Precision GeoSurveys

AIRBORNE GEOPHYSICAL SURVEY REPORT

Vancouver Island North Regional Project
Airborne Magnetic and Radiometric Survey

Geoscience BC Report 2020-05

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Summary

Precision GeoSurveys Inc. was contracted by Geoscience BC to collect and process high quality airborne geophysical data over the 6132.5 km^2 Vancouver Island North Regional Project, centered over Woss, British Columbia. A total of 26,973.4 line km of magnetic gradient and radiometric data was collected over 512 survey lines and 34 tie lines flown by helicopter at a constant 80 m ground clearance during the period August 3 to October 23, 2019.

In-field quality control, quality assurance, and preliminary processing were carried out daily during the data acquisition phase. Final data processing for the survey, including generation of final digital data and map products, was completed at Precision's head office in Vancouver, British Columbia.

Survey data are presented as a series of maps and grids to help contribute to an understanding of lithology, structure, and alteration within the survey area, which will in turn be an aid to land use planning, geological mapping, and mineral exploration.

Cover Photo: Vancouver Island North survey near Woss Lake. Photo by Erik Keyser.

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1.0 Introduction

This report outlines the geophysical survey operations and data processing procedures taken during an airborne magnetic and radiometric survey flown at the Vancouver Island North Regional Project (abbreviated to Vancouver Island North in this report) survey area for Geoscience BC. The purpose of the multi-sensor survey is "to assess the mineral potential of the area and to guide more informed decisions about potential mineral resource development."[1]

The survey contract was awarded on July 24, 2019, and it was flown during the period August 3 to October 23, 2019. The survey block is located on northwestern Vancouver Island (Figure 1), British Columbia, Canada, centered approximately between Port McNeill and Gold River. It was flown by helicopter at a constant height above ground in accordance with Geoscience BC specifications. No formal interpretation was requested or completed for this survey.

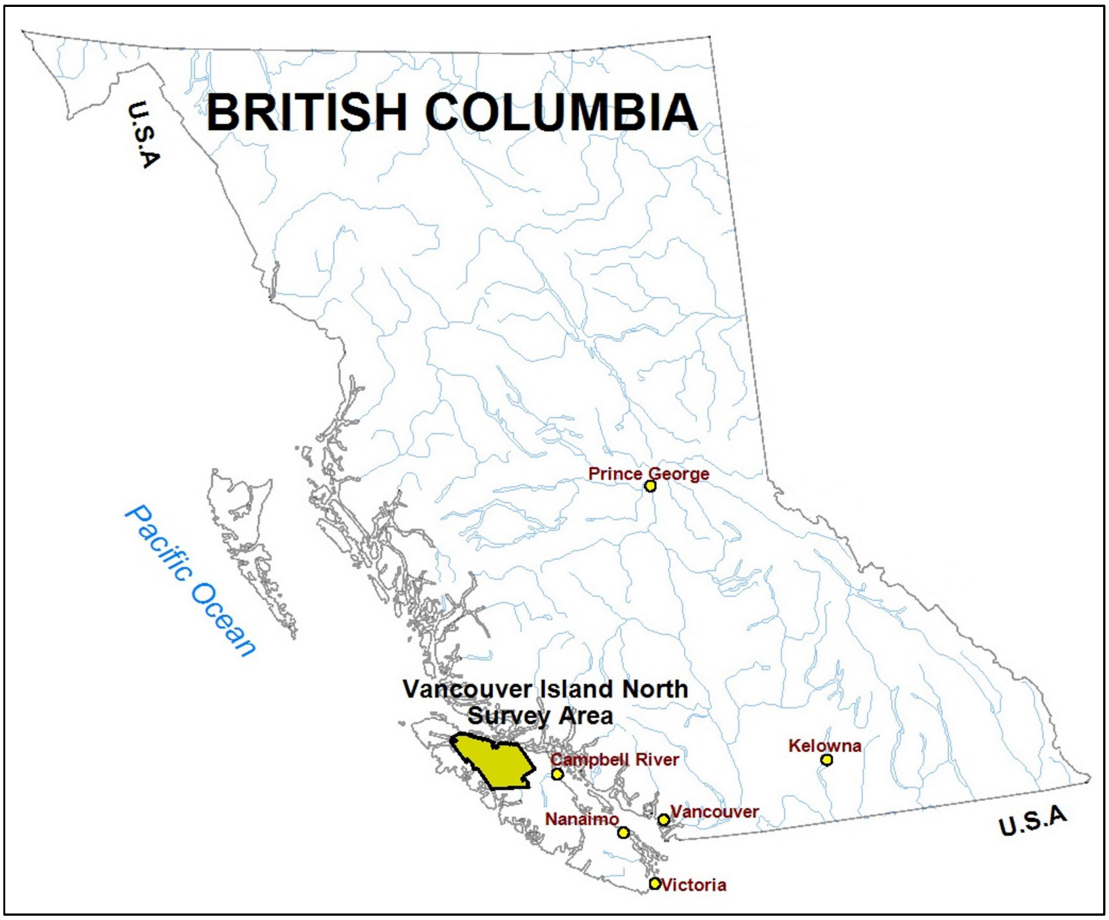

Figure 1: Vancouver Island North Regional Project survey block located on northwestern Vancouver Island, British Columbia.

[1] http://www.geosciencebc.com/projects/2018-055/ retrieved October 4, 2019.

1.1 Survey Area

The Vancouver Island North survey block covers an irregular area of 130 km (E-W) by 83 km (N-S) (Figure 2) within NTS map sheets 92E, 92F, 92L, and 92K. Geoscience BC's original survey block outline was modified while the survey was in progress, which increased the survey area from the originally planned 6126.5 km^2 to 6132.5 km^2 (Table 1). The project area contains rugged mountainous terrain with elevations ranging from sea level (along Johnstone Strait, Quatsino Sound, and Tahsis Inlet) to 2163 meters ASL (at Victoria Peak). The survey plan includes 512 survey lines and 34 tie lines.

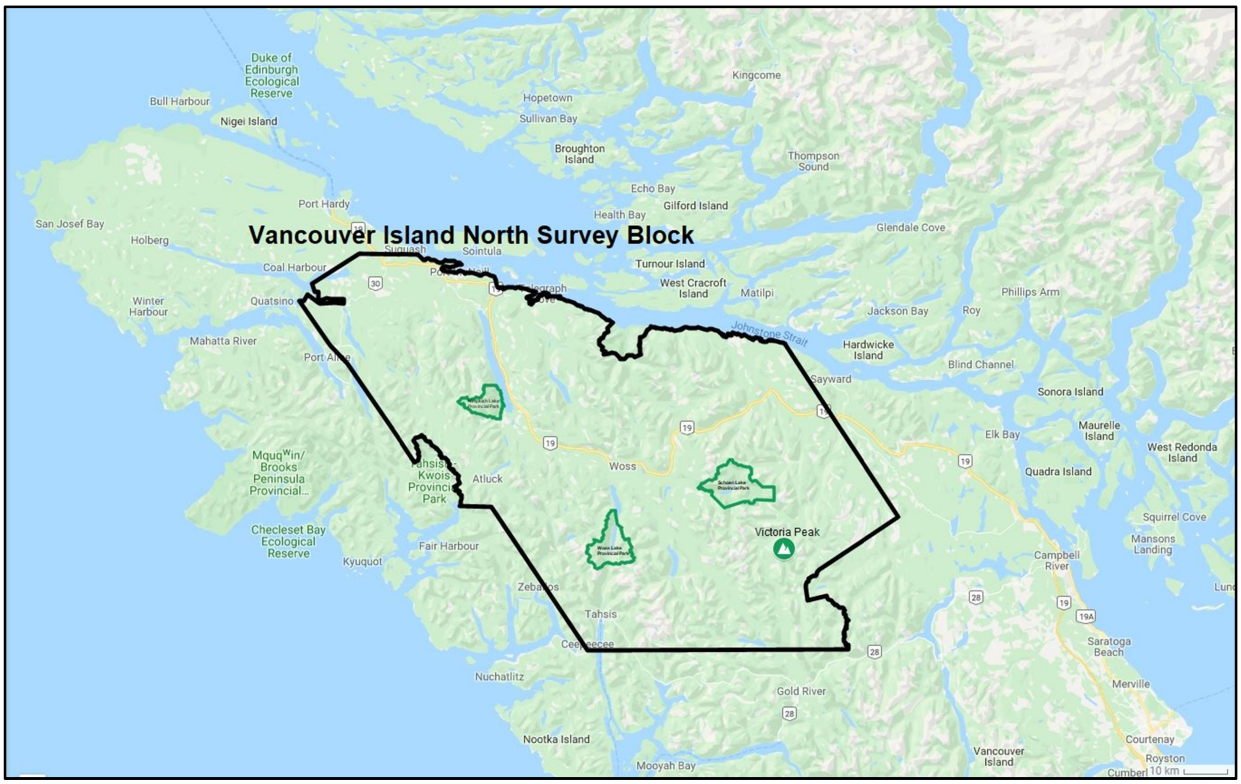

Figure 2: Vancouver Island North survey block (black outline) west of Campbell River, British Columbia. The survey block is located between the communities of Port McNeill to the north, Port Alice to the west, Sayward to the east, and Tahsis to the southwest.

Survey lines were flown at 250 meter spacing at a heading of 056.5°/236.5°; tie lines were flown at 2,500 meter spacing at a heading of 146.5°/326.5° (Figures 3 and 4). A total of 26,973.4 line km of magnetic and radiometric data was collected.

Three provincial parks – Woss Lake, Schoen Lake, and Nimpkish Lake – are wholly contained within the survey block and were not flown. The Vancouver Island North survey flown in 2019 adjoins, and partly overlaps, the Northern Vancouver Island survey flown in 2012 by Geo Data Solutions GDS Inc. for Geoscience BC (Figure 5 and Table 2).

Survey Block	Area (km^2)	Line Type	No. of Lines	Line Spacing (m)	Line Orientation	Flight Height (m)	Total Line km
Vancouver Island North (original)	6126.5	Survey	512	250	056.5°/236.5°	80	24502.9
		Tie	34	2500	146.5°/326.5°	80	2446.3
		Total:	**546**				**26,949.2**
Vancouver Island North (revised)	6132.5	Survey	512	250	056.5°/236.5°	80	24523.3
		Tie	34	2500	146.5°/326.5°	80	2450.1
		Total:	**546**				**26,973.4**

Table 1: Vancouver Island North survey block specifications. Survey block outline was revised mid-survey to match shoreline along Johnstone Strait. Line orientations are referenced to UTM Zone 9N.

Figure 3: Plan View – Vancouver Island North survey block with actual flight lines in yellow, survey block boundary in black, and provincial parks in green.

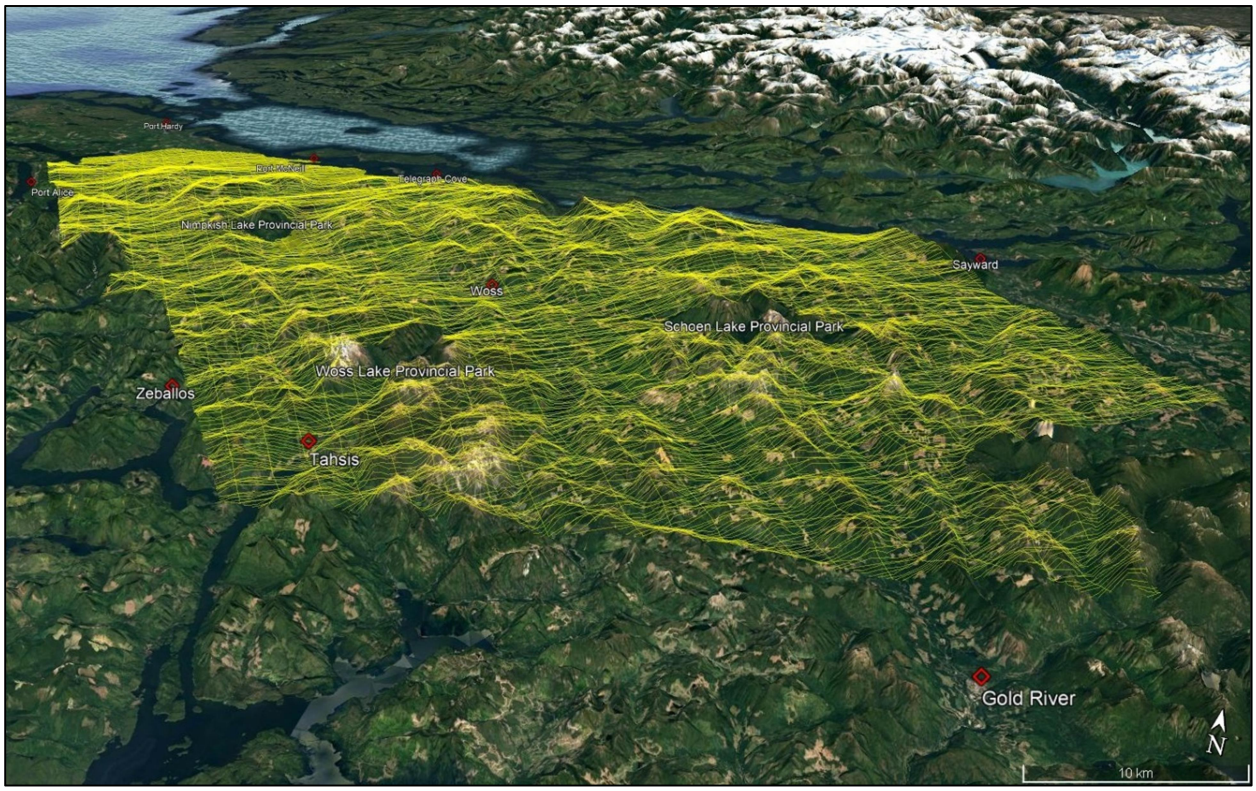

Figure 4: Terrain View – Vancouver Island North survey block with actual flight lines displayed in yellow.

The Vancouver Island North geophysical survey area covers traditional territories of several First Nations. Proponents wishing to use the data presented here for business or land use decisions are encouraged to engage early in relationship-building and information-sharing with the relevant First Nations. For further guidance on this and other mineral exploration and mining information visit: https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining.

1.2 Survey Specifications

Geoscience BC's Vancouver Island North airborne magnetic and radiometric survey covers an irregular area of 6,132.5 km2 (Figure 6). Although the eastern part of the survey area (east of 126° W longitude) is in UTM zone 10, the entire survey block was flown in UTM coordinates using NAD 83, zone 9N, by projecting the zone 9 coordinates as appropriate. Accordingly, all survey line and tie line azimuths are referenced to UTM Zone 9. A total of 26,973.4 line km of high quality geophysical data was collected.

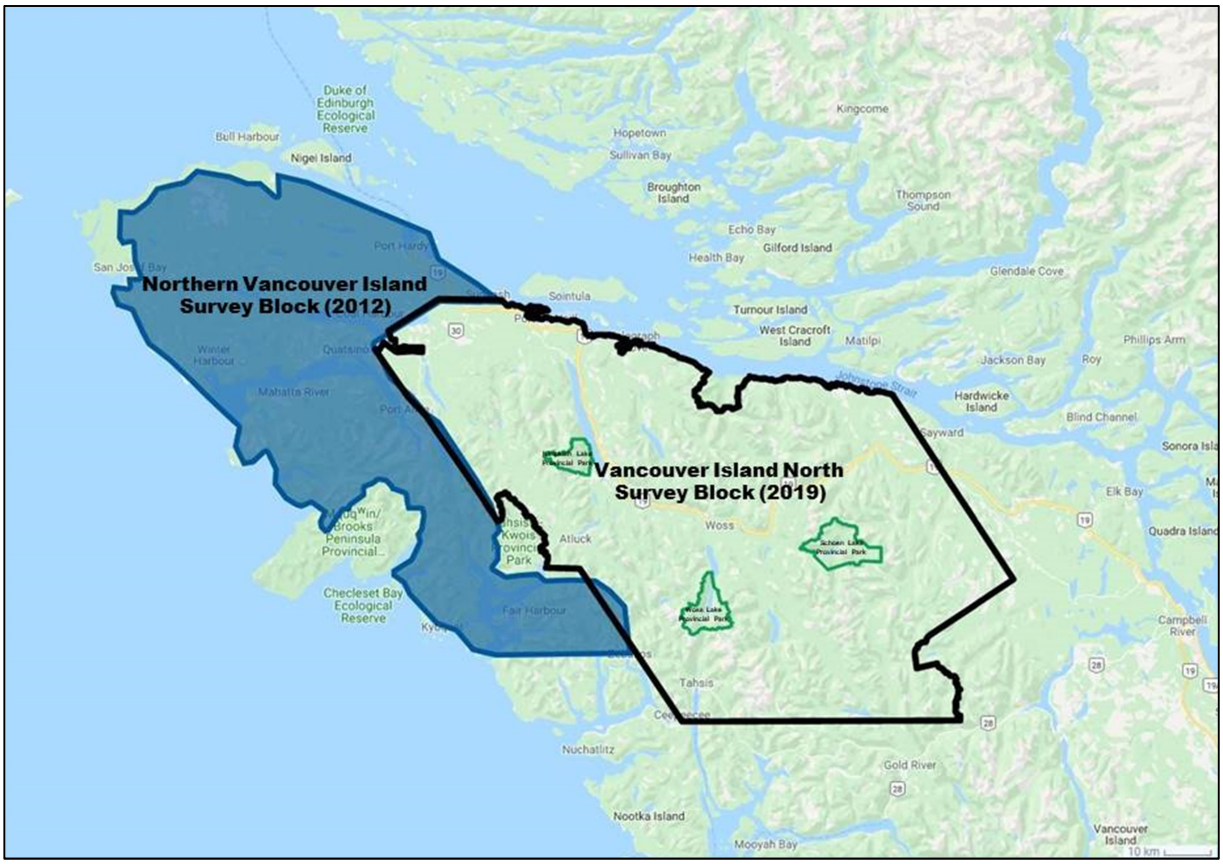

Figure 5: Vancouver Island North 2019 survey area (black outline) adjacent to Northern Vancouver Island survey block flown in 2012 (blue shaded area to the northwest).

Survey Block	Year Flown	Area (km^2)	Technology	Line Spacing (m)	Survey Line Orientation	Flight Height (m)	Total Actual Line km
Vancouver Island North	2019	6132.5	Magnetic gradient and radiometrics	250	056.5°/236.5°	80	26,973.4
Northern Vancouver Island	2012	4204*	Total field magnetics	250	056.5°/236.5°	16-865**	19,342**
Total		**10,336.5**					**46,315.4**

Table 2: Geoscience BC's adjoining Vancouver Island North and Northern Vancouver Island survey blocks. The 2012 survey was flown with a pre-calculated drape surface using 20% climb/descent profiles, while the 2019 survey was flown at a constant height of 80 m above ground level.
* from Geoscience BC Report 2013-1. ** from Geoscience BC Report 2013-2.

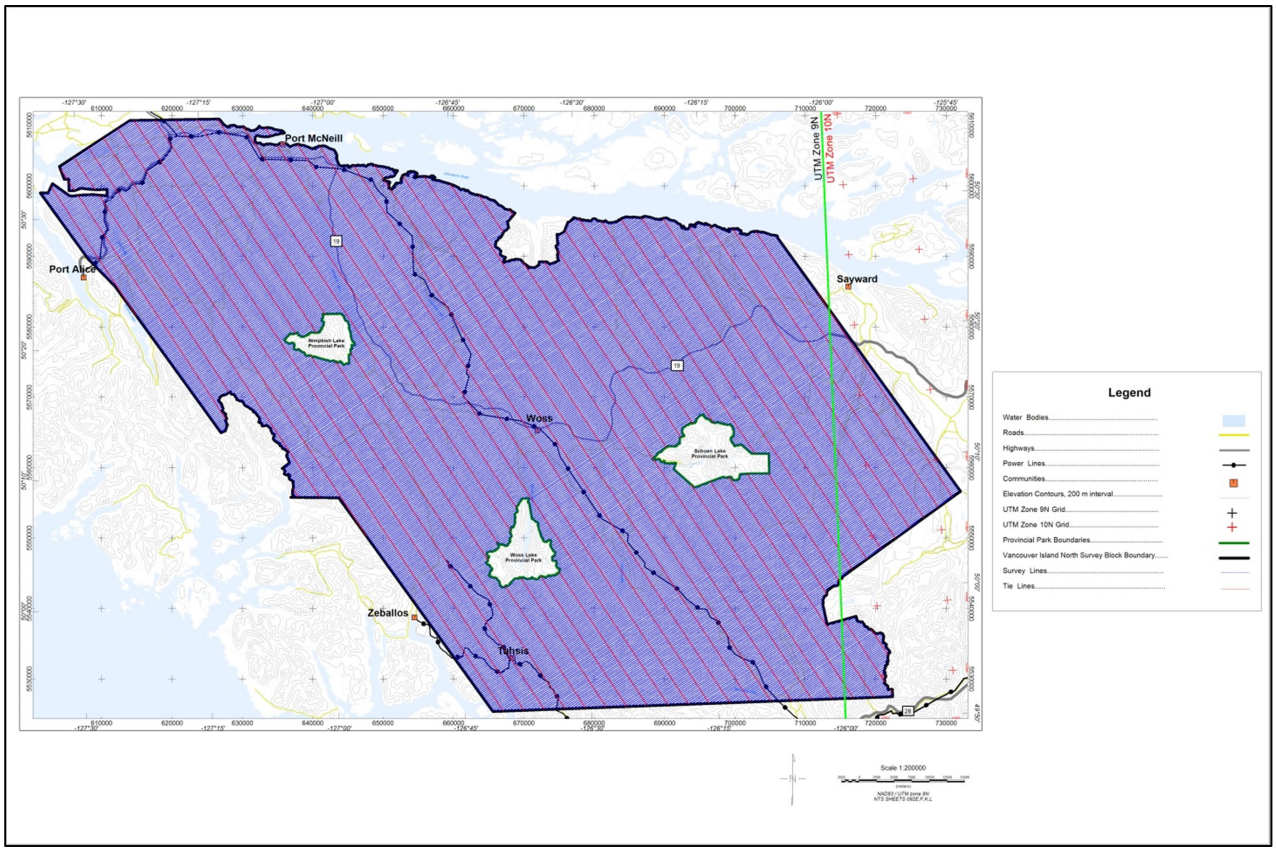

Figure 6: Vancouver Island North 2019 survey area showing survey boundary in black, 512 survey lines in blue, and 34 tie lines in red. Area east of 126° west longitude (green line) is in UTM Zone 10N and flown in UTM zone 9N for consistency.

1.3 Ground Clearance

Airborne geophysical data are collected at a predetermined height above ground level. Height is a critical factor in determining many parameters, with competing objectives of safety, survey cost, production, and data resolution. Typical methods of altitude control during airborne geophysical surveys are constant elevation AGL, constant elevation ASL, and a mathematically-derived elevation model called drape, which is essentially a compromise between the first two. Over flat ground, these three methods result in similar flight profiles but over mountainous terrain they are very different.

Most of Geoscience BC's previous airborne geophysical surveys, including the Northern Vancouver Island project flown in 2012, have been flown using a drape model. As the drape model yields a much smoother flight surface than actual topography, it has the benefits of increasing production, reducing survey cost, standardizing parameters for multiple surveys, and minimizing the difference in elevation between survey and tie lines at their intersection points, which is beneficial for leveling routines. However, a smooth drape surface over steep terrain will always result in variable ground clearance for the survey aircraft and sensors. Resolution and

amplitude of geophysical anomalies will be reduced; therefore, drape models are not suitable for collecting uniform resolution geophysical data in mountainous terrain.

Because loss of geophysical signal with height is substantial, and much greater than the variance of signal resulting from survey line – tie line intersection errors, Geoscience BC elected to fly the Vancouver Island North magnetic and radiometric survey at a constant height of 80 m above ground level for all data collection operations. The magnetic and radiometric sensors were carried on board the aircraft, so they are all at aircraft height.

The Vancouver Island North survey area (Figure 7) contains populated areas, industrial areas, cultural obstacles (including numerous power lines and communication towers), steep terrain, livestock, wildlife, extended water crossings (over 2 km), and tall trees (exceeding 60 m), which resulted in selected areas being flown higher than the 80 m specification in accordance with regulations and pilot judgement of safe flying conditions. These areas included the communities of Tahsis, Woss, and Port McNeill. Amplitude and resolution of geophysical data will be affected where survey navigation was modified by ground obstacles.

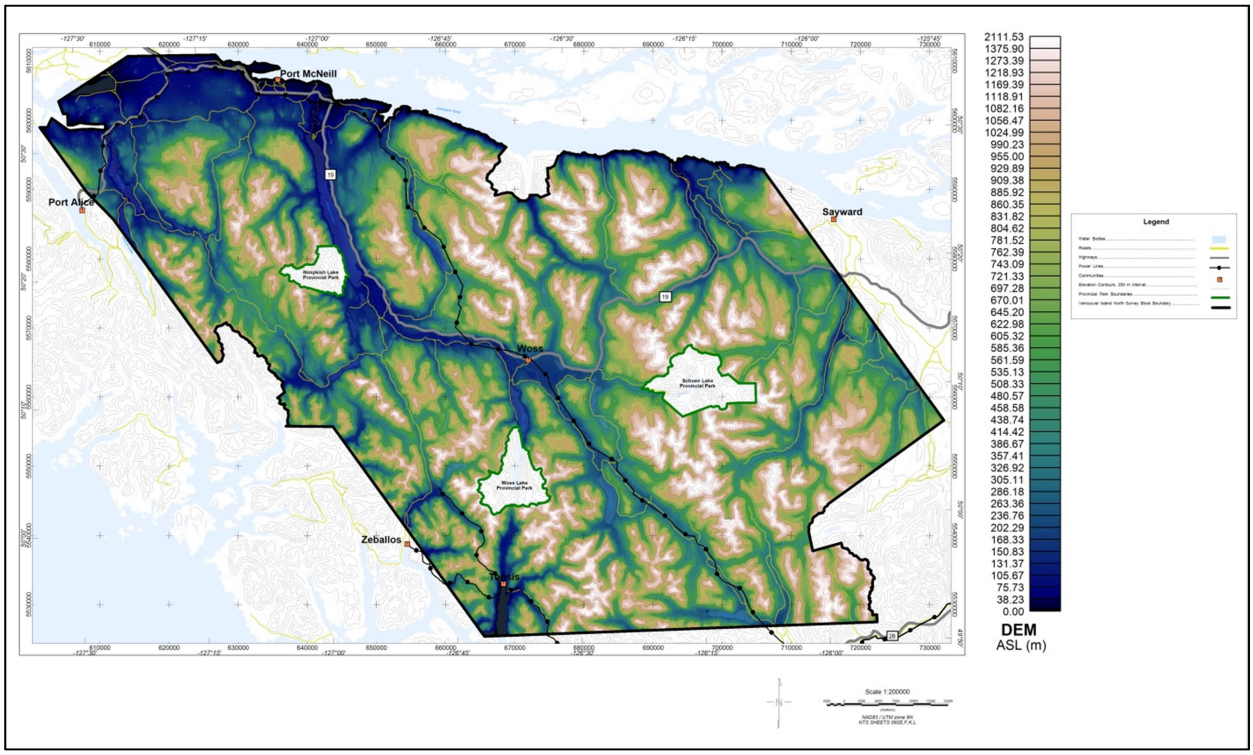

Figure 7: Digital Elevation Model (DEM) for Vancouver Island North survey area. Source: National Topographic Data Base (NTDB), Canada (ftp://ftp2.cits.rncan.gc.ca/pub/bndt/250k_shp_en/) March 2007. Retrieved June 19, 2019.

2.0 Geophysical Data

Geophysical surveys contribute to our understanding of the physical properties of Earth's subsurface. Data are collected in a variety of ways and are used to aid in determination of geology, mineral deposits, oil and gas deposits, geotechnical properties, contaminated land sites, and other purposes. To obtain data that accomplish these goals, appropriate survey technology and methods must be matched to the physical property or properties being mapped.

For the purposes of the Vancouver Island North 2019 survey area, airborne magnetic and gamma radiation data were acquired as an integrated single-pass survey to map the distribution of magnetic minerals and naturally radioactive materials within surficial and subsurface rock. In turn, the distribution and concentration of magnetic and radioactive minerals and materials can be used to draw conclusions about lithology, geologic structure, and alteration in the survey area.

2.1 Magnetic Data

Magnetic surveying is the most common airborne survey conducted for geological mapping purposes and is also widely used for both mineral and hydrocarbon exploration. Aeromagnetic surveys measure and record the total magnetic field intensity at the magnetometer sensor. The recorded data are a combination of the desired magnetic field generated by Earth's magnetized crust as well as undesired magnetic fields due to effects of solar wind interacting with the magnetosphere, and the magnetic field generated by the aircraft. By subtracting undesired solar wind effects, diurnal variations, magnetic drift, regional magnetic gradients, and aircraft effects, the resultant aeromagnetic map represents the spatial distribution and relative abundance of magnetic materials (most commonly the iron oxide mineral magnetite $Fe^{2+}Fe^{3+}{}_2O_4$) in the upper levels of Earth's crust. The shape, dimensions, and amplitude of magnetic variations can be related to the orientation, geometry, size, depth, and magnetic susceptibility of magnetic sources in Earth's subsurface as well as the intensity and inclination of Earth's magnetic field in the survey area.

For the Vancouver Island North survey, airborne magnetic measurements were made using a gradient array with three magnetometers: Mag 1 (port/left boom), Mag 2 (center/forward boom) and Mag 3 (starboard/right boom). The primary sensor is Mag 2, and its data were used to produce standard magnetic anomaly maps of the survey area. Data from all three sensors were used to measure magnetic gradients and to create an enhanced magnetic anomaly map.

2.2 Radiometric Data

Radiometric surveys are used to determine either the absolute, or relative, concentrations of uranium (U), thorium (Th), and potassium (K) in surface rocks and soils using natural radioactive emanations. Gamma radiation is utilized due to its greater penetration depth compared with alpha and beta radiation. Radiometric data are useful for mapping lithology, alteration, and structure as well as providing insights into weathering. For example, the natural radioactivity of igneous rocks generally increases with SiO_2 content and clay minerals tend to fix the natural radioelements. Gamma ray spectrometers measure both the intensity and energy of radiation, enabling the identification of specific radioelements in addition to measuring the total gamma radiation field.

Gamma rays are electromagnetic waves with frequencies between 10^{19} and 10^{21} Hz emitted spontaneously from an atomic nucleus during radioactive decay, in packets referred to as photons. The energy E transported by a photon is related to the wavelength λ or frequency ν by the formula:

$$E = h\nu = hc/\lambda$$

where: c is the velocity of light
h is Planck's constant (6.626×10^{-34} joule).

All detectable gamma radiation from Earth materials comes from the natural decay products of three primary radioelements: U, Th, and K. Each individual nuclear species (element) emits gamma rays at one or more specific energies, as shown in Figure 8. Of the three main natural radioactive elements, only potassium (^{40}K) emits gamma energy directly at 1.46 MeV. Uranium (^{238}U) and thorium (^{232}Th) emit gamma rays through their respective decay series; ^{214}Bi at 1.76 MeV for uranium and ^{208}Tl at 2.61 MeV for thorium. Accordingly, the ^{214}Bi and ^{208}Tl measurements are considered practical equivalents for uranium (eU) and thorium (eTh), as the daughter products will be in equilibrium under most natural conditions.

Surficial debris, vegetation, standing water (lakes, marshes, swamps), and snow increase attenuation of gamma rays originating from underlying rocks. Therefore, variations in isotope counts must be evaluated with respect to surficial conditions before they are attributed to changes in underlying geology. An increase in soil moisture can also significantly affect gamma radiation concentrations. For example, a 10% increase in soil moisture can decrease the measured gamma radiation by about the same amount. Radon isotopes are long-lived members of both the U and Th decay series and Ra mobility can influence radiometric surveys. In addition to being directly radioactive, ^{226}Ra and ^{222}Rn can attach to dust particles in the atmosphere. Radioactive precipitation of these dust particles by rain can lead to apparent increases of more

than 2000% in uranium ground concentration (IAEA, 2003). The Vancouver Island North survey specifications allowed for survey flights regardless of weather, moisture, and snow conditions and therefore gamma data may be locally compromised.

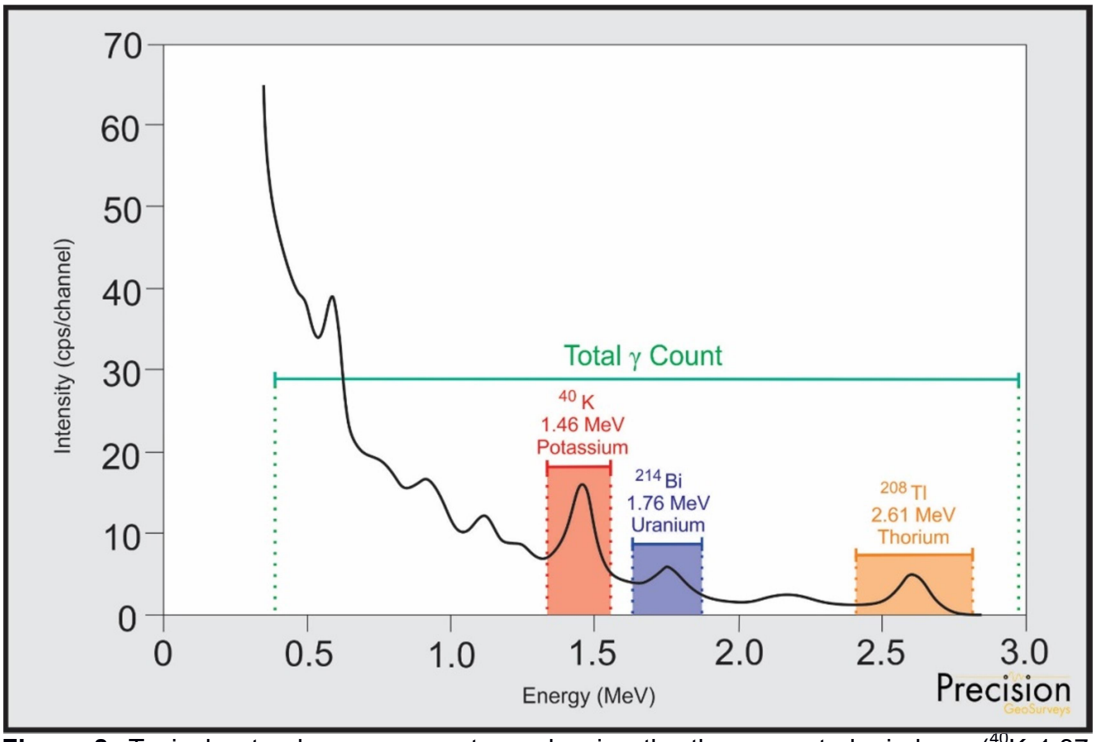

Figure 8: Typical natural gamma spectrum showing the three spectral windows (^{40}K 1.37-1.57 MeV, ^{214}Bi 1.66-1.86 MeV, ^{208}Tl 2.41-2.81 MeV) and total count (0.40-2.81 MeV) window.

3.0 Survey Operations

Precision GeoSurveys flew the Vancouver Island North survey out of operating bases at Gold River, Port McNeill, and Woss, BC. The experience of the pilots helped to ensure that data quality objectives were met and that flight crew safety was never compromised given the potential risks involved in airborne geophysical surveying. Field processing and quality control checks were performed daily by on-site geophysicists. The survey was started on August 3, 2019 and completed on October 23, 2019. Substantial delays due to poor weather were encountered. Variable amounts of snow on north-facing slopes higher than 800 m ASL were present after October 4.

3.1 Operations Base and Crew

Multiple bases of operations were used for this survey to maximize production in accordance with variable weather conditions and the area of the survey block, as follows:

- Gold River, BC (E+B Helicopters): August 3-10, 2019
- Port McNeill, BC (Kestrel Helicopters): August 11-28, 2019
- Woss, BC (Western Forest Products): August 29-October 23, 2019

Precision's geophysical crew consisted of 12 members (Table 3):

Crew Member	Position
Harmen Keyser, PGeo	Pilot and project manager
Lars Helgesen	Pilot
Ben Bruner, AME	Aircraft maintenance engineer
Rick Graham, AME	Aircraft maintenance engineer
Coreen Dick	Logistics and expediting
Karen Douglas	Safety officer and weather briefer
Jonathan Passiniemi	Geophysical operator and electronics technician
Wendell Huttema, PhD	Software/hardware development and geophysical operator
Erik Keyser, BSc, GIT	Geophysicist and data processor
Steve Balch, PGeo	Geophysicist and data processor
Shawn Walker, MSc, PGeo	Geophysicist and data processor
Jenny Poon, BSc, PGeo	Supervising geophysicist and data processor

Table 3: Personnel employed by Precision GeoSurveys to collect and process Vancouver Island North Project geophysical data.

3.2 Magnetic Base Station Specifications

Changes in Earth's magnetic field over time, such as diurnal variations, magnetic pulsations, and geomagnetic storms, were measured and recorded by two stationary GEM GSM-19T proton precession magnetometers. The magnetic base stations were variously located in Gold River, Port McNeill, and Woss (Table 4; Figures 9 to 14) as the survey progressed to ensure that all survey line data were collected within 60 km of a base station.

The magnetic base stations were located in magnetically noise-free areas, away from metallic items such as ferromagnetic objects, vehicles, or power lines that could affect the base station or survey data. Base station readings were reviewed at regular intervals to ensure that no airborne data were collected during periods of heightened geomagnetic activity, so that airborne data collection was limited to periods when geomagnetic activity did not exceed 10 nT within a five minute interval.

Data from GEM 2 were the primary source of temporal correction data, while GEM 1 provided backup data. When it was necessary to relocate base station positions as operating bases changed, a third base station (GEM 4) was advanced to the new location and operated for at least 60 minutes before the previous stations were moved. These simultaneous measurements provided a level shift to correct for regional gradient and local magnetic variations.

Station Name	Location	Easting/Northing	Latitude/Longitude	Datum/Projection
GEM 1 S/N 8052735 (Aug 3 – Aug 10)	Gold River	712180 m E 5515291 m N	49° 45' 9.43" N 126° 03' 15.26" W	WGS 84, Zone 9N
GEM 1 S/N 8052735 (Aug 10 – Aug 28)	Port McNeill	635812 m E 5604761 m N	50° 34' 44.22" N 127° 04' 54.34" W	WGS 84, Zone 9N
GEM 1 S/N 8052735 (Aug 29 – Oct 23)	Woss	671840 m E 5564914 m N	50° 12' 41.11" N 126° 35' 29.54" W	WGS 84, Zone 9N
GEM 2 S/N 2065369 (Aug 3 – Aug 10)	Gold River	712181 m E 5515281 m N	49° 45' 9.11" N 126° 03' 15.23" W	WGS 84, Zone 9N
GEM 2 S/N 2065369 (Aug 10 – Aug 28)	Port McNeill	635851 m E 5604792 m N	50° 34' 45.19" N 127° 04' 52.32" W	WGS 84, Zone 9N
GEM 2 S/N 2065369 (Aug 29 – Oct 23)	Woss	671834 m E 5564906 m N	50° 12' 40.86" N 126° 35' 29.87" W	WGS 84, Zone 9N
GEM 4 S/N 2105651	Reference	-	-	-

Table 4: Magnetic base station locations. Data from GEM 2 were the primary source of temporal correction data, while GEM 1 and GEM 4 were used for backup and level shifts.

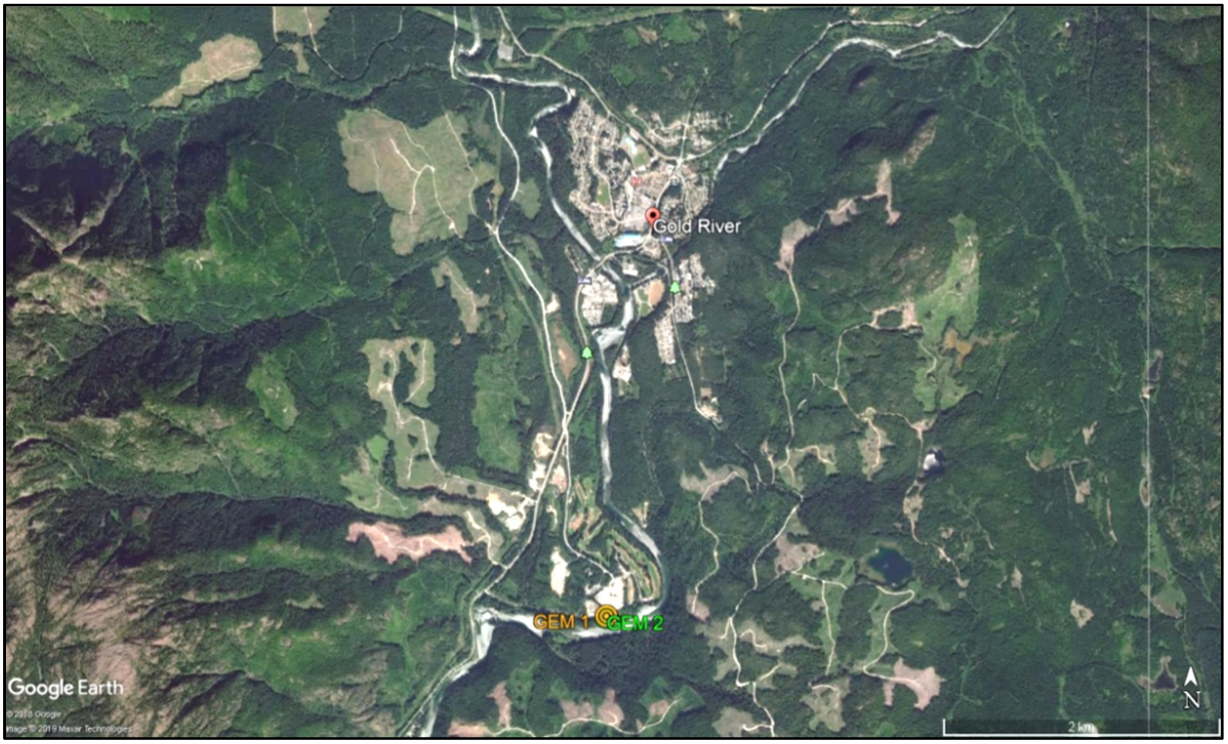

Figure 9: Magnetic base station locations GEM 1 (orange) and GEM 2 (green) at Gold River.

Figure 10: GEM 1 (left) and GEM 2 (right) magnetic base stations at Gold River.

Figure 11: Magnetic base station locations Gem 1 (orange) and GEM 2 (green) at Port McNeill.

Figure 12: GEM 1 (left) and GEM 2 (right) magnetic base stations located behind Kestrel Helicopters at Port McNeill.

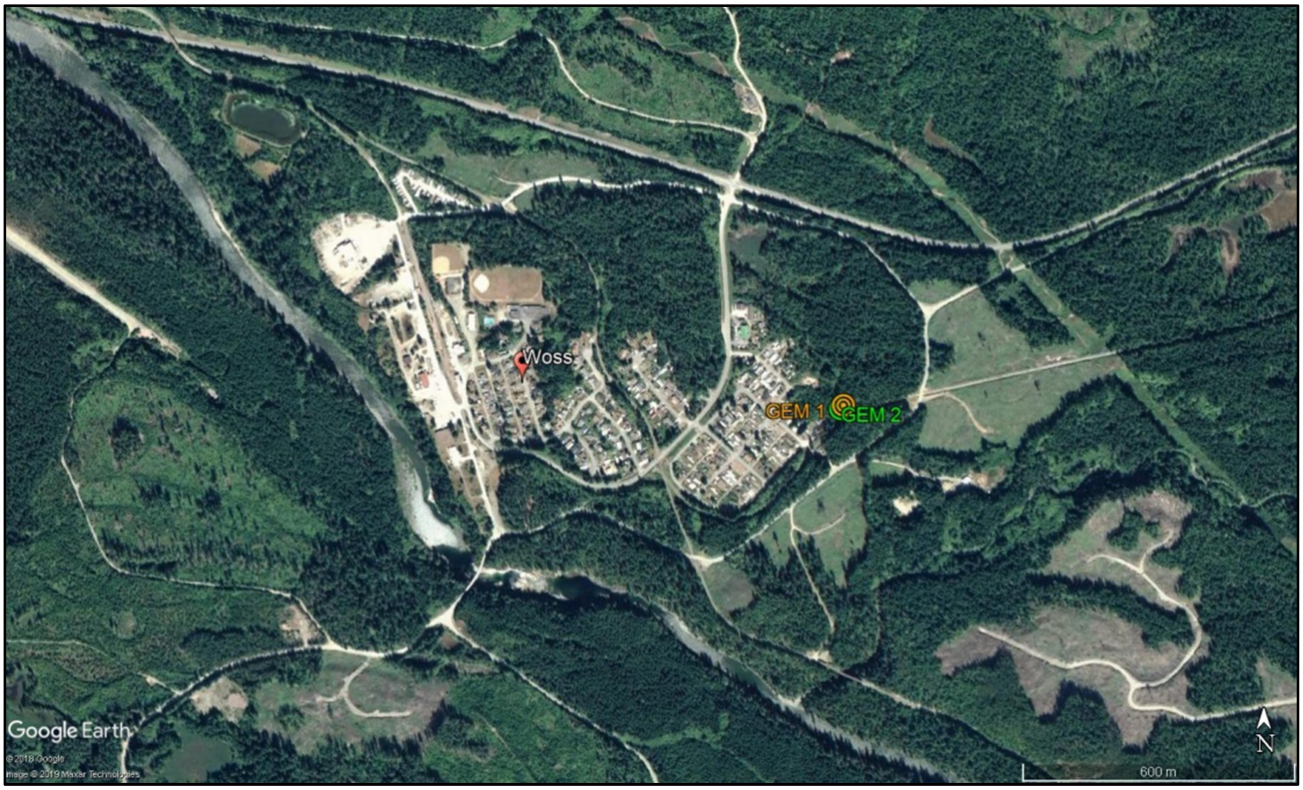

Figure 13: Magnetic base station locations at Woss.

Figure 14: GEM 1 (left) and GEM 2 (right) magnetic base stations at Woss.

Magnetic variations recorded by the stationary base magnetometers were removed from magnetic data recorded on the helicopter to ensure that anomalies seen were attributable to changes in subsurface physical properties, specifically crustal magnetization, and not due to solar magnetic activity.

Geomagnetic activity remained quiet for the duration of the survey. No data were collected when magnetic field variations were outside of contract specifications. In addition to solar storms, which cause dramatic changes in Earth's magnetosphere, low frequency events, which result in

either a slow increase or decrease in average recorded values, can be measured. To help identify this phenomenon, known as magnetic drifting, daily base station values were calculated and plotted (Figure 15).

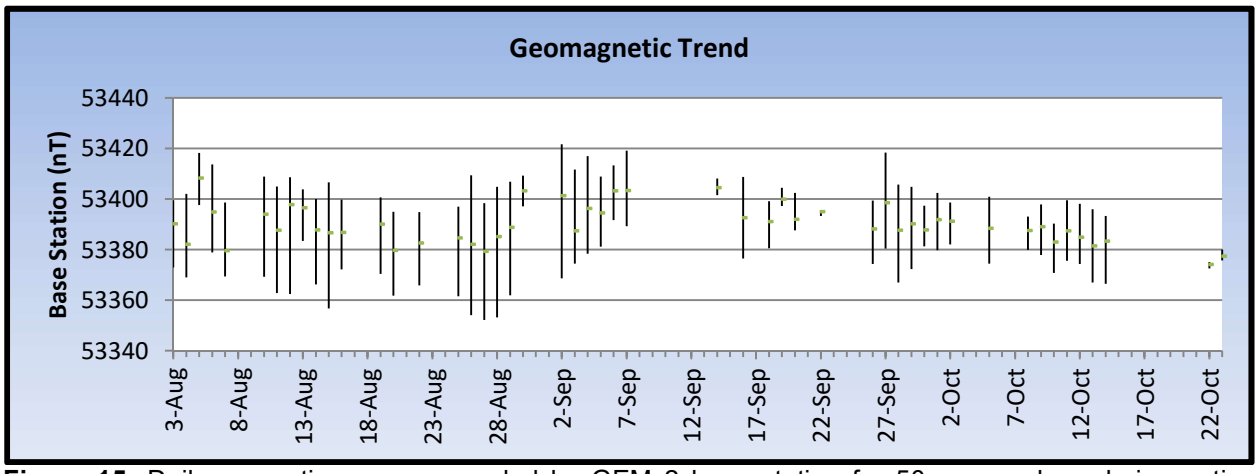

Figure 15: Daily magnetic ranges recorded by GEM 2 base station for 50 survey days during entire survey period. All data normalized to Gold River GEM 2. Trend of daily averages represents magnetic drifting. No airborne data were collected on days without data points.

3.3 Field Processing and Quality Control

Upon completion of each survey flight, survey data were transferred from the aircraft's data acquisition system onto a USB memory stick and copied onto a field data processing laptop. The raw data files in PEI binary data format were converted into Geosoft GDB database format using proprietary software. Using Geosoft Oasis Montaj 9.7, the data were inspected to ensure compliance with contract specifications (Table 5, Figure 16). Flight lines that did not meet navigational specifications (left/right and up/down) were re-flown. Selected suspect magnetic anomalies, especially those found on a single flight line, were re-flown for confirmation. Where required, re-flight lines were a minimum of 3000 m long, so that survey line re-flights crossed at least two tie lines, and tie line re-flights crossed at least 10 survey lines.

Specified survey height was intentionally exceeded by the pilots over populated areas at Port McNeill, Tahsis, Telegraph Cove, and Woss (Figure 17) to comply with aviation regulations and to minimize noise disturbances. In addition, wildlife, tall trees, and power lines (Figure 18) in the survey area caused flight height to locally exceed specification especially over sloping ground.

Parameter	Specification	Tolerance	Result
Navigation	Line Deviation	Left/right flight line deviation within 50 m for 1.50 km or more	99.99% within 50 m of specified line location; 99.28% within 10 m
	Height	Nominal flight height of 80 m AGL with a tolerance of ±15 m, provided height deviation is not due to tall trees, topography, cultural features, mitigation of wildlife harassment, or other obstacles beyond the pilot's control	Average height 81.2 m. 99.74% of data within specified range over 1 km. Primary deviations were over communities of Port McNeill, Tahsis, Telegraph Cove, and Woss
	GPS	4 or more GPS satellites must be in view, provided signal loss is not due to topography	100% GPS recovery
	Intersection Points	Height difference between TL/SL intersection points within 30 m	86% within 30 m
Magnetics	Sampling Rate	10 Hz	10 Hz
	Noise Level	0.1 nT	0.002 nT
	Geomagnetic & Diurnal Variation	Non-linear magnetic diurnal variations not to exceed 10 nT from a linear chord of length five (5) minutes	100% within tolerance
	Normalized 4th Difference	Magnetic data exceeding 0.05 nT peak to peak for distances greater than 1 km or more (provided noise is not due to geological or cultural features)	100% less than 0.05 nT
Radiometrics	Crystal Volume	Unspecified	21 litres in 5 crystals (4 down, 1 up)
	Moisture Conditions	No specification for moisture as this was primarily a magnetic survey	Not applicable
	Sampling Rate	Unspecified	1 Hz

Table 5: Specifications for Vancouver Island North survey data acquisition.

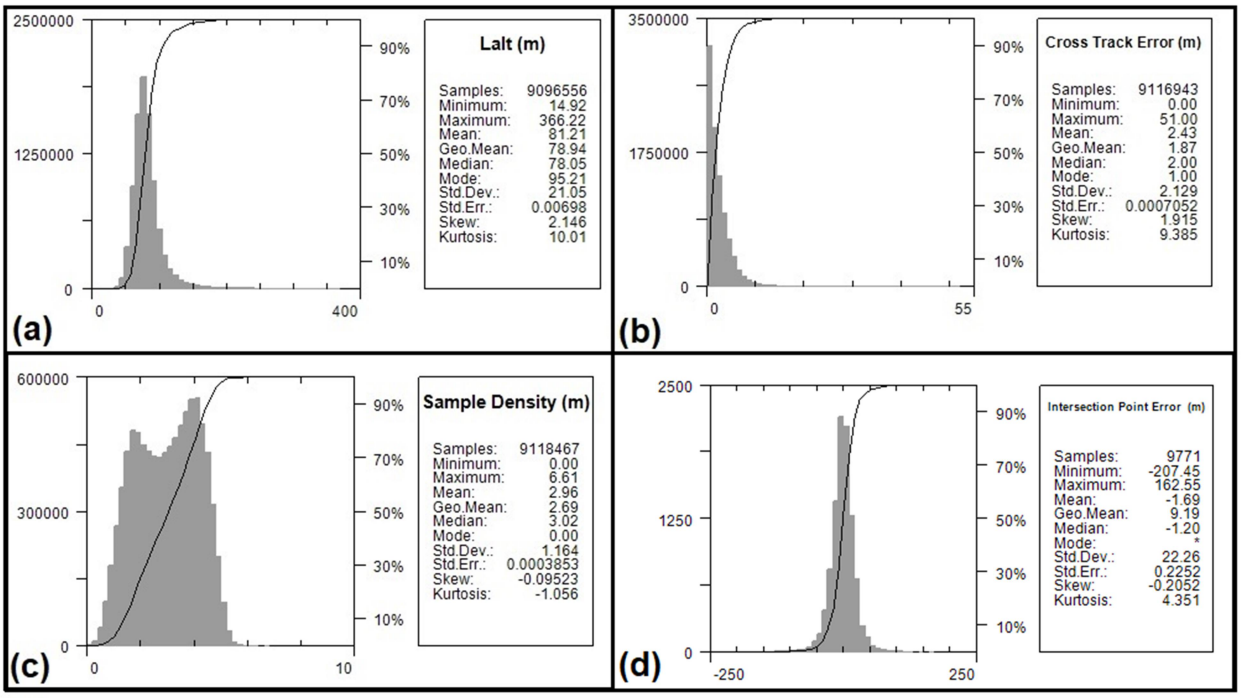

Figure 16: Navigation histograms for 26,973.4 km of survey and tie lines on Vancouver Island North, showing (a) survey elevation vertically above ground, (b) left/right track, (c) magnetic sample spacing at 10 Hz, and (d) height differences between tie lines and survey lines at intersection points.

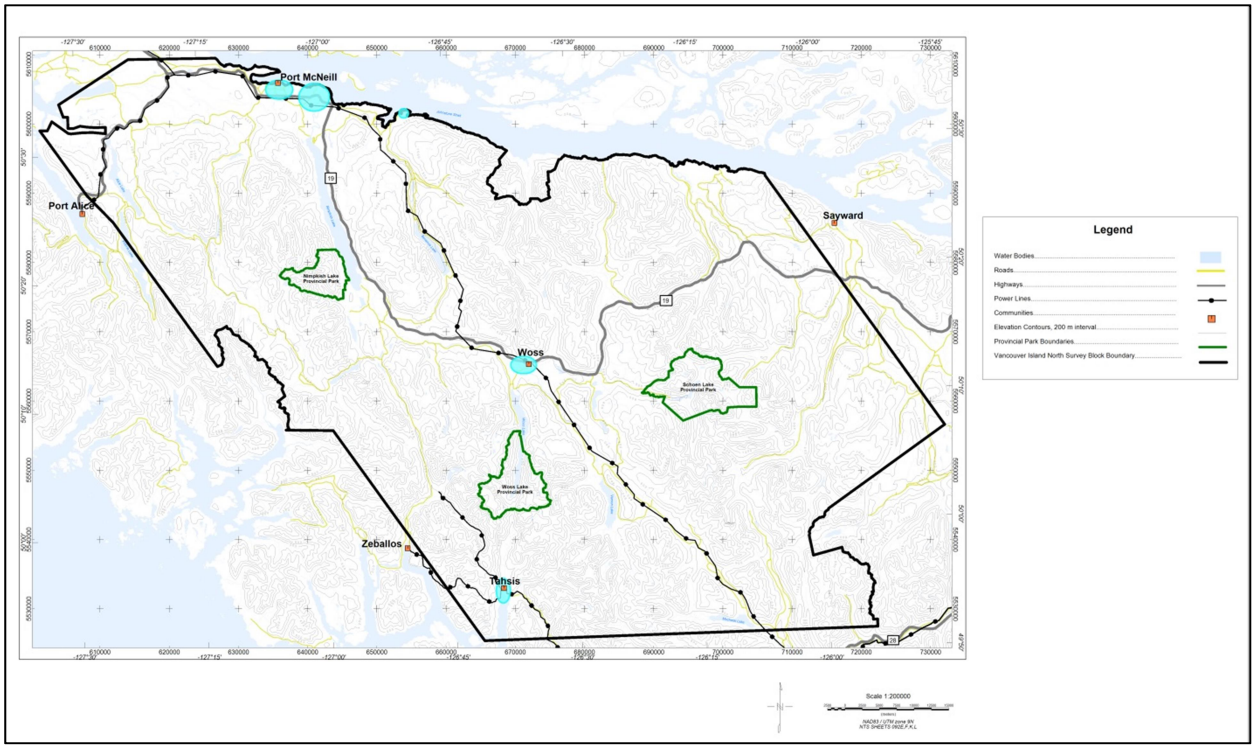

Figure 17: Vancouver Island North survey block showing areas where height specifications were exceeded due to populated areas shaded in blue.

Figure 18: Examples of valley-spanning powerline northwest of Tahsis that resulted in height deviations.

3.4 Wildlife Observations

Geoscience BC recognized that noise from the survey helicopter could disturb various wildlife in the survey area, especially elk, deer, and bears. Accordingly, Precision's flight crews were provided authority to modify or abandon flight paths to mitigate wildlife disturbance.

4.0 Aircraft and Equipment

All geophysical and subsidiary equipment were carefully installed on Precision GeoSurveys geophysical aircraft. For this survey, three magnetometers, magnetic compensation system, gamma detection system, laser altimeter, data acquisition system, a pilot guidance unit (PGU), GPS navigation system, and magnetic base stations were required to carry out the survey and collect high quality data. The survey magnetometers were contained in a Transport Canada-certified triple boom configuration to allow the measurement of magnetic gradient and the gamma crystals were carried on board the helicopter.

4.1 Aircraft

Precision GeoSurveys flew the Vancouver Island North survey area using an Airbus (formerly Eurocopter) AS350 helicopter, registration C-GSVY. The aircraft's ferromagnetic and paramagnetic properties were reduced on a daily basis using a proprietary degaussing process to help improve the quality of the collected magnetic data.

4.2 Geophysical Equipment

The survey aircraft (Figure 19) was equipped with magnetic sensors, gamma ray sensors, a navigation system, and a data logger to allow measurement of magnetic and radiometric fields on the Vancouver Island North survey.

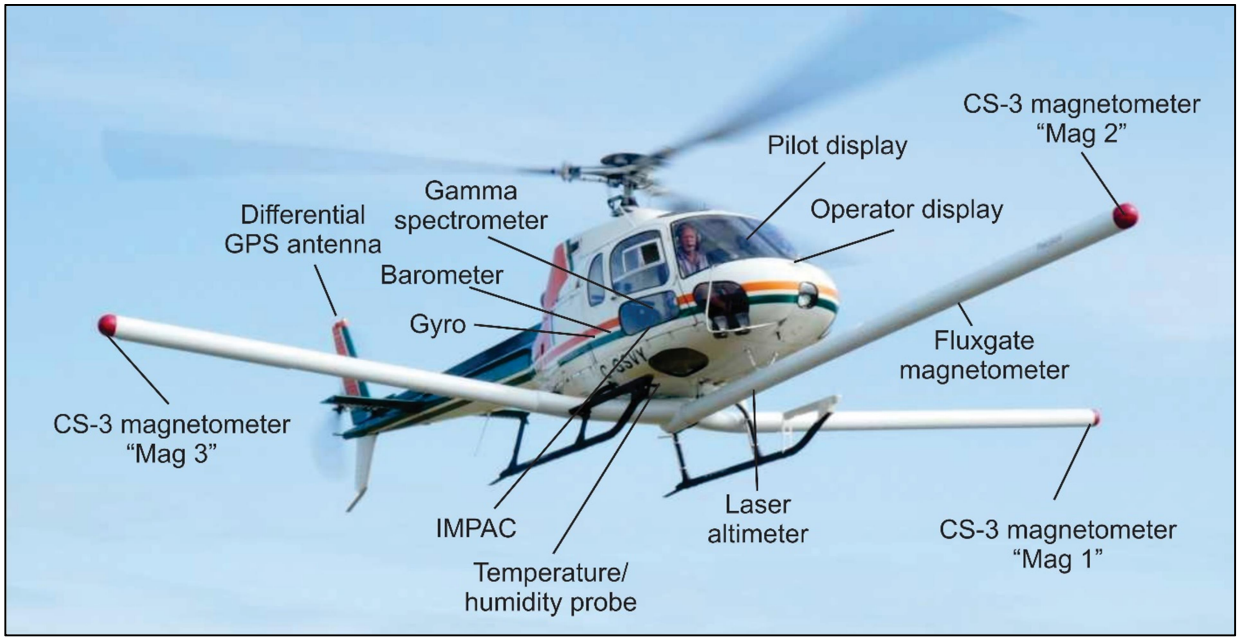

Figure 19: Airbus AS350 "AStar" helicopter equipped with three magnetic sensors for magnetic data acquisition and internal 21 litres of gamma crystals for radiometric data acquisition.

4.2.1 IMPAC

The Integrated Multi-Parameter Airborne Console (IMPAC) (Figure 20), manufactured by Nuvia Dynamics Inc. (previously Pico Envirotec Inc.), is the main computer used in integrated data recording, data synchronizing, providing real-time quality control data for the geophysical operator display, and generating navigational information for the pilot and operator display systems.

Figure 20: IMPAC data acquisition system.

4.2.2 AGIS

IMPAC uses the Microsoft Windows operating system and geophysical parameters are based on Nuvia's Airborne Geophysical Information System (AGIS) software. Depending on survey specifications, information such as magnetic field, electromagnetic data, total gamma count, counts of various radioelements (K, U, Th, etc.), temperature, cosmic radiation, barometric pressure, atmospheric humidity, navigation parameters, and GPS status can all be monitored on the AGIS on-board display (Figure 21).

While in flight, raw magnetic response, magnetic fourth difference, compensated and uncompensated data, radiometric spectra, aircraft position, survey altitude, cross track error, and other parameters can be viewed by the geophysical operator for immediate QC (quality control) of the geophysical data. Additional software allows for real-time or post-flight magnetic compensation and radiometric calibration.

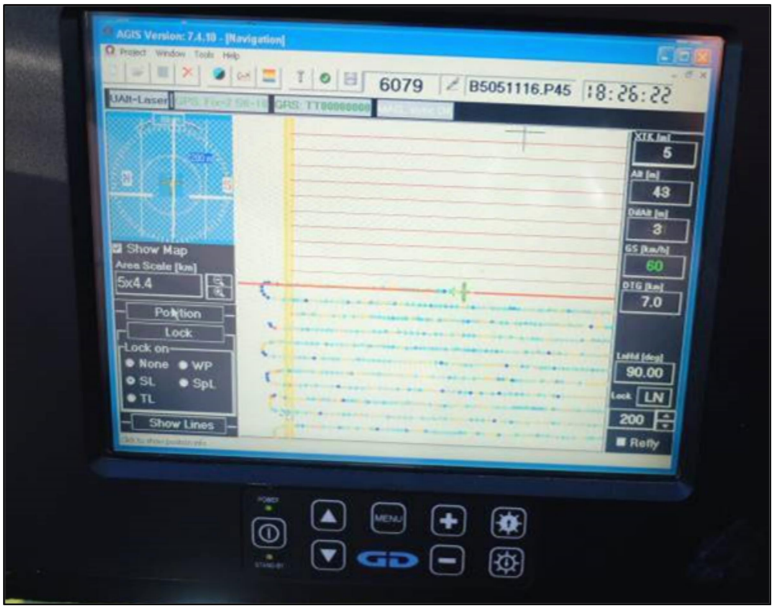

Figure 21: AGIS operator display installed in Airbus AS350 survey helicopter, displaying real time flight line recording and navigation parameters. Additional windows display real-time geophysical data to operator.

4.2.3 Magnetometer

The Vancouver Island North was flown with three boom-mounted Scintrex CS-3 split-beam cesium vapor magnetometers (S/N 612211, 612210, and 712302) mounted in a non-magnetic and non-conductive triple boom configuration (Figure 22) to provide total magnetic intensity as well as magnetic gradient in the crossline (x or lateral or transverse) and inline (y or longitudinal) directions (Table 6). CS-3 magnetometers (Figure 23) provide very high sensitivity

and low noise with automatic hemisphere switching and a wide voltage range; the static noise rating for the unit is +/- 0.01 nT. The magnetometers were tested, calibrated, and certified by the manufacturer Scintrex prior to starting the survey. Magnetic data were recorded at 10 Hz in accordance with Geoscience BC specifications.

Figure 22: View of triple magnetic boom system used on Vancouver Island North survey. One magnetometer installed at the end of each boom to provide total magnetic intensity, crossline magnetic gradient, and inline magnetic gradient measurements.

Direction	Distance (m)
Crossline or x	11.5
Inline or y	7.3

Table 6: Magnetometer sensor separations in triple boom configuration.

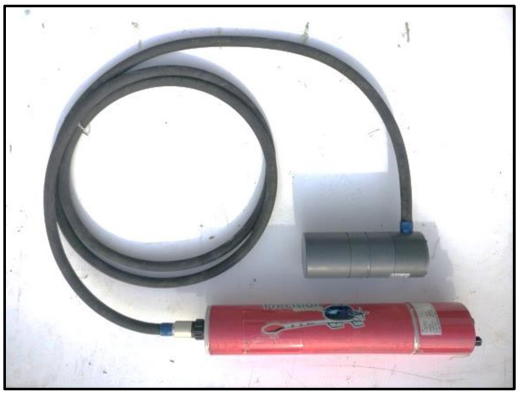

Figure 23: Scintrex CS-3 magnetometer.

4.2.4 Radiometrics

Gamma radiation data were collected by an Advanced Gamma Ray Spectrometer (AGRS-5) system manufactured by Nuvia Dynamics. The AGRS is an intelligent, self-calibrating, fully integrated gamma detection system (Figure 24) containing five thallium-activated synthetic

sodium iodide crystals; 16.8 litres downward-looking and 4.2 litres upward-looking, with 256 channel output at 1 Hz sampling rate. The downward-looking crystals are designed to measure gamma rays from below the aircraft. The upward-looking crystal is mounted directly on top of the four downward-looking crystals to measure cosmic and solar gamma radiation originating from above the survey aircraft and is shielded from terrestrial radiation by the downward-looking crystals. The AGRS system is installed in the rear passenger cabin of the helicopter away from the fuel tank to minimize variable gamma attenuation from fluctuating fuel levels.

Figure 24: AGRS-5 gamma spectrometer system with five detectors; a total of 21 litres NaI(Tl) synthetic crystals with 4 down and 1 up.

4.2.5 Attitude Measurements

As a survey aircraft flies along a survey line, small attitude changes (pitch, roll, and yaw) are constantly applied by the pilot to provide the correct aircraft position with respect to the desired flight line and ground clearance. Measurement of helicopter attitude is necessary to remove magnetic noise created by aircraft movement through a compensation process, as well as to correct the direction of the magnetic gradient when the helicopter boom system is not oriented straight and level. Attitude is measured relative to inclination and declination of Earth's magnetic field with a Billingsley TFM100G2 triaxial fluxgate magnetometer (Figure 25). In addition, a custom solid state gyroscope is used to record attitude data independent of the magnetic field for calibration purposes.

Figure 25: Billingsley TFM100G2 triaxial fluxgate magnetometer installed in the forward magnetometer boom.

4.2.6 Magnetic Base Stations

Precision GeoSurveys operated three GEM GSM-19T base station magnetometers to monitor and record temporal variations in Earth's magnetic field, including diurnal. Base stations were located in a secluded area with low magnetic gradient, away from electric power transmission lines and moving ferrous objects, such as motor vehicles, which could affect survey data integrity.

GEM GSM-19T magnetometers (Figure 26) with integrated GPS time synchronization use proton precession technology with absolute accuracy of ±0.20 nT and sensitivity of 0.15 nT at 1 Hz. Base station magnetic data were recorded on internal solid-state memory and downloaded onto a field laptop computer using a serial cable and GEMLink 5.4 software. Profile plots of the base station readings were generated, updated, and reviewed at the end of each survey day.

Figure 26: GEM GSM-19T proton precession magnetometer.

4.2.7 Pilot Guidance Unit

Steering and elevation (ground clearance) information is continuously provided to the pilot by 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 27) to assist the pilot in keeping the aircraft on the planned flight path at the desired heading, speed, and ground clearance.

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, laser altimeter, and AGIS.

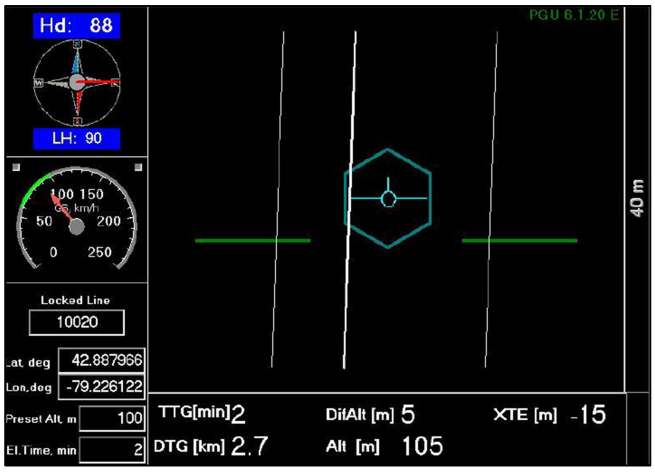

Figure 27: PGU screen displaying navigation information.

4.2.8 GPS Navigation System

A Hemisphere R220 GPS receiver (Figure 28) and a Novatel GPS antenna integrated with the AGIS navigation system and pilot display (PGU) provide accurate navigational information and control. The R220 GPS receiver supports fast updates and outputs messages at a rate of up to 20 Hz, delivering sub-meter positioning accuracy in three dimensions. It supports GNSS (GPS/GLONASS) L1 and L2 signals.

Differential correction methods including L-Band, RTK, SBAS, and Beacon are supported. The R220 employs innovative Hemisphere GPS Eclipse SureTrack technology, which allows it to model the phase on satellites that the airborne unit is currently tracking. With SureTrack technology, dropouts are reduced and the speed of signal reacquisitions is increased; enhancing accurate positioning when base corrections are not available.

Figure 28: Hemisphere R220 GPS receiver.

4.2.9 Laser Altimeter

Terrain clearance is measured by an Opti-Logic RS800 Rangefinder laser altimeter (Figure 29) attached to the forward magnetometer boom. The RS800 laser is a time-of-flight sensor that measures distance using 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 a 1 x 1 m diffuse target with 50% (±20%) reflectivity. Reflected signal light is collected by the lens and focused onto a photodiode. Ground clearance data in meters are transmitted digitally to an RS-232 compatible port for pilot guidance at 1 Hz and AGIS recording at 10 Hz.

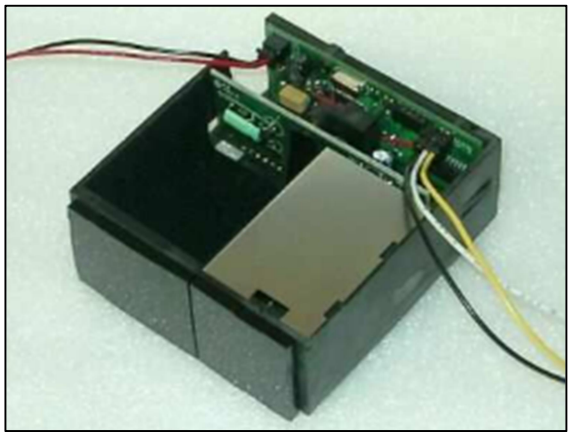

Figure 29: Opti-Logic RS800 Rangefinder laser altimeter.

5.0 Data Acquisition Equipment Checks and Calibration

Airborne equipment tests and calibrations were conducted at the start of the survey, and at regular intervals during the survey, to ensure compliance with contract specifications and to deliver high quality geophysical data.

5.1 Magnetics

Aeromagnetic surveys are subject to magnetic interference from various components in the aircraft as well as the operating environment. For this survey, a series of tests and calibrations were performed to ensure the final data are an accurate representation of the actual magnetic field. These tests are designed to reduce effects of the aircraft's magnetic field, instrument error, survey speed, and flight direction.

Modern magnetic sensors, such as Scintrex CS-3 magnetometers, are extremely sensitive instruments capable of accurate measurements. Actual performance is less than perfect due to a

combination of measurement error (including offset) and magnetic noise from the operating environment. Boom-mounted magnetometers, in particular, are subject to influence from the survey aircraft, as the sensor is within the magnetic field of the aircraft.

Asymmetric magnetic fields in the operating environment combined with instrument error can cause offsets in the measured magnetic field at a specific location. Cesium magnetometers are sensitive to direction, so that small variations in the reading, called heading error, are reported by the sensor depending on the orientation of its optical axis in the magnetic field.

Ferromagnetic materials in a survey aircraft may be magnetized from exposure to magnetic fields, electrical currents, or static electricity. This may occur during storage, fabrication and inspection routines, or flight operations. The intensity of this signal decreases as the inverse square of distance from the magnetic source. Even though the magnetometers are mounted remotely from the helicopter in long booms, a small but significant amount of undesirable magnetic field remains at the magnetometer position.

The three primary sources of magnetic noise produced by a helicopter are (1) electronics, (2) rotor, and (3) movement. These sources need to be addressed separately as the magnetic effects of a helicopter airframe are independent of the effects of the rotor and other less significant sources in terms of their amplitude, spectral content, and gradient correlation at the sensor locations.

5.1.1 Electronic Noise

Magnetic noise can be generated by various electrical systems present on an aircraft, such as electronic engine controls, generator, fuel pumps, cooling fans, communication equipment, and navigation equipment. Electronic engine controls (e.g., FADEC) were not allowed on the survey helicopter, and the remaining noise sources were reduced by a combination of electrical bonding, generator isolation, filtering specific to the frequency of the noise source, and recording of on/off activity of the thermostatically-controlled electric oil-cooling fan.

5.1.2 Rotor Noise

Rotor noise is directly related to the rotation of various main rotor components, primarily the rotor mast and rotor blades, which invariably contain ferromagnetic components. Therefore, the frequency of rotor noise is related to main rotor RPM. For the AS350 helicopter used in this survey, rotor speed is nearly constant at 395 RPM. With three main rotor blades, noise will be in the range of 6.58 Hz (mast) and 19.75 Hz (blades). Rotor noise can be significantly reduced by degaussing the aircraft.

5.1.3 Movement Noise

Movement noise is much lower frequency (< 2 Hz) than rotor noise, within the range of anticipated geophysical features, and must be removed. Aircraft roll, pitch, and yaw maneuvers combined with the permanent and induced magnetization of certain aircraft parts (in particular the rotor system components, engine, and other ferrous objects) contribute to this noise. The aircraft was degaussed on a daily basis and the remaining magnetic noise was reduced by an 18-term polynomial process called magnetic compensation.

Polynomial coefficients are determined by correlating the total field response to the direction cosines of the helicopter orientation as determined by a three-component fluxgate magnetometer. Data to calculate these coefficient terms are collected in a dedicated compensation flight (Table 7) completed prior to beginning the survey, and every time the helicopter configuration was changed in a way that could affect the helicopter's magnetic field. The process consists of a series of maneuvers (>10° roll, >5° pitch, and >5° yaw) where the aircraft flies in the four orthogonal headings required for the survey (056.5°/236.5° and 146.5°/326.5° in the case of this survey) at a sufficient altitude (typically > 2,500 m AGL) in an area of low magnetic gradient where Earth's magnetic field becomes nearly uniform at the scale of the compensation flight. In each heading direction, three specified roll, pitch, and yaw maneuvers (total 36) are performed by the pilot at constant elevation so that any magnetic variation recorded by the airborne magnetometer can be attributed to aircraft movement. These non-survey maneuvers must be of sufficient magnitude to account for all maneuvers expected while collecting survey data. Compensation flight data provide the necessary parameters for compensating the magnetic data and removing aircraft noise from survey data. The sum of the residual peak-to-peak noise after correction in each of the twelve parts (3 maneuvers, 4 directions each) of the compensation flight is called a Figure of Merit (FOM).

Date	Aircraft	Headings (UTM grid)	FOM Mag 1 (nT)	FOM Mag 2 (nT)	FOM Mag 3 (nT)
Aug. 4	C-GSVY	056.5°/236.5° - 146.5°/326.5°	1.52	0.79	1.55

Table 7: Compensation flight results. Flight maneuvers 12° roll, 14° pitch, and 12° yaw.

Compensation of horizontal gradient data can be performed on each total field sensor followed by calculation of the gradient (comp/grad), or by calculation of the gradient and then compensation (grad/comp). The two approaches produce negligible differences (on the order of rounding error). In order to maintain a consistent basis for comparison between total field and horizontal gradient, data presented here have compensation applied before calculation of the gradient.

5.1.4 Offset Errors

To determine heading errors and other offsets, a cloverleaf pattern flight test was conducted at high altitude with low magnetic gradients. The cloverleaf test was flown in the same orthogonal headings (see Appendix C) as the survey and tie lines (056.5°/146.5°/236.5°/326.5° in the case of this survey) at >2500 m AGL in an area with low magnetic gradient. For all four directions the survey helicopter must pass over the same mid-point, at the same elevation, with the aircraft in straight and level flight. The difference in magnetic values obtained in reciprocal headings is the heading error, and is applied to the survey data after compensation. Results of the test flight are summarized in Tables 8 and 9.

Heading	Mag 1 Correction (nT)	Mag 2 Correction (nT)	Mag 3 Correction (nT)
056.5°	19.02	-1.54	20.62
146.5°	9.58	-3.09	7.58
236.5°	-13.13	5.28	-16.85
326.5°	-15.48	-0.64	-11.35
Total:	**0.00**	**0.00**	**0.00**

Table 8: Individual magnetic sensor heading corrections. See Appendix C for detailed heading error test results.

Sensor Pair	Correction (nT)
Mag 1 to Mag 2	-7.271025
Mag 1 to Mag 3	-10.7386

Table 9: Sensor to sensor offset corrections.

5.1.5 Bias Test

When more than one magnetic sensor is installed on a survey aircraft with a gradient configuration, the individual sensors are unable to report the exact same magnetic field even when positioned at the same location, due to a combination of instrument error, asymmetrical magnetic field inherent to the aircraft and boom system, and residual heading error. This error, if not corrected, will generate apparent biases in magnetic gradient. The relative difference between magnetic readings from the three sensors on reciprocal headings collected during the heading test in a low gradient area is used to determine the magnetic bias, which is important for calculating accurate directions and polarities for magnetic gradients.

5.2 Gamma-ray Spectrometry

Calibration and testing of the AGRS airborne gamma-ray spectrometry system was carried out prior to the start of the survey. Calibration involved three tests, which enabled discrimination of individual radioelements and conversion of airborne data to ground concentration of the three natural radioactive elements. These tests were the calibration pad test, cosmic flight test, and altitude correction and sensitivity test. Measurements were made in accordance with IAEA technical report series No. 323, *Airborne Gamma Ray Spectrometer Surveying*, and AGSO Record 1995/60, *A Guide to the Technical Specifications for Airborne Gamma-Ray Surveys*.

5.2.1 Calibration Pad Test

The calibration pad test was conducted by Nuvia Dynamics using GSC (Geological Survey of Canada) portable gamma calibration pads. The pads are slabs of concrete containing known concentrations of the radioelements (K, Th, and U) and are used to simulate ideal geological sources of radiation. The measurements collected from the calibration pad test were used to determine the Compton scattering and Grasty backscatter (spectral overlap between element windows) coefficients for the spectrometer used on the Vancouver Island North survey.

5.2.2 Cosmic Flight Test

While the background source of gamma radiation from the aircraft itself is essentially constant, the amount of signal detected from ground sources varies with ground clearance. As the height of the aircraft increases, the distance between the ground and the spectrometer crystals increases, and the proportion of cosmic radiation in each spectral window increases exponentially due to radiation of cosmic origin because atmospheric mass decreases with height. The cosmic flight test is conducted to determine the aircraft's background attenuation coefficients for the detector crystal packs and the cosmic coefficients. The pilot is required to fly over the same location repeatedly in opposite directions at 4000, 5000, 6000, 7000, and 8000 feet (1220, 1520, 1830, 2130, and 2440 m) above ground, for approximately 2 minutes each, to collect gamma data used to determine the proportion of non-terrestrial signal present in the total gamma signal.

5.2.3 Altitude Correction and Sensitivity Test

The altitude and sensitivity test is similar to the cosmic flight test but is conducted at lower elevations (from ground level). The pilot is required to fly over the same location at 30, 40, 50, 70, and 90 m above ground, for 2 minutes each. As the aircraft's distance above the radioactive ground source increases the source signature exponentially degrades. This is because the absorption of

terrestrial gamma rays by the atmosphere increases. Therefore this test is used to determine altitude attenuation coefficients and radio-element sensitivity of the airborne spectrometer system.

5.2.4 Gamma Reference Flight

In order to monitor the effect of varying ground moisture on the gamma signal as well as system stability, a dedicated series of flights recorded the gamma spectra at three fixed locations at least once per survey day throughout the survey period, as follows:

- August 3-10, 2019: SW end of SL300 (UTM 9N 708130, 5526960)
- August 11-28, 2019: S edge of Kestrel grass landing area (UTM 9N 635840, 5604770)
- August 29-October 23, 2019: SE end of Woss airstrip (UTM 9N 670200, 5565040)

Each reference flight consisted of 2 minutes of gamma data collected at survey height (80 m AGL). Two reference flights were flown on days where the operating base changed for leveling between locations. Results are shown in Figure 30.

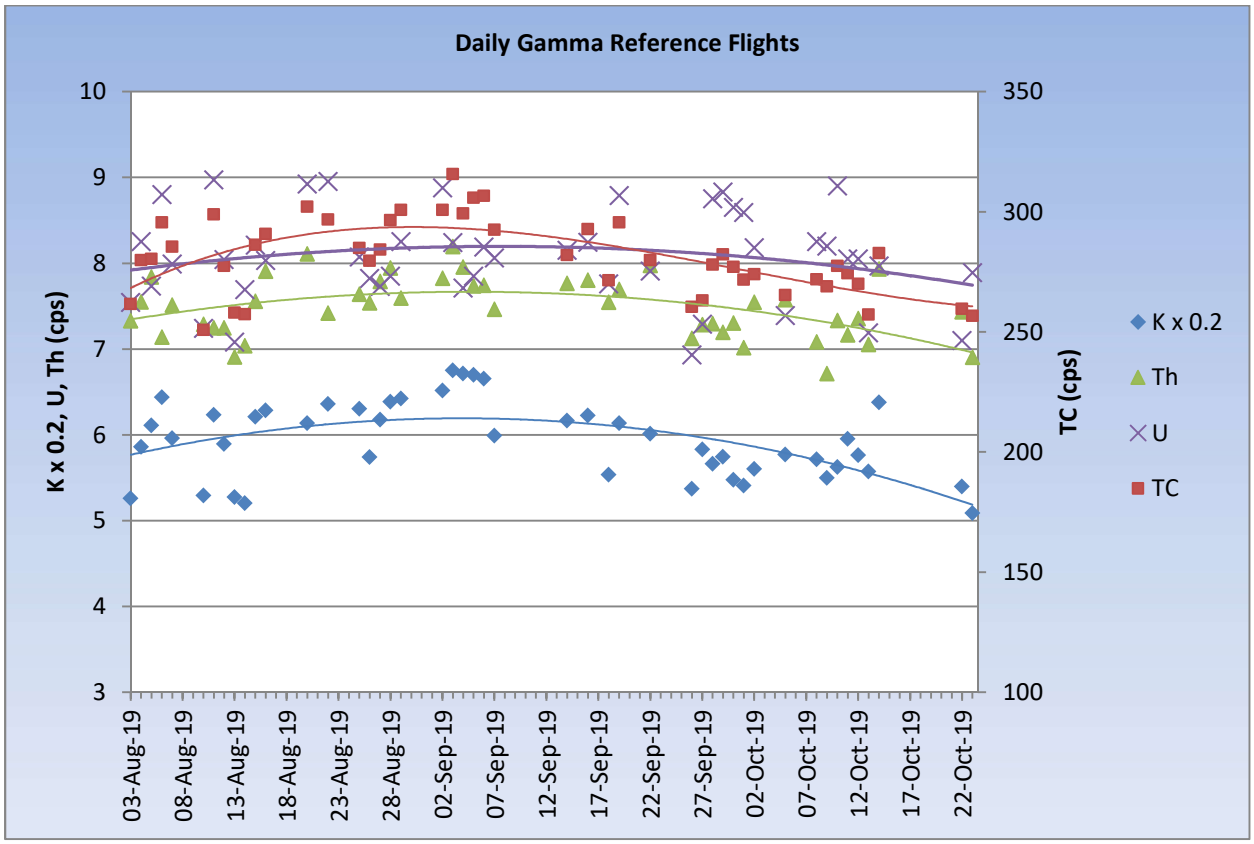

Figure 30: Daily gamma spectra collected on 2 minute reference flights for 50 survey days. No airborne data were collected on days without data points. All locations normalized to SL300.

Deviations in gamma spectra over the survey period are attributed to changing attenuation resulting from variations in ground and atmospheric moisture.

5.3 Laser Altimeter Calibration

The Opti-Logic RS-800 laser altimeter used on the survey helicopter was tested and calibrated 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.

5.4 Lag Test

A lag test was performed to determine the difference in time the digital reading was recorded for the magnetometer, gamma spectrometer, 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 the four orthogonal survey headings over an identifiable source at survey speed and height. The resulting data are shown in Table 10.

Instrument	Source	Lag Fiducial	Correction (sec)
Mag 1	Logging equipment	16	1.6
Mag 2	Logging equipment	14	1.4
Mag 3	Logging equipment	16	1.6
Spectrometer	Lake edge	6	0.6
Laser	Sharp gully	8	0.8

Table 10: Survey lag correction values.

6.0 Data Processing

Systematic procedures were undertaken to ensure high quality data during the data acquisition and processing phases. Geophysical and ancillary data recorded by the AGIS were converted into Geosoft and ASCII file formats using proprietary software. Further processing (Figure 31) was carried out using Geosoft Oasis Montaj 9.7 geophysical processing software along with proprietary processing algorithms. Laser altimeter, spectrometer, and GPS data were resampled to 10 Hz to correspond with the sampling rate of the magnetometer.

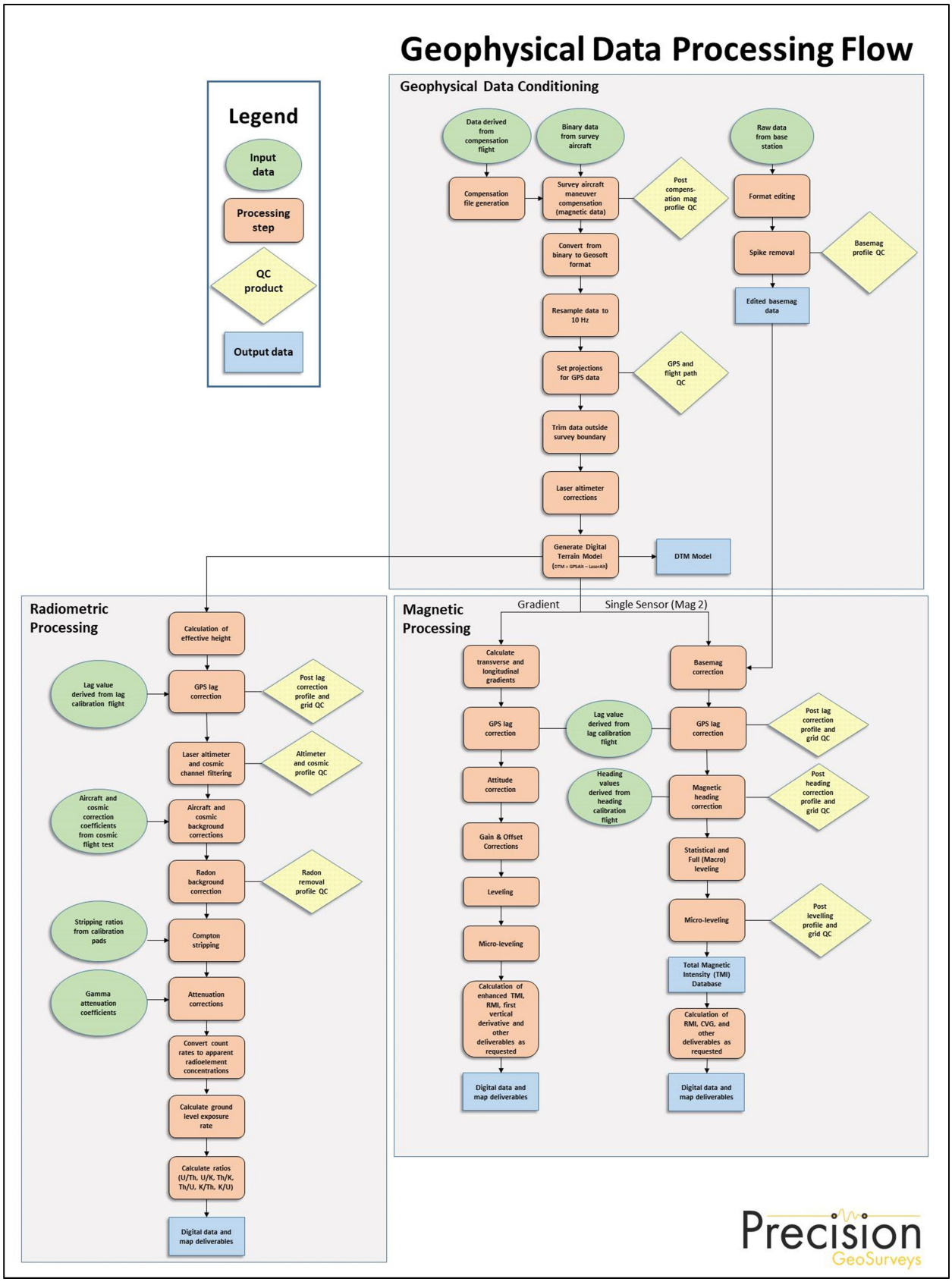

Figure 31: Magnetic and radiometric data processing flow.

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 geophysical data recorded at each individual sensor to compensate for the combination of lag in the recording system and the sensing instrument flying in a different location from the GPS antenna, as determined during the lag test. Validity of the lag corrections were confirmed by the absence of grid corrugations in adjoining reciprocal lines.

6.1.2 Flight Height and Digital Terrain Model

With appropriate calibration, a laser altimeter is capable of reporting very accurate measurements for the distance between the laser (attached to the central 'T' of gradient magnetometer array on the helicopter) and the reflecting target. However, the apparent height reported by the laser may be compromised by vegetation and by variations in helicopter attitude away from horizontal, as the laser is then no longer making vertical measurements.

A laser altimeter is affected by vegetation-covered ground, where not all of the laser measurements will be to the actual ground surface. The thicker the vegetation, the lower the proportion of valid ground measurements. Invalid readings due to vegetation reflection are called vegetation clutter and can be easily distinguished from the actual ground surface. To correct for vegetation clutter, a rolling statistics filter is applied to remove all measurements except for the hard surface. This provides a measured distance that closely approximates the ground surface along the flight line below the survey helicopter, provided it is in a horizontal attitude with vertical laser measurements.

As the aircraft rolls and pitches while collecting geophysical data on a survey, the laser may not be vertical. This results in measured or apparent height which will never be less than true height. True distance above a flat surface can be determined in accordance with the following formula:

$$h_T = h_A * \cos(pitch) * \cos(roll)$$

where: h_T is the true height
h_A is the apparent height reported by the laser, corrected for vegetation clutter

This procedure is only valid for measurements to a flat surface, as any ground slope will modify the height when the aircraft is not level. Sloping ground will usually, but not always, increase the apparent height of the laser measurement and is difficult to fully correct on a regional scale survey. In addition, the magnetometer sensors are positioned remotely from the laser altimeter so that the actual ground clearance of the individual magnetometers will differ from the reported flight height over sloping ground and with roll and pitch maneuvers.

Laser altimeters are unable to provide valid data over glassy water or fog, which dissipates the laser, so a "zero" reading is obtained. In these cases, estimates of correct height are inserted manually.

A Digital Terrain Model (DTM) channel was calculated by subtracting the processed laser altimeter data from the filtered GPS altimeter data defined by the WGS 84 ellipsoidal height. DTM accuracy is affected by the geometric relationship between the GPS antenna and the laser altimeter as well as flight attitude of the aircraft, slope of the ground, sample density, and satellite geometry.

6.2 Magnetic Processing

Magnetic data recorded by the digital acquisition system are composed of the desired geophysical field at a specific time and location in addition to unwanted effects from aircraft noise, temporal (including diurnal) variations, heading, lag, and instrument error. A series of systematic processing steps were taken to reduce or remove magnetic influences that are not considered signal to ensure that the final data are an accurate representation of the Earth's magnetic field at the time the survey was completed.

6.2.1 Compensation

A magnetic or conductive body, such as an aircraft, moving through Earth's magnetic field will generate magnetic noise that can be effectively removed using an 18-term polynomial compensation process. The compensation file generated from the dedicated compensation flight accounts for the permanent magnetization of the aircraft, the magnetic field induced in the airframe, and eddy currents created within the airframe. The magnetic effects of the airframe are independent of the effects of the rotor in terms of their amplitude, spectral content, and vertical gradient correlation at the sensor locations.

Data obtained from the compensation flight test were applied to the raw magnetic data as the first step of data processing. A computer program called MagComp was used to create a model

from the compensation flight test for each survey to remove the noise induced by the aircraft and its movement; this model was applied to data from each survey flight.

6.2.2 Temporal Variation Correction

The intensity of Earth's magnetic field varies with location 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 base stations at fixed locations operated continuously during airborne data acquisition to provide a record of temporal variations. Temporal magnetic data recorded by the base stations were edited, plotted and merged into a Geosoft database (.GDB) on a daily basis and a reference datum of 53388.80 nT was established. The airborne magnetic data were then corrected by subtracting the observed magnetic base station deviations from data collected on the helicopter, which effectively removed the effects of temporal variation including magnetic drift and geomagnetic storms.

6.2.3 Heading Correction

For each survey heading, changes in instrument magnetic fields along a survey flight line are detected and these systematic shifts are recorded. These values are used to construct a heading table (.TBL) file. An intersection table was created, containing all magnetic field values where tie lines intersected the survey lines and the overall average magnetic field value was calculated. For each of the four headings, the averages were calculated and then compared to the overall average to determine four values to be used for heading error correction in each flight direction for each of the three magnetometers.

6.2.4 IGRF Removal

The International Geomagnetic Reference Field model is the empirical representation of Earth's magnetic field (main core field without external sources) collected and disseminated from satellite data and from magnetic observatories around the world. The IGRF has historically been revised and updated every five years by a group of modellers associated with the International Association of Geomagnetism and Aeronomy (IAGA). Due to the increased rate that Earth's northern magnetic pole is moving from the Canadian Arctic towards Siberia, an out-of-cycle update of the World Magnetic Model 2015-2012 was released in early 2019 (WMM2015v2). Accordingly, an updated 2015 IGRF model was used with the actual survey date obtained from the "Date" channel.

Residual Magnetic Intensity (RMI) was calculated by taking the difference between IGRF and the non-leveled Total Magnetic Intensity (TMI) to create a more valid model of individual near-surface anomalies. This model is independent of time to allow for other magnetic data (previous or future) to be more easily incorporated into each survey database.

6.2.5 Leveling and Micro-leveling

Although the Vancouver Island North survey was flown using a constant height above ground flight profile, steep terrain and ground obstacles resulted in small variations in survey height. When the height varies from line to line and at intersections between traverse and control lines, mismatches in the magnetic data for leveling purposes will result. This is due to a combination of a change in the IGRF value in the vertical direction, and, more significantly, the exponential effect of flight height on airborne magnetic data. At low elevation with shallow magnetic sources, even relatively small differences in survey height may result in significant changes to spectral content of the magnetic data

The total magnetic intensity reported by each of the three individual magnetic sensors at the perpendicular intersections between tie lines and survey lines (called tie points) will not always be identical. A small but potentially cumulative error resulting from a combination of instrument error, compensation error, heading error, lag error, residual helicopter noise, base station error, sensor drift, and height variation is corrected by a process called tie line leveling. Because tie lines were flown at a ratio of 1:10 with respect to survey lines and therefore are subject to less time variation, the tie line data are considered to be the reference source.

The initial Residual Magnetic Intensity (RMI) data from survey and tie lines were used to level the entire survey dataset. Two types of leveling were applied to the corrected data: conventional leveling and micro-leveling. There were 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.

Following statistical leveling, micro-leveling was applied to the corrected conventional leveled data. This iterative grid-based process removed low amplitude components of flight line noise that still remained in the data after tie line and survey line leveling and resulted in fully leveled TMI data.

6.2.6 Magnetic Gradient

When magnetic values are obtained from two or more sensors at a known separation, the magnetic gradient can be calculated. Dividing the difference in magnetic values between the sensors by the distance between the sensors yields the magnetic gradient. The units are commonly reported as nT/m and, by convention, positive magnetic polarity is defined as to the north and east, and negative to the south and west.

Because the magnetic field gradient varies more rapidly than total field strength, magnetic gradient provides higher spatial resolution, especially for shallow sources that are smaller than the survey line spacing or linear sources that are parallel to flight lines. Magnetic gradients, as compared to total magnetic intensities, have the additional benefits of being less sensitive to temporal variations and aircraft movement errors. Although the signal to noise ratio of magnetic gradient is higher than total magnetic intensity, the left (Mag 1) and right (Mag 3) sensors are affected by relative variations in flight height during roll maneuvers, so that measured total magnetic intensity at each sensor is sensitive to the actual vertical gradient. The forward sensor (Mag 2), which is not affected by roll, has lower movement noise and is, therefore, used for recovery of total magnetic intensity and inline horizontal gradient.

Gradients can only be measured correctly if the position of the sensors with respect to each other and to Earth is known at the time the magnetic value is obtained. For example, if the sensors on a horizontal gradient survey are on a plane that is not horizontal, then the magnetic gradients will not be in the desired horizontal direction without attitude corrections. For the Vancouver Island North survey, three magnetic sensors were used to allow the measurement of horizontal magnetic gradient in two directions: crossline and inline. Corrections were applied to the three individual total magnetic field sensor measurements to ensure accurate calculation of the magnetic gradient prior to correction for attitude variation.

Individual sensors are calibrated in total field mode. Heading error is determined independently for each sensor during the heading test (flown in opposite directions in all four survey directions) in areas of low gradient. This is done on a flight by flight basis, which provides consistent corrections in addition to the compensation and heading flights which are flown at high altitude. Once the data are compensated, lagged, and heading corrected, the total fields from each sensor can be subtracted, which should produce a zero gradient in low gradient areas. Any residual non-zero value is divided equally between the sensor pairs to produce a zero DC bias between the sensors prior to calculation of the gradient.

DC offsets must be removed prior to correction for attitude variation because offsets in the total field can exceed the sensitivity of the sensors by more than two orders of magnitude. For attitude correction the orientation of the magnetic sensors with respect to the aircraft must be measured

at the same time the sensors are being sampled. Attitude measurements were made by the ambient magnetic field (3-axis fluxgates) and within a gravity field (3-axis accelerometer). In either case the direction cosines represent the pitch, roll and yaw angles of the sensors.

Horizontal magnetic gradients are calculated with respect to the magnetometer array with units provided as nT/m as follows:

$$Crossline\ Gradient = \frac{\text{Mag } 3 - \text{Mag } 1}{d_x}$$

where: d_x is the transverse sensor separation, 11.5 m

$$Inline\ Gradient = \frac{\text{Mag } 2(i+1) - \text{Mag } 2(i-1)}{d(i+1) + d(i-1)}$$

where: d is the distance between measurements
i is the measurement fiducial

6.2.7 Gain Correction

After the gradients have been derived and corrected for attitude, they were then processed to remove line-to-line variances (striping).

Overall, Mag 1 and Mag 3 should produce the same total magnetic measurement when exposed to the same magnetic field. Therefore, the ratio of the TMI between the sensors should equal one. If it does not equal one, a gain correction needs to be applied. The mean of the ratio between the TMI values for Mag 1 and Mag 3 for each line was calculated and applied to each Mag 3 value along the line. The cross line gradient was then recalculated from the gain-corrected Mag 3 values.

6.2.8 Gradient Offset Correction

In low gradient areas, reciprocal lines should show similar gradients. To identify the low gradient areas, the first difference of the gain-corrected gradient was calculated. First difference values of 0.1 and 0.01 nT were tested; however, a value of 0.1 nT returned too many data points to be considered quiet while a value of 0.01 returned too few data points to sufficiently determine offset values for the entire grid. Therefore, areas that had a first difference below 0.05 nT were determined to be ideal to determine the offset values.

The offset correction values for each line were subtracted from the gain-corrected gradient to reduce striping in the gradient grid. The resulting data were then leveled to remove any remaining striping.

6.2.9 Gradient Leveling

Measured gradients were leveled using the calculated gradients derived from Mag 2. This was accomplished by determining a leveling shift between the measured gradients and the calculated gradients. Applying the leveling shift on a line-by-line basis acted as a decorrugation filter. Micro-leveling was then performed to remove any final corrugation artifacts that remained between the survey lines.

6.2.10 Enhanced Magnetic Intensity

Total magnetic intensity was gridded using a bi-directional method, which allowed horizontal gradient data to be incorporated to create an enhanced total magnetic intensity grid. This enhanced total magnetic intensity was imported back into the final database in order to be available for alternative gridding methods. The enhanced residual magnetic intensity was generated using the same method and was also imported back into the final database in order to be available for alternative gridding methods.

6.2.11 Leveling and Merging with Northern Vancouver Island Database

Residual magnetic intensity data from the Vancouver Island North 2019 survey were merged with the residual magnetic intensity grid of the adjoining 2012 survey (Northern Vancouver Island, Geoscience BC report 2013-02). The average difference in magnetic intensity between the overlapping areas of the two survey blocks was determined as 35.57 nT. By subtracting 35.57 nT from the 2019 data, the 2019 enhanced RMI data were leveled and merged with the 2012 RMI data to provide a total area of 10336.5 km^2 containing 46315.4 line km of magnetic data.

Readers are cautioned that the 2012 data were collected using a drape surface and the 2019 data were collected with constant ground clearance. Therefore magnetic resolution between the data sets varies in accordance with flight height and artifacts can be introduced into the overlapping areas.

6.2.12 Reduction to Magnetic Pole

Reduced to Magnetic Pole (RTP) data were computed from both the leveled Residual Magnetic Intensity (RMI) data and the gradient-enhanced Residual Magnetic Intensity. The RTP filter was applied in the Fourier domain and migrates the observed magnetic inclination and declination field to what the field would look like at the north magnetic pole.

6.2.13 Calculation of First Vertical Derivatives

The first vertical derivative calculates the vertical rate of change in the magnetic field. It 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.

6.2.14 Calculation of Analytic Signal

The analytical signal was computed from the gradient-enhanced Residual Magnetic Intensity data. The analytical signal is the magnitude of the sum of the vertical and horizontal directional derivatives. It is used to show regional gradients and areas where anomalies are overlapping.

The first analytical signal calculated from the RMI was designated as Analytical Signal of RMI, or AS.

The analytical signal is calculated by:

$$as = \sqrt{\left(\frac{\partial M}{\partial Z}\right)^2 + \left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2}$$

where: M is the magnetic field
$\frac{\partial}{\partial Z}$ is the vertical derivative
$\frac{\partial}{\partial x}$ is the horizontal derivative in the x-direction
$\frac{\partial}{\partial y}$ is the horizontal derivative in the y-direction

6.2.15 Calculation of Tilt Angle

The tilt angle (TA) was applied to the pole reduced grid (RTP) of the gradient-enhanced RMI. Variations of anomaly amplitude are minimized in order to enhance subtle features. Therefore, weak magnetic anomalies are highlighted.

The tilt derivative is calculated by:

$$TA = tan^{-1}\left[\frac{\left(\frac{\partial M}{\partial Z}\right)}{\sqrt{\left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2}}\right]$$

where: M is the magnetic field
$\frac{\partial}{\partial Z}$ is the vertical derivative
$\frac{\partial}{\partial x}$ is the horizontal derivative in the x-direction
$\frac{\partial}{\partial y}$ is the horizontal derivative in the y-direction

6.3 Radiometric Processing

Radiometric surveys map gamma rays from radioelements present at or near Earth's surface; typically, up to 1 m below surface. Before any of the airborne radiometric data are processed, the spectrometer system is calibrated with the calibration pad test, cosmic flight test, and altitude correction and sensitivity test. Once system calibration was complete, the radiometric data were processed by windowing the full spectrum to create individual channels for U, Th, K, and total count (TC) which correspond with the gamma signal obtained at the time of the survey measurement. In general, procedures outlined in IAEA technical document 1363 are followed.

Steps taken to process acquired radiometric data are summarized below:

- Calculation of effective height
- Lag correction
- Aircraft and Cosmic background corrections
- Radon background correction
- Stripping ratios
- Attenuation corrections
- Conversion to apparent radioelement concentrations

6.3.1 Calculation of Effective Height

Laser/radar altimeter data were converted to effective height (h_{ef}) in meters using the acquired laser/radar altimeter, temperature and pressure data, according to the formula below:

$$h_{ef} = h * \frac{273.15}{T + 273.15} * \frac{P}{1013.25}$$

where: h is observed laser/radar altitude in meters
T is measured air temperature in degrees Celsius
P is barometric pressure in millibars

6.3.2 Aircraft and Cosmic Background Corrections

Aircraft background and cosmic stripping corrections are applied to all three elements, and total count, using the following formula:

$$C_{ac} = \mathrm{a}_c + b_c * Cos_f$$

where: C_{ac} is the background and cosmic corrected channel
a_c is the aircraft background for this channel
b_c is the cosmic stripping coefficient for this channel
Cos_f is the filtered cosmic channel

6.3.3 Radon Background Correction

Variable amounts of atmospheric radon will contaminate gamma measurements, especially the uranium channel, and radon influences must be removed from the data. Directional sensitivity of the upward-looking crystal provides the ability to discriminate between radiation from the atmosphere and from the ground. Contribution of radon to the uranium window of the main detector package (the "downward" U window) is given by:

$$U_r = \frac{u - a_1 U - a_2 T}{a_u - a_1 - a_2 a_t}$$

where: U_r= radon background in the "downward" U window
u = count rate in the "upward" U window
U = count rate in the "downward" U window
T = count rate in the "downward" Th window

and a_1, a_2, a_u, and a_t are constants derived by calibration.

Because total gamma count and potassium backgrounds are linearly related to uranium background, the background in these channels can be derived from the background in the uranium channel using regression coefficients that relate radon background in the upward uranium window to radon background in the downward uranium window. Measured count rates in the upward uranium window can be compared to those in the downward uranium window for radiation due to uranium sources in the ground, which are related by the equation:

$$u_g = a_1 U_g + a_2 T_g$$

Where: u_g, U_g, and T_g are the ground components

and a_1 and a_2 are the calibration coefficients

6.3.4 Compton Stripping

Spectral overlap corrections are applied to potassium, uranium, and thorium as part of the Compton stripping process. This is done by using stripping ratios that have been calculated for the spectrometer by prior calibration.

For each of the stripping ratios α, β, and γ, they are corrected for height at STP using the following formulas:

$$\alpha_h = \alpha + h_{ef} * 0.00049$$

$$\beta_h = \beta + h_{ef} * 0.00065$$

$$\gamma_h = \gamma + h_{ef} * 0.00069$$

where: α, β, and γ are the Compton stripping coefficients
α_h, β_h, and γ_h are the height-corrected Compton stripping coefficients
h_{ef} is the effective height above ground in meters at STP

The stripping corrections are then carried out using the following formulas:

$$Th_c = Th_{bc}(1 - g\beta_h) + U_{bc}(b\gamma_h - a) + K_{bc}(ag - b)/A$$

$$U_c = Th_{bc}(g\beta_h - \alpha_h) + U_{bc}(1 - b\beta_h) + K_{bc}(b\alpha_h - g)/A$$

$$K_c = [Th_{bc}(\alpha_h\gamma_h - \beta_h) + U_{bc}(a\beta_h - \gamma_h) + K_{bc}(1 - a\alpha_h)]/A$$

where: U_c, Th_c, and K_c are stripping-corrected uranium, thorium, and potassium
α_h, β_h, and γ_h are height-corrected Compton stripping coefficients

U_{bc}, Th_{bc}, and K_{bc} are background corrected uranium, thorium, and potassium
a is the spectral ratio Th/U
b is the spectral ratio Th/K
g is the spectral ratio U/K
$A = 1 - g\gamma_h - (\alpha_h - g\beta_h) - b(\beta_h - \alpha_h\gamma_h)$ is the backscatter correction

6.3.5 Attenuation Corrections

The total count, potassium, uranium, and thorium data are then corrected to a nominal survey altitude (corrected to remove vegetation clutter from radar/laser altimeter data); in this case the nominal survey height was 80 m AGL. This is done according to the equation:

$$C_a = C * e^{\mu(h_{ef} - h_0)}$$

where: C_a is the output altitude-corrected channel
C is the input channel
μ is the attenuation correction for that channel
h_{ef} is the effective altitude
h_0 is the nominal survey altitude used as datum

6.3.6 Conversion to Apparent Radioelement Concentrations

With all corrections applied to the radiometric data, the final step is to convert the corrected potassium (^{40}K), uranium (from ^{214}Bi), and thorium (from ^{212}Tl) to apparent radioelement concentrations using the following formula:

$$eE = C_{cor}/S$$

where: eE is the element concentration of K (%) and equivalent element concentration of U (ppm) & Th (ppm)
S is the experimentally determined sensitivity
C_{cor} is the fully corrected channel

Conversion of total count to natural exposure rate (Grasty et al, 1984) is determined by using the following formula:

$$\text{Dose Rate} = [(1.505 * K) + (0.625 * eU) + (0.31 * eTh)] \text{ x } 8.69$$

where: Dose Rate is in nGy/hr
K is the concentration of potassium (%)
eU is the equivalent concentration of uranium (ppm)
eTh is the equivalent concentration of thorium (ppm)

6.3.7 Radiometric Ratios

Common radiometric ratios (eU/eTh, eTh/K, eU/K, and their inverses) were calculated using methods described in IAEA Technical Document 1363. Due to statistical uncertainties in the individual radioelement measurements, care was taken during ratio calculation to obtain statistically significant values. The following guidelines were used to determine the ratios:

1. For each concentration the lowest corrected count rate is determined.
2. Element concentrations of adjacent points on either side of each data point are summed until they exceed a pre-determined threshold value.
3. The ratios are calculated using the accumulated sums.

With these guidelines, errors associated with the calculated ratios are minimized and comparable for all data points.

6.3.8 Ternary Radioelement Map

A ternary radioelement map is a composite colour image that shows the colours red (magenta), green, and blue (cyan) in proportion to radioelement concentration values of the respective K, eTh, and eU components. Areas of the image with the same colour will have similar ratios of the three radioelements, and the intensity of that colour is a measure of the total radioactivity. Dark and light colours indicate high and low values for all three radionuclides. Areas of low radioactivity, and consequently low signal to noise ratios, are shaded in white to provide a more useful colour range for the remaining data. Because the ternary image is a three-way ratio, it helps to remove topographic effects and provides a visualization of relative concentrations and distributions of the individual radioelements.

7.0 Deliverables

Vancouver Island North magnetic and radiometric data are presented as digital databases, grids, maps, and a logistics report.

7.1 Database

Database files have been provided in two formats, the first is a .GDB file for use in Geosoft Oasis Montaj and the second format is a text (.XYZ) file. Full descriptions of the digital data and file contents are included in Appendix D.

7.1.1 Grids

In order to provide useful images of the acquired geophysical data, grids of all radiometric and magnetic data have been prepared. Gridding algorithms project data from measured points into areas with no data (between data points) to provide contours and colour image renditions. Sample density along flight lines (approximately 3 m) is very different from sample density between flight lines (250 m). This inherent anisotropy in sample distribution requires the gridding algorithm to predict a visually continuous and smooth mesh of values suitable for best representing the acquired data, in accordance with appropriate anti-aliasing filters and finite difference equations approximating the derivatives at regularly spaced grid nodes.

Many gridding methods are available. The method must be carefully considered, especially in cases where little is known about geological structure. While minimum curvature gridding is mathematically demanding, directional bias is minimized and is preferred for routine gridding operations with multiple structural trends or where structural trends are unknown. Bi-directional gridding, by definition, may introduce apparent structural trends that may not be attributed to actual geology. Therefore, bi-directional gridding is beneficial when structural information is available; however, it may lead to incorrect conclusions about trends and should be used with discretion on regional-scale surveys where multiple directions are likely.

All Vancouver Island North data were gridded by minimum curvature using both survey line and tie line data. Selected magnetic data were also gridded using bi-directional methods using survey lines.

Radiometric and magnetic data were gridded using the following Geosoft parameters:

- Gridding method: minimum curvature
- Grid cell size: 50 m
- Low-pass desampling factor: 3
- Tolerance: 0.001
- % pass tolerance: 99.99
- Maximum iterations: 100

In addition, gradient enhanced magnetic data were gridded using the following Geosoft parameters:

- Gridding methods: minimum curvature and bi-directional (individually)
- Grid cell size: 50 m
- Low-pass desampling factor: none
- Tolerance: none
- % pass tolerance: 99

- Maximum iterations: 100

The following grids were prepared (detailed in Appendix D):

- Digital Terrain Model (DTM)
- Total Magnetic Intensity (TMI)
- Residual Magnetic Intensity (RMI) – removal of IGRF from TMI
- First Vertical Derivative of RMI (1VD_ofRMI) – first vertical derivative of RMI
- Reduced to Magnetic Pole (RTP_ofRMI) – reduced to magnetic pole of RMI
- First Vertical Derivative (1VD_ofRTP) – first vertical derivative of RMI or RTP
- In-line Horizontal Gradient (inL_HG) – measured in-line horizontal gradient of TMI
- Cross-line Horizontal Gradient (xL_HG) – measured cross-line horizontal gradient of TMI
- Horizontal Gradient (HG) – total horizontal gradient from in-line and cross-line gradients of TMI
- Gradient enhanced Total Magnetic Intensity (TMIge)*
- Gradient enhanced First Vertical Derivative of TMIge (1VDge_ofTMIge)*
- Gradient enhanced Residual Magnetic Intensity (RMIge) – removal of IGRF from TMIge*
- Gradient enhanced First Vertical Derivative of RMIge (1VDge_ofRMIge) – first vertical derivative of RMIge*
- Gradient enhanced Analytic Signal (ASIGge) – analytic signal of RMIge*
- Gradient enhanced Reduced to Magnetic Pole (RTPge) - reduced to magnetic pole of RMIge*
- Gradient enhanced First Vertical Derivative (1VDge_ofRTPge) - first vertical derivative of RTPge*
- Gradient enhanced Tilt Angle (TILT) – tilt angle of RTPge*
- Gradient enhanced leveled Residual Magnetic Intensity to NVI (RMIge_NVI)*
- Potassium – Percentage (%K)
- Thorium – Equivalent Concentration (eTh)
- Uranium – Equivalent Concentration (eU)
- Total Count (TC)
- Dose Rate – Natural air absorbed dose rate (DOSE)
- Potassium over Thorium Ratio (%K/eTh)
- Potassium over Uranium Ratio (%K/eU)
- Uranium over Thorium Ratio (eU/eTh)
- Uranium over Potassium Ratio (eU/%K)
- Thorium over Potassium Ratio (eTh/%K)
- Thorium over Uranium Ratio (eTh/eU)
- Ternary Image (TI)

* separate grids generated by both minimum curvature and bi-directional methods.

7.2 KMZ Files

Gridded 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

Gridded data were used to create maps (.JPG and georeferenced .PDF) for the Vancouver Island North survey block. The following map products were prepared:

Overview maps (colour images with elevation contour lines and topographic features):

- Actual flight lines (no grid)
- DTM

Gradient enhanced magnetic maps (colour images with elevation contour lines and topographic features):

- Gradient enhanced TMI
- Gradient enhanced RMI, with actual flight lines
- Gradient enhanced RMI
- Gradient enhanced 1VD of RMI
- Gradient enhanced RTP of RMI

Radiometric maps (colour images with elevation contour lines and topographic features):

- Natural Air Absorbed Dose Rate
- Ternary Image – ratio of %K, eTh, eU

All survey maps were prepared in NAD 83 and UTM Zone 9N. Gridding was based on the minimum curvature method with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 045°. The DTM grid was drawn with a histogram-equalized topographic colour.

7.4 Report

The logistics report provides information on survey operations, acquisition procedures, sensor specifications, magnetic data processing, radiometric data processing, and presentation of the Vancouver Island North survey area data. A .PDF copy of the report is included along with the digital data, grids, and maps to provide the user with options for additional processing and interpretations.

8.0 Conclusions

Precision GeoSurveys Inc. collected 26,973.4 line km of magnetic and radiometric data over the Vancouver Island North survey area in 2019. High quality data with uniform resolution were obtained as a result of close adherence to the specified 80 m constant ground clearance. All of the geophysical data exceeded Geoscience BC specifications.

The project was awarded and flown late in the season. Radiometric data were contractually permitted to be collected regardless of weather, moisture, and snow conditions. As a result, an unknown amount of gamma attenuation has affected the radiometric data, which can be seen as local striping on grids.

Flight height was intentionally increased over populated areas as well as local ground obstacles. Amplitude and resolution of magnetic and radiometric features have been affected by increased distance between the geophysical sensor and the geophysical source in those areas. In addition, magnetic and radiometric signals may have been locally influenced by cultural features such as logging equipment, buildings, powerlines, and roads.

The total magnetic field ranges from 52428.95 nT to 59944.90 nT, yielding a magnetic relief of 7462.7 nT. Magnetic patterns correspond with the concentration and distribution of magnetite and other magnetic minerals in Earth's subsurface. Radiometric data are influenced by topographic features and surficial effects, and ratios can be used to evaluate the radioelement geochemistry of the survey area. When magnetic and radiometric data are integrated into a single-pass airborne survey, they provide complementary information that serve as a durable geophysical/geochemical framework. Therefore, the geophysical data will be useful in mapping lithology, structure, and alteration, which will benefit land use planning, mineral exploration initiatives, and geological studies.

9.0 Recommendations

Geoscience BC's stated purpose for acquiring the magnetic and radiometric data over the Vancouver Island North 2019 survey area was "to assess the mineral potential of the area and to guide more informed decisions about potential mineral resource development and to help explorers identify new mineral deposits and diversify the local economy." Re-processing initiatives for property-scale datasets may provide more local detail. As geophysical data are not a direct indication of mineral deposits, careful interpretation and integration with existing and new geological, geochemical, and other data are recommended to obtain maximum value from the survey investment.

10.0 Acknowledgements

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Respectfully submitted,
Precision GeoSurveys Inc.

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Appendix A

Vancouver Island North Survey Area Polygon Coordinates

VIN Project Survey Area Polygon Coordinates – WGS 84 Zone 9N

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
49.9457	125.9427	719337	5537078
49.9430	125.9391	719604	5536790
49.9418	125.9365	719798	5536654
49.9408	125.9350	719912	5536550
49.9398	125.9326	720091	5536445
49.9399	125.9306	720229	5536465
49.9396	125.9295	720310	5536435
49.9406	125.9245	720667	5536561
49.9401	125.9234	720744	5536507
49.9395	125.9206	720952	5536454
49.9390	125.9206	720954	5536395
49.9380	125.9193	721052	5536283
49.9369	125.9193	721056	5536160
49.9363	125.9183	721129	5536097
49.9358	125.9182	721140	5536049
49.9346	125.9187	721109	5535906
49.9343	125.9187	721110	5535873
49.9302	125.9201	721026	5535416
49.9278	125.9202	721034	5535154
49.9278	125.9172	721245	5535159
49.9257	125.9148	721427	5534939
49.9255	125.9138	721499	5534913
49.9250	125.9139	721501	5534856
49.9233	125.9147	721445	5534663
49.9212	125.9139	721515	5534434
49.9211	125.9134	721548	5534426
49.9169	125.9079	721963	5533980
49.9158	125.9082	721952	5533856
49.9150	125.9073	722019	5533765
49.9145	125.9103	721805	5533706
49.9098	125.9118	721720	5533178
49.9036	125.9120	721732	5532482
49.9035	125.9147	721540	5532466
49.9003	125.9129	721681	5532118
49.9002	125.9144	721576	5532101
49.8996	125.9146	721564	5532036
49.8976	125.9179	721337	5531796
49.8967	125.9171	721396	5531700
49.8964	125.9179	721344	5531667
49.8951	125.9180	721342	5531519
49.8928	125.9199	721213	5531259
49.8901	125.9203	721198	5530965
49.8898	125.9191	721287	5530925
49.8900	125.9184	721333	5530951
49.8897	125.9181	721355	5530918
49.8893	125.9188	721309	5530877
49.8889	125.9187	721316	5530837
49.8882	125.9199	721239	5530745
49.8856	125.9171	721445	5530473
49.8849	125.9179	721391	5530391
49.8837	125.9178	721409	5530253
49.8813	125.9205	721221	5529986
49.8782	125.9195	721312	5529637
49.8774	125.9205	721245	5529547
49.8771	125.9203	721255	5529520
49.8770	125.9208	721219	5529500
49.8760	125.9212	721200	5529392
49.8723	125.9141	721721	5529002
49.8678	125.9141	721742	5528503
49.8678	125.9057	722347	5528529
49.8584	125.9057	722392	5527485
49.8581	126.6959	665605	5525405
50.1365	126.9892	643697	5555742
50.1386	127.0785	637309	5555807
50.1387	127.0847	636866	5555812

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.1404	127.0790	637269	5556005
50.1422	127.0803	637167	5556203
50.1425	127.0800	637188	5556238
50.1431	127.0809	637125	5556304
50.1469	127.0808	637116	5556731
50.1516	127.0788	637247	5557248
50.1557	127.0789	637230	5557710
50.1569	127.0794	637194	5557843
50.1584	127.0787	637238	5558011
50.1590	127.0801	637132	5558071
50.1596	127.0801	637133	5558138
50.1599	127.0804	637114	5558171
50.1600	127.0814	637038	5558181
50.1616	127.0853	636754	5558358
50.1631	127.0869	636639	5558520
50.1636	127.0866	636660	5558576
50.1642	127.0867	636646	5558644
50.1648	127.0863	636673	5558705
50.1654	127.0868	636639	5558773
50.1668	127.0855	636727	5558932
50.1675	127.0858	636701	5559004
50.1679	127.0878	636560	5559052
50.1672	127.0920	636260	5558968
50.1688	127.0967	635920	5559135
50.1700	127.0958	635985	5559273
50.1711	127.0957	635987	5559394
50.1723	127.0947	636053	5559525
50.1732	127.0948	636043	5559627
50.1738	127.0958	635971	5559691
50.1755	127.0972	635864	5559872
50.1754	127.0985	635776	5559862
50.1756	127.0996	635697	5559884
50.1759	127.1000	635668	5559915
50.1830	127.0849	636724	5560731
50.1918	127.0910	636262	5561701
50.1964	127.0879	636468	5562221
50.2007	127.0950	635955	5562688
50.2010	127.0985	635703	5562705
50.2024	127.0986	635687	5562860
50.2042	127.1002	635570	5563063
50.2047	127.1031	635366	5563115
50.2059	127.1031	635362	5563251
50.2061	127.1041	635289	5563270
50.2077	127.1042	635277	5563443
50.2081	127.1053	635194	5563482
50.2080	127.1057	635168	5563479
50.2085	127.1072	635060	5563529
50.2084	127.1080	635000	5563513
50.2091	127.1090	634931	5563589
50.2100	127.1096	634886	5563690
50.2102	127.1103	634834	5563711
50.2102	127.1114	634755	5563706
50.2106	127.1122	634698	5563754
50.2132	127.1164	634393	5564033
50.2142	127.1160	634419	5564144
50.2153	127.1160	634416	5564264
50.2194	127.1137	634565	5564729
50.2208	127.1184	634226	5564879
50.2251	127.1210	634030	5565352
50.2267	127.1206	634055	5565523
50.2306	127.1273	633560	5565953
50.2313	127.1289	633451	5566018
50.2308	127.1344	633057	5565963
50.2307	127.1362	632931	5565949
50.2309	127.1373	632853	5565968
50.2310	127.1382	632787	5565977

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.2342	127.1389	632726	5566332
50.2350	127.1407	632594	5566412
50.2349	127.1411	632568	5566404
50.2351	127.1419	632509	5566420
50.2349	127.1431	632425	5566398
50.2360	127.1445	632321	5566521
50.2374	127.1428	632436	5566674
50.2392	127.1432	632409	5566881
50.2406	127.1424	632456	5567038
50.2412	127.1427	632439	5567095
50.2441	127.1467	632142	5567420
50.2445	127.1473	632102	5567457
50.2451	127.1475	632083	5567524
50.2490	127.1528	631695	5567948
50.2489	127.1547	631562	5567939
50.2506	127.1552	631522	5568118
50.2536	127.1618	631038	5568441
50.2553	127.1655	630771	5568627
50.2568	127.1696	630475	5568785
50.2581	127.1721	630295	5568927
50.2581	127.1722	630283	5568927
50.2625	127.1758	630021	5569408
50.2634	127.1781	629849	5569501
50.2633	127.1805	629678	5569492
50.2652	127.1873	629188	5569684
50.2669	127.1879	629143	5569872
50.2718	127.1921	628832	5570416
50.2724	127.1981	628402	5570475
50.2755	127.2000	628260	5570815
50.2718	127.2091	627620	5570391
50.2702	127.2191	626913	5570191
50.2644	127.2240	626577	5569533
50.2604	127.2186	626976	5569104
50.2596	127.2185	626979	5569010
50.2592	127.2175	627055	5568965
50.2577	127.2171	627088	5568799
50.2540	127.2147	627268	5568398
50.2532	127.2160	627177	5568306
50.2523	127.2168	627122	5568208
50.2509	127.2167	627136	5568052
50.2468	127.2099	627631	5567600
50.2455	127.2110	627558	5567459
50.2434	127.2100	627634	5567227
50.2412	127.2081	627774	5566984
50.2397	127.2106	627601	5566817
50.2385	127.2103	627623	5566681
50.2379	127.2109	627585	5566608
50.2360	127.2087	627745	5566401
50.2337	127.2085	627764	5566146
50.2334	127.2069	627881	5566116
50.2321	127.2082	627790	5565977
50.2258	127.2118	627550	5565270
50.2233	127.2204	626943	5564972
50.4134	127.4251	611893	5585777
50.4487	127.4777	608080	5589633
50.5344	127.5708	601283	5599023
50.5343	127.5556	602359	5599032
50.5460	127.5462	603002	5600347
50.5303	127.5133	605372	5598647
50.5297	127.5073	605793	5598591
50.5308	127.4844	607418	5598749
50.5308	127.4628	608944	5598782
50.5291	127.4372	610767	5598629
50.5372	127.4367	610781	5599529
50.5372	127.4593	609181	5599497
50.5379	127.4745	608103	5599550

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5395	127.4884	607115	5599704
50.5366	127.5023	606133	5599363
50.5366	127.5136	605333	5599347
50.5513	127.5136	605297	5600987
50.5513	127.5227	604657	5600970
50.5675	127.5314	604006	5602766
50.6247	127.3879	614029	5609329
50.6238	127.2093	626659	5609527
50.6217	127.2057	626922	5609296
50.6179	127.2018	627210	5608879
50.6168	127.2000	627341	5608756
50.6156	127.1984	627455	5608628
50.6142	127.1947	627722	5608474
50.6137	127.1933	627822	5608430
50.6128	127.1919	627926	5608328
50.6133	127.1884	628169	5608386
50.6137	127.1887	628148	5608430
50.6142	127.1886	628154	5608489
50.6146	127.1880	628193	5608532
50.6149	127.1879	628203	5608571
50.6151	127.1866	628294	5608594
50.6155	127.1814	628656	5608646
50.6154	127.1789	628835	5608643
50.6141	127.1756	629074	5608501
50.6134	127.1745	629150	5608425
50.6131	127.1734	629232	5608390
50.6131	127.1716	629360	5608395
50.6130	127.1673	629661	5608395
50.6130	127.1639	629902	5608394
50.6132	127.1624	630006	5608419
50.6132	127.1621	630027	5608430
50.6132	127.1608	630122	5608429
50.6130	127.1598	630191	5608404
50.6127	127.1591	630246	5608374
50.6123	127.1585	630284	5608333
50.6121	127.1582	630311	5608309
50.6118	127.1575	630358	5608276
50.6116	127.1574	630366	5608259
50.6110	127.1566	630426	5608194
50.6106	127.1561	630463	5608146
50.6102	127.1552	630527	5608106
50.6101	127.1543	630589	5608099
50.6101	127.1518	630766	5608094
50.6093	127.1501	630891	5608016
50.6088	127.1488	630981	5607962
50.6086	127.1474	631079	5607938
50.6085	127.1470	631110	5607930
50.6080	127.1464	631152	5607875
50.6079	127.1461	631173	5607868
50.6079	127.1447	631273	5607867
50.6079	127.1435	631362	5607872
50.6079	127.1428	631407	5607866
50.6080	127.1423	631447	5607878
50.6081	127.1415	631501	5607893
50.6083	127.1398	631618	5607914
50.6083	127.1394	631646	5607916
50.6083	127.1391	631667	5607924
50.6084	127.1386	631706	5607930
50.6085	127.1381	631738	5607948
50.6086	127.1374	631787	5607958
50.6088	127.1365	631850	5607986
50.6090	127.1361	631881	5608002
50.6094	127.1352	631940	5608045
50.6094	127.1351	631950	5608051
50.6095	127.1348	631968	5608059
50.6099	127.1340	632024	5608107

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.6102	127.1336	632055	5608137
50.6102	127.1333	632072	5608147
50.6103	127.1332	632085	5608151
50.6107	127.1324	632139	5608198
50.6109	127.1319	632170	5608227
50.6117	127.1310	632234	5608310
50.6128	127.1297	632320	5608438
50.6133	127.1290	632370	5608492
50.6133	127.1285	632406	5608492
50.6132	127.1284	632416	5608488
50.6128	127.1278	632459	5608438
50.6121	127.1273	632497	5608369
50.6118	127.1266	632546	5608335
50.6113	127.1243	632711	5608278
50.6113	127.1231	632794	5608280
50.6110	127.1219	632883	5608256
50.6109	127.1209	632954	5608243
50.6108	127.1204	632983	5608236
50.6109	127.1178	633170	5608243
50.6110	127.1166	633257	5608258
50.6111	127.1144	633409	5608273
50.6112	127.1138	633452	5608290
50.6112	127.1114	633624	5608297
50.6112	127.1089	633797	5608298
50.6110	127.1077	633885	5608280
50.6110	127.1071	633926	5608281
50.6109	127.1063	633982	5608266
50.6108	127.1052	634059	5608255
50.6104	127.1026	634246	5608221
50.6103	127.1021	634284	5608208
50.6101	127.1016	634321	5608183
50.6099	127.1010	634361	5608167
50.6093	127.1001	634428	5608102
50.6090	127.0993	634485	5608072
50.6089	127.0984	634550	5608064
50.6089	127.0981	634569	5608056
50.6083	127.0970	634646	5608001
50.6082	127.0964	634690	5607985
50.6082	127.0937	634880	5607990
50.6080	127.0924	634972	5607973
50.6075	127.0901	635139	5607915
50.6074	127.0888	635230	5607914
50.6072	127.0878	635306	5607893
50.6069	127.0868	635374	5607863
50.6070	127.0863	635411	5607871
50.6073	127.0852	635489	5607909
50.6073	127.0843	635553	5607910
50.6070	127.0835	635606	5607873
50.6066	127.0829	635651	5607832
50.6064	127.0824	635689	5607813
50.6063	127.0816	635746	5607806
50.6062	127.0812	635774	5607791
50.6056	127.0809	635795	5607721
50.6052	127.0805	635823	5607683
50.6050	127.0795	635897	5607656
50.6046	127.0789	635940	5607622
50.6044	127.0786	635960	5607600
50.6042	127.0786	635961	5607570
50.6041	127.0788	635946	5607561
50.6037	127.0800	635864	5607521
50.6037	127.0809	635800	5607511
50.6035	127.0815	635762	5607492
50.6036	127.0864	635410	5607492
50.6032	127.0873	635349	5607449
50.6029	127.0884	635276	5607414
50.6029	127.0892	635217	5607406

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.6026	127.0898	635172	5607380
50.6026	127.0908	635107	5607375
50.6024	127.0915	635057	5607350
50.6024	127.0919	635029	5607355
50.6025	127.0920	635022	5607360
50.6025	127.0922	635006	5607362
50.6025	127.0925	634983	5607362
50.6025	127.0932	634933	5607357
50.6024	127.0941	634872	5607342
50.6021	127.0947	634827	5607314
50.6022	127.0956	634765	5607318
50.6022	127.0972	634650	5607315
50.6021	127.0979	634602	5607308
50.6019	127.0985	634558	5607284
50.6017	127.0990	634524	5607254
50.6014	127.1001	634447	5607220
50.6013	127.1010	634385	5607213
50.6012	127.1014	634355	5607198
50.6012	127.1024	634284	5607193
50.6011	127.1027	634266	5607189
50.6010	127.1029	634251	5607178
50.6009	127.1035	634213	5607159
50.6008	127.1038	634186	5607153
50.6007	127.1042	634160	5607138
50.6005	127.1048	634116	5607119
50.6005	127.1051	634097	5607112
50.6005	127.1064	634006	5607109
50.6005	127.1067	633982	5607107
50.6004	127.1073	633943	5607102
50.6004	127.1082	633877	5607097
50.6003	127.1087	633844	5607081
50.6001	127.1095	633789	5607060
50.5999	127.1101	633749	5607038
50.5999	127.1112	633666	5607035
50.5998	127.1116	633639	5607029
50.5998	127.1120	633614	5607019
50.5997	127.1126	633572	5607009
50.5997	127.1134	633510	5607005
50.5999	127.1163	633310	5607028
50.5999	127.1170	633258	5607029
50.5999	127.1183	633164	5607021
50.5999	127.1207	632994	5607018
50.5999	127.1212	632961	5607021
50.6001	127.1222	632889	5607041
50.6002	127.1230	632829	5607048
50.6002	127.1242	632745	5607045
50.6002	127.1250	632692	5607048
50.6004	127.1259	632624	5607062
50.6004	127.1262	632603	5607068
50.6005	127.1268	632563	5607071
50.6005	127.1279	632482	5607070
50.6007	127.1287	632431	5607094
50.6007	127.1291	632397	5607098
50.6014	127.1311	632253	5607167
50.6014	127.1320	632194	5607166
50.6015	127.1323	632174	5607174
50.6017	127.1326	632148	5607193
50.6018	127.1331	632113	5607207
50.6018	127.1336	632076	5607207
50.6018	127.1339	632060	5607203
50.6016	127.1344	632025	5607187
50.6015	127.1348	631992	5607168
50.6011	127.1356	631940	5607124
50.6006	127.1363	631890	5607068
50.5998	127.1370	631846	5606974
50.5996	127.1371	631837	5606952

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5984	127.1378	631787	5606818
50.5972	127.1382	631766	5606690
50.5953	127.1380	631782	5606477
50.5938	127.1372	631847	5606310
50.5918	127.1341	632070	5606098
50.5916	127.1332	632133	5606072
50.5916	127.1318	632235	5606075
50.5918	127.1309	632296	5606097
50.5919	127.1307	632313	5606113
50.5919	127.1302	632345	5606112
50.5917	127.1299	632366	5606088
50.5917	127.1295	632397	5606091
50.5919	127.1291	632426	5606116
50.5920	127.1284	632472	5606123
50.5920	127.1277	632523	5606124
50.5915	127.1269	632583	5606071
50.5912	127.1268	632589	5606046
50.5908	127.1260	632648	5606000
50.5905	127.1249	632727	5605970
50.5899	127.1240	632791	5605905
50.5898	127.1238	632806	5605890
50.5895	127.1237	632812	5605860
50.5895	127.1235	632826	5605858
50.5895	127.1233	632842	5605862
50.5898	127.1230	632859	5605888
50.5898	127.1229	632871	5605888
50.5897	127.1225	632897	5605883
50.5894	127.1220	632937	5605853
50.5892	127.1214	632978	5605830
50.5894	127.1201	633065	5605850
50.5893	127.1185	633180	5605843
50.5894	127.1177	633239	5605859
50.5895	127.1174	633256	5605871
50.5899	127.1169	633296	5605916
50.5902	127.1161	633346	5605947
50.5903	127.1155	633392	5605959
50.5904	127.1145	633464	5605972
50.5904	127.1136	633526	5605972
50.5903	127.1127	633588	5605961
50.5902	127.1097	633804	5605957
50.5902	127.1092	633834	5605967
50.5903	127.1086	633882	5605978
50.5904	127.1076	633949	5605983
50.5903	127.1070	633992	5605972
50.5900	127.1049	634139	5605949
50.5900	127.1040	634204	5605945
50.5898	127.1032	634266	5605931
50.5898	127.1022	634335	5605930
50.5896	127.1010	634420	5605913
50.5894	127.1003	634470	5605891
50.5893	127.0993	634538	5605876
50.5890	127.0984	634606	5605848
50.5889	127.0974	634673	5605838
50.5889	127.0968	634716	5605840
50.5889	127.0962	634762	5605845
50.5889	127.0955	634811	5605844
50.5888	127.0947	634867	5605835
50.5888	127.0938	634933	5605835
50.5889	127.0936	634944	5605842
50.5889	127.0936	634948	5605849
50.5889	127.0925	635023	5605852
50.5889	127.0917	635083	5605852
50.5890	127.0914	635101	5605862
50.5892	127.0912	635113	5605884
50.5893	127.0909	635134	5605898
50.5894	127.0906	635158	5605903

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5894	127.0903	635177	5605906
50.5895	127.0900	635197	5605924
50.5898	127.0897	635216	5605950
50.5900	127.0896	635224	5605974
50.5902	127.0896	635227	5606002
50.5905	127.0895	635232	5606026
50.5906	127.0892	635252	5606046
50.5910	127.0881	635331	5606091
50.5913	127.0871	635401	5606128
50.5915	127.0865	635441	5606148
50.5916	127.0854	635521	5606165
50.5916	127.0852	635535	5606160
50.5915	127.0831	635678	5606157
50.5915	127.0828	635703	5606157
50.5914	127.0818	635774	5606148
50.5913	127.0810	635827	5606132
50.5911	127.0804	635874	5606112
50.5908	127.0797	635924	5606086
50.5905	127.0791	635969	5606052
50.5903	127.0785	636008	5606034
50.5901	127.0773	636097	5606005
50.5899	127.0764	636163	5605988
50.5897	127.0752	636248	5605965
50.5895	127.0746	636285	5605950
50.5894	127.0742	636318	5605932
50.5890	127.0735	636368	5605892
50.5883	127.0720	636474	5605823
50.5880	127.0713	636524	5605788
50.5877	127.0709	636554	5605756
50.5874	127.0703	636599	5605717
50.5868	127.0692	636680	5605660
50.5866	127.0687	636715	5605639
50.5865	127.0677	636785	5605626
50.5865	127.0674	636808	5605623
50.5865	127.0669	636843	5605623
50.5865	127.0664	636875	5605625
50.5865	127.0656	636935	5605632
50.5866	127.0653	636952	5605636
50.5866	127.0651	636971	5605644
50.5867	127.0649	636986	5605654
50.5869	127.0644	637016	5605678
50.5871	127.0640	637047	5605697
50.5873	127.0633	637094	5605720
50.5873	127.0631	637110	5605725
50.5874	127.0628	637127	5605738
50.5876	127.0625	637152	5605754
50.5877	127.0621	637180	5605772
50.5878	127.0617	637206	5605782
50.5879	127.0612	637238	5605798
50.5880	127.0608	637268	5605804
50.5880	127.0600	637328	5605806
50.5881	127.0596	637355	5605815
50.5881	127.0590	637399	5605822
50.5883	127.0580	637464	5605847
50.5884	127.0572	637523	5605852
50.5884	127.0569	637547	5605859
50.5885	127.0565	637569	5605869
50.5886	127.0561	637602	5605880
50.5886	127.0559	637613	5605882
50.5887	127.0557	637626	5605888
50.5889	127.0550	637674	5605913
50.5890	127.0548	637694	5605927
50.5890	127.0545	637712	5605926
50.5889	127.0539	637752	5605921
50.5889	127.0528	637834	5605921
50.5890	127.0523	637867	5605931

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5890	127.0520	637888	5605933
50.5889	127.0516	637921	5605928
50.5889	127.0510	637960	5605925
50.5889	127.0507	637981	5605921
50.5888	127.0503	638012	5605918
50.5888	127.0500	638030	5605918
50.5888	127.0498	638047	5605914
50.5887	127.0495	638066	5605905
50.5886	127.0490	638100	5605894
50.5885	127.0486	638132	5605882
50.5884	127.0485	638141	5605878
50.5883	127.0481	638169	5605860
50.5882	127.0479	638184	5605854
50.5880	127.0473	638222	5605832
50.5880	127.0473	638228	5605828
50.5878	127.0467	638271	5605808
50.5877	127.0463	638295	5605799
50.5876	127.0461	638313	5605794
50.5876	127.0458	638332	5605792
50.5876	127.0455	638353	5605793
50.5876	127.0453	638369	5605791
50.5876	127.0450	638389	5605793
50.5876	127.0448	638403	5605792
50.5876	127.0445	638427	5605794
50.5876	127.0442	638442	5605794
50.5876	127.0438	638471	5605796
50.5876	127.0431	638520	5605797
50.5876	127.0429	638539	5605795
50.5876	127.0426	638556	5605790
50.5875	127.0424	638575	5605787
50.5875	127.0421	638597	5605787
50.5875	127.0414	638643	5605790
50.5875	127.0408	638688	5605790
50.5875	127.0406	638703	5605783
50.5873	127.0402	638732	5605761
50.5872	127.0400	638746	5605754
50.5869	127.0394	638789	5605727
50.5866	127.0382	638874	5605695
50.5865	127.0376	638915	5605685
50.5865	127.0373	638934	5605679
50.5864	127.0371	638955	5605669
50.5863	127.0366	638986	5605658
50.5862	127.0363	639010	5605654
50.5861	127.0358	639045	5605642
50.5860	127.0355	639066	5605632
50.5859	127.0353	639081	5605625
50.5858	127.0347	639122	5605609
50.5857	127.0345	639138	5605602
50.5857	127.0342	639159	5605597
50.5856	127.0338	639184	5605590
50.5855	127.0331	639236	5605576
50.5853	127.0324	639284	5605562
50.5852	127.0318	639332	5605552
50.5852	127.0315	639349	5605551
50.5851	127.0310	639387	5605543
50.5851	127.0308	639403	5605539
50.5850	127.0305	639424	5605531
50.5848	127.0298	639476	5605509
50.5847	127.0293	639507	5605495
50.5844	127.0288	639548	5605468
50.5842	127.0281	639594	5605444
50.5840	127.0278	639620	5605421
50.5836	127.0273	639650	5605384
50.5835	127.0270	639673	5605373
50.5834	127.0264	639715	5605363
50.5834	127.0260	639747	5605354

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5832	127.0256	639776	5605338
50.5830	127.0238	639900	5605321
50.5830	127.0231	639952	5605321
50.5831	127.0225	639994	5605333
50.5832	127.0221	640023	5605340
50.5833	127.0217	640049	5605351
50.5835	127.0211	640095	5605383
50.5837	127.0199	640178	5605399
50.5834	127.0186	640270	5605374
50.5832	127.0184	640288	5605347
50.5830	127.0180	640316	5605327
50.5831	127.0176	640341	5605340
50.5837	127.0177	640336	5605403
50.5842	127.0173	640363	5605468
50.5845	127.0170	640379	5605497
50.5845	127.0157	640472	5605505
50.5845	127.0148	640539	5605503
50.5846	127.0143	640572	5605517
50.5848	127.0135	640626	5605543
50.5854	127.0127	640682	5605607
50.5857	127.0120	640731	5605643
50.5858	127.0116	640755	5605656
50.5860	127.0099	640879	5605677
50.5859	127.0078	641028	5605672
50.5860	127.0054	641200	5605683
50.5861	127.0046	641255	5605704
50.5862	127.0038	641308	5605713
50.5863	127.0018	641451	5605733
50.5862	126.9998	641591	5605717
50.5858	126.9979	641726	5605683
50.5856	126.9969	641802	5605656
50.5850	126.9955	641897	5605598
50.5836	126.9912	642211	5605443
50.5827	126.9894	642341	5605354
50.5823	126.9877	642464	5605307
50.5820	126.9860	642580	5605277
50.5814	126.9830	642798	5605224
50.5808	126.9804	642982	5605161
50.5801	126.9790	643080	5605085
50.5792	126.9786	643111	5604983
50.5784	126.9782	643144	5604891
50.5776	126.9775	643198	5604812
50.5769	126.9762	643293	5604731
50.5765	126.9761	643300	5604687
50.5761	126.9763	643289	5604637
50.5752	126.9761	643304	5604545
50.5745	126.9756	643341	5604469
50.5741	126.9748	643400	5604420
50.5737	126.9747	643410	5604380
50.5725	126.9746	643419	5604242
50.5717	126.9747	643415	5604158
50.5710	126.9748	643410	5604075
50.5703	126.9755	643361	5604001
50.5654	126.9736	643512	5603457
50.5653	126.9733	643532	5603449
50.5649	126.9732	643540	5603404
50.5643	126.9726	643582	5603340
50.5638	126.9726	643589	5603282
50.5635	126.9726	643589	5603253
50.5627	126.9718	643644	5603162
50.5622	126.9714	643676	5603104
50.5613	126.9702	643764	5603014
50.5607	126.9695	643812	5602942
50.5602	126.9678	643938	5602890
50.5601	126.9671	643987	5602884
50.5599	126.9661	644059	5602857

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5599	126.9649	644144	5602861
50.5597	126.9638	644219	5602838
50.5596	126.9632	644266	5602831
50.5595	126.9629	644286	5602820
50.5593	126.9628	644292	5602802
50.5593	126.9625	644313	5602796
50.5593	126.9624	644325	5602805
50.5594	126.9622	644335	5602816
50.5598	126.9620	644351	5602857
50.5600	126.9618	644361	5602882
50.5602	126.9613	644394	5602904
50.5602	126.9605	644451	5602904
50.5600	126.9601	644486	5602887
50.5598	126.9597	644510	5602864
50.5596	126.9595	644523	5602838
50.5595	126.9593	644543	5602835
50.5596	126.9588	644575	5602839
50.5598	126.9581	644624	5602864
50.5599	126.9573	644683	5602878
50.5599	126.9564	644744	5602882
50.5598	126.9560	644772	5602873
50.5599	126.9557	644796	5602878
50.5601	126.9551	644835	5602904
50.5602	126.9546	644872	5602918
50.5604	126.9539	644922	5602938
50.5602	126.9535	644949	5602923
50.5600	126.9529	644995	5602897
50.5597	126.9525	645021	5602866
50.5592	126.9523	645041	5602806
50.5588	126.9521	645050	5602766
50.5585	126.9522	645050	5602735
50.5582	126.9520	645065	5602702
50.5580	126.9516	645090	5602675
50.5577	126.9512	645119	5602642
50.5576	126.9500	645206	5602632
50.5575	126.9488	645292	5602629
50.5578	126.9486	645303	5602667
50.5587	126.9481	645334	5602765
50.5591	126.9478	645354	5602810
50.5591	126.9474	645386	5602811
50.5591	126.9460	645481	5602816
50.5592	126.9458	645498	5602819
50.5593	126.9455	645517	5602837
50.5595	126.9455	645519	5602861
50.5597	126.9450	645555	5602884
50.5599	126.9445	645591	5602906
50.5601	126.9442	645609	5602924
50.5602	126.9439	645629	5602933
50.5603	126.9436	645649	5602949
50.5603	126.9432	645680	5602945
50.5601	126.9428	645709	5602934
50.5601	126.9424	645739	5602926
50.5601	126.9419	645772	5602925
50.5600	126.9415	645800	5602916
50.5599	126.9412	645819	5602911
50.5599	126.9407	645857	5602909
50.5599	126.9404	645881	5602910
50.5599	126.9399	645914	5602914
50.5599	126.9397	645931	5602913
50.5598	126.9393	645953	5602904
50.5597	126.9391	645968	5602893
50.5597	126.9387	645997	5602890
50.5597	126.9384	646023	5602894
50.5597	126.9377	646072	5602894
50.5597	126.9373	646095	5602900
50.5598	126.9367	646141	5602904

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5598	126.9360	646189	5602904
50.5598	126.9355	646222	5602909
50.5598	126.9353	646243	5602907
50.5597	126.9349	646270	5602902
50.5597	126.9344	646301	5602903
50.5597	126.9343	646311	5602905
50.5598	126.9341	646327	5602918
50.5599	126.9340	646329	5602927
50.5603	126.9337	646351	5602968
50.5604	126.9334	646370	5602984
50.5605	126.9331	646391	5602995
50.5605	126.9329	646405	5602996
50.5605	126.9324	646441	5602996
50.5605	126.9317	646493	5602992
50.5604	126.9314	646512	5602982
50.5602	126.9310	646542	5602966
50.5601	126.9308	646558	5602947
50.5599	126.9305	646578	5602934
50.5598	126.9301	646607	5602924
50.5598	126.9299	646625	5602923
50.5598	126.9297	646633	5602919
50.5596	126.9290	646689	5602906
50.5596	126.9284	646729	5602907
50.5597	126.9280	646758	5602911
50.5598	126.9270	646831	5602924
50.5598	126.9264	646871	5602924
50.5597	126.9259	646904	5602917
50.5596	126.9255	646935	5602903
50.5596	126.9253	646949	5602904
50.5596	126.9250	646973	5602912
50.5597	126.9248	646987	5602920
50.5598	126.9246	646998	5602933
50.5600	126.9246	646996	5602951
50.5600	126.9246	646997	5602959
50.5601	126.9245	647004	5602964
50.5601	126.9243	647016	5602966
50.5600	126.9241	647031	5602958
50.5600	126.9239	647046	5602951
50.5598	126.9237	647059	5602934
50.5598	126.9236	647069	5602932
50.5598	126.9234	647085	5602937
50.5598	126.9228	647124	5602938
50.5599	126.9226	647140	5602944
50.5599	126.9223	647157	5602952
50.5600	126.9222	647167	5602961
50.5601	126.9219	647191	5602974
50.5602	126.9217	647199	5602976
50.5601	126.9215	647215	5602973
50.5600	126.9213	647233	5602959
50.5599	126.9207	647274	5602947
50.5596	126.9202	647311	5602920
50.5593	126.9193	647375	5602881
50.5591	126.9188	647410	5602864
50.5590	126.9182	647450	5602852
50.5586	126.9175	647507	5602809
50.5584	126.9170	647538	5602788
50.5583	126.9167	647560	5602775
50.5582	126.9165	647579	5602775
50.5584	126.9160	647612	5602789
50.5584	126.9158	647625	5602797
50.5586	126.9158	647625	5602817
50.5588	126.9157	647631	5602835
50.5590	126.9157	647629	5602861
50.5591	126.9156	647635	5602867
50.5590	126.9155	647647	5602866
50.5590	126.9149	647689	5602861

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5590	126.9147	647702	5602860
50.5591	126.9143	647730	5602873
50.5592	126.9140	647751	5602885
50.5594	126.9135	647785	5602910
50.5595	126.9134	647792	5602915
50.5597	126.9132	647803	5602938
50.5598	126.9132	647807	5602949
50.5599	126.9132	647808	5602966
50.5600	126.9129	647822	5602976
50.5601	126.9129	647826	5602991
50.5604	126.9126	647842	5603024
50.5605	126.9127	647839	5603031
50.5606	126.9126	647844	5603040
50.5606	126.9124	647858	5603046
50.5606	126.9120	647886	5603047
50.5606	126.9118	647903	5603041
50.5605	126.9115	647920	5603032
50.5604	126.9113	647939	5603021
50.5603	126.9109	647964	5603014
50.5602	126.9104	648000	5603009
50.5602	126.9099	648035	5603010
50.5604	126.9095	648067	5603025
50.5605	126.9091	648092	5603038
50.5605	126.9089	648110	5603039
50.5606	126.9086	648130	5603051
50.5607	126.9082	648153	5603061
50.5610	126.9077	648190	5603094
50.5611	126.9073	648218	5603111
50.5612	126.9069	648246	5603118
50.5612	126.9060	648307	5603126
50.5612	126.9054	648352	5603128
50.5612	126.9049	648389	5603123
50.5610	126.9041	648443	5603103
50.5608	126.9035	648487	5603089
50.5607	126.9032	648509	5603077
50.5607	126.9029	648535	5603070
50.5605	126.9026	648552	5603058
50.5604	126.9025	648559	5603038
50.5600	126.9023	648573	5602999
50.5597	126.9022	648582	5602966
50.5595	126.9021	648592	5602946
50.5594	126.9018	648613	5602929
50.5593	126.9016	648626	5602925
50.5594	126.9013	648647	5602931
50.5595	126.9009	648679	5602943
50.5595	126.9006	648701	5602946
50.5595	126.9003	648718	5602948
50.5596	126.8998	648752	5602955
50.5596	126.8994	648782	5602959
50.5596	126.8983	648864	5602965
50.5596	126.8981	648873	5602960
50.5594	126.8980	648884	5602942
50.5592	126.8977	648907	5602922
50.5592	126.8975	648922	5602919
50.5592	126.8975	648920	5602918
50.5590	126.8970	648956	5602898
50.5590	126.8967	648975	5602895
50.5590	126.8961	649019	5602899
50.5590	126.8959	649031	5602898
50.5589	126.8957	649044	5602893
50.5588	126.8956	649054	5602879
50.5587	126.8956	649056	5602863
50.5586	126.8956	649056	5602859
50.5586	126.8954	649070	5602855
50.5586	126.8951	649090	5602852
50.5586	126.8947	649121	5602854

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5586	126.8945	649134	5602857
50.5586	126.8943	649150	5602860
50.5586	126.8940	649166	5602858
50.5585	126.8937	649188	5602850
50.5585	126.8936	649195	5602847
50.5584	126.8933	649216	5602842
50.5584	126.8930	649243	5602838
50.5584	126.8927	649258	5602835
50.5583	126.8924	649282	5602833
50.5583	126.8922	649298	5602828
50.5582	126.8918	649328	5602816
50.5580	126.8910	649380	5602800
50.5580	126.8908	649396	5602797
50.5580	126.8899	649461	5602800
50.5580	126.8893	649506	5602799
50.5580	126.8889	649528	5602803
50.5580	126.8881	649587	5602800
50.5579	126.8879	649606	5602797
50.5579	126.8876	649624	5602792
50.5578	126.8874	649635	5602787
50.5578	126.8873	649647	5602779
50.5577	126.8871	649662	5602772
50.5576	126.8868	649680	5602767
50.5577	126.8859	649747	5602770
50.5577	126.8846	649840	5602777
50.5577	126.8842	649866	5602774
50.5576	126.8837	649901	5602773
50.5576	126.8835	649917	5602770
50.5574	126.8826	649981	5602754
50.5574	126.8824	649996	5602750
50.5574	126.8819	650031	5602745
50.5573	126.8813	650070	5602744
50.5573	126.8811	650088	5602741
50.5571	126.8803	650143	5602718
50.5570	126.8799	650171	5602712
50.5570	126.8794	650207	5602712
50.5570	126.8792	650222	5602710
50.5569	126.8790	650239	5602703
50.5569	126.8787	650256	5602697
50.5568	126.8781	650299	5602690
50.5568	126.8779	650312	5602686
50.5566	126.8775	650345	5602672
50.5565	126.8770	650381	5602662
50.5563	126.8765	650414	5602641
50.5562	126.8761	650444	5602628
50.5561	126.8759	650461	5602618
50.5561	126.8756	650477	5602613
50.5560	126.8754	650496	5602611
50.5560	126.8749	650531	5602612
50.5560	126.8746	650554	5602612
50.5561	126.8740	650590	5602616
50.5561	126.8738	650608	5602619
50.5561	126.8727	650682	5602622
50.5561	126.8723	650714	5602621
50.5560	126.8720	650734	5602618
50.5560	126.8718	650751	5602612
50.5558	126.8713	650785	5602593
50.5556	126.8710	650807	5602568
50.5554	126.8708	650822	5602555
50.5551	126.8701	650874	5602515
50.5550	126.8699	650890	5602510
50.5550	126.8697	650904	5602503
50.5548	126.8692	650937	5602491
50.5548	126.8689	650957	5602488
50.5547	126.8683	651001	5602477
50.5547	126.8682	651009	5602475

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5546	126.8680	651021	5602470
50.5545	126.8678	651035	5602457
50.5544	126.8678	651038	5602448
50.5543	126.8678	651037	5602438
50.5542	126.8680	651027	5602422
50.5541	126.8680	651027	5602414
50.5538	126.8680	651028	5602381
50.5537	126.8678	651037	5602372
50.5537	126.8677	651049	5602370
50.5537	126.8674	651065	5602371
50.5538	126.8672	651085	5602375
50.5538	126.8668	651109	5602383
50.5539	126.8666	651126	5602392
50.5540	126.8663	651142	5602402
50.5540	126.8663	651148	5602407
50.5541	126.8660	651166	5602412
50.5541	126.8654	651206	5602413
50.5541	126.8653	651219	5602412
50.5540	126.8650	651238	5602409
50.5539	126.8647	651258	5602401
50.5540	126.8642	651293	5602404
50.5540	126.8640	651311	5602403
50.5539	126.8637	651327	5602393
50.5537	126.8636	651340	5602379
50.5537	126.8635	651345	5602372
50.5534	126.8634	651351	5602344
50.5533	126.8633	651362	5602333
50.5533	126.8630	651378	5602329
50.5532	126.8628	651397	5602326
50.5532	126.8626	651413	5602319
50.5530	126.8621	651443	5602301
50.5529	126.8620	651455	5602290
50.5528	126.8619	651460	5602279
50.5526	126.8619	651461	5602260
50.5526	126.8619	651462	5602252
50.5524	126.8617	651478	5602230
50.5522	126.8617	651477	5602210
50.5519	126.8619	651464	5602180
50.5518	126.8618	651468	5602164
50.5516	126.8617	651475	5602149
50.5513	126.8614	651500	5602109
50.5508	126.8609	651538	5602063
50.5505	126.8604	651574	5602023
50.5502	126.8599	651610	5601989
50.5501	126.8598	651621	5601983
50.5501	126.8596	651635	5601981
50.5501	126.8594	651644	5601985
50.5503	126.8594	651647	5602001
50.5504	126.8594	651647	5602017
50.5506	126.8594	651644	5602036
50.5507	126.8595	651635	5602055
50.5509	126.8596	651630	5602074
50.5509	126.8598	651617	5602071
50.5509	126.8599	651605	5602070
50.5509	126.8601	651597	5602071
50.5510	126.8601	651591	5602079
50.5511	126.8601	651590	5602094
50.5511	126.8601	651592	5602097
50.5512	126.8601	651594	5602100
50.5512	126.8599	651609	5602101
50.5512	126.8598	651612	5602102
50.5512	126.8596	651625	5602110
50.5513	126.8595	651632	5602120
50.5514	126.8595	651637	5602133
50.5516	126.8595	651635	5602151
50.5519	126.8596	651624	5602181

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5520	126.8597	651622	5602200
50.5521	126.8596	651622	5602211
50.5523	126.8592	651650	5602230
50.5523	126.8591	651659	5602232
50.5523	126.8589	651677	5602230
50.5522	126.8585	651701	5602224
50.5522	126.8580	651736	5602225
50.5522	126.8576	651767	5602217
50.5521	126.8574	651783	5602210
50.5521	126.8571	651801	5602206
50.5520	126.8569	651817	5602205
50.5521	126.8566	651837	5602209
50.5521	126.8564	651850	5602212
50.5521	126.8561	651873	5602211
50.5520	126.8559	651890	5602208
50.5521	126.8556	651909	5602209
50.5521	126.8553	651927	5602214
50.5521	126.8552	651938	5602215
50.5521	126.8550	651955	5602214
50.5520	126.8547	651973	5602209
50.5520	126.8545	651990	5602202
50.5519	126.8542	652006	5602192
50.5518	126.8542	652012	5602183
50.5516	126.8541	652015	5602167
50.5513	126.8541	652017	5602133
50.5510	126.8543	652003	5602096
50.5509	126.8544	652000	5602083
50.5508	126.8545	651992	5602067
50.5506	126.8547	651975	5602053
50.5506	126.8549	651964	5602047
50.5505	126.8551	651953	5602037
50.5504	126.8551	651951	5602026
50.5502	126.8551	651950	5602009
50.5501	126.8552	651941	5601996
50.5499	126.8556	651917	5601968
50.5497	126.8559	651899	5601943
50.5494	126.8562	651878	5601916
50.5491	126.8566	651851	5601880
50.5489	126.8569	651825	5601855
50.5486	126.8575	651788	5601820
50.5485	126.8579	651760	5601807
50.5484	126.8581	651742	5601802
50.5483	126.8583	651728	5601787
50.5482	126.8585	651718	5601775
50.5480	126.8586	651710	5601756
50.5479	126.8586	651707	5601739
50.5478	126.8586	651707	5601730
50.5476	126.8586	651708	5601706
50.5475	126.8587	651707	5601694
50.5472	126.8588	651695	5601658
50.5470	126.8589	651691	5601641
50.5469	126.8590	651686	5601631
50.5468	126.8591	651676	5601616
50.5466	126.8593	651667	5601599
50.5465	126.8594	651657	5601585
50.5464	126.8596	651644	5601571
50.5462	126.8598	651633	5601554
50.5461	126.8598	651628	5601544
50.5461	126.8601	651613	5601537
50.5460	126.8602	651601	5601525
50.5459	126.8604	651590	5601510
50.5457	126.8605	651581	5601496
50.5456	126.8607	651570	5601476
50.5454	126.8608	651559	5601461
50.5453	126.8613	651529	5601443
50.5452	126.8615	651513	5601440

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5452	126.8618	651494	5601439
50.5452	126.8621	651470	5601438
50.5452	126.8623	651454	5601438
50.5452	126.8625	651441	5601435
50.5451	126.8627	651428	5601426
50.5450	126.8629	651416	5601412
50.5449	126.8631	651404	5601401
50.5448	126.8633	651386	5601392
50.5448	126.8636	651368	5601382
50.5446	126.8639	651344	5601364
50.5446	126.8654	651238	5601363
50.5446	126.8656	651226	5601357
50.5444	126.8655	651232	5601343
50.5443	126.8655	651229	5601332
50.5443	126.8657	651222	5601324
50.5443	126.8661	651190	5601329
50.5444	126.8665	651161	5601334
50.5444	126.8672	651111	5601340
50.5443	126.8675	651092	5601327
50.5443	126.8678	651069	5601319
50.5443	126.8683	651031	5601316
50.5443	126.8689	650995	5601317
50.5442	126.8692	650970	5601311
50.5440	126.8697	650934	5601288
50.5438	126.8706	650870	5601261
50.5438	126.8711	650839	5601260
50.5438	126.8715	650808	5601263
50.5438	126.8719	650784	5601262
50.5438	126.8726	650729	5601252
50.5435	126.8735	650670	5601224
50.5434	126.8743	650611	5601214
50.5434	126.8744	650607	5601212
50.5434	126.8751	650554	5601212
50.5435	126.8756	650517	5601215
50.5434	126.8759	650498	5601211
50.5434	126.8766	650448	5601203
50.5433	126.8771	650411	5601189
50.5433	126.8773	650400	5601187
50.5432	126.8776	650382	5601184
50.5431	126.8780	650354	5601173
50.5431	126.8784	650319	5601169
50.5430	126.8789	650290	5601157
50.5429	126.8792	650265	5601144
50.5428	126.8797	650234	5601132
50.5427	126.8801	650200	5601116
50.5424	126.8807	650160	5601090
50.5423	126.8810	650140	5601071
50.5421	126.8814	650116	5601053
50.5419	126.8816	650097	5601032
50.5418	126.8819	650082	5601017
50.5417	126.8820	650074	5601001
50.5415	126.8820	650074	5600986
50.5414	126.8821	650067	5600973
50.5412	126.8822	650059	5600949
50.5406	126.8824	650046	5600885
50.5402	126.8825	650044	5600833
50.5400	126.8825	650039	5600813
50.5399	126.8825	650042	5600798
50.5398	126.8823	650054	5600788
50.5397	126.8820	650080	5600778
50.5397	126.8817	650103	5600778
50.5397	126.8811	650142	5600782
50.5397	126.8804	650189	5600780
50.5395	126.8800	650223	5600769
50.5395	126.8795	650257	5600767
50.5394	126.8791	650287	5600758

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5394	126.8787	650310	5600754
50.5393	126.8781	650353	5600740
50.5391	126.8776	650391	5600724
50.5391	126.8772	650422	5600721
50.5390	126.8768	650447	5600713
50.5389	126.8764	650479	5600705
50.5388	126.8758	650517	5600693
50.5388	126.8755	650539	5600690
50.5387	126.8751	650573	5600682
50.5386	126.8748	650595	5600678
50.5386	126.8744	650618	5600670
50.5385	126.8742	650638	5600665
50.5384	126.8737	650672	5600658
50.5384	126.8734	650691	5600657
50.5384	126.8732	650706	5600655
50.5384	126.8728	650732	5600655
50.5384	126.8724	650761	5600652
50.5383	126.8722	650779	5600649
50.5383	126.8719	650800	5600643
50.5382	126.8716	650822	5600636
50.5381	126.8713	650838	5600629
50.5379	126.8708	650874	5600609
50.5379	126.8706	650892	5600603
50.5378	126.8703	650910	5600592
50.5377	126.8702	650920	5600582
50.5375	126.8701	650931	5600565
50.5374	126.8700	650938	5600547
50.5372	126.8699	650941	5600531
50.5371	126.8699	650941	5600513
50.5370	126.8700	650938	5600501
50.5368	126.8702	650925	5600489
50.5368	126.8704	650911	5600480
50.5367	126.8706	650898	5600470
50.5366	126.8706	650893	5600458
50.5364	126.8706	650894	5600437
50.5362	126.8706	650896	5600418
50.5359	126.8706	650897	5600381
50.5357	126.8708	650883	5600362
50.5357	126.8709	650879	5600357
50.5356	126.8710	650871	5600345
50.5354	126.8711	650867	5600330
50.5353	126.8711	650867	5600315
50.5349	126.8714	650847	5600274
50.5348	126.8715	650835	5600263
50.5348	126.8716	650828	5600261
50.5348	126.8722	650789	5600260
50.5348	126.8723	650781	5600252
50.5346	126.8724	650774	5600234
50.5345	126.8725	650768	5600218
50.5343	126.8725	650768	5600199
50.5340	126.8723	650783	5600168
50.5336	126.8722	650795	5600129
50.5335	126.8721	650798	5600113
50.5333	126.8721	650797	5600091
50.5332	126.8721	650798	5600077
50.5327	126.8722	650796	5600022
50.5325	126.8723	650791	5600004
50.5324	126.8722	650794	5599993
50.5324	126.8722	650795	5599989
50.5323	126.8721	650803	5599977
50.5321	126.8720	650810	5599962
50.5320	126.8720	650813	5599946
50.5319	126.8720	650813	5599931
50.5317	126.8720	650814	5599918
50.5316	126.8719	650822	5599903
50.5316	126.8718	650828	5599899

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5313	126.8720	650812	5599864
50.5310	126.8723	650794	5599830
50.5307	126.8725	650783	5599796
50.5303	126.8725	650782	5599757
50.5302	126.8723	650793	5599743
50.5298	126.8723	650798	5599702
50.5297	126.8719	650823	5599687
50.5294	126.8716	650848	5599662
50.5293	126.8710	650894	5599647
50.5293	126.8698	650978	5599646
50.5294	126.8693	651013	5599662
50.5293	126.8690	651035	5599657
50.5292	126.8690	651036	5599637
50.5289	126.8691	651026	5599610
50.5287	126.8691	651026	5599590
50.5286	126.8689	651041	5599579
50.5286	126.8681	651097	5599573
50.5283	126.8678	651124	5599540
50.5280	126.8674	651151	5599514
50.5279	126.8669	651189	5599500
50.5279	126.8661	651240	5599498
50.5279	126.8658	651265	5599503
50.5281	126.8656	651280	5599521
50.5284	126.8654	651289	5599564
50.5288	126.8652	651306	5599608
50.5292	126.8649	651322	5599645
50.5296	126.8647	651334	5599690
50.5297	126.8647	651337	5599709
50.5301	126.8643	651362	5599753
50.5311	126.8635	651415	5599866
50.5315	126.8632	651438	5599913
50.5315	126.8630	651452	5599906
50.5315	126.8626	651477	5599908
50.5316	126.8624	651491	5599920
50.5316	126.8622	651507	5599917
50.5313	126.8620	651523	5599888
50.5312	126.8620	651526	5599882
50.5311	126.8618	651540	5599871
50.5311	126.8612	651582	5599870
50.5312	126.8611	651587	5599874
50.5313	126.8609	651602	5599891
50.5316	126.8604	651637	5599922
50.5316	126.8603	651641	5599928
50.5317	126.8603	651644	5599935
50.5318	126.8602	651650	5599950
50.5320	126.8602	651650	5599969
50.5321	126.8601	651653	5599985
50.5322	126.8601	651654	5599992
50.5334	126.8601	651652	5600125
50.5335	126.8599	651663	5600139
50.5337	126.8595	651689	5600158
50.5339	126.8593	651708	5600180
50.5344	126.8590	651724	5600239
50.5349	126.8586	651748	5600301
50.5354	126.8583	651768	5600354
50.5355	126.8582	651777	5600366
50.5356	126.8581	651785	5600374
50.5357	126.8578	651809	5600392
50.5359	126.8572	651846	5600412
50.5360	126.8567	651882	5600426
50.5360	126.8560	651929	5600427
50.5359	126.8552	651989	5600417
50.5359	126.8549	652008	5600410
50.5358	126.8545	652040	5600408
50.5359	126.8532	652129	5600415
50.5360	126.8527	652164	5600425

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5360	126.8522	652199	5600432
50.5360	126.8517	652235	5600437
50.5361	126.8512	652274	5600442
50.5361	126.8509	652294	5600447
50.5362	126.8504	652325	5600462
50.5364	126.8499	652360	5600482
50.5365	126.8497	652380	5600487
50.5365	126.8494	652402	5600489
50.5365	126.8486	652455	5600489
50.5364	126.8484	652471	5600489
50.5365	126.8482	652486	5600496
50.5367	126.8479	652506	5600513
50.5368	126.8476	652522	5600533
50.5370	126.8474	652537	5600550
50.5371	126.8471	652561	5600567
50.5372	126.8470	652566	5600571
50.5372	126.8469	652575	5600579
50.5374	126.8467	652587	5600599
50.5375	126.8467	652589	5600612
50.5378	126.8466	652593	5600638
50.5379	126.8465	652597	5600652
50.5382	126.8465	652599	5600690
50.5383	126.8465	652599	5600704
50.5388	126.8464	652605	5600755
50.5390	126.8464	652606	5600773
50.5393	126.8464	652603	5600810
50.5395	126.8466	652586	5600837
50.5396	126.8468	652575	5600844
50.5400	126.8473	652535	5600890
50.5401	126.8474	652527	5600902
50.5403	126.8474	652528	5600920
50.5405	126.8472	652539	5600938
50.5408	126.8470	652555	5600971
50.5411	126.8467	652574	5601015
50.5413	126.8465	652588	5601033
50.5417	126.8463	652604	5601075
50.5426	126.8456	652645	5601184
50.5430	126.8455	652652	5601223
50.5432	126.8454	652658	5601243
50.5434	126.8452	652674	5601272
50.5437	126.8449	652696	5601301
50.5439	126.8446	652718	5601325
50.5441	126.8443	652738	5601347
50.5442	126.8441	652750	5601361
50.5443	126.8440	652754	5601372
50.5445	126.8440	652755	5601391
50.5448	126.8441	652749	5601422
50.5449	126.8441	652750	5601439
50.5451	126.8441	652748	5601458
50.5452	126.8441	652743	5601468
50.5453	126.8441	652744	5601482
50.5454	126.8440	652755	5601495
50.5456	126.8437	652771	5601511
50.5456	126.8436	652780	5601514
50.5456	126.8432	652805	5601516
50.5457	126.8430	652822	5601533
50.5459	126.8425	652856	5601553
50.5460	126.8424	652864	5601563
50.5460	126.8423	652868	5601565
50.5460	126.8421	652884	5601560
50.5459	126.8416	652918	5601559
50.5460	126.8413	652939	5601567
50.5461	126.8412	652949	5601574
50.5461	126.8411	652955	5601576
50.5461	126.8409	652967	5601580
50.5463	126.8407	652980	5601595

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5464	126.8407	652985	5601606
50.5465	126.8405	652999	5601620
50.5466	126.8401	653024	5601637
50.5467	126.8398	653049	5601651
50.5468	126.8395	653069	5601661
50.5470	126.8391	653093	5601680
50.5470	126.8390	653102	5601685
50.5471	126.8385	653137	5601688
50.5470	126.8382	653156	5601686
50.5470	126.8381	653165	5601682
50.5468	126.8379	653181	5601667
50.5468	126.8378	653189	5601660
50.5467	126.8376	653200	5601655
50.5467	126.8373	653222	5601657
50.5468	126.8371	653234	5601661
50.5469	126.8368	653256	5601678
50.5471	126.8363	653289	5601697
50.5472	126.8359	653317	5601712
50.5474	126.8355	653350	5601728
50.5474	126.8351	653379	5601732
50.5473	126.8349	653393	5601727
50.5473	126.8348	653401	5601720
50.5470	126.8346	653416	5601696
50.5465	126.8340	653459	5601632
50.5464	126.8339	653462	5601629
50.5460	126.8342	653445	5601578
50.5459	126.8343	653437	5601572
50.5457	126.8344	653429	5601548
50.5456	126.8343	653436	5601534
50.5454	126.8340	653462	5601514
50.5452	126.8335	653495	5601498
50.5452	126.8333	653509	5601496
50.5453	126.8333	653512	5601504
50.5453	126.8331	653524	5601504
50.5454	126.8330	653528	5601518
50.5454	126.8329	653542	5601521
50.5460	126.8329	653536	5601587
50.5462	126.8327	653553	5601601
50.5465	126.8325	653562	5601634
50.5467	126.8324	653571	5601658
50.5468	126.8324	653567	5601672
50.5469	126.8326	653552	5601682
50.5468	126.8330	653525	5601677
50.5468	126.8332	653510	5601676
50.5468	126.8335	653492	5601669
50.5469	126.8337	653478	5601676
50.5470	126.8338	653468	5601697
50.5471	126.8338	653472	5601706
50.5472	126.8337	653475	5601717
50.5474	126.8337	653477	5601741
50.5476	126.8337	653472	5601758
50.5477	126.8337	653472	5601772
50.5479	126.8337	653477	5601797
50.5481	126.8335	653490	5601820
50.5483	126.8333	653503	5601840
50.5488	126.8332	653504	5601893
50.5489	126.8332	653509	5601909
50.5492	126.8328	653531	5601937
50.5493	126.8328	653536	5601948
50.5493	126.8328	653535	5601954
50.5494	126.8329	653528	5601959
50.5495	126.8329	653527	5601973
50.5496	126.8328	653530	5601986
50.5496	126.8327	653539	5601989
50.5496	126.8325	653554	5601987
50.5497	126.8323	653566	5601991

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5498	126.8321	653578	5602008
50.5499	126.8319	653595	5602019
50.5500	126.8317	653608	5602025
50.5500	126.8315	653623	5602027
50.5501	126.8313	653638	5602037
50.5501	126.8311	653652	5602039
50.5500	126.8309	653667	5602037
50.5500	126.8306	653685	5602036
50.5502	126.8303	653708	5602051
50.5502	126.8301	653719	5602050
50.5501	126.8296	653756	5602041
50.5501	126.8292	653785	5602046
50.5501	126.8289	653805	5602045
50.5501	126.8288	653817	5602046
50.5501	126.8285	653835	5602053
50.5502	126.8283	653850	5602061
50.5503	126.8280	653867	5602076
50.5504	126.8279	653876	5602082
50.5504	126.8275	653905	5602083
50.5504	126.8272	653926	5602087
50.5504	126.8270	653942	5602088
50.5504	126.8269	653949	5602084
50.5502	126.8269	653950	5602067
50.5500	126.8270	653939	5602042
50.5499	126.8272	653930	5602029
50.5497	126.8274	653913	5602009
50.5496	126.8275	653909	5601997
50.5495	126.8274	653912	5601986
50.5495	126.8273	653924	5601984
50.5495	126.8271	653939	5601985
50.5497	126.8269	653950	5602003
50.5497	126.8267	653962	5602006
50.5497	126.8266	653969	5602005
50.5496	126.8265	653979	5601991
50.5495	126.8263	653995	5601991
50.5496	126.8260	654015	5601995
50.5496	126.8259	654024	5602001
50.5496	126.8256	654044	5602002
50.5496	126.8254	654056	5601997
50.5496	126.8252	654068	5602000
50.5497	126.8247	654102	5602015
50.5498	126.8245	654119	5602024
50.5499	126.8240	654153	5602039
50.5499	126.8234	654194	5602041
50.5500	126.8232	654209	5602044
50.5501	126.8230	654224	5602054
50.5502	126.8228	654238	5602068
50.5503	126.8226	654255	5602078
50.5503	126.8223	654271	5602084
50.5503	126.8221	654290	5602083
50.5503	126.8218	654308	5602081
50.5502	126.8216	654326	5602075
50.5501	126.8214	654336	5602068
50.5499	126.8211	654357	5602036
50.5496	126.8207	654387	5602009
50.5494	126.8204	654409	5601989
50.5493	126.8202	654426	5601976
50.5492	126.8199	654445	5601968
50.5492	126.8197	654459	5601963
50.5491	126.8192	654498	5601958
50.5491	126.8189	654515	5601954
50.5491	126.8184	654556	5601955
50.5491	126.8179	654586	5601955
50.5491	126.8178	654598	5601954
50.5489	126.8175	654617	5601941
50.5488	126.8173	654632	5601927

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5487	126.8172	654639	5601920
50.5486	126.8172	654641	5601910
50.5485	126.8172	654638	5601896
50.5485	126.8172	654640	5601889
50.5484	126.8169	654659	5601882
50.5484	126.8168	654672	5601880
50.5483	126.8166	654687	5601878
50.5483	126.8162	654711	5601872
50.5482	126.8160	654729	5601866
50.5482	126.8158	654744	5601864
50.5482	126.8155	654761	5601865
50.5482	126.8154	654766	5601863
50.5481	126.8154	654772	5601855
50.5481	126.8153	654778	5601849
50.5479	126.8152	654785	5601835
50.5478	126.8149	654808	5601818
50.5477	126.8146	654828	5601806
50.5476	126.8144	654840	5601794
50.5474	126.8144	654843	5601782
50.5471	126.8144	654843	5601745
50.5470	126.8145	654838	5601727
50.5469	126.8147	654825	5601717
50.5468	126.8149	654810	5601711
50.5468	126.8154	654774	5601706
50.5467	126.8156	654762	5601702
50.5466	126.8158	654749	5601689
50.5465	126.8159	654739	5601672
50.5464	126.8160	654736	5601665
50.5463	126.8159	654737	5601649
50.5461	126.8160	654730	5601633
50.5460	126.8163	654716	5601619
50.5458	126.8170	654666	5601589
50.5458	126.8171	654655	5601588
50.5456	126.8173	654642	5601573
50.5455	126.8175	654631	5601558
50.5453	126.8179	654605	5601532
50.5451	126.8180	654592	5601512
50.5448	126.8182	654582	5601481
50.5447	126.8184	654571	5601466
50.5446	126.8185	654560	5601453
50.5445	126.8188	654542	5601446
50.5445	126.8190	654524	5601446
50.5445	126.8192	654509	5601444
50.5444	126.8196	654484	5601430
50.5442	126.8201	654450	5601413
50.5442	126.8202	654445	5601410
50.5441	126.8206	654416	5601392
50.5440	126.8209	654393	5601389
50.5440	126.8210	654385	5601380
50.5438	126.8210	654384	5601368
50.5438	126.8210	654385	5601362
50.5437	126.8210	654385	5601352
50.5436	126.8210	654387	5601336
50.5433	126.8210	654386	5601302
50.5431	126.8211	654379	5601287
50.5430	126.8213	654368	5601273
50.5429	126.8214	654360	5601261
50.5427	126.8215	654357	5601245
50.5426	126.8214	654359	5601231
50.5426	126.8214	654363	5601228
50.5426	126.8212	654379	5601231
50.5427	126.8208	654403	5601237
50.5427	126.8207	654415	5601237
50.5426	126.8206	654421	5601229
50.5423	126.8205	654429	5601199
50.5422	126.8203	654445	5601192

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5421	126.8201	654459	5601181
50.5421	126.8199	654470	5601178
50.5421	126.8197	654487	5601179
50.5421	126.8194	654507	5601177
50.5421	126.8191	654524	5601178
50.5421	126.8189	654539	5601183
50.5422	126.8186	654565	5601192
50.5422	126.8184	654574	5601195
50.5423	126.8183	654582	5601203
50.5425	126.8182	654591	5601222
50.5426	126.8181	654597	5601233
50.5426	126.8180	654604	5601240
50.5426	126.8176	654629	5601239
50.5426	126.8172	654657	5601238
50.5426	126.8170	654675	5601242
50.5427	126.8167	654693	5601244
50.5427	126.8166	654705	5601247
50.5428	126.8163	654724	5601260
50.5428	126.8161	654738	5601267
50.5429	126.8158	654755	5601270
50.5428	126.8156	654771	5601265
50.5428	126.8155	654777	5601266
50.5428	126.8154	654788	5601263
50.5428	126.8151	654811	5601264
50.5428	126.8148	654827	5601266
50.5428	126.8145	654848	5601265
50.5428	126.8143	654867	5601268
50.5429	126.8140	654888	5601275
50.5429	126.8138	654902	5601283
50.5431	126.8133	654937	5601303
50.5431	126.8130	654957	5601307
50.5432	126.8124	654996	5601309
50.5432	126.8122	655014	5601318
50.5433	126.8120	655029	5601326
50.5434	126.8117	655045	5601340
50.5435	126.8115	655058	5601348
50.5435	126.8113	655077	5601353
50.5436	126.8110	655095	5601357
50.5435	126.8106	655121	5601356
50.5435	126.8104	655136	5601356
50.5435	126.8102	655152	5601354
50.5435	126.8096	655193	5601356
50.5435	126.8096	655195	5601353
50.5435	126.8089	655246	5601353
50.5435	126.8088	655251	5601353
50.5435	126.8086	655269	5601350
50.5434	126.8084	655283	5601342
50.5433	126.8081	655299	5601336
50.5432	126.8077	655332	5601329
50.5432	126.8072	655365	5601329
50.5432	126.8070	655379	5601330
50.5433	126.8065	655419	5601336
50.5433	126.8063	655433	5601336
50.5433	126.8061	655443	5601336
50.5433	126.8056	655480	5601342
50.5433	126.8054	655494	5601341
50.5433	126.8051	655514	5601345
50.5434	126.8047	655545	5601349
50.5434	126.8042	655580	5601355
50.5435	126.8040	655590	5601361
50.5435	126.8037	655613	5601371
50.5436	126.8034	655633	5601372
50.5436	126.8032	655650	5601375
50.5436	126.8029	655669	5601381
50.5436	126.8027	655685	5601383
50.5435	126.8022	655719	5601368

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5433	126.8020	655735	5601352
50.5433	126.8018	655748	5601344
50.5432	126.8016	655764	5601342
50.5432	126.8011	655799	5601342
50.5432	126.8008	655817	5601339
50.5431	126.8006	655834	5601332
50.5431	126.8004	655846	5601330
50.5431	126.8003	655859	5601332
50.5433	126.8000	655876	5601347
50.5433	126.7998	655888	5601352
50.5433	126.7997	655899	5601355
50.5433	126.7994	655919	5601358
50.5434	126.7991	655943	5601369
50.5435	126.7988	655959	5601377
50.5435	126.7985	655981	5601378
50.5433	126.7976	656047	5601357
50.5433	126.7974	656063	5601354
50.5432	126.7971	656079	5601346
50.5430	126.7969	656095	5601323
50.5429	126.7967	656113	5601317
50.5429	126.7962	656145	5601316
50.5430	126.7956	656191	5601330
50.5430	126.7946	656260	5601332
50.5429	126.7941	656293	5601315
50.5428	126.7939	656309	5601313
50.5428	126.7927	656392	5601312
50.5428	126.7925	656406	5601314
50.5428	126.7923	656422	5601313
50.5428	126.7922	656434	5601310
50.5426	126.7915	656483	5601292
50.5425	126.7911	656507	5601284
50.5424	126.7908	656532	5601274
50.5423	126.7905	656553	5601264
50.5420	126.7899	656595	5601232
50.5419	126.7896	656621	5601214
50.5418	126.7892	656646	5601206
50.5418	126.7889	656667	5601205
50.5418	126.7886	656688	5601207
50.5418	126.7884	656706	5601211
50.5420	126.7878	656742	5601230
50.5420	126.7878	656745	5601236
50.5421	126.7877	656754	5601239
50.5421	126.7873	656781	5601248
50.5421	126.7869	656810	5601251
50.5421	126.7867	656822	5601248
50.5420	126.7862	656855	5601238
50.5419	126.7859	656877	5601230
50.5419	126.7858	656888	5601229
50.5420	126.7856	656899	5601235
50.5421	126.7855	656906	5601243
50.5422	126.7855	656909	5601258
50.5425	126.7855	656904	5601288
50.5426	126.7857	656892	5601299
50.5427	126.7858	656885	5601309
50.5428	126.7860	656870	5601320
50.5429	126.7862	656857	5601334
50.5430	126.7865	656831	5601351
50.5431	126.7866	656824	5601354
50.5432	126.7868	656809	5601372
50.5433	126.7868	656809	5601377
50.5433	126.7869	656806	5601380
50.5435	126.7870	656800	5601406
50.5437	126.7871	656790	5601427
50.5438	126.7871	656791	5601433
50.5439	126.7870	656796	5601441
50.5439	126.7869	656801	5601445

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5439	126.7867	656814	5601447
50.5439	126.7864	656839	5601449
50.5439	126.7861	656857	5601446
50.5437	126.7855	656901	5601430
50.5437	126.7852	656925	5601423
50.5437	126.7850	656940	5601426
50.5438	126.7848	656949	5601438
50.5439	126.7847	656960	5601449
50.5439	126.7844	656981	5601452
50.5439	126.7843	656989	5601447
50.5438	126.7842	656997	5601440
50.5436	126.7841	657003	5601420
50.5436	126.7840	657007	5601414
50.5435	126.7838	657021	5601407
50.5435	126.7837	657032	5601407
50.5436	126.7836	657040	5601414
50.5437	126.7835	657043	5601428
50.5438	126.7834	657050	5601442
50.5438	126.7833	657056	5601446
50.5438	126.7829	657086	5601447
50.5437	126.7824	657123	5601435
50.5437	126.7823	657130	5601428
50.5436	126.7823	657132	5601417
50.5434	126.7823	657129	5601405
50.5434	126.7824	657124	5601397
50.5433	126.7824	657124	5601389
50.5433	126.7823	657129	5601386
50.5433	126.7822	657141	5601384
50.5432	126.7818	657167	5601373
50.5431	126.7816	657177	5601372
50.5430	126.7814	657196	5601359
50.5430	126.7812	657207	5601356
50.5429	126.7808	657241	5601342
50.5427	126.7803	657271	5601326
50.5425	126.7800	657295	5601306
50.5423	126.7798	657310	5601288
50.5421	126.7796	657327	5601264
50.5419	126.7792	657355	5601235
50.5418	126.7791	657360	5601226
50.5417	126.7791	657365	5601218
50.5415	126.7791	657365	5601195
50.5414	126.7791	657363	5601186
50.5414	126.7792	657355	5601179
50.5413	126.7793	657346	5601175
50.5414	126.7795	657332	5601178
50.5413	126.7797	657324	5601173
50.5413	126.7797	657322	5601167
50.5412	126.7798	657311	5601164
50.5413	126.7802	657288	5601171
50.5413	126.7806	657258	5601169
50.5412	126.7809	657239	5601155
50.5411	126.7811	657224	5601152
50.5412	126.7813	657206	5601153
50.5412	126.7815	657191	5601152
50.5412	126.7817	657181	5601153
50.5412	126.7819	657166	5601159
50.5413	126.7820	657156	5601168
50.5413	126.7821	657149	5601170
50.5414	126.7822	657141	5601174
50.5413	126.7825	657120	5601171
50.5414	126.7827	657110	5601172
50.5414	126.7828	657101	5601176
50.5414	126.7831	657077	5601181
50.5415	126.7833	657064	5601189
50.5416	126.7835	657054	5601199
50.5418	126.7838	657027	5601224

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5419	126.7840	657017	5601228
50.5419	126.7841	657009	5601230
50.5419	126.7841	657005	5601233
50.5419	126.7842	656997	5601233
50.5420	126.7844	656985	5601236
50.5420	126.7847	656968	5601239
50.5420	126.7848	656960	5601243
50.5422	126.7849	656950	5601256
50.5422	126.7850	656946	5601260
50.5422	126.7850	656940	5601263
50.5422	126.7851	656932	5601263
50.5422	126.7853	656924	5601258
50.5421	126.7853	656921	5601253
50.5421	126.7853	656919	5601247
50.5420	126.7853	656919	5601240
50.5419	126.7853	656921	5601232
50.5419	126.7853	656924	5601223
50.5418	126.7852	656930	5601211
50.5416	126.7851	656938	5601199
50.5416	126.7850	656946	5601190
50.5414	126.7849	656951	5601177
50.5413	126.7848	656959	5601163
50.5411	126.7847	656966	5601144
50.5410	126.7847	656967	5601127
50.5406	126.7847	656968	5601079
50.5404	126.7847	656969	5601066
50.5403	126.7847	656970	5601045
50.5401	126.7846	656975	5601024
50.5398	126.7845	656985	5600995
50.5395	126.7845	656988	5600959
50.5394	126.7844	656994	5600947
50.5391	126.7840	657024	5600923
50.5390	126.7837	657043	5600911
50.5389	126.7830	657097	5600895
50.5389	126.7825	657128	5600894
50.5388	126.7820	657167	5600885
50.5388	126.7809	657245	5600887
50.5388	126.7805	657275	5600887
50.5388	126.7802	657295	5600888
50.5387	126.7798	657321	5600884
50.5385	126.7790	657379	5600860
50.5384	126.7785	657414	5600857
50.5384	126.7781	657446	5600853
50.5384	126.7775	657488	5600849
50.5382	126.7769	657532	5600835
50.5381	126.7763	657571	5600818
50.5379	126.7759	657599	5600802
50.5379	126.7756	657622	5600798
50.5378	126.7753	657641	5600797
50.5379	126.7748	657677	5600805
50.5379	126.7742	657721	5600806
50.5378	126.7736	657763	5600801
50.5378	126.7734	657782	5600797
50.5377	126.7731	657802	5600785
50.5376	126.7726	657840	5600777
50.5376	126.7723	657858	5600778
50.5376	126.7720	657882	5600782
50.5377	126.7716	657910	5600784
50.5377	126.7713	657926	5600790
50.5377	126.7710	657948	5600795
50.5377	126.7706	657981	5600795
50.5376	126.7702	658009	5600786
50.5375	126.7698	658032	5600774
50.5374	126.7692	658075	5600758
50.5373	126.7686	658121	5600749
50.5372	126.7683	658142	5600743

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5371	126.7681	658157	5600735
50.5371	126.7680	658164	5600732
50.5371	126.7678	658180	5600726
50.5370	126.7676	658192	5600718
50.5368	126.7675	658198	5600701
50.5368	126.7674	658205	5600698
50.5367	126.7669	658246	5600691
50.5367	126.7666	658266	5600685
50.5366	126.7662	658294	5600674
50.5364	126.7659	658318	5600658
50.5362	126.7652	658366	5600640
50.5362	126.7647	658402	5600632
50.5361	126.7643	658429	5600628
50.5361	126.7642	658435	5600625
50.5360	126.7640	658449	5600614
50.5359	126.7638	658467	5600607
50.5358	126.7636	658479	5600598
50.5357	126.7635	658485	5600586
50.5356	126.7633	658499	5600575
50.5355	126.7628	658536	5600566
50.5353	126.7622	658583	5600545
50.5353	126.7619	658600	5600540
50.5353	126.7615	658633	5600538
50.5353	126.7609	658671	5600542
50.5354	126.7605	658702	5600553
50.5354	126.7601	658731	5600553
50.5353	126.7598	658748	5600549
50.5352	126.7595	658771	5600540
50.5351	126.7594	658781	5600530
50.5350	126.7593	658790	5600513
50.5347	126.7589	658814	5600487
50.5346	126.7588	658822	5600471
50.5345	126.7587	658831	5600466
50.5345	126.7585	658843	5600464
50.5345	126.7582	658864	5600465
50.5345	126.7581	658871	5600464
50.5343	126.7577	658906	5600443
50.5343	126.7575	658920	5600441
50.5343	126.7572	658938	5600439
50.5342	126.7568	658965	5600433
50.5342	126.7561	659016	5600432
50.5342	126.7557	659042	5600434
50.5342	126.7554	659067	5600430
50.5341	126.7550	659092	5600423
50.5341	126.7546	659125	5600425
50.5341	126.7543	659148	5600421
50.5340	126.7541	659160	5600419
50.5340	126.7538	659184	5600418
50.5340	126.7536	659195	5600418
50.5340	126.7533	659215	5600415
50.5338	126.7528	659254	5600393
50.5337	126.7527	659262	5600380
50.5335	126.7526	659265	5600357
50.5334	126.7525	659272	5600350
50.5333	126.7521	659306	5600346
50.5333	126.7512	659370	5600344
50.5332	126.7507	659403	5600333
50.5330	126.7502	659439	5600315
50.5329	126.7497	659477	5600298
50.5328	126.7494	659499	5600297
50.5328	126.7489	659529	5600296
50.5327	126.7484	659567	5600285
50.5326	126.7480	659593	5600271
50.5325	126.7478	659613	5600263
50.5324	126.7476	659622	5600255
50.5322	126.7475	659635	5600228

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5320	126.7472	659658	5600211
50.5320	126.7469	659674	5600206
50.5320	126.7466	659699	5600204
50.5319	126.7461	659732	5600195
50.5318	126.7457	659764	5600186
50.5318	126.7453	659793	5600188
50.5318	126.7450	659814	5600186
50.5316	126.7446	659844	5600174
50.5314	126.7438	659899	5600152
50.5314	126.7436	659912	5600144
50.5313	126.7429	659959	5600136
50.5311	126.7424	659995	5600122
50.5310	126.7419	660033	5600108
50.5308	126.7415	660063	5600087
50.5307	126.7412	660086	5600079
50.5306	126.7406	660125	5600062
50.5305	126.7405	660133	5600060
50.5304	126.7400	660169	5600042
50.5303	126.7397	660190	5600037
50.5303	126.7394	660213	5600036
50.5303	126.7391	660233	5600034
50.5303	126.7390	660239	5600031
50.5301	126.7387	660265	5600014
50.5300	126.7386	660270	5600006
50.5299	126.7386	660271	5599988
50.5297	126.7387	660266	5599974
50.5296	126.7387	660266	5599963
50.5296	126.7386	660273	5599959
50.5296	126.7383	660291	5599955
50.5295	126.7379	660322	5599946
50.5294	126.7376	660342	5599942
50.5294	126.7374	660359	5599940
50.5294	126.7370	660387	5599935
50.5293	126.7368	660404	5599925
50.5290	126.7361	660454	5599898
50.5288	126.7354	660500	5599878
50.5287	126.7353	660510	5599871
50.5286	126.7349	660538	5599860
50.5286	126.7347	660555	5599857
50.5286	126.7344	660571	5599856
50.5283	126.7334	660645	5599823
50.5280	126.7328	660690	5599791
50.5274	126.7321	660740	5599731
50.5272	126.7319	660759	5599712
50.5269	126.7312	660806	5599679
50.5269	126.7312	660809	5599674
50.5268	126.7312	660809	5599659
50.5266	126.7313	660802	5599642
50.5263	126.7312	660806	5599612
50.5263	126.7312	660809	5599608
50.5261	126.7309	660832	5599586
50.5260	126.7306	660850	5599575
50.5259	126.7304	660866	5599560
50.5258	126.7302	660881	5599554
50.5257	126.7300	660895	5599544
50.5257	126.7297	660915	5599542
50.5256	126.7295	660933	5599534
50.5255	126.7289	660971	5599525
50.5254	126.7285	661001	5599510
50.5252	126.7274	661082	5599499
50.5252	126.7271	661102	5599490
50.5251	126.7270	661111	5599483
50.5250	126.7266	661136	5599473
50.5250	126.7261	661174	5599473
50.5250	126.7257	661204	5599481
50.5253	126.7249	661256	5599515

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5254	126.7247	661269	5599519
50.5257	126.7241	661316	5599555
50.5257	126.7239	661329	5599560
50.5257	126.7237	661344	5599560
50.5257	126.7234	661362	5599556
50.5256	126.7229	661396	5599544
50.5255	126.7226	661419	5599539
50.5255	126.7224	661438	5599539
50.5255	126.7221	661455	5599535
50.5254	126.7219	661473	5599529
50.5253	126.7213	661510	5599521
50.5252	126.7209	661539	5599510
50.5250	126.7206	661561	5599485
50.5250	126.7205	661569	5599484
50.5249	126.7204	661581	5599476
50.5248	126.7200	661606	5599462
50.5247	126.7200	661611	5599457
50.5247	126.7199	661618	5599452
50.5245	126.7197	661630	5599434
50.5243	126.7196	661636	5599407
50.5241	126.7196	661637	5599394
50.5239	126.7195	661645	5599369
50.5238	126.7192	661667	5599354
50.5236	126.7186	661713	5599333
50.5236	126.7172	661807	5599336
50.5239	126.7151	661957	5599380
50.5239	126.7147	661988	5599376
50.5238	126.7144	662010	5599372
50.5237	126.7137	662058	5599353
50.5236	126.7135	662073	5599342
50.5234	126.7132	662092	5599325
50.5231	126.7129	662115	5599291
50.5224	126.7126	662138	5599214
50.5221	126.7123	662160	5599187
50.5220	126.7121	662174	5599174
50.5218	126.7116	662212	5599154
50.5218	126.7113	662231	5599149
50.5217	126.7113	662236	5599145
50.5216	126.7112	662243	5599130
50.5215	126.7110	662260	5599114
50.5211	126.7106	662286	5599074
50.5210	126.7103	662306	5599068
50.5210	126.7096	662359	5599067
50.5209	126.7089	662404	5599057
50.5209	126.7088	662413	5599054
50.5207	126.7085	662439	5599040
50.5205	126.7082	662460	5599016
50.5203	126.7077	662495	5598992
50.5202	126.7076	662504	5598985
50.5200	126.7074	662516	5598963
50.5199	126.7072	662529	5598950
50.5198	126.7071	662541	5598933
50.5196	126.7066	662574	5598915
50.5195	126.7063	662598	5598905
50.5195	126.7059	662623	5598902
50.5195	126.7050	662686	5598907
50.5195	126.7045	662724	5598908
50.5194	126.7038	662772	5598900
50.5192	126.7032	662818	5598879
50.5187	126.7018	662915	5598829
50.5183	126.7005	663012	5598790
50.5181	126.6993	663097	5598765
50.5180	126.6988	663133	5598761
50.5181	126.6982	663178	5598765
50.5181	126.6978	663204	5598772
50.5181	126.6977	663213	5598773

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5183	126.6970	663259	5598792
50.5183	126.6968	663277	5598797
50.5183	126.6961	663320	5598797
50.5182	126.6956	663360	5598787
50.5180	126.6952	663387	5598769
50.5179	126.6949	663410	5598759
50.5180	126.6946	663434	5598760
50.5180	126.6944	663443	5598763
50.5180	126.6941	663470	5598761
50.5179	126.6938	663487	5598752
50.5177	126.6936	663506	5598730
50.5174	126.6934	663519	5598697
50.5172	126.6932	663532	5598681
50.5171	126.6925	663581	5598667
50.5171	126.6924	663591	5598670
50.5171	126.6920	663615	5598672
50.5172	126.6917	663637	5598679
50.5171	126.6907	663713	5598678
50.5171	126.6905	663727	5598671
50.5171	126.6904	663735	5598670
50.5170	126.6901	663752	5598659
50.5169	126.6899	663770	5598657
50.5169	126.6895	663794	5598650
50.5169	126.6882	663885	5598653
50.5166	126.6877	663922	5598620
50.5164	126.6873	663954	5598609
50.5164	126.6871	663968	5598601
50.5163	126.6870	663977	5598588
50.5161	126.6868	663993	5598576
50.5161	126.6865	664009	5598573
50.5161	126.6861	664038	5598572
50.5161	126.6860	664050	5598571
50.5160	126.6858	664058	5598567
50.5158	126.6854	664092	5598543
50.5154	126.6847	664142	5598494
50.5153	126.6843	664173	5598485
50.5153	126.6840	664193	5598485
50.5152	126.6838	664206	5598477
50.5151	126.6836	664224	5598467
50.5149	126.6822	664321	5598448
50.5146	126.6809	664413	5598415
50.5145	126.6804	664449	5598409
50.5145	126.6786	664575	5598408
50.5144	126.6783	664598	5598400
50.5140	126.6775	664660	5598364
50.5138	126.6766	664720	5598343
50.5137	126.6761	664755	5598326
50.5135	126.6749	664841	5598310
50.5134	126.6747	664857	5598303
50.5134	126.6745	664869	5598293
50.5133	126.6744	664879	5598284
50.5130	126.6741	664898	5598255
50.5128	126.6741	664902	5598230
50.5127	126.6741	664905	5598222
50.5126	126.6738	664922	5598214
50.5126	126.6733	664961	5598212
50.5125	126.6730	664981	5598204
50.5125	126.6728	664992	5598201
50.5125	126.6728	664997	5598200
50.5125	126.6727	665001	5598199
50.5124	126.6726	665008	5598193
50.5123	126.6724	665027	5598186
50.5123	126.6721	665045	5598177
50.5121	126.6718	665067	5598162
50.5120	126.6715	665090	5598152
50.5119	126.6712	665108	5598142

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5118	126.6709	665132	5598133
50.5117	126.6706	665153	5598122
50.5117	126.6705	665163	5598117
50.5114	126.6699	665203	5598088
50.5114	126.6698	665215	5598083
50.5112	126.6695	665234	5598069
50.5112	126.6694	665241	5598065
50.5111	126.6692	665258	5598058
50.5111	126.6689	665276	5598055
50.5111	126.6688	665287	5598053
50.5111	126.6677	665361	5598053
50.5110	126.6673	665388	5598049
50.5109	126.6667	665431	5598043
50.5109	126.6666	665438	5598040
50.5109	126.6665	665447	5598038
50.5108	126.6663	665461	5598033
50.5108	126.6660	665482	5598026
50.5108	126.6658	665495	5598023
50.5107	126.6657	665508	5598021
50.5107	126.6654	665523	5598018
50.5106	126.6648	665571	5598006
50.5105	126.6644	665601	5597996
50.5104	126.6642	665609	5597993
50.5104	126.6634	665670	5597985
50.5103	126.6629	665702	5597975
50.5101	126.6624	665739	5597958
50.5100	126.6619	665775	5597949
50.5099	126.6614	665815	5597934
50.5097	126.6611	665833	5597922
50.5093	126.6605	665878	5597877
50.5092	126.6602	665898	5597858
50.5087	126.6598	665932	5597811
50.5082	126.6590	665992	5597753
50.5075	126.6583	666044	5597680
50.5069	126.6572	666121	5597616
50.5068	126.6565	666174	5597600
50.5066	126.6561	666199	5597584
50.5054	126.6553	666264	5597457
50.5053	126.6550	666285	5597439
50.5049	126.6545	666322	5597397
50.5043	126.6540	666360	5597329
50.5041	126.6537	666379	5597314
50.5041	126.6534	666400	5597307
50.5040	126.6532	666415	5597296
50.5039	126.6526	666458	5597289
50.5037	126.6518	666515	5597269
50.5036	126.6512	666560	5597261
50.5035	126.6509	666580	5597245
50.5033	126.6502	666633	5597227
50.5031	126.6494	666688	5597213
50.5030	126.6489	666722	5597200
50.5027	126.6485	666753	5597164
50.5026	126.6482	666776	5597156
50.5025	126.6476	666816	5597141
50.5024	126.6471	666854	5597134
50.5022	126.6466	666890	5597116
50.5021	126.6464	666904	5597102
50.5019	126.6460	666932	5597089
50.5019	126.6460	666936	5597081
50.5018	126.6459	666942	5597072
50.5015	126.6455	666970	5597042
50.5014	126.6452	666993	5597027
50.5010	126.6440	667077	5596990
50.5010	126.6439	667086	5596983
50.5006	126.6435	667111	5596948
50.5004	126.6434	667123	5596921

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.5000	126.6433	667134	5596881
50.4997	126.6430	667154	5596851
50.4992	126.6424	667200	5596797
50.4991	126.6421	667216	5596782
50.4989	126.6418	667243	5596763
50.4988	126.6413	667280	5596746
50.4986	126.6409	667307	5596729
50.4986	126.6407	667321	5596724
50.4985	126.6406	667326	5596720
50.4985	126.6403	667346	5596718
50.4985	126.6387	667464	5596718
50.4984	126.6384	667483	5596715
50.4984	126.6381	667508	5596713
50.4984	126.6378	667528	5596709
50.4983	126.6373	667559	5596706
50.4982	126.6366	667611	5596698
50.4981	126.6359	667661	5596679
50.4978	126.6350	667726	5596649
50.4974	126.6342	667786	5596608
50.4973	126.6341	667796	5596601
50.4974	126.6338	667812	5596607
50.4975	126.6336	667830	5596622
50.4976	126.6333	667849	5596633
50.4976	126.6323	667919	5596633
50.4976	126.6319	667946	5596632
50.4975	126.6316	667968	5596623
50.4974	126.6312	668001	5596621
50.4975	126.6308	668028	5596627
50.4976	126.6304	668054	5596639
50.4976	126.6301	668076	5596638
50.4973	126.6296	668114	5596609
50.4968	126.6292	668143	5596551
50.4965	126.6290	668155	5596518
50.4963	126.6288	668169	5596501
50.4960	126.6290	668160	5596467
50.4933	126.6211	668732	5596186
50.4818	126.6368	667656	5594875
50.4767	126.6357	667751	5594307
50.4748	126.6347	667828	5594098
50.4717	126.6401	667455	5593737
50.4708	126.6440	667181	5593630
50.4670	126.6471	666979	5593196
50.4626	126.6517	666665	5592696
50.4626	126.6546	666464	5592700
50.4590	126.6577	666252	5592291
50.4585	126.6607	666043	5592221
50.4547	126.6613	666015	5591798
50.4539	126.6622	665952	5591709
50.4508	126.6620	665978	5591372
50.4485	126.6562	666394	5591128
50.4451	126.6513	666758	5590752
50.4448	126.6522	666691	5590726
50.4407	126.6529	666658	5590267
50.4391	126.6505	666834	5590095
50.4371	126.6430	667376	5589883
50.4329	126.6468	667122	5589408
50.4309	126.6467	667134	5589189
50.4316	126.6394	667652	5589284
50.4335	126.6306	668270	5589516
50.4334	126.6279	668460	5589504
50.4340	126.6239	668738	5589589
50.4341	126.6191	669081	5589606
50.4332	126.6125	669553	5589524
50.4290	126.6067	669979	5589068
50.4251	126.5992	670525	5588650
50.4228	126.5990	670553	5588393

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4223	126.5966	670721	5588347
50.4234	126.5943	670884	5588472
50.4229	126.5902	671176	5588432
50.4230	126.5862	671460	5588445
50.4226	126.5839	671626	5588411
50.4265	126.5764	672144	5588863
50.4275	126.5758	672178	5588976
50.4297	126.5758	672169	5589222
50.4295	126.5601	673290	5589234
50.4265	126.5546	673690	5588910
50.4305	126.5361	674991	5589399
50.4343	126.5389	674775	5589809
50.4364	126.5382	674821	5590050
50.4382	126.5391	674747	5590245
50.4409	126.5367	674910	5590554
50.4430	126.5387	674760	5590786
50.4449	126.5383	674778	5590992
50.4475	126.5410	674577	5591277
50.4499	126.5407	674588	5591542
50.4510	126.5372	674836	5591674
50.4524	126.5368	674856	5591834
50.4540	126.5380	674766	5592002
50.4601	126.5380	674743	5592684
50.4640	126.5384	674702	5593116
50.4641	126.5331	675079	5593142
50.4673	126.5236	675740	5593517
50.4794	126.5154	676278	5594879
50.4797	126.5120	676517	5594921
50.4804	126.5105	676618	5595005
50.4828	126.5078	676804	5595276
50.4830	126.5058	676947	5595306
50.4851	126.5038	677078	5595545
50.4844	126.5020	677211	5595476
50.4843	126.5005	677315	5595465
50.4837	126.4986	677454	5595400
50.4835	126.4967	677589	5595386
50.4831	126.4948	677724	5595345
50.4832	126.4928	677867	5595356
50.4832	126.4920	677925	5595358
50.4831	126.4918	677936	5595354
50.4829	126.4916	677953	5595326
50.4823	126.4915	677962	5595262
50.4821	126.4910	677997	5595247
50.4821	126.4904	678039	5595249
50.4819	126.4897	678090	5595228
50.4819	126.4890	678138	5595225
50.4816	126.4881	678208	5595197
50.4817	126.4857	678373	5595214
50.4816	126.4850	678425	5595199
50.4813	126.4843	678478	5595168
50.4810	126.4835	678533	5595140
50.4812	126.4823	678617	5595159
50.4812	126.4816	678670	5595167
50.4812	126.4811	678701	5595165
50.4809	126.4807	678735	5595139
50.4808	126.4801	678776	5595119
50.4806	126.4783	678903	5595108
50.4803	126.4775	678962	5595071
50.4803	126.4770	678996	5595079
50.4806	126.4761	679061	5595114
50.4806	126.4757	679085	5595115
50.4805	126.4753	679119	5595106
50.4806	126.4749	679144	5595112
50.4806	126.4747	679158	5595120
50.4806	126.4746	679165	5595119
50.4806	126.4743	679187	5595113

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4805	126.4740	679210	5595110
50.4804	126.4737	679229	5595099
50.4804	126.4736	679237	5595090
50.4802	126.4734	679254	5595074
50.4802	126.4732	679268	5595069
50.4801	126.4728	679294	5595065
50.4800	126.4725	679319	5595056
50.4800	126.4720	679356	5595054
50.4798	126.4712	679408	5595039
50.4797	126.4703	679474	5595029
50.4797	126.4699	679500	5595031
50.4798	126.4695	679528	5595040
50.4800	126.4689	679576	5595063
50.4802	126.4685	679598	5595081
50.4804	126.4682	679623	5595110
50.4807	126.4680	679633	5595140
50.4809	126.4677	679656	5595164
50.4812	126.4674	679678	5595196
50.4817	126.4669	679709	5595258
50.4821	126.4666	679731	5595297
50.4824	126.4662	679757	5595332
50.4824	126.4658	679785	5595342
50.4824	126.4656	679801	5595341
50.4825	126.4652	679826	5595350
50.4826	126.4639	679917	5595359
50.4825	126.4635	679947	5595351
50.4825	126.4633	679964	5595351
50.4825	126.4631	679976	5595355
50.4825	126.4614	680099	5595360
50.4823	126.4603	680178	5595335
50.4821	126.4598	680213	5595315
50.4820	126.4597	680220	5595304
50.4819	126.4595	680236	5595294
50.4814	126.4589	680280	5595242
50.4810	126.4583	680320	5595198
50.4808	126.4580	680343	5595179
50.4807	126.4577	680367	5595162
50.4804	126.4571	680412	5595132
50.4801	126.4564	680461	5595103
50.4799	126.4558	680506	5595087
50.4797	126.4547	680582	5595060
50.4797	126.4545	680599	5595065
50.4796	126.4541	680626	5595054
50.4795	126.4534	680675	5595048
50.4795	126.4528	680720	5595049
50.4794	126.4520	680774	5595036
50.4793	126.4513	680822	5595025
50.4792	126.4506	680875	5595018
50.4792	126.4504	680891	5595020
50.4790	126.4479	681067	5594998
50.4788	126.4473	681109	5594983
50.4787	126.4467	681154	5594971
50.4787	126.4464	681175	5594969
50.4787	126.4460	681201	5594974
50.4788	126.4459	681209	5594982
50.4788	126.4457	681224	5594988
50.4789	126.4454	681247	5594997
50.4789	126.4451	681264	5594996
50.4788	126.4449	681282	5594985
50.4787	126.4446	681304	5594973
50.4785	126.4433	681392	5594962
50.4785	126.4429	681420	5594964
50.4786	126.4426	681444	5594970
50.4786	126.4424	681456	5594976
50.4788	126.4422	681472	5594989
50.4790	126.4419	681489	5595011

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4790	126.4418	681500	5595022
50.4791	126.4416	681514	5595031
50.4792	126.4415	681519	5595036
50.4794	126.4411	681547	5595058
50.4794	126.4409	681559	5595064
50.4796	126.4407	681576	5595083
50.4796	126.4405	681591	5595088
50.4796	126.4403	681604	5595085
50.4796	126.4401	681615	5595085
50.4794	126.4397	681645	5595064
50.4791	126.4394	681666	5595035
50.4790	126.4392	681681	5595019
50.4788	126.4390	681699	5595006
50.4787	126.4388	681711	5594992
50.4785	126.4386	681731	5594973
50.4783	126.4381	681767	5594946
50.4781	126.4378	681785	5594921
50.4777	126.4373	681823	5594888
50.4776	126.4370	681843	5594872
50.4774	126.4366	681872	5594854
50.4772	126.4361	681911	5594836
50.4770	126.4351	681983	5594816
50.4770	126.4350	681992	5594811
50.4769	126.4346	682020	5594800
50.4769	126.4343	682041	5594799
50.4769	126.4342	682044	5594799
50.4768	126.4340	682063	5594796
50.4768	126.4334	682104	5594793
50.4768	126.4328	682145	5594794
50.4769	126.4321	682195	5594802
50.4769	126.4315	682237	5594812
50.4770	126.4312	682257	5594815
50.4769	126.4309	682281	5594815
50.4769	126.4306	682305	5594809
50.4768	126.4304	682319	5594804
50.4768	126.4299	682355	5594799
50.4768	126.4296	682375	5594801
50.4768	126.4295	682381	5594804
50.4768	126.4292	682399	5594807
50.4769	126.4290	682416	5594818
50.4770	126.4285	682447	5594826
50.4770	126.4280	682483	5594831
50.4771	126.4274	682529	5594841
50.4772	126.4263	682608	5594860
50.4773	126.4241	682760	5594872
50.4773	126.4230	682840	5594879
50.4775	126.4218	682927	5594895
50.4781	126.4203	683031	5594968
50.4780	126.4194	683095	5594962
50.4778	126.4186	683148	5594943
50.4778	126.4179	683196	5594943
50.4778	126.4173	683245	5594945
50.4777	126.4163	683311	5594940
50.4778	126.4158	683349	5594948
50.4779	126.4156	683362	5594962
50.4781	126.4155	683366	5594981
50.4784	126.4156	683363	5595015
50.4785	126.4155	683368	5595029
50.4788	126.4154	683370	5595056
50.4789	126.4154	683375	5595071
50.4791	126.4152	683385	5595089
50.4793	126.4149	683408	5595111
50.4795	126.4146	683429	5595141
50.4796	126.4145	683434	5595151
50.4799	126.4142	683456	5595185
50.4800	126.4140	683465	5595195

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4800	126.4139	683473	5595201
50.4801	126.4138	683482	5595203
50.4800	126.4137	683491	5595202
50.4800	126.4136	683499	5595200
50.4800	126.4135	683505	5595197
50.4799	126.4134	683510	5595191
50.4799	126.4134	683512	5595184
50.4798	126.4132	683528	5595179
50.4798	126.4130	683539	5595180
50.4799	126.4127	683560	5595193
50.4800	126.4125	683576	5595201
50.4801	126.4124	683582	5595206
50.4801	126.4123	683586	5595210
50.4801	126.4123	683586	5595216
50.4802	126.4123	683586	5595221
50.4803	126.4123	683588	5595229
50.4803	126.4122	683597	5595235
50.4803	126.4120	683605	5595236
50.4803	126.4119	683615	5595236
50.4803	126.4117	683629	5595233
50.4802	126.4114	683650	5595226
50.4802	126.4113	683658	5595225
50.4802	126.4111	683671	5595228
50.4802	126.4106	683706	5595226
50.4802	126.4105	683715	5595224
50.4802	126.4103	683727	5595225
50.4801	126.4101	683741	5595221
50.4801	126.4097	683769	5595216
50.4801	126.4097	683773	5595216
50.4801	126.4095	683789	5595219
50.4801	126.4093	683798	5595224
50.4802	126.4093	683803	5595231
50.4804	126.4091	683814	5595253
50.4806	126.4090	683821	5595276
50.4807	126.4088	683835	5595291
50.4808	126.4087	683843	5595297
50.4808	126.4086	683848	5595302
50.4809	126.4086	683849	5595308
50.4810	126.4086	683846	5595316
50.4810	126.4087	683841	5595321
50.4811	126.4088	683832	5595327
50.4811	126.4089	683825	5595334
50.4811	126.4090	683820	5595335
50.4812	126.4090	683820	5595337
50.4812	126.4090	683818	5595337
50.4812	126.4091	683810	5595344
50.4813	126.4092	683806	5595353
50.4814	126.4092	683804	5595362
50.4814	126.4092	683804	5595369
50.4815	126.4091	683808	5595375
50.4816	126.4090	683819	5595383
50.4816	126.4089	683826	5595387
50.4816	126.4088	683831	5595388
50.4817	126.4086	683841	5595396
50.4817	126.4086	683847	5595398
50.4817	126.4084	683857	5595402
50.4818	126.4083	683867	5595406
50.4818	126.4081	683878	5595409
50.4818	126.4079	683892	5595411
50.4818	126.4076	683911	5595415
50.4818	126.4076	683918	5595414
50.4818	126.4074	683929	5595414
50.4818	126.4069	683965	5595411
50.4818	126.4068	683971	5595412
50.4818	126.4066	683982	5595413
50.4818	126.4066	683985	5595414

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4818	126.4065	683990	5595418
50.4819	126.4065	683991	5595422
50.4819	126.4065	683993	5595428
50.4821	126.4066	683985	5595443
50.4821	126.4066	683985	5595447
50.4821	126.4066	683984	5595451
50.4822	126.4066	683987	5595457
50.4822	126.4065	683992	5595461
50.4822	126.4064	683995	5595462
50.4822	126.4063	684005	5595463
50.4822	126.4062	684011	5595462
50.4822	126.4061	684020	5595459
50.4821	126.4060	684024	5595455
50.4821	126.4060	684027	5595448
50.4821	126.4060	684029	5595445
50.4820	126.4059	684031	5595440
50.4819	126.4058	684044	5595433
50.4819	126.4056	684053	5595431
50.4819	126.4054	684067	5595429
50.4819	126.4049	684105	5595429
50.4819	126.4049	684107	5595430
50.4819	126.4047	684120	5595431
50.4819	126.4046	684130	5595434
50.4819	126.4045	684137	5595436
50.4820	126.4044	684140	5595437
50.4820	126.4043	684151	5595445
50.4821	126.4041	684159	5595451
50.4821	126.4040	684167	5595460
50.4822	126.4039	684174	5595470
50.4824	126.4037	684187	5595490
50.4825	126.4037	684189	5595496
50.4828	126.4033	684215	5595530
50.4830	126.4031	684229	5595557
50.4830	126.4030	684234	5595562
50.4832	126.4028	684251	5595575
50.4832	126.4022	684293	5595581
50.4831	126.4019	684312	5595576
50.4830	126.4017	684328	5595563
50.4829	126.4016	684334	5595546
50.4828	126.4015	684346	5595540
50.4828	126.4012	684361	5595544
50.4829	126.4011	684368	5595554
50.4831	126.4011	684371	5595572
50.4832	126.4010	684376	5595581
50.4832	126.4008	684391	5595586
50.4832	126.4002	684436	5595589
50.4832	126.4000	684450	5595591
50.4833	126.3998	684462	5595594
50.4835	126.3994	684492	5595623
50.4836	126.3992	684505	5595633
50.4836	126.3989	684525	5595635
50.4836	126.3988	684532	5595632
50.4835	126.3983	684567	5595624
50.4835	126.3982	684576	5595625
50.4836	126.3979	684599	5595638
50.4836	126.3977	684612	5595641
50.4837	126.3974	684633	5595648
50.4837	126.3972	684646	5595650
50.4836	126.3968	684670	5595641
50.4835	126.3965	684698	5595630
50.4834	126.3963	684713	5595615
50.4832	126.3961	684723	5595596
50.4831	126.3960	684734	5595585
50.4831	126.3958	684746	5595581
50.4831	126.3957	684757	5595581
50.4831	126.3952	684792	5595586

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4831	126.3950	684804	5595585
50.4832	126.3944	684845	5595596
50.4832	126.3938	684889	5595598
50.4831	126.3935	684912	5595593
50.4831	126.3931	684936	5595590
50.4830	126.3927	684970	5595578
50.4830	126.3919	685024	5595581
50.4829	126.3915	685053	5595577
50.4829	126.3911	685081	5595574
50.4829	126.3905	685120	5595578
50.4829	126.3903	685134	5595579
50.4828	126.3900	685159	5595568
50.4827	126.3898	685174	5595562
50.4828	126.3895	685193	5595564
50.4828	126.3893	685209	5595569
50.4828	126.3891	685222	5595567
50.4827	126.3890	685232	5595564
50.4827	126.3889	685238	5595559
50.4827	126.3887	685250	5595555
50.4826	126.3884	685273	5595553
50.4827	126.3882	685284	5595556
50.4827	126.3880	685304	5595566
50.4828	126.3878	685318	5595569
50.4828	126.3874	685340	5595578
50.4829	126.3873	685350	5595581
50.4828	126.3866	685401	5595576
50.4828	126.3859	685450	5595576
50.4828	126.3857	685462	5595582
50.4829	126.3856	685470	5595588
50.4829	126.3854	685486	5595593
50.4829	126.3853	685493	5595594
50.4829	126.3851	685509	5595586
50.4828	126.3848	685528	5595581
50.4828	126.3848	685531	5595579
50.4828	126.3844	685554	5595584
50.4829	126.3838	685601	5595589
50.4829	126.3835	685621	5595591
50.4828	126.3830	685659	5595585
50.4828	126.3829	685664	5595583
50.4828	126.3827	685674	5595587
50.4830	126.3823	685706	5595604
50.4830	126.3820	685723	5595608
50.4830	126.3819	685730	5595608
50.4829	126.3816	685755	5595594
50.4828	126.3813	685779	5595588
50.4827	126.3806	685823	5595584
50.4826	126.3801	685863	5595572
50.4825	126.3797	685893	5595564
50.4823	126.3790	685939	5595544
50.4823	126.3788	685956	5595537
50.4823	126.3785	685977	5595535
50.4823	126.3782	685998	5595538
50.4823	126.3781	686007	5595543
50.4824	126.3778	686025	5595551
50.4824	126.3770	686082	5595554
50.4824	126.3764	686123	5595552
50.4823	126.3761	686146	5595546
50.4823	126.3753	686203	5595545
50.4822	126.3745	686260	5595542
50.4822	126.3741	686289	5595539
50.4821	126.3739	686304	5595535
50.4821	126.3734	686337	5595534
50.4821	126.3729	686377	5595529
50.4820	126.3724	686408	5595527
50.4819	126.3717	686461	5595511
50.4819	126.3715	686478	5595512

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4818	126.3713	686489	5595508
50.4817	126.3710	686508	5595494
50.4816	126.3708	686525	5595479
50.4815	126.3705	686549	5595467
50.4814	126.3702	686567	5595464
50.4814	126.3700	686581	5595466
50.4815	126.3699	686593	5595472
50.4816	126.3698	686599	5595479
50.4817	126.3695	686618	5595497
50.4819	126.3691	686642	5595519
50.4820	126.3687	686670	5595536
50.4821	126.3683	686701	5595547
50.4822	126.3679	686728	5595554
50.4822	126.3676	686749	5595562
50.4823	126.3673	686770	5595567
50.4823	126.3669	686799	5595565
50.4822	126.3667	686814	5595562
50.4822	126.3666	686823	5595558
50.4822	126.3664	686832	5595560
50.4824	126.3662	686850	5595578
50.4825	126.3660	686865	5595592
50.4826	126.3658	686874	5595601
50.4827	126.3656	686888	5595618
50.4828	126.3655	686897	5595625
50.4828	126.3653	686910	5595627
50.4827	126.3649	686943	5595620
50.4827	126.3645	686966	5595623
50.4828	126.3642	686991	5595632
50.4829	126.3639	687009	5595641
50.4830	126.3636	687030	5595651
50.4830	126.3633	687054	5595662
50.4832	126.3630	687073	5595675
50.4832	126.3628	687086	5595681
50.4832	126.3626	687099	5595684
50.4832	126.3622	687129	5595686
50.4832	126.3619	687148	5595682
50.4832	126.3617	687163	5595680
50.4832	126.3615	687181	5595680
50.4832	126.3613	687193	5595686
50.4833	126.3611	687210	5595697
50.4833	126.3609	687223	5595701
50.4834	126.3606	687243	5595706
50.4834	126.3603	687266	5595709
50.4834	126.3601	687281	5595710
50.4834	126.3597	687309	5595709
50.4834	126.3595	687318	5595706
50.4832	126.3589	687366	5595690
50.4829	126.3574	687470	5595660
50.4828	126.3566	687530	5595646
50.4827	126.3564	687540	5595645
50.4827	126.3562	687560	5595639
50.4826	126.3554	687613	5595630
50.4824	126.3547	687668	5595614
50.4824	126.3542	687702	5595610
50.4822	126.3535	687748	5595595
50.4821	126.3526	687817	5595581
50.4820	126.3521	687848	5595574
50.4819	126.3508	687945	5595564
50.4818	126.3503	687976	5595555
50.4817	126.3497	688025	5595545
50.4816	126.3494	688043	5595538
50.4816	126.3493	688054	5595533
50.4815	126.3491	688063	5595530
50.4815	126.3490	688072	5595529
50.4814	126.3486	688103	5595520
50.4814	126.3480	688144	5595512

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4812	126.3477	688168	5595497
50.4811	126.3472	688204	5595481
50.4810	126.3470	688214	5595480
50.4809	126.3466	688248	5595466
50.4808	126.3462	688271	5595453
50.4806	126.3455	688321	5595435
50.4806	126.3451	688355	5595431
50.4806	126.3447	688380	5595432
50.4805	126.3444	688402	5595428
50.4804	126.3437	688454	5595414
50.4802	126.3432	688487	5595394
50.4799	126.3427	688528	5595360
50.4798	126.3423	688552	5595349
50.4797	126.3419	688580	5595343
50.4796	126.3415	688610	5595333
50.4796	126.3413	688628	5595329
50.4795	126.3400	688720	5595327
50.4795	126.3398	688732	5595322
50.4794	126.3395	688752	5595320
50.4794	126.3389	688797	5595319
50.4793	126.3383	688837	5595310
50.4793	126.3381	688855	5595304
50.4792	126.3377	688880	5595294
50.4791	126.3376	688892	5595292
50.4791	126.3374	688905	5595293
50.4792	126.3371	688926	5595295
50.4792	126.3365	688967	5595307
50.4793	126.3362	688988	5595310
50.4793	126.3356	689030	5595311
50.4792	126.3352	689057	5595308
50.4791	126.3348	689088	5595297
50.4790	126.3347	689099	5595289
50.4788	126.3336	689178	5595261
50.4787	126.3333	689197	5595258
50.4787	126.3331	689210	5595259
50.4788	126.3326	689248	5595268
50.4788	126.3323	689271	5595268
50.4787	126.3318	689302	5595262
50.4787	126.3317	689313	5595256
50.4786	126.3313	689337	5595243
50.4785	126.3311	689351	5595240
50.4786	126.3309	689366	5595244
50.4786	126.3308	689375	5595253
50.4787	126.3307	689381	5595266
50.4789	126.3307	689380	5595280
50.4789	126.3307	689378	5595283
50.4790	126.3307	689384	5595289
50.4790	126.3306	689389	5595296
50.4791	126.3305	689396	5595307
50.4793	126.3303	689406	5595324
50.4793	126.3302	689415	5595330
50.4793	126.3302	689418	5595332
50.4794	126.3297	689453	5595346
50.4795	126.3292	689483	5595350
50.4794	126.3286	689529	5595339
50.4793	126.3278	689583	5595332
50.4791	126.3275	689606	5595313
50.4791	126.3274	689613	5595311
50.4790	126.3274	689618	5595306
50.4790	126.3272	689631	5595300
50.4790	126.3270	689644	5595303
50.4791	126.3268	689660	5595314
50.4792	126.3266	689670	5595326
50.4794	126.3264	689682	5595351
50.4795	126.3261	689703	5595363
50.4796	126.3260	689712	5595373

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4797	126.3258	689726	5595386
50.4798	126.3255	689744	5595395
50.4798	126.3253	689762	5595402
50.4799	126.3252	689769	5595406
50.4799	126.3250	689780	5595409
50.4799	126.3249	689786	5595411
50.4800	126.3244	689821	5595423
50.4800	126.3236	689877	5595428
50.4800	126.3233	689900	5595427
50.4801	126.3229	689933	5595434
50.4802	126.3226	689949	5595444
50.4802	126.3223	689971	5595452
50.4803	126.3218	690006	5595460
50.4804	126.3213	690040	5595470
50.4804	126.3204	690105	5595474
50.4803	126.3200	690132	5595471
50.4803	126.3197	690159	5595472
50.4803	126.3196	690165	5595470
50.4803	126.3194	690177	5595471
50.4802	126.3184	690250	5595464
50.4802	126.3179	690283	5595458
50.4802	126.3177	690301	5595456
50.4802	126.3175	690310	5595457
50.4801	126.3170	690348	5595452
50.4800	126.3164	690394	5595442
50.4798	126.3158	690431	5595426
50.4796	126.3155	690454	5595403
50.4796	126.3153	690469	5595396
50.4794	126.3149	690503	5595383
50.4794	126.3148	690510	5595378
50.4792	126.3145	690529	5595354
50.4791	126.3144	690535	5595349
50.4789	126.3139	690571	5595327
50.4786	126.3138	690583	5595294
50.4784	126.3136	690598	5595275
50.4784	126.3135	690605	5595268
50.4783	126.3133	690619	5595259
50.4782	126.3129	690646	5595248
50.4781	126.3126	690665	5595237
50.4780	126.3124	690681	5595230
50.4779	126.3121	690702	5595224
50.4779	126.3119	690716	5595220
50.4778	126.3115	690746	5595214
50.4778	126.3114	690756	5595208
50.4777	126.3111	690779	5595199
50.4776	126.3109	690794	5595189
50.4776	126.3107	690803	5595186
50.4775	126.3102	690844	5595181
50.4775	126.3100	690854	5595180
50.4774	126.3098	690868	5595175
50.4774	126.3092	690909	5595167
50.4771	126.3087	690946	5595143
50.4770	126.3081	690990	5595128
50.4769	126.3074	691043	5595121
50.4767	126.3065	691109	5595103
50.4767	126.3055	691179	5595100
50.4767	126.3051	691207	5595099
50.4766	126.3045	691248	5595095
50.4765	126.3038	691299	5595082
50.4764	126.3034	691325	5595071
50.4762	126.3027	691379	5595060
50.4762	126.3023	691407	5595051
50.4761	126.3023	691410	5595047
50.4761	126.3021	691421	5595042
50.4761	126.3020	691429	5595042
50.4760	126.3018	691442	5595033

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4759	126.3015	691468	5595020
50.4757	126.3011	691495	5595007
50.4755	126.3006	691531	5594984
50.4753	126.2999	691578	5594959
50.4752	126.2998	691590	5594955
50.4750	126.2993	691622	5594933
50.4749	126.2992	691633	5594921
50.4748	126.2989	691652	5594909
50.4746	126.2985	691680	5594885
50.4745	126.2984	691689	5594878
50.4743	126.2982	691708	5594853
50.4742	126.2981	691710	5594845
50.4740	126.2979	691727	5594822
50.4738	126.2976	691752	5594800
50.4736	126.2972	691780	5594780
50.4734	126.2968	691807	5594762
50.4730	126.2957	691890	5594720
50.4725	126.2948	691955	5594663
50.4723	126.2940	692010	5594648
50.4722	126.2936	692040	5594629
50.4720	126.2927	692106	5594614
50.4720	126.2918	692169	5594613
50.4718	126.2914	692200	5594600
50.4713	126.2906	692257	5594537
50.4703	126.2904	692271	5594436
50.4692	126.2895	692345	5594308
50.4678	126.2892	692373	5594161
50.4673	126.2884	692430	5594104
50.4674	126.2882	692444	5594118
50.4670	126.2877	692480	5594072
50.4667	126.2871	692520	5594039
50.4667	126.2865	692569	5594037
50.4669	126.2860	692601	5594060
50.4673	126.2857	692619	5594109
50.4681	126.2861	692587	5594192
50.4684	126.2863	692573	5594231
50.4688	126.2861	692585	5594277
50.4689	126.2855	692629	5594292
50.4690	126.2850	692662	5594302
50.4688	126.2846	692691	5594282
50.4686	126.2841	692728	5594253
50.4682	126.2839	692747	5594213
50.4678	126.2835	692775	5594173
50.4671	126.2832	692796	5594091
50.4668	126.2830	692815	5594066
50.4667	126.2826	692845	5594052
50.4665	126.2823	692867	5594024
50.4659	126.2821	692883	5593967
50.4654	126.2817	692914	5593909
50.4654	126.2812	692946	5593910
50.4655	126.2808	692978	5593922
50.4655	126.2800	693031	5593927
50.4653	126.2777	693196	5593908
50.4654	126.2768	693257	5593923
50.4659	126.2760	693314	5593975
50.4662	126.2752	693372	5594014
50.4664	126.2745	693421	5594040
50.4671	126.2732	693510	5594115
50.4681	126.2727	693543	5594227
50.4685	126.2722	693570	5594275
50.4689	126.2719	693596	5594324
50.4695	126.2718	693598	5594387
50.4699	126.2720	693581	5594439
50.4702	126.2719	693584	5594473
50.4706	126.2715	693611	5594514
50.4707	126.2713	693626	5594520

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4706	126.2709	693656	5594520
50.4706	126.2705	693686	5594517
50.4706	126.2695	693757	5594518
50.4706	126.2692	693776	5594516
50.4705	126.2691	693786	5594507
50.4704	126.2691	693783	5594498
50.4703	126.2693	693770	5594481
50.4702	126.2695	693761	5594471
50.4700	126.2695	693758	5594455
50.4699	126.2694	693765	5594442
50.4698	126.2694	693769	5594435
50.4697	126.2694	693769	5594414
50.4695	126.2695	693759	5594398
50.4693	126.2696	693752	5594372
50.4692	126.2697	693748	5594358
50.4690	126.2698	693739	5594341
50.4689	126.2699	693734	5594329
50.4688	126.2699	693734	5594319
50.4687	126.2698	693742	5594307
50.4687	126.2697	693751	5594302
50.4686	126.2695	693764	5594298
50.4686	126.2693	693776	5594299
50.4686	126.2693	693781	5594300
50.4686	126.2692	693784	5594300
50.4686	126.2691	693790	5594302
50.4687	126.2690	693802	5594306
50.4687	126.2688	693815	5594310
50.4687	126.2685	693834	5594313
50.4687	126.2684	693844	5594315
50.4688	126.2682	693853	5594319
50.4688	126.2682	693859	5594321
50.4689	126.2678	693881	5594334
50.4690	126.2677	693892	5594344
50.4690	126.2676	693894	5594350
50.4691	126.2677	693893	5594359
50.4692	126.2677	693892	5594372
50.4693	126.2677	693890	5594377
50.4693	126.2677	693891	5594380
50.4694	126.2677	693892	5594389
50.4694	126.2676	693893	5594394
50.4695	126.2676	693898	5594400
50.4695	126.2675	693902	5594403
50.4695	126.2674	693907	5594405
50.4695	126.2674	693910	5594406
50.4695	126.2673	693916	5594406
50.4695	126.2673	693920	5594404
50.4695	126.2672	693926	5594401
50.4694	126.2671	693929	5594396
50.4693	126.2671	693934	5594384
50.4693	126.2670	693939	5594375
50.4692	126.2670	693941	5594365
50.4691	126.2669	693945	5594358
50.4690	126.2669	693949	5594349
50.4690	126.2669	693950	5594342
50.4689	126.2668	693953	5594342
50.4690	126.2668	693956	5594347
50.4691	126.2668	693955	5594354
50.4692	126.2668	693951	5594367
50.4693	126.2669	693946	5594380
50.4694	126.2669	693943	5594390
50.4695	126.2670	693939	5594399
50.4695	126.2670	693936	5594407
50.4696	126.2671	693934	5594417
50.4697	126.2671	693930	5594422
50.4698	126.2671	693927	5594432
50.4698	126.2671	693929	5594440

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4699	126.2670	693934	5594448
50.4699	126.2670	693938	5594452
50.4700	126.2668	693950	5594457
50.4700	126.2665	693968	5594461
50.4700	126.2665	693971	5594461
50.4700	126.2664	693979	5594464
50.4700	126.2662	693995	5594465
50.4700	126.2661	693999	5594464
50.4700	126.2660	694009	5594466
50.4701	126.2655	694039	5594468
50.4700	126.2647	694098	5594464
50.4700	126.2644	694118	5594462
50.4699	126.2641	694141	5594456
50.4698	126.2638	694163	5594442
50.4697	126.2637	694174	5594435
50.4697	126.2636	694177	5594431
50.4697	126.2636	694182	5594429
50.4696	126.2635	694185	5594425
50.4696	126.2635	694188	5594418
50.4695	126.2635	694188	5594411
50.4694	126.2635	694186	5594405
50.4693	126.2637	694175	5594390
50.4693	126.2638	694168	5594384
50.4691	126.2640	694150	5594367
50.4691	126.2641	694148	5594363
50.4690	126.2641	694147	5594355
50.4688	126.2643	694134	5594329
50.4687	126.2643	694132	5594322
50.4686	126.2644	694129	5594314
50.4686	126.2644	694129	5594310
50.4685	126.2645	694122	5594295
50.4684	126.2646	694115	5594289
50.4684	126.2646	694115	5594286
50.4683	126.2647	694109	5594274
50.4682	126.2647	694106	5594263
50.4681	126.2647	694105	5594253
50.4681	126.2647	694107	5594250
50.4681	126.2646	694112	5594251
50.4681	126.2645	694124	5594254
50.4682	126.2643	694137	5594262
50.4683	126.2639	694164	5594276
50.4683	126.2637	694178	5594283
50.4684	126.2635	694189	5594293
50.4684	126.2635	694191	5594293
50.4686	126.2633	694202	5594308
50.4687	126.2631	694219	5594321
50.4687	126.2630	694225	5594324
50.4687	126.2630	694228	5594324
50.4687	126.2629	694232	5594320
50.4686	126.2628	694237	5594312
50.4685	126.2627	694244	5594306
50.4685	126.2626	694252	5594303
50.4685	126.2625	694264	5594301
50.4685	126.2624	694270	5594300
50.4684	126.2623	694277	5594298
50.4684	126.2622	694285	5594295
50.4684	126.2621	694287	5594293
50.4683	126.2621	694288	5594282
50.4682	126.2621	694289	5594270
50.4680	126.2621	694292	5594253
50.4679	126.2620	694298	5594235
50.4678	126.2620	694303	5594226
50.4677	126.2619	694307	5594219
50.4676	126.2618	694318	5594208
50.4676	126.2617	694324	5594204
50.4676	126.2616	694329	5594205

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4676	126.2615	694334	5594207
50.4676	126.2615	694338	5594211
50.4677	126.2615	694339	5594216
50.4678	126.2614	694339	5594230
50.4680	126.2615	694332	5594246
50.4681	126.2615	694331	5594258
50.4683	126.2616	694324	5594288
50.4686	126.2616	694322	5594312
50.4688	126.2618	694312	5594344
50.4690	126.2619	694300	5594364
50.4691	126.2620	694293	5594369
50.4691	126.2623	694272	5594371
50.4691	126.2627	694244	5594365
50.4691	126.2628	694236	5594366
50.4691	126.2629	694229	5594368
50.4691	126.2630	694225	5594374
50.4692	126.2630	694222	5594384
50.4693	126.2630	694222	5594388
50.4693	126.2630	694221	5594390
50.4693	126.2630	694224	5594396
50.4694	126.2629	694230	5594404
50.4695	126.2628	694238	5594409
50.4695	126.2626	694247	5594410
50.4694	126.2625	694255	5594408
50.4694	126.2624	694265	5594408
50.4695	126.2613	694340	5594420
50.4696	126.2610	694364	5594428
50.4697	126.2606	694389	5594444
50.4699	126.2604	694402	5594466
50.4700	126.2604	694406	5594476
50.4702	126.2604	694405	5594496
50.4704	126.2605	694395	5594515
50.4706	126.2608	694374	5594540
50.4708	126.2609	694364	5594561
50.4709	126.2609	694367	5594578
50.4711	126.2608	694375	5594592
50.4711	126.2606	694384	5594600
50.4712	126.2604	694398	5594605
50.4712	126.2603	694406	5594606
50.4712	126.2601	694423	5594615
50.4713	126.2599	694438	5594623
50.4714	126.2595	694461	5594632
50.4715	126.2592	694483	5594650
50.4717	126.2587	694517	5594673
50.4718	126.2587	694521	5594680
50.4721	126.2583	694548	5594711
50.4726	126.2576	694592	5594767
50.4727	126.2574	694604	5594779
50.4728	126.2570	694637	5594800
50.4729	126.2563	694683	5594810
50.4730	126.2559	694709	5594820
50.4730	126.2558	694718	5594825
50.4733	126.2553	694756	5594854
50.4734	126.2544	694816	5594864
50.4733	126.2540	694846	5594864
50.4733	126.2538	694857	5594858
50.4733	126.2536	694870	5594855
50.4732	126.2534	694889	5594850
50.4731	126.2531	694913	5594838
50.4729	126.2527	694937	5594818
50.4727	126.2525	694954	5594802
50.4726	126.2523	694971	5594783
50.4724	126.2519	695000	5594760
50.4721	126.2515	695027	5594732
50.4719	126.2511	695059	5594713
50.4719	126.2508	695075	5594709

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4719	126.2507	695084	5594711
50.4719	126.2505	695100	5594711
50.4719	126.2501	695124	5594717
50.4719	126.2499	695144	5594716
50.4719	126.2497	695154	5594719
50.4719	126.2495	695168	5594720
50.4719	126.2494	695178	5594719
50.4719	126.2493	695184	5594721
50.4719	126.2490	695202	5594721
50.4719	126.2488	695219	5594717
50.4718	126.2486	695235	5594710
50.4717	126.2482	695260	5594695
50.4715	126.2479	695285	5594680
50.4715	126.2477	695302	5594673
50.4714	126.2473	695329	5594663
50.4712	126.2467	695368	5594648
50.4711	126.2463	695403	5594639
50.4710	126.2459	695429	5594626
50.4709	126.2457	695443	5594617
50.4708	126.2456	695454	5594609
50.4707	126.2452	695482	5594589
50.4706	126.2449	695500	5594579
50.4705	126.2447	695519	5594568
50.4703	126.2442	695552	5594555
50.4703	126.2440	695570	5594549
50.4702	126.2437	695587	5594547
50.4702	126.2436	695595	5594544
50.4702	126.2434	695612	5594542
50.4702	126.2430	695635	5594542
50.4702	126.2428	695650	5594545
50.4702	126.2428	695654	5594545
50.4703	126.2425	695672	5594555
50.4703	126.2423	695685	5594561
50.4705	126.2419	695713	5594578
50.4706	126.2417	695727	5594590
50.4707	126.2416	695738	5594608
50.4709	126.2414	695747	5594622
50.4711	126.2410	695774	5594650
50.4712	126.2410	695778	5594658
50.4712	126.2410	695779	5594660
50.4713	126.2410	695778	5594667
50.4713	126.2410	695776	5594671
50.4714	126.2411	695770	5594679
50.4714	126.2411	695769	5594683
50.4715	126.2411	695771	5594691
50.4715	126.2410	695775	5594695
50.4716	126.2409	695784	5594700
50.4716	126.2408	695792	5594702
50.4716	126.2406	695803	5594701
50.4715	126.2404	695819	5594695
50.4715	126.2402	695830	5594693
50.4715	126.2401	695837	5594693
50.4714	126.2400	695847	5594690
50.4714	126.2398	695862	5594682
50.4713	126.2396	695875	5594678
50.4713	126.2394	695892	5594670
50.4710	126.2388	695930	5594643
50.4708	126.2386	695945	5594624
50.4705	126.2382	695978	5594592
50.4702	126.2379	695999	5594562
50.4701	126.2377	696013	5594543
50.4699	126.2376	696023	5594526
50.4698	126.2374	696035	5594513
50.4697	126.2374	696037	5594508
50.4697	126.2373	696045	5594503
50.4697	126.2371	696061	5594502

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4697	126.2370	696065	5594505
50.4698	126.2368	696082	5594519
50.4699	126.2366	696093	5594532
50.4700	126.2365	696099	5594537
50.4701	126.2362	696122	5594553
50.4702	126.2359	696140	5594564
50.4702	126.2356	696161	5594565
50.4702	126.2356	696166	5594565
50.4701	126.2353	696187	5594552
50.4700	126.2351	696199	5594541
50.4698	126.2347	696226	5594523
50.4698	126.2346	696235	5594519
50.4698	126.2346	696239	5594519
50.4698	126.2345	696246	5594517
50.4697	126.2344	696250	5594514
50.4696	126.2342	696268	5594501
50.4696	126.2341	696273	5594499
50.4695	126.2338	696296	5594485
50.4693	126.2335	696313	5594465
50.4692	126.2335	696319	5594456
50.4691	126.2333	696331	5594446
50.4690	126.2332	696341	5594441
50.4690	126.2328	696370	5594436
50.4690	126.2327	696375	5594432
50.4687	126.2324	696397	5594410
50.4687	126.2323	696406	5594404
50.4686	126.2320	696428	5594397
50.4684	126.2314	696472	5594377
50.4681	126.2309	696504	5594347
50.4680	126.2308	696512	5594335
50.4679	126.2307	696522	5594318
50.4678	126.2306	696525	5594309
50.4675	126.2305	696533	5594274
50.4674	126.2305	696535	5594270
50.4672	126.2304	696544	5594240
50.4671	126.2303	696551	5594233
50.4670	126.2302	696558	5594226
50.4670	126.2301	696570	5594219
50.4670	126.2299	696578	5594218
50.4669	126.2298	696587	5594217
50.4670	126.2296	696599	5594218
50.4670	126.2296	696604	5594219
50.4671	126.2292	696629	5594232
50.4671	126.2291	696637	5594235
50.4671	126.2288	696660	5594239
50.4672	126.2284	696686	5594244
50.4672	126.2281	696708	5594251
50.4673	126.2278	696730	5594257
50.4673	126.2274	696758	5594265
50.4674	126.2270	696784	5594274
50.4675	126.2267	696808	5594285
50.4675	126.2263	696832	5594292
50.4676	126.2260	696854	5594300
50.4676	126.2259	696865	5594303
50.4677	126.2258	696872	5594309
50.4677	126.2257	696874	5594312
50.4677	126.2257	696877	5594313
50.4678	126.2255	696893	5594328
50.4679	126.2254	696898	5594329
50.4679	126.2253	696906	5594337
50.4680	126.2250	696921	5594345
50.4681	126.2247	696947	5594363
50.4682	126.2246	696955	5594370
50.4683	126.2245	696960	5594376
50.4683	126.2243	696973	5594385
50.4684	126.2242	696983	5594391

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4684	126.2241	696986	5594394
50.4685	126.2240	696996	5594402
50.4686	126.2238	697010	5594415
50.4687	126.2236	697023	5594430
50.4688	126.2234	697036	5594442
50.4689	126.2231	697057	5594453
50.4690	126.2227	697081	5594460
50.4690	126.2224	697107	5594460
50.4689	126.2218	697146	5594457
50.4689	126.2217	697158	5594454
50.4687	126.2212	697192	5594437
50.4685	126.2207	697228	5594413
50.4685	126.2206	697236	5594410
50.4684	126.2204	697248	5594406
50.4682	126.2198	697290	5594378
50.4681	126.2197	697297	5594370
50.4680	126.2195	697317	5594356
50.4677	126.2191	697344	5594331
50.4677	126.2190	697351	5594326
50.4673	126.2185	697387	5594290
50.4672	126.2183	697405	5594281
50.4669	126.2176	697451	5594249
50.4668	126.2171	697487	5594229
50.4666	126.2167	697522	5594215
50.4665	126.2164	697544	5594208
50.4664	126.2159	697578	5594193
50.4664	126.2157	697592	5594189
50.4663	126.2154	697612	5594185
50.4663	126.2146	697667	5594180
50.4662	126.2145	697677	5594178
50.4662	126.2144	697687	5594179
50.4662	126.2142	697695	5594177
50.4662	126.2139	697721	5594171
50.4660	126.2133	697761	5594156
50.4658	126.2127	697806	5594136
50.4657	126.2121	697848	5594122
50.4656	126.2117	697875	5594112
50.4654	126.2111	697918	5594092
50.4652	126.2107	697948	5594073
50.4651	126.2106	697958	5594064
50.4650	126.2103	697983	5594049
50.4649	126.2102	697988	5594044
50.4649	126.2101	697994	5594043
50.4648	126.2099	698007	5594033
50.4646	126.2096	698029	5594009
50.4644	126.2095	698042	5593991
50.4644	126.2094	698049	5593984
50.4642	126.2088	698087	5593964
50.4640	126.2084	698117	5593949
50.4634	126.2074	698195	5593887
50.4634	126.2071	698213	5593878
50.4633	126.2069	698227	5593874
50.4633	126.2066	698248	5593871
50.4633	126.2063	698272	5593873
50.4634	126.2061	698283	5593880
50.4635	126.2060	698292	5593894
50.4636	126.2060	698293	5593908
50.4637	126.2059	698296	5593918
50.4638	126.2058	698303	5593933
50.4638	126.2058	698305	5593936
50.4639	126.2056	698320	5593944
50.4639	126.2054	698329	5593945
50.4639	126.2053	698339	5593944
50.4640	126.2051	698354	5593953
50.4640	126.2051	698356	5593955
50.4640	126.2048	698372	5593957

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4640	126.2042	698419	5593957
50.4639	126.2036	698457	5593948
50.4639	126.2035	698465	5593946
50.4638	126.2033	698481	5593936
50.4637	126.2032	698489	5593929
50.4634	126.2029	698513	5593898
50.4634	126.2028	698518	5593892
50.4633	126.2026	698530	5593883
50.4632	126.2021	698568	5593869
50.4630	126.2018	698594	5593854
50.4629	126.2016	698605	5593845
50.4628	126.2015	698612	5593834
50.4627	126.2014	698621	5593820
50.4626	126.2014	698623	5593809
50.4622	126.2012	698640	5593769
50.4618	126.2007	698677	5593717
50.4617	126.2005	698687	5593708
50.4616	126.2005	698692	5593704
50.4615	126.2000	698728	5593686
50.4614	126.1996	698757	5593676
50.4612	126.1984	698840	5593657
50.4611	126.1981	698859	5593649
50.4609	126.1977	698894	5593629
50.4607	126.1970	698941	5593610
50.4606	126.1964	698986	5593602
50.4606	126.1958	699027	5593600
50.4605	126.1956	699041	5593594
50.4604	126.1952	699068	5593584
50.4604	126.1949	699093	5593579
50.4603	126.1948	699100	5593575
50.4603	126.1947	699108	5593570
50.4598	126.1940	699157	5593519
50.4597	126.1938	699172	5593505
50.4596	126.1936	699185	5593497
50.4596	126.1936	699189	5593496
50.4596	126.1935	699193	5593495
50.4596	126.1934	699201	5593493
50.4596	126.1933	699211	5593496
50.4596	126.1932	699214	5593496
50.4596	126.1931	699221	5593499
50.4597	126.1931	699225	5593507
50.4599	126.1930	699228	5593526
50.4601	126.1930	699225	5593548
50.4603	126.1931	699218	5593580
50.4607	126.1935	699188	5593623
50.4610	126.1939	699157	5593654
50.4612	126.1941	699147	5593668
50.4613	126.1942	699135	5593679
50.4615	126.1945	699118	5593701
50.4617	126.1946	699109	5593726
50.4618	126.1946	699105	5593735
50.4620	126.1947	699099	5593759
50.4622	126.1947	699098	5593779
50.4623	126.1948	699090	5593793
50.4626	126.1952	699062	5593827
50.4628	126.1954	699049	5593846
50.4629	126.1954	699046	5593861
50.4631	126.1954	699047	5593881
50.4632	126.1953	699051	5593891
50.4634	126.1951	699065	5593912
50.4635	126.1949	699077	5593922
50.4636	126.1946	699103	5593937
50.4636	126.1944	699111	5593940
50.4636	126.1941	699133	5593944
50.4637	126.1938	699154	5593950
50.4637	126.1934	699185	5593956

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4637	126.1932	699200	5593956
50.4637	126.1926	699243	5593951
50.4635	126.1922	699272	5593938
50.4635	126.1920	699284	5593929
50.4631	126.1914	699327	5593889
50.4630	126.1911	699348	5593882
50.4630	126.1909	699366	5593878
50.4630	126.1906	699384	5593880
50.4630	126.1903	699405	5593886
50.4631	126.1901	699423	5593899
50.4633	126.1898	699439	5593917
50.4634	126.1895	699460	5593929
50.4635	126.1891	699491	5593940
50.4635	126.1888	699511	5593945
50.4635	126.1882	699553	5593946
50.4634	126.1879	699579	5593938
50.4632	126.1875	699608	5593916
50.4632	126.1873	699618	5593909
50.4631	126.1872	699627	5593905
50.4631	126.1872	699630	5593906
50.4631	126.1871	699636	5593901
50.4631	126.1868	699659	5593901
50.4631	126.1867	699666	5593903
50.4632	126.1865	699673	5593914
50.4634	126.1865	699677	5593937
50.4635	126.1864	699685	5593953
50.4637	126.1861	699703	5593968
50.4637	126.1858	699727	5593975
50.4637	126.1856	699738	5593975
50.4636	126.1854	699756	5593966
50.4635	126.1852	699770	5593950
50.4633	126.1851	699777	5593927
50.4629	126.1850	699784	5593887
50.4629	126.1850	699785	5593883
50.4628	126.1849	699793	5593871
50.4625	126.1848	699798	5593847
50.4624	126.1847	699808	5593836
50.4624	126.1845	699825	5593827
50.4623	126.1843	699837	5593825
50.4623	126.1840	699856	5593827
50.4624	126.1836	699885	5593835
50.4624	126.1834	699901	5593840
50.4627	126.1826	699957	5593871
50.4627	126.1824	699968	5593873
50.4628	126.1822	699986	5593882
50.4629	126.1821	699993	5593889
50.4629	126.1820	699998	5593892
50.4630	126.1819	700005	5593904
50.4632	126.1815	700029	5593928
50.4633	126.1811	700060	5593946
50.4634	126.1806	700096	5593957
50.4635	126.1803	700113	5593963
50.4635	126.1801	700130	5593966
50.4635	126.1799	700144	5593964
50.4634	126.1796	700162	5593954
50.4634	126.1795	700174	5593955
50.4634	126.1793	700185	5593958
50.4634	126.1792	700195	5593959
50.4635	126.1787	700225	5593971
50.4636	126.1785	700244	5593977
50.4636	126.1781	700273	5593980
50.4635	126.1777	700296	5593976
50.4634	126.1772	700336	5593961
50.4634	126.1770	700347	5593960
50.4634	126.1764	700389	5593970
50.4634	126.1763	700399	5593970

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4634	126.1761	700415	5593963
50.4633	126.1759	700427	5593954
50.4632	126.1758	700435	5593940
50.4631	126.1758	700435	5593933
50.4631	126.1758	700436	5593931
50.4629	126.1757	700446	5593917
50.4627	126.1754	700469	5593893
50.4626	126.1753	700477	5593880
50.4623	126.1751	700486	5593849
50.4621	126.1750	700498	5593819
50.4618	126.1750	700501	5593791
50.4616	126.1749	700505	5593768
50.4614	126.1748	700514	5593752
50.4613	126.1746	700529	5593740
50.4613	126.1744	700545	5593735
50.4612	126.1742	700556	5593732
50.4613	126.1741	700562	5593735
50.4614	126.1737	700590	5593755
50.4614	126.1732	700631	5593756
50.4614	126.1730	700639	5593755
50.4613	126.1728	700656	5593744
50.4612	126.1727	700665	5593736
50.4610	126.1725	700682	5593714
50.4610	126.1723	700696	5593708
50.4610	126.1721	700708	5593708
50.4610	126.1720	700715	5593710
50.4611	126.1719	700718	5593716
50.4612	126.1719	700721	5593731
50.4612	126.1718	700725	5593738
50.4613	126.1717	700731	5593744
50.4613	126.1716	700739	5593747
50.4613	126.1715	700746	5593746
50.4611	126.1712	700772	5593726
50.4611	126.1709	700795	5593721
50.4609	126.1707	700810	5593707
50.4609	126.1706	700817	5593698
50.4607	126.1705	700825	5593680
50.4605	126.1704	700832	5593664
50.4604	126.1703	700835	5593651
50.4602	126.1702	700844	5593622
50.4600	126.1701	700854	5593607
50.4599	126.1699	700866	5593594
50.4597	126.1699	700870	5593575
50.4596	126.1699	700869	5593556
50.4595	126.1700	700863	5593549
50.4594	126.1701	700855	5593543
50.4594	126.1702	700851	5593532
50.4592	126.1702	700848	5593510
50.4591	126.1702	700848	5593507
50.4589	126.1702	700849	5593484
50.4589	126.1703	700846	5593478
50.4588	126.1703	700846	5593471
50.4587	126.1702	700850	5593463
50.4587	126.1702	700850	5593454
50.4585	126.1704	700842	5593438
50.4585	126.1704	700840	5593433
50.4584	126.1704	700836	5593422
50.4582	126.1706	700825	5593406
50.4582	126.1708	700811	5593397
50.4580	126.1710	700798	5593376
50.4579	126.1711	700790	5593366
50.4577	126.1714	700771	5593343
50.4576	126.1715	700765	5593335
50.4575	126.1717	700754	5593319
50.4574	126.1719	700739	5593306
50.4572	126.1720	700729	5593290

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4571	126.1723	700713	5593273
50.4570	126.1723	700712	5593269
50.4570	126.1723	700711	5593267
50.4570	126.1723	700712	5593262
50.4569	126.1722	700719	5593257
50.4569	126.1719	700737	5593256
50.4568	126.1716	700763	5593245
50.4567	126.1714	700778	5593235
50.4567	126.1710	700804	5593235
50.4566	126.1703	700851	5593225
50.4566	126.1699	700879	5593224
50.4566	126.1695	700910	5593230
50.4567	126.1693	700927	5593237
50.4568	126.1689	700951	5593248
50.4568	126.1688	700959	5593252
50.4568	126.1687	700964	5593255
50.4567	126.1684	700987	5593244
50.4567	126.1682	701003	5593240
50.4566	126.1680	701014	5593234
50.4565	126.1679	701021	5593225
50.4565	126.1678	701031	5593218
50.4564	126.1676	701049	5593212
50.4564	126.1674	701064	5593211
50.4563	126.1673	701071	5593204
50.4563	126.1672	701076	5593197
50.4562	126.1672	701079	5593189
50.4562	126.1670	701091	5593185
50.4561	126.1667	701114	5593180
50.4561	126.1664	701133	5593178
50.4561	126.1662	701150	5593183
50.4561	126.1658	701174	5593183
50.4562	126.1654	701201	5593195
50.4564	126.1647	701251	5593221
50.4564	126.1645	701268	5593222
50.4564	126.1642	701286	5593219
50.4563	126.1638	701320	5593206
50.4563	126.1636	701329	5593205
50.4561	126.1635	701341	5593193
50.4560	126.1631	701368	5593181
50.4559	126.1627	701399	5593170
50.4559	126.1623	701425	5593168
50.4559	126.1620	701447	5593173
50.4560	126.1616	701471	5593181
50.4560	126.1614	701487	5593180
50.4559	126.1613	701493	5593175
50.4558	126.1612	701500	5593161
50.4557	126.1613	701496	5593146
50.4556	126.1614	701491	5593140
50.4555	126.1615	701486	5593126
50.4554	126.1614	701488	5593120
50.4554	126.1614	701491	5593116
50.4554	126.1613	701500	5593112
50.4553	126.1606	701546	5593113
50.4553	126.1604	701563	5593111
50.4553	126.1603	701571	5593109
50.4552	126.1601	701585	5593099
50.4551	126.1600	701594	5593090
50.4550	126.1597	701615	5593079
50.4550	126.1594	701632	5593074
50.4550	126.1593	701643	5593073
50.4550	126.1590	701662	5593075
50.4551	126.1587	701685	5593088
50.4551	126.1585	701701	5593095
50.4552	126.1582	701717	5593103
50.4552	126.1580	701731	5593108
50.4554	126.1577	701752	5593129

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4556	126.1575	701770	5593145
50.4556	126.1573	701784	5593152
50.4556	126.1569	701806	5593148
50.4555	126.1567	701827	5593138
50.4554	126.1562	701857	5593132
50.4554	126.1558	701891	5593131
50.4554	126.1554	701916	5593137
50.4555	126.1553	701925	5593143
50.4555	126.1552	701933	5593145
50.4557	126.1548	701958	5593163
50.4557	126.1546	701972	5593168
50.4558	126.1542	702000	5593175
50.4558	126.1540	702017	5593183
50.4559	126.1538	702031	5593195
50.4561	126.1536	702043	5593217
50.4565	126.1534	702055	5593255
50.4566	126.1533	702062	5593272
50.4568	126.1530	702081	5593291
50.4568	126.1528	702093	5593297
50.4569	126.1527	702104	5593308
50.4570	126.1526	702107	5593322
50.4573	126.1521	702145	5593355
50.4574	126.1518	702162	5593362
50.4576	126.1515	702187	5593389
50.4578	126.1511	702208	5593411
50.4578	126.1509	702222	5593415
50.4579	126.1507	702236	5593428
50.4580	126.1505	702256	5593436
50.4582	126.1501	702279	5593456
50.4582	126.1500	702291	5593462
50.4584	126.1497	702311	5593477
50.4584	126.1491	702352	5593484
50.4584	126.1487	702380	5593489
50.4584	126.1482	702412	5593489
50.4584	126.1478	702442	5593491
50.4584	126.1474	702474	5593487
50.4584	126.1469	702504	5593488
50.4585	126.1467	702519	5593497
50.4587	126.1464	702538	5593520
50.4590	126.1459	702573	5593556
50.4591	126.1455	702602	5593576
50.4592	126.1451	702630	5593579
50.4591	126.1449	702645	5593577
50.4591	126.1446	702669	5593577
50.4591	126.1445	702672	5593578
50.4591	126.1443	702685	5593576
50.4591	126.1441	702704	5593577
50.4591	126.1439	702714	5593575
50.4591	126.1439	702720	5593571
50.4590	126.1438	702724	5593566
50.4590	126.1437	702729	5593565
50.4590	126.1436	702736	5593569
50.4590	126.1436	702741	5593570
50.4590	126.1435	702746	5593568
50.4589	126.1433	702758	5593559
50.4588	126.1433	702760	5593546
50.4588	126.1433	702758	5593541
50.4587	126.1432	702769	5593530
50.4586	126.1431	702776	5593526
50.4586	126.1430	702784	5593526
50.4587	126.1428	702796	5593530
50.4587	126.1427	702805	5593530
50.4586	126.1426	702810	5593527
50.4586	126.1425	702815	5593519
50.4585	126.1425	702817	5593516
50.4584	126.1425	702821	5593505

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4583	126.1424	702828	5593495
50.4583	126.1422	702839	5593489
50.4583	126.1421	702845	5593488
50.4583	126.1420	702853	5593487
50.4583	126.1418	702866	5593490
50.4583	126.1418	702870	5593491
50.4584	126.1416	702885	5593500
50.4584	126.1415	702893	5593505
50.4585	126.1413	702901	5593518
50.4586	126.1413	702901	5593525
50.4586	126.1413	702901	5593532
50.4588	126.1414	702894	5593546
50.4588	126.1414	702896	5593551
50.4589	126.1413	702904	5593558
50.4590	126.1411	702919	5593569
50.4590	126.1409	702928	5593573
50.4590	126.1408	702934	5593574
50.4591	126.1407	702944	5593579
50.4592	126.1401	702983	5593594
50.4592	126.1397	703013	5593595
50.4592	126.1397	703018	5593594
50.4591	126.1394	703038	5593589
50.4590	126.1392	703053	5593581
50.4590	126.1390	703063	5593577
50.4589	126.1388	703082	5593572
50.4589	126.1385	703099	5593563
50.4588	126.1384	703106	5593561
50.4587	126.1382	703122	5593552
50.4587	126.1382	703125	5593550
50.4587	126.1380	703136	5593550
50.4587	126.1379	703143	5593550
50.4588	126.1375	703175	5593564
50.4588	126.1370	703208	5593564
50.4588	126.1366	703235	5593560
50.4588	126.1364	703253	5593561
50.4587	126.1363	703261	5593556
50.4587	126.1360	703280	5593553
50.4587	126.1358	703296	5593554
50.4586	126.1353	703330	5593545
50.4586	126.1352	703333	5593543
50.4586	126.1351	703345	5593542
50.4585	126.1350	703354	5593537
50.4585	126.1349	703361	5593529
50.4584	126.1348	703363	5593523
50.4584	126.1349	703361	5593518
50.4583	126.1349	703358	5593507
50.4582	126.1349	703361	5593496
50.4581	126.1348	703367	5593490
50.4581	126.1347	703377	5593486
50.4581	126.1345	703390	5593485
50.4581	126.1343	703402	5593487
50.4581	126.1341	703419	5593486
50.4581	126.1339	703432	5593488
50.4580	126.1338	703440	5593486
50.4581	126.1337	703446	5593487
50.4581	126.1337	703448	5593488
50.4580	126.1333	703470	5593486
50.4580	126.1330	703493	5593487
50.4580	126.1329	703500	5593486
50.4580	126.1329	703503	5593487
50.4580	126.1324	703538	5593487
50.4580	126.1322	703552	5593482
50.4579	126.1321	703557	5593478
50.4578	126.1320	703564	5593468
50.4578	126.1319	703577	5593461
50.4578	126.1317	703585	5593460

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4578	126.1315	703599	5593464
50.4578	126.1312	703624	5593463
50.4577	126.1311	703634	5593459
50.4576	126.1309	703646	5593447
50.4576	126.1308	703654	5593442
50.4575	126.1307	703663	5593438
50.4575	126.1304	703679	5593434
50.4575	126.1303	703691	5593435
50.4576	126.1296	703739	5593450
50.4576	126.1293	703760	5593451
50.4576	126.1292	703767	5593450
50.4576	126.1292	703769	5593447
50.4576	126.1291	703777	5593444
50.4575	126.1290	703783	5593443
50.4576	126.1287	703800	5593445
50.4576	126.1285	703813	5593450
50.4576	126.1285	703817	5593453
50.4578	126.1277	703875	5593473
50.4578	126.1276	703882	5593475
50.4578	126.1273	703898	5593473
50.4578	126.1271	703916	5593473
50.4578	126.1270	703925	5593472
50.4577	126.1267	703940	5593466
50.4576	126.1264	703965	5593458
50.4576	126.1262	703981	5593455
50.4575	126.1259	704002	5593451
50.4574	126.1255	704033	5593440
50.4573	126.1247	704084	5593431
50.4573	126.1242	704121	5593430
50.4573	126.1240	704137	5593428
50.4573	126.1239	704146	5593426
50.4570	126.1234	704183	5593401
50.4569	126.1232	704195	5593388
50.4568	126.1231	704203	5593380
50.4568	126.1229	704215	5593374
50.4567	126.1227	704232	5593362
50.4536	126.1090	705220	5593055
50.4535	126.1086	705249	5593052
50.4535	126.1084	705258	5593049
50.4534	126.1082	705273	5593040
50.4533	126.1082	705278	5593034
50.4532	126.1081	705280	5593022
50.4532	126.1080	705287	5593016
50.4532	126.1080	705293	5593015
50.4532	126.1076	705319	5593016
50.4532	126.1072	705344	5593016
50.4532	126.1071	705357	5593018
50.4532	126.1067	705380	5593026
50.4533	126.1066	705391	5593029
50.4532	126.1062	705417	5593028
50.4532	126.1058	705444	5593023
50.4532	126.1053	705485	5593023
50.4532	126.1049	705508	5593025
50.4531	126.1044	705543	5593021
50.4531	126.1042	705561	5593015
50.4531	126.1040	705572	5593015
50.4531	126.1038	705588	5593020
50.4531	126.1036	705605	5593020
50.4531	126.1034	705619	5593017
50.4530	126.1032	705634	5593009
50.4530	126.1029	705655	5593007
50.4529	126.1021	705710	5593000
50.4528	126.1018	705733	5592996
50.4528	126.1016	705747	5592990
50.4526	126.1013	705769	5592973
50.4526	126.1012	705778	5592971

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.4527	126.1010	705792	5592978
50.4527	126.1008	705800	5592979
50.4526	126.1007	705809	5592975
50.4525	126.1006	705818	5592961
50.4525	126.1005	705826	5592957
50.4523	126.0998	705879	5592946
50.4523	126.0996	705893	5592944
50.4522	126.0994	705907	5592934
50.4522	126.0993	705911	5592928
50.4522	126.0992	705918	5592926
50.4521	126.0991	705928	5592923
50.4521	126.0986	705963	5592925
50.4521	126.0982	705988	5592920
50.4520	126.0980	706005	5592914
50.4520	126.0979	706012	5592909
50.4519	126.0978	706017	5592897
50.4512	126.0976	706037	5592824
50.4491	126.0967	706107	5592599
50.3211	125.9639	716116	5578739
50.1417	125.7795	730104	5559356
50.1166	125.7538	732060	5556643
50.0142	125.9951	715271	5544533
50.0123	125.9958	715228	5544320
50.0108	126.0001	714927	5544149
50.0094	126.0023	714778	5543985
50.0071	126.0035	714701	5543719
50.0057	126.0032	714732	5543569
50.0031	126.0059	714548	5543275
50.0031	126.0094	714299	5543262
50.0025	126.0114	714159	5543191
50.0029	126.0139	713975	5543223
50.0010	126.0175	713725	5543000
50.0005	126.0192	713607	5542945
49.9993	126.0208	713499	5542810
49.9987	126.0234	713311	5542736
49.9972	126.0259	713138	5542559
49.9952	126.0273	713047	5542337
49.9927	126.0277	713033	5542049
49.9912	126.0288	712963	5541888
49.9894	126.0330	712669	5541671
49.9846	126.0360	712472	5541131
49.9830	126.0354	712524	5540950
49.9807	126.0356	712517	5540702
49.9802	126.0362	712481	5540636
49.9541	126.0294	713080	5537758
49.9628	125.9712	717212	5538893
49.9575	125.9696	717355	5538313
49.9566	125.9678	717487	5538211
49.9560	125.9645	717725	5538154
49.9554	125.9618	717920	5538092
49.9556	125.9594	718095	5538129
49.9534	125.9576	718232	5537882
49.9524	125.9557	718371	5537781
49.9501	125.9549	718443	5537529
49.9495	125.9539	718515	5537459
49.9489	125.9504	718771	5537408
49.9458	125.9470	719027	5537071
49.9457	125.9427	719337	5537078

All coordinates are in UTM WGS 84 Zone 9N.

Appendix B

Equipment Specifications

- GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)
- Hemisphere R220 GPS Receiver
- Opti-Logic RS800 Rangefinder Laser Altimeter
- Setra Model 276 Barometric Pressure
- Scintrex CS-3 Survey Magnetometer
- Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer
- Rotronic HygroClip HC-S3 Relative Humidity and Temperature Probe
- Nuvia Dynamics Advanced Gamma-Ray Spectrometer (AGRS)
- Nuvia Dynamics IMPAC data recorder system (for navigation and geophysical data acquisition)

GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)

Sensitivity	0.15 nT @ 1 Hz
Resolution	0.01 nT (gamma), magnetic field and gradient
Absolute Accuracy	±0.2 nT @ 1 Hz
Operating Range	20,000 nT to 120,000 nT
Gradient Tolerance	Over 7,000 nT/m
Operating Ranges	Temperature: -40°C to +50°C Battery Voltage: 10.0 V minimum to 15 V maximum Humidity: up to 90% relative, non-condensing
Storage Temperature	-50°C to +50°C
Dimensions	Console: 223 x 69 x 40 mm Sensor Staff: 4 x 450 mm sections Sensor: 170 x 71 mm dia. Weight: console 2.1 kg, sensor and staff assembly 2.2 kg
Integrated GPS	Yes

Hemisphere R220 GPS Receiver Specifications

GPS Sensor	Receiver Type	L1 and L2 RTK with carrier phase	
	Channels	12 L1CA GPS 12 L1P GPS 12 L2P GPS 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	-30°C to +65°C	
	Storage Temperature	-40°C to +85°C	
	Humidity	95% non-condensing	
Power GPS Sensor	Input Voltage Range	8 to 36 VDC	
	Consumption, RTK	<4.9 W (0.40 A @ 12 VDC typical)	
	Consumption, OmniSTAR	<5.5 W (0.46 A @ 12 VDC typical)	

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

Opti-Logic RS800 Rangefinder Laser Altimeter

Accuracy	±1 m on 1x1 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)
Casing	RS100/RS400/RS800 units are supplied as OEM modules consisting of an open chassis containing optics and circuit boards. Custom housings can be designed and built on request.

Setra Model 276 Barometric Pressure

Performance	Accuracy RSS[1] (at constant temp)	±0.25% FS[2]
	Non-Linearity (BSFL)	±0.22% FS
	Hysteresis	0.05% FS
	Non-Repeatability	0.05% FS
	Thermal Effects[3]	Compensated Range: 0°C to +55°C (+30°F to +130°F) Zero Shift (Over Compensated Range): 1% FS Span Shift (over Compensated Range): 1% FS
	Resolution	Infinite, limited only by output noise level (0.0005% FS)
	Time Constant	10 msecs to teach 90% final output with step function pressure input
	Long Term Stability	0.25% FS / 6 months
Environmental	Temperature	Operating[4]: -18°C to +79°C (0°F to +175°F) Storage: -55°C to +121°C (-65°F to +250°F)
	Vibration	2 g from 5 Hz to 500 Hz
	Shock	50 g (Operating, 1/2 sine 10 ms)
	Acceleration	10 g
Electrical	Circuit	3-Wire[5] (Exc, Out, Com)
	Power Consumption	0.2 W (24 VDC)
	Output Impedance	5 Ω
	Output Noise	<200 µV RMS (0 to 100 Hz)

[1] RSS of non-linearity, hysteresis and non-repeatability.
[2] FS = 300 mb for 800 – 1100 mb range; 500 for 600 – 1100 mb range; and 20 PSI for 0 to 20 PSIA.
[3] Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.
[4] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[5] The separate leads for +EXC, -EXC, +Out, -Out are commoned internally. The shield is connected to the case. For best performance, either the -Exc or -Out should be connected to the case. Unit is calibrated at the factory with -Exc connected to the case. The insulation resistance between all signal leads are tied together and case ground is 100 Ω minimum at 25 VDC.

Scintrex CS-3 Survey Magnetometer

Operating Principal	Self-oscillating split-beam Cesium Vapor (non-radioactive ^{133}Cs)
Operating Range	15,000 nT to 105,000 nT
Gradient Tolerance	40,000 nT/m
Operating Zones	15° to 75° and 105° to 165°
Hemisphere Switching	a) Automatic b) Electronic control actuated by the control voltage levels (TTL/CMOS) c) Manual
Sensitivity	0.0006 nT √Hz rms
Noise Envelope	Typically 0.002 nT peak to peak, 0.1 to 1 Hz bandwidth
Heading Error	±0.20 nT (inside the optical axis to the field direction angle range 15° to 75° and 105° to 165°)
Absolute Accuracy	<2.5 nT throughout range
Output	a) Continuous signal at the Larmor frequency which is proportional to the magnetic field (proportionality constant 3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) Square wave signal at the I/O connector, TTL/CMOS compatible
Information Bandwidth	Only limited by the magnetometer processor used
Sensor Head	Diameter: 63 mm (2.5”) Length: 160 mm (6.3”) Weight: 1.15 kg (2.6 lb)
Sensor Electronics	Diameter: 63 mm (2.5”) Length: 350 mm (13.8”) Weight: 1.5 kg (3.3 lb)
Cable, Sensor to Sensor Electronics	3 m (9’ 8”), lengths up to 5 m (16’ 4”) available
Operating Temperature	-40°C to +50°C
Humidity	Up to 100%, splash proof
Supply Power	24 to 35 VDC
Supply Current	Approx. 1.5 A at start up, decreasing to 0.5 A at 20°C
Power Up Time	Less than 15 minutes at -30°C

Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer

Axial Alignment	Orthogonality better than ±1°
Input Voltage Options	15 to 34 VDC @ 30 mA
Field Measurement Range Options	±100 µT = ±10 V
Accuracy	±0.75% of full scale (0.5% typical)
Linearity	±0.015% of full scale
Sensitivity	100 µV/nT
Scale Factor Temperature Shift	0.007% full scale/°C
Noise	≤12 pT rms/√Hz @ 1 Hz
Output Ripple	3 mV peak to peak @ 2^{nd} harmonic
Analog Output at Zero Field	±0.025 V
Zero Shift with Temperature	±0.6 nT/°C
Susceptibility to Perming	±8 nT shift with ± 5 Gs applied
Output Impedance	332 Ω ± 5%
Frequency Response	3 dB @ >500 Hz (to >4 kHz wide band)
Over Load Recovery	±5 Gs slew <2 ms
Random Vibration	>20 G rms 20 Hz to 2 kHz
Temperature Range	-55°C to +85°C
Acceleration	>60 G
Weight	100 g
Size	3.51 cm x 3.23 cm x 8.26 cm
Connector	Chassis mounted 9 pin male "D" type

Rotronic HygroClip HC-S3 Relative Humidity and Temperature Probe

Relative Humidity	Operating Range	0 to 100% RH
	Accuracy at 23°C	±1.5% RH
	Output	0 – 1 VDC
	Typical Long-Term Stability	Better than ±1% RH per year
Temperature	Measurement Range	-40°C to +60°C
	Temperature Accuracy	-30°C to +60°C ±0.2°C -50°C to +60°C ±0.6°C (worst case)
	Output	0 – 1 VDC
Power	Supply Voltage	3.5 to 50 VDC (typically powered by data logger's 12 VDC supply)
	Current Consumption	<4 mA
Dimensions	Diameter	1.53 cm (0.60")
	Length	16.8 cm (6.6")
	Housing Material	Polycarbonate

Nuvia Dynamics Advanced Gamma-Ray Spectrometer (AGRS)

Crystal Volume	Four 4.2 L NaI(Tl) synthetic downward-looking and one 4.2 L NaI(Tl) upward-looking crystals. Total volume of 21 L
Resolution	256/512/1024 channels
Data Handling	Individual detector processing and calibration
Energy Resolution	< 9% (@ 662 keV)
Differential Non-linearity	< 0.1%
Integral Non-linearity	< 0.01%
Gain Stabilization	Automatic multi-peak on natural radioisotopes
Calibration	Automatic using natural background radiation
Dynamic Input Range	250,000 cps (counts/sec) per detector
Baseline Restoration	Digital Individual Pulse Baseline Restoration (IPBR). The baseline is established for each individual pulse for maximum pulse height accuracy
Sampling Rate	0.1 – 10 secs user defined
Pulse Shaping	Digital Pulse Shaping
Power	9 to 40 VDC, 15 W
Detector Power	3 W per detector
Operating Temperature	-20°C up to +50°C
Downward Shielding	6 mm thick lead plate is used for downward-shielding
Upward Shielding	RayShield® non-radioactive shielding on downward-looking crystals
Spectra	20 keV to 3 MeV (plus cosmic)
System Stabilization	Cold start-up: less than 40 secs on the ground
GPS Connectivity	Time and position synchronization; additional add-on
Weight	~115 kg

Nuvia Dynamics IMPAC data recorder system

(for navigation and geophysical data acquisition)

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, 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	PEIView: Allows fast data verification and conversion of PEI binary data to Geosoft GBN or ASCII formats PEIConv: For survey preparation, calibration and conversion of maps, and survey plot after data acquisition PEIComp: 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

Calibration Test Flight Results

- Magnetic Compensation FOM Results
- Magnetic Heading Error Test Results
- Radiometric Correction Coefficients

Magnetic Compensation FOM Results

Magnetometer 1

Pre-Compensation					Post-Compensation				
Heading	**Roll**	**Pitch**	**Yaw**	**Total**	**Heading**	**Roll**	**Pitch**	**Yaw**	**Total**
056.5°	2.6718	1.7629	1.0172	5.4519	056.5°	0.1428	0.1233	0.1117	0.3778
146.5°	1.7774	0.9253	0.7069	3.4096	146.5°	0.0903	0.0982	0.1056	0.2941
236.5°	3.8688	2.4700	1.7852	8.1240	236.5°	0.1432	0.1477	0.1353	0.4262
326.5°	4.6834	1.9810	1.8205	8.4849	326.5°	0.1381	0.1184	0.1671	0.4236
Total	13.0014	7.1392	5.3298		**Total**	0.5144	0.4876	0.5197	
				FOM (nT) = 25.4704					**FOM (nT) = 1.5217**

Magnetometer 2

Pre-Compensation					Post-Compensation				
Heading	**Roll**	**Pitch**	**Yaw**	**Total**	**Heading**	**Roll**	**Pitch**	**Yaw**	**Total**
056.5°	1.2359	0.4645	0.5160	2.2164	056.5°	0.0746	0.0665	0.0744	0.2155
146.5°	1.0021	0.5043	0.5216	2.0280	146.5°	0.0733	0.0805	0.0743	0.2281
236.5°	1.0154	0.6722	0.4453	2.1329	236.5°	0.0627	0.0588	0.0556	0.1771
326.5°	1.4214	0.5988	0.5305	2.5507	326.5°	0.0548	0.0524	0.0628	0.1700
Total	4.6748	2.2398	2.0134		**Total**	0.2654	0.2582	0.2671	
				FOM (nT) = 8.9280					**FOM (nT) = 0.7907**

Magnetometer 3

Pre-Compensation					Post-Compensation				
Heading	**Roll**	**Pitch**	**Yaw**	**Total**	**Heading**	**Roll**	**Pitch**	**Yaw**	**Total**
056.5°	4.9414	2.0623	1.9667	8.9704	056.5°	0.1691	0.0955	0.1077	0.3723
146.5°	3.5324	1.2499	1.7355	6.5178	146.5°	0.1371	0.1331	0.1302	0.4004
236.5°	5.4831	2.8442	2.2211	10.5484	236.5°	0.1324	0.1196	0.1266	0.3786
326.5°	7.3770	2.2165	2.4574	12.0509	326.5°	0.1311	0.1225	0.1409	0.3945
Total	21.3339	8.3729	8.3807		**Total**	0.5697	0.4707	0.5054	
				FOM (nT) = 38.0875					**FOM (nT) = 1.5458**

Magnetic Heading Error Test Results

Magnetometer 1

Heading	Fiducial	Mag (nT)	Correction (nT)
056.5°	9245.1	53803.30	19.02
146.5°	9136.9	53812.74	9.58
236.5°	9329.8	53835.45	-13.13
326.5°	9010.4	53837.80	-15.48
	Average		
	Total		0.00

Magnetometer 2

Heading	Fiducial	Mag (nT)	Correction (nT)
056.5°	9245.1	53831.39	-1.54
146.5°	9136.9	53832.94	-3.09
236.5°	9329.8	53824.57	5.28
326.5°	9010.4	53830.49	-0.64
	Average		
	Total		0.00

Magnetometer 3

Heading	Fiducial	Mag (nT)	Correction (nT)
056.5°	9245.1	53812.54	20.62
146.5°	9136.9	53825.58	7.58
236.5°	9329.8	53850.02	-16.85
326.5°	9010.4	53844.51	-11.35
	Average		
	Total		0.00

Radiometric Correction Coefficients

Cosmic Correction Coefficients		
	Cosmic Stripping	**Aircraft Background**
TC	1.6051	53.2990
K	0.0686	10.1400
U	0.0580	1.1491
Th	0.0485	0.8010
UpU	0.0161	0.4429

Altitude Attenuation Coefficients	
TC	-0.00440
K	-0.00499
U	-0.00319
Th	-0.00397

Compton Stripping	
Alpha	0.3099
Beta	0.4412
Gamma	0.8366
Grasty Backscatter_a	0.0489
Grasty Backscatter_b	0.0035
Grasty Backscatter_g	0.0013

Sensitivities	
TC	39.20
K	132.42
U	10.97
Th	5.86

Appendix D

Database and File Descriptions

- Magnetic Database Descriptions
- Radiometric Database Descriptions
- Geosoft Grid Descriptions
- Map Descriptions

Magnetic Database:

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

CHANNEL	UNITS	DESCRIPTION
X_WGS84_9N	m	UTM Easting – WGS84 Zone 9N
Y_WGS84_9N	m	UTM Northing – WGS84 Zone 9N
X_NAD83_9N	m	UTM Easting – NAD83 Zone 9N
Y_ NAD83_9N	m	UTM Northing – NAD83 Zone 9N
X_NAD83_10N	m	UTM Easting – NAD83 Zone 10N
Y_ NAD83_10N	m	UTM Northing – NAD83 Zone 10N
Lat_deg	Decimal degree	Latitude – WGS84
Lon_deg	Decimal degree	Longitude – WGS84
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
GHead_deg	degree	Heading of the aircraft
GPStime	HH:MM:SS	GPS time (UTC)
Geos_m	m	Geoidal separation
XTE_m	m	Cross track error
Galt	m	GPS height – WGS84 Zone 9N (ASL)
Lalt	m	Laser altimeter readings (AGL)
DTM	m	Digital Terrain Model
Pitch	Decimal degree	Pitch of the aircraft calculated from fluxgate
Roll	Decimal degree	Roll of the aircraft calculated from fluxgate
Yaw	Decimal degree	Yaw of the aircraft calculated from fluxgate
Sample_Density	m	Horizontal distance in meters between adjacent measurement locations; sample frequency is 10 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 (updated 2015 model)
Declin	Decimal degree	Calculated declination of magnetic field
Inclin	Decimal degree	Calculated inclination of magnetic field
CMag1	nT	Mag 1 raw total magnetic field compensated for aircraft maneuvers
CMag2	nT	Mag 2 raw total magnetic field compensated for aircraft maneuvers
CMag3	nT	Mag 3 raw total magnetic field compensated for aircraft maneuvers
Mag1_base	nT	Mag 1 total magnetic field corrected for temporal variations
Mag2_base	nT	Mag 2 total magnetic field corrected for temporal variations
Mag3_base	nT	Mag 3 total magnetic field corrected for temporal variations
Mag1_lag	nT	Mag 1 total magnetic field corrected for lag and temporal variations
Mag2_ lag	nT	Mag 2 total magnetic field corrected for lag and temporal variations
Mag3_ lag	nT	Mag 3 total magnetic field corrected for lag and temporal variations
Mag1_head	nT	Mag 1 total magnetic field corrected for heading, lag, and temporal variations
Mag2_ head	nT	Mag 2 total magnetic field corrected for heading, lag, and temporal variations
Mag3_ head	nT	Mag 3 total magnetic field corrected for heading, lag, and temporal variations
Mag1_TMI	nT	Mag 1 leveled Total Magnetic Intensity
Mag2_TMI	nT	Mag 2 leveled Total Magnetic Intensity
Mag3_TMI	nT	Mag 3 leveled Total Magnetic Intensity
Mag2_RMI	nT	Mag 2 leveled Residual Magnetic Intensity
Enhance_TMI	nT	Enhanced Total Magnetic Intensity sampled from grid
Enhance_RMI	nT	Enhanced Residual Magnetic Intensity sampled from grid
_2019_RMI_LVL_to_ NVI	nT	Residual Magnetic Intensity leveled to Geoscience BC 2012 Magnetic Survey of Northern Vancouver Island
Inline_Gradient	nT/m	Inline/Longitudinal gradient (Mag 2)
Crossline_Gradient	nT/m	Crossline/Transverse gradient (Mag 1 and Mag 3)

Radiometric Database:

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

CHANNEL	UNITS	DESCRIPTION
X_WGS84	m	UTM Easting – WGS84 Zone 9N
Y_WGS84	m	UTM Northing – WGS84 Zone 9N
X_NAD83_9N	m	UTM Easting – NAD83 Zone 9N
Y_ NAD83_9N	m	UTM Northing – NAD83 Zone 9N
X_NAD83_10N	m	UTM Easting – NAD83 Zone 10N
Y_ NAD83_10N	m	UTM Northing – NAD83 Zone 10N
Lat_deg	Decimal degree	Latitude – WGS84
Lon_deg	Decimal degree	Longitude – WGS84
Date	yyyy/mm/dd	Date of the survey flight(s) – Local
FLT		Flight Line numbers
LineNo		Line numbers
STL		Number of satellite(s)
GPStime	HH:MM:SS	GPS time (UTC)
Geos_m	m	Geoidal separation
GPSFix		1 = non-differential 2 = WAAS/SBAS differential
GHead_deg	degree	Heading of the aircraft
XTE_m	m	Cross track error
Galt	m	GPS height – WGS84 Zone 9N (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 10 Hz
Speed_km_hr	km/hr	Ground speed of aircraft in km/hr
BaroSTP_kPa	kPa	Barometric altitude (pressure and temperature corrected)
Temp_degC	°C	Air temperature
Press_kPa	kPa	Atmospheric pressure
COSFILT	counts/sec	Spectrometer - Filtered Cosmic
UPUFILT	counts/sec	Spectrometer - Filtered Upward Uranium
K_cps	counts/sec	Raw - Potassium
Th_cps	counts/sec	Raw - Thorium
U_cps	counts/sec	Raw - Uranium
TC_cps	counts/sec	Raw - Total Count
Kcor	%	Concentration in Percentage - Potassium
Thcor	ppm	Equivalent Concentration - Thorium
Ucor	ppm	Equivalent Concentration - Uranium
TCcor	nGy/hour	Total Count
Dose Rate	nGy/hour	Natural air absorbed dose rate
KThratio		Spectrometer –%K/eTh ratio
KUratio		Spectrometer –%K/eU ratio
ThKratio		Spectrometer – eTh/%K ratio
ThUratio		Spectrometer – eTh/eU ratio
UKratio		Spectrometer – eU/%K ratio
UThratio		Spectrometer – eU/eTh ratio

Grids (Geosoft .GRD, .KMZ, and Geotiffs .TIF):

Vancouver Island North Project, NAD83 Datum, UTM Zones 9N, cell size at 50 m

FILE NAME	DESCRIPTION
VIN_DTM_50m_2019_HELI_UTM09	Digital Terrain Model gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_MAG_TMI_50m_2019_HELI_UTM09	Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_TMI_1VD_50m_2019_HELI_UTM09	First Vertical Derivative of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_TMI_HG_inL_50m_2019_HELI_UTM09	Measure in-line horizontal gradient of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_TMI_HG_xL_50m_2019_HELI_UTM09	Measure cross-line horizontal gradient of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_TMI_HG_50m_2019_HELI_UTM09	Total horizontal gradient from in-line and cross-line gradient of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_RMI_50m_2019_HELI_UTM09	Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_RMI_1VD_50m_2019_HELI_UTM09	First Vertical Derivative of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_RTP_50m_2019_HELI_UTM09	Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAG_RTP_1VD_50m_2019_HELI_UTM09	First Vertical derivative of Reduced to Magnetic pole of RMI gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_TMI_50m_2019_HELI_UTM09	Gradient enhanced Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_TMI_1VD_50m_2019_HELI_UTM09	Gradient enhanced First Vertical Derivative of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_1VD_50m_2019_HELI_UTM09	Gradient enhanced First Vertical Derivative of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_ASIG_50m_2019_HELI_UTM09	Gradient enhanced Analytic Signal of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_50m_2019_HELI_UTM09	Gradient enhanced Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_1VD_50m_2019_HELI_UTM09	Gradient enhanced First Vertical derivative of Reduced to Magnetic pole of RMI gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_TILT_50m_2019_HELI_UTM09	Gradient enhanced Tilt Angle of Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_NVI_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity leveled to 2012 NVI data gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_SPEC_K_50m_2019_HELI_UTM09	Potassium (%K) – in percentage gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Th_50m_2019_HELI_UTM09	Thorium (eTh) – equivalent concentration gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_U_50m_2019_HELI_UTM09	Uranium (eU) – equivalent concentration gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_TC_50m_2019_HELI_UTM09	Total Count (TC) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_DOSE_50m_2019_HELI_UTM09	Natural Air Absorbed Dose Rate gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_SPEC_Ratio_K_Th_50m_2019_HELI_UTM09	Potassium over Thorium ratio (%K/eTh) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Ratio_K_U_50m_2019_HELI_UTM09	Potassium over Uranium ratio (%K/eU) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Ratio_U_Th_50m_2019_HELI_UTM09	Uranium over Thorium ratio (eU/eTh) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Ratio_U_K_50m_2019_HELI_UTM09	Uranium over Potassium ratio (eU/%K) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Ratio_Th_K_50m_2019_HELI_UTM09	Thorium over Potassium ratio (eTh/%K) gridded at 50 m cell size in NAD83 UTM Zone 9N
VIN_SPEC_Ratio_Th_U_50m_2019_HELI_UTM09	Thorium over Uranium ratio (eTh/eU) gridded at 50 m cell size in NAD83 UTM Zone 9N

Gridded using minimum curvature method.

Gradient Enhanced Magnetic Grids (Geosoft .GRD, .KMZ, and Geotiffs .TIF)

Vancouver Island North Project, NAD83 Datum, UTM Zones 9N, cell size at 50 m

FILE NAME	DESCRIPTION
VIN_MAGge_TMI_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_TMI_1VD_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced First Vertical Derivative of Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_1VD_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced First Vertical Derivative of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_ASIG_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Analytic Signal of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_1VD_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced First Vertical derivative of Reduced to Magnetic pole of RMI gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RTP_TILT_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Tilt Angle of Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
VIN_MAGge_RMI_NVI_bi_directional_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity leveled to 2012 NVI data gridded at 50 m cell size in NAD83 and UTM Zone 9N

Gridded using bi-directional method.

Maps (.JPG and georeferenced .PDF):

Vancouver Island North Survey Block, NAD83 Datum, Zone 9N, cell size at 50 m

TYPE	FILE NAME	DESCRIPTION
Overview	VIN_ActualFlightLines_NAD83	Actual flown flight lines in NAD83 Zone 9N
	VIN_DTM_50m_2019_HELI_UTM09	Digital Terrain Model gridded at 50 m cell size in NAD83 UTM Zone 9N
Magnetic (Gradient Enhanced)	VIN_MAGge_RMI_wFL_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity gridded at 50 m cell size with actual flown flight lines in NAD83 and UTM Zone 9N
	VIN_MAGge_RMI_50m_2019_HELI_UTM09	Gradient enhanced Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
	VIN_MAGge_TMI_50m_2019_HELI_UTM09	Gradient enhanced Total Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
	VIN_MAGge_RMI_1VD_50m_2019_HELI_UTM09	Gradient enhanced First Vertical Derivative of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
	VIN_MAGge_RTP_50m_2019_HELI_UTM09	Gradient enhanced Reduced to Magnetic Pole of Residual Magnetic Intensity gridded at 50 m cell size in NAD83 and UTM Zone 9N
Radiometric	VIN_SPEC_DOSE_50m_2019_HELI_UTM09	Natural air absorbed dose rate gridded at 50 m cell size in NAD83 Zone 9N
	VIN_SPEC_TernaryImage_50m_2019_HELI_UTM09	Displaying ratios of all three elements (%K, eTh, eU) gridded at 50 m cell size in NAD83 Zone 9N

Grids displayed using minimum curvature.

Appendix E

Daily Flight Log Report

Date (dd-mm-yy)	Flight number(s)	Distance flown (km)	Weather/Notes
03-Aug-19	1 & 2	427.7	Crew and helicopter arrive in Gold River to begin survey at southern end of VIN block. Weather hot and clear. Perform compensation flight test. Pilot observed deer.
04-Aug-19	3, 4, & 5	622.9	Weather was good. Continued to survey the southern section of the VIN project. Another compensation flight and heading test flown.
05-Aug-19	6	154.9	Weather was good. Completed one flight. Pilot observed deer.
06-Aug-19	7, 8, & 9	613.3	Weather was good. Continued to survey the southern section of the VIN project. Flight 3 of the day was used to perform re-flights from day 2.
07-Aug-19	10 & 11	378.6	Late start due to fog in the valley.
08-Aug-19	-	0	Fog in the morning. Low heavy clouds rest of day.
09-Aug-19	-	0	Fog in the morning. Low heavy clouds rest of day. Local residents stopped by and expressed interest in the survey and equipment.
10-Aug-19	12 & 13	721.0	Low heavy clouds on southern side of survey block. Relocated to Port McNeill due to restrictive weather conditions on south end of survey block.
11-Aug-19	14, 15, & 16	731.3	Overcast with some rain. Pilot observed elk and bears on survey block.
12-Aug-19	17, 18, & 19	383.5	Poor weather conditions; overcast with some rain. Low heavy clouds; limited surveying.
13-Aug-19	20 & 21	443.3	Fog and low clouds until mid-afternoon. Pilot observed elk, bears and eagles. Modifications to survey boundary requested.
14-Aug-19	22, 23, & 24	629.8	Fog and low clouds in the morning.
15-Aug-19	25, 26, 27, & 28	963.8	Marginal weather. Clouds on some of the higher peaks.
16-Aug-19	29, 30, & 31	665.6	Marginal weather. Surveyed west side of Nimpkish Lake Provincial park. Poor weather, survey terminated around 6 pm.
17-Aug-19	-	0	Low clouds and rain.
18-Aug-19	-	0	Low clouds and rain.
19-Aug-19	32 & 33	493.5	Cloudy and low ceiling until mid-afternoon.
20-Aug-19	34, 35 & 36	697.0	Overcast with a high ceiling. Strong gusty winds on west side of block. Surveyed on the east side of block. Pilot observed elk and bears.
21-Aug-19	-	0	Strong winds and low ceiling. Scheduled maintenance on helicopter.
22-Aug-19	37, 38 & 39	1121.1	Overcast with a high ceiling. Wind picked up late in the day. Safety meeting with Geoscience BC. Pilot observed elk, whales, seals, and birds.
23-Aug-19	-	0	Overcast with a low ceiling and rain. Winds gusting all day.
24-Aug-19	-	0	Overcast and low clouds.

25-Aug-19	40, 41, & 42	850.0	Low clouds in the morning. Cleared up in the afternoon. Pilot observed birds and bears.
26-Aug-19	43,44, & 45	1175.2	Sunny and clear blue skies. Pilot observed birds, bears, and whales.
27-Aug-19	46,47,48, & 49	1009.2	Sunny and clear blue skies. Pilot observed birds.
28-Aug-19	50, 51, & 52	793.8	Fog in the morning. Cleared up early afternoon. Moved to Woss. Continued surveying. Pilot observed birds and kayakers.
29-Aug-19	53, 54, 55, & 56	1293.6	Sunny and clear blue skies.
30-Aug-19	57	85.0	Fog in the morning and low clouds throughout the day. Flew some partial lines, then shut down for rest of day.
31-Aug-19	-	0	Fog, low clouds, and rain.
01-Sep-19	-	0	Light rain in the morning and low clouds for the rest of the day.
02-Sep-19	58,59, & 60	796.6	Low clouds early in the morning. Cleared up late in the afternoon.
03-Sep-19	61 & 62	419.0	Fog and low clouds in the morning. Started surveying in the afternoon. Stop surveying late in the afternoon; low clouds and strong winds. Scheduled maintenance on helicopter.
04-Sep-19	63 & 64	423.8	Fog and low clouds in the morning. Cleared up late afternoon.
05-Sep-19	65, 66, & 67	696.8	Heavy fog in the morning. Cleared up by noon. Heavy winds later in the day.
06-Sep-19	68, 69, & 70	853.9	Decent weather for most of the day. Pilot observed elk.
07-Sep-19	71, 72, & 73	917.8	Good weather for most of the day. A few low clouds and localized showers. Pilot observed bears and elk.
08-Sep-19	-	0	Bad weather; low clouds and rain.
09-Sep-19	-	0	Bad weather; low clouds and rain.
10-Sep-19	-	0	Bad weather; low clouds and rain.
11-Sep-19	-	0	Bad weather; low clouds and rain.
12-Sep-19	-	0	Bad weather; low clouds and rain.
13-Sep-19	-	0	Bad weather; low clouds and rain.
14-Sep-19	74	133.8	Weather cleared up late. Marginal weather for surveying late in the afternoon.
15-Sep-19	-	0	Bad weather; fog and rain.
16-Sep-19	75 & 76	533.6	Fog in the morning. Cleared up early in the afternoon. Pilot observed bears and deer.
17-Sep-19	-	0	Bad weather; low clouds and rain.
18-Sep-19	77 & 78	531.2	Low clouds in the morning. Cleared up in the afternoon. Pilot observed bears and elk.

19-Sep-19	79	200.5	Low clouds for most of the day. Marginal weather; survey continued late in the afternoon.
20-Sep-19	80 & 81	411.4	Low clouds in the morning. Cleared up in the afternoon. Topographic shadowing in deep canyons resulted in occasional loss of GPS signal. Affected lines re-flown.
21-Sep-19	-	0	Bad weather; low clouds and rain.
22-Sep-19	82	56.2	Bad weather; low clouds and rain. Unable to fly until early evening.
23-Sep-19	-	0	Bad weather; low clouds and rain.
24-Sep-19	-	0	Bad weather; low clouds and rain.
25-Sep-19	-	0	Overcast and rained all day.
26-Sep-19	83, 84, & 85	558.0	Good weather. Patchy clouds; partial lines were flown. Pilot observed hunters, elk, and bears. Lines were flown over height over the town of Tahsis and over unmarked power lines in the Tahsis area.
27-Sep-19	86	187.0	Cloudy and raining in the morning. Cleared up mid-afternoon. Fresh snow falling and on the ground. Pilot observed hunters and bears.
28-Sep-19	87, 88, & 89	595.6	Sunny and clear blue skies.
29-Sep-19	90, 91, & 92	620.2	Sunny and clear blue skies. Pilot observed hunters, elk, and bears.
30-Sep-19	93, 94, &95	571.1	Sunny and clear blue skies. Pilot observed hunters, elk, and bears.
01-Oct-19	96, 97, & 98	654.1	Mostly sunny in the morning and early afternoon. Clouds moved in later in the afternoon. Pilot observed hunters, elk, and bears.
02-Oct-19	99	223.7	Marginal weather in the morning. Started to rain early afternoon and low cloud cover. Pilot observed bears, deer, elk, and hunters. Scheduled maintenance on helicopter.
03-Oct-19	-	0	Bad weather; low clouds and rain.
04-Oct-19	-	0	Bad weather; low clouds and rain.
05-Oct-19	100 & 101	414.9	Low clouds in the morning. Some fresh snow. Cleared up early afternoon. Pilot observed bears, elk, and hunters.
06-Oct-19	-	0	Bad weather; low clouds and rain.
07-Oct-19	-	0	Bad weather; low clouds and rain.
08-Oct-19	102 & 103	401.9	Low cloud and rain showers in the morning. Snow above 800 m. Sunny and windy with patches of low cloud cover in the afternoon.
09-Oct-19	104, 105, & 106	601.8	Clear and sunny. Pilot observed hunters.
10-Oct-19	107, 108, & 109	555.8	Fog and low clouds early in the morning. Cleared up mid-morning. Pilot observed hunters.
11-Oct-19	110, 111, & 112	702.1	Partly cloudy in the morning. High cloud cover the rest of day.

12-Oct-19	113 & 114	398.5	Intermittent light rain and low cloud cover throughout the day. Pilot observed bears, elk, and hunters.
13-Oct-19	115, 116, & 117	491.1	Scattered showers, windy. Topographic shadowing in deep canyons resulted in occasional loss of GPS signal. Affected lines re-flown. Pilot observed deer, bears, and hunters.
14-Oct-19	118 & 119	308.4	Overcast with occasional rain. Weather deteriorated throughout the day. Pilot observed elk and hunters. Scheduled maintenance on helicopter.
15-Oct-19	-	0	Bad weather; low clouds and heavy rainfall.
16-Oct-19	-	0	Bad weather; low clouds and heavy rainfall.
17-Oct-19	-	0	Bad weather; low clouds with intermittent rainfall.
18-Oct-19	-	0	Bad weather; low clouds with intermittent rainfall.
19-Oct-19	-	0	Bad weather; low clouds with intermittent rainfall.
20-Oct-19	-	0	Bad weather; low clouds with intermittent rainfall.
21-Oct-19	-	0	Bad weather; low clouds and heavy rainfall.
22-Oct-19	120	28.8	Marginal weather; windy, low clouds, and rain.
23-Oct-19	121	32.5	Good survey conditions with high overcast. Pilot observed bears. Survey complete, data passes QA/QC procedures.
24-Oct-19	-	0	Helicopter & crew demobilized.

Note – Distances flown include re-flights. Wildlife observations noted where navigation was compromised.

Appendix F

Abbreviations

List of abbreviations used in this report

AGIS	Airborne Geophysical Information System
AGSO	Australian Geological Survey Organization
AGL	Above Ground Level
ASL	Above Sea Level
BC	British Columbia
Bi	Bismuth
C	Celsius
CPU	Central Processing Unit
DC	Direct current
DD	Day
DEM	Digital Elevation Model
DTM	Digital Terrain Model
e	equivalents for uranium/thorium
E	East
FADEC	Full Authority Digital Engine Control
Fe	Chemical symbol for iron
FOM	Figure of Merit
GPS	Geographic Positioning System
Hz	Hertz
IAEA	International Atomic Energy Agency
IAGA	International Association of Geomagnetism and Aeronomy
ICAO	International Civil Aviation Organization
IGRF	International Geomagnetic Reference Field
K	Potassium
km	kilometer(s)
L	Flight Line (tie line or survey line) or Left direction
m	meter(s)
mag	Magnetic or magnetometer
MeV	Mega electron Volt
MM	Month
N	North
NAD	North American Datum
nT	nanotesla(s)
NTS	National Topographic System
NVI	North Vancouver Island
O	Chemical symbol for oxygen
PGU	Pilot Guidance System or Unit
R	Right direction
Ra	Radium
RMI	Residual Magnetic Intensity
Rn	Radon
RPM	Revolutions per Minute
RTP	Reduced to Pole
S	South
SBAS	Satellite-based Augmentation System
Si	Silicon
SL	Survey Line
S/N	Serial Number
STP	standard temperature and pressure

TAD	Tilt Angle Derivative
TC	Total Count
Th	Thorium
THG	Tilt Horizontal Gradient
TL	Tie Line
Tl	Thallium
TMI	Total Magnetic Intensity
U	Uranium
USB	Universal Serial Bus
UTC	Universal Time Coordinated
UTM	Universal Transverse Mercator
V	Volts
VIN	Vancouver Island North (Regional Project)
W	West
WGS	World Geodetic System
YY	Year

Plates

Vancouver Island North Survey Block

Scale 1:200,000
(Print and Digital)

- Plate 1: VIN Project - Actual Flight Lines (FL)
- Plate 2: VIN Project - Digital Terrain Model (DTM)
- Plate 3: VIN Project - Gradient enhanced Residual Magnetic Intensity with Actual Flight Lines (RMIge_wFL)
- Plate 4: VIN Project - Gradient enhanced Residual Magnetic Intensity (RMIge)
- Plate 5: VIN Project - Gradient enhanced Total Magnetic Intensity (TMIge)
- Plate 6: VIN Project - Gradient enhanced First Vertical Derivative (1VDge_ofRMIge) of RMIge
- Plate 7: VIN Project - Gradient enhanced Reduced to Magnetic Pole (RTPge_ofRMIge) of RMIge
- Plate 8: VIN Project - Natural Air Absorbed Dose Rate (DOSE)
- Plate 9: VIN Project - Ternary Image (TI)

Scale 1:100,000
(Digital Only)

- Plate 1_100k: VIN Project - Actual Flight Lines (FL)
- Plate 2_100k: VIN Project - Digital Terrain Model (DTM)
- Plate 3_100k: VIN Project - Gradient enhanced Residual Magnetic Intensity with Actual Flight Lines (RMIge_wFL)
- Plate 4_100k: VIN Project - Gradient enhanced Residual Magnetic Intensity (RMIge)
- Plate 5_100k: VIN Project - Gradient enhanced Total Magnetic Intensity (TMIge)
- Plate 6_100k: VIN Project - Gradient enhanced First Vertical Derivative 1VDge_ofRMIge) of RMIge
- Plate 7_100k: VIN Project - Gradient enhanced Reduced to Magnetic Pole (RTPge_ofRMIge) of RMIge
- Plate 8_100k: VIN Project - Natural Air Absorbed Dose Rate (DOSE)
- Plate 9_100k: VIN Project - Ternary Image (TI)