

MINOTAUR EXPLORATION LTD

247 Greenhill Road, Dulwich 5065, South Australia
Tel: +61 8 8366 6000 Fax: +61 8 8366 6001
Website www.minotaurexploration.com.au
Email admin@minotaurexploration.com.au
A.C.N. 108 483 601



Subject: **Coolibah Bore – Ground magnetic survey: Summary Report**
Author: Louise McAllister
Tenement: Coolibah
Date: 13th July 2011

Introduction

The Coolibah tenement is located 250kms northeast of Alice Springs in the Northern Territory, and covers part of the Eastern Arunta province where Palaeoproterozoic metasediments and metaigneous rocks outcrop from shallow Cainozoic cover (figure 1).

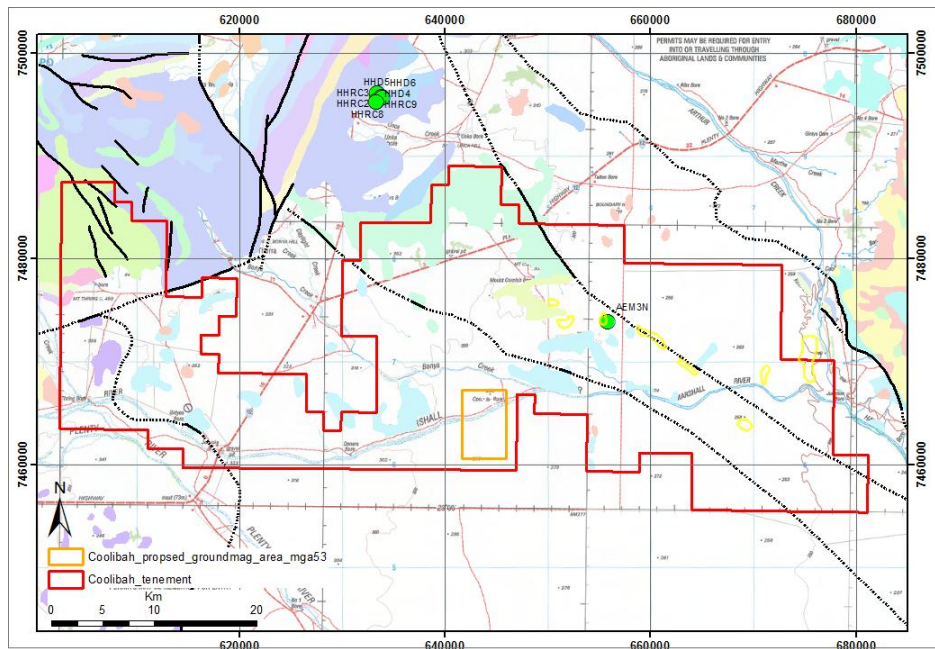


Figure 1 Coolibah tenement showing outcropping geology.

The region is known to host Cu, Pb-Zn and Sn, with the Jervois Copper deposit located to the northeast of the tenement. Sub-cropping vanadium rich magnetite bodies have recently been discovered that correlate with magnetic highs along a NW-SE trending structure. The southern continuation of this structure passes through the Coolibah tenement (figure 2). Several EM anomalies have also been identified along this structure within the tenement.

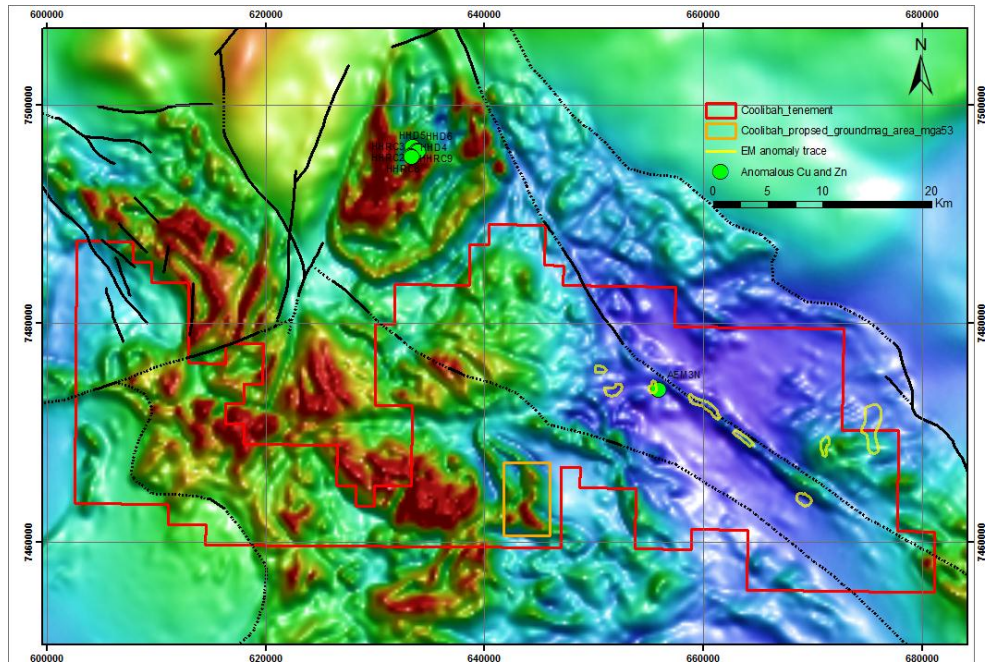


Figure 2 RTP HSI magnetic image for the Coolibah tenement, fault traces have been outlined in black, along with mineral occurrences and EM anomalies.

A further area of interest in this tenement is close to Coolibah Bore, here a coincident gravity/magnetic fold hinge anomaly is observed (figure 3).

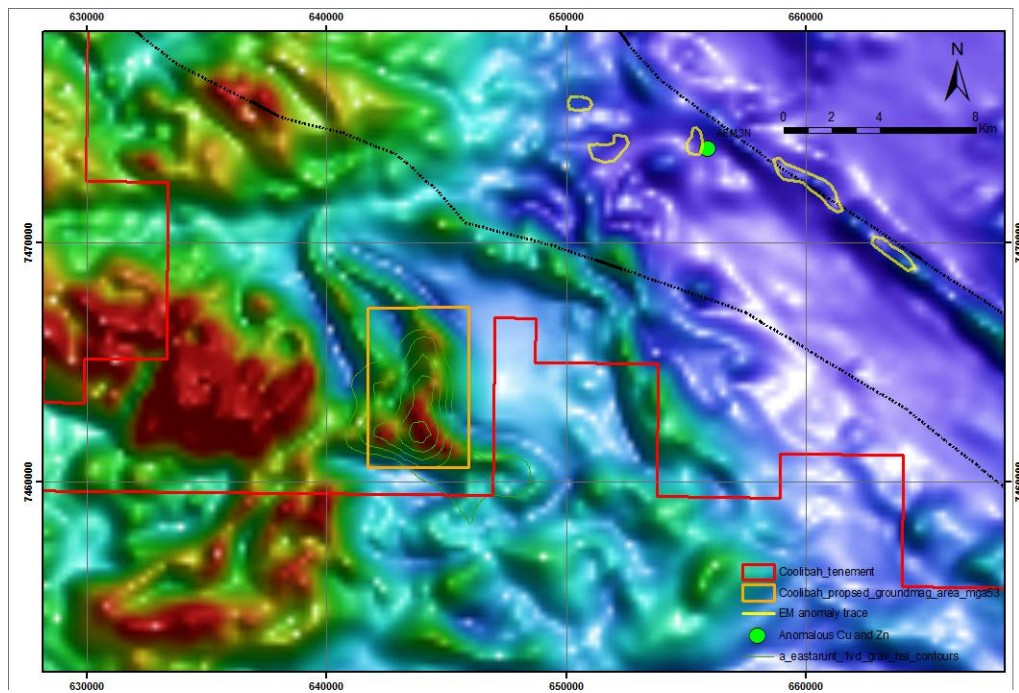


Figure 3 Regional aeromagnetic RTPHSI image with 1VD gravity contours showing the coincident gravity and magnetic anomalies. The ground magnetic survey area is outlined in orange.

Between the 24th June and 6th July, 142.8 km of ground magnetic data was collected at Coolibah Bore in order to more clearly define the magnetic features in this area (figure 4).

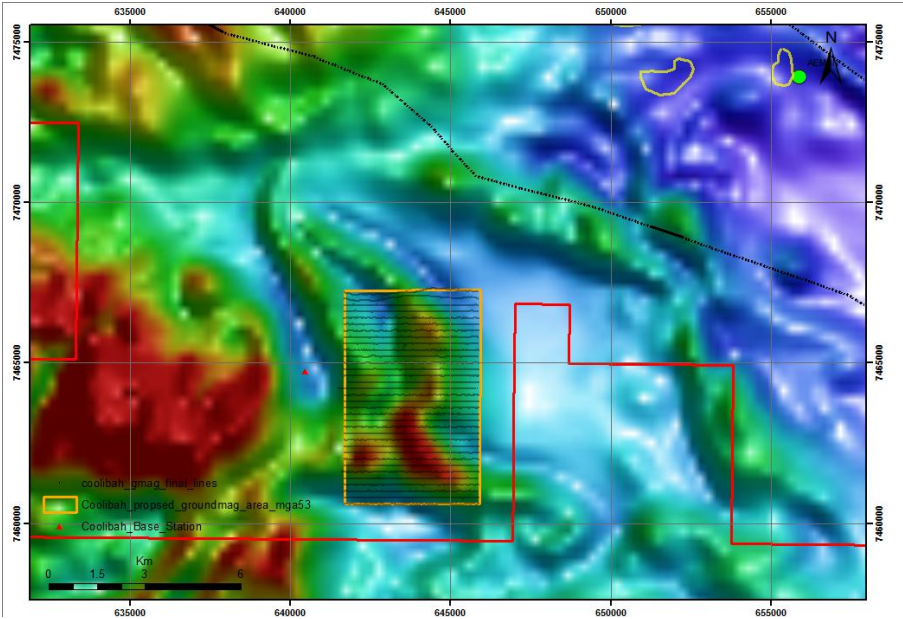


Figure 4 Regional aeromagnetic RTPHSI image with ground mag lines over the area of interest at Coolibah Bore.

Survey Logistics

The ground magnetic work was conducted in house by Minotaur Exploration using a G859 magnetometer. Survey lines were spaced at 200m intervals and data collected every second as the operator walked the line. The survey details are summarised in the following tables:

Target	Line_Northing	StartE	FinishE	Length (m)	Ori (°)
Coolibah Bore	7460600	641700	645900	4200	90
Coolibah Bore	7460800	641700	645900	4200	90
Coolibah Bore	7461000	641700	645900	4200	90
Coolibah Bore	7461200	641700	645900	4200	90
Coolibah Bore	7461400	641700	645900	4200	90
Coolibah Bore	7461600	641700	645900	4200	90
Coolibah Bore	7461800	641700	645900	4200	90
Coolibah Bore	7462000	641700	645900	4200	90
Coolibah Bore	7462200	641700	645900	4200	90
Coolibah Bore	7462400	641700	645900	4200	90
Coolibah Bore	7462600	641700	645900	4200	90
Coolibah Bore	7462800	641700	645900	4200	90
Coolibah Bore	7463000	641700	645900	4200	90
Coolibah Bore	7463200	641700	645900	4200	90
Coolibah Bore	7463400	641700	645900	4200	90
Coolibah Bore	7463600	641700	645900	4200	90
Coolibah Bore	7463800	641700	645900	4200	90
Coolibah Bore	7464000	641700	645900	4200	90
Coolibah Bore	7464200	641700	645900	4200	90
Coolibah Bore	7464400	641700	645900	4200	90
Coolibah Bore	7464600	641700	645900	4200	90
Coolibah Bore	7464800	641700	645900	4200	90
Coolibah Bore	7465000	641700	645900	4200	90
Coolibah Bore	7465200	641700	645900	4200	90
Coolibah Bore	7465400	641700	645900	4200	90
Coolibah Bore	7465600	641700	645900	4200	90
Coolibah Bore	7465800	641700	645900	4200	90
Coolibah Bore	7466000	641700	645900	4200	90
Coolibah Bore	7466200	641700	645900	4200	90
Coolibah Bore	7466400	641700	645900	4200	90
Coolibah Bore	7466600	641700	645900	4200	90
Coolibah Bore	7466800	641700	645900	4200	90
Coolibah Bore	7467000	641700	645900	4200	90
Coolibah Bore	7467200	641700	645900	4200	90
Total line km				142.8km	

Table 1 Summary of survey lines.

All co-ordinates are given in GDA 94, MGA Zone 53S.

The survey was conducted between 24th June and 6th July, a summary of daily operations is given in table 2 below:

Date	Activities	Notes
24-06-11	Mobilise to site	
25-06-11	Set up Base station and survey L7467200 and L7467000	Base station ok
26-06-11	Survey L7466800, L7466600, L7466400 and L7466200	Base Station ok
27-06-11	Survey L7466000, L7465800, L7465600 and L7465400	Base station ok, gap in L7465600 to be repeated
28-06-11	Survey L7465200 and L7465000	Base station ok
29-06-11	Survey L7464800, L7464600 and part of L7464400	Base station not working, roving mag used
30-06-11	No acquisition, only gap in L7465600 repeated	Base station not working, roving mag used
01-07-11	Survey L7464400 and L7464200	Base station ok, but roving mag used to take base readings too. Roving unit GPS not working, marks taken every 100m
02-07-11	Tom Martyn returns to Adelaide and is replaced by Julian Bates	
03-07-11	Survey L7464000, L7463800, L7463600, L7463400, L7463200 and L7463000	Base station ok
04-07-11	Survey L7462800, L7462600, L7462400, L7462200, L7462000 and L7461800	Base station ok
05-07-11	Survey L7461600, L7461400, L7461200, L7461000, L7460800 and L7460600	Base station ok
06-07-11	Demobilise to Alice	

Table 2 Summary of daily operations.

The following table summarises the survey details:

Survey Equipment	
Magnetometer	Geometrics G-859 magnetometer
Base Magnetometer	Geometrics G-856 magnetometer
Survey Specifications	
Line Direction	East-West
Line Spacing	200 metres
Survey Speed	Walking pace
Sample Interval	1 per Second

Table 3 Survey details.

Diurnal corrections were calculated using data from the base station data where readings were taken at 30 second intervals throughout the day. The base station was located at the following co-ordinates:

Coolibah Bore 640495E 7464734N
GDA94 Zone 53

The magnetic field for Coolibah Bore was as follows:

Field Intensity	52476nT
Inclination	-54.37°
Declination	5.66°

Data Quality

The data quality throughout the survey was good. As noted in table 3 above, base station data was not recorded on 29th and 30th of June, instead data was collected by the roving unit by returning frequently to the base station location.

On the 1st the Roving unit GPS unit failed, the track was marked every 100m and the missing GPS co-ordinates were interpolated in Geosoft.

Individual noisy data points as shown in figure 5 were removed in Geosoft.

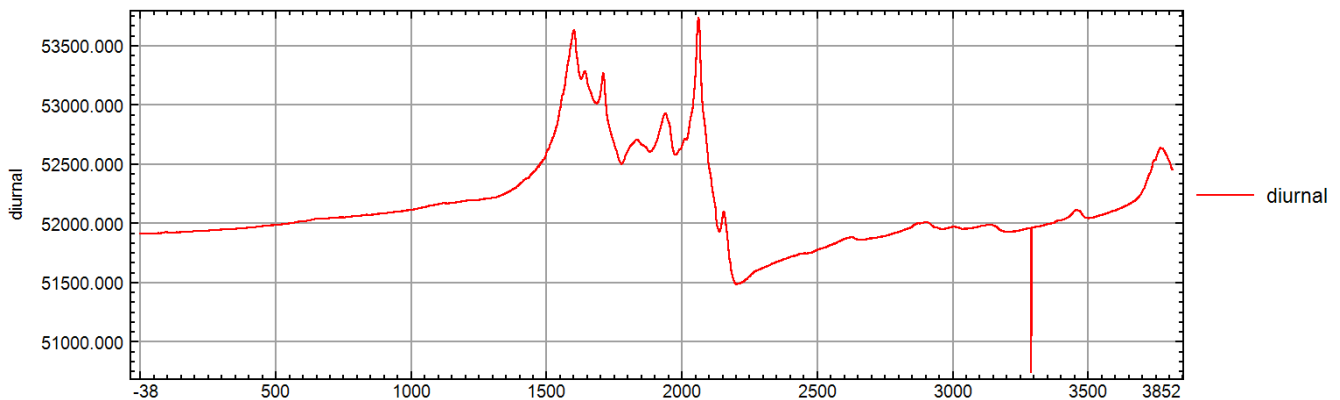


Figure 5 Example of individual noise point on line L746700 which has been removed from the final dataset.

Topographic information is not presented in this report as the integrated GPS unit is not adequately accurate in the Z direction.

Data Processing

The roving magnetic data was corrected for diurnal magnetic variation, using the base station data. A 5m upward continuation was applied to the line data and saved as an additional column in the data file. The data was gridded at 50m cells then reduced to pole and a first vertical derivative filter applied. The following FFT filters were also applied; Analytical Signal, Tilt and Tilt Gradient, these filters enhance regional structures and the edges of magnetic anomalies.

Results

The ground magnetic data for Coolibah Bore has resolved the regional magnetic highs (figure 6), into a series of sinuous lineations trending approximately north-south through the centre of the survey area. The RTPMTI image is dominated by a large magnetic high of 3000nT in the southern section of the grid (figure 7). This magnetic anomaly covers an area of almost 1.5 sq km and is elongated along a north-west to south-east trend. The southern margin of the magnetic high is well defined, terminating on an east-west trending structure. Likewise the eastern extent of the magnetic anomaly is also marked by a northwest-southeast striking structure. The outline of this structure is marked on its western side by isolated magnetic highs of 1000 – 2000nT, which show elongation along a northwest-southeast axis. On the other hand the eastern side of this structure is characterised by areas that are magnetically quiet. This structure can be traced throughout the length of the survey grid.

A lower amplitude magnetic high is also observed to the west of the main anomaly, up to 750nT and covering an area of 0.2 sq km.

Many of the thin sinuous features seen in the RTPMTI can also be seen in the RTP1VD image (figure 7), however the main magnetic anomaly described above is shown to consist of a number of small discontinuous highs in the 1VD. The main structures are also evident by comparison of the magnetic textures on each side of these features. The greyscale RTP1VD image in figure 8 enhances the lateral continuity of the shallow magnetic features, some of which is more difficult to identify in the coloured RTP1VD image.

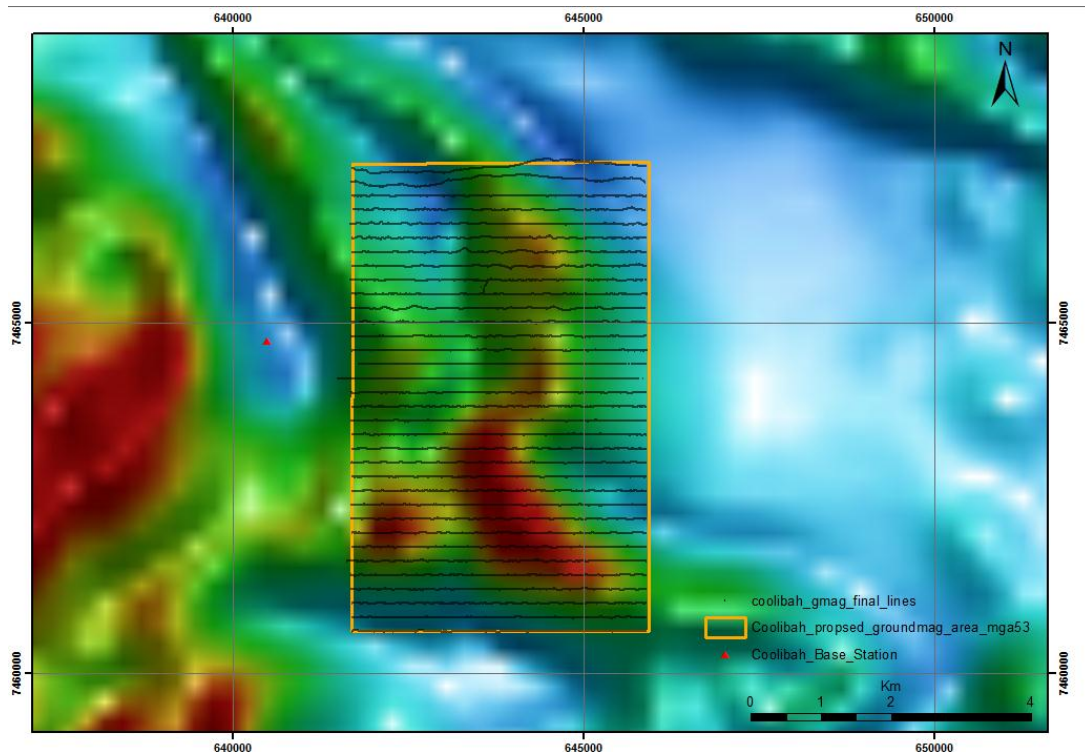


Figure 6 Regional aeromagnetic RTPHSI data for Coolibah Bore with the area of the ground magnetic survey shown in orange.

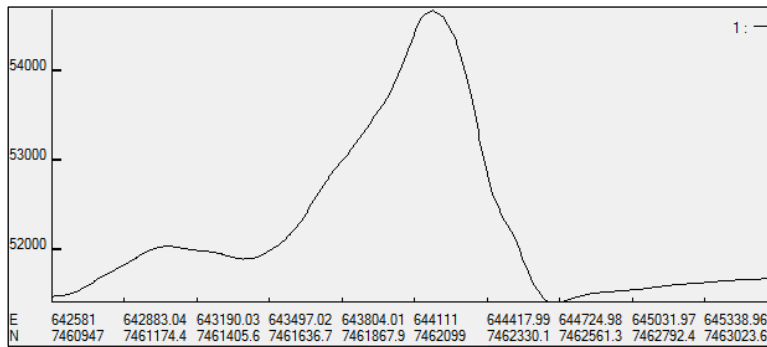
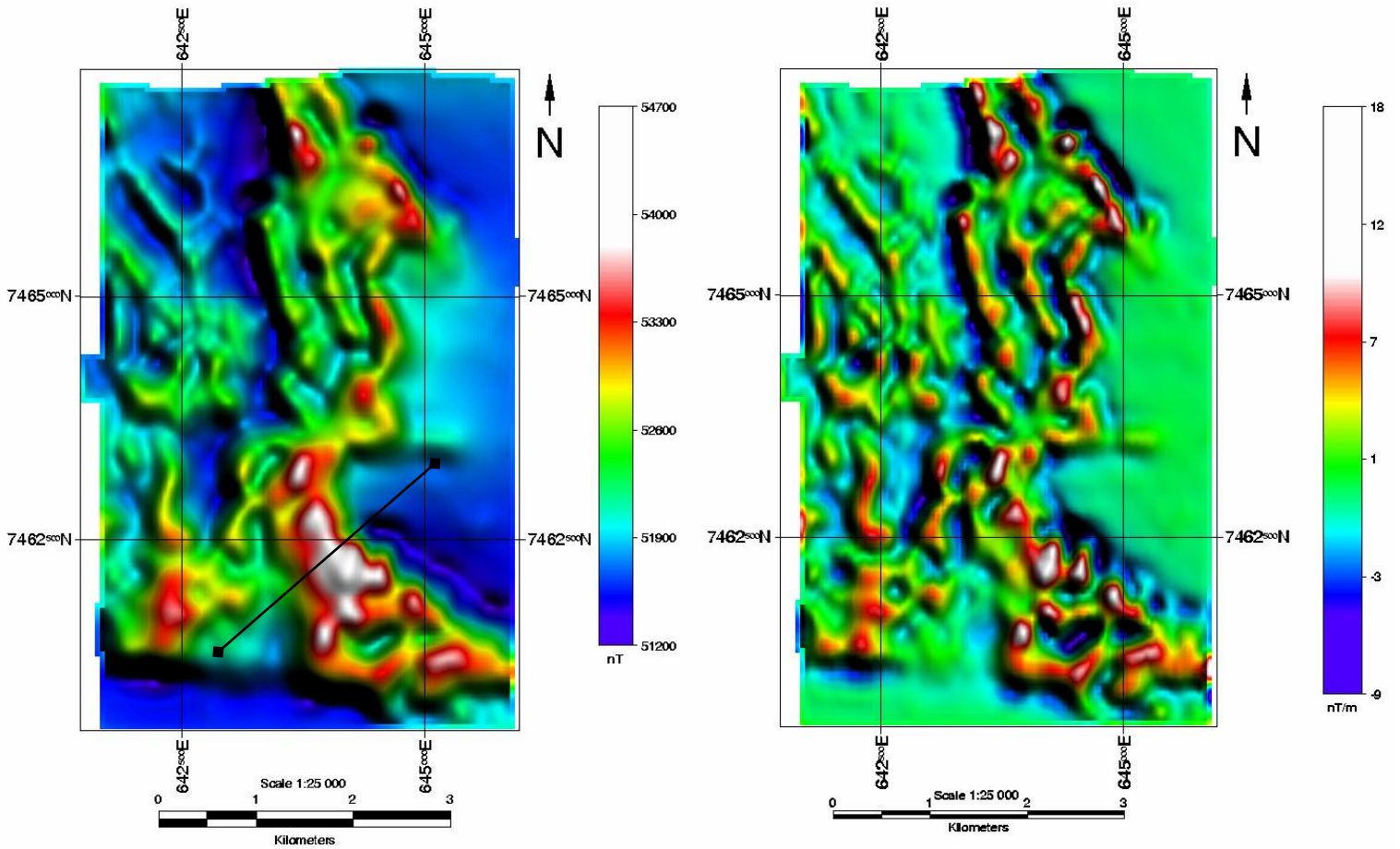


Figure 7a) RTPTMI b) RTP1VD c) Traverse over peak of magnetic anomaly, traverse shown in figure 7a.

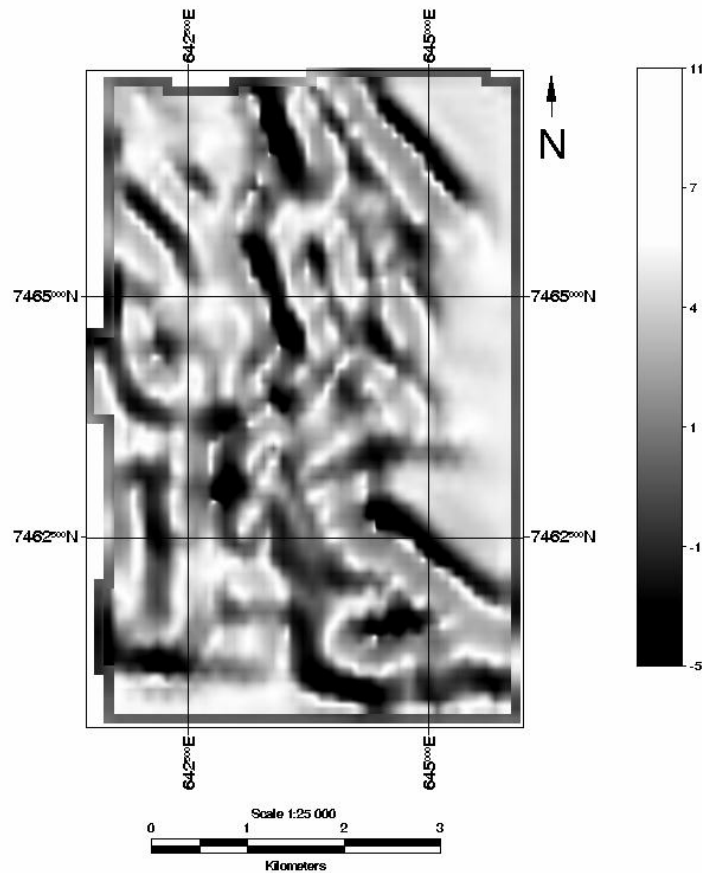


Figure 8 Greyscale RTP1VD magnetic image, gridded at 100m cell size, helps to enhance the lateral continuity of the shallow magnetic features.

Summary

In summary, the ground magnetic data has improved the resolution of the regional airborne magnetic dataset to reveal a series of sinuous lineations trending approximately north-south through the centre of the survey area. In the southern section of the survey area a large, 3000nT magnetic anomaly dominates the RTPTMI image (figure 9) and coincides with a gravity high as shown in figure 10.

The gravity anomaly extends to the north and west, beyond the peak of the magnetic features outlined in figure 10. However the overall magnetic package resolved during this survey correlates well the peak of the gravity anomaly as illustrated in figure 11. A local gravity grid should be considered in future to better resolve the gravity anomaly at Coolibah Bore.

Modelling in 2D and 3D will be conducted on this dataset in due course.

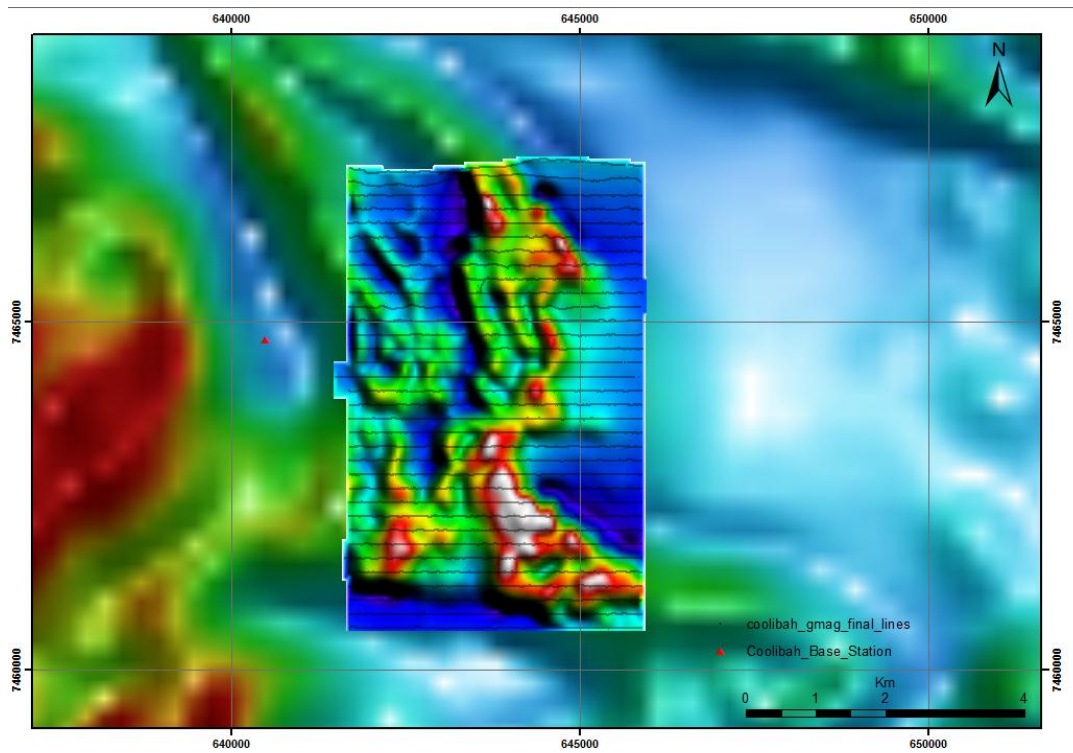


Figure 9 Ground magnetic RTPTMI image on top of regional aeromagnetic image.

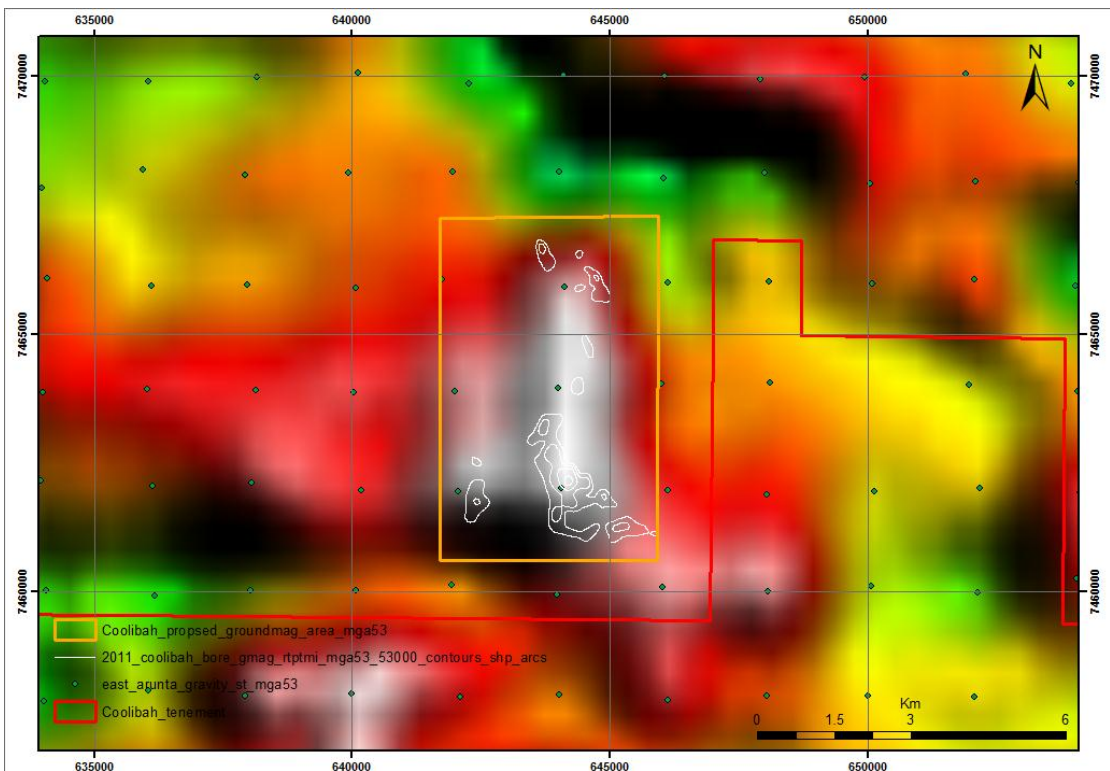


Figure 10 Regional 1VD gravity image for Coolibah Bore overlain with contours of the magnetic anomaly $\geq 53000\text{nT}$. Contours interval is 500nT . The gravity stations are shown as green circles.

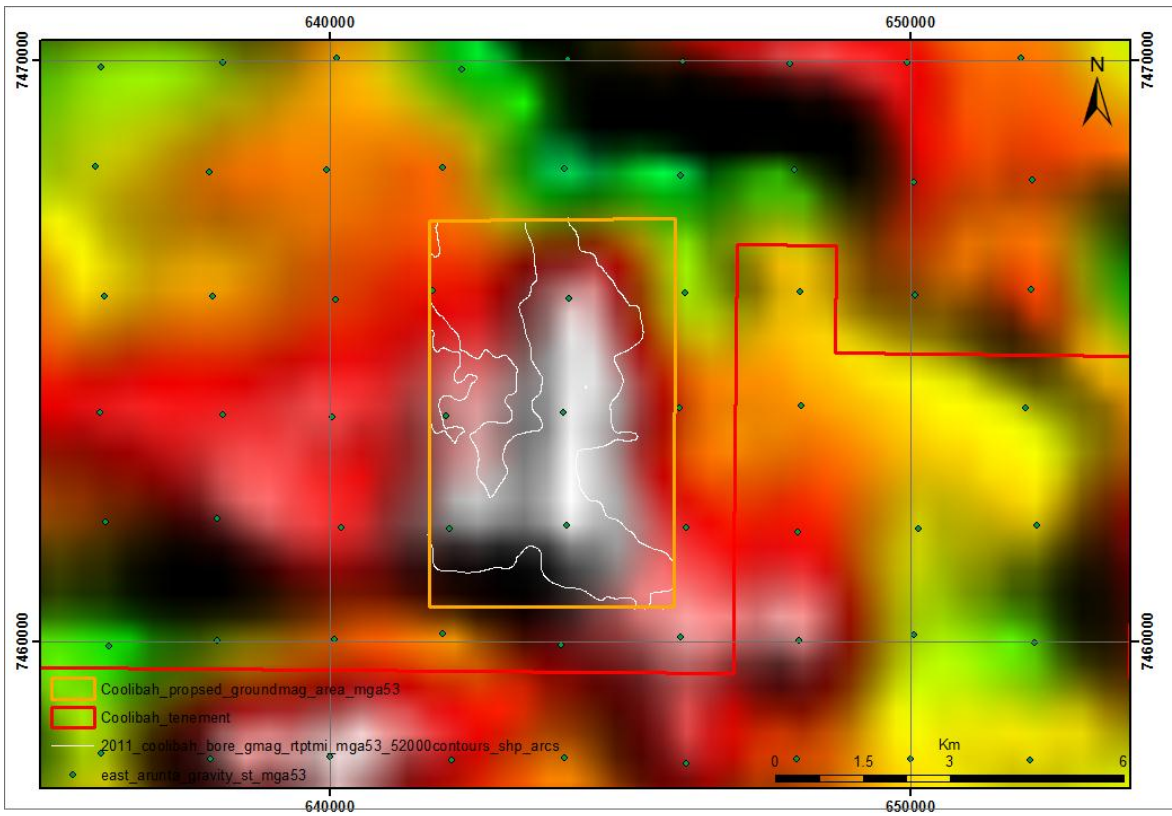


Figure 11 Regional 1VD gravity image for Coolibah Bore, the 52000nT contour line traced in white delineates the moderate to high magnetic features resolved by this survey, and shows good correlation with the peak of the gravity anomaly.