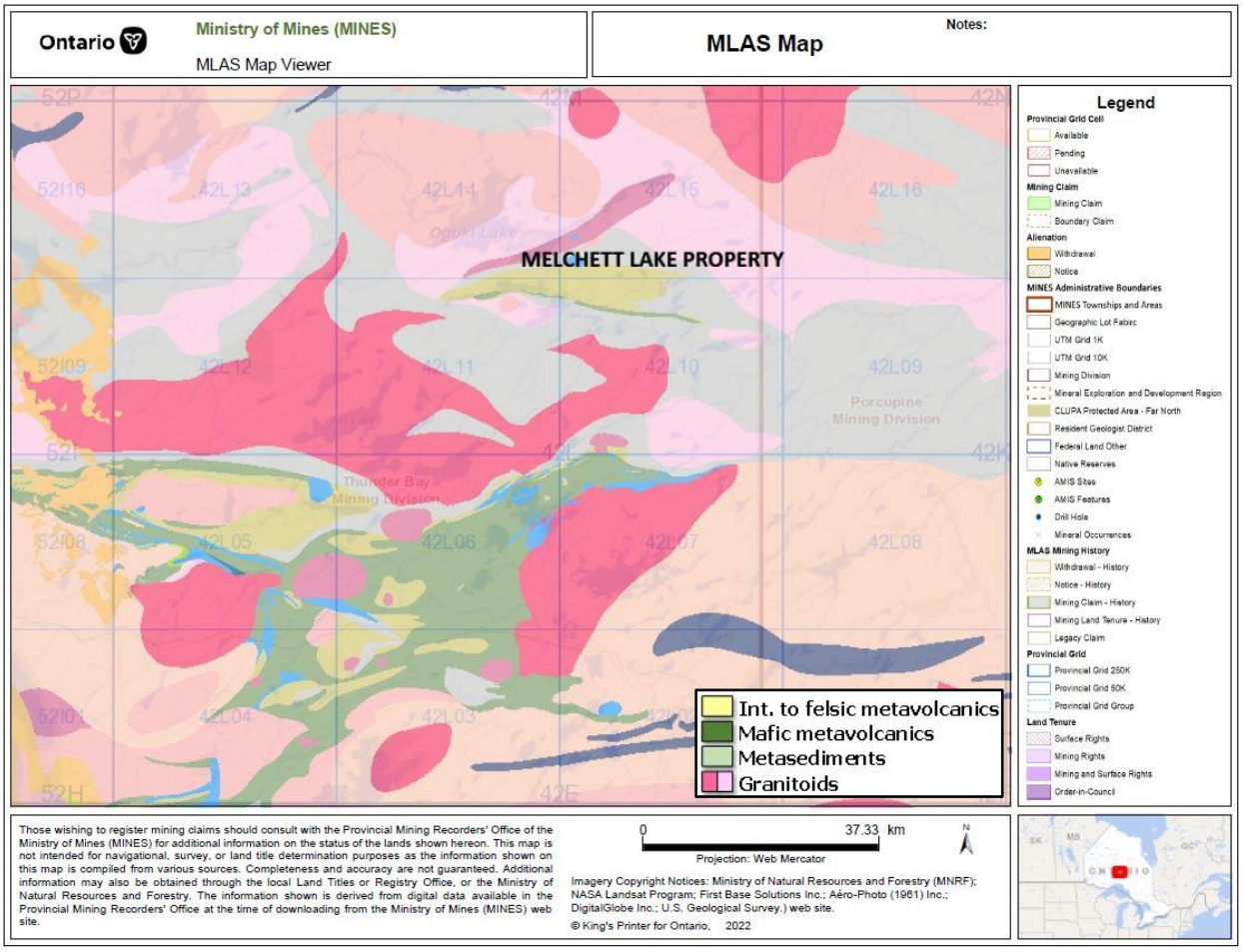

Figure 11. Regional geological map showing Melchett and Marshall-O'Sullivan Lake belts.

Many lineaments can be interpreted from air photographs but consistent outcrop series of diabase dykes suggests a period or more of late brittle faulting. The northeast-trending lineament through Kapikotongwa River offsets diabase dykes in a dextral sense for a distance of 300 metres. Other surficial lineaments may reflect only the latest glaciation.

7.2 Property Geology

The rocks on the Melchett Lake property (Davison and Wahl, 1984 among others) consist of an east-west trending assemblage of schists and gneisses derived from mafic to acidic volcanics and associated epiclastic deposits. The mafic to intermediate rocks are now massive to foliated hornblende- feldspar(-garnet) schists with some fragments in which clast sizes may reach 45cm x 15cm and abundances may reach between 40% and 80%. These fragments probably represent mafic lapilli tuffs. The acidic volcanics are now massive to schistose quartz - feldspar (-sericite)

schists and gneisses, often with siliceous and micaceous layers alternating, and fragmental units containing quartz-feldspar-garnet clasts of up to 40cm x 10cm in size. Some presumed lapilli reach up to 100cm in length, but the degree of structural stretching is unknown.

A few strongly chloritized and schistose mafic dykes occur within the schists and gneisses at Melchett Lake. These are generally deformed, and concordant or semi-concordant to the schistosity of their hosts.

Fold axes and rare facing orientations suggest that the rocks in the core mineralized area of the Melchett Lake property young northwards and form the northern limb of a large easterly double plunging antiform. Later north-south folding and brittle fault features are indicated by crenulations and offsets of strata and dykes.

There are also pegmatitic and quartz veins up to 35cm in width intruding various lithologies on the Melchett Lake property, and late diabase dykes of three types cut across the Archean supracrustal rocks.

Highlights of the prospective geology, alteration and mineralization are as follows:

- Three known centres of coincident alteration and metal mineralization
- Multiple stratigraphic horizons
- Distal and stacked proximal sulphides
- High Zn/Cu, Zn/Pb, Ag/Au
- Extensive remobilization of major and trace elements
- Sericite-quartz-cordierite-chlorite alteration zone
- Broad phyllic-pyrite zones
- Intense Na depletion with elevated Zn, Ca and Sr depletion with elevated Zn
- Fe, Mg, Co, Cr, Cd enrichment within and below mineralization
- Continuity of alteration and anomalous Zn over large intervals in core drilling
- Extensive alteration haloes analogous to world class zinc deposits

7.3 Mineralization

The Melchett Lake belt contains several occurrences of polymetallic Zn-Pb-Cu-Ag-Au VMS style mineralization similar in character to ore deposits exploited at Mattabi, Winston Lake, Geco and Uchi Lake. Base metal mineralization consisting of pyrite, sphalerite, chalcopyrite and galena occurs within the felsic metavolcanic sequences of the Property. There are locally high-grade lenses of Zn & Ag with variable Cu, Au and Pb, and gold grades to 26.1 g/t Au, silver grades to 560 g/t Ag and zinc grades to 19.1%. The mineralization is interpreted to occur as paleo-topographic accumulations related to fumarolic activity forming polymetallic deposits overprinted by a later stage gold-rich event.

Three zones of sulphide mineralization have been outlined on the property to date, the Nakina 1, Nakina 2 and Relf zones, the sites of historical shallow drilling (Figure 12). Nakina 1 extends for some 1.5 kilometres east-west, with the central 300 metres containing zinc (sphalerite) and silver

mineralization and is developed in acidic to intermediate metavolcanic schists with abundant pyrite, sericite and chlorite alteration. Nakina 2 has been defined over approximately 800 metres, with primarily gold mineralization recorded in trenches, and is developed in acidic to intermediate metavolcanic schists with abundant sericite alteration, minor chloritization and disseminated pyrite. The Relf zone extends for approximately 1.3 kilometres east-west, with zinc-silver (with minor copper and lead) mineralization in intermediate metavolcanic schists occurring over the western 300 metres. The Relf and Nakina 1 zones, separated by approximately 5 kilometres, are believed to lie at the same stratigraphic horizon, with the Nakina 2 zone some 400 metres higher in the stratigraphy than Nakina 1.

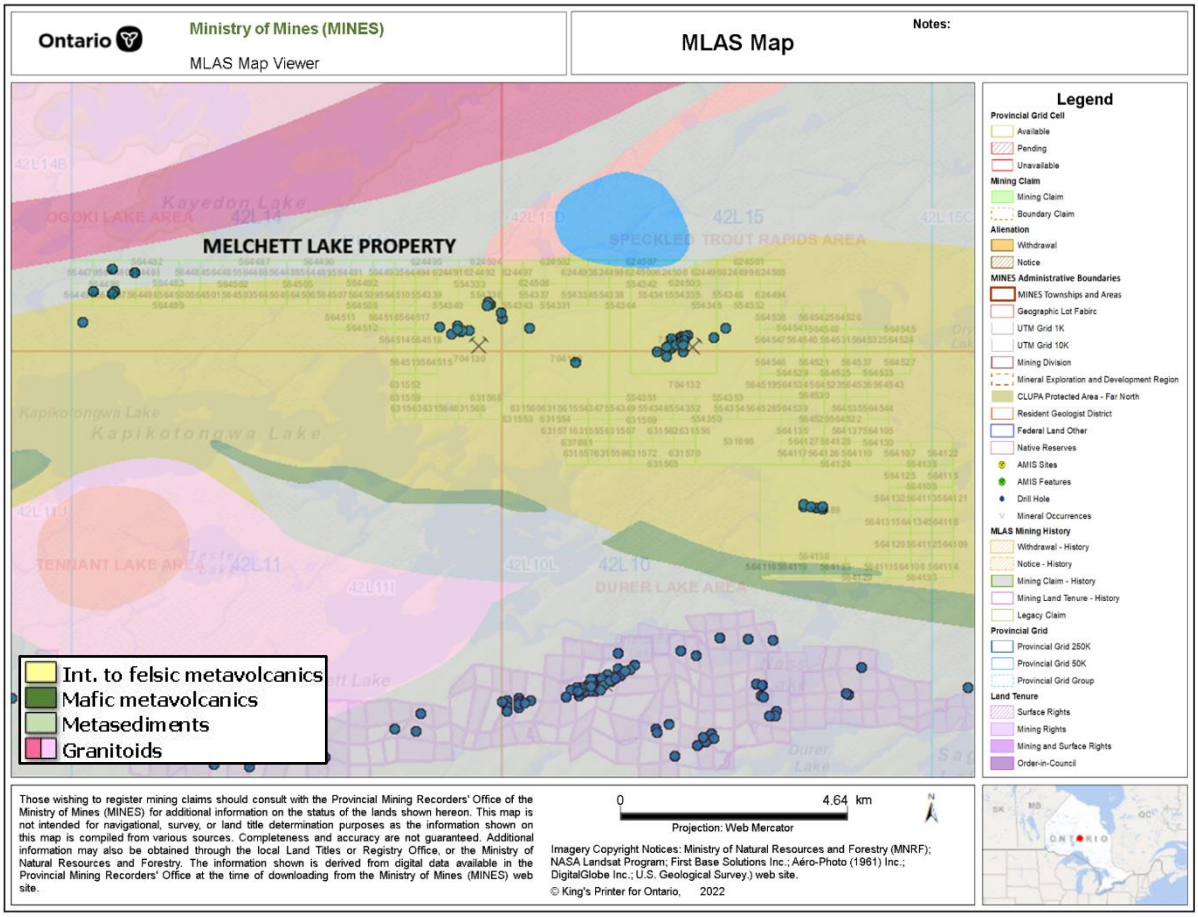

Figure 12. Simplified geological map of Melchett claims showing areas of historical drilling, from east to west, Iron Lake, Relf Lake, Nakina 1 and 2, and Key Lake.

Two other zones, identified as Iron Lake and Key Lake, located to the east and west, respectively of the core targets, and with limited historical drilling (Figure 12) are focused at or near more distal volcanogenic metasediments and may include one or more stages of base and precious metal mineralization proximal to sulphide iron formation.

A major strike-slip fault trending NW with an interpreted dextral movement of 500 metres, and several potential NE-trending faults, cuts the mineralized sequence between the Nakina 1 and

Relf zones. The faults impart a broad imbricate structure with E-W shortening across the metavolcanic belt subsequent to the isoclinal folding.

8.0 DEPOSIT TYPES

Based on the property geology and mineralization, the most probable deposit model for the property is volcanogenic massive sulphide (VMS) deposit type.

Volcanogenic massive sulphide (VMS) deposits are also known as volcanic-associated, volcanic-hosted, and volcano-sedimentary-hosted massive sulphide deposits. They typically occur as lenses of polymetallic massive sulphide that form at or near the seafloor in submarine volcanic environments. They form from metal-enriched fluids associated with seafloor hydrothermal convection. Their immediate host rocks can be either volcanic or sedimentary.

VMS deposits are major sources of Zn, Cu, Pb, Ag and Au, and significant sources for Co, Sn, Se, Mn, Cd, In, Bi, Te, Ga and Ge. Some also contain significant amounts of As, Sb and Hg. Historically, they account for 27% of Canada's Cu production, 49% of its Zn, 20% of its Pb, 40% of its Ag and 3% of its Au. Because of their polymetallic content, VMS deposits continue to be one of the best deposit types for security against fluctuating prices of different metals (Galley et. al., 2007). These deposit types are also known as volcanic-exhalative deposits in contrast to the similar SEDEX (sedimentary exhalative) deposits which are formed in sedimentary sequences.

Most VMS deposits have two components. There typically is a mound-shaped to tabular, stratabound body composed principally of massive (>40%) sulphide, quartz and subordinate phyllosilicates and iron oxide minerals and altered silicate wall rock. These stratabound bodies are typically underlain by discordant to semi-concordant stockwork veins and disseminated sulphides. The stockwork vein systems, or "pipes", are enveloped in distinctive alteration halos, which may extend into the hanging-wall strata above the VMS deposit (Galley et al., 2007).

The most common feature among all types of VMS deposits is that they are formed in extensional tectonic settings, including both oceanic seafloor spreading and arc environment. Modern seafloor VMS deposits are recognized in both oceanic spreading ridge and arc environments (Herzig and Hannington, 1995), but deposits that are still preserved in the geological record formed mainly in oceanic and continental nascent-arc, rifted arc and back-arc settings (Allen et al., 2002; Franklin et al., 1998).

The major exploration criteria for Canadian VMS deposits and key attributes of VMS-hosting volcanic complexes are summarized in Pleson and Davison, 2020, and Davison, 2021.

9.0 EXPLORATION

9.1. SUMMARY OF 2021 and 2022 ACTIVITIES

Due to the points discussed below, a portion of the planned preliminary program for 2020-2021 was completed but some of the operating aspects of the programs were deferred to 2022 and 2023 and an airborne survey was planned to rapidly advance the follow-up 2021 program. New tasks were added to the project plan to support the Exploration Agreements with the Aroland and Ginoogaming FNs which contributed to delays and revisions to the project scope for exploration and assessment requirements.

This report was prepared for filing assessment work performed on the property during 2021 and 2022 and includes logistical support of the ground exploration programs contracted to Pleson Geoscience and Quantec Geoscience, detailed geophysical (first-time) interpretation of the 2021 MPX Geophysics airborne survey and incorporation of all historical geophysics carried out without prior detailed consolidation of the potential targets by In3D Geoscience, airborne LiDAR by Eagle Mapping and subsequent re-processing by GeoCloud Australia, and the Western Heritage archaeological and cultural study carried out as per the Agreements with Aroland First Nation and Ginoogaming First Nation, these latter Agreements having been signed in 2021.

The MPX Geophysics survey, which was moved up in the overall program scheduling, was carried out to meet assessment requirements of the project claims prior to the deferred, ground-based line cutting and Quantec Spartan survey given constraints of personnel and services company schedules, lengthy periods of time through January to September 2021 required for ENDM and FN communications, exploration agreement timelines completed in late September 2021 with the Ginoogaming FN (GFN) in part due to COVID-19 and multiple tragedies affecting members of GFN, exploration permit timelines required for COVID-19 extensions, reclassification of the exploration permit extension by ENDM due to additional FNs within the area influenced by the Melchett lake property and ENDM policies regarding information requests and written disclosure from the Ginoogaming FN, which drew the permit receipt date to January 14th, 2022 and delayed the onset of the 2021-2022 winter program, delays for winter, spring and summer weather conditions during 2021 (early spring, forest fires) and 2022, and among others including shortages of labour for technical and logistical aspects of the planned work programs.

The 2021 MPX airborne geophysical survey discussed herein was documented in the previous assessment report (Davison, 2021). The MPX survey complemented our project ArcGIS database with state of the art, high resolution magnetic, radiometric and VLF data over these promising targets and extend through several historical gold, silver and base metal showings and geochemical anomalies identified on the eastern and western claims.

The total eligible expenditures for the planning, execution and reporting of the above work completed to date are CAD$362,273 and are documented in Appendices III, IV, VI and VII.

9.2. FIRST NATIONS EXPLORATION AGREEMENTS AND ARCHEOLOGICAL STUDY

9.2.1 First Nations Exploration Agreements

Extensive First Nations discussions and formal negotiations via legal counsel and directly with the Aroland and Ginoogaming FN, were carried out by Greg Davison and Kevin O'Connor representing Silver Spruce Resources with the respective chief, council and legal counsel from both groups initiated in February 2021 and continuing with Aroland FN to March 2021 culminating in an Agreement, and intermittently with Ginoogaming (previously Long Lake Reserve #77) FN from April 2021 through to September 2021 culminating in an Agreement.

The specific terms of these Agreements remain confidential between the Company and the FN, at the request of the latter. The documents are confidential though public disclosure of their existence was reported by Silver Spruce Resources and each of the First Nations. A summary of the Agreement, released to the public by the Company, is included herein within Appendix III.

Direct communications with three additional First Nations located within the area of influence were managed by the ENDM. Additional notification of the permit application was provided to the Eabametoong (Fort Hope) First Nation, the Long Lake #58 (Ginoogamaa-zaaga'igan 58) First Nation, and the Marten Falls First Nation, all of which are located in the region from the Ogoki area in the north to the Geraldton (Greenstone) area. ENDM reported that, after their recent inquiries, no further Exploration Agreements were required or requested at the time of this report. Operating permits for the Melchett Lake property by the ENDM were approved after government communication with these parties and a three year permit was received on January 14, 2022.

All FN meeting and discussion timelines were extended and included recesses in negotiations related to COVID-19, internal elections and changes in chief and council, several events with the two of the FN involving personal loss, and weather-related events including forest fires throughout northern Ontario affecting access to council and other FN members.

All technical operations are subject to notification and discussion with both the Aroland and Ginoogaming FNs, and fees are payable on an annual basis related to exploration expenditures. In concert with these Agreements, an independent archeological and cultural study was requisite to meeting the terms of the Agreements prior to any significant ground exploration, specifically trenching and drilling programs. The study was contracted to Western Heritage as described below.

9.2.2 Background to the Archaeological Study

Founded in 1990, Western Heritage (WH) has over 30 years of experience in conducting heritage baseline studies in British Columbia, Alberta, Saskatchewan, Manitoba, and Ontario. WH specializes in archaeological and historical management, community engagement, geotechnical services and geomatics services. Western Heritage has a large team of archaeologists as well as specialists in archaeological geophysics and geoarchaeology. While these specialists are not part of every study, the ability to bring in ground penetrating radar or aerial drone imagery into a project may provide significant advantage. The key values WH brings to all their services are:

- Experience. The senior staff have decades of experience in managing archaeological, historical and cultural studies across Canada.
- Value. Western Heritage is continuously improving services to maximize cost containment for customers.
- Quality. Western Heritage is certified under ISO 9001:2015 for Quality Management. Senior Western Heritage team members are also trained in LEAN management processes to ensure quality of results.
- Safety. Western Heritage is Energy Safety Canada COR certified and safety is a fundamental element of each of our projects.

Western Heritage, is to complete the Stage 1 Archaeological Assessment according to all requirements/recommendations of the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) for all portions of the proposed mineral exploration area. Stage 1 studies assess archaeological potential while Stage 2 studies identify whether archaeological sites are present. If there are areas of significant archaeological potential, a Stage 2 study is required. The Stage 1 report can be used in conjunction with the exploration plan to minimize areas that might require a Stage 2 study.

The Project Archaeologist will maintain regular contact with the Project Manager from Silver Spruce Resources Inc. throughout the duration of the project for logistical and informational purposes, and with the First Nations as the Project Archaeologist and Western Heritage are ultimately retained by the First Nations. The archaeological report will be used and usable by all parties and for many purposes.

Western Heritage will obtain information on previous research and sites recorded in the area. The project archaeologist will also apply for a Stage 1 Project Information Form or PIF (or a Stage 1 and 2 PIF). Historical background research will also be conducted in the study area to help assess the archaeological potential.

As part of the Phase 1, Western Heritage will conduct interviews with members of the Aroland and Ginoogaming First Nation Nations. The role of the interviews is to determine local knowledge on the heritage of the exploration area and to obtain information on sites, areas and values of significant cultural importance, cultural connections to, uses of and values in the land. The two First Nations have requested 20 interviews each. This is what is commonly referred to as a Traditional Land Use and Occupancy Study (“TLUOS”).

Western Heritage will work with Silver Spruce Resources and the First Nations to identify appropriate contacts and determine whether some of the interviews can be completed virtually. It takes time to both conduct and record the interview. We budget 2 hours on average to complete and record an interview. This could be shortened with some community open house type interviews.

To provide some focus for the interviews, the interviewees will be provided with a map and several guiding questions. The goal is to gather information on land use and traditional knowledge of the study area. This will inform the Stage One study and it will also help identify potential infringements on treaty rights that need to be addressed. Despite the use of the map and guiding questions, the interviews are open-ended.

The information will be recorded in note form and with the permission of the interviewees, they will be recorded. This is to help with the documentation and any recordings will become property of the First Nation.

The Stage 1 Archaeological Assessment will include both a property overview and a physical inspection of the proposed mine site. This will involve systematically walking the project areas, GIS mapping and photographing areas of concern. In addition to field activities, historical background research will be conducted on the property to further assess archaeological potential. If there is a plane or helicopter on site during the Stage 1 Property Inspection, they can be of assistance in viewing the entire project area.

9.2.3 Archaeological Project Schedule

The program was initiated on signing January 25, 2022. Initial meetings with the Aroland (AFN) and Ginoogaming (GFN) FNs were held on the week of March 21, 2022. Formal meetings and interviews were initiated with the AFN on the week of April 4, 2022 and with the Ginoogaming on the week of August 8, 2022. Site visits to each and to the Melchett Lake property via float plane were conducted on the week of August 15, 2022. In terms of what was done, WH arranged and spent some time interviewing in Long Lac and Aroland, did an overflight of the study area and also completed a search of previously recorded archaeological sites.

As of the current date, the final report is in preparation with draft expected in November 2022 though reviews and comments by both the AFN and GFN, and to follow by the provincial and federal regulators are pending until early 2023. Until complete, the documentation remains confidential with the contractor and the FNs to maintain the complete independence of the report.

9.3 GEOPHYSICAL SURVEY PROGRAMS

9.3.1 Project Logistics for Quantec SPARTAN MT Survey – Pleson Field Program

Pleson Geoscience of Nipigon, Ontario was contracted to procure personnel, equipment and supplies, construct, manage and operate the exploration camp for the ground-based aspects of the work program, initially for the preparation of the line cutting grid on a 250 metre spacing, and secondly for the camp operations during the Phase 1 Quantec Geoscience SPARTAN Magnetotelluric survey.

The mobilization was initiated in January 2021 from Thunder Bay, Nipigon, Geraldton and Nakina by ground transport to Melchett Lake via the all-season road through Aroland to the old

Anaconda-Dofasco Road (plowed by Pleson Geoscience) to the lakehead at Melchett Lake. Supplies were delivered to the planned camp site at Relf Lake via an ice trail across Melchett Lake, a distance of 15 kilometres and via snowmobile trail along the creek draining Relf Lake, and a bush trail parallel to the western bank of the creek, a further 4.5 kilometres to the Relf Lake site at the southwest apex of the lake.

The site has been utilized as an exploration site during 2018-2019 by the Kuzmich Syndicate and had been an active camp area since the late 1980's. The author re-used a separate camp site during the 1983-1984 campaign re-tracing the location from the early work from 1959 to the late 1970's.

The site was cleared for tent construction and camp was constructed over a period of several weeks during January and February 2021 (Photos 3 through 5). A crew of 2-6 personnel from Pleson Geoscience carried out the field activities with additional Pleson oversight from Thunder Bay and Silver Spruce oversight and procurement assistance from Trail and New Denver, British Columbia. The detailed schedule of operations is provided in Appendix III.

Due to the ongoing COVID-19 conditions, all camp personnel were tested in Thunder Bay prior to departure to site and the size and costs of the camp was increased significantly to maintain separation of personnel during the program.

Photo 3. Winter trail access from Melchett Lake to Relf Lake.

Photo 4. Winter trail access to Relf Lake camp.

Photo 5. Insulated tent construction at Relf Lake camp.

The open road access to Melchett Lake encouraged significant local traffic in addition to the project team, and road conditions became poor to impassable during the late winter to early spring season, also limiting the production schedule of the Pleson team. During the spring of 2021, the Company contracted Villeneuve Construction from Long Lac, Ontario, to carry out grader maintenance on the Anaconda Road from the Marten Falls Road to Melchett Lake (old Dofasco town site) to provide the AFN and GFN with suitable road conditions for hunting and fishing access.

The camp was placed into long term storage mode pending an Exploration Agreement with the GFN which was signed in September 2021. The timing of the Agreement was such that air transport to the Relf lake camp site was unavailable for period required and rapidly changing weather conditions were unsuitable for the timeline required to complete the camp and the line-cutting prior to the onset of winter conditions. The camp remained in long storage at the site and for certain high value equipment and tools at a local storage facility on Nakina and Nipigon.

Pleson Geoscience carried out a site visit by snowmobile in February 2022 to verify the condition of the camp situation, however, due to a paucity of personnel and logistics scheduling, the field program was deferred on several occasions. The camp remains in place with approximately one week required to complete and open the site for exploration activities upon confirmation of personnel and equipment availability.

9.3.2 Quantec Geoscience MT Survey

Silver Spruce Resources Inc. signed a geophysical services contract in January 2021 with Quantec Geoscience ("Quantec") to conduct a SPARTAN Magnetotelluric ("MT") Survey on its Melchett Lake project in the Thunder Bay Mining District, northern Ontario.

The principal focus of the survey was to perform a deep penetrating ground geophysical survey over the Relf Lake target area of the Property (Figures 13 and 14). The target area, shown below, has extensive soil and rock geochemical anomalies, known VMS mineralization from surface to >500 metres depth, highly favorable core alteration style and intensity, increasing Cu to Zn with depth, and deep Maxwell modelled plates off-hole from two downhole EM surveys.

With personal and successful experience using Quantec's IP and MT surveys to identify, and confirm by drilling, high grade polymetallic deposits in Ontario, we are confident that the new deep 2D and 3D data inversions will provide high quality resistivity mapping and reinforce our vectoring to VMS targets.

Quantec's SPARTAN MT system provides a unique and effective method for obtaining deep resistivity over a variety of terrains. As leaders in MT acquisition, with proven expertise spanning more than 20 years, Quantec provides surveys globally with safe acquisition procedures, premium quality data and expert interpretation for exploration and mine planning.

SPARTAN MT is a robust full-tensor audio-magnetotelluric technology that acquires high quality data in the 10 kHz to 0.001 Hz frequency band. MT is a passive electromagnetic geophysical technique that uses natural electric fields from lightning sources, solar flares and ionospheric

resonances that induce current flow in the ground which may be used to image the earth's electrical resistivity structure from surface to great depths.

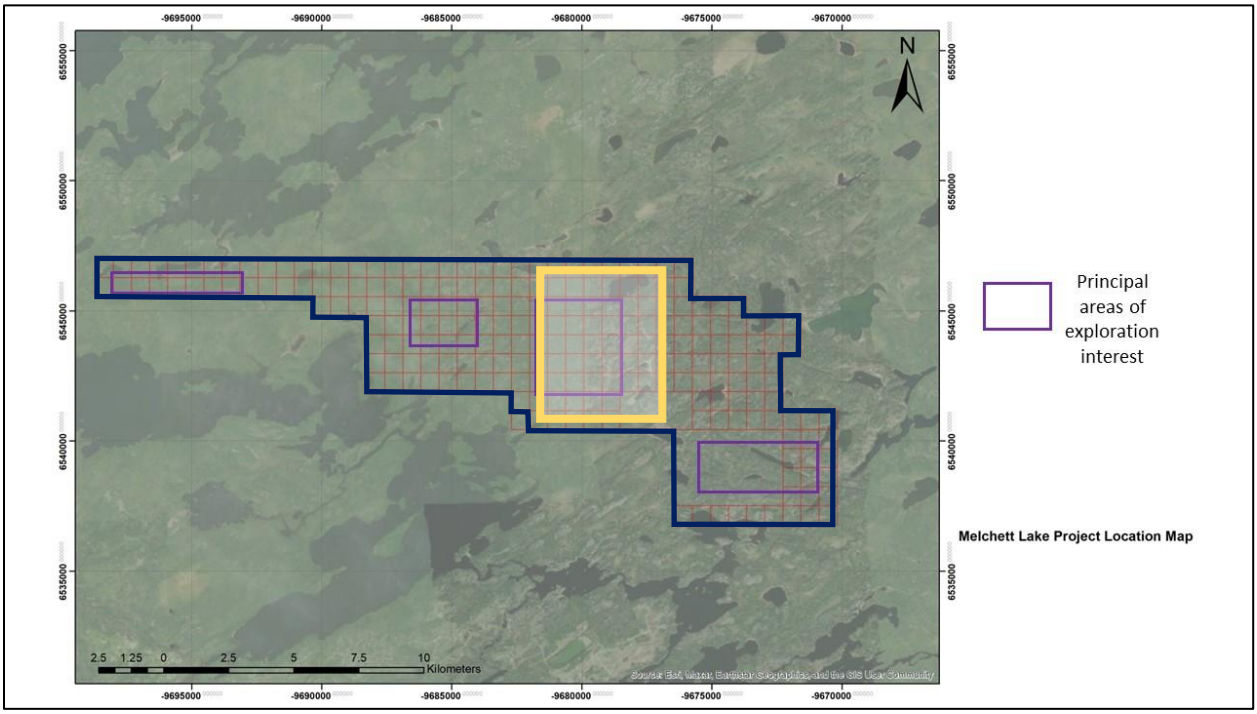

Figure 13. Melchett Lake claims show area covered by SPARTAN MT Survey (yellow frame).

MT data are processed and presented as resistivity and depth. Both 2D and 3D inversions will be carried out on the data, which may be correlated with various geological and structural features, including conductive features which are of particular interest to the Company at the Melchett Lake Property.

Quantec crews carry out SPARTAN MT surveys in Ontario providing services under which they continue to be strictly adhered to use of the corporate and client COVID-19 safety protocols.

The full MT survey will include a total of 150-180 deep search geophysical soundings on 3.5 kilometre north-south lines with 250-metre spacing along and between lines over the area shown on the Property map and Survey Grid image. The survey specification is focused on data gathered from surface to 1500 metres depth.

The Company will initiate work on a cut grid for the survey as site logistics are developed during Q1/2 2023. The Quantec survey was deferred on multiple occasions due to delays in exploration agreements for land access, COVID-19 issues, weather conditions and personnel scheduling for the line-cutting work and survey. The MT survey currently is planned for Q2 2023 upon completion of the 250-metre grid and is scheduled for four to six weeks to complete the field activities.

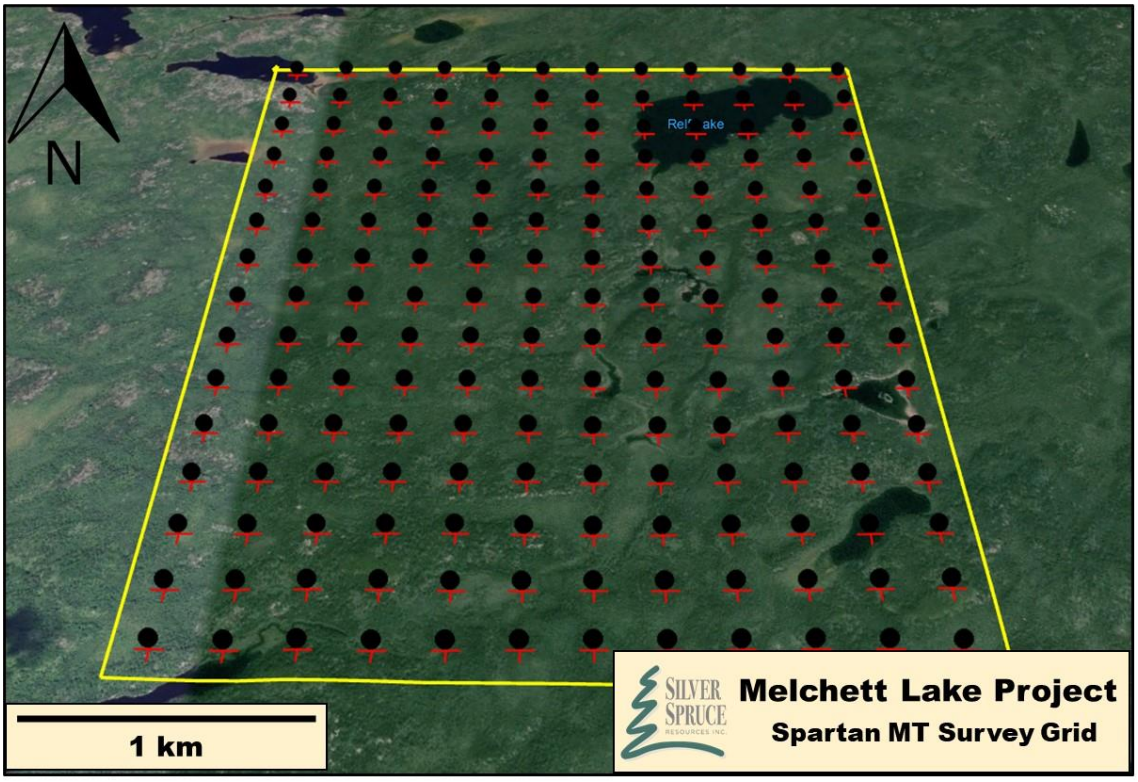

Figure 14. From Figure 13 above, tight view of the Melchett Lake survey block showing individual 250-metre square grid, point data sources for SPARTAN MT Survey (yellow outline).

9.3.2 In3D Geoscience Interpretation of Geophysical Data

Detailed interpretation and compilation analysis of the current geophysical survey and the 2002 and 2010 surveys acquired in digital formats recently, was contracted to and processed in ArcGIS and report formats by In3D Geoscience, a third party consulting geophysicist and was reported to the Company in two preliminary reports during 2022 (Appendix V). Final interpretation of the individual, binary and ternary parameter maps are pending compilation of geological and geochemical databases with the results of the ongoing studies prior to definition of proposed collar locations for future drilling, thought eh current phase of results provides areas for targeting ground-based investigation in concert with early diamond drilling.

A clear understanding of the potential displacements of the principal mineralized target horizons across the fault sets and given the multitude of late dyke activity and later remobilization of the faults is key to the proposed drilling programs across the Property and to future interpretation of the contracted Spartan MT survey and planning of deep drilling for the Relf Lake target in Q2 2023.

Features related to structure and electromagnetic character (focused on EM anomalies with 5500 Coaxial/7200 Coplanar profiles (with claims), total magnetic field, and apparent resistivity (7200 Hz with additional observed (12) and calculated (9) datasets for multi-channel stacked profiles) were generated, identified and indicated by the DIGHEM^{V} survey in 2002 though continuity

definition and evaluation of the anomalies was limited to a preliminary code sequencing (Davison, 2002).

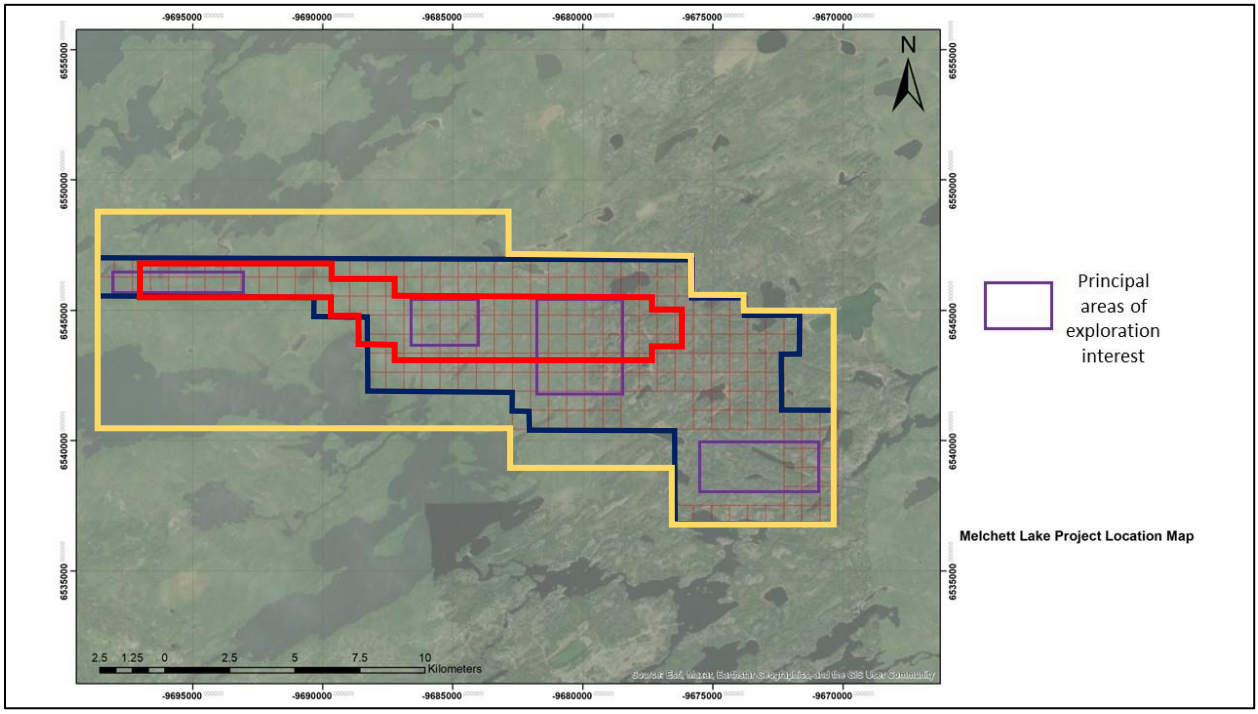

Figure 15. Melchett Lake property (blue) showing outline of 2002 Dighem^{V} Survey (red) and 2021 MPX survey (yellow). 2010 OGS Survey covers entire map region.

Though 52 significant EM anomalies were reported, less than 30 were strong and given the presence of widely disseminated pyrite or magnetite, and high grade exposures of sphalerite, which commonly is weakly conductive, distinction of weaker anomalies, including those identified within sphalerite-pyrite in the downhole logging by Anconia/Quantec in the only deep drill holes (Coulson, 1987), and the oxide dampening effects to the EM conductivity/chargeability profiles, points to the importance of detailed correlation of the ore mineralogy, and stacked anomaly profiles, sections or plan maps. The dominance of felsic metavolcanics with elevated resistivity, which also characterize the Key Lake and Iron Lake siliceous or lean iron-bearing metasediments, indicates the importance of the gradient enhanced filters to document contacts and structural features. The sulphide to oxide-rich units consistently indicated discrete bedrock conductors though patchy and of variable intensity based on the key mineral ratios.

The 2010 survey was carried out on a much broader scale (OGS, 2010). Though the interpretation, particularly using the gradient-enhanced magnetics, was excellent, the scale of the survey given the size of the Melchett Lake target was not optimal.

The 2021 MPX survey provided three data packages though no interpretation of the data was rendered by the operator.

Each of the above surveys were re-processed by In3D to glean additional detail over the Melchett Lake property. Incorporation of the LiDAR data to the ArcGIS package processing remains to be done at a future date upon receipt.

In3D carried out individual and multiple data processing on each of the datasets from the 2002, 2010 and 2021 geophysical surveys, with derivatives, filters and inversions to visualize trends and patterns not necessarily shown with any specific individual parameter (Appendix V). The purpose of the data visualization was clarity and/or identification of features with emphasis on vertical variance and continuity of expression through the 100-500m depth ranges. The data naming conventions for the work are summarized as follows:

Project_MAG_RTP_1VD _L200-40m_2013_bg

Magnetic TMI data reduced to pole with first vertical derivative applied and gridded using 40 m cells from 200 m spaced lines based on bi-directional gridding.

Project_MAG_RTP_TGA_L200-40m_2013_mc

Magnetic data reduced to pole, followed by a Total Gradient filter (same as ASIG: analytic signal). Data gridded using 40 m cells from 200 m spaced lines based on minimum curvature gridding.
Project_MAG_TMI_PGRAV_TGA_L100-20m_2013_bg

Magnetic data (total magnetic intensity) transformed to pseudogravity and then the analytic signal or total gradient (TGA) is applied. Data gridded at 20 m cells using bi-directional gridding.

- TMI: total magnetic intensity (others, TFM, TF)
- TMIge: gradient enhanced TMI using measured horizontal gradients
- RMI: residual magnetic intensity
- RTP: reduced to pole TMI using local magnetic inclination and declination
- RTPge: gradient enhanced RTP based on TMIge
- 1VD: first vertical derivative calculated on the gridded data (others 1VG, CVG)
- 1VD1d: first vertical derivative calculated on the line data and then gridded
- ASIG: analytic signal, essentially the same as TGA. ASIG1d is calculated on the line data as per original theory
- TGA: total gradient amplitude calculated on gridded data
- TILT: tilt angle (others TiltDrv (tilt derivative, but it's not a real derivative))
- THDR: total horizontal derivative/gradient
- TDX: derivative-based filter for trends and edge detection
- THETA: derivative-based filter for trends and edge detection
- HG: horizontal gradient (or HGRAD)
- HG045: directional horizontal gradient along 045°
- HP: high-pass filter
- HP750m: 750 m high-pass filter
- VIAS: vertical integral followed by analytic signal (TGA) useful for magnetic remanence
- VIAS-ntr-03-09: no trend removed, low/high frequency cut offs 0.3/0.9

- VRMI: vector residual magnetic intensity (useful for magnetic remanence)
- MLE: magnetic layer extraction, depth to top and thickness of layer – this is an attempt to visualize the data as shallow, intermediate and deep sources
- MLE-100-300m: depth to top 100 m, slab thickness 300 m
- ntr: no trend removed
- tr: trend removed
- UPCON: upward continuation
- TERN: ternary image from three grids
- CMY: cyan magenta yellow colours used in ternary image
- RGB: red green blue colours used in ternary image
- CET: center for exploration technology, Australia, CET module in Geosoft
- CET-DRC: dynamic range compression in the CET module
- CET-PS: CET module phase symmetry lineament analysis
- DEM/DTM: digital terrain model
- bg: bi-directional gridding
- mc: minimum curvature gridding
- mtg: multi trend gridding
- ntr: no trend removed
- L100-20m: 100 m line spacing and gridded data at 20 m cells

Examples of the In3D interpretations are provided in Figures 15-20 which clearly identify numerous structural details associated with folding, with tight, plunging and linear limb features, several generations of faulting and intrusions likely transecting the older base metal and gold mineralization, moderate to deep continuity of the magnetic features associated with the known areas of mineralization shown particularly well at Relf Lake, and several additional patterns coincident or along strike with 2002 EM anomalies, particularly along the northern zones north of the Nakina showings and west towards the Key Lake targets, and potential folding of said units, potential stacking and/or fold repetition of EM anomalies associated with the core of the Relf Lake target area and the Nakina 1 and 2 targets, and clarity of offsets related to the strike breaks of known geochemical and geological anomalies among others.

Of key importance to the next phase of exploration is:

- the presence of parallel units or horizons in the Nakina 1 and 2 targets, which may indicate isoclinal folding of the mineralization within the monotonous package of felsic to intermediate ‘tuffs’,
- several laterally terminated and ‘stacked’ intervals within the Relf Lake and west Relf Lake (or central) areas which define potential westerly-plunging, northerly-dipping tight fold vergences locally transected by northerly and northeasterly-trending diabase dykes and faults, and which require additional evaluation of crenulations and mineral lineations to recognize potential east and west plunges associated with late N to NE-trending warp folding and/or offsets exploited by diabase dykes,

- parallel anomalous zones to the north of the Nakina 1 and 2 targets also indicating potential moderately isoclinal fold noses with repetition in an area with little to no previous detailed exploration,
- strongly folded metavolcanics and chemical metasediments parallel to the Iron Lake - south Colpitts Lake area exhibiting both continuity and significant strength of EM signals, variable resistivity and well-defined gradient-enhanced control along magnetic contacts,
- as noted within each of the historical and current studies along the Key Lake area, strong magnetic effects with EM anomalies in one tight limb with potential reversal of strike to the west along one or more parallel units of less EM range, and extending eastward towards the Nakina North targets,
- apparent wrapping of the mineralization along inflection points where late structural breaks transect the Property and indicate significant changes on the background magnetic character,
- and also observed within undulations perhaps related to later stage E-W shortening and open folding, on the chargeability, conductivity and resistivity maps of the Relf area targets also pointing to recommendations for SW, SE and S azimuths for diamond drill holes targeting the Relf and Nakina mineralization, and steep down-plunge Zn-Cu sulphide-related anomalies as indicated by the review of the BHPEM data for 2007 and 2008 drilling in the Relf target.

The above preliminary observations gleaned from the In3D study, given the project scheduling, clearly indicate the potential for many more targets on the 22km or longer strike length of the folded and faulted mineralized terrain requiring considerably more detailed development of the ArcGIS data layers coupled with new project data.

Further detailed interpretation of the geophysical and geological compilation is expected subsequent to the planned deep SPARTAN MT survey initially chasing the deep sulphide-hosted mineralization of the Relf Lake and west Relf Lake areas. Drilling will be scheduled to follow the SPARTAN work though targeting expects to be flexible given the gold-rich environment at Nakina and Iron Lake areas.

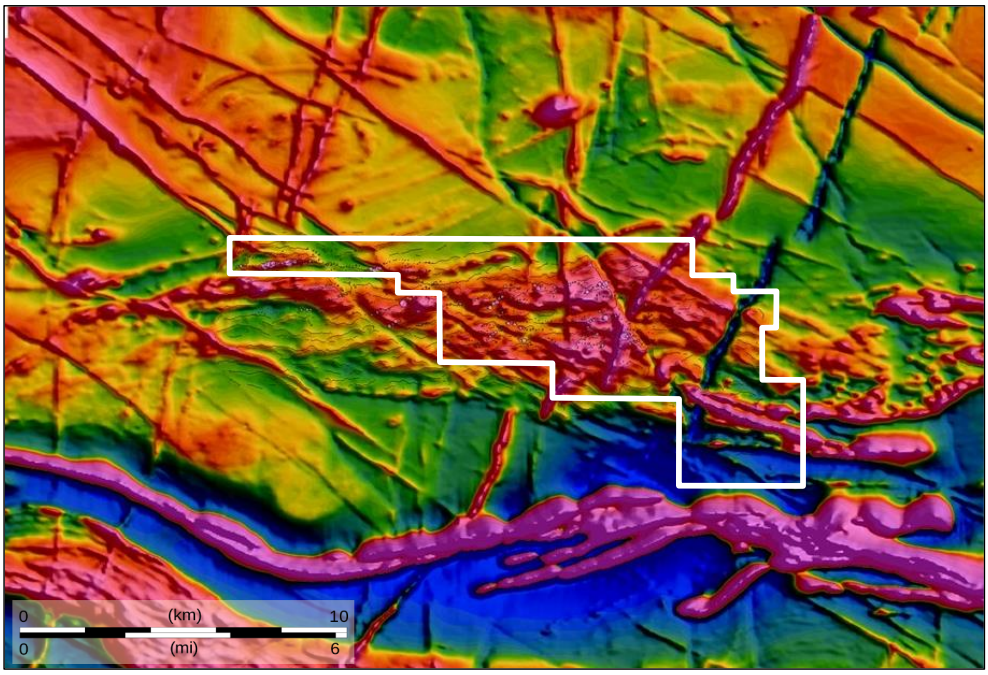

Figure 16. 2010 OGS MAG Gradient data, MAG RTPge (gradient enhanced)
Nomenclature: MEL_MAG_TMIge_VIAS-lc03-hc09_2010 L200-40m_OGS_bg
See Figure 15 for GPS positioning, claims in white

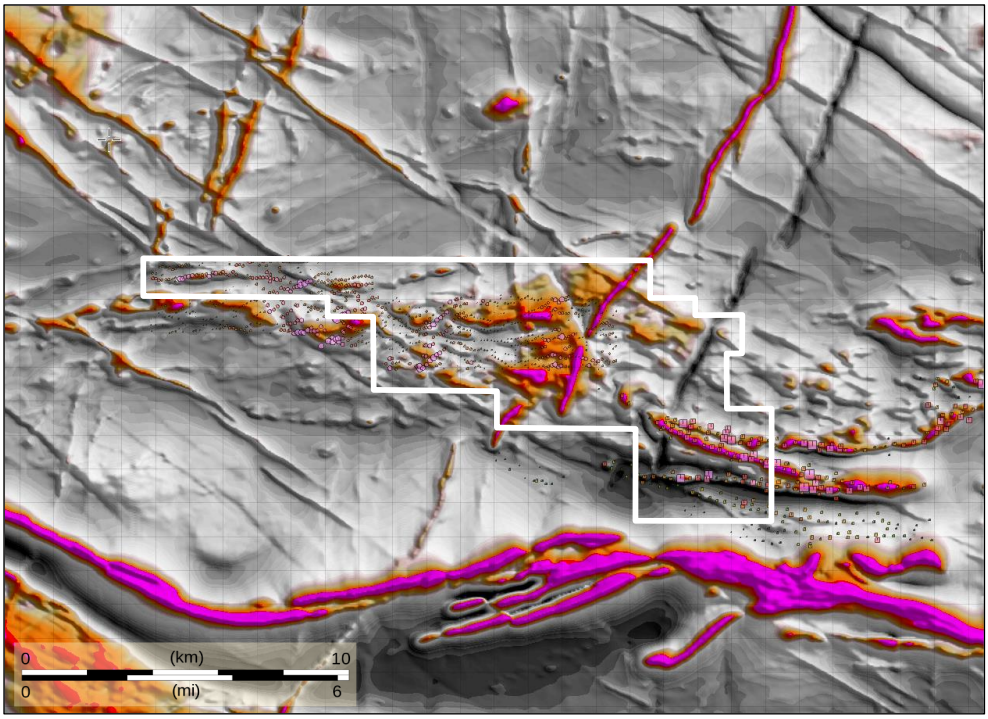

Figure 17. 2010 OGS MAG Gradient data, MAG RTPge (gradient enhanced), CET dynamic range compression (DRC)
Nomenclature: MEL_MAG_RTPge_2010_L200-40m OGS_bg_CET-DRC-_1265
See Figure 15 for GPS positioning, claims in white

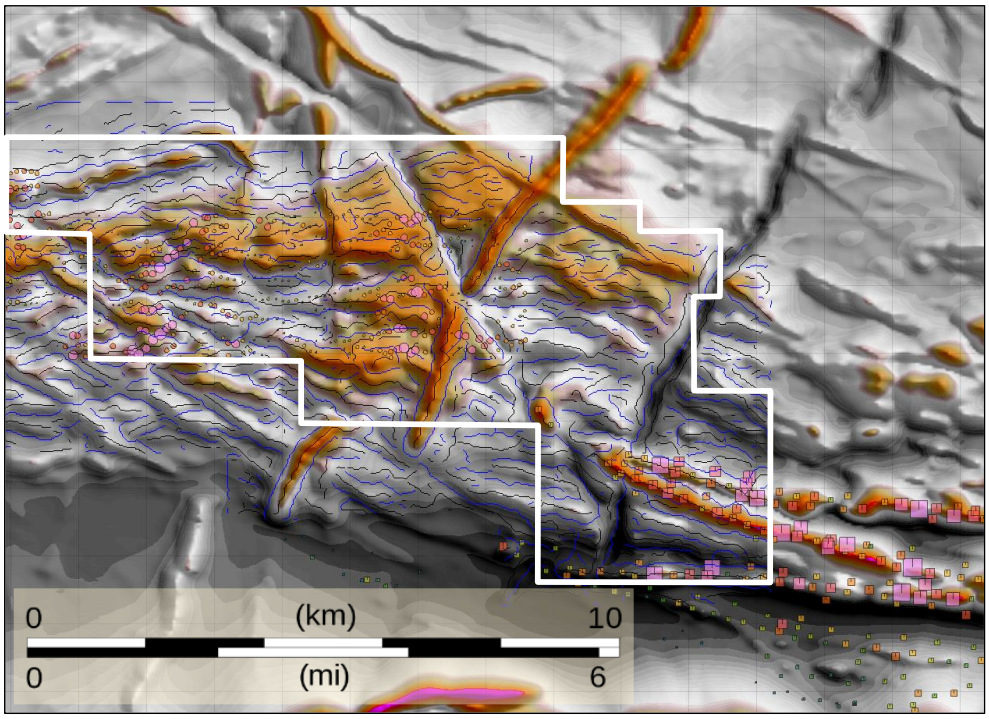

Figure 18. 2010 OGS MAG Gradient data, MAG RTPge (gradient enhanced) CET dynamic range compression (DRC) Relf Lake target
Nomenclature: MEL_MAG_RTPge_2010_L200-40m OGS_bg_CET-DRC-_400
With MPX MAG RTP lineament analysis based on 3, 6 and 12 cell wavelengths.
See Figure 15 for GPS positioning, claims in white

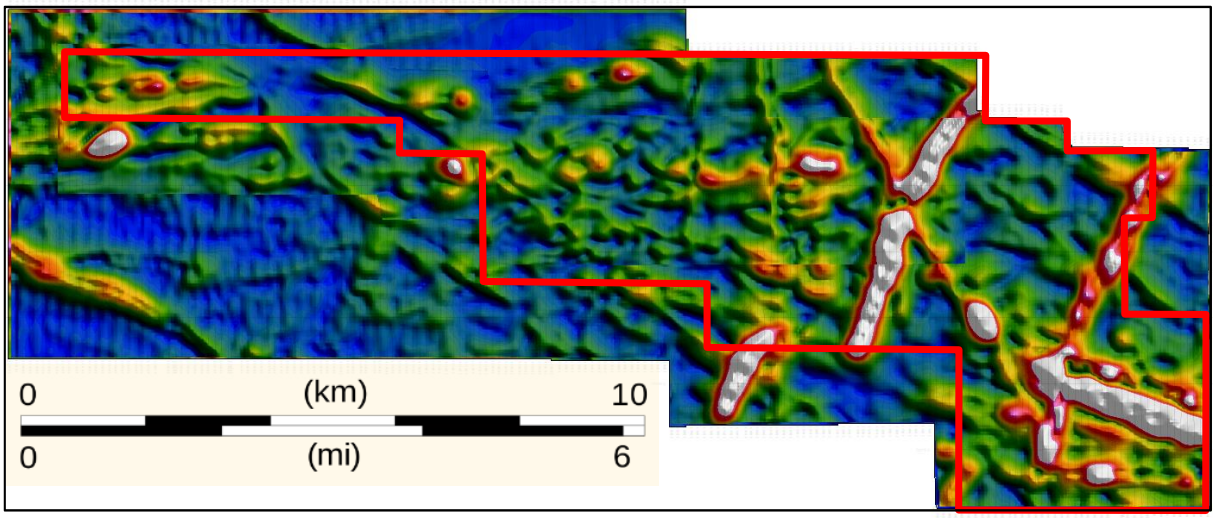

Figure 19. Fugro 2002 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity -200 m depth slice overlying the MPX model
See Figure 15 for GPS positioning, claims in red

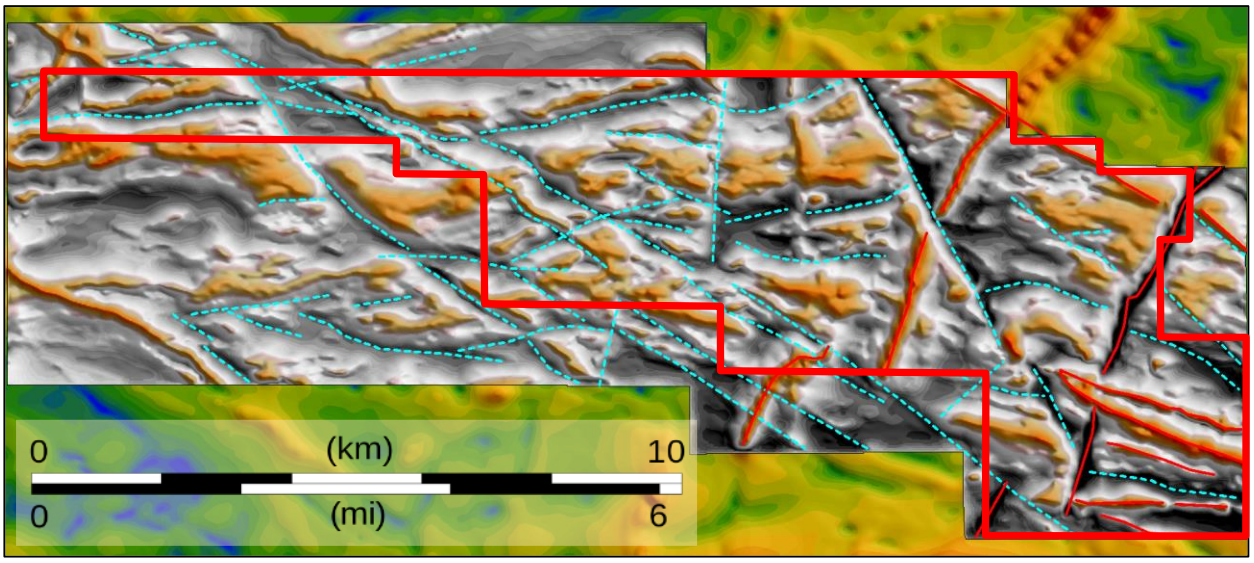

Figure 20. MPX 2021 Fixed-Wing MAG – RTP dynamic range compression (CET-DRC) at various high/low pass scales. MAG low and high trends
See Figure 15 for GPS positioning, claims in red

9.3.3 Eagle Mapping – LiDAR Survey, GeoCloud Analytics – LIDAR re-processing and 2D/3D imaging

The Company retained Eagle Mapping Ltd. ("Eagle Mapping") to carry out a LiDAR (Light Detection and Ranging) survey over the Property. Eagle Mapping has more than 30 years of Aerial Mapping experience and flown LiDAR surveys from Alaska to Chile for clients associated with Mining, Forestry, Engineering, Ecological and First Nations sectors. They specialize in Aerial LiDAR and air photo collection and processing, and own state of the art LiDAR collection equipment including the RIEGL VQ-780i, LMS-Q1560 and LMS-Q780 using the most sophisticated software to process LiDAR data.

As shown in Photos 1, 3 and 4, the Property generally exhibits minimal topographic relief over the areas of the known mineralization though sharp changes on relief indicating structural patterns are both visible and known to the field geology team during ground traverses. The purpose of the LiDAR program is to define, using re-processing of the Eagle Mapping LAS point source data by GeoCloud Analytics, major to subtle structural features, archaeological sites or features proximal to the Kapikotongwa-Melchett-Nass Lakes waterway south of the Property, and more detailed topographic control for access routes and drilling collar locations.

Eagle Mapping collected LiDAR data and aerial photography from the area shown in Figure 21 at a nominal flight elevation of 5000 feet (1500 metres) at a minimum density of 8 ppm (pulses/m^2) with expected accuracies of ±15 cm in the vertical and ±30 cm in the horizontal. Colour aerial photography will be orthorectified to the LiDAR base earth model with a 12 cm pixel resolution. Digital elevation (DEM) and digital surface (DSM) models with contours at 1 metre will be generated.

The LASer (LAS) point cloud with classified bare earth and metadata final report will be contained in the deliverables. The LAS format is an open binary file format designed for the interchange and archiving of LiDAR point cloud data and regarded as an industry standard for LiDAR data.

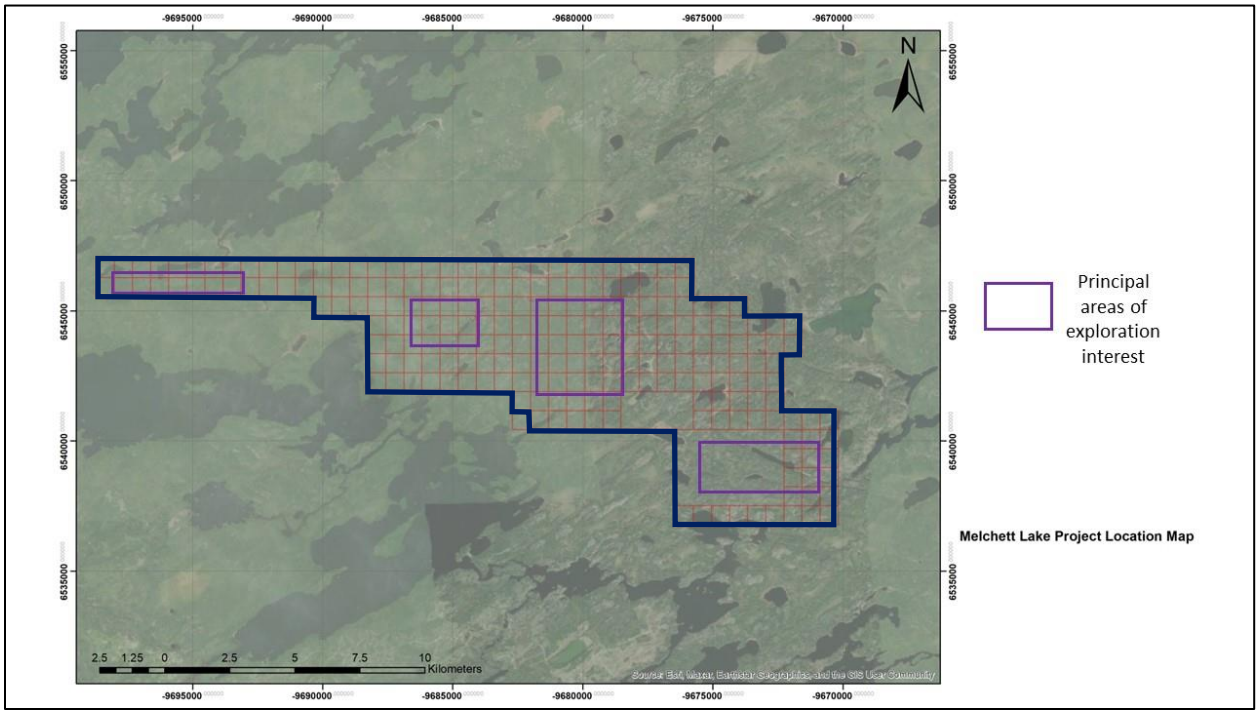

Figure 21. Melchett Lake claims (outlined) show area covered by 2022 LiDAR survey

The Eagle Mapping aircraft mobilized from Thunder Bay, Ontario upon receipt of all requisite flight permits. Our LiDAR surveys were completed on schedule during October 31st, 2022. The final survey data are in processing and standard turnaround is estimated at 2.5 months.

GeoCloud Analytics is contracted to provide the following data services on the Eagle Mapping data package with processing expected to require 2-4 weeks from receipt.

- Reprocessing of LiDAR to enhance and extract ground model detail
- Interpretation PowerPoint deck discussion
- Mosaiced products on the project area basis at resolution* defined by existing data:
  - ground model (DEM) at 50cm* resolution in GeoTiff format
  - ground model hillshade at 50cm* resolution in GeoTiff format
  - reprocessed enhanced hillshade at 50cm* resolution in GeoTiff format
- Interpretation of LiDAR to derive:
  - mining evidence in shapefile format, e.g., adits, shafts, pit-chains, trenches, etc.
  - geological contacts in shapefile format, e.g., bedding, faults, folds, shear zones, intrusive features, etc.

GeoCloud Analytics offers novel industry expertise in GIS and LiDAR project management combined with data analytics & interpretation services, GIS and Data Management, 3D visualization and site modelling, LiDAR survey consulting and project management, LiDAR

Interpretation & re-processing to find archaeological features; map surface geology and structure; identify – characterize – quantify anthropological change; and locate historical evidence of mining with pinpoint accuracy, and reprocessing of existing LiDAR to increase ground data density improving topographic resolution in existing topographic datasets to draw out dormant detail utilized in geological mapping and minerals exploration.

Additional information is provided in Appendix VI.

10.0 DRILLING

No drilling was done on the Melchett Lake Property by the Vendor or Silver Spruce Resources. The historical drilling on the Property carried out by various operators is covered in Sections 6 and 9 of this report.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

No sample preparation, geochemical analysis or security protocol was required during the current facets of the program.

No officer, director or employee of Silver Spruce Resources was involved on the project site during the current activities. All work programs were carried out by contract personnel and companies.

12.0 DATA VERIFICATION

No data verification was required during the current programs.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

No mineral processing or metallurgical testing was done on samples from the Property during the current programs.

14.0 MINERAL RESOURCE ESTIMATES

No mineral resource estimates were carried out during the current programs.

SECTIONS 15 to 22 – NOT APPLICABLE

23.0 ADJACENT PROPERTIES

The project is located within a historically active exploration and mining region north of Geraldton including Copper Lake's Marshall Lake VMS project, Premier Gold's Hardrock-Greenstone Au mine and past-producing Anaconda-Dofasco iron mine and the Skibi Lake and Stewart Lake iron prospects, and along one of the access routes proposed northward from Nakina to the Ring of Fire Ni-Cr-Cu-PGE exploration projects.

The Ontario Geological Survey Exploration Highlights in 2016-2017 reported "The potential of discovery of economic zinc-lead-silver-gold-bearing VMS deposits in the Melchett Lake greenstone belt is high." The key prospects in the belt are shown in Table 8 and Figure 14.

Exploration for VMS deposits in the MLGB has occurred sporadically following the discovery of zinc mineralization at the Nakina Mine prospect (Nakina 1) in 1959.

The Melchett Lake banded iron formation was the focus of iron exploration in the 1960s and hosts two iron resources: Skibi Lake (335 000 000 tons of 26.2% acid-soluble Fe) and Stewart Lake (49 500 000 tons grading 30% Fe; Ontario Geological Survey 2016).

The key historical work on adjacent claims was carried out prior to the year 2000 and the area has been generally quiet in recent years other than the core Melchett Lake claims. The principal regional exploration, since the closures of the iron mining operations, was focused on gold.

Several mineral claims located nearby to the east of the Melchett Property are held by various mining companies and individual prospectors though activity is limited to nil. The closest significant base metal exploration is underway by Copper Lake in the Marshall Lake area approximately 45 kilometres to the southwest, and are located in a separate greenstone belt south of the English River boundary.

The writer has not been able to independently verify the information contained although he has no reason to doubt the accuracy of the descriptions.

Occurrence or Prospect and Location (UTM Zone 16, NAD83)	Mineral Deposit Inventory (MDI) Number	Assay Highlights	Description of Occurrence
Nakina Mines prospect (Nakina 1 zone) (499534E 5622152)	MDI42L14SE00005	14.85% Zn, 0.13% Cu, 0.92 oz/ton Ag and 0.30 oz/ton Au (assay from trench; Nakina Mines Ltd. 1968: *see* Ontario Geological Survey 2016) 8.25% Zn, 1.08% Pb, 0.76 oz/ton Ag and 0.20 oz/ton Au (Hole N-4, Nakina Mines Ltd. 1968)	Polymetallic pyrite-sphalerite-chalcopyrite-galena mineralization occurs within felsic to intermediate metavolcanic schists within abundant pyrite, sericite and chloritic alteration
Lun–Kerr occurrence (Relf zone) (503908E 5622130N)	MDI42L15SW00003	19.1% Zn, 0.40% Cu, 2.2% Pb and 16.4 oz/ton Ag (assay from trench, Shawmine Explorations Ltd. 1964: *see* Ontario Geological Survey 2016)	Polymetallic pyrite-sphalerite-chalcopyrite-galena mineralization occurs within muscovite-sericite schists and quartzofeldspathic mica schists
Aldor Exploration Gold occurrence (512492E 5616455N)	MDI42L10NW00007	0.52 oz/ton over 25 cm	Sample from quartz vein in a quartz gabbro dike (later interpreted to be a mafic metavolcanic unit)
Campbell occurrence (506406E 5618999N; location approximate)	n/a	1.8% Zn, 1.0% Cu and 0.06 oz/ton Au (assay from grab sample)	Disseminated copper, zinc, gold mineralization from pyritic quartz-sericite schist (altered felsic pyroclastic rocks)
Molly Lake occurrence (508192E 5617632N; location approximate)	n/a	1.5 % Zn and 0.17 oz/ton Au	Mineralization consists of massive pyrrhotite in a 3 m thick amphibolite schist layer

Table 8. Occurrences and Prospects in the Melchett Belt (Cundari, 2017)

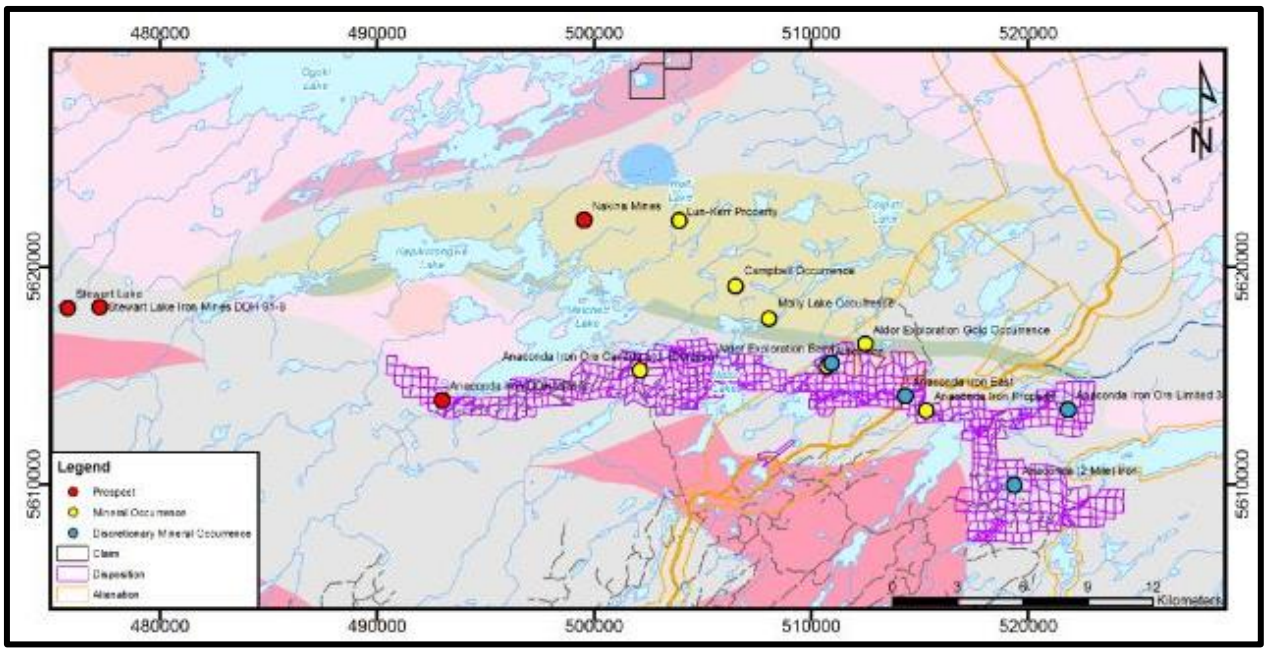

Figure 22. Regional Mineral Occurrences in the Melchett Belt (Cundari, 2017)

24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 Environmental and Social Concerns

There is no historical mineral production from the Melchett Property, however there are remnants of a historical camp at Relf Lake which may need a clean up to remove old structures and other camp waste. There may be remnants of other exploration camps on the claims given the history of previous programs from the 1960's through the 1990's but cannot be confirmed at the time of writing.

The author is not aware of any other environmental liabilities which have accrued from current or historical exploration activity.

24.2 Aboriginal Issues

Ministry of Northern Development, Mines and Forestry (MNDMF) Ontario encourages claim holders to engage with Aboriginal communities and begin developing a working relationship as early in the mining sequence as possible. Communications with the two local First Nations was conducted and documented prior to and during the current work performed on the Melchett Lake property.

Confidential Exploration Agreements were signed separately with each of the Aroland and Ginoogaming First Nations. The details and costs related to said negotiations and payments related to the Agreements are documented in this assessment report. Reporting protocols and payment schedules are defined. Discussions with three other FNs, specifically the Eabametoong (Fort Hope), Animbiigoo Zaagi igan Anishinaabek (AZA) and Marten Falls FNs, were conducted and no further Agreement development or reporting by the Company (SSE) was requested for the

current exploration programs. Further communications with ENDM in this respect will be maintained throughout the life of the project.

25.0 INTERPRETATION AND CONCLUSIONS

The recent and ongoing project work was performed to provide an updated geophysical program over the entire Melchett Lake property including the core claims and new claims staked by Silver Spruce Resources. The interpretations completed during 2021 and 2022 should remain considered as preliminary at this stage of the evaluation given the recent deferral of the Spartan deep-penetrating MT survey.

Our initial analysis of the MPX airborne survey confirmed the earlier results and provided considerable detail and additional survey data, including radiometrics and VLF, over and above the 2002 and 2010 property scale and regional scale airborne surveys, respectively. Numerous NW-trending faults, some parallel to late diabase dykes, transected and offset the Melchett Lake metavolcanics, in some areas by hundreds of metres, with complementary NE-trending faults, typically with lesser amounts of displacement. Tracking of the mineralization in the metavolcanic package from east to west indicates a potential imbricated displacement pattern moving further north going westward.

The western and parts of the eastern metavolcanics are characterized by strong magnetic and VLF/EM response attributed to the presence of pyrrhotite and other sulphides associated with chemical metasediments or other exhalite horizons peripheral to the Zn-Ag core of the alteration system. The core area has much less defined VLF/EM response though the magnetics suggest that several parallel east-west trending units or limbs are present though discontinuous and offset by branching northwesterly faults.

The eastern area of the belt clearly indicates tight isoclinal folding with steeply dipping trends based on the symmetry of the magnetics in total field and vertical derivative maps, though the transition into the core of the metavolcanics loses clarity in part due to the paucity of iron formation and magnetic sulphide units, and in part by intersecting, variably magnetized diabase dykes transecting the metavolcanics.

The purpose of the In3D Geoscience data visualization was clarity and/or identification of features with emphasis on vertical variance and continuity of expression through the 100-500m depth ranges. A clear understanding of the potential displacements of the principal mineralized target horizons across the fault sets and given the multitude of late dyke activity and later remobilization of the faults is key to the proposed drilling programs across the Property and to future interpretation of the contracted Spartan MT survey and planning of deep drilling for the Relf Lake target in Q2 2023.

Examples of the In3D interpretations are provided which clearly identify numerous structural details associated with folding, with tight, plunging and linear limb features, several generations of faulting and intrusions likely transecting the older base metal and gold mineralization, moderate to deep continuity of the magnetic features associated with the known areas of

mineralization shown particularly well at Relf Lake, and several additional patterns coincident or along strike with 2002 EM anomalies, and potential folding of said units, potential stacking and/or fold repetition of EM anomalies associated with the core of the Relf Lake target area and the Nakina 1 and 2 targets, and clarity of offsets related to the strike breaks of known geochemical and geological anomalies among others.

Of key importance to the next phase of exploration are parallel units or horizons in the Nakina 1 and 2 targets, showing isoclinal folding within the monotonous package of metavolcanics, several laterally terminated and 'stacked' intervals within the Relf Lake and west Relf Lake (or central) areas which define potential westerly-plunging, northerly-dipping tight fold vergences, parallel zones to the north of the Nakina 1 and 2 targets in an area with little to no previous detailed exploration, strongly folded metavolcanics and chemical metasediments parallel to the Iron Lake -south Colpitts Lake area exhibiting both continuity and significant strength of anomalies, as noted within the Key Lake area, potential reversals of strike to the west (i.e. folding) along one extending eastward towards the Nakina North targets, apparent wrapping of the mineralization along inflection points where late structural breaks transect the Property, and undulations from E-W shortening and open folding, on the chargeability, conductivity and resistivity maps of the Relf area targets leading to recommendations for SW, SE and S azimuths for diamond drill holes targeting the Relf and Nakina mineralization, and steep down-plunge Zn-Cu sulphide-related anomalies as indicated by the review of the BHPEM data for 2007 and 2008 drilling in the Relf target.

In summary, based on its promising geological setting indicating surface and subsurface presence of base metal mineralization with gold potential, and the interim results of current study, it is concluded that the Property is a property of merit and possesses potential for discovery of economic concentration of zinc, copper, silver and gold through further exploration. Good road access, availability of exploration and mining services in the vicinity makes it a worthy mineral exploration target.

26.0 RECOMMENDATIONS

In the Qualified Persons' opinions, the character of the Melchett Property is sufficient to merit the ongoing phased work program. The current project costs are shown in Appendix VI.

As per current exploration data analysis, the Property clearly has significant target potential for precious and base metal mineralization, and the in-process and proposed program, in two parts, several of which are contracted and in progress, pending contractor scheduling and weather logistics, is recommended, concurrent with updated 2D and 3D GIS compilation, final data modeling from current and previous regional and property scale geophysics, and geochemical modelling prior to ground programs and drilling.

The program costs are estimated to be $500,000 for the remainder of the work-in-progress and $2,000,000 for the drilling phase as results warrant.

The ongoing costs are centred on the completion of the 250 m line spacing grid and Quantec deep penetrating geophysics, deferred since spring 2021, and diamond drilling with logistical, geological and GIS support.

Preliminary Phase – Budget $500,000

- Interpretation of 2002 Airborne Dighem^{V} Survey - completed
- Interpretation of 2010 Airborne Magnetic Survey - completed
- Interpretation of 2008 and 2012 Borehole EM Surveys - in progress
- Interpretation of 2021 Airborne MagRadVLF Survey - completed
- GIS Compilation of Ground and Airborne Geophysical Surveys - preliminary report completed
- Base camp construction at Relf Lake - 90% completed
- Grid line cutting for Ground Geophysics - initiated
- Additional Geophysical Survey – Deep Penetrating Spartan MT – contracted
- LiDAR Mapping flown by Eagle Mapping – completed and results pending
- Detailed processing and interpretation of geological and archeological features by GeoCloud Australia – contracted and results pending
- Detailed Geological and Structural Maps of Principal Targets, Trenches
- Geological Evaluation of Top Indicators for Structural Correlation with Geophysically-Derived Lineaments and Axial Reversals
- Drill Target Analysis
- Ground Location of Proposed Drill Targets

Phase 4b – Budget $2,000,000

- Drilling to test shallow extent along strike of geochemical targets in Relf Zone (500m)
- Drilling to test Matthews modelling under Relf Zone (1,500m)
- Drilling to test depth and along strike targets in Nakina Zone (1,000m)
- Drilling to test other geochemical targets such as Central Zone (1,000m)
- Geological logging, chemical analysis
- 2D and 3D ArcGIS compilation and Leapfrog modelling

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28.0 SIGNATURE PAGE

The report signature is provided on the author's certificate.

29.0 CERTIFICATE OF AUTHOR

I, James Gregory Davison, residing at 921-7th Street, Montrose, British Columbia, Canada, V0G 1P0 do hereby certify, regarding the exploration project in the Thunder Bay Mining District, Northwestern Ontario, Canada, that:

1. I am a Professional Geologist registered with the Engineers and Professional Geologists of British Columbia (License #29630, Registrant ID#145840).

2. I am registered with EGBC as a firm (sole proprietorship) with license #1000464.

3. I meet the requirements of a "Qualified Person" as outlined in National Instrument 43-101.

4. I graduated from Dalhousie University in Halifax, Nova Scotia, Canada in 1979 with an Honours B.Sc. in Geology and from Brock University in St. Catharines, Ontario, Canada in 1984 with a M.Sc. in Geological Sciences.

5. I have practiced my profession continuously since 1979. I am currently a self-employed contract exploration geologist, mineralogist, process mineralogist and managing director of Davison and Associates.

6. I have been actively involved in base metal and gold exploration, mine development and mining operations since 1977 in Canada, United States of America, Mexico and several countries in the Americas, Africa and Europe.

7. I acted in the role of Vice-President Exploration and Director with respect to the Silver Spruce Resources' 2020-2021 exploration project. I am the staker and licensed holder of 144 claims and the claims are beneficially held in the name of Silver Spruce Resources Ltd. and I otherwise will hold no direct interest in the Property claims. These claims are under the Area of Influence in the Definitive Agreement and will be transferred to the Kuzmich Syndicate if Silver Spruce terminates the Agreement prior to completing the terms of the Agreement.

8. I am the author of this report and it is based on data supplied to me by Pleson Geosciences, Silver Spruce Resources Inc., in3D Geoscience, MPX Geophysics Ltd. and information collected from previously published sources.

9. I have been actively involved in base metal and gold exploration, mine development and mining operations since 1977 in Canada, United States of America, Mexico and several countries in the Americas, Africa and Europe.

10. Neither I nor any affiliated entity of mine, have earned the majority of our income during the preceding three years from Pleson Geosciences, Silver Spruce Resources or any associated or affiliated companies. However, I earned the majority of my income, specifically in 2021, from Silver Spruce Resources, working as a consulting geologist.

11. I have worked on the Melchett Lake property from May 1983 to August 1983, May 1984 to August 1984, May 1999 to January 2002, and October 2019 to November 2021. I have been on site and involved with most aspects of the field programs since October 2019.

12. I have read the NI 43-101 and Form 43-101F1 and have prepared the technical report in conformity with generally accepted Canadian mining industry practice.

13. I am not aware of any material fact or material change with respect to the subject matter of the technical report which has not been reflected in the technical report, the omission to disclose which makes the technical report misleading.

14. This report may be utilized for the development of the property provided that no portion is used out of context in such a manner as to convey a meaning that differs from that set out in the whole.

15. Consent is hereby given to Silver Spruce Resources to use or reproduce this report or any part of it for the purposes of development of the property, or related to the raising of funds.

Montrose, BC

November 22, 2022,

Parksville, BC

James Gregory Davison, M.Sc., P. Geo.

EGBC Lic # 29630

Permit to Practise # 1000464

EGBC ID # 145840

Appendix I. Revised ENDM Exploration Permit – Core Claims

Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry
Ministère du Développement du Nord, des Mines, des Richesses naturelles et des Forêts

Exploration Permit/Permis d'exploration

Number/Numero: PR-21-000036

This permit is issued under the authority of section 78.3 of the *Mining Act* and the Exploration Plans and Exploration Permits Regulation (O. Reg. 308/12). It is subject to the provisions of the Act and regulation as well as the terms and conditions included in this permit.

Ce permis est emis conformement aux dispositions de section 78.3 de la *Loi sur les mines* et des reglements et est sujet aux restrictions et dispositions de ce lois et reglements ainsi qu'aux conditions ci-enoncees.

Note: The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, etc. approval as may be required nor does it relieve the permittee from the requirements of any other legislation or guarantee access to the land.

Remarque : La déliverance de ce permis n'exempte pas le demandeur de l'obligation d'obtenir l'autorisation de tout autre organisme, commission, gouvernement, etc. qui pourrait être exigée, n'exempte pas le titulaire des dispositions de toute autre loi et ne garantit pas l'accès à la terre.

Project Details/ Détails sur le projet

Project Name/ Titre du projet	Qualified Supervisor/Superviseur qualifié
Melchett Lake	Benjamin Kuzmich

This Permit is issued to: Ce Permis est delivré a:

Name of Permittee:/Nom du detenteur:

Benjamin Kuzmich & Alexander Pleson

Mailing Address:/Addresse postale:

Ben Kuzmich, 452 Parkwood Street, Thunder Bay, ON, P7A 2J2

To conduct early exploration activities from/ Pour effectuer des activitées d'exploration du (yyyy/mm/dd): 2022/01/14 to: 2025/01/13

On claim/lease/licence of occupation number(s):/Sur le numéro(s) du claim/bail/permis d'occupation:

103699, 107568, 107569, 107585, 110655, 110656, 110657, 123264, 123294, 123501, 135281, 136958, 136959, 141814, 141815, 141816, 161753, 161754, 167770, 180706, 180922, 181230, 181231, 181626, 181627, 187470, 188383, 189071, 199667, 201756, 201757, 207885, 209081, 209082, 235122, 235123, 235276, 235277, 236632, 253429, 254267, 255687, 282566, 291143, 291144, 291324, 291325, 291566, 292885, 303478, 304269, 304978, 311091, 311092, 311093, 320169, 330341, 342214, 342215, 342216, 342221, 342239, 554331, 554332, 554333, 554334, 554335, 554336, 554337, 554338, 554339, 554340, 554341, 554342, 554343, 554344, 554345, 554346, 554347, 554348, 554349, 554350, 554351, 554352, 554353, 554354

As per the project map(s) and Activity Details Report, all of which are attached hereto and which form part of this permit/
Selon la/les carte(s) du projet et le Rapport Détaillé des Activités, tous qui sont attachés ici et qui forment partie du permis

for the purpose of Permit activities:

☒ Mechanized Drilling (assembled weight >150kg)/ Forage mécanisé (poids assemblé >150 kg)

☒ Mechanized Stripping (>100m^2 in 200m radius)/ Décapage mécanisé (>100 m^2 dans un rayon de 200 m)

☒ Pitting and Trenching (>3m^3 in 200m radius)/ Creusement de fosses et de tranchées (>3 m^3 dans un rayon de 200 m)

☒ Line Cutting (>1.5m width)/ Découpage des quadrillages (>1,5 m de largeur)

☐ Other (Early exploration activities for which Director has required a permit)/Autre (Activités d'exploration préliminaires pour laquelle le Directeur a demandé un permis):

for the purpose of Plan activities:

☐ Ground geophysical survey requiring a generator (Les levés géophysiques au sol qui nécessitent l'utilisation d'une génératrice)

☐ Mechanized Drilling (assembled weight <150kg)/ Forage mécanisé (poids assemblé <150 kg)

☐ Mechanized Stripping (<100m^2 in 200m radius)/ Décapage mécanisé (<100 m^2 dans un rayon de 200 m)

☐ Pitting and Trenching (1-3m^3 in 200m radius)/ Creusement de fosses et de tranchées (1-3 m^3 dans un rayon de 200 m)

☐ Line Cutting (<1.5m width)/ Découpage des quadrillages (<1,5 m de largeur)

Subject to the following conditions:/Et sous les conditions suivanted:

1. The Permittee shall keep this permit or a true copy thereof on the permit area./Le detenteur conserver ace permis ou une copie conforme sur les lierux des travaux.

2. The person in charge of the operation conducted under this permit shall produce and show this permit or the true copy kept on the exploration permit area to any inspector whenever requested by the officer./Le responsible des travaux couverts par ce permis doit produire le permis ou sa copie conforme si un inspecteur lui demande.

3. The requirements outlined in Schedule 1 of Ontario Regulation 308/12 and applicable Provincial Standards for Early Exploration/ Les exigences générales identifier à l'annexe 1 du Règlement de l'Ontario 308/12 et les normes provinciale relatives a l'exploration preliminaire.

4. Other terms and conditions as listed on this permit./Autres termes et conditions enoncees sur ce permis.

Place of Issue/Emis a:

Thunder Bay

Issued by/Emis par:

Scott Burgess, Director of Exploration Northwest

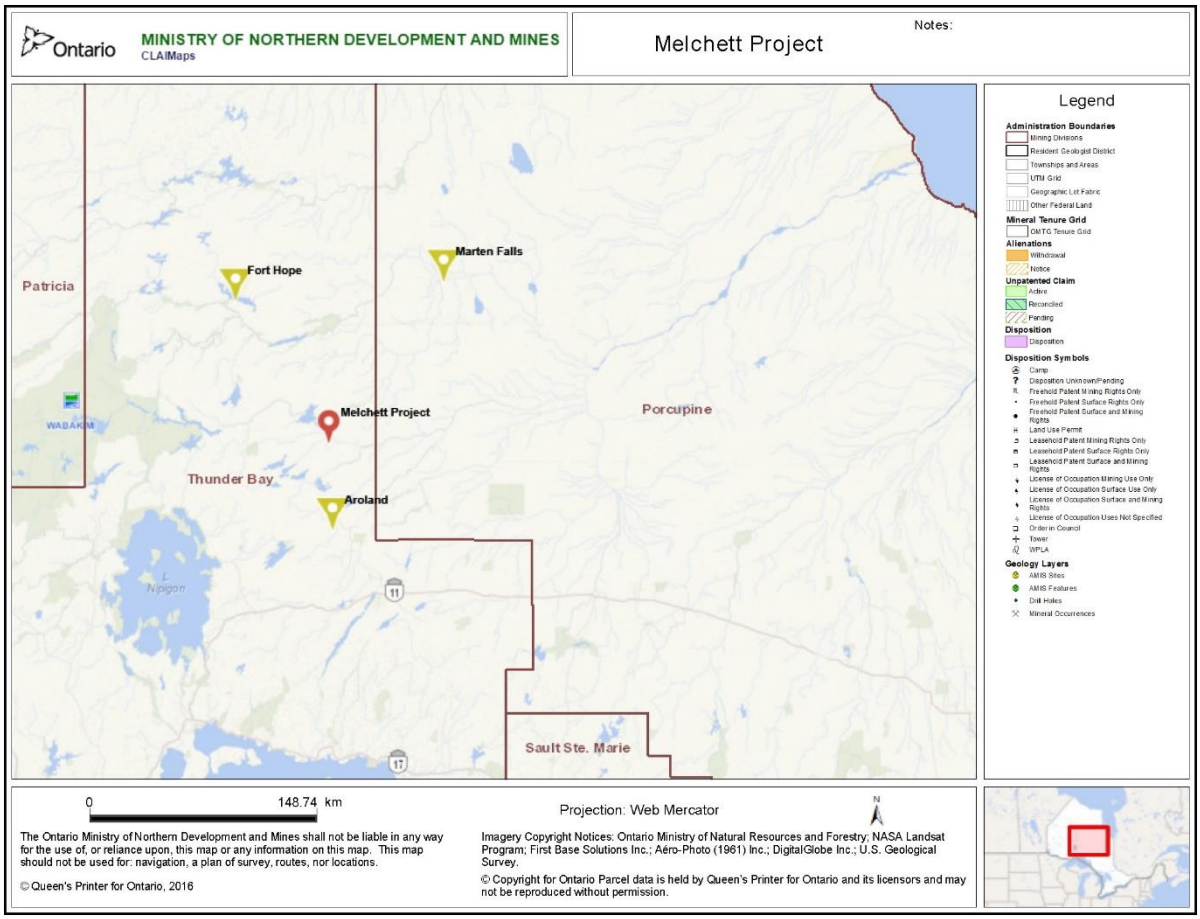
Date of Issue/Date émis (yyyy/mm/dd, aaaa/mm/jj):

2022/01/14

Signature of Director/Signature du directeur:

Additional Terms and Conditions:

Autre termes et conditions:


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
CLAIMaps
Notes:
Melchett Project
Legend
Administration Boundaries
Mining Divisions
Resident Geologist District
Townships and Areas
UTM Grid
Geographic Lot Fabric
Other Federal Land
Mineral Tenure Grid
OMTG Tenure Grid
Alienations
Withdrawal
Notice
Unpatented Claim
Active
Reconciled
Pending
Disposition
Disposition
Disposition Symbols
Camp
Disposition Unknown/Pending
Freehold Patent Mining Rights Only
Freehold Patent Surface Rights Only
Freehold Patent Surface and Mining Rights
Land Use Permit
Leasehold Patent Mining Rights Only
Leasehold Patent Surface Rights Only
Leasehold Patent Surface and Mining Rights
License of Occupation Mining Use Only
License of Occupation Surface Use Only
License of Occupation Surface and Mining Rights
License of Occupation Uses Not Specified
Order in Council
Tower
WPLA
Geology Layers
AMIS Sites
AMIS Features
Drill Holes
Mineral Occurrences
Patricia
Fort Hope
Marten Falls
Melchett Project
Porcupine
Thunder Bay
Aroland
Sault Ste. Marie
WABAKIMI
L. Nipigon
11
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148.74 km
Projection: Web Mercator
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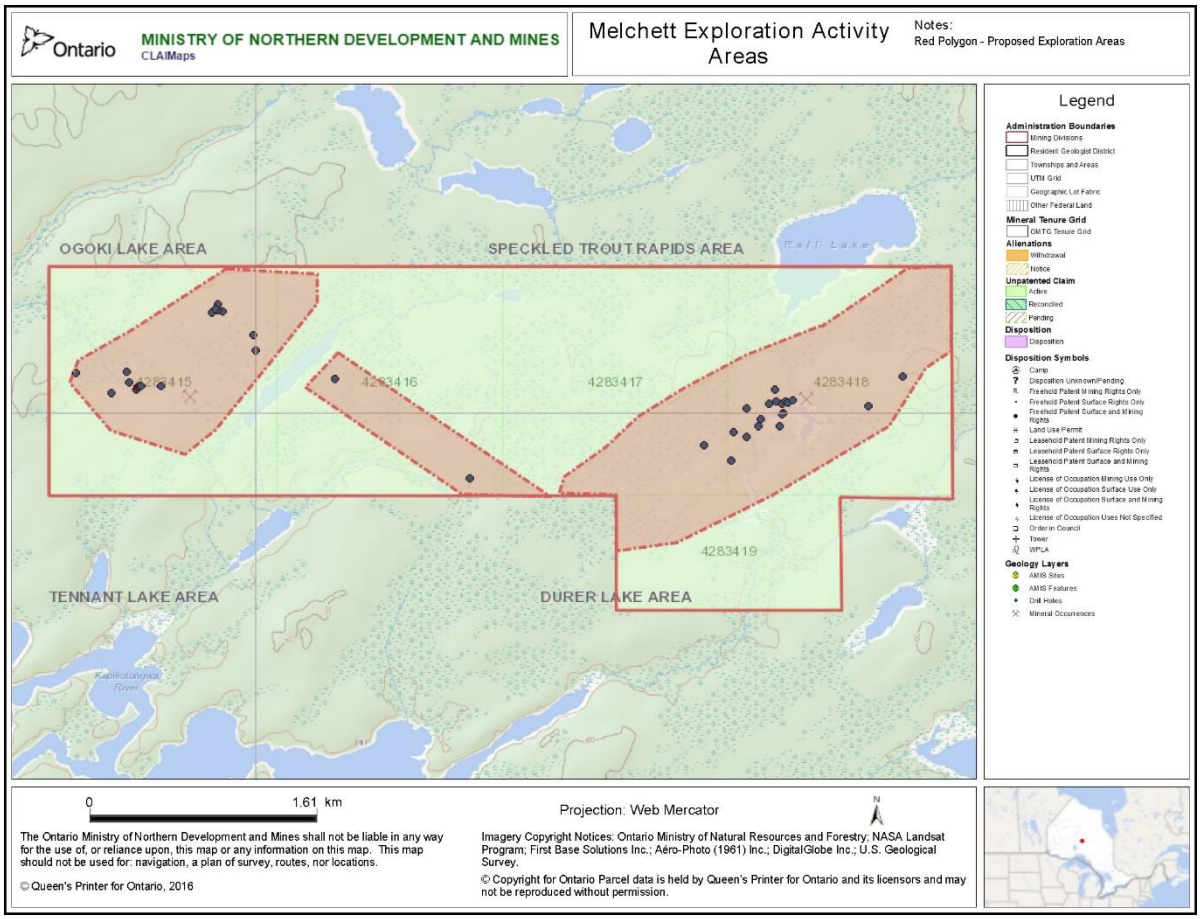
Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
CLAIMaps
Melchett Exploration Activity Areas
Notes:
Red Polygon - Proposed Exploration Areas
OGOKI LAKE AREA
SPECKLED TROUT RAPIDS AREA
4283415
4283416
4283417
4283418
4283419
TENNANT LAKE AREA
DURER LAKE AREA
Legend
Administration Boundaries
Mining Divisions
Resident Geologist District
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Land Use Permit
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Order in Council
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Geology Layers
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AMIS Features
Drill Holes
Mineral Occurrences
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Ontario

Ministry of Northern Development and Mines

Activity Details Report

Under Section 78 of the Ontario Mining Act

Collection of personal information, if any, on this form is authorized by sections 7, 78.2, 78.3, and subsection 178.2(1) of the *Mining Act* for the purpose of creating a public record as described in section 37 of of the *Freedom of Information and Protection of Privacy Act*. This information may also be posted in a modified form on the Ministry of Northern Development and Mines website and on the Environmental Registry for public comment. Questions about this collection should be directed to the Mineral Exploration and Development Section, Ministry of Northern Development and Mines, 933 Ramsey Lake Road, Sudbury ON P3E 6B5. Telephone 705 670-5815.

Preferred language of correspondence

☑ English ☐ French

1. Project Details

Project Name	Name of Early Exploration Proponent
Melchett Lake	Alexander Pleson

2. Exploration Activities

☑ Geophysical surveys requiring a generator

Means of transporting personnel to survey location(s)
Pick-up truck, helicopter, skidoo, sno-cat, float plane, and ATV

Means of mobilizing/demobilizing survey equipment
Pick-up truck, float plane, helicopter, skidoo, sno-cat and ATV

☑ Mechanized Stripping

Type of stripping equipment
John Deere 210 Excavator, Kubota Excavator, Cat Bulldozer

Means of transporting personnel to stripping location(s)
Float truck via forestry roads and Hwy 11, exploration trail, helicopter

Means of mobilizing/demobilizing stripping equipment
Pick-up truck, float truck, helicopter

☑ Pitting and Trenching of Bedrock

Type of Pitting/Trenching equipment
Gas Plugger and Tracked Excavator

Means of transporting personnel to pitting/trenching location(s)
ATV

Means of mobilizing/demobilizing pitting/trenching equipment
Float truck via forestry roads, exploration trails and Hwy 11

Will you be using explosives for this activity?
Potentially, will notify if required

☑ Line Cutting

Type of equipment to be used for line cutting
Chainsaw, axe

☑ Mechanized Drilling

Estimated number of drill holes	Number of drill rig(s)
20	2

Type of drilling to take place (e.g. core drilling, reverse circulation)
Diamond core drilling

Means of transporting personnel to drill location(s)
ATV, Skidoo, helicopter

Means of mobilizing/demobilizing drill equipment
Float truck via forestry roads, bulldozer via exploration trail

Anticipated removal of casings	Date (yyyy/mm/dd)
No	

Will you be drilling any holes larger than 15 cm in diameter? ☐ Yes ☑ No

Comments

☑ Additional Information or Comments

Please provide any other information relevant to this project
This application is for the continuation of previously authorized activities and we refer you to the previous permit (PR-17-11109) for the claims under evaluation. The activities described herein are as per the previous documents.

3. Signature

Name	Signature	Date (yyyy/mm/dd)
Alex Pleson		2021/02/15

Appendix II. First Nations Exploration Agreements and Western Heritage Archeological and Cultural Study

Media Release

AROLAND FIRST NATION SIGNS EXPLORATION AGREEMENT WITH SILVER SPRUCE RESOURCES INC.

March 25, 2021 - Bedford, NS - (TSXV:SSE) – Aroland First Nation ("Aroland" or "First Nation") and Silver Spruce Resources Inc. ("Silver Spruce") are pleased to announce entering into an exploration agreement by which Aroland in exercising its inherent jurisdiction, has issued its permit and approval to Silver Spruce to undertake mineral exploration in part of Aroland's territory known as Melchett Lake, in northwestern Ontario.

"This is the way it should be," says Chief Dorothy Towedo. "The company seeks the First Nation government's consent and is prepared to meet the conditions required to obtain that consent, so the First Nation issues its permit containing those conditions. We understand that the company needs the Crown government's permit too."

"The Ontario Crown government, through ENDM, routinely does its "consultation" on exploration through a form letter and formula timeframes with little else. This is not near enough. So First Nations are compelled to turn to the company. If the company is respectful of our right to free, prior and informed consent, then this gets us a positive result, as is the case in our current collaboration with Silver Spruce." says Aroland Councillor Mark Bell.

"The agreement with Silver Spruce contains measures to accommodate and address Aroland's concerns including a land values and archaeological assessment of the area prior to intrusive exploration activities and a First Nation monitor to identify and protect cultural and heritage values and sites. It provides for high standards and First Nation input on land use, environmental management and plans of the company. This is all to prevent and minimize impacts. And for those impacts that remain, it provides offsetting benefits like priority access to training, employment, contracting, and compensation and coverage for process costs. If the company wants to move toward a mine, then the exploration agreement provides for the need for a mine impact benefit agreement first," says Aroland's lawyer Kate Kempton from OKT Law.

"We are very pleased to be in this mutually respectful and consent-based relationship with Aroland and look forward to working with them over the years to come," says Silver Spruce VP Exploration and Director Greg Davison. "This is how we operate to prevent confrontation. With Silver Spruce fully engaging in the collaboration, it will ensure smooth operations as we advance our mineral claims in and around Melchett Lake."

About Silver Spruce Resources Inc.

Silver Spruce Resources Inc. is a Canadian junior exploration company which has signed Definitive Agreements to acquire 100% of the Melchett Lake Zn-Au-Ag project in northern Ontario, and with Colibri Resource Corp. in Sonora, Mexico, to acquire 50% interest in Yaque Minerales S.A de C.V. holding the El Mezquite Au project, a drill-ready precious metal project, and 50% interest in Colibri's early stage Jackie Au project, with both properties located only 12 and 6 kilometres west from Minera Alamos's Nicho deposit, respectively. The Company also is pursuing exploration of the drill-ready and fully permitted Pino de Plata Ag project, located 15 kilometres west of Coeur Mining's Palmarejo Mine, in western Chihuahua, Mexico. Silver Spruce Resources Inc. continues to investigate opportunities that Management has identified or that have been presented to the Company for consideration.

For more information on the situation, please contact:
Aroland First Nation
Councillor Mark Bell
807-620-8818
arolandtourism@gmail.com

Silver Spruce Resources Inc.
Greg Davison, PGeo, Vice-President Exploration and Director
(250) 521-0444
gdavison@silverspruceresources.com

info@silverspruceresources.com
www.silverspruceresources.com

Neither TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.
Notice Regarding Forward-Looking Statements

This news release contains "forward-looking statements," Statements in this press release which are not purely historical are forward-looking statements and include any statements regarding beliefs, plans, expectations or intentions regarding the future, including but not limited to, statements regarding the private placement.

Actual results could differ from those projected in any forward-looking statements due to numerous factors. Such factors include, among others, the inherent uncertainties associated with mineral exploration and difficulties associated with obtaining financing on acceptable terms. We are not in control of metals prices and these could vary to make development uneconomic. These forward-looking statements are made as of the date of this news release, and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements. Although we believe that the beliefs, plans, expectations and intentions contained in this press release are reasonable, there can be no assurance that such beliefs, plans, expectations or intentions will prove to be accurate.

Media Release

GINOOGAMING FIRST NATION SIGNS EXPLORATION AGREEMENT WITH SILVER SPRUCE RESOURCES INC.

September 23, 2021 - Bedford, NS - (TSXV:SSE) – Ginoogaming First Nation ("Ginoogaming" or "First Nation") and Silver Spruce Resources Inc. ("Silver Spruce") are pleased to announce entering into an exploration agreement by which Ginoogaming in exercising its inherent jurisdiction has issued its permit and approval to Silver Spruce to undertake mineral exploration in part of Ginoogaming's territory known as Melchett Lake, in northwestern Ontario.

"We are happy to see things progress the way they should be done," says Chief Sheri Taylor. "The company sought our community's consent and is prepared to meet the conditions required to obtain that consent, so we the government of the First Nation community issued our permit containing those conditions."

"The Ontario Crown government, through ENDM, routinely does its "consultation" on exploration through a form letter and formula timeframes with little else. This is not near enough. So First Nations are compelled to turn to the company. If the company is respectful of our right to free, prior and informed consent, then this gets us a positive result, as is the case in our current collaboration with Silver Spruce," says Ginoogaming lands staff person Peter Rasevych.

"The agreement with Silver Spruce contains measures to accommodate and address Ginoogaming's concerns about our cultural and heritage values in the area including through a study and a First Nation monitor to identify and protect such values prior to intrusive exploration activities. It provides for high standards and First Nation input on land use, environmental management and plans of the company. This is all to prevent and minimize impacts. And for those impacts that remain, it provides offsetting benefits like priority access to training, employment, contracting, and compensation and coverage for process costs. If the company wants to move toward a mine, then the exploration agreement provides for the need for a mine impact benefit agreement first," says Ginoogaming's lawyer Kate Kempton from OKT Law.

"We are very pleased to be in this mutually respectful and consent-based relationship with Ginoogaming and look forward to working with them over the years to come," stated Greg Davison, Silver Spruce VP Exploration and Director. "With Silver Spruce fully engaged in this collaboration, it will ensure smooth operations as we advance our mineral exploration programs in and around Melchett Lake."

About Silver Spruce Resources Inc.

Silver Spruce Resources Inc. is a Canadian junior exploration company which has signed Definitive Agreements to acquire 100% of the Melchett Lake Zn-Au-Ag project in northern Ontario, and with Colibri Resource Corp. in Sonora, Mexico, to acquire 50% interest in Yaque Minerales S.A de C.V. holding the El Mezquite Au project, a drill-ready precious metal project, and up to 50% interest in each of Colibri's early stage Jackie Au and Diamante Au-Ag projects, with the three properties located from 5 kilometres to 15 kilometres northwest from Minera Alamos's Nicho deposit, respectively. The Company is acquiring 100% interest in the drill-ready and fully permitted Pino de Plata Ag project, located 15 kilometres west of Coeur Mining's Palmarejo Mine, in western Chihuahua, Mexico. Silver Spruce recently signed a Definitive Agreement to acquire 100% interest in three exploration properties in the Exploits Subzone Gold Belt, located 15-40 kilometres from recent discoveries by Sokoman Minerals Corp. and New Found Gold Corp., central Newfoundland. Silver Spruce Resources Inc. continues to investigate opportunities that Management has identified or that have been presented to the Company for consideration.

For more information on the situation, please contact:

Ginoogaming First Nation
Chief Sheri Taylor
807-876-2242
sheri.taylor@ginoogamingfn.ca

Silver Spruce Resources Inc.
Greg Davison, PGeo, Vice-President Exploration and Director
(250) 521-0444
gdavison@silverspruceresources.com

Michael Kinley, CEO and Director
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Media Release

Silver Spruce Resources and Aroland First Nation announce the engagement of Western Heritage archeological and cultural study, receipt of ENDM exploration permit for Melchett Lake VMS Ag-Zn-Au-Cu Project, Ontario

February 28, 2022 - Bedford, NS - (TSXV:SSE) –Silver Spruce Resources Inc. ("Silver Spruce" or the "Company") is pleased to announce the receipt of a multi-year exploration permit to the core claimholders from the Ministry of Energy, Mines and Northern Development ("ENDM") for the Melchett Lake project.

Melchett is an advanced precious and base metal property located in the Thunder Bay Mining District (the "Property"). The Property lies 110 km north of Geraldton and 60 km north of Nakina, in part of Aroland First Nation's ("Aroland") territory known as Melchett Lake, in northwestern Ontario.

Silver Spruce and Aroland jointly announce the engagement of Western Heritage to conduct and complete an independent Phase 1 archeological and cultural study on the Melchett Lake area. Following receipt of the ENDM permit on January 14, 2022, Silver Spruce signed an agreement on January 25, 2022, with Western Heritage after detailed review by, input from and acceptance of the contractor by Aroland.

The Company entered into an exploration agreement by which Aroland in exercising its inherent jurisdiction has issued its permit and approval to Silver Spruce to undertake mineral exploration (see Press Release - March 24, 2021).

"We are pleased to receive our 3-year exploration permit allowing the Company to advance its multi-phase program on the Zn-Ag-Au project which will be managed through a mutually respectful and consent-based relationship with Aroland," stated Greg Davison, Silver Spruce VP Exploration and Director. "The engagement of Western Heritage will provide an opportunity for direct and extensive input by Aroland in documentation of the historical, cultural and spiritual importance and heritage values of the Melchett Lake area. This independent reporting will allow both parties to receive information, as deemed necessary by Aroland, with respect to knowledge of subjects and areas of specific interest to Aroland prior to joint planning and execution of Exploration Activities including land use, environmental management, trenching or drilling. We look forward to the completion of this important document in Q2 2022."

Mr. Davison added, "Our recent high-resolution airborne data from MPX Geophysics in hand, in3D Geoscience is advancing a comprehensive interpretation and compilation of the historical and

current survey data prior to our planned spring exploration program. With the receipt of ENDM permitting for ground activities, the Company is scheduling contractors to re-start after spring ice breakup and complete camp construction and line-cutting with the Quantec deep-penetrating SPARTAN MT survey booked to follow grid completion."

Qualified Person

Greg Davison, PGeo, Silver Spruce VP Exploration and Director, is the Company's internal Qualified Person for the Melchett Lake Project and is responsible for approval of the technical content of this press release within the meaning of National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101"), under TSX guidelines.

About Western Heritage

Western Heritage was founded in 1990 to serve the growing need for specialized cultural heritage services. Since then, we have grown to provide science-based solutions to the needs of our customers in the resource industries. Western Heritage has a long history of working with First Nation and Métis communities both in documenting cultural heritage and in engagement and consultation work.

About Silver Spruce Resources Inc.

Silver Spruce Resources Inc. is a Canadian junior exploration company which has signed Definitive Agreements to acquire 100% of the Melchett Lake Zn-Au-Ag project in northern Ontario, and with Colibri Resource Corp. in Sonora, Mexico, to acquire 50% interest in Yaque Minerales S.A de C.V. holding the El Mezquite Au project, a drill-ready precious metal project, and up to 50% interest in each of Colibri's early stage Jackie Au and Diamante Au-Ag projects, with the three properties located from 5 kilometres to 15 kilometres northwest from Minera Alamos's Nicho deposit, respectively. The Company is acquiring 100% interest in the drill-ready and fully permitted Pino de Plata Ag project, located 15 kilometres west of Coeur Mining's Palmarejo Mine, in western Chihuahua, Mexico. Silver Spruce signed a Definitive Agreement to acquire 100% interest in three exploration properties in the Exploits Subzone Gold Belt, located 15-40 kilometres from recent discoveries by Sokoman Minerals Corp. and New Found Gold Corp., central Newfoundland and Labrador. Silver Spruce Resources Inc. continues to investigate opportunities that Management has identified or that have been presented to the Company for consideration.

For more information on the situation, please contact:

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Media Release

Silver Spruce Resources and Ginoogaming First Nation announce the engagement of Western Heritage archeological and cultural study, receipt of ENDM exploration permit for Melchett Lake VMS Project, Ontario

January 31, 2022 - Bedford, NS - (TSXV:SSE) –Silver Spruce Resources Inc. ("Silver Spruce" or the "Company") is pleased to announce the receipt of a multi-year exploration permit to the claimholders from the Ministry of Energy, Mines and Northern Development ("ENDM") for the Melchett Lake project.

Melchett is an advanced precious and base metal property located in the Thunder Bay Mining District (the "Property"). The Property lies 110 km north of Geraldton and 60 km north of Nakina, in part of Ginoogaming First Nation's ("Ginoogaming") territory known as Melchett Lake, in northwestern Ontario.

Silver Spruce and Ginoogaming also announce the engagement of Western Heritage to conduct and complete an independent Phase 1 archeological and cultural study on the Melchett Lake area. Following receipt of the ENDM permit on January 14, 2022, Silver Spruce signed an agreement on January 25, 2022, with Western Heritage after detailed review by, input from and acceptance of the contractor by Ginoogaming.

The Company entered into an exploration agreement by which Ginoogaming in exercising its inherent jurisdiction has issued its permit and approval to Silver Spruce to undertake mineral exploration (see Press Release – September 23, 2021).

"We are pleased to receive our 3-year exploration permit allowing the Company to advance its multi-phase program on the Zn-Ag-Au project which will be managed through a mutually respectful and consent-based relationship with Ginoogaming," stated Greg Davison, Silver Spruce VP Exploration and Director. "The engagement of Western Heritage will provide an opportunity for direct and extensive input by Ginoogaming in documentation of the historical, cultural and spiritual importance and heritage values of the Melchett Lake area. This independent reporting will allow both parties to receive information, as deemed necessary by Ginoogaming, with respect to knowledge of subjects and areas of specific interest to Ginoogaming prior to joint planning and execution of Exploration Activities including land use, environmental management, trenching or drilling. We look forward to the completion of this important document in Q2 2022."

Mr. Davison added, "With the receipt of ENDM permitting for ground activities and pending contractor scheduling, the Company plans to re-start and complete the camp construction and line-cutting during February 2022 with the Quantec deep-penetrating SPARTAN MT survey booked to

follow grid completion. Our recent high-resolution airborne data from MPX Geophysics in hand, in3D Geoscience is advancing a comprehensive interpretation and compilation of the historical and current survey data concurrent with activation of our planned winter exploration program."

Qualified Person

Greg Davison, PGeo, Silver Spruce VP Exploration and Director, is the Company's internal Qualified Person for the Melchett Lake Project and is responsible for approval of the technical content of this press release within the meaning of National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101"), under TSX guidelines.

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Western Heritage

PROVEN EXPERIENCE. TRUSTED EXPERTISE. INNOVATIVE SOLUTIONS.

Proposal

Melchett Lake Phase One Archaeological Study

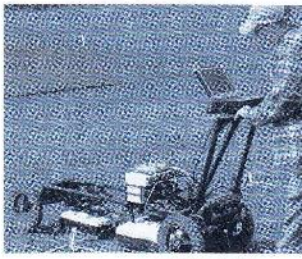
Submitted to:
Greg Davison, P.Geo.
Vice-President Exploration and Director
Silver Spruce Resources Inc.

Prepared By:
Western Heritage
322 Duchess St.
Saskatoon SK S7K 0R1
Phone: 1-877-669-0784, 301

Version 3

E21-561



ISO 9001

Table Of Contents

1.0 COMPANY PROFILE

Founded in 1990, Western Heritage (WH) has over 30 years of experience in conducting heritage baseline studies in British Columbia, Alberta, Saskatchewan, Manitoba, and Ontario. WH specializes in archaeological and historical management, community engagement, geotechnical services and geomatics services. As part of the latter service area, Western Heritage is a Certified Digital Globe Satellite Imagery Reseller.

Western Heritage has a large team of archaeologists as well as specialists in archaeological geophysics and geoarchaeology. While these specialists are not part of every study, the ability to bring in ground penetrating radar or aerial drone imagery into a project where the archaeology has to be non-intrusive is a significant advantage.

The key values we bring to all our services are:

1) Experience. Our senior staff have decades of experience in managing archaeological, historical and cultural studies across Canada.

2) Value. Western Heritage is continuously improving services to maximize cost containment for customers.

3) Quality. Western Heritage is certified under ISO 9001:2015 for Quality Management. Senior Western Heritage team members are also trained in LEAN management processes to ensure quality of results.

4) Safety. Western Heritage is Energy Safety Canada COR certified and safety is a fundamental element of each of our projects.

This project will be delivered fob Thunder Bay.

1.1 Safety

Western Heritage has a comprehensive occupational health and safety program. All staff are certified in standard First Aid and CPR Level B. Field staff are certified in ground disturbance, H2S Alive, ATV training, and WHMIS. Western Heritage also maintains an Energy Safety Canada COR for safety.

Our field safety programs starts with a pre field hazard assessment and continues with daily safety meetings, and ongoing hazard identification and incident reporting. All of the safety records can be provided upon request.

For the type of work required on this project, PPE will consists of ankle high steel toe or composite boots, high visibility vests and eye protection. Crews will carry cellphones and a satellite phone if required. All crews carry SPOT locators with multiple daily check ins. Hard hats or other PPE can be carried if requested. WH archaeologists are fully vaccinated against COVID 19.

1.2 Insurance

WH has $5 million of general business liability insurance and each employee has $2 million of professional liability insurance. A certificate of insurance, or changes in limits, can be provided upon request. Western Heritage is certified under ISO 9001:2015 for Quality Management.

2.0 PROJECT TEAM

It is anticipated that the project archaeologist will be Gjende Bennett (PLicence 425). Gjende is an archaeological permit holder with 11 years of experience working on Stage 1 to 4 projects for various industries and for community organizations throughout, Saskatchewan, Alberta, Manitoba and Ontario. His areas of expertise include lithic artifact analysis and research and mentoring First Nations individuals in archaeological assessments and excavations. He has held archaeological permits for projects of varying sizes and scopes, including HRIAs in Manitoba and Saskatchewan and Stage 1 to 4 projects in northern and southern Ontario.

Gjende completed his Master's Thesis at Lakehead University and was stationed in our Thunder Bay office until 2018. In the event that Gjende could not undertake the project, the backup archaeologists would be Lisa Bobbie or Jim Finnigan, both of which hold professional licences in Ontario. If a change is required, CVs will be provided.

Both Gjende and Jim are fully vaccinated against COVID.

3.0 METHODOLOGY

3.1 Background to the Archaeological Project

Western Heritage, is to complete the Stage 1 Archaeological Assessment according to all requirements/recommendations of the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) for all portions of the proposed mineral exploration area. Stage 1 studies assess archaeological potential while Stage 2 studies identify whether archaeological sites are present.. If there are areas of significant archaeological potential, a Stage 2 study is required. The Stage 1 report can be used in conjunction with the exploration plan to minimize areas that might require a Stage 2 study.

The Project Archaeologist will maintain regular contact with the Project Manager from Silver Spruce Resources Inc. throughout the duration of the project for logistical and informational purposes, and with the First Nations as the Project Archaeologist and Western Heritage are ultimately retained by the First Nations. The archaeological report will be used and usable by all parties and for many purposes.

3.2 Pre-Field

Western Heritage will obtain information on previous research and sites recorded in the area. The project archaeologist will also apply for a Stage 1 Project Information Form or PIF (or a Stage 1 and 2 PIF). Historical background research will also be conducted in the study area to help assess the archaeological potential.

3.3 Interviews

As part of the Phase 1, Western Heritage will conduct interviews with members of the Aroland and Ginoogaming First Nation Nations. The role of the interviews is to determine local knowledge on the

heritage of the exploration area and to obtain information on sites, areas and values of significant cultural importance, cultural connections to, uses of and values in the land. The two First Nations have requested 20 interviews each. This is what is commonly referred to as a Traditional Land Use and Occupancy Study ("TLUOS").

Western Heritage will work with Silver Spruce Resources and the First Nations to identify appropriate contacts and determine whether some of the interviews can be completed virtually. I takes time to both conduct and record the interview. We budget 2 hours on average to complete and record an interview. This could be shortened with some community open house type interviews.

To provide some focus for the interviews, the interviewees will be provided with a map and several guiding questions. The goal is to gather information on landuse and traditional knowledge of the study area. This will inform the Stage One study and it will also help identify potential infringements on treaty right that need to be addressed. Despite the use of the map and guiding questions, the interviews are open-ended.

The information will be recorded in note form and with the permission of the interviewees, they will be recorded. This is to help with the documentation and any recordings will become property of the First Nation.

3.4 Stage 1 Property Inspection

The Stage 1 Archaeological Assessment will include both a property overview and a physical inspection of the proposed mine site. This will involve systematically walking the project areas, GIS mapping and photographing areas of concern. In addition to field activities, historical background research will be conducted on the property to further assess archaeological potential. If there is a plane or helicopter on site during the Stage 1 Property Inspection, they can be of assistance in viewing the entire project area.

3.5 Reporting

Three reports are planned. Separate interview reports will be completed for each of Aroland and Ginoogaming First Nations. These will be confidential reports and the distribution will be limited to the specific First Nation and, with their written permission, Silver Spruce Resources. Each of those reports will list who was interviewed, observations and a map showing areas mentioned. Specific notes and or quotes that will be used in the Stage 1 report will be listed in an appendix. Each First Nation will have editorial control over their respective reports.

The third report, will be the Stage 1 Archaeological Assessment. The report will follow the guidelines for reporting set forth in the 2011 Standards and Guidelines for Consultant Archaeologists and will include an anonymized version of the two interview reports. The report will be submitted to First Nations for review and comment prior to MHSTCI for approval. It will be submitted to Silver Spruce thereafter. This report will be distributed to Aroland and Ginoogaming First Nations, Silver Spruce Resources Inc, and MHSTCI. While MHSTCI archaeological reports are not fully public, they can be distributed to other heritage professionals working in the region.

4.0 Deliverables

1. A report summarizing the Aroland First Nation Interviews

2. A report summarizing the Ginoogaming First Nation Interviews
3. A Stage 1 archaeological report describing the results of the background information search and the site visit and an anonymized version of the interview reports, plus recommendations. This is a regulatory requirement.
4. All information/data collected or produced during the course of work (i.e., site photos, maps, meeting minutes, etc.).
5. Any shareable information derived from interviews.
6. Copies of permits and any regulatory filings.

5.0 PROJECT BUDGET ESTIMATES

These estimates are based on a single project archaeologist and one trip to the project area. We have budgeted for a field assistant, this potentially could be a local First Nation individual, which would reduce the lodging and subsistence costs. We can also accommodate First Nation monitors or assistants. These could either be paid directly by Western Heritage or Silver Spruce Resources Inc. Generally we budget $50/hour for community members which we hire. For two days of property inspection, that would add $800 to the budget.

Project Stage 1 Budget

Task	**Time**	**Rate**	**Total**
Project Setup[1]	3.0	$67.33	$201.99
Stage 1 Desktop Review	6.0	$100.00	$600.00
Interviews	80.0	$75.00	$6,000.00
Stage 1 Property Inspection[2]	32.0	$83.50	$2,672.00
Reporting[3]	35.5	$100.50	$3,567.75
Lodging/Subsistence/Expense[4]			$3,457.00
Transportation			$800.00
		Total[5]	$17,298.74

Budget Notes:

1. This in a blended rate that includes technical and clerical time
2. This is a blended rate for a project archaeologist and a field assistant
3. This is a blended rate that includes a senior archaeologist, the project archaeologist, a technician and GIS specialist
4. This includes 3 nights of lodging for 2 people and 3 days of subsistence for two people, plus any field and lab expenses.
5. Does not include Ontario HST

6.0 Timing

We are ready to start anytime although, where possible, we appreciate at least a week for project setup. We use this time to book travel and accommodations. Including the interviews, the field portion will take 4 days. The desktop study will take a week as sometimes it takes a little time to acquire any needed documents.

7.0 Agreement

The signing parties agree to the terms herein as evidenced at the signature below and at the date of January 25th, 2022.

For Silver Spruce Resources Inc
1600 Bedford Hwy. Suite 440
Bedford, NS, B4A 1E8

Greg Davison, P.Geo.
Vice-President Exploration and Director

Date:

For Western Heritage
322 Duchess Street
Saskatoon, SK, S7K 0R1

Jim Finnigan
President

Date: January 25th, 2022

Appendix III. Pleson Geoscience Field Records

Date	Task(s)	Category	Crew	Notes
February 12, 2021	Float Dozer	Road	Barinos Float/Alex/Kyle	
February 13, 2021	No work at site billed to Project, next available day for apartment rental was night of Feb 15th			
February 14, 2021				
February 15, 2021	Open Road to Site	Road	Alex/Kyle	
February 16, 2021	Open Road to Site	Road	Alex/Kyle	
February 17, 2021	Open Road to Site	Road	Alex/Kyle	
February 18, 2021	Break Trail on Lake/Open road and landing/ Alex/Amede/Rob (Ray and Kyle road)	Road/Lake	Alex/Amede/Rob/Kyle/Ray	
February 19, 2021	Break Trail on Lake	Road/Lake	Alex/Amede/Rob/Scott/Frank	
February 20, 2021	Break Trail on Lake	Lake/Creek	Alex/Amede/Rob/Scott/Frank	
February 21, 2021	Break Trail on Lake/Mark with Sticks	Lake	Alex/Amede/Rob	Mark 7km of trail on Lake
February 22, 2021	Trail to Relf	Trail	Alex/Amede/Rob	Cut trail and fill in creek
February 23, 2021	Trail to Relf	Trail	Alex/Amede/Rob	"
February 24, 2021	Trail to Relf	Trail	Alex/Amede/Rob	"
February 25, 2021	Trail to Relf	Trail	Alex/Amede/Rob	"
February 26, 2021	Trail to Relf	Trail	Alex/Amede/Rob	"
February 27, 2021	Trail to Relf	Trail	Alex/Amede/Rob	"
February 28, 2021	Day off/travel to Nipigon to grab shovels/snow scoops/snow blower	Supplies	Alex	get supplies to start clearing campsite
March 1, 2021	Campsite clearing	Campsite	Alex/Amede/Rob	
March 2, 2021	Campsite clearing	Campsite	Alex/Amede/Rob	
March 3, 2021	Campsite clearing	Campsite	Alex/Amede/Rob	
March 4, 2021	Campsite clearing	Campsite	Alex/Amede/Rob	
March 5, 2021	Campsite clearing	Campsite	Alex/Amede/Rob	
March 6, 2021	Expedite gear to Camp/Alex and Wade Bring supplies Nipigon to Landing	Logistics	Alex/Wade	
March 7, 2021	Expedite gear to Camp/Alex and Wade Bring supplies Nipigon to Landing	Logistics	Alex/Wade	
March 8, 2021	Expedite gear to Camp/Alex and Wade Bring supplies Nipigon to Landing	Logistics	Alex/Wade	
March 9, 2021	Expedite gear to Camp/Alex and Wade Bring supplies Nipigon to Landing	Logistics	Alex/Wade	
March 10, 2021	Expedite gear to Camp/Alex and Wade Bring supplies Nipigon to Landing	Logistics	Alex/Wade	
March 11, 2021	No work at site billed to project			
March 12, 2021	Ramin and Phil grab gear in Thunder Bay, Alex/Amede/Rob continue bringing in supplies	Logistics	Ramin, Alex, Phil, Amede, Rob	
March 13, 2021	Full crew bringing in supplies	Logistics	Ramin, Alex, Phil, Amede, Rob	
March 14, 2021	Full crew bringing in supplies	Logistics	Ramin, Alex, Phil, Amede, Rob	
March 15, 2021	Full crew bringing in supplies	Logistics	Ramin, Alex, Phil, Amede	
March 16, 2021	Full crew bringing in supplies	Logistics	Ramin, Alex, Phil, Amede	
March 17, 2021	Full crew bringing in supplies	Logistics	Ramin, Alex, Phil, Amede	
March 18, 2021	Demob half crew	Logistics	Ramin, Alex, Phil	demob labourers
March 19, 2021	Demob gear from site to Nakina	Logistics	Ramin, Phil	Standby/demob line cutters
March 20, 2021	Travel Day	Logistics	Ramin, Phil	
March 21, 2021	No work at site billed to Project			
March 22, 2021				
March 23, 2021				
March 24, 2021				
March 25, 2021				
March 26, 2021				
March 27, 2021				
March 28, 2021	Remob to Nakina and gear to Melchett	Logistics	Kyle/BJ	
March 29, 2021	Mob lumber and remaining supplies into site	Logistics	Kyle/BJ	
March 30, 2021	Mob lumber and remaining supplies into site	Logistics	Kyle/BJ	
March 31, 2021	Finish last trip into Relf of lumber haul (1/2 day) then head back to Nakina and demob Kyle/BJ (1/2 day travel day billed	Logistics	Kyle/BJ	
April 1, 2021	Ramin pick up hear in Thunder bay, Gus travel Thunder Bay to Nakina	Logistics	Ramin/Alex/Gus	
April 2, 2021	Ramin travel to Melchett, Alex/Gus expedite remaining supplies from Black trailer into Relf, begin floor construction	Logistics/Construction	Ramin/Alex/Gus	
April 3, 2021	Gus injured, Alex/Ramin demob	Logistics/Construction	Ramin/Alex/Gus	
April 4, 2021	No work at site billed to Project, Alex to reconfirgure construction crew			

April 5, 2021	Mob into site, Alex/Kyle continue build with Brad, build 2 floors and put up 2 tents.	Construction	Alex/Kyle/Brad	
April 6, 2021	Start floors, and unpacked all gear into 1 tent for storage	Construction	Alex/Kyle/Brad	
April 7, 2021	Finish generator shack and kitchen	Construction	Alex/Kyle/Brad	
April 8, 2021	Finish floors and demob back home (Kyle/Brad - Beardmore)(Alex - Nipigon)	Construction	Alex/Kyle/Brad	

Lake, Trail, and Campsite					
Item	Rate	Unit	Units	Cost	Notes
Alex	550	day	7	3850	
Amede	450	day	7	3150	
Rob	450	day	7	3150	
Scott	450	day	2	900	
Frank	450	day	2	900	
Chainsaw x3	150	day	5	750	
Skidoos	200	day	5	1000	
Daily Travel	0.65	per km	2347	1525.55	
Accomodations	250	day	8	2000	
				17225.55	Total

Item	Rate	Unit	Units	Sub Total
D5 Dozer	155	hour	38	5890
Operator (Daily Travel)	0.65	per km	930	604.5
Mobilization	145	hour	9.5	1377.5
Demobilization	145	hour	8	1160
Helper/Labourer	425	day	4	1700
Road Maintenance	155	hour	8	1240
D5 Dozer	155	hours	5	775
				12747

Notes
Melchett Turn to Landing (14 km)
Estimated daily travel cost
Demob due to FN issues
Assistant to help bump up operators truck/on-site safety so operator is not working alone
Plow road after snow storm
Fix hills and widen parking lot to accommodate lumber delivery truck
Total

Item	Rate	Unit	Units	Cost
Alex	550	day	5	2750
Amede	450	day	8	3600
Rob	450	day	8	3600
Phil	450	day	9	4050
Wade	450	day	3	1350
Chainsaw x3	150	day	2	300
Skidoos	200	day	5	1000
Daily Travel	0.65	per km	2453	1594.45
Accomodations	250	day	9	2250
				20494.45

Expediting Supplies	Notes
	1 day to pick up Ramin and get supplies in Thunder Bay with Ramin using Alex's F250 and tandem axel enclosed tr
Total	

Item	Rate	Unit	Units	Expediting Cost
Ramin	65	hours	58	3770
Ramin	650	day	9	5850
Julian	45	hours	66	2970
Julian	45	hours	29	1305
		Total		12590

Item	Rate	Unit	Units	Alex Cost
Truck	0.65	km	3030	1969.5
Trailer	50	day	5	250
Truck	0.65	km	457	297.05
				2516.55
				15106.55

Supplies and Organizing	
	Notes
Feb 18th to March 12th	
Mar 12th to Mar 20th	
February	
March Time Sheet	

x Additional Fees	
	Notes
5 trips to and from Nipigon to deliver all gear from Nipigon Warehouse	
Wades trip to Geraldton and Longlac for additional supplies and food	
Total	
Grand Total	

Item	Units	Unit Cost	Sub-totals
Line (Km)	5.2	1100	5720
Mob	0.5	1800	900
Skidoos	2	75	150
Crew Travel Day	4	250	1000
		Total	7770

Item	Rate	Unit	Units	Cost
Ramin	650	day	4	2600
Alex	550	day	4	2200
Gus - Carpenter	900	day	3	2700
Brad - Carpenter	2485	job	1	2485
Kyle	450	day	4	1800
Total				11785

Item	Rate	Unit	Units	Cost
BJ	450	day	4	1800
Kyle	450	day	4	1800
Travel	0.65	km	4	1832
Skidoos	150	day	4	600
				4232

Item	Rate	Unit	Units	Cost
Truck	0.65	km	865	562.25
Skidoos	200	day	4	800
Tools	350	day	2	700
				2062.25

Item	Rate	Unit	Units	Cost
Alex's F-250 usec	0.65	km	1940	1261
Hotel	129	night	1	129
				1390

$7,684.25

$11,785.00

Finish Camp Build	Notes
Help Remob and delivery of water and water pump to landing (revised from originally included in both logistics tal	
2 days plus 1 paid day due to injury Invoiced to Pleson	
emob Supplies and move remaining Lumber to site	Notes
Total	
Associated Costs	Notes
Trip back to Melchett + tandem trailer	
Total	
Ramin Expenses	Notes
Total	
Remob Total Remob Construction Total	

Appendix IV. Quantec Geoscience SPARTAN Survey contract

1. Service Agreement

CONFIDENTIAL

THIS AGREEMENT made as of the December 23, 2020

B E T W E E N:

QUANTEC GEOSCIENCE LIMITED a corporation incorporated under the laws of Canada and having its registered office at **146 Sparks Ave., Toronto, ON M2H 2S4 Canada.** (hereinafter referred to as "**Quantec**")

OF THE FIRST PART

- and -

Silver Spruce Resources Inc., a corporation incorporated under the laws of **Canada** and having its registered office at **Suite 440, 1600 Bedford Highway, Bedford, Nova Scotia, B4A 1E8, Canada**

(hereinafter referred to as the "**Client**")

OF THE SECOND PART

WHEREAS:

A. The **Client** wishes to engage the services of **Quantec** to perform certain geophysical consulting services as more particularly described in the schedules to this **Agreement**, subject to the terms and conditions described in this **Agreement**.
B. **Quantec** has agreed to such engagement in accordance with the terms and conditions hereinafter set out.

NOW THEREFORE THIS AGREEMENT witnesses that in consideration of the respective covenants and **Agreement**s of the parties contained in this **Agreement**, the sum of One Dollar ($1.00) paid by each party to the other and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged) it is agreed as follows:

2. Definitions

Where used in this **Agreement** and in any amendments and schedules hereto, the following terms shall have the following meanings, respectively:

a. "**Agreement**" means this **Agreement** and any amendments hereto;
b. "**Data**" means all technical information, surveys, maps, charts and other materials generated by **Quantec** on behalf of the **Client** in the performance of the **Work**;
c. "**Work**" means the geophysical services which are described in detail in Schedule A to this **Agreement**.

3. Schedules

Schedules A – C are attached to and incorporated in the **Agreement** by reference and deemed to be part of this **Agreement**.

4. Engagement

The **Client** hereby retains **Quantec** to perform the **Work** at the location or locations specified in Schedule A, and **Quantec** agrees to perform the **Work** subject to the terms and conditions contained in this **Agreement**.

5. Supply of Personnel and Technology

In carrying out the **Work**, **Quantec** agrees to supply the personnel and use the technology specified in Schedule A.

6. Work Schedule

Subject to the Force Majeure provisions of clause 19 below, **Quantec** agrees to use its best efforts to commence the **Work** on the date specified in the proposal and to complete the **Work** in accordance with the **Work** schedule described in Schedule A.

7. Remuneration

The **Client** agrees to pay **Quantec** for the **Work** in accordance with the payment schedule set out in Schedule B. Payments which are not received on the date specified in Schedule B shall bear interest at the rate of two percent (2%) per month (24% per annum) from the date such payment was due until the date of actual payment. In the event that payment is not received within twenty-one (21) days of the dates specified in Schedule B, **Quantec** shall have the right to terminate this **Agreement** without incurring any obligation to complete the **Work**.

8. Indemnification

Notwithstanding the termination or expiration of this **Agreement**, the **Client** agrees at all times to indemnify **Quantec** against any action, cause of action, suit, damage, debt, cost, expense, claim or demand whatsoever at law or in equity, arising as a result of the performance by **Quantec** of the **Work** except for claims arising by reason of a wrongful or negligent act or omission of any nature whatsoever of its officers, directors, employees, contractors or affiliates. Notwithstanding the termination or expiration of this **Agreement**, **Quantec** agrees at all times to indemnify the **Clients** officers, directors, employees, contractors or affiliates against any action, cause of action, suit, damage, debt, cost, expense, claim or demand whatsoever at law or in equity, arising by reason of a wrongful or negligent act or omission of any nature whatsoever by the officers, directors, employees, contractors or affiliates of **Quantec.**

9. Insurance

Quantec carries General Commercial insurance in the amount of $1,000,000 Property Damage insurance in the amount of $2,000,000 as well as non-owned Automobile Coverage in the amount of $2,000,000. A copy of Quantec's insurance certificate is available upon request.

10. Safety

The management of **Quantec** is vitally interested in maintaining a safe and healthy Workplace for its employees. **Quantec** will make every reasonable effort to provide a safe and healthy Work environment. All field personnel receive instruction in the safe operation of equipment and safe procedures and advice on appropriate precautions to avoid injury while executing surveys or travelling to or from job sites. We welcome the **Client** to supply a copy of their Health and Safety Regulations in order to assure compliance.

11. Permits

The **Client** shall be responsible for ensuring that all permits, permissions and consents are obtained from all governments, regulatory authorities and property owners as may be necessary to permit or enable **Quantec** to carry out the **Work** at the location or locations specified in Schedule A.

12. Confidentiality

Quantec acknowledges that the **Work** and the **Data** collected in the performance of the **Work** is confidential information which is the property of the **Client**. **Quantec** agrees that they shall not, during the continuance of this **Agreement** or at any time thereafter, divulge, or permit the divulgence of, to any person whatsoever, any such confidential information, provided that such confidential information shall cease to be confidential at such time as it has been generally disclosed to the public by the **Client** or by a party other than **Quantec**.

The **Client** acknowledges that services provided by **Quantec** may include technologies which are the property of **Quantec** and are confidential information. The **Client** agrees that it shall not, during the continuance of this **Agreement** or at any time thereafter, divulge, or permit the divulgence of, to any person whatsoever, any such confidential information, provided that such confidential information shall cease to be confidential at such time as it has been generally disclosed to the public by **Quantec** or by a party other than the **Client**.

13. Retention of Data

Quantec policy is to keep all survey data for at least one year following the completion of a survey. Optionally, data can be kept indefinitely for no charge as a courtesy, with the understanding that Quantec does not guarantee data integrity or availability, and that in choosing this option **the Client** releases **Quantec** from any possible liability associated with the storage of the data including theft, loss and damage. **Quantec** will protect the confidentiality of all data stored. Please choose one of the two following options:

☐ Delete all survey data after one year following completion of project.

☐ Store data indefinitely and release Quantec from any liability related to the data storage.

14. Ownership of Data

The **Client** acknowledges that **Quantec** retains full ownership of the **Data** and any copies thereof until such time as the **Client** pays in full for the **Work** as specified in this **Agreement**. Upon receipt of the final payment from the **Client** the ownership of the **Data** is transferred from **Quantec** to the **Client**

If final payment is not received after **six (6) months** have passed from the completion of the survey, the dispute can be referred to arbitration as specified in **Clause 14**.

15. Arbitration

In the event of any dispute between the **Client** and **Quantec** pertaining to any matter covered by this **Agreement**, either party shall be entitled to submit the matter to binding arbitration on the following basis:

a. Upon receipt of a notice from one party to the other stating that a party desires arbitration, **Quantec** and the **Client** shall endeavor for a period of fifteen (15) days to agree upon an arbitrator, failing which each of **Quantec** and the **Client** shall appoint an arbitrator and the two arbitrators so appointed shall choose a third arbitrator.
b. If a party fails to choose an arbitrator within thirty (30) days after notice has been given that a party desires arbitration, the other party shall be entitled to appoint the two remaining arbitrators.
c. If the two arbitrators appointed by the parties cannot agree upon a third arbitrator, the Court of Arbitration of the International Chamber of Commerce shall, at the request of any of the arbitrators chosen by the parties, choose a third arbitrator; the single arbitrator agreed upon by the parties, or a majority of the three arbitrators appointed in accordance with this paragraph, shall determine the matter in dispute and the determination of such arbitrator or arbitrators shall be final and binding on the parties, save and except for matters of law.

16. References

All references herein to sections, articles and schedules are references to sections, articles and schedules of this **Agreement** unless otherwise indicated.

17. Headings

The headings herein are inserted for convenience of reference only and shall not be used in interpreting or construing this **Agreement**.

18. Interpretation

This **Agreement** shall be interpreted as construed in accordance with the laws of Canada and the parties hereto attorn to the jurisdiction of the courts of such country.

19. Time of the Essence

Time shall be of the essence of this **Agreement**.

20. Force Majeure

The obligations of a party (except the obligation to pay money) shall be suspended to the extent and for the period that performance is prevented by cause, whether foreseeable or unforeseeable, beyond its reasonable control, including, without limitation, labour disputes (however arising and whether or not employee demands are reasonable or within the power of the party to grant); acts of God; laws, regulations, orders, proclamations, instructions or requests of any government or governmental entity; judgments or orders of any court; inability to obtain on reasonably accepted terms any public or private license, permit or other authorization; curtailment or suspension of activities to remedy or avoid an

actual or alleged, present or prospective, violation of federal, provincial or local environmental standards; acts of war or conditions arising out of or attributable to war, whether declared or undeclared; riot, civil strife, insurrection or rebellion; fire, explosion, earthquake, storm, flood, sink holes, drought or other adverse weather condition; delay or failure by suppliers or transporters of materials, parts, supplies, services or equipment or by contractors' or subcontractors' shortage of, or inability to obtain labour, transportation, materials, machinery, equipment, supplies, utilities or services; accidents; breakdown of equipment, machinery or facilities; or any other cause, whether similar or dissimilar to the foregoing. Such party shall promptly give notice to the other party of the suspension of performance, stating therein the nature of the suspension, the reasons therefore, and the anticipated duration thereof. The party invoking force majeure shall resume performance as soon as reasonably possible.

21. Further Assurances

The parties shall do all such things and provide all such reasonable assurances as may be required to consummate the transactions contemplated hereby, and each party shall provide such further documents and instruments required by any other party as may be reasonably necessary or desirable to affect the purpose of this **Agreement** and carry out its provisions.

22. Entire Agreement

This **Agreement** sets forth the entire **Agreement** between the parties with respect to the subject matter hereof and supersedes all prior understandings and communications between the parties or any of them, oral or written. There are no representations, warranties, terms, conditions, undertakings, or collateral **Agreement**s, express, implied or statutory between the parties other than as expressly set forth in this **Agreement**.

23. Enurement

This **Agreement** shall ensure to the benefit of and be binding upon successors and permitted assigns of each of the parties hereto.

24. Amendment and Waiver

No amendments to this **Agreement** shall be valid or binding unless set forth in writing and duly executed by the parties hereto. No waiver of any breach of any term or provision of this **Agreement** shall be effective or binding unless made in writing and signed by the party purporting to give the same and, unless otherwise provided in the written waiver, shall be limited to the specific breach waived.

25. Disclaimer

Every effort will be made by **Quantec** to collect valid and accurate **Data** in a good and workmanlike manner. It is expected that variations in the **Data** will have geological cause. However, environmental noise and natural variations within the ambient environment may cause ambiguities within the **Data.** Therefore, any use by the **Client** of the survey results and report, or any reliance on or decisions made based on them, are the responsibility of the **Client**. No guarantees of any type are made by **Quantec** in terms of depth of investigation, data repeatability~~,~~ data reliability, data resolution or any other aspect of the data that is subject to inherent variations in the natural environment which are outside the control

of **Quantec**. **Quantec** accepts no responsibility for damages, if any, suffered by the **Client** as a result of decisions, actions or non-actions made, based on the results of these surveys.

26. Early Termination

Pursuant to Section 24, in the event the survey is terminated by mutual agreement between the **Client** and **Quantec** prior to completion of the services, the **Client** shall pay **Quantec** for all services performed up to and including the effective date of termination at the survey rates agreed upon in **Schedule B.1**, including the demobilization fee set forth in Schedule B.1.

27. Notices

A notice required or permitted to be given or delivered hereunder shall be in writing and shall be addressed to the address of the party set out on the first page of this **Agreement**, or to such other address as the party receiving such notice may have advised the party giving such notice in writing. Any such notice shall be given to the person to whom directed, (a) by personal delivery or (b) by electronic communication.

The Client
Greg Davison, VP Exploration
Telephone: (250) 521-0444
Email: gdavison@silverspruceresources.com

Quantec
Oliver Kuhn, CEO and President
Telephone: +1 416 306 1941
Email: okuhn@quantecgeoscience.com

28. Electronically Transmitted Signatures

Telecopied signatures or signatures sent by electronic mail may be used in place of original signatures on this **Agreement**. **The Client** and **Quantec** intend to be bound by the signatures on the telecopied or electronically mailed document, are aware that the other party will rely on the telecopied or electronically mailed signatures, and hereby waive any defenses to the enforcement of the terms of this **Agreement** based on the form of signature.

IN WITNESS WHEREOF this **Agreement** has been executed by the parties hereto as of the date, month and year first above written.

Quantec Geoscience Limited

_____ Date_____

Oliver Kuhn, CEO and President

Silver Spruce Resources Inc.

Per:_____ Date:_____

Greg Davison, VP Exploration

SCHEDULE A – SPARTAN MT ONLY DESCRIPTION OF WORK

A.1 Exploration Objectives

The survey objectives include; mapping resistivity from surface to depths up to 2000 m, detecting discrete conductive bodies and mapping chargeability distribution in the top 700m.

A.2 Scope of Survey Data Acquisition

Based on the exploration objectives above, the following **SPARTAN MT only** survey has been designed to provide high resolution resistivity and chargeability imaging at the desired depth of investigation for the project. The survey is summarized as follows:

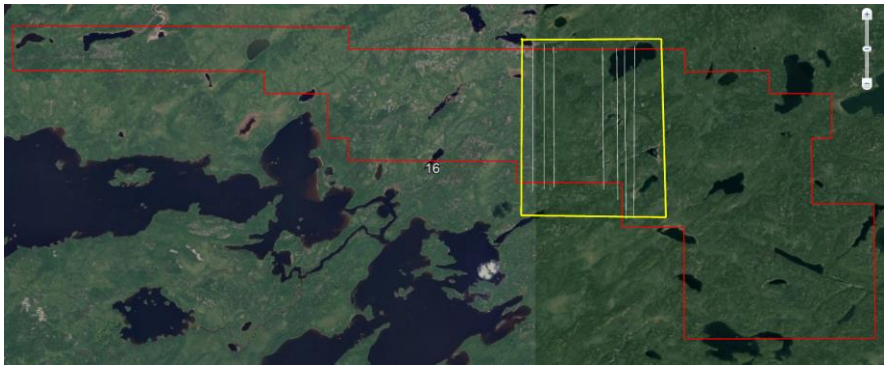


Figure 1: Melchett Lake Property Map

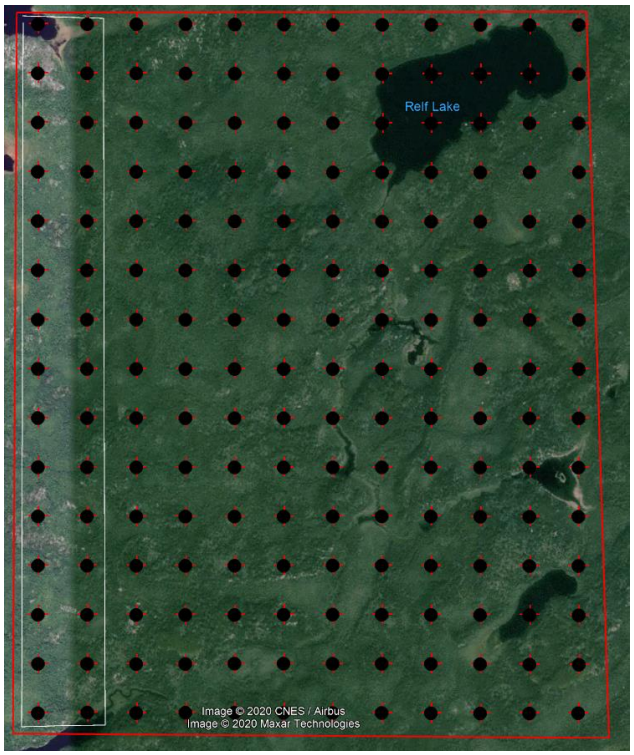


Figure 2: Melchett Lake Grid Map (150 sites, 30 sites optional)

NOTE: The SPARTAN layout shown above has been reviewed with the **Client** and the costing has been based on this plan. Any changes by Silver Spruce Resources Inc. to survey location(s) following signing of this contract will be subject to the rate schedule B.1.

	Scope of Survey	Spartan MT
1	Data Components:	MT Resistivity
2	Layout Configuration:	MT Soundings (Exy Hxyz)
3	Acquisition Units:	RT-160 (9 units - 6 channels each)
4	Receiver Layout:	"+" shaped configuration
5	Coil Deployment:	HF and LF
6	RX & Remote Synchronisation:	GPS clock (10 µs accuracy)
7	LF Time Series Sampling:	LF1: 1,000 sample/s; LF2: 40 sample/s
8	HF Time Series Sampling:	HF1: 48,000 sample/s; HF2: 12,000 sample/s
9	Read time:	Overnight
10	Frequency Bandwidth:	10kHz to 0.001Hz
11	Site Spacing:	250 m
12	E-field Dipole lengths:	Ex=100 m: Ey=100m
13	Number of sites:	150
14	Survey Estimate:	27 survey days + 1 fatigue days

***Table 1: Melchett Lake* Survey Plan Summary**

A.3 Anticipated Survey Schedule

The estimated start date for the project is: March 2021 or sooner as schedule accommodates.

Quantec will make a best effort to start on the estimated date but can make no guarantee. Projects are scheduled on a first-come, first-served basis and considered with respect to first available system, except when geographical circumstances do not allow.

A.4 Personnel

Every SPARTAN survey involves a team of experienced and qualified geophysicists and technicians. The assigned Project Manager will be responsible for the overall execution of the survey and will be your point of contact during the course of the project. The geophysical team assigned to this survey will consist of the following:

Position on Team	Assigned Staff	Description of Role
Project Manager	1	Responsible for daily communication with the field crew, senior geophysicist and client regarding survey progress, safety interest, and budget updates (off-site).
Responsible Geophysicist	1	Responsible for regular communication with the field processor and the client representative regarding technical activities. The Geophysicist will ensure QC and reporting and perform inversion and interpretation on behalf of the client (off-site).
Field Manager	1	Responsible for data acquisition, safety, and overall supervision of the field crew. Daily communication with the client on site and the project manager.
Data Processor	1	Responsible for the daily data reduction and processing of data for QA/QC purposes, daily interaction with crew regarding QA/QC and regular communication with responsible geophysicist.
Geophysical Operator	2	Responsible for data acquisition and transfer of data to processor, safety, equipment maintenance and assistance with crew supervision.
Geophysical Technician	3	Responsible for assistance with data acquisition, attention to safety, execution of the survey and equipment maintenance.

A.5 Services provided by Quantec and Client

	Services for Project Supplied by Quantec or Client	Quantec	Client
1	Supply of all necessary equipment to complete the survey in timely fashion.	y	
2	Data processing and reporting as specified in Schedule D.	y	
3	Accommodation and meals for the Quantec crew for the duration of survey.		y
4	Disposables, i.e. gasoline/fuel, water, etc.		y
5	Maps and survey files of idealized GPS defined coordinates and location details in digital format must be delivered to Quantec prior to field data collection.		y
6	Permits, site access, fees and landowner consents needed to access the survey area.		y
7	Site-specific training as required by Client including: safety and emergency procedures, environmental procedures, and social procedures for handling local residents, landowners or labour.		y
8	Access to project site (camp) by plane for crew and gear.		y
9	Snowmobile trails for the transport of personnel and equipment within the grid area.		y
10	Communications facilities for data transfer / upload for processing and charging equipment. Suitable internet and 7/24 power.		y

SCHEDULE B – CONTRACT PRICES AND COSTS

B.1 Survey Rates

Quantec will undertake the specified work on a daily rate basis as outlined below. **All contract prices are in InvoiceCurrency and exclude applicable taxes.**

SPARTAN MT Survey Quote	Item	Rate	Cost
Mobilization to and Demobilization from Project			
Shipping SPARTAN equipment and crew travel expenses to/from survey site	1	$28,000.00	$28,000.00
SPARTAN MT Survey - 250m site spacing			
150 MT sites	27	$5,500.00	$148,500.00
Fatigue day (13 on :1 off)	1	$3,500.00	$3,500.00
2D MT inversion (5 of 10 for sure TBD)	5	$1,200.00	$6,000.00
3D MT inversion	1	$13,000.00	$13,000.00
Summary Interp report	1	$6,500.00	$6,500.00
Option 30 MT sites	5	$5,500.00	tbd
Option 2D MT inversion	2	$1,200.00	tbd
Cost estimate includes: *7 men Spartan crew deploying 9 Quantec exclusive RT160 data recorders* *Execution SPARTAN survey by experienced and safety motivated crew* *Daily QC/QA by highly qualified Senior Geophysicists.* *One virtual meeting to discuss results*			
Standby Charges will apply in the event: Quantec is unable to carry out its obligations as a result of any act or request by the Client or for days Quantec is not allowed to work for reasons beyond its control.	?	$4,500.00	tbd
Total Survey Estimate			**$205,500.00**

Note: Following applicable to the above schedule
The project site field environment could result in additional survey days being required due to items beyond the control of **Quantec** including but not limited to difficult terrain and/or poor access to the grid hampering productivity, lightning storms, wildlife interference and/or an unfamiliar noise environment.

B.2 Insurance

Quantec carries General Commercial insurance and Property Damage in the amount of $2,000,000 in addition to Excess Insurance in the amount of $3,000,000 for a total of $5,000,000 general liability insurance. Quantec carries a non-own Automobile Coverage in the amount of $2,000,000. A copy of **Quantec**'s insurance certificate has been provided with the correspondence of this proposal.

B.3 Invoice Schedule

1. **10%** on signing (to reserve time slot) non-refundable deposit.
2. **40%** of estimated total costs prior to crew mobilisation.
3. **PROJECT BILLING**
    a. Billing occurs in pro-rated installments while field work is underway; invoices will be issued on a monthly basis until field work is complete; the final such invoice will be issued immediately following completion of field work.
    b. For projects where field work takes no more than one month, a single invoice for the acquisition phase will be issued immediately following completion of field work.
    c. Project billing will cover total survey costs incurred up to and including completion of acquisition phase
4. **Final Invoice** is related to the Interpretation charges as outlined in B1. Payable prior to delivery of final report and data.

SCHEDULE C - SPARTAN MT ONLY DATA PRODUCTS FOR DELIVERY

C.1 SPARTAN Survey Deliverables Schedule

The following is a summary of the basic deliverables for this project; details for each main deliverable are found in sections C.2, C.3, C.4 and C.5; options are covered in section C.6.

Deliverable	Description	Timing
Preliminary	Production summary Resistivity and phase sounding plot Preliminary 2D inversion sections after completion of each transect	Progress report daily Data delivery within two (2) business days of completing each line, if applicable
Logistics Report HDD contents (digital only):	Description of field acquisition equipment and parameters Field reports, (PST), Operator and processing notes, etc.) Raw time series data Final processed data (See section C.2)	Delivered approximately two (2) weeks after field survey completion or receipt of GPS data, whichever is later
Geophysical Summary Report (digital only):	Geophysical survey report, includes description of inversion parameters and results, discussion of the results. Geosoft maps and database (See section C.3)	Presented within six (6) to eight (8) weeks of field survey completion or receipt of GPS data, whichever is later
Project meeting	Meeting (teleconference) Discussion of inversions results (See section C.4)	Presented within six (6) weeks of field survey completion or receipt of GPS data, whichever is later

C.2 Logistics Report

The Logistics report will be delivered in digital format approximately two (2) weeks following completion of the field survey or provision of GPS data, whichever is later. It will contain the following components:

1. Production Summary
    a. Details of daily field production.
    b. Review of survey acquisition parameters and coverage
2. Parallel sensor test (PST)
    a. Parallel sensor test field report summarizing cross-reference test measurements of all magnetic sensors to be used in the survey. This test is completed before the field set up.
3. Quality control Operator notes
    a. Field report summarizing the field set up, culture, acquisition parameters, and field conditions. It includes the field note log from the field operator(s), and lists events acquired and preliminary comments regarding the data.

4. Final processed data
    a. MT data will be delivered as single site and/or multi-site files in EDI format. EDI files are geographically referenced as per SEG standard format.
    b. Location (survey) files will be delivered containing lat-long, UTM or other projected coordinates, elevation and local (grid coordinate) station identities for each of the survey sites in an ASCII comma delimited format.
5. Raw time series data
    a. Recorded time series for each site and components is delivered in Quantec binary format. See options for other formats.

C.3 Geophysical Summary Report

The Geophysical summary report provides a complete overview of the interpreted SPARTAN survey results. The report includes the following components:

1. Survey highlights
2. Discussion of inversion results
3. Conclusions
4. Digital media containing:
    a. Final digital report copies
    b. Geosoft maps and database
    c. Presentations
    d. Model results

The report details the process and procedures involved in obtaining the results.

1) Inversion parameters
    a. Description of data quality, inversion methodology and parameters and model fit are given in text and tables.
2) Inversion results
    a. Unconstrained MT inversion models will be provided. The MT models could include 1D (Occam), and where appropriate, 2D and/or 3D MT inversions results.
        i. For MT : 1D (Occam) inversion results, 1D sounding plot at each site will be presented.
        ii. For 2D inversion results, cross-section of the resistivity/chargeability (if applicable) model along each transect will be provided in Oasis Montaj Geosoft map format. Where appropriate, plan maps from the 2D inversion results at discrete level intervals will also be provided in Oasis Montaj Geosoft map format. (maximum of 5).
        iii. For 3D inversion results, volume(voxel) and selected plan maps and cross-sections and plan maps extracted from the 3D model will be provided in Oasis Montaj Geosoft map format. (5 included)
    b. Inversion results will be provided digitally in a geographically referenced Geosoft/ASCII XYZ file format.

Quantec has in depth modelling expertise and uses the following Industry and Proprietary Inversion packages

Inversion	Software code
2D & 3D DCIP	a. UBC DCIP2D & 3D inversion code. b. Loke RES2D/3D INV inversion code.

3D MT	a. **Quantec**'s licensed WS3DINV 3D inversion code b. CGG Geotools facility c. ModEM inversion package
2D MT	a. **Quantec**'s proprietary 2D PW inversion code (Wannamaker) b. CGG Geotools RLM smooth body inversion code
2D Joint Inversion Code	**CLARUS** by Quantec (variety of options) **(MT+DC** or **MT + DC + IP** or **DC + IP** or **MT + IP)**
1D MT [**Quantec Inversion Facility]**	a. 1D Occam (smooth simple model) b. 1D Marquardt (sharp boundary model) **c.** 1D Rho+ (conductance model)

Note: In some cases more integrated comprehensive reporting is desired. Full comprehensive reports are time consuming and require the incorporation of additional information for interpretive purposes. Information such as drilling results, geology or other geophysical data pertaining to the specific property can be incorporated into the interpretation phase of the project The additional time requirements are estimated and costed prior to the survey. Please see C.6 Optional products.

C.4 Project Meeting

One meeting discussion of survey results (teleconference). This meeting can be held following delivery of the Geophysical summary report. The focus of this meeting is to discuss the final survey results in context of immediate exploration plans by facilitating interaction between your exploration team.

1) Preliminary results and inversion models of the SPARTAN survey are presented for discussion. This meeting will be held at the Client's convenience approximately [four (4) weeks] following completion of the field survey and can be held in Quantec's office or the client's Toronto office or can be facilitated with web/ tele conference/travel.
2) **OPTIONAL – targeting meeting.** This meeting can be held following delivery of the Geophysical survey report. The focus of this meeting is to discuss the final survey results in context of immediate exploration plans by facilitating interaction between your exploration team and ours to prioritise and plan drill targets and further exploration. The targeting meeting is optional, and will be charged at the "Targeting and Interpretation meeting" rate as defined in Section C.6.

C.5 Complimentary Data Archive and Storage

Quantec policy is to keep all survey data for at least one year following the completion of a survey. Optionally, data can be deleted after one year or data can be kept indefinitely for no charge as a courtesy. Past experience has shown that keeping a copy of data at Quantec can be very useful, as it can expedite things if a project is revisited, and often clients lose data, especially in cases of mergers and acquisitions, and data can then be recovered from Quantec for a modest charge.
Upon signing a contract with Quantec, the Client will be required to choose between two options:

1. Quantec deletes all survey data after one year following completion of project.
2. Quantec stores data indefinitely.

If the latter is chosen, it is understood that Quantec does not guarantee data integrity or availability, and that in choosing this option the Client releases Quantec from any possible liability associated with the storage of the data including theft, loss and damage.

C.6 OPTIONAL - Products and Services

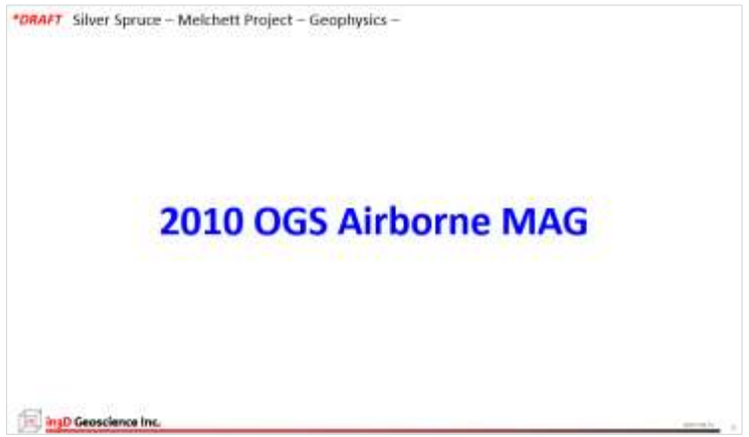
Quantec can undertake additional advanced data modelling, interpretation and targeting services to enhance your exploration efforts. A list of additional services and pricing is listed below, please contact

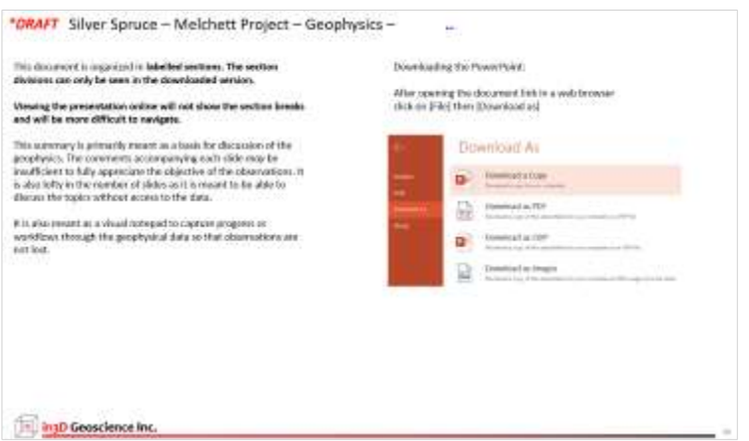
us to discuss specific project needs and pricing. Not all options may be available for this project. Please indicate your interest and acceptance of these services.

Description	Cost
DATA PRODUCTS	**$190.00/hr**
Additional plan maps/cross sections	
Inclusion of Geological information drafted onto inversion models	
Time-series data export to MatLab or ASCII format	
De-archive or Archive Copy – all products all raw data	$2000.00/Project
Hard copy of Geophysical Reports	$1000.00 / copy
MT data converted to parameters as single-site files in EDI format	$1000.00 / Grid
INTERPRETATION	**$190.00/hr**
Detailed target presentation and screening, with recommended drill holes plotted on the Geosoft sections	
Detailed Interpretation or assessment report	
Fast 1D and 2D inversion results turnaround (within 48 hours)	
MODELLING	**$190.00/hr**
1D MT modelling for sharp Resistivity and depth/depth profile	
2D MT or DC Inversion Modelling	
1 & 2D MT or DC Constrained Inversion modelling (if appropriate)	
3D MT / or DC/IP Modelling (unconstrained or constrained)	
CLARUS Joint Inversion Modelling	
Geosoft 3D Iso shells built from the 2D MT / DC or IP results	
General Consulting	**$190.00/hr**
Targeting & Interpretation meetings	$1250/meeting (plus expenses)
3D data compilation and Earth Modelling	Provided by MIRA Geoscience

Appendix V. In3D Geoscience Report - Preliminary

Silver Spruce Geophysics Review





Links to sections work only in downloaded or PDF versions (not in web browser)

Data Naming – Geophysics Processing

General data naming convention:

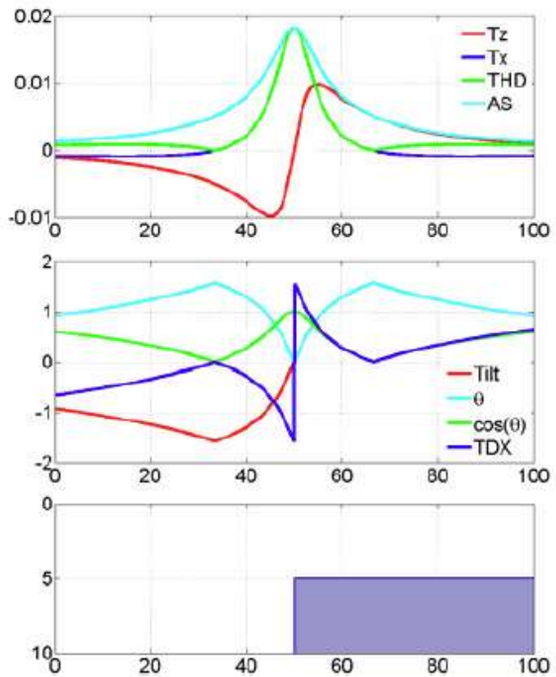


Figure 2: Induced magnetic responses over a vertical contact for derivatives of the vertical inclination field. The Tilt and TDX derivatives are confined to range ±π/2 and passes through zero at the same point as the VDR, which for RTP data is directly over the vertical contact. The Theta derivative ranges from 0 to 1, with a peak where the VDR passes through zero. The angle θ is the absolute value to the Tilt.

Data naming convention:
Data filtering is noted in order of processing from left to right.

Project_MAG_RTP_1VD _L200-40m_2013_bg
Magnetic TMI data reduced to pole with first vertical derivative applied and gridded using 40 m cells from 200 m spaced lines based on bi-directional gridding.

Project_MAG_RTP_TGA_L200-40m_2013_mc
Magnetic data reduced to pole, followed by a Total Gradient filter (same as ASIG: analytic signal). Data gridded using 40 m cells from 200 m spaced lines based on minimum curvature gridding.

Project_MAG_TMI_PGRAV_TGA_L100-20m_2013_bg
Magnetic data (total magnetic intensity) transformed to pseudogravity and then the analytic signal or total gradient (TGA) is applied. Data gridded at 20 m cells using bi-directional gridding.

TMI: total magnetic intensity (others, TFM, TF)
TMIge: gradient enhanced TMI using measured horizontal gradients
RMI: residual magnetic intensity
RTP: reduced to pole TMI using local magnetic inclination and declination
RTPge: gradient enhanced RTP based on TMIge

1VD: first vertical derivative calculated on the gridded data (others 1VG, CVG)
1VD1d: first vertical derivative calculated on the line data and then gridded
ASIG: analytic signal, essentially the same as TGA. ASIG1d is calculated on the line data as per original theory
TGA: total gradient amplitude calculated on gridded data
TILT: tilt angle (others TiltDrv (tilt derivative, but it's not a real derivative))
THDR: total horizontal derivative/gradient
TDX: derivative-based filter for trends and edge detection
THETA: derivative-based filter for trends and edge detection
HG: horizontal gradient (or HGRAD)
HG045: directional horizontal gradient along 045°
HP: high-pass filter
HP750m: 750 m high-pass filter

Data Naming – Geophysics Processing

VIAS: vertical integral followed by analytic signal (TGA) useful for magnetic remanence
VIAS-ntr-03-09: no trend removed, low/high frequency cut offs 0.3/0.9
VRMI: vector residual magnetic intensity (useful for magnetic remanence)
MLE: magnetic layer extraction, depth to top and thickness of layer – this is an attempt to visualize the data as shallow, intermediate and deep sources
MLE-100-300m: depth to top 100 m, slab thickness 300 m
ntr: no trend removed
tr: trend removed

UPCON: upward continuation
TERN: ternary image from three grids
CMY: cyan magenta yellow colours used in ternary image
RGB: red green blue colours used in ternary image

CET: center for exploration technology, Australia, CET module in Geosoft
CET-DRC: dynamic range compression in the CET module processes the magnetic data such that it can be viewed better using a linear colour distribution. Data are processed at several wavelengths: this specifies the cut-off frequency of the high-pass filter which controls the scale of analysis. Spatial frequencies in the image with wavelengths greater than the specified value will be suppressed allowing the residual features to be seen more readily.
CET-PS: CET module phase symmetry lineament analysis
DEM/DTM: digital terrain model

bg: bi-directional gridding
mc: minimum curvature gridding
mtg: multi trend gridding
ntr: no trend removed
L100-20m: 100 m line spacing and gridded data at 20 m cells

*Data images in the presentation are generally shown with sun shading. Shading files have the same names but with the addition of "_S". It would be easy to mistakenly use one of these files and not be aware of it. **Do not use "_S" files on their own.**

2010 OGS Airborne MAG

*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

2010 OGS MAG Gradient data

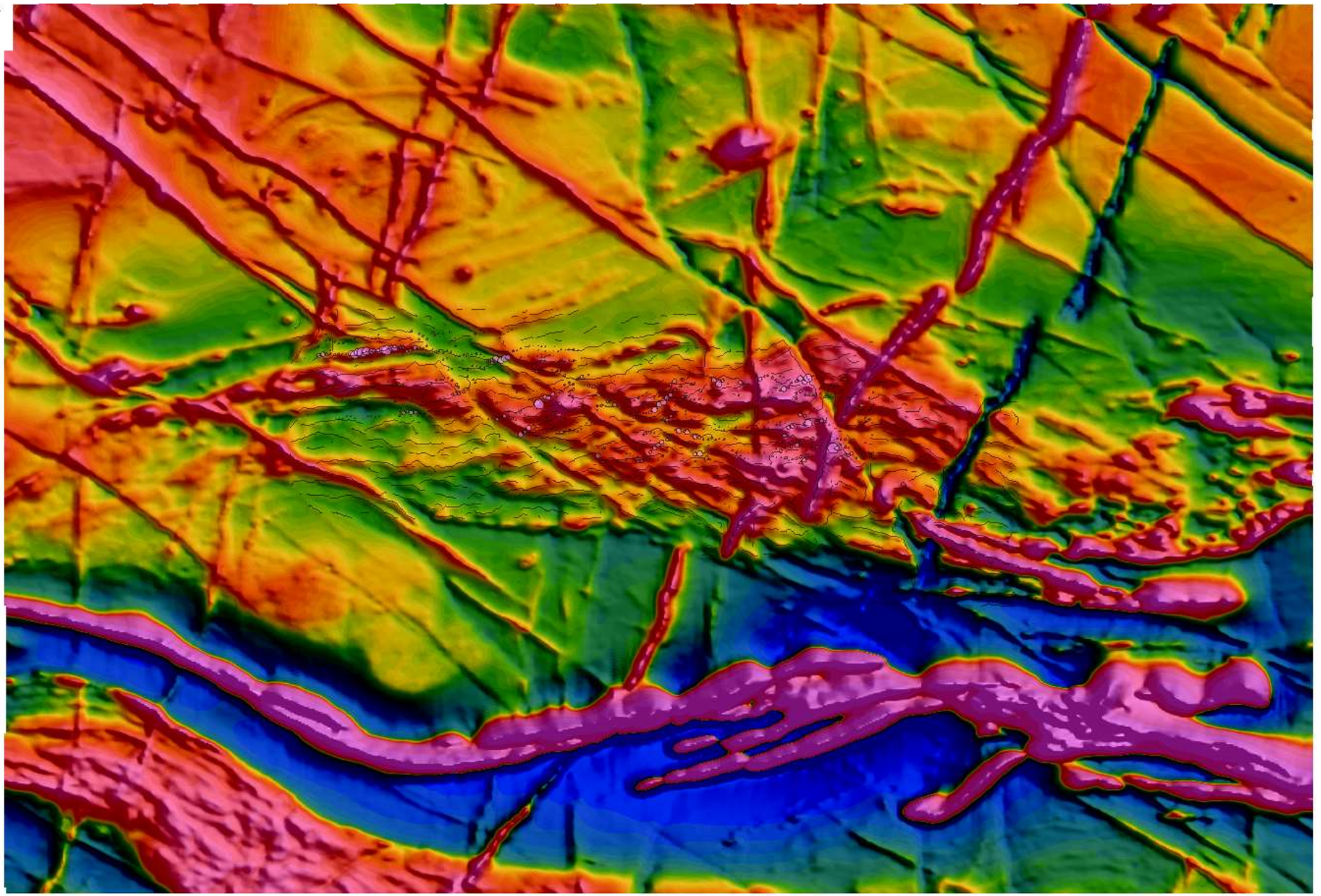
MAG RTPge (gradient enhanced)

Nomenclature example:

MEL_MAG_TMIge_VIAS-lc03-hc09_2010 L200-40m_OGS_bg

2010 magnetic data, total magnetic intensity, gradient enhanced (ge) was the input data

Vertical integral followed by analytic signal (using low and high wavelength cutoffs) using a 40 m cell size based on 200 m space lines. Survey was OGS and bi-directional gridding (bg) was used.

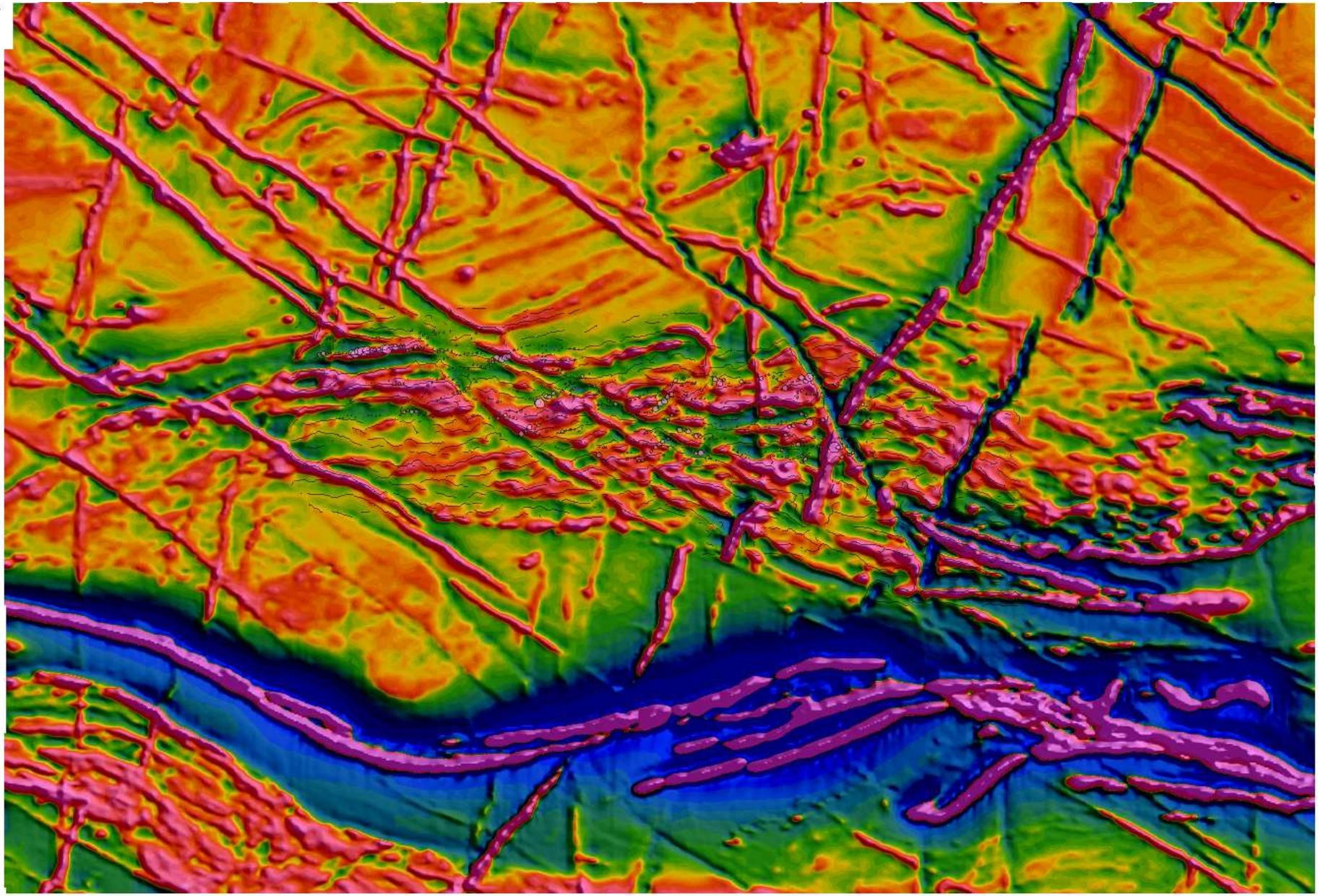


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

2010 OGS MAG Gradient data

MAG TMIge MLE-1-100m

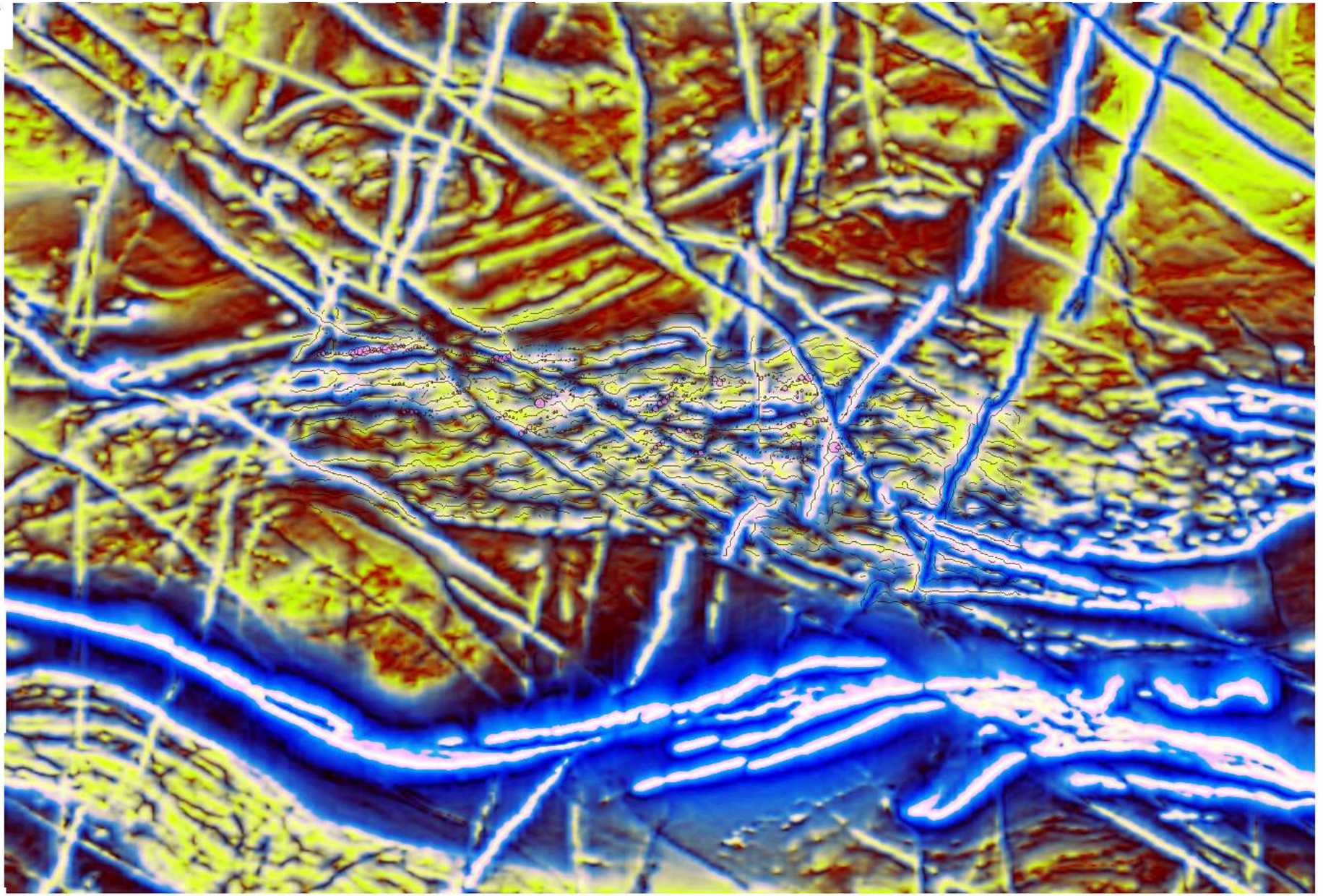
(gradient enhanced and magnetic layer extraction for the top 100 m) *trends won't line up directly with RTP in previous slide



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

2010 OGS MAG Gradient data

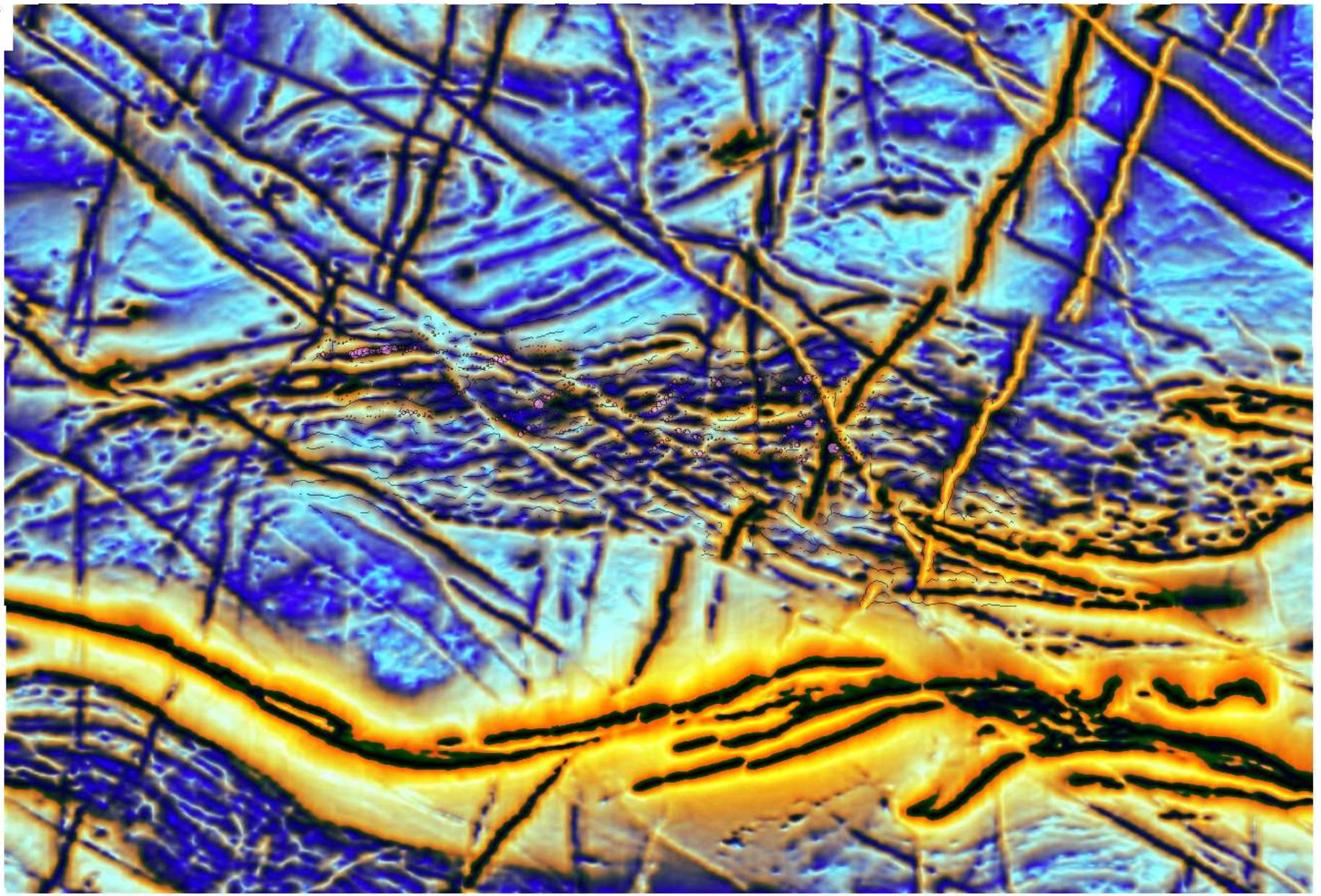
Ternary Image: MAG RTPge 1VD, TILT and THDR using RGB colours



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

2010 OGS MAG Gradient data

Ternary Image: MAG RTPge 1VD, TILT and THDR using CMY colours

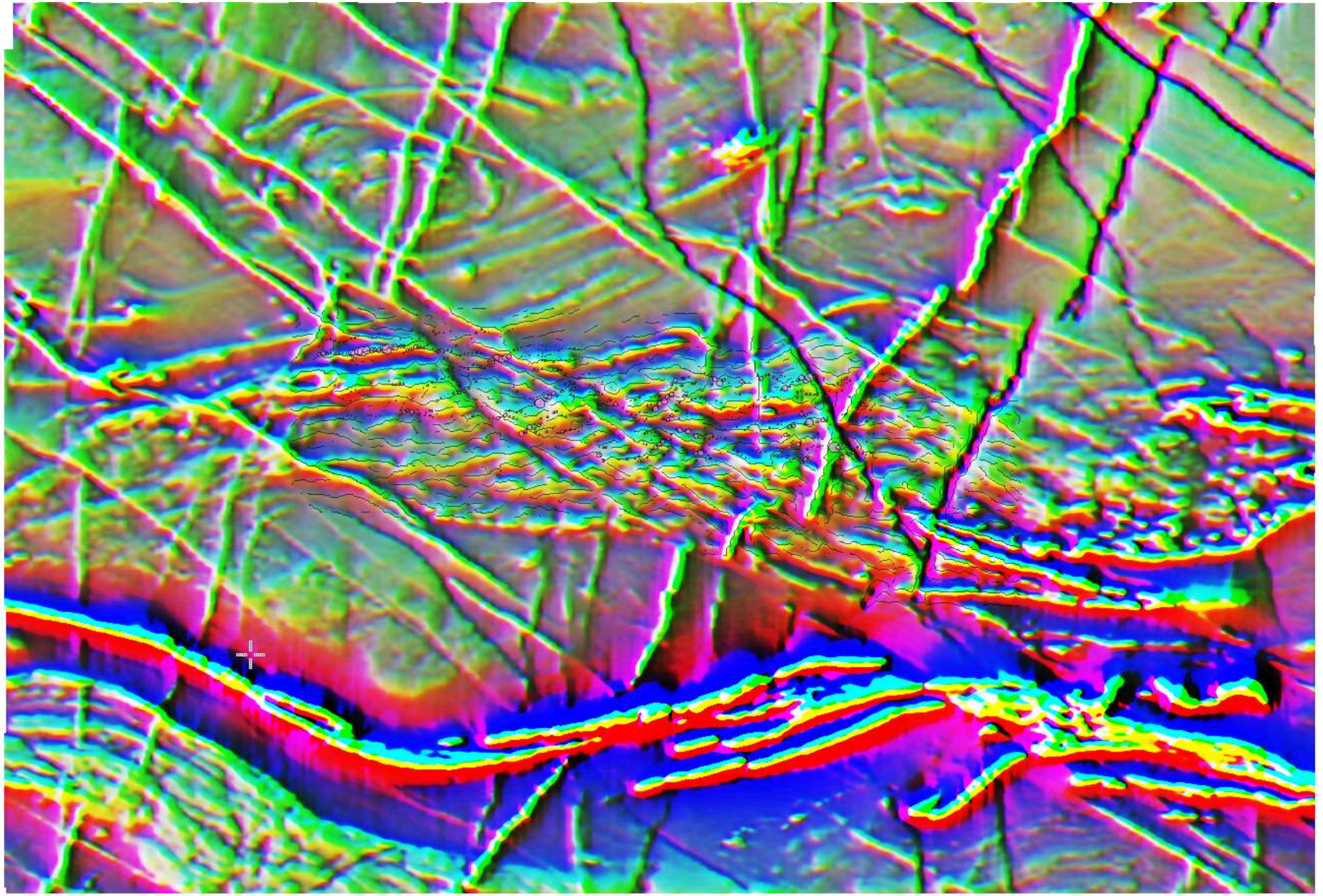


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

2010 OGS MAG Gradient data

Ternary Image: MAG RTPge
1VD, HD045 and HD120

HD: horizontal derivative along specified azimuth

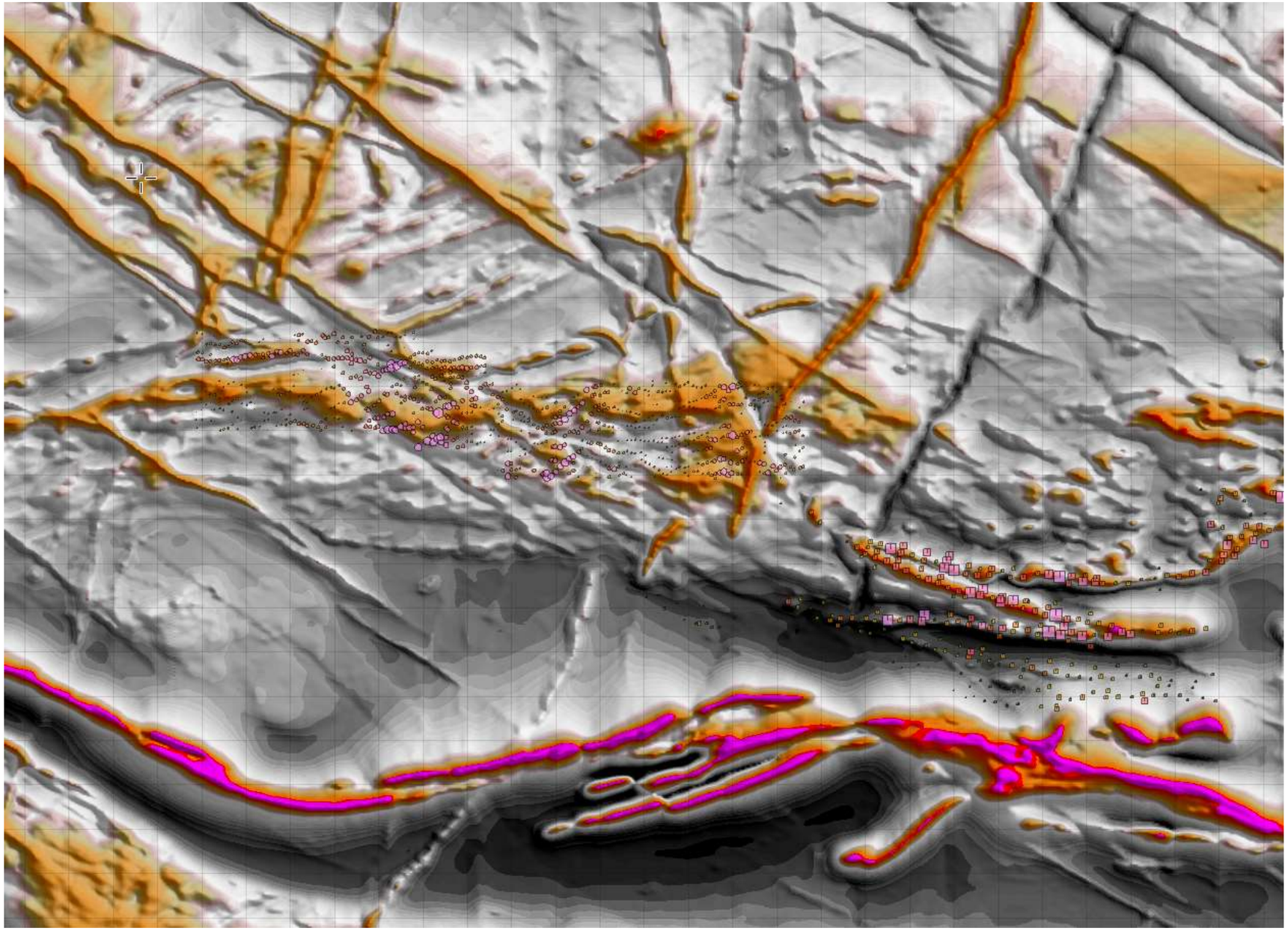


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

CET dynamic range compression (DRC)

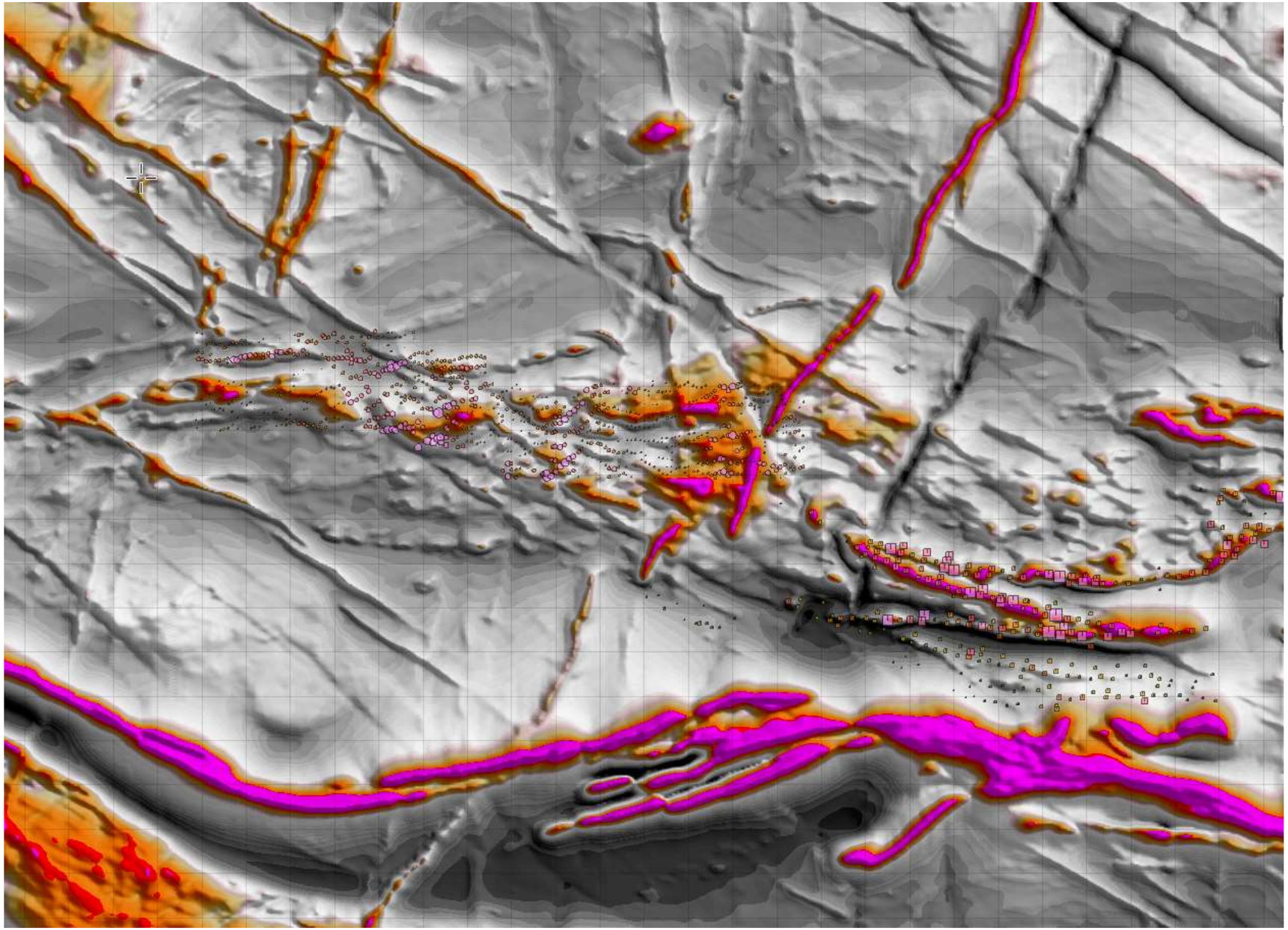
A utility to compress magnetic data in order to use a linear colour distribution along with wavelength filtering at different scales.

MEL_MAG_RTPge_2010_L200-40m
OGS_bg_CET-DRC-_400



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_2010_L200-40m
OGS_bg_CET-DRC-_1265



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

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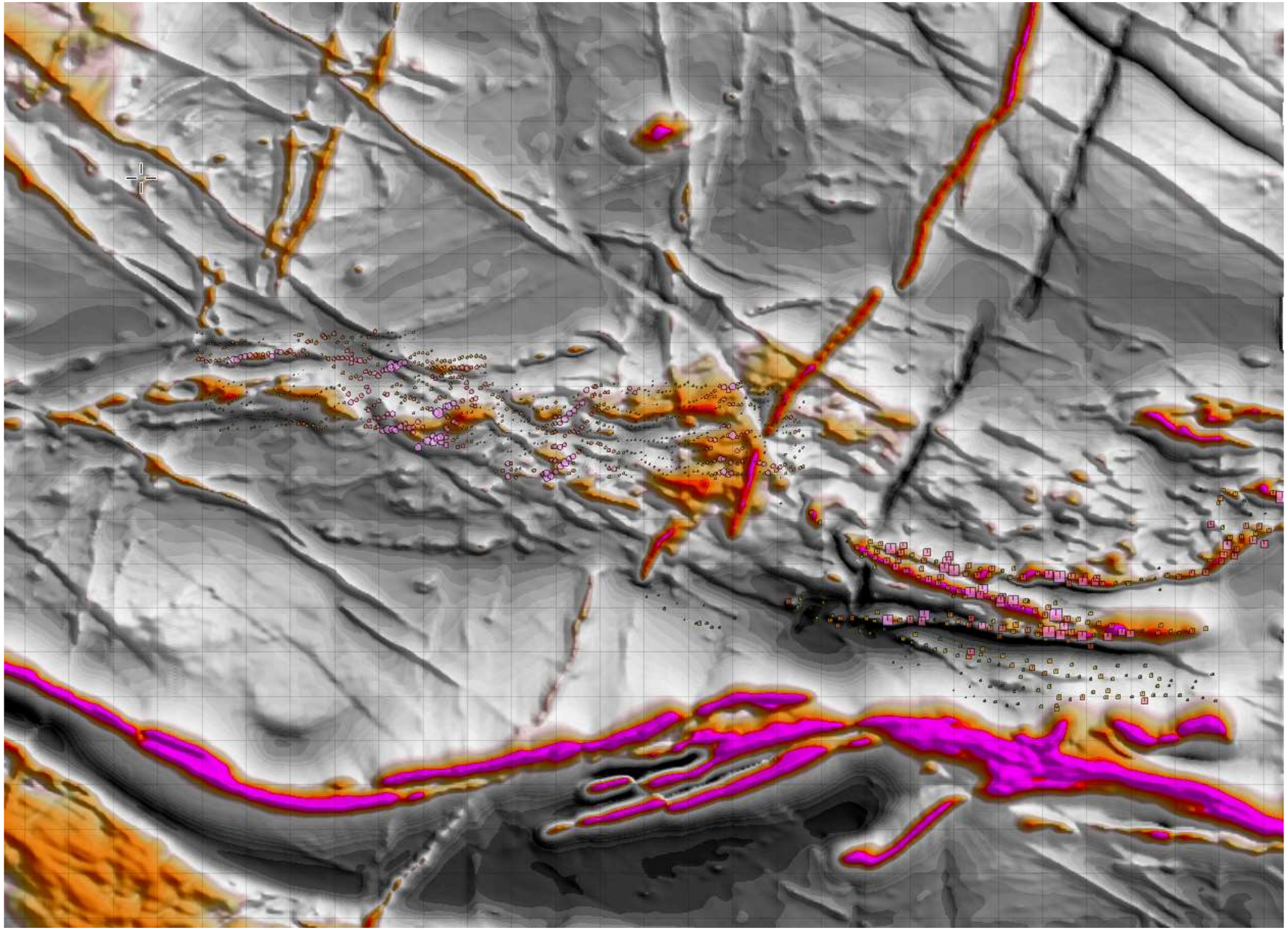
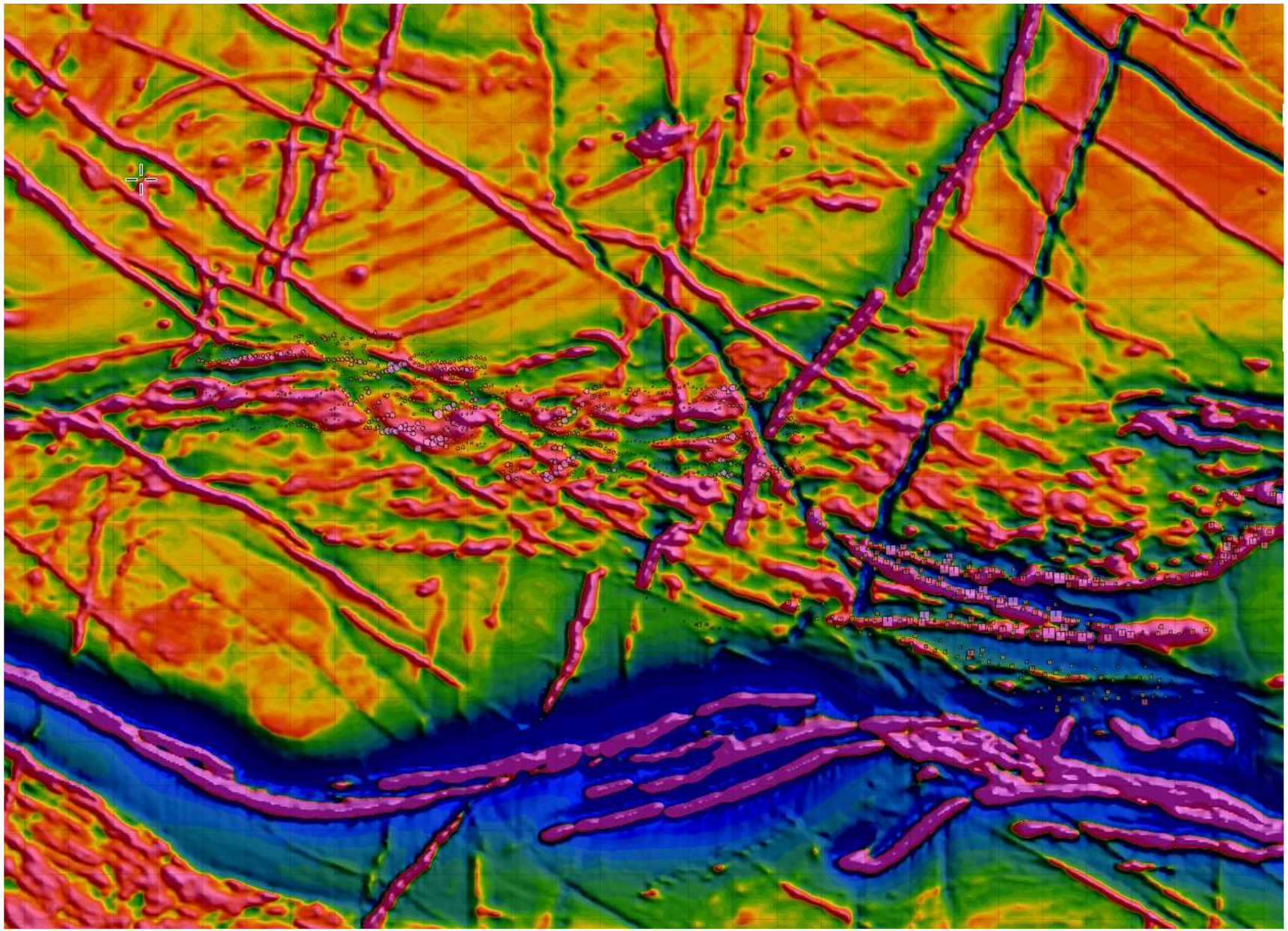
OGS_bg_CET-DRC-_4000



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

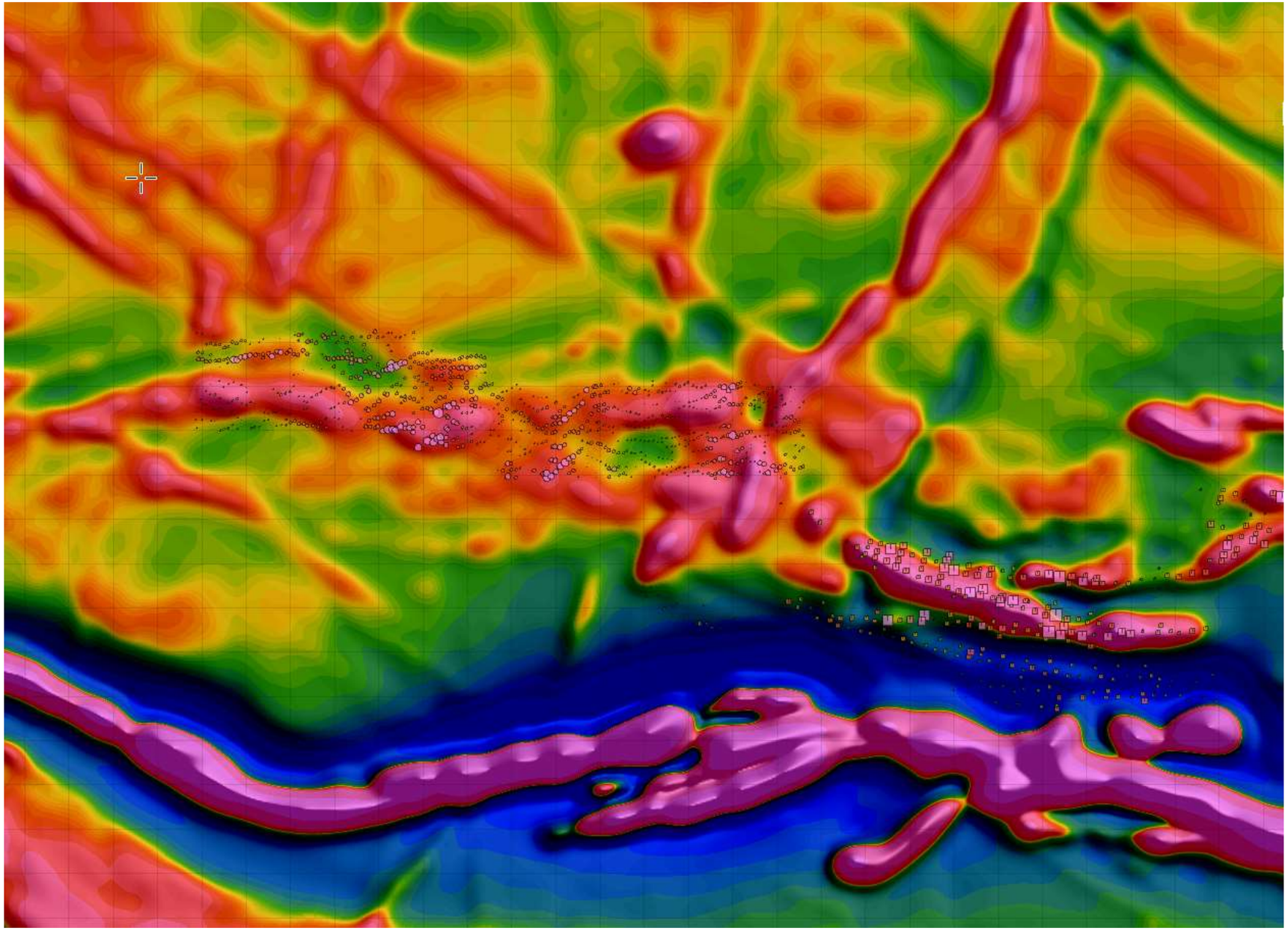
MAG TMIge MLE-1-100m

Magnetic layer extraction: MLE
a.k.a. regional residual separation
Parameters are depth to top i.e., 1 m and thickness i.e., 100 m.



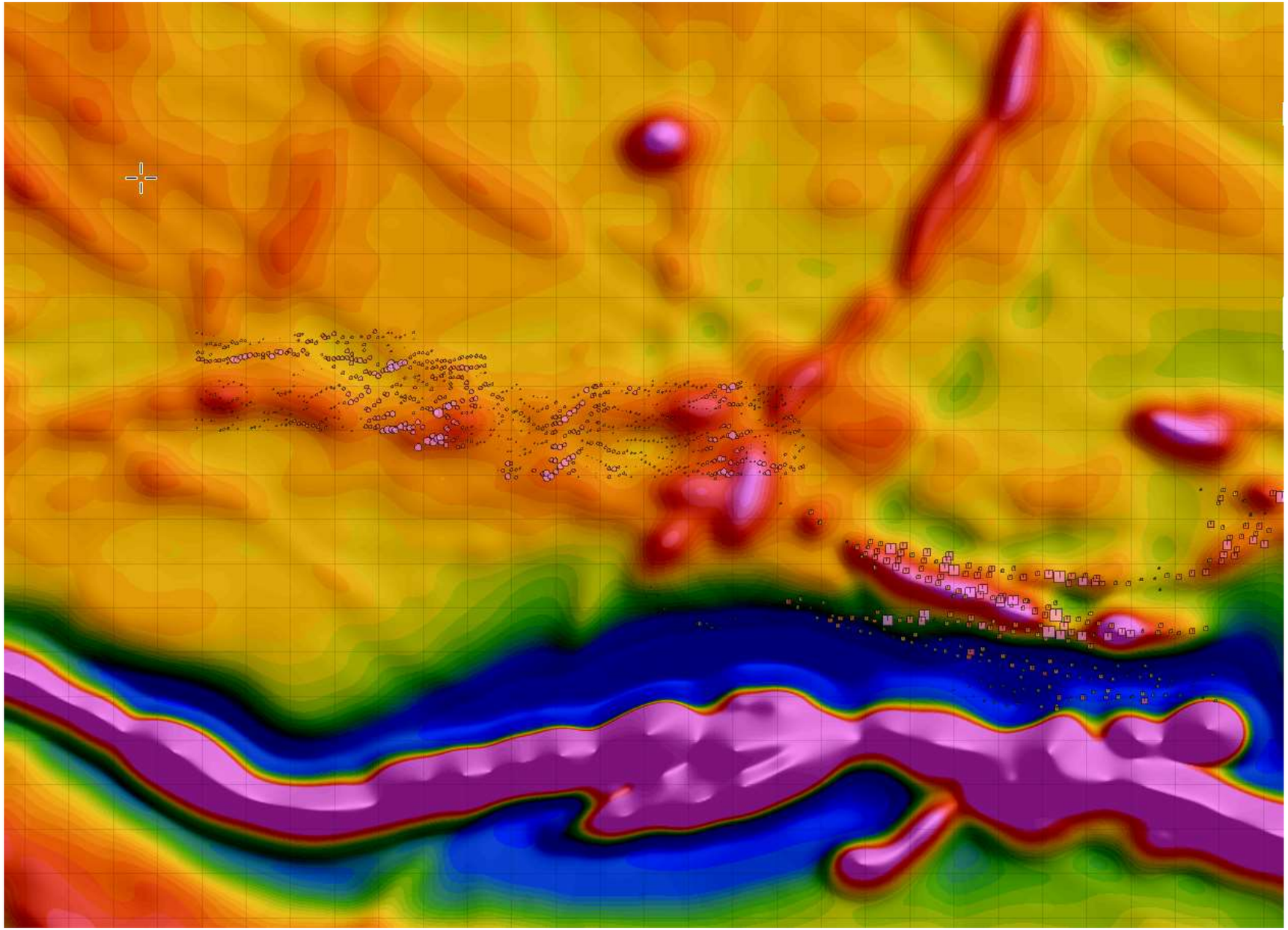
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MAG TMIge MLE-300-300m



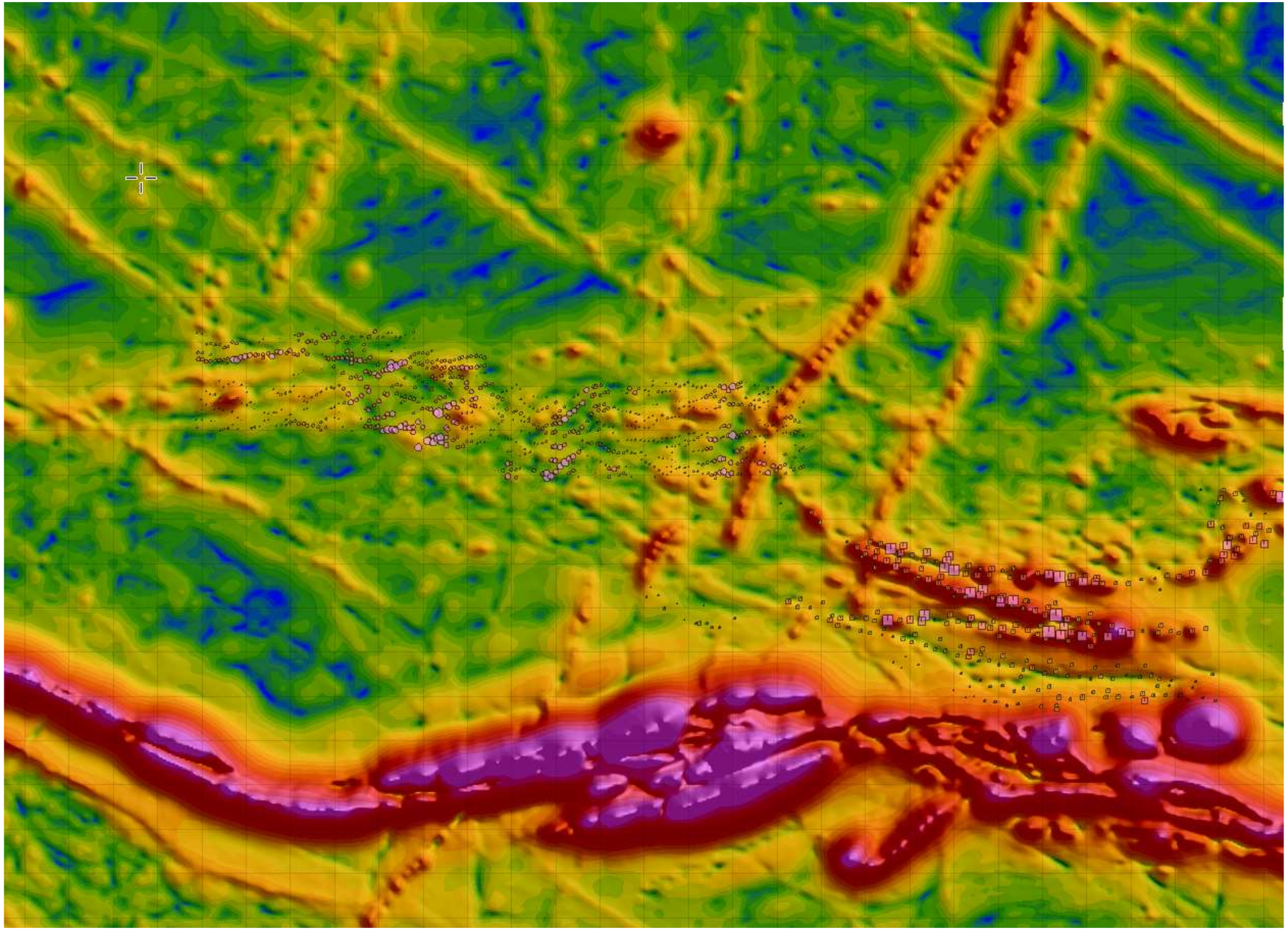
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MAG TMIge MLE-500-500m



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

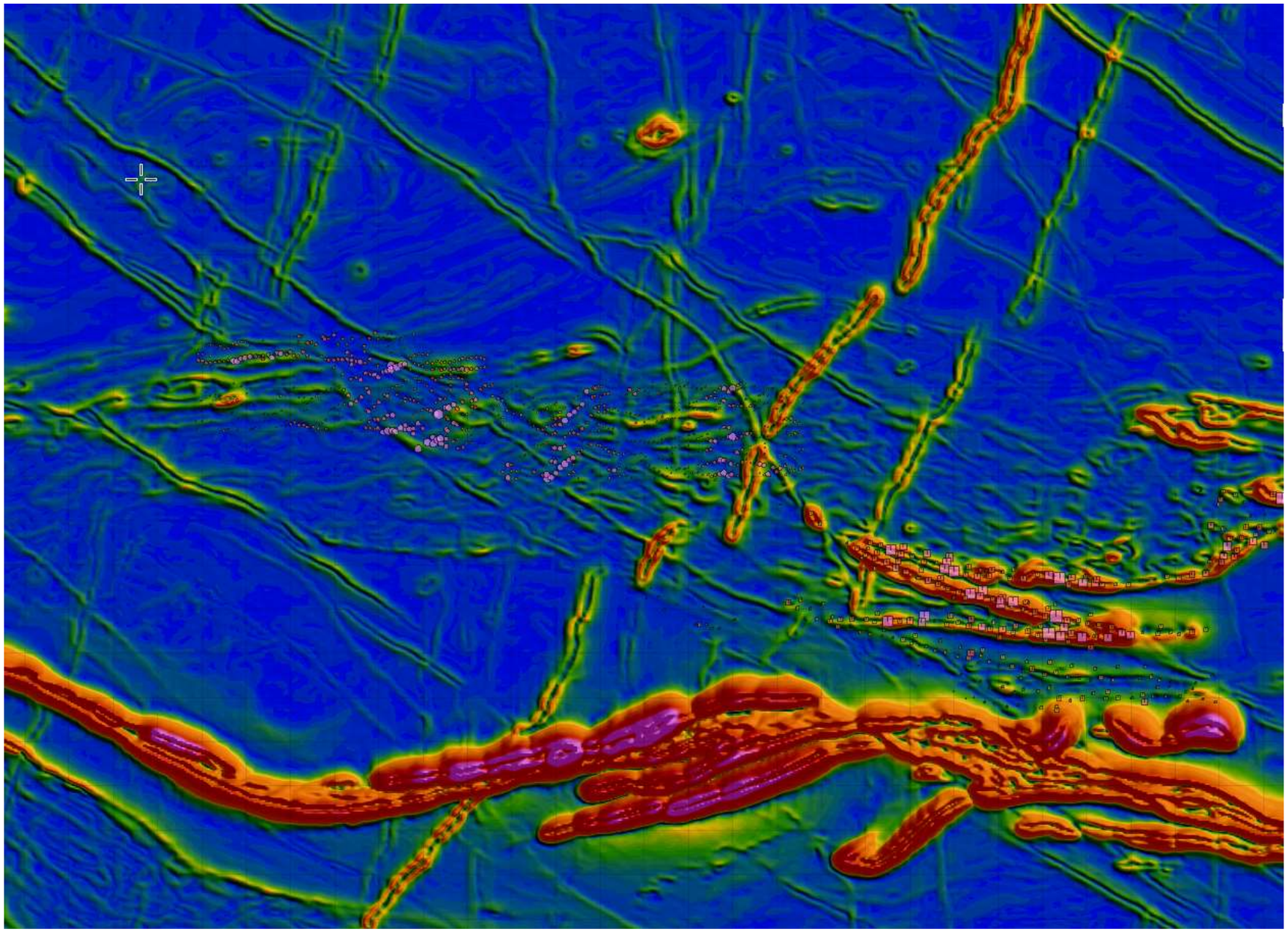
MEL_MAG_TMIge_VIAS-lc03-hc09_2010
L200-40m_OGS_bg



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

Total horizontal derivative THDR

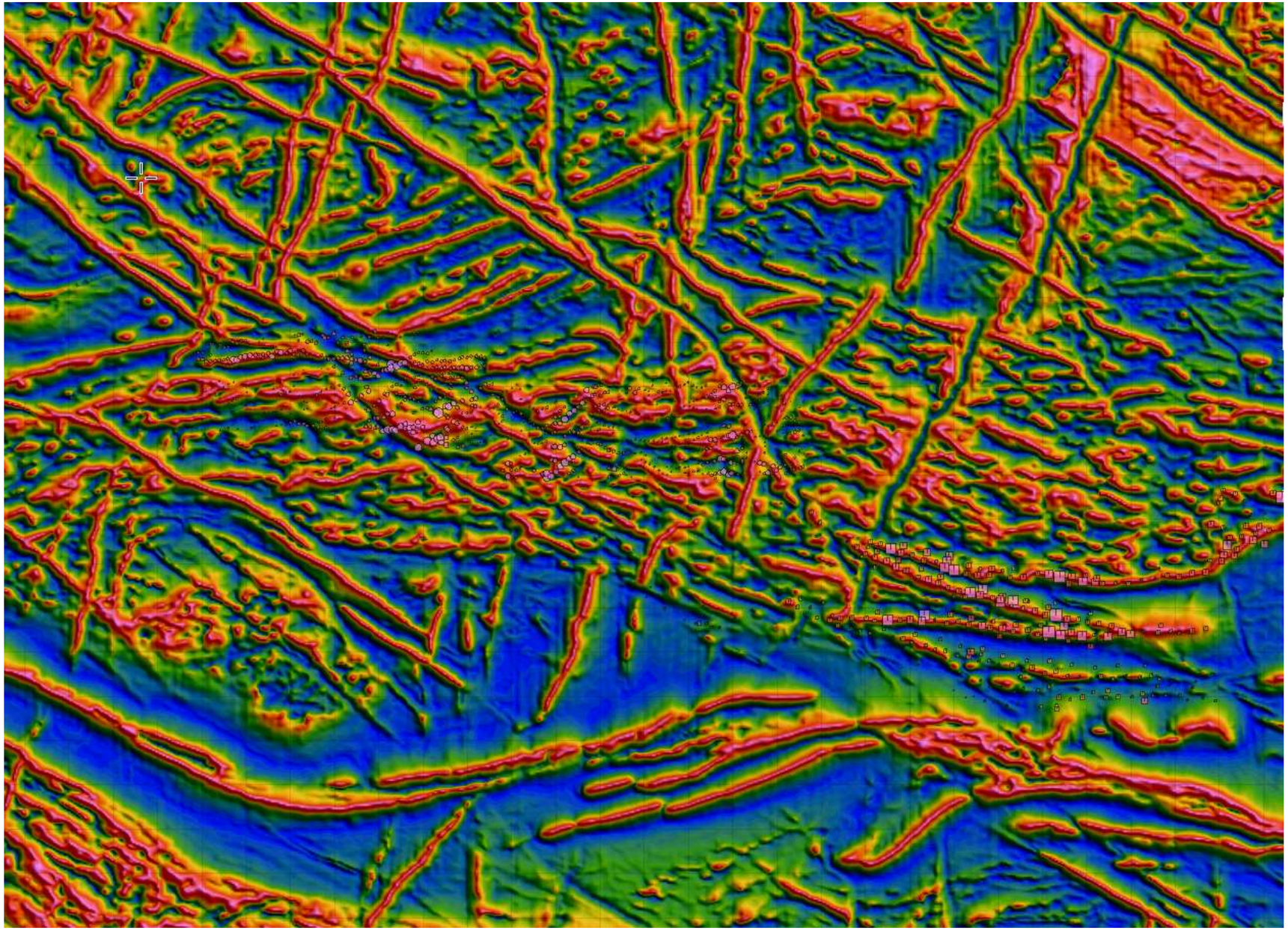
MEL_MAG_RTPge_THDR_2010
_L200-40m_OGS_bg



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_TILT_2010
_L200-40m_OGS_bg

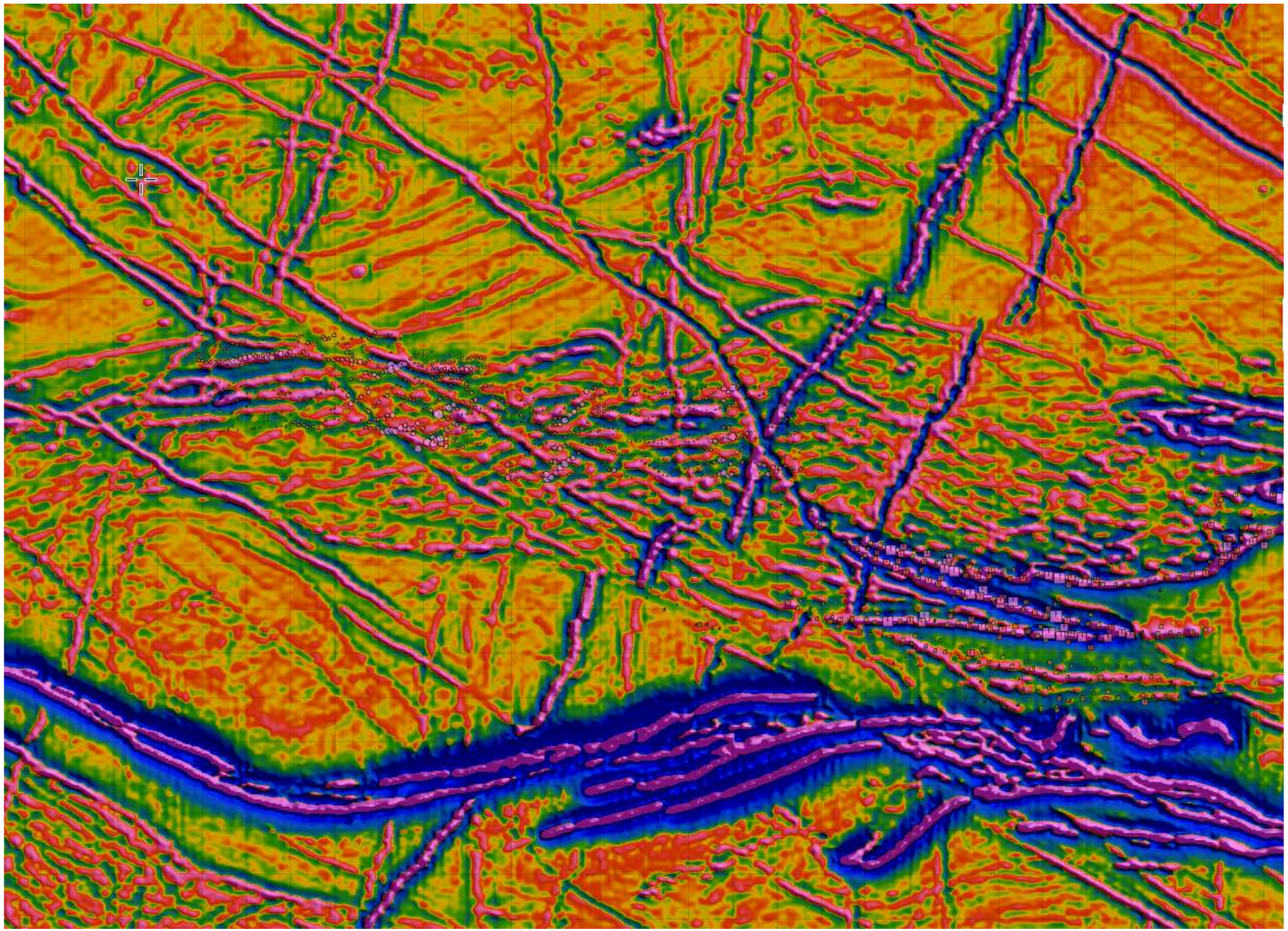
Tilt angle filter



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_UPcon20m_2VD_2010_L200-40m_OGS_bg

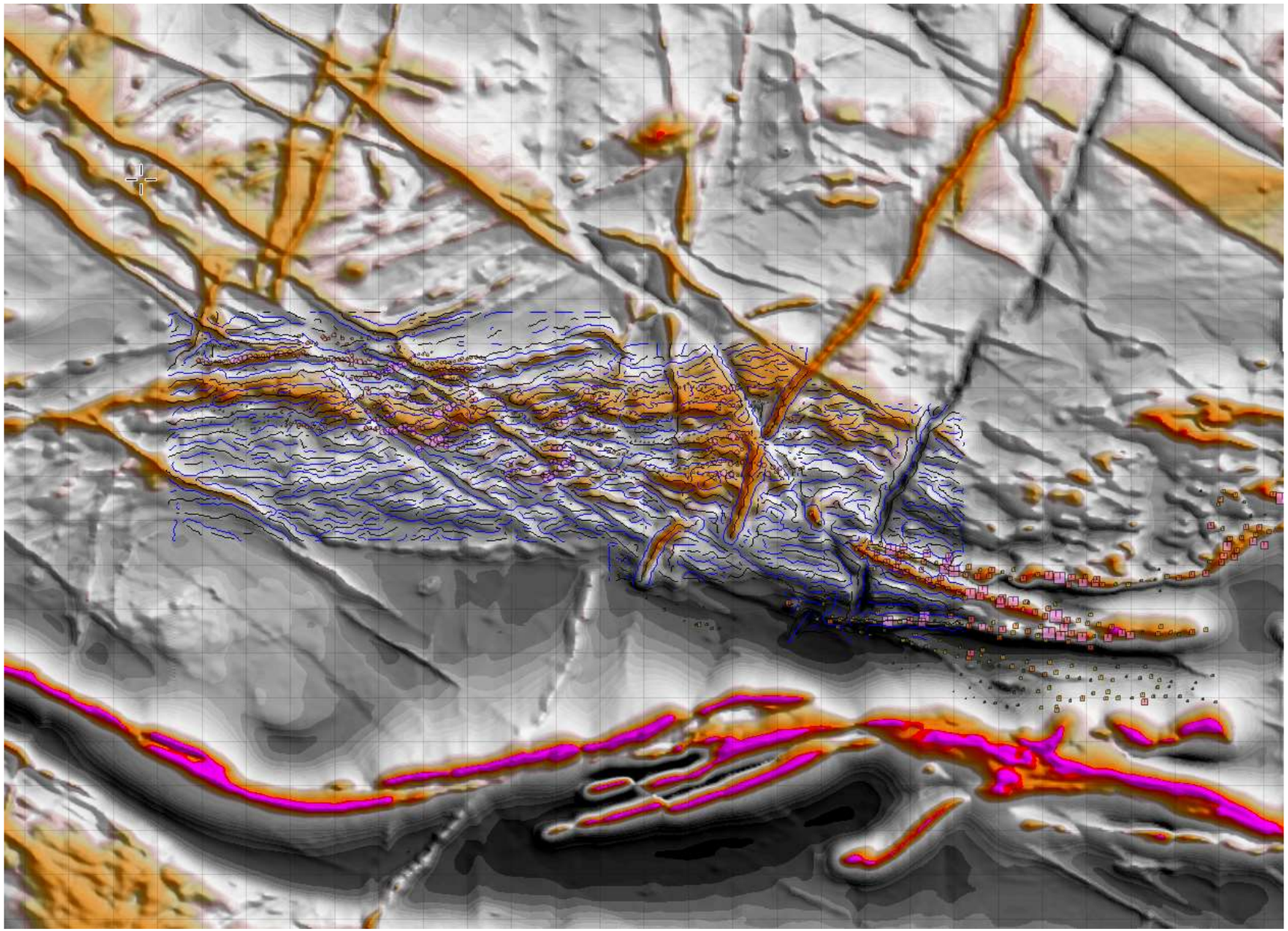
2nd vertical derivative based on RTP upward continued 20 m to reduce FFT grid ringing in the product.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_2010_L200-40m
OGS_bg_CET-DRC-_400

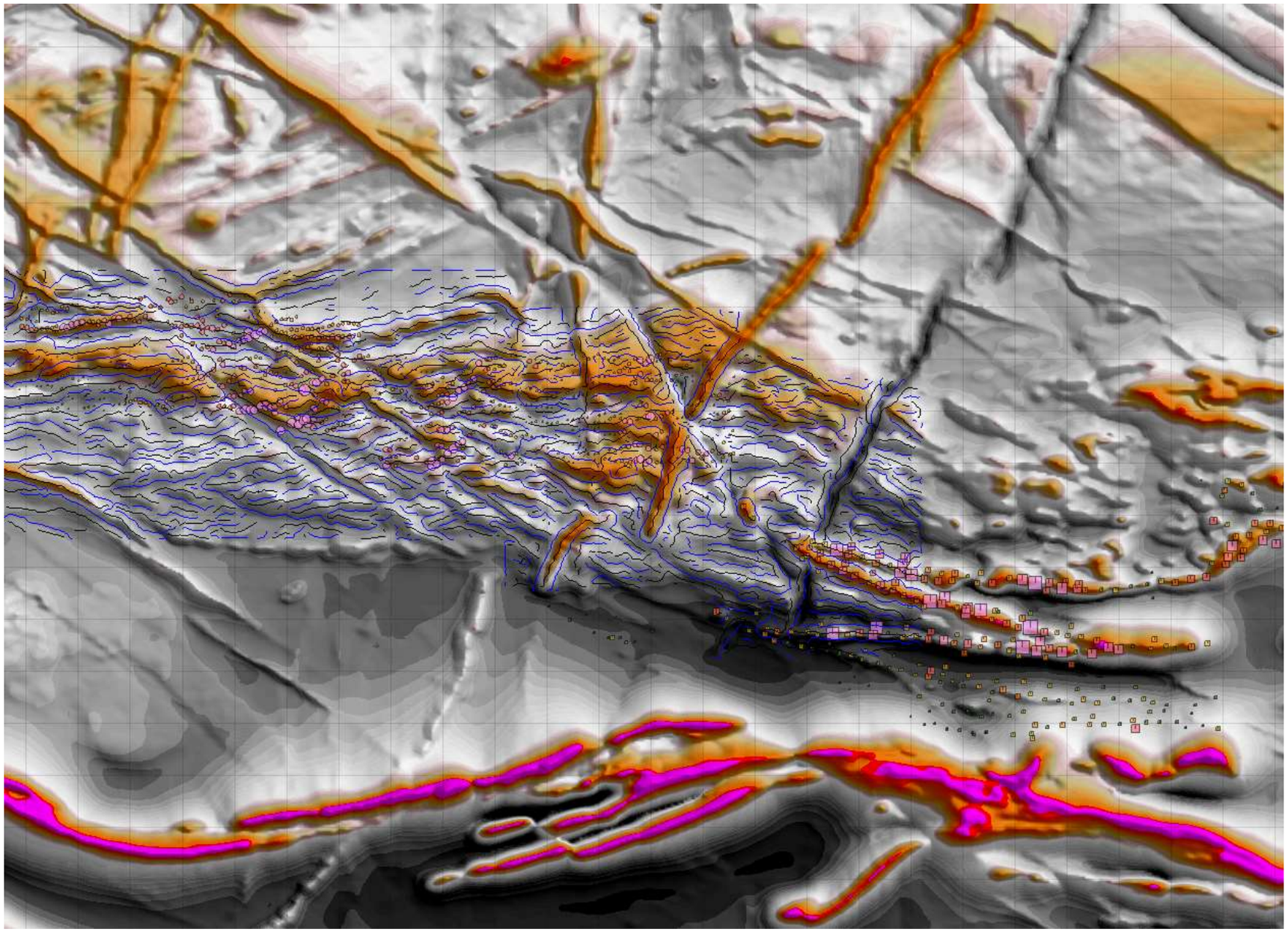
With MPX MAG RTP lineament analysis for highs and lows based on 3, 6 and 12 cell wavelengths.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_2010_L200-40m
OGS_bg_CET-DRC-_400

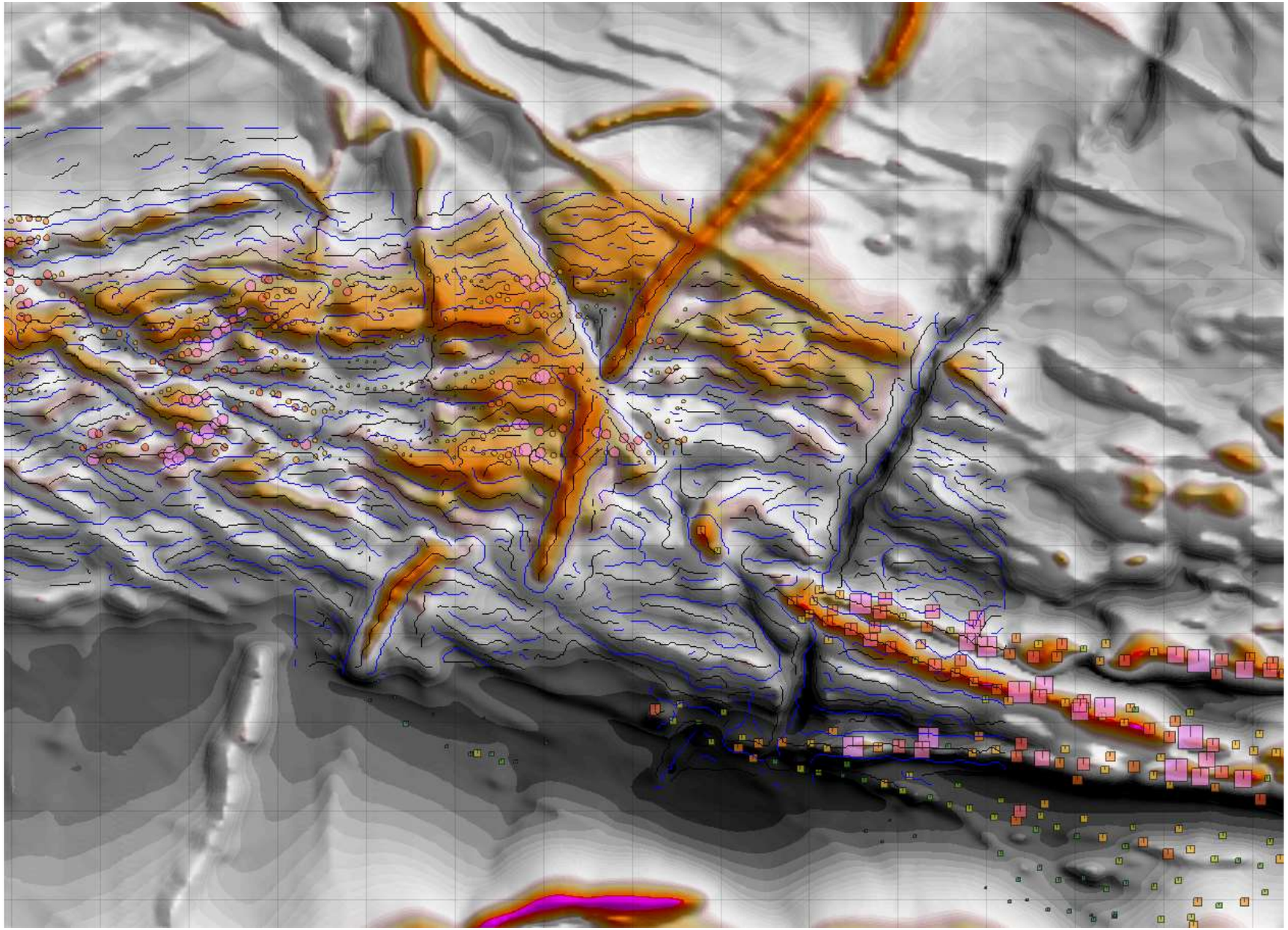
With MPX MAG RTP lineament analysis for highs and lows based on 3, 6 and 12 cell wavelengths.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2010 OGS Airborne MAG

MEL_MAG_RTPge_2010_L200-40m
OGS_bg_CET-DRC-_400

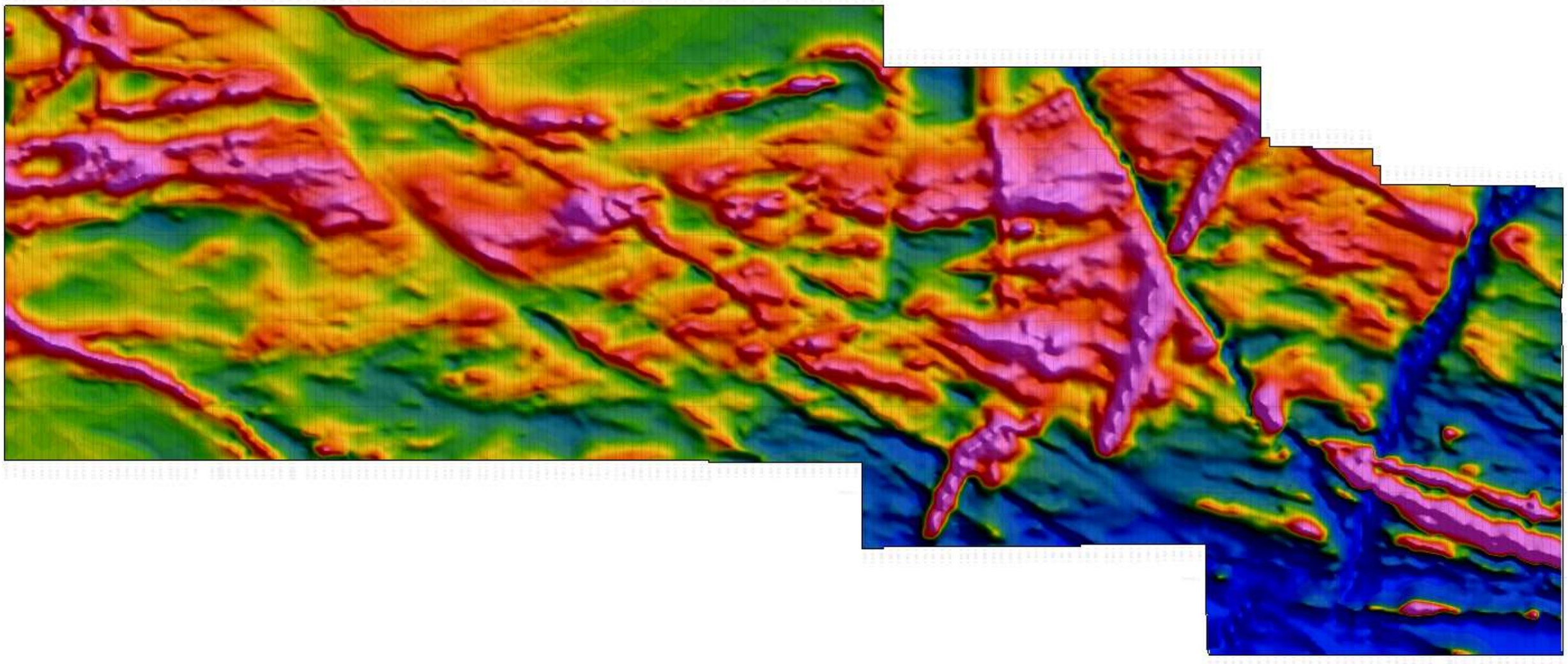
With MPX MAG RTP lineament analysis for highs and lows based on 3, 6 and 12 cell wavelengths.



2021 MPX Airborne MAG

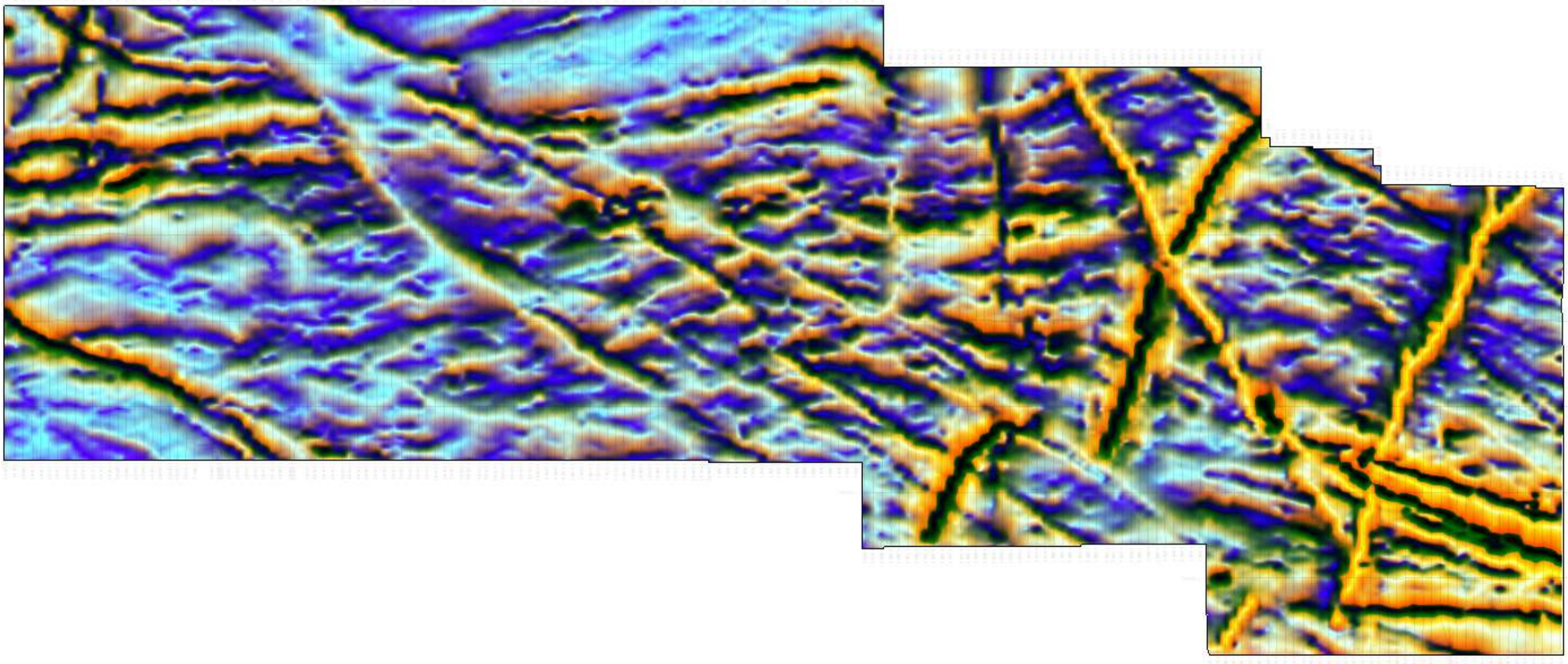
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG RTP (reduced to pole)



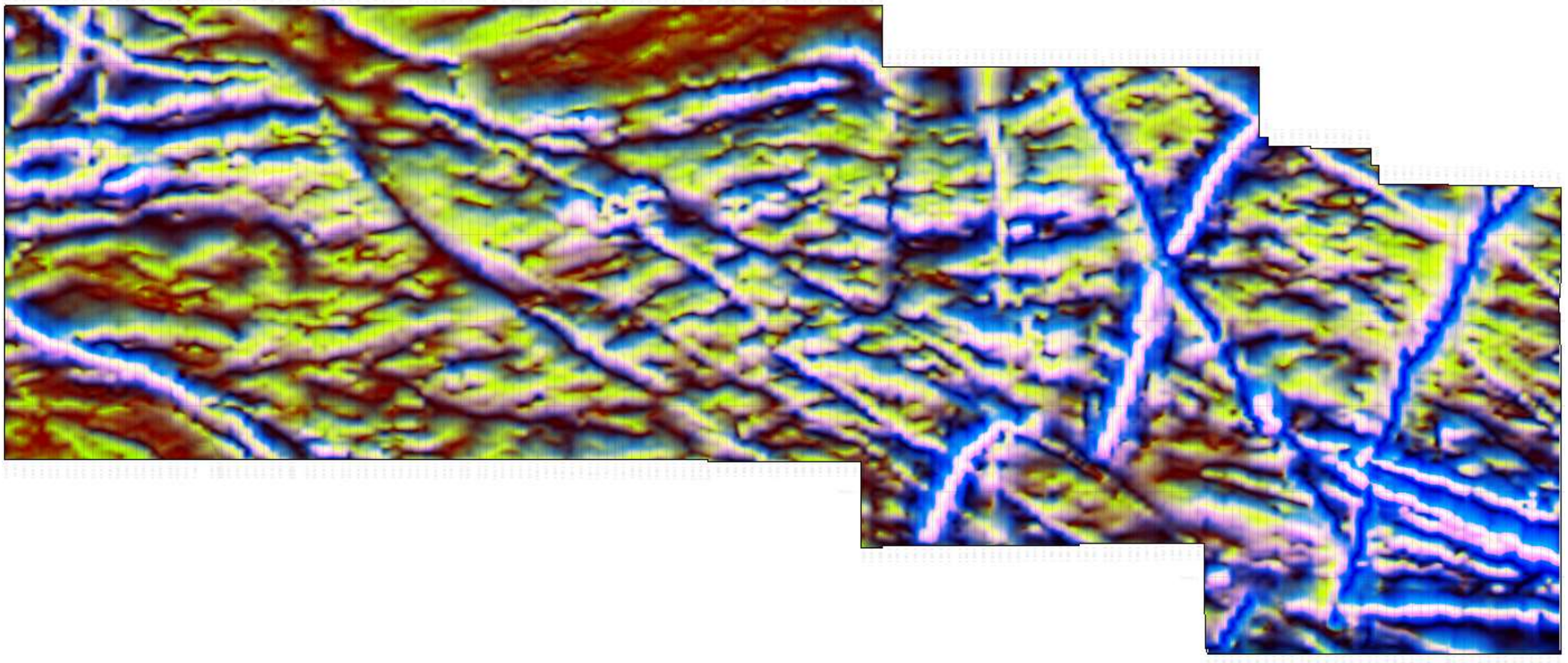
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG – CMY Ternary image (cyan, magenta, yellow)



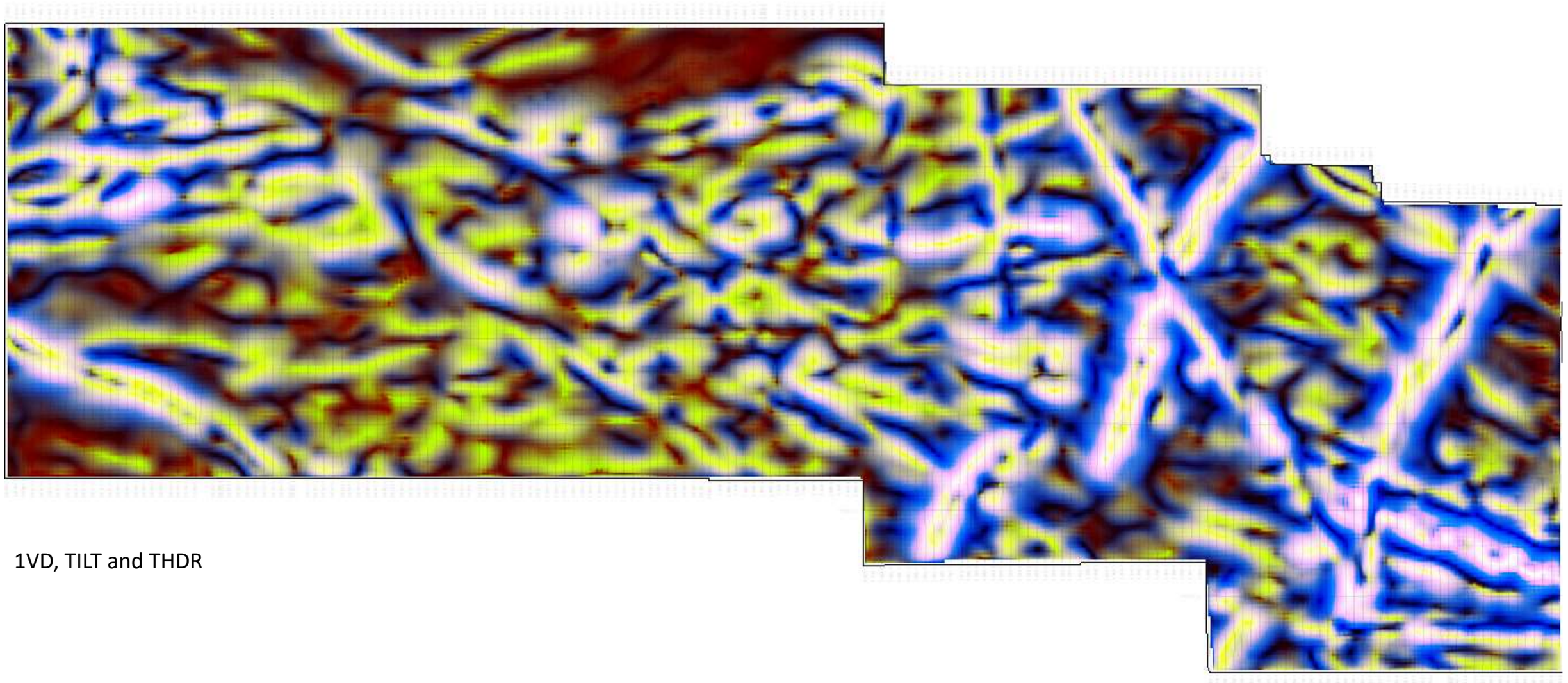
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG – RGB Ternary image (red, green, blue)



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

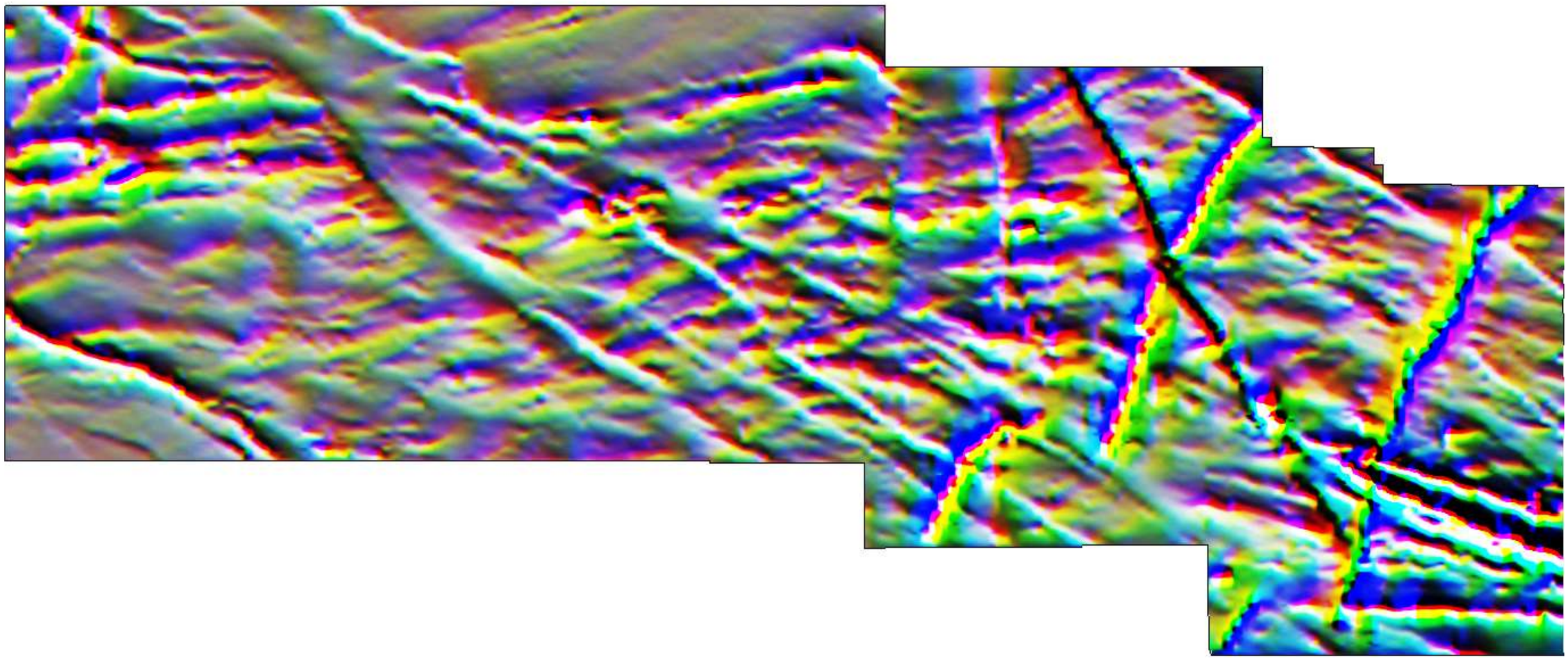
MPX 2021 Fixed-Wing MAG **MVI inversion -250 m depth** – RGB Ternary image of 1VD, TILT and THDR (red, green, blue)



1VD, TILT and THDR

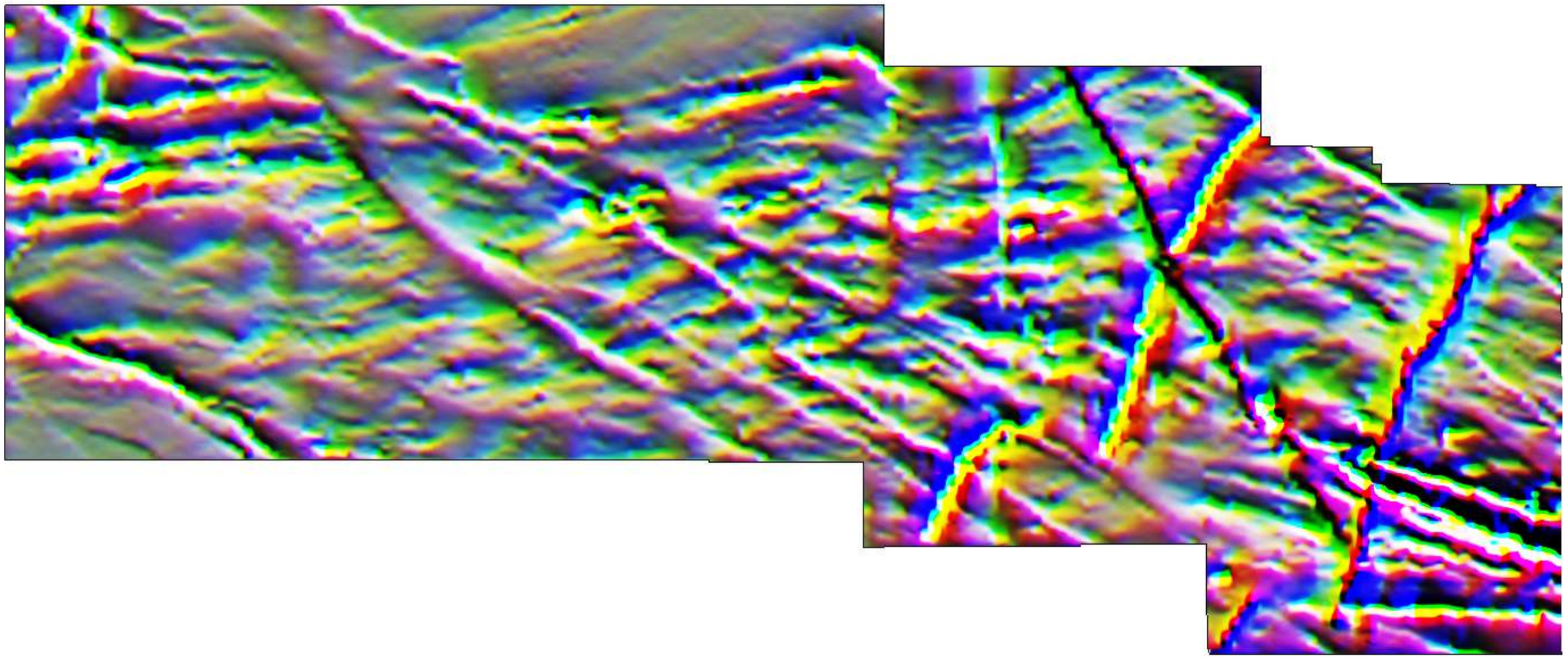
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **RTP 1VD, HG000, HG090** – RGB Ternary image (red, green, blue) using vertical and horizontal derivatives (HG – horizontal gradient). Sometimes changing the order of the input grids can produce a useful variation in the colour combinations. Next slide is **HG000, 1VD, HG090.**
When using ternary images the location of a response or pattern needs to be verified against the original MAG data and also consideration for remanence.



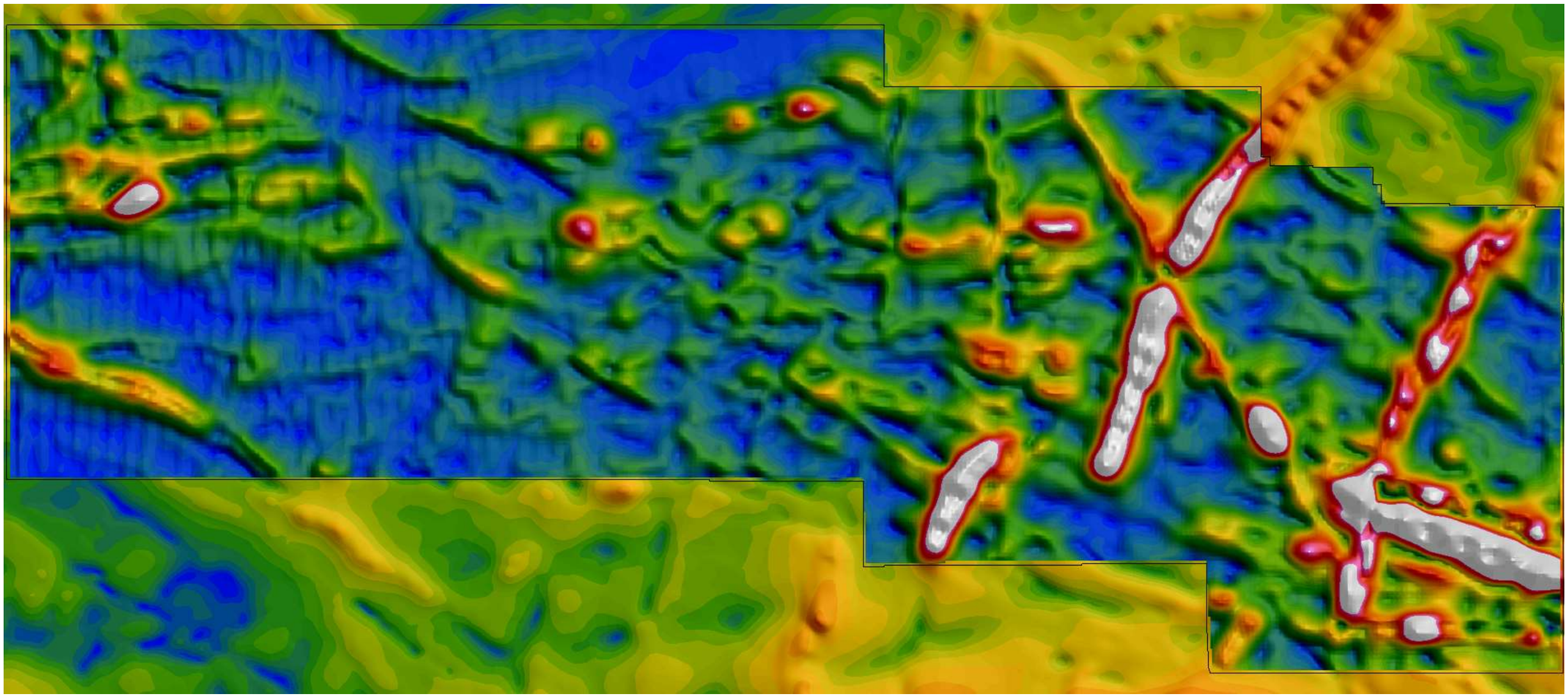
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **RTP HG000, 1VD, HG090** – RGB Ternary image (red, green, blue)



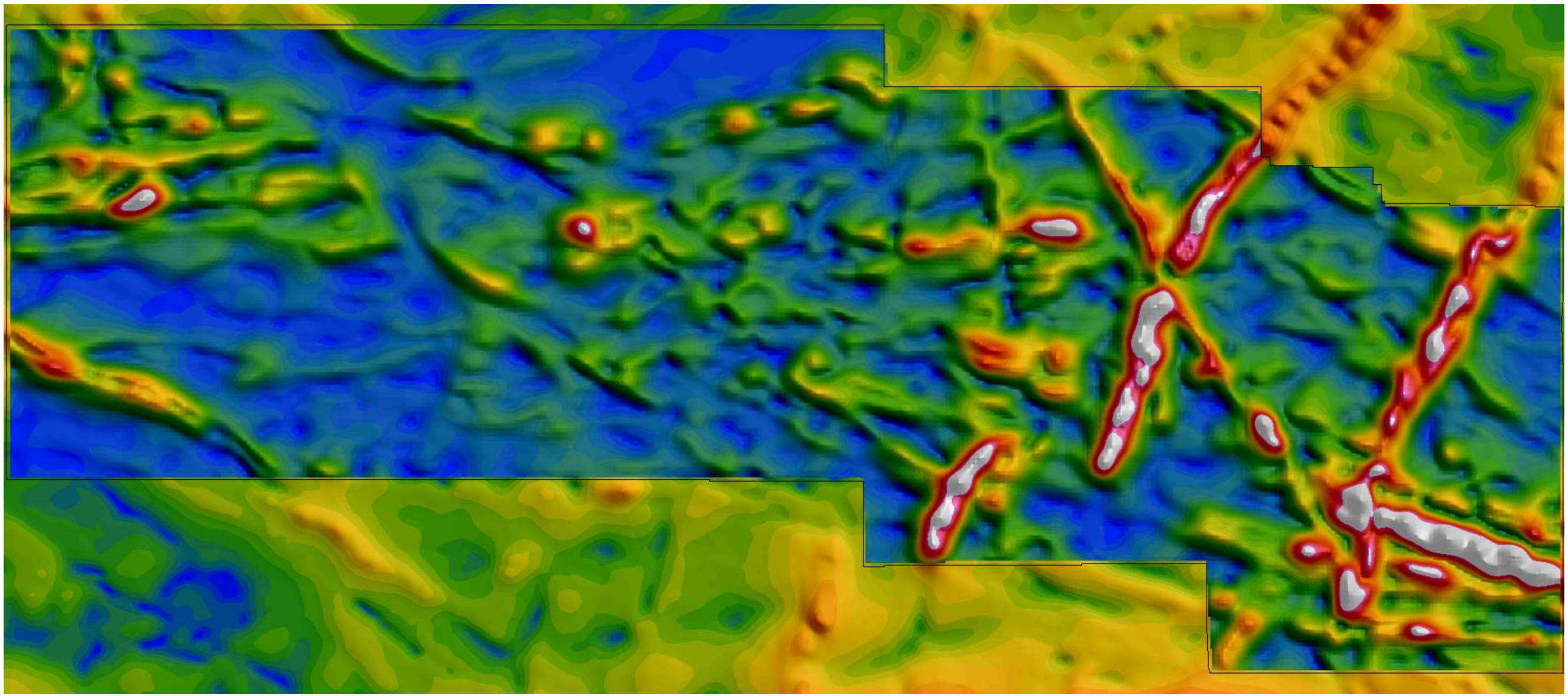
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice -200 m below topography.
* The western half of the inversion model shows notable North-South texture that is due to line levelling. The second model was run using the levelled magnetic data and a nominal 66 m height above ground (not the ideal inputs, but it does generate a smoother model).



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

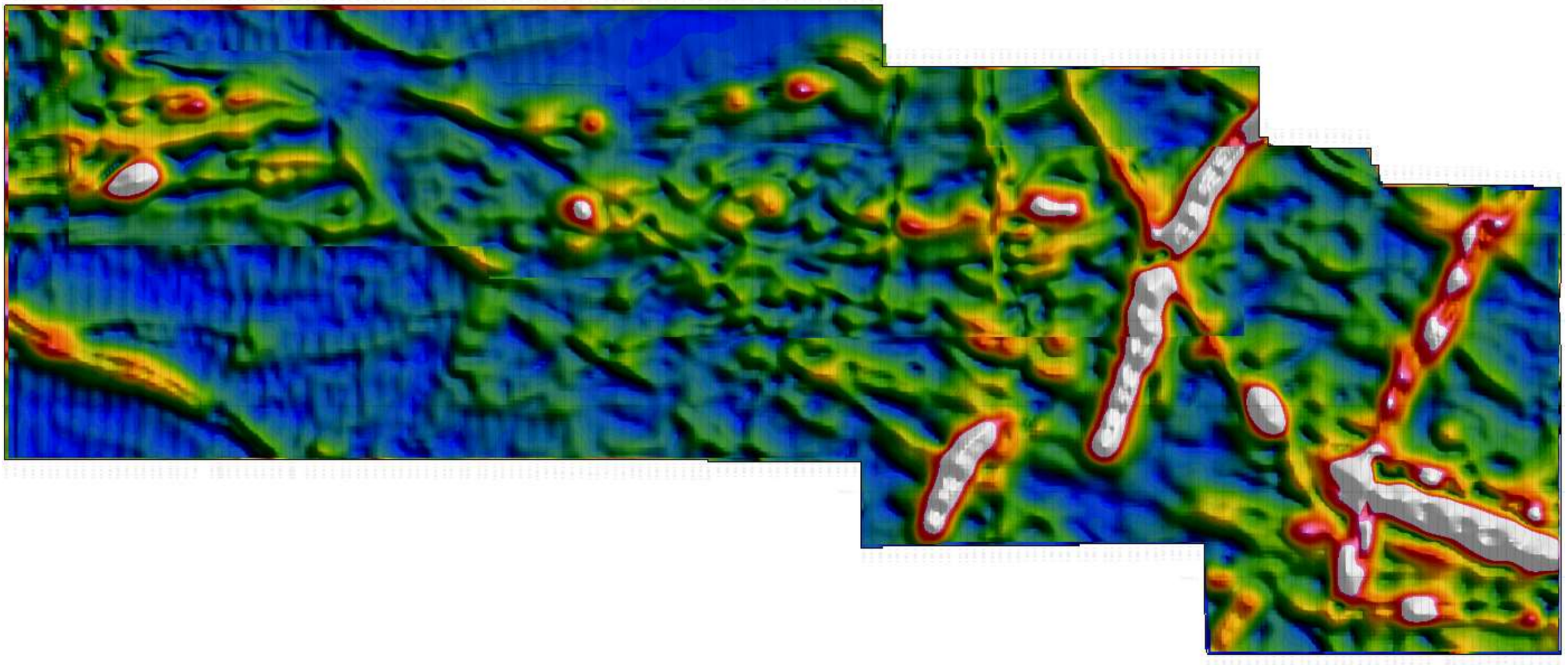
MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, **depth slice -200 m below topography**.
Second model was run using the levelled magnetic data and a **nominal 66 m height above ground**.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

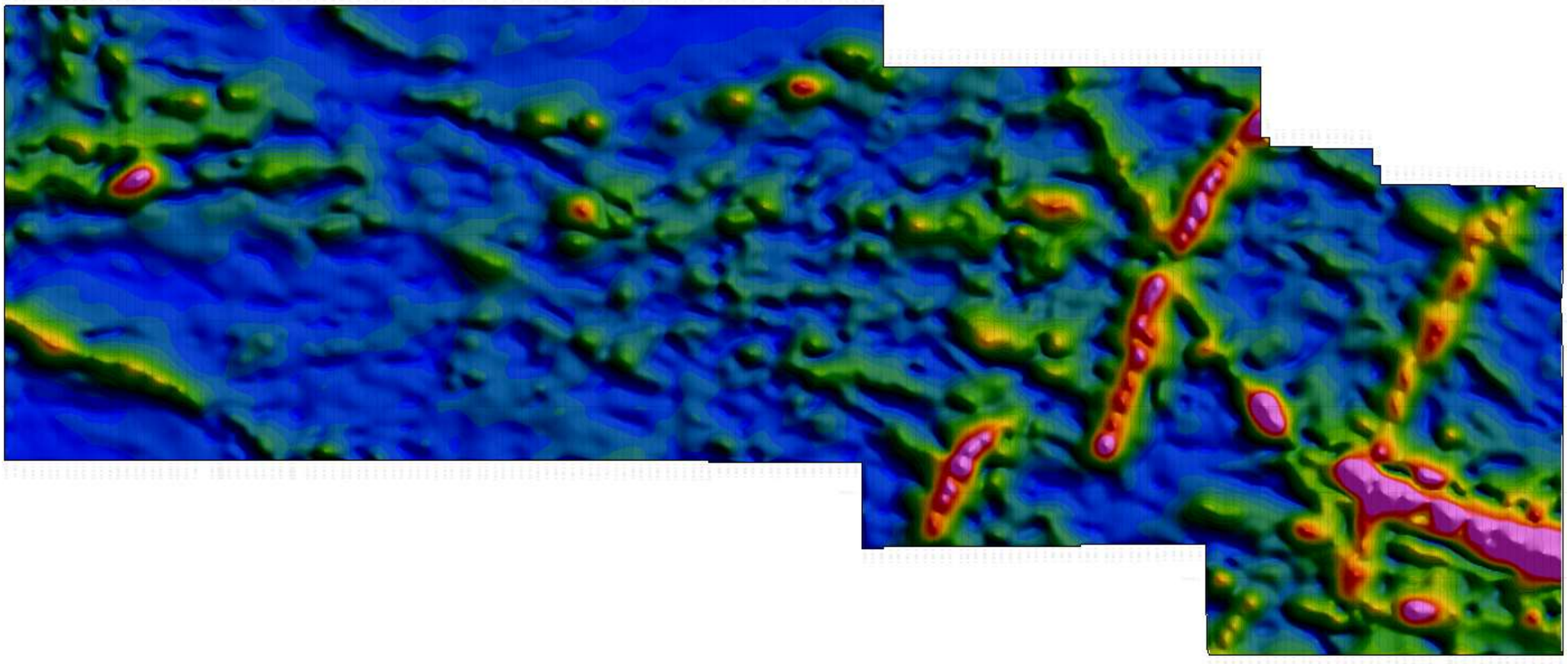
Fugro 2002 MVI 3D magnetic inversion -200 m depth slice overlying the MPX model.

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice -200 m below topography.



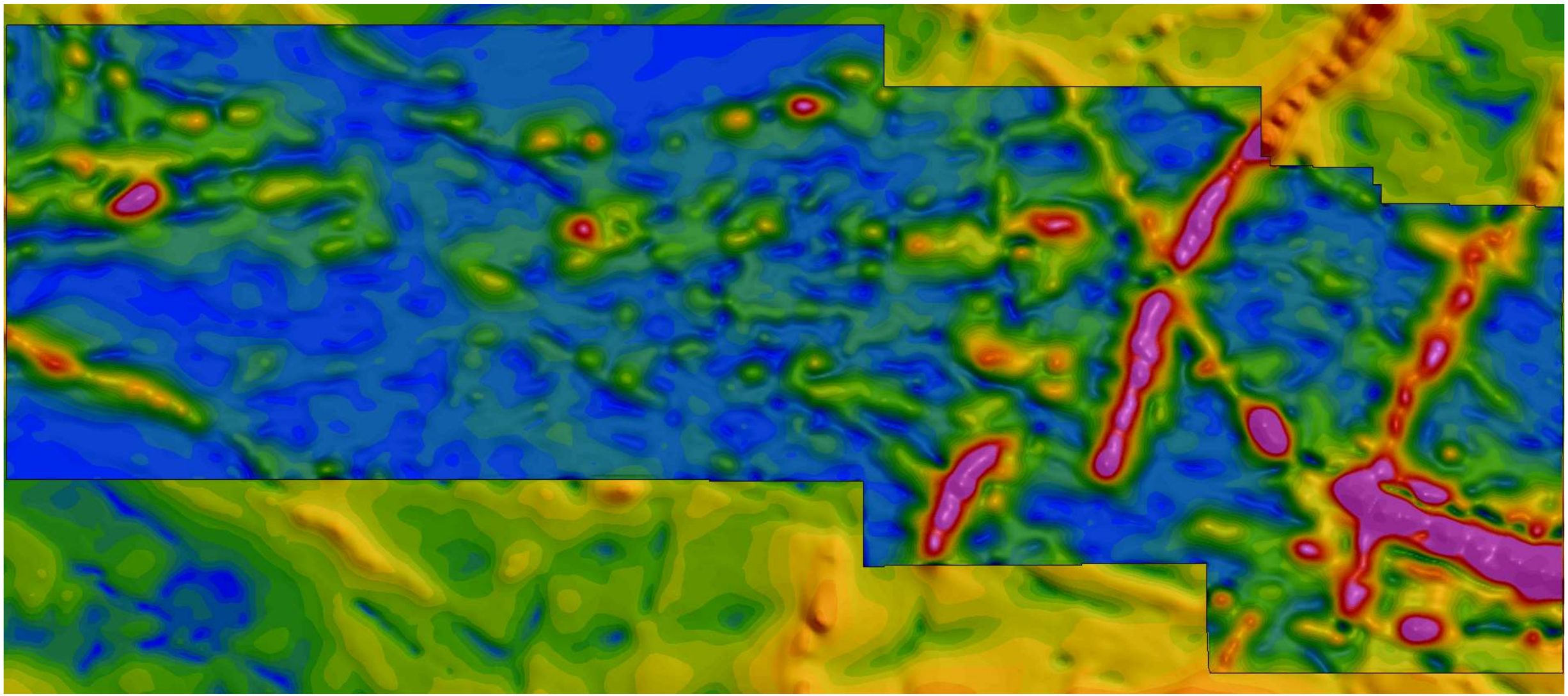
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG – **total gradient (TGA) of the TMI MLE** (magnetic layer extraction) **depth to top 100 m and thickness 200 m**.
this grid may be a candidate for CET lineament analysis



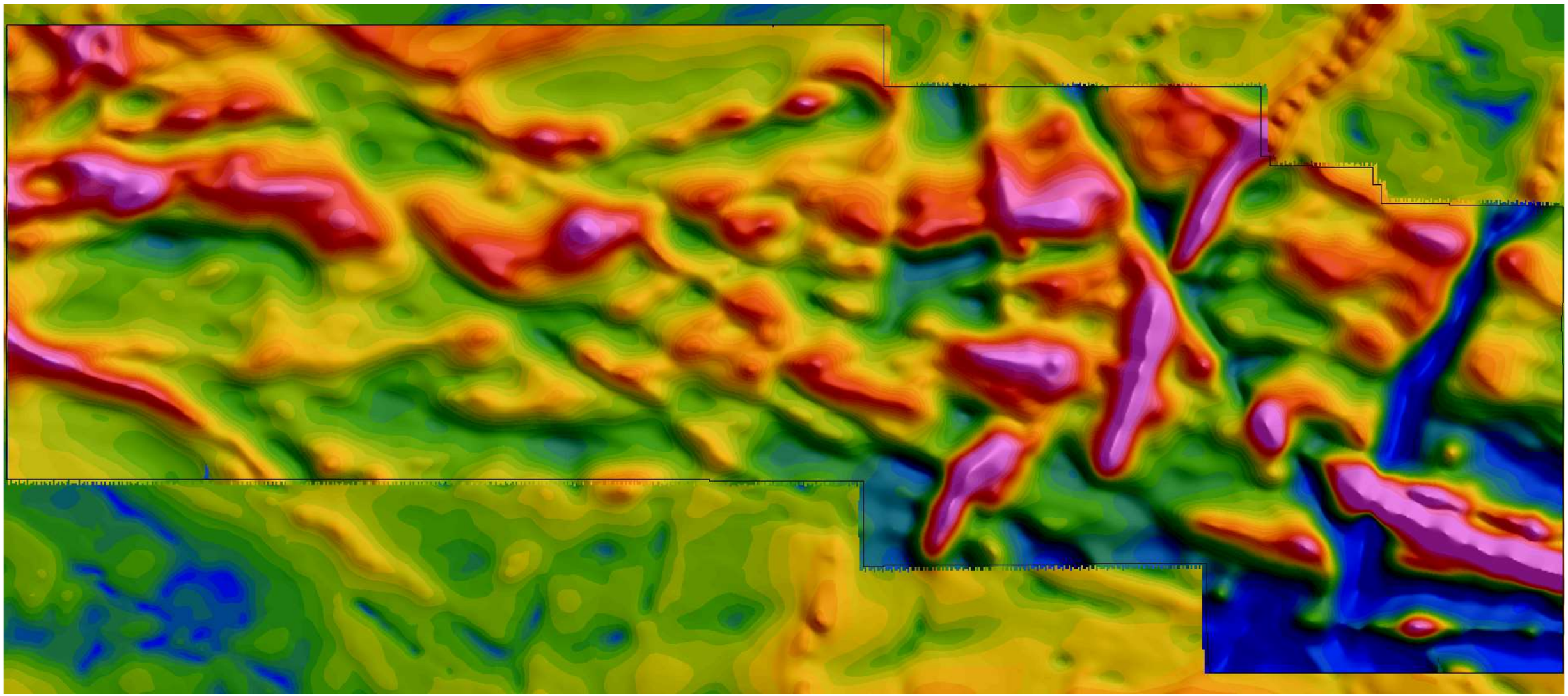
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– total gradient (TGA) of the TMI MLE** (magnetic layer extraction) **depth to top 100 m and thickness 500 m**.
this grid may be a candidate for CET lineament analysis



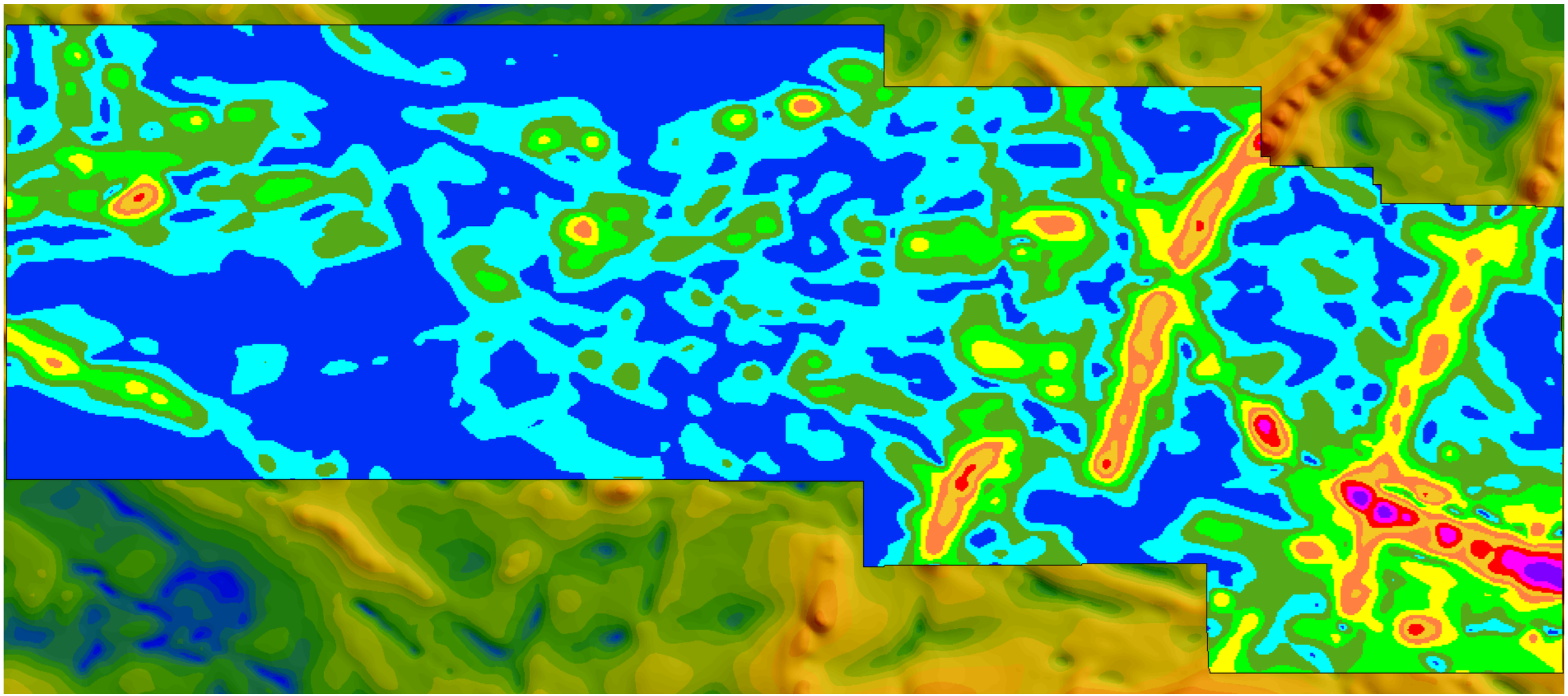
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– RTP MLE** (magnetic layer extraction) **depth to top 100 m and thickness 500 m** (response of shallow magnetic sources reduced). Observing data trends can be easier from RTP products vs. Total Gradient products. The benefit of the TGA is when areas of remanence are observed or expected. Often MAG lows are noted as likely faults, but the location of a low could be off if remanence affecting the data.



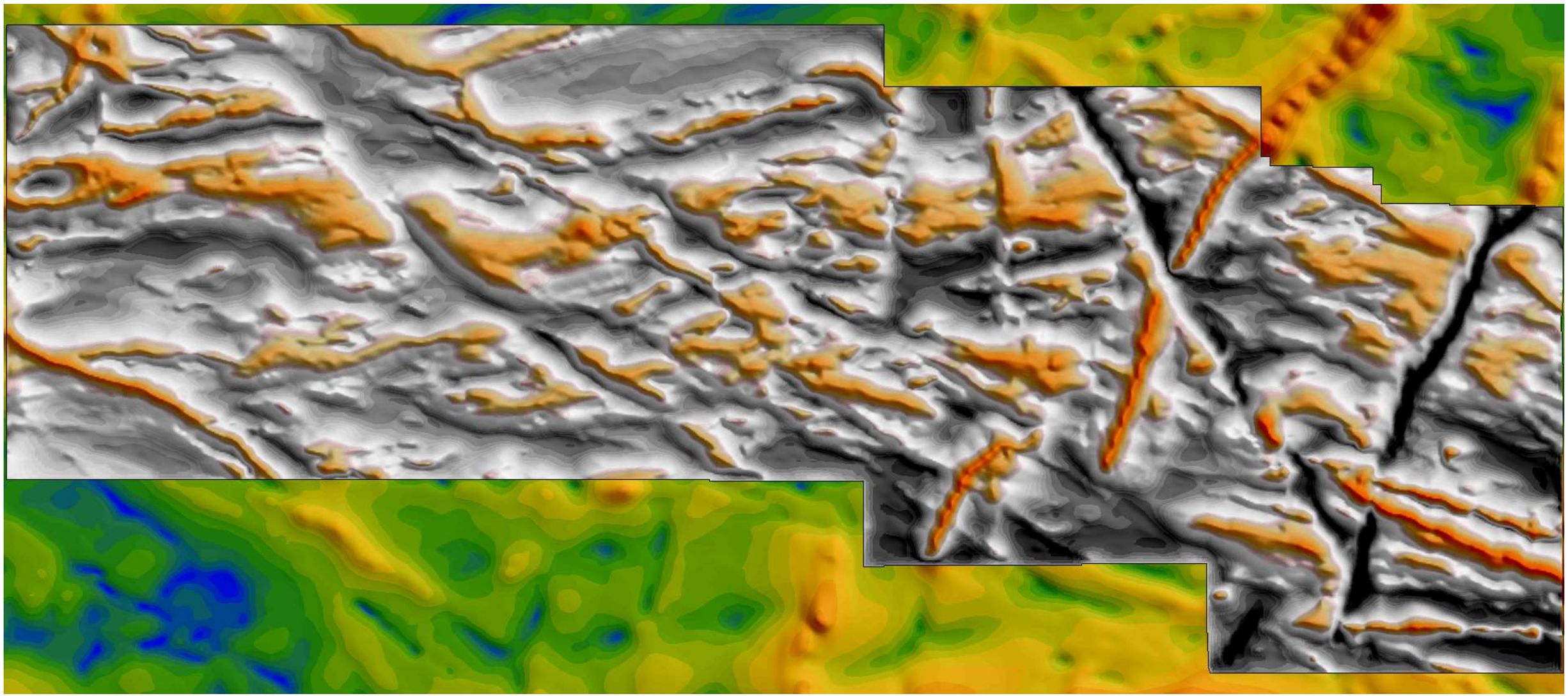
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– K-means Cluster analysis of TMI MLE-100-500m TGA (**depth to top 100 m and thickness 500 m). K-means test run on TGA because it removes the dipolar MAG response pattern which simplifies the magnetic picture.



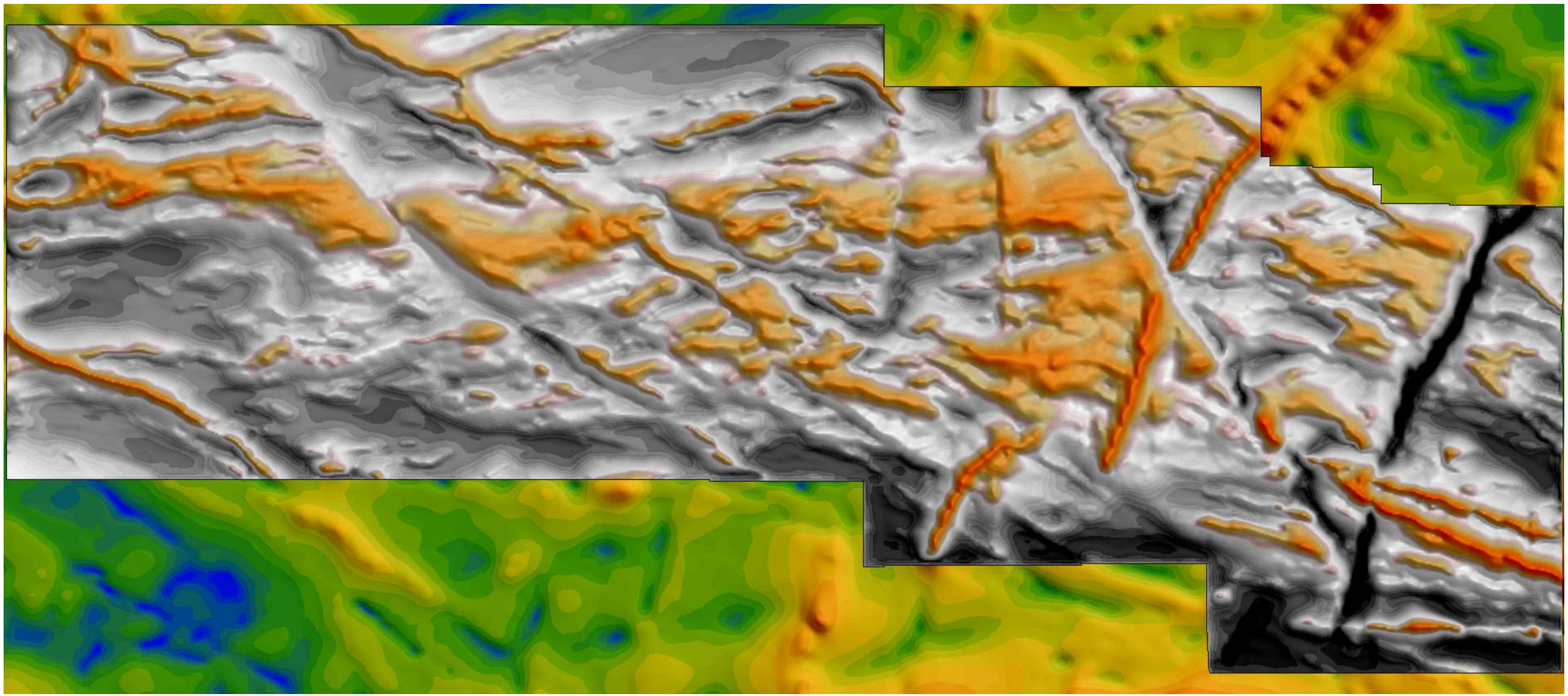
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– RTP dynamic range compression (CET-DRC) at various high/low pass scales: 200 m**



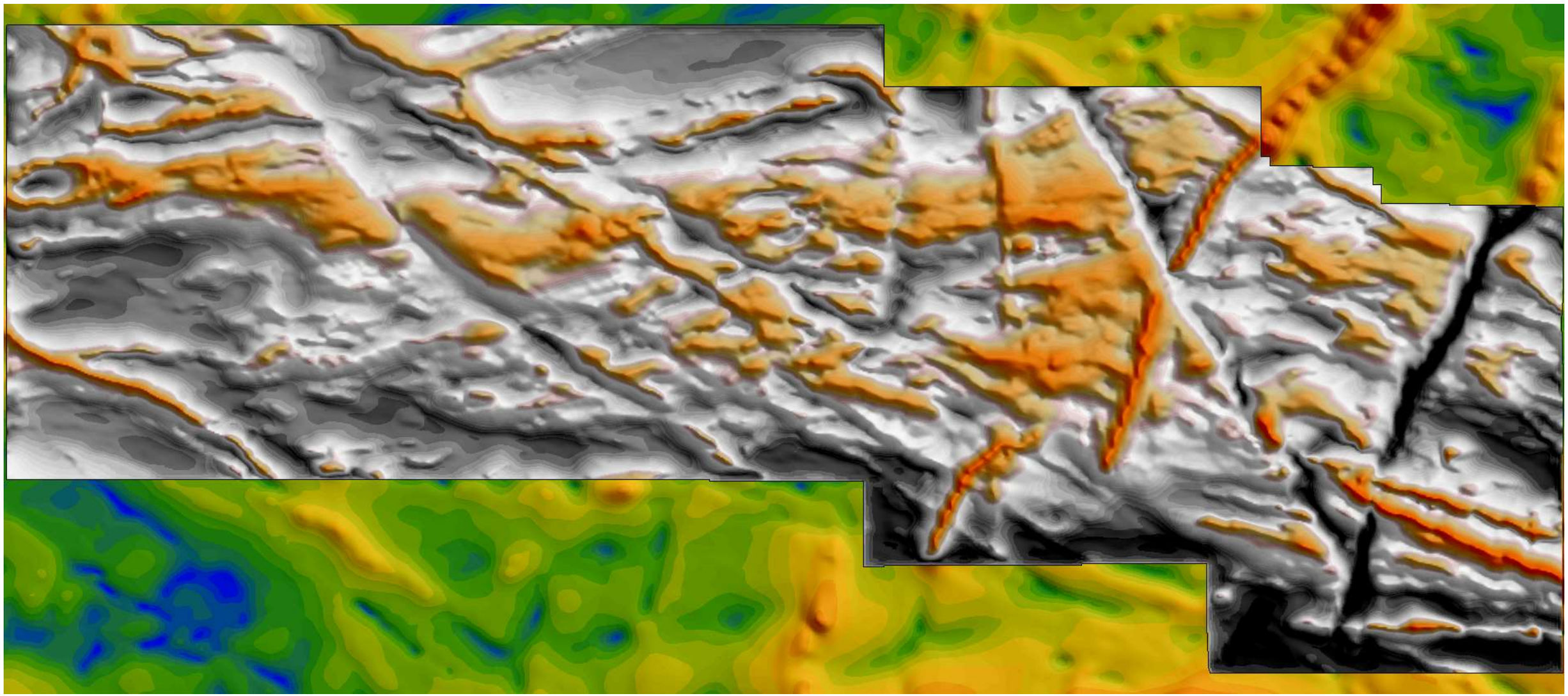
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– RTP dynamic range compression (CET-DRC) at various high/low pass scales: 894 m**



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

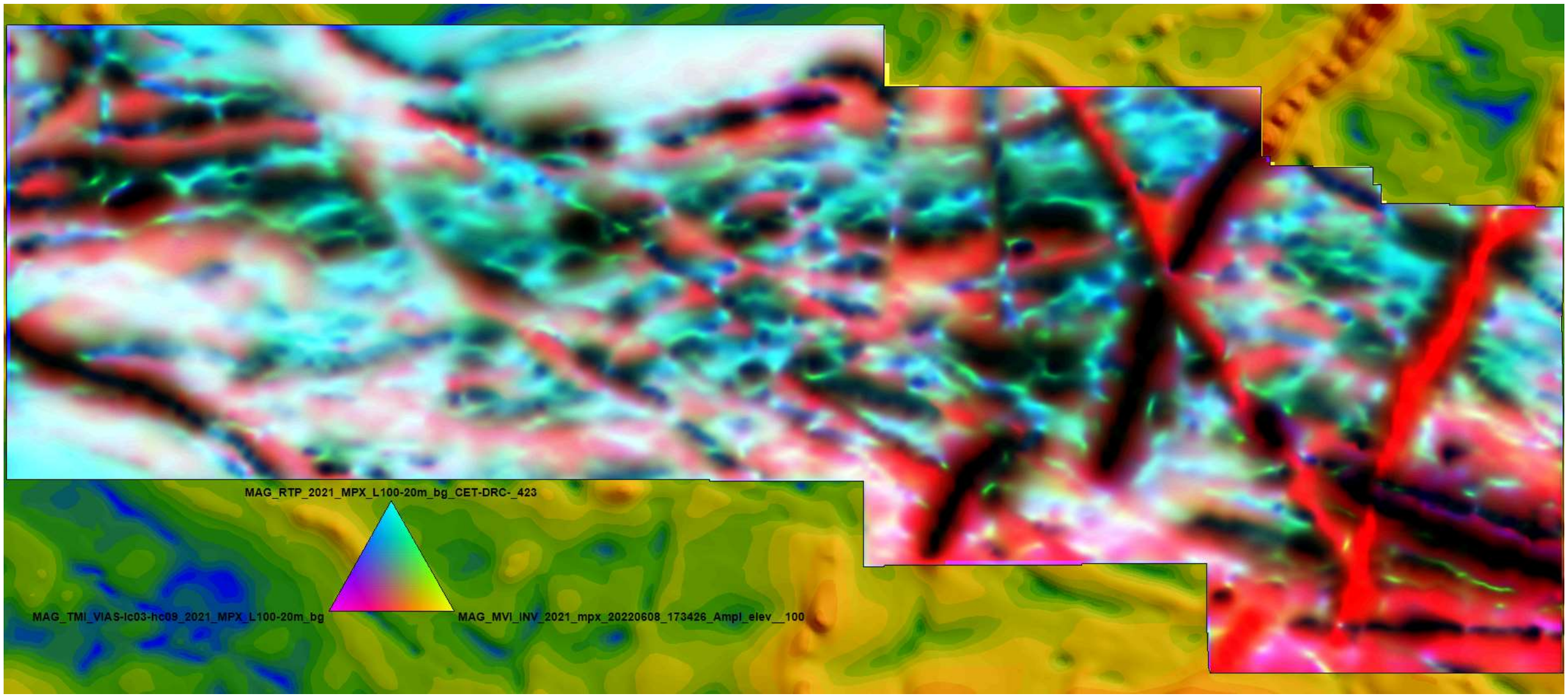
MPX 2021 Fixed-Wing MAG **– RTP dynamic range compression (CET-DRC) at various high/low pass scales: 4000 m**



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– TERNARY image comparing RTP, VIAS and MVI_INV**. In areas where RTP diverges from TGA and MVI inversion one should consider magnetic remanence. (inputs: RTP CET-DCR-423m , TMI-VIAS, MVI INV 100m elev)

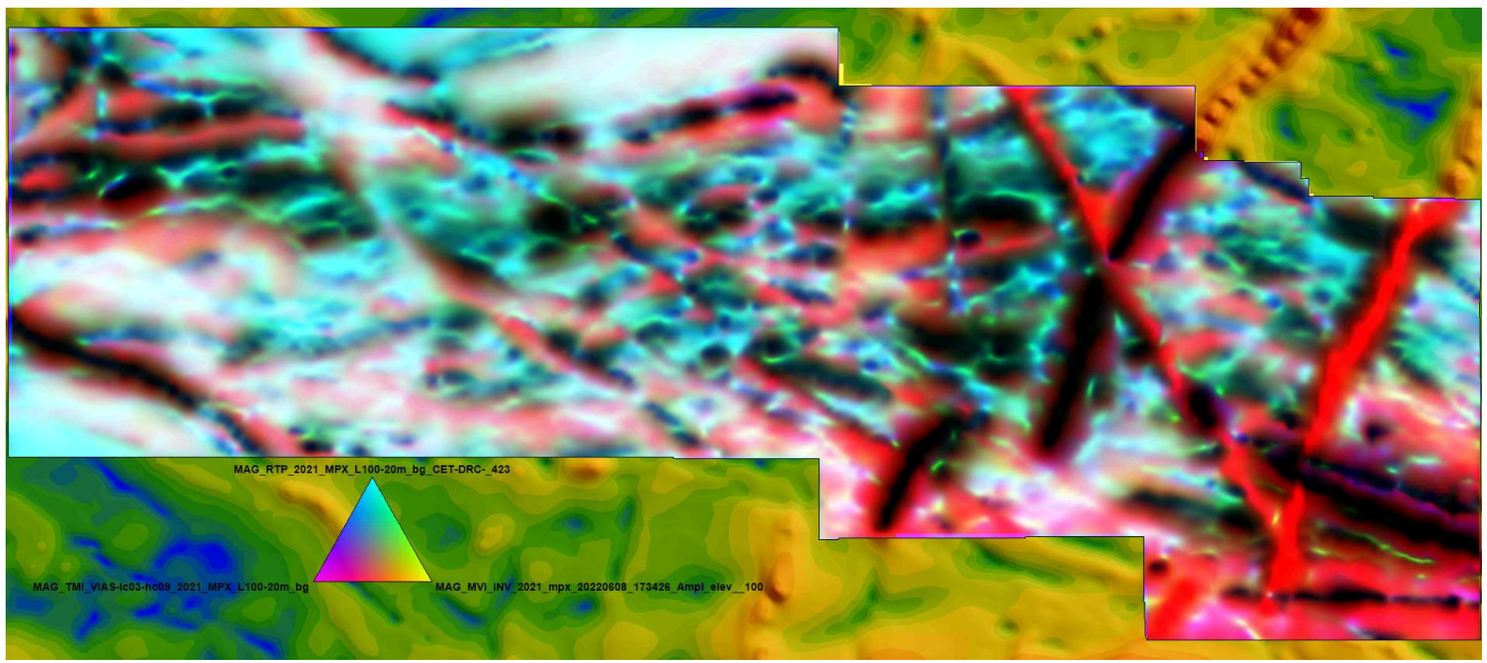
Black areas all 3 grids agree and RED areas are a proxy/estimate of where they don't agree…warning of possible remanence.

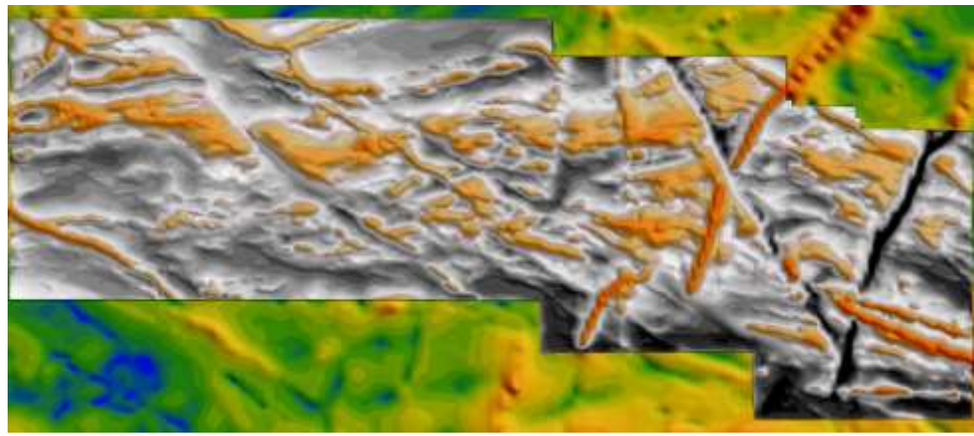


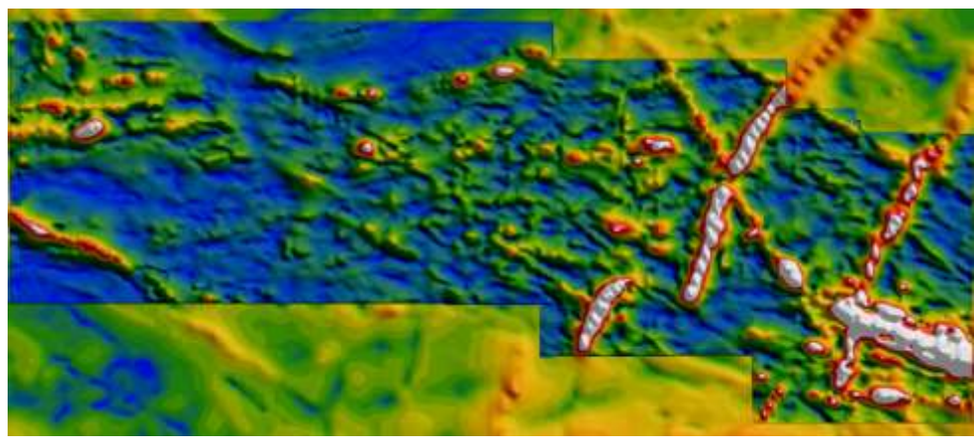
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

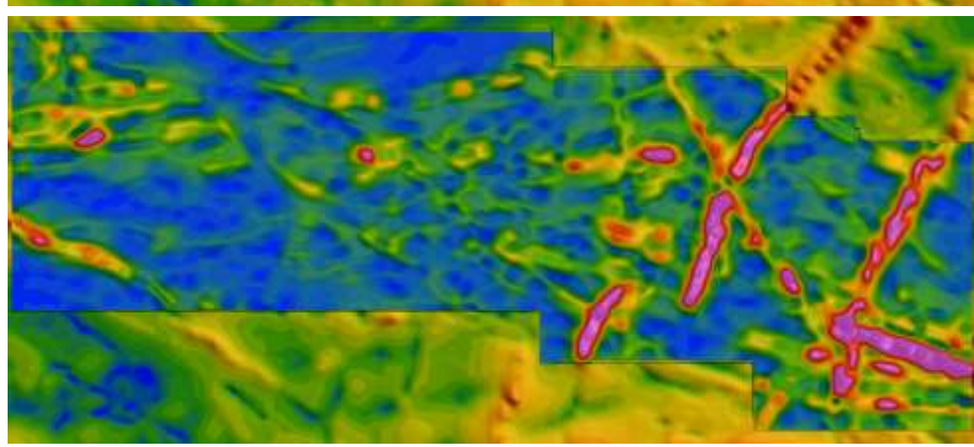
MPX 2021 Fixed-Wing MAG **– TERNARY image comparing RTP, VIAS and MVI_INV**. In areas where RTP diverges from TGA and MVI inversion one should consider magnetic remanence. (inputs: RTP CET-DCR-423m , TMI-VIAS, MVI INV 100m elev)

Black areas all 3 grids agree and RED areas are a proxy/estimate of where they don't agree…warning of possible remanence.





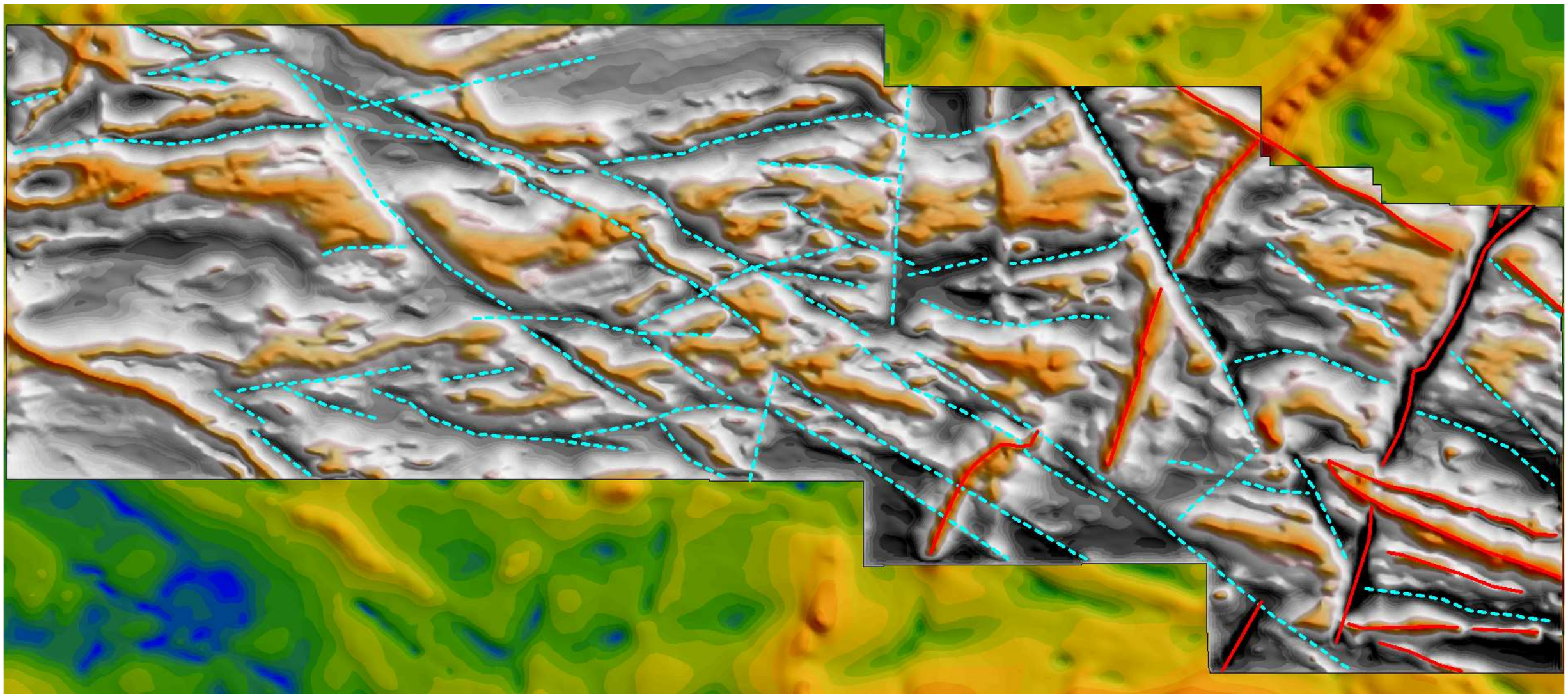




It can be difficult to get an ideal correlation due to the source wavelengths in the data inputs. The RTP will have longer wavelengths, hence the use of the RTP CET-DRC filtered grid.

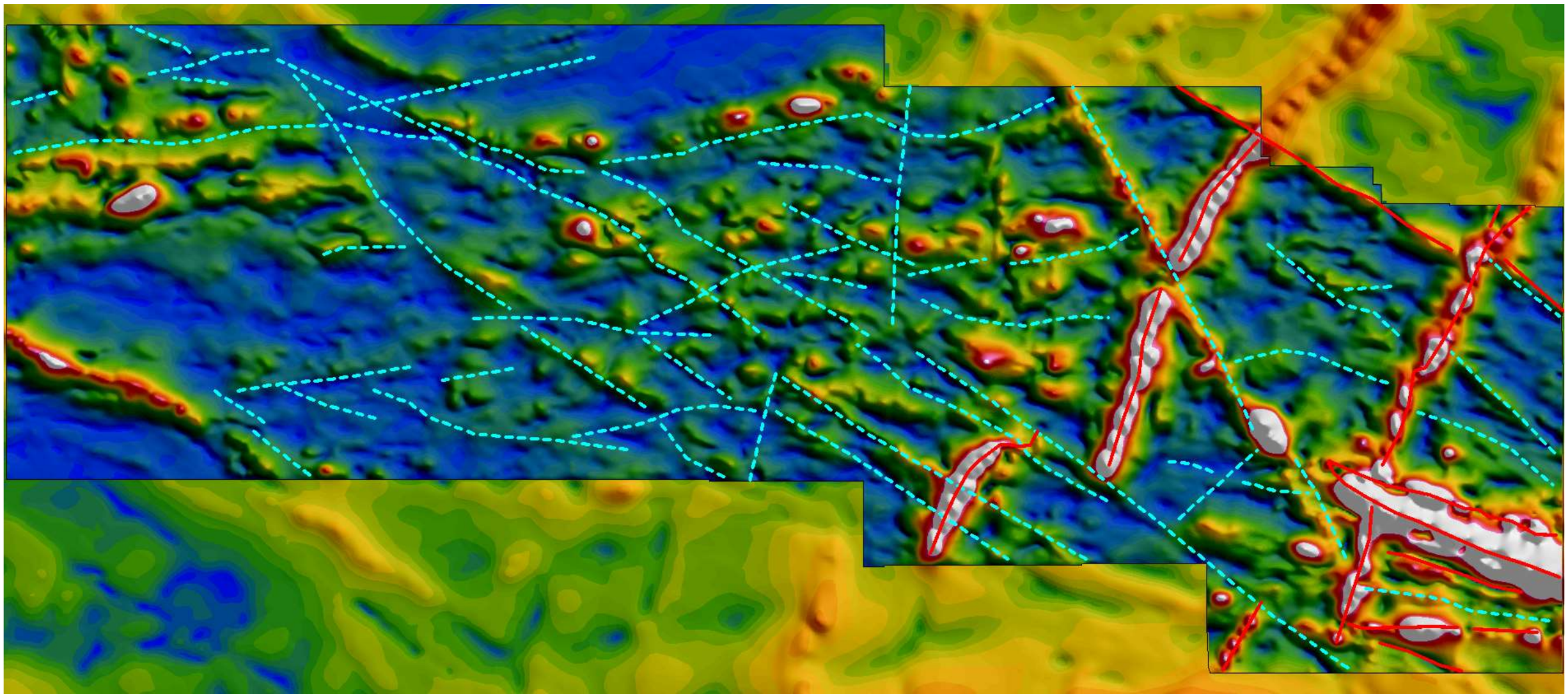
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– RTP dynamic range compression (CET-DRC) at various high/low pass scales**. MAG low and high trends (in progress).



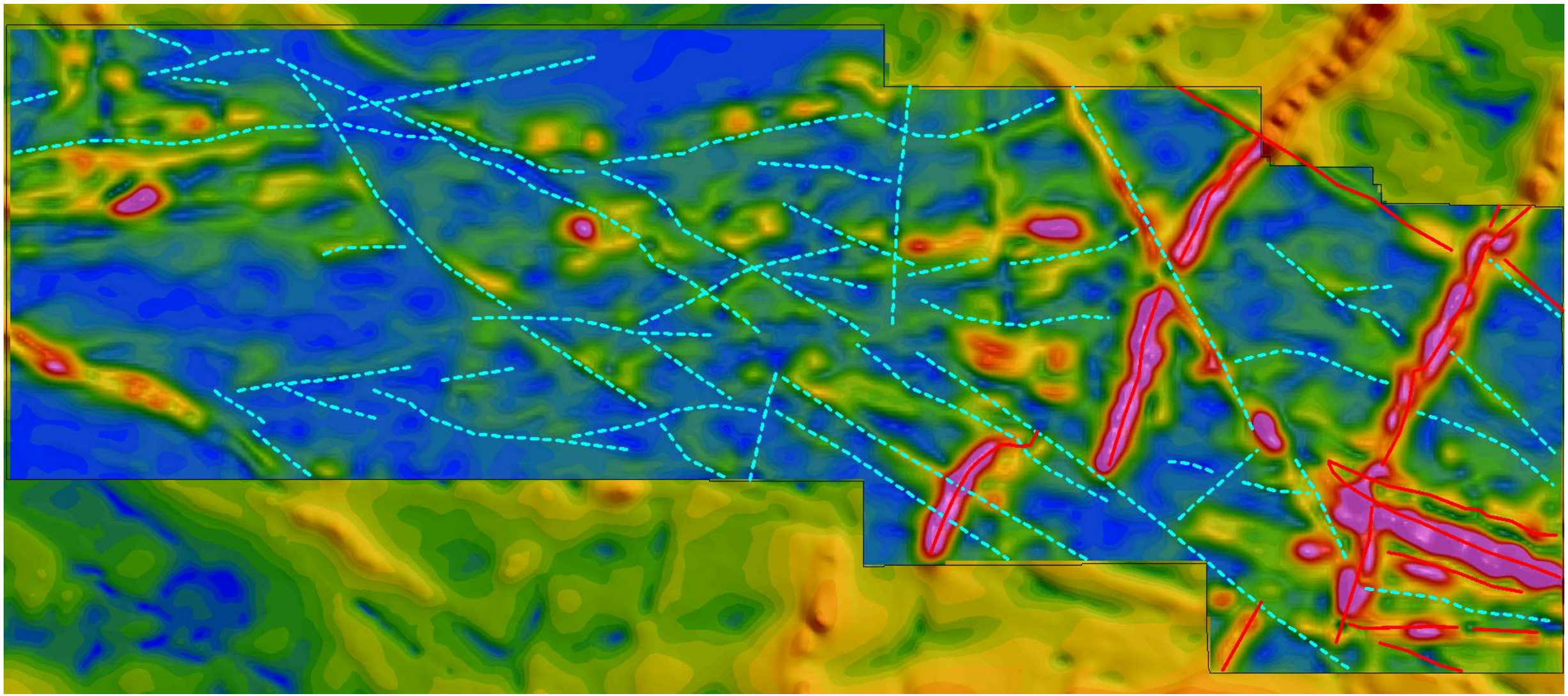
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– TMI VIAS grid with** MAG low and high trends (in progress).



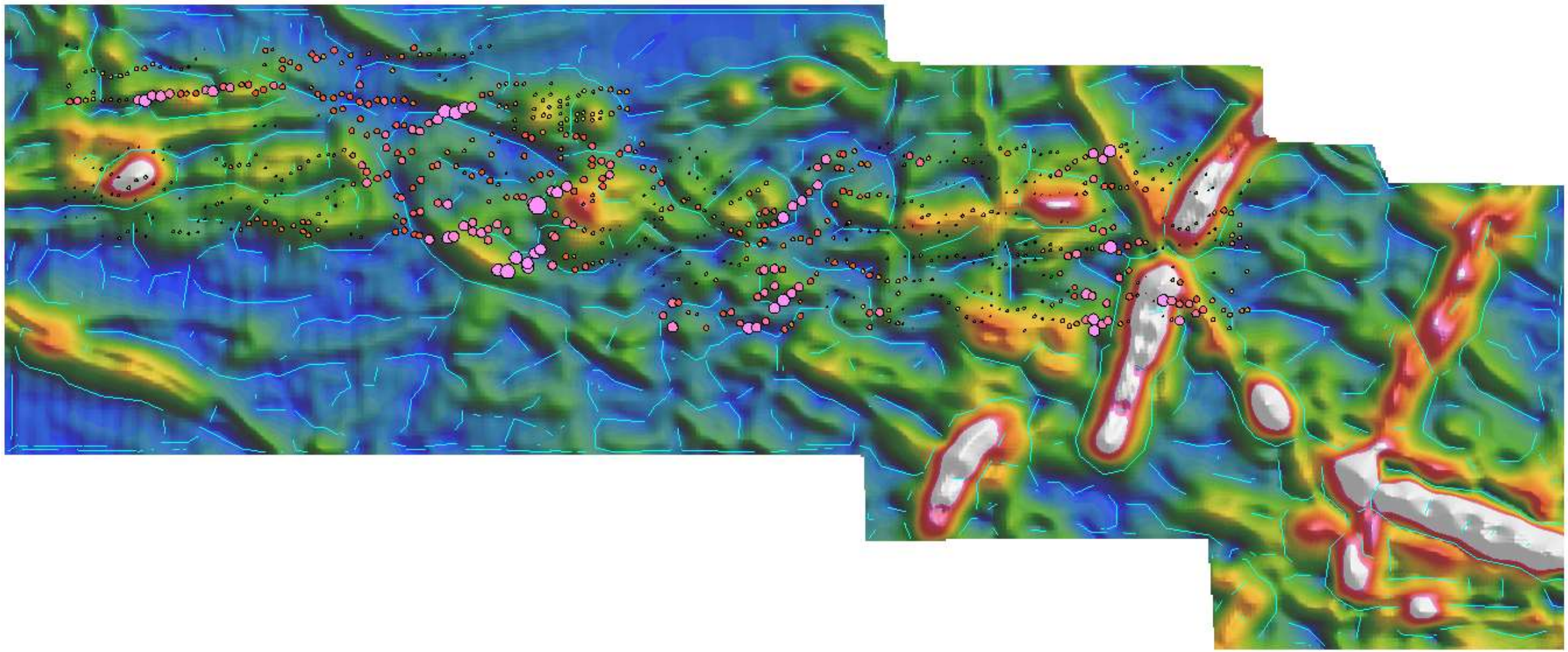
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG **– MVI inversion 100 m elevation grid with** MAG low and high trends (in progress).



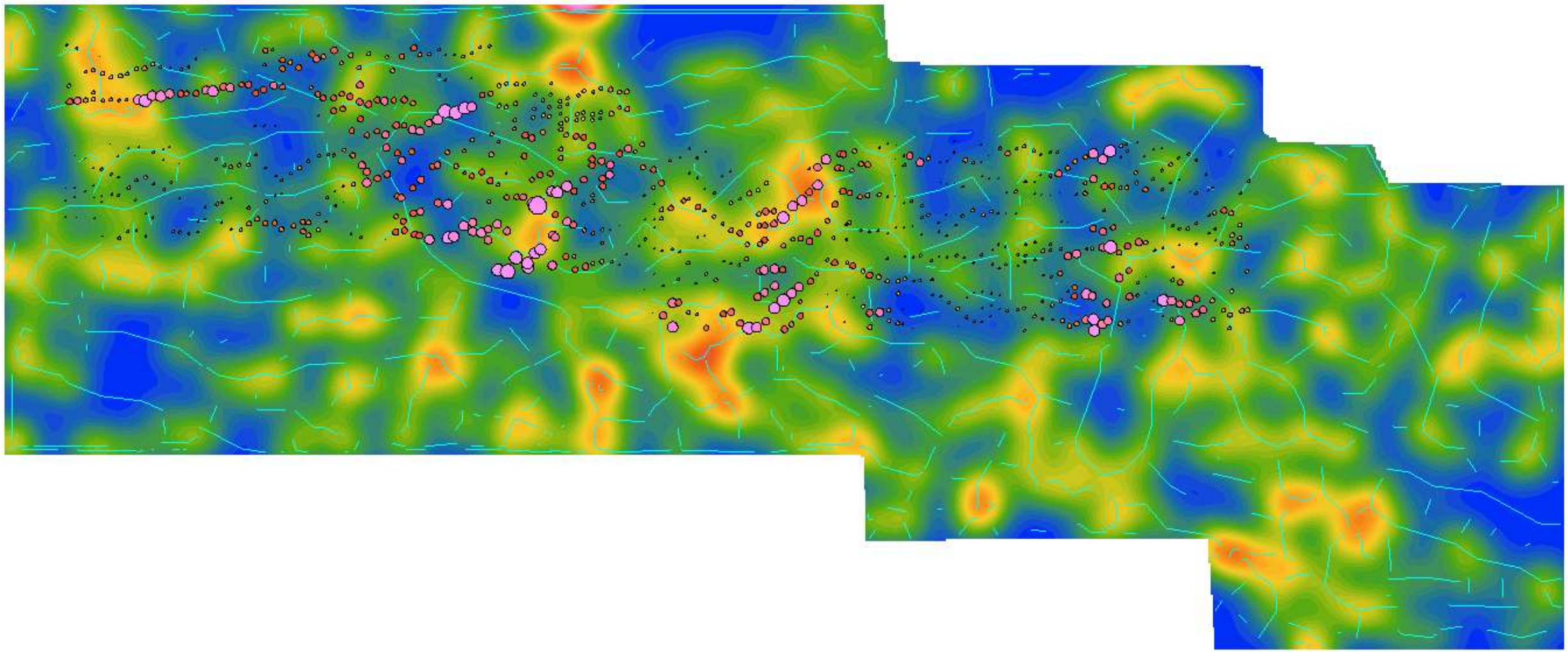
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG CET Lineaments

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice **-250 m** below topography.
CET lineament analysis for magnetic low trends shown as cyan lines
Symbols: 2002 Fugro FDEM CPQ 7200 response peak locations



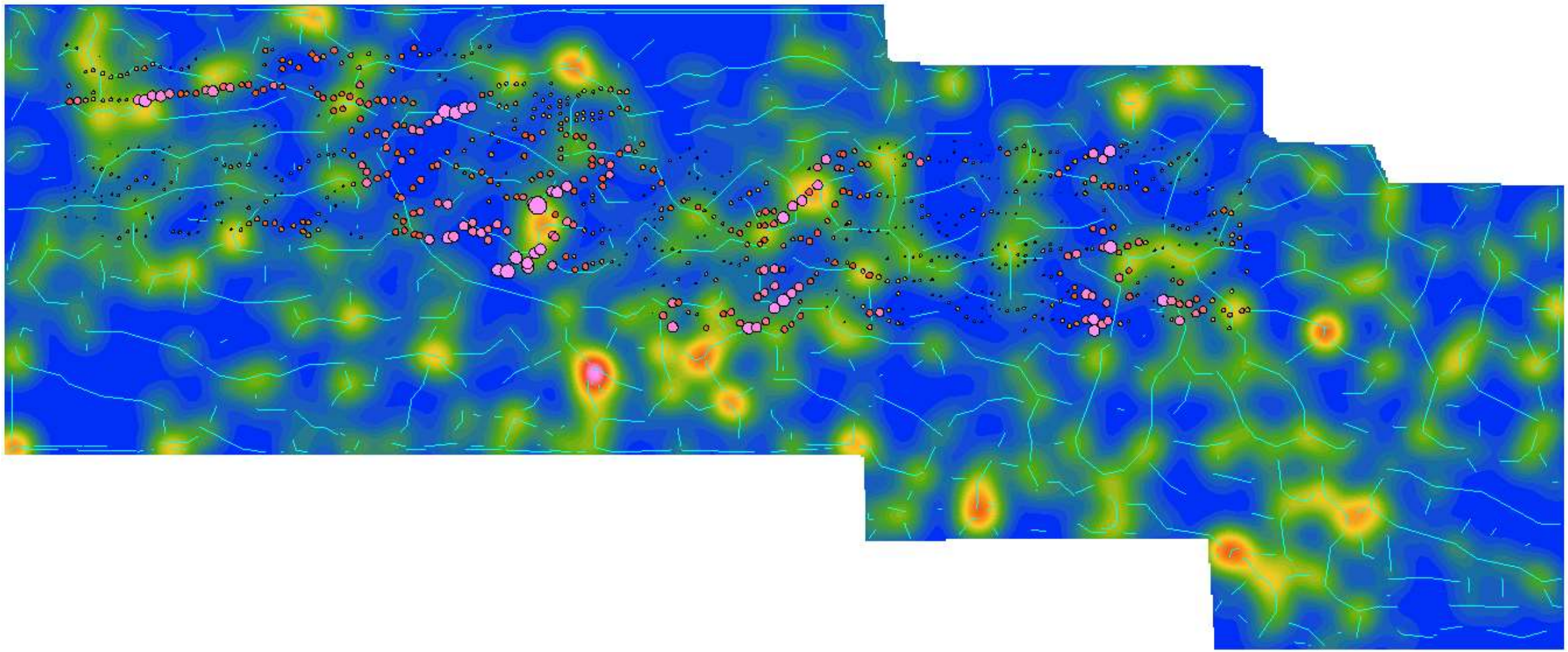
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice **-250 m** below topography.
CET lineament analysis for **magnetic low trends** shown as cyan lines with **Orientation Entropy gridded data**
* Preliminary pass through the data, it may be possible to improve the choice of parameters. Choosing a shallower inversion slice would generate greater detail. The shallower slices are noisier and hence they were not chosen for this test.



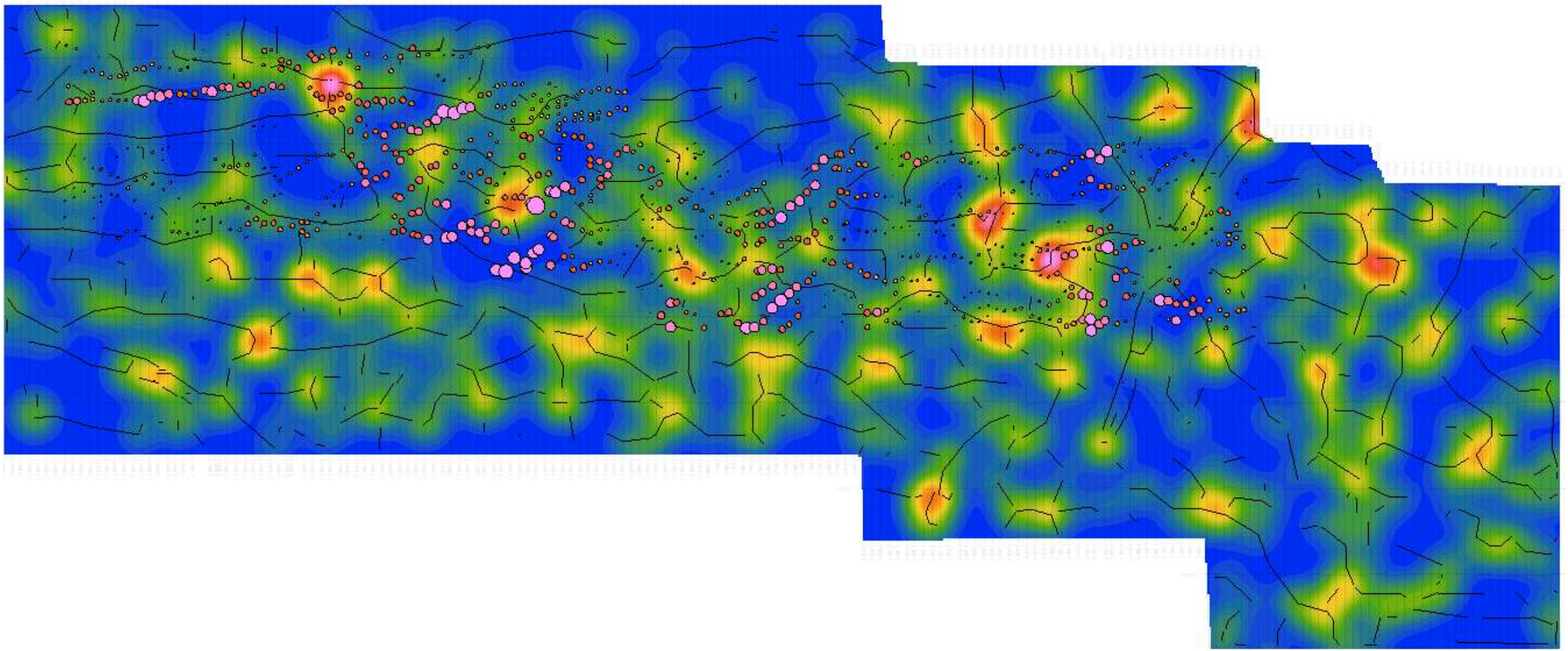
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice **-250 m** below topography.
CET lineament analysis for **magnetic low trends** shown as cyan lines with **Contact Occurrence Density gridded data**
* Preliminary pass through the data, it may be possible to improve the choice of parameters. Choosing a shallower inversion slice would generate greater detail. The shallower slices are noisier and hence they were not chosen for this test.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

MPX 2021 Fixed-Wing MAG TMI 3D magnetic inversion (MVI) using VOXI magnetization vector intensity, depth slice **-250 m** below topography.
CET lineament analysis for **magnetic high trends** shown as black lines with **Contact Occurrence Density gridded data**
* Preliminary pass through the data, it may be possible to improve the choice of parameters. Choosing a shallower inversion slice would generate greater detail. The shallower slices are noisier and hence they were not chosen for this test.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 MPX Airborne MAG

…empty

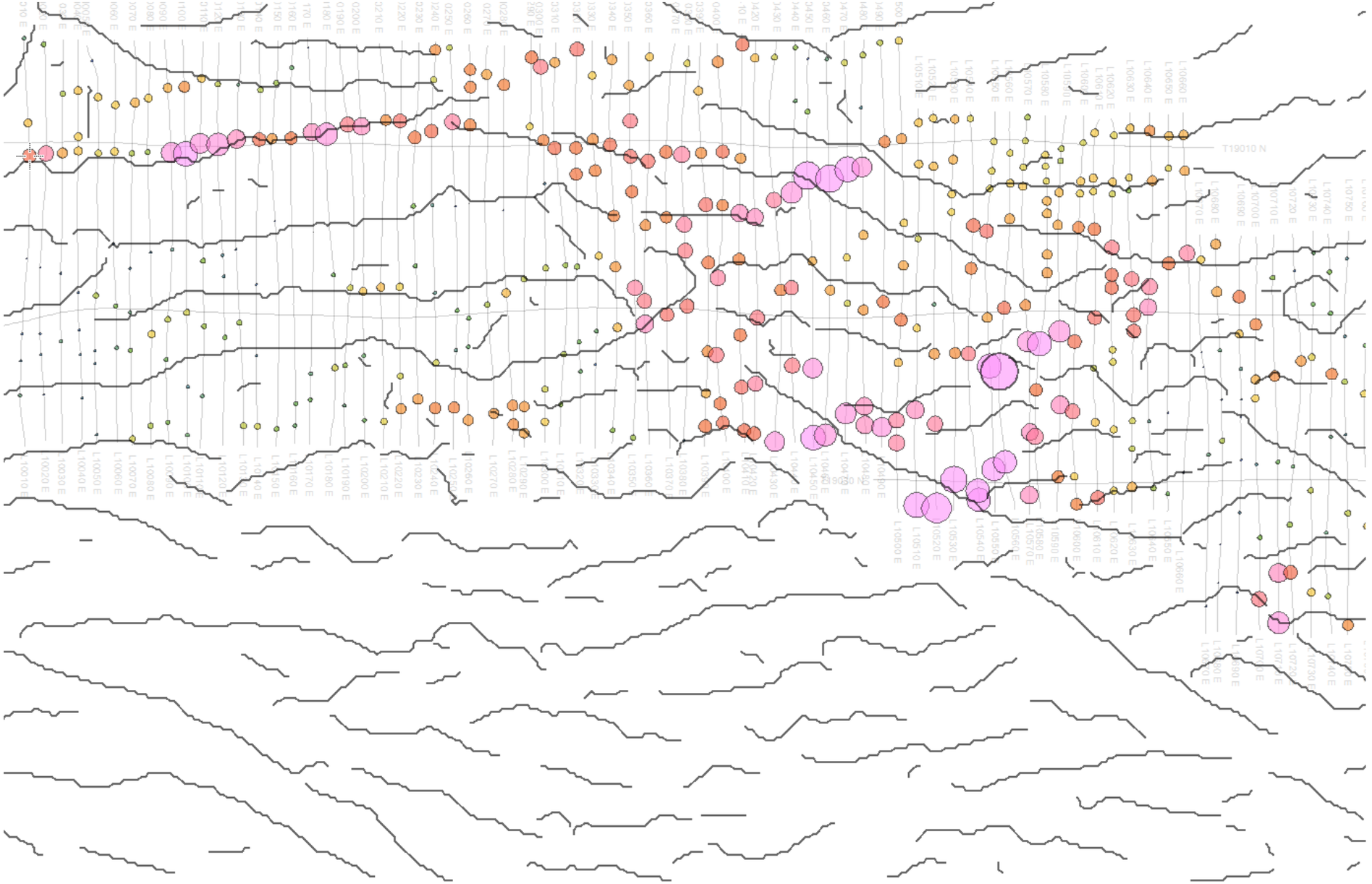
2002 Fugro Airborne MAG

*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro Airborne MAG

Fugro 2002 FDEM

Anomaly peaks based on **channel CPQ7200** and plotted using proportional size. Symbol size not adjusted for direct comparison with next image. Simply noting that the filtered data channel shows less weak features – but this may be due to minimum amplitude thresholding choice.

EM data shown relative to MAG lineaments from the 2021 MPX survey.

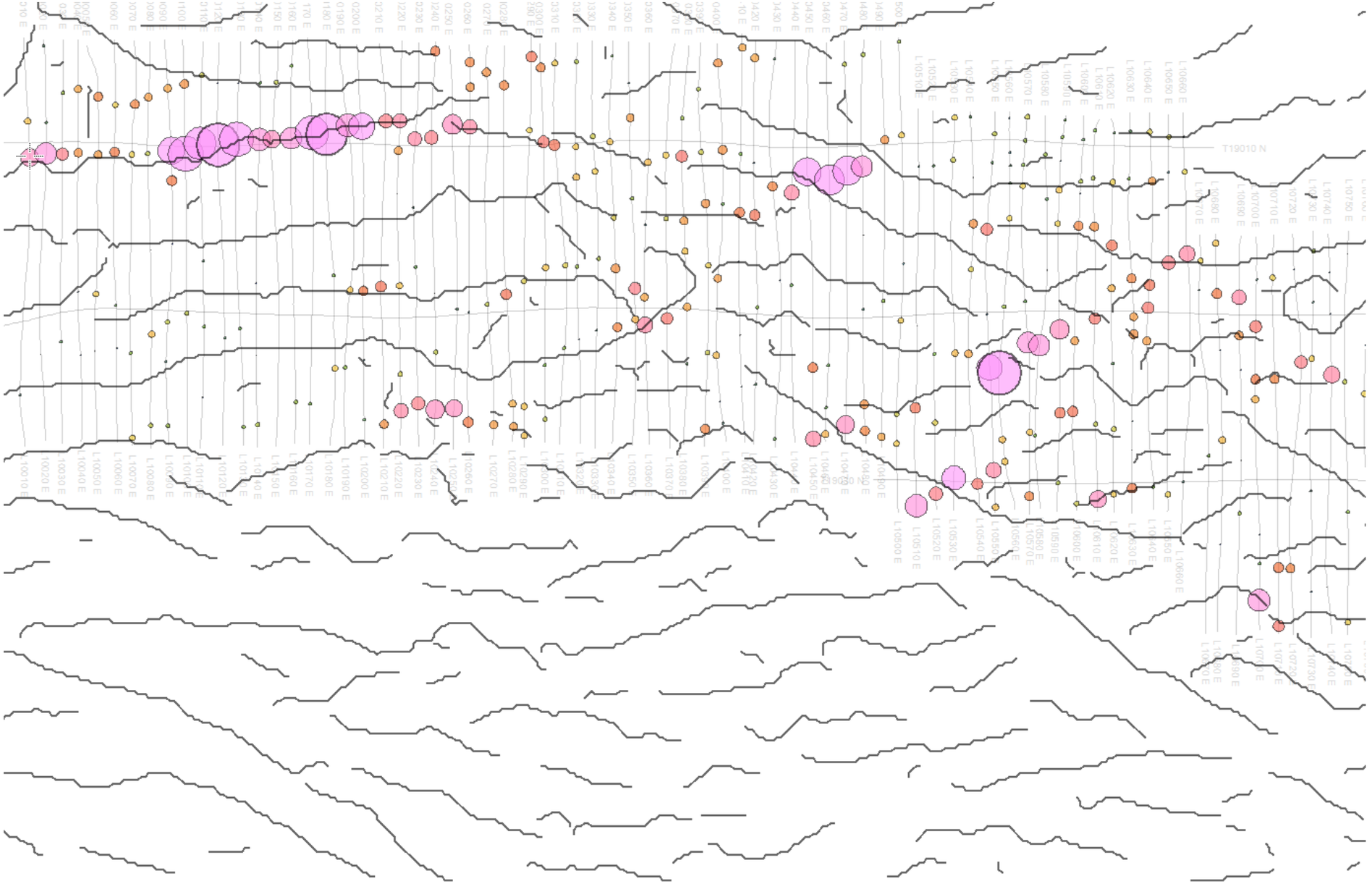


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro Airborne MAG

Fugro 2002 FDEM

Anomaly peaks based on **filtered channel CPQ7200** and plotted using proportional size.

EM data shown relative to MAG lineaments from the 2021 MPX survey.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

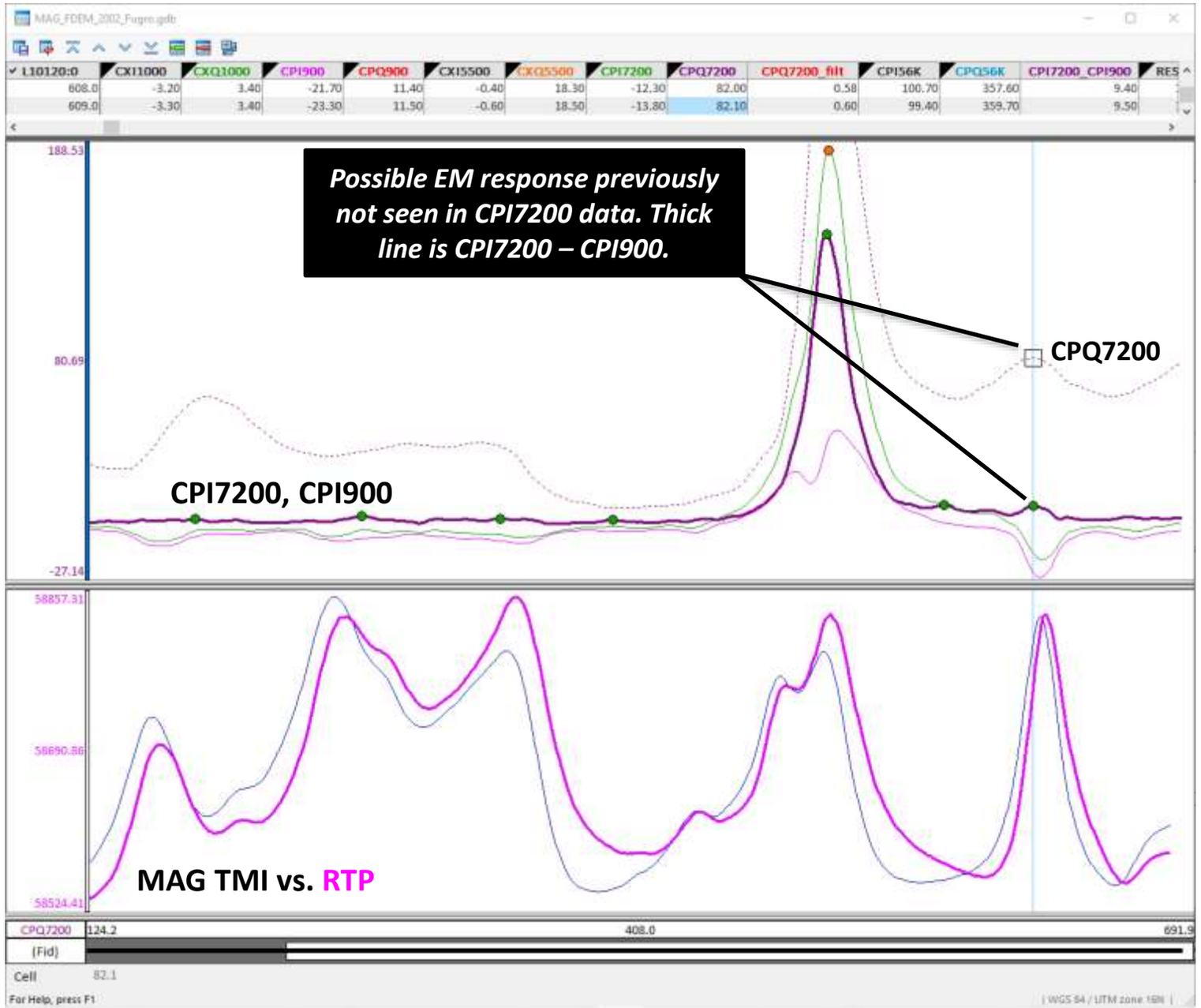
Fugro 2002 FDEM

Frequency domain in-phase EM data is very susceptible to magnetite effect which drives the EM response negative. Correlation with magnetic highs confirms the issue. Because of this effect conductive responses can be "hidden". The subtraction of the lowest in-phase frequency (900 Hz) can help reduce this effect.

In-phase (CPI) anomalies represent stronger conductors than quadrature responses (CPQ).

Any "hidden" CPI7200 or CPI56K conductor might be of interest.

Anomaly peaks based on **filtered channel CPI7200** and plotted using proportional size.



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

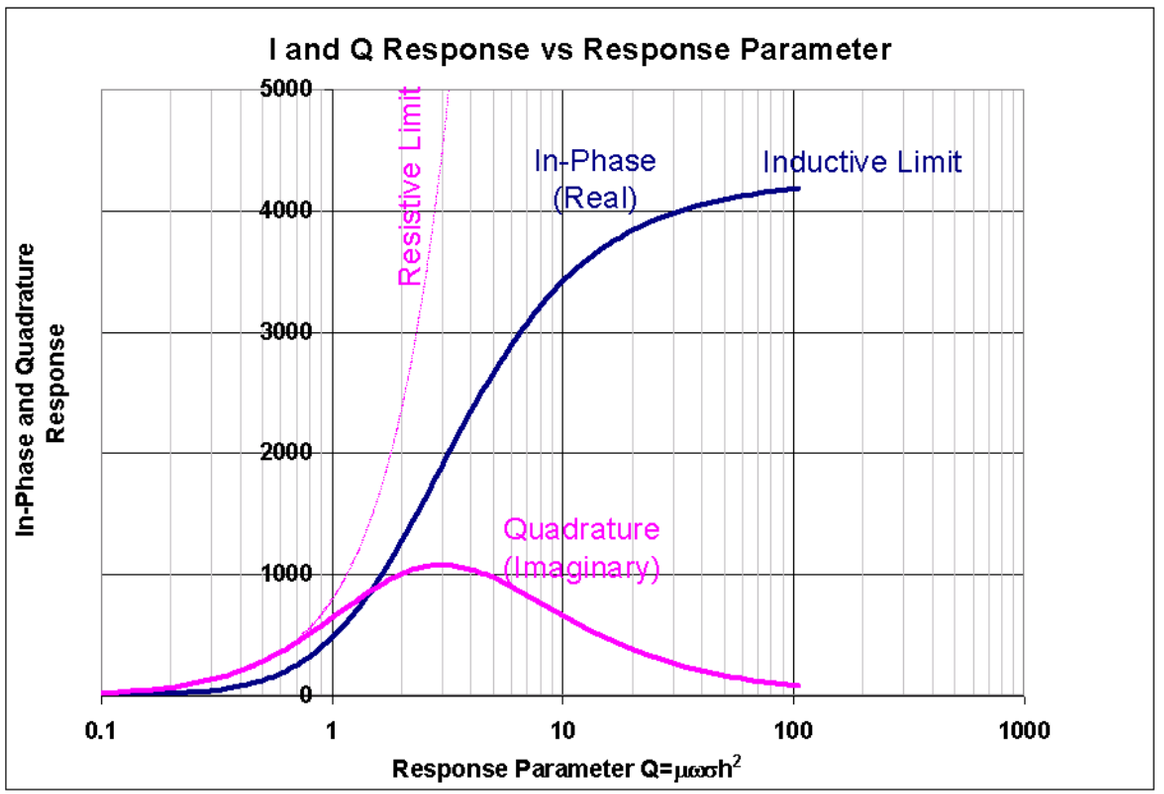
Fugro 2002 FDEM

Ideally, when using FDEM data to understand conductors we need to compare the relationship between the in-phase and quadrature responses.

Fugro quote:

"As shown in Fig 1, the quadrature component (equivalent to a time-domain signal) increases as conductivity increases, to a maximum value, and then decreases again as the currents induced in the conductor circulate closer in time/phase to the primary field. The in-phase component, however, is initially lower than the quadrature component, but then increases with conductivity to a maximum at the inductive limit. This indicates that although it is not possible to quantitatively measure conductivity at the inductive limit, FDEM systems get a maximum amplitude response over the most conductive targets."

Horizontal coplanar coils provide maximum field into the earth, and maximum coupling and sensitivity to conductive layers (and minimum coupling to sferics). The vertical coaxial (X) coils provide maximum sensitivity to vertical and linear conductive objects, like VMS deposits in steeply-dipping geology. The vertical coaxial transmitter (unique to FDEM) and receiver are maximum-coupled to these types of conductors when the FDEM system is directly overhead, at its closest point. In addition, the coaxial coil pair is minimum coupled to the host geology and regolith (25% of the coplanar signal), providing excellent penetration and discrimination of conductors through the overburden. The narrow, single peak of the coaxial anomaly over these conductors provides the sharpest location and best discrimination of multiple conductors.

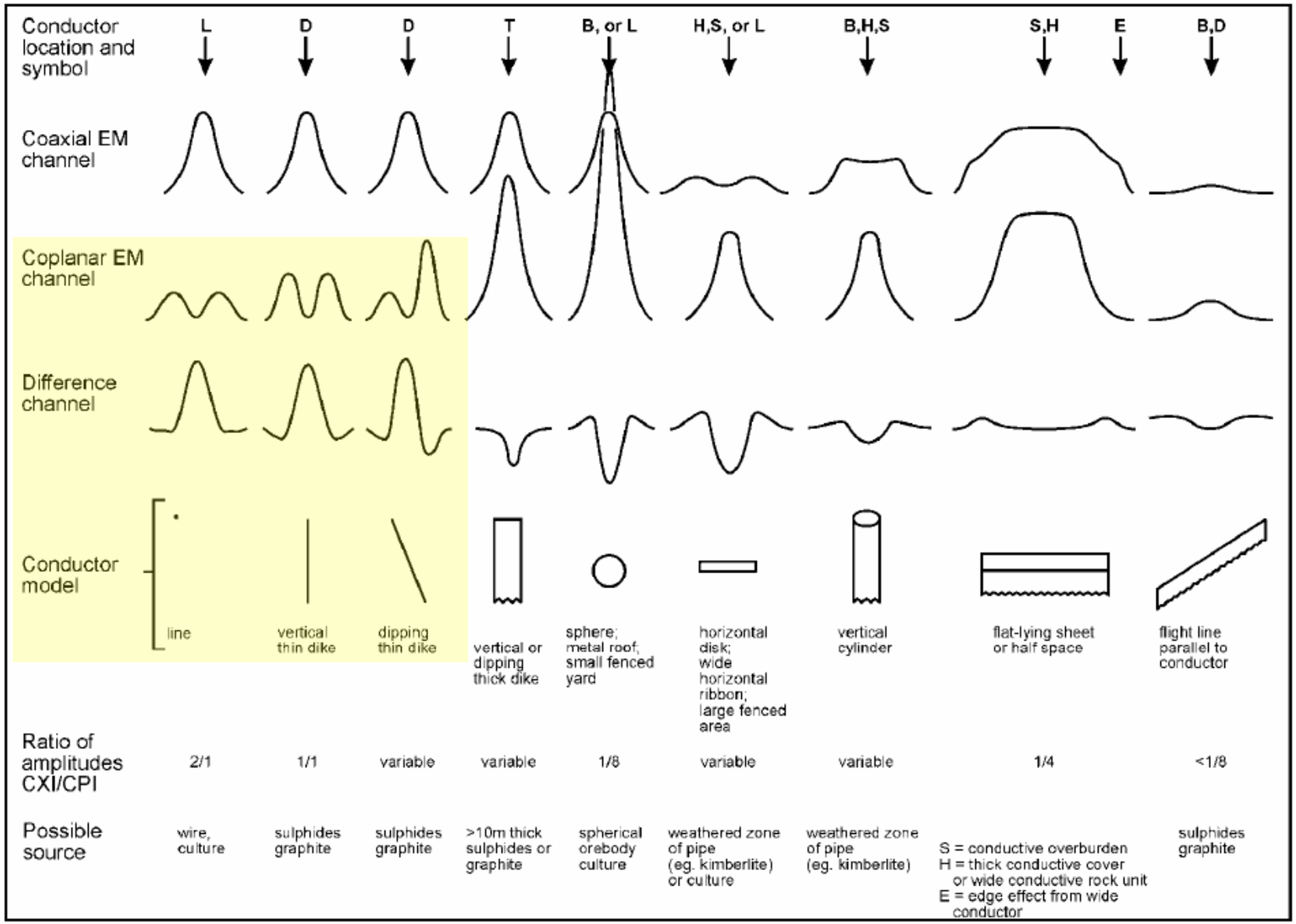


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

EM response characteristics

EM peak symbols in the upcoming slides may show double peak responses indicative of narrow tabular conductors.



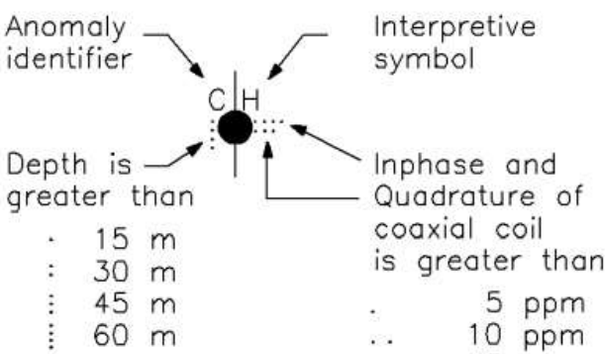
Typical HEM anomaly shapes

Fugro 2002 FDEM

EM anomaly auto picks by Fugro

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly



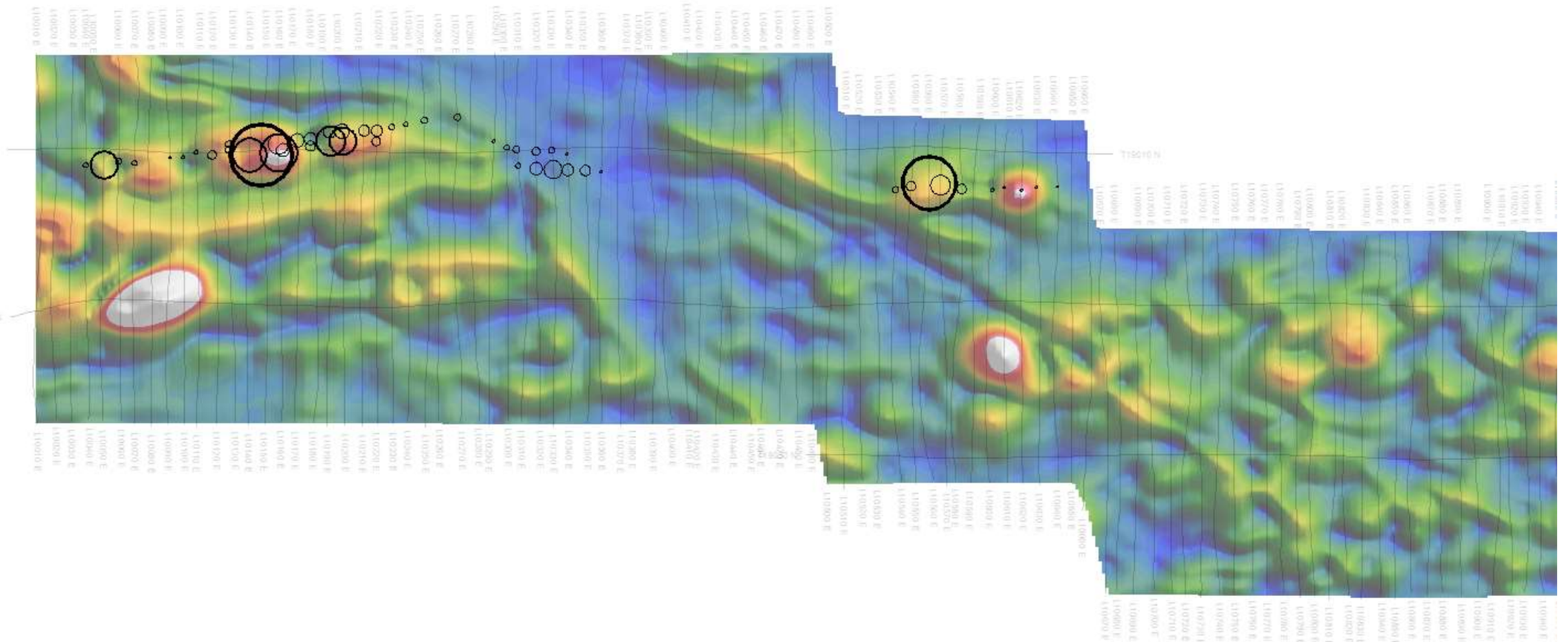
Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

EM anomaly auto picks by Fugro

Conductance: siemens
5 per mm scale
Max value: 94

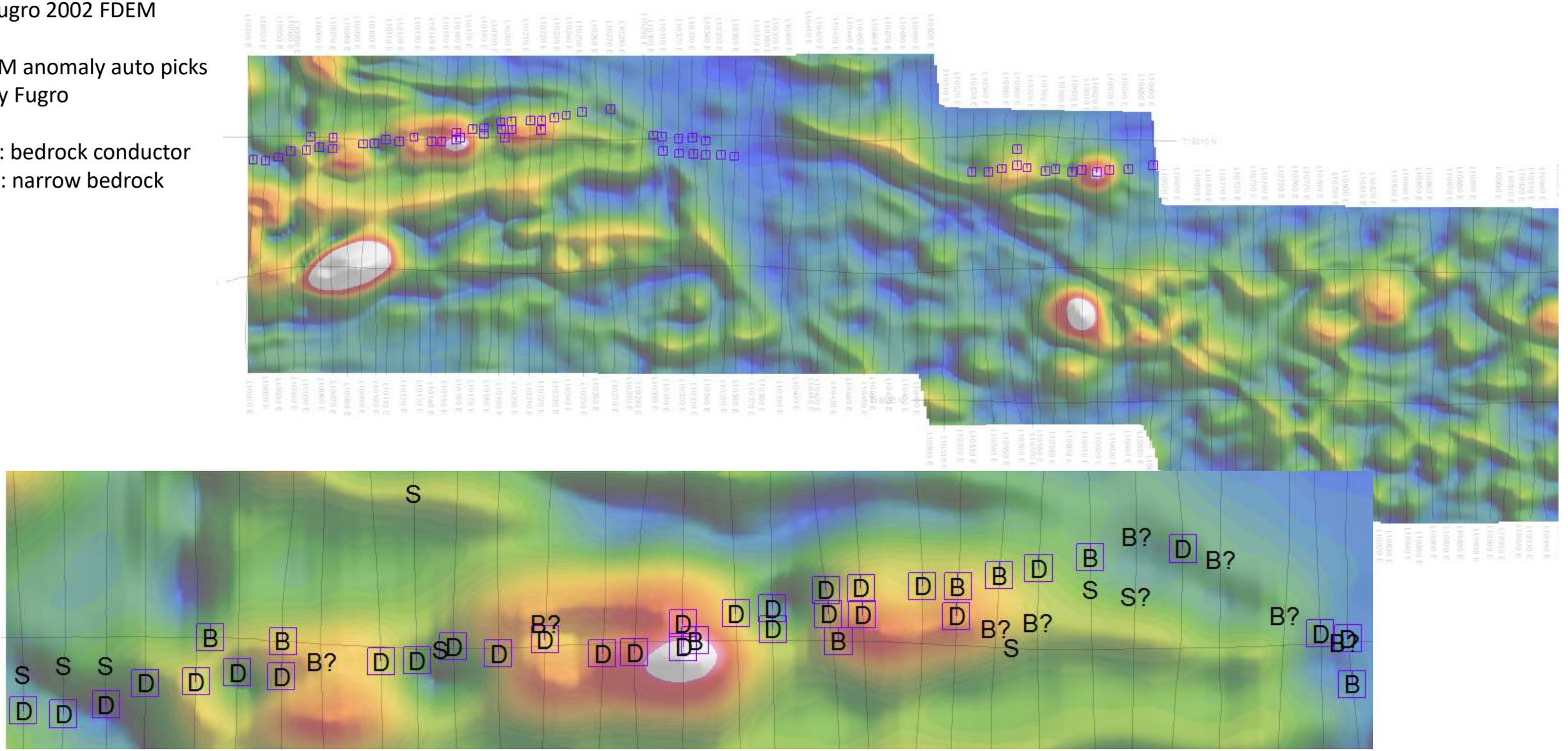


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

EM anomaly auto picks by Fugro

B: bedrock conductor
D: narrow bedrock



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

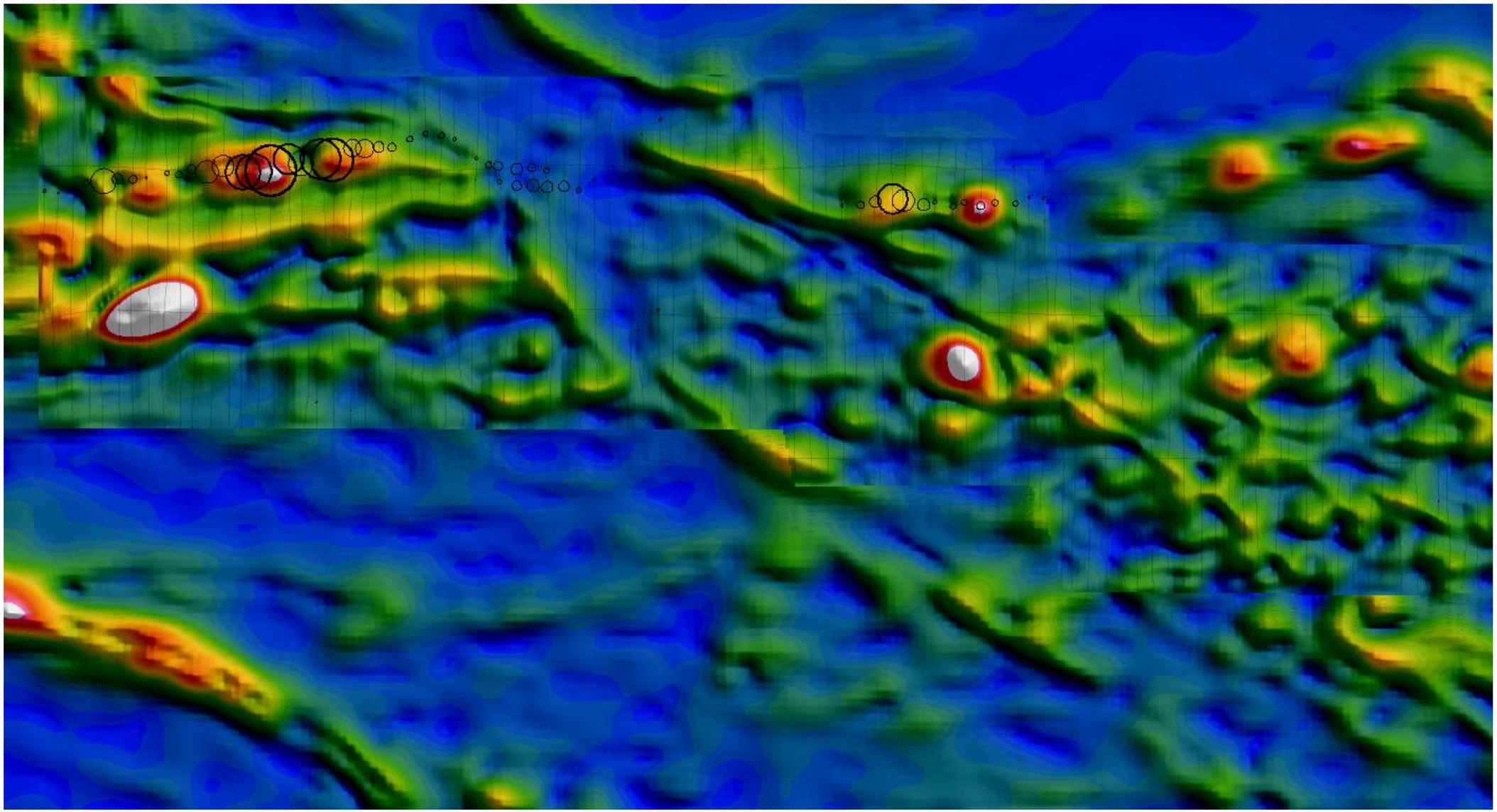
CXI900 peaks
(coaxial coils)
Scale: 5 ppm/mm

MAG MVI INV -150 m depth slice

EM responses?

Sulphides?
Faults?

900 Hz is the lowest EM frequency: deepest searching



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

CXQ900 peaks
(coaxial coils)
Scale: 5 ppm/mm

MAG MVI INV -150 m depth slice

EM responses?

Sulphides?
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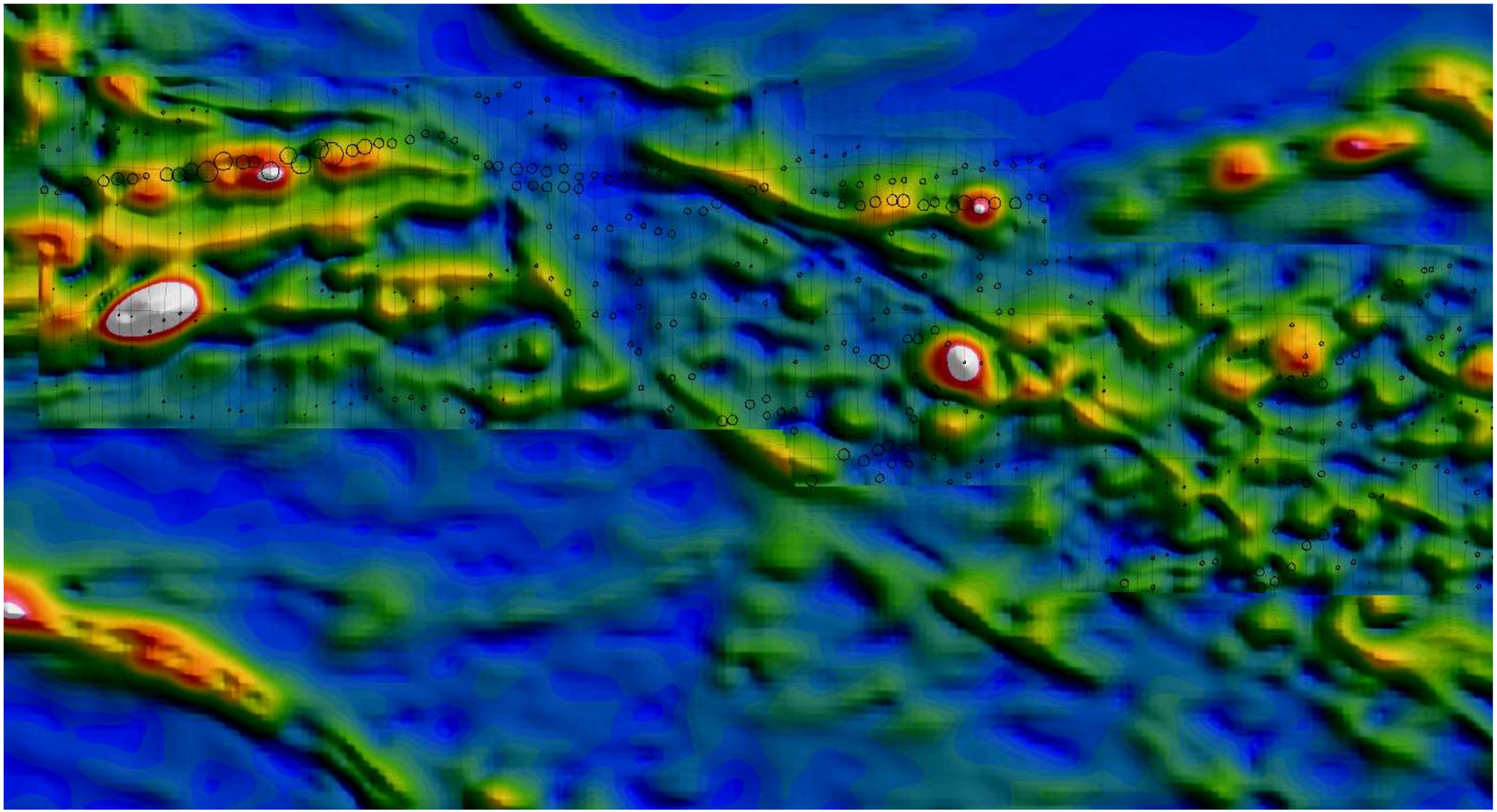


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

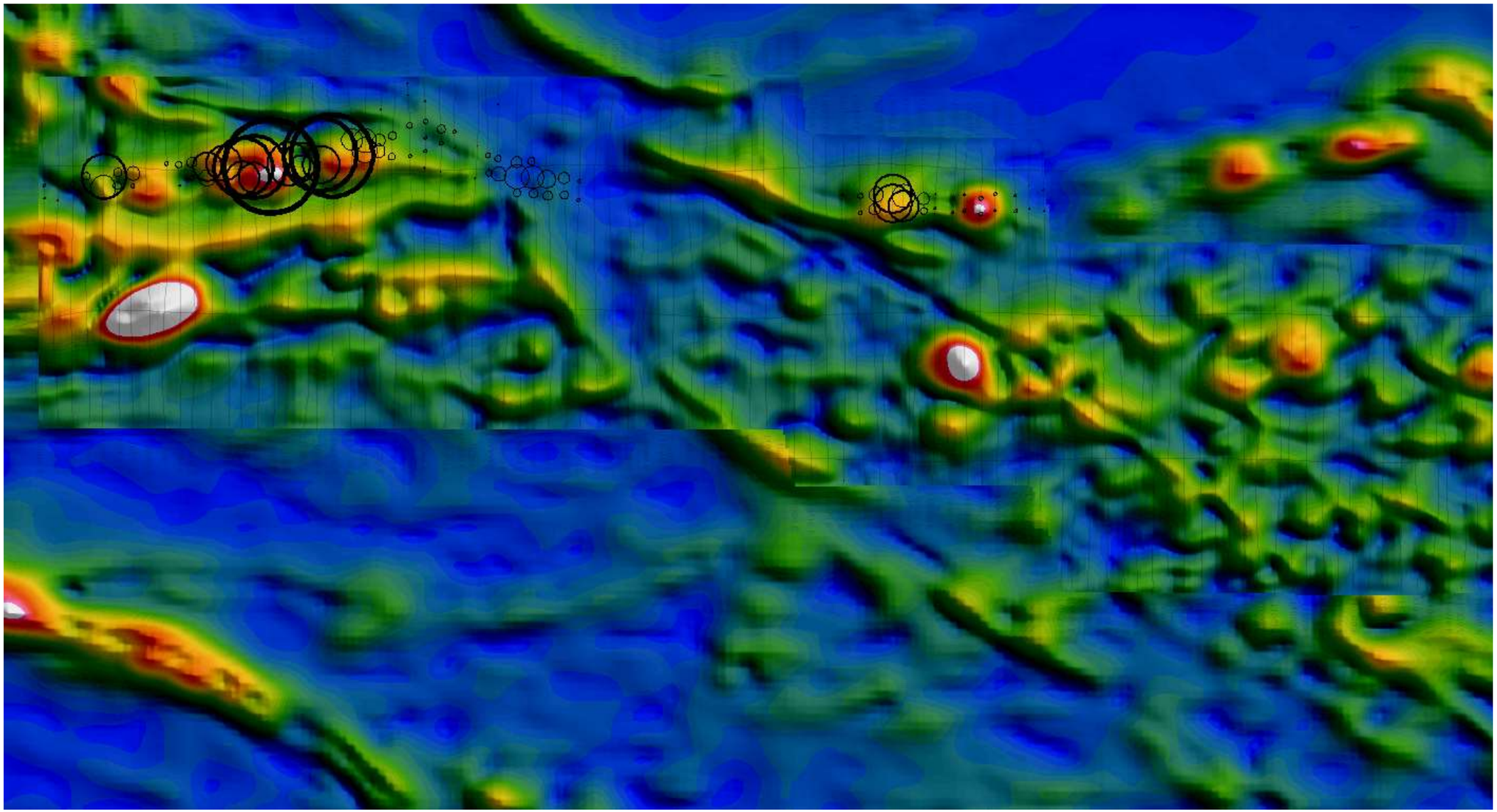
CPI900 peaks

MAG MVI INV -150 m depth slice

EM responses?

Sulphides?
Faults?

900 Hz is the lowest EM frequency: deepest searching

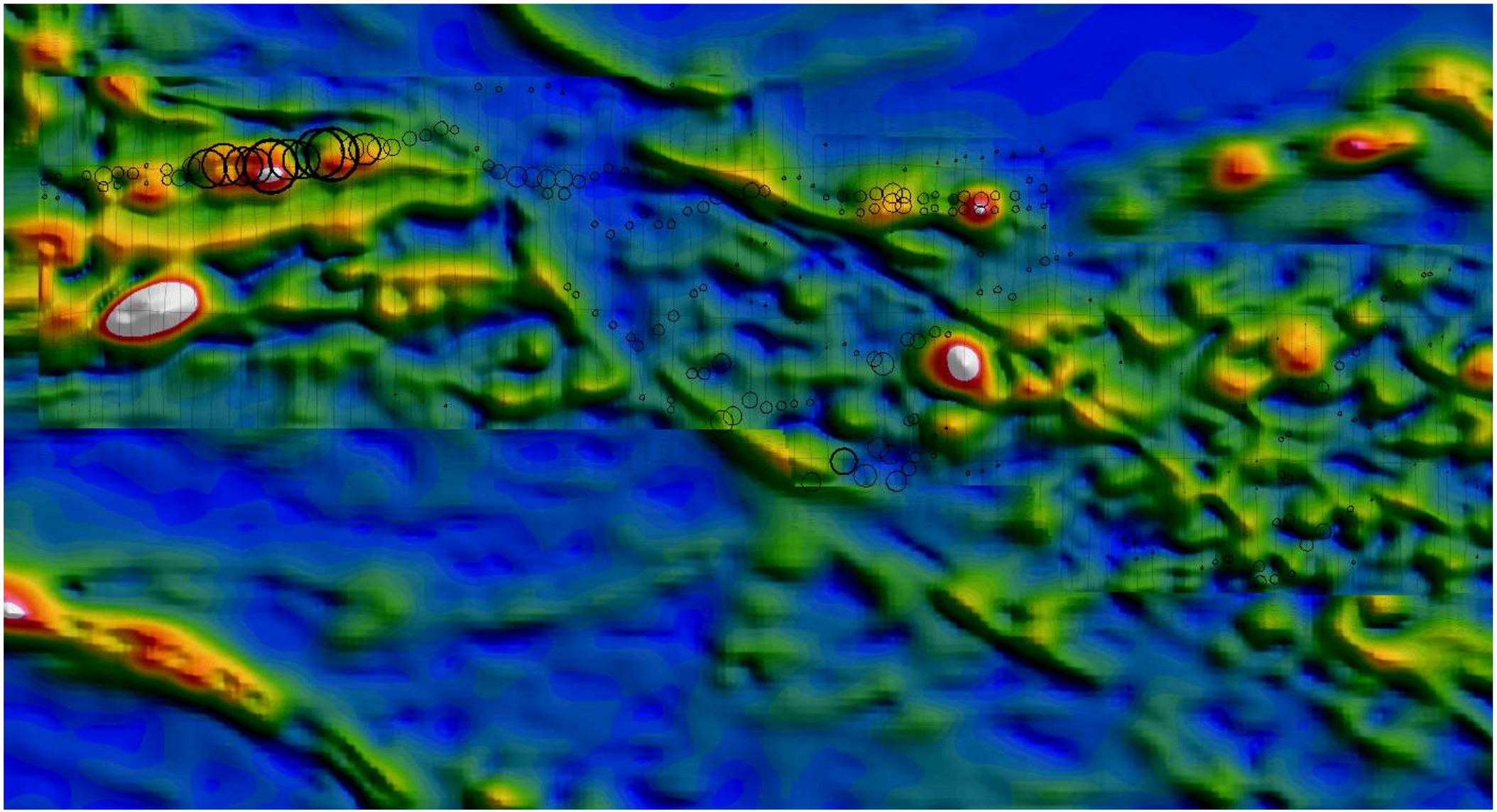


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

CPI7200 peaks

MAG MVI INV -150 m depth slice



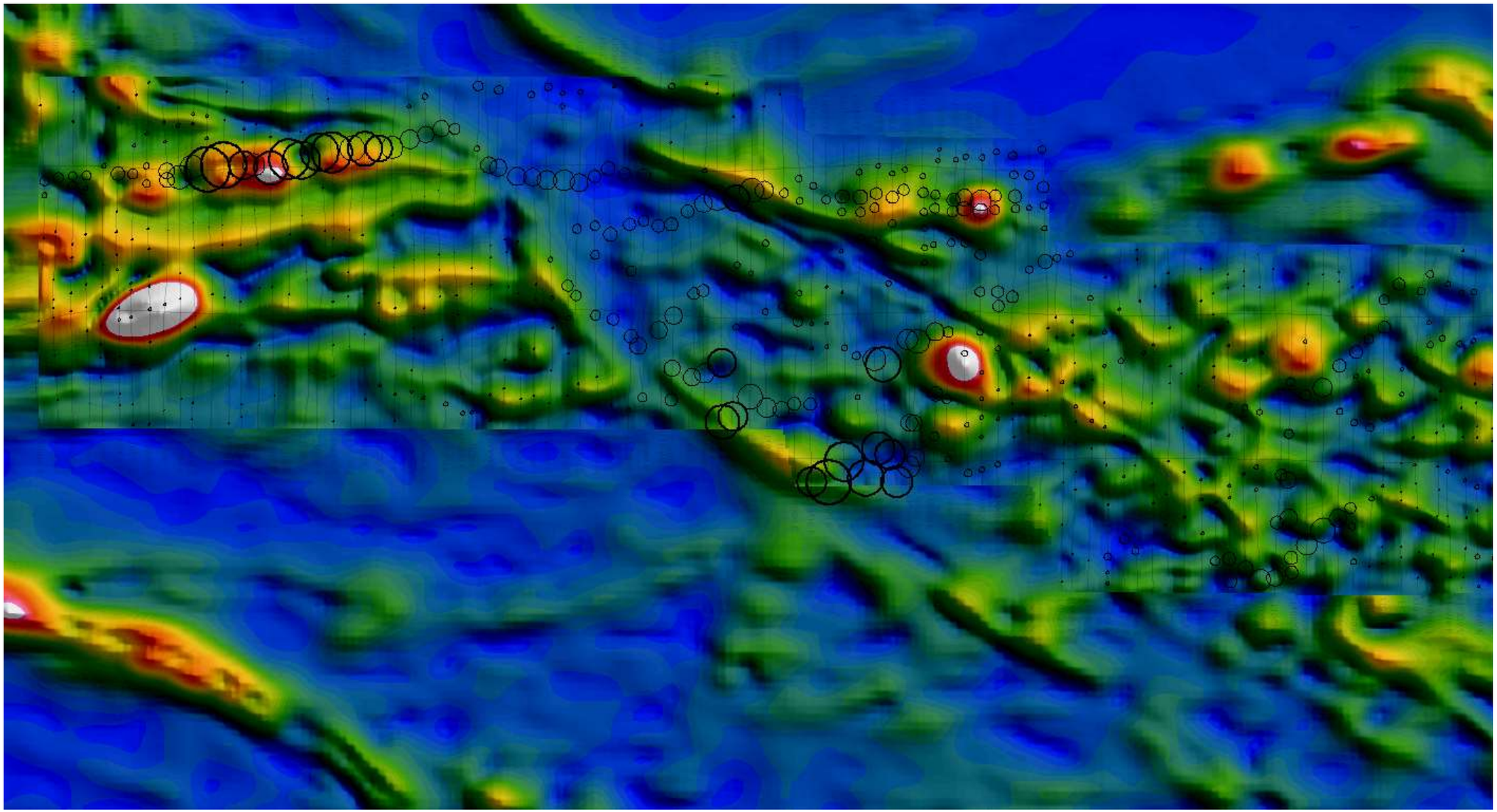
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

CPI7200 peaks*
(*minus CPI900)

MAG MVI INV -150 m depth slice

Did subtraction of CPI900 bring out any weak conductors coincident with MAG responses?

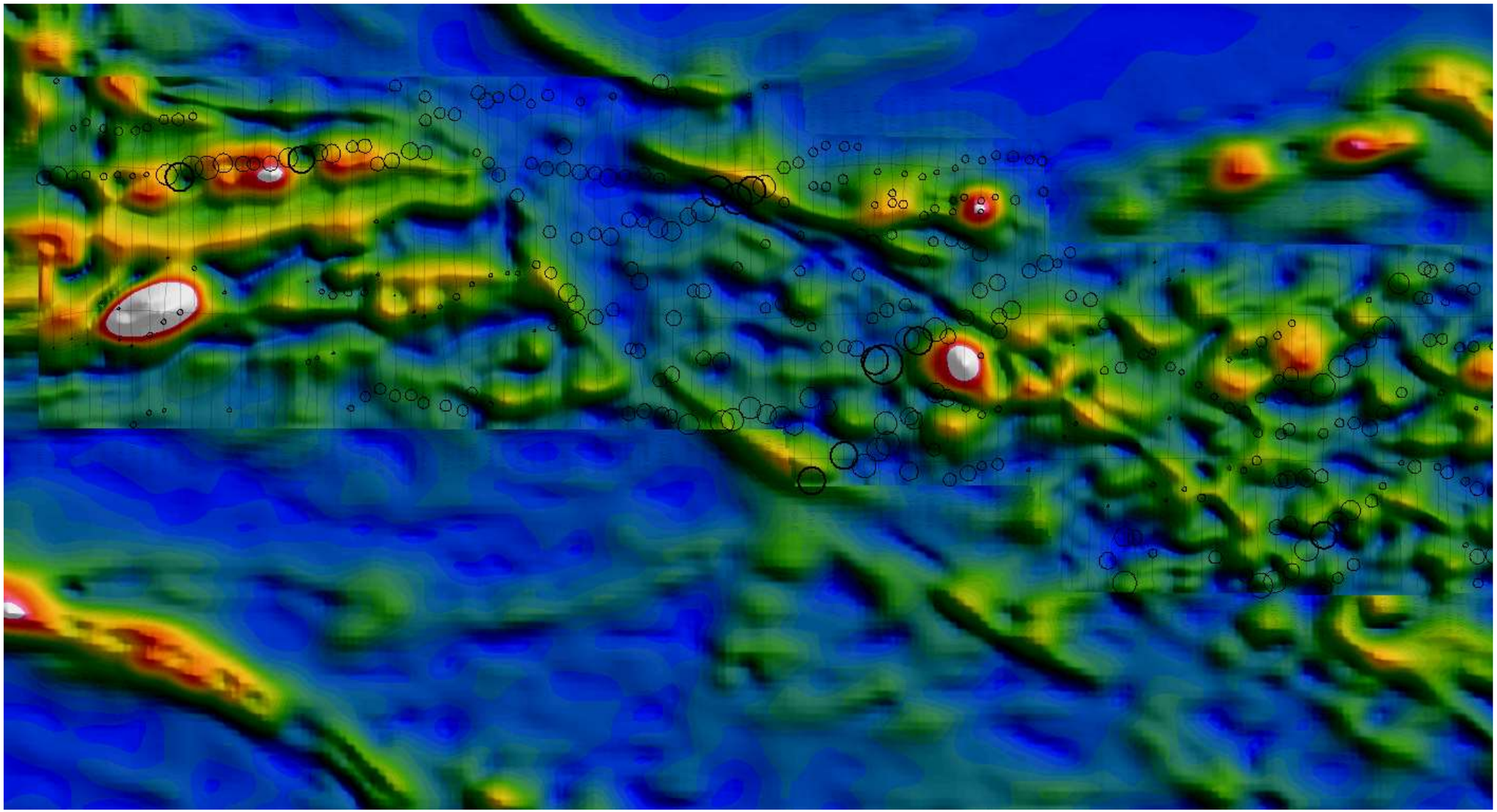


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

CPI56K peaks
56 kHz in-phase data
75 ppm/mm scale

MAG MVI INV -150 m depth slice

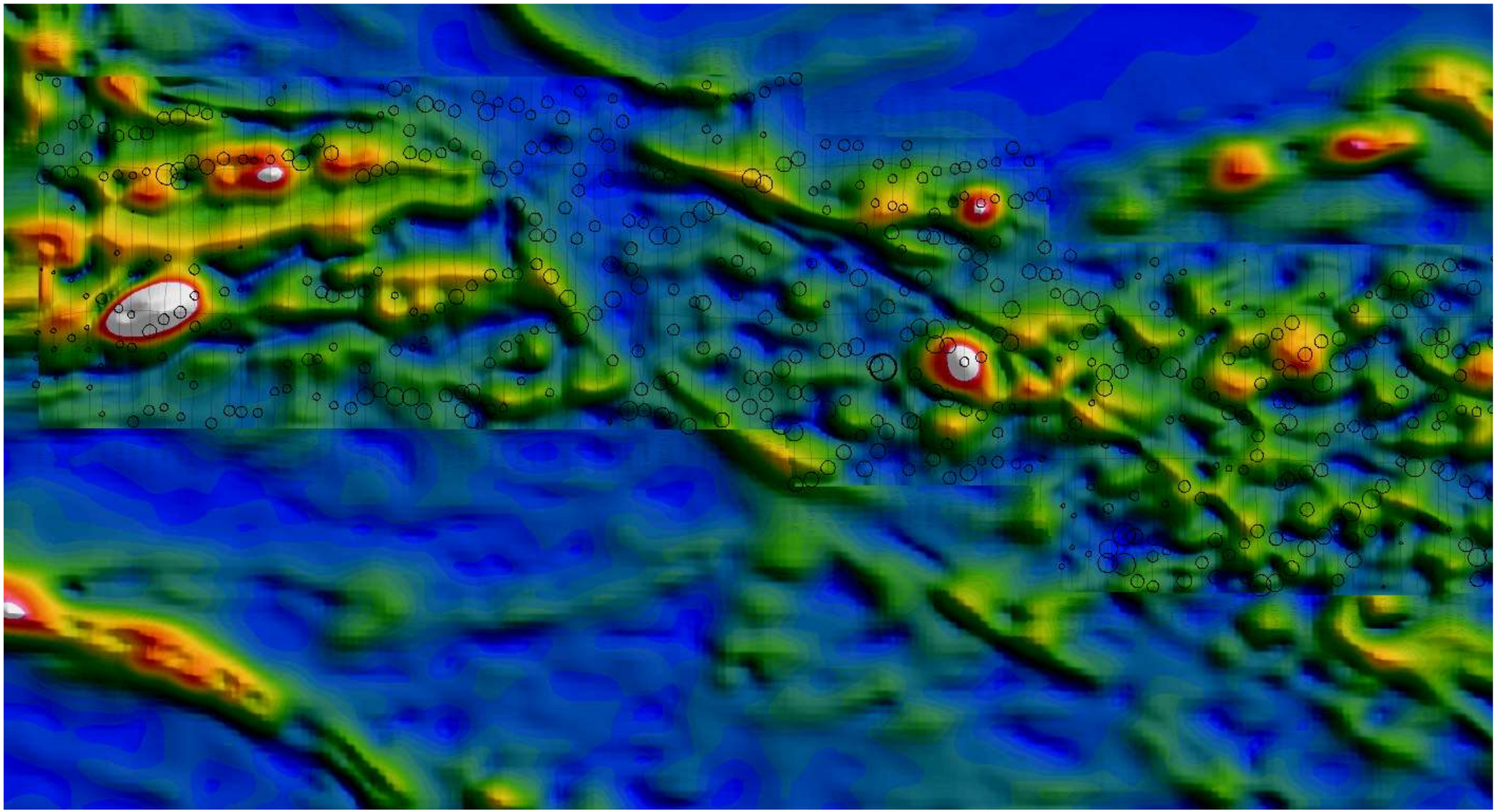


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

CPQ56K peaks
56 kHz **quadrature**
100 ppm/mm scale

MAG MVI INV -150 m depth slice



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 Fugro FDEM

Fugro 2002 FDEM

3D MAG Inversion 2002 & 2021

*DRAFT Silver Spruce – Melchett Project – Geophysics – 2002 & 2021 Airborne MAG

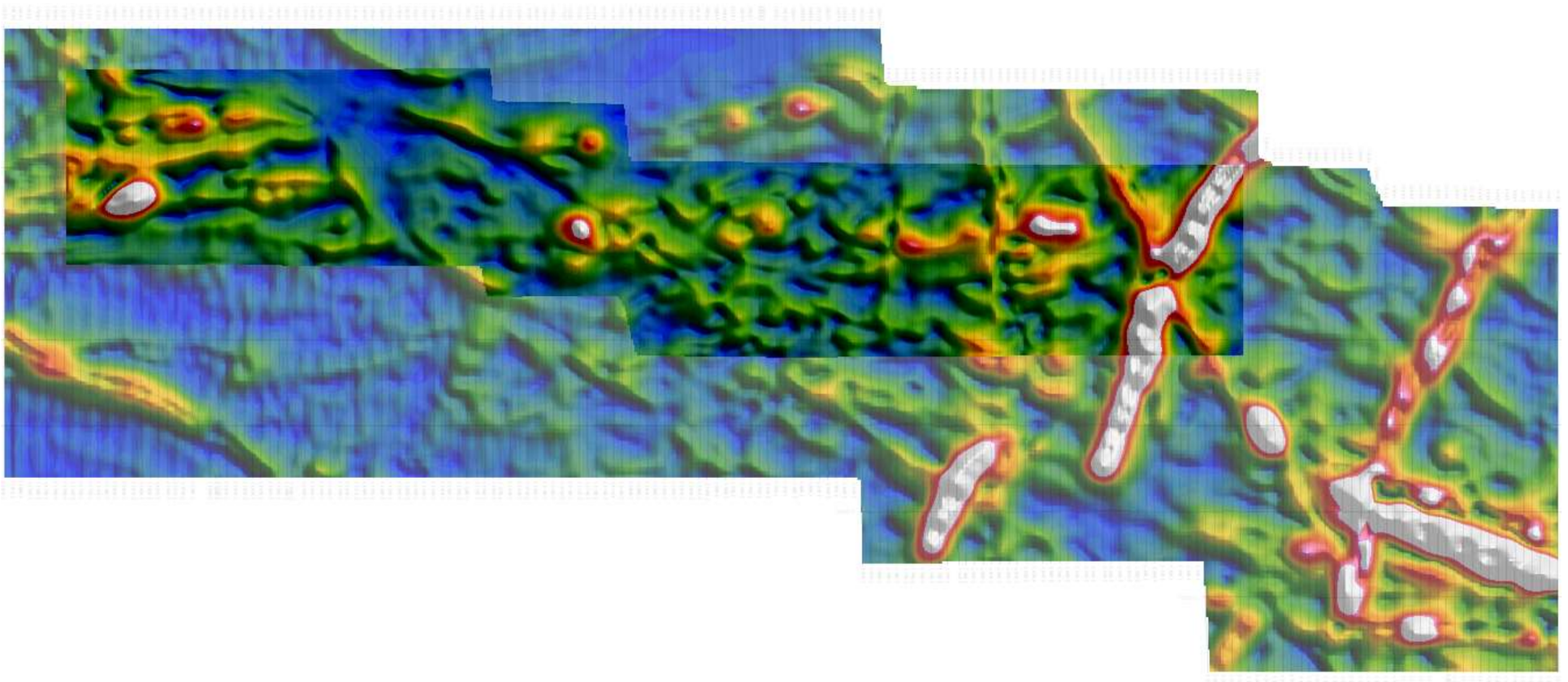
Input for MAG inversion:

Fugro 2002 @ 100 m lines @ 34 m mean height (**mesh: 40x20m cells**) >above MPX model

MPX 2021 @ 100 m lines @ 66 m mean height (**mesh: 50x50m cells**) >semi-transparent below Fugro

MVI magnetization vector intensity models were produced using iterative re-weighting (IRI) of 4 passes. This produces 5 inversion models.

IRI000: original model
IRI001: sharpened previous model
IRI002: sharpened previous model
IRI003: sharpened previous model
IRI004: sharpened **final model**



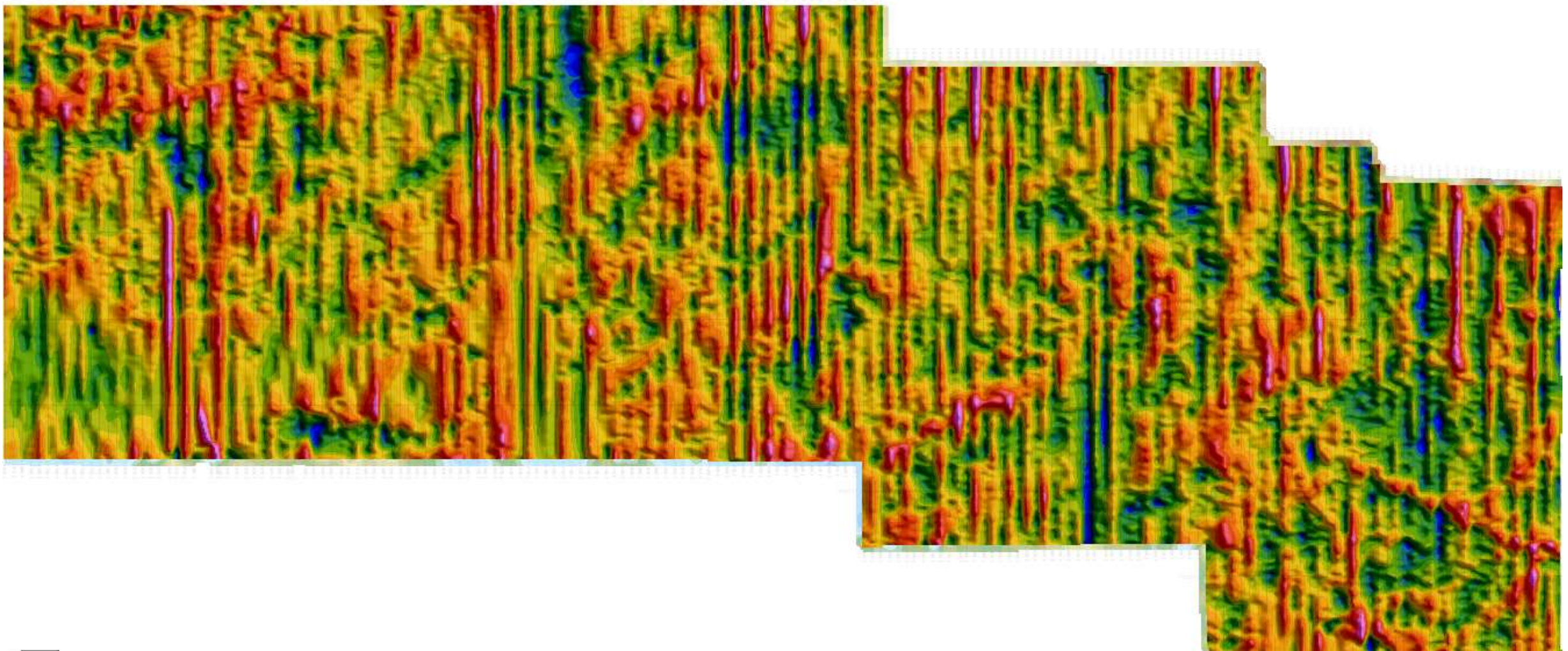
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

Input for MAG inversion:

1st model: MPX 2021 @ 100 m lines @ radar altitude height using non-levelled MAG channel

2nd model: MPX 2021 @ 100 m lines @ 66 m mean height using levelled MAG channel

It is ideal to use non-levelled magnetic data and the survey height above ground. This preserves the relationship between MAG amplitude and height (distance) from source. When data are “levelled” the amplitudes are shifted up and down to match nearby lines and so the radar heights no longer have the direct relationship. Radar height grid shown below using linear colour bar between 40 and 100 m limits.



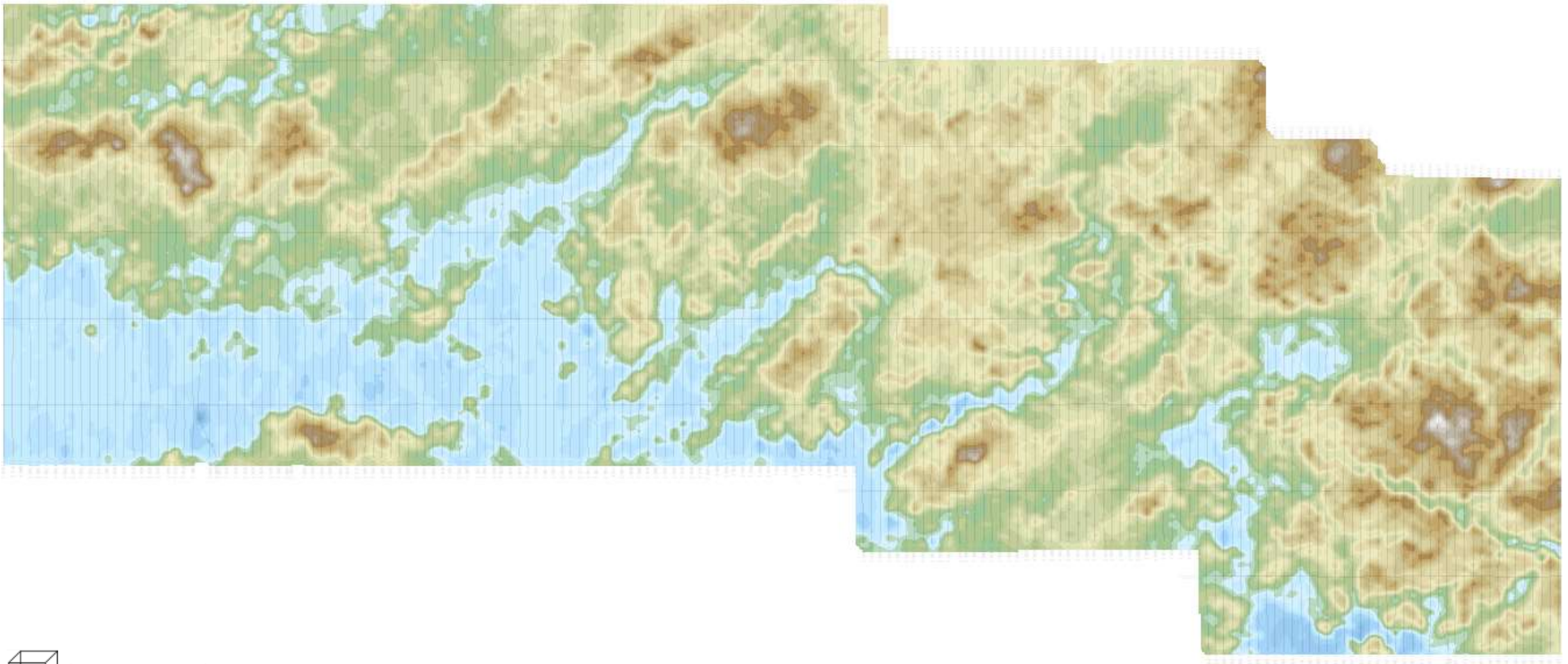
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

Input for MAG inversion:

1st model: MPX 2021 @ 100 m lines @ radar altitude height using non-levelled MAG channel

2nd model: MPX 2021 @ 100 m lines @ 66 m mean height using levelled MAG channel

It is ideal to use non-levelled magnetic data and the survey height above ground. This preserves the relationship between MAG amplitude and height (distance) from source. When data are “levelled” the amplitudes are shifted up and down to match nearby lines and so the radar heights no longer have the direct relationship. **Calculated DEM grid shown below using linear colour bar between 250 to 320 m limits**.

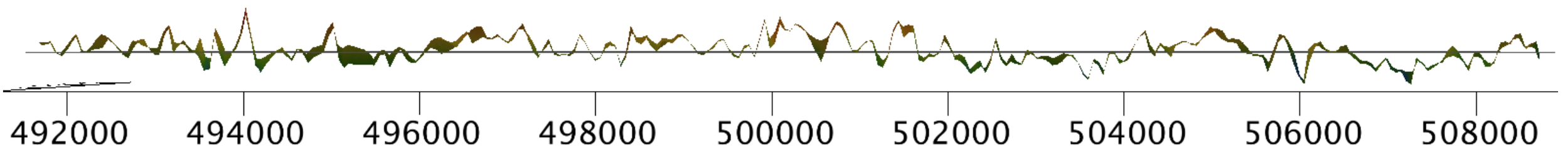


Input for MAG inversion:

2nd model: MPX 2021 @ 100 m lines @ 66 m mean height using levelled MAG channel

It is ideal to use non-levelled magnetic data and the survey height above ground. This preserves the relationship between MAG amplitude and height (distance) from source. When data are “levelled” the amplitudes are shifted up and down to match nearby lines and so the radar heights no longer have the direct relationship. Radar height grid shown as topographic relief and sliced through the gird viewing to the north. There is a 66 m plane plotted in order to show the deviation above and below this average radar value.

The 2nd model uses this fixed height above ground and the levelled data as input. Given the direct relationship between MAG amplitude and height above ground, the use of an average height above ground should be seen as a poor reference. It may yield a better-looking magnetic inversion model, but the depth to source of features can expected to be compromised in the shallow depths.

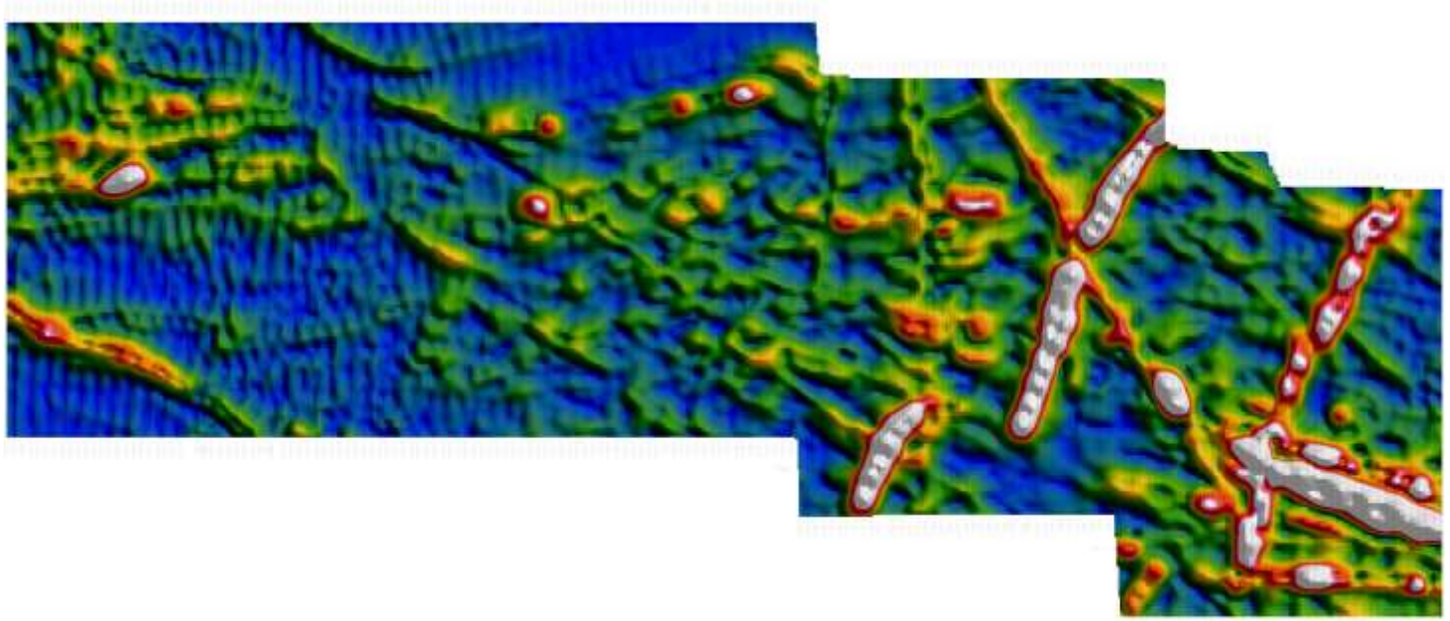


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MAG inversion: **-150 m depth slice**

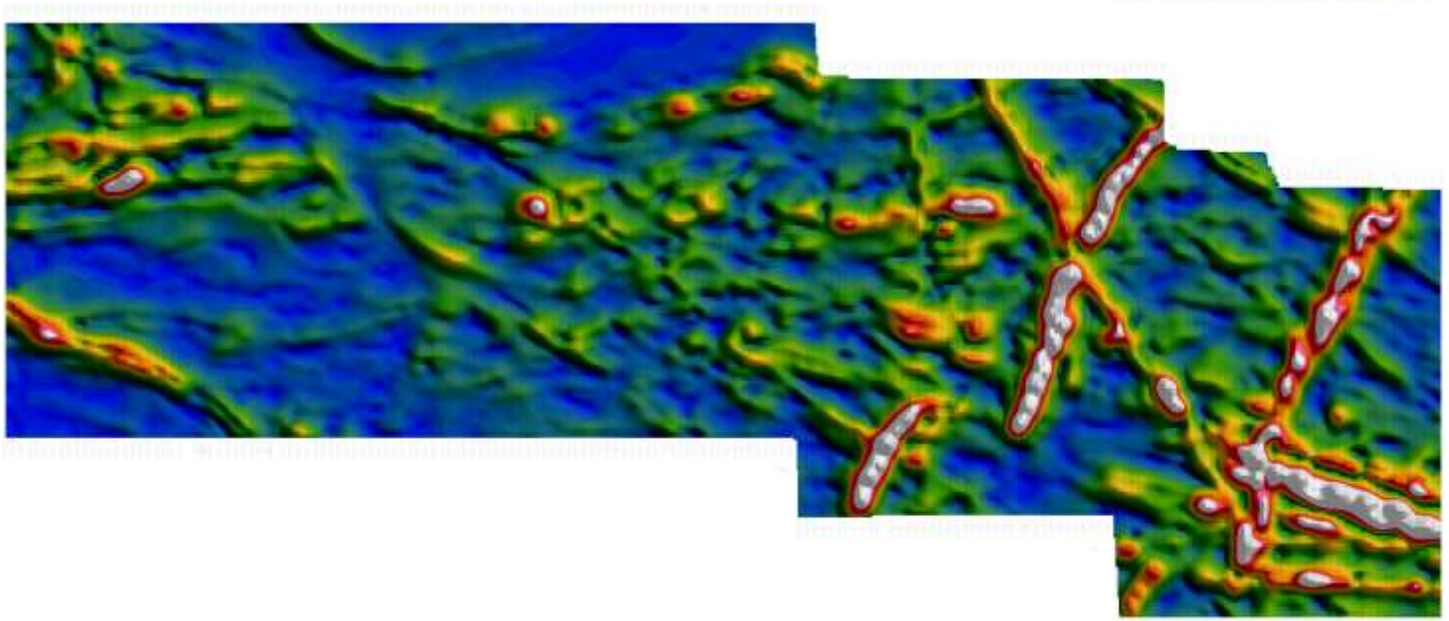
1st model: MPX 2021 @ 100 m lines @ radar altitude height using non-levelled MAG channel

*lots of N-S artifacts in the data/model – it's odd that this noisy character is mainly on the western portion of the survey. Perhaps the data processing/levelling was slightly different across the survey area.



2nd model: MPX 2021 @ 100 m lines @ 66 m mean height using levelled MAG channel

Clear improvements on the line-to-line noise in the 1st model.

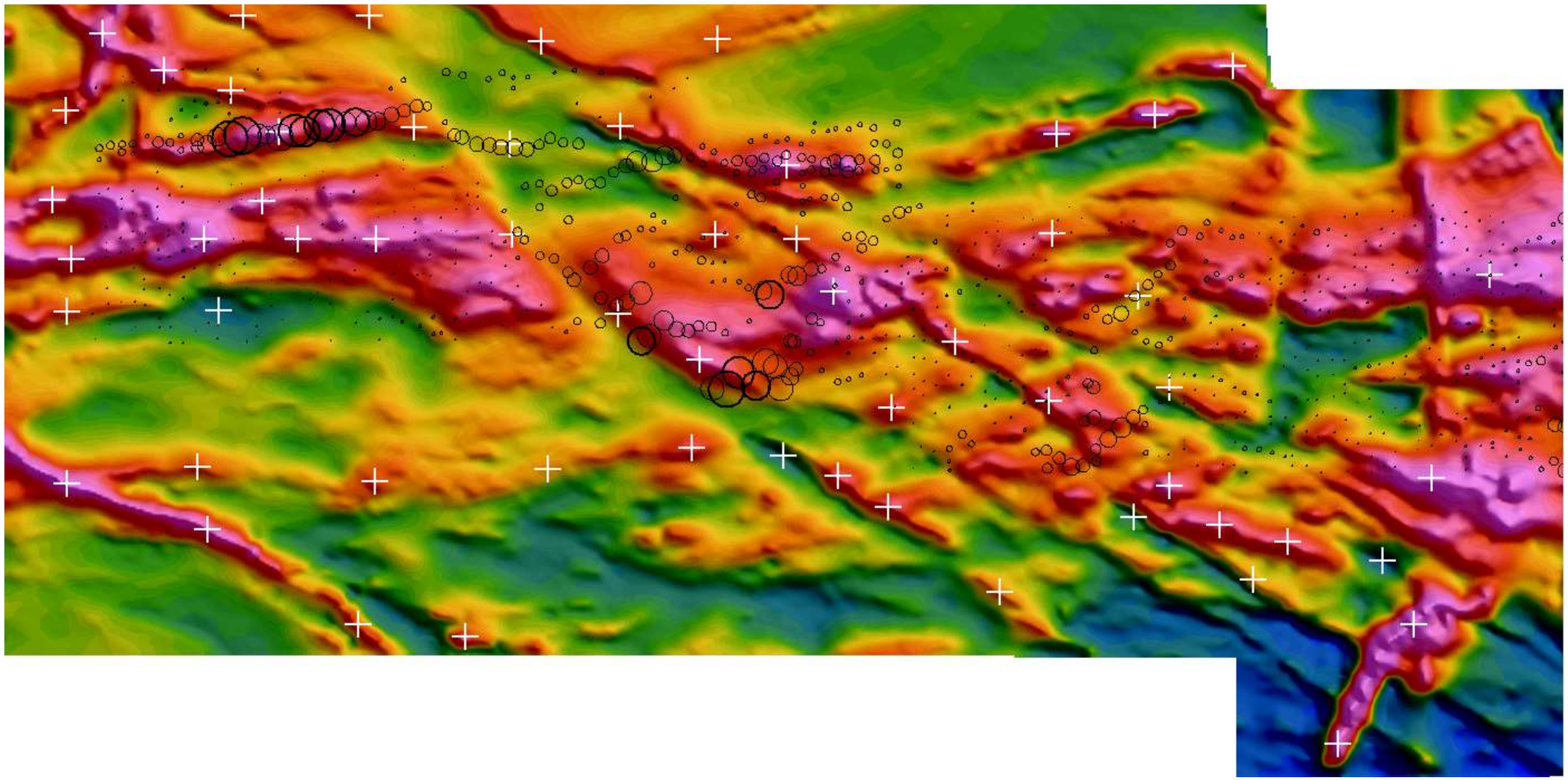


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MAG RTP data will be followed by MVI and SUS inversion slices at -150m.

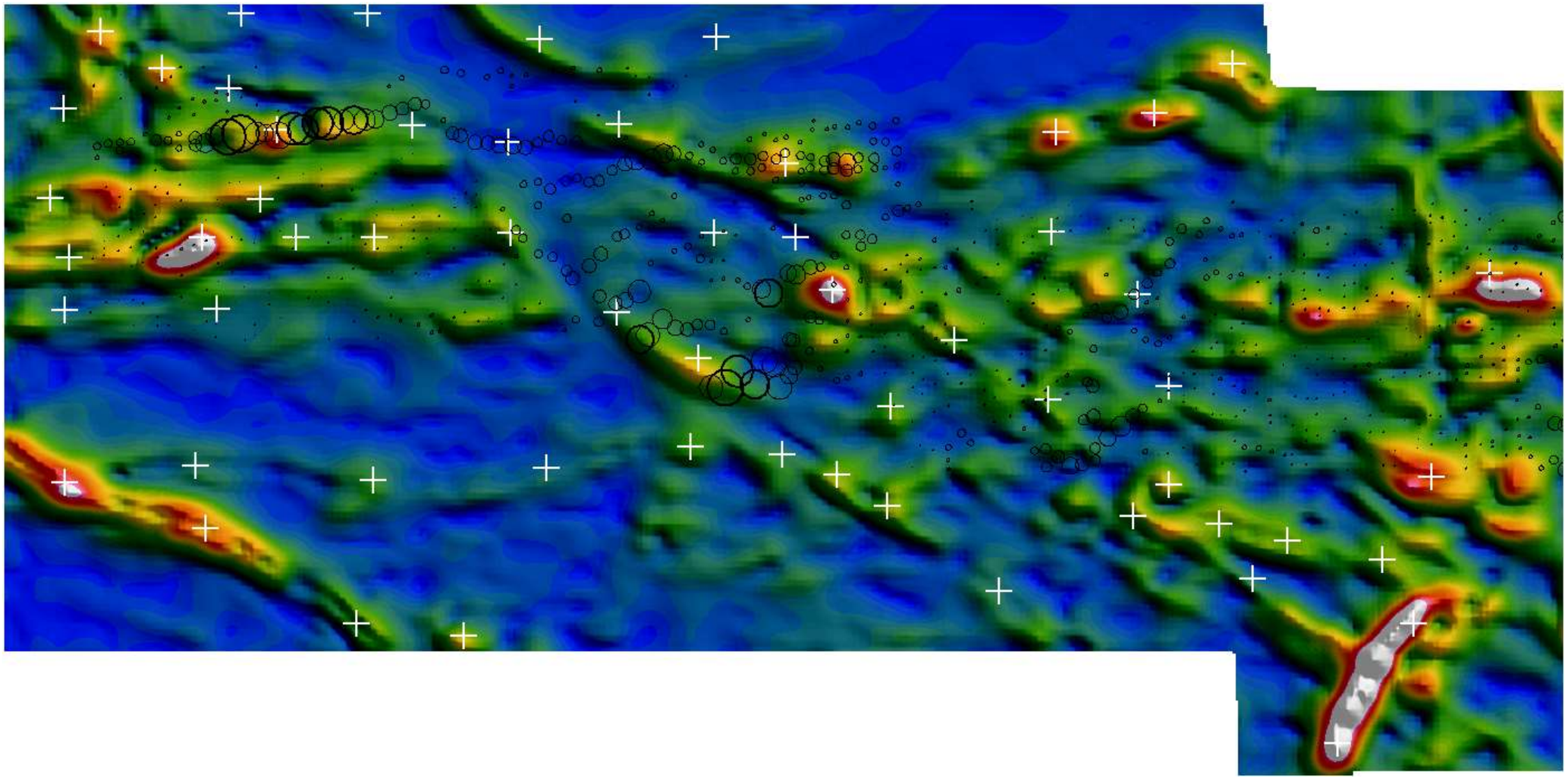
When magnetic remanence exists conventional magnetic susceptibility inversion invokes unrealistic geometry to the magnetic susceptibility distribution in order to reproduce the survey data. Susceptibility inversions also do this by using negative magnetic susceptibilities which don't exist.

The white crosses are for reference between the RTP, MVI and SUS images.



MAG inversion:
-150 m depth slice

MAG MVI

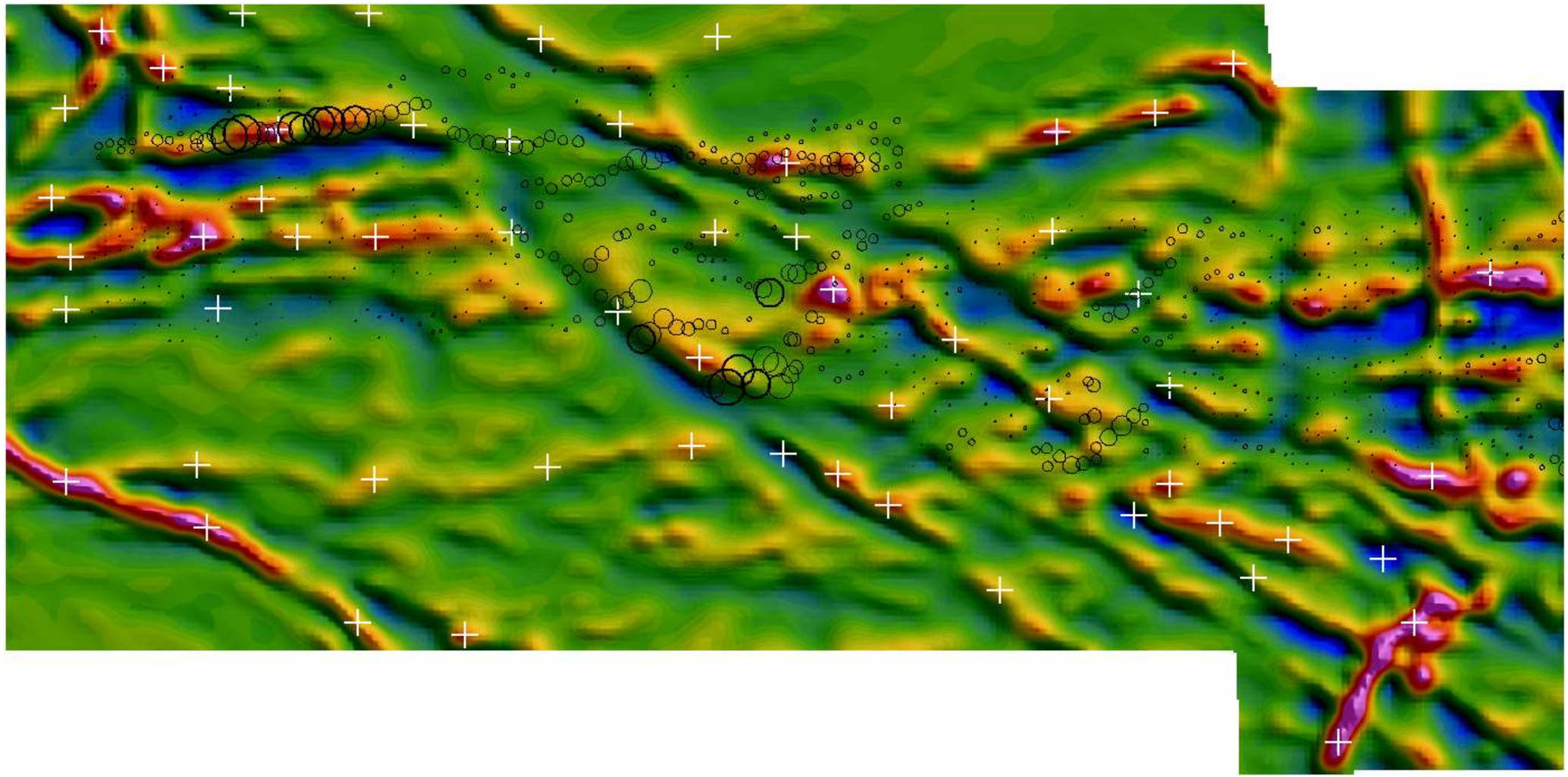


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MAG inversion:
-150 m depth slice

MAG SUS

In areas where the SUS model agrees with the MVI model then it may be preferable to use the SUS model as they typically have better resolution of features. But one does need to be careful nonetheless.

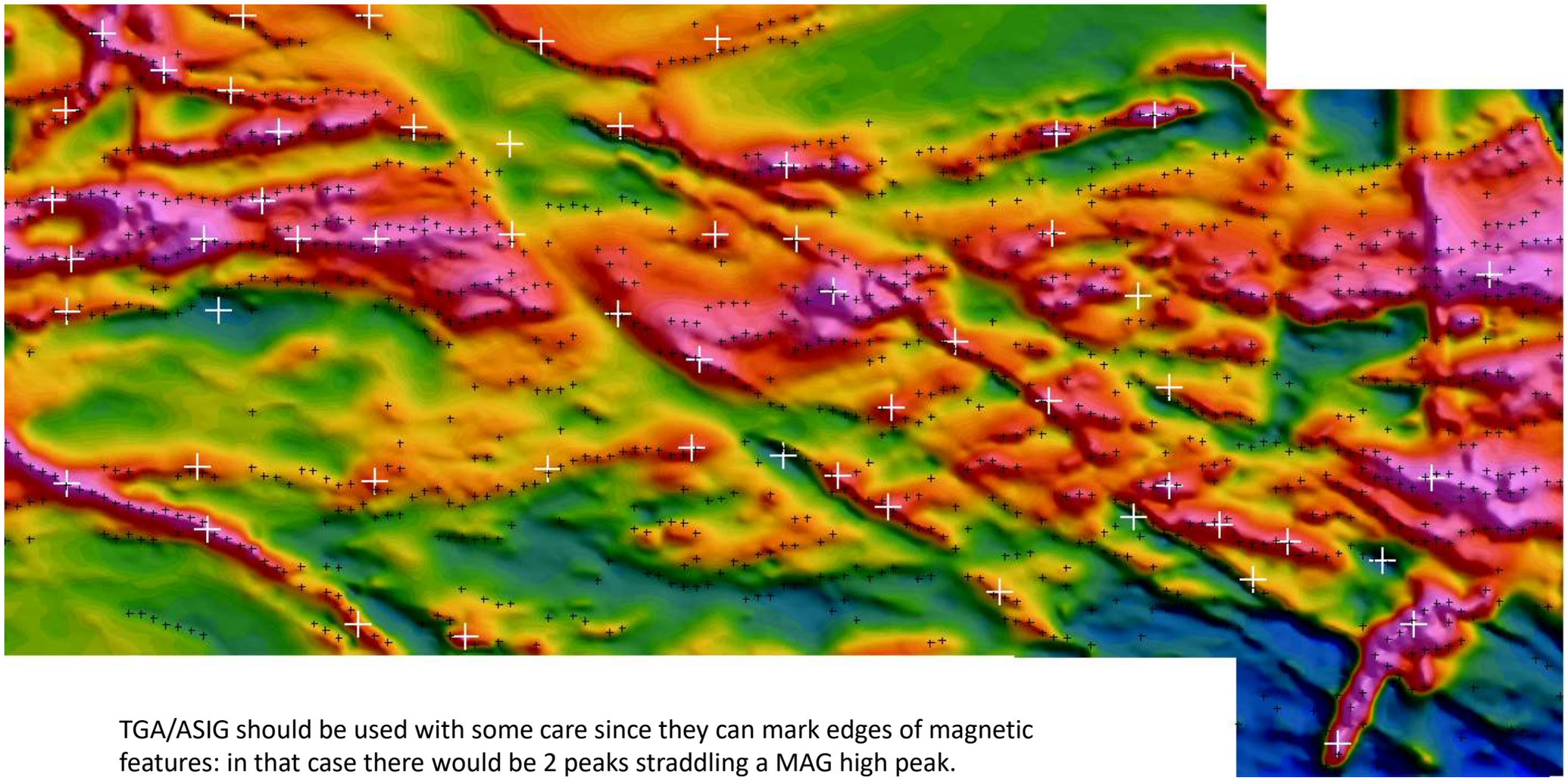


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MAG RTP data will be followed by MVI and SUS inversion slices at -250m.

ASIG (analytic signal is a 2D i.e., profile-based filter) and is essentially the same as TGA (total gradient amplitude which is more of a 3D product). **ASIG peaks (+) are noted for inversion comparison**. ASIG peaks generated automatically from an anomaly picker and 0.22 amplitude cut off.

When there is no magnetic remanence RTP and TGA/ASIG should agree well. Subsurface geometry of features will also play a role in distorting the RTP response.

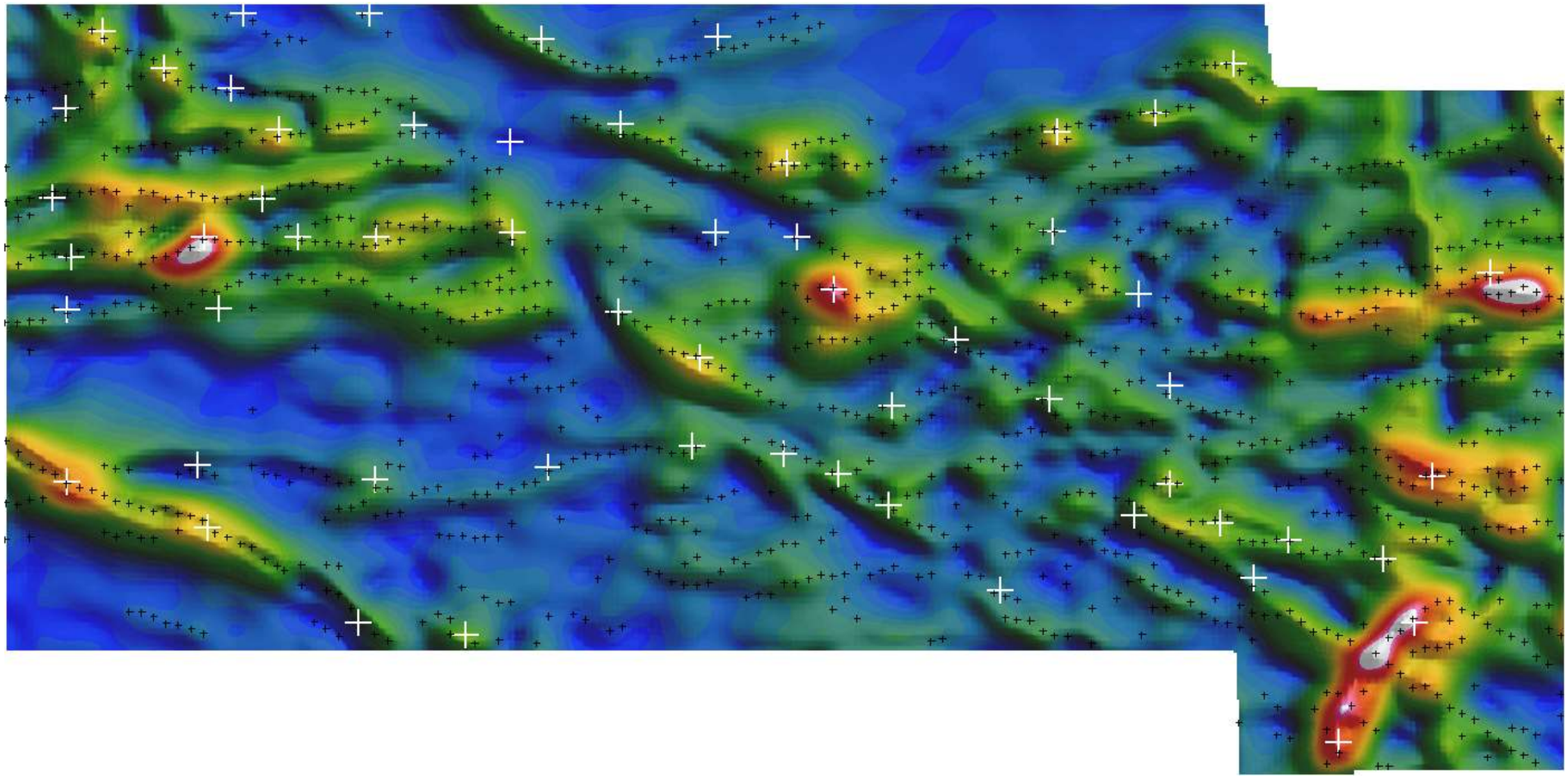


TGA/ASIG should be used with some care since they can mark edges of magnetic features: in that case there would be 2 peaks straddling a MAG high peak.

See example slide

MAG inversion:
-250 m depth slice

MAG MVI

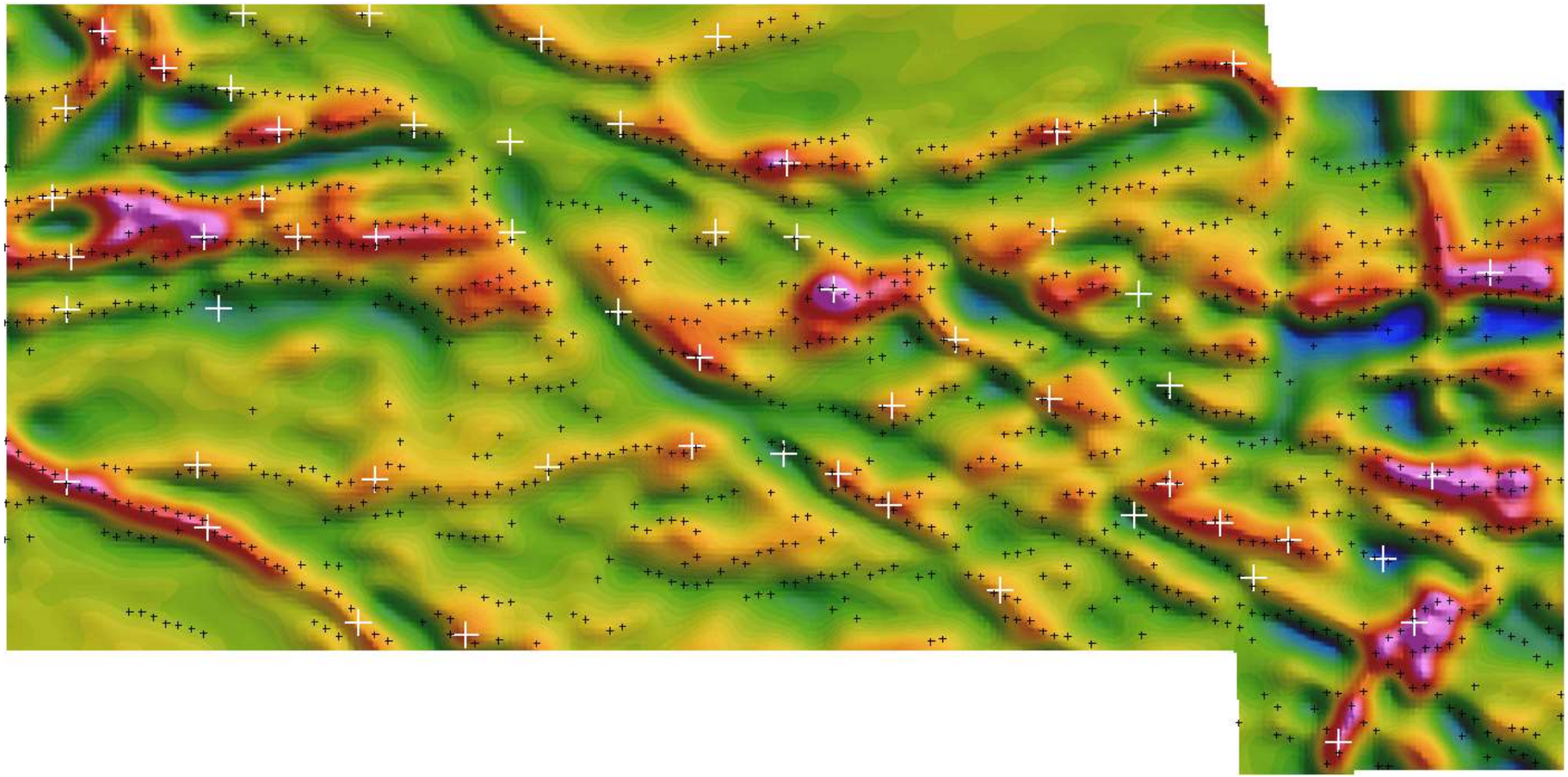


*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MAG inversion:
-250 m depth slice

MAG SUS

In areas where the SUS model agrees with the MVI model then it may be preferable to use the SUS model as they typically have better resolution of features. But one does need to be careful nonetheless.



Geophysics – MAGNETICS

Using Analytic Signal (ASIG) on profile data

Simplifies the MAG response and can be thought of "as a map of magnetization in the ground". Some care must be taken to interpret whether a peak represents the edge of a source or is centered on the source. The width of the magnetic source plays a role in this. Note in the examples on the right the source is a depth limited prism. In the ASIG center and bottom images the peaks are representing the edges of the prism.

Generally, my preferred data naming is ASIG for profile data (i.e., 1D line data filter) and TGA (total gradient amplitude) for gridded data (i.e., 2D grid filtering). Essentially, they are the same except that ASIG was designed/purposed for filtering line data and extended to grid filtering.

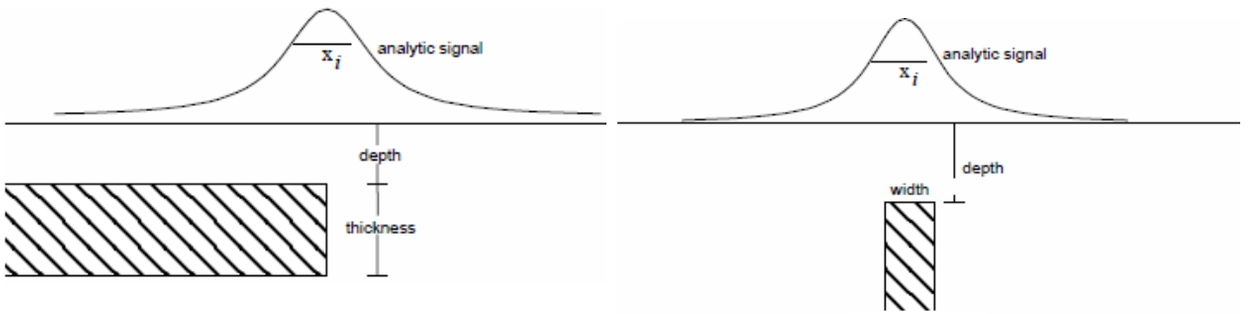


Figure 3. The analytic signal of the total magnetic field produces similar results regardless of the direction of magnetization. In this case, the analytic signal is shown for the same model used in Figure 2, under the same magnetic conditions. Note that the analytic signal peaks over the edges of the model, and the amplitude of the peak is proportional to the magnetization at that edge.

3-D Analytic Signal in the Interpretation of Total Magnetic Field Data at Low Magnetic Latitudes

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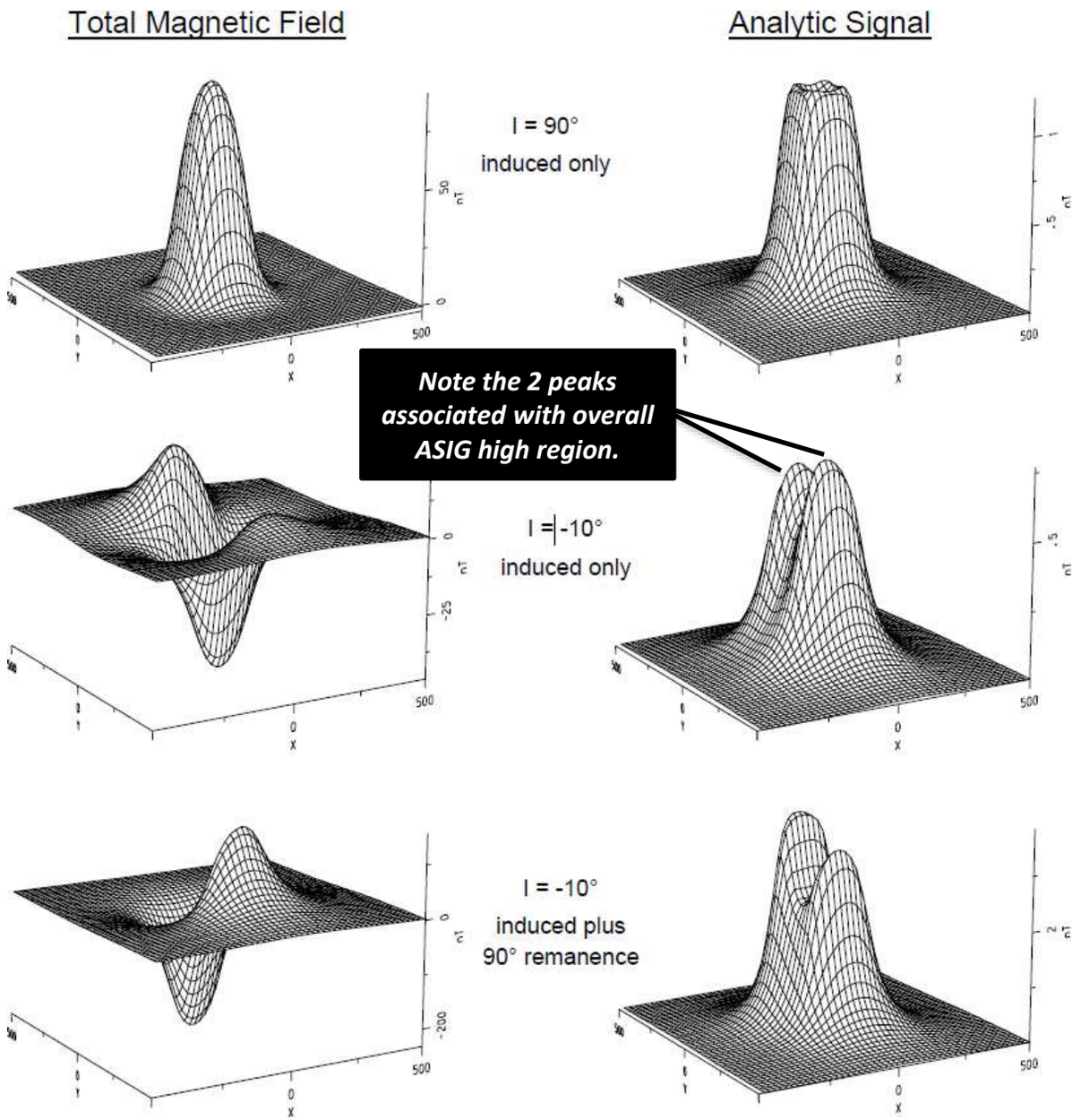
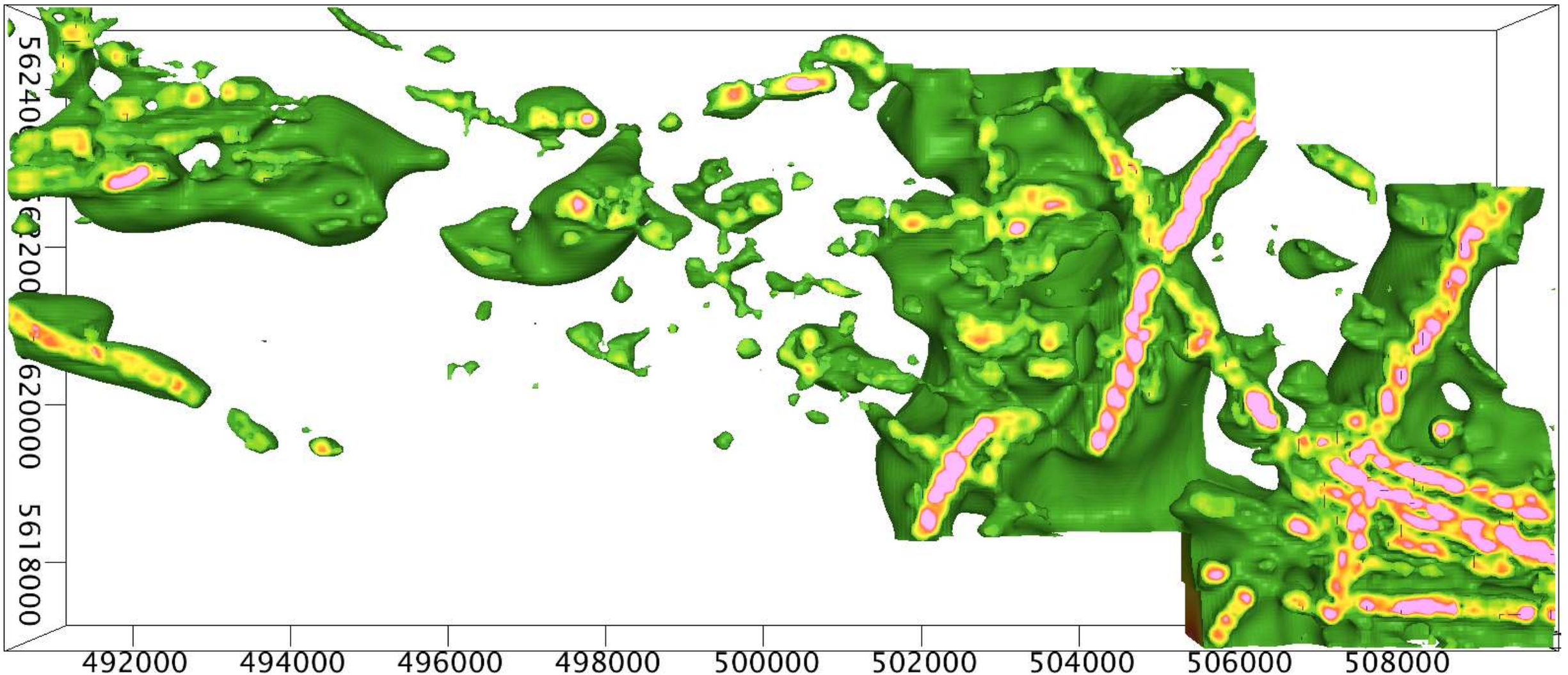


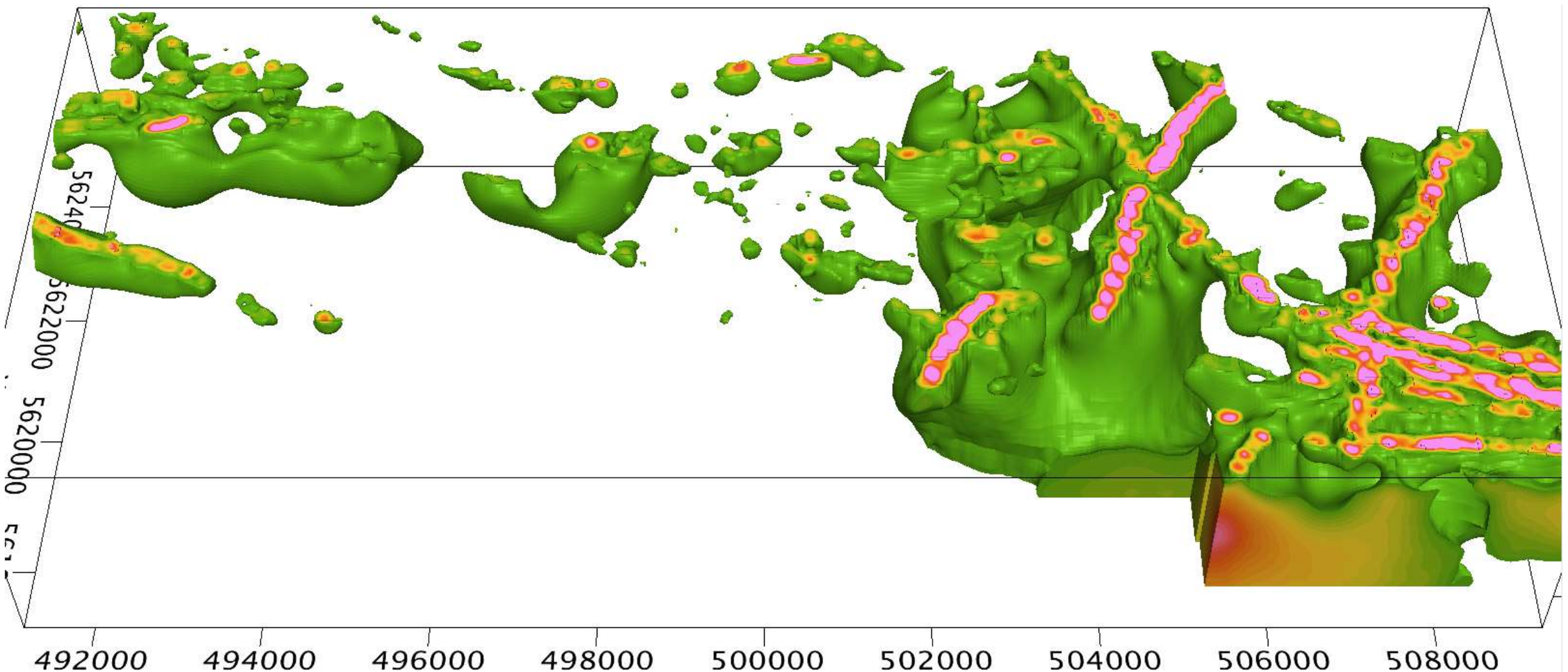
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MPX 3D MAG **MVI inversion** isosurface 0.003 SI



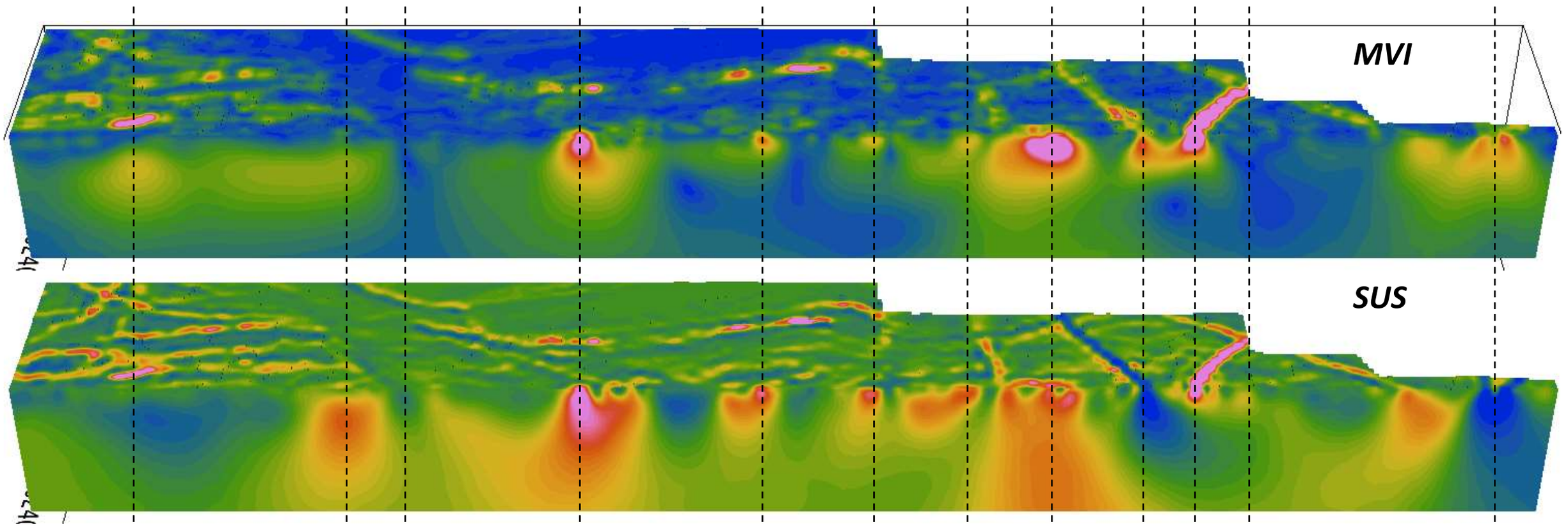
*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MPX 3D MAG **MVI inversion** isosurface 0.0035 SI



*DRAFT Silver Spruce – Melchett Project – Geophysics – 2021 Airborne MAG

MPX 3D MAG **MVI vs. SUS** inversion sections along 5622410 N. When magnetic remanence is prominent the SUS can be quite wrong. Strong negative MAG SUS is a flag that there may be magnetic remanence involved.



MPX 3D MAG MVI inversion isosurface 0.0035 SI

This document is organized in **labelled sections. The section divisions can only be seen in the downloaded version.**

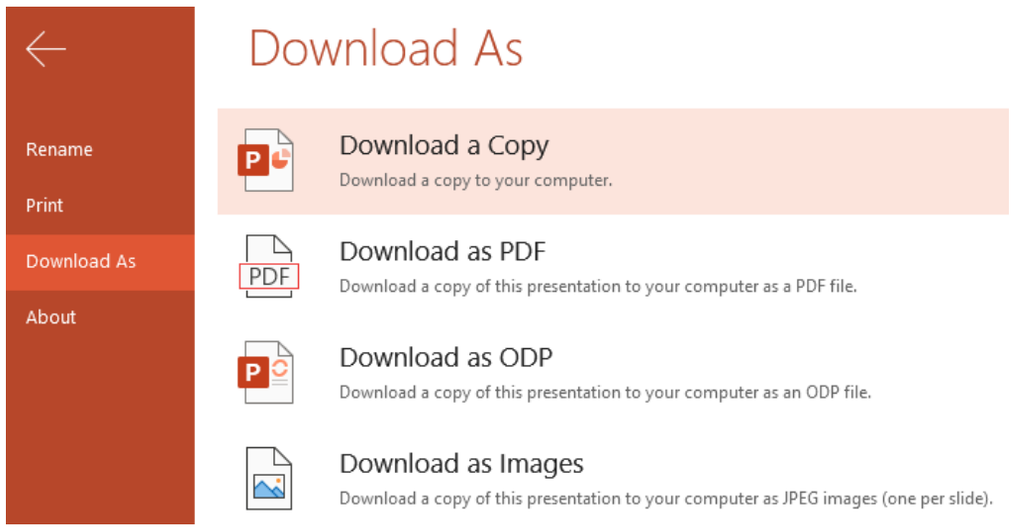
Viewing the presentation online will not show the section breaks and will be more difficult to navigate.

This summary is primarily meant as a basis for discussion of the geophysics. The comments accompanying each slide *may* be insufficient to fully appreciate the objective of the observations. It is also lofty in the number of slides as it is meant to be able to discuss the topics without access to the data.

It is also meant as a visual notepad to capture progress or workflows through the geophysical data so that observations are not lost.

Downloading the PowerPoint:

After opening the document link in a web browser click on [File] then [Download as]



...

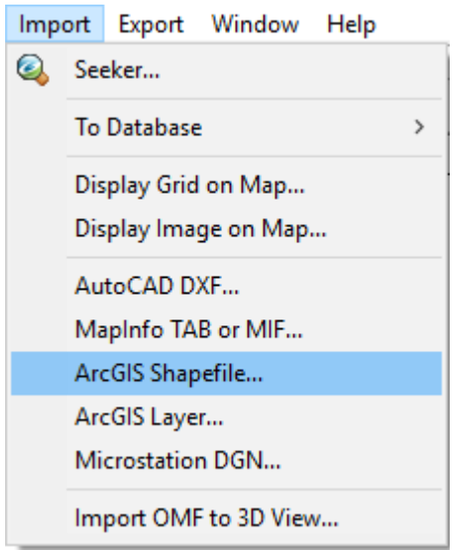
Packed Geosoft MAP

The packed map can be used in the free Geosoft Viewer to work with data and export data. To get full flexibility of the data it might be necessary to unpack the map contents into a folder. The option of where to unpack the contents should be offered.

It might be necessary to create a Geosoft Project file to access the map on an ongoing basis. Project files keep track of all open maps and databases.

Some data can be imported in to an existing Geosoft MAP.

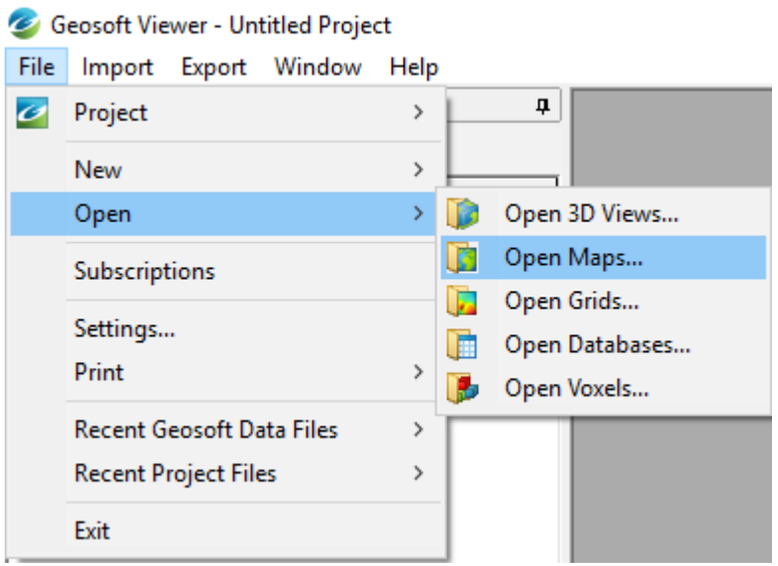
**** If some data can not be imported in to the Geosoft Viewer it might be possible to have them imported using a licensed version which is then packed to be used in the Viewer.**

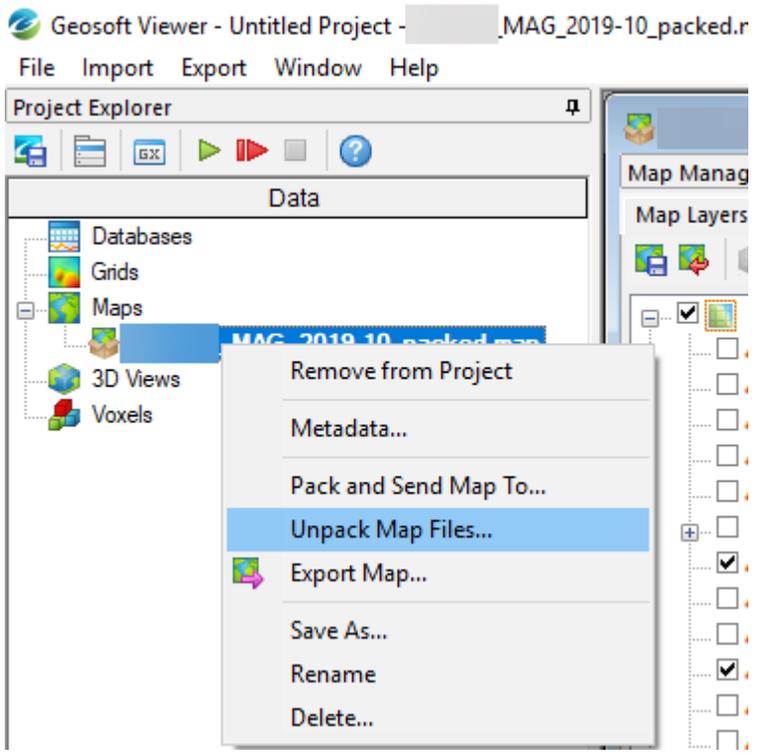


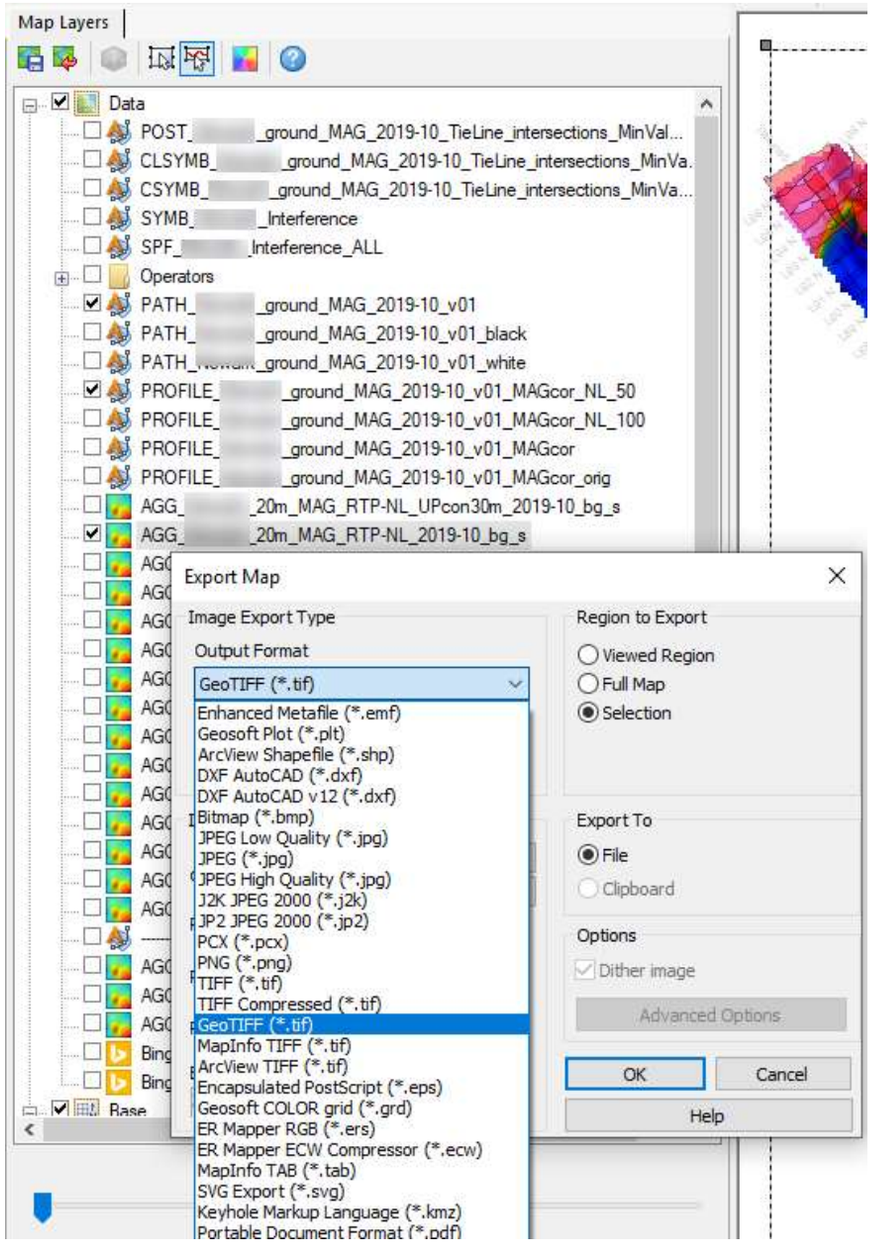
...

Using a Packed Geosoft MAP

The packed map can be used in the free Geosoft Viewer to work with data and export data. Some importing of data is possible. Converting Geosoft grids to Surfer grids will require unpacking the MAP contents to a working folder. Geosoft grids can also be exported to GeoTIFF images (RGB image not data values). Experiment with exporting different data types and formats. Grids can also be exported to GXF which along with Surfer may be opened in software like QGIS.







*** NEVER use "_s" grid files they are for shadows only***

Project_20m_MAG_TGA_2019-10_bg_s.grd

Unconstrained 3D Magnetic Inversion

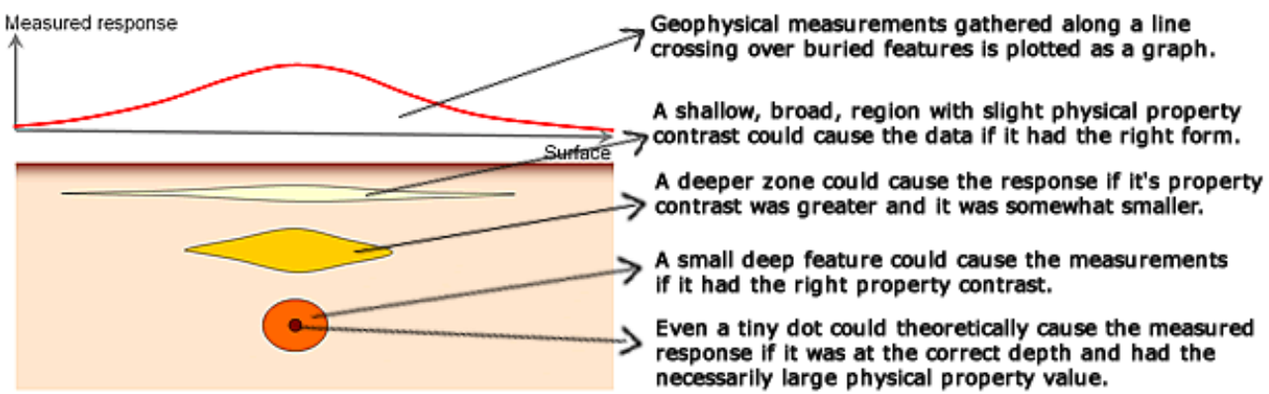
Unconstrained 3D magnetic inversions

A magnetic or gravity inversion model represents a mathematical estimate of subsurface distribution of magnetic susceptibility or density that would be capable of reproducing the observed data as acquired by the ground or airborne system.

Potential field modeling, utilizing magnetic or gravity data, will not provide a single unique solution (often referred to as non-uniqueness). This should not be viewed as detrimental to the process of using inversion modeling. It is simply a reality with respect to the use of numerical modeling efforts to represent a subsurface interpretation of what is often a complex distribution of physical rock properties. Geophysical inversion models are then be interpreted with respect to geology, alteration and structure. These models act as a three-dimensional perspective into what could be occurring in the subsurface.

Constrained inversion modelling involves the addition of known information which helps to direct the inversion modelling in a particular direction. For example, if a survey was conducted in an area with deep overburden and the overburden depth was known across the survey area, then this information could instruct the inversion to not locate any magnetic susceptibility in the overburden. This forces or constrains the inversion model to populating the bedrock with a magnetic susceptibility distribution that reproduces the original survey data.

An illustration of the difficulties associated with magnetic and gravity data interpretation. The problem of non-uniqueness is an important consideration. In this example, the gravity data profile (top red line) can be reproduced by any of the four model sources. From simply looking at how well the 4 model responses reproduced the survey data it may be difficult to choose the best option if we knew nothing about the geologic environment. **We need some kind of a priori information in order to choose the best model solution.**



Unconstrained 3D Magnetic Inversion

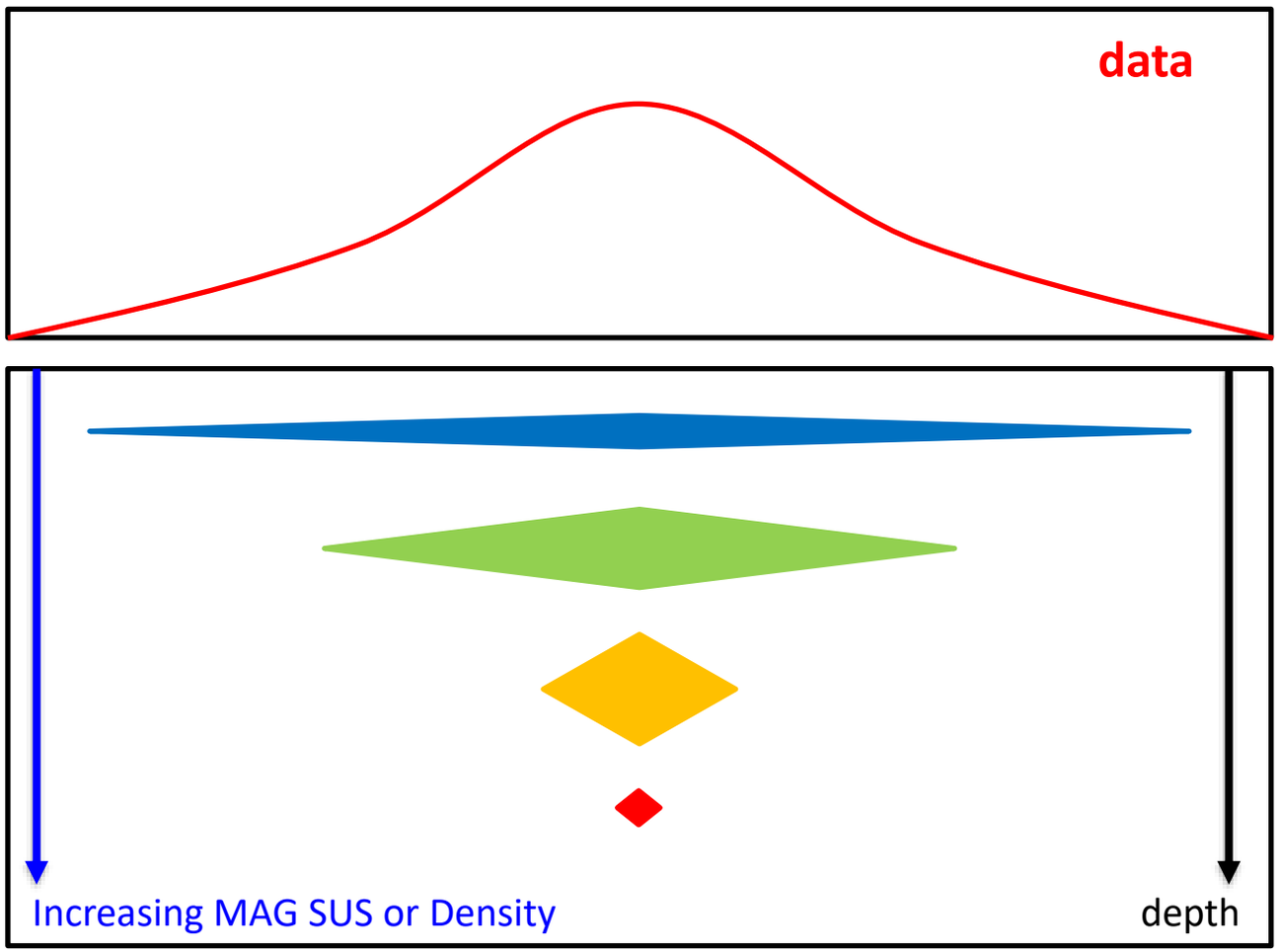
MAG or GRAV interpretation considerations

Potential field data does not allow for a single unique solution.

This example illustrates that the red profile data could be reproduced by multiple “sources” which are a combination of geometry, depth and intensity of magnetic susceptibility or density contrast.

A large near surface low density contrast can reproduce the data as well as a deep, small and extremely dense object. In theory there are an infinite number of solutions, but in reality there will be a finite number of geologically realistic solutions.

Unconstrained inversion modelling is a very useful tool to gain perspective into the subsurface distribution of either magnetic susceptibility or density contrasts.



Client – Project – Geophysics – ..

Unconstrained 3D magnetic inversions were performed on the _____.

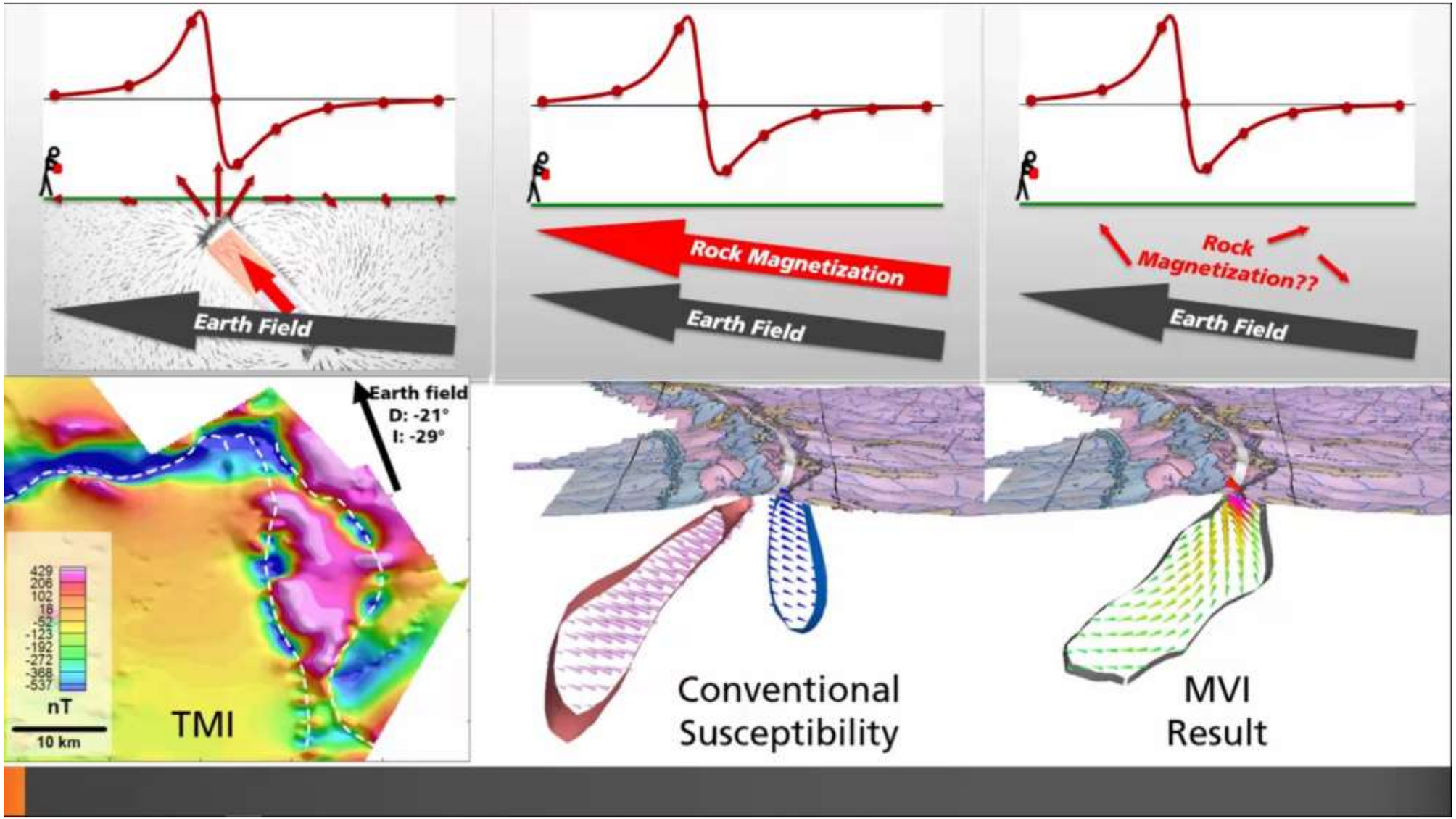
A magnetic or gravity inversion model represents a mathematical estimate of subsurface distribution of magnetic susceptibility or density that would be capable of reproducing the observed data as acquired by the ground or airborne system.

Potential field modeling, utilizing magnetic or gravity data, will not provide a single unique solution (often referred to as non-uniqueness). This should not be viewed as detrimental to the process of using inversion modeling. It is simply a reality with respect to the use of numerical modeling efforts to represent a subsurface interpretation of what is often a complex distribution of physical rock properties. Geophysical inversion models are then be interpreted with respect to geology, alteration and structure. These models act as a three-dimensional perspective into what could be occurring in the subsurface.

Constrained inversion modelling involves the addition of known information which helps to direct the inversion modelling in a particular direction. For example, if a survey was conducted in an area with deep overburden and the overburden depth was known across the survey area, then this information could instruct the inversion to not locate any magnetic susceptibility in the overburden. This forces or constrains the inversion model to populating the bedrock with a magnetic susceptibility distribution that reproduces the original survey data.

3D Magnetic Inversion Codes: Susceptibility (SUS) vs. Magnetization Vector intensity (MVI)

Constrained inversion example (from Geosoft help video)



3D Magnetic Inversion Codes: Susceptibility (SUS) vs. Magnetization Vector intensity (MVI)

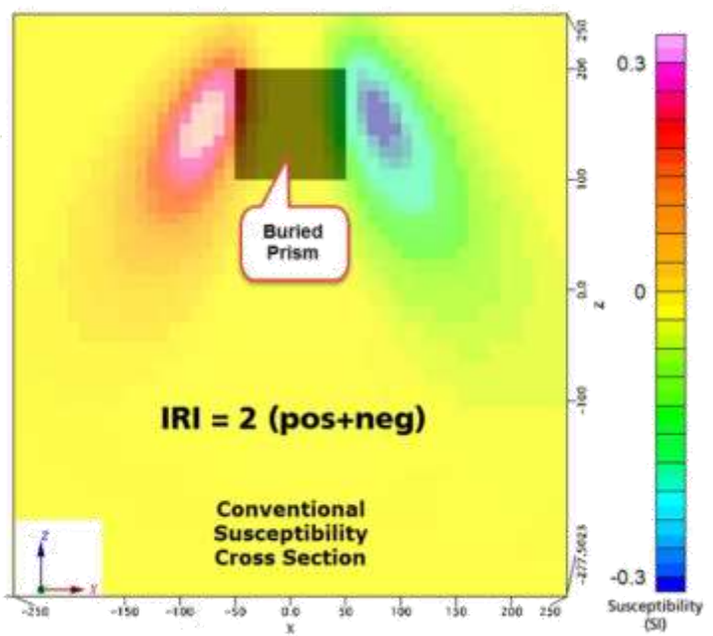
In a modelling study the magnetic source was given a remanent magnetization. The magnetic response of the model was then inverted using conventional susceptibility and magnetization vector intensity.

The susceptibility model shows good data fit, but model result is incorrect and not geologically realistic. The magnetization vector model fits the input data and the model resolves the source body well.

MVI interpretation should be limited to vectors of high amplitude – changes in direction of the small vectors are due to the smooth model norm.
(images from Geosoft help video)

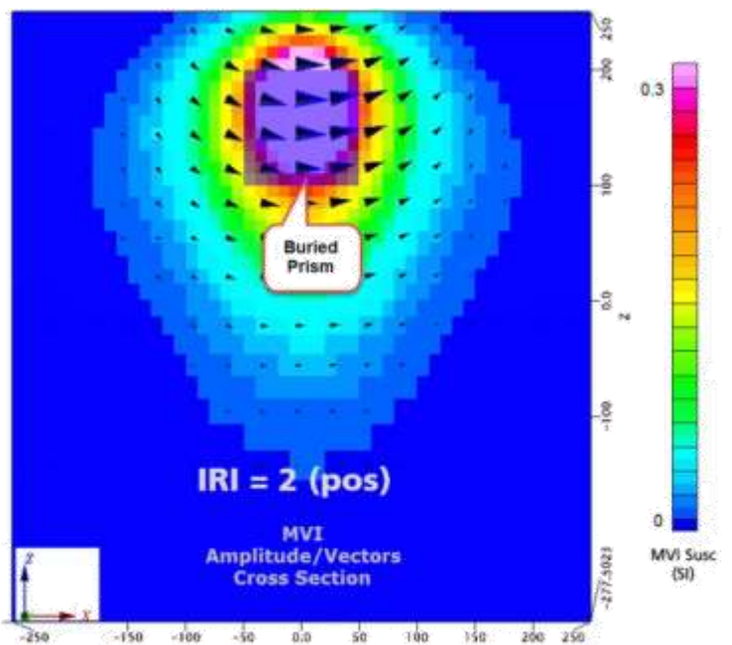
Conventional Susceptibility Inversion

- Assumes magnetization parallel to IGRF
- Failed to recover position of buried prism
- Difficult to interpret
- Fit the observed data to 5% std. deviation
- IRI=2 (pos+neg) sharpened result



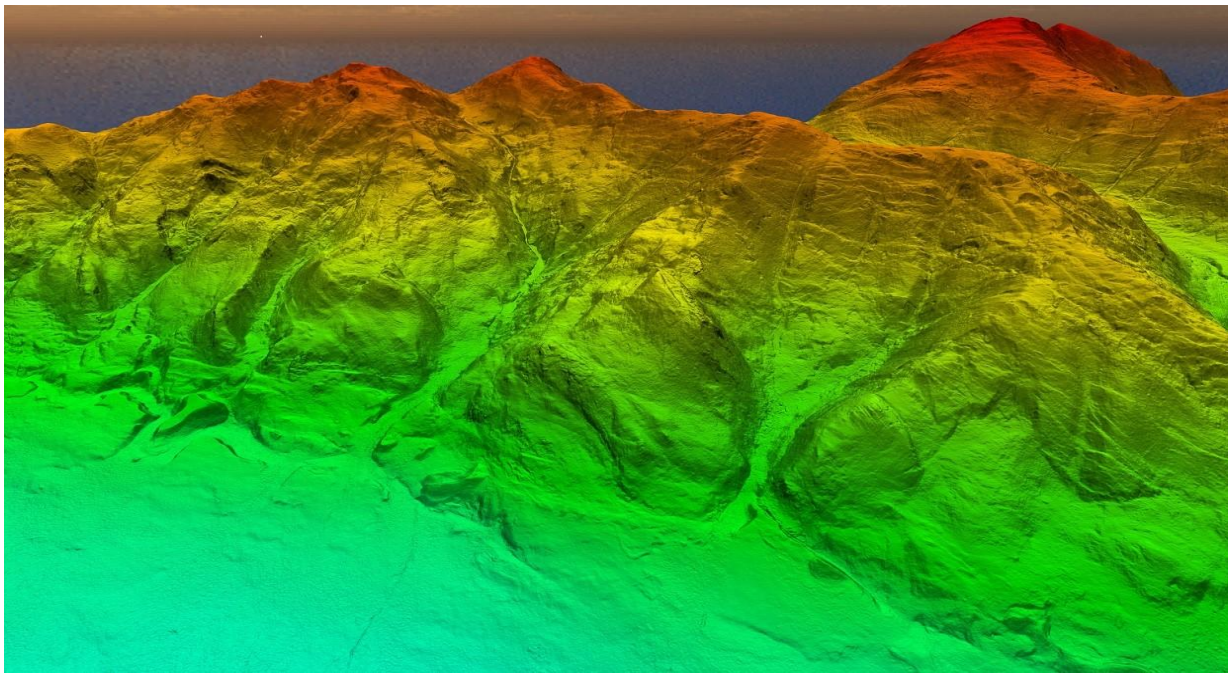
Normalised MVI Amplitude *or* "MVI Susceptibility"

- Solves without assuming direction of magnetization
- Recovers location of buried prism
- Interpretation simplified
- Fit the observed data to 5% std. deviation
- IRI=2 sharpened result



Appendix VI. Eagle Mapping LiDAR Survey contract

Eagle Mapping Ltd.
420-20178, 96 Ave.
Langley BC, V1M 0B2, Canada
+1 (604) 942-5551 | info@eaglemapping.com



Eagle Mapping proposal to collect LiDAR & photos at the Melchett Lake property in Ontario for Silver Spruce Resources

Proposal No. P22-199

Eagle Mapping Ltd. 420-20178, 96 Ave., Langley BC, V1M 0B2, Canada
+1(604) 942-5551 | info@eaglemapping.com

Tuesday, September 13, 2022

Greg Davidson
VP of Exploration and Director
Silver Spruce Resources
O. +1 (250) 521-0444
E. davisonandassociates@gmail.com
W. www.silverspruceresources.com
Suite 440, 1600 Bedford Highway Bedford, Nova Scotia
Canada, B4A 1E8

Scope of work

Eagle Mapping proposes to collect LiDAR data and aerial photography at the Melchett Lake property in Ontario. We will collect LiDAR at a minimum density of 8 ppm. Expected absolute accuracies of the LiDAR data will be less than +/- 15 cm in the vertical and +/- 30cm in the horizontal. The color aerial photography will be orthorectified to the LiDAR bare earth model to produce an orthophoto with a 15 cm pixel resolution. We will also provide a digital elevation model (DEM), a digital surface model (DSM), and contours.

Price

Product	Unit price	Area Km2	Description	Amount	Notes
LiDAR	CA$531	54	Data acquisition & processing	CA$28,674	8 PPM
Photo	CA$191	54	Images acquisition & processing	CA$10,314	15cm
			Subtotal:	**CA$38,988**	**+GST**

Deliverables

1. LAS point cloud includes classified bare earth
2. 15 cm resolution color orthoimages
3. A digital elevation model (DEM) and a digital surface model (DSM)
4. Contours at 1m
5. Metadata final report

Terms

1. Eagle Mapping Ltd. requires a 45% deposit to initiate the project.
2. Silver Spruce Resources will remit the final payment within thirty (30) calendar days of invoice receipt.
3. Eagle Mapping will charge a 2% interest fee on outstanding payable after 30 days.
4. Processing to final deliverables could take up to 12 weeks after data acquisition depending on workload.
5. The Client acknowledges and agrees that the total aggregate liability of Eagle Mapping for any and all claims, whether in contract, negligence or otherwise known to the law, arising out of all services provided to the Client by Eagle Mapping shall be limited to the total fees for Services provided under this agreement.
6. Notwithstanding the foregoing provisions, Eagle Mapping shall not be liable to the Client for any incidental, indirect, consequential, punitive, or special damages, including without limitation, loss of business opportunities, increased operating costs or increased financing costs, arising out of or connected in any way to the Project or this Agreement, even if specifically informed of the possibility thereof.

Acceptance

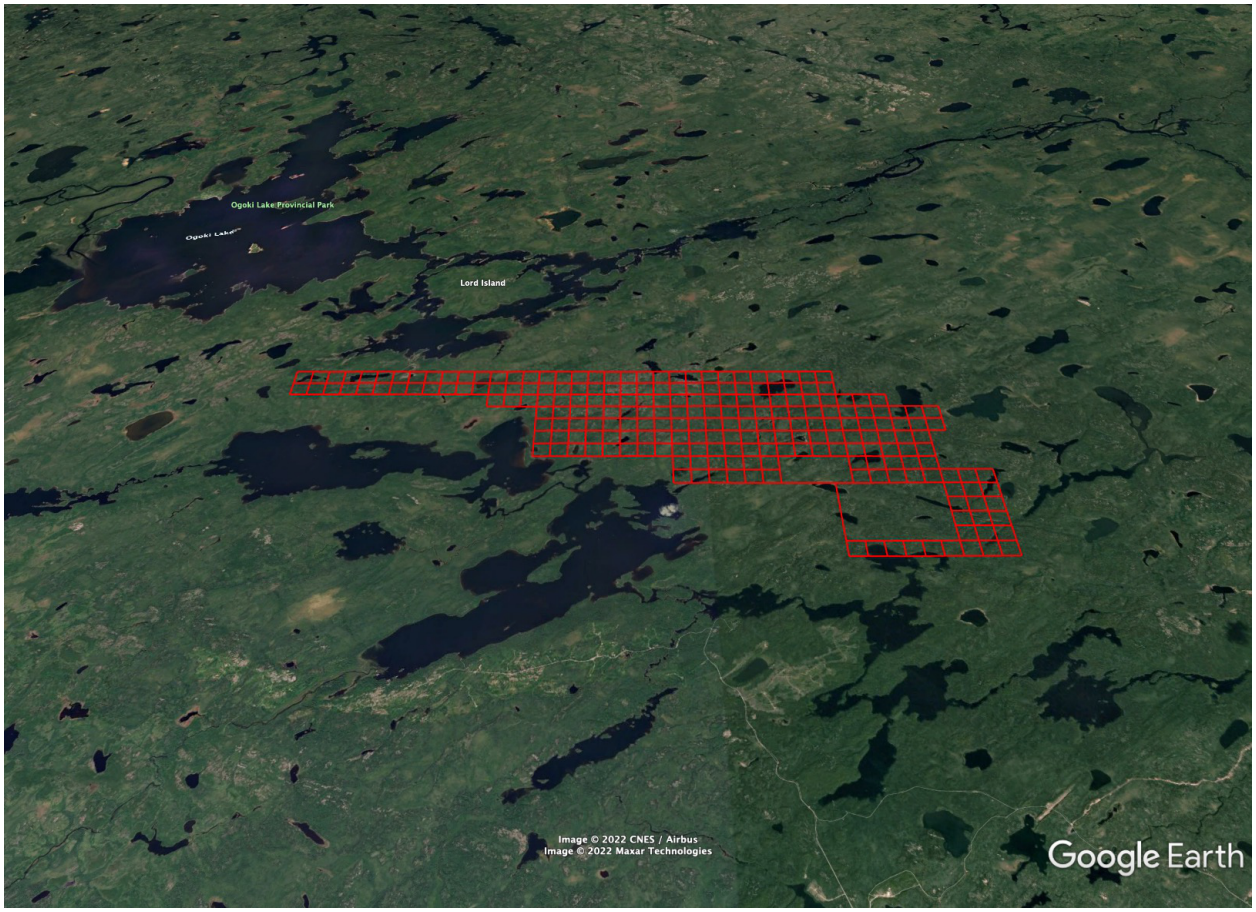
Silver Spruce Resources accepts the terms and conditions of the above estimate.

Please sign below and e-mail to:
Hector De Los Santos, Geomatics Sales Manager
E: hsantos@eaglemapping.com M: +1 (604) 764-5623

Date	

Authorized Signature	
Name and Title	
Company	

AOI



Appendix VII. Project Costs

Silver Spruce Resources

		Date	Description	Amount			
501000	Staking						
501500	Property Payments - Cash						
501600	Property Payments - Shares						
502100	Claim Maintenance Costs						
503200	Consulting Fee - IFN - FT						
		Mar 31, 2021	Greg Davison	1,500.00			direct consulting
		Apr 30, 2021	Greg Davison	750.00			direct consulting
		May 31, 2021	Greg Davison	375.00			direct consulting
		Jun 30, 2021	Greg Davison	750.00			direct consulting
		Jul 31, 2021	Greg Davison	750.00			direct consulting
		Aug 31, 2021	Greg Davison	750.00			direct consulting
		Sep 30, 2021	Greg Davison	1,500.00			direct consulting
		Oct 31, 2021	Greg Davison	1,500.00			direct consulting
		Nov 30, 2021	Greg Davison	1,500.00			direct consulting
		Dec 31, 2021	Greg Davison	750.00			direct consulting
		Jan 31, 2022	Greg Davison	1,500.00			direct consulting
		Feb 28, 2022	Greg Davison	750.00			direct consulting
		Mar 31, 2022	Greg Davison	750.00			direct consulting
		Apr 30, 2022	Greg Davison	750.00			direct consulting
		May 31, 2022	Greg Davison	750.00	$	14,625.00	direct consulting
		Nov 2 2022	Western Heritage	9,928.15	$	9,928.15	archaeological and cultural study Part 1
		Mar 25, 2022	Ginoogaming First Nation	13,150.00			payments for agreement and annual percentage of costs
		Apr 04, 2022	Aroland First Nation	13,150.00	$	26,300.00	payments for agreement and annual percentage of costs
					$	**50,853.15**	
503700	Project Management - FT						
		Feb 27, 2021	Richard Harwood	4,000.00			geological consulting, oversight, procurement and reports
		Mar 28, 2021	Richard Harwood	4,000.00			geological consulting, oversight, procurement and reports
		Dec 31, 2020	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Jan 31, 2021	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		Feb 28, 2021	Greg Davison	3,000.00			geological consulting, oversight, procurement and reports
		Mar 31, 2021	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		Apr 30, 2021	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		May 31, 2021	Greg Davison	375.00			geological consulting, oversight, procurement and reports
		May 31, 2021	Greg Davison	750.00			geological consulting, oversight, procurement and reports
		Jun 30, 2021	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		Jul 31, 2021	Greg Davison	750.00			geological consulting, oversight, procurement and reports
		Aug 31, 2021	Greg Davison	750.00			geological consulting, oversight, procurement and reports
		Sep 30, 2021	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		Oct 31, 2021	Greg Davison	3,000.00			geological consulting, oversight, procurement and reports
		Dec 31, 2021	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Jan 31, 2022	Greg Davison	750.00			geological consulting, oversight, procurement and reports
		Feb 28, 2022	Greg Davison	1,500.00			geological consulting, oversight, procurement and reports
		Mar 31, 2022	Greg Davison	500.00			geological consulting, oversight, procurement and reports

		Apr 30, 2022	Greg Davison	2,000.00			geological consulting, oversight, procurement and reports
		May 31, 2022	Greg Davison	2,000.00			geological consulting, oversight, procurement and reports
		Jun 30, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Jul 31, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Aug 31, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Sep 30, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Oct 31, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Nov 15, 2022	Greg Davison	1,000.00			geological consulting, oversight, procurement and reports
		Feb 04, 2021	Richard Harwood	3,000.00	$	**41,875.00**	geological consulting, oversight, procurement and reports
505900	Procurement and Services - FT						
		Feb 13, 2021	Greg Davison - expenses, procurement	11,580.00			field supplies
		Feb 15, 2021	Deakin Industries	9,506.20			field supplies
		Feb 18, 2021	305300, Zanduco Restaurant Equipment and Supplies Inc.	5,591.70			field supplies
		Feb 22, 2021	198143, IRL Supplies (2011) Ltd.	25,019.32			field supplies
		Feb 23, 2021	Manitoulin Transport Inc.	2,081.69			transpo
		Feb 23, 2021	Manitoulin Transport Inc.	2,446.46			transpo
		Mar 02, 2021	Manitoulin Transport Inc.	2,022.83			transpo
		Mar 08, 2021	Greg Davison - expenses, procurement	6,983.13			field supplies
		Mar 09, 2021	Manitoulin Transport Inc.	1,121.65			transpo
		Mar 15, 2021	Greg Davison - expenses, procurement	18,409.82			field supplies
		Mar 15, 2021	Greg Davison - expenses, procurement	4,934.36			field supplies
		Mar 22, 2021	Refund - Over payment of IRL invoice 240634	-2,656.01			field supplies
		Apr 01, 2021	Got Wood Building Supplies	2,551.68			field supplies
		Apr 07, 2021	Got Wood Building Supplies	437.91			field supplies
		Apr 13, 2021	Zanduco Restaurant Equipment	-110.34			field supplies
		Apr 13, 2021	2021-20, Pleson Geoscience	27,853.55			contracting
		Apr 14, 2021	Russell Hendrix Foodservice Equipment	1,223.71			field supplies
		May 03, 2021	Got Wood Building Supplies	2,543.26			field supplies
		May 07, 2021	Techstar Plastics Inc.	1,980.00			field supplies
		May 12, 2021	Russell Hendrix Foodservice Equipment	211.39			field supplies
		May 21, 2021	Manitoulin Transport Inc.	1,267.48			transpo
		Jun 23, 2021	Villeneuve Construction LTD	6,503.00			road maintenance to Melchett, applied in part to FN affairs
		Sep 10, 2021	Pleson Geoscience	38,230.46			contracting
		Dec 01, 2021	Greg Davison - expenses, procurement	2,949.35			procurement and third party services
					$	**172,682.60**	
506400	Geology and Mapping - FT						
507300	Geochemical Assay						
507400	Geochemical Assay - FT						
509900	Geophysical Survey - FT						
		Aug 05, 2020	CGG Canada Services Ltd.	5,000.00			geophysical data acquisition
		Dec 29, 2020	CA2440, Quantec Geoscience	20,550.00			geophysical services, contract lock-up
		Oct 30, 2022	Eagle Mapping	38,988.00	$	**64,538.00**	geophysical services, LiDAR
510400	Geophysical Interp. Report - FT						
		Mar 12, 2022	in3D Geoscience Inc.	1,357.50			geophysical interpretation and reporting
		Jul 14, 2022	in3D Geoscience Inc.	4,092.00	$	**5,449.50**	geophysical interpretation and reporting
510900	GIS and Data Management - FT						
		Dec 31, 2020	Greg Davison	1,000.00			interim maps and reports

		Dec 31, 2020	Greg Davison	1,500.00			interim maps and reports
		Jan 31, 2021	Greg Davison	1,500.00			interim maps and reports
		Feb 28, 2021	Greg Davison	375.00	$	**4,375.00**	interim maps and reports
511900	Reports - FT						
		Oct 31, 2020	Greg Davison	4,500.00			property reports
		Nov 30, 2020	Greg Davison	1,500.00			property reports
		Dec 31, 2020	Greg Davison	2,250.00			property reports
		Nov 30, 2021	Greg Davison	3,750.00			property reports
		Dec 31, 2021	Greg Davison	1,500.00			property reports
		Sep 30, 2022	Greg Davison	3,000.00			property reports
		Oct 31, 2022	Greg Davison	3,000.00			property reports
		Nov 15, 2022	Greg Davison	3,000.00	$	**22,500.00**	property reports
565000	Currency Exchange & Rounding						
590300	Melchett Lake Exploration						

Total Project Costs **$ 362,273**