

A ground magnetics survey was conducted between 20th and 24th September 2010 over the magnesite deposit located on tenement lease 8M/2000 by Chris Allen on behalf of Derwent Geoscience in an effort to better define possible doleritic structures intersecting the deposit.

The survey consisted of 34 lines oriented E-W with a line separation of 40m, with tie-lines located along the more accessible tracks in the area. Total line length was approximately 26km. GSM19 Overhauser magnetometers were used, with readings spaced at 1 second intervals. A high sensitivity Garmin e-trex handheld GPS was used to record position, with the GPS and magnetics data combined during post-processing to produce an image of the local magnetic variations.

The terrain was generally quite low relief with several small exceptions, and vegetation was highly variable, ranging from horizontal vegetation in the SW corner, to ti-tree and eucalypt regrowth forest with many fallen trees in the northern part of the survey area. Due to consistently thick canopy cover, GPS tracking often struggled, with several large jumps in co-ordinates of up to 40m at a time not uncommon.

Data was lightly filtered during processing in an attempt to eliminate as many definite sources of error such as GPS errors or magnetometer dropouts, with anomalies that had no obvious reason remaining, although several of these may have been produced by walking near concealed bits of steel, etc.

Results from the survey are shown below using two different methods of equalisation.

Figure 1 shows the magnetics with a linear equalisation applied, with histogram equalisation used in Figure 2. Figure 1 shows a major zone of high susceptibility striking NW-SE, cross-cutting the southern half of the deposit. There are two distinct parts to this anomaly, with a thin, dyke-like structure extending across the deposit on the southern side of this high, and a broader high which is largely situated on the eastern side of the deposit. The thin feature agrees well with previous mapping work in the area, which indicates a dolerite dyke which is either exposed or very close to the surface, but the broader high just north of this suggests a larger body which is at a greater depth, and possibly does not extent across the width of the deposit. From the gradients on either side of the anomalies, it appears that they would both dip steeply to the NE, which does not agree well with current geological data on the southern-most dyke, which would seem to dip steeply to the SW from drillhole data. Other high features visible in Figure 1 are most likely due to cultural artefacts or dolerite boulders buried in the alluvium.

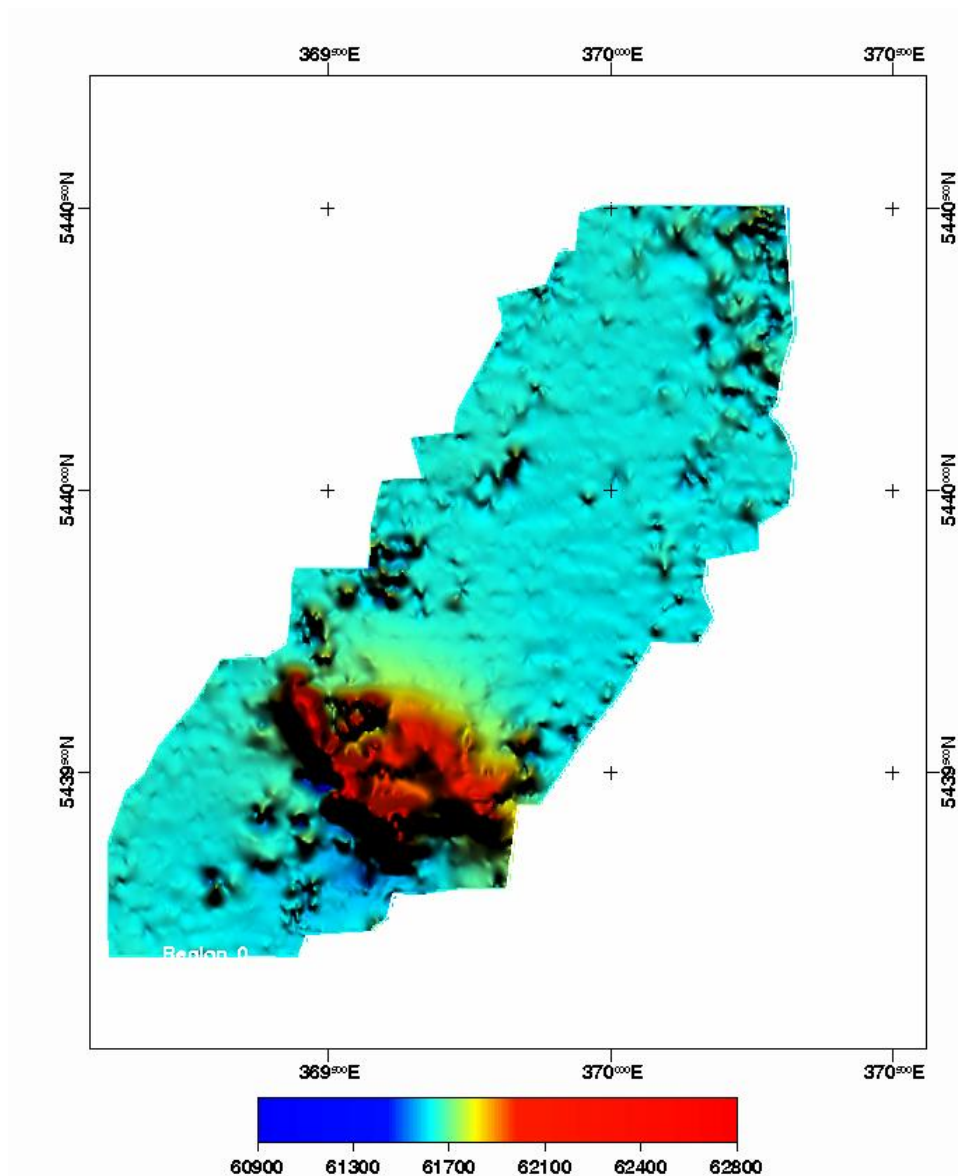


Figure 1: Linear equalised image of magnetic data in nT from Arthur river magnesite deposit. Doleritic materials are shown as highly magnetic, with magnesite materials and surrounding geology only weakly magnetic. Gradients on margins of magnetic anomaly suggest structures are dipping steeply to the NE.

Figure 2 shows a histogram equalised image, showing the same features as those visible in Figure 1, but also accentuates a possible dyke in the far north of the area, given by the discontinuous line of high susceptibilities striking in approximately the same direction as the strong dyke in the south, and also provides a stronger impression of these highly magnetic structures dipping steeply to the NE.

The previously mapped extents of the deposit appear to be shown in the magnetics on the western side of the area, and very weakly to the east. This is given by the more variable

signature of the surrounding rocks than the magnesite, which has a very consistent susceptibility, with the exception of several highs and lows which were most likely caused by cultural artefacts, doleritic boulders or instrument error.

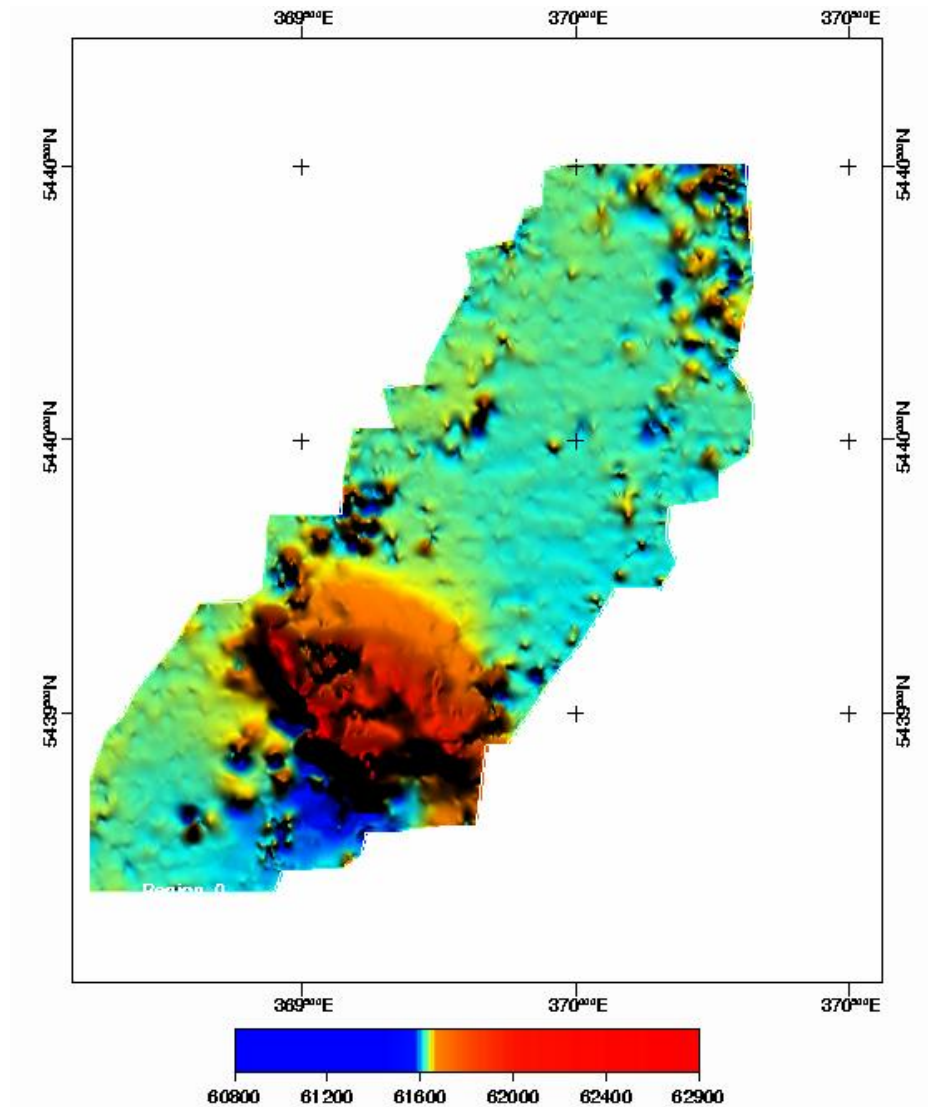


Figure 2: Histogram equalised image of magnetic data in nT from Arthur river, showing many of the same features as that of linear equalised image, but accentuating other possible structures, particularly in the northern part of the survey area.

If lines were to be surveyed perpendicular to the area of interest around the zones of high susceptibility, a much more definitive image of the area would be possible, which could be combined with gravity and resistivity data to produce a model with a much higher degree of confidence than magnetics data alone.