

## **APPLICATION OF GEOPHYSICS FOR MINERAL EXPLORATION IN THE MOUNT LYELL REGION OF TASMANIA**

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The Mount Lyell region contains more than 20 significant mineral deposits with 150 MT @ 1.23% Cu 5 g/t Ag and 0.35 g/t Au having been extracted. Many of the ore bodies occur along or near the Great Lyell fault, which is west-dipping and shows a complex history of movement. Significant reverse movement has occurred on the fault juxtaposing older volcanics against younger sediments to the east. Copper deposits are mainly disseminated pyrite-chalcopyrite and occur as sub-vertical pipes. Although historic ground EM surveys conducted in the 80's were not successful more recent CSAMT surveys did indicate that some of the known orebodies do exhibit a good conductivity contrast to the generally resistive host. Transient EM DHEM utilising a large transmitting loop at surface did lead to the discovery of a new deposit.

Here we provide a case study of recent exploration work in the Mount Lyell region. We describe the geologic history around Mount Lyell and exploration activities. Recently an airborne electromagnetic survey was performed, using CGG's Helitem<sub>35C</sub> system with the MultiPulse waveform (both half-sine and square wave pulses are generated in a single waveform). We describe the Helitem<sub>35C</sub> results, along with 2D/3D inversion modelling, and how they fit with the known geology. A number of undeveloped mines were detected by the system and the data will be used to target possible extensions of the known ore bodies.