Appendix 19 Report on the airborne survey results in the Western Erdenet area, Mongolia

WESTERN ERDENET AREA
MONGOLIA

Regional Structural Interpretation from Airborne Geophysics and Remote Sensing Imagery

February, 2002

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EXECUTIVE SUMMARY

The project area lies approximately between longitudes 102°20' E and 104°50' E, and latitudes 48°30' N and 49°30' N, and includes a total combined airborne survey area (areas 1 and 2) of approximately 5,665 km^2.

The focus of this study was to determine the main structural components within the area that could be associated with porphyry Cu-Mo deposits. This work has identified fourteen areas that contain significant structural or litho-magnetic characteristics in association with known mineralisation to be of interest for either unravelling the complex structural history of the area or defining new targets.

From the structural interpretation and litho-magnetic associations it is possible to divide the area into 5 domains. The two most prospective domains are interpreted to be 3A and 2A, as they clearly contain multiple zoned igneous units and are cross-cut by major (E – W and NW – SE trending) regional structures. Domain 3B could contain similar structures to domain 3A, with prospective units at depth, buried by Triassic-Jurassic volcano-sedimentary units.

The predominantly E - W trending structural domain 2A, possibly provides evidence of thrusting having been active in the region which could be beneficial for the development of large porphyry deposits.

Even though structures with an E – W strike appear to be the dominant regional structures (such as the Vitim Suture Zone) this study proposes that the NW trending structures are equally if not more significant for focusing the position of large porphyry mineral deposits.

1 INTRODUCTION

The project area lies approximately between longitudes 102°20' E and 104°50' E, and latitudes 48°30' N and 49°30' N, and includes a total combined airborne survey area (areas 1 and 2) of approximately 5,665 km^2.

The co-ordinates of the airborne survey project areas are shown in Table 1.1. The location of the survey area is presented in Figure 1.1.

Datum and Projection		Easting	Northing		Easting	Northing
		Area #01			Area #02	
World Geodetic Spheroid 84	1	390622	5466594	1	325810	5408424
	2	460441	5465657	2	378011	5408063
Universal Transverse Mercator	3	459971	5398811	3	377687	5391242
Zone 48	4	398715	5399538	4	325350	5391600
	5	398547	5390325			
	6	389158	5390487			

Table 1.1: Datum, projection details for the project and location points of the aeromagnetic survey boundary.

This report provides a summary of the results from the aeromagnetic interpretation component. A separate operations report outlines details of the acquisition and processing (Churchwood, 2001), Table 1.1 provides a brief summary of the main acquisition parameters.

Survey Line Direction	000 – 180 degrees	Tie Line Spacing	2500 metres
Tie Line Direction	090 – 270 degrees	Mean Terrain Clearance	~120 metres
Survey Line Spacing	250 metres	Total Line Kilometres	~25,490 km
Approx. Area Covered	Area #01 = 4,785 km^2	Area #02 = 879.5 km^2	
Survey Aircraft	Piper Cheyenne PA-31T2 (C-GHRM)		

Table 1.2: Summary of the airborne geophysical survey acquisition parameters.

Verification of data quality was undertaken at the base of operations in Bulgan, Mongolia. Final data processing and image processing was carried out at Fugro Airborne Surveys offices in Perth, Western Australia.

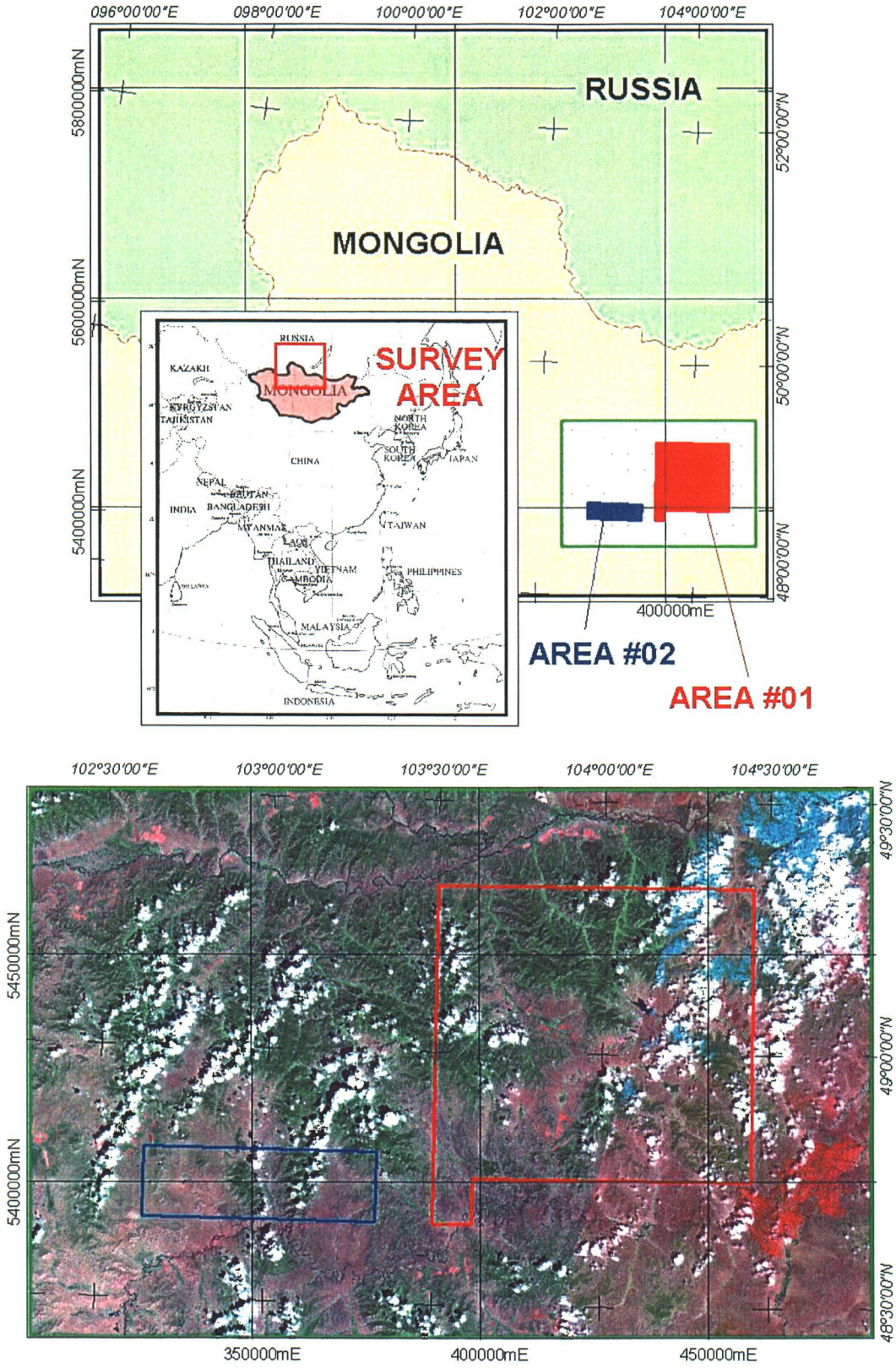

Figure 1.1: Location map of the airborne geophysical surveys in Central – Northern Mongolia. Red Box = Area #01, Blue Box = Area #02, Green Box = Regional Overview from Remote Sensing Imagery.

1.1 OBJECTIVES AND PRODUCTS

The project also provides a brief insight to possible mineral targets and prospects from the identification of magnetic characteristics of the multiple intrusive and zoned igneous rocks. The objectives for the interpretation phase are therefore to:

- delineate major and minor structures,
- delineate zones of anomalous radio-element activity that may indicate alteration,
- integrate geophysical data with remote sensing imagery and also published data made available for the project by the clients, in order to assess the region's mineral potential.

The final products from this interpretation include:

- this report which provides a summary of the methodology applied for the interpretation, examples of data from the survey and the results of the interpretation,
- a 1:100,000 'factual' structural geological map in three parts (enclosures 1, 2 and 3) based upon interpretation of the new airborne geophysical data, and integration with remote sensing imagery.
- a 1:250,000 'synthesis' structural geological map (enclosure 4) that summarises the domains and possible fault displacement on the major structures.
- data and interpretation layers compiled in a geographic information system (ArcView^{TM}),

These final products provide an indication of the style and extent of geological information that can be gained from the airborne geophysical data. The report also provides examples of the processing, manipulation and interpretation of the geophysical data for the purpose of geological mapping.