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Ministry of Energy, Mines & Petroleum Resources
Mining & Minerals Division
BC Geological Survey

BC Geological Survey Assessment Report 39628

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Airborne MT Geophysical Survey

TOTAL COST: $72,261.92

AUTHOR(S): David L. Pighin, PGeo.

SIGNATURE(S): *"David L. Pighin"*

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

YEAR OF WORK: 2021

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5846215

PROPERTY NAME: Aldridge 1

CLAIM NAME(S) (on which the work was done): 1078969 to 1078972, 1079018,1079020, 1079953 to 1079959, 1079961 to 1079975, 1019229, 1052451, 1052453, 1052455, 1065274 to 1065276

COMMODITIES SOUGHT: Lead/Zinc

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: Nelson

NTS/BCGS: 082F019

LATITUDE: 49 ° 10 ' 30 " **LONGITUDE:** 116 ° 13 ' 35 " **(at centre of work)**

OWNER(S):

1) DLP RESOURCES INC. **2)**

MAILING ADDRESS:

#201 - 135 - 10th Ave. S.,
Cranbrook, BC V1C 2N1

OPERATOR(S) [who paid for the work]:

1) As above **2)**

MAILING ADDRESS:

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Purcell Anticlinorium, Late Proterozoic Windermere Group, Proterozoic Belt-Purcell Supergroup, Middle Aldridge, Moyie intrusions, Moyie fault, Spider Creek fault, lead, zinc, argillite, quartzitic wacke, pyrrhotite

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 39168; 39331; 39447

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TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne	MT Geophysical Survey - 306 line Km	1078969 to 1078972, 1079018,1079020, 1079953 to 1079959, 1079961 to 1079975, 1019229, 1052451, 1052453, 1052455, 1065274 to 1065276	$72,261.92
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	$72,261.92

Print Form

REPORT ON THE HELICOPTER-BORNE MobileMT ELECTROMAGNETIC & MAGNETIC SURVEY ON THE ALDRIDGE 1 PROJECT

Claim Numbers
1078969 to 1078972, 1079018,1079020, 1079953 to 1079959, 1079961 to 1079975, 1019229, 1052451, 1052453, 1052455, 1065274 to 1065276

NTS 082F/1E,1W

BCGS 082F019
UTM's 557000m E / 5443000m N

Prepared by:
David Leo Pighin
DLP Resources Inc.
#201 - 135 - 10th Ave. S.,
Cranbrook, BC V1C 2N1

December 15, 2021

Table of Contents

1. Introduction

This assessment report presents the results of the analysis and interpretation of the data regarding the MobileMT airborne electromagnetic and magnetic survey that Expert Geophysics Limited (EGL, Appendix I) performed for DLP Resources Inc. in the period of June 02 to June 04, 2021. The Aldridge survey was located approximately 50 km southwest of Cranbrook and electromagnetic passive fields and magnetic field data were gathered using a MobileMT helicopter-borne system.

The purpose of the survey was mapping bedrock structures and lithology, including possible alteration and mineralization zones reflected in electric and magnetic properties of rocks. The airborne geophysical survey results are presented in the apparent conductivity corresponding to different frequencies, in the inverted EM data into resistivities with depth, in the available VLF EM data, as well as in the magnetic field data and its derivatives.

A total of 332.6 line-km were surveyed with lines trending east-west. Data were processed, inspected for quality assurance, and reviewed daily by the geophysicist in charge of the project. The airborne geophysical survey results are presented in the apparent conductivity corresponding to different frequencies, in the inverted EM data into resistivities with depth, in the available VLF EM data, as well as in the magnetic field data and its derivatives (see Appendix 1).

2. History

The Aldridge 1 property exploration effort because of the long-known presence of Sullivan Indicators in the form of a large, cross-cutting tourmalinite zone (Goatfell and Sky), alteration and sulfides. The appropriate B.C. Government Minfile reports include 082FSE107 and 068. The core claims have been held by a variety of companies with some historical diamond drilling towards the lower central part of the property.

In 1987/88 Cominco Ltd. (AR 18121) completed a soil geochemistry grid central to the Aldridge 1 claims. The results are significant because a zinc anomaly of at least 1 kilometre in length is present at or just stratigraphically above the Lower to Middle Aldridge contact – Sullivan Time. It flanks a regional north-south fault. Anomalous lead is absent on the grid, so a conclusion could be that the area is distal to anything larger. Uphill and up section another zinc anomaly of similar size is present over a set of gabbro sills. Mineralization is not uncommon with these intrusive bodies. Later, as a follow-up to the soil anomalies Cominco did four lines of UTEM geophysics yielding a continuous but weak (Channel 7) response coincident with the soil anomaly.

In 1988 /89 Chevron did a comprehensive program on the south end of the Aldridge 1 including the drilling of two holes followed by 2 holes in 1989. All were designed to test the LMC (Sullivan

Time) but were unsuccessful, testing lower Middle Aldridge only. All holes hit weak lead-zinc with some copper, most of which was localized along fractures with some disseminated in the sediments. They did locate an additional tourmalinite zone to the south of Goatfell and the Sky tourmaline-sulfide zone on Hazel creek which contains minor lead, zinc, gold and copper. In 1990, Chevron also staked ground partly on the Aldridge 1 claims (AR19564). It was a large block of claims which they mapped as Middle Aldridge. The work added only to the geological database. In 1992 Granges Exploration completed a modest geology and rock geochemistry program with only the geology useful.

In 1993/94 Arbor Resources completed two modest programs on claims inclusive of the Sky occurrence. The author does describe results from two drill holes done by Chevron but not reported on to the west where they had weak soil and geophysics results. The holes did intersect weak lead and zinc in Middle Aldridge rocks. In 1994 the operators drilled one short hole (77.1M) to the south beside Hazel creek. It intersected a fault zone with 30 cm of massive pyrite but no lead or zinc. This report discusses three separate north-south faults. In 1998 this author evaluated the Sky area with some mapping and prospecting assistance, faulting is present but not well located. Such faults could be important for localization of the lead-zinc mineralization but 2019 mapping performed by DLP Resources Inc. only identified one such fault.

Since 2014 the core of the Aldridge 1 property has also been explored by prospecting and rock geochemistry sampling and some minor mapping through 2019. Reporting of the 2019 mapping by Doug Anderson for DLP Resources Inc. is presented in the Assessment Report on Geological Mapping on the RJ Property, submitted November 13, 2019. History, Regional and Property Geology Descriptions are taken from the above, referred to, assessment report.

3. Property Description and Location

The Aldridge 1 property is located on NTS map sheet 082F01 about 80 kilometres south of Cranbrook on BC Hwy 3 – see Location Map (Figure 1). The property is comprised of 46 mineral claims totaling 15,318.14 ha. The Aldridge 1 property is centered on UTM (Nad83) coordinates 5443000N and 557000E within the Nelson Mining Division. The property is located approximately 29 kilometres NE of Creston and 15 kilometres NW of Yahk. Access to the property is along the forestry roads which leaves BC Hwy 3.

Table 1 - LIST OF CLAIMS

Title Number	Claim Name	Owner	Good To Date	Area (ha)
1059304	JR 1	288099 (100%)	2030/NOV/30	464.2776
1059308	JR 2	288099 (100%)	2030/NOV/30	84.4165
1059413	JR 3	288099 (100%)	2030/NOV/30	126.6358
1065272	RJ1	288099 (100%)	2030/NOV/30	464.4587
1065273	RJ2	288099 (100%)	2030/NOV/30	506.8391
1065274	RJ3	288099 (100%)	2030/NOV/30	528.1486
1065275	RJ4	288099 (100%)	2030/NOV/30	359.2625
1065276	RJ5	288099 (100%)	2030/NOV/30	274.8084
1069296	RJ6	288099 (100%)	2030/NOV/30	105.5872
1070630	STRATEGY	288099 (100%)	2030/NOV/30	211.0034
1075233	ALDRIDGE2020	288099 (100%)	2030/NOV/30	126.7058
1075237	STRATEGY 2	288099 (100%)	2030/NOV/30	42.207
1075238	ALDRIDGE 2020.2	288099 (100%)	2030/NOV/30	63.337
1075241	STRATEGY 3	288099 (100%)	2030/NOV/30	168.8759
1078969	ALDRIDGE 1-13	288099 (100%)	2023/JUL/15	422.4362
1078970	ALDRIDGE 1-14	288099 (100%)	2023/JUL/15	401.7016
1078971	ALDRIDGE 1-15	288099 (100%)	2023/JUL/15	443.9785
1078972	ALDRIDGE 1-16	288099 (100%)	2023/JUL/15	296.0966
1079018	ALDRIDGE1-17	288099 (100%)	2023/JUL/15	338.3125
1079020	ALDRIDGE 1-18	288099 (100%)	2023/JUL/15	380.7586
1079953	ALDRIDGE 1-19	288099 (100%)	2023/JUL/15	465.4519
1079954	ALDRIDGE 1-20	288099 (100%)	2023/JUL/15	465.5325
1079955	ALDRIDGE 1-21	288099 (100%)	2023/JUL/15	317.4742
1079956	ALDRIDGE 1-22	288099 (100%)	2023/JUL/15	380.9686
1079957	ALDRIDGE 1-23	288099 (100%)	2023/JUL/15	381.0476
1079958	ALDRIDGE 1-24	288099 (100%)	2023/JUL/15	338.7126
1079959		288099 (100%)	2023/JUL/15	444.6469
1079961	ALDRIDGE 1-26	288099 (100%)	2023/JUL/15	444.6495
1079962	ALDRIDGE 1-27	288099 (100%)	2023/JUL/15	444.6506
1079963	ALDRIDGE 1-28	288099 (100%)	2023/JUL/15	444.6618
1079964	ALDRIDGE 1-29	288099 (100%)	2023/JUL/15	402.3976
1079965	ALDRIDGE 1-30	288099 (100%)	2023/JUL/15	444.7751
1079966	ALDRIDGE 1-31	288099 (100%)	2023/JUL/15	444.7593
1079967	ALDRIDGE 1-32	288099 (100%)	2023/JUL/15	444.7592
1079968	ALDRIDGE 1-33	288099 (100%)	2023/JUL/15	402.4972
1079969	ALDRIDGE 1-34	288099 (100%)	2023/JUL/15	444.9774
1079970	ALDRIDGE 1-36	288099 (100%)	2023/JUL/15	444.888
1079971	ALDRIDGE 1-35	288099 (100%)	2023/JUL/15	444.8683
1079972	ALDRIDGE 1-37	288099 (100%)	2023/JUL/15	444.8677
1079973	ALDRIDGE 1-38	288099 (100%)	2023/JUL/15	444.9778
1079974	ALDRIDGE 1-39	288099 (100%)	2023/JUL/15	444.9763
1079975	ALDRIDGE 1-40	288099 (100%)	2023/JUL/15	445.001
1019229	SON OF CAPTAIN 04-13	142365 (100%)	2030/NOV/30	42.249
1052451	Son of Captain 01-12-17	142365 (100%)	2030/NOV/30	42.249
1052453	Son of Captain 01-12-17B	142365 (100%)	2030/NOV/30	21.1262
1052455	Son of Captain 07-14-17	142365 (100%)	2030/NOV/30	21.1262

Figure 1 - Location Map

4. Property Definition, History and Background Information

4.1 Property Definition

The claim block occurs on the NTS map-sheet 082F01 and BCGS map-sheets 082F010, 082F009, 082F019 and 082F020. It extends south of Highway 3 at Goatfell/Carroll Creek, south to USA border and across to the Kid Creek drainage and northeast of Kid Creek (Figure 2).

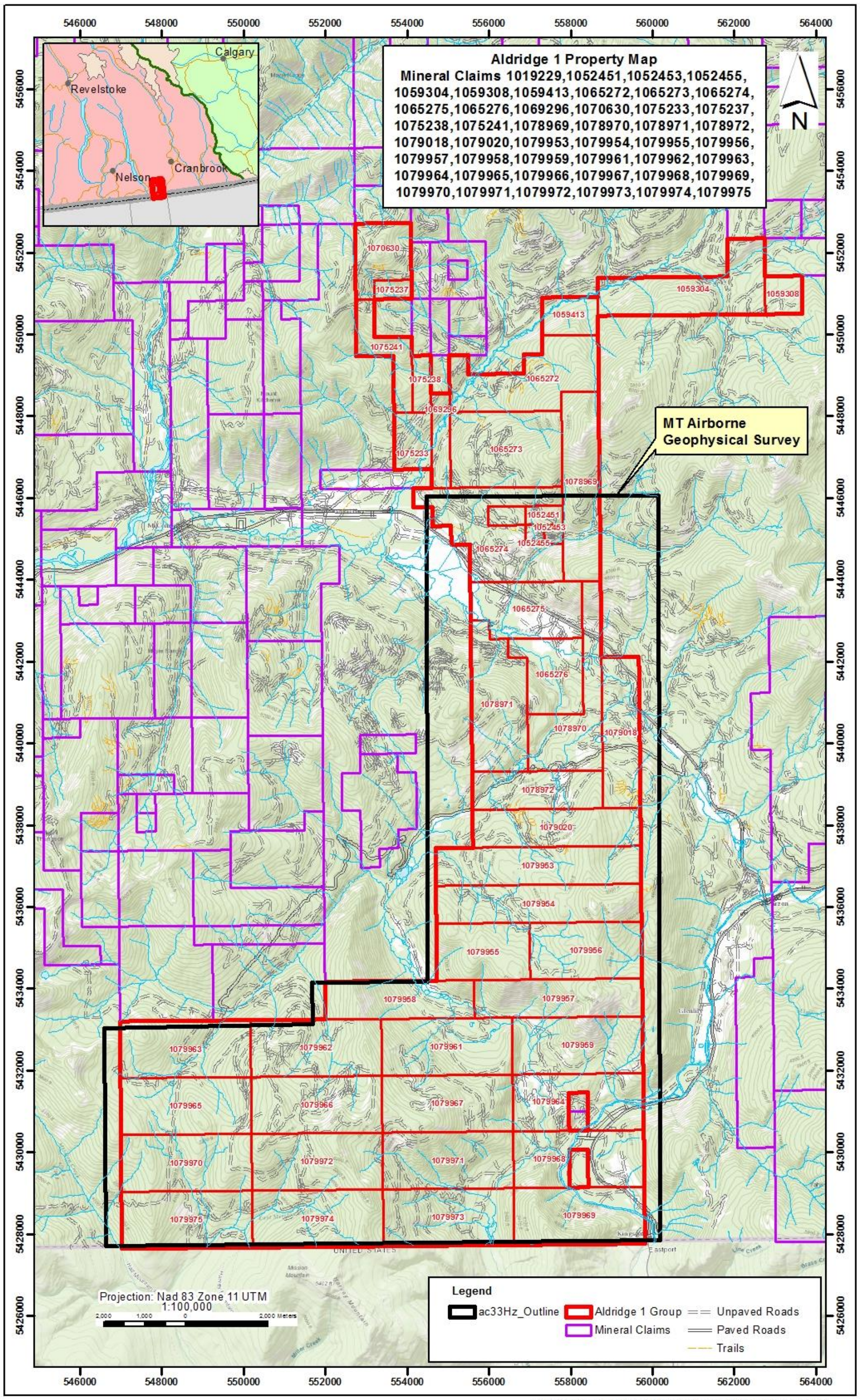

Figure 2. Claim map with Outline of Mobile MT Geophysical Survey (Black)

4.2 History - Background Information

The Goatfell through north of Kid Creek region has undergone quite intense but periodic mineral exploration efforts by both large and junior companies. The main impetus for the work has been lead-zinc mineralization and Sullivan Indicators found in the Middle division of the Aldridge Formation. Sullivan Indicators located on this estimated 24-kilometre-long belt include fragmental rocks, tourmalinites, forms of alteration recognized at Sullivan, and of course galena, sphalerite and iron sulfide mineralization. To date, such have not been found at the Lower to Middle Aldridge contact but there is very limited exposure of the Lower Aldridge.

Exploration since about 1980 onwards has consisted of all forms of pursuit including aerial and ground EM geophysics, mapping, soil geochemistry surveys, and localized diamond drilling.

The Aldridge 1 ground has received lesser effort than to the south and north because of the apparent lack of Sullivan Indicators. Only two drill holes were completed on the Aldridge 1 central area and the results are poorly known.

5. Regional Geology

The Kid Creek- Leadville Creek-Carroll Creek area is central to the Purcell Anticlinorium, a broad generally north-plunging structure in southeastern B.C. that is cored by Middle Proterozoic Purcell Supergroup rocks and flanked by Late Proterozoic Windermere Group or Paleozoic sedimentary rock (Figure 3). The area lies in the hangingwall to the Moyie Fault, a major, regional right-lateral reverse fault which is part of the Rocky Mountain fold and thrust belt event. The Moyie Fault follows earlier faults that have documented movements extending back to the Middle Proterozoic. These earlier structures controlled in part the distribution of the Middle Proterozoic through lower Paleozoic paleogeography.

The Purcell Supergroup comprises an early synrift succession, the Aldridge Formation, and an overlying generally shallow water post-rift or rift fill sequence which includes the Creston and Kitchener Formations and younger Purcell rocks. The Aldridge is the oldest formation of the Proterozoic Belt-Purcell Supergroup. The Supergroup is a thick sequence of terrigenous clastic, carbonate, and minor volcanic rocks of Middle Proterozoic age. The basal Aldridge Formation, as exposed in Canada, is siliciclastic turbidites about 4000 meters thick. It is informally divided into the Lower, Middle, and Upper members. To the north and east in the basin, the Lower Aldridge, the base of which is not exposed, is about 1500 meters of rusty weathering (due to pyrrhotite), thin to medium bedded argillite, wacke and quartzitic wacke generally interpreted as distal turbidites. The Sullivan orebody occurs at the top of this division. To the south and west in the basin in Canada, the upper part of the Lower Aldridge is dominated by grey weathering, medium to thick bedded quartz wackes considered to be proximal turbidites. The Lower Aldridge is commonly host to a proliferation of Moyie intrusions, principally as sills. The Middle Aldridge is about 2500 meters of grey to rusty weathering, dominantly medium bedded quartzitic wacke turbidites with periodic inter-turbidite intervals of thin bedded, rusty weathering argillites some of which form finely laminated marker beds (time stratigraphic units correlated over great distances within the Aldridge/Prichard basin). There are several Moyie intrusions as sills within the Middle Aldridge including two of the most consistent, laterally extensive sills. The Upper Aldridge is about 300 meters of thin bedded to laminated, rusty weathering, dark argillite and grey siltite often in couplet pairs.

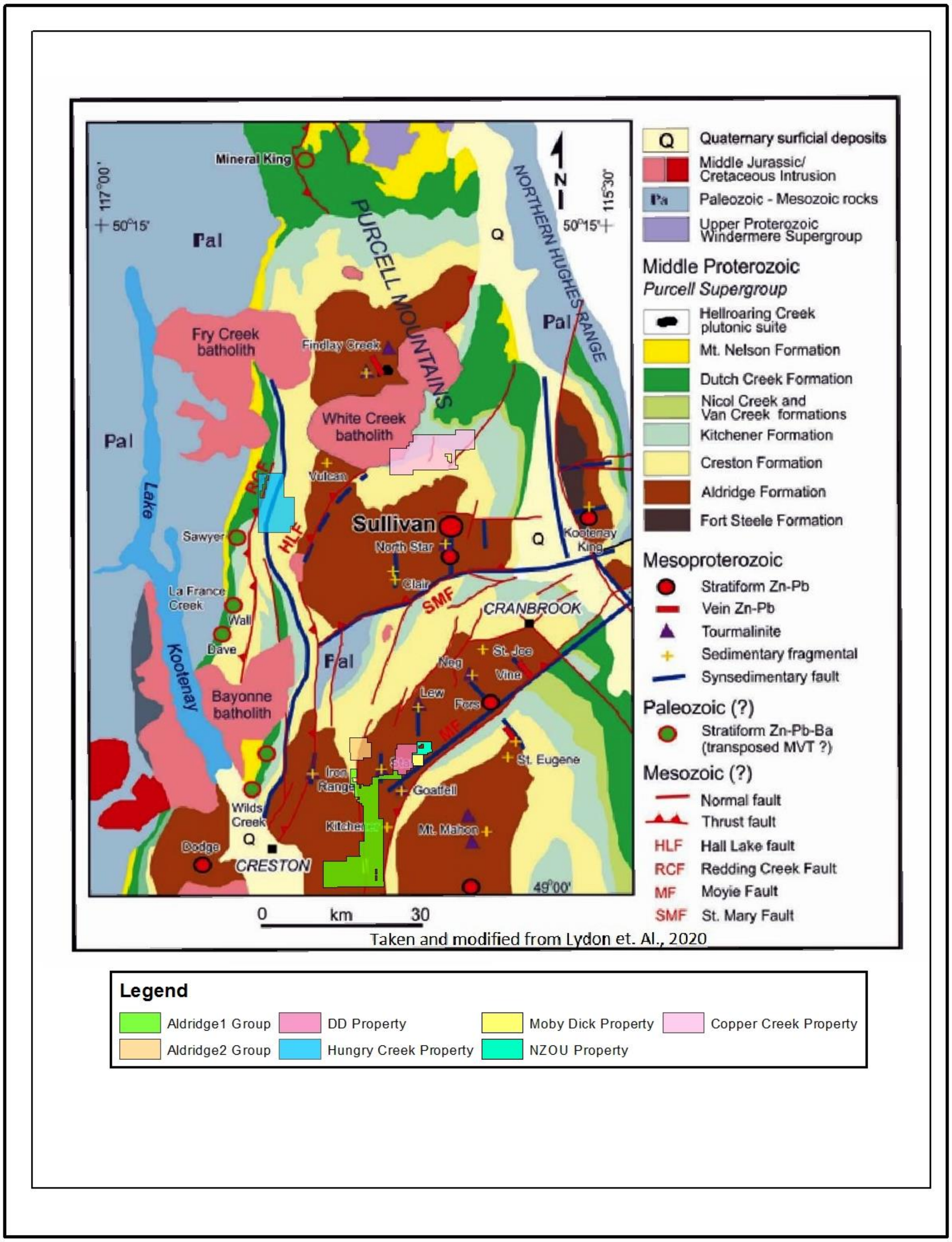

Figure 3. Regional geology map with DLP Projects shown, including Aldridge 1.

6. Property Geology

The Aldridge 1 claim block is underlain by the Middle Aldridge sequences common to the area. The belt is some 24 kilometres long (Figure 3). A few marker locations have previously been established providing some control on the stratigraphy. Present are several Moyie intrusions, the distribution of which have not been finalized. The central part of the Aldridge 1 property covers lower Middle Aldridge stratigraphy from Lamb marker down. The mapped area defines Lower Aldridge in float and outcrop occurring against the east side of the Spider Creek fault. Otherwise, mapping indicates the Lower-Middle Contact is at moderate depths on the remainder of the property (Figure 4).

Alteration of the sediments occurs along the length of the Spider Creek fault from the south end of the property to well north, down into Leadville creek. The fault is quite wide from 5 to 10 metres, with quite extensive light-colored bleaching due to albite and silica. The East fault exhibits some of the same alteration.

Structures as north-trending faults on the Aldridge 1 are significant because they can bring lower stratigraphy to shallow depths and they were possibly early syn-sedimentary structures controlling sediment deposition. The last movements on them are reverse (east side up) as reflected in the geology but also as interpreted from a seismic line completed along the Kid Creek drainage. The principal faults are the Carroll Creek fault west of the property, the Spider Creek fault and a lesser structure labelled the East fault. Difficult to locate/establish are northwest-trending faults which cross- cut the package.

Geophysics studies of a seismic line done along Kid Creek demonstrate there are at least two major east-dipping faults which correlate with the Spider Creek and Carroll Creek faults. The data indicates both faults are deep-seated reverse faults, that is the east side has moved up along the fault surfaces.

Additional justification for exploration in the area is supplied by the presence of sphalerite and galena within the middle of the Middle Aldridge proximal to the Goatfell tourmalinized fragmental and at the Kid-Star property between Kid and Leadville creeks. The mineralization is generally weak but widespread. On the southeast flank of the Aldridge 1, a showing of galena, sphalerite and scheelite in quartz veins within shears and as disseminations in a tourmaline-needle rich quartzite are part of the BC Minfile Sky occurrence.

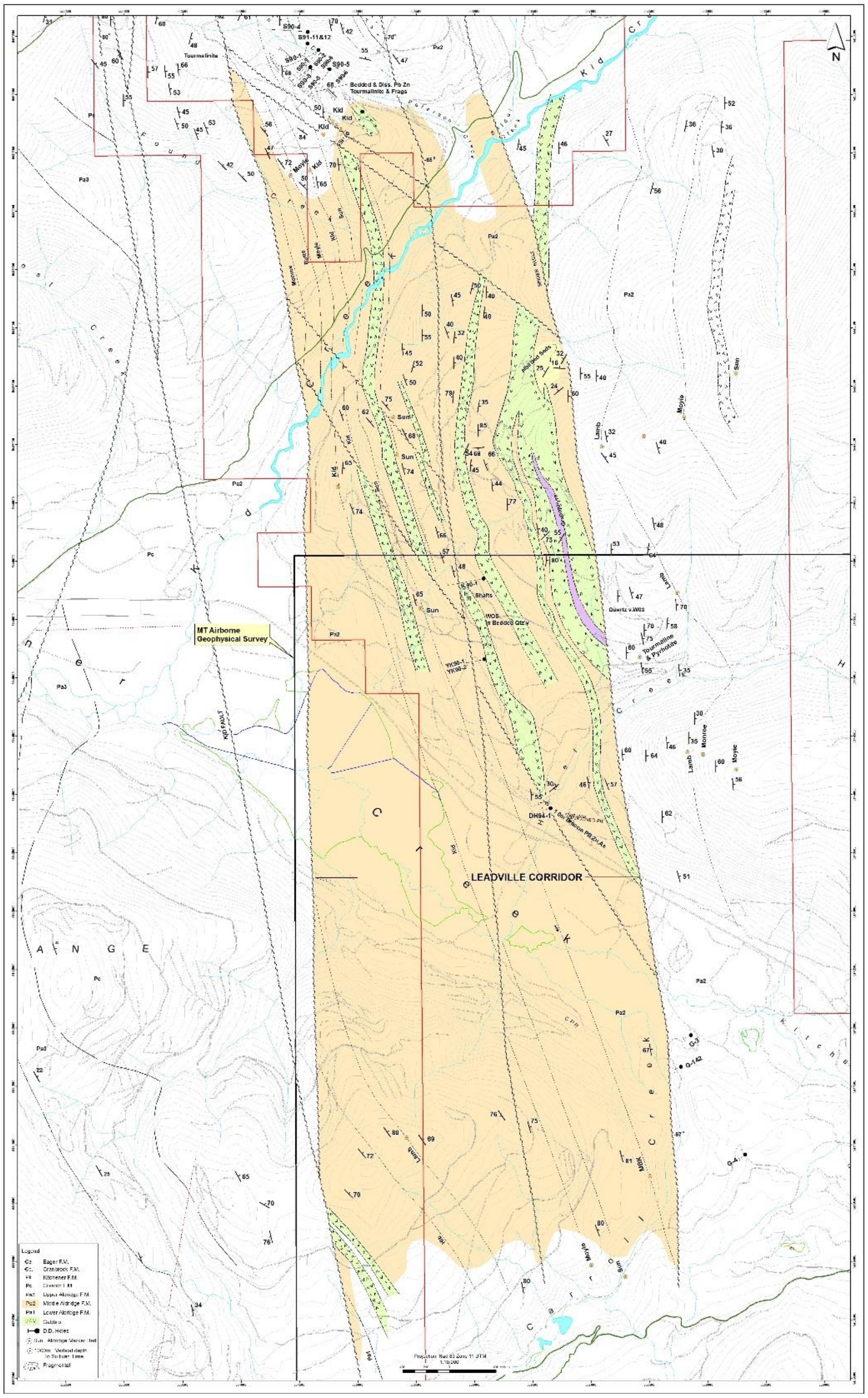

Figure 4. Geology map over Northern-Central Area with Mobile MT grid area shown (Black).
See Legend Figure 4a

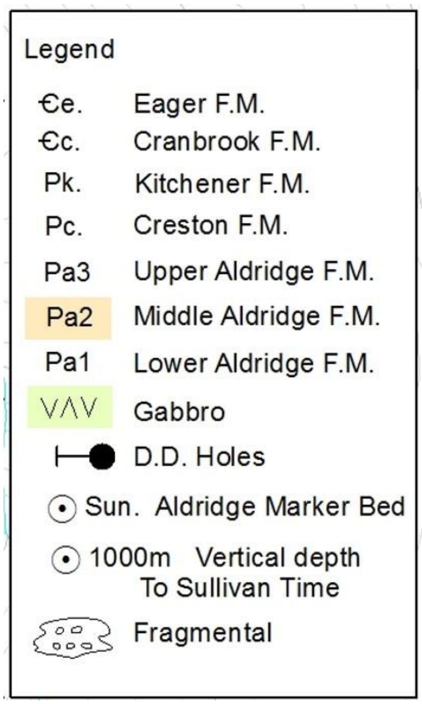

Figure 4a. Legend of Geology map – Figure 4

7. Summary and Conclusions

(Refer to attached Expert Geophysics report for the maps, grids, sections, elevation slices and 3D voxels.)

The Aldridge block lies in a, contaminated by, industrial noise area. The powerlines destroyed EM data on middle and low frequencies. Inversions of the EM data made only for 8 lines in the middle of the block where the noise has the lowest intensity. Regardless of the EM contamination, some structures and anomalies were observed on the surveyed block. The most prominent is a linear conductive structure shown in the survey line 1600 (see Figure 11 -a – Appendix 1)
As the data inversion shows (see report resistivity sections), the anomaly represents a dome structure arising from a deep very conductive horizon. There are other visible subvertical but less conductive zones coming to the surface on the middle part of the block.

It is recommended to analyze all data, MobileMT EM, VLF and magnetic, in relation with an exploration model considered on the properties and integrating with all available geological and geochemical information, for outlining prospective places for following up.

8. Statement of Expenditures

STATEMENT OF EXPENDITURES
ALDRIDGE 1 PROPERTY
Airborne MT Geophysical Survey

Survey performed between May 31st to June 4th, 2021		
	Details	**$ Paid**
WAGES:		
I.Gendall - Geologist	May&June/2021	
2 days @ $600/day		$1,200.00
Planning/Supervision/Geological Interpretation		
GEOLOGICAL CONTRACTOR:		
High-Grade Geological Consulting		
Cranbrook, BC		
1 days @ $500/day	June/2021	$500.00
Geological Interpretation		
GEOPHYSICS CONTRACTOR:		
EXPERT GEOPHYSICS LIMITED, North York, ON		
306 Line KM completed	May&June/2021	$69,786.92
Invoices 21003-01, 02 + 03		
MAPS & REPRODUCTIONS:		$275.00
REPORT WRITING		$500.00
	TOTAL =	**$72,261.92**

9. References

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Statement of Qualifications – D. L. Pighin

I, David L. Pighin, P. Geo. do hereby certify that:

1. I am a self-employed consulting geologist whose office is at Hidden Valley Road, Cranbrook, BC. Mailing address is 301 8th Street S. Cranbrook BC, V1C 1P2.

2. I am a member in good standing of the Association of Professional Engineers and Geoscientists of the province of British Columbia.

3. I have been actively involved in mining and exploration geology, primarily in the Province of British Columbia, for the past 55 years.

4. I was employed by Cominco Ltd. for 24 years, first as a prospector, then as an exploration technician, and finally as an exploration geologist.

5. Since 1989, I have worked for numerous junior exploration companies.

6. I have worked as an exploration geologist in BC, the Yukon, the NWT, New Brunswick, in most of the western United States and Mexico.

7. I have designed numerous diamond drill programs small and large (>2 million dollars).

8. I have planned and managed numerous exploration programs designed to find deposits of base metals, tungsten, molybdenum, gold, diamonds, and rare earth metals.

Dated this 15th day of December, 2021

David L. Pighin, P.Geo

PROFESSIONAL
PROVINCE OF
D. L. PIGHIN
BRITISH COLUMBIA
GEOSCIENTIST

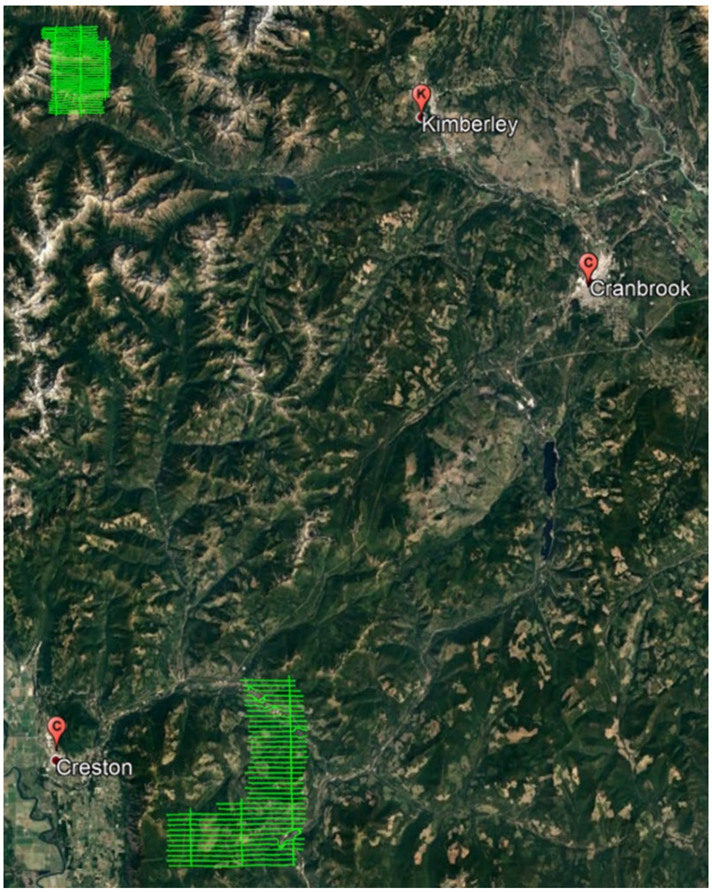
APPENDIX 1

Data Acquisition and Processing Report Helicopter-borne MobileMT Electromagnetic & Magnetic survey – Expert Geophysics

Data Acquisition and Processing Report

Helicopter-borne **MobileMT**

Electromagnetic & Magnetic survey



Aldridge Area and Hungry Creek Area MobileMT Project

in British Columbia for DLP Resources,
by Expert Geophysics Limited.
Address:
1225 Gorham St. Newmarket, Ontario, L3Y 8Y4
Tel: (+1)-647-402-8437 (EGL)
info@expertgeophysics.com
www.expertgeophysics.com

'Expert Geophysics' Job #21003

June, 2021

Contents

Tables

Figures

1 Executive Summary

Expert Geophysics Limited (EGL) conducted a helicopter-borne **MobileMT** electromagnetic and magnetic survey in Cranbrook and Kimberley areas, British Columbia over two blocks for **DLP Resources Inc**. Electromagnetic and magnetic geophysical data were acquired using EGL's airborne **MobileMT** system. Please refer to Appendix I for the Company Profile and Appendix II for the **MobileMT** technology description.

The purpose of the survey was mapping bedrock structure and lithology, including possible alteration and mineralization zones, using apparent conductivity corresponded to different frequencies, inverted EM data into resistivities with depth, available VLF EM data and the magnetic field reflected magnetic properties of the bedrock units. A total of 8 production flights were flown to complete 519 line-kilometers of the survey over two blocks; Aldridge with 306 line-kilometers of the survey over a 140 sq.km area; Hungry Creek with 213 line-kilometers of the survey over a 50 sq.km area.

The survey was flown using helicopters Eurocopter AS 350 B3, registration C-GBKX, of the aviation company Mustang Helicopters. The survey production flights started on May 31st, 2021 and data acquisition was completed on June 4th, 2021. The survey operations were conducted from Cranbrook and Creston, British Columbia, Canada.

The survey lines for Aldridge and Hungry Creek are oriented E-W (90°E) at 500 m spacing for Aldridge area (block 21003) and 250 m spacing for Hungry Creek area (block 21003_HC), while tie lines are oriented in perpendicular direction (180°S) to the survey lines and spaced at 5000 m in Aldridge area and 2500 m in Hungry Creek area.

The geophysical survey results are presented in the form of digital databases, maps, grids, sections, elevation slices and 3D voxels. The report describes the data acquisition, processing and inversion procedures, equipment and digital data specifications, basic data analysis.

2 Introduction

The report describes the **MobileMT** airborne electromagnetic and magnetic survey that **Expert Geophysics Limited** (**EGL**, Appendix I) performed for **DLP Resources Inc.** in the period of May 31st, 2021 – June 4th, 2021 over two blocks located approximately 50 km southwest of Cranbrook (Aldridge) and

35 km west of Kimberley (Hungry Creek), British Columbia, Canada. Electromagnetic passive fields and magnetic field data were gathered using **MobileMT** helicopter-borne system (Appendix II).

The Survey Area section of the report contains description of the survey area and flight paths. The Field Operation section includes information about the operation flow, the airport and base stations locations and flights dates. The Survey Equipment section describes the main and ancillary equipment used for the data acquisition. The Data Processing and Deliverables Specifications section consists of main data processing and inversion procedures and final products description. The Survey results discussion section includes basic data analysis and recommendations for further data analysis.

The following table includes a brief reference of the survey specifications (Table 1).

Table 1 - Summary Project Information

Client:	**DLP Resources Inc.**
Client/representative's contact:	Ian Gendall <iangendall@dlpresourcesinc.com>
EGL Job Number	#21003
Survey area location:	Kimberley and Cranbrook, British Columbia, Canada
Crew and aircraft location:	Cranbrook and Creston, British Columbia, Canada
Mag Base station location Hungry Creek:	UTM projection Zone 11 N 587341.75 m E 5496251.20 m N (Cranbrook)
Mag Base station location Aldridge:	UTM projection Zone 11 N 536697.4 m E 5431835.75 m N (Creston)
EM Ref station location Hungry Creek:	UTM projection Zone 11 N 553229.6 m E 5494806.00 m N (Cranbrook)
EM Ref station location Aldridge:	UTM projection Zone 11 N 567092.4 m E 5533607.3 m N (Creston)
Block:	Hungry Creek
Total line kms:	233.7 line-km
Total Survey Area:	50 sq.km
Traverse line direction/spacing:	90°; 250 m
Tie lines direction/spacing:	180°; 2500 m
Dates flown:	05/31/2021 – 06/01/2021
Block:	Aldridge
Total line kms:	332.6 line-km
Total Survey Area:	140 sq.km
Traverse line direction/spacing:	90°; 500 m
Tie lines direction/spacing:	180°; 5000 m
Dates flown:	06/02/2021 – 06/04/2021
Helicopter:	Eurocopter AS 350 B3, C-GBKX, Mustang Helicopters
Average survey speed:	16.7 m/sec
Average Helicopter terrain clearance:	223 m
Average magnetometer clearance:	135.6 m
Average EM sensor clearance:	115 m
Coordinates Datum:	WGS84
Coordinates Projection:	UTM, Zone 11N, Central Meridian 117° W
MobileMT extracted frequencies, Hz Hungry Creek:	26, 33, 70, 84, 103, 137, 166, 209, 267, 338, 421, 10769, 13571, 17099
MobileMT extracted frequencies, Hz Aldridge:	26, 33, 103, 534, 675, 4274, 5382, 8550, 10769, 13571, 17099, 21542

3 Survey Areas and Flight Specifications

The **MobileMT** Hungry Creek and Aldridge survey areas are located approximately 35 km west of Kimberley (Hungry Creek) and 50 km southwest of Cranbrook (Aldridge), British Columbia, Canada.

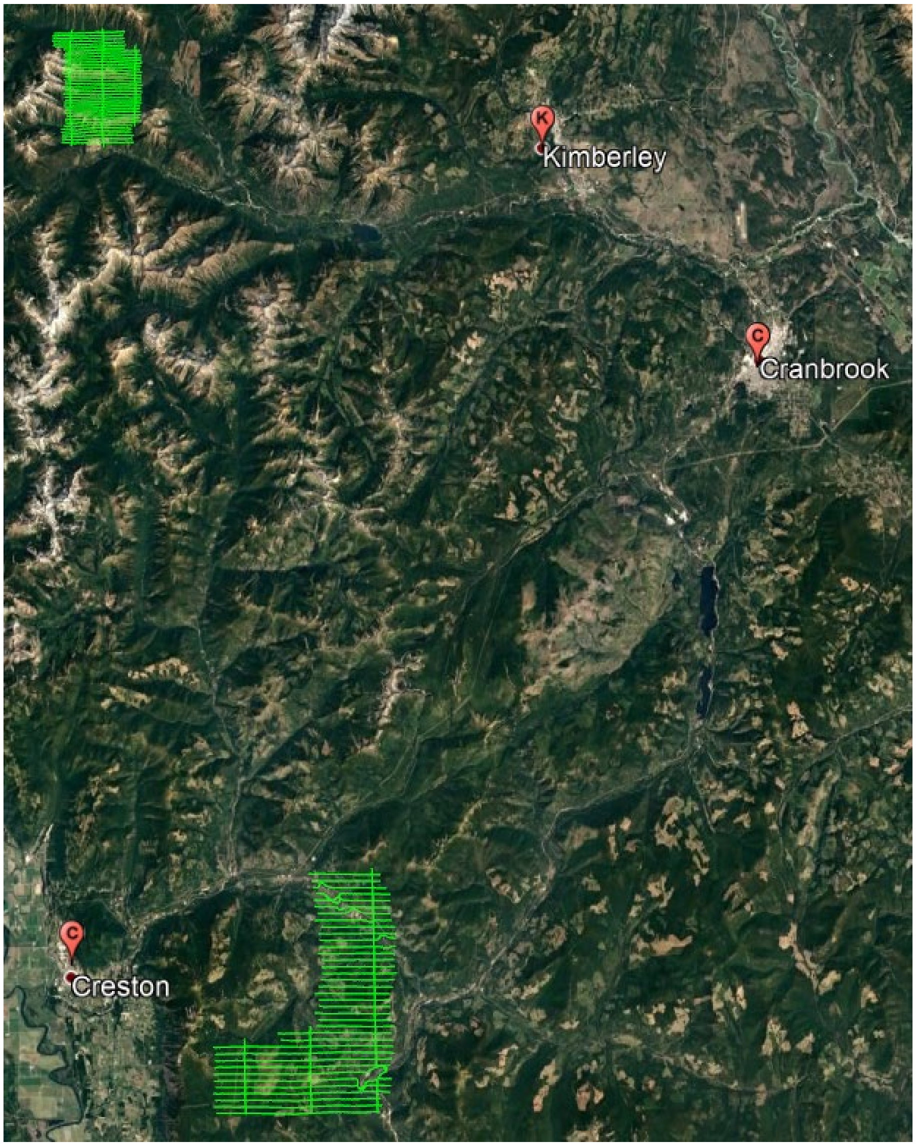


Figure 1 - Survey Area Locations. Block names from up to down: Hungry Creek and Aldridge

The survey flown with an Eurocopter AS 350 B3, registration C-GBKX, helicopter operated by the aviation company Mustang Helicopters.

- Average terrain clearance of the helicopter during the survey was 223 m, at average speed 16.7 m/sec.
- Average terrain clearance of the magnetometer bird during the survey was 135.6 m,
- Average electromagnetic sensor terrain clearance 115 m.

3.1 Hungry Creek Block

The **MobileMT** Hungry Creek Block is located about 35 km west of Kimberley city, British Columbia (Figure 2). Flight paths over the survey block are presented in Figure 3.

Figure 2 – Hungry Creek block location with respect to Kimberley city

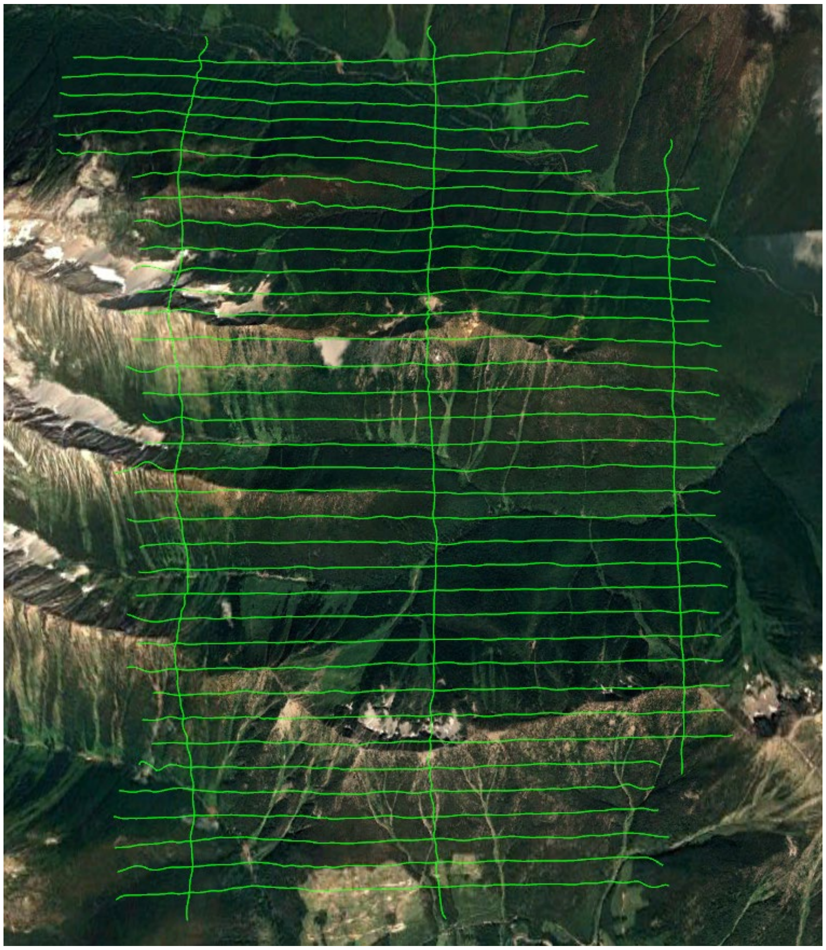


Figure 3 – Hungry Creek Survey block flight path

The "WGS84 / UTM zone 11N" coordinate system information is displayed in Table 2. The survey flight lines specifications are in Table 3.

Table 2 - Coordinates of the Hungry Creek survey block (WGS84, UTM zone 11N)

Hungry Creek Project Block	
X	**Y**
534096	5511668
540012	5511695
540066	5510226
541157	5510240
541359	5504081
540605	5504054
540712	5502518
534891	5502397
535053	5509889
534217	5509930

Table 3 - Flight lines specifications (Hungry Creek)

Line spacing, m	Lines direction	Line numbers	# of lines	Line kms
250 m (traverse)	90°	3000-3350	36	208
2500 (tie)	180°	5000-5020	3	25.7
Total			**39**	**233.7**

3.1 Aldridge

The **MobileMT** Aldridge Block is located about 50 km southwest of Cranbrook city, British Columbia, Canada (Figure 2). Flight paths over the survey blocks are presented in Figure 5.

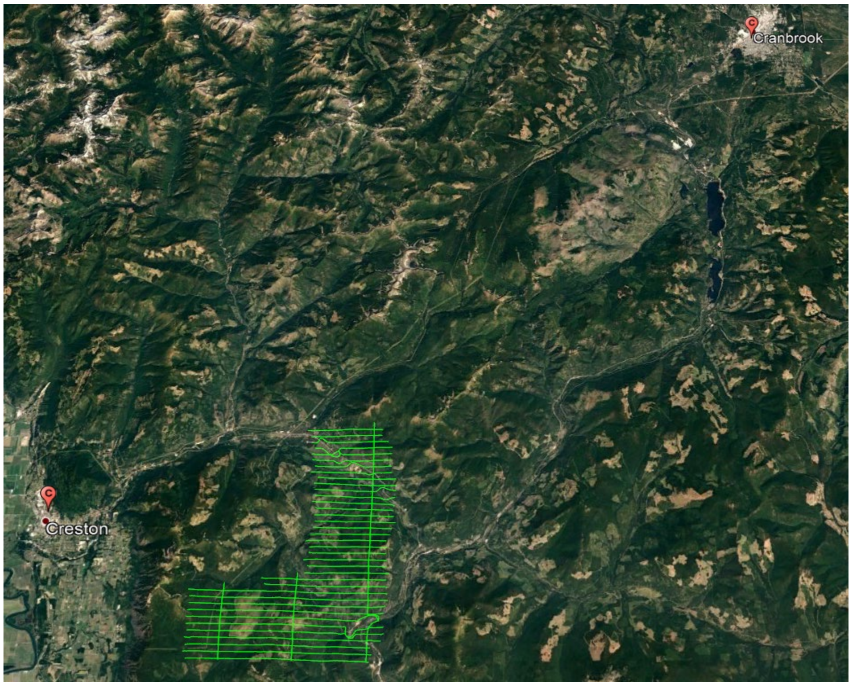


Figure 4 – Aldridge Survey block location with respect to Cranbrook city and Creston town

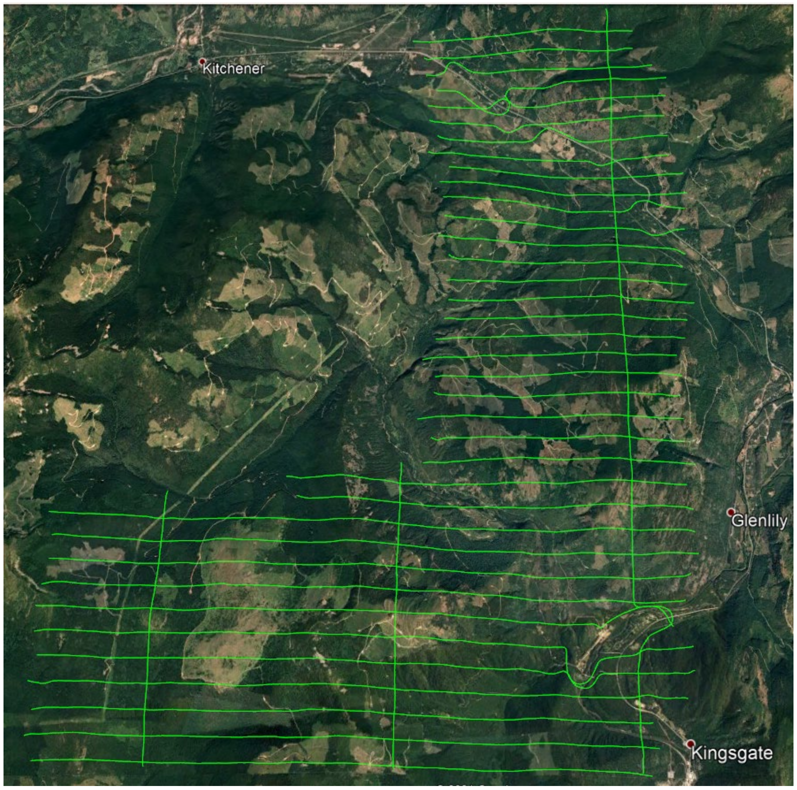


Figure 5 - Survey block Albridge flight path

The "WGS84 / UTM zone 11N" coordinate system information is displayed in Table 4. The survey flight lines specifications are in Table 5.

Table 4 - Coordinates of the Aldridge survey block (WGS84, UTM zone 11N)

Aldridge Project Block			
X	Y	X	Y
553728	5446013	546711	5430039
559230	5445455	546738	5432085
559868	5444976	546525	5433175
560054	5442558	548944	5433122
560453	5441893	551708	5433042
560347	5440484	551708	5433574
559948	5439900	551310	5434052
560161	5439873	554313	5434079
560453	5438411	554526	5435009
560187	5437508	554313	5435434
559895	5436896	554393	5437002
560001	5434982	554792	5437640
560267	5434398	555004	5439501
560107	5432006	554579	5440033
559948	5429321	554499	5441681
559097	5428922	554233	5442558
559177	5427912	554287	5444073
546685	5428045	554127	5445428
546499	5428577		

Table 5 - Flight lines specifications (Aldridge)

Line spacing, m	Lines direction	Line numbers	# of lines	Line kms
500 m (traverse)	90°	1000-2800	40	300.5
5000 (tie)	180°	9000-10000	3	32.1
Total			**107**	**332.6**

4 Field Operations

4.1 Operation schedule

The survey operations were conducted from the Cranbrook and Creston, British Columbia, Canada. The survey executed in 8 production flights started on May 31st, 2021 and data acquisition was completed on June 4th, 2021.

Table 6 - Operation schedule

Date	Estim. flown, km	Operation
31-May-21	96.4	Late start due to a broken mag signal cable. Fixed at the airport. 2 production flights completed.
1-June-21	116.9	2 production flights to complete 21003_HC block. Base station was relocated East of Creston for 21003 block. Location was found noisy and needs to be relocated.
2-June-21	70.0	Base station was relocated East of survey area. 01 production flight was completed. Crew moved to Creston.
3-June-21	167.1	2 production flights. F07 cut short due to strong gusting winds over survey area.
4-June-21	69.2	1 production flight to complete planned lines for this project. Base station was retrieved from the field and packed along with the mag base for the next project.

4.2 Aircraft parking and base stations locations

Locations of the aircraft parking, magnetic base station and MobileMT reference base station are specified in Table .

Table 7 - Aircraft parking and base station locations

	Position
Aircraft parking, Hungry Creek	Cranbrook, British Columbia, Canada
Aircraft parking, Aldridge	Creston, British Columbia, Canada
Mag base station Hungry Creek	UTM projection Zone 11 N 587341.75 m E 5496251.20 m N (Cranbrook)
Mag base station Aldridge	UTM projection Zone 11 N 536697.4 m E 5431835.75 m N (Creston)
EM Ref base station Hungry Creek	UTM projection Zone 11 N 553229.6 m E 5494806.00 m N (Cranbrook)
EM Ref base station Aldridge	UTM projection Zone 11 N 567092.4 m E 5533607.3 m N (Creston)

4.3 Office and Field Personnel

The following personnel participated in the project support and field operations:

Project Managers: Andrei Bagrianski (EGL);

EGL Operators: Patrick Yee and Matthew Johnston;

DataQC, Processor: Andrei Bagrianski (EGL);

Tech.support: Mikhail Kuzmin (EGL);

Final data processing, finals producing, report: Alexander Prikhodko (EGL); Julian Boada (EGL).

5 Survey Equipment and Specifications

5.1 Equipment composition

The main instrumentation installed on the **MobileMT** tow-bird:

- Three orthogonal induction coils (1.4 m diameter each) to measure naturally occurring magnetic fields in the frequency range 25 Hz – 20,000 Hz
- Geometrics G822A Cesium Magnetometer, installed in a separate towed-bird, 20 m above the **MobileMT** bird, sensitivity of 0.001 nT/10 Hz sampling
- GPS antenna, installed on the towed-bird with the magnetometer.

The main instrumentation installed on the helicopter:

- EGL PC-104 based Data Acquisition System
- EGL Navigation system with Pilot Steering Indicator
- Smartmicro model UMRR-0A Radio Altimeter, 0 – 500 m range
- GPS antenna, installed on the helicopter tail

Base Stations and Ground Support instrumentation comprises:

- **MobileMT** Ground Base Station, 4-channel (2 channels for signal and 2 channels for reference signal), to measure variations of the electric field in two directions with 4 pairs of electrodes. Electrical line length in Hungry Creek block – 50 m each line, direction X – 232 degrees, Y – 322 degrees (N1 base station). Electrical line length in Aldridge block – 100 m each line, direction X – 30 degrees, Y – 120 degrees (N2 base station).
- GEM Systems GSM-19 Base Station Magnetometer, 0.1 nT sensitivity, with data logger;

- A Field Data Processing Workstation and a full suite of software for the quality control and preliminary processing of the airborne geophysical data.

MobileMT VLF specifications:

- VLF-EM System: EGL proprietary digital system
- Model: Matrix Plus
- Manufacturer: EGL
- Antenna: used in the MobileMT three orthogonal coils (x,y,z)
- Primary Sources: up to 4 discrete frequencies (stations)
- Output Parameters: Amplitude (secondary field), vertical and planar ellipicities, azimuth, tilt angle
- Sample Rate: 0.1 second
- Gain: Constant gain setting
- Filtering: No filtering

MobileMT EM specifications:

- Airborne receiver: Three orthogonal induction coils (1.4 m diameter each)
- Airborne shell: Aerodynamic shaped capsule
- Digitizing rate: 73,728 Hz
- Tow cable length: 97 m
- Ground sensors 4 pairs of electrodes
- Electrode separation 100 m
- Lines EM base station directions 232^0, 322^0 (Hungry Creek) and 30^0, 120^0 (Aldridge)
- Frequency range: 25 Hz – 20,000 Hz
- Output computed parameters: Apparent conductivity for selected frequencies
- Output frequencies: Selectable from 25 Hz – 20,000 Hz depending on signal strength.

Selected frequencies and corresponded frequency gates are in Table 6

Table 6 - Frequency gates extracted from the data (Hz)

Start	End	Center
22.8	30.4	26.3[1, 2]
28.7	38.4	33[1, 2]
57.3	76.7	70.2[1]
72.3	96.6	84[1]
91	121.8	103.2[1, 2]
114.7	153.4	136.9[1]
144.5	193.3	166[1]
182.1	243.5	209.3[1]
229.4	306.8	267.1[1]
289	386.6	338.4[1]
364.1	487.1	420.8[1]
458.8	613.7	533.5[2]
578	773.2	675.3[2]
3670.3	4909.3	4274.4[2]
4624.3	6185.3	5382.4[2]
7340.6	9818.5	8549.7[2]
9248.6	12370.6	10768.7[1, 2]
11652.5	15585.9	13571.4[1, 2]

14681.2	19637.1	17099.1[2]
18497.1	24741.1	21542[2]

Hungry Creek[1], Aldridge[2]

5.2 The Airborne Magnetometer System

The airborne magnetometer is a state-of-the-art system developed by EGL. It utilizes a Geometrics G822A cesium magnetometer sensor, installed in the towed-bird and the high accuracy Larmor frequency counter developed.

5.3 The Airborne GPS Navigation System

EGL uses a proprietary GPS navigation system utilizing the GPS Receiver with Linx RXM-GNSS-TM GPS Engines. The key features of the GPS Receiver are:

• L1 1575.42MHz, C/A code

• 33-channel satellite tracking

• Position accuracy: 2.5m

• 10 Hz update rate

• Constellation System Support:

- GPS
- GLONASS
- GALILEO
- QZSS

• DGPS support:

- (SBAS) Satellite-Based Augmentation System
- (RTCM) Radio Technical Commission for Maritime Services
- (WAAS) Wide-Area Augmentation System
- (EGNOS) European Geo-Stationary Navigation System
- (MSAS) MTSAT Satellite-Based Augmentation System
- (GAGAN) GPS-Aided Geo-Augmented Navigation

An EGL Computer/Pilot Steering Indicator is used to compute the flight path grids in real-time onboard the helicopter (Figure 7, Figure 8).

Figure 6 - Pilot Steering Indicator and Radio Altimeter Indicator

Figure 7 - EGL Navigation Computer, Moving-map Display

5.4 Data Acquisition System

The data acquisition system features an EGL PC-104-based data acquisition system. The EGL data acquisition system is an instrument developed by EGL for airborne geophysical data acquisition tasks. It features EGL proprietary technology and software. The EGL data acquisition system simultaneously records data on internal flash disk and displays it on a color LCD display, at a repetition rate of 0.33 sec, for post-flight computer processing. The five main functions fulfilled by the data acquisition system are: 1) system control and monitoring, 2) data acquisition, 3) real-time data processing, 4) navigation, and 5) data playback and analysis.

5.5 Radar-Altimeter

A Smartmicro model UMRR-0A radar altimeter system records the ground clearance to an accuracy of 3% over a range of 0 ft to 1,640 ft (0 to 500 m). The altimeter is interfaced to the navigation system and the data acquisition system with an output repetition rate of 10 Hz and digitally recorded.

5.6 MobileMT ground base station

The MMT Ground Base Station comprises:

- 4 pairs of electrodes, 50 m (Hungry Creek) and 100 m (Aldridge) separation each;
- Lines directions 232^0, 322^0 (Hungry Creek) and 30^0, 120^0 (Aldridge)

- EGL PC-104 based Data Acquisition System with a GPS system to record the GPS time together with the electric data;
- A power supply unit.

5.7 MobileMT Magnetometer base station

The Magnetometer Base Station was a GSM-19 Overhauser magnetometer.

The base-station magnetometer, with digital recording, operated continuously throughout the airborne data acquisition, with a sampling interval of 0.2 seconds, and sensitivity of 0.1 nT. The ground and airborne system clocks synchronized using GPS time, to an accuracy of far better than 1 second. At the end of the day's work, the digital data transferred from the base station's data-logger to the FWS. This base station located in a place with low magnetic gradient (less than 2nT/m). The base station sited away from moving steel objects, vehicles or hydro transmission lines to ensure minimum interference and noise levels.

5.8 Field Computer Workstation

The Field Data Processing Workstation (FWS) is a dedicated computer system for use at the technical base in the field. The workstation to be used on this project is designed for use with Geosoft OASIS Data Processing Software. It is also capable of processing and imaging all the geophysical and navigation data acquired during the survey, producing semi-final, preliminary-levelled maps.

The main features of the FWS are:

- Portability;
- Digital Data Verification - flight data quality and completeness were assured by both statistical and graphical means;
- Flight Path Plots - flight path plots quickly generated from the GPS satellite data to verify the completeness and accuracy of a day's flying;
- Versatility - the FWS used in both the field and the office. Data pre-processed in the field up-loaded to the computers at the Data Processing Centre to speed up data turnaround;
- Preliminary Maps - the FWS software permitted creation preliminary maps of the electromagnetic and magnetic data during the survey;
- Quality Control – acquired data quickly and efficiently checked for quality in the field on daily basis.

6 Data Processing and Deliverables Specifications

6.1 EM Data Processing

The data recorded by the towed bird sensors (three mutually orthogonal dB/dt components of the EM field) is first merged with the recorded two mutually orthogonal electrical components of electric field on the stationary base station into one file. The program which is proprietary of EGL applied the FFT to the records of the merged file and calculates the matrices of the relation between the magnetic and electrical field signals on the different time bases and in the different frequency bands. The module of the determinant of each matrix is a rotation invariant parameter and it is used as an output parameter.

The frequencies for the data processing selected based on the signal strength for each surveyed block and the local noise interference. The selected frequencies for the survey presented in the Table 6.

6.2 EM data inversions:

MobileMT data was inverted with nonlinear least-squares iterative inversion developed by N. Golubev for MobileMT. The inversion algorithm is based on the conjugate gradient method with the adaptive regularization (*Zhdanov M.S, Geophysical Inverse Theory and Regularization Problems. Methods in Geochemistry and Geophysics, 36. Elsevier, 2002. 609 p.*). The inversion procedure is executed for each station independently. The algorithm uses weighting of the inverted parameters. Consequently, sensitivity of the data to resistivity of each layer is approximately equal and independent of a layer's depth. This way provides high resolution of deep parts of a model, as upper part. Each measured data station along lines is inverted without any sampling along a line.

The data inversion procedures include:

- Data preparation and its conversion for the software input;
- Creation an inversion parameter file and a starting model. The model consisted of 140 "layers", 30 m thickness with uniform resistivity. The starting resistivity is calculated as an average value for each station apparent resistivity curve;
- Inversions;
- Results control and analysis (RMS, data and model comparison);
- The inverted data import into Geosoft for database, sections, depth slices and a 3D voxel compilation.

Misfit of inversions (RMS) is calculated as:

$$\text{RMS}(\rho)=\sqrt{\frac{\sum_{n=1}^{N}(\rho_n^{pr}-\rho_n^{obs})^2}{N}}$$

Where obs – observed, pr – predicted resistivity. The misfit values are in the inversion database followed the report.

All electromagnetic data (apparent conductivity for different frequencies) where inverted into resistivity-depth distribution. The resulted products of the inversions include 3D voxels, resistivity-elevation slices, resistivity sections for each surveyed line.

6.3 Magnetic Data Processing

Raw total magnetic field data are recorded at 0.1-second sampling intervals.
The Earth's magnetic field is known to vary as a function of time. Time varying magnetic events such as magnetic storm transients and more regular diurnal variations which occur during the acquisition of magnetic data may affect the accuracy of the survey data and distort magnetic anomalies. Separation of the time-dependent variations in the magnetic field from a real geomagnetic anomaly requires an independent estimate of the transient magnetic field events. Base station magnetometer data provides this independent estimate. The diurnal base station data was analyzed for spikes and spurious sections which were manually removed from the dataset. A 10-point low pass filter was then applied to the diurnal data.

The magnetic data was corrected for the diurnal variations, leveled and filtered. Raw magnetic data has initial preprocessing only (spike removal, short gaps interpolated). On the next stage, all of the magnetic data processed by an adjustment procedure that statistically treats the line data. It is designed to recognize and remove systematic bias and small random errors in the data which can cause survey line mis-ties. Bias errors in the magnetic data arise from changes in the level of the total magnetic field.

To remove bias errors, each profile of a given data set in the survey was shifted up or down systematically by an amount such that the sum of the square of the mis-tie errors for that data set over the entire survey network is minimized. The systematic corrections are further constrained such that the sum of the systematic corrections is zero, effectively eliminating DC shifts to the network as a whole. After this systematic adjustment, the remaining intersection mis-ties studied and removed. The final statistical choice of the data values at each intersection is a function of the reliability weights of each line for each data set. The random error correction for each data set prorated between intersections. After editing the adjusted line data for line pulls and data quality, they were input to a minimum curvature gridding algorithm and a grid produced.

As additional products IGRF (total regional field) removal (ResMag) and calculated vertical derivative (cvg) were produced.

6.4 VLF Data Processing

VLF-EM data were captured using the MobileMT three components receiver. The instrument is capable of simultaneously monitoring up to four VLF frequencies, recording amplitude (secondary field), transmitter station azimuth (relative to aircraft orientation), vertical and planar ellipticities and tilt angle.

For this project, the following VLF transmitters were monitored:

- Station NAA: Cutler, Maine – 24.0 kHz
- Station NML: La Moure, North Dakota – 25.2 kHz
- Station NLK: Jim Creek, Washington – 24.8 kHz

But the 24 kHz signal was accepted and presented in the final database.

Processing of the raw amplitude data consisted of the following:

- Mask out any embedded “off-line” data
- Noise reduction filtering using non-linear Naudy filtering (5 pt filter width)
- Initial levelling (mean subtraction)
- Fine levelling (micro-levelling)

The finalized data for accepted frequency(s) were presented as a series of amplitude colour images. High amplitude values correspond to conductive zones.

6.5 Ancillary data processing

Positions and altitudes of the magnetic sensor and EM receiver are derived from data of two GPS antennas (A – on the helicopter, B- on the magnetic sensor bird) and radar-altimeter positioned on the helicopter. A digital elevation model (DEM) channel has been calculated by subtracting the filtered radar-altimeter data from the GPS-A elevation.

6.6 Data Deliverables

6.6.1 Hungry Creek Block

EM Database: HungryCreek_EM.gdb presented in a Geosoft GDB format

- The database channels description is in Table 7.

Table 7 - Geosoft HungryCreek_EM.gdb Data Format

Channel Name	Units	Description
xe:	metres	EM bird UTM Easting WGS84 Zone 11 N
ye:	metres	EM bird UTM Northing WGS84 Zone 11 N
ze:	metres	EM bird elevation above geoid
gtime:	Sec of the day	GPS time
RdAlt:	metres	helicopter terrain clearance from radar altimeter
alt_e:	metres	EM bird terrain clearance
DTM:	metres	Digital Elevation Model
PLM:	Units	Powerline monitor
ac_26:	mS/m	Apparent Conductivity for freq 26 Hz
ac_33:	mS/m	Apparent Conductivity for freq 33 Hz
ac_70:	mS/m	Apparent Conductivity for freq 70 Hz
ac_84:	mS/m	Apparent Conductivity for freq 84 Hz
ac_103:	mS/m	Apparent Conductivity for freq 103 Hz
ac_137:	mS/m	Apparent Conductivity for freq 137 Hz
ac_166:	mS/m	Apparent Conductivity for freq 166 Hz
ac_209:	mS/m	Apparent Conductivity for freq 209 Hz
ac_267:	mS/m	Apparent Conductivity for freq 267 Hz
ac_338:	mS/m	Apparent Conductivity for freq 338 Hz
ac_421:	mS/m	Apparent Conductivity for freq 421 Hz
ac_10769:	mS/m	Apparent Conductivity for freq 10769 Hz
ac_13571:	mS/m	Apparent Conductivity for freq 13571 Hz
ac_17099:	mS/m	Apparent Conductivity for freq 17099 Hz

The EM and MAG databases can be synchronized based on *gtime* channel.

Mag Database: Hungry Creek presented in a Geosoft GDB format

- The database channels description is in Table 8.

Table 8 – Geosoft HungryCreek_MAG.gdb Database Format

Channel Name	Units	Description
xm:	metres	mag bird UTM Easting WGS84 Zone 11 North
ym:	metres	mag bird UTM Northing WGS84 Zone 11 North
zm:	meters	mag bird elevation above geoid
xh:	metres	heli UTM Easting WGS84 Zone 11 North
yh:	metres	heli UTM Northing WGS84 Zone 11 North
zh:	meters	heli elevation above geoid
gtime:	Sec of the day	GPS time
RdAlt:	metres	helicopter terrain clearance from radar altimeter
alt_m:	Metres	mag bird terrain clearance
DTM:	metres	Digital Elevation Model
GPS_B_LAT:	Decimal degrees	Mag bird latitude, WGS84
GPS_B-LON:	Decimal degrees	Mag bird longitude, WGS84
basemag:	nT	Magnetic base station data
Magair:	nT	Measured magnetic field
Magcor:	nT	Corrected for diurnal magnetic field
TMI:	nT	Total magnetic intensity, levelled and microlevelled
CVG_TMI:	nT/m	Calculated vertical derivative of the magnetic field

The EM and MAG databases can be synchronized based on *gtime* channel.

VLF Database: Hungry Creek presented in a Geosoft GDB format

- The database channels description is in Table 9.

Table 9 – Geosoft HungryCreek_VLF.gdb Database Format

Channel Name	Units	Description
xe:	metres	EM bird UTM Easting WGS84 Zone 11 North
ye:	metres	EM bird UTM Northing WGS84 Zone 11 North
ze:	meters	EM bird elevation above geoid
gtime:	Sec of the day	GPS time
alt_e:	Metres	EM bird terrain clearance
DTM:	metres	Digital Elevation Model
Amplitude6:	units	VLF secondary field amplitude for freq 24.0 kHz
Azimuth6:	degree	transmitter station azimuth (relative to aircraft orientation) for freq 24.0 kHz
TiltAngle6:		In-Phase [VLF Tilt] for freq 24.0 kHz
El_Vert6:		Quadrature [VLF Vertical Ellipticity] for freq 24.0 kHz
El_Plan6:		VLF Planar Ellipticity for freq 24.0 kHz
Amplitude7:	units	VLF secondary field amplitude for freq 24.8 kHz
Azimuth7:	degree	transmitter station azimuth (relative to aircraft orientation) for freq 24.8 kHz
TiltAngle7:		In-Phase [VLF Tilt] for freq 24.8 kHz
El_Vert7:		Quadrature [VLF Vertical Ellipticity] for freq 24.8 kHz
El_Plan7:		VLF Planar Ellipticity for freq 24.8 kHz

Grids and Maps for Hungry Creek block:

- Refer to Table 10 for summary of grids and maps (Appendix III) which accompany this report.

Table 10 – Lists of Hungry Creek Block grids (in Geosoft format) and maps (in Geosoft/PDF/geoTIFF formats).

Grids	Maps	Description
TMI_CVG	TMI_CVG	Calculated vertical derivative of the magnetic field
TMI	TMI	Total magnetic intensity
DTM	DTM	Digital Terrain Model
ac_26		Apparent Conductivity for freq 26 Hz
ac_33	AC_33	Apparent Conductivity for freq 33 Hz
ac_70		Apparent Conductivity for freq 70 Hz
ac_84:		Apparent Conductivity for freq 84 Hz
ac_103	AC_103	Apparent Conductivity for freq 103 Hz
ac_137		Apparent Conductivity for freq 137 Hz
ac_166		Apparent Conductivity for freq 166 Hz
ac_209	AC_209	Apparent Conductivity for freq 209 Hz
ac_267		Apparent Conductivity for freq 267 Hz
ac_338		Apparent Conductivity for freq 338 Hz
ac_421	AC_421	Apparent Conductivity for freq 421 Hz
ac_10769	AC_10769	Apparent Conductivity for freq 10769 Hz
ac_13571		Apparent Conductivity for freq 13571 Hz
ac_17099	AC_17099	Apparent Conductivity for freq 17099 Hz
ResElev_1850		Resistivity elevation slice, 1850 m ASL
ResElev_1800	ResElev_1800	Resistivity elevation slice, 1800 m ASL
ResElev_1750		Resistivity elevation slice, 1750 m ASL
ResElev_1700	ResElev_1700	Resistivity elevation slice, 1700 m ASL
ResElev_1650		Resistivity elevation slice, 1650 m ASL
ResElev_1600	ResElev_1600	Resistivity elevation slice, 1600 m ASL
ResElev_1550		Resistivity elevation slice, 1550 m ASL
ResElev_1500	ResElev_1500	Resistivity elevation slice, 1500 m ASL
ResElev_1450		Resistivity elevation slice, 1450 m ASL
ResElev_1400	ResElev_1400	Resistivity elevation slice, 1400 m ASL
ResElev_1350		Resistivity elevation slice, 1350 m ASL
ResElev_1300	ResElev_1300	Resistivity elevation slice, 1300 m ASL
ResElev_1250		Resistivity elevation slice, 1250 m ASL
ResElev_1200		Resistivity elevation slice, 1200 m ASL
ResElev_1100		Resistivity elevation slice, 1100 m ASL
ResElev_1000		Resistivity elevation slice, 1000 m ASL
	ResSec_LXXXX	Resistivity Line Sections
VLFamplitude6	Amplitude6	VLF Secondary Field Amplitude for Frequency 24.0 kHz

6.6.2 Aldridge Block

EM Database: Aldridge_EM.gdb presented in a Geosoft GDB format

- The database channels description is in Table 11.

Table 11 - Geosoft Aldridge_EM.gdb Data Format

Channel Name	Units	Description
xe:	metres	EM bird UTM Easting WGS84 Zone 11 North
ye:	metres	EM bird UTM Northing WGS84 Zone 11 North
ze:	meters	EM bird elevation above geoid
gtime:	Sec of the day	GPS time
RdAlt:	metres	helicopter terrain clearance from radar altimeter
alt_e:	Metres	EM bird terrain clearance
DTM:	metres	Digital Elevation Model
PLM:	Units	Powerline monitor
ac_26:	mS/m	Apparent Conductivity for freq 26 Hz
ac_33:	mS/m	Apparent Conductivity for freq 33 Hz
ac_103:	mS/m	Apparent Conductivity for freq 103 Hz
ac_534:	mS/m	Apparent Conductivity for freq 534 Hz
ac_675:	mS/m	Apparent Conductivity for freq 675 Hz
ac_4274:	mS/m	Apparent Conductivity for freq 4274 Hz
ac_5382:	mS/m	Apparent Conductivity for freq 5382 Hz
ac_8550:	mS/m	Apparent Conductivity for freq 8550 Hz
ac_10769:	mS/m	Apparent Conductivity for freq 10769 Hz
ac_13571:	mS/m	Apparent Conductivity for freq 13571 Hz
ac_17099:	mS/m	Apparent Conductivity for freq 17099 Hz
ac_21542:	mS/m	Apparent Conductivity for freq 21542 Hz

The EM and MAG databases can be synchronized based on *gtime* channel.

Mag Database: Aldridge_Mag.gdb presented in a Geosoft GDB format

- The database channels description is in Table 12.

Table 12 - Geosoft Aldridge_Mag.gdb Database Format

Channel Name	Units	Description
xm:	metres	mag bird UTM Easting WGS84 Zone 11 North
ym:	metres	mag bird UTM Northing WGS84 Zone 11 North
zm:	meters	mag bird elevation above geoid
xh:	metres	heli UTM Easting WGS84 Zone 11 North
yh:	metres	heli UTM Northing WGS84 Zone 11 North
zh:	meters	heli elevation above geoid
gtime:	Sec of the day	GPS time
RdAlt:	metres	helicopter terrain clearance from radar altimeter
alt_m:	Metres	mag bird terrain clearance
DTM:	metres	Digital Elevation Model
GPS_B_LAT:	Decimal degrees	Mag bird latitude, WGS84
GPS_B-LON:	Decimal degrees	Mag bird longitude, WGS84

Channel Name	Units	Description
basemag:	nT	Magnetic base station data
Magair:	nT	Measured magnetic field
Magcor:	nT	Corrected for diurnal magnetic field
TMI:	nT	Total magnetic intensity, levelled and microlevelled
cvg:	nT/m	Calculated vertical derivative of the magnetic field

The EM and MAG databases can be synchronized based on *gtime* channel.

<u>VLF Database:</u> Aldridge presented in a Geosoft GDB format

- The database channels description is in Table 13.

Table 13 – Geosoft Aldridge_VLF.gdb Database Format

Channel Name	Units	Description
xe:	metres	EM bird UTM Easting WGS84 Zone 11 North
ye:	metres	EM bird UTM Northing WGS84 Zone 11 North
ze:	meters	EM bird elevation above geoid
gtime:	Sec of the day	GPS time
alt_e:	Metres	EM bird terrain clearance
DTM:	metres	Digital Elevation Model
Amplitude:		VLF secondary field amplitude for freq 24.0 kHz
Azimuth:	degrees	transmitter station azimuth (relative to aircraft orientation)
TiltAngle:		In-Phase [VLF Tilt]
El_Vert:		Quadrature [VLF Vertical Ellipticity]
El_Plan:		VLF Planar Ellipticity

<u>Grids and Maps for Aldridge block:</u>

Refer to Table for summary of the <u>grids</u> and <u>maps</u> (Appendix III) which accompany this report.

Table 15 – Lists of Aldridge Block grids (in Geosoft format) and maps (in Geosoft/PDF/geoTIFF formats).

Grids	Maps	Description
TMI_CVG	21003_Aldridge_TMI_CVG	Calculated vertical derivative of the magnetic field
TMI	21003_Aldridge_TMI	Total magnetic intensity
DTM	21003_Aldridge_DTM	Digital terrain model
ac_26		Apparent Conductivity for freq 26 Hz
ac_33		Apparent Conductivity for freq 33 Hz
ac_103	21003_aldridge_AC_103	Apparent Conductivity for freq 103 Hz
ac_534		Apparent Conductivity for freq 534 Hz
ac_675	21003_aldridge_AC_675	Apparent Conductivity for freq 675 Hz
ac_4274		Apparent Conductivity for freq 4274 Hz
ac_5382	21003_aldridge_ac_5382	Apparent Conductivity for freq 5382 Hz
ac_8550		Apparent Conductivity for freq 8550 Hz
ac_10769	21003_aldridge_AC_10769	Apparent Conductivity for freq 10769 Hz
ac_13571		Apparent Conductivity for freq 13571 Hz
ac_17099	ac_17099	Apparent Conductivity for freq 17099 Hz
ac_21542		Apparent Conductivity for freq 21542 Hz

	ResSec_LXXXX	Resistivity Sections for 8 lines in the middle of the block
VLFamplitude	21003_aldridge_VLFamplitude	VLF Secondary Field Amplitude for Frequency 24.0 kHz

7 Summary and recommendations

A MobileMT airborne survey, including broadband natural electromagnetic fields, the earth's magnetic field, and EM VLF data measurements with precise positioning, has been successfully completed across the Hungry Creek and Aldridge survey areas in British Colombia. The electromagnetic and magnetic data were collected along 'east-west' 36 survey lines spaced at 250 m increments and 3 tie lines with 2500 m spacing across the 50 sq km area for the Hungry Creek block; and along 'east-west' 40 survey lines spaced at 500 m increments and 3 tie lines with 5000 m spacing across the 140 sq km area for the Aldridge block . Electromagnetic readings were taken using an EGL AFMAG&VLF MobileMT system consisted of an airborne three-component magnetic sensor and a base station with two horizontal electric components. A caesium magnetometer in a separate towed-bird has been used for the intensity of the earth's magnetic field measurements.

The purpose of the survey was mapping bedrock structures and lithology, including possible alteration and mineralization zones reflected in electric and magnetic properties of rocks. The airborne geophysical survey results are presented in the apparent conductivity corresponding to different frequencies, in the inverted EM data into resistivities with depth, in the available VLF EM data, as well as in the magnetic field data and its derivatives. The report is followed by digital databases, separate for each method and for each survey block, processed and calculated data grids, maps, and resistivity-depth products – elevation slices, sections and a 3D voxel. Due to intensive influence of powerlines in the northern, SE and SW parts of the Aldridge block, only resistivity sections are provided for 8 lines of the block (without a 3D resistivity voxel and resistivity depth slices).

The electrical properties of rocks assemblages of the areas are reflected in apparent conductivities related to different frequencies and in the inverted data into resistivity-depth distribution. The apparent conductivity parameter describes an inhomogeneous geoelectrical environment in terms of a homogeneous earth that would produce the same measurement and refers to the depth relative to total conductance below the measurement station and a specific frequency. In general, depth of investigation increases with decreasing frequency and total conductance. The nonlinear and complex relation is solved by inversions of the 'apparent conductivity - frequency' data into 'resistivity – depth' distribution.

Hungry Creek block

The 3D resistivity voxel view for the Hungry Creek block is shown in the Figure 8 -. Examples of resistivity sections along some lines are presented in .

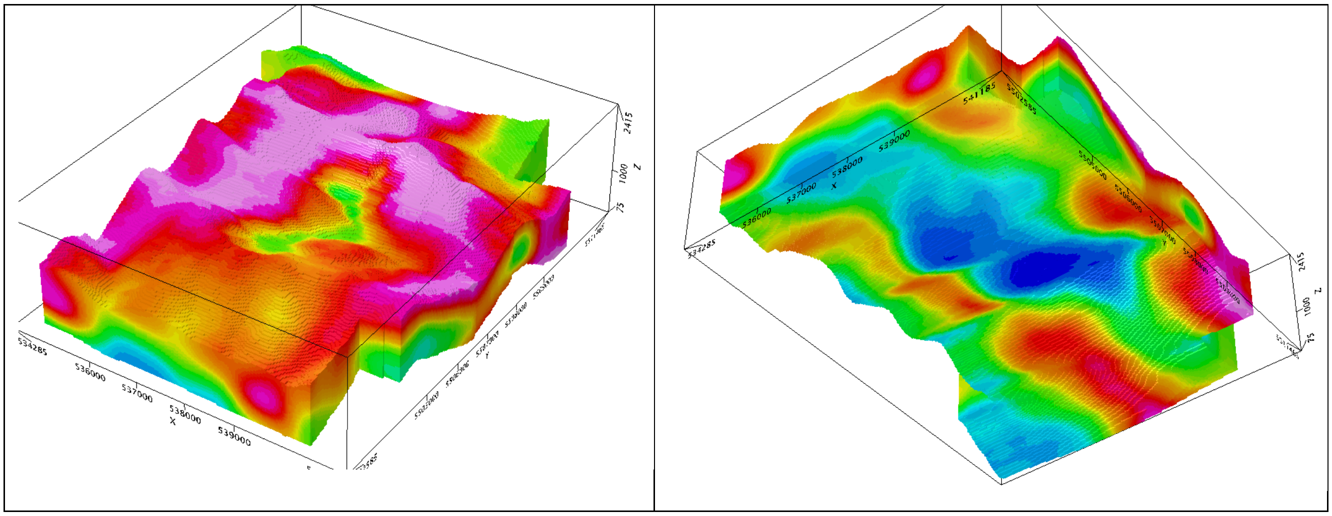


Figure 8 – 3D view of the resistivity voxel (Hungry Creek block) – left view from top, right – from bottom; pink conductors, blue resistors.

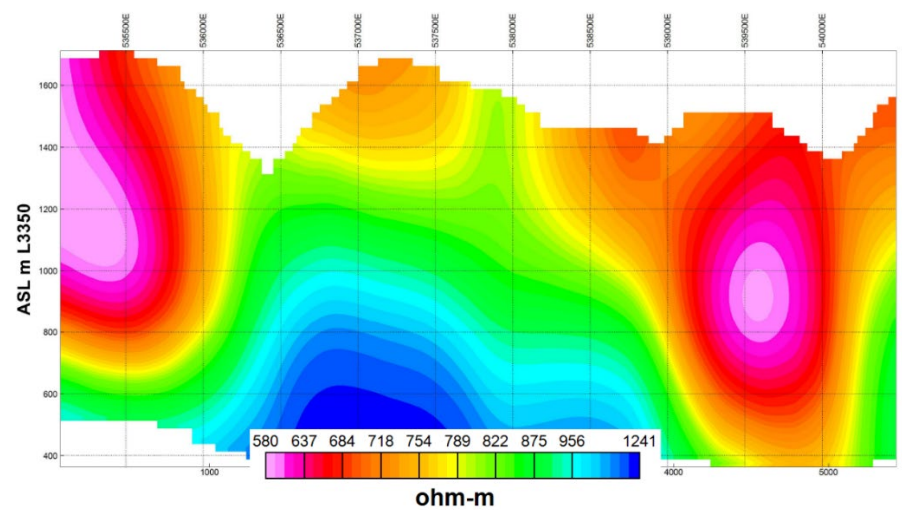


Figure 9 – resistivity section along L3350 (Hungry Creek)

The geological environment of the surveyed block is in the range of inverted resistivities 300-4,300 Ohm-m. Possible local and discrete anomalies could relate to targets with lower absolute resistivity values than estimated since the inversion is not constrained by limited, in their dimensions, sources of anomalies.

There are two main conductive structures with sporadic isometrical comparatively small discrete anomalies inside of the structures. The conductive patterns are reflected in the middle and low frequencies data (Figure 10). The conductors are closely followed by linear magnetic dyke similar anomalies.

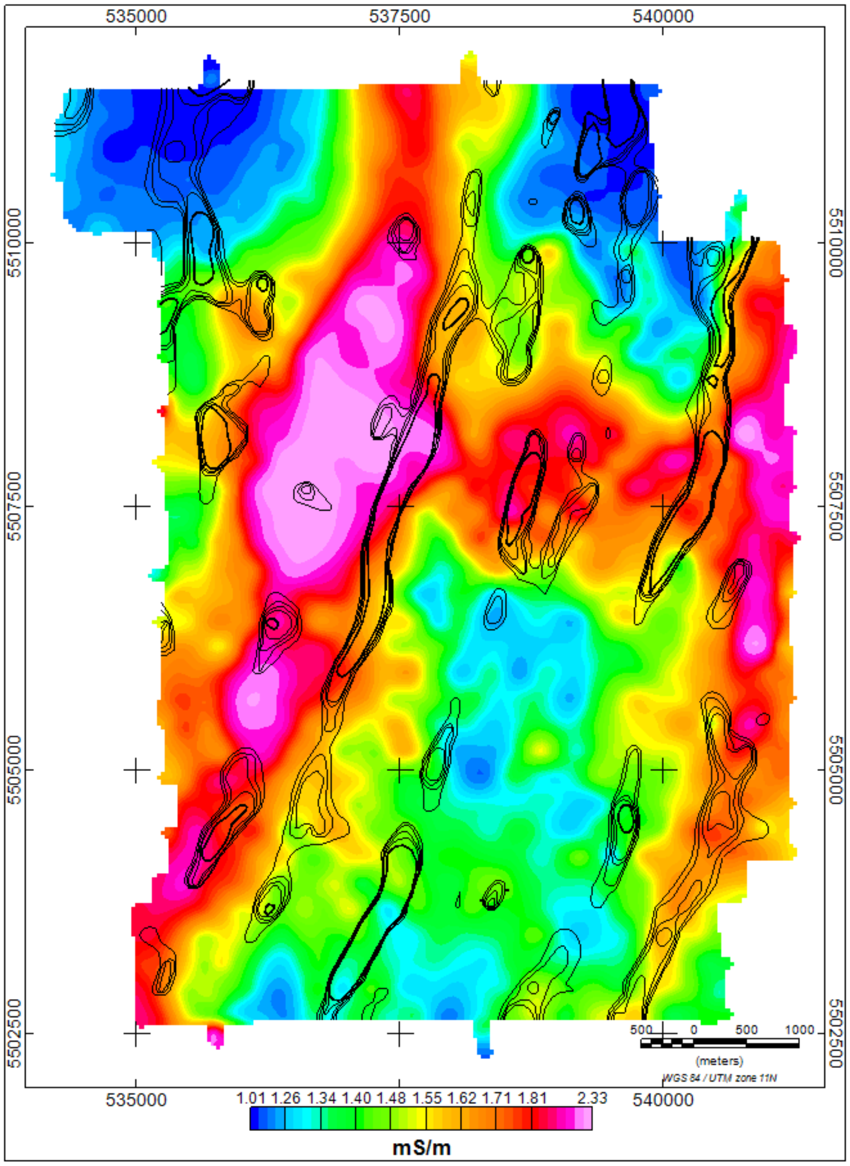


Figure 10 – Apparent Conductivity (421 Hz) color grid with overlapped contours of vertical derivative of magnetic field anomalies

Depth to the epicenters of the conductive zones can be estimated from the inverted data (Figure 9 and other resistivity sections following the report). The actual shape of the conductors in depth might differ from the inverted low resistivity centers since the inversions made without any constraints. Apparent conductivity of high frequencies and VLF amplitude (kHzs, in the corresponded grids and maps following the report) show near-surface and on-surface lithology.

Aldridge block

The Aldridge block lies in a contaminated by industrial noise area. The powerlines (followed PLM map and in Appendix III) destroyed EM data on middle and low frequencies. Inversions of the EM data made only for 8 lines in the middle of the block where the noise has the lowest intensity.

Regardless of the EM contamination, some structures and anomalies were observed on the surveyed block. The most prominent is a linear conductive structure shown in the survey line 1600 (Figure 11).

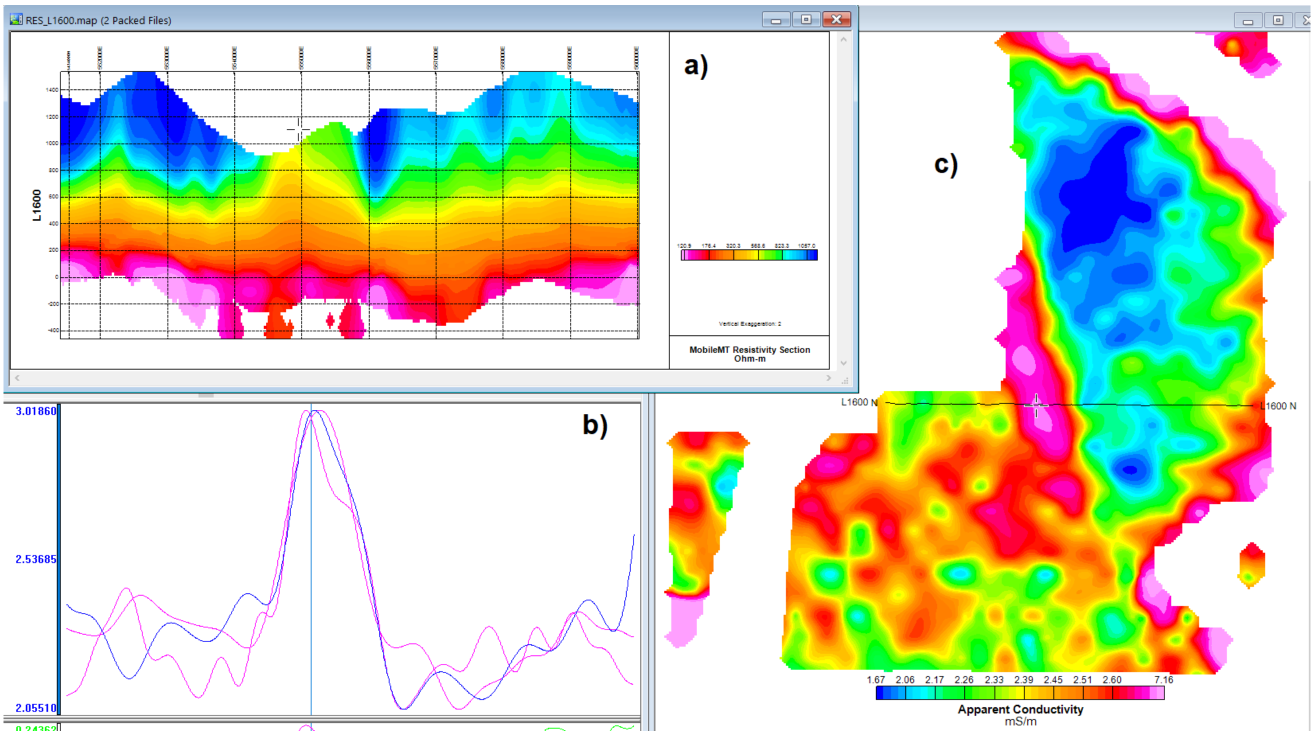


Figure 11 – a) resistivity section along the line 1600; b) apparent conductivity profiles along the 1600 line; c) position of the line on the apparent conductivity color grid for 26 Hz.

As the data inversion shows (followed the report resistivity sections), the anomaly represents a dome structure arising from a deep very conductive horizon. There are other visible subvertical but less conductive zones coming to the surface on the middle part of the block.

It is recommended to analyze all data, MobileMT EM, VLF and magnetic, in relation with an exploration model considered on the properties and integrating with all available geological and geochemical information, for outlining prospective places for following up.

Alexander Prikhodko, Ph.D., P.Geo

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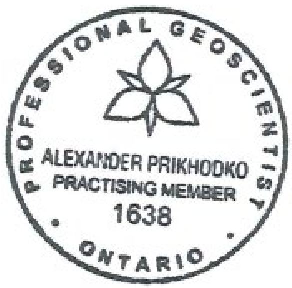
July, 5, 2021

MobileMT Job#21003 for DLP Resources Inc.



Appendix I Company Profile

About us

Expert Geophysics Limited is based in Toronto, Canada.

President and founder, **Andrei Bagrianski**, Ph.D., P.Geo., has over 35 years of professional experience in the acquisition, processing, and interpretation of airborne and ground geophysical data for a wide range of applications. From 2002 to 2016, he was Chief Operating Officer and General Manager at Geotech Ltd. Andrei has been directly involved in contracting, organizing, and supervising hundreds of airborne geophysical surveys on all continents except Antarctica. Andrei has extensive international field work experience that includes projects in Australia, Brazil, Bolivia, Colombia, Ecuador, Peru, Botswana, Malawi, South Africa, Libya, USA, Canada, Russia, Kazakhstan, and India.

Petr Kuzmin, Ph.D., the designer of the **MobileMT** system, has over 40 years of experience in the development of ground and airborne TDEM, MT, and IP methods, equipment, and software. Working for Geotech Ltd., Canada, from 2000 until 2009, Dr. Kuzmin was the principal designer of the award winning systems VTEM, ZTEM, and AirMt. Since 2009, Dr. Kuzmin has completed a number of successful developments: ground AFMAG, ultra-fast airborne TD (HiRes), airborne VLF system, an airborne navigation system, a high accuracy magnetometer counter, and the MobileMT. Dr. Kuzmin holds a doctorate in Geophysics, has authored nearly 20 patents, and published over 40 technical papers.

Vice President and Chief Geophysicist, **Alexander Prikhodko**, Ph.D. in geoscience, P.Geo., Executive MBA, has previously held Chief Geophysicist position, for 10 years, in a gold-platinum mining company extensively used in its mineral exploration programs borehole, ground and airborne geophysics. He has been associated with the airborne geophysics industry since 2005 (Aeroquest Limited and Geotech Ltd.) holding management positions as Regional General Manager, Data Interpretation Manager, Director of Geophysics and working on exploration projects for diverse commodities in regions over the world. He is an author and co-author of many publications dedicated to airborne EM. In 2019 he was awarded Barlow Medal for Best Geological Paper published in CIM publications (Canadian Institute of Mining, Metallurgy and Petroleum).

Services

Expert Geophysics Limited specializes in airborne geophysical surveys with advanced electromagnetic systems. **EGL** offers surveying with **Mobile MagnetoTellurics** (**MobileMT**), the most advanced generation of airborne AFMAG technologies. The patent pending **MobileMT** technology utilizes naturally occurring electromagnetic fields in the frequency range of 25 Hz – 30 000 Hz. The **MobileMT** technology is the product of extensive experience in developing equipment and signal/data processing algorithms for natural electromagnetic fields measurement.
MobileMT combines the latest advances in electronics, airborne system design, and sophisticated signal processing techniques.

Appendix II MobileMT electromagnetic technology

MobileMT (Mobile MagnetoTellurics) is a newly developed approach to electromagnetic data acquisition from synchronized a towed three component inductive magnetic sensor and grounded two orthogonal electric lines. The system is designed and implemented in order to overcome existing limitations of airborne techniques based on passive electromagnetic fields principles and, ultimately, for improving exploration efficiency.

MobileMTis a passive airborne electromagnetic technique that records magnetic (in the air) and electric (on the ground) fields generated by natural sources in the audio frequency range. The natural electromagnetic primary field sources for MobileMT are considered with frequencies ranging from 25 Hz to 30 kHz (ELF+VLF). The exploration system includes two pairs of grounded electric wire lines, one of them is for reference signal, and moving three-component inductive coil system softly suspended and with low-noise signal amplifiers for magnetic field measurements (dB/dt) in three orthogonal directions. A crucial element of the technology is the capability of aerial acquisition magnetotelluric data in four decades frequency band. Field data are acquired using stationary orthogonal pairs of electrical field sensors (grounded wire dipoles) and towed magnetic field detectors (three orthogonal induction coils).

In order to continue evolution of the airborne electromagnetic passive fields technology and in comparison with the last AFMAG development (Bob Lo, 2009) the current development is focused on:

- Expanding measured frequencies range into high end to complement deep exploration with near surface, shallow and medium depth of investigation;
- Increasing sensitivity and reducing system noise level to provide with data at low natural electromagnetic fields signal conditions especially in the range of the last hundred – first thousands Hz frequencies band where the field spectral density is lowest (dead-band);
- Providing ability to recover electrical properties differences between geological boundaries of any direction, including and between horizontal and vertical boundaries;
- Increasing spatial and frequency data resolution;
- Measuring of elements of admittance-type transfer functions of the magnetotelluric field.

Theory and Method

Some part of the thunderstorm energy is converted into electromagnetic fields that are propagated in the ionosphere-Earth interspace. These electromagnetic fields and the currents induced by these fields in the subsurface are used in audiomagnetetotelluric prospecting to measure the electrical resistivity of geological environment.

Measuring telluric currents induced by the natural electromagnetic fields in the subsurface on the ground synchronised with measuring the magnetic components of the natural audio frequency electromagnetic fields in the air and mutual processing both airborne and ground data (Figure 1) is a way to improve the quality and increase informative of the measured airborne data. In practice the reference fields may be measured by inductive coils or grounded electric lines (Labson et al., 1985). To obtain accurate signal of the natural field spectrum and eliminate noise spectra of sensors we use electrical field measurements at the base station. One of the reasons of choosing electrical components for reference is capacity to control the natural signal strength in the wire lines. Each electrical field component on the base station is registered independently from two sensors, signal and reference, which is utilized to eliminate the data bias distortions (Labson et al., 1985). This technical solution is critically helpful in periods of weak natural field signals in some frequency bands.

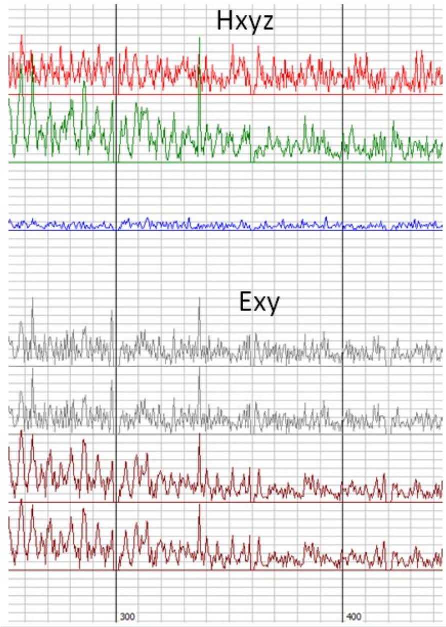


Figure 1. A section of time series of *E*xy and *H*xyz data

Exploiting signals of two horizontal electric components along with three magnetic components we can process them with the magnetotellurics response functions based on linear relations between components of the electric and magnetic fields. In general, processing of the field data is based on the Larsen and Chave robust remote-reference method (Chave et al., 1987; Larsen, 1989). The data processing program merges the stationary measured electrical two horizontal components and the moving orientation irrelevant receiver of three magnetic field components into one file. The program applies FFT technique to the recordings and calculates the matrixes of the relations between the electric and magnetic signals (six admittances) on the different time bases and in different frequency bands. In the result of modular computation of the matrixes determinants, as rotation invariant parameters, we calculate apparent conductivity in mS/m as a parameter of EM mapping. The rotation invariant parameters are free from the receiver motion distortions. The admittances (***Y***) are represented as the electric field horizontal vectors projection into the space of the magnetic field three components. In other words, the combined system measures combination of tensor and scalar (rotational invariant) components as the transfer function of a total magnetic field, through the three orthogonal directions measurements of an airborne receiver, to the two orthogonal horizontal directions of electric field measured at a ground base location. Generalizing the Weiss-Parkinson relationship (Berdichevsky and Zhdanov, 1984), such as that measured three orthogonal magnetic field components (***H***xyz) are linearly related to the horizontal electric fields measured on the ground (***E***xy, reference), with adoption it to the admittances domain (***Y***):

$$\begin{bmatrix} Hx \\ Hy \\ Hz \end{bmatrix} = \begin{bmatrix} Yxx & Yxy \\ Yyx & Yyy \\ Yzx & Yzy \end{bmatrix} \begin{bmatrix} Ex \\ Ey \end{bmatrix} \quad (1)$$

Solutions of the equations are obtained by averaging over a number of closely spaced frequencies **Error! Reference source not found.**(Table below).

An example of frequency windows used for harmonics averaging. Base 15 Hz, Gates ratio 2.

N	Window, Hz		
	start	end	mid
1	15	30	23
2	30	68	49
3	68	135	101
4	135	270	203
5	270	540	405
6	540	1080	810
7	1080	2160	1620
8	2160	4320	3240
9	4320	8640	6480
10	8640	17280	12960
11	17280	28800	23040

The windowing way is flexible and can be optimized depending on signals, cultural noise and an exploration task.

H (magnetic) and ***E*** (electric) components time series data, fully synchronized, digitized and recorded at 73,728 Hz frequency, is converted from time to frequency domain using FFT technique. The complex data spectrums (field examples in 2 and 3) is expressed in apparent conductivity (σ) equivalent to its real part:

$$\sigma = \mu\omega|Y^2| \qquad (2)$$

where ***Y*** is the determinant of the corresponded matrix in (1); Y^2 = im(Y^2)/re(Y^2); μ is the magnetic permeability of free air and ω is the angular frequency.

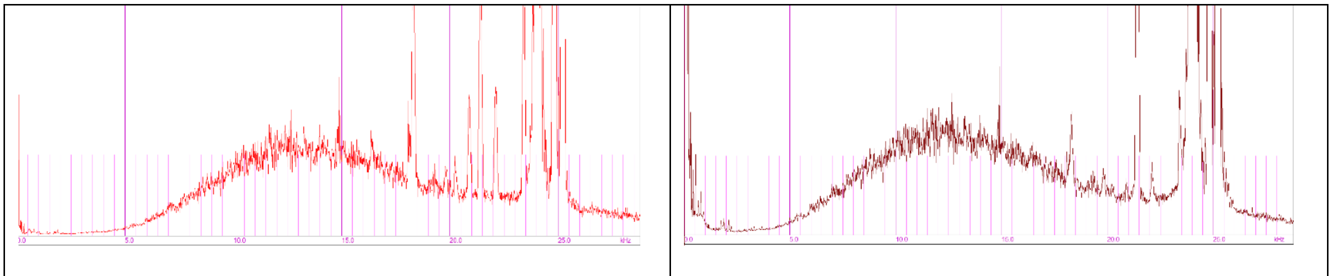


Figure 2 Airborne magnetic X-coil spectrum up to 30,000 Hz range (left) with the corresponding electric X-line 1 spectrum (right)

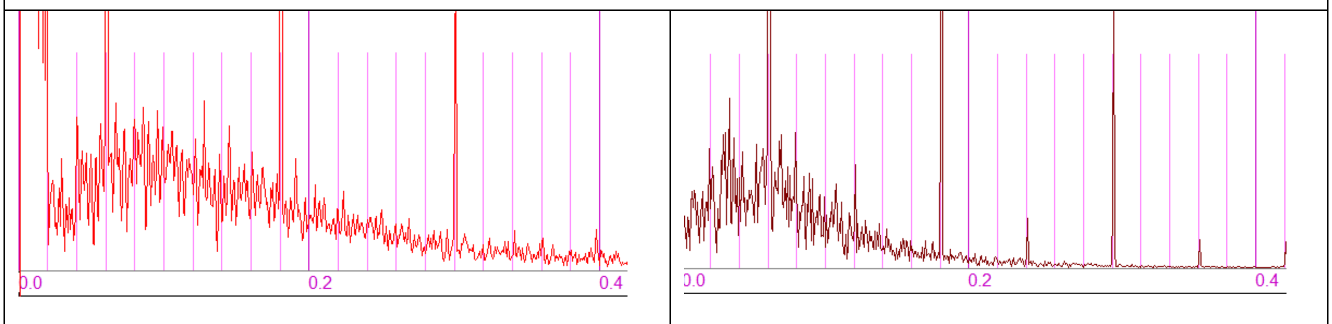


Figure 3 Airborne magnetic X-coil spectrum up to 400 Hz range (left) with the corresponding electric X-line 1 spectrum (right)

References

Berdichevsky, M.N., and M.S. Zhdanov (1984), Advansed theory of deep geomagnetic sounding: Elseiver.

Chave, A. D., Thomson, D. J., and Ander, M. E. (1987), On the Robust Estimation of Power Spectra, Coherences, and Transfer Functions: Journal of Geophysical Research, **92**, 633-648.

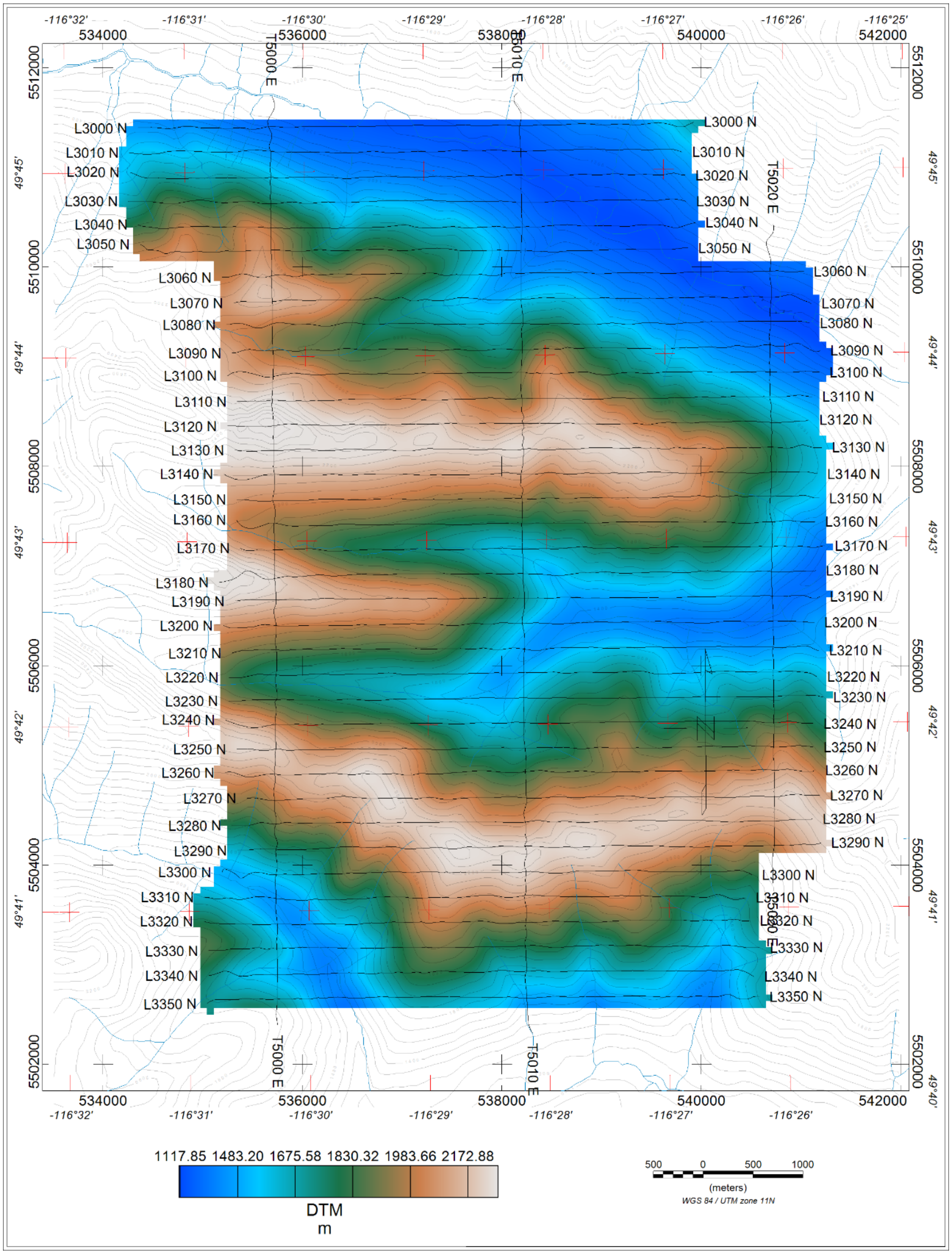
Labson, V.F., A.Becker, H.F.Morrison, and U.Conti (1985), Geophysical exploration with audio frequency natural magnetic fields: Geophysics, **50**, 656-664.

Larsen, J. C. (1989), Transfer functions: smooth robust estimates by least-squares and remote reference methods: Geophysical Journal International, **99**, 645-663.

Lo, B., J. Legault, P.Kuzmin (2009), Z-TEM (airborne AFMAG) tests over unconformity uranium deposits. Extended Abstract 20th International Geophysical Conference and Exhibition, Adelaide, South Australia.

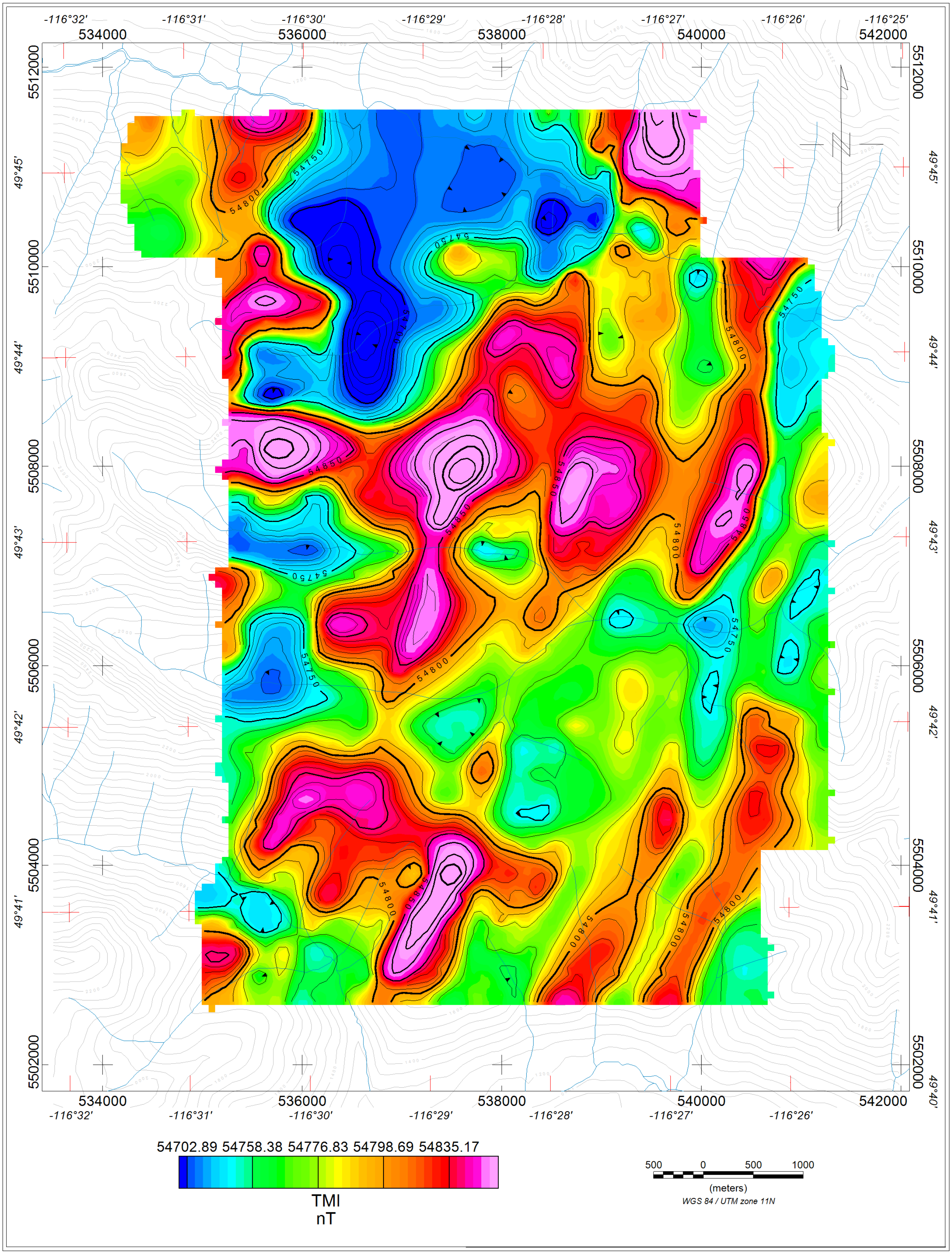
Appendix III MobileMT maps images[1]

Hungry Creek Block

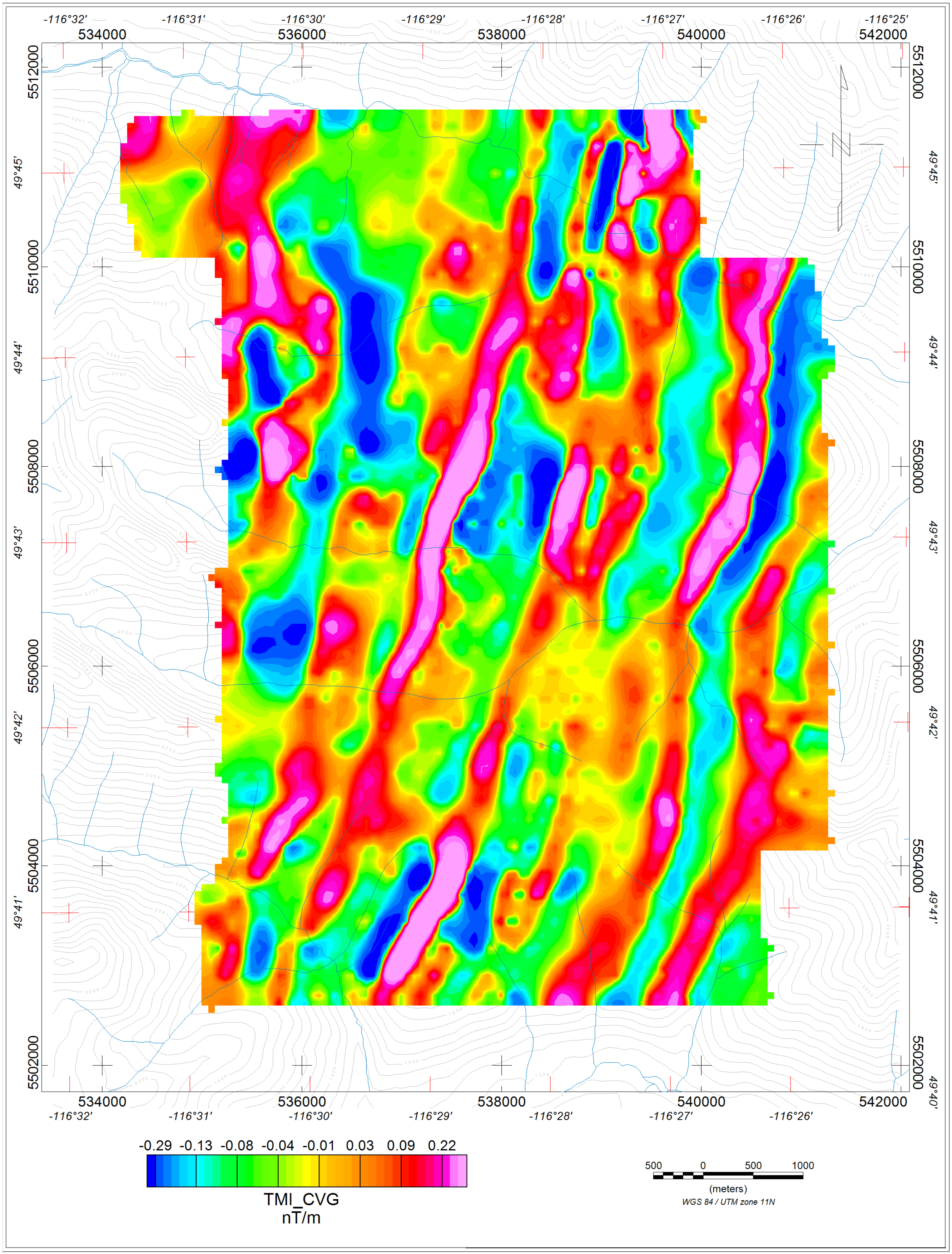


Digital Terrain Model (DTM)

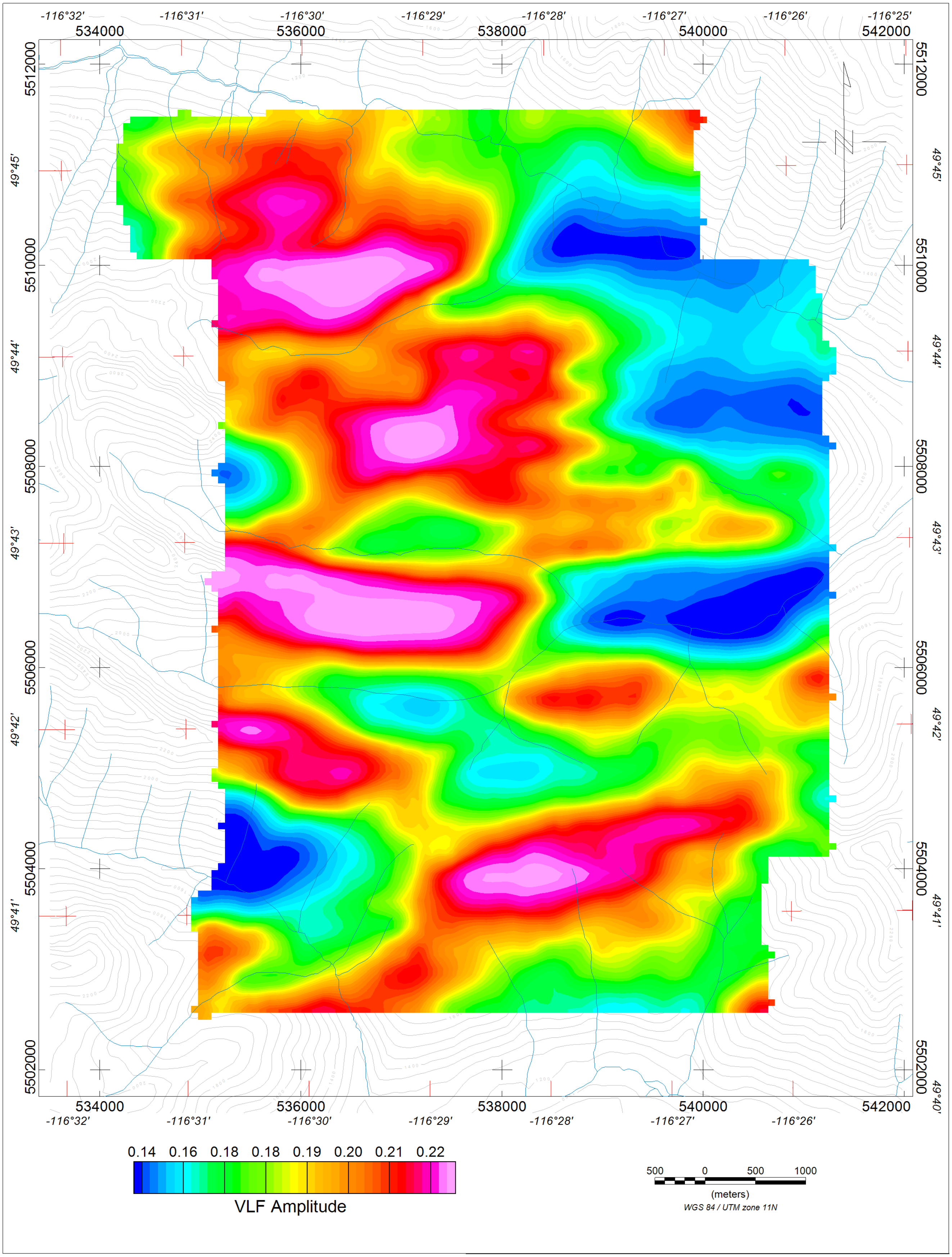
[1] The full set of maps following the report in Geosoft and PDF formats



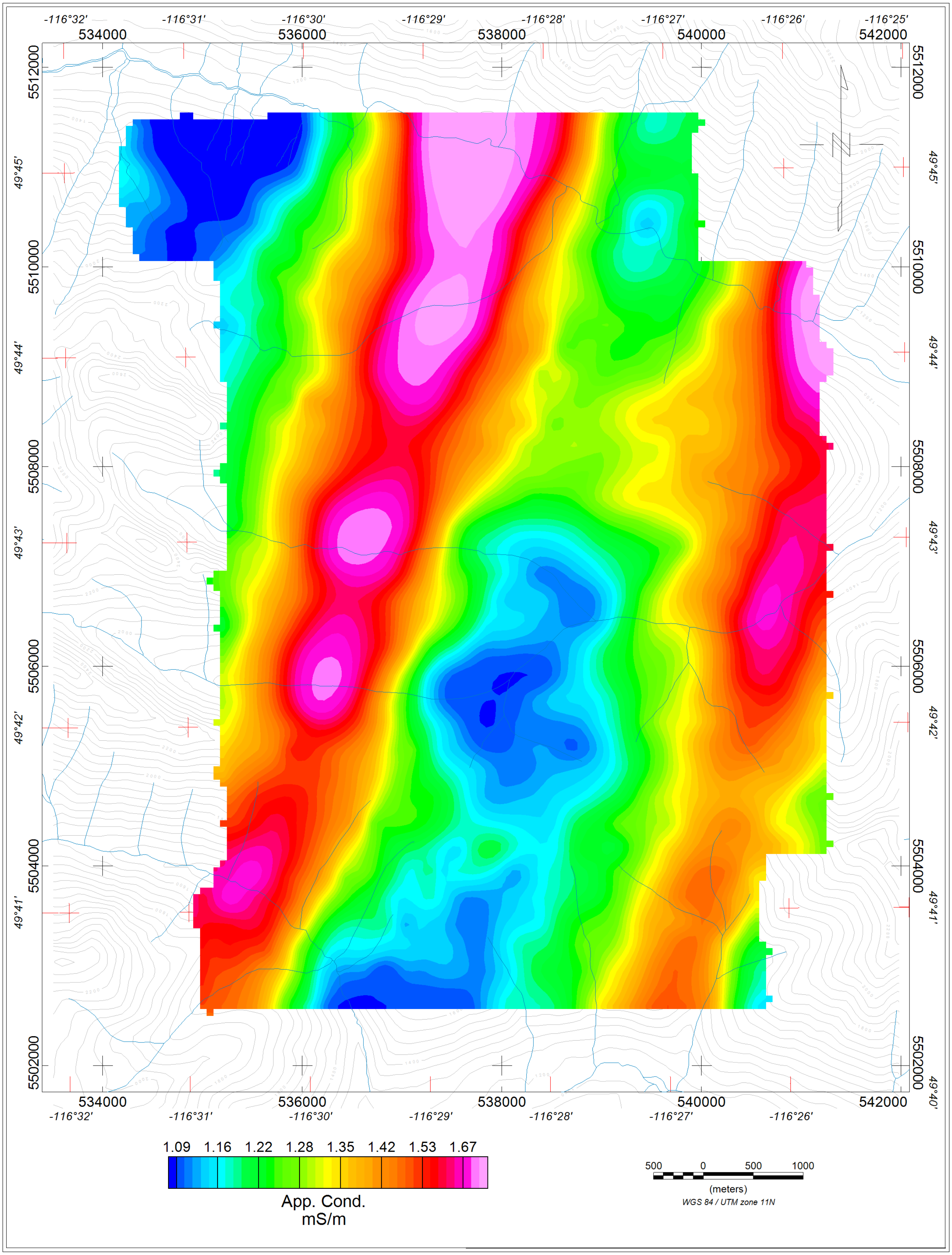
Total Magnetic Intensity Map (TMI)



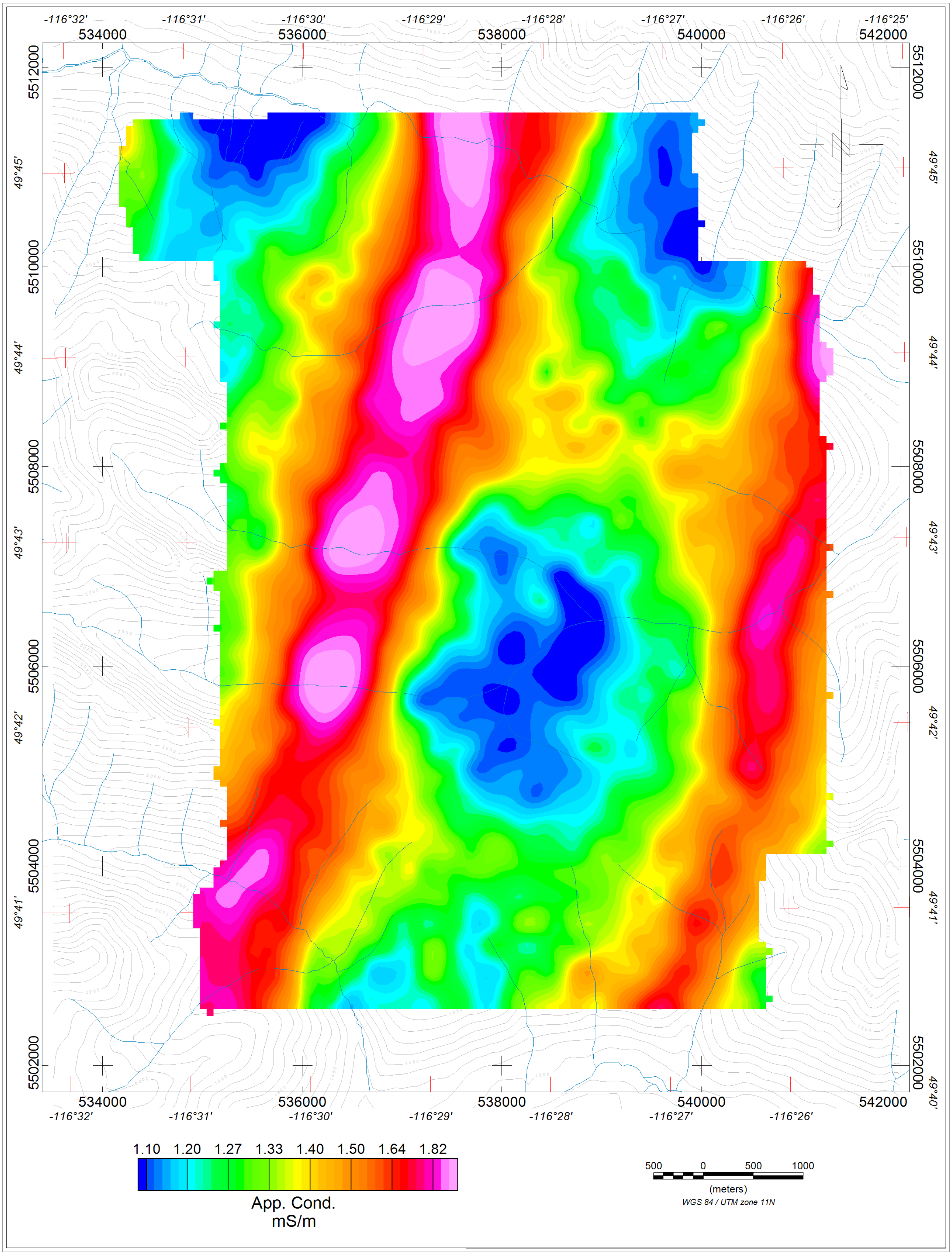
Calculated Vertical Derivative Map of magnetic field (CVG-TMI)



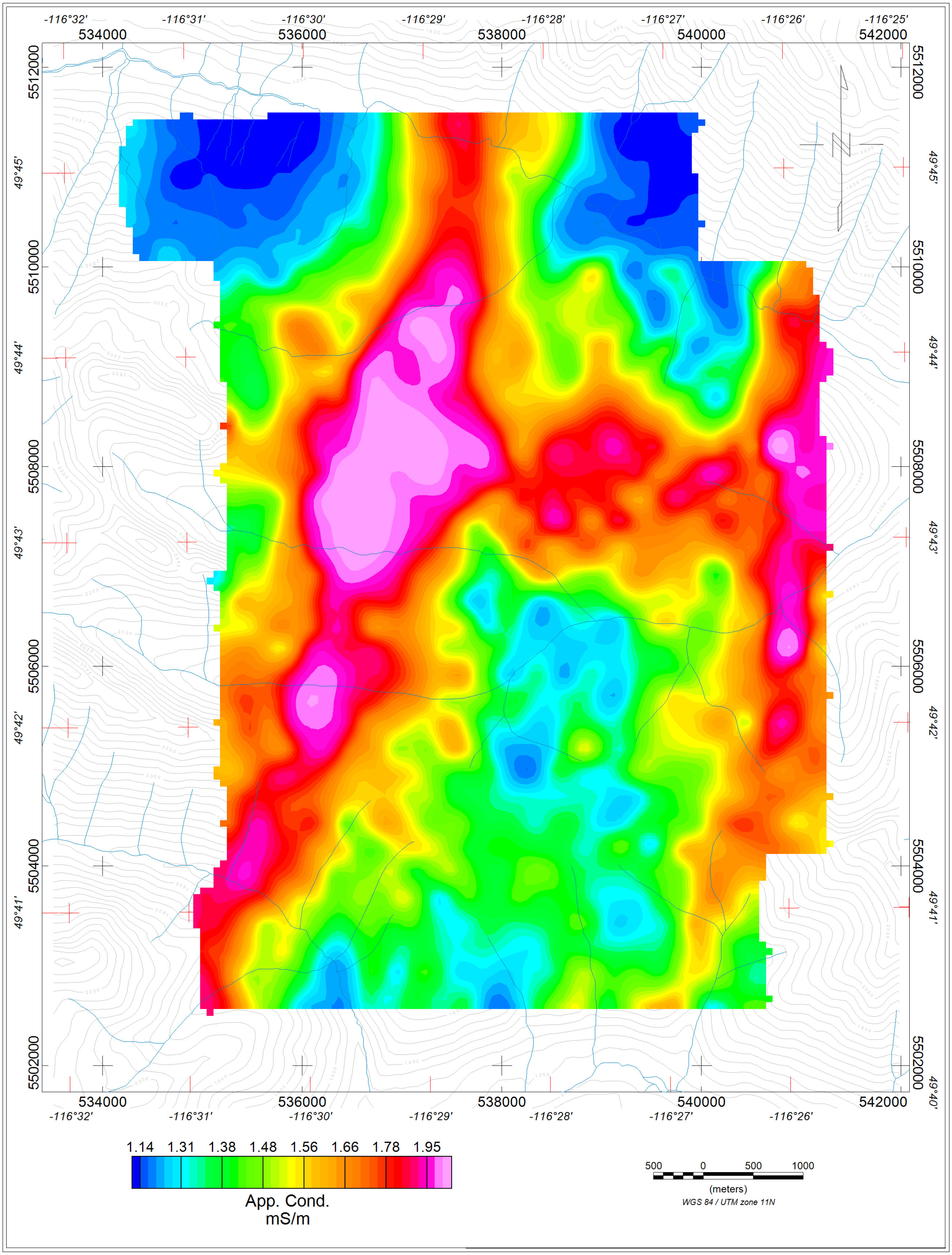
VLF amplitude map, 24 kHz



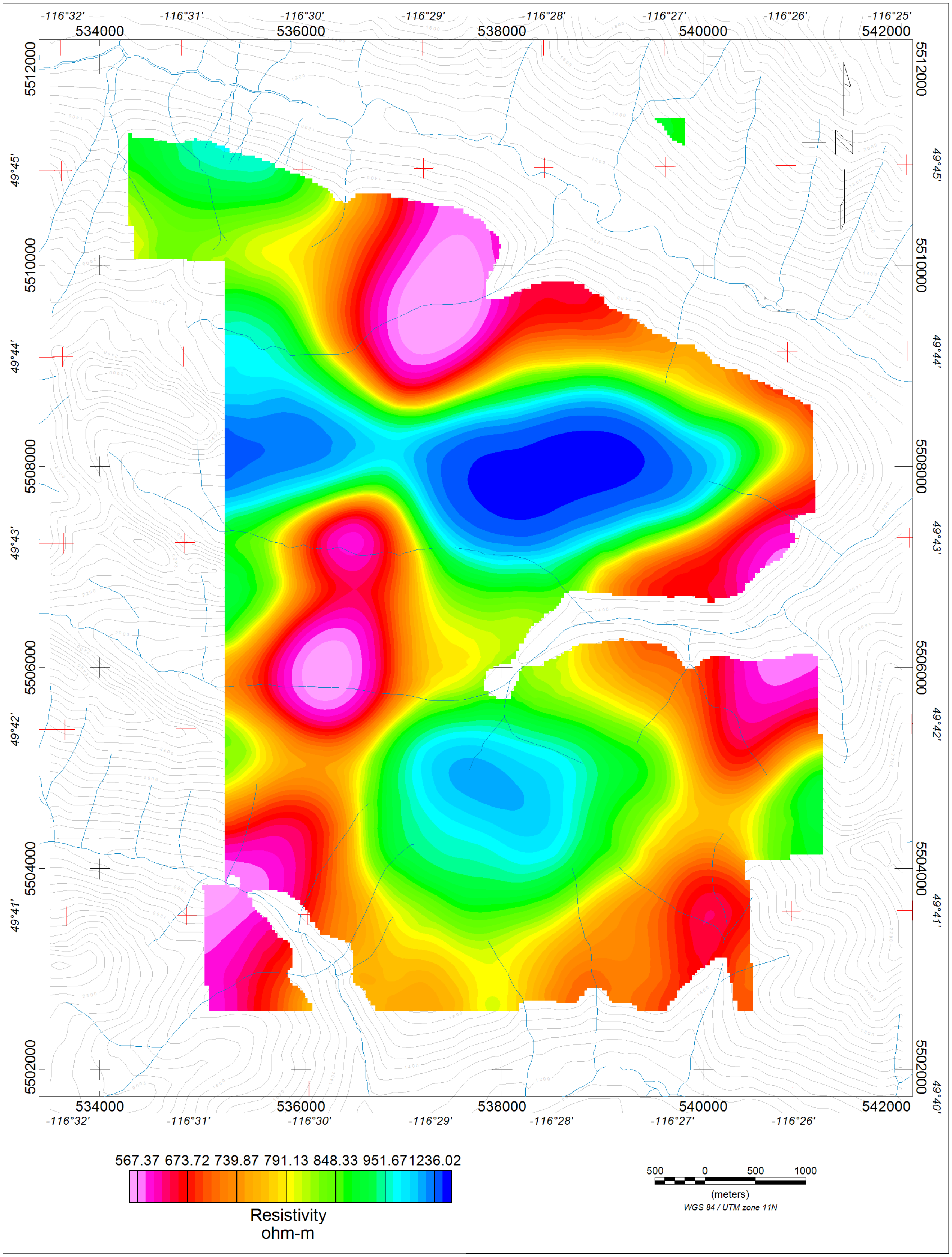
Apparent conductivity (33 Hz)



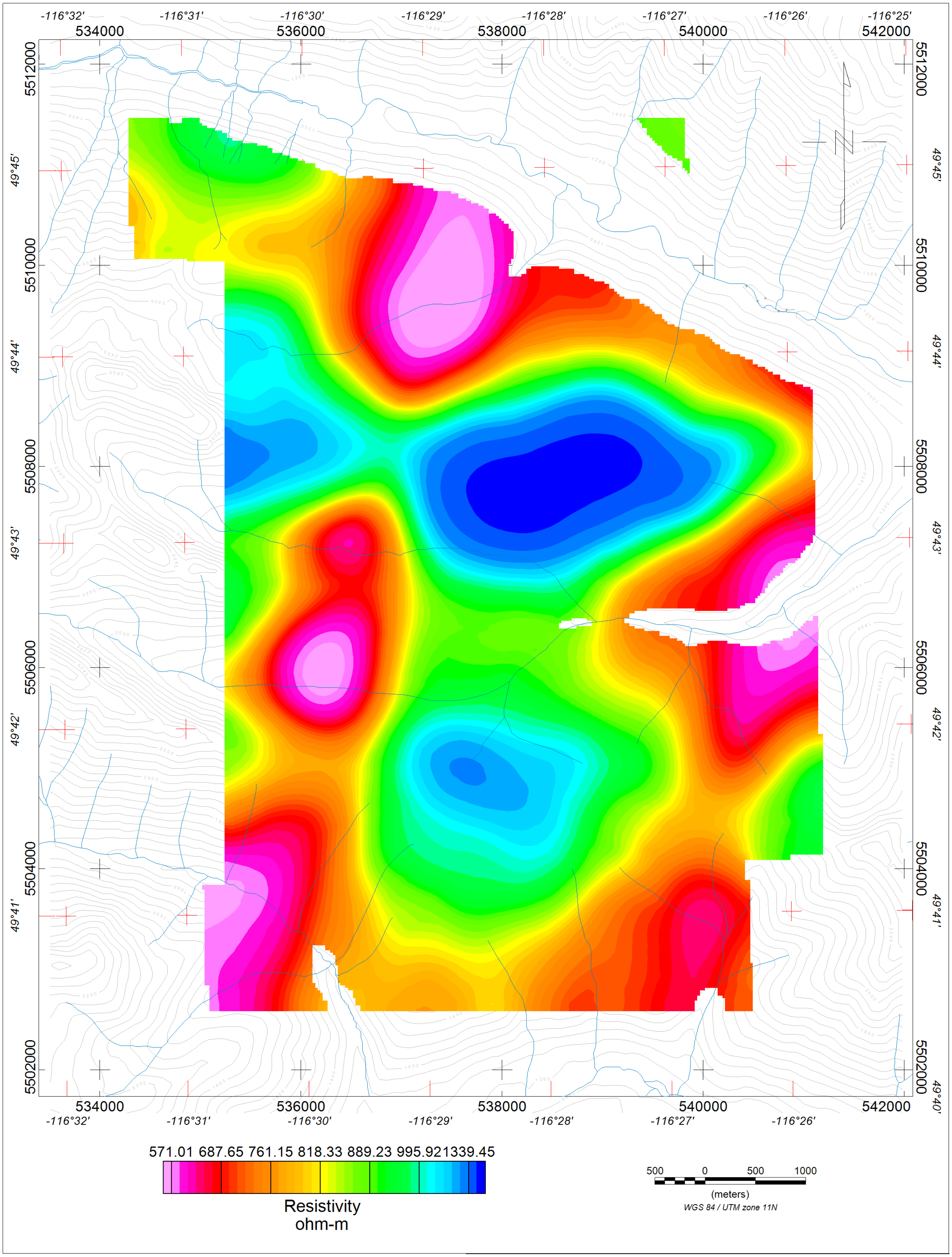
Apparent conductivity (209 Hz)



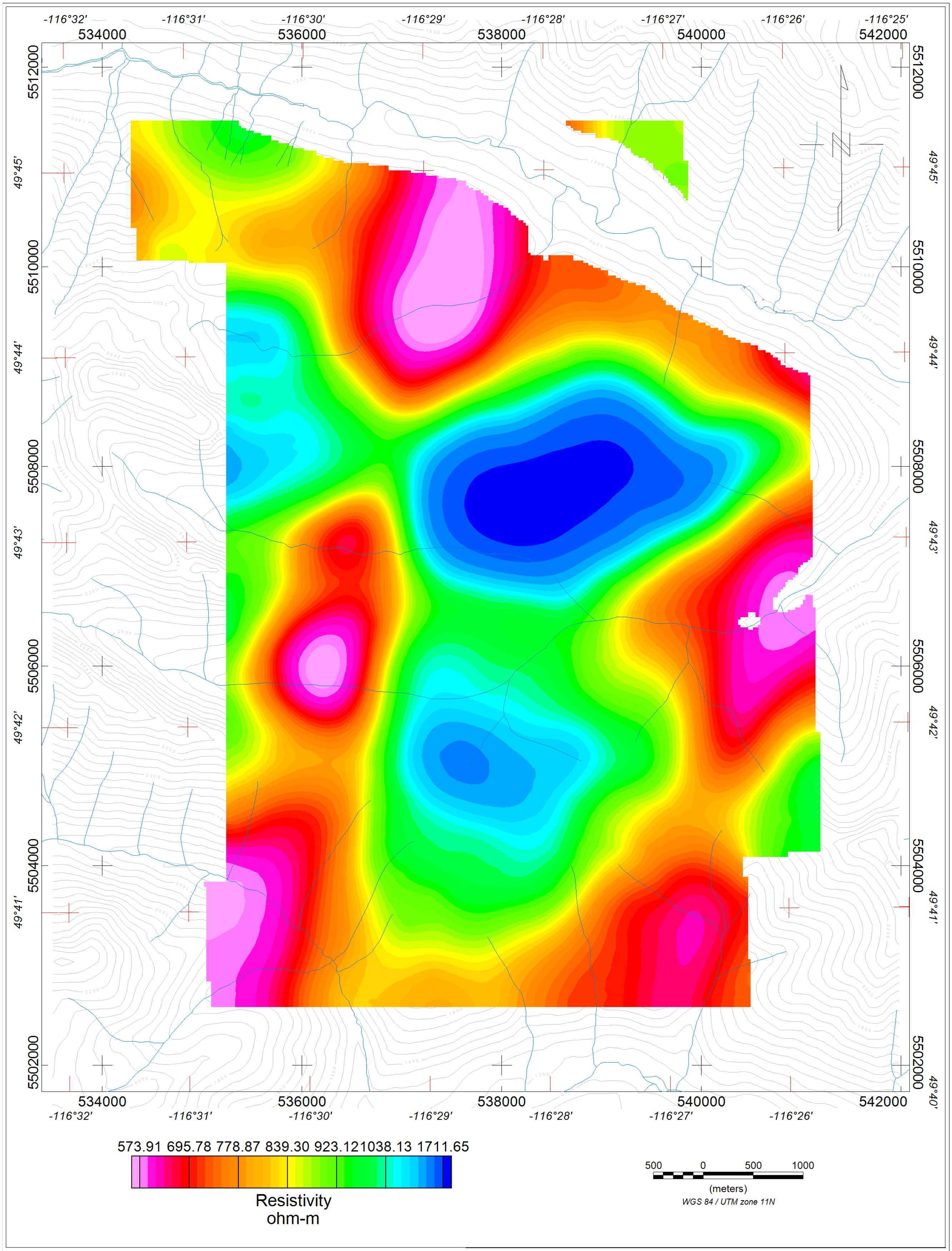
Apparent conductivity (421 Hz)



Resistivity at elevation of 1500m ASL

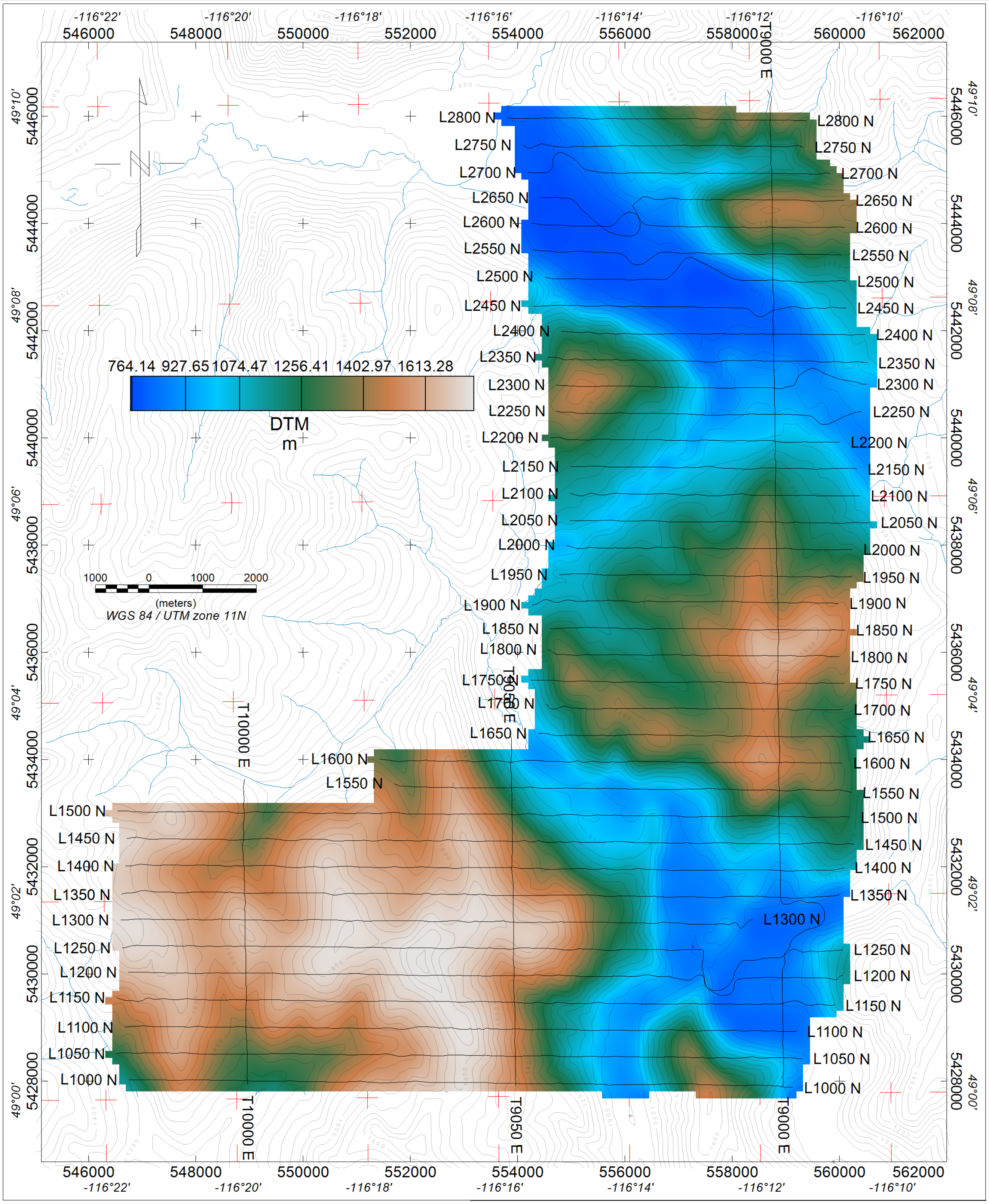


Resistivity at elevation of 1400m ASL

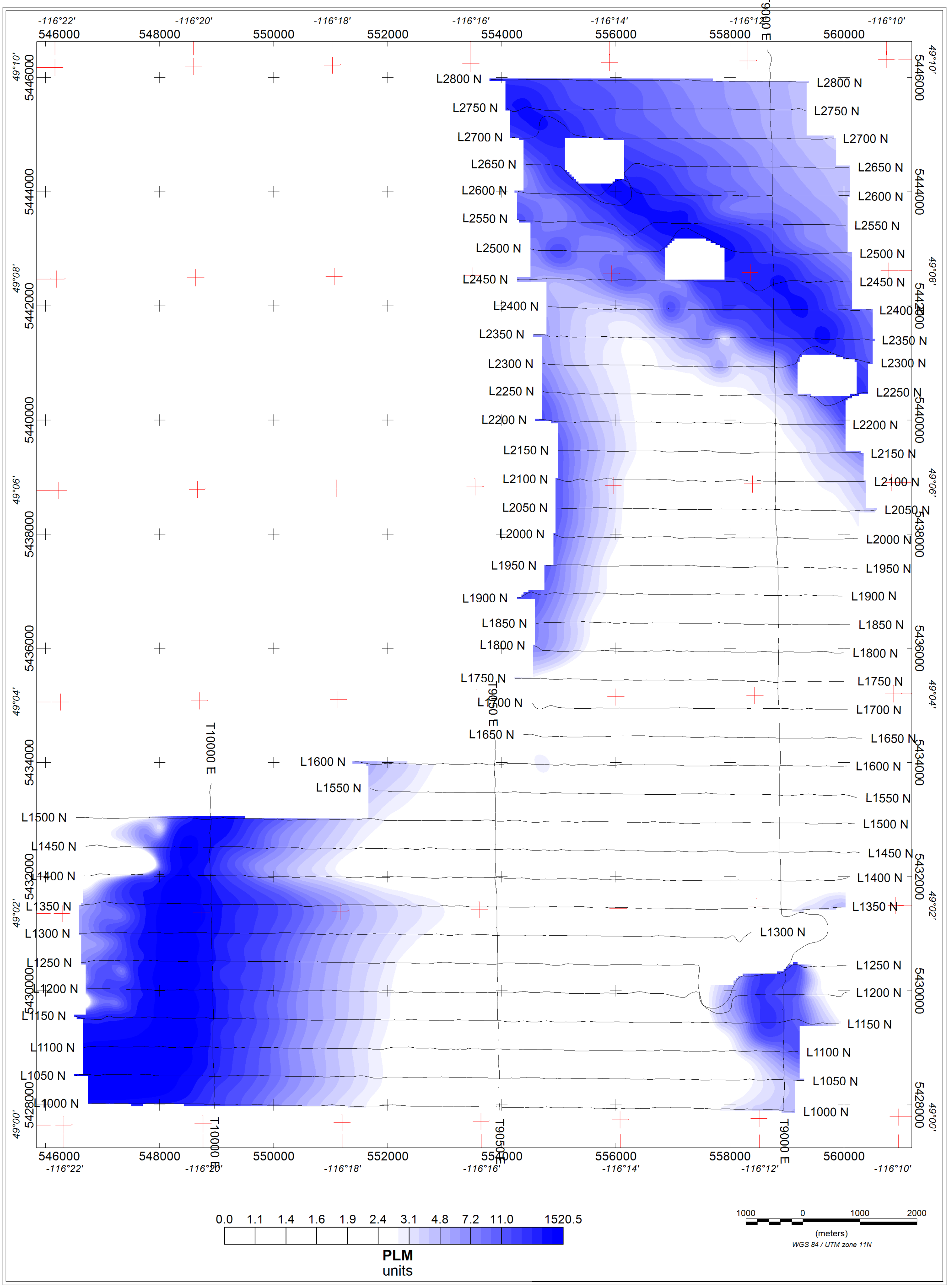


Resistivity at elevation of 1300m ASL

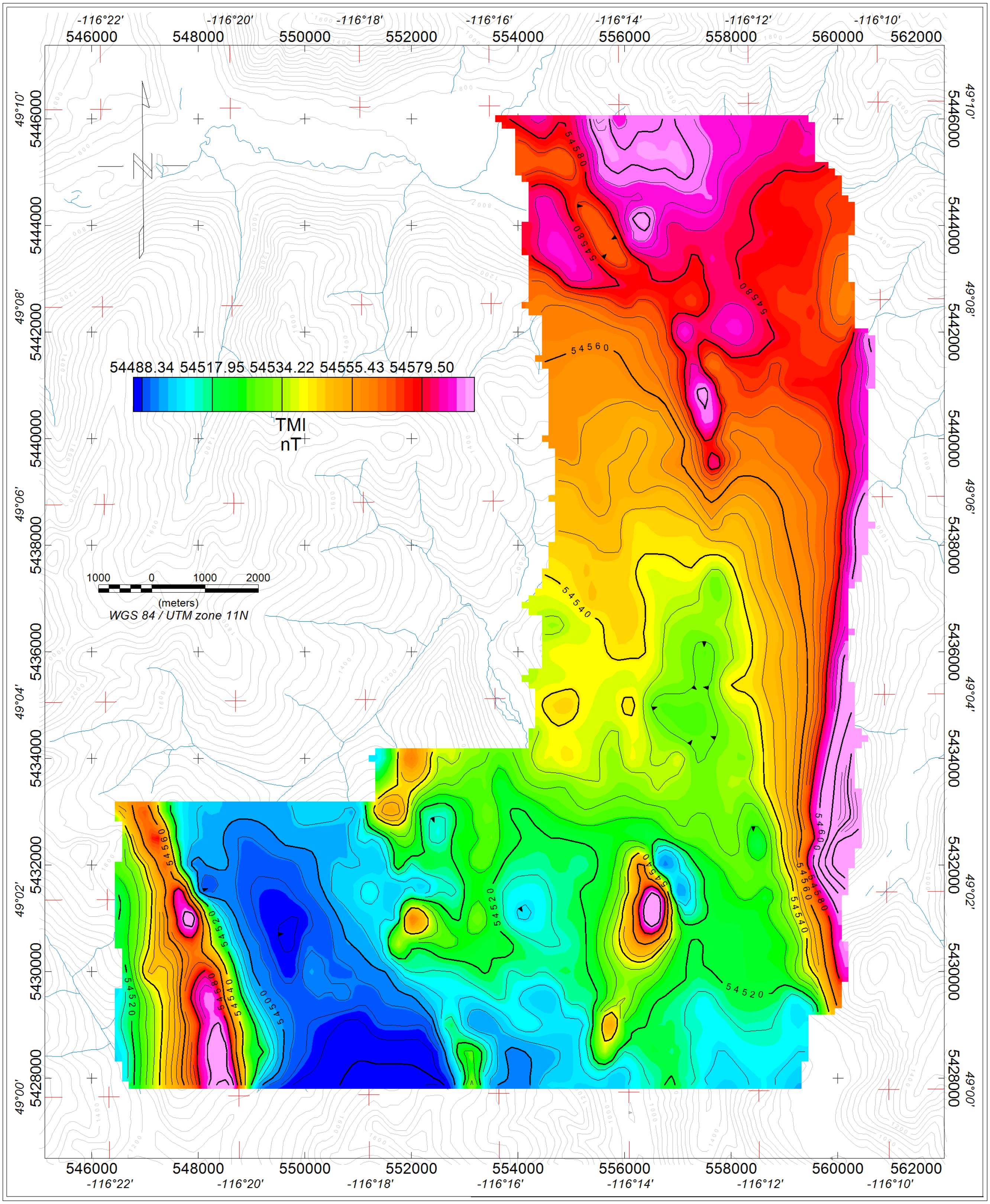
Aldridge Block



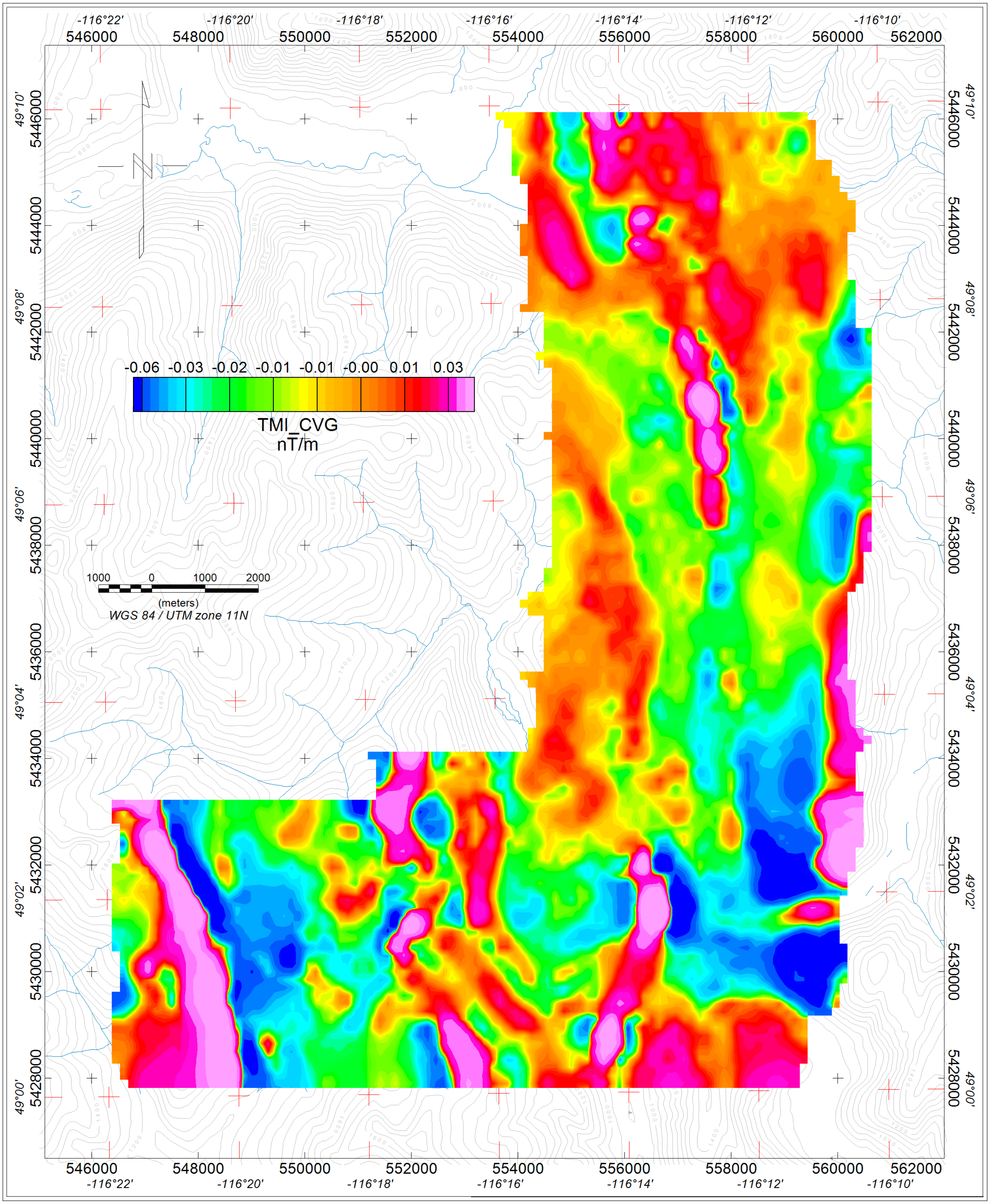
Digital Terrain Model (DTM)



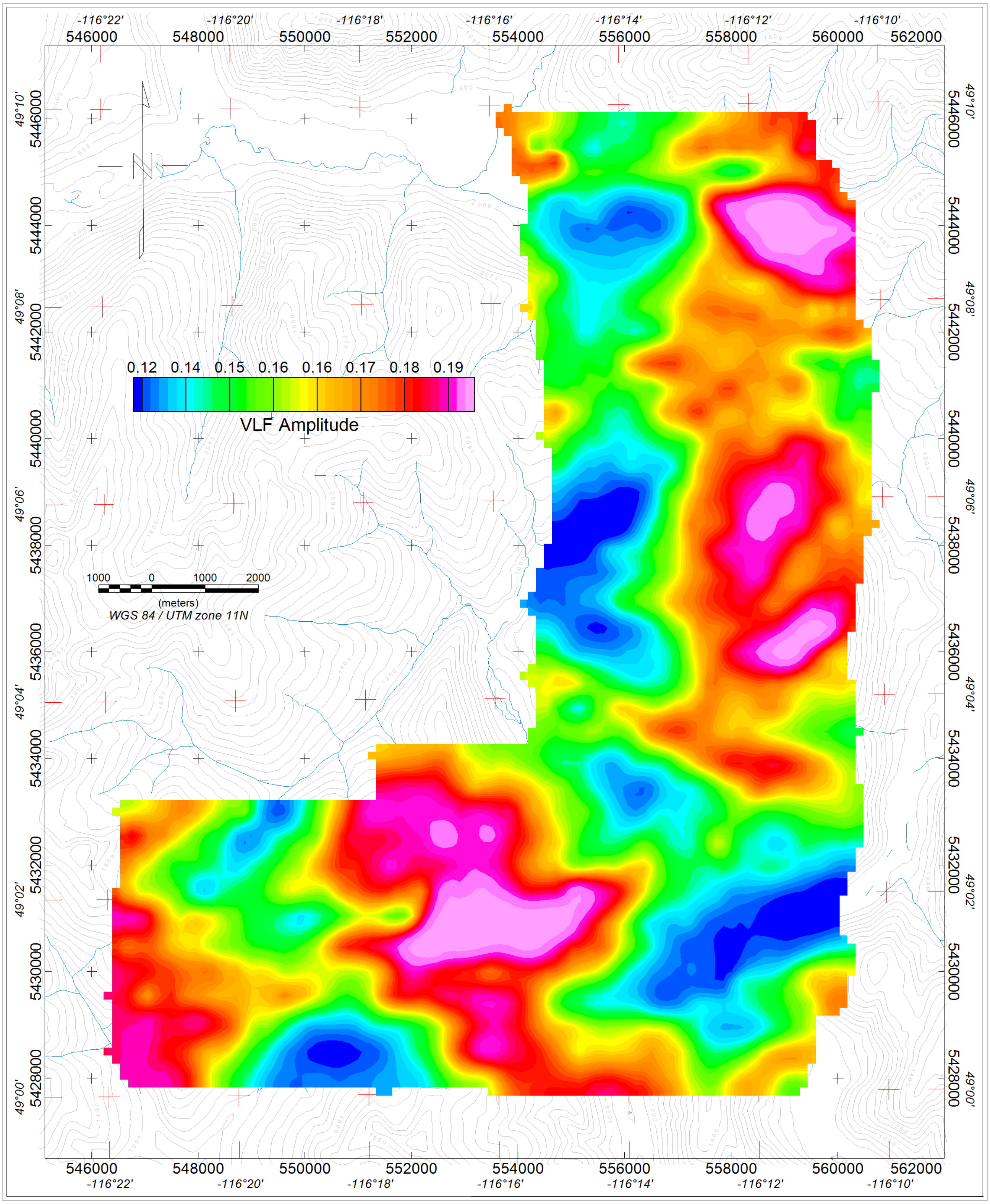
Powerline monitor signal map



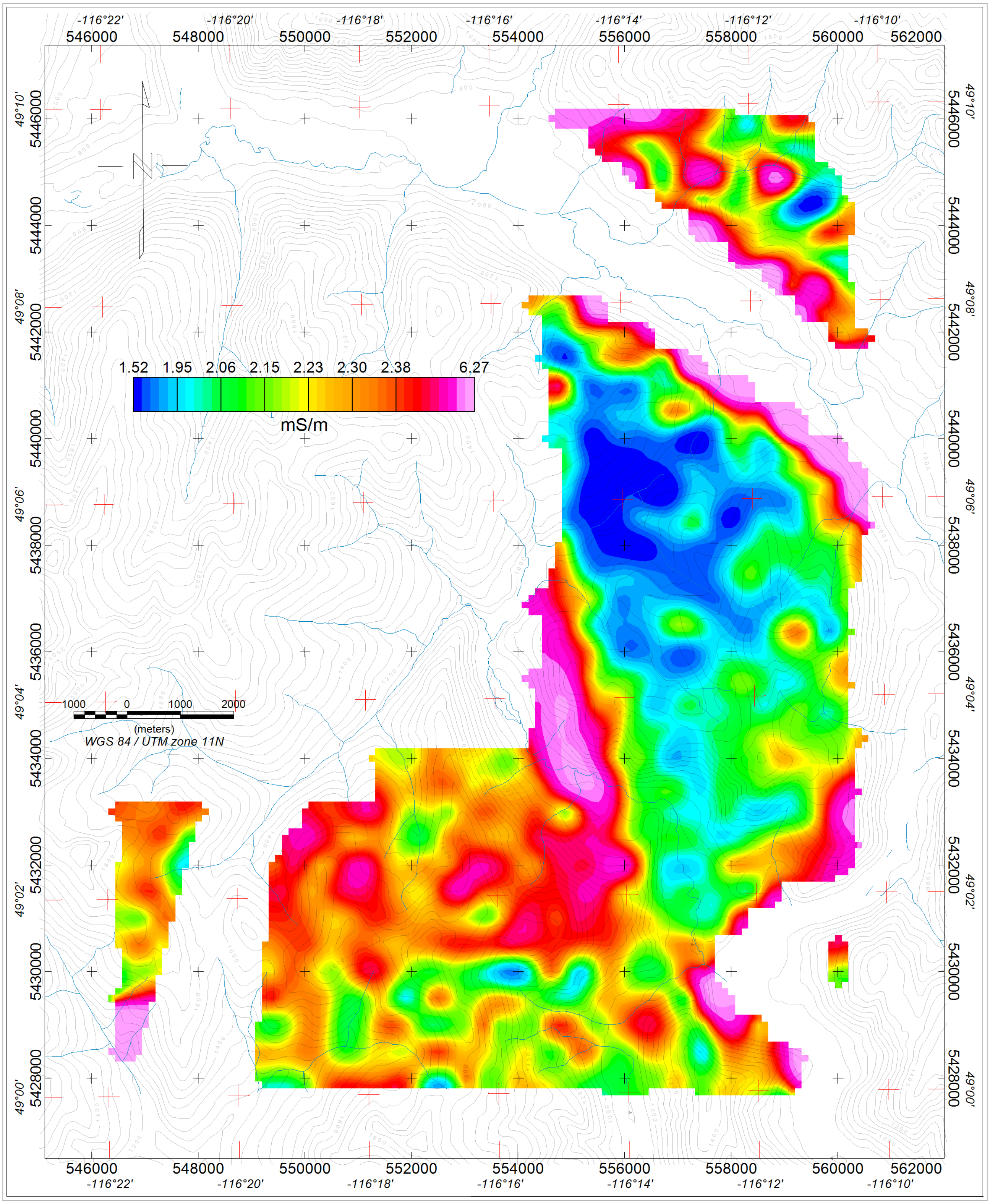
Total Magnetic Intensity Map (TMI)



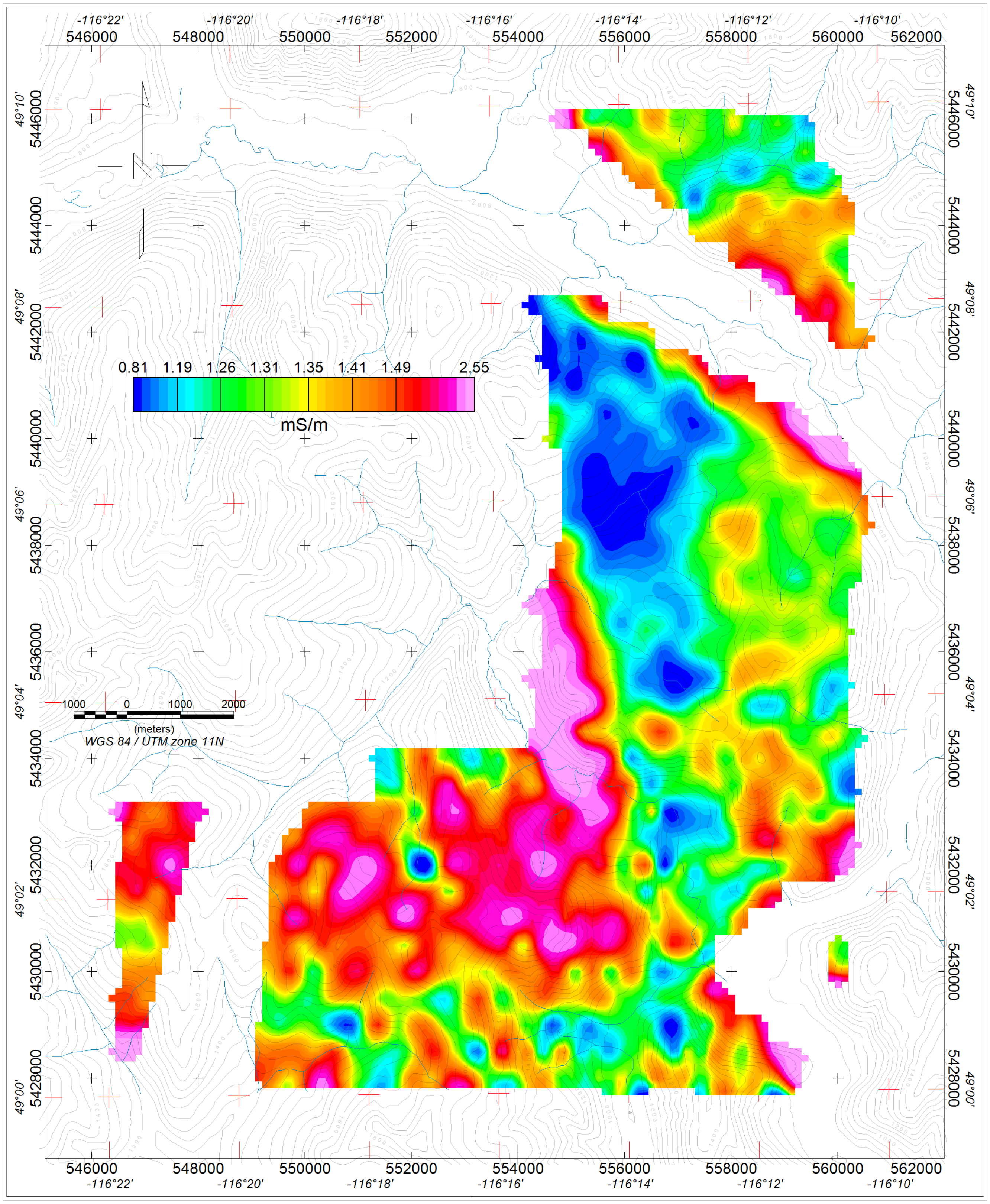
Calculated Vertical Derivative of magnetic field Map (TMI-CVG)



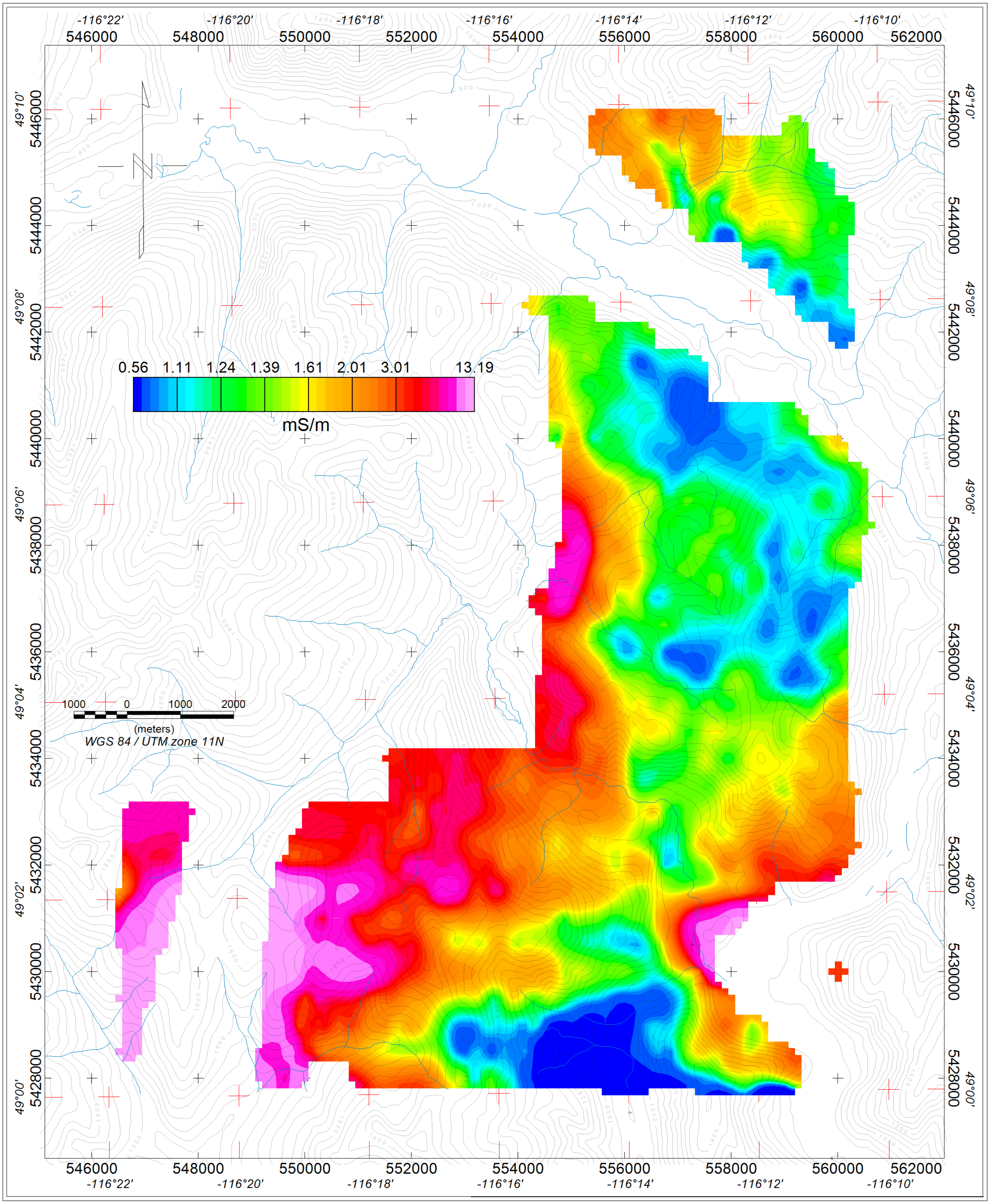
VLF amplitude map for 24 kHz



Apparent conductivity (33 Hz)



Apparent conductivity (103 Hz)



Apparent conductivity (534 Hz)