NATURAL RESOURCES CANADA

Aeromagnetic Survey – Eagle Plains, Yukon

Solicitation No.: 23240-097151/A

FINAL SURVEY REPORT

Produced by:

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1. Introduction

This report describes an aeromagnetic survey conducted by EON Geosciences Inc. (**EON**) on behalf Natural Resources Canada (**NRCan**) in the Eagle Plains area, Yukon. **EON** was mandated to conduct a digitally-recorded high sensitivity aeromagnetic survey of a portion of Eagle Plains Area and to compile the acquired data in accordance with the **NRCan** technical specifications.

The Eagle Plains aeromagnetic survey was flown from Eagle Plains, Dawson City, and Old Crow, as bases of operations, from April 10th to July 21st and from September 5th to September 16th, 2009. A total of 45,717 line-kilometres were flown to cover the area. This report describes field operations and final processing performed for the survey.

2. Flying Specifications

2.1. Survey Area

The Eagle Plains survey area is located in northern Yukon, as shown on Figure 1.

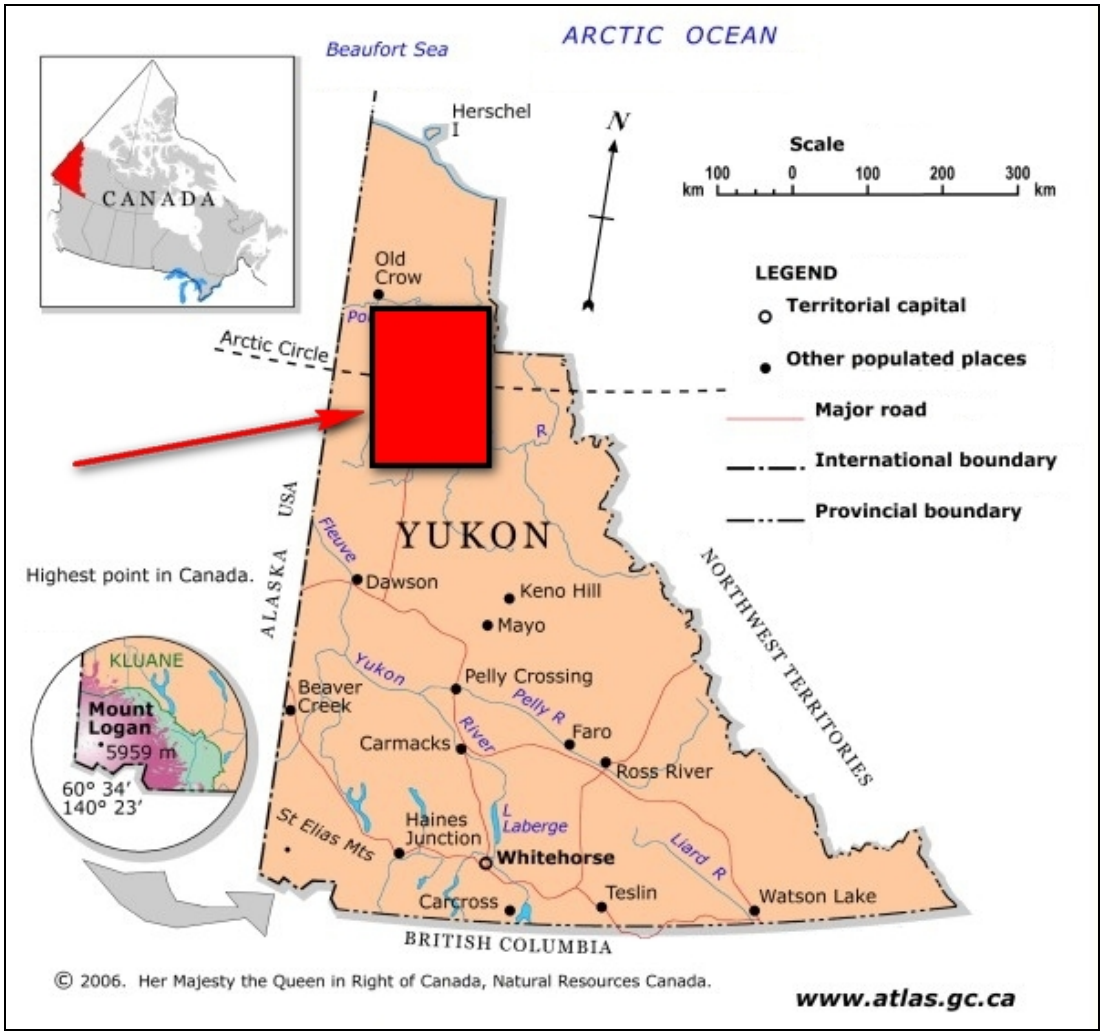


Figure 1: Location of the Eagle Plains Aeromagnetic Survey

The area is defined by the following coordinates:

Corner	Latitude	Longitude	Corner	Latitude	Longitude
1	65.38.00	-136.00.00	7	66.52.00	-139.00.00
2	65.38.00	-139.00.00	8	66.52.00	-140.00.00
3	66.15.00	-139.00.00	9	67.30.00	-140.00.00
4	66.15.00	-138.45.00	10	67.30.00	-138.00.00
5	66.40.00	-138.45.00	11	67.00.00	-138.00.00
6	66.40.00	-139.00.00	12	67.00.00	-136.00.00

Table 1: Boundaries – Aeromagnetic Survey, Eagle Plains, Yukon

2.2. Topography

As shown on Figure 2, in terms of altitude, terrain of the survey area may be classified as moderately rugged. Specifically, the topography ranges approximately from 210 m to 1,506 m.

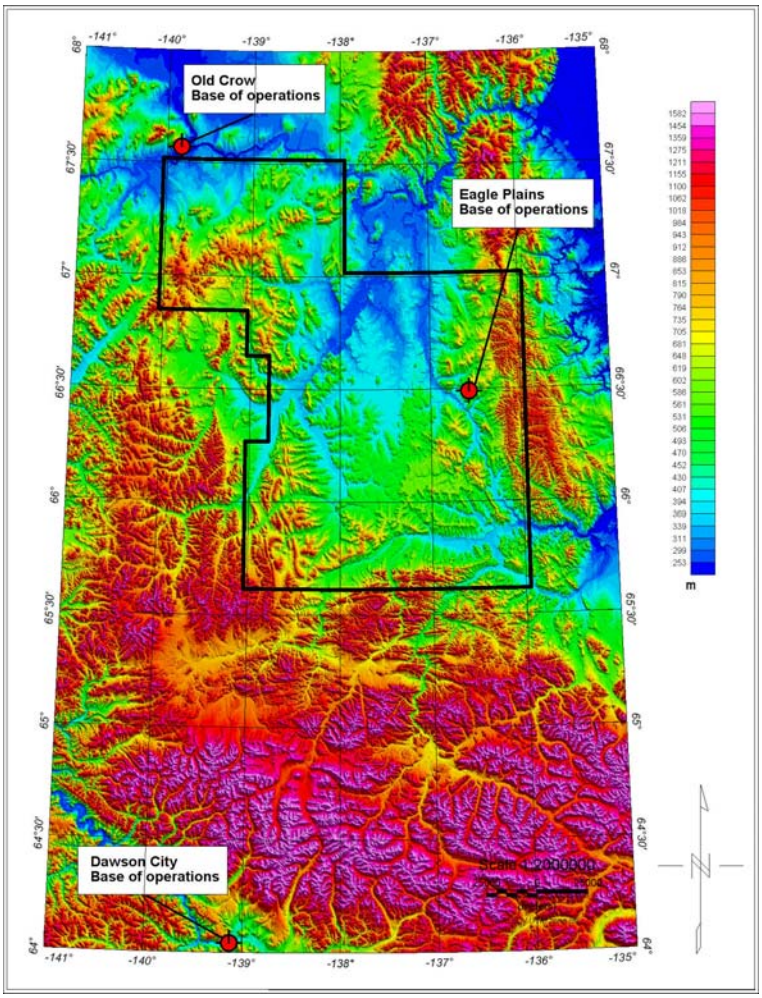


Figure 2: Topography - Aeromagnetic Survey, Eagle Plains, Yukon
(Source of data: www.geobase.ca)

2.3. Flying Specifications

2.3.1. Flight Plan

For this survey, flight lines were flown using the following traverse and tie line bearing and spacing specifications, for a total of 45,717 line-kilometres.

	Traverse Lines	Tie Lines
Spacing	800 m	2,400 m
Bearing	N 90º E	N 0º E
Line-kilometres	34,033	11,684

Table 2: Flight Plan Specifications

Deviations between the flight path flown by **EON** and the theoretical flight plan (input file used for navigation) were analyzed during the field quality control (QC) in order to identify and remove all lines or parts of lines for which the deviations were exceeding the allowed maximum and minimum line separations of 825 m and 775 m, respectively. Lines or portions of lines requiring re-flight due to excessive lateral deviations were re-flown following the overlapping and flying specifications described in the statement of work.

2.3.2. Flight Altitude

The aeromagnetic survey was flown with a nominal terrain clearance of 250 m. For a higher quality data levelling, a drape surface was used in order to provide a consistent and safe flight elevation, as well as to insure that traverse lines and tie lines were flown at the same altitude at the intersection. A drape surface was computed for the survey area using the digital elevation model provided by NRCan and using a slope of 5.0%.

The altitude tolerances were limited to no more than 30 m of difference at the intersection of traverses and tie lines. This limit was also used during the field QC in order to evaluate the areas were the vertical deviation between GPS elevation and the calculated drape surface exceeded the contract specifications and seemed to affect the gridded data.

2.4. Technical Specifications

During the acquisition, data quality control was done in the field on a daily basis. The following technical specifications as well as the flying specifications above were observed throughout the survey to select lines or portions of lines requiring re-flight or for final data acceptance.

2.4.1. Magnetic Diurnal

A maximum tolerance of 3.0 nT (peak-to-peak) deviation from a long chord equivalent to a period of one minute and, in order to limit ULF waves (micro-pulsations), an additional maximum tolerance of 0.5 nT (peak-to-peak) deviation from a long chord equivalent to a period of 15 seconds for the magnetic base station were considered.

2.4.2. Airborne Magnetometer Noise

The fourth difference was used to evaluate the noise level on the magnetic data. The error envelope due to turbulence and the internal magnetometer noise had to stay within ± 0.1 nT for final data acceptance.

3. Survey Equipment

3.1. Aircraft

EON provided a Piper Navajo (registration C-FEON) and a Cessna 206 (registration C-FTPN) for this project (see Figures 3 and 4 below). Both aircraft, with the technical specifications below, are equipped with a tail stinger suitable for one magnetometer.

Type:	Piper Navajo	Cessna 206
Registration:	C-FEON	C-FTPN
Range (km):	2,000	1,200
Survey speed (km/hr):	250	160
Survey speed (m/s):	80	50
Rate of climb:	10%	5%
Aviation Fuel:	Avgas	Avgas
Fuel consumption (L/hr):	130	65
FOM value (nT):	1.030	1.229

Figure 3: Piper Navajo – C-FEON – Survey Aircraft

Figure 4: Cessna 206 – C-FTPN – Survey Aircraft

3.2. Airborne Systems

EON used the latest state-of-the-art technology instruments as described in the following sections.

3.2.1. Magnetometer

Geometrics G822A and Scintrex CS-3 cesium-vapour split-beam sensors, in combination with a high-resolution counter, were used. The specifications are as follows:

Manufacturer:	Geometrics	Scintrex
Type and Model:	Cesium G822A	Cesium CS-3
Aircraft:	Piper Navajo	Cessna 206
Ambient Range (nT):	20,000 – 100,000	15,000 – 105,000
Sensitivity (nT):	± 0.0005	± 0.0006
Absolute Accuracy (nT):	± 3	± 2.5
Noise envelope (nT):	< 0.01	< 0.02
Sampling Interval (sec):	0.1	0.1
Heading Error (nT):	< 0.15	< 0.25

3.2.2. Data Acquisition System and Compensator

EON used RMS Instruments' Data Acquisition & Adaptive Aeromagnetic Real-Time Compensation (DAARC500) and Pico Envirotec's Airborne Geophysical Information System (AGIS) systems. These data acquisition systems integrate aeromagnetic real-time compensation with recording from analog and serial data sources. All data acquisition is synchronized in real-time to GPS time via a 1-second pulse. Since the GPS position and UTC time are related to the GPS pulse, a precise correlation is maintained.

DAARC500 and AGIS compensation uses a three-axis fluxgate magnetometer to monitor the aircraft's position and motion with respect to the ambient magnetic field. Resulting signals are compensated according to a calibration based on a set of standard manoeuvres of rolls, pitches, and yaws made along each survey heading. Aeromagnetic data are sampled at a rate of 10 Hz.

Analog and serial inputs are sampled at the same rate as magnetometer data, or at sub-multiple of it. These data are recorded in the main data file as a sequence of blocks including system and GPS times, as well as PPS-correlation event tags, in order to allow for an easy quality control of synchronization.

These systems provide a high-resolution real-time graphical output to a built-in colour display that allows real-time monitoring of data acquisition by the operator.

3.2.3. Navigation

The following table describes the airborne differential GPS systems that provided both real-time navigation and flight-path recovery:

GPS Manufacturer:	NovAtel
Model:	ProPak-V3
Differential System:	CDGPS
Frequencies:	2
Accuracy (metre):	± 1
Number of Channels:	72
Navigation System:	Ag-Nav Linav (Piper Navajo) & Pico Envirotec AGIS (Cessna 206)
Pilot Display:	LCD with up/down and left/right indicators
Sampling Interval (sec):	1

The main features of the positioning systems are:

1) Real-time graphical and numerical display of flight path with survey-area and grid-line overlay using real-time differentially corrected GPS data
2) Vertical navigation using smooth surface
3) Distance-from-line and distance-to-go indicators
4) Operation in survey-grid or way-point navigation mode
5) Recording of raw range-data for all satellites

3.2.4. Radar Altimeter

The following table describes the radar altimeters that were installed in the aircraft:

Manufacturer:	Honeywell	King
Model:	HG7710AA01	KRA-10A
Aircraft:	Piper Navajo	Cessna 206
Range (ft):	0 to 10,000	20 to 2,500
Accuracy:	± 3 ft (0-100 ft) ± 3% (100-10,000 ft)	± 5 ft (0-100 ft) ± 5% (100-500 ft) 7% (500-2,000 ft)
Sampling Interval (sec):	0.1	0.1

3.2.5. Barometric Altimeter

The following table describes the barometric altimeters that were installed in the aircraft:

Manufacturer:	Honeywell	Setra
Model:	PPT	276
Aircraft:	Piper Navajo	Cessna 206
Accuracy:	± 0.05 FS	± 0.25% FS
Sampling Interval (sec):	0.1	0.1

3.2.6. Flight Path Camera

Panasonic HR 1/3 CCD digital video cameras recorded in MPEG format the flight-path terrain beneath the aircraft. The cameras, with an automatic iris and wide-angle lens, ensured perfect exposure with no operator adjustment. The system recorded both video and data, which was stored alphanumerically in the top portion of each frame. The data include the fiducial, in tenths of a second after midnight UTC, as well as the real-time GPS position data (latitude and longitude).

3.3. Ground Systems

The ground base stations described herein were installed at **EON**'s bases of operations in Eagle Plains and in Old Crow.

3.3.1. GPS Base Station

The following table describes the GPS base station used to allow post-processing of the raw positioning data recorded in flight:

Manufacturer:	NovAtel
Model:	DL-V3
Accuracy (m):	1
Sampling interval (sec):	1

From April 10th to July 22nd, 2009, the GPS base station antenna was mounted about 10 meters behind the Eagle Plains Hotel at the following coordinates: 66° 22' 23", -136° 43' 11"

For the re-flights flown from Old Crow, no GPS base station was installed and the CSRS-PPP Internet service was used for GPS post-processing, as agreed to with the Scientific Authority.

3.3.2. Magnetic Base Station

The following table describes the base station magnetometers that were set up in Eagle Plains and in Old Crow:

Manufacturer:	GEM Systems
Type:	Overhauser
Model:	GSM-19
Dynamic Range (nT):	10,000 – 120,000
Sensitivity (nT):	± 0.015
Absolute Accuracy (nT):	± 0.1
Sampling Interval (sec):	1
Noise level	< 0.1 nT

From April 10th to July 22nd, 2009, the magnetometer base stations were located at some distance beyond the far end of the Eagle Plains RV park and about 40 meters behind the Eagle Plains Hotel at the following coordinates: Base #1: 66° 22' 27", -136° 43' 06"
Base #2: 66° 22' 22", -136° 43' 14"

From September 5th to September 16th, 2009, for the re-flights flown from Old Crow, the magnetometer base stations were located on the Old Crow (CYOC) airstrip grounds at the following coordinates:
Base #1: 67° 34' 03", -139° 51' 01"
Base #2: 67° 34' 05", -139° 50' 43"

3.4. Field Data Quality Control System

The following list describes the main components of the in-field data verification system:

Computers:	Pentium PCs
Printer:	HP Photosmart C3180
Software:	Geosoft Oasis montaj Waypoint GrafNav/GrafNet
Data transmission:	FTP site

Any calibrations or determinations that were carried out during the field operations were also processed on this system together with the daily quality control tests and checks.

4. Personnel

The following table lists the personnel of **EON** that was involved during this project:

Field Operation	
Project Manager	Khaled Moussaoui Abbas Moussaoui
Field Manager Field Geophysicist Quality Control and Data Processing	Gérard Tessier Olivier Boulanger
Co-pilot/Operator	Paul Beaubien Marc Richard Eric Michot Vincent Moreau Charles Lambert-Slythe
Pilots	Dany Lanthier Essam Hassan Eric Michot Vincent Moreau Charles Lambert-Slythe
Engineers	Josef Estevez
Office Processing	
Final Data Processing	Gérard Tessier
Final Products Final Survey Report	Marc Richard Khaled Moussaoui Gérard Tessier

Table 3: Project Personnel

5. Field Operations

5.1. Base of Operations

As previously mentioned, the survey teams were based in Eagle Plains, Dawson City, and Old Crow, Yukon and the Eagle Plains, Dawson City, and Old Crow airports were used as bases of operations.

5.2. Schedule

The table below displays the schedule of survey activities including tests, calibrations, and mobilization/demobilization. Data acquisition was completed on September 16th, 2009, for a total production of 45,717 line-km.

Aircraft	Date	Description
Piper Navajo (C-FEON)	February 21 – February 28, 2009	Pre-mob tests and calibrations
	March 3 – March 11, 2009	Mobilization of aircraft and crew to Dawson City
	March 12, 2009	Mobilization of QC crew to Eagle Plains
	March 13 – March 22, 2009	On-site tests and calibrations
	April 10 – July 21, 2009	Production flights
	July 22, 2009	Coverage complete Demobilization until final evaluation
Cessna 206 (C-FTPN)	April 19 – April 26, 2009	Mobilization of aircraft and crew to Eagle Plains
	April 29, 2009	On-site tests and calibrations
	April 30 – July 17, 2009	Production flights
	July 22, 2009	Coverage complete Demobilization until final evaluation
Piper Navajo (C-FEON)	September 4, 2009	Mobilization to Old Crow
	September 4, 2009	On-site tests and calibrations
	September 5 – September 16, 2009	Production flights (re-flights)
	September 17, 2009	End of survey / Demobilization

Table 4: Schedule – Eagle Plains Aeromagnetic Survey

5.3. Operational Issues

Several operational issues were encountered during the survey. These issues were:

- Several production days were lost due to very unstable weather, especially in the mountains separating Dawson City from the survey area (affecting C-FEON).
- Several flights were delayed out of Dawson City due to the lack of fuel service.
- Several production days were lost due to various aircraft maintenance problems (both aircraft).
- A failing magnetic sensor had to be replaced on C-FEON.
- One flight (Flt 213, C-FTPN) was cut short due to an unnoticed bad system root, causing saturated mag.

- Longer than planned ferries and additional flights were required for the re-flights once based out of Old Crow due to the lack of Avgas fuel and accommodations in Old Crow.

These issues are identified in the daily operational report found in Appendix B.

5.4. Tests and Calibrations

Prior to production flights, the following tests and calibrations were performed by the Piper Navajo and Cessna 206 in Montreal (Quebec), Bourget (Ontario), Eagle Plains (Yukon), Dawson City (Yukon), and Old Crow (Yukon):

- Figure of Merit (FOM)
- Altimeter calibration
- Heading (Bourget) test
- Lag test

Detailed results for these tests are presented in Appendix A.

6. Data Processing

The key parameter for this survey was the magnetic data. All of the positioning data post-processing were done using Waypoint GrafNav/GrafNet software and all geophysical data processing was performed using Geosoft Oasis montaj.

6.1. Field Processing and Quality Control

At the end of each flight, recorded data were copied to a backup USB drive and transferred to the geophysicist for quality control (QC) procedures and preliminary data processing, as described in the following section.

Each recorded channel was carefully inspected in profile and/or grid, in order to insure a complete coverage and to detect any hardware problem that may occur during flight. A statistical analysis was also performed to assist with the quality control procedures.

At this stage, lines or segments of line possibly requiring re-flight were identified, and preliminary processing of available data was regularly performed in order to evaluate the impact of these lines on general end product quality. Specifically, coverage, flight path and drape deviations, diurnal activity, noise level on the magnetic data, and operational issues (such as the failure of a magnetic sensor or saturated mag due to an unnoticed bad system root) were verified and then re-flights were identified. Additional re-flights were also determined in collaboration with the Scientific Authority, based on processing results with complete line coverage. 40 complete or partial lines were thus rejected and re-flown due to diurnal activity, noisier TMF in turbulent conditions, drape or flight path deviations, or when partial lines in poor weather were too short. A final evaluation was done in collaboration with the Scientific Authority for this project and all final accepted data were within the specifications, as described in Sections 2.3 and 2.4.

6.2. Positioning Data

The NovAtel ProPak-V3 GPS unit transmitted real-time RT-DGPS data to the RMS Instruments DAARC500 acquisition system for data recording and synchronization, as well as to the Ag-Nav Linav navigation system for line and drape navigation. The ProPak-V3 used WAAS broadcast data for differential corrections. Daily quality control of RT-DGPS data was made to verify that precision remained suitable for navigation (< 5 m).

Raw GPS data were used for post-processing, using the GPS base station data and the Waypoint GrafNav/GrafNet software package, in order to obtain final GPS positioning data. Note that for C-FEON flights 74-81 (final re-flights), GPS post-processing was made using the CSRS-PPP Internet service, as no GPS base unit was installed at the Old Crow operation base. Mean sea level elevations are based on the GPS-H (v2) ellipsoidal-orthometric model. Final QC, based on velocity profiles, and on comparison with RT-DGPS and barometric altitudes, ascertained that GPS post-processed data, which remained of high quality and required no corrections for spikes or jumps, improved positioning precision to the order of 1 m. Note that post-processed GPS data had seven (7) seconds of missing data on L1760, with RT-DGPS data substituted to fill the gap.

PP-DGPS final data were used to finalize QC of flight path and drape following during field operations, to complete radar QC and edits through computation of a digital elevation model, and to compute altitude differences at intersections. All these steps allowed for additional GPS QC, provided more reliable edited radar and barometric data, as well as allowed for precise flagging of line segments presenting excessive deviations and requiring re-flight.

Note that GPS positioning data were acquired at a sampling rate of 1Hz. At the GSC's request, these data were interpolated to 10Hz in the final database. The interpolation method was linear for easting and northing coordinates, and Akima for altitude.

The use of a drape surface for vertical navigation allowed for the altitude difference at the intersections between traverses and tie lines to remain within specifications. This is confirmed by the calculation of the altitude difference at the intersections, which shows that only 0.05% of the values (7 out of 14,547) are higher than the 30-meter specification. Figure 5 below shows the statistical analysis of the altitude difference at the intersections.

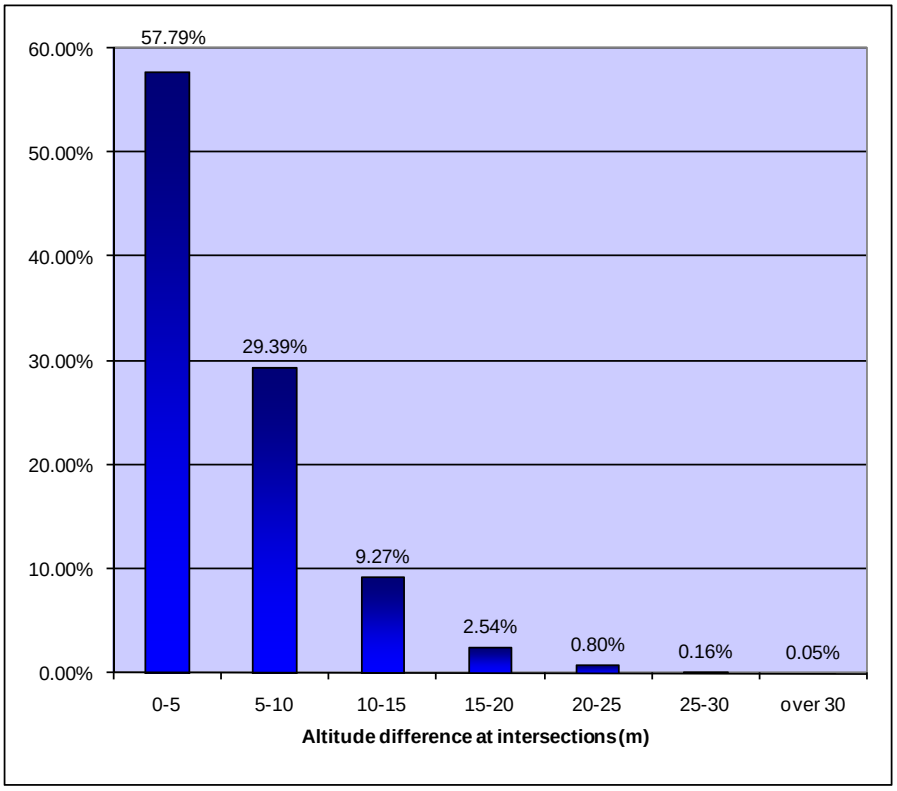


Figure 5: Statistical Analysis of the Altitude Difference at the Intersections

6.3. Altimeter Data and Digital Elevation Model

Inspection and correction of radar profiles were made via computation of a digital elevation model (DEM), using final PP-DGPS altitude and its comparison to the digital elevation model provided by the Scientific Authority. Note that GPS and barometric altitude data were acquired at a sampling rate of 1Hz. At the GSC's request, these data were interpolated to 10Hz in the final database, using the Akima method. These 10Hz elevation data were used for final DEM processing.

Radar edits for drift, discrete spikes and level jumps were obtained via DEM levelling, while high-frequency noise was subsequently removed through application of a 0.4sec non-linear and a 0.6sec low-pass filtering, as follows:

- An initial traverses/ties DEM intersection levelling was made in five (5) iterative passes, using only the good updated intersections values for modelization. Pass 5 models used low-pass spatial filters of 2000-4800m for ties and of 3200-6000m for traverses. Radar filtering was updated following each pass.
- Remaining intersection errors above 8m or 2% AGL, on 91 out of 14,547 intersections, were resolved through the application of manual spike or level jump corrections on the radar. Updated difference with the supplied topographic model, as well as DEM micro-levelling results, were used to properly identify which of the intersecting line required such corrections. Line sections in proximity to such intersections were also scanned for similar radar problems, mostly observed over very rugged or deep areas. Radar filtering was updated following each manual correction.
- A final pass of DEM intersection levelling, using low-pass spatial filters of 2000-4000m for ties and of 4800-6000m for traverses, was applied to finalize radar edits.

It is good to note that most of the required spike/jumps radar corrections involved the C-FTPN unit (flights 202-245), while radar data from the C-FEON unit were of better quality, with relatively small drift and very few spikes. Final DEM intersection errors ranged from -2.9m to +2.4m, and were below 0.7% of the radar altitude. Final database channel DEMCOR corresponds either to the DEM correction or to the total radar error removed, as all DEM noise was considered as originating from radar.

The digital elevation model data were gridded without the tie lines, using Geosoft Oasis Montaj's minimum curvature software, using a cell size of 200 meters.

The raw barometric altitude was calculated from the pressure and temperature data recorded in flight. Afterwards, additional corrections were made to remove spikes or jumps, as well as to adjust the mean level, based on a comparison with the GPS altitude.

6.4. Magnetic Data

6.4.1. Diurnal Magnetic Data

For flights 12-72 and 202-245, two magnetic base units, main and backup, were installed at two different locations within the grounds of the Eagle Plains Hotel. For flights 74-81 (final re-flights), the units were installed on the grounds of Old Crow airport.

Magnetic base station profiles were verified daily to insure that no data were collected during periods with diurnal variations above the project specifications. It was also necessary to edit the magnetic base station profiles to remove noise and signal of cultural origin. These cultural corrections were based on the comparison of the profiles from each unit, and resulted in the removal of mostly discrete spikes or level jumps from occasionally passing vehicles. Non-linear and low-pass filters were then applied to remove high frequency noise.

Raw main magnetic base data (DIURNRAW) contain 252 seconds of missing data, due to an intermittent recording problem. For these intervals, data from the backup base unit were substituted into the edited main base channel (DIURNAL). Backup magnetic base data (DIUR2RAW) contain 113,720 seconds of missing data, mostly for flights 036-044 and 211-216, as the unit was unserviceable, and for flights 74-81, due to an intermittent recording problem.

Note that magnetic base data were acquired at a sampling rate of 1Hz. At the GSC's request, these data were interpolated to 10Hz in the final database, using the linear method.

6.4.2. Aeromagnetic Data

Compensation of the single tail sensor raw data against aircraft and directional magnetic signals was applied real-time during acquisition, allowing QC monitoring by the operator, who could determine when the turbulence level became detrimental to data quality and abort flight. Post-flight re-compensation was performed, with excellent improvement, on the following C-FTPN flights:

- 202-207, using solution acquired on flight 208 (stronger manoeuvring to improve compensation).
- 224-225, using solution acquired on flight 227 (new solution acquired due to observed detrimental effect of a bracket change on the wings).

After application of a proper tail sensor lag (C-FEON 0.65sec, C-FTPN 0.08sec), uncompensated and compensated total magnetic field (TMF) profiles were monitored on a daily basis to assess compensation effectiveness. Raw TMF (MAGRAW) was then corrected against 1) motion noise, and 2) effect of altitude deviations with respect to the drape surface, in order to obtain the edited TMF (MAGRAWED).

First, appropriate manual corrections against discrete spikes and level-jumps, occasionally occurring in very intense turbulence, or resulting from the use of heaters, radio, or fuel pumps, were applied to improve the fourth difference. A standard noise channel, resulting from application of a 4sec low-pass filter, was then computed and removed from the TMF. This noise channel was then edited in order to protect valid anomalies (substitution of a weaker filter or no filtering), and also to improve noisier segments (substitution of a 5sec low-pass filter), as justified by the local signal-to-noise ratio. Amplitude and effectiveness of noise removal were monitored for possible re-flight.

In order to minimize the effect of drape deviations between adjacent lines, an altitude (or partial IGRF) correction was then applied. It is computed from the difference between the IGRF fields computed on the flight and drape surfaces, respectively, and then low-pass filtered (3sec). This correction proved very effective for 75% of the data, particularly in areas requiring very steep rise and descent. However, for the remaining 25% (mostly located in the center-east part of the block), a correlation between this correction and TMF noise observed on grids became evident, and required adjustment. Modification of the IGRF correction was based on the noise removed by a low-pass 3200m grid filter (obtained after a preliminary levelling), and on its degree of correlation with original altitude correction, for wavelengths below 50 seconds. In order to avoid distortion of valid signals:

- the modification was limited to decrease of amplitude only, without change of polarity;
- a factor computed from the noise envelopes before and after application of the altitude correction was used to allow the full modification where the correction was most detrimental, and gradually cancel it for the better flown data;
- a factor computed from the 2-D analytical signal was also used to gradually cancel the modification over active areas, where the grid filter becomes less reliable.

The edited altitude correction was then reviewed in profile against computational glitches, and tested in grid. The effective TMF noise correction obtained from this modification ranges from -0.304nT to +0.258nT, and has a standard deviation of ±0.0235nT.

Diurnals were removed prior to final levelling, using data from the main base unit (DIURNAL). The removed diurnal channel (DIURNCOR) was obtained by first subtracting the respective averages of the two main base installations (refer to section 6.4.1 above), and by the subsequent application of a low-pass spatial filter, as follows:

- Eagle Plains (flights 12-72, 202-245), average 58376.157nT, filter length 4900m;
- Old Crow (flights 74-81), average 57758.674nT, filter length 48000m.

Note that a longer spatial filter was used for Old Crow base data since it was observed that most of its smaller wavelengths were systematically removed during preliminary levelling. The Old Crow filter length was then increased until this undesirable effect subsided.

The next TMF processing stage was levelling, which consists in the proper statistical distribution of traverses versus ties intersection errors, so as to obtain the smoothest possible correction model on each line. An initial simple correction model (average) is first applied on traverses, and then on tie lines after updating intersections on corrected traverses. This process is pursued iteratively, using correction models of progressively decreasing wavelength, in order to further correct the residual errors of the previous passes. Final correction models (MAGTLCOR) and levelled TMF (SRVMGLEV) were obtained after nine iterations, models being obtained using low-pass spatial filters of 2000m for ties, and tensioned spline interpolation for traverses.

The above-described levelling process was updated following each major stage of operation and processing. A first preliminary levelling was performed following complete coverage of the block (flights 12-72, 202-245), in order to properly determine the final list of required re-flights. It was updated following inclusion of final re-flights (flights 74-81), determination of final processing parameters (edited IGRF-based altitude correction and diurnal removal, described above), and final line selection for minimal overlap, made such as to keep data displaying the best quality. Most of the initial TMF intersection errors were adjusted to within ±0.095nT, except for 7 out of 14,547 intersections, all located above high-gradient areas. At the request of the Scientific Authority, micro-levelling corrections were not applied.

Finally, the full International Geomagnetic Reference Field (IGRF) was calculated using the 2005 model for fixed date and altitude (2009/06/28, 919.4m), and then removed from the final levelled TMF to obtain the final residual total magnetic field (SRVMGRES).

6.4.3. Final Database

In order to comply with the GSC's sampling and channel names conventions, several modifications were made from **EON**'s work database in order to obtain the final database supplied with this report:

- All channels originally acquired and processed at 1Hz (positioning and barometric altitude) were interpolated to 10Hz, as described above in appropriate sections.
- Channel names and content were modified to the GSC's nomenclature, as specified by the Scientific Authority. **EON**'s original names are supplied in the final channel list (found in Table 5 in Section 7.5).
- All channels have been re-fidded to UTC time (channel TIME), from the original acquisition fiducial (channel FIDUCIAL).

Also note that the date channel was set to the local date of the start of flight, and that the UTC time was corrected accordingly for the passage of midnight UTC.

6.4.4. Gridded Data

Due to the amount of artefacts generated by the Geosoft minimum curvature algorithm, magnetic data were gridded by the Scientific Authority, using traverse lines only, using GSC-developed software, using a cell size of 200 meters. Final computation of the first and second vertical derivative grids were also performed by the GSC.

Maps of the final gridded data, residual magnetic field and first vertical derivative, are presented in Appendix C.

7. Final Deliverables

7.1. Compilation Specifics

- Map Scale: 1:100,000
- Projection: NAD 83, UTM Zone 8N
- Grid size: 200 meters

7.2. Final Maps

The following final maps were produced in both Geosoft .map format and PDF format and were delivered in seven (7) plotted color copies to NRCan:

- Total Magnetic Field (colour and contour interval)
- Magnetic First Vertical Derivative (colour interval)

For the purposes of map scaling and sizing, the survey area was split into seven (7) maps as shown on Figure 6 below (including NTS sheets and corresponding GSC and YGS Open File numbers):

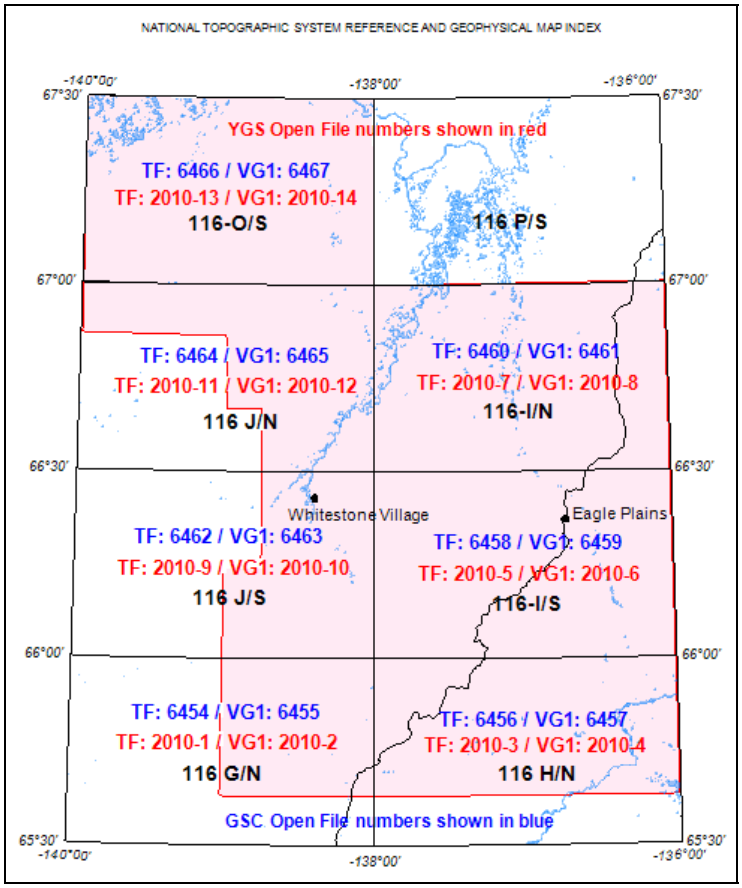


Figure 6: Eagle Plains Final Maps Index

7.3. Digital Archive Data

EON produced one (1) copy of a DVD containing the following digital archive data:

- Geosoft format digital archive of the final line data
  - Eagle_Plains_Final_10Hz_v03.gdb
  - Eagle_Plains_Final_10Hz_v03_README.rtf

- Geosoft format grid file for each of the processed parameters
  - SRVMGLEV.grd — Grid of the Total Magnetic Field
  - SRVMGRES.grd — Grid of the Residual Total Magnetic Field
  - SRVMGLEV_g1.grd — Grid of the First Vertical Derivative
  - SRVMGLEV_g2.grd — Grid of the Second Vertical Derivative
  - DEMLEV.grd — Grid of the Digital Elevation Model

- Final produced maps in Geosoft and PDF formats
  - 116_JN_TF.map
  - 116_JN_TF.pdf
  - 116_JN_VG1.map
  - 116_JN_VG1.pdf
  - 116_JS_TF.map
  - 116_JS_TF.pdf
  - 116_JS_VG1.map
  - 116_JS_VG1.pdf
  - 116_OS_TF.map
  - 116_OS_TF.pdf
  - 116_OS_VG1.map
  - 116_OS_VG1.pdf
  - 116_GN_TF.map
  - 116_GN_TF.pdf
  - 116_GN_VG1.map
  - 116_GN_VG1.pdf
  - 116_HN_TF.map
  - 116_HN_TF.pdf
  - 116_HN_VG1.map
  - 116_HN_VG1.pdf
  - 116_IN_TF.map
  - 116_IN_TF.pdf
  - 116_IN_VG1.map
  - 116_IN_VG1.pdf
  - 116_IS_TF.map
  - 116_IS_TF.pdf
  - 116_IS_VG1.map
  - 116_IS_VG1.pdf

- Final survey report in MS Word and PDF formats
  - 09001_Eagle_Plains_Final_Survey_Report.doc
  - 09001_Eagle_Plains_Final_Survey_Report.pdf

7.4. Other Products

- Printed final survey report in seven (7) copies
- Flight video DVDs (one (1) copy)

7.5. Final Database Channel Description

The following table lists the channels delivered in the final digital archive of the final line data (Geosoft database):

EON Channel Name	GSC Channel Name	Description	Format	Units	Sample Rate
Line	LINE	Line number	I10	-	0.1
tgps	TIME	GPS Time (seconds of the day, dbl prec.& rounded)	F10.2	sec	0.1
fid10	FIDUCIAL	Acquisition System time increment	F10.2	sec	0.1
lon	LONG	Longitude [NAD83]	F13.6	deg	0.1
lat	LAT	Latitude [NAD83]	F13.6	deg	0.1
x	EASTING	UTM Easting (NAD83, zone 8N)	F10.2	m	0.1
y	NORTHING	UTM Northing (NAD83, zone 8N)	F10.2	m	0.1
raltl	RALTRAW	Raw Radar Altimeter, lagged, adj. to GPS height	F10.2	m	0.1
raltlc	RALT	Edited Radar Altimeter, lagged, corrected, final	F10.2	m	0.1
baltlc	BALT	Barometric altimeter corrected for drift and lag	F10.2	m	0.1
drape	SURFACE	Ideal Surface altitude (drape)	F10.2	m	0.1
zrt	GPSALTR	Uncorrected GPS Altitude (real-time)	F10.2	m	0.1
z	GPSALT	Differentially Corrected GPS Altitude	F10.2	m	0.1
DTMo	DEMRAW	Raw digital Topography [GPSALT - RALTRAW]	F10.2	m	0.1
-(cralts+craltc)	DEMCOR	Correction applied to Raw digital Topography	F10.2	m	0.1
DTMc	DEMLEV	Levelled digital Topography [GPSALT - RALT]	F10.2	m	0.1
um3o	MAGUNCOM	Raw uncompensated, unlagged Lower Tail Mag	F10.2	nT	0.1
m3o	MAGCOM	Raw compensated, unlagged Lower Tail Mag	F10.2	nT	0.1
m3l	MAGRAW	Raw compensated, lagged Lower Tail Mag	F10.2	nT	0.1
mreslc	MAGRAWED	Compensated lagged edited for shifts pikes, L.Tail	F10.2	nT	0.1
pmigrfz	IGRFDIF	IGRF factor for drape vs gpsz difference	F10.2	nT	0.1
baseAo	DIURNRAW	Raw Basemag1	F10.2	nT	0.1
baseBo	DIUR2RAW	Raw Basemag2	F10.2	nT	0.1
baseA	DIURNAL	Basemag 1	F10.2	nT	0.1
baseB	DIURNAL2	Basemag2	F10.2	nT	0.1
drift_LF	DIURNCOR	Long-wave diurnal correction	F10.2	nT	0.1
corlvl	MAGTLCOR	Tie-line levelling corrections to mag	F10.2	nT	0.1
mreslvl	SRVMGLEV	Final tie-line levelled mag	F10.2	nT	0.1
migrfd2	IGRF	IGRF correction; Avg. alt(919.4 m) , date 2009/06/28	F10.2	nT	0.1
mreslvli	SRVMGRES	Levelled residual magnetic field	F10.2	nT	0.1
mfluxX	FLUXLONG	Longitudinal Vector Mag (fluxgate)	F10.2	nT	0.1
mfluxY	FLUXTRAN	Transverse Vector Mag (fluxgate)	F10.2	nT	0.1
mfluxZ	FLUXVERT	Vertical Vector Mag (fluxgate)	F10.2	nT	0.1
date	DATE	Local date **(YYYYMMDD)**	I10	-	0.1
flt	FLIGHT	Flight number	I10	-	0.1
tgps	tgps	GPS Time (seconds of the day, dbl prec., original)	F10.3	sec	0.1

Table 5: Final Database Channel Description

Note: SRVMGLEV = MAGRAWED-IGRFDIFF-DIURNCOR+MAGTLCOR

8. Conclusion

The data acquisition for the survey area was accomplished with a Piper Navajo aircraft, C-FEON, and a Cessna 206 aircraft, C-FTPN, with a single magnetometer installed in a tail stinger.

Once at the base of operation, about 20 weeks, from March 13th to July 21st and from September 4th to September 16th, 2009, were necessary to acquire the total of 45,717 line-kilometres of data, including tests and calibrations. Major delays were due to bad weather and aircraft maintenance problems.

Re-flights were mainly selected on the basis of flight diurnal activity, noisier TMF in turbulent conditions, drape or flight path deviations, or when partial lines in poor weather were too short. All final accepted data were within noise and diurnal specifications, the data acquired were of high quality, and final products were delivered as required by **NRCan**.

Submitted by: _____

Khaled Moussaoui
President
EON Geosciences Inc.

Appendix A – Calibration Tests Results

A.1. Figure of Merit (FOM)

EON Geosciences Inc.			
FOM Test:	**MAG3: tail stinger**	Date:	Sept 04th, 2009
Slot:	mat6.x	Flight:	73
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	Paul Beaubien	Altitude:	3045m
Processor:	Gerard Tessier	Comp:	DAARC500
Special:	**Acquired with new sensor, left alternator OFF, with 6 sec oscillatons.**		
Notes:	**12 seconds** high pass filter used to determine amplitudes.		

	MAG 3 Results	**ucomp**	**comp**	**IR**
	Total	**15.543**	**1.030**	**15.090**

North (N356)	Line	start	Fid range end	ucomp	comp	IR
Pitch	95360	94766	94783	2.386	0.102	23.392
Roll		94785	94801	1.397	0.081	17.247
Yaw		94804	94819	0.951	0.071	13.394
Total				**4.734**	**0.254**	**18.638**

West (N266)	Line	start	Fid range end	ucomp	comp	IR
Pitch	95270	94861	94880	1.385	0.127	10.906
Roll		94882	94899	1.329	0.069	19.261
Yaw		94902	94917	0.588	0.076	7.737
Total				**3.302**	**0.272**	**12.140**

South (N179)	Line	start	Fid range end	ucomp	comp	IR
Pitch	95180	94967	94985	1.048	0.116	9.034
Roll		94987	95005	1.345	0.088	15.284
Yaw		95007	95024	0.782	0.104	7.519
Total				**3.175**	**0.308**	**10.308**

East (N090-085)	Line	start	Fid range end	ucomp	comp	IR
Pitch	95090	95070	95087	2.197	0.072	30.514
Roll		95089	95106	1.394	0.059	23.627
Yaw		95109	95126	0.741	0.065	11.400
Total				**4.332**	**0.196**	**22.102**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	May 30th, 2009
Slot:	mat1.x	Flight:	42
Project:	09001	Location:	Dawson Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	Marc Richard	Altitude:	3072m
Processor:	Gerard Tessier	Comp:	DAARC500

Special: Acquired with new sensor, left alternator OFF, with 6 sec oscillatons.
Notes: **12 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	ucomp	comp	IR
Total	**13.240**	**1.167**	**11.345**

North (N358)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99360	103560	103578	2.019	0.177	11.407
Roll		103580	103597	1.449	0.049	29.571
Yaw		103599	103615	0.737	0.063	11.698
Total				**4.205**	**0.289**	**14.550**

West (N268)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99270	103656	103673	1.084	0.107	10.131
Roll		103675	103692	1.319	0.060	21.983
Yaw		103694	103712	0.568	0.105	5.410
Total				**2.971**	**0.272**	**10.923**

South (N174)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99180	103743	103760	0.589	0.112	5.259
Roll		103762	103777	1.132	0.038	29.789
Yaw		103779	103796	0.727	0.135	5.385
Total				**2.448**	**0.285**	**8.589**

East (N095)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99090	103829	103846	1.769	0.145	12.200
Roll		103847	103864	1.095	0.058	18.879
Yaw		103866	103882	0.752	0.118	6.373
Total				**3.616**	**0.321**	**11.265**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	May 19th, 2009
Slot:	mat3.x	Flight:	34
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	VincentMoreau	Altitude:	3165m
Processor:	Gerard Tessier	Comp:	DAARC500

Special: Acquired with right alternator OFF, with 6 sec oscillatons.
Notes: **12 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	ucomp	comp	IR
Total	**14.652**	**1.568**	**9.344**

North (N355)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99360	71796	71813	2.516	0.167	15.066
Roll		71814	71828	1.083	0.075	14.440
Yaw		71830	71846	0.606	0.107	5.664
Total				**4.205**	**0.349**	**12.049**

West (N267)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99270	71882	71899	1.436	0.171	8.398
Roll		71900	71913	0.886	0.123	7.203
Yaw		71914	71922	0.547	0.185	2.957
Total				**2.869**	**0.479**	**5.990**

South (N175)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99180	71979	71997	0.812	0.171	4.749
Roll		71998	72014	1.460	0.048	30.417
Yaw		72016	72035	0.781	0.168	4.649
Total				**3.053**	**0.387**	**7.889**

East (N088)	Line	start	Fid range end	ucomp	comp	IR
Pitch	99090	72069	72088	2.261	0.148	15.277
Roll		72089	72104	1.593	0.066	24.136
Yaw		72105	72122	0.671	0.139	4.827
Total				**4.525**	**0.353**	**12.819**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	April 07th, 2009
Slot:	mat7.x	Flight:	11
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Essam Hassan	Sensors:	1 tail stinger
Operator	Marc Richard	Altitude:	3096m
Processor:	Gerard Tessier	Comp:	DAARC500
Special:	**Acquired with right alternator OFF.**		
Notes:	**10 seconds** high pass filter used to determine amplitudes.		

MAG 3 Results	**ucomp**	**comp**	**IR**
Total	**17.373**	**1.403**	**12.383**

North (N357)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97360	79221	79231	2.323	0.109	21.312
Roll		79232	79242	1.234	0.082	15.049
Yaw		79243	79253	1.213	0.170	7.135
Total				**4.770**	**0.361**	**13.213**

East (N080)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97090	79300	79310	2.569	0.076	33.803
Roll		79312	79321	1.930	0.084	22.976
Yaw		79322	79330	0.962	0.106	9.075
Total				**5.461**	**0.266**	**20.530**

South (N183)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97180	79398	79407	1.087	0.062	17.532
Roll		79409	79418	1.437	0.120	11.975
Yaw		79419	79429	0.811	0.188	4.314
Total				**3.335**	**0.370**	**9.014**

West (N263)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97270	79471	79480	1.433	0.121	11.843
Roll		79481	79491	1.285	0.085	15.118
Yaw		79492	79502	1.089	0.200	5.445
Total				**3.807**	**0.406**	**9.377**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	March 22nd, 2009
Slot:	mat4.x	Flight:	2
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Essam Hassan	Sensors:	1 tail stinger
Operator	Marc Richard	Altitude:	2906m
Processor:	Gerard Tessier	Comp:	DAARC500

Notes: **10 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	ucomp	comp	IR
Total	**9.976**	**1.175**	**8.490**

North (N355)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97360	71960	71973	1.716	0.078	22.000
Roll		71974	71984	0.950	0.052	18.269
Yaw		71985	71994	0.862	0.142	6.070
Total				**3.528**	**0.272**	**12.971**

East (N090)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97090	72058	72069	1.059	0.053	19.981
Roll		72071	72081	0.919	0.049	18.755
Yaw		72082	72091	0.389	0.084	4.631
Total				**2.367**	**0.186**	**12.726**

South (N180)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97180	72170	72182	0.598	0.078	7.667
Roll		72183	72196	0.843	0.102	8.265
Yaw		72198	72207	0.308	0.145	2.124
Total				**1.749**	**0.325**	**5.382**

West (N260)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	97270	72270	72281	0.787	0.092	8.554
Roll		72282	72293	0.936	0.108	8.667
Yaw		72294	72304	0.609	0.192	3.172
Total				**2.332**	**0.392**	**5.949**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	Feb 21st, 2009
Slot:	mat3.x	Flight:	905
Project:	09001	Location:	St-Hubert Area
Client:	GSC	Aircraft:	C-FEON
Pilot:	Essam Hassan	Sensors:	1 tail stinger
Operator	Vincent Moreau	Altitude:	2888m
Processor:	Gerard Tessier	Comp:	DAARC500

Notes: **10 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	ucomp	comp	IR
Total	**12.663**	**1.444**	**8.769**

North (N355)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98360	66643	66656	2.600	0.071	36.620
Roll		66657	66666	0.953	0.068	14.015
Yaw		66667	66678	0.442	0.101	4.376
Total				**3.995**	**0.240**	**16.646**

East (N085)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98090	66732	66745	1.316	0.130	10.123
Roll		66746	66756	1.295	0.074	17.500
Yaw		66757	66768	0.473	0.106	4.462
Total				**3.084**	**0.310**	**9.948**

South (N160)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98180	66808	66819	0.216	0.154	1.403
Roll		66820	66830	1.054	0.125	8.432
Yaw		66831	66841	0.397	0.122	3.254
Total				**1.667**	**0.401**	**4.157**

West (N250)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98270	66885	66896	1.216	0.128	9.500
Roll		66897	66907	1.251	0.128	9.773
Yaw		66908	66918	1.450	0.237	6.118
Total				**3.917**	**0.493**	**7.945**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	June 26th, 2009
SOL file	**MGS9062614.cor (flt227)**	Flight:	227
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FTPN
Pilot:	Vincent Moreau	Sensors:	1 tail stinger
Operator	Charles Lambert-Slythe	Altitude:	3096m
Processor:	Gerard Tessier	Comp:	**PEIComp**

Notes: **12 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	ucomp	comp	IR
Total	**20.782**	**1.229**	**16.910**

North (N001)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99360	1824	1843	3.233	0.115	28.113
Roll		1845	1865	0.928	0.082	11.317
Yaw		1867	1889	1.805	0.159	11.352
Total				**5.966**	**0.356**	**16.758**

West (N274)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99270	1928	1951	2.512	0.108	23.259
Roll		1952	1971	1.259	0.086	14.640
Yaw		1972	1995	1.721	0.111	15.505
Total				**5.492**	**0.305**	**18.007**

South (N182)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99180	2041	2061	2.152	0.091	23.648
Roll		2062	2080	0.608	0.064	9.500
Yaw		2081	2102	1.126	0.106	10.623
Total				**3.886**	**0.261**	**14.889**

East (N094)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99090	2146	2166	3.339	0.106	31.500
Roll		2167	2186	0.463	0.095	4.874
Yaw		2187	2209	1.636	0.106	15.434
Total				**5.438**	**0.307**	**17.713**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	May 7th, 2009
SOL file	**MGS9050721.cor (flt208)**	Flight:	208
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FTPN
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	Marc Richard	Altitude:	2960m
Processor:	Gerard Tessier	Comp:	**PEIComp**

Notes: **12 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	**ucomp**	**comp**	**IR**
Total	**33.321**	**1.348**	**24.719**

North (N355)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99360	3334	3351	3.949	0.094	42.011
Roll		3352	3369	2.178	0.079	27.570
Yaw		3371	3389	3.839	0.167	22.988
Total				**9.966**	**0.340**	**29.312**

West (N273)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99270	3438	3455	3.423	0.121	28.289
Roll		3456	3473	2.431	0.115	21.139
Yaw		3475	3492	3.718	0.149	24.953
Total				**9.572**	**0.385**	**24.862**

South (N184)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99180	3543	3561	2.768	0.101	27.406
Roll		3562	3581	1.407	0.098	14.357
Yaw		3582	3600	2.841	0.095	29.905
Total				**7.016**	**0.294**	**23.864**

East (N093)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99090	3657	3677	3.590	0.133	26.992
Roll		3678	3695	1.331	0.094	14.160
Yaw		3697	3713	1.846	0.102	18.098
Total				**6.767**	**0.329**	**20.568**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	Apr 29th, 2009
SOL file	**MGS9043002.cor (flt201)**	Flight:	201
Project:	09001	Location:	Eagle Plains Area
Client:	GSC	Aircraft:	C-FTPN
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	Marc Richard	Altitude:	3037m
Processor:	Gerard Tessier	Comp:	**PEIComp**

Notes: **10 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	**ucomp**	**comp**	**IR**
Total	**18.044**	**0.691**	**26.113**

North (N003)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99360	2094	2104	2.887	0.080	36.088
Roll		2105	2115	1.661	0.037	44.892
Yaw		2116	2122	0.694	0.050	13.880
Total				**5.242**	**0.167**	**31.389**

West (N272)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99270	2165	2175	2.310	0.069	33.478
Roll		2176	2186	2.123	0.033	64.333
Yaw		2187	2199	0.807	0.089	9.067
Total				**5.240**	**0.191**	**27.435**

South (N183)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99180	2235	2245	1.835	0.030	61.167
Roll		2246	2255	1.072	0.061	17.574
Yaw		2256	2267	0.344	0.060	5.733
Total				**3.251**	**0.151**	**21.530**

East (N090)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	99090	2304	2315	2.814	0.077	36.545
Roll		2316	2326	0.993	0.043	23.093
Yaw		2327	2340	0.504	0.062	8.129
Total				**4.311**	**0.182**	**23.687**

EON Geosciences Inc.

FOM Test:	**MAG3: tail stinger**	Date:	Feb 28th, 2009
SOL file	**MGS9022819.cor (flt803)**	Flight:	803
Project:	09001 & 09003	Location:	St-Hubert area
Client:	GSC	Aircraft:	C-FTPN
Pilot:	Dany Lanthier	Sensors:	1 tail stinger
Operator	Vincent Moreau	Altitude:	2861m
Processor:	Khaled Moussaoui	Comp:	**PEIComp**

Notes: **10 seconds** high pass filter used to determine amplitudes.

MAG 3 Results	**ucomp**	**comp**	**IR**
Total	**10.508**	**1.151**	**9.129**

South (N173)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98180	2816	2831	0.352	0.160	2.200
Roll		2832	2842	0.790	0.059	13.390
Yaw		2843	2853	0.244	0.055	4.436
Total				**1.386**	**0.274**	**5.058**

East (N087)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98090	2884	2898	1.066	0.174	6.126
Roll		2899	2909	0.517	0.056	9.232
Yaw		2910	2920	0.382	0.031	12.323
Total				**1.965**	**0.261**	**7.529**

North (N354)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98360	2952	2967	2.271	0.168	13.518
Roll		2968	2978	0.728	0.028	26.000
Yaw		2980	2989	0.156	0.058	2.690
Total				**3.155**	**0.254**	**12.421**

West (N272)	Line	Fid range start	Fid range end	ucomp	comp	IR
Pitch	98270	3015	3029	1.559	0.183	8.519
Roll		3030	3041	1.695	0.087	19.483
Yaw		3042	3053	0.748	0.092	8.130
Total				**4.002**	**0.362**	**11.055**

A.2. Altimeter Calibration

ALT TEST (CYMX, Mirabel)

Project: 09001
Location: Eagle Plains
Date: 28-Feb-09

Flight: 910
Aircraft: C-FEON
Configuration: 1 sensor (tail)

Airport alt (m): 72.5

Antena Height (m): 2.5

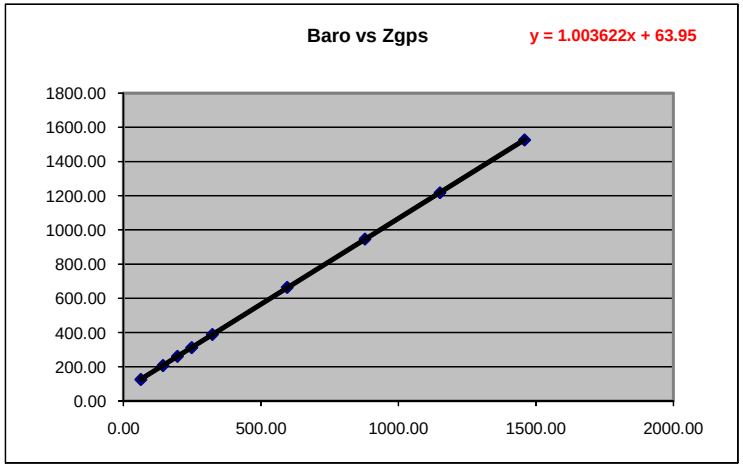
terrain clearance (ft)	zgps (meter)	radar(m)	baro(m)
200	125.80	48.28	62.97
400	206.90	131.25	143.87
600	261.10	186.95	195.94
800	312.40	239.36	248.37
1000	389.20	314.93	323.31
2000	664.20	589.75	595.23
3000	946.80	871.03	877.94
4000	1218.60	1143.91	1151.10
5000	1526.70	1451.25	1459.07

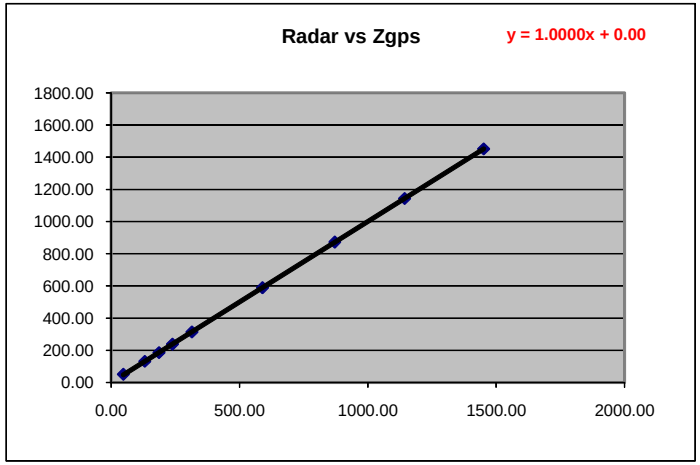
Baro vs Zgps

baro(m)	zgps (m)
62.97	125.80
143.87	206.90
195.94	261.10
248.37	312.40
323.31	389.20
595.23	664.20
877.94	946.80
1151.10	1218.60
1459.07	1526.70

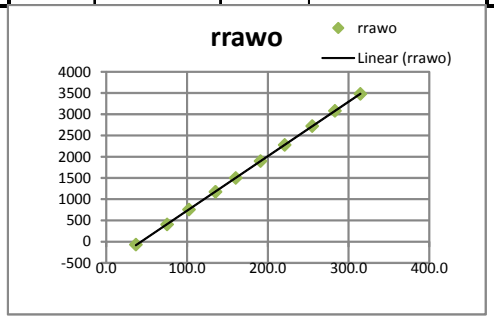
Radar vs Zgps

radar(m)	Z-Airport alt(m)
48.28	50.80
131.25	131.90
186.95	186.10
239.36	237.40
314.93	314.20
589.75	589.20
871.03	871.80
1143.91	1143.60
1451.25	1451.70





C-FTPN Feb 25th 2009			Altimeter calibration(Radar B, low-alt)							St-Hubert	RunwayH	27.4 mMSL		St-Hubert, CYHU, 90', 27.4m		
EON Geosciences Inc			Aircraft: C-FTPN							CYHU	AntH	1.5 m		Aircraft C-FTPN		
		Units	mMSL	uV	m	m	mMSL	mbar	C	mMSL	mMSL	mMSL	m	Constants and formulaes below are valid under 11000m		
Line		fid range	z	rrawAo	raltAo	*raltAerr*	DTM	PrawBo	TrawBo	bstpBo	brawBo	baltBo	*baltBerr*	**Baro**	**Constants (sea level)**	**units**
90000	4066.0	4105.0	28.4	20052	1574.5	*1575.0*	-1547.6	1026.5	-0.5	-111.5	-103.7	8.9	*-19.5*	8314.32	**R** - Universal Gas Constant	kmol-1
90100	4713.0	4731.0	36.7	-70	8.9	*1.1*	26.3	1023.0	-0.4	-82.2	-76.5	36.1	*-0.6*	273.15	**T** - Celsius zero in Kelvin	K
90200	5132.0	5147.0	75.4	406	45.9	*-0.6*	28.0	1017.4	-0.6	-35.1	-32.6	80.0	*4.6*	28.96442	**M** - Molecular Weight of Air	kg*kmol-1
90300	5467.0	5483.0	102.5	757	73.3	*-0.3*	27.7	1013.6	-0.7	-3.0	-2.8	109.8	*7.3*	9.80665	**g** - acceleration of gravity	m*s-2
90400	5641.0	5658.0	135.2	1174	105.7	*-0.6*	28.0	1010.2	-0.7	25.9	24.0	136.6	*1.4*	0.00	**H** - Datum Height	m
90500	5901.0	5917.0	160.2	1501	131.1	*-0.2*	27.6	1006.7	-0.7	55.6	51.7	164.3	*4.1*	1013.25	**P** - Datum Pressure	mbar
90600	6155.0	6172.0	190.9	1899	162.1	*0.1*	27.3	1003.1	-0.7	86.4	80.3	192.9	*2.0*	20.00	**st** - Standard Temperature	Celsius
90700	6503.0	6520.0	220.8	2281	191.8	*-0.1*	27.5	999.4	-0.6	118.1	109.8	222.4	*1.6*			
90800	6880.0	6899.0	254.8	2724	226.3	*0.4*	27.0	995.8	-0.4	149.1	138.7	251.3	*-3.5*	Formula for **MSL** baro altitude from pressure and temperature		
90900	7179.0	7201.0	283.0	3084	254.3	*0.2*	27.2	993.1	-0.4	172.4	160.4	272.9	*-10.1*	brawBo= **H** + (**R***(TrawBo+**T**)/**M***g)*ln(**P**/PrawBo)		
91000	7374.0	7395.0	314.4	3484	285.4	*-0.1*	27.5	988.8	-0.3	209.6	195.1	307.7	*-6.7*	Formula for **STP** baro altitude from pressure and STP temperature		
														bstpBo= **H** + (**R***(**st**+**T**)/**M***g)*ln(**P**/PrawBo)		
	Statistics					***0.0***	**27.4**						***0.0***			
	Calibrations		**raltAo**	a	b						**baltBo**	a	b			
			linest	0.0778071770	43.25						linest	1.0425960	109.81			
			used	**0.0778071770**	**14.35**						**used**	**1.0000000**	**112.57**			



A.3. Heading (Bourget) Test

AREOMAGNETIC SENSOR CALIBRATION
BOURGET RANGE, ONTARIO

Project:	09001 (GSC)	Calibration for:	Sensor M3 (tail stinger)
Aircraft:	C-FEON (Navajo)	**Date:**	24/02/2009
Company:	EON Geosciences Inc.	**Nominal Height:**	500'
Sensor:	Geometrics G-822a	**Sampling Rate:**	10 Hz
Magnetomer:	RMS DAARC500 Compensator	**Compiled by:**	Gerard Tessier

Flight Heading above crossroad	Line number	Time (UTC) above crossroad	Total Field (nT) recorded above crossroad T1	Total Field (nT) recorded at Observatory T4	Radar AGL (m) recorded above crossroad	TF Obs-Aircraft difference (nT) C	Expected TF (nT) at Radar Alt T5=T4-C	Total Field (nT) Error T6=T1-T5
NORTH (1/2)	99361	21:27:55.45	54610.672	55167.000	137.60	556.583	54610.417	0.255
SOUTH (1/2)	99181	21:18:26.15	54611.184	55168.145	142.80	556.378	54611.767	-0.583
EAST (1/2)	99091	21:23:18.15	54611.023	55167.660	144.40	556.315	54611.345	-0.322
WEST (1/2)	99271	21:32:55.55	54610.660	55166.609	144.70	556.303	54610.306	0.354
NORTH (1/2)	99362	21:47:07.25	54611.824	55166.699	162.30	555.610	54611.089	0.735
SOUTH (1/2)	99182	21:38:05.65	54612.121	55168.227	156.30	555.846	54612.381	-0.260
EAST (1/2)	99092	21:42:52.65	54612.000	55167.336	173.20	555.181	54612.155	-0.155
WEST (1/2)	99272	21:52:10.25	54610.816	55166.367	154.70	555.909	54610.458	0.358

Test Point Info	Datum:	Nominal	Effective	Notes:
	WGS-84 UTM Z18N	X=490084 Y=5032245	X=490102 Y=5032247	

C is the Total Field difference between the Blackburn Observatory and the radar height above the crossroad

Radar AGL (feet)	Radar AGL (m)	C value (nT)	C factors [C=(a*radar)+b]	
500	152.4	556	a	b
1000	304.8	550	-0.039370079	562

Total error (nT): 0.383
Average error (nT): 0.048
Average N-S heading error (nT): 0.916
Average E-W heading error (nT): -0.595

AREOMAGNETIC SENSOR CALIBRATION
BOURGET RANGE, ONTARIO

Project:	09003 (GSC)	Calibration for:	Sensor M3 (tail stinger)
Aircraft:	C-FTPN (Cessna 206)	**Date:**	01/03/2009
Company:	EON Geosciences Inc.	**Nominal Height:**	1000'
Sensor:	Scintrex CS-3	**Sampling Rate:**	10 Hz
Magnetomer:	PEI-AGIS Compensator	**Compiled by:**	Khaled Moussaoui

Flight Heading above crossroad	Line number	Time (UTC) above crossroad	Total Field (nT) recorded above crossroad T1	Total Field (nT) recorded at Observatory T4	Radar AGL (m) recorded above crossroad	TF Obs-Aircraft difference (nT) C	Expected TF (nT) at Radar Alt T5=T4-C	Total Field (nT) Error T6=T1-T5
NORTH (1/2)	99361	19:15:34.00	54606.836	55156.273	311.10	549.752	54606.521	0.315
SOUTH (1/2)	99181	19:06:32.70	54604.008	55155.301	316.00	549.559	54605.742	-1.734
EAST (1/2)	99091	19:11:07.00	54604.832	55156.289	316.70	549.531	54606.758	-1.926
WEST (1/2)	99271	19:02:26.50	54603.820	55154.301	313.00	549.677	54604.624	-0.804
NORTH (1/2)	99362	19:29:23.60	54608.695	55157.980	318.60	549.457	54608.523	0.172
SOUTH (1/2)	99182	19:22:16.20	54605.672	55157.602	306.00	549.953	54607.649	-1.977
EAST (1/2)	99092	19:25:56.00	54605.898	55157.691	313.20	549.669	54608.022	-2.124
WEST (1/2)	99272	19:18:54.00	54606.359	55156.750	311.50	549.736	54607.014	-0.655
Test Point Info	**Datum:** WGS-84 UTM Z18N	**Nominal** X=490072 Y=5032242	**Effective** X=490073 Y=5032223	**Notes:**				

C is the Total Field difference between the Blackburn Observatory and the radar height above the crossroad

Radar AGL (feet)	Radar AGL (m)	C value (nT)	C factors [C=(a*radar)+b]	
			a	b
500	152.4	556		
1000	304.8	550	-0.039370079	562

Total error (nT): -8.732
Average error (nT): -1.092
Average N-S heading error (nT): 2.099
Average E-W heading error (nT): -1.295

A.4. Lag Test

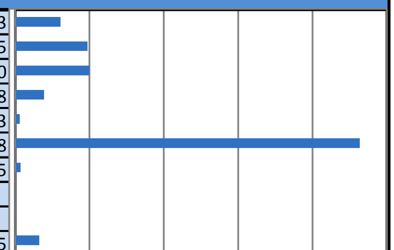
	MAG 3	C-FEON	MTL area	Feb 28th 2009		Lag Test					**av lag**
	EON Geosciences Inc.										**0.67**
Flag	Line	Fid	UTC	X	Y	Z	m3o	vx	vy		
1	88001	56971.40	15:49:31	619781.7	5056936.0	191.2	55493.227	17.0	64.5		
2	88002	57250.80	15:54:11	619759.4	5056846.5	192.8	55533.363	-22.5	-66.0		
				22.3	89.5			66.7	**v**		
			dist	**92.2**				69.7	**68.2**	**lag**	**0.68**
Flag	Line	Fid	UTC	X	Y	Z	m3o	vx	vy		
3	88003	57438.60	15:57:19	619780.3	5056930.5	212.3	55014.594	9.8	65.3		
4	88004	57717.90	16:01:58	619775.8	5056839.0	211.9	55005.328	-17.4	-69.0		
				4.5	91.5			66.0	**v**		
			dist	**91.6**				71.2	**68.6**	**lag**	**0.67**
Flag	Line	Fid	UTC	X	Y	Z					
1	88001	56970.75	15:49:31	619770.6	5056894.0	191.5	**lag app:**	**0.65**			
2	88002	57250.20	15:54:10	619772.8	5056886.5	191.5					
3	88003	57438.00	15:57:18	619774.4	5056891.0	212.2					
4	88004	57717.25	16:01:57	619787.0	5056884.0	211.8					

	MAG 3	C-FTPN	Bourget	Mar 1st 2009		Lag Test					**av lag**
	EON Geosciences Inc.										**0.09**
Flag	Line	Fid	UTC	X	Y	Z	m3o	vx	vy		
88001	88001	4652.10	19:31:06.10	491665.2	5033032.0	97.8	54656.059	53.9	-31.9		
88002	88002	4729.50	19:32:23.50	491657.6	5033040.0	108.6	54641.410	-54.0	31.5		
				7.6	-8.0			62.6	**v**		
			dist	**11.0**				62.5	**62.6**	**lag**	**0.09**
Flag	Line	Fid	UTC	X	Y	Z	m3o	vx	vy		
88003	88003	4822.70	19:33:56.70	491661.0	5033029.5	95.8	54657.137	58.5	-35.0		
88004	88004	4903.40	19:35:17.40	491654.3	5033039.0	87.7	54690.738	-55.6	31.8		
				6.7	-9.5			68.2	**v**		
			dist	**11.6**				64.1	**66.1**	**lag**	**0.09**
Flag	Line	Fid	UTC	X	Y	Z					
88001	88001	4652.10	19:31:06.10	491665.2	5033032.0	97.8	**lag app:**	**0.05**			
88002	88002	4729.40	19:32:23.40	491663.0	5033036.5	108.5					
88003	88003	4822.70	19:33:56.70	491661.0	5033029.5	95.8					
88004	88004	4903.30	19:35:17.30	491659.8	5033036.0	87.7					

Appendix B – Daily Operational Report

EON GEOSCIENCES INC.	EON GEOSCIENCES INC Daily report (C-FEON sheet 1/2)			6500 Transcanadienne, bureau 120, St-Laurent QC, Canada H4T 1X4 Tel: +1-514-341-3366, Cell: +1-514-651-6391, Fax: +1-514-341-5366 info@eongeosciences.com
Aircraft	**Projects**	**Area & Client**	**Crew chiefs:**	Gerard Tessier
Code: C-FEON	09001a-EON	Eagle Plains, GSC, C-FEON	**Pilots:**	Essam Hadi, Eric Michot, Dany Lanthier
Type: Navajo Piper	09001a-TPN	Eagle Plains, GSC, C-FTPN	**Engineers:**	(Aeropro personnel, under Brucelandair clearance)
FBO: Brucelandair			**Operators:**	Marc Richard, Eric Michot, Vincent Moreau, Paul Beaubien
Inst: Tail Mag			**Processors:**	Gerard Tessier, Olivier Boulanger

Project / Aircraft / Planned Kms	09001a EON	09001a TPN			Total Project	C-FEON Activity Histogram	
Planned Kms	45442.98	45442.98					
Total flown Kms	27811.71	22686.92			50498.63	Set-up (SE)	12.3
Total accepted Kms	23460.42	21982.56			45442.98	Production (P)	19.5
Total survey hours	116.40	108.80			225.20	Maintenance (M)	20.0
Total test-training hours	17.00	4.40			21.40	Electronics (E)	7.8
Total ferry hours	154.40	93.30			247.70	Diurnals (D)	1.3
Total aircraft hours	287.80	205.00			492.80	Weather (W)	92.8
Total aircraft days	161.50	96.75			258.25	Training (TR)	1.5
Average kms/day (total)	145.27	227.21			175.97	Safety (SAF)	
Average kms/hour (survey)	201.55	202.05			201.79	Crew (CR)	
Project Completion	51.6%	48.4%			100.0%	Other (X)	6.5



Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				Comments
21-Feb-09	09001a	EON	905	eh,em,vm	0.6	0.7		1.3					SE		**PM**: Compboxes SOL & FOM acquired, OK.
24-Feb-09	09001a	EON	907	eh,em,vm	1.9	0.6		2.5						SE	**PM**: Bourget test acquired, OK.
28-Feb-09	09001a	EON	909	eh,em,vm	0.5	0.4		0.9				SE		SE	**AM**: Lag test acquired, OK. **PM**: Altimeter calibration acquired (St-Hubert), OK.
	09001a	EON	910	eh,em,vm	0.7	1.5		2.2							
3-Mar-09	09001a	EON		eh,em	3.0			3.0			SE	TR	TR	TR	**AM**: C-FEON MTL-Wiarton. Stop for required training.
4-Mar-09	09001a	EON									TR	TR	TR	W	Tessier & Richard to Whitehorse, truck & batteries picked-up. C-FEON blocked in Wiarton for weather.
5-Mar-09	09001a	EON									W	W	W	W	Tessier & Richard to Dawson by road. C-FEON blocked in Wiarton for weather.
6-Mar-09	09001a	EON									W	W	W	W	C-FEON & equipment blocked in Wiarton for weather.
7-Mar-09	09001a	EON		eh,em	3.5			3.5			SE	SE	SE	M	C-FEON Wiarton to Thunder Bay, to Brandon. Problem with right starter, next leg to Saskatoon cancelled.
8-Mar-09	09001a	EON									M	M	M	M	Starter replacement made in Brandon late PM.
9-Mar-09	09001a	EON		eh,em	6.5			6.5			M	SE	SE	SE	Run-up on C-FEON. C-FEON Brandon to Edmonton, to Fort Nelson. Alternator fails during last leg.
10-Mar-09	09001a	EON									M	M	M	M	Alternator repair & other maintenance on C-FEON.
11-Mar-09	09001a	EON		eh,em	3.5			3.5			SE	SE	SE	SE	C-FEON Fort Nelson to Dawson. Set-up at airport.
12-Mar-09	09001a	EON									SE	SE	SE	SE	Mobilisation to Eagle Plains base.
13-Mar-09	09001a	EON									SE	SE	SE	SE	Installation of GPS, mag A and mag B bases at Eagle Plains base, in test. Field office set up.
14-Mar-09	09001a	EON									X	X	X	X	Truck repair delays operator return to Dawson.
15-Mar-09	09001a	EON									SE	SE	SE	SE	Operator returns to Dawson. Bases tested OK.
16-Mar-09	09001a	EON									W	W	W	W	IFR ceilngs 6000-12000' prevent FOM, blowing snow.
17-Mar-09	09001a	EON				0.5		0.5			W	W	W	E	IFR ceilings until late PM. Repairs on sat-tracking system. Ground tests, 1 short test flight.
18-Mar-09	09001a	EON									W	W	W	W	IFR ceilings 4000-14000' prevent FOM, blowing snow.
19-Mar-09	09001a	EON									W	W	W	W	-35 AM, ceilngs and blowing snow.
20-Mar-09	09001a	EON	001	eh,em,mr	0.9	0.5		1.4			W	W	SE	W	**AM**: temp <-30. **PM**: compensation SOL-FOM OK, but on wrong headings, 91 km S of block due to weather.
21-Mar-09	09001a	EON									W	W	W	W	IFR ceilings in Dawson all day.
22-Mar-09	09001a	EON	002	eh,em,mr	1.9	1.0		2.9			W	SE	SE	SE	**AM**: temp <-30, IFR locally. **Late AM**: compensation SOL-FOM OK, 53 km west of Eagle Plains.
23-Mar-09	09001a	EON									M	M	M	M	**Mid AM**: flight cancelled due to problem with right oil gauge (no pressure). Getting maintenance info.
24-Mar-09	09001a	EON									M	M	M	M	Oil pressure gauge problem diagnosed, repaired & tested. Occ active diurnals early AM.
25-Mar-09	09001a	EON									W	W	W	W	IFR ceilings in Dawson all day. Bit unsettled diurnals.

Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
26-Mar-09	09001a	EON									W	W	W	W	IFR ceilings & icing in Dawson. IFR & snow in Eagle Plains by late AM. Occ active/marginal diurnals AM.
27-Mar-09	09001a	EON									W	W	W	W	**AM**: Low ceilings/fog in Dawson AM, snow & blo-wing snow in Eagle Plains. Freq marginal diurnals.
28-Mar-09	09001a	EON	003	eh,em,mr	1.6			1.6			W	W	W	W	**AM**: Wait ceilings/fog. **Mid-AM**: flt003, abort at block, ceilings 300-600m above drape & fog (no prod).
29-Mar-09	09001a	EON									W	W	W	W	IFR ceilings in Dawson all day.
30-Mar-09	09001a	EON	004	eh,em,mr	1.1			1.1			W	W	W	W	**AM**: IFR ceilings & snow in Dawson **PM**: flt004, abort 60km S of block, poor visibility in snow (no prod).
31-Mar-09	09001a	EON	005	eh,em,mr	1.6		2.2	3.8	562.16		W	P	P	E	**AM**: wait Dawson IFR. **Mid-AM**: flt005, 1st AGNAV lines for pilots, aborted earlier for fuel availibility. All flight scrub for drape & frequent mag noise.
1-Apr-09	09001a	EON									E	W	E	W	IFR & fog in Dawson prevents flight testing for mag.
2-Apr-09	09001a	EON	006	eh,em,mr	0.4	0.3		0.7			W	E	E	E	**Mid-AM**: flt006, local test for mag noise. Rules about use of flaps, pumps & heater to be tested on-line.
3-Apr-09	09001a	EON	007	eh,em,mr	2.1		1.2	3.3	284.30		E	P	E	P	**AM**: flt007 & flt008, survey flights to test drape (good improvement & getting OK) and mag noise (still pre-sent, with poor correlation with flt006 test, scrub).
	09001a	EON	008	eh,em,mr	1.5		1.1	2.6	284.16						
4-Apr-09	09001a	EON									E	W	E	W	IFR in Dawson prevents testing. Ground check made.
5-Apr-09	09001a	EON	009	eh,em,mr	0.3	1.9		2.2			E	E	E	E	**Mid-AM**: flt009, more local tests for mag noise. Analysis possibly pinpoints right alternator.
6-Apr-09	09001a	EON	010	eh,em,mr	0.4			0.4			M	M	M	W	**AM**: getting clearance to survey with one alternator. **Late-PM**: flt010, SOL-FOM attempt, aborted for IFR.
7-Apr-09	09001a	EON	011	eh,em,mr	1.6	0.6		2.2			W	W	SE	X	**AM**: fog/IFR in Dawson **PM**: compensation SOL-FOM OK, at SW corner of block, with left alternator only.
8-Apr-09	09001a	EON									W	W	W	W	IFR conditions observed/expected in Dawson all day.
9-Apr-09	09001a	EON									W	D	W	W	IFR, fog, snow in Dawson. Stormy diurnals AM.
10-Apr-09	09001a	EON	012	eh,em,mr	1.4		2.3	3.7	567.10	282.80	D	P	P	X	**AM**: active diurnals. **Late AM**: flt012, shorter for fuel reserves, stormy diurnals, 2L scrub. FP & drape occ marginal. **PM**: refuel service closed.
11-Apr-09	09001a	EON	013	eh,em,mr	0.5			0.5			D	D	W	W	**AM**: stormy/active diurnals. **Mid-PM**: flt013, aborted soon for ceilings met just north of Dawson.
12-Apr-09	09001a	EON	014	eh,em,mr	1.8		2.8	4.6	706.36	706.36	W	P	P	X	**AM**: fog in Dawson. **Late-AM**: flt014, shorter for fuel reserves. Unsettled diurnals. FP & drape OK. **PM**: refuel service closed.
13-Apr-09	09001a	EON									W	W	W	W	**AM**: ground fog and incoming ceilings & showers. Preliminary data for flt012 & flt014 delivered via FTP.
14-Apr-09	09001a	EON	015	eh,em,mr	1.7		3.0	4.7	705.43	705.43	W	P	P	W	**AM**: delay weather. **Mid-AM**: flt015, very turbulent, mag occ noisier. **PM**: No 2nd flight for turbulence level.
15-Apr-09	09001a	EON	016	eh,em,mr	1.3			1.3			W	W	W	W	**AM**: wait for snow & IFR system to clear up. **PM**: flt016, aborted 50 km S of block in poor visibility.
16-Apr-09	09001a	EON									W	W	W	W	IFR ceilings with expected snow/rain in between Dawson and block. Occ active diurnals until late-AM.
17-Apr-09	09001a	EON									W	W	W	W	IFR, fog & snow in Dawson, then in Eagle Plains by late AM, with low visibility. Unsettled diurnals AM.
18-Apr-09	09001a	EON									W	W	W	W	Low ceilings, snow & low visibility in block area. Some intervals with very unsettled diurnals.
19-Apr-09	09001a	EON									W	W	W	W	Low ceilings, snow & low visibility in block area.
20-Apr-09	09001a	EON	017	eh,em,mr	2.3		3.0	5.3	698.28	698.28	W	P	P	X	**AM**: snow & IFR. **Mid-AM**: flt017, very windy at W end, delay to find non-IFR lines. **PM**: no fuel service.
21-Apr-09	09001a	EON	018	eh,em,mr	2.0		2.9	4.9	561.10	561.10	P	P	P	P	**AM**: flt018, windy, drape occ marginal. **Late-PM**: flt019. All Ls partial & in 4 different zones for IFR cei-lings south and at east end of the block. 1L scrub.
	09001a	EON	019	eh,em,mr	1.6		2.4	4.0	495.90	376.30					
22-Apr-09	09001a	EON									W	W	M	M	**AM**: IFR ceilings in block. **PM**: C-FEON inspection begins in Dawson. O.Boulanger mob to Eagle Plains.
23-Apr-09	09001a	EON									M	M	M	M	C-FEON's inspection in progress.
24-Apr-09	09001a	EON									W	W	W	W	Strong winds & low ceilings in block area. C-FEON's inspection on hold for parts, airfraft serviceable.
25-Apr-09	09001a	EON	020	eh,em,mr	2.4			2.4			W	W	W	W	**AM**: IFR & snow. **Late-AM**: flt020, aborted at block center for snow & heavy turbulences in 30 knt wind. Eric Michot demob, C-FEON crew: E.Hadi, V.Moreau.
26-Apr-09	09001a	EON	021	eh,vm	1.5		3.5	5.0	846.17	846.17	P	P	W	W	**AM**: flt021, turbulent in warm weather, freq noisier mag. **PM**: no 2nd flight due to turbulences.
27-Apr-09	09001a	EON	022	eh,vm	1.5		2.2	3.7	567.86	567.86	P	P	P	P	**AM**: flt022, turbulent, drape occ marginal. **PM**: flt023, turbulent, drape occ marginal.
	09001a	EON	023	eh,vm	1.7		1.6	3.3	425.50	425.50					
28-Apr-09	09001a	EON	024	eh,vm	1.4		3.3	4.7	849.99	849.99	P	P	M	M	**AM**: flt024, locally turbulent, marginal drape on 2L. **PM**: crack found on right wheel rim, waiting for parts.
29-Apr-09	09001a	EON									M	M	M	M	Waiting for parts.

Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
30-Apr-09	09001a	EON									M	M	M	M	Waiting for parts.
1-May-09	09001a	EON									M	M	M	M	Waiting for parts.
2-May-09	09001a	EON									M	M	W	W	**AM**: wheel rim replaced. **PM**: winds & turbulence.
3-May-09	09001a	EON	025	eh,vm	1.9			1.9			W	W	W	W	**Late-AM**: flight attempt aborted for low ceilings.
4-May-09	09001a	EON	026	eh,vm	2.0		1.6	3.6	390.92	390.92	P	W	W	E	**AM**: flt026, abort earlier for TURBs, occ noisier mag. 2 partial Ls for ceilings west. **Late-PM**: stinger removed for verification before new SOL-FOM.
5-May-09	09001a	EON									E	E	M	M	**AM**: stinger re-installed & re-mounted. **PM**: electrical installation checked, left alternator isolation improved.
6-May-09	09001a	EON									W	W	W	W	Low ceilings, rain, icing, low visibility.
7-May-09	09001a	EON	027	eh,vm	0.4	1.7		2.1			SE	W	W	W	**AM**: SOL-FOM (6sec osc) tests, Dawson area, OK. **PM**: weather in ferry area prevents in-block FOM.
8-May-09	09001a	EON									W	W	W	W	IFR ceilings in block area. G. Tessier leaves Eagle Plains, for a personnal emergency.
9-May-09	09001a	EON									W	W	W	W	IFR ceilings, rain, icing in block area.
10-May-09	09001a	EON									W	W	W	W	Snow (10cm in Eagle plains) until late-PM, IFR ceilings.
11-May-09	09001a	EON									W	W	W	W	IFR ceilings, snow in block area.
12-May-09	09001a	EON	028	eh,vm	1.9	0.5		2.4			W	W	SE	X	**AM**: IFR ceilings. **PM**: SOL-FOM (6sec osc), SW cor-ner of block, left alternator only, survey test required.
13-May-09	09001a	EON									W	W	W	W	IFR ceilings, rain and/or snow.
14-May-09	09001a	EON	029	eh,vm	2.0		1.6	3.6	416.49	277.70	W	P	W	W	**AM**: IFR ceilings, winds. **Mid-AM**: flt029, early stop for TURBs, L910 reflown as repeat test. Occ noisier mag. **PM**: IFR ceilings (Dawson), turbulences in-block.
15-May-09	09001a	EON	030	eh,vm	1.7		2.2	3.9	558.29	558.29	W	W	W	P	**AM**: IFR celings, snow. **Late-PM**: flt030, very turbu-lent, freq noisier mag. New SOL-FOM planned.
16-May-09	09001a	EON	031	eh,vm	2.0			2.0			W	W	M	M	**AM**: IFR ceilings, TURBs. **PM**: flt031, SOL-FOM at-tempt aborted for fuel gauge leak, in maintenance.
17-May-09	09001a	EON	032	eh,vm,mr	2.1	1.1		3.2			M	M	M	SE	**AM**: repairs. **PM**: flt032, SOL-FOM, left alternator only, at Eagle Plains, rejected (SOL osc 3-4sec).
18-May-09	09001a	EON	033	dl,mr	1.9	1.1		3.0			X	X	SE	X	**AM**: FOM eval. **PM**: flt033, SOL-FOM, left alternator only, S-center of block, rejected (3-4sec SOL & FOM). Client inspection, Frank Kiss arrives in Dawson.
19-May-09	09001a	EON	034	dl,vm	1.6	1.8		3.4			X	X	SE	W	**AM:** FOM eval. **PM:** flt034, SOL-FOM (6sec osc), left alternator only, S-center of block, to be survey tested.
20-May-09	09001a	EON	035	dl,vm	1.4			1.4			W	W	W	E	**AM**: winds. **Late-PM**: flt035, aborted for NAV dis-play problems with AGNAV upgrade, no production.
21-May-09	09001a	EON	036	dl,vm,mr	2.5			2.5			E	E	P	P	**AM**: flt036, defective AGNAV upgrade drape, no pro-duction. Backup baseB removed. **Late-PM**: flt037, occ TURBs. Client insp, Frank Kiss leaves Dawson.
	09001a	EON	037	dl,vm	1.8		3.4	5.2	836.02	836.02					
22-May-09	09001a	EON									W	W	W	W	Winds & turbulences in block area.
23-May-09	09001a	EON									W	W	W	W	Winds & turbulences in block area.
24-May-09	09001a	EON	038	dl,vm	1.9		3.9	5.8	979.70	979.70	W	W	P	P	**AM**: winds & TURBs. **Late-PM**: flt038, turbulent, lo-cally noisier mag on 4 first lines.
25-May-09	09001a	EON	039	dl,vm	1.5		3.4	4.9	841.89	841.89	W	X	P	P	**AM**: TURBs & fuel availibility. **Late-PM**: flt039, moderate TURBs on 1st half.
26-May-09	09001a	EON									W	W	W	W	Turbulences in block area.
27-May-09	09001a	EON	040	dl,vm	4.3			4.3			E	E	E	E	**AM**: flt040, early stop for weather, 4L scrub & unusa-ble due to new problem with raw/comp mag data.
28-May-09	09001a	EON									E	E	E	E	Aircraft installation re-verified. Fluxgate ground tested. New mag sensor installed.
29-May-09	09001a	EON	041	dl,mr	0.3	1.0		1.3			M	M	E	E	**AM**: right alternator changed. **PM**: local flight test, best result obtained with right alternator only.
30-May-09	09001a	EON	042	dl,mr	0.5	0.9		1.4			W	W	W	SE	**AM**: IFR ceilings in Dawson area. **Late-PM**: flt042, SOL-FOM (6sec osc), right alternator only, Dawson area, OK. To be tested in survey.
31-May-09	09001a	EON									X	X	W	W	**AM**: SOL-FOM evaluation. **PM**: high winds.
1-Jun-09	09001a	EON	043	dl,mr	1.8		2.6	4.4	696.21	696.21	P	P	W	W	**AM**: flt043, earlier stop for increasing turbulences. **PM**: local weather.
2-Jun-09	09001a	EON	044	dl,mr	0.8		2.0	2.8	340.16	281.76	D	P	W	W	**AM**: active diurnals. Pick-up new operator Paul Beau-bien. **PM**: flt044, early stop for weather, 1 part L scrub. Demob of Marc Richard.
3-Jun-09	09001a	EON									W	W	W	W	Strong winds in block area.
4-Jun-09	09001a	EON									W	W	W	W	Strong winds in block area.
5-Jun-09	09001a	EON									W	W	W	W	Strong winds in block area. Backup baseB re-installed.

Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
6-Jun-09	09001a	EON	045	dl,pb	0.2			0.2			W	W	W	W	**AM**: flt045, abort for local ceilings, no production. **PM**: IFR ceilings.
7-Jun-09	09001a	EON	046	dl,pb	1.4			1.4			W	W	W	W	**AM**: flt046, abort at block for ceilings, no production. **PM**: IFR ceilings south of block.
8-Jun-09	09001a	EON	047	dl,pb	1.3		2.2	3.5	563.06	563.06	P	P	W	W	**AM**: flt047, earlier stop for TURBs, complete refly of 1 partial L, FP occ poor. **PM**: bad weather.
9-Jun-09	09001a	EON	048	dl,pb	1.3		3.5	4.8	844.92	844.92	P	P	W	W	**AM**: flt048, strong winds, occ poor drape. Active diurnals on first line (19km >specs). **PM**: weather.
10-Jan-00	09001a	EON	049	dl,pb	1.3		2.1	3.4	394.61	354.11	P	W	W	W	**AM**: flt049, earlier stop for TURBs, 1 partial line scrub. **PM**: strong winds. **Late-PM**: on-going inspection: one right-engine magneto requiring change.
11-Jun-09	09001a	EON									M	M	M	M	Magneto ordered, estimated delivery for June 13th.
12-Jun-09	09001a	EON									M	M	M	M	Waiting for parts.
13-Jun-09	09001a	EON									M	M	M	M	Waiting for parts.
14-Jun-09	09001a	EON									M	M	M	M	Waiting for parts. Problem with shipping...
15-Jun-09	09001a	EON									M	M	M	M	Waiting for parts. Problem with shipping...
16-Jun-09	09001a	EON									M	M	M	M	Waiting for parts. Problem with shipping...
17-Jun-09	09001a	EON									M	M	M	M	Required magneto delivered & installed.
18-Jun-09	09001a	EON	050	dl,pb	0.7			0.7			W	W	W	W	**AM**: flt050, aborted halfway for IFR ceilings. **PM**: IFR ceilings.
19-Jun-09	09001a	EON									W	W	W	W	IFR ceilings.
20-Jun-09	09001a	EON	051	dl,pb	2.0		3.1	5.1	848.60	848.60	P	P	W	W	**AM**: flt051, earlier stop for turbulences. Complete refly of 1 partial tie. **PM**: turbulences.
21-Jun-09	09001a	EON									W	W	W	W	Turbulences north, IFR ceilings & rain south.
22-Jun-09	09001a	EON	052	dl,pb	1.2			1.2			W	W	W	W	**AM**: flt052, aborted south of block for IFR ceilings. **PM**: IFR ceilngs, rain, thunderstorms.
23-Jun-09	09001a	EON									W	W	W	W	Strong winds & turbulences, ceilings.
24-Jun-09	09001a	EON									W	W	W	W	Fog & IFR ceilings in Dawson & south of block.
25-Jun-09	09001a	EON	053	dl,pb	1.7		2.4	4.1	626.83	313.42	P	P	W	W	**AM**: flt053, earlier stop for TURBs. Active diurnals >specs, 2L scrub. **PM**: turbulences & ceilings.
26-Jun-09	09001a	EON	054	dl,pb	1.2		3.1	4.3	848.63	848.63	P	P	W	W	**AM**: flt054, earlier stop for inc TURBs & smoke. **PM**: incoming rain & IFR ceilings.
27-Jun-09	09001a	EON									W	W	W	W	System with IFR ceilings & rain moving north.
28-Jun-09	09001a	EON									W	W	W	W	IFR ceilings extending north from Dawson.
29-Jun-09	09001a	EON	055	dl,pb	1.6		3.9	5.5	1051.08	1051.08	W	W	P	P	**AM**: IFR ceilings south. **Late-PM**: flt055, change of area at C-FTPN take-off.
30-Jun-09	09001a	EON	056	dl,pb	1.5		2.4	3.9	626.74	626.74	P	P	P	W	**AM**: flt056, earlier stop for TURBs. Active diurnals over whole 1st line (<0.98nT/15sec). **PM**: flt057, early stop for TURBs.
	09001a	EON	057	dl,pb	1.4		1.2	2.6	313.38	313.38					
1-Jul-09	09001a	EON	058	dl,pb	1.2		1.6	2.8	424.33	424.33	P	W	W	W	**AM**: flt058, early stop for TURBs. **PM**: turbulences.
2-Jul-09	09001a	EON	059	dl,pb	1.5		3.5	5.0	994.38	782.18	P	P	P	P	**NIGHT**: flt059, overnight, stormy diurnals period, 1L scrub, 1 line >specs (40km). **Late-PM**: flt060.
	09001a	EON	060	dl,pb	1.3		3.7	5.0	940.32	940.32					
3-Jul-09	09001a	EON	061	dl,pb	1.4		2.8	4.2	688.27	626.87	W	W	P	P	**AM**: turbulences in mountains. **Late-PM**: flt061, earlier stop for rain north & TURBs SW, 1 partL scrub.
4-Jul-09	09001a	EON	062	dl,pb	1.3		3.5	4.8	940.14	940.14	W	W	P	P	**AM**: strong winds & turbulences. **PM**: flt062, occ turbulences at north end.
5-Jul-09	09001a	EON	063	dl,pb	1.5		2.9	4.4	436.12	257.19	W	W	P	W	**AM**: low ceilings & rain system from west. **PM**: flt063, earlier stop for TURBs, 2L scrub.
6-Jul-09	09001a	EON									W	W	W	W	Low ceilings & rain system across area from west.
7-Jul-09	09001a	EON									W	W	W	W	Low ceilings & rain covering area.
8-Jul-09	09001a	EON									W	W	W	W	Low ceilings & rain in south area, smoke in Dawson.
9-Jul-09	09001a	EON	064	dl,pb	0.4			0.4			W	W	W	W	**AM**: low ceilings. **PM**: flt064, abort near Dawson for low ceilings, no production.
10-Jul-09	09001a	EON									W	W	W	W	**AM**: Low ceilings. **PM**: low ceilings in mountains.
11-Jul-09	09001a	EON	065	dl,pb	1.5			1.5			W	W	W	W	**AM**: low ceilings, rain. **Late-PM**: flt065, abort at south part of block for low ceilings, no production.
12-Jul-09	09001a	EON	066	dl,pb	1.5		2.6	4.1	626.68	626.68	P	P	W	P	**AM**: flt066, earlier stop for TURBs. **Late-PM**: flt067, early stop for pilot time, 2L reflown.
	09001a	EON	067	dl,pb	1.3		1.7	3.0	455.53	455.53					
13-Jul-09	09001a	EON	068	dl,pb	1.5		3.9	5.4	935.67	935.67	W	W	P	P	**AM**: turbulences in mountain area. **Late-PM**: flt068, 3L reflown, short intervals of marginal durnals.
14-Jul-09	09001a	EON									X	X	W	W	**AM**: conflict with C-FTPN. **PM**: low ceilings & rain.
15-Jul-09	09001a	EON									W	W	W	W	**AM**: low ceilings, winds, rain. **PM**: winds.

Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
16-Jul-09	09001a	EON	069	dl,pb	1.4		2.2	3.6	394.39	340.32	P	W	W	W	**AM**: flt069, early stop for ceilings south, 6L reflown or completed. **PM**: turbulences.
17-Jul-09	09001a	EON	070	dl,pb	1.8		2.8	4.6	448.83	408.20	W	W	P	P	**AM**: low ceilings. **Late-PM**: flt070, 1L reflown, 5L completed.
18-Jul-09	09001a	EON									W	W	W	W	Poor to no visibility in Dawson due to smoke.
19-Jul-09	09001a	EON									W	W	W	W	South area under low ceilings.
20-Jul-09	09001a	EON	071	dl,pb	2.1		1.1	3.2	124.40		P	X	X	X	**AM**: flt071, stormy diurnals SOF, 5L scrub. **PM**: data QC delayed by internet cut-off.
21-Jul-09	09001a	EON	072	dl,pb	2.3		1.0	3.3	112.90	76.77	P	X	X	X	**AM**: flt072, windy, very unset diurnals on 1L. 5L completed. Coverage completed. **PM**: data evaluation.
22-Jul-09	09001a	EON									SE	SE	SE	SE	**AM**: coverage completed, demob until final evaluation. **Eagle Plains**: bases dismantled, crew to Dawson.
23-Jul-09															C-FEON and crew mobilizing to Watson Lake (project 09002). O.Boulanger demobilizes via Whitehorse.
3-Sep-09															C-FEON to remobilize from Watson Lake to Old Crow ASAP, to complete reflights. The 2 GEM units will be installed in Old Crow. PPP will be used for PP-DGPS.
4-Sep-09	09001a	EON			3.5			3.5					SE	SE	**PM**: C-FEON & crew Watson Lake to Old Crow. **Late-PM**: flt073, SOL-FOM (6sec osc), right alter-nator only, Eagle Plains area, OK.
	09001a	EON	073	dl,pb	1.0	0.9		1.9							
5-Sep-09	09001a	EON	074	dl,pb	1.1		0.6	1.7	85.80		SE	P	W	P	**AM**: FOM eval after internet set-up delay. **PM**: flt074, early stop for TURBs south, 1L reflown. **Late-PM**: flt075, shorter for daylight, 4L reflown.
	09001a	EON	075	dl,pb	0.4		1.6	2.0	360.58						
6-Sep-09	09001a	EON		dl,pb	0.9			0.9			X	P	W	P	**AM**: no more AVGAS in Old Crow, ferry to Inuvik. **PM**: flt076 (Inuvik-Dawson), early stop for TURBs SW, 2L reflown. **Mid-PM**: flt077 (Dawson-Old Crow), excessive TURBs south, 1L reflown north.
	09001a	EON	076	dl,pb	1.7		1.0	2.7	298.21						
	09001a	EON	077	dl,pb	1.1		0.4	1.5	96.66						
7-Sep-09	09001a	EON									W	W	W	W	Local low ceilings, windy north.
8-Sep-09	09001a	EON	078	dl,pb	0.7			0.7			W	W	W	W	**AM**: flt078, aborted attempt, low ceilings & fog south. **PM**: TURBs in block area. Crew & C-FEON to Inuvik to lodge & refuel there. Bases remain in Old Crow.
	09001a	EON		dl,pb	1.0			1.0							
9-Sep-09	09001a	EON									W	W	W	W	GFA calls for heavy TURBs in block area.
10-Sep-09	09001a	EON		dl,pb	1.0			1.0			W	W	W	W	**AM**: Inuvik-Old Crow, bases started. **AM**: flt079, abort for ceilings & TURBs, no prod. **AM**: Old Crow-Inuvik, ferry back. **PM**: ceilings & TURBs.
	09001a	EON	079	dl,pb	0.6			0.6							
	09001a	EON		dl,pb	1.0			1.0							
11-Sep-09	09001a	EON									W	W	W	W	Ceilings, rain, TURBs.
12-Sep-09	09001a	EON			1.0			1.0			W	W	W	W	**AM**: low ceilings at Old Crow (bases). **PM**: Inuvik-Old Crow, bases started. Flight cancelled due to low ceilings above block. Old-Crow-Inuvik.
	09001a	EON			0.9			0.9							
13-Sep-09	09001a	EON									W	W	W	W	Fog & ceilings in Inuvik, system through block all day.
14-Sep-09	09001a	EON									W	W	W	W	Ceilings, fog or rain in Inuvik and block.
15-Sep-09	09001a	EON		dl,pb	1.0			1.0			W	W	W	P	**AM**: whole area under fog, occ active diurnals. **Late-PM**: Inuvik-Old Crow, bases started. Flt080, short for daylight, unsettled diurnals, 3L reflown. Old Crow-Inuvik.
	09001a	EON	080	dl,pb	1.4		1.4	2.8	356.81						
	09001a	EON		dl,pb	0.9			0.9							
16-Sep-09	09001a	EON		dl,pb	0.9			0.9			W	W	P	W	**AM**: wait for fog & low ceilings to clear. **PM**: Inuvik-Old Crow, bases started. Flt081, shorter for weather, marginal micropulsations, 3L reflown, but 2 incomplete for local conditions. Old Crow-Inuvik.
	09001a	EON	081	dl,pb	1.0		2.0	3.0	359.85						
	09001a	EON		dl,pb	1.0			1.0							
17-Sep-09	09001a	EON		dl,pb	1.0			1.0			W	W	SE	W	**AM**: ceilings & rain. Reflights evaluation. Client gave approval for 09001 termination due to conditions. **PM**: Inuvik-Old Crow. Old Crow bases dismantled. Attempt to leave Old Crow aborted for ceilings.
	09001a	EON		dl,pb	0.4			0.4							
18-Sep-09	09001a	EON									W	W	W	W	C-FEON & crew blocked in Old Crow by weather.
19-Sep-09	09001a	EON									W	W	W	W	C-FEON & crew blocked in Old Crow by weather.
20-Sep-09	09001a	EON									W	W	W	W	C-FEON & crew blocked in Old Crow by weather.
21-Sep-09	09001a	EON		dl,pb	1.6			1.6			W	W	W	SE	**AM**: weather. **PM**: ferry Old Crow to Dawson.
22-Sep-09	09001a	EON		dl,pb	1.5			1.5			W	W	SE	SE	**AM**: weather. **PM**: ferry Dawson to Whitehorse.
23-Sep-09															Project 09001 Eagle Plains terminated on Sept 17th, and 09002 Little Nahinni interrupted, all due to weather conditions in Yukon. C-FEON currently attempting to reach Rankin Inlet for inspection and continuation on the 09005 Chesterfield Inlet project.

EON GEOSCIENCES INC
Daily report (C-FTPN sheet 2/2)

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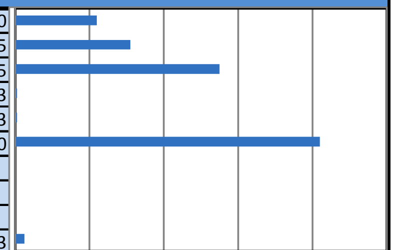
Aircraft		Projects	Area & Client	Crew chiefs:	Gerard Tessier
Code:	C-FTPN	09001a-EON	Eagle Plains, GSC, C-FEON	Pilots:	Dany Lanthier, Vincent Moreau, Charles Lambert-Slythe
Type:	Cessna 204	09001a-TPN	Eagle Plains, GSC, C-FTPN	Engineers:	(Aeropro personnel, under Brucelandair clearance)
FBO:	Brucelandair			Operators:	Vincent Moreau, Marc Richard, Charles Lambert-Slythe
Inst:	Tail Mag			Processors:	Gerard Tessier, Olivier Boulanger

Project / Aircraft	09001a EON	09001a TPN			Total Project	C-FTPN Activity Histogram	
Planned Kms	45442.98	45442.98					
Total flown Kms	27811.71	22686.92			**50498.63**	Set-up (SE)	11.0
Total accepted Kms	23460.42	21982.56			**45442.98**	Production (P)	15.5
Total survey hours	116.40	108.80			**225.20**	Maintenance (M)	27.5
Total test-training hours	17.00	4.40			21.40	Electronics (E)	0.3
Total ferry hours	154.40	93.30			247.70	Diurnals (D)	0.3
Total aircraft hours	**287.80**	**205.00**			**492.80**	Weather (W)	41.0
Total aircraft days	**161.50**	**96.75**			**258.25**	Training (TR)	
Average kms/day (total)	145.27	**227.21**			175.97	Safety (SAF)	
Average kms/hour (survey)	201.55	202.05			201.79	Crew (CR)	
Project Completion	51.6%	48.4%			100.0%	Other (X)	1.3

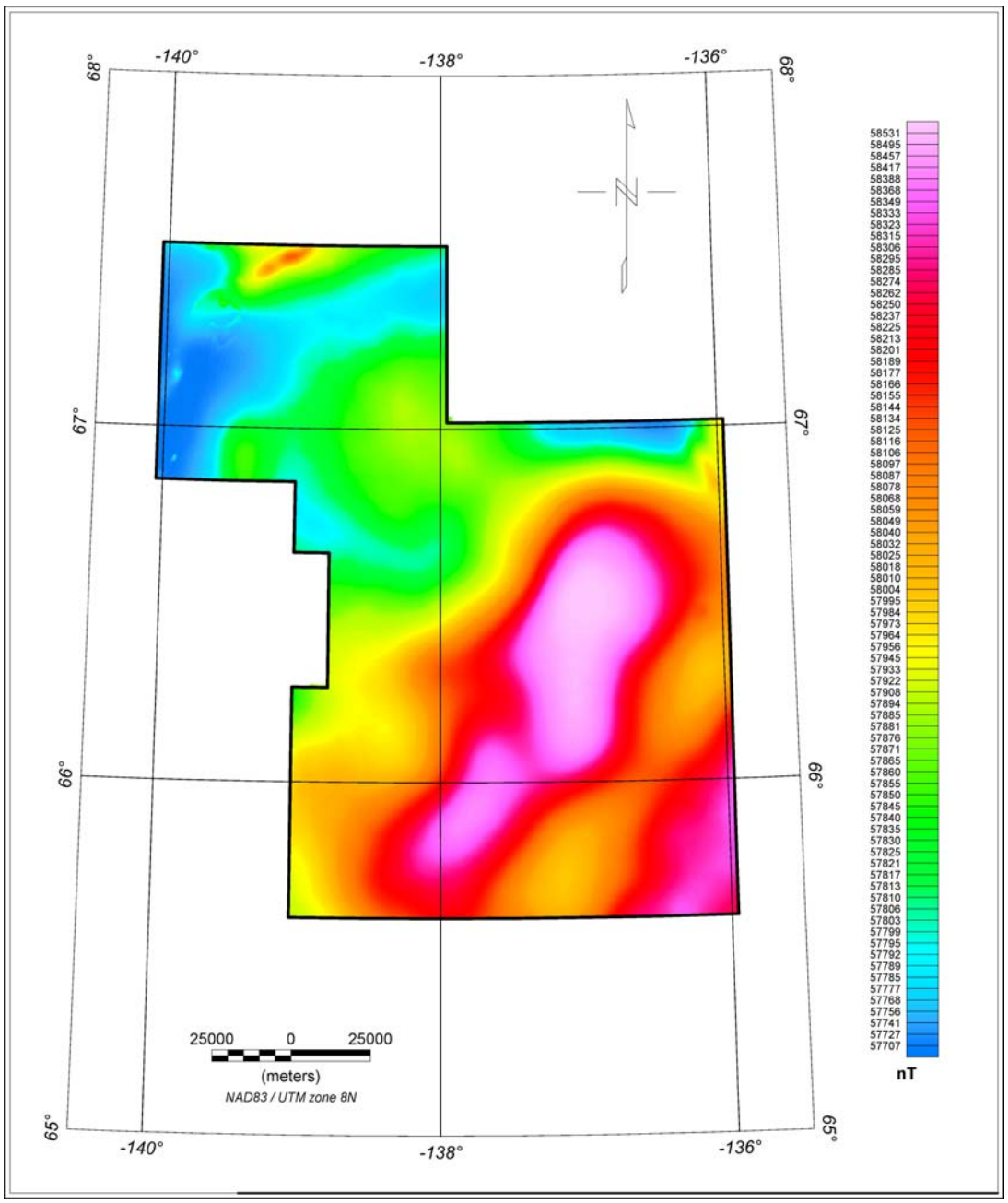


Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Survey	Total	Flown	Accepted	Activity Code (per 1/4 days)				Comments
25-Feb-09	09001a	TPN	802	dl,vm	0.5	1.5		2.0					SE		Altimeter calibration acquired (St-Hubert), accepted for 09003 Abitibi project.
28-Feb-09	09001a	TPN	803	dl,vm	0.7	0.3		1.0					SE		Compensation SOL-FOM acquired in St-Hubert area, accepted for 09003 Abitibi project.
1-Mar-09	09001a	TPN	804	dl,vm	1.4	0.6		2.0					SE		Bourget et lag tests acquired (Bourget area), accepted for 09003 Abitibi project.
After above test flights in MTL area, C-FTPN proceeded to GSC project 09003 (Abitibi). After 09003, it went to Muskoka ONT for inspection. Compilation of C-FTPN's statistics for project 09001 re-starts at mobilization to Eagle Plains from Muskoka.															
19-Apr-09	09001a	TPN		dl,vm	2.6			2.6			SE	SE	W	W	**AM**: C-FTPN, Muskoka ONT to Marathon ONT. **PM:** C-FTPN cannot proceed due to weather west.
20-Apr-09	09001a	TPN									W	W	W	W	Grounded in Marathon due to weather systems west.
21-Apr-09	09001a	TPN									W	W	W	W	Grounded in Marathon due to weather.
22-Apr-09	09001a	TPN		dl,vm	2.6			2.6			W	W	SE	W	**AM**: delay weather. **PM**: C-FTPN, Marathon ONT to Kenora ONT, to Winnipeg. Earlier stop due to bad weather west.
	09001a	TPN		dl,vm	1.0			1.0							
23-Apr-09	09001a	TPN		dl,vm	3.5			3.5			SE	SE	SE	SE	C-FTPN, Winnipeg to Saskatoon, to Edmonton.
	09001a	TPN		dl,vm	2.4			2.4							
24-Apr-09	09001a	TPN		dl,vm	1.9			1.9			SE	SE	SE	W	C-FTPN, Edmonton to Peace River, to Fort Nelson. **Late-PM**: bad weather in Yukon.
	09001a	TPN		dl,vm	2.0			2.0							
25-Apr-09	09001a	TPN		dl,vm	3.9			3.9			SE	SE	W	SE	**AM**: C-FTPN Fort Nelson to Whitehorse. **PM**: C-FTPN Whitehorse to Dawson, after delay. C-FTPN crew: D.Lanthier, M.Richard.
	09001a	TPN		dl,vm	1.9			1.9							
26-Apr-09	09001a	TPN		dl,mr	1.5			1.5			SE	SE	SE	SE	**AM**: DAS system set-up. **PM**: C-FTPN, Dawson to Eagle Plains, proceeding with set-up at airstrip.
27-Apr-09	09001a	TPN									SE	SE	SE	SE	Waiting for shipped parts.
28-Apr-09	09001a	TPN									SE	SE	SE	SE	All required shipments in Eagle Plains by late PM.
29-Apr-09	09001a	TPN	201	dl,mr	0.4	0.3		0.7			SE	SE	SE	SE	**AM**: fueling set-up finalized at airstrip. **PM**: set-ups & tests on acquisition system. **Late-PM**: compensation SOL-FOM acquired, 20 km west of Eagle Plains.
30-Apr-09	09001a	TPN	202	dl,mr	0.6		2.3	2.9	463.25	335.93	X	P	P	W	**AM**: SOL-FOM processed, OK. **PM**: flt202, turbulent, includes a C-FTPN/C-FEON comparison on L920. Flight post-compensated with flt208 SOL.
1-May-09	09001a	TPN	203	dl,mr	0.3		3.6	3.9	763.41	763.41	P	P	W	P	**AM**: flt 203, earlier stop for increasing turbulences. **Late-PM**: flt 204, shorter for turbulences. Both flights post-compensated with flt208 SOL.
	09001a	TPN	204	dl,mr	0.5		2.3	2.8	508.24	508.24					
2-May-09	09001a	TPN	205	dl,mr	0.4		2.4	2.8	507.70	507.70	P	W	W	W	**AM**: flt205, earlier stop for winds & turbulences. Flight post-compensated with flt208 SOL. **PM**: winds & turbulences.
3-May-09	09001a	TPN									W	W	W	W	High winds & low ceilings in Eagle Plains area.
4-May-09	09001a	TPN	206	dl,mr	0.4		3.5	3.9	760.50	760.50	P	P	W	P	**AM**: flt206, earlier stop for TURBs. **Late-PM**: flt207, early stop for TURBs. Both flights post-compensated with flt208 SOL.
	09001a	TPN	207	dl,mr	0.4		1.1	1.5	253.22	253.22					
5-May-09	09001a	TPN									W	W	W	W	High winds all day.
6-May-09	09001a	TPN									W	W	W	W	Low ceilings, rain/snow, icing, low visibility.

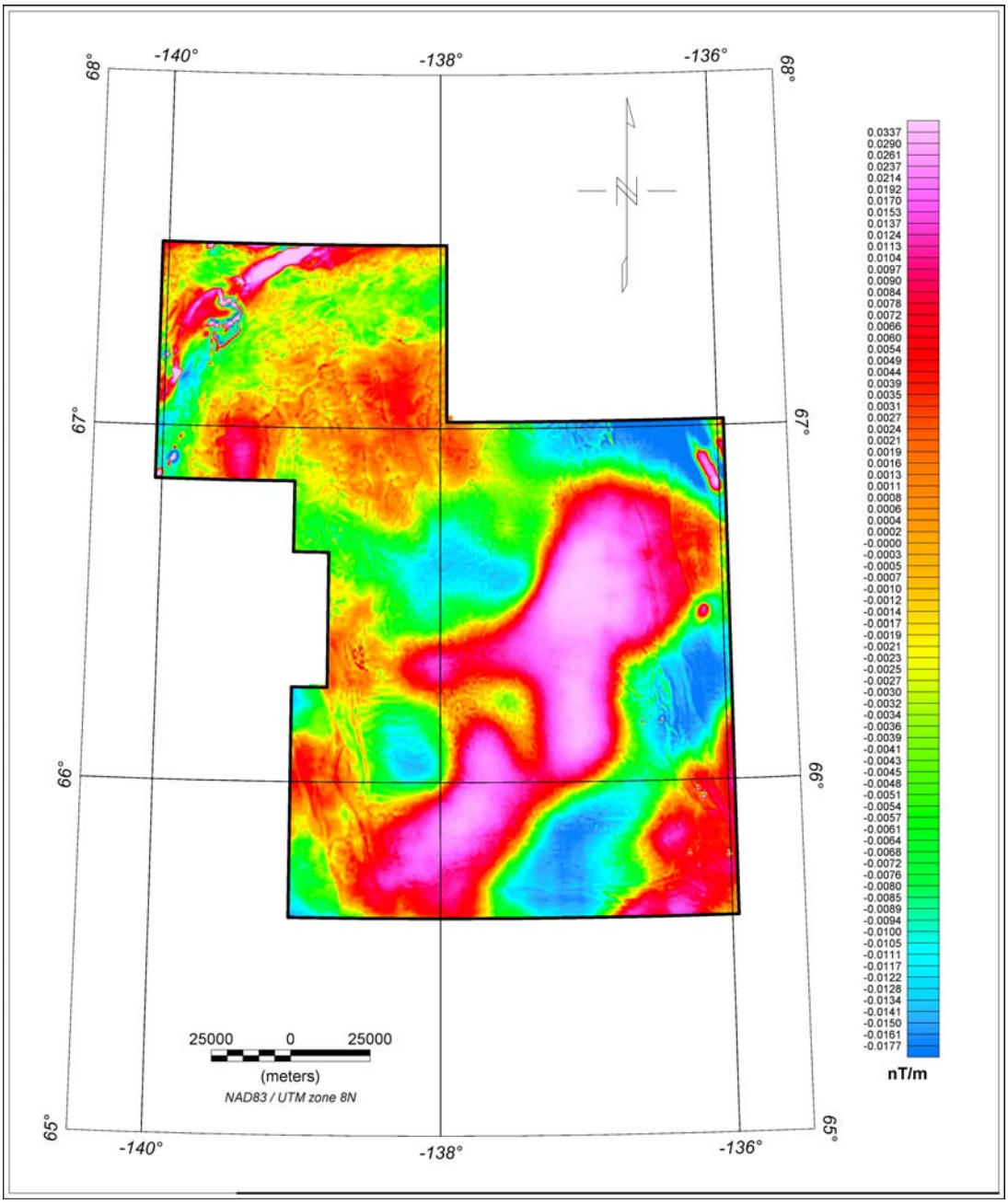
Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
7-May-09	09001a	TPN	208	dl,mr	0.6	0.8		1.4			W	W	W	SE	**AM**: low ceilings, low visibility. **Mid-PM**: SOL-FOM (6sec osc) acquired NW of Eagle Plains, **OK**.
8-May-09	09001a	TPN									W	W	W	W	IFR ceilings in block area. G. Tessier leaves Eagle Plains, for a personnal emergency.
9-May-09	09001a	TPN									W	W	W	W	IFR ceilings, rain, icing in block area.
10-May-09	09001a	TPN									W	W	W	W	Snow (10cm in Eagle plains) until late-PM, IFR ceilings.
11-May-09	09001a	TPN									W	W	W	W	IFR ceilings, snow in block area.
12-May-09	09001a	TPN									W	W	W	W	IFR ceilings, high winds PM.
13-May-09	09001a	TPN									W	W	W	W	IFR ceilings, rain and/or snow. Co-pilot Charles Lam-bert-Slythe mobilized to Eagle Plains.
14-May-09	09001a	TPN	209	dl,mr	0.3		0.2	0.5	22.40		W	P	W	W	**AM**: IFR ceilings, winds. **Mid-AM**: flt209, abort soon for excessive TURBs, 1 part L scrub. **PM**: TURBs.
15-May-09	09001a	TPN	210	dl,cl	0.4			0.4			W	W	W	W	**AM**: IFR celings, snow. **Late-PM**: aborted soon with no production for excessive TURBs.
16-May-09	09001a	TPN		dl,mr	1.3			1.3			M	M	M	M	C-FTPN to Dawson for inspection. M.Richard demob.
17-May-09	09001a	TPN									M	M	M	M	C-FTPN inspection in progress.
18-May-09	09001a	TPN									M	M	M	M	C-FTPN inspection in progress. Client inspection, Frank Kiss arrives in Dawson.
19-May-09	09001a	TPN									M	M	M	M	C-FTPN inspection in progress.
20-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
21-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts. Backup baseB removed. Client inspection, Frank Kiss leaves in Dawson.
22-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
23-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
24-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
25-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
26-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
27-May-09	09001a	TPN									M	M	M	M	C-FTPN waiting for parts.
28-May-09	09001a	TPN		vm,cl	1.8			1.8			M	M	W	SE	**AM**: parts received & installed. **PM**: weather wait. **Late-PM**: C-FTPN re-mob to Eagle Plains airstrip.
29-May-09	09001a	TPN									W	W	W	W	High winds in block area.
30-May-09	09001a	TPN	211	vm,cl	0.5		3.6	4.1	758.82	758.82	P	P	W	W	**AM**: flt211, locally very turbulent, 1L completed. **PM**: IFR ceilings & precipitations.
31-May-09	09001a	TPN	212	vm,cl	0.4		3.6	4.0	757.56	757.56	P	P	W	E	**AM**: flt212, inc TURBs, occ noisier mag. **PM**: wait 25 knt winds. **Late-PM**: flt213, abort for mag, 2L unusa-ble, saturated mag due to unnoticed bad system boot.
	09001a	TPN	213	vm,cl	1.8			1.8							
1-Jun-09	09001a	TPN	214	vm,cl	0.4		3.6	4.0	756.30	756.30	P	P	P	P	**AM**: flt214, earlier stop for TURBs, locally noisier mag. **Late-PM**: flt215, decreasing local TURBs.
	09001a	TPN	215	vm,cl	0.6		4.7	5.3	1006.44	1006.44					
2-Jun-09	09001a	TPN	216	vm,cl	0.5		4.1	4.6	819.53	819.53	D	P	P	W	**AM**: flt216, after wait for active diurnals, increasing TURBs. **PM**: bad weather.
3-Jun-09	09001a	TPN									W	W	W	W	Strong winds in block area.
4-Jun-09	09001a	TPN									W	W	W	W	Strong winds in block area.
5-Jun-09	09001a	TPN									W	W	W	W	Strong winds in block area. Backup baseB re-installed.
6-Jun-09	09001a	TPN	217	vm,cl	0.8		4.0	4.8	790.08	790.08	P	P	W	W	**AM**: flt217, earlier stop for ceilings, 2 partial lines. **PM**: IFR ceilings.
7-Jun-09	09001a	TPN	218	vm,cl	0.4		3.6	4.0	716.63	716.63	W	W	P	P	**AM**: winds, ceilings. **PM**: flt218, increasing TURBs.
8-Jun-09	09001a	TPN	219	vm,cl	0.5		2.8	3.3	598.05	572.71	P	P	P	P	**AM**: flt219, earlier stop for TURB, 2L completed. **PM**: flt220.
	09001a	TPN	220	vm,cl	0.4		3.9	4.3	815.83	815.83					
9-Jun-09	09001a	TPN	221	vm,cl	0.6		3.8	4.4	814.44	814.44	W	W	P	P	**AM**: strong winds. **Late-PM**: flt221.
10-Jun-09	09001a	TPN									W	W	W	W	Strong winds.
11-Jun-09	09001a	TPN		vm,cl	1.5			1.5			M	M	M	M	C-FTPN Eagle Plains to Dawson for inspection.
12-Jun-09	09001a	TPN									M	M	M	M	C-FTPN inspection in progress.
13-Jun-09	09001a	TPN		vm,cl	1.5						M	M	P	P	**AM**: C-FTPN Dawson to Eagle Plains after inspection. **Late-PM**: flt222, turbulences.
	09001a	TPN	222	vm,cl	0.5		4.8	5.3	1075.98	1075.98					
14-Jun-09	09001a	TPN									W	W	W	W	Bad weather.
15-Jun-09	09001a	TPN									W	W	W	W	Bad weather.
16-Jun-09	09001a	TPN	223	vm,cl	0.6		3.0	3.6	667.48	667.48	P	P	M	M	**AM**: flt223, early abort for ceilings, 3L partial. **PM**: C-FTPN Eagle Plains to Dawson, to Whitehorse, for required wing maintenance in Fort Nelson BC.
	09001a	TPN		vm,cl	3.4			3.4							
17-Jun-09	09001a	TPN		vm,cl	3.0			3.0			W	W	M	M	**AM**: IFR ceilings in Whitehorse area. **PM**: C-FTPN Whitehorse to Fort Nelson.
18-Jun-09	09001a	TPN									M	M	M	M	Replacement of wings hinge brackets in progress.
19-Jun-09	09001a	TPN		vm,cl	3.6			3.6			M	M	M	W	**AM**: maintenance on wings completed. **PM**: C-FTPN Fort Nelson to Whitehorse. **Late-PM**: IFR ceilings.

Flight information					Aircraft hours				Kilometreage		Daily activity report				Comments
Date	Project no.	AC	Flt	Crew (initials)	Ferry	Test Train	Sur-vey	Total	Flown	Accepted	Activity Code (per 1/4 days)				
20-Jun-09	09001a	TPN		vm,cl	3.5			3.5			W	W	M	M	**AM**: IFR ceilings in Whitehorse area. **PM**: C-FTPN Whitehorse to Dawson, to Eagle Plains.
21-Jun-09	09001a	TPN									W	W	W	W	Turbulences north, IFR ceilings & rain south.
22-Jun-09	09001a	TPN									W	W	W	W	IFR ceilngs, rain, thunderstorms.
23-Jun-09	09001a	TPN									W	W	W	W	Strong winds & turbulences, ceilings.
24-Jun-09	09001a	TPN	224	vm,cl	1.1		3.6	4.7	723.67	723.67	P	P	P	W	**AM**: flt224, area change for ceilings. Unset diurnals. **PM**: flt225, earlier stop for ceilings, very unsettled diurnals (11km >specs). Both flts post-compensated with flt227 SOL.
	09001a	TPN	225	vm,cl	0.8		2.6	3.4	546.18	546.18					
25-Jun-09	09001a	TPN	226	vm,cl	0.7	0.5		1.2			SE	X	X	X	**AM**: flt226, SOL-FOM, N-center area, rejected (8-11sec osc on SOL & FOM, poor FOM).
26-Jun-09	09001a	TPN	227	vm,cl	0.7	0.4		1.1			SE	X	W	W	**AM**: flt227, SOL-FOM (6sec osc), N-center area, OK, to be survey tested. **PM**: incoming rain & ceilings.
27-Jun-09	09001a	TPN	228	vm,cl	1.1			1.1			W	W	P	W	**AM**: IFR ceilings. **PM**: flt228, abort for IFR ceilings, no production. **Late-PM**: flt229, early stop for IFR ceilings, 2 partial Ls. Unsettled diurnals. Both flts using flt227 SOL real-time.
	09001a	TPN	229	vm,cl	0.6		1.5	2.1	297.82	297.82					
28-Jun-09	09001a	TPN	230	vm,cl	1.3			1.3			W	W	W	W	**AM**: flt230, abort for IFR ceilings, no production.
29-Jun-09	09001a	TPN	231	vm,cl	0.7		3.4	4.1	720.29	541.93	W	P	P	P	**AM**: IFR ceilings covering south. **Late-AM**: flt231, turbulent, unsettled diurnals SOF. **Late-PM**: flt232, 1L of flt231 reflown by error, best.
	09001a	TPN	232	vm,cl	0.7		3.6	4.3	720.25	720.25					
30-Jun-09	09001a	TPN		vm,cl	1.5			1.5			M	M	M	M	**AM**: C-FTPN Eagle Plains to Dawson for inspection. **PM**: C-FTPN inspection in progress.
1-Jul-09	09001a	TPN									M	M	M	M	**AM**: C-FTPN inspection in progress. **PM**: waiting for delivery of parts for required brake change.
2-Jul-09	09001a	TPN		vm,cl	1.6			1.6			M	M	P	W	**AM**: Dawson to Eagle plains after inspection. **PM**: flt233, early stop for TURBs NW, 1 partial line.
	09001a	TPN	233	vm,cl	0.8		2.1	2.9	421.65	421.65					
3-Jul-09	09001a	TPN	234	vm,cl	0.8		0.4	1.2	81.20		P	M	M	M	**AM**: flt234, fuel pressure problem, 1 partial line scrub. **PM**: waiting for fuel pump parts.
4-Jul-09	09001a	TPN									M	M	M	M	Parts received. Vehicle breakdown on way to EP...
5-Jul-09	09001a	TPN									M	M	M	M	Waiting for truck repair/change (week-end).
6-Jul-09	09001a	TPN									M	M	M	M	Engineer & parts reach Eagle Plains, repairs begin.
7-Jul-09	09001a	TPN		vm,cl	0.3			0.3			M	M	W	W	**AM**: maintenance completed on C-FTPN with short local aviation test flight. **PM**: low ceilings & rain.
8-Jul-09	09001a	TPN	235	vm,cl	1.1		2.6	3.7	543.63	543.63	W	P	P	W	Low ceilings & rain, occ clearings in Old Crow area. **PM**: flt235, turbulences, freq noisier mag.
9-Jul-09	09001a	TPN	236	vm,cl	0.8		3.1	3.9	680.79	680.79	P	P	W	W	**AM**: flt236, earlier stop for smoke west, 1L comple-ted, 2L partial. **PM**: ceilings, rain, smoke.
10-Jul-09	09001a	TPN	237	vm,cl	1.0		3.5	4.5	722.53	722.53	W	W	P	P	**AM**: low ceilings. **Late-PM**: flt237, increasing turbulences.
11-Jul-09	09001a	TPN	238	vm,cl	1.1		3.6	4.7	720.40	720.40	W	W	P	P	**AM**: low ceilings, rain. **Late-PM**: flt238, unsettled diurnals on last line, in specs.
12-Jul-09	09001a	TPN	239	vm,cl	1.2			1.2			W	W	W	W	**AM**: flt239, abort at NW area for ceilings, no prod. **PM**: low ceilings in Old Crow area.
13-Jul-09	09001a	TPN	240	vm,cl	1.1		3.5	4.6	718.80	449.06	P	P	P	P	**AM**: flt240, active/stormy diurnals at start of flight, 3L scrub, 2L marginal. **PM**: flt241, locally turbulent.
	09001a	TPN	241	vm,cl	1.1		2.6	3.7	538.05	538.05					
14-Jul-09	09001a	TPN	242	vm,cl	1.0		3.6	4.6	715.96	715.96	P	P	P	W	**AM**: flt242, refuel at Old Crow. **PM**: flt243, early stop for ceilings & rain.
	09001a	TPN	243	vm,cl	0.8		0.8	1.6	149.33	149.33					
15-Jul-09	09001a	TPN									W	W	W	W	**AM**: low ceilings, winds, rain. **PM**: winds.
16-Jul-09	09001a	TPN	244	vm,cl	1.2		3.9	5.1	792.37	792.37	P	P	W	W	**AM**: flt244, turbulences. 3L reflown. **PM**: turbulences. 1 or 2 flights left before inspection.
17-Jul-09	09001a	TPN	245	vm,cl	0.7		3.5	4.2	738.14	738.14	W	P	P	M	**AM**: low ceilings. **PM**: flt245, 1L reflown. Refuel at Old Crow. **Late-PM**: flt246, aborted for loss of power, no prod. Alternator starp found torn apart. Inspection due.
	09001a	TPN	246	vm,cl	1.0			1.0							
18-Jul-09	09001a	TPN									W	W	W	W	Inspection & maintenance due on C-FTPN. Poor to no visibility in Dawson (smoke) prevented ferry flight.
19-Jul-09	09001a	TPN		vm,cl	1.5			1.5			W	W	W	M	South area under low ceilings. **Late-PM**: C-FTPN to Dawson for inspection & maintenance.
20-Jul-09	09001a	TPN									M	M	M	M	C-FTPN inspection in progress.
21-Jul-09	09001a	TPN									M	M	M	M	C-FTPN inspection completed.
22-Jul-09	09001a	TPN		vm,cl	2.3			2.3			SE	SE	SE	SE	**AM**: coverage completed, demob until final evaluation. **Late-PM**: C-FTPN Dawson to Whitehorse. **Eagle Plains**: bases dismantled, crew to Dawson.
23-Jul-09	09001a	TPN		vm,cl	6.9			6.9			SE	SE	SE	SE	**AM**: C-FTPN Whitehorse to Fort Nelson. **PM**: C-FTPN Fort Nelson to Edmonton.
24-Jul-09															C-FTPN parked in Edmonton for crew rest, awaiting final evaluation and possible reflights.

Appendix C – Gridded Data



Eagle Plains Aeromagnetic Survey
Total Magnetic Field



Eagle Plains Aeromagnetic Survey
First Vertical Derivative