

ASSESSMENT REPORT

2025 Exploration Program on the Koocanusa Project

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1.0 INTRODUCTION

The Koocanusa Property, encompassing approximately 287 km², is situated along the western shore of Lake Koocanusa, roughly 35 km south of Cranbrook in southeastern British Columbia, Canada. The property lies within the Purcell Mountains and is underlain by the Mesoproterozoic Purcell Supergroup—a geological formation known for hosting significant copper-silver (Cu-Ag) deposits in similar settings elsewhere in the region.

Notable discoveries within the Purcell Supergroup, such as the Spar Lake Deposit (Troy Mine) in Montana, along with the Rock Creek and Montanore deposits, have demonstrated the potential for economically viable sediment-hosted Cu-Ag mineralization. These analogs suggest that the Koocanusa Property, currently held by Aeonian Resources Ltd., may host comparable mineral occurrences.

Aeonian Resources Ltd., the current owner of the Koocanusa Property, has been conducting systematic exploration since 2020. Early efforts focused on field reconnaissance, lithological mapping, and geochemical sampling, which collectively delineated a 21-kilometer copper-bearing trend across the property. However, challenges remained in understanding the lateral extent, variability, and structural controls of the mineralized sedimentary sequences.

Building on this foundation, the 2023–2024 exploration program marked a significant advancement in the geological understanding of the property. In collaboration with Strata Geodata Services Ltd., Aeonian deployed UAV-based magnetic surveys, conducted detailed geological mapping, and collected 122 targeted rock samples. These efforts culminated in a high-resolution airborne geophysical survey in May 2025, covering 1343 line-kilometers across Koocanusa West using Precision GeoSurveys Inc.'s proprietary ITEM system.

The 2025 results were particularly impactful. Magnetic data revealed a broad NNW–SSE corridor of magnetic highs within the Creston Formation, strongly correlating with elevated copper assays (up to 9832 ppm). Electromagnetic data identified multiple zones of elevated conductivity, interpreted as structurally controlled pathways for hydrothermal fluids. Notably, the survey delineated previously unmapped fold hinges and fault systems—including the Barkshanty Anticline and McGillivray Fault—which are now considered high-priority targets for future drilling. These findings validate the Revett-type exploration model within the western areas of the project and provide a robust framework for continued exploration and drill targeting.

2.0 LOCATION PHYSIOGRAPHY, ACCESS AND INFRASTRUCTURE

2.1 Location

The Koocanusa Project is located approximately 35 km south of the city of Cranbrook, BC, west of Lake Koocanusa and the Kootenay River. The Project consists of 38 contiguous mining claims covering an area of 287.44 km² (Table 1). The property is situated within NTS map sheets 082G/03, 04, 05, 06 and is centered at a longitude and latitude of -115 34' 21" W / 49 11' 43" N or a UTM of 604000E / 54550145N (NAD83 Zone 11) (Figure 1). The property is currently 100% owned by Aeonian Resources Ltd.

Table 1: Mineral Tenures for the Koocanusa Project

Tenure Number	Claim Name	Owner	Issue Date	Good to Date	Area (ha)
1077399	LILO3	AEONIAN RESOURCES LTD	2020-07-20	2026-08-01	126.8699
1077233	LILO2	AEONIAN RESOURCES LTD	2020-07-15	2026-08-01	296.0022
1078138	TWIN 5A	AEONIAN RESOURCES LTD	2020-08-22	2026-08-01	507.3739
1078139	LILOS TWIN	AEONIAN RESOURCES LTD	2020-08-22	2026-08-01	317.1633
1079706	GC FRANKIE	AEONIAN RESOURCES LTD	2020-11-23	2026-08-01	802.3191
1078762	GOLD CREEK 1	AEONIAN RESOURCES LTD	2020-09-18	2026-08-01	528.7283
1078763	GOLD CREEK 2	AEONIAN RESOURCES LTD	2020-09-18	2026-08-01	84.5967
1076871	GOLD CREEK	AEONIAN RESOURCES LTD	2020-06-20	2026-08-01	84.4481
1076872	TWIN 5	AEONIAN RESOURCES LTD	2020-06-20	2026-08-01	84.5778
1076873	LILO	AEONIAN RESOURCES LTD	2020-06-20	2026-08-01	84.5538
1076884	FRANKIE	AEONIAN RESOURCES LTD	2020-06-21	2026-08-01	84.4624
1078861		AEONIAN RESOURCES LTD	2020-09-25	2026-08-01	845.3165
1080618	KOO	AEONIAN RESOURCES LTD	2021-01-17	2026-08-01	190.0852
1081504	KOO NORTH	AEONIAN RESOURCES LTD	2021-03-04	2026-08-01	2004.5848

1081505	KOO NORTH 2	AEONIAN RESOURCES LTD	2021-03-04	2026-08-01	485.0219
1081519	KOO BRIDGE	AEONIAN RESOURCES LTD	2021-03-05	2026-08-01	463.9758
1081520	LILO INFILL	AEONIAN RESOURCES LTD	2021-03-05	2026-08-01	613.0151
1081451	COPPER RIDGE	AEONIAN RESOURCES LTD	2021-03-02	2026-08-01	1519.3368
1081452	COPPER RIDGE NORTH	AEONIAN RESOURCES LTD	2021-03-02	2026-08-01	1939.5042
1081454	COPPER RIDGE EAST	AEONIAN RESOURCES LTD	2021-03-02	2026-08-01	1476.6326
1101902	MACGILIVRAY 1	AEONIAN RESOURCES LTD	2023-02-02	2026-08-01	2021.7517
1101903	MACGILIVRAY 2	AEONIAN RESOURCES LTD	2023-02-02	2026-08-01	1939.2902
1101904	MOYIE LAKE	AEONIAN RESOURCES LTD	2023-02-02	2026-08-01	673.6941
1095350	SF JAKE	AEONIAN RESOURCES LTD	2022-04-26	2026-08-01	210.9889
1095351	SF - JAKE WEST	AEONIAN RESOURCES LTD	2022-04-26	2026-08-01	105.4706
1081340	DEEP COPPER 1	AEONIAN RESOURCES LTD	2021-02-22	2026-08-01	843.7432
1098868	COPPER FOX 4	AEONIAN RESOURCES LTD	2022-10-23	2026-08-01	400.9876
1098869	COPPER FOX 5	AEONIAN RESOURCES LTD	2022-10-23	2026-08-01	253.0489
1104043	GILNOCKIE 2.0	AEONIAN RESOURCES LTD	2023-05-01	2026-08-01	169.2567
1099087	3 CROWS	AEONIAN RESOURCES LTD	2022-11-01	2026-08-01	189.4195
1104656	COPPER SOUTH	AEONIAN RESOURCES LTD	2023-06-08	2026-08-01	2113.3397
1104657	COPPER SOUTH 2	AEONIAN RESOURCES LTD	2023-06-08	2026-08-01	736.242
1098247	COPPER FOX 1	AEONIAN RESOURCES LTD	2022-10-20	2026-08-01	2089.9905
1098501	GILNOCKIE 1	AEONIAN RESOURCES LTD	2022-10-20	2026-08-01	1439.1566
1101953	MAG RIDGE	AEONIAN RESOURCES LTD	2023-02-03	2026-08-01	717.9945
1098359	COPPER FOX 2	AEONIAN RESOURCES LTD	2022-10-20	2026-08-01	1012.5363
1098430	COPPER FOX 3	AEONIAN RESOURCES LTD	2022-10-20	2026-08-01	1098.6024
1095573	PYRITES OF PENZANCE	AEONIAN RESOURCES LTD	2022-05-10	2026-08-01	189.7403

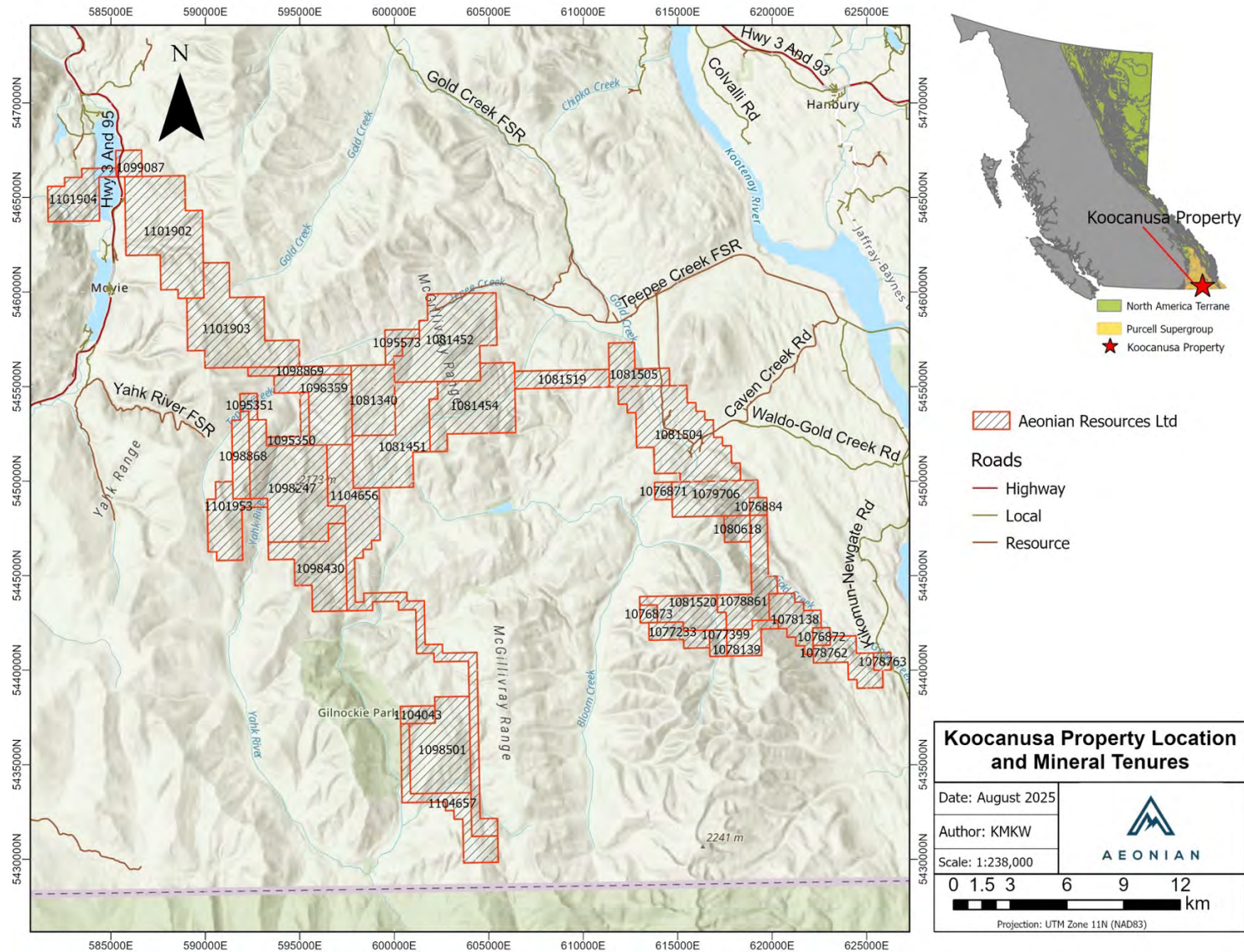


Figure 1: Koocanusa Project Mineral Claims, BC, Canada

2.2 Physiography and Climate

The Koocanusa Project lies within a region of humid continental climate. Daily average temperatures range from -7.2°C in December to 18.7°C in July. The average annual precipitation is 280mm of rainfall and 125cm of snow. Snowfall is the primary form of precipitation in the winter (November to March) with a median snow depth of 16cm in January.

The Property ranges in elevation from about 800 m to 2000 m above sea level and lies within the McGillivray Range of the Purcell Mountains. The topography could be considered moderate with a variety of creeks, including Teepee and Cavan, feeding east into Gold Creek which then flows southeast through the Project area and into Lake Koocanusa which is created by a dam on the Kootenay River south in Montana. The majority of the Project area has been logged and is in various stages of re-growth. Ponderosa pine exists in areas below 900m elevation. Douglas-fir, as well as western Larch and Lodgepole Pine, become abundant at higher elevations.

2.3 Access

The Project property has good year-round access from Cranbrook, BC, via the main Gold Creek and Teepee Creek gravel Forest Service Roads (FSR; Figure 1). Southeastern parts of the Property can also be accessed via BC 93 and the Kikomun-Newgate and Linklater Forest Service Roads. The southwestern portion of the Property has access via Wickman Creek Forest Service Road. Smaller temporary logging roads provide additional access to various sections of the property via 4WD trucks or ATVs.

2.4 Local Resources and Infrastructure

The city of Cranbrook, B.C., had a recorded population of just over 20,000 (Statistics Canada Census, 2021) and is the largest urban center in southeastern British Columbia. Approximately 4.9% of the workforce is employed in the “mining, quarrying, and oil and gas sector,” while 18.8% work in “trades, transport and equipment operators and related occupations” (Statistics Canada Census, 2016), reflecting the region’s strong ties to resource development.

Cranbrook is well-connected by transportation infrastructure. The Canadian Rockies International Airport, located 10 km north of the city, offers daily flights to Vancouver and Calgary. The Crowsnest Highway (B.C. Highway 3) runs east-west through Cranbrook, linking it to other key regions in southern British Columbia and Alberta. Additionally, B.C. Highway 93/95 provides north-south access, connecting Cranbrook to the Trans-Canada Highway in the north and the U.S. border with Montana in the south.

The Canadian Pacific Railway maintains a rail yard in Cranbrook, with lines extending west to the Port of Vancouver and south into the United States, facilitating the movement of bulk materials. The Trans-Canada Natural Gas Pipeline also runs along the northwestern edge of the Koocanusa Property, offering potential access to energy infrastructure for future development.

3.0 EXPLORATION HISTORY

Historical work extending over the Koocanusa Project properties is summarized in Table 2. The Koocanusa Project can be divided into **Koocanusa East** and **Koocanusa West** due to differences in geological formations. Additional details for the historical work within these two areas are provided in the following section.

Table 2: Summary of historical exploration on Koocanusa Project properties

Year(s)	Area/Target	Activities Conducted	Key Findings / Notes
1989–1991	Gold Creek (East)	Prospecting, geochemistry, IP geophysics, soil sampling, airborne mag/VLF-EM, drilling	Discovery of Twin 5 and Gold Creek MINFILE occurrences; anomalous Cu and Au values in soils and drill core.
1989	Frankie Showing	4-hole diamond drilling, grab sampling	Mercury mineralization (up to 4.9% Hg); interpreted as unrelated to Cu mineralization.
1990	Lilo Showing	Prospecting, mapping, grab sampling	Cu assays up to 0.98% and 3.4 ppm Ag; hosted in argillaceous siltstones with minor quartz-carbonate veining.
2005–2006	Frankie Area	Prospecting, mapping	Cinnabar coatings on pyrite; no assays or sample descriptions provided.
2012	Koo Bridge Area	Geological mapping	Identification of NNW-trending faults and alteration zones; interpreted as potential structural controls on mineralization.
1960s–1990s	Silver Pipe (West)	Mapping, trenching, geophysics, soil sampling, drilling	Multiple showings; low-grade Ag-Pb-Zn mineralization; structural complexity noted.
2005–2008	Sara Vein (West)	Prospecting, mapping, geochemistry	High values in Pb, Zn, Ag, and Au; mineralization structurally controlled along vein systems.
2011–2012	Silver Fox Property	Silt geochemistry, mapping, prospecting	Extensive alteration zones; geological similarities to Montana Cu-Ag deposits.
2013–2016	St. Eugene Vein System	Mapping, geochemistry, geophysics	Historic Pb-Zn-Ag production; mineralization controlled by stratigraphy and faulting.
2017	Silver Fox Property	Diamond drilling (5 holes, 2727 m)	Revett-type mineralization identified; Cu <1000 ppm over 1 m intervals; limited economic potential.

3.1 Koocanusa East

3.1.1 1989-1991 Exploration along Gold Creek

Gold was first discovered in the region in 1863 along the Wild Horse River, 10 km northeast of Cranbrook (Holland, 1980). The provincial government completed stream sampling across many parts of the province and the current database can be found as part of the Regional Geochemical Survey (RGS) (Han and Rukhlov, 2020). The regional resolution of this database limits the usefulness of this sample set for exploration purposes with only a small number of stream sediment samples collected from within the Project area. Despite the limited sampling in the area, elevated gold values (>90% percentile) can be seen in RGS stream sediment samples just south of the Project area. However, RGS stream sediment samples were generally not collected from the larger streams like Gold Creek.

Klewchuck (1991a) reported that fine placer gold in Gold Creek, as well as surface alteration zones and anomalous mercury in bedrock, led South Kootenay Goldfields Inc. to commence an exploration program for lode gold in the area. The work on the Gold Creek property in 1989 included prospecting and rock geochemistry, analysis of heavy mineral and panned concentrate from stream samples, soil sampling, 9km of line cutting and IP geophysics, and diamond drilling (Klewchuck and Ryley, 1990; Ryley et al., 1990). Heavy minerals and pan concentrates were collected from within Gold Creek and returned anomalous values along most of the sampling length and some samples returning over 10 ppm Au (Klewchuck and Ryley, 1990). Chalcopyrite and malachite staining was reported from a number of samples including both float and bedrock. Anomalous Cu values (up to 143ppm) were identified in soil sampling from two lines south of, and running parallel to, Gold Creek. The Gold Creek MINFILE occurrence is described as consisting of disseminated copper sulfide mineralization occurring in the Nicol Creek, Gateway and Roosevelt formations. “Chalcopyrite is disseminated and occasionally concentrates as blebs. Malachite and azurite are less common, occurring in quartz veinlets and fracture planes.” (B.C. MINFILE #082GSW022). Twenty-three diamond drill holes were attempted across the property in 1989 and 1990. Most of the drill holes were targeted on geophysical anomalies. The highlight of this drilling was hole G90-1 which passed through tuffaceous sediments and volcanic flows. Three samples of mineralized quartz veining were sampled and returned values of 0.65%, 0.20%, and 0.43% copper (Samples 45361, 45362 and 45364; Ryley et al, 1990). This drill location is the BC MINFILE Twin 5 occurrence (#082GSW090). A second hole drilled about 60m to the NE (G90-19) did not identify significant copper mineralization. The overall focus of exploration in this program was gold, and no significant gold results reported from this drilling. Important conclusions from the work include “Both the

Nicol and Gateway formations contain disseminated chalcopyrite which may be stratabound” and “opportunity exists for stratiform copper deposits” (Ryley et al., 1990).

The focus of work in the second season was to identify gold mineralization through an exploration program of soil geochemistry, geological mapping, and an airborne magnetic and VLF-EM surveys (Klewchuck, 1991a; 1991b). The anomalous gold and copper values from the confluence of Cavan Creek and Gold Creek were targeted with a detailed soil geochemical grid made up of 1153 samples taken over a 12 km² area. The soil sampling grid consisted of a 5km cut baseline and 100m spaced sample lines with a sample spacing of 100m along the lines. Samples were collected from the ‘B’ horizon and results were presented in a map format without contouring or shading. A copper anomaly detected by soil sampling led to the discovery of at least one new bedrock occurrence of copper (Klewchuck, 1991a). However, no new gold occurrences were discovered, and no additional drilling was completed in the second season. The helicopter borne magnetic and VLF-EM survey was conducted over the course of 2 days at the end of August 1990. The survey work included 614-line kilometers and covered 4 different areas which partly cover the Koocanusa property. One primary conclusion from this work was that geophysics is useful for indicating the presence of undetected structural breaks (Klewchuck, 1991a).

The main recommendation was that further work would be required to combine the geophysical survey information collected at the end of the 1990 season with the known geological and geochemical data to establish targets for more detailed exploration (Klewchuck, 1991).

3.1.2 *Frankie Showing*

The Frankie showing (BC MINFILE #082GSW034) is reported as a mercury showing located on a ridge east of Gold Creek and ~2km south of Chains Lake. This showing has seen various prospecting, geological work and drilling. Klewchuck (1989, BC ARIS 18748) reported results from a 4-hole drilling program. The highlight was 0.31% mercury in a 0.6 m long sample of drill core (BC ARIS 18748). Assay results on a grab sample from the area returned 4.9% mercury (BC ARIS 19965). Mercury mineralization at this location is likely unrelated to the sediment hosted-copper mineralization on the property as it has been described as hydrothermal epigenetic of an unknown type (BC MINFILE #082GSW034). Kennedy (2006a, BC ARIS 28482) conducted a brief two-day prospecting and mapping work project in 2005 on the area around the Frankie showing. Work consisted of prospecting and the creation of a prospecting map of alteration, veining, and mercury and copper occurrences. A second two-day prospecting and mapping work project by Kennedy (2006b, BC ARIS 28483) focused on the potential for mercury

mineralization in sediments just south of Tepee Creek, towards the north end of the Koocanusa Project area. Cinnabar was reported to occur as coatings on pyrite cubes as well as in narrow breccia zones (Kennedy, 2006b). However, no sample descriptions, photographs, or assay results were provided in either of these assessment reports.

3.1.3 Lilo

The Lilo showing (BC MINFILE #082GSW076) lies on the southwestern portion of the Koocanusa Project. The Lilo Property was originally staked in 1990 after reconnaissance work identified alteration, limonitic staining, malachite, and disseminated chalcopyrite in logging road cuts (Bapty, 1991). Work on this property included 5 days of prospector mapping of roadcuts and outcrops and the collection of grab samples for assay. Bapty (1991) reported azurite and chalcopyrite in narrow bedding-parallel fractures in black argillaceous siltstones as well as calcite veins with two grab samples returning assay values of 0.24% (Sample #2487) and 0.25% Cu (Sample #2487). A sample of limonitic calcite breccia (Sample #52211) returned assay values of 0.98 % Cu and 3.4 ppm Ag (Bapty, 1991).

3.1.4 2012 – Geological mapping of NNW and NE trending Faults

Anderson (2013) conducted a mapping project on an area within the north-central portion of the Koocanusa Project (Mineral Title #108159, Koo Bridge) to examine the area for gold potential. This area was recorded as one with low relief and little outcrops, but recently logging has improved access and added new road cuts. A series of hard white alteration zones were found in the Gateway formation aligned along an NNW trend with a fault (Anderson, 2013). Minor galena and pyrite were noted as well as quartz vein float that was identified downslope of a fault. A detailed 1:20,000 geology, alteration, and structural map were created, but no follow-up work was reported. The structural complexity of the Anderson (2013) geological map is instructive, as detailed geological mapping work will likely be required in the Project Area to trace out prospective strata and structures.

3.2 Koocanusa West

3.2.1 Silver Pipe showing

In the north area, considerable exploration has been done in the vicinity of the Silver Pipe showing, northwest towards Moyie Lake and southeastward across Teepee Creek towards the KRL (Sara) vein. The Silver Pipe (Pipeline showing) was originally staked following the construction of the gas pipeline in the mid to late 1960s. The property, originally called the Dirk property, was later renamed the Teepee property and comprised the Erdaco and Dirk claims. These were optioned to Mercury Exploration

in 1969 who conducted some geological mapping, a ground magnetometer survey, and trenching which defined the Gossan vein system with widths up to 5 meters and a strike length of approximately 400 meters (see summary in Yeager and Ikona, 1983). Yeager and Ikona (op. cit.) also note an EM survey done by Cominco in 1971 (J. Hamilton, internal Cominco Report, 1971). The claims were allowed to lapse and subsequently restated in 1980, then vended to R.G. Gifford who in turn vended them to Gulf International Ltd. Work by Pamican Development Ltd for Gulf International included a soil geochemical program, trenching, geological mapping, and sampling (Yeager and Ikona, 1983). A geological map included in this 1983 report shows the location of 1982 diamond drill holes, although no reference is made to them in the text. The collars, with casing, are still visible but no core. Kokanee Exploration staked claims in the northern part of the Silver Pipe area in the late 1980s and conducted some reconnaissance geochemical and geological mapping (see summary in Stephenson, 1999). Prospecting by C. Kennedy in 1989 discovered the Jake showing south of Teepee Creek. Stephenson (1999) and Pighin (2009) both report that Auckland Resources drilled 7 holes totaling 307.7 meters in the area of the KRL property. and intersected “low-grade silver base metal mineralization associated with gabbro dykes”. However, as noted by Pighin (2009), the exact locations of these holes are not known. The Erin claims were staked by L. Stephenson in 1992 to locate and evaluate the projected trend of the Pipeline showing and soil sampling, mapping, and prospecting were subsequently carried out (Stephenson, 1999a). Considerably more work was done by Stephenson in the mid to late 1990s on the Erin and Dek claims; the Dek claims, staked in 1997, covered both the KRL and Silver Pipe veins. This work included geological mapping, additional prospecting, and ground VLF and magnetometer surveys (see Stephenson, 1999a, 1999b). D. Lavoie and S. Kennedy staked the area around the Jake and Silver Pipe veins in 2005 and optioned them to Grandeur Resources Ltd. who conducted a program of prospecting and rock and soil geochemistry, mainly in the vicinity of the KRL (renamed Sara) showings (Kennedy, 2005; 2006; 2008). Many of the collected rock samples were float but returned high values in lead (>10,000 ppm), zinc (up to 4903 ppm, silver (>100 ppm), and gold (up to 4226 ppb). Detailed mapping by Pighin (2009) in the vicinity of the Sara vein differentiated the Creston Formation, outlined areas of intense alteration, defined structural controls, and better defined and delineated the Sara vein. A regional exploration and prospecting program, carried out mainly by Craig and Sean Kennedy for Kootenay Gold, recognized extensive alteration in the Creston Formation that locally extended south to the United States border. Further prospecting and reconnaissance mapping, with the discovery of stratabound copper mineralization, led to comparisons with stratabound copper-silver mineralization in northern Montana, and subsequently, a large tract of land named the Silver Fox property, was staked. Work during the 2011 field season included a reconnaissance silt geochemical program (Jackaman, 2012), additional

prospecting (Kennedy, 2012), and geological mapping (Hoy et al, 2012). Mapping at 1:20000 scale started at the south end of the property and continued north in 2012 (Anderson2012, 2013).

3.2.2 *St. Eugene Vein System.*

The St. Eugene portion of the claim block has a long and varied history. Mining of the vein system was earliest from the late 1890s through to 1916. Production totaled 1.47 million tons of about 7.7% Pb, 124 g/ton Ag, 1% Zn (very low recovery), and 0.05 g/ton Au. Small tonnages were extracted from extensions on the west side of the lake (Aurora and Guindon) and to the southeast at the Society Girl. The operators of the day did exploration underground and later in the 1930's, 1940's, and 1960's more mapping and drilling were done but records are poor to non-existent. The St. Eugene Vein System is comprised of several cross-cutting veins that transect the upper part of the Middle Aldridge Formation, becoming less pronounced up into the Upper Aldridge Formation. The northwest-striking, steeply south-dipping veins extend from the Aurora/Guindon on the west side of the lower Moyie Lake southeast about 5 kilometers, over a vertical range of at least 1200 meters. It is primarily a lead-zinc-silver system with a variety of trace elements including copper, gold, arsenic, antimony, and mercury. The mine produced primarily lead and silver with the sphalerite discarded for most of the production history. Most of the tonnage was contained within the north and south veins, particularly where the south vein converged on the north vein, and cross structures (linking shears) yielded significant production as well. The best-developed veins and mineralization were confined to two intervals of quartzite-dominated stratigraphy designated the Lakeshore and Moyie zones. Early exploration at St. Eugene is generally described but specific results are lacking. During mining, levels were extended, and a few holes were drilled from the surface. Later in the 1930's and 1940's several reviews were conducted of the property, and some dewatering of workings took place. During the late 1940's mapping was conducted, and a magnetometer survey was completed. In 1964 and 1965 exploration consisted of mapping, soil geochemistry, and trenching on the upper St. Eugene area and across the lake at the Aurora. Two drill holes were done on the upper St. Eugene Baltimore claim. During the 1960's Cominco Ltd. drilled three deeper holes along the east shore of the lower lake apparently to test the ground south of the St. Eugene for parallel veins but also to try to intersect the St. Eugene system at depth which was not accomplished. In 1988, after the completion of the d-8-c well hole by Duncan Oil and Gas at the south end of the lower Moyie Lake, the cuttings from 3-meter intervals were sampled and analyzed. This identified some anomalous Pb-Zn intervals and a deeper anomalous copper zone. In 1990, a UTEM geophysics survey was completed over the St. Eugene mine area. Also in 1990, Noranda completed a one-year program of mapping and soil geochemistry on the Beach property, 4 kilometers to the north, in response to anomalous copper in an RGS sample. In 1992, Cominco Ltd. did some soil sampling on the Cherry claims just to the south, again

in response to a positive RGS sample, in this instance for lead, zinc, and silver. In 2005, St. Eugene Mining Corp. launched a four-year program including EM on the ground; an airborne EM and Mag in 2006; diamond drilling on the Society Girl area and across at the Aurora in 2007; and diamond drilling on a structural zone north of the mine in 2008. (see St. Eugene Mining assessment reports) In 2013, a mapping program was started at 1:10000 scale on the St. Eugene area. This encompassed north to Barkshanty Creek and south to Sunrise Creek (Anderson, 2014). In 2014 and 2015 mapping, prospecting, and rock geochemical sampling covered a significant part of the property at 1:20000 scale and then at 1:10000 scale. Additional mapping and rock geochemistry was conducted on the property in 2016 in conjunction with ground-based geophysical surveys (mag/VLF-EM).

In 2017 Kootenay Silver Inc. completed 2727 m of diamond drilling completed over five drill holes on the Silver Fox property across approximately 26 km. Drilling was intended to target the down-dip stratigraphic extension of surface showings of low-grade Cu-Ag-Pb mineralization in the Middle and Upper Creston Formation at Jake Ridge, Yahk Mtn, Ward, and Gilnocke targets. While none of the holes intersected Cu values greater than 1000 ppm over 1m broad zones, the mineralization was identified as indicating Revett-type mineralizing processes that have affected the property, and that the area is a likely candidate for this type of deposit.

4.0 GEOLOGY

4.1 Regional Geology

The Koocanusa Property lies within the Purcell Mountains and is underlain by rocks of the Mesoproterozoic (~1.4 Ga) Purcell Supergroup (Figure 2). The Purcell Supergroup was deposited in an extensional basin and is primarily made up of siliciclastic and carbonate clastic rocks with minor amounts of mafic volcanic rocks. The basin extends from southeastern British Columbia into Idaho, western Montana, and eastern Washington. This sedimentary basin is termed the ‘Belt Basin’ or the ‘Belt Supergroup’ in the United States and the Purcell Supergroup in Canada. Details of the Belt-Purcell Basin tectonic setting are still debated, but most models involve intracontinental rifting (Chandler, 2000; Sears et. al., 2004; Lydon, 2007).

Rocks of the Purcell Supergroup in Canada have been stratigraphically subdivided based on changes within the basin (Höy, 1993; Lydon, 2007; Gardner and Johnston, 2007). These changes in the basin have led workers to commonly split rocks into four informal groups: the Basal, the lower, the Middle Carbonate, and the upper Purcell (Gardner, 2008). In the United States, these four units are referred to as the lower, the Ravalli, the Middle Carbonate, and the Missoula.

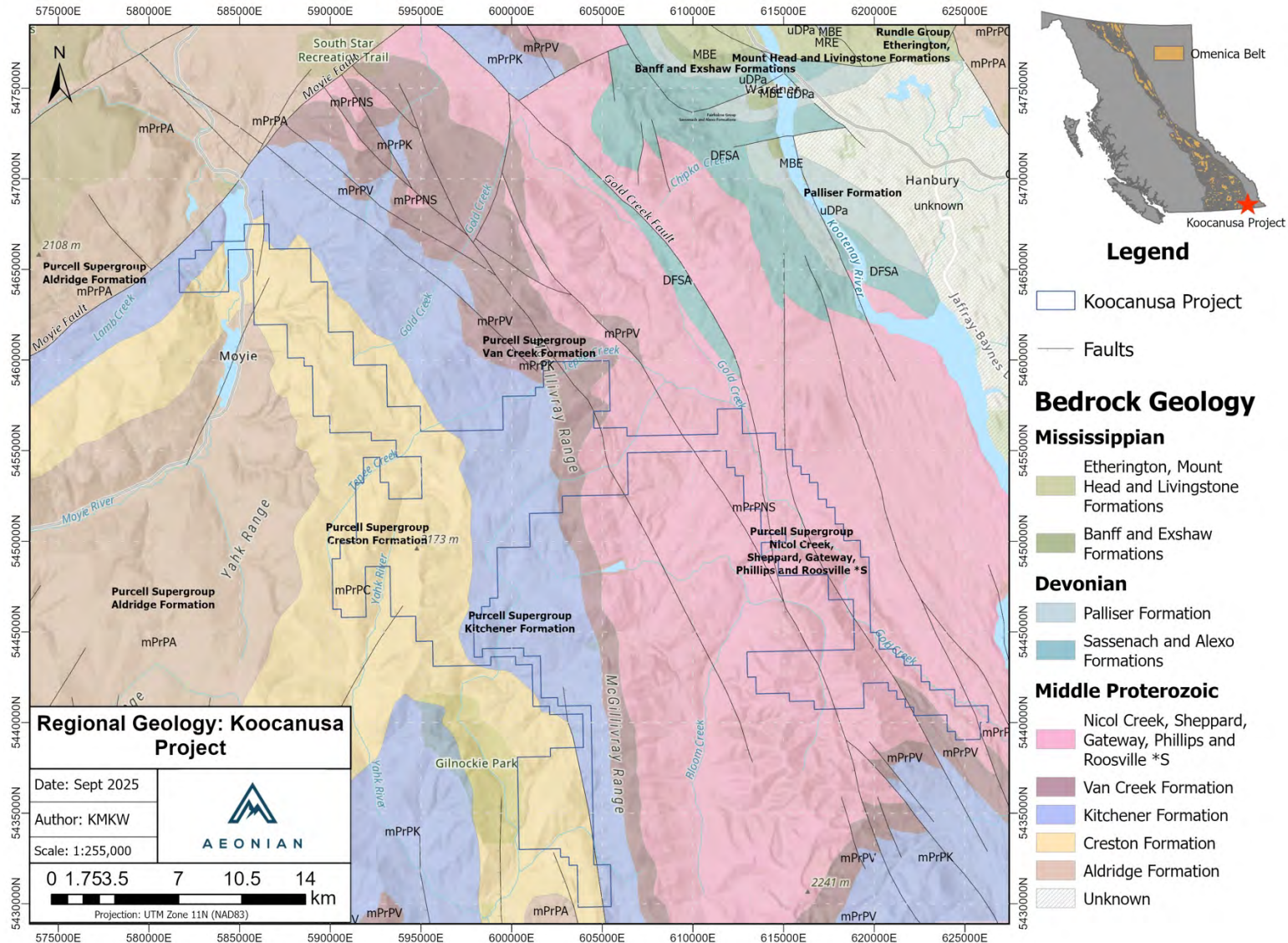


Figure 2: Regional bedrock geology, Koocanusa Project, BC, Canada

The rift system that created the Belt-Purcell basin is interpreted to have been active in two stages; the first of which was underway by 1470 Ma and involved an accumulation of 10km of fine-grained turbidites and intercalated mafic sills (Price and Sears, 2000). These turbidite ‘rift-fill’ rocks are termed the Aldridge Formation and host the world-class Sullivan SEDEX Zn-Pb deposit (Lydon, 2007). The second phase of basin rifting led to the deposition of approximately 6 km of shallow water sediments (Price and Sears, 2000). These shallow-water sediments are made up of fine-grained clastic and carbonate rocks that were deposited in mud flat, lagoonal, fluvial, and playa environments and are interpreted to represent a ‘rift cover’ sequence (Lydon, 2007). It is the ‘rift-cover’ portion of the basin that contains sediment-hosted Cu-Ag deposits in Montana (Hayes and Einaudi, 1986; Boleneus et al., 2005). The upper ‘rift-cover’ portion of the Purcell Supergroup has recently been interpreted to represent a transpressional pull-apart basin (Ross et. al., 2003; Gardner, 2008).

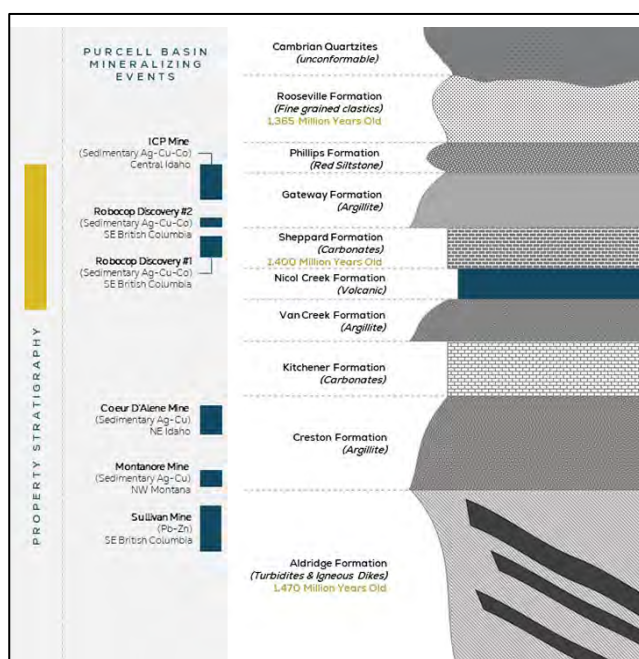


Figure 3: Stratigraphy of the Purcell Supergroup in the Project Area and Equivalent Units from the Belt Supergroup in the USA.

The ‘rift-cover’ sequence starts with siltstones and sandstones of the Creston Formation, overlain by carbonates of the Kitchener Formation and then fine clastic rocks of the Van Creek Formation. A thick package of distinctive flood basalts, termed the Nicol Creek Formation, overlies these rocks. Coarse clastic and stromatolitic carbonate rocks of the Sheppard Formation locally sit on top of the Nicol Creek Formation. The shallow-water, fine-grained clastic rocks of the Gateway, Phillips, and Roosevelt formations overlie the Sheppard formation (Höy, 1993) (Figure 3).

Regional deformation has folded the Purcell Supergroup into a large north-

plunging anticlinorium with the oldest rocks of the Aldridge Formation at the core (Höy, 1993). The Purcell anticlinorium was formed as the Purcell Supergroup was thrust eastwards onto the cratonic margin of western North America in the late Mesozoic and Early Cenozoic (Price, 1981). A large number of thrust faults were created at this time, many of which were later reactivated at normal Faults (Höy, 1993).

The Rocky Mountain Trench lies to the east of the Project area and represents a broad structurally controlled valley that extends from Montana to the Yukon Territory and is floored by a thick

sequence of Quaternary and Recent sand and gravel deposits (Höy, 1993). This trench separates the Purcell Mountains on the east from the Rocky Mountains on the west.

4.2 Project Geology

The Koocanusa Project area was mapped by Leech (1960) and Höy and Carter (1988) and included in a compilation of the Purcell Supergroup by Höy et al. (1995). It should be noted that the government-sponsored geological mapping was regional in nature and is not in sufficient detail for use in exploration targeting strata-bound mineralization. All of the rocks in the Project consist of the upper “Rift Fill” component of the Purcell Group Stratigraphy. This aspect is important because rocks of the Aldridge Formation in the lower Purcell Supergroup are reduced in nature and unlikely to host sediment-hosted Cu-type deposits. The western and northwestern portion of the Property is underlain by rocks of the Creston Formation. This formation is subdivided into lower (C1), middle (C2) and upper units (C3) with an additional transitional C3 unit adjacent to the Kitchener and Van Creek formations in the central portions of the Property (Figure 4). The remainder of the Property area is underlain by the Upper Purcell, including rocks of the Van Creek, Nicol Creek, Sheppard, Gateway, and Phillips formations (Figure 4).

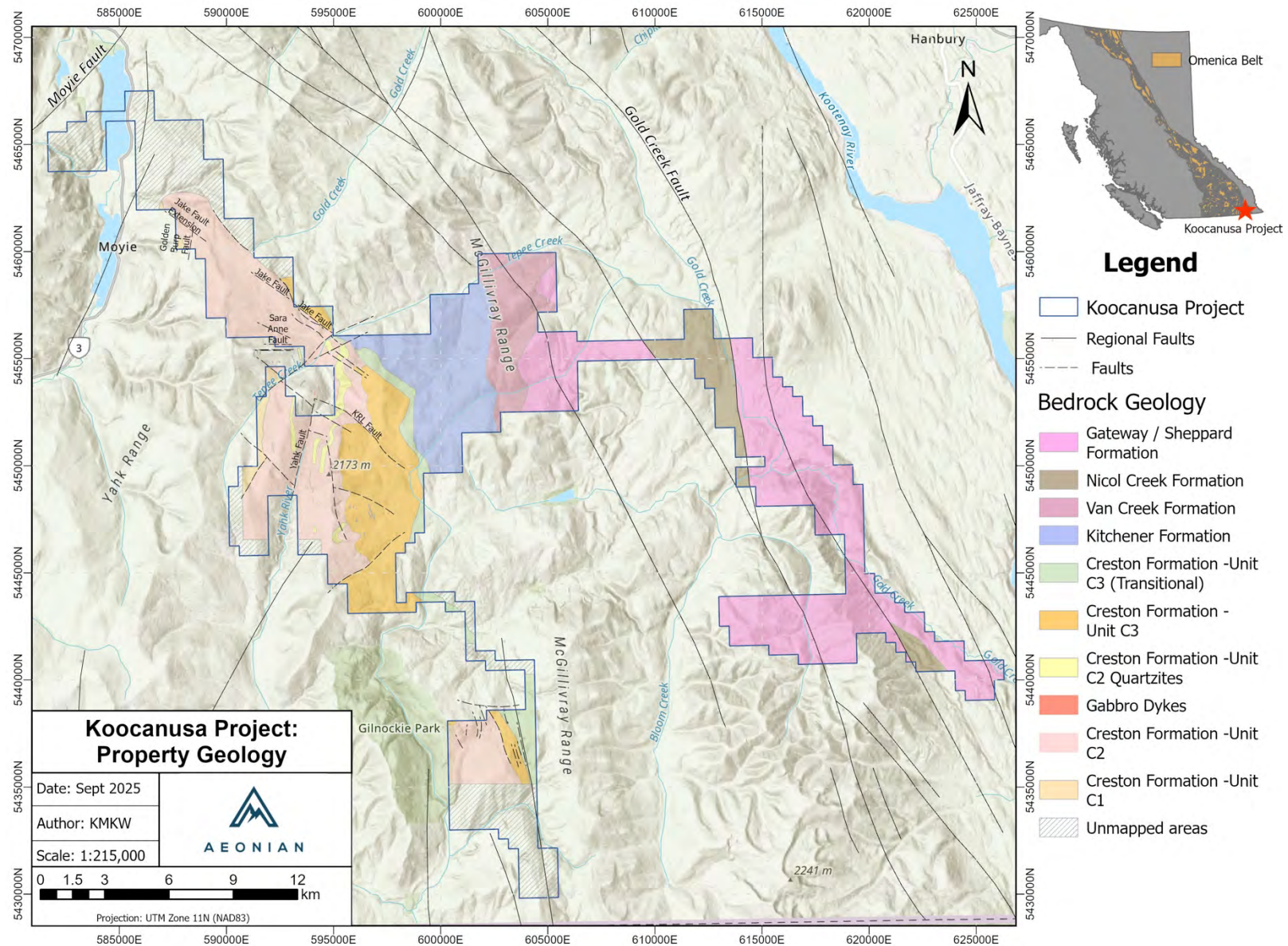


Figure 4: Koocanusa Project Property Geology

4.2.1 *Creston Formation*

The Creston Formation is exposed within the western section of the Property. The Creston Formation correlates with the Burke, Revett, and St. Regis formations of the Ravalli Group in the United States (Harrison, 1972; Winston, 1986) and the Appekunny, Grinnell and Empire formations in the southwestern Clark Range (Price, 1964). In the Purcell Mountains, the Creston Formation comprises three main subdivisions: a basal silty succession of thin-bedded grey to green siltstone and argillite (C1), a middle succession of mauve, green and grey, thin to medium bedded siltstone quartzite and quartz arenite (C2), and an upper succession of intermixed green argillaceous siltstone and minor quartz arenite (C3) (Figure 4; Hoy, 1993). It is the middle sandstone-dominated unit (C2), termed the ‘Revett Formation’ in Montana, that hosts the Troy, Rock Creek and Montanore Cu-Ag deposits. Crossbedding and ripple marks are common within the quartz-rich sandstone, consistent with deposition in a relatively shallow, high-energy environment. Sedimentary structures and facies trends indicate fluvial and deltaic deposition as alluvial fans migrated across periodically exposed mudflats (Hoy, 1993).

4.2.2 *Kitchener Formation*

The west-central part of the Property hosts a large N-S trending belt of the Kitchener Formation. The Kitchener Formation is a thick horizon of carbonate rocks that include oolitic limestone and dolomitic siltstone (Höy, 1993). The carbonate beds of the Kitchener Formation were deposited in a carbonate-shelf environment during decreasing input of terrigenous material (McMechan et al, 1980; Paiement et al., 2007). This unit is informally referred to as the Middle Belt Carbonate in the Belt-Purcell Basin and correlates with the Wallace Formation to the west (N. Idaho) and the Helena Formation (western Montana) (Lydon, 2007).

4.2.3 *Van Creek Formation*

The Van Creek Formation stratigraphically overlies and is to the east of the Kitchener Formation in the central part of the Property. The Van Creek Formation consists of maroon or green interlayered siltstone and argillite and correlates with the Snowslip Formation in Montana and the upper Siyeh Formation in the Clark and Galton Ranges (McMechan et al, 1980; Hoy, 1993). The unit is thinly bedded to laminated and locally fissile. Mud-chip breccias, ripple marks and desiccation cracks indicate that this unit was deposited in shallow water. The coarsening upward cycles may be deltaic deposits formed as river-dominated deltas extended outwards across silty mudflats (Hoy, 1993). Gabbro dikes and sills are relatively common near the top of the Van Creek Formation and may be interpreted as feeder dykes to the Nicol Creek Formation. Contact with the overlying Nicol Creek Formation is abrupt.

4.2.4 Nicol Creek Formation

The Nicol Creek, Sheppard and Gateway Formations underlie the eastern half of the Property. The Nicol Creek Formation, which was defined by McMechan et al. (1980), consists of green and lesser purple, locally dolomitic, siltite and argillite, green volcanic sandstone and tuff, interlayered with green or maroon, massive to amygdaloidal flows. This distinctive grey-green flood basalt unit is termed the ‘Purcell lavas’ where it is exposed in Montana (Figure 3). The Purcell lavas are commonly used as a marker horizon within the basin due to their distinctive nature and relatively widespread occurrence. The Nicol Creek basalts have not been dated but a rhyolite to quartz latite flow from the Purcell lavas in Montana has an age of 1443 ± 7 Ma age (Evans et al., 2000). The Nicol Creek Formation is dominated by vesicular and amygdaloidal flows with vesicles and gas chambers locally providing well-defined top indicators to the flows. Plagioclase-porphyrific flows are also relatively common and are typically interlayered with the vesicular lavas. A general lack of pillow structures combined with the stratigraphic setting have led workers to interpret a subaerial eruption environment for these rocks (McGimsey, R., 1985; Höy, 1993). A subaerial setting may be important as reduced sulphur in marine volcanic rocks may preclude formation of hematite-stable environment where Cu may be leached from the rocks (Cox et al., 2007). The Nicol Creek volcanic rocks have a subalkaline to alkaline, within-plate geochemical signature (Höy, 1993).

4.2.5 Sheppard Formation

The Sheppard Formation directly overlies volcanic rocks of the Nicol Creek Formation and is distinctive due to the local presence of well-developed stromatolitic rocks. The unit is reported as a calcareous sandstone and siltstone interspersed with stromatolitic and oolitic dolomitized limestone beds as well as massive non-calcareous sandstone by Gardner (2008). The Sheppard Formation was originally mapped by Leech (1960) as the lower part of the Gateway Formation but was later adopted as a separate formation by McMechan (1981). An unconformable relationship between the Sheppard and Nicol Creek formations has been suggested by Höy (1993) due to the missing Nicol Creek strata and the local presence of conglomerate at the base of the Sheppard.

4.2.6 Gateway Formation

The Gateway Formation appears to make up the majority of the bedrock on eastern and southern portion of the Property. The Gateway is comprised of fine-grained light grey and green siltstone and sandstone with minor dolomitic limestone (Gardner, 2008). The base of the Gateway was marked by Höy (1993) as the first appearance of rip-up clasts, desiccation cracks and salt casts. The presence of salt casts

has been considered distinctive of the stratigraphically equivalent unit in Montana (O'Brien, 1968). The Gateway Formation fines upward with predominantly sandstone at the base and fine-grained siltstone and argillite near the top (Höy, 1993). The unit ranges from thin to thick bedded and ripple marks are common. Odd buff dolomite sequences have also been reported from this unit and the depositional environment is considered to be lagoonal (Gardner, 2008).

4.2.7 Phillips Formation

The Gateway is separated from the overlying Roosville Formation by a distinctive maroon siltstone and sandstone that is rich in muscovite and termed the 'Phillips Formation'. Without this marker formation, it may be impossible to identify the contact between the upper Gateway and the lower Roosville (Gardner and Johnston, 2007).

4.2.8 Roosville Formation

The Roosville Formation is described as a dark grey to green argillite and siltstone with fine to medium grained dolomitic sandstone that was deposited in a tidal flat lagoonal environment (Gardner, 2008). Gardner (2008) marks the base of the Roosville Formation as the first appearance of massive stromatolite beds within finely laminated dark grey to black argillite and siltstone.

4.2.9 Intrusive Rocks

Gabbro dykes are found cutting the Creston, Kitchener, and Van Creek Formations in areas south of Cranbrook (Hartlaub and Paradis, 2008; Hartlaub, 2009). A U-Pb age of 1439 ± 2 Ma (Brown and Woodfill, 1998) for a gabbro sill that cuts the Kitchener Formation is consistent with an equivalent age for the Nicol Creek Formation in Montana. A gabbro dike, exposed near Eager hill north of Cranbrook, cuts the Kitchener Formation and includes numerous thin veins containing chalcopyrite (B.C. MINFILE 082GNW033). This gabbro may also represent a feeder dike to the overlying Nicol Creek basalts and is consistent with elevated Cu in these mafic volcanic rocks (Hartlaub and Paradis, 2008). Gabbro dykes have been identified on western side of the Property, intruding the Creston Formation (unit C2; see Figure 4).

4.3 Structural Geology and Metamorphism

The project lies on the eastern limb of the regional Purcell Anticlinorium. Bedding in the project area generally strikes north-northwest and dips 25-55 degrees to the east-northeast. The oldest structures in the Project area are likely syn-sedimentary faults that would have been active during basin extension.

The Gold Creek Minfile occurrence lies directly on the Gold Creek Fault mapped by Höy and Carter (1988). This fault is one of a series of west and south-west dipping normal faults that cut through the Property (Leech, 1960; Höy and Carter, 1988; Höy, 1993; 1995), as illustrated in Figure 4. The Gold Creek fault can be traced northwestwards from the U.S. border, through the Property and the city of Cranbrook, until it is covered by quaternary sediments just south of Kimberly. This fault is interpreted as a west and south-west dipping normal fault that was activated during extension in Early Tertiary time (Höy, 1993).

The Moyie Fault is a north-dipping, right lateral and reverse fault lying just northwest of the Property boundary. Its hanging wall juxtaposes highly deformed lower and middle Aldridge rocks against the less deformed Kitchener, Van Creek, Nicol Creek, and Gateway rocks in the footwall. A number of splays in the hangingwall are also reverse faults. The Moyie anticline dominates the structure south of the Moyie Fault. It is a northeast-plunging upright anticlinal fold. In the hangingwall, immediately adjacent to the Moyie Fault, folds are tight and locally overturned. These, and other, faults in the area are best identified by a combination of topographic analysis, geological mapping, and airborne magnetic surveys. The most significant of these normal faults is the Rocky Mountain Trench mapped east of Koocanusa Lake and covered by Quaternary and Recent sand and gravel deposits.

4.4 Mineralization & Alteration

Siliciclastic sedimentary rocks contain significant copper (Hitzman, 2000, 2010), and large cratonic basins filled with immature clastic sediments are, consequently, good source regions for this important resource. The Belt-Purcell basin has a thickness of at least 19 km in the central part of the basin in B.C. (Cook and van der Velden, 1995) and up to 18 km in the U.S. (Winston and Link, 1993). Sediment-hosted copper deposits are a major global source of copper and two of the three largest copper projects in the world that are currently in development are sediment-hosted (Mining, 2021). Most deposits are formed within Proterozoic-aged continental rift basins due to the movement of moderately low pH oxidized fluids within permeable, shallow-water sedimentary and, more rarely, volcanic rocks (Brown, 1992; Cailteux et al., 2005; Cox et al. 2007). The largest and most prolific region for these deposits is the Central African Copper Belt of Zambia and the DRC, but deposits are found throughout the world (Cailteux et al., 2005; Hitzman et al., 2010). Canada hosts several known regions of sediment-hosted copper mineralization, including the Belt-Purcell Basin in B.C. and the Janice Lake area (Delaney et al., 1995; Wheatley and Mazur, 2018) of Northern Saskatchewan.

Exploration for sediment-hosted copper mineralization in the upper Belt-Purcell Supergroup was spurred by the major discovery of the Spar Lake Deposit in 1963 by Bear Creek Mining in the Revett

Formation (Hayes and Einaudi, 1986). The delineated deposit consisted of 58 million tons of 0.76% Cu and 54g/t Ag. Mining of the deposit, later known as the Troy Mine, commenced in 1981 with the room and pillar method (Hayes and Einaudi, 1986). Numerous additional sediment-hosted stratabound Cu-Ag deposits, including Rock Creek and Montanore, have been identified in the upper Belt-Purcell Basin in Montana (Boleneus et al., 2005). The entire Belt-Purcell Basin was more recently reported by the USGS to host at least 11 deposits and 36 occurrences of sediment-hosted copper (Zientek et al., 2015). The principal ore minerals at the Troy Mine in Montana are native silver and three argentiiferous copper sulfides noted as bornite, digenite, and chalcocite (Hayes and Einaudi, 1986). Ore minerals were found to be intergranular, located between the clastic silicate grains. A major US Geological Survey of global sediment-hosted copper potential identified the Creston Formation of B.C. as having significant potential (Zientek et al., 2015). The same study identified copper mineralization in overlying strata including the Snowslip, Shepard, Mt. Shields, and Bonner Formations, equivalent to the exposed units on the Koocanusa property. This is consistent with the prior work in the Project area that has identified several sediment-hosted copper occurrences and recent work on adjacent properties.

4.5 Main BC MINFILE Showings

There are several mineral showings and occurrences on the property which are related to sediment hosted copper, gold, silver, and mercury (Table 3; Figure 5).

Table 3: Summary of BC Mineral Occurrences within the Koocanusa Project

Showing Name	MINFILE Number	Location	Deposit Type	Commodities	Geological Setting	Exploration History
Gold Creek	082GSW022	BCGS Map 082G013	Sediment-hosted Cu (E04)	Copper, Gold	Hosted in the Purcell Supergroup within the Omineca Belt. Sedimentary rocks of the Belt-Purcell basin.	Preliminary mapping and sampling; Cu mineralization observed in outcrop and float. Historical soil grids returned Cu (143ppm) and Au (130ppm); Drill samples returned 0.65%, 0.20%, and 0.43% Cu.
Frankie	082GSW034	BCGS Map 082G014 Ridge east of Gold Creek	Hydrothermal epigenetic of unknown type	Mercury	Helikian Upper Purcell Supergroup; includes Nicol Creek, Gateway, Phillips, and Roosville formations.	Drilling in 1988 intersected 0.31% Hg over 0.6 m; 1989 grab sample assayed 4.9% Hg; 1988 drilling: 0.31% Hg over 0.6 m; 1989 grab sample: 4.90% Hg. Aeonian Resources explored in 2020–2021.
Lilo	082GSW076	BCGS Map 082G013	Sediment-hosted Cu (E04)	Copper, Silver	Similar Belt-Purcell basin setting as Gold Creek and Frankie.	Exploration includes mapping and sampling. Copper and silver assays (0.98%Cu and 3.4 g/t Ag) confirm sediment-hosted Cu potential.
Twin 5	082GSW090	BCGS Map 082G014	Vein, breccia, and stockwork (I)	Copper	Hosted in the Omineca Belt, with mineralization in brecciated zones.	Brecciated zones with copper mineralization. Drilling in 1990 intersected 0.65% Cu over 0.3m; 2021 Cu-in-soil up to 288ppm and rock assays up to 0.1% Cu.
Barkshanty	082GSW112	BCGS Map 082G032	Unknown	Copper	Located within Belt-Purcell basin geology. Middle Creston Fm-Quartzite	Area is cross-cut by several important base-metal bearing structures (i.e. St Eugene) but the signatures are masked by overburden. Needs follow up exploration.
SFBK18	082GSW114	BCGS Map 082G022	Unknown	Copper	Helikian Creston Fm (Purcell Supergroup)	In 2018 a drill hole was placed here to test for Cu mineralization in the lower Creston Formation. Chalcopyrite and magnetite were encountered silts at 300m depth.
Jake Copper	082GSW070	BCGS Map 082G022	Unknown	Copper	Hosted in Belt-Purcell basin rocks.	Historical sampling and mapping. Copper mineralization confirmed in float and outcrop samples.

Jake Ridge	082GSW109	BCGS Map 082G022	Unknown	Copper	Belt-Purcell basin geology.	Exploration includes geological mapping. Assays indicate copper-bearing zones; further sampling recommended.
Yahk Mountain Zone	082GSW072	BCGS Map 082G012	Unknown	Copper	Belt-Purcell basin geology.	Mineralization occurs as blebs of chalcocite in bleached quartzites grading up to 0.55% copper, 14g/t Ag and 0.2g/t Au.
Silver Fox 213	082GSW104	BCGS Map 082G012	Unknown	Copper	Part of Belt-Purcell basin.	Chalcocite and grey copper in sandier beds, grading to 0.12% copper and 4.8g/t Ag.
Silver Fox 217	082GSW103	BCGS Map 082G012	Unknown	Copper	Belt-Purcell basin geology.	Chalcocite and grey Cu found in quartzites, grading to 0.19% Cu and 6.4g/t Ag.
Gilnockie Northside	082GSW101	BCGS Map 082G012	Unknown	Copper	Belt-Purcell basin geology.	Historical sampling returned up to 0.4% Cu from quartzite layers; stratabound potential.
Gilnockie Trib	082GSW106	BCGS Map 082G002	Unknown	Copper	Belt-Purcell basin geology.	Concentration of mineralization in anticlinal fold. Samples return to 0.26% Cu and 3.5g/t Ag.
Copper Trend	082GSW108	BCGS Map 082G002	Unknown	Copper	Part of Belt-Purcell basin.	Exploration includes geological mapping. Copper assays support sediment-hosted deposit model.
Ward Creek Slope	082GSW105	BCGS Map 082G003	Unknown	Copper	Belt-Purcell basin geology.	Limited exploration data. Grab sample returned 0.17 % Cu, 0.024 % Pb, and 5.7g/t Ag
Ward Creek Northbank	082GSW107	BCGS Map 082G003	Unknown	Copper	Belt-Purcell basin geology.	Grab samples grade to 0.15% Cu and 3g/t Ag. Second sample returned 0.11% Cu.
Blacktail Creek	082GW099	BCGS Map 082G003	Unknown	Copper	Belt-Purcell basin geology.	Fault and anticlinal fold (trap?) with anomalous copper values. Underexplored.

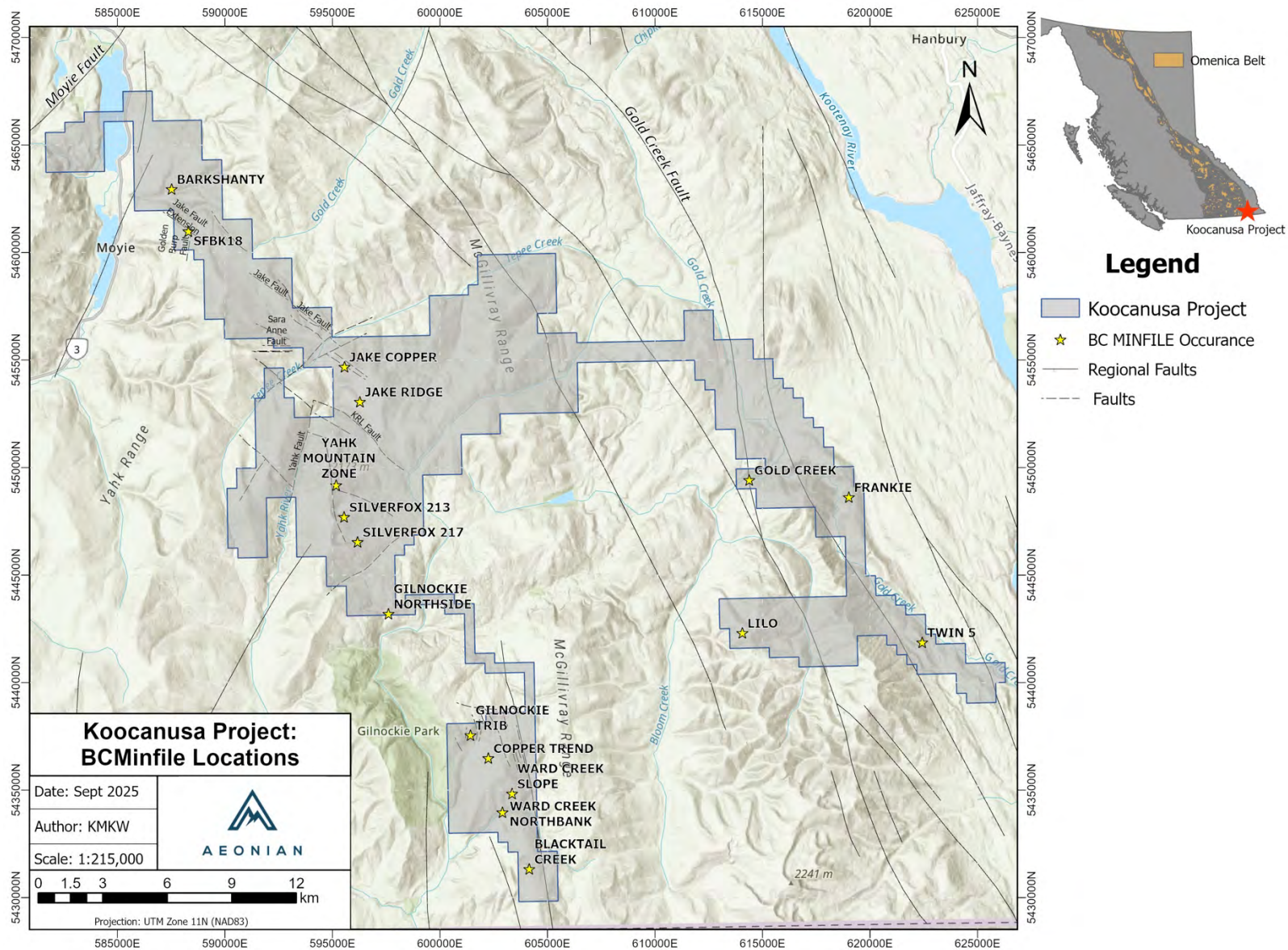


Figure 5: BC MINFILE locations within the Koocanusa Project

5.0 PROGRAM OBJECTIVES

Aeonian Resources Ltd. initiated exploration activities on the Koocanusa Project in August 2020, beginning with field reconnaissance of documented MINFILE occurrences within the property. Between 2020 and 2022, the company conducted lithological mapping, grab and soil geochemical sampling, and ground-based geophysical surveys. These efforts delineated a continuous copper-bearing trend extending approximately 21 km across the property.

The 2023–2024 exploration program expanded upon previous work through the deployment of UAV-based magnetic surveys across six high-priority target zones. This phase also included detailed structural and lithostratigraphic mapping, as well as targeted rock sampling to refine geological models.

Interpretation of the UAV magnetic data revealed prominent linear magnetic lows, which are inferred to represent structural discontinuities such as fault zones, shear fabrics, and lithological contacts. These features are considered significant as they denote zones of mechanical weakness that may act as conduits for hydrothermal fluid migration. The intersection of these magnetic lineations is interpreted to be highly prospective for copper mineralization, as such structural intersections are conducive to fluid pooling and sulfide deposition, particularly where faulting has offset stratigraphic units.

The objectives of this exploration program were to further expand these targets zones through a comprehensive high-resolution helicopter-borne electromagnetic (1TEM) and aeromagnetic survey over the western half of the property (Koocanusa West). Precision GeoSurveys Inc. flew 1343 line-kilometers from May 22 to May 26, 2025.

6.0 AIRBORNE GEOPHYSICS

The information in this section is sourced from the *Airborne Geophysical Survey Report* by Precision GeoSurveys Inc. (Appendix A).

Precision GeoSurveys Inc., based in Langley, BC, conducted a geophysical survey over the western half of the Property (Koocanusa West) as part of the 2025 exploration program. The survey was carried out between May 22 to May 26, 2025 during which a total of 1343 line-kilometers of geophysical data were collected.

The Koocanusa survey block was flown at 300m line spacing at a heading of 090°/270°; tie lines were flown at 3000m spacing at a heading of 000°/180°. The mean survey height was 69.4 m above ground level and covered approximately 364 square kilometers (Figure 6).

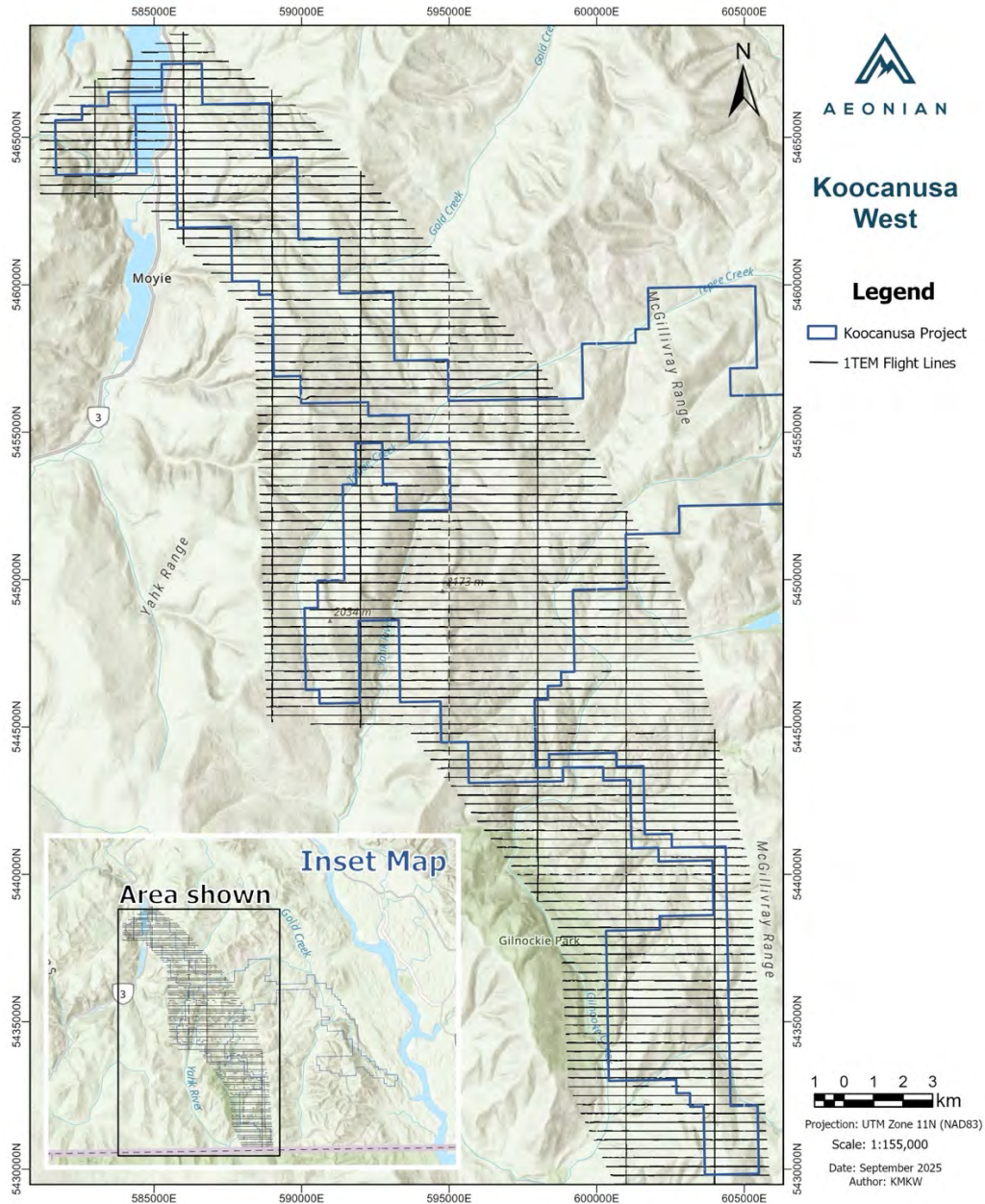


Figure 6: The block flight path of the 2025 1TEM geophysical survey over the Koocanusa Property.

Airborne time domain electromagnetic and magnetic data were collected with Precisions proprietary 1TEM system to serve in geological mapping and exploration for mineral deposits. 1TEM is a proprietary helicopter-borne transient electromagnetic (HTEM) system designed to enable both detection of subtle responses at early times to aid in high-resolution geological mapping as well as strong and/or late time responses from conductive mineral deposits. Field processing and quality control checks were performed daily. The primary geophysical instruments used in the survey included the 1TEM system and PG-MAG magnetometer. Additional equipment included a GPS navigation and a laser altimeter.

6.1 Procedure

The survey area was flown in an east-west direction (090°/270°) with traverse lines spaced 300 m apart, as shown in Figure 6. Tie lines were flown perpendicular to traverse lines at 3000 m line spacing. Additional details regarding flight line orientation and spacing are found in Appendix A.

The survey was conducted using an Airbus AS350 helicopter, registration C-GSVY. The survey aircraft was equipped with a data acquisition system, GPS navigation system, pilot guidance unit (PGU), laser altimeter, magnetometer sensor and console, a towed 1TEM structure, 1TEM Transmitter (TX), 1TEM Receiver (RX), and a Honda generator.

Equipment tests and calibrations were conducted for the laser altimeter, magnetometer, and 1TEM system at the start of the survey to ensure compliance with contract specifications and to deliver high quality airborne geophysical data. A lag test was conducted for the laser altimeter and magnetometer. A high-level flight was flown to establish the background system transient which is subtracted from the final processed data to remove the 1TEM system's self-response. Specifications of survey parameters are found in Table 4 and Appendix A.

Table 4: 2025 Airborne Geophysical Survey specifications

Parameter	Specification	Tolerance
Position	Sampling	10 Hz
	Line Spacing	Flight line deviation within 10 m left/right (L/R) from ideal flight path. No exceedance for more than 1 km.
	Height	Nominal flight height of 50 m above ground level (AGL) with tolerance of ± 20 m. No exceedance for more than 1 km, provided deviation is not due to tall trees, topography, mitigation of wildlife/livestock harassment, cultural features, or other obstacles beyond the pilot's control.
	GPS	GPS signals from four or more satellites must be received at all times, except where signal loss is due to topography. No exceedance for more than 1 km.
1TEM	Base Frequency	30 Hz
	Duty Cycle	25%
	Transmitter Current	340 A (nominal)
	Noise Amplitude	$\pm 50 \mu\text{V}$
	TX Pulse Width	4.3 ms
Magnetics	Sampling	10 Hz
	Temporal/ Diurnal Variations	Non-linear temporal magnetic variations not to exceed a linear chord of 10 nT over 2 minutes
	Normalized 4 th Difference	Magnetic data within 0.02 nT peak to peak. No exceedance for distances greater than 1 km or more, provided noise is not due to geological or cultural features.

7.0 RESULTS

The program successfully delineated multiple geophysical anomalies interpreted to represent faults and previously unidentified geologic structures within the western portion of the Koocanusa Project. These structures are interpreted to play a key role in the emplacement and extent of mineralization occurring within the middle and upper Creston Formation (Revett Formation equivalent) and further provides compelling structural targets for follow-up.

7.1 Magnetic Survey

The Residual Magnetic Intensity (RMI) represents the local magnetic field that is a product of the local geology with global influences removed. For the Koocanusa survey, the Residual Magnetic Intensity (RMI) was calculated by taking the difference between the 14th generation IGRF (IGRF-14 released in November 2024) and the leveled Total Magnetic Intensity (TMI) to create a more valid model of individual near-surface magnetic anomalies. For interpretations, the RMI and 1st vertical derivative (CVG) maps were primarily utilized to delineate geological structures (Figure 7).

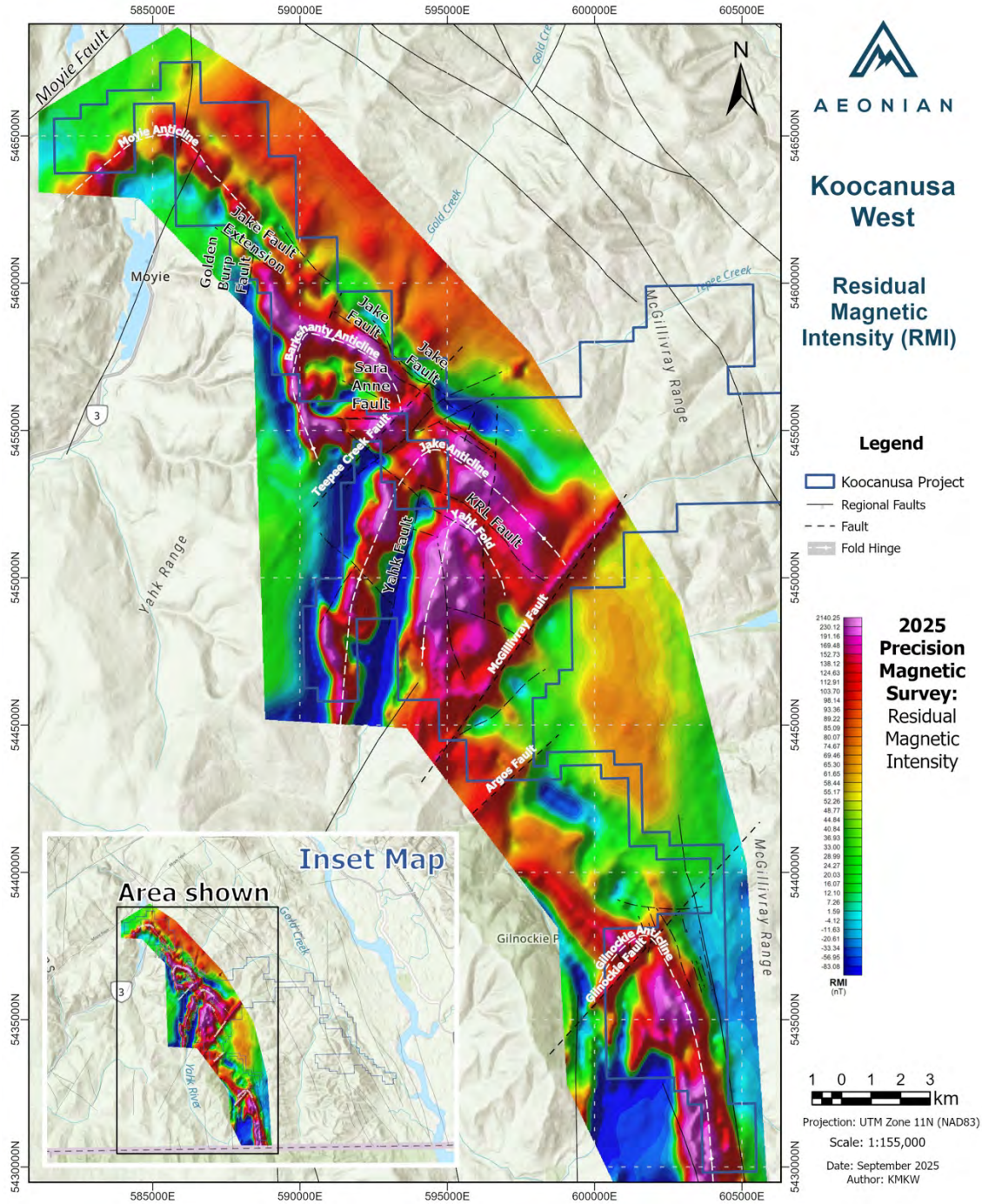


Figure 7: Residual Magnetic Intensity (RMI) and interpreted structures over Koocanusa West.

Magnetic survey data reveals distinct linear magnetic highs associated with sandstone layers containing magnetite and copper mineralization. A broad magnetic high corridor, trending NNW–SSE and extending approximately 50 km, is observed within the underlying Creston Formation. This district-scale anomaly predominately aligns with the middle and upper Creston units (units C2 and C3) primarily

composed of magnetite-bearing sandstone and siltstone, potentially enriched with copper minerals.

Extensive field mapping and rock sampling to date also show elevated Cu (up to 9832 ppm) within the C2 and C3 units of the Creston Formation. The spatial correlation between magnetic highs and previous field sampling results demonstrates strong geophysical–geochemical agreement, reinforcing both the target prioritization strategy and the depositional model for copper mineralization within Koocanusa West (Figure 8).

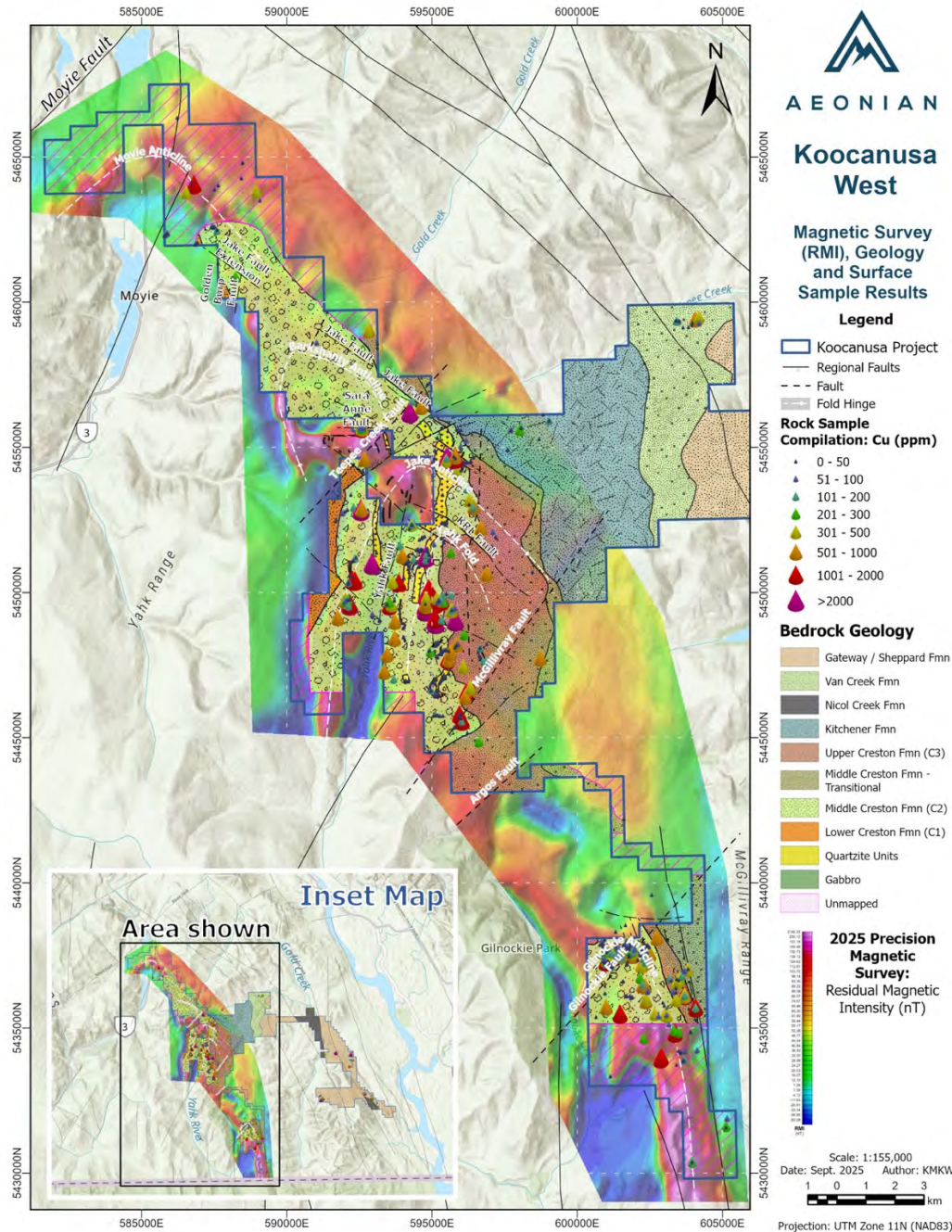


Figure 8: Magnetic Survey results with property geology and rock sample assays (Cu ppm).

The magnetic survey results also provide detailed resolution of the folding and general geological architecture viewed as a key control required to understand copper grade distribution. Three regional hinges with parasitic folds are well defined within the magnetic survey results (Figure 7). Notably, the survey has revealed a fourth, previously unrecognized hinge northwest of the Jake showing (“Barkshanty Anticline”), which remains untested and presents a new opportunity for field evaluation. Additionally, a

prominent southwest to northeast trending fault (“McGillivray Fault”) and smaller “Argos Fault” are identified coincident with strong magnetic lineations.

7.2 Electromagnetic (EM) Survey

Time Domain Electromagnetic (TDEM) data, collected using the 1TEM method, identified several zones of elevated conductivity. A 2D map of the EM time constant (τ) was generated, which integrates the full EM decay curve to represent the strength and persistence of subsurface conductivity (Figure 9).

A prominent east–west trending conductivity anomaly was observed across the central portion of the survey area, aligning with the limbs of both the Jake and Barkshanty Anticlines. These conductivity highs correlate with previous rock sampling and field mapping, particularly in the Jake Copper area.

Another significant conductivity anomaly extends northeast from the eastern limb of the Jake Anticline within the Creston Formation, continuing beneath the Kitchener Formation and remaining open to the east. These anomalies generally trace major folds and faults, emphasizing the role of structural controls in hydrothermal fluid migration and mineralization within the project area.

Six survey lines – Lines L420, L850, L1050, L1140, L1150, and L1200- were modeled for Conductivity-Depth Transforms (CDTs), revealing moderate to weak conductors extending below 400 m (Figure 9). Most conductors are modelled to depths greater than 400 m with minimum depths ranging from the shallowest calculated solution to 300 m. Lines L1140 and L1150 are adjacent and meant to show the repeatability of EM data at Koocanusa, but some conductivity variation is expected due to 300 m line spacing. However, helicopter-borne TDEM data reliability is reduced in areas with extreme resistivity or steep terrain. In the Koocanusa block, such conditions led to weak signals that should not be interpreted as a lack of subsurface conductors. Additional modelling and interpretation should only be undertaken for flight lines or sections of flight lines that show good ground response and reliable conductors in the time profiles.

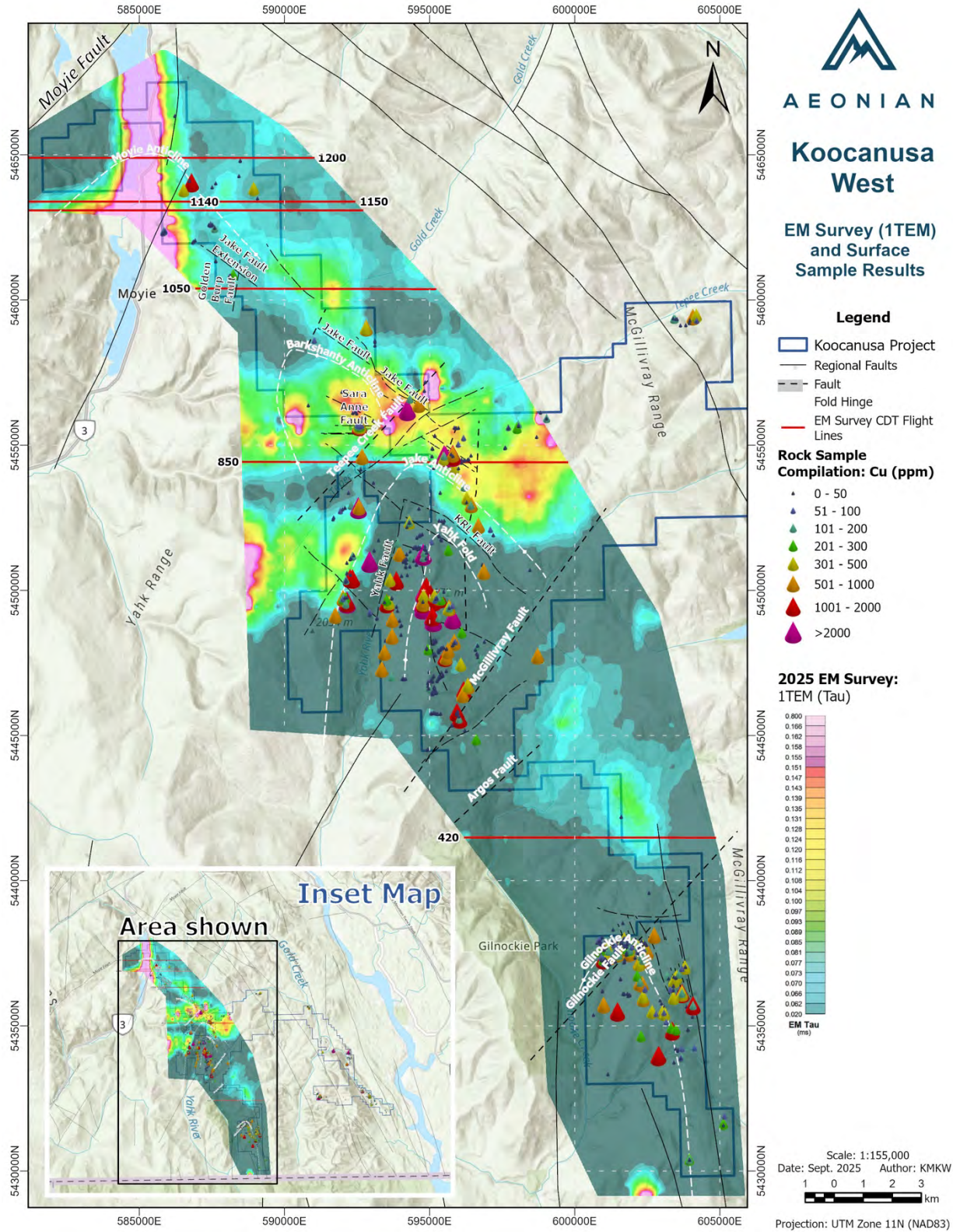


Figure 9: EM Survey (ITEM) showing 2D conductivity, geological structures and rock assay results (Cu ppm) over the western part of the Koocanusa Project.

8.0 INTERPRETATION

The integration of newly acquired magnetic and electromagnetic data has significantly refined Aeonian Resources Ltd.'s geological model of copper mineralization within the Koocanusa Project. A continuous NNW–SSE structural-lithologic corridor has been delineated, aligning with known copper-bearing horizons in Montana. Magnetic highs coinciding with high-grade surface assay results support the interpretation that mineralized horizons extend into Canada beneath shallow cover and along structural plunges. This supports the interpretation that the Creston Formation hosts Revett-type mineralization and provides compelling targets for follow up exploration.

The survey has improved resolution of key structural features, particularly folding patterns that are considered critical controls on copper grade distribution. Three regional fold hinges, each with associated parasitic folds, have been better constrained, and a fourth hinge - the Barkshanty Anticline- has been newly identified. These features are interpreted as favorable zones for permeability contrasts and fluid trapping, making them high-priority targets for mineralization.

Additionally, a major southwest–northeast trending fault, referred to as the McGillivray Fault, has been interpreted from magnetic data. This structure is interpreted to act as a feeder conduit for copper-bearing fluids, with mineralization likely stepping down beneath the Kitchener Formation cap rocks and dipping toward the fault (Figure 10). Circulation of caustic saline brines beneath the Nicol Creek basalts may have facilitated the leaching and enrichment of metals from the polymetallic Aldridge Formation, with syn-sedimentary faults acting as conduits for fluid migration. The thick carbonate beds of oolitic limestone and dolomitic siltstone within the Kitchener Formation provide both permeability and an oxidative boundary, which, when combined with structurally controlled fluid movement, create an effective trap that focuses mineralization. Similarly, the Teepee Creek Fault may have facilitated upwelling of enriched polymetallic fluids, with lateral seepage into adjacent Creston C2 unit forming trap structures between the Sara Anne and Jake Faults (Figure 11). Apparent conductivity highs and high-grade rock assays in this area further support its potential for drill testing.

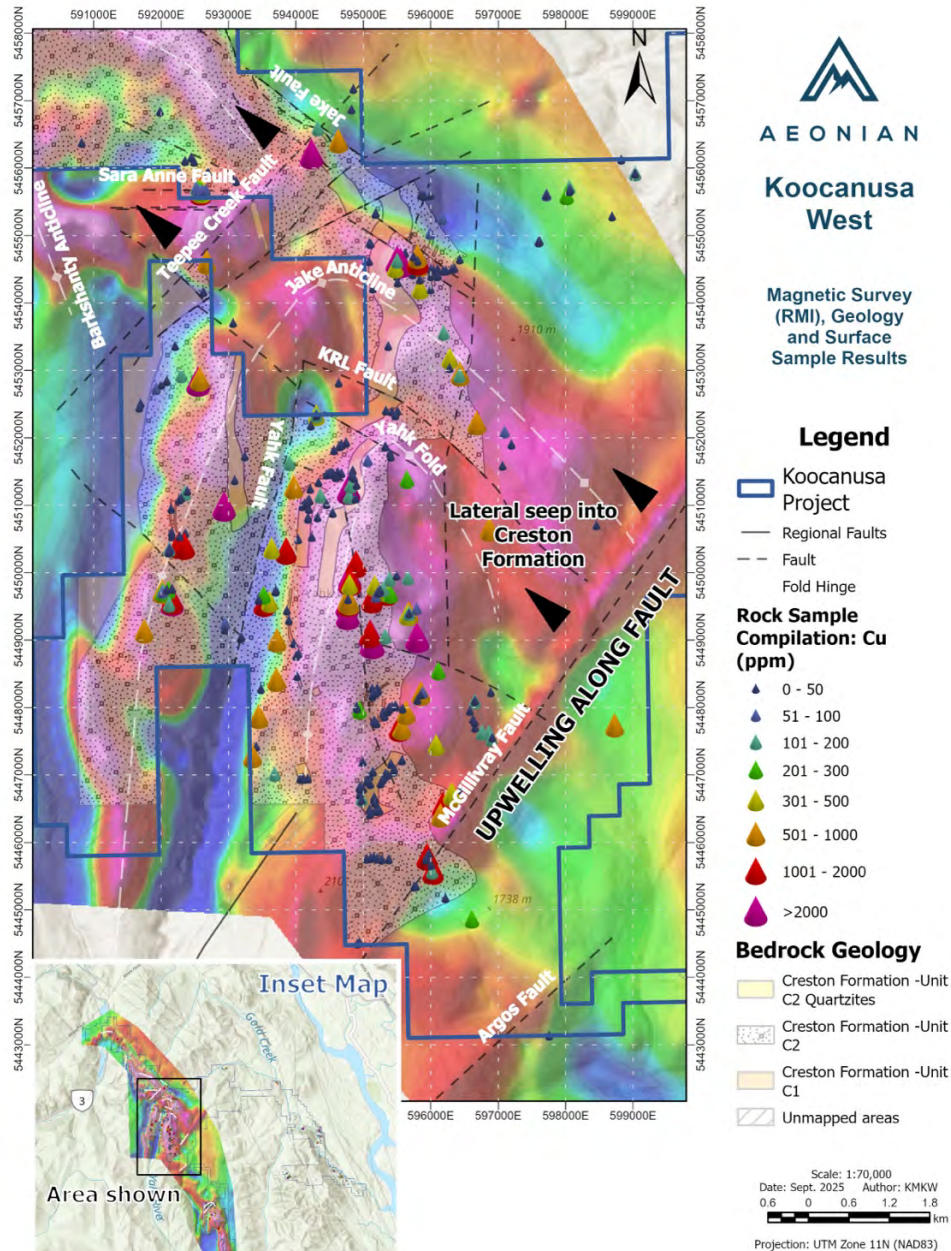


Figure 10: Magnetic survey (RMI), rock sample assays and middle Creston Formation within Koocanusa West. Upwelling of copper-bearing fluids is interpreted along major faults with lateral seepage into and inferred mineralization within the sandstone dominated middle Creston Formation (unit C2). Potential upwelling and similar focusing of mineral rich fluids into unit C2 is also interpreted from the Teepee Creek Fault and newly identified Barkshanty Anticline to the northeast.

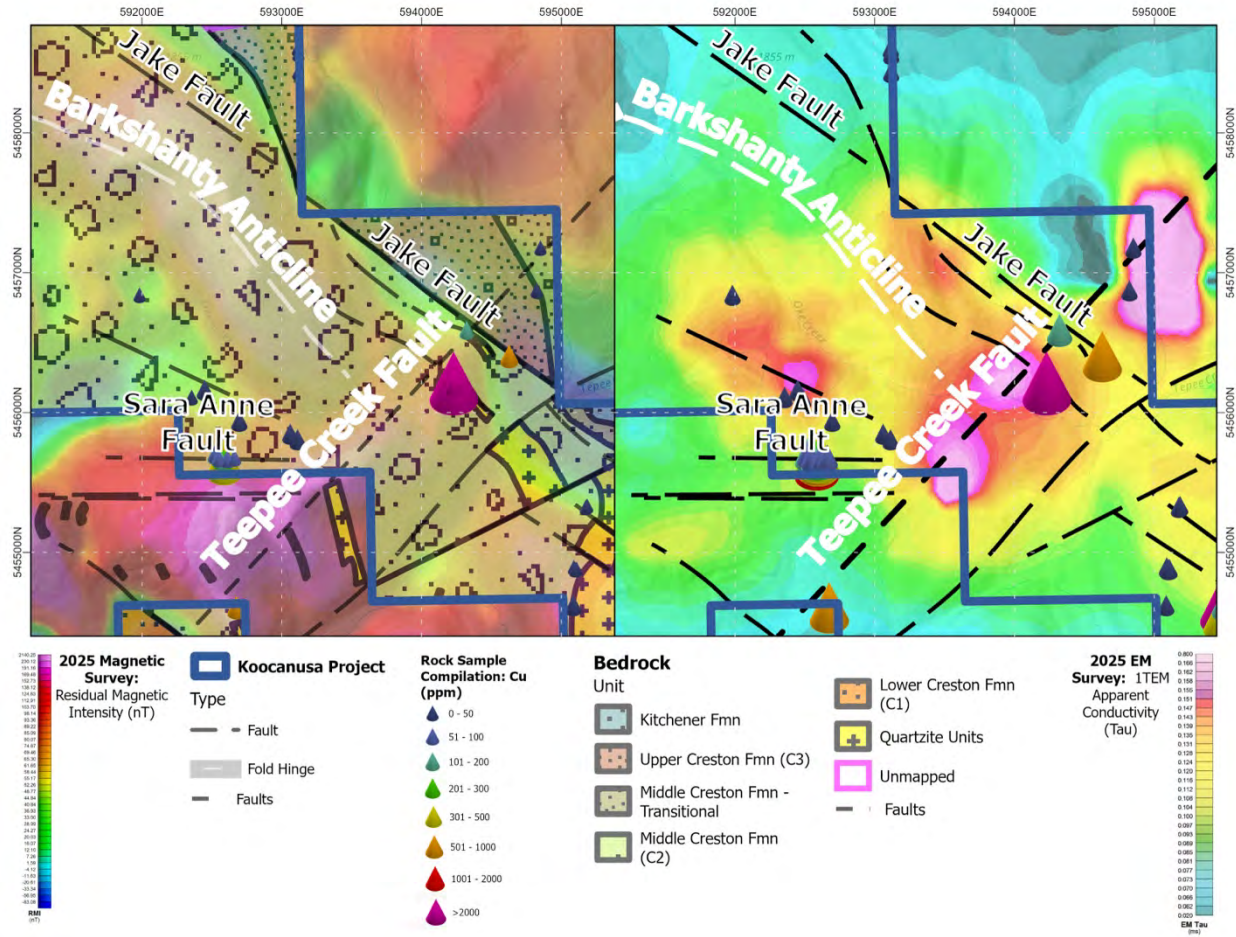


Figure 11: 2025 geophysical survey results with the Teepee Creek Fault area within Koocanusa West. (a) RMI, local bedrock and rock samples (Cu ppm). Magnetic highs clearly mark the eastern limb of the Barkshanty Anticline bounded by Sara Anne and Jake Faults. (b) Apparent Conductivity (τ) within the same area. High conductivity appears structurally controlled and is interpreted to derive from upwelling of enriched polymetallic fluids along Teepee Creek Fault and mineralization within the middle Creston Formation.

Conductivity-Depth Transform (CDTs) modeling, particularly along survey line L850, highlights a strong subsurface conductor within the Creston Formation, bounded by faults and extending beneath the Kitchener Formation to the east (Figure 12). The proximity of the Jake showing to this conductor – approximately 250 m away and 5 km from the McGillivray Fault – suggests a structural link and makes it a promising target for near-term exploration and drill testing. The interpreted fault system may also extend mineralization toward the Yakh East showing, suggesting a broader subsurface mineralized corridor. This structural framework, combined with surface geochemical results and improved geophysical resolution, provides a robust basis for advancing exploration efforts in the Koocanusa area.

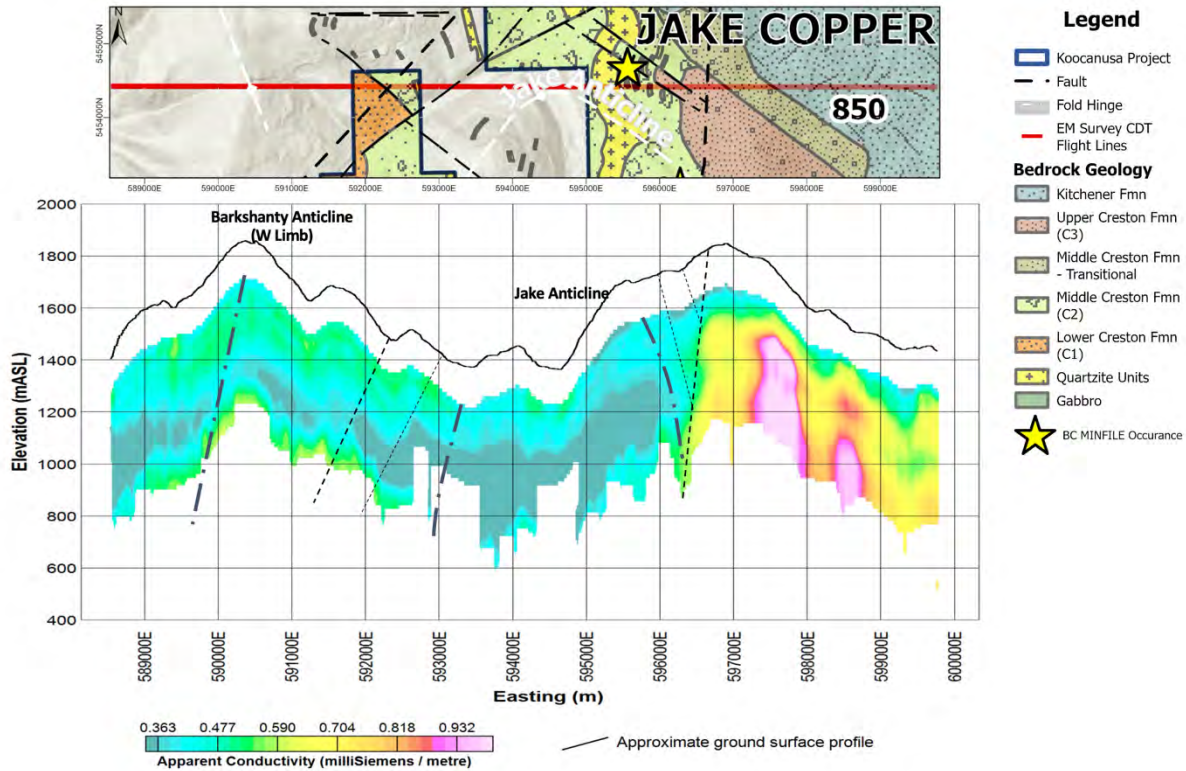


Figure 12: Detailed geological mapping near survey line 850 within the central portion of Koocanusa West. (a) the detailed geological map near line 850. The red line represents the position of survey transect line L850. The blue lines represent the property boundary. (b) ITEM conductivity-depth section (L850) and interpreted faults at depth providing structural controls on hydrothermal fluid migration.

9.0 CONCLUSIONS & RECOMMENDATIONS

The integration of magnetic and electromagnetic survey data with field mapping and geochemical sampling has provided a robust framework for ongoing exploration at the Koocanusa Property. The identification of structural features such as faults, fold hinges, and lithological contacts—combined with geophysical anomalies and elevated copper assays—highlights several high-priority targets for follow-up investigation.

Sediment-hosted stratiform Cu-Ag mineralization is widespread in strata of the Creston and Sheppard Formations. Evidence suggests that mineralization occurred during multiple phases, likely influenced by syn-metamorphic processes rather than solely diagenetic events associated with rift evolution. Structural and stratigraphic controls appear to govern the geometry of mineralized zones, with copper precipitation interpreted as the result of oxidized saline fluids migrating through basin rocks and

interacting with reduced sedimentary units. This mineralization style is most consistent with Revett-type deposits, particularly in the western portion of the property.

Based on the success of the 2025 exploration program, it is recommended that Aeonian Resources Ltd. advance the project through the following actions:

- Initiate drilling programs targeting the most prospective geophysical and geochemical anomalies.
- Conduct additional soil sampling, prospecting, and detailed geological mapping in and around identified target zones.
- Perform further geochemical assays and petrographic studies to evaluate the mineral content and economic potential of the mineralized horizons.

These steps will support the continued development of the Koocanusa Project and enhance the understanding of its copper-silver mineralization potential.

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11.0 STATEMENT OF QUALIFICATIONS

I, Andrew Randell, with business address SGDS Hive, 330-470 Granville Street, Vancouver, British Columbia, V6C 1V4, do hereby certify that:

- I am the Principal Geoscientist of SGDS Hive Geological, 330-470 Granville Street, Vancouver, British Columbia, V6C 1V4
- I graduated with a bachelor's degree in Environmental Geoscience from the University of Wales, College of Cardiff.
- I have worked as a geologist for a total of 15 years, particularly in various geological environments in Western Canada.
- I prepared and / or reviewed all sections of this assessment report titled "Assessment Report for the Koocanusa Project".
- I am not aware of any material fact or material change with respect to the subject matter of the Assessment Report that is not reflected in the Assessment Report, the omission to disclose which makes the Assessment Report misleading.



12.0 EXPENDITURES

2025

Exploration Work Type	Comment	Days		
Personnel Name	Field Days (List dates)	Days	Rate	Subtotal
Andrew Randell P Geo	June 17-20	4	\$945.00	\$3,780.00
Dr. Olga Ankindinova P Geo	June 17-20	4	\$840.00	\$3,360.00
Mylles Mondragon Field Scientist	June 17-20	4	\$682.50	\$2,730.00
Jennifer Principe Junior Field Scientist	June 17-20	4	\$577.50	\$2,310.00
Total				\$12,180.00

Office Studies	List personnel (office hours only, do not include field days)	Hours	Rate	Subtotal
Literature search			\$0.00	\$0.00
Database compilation			\$0.00	\$0.00
Computer modelling			\$0.00	\$0.00
Reprocessing of data			\$0.00	\$0.00
Report preparation	Dr. Kenna Wilkie	38.0	\$100.00	\$3800.00
Report preparation	Jennifer Sly	2.0	\$63.00	\$126.00
Other (specify)			\$0.00	\$0.00
Total				\$3926.00

Airborne Exploration Surveys		Line kilometers (total invoiced amount)	Rate	Subtotal
Aeromagnetics				
Radiometrics				
Electromagnetics		1343	203.28	\$273000.00
Gravity				

Digital terrain modelling				
Other (specify)				
Total				\$273000.00

Transportation		No	Rate	Subtotal
Airfare	Actual	1.00	\$2,541.03	\$2,541.03
Taxi	Actual	1.00	\$265.25	\$265.25
Truck rental		4.00	\$157.50	\$630.00
Fuel	Actual	1.00	\$273.27	\$273.27
Total				\$3,709.55

Accommodation and Food	Rates per Day	No	Rate	Subtotal
Hotel - VRBO Rental	actual cost	1.00	\$1,072.37	\$1,072.37
Camp			\$0.00	\$0.00
Meals	actual cost	1.00	\$759.50	\$759.50
Total				\$1,831.87

Equipment Rental		No	Rate	Subtotal
Field Gear (Specify)	hammers, safety goggles etc	16.00	\$10.50	\$168.00
Sampling Equipment	chip trays, rice bags	19.00	\$0.53	\$9.98
Total				\$177.98

Miscellaneous		No	Rate	Subtotal
Personal Comms	In Reach, GPS, Phones	16.00	\$10.50	\$168.00
Mobile Office		4.00	\$136.50	\$546.00
Total				\$714.00

Admin fees		No	Rate	Subtotal
5% on Field Wages	5% on \$12,180.00	1.00	\$609.00	\$609.00
10% on Expenses	10% on \$4911.73+GST	1.00	\$516.04	\$516.04
Total				\$1125.04

Grand Total - \$296,664.44

Filed Total – \$300,675.28

AIRBORNE GEOPHYSICAL SURVEY REPORT



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June 2025

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Plate 17: Koocanusa – Conductivity-Depth Transform (CDT) – Line 1050

Plate 18: Koocanusa – Conductivity-Depth Transform (CDT) – Line 1140

Plate 19: Koocanusa – Conductivity-Depth Transform (CDT) – Line 1150

Plate 20: Koocanusa – Conductivity-Depth Transform (CDT) – Line 1200

1.0 Introduction

This report describes the high-resolution helicopter-borne magnetic and 1TEM survey completed at the Koocanusa survey area for Aeonian Resources Ltd. The Koocanusa survey area is in southeastern British Columbia (Figure 1). It was flown from May 22 to May 26, 2025.

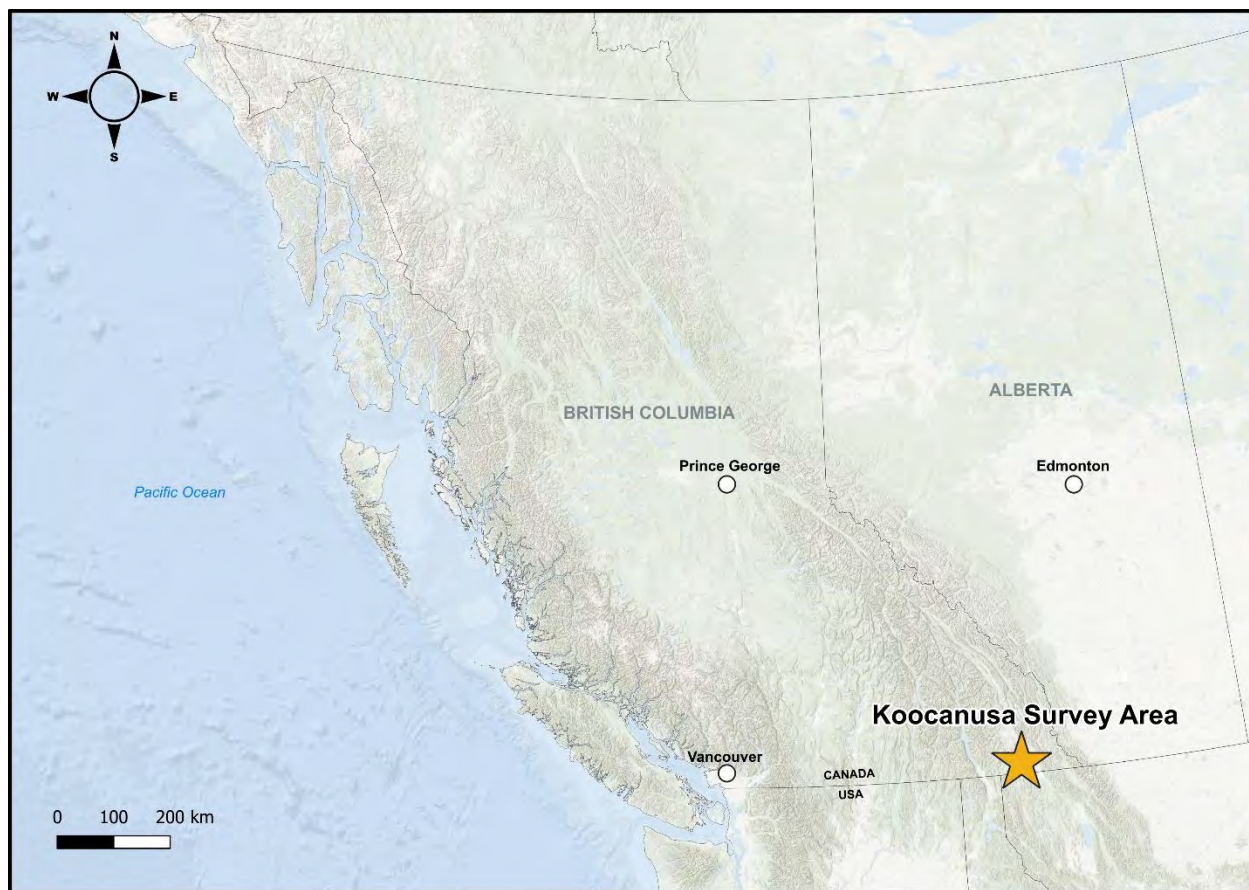


Figure 1: Koocanusa survey area located in southeastern British Columbia.

1.1 Survey Area

The Koocanusa survey block is centered 38 km south of Cranbrook, British Columbia (Figure 2).

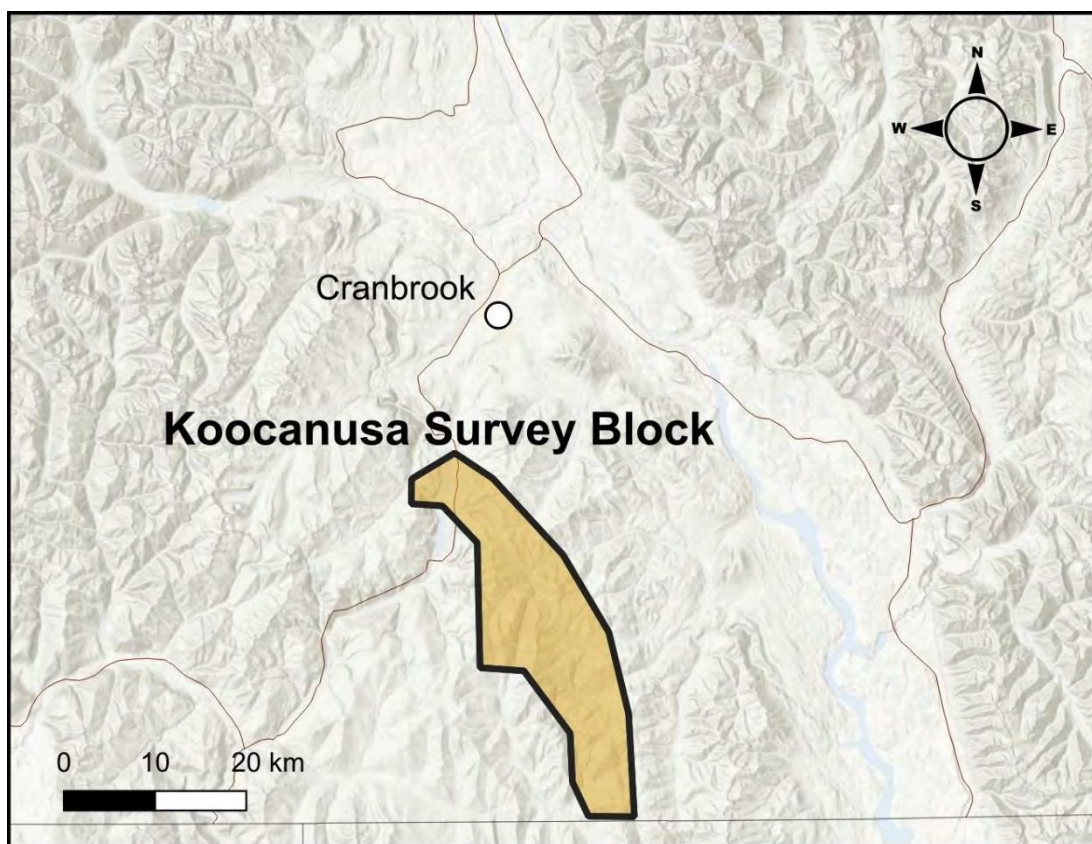


Figure 2: Kooacanusa survey block 38 km south of Cranbrook, British Columbia.

1.2 Survey Specifications

The geodetic system used for the Kooacanusa geophysical survey was WGS 84 in UTM Zone 11N. A total of 1343 line km was flown over an area of 364 km² (Table 1). This total includes an additional 2 km of marginal line segments flown outside the block boundary for survey efficiency. Polygon coordinates for the Kooacanusa survey block are specified in Appendix A.

Survey Block	Area (km ²)	Line Type	Line Orientation (UTM grid)	Line Spacing (m)	No. of Lines Planned	No. of Lines Completed	Total Planned Line km	Total Actual km Flown
Kooacanusa	364	Survey	090°/270°	300	132	132	1215	1216
		Tie	000°/180°	3000	8	8	126	127
		Total			140	140	1341	1343

Table 1: Survey flight line specifications.

The Kooacanusa survey block was flown at 300 m line spacing at a heading of 090/270°; tie lines were flown at 3000 m spacing at a heading of 000°/180° (Figures 3 and 4). The proposed survey height was 50 m constant height above ground level.

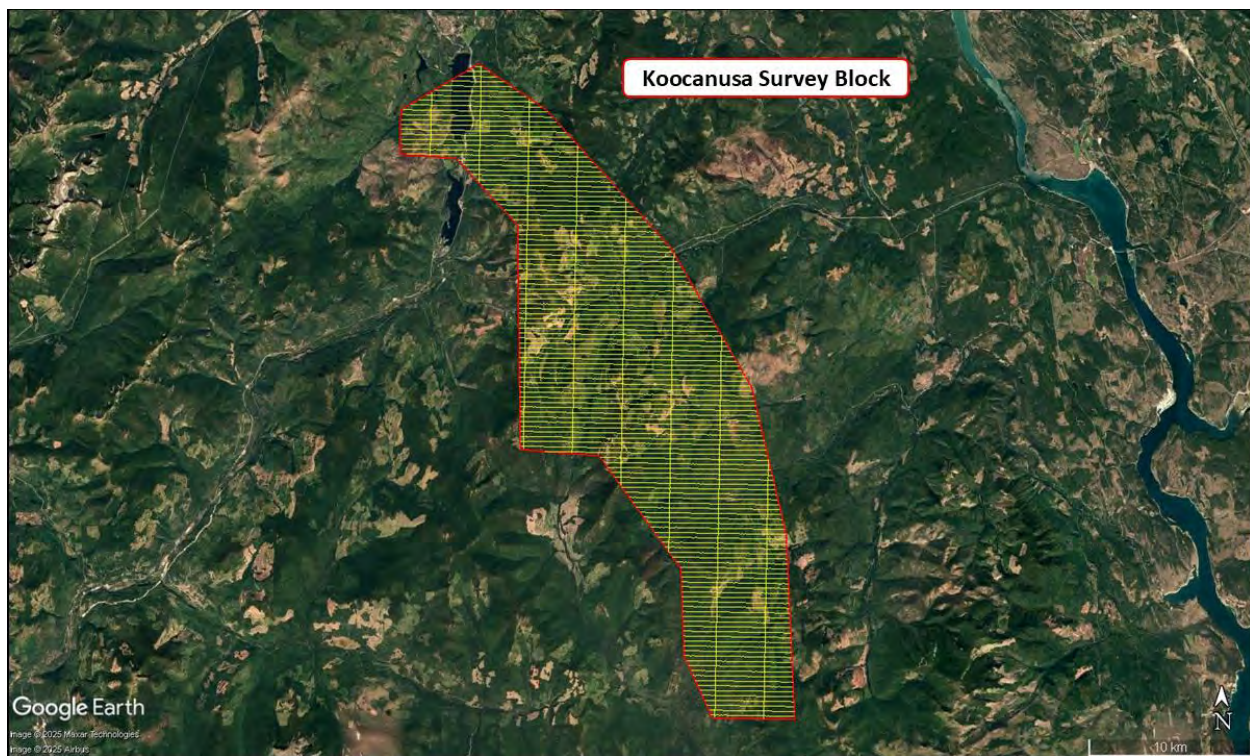


Figure 3: Plan View – Kooacanusa survey block with actual flight lines in yellow and survey block boundary in red.



Figure 4: Terrain View – Kooacanusa survey block with actual flight lines displayed in yellow.

2.0 Geophysical Data

Geophysical data are collected in a variety of ways and are used for many purposes including aiding in geological mapping, mineral exploration, oil and gas exploration, geotechnical investigations, contaminated land site studies, and UXO (unexploded ordnance) detection.

For the purposes of this survey, airborne time domain electromagnetic and magnetic data were collected with Precision's proprietary 1TEM system to serve in geological mapping and exploration for mineral deposits.

2.1 Magnetic Data

Magnetic surveying is the most common airborne geophysical technology used for both mineral and hydrocarbon exploration as well as geological mapping. Aeromagnetic surveys record the intensity of the total magnetic field, measured at a magnetometer sensor that is fixed to the aircraft. The total magnetic field is comprised of the desired geomagnetic field in combination with undesired influences from varying solar wind and the aircraft's inherent magnetic field. Subtracting the undesired magnetic effects from the total field results in aeromagnetic maps that show the spatial distribution and relative abundance of magnetic minerals - most commonly the iron oxide mineral magnetite - in the upper levels of Earth's crust. These results, in turn, can be related to geological attributes such as lithology, structure, and alteration of bedrock. Survey specifications, instrumentation, and interpretation procedures depend on the individual objectives of each survey. Magnetic surveys are typically performed for:

- Geological Mapping – to aid in mapping lithology, structure, and alteration.
- Identification of variations in ferromagnetic response directly or indirectly related to mineral deposits.
- Depth to Basement Mapping – for exploration in sedimentary basins or mineralization associated with the basement surface.

2.2 Time Domain EM Data

Time domain electromagnetic (TDEM) (also called transient electromagnetic or TEM) surveys measure electrical conductivity of the Earth using induction coils. A powerful electric current is pulsed in a transmitter loop to generate a primary electromagnetic field which induces eddy currents in the ground during turn-on and turn-off according to Maxwell's equations. These eddy currents decay in a short time period based on their electrical properties and their secondary electromagnetic fields are measured by the EM receiver during the transmitter off-time. 1TEM is a proprietary helicopter-borne transient electromagnetic (HTEM) system designed to enable both detection of subtle responses at early times to aid in high-resolution geological mapping as well as strong and/or late time responses from conductive mineral deposits.

Time domain electromagnetic surveys typically have depth of investigation of 50 to 500 m below the ground surface. The depth of investigation is determined by the signal-to-noise ratio which is affected by the area of the transmitter and receiver loops, the transmitter pulse shape and duration, distance from the conductive target, orientation and size of the conductive target, height above the ground surface due to obstacles such as trees and terrain, and the resistivity/conductivity of the ground. Additionally, conductive material needs to be of sufficient quantity in order to generate eddy currents and an observable EM response.

Time domain electromagnetic surveys are commonly conducted for:

- Exploring and mapping conductive mineral deposits and conductors associated with mineral deposits.
- Geological mapping, by distinguishing between various conductive and resistive rock units and structures.
- Aiding in hydrology studies and groundwater exploration, such as identifying aquifers and detecting water/salt water incursions.
- Geotechnical engineering and permafrost studies.
- Environmental applications to assist in identifying concealed objects such as detecting buried metallic objects (i.e. utilities), subterranean storage tanks, or buried construction structures.

3.0 Aircraft and Equipment

All geophysical and ancillary equipment were carefully installed on a Precision GeoSurveys aircraft to collect magnetic and HTEM data.

3.1 Aircraft

Precision GeoSurveys flew the survey using an Airbus AS350 helicopter, registration C-GSVY. The AS350 helicopter offers a high level of safety and performance, and is widely used in airborne geophysical applications. A cargo basket on the left side of the helicopter contained a 24 HP Honda V-twin gas engine and proprietary alternator system to power the 1TEM transmitter.

3.2 Geophysical Equipment

The survey aircraft (Figure 5) was equipped with a data acquisition system, GPS navigation system, pilot guidance unit (PGU), laser altimeter, magnetometer sensor and console, a towed 1TEM structure, 1TEM Transmitter (TX), 1TEM Receiver (RX), and a Honda generator. Technical specifications for the geophysical equipment are provided in Appendix B.

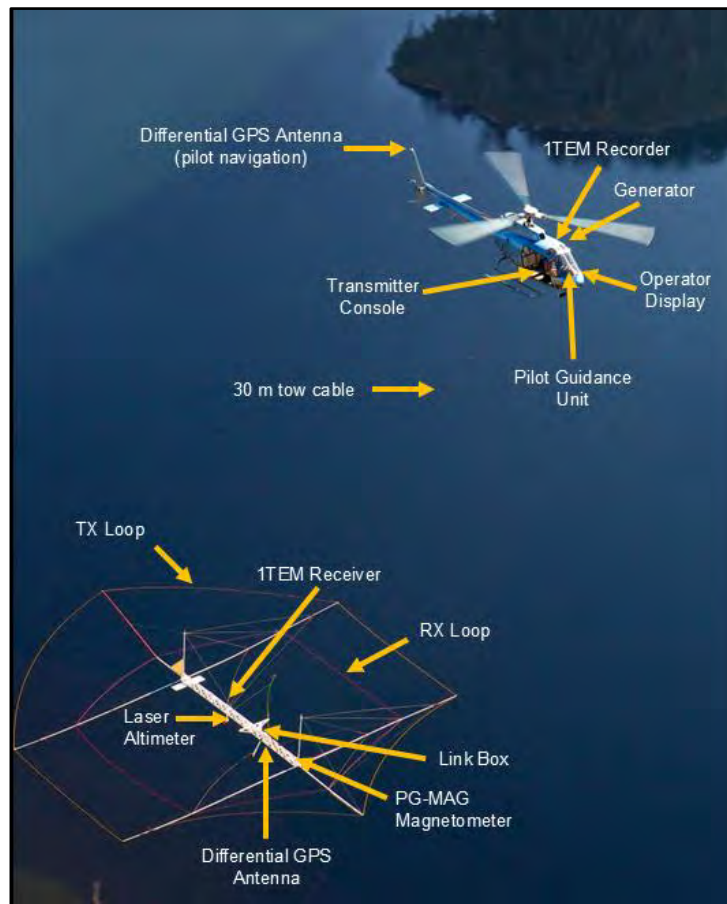


Figure 5: Survey helicopter equipped with a 1TEM system.

3.2.1 Data Acquisition System

The primary data logger was a proprietary Precision GeoSurveys 1TEM Recorder located inside the cabin of the survey helicopter. The 1TEM Recorder records transmitter current, laser altimeter height above ground, GPS position, and EM receiver data. It also displays EM decay curves and ancillary data in real-time to allow for system and data verification checks both during survey flights and while grounded. Magnetic data from the PG-MAG is logged to an internal SD card and displayed in real-time on any wifi-enabled device, typically a separate tablet located inside the cabin of the aircraft.

3.2.2 GPS Navigation System

A Hemisphere R330 GPS receiver (Figure 6) and a Novatel GPS antenna on the tail of the aircraft integrated with the AGIS navigation system and pilot display (PGU) provide navigational information and position control to the pilot. A second GPS receiver and antenna were mounted directly on the mid beam of the 1TEM structure providing accurate bird position independent of the helicopter navigation system. The GPS receiver supports fast updates at a rate of up to 10 Hz

(10 times per second), delivering sub-meter positioning accuracy in three dimensions. It receives GNSS (GPS/GLONASS) L1 and L2 signals.

Differential correction methods including WAAS, L-Band, RTK, SBAS, and Beacon are supported by the R330. Innovative Hemisphere GPS Eclipse SureTrack technology allows the receiver to model the phase on satellites that the airborne unit is currently tracking. This reduces dropouts and increases the speed of signal reacquisitions, enhancing accurate positioning when base corrections are temporarily not available.

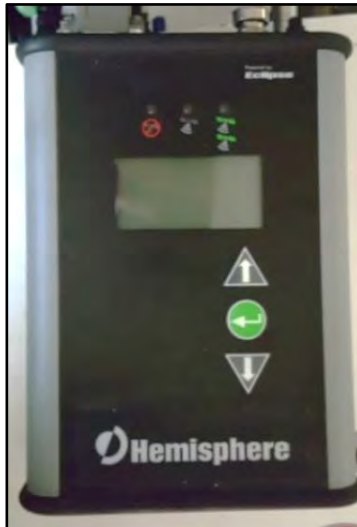


Figure 6: Hemisphere R330 GPS receiver.

3.2.3 Pilot Guidance Unit

Steering and elevation (ground clearance) information is continuously provided to the pilot via the Pilot Guidance Unit (PGU). The graphical display is mounted on top of the aircraft's instrument panel, remotely from the data acquisition system. The PGU is the primary navigation aid (Figure 7) to assist the pilot in maintaining the aircraft on the planned flight path, heading, speed, and at the desired ground clearance using a combination of GPS and laser altimeter data feeds.

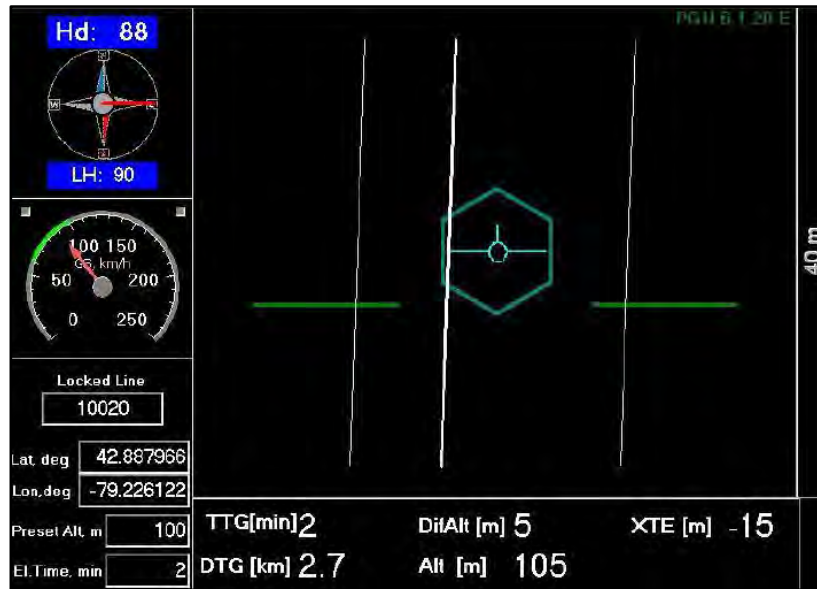


Figure 7: PGU screen displaying navigation information.

PGU information is displayed on a full VGA 600 x 800-pixel 7-inch (17.8 cm) LCD display. The CPU for the PGU is contained in a PC-104 console and uses Microsoft Windows operating system control, with input from the GPS antenna on the aircraft and laser altimeter.

3.2.4 Laser Altimeter

Terrain clearance is measured by an Opti-Logic RS800 Rangefinder laser altimeter (Figure 8) attached to the mid beam of the 1TEM structure. The RS800 laser is a time-of-flight sensor that measures distance by a rapidly modulated and collimated laser beam that creates a dot on the target surface. The maximum range of the laser altimeter is 700 m off natural surfaces with accuracy of ± 1 m on 1 m^2 diffuse target with 50% ($\pm 20\%$) reflectivity. Within the sensor unit, reflected signal light is collected by the lens and focused onto a photodiode. Through serial communications and digital outputs, ground clearance data are transmitted to an RS-484 compatible port and recorded by the 1TEM Recorder and displayed to the pilot on the PGU at 10 Hz in meters.

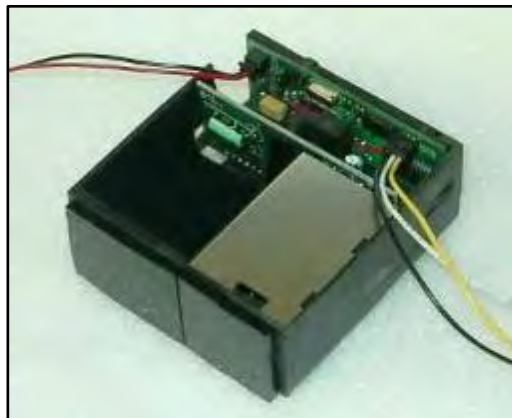


Figure 8: Opti-Logic RS800 Rangefinder laser altimeter.

3.2.5 Magnetic Base Stations

Temporal variations of Earth's magnetic field, including diurnal, were monitored and recorded by a base station magnetometer during surveying, a Geodevice SmartMag. The base station was located in an area with low magnetic gradient (i.e., away from electric power transmission lines and moving ferrous objects, such as motor vehicles), for optimum survey data integrity.

The Geodevice SmartMag magnetometer (Figure 9), with integrated GPS time synchronization, uses an Overhauser sensor with absolute accuracy of ± 0.1 nT and sensitivity of 0.021 nT/ $\sqrt{\text{Hz}}$ rms at 1 Hz. Base station magnetic data were recorded as a text file on internal solid-state memory and downloaded onto a field laptop using a USB connection. Profile plots of the base station readings were generated, updated, and reviewed at the end of each survey day.



Figure 9: Geodevice SmartMag Overhauser magnetometer.

3.2.6 Magnetometer

A proprietary PG-MAG magnetometer mounted directly on the 1TEM airframe provided high resolution magnetic data collected at the same elevation as the EM data. Compared to traditional cesium and potassium magnetometers, the PG-MAG system can sample at increased frequencies and is able to continuously measure during the transmitted EM pulse. These features eliminate the need to separate the magnetic sensor from the EM transmitter by placing the magnetometer on the tow cable as is common with other HTEM systems, providing improved resolution in the magnetic data.

3.2.7 1TEM

1TEM is a third generation HTEM system developed by Precision GeoSurveys in Canada that evolved from GeoSolutions Pty. Ltd.'s REPTTEM in Australia. The 1TEM structure is towed 30 m below the helicopter and contains virtually no conductive or metallic materials other than the transmitter and receiver loops and electronics. The structure is lightweight with a low polar moment of inertia and stable low drag aerodynamics which are optimal for operating in mountainous terrain without compromising power and resolution.

The 1TEM transmitter loop is a single turn of aluminum wire with an area of 348 m² (Figure 10). This offers very low inductance and permits a rapid ramp-off time of 50 microseconds, which is critical to provide increased sensitivity in early time gates to significantly enhance spatial and temporal resolution. The transmitter loop is air cooled to reduce electrical resistance. The receiver coil is a single wrap of insulated copper wire with an area of 133 m² mounted coaxially inside the transmitter coil. Both the transmitter and receiver loops are suspended on a semi-rigid airframe to reduce vibration noise and are not prone to system geometry changes due to 1TEM's unique design. With a 3 person crew, it takes approximately 6 hours to assemble and install the survey system.



Figure 10: 1TEM structure with a single wrap of the transmitter loop.

3.2.8 1TEM Transmitter

The transmitter electronics (Figure 11) were designed by GeoSolutions in Adelaide, Australia. The nominal current is 340 amps at 80 volts (depending on ambient temperature and altitude) with a 25/30 Hz base frequency – depending on the local powerline frequency.

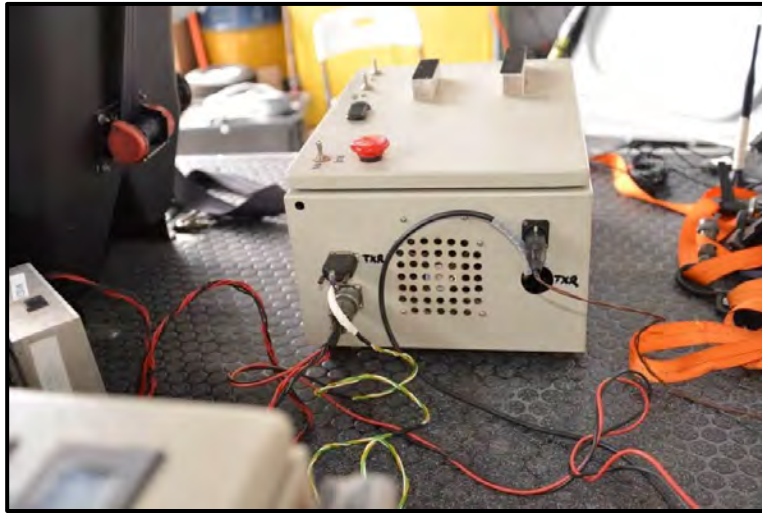


Figure 11: 121TEM transmitter console inside the helicopter behind the pilot seat.

The transmitter waveform is a bipolar nominal square wave with a 25% duty cycle and 4.3 milliseconds pulse width (Figure 12). The rapid ramp-off time of 50 microseconds from peak current to zero both maximizes frequency content in early times and provides powerful signal for a deep depth of investigation.

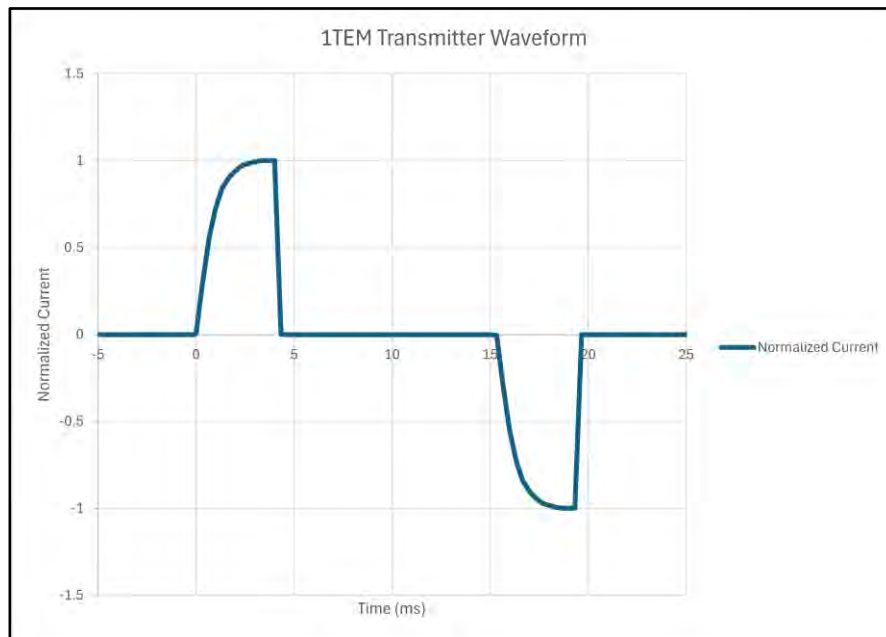


Figure 12: 1TEM transmitter waveform.

3.2.9 1TEM Receiver

The 1TEM Receiver was developed by Precision GeoSurveys in Langley, BC and samples the vertical component of the dB/dt field at 396 kHz using a 24 bit analog-digital converter (ADC). The raw time-series data are windowed into 30 time gates (Table 2), with the start of the off-time measurement period being defined as the end of ramp-off when transmitter current equals zero.

Channel Index	Channel Centre Time (ms)	Channel Width (ms)
CH04	0.0354	0.0177
CH05	0.0657	0.0429
CH06	0.109	0.0429
CH07	0.167	0.0732
CH08	0.245	0.0833
CH09	0.343	0.114
CH10	0.465	0.129
CH11	0.611	0.164
CH12	0.785	0.184
CH13	0.990	0.225
CH14	1.227	0.250
CH15	1.500	0.295
CH16	1.808	0.321
CH17	2.157	0.376
CH18	2.548	0.407
CH19	2.982	0.462
CH20	3.465	0.503
CH21	3.995	0.558
CH22	4.578	0.609
CH23	5.215	0.664
CH24	5.907	0.720
CH25	6.657	0.780
CH26	7.467	0.841
CH27	8.341	0.907
CH28	9.280	0.972
CH29	10.288	1.043
CH30	11.366	1.114

Table 2: 1TEM channel times referenced to the end of transmitter ramp-off.

4.0 Survey Operations

The Koocanusa geophysical survey was flown from May 22 to May 26, 2025, in variable spring conditions. The experience of the pilot ensured that data quality objectives were met, and that safety of the flight crew was never compromised given the potential risks involved in airborne geophysical surveying. Field processing and quality control checks were performed daily.

4.1 Operations Base and Crew

The base of operation for the Koocanusa survey was at Canadian Rockies International Airport (CYXC), Cranbrook, British Columbia, 46 km north of the center of the survey block.

Precision's geophysical crew consisted of six members (Table 3):

Crew Member	Position
Bruno Prieur	Helicopter pilot and engineer
Brendan Swanson	Ground support technician
Erik Keyser, P.Geo.	Project Geophysicist – Project management, data processing, modelling, and reporting (off-site)
Wendell Huttema, Ph.D.	Electronic Systems Specialist
Robert Bradley, B.A.Sc., E.I.T.	Electronic Systems Technician
Shawn Walker, M.Sc., P.Geo.	Geophysicist – data processing and reporting (off-site)

Table 3: List of survey crew members.

4.2 Magnetic Base Station Locations

Changes in Earth's magnetic field over time, such as diurnal variations, magnetic pulsations, and geomagnetic storms, were measured and recorded by a base station magnetometer. The magnetic base station was installed at Canadian Rockies International Airport north of the survey block. The base station was in an area of low magnetic noise, away from metallic items such as ferromagnetic objects, vehicles, and power lines that could affect the base station data and ultimately the survey data (Table 4 and Figure 13).

Station Name	Easting/Northing	Latitude/Longitude	Datum/Projection
SmartMag 1 S/N 107Y9	587719 m E 5495736 m N	49° 36' 28.16" N 115° 47' 9.08" W	WGS 84, UTM Zone 11N

Table 4: Magnetic base station location.

Magnetic readings were reviewed at regular intervals to ensure that no airborne data were collected during periods of high magnetic activity (in excess of 10 nT from a linear chord of two minutes).

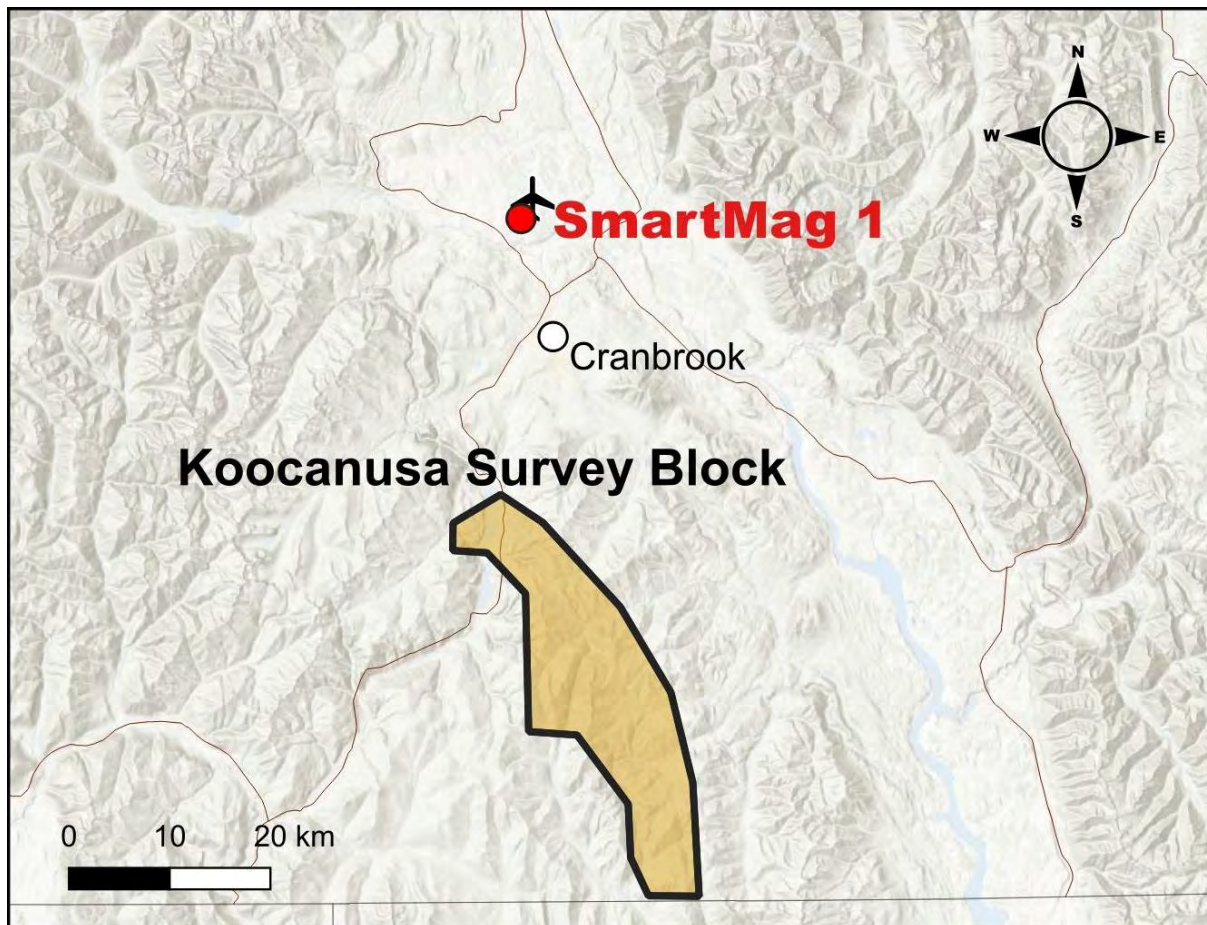


Figure 13: Location of SmartMag 1 at Canadian Rockies International Airport, north of the survey block.

4.3 Field Data Quality Control

Survey data were transferred from the aircraft's data acquisition system onto USB memory sticks and microSD cards and copied onto a field data processing laptop on a flight-by-flight basis. The raw data files in .csv and binary formats were both inspected using proprietary Precision GeoSurveys software and converted into Geosoft GDB databases. Using Geosoft Oasis Montaj, Maxwell, and proprietary software, the data were inspected to ensure compliance with contract specifications (Table 5; Figures 14 to 16).

Parameter	Specification	Tolerance
Position	Sampling	10 Hz
	Line Spacing	Flight line deviation within 10 m left/right (L/R) from ideal flight path. No exceedance for more than 1 km.
	Height	Nominal flight height of 50 m above ground level (AGL) with tolerance of ± 20 m. No exceedance for more than 1 km, provided deviation is not due to tall trees, topography, mitigation of wildlife/livestock harassment, cultural features, or other obstacles beyond the pilot's control.
	GPS	GPS signals from four or more satellites must be received at all times, except where signal loss is due to topography. No exceedance for more than 1 km.
1TEM	Base Frequency	30 Hz
	Duty Cycle	25%
	Transmitter Current	340 A (nominal)
	Noise Amplitude	+/- 50 μ V
	TX Pulse Width	4.3 ms
Magnetics	Sampling	10 Hz
	Temporal/Diurnal Variations	Non-linear temporal magnetic variations not to exceed a linear chord of 10 nT over 2 minutes
	Normalized 4 th Difference	Magnetic data within 0.02 nT peak to peak. No exceedance for distances greater than 1 km or more, provided noise is not due to geological or cultural features.

Table 5: Contract survey specifications.

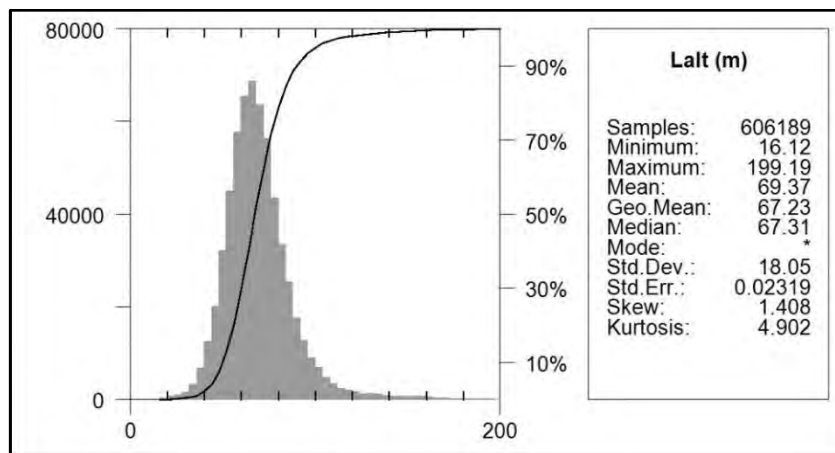


Figure 14: Histogram showing survey elevation vertically above ground.

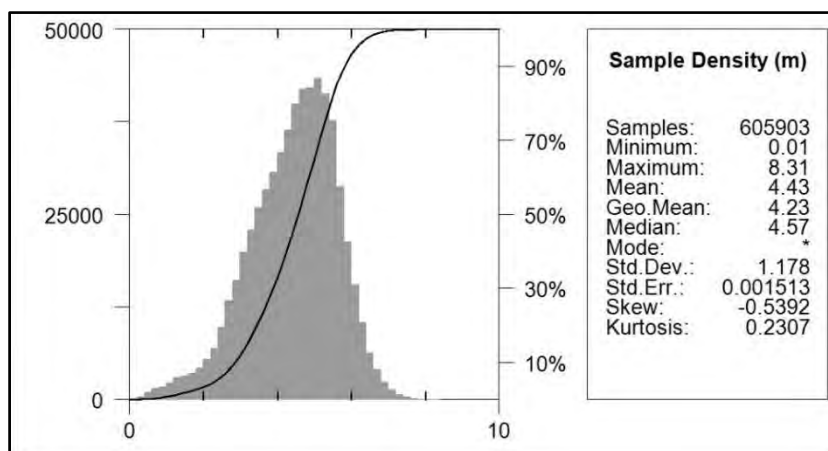


Figure 15: Histogram showing sample density of magnetic readings. Horizontal distance in meters between adjacent measurement locations. Magnetometer sample frequency is 10 Hz.

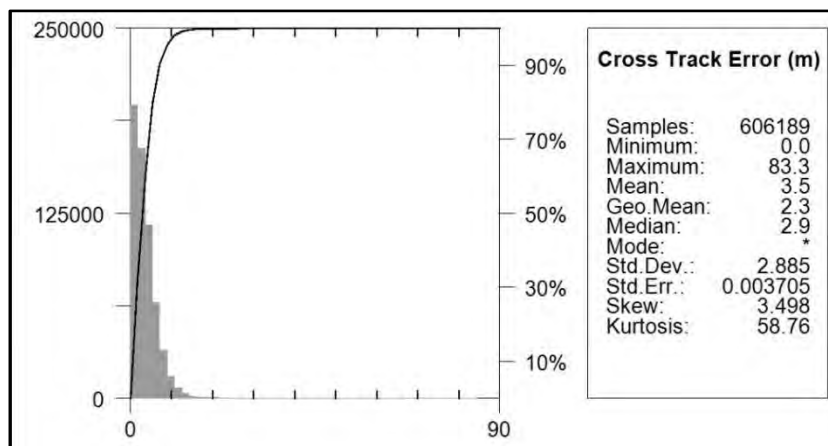


Figure 16: Histogram showing cross track error of survey helicopter. Helicopter locally deviated from course due to residences.

5.0 Data Acquisition Equipment Checks

Equipment tests and calibrations were conducted for the laser altimeter, magnetometer, and 1TEM system at the start of the survey to ensure compliance with contract specifications and to deliver high quality airborne geophysical data. A lag test was conducted for the laser altimeter and magnetometer. A high-level flight was flown to establish the background system transient which is subtracted from the final processed data to remove the 1TEM system's self-response.

5.1 Laser Altimeter Calibration

The Opti-Logic RS800 laser altimeter used on the survey helicopter was tested and calibrated using a series of fixed ground measurements in accordance with manufacturer's instructions prior to starting the survey. This ensured that heights reported by the laser were accurate within the normal survey operating range.

5.2 High Level Flight

High-level flights are conducted at nominal heights of 500 meters or more above ground. During this time, TDEM data are collected for a period of at least 3 minutes and averaged into a single background transient. The data collected from these flights are used to remove background, system, and aircraft influences. The 1TEM electronics, receiver loop, and airframe design eliminate the need for high-level flights to be flown during each survey flight like other HTEM systems require. During a 1TEM survey, high-level flights are typically only flown on the first day of surveying, if there are major air temperature fluctuations, or if any change is made to the 1TEM system. This means 1TEM survey flights can be conducted with negligible drift when low cloud cover allows for safe survey altitudes but not high-level calibration altitudes.

5.3 Lag Test

A lag test was performed to determine the difference in time the digital reading was recorded for the magnetometers and laser altimeter with the position fix time that the fiducial of the reading was obtained by the GPS system resulting from a combination of system lag and different locations of the various sensors and the GPS antenna. The test was flown in reciprocal headings over identifiable features at survey speed and height to isolate position changes. The resulting data (Table 6) were used to correct for time and position of the magnetic data. The lag test showed that no correction was required for the laser or the 1TEM system

Instrument	Source	Lag Fiducial	Correction (sec)
Magnetometer	Bridge	20	2.0
Laser	Sharp gully	0	0.0

Table 6: Survey lag correction values. Laser altimeter resampled to 10 Hz.

5.4 Heading Correction Test

Optically pumped magnetometers are subject to small errors in the reported total magnetic intensity depending on the orientation of the sensor with respect to the geomagnetic field, so that direction of flight on reciprocal lines results in a heading error. For this survey, the heading error was determined for each of the four survey flight directions by isolating data from a magnetically quiet area and comparing the average total magnetic intensity for all four directions with the average total magnetic intensity of the entire magnetically quiet region. Results of the heading correction analysis are summarized in Table 7.

Heading	Heading Correction (nT)
000°	3.08
090°	-1.06
180°	-3.22
270°	1.20
Total:	0.00

Table 7: Heading correction data.

6.0 Data Processing and Evaluation

After each survey flight and at completion of the survey, several procedures were undertaken to ensure that the data met a high standard of quality. TDEM and magnetic data were analyzed and converted from Binary into Geosoft and ASCII file formats. Further processing was carried out using Geosoft Oasis Montaj 2025.1 geophysical processing software along with proprietary processing algorithms. Conductivity-Depth Transforms (CDTs) were generated using Fullagar Geophysics EmaxAIR.

6.1 Position Corrections

In order to collect high resolution geophysical data, the location at which the data were collected and recorded must be accurate.

6.1.1 Lag Correction

A correction for lag error was applied to the magnetic and laser data recorded to compensate for lag caused by the physical distance between GPS antenna, the recording system, and the sensing instrument. Validity of the lag corrections was confirmed by the absence of grid corrugations in adjacent reciprocal lines.

6.2 Flight Height and Digital Terrain Model

Laser altimeters usually provide accurate height-above-ground data with minimal corrections. However, they are unable to provide valid data over glassy water or fog, which can scatter the laser causing a “zero” reading to be obtained. In these cases, the average of the DEM (obtained from NRCAN) and estimates of correct height were inserted manually. Additionally, dense vegetation generates high frequency variations from leaf and branch reflections. A rolling statistics filter was applied to the lag-corrected laser altimeter data to remove vegetation clutter, and then a low pass filter was used to smooth the laser altimeter profile. These filters eliminate the isolated

high-frequency noise and, except for precipitous terrain, generate a surface that closely corresponds to the actual ground profile.

A Digital Terrain Model (DTM) was created by subtracting the laser altimeter data from the filtered GPS altimeter data defined by the WGS 84 ellipsoidal height. DTM accuracy is affected by the attitude of the aircraft, slope of the ground, sample density, and satellite geometry. A leveling routine was applied to correct for these variations and a fully leveled digital terrain model was generated.

6.3 Magnetic Processing

Magnetic data were corrected for temporal variations (including diurnal), lag, and heading. The data were examined for magnetic noise and spikes, which were removed as required. The background magnetic field, International Geomagnetic Reference Field (IGRF) of the Earth, was removed and survey and tie line data of the resulting residual magnetic field were then leveled using tie lines as a reference.

6.3.1 Temporal Variation Correction

The intensity of Earth's magnetic field varies with position and time. The time variable, known as diurnal or more correctly temporal variation, is removed from the recorded airborne data to provide the desired magnetic field at a specified location. Magnetic data from base station SmartMag 1 were used to correct the temporal variation in the airborne magnetic survey data, . The data were edited, plotted, and merged into a Geosoft database (.GDB) on a daily basis.

Base station measurements were averaged to establish a magnetic reference datum of 55458.59 nT. Magnetic deviations relative to the reference datum were used to calculate the observed variations of the Earth's magnetic field during the time it took to complete the survey. The airborne magnetic data were then corrected for temporal variations by subtracting the base station deviations from the data collected on the aircraft.

6.3.2 Heading Correction

Heading effects in the recorded magnetic intensity were determined by comparing the average value of individual flight directions to the overall average, which are then used to construct a table (.TBL) file. These values are then applied to the temporal- and lag-corrected magnetic database to remove the heading effect with linear interpolation.

6.3.3 IGRF Removal

The Residual Magnetic Intensity (RMI) represents the local magnetic field that is a product of the local geology with global influences removed. The RMI, in combination with the Earth's primary magnetic field, constitutes the measured Total Magnetic Intensity (TMI). However, Earth's primary magnetic field changes with time and location, therefore removing it from the TMI produces an RMI that is independent of temporal and spatial variability. The Earth's modelled primary magnetic field is the International Geomagnetic Reference Field (IGRF), the empirical representation of Earth's dynamic magnetic field (main core field without external sources) collected and disseminated from satellite data and from magnetic observatories around the world. The IGRF is updated every five years by the International Association of Geomagnetism and Aeronomy (IAGA).

For the Koocanusa survey, the Residual Magnetic Intensity (RMI) was calculated by taking the difference between the 14th generation IGRF (IGRF-14 released in November 2024) and the leveled Total Magnetic Intensity (TMI) to create a more valid model of individual near-surface magnetic anomalies. This model is independent of time to allow for incorporation of previous or future magnetic data into each survey database.

6.3.4 Leveling and Micro-leveling

Small inconsistencies in flight height and line orientation result in small spatial variabilities in magnetic intensity measured at the intersection points of survey lines and tie lines. Using the initial Residual Magnetic Intensity (RMI) data, data from survey and tie lines were leveled to each other. Two types of leveling were applied to the corrected data: conventional leveling and micro-leveling. There are two components to conventional leveling: statistical leveling to level tie lines and full leveling to level survey lines. The statistical leveling method corrected the SL/TL intersection errors that follow a specific pattern or trend. Through the error channel, an algorithm calculated a least-squares trend line and derived a trend error curve, which was then added to the channel to be leveled. The second component was full leveling. This adjusted the magnetic value of the survey lines so that all lines matched the trended tie lines at each intersection point.

To further enhance data quality, micro-leveling was applied as a final step in the leveling sequence. This involved applying grid-based algorithms that targeted subtle, low-amplitude noise remaining after conventional leveling, thereby producing a dataset with minimal artifacts and optimal spatial coherence. The resulting fully leveled Residual Magnetic Intensity (RMI) data provide a robust foundation for subsequent geophysical interpretation and ensured compatibility for future data integration.

Following statistical and full leveling, micro-leveling was applied to the corrected conventional leveled data. This iterative grid-based process removes low amplitude components of flight line

noise that remain in the data after tie line and survey line leveling and results in fully leveled RMI data.

The 14th generation IGRF was added back to the leveled RMI to create a fully leveled Total Magnetic Intensity (TMI) data.

6.3.5 Reduction to Magnetic Pole

Reduced to Magnetic Pole (RTP) data were determined from the leveled Residual Magnetic Intensity (RMI) data. Using the Fourier domain, the RTP is calculated by rotating the observed magnetic inclination and declination of the RMI to simulate the local magnetic field orientated at the north magnetic pole. This allows observation of magnetic trends and patterns independent of magnetic inclination and declination. Reducing the dipolar nature of magnetic anomalies is useful for interpretation because peak RTP magnetic values can be related to the centre of magnetic rock bodies and asymmetries in the RTP imagery closely reflect true dips and plunges.

Inclination and declination of the local geomagnetic field were referenced to May 22, 2025, the first day of the survey. The derived values were used in the following formula:

$$RTP(\theta) = \frac{[\sin(I) - I \cdot \cos(I) \cdot \cos(D - \theta)]^2}{[\sin^2(I_a) + \cos^2(I_a) \cdot \cos^2(D - \theta)] \cdot [\sin^2(I) + \cos^2(I) \cdot \cos^2(D - \theta)]}$$

where: I is geomagnetic inclination in ° from horizontal

D is geomagnetic declination in ° azimuth from magnetic north

I_a is the inclination for amplitude correction (never less than I). Default is $\pm 20^\circ$. If $|I_a|$ is specified to be less than $|I|$, it is set to I

6.3.6 Calculation of Horizontal Gradient

Calculated Horizontal Gradient (CHG) is the magnitude of the total horizontal gradient of the leveled Residual Magnetic Intensity (RMI) data. It is used to estimate contact locations of magnetic bodies at shallow depths, reveal anomaly texture, and highlight anomaly-pattern discontinuities.

If M is the magnetic field, then the CHG is calculated as:

$$\text{CHG}(x, y) = \sqrt{\left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2}$$

where: $\frac{\partial M}{\partial x}$ is the calculated E-W gradient
 $\frac{\partial M}{\partial y}$ is the calculated N-S gradient

6.3.7 Calculation of Vertical Gradient

Calculated Vertical Gradient (CVG) is the first order vertical derivative of the leveled Residual Magnetic Intensity (RMI) data. It is the vertical rate of change in the magnetic field per unit distance. The vertical gradient is used to enhance shorter wavelength signals; therefore, edges of magnetic anomalies are highlighted, and deep geologic sources in the data are suppressed.

The filter, L , used to produce the n^{th} vertical derivative is described by:

$$L(r) = r^n$$

where: r is the radial component in the wavenumber domain

6.3.8 Analytic Signal

Analytic Signal (AS) is the magnitude of the total magnetic gradient in three axes, determined as the square root of the sum of the squares of the vertical gradient and the combined horizontal gradients. Analytic signal is useful in locating the edges of magnetic source bodies.

If M is the magnetic field, then Analytic Signal (AS) is calculated as:

$$\text{AS}(x, y, z) = \sqrt{\left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2 + \left(\frac{\partial M}{\partial z}\right)^2}$$

where: $\frac{\partial M}{\partial x}$ is the calculated E-W gradient
 $\frac{\partial M}{\partial y}$ is the calculated N-S gradient
 $\frac{\partial M}{\partial z}$ is the calculated vertical gradient

6.4 1TEM Data Processing

1TEM data were processed using a combination of Precision GeoSurveys proprietary software, Geosoft Oasis Montaj, Maxwell, and Fullagar Geophysics EmaxAIR. Raw binary electromagnetic data from the 1TEM Receiver are first merged with the transmitter and navigation data from the 1TEM Recorder. Positive and negative pulses in the merged dataset are then paired to correct for DC offset, receiver coil motion, and 60 Hz powerline noise. A spherics rejection filter is applied, and the EM system response (or “system transient”) is removed by subtracting a single averaged decay of the high-level flight from each decay in the survey data. In the highly resistive environment of Koocanusa, only 80% of the system transient was removed to ensure positivity of the data and avoid low signal areas from being omitted by modelling algorithms. The corrected data are windowed into user-specified time gates and averaged from 30 Hz to the desired output sample rate, in this case 1 Hz. Due to ground conditions and no secondary EM response past approximately 2 milliseconds at Koocanusa, only time gates 04-20 were processed and delivered. The processed data are then exported as an ASCII file and imported into Geosoft Oasis Montaj for final flightpath trimming, filtering, EM decay-constant calculations, levelling, and preparation of final grids and maps.

6.5 1TEM Data Evaluation

Helicopter-borne TEM systems work well when bedrock resistivities are in the range of 2 to 500 ohm-meters. Highly conductive or resistive rock units can significantly degrade an HTEM system’s ability to measure a reliable electromagnetic ground response. Steep topography reduces or eliminates the ability of an HTEM system to fly at an altitude at which ground response can be differentiated from electromagnetic noise. In these cases, the data should not be used to make geological inferences of the subsurface, and it should only be considered as “filler” to make complete maps and models along lines that contain reliable responses from conductors. The Koocanusa survey block contains both highly resistive rocks as well as rugged topography which, especially when combined together, resulted in local areas showing little to no ground response which should not be construed as a lack of bedrock conductors.

Weak EM responses are seen in multiple areas at Koocanusa, primarily earlier than Channel 12 or 1 ms after transmitter turn-off. The northern portion of the survey area contains parts of Moyie Lake over which there is EM response past 1 ms. Moyie Lake itself is likely conductive due to dissolved solids or marshy areas with conductive organics generating early to mid-time responses; however the EM time profiles suggest an additional deeper source may be present. Several conductivity-depth sections of flight lines over Moyie Lake also show both a shallow source from the lake and a separate deeper source. Most other early-time responses likely come from lithologic sources or shallow (< 200 m below surface) conductive mineralization and should be examined in conjunction with other geophysical, geological, and geochemical data. More geometrical information and structural clarification could be obtained for EM responses of interest at

Koocanusa by flying infill between the existing 300 m spaced survey lines. It is also possible that some conductive features were missed entirely if they have less than a 300 metre N-S strike length. Data collected in areas with rugged topography where sensor ground clearance was 150 m or more should be assumed to primarily consist of system response and noise. 1TEM data are not corrected for sensor height in order to simplify interpretation and avoid aliasing or false anomalies. System ground clearance should be considered when interpreting anomalies at Koocanusa as a high flight height will give a weaker response over the same conductor than a lower flight height. Height corrections can be carefully performed for specific areas of interest to effectively level the line-by-line response of a conductive anomaly, but there is risk in generating false conductors.

6.6 Conductivity – Depth Transformation

Conductivity-Depth Transforms (CDTs) were generated for selected lines using Fullagar Geophysics EmaxAIR software. EmaxAIR calculates pseudosections of conductivity versus depth using the concept of maximum current. The pseudosections are a relatively simple and reliable way to view the apparent conductivity data on a calculated depth scale, allowing for effective initial interpretation.

The algorithms used in the CDT calculations verify that the rate of decay fits the theoretical decay that would be observed from the ground at each station. At certain stations, early channels that do not decay correctly (i.e. system response only) were ignored and the first valid solution was generated from a later sample time and greater depth than adjacent stations with earlier valid decays. Thus, “steps” can occur in the CDT grids. Since the Koocanusa survey data locally contain little to no ground response, the EM system response was only partially removed from the database used for calculating the CDTs. This helped the algorithms calculate more complete models, but any apparent variation of ground conductivity in high resistivity areas may not be due to a geological source. The higher amount of system response present in earlier time channels also resulted in the appearance of a high-conductivity near-surface layer in many areas of low signal in the CDTs, which should not be used for interpretation purposes.

The modeling steps required to calculate reasonable CDTs for the Koocanusa data means that additional care must be taken when interpreting the sections. The biggest factors causing questionable data are highly resistive rocks and extreme topography. Additional modelling and interpretation should only be undertaken for flight lines or sections of flight lines that show good ground response and reliable conductors in the time profiles. In these areas, the EmaxAIR CDT solutions show valid and useful spatial representations of the conductive subsurface bodies at Koocanusa.

Six survey lines were selected for Conductivity-Depth Transform gridding – Lines L420, L850, L1050, L1140, L1150, and L1200. Each of these lines contain weak EM conductors in a highly resistive background. Most conductors are modelled to depths greater than 400 m with minimum

depths ranging from the shallowest calculated solution to 300 m. The sharpening algorithm applied within EMaxAIR is known to place responses slightly deeper than the standard calculation. Lines L1140 and L1150 are adjacent and meant to show the repeatability of EM data at Koocanusa, but some conductivity variation is expected due to the large line spacing of 300 m. Certain sections of modelled lines over very steep terrain and/or high sensor ground-clearance show near-surface artefacts.

7.0 Deliverables

Koocanusa magnetic and electromagnetic survey data are presented as digital databases, grids, maps, and a logistics report.

7.1 Digital Data

Digital files have been provided in three formats:

- GDB file for use in Geosoft Oasis Montaj
- XYZ file
- CSV Excel comma-separated file.

Full descriptions of the digital data and contents are included in Appendix C.

7.1.1 Grids

The digital data for the Koocanusa survey were represented as grids as listed below:

- Digital Terrain Model (DTM)
- Total Magnetic Intensity (TMI)
- Residual Magnetic Intensity (RMI) – removal of IGRF from TMI
- Reduced to Magnetic Pole (RTP) – reduced to magnetic pole of RMI
- Calculated Horizontal Gradient (CHG) – total magnitude of the horizontal gradients of RMI
- Calculated Vertical Gradient (CVG) – first order vertical derivative of RMI
- Analytic Signal (AS) – total gradients of RMI
- 1TEM Channel 05 centered at 0.0657 msecs (CH02)
- 1TEM Channel 09 centered at 0.343 msecs (CH09)
- 1TEM Channel 14 centered at 1.227 msecs (CH14)
- 1TEM Calculated Decay Constant (Tau)
- 1TEM Time Profiles stacked on Magnetic RMI

Digital magnetic and 1TEM data were gridded and displayed using the following Geosoft parameters:

- Gridding method: minimum curvature
- Grid cell size: 75 m
- Low-pass desampling factor: 2
- Tolerance: 0.001
- % pass tolerance: 99.99
- Maximum iterations: 100

Descriptions of options used to display the grids are presented in Appendix C.

7.2 KMZ

Gridded digital magnetic and electromagnetic data were exported into .KMZ files which can be displayed using Google Earth. The grids can be draped onto topography and rendered to give a 3D view.

7.3 Maps

The following digital map products were prepared for the Koocanusa survey:

Overview maps (colour images with elevation contour lines):

- Actual flight lines, with topographic features
- DTM

Magnetic maps (colour images with elevation contour lines):

- TMI, with actual flight lines and topographic features
- TMI
- RMI
- RTP
- CHG
- CVG
- AS

1TEM maps (colour images with elevation contour lines):

- CH05 - 0.0657 ms
- CH09 - 0.343 ms
- CH14 - 1.23 ms
- EM_Tau
- EM_RMI

1TEM sections:

- CDT – L420
- CDT – L850
- CDT – L1050
- CDT – L1140
- CDT – L1150
- CDT – L1200

All survey maps were prepared in WGS 84 in UTM Zone 11N.

7.4 Report

A .PDF copy of the logistics report is included along with digital data and maps. The report provides information on acquisition, processing, and presentation of the Koocanusa survey data.

8.0 Conclusions and Recommendations

The Koocanusa survey collected 1343 line km of high resolution magnetic and 1TEM data over one survey block. The data have been processed and plotted on maps as representations of the geomagnetic and geoelectric features of the survey area.

All airborne TDEM systems follow the laws of physics governing electromagnetic induction and are more sensitive to variations in ground clearance than other geophysical methods such as the potential fields of magnetic or gravity surveys. Due to locally steep topography at Koocanusa, the nominal ground clearance could only be achieved for a very small percentage of the total survey. In addition, the lines were flown at 300 m spacing. Airborne TDEM systems have an inherent requirement to be flown close enough to the ground to induce sufficient energy in the subsurface such that the secondary electromagnetic field can be differentiated from the EM system noise floor at the receiver's measurement location. Additionally, the electrically resistive rock units at Koocanusa often inhibited the 1TEM system's ability to measure a reliable ground response at the achievable flight height. The combined result of these factors is that the majority of the Koocanusa EM data show little to no ground response and therefore it is possible that valid conductors exist without a survey response in areas of steep terrain.

Multiple weak-to-moderate conductors were identified at Koocanusa. Conductivity-Depth Transforms were created over six selected lines to support simple interpretations. Due to several steps taken in order to produce nearly complete sections in the absence of EM signal, the apparent highly resistive areas should be assumed to contain little to no geologic information, and interpretations should focus on the reliably modelled conductors. Two of the gridded CDTs are from adjacent lines (L1140 and L1150) to demonstrate the 1TEM system's repeatability over a geologically similar area, with good correlation between both.

The airborne geophysical data were acquired to map the geophysical characteristics of the survey area, which are in turn related to the distribution of conductive and magnetic minerals and material in the Earth. Geophysical data are rarely a direct indication of mineral deposits and therefore interpretation and careful integration with other geochemical, geophysical, and especially geological data are recommended to maximize value from the survey investment.

Respectfully submitted,
Precision GeoSurveys Inc.

Erik Keyser, P.Geo.
Shawn Walker, M.Sc., P.Geo.
July 2025

Appendix A

Polygon Coordinates

Koocanusa Survey Block – WGS 84 Zone 11N

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.04567	124.12642	419350	5544316
50.04567	124.09518	421587	5544283
50.03734	124.09517	421574	5543357
50.03734	124.08893	422021	5543350
50.02900	124.08891	422009	5542423
50.02900	124.08268	422455	5542417
50.01651	124.08268	422435	5541028
50.01650	124.07642	422883	5541020
50.00818	124.07642	422870	5540095
50.00817	124.04517	425109	5540062
49.99984	124.04516	425097	5539136
49.99983	124.03267	425992	5539123
49.94983	124.03267	425915	5533564
49.94983	124.04516	425019	5533576
49.92900	124.04517	424986	5531260
49.92900	124.06391	423641	5531279
49.94149	124.06392	423660	5532668
49.94150	124.07017	423212	5532675
49.94565	124.07018	423218	5533137
49.94567	124.07642	422770	5533145
49.94982	124.07641	422777	5533607
49.94984	124.08267	422328	5533615
49.95816	124.08267	422342	5534540
49.95817	124.08893	421893	5534548
49.96649	124.08892	421907	5535473
49.96649	124.11392	420114	5535500
49.97482	124.11392	420128	5536426
49.97483	124.12017	419680	5536434
49.99982	124.12017	419721	5539212
49.99983	124.12643	419273	5539220

Appendix B

Equipment Specifications

- Precision GeoSurveys 1TEM Time-Domain Electromagnetic System
- Precision GeoSurveys PG-MAG Total-Field Magnetometer
- GeoDevice SmartMag Overhauser Magnetometer (Magnetic Base Station)
- Hemisphere R330 GPS Receiver
- Opti-Logic RS800 Rangefinder Laser Altimeter
- Nuvia Dynamics IMPAC Data Recorder System (for navigation)

Precision GeoSurveys 1TEM Time-Domain Electromagnetic System

Diameter (m)	21
No. of turns	1
Peak Dipole Moment (Am²)	120,000
Duty cycle (%)	25
Coil orientation	Z
Waveform	Nominal square
Rx Sample Rate (kHz)	396
Ramp-off time (µs)	50
TX/RX separation (m)	0
TX Current (amps)	340
TX Coil Area (m²)	348
RX Sensitivity	+/- 10 volts with resolution of 0.1 microvolt
RX Coil Area (m²)	133
Geometry	In Loop
Base Frequency (Hz)	25/30
Power source	24 HP Honda V-twin generator
Weight (kg)	330
Survey speed (km/h)	50 - 100

Precision GeoSurveys PG-MAG Total-Field Magnetometer

Operating Principal	Optically pumped
Operating Range	1,500 nT to 100,000 nT
Gradient Tolerance	40,000 nT/m
Bandwidth	500 Hz
Sampling Rate	Up to 1000 Hz
Sensitivity	0.002 nT / $\sqrt{\text{Hz}}$ rms
Frequency Counter	Internal
Heading Error	<3 nT
Output	RS232

Geodevice SmartMag Overhauser Magnetometer (Magnetic Base Station)

Sensitivity	0.021 nT/ $\sqrt{\text{Hz}}$ rms
Resolution	0.001 nT
Absolute Accuracy	± 0.1 nT
Dynamic Range	20,000 nT to 120,000 nT
Gradient Tolerance	30,000 nT/m
Sample Rates	0.2, 0.25, 0.5, 1 sec and longer with 1 sec step
Operating Ranges	Temperature: -40°C to +60°C Battery Voltage: 10.0 V to 14.8 V
Dimensions	Console: 114 x 87 x 35 mm Sensor: 125 x 72 mm dia. Assembled height (console, sensor, battery, tripod, cables, & GNSS antenna): Weight: console 0.45 kg, sensor and staff assembly 1.0 kg Li-ion battery 0.7 kg Assembled weight (console, sensor, battery, tripod, cables, & GNSS antenna): 3.1 kg
Integrated GPS	Yes

Hemisphere R330 GPS Receiver

GPS Sensor	Receiver Type	L1 and L2 RTK with carrier phase	
	Channels	12 L1CA GPS 12 L1P GPS 12 L2P GPS 12 L2C GPS 12 L1 GLONASS (with subscription code) 12 L2 GLONASS (with subscription code) 3 SBAS or 3 additional L1CA GPS	
	Update Rate	10 Hz standard, 20 Hz available	
	Cold Start Time	<60 s	
	Warm Start Time 1	30 s (valid ephemeris)	
	Warm Start Time 2	30 s (almanac and RTC)	
	Hot Start Time	10 s typical (valid ephemeris and RTC)	
	Reacquisition	<1 s	
	Differential Options	SBAS, Autonomous, External RTCM, RTK, OmniSTAR (HP/XP)	
Horizontal Accuracy		RMS (67%)	2DRMS (95%)
	RTK ^{1,2}	10 mm + 1 ppm	20 mm + 2 ppm
	OmniSTAR HP ^{1,3}	0.1 m	0.2 m
	SBAS (WAAS) ¹	0.3 m	0.6 m
	Autonomous, no SA ¹	1.2 m	2.5 m
L-Band Sensor	Channel	Single channel	
	Frequency Range	1530 MHz to 1560 MHz	
	Satellite Selection	Manual or Automatic (based on location)	
	Startup and Satellite Reacquisition Time	15 seconds typical	
Communications	Serial Ports	2 full duplex RS232	
	Baud Rates	4800 – 115200	
	USB Ports	1 Communications, 1 Flash Drive data storage	
	Correction I/O Protocol	Hemisphere GPS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+NMEA 0183, Hemisphere GPS binary	
	Timing Output	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)	
	Event Marker Input	HCMOS, active low, falling edge sync, 10 kΩ	
Environmental	Operating Temperature	-40°C to +70°C	
	Storage Temperature	-40°C to +85°C	
	Humidity	95% non-condensing	
Power GPS Sensor	Input Voltage Range	8 to 36 VDC	
	Consumption, RTK	<3.5 W (0.30 A @ 12 VDC typical)	
	Consumption, OmniSTAR	<4.3 W (0.36 A @ 12 VDC typical)	

¹Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity.²Depends also on baseline length.³Requires a subscription from OmniSTAR.

Opti-Logic RS800 Rangefinder Laser Altimeter

Accuracy	±1 m on 1 m ² diffuse target with 50% reflectivity, up to 700 m
Resolution	0.2 m
Communication Protocol	RS232-8, N, 1 ASCII characters
Baud Rate	19200
Data Raw Counts	~200 Hz
Data Calibrated Range	~10 Hz
Data Rate	~200 Hz raw counts for un-calibrated operation; ~10 Hz for calibrated operation (averaging algorithm seeks 8 good readings)
Calibrated Range Units	Feet, Meters, Yards
Laser	Class I (eye-safe), 905 nm ± 10 nm
Power	7 – 9 VDC conditioned required, current draw at full power (~ 1.8 W)
Laser Wavelength	RS100 905 nm ± 10 nm
Laser Divergence	Vertical axis – 3.5 mrad half-angle divergence; Horizontal axis – 1 mrad half-angle divergence; (approximate beam “footprint” at 100 m is 35 cm x 5 cm)
Dimensions	32 x 78 x 84 mm (lens face cross section is 32 x 78 mm)
Weight	<227 g (8 oz)

Nuvia Dynamics IMPAC Data Recorder System

(for navigation only)

Functions	Integrated Multi-Parameter Airborne Console (IMPAC) with integrated dual Global Positioning System Receiver (GPS) and all necessary navigation guidance software. Inputs for geophysical sensors – portable gamma ray spectrometer GRS-10/AGRS, MMS4/MMS8 Magnetometer, Herz Totem-2A EM, A/D converter, temperature/humidity probe, barometric pressure probe, and laser/radar altimeter. Output for the multi-parameter PGU (Pilot Guidance Unit)
Display	Monitor display 600 x 800 pixels; customized keypad and operator keyboard. Multi-screen options for real-time viewing of all data inputs, fiducial points, flight line tracking, and GPS channels by operator
Navigation	Pilot/operator navigation guidance. Software supports preplanned survey flight plan, along survey lines, way-points, preplanned drape profile surfaces
Data Sampling	Sensor dependent
Data Synchronization	Synchronized to GPS position. Supports dual GPS
Data File	PEI Binary data format
Storage	80 GB
Software	DataView: Allows fast data verification and conversion of PEI binary data to Geosoft GBN or ASCII formats MAGConv: For survey preparation, calibration and conversion of maps, and survey plot after data acquisition MAGComp: For calculation of magnetic compensation coefficients AGRS/GRS10 Calibration: High voltage adjustment, linearity correction coefficients calculation, and communication test support AGIS: Real time data acquisition and navigation system. Displays chart/spectrum view in real-time for fast data Quality Control (QC)
Electrical	Multiple ethernet connections, RS232 serial ports, USB ports, and 16-bit differential analog input channels. It can support up to 4 magnetometer sensors
Power Requirement	24 VDC

Appendix C

Digital File Descriptions

- 1TEM Database
- Magnetic Database
- Geosoft Grids
- Maps

1TEM Database:

Abbreviations used in the GDB/XYZ/CSV files listed below:

CHANNEL	UNITS	DESCRIPTION
East_WGS84	m	UTM Easting – WGS 84 Zone 10N
North_WGS84	m	UTM Northing – WGS 84 Zone 10N
RECS		Fiducial of Sample
LineNo		Flight Line Number
UTCTime	HH:MM:SS	UTC Time of Sample
TX_Current	Amps	Transmitter Current
Lat_Deg	Decimal degrees	Latitude – WGS84
Long_Deg	Decimal degrees	Longitude – WGS84
GPSAlt_m	m	GPS Altimeter
Topo_m	m	Topography Elevation Above Sea Level
HAGL_m	m	1TEM Height Above Ground
Tau	ms	Calculated EM Decay Constant
Ch04_final	uV	1TEM Channel 04
Ch05_final	uV	1TEM Channel 05
Ch06_final	uV	1TEM Channel 06
Ch07_final	uV	1TEM Channel 07
Ch08_final	uV	1TEM Channel 08
Ch09_final	uV	1TEM Channel 09
Ch10_final	uV	1TEM Channel 10
Ch11_final	uV	1TEM Channel 11
Ch12_final	uV	1TEM Channel 12
Ch13_final	uV	1TEM Channel 13
Ch14_final	uV	1TEM Channel 14
Ch15_final	uV	1TEM Channel 15
Ch16_final	uV	1TEM Channel 16
Ch17_final	uV	1TEM Channel 17
Ch18_final	uV	1TEM Channel 18
Ch19_final	uV	1TEM Channel 19
Ch20_final	uV	1TEM Channel 20
Ch05_lev	uV	Microlevelled 1TEM Channel 05
Ch09_lev	uV	Microlevelled 1TEM Channel 09
Ch14_lev	uV	Microlevelled 1TEM Channel 14

Magnetic Database:

Abbreviations used in the GDB/XYZ/CSV files listed below:

CHANNEL	UNITS	DESCRIPTION
X_WGS84	m	UTM Easting – WGS 84 Zone 11N
Y_WGS84	m	UTM Northing – WGS 84 Zone 11N
Lat_deg	Decimal degree	Latitude – WGS 84
Lon_deg	Decimal degree	Longitude – WGS 84
Date	yyyy/mm/dd	Dates of the survey flight(s) – Local
FLT		Flight Line numbers
LineNo		Line numbers
STL		Number of satellite(s)
GPSfix		1 = non-differential 2 = WAAS/SBAS differential
Heading	degree	Heading of the aircraft
GPStime	HH:MM:SS.SS	GPS time (UTC)
Geos_m	m	Geoidal separation
XTE_m	m	Cross track error
Galt	m	GPS height – WGS 84 Zone 11N (ASL)
Lalt	m	Laser altimeter readings (AGL)
DTM	m	Digital Terrain Model
Sample_Density	m	Horizontal distance in meters between adjacent measurement locations; sample frequency is 20 Hz
Speed_km_hr	km/hr	Ground speed of aircraft in km/hr
basemag	nT	Base station temporal variation data
IGRF	nT	International Geomagnetic Reference Field, IGRF-13
Declin	Decimal degree	Calculated declination of magnetic field
Inclin	Decimal degree	Calculated inclination of magnetic field
XFg_Step	step	X – fluxgate (points up)
YFg_Step	step	Y – fluxgate (in direction of flight)
ZFg_Step	step	Z – fluxgate (transverse to direction of flight)
Mag_Head	nT	Temporal variation, lag, and heading corrected
TMI	nT	Total Magnetic Intensity
RMI	nT	Residual Magnetic Intensity

Geosoft Grids:

Koocanusa, WGS 84 Zone 11N. All grids generated using minimum curvature gridding method.

File Name	Description	Cell Size (m)
25132_Koocanusa_DTM.grd	Digital Terrain Model	75
25132_Koocanusa_TMI.grd	Total Magnetic Intensity	75
25132_Koocanusa_RMI.grd	Residual Magnetic Intensity	75
25132_Koocanusa_RTP.grd	Reduced to Magnetic Pole of RMI	75
25132_Koocanusa_CHG.grd	Calculated Horizontal Gradient of RMI	75
25132_Koocanusa_CVG.grd	Calculated Vertical Gradient of RMI	75
25132_Koocanusa_AS.grd	Analytic Signal of RMI	75
25132_Koocanusa_EM_CH05.grd	1TEM Channel 05 - 0.0657 milliseconds	75
25132_Koocanusa_EM_CH09.grd	1TEM Channel 09 - 0.343 milliseconds	75
25132_Koocanusa_EM_CH14.grd	1TEM Channel 14 - 1.23 milliseconds	75
25132_Koocanusa_EM_Tau.grd	EM Time Constant (Tau)	75

Maps:

Koocanusa, WGS 84 Zone 11N (JPEG, PNG, PDF, and georeferenced PDF). All grids are at 75 m cell size and CDT sections are 15 m cell size.

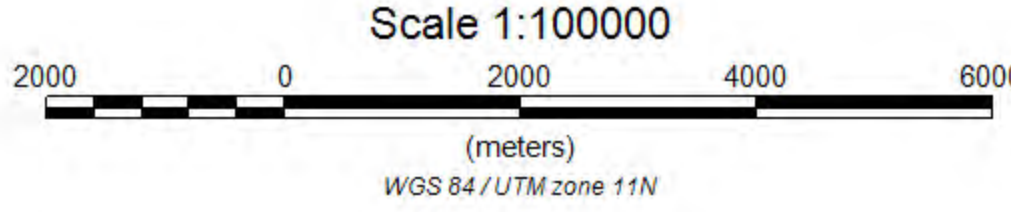
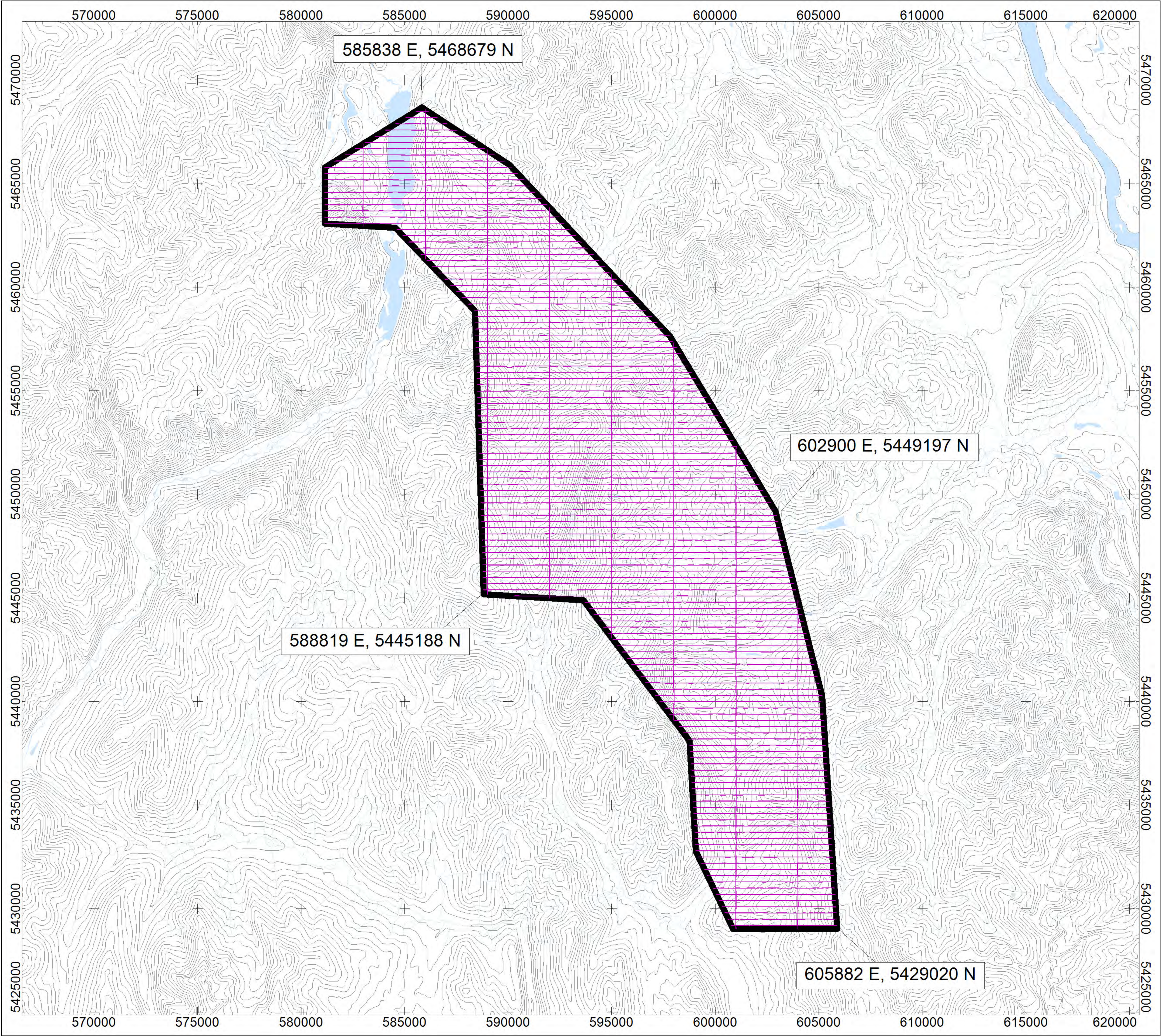
Plate Num	Plate Name	File Name	Description	Colour Scale	Colour Shade Inclination / declination
1	FL	25132_Koocanusa_ActualFlight Lines	Plotted actual flown flight lines	NA	NA
2	DTM	25132_Koocanusa_DTM	Digital Terrain Model	Linear	NA
3	TMI_w FL	25132_Koocanusa_TMI_wFL	Total Magnetic Intensity with actual flown flight lines	Histogram-equalized	RGB 45°/045°
4	TMI	25132_Koocanusa_TMI	Total Magnetic Intensity	Histogram-equalized	RGB 45°/045°
5	RMI	25132_Koocanusa_RMI	Residual Magnetic Intensity	Histogram-equalized	RGB 45°/045°
6	RTP	25132_Koocanusa_RTP	Reduced to Magnetic Pole of RMI	Histogram-equalized	RGB 45°/045°
7	CHG	25132_Koocanusa_CHG	Calculated Horizontal Gradient of RMI	Histogram-equalized	Wet-look 45°/045°
8	CVG	25132_Koocanusa_CVG	Calculated Vertical Gradient of RMI	Histogram-equalized	Wet-look 45°/045°
9	AS	25132_Koocanusa_AS	Analytic Signal of RMI	Histogram-equalized	Wet-look 45°/045°
10	EM_CH 05	25132_Koocanusa_EM_CH05	1TEM Channel 05 - 0.0657 milliseconds	Normal	N/A
11	EM_CH 09	25132_Koocanusa_EM_CH09	1TEM Channel 09 – 0.343 milliseconds	Normal	N/A
12	EM_CH 14	25132_Koocanusa_EM_CH14	1TEM Channel 14 – 1.23 milliseconds	Normal	N/A
13	EM_Tau	25132_Koocanusa_EM_Tau	EM Time Constant (Tau)	Linear	N/A
14	EM_RMI	25132_Koocanusa_EM_RMI	1TEM profiles stacked over RMI	Linear	N/A
15	CDT_L 420	25132_Koocanusa_CDT_L420	Conductivity-Depth Transform of L420	Linear	N/A
16	CDT_L 850	25132_Koocanusa_CDT_L850	Conductivity-Depth Transform of L850	Linear	N/A
17	CDT_L 1050	25132_Koocanusa_CDT_L1050	Conductivity-Depth Transform of L1050	Linear	N/A
18	CDT_L 1140	25132_Koocanusa_CDT_L1140	Conductivity-Depth Transform of L1140	Linear	N/A
19	CDT_L 1150	25132_Koocanusa_CDT_L1150	Conductivity-Depth Transform of L1150	Linear	N/A
20	CDT_L 1200	25132_Koocanusa_CDT_L1200	Conductivity-Depth Transform of L1200	Linear	N/A

*Grids displayed on the maps are exported as GeoTIFFs (.tiff) and KMZs.

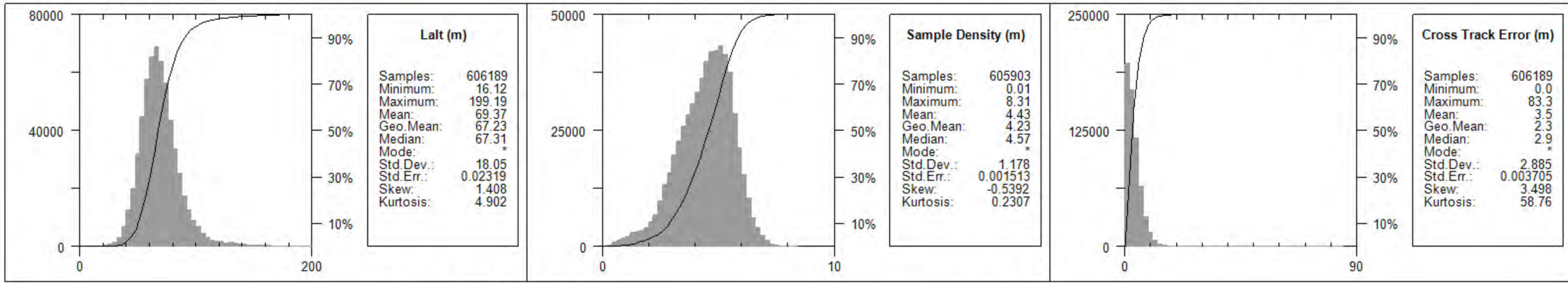
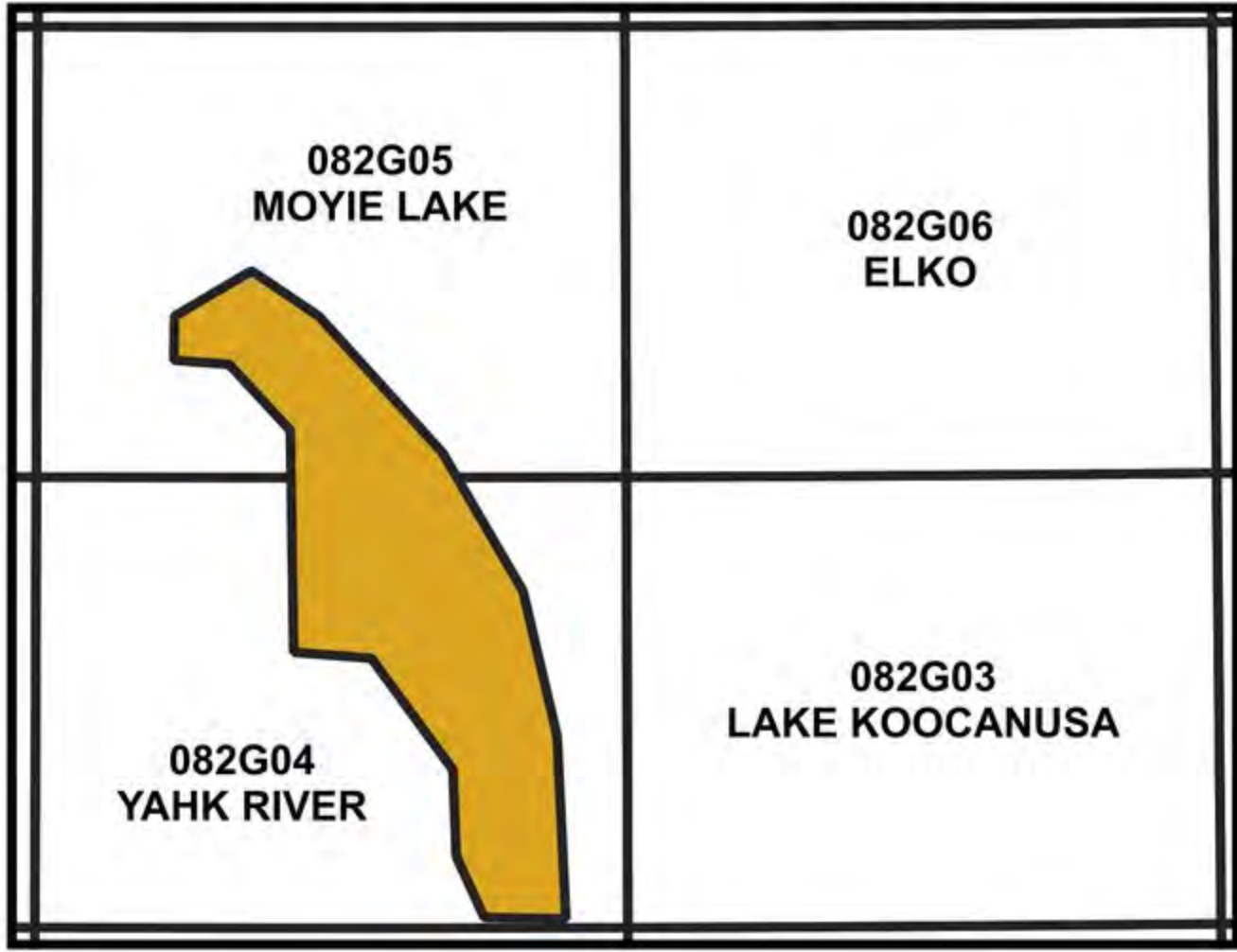
Plates

Koocanusa Survey

- Plate 1: Koocanusa – Actual Flight Lines (FL)
- Plate 2: Koocanusa – Digital Terrain Model (DTM)
- Plate 3: Koocanusa – Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)
- Plate 4: Koocanusa – Total Magnetic Intensity (TMI)
- Plate 5: Koocanusa – Residual Magnetic Intensity (RMI)
- Plate 6: Koocanusa – Reduced to Magnetic Pole (RTP)
- Plate 7: Koocanusa – Calculated Horizontal Gradient (CHG)
- Plate 8: Koocanusa – Calculated Vertical Gradient (CVG)
- Plate 9: Koocanusa – Analytic Signal (AS)
- Plate 10: Koocanusa – 1TEM Channel 05 (EM_CH05)
- Plate 11: Koocanusa – 1TEM Channel 09 (EM_CH09)
- Plate 12: Koocanusa – 1TEM Channel 14 (EM_CH14)
- Plate 13: Koocanusa – EM Time Constant (EM_Tau)
- Plate 14: Koocanusa – 1TEM Profiles over Residual Magnetic Intensity (EM_RMI)
- Plate 15: Koocanusa – Conductivity-Depth Transform L420 (CDT_L420)
- Plate 16: Koocanusa – Conductivity-Depth Transform L850 (CDT_L850)
- Plate 17: Koocanusa – Conductivity-Depth Transform L1050 (CDT_L1050)
- Plate 18: Koocanusa – Conductivity-Depth Transform L1140 (CDT_L1140)
- Plate 19: Koocanusa – Conductivity-Depth Transform L1150 (CDT_L1150)
- Plate 20: Koocanusa – Conductivity-Depth Transform L1200 (CDT_L1200)



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms
1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Water Bodies.....	
Elevation Contours, 50 m Interval.....	
Koocanusa Survey Block Boundary.....	
Actual Flight Lines.....	

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada,
Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mean/vector/ntdb_bndt/>[2007]

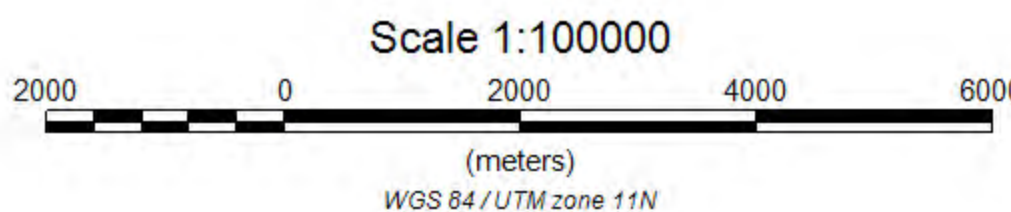
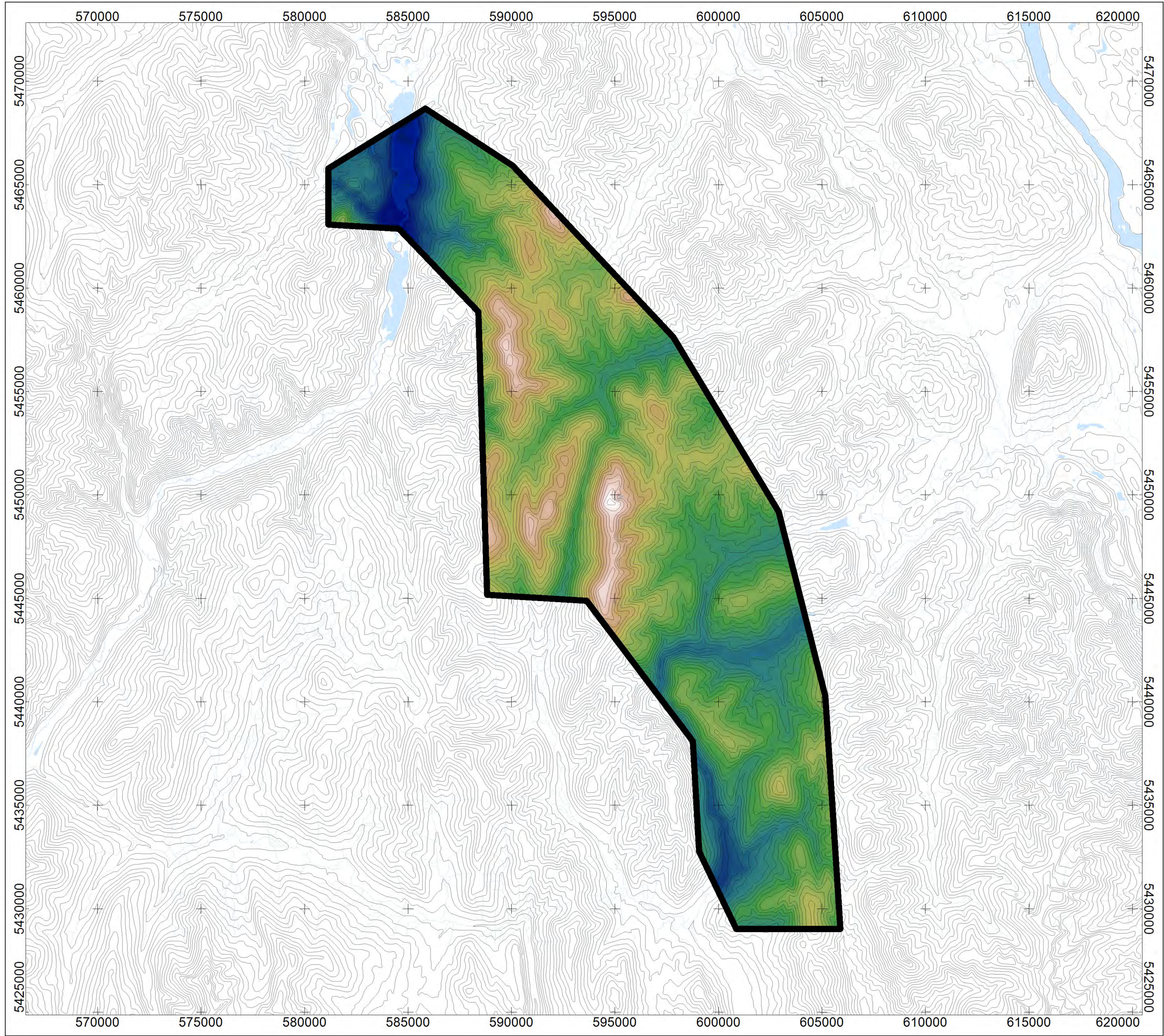
Aeonian Resources Ltd.

Koocanusa

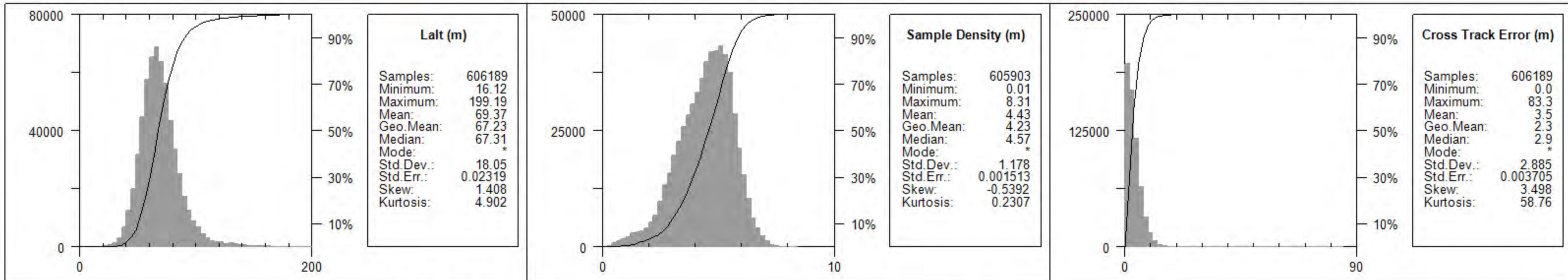
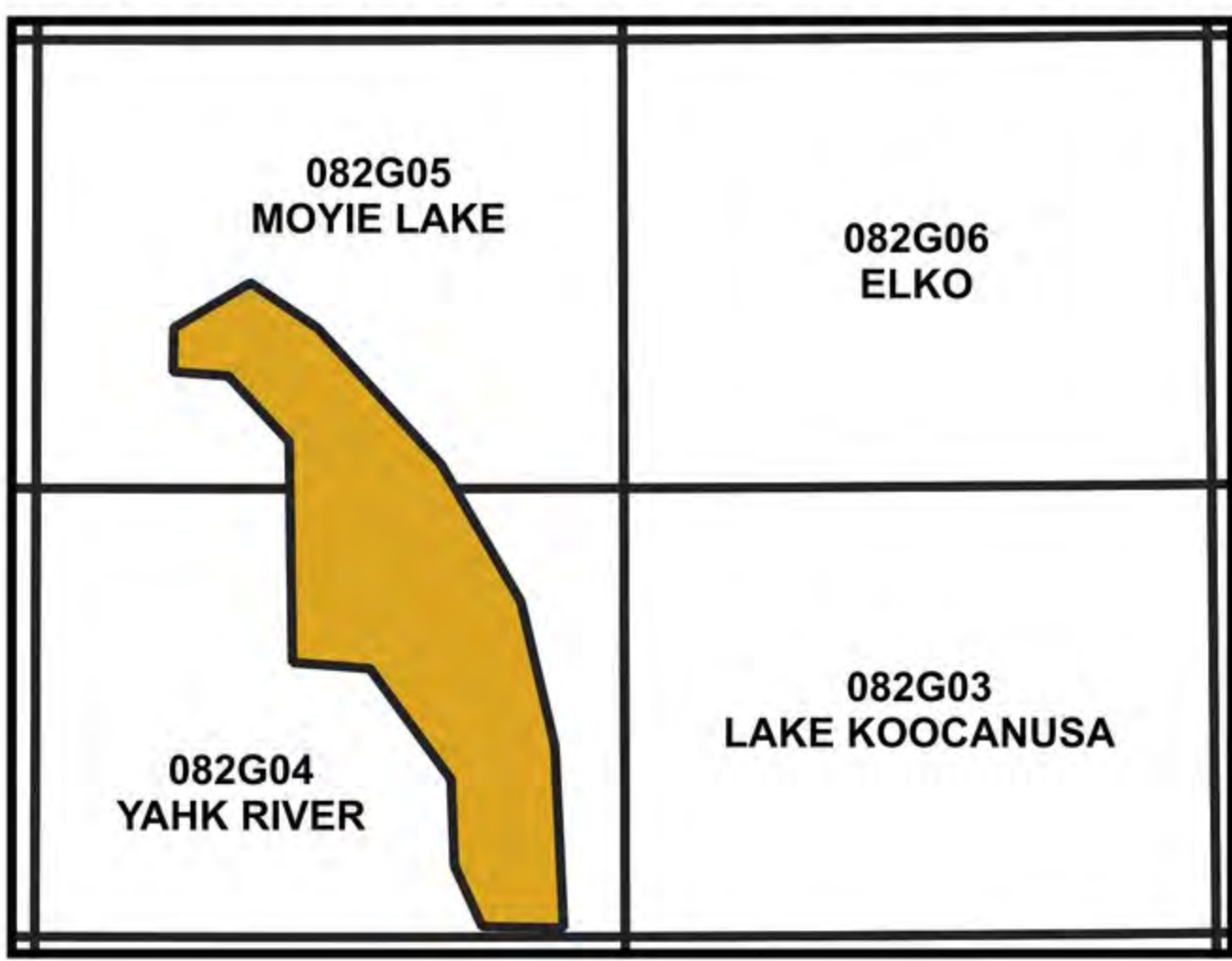
Overview Map

Actual Flight Lines

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms
1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Water Bodies.....
Elevation Contours, 50 m Interval.....
Koocanusa Survey Block Boundary.....

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada,
Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mean/vector/ntdb_bndt/>[2007]

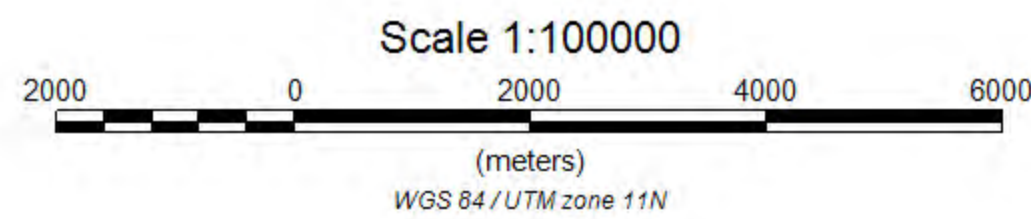
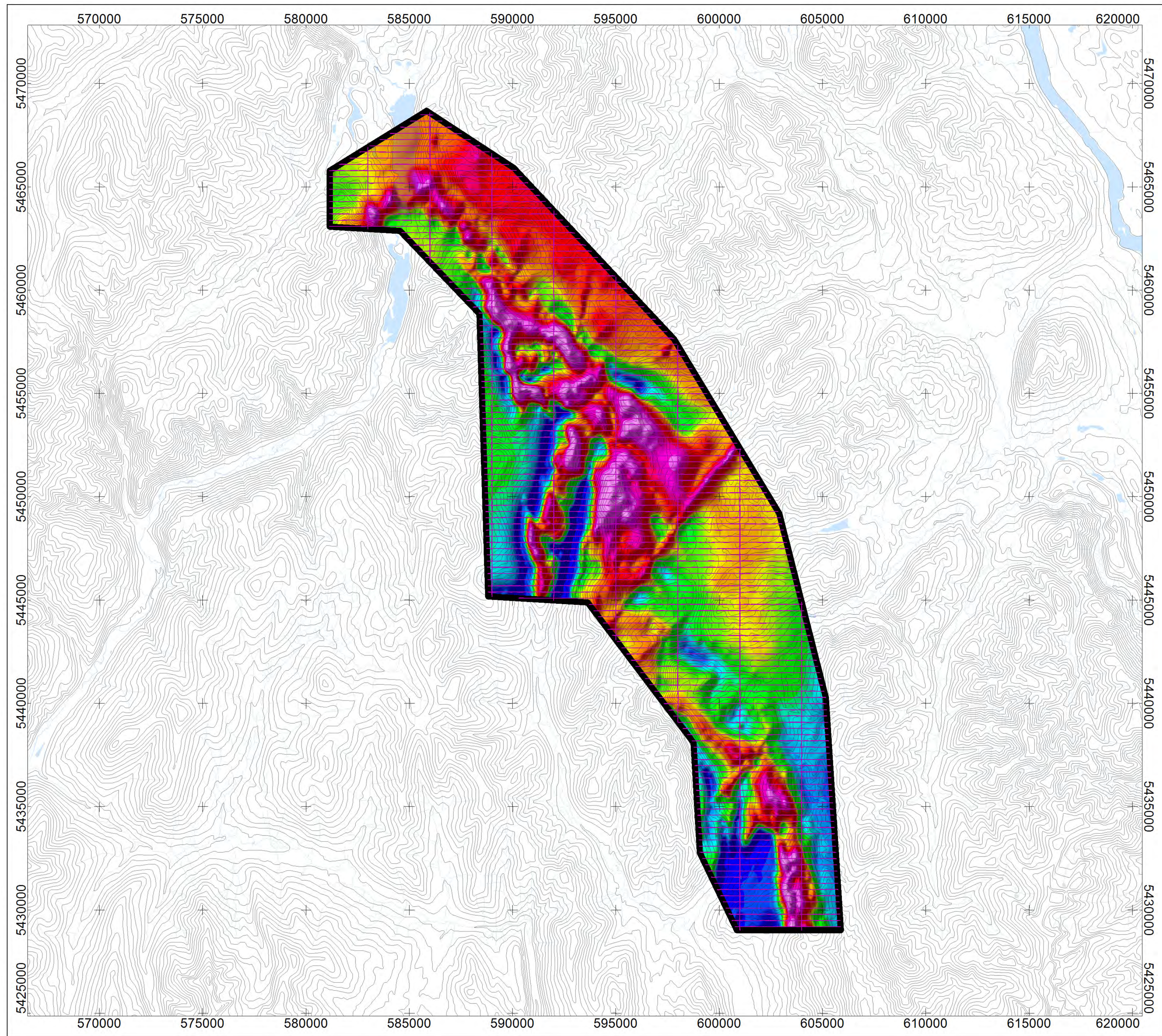
Aeonian Resources Ltd.

Koocanusa

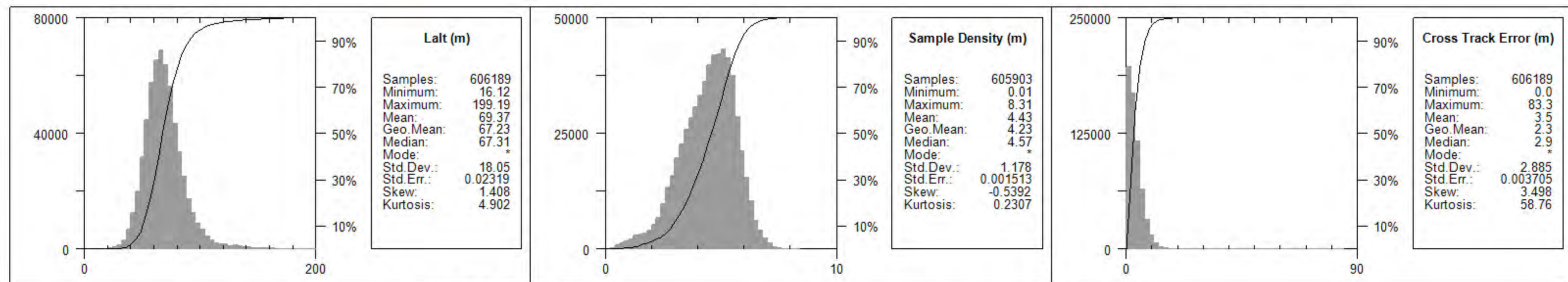
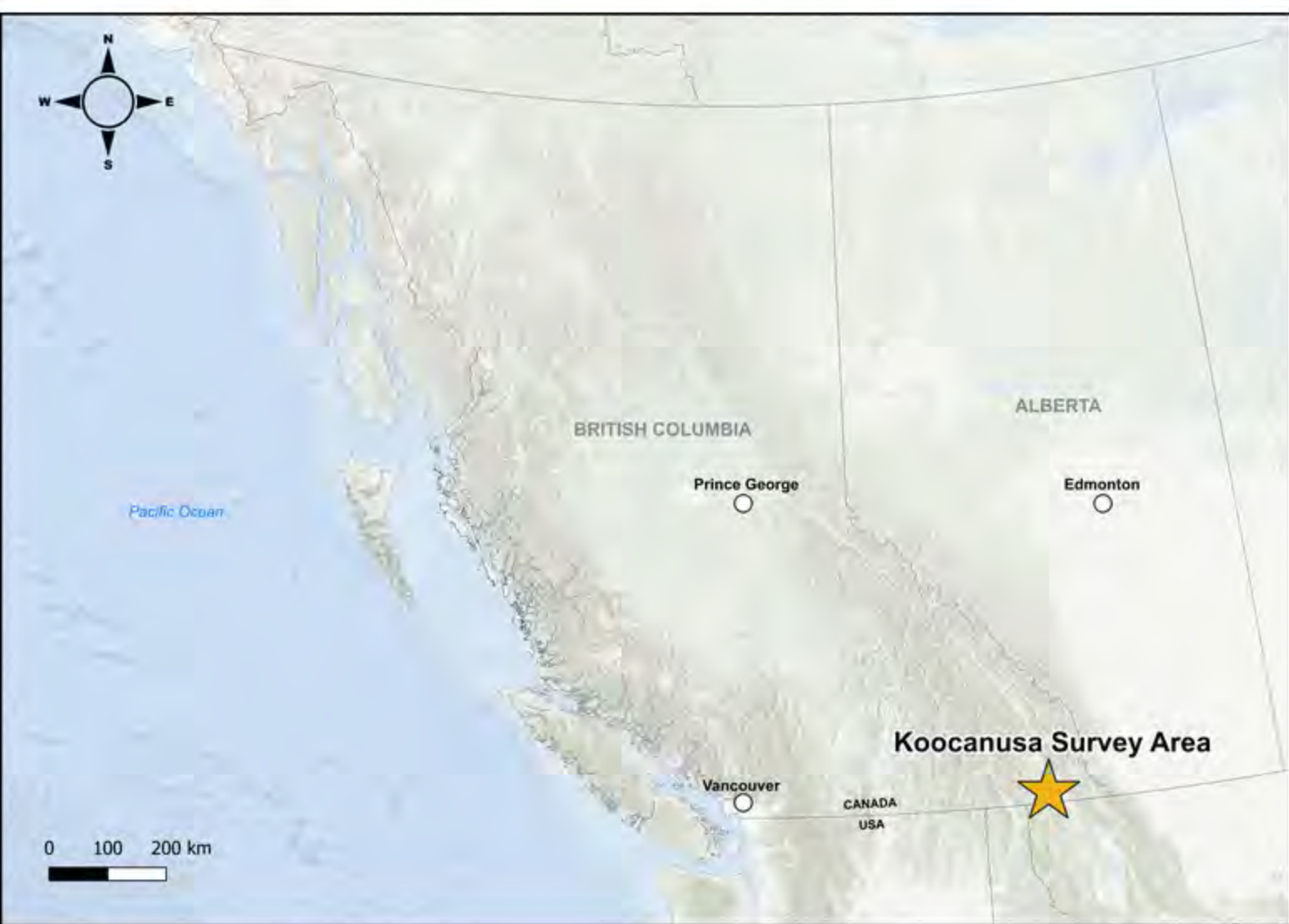
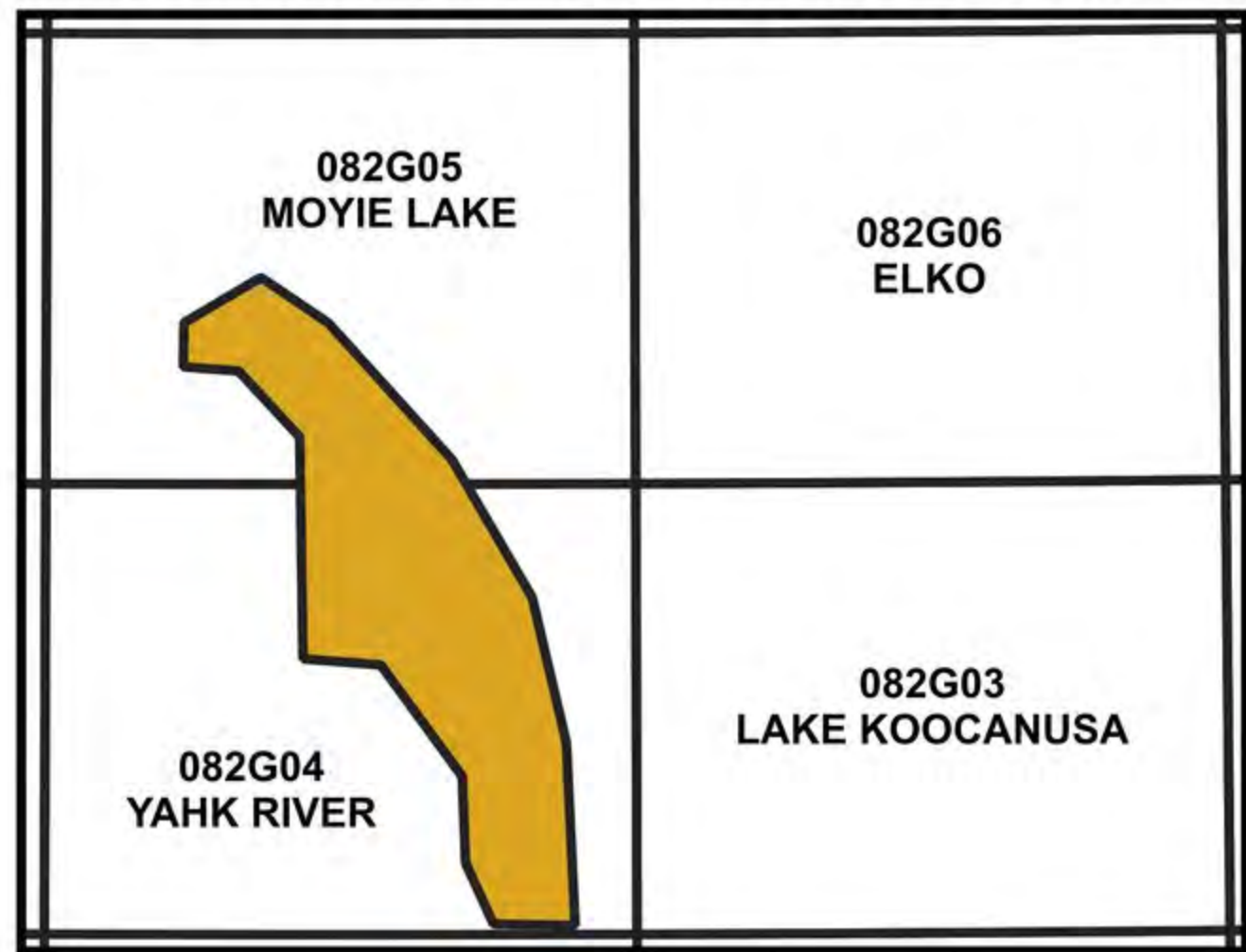
Overview Map

Digital Terrain Model

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Water Bodies.....	
Elevation Contours, 50 m Interval.....	
Koocanusa Survey Block Boundary.....	
Actual Flight Lines.....	

DATA REFERENCE

Magnetic data have been corrected for temporal variations, lag, and heading; then leveled to generate the Total Magnetic Intensity (TMI). Refer to report for details. TMI is represented as a grid at 75 m cell size and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

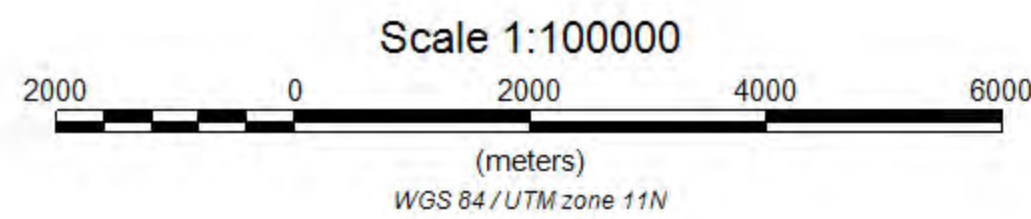
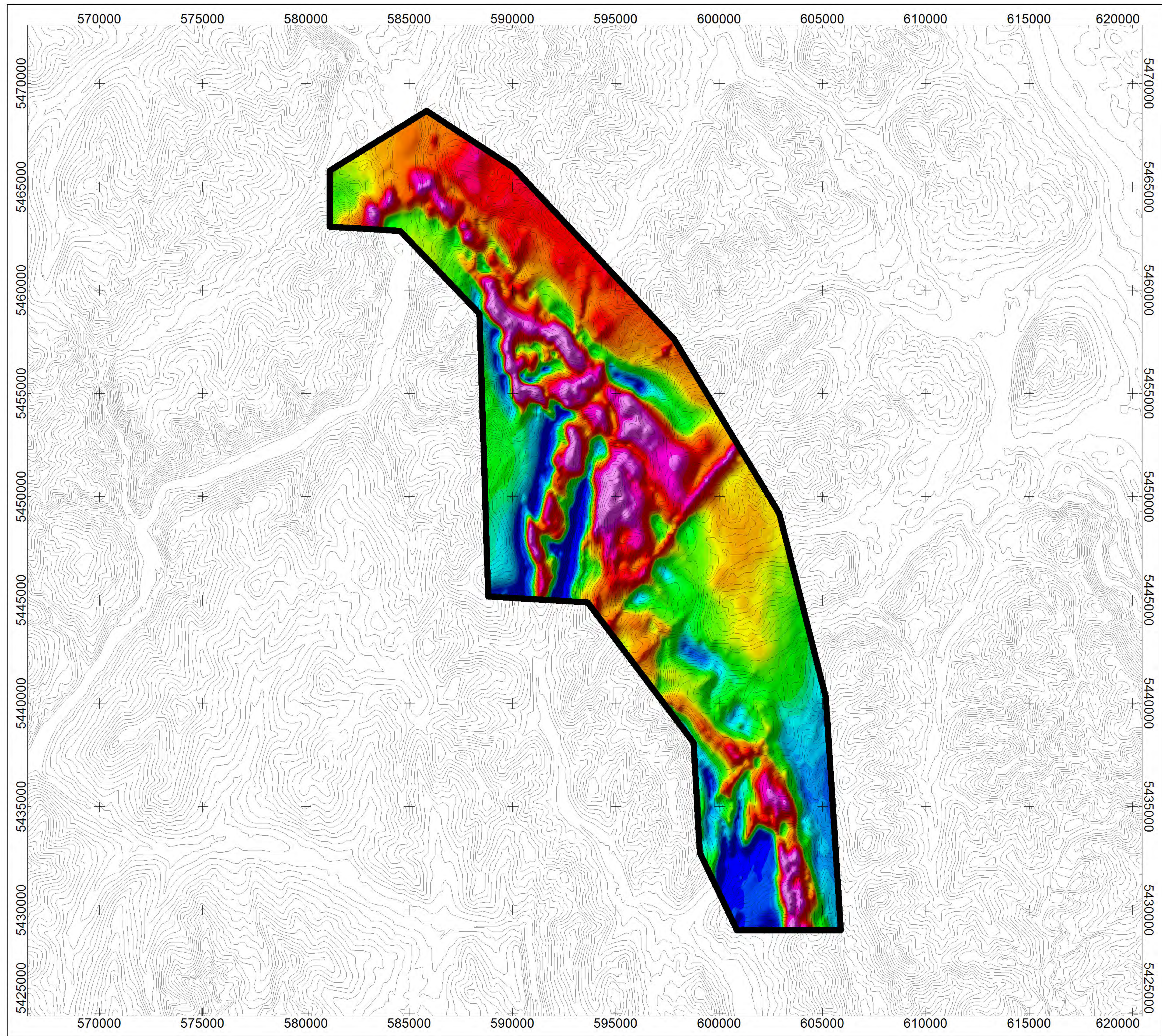
Aeonian Resources Ltd.

Koocanusa

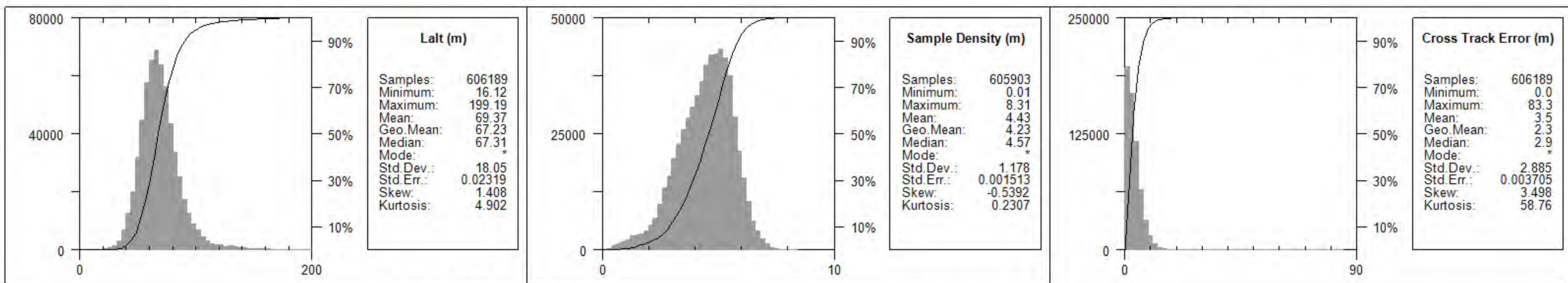
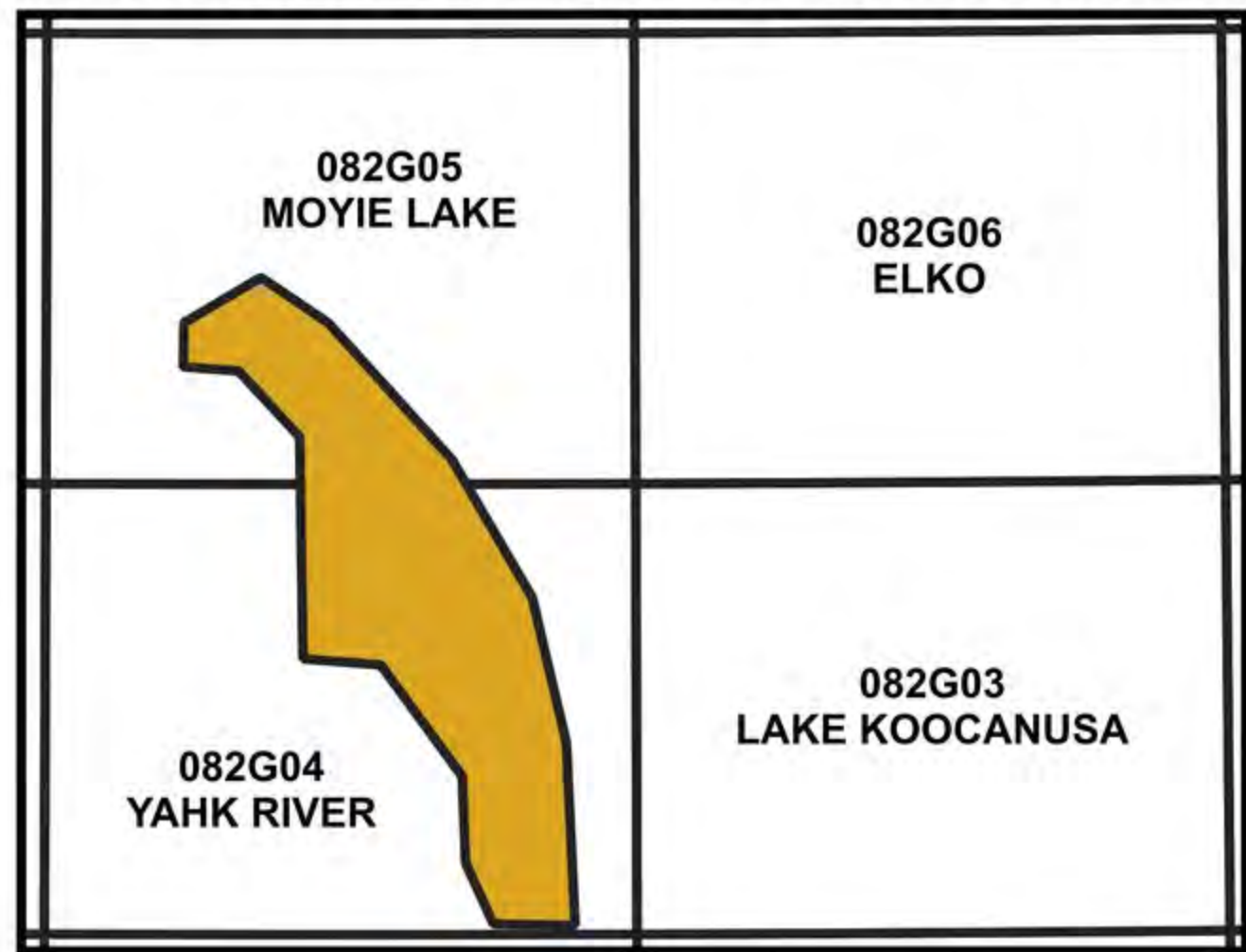
Magnetic Map

Total Magnetic Intensity with Actual Flight Lines

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....

Koocanusa Survey Block Boundary.....

DATA REFERENCE

Magnetic data have been corrected for temporal variations, lag, and heading; then leveled to generate the Total Magnetic Intensity (TMI). Refer to report for details. TMI is represented as a grid at 75 m cell size and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL: <http://ftp.geogratis.gc.ca/pub/nrcan/vector/ntdb_bndt/>[2007]

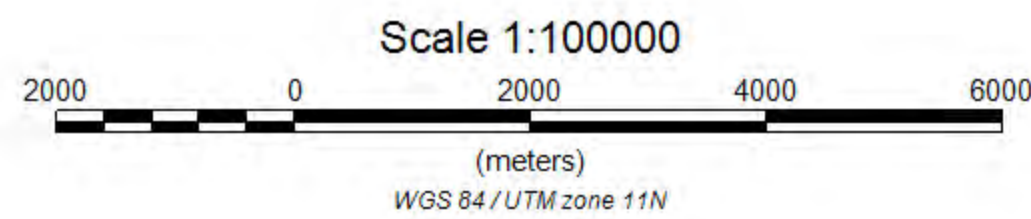
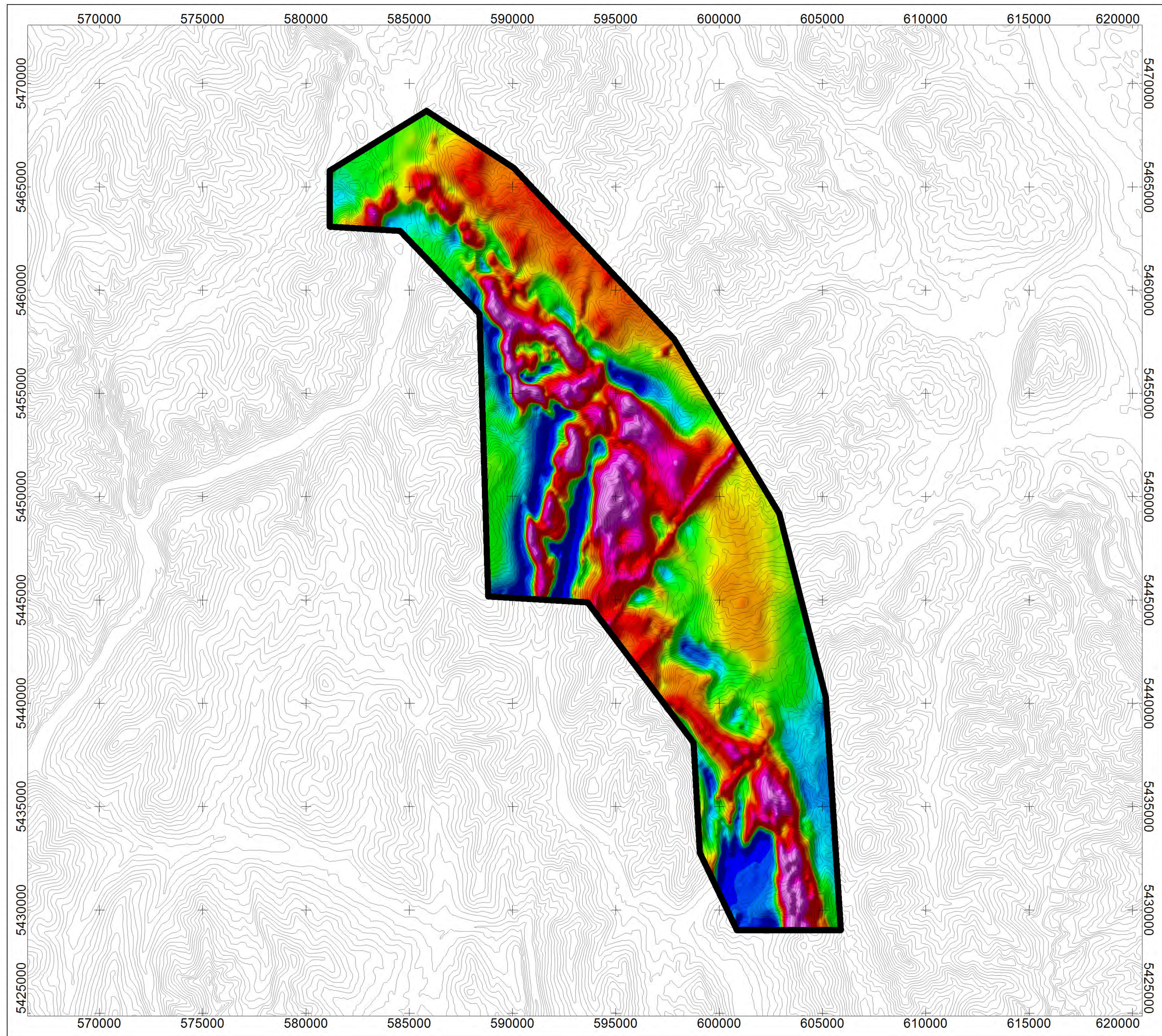
Aeonian Resources Ltd.

Koocanusa

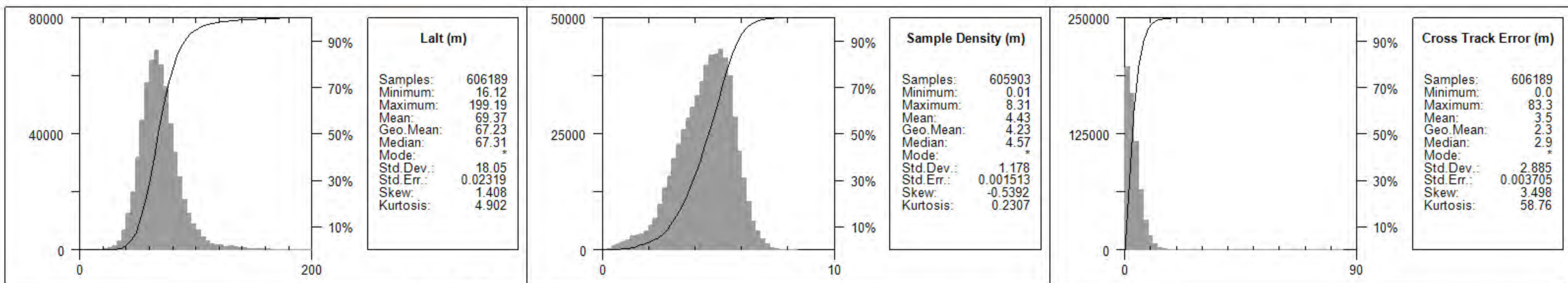
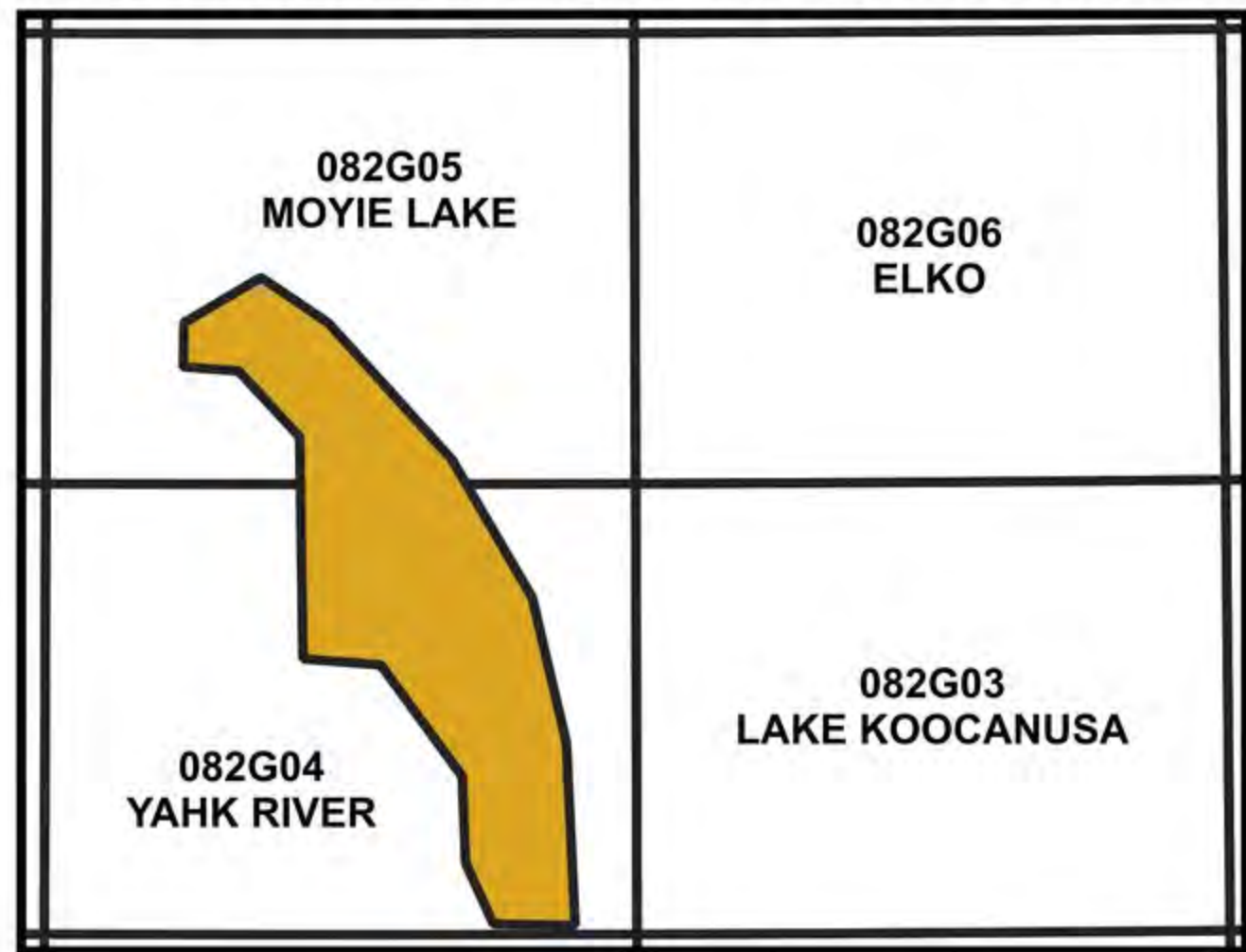
Magnetic Map

Total Magnetic Intensity

Precision
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NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms
1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....

Koocanusa Survey Block Boundary.....

DATA REFERENCE

Residual Magnetic Intensity (RMI) is computed by taking the difference between Total Magnetic Intensity (TMI) and IGRF. Refer to report for details. RMI is represented as a grid at 75 m cell size and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

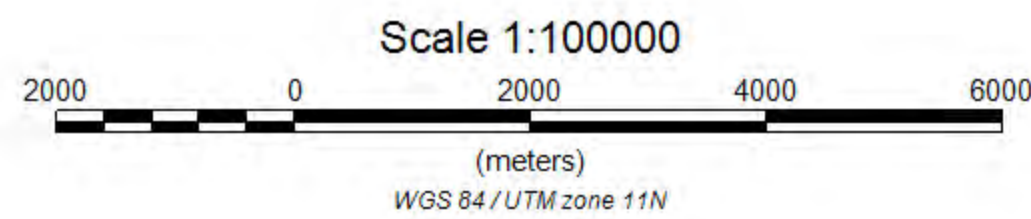
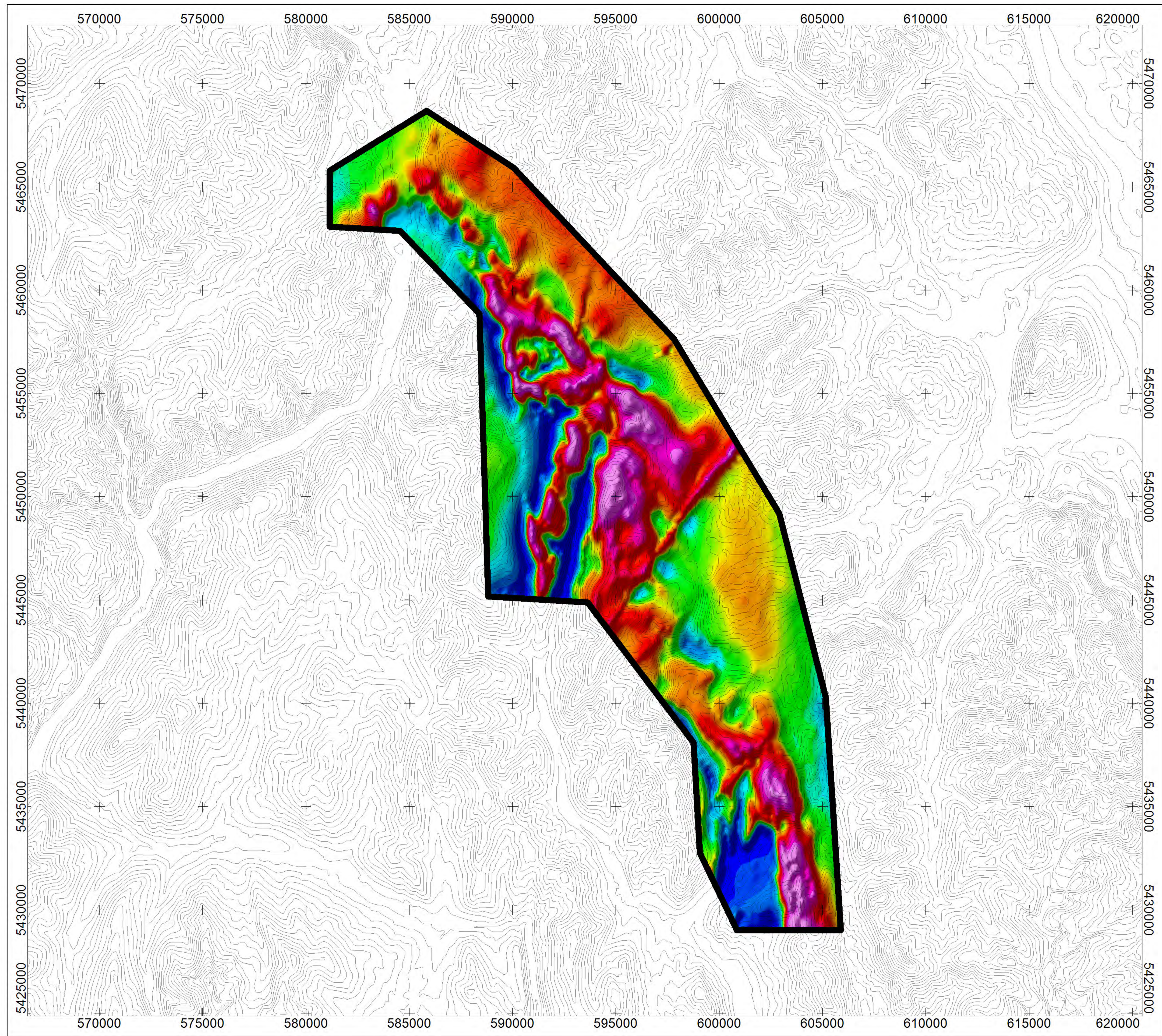
Aeonian Resources Ltd.

Koocanusa

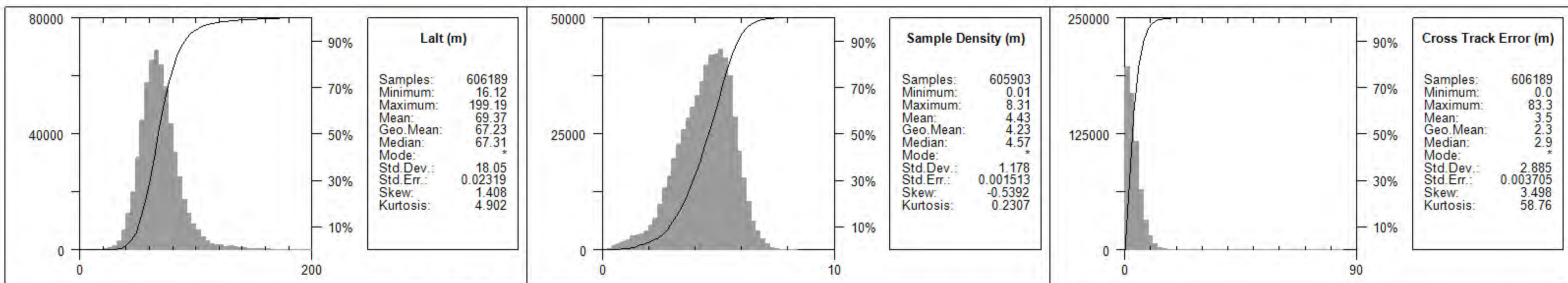
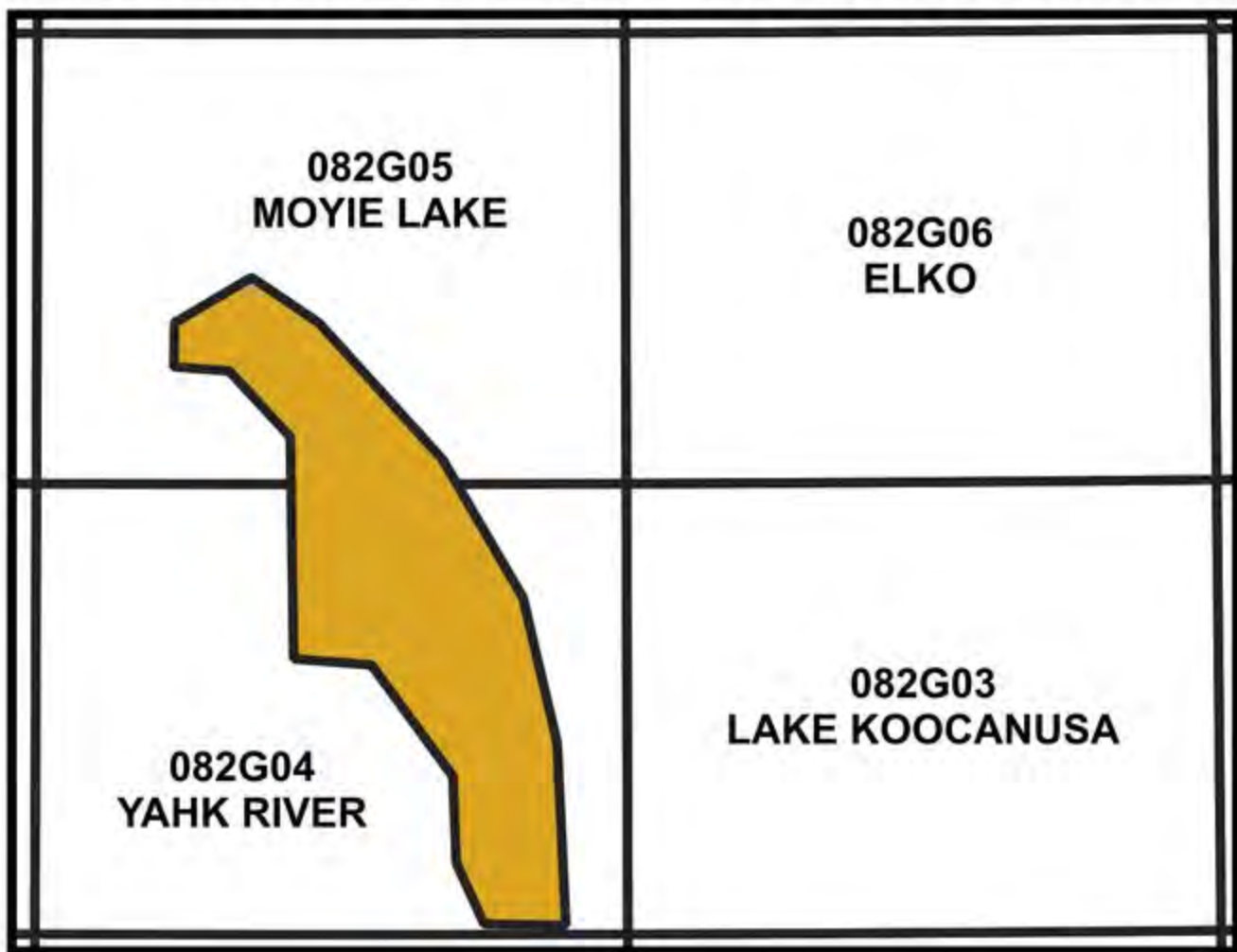
Magnetic Map

Residual Magnetic Intensity

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms
1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....
Koocanusa Survey Block Boundary.....

DATA REFERENCE

Reduced to Magnetic Pole (RTP) is computed from Residual Magnetic Intensity (RMI). Refer to report for details. RTP is represented as a grid at 75 m cell size and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mean/vector/ntdb_bnd/>[2007]

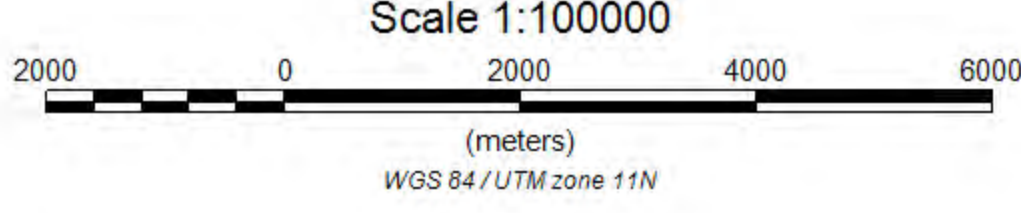
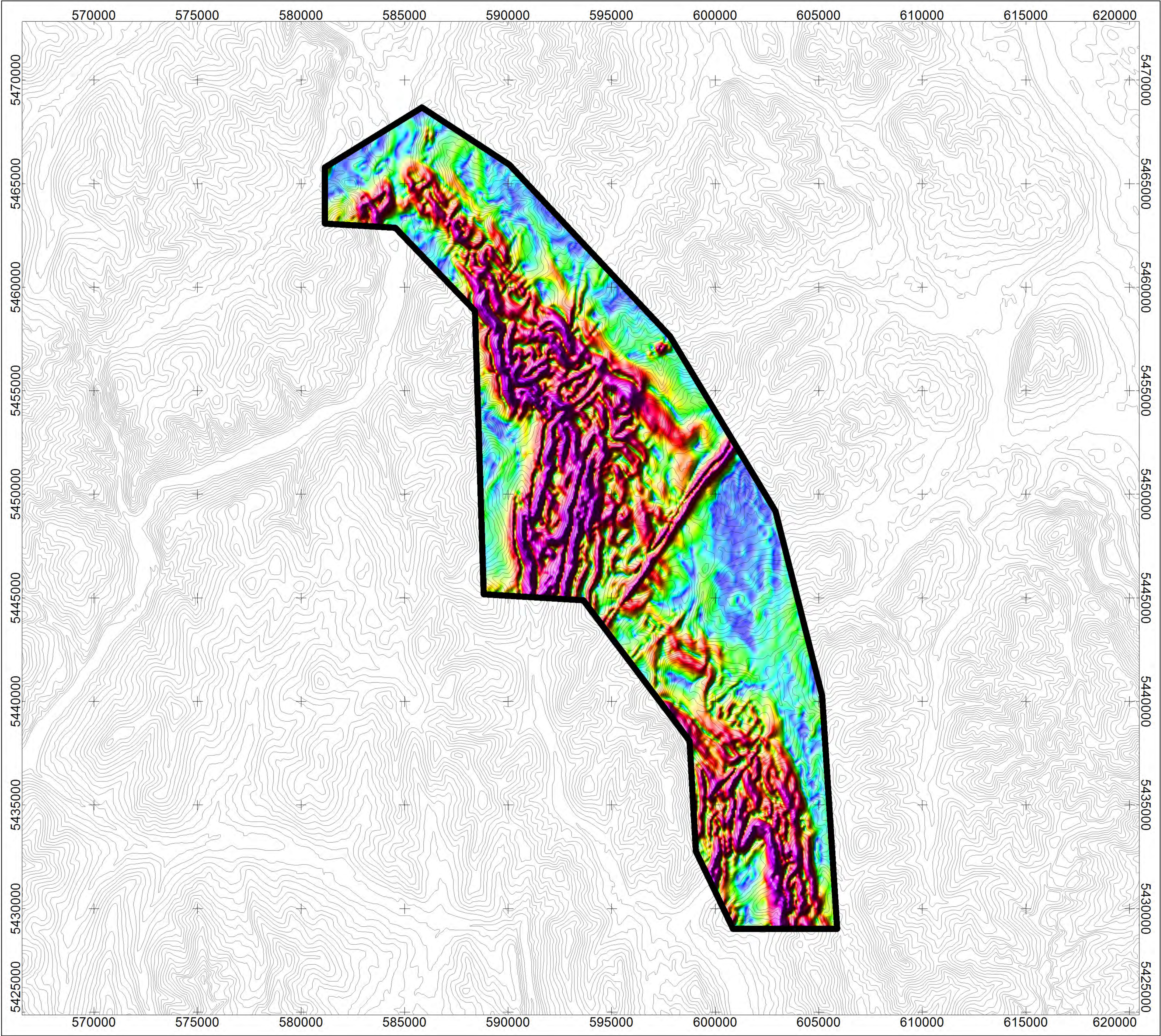
Aeonian Resources Ltd.

Koocanusa

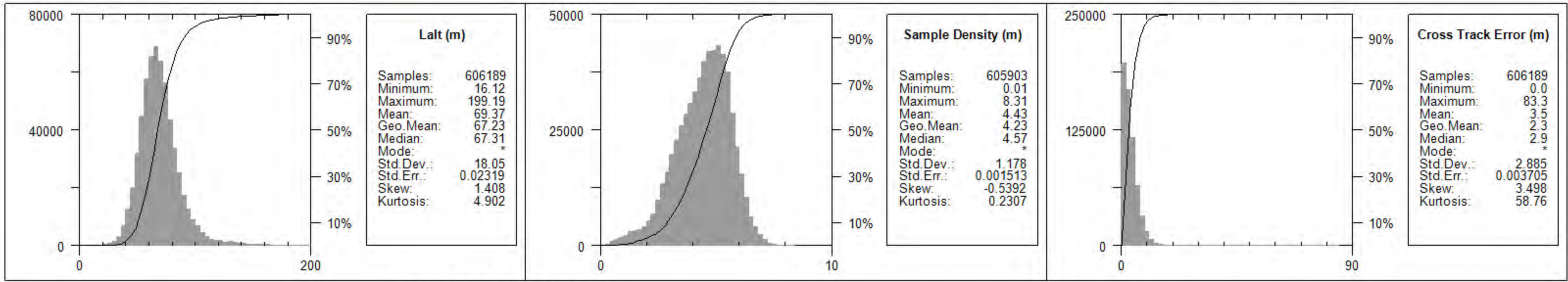
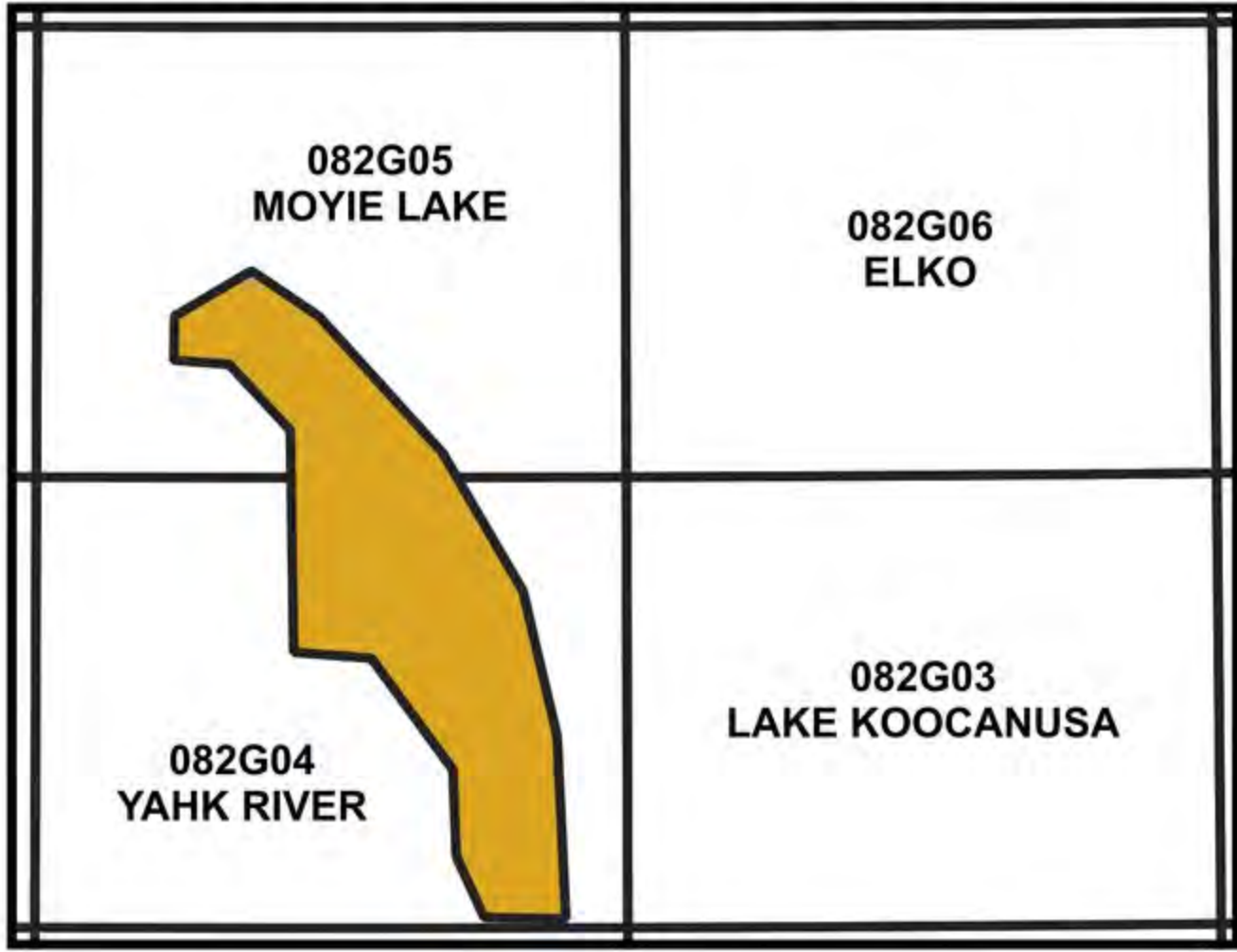
Magnetic Map

Reduced to Magnetic Pole

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....
Koocanusa Survey Block Boundary.....

DATA REFERENCE
Calculated Horizontal Gradient (CHG) is the magnitude of the horizontal components of Residual Magnetic Intensity (RMI). Refer to report for details. CHG is represented as a grid at 75 m cell size and drawn with a histogram-equalized wet-look colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

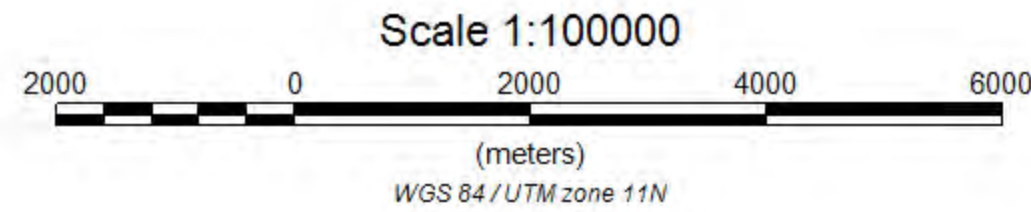
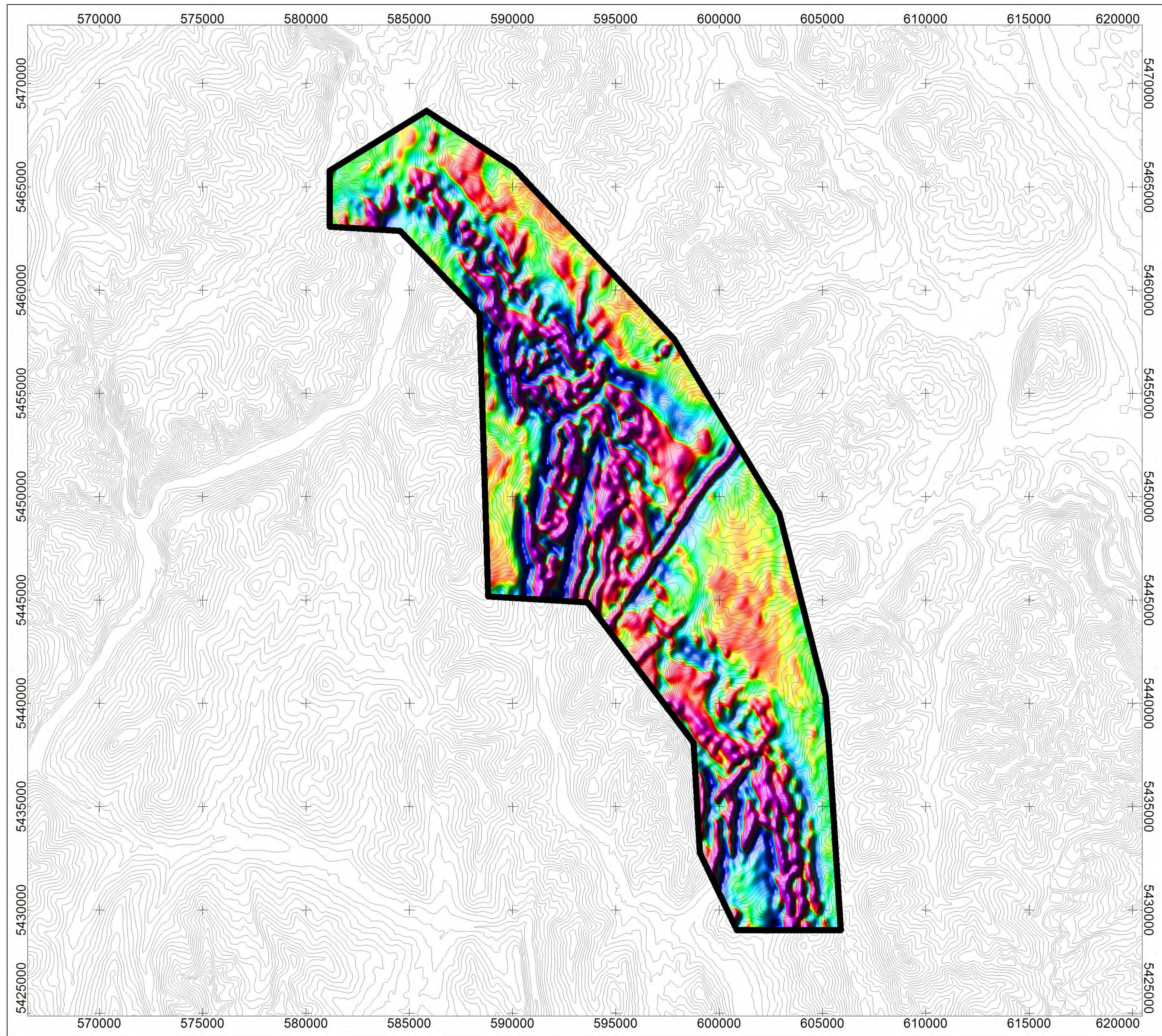
Aeonian Resources Ltd.

Koocanusa

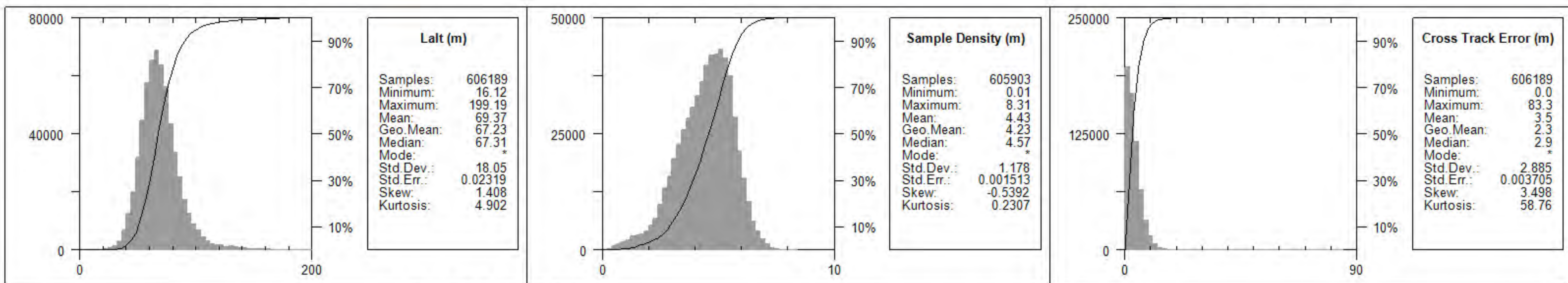
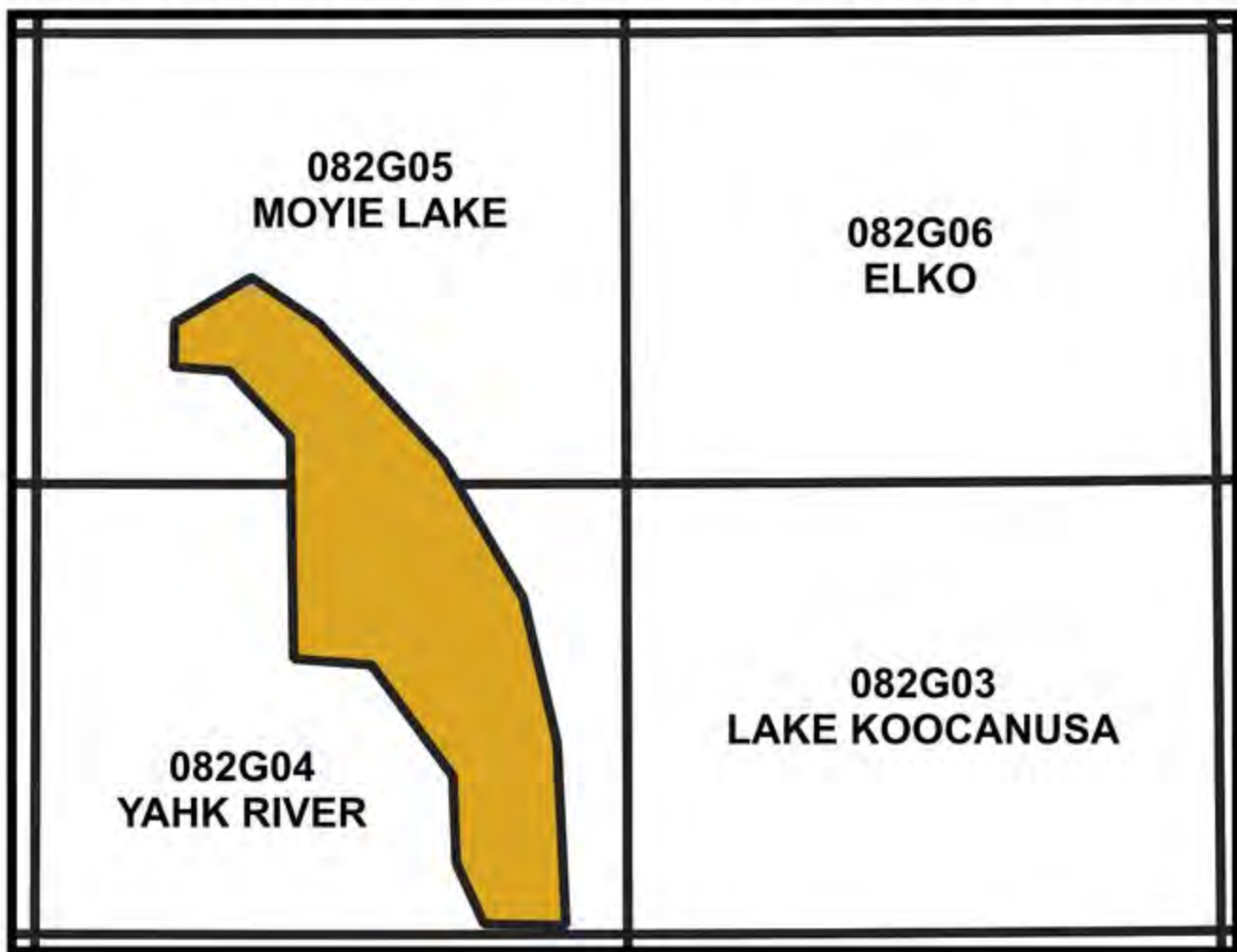
Magnetic Map

Calculated Horizontal Gradient

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....

Kooacanusa Survey Block Boundary.....

DATA REFERENCE

Calculated Vertical Gradient (CVG) is the first order vertical component of Residual Magnetic Intensity (RMI). Refer to report for details. CVG is represented as a grid at 75 m cell size and drawn with a histogram-equalized wet-look colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL: <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

CVG
(nT/m)

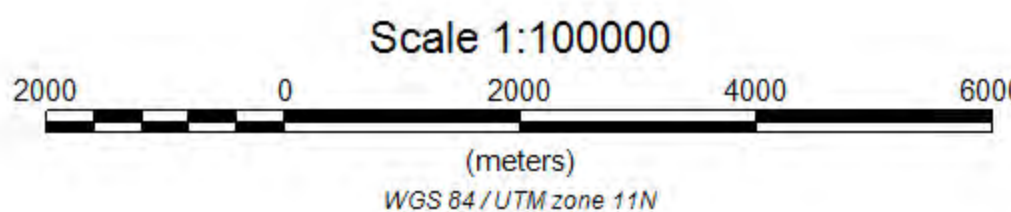
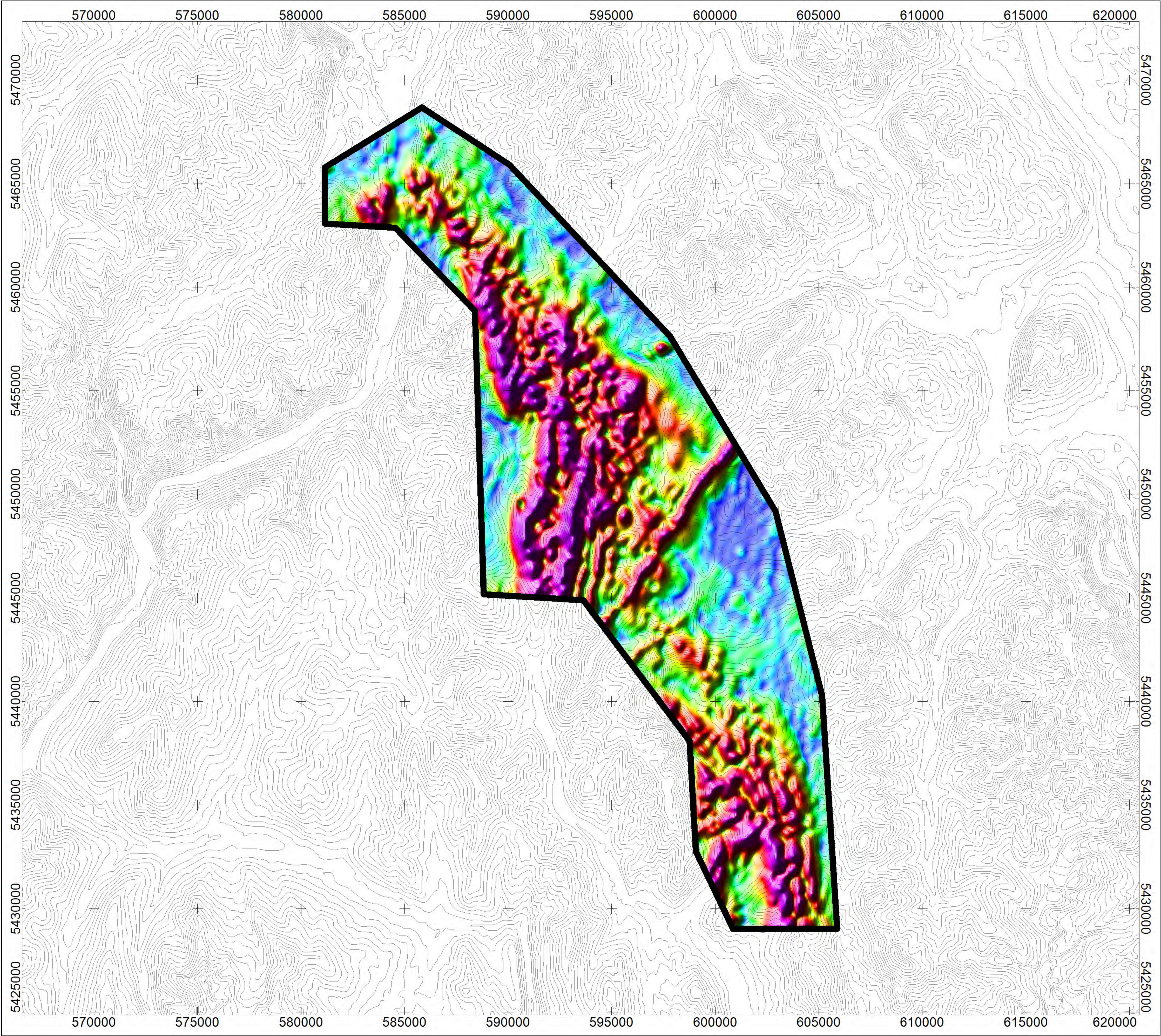
Aeonian Resources Ltd.

Kooacanusa

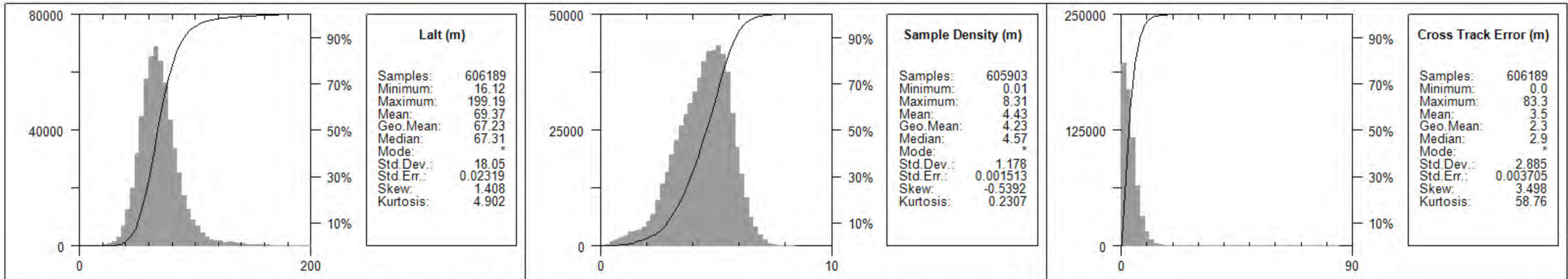
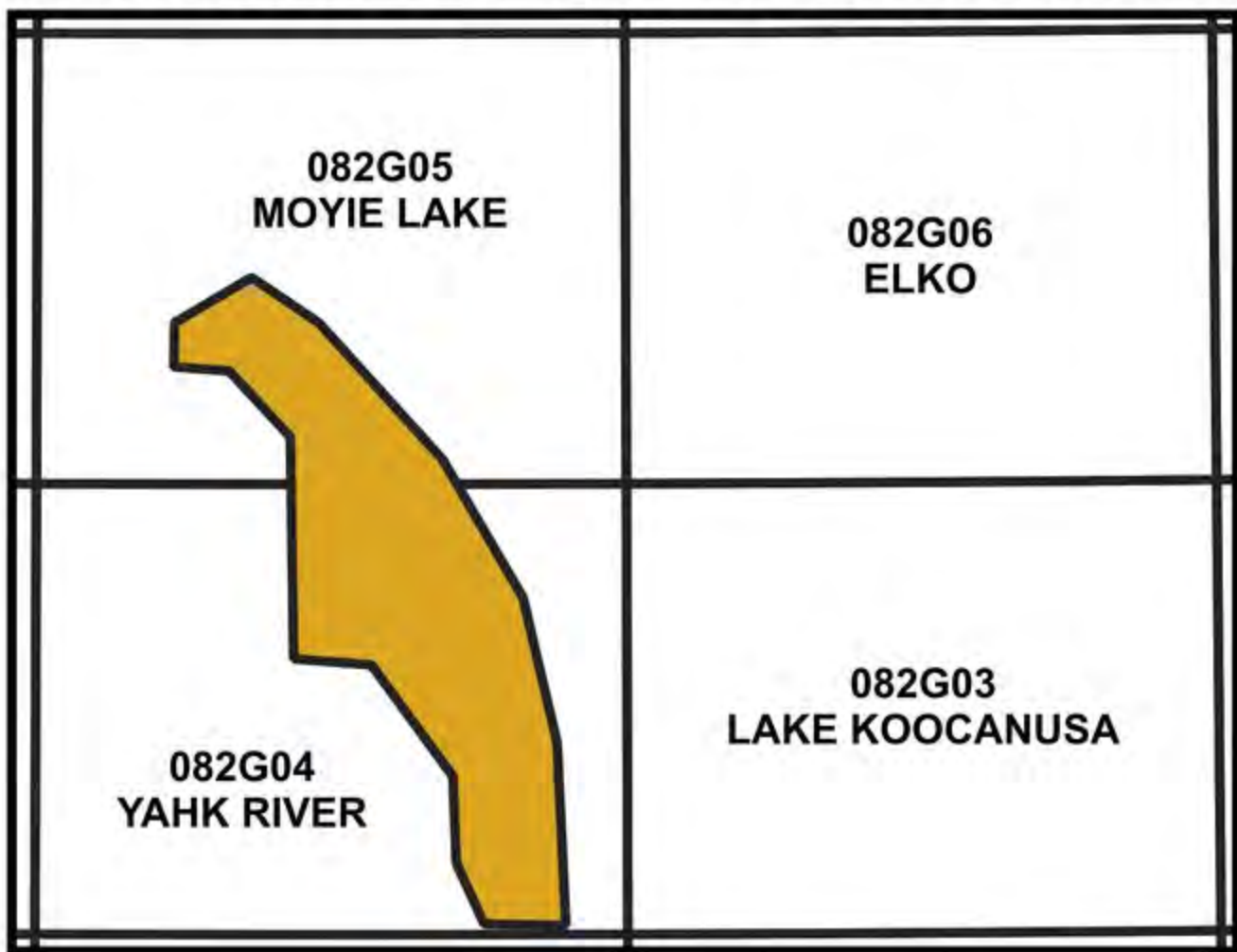
Magnetic Map

Calculated Vertical Gradient

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Slung EM bird
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

1TEM:	Precision 1TEM transmitter and receiver
Sample Rate:	1 Hz

Legend

Elevation Contours, 50 m Interval.....

Koocanusa Survey Block Boundary.....

DATA REFERENCE

Analytic signal (AS) is the square root of the sum of the squares of the calculated vertical and horizontal gradients. Refer to report for details. AS is represented as a grid at 75 m cell size and drawn with a linear wet-look colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mean/vector/ntdb_bndt/>[2007]

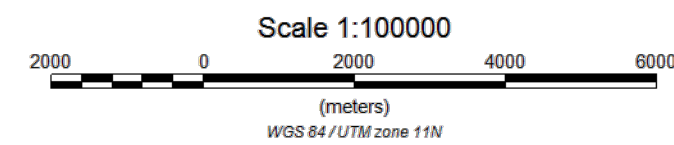
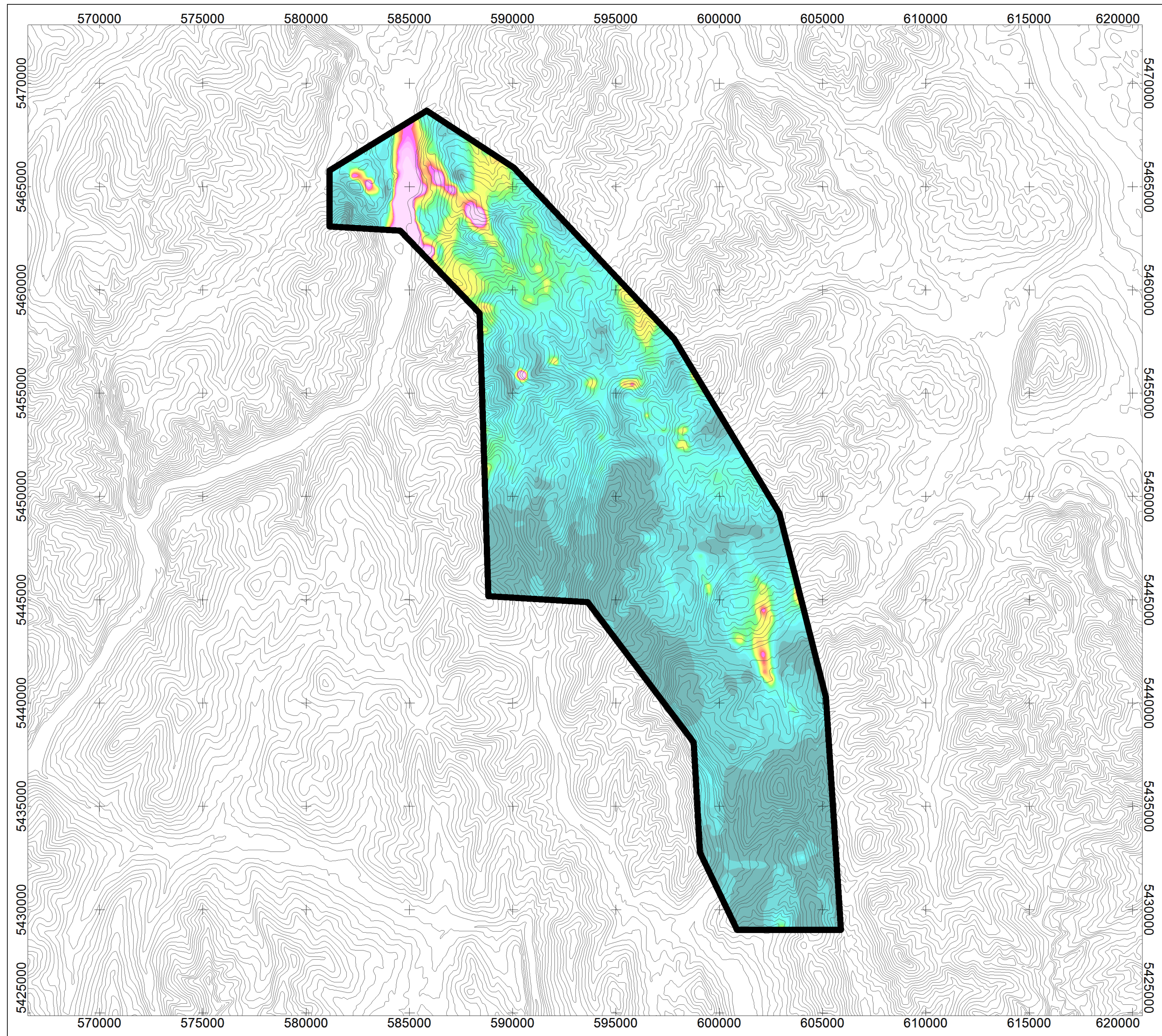
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Koocanusa

Magnetic Map

Analytic Signal

Precision
GeoSurveys



NATIONAL TOPOGRAPHIC SYSTEM

082G05 MOYIE LAKE
082G06 ELKO
082G04 YAHK RIVER
082G03 LAKE KOOCANUSA

Left (m)	Sample Density (m)	Cross Track Error (m)
Samples: 606189	Samples: 606189	Samples: 606189
Minimum: 16.12	Minimum: 0.0	Minimum: 0.0
Maximum: 199.19	Maximum: 8.31	Maximum: 83.3
Mean: 67.23	Mean: 4.23	Mean: 3.5
Median: 67.51	Median: 4.23	Median: 2.3
Mode: 18.05	Mode: 1.178	Mode: 2.885
Std Dev: 0.02519	Std Dev: 0.001513	Std Dev: 0.003705
Skew: 1.488	Skew: -0.2382	Skew: 3.488
Kurtosis: 4.302	Kurtosis: 0.2307	Kurtosis: 58.76

MAP PROJECTION
Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS
Survey Technology: 1TEM and magnetic survey
Survey Dates: May 22 to May 26, 2025
Survey Base: Cranbrook, BC
Aircraft Type: Airbus AS350 helicopter
Registration: C-GSVY
Total Line km: 1343 km
Mean Survey Height: 69.4 meters
Survey Line Spacing: 300 meters
Survey Line Direction: 090°/270°
Tie Line Spacing: 3000 meters
Tie Line Direction: 000°/180°

AIRBORNE SURVEY SYSTEM
HTEM: Precision GeoSurveys 1TEM transmitter and receiver
Configuration: Concentric loops towed 30 m below helicopter

1TEM Receiver: 1TEM Transmitter
Component: Z-axis Base Frequency: 30 Hz
Sampling: Full waveform Duty Cycle: 25%
Sample Rate: 396 kHz Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
ADC: 24 bit Peak Current: 340 amps
Peak Dipole Moment: 120,000 N/A

Magnetometer Sensor: PGmag Total-Field Magnetometer
Configuration: Mounted on 1TEM airframe
Sample Rate: 10 Hz
Sensitivity: 0.003 nT/√Hz rms

Legend

Elevation Contours, 50 m Interval:.....

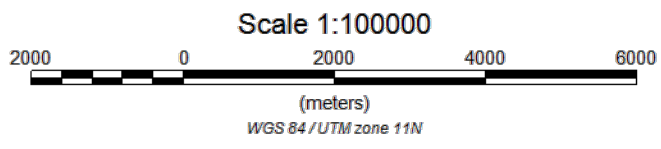
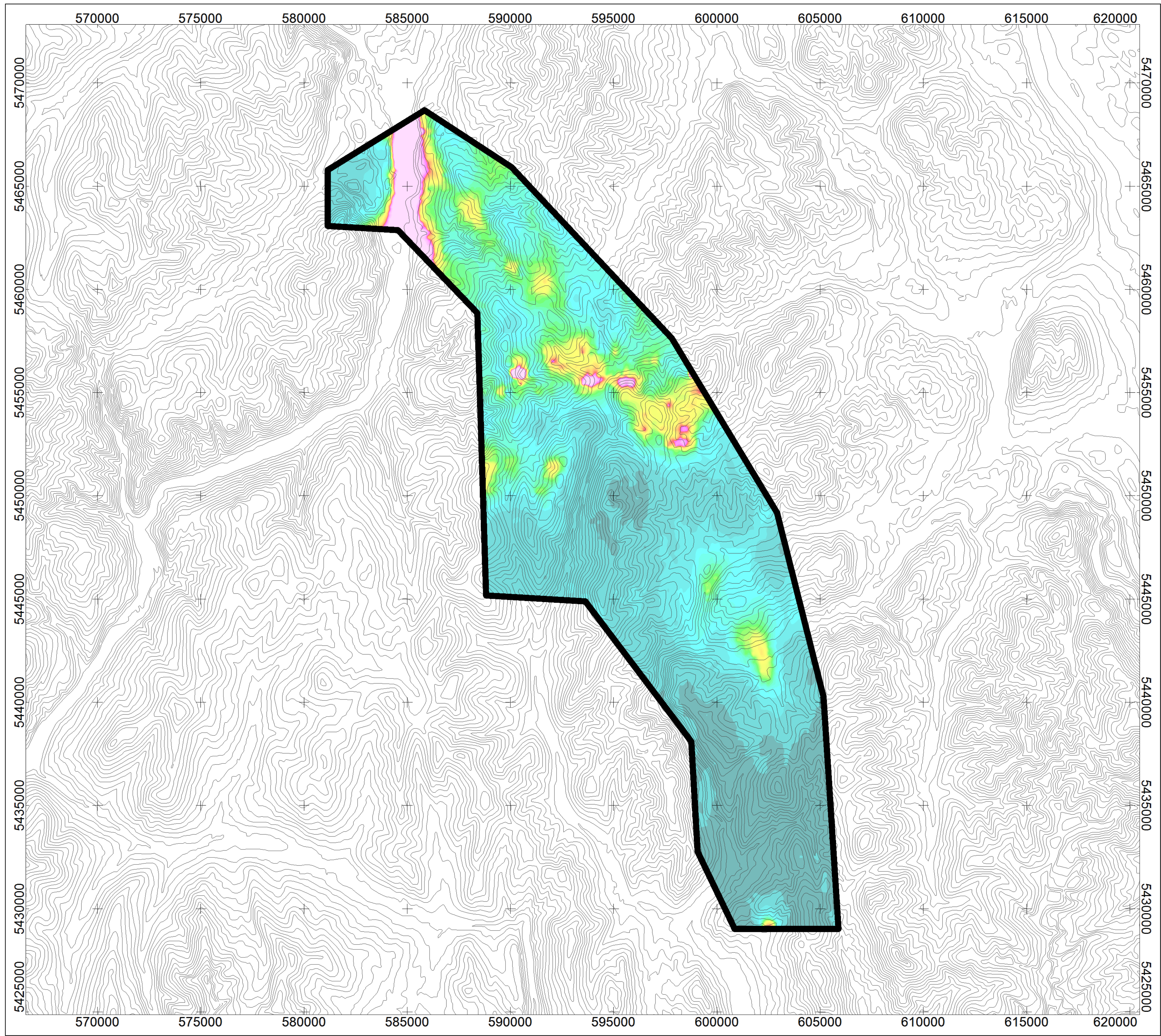
Koocanusa Survey Block Boundary:.....

DATA REFERENCE
1TEM channel 05 centered at 0.0657 milliseconds after transmitter turn off. Refer to report for details. 1TEM time channel 05 is represented as a grid at 75 m cell size and drawn with a normal colour scale from 460.0 to 1600.0 µV.

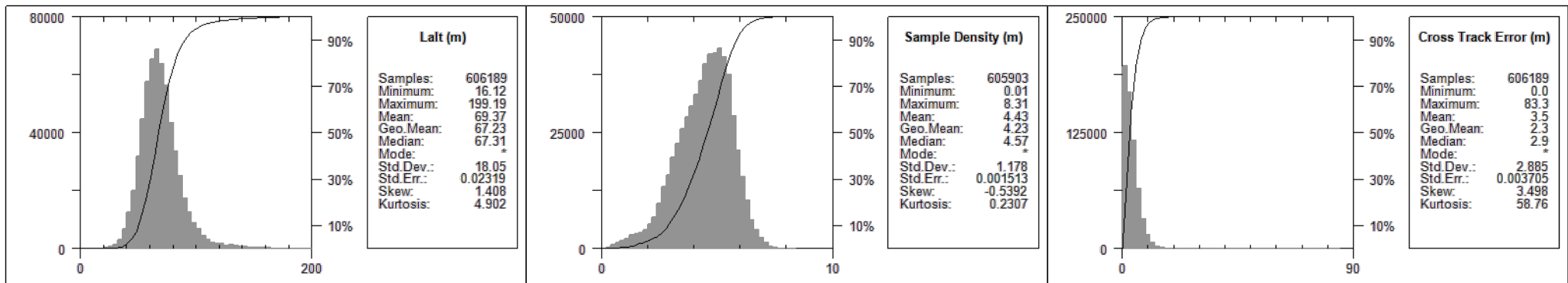
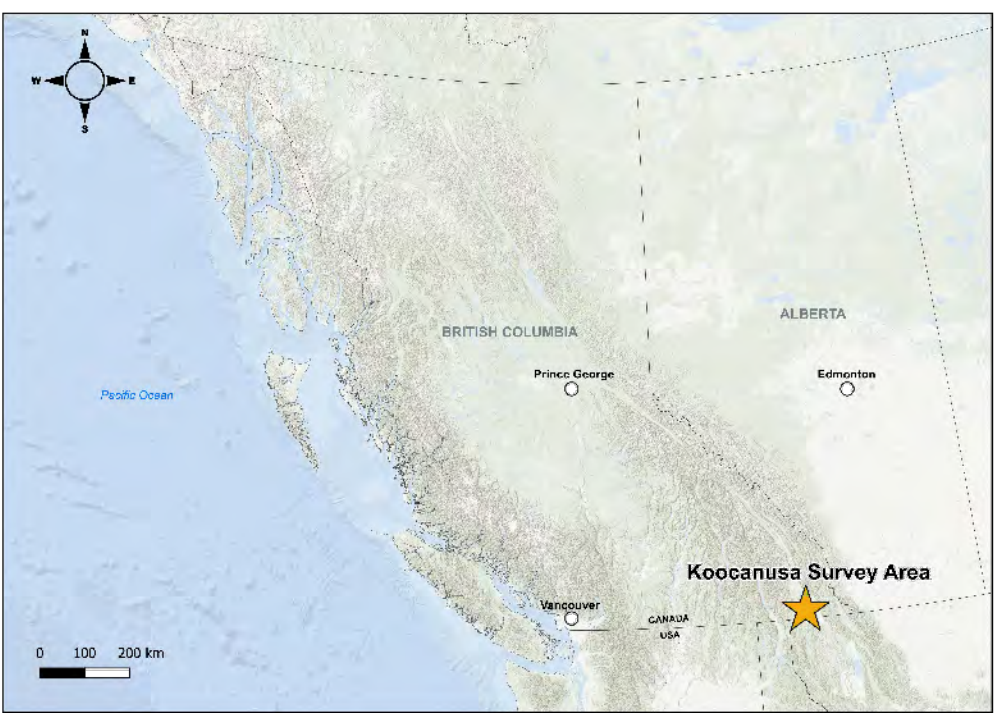
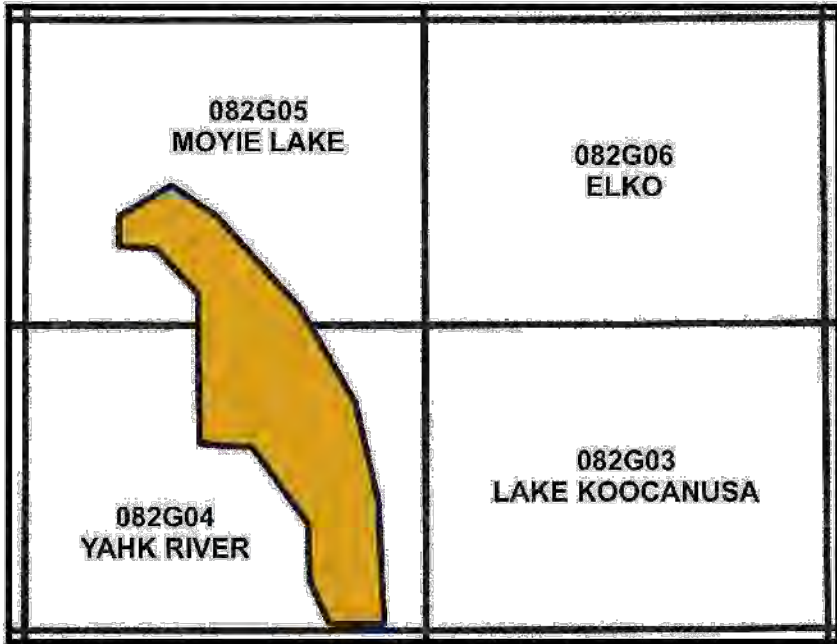
TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan/mcan/vector/ntdb_bndt/>[2007]

Aeonian Resources Ltd.
Koocanusa
1TEM Electromagnetic Map
1TEM Channel 05 - 0.0657 ms





NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology: Magnetic and 1TEM survey
Survey Dates: May 22 to May 26, 2025
Survey Base: Cranbrook, BC
Aircraft Type: Airbus AS350 helicopter
Registration: C-GSVY
Total Line km: 1343 km
Mean Survey Height: 69.4 meters
Survey Line Spacing: 300 meters
Survey Line Direction: 090°/270°
Tie Line Spacing: 3000 meters
Tie Line Direction: 000°/180°

AIRBORNE SURVEY SYSTEM

HTEM:
Configuration: Precision GeoSurveys 1TEM transmitter and receiver
Concentric loops towed 30 m below helicopter
1TEM Receiver:
Component: Z-axis
Sampling: Full waveform
Sample Rate: 396 kHz
ADC: 24 bit
1TEM Transmitter
Base Frequency: 30 Hz
Duty Cycle: 25%
Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
Peak Current: 340 amps
Peak Dipole Moment: 120,000 NIA

Magnetometer Sensor:
Configuration: PGmag Total-Field Magnetometer
Sample Rate: Mounted on 1TEM airframe
Sensitivity: 10 Hz
0.003 nT/nHz rms

Legend

Elevation Contours, 50 m Interval.....
Koocanusa Survey Block Boundary.....

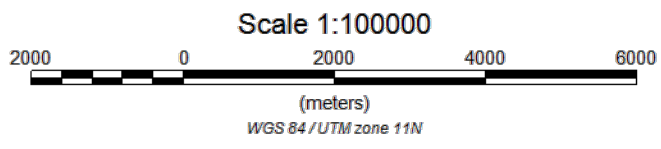
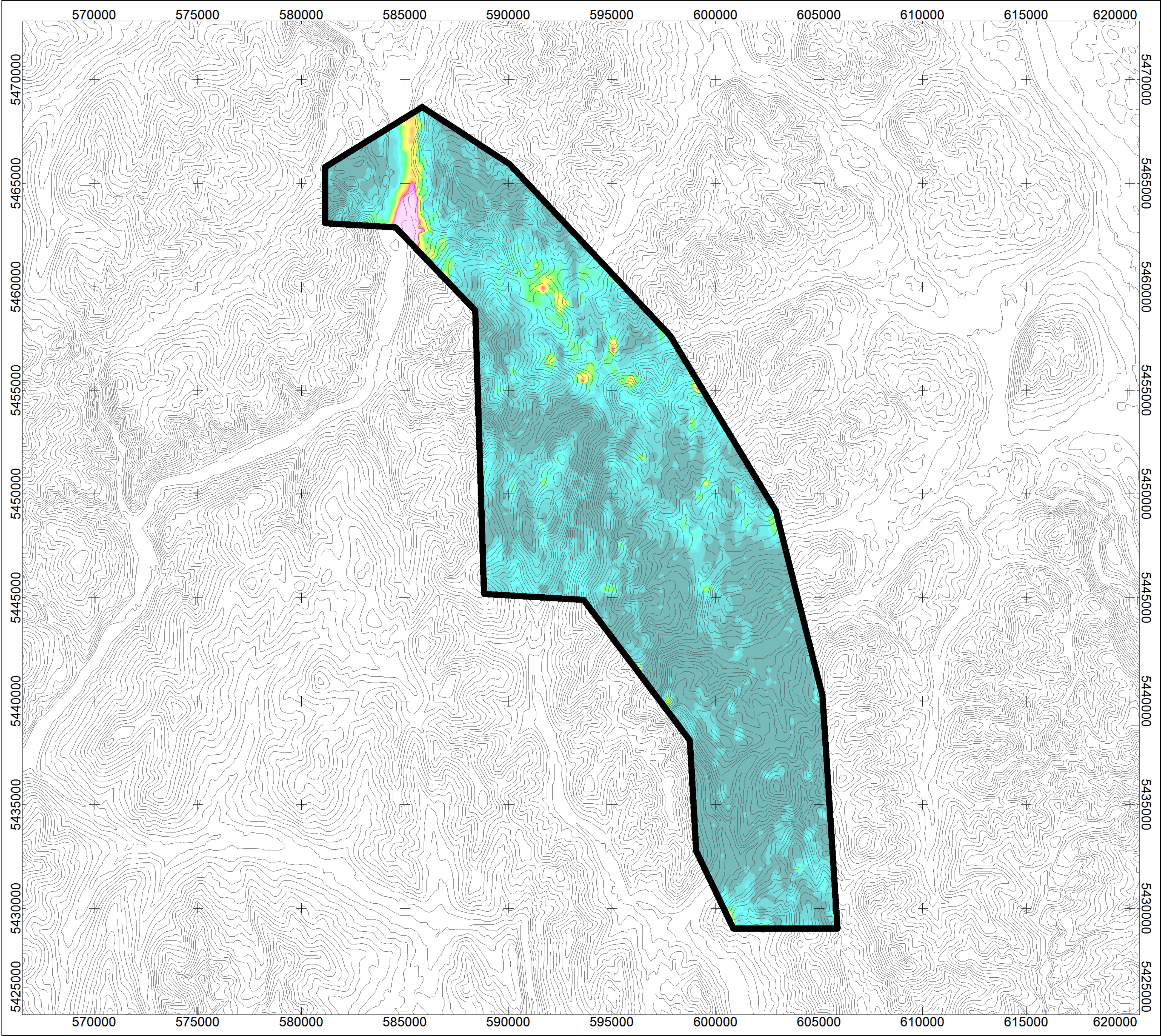
DATA REFERENCE
1TEM channel 9 centered at 0.343 milliseconds after transmitter turn off. Refer to report for details. 1TEM time channel 9 is represented as a grid at 75 m cell size and drawn with a normal colour scale from 2.5 to 42.0 µV.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL: <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bnd/t/>[2007]

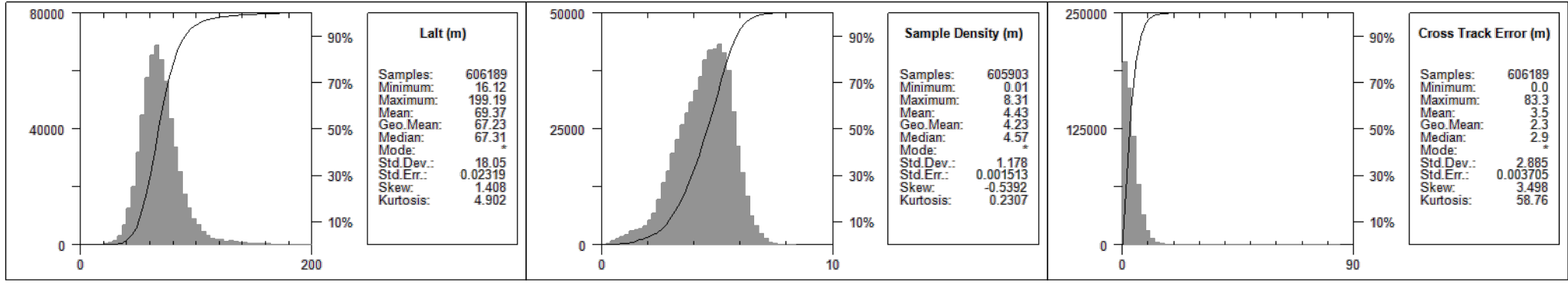
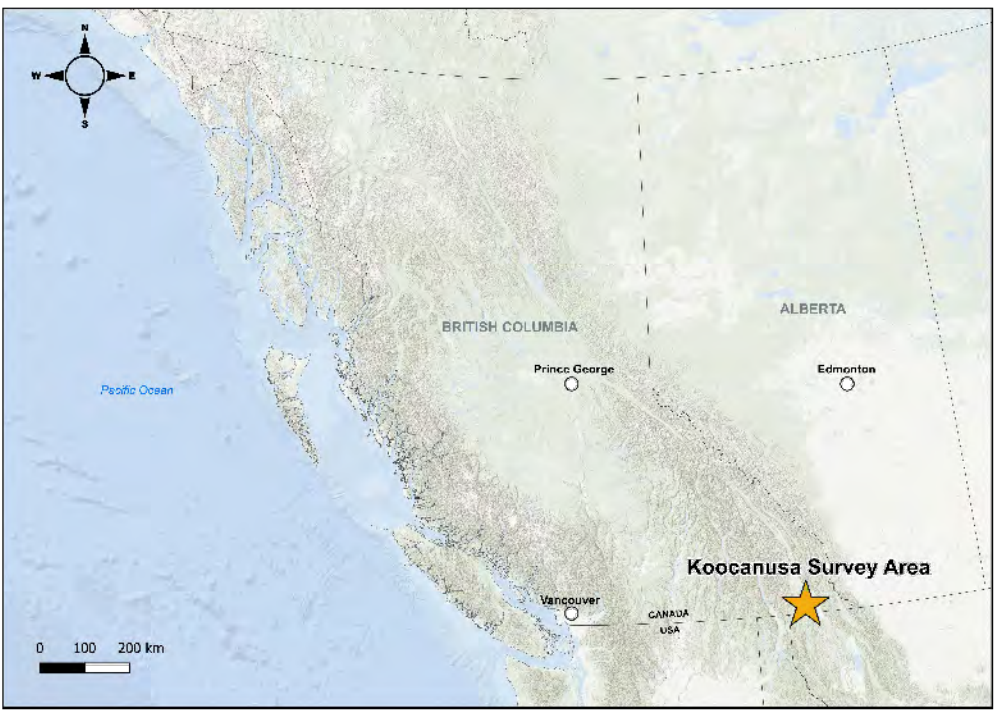
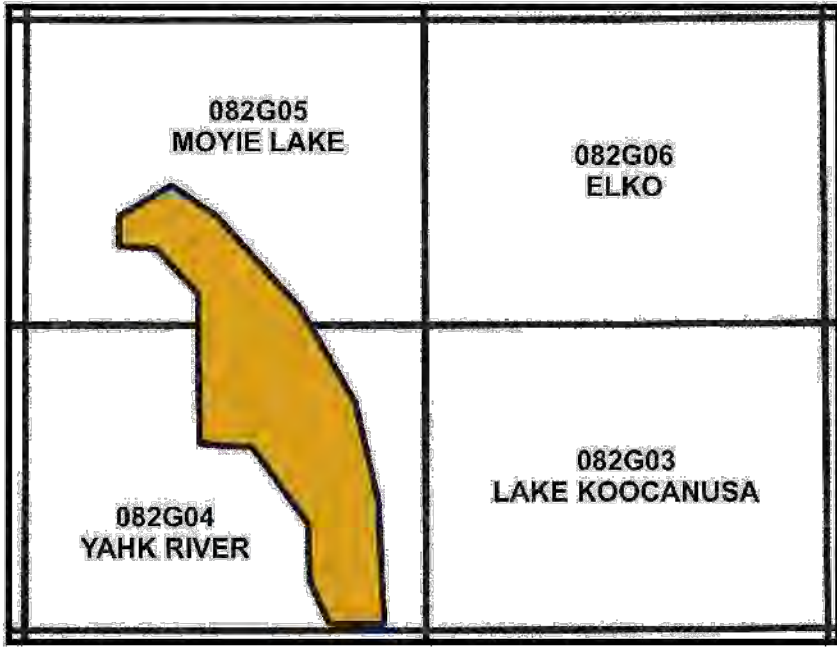
Z-Axis Off-Time dB/dt
(µV)

Aeonian Resources Ltd.
Koocanusa
1TEM Electromagnetic Map
1TEM Channel 09 - 0.343 ms

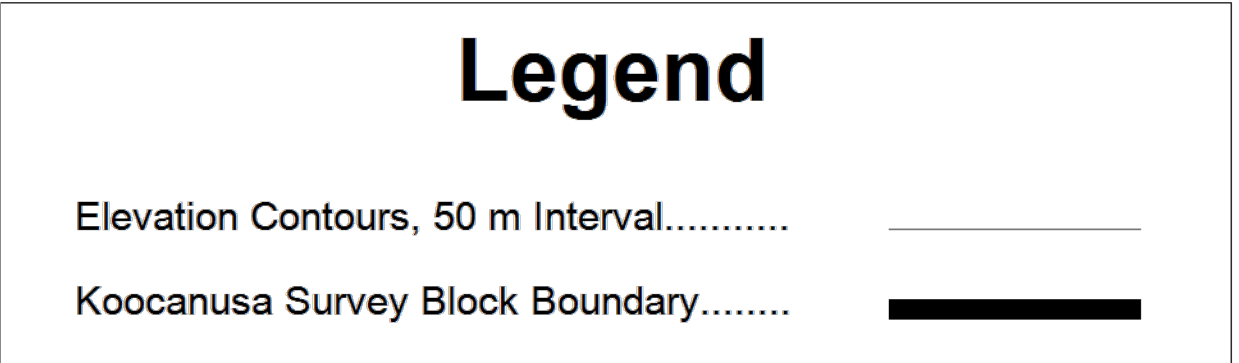




NATIONAL TOPOGRAPHIC SYSTEM



4.30		MAP PROJECTION	
2.05		Projection: Universal Transverse Mercator Zone 11N	
1.91		Datum: WGS 84	
1.81		Local Datum Transform: World	
1.74		KOOCANUSA SURVEY SPECIFICATIONS	
1.68		Survey Technology:	Magnetic and 1TEM survey
1.63		Survey Dates:	May 22 to May 26, 2025
1.58		Survey Base:	Cranbrook, BC
1.54		Aircraft Type:	Airbus AS350 helicopter
1.50		Registration:	C-GSVY
1.46		Total Line km:	1343 km
1.42		Mean Survey Height:	69.4 meters
1.39		Survey Line Spacing:	300 meters
1.35		Survey Line Direction:	090°/270°
1.32		Tie Line Spacing:	3000 meters
1.28		Tie Line Direction:	000°/180°
1.25		AIRBORNE SURVEY SYSTEM	
1.21		HTeM:	Precision GeoSurveys 1TEM transmitter and receiver
1.18		Configuration:	Concentric loops towed 30 m below helicopter
1.14		1TEM Receiver:	1TEM Transmitter
1.10		Component: Z-axis	Base Frequency: 30 Hz
1.06		Sampling: Full waveform	Duty Cycle: 25%
1.02		Sample Rate: 396 kHz	Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
0.97		ADC: 24 bit	Peak Current: 340 amps
0.92			Peak Dipole Moment: 120,000 NIA
0.86		Magnetometer Sensor:	PGmag Total-Field Magnetometer
0.79		Configuration:	Mounted on 1TEM airframe
0.69		Sample Rate:	10 Hz
0.55		Sensitivity:	0.003 nT/Hz rms



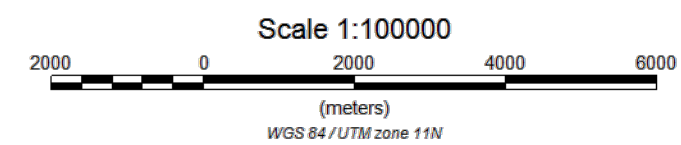
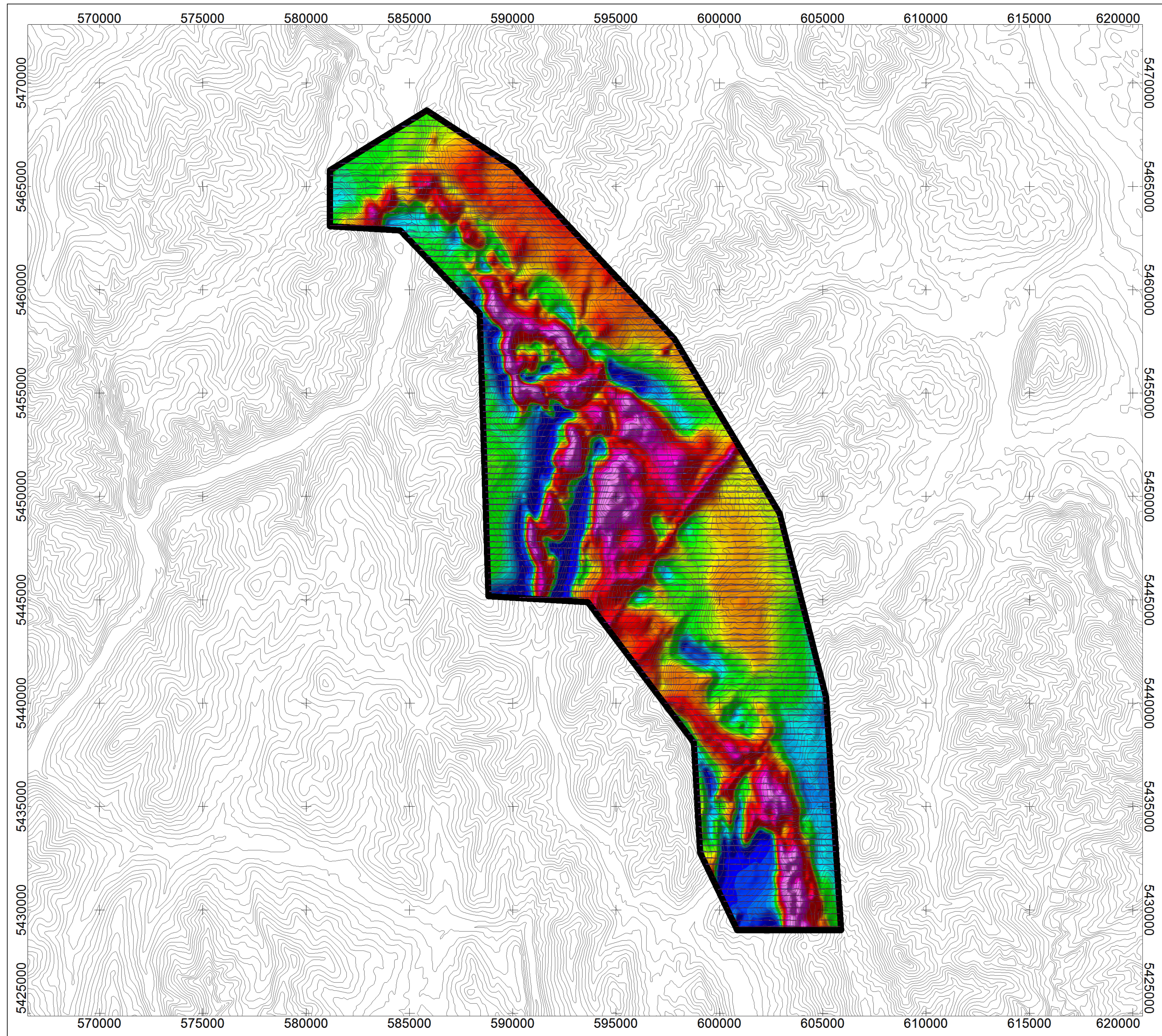
DATA REFERENCE
1TEM channel 14 centered at 1.23 milliseconds after transmitter turn off. Refer to report for details. 1TEM time channel 15 is represented as a grid at 75 m cell size and drawn with a linear colour scale from 0.00 to 4.30 µV.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

Z-Axis Off-Time dB/dt
(µV)

Aeonian Resources Ltd.
Koocanusa
1TEM Electromagnetic Map
1TEM Channel 14 - 1.23 ms





NATIONAL TOPOGRAPHIC SYSTEM

Statistic	Value
Samples	606189
Minimum	16.12
Maximum	199.19
Mean	99.97
Geo Mean	67.23
Median	67.31
Mode	16.05
Std Dev	0.02519
Std Err	1.689
Skew	4.302
Kurtosis	4.302

Statistic	Value
Samples	606189
Minimum	16.12
Maximum	199.19
Mean	99.97
Geo Mean	67.23
Median	67.31
Mode	16.05
Std Dev	0.02519
Std Err	1.689
Skew	4.302
Kurtosis	4.302

Statistic	Value
Samples	606189
Minimum	0.0
Maximum	83.3
Mean	3.5
Geo Mean	2.3
Median	2.3
Mode	2.885
Std Dev	0.003705
Std Err	3.488
Skew	58.76
Kurtosis	58.76

MAP PROJECTION
Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	1TEM and magnetic survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°

AIRBORNE SURVEY SYSTEM

HTEM:	Precision GeoSurveys 1TEM transmitter and receiver
Configuration:	Concentric loops towed 30 m below helicopter

1TEM Receiver:

Component:	Z-axis
Sampling:	Full waveform
Sample Rate:	396 kHz
ADC:	24 bit

Magnetometer Sensor:

Configuration:	PGmag Total-Field Magnetometer
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/√Hz rms

Legend

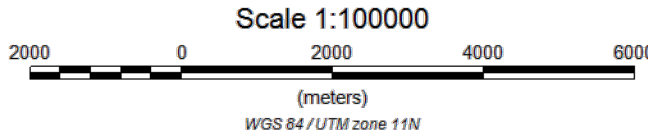
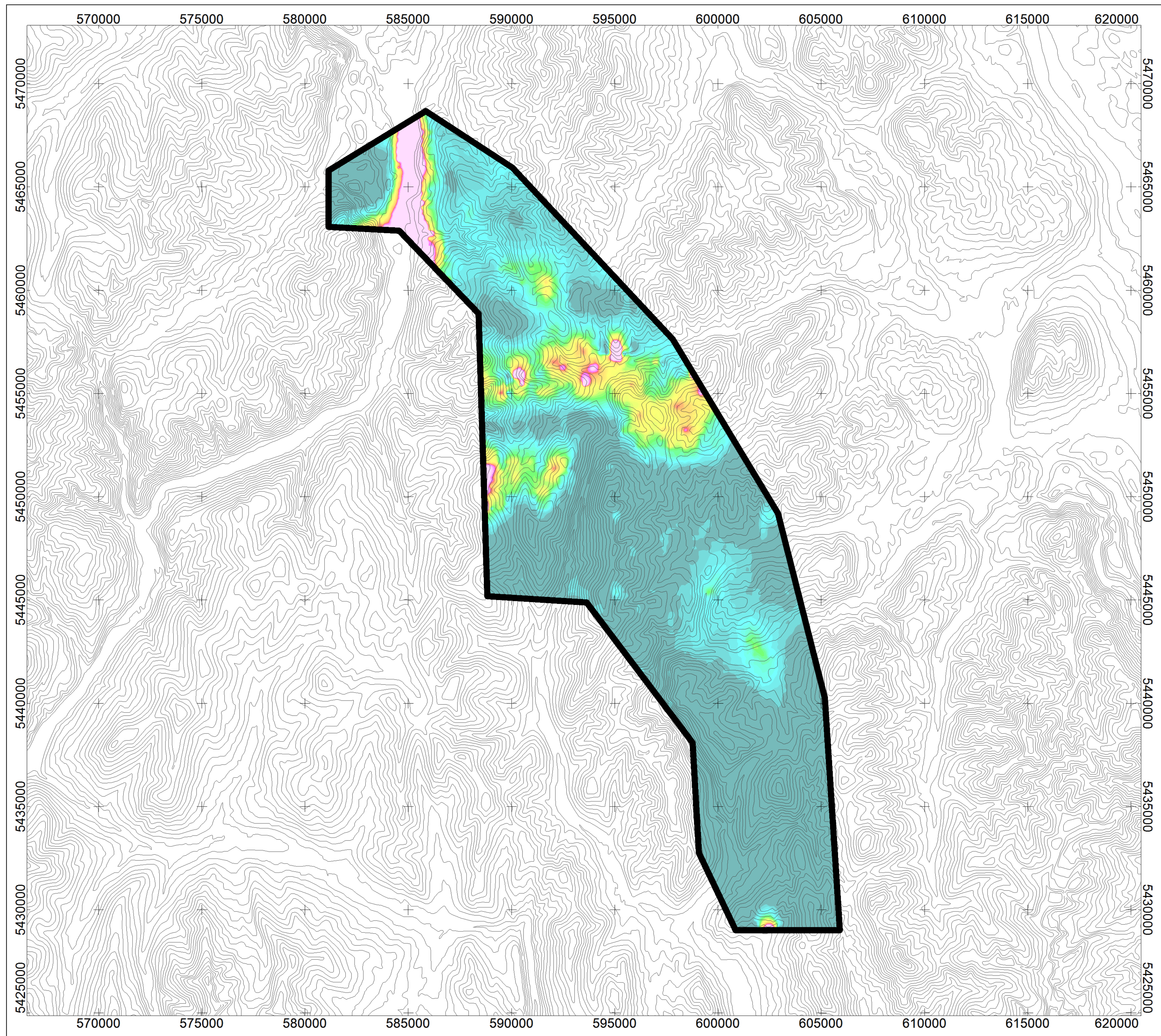
- Elevation Contours, 50 m Interval.....
- Koocanusa Survey Block Boundary.....
- 1TEM Time Channels.....

DATA REFERENCE
1TEM time channels 04-20 are plotted as stacked profiles with a linear scale over the Residual Magnetic Intensity (RMI) grid. Refer to Plate 5 (RMI grid) and report for details.

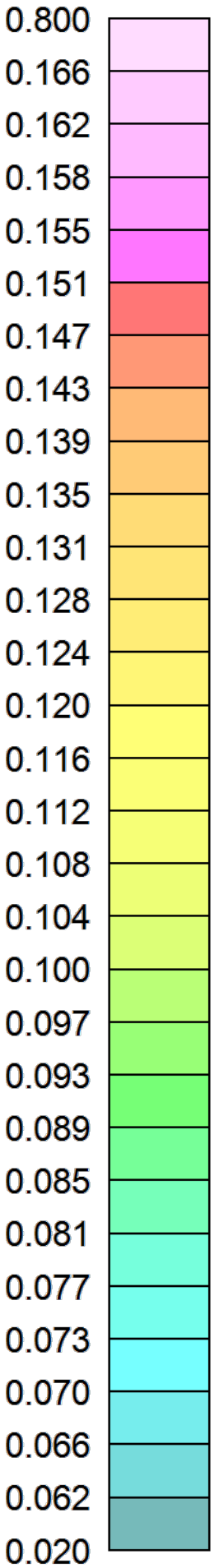
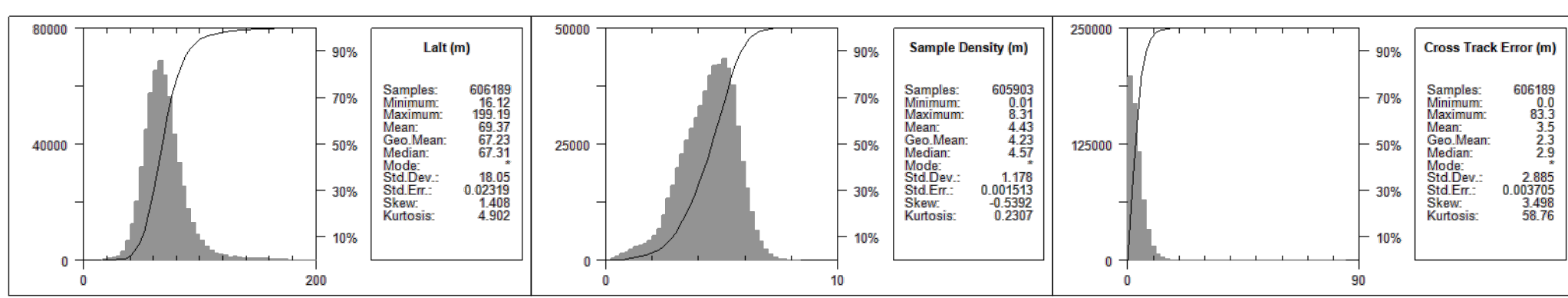
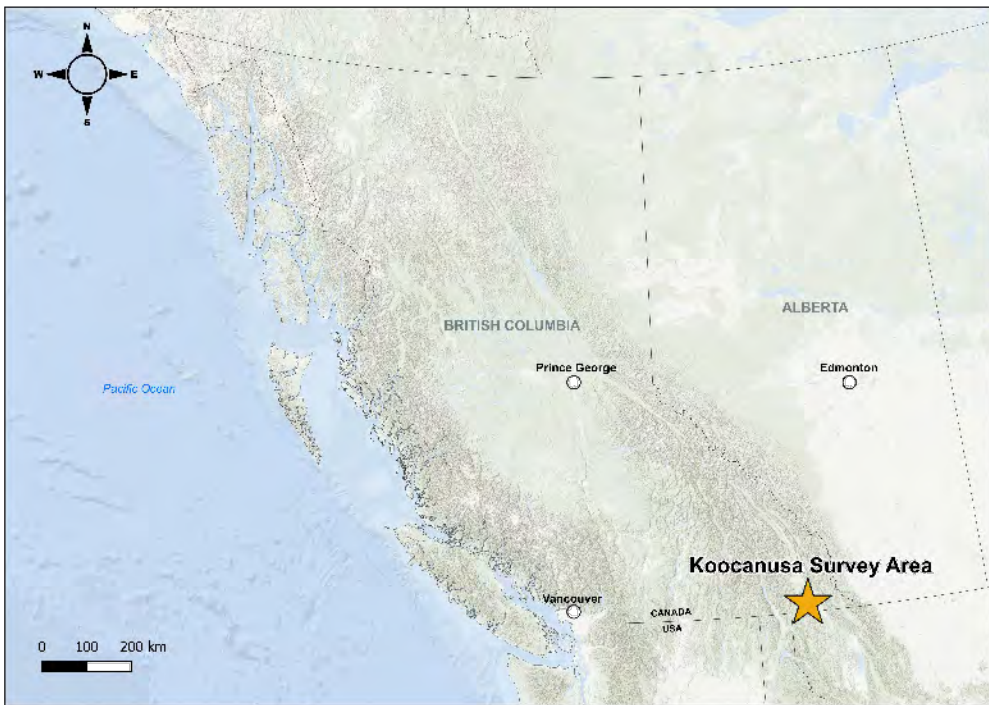
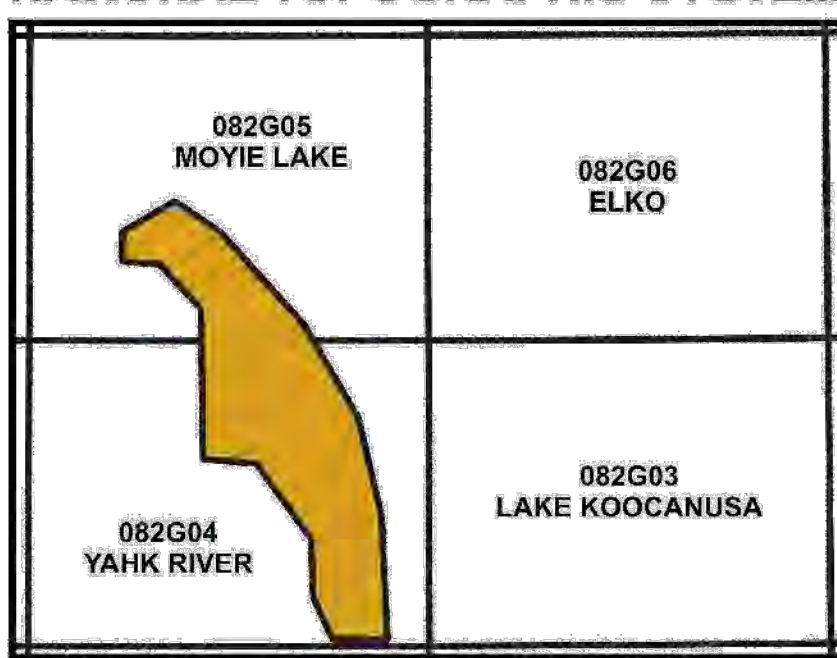
TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL: <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

Aeonian Resources Ltd.
Koocanusa
1TEM Electromagnetic Map
1TEM Profiles over Residual Magnetic Intensity

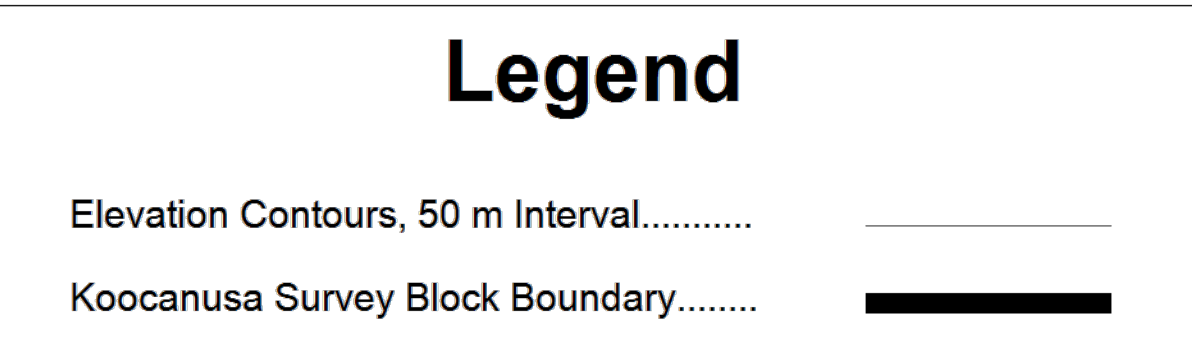




NATIONAL TOPOGRAPHIC SYSTEM



MAP PROJECTION Projection: Universal Transverse Mercator Zone 11N Datum: WGS 84 Local Datum Transform: World	
KOOCANUSA SURVEY SPECIFICATIONS	
Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°
AIRBORNE SURVEY SYSTEM	
HTEM:	Precision GeoSurveys 1TEM transmitter and receiver
Configuration:	Concentric loops towed 30 m below helicopter
1TEM Receiver:	
Component: Z-axis	1TEM Transmitter
Sampling: Full waveform	Base Frequency: 30 Hz
Sample Rate: 396 kHz	Duty Cycle: 25%
ADC: 24 bit	Waveform: 4.2 ms square pulse, 50 usecs linear off-ramp
	Peak Current: 340 amps
	Peak Dipole Moment: 120,000 NlaA
Magnetometer Sensor:	
Configuration:	PGmag Total-Field Magnetometer
Sample Rate:	Mounted on 1TEM airframe
Sensitivity:	10 Hz
	0.003 nT/√Hz rms



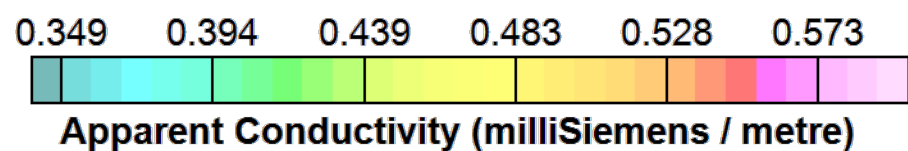
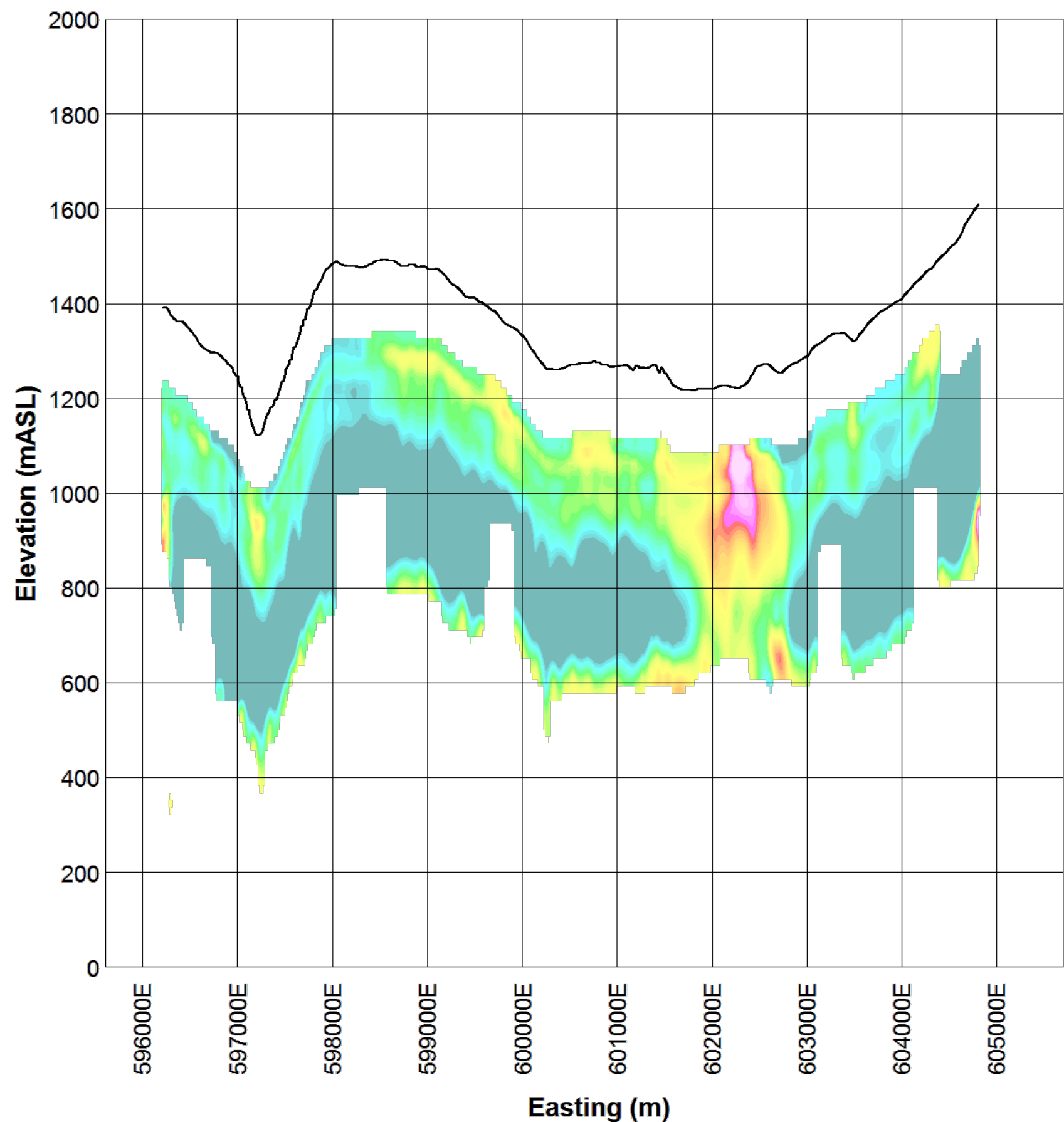
DATA REFERENCE
EM Time Constant (Tau) is an arbitrary representation of overall ground conductivity calculated using the entire EM decay curve. Refer to report for details. Tau is represented as a grid at 75 m cell size and drawn with a linear colour shade from 0.020 to 0.800.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL: <http://ftp.geogratis.gc.ca/pub/nrcan/mcan/vector/ntdb_bndt/>[2007]

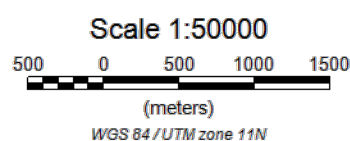
Aeonian Resources Ltd.
Koocanusa
1TEM Electromagnetic Map
EM Time Constant (Tau)



Line 420
(5441496 N)

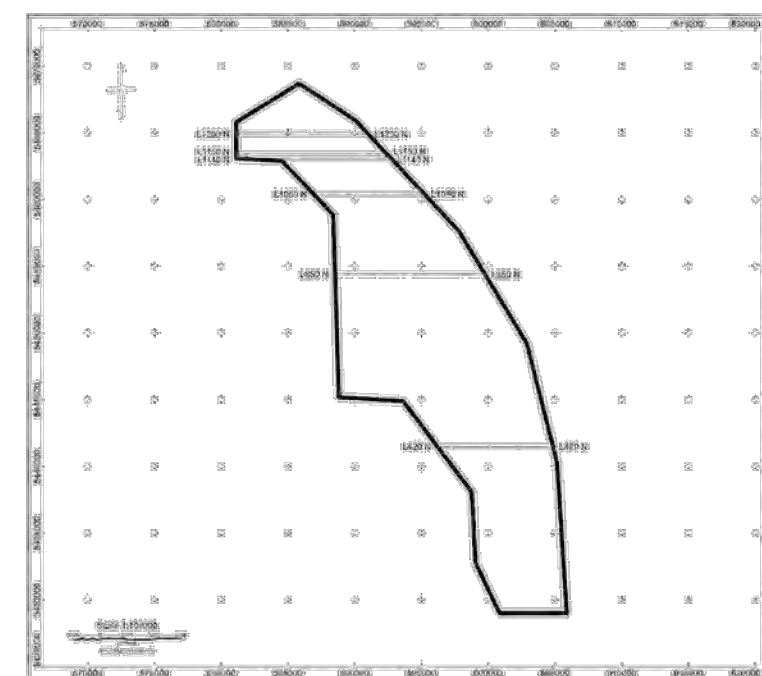


Cell Size: 15 m
Vertical Exaggeration: 5



DATA REFERENCE
EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bnd/>[2007]



MAP PROJECTION
Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS
Survey Technology: Magnetic and 1TEM survey
Survey Dates: May 22 to May 26, 2025
Survey Base: Cranbrook, BC
Aircraft Type: Airbus AS350 helicopter
Registration: C-GSVY
Total Line km: 1343 km
Mean Survey Height: 69.4 meters
Survey Line Spacing: 300 meters
Survey Line Direction: 090°/270°
Tie Line Spacing: 3000 meters
Tie Line Direction: 000°/180°

AIRBORNE SURVEY SYSTEM
HTEM: Precision GeoSurveys 1TEM transmitter and receiver
Configuration: Concentric loops towed 30 m below helicopter

1TEM Receiver: 1TEM Transmitter
Component: Z-axis Base Frequency: 30 Hz
Sampling: Full waveform Duty Cycle: 25%
Sample Rate: 396 kHz Waveform: 4.2 ms square pulse, 50 psecs linear off-ramp
ADC: 24 bit Peak Current: 340 amps
Peak Dipole Moment: 120,000 N/A

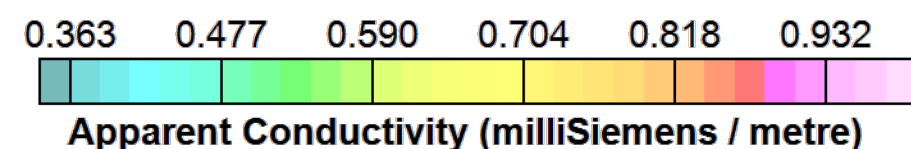
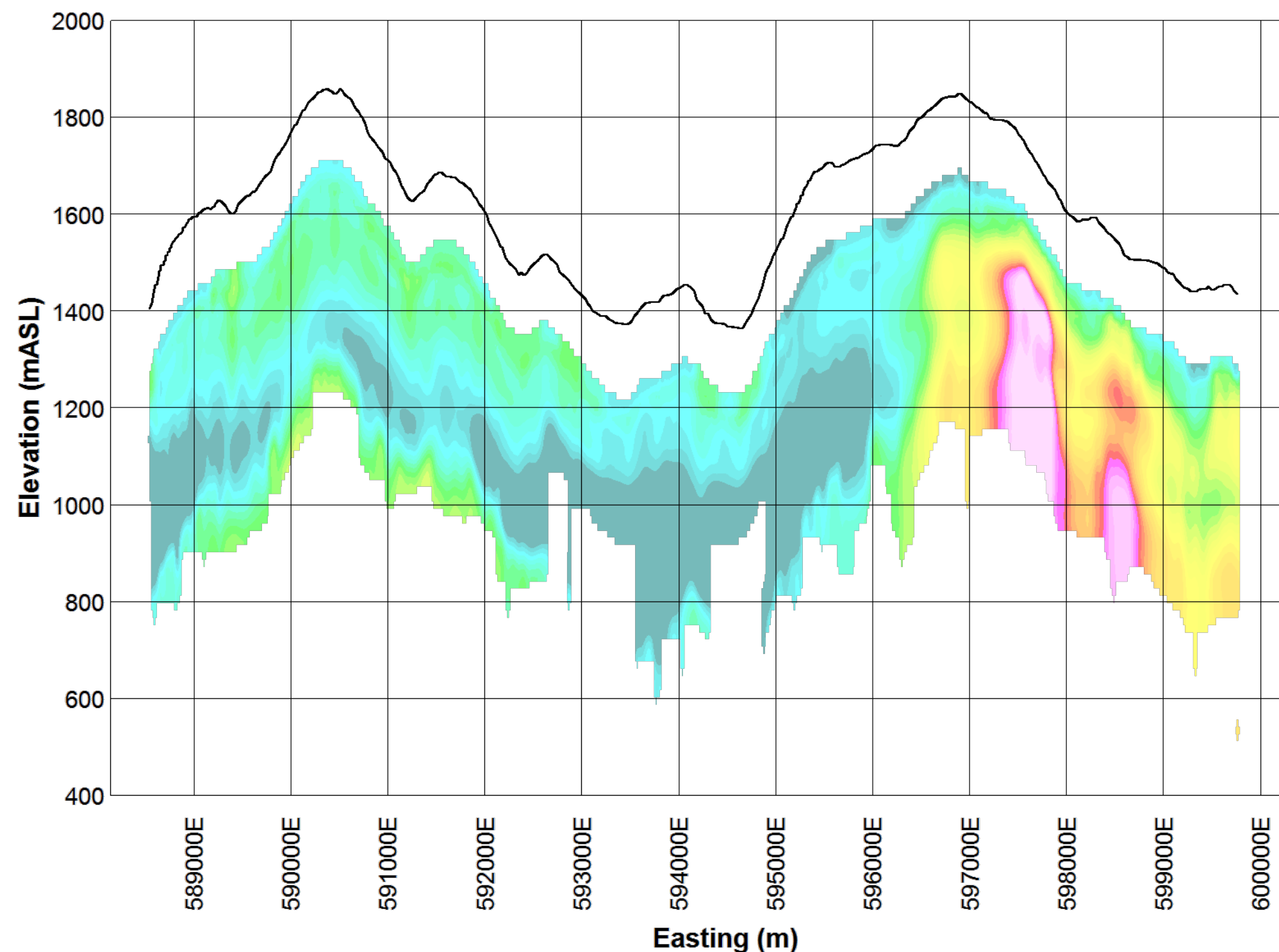
Magnetometer Sensor: PGmag Total-Field Magnetometer
Configuration: Mounted on 1TEM airframe
Sample Rate: 10 Hz
Sensitivity: 0.003 nT/Hz rms

Aeonian Resources Ltd.
Koocanusa
Conductivity-Depth Transform
L420
Airborne 1TEM Section

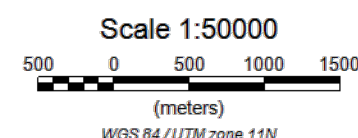
Precision
GeoSurveys

Line 850

(5454396 N)



Cell Size: 15 m
Vertical Exaggeration: 5



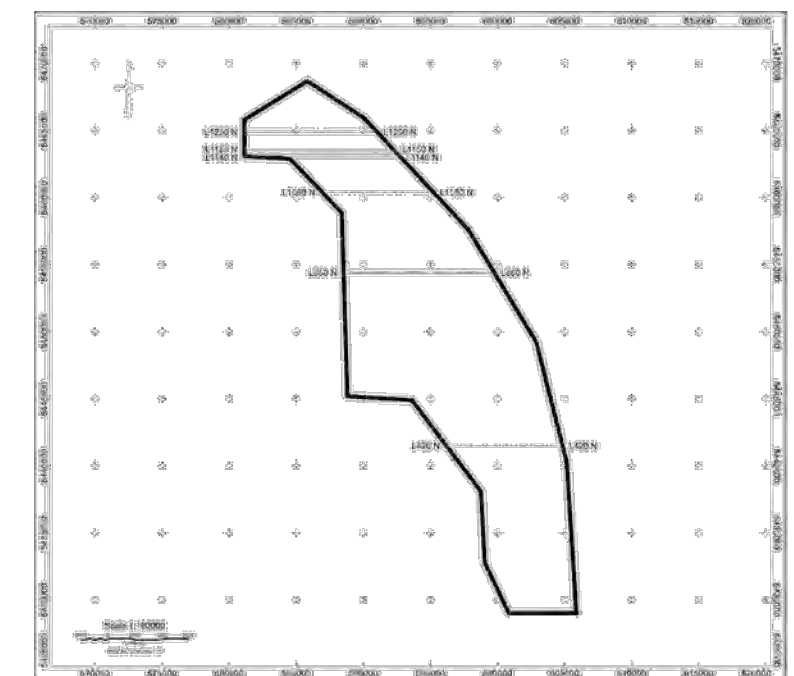
Approximate ground surface profile

DATA REFERENCE

EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_rncan/vector/ntdb_bndt/>[2007]



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°
HTM:	Precision GeoSurveys 1TEM transmitter and receiver
Configuration:	Concentric loops towed 30 m below helicopter
1TEM Receiver:	1TEM Transmitter
Component: Z-axis	Base Frequency: 30 Hz
Sampling: Full waveform	Duty Cycle: 25%
Sample Rate: 396 kHz	Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
ADC: 24 bit	Peak Current: 340 amps
	Peak Dipole Moment: 120,000 NIA
Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Mounted on 1TEM airframe
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/Hz rms

Aeonian Resources Ltd.

Koocanusa

Conductivity-Depth Transform

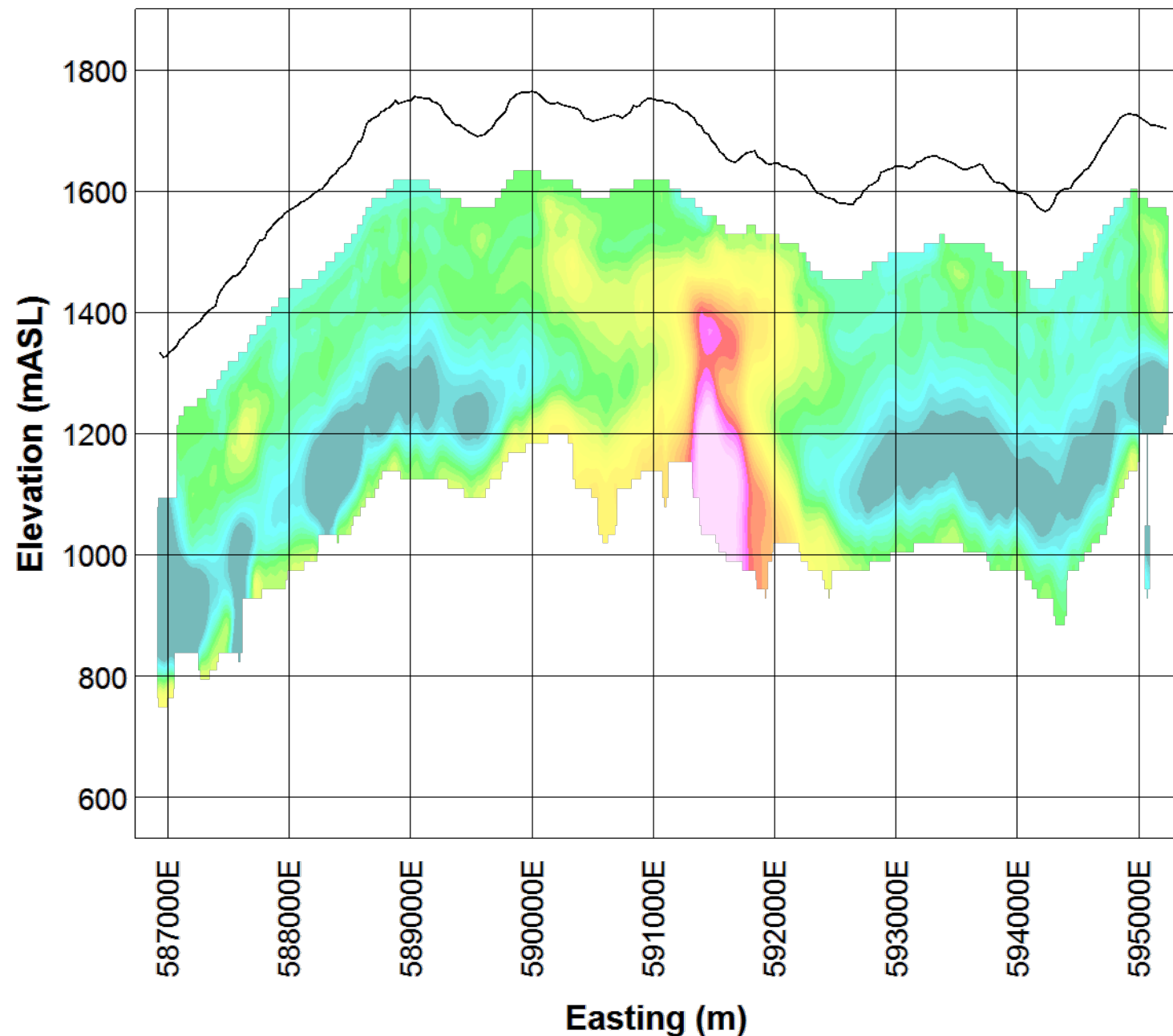
L850

Airborne 1TEM Section

Precision
GeoSurveys

Line 1050

(5460396 N)



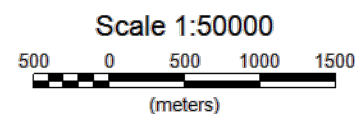
0.363 0.477 0.590 0.704 0.818 0.932



Apparent Conductivity (milliSiemens / metre)

Cell Size: 15 m

Vertical Exaggeration: 5

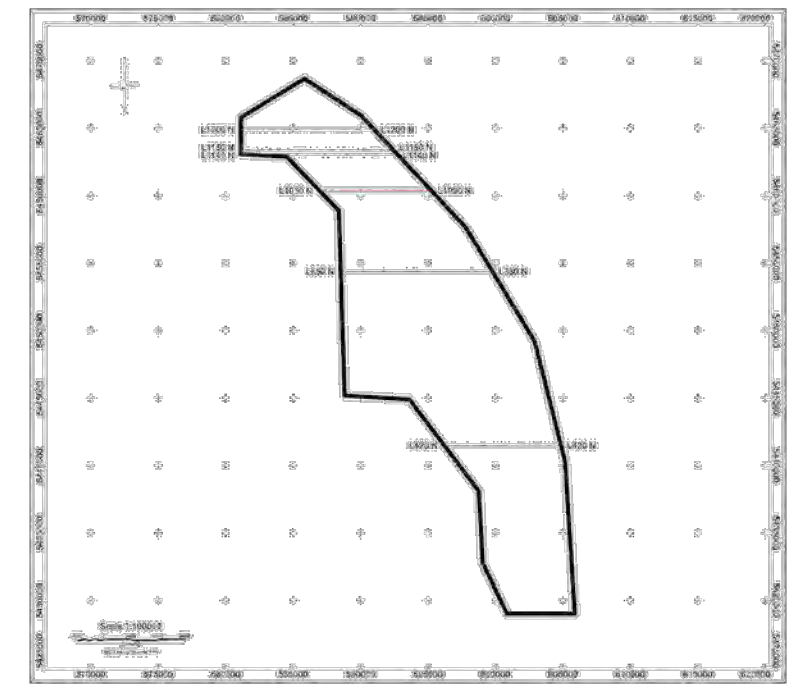


DATA REFERENCE

EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 11N

Datum: WGS 84

Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology: Magnetic and 1TEM survey
Survey Dates: May 22 to May 26, 2025
Survey Base: Cranbrook, BC
Aircraft Type: Airbus AS350 helicopter
Registration: C-GSVY
Total Line km: 1343 km
Mean Survey Height: 69.4 meters
Survey Line Spacing: 300 meters
Survey Line Direction: 090°/270°
Tie Line Spacing: 3000 meters
Tie Line Direction: 000°/180°

AIRBORNE SURVEY SYSTEM

HTeM: Precision GeoSurveys 1TEM transmitter and receiver
Configuration: Concentric loops towed 30 m below helicopter

1TEM Receiver: 1TEM Transmitter
Component: Z-axis Base Frequency: 30 Hz
Sampling: Full waveform Duty Cycle: 25%
Sample Rate: 396 kHz Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
ADC: 24 bit Peak Current: 340 amps
Peak Dipole Moment: 120,000 NIA

Magnetometer Sensor: PGmag Total-Field Magnetometer
Configuration: Mounted on 1TEM airframe
Sample Rate: 10 Hz
Sensitivity: 0.003 nT/Hz rms

Aeonian Resources Ltd.

Koocanusa

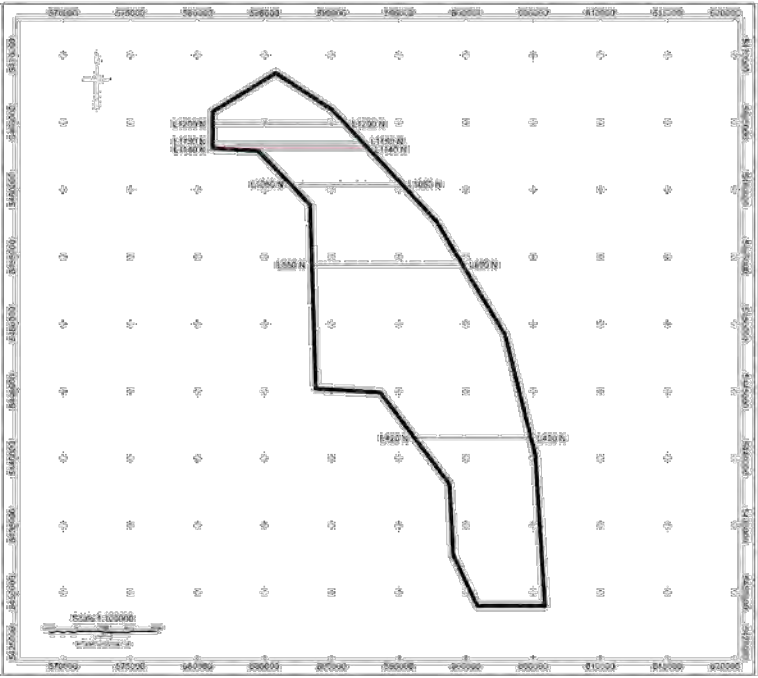
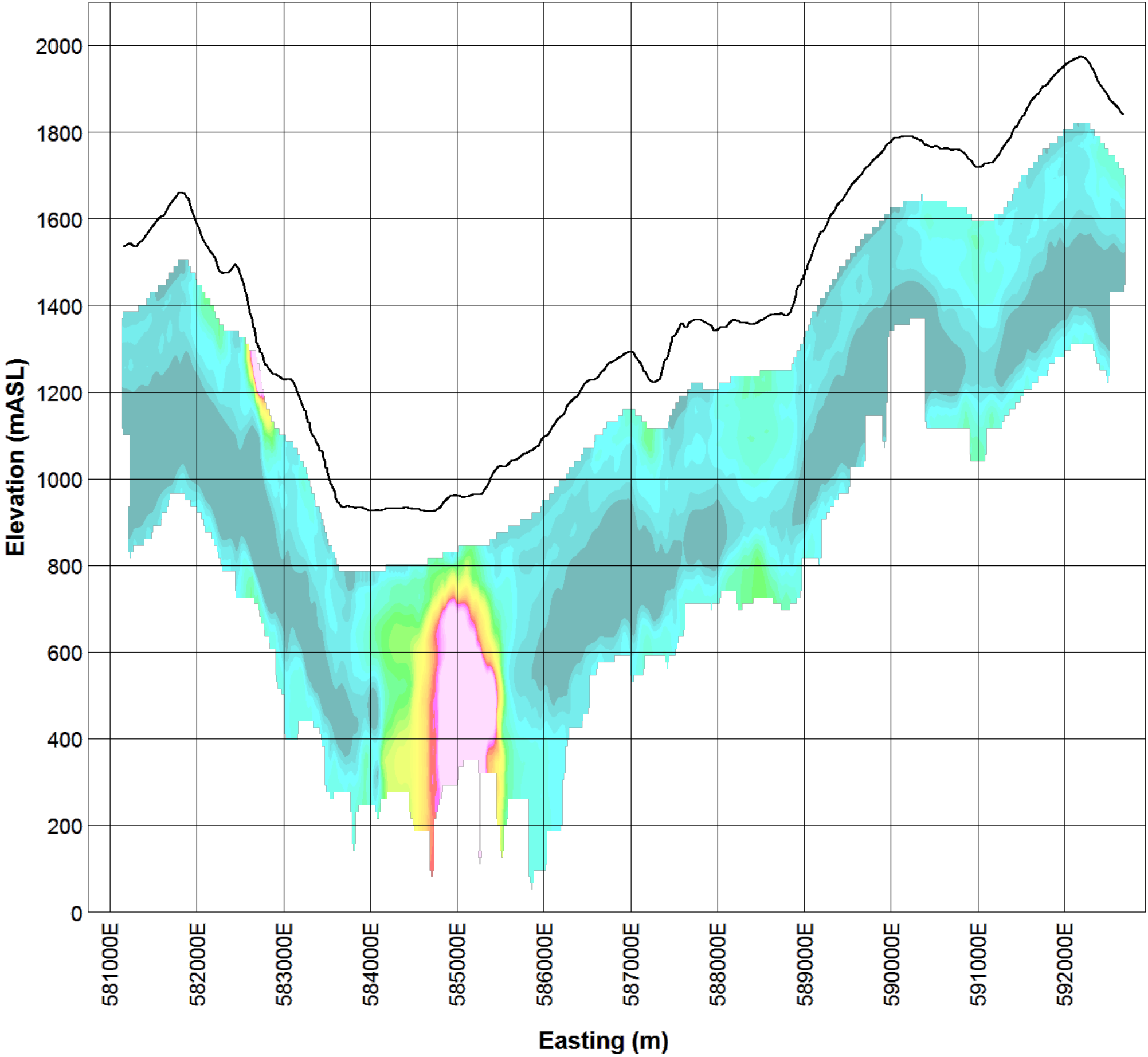
Conductivity-Depth Transform

L1050

Airborne 1TEM Section

Precision
GeoSurveys

Line 1140
(5463096 N)



MAP PROJECTION	
Projection: Universal Transverse Mercator Zone 11N	
Datum: WGS 84	
Local Datum Transform: World	
KOOCANUSA SURVEY SPECIFICATIONS	
Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°
AIRBORNE SURVEY SYSTEM	
HTM:	Precision GeoSurveys 1TEM transmitter and receiver
Configuration:	Concentric loops towed 30 m below helicopter
1TEM Receiver:	1TEM Transmitter
Component: Z-axis	Base Frequency: 30 Hz
Sampling: Full waveform	Duty Cycle: 25%
Sample Rate: 396 kHz	Waveform: 4.2 ms square pulse, 50 psecs linear off-ramp
ADC: 24 bit	Peak Current: 340 amps
	Peak Dipole Moment: 120,000 NIA
Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Mounted on 1TEM airframe
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/√Hz rms

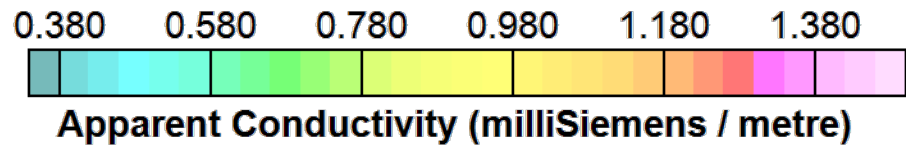
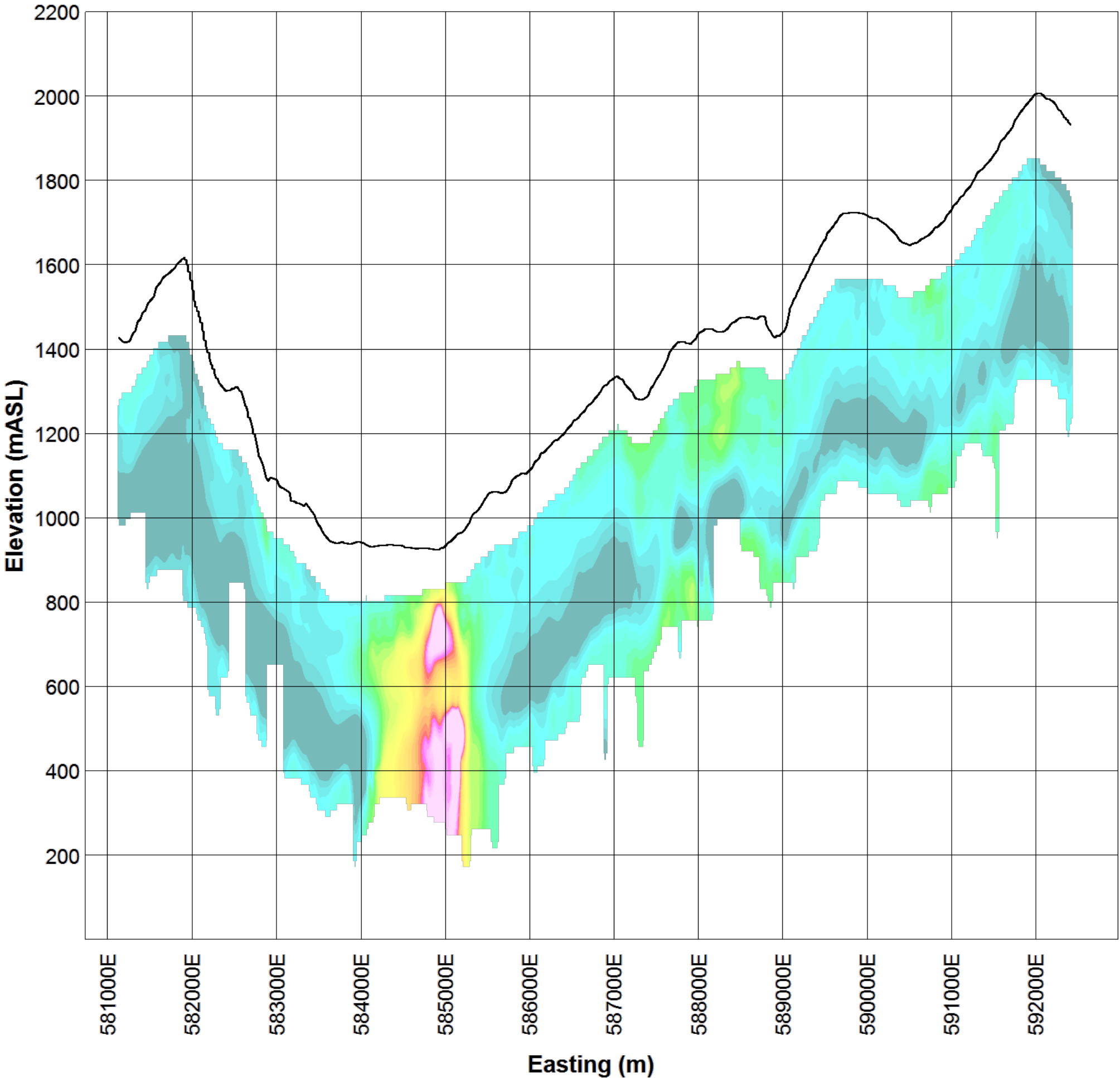
Aeonian Resources Ltd.
Koocanusa
Conductivity-Depth Transform
L1140
Airborne 1TEM Section



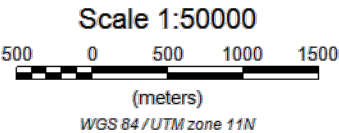
DATA REFERENCE
EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

Line 1150
(5463396 N)



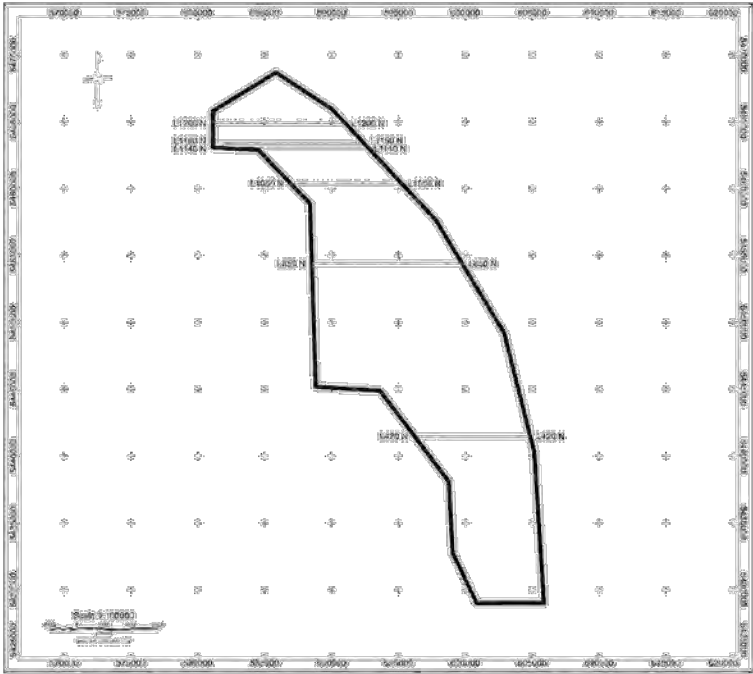
Cell Size: 15 m
Vertical Exaggeration: 5



Approximate ground surface profile

DATA REFERENCE
EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]



MAP PROJECTION
Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS

Survey Technology: Magnetic and 1TEM survey
Survey Dates: May 22 to May 26, 2025
Survey Base: Cranbrook, BC
Aircraft Type: Airbus AS350 helicopter
Registration: C-GSVY
Total Line km: 1343 km
Mean Survey Height: 69.4 meters
Survey Line Spacing: 300 meters
Survey Line Direction: 090°/270°
Tie Line Spacing: 3000 meters
Tie Line Direction: 000°/180°

AIRBORNE SURVEY SYSTEM

HTM: Precision GeoSurveys 1TEM transmitter and receiver
Configuration: Concentric loops towed 30 m below helicopter

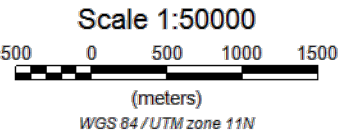
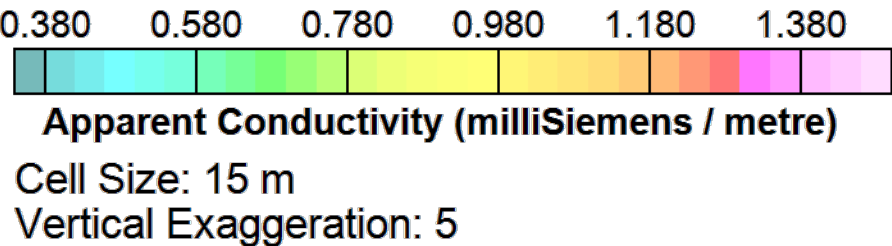
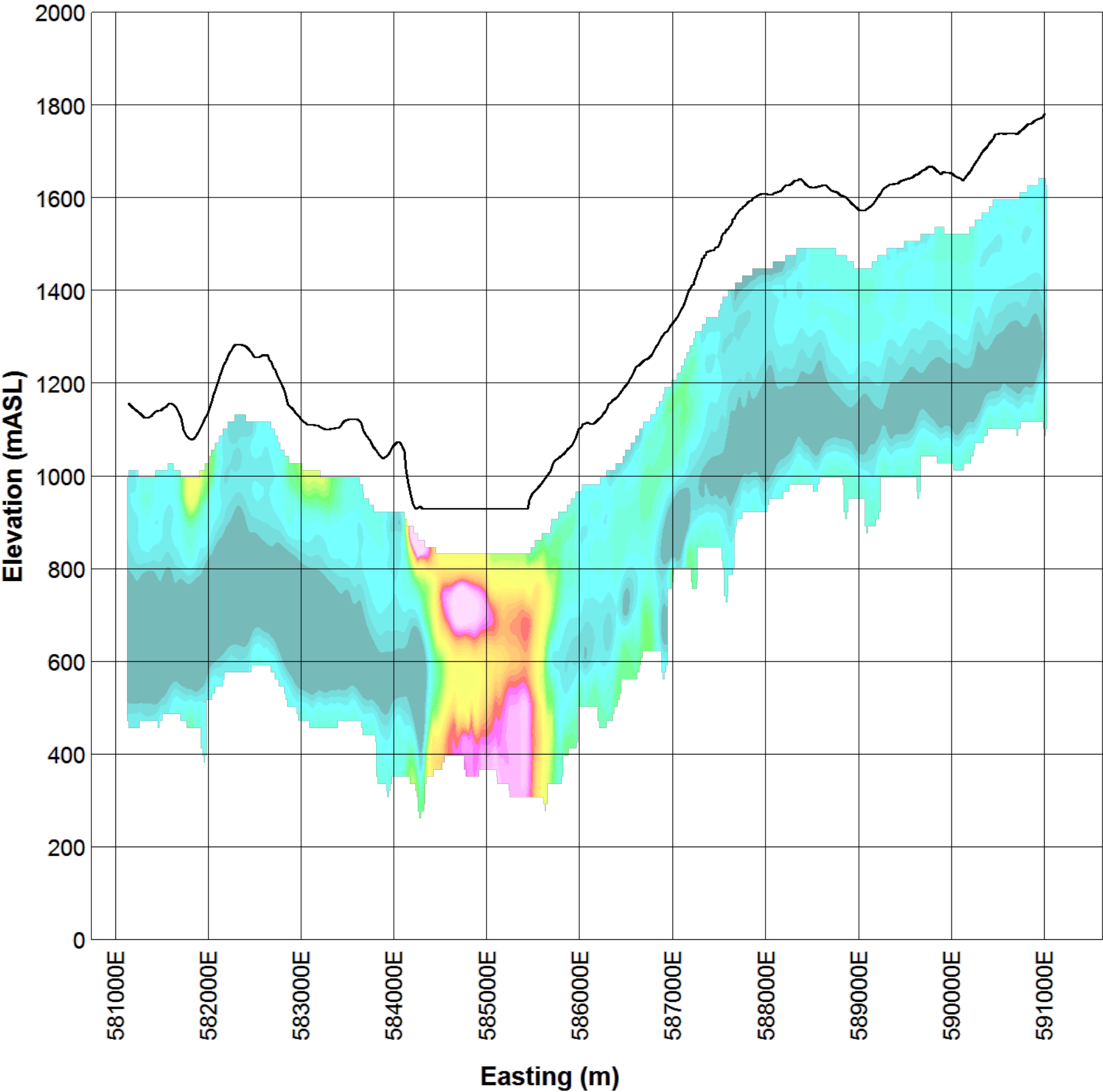
1TEM Receiver: 1TEM Transmitter
Component: Z-axis Base Frequency: 30 Hz
Sampling: Full waveform Duty Cycle: 25%
Sample Rate: 396 kHz Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
ADC: 24 bit Peak Current: 340 amps
Peak Dipole Moment: 120,000 NIA

Magnetometer Sensor: PGmag Total-Field Magnetometer
Configuration: Mounted on 1TEM airframe
Sample Rate: 10 Hz
Sensitivity: 0.003 nT/Hz rms

Aeonian Resources Ltd.
Koocanusa
Conductivity-Depth Transform
L1150
Airborne 1TEM Section

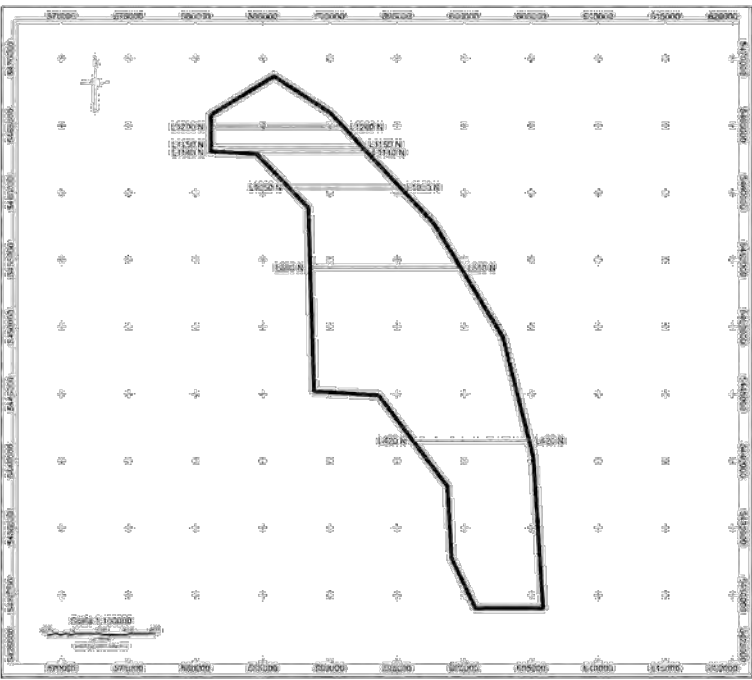


Line 1200
(5464896 N)



DATA REFERENCE
EM Conductivity-Depth Transforms (CDT) are a non-iterative approximation of apparent conductivity versus depth for each station along the survey line. Refer to report for details. The CDT profile of selected lines are represented as grids with 15 m cell size and linear colour zones and plotted on a cross-sectional map with 5x vertical exaggeration.

TOPOGRAPHIC REFERENCE
National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>-[2007]



MAP PROJECTION
Projection: Universal Transverse Mercator Zone 11N
Datum: WGS 84
Local Datum Transform: World

KOOCANUSA SURVEY SPECIFICATIONS	
Survey Technology:	Magnetic and 1TEM survey
Survey Dates:	May 22 to May 26, 2025
Survey Base:	Cranbrook, BC
Aircraft Type:	Airbus AS350 helicopter
Registration:	C-GSVY
Total Line km:	1343 km
Mean Survey Height:	69.4 meters
Survey Line Spacing:	300 meters
Survey Line Direction:	090°/270°
Tie Line Spacing:	3000 meters
Tie Line Direction:	000°/180°
AIRBORNE SURVEY SYSTEM	
HTM:	Precision GeoSurveys 1TEM transmitter and receiver
Configuration:	Concentric loops towed 30 m below helicopter
1TEM Receiver:	1TEM Transmitter
Component: Z-axis	Base Frequency: 30 Hz
Sampling: Full waveform	Duty Cycle: 25%
Sample Rate: 396 kHz	Waveform: 4.2 ms square pulse, 50 µsecs linear off-ramp
ADC: 24 bit	Peak Current: 340 amps
	Peak Dipole Moment: 120,000 N/A
Magnetometer Sensor:	PGmag Total-Field Magnetometer
Configuration:	Mounted on 1TEM airframe
Sample Rate:	10 Hz
Sensitivity:	0.003 nT/nHz rms

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Conductivity-Depth Transform
L1200
Airborne 1TEM Section

