SPINIFEX GEOPHYSICS

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Memorandum

To:	Mike Doepel	From:	Steve Massey
Company	Sipa Resources	Date:	13/03/2013
CC:		Prospect:	Sipa-Meteoric JV
Subject:	Interpretation of Meteoric JV Aeromagnetic Data, Tennant Creek		

1.) Introduction and Background.

Sipa Resources is exploring for Tennant Creek style gold and gold-copper deposits to the West of the historic Warrego deposit in the Tennant Creek Mineral Field (TCMF). The locations of the tenements are shown on figure 1.

Tennant Creek is well known for the very rich, high grade, structurally controlled gold deposits which are associated with massive to semi-massive magnetite and magnetite-hematite "ironstone" pods and lenses within Warramunga formation sediments. Figure 2 shows the 1:250k interpreted geology map for the area surrounding the JV tenements and also the locations of the very rich Warrego and White Devil mines.

Sipa has provided high resolution airborne magnetic data over the Meteoric JV(MJV) areas .Spinifex has acquired the open file aeromagnetic database from the NT government funded survey (200m line spacing) covering the Tennant Creek 1:250k sheet.

The work completed by Spinifex includes:

- Stitching the high resolution survey data into the regional survey. Processing and imaging of the airborne geophysical data.
- Interpretation of the main structures in the area and also magnetic anomalies that can be attributed to possible ironstone bodies.
- Modelling of the magnetic data in areas with interpreted ironstone bodies using 3D inversion and 3D forward modelling methods.
- Integration and interpretation of the model data in 3D to determine the depth and size potential of possible ironstone bodies.

2.) Data Processing and Modelling.

Data Processing

High resolution airborne magnetic survey data have been stitched into the regional survey. An image of the merged residual TMI data is shown on figure 3 .The calculation of the residual TMI anomaly removes the long wave length anomalies from the data and considerably enhances the discreet anomalies. This work along with various derivative calculations and imaging of the data shows there are possibly nine discreet magnetic anomalies that may be due to ironstone bodies.

Figure 4 shows the main structures as interpreted by this author and the positions of interpreted strongly magnetic ironstone bodies.

3D Inversion and Forward Modelling.

Two areas have been selected for modelling based the interpretation of the most likely ironstone bodies (see figures 5 and 6). The magnetic maps shown on these figures are the residual total magnetic anomaly intensity. The locations shown on the figures 5 and 5 are referred to here as Area1 and Area2 respectively.

Detailed 3D magnetic inversion modelling has been completed using the MGinv3D software. Forward modelling has also been completed using the “Potent” software package. The purpose of the 3D inversion work is to determine the depth, geometry and magnetic susceptibility of the magnetic sources underlying the areas shown on figures 5 and 6. The “Potent” modelling was done mainly to check the depth solutions and magnetic susceptibility values derived from the 3D inversion code. The goal of both modelling methods is to minimise the difference between the observed and calculated magnetic anomalies. The 3D inversion method calculates a magnetic susceptibility model directly from the data that satisfies the magnetic survey observations. The forward modelling method is a trial and error approach where the modeller experiments typically with body sizes and shapes, depth and magnetic susceptibility.

3.) Integration and Interpretation.

Horizontal depth slices through the 3D models and the surface projections of the bodies derived from the “Potent” forward model solutions are shown on figures 7 and 8. The most magnetic parts of the 3D model are represented as wireframes on the figures.

Generally the 3Dinversions have the interpreted ironstones (coloured red in the figures) 50-100m deeper than the forward model solutions. It is important to realise that there is considerable uncertainty in depth in any potential field solution beyond a depth of 300m. Model depth solutions of small highly magnetic ironstone bodies in the Tennant Creek area are complicated by their common association with magnetic sediment stratigraphy and surrounding and more voluminous chlorite-magnetite alteration pipes.

The modelling indicates there are six probable ironstone bodies in area 1 with calculated magnetic susceptibilities of > 0.75 SI units. The depth to the top of these bodies is a minimum of 300-400m below the surface. Similarly the modelling in area2 shows there are four probable ironstone bodies with calculated magnetic susceptibilities of 1 SI unit. The depth to the top of these bodies is a minimum of 400-500m below the surface.

FIGURES

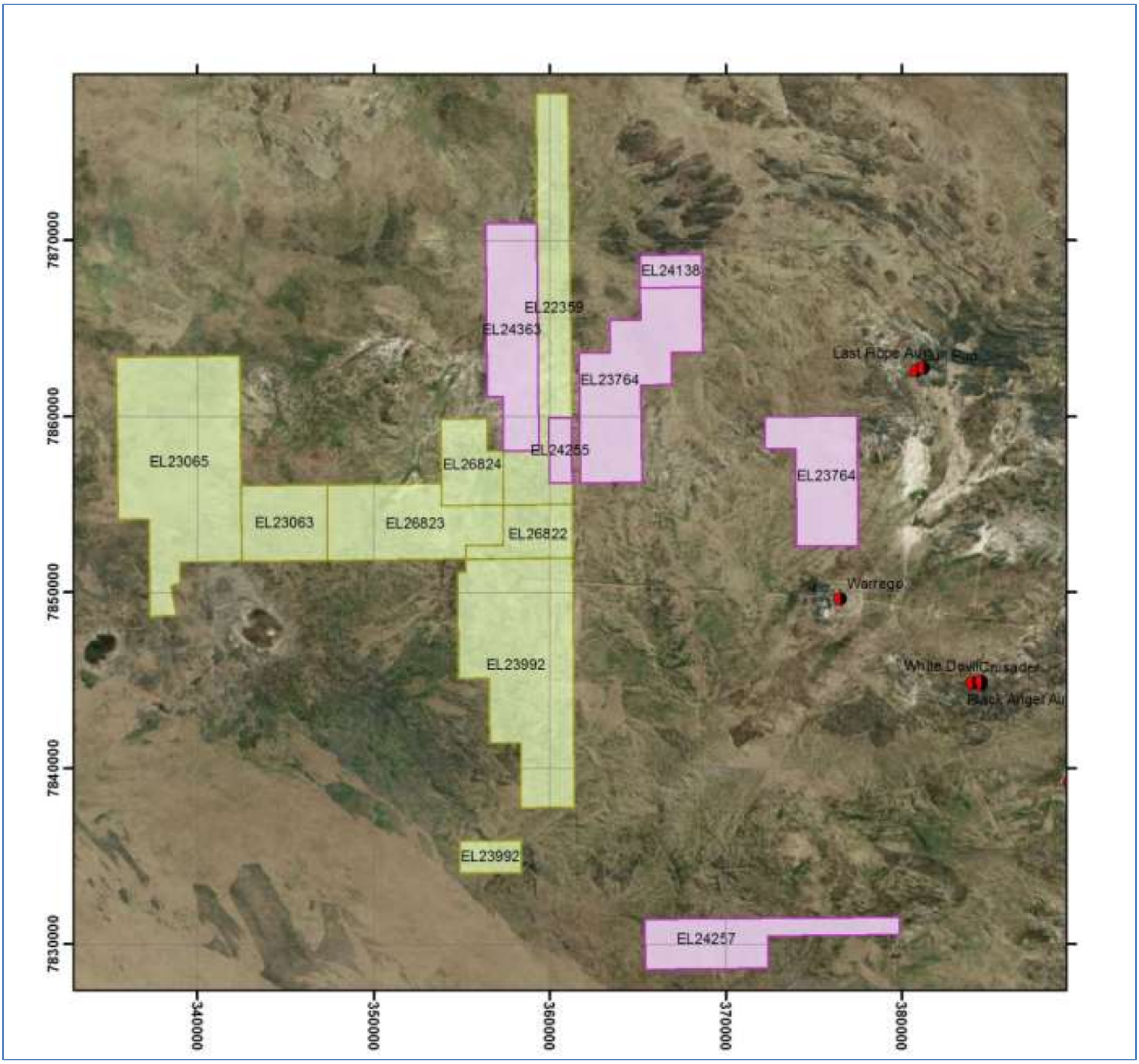


Figure 1. Sipa joint venture tenements in the West Warrego area, Tennant Creek. The mauve colour represents the Meteoric JV tenements.

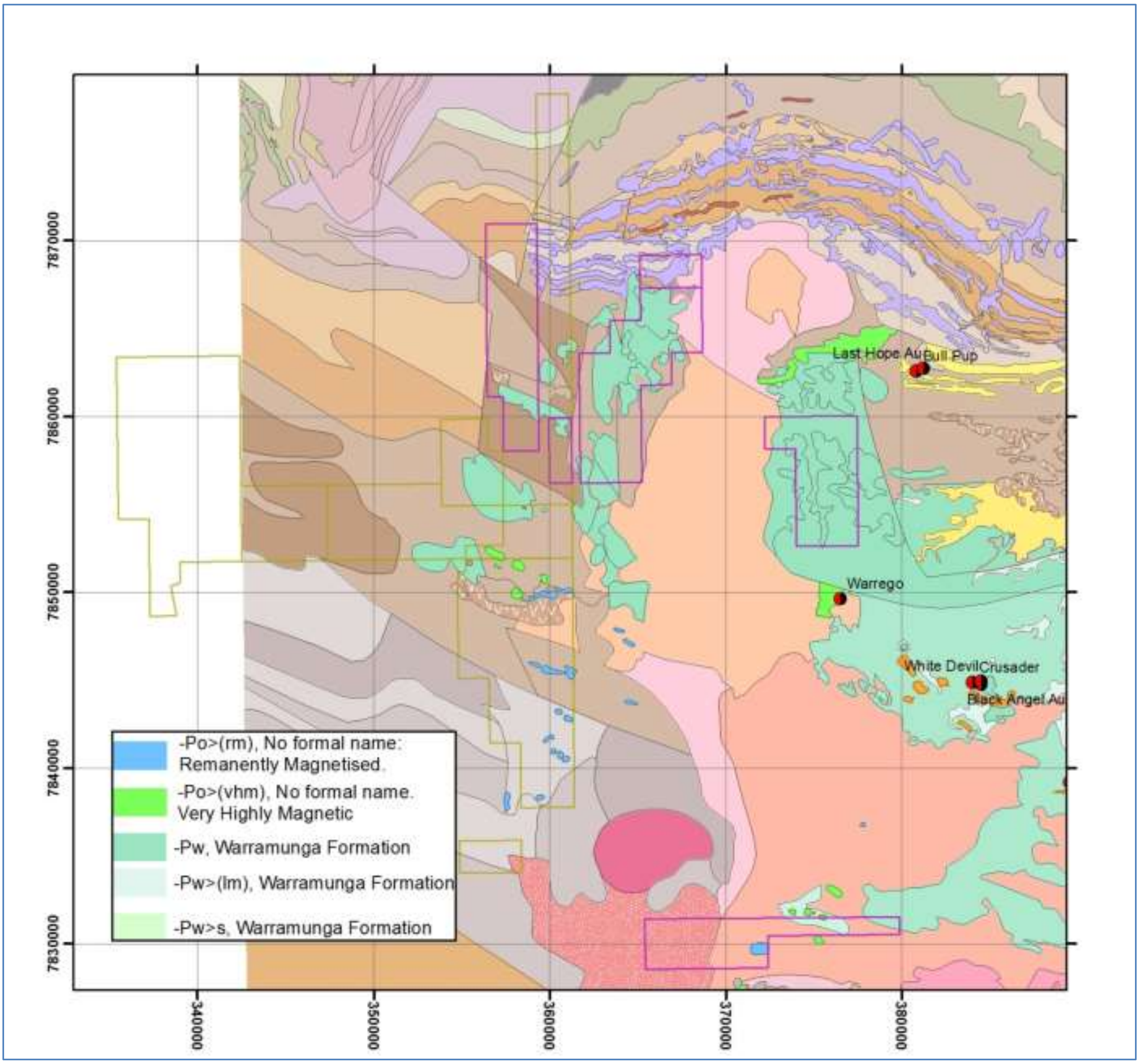


Figure 2. Regional 1:250K geology interpretation in the JV area. (ref. "Tennant Creek : interpreted geology, Northern Territory sheet SE5314").

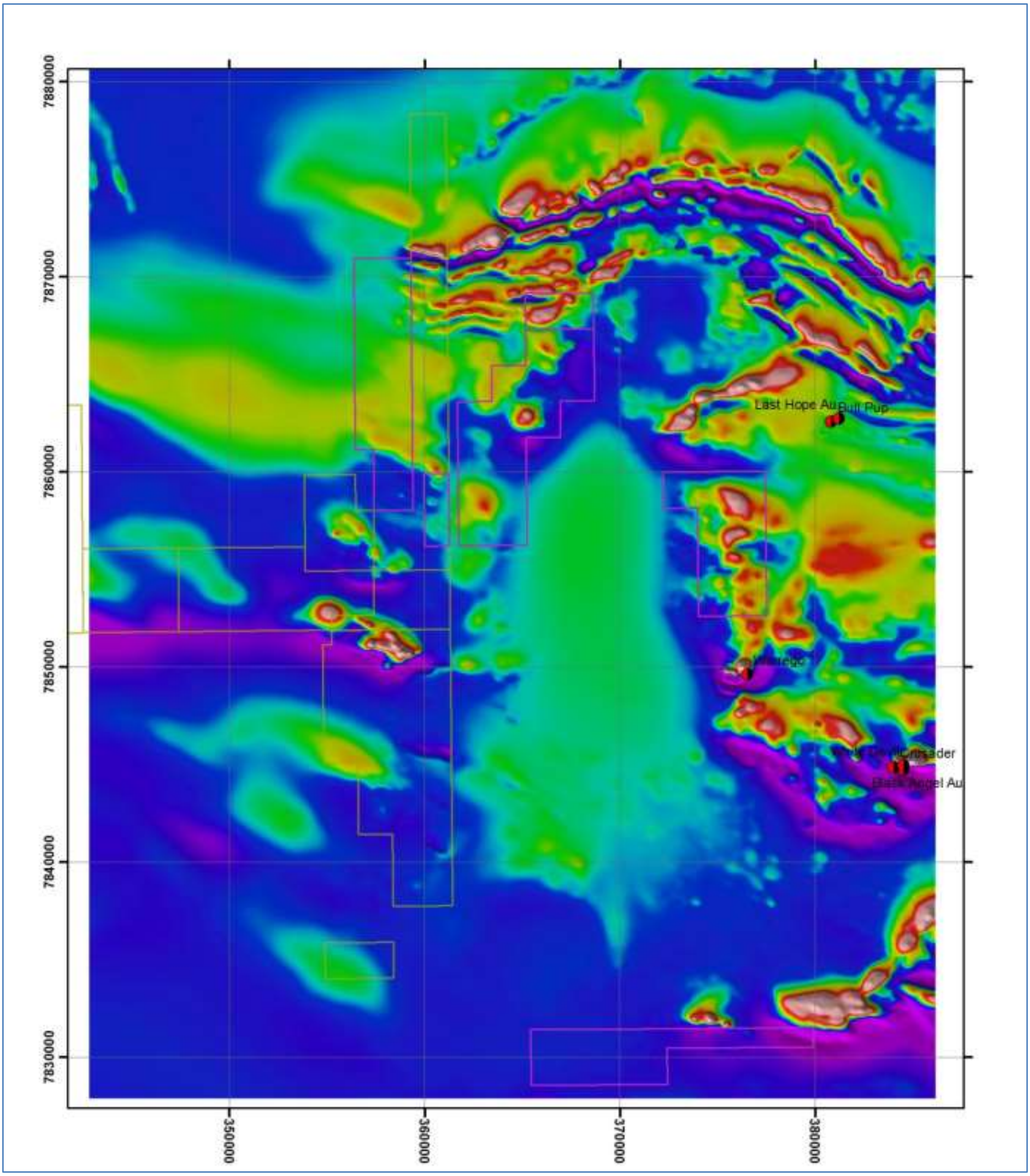


Figure 3. Residual TMI image, merged MJV and regional magnetics.

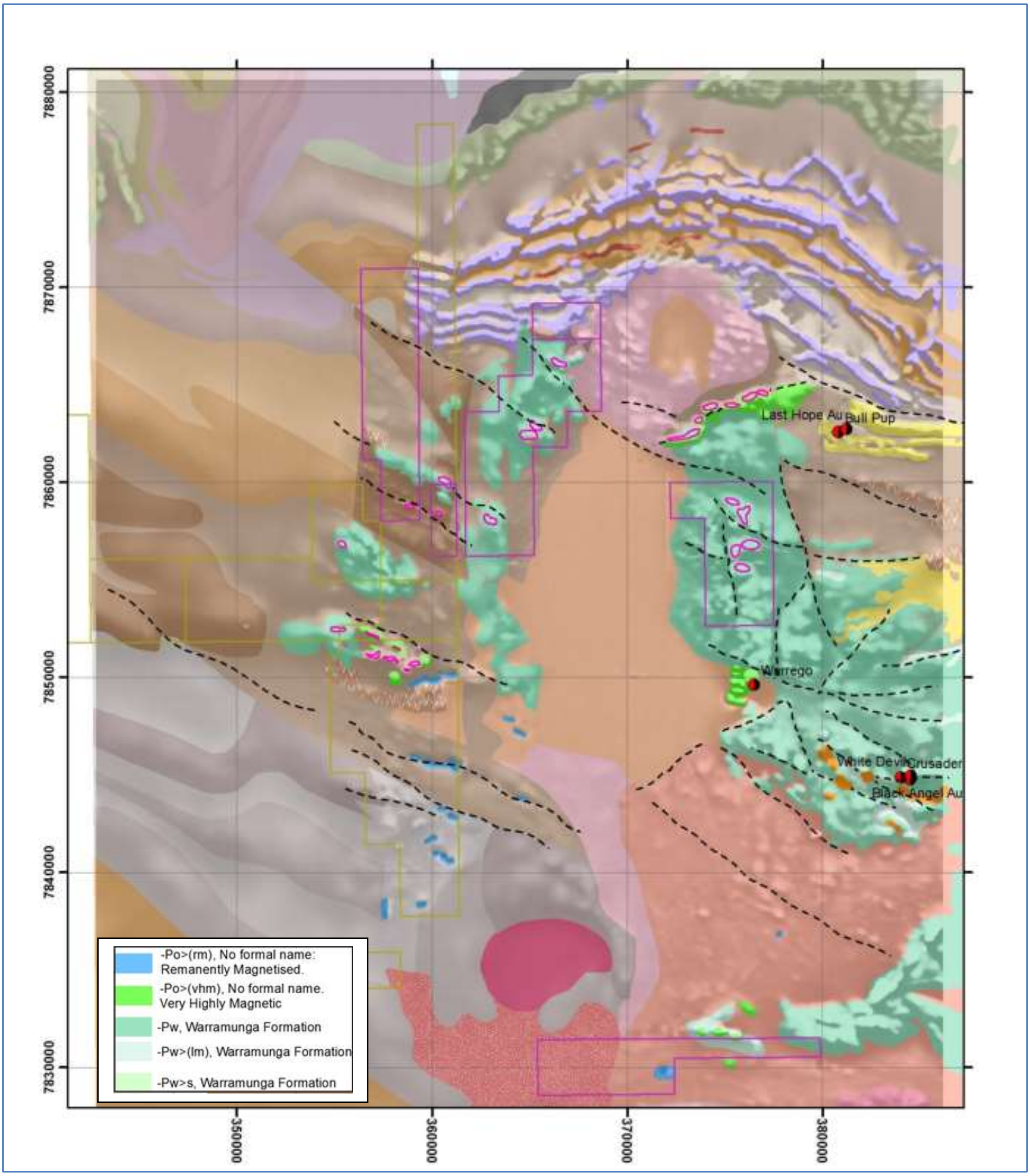


Figure 4. Interpreted ironstone bodies and main structures (based on 1VD grey scale image).

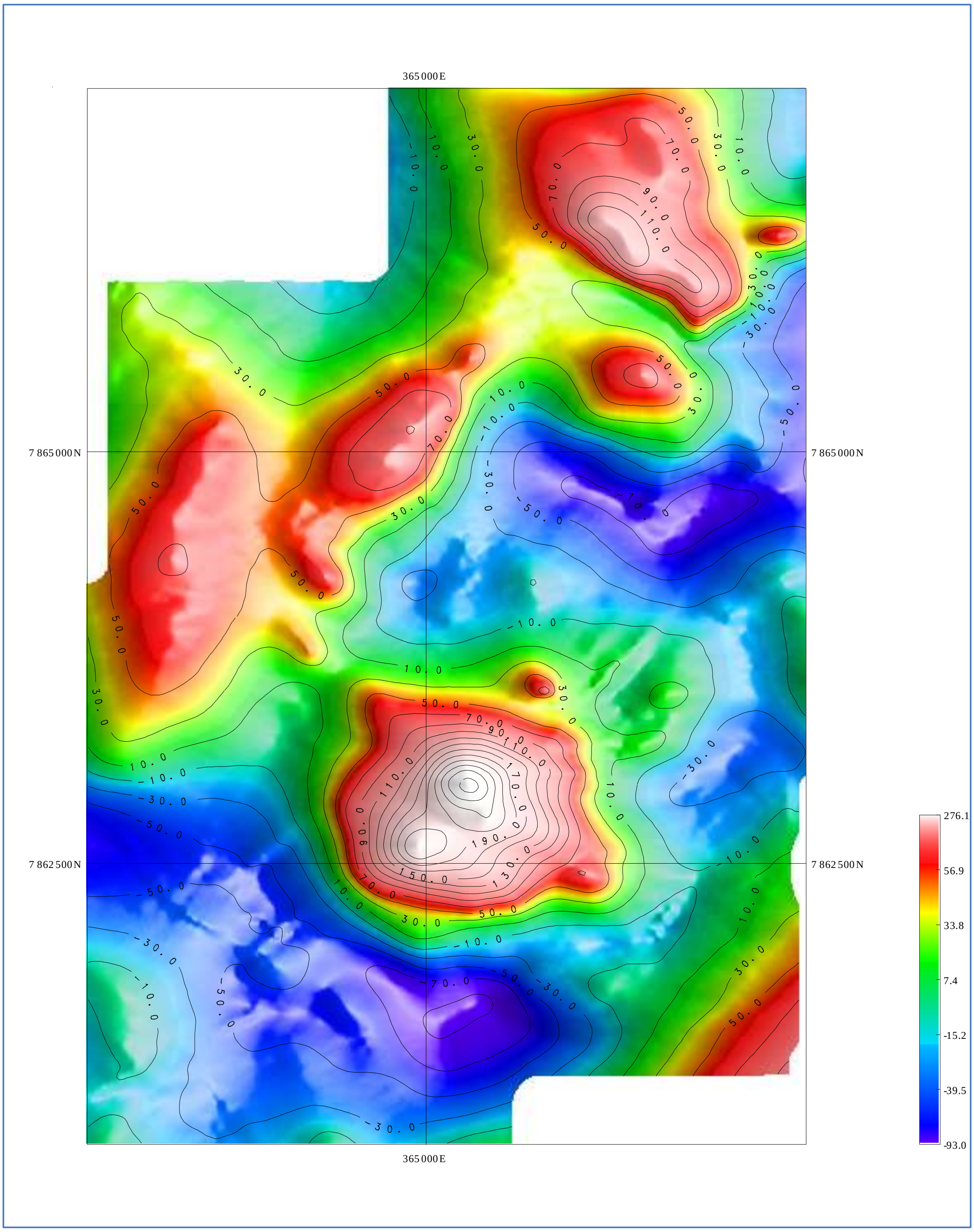


Figure 5.. E23764-Area 1 residual TMI anomalies.

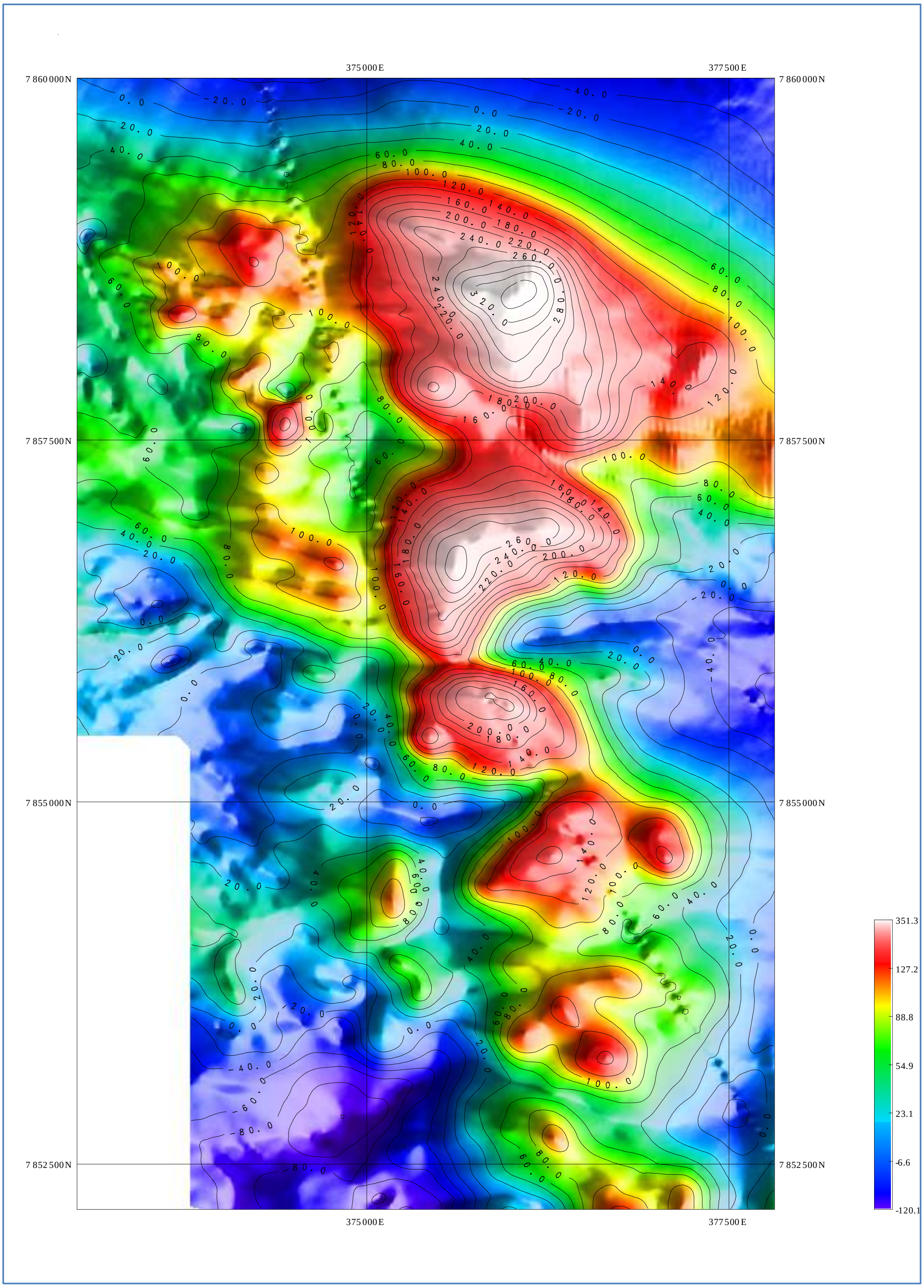


Figure 6. E23764-Area 2 residual TMI anomalies.

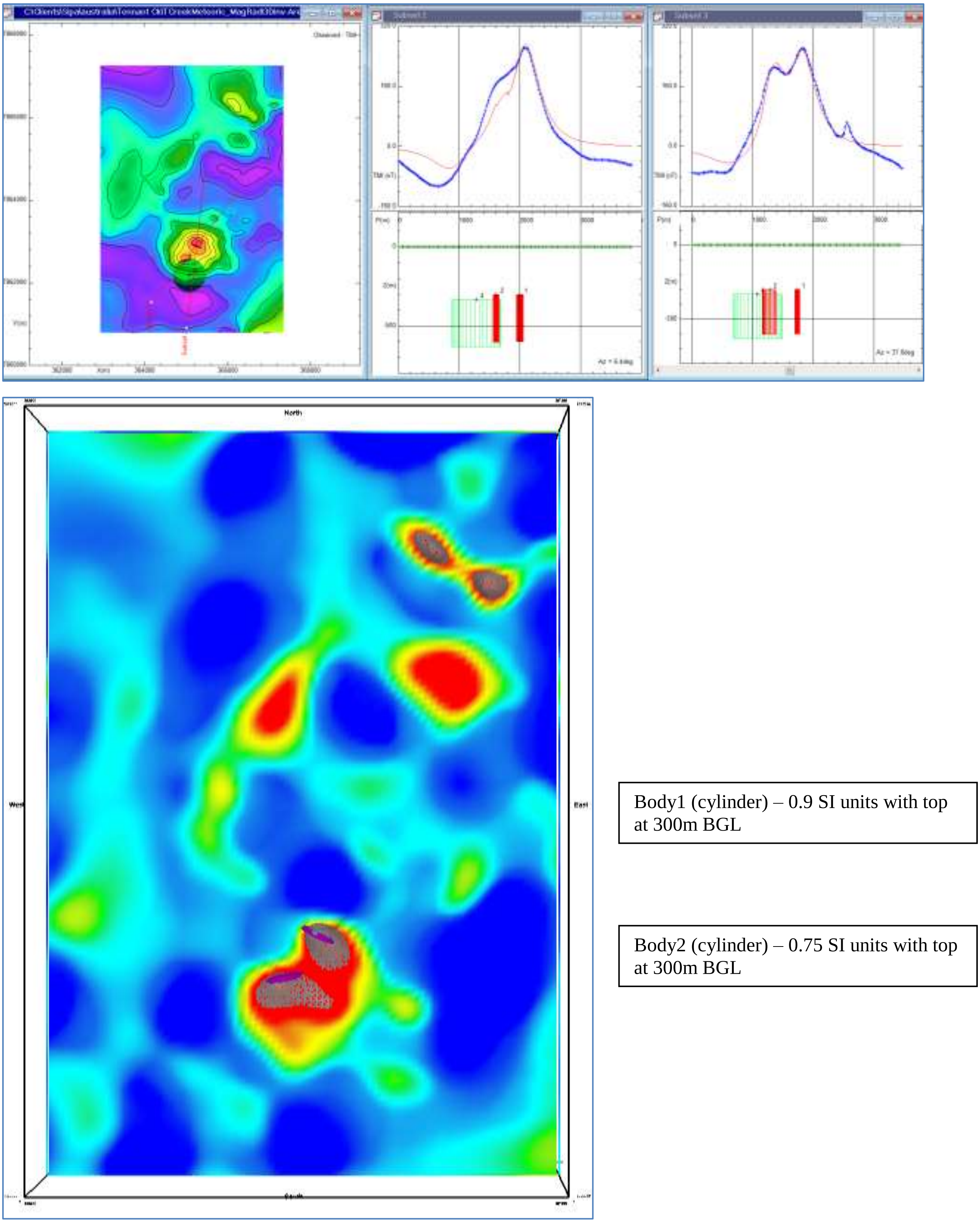
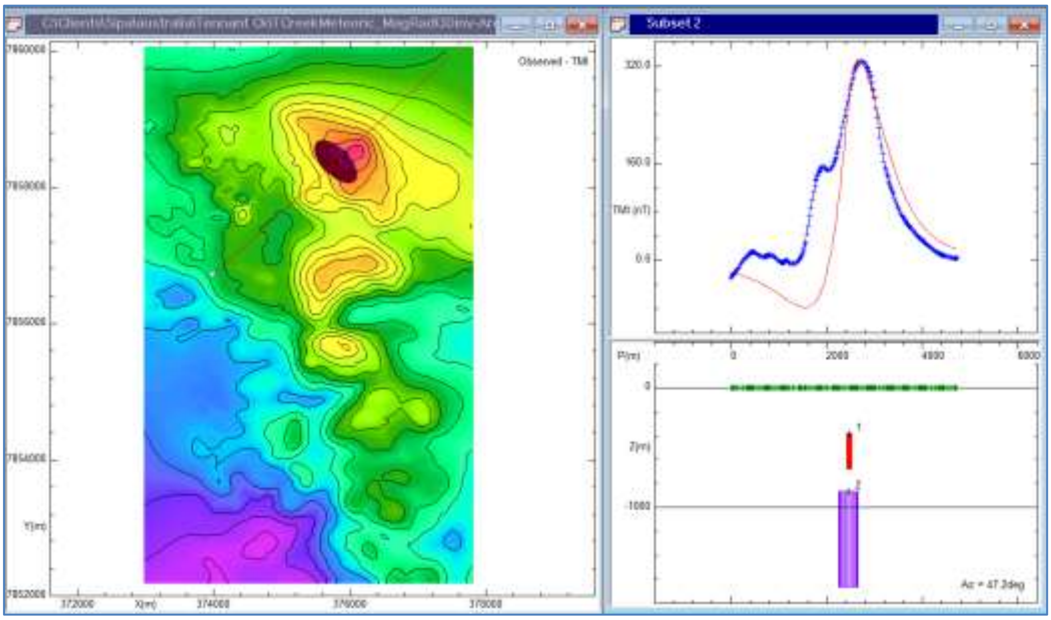
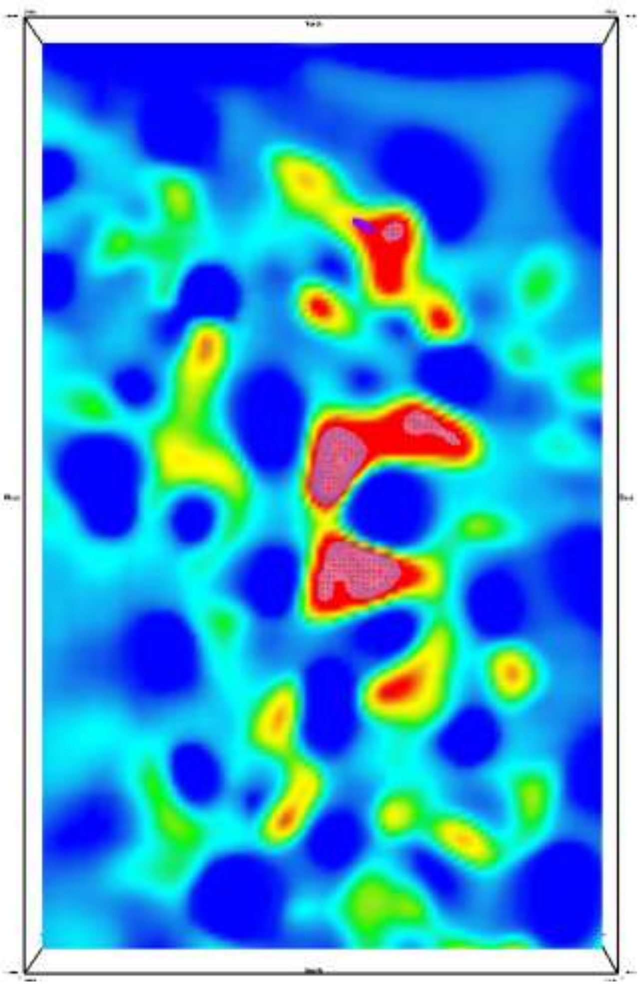


Figure 7. Area 1 forward modelling (top) and depth slice at 460m BGL through the 3D magnetic susceptibility model showing model wireframes and surface projection of the 2D model bodies.





Body1 (cylinder) – 1 SI unit with top at 390m BGL

Figure 8. Area 2 forward modelling (top) and depth slice at 510m BGL through the 3D magnetic susceptibility model showing model wireframes and surface projection of the 2D model bodies.