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# ASSESSMENT OF SELECTED FEATURES IN THE 2007 MAGNETIC SURVEYS 0F NORTH EAST TASMANIA

REPORT FOR MINERAL RESOURCES TASMANIA

by

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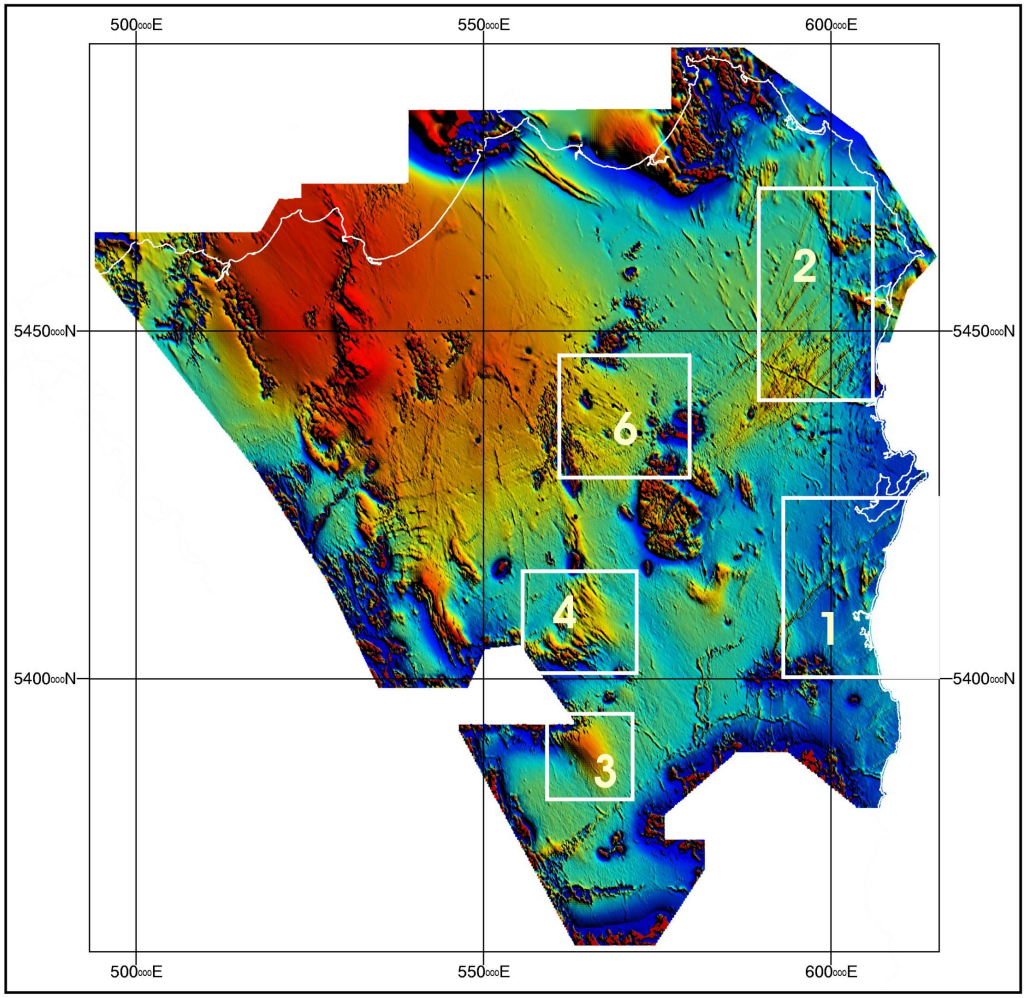


Figure 1:
Image of Total Magnetic Field Intensity in Northeast Tasmania.
(All data provided by Mineral Resources Tasmania)

The numbered areas refer to the regions and anomalies selected for assessment and described in this report.
Particular sites for selection #5 are small and distributed across areas 2 and 6, and the area between these.

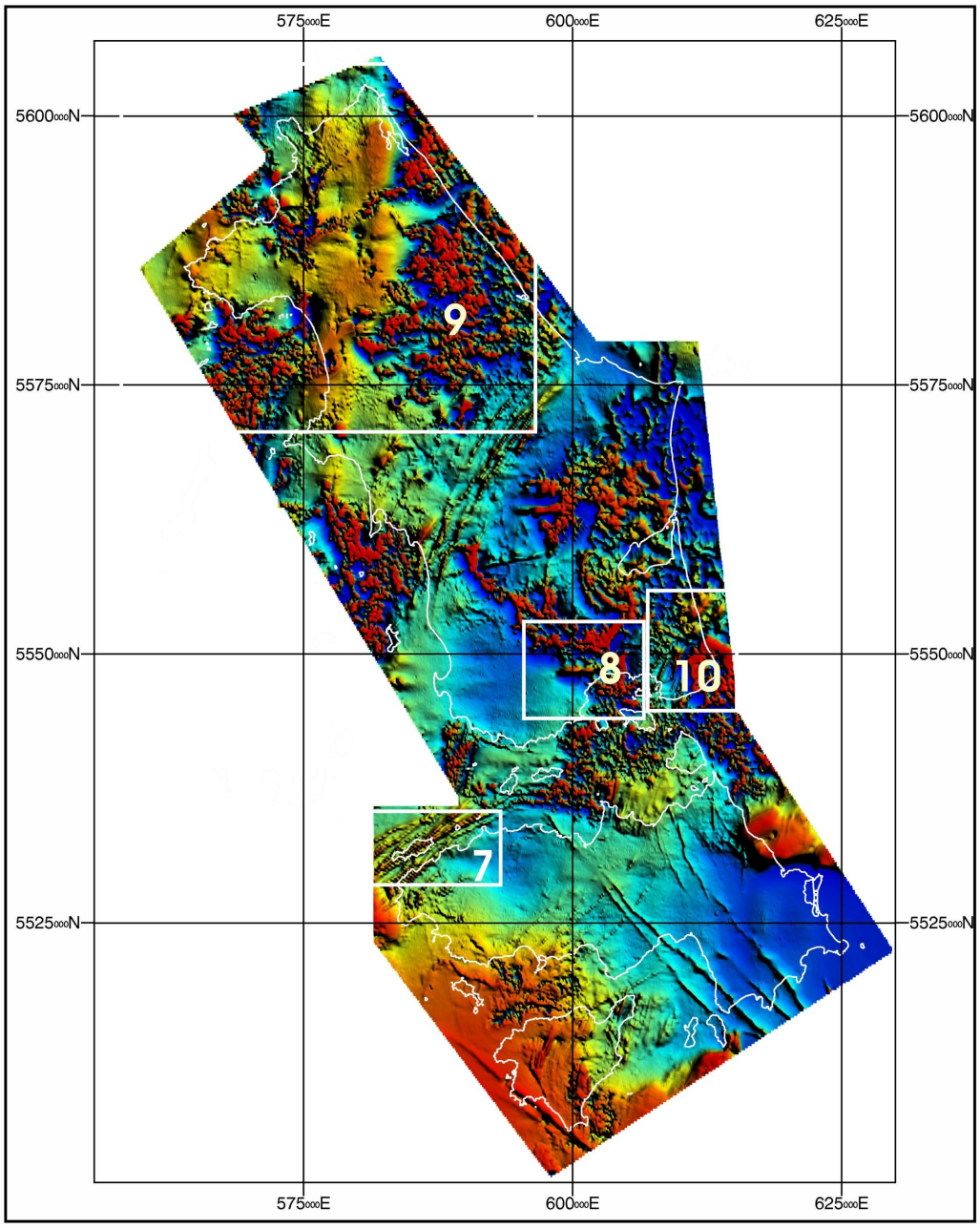


Figure 2:
Image of Total Magnetic Field Intensity in Furneaux Group, including Flinders Island. Tasmania.
(All data provided by Mineral Resources Tasmania)

The numbered areas refer to the regions and anomalies selected for assessment and described in this report.

# INTRODUCTION

Regional aeromagnetic and radiometric data have been acquired by Mineral Resources Tasmania across northeast Tasmania during 2007 using a combination of fixed wing aircraft and helicopter along east-west traverses spaced 200 metres apart and with a nominal terrain clearance of about 80 m. Review of line data shows that the spacing specification was well maintained but the elevation specification of 80 m was only sustained in low relief areas and that, locally, the clearance may range from 65 to 120 m.

This report, one of three commissioned by Mineral Resources Tasmania, considers quantitatively a set of particular matters and queries raised by staff of MRT as worthy of review and explanation in order to inform users of the data and to guide future use and examination of the data.
Each topic selected, and its resolution – where possible, was intended to assist mapping, general structural understanding and, perhaps, appraisal of controls on mineralisation.
The companion reports by K. Godber and S. Webster consider aspects of regional interpretation and quantitative analysis, respectively. Consequently, most of the more regional aspects of the survey and its interpretation are – with the exception of Flinders Island – treated in those reports and only more specific issues are considered here.

The features, or areas, selected for review are shown in the compilation images of the two principal aeromagnetic surveys (Figures 1 and 2).
These are:-

1. Scamander region: presumed dyke features and the Catos Creek intrusion.

2. North east of Blue Tier: nature and properties of the dyke swarm, the source of underlying anomalies, and structural textures in Mathinna Beds near Gladstone.

3. Rossarden east: origin of the large, isolated anomaly extending south of the Ben Lomond Plateau.

4. East of Ben Lomond, Cokers Ridge: Origin of magnetic texture in Mathinna Beds exposures.

5 Possible volcanic vents.

6. Mt Paris region: origin of magnetic texture north and east of Mt Paris within both granite and intruded roof rocks.

Flinders Island.

7. Long Island: evaluation of presumed dyke features.

8. Lady Barron northwest: origin of large E-W feature.

9. Lady Barron northeast: origin of magnetic texture.

10. North Flinders region: origin of the underlying regional magnetic anomaly.

NOTES:

All grid references in this report are based on AGD66.

Several diagrams provide model interpretations.
These diagrams contain much information and some specifications are added in the margins.
The actual plots are labelled “obs” for observed data and “calc” for the modelled profile.
The vertical axes are labelled “anomaly” and “depth” and show the limiting values in nT and metres, respectively. No subdivision of these values is provided other than five equal divisions marked with ticks.
The horizontal axis is not labelled directly but represents “distance” and the length of the model in metres is shown in the bottom right hand corner of the diagram. The distance axis may be labelled in other ways, including actual coordinate locations or places.
Geological elements of the model are described in both the diagram and the associated text.
The lower right part of each diagram includes two reference values, labelled “obs shift” and “calc shift”. These values allow the reader to assess the consistency of the modelling with respect to the data set and also to establish the true reference for the residual field used to process the data provided. As explained in Leaman (1994a) these values allow full review of both the interpretation and its assumptions. For the mainland part of these surveys the residual value defined by IGRF separation or the base selection of the contractor is within about 3 nT of the true value, hence the shift is generally less than 3 nT. For the Flinders Island component of the project different base assumptions have been used and the shift difference is of the order of 80 nT. In each case the word shift means, what value must be added to achieve zero, and the difference between these shifts must be the same for interpretations of the same survey.
It will be noted that it is possible to achieve many solutions to potential field data sets but the number of possible solutions is significantly reduced by consistent application of consistent model shift relationships and the other criteria defined in Leaman (1994a). There is no infinity of solutions; there are only a few feasible in most cases.

In this report, those “solutions” which require some special shift arrangement or extreme or unjustified rock property assumptions are either not presented or are offered as rejected comparisons.

Model and data files, as subsets of observed data, have been appended to this report. These should be converted into formats required by particular modelling packages. All coordinates are referred to the origin of the profile as defined in the data header.