

Pre-competitive Geophysical data acquisition program

Geological Survey of Queensland
Celebrating 150
Exploring Queensland's Resources **Years**

Matthew Greenwood

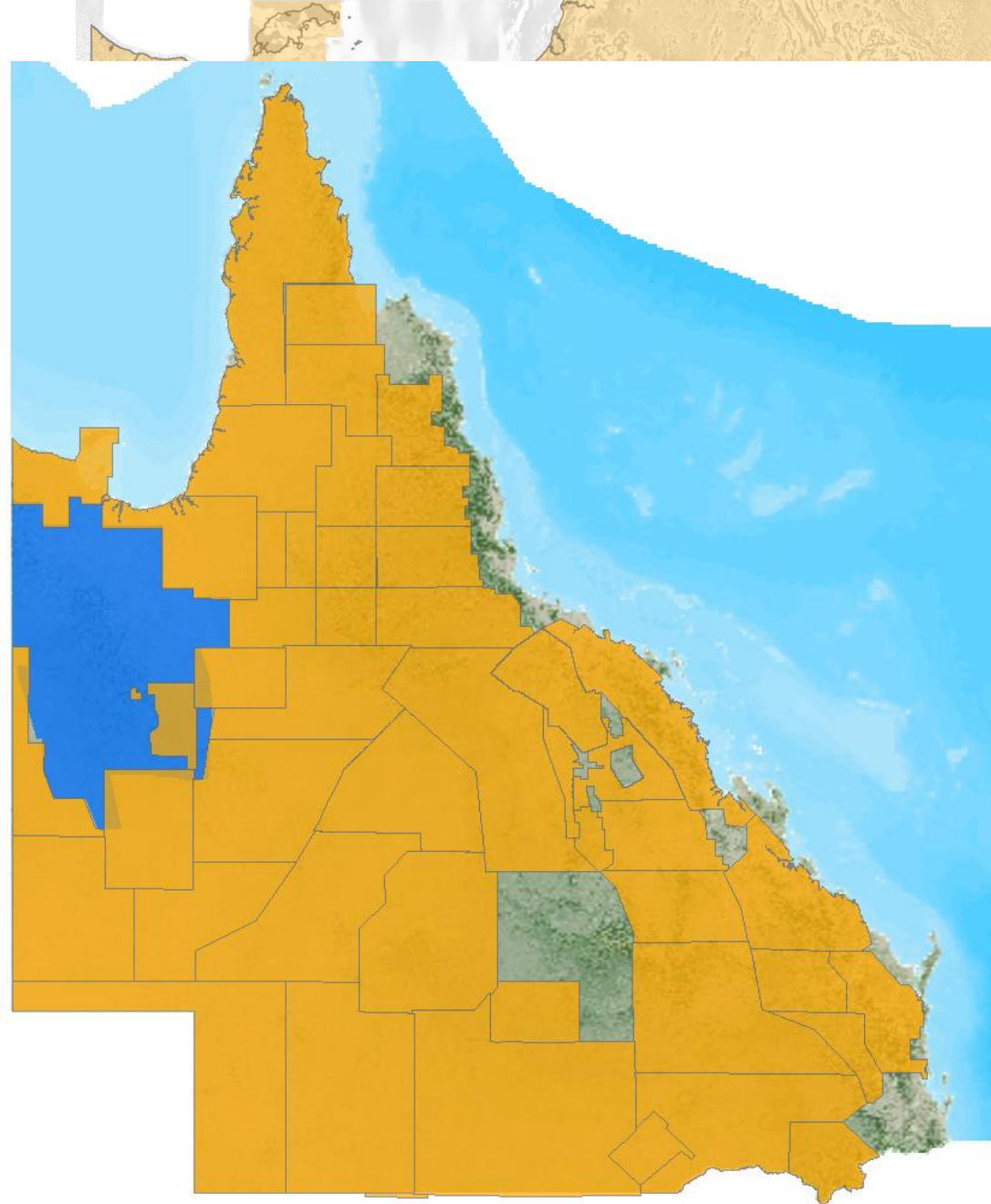


Outline

- Current state coverage
- Recently acquired and published data
- SREP 'New Discoveries' Geophysics
- Future acquisition planned
- Questions

Magnetics - Radiometrics

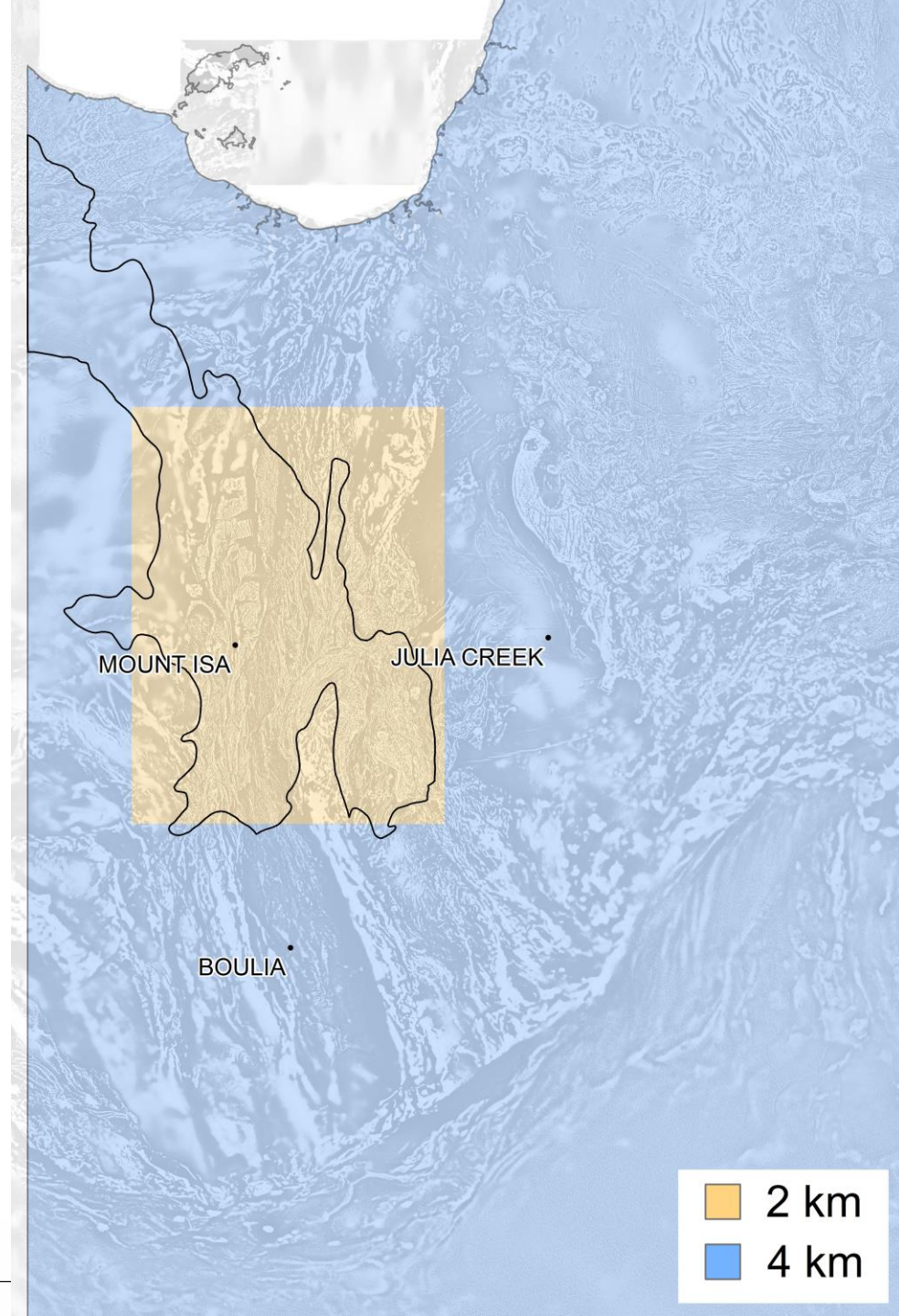
- Exposed Mt Isa Province and extensions under cover – 400 m or better airborne magnetics and radiometrics
- Acquisition of high-resolution (100 m line spacing) data commenced in 2017



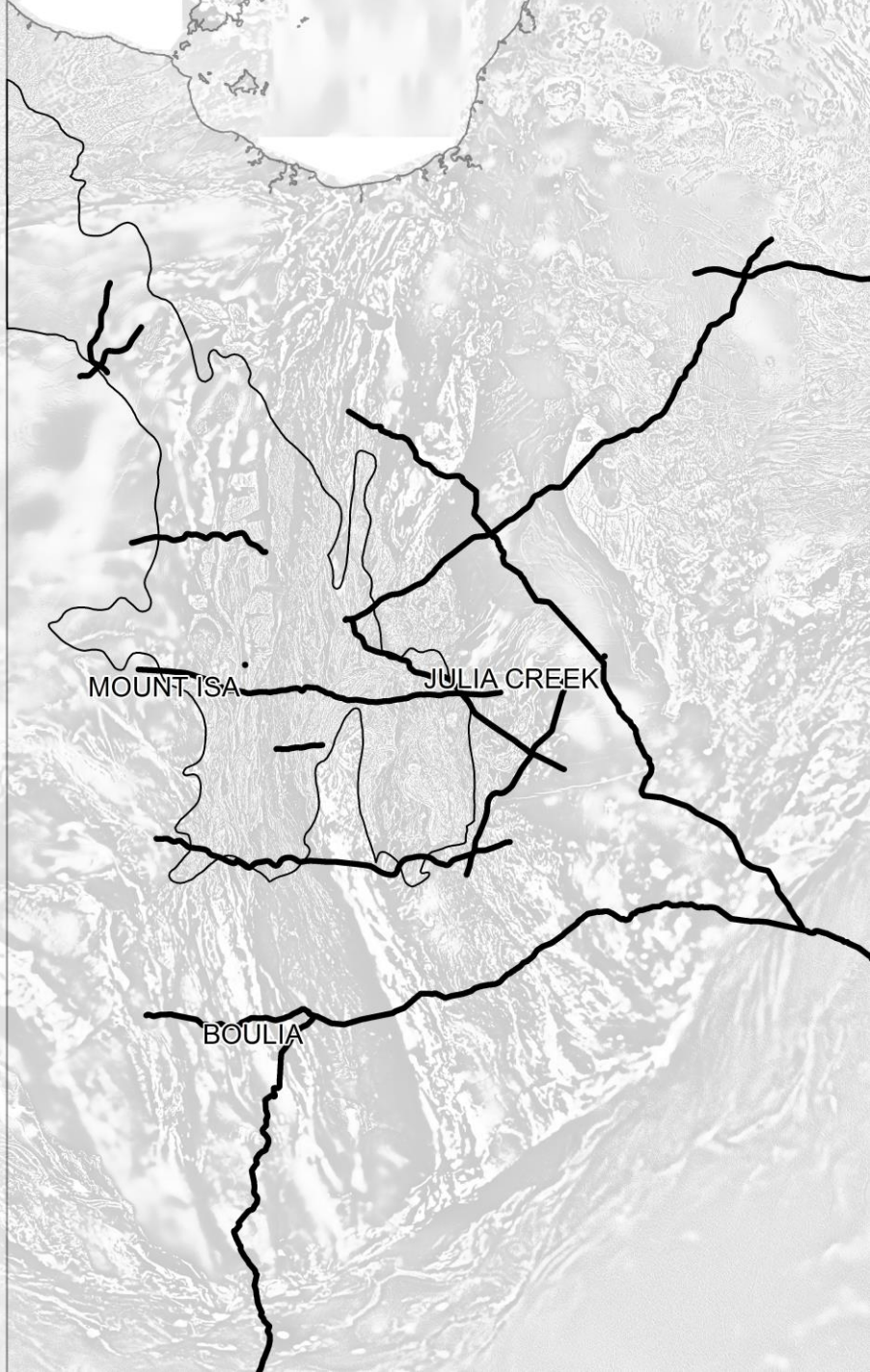
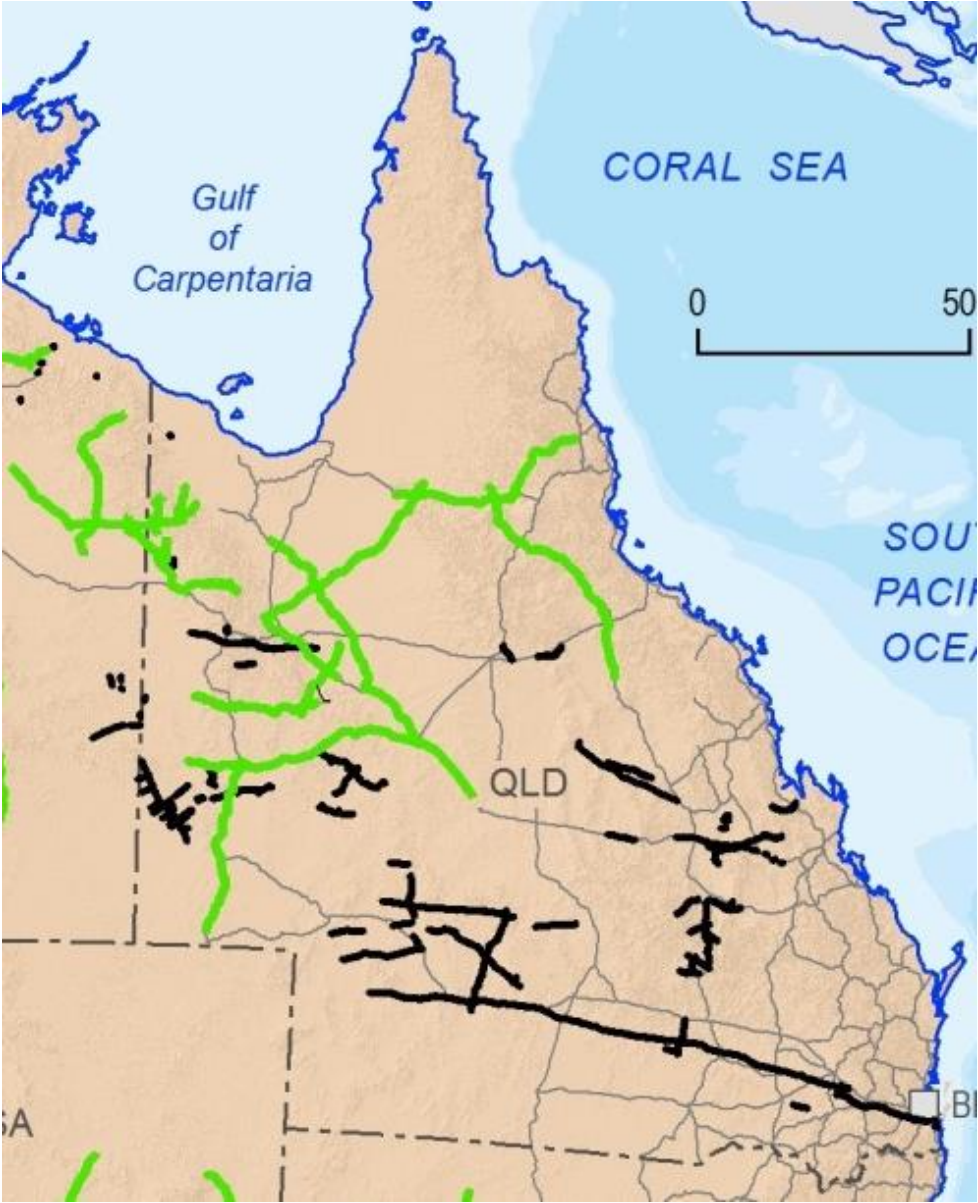
Open Range

Ground gravity

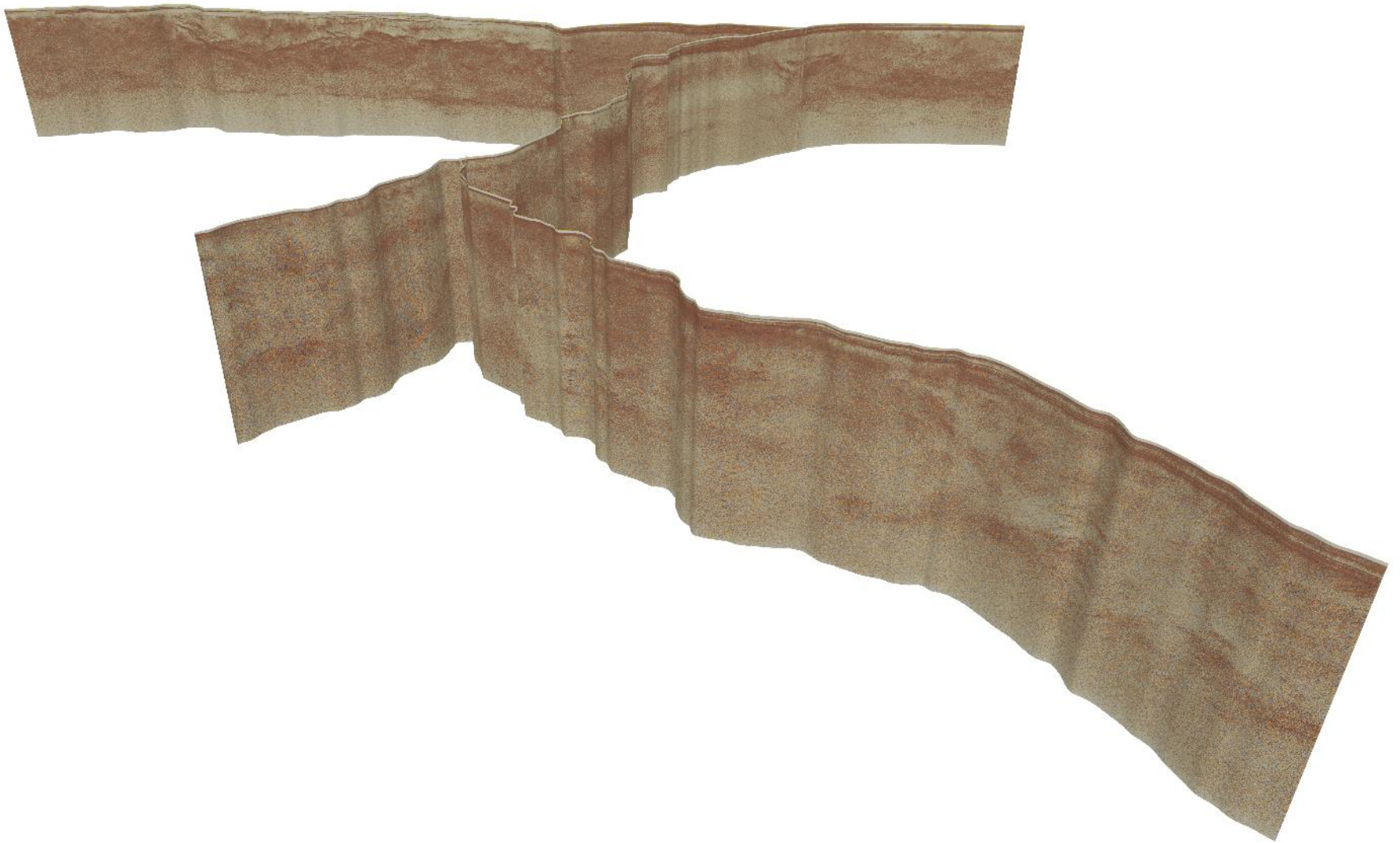
- Most of the exposed Mt Isa Province – 2 km ground gravity or better
- Elsewhere – 4 km or better



Crustal seismic

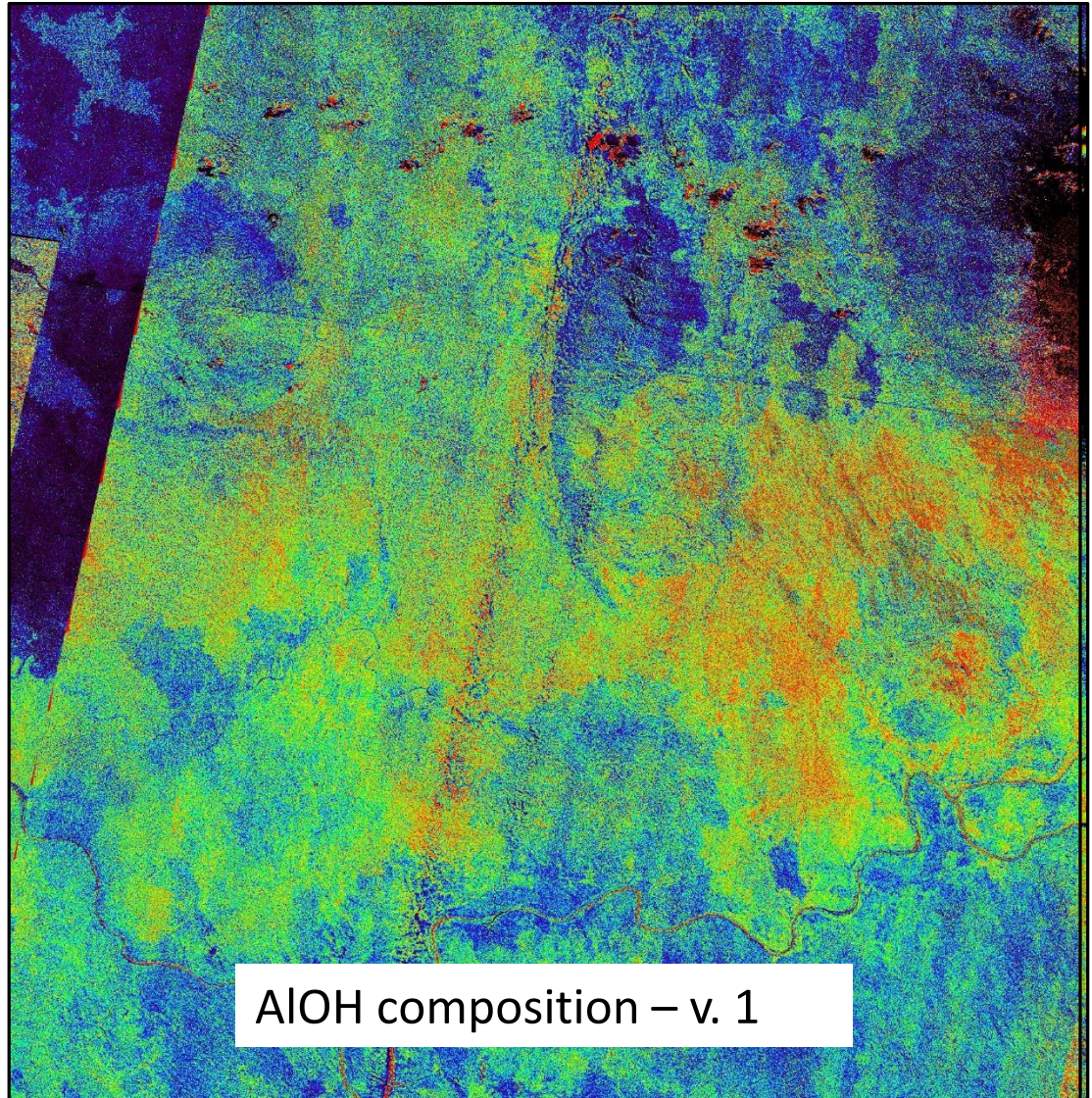


Deep Seismic Lines CF1, CF2 CF3



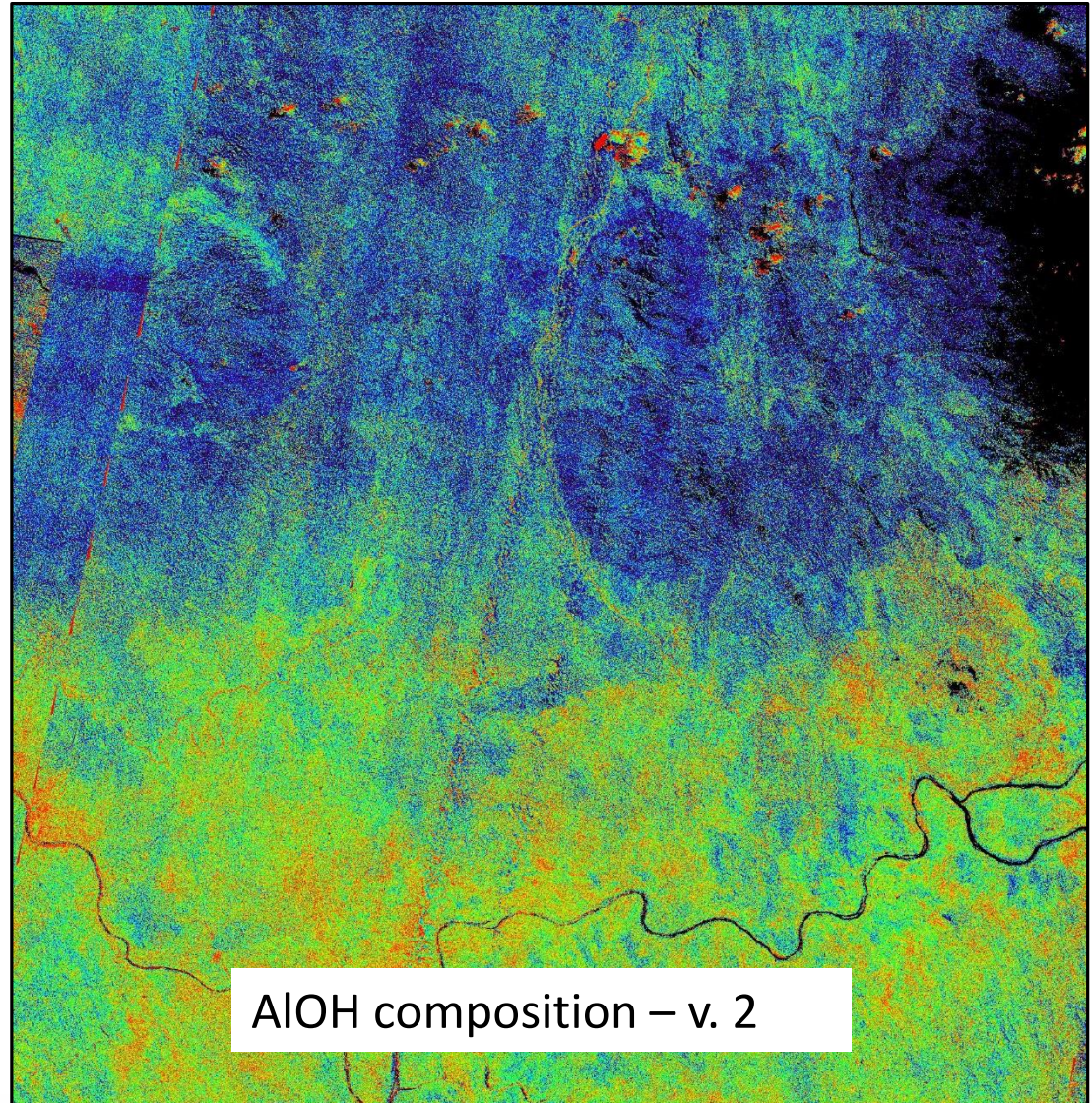
ASTER v.2 – Queensland

- Improved vegetation unmixing compared to v. 1
- As a result, heavy masking not required - pixel coverage increased to 90%
- Released in early 2017



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Recently completed geophysics

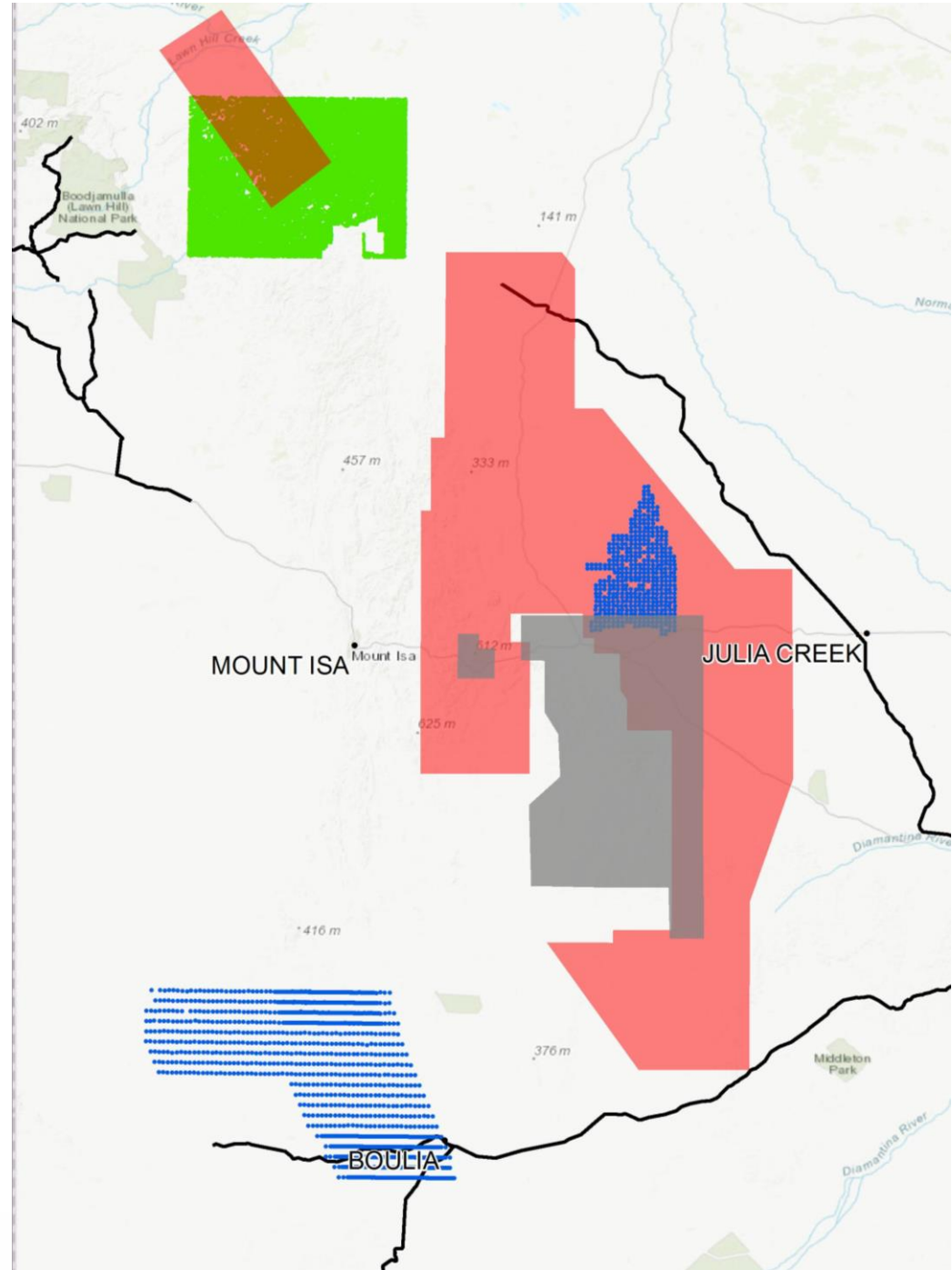
 Airborne EM (≤ 2.5 km)

 Magnetotelluric (≤ 2.5 km)

 1 km ground gravity

 High resolution magnetic (≤ 100 m)

 Deep Crustal Seismic



All released data available at QDEX Data
<http://qdexdata.dnrm.qld.gov.au/>

GSQ New Discovery Program – Geophysics

- Expanding 100-m airborne magnetics and radiometrics coverage

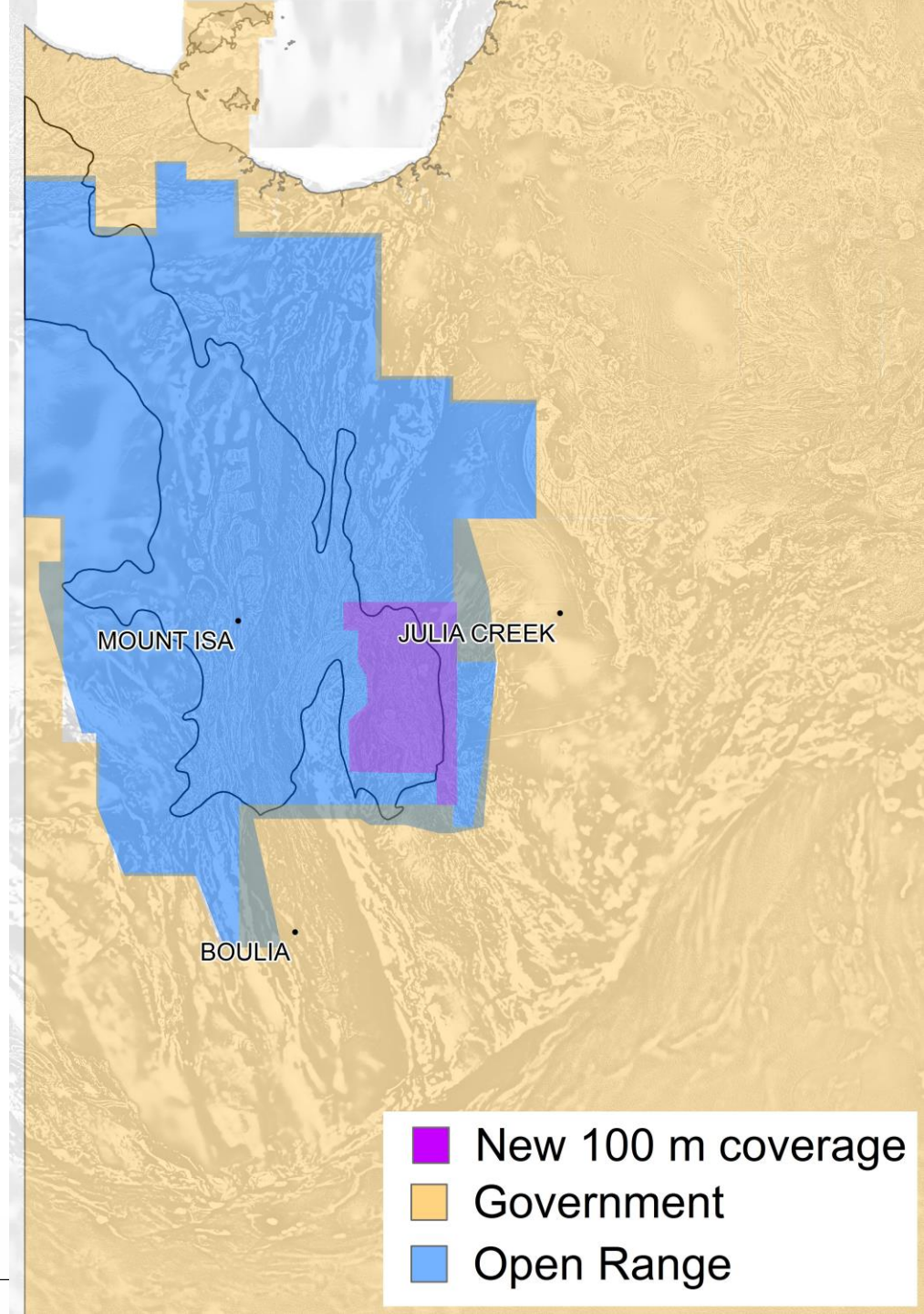
Cloncurry South - Released

Cloncurry North – Currently flying

Central Isa – In tender process

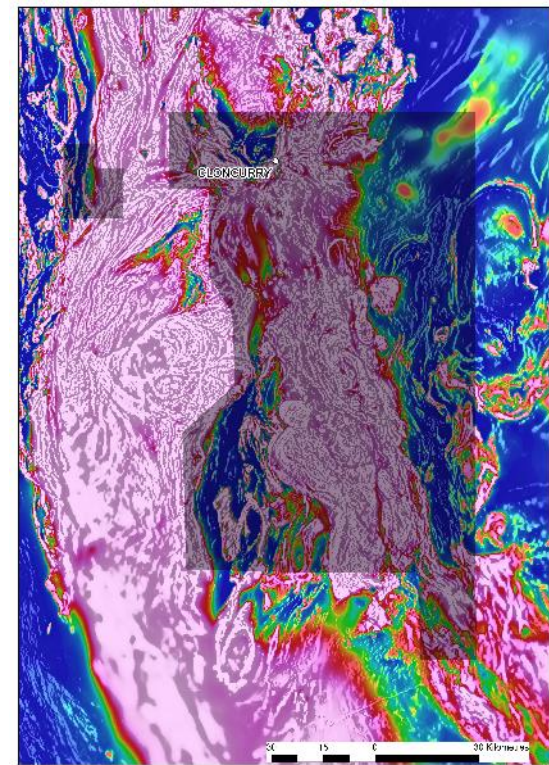
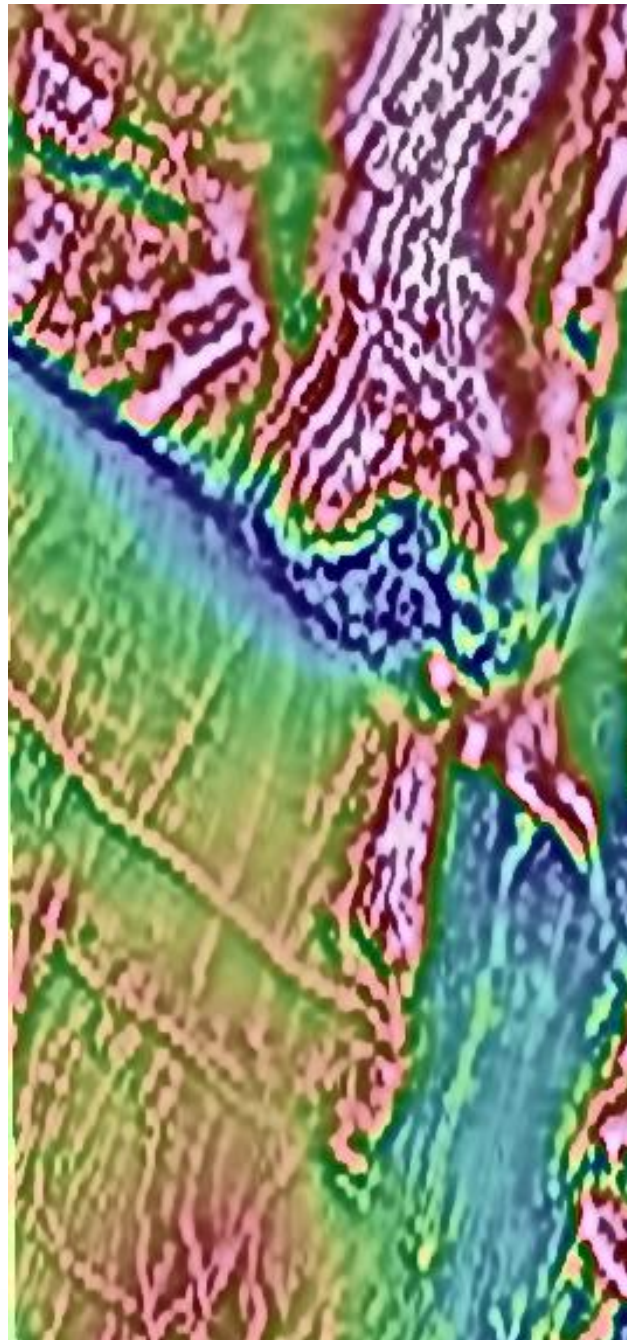
High-resolution Magnetics and radiometrics

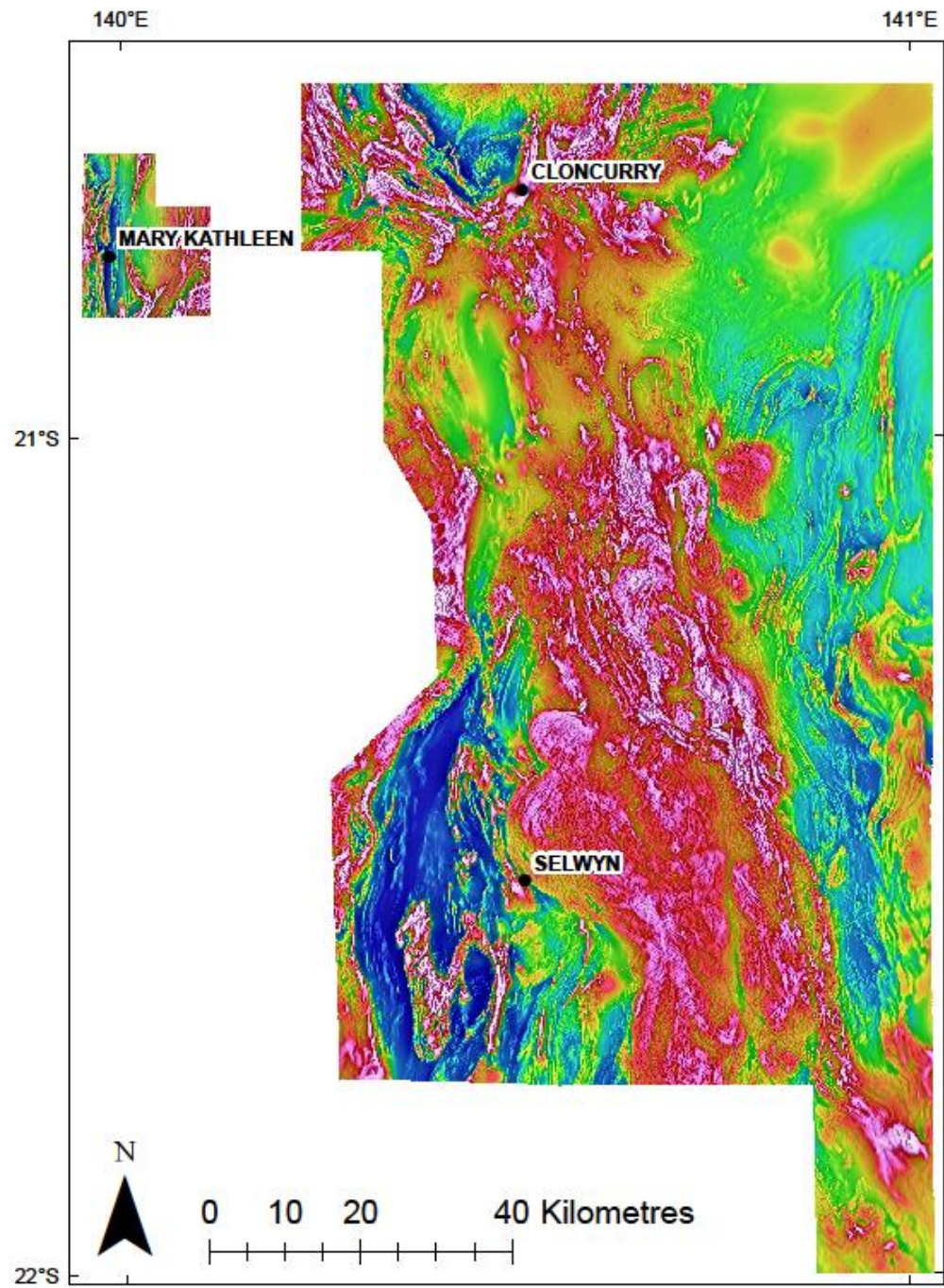
- Acquisition of high-resolution (100 m line spacing) data commenced in 2017
- South Cloncurry and Mary Kathleen released April 2018
- North Cloncurry ~65% completed
- Central Isa Belt area to be released to tender shortly



High-resolution magnetics

- South Cloncurry – 100 m line spacing, 50m terrane clearance
- Mary Kathleen - 50m line spacing
- Significantly better resolution than existing MIM data





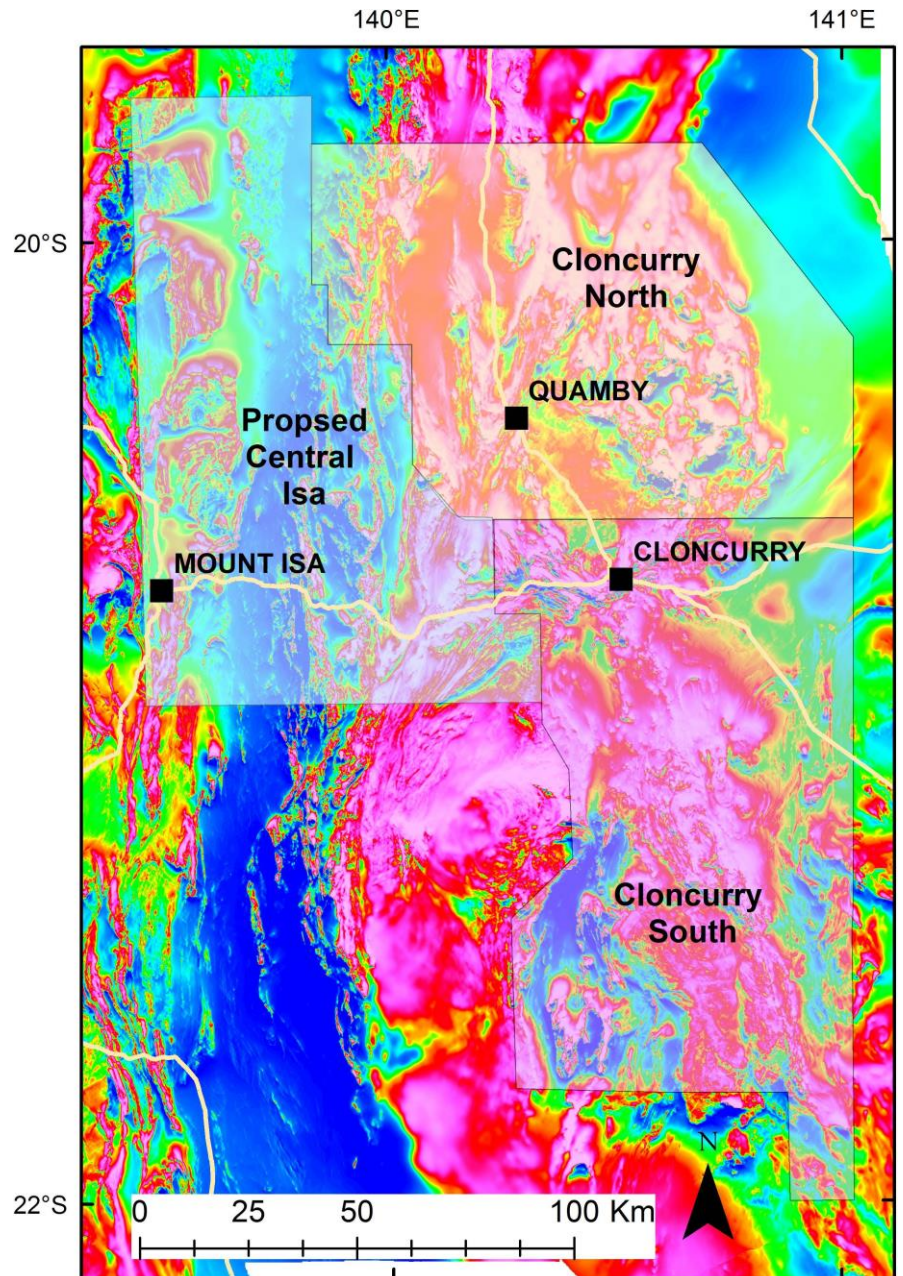
North Cloncurry Survey

- 100m lines spacing, 50m terrane clearance. Approximately 65% completed, anticipated data release before end of 2018.

Raw Data – Not Levelled

Central Isa Survey

- Tender released on QTenders last Friday.
- Approximately 85,000 line km. Subject to change.
- Similar specifications as previous 2 surveys
- Will be combined to create a large high resolution merge of region



GSQ New Discovery Program – geophysics

- Expanding 100-m airborne magnetics and radiometrics

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Cloncurry North – Currently flying

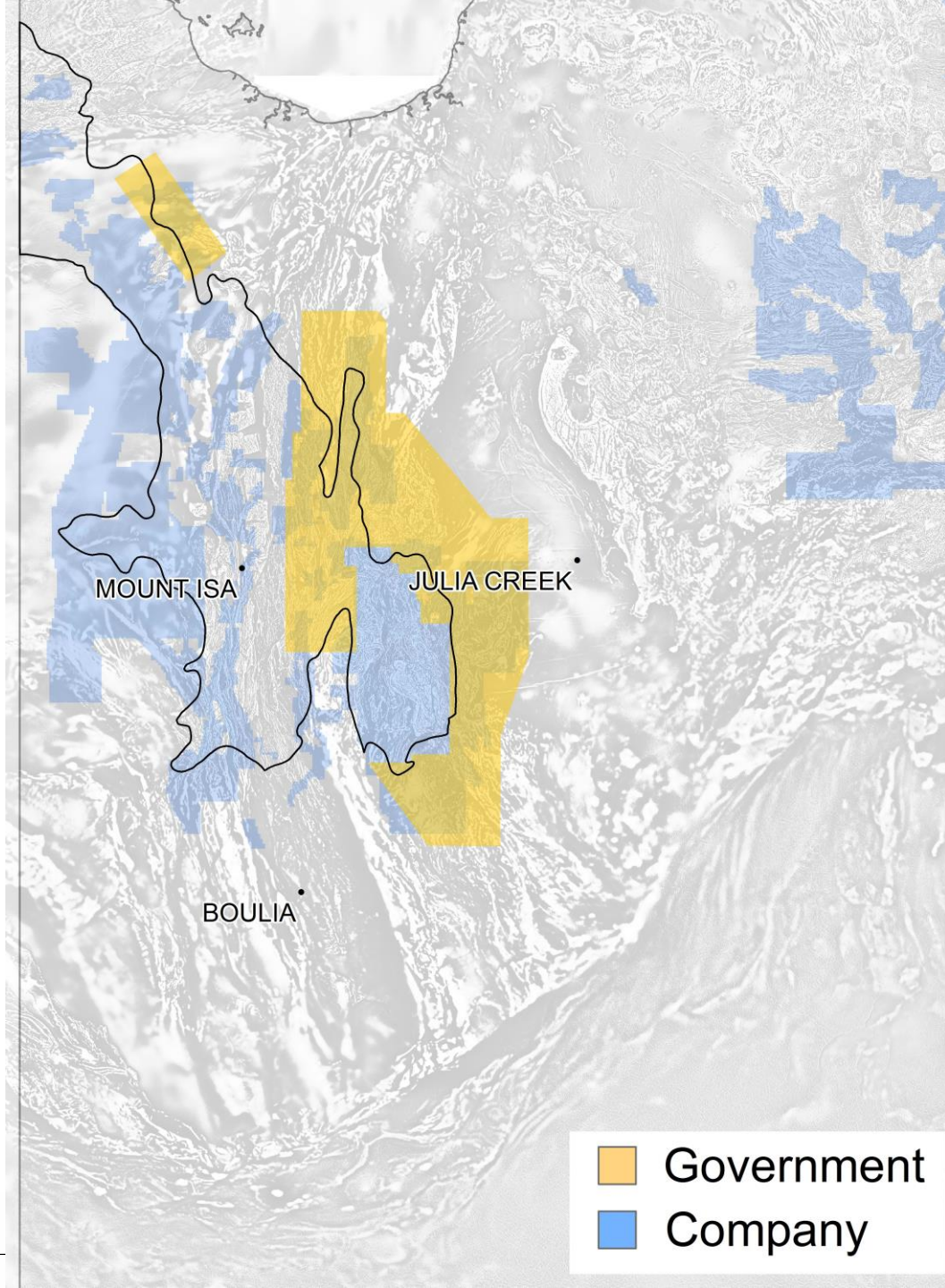
Central Isa – In tender process

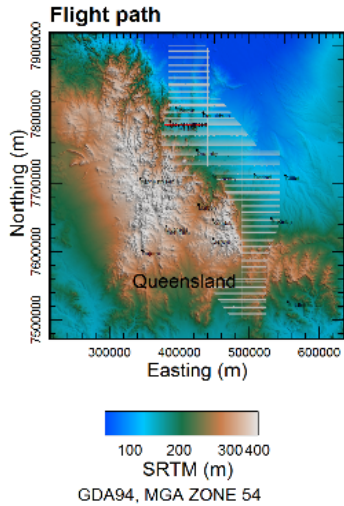
- AEM in targeted areas – ≤ 2.5 km line spacing

In planning

Airborne EM

- GSQ AEM – VTEM, acquired in 2016-17
- Most company AEM – 1990-s
- More targeted AEM is warranted

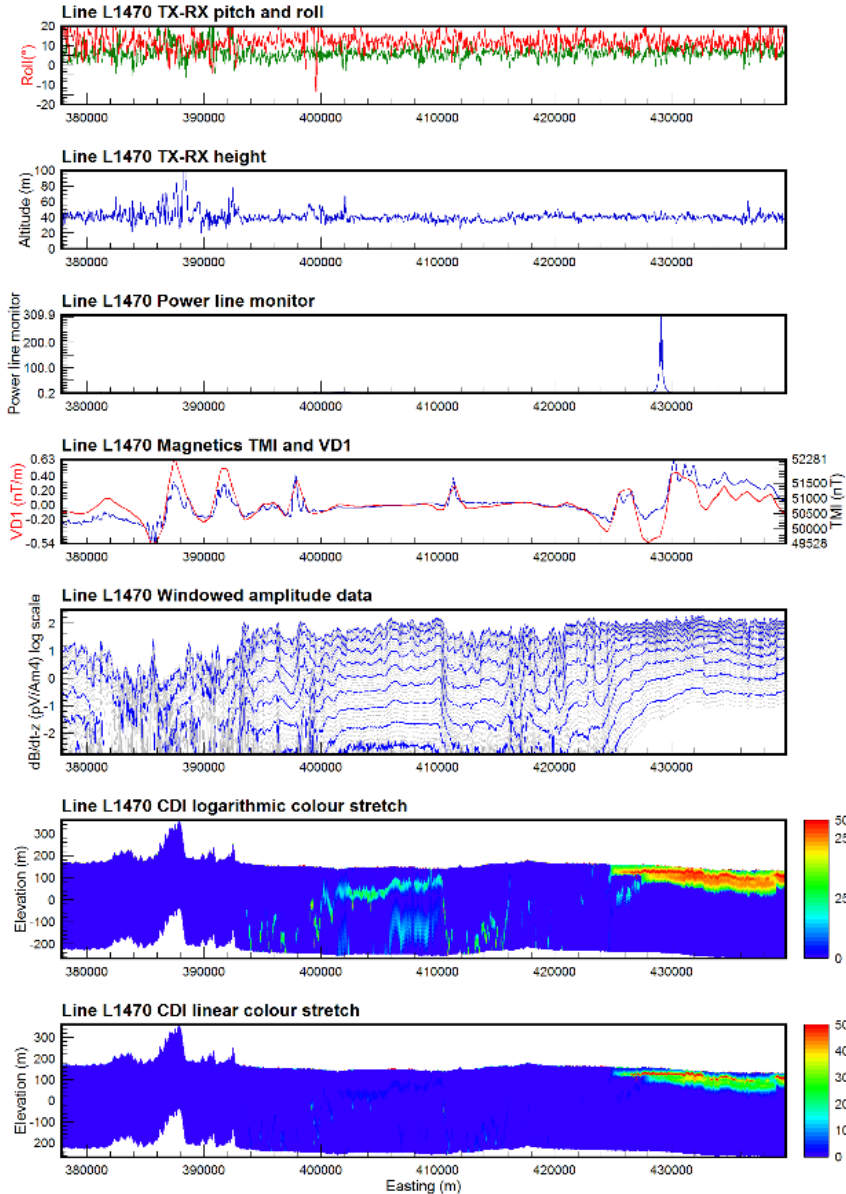




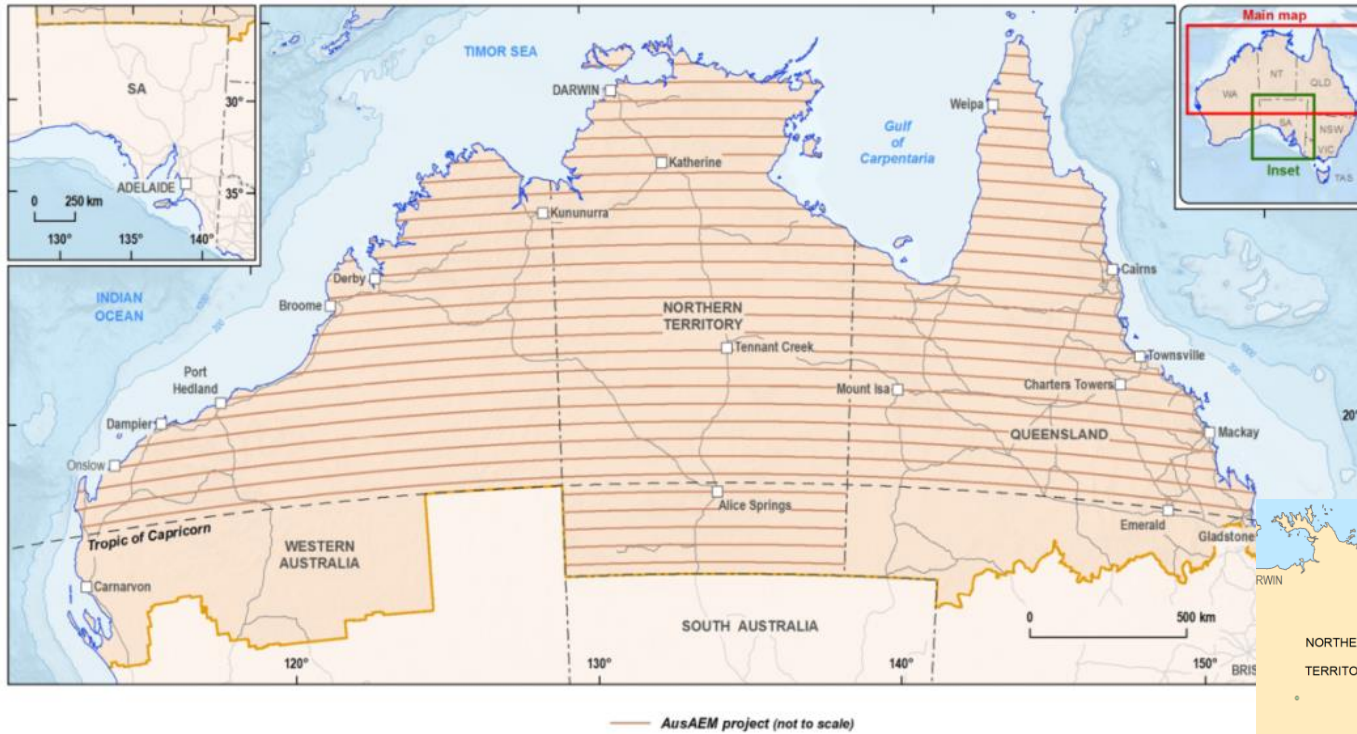
**East Isa Project
Queensland, Australia**

**MULTI-PARAMETER PLOTS
GEOTECH VTEM SURVEY**

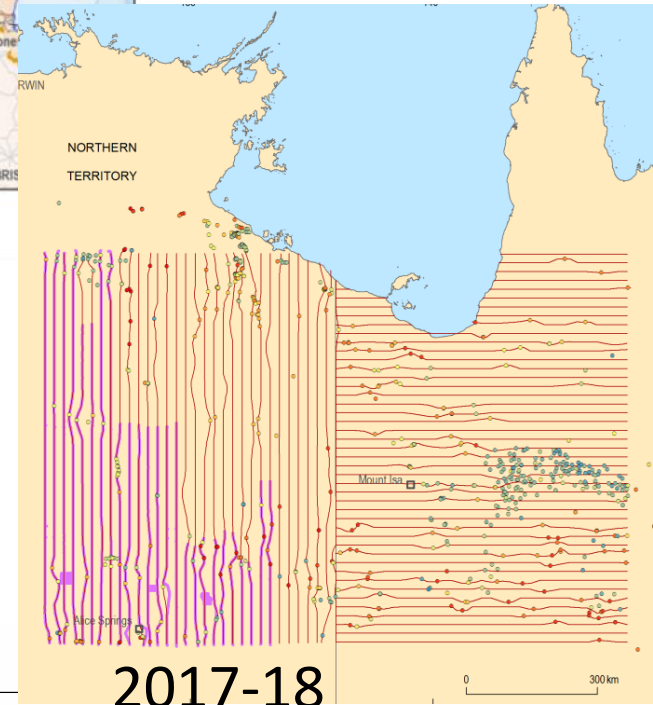
January 2017



Geoscience Australia - AusAEM

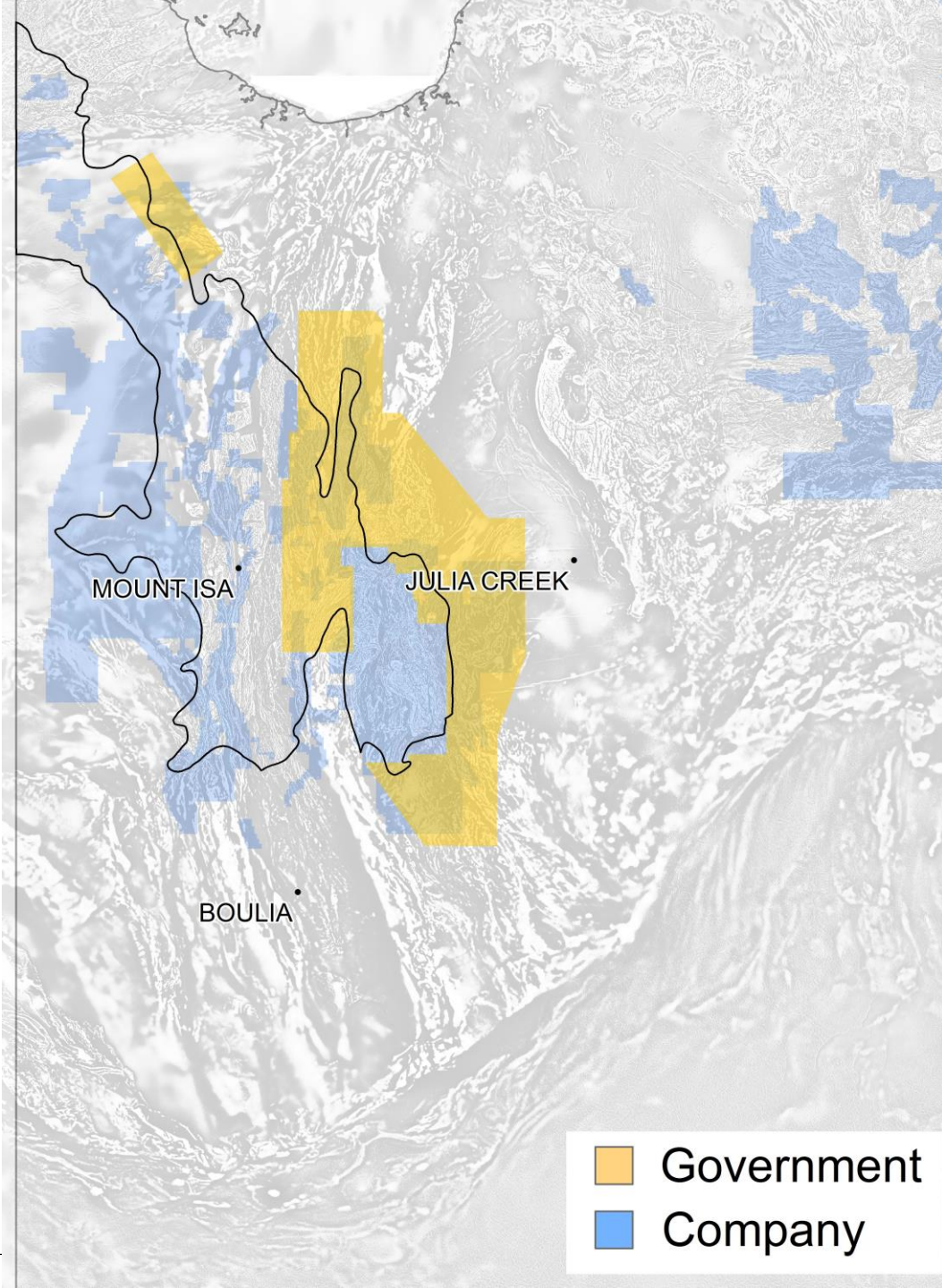


4-year program to 2020



Airborne EM

- Targeting Western Succession geology
- Awaiting AUSAEM regional results before area selection.
- 2-2.5km line spacing with company infill potential



GSQ New Discovery Program – geophysics

- Expanding 100-m airborne magnetics and radiometrics

Ongoing

- AEM in targeted areas – ≤ 2 km line spacing

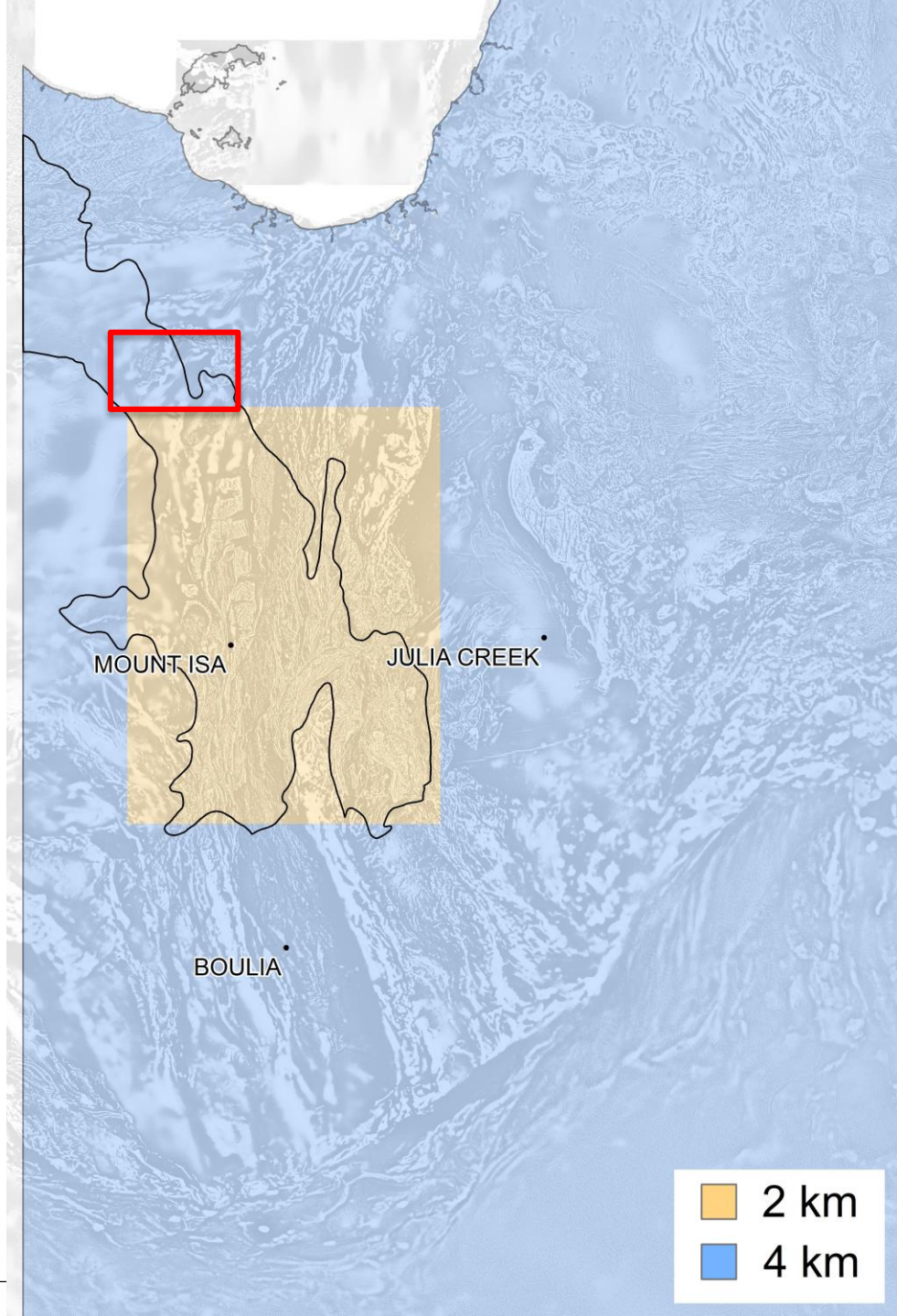
In planning

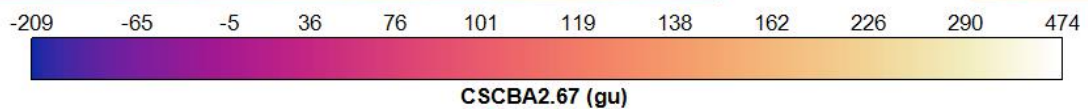
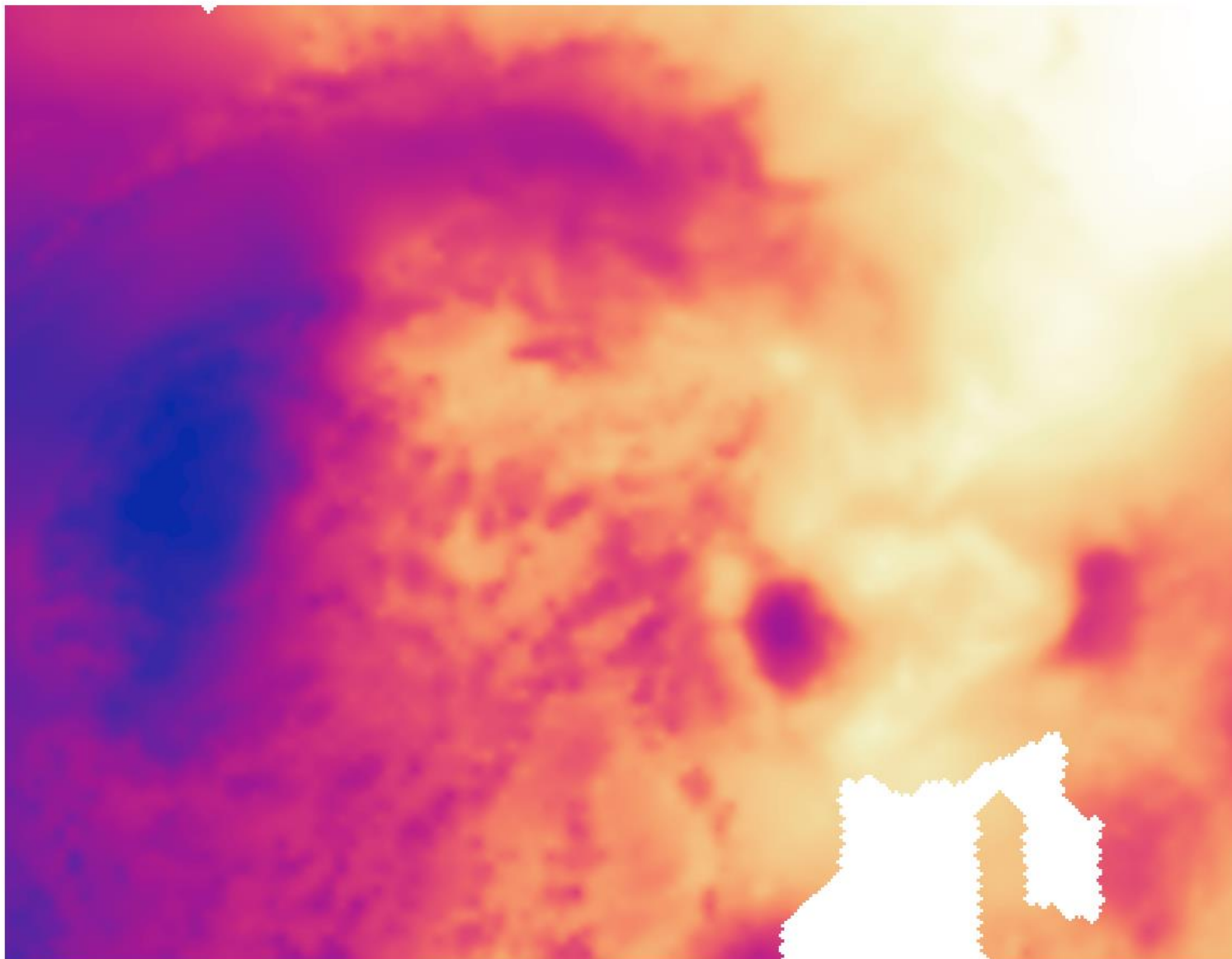
- Ground gravity – 1 km or better

Lawn Hill/Gregory Survey – Released

Ground gravity

- Most of the exposed Mt Isa Province and extensions under cover – 2 km ground gravity or better
- Data released – Over 7000 stations of 1 km ground gravity in the Lawn Hill / Gregory area on QDEX Data 10th September 2018





<http://qdexdata.dnrm.qld.gov.au/QDEXDataDownloadManager/Results?type=ground%20geophysics&id=Lawn%20Hill%20Gravity>

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Ongoing

- AEM in targeted areas – ≤ 2 km line spacing

In planning

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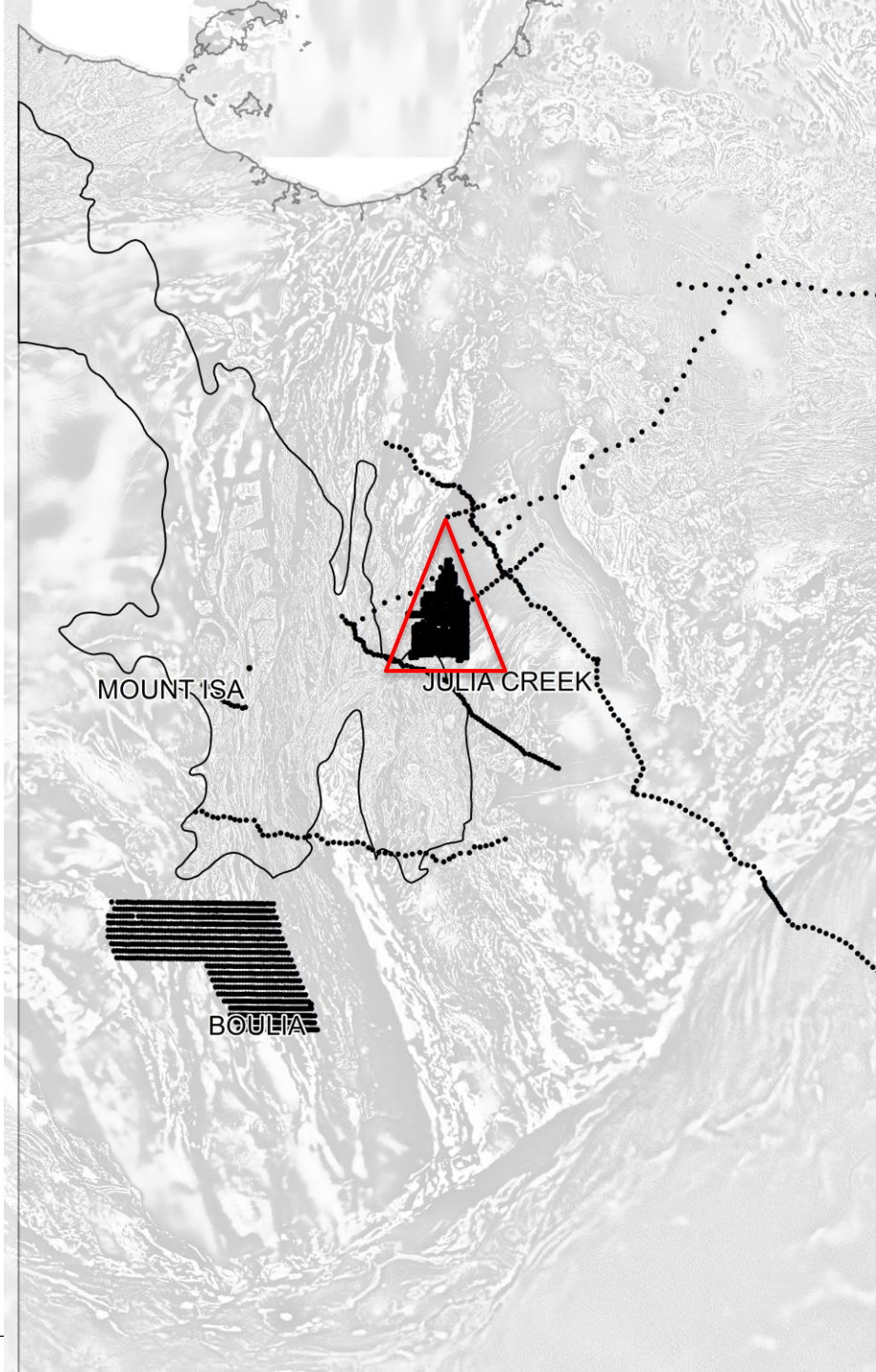
Lawn Hill – Released

- MT – new lines and ≤ 2 km grids

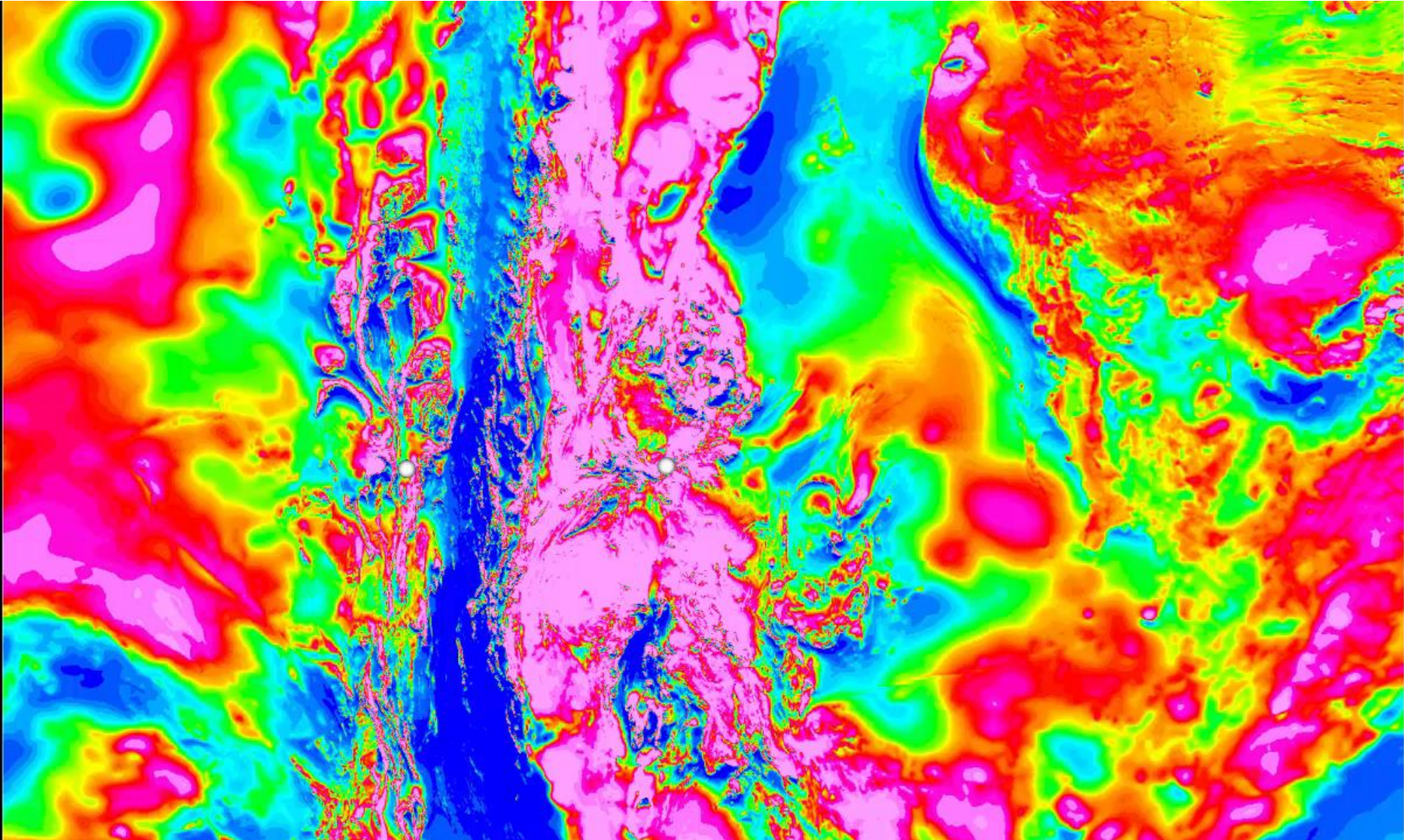
In planning and initial land access phase

Magnetotellurics (MT)

- Historically Deep crustal MT along seismic lines
- MT grid surveys – S of Mt Isa and N of Cloncurry (over the Ernest Henry IOCG deposit)
- Very interesting results and models
- Planning new survey area for collection in 2019



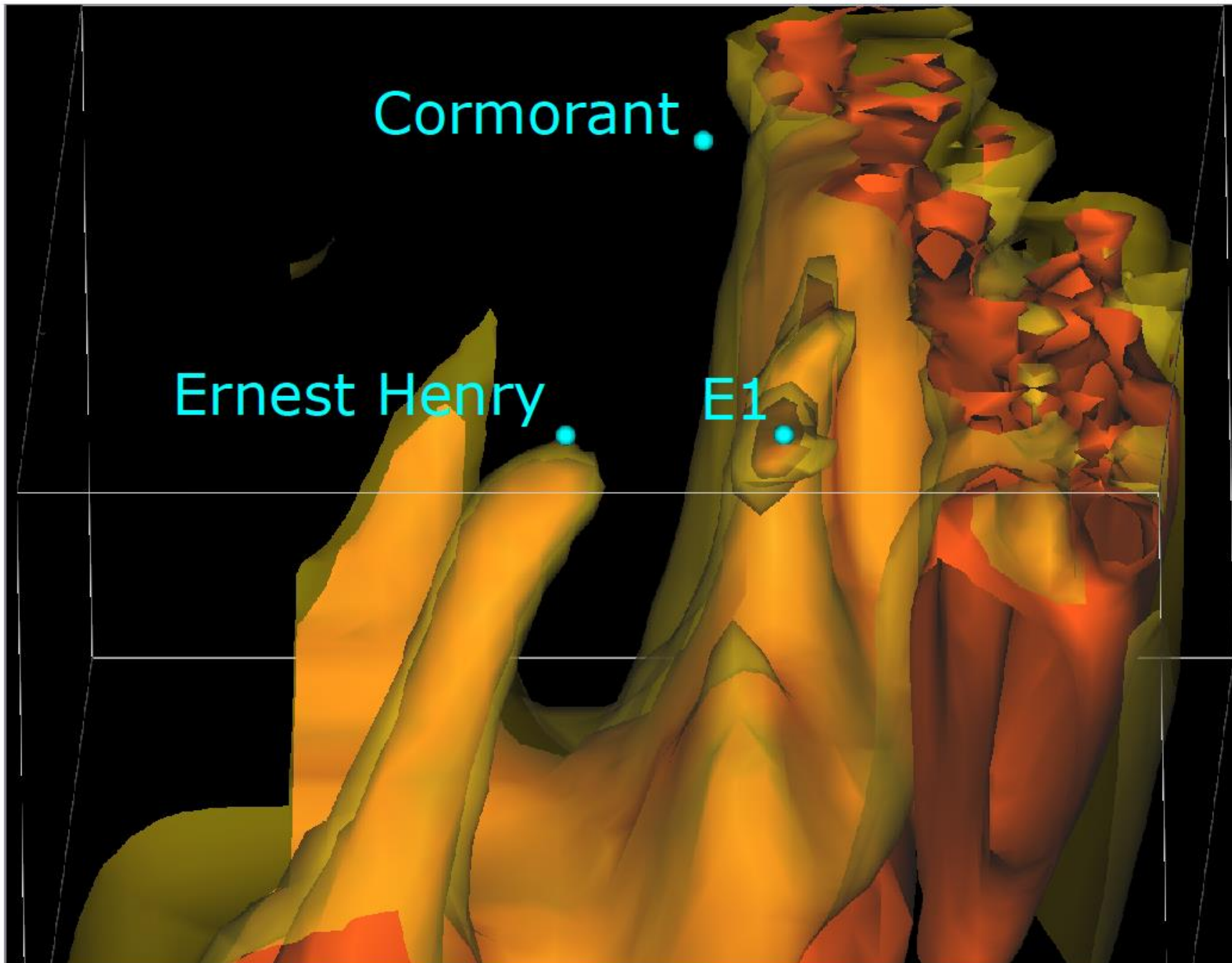
MT – Cloncurry – Ernest Henry



Cormorant .

Ernest Henry .

E1 .



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- Ground gravity – 1 km or better

Lawn Hill – in progress

- MT – new lines and ≤ 2 km grids

In planning and initial land access phase

Questions?

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