

APPENDIX 1

- GPX Report

RepTEM Airborne Geophysical Survey

Browns Range, Northern Territory.

January - February 2008

Survey Operations and Logistics Report

For

PALACE RESOURCES

Survey Flown by:



GPX Airborne
JOB NUMBER 2301

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GPX Airborne RepTEM (Mkl) Survey

SURVEY SUMMARY

Client: PALACE RESOURCES
Job Number: 2301
Survey Area: Browns Creek, Northern Territory
Data Processing Base: Base of Operations and processing base was Supplejack Downs Station

Mobilisation 11th January 2008
Production 12th January - 2nd February 2008
Demobilisation 2nd February 2008

Line km surveyed: 1801.146 km

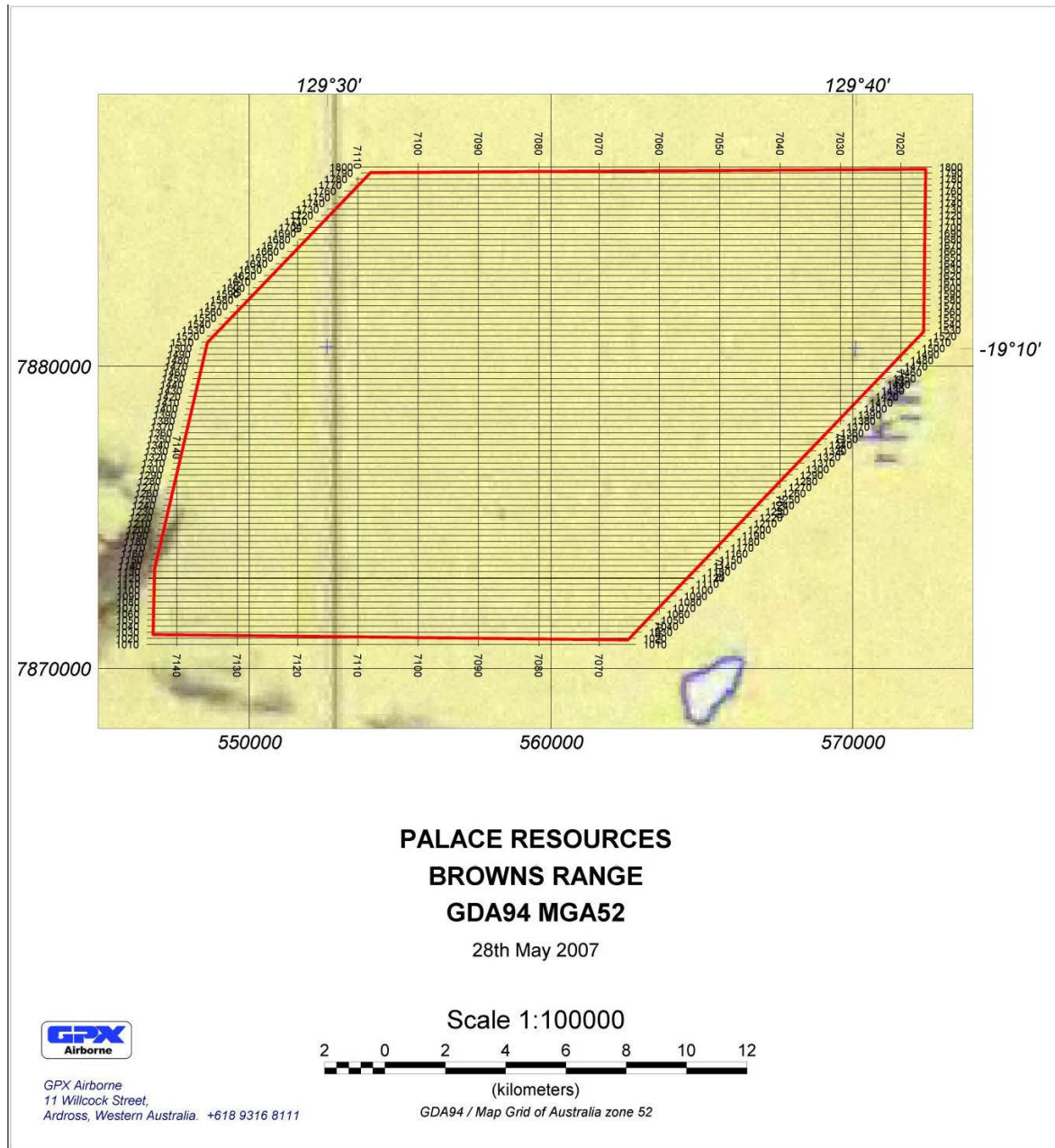
Survey Crew: Brett Hanlon (Crew Leader)
Kent Andrews
Jeffery Kerferd
Nick Scott (Pilot)
Hamish Henderson (Pilot)

Survey Specifications: Traverse Line Spacing 200 m
Traverse Line Direction 090 - 270 degrees
Tie Line Spacing 2000 m
Tie Line Direction 000 - 180 degrees

In January 2008, GPX Airborne was contracted by Palace Resources to perform a RepTEM survey over the browns Range survey area in the Northern Territory. The job was flown between the 12th January and the 2nd February 2008.

The base of operations and processing was located at the Supplejack Downs Station.

Survey Area Maps
Overview



RepTEM System Specifications

Transmitter

Waveform-	25% duty cycle square wave
Pulse on Time	5 ms (inclusive of 1ms cosine ramp on)
Pulse off Time	15 ms
Pulse Current	320 Amps
Switch on Ramp	1 ms
Switch off Ramp	55 μ s
Tx Loop Area	\diamond 350 m ²
Tx NIA-	112,000
Tx Frequency	25 Hz

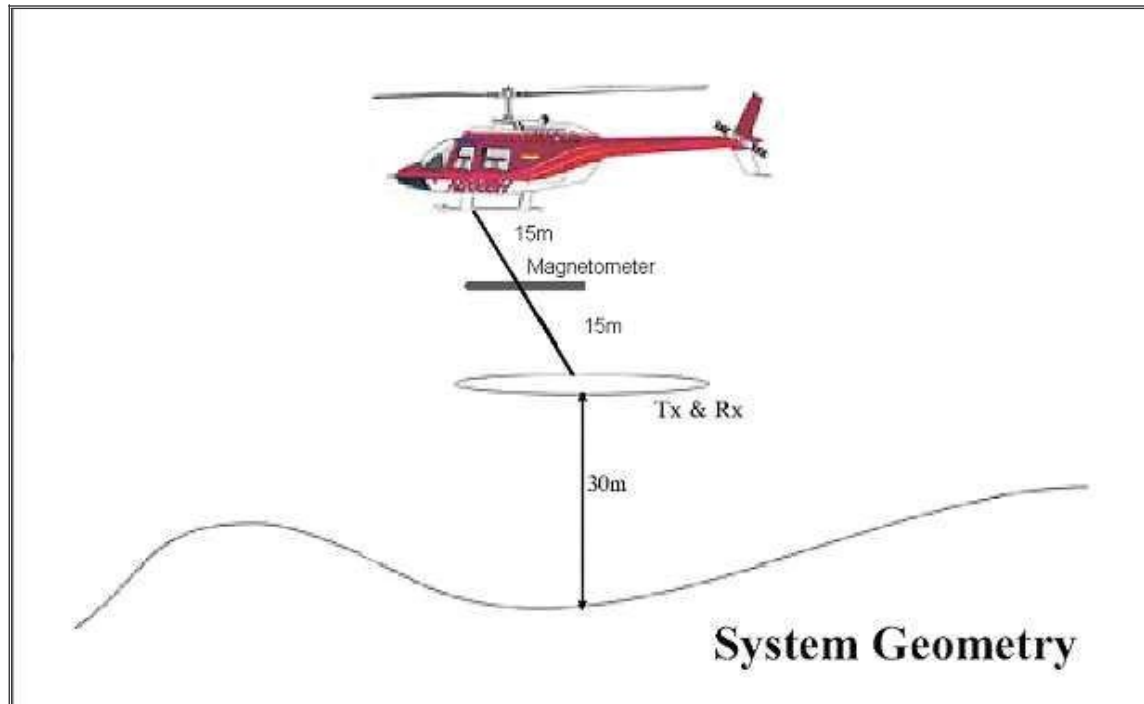
Receiver

A D Circuitry	24 bit
Sample Time	0 12 ms
Sampling	121 Linear channels
Windowed Data	21 channels

Receiver Coil

Effective NA	10,000 Square Metres
Bandwidth-	45,000 Hz

Geometry.



Transmitter loop is towed 35 m below helicopter Receiver coil is located at centre of Tx loop.

Transmitter I Receiver at nominal 35 m terrain clearance.

Helicopter survey speed is between 45 and 55 knots.

Along line sample interval is between 9 and 11 metres

EM Data Channel Specifications

NB: Time 0 is at the start of the switch off ramp

21 Channel Sampling Scheme (55Us ramp)				
Channel	Begin Time	End Time	Centre Time	Width in Time
1	55	80	67.500	25.00
2	80	105	92.500	25.00
3	105	130	117.500	25.00
4	130	155	142.500	25.00
5	155	255	205.000	100.00
6	255	355	305.000	100.00
7	355	456.25	405.625	101.25
8	456.25	557.50	506.875	101.25
9	557.50	760.00	658.750	202.50
10	760.00	1063.75	911.875	303.75
11	1063.75	1468.75	1266.250	405.00
12	1468.75	1975.00	1721.875	506.25
13	1975.00	2582.50	2278.750	607.50
14	2582.50	3291.25	2936.875	708.75
15	3291.25	4101.25	3696.250	810.00
16	4010.25	5012.50	4556.875	911.25
17	5012.50	6025.00	5518.750	1012.50
18	6025.00	7138.75	6581.875	1113.75
19	7138.75	8353.75	7746.250	1215.00
20	8353.75	9670.00	9011.875	1316.25
21	9670.00	11391.25	10530.626	1721.25

RepTEM Airborne Geophysical System



Magnetic Data Specifications

The helicopter was equipped with a bird mounted Geometrics G 822A Cesium vapor, optically pumped magnetometer continuously sampling at 1200 Hz.

The instrument has a sensitivity of 0.001nT, with a sensor noise level of less than 0.1nT.

The magnetic readings are resampled to 50Hz with each sample containing an array of 24 readings. Adjacent readings are summed to minimise bias from the EM transmissions to produce the 25Hz magnetic array data. The mid time array positions are averaged to create the magnetic response.

The time synchronized ground magnetic field data was digitally recorded at a 5.0 sec interval with a Geometrics G856 magnetometer to an accuracy of 0.1nT.

Base Station Location: 563174mE, 7866276mN MGA Zone 52

DATA PROCESSING SUMMARY

The following processes were carried out at the field processing office:

- Spline removal of birdswing
- Negative decays paired and reversed
- Filtering and correction of laser altimeter
- Data is splined to a uniform sample spacing
- Butterworth filter applied to each channel
- Preliminary gridding and data verification

Final EM Processing

Software used for processing at the GPX Perth office:

- Geosoft
- EmaxAIR by Fullagar Geophysics
- ChrisDBF

System response obtained from high level flights is removed from the data. CDIs are generated using EmaxAIR, and depth slice data is interpolated from the Emax output using in house software. Final plots are created in Geosoft .MAP format, and include CDIs that are masked to the first and last depth solution at each station.

Magnetic Data processing.

The aircrafts magnetic data is corrected for diurnal and the mean diurnal value added back to the channel. Parallax is applied, followed by the IGRF correction, the mean IGRF value being added back to data. Where required tie line and a micro level will be applied to the final magnetic channel.

Area Name	Diurnal Value	IGRF Value
Browns Range	50699.81 nT	50699.73 nT

Digital Elevation Model

The laser altimeter data was subtracted from the GPS height to give a digital elevation model which represents height above the WGS84 spheroid. This data was then mean levelled with the SRTM (Satellite Radar Topography Mission, NASA) to remove any levelling.

Final DVD Contents

\images

GeoTiff format images of all depth slices, minimum, maximum and last conductivity, digital elevation and magnetic data.

\grids

Conductivity depth slices with name convention of dnnn.grd where nnn is the depth of the conductivity slice, grids are in Geosoft GRD format. ERMMapper format grids have also been provided, with a ERM_Dnnn.ers naming convention.

Final Magnetic grid:	ERM_Magnetics.ers
Final Digital Terrain:	ERM_DEM.ers (WGS84 spheroid)

grids\cdi_grids

Geosoft format files of the CDI grids.

\located_data

TEM.LDT

Line:	Line number
Fiducial:	Fiducial number as displayed on the CDI sections.
East:	Easting (GDA94 MGA52)(metres)
North:	Northing (GDA94 MGA52)(metres)
Heli_Z:	GPS altitude of helicopter (metres)
TX_Laser:	Height of the laser altimeter on the hoist (metres)
DEMF:	Levelled Digital Elevation Model, WGS84 (metres)
Current:	Transmitter current (amps)
Ch[*]:	EM response, channels 1 21 (uV)
Mag:	Interpolated magnetic channel.

CDI.LDT

Line: Line number
East: Easting (GDA94 MGA52)(metres)
North: Northing (GDA94 MGA52)(metres)
Distance: Distance along line (metres)
Depth: Depth below surface (metres)
Conductivity: Conductivity (mSIm)
RL: GPS depth (WGS84)(metres)

DEPTHSLICE.LDT

Line: Line number
East: Easting (GDA94 MGA52)(metres)
North: Northing (GDA94 MGA52)(metres)
Distance: Distance along line (metres)
RL: GPS depth (WGS84)(metres)
[35 150]: Conductivity at specified depth (mSIm)

COND SUMMARY.LDT

Line: Line number
East: Easting (GDA94 MGA52)(metres)
North: Northing (GDA94 MGA52)(metres)
Firstcond: First recorded conductivity in a decay (mSIm)
Maxcond: Maximum recorded conductivity in a decay (mSIm)
Lastcond: Last recorded conductivity in a decay (mSIm)
Mincond: Minimum recorded conductivity in a decay (mSIm)

MAGNETICS.LDT (25Hz data)

Line: Line Number
SPM: Seconds past midnight.
East: Easting (GDA94 MGA52)(metres)
North: Northing (GDA94 MGA52)(metres)
Rawmag: Raw magnetics channel
Diurnal: Diurnal data
PreMag: Diurnal corrected.
IGRF: Calculated IGRF value for each point.
MagF : Final magnetics channel
GPS_Z: GPS altitude of helicopter (metres)
Clearance: Ground clearance of the Magnetic Sensor.
Each data type is also accompanied with a similar Geosoft database.

\sections

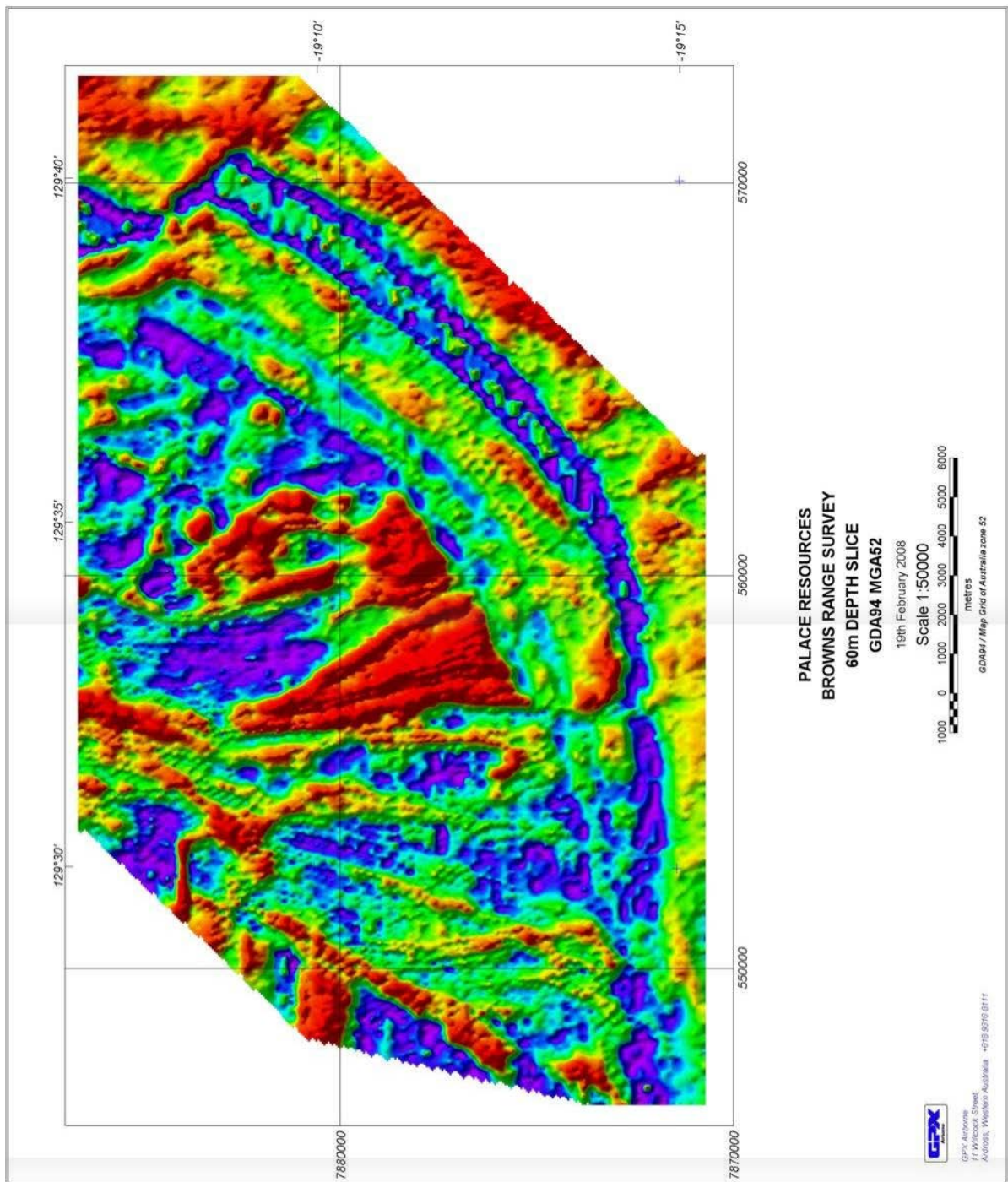
Linear & logarithmic profiles, and conductivity depth images for each line. In Geosoft .MAP format (viewable with the free interface at <http://www.geosoft.com>).

\sections\Images

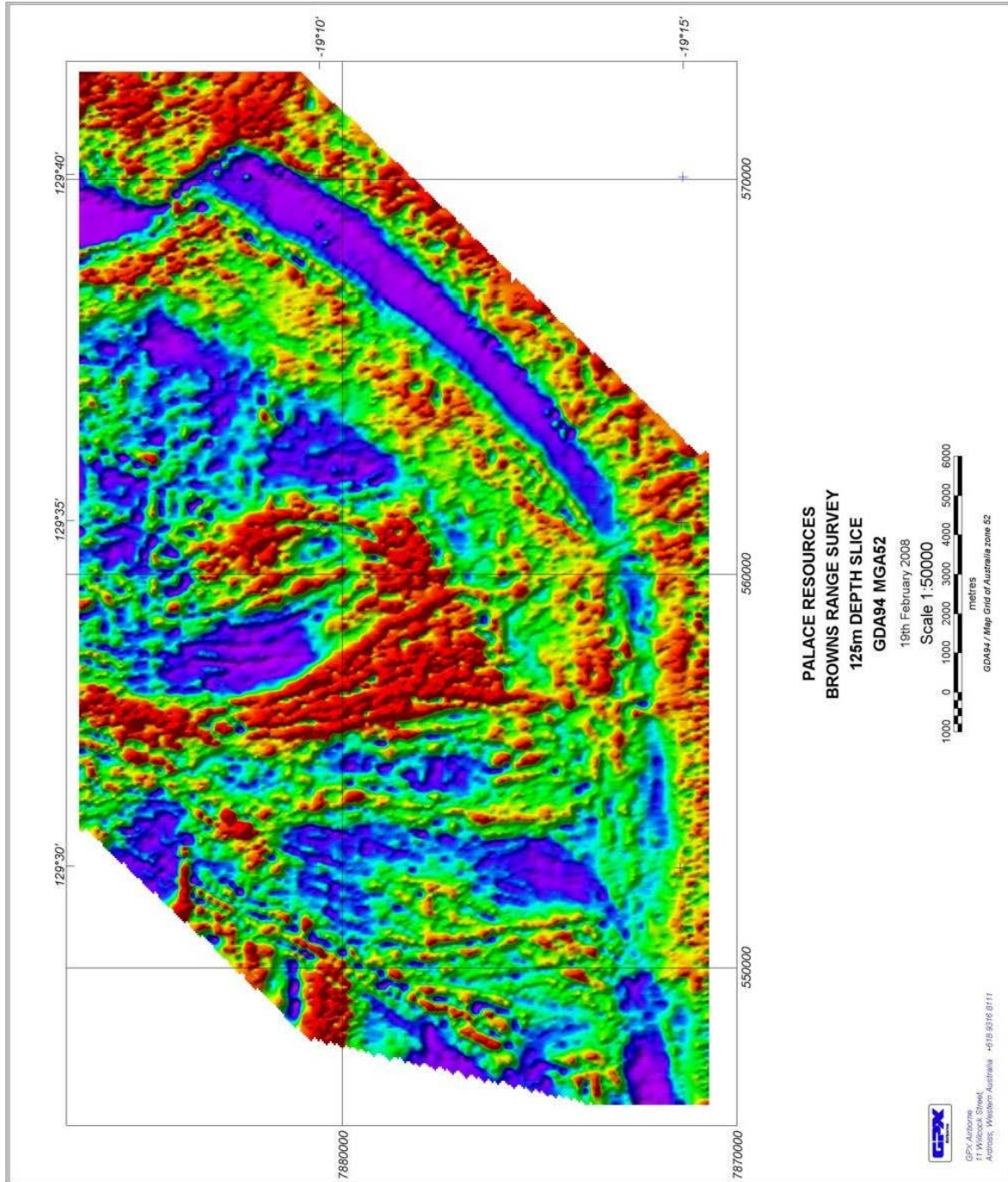
Linear & logarithmic profiles, and conductivity depth images for each line. In PNG (Portable Network Graphics) format.

IMAGES

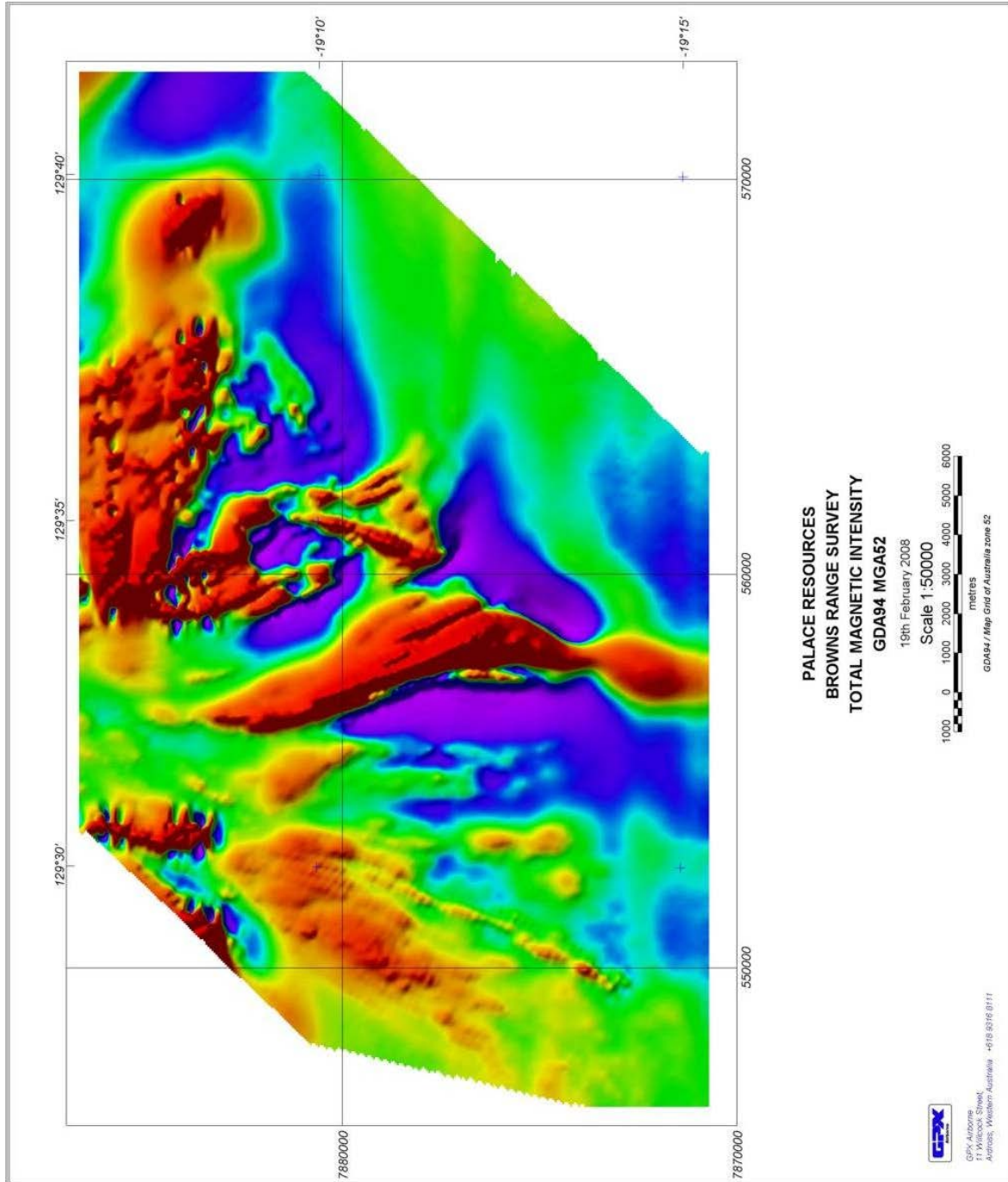
60m Depthslice



125m Depthslice



Total Magnetic Intensity



CONTRACTOR INFORMATION



GPX Airborne

A.B.N. 74 094 570 028

Locked Bag 3, Applecross,
Western Australia. 6153

Telephone: (08) 9316 8111

Fax: (08) 9316 8033

Web: www.gpxair.com.au