



ISSUE 29, DECEMBER 2016

## Seamless geology now available for far western NSW

The [Zone 54 Seamless Geology](#) Data Package has been completed and is available for free download. It is a compilation of the best available geological mapping data from UTM Zone 54 (ie. from the South Australian border to 144 °E longitude). Data were compiled using an internally consistent database schema. Edge-match problems between geological maps of different ages have been resolved and, using geophysical and drillhole data, much geology has been inferred under cover sequences to give a series of solid geology layers showing major geological subdivisions in subsurface, as well as outcrop.

Two versions of the original 1:25 000 scale Broken Hill lithological maps have been combined into a single geological map, and there is a broader lithostratigraphic basement interpretation of the Broken Hill Domain. The Thomson Orogen basement geology and the surface expression of the Murray Basin west of 144 °E longitude in NSW are also displayed.

The Zone 54 data package is the 2<sup>nd</sup> major data release of a 5 year project to produce a best available [Seamless Geology for the whole of New South Wales](#). [Zone 56 Seamless Geology](#) was released in February 2015. The project will move to UTM Zone 55, which has been divided into 2 parts due to its size. The next major releases will be Zone 55 East (anticipated July-Aug 2017) and Zone 55 West (mid 2018). Once complete, the NSW Seamless Geology dataset will be updated and refined as new geological mapping data becomes available.

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## New Cobar metallogenic map released

The new Cobar Special 1:500 000 Metallogenic Map was released in Cobar on 20 September at an event co-hosted by AusIMM and attended by Cobar Shire Mayor Lilliane Brady. Technical talks were delivered on the making of the map, related studies and a regional mapping overview. A workshop on the same day focussed on geoscientific data and systems managed by GSNSW. The aim was to help mineral explorers make the most of large data holdings that are freely available online via DIGS, GDW, MinView and the Seamless Geology project.

The map is available at the Great Cobar Heritage Centre or by

contacting [geoscience.products@industry.nsw.gov.au](mailto:geoscience.products@industry.nsw.gov.au) 02 4931 6426

## **Cobar geotourism brochure now available**

The latest addition to our geotourism brochure series is the Geology of the Cobar Region. The product was officially released at SMEDG on 24 November. It has been supplied to Great Cobar Heritage Centre, along with a loan of 47 mineral and ore samples from the GSNSW collection, to support the tourism industry in far west NSW.

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## **A fresh look at the central Lachlan Orogen**

[Quarterly Note 147](#) summarises outcomes of our four year Nymagee mineral systems study and provides a new framework for understanding the Cobar Basin and adjacent areas. New isotopic dates, S- and Pb-isotope data and petrological analysis of volcanic facies contribute to a better understanding of metallogenesis of the region.

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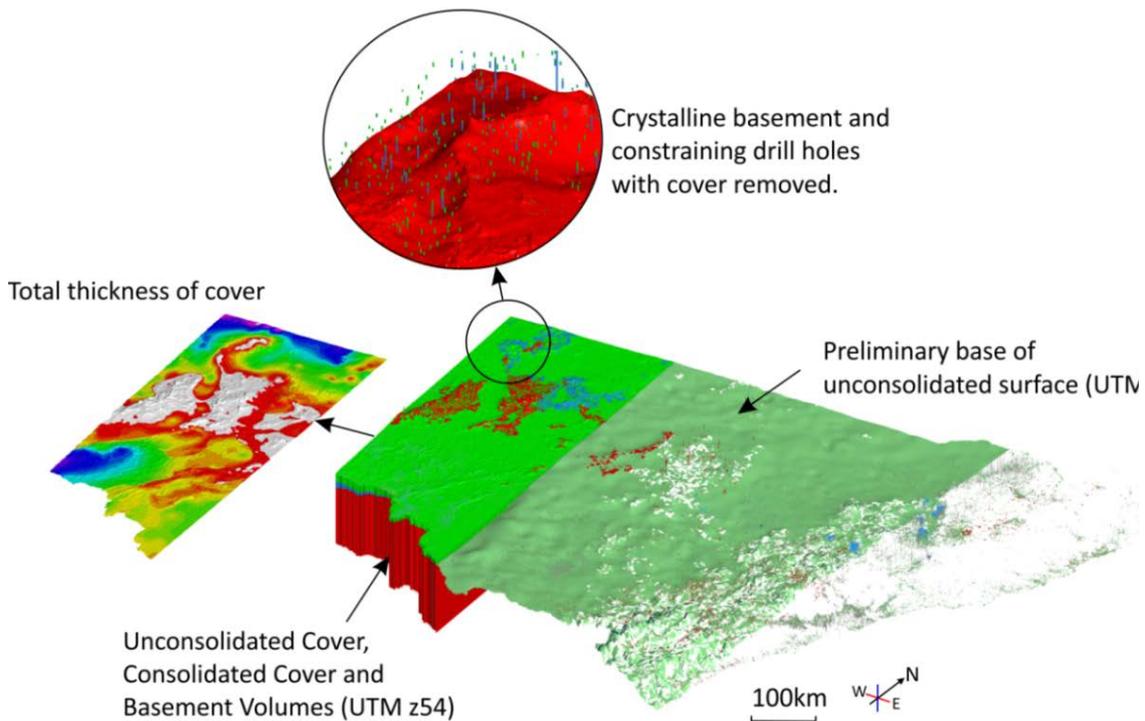
## **Milestone for NSW coastal Quaternary geology mapping**

The final three coastal Quaternary geology maps for NSW - for the Newcastle, central coast and Wollongong areas - are now available. They were released at the 25th NSW Coastal Conference in Coffs Harbour on 9 to 11 November. In total, 17 double-sided geological maps have been completed (1:25 000 and 1:100,000), as well as a hard copy report (Bulletin 34) and a data package (v4, on USB). The products present data first released in 2005 by the Comprehensive Coastal Assessment project, which excluded the Wollongong to Newcastle coast. In 2015, a study filled the gap in coastal data coverage between the Hunter and Illawarra (see [Quarterly Note 146](#)).

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## **Cover thickness modelling completed for western NSW**

GSNSW is developing a statewide cover thickness model that is due for completion in early to mid-2017. Cover is defined as all rocks and sediments of Permian or younger age and is subdivided into unconsolidated and consolidated cover. Data integration and modelling has been completed on UTM zone 54 and is progressing on zone 55. The model aims to be a first pass compilation of pre-existing models and basement interpretations supplemented with statewide waterbore logs and validated minerals, petroleum and coal drillhole data. Model outputs include 2D contour maps of cover thickness and confidence volumes that represent the distribution and quality of constraining data used to generate the model.



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## Information systems developments

The new DIGS<sup>®</sup> interface was released into production on 4 October. All significant issues detected in beta have been addressed, including a download problem that was common with large files of multiple formats. The recommended way to access industry and historical reports, as well as all GSNSW publications is now via [search.geoscience.nsw.gov.au/](http://search.geoscience.nsw.gov.au/).

The validation of open file minerals drill hole collars (77 000 at EOFY 2015/2016) is now complete in the [Geoscientific Data Warehouse](http://geoscientificdata.nsw.gov.au/). A hole is considered validated when its location and key attributes (title id, title holder, year drilled, end depth, hole name, confidentiality, purpose, drill type, dip, azimuth) have been checked against the original DIGS<sup>®</sup> report.

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## SEED environmental data portal

Over the past six months GSNSW has been actively involved in the creation and publishing of web services, metadata and data quality statements for the upcoming release of the Sharing and Enabling Environmental Data (SEED) portal. SEED was created to make a broad range of environmental data available through a single online source, and was an initiative of the NSW Government in response to community requests for reliable and readily available information about the environment in NSW.

SEED users can visualise and interrogate geoscientific data directly through SEED's online mapping interface, or access GSNSW Web Mapping, Web Feature and Rest Services (WMS, WFS or REST) that are published on the portal in GIS desktop applications such as ArcGIS, MapInfo or QGIS.

Available GSNSW datasets are:

- *Naturally Occurring Asbestos*
- *Coal Seam Gas Boreholes*
- *Simplified Surface Geology*
- *Exploration and Mining Titles*
- *Drillholes Coal*
- *Drillholes Minerals*
- *Drillholes Petroleum*
- *Major Operating Mines*
- *Mineral Occurrences*
- *NSW Minerals / Claims*
- *NSW Mining Coalfields*
- *Bedrock Exposure and Soils*
- *Seamless Geology*

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## **Cooperative Drilling Round 2 update**

Cooperative Drilling Round 2 is underway, with 15 preferred applications announced by the NSW Government and broadly distributed across NSW, from the far south to Broken Hill. More than 40 grant applications were received, including proposals to explore for gold, copper, lead, zinc, nickel, silver, tin, tungsten and platinum. Applications were assessed by a panel of senior government geologists and independent, external mineral exploration consultants.

[www.resourcesandenergy.nsw.gov.au/miners-and-explorers/programs-and-initiatives/new-frontiers-cooperative-drilling](http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/programs-and-initiatives/new-frontiers-cooperative-drilling)

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## **East Riverina Mapping Project update**

Field mapping in the East Riverina has been progressing in the Temora-Junee-Wagga Wagga-Narrandera areas. Recent highlights have included the identification of new geological features including Devonian volcanic facies near Walbundrie and Table Top, mylonitised granite near Galore Hill, and Ordovician graptolites and conodonts, as well as publication of new SHRIMP U-Pb ages in the project area (see below). The team also attended Henty Machinery Field Days in September to promote the project and liaise with landowners and agricultural scientists in the region.

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## New SHRIMP dating reports

Two new reports by Geoscience Australia and GSNSW present 20 new SHRIMP zircon U–Pb age dates from a variety of locations across NSW. Results include granite and volcanic rocks from the **East Riverina Mapping Project**, Clarence River Supersuite granites of the eastern New England Orogen, and rocks related to mineralisation at Drake, Mount Adrah, Yerranderie and the Nymagee region.

Report GS2016/0343: <http://digsopen.minerals.nsw.gov.au/?rin=R00048779>

Report GS2016/0810: <http://digsopen.minerals.nsw.gov.au/?rin=R00048780>

## Coonabarabran airborne survey soon to begin

To fill a gap in NSW geophysical data coverage, the GSNSW and Geoscience Australia will be flying an airborne magnetic and radiometric survey in the Coonabarabran region during January and February 2017. [www.resourcesandenergy.nsw.gov.au/miners-and-explorers/geoscience-information/projects/coonabarabran-project](http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/geoscience-information/projects/coonabarabran-project).

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## Drill core recently accepted at our core libraries

More than 14 000 metres of drill core from AGL, Endeavor Mine (CBH Resources), Eastern Iron Ltd, Clancy Exploration Ltd, Claymore Resources Pty Ltd and Peel Mining Ltd has been accepted from June 2016 to September 2016. View the [list of recent drill core accepted](#) at the [Londonderry Drillcore Library](#). No core was accepted at the [EC Andrews drill core facility](#), Broken Hill.

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## Hylogger™ activity

The HyLogger™ unit at the WB Clarke Geoscience Centre, Londonderry recently completed scanning of 9336 metres of drill core from the Cobar region as part of the **Cobar Project**. Data will be progressively released onto the AuScope Discovery portal over the coming months. The transport and HyLogging™ of drill core from the Endeavor, CSA and Peak Gold Mines was supported through National Collaborative Research Infrastructure Scheme (NCRIS) funding.

A new HyLogging™ project (5000 m) has also been granted NCRIS funds and will soon commence. The **Northparkes Project** will include core from the E26 and E48 copper–gold deposits.

This year, 23 new HyLogger™ datasets from NSW have been added to the National Virtual Core Library. There are now 233 NSW drillhole datasets available for download from the AuScope Discovery portal: [portal.auscope.org](http://portal.auscope.org).

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## Hackathon

Recently the GSNSW was involved in two Hackathons organised by Uearthed, in Sydney and the Hunter Valley. A Hackathon is an event, usually held over several days, where competing teams try to solve unique problems using computer science techniques.

The Sydney event focused on 'Big Data' in the resources sector, and GSNSW submitted a challenge to find innovative approaches to extract geoscientific information from scanned optical character recognition (OCR) and non-OCR historical exploration reports. The Hunter Valley event focused on operational problems affecting the exploration industry, so a task was to extrapolate information in HyLogger™ spectral data to produce a mineral map overlay on the linescan RGB images of core.

The Hunter Valley event turned out to be very successful for GSNSW, with Team ARNUT winning with an inventive approach that could be of great benefit to the industry. GSNSW is continuing to engage the team, with a view to securing funding via the AuScope National Virtual Core Library collaboration.

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## New NSW stratigraphic convenor

Phil Gilmore is the new NSW Stratigraphic Commission Convenor and state contact for the Australian Stratigraphy Commission (a standing committee of the Geological Society of Australia). The main role of the convenor is to help name and define stratigraphic units across NSW and to ensure stratigraphic guidelines and procedures are followed. Please contact Phil for help or clarification of stratigraphic nomenclature. Phil replaces Glen Phillips in the role.

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## Legislative, policy and guidelines changes

Our Land Use & Titles Advice team (LUTA) has recently taken responsibility for the assessment of geological information submitted in environmental impact assessment reports for mining development applications. Advice is provided to the Royalties & Advisory Services unit for a coordinated Division of Resources and Energy response to the Department of Planning & Environment.

For further information please contact [landuse.minerals@industry.nsw.gov.au](mailto:landuse.minerals@industry.nsw.gov.au).

### **Update to the geoscientific (exploration) reporting guidelines**

On 1 March 2016, updated geoscientific (exploration) reporting guidelines for coal, minerals and petroleum were gazetted. These updates were mainly to align with changes to legislative

amendments but do not include substantial changes to reporting obligations.

***Exploration reporting: A guide for reporting on exploration and prospecting in NSW***

**March 2016** Reporting guideline under the Mining Act 1992 (minerals and coal) available here:

[www.resourcesandenergy.nsw.gov.au/\\_data/assets/pdf\\_file/0017/535112/Exploration-reporting-a-guide-for-reporting-on-exploration-and-prospecting-in-NSW.pdf](http://www.resourcesandenergy.nsw.gov.au/_data/assets/pdf_file/0017/535112/Exploration-reporting-a-guide-for-reporting-on-exploration-and-prospecting-in-NSW.pdf)

***Onshore Petroleum Reporting and Data Submission Guideline March 2016*** Reporting

guideline under the Petroleum (Onshore) Act 1992 available here:

[www.resourcesandenergy.nsw.gov.au/\\_data/assets/pdf\\_file/0005/534776/Onshore-petroleum-reporting-and-data-submission.pdf](http://www.resourcesandenergy.nsw.gov.au/_data/assets/pdf_file/0005/534776/Onshore-petroleum-reporting-and-data-submission.pdf) .

**Remake of the Mining and Petroleum Regulations**

On 12 August 2016, the Mining Regulation 2010, Petroleum (Onshore) Regulation 2007, and the Petroleum (Offshore) Regulation 2006 were repealed as a result of the five-yearly staged repeal of statutory rules under the *Subordinate Legislation Act 1989*. New regulations were gazetted. There are no changes of substance, but the numbering of clauses has changed. The department is currently updating its documentation to reflect the following new regulations:

- Mining Regulation 2016
- Petroleum (Onshore) Regulation 2016
- Petroleum (Offshore) Regulation 2016.

See: [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au)

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## Sunset Clause project

On 1 March 2016, the Mining Regulation 2010 was amended to include a ‘Sunset Clause’ on confidential annual reports. This means that information contained in confidential company reports can be released to the public on the 1 June 2021 if they were submitted 5 years (or more) before that.

This is a big opportunity for industry to access pre-competitive data. Data released will improve existing geoscientific datasets provided by GSNSW, and help develop new structured datasets that highlight prospectivity in under-explored areas across the state. Although these datasets cannot be released for several years, a lot of work needs to be undertaken to plan how they will be collected and distributed. A GSNSW working group will define a project plan and provide regular updates through the OTO and GSNSW events.

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## GSNSW SMEDG Showcase

Staff from GSNSW travelled to Sydney to present at the Sydney Mineral Exploration

Discussion Group ([SMEDG](#)) meeting on 24 November 2016. Topics included *2016 Highlights from the Geological Survey of NSW, Outputs and continuing work in the Cobar region, The countdown to drilling in the southern Thomson Orogen*, and a feature presentation on the *Sunset Clause*. Presentations are available here: [SMEDG](#).

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## Outreach

The GSNSW has recently been very busy promoting geoscience to the community, with events including the highly successful Newcastle Time Walk on 20 August for National Science Week, a booth at the Hunter Science Festival on 21 August, hands-on activities for kids at Yakka Day on 26 August, geoheritage talks at the Newcastle Museum (with GSA/HEDG), and an open day at our Maitland office on 13 October for Earth Science Week.

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## Upcoming conferences

40<sup>th</sup> Sydney Basin Symposium, 27–28 April 2017, Hunter Valley

## Staff movements

**Mark Armstrong** has commenced in the position of Manager Mineral Resource Assessment

**Greg Cozens** finished his drilling data validation project work contract

**Cameron Dale** is Geoscientist, Mining & Exploration Assessment

**John Davidson** has moved to the position of Senior Geologist 3D/seismic

**Erin Foate** commenced in the position of Geoscientist, Land Use

**Marianne Harvey** is Acting Senior Geoscientist, Mining & Exploration Assessment

**Sam McDermott** has commenced in the position of Manager Petroleum & Renewable Resources

**Tom Prentice** is DIGS/Admin. Officer, Mining & Exploration Assessment

**Emma Prince** is Acting Principal Geologist, Mining & Exploration Assessment

**Ned Stolz** has commenced in the position of Manager Geophysics & Modelling

**Simone Wade** finished her contract as Renewable Energy Map Project Manager

**Penny Wood** has moved to the position of Manager Mining & Exploration Assessment

**Jack Woollett** finished his drilling data validation project work contract

## Products

[Digital Imaging Geoscientific Systems \(DIGS\)](#)

[Geophysical images and data](#)

[Online sales: www.shop.nsw.gov.au](http://www.shop.nsw.gov.au)

[Geoscientific Data Warehouse](#)

## Enquiries

**Maps and data packages:** [geoscience.products@industry.nsw.gov.au](mailto:geoscience.products@industry.nsw.gov.au) Tel: 02 4931 6426  
**Geophysical images and data:** [geophysics.products@industry.nsw.gov.au](mailto:geophysics.products@industry.nsw.gov.au) Tel: 02 4931 6717  
**Counter sales:** [mineralpublication.orders@industry.nsw.gov.au](mailto:mineralpublication.orders@industry.nsw.gov.au) Free call: 1300 736 122 Tel: 02 4931 6666  
**General product enquiries:** Gavin Ayre, [gavin.ayre@industry.nsw.gov.au](mailto:gavin.ayre@industry.nsw.gov.au) Tel: 02 4931 6426

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