

NSW SEAMLESS GEOLOGY PROJECT

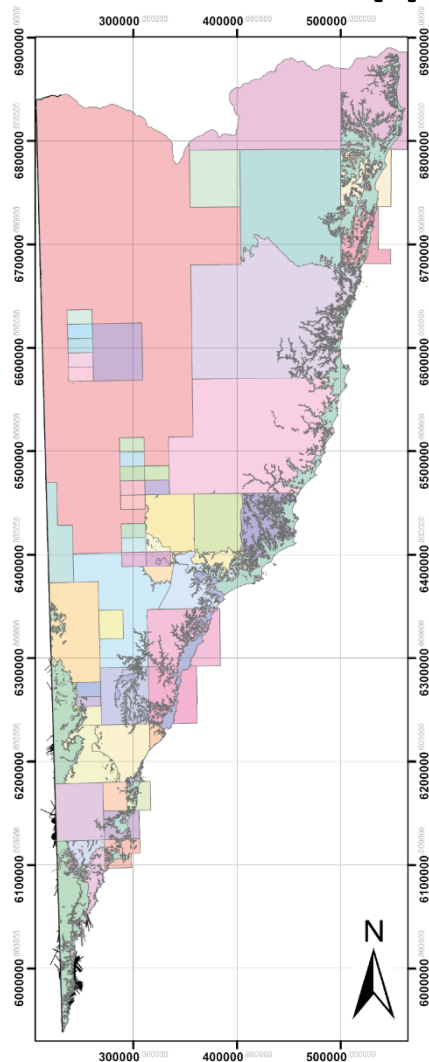
John Greenfield

on behalf of the project team:

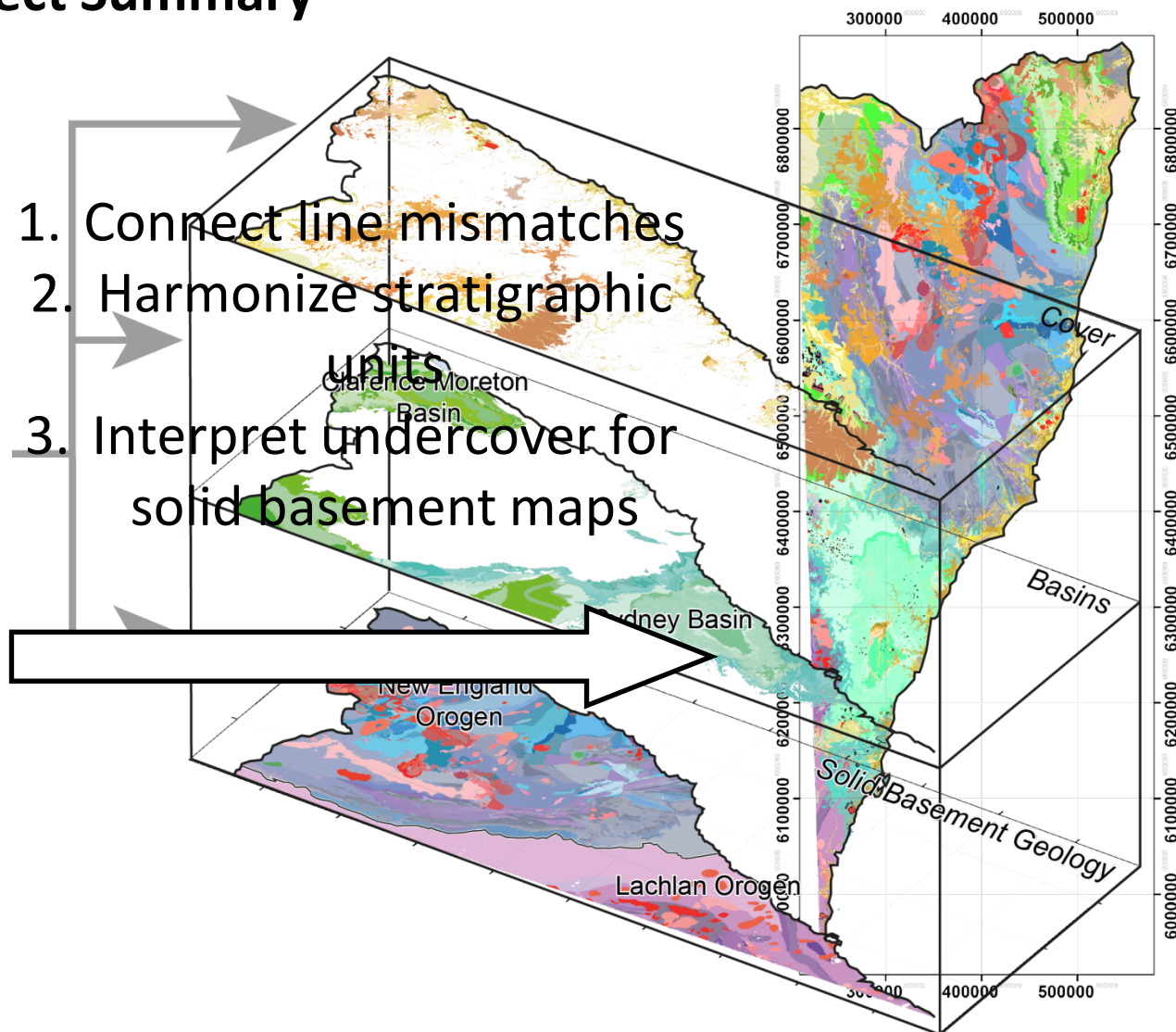
Glen Phillips, Gary Colquhoun, Kyle Hughes, James
Ballard and Liann Deyssing

New South Wales Seamless Geology Project

Project Summary



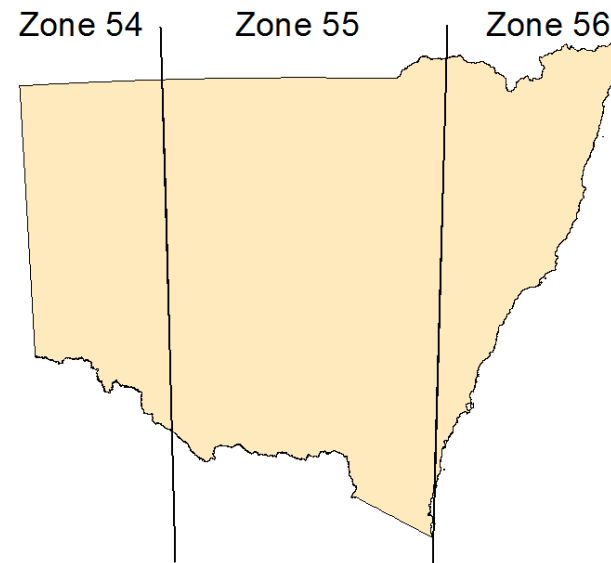
1. Connect line mismatches
2. Harmonize stratigraphic units
3. Interpret undercover for solid basement maps



New South Wales Seamless Geology Project

Project aims:

- (a) Seamless vector geology for NSW combining the best-available geological maps using a standard database structure and schema
- (b) The dataset will be made seamless in a standard set of overlapping stratotectonic layers by interpreting and inferring boundaries
- c) Basis of future map delivery at GSNSW



New South Wales Seamless Geology Project

What's next

Zone 55 delivered

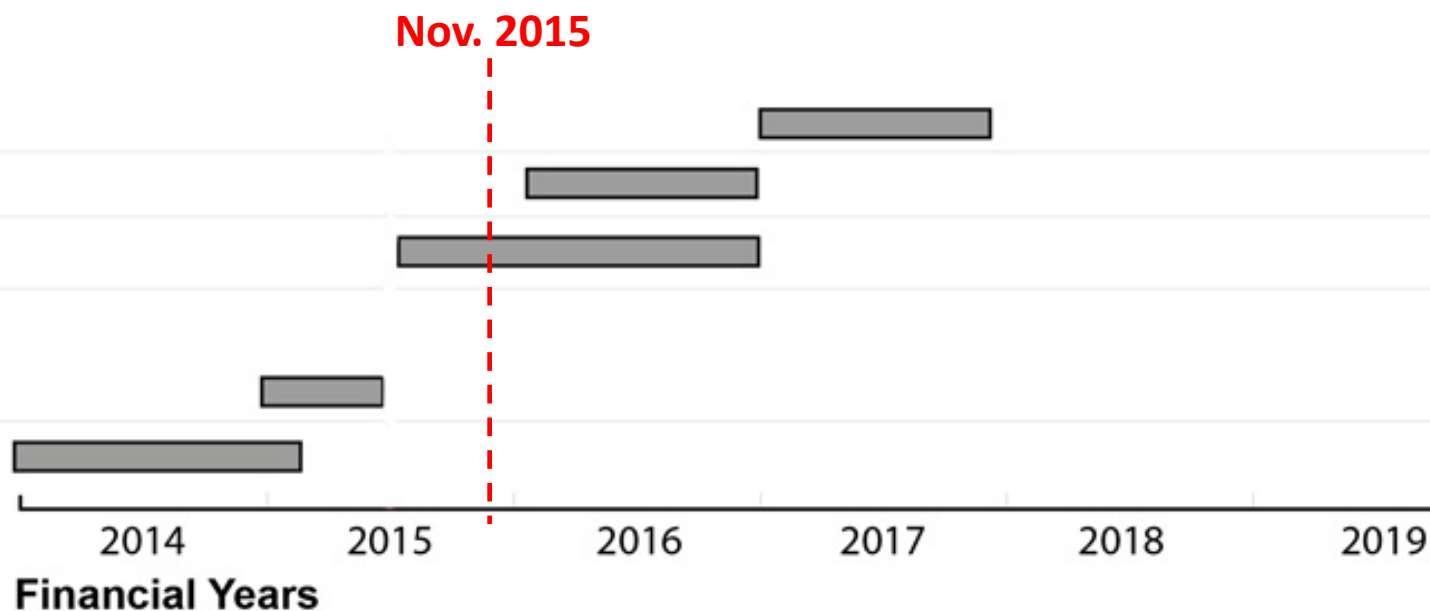
Zone 55 compilation

Zone 54 delivered

Progress to date

Zone 54 compilation

Zone 56 delivered



New South Wales Seamless Geology Project

Zone 56 milestones for 2015

Release of version 1 Zone 56 Seamless Geology in February 2015 for free download

Downloads:	ESRI ArcGIS	192
	MapInfo	77

Date released Feb 2015

Version Version 1.0

Data formats ESRI ArcMap (10.2 or later), MapInfo (11.5 or later)

Extent Covers UTM Zone 56 in New South Wales (ie. east of longitude 150°E to the coast).

Content This product represents a seamless compilation of the best available vector geology data for UTM Zone 56 in New South Wales. The data has been organised into a series of layers, or time slices, representing the major lithotectonic units of NSW. All layers have a consistent data structure and attribute schema from the GSNSW's Statewide Geology Geodatabase (version 2). Base data (roads, railways, rivers, localities) is also provided.

Comments More information on the [Seamless Geology Project](#) is also available. This dataset will be updated as more information becomes available.

Please contact [Geospatial](#) if you require information or assistance.

Download

[Download this product in ESRI ArcGIS format](#). Note: The download is a zip file which is approximately 190 Mb in size. When the download is complete, the zip file should be extracted into an empty folder on the user's hard drive.

[Download this product in MapInfo format](#). Note: The download is a zip file which is approximately 280 Mb in size. When the download is complete, the zip file should be extracted into an empty folder on the user's hard drive.

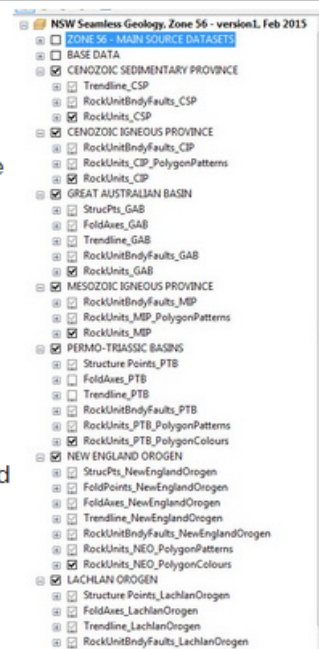
[Download this product as a viewable map on iPhone and Android phones and tablets](#).

Reference

Colquhoun G.P., Phillips, G., Hughes, K.S., Deyssing L., Fitzherbert, J.A., & Troedson, A.L. 2015. New South Wales Zone 56 Seamless Geology, version 1 [Digital Dataset]. Geological Survey of New South Wales, Maitland.

Price

Available for free download
(n/a)

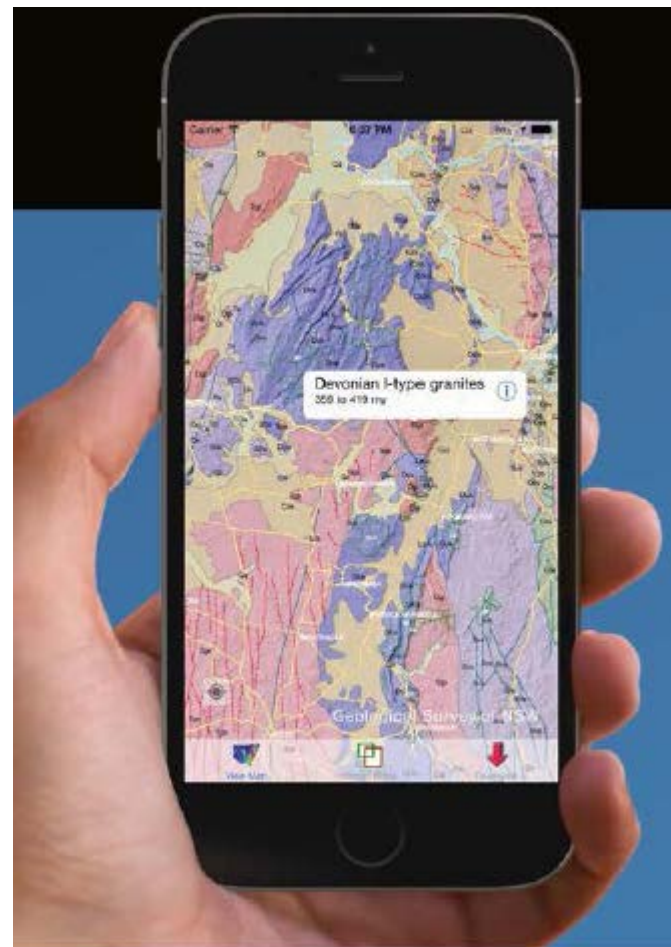


New South Wales Seamless Geology Project

Zone 56 milestones for 2015

Mobile version release

- Release of version 1 Zone 56 Seamless Geology for Android and Apple (IOS) mobile devices in July 2015.
- Flattened into one layer. Units information is returned by tapping the screen
- Downloaded 189 times to late Nov 2015 (Size = 223 MB).

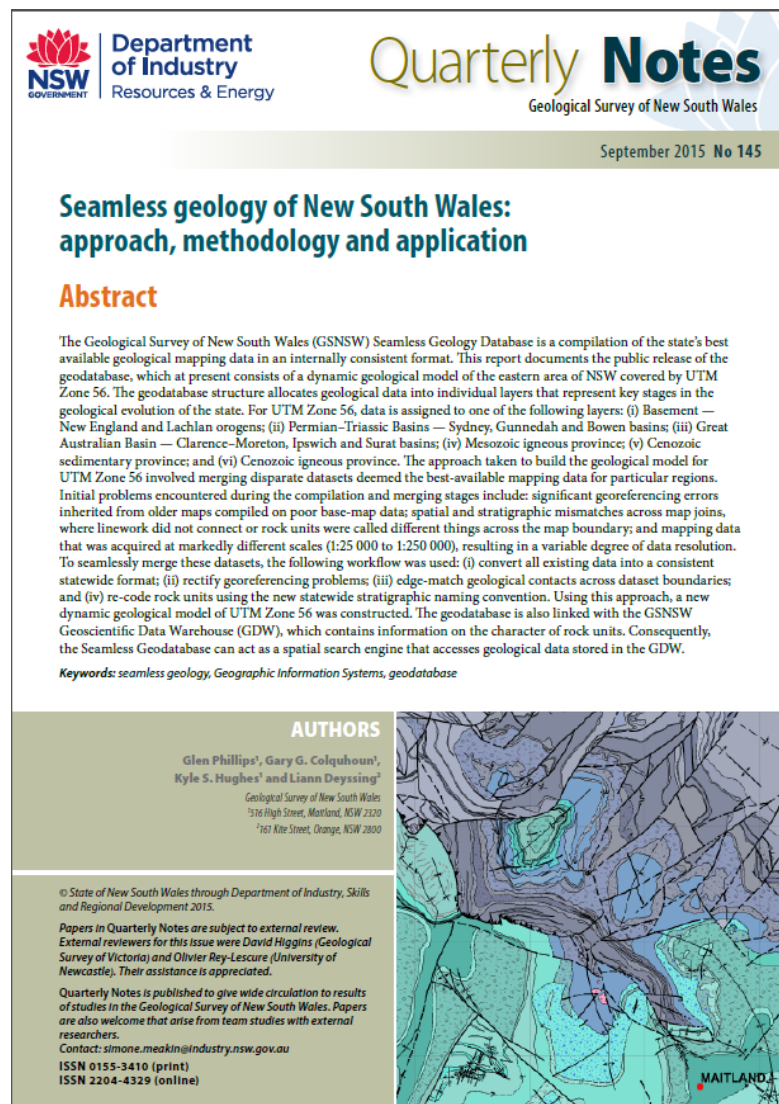


New South Wales Seamless Geology Project

Zone 56 milestones for 2015

Quarterly Note 145 release

- Publication of Quarterly Note 145 on the Seamless Geology Project
- Included section on methodology and approach of the mobile seamless geology project.



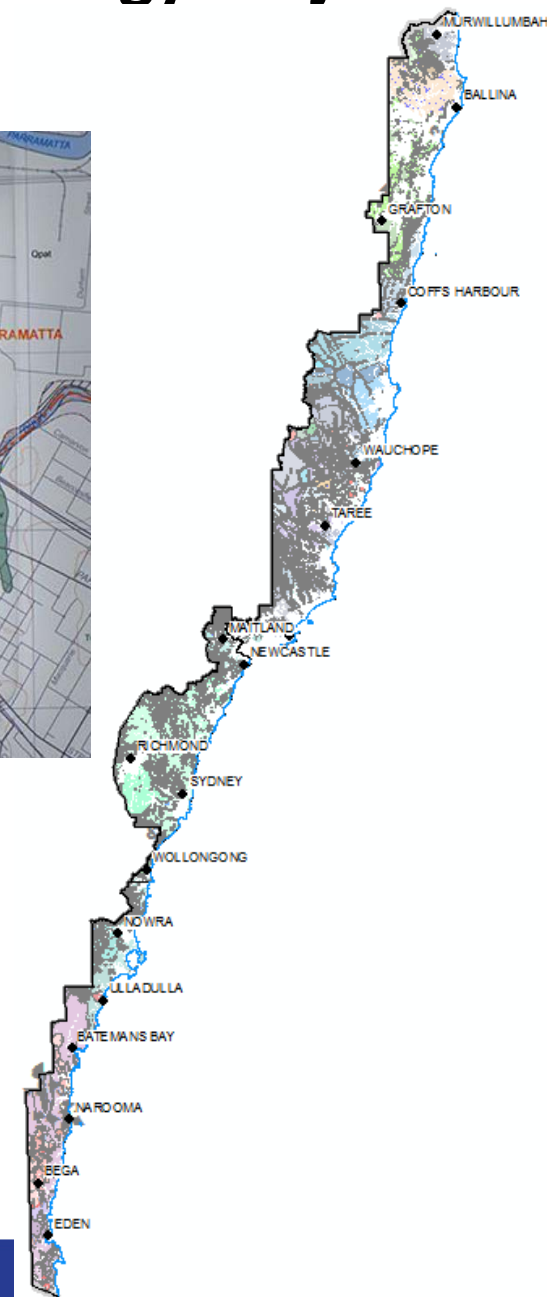
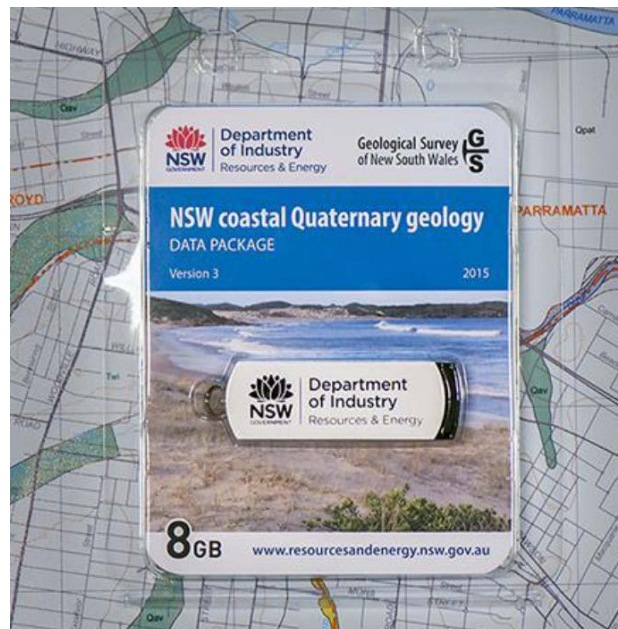
New South Wales Seamless Geology Project

Zone 56 milestones for 2015

Outgrowth projects

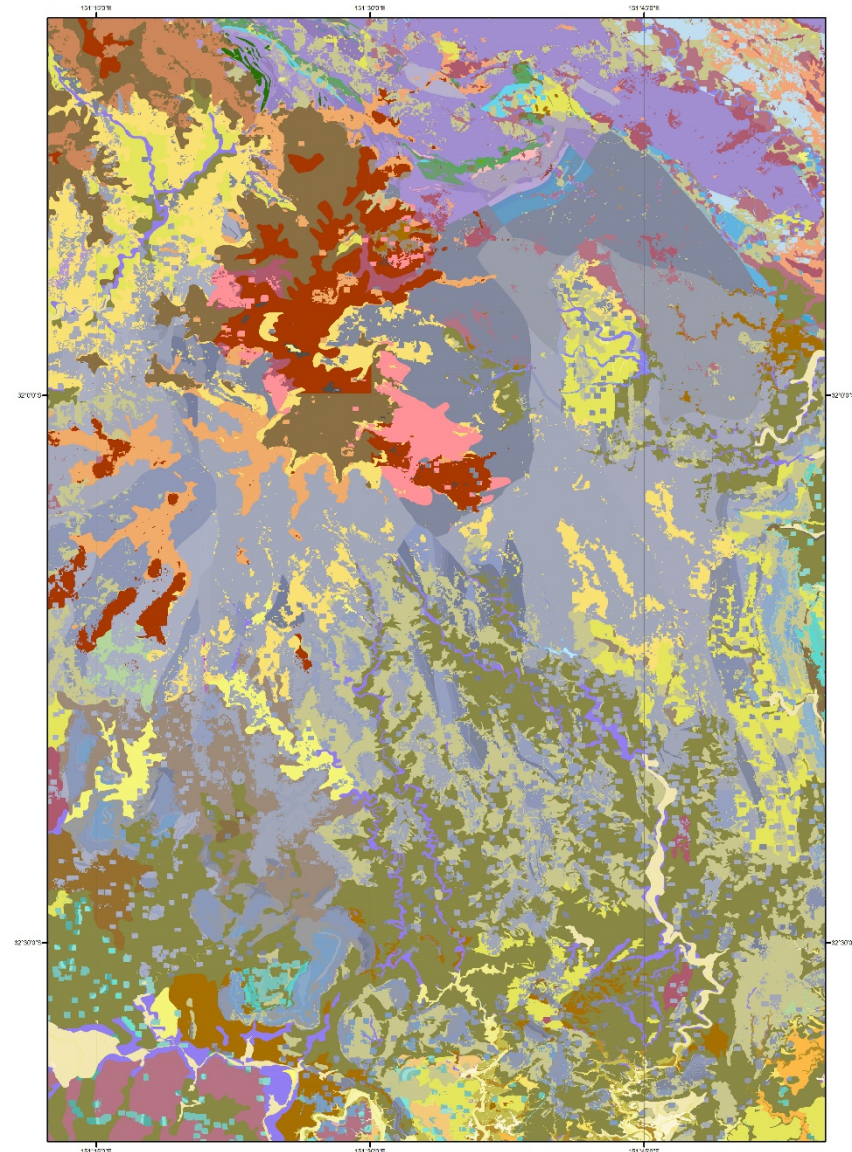
Coastal Quaternary Geology –
basement geology layers were
derived from Zone 56 Seamless
Geology which was flattened into a
single layer.

Available in a newly released data
package



Derivative maps – Outcrop layer

- Innovative project which aims to show areas of actual outcrop (fact mapping).
- Documented in a poster and GS Report by Kyle and Glen.
- Technique uses CSIRO soil thickness data combined with GSNSW Field Observations dataset to determine areas of outcrop.

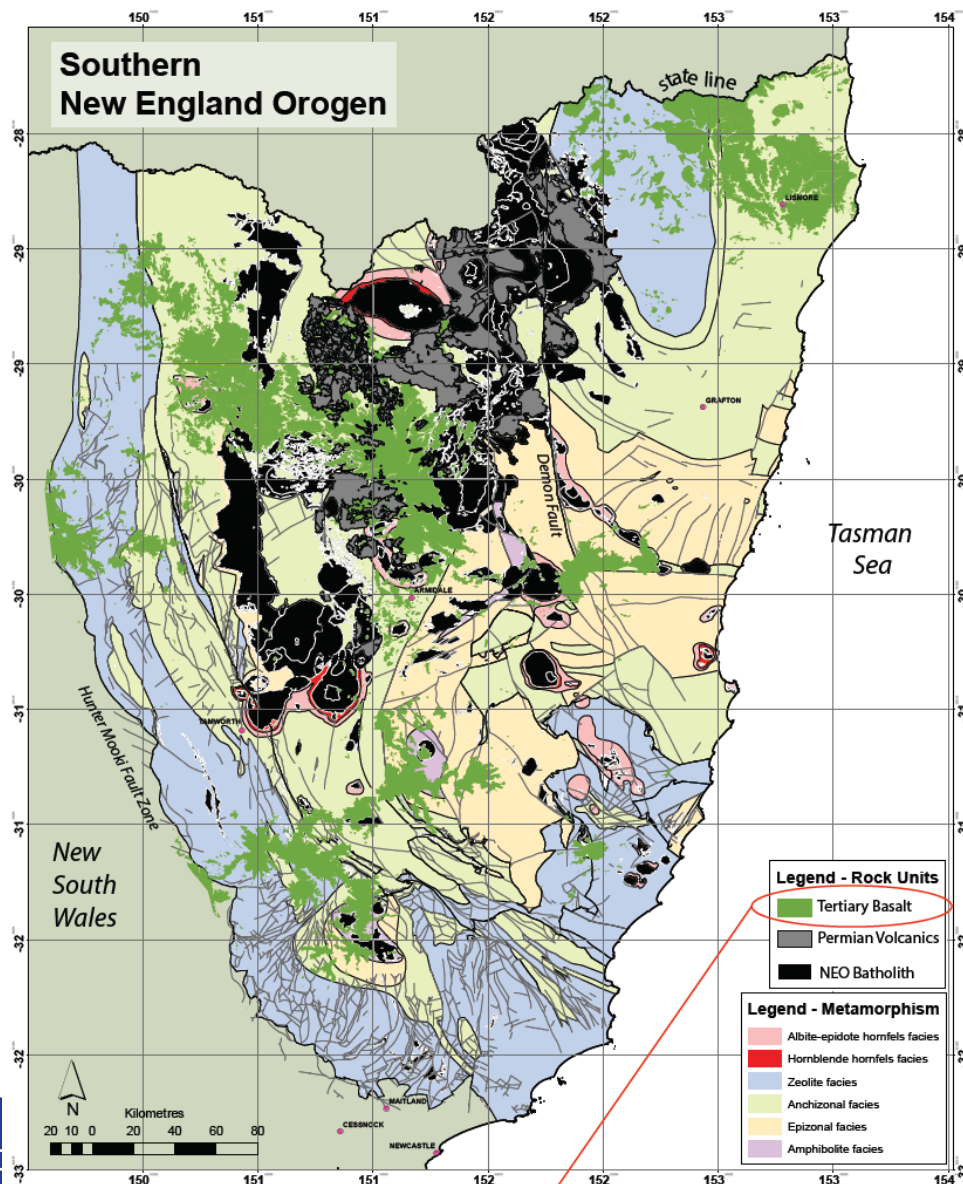


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Zone 56 milestones for 2015

Outgrowth projects – NSW Statewide Metamorphic Map

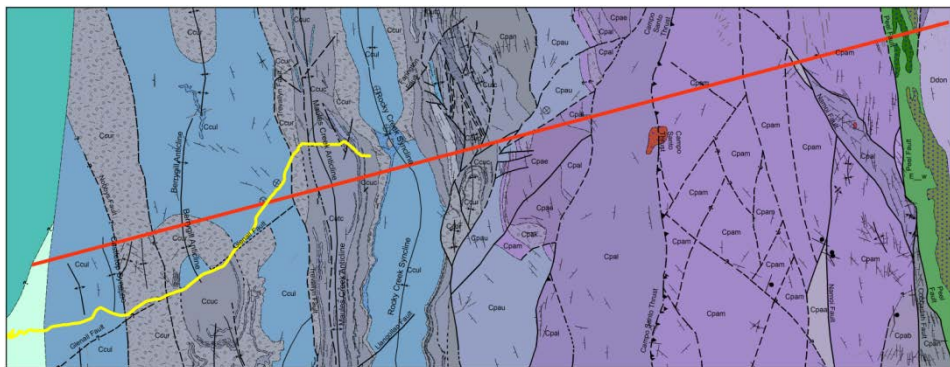
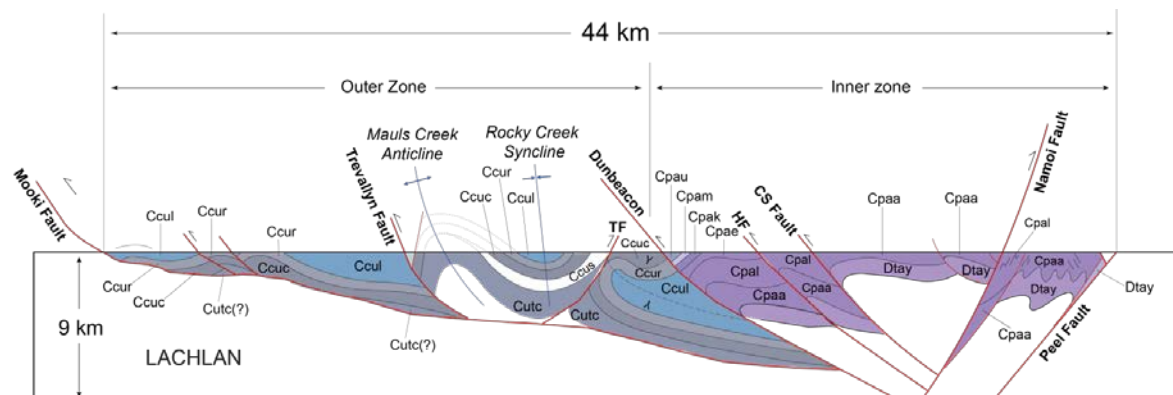
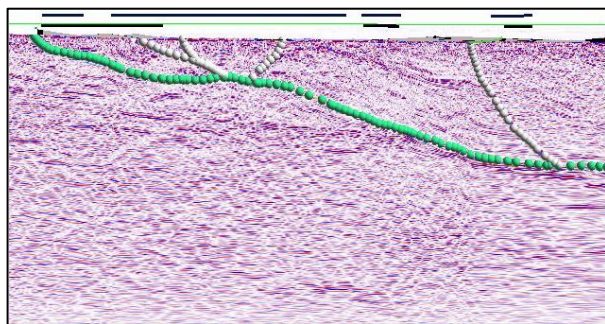
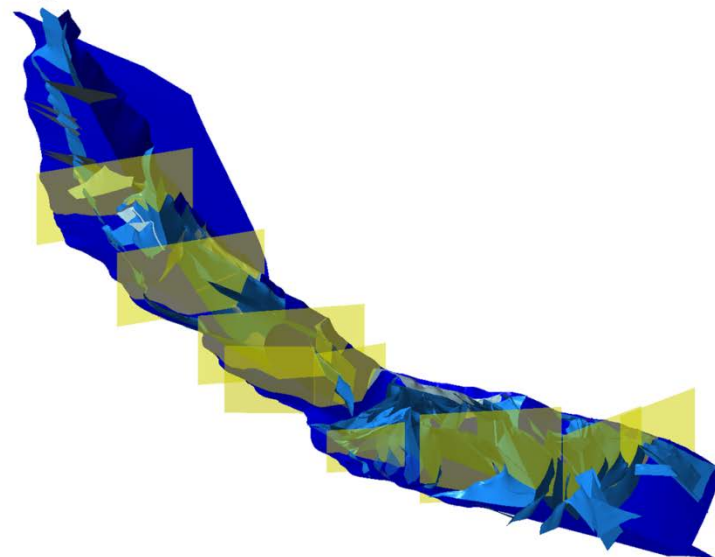
- Aims is to update the Vallance et al. 1983 Metamorphic Map of NSW.
- Seamless Geology layers will be used to provide the framework for the updated map, by integration with the GSNSW petrology database and other external data.



New South Wales Seamless Geology Project

Zone 56 milestones for 2015

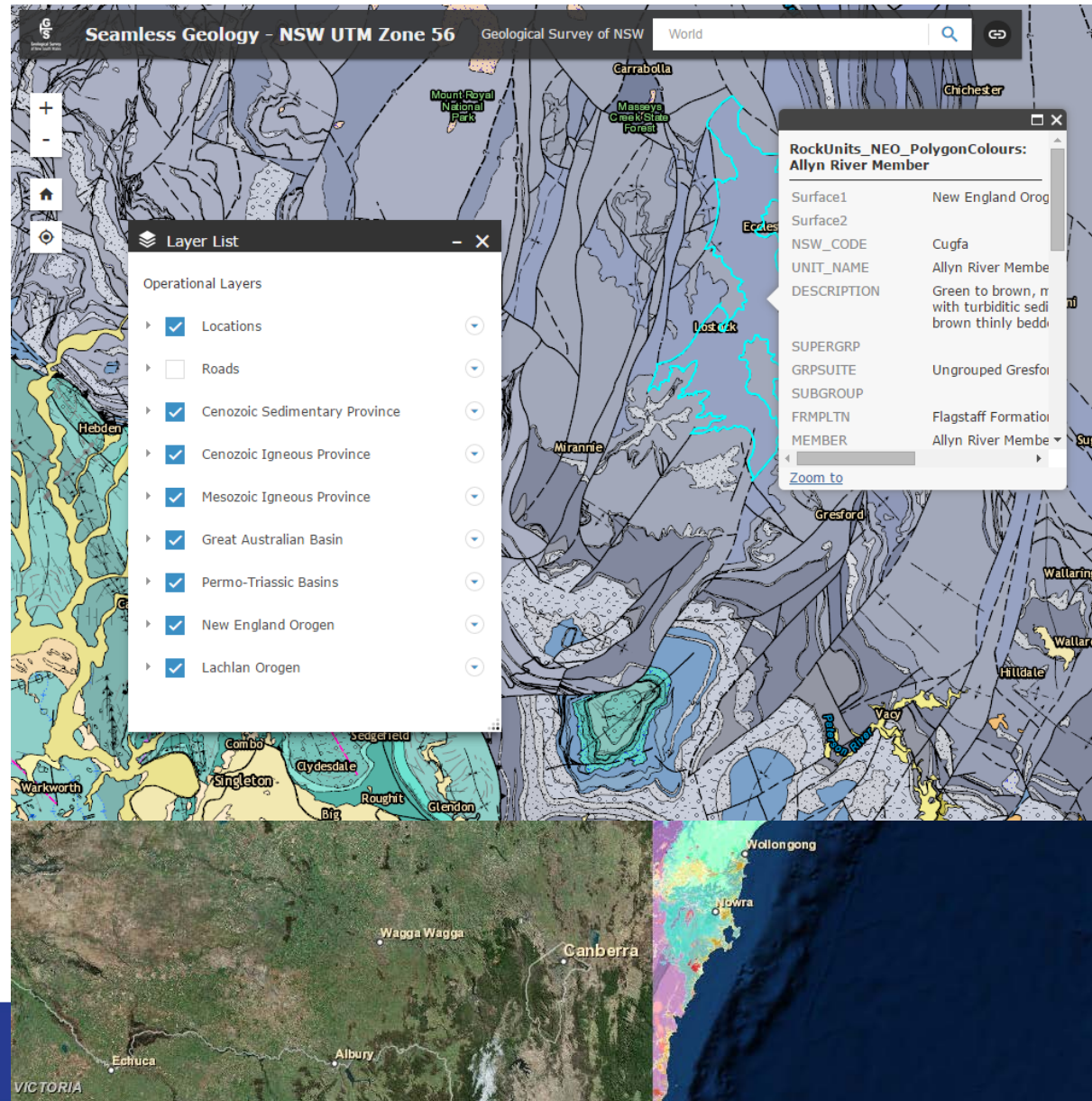
Outgrowth projects -3D

 leapfrog®

Zone 56 milestones for 2015

Outgrowth projects – Web Service Delivery

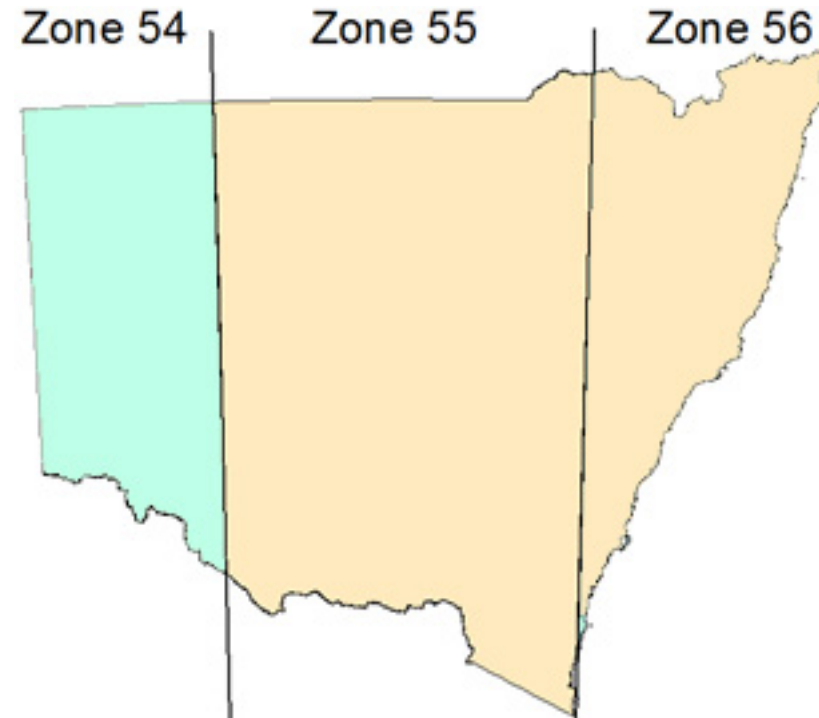
- Zone 56 layers were uploaded to ArcGIS Server (GIS101). A simple web map of the layers was prepared and distributed internally.
- External publication awaits upgrading of Dept of Industry Production and Test ArcGIS Server platforms (in progress).
- Can be served as WMS, WFS, KML, or full featured ArcGIS services .



New South Wales Seamless Geology Project

Zone 54 – Current status

- Very different to compile than Zone 56.
- Approximately 85% covered by Cenozoic regolith
- Best available datasets ranged from 1:1 million scale (Murray Basin) to very detailed 1:25,000 maps of the Broken Hill Block.
- Datasets are a mixture of basement interpretations of orogenic belts and surface geology maps.
- 2 merges were produced – surface geology and basement geology. The various layers were extracted from these and turned made seamless using similar techniques to Zone 56.

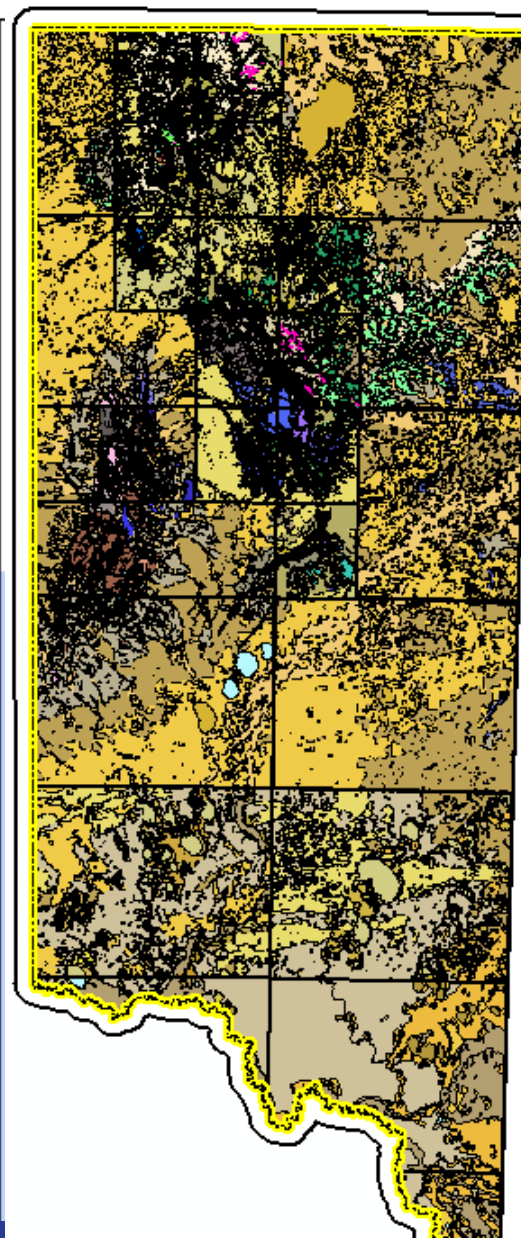


New South Wales Seamless Geology Project

Zone 54 – Current status

Surface geology merge

- Composed of over 50 individual map sheets
- Sedimentary basin layers (Western Devonian Basins, GAB) and Cenozoic Sedimentary Province layers were extracted from this merge for editing



Legend

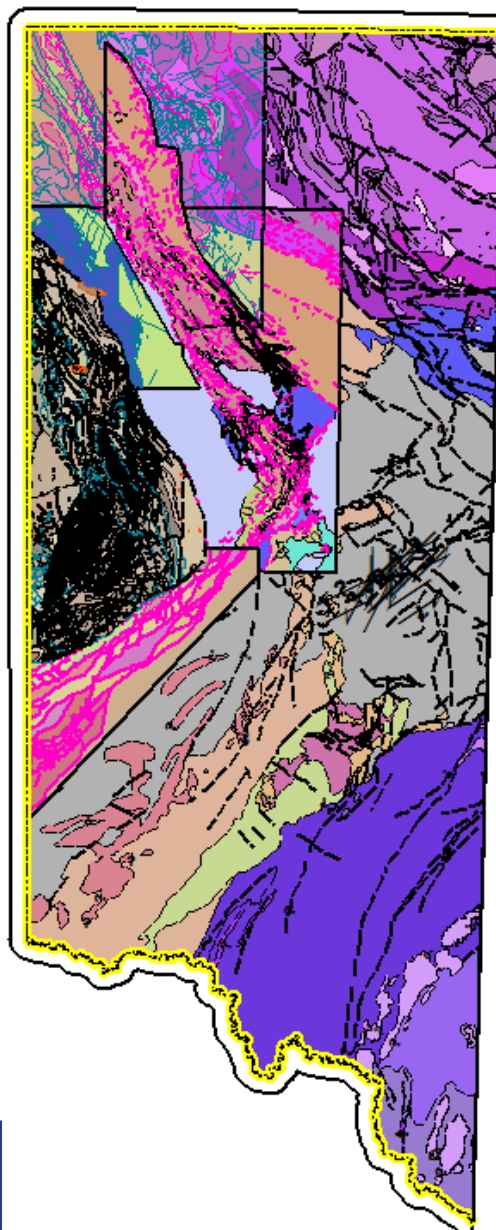
- 25K Geology Maps
- 100K Regolith Maps
- 100K Geology Maps
- 250K Geology Maps
- MurrayBasin 1:1,000,000 Brown & Stephenson

New South Wales Seamless Geology Project

Zone 54 – Current status

Basement geology merge

- Composed by merging best available basement interpretation maps
- Then merged with the surface geology maps (to retain the surface detail)
- Orogenic belts layers and Curnamona Province were extracted from the final merge and handed over to editors.



Legend

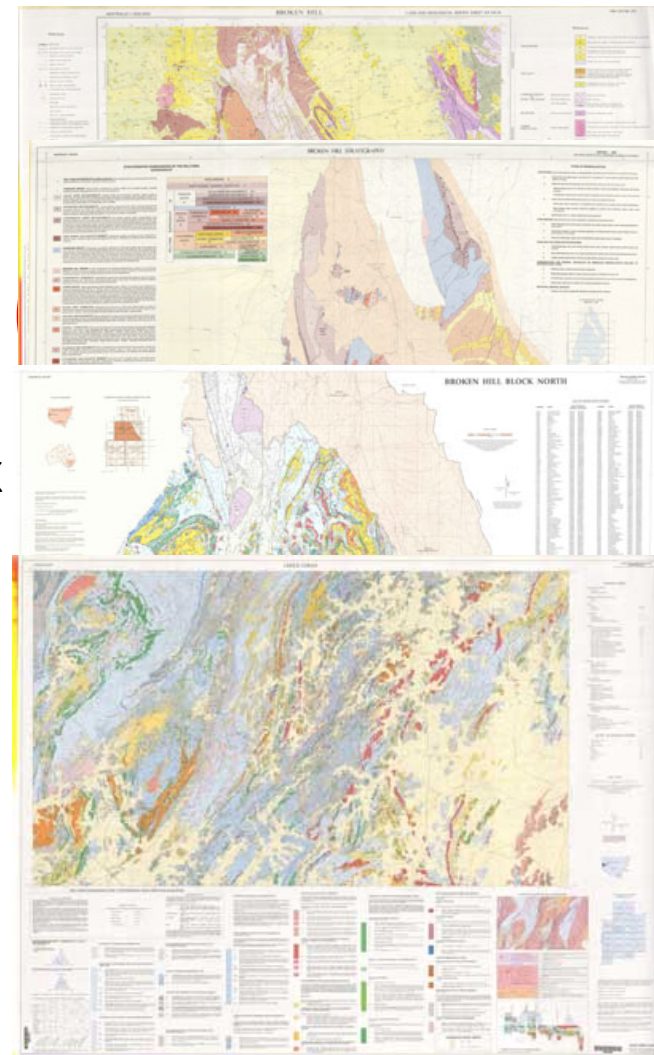
- 25K Geology Maps
- 100K Geology Maps
- Cobham Lake 250K Interp
- Milparinka 250K Interp
- Koonenberry 250K solid Interp
- Kars-Loch Lilly
- Curnamona Province BHElmoth merge (Reid et al 2009)
- WesternDivision Basement Interp

New South Wales Seamless Geology Project

Zone 54 – Current status

Curnamona Province

- Western side of z54, extending into SA.
- Host to Broken Hill mineralisation
- The “most mapped” part of state. Broken Hill and Euriowie Block area is covered by 25K, 50K, 100K, & 250K surface geology and interp maps.
- Difficult to combine best available data into one dataset
- There will 2 layers in the final Seamless data:
 - Best available interpretive stratigraphic mapping
 - Best available surface lithological mapping



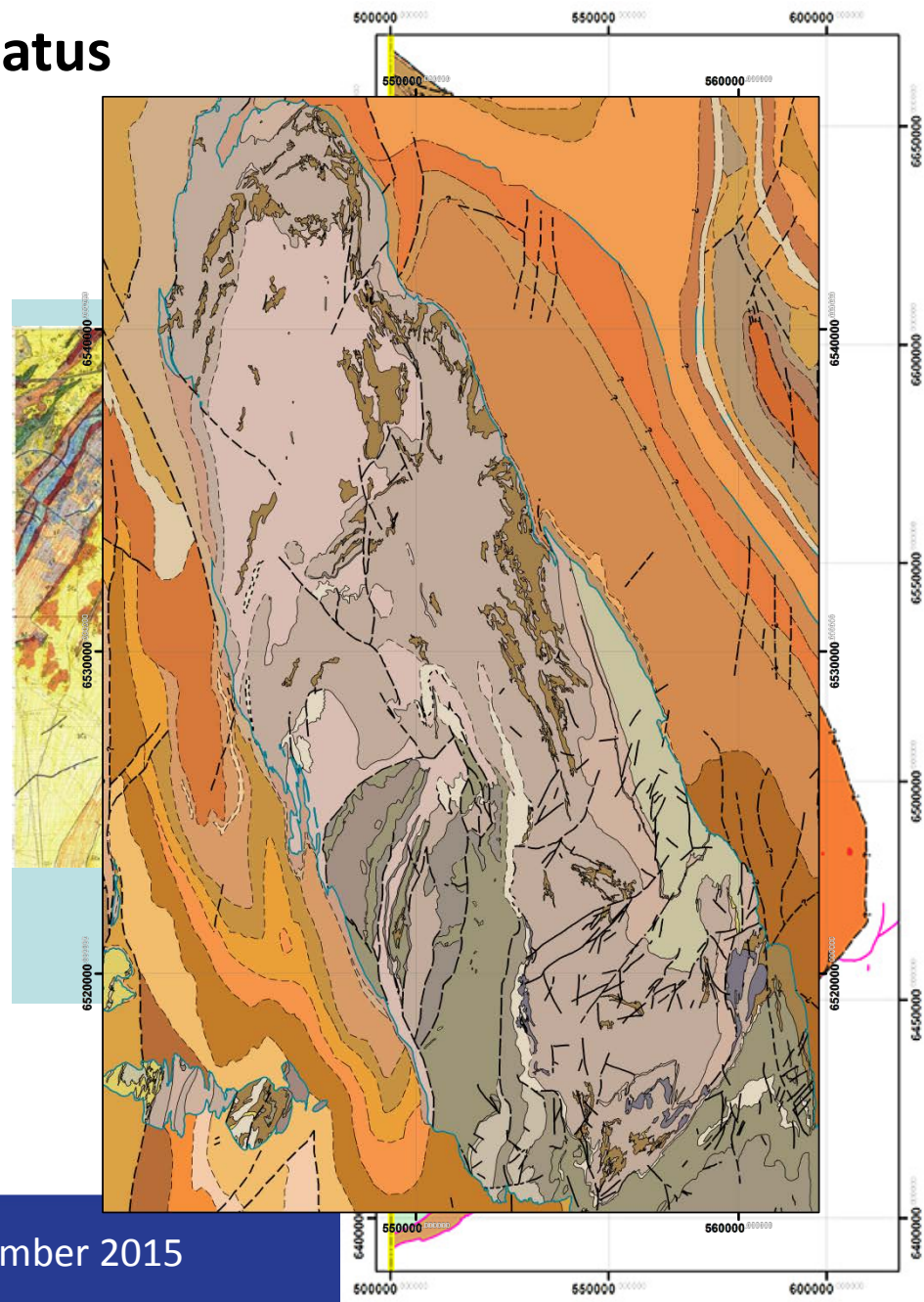
New South Wales Seamless Geology Project

Zone 54 – Current status

Curnamona Province

Best available stratigraphic mapping layer

- Data was derived from 1:25,000 scale interpretive maps of Paleoproterozoic Willyama Supergroup by Barney Stevens and compilation of Neoproterozoic (Adelaidean) sequences by Bill Reid. Presented at BHEI 2009.
- The 2 datasets were combined and edited extensively for the Seamless Project.
- Recent work has involved updating stratigraphic names for many units and removing schist zones from the map (these will be held separately in the geodatabase).



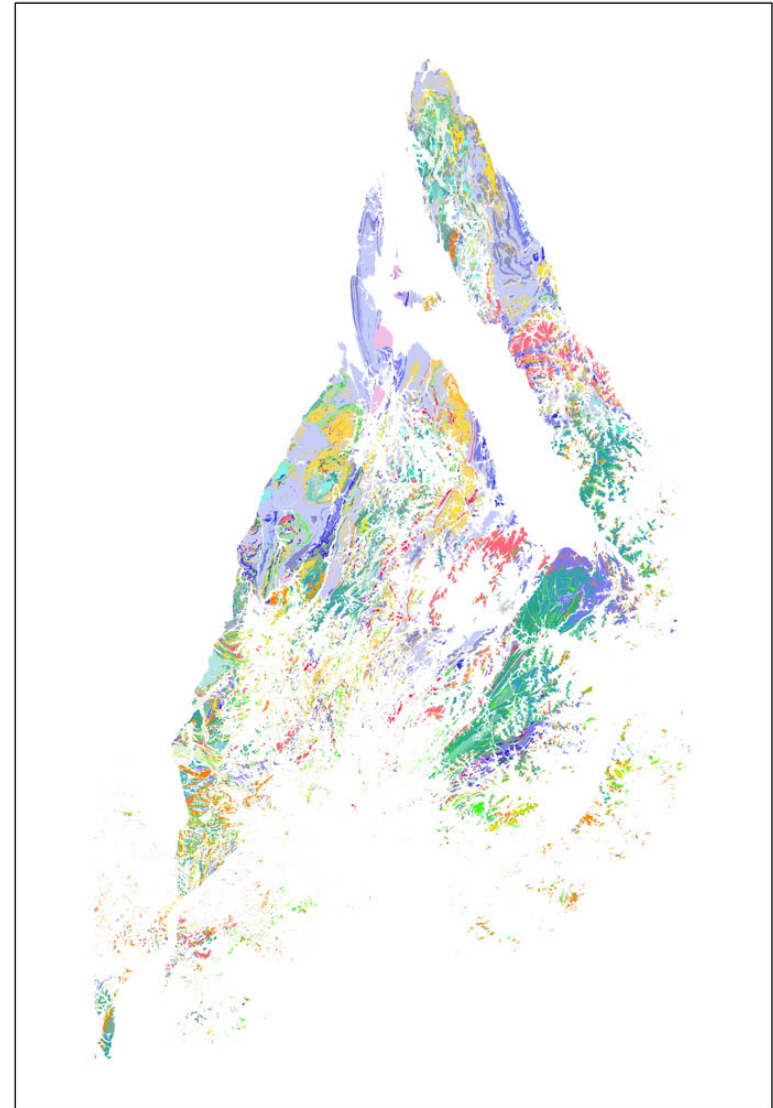
New South Wales Seamless Geology Project

Zone 54 – Current status

Curnamona Province

Best available surface lithological mapping layer

- Derived from merging 23 x 1:25,000 maps lithological maps of Broken Hill Block. 150,000 polygons, 400,000 lines.
- Work involved initially sorting out thousands of topology and line attribution errors.
- Next phase involves symbol simplification - ~3000 unique symbols on these maps. These can be simplified down to ~80 by getting rid of “local variation” subdivisions of each sheet.
- 3000 Original symbols retained as well so that data can be displayed as simplified or unsimplified



Conclusions

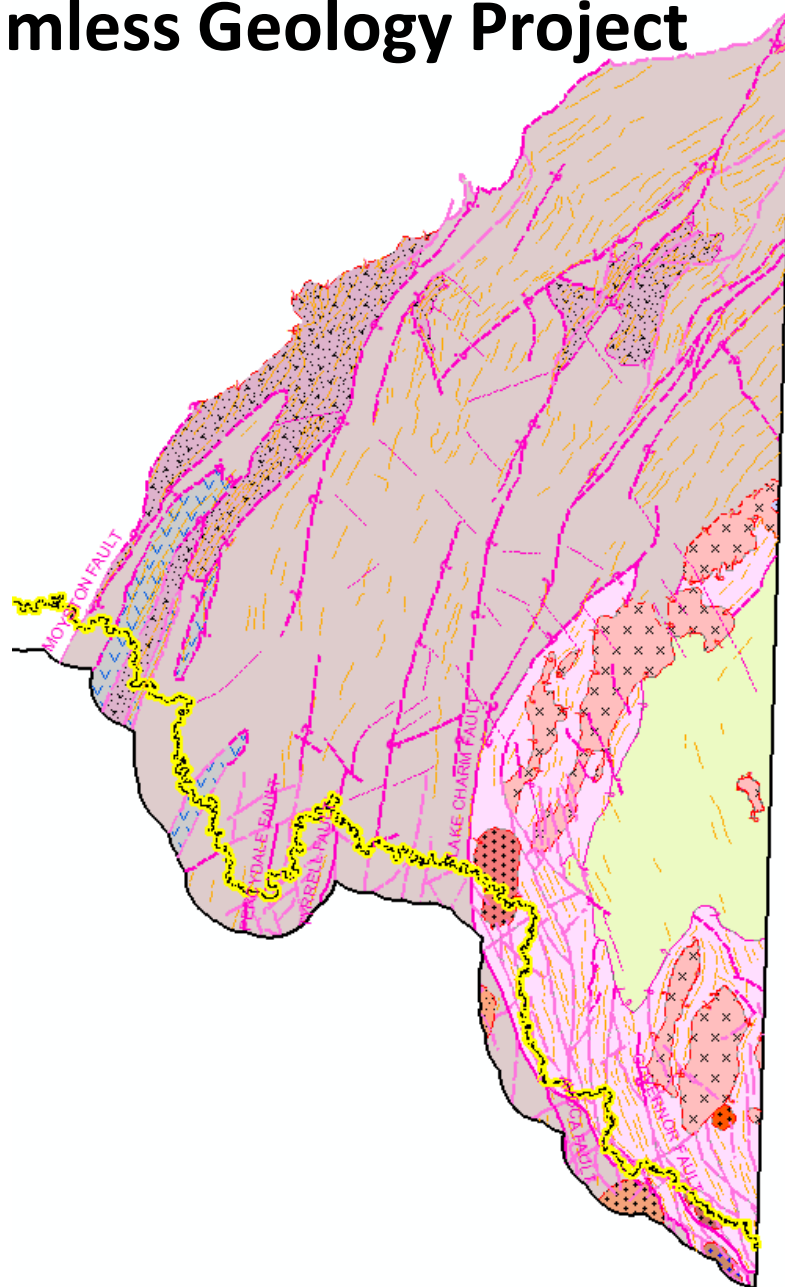
1. Five Year project to deliver a Seamless , best available vector geology dataset for all of NSW.
2. Project is divided into UTM zone, with Zone 56 delivered in early 2015 and Zone 54 scheduled for release mid 2016.
3. The project features many innovation outgrowth projects and will develop into one of the GSNSW's core datasets.

New South Wales Seamless Geology Project

Zone 54 – Current status

Lachlan Orogen

- SE corner of Zone 54
- Complete for Zone 54
- No outcrop is present in NSW, so layer was compiled entirely from geophysical interp. and boreholes.
- Helped by detailed work south of the border by the GSV.
- Dominated by Cambrian St Arnaud Group in west (Stawell Zone), and metasediments and granites of the Bendigo Zone and Hay-Booligal Zones in the east

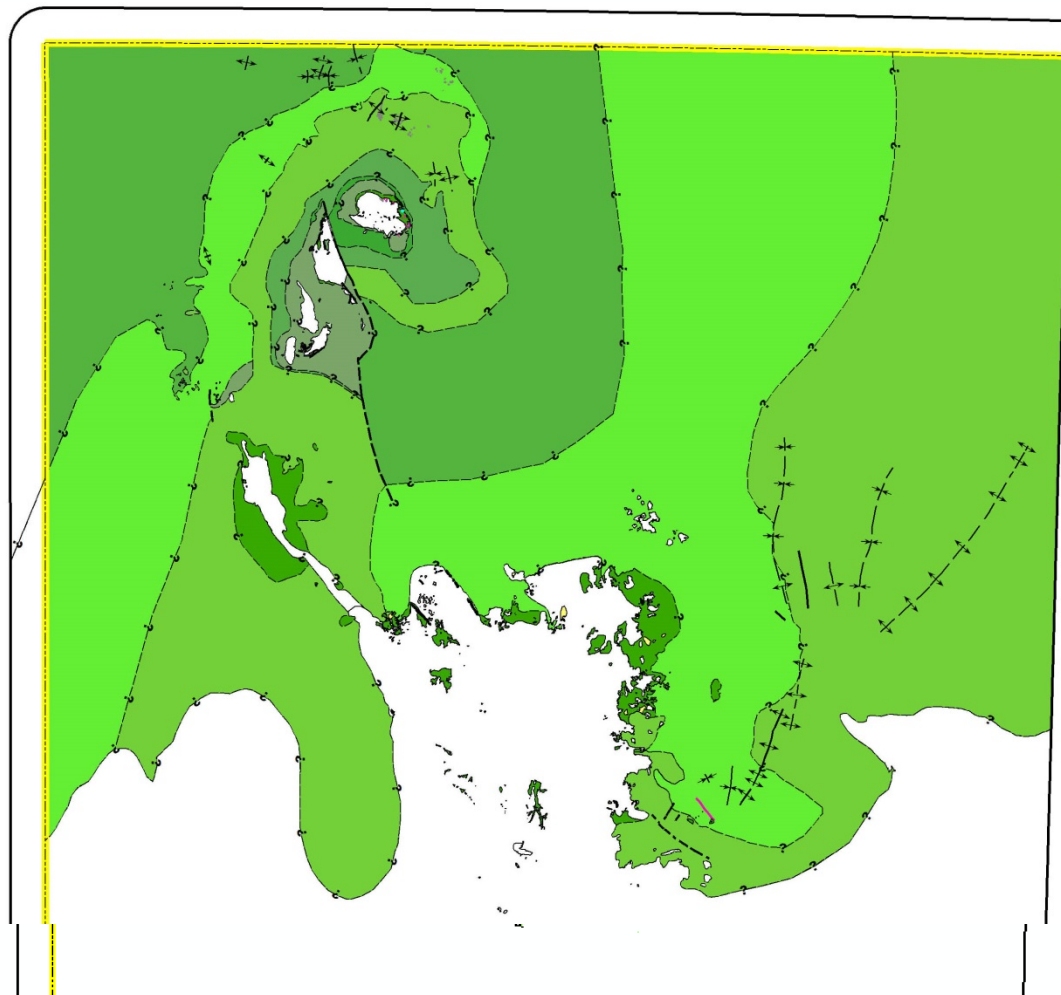


New South Wales Seamless Geology Project

Zone 54 – Current status

Great Australian Basin

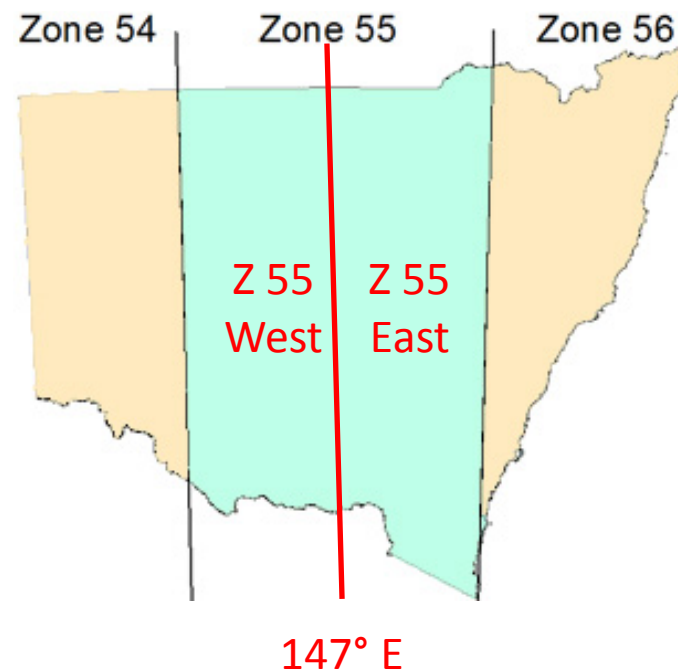
- Cretaceous Eromanga Basin sedimentary rocks occur in subsurface and outcrop in most of the northern parts of Zone 54.
- Appears on existing mapping in small isolated patches usually surrounded by regolith.
- This layer is complete apart from QC checks and general tidy-up.
- Main part of the work was inferring units of the Rolling Downs Group defined by the Koonenberry mapping project in subsurface and into areas on older 250K sheets mapped as undiff. Rolling Downs Group.



New South Wales Seamless Geology Project

Zone 55 – Future plans

- Will complete the Seamless Geology coverage for the state.
- Scheduled to commenced mid 2016 following release of Zone 54.
- Over 50% of NSW. Due to size, will be done in 2 parts – **Zone 55 east** and **Zone 55 west**.
- Constituent datasets in the 2 parts are in very different states of preparation....



New South Wales Seamless Geology Project

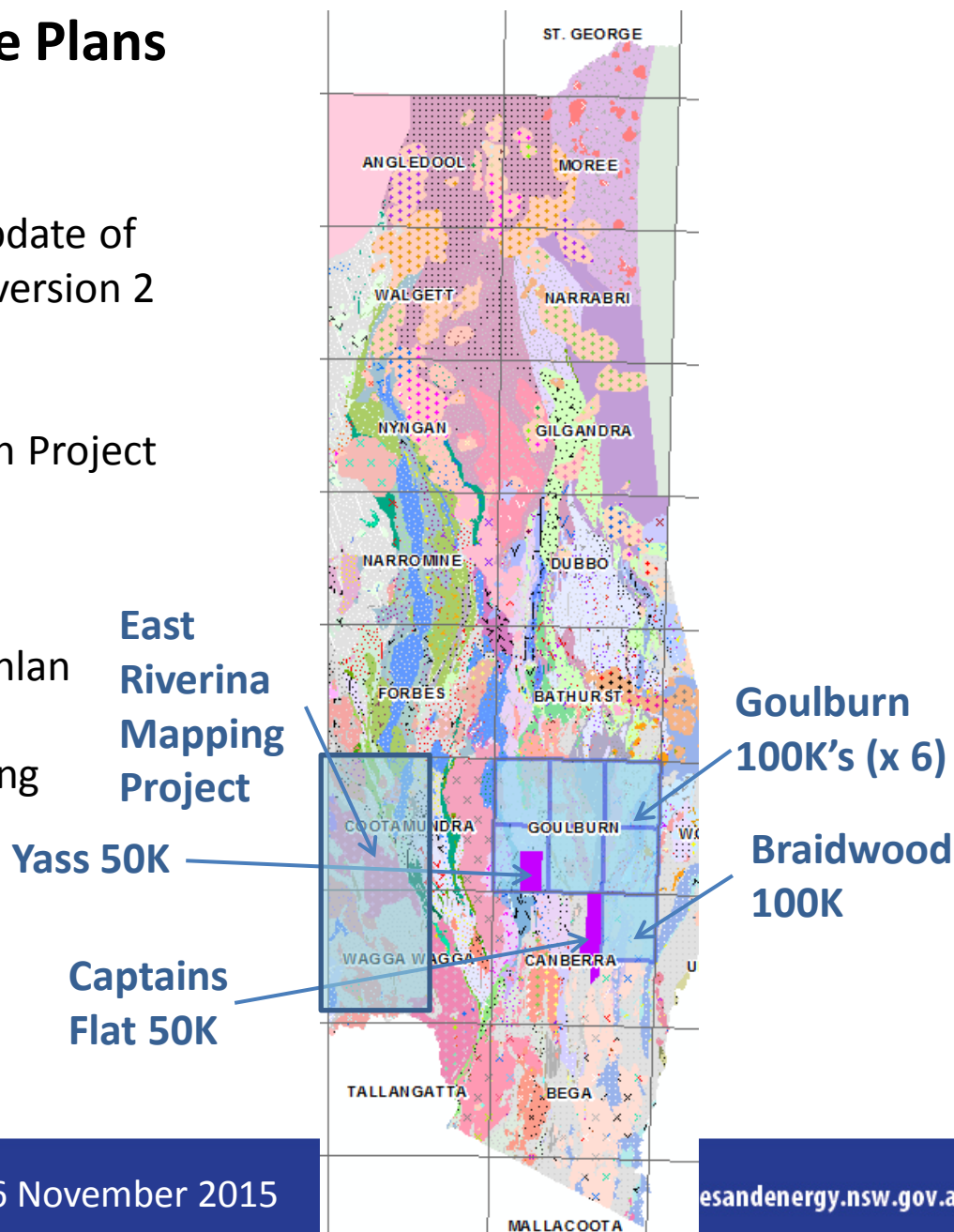
Zone 55 – Future Plans

Zone 55 East (147-150 °E)

Basement Layers will mainly be an update of the Eastern Lachlan Orogen dataset (version 2 – 2006).

Updated to include:

- the final 100K's from the Goulburn Project
- Braidwood 100K
- Captains Flat Special 50K
- Yass Special 50K.
- Edge match Zone 56 Seamless Lachlan Orogen layer
- Updates from East Riverina Mapping Project as it becomes available.



New South Wales Seamless Geology Project

Zone 55 – Future Plans

Zone 55 East (147-150 °E)

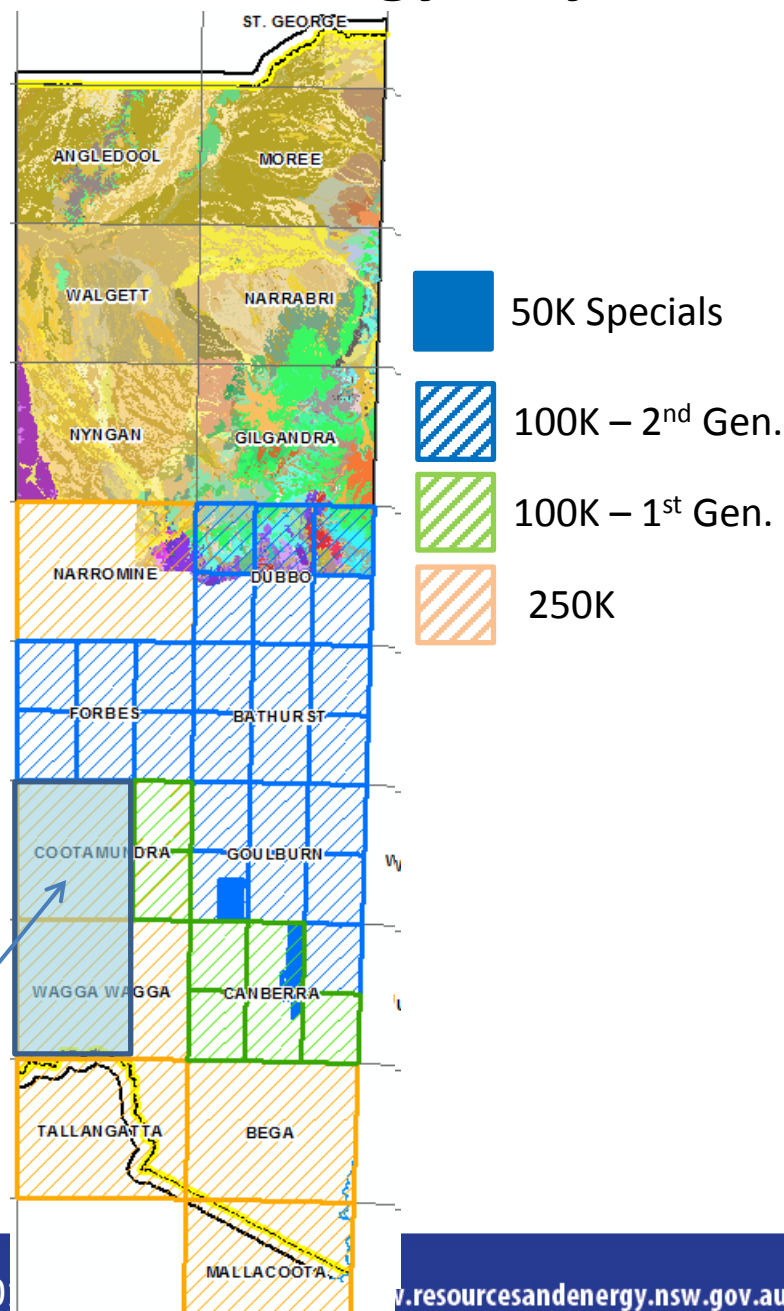
Basins and cover sequences

A northern merge of best data was completed in 2005 by Mark Dawson (just needs updating with final Angeldool 250K).

Southern part will need to be a merge of:

- 2nd generation 100K mapping
- 1st generation 100K mapping
- Older 250K mapping
- Will need updating as sheets of the East Riverina Mapping Project are finished .

East
Riverina
Mapping
Project



New South Wales Seamless Geology Project

Zone 55 – Future Plans

Zone 55 West (144-147°E)

- The final phase of project.
- Contains very disparate scales of data (as with zone 54).
- Orogenic belts in north and south west are under deep cover, requiring substantial interpretation.
- Best available surface mapping is frequently 250K, many have georeferencing problems to be resolved before commencement
- Active mapping project in Riverina – this data will need to be stitched in as it becomes available.
- Helped by recent merge of best available basement datasets for the forthcoming Cobar 500K metallogenic map (Joel, Hannah, Gary).

