

Mount Isa Region Airborne Data Merge 2020

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This document outlines the rationale, input data and processes that lead to the creation of the Mount Isa Region Airborne Data Merge 2020 product.

The North West Mineral Province (NWMP) in the Mount Isa region of North West Queensland is one of the most prospective regions in the state for mineralisation, housing many significant deposits across a range of commodities. The main available regional airborne magnetic and radiometric survey that covers this area was flown in 1990-1992 as an open range survey for MIM Exploration. The final data for this survey was provided to the Geological Survey of Queensland (GSQ) some time after the

survey was completed but only a limited set of survey and processing information was included.

From 2017 to 2020 GSQ embarked on a new set of higher resolution airborne surveys (100m line interval or lower) covering some of the prospective covered and undercover regions of the Mount Isa Inlier. These datasets form a contiguous coverage across an area between Mount Isa and Cloncurry to the north and south. The regional datasets were merged using Intrepid Geoscience's GridMerge software with some additional exploration survey data where gaps existed.

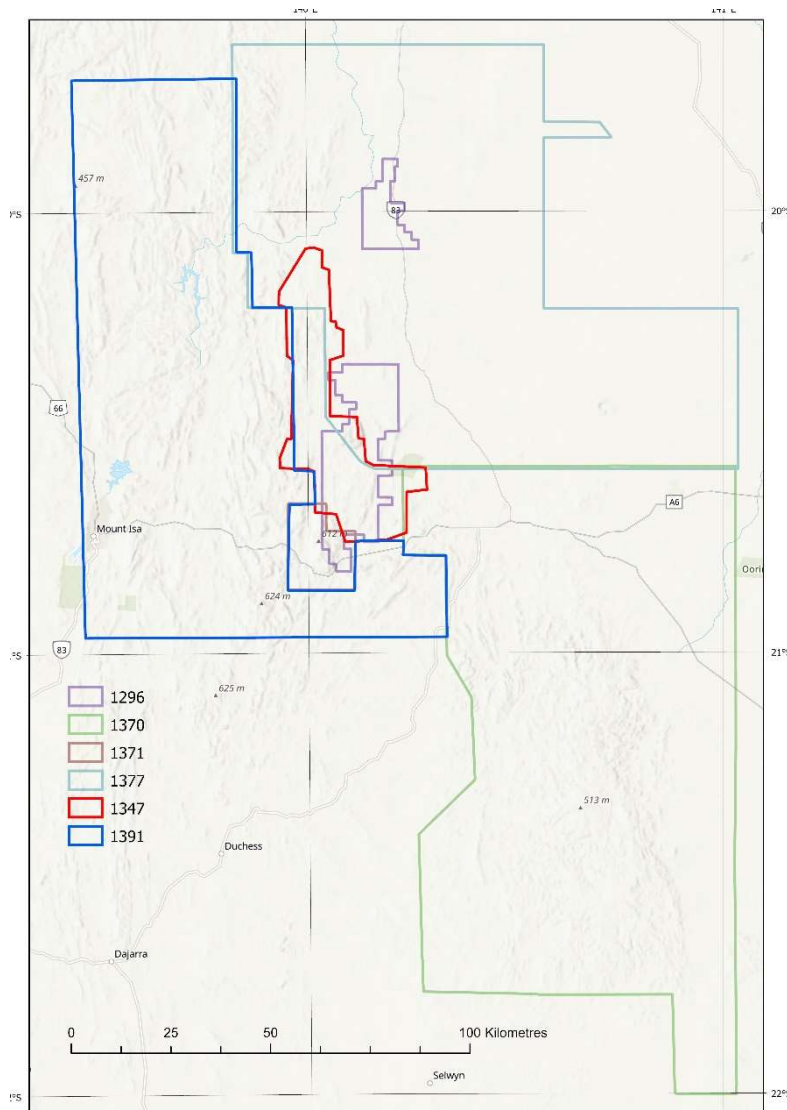


Figure 1: Outlines of surveys used in merge product

Data inputs

The primary data inputs were the results of recent 100-m lines or better line interval GSQ airborne magnetic and radiometric surveys conducted in 2017-2020 including the Cloncurry South (1370), Mary Kathleen (1371), Cloncurry North (1377) and Central Isa (1391). Some gaps between data still existed so open file exploration surveys Roseby Project Area (1296) and Cameron River (1347) we added into the merge. The MIM open Range survey (1122) was used as a basemap regional dataset to facilitate the merge. The specifications and links to the surveys are listed below:

Cloncurry South

GSQ Survey Number: 1370

Client: Geological Survey of Queensland

Contractor: GPX Airborne Pty Ltd

Flown dates: 4/7/2017 - 5/11/2017

Total Line Kilometres: 113,295

Line Interval: 100m

Survey Height: 50m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001370>

Mary Kathleen

GSQ Survey Number: 1371

Client: Geological Survey of Queensland

Contractor: GPX Airborne Pty Ltd

Flown dates: 4/7/2017 - 5/11/2017

Total Line Kilometres: 6,861

Line Interval: 50m

Survey Height: 50m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001371>

Cloncurry North

GSQ Survey Number: 1377

Client: Geological Survey of Queensland

Contractor: GPX Airborne Pty Ltd

Flown dates: 27/6/2018 - 25/10/2018

Total Line Kilometres: 102,462

Line Interval: 100m

Survey Height: 50m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001377>

Central Isa

GSQ Survey Number: 1391

Client: Geological Survey of Queensland

Contractor: Thomson Aviation

Flown dates: 25/4/2019 - 10/6/2020

Total Line Kilometres: 88,623

Line Interval: 100m

Survey Height: 60m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001391>

Roseby Project Area

GSQ Survey Number: 1296

Client: Altona Mining Limited

Contractor: Fugro Airborne Surveys

Flown dates: 6/4/2011 - 9/5/2011

Total Line Kilometres: 18,935

Line Interval: 50m

Survey Height: 35m-45m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001296>

Cameron River

GSQ Survey Number: 1347

Client: Mount Isa Mines Limited

Contractor: UTS Geophysics

Flown dates: 19/5/2015 - 30/9/2015

Total Line Kilometres: 24,125

Line Interval: 50m

Survey Height: 30m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001347>

Mount Isa Open Range

GSQ Survey Number: 1122

Client: MIM Exploration

Contractor: World Geoscience

Flown dates: 1990-1992

Total Line Kilometres: 639,170

Line Interval: 200-400m (variable blocks)

Survey Height: 70-80m

Dataset URL: <https://geoscience.data.qld.gov.au/magnetic/mg001122>

Data merge

The data merging was performed using Interpid Geoscience's GridMerge product. As a first step all input grids were re-projected to GDA2020 Map Grid of Australia Zone 54 (ESPG: 7854). During the merge the MIM open range survey (Survey 1122) was used as a basemap in the merging processes while the other grids were DC shifted, scaled and surface adjusted to ensure a neat merge. As the original grids have been scaled and adjusted to facilitate this merge it is suggested that any detailed interpretation be performed on the original grid products rather than the regional merge.

Outputs

The main grid outputs are available for download as ers grids projected in GDA2020 MGA Zone 54 (note some software will not pickup the projection information from the ers files at time of publishing). A series of Geotiff images is also included for download.