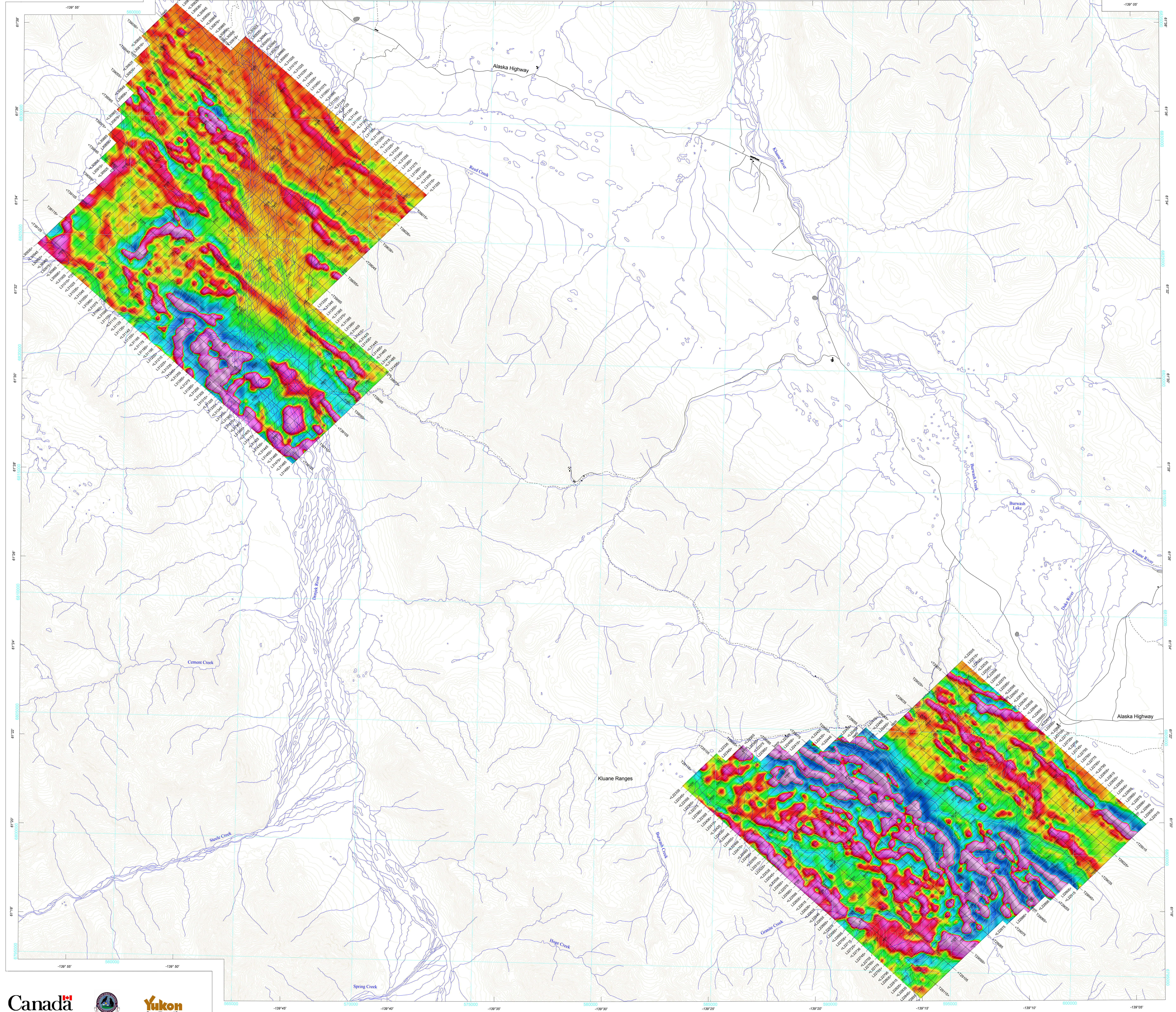


FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD



Technical Information
This map was compiled from data acquired during an airborne electromagnetic survey carried out by CGO using a HELITEM™ Time-Domain Electromagnetic (TDEM) system. The system was mounted on a Eurocopter AS350B3 helicopter (registration G-FKMA) and was carried out between April 17th and April 20th, 2015. The aircraft flight elevation was maintained at a nominal ground clearance of 100 m. Aircraft navigation used a 12-channel NovAtel dual frequency GPS. Flight flight differential corrections were subsequently applied to finalize flight path position. A vertically mounted video camera was used to record images of the ground. The radar height was recorded for times per second using a Sironix unit and the transmitter altitude was recorded ten times per second using a Sironix altimeter. The magnetic data were recorded 10 times per second using a Sironix CS-2 cesium-upter magnetometer.

Survey Area Parameters

Transverse line azimuth	45°/225°
Transverse line spacing	250 m
Line line azimuth	135°/315°
Line line spacing	1000 m
Aircraft nominal clearance	83 m
EM transmitter nominal clearance	35 m
Magnetic sensor nominal clearance	35 m
EM Receiver nominal clearance	63 m

Electromagnetic System Specifications

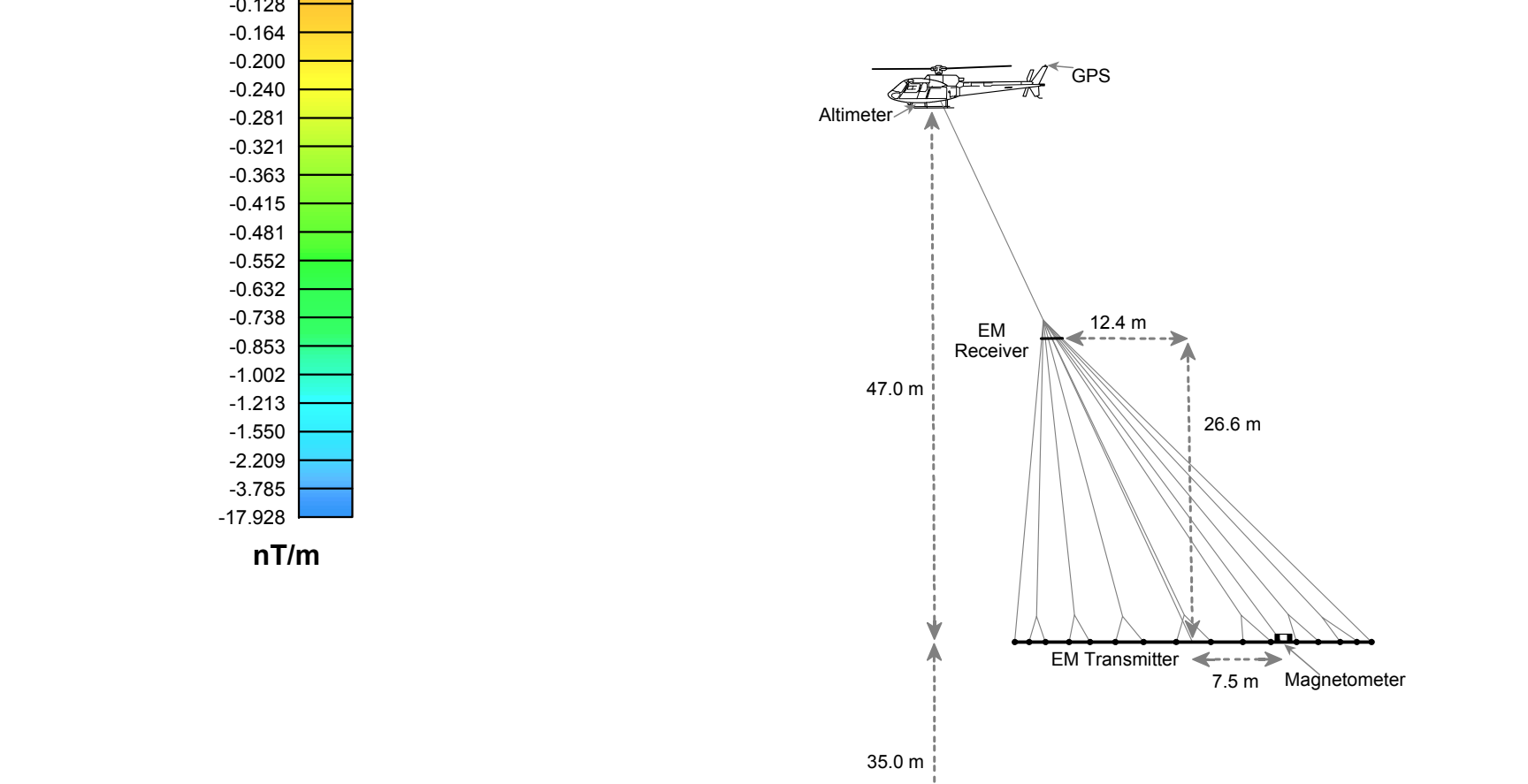
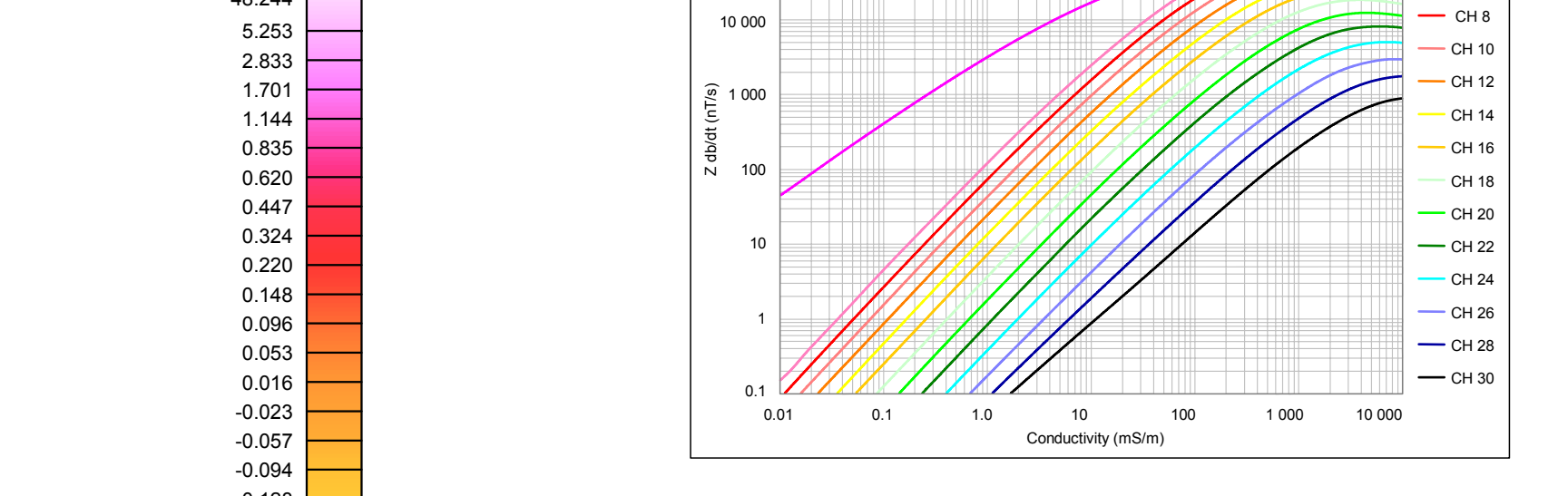
Base Frequency	30 Hz
Waveform	Half-sine wave
Pulse width	4 ms
Transmitter Area	798 m ² (2 turns)
Transmitter DC time	12.5 ms
Transmitter Loop	30 m diameter
Transmitter Current	1300 A
Loop moment (approximately)	1.5 x 10 ⁷ Am ² (@1°C)
Windowed data sampling rate	10 Hz
Receiver	3-component induction coil (X, Y, Z)
Voltage (dBV)	-
Digital recording	All raw data channels (30 channels)
1 st off-line channel	Channel 5 at ~4.169 ms after pulse turn on
1x-4x Configuration	Towed transmitter below receiver

Apparent Conductivity
The apparent conductivity values were derived from selected early, middle and late channels (6, 14 and 22) of the off-line signal, fitted to a homogeneous half-space model. This is performed using a look-up table that contains the response over a range of half-space conductivities and altimeter heights as depicted in the nomogram below.

Electromagnetic Decay Constant
Decay constant (T₁₀) values are obtained by fitting the data from selected early, middle and late channels (6 to 6, 14 to 17 and 22 to 25) of the off-line signal to a single exponential. The decay constant indicates the relative strength of the conductor. In a semi-log space, the slope of the function will reflect the exponential decay rate of the transient field and therefore the strength of the conductivity. A low rate of decay, reflecting a high conductivity, will be represented by a high decay constant value.

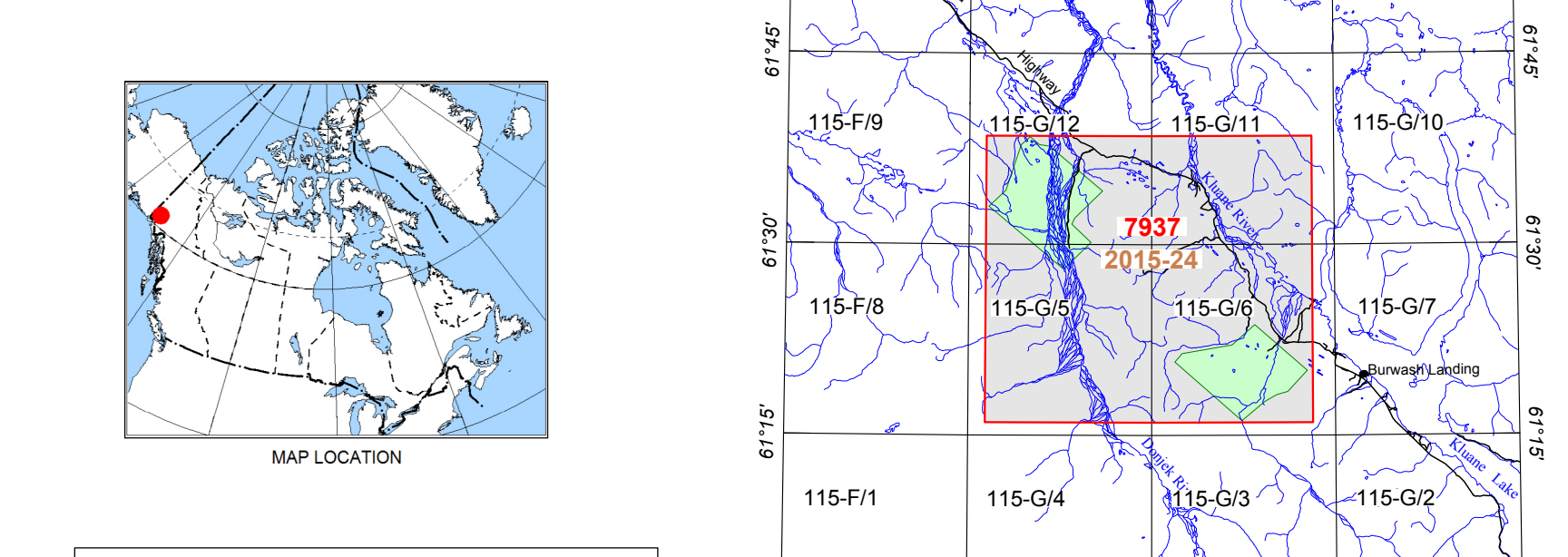
Magnetic
The magnetic field was sampled 10 times per second using a soft-beam cesium vapour magnetometer (sensitivity = 0.005 nT) mounted on the transmitter loop towed 30 m behind the aircraft. The data were sampled at a rate of 10 Hz. The data were filtered to remove any noise and the resulting magnetic field was then processed to produce a residual magnetic field. The residual values were then interpolated to a 62.5 m grid. The International Geomagnetic Reference Field (IGRF) defined at a mean GPS altitude (1073 m) for a constant magnetic date (April 24th, 2015) was then removed. Removal of the IGRF, representing the magnetic field of Earth's core, produces a residual component essentially to magnetizations within Earth's crust.

References
Hood, P.J., 1965. Gradient measurements in aeromagnetic surveying. Geophysics, v. 30, p. 891-902.



PLANIMETRIC SYMBOLS

Project Limit	—
Drainage	—
Topographic Contour	—
Quarry	—
Road	—
Trail	—
Mine / Quarry	—
Flight Path	—



Sheet Titles

Sheet 1: Time Decay Constant (Tau-2) - Early Channels (6 to 9)
Sheet 2: Time Decay Constant (Tau-2) - Mid Channels (14 to 17)
Sheet 3: Time Decay Constant (Tau-2) - Late Channels (22 to 25)
Sheet 4: Apparent Conductivity - Early Channel (6)
Sheet 5: Apparent Conductivity - Mid Channel (14)
Sheet 6: Apparent Conductivity - Late Channel (22)
Sheet 7: Residual Topographic Field
Sheet 8: First Vertical Derivative of the Magnetic Field

The Klondike Lake West electromagnetic survey was partly conceived and funded by the Yukon Geological Survey (YGS) and Klondike First Nation (KFN). YGS and KFN gratefully acknowledge the Strategic Initiative in Northern Economic Development Program of Northern Economic Development Canada as the source of its funding contribution. Natural Resources Canada generously provided survey oversight and data processing and produced the maps as part of the Geo-mapping for Energy and Minerals (GEM) Program of the Earth Sciences Sector, Natural Resources Canada. The YGS and KFN are both sincerely appreciated.

Digital versions of this map are available for free download through GEOCAN (<http://geocan.nrcan.gc.ca/>). Corresponding digital profile and gridded data as well as similar data for adjacent airborne geophysical surveys can be downloaded, at no charge, from Natural Resources Canada's Geoscience Data Repository for Geophysical Data at <http://060.060.060.060>. The same products are also available, for a fee, from the Geophysical Data Centre, Geological Survey of Canada, 615 Booth Street, Ottawa, Ontario K1A 0G9. Telephone: (613) 995-6326, email: info@060.060.060.gc.ca

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KLUANE LAKE WEST ELECTROMAGNETIC SURVEY
Parts of NTS 115-G/5, 6, 11 and 12

FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD
Scale 1:50 000
NAD 83 / UTM zone 17N

North American Datum 1983
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