

Pangean Resources Pty Ltd

Mt Owen, EL39/2005

Annual Report June 2007

Submitted by _____

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1 Executive Summary

EL39/2005 is a 19km² tenement area 3km SW of the Mt Lyell group of deposits near Queenstown in Western Tasmania. The tenement area is centered on a muscovite-pyrophyllite anomaly (Mt Owen MP anomaly) that is similar to that observed associated with the Mt Lyell group of occurrences. However in contrast to Mt Lyell system which is hosted in the Upper-middle Cambrian Mt Read volcanics the Mt Owen MP anomaly is hosted in the Upper Cambrian Owen Conglomerate.

Pangean Resources is conducting an exploration program in EL39/2005 to determine if Mt Owen MP anomaly represents hydrothermal alteration potentially related to a concealed Cu/Au system.

During this reporting period Pangean Resources has

- Commissioned its consultant to reprocess and interpret the openfile Hymap Hyperspectral data over EL39/2005 to confirm the original ASTER anomaly.
- Processed and interpreted open file helimagnetics to define the structural setting of the Mt Owen MP Anomaly.
- Completed ground traverses across the anomaly collecting PIMA and Rockchip geochemical samples.
- Completed steam sediment samples of creeks draining the northern portion of the Mt Owen MP anomaly

Field observations suggests that the Mt Owen MP anomaly represents in-situ hydrothermal alteration; however Pangean is awaiting results from PIMA and petrographic studies to confirm this interpretation. To date, no indications of Cu/Au mineralization have been recognized in the field. Rockchip and stream sediment results have not return anomalous Cu analysis. A solitary rockchip sample returned 0.64g/t Au from a select sample of white texturless quartz veining in a finer grained unit of the Owen Conglomerate. This sample had no associated multi-element geochemistry and is not thought to be related to Mt Lyell style Cu/Au mineralization.

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2 Introduction

2.1 Exploration Rationale

The Mt Lyell District in western Tasmania has been operating since 1883 and has produced 1.2 million tonnes of Copper and approximately 1.5 MOz of gold from twenty different orebodies (Corbett, 2001). In recent years new genetic models have been presented for the origin of mineralization in the Mt Lyell district. This coupled with new open file information (Hymap and magnetics) has prompted Pangean Resources to evaluate ASTER to the southeast of Mt Lyell to determine if it maybe related to concealed Cu/Au mineralization.

On a regional scale the Mt Lyell Cu Au (Pb Zn) district is localized at the intersection of the regional scale N-S oriented Great Lyell Fault Zone within a well defined WNW trending origin oblique structural corridor that includes the North Lyell and Glen Lyell fault zones. These structures are interpreted to be Cambrian age extension structures reactivated as reverse faults during Middle Devonian shortening (Noll & Hall 2005).

Hymap hyperspectral mineral mapping (by CSIRO and Pangean) of the Mt Lyell Cu Au district (MLD) has defined a large zoned hydrothermal alteration system primarily hosted within the Middle to Upper Cambrian (Noll & Hall 2005) Mt Read Volcanics. The mineral mapping is characterized by a strong coherent district scale muscovite zone that encompasses the majority of mineralization in the MLD. More localized centers of strong pyrophyllite within the muscovite zone show a spatial association with mineralization at North Mt Lyell, Western Tharsis, Tharsis Consol, Glen Lyell and Glen Lyell South on the edge of the pit to the main Mt Lyell deposit. This association suggests a genetic link between Cu Au mineralization and pyrophyllite alteration in the MLD

Alteration modeling on the deposits scale at Western Tharsis (Hudson & Kamprad 2001) shows an outer shell of quartz-sericite-pyrophyllite-topaz capping the upper part of the Cu (Au) ore body. This suggests that the pyrophyllite bearing alteration may indicate proximity to mineralization and could be used as a vector to guide mineral exploration in the MLD.

The mixed phyllic and high temperature advanced argillic assemblages outlined at Western Tharsis are characteristically seen in deep high sulphidation epithermal / transition to magnetic hydrothermal environments. This is indicative of a strong magmatic influence in the Mt Lyell hydrothermal system (Large et al 1996). This coupled with improved stratigraphic and structural models for the MLD has lead to new models for deposit formation. These include 1) Cambrian aged, hybrid epigenetic – syngenetic model (Corbett 2001), and 2) Cambrian syngenetic origin for the Pb Zn mineralization and an Ordovician age magmatic related epigenetic origin for the Cu – Au mineralization (Huston & Kamprad 2001).

Pangean Resource's Mt Owen EL covers a coherent Hymap muscovite - pyrophyllite anomaly located 3 km SE of the Mt Lyell Mine. This anomaly lies within splays of the Great Lyell Fault Zone, and is hosted by post Mt Read, Upper Cambrian Owen Conglomerate sequence. This anomaly is not associated with any known Cu Au mineralization.

Pangean Resources Exploration program is designed to test

- if the Mt Owen muscovite – pyrophyllite anomaly represents in situ hydrothermal alteration?
- whether the anomaly represent a zone of hydrothermal up flow channeled along splays of the Great Lyell Fault Zone into the Upper Cambrian stratigraphy?
- For evidence of geochemical leakage that may indicate significant Cu Au mineralization concealed at depth beneath the alteration zone?

2.2 Tenure and Exploration Access

EL39/2005 was granted by the Mineral Resources Tasmania (MRTAS) in June 2006. The tenement covers an area of 19km² and is situated 5.2km WSW of Queenstown (Figure 1). Access to most of the tenement is via the Lyell Highway and within the tenement via the Telstra Communication Tower Road that ascends Mt Owen. Once off road, access by foot is difficult due to low re-growth, creating in some cases an impenetrable wall of vegetation. The tenement covers a parcel of Crown Land.

3 Review of Previous Work

Modern documented mineral exploration within the tenement area is limited, with regional airborne geophysical surveys the only reported information from the area. This airborne data was interpreted in conjunction with other geophysical (gravity) and geological datasets by ERA-Maptec for Copper Mines Tasmania. The study identified that there was similar geophysical signatures to the Mt Lyell Deposits (major gravity gradients intersecting with major aeromagnetic faults) occurring within the Mt Owen tenements as the Owen Spur Fault Zone (ERA-Maptec, 1997).

Copper Mines Tasmania (CMT) conducted 'little exploration' in the tenement area that include limited field reconnaissance to follow-up the ERA-Maptec structural corridors (Morrison K.C.,1999). It was concluded

- that the structural corridors were not reactivated Middle Cambrian faults associated with volcanism.
- that there was no evidence of hydrothermal alteration or no known prospects in the volcanics,

- and the Mt Read volcanics were covered by a thick sequence the Owen Conglomerate

Copper Mines Tasmania subsequently relinquished this area. There is no record of systematic geochemical sampling in the Mt Owen area in the openfile data

Subsequently CSIRO, Copper Mines Tasmania and MRTAS flew a hyperspectral sensor (HYMAP) over the tenement area; however no documentation of the results is available, although access to the data is freely available through MRTAS.



Figure 1 Location of EL39/2005 Mt Owen in Western Tasmania, Australia

4 Exploration Work Completed and Results

4.1 Introduction

Desktop studies of remotely sensed data identified interesting alteration in the Mt Owen area of style similar to that associated with the Mt Lyell district. The field component of the exploration program in the tenement area comprised of limited geochemical sampling, PIMA and petrology sampling.

4.2 Remote Sensing Investigations

4.2.1 ASTER Processing

ASTER satellite imagery covering the Mt Lyell district was processed in order to compare the mineral mapping results to that of the higher resolution Hymap data. ASTER multi-spectral satellite imagery is moderate resolution (15-90m) which allows a scene to cover approximately 70km by 70km, a much larger area than Hymap run therefore more applicable to regional studies.

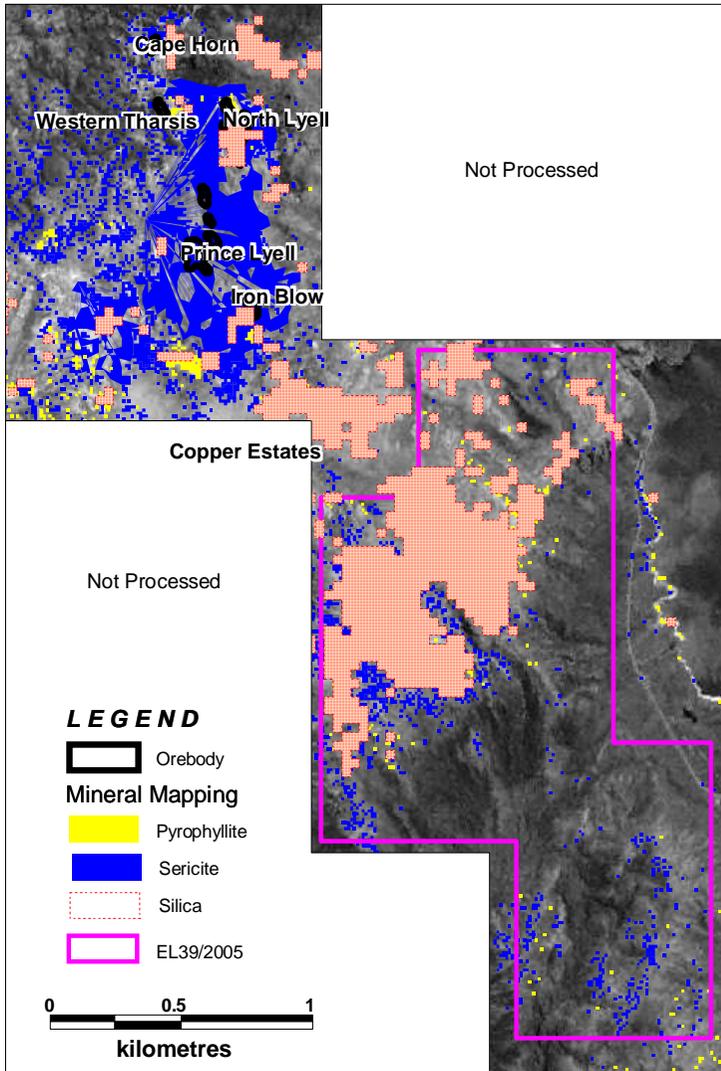
The outcomes of this comparison were

- ASTER clearly identified the Mt Lyell system as a large muscovite response with internal pyrophyllite signature coincident with a number of the known Cu/Au deposits (Figure 2). There ASTER mineral mapping shows good spatial correlation of muscovite pyrophyllite and chlorite distribution with that mapped from Hymap data.
- SiO₂ processing using ASTER Thermal Infrared bands (not possible with Hymap) as highlights hydrothermal chert bodies mapped (Corbett 1999) in the area of the North Lyell deposit and a silica association with the Iron Blow and Cape Horn ore bodies.
- In addition the ASTER processing highlighted an area of pyrophyllite/muscovite alteration 3km SE of the Mt Lyell district centered on Mt Owen that prompted Pangean Resources to apply for EL39/2005. A silica ASTER response is also associated with the main pyrophyllite response at Mt Owen (Figure 2, Map 1)

Pangean Resources

ASTER and HYMAP Mineral Mapping Comparison
Mt Lyell Mines Area

ASTER



HYMAP

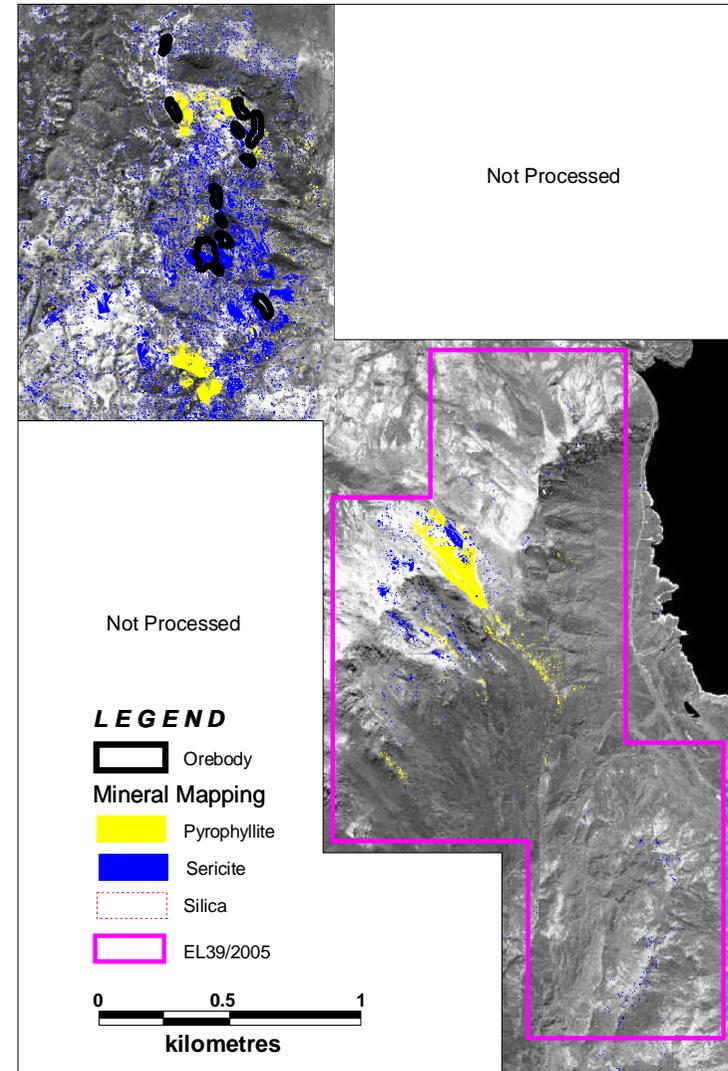


Figure 2 Comparison of ASTER processing and HYMAP data for the Mt Lyell District and EL39/2005 Mt Owen

4.2.2 Hymap Processing

Pangean's consultants reprocessed the openfile Hymap data over EL39/2005 to confirm the ASTER pyrophyllite/muscovite anomaly and refine its distribution for planning field follow-up .

ENVI's (a commercial image processing software package) advanced spectral analysis techniques were used to identify the presence and the relative proportions (abundance) of minerals with short wave infrared (SWIR) absorption features within a given pixel of the Hymap imagery. These minerals include; phyllosilicates, hydroxylate silicates ,sulphates, carbonates and ammonium bearing minerals.

Minerals in these groups are known to occur as alteration associated with Mt Lyell style alteration signature. Pyrophyllite and sericite were key minerals identified in the earlier CSIRO Hymap study (maps available by request from MRTAS, no report available at this time) of the Mt Lyell deposits.

Pangean's Hymap reprocessing confirmed the ASTER pyrophyllite anomaly over Mt Owen however the sericite anomaly is far more restricted in the Hymap data.

Alteration mapping in the Hymap data identified a core response in the Mt Owen area (Map 1) consisting of a large pyrophyllite zone on the NE face of Mt Owen with dimensions of 500m by 1km. Within this zone there is a strong sericite anomaly, just after the Telstra Tower Road splits and becomes a series of tight switch- backs ascending Mt Owen. This zone is approximately 500m x 200m and SE-NW orientated.

To the west of this main zone there are a series of sericite anomalies which cluster into another SE orientated zone of dimensions 1.5 km x 500m.

In the very south of the tenement centered on 387250mE, 5335000mN is a narrow 2km long north-south orientated zone of sericite alteration.

4.3 Geophysical Processing and Interpretation

Regional openfile Heli-magnetics covering Mt Owen was re-processed and interpreted to focus exploration efforts. Sunshaded RTP and TMI imagery was produced using the ERMapper and the Discover add-in to MapInfo for interpretation.

The preliminary magnetics interpretation shows a series of NW orientated trans-orogen structures trending through the Mt Owen MP anomaly. These structures correlate with the southern projection of the Glen Lyell fault and its splays. The Glen Lyell fault zone is interpreted to define the southern limit of an orogen oblique structural zone that has played a key role in localizing the Mt Lyell district.

4.4 Geochemical Sampling

4.4.1 Rock Chip Geochemistry

14 rockchip samples were taken in areas of interesting hydrothermal? alteration or quartz veining. Cu results from the rock chips were not anomalous, with 14 samples returning values less than 15ppm. A single rockchip (R00202) of white textureless quartz veining returned an assay of 0.62 g/t Au. No elevated pathfinders are evident in the sample.

4.4.2 Stream Sediment Geochemistry

Two stream sediments sites draining the NW edge of the Mt Owen MP anomaly were sampled during the field season. 2kg BLEG -1mm and 1kg -1mm samples were collected from each site. These samples were not anomalous in Au, Cu or any pathfinders.

4.5 PIMA Sampling

20 PIMA samples were collected in the key alteration zones identified in the Hymap data while traversing across Mt Owen (Map 2).

Observation made during the traverses include

- Pervasive silicification of clasts and matrix with specular hematite of some units suggesting hydrothermal alteration.
- Fine sericite or platy clays (pyrophyllite) as cross cutting veins in the finer grained units within the Owen Conglomerate
- Textureless quartz veins
- Pervasive alteration of matrix and clasts in units of the conglomerate with a higher proportion of volcanic clasts.

Samples were collected from these areas to confirm the results of the Hymap processing and to prioritize petrology samples that would confirm either the hydrothermal or the detrital nature of the minerals.

The PIMA samples have been submitted for analysis but at the time of writing results have not been received.

5 Conclusions and Proposed program

ASTER mineral mapping identified in the EL39/2005 a large pyrophyllite-sericite anomaly. Hymap data was reprocessed to confirm this anomaly and give a better spatial distribution for follow-up. Regional magnetic interpretation identified a series of NW orientated orogen oblique structures coincident with this anomaly.

Traverses through the Mt Owen MP anomaly have identified what is believed to be hydrothermal alteration that appears to be the cause of the responses in the Hymap and ASTER data. PIMA samples have been collected, to prioritize petrology samples to confirm hydrothermal origin for the identified mineralogy. PIMA results had not been received at the time of reporting.

Analysis of rockchip and stream sediment samples collected to test for leakage from concealed mineralization has not returned any Cu anomalous results. An isolated assay of 0.64 g/t Au was returned from selective rockchip sampling of a bucky quartz vein. This sample did not return anomalous Cu or pathfinder elements and is thought to be unrelated to Mt Lyell style mineralization.

Geochemical sampling in the parts of the Mt Owen MP anomaly checked to date shows no evidence of a geochemical halo from concealed mineralization.

It is recommended that the future program for the tenement be

- Interpret PIMA results to identify key samples for petrology
- Submit selected petrology samples to confirm or deny? the hydrothermal origin of observed alteration
- Detailed stream sampling/rockchip sampling on the southern side of Mt Owen which seems to have received less previous exploration and maybe deeper in the stratigraphy
- Rockchip geochemical sampling and reconnaissance geological mapping of the southern sericite anomalies
- MMI soil lines across the main pyrophyllite anomaly if petrology confirms hydrothermal origin

6 Environment

Field studies carried out by Pangean Resources were of low impact in nature, field access utilized already created bush tracks and roads. Rockchip sampling was cursory in nature and required only the removal of several kilo's of surface material. Stream sediment samples removed 2-3kg of recent material from the stream bed, care was taken to minimize any runoff of suspended material into the water course. Holes created during sampling were backfilled to minimize the aesthetic impact of the sampling.

7 Expenditure

<i>EL39/2005 Mt Owen Expenditure</i>	<i>Expenditure Year 1</i>
Geochemical Analysis	\$ 734
Remote Sensing Processing and Interpretation	\$ 6,651
Geological Consulting	\$ 10,142
Travel and Field Costs	\$ 5,527
Subtotal	\$ 23,054

<i>EL39/2005 Mt Owen Expenditure</i>	<i>Expenditure Year 1</i>
Administration Costs (15%)	\$ 3,458
Total Expenditure	\$ 26,512

8 References

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9 Keywords

Mt Lyell
Mt Owen
Copper
Gold
Pyrophyllite
Hymap
ASTER

Appendix 1. Rockchip Sample Locations

- Digital data located on attached DVD

“EL392005_200706_2_Appendix1a_Rockchips.csv ”

“EL392005_200706_3_Appendix1b_SampleDescriptorCodes.xls”

Appendix 2. Stream Sediment Locations

- Digital data located on attached DVD

"EL392005_200706_4_Appendix2_StreamSeds.csv"

Appendix 3. Assay Certificates

- Digital data located on attached DVD

"EL392005_200706_5_Appendix3_Geochemistry_Certificates.pdf"

Appendix 4. PIMA sample locations

- Digital data located on attached DVD

"EL392005_200706_6_Appendix4_PIMASamples.csv"

Maps

Map 1. EL39/2005

EL392005_200706_7_MtOwen_Map1.pdf

Map 2. EL39/2005

EL392005_200706_7_MtOwen_Map2.pdf