

2025 – a stellar year for geophysics products in NSW

The logo for the Geological Survey of New South Wales 150th anniversary, featuring a large '150' with a stylized '5' that incorporates a geological cross-section pattern. The text "Geological Survey of New South Wales" is above the number.

Geological Survey of New South Wales



1875–2025

Dr Sam Matthews
Senior Geophysicist

9 May 2025

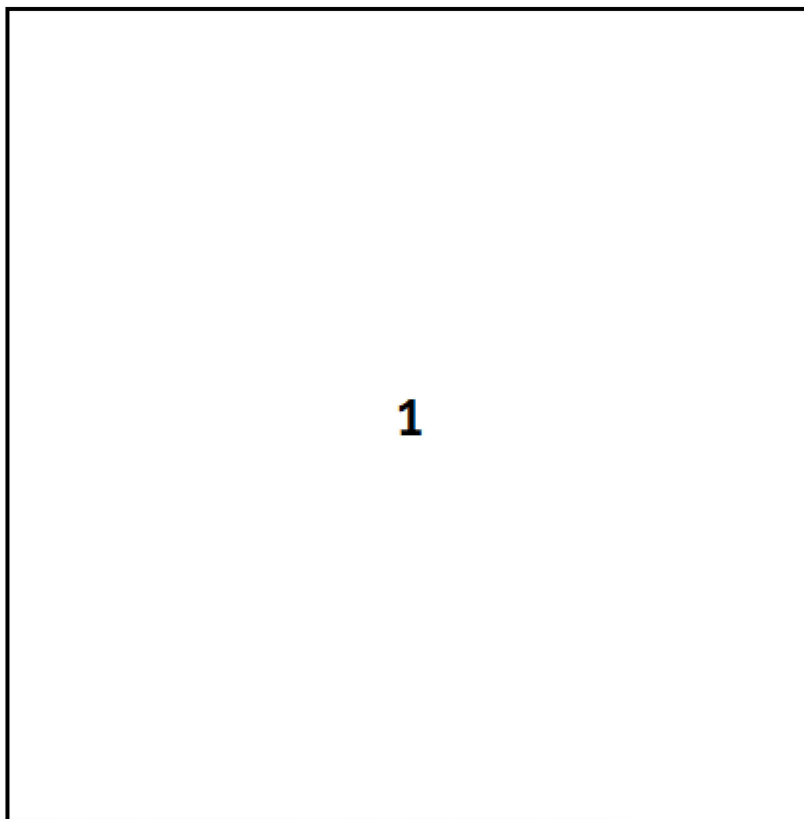
Contents



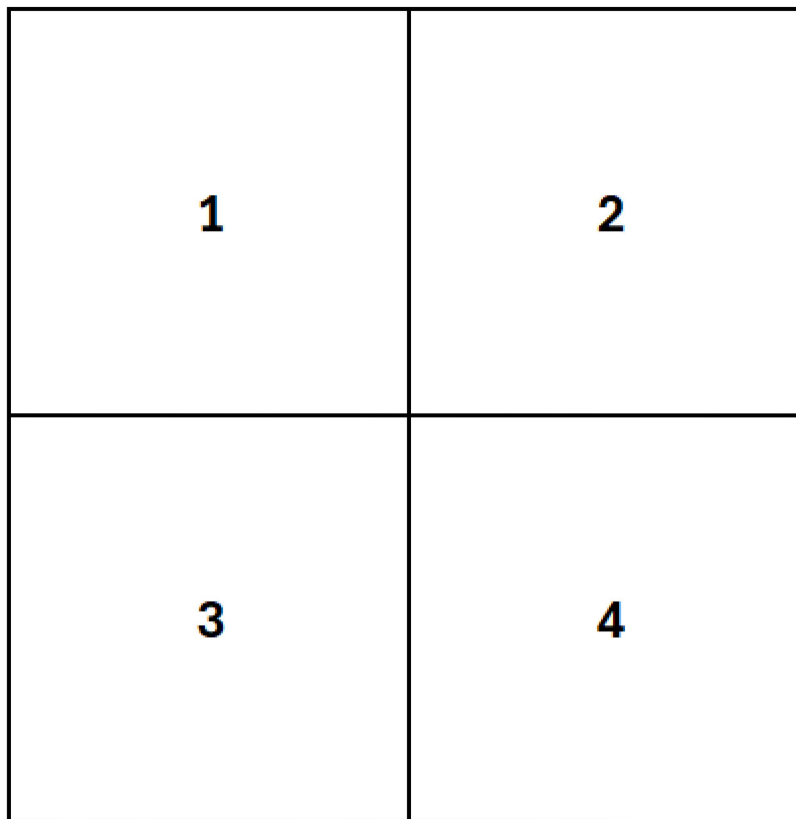
2025 NSW radiometric merge	3	
2025 Central NSW (CNSW) merge package	7	
2025 250k map sheet geophysical package	9	
2024 NSW gravity merge	12	
MinView update and data release	14	

Highlighting the value of reduced grid cell size

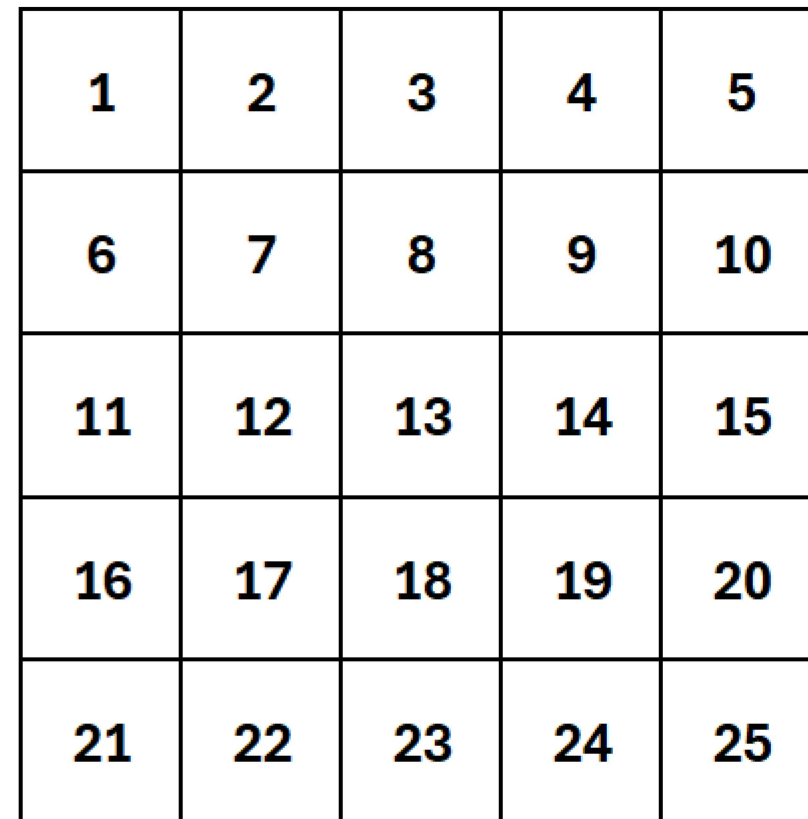
50 m



25 m



10 m



2014

→
4x

>2020

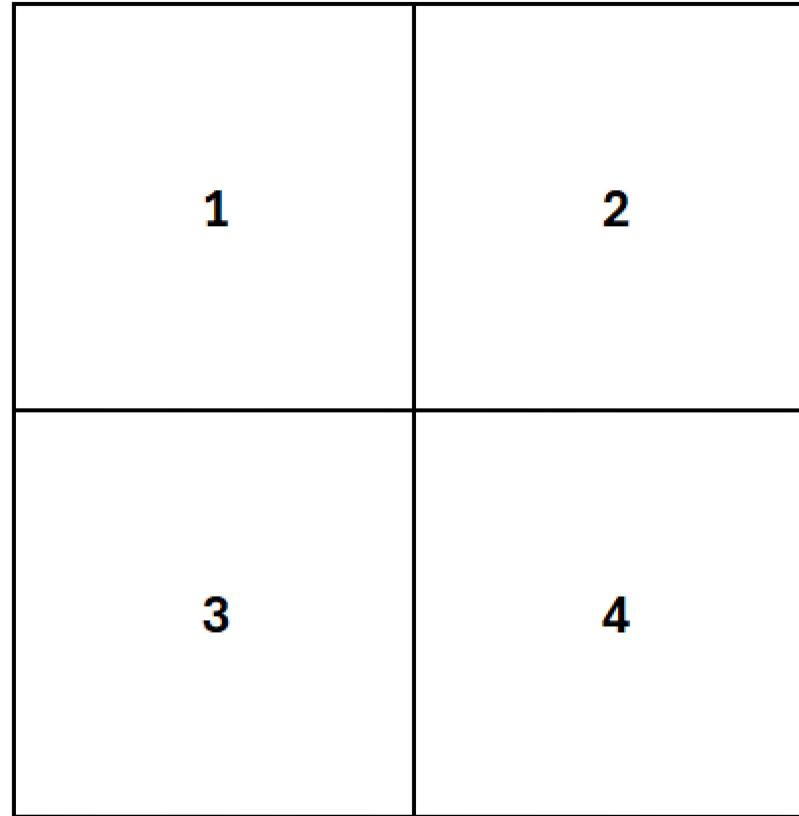
→
6.25x

CNSW

→
25x

Highlighting the value of reduced grid cell size

25 m



Highlighting the value of reduced grid cell size

Articles

A quantitative approach to determination of survey specification quality for airborne magnetic and radiometric surveys with relation to large-scale compilations

Samuel J. Matthews & Felix Sheldon

Pages 797-808 | Received 20 Nov 2023, Accepted 10 Jun 2024, Published online: 14 Jul 2024

Cite this article <https://doi.org/10.1080/08123985.2024.2368110>



Full Article

Figures & data

References

Citations

Metrics

Reprints & Permissions

Read this article

Abstract

Regional and nationwide geophysical merges consisting of magnetic and radiometric datasets have become standard practice within Australia and some parts of the world. The best practice for geophysical merges is to ensure the highest quality survey data is incorporated in all given areas. However, the traditional means of accomplishing this determination is quite qualitative without a well-defined methodology. Here, a quantitative algorithmic approach is provided, reducing user “guesswork” regarding which survey supersedes others when occupying the same space within geophysical merges. This is accomplished by assessing a wide range of survey specifications and applying weighted scores to their relative importance. This algorithm is applied to 889 datasets flown in New South Wales between 1957 and 2023 and provides a clear efficacy in determination of data quality based on survey design. Results from this algorithm have demonstrated proficiency in ranking surveys from highest to lowest quality and have formed the basis of all statewide geophysical merges in NSW since 2020.

KEYWORDS: Geophysics compilation algorithm magnetic radiometric

25 m

1

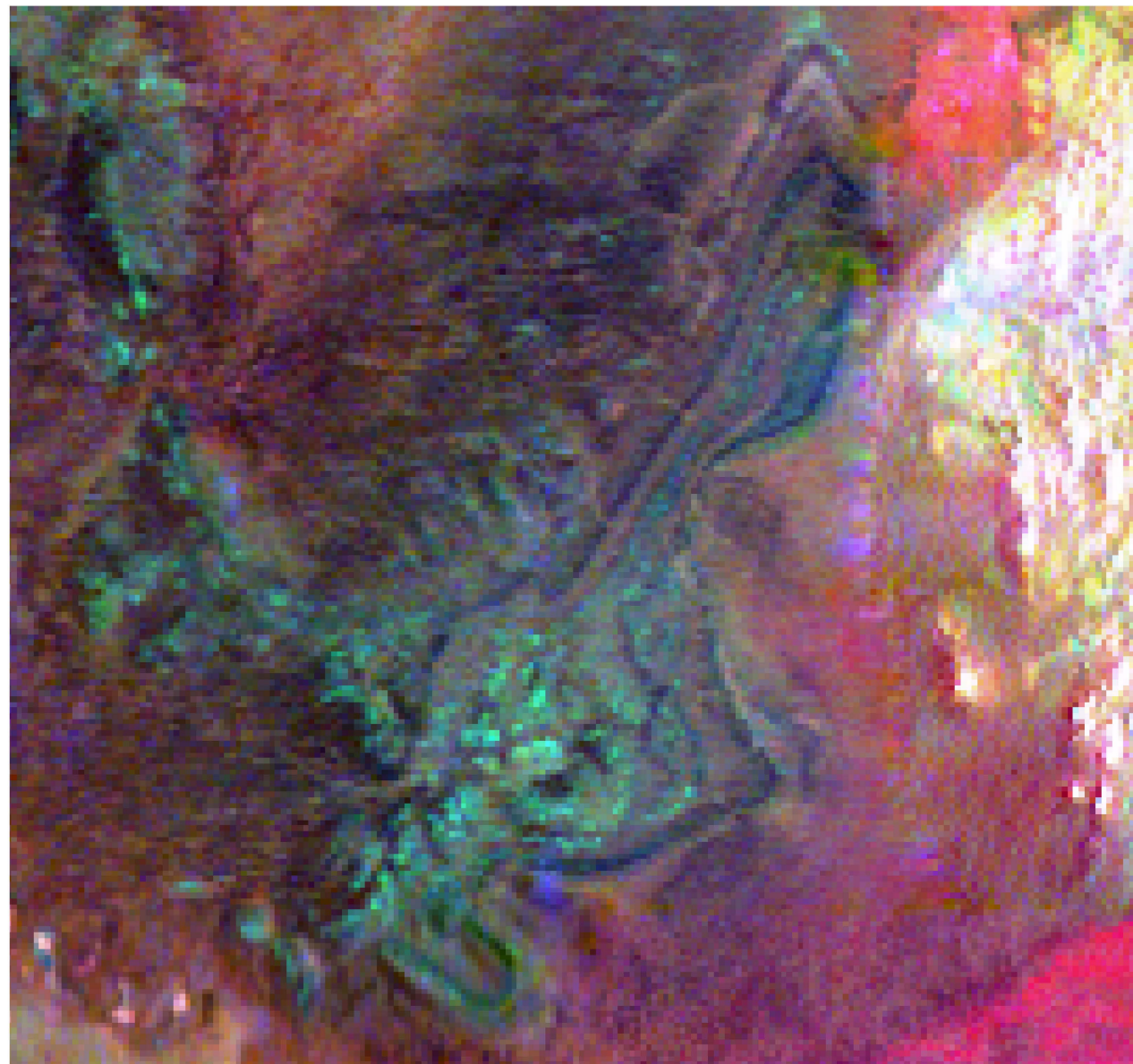
2025 NSW radiometric merge

Released today!

History of the NSW radiometric merge

2014 KThU ternary

Ivanhoe region
~75 x 75 km

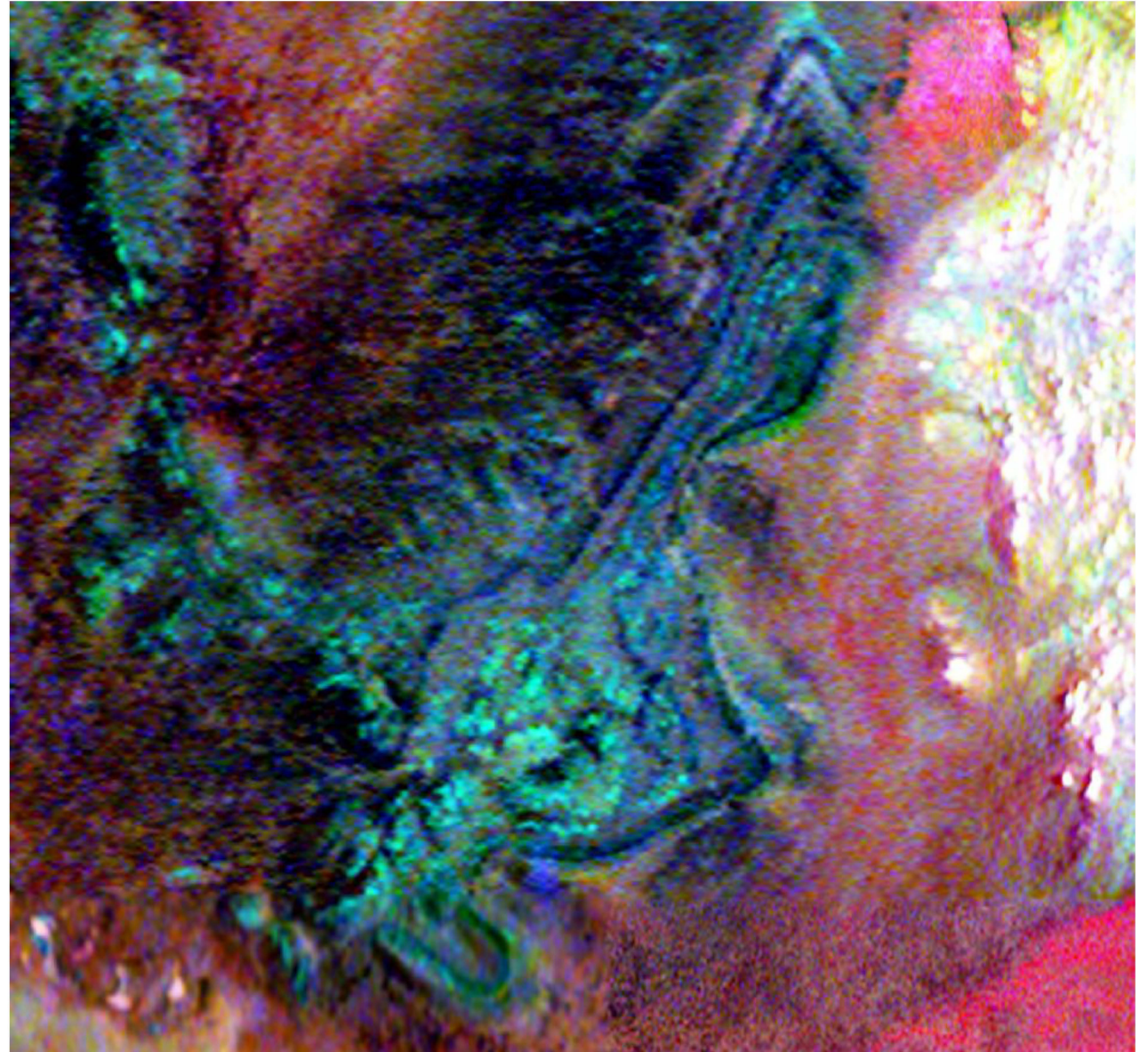


	Statewide Radiometric Merge			
	2014	2021	2023	2025
Grid cell size	50 m			
Survey count	79			
% company	3.3%			
% 100 m spacing	1.8%			
Estimated value	\$29M			

History of the NSW radiometric merge

2021 KThU ternary

Ivanhoe region
~75 x 75 km

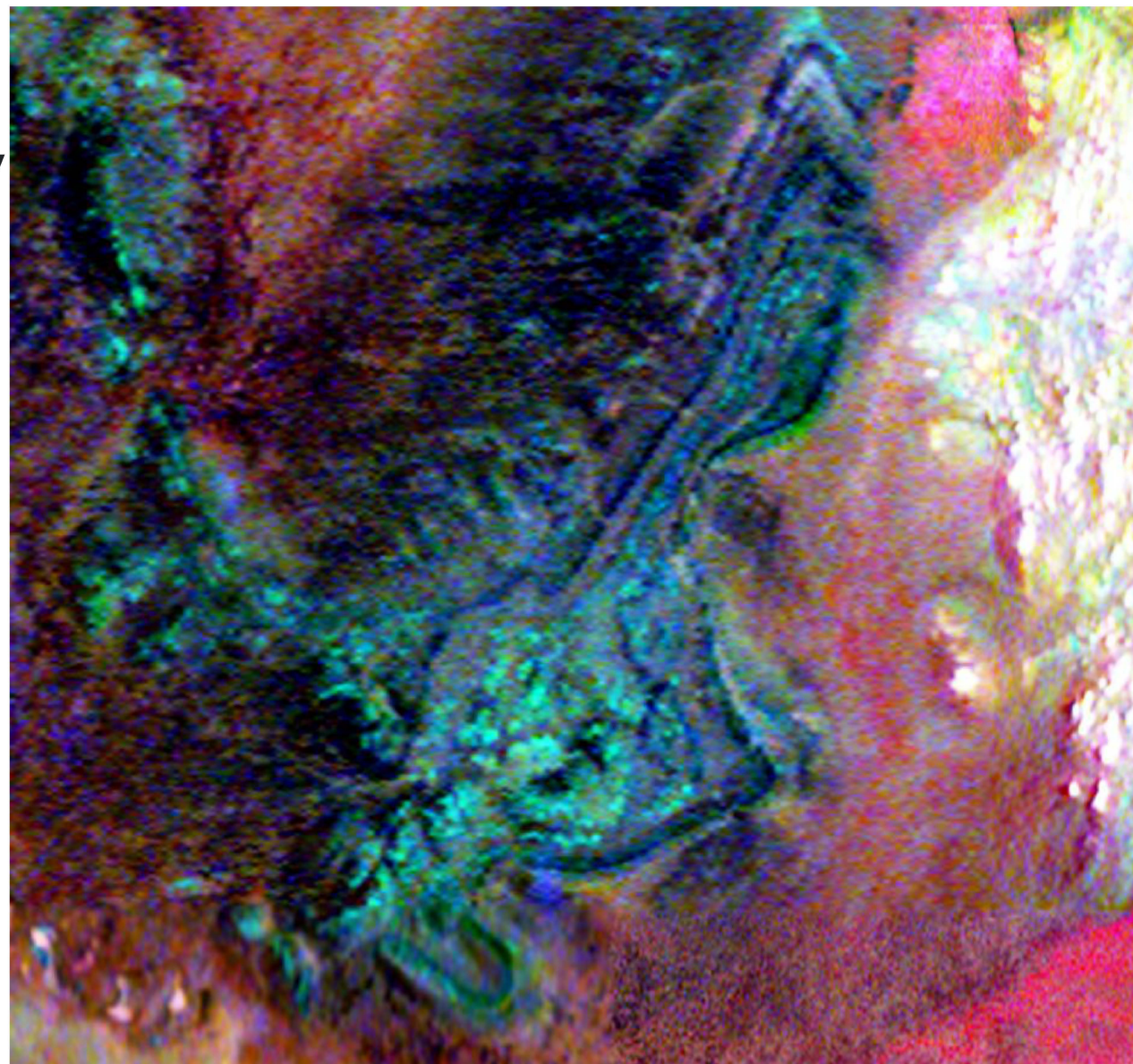


	Statewide Radiometric Merge			
	2014	2021	2023	2025
Grid cell size	50 m	50 m		
Survey count	79	143		
% company	3.3%	6.5%		
% 100 m spacing	1.8%	7.0%		
Estimated value	\$29M	\$34M		

History of the NSW radiometric merge

2023 KThU ternary

Ivanhoe region
~75 x 75 km

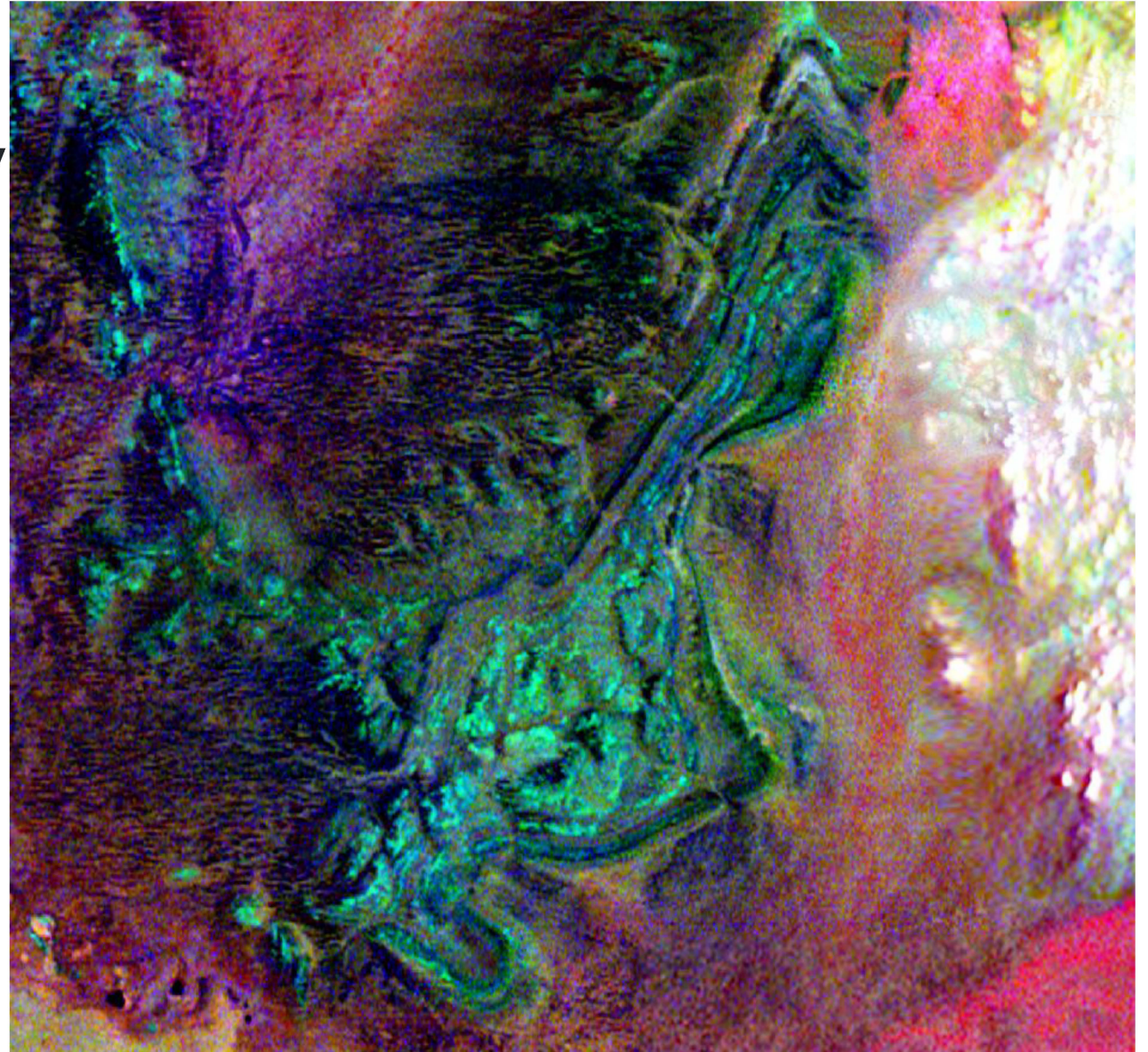


	Statewide Radiometric Merge			
	2014	2021	2023	2025
Grid cell size	50 m	50 m	25 m	
Survey count	79	143	229	
% company	3.3%	6.5%	8.5%	
% 100 m spacing	1.8%	7.0%	8.5%	
Estimated value	\$29M	\$34M	\$36M	

History of the NSW radiometric merge

2025 KThU ternary

Ivanhoe region
~75 x 75 km

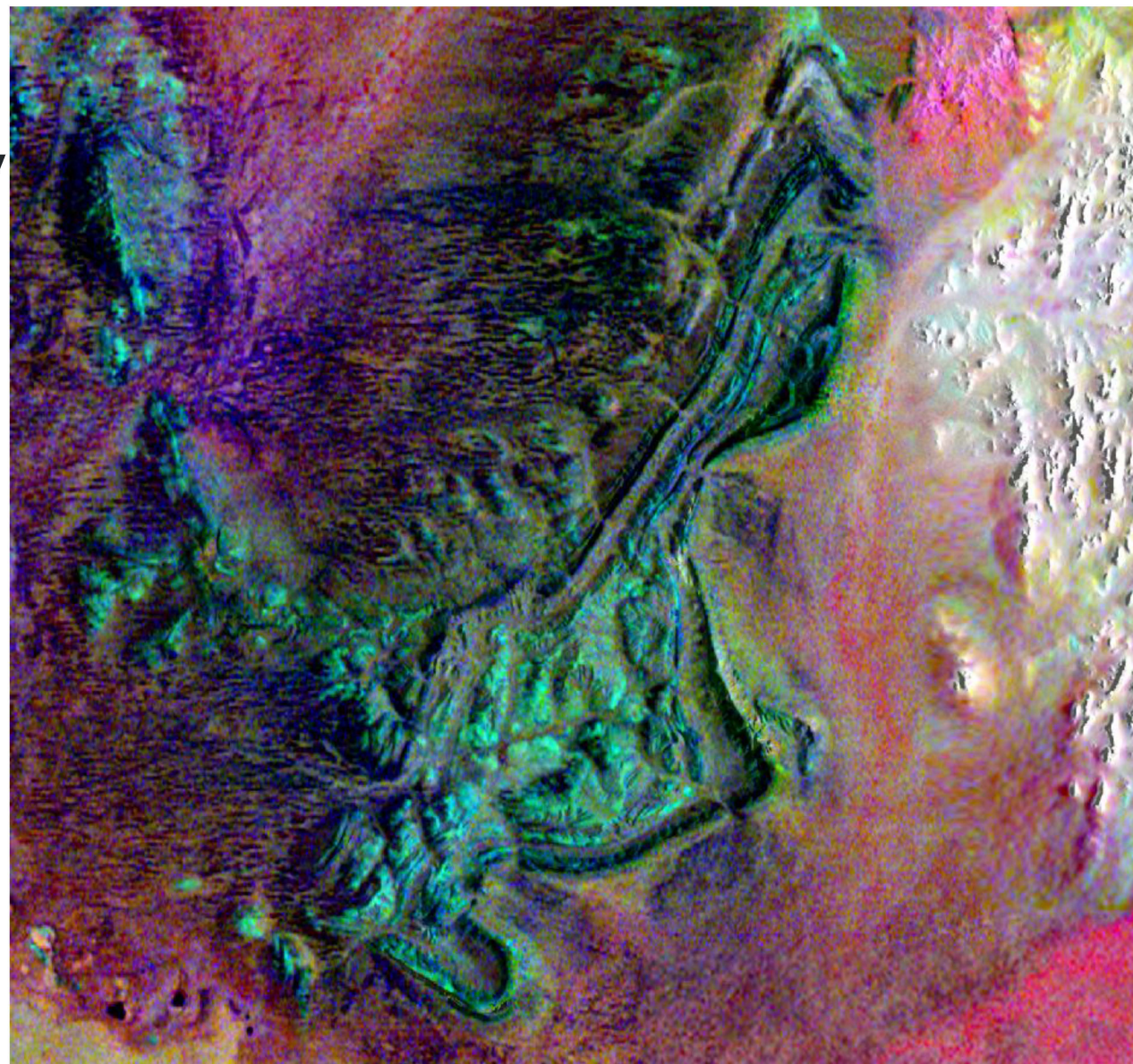


	Statewide Radiometric Merge			
	2014	2021	2023	2025
Grid cell size	50 m	50 m	25 m	25 m
Survey count	79	143	229	313
% company	3.3%	6.5%	8.5%	9.3%
% 100 m spacing	1.8%	7.0%	8.5%	9.3%
Estimated value	\$29M	\$34M	\$36M	\$37.5M

History of the NSW radiometric merge

2025 KThU ternary

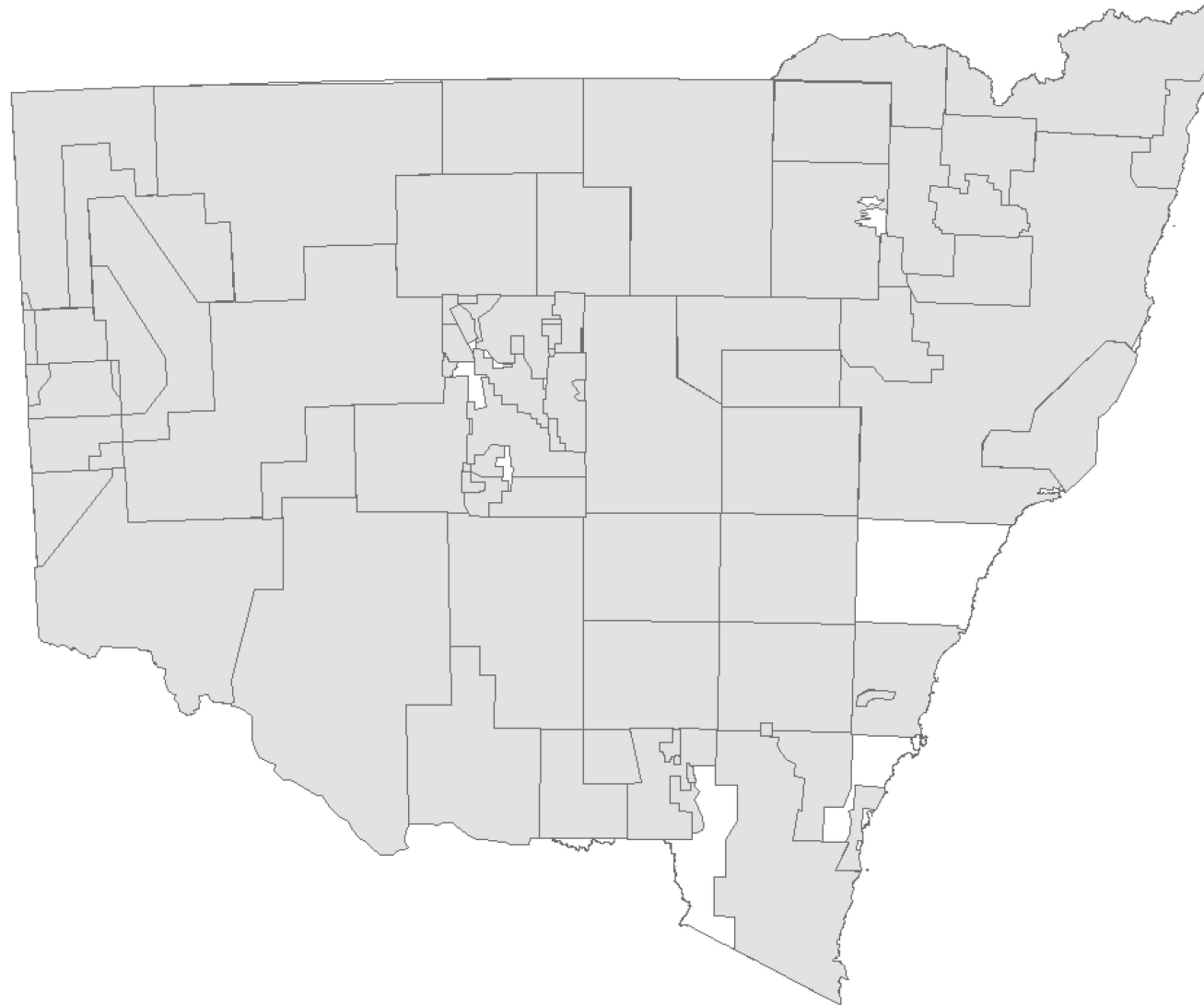
Ivanhoe region
~75 x 75 km



	Statewide Radiometric Merge			
	2014	2021	2023	2025
Grid cell size	50 m	50 m	25 m	25 m
Survey count	79	143	229	313
% company	3.3%	6.5%	8.5%	9.3%
% 100 m spacing	1.8%	7.0%	8.5%	9.3%
Estimated value	\$29M	\$34M	\$36M	\$37.5M

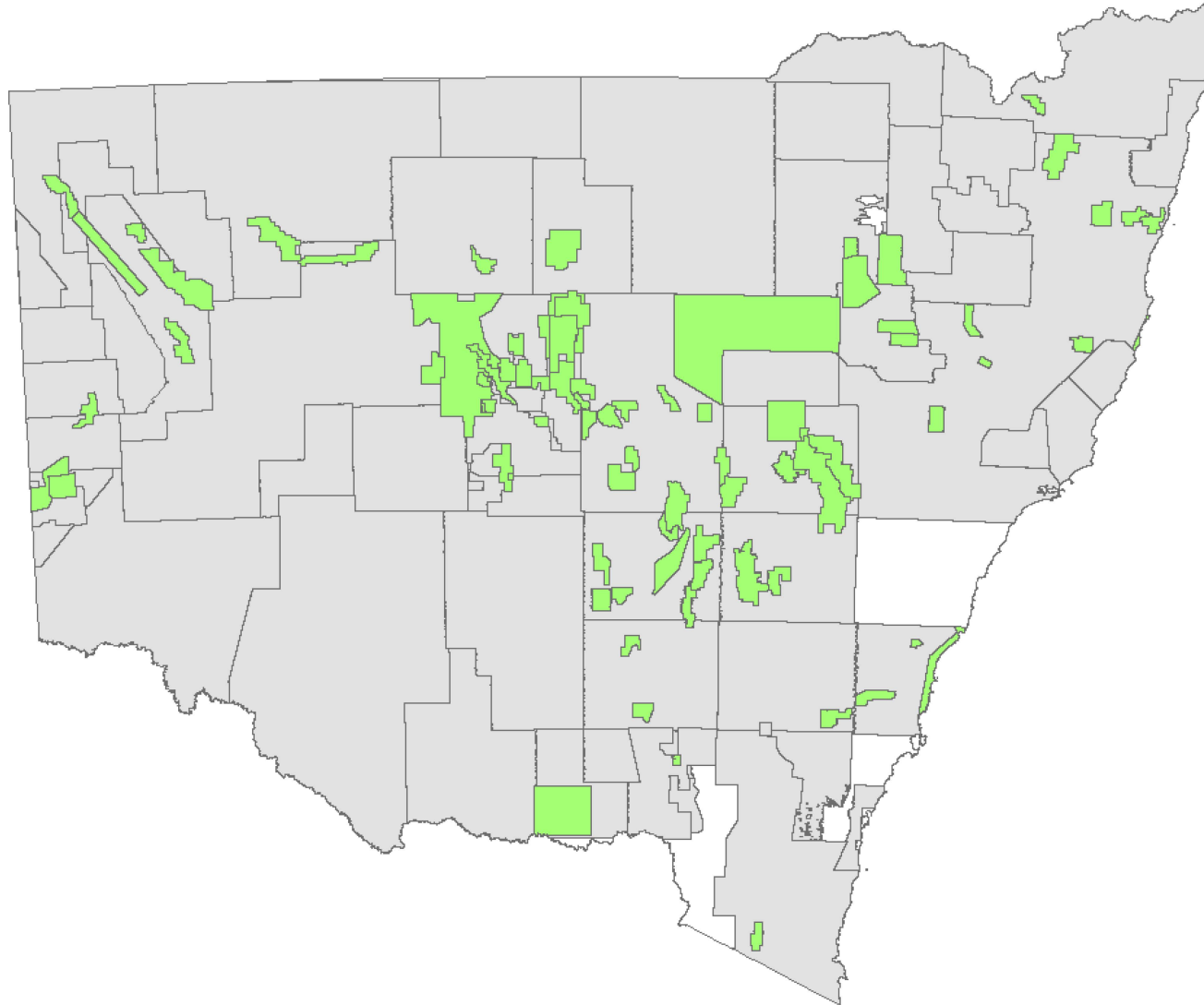
Surveys added to the radiometric merge

2014



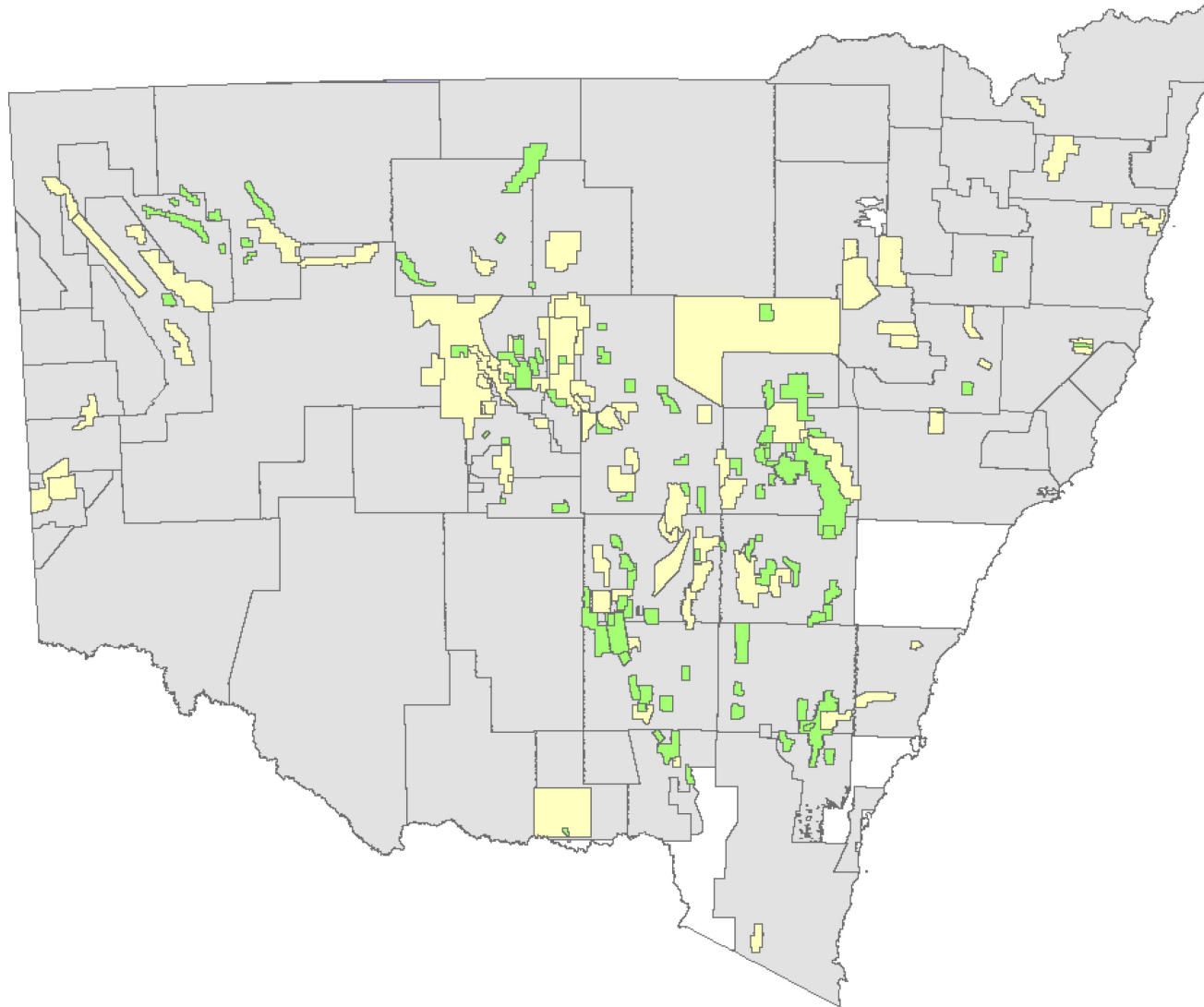
Surveys added to the radiometric merge

2021



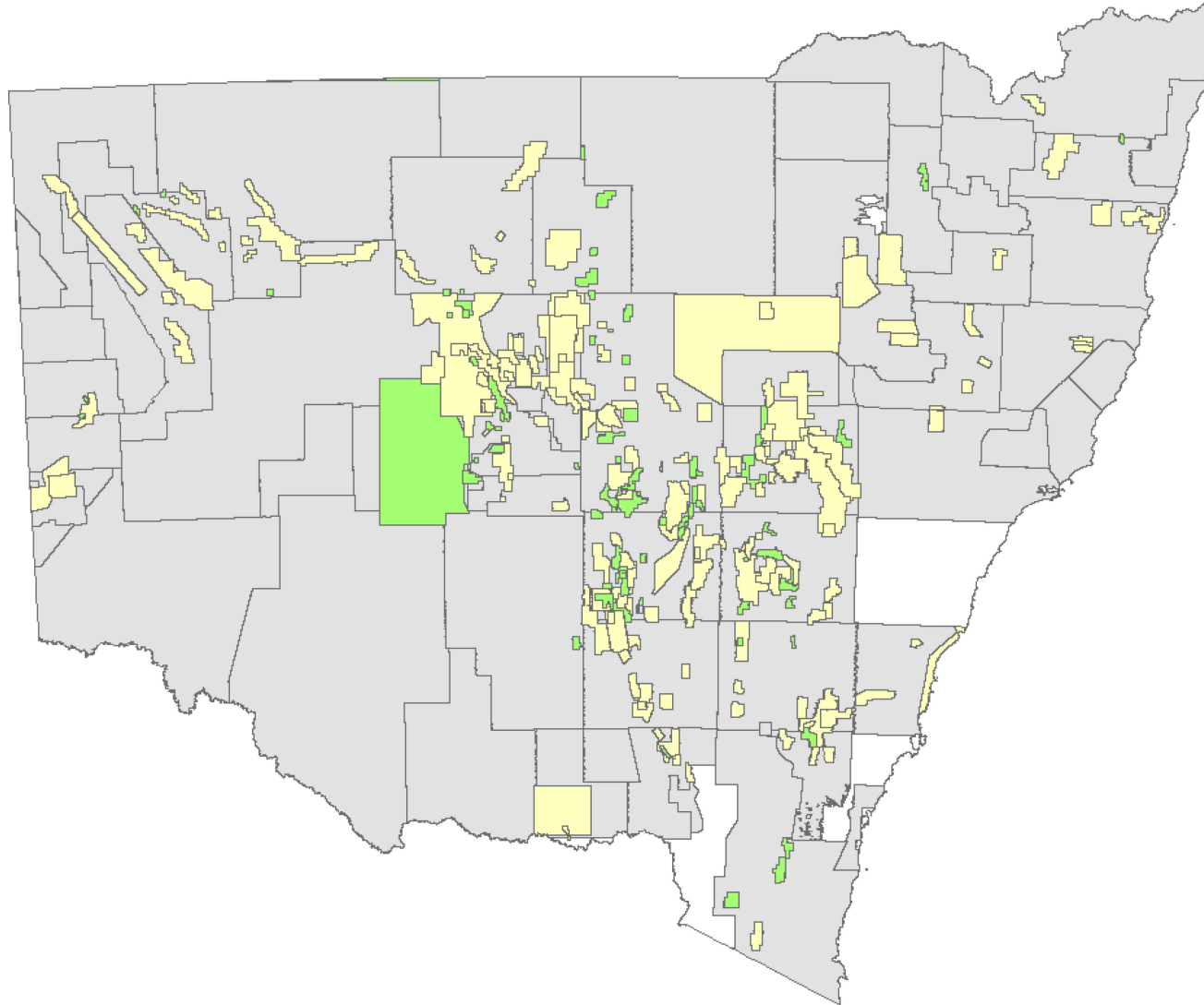
Surveys added to the radiometric merge

2023



Surveys added to the radiometric merge

2025



2

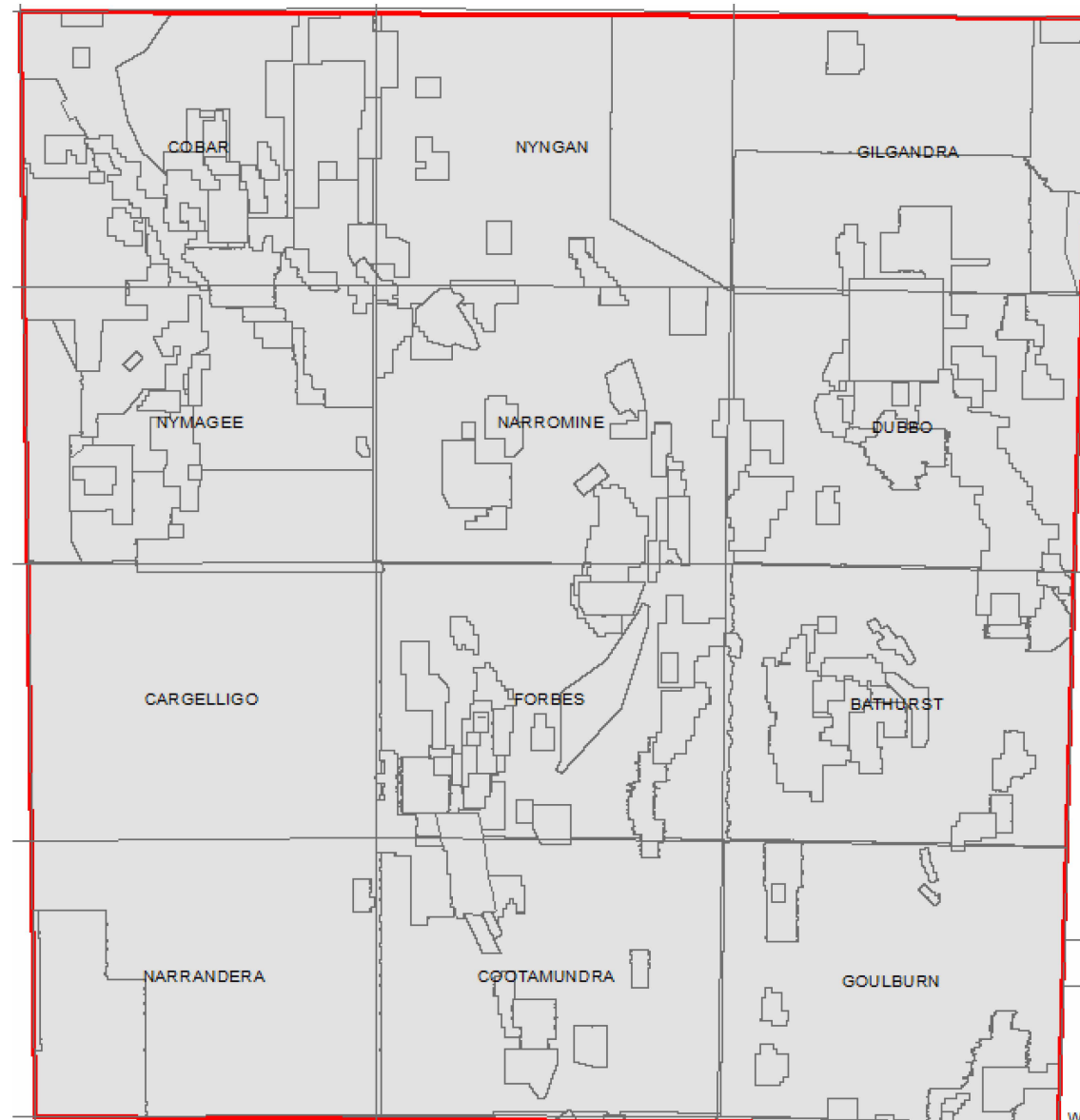
2025 Central NSW merge

Released today!

History of the Central NSW (CNSW) merge

Statewide 25m background

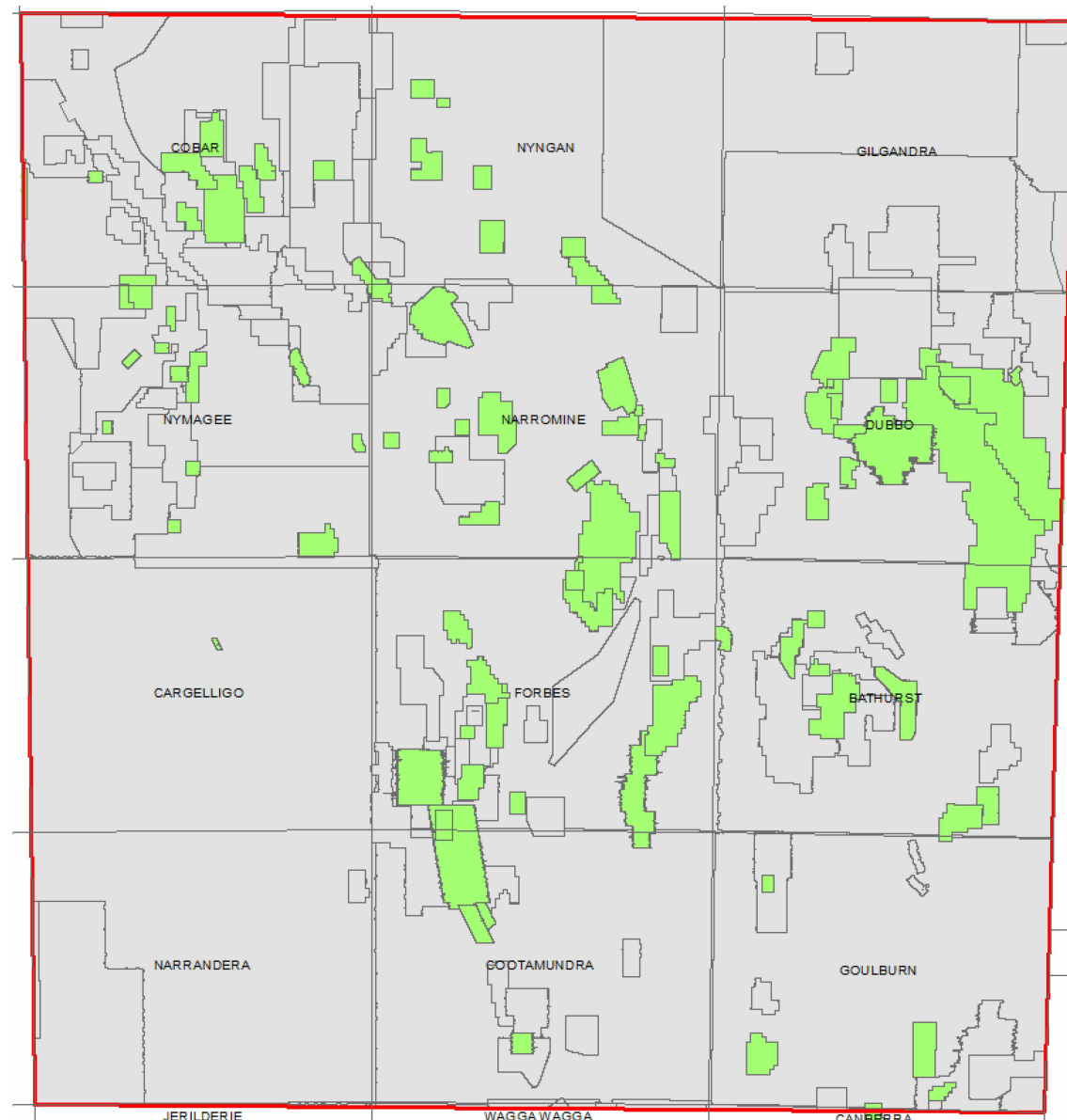
	Central NSW Merge			
	Magnetic		Radiometric	
	2023	2025	2023	2025
Grid cell size	10 m	10 m	10 m	10 m
Survey count	182	245	139	215
% company	18.8%	22.9%	17.5%	22.0%
% 100 m spacing	15.5%	21.4%	15.2%	19.6%
Estimated value	\$12M	\$14.5M	\$11.5M	\$14M



History of the Central NSW (CNSW) merge

2023 magnetic CNSW

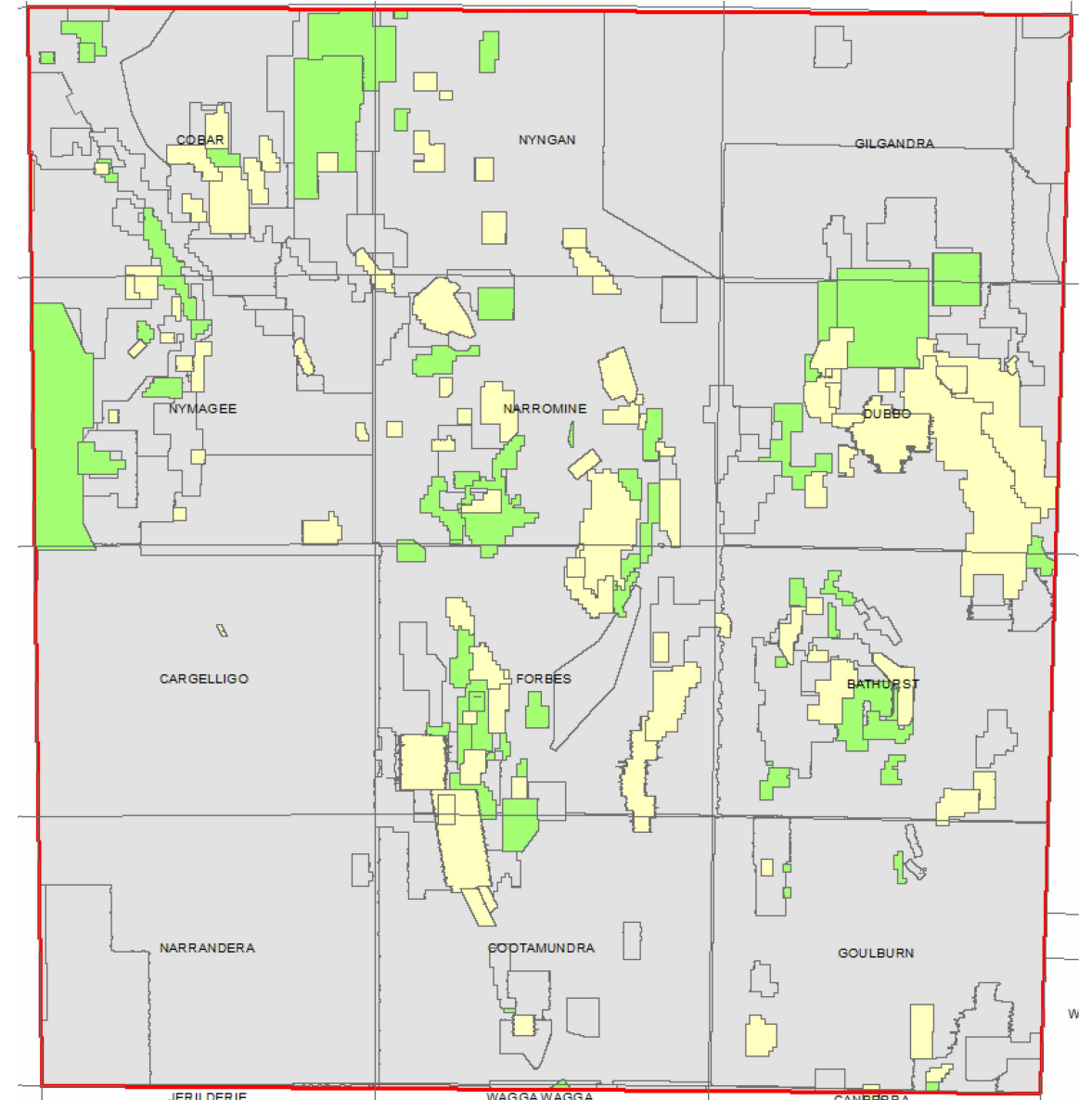
	Central NSW Merge			
	Magnetic		Radiometric	
	2023	2025	2023	2025
Grid cell size	10 m	10 m	10 m	10 m
Survey count	182	245	139	215
% company	18.8%	22.9%	17.5%	22.0%
% 100 m spacing	15.5%	21.4%	15.2%	19.6%
Estimated value	\$12M	\$14.5M	\$11.5M	\$14M



History of the Central NSW (CNSW) merge

2025 magnetic CNSW

	Central NSW Merge			
	Magnetic		Radiometric	
	2023	2025	2023	2025
Grid cell size	10 m	10 m	10 m	10 m
Survey count	182	245	139	215
% company	18.8%	22.9%	17.5%	22.0%
% 100 m spacing	15.5%	21.4%	15.2%	19.6%
Estimated value	\$12M	\$14.5M	\$11.5M	\$14M

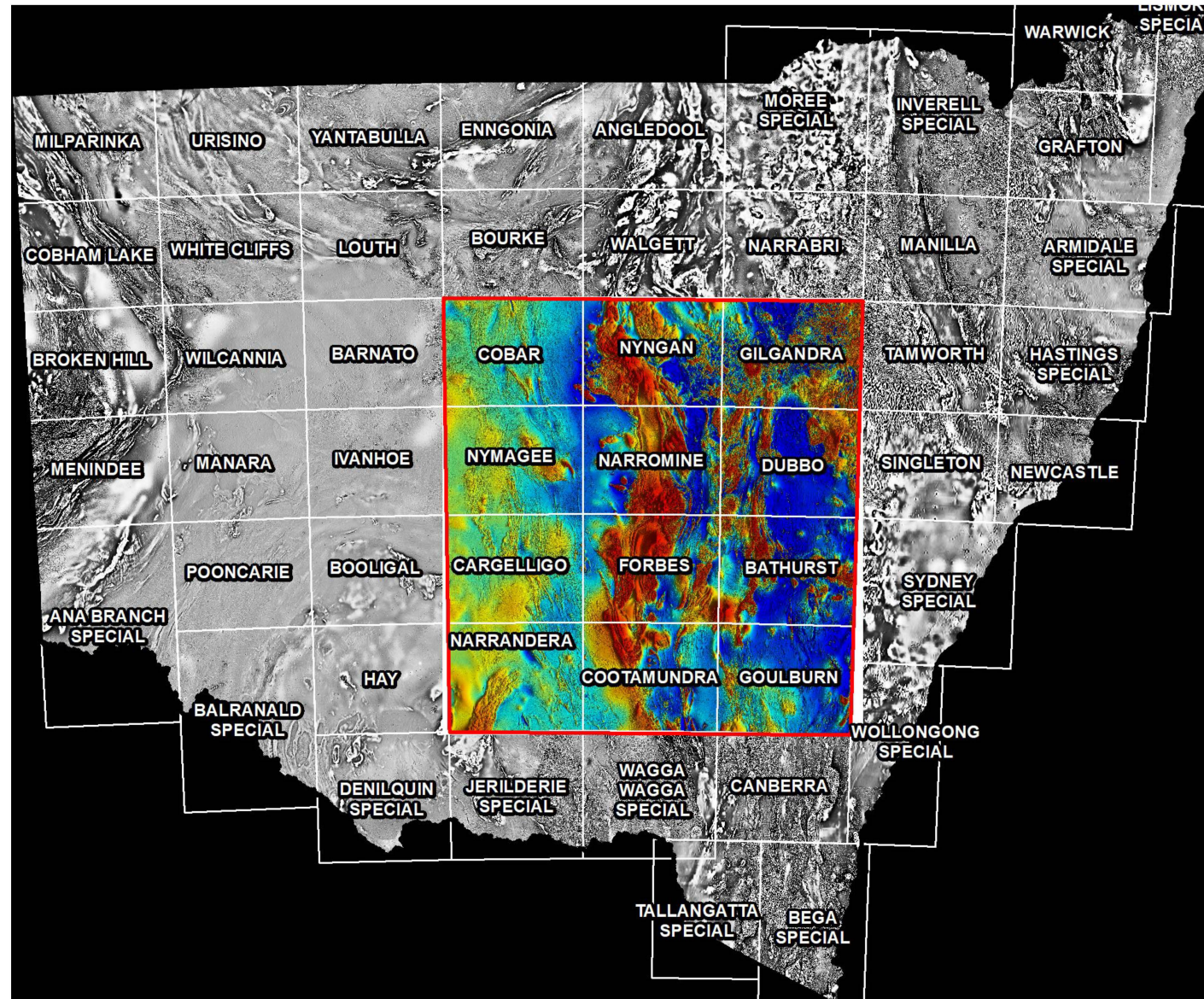


3

2025 250k merge package

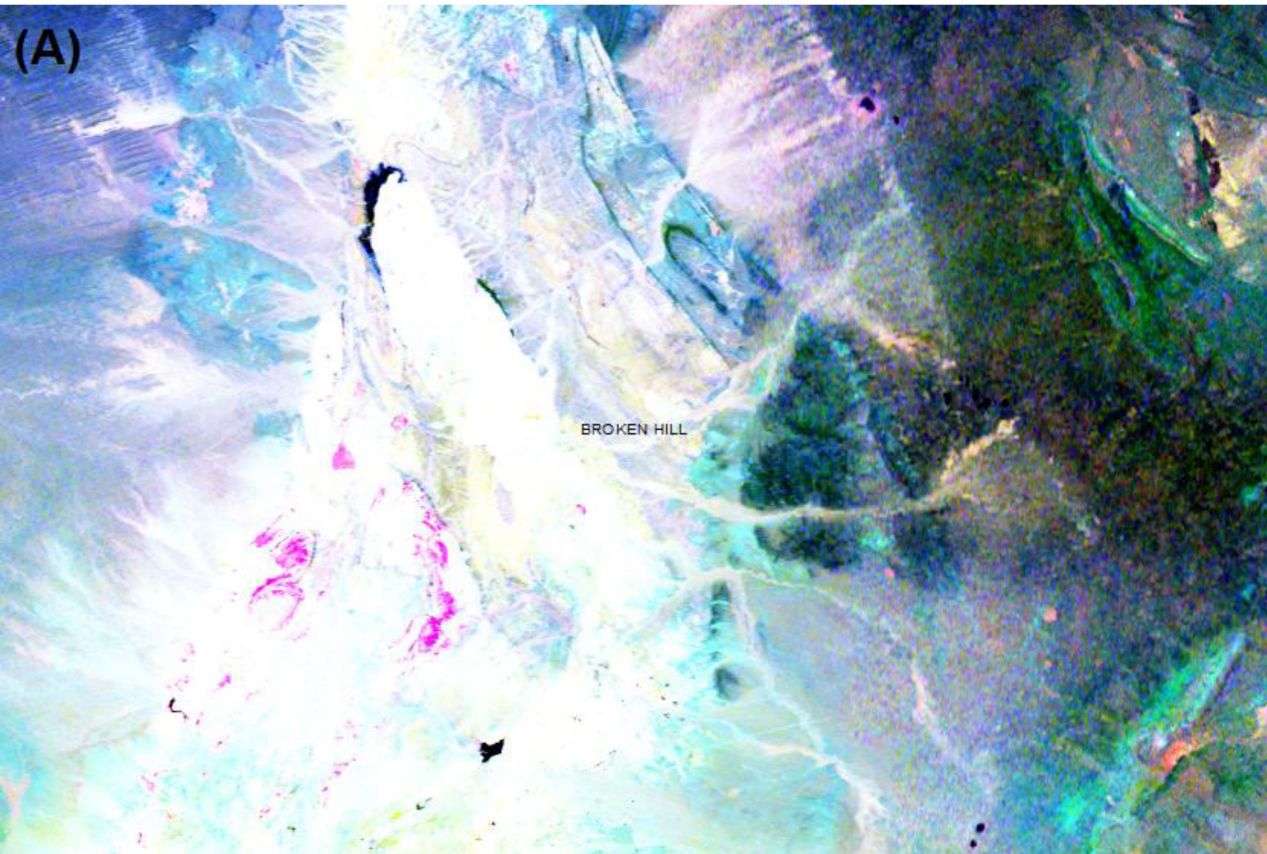
Releasing Q3–Q4 this year!

But wait, it gets even better-er!



The difference a simple re-stretch can make

Same data!



2025 Statewide merge

Broken Hill 1:250k

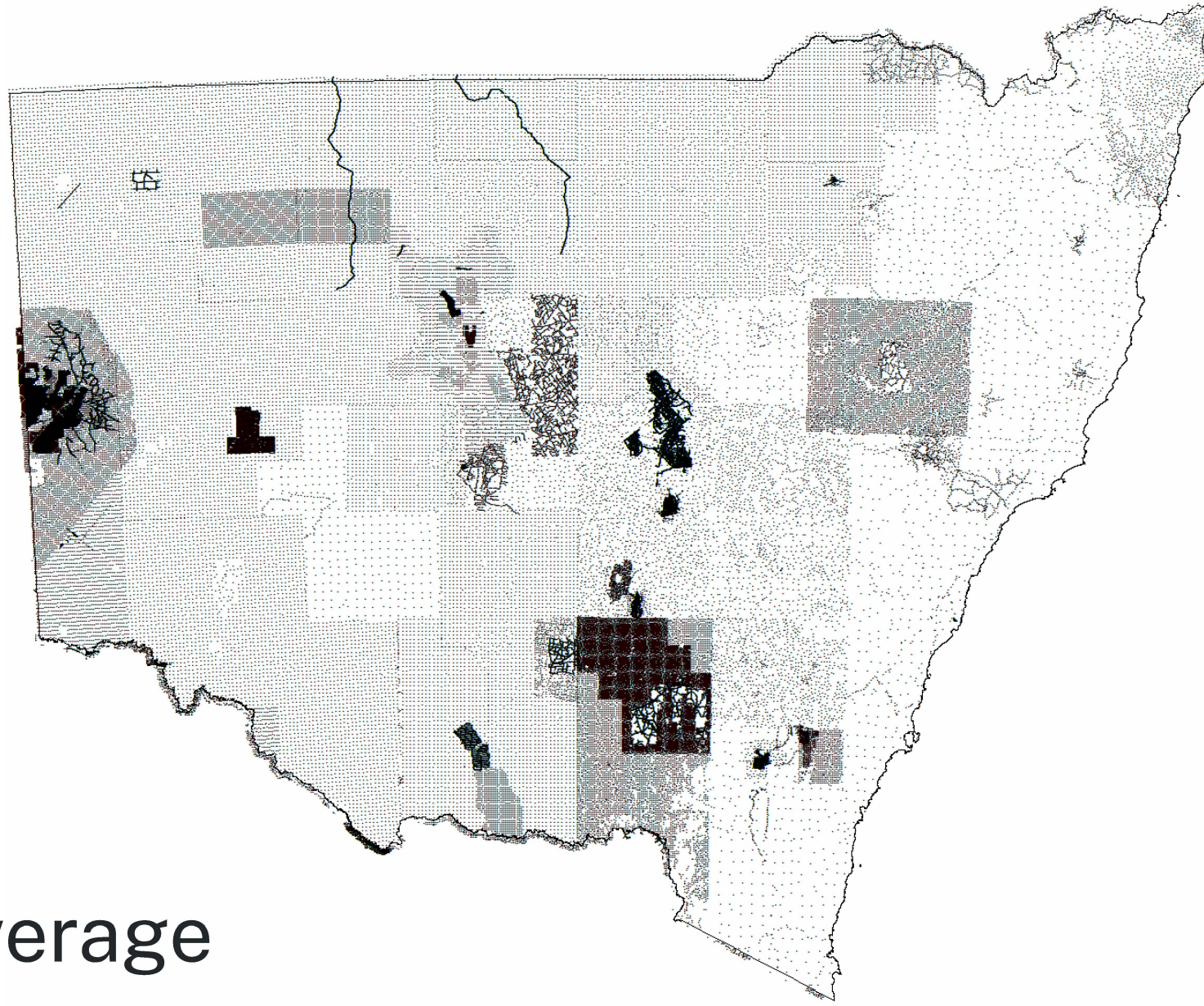
4

2024 NSW airborne gravity merge

Released late 2024!

Did you catch the updated NSW gravity?

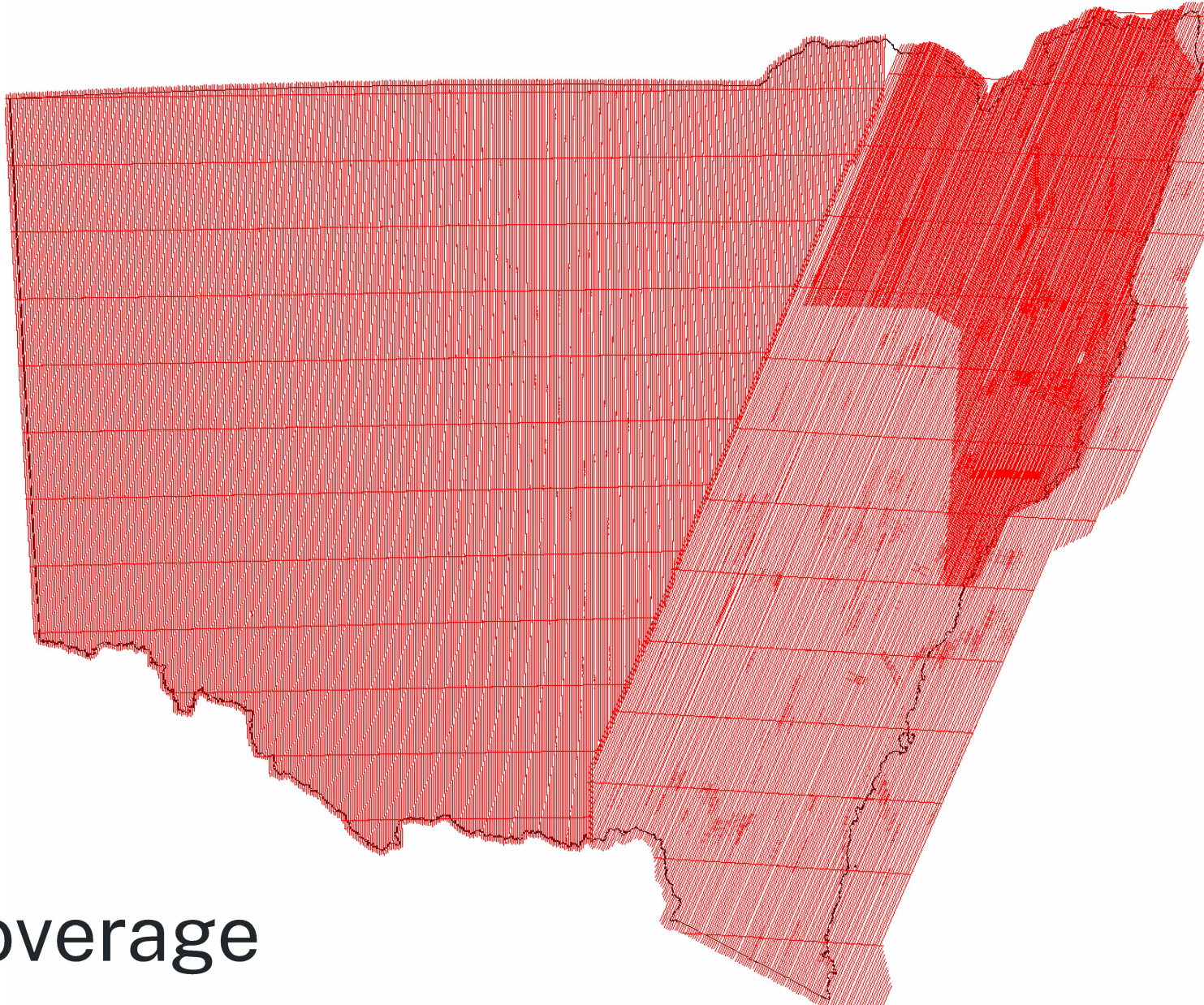
2020
merge



Ground coverage

Did you catch the updated NSW gravity?

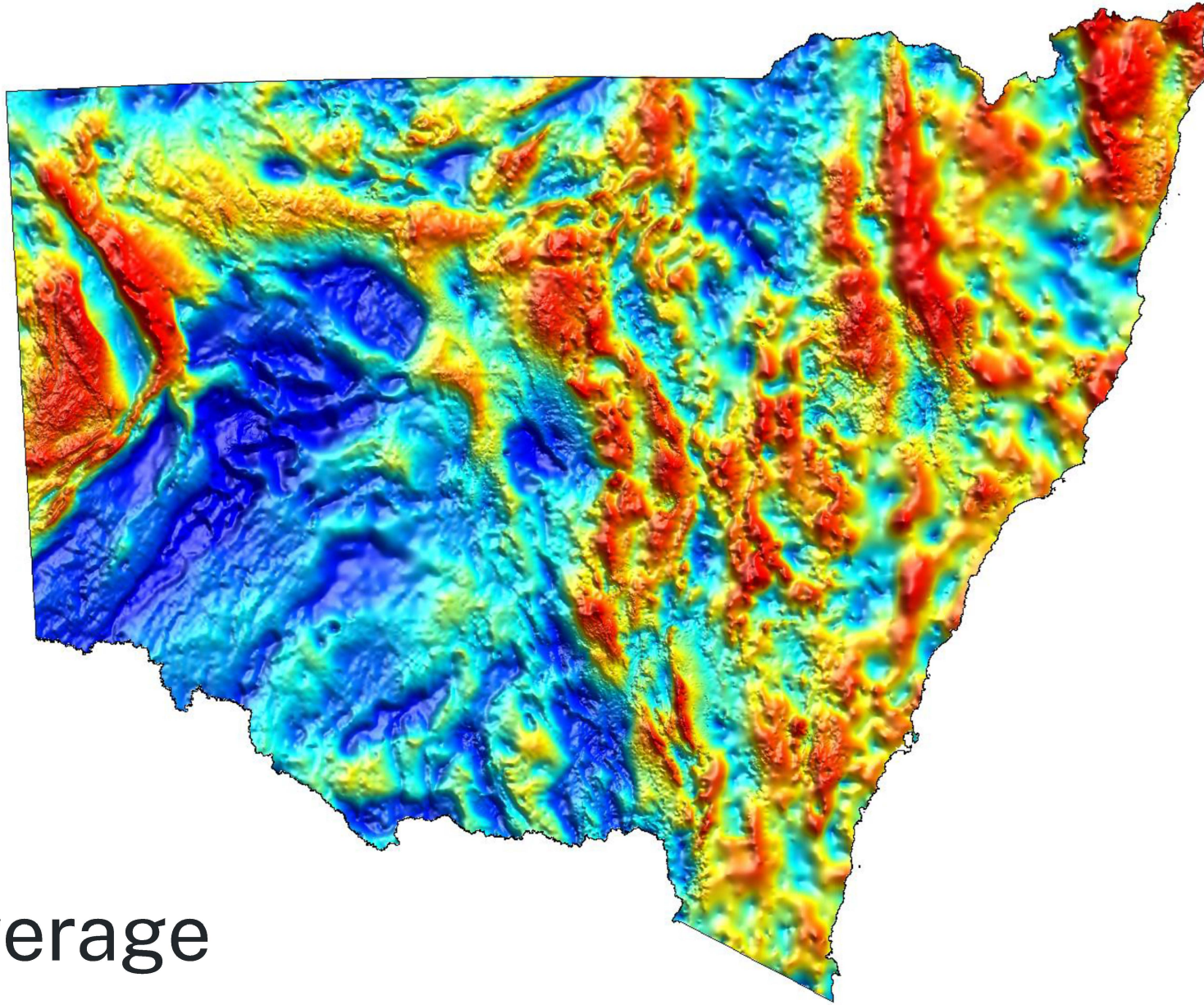
2024
airborne
merge



Airborne coverage

Did you catch the updated NSW gravity?

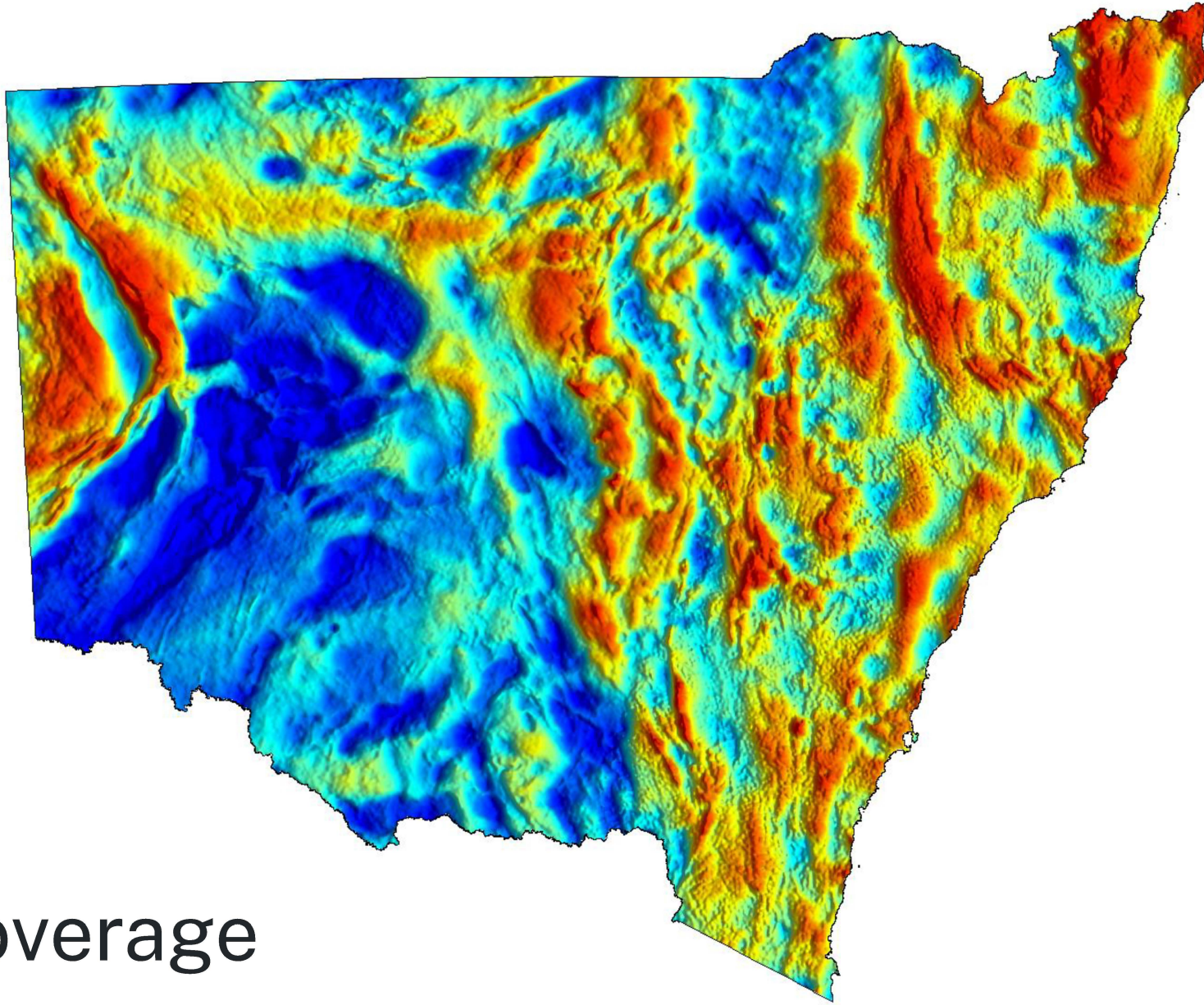
2020
merge



Ground coverage

Did you catch the updated NSW gravity?

2024
airborne
merge



Airborne coverage

5

MinView update and data release

Released today!

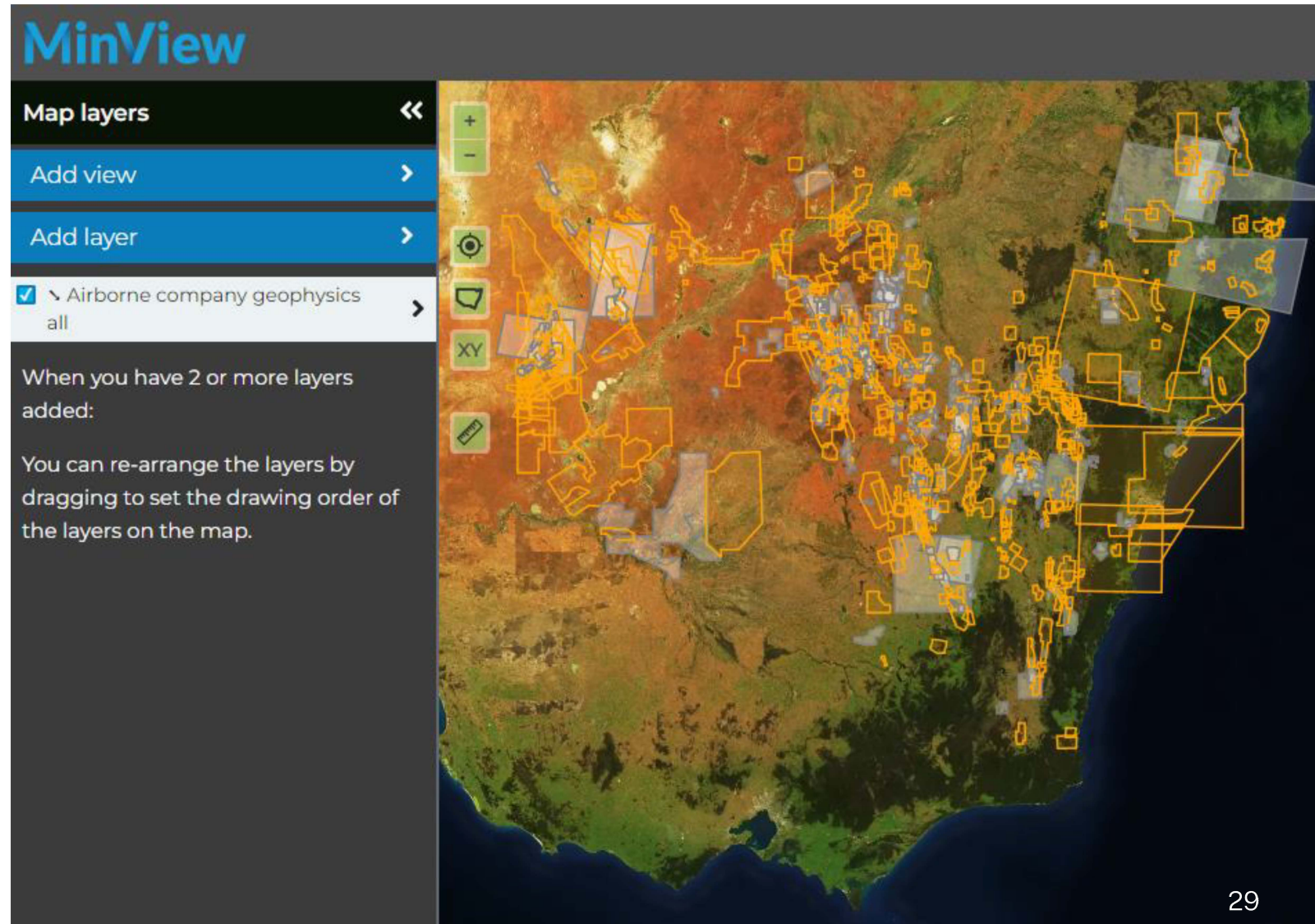
Largest suite of open-file geophysics in MinView history

2020 Approximately 400 geophysics datasets were made available and open-file on MinView

2021–2024 A slow trickle of updates, culminating in 525 open-file datasets, almost exclusively airborne

2025 A huge audit of newly submitted data is undertaken, including legacy ground geophysics. 475 additional surveys are made open-file on MinView

1,000 open-file geophysical datasets!



Thank you



Sam Matthews

samuel.matthews@regional.nsw.gov.au