



**SUSTAINABLE AUSTRALIA**

**7-10 JULY 2014**

**NEWCASTLE, NSW, AUSTRALIA**

## **SCIENTIFIC PROGRAM AND CONVENTION INFORMATION**



**Australian Government**  
**Geoscience Australia**



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# WELCOME TO AESC 2014

On behalf of the Organising Committee, I would like to heartily welcome you to the city of Newcastle for the Australian Earth Sciences Convention 2014, the major biennial event of the Geological Society of Australia. No matter what stage of your career you are at, I'm sure that over the coming days you will learn a few things that you didn't know before.

In developing the program, we have done our utmost to try and cover as many disciplines in the Earth Sciences as possible. We trust that your field of interest is covered but also encourage you to attend presentations outside your area of interest as the AESC presents an opportunity for all of us to learn something outside of our normal field of endeavour. Every presentation is of equal merit, be it a talk or a poster, so please try to attend both the oral and poster sessions. I'm sure that you will find many presentations of interest.

For AESC2014, we have intentionally done our best to try and support as many young Earth Scientists to attend as possible. You are our next generation and we more senior Earth Scientists are delighted to welcome you here. We have also developed a number of public outreach events including the public forum on the future of energy in Australia, a public lecture series and an interactive geological exhibition. Informing and communicating our science to the public is something that we all should do.

We also wish to thank our sponsors and exhibitors for their support, particularly in this harsh economic climate.

To leave you with a short quote:

'Geologists never grow old, they just weather away with the passing of time'

Ian T Graham  
Chair, Organising Committee AESC2014

## CONVENTION ORGANISING COMMITTEE

**Anita Andrew**, *AJES & Environmental Isotopes Pty Ltd*  
**Dioni Cendon**, *ANSTO*  
**Bill Collins**, *University of Newcastle*  
**Colin Coxhead**, *Coalfield Geology Council of NSW*  
**Anthony Dosseto**, *University of Wollongong*  
**Sue Fletcher**, *Geological Society of Australia*  
**Ian Graham**, *University of New South Wales*  
**John Greenfield**, *NSW Trade & Investment – Resources & Energy*  
**Sarah Jardine**, *NSW Trade & Investment – Resources & Energy*  
**Robert Musgrave**, *NSW Trade & Investment – Resources & Energy*  
**Craig O'Neill**, *Macquarie University*  
**Kaydy Pinetown**, *CSIRO*  
**Dave Robson**, *NSW Trade & Investment – Resources & Energy*  
**Mike Smith**, *Austpac Resources NL*  
**Martin Van Kranendonk**, *University of New South Wales*

## CONVENTION SECRETARIAT

Will Organise  
PO Box 180  
MORISSET NSW 2264  
P: 02 4973 6573  
F: 02 4973 6609  
E: [aesc@willorganise.com.au](mailto:aesc@willorganise.com.au)  
W: [www.aesc2014.gsa.org.au](http://www.aesc2014.gsa.org.au)



Join the conversation  
<https://twitter.com/AESC14>  
@AESC14  
#AESC14  
#Energy2050 (for public forum)



# PARTNERS AND SUPPORTERS

## Ruby Partner

Geoscience Australia



Australian Government  
Geoscience Australia

*Applying geoscience to Australia's most important challenges.*

Geoscience Australia is Australia's national geoscience agency, providing technical advice on all aspects of geoscience and is custodian of the geographical, geophysical and geological data and knowledge of the nation.

Australia is a nation richly endowed with abundant natural resources, vast territories and an innovative, entrepreneurial spirit. It also faces complex challenges from energy and water security, to managing the natural environment and improving the resilience of communities to natural disasters.

Geoscience Australia helps meet these challenges by providing government, industry and the community with evidence-based advice and information. The value of the agency's work crosses into almost every area of daily life, from economics and industry to navigation, infrastructure and disaster management.

Geoscience Australia works to build Australia's critical knowledge base to benefit the country for the future by:

- building Australia's resource wealth
- ensuring Australia's community safety
- securing Australia's water resources
- managing Australia's marine jurisdiction
- providing fundamental geographic information, and
- maintaining geoscience knowledge and capability.

For more information:

W: [www.ga.gov.au](http://www.ga.gov.au)

E: [sales@ga.gov.au](mailto:sales@ga.gov.au)

P: 02 6249 9111



## Supporters



## Student Support

We sincerely thank Geoscience Australia for supporting the Student registration fees for people currently undertaking PhD studies at the University of Sydney, Macquarie University, University of Adelaide, University of Melbourne, Curtin University, University of Queensland and the University of Western Australia.

Australian Nuclear Science and Technology Organisation (ANSTO) and Australian Institute of Nuclear Science and Engineering (AINSE) provided travel expenses for many student delegates.

Several geoscience societies (AIG, GSA and IAH) supported young geoscientists to attend the AESC.



# SPEAKERS

## Plenary Speakers



**Professor Iain Stewart**

*Professor of Geoscience Communication, Plymouth University, UK*

Iain Stewart is an Earth scientist and broadcaster who specialises in recent geological change. After completing his undergraduate studies in Geography and Geology at Strathclyde University (1986), and a PhD in earthquake geology at Bristol University (1990), he taught Earth Science at Brunel University in West London, before leaving in 2002 to develop television projects on geoscience. Since then he has presented major television series for the BBC on the nature, history and state of the planet, most notably 'Earth: The Power of the Planet'; 'Earth: The Climate Wars'; 'How Earth Made Us', 'How To Grow A Planet'; 'Volcano Live', and 'Rise of the Continents'. He regularly fronts BBC Horizon specials on geoscientific topics, such as the Japanese earthquake, the Russian meteor strike, Shale gas/Fracking, and Florida sinkholes. Some of his most popular programmes have explored his old 'backyard' with 'Making Scotland's Landscape' and a celebration of the Scottish pioneers of geology, 'Men of Rock'. He is currently President of the Royal Scottish Geographical Society, an Honorary President of the Scottish Association of Geography Teachers and a Patron of the Scottish Geodiversity Forum. In 2013 he was awarded the American Geophysical Union's Athelstan Spilhaus Award for conveying to the general public the excitement, significance, and beauty of the Earth and space sciences.



**Professor Mike Archer**

*University of NSW*

Mike Archer was born in Sydney but grew up in Appalachia, USA, where, while learning to play banjo and make moonshine, he became obsessed with fossils from the age of 11. After graduating from Princeton University (MCL; Geology & Biology) he did his PhD at the University of Western Australia (Zoology), became Curator of Mammals at the Queensland Museum, Lecturer at the University of New South Wales, Director of the Australian Museum in Sydney, Dean of Science at the University of NSW and now Prof. and Head of the Evolution of Earth & Life Sciences Research Group at UNSW. His research projects focus on the deep past such as the World Heritage fossil deposits at Riversleigh, the fragile present such as conservation through sustainable use of native resources including having native animals as pets, securing the future based on the wisdom of the fossil record, and trying to bring extinct species back into the world of the living. He has supervised >85 PhD and Hons students, produced >275 scientific publications including 15 books and received 25 awards including Fellowships in academic societies such as the Academy of Science and Royal Society of NSW, Eureka Prize for the Promotion of Science and Member of the Order of Australia.



**Dr Chris Pigram**

*CEO, Geoscience Australia*

Dr Pigram has over 35 years' experience in geoscience covering minerals, petroleum, basin analysis and marine geoscience with over 100 publications and is member of several professional geological societies. He has worked in Southeast Asia and the West Pacific as well as extensively in Australia.

Dr Pigram currently holds the position of Chief Executive Officer in Geoscience Australia.



**Professor Craig Simmons**

*Director, National Centre for Groundwater Research & Training, Flinders University*

Craig Simmons is also Schultz Chair in Environment at Flinders University. As one of Australia's foremost groundwater academics, Professor Simmons has been a significant contributor to global advances in the science of hydrogeology for many years and has published widely in areas including variable density groundwater flow, surface water - groundwater interaction, fractured rock hydrogeology, aquifer storage and recovery, and groundwater flow and solute transport modelling. He is a member of the Statutory Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development. His work has been recognised by numerous national and international research and teaching awards including the Anton Hales Medal for outstanding research contributions to the Earth Sciences by the Australian Academy of Science. Professor Simmons has served as an Editor and Associate Editor for numerous major international journals including *Hydrogeology Journal* (Editor), *Water Resources Research*, *Environmental Modelling and Assessment*, *Journal of Hydrology*, *Groundwater and Vados Zone Journal*.

## Keynote Speakers

**Dr Judy Bailey**, *The University of Newcastle*  
**Mr John Braybrooke**, *Douglas Partners*  
**Mr Ross Cayley**, *Geological Society of Victoria*  
**Professor Alan Chivas**, *University of Wollongong*  
**Professor Edward Duke**, *South Dakota School of Mines, (USA)*  
**Professor Joan Esterle**, *The University of Queensland*  
**Dr Neville Exon**, *Australian National University*  
**Associate Professor Chris Fergusson**, *University of Wollongong*  
**Professor Marco Fiorentini**, *University of Western Australia*  
**Dr Doug Finlayson**, *GSA (ACT Division)*  
**Mr George Gates**, *Director Water Management, NSW Office of Water (Retired)*  
**Dr William Glamore**, *University of New South Wales*  
**Professor Andrew Gleadow**, *The University of Melbourne*  
**Dr Nikolay Goryachev**, *North East Interdisciplinary Scientific Institute (Russia)*  
**Professor Kliti Grice**, *Curtin University*  
**Dr Phil Harris**, *GeoSpectral Imaging*  
**Professor Patrick Hesp**, *Flinders University*  
**Dr Tony Irwin**, *SMR Nuclear Technology*  
**Professor Richard Hillis**, *Deep Exploration Technologies CRC*  
**Professor Tetsuo Irifune**, *Ehime University (Japan)*  
**Dr Anthony Kemp**, *The University of Western Australia*  
**Professor Dick Kroon**, *The University of Edinburgh (Scotland)*  
**Dr Mel Lintern**, *CSIRO*  
**Professor Gordon Lister**, *Australian National University*

**Professor Peter McCabe**, *The University of Adelaide*  
**Professor Suzanne McEnroe**, *Norwegian University of Science and Technology (Norway)*  
**Professor Suzanne Miller**, *Queensland Museum Network*  
**Mr Andrew Moser**, *Origin Energy*  
**Professor Dietmar Müller**, *The University of Sydney*  
**Professor Hugh O'Neill**, *Australian National University*  
**Professor Brad Pillans**, *Australian National University*  
**Mr Sanjeev Pandey**, *Queensland Office of Groundwater Impact Assessment*  
**Dr Matthias Raab**, *The University of Melbourne*  
**Professor Klaus Regenauer-Lieb**, *CSIRO*  
**Dr Frank Reith**, *The University of Adelaide*  
**Dr Patrice Rey**, *The University of Sydney*  
**Associate Professor Wouter Schellart**, *Monash University*  
**Professor Lorenz Schwark**, *Kiel University*  
**Mr Geoff Sharrock**, *AusIMM*  
**Mr Tim Sullivan**, *Pells Sullivan Meynink Engineering Consultants*  
**Professor Martin Van Kranendonk**, *University of New South Wales*  
**Professor Colin Ward**, *University of New South Wales*  
**Dr Alex Wonhas**, *CSIRO*

## Mawson Lecture

**Dr Gavin Young**, *Australian National University*  
Presented during the GSA Awards ceremony

## POSTER PRIZE

A prize will be awarded for the best poster on each day of the convention (4 prizes in total). A panel of three judges will review the posters on each day of the convention and a prize will be given during the opening session on Tuesday, Wednesday and Thursday morning. The winners will also be notified by the GSA and published in *The Australian Geologist* (TAG).

## DELEGATES CHOICE PRESENTER PRIZE

Delegates are invited to collect nomination forms from the registration desk and vote for who they think had the best presentation for that day. A prize will be awarded for each day of the convention (4 prizes in total) and given out during the opening session on Tuesday, Wednesday and Thursday morning. The winners will also be notified by the GSA and published in *The Australian Geologist* (TAG). Note: forms must be submitted back to the registration desk by 1700 each day and nominations exclude plenary and keynote speakers.

# GEOLOGICAL SOCIETY OF AUSTRALIA

The Society's members represent all Earth Science professions, including geologists, geophysicists, geochemists, palaeontologists, geotechnical and engineering geologists, environmental geologists, and associated professions. Members come from the minerals and petroleum industries, government departments, research and education institutions and consultancy groups. Membership caters for students, early careerists, established professionals and retired members.

The Society has a Division in each state and territory, as well as branches in the Hunter Valley and Broken Hill. Regular meetings are held Australia-wide, at which Members may keep in touch with scientific developments, present the results of their work and contribute to discussions on vocational and scientific topics. Specialist Groups cater to different sectors of the Earth Sciences.

The GSA publishes journals and periodicals for Earth Scientists and the wider community. The *Australian Journal of Earth Sciences* (AJES), is the official journal of the Geological Society of Australia, and publishes papers on all aspects of Earth Science. *The Australian Geologist* (TAG) is the GSA's quarterly member magazine which includes technical and special features, society news, conference details, regular reports, book reviews and other items of interest to Earth Scientists. The 2012 AJES Impact factor is 1.468, copyright 2013 Thomson Reuters, 2012 Journal Citation Reports ©. The e-zine, geoz is an Australian Earth Sciences news service available free to members and non-members.

The AESC is the biennial convention of the Geological Society of Australia. The AESC is an opportunity to showcase our science, come together, hold meetings, discuss Society matters both nationally and for all Specialist Groups. The next AESC will be held in Adelaide, 4 – 7 July 2016.

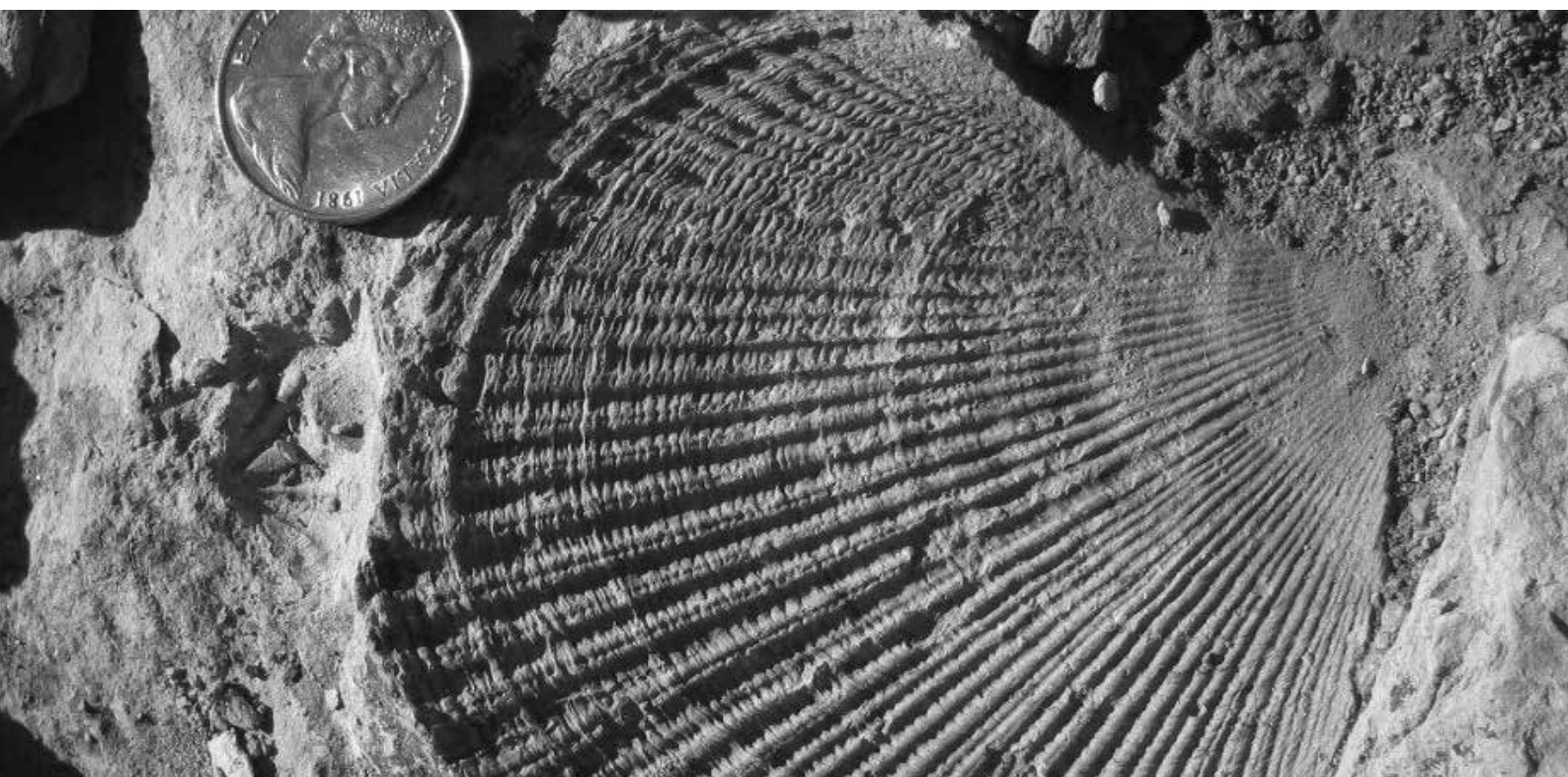
The Society encourages and recognises excellence in the Earth Sciences through awards such as the WR Browne Medal, Carey Medal, Joe Harms Medal and FL Stillwell Award, as well as Divisional and Specialist Group awards for outstanding scientific contributions. <http://gsa.org.au/recognition/index.html>

The AESC is also when we present the GSA Awards. Join us as we acknowledge achievements and present Awards on **Tuesday, July 8, 1730 for 1800 - 2030 in the Hunter Room (Second Floor, City Hall).**

The Awards Presentation closes with the Mawson Lecture by Dr Gavin Young from ANU.

Mawson Medal and Lecture: Gavin Young  
W.R. Browne Award  
S.W Carey Medal  
David I Groves Awards  
Joe Harms Medal  
E.S. Hills Medal  
A.E. Ringwood Medal  
F.L. Stillwell Award

Contact: Sue Fletcher  
Phone: 02 9290 2194  
Email: [info@gsa.org.au](mailto:info@gsa.org.au)  
Website: [www.gsa.org.au](http://www.gsa.org.au)





# GENERAL INFORMATION

## Registration Desk

The registration desk is located in the Foyer of the Civic Theatre, adjacent to the Main Auditorium where the plenary sessions will take place. Staff at the registration desk will be able to assist you with any queries you may have with relation to your registration, accommodation and social function bookings. The registration desk will be open during the following times:

Sunday 6 <sup>th</sup> July	1400 – 1730
Monday 7 <sup>th</sup> July	0700 – 1730
Tuesday 8 <sup>th</sup> July	0730 – 1730
Wednesday 9 <sup>th</sup> July	0730 – 1730
Thursday 10 <sup>th</sup> July	0730 – 1730

The registration desk can be contacted during these hours and after hours on 0412 736 503.

## Accommodation

For those delegates who booked accommodation through the Convention Secretariat, please ensure that all accounts are settled in full prior to your departure.

## Abstract Viewing

Abstracts can be viewed online from the convention website [www.aesc2014.gsa.org.au](http://www.aesc2014.gsa.org.au). They are also loaded on the desktop of the monitors in the Internet Café, however no printer is supplied here.

## Airport Transfers

Newcastle Airport (Williamstown) is located approx 25 mins to the north of the CBD. Newcastle Airport Information Service is recommended as your one stop shop to book your airport transfer including shuttle, hire car and limousine services. Please call +61 2 4928 9822 or email direct on [nais@newcastleairport.com.au](mailto:nais@newcastleairport.com.au). There is also a large fleet of taxis on hand at the airport. The approximate fare to the CBD is \$65.

## Catering

All morning teas, lunches and afternoon teas will be served each day in both the exhibition area in the Concert Hall (First Floor) and the Poster Presentation area in the Banquet Room (Ground Floor) in City Hall. Monday's lunch has been generously sponsored by Geoscience Australia;



**Australian Government**  
**Geoscience Australia**

## Coffee Cart

Fresh espresso coffee will be available from a 'Coffee Cart' located in the Poster Presentation area in the Banquet Room (Ground Floor, City Hall) from 0730 – 1530 each day of the convention. You will need to collect a voucher from the Geoscience Australia stand which will allow you unlimited coffee for the duration of the convention.

*Sponsored by Geoscience Australia*



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## Car Parking

Parking is limited in the vicinity of City Hall & Civic Theatre. It is recommended that delegates leave their cars parked at their hotels and use the public buses operating in the Fare Free Zone which covers all of the nominated convention hotels.

Alternatively there are the following car parks:

- Hunter Parking & Storage -Gibson Street – 5 minute walk (02 4926 4990)
- Wharf Road - entry via Centenary or Wharf Rds – 4 minute walk (1800 727 5464)
- Wright Lane Car Park – near Newcastle Museum- 5 minute walk (1800 727 5464)

Limited metered street parking is also available in Hunter & King Streets.

## Delegate List

A hard copy of the delegate list can be viewed at the registration desk or can be found on the desk top of the Internet Café monitors. Those delegates who have indicated on their registration form that they do not wish to have their details appear on the list, have not been included.

## Evaluation

A link to an online convention evaluation form will be emailed to you after the convention. You are encouraged to complete it as it assists the GSA to plan future conventions.

## Internet Café

An internet cafe is located in the exhibition area (Concert Hall – first floor of City Hall). There are six terminals for delegates use. A delegate list, a final version of the program and a complete set of abstracts will also be loaded on each terminal for your convenience, however no printer is supplied here.

*Sponsored by Geological Survey of New South Wales*

**Geological Survey of New South Wales** 

# GENERAL INFORMATION cont.

## Lost Property

Any lost property found should be taken to the registration desk. Delegates are reminded that it is your responsibility to ensure that valuables are secure and not left unattended at all times, but should you lose an item, check with the staff at registration.

## Messages

A noticeboard is located in the Civic Theatre foyer just outside the registration desk. Please check the message board frequently as no responsibility can be taken to deliver messages personally.

## Mobile Phones

As a courtesy to speakers and other delegates, please ensure that your mobile phone is turned off or on silent mode in all sessions and social functions.

## Nametags & Function Tickets

Delegates are reminded that nametags must be worn to all convention events to ensure entry. If you have booked additional tickets for the Ice Breaker, tickets for the convention dinner and/or Public Forum, you will be given the tickets upon registration. If you misplace your nametag please see the staff at the registration desk for a replacement.

## Posters

The Poster Presentations will be on display in the Banquet Room (Ground Floor, City Hall) for one day only. A list of posters and their allocated day is included in this booklet. All presenters are requested to mount and remove posters on the appropriate dates and time as indicated to them in their briefing notes. Any remaining posters will be pulled down overnight ready for the next day's posters and the Convention Secretariat takes no responsibility for the loss or damage of any posters not taken down.

## Program Changes

The Convention Secretariat cannot be held responsible for any program changes due to external or unforeseen circumstances. Please check the noticeboard located near the registration desk for any changes to the sessions.

## Smoking

Smoking is NOT permitted inside any of the convention facilities in City Hall and Civic Theatre. It is only permitted on the outside balcony area of City Hall or outside the venues.

## Special Dietary Requirements

If you have notified the Convention Secretariat that you have special dietary requirements, these requirements have been passed on to the caterers. Please identify yourself to the catering staff as having a special dietary requirement and they will make sure that you receive the appropriate meal.

## Speakers' Preparation Room

This is located in the Waratah Room (Ground Floor, City Hall). Speakers are required to load their talks with the technician in this room at least four hours before the start of their session or the day before if you are presenting during a morning session. Facilities are also available for you to review and amend presentations.

## Transport

All the convention hotels and the convention venue are located within the CBD 'Fare Free Zone' whereby any public bus can be used at no cost to passengers travelling within the zone between 0700 – 1800 daily. Outside these hours Newcastle Taxis can be booked by phoning 133 300.

## Useful Phone Numbers

Conference Registration Desk & Secretariat...0412 736 503

Newcastle Visitor Information Centre .....02 4974 2999

Newcastle Airport (Williamstown):

Qantaslink.....131 538

Virgin .....136 789

Jetstar .....131 538

Taxi .....133 300

Doctor .....02 4929 5691

Police/Fire .....000

Convention Hotels:

Chifley Apartments (Honeysuckle) .....02 4910 4910

Chifley Executive Suites (Scott St.) .....02 4040 1200

Clarendon Hotel.....02 4927 0966

Crowne Plaza Newcastle.....02 4907 5000

Newcastle Travelodge .....02 4926 3777

Ibis Hotel Newcastle.....02 4925 2266

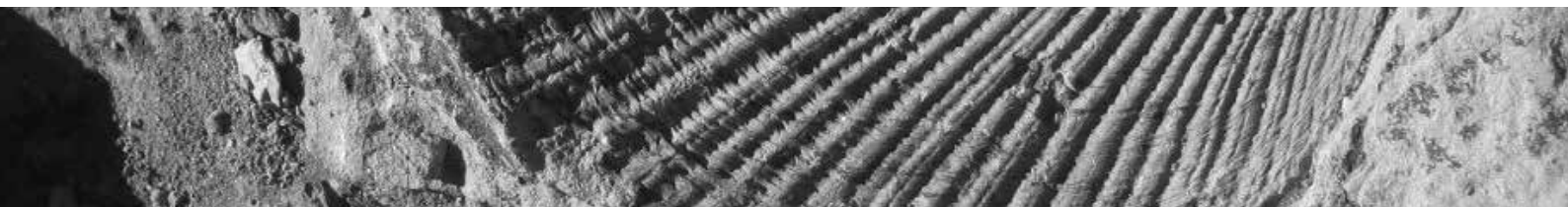
Noah's on the Beach .....02 4929 5181

Novotel Newcastle Beach .....02 4032 3700

Quest Serviced Apartments .....02 4927 8411

## Helpers/Volunteers

There are 'helpers' located throughout the convention venues to assist you. They can be recognised by the gold AESC T-shirts they are wearing. Secretariat staff can be recognised by the blue tops they are wearing.



# FIELD TRIPS & WORKSHOPS

*All Field Trips will start at Newcastle City Hall unless otherwise noted. All Workshops will take place in City Hall.  
Please see the registration desk if you are interested in booking in for a Field Trip or Workshop. Limited places are still  
available at the time of print.*

## SATURDAY 5 JULY

### **FIELD TRIP: Hunter Valley Coal: From the Exploration Site to the Coal Ship**

*Leader: Sarah Jardine, Geological Survey of NSW*

0800 – 1700

*Coach departs from and returns to City Hall*

*Inclusions: All transport and meals*

The Hunter Valley is the largest coal-producing region in NSW. It is rich in resources, hosting several large coal mines, an extensive transport network and one of the largest coal-exporting ports in the world.

This field trip follows the journey of mined coal through the Hunter Valley. The day starts at an exploration drill rig where Permian black coal resources of the northern Sydney Basin are discovered and analysed to determine their mining potential. The trip continues to an open-cut coal mine operation, where mine design, mining techniques, coal processing and handling will be observed.

Most coal is transported to a domestic or international market via a rail network. This network delivers the export product to large coal terminals at the port of Newcastle. The field trip continues on through the port's coal terminals, where the trains are unloaded, coal is stockpiled and ships are loaded.

The field trip is a must for those interested in the complex process of discovering, mining, transporting and exporting coal from the Hunter Valley.

## SUNDAY 6 JULY

### **FIELD TRIP: Geology of the Gloucester Basin**

*Leader: Sarah Jardine, Geological Survey of NSW*

0800 – 1700

*Coach departs from and returns to City Hall*

*Inclusions: All transport and meals*

The fault-bounded Gloucester Basin contains coal-bearing Permian sedimentary and volcanic units resting unconformably on Carboniferous strata of the New England Orogen. The basin's Permian sequence contains up to 50 coal seams which were deposited in an actively subsiding graben. The area hosts two operating coal mines, a developing petroleum industry and various agricultural enterprises.

This one day field trip will provide an overview of the geology of the region. Companies face challenges in extracting coal from seams that outcrop along the eastern margin of the basin, where the strata are folded and dip steeply. Towards the centre of the basin, the seams are flatter but deeper and the petroleum industry is developing projects to extract gas associated with the coal seams. Farming in the area has a long, successful history as a result of the soil and water resources associated with the local geology.

A coal mine, a coal seam gas field development and dairy farm will be visited allowing attendees to gain an understanding of how each industry operates and co-exists with others in the basin.

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### **FIELD TRIP: Geology and Wines of the Lower Hunter Valley**

*Leader: Phil Gilmore, Geological Survey of NSW; John Greenfield, Geological Survey of NSW*

*Contributor: John Davis, Tallavera Grove Vineyard*

0800 - 1700

*Coach departs from and returns to City Hall*

*Inclusions: All transport and meals, including a vineyard lunch. Does not include wine with lunch.*



The vineyards of the Hunter Valley are famous for their Semillon and Shiraz. This field trip provides a chance to sample local wines at the cellar door and examine the geology of the Mount View and Pokolbin area in the local Hunter Valley. Geology stops will examine Late Carboniferous volcanism of the New England Orogen (Mount View inlier) and Early Permian sedimentary sequences (Sydney Basin).

The role of underlying geology and soil formation in viticulture will be examined, particularly their importance in the development of suitable soil profiles for growing Hunter Valley Shiraz.

Lunch will be provided in the vineyards, and of course there will be an opportunity to sample and purchase fantastic Hunter Valley wines.

## WEDNESDAY 9 JULY

### **FIELD TRIP: Geology, Surf & Scenery of Newcastle: A Sunrise Coastal Walk**

*Leader: Phil Gilmore, Geological Survey of NSW; John Greenfield, Geological Survey of NSW*

0600- 0830

*0600 pick up and drop off at CBD hotels*

*Inclusions: Coffee at Merewether Surf House*

A 6km sunrise walk along the Bathers Way from Nobby's to Merewether to enjoy the spectacular coastline, examine the local geology of the Late Permian Newcastle Coal Measures, discuss the European settlement and development of Newcastle and spot some whales! A good level of fitness is required for this tour.

## FRIDAY 11 JULY

### **FIELD TRIP: Geological History of the Lower Hunter Valley**

*Leader: Phil Gilmore, Geological Survey of NSW; John Greenfield, Geological Survey of NSW*

0800-1700

*Coach departs from and returns to City Hall*

*Inclusions: All transport and meals*

This one-day trip provides an overview of the geology of the Newcastle area from Port Stephens to the north, the coalfields to the west, Lake Macquarie to the south and coastal sections along the Tasman Sea. The role of mapping by Edgeworth David and others leading to the rich mining culture in the region will also be discussed.

Four main aspects of the local geology will be examined at field stops:

- Late Carboniferous sequences including volcanism of the New England Orogen in the Port Stephens area, and varved shales related to glacial activity in the Seaham area
- Fossiliferous shallow marine sedimentary rocks of the Early Permian Branxton Formation
- Sedimentary sequences of the Late Permian Newcastle Coal Measures, including *Glossopteris* and other plant fossils;
- Quaternary geology of the Hunter Valley, including formation of the barrier systems of Stockton Bight and the impacts of past climate change in the area's geomorphology.

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### **WORKSHOP: Establishing and Defining Stratigraphic Units**

*Presenter: Catherine Brown, Geoscience Australia*

0930- 1200

*Hunter Room, City Hall*

*Inclusions: Morning Tea and course notes*

The Workshop aims to encourage more of Australia's geologists to define and/or redefine stratigraphic units, through discussion of Australian examples and issues.

We hope to:

- Demystify the fundamental concepts such as what is lithostratigraphy? Why are definitions important? What is a type section? What procedures apply in Australia? How do I pick a suitable name?
- Provide advice on locating important resources such as the Australian Stratigraphic Units Database, the International Stratigraphic Guide, the Australian Stratigraphy web pages and unit definition form, members of the Australian Stratigraphy Commission, and the current International Time Scale.

- Use Australian examples to show how the International Stratigraphic Guide has been interpreted in Australia. This will include discussion on ways of dealing with various lithologies, mixed lithologies, and particular issues with igneous units; what to do with 'legacy units' that don't meet the current guidelines; why units are split up or grouped together; and any other stratigraphic issues participants wish to raise.
- Explain how data from your publications gets into the Australia Stratigraphic Units Database and offer ideas on streamlining your writing and refereeing processes to get high quality new unit definitions approved and published in a timely manner.

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### **WORKSHOP: Coal Quality Assessment for Geological Purposes**

*Presenter: Professor Colin Ward, University of NSW*

0900-1700

*Mulubinba Room, City Hall*

*Inclusions: Morning Tea, Lunch & Afternoon tea & course notes*

This one-day course is intended for geoscientists newly engaged or seeking involvement in coal exploration and mining activities. The program aims to increase participants' awareness of the physical, chemical and petrographic properties of coal, the geological factors affecting coal sampling and analysis results, the significance of quality parameters in coal utilisation and marketing, and geological considerations in obtaining and dealing with coal quality data.

#### **1. General Introduction**

- Fundamental concepts of coal rank, type and grade.
- Relevant Standards and other information sources.

#### **2. Coal Testing and Analysis**

- Coal sampling and sample preparation
- Proximate and ultimate analysis
- Other general tests and analyses
- Special tests for coal combustion
- Coal carbonization and coking tests
- Assessment of gas in coal seams

#### **3. Coal Petrology and Petrographic Analysis**

- Microscope techniques used in coal petrology
- Microscope coal constituents: macerals and microlithotypes
- Coal lithotypes and megascopic (hand specimen) seam description
- Nature, analysis and significance of mineral matter in coal

#### **4. Quality Assessment in Exploration and Mine Geology Programs**

- Sampling and analysis strategies
- Selection of working sections; allowance for dilution
- Calculation of quality parameters for ply and seam composites

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### **WORKSHOP: The Global Multiple Sulphur Isotope Record: Insights into the Evolution of the Early Earth and Genesis of Mineral Systems**

*Presenter: Professor Marco Fiorentini, University of WA*

0900-1700

*Newcastle Room, City Hall*

*Inclusions: Morning Tea, Lunch & Afternoon tea & course notes*

Sulfur (S) is a crucial element that is involved in numerous biological processes and is a critical ligand that complexes, transports and concentrates a wide range of metals in hydrothermal fluids and silicate melts. As a result, sulfides play a key role in the formation of numerous world-class mineral systems, including gold, nickel, copper and the platinum group elements.

However, even if the scientific community broadly agrees that sulfur most likely played a crucial role in the establishment of the first forms of proto-life, the relationship between the global sulfur cycle and the evolution of the biosphere-atmosphere-hydrosphere-lithosphere in the Early Earth is still a hot topic of debate. Furthermore, although the genetic association between sulfur and metal enrichment is well established, it is generally difficult to fingerprint and spatially localize the sulfur and metal sources that play a role in ore genesis.

This workshop aims at bringing together the sulfur isotope community to present the latest advances in our understanding of the multiple sulfur isotope signature record and jointly identify the greatest knowledge gaps that should be addressed in the short term future. In particular, the main topic of debate will be focused on the processes that lead to the genesis and preservation of mass independent sulfur isotope signatures in the global geological record. In fact, in the last two

decades, the discovery and measurement of non-mass dependent sulfur isotope signatures in sedimentary, igneous and metamorphic rocks has permitted the formulation of numerous new hypotheses on the evolution of the Early Earth. The analytical techniques, both for whole-rock and in-situ analysis of a wide range of S-bearing phases, including sulfides, sulfates and phosphates, have dramatically improved and it is now possible to measure precisely and accurately extremely faint isotopic signals. However, our capacity to generate data has overcome our ability to interpret them.

## SATURDAY 12 JULY

### **WORKSHOP: Remote Sensing and Field Spectroscopy for Geoscientists**

*Presenter: Dr Rob Hewson, Royal Melbourne Institute of Technology*

0900-1700

*Newcastle Room, City Hall*

*Inclusions: Morning Tea, Lunch & Afternoon tea*

A one day workshop on the background of remote sensing and mineral spectroscopy relevant for geological and regolith investigations. Lecture-type presentations will be accompanied by hands-on practical sessions accessing remote sensing imagery, derived map products and mineral spectral signatures. Geological case studies, with a focus on mineral exploration, will be examined using ASTER multispectral satellite, airborne hyperspectral imagery and field spectrometer data sets. Issues covered include costings, sensor resolution, atmospheric interference, illumination conditions, vegetation cover and other quality control aspects. Examples of strategies to integrate such datasets with geophysical data (e.g. aeromagnetics, radiometrics), DEMs and public domain fractional cover estimates (e.g. vegetation cover %). A detailed examination of current (and future) airborne / satellite sensors and field spectrometers will be described.

The resulting take home information will provide an overview of various operational remote sensing and field data sets, to enable the participant to assess its viability for specific geoscientific questions. The ultimate aim is to empower the participant with the knowledge to initially undertake or contract out spectral investigations as part of mineral exploration. Participants are required to bring their own laptops.





# SOCIAL PROGRAM

## SUNDAY 6 JULY

### Ice Breaker

*Dress: Convention Attire/neat casual*

1800-1930

*Newcastle Museum - 6 Workshop Way, Newcastle*

This function is included in your Convention Registration, but you will need to register for this event. Your name badge is your entry into this function or if you purchased additional tickets, please ensure you bring these tickets with you. Cost: \$60p/p.

## MONDAY 7 JULY

### Public Forum: Energy 2050 – The Future of Energy in Australia

*Moderator: Paul Bevan , ABC Radio 1233*

1930-2130

*Civic Theatre Auditorium*

*This event is supported by*



*This is a ticketed event. If you have not already purchased a ticket, please book at the convention registration desk.*

*Cost: \$10p/p or Family (2 Adults and 3 children) \$20*

### Panellists;

**Prof. Iain Stewart**, Geoscience Communication at Plymouth University (UK)

**Dr Gary Ellem**, The University of Newcastle

**Prof. Ben Hankamer**, University of Queensland, Institute for Molecular Bioscience

**Dr Tony Irwin**, Technical Director SMR Nuclear Technology

**Dr Alex Wonhas**, CSIRO

**Ms Rachel Connell**, Director, Office of Coal Seam Gas, NSW Trade & Investment.

The forum will take the format of the popular ABC TV programme, Q&A.

You are invited to submit your questions to the panel by 5pm on Monday 7<sup>th</sup> July by handing them in to the registration desk, complete with your name and where you are from and a mobile phone number. You must be in the audience on the night to have the chance of asking your question, but there is no guarantee that your question will be asked.

An abundance of relatively cheap energy has been *the* critical support component of the quality lifestyle we enjoy in Australia – it powers the cars we drive, the appliances we use in our homes, and the industry we rely on for creature comforts and wealth creation. Most of this energy comes from fossil fuels; For example, coal accounts for over half of Australia's domestic energy production; 90% of NSW electricity comes from coal. But fossil fuel resources (oil, gas, coal) come at a cost to the local environment and probably to the global climate. Moreover, we live on a finite planet, so the shift from the industrial era to the sustainability era must come, if we are to maintain our lifestyles through the 21<sup>st</sup> century and beyond. Alternative renewable sources of energy are available, but many of these have their own limitations in terms of capacity, environmental effects, and high production costs. At present they represent less than 5% of our energy production. Moreover, the impacts of energy production, particularly coal mining, are strongly felt by local communities when mines encroach on urban areas and valuable agricultural land. Thus, the key themes are the future of energy resources in Australia, and the social impact of our transition to a secure renewable energy future. These are key national issues and will increasingly become global issues.

So, what does the future hold for Australia? What are the best resources/alternatives to secure a reliable energy future and what are their environmental effects? Are alternatives really viable and what are the implications of transitioning society into the 'sustainable era'?

'Energy 2050' will consist of a panel of speakers who have intimate knowledge of their respective industries, or have a vision of where we need to be in 2050.

## WEDNESDAY 9 JULY

### Convention Dinner

*Dress: Smart Casual. A warm coat is advisable for Fort Scratchley*

1830-2300

### Fort Scratchley & Civic Theatre

*The convention dinner is not included in the registration fee. If you have not already purchased a ticket, please check at the registration desk if there are still tickets available. Cost: \$120p/p*

Join your colleagues for an evening of great Hunter food and wine to be enjoyed in two iconic Newcastle locations. We start at Fort Scratchley spectacularly located overlooking the mouth of the Hunter River and the City, where you will have the opportunity to have a guided walk through the tunnels and around this historic site whilst enjoying a drink and your first course. Be prepared for a few surprises! You will then be transferred back to the glamorous Civic Theatre for your dinner and entertainment.

*Delegates are asked to meet at Civic Theatre on Hunter Street at 1800 for the short trip to Fort Scratchley. Coach transfers will return you to Civic Theatre.*

## ANCILLIARY & SOCIETY MEETINGS

DATE	MEETING NAME	ROOM	TIME
Sunday 6 July	GSA Council Meeting	Mulubinba Room (First Floor, City Hall)	1000 - 1330
	GSA Annual General Meeting	Cummings Room (First Floor, City Hall)	1430 - 1630
Monday 7 July	Specialist Group Solid Earth Geophysics	Newcastle Room (Ground Floor, City Hall)	1715 - 1815
	Australian Stratigraphy Commission and Solid Earth Geophysics	Promenade Room (First Floor, Civic Theatre)	1630 - 1830
Tuesday 8 July	GSA Awards & Mawson Lecture	Hunter Room (Second Floor, City Hall)	1730 - 2030
	Geochronology/GA	Newcastle Room (Ground Floor, City Hall)	1630 - 1730
Wednesday 9 July	Earth Science History Group	Promenade Room (First Floor, Civic Theatre)	1140 - 1320
	AJES Authors workshop	Mulubinba Room (First Floor, City Hall)	1220 - 1320
Thursday 10 July	Association of Australasian Palaeontologists	Newcastle Room (Ground Floor, City Hall)	1730 - 1930
	Specialist Group in Education	Boardroom (First Floor, Civic Theatre)	1730 - 1830

Other meetings to be held during the AESC (details to be confirmed on the noticeboard at the registration desk);

- Geoheritage Standing Committee Meeting
- AJES Editorial meeting

# PROGRAM AT A GLANCE

## MONDAY 7 JULY

0800	Opening					
0815	PLENARY 1: Between a rock and a hard place: communicating contested geoscience - <i>Iain Stewart</i>					
	ENVIRONMENT	ENERGY	DYNAMIC PLANET 1	RESOURCES	DYNAMIC PLANET 2	SYMPOSIUM
0930	Hydrogeology, The Water Within	Overview	Oroclines In The Tasmanides	Mineralogical Exploration - A session in honour and memory of Keith Scott	Moon And Planets	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
0950		Nuclear Energy				
1010						
1030	MORNING TEA - CONCERT HALL & BANQUET ROOM					
	POSTER VIEWING - BANQUET ROOM					
1100	Hydrogeology, The Water Within	Nuclear Energy	Oroclines In The Tasmanides	Mineralogical Exploration - A session in honour and memory of Keith Scott	Tectonics Of The Tasmanides	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1120		Clean Energy	Oroclines In The Tasmanides			
1140						
1200						
1220	LUNCH - CONCERT HALL & BANQUET ROOM - Sponsored by Geoscience Australia					
	POSTER VIEWING - BANQUET ROOM					
1320	Hydrogeology, The Water Within	Shale Gas And Tight Gas	Earthquakes And Volcanoes In The Not-So-Stable Plate	Mineralogical Exploration - A session in honour and memory of Keith Scott	Tectonics Of The Tasmanides	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1340			Archean And Proterozoic Hot Orogens	Gold Mineral Deposits of Siberia and Far East Russia	The Thomson Orogen In Queensland And Northwestern NSW	
1400						
1420	Groundwater Quality Implications Of Changes In Physical Water Management					
1440	AFTERNOON TEA - CONCERT HALL & BANQUET ROOM					
	POSTER VIEWING - BANQUET ROOM					
1510	Groundwater Quality Implications Of Changes In Physical Water Management	Enhancing Recovery And Understanding Fugitive Emissions	Archean And Proterozoic Hot Orogens	Organic geochemistry of mineral systems	The Thomson Orogen In Queensland And Northwestern NSW	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1530						
1550						
1610						
1630	POSTER VIEWING & DRINKS - BANQUET ROOM					
1930	PUBLIC FORUM					

## TUESDAY 8 JULY

0815	PLENARY 2 : Australia's big challenges – the role of geoscience - <i>Chris Pigram</i>					
	ENVIRONMENT	ENERGY	RESOURCES 1	RESOURCES 2	DYNAMIC PLANET	SYMPOSIUM
0930	Groundwater Quality Implications Of Changes In Physical Water Management	CO <sub>2</sub> Geological Storage – Locked In For The Long- Term	Magnetic anomalies and geological interpretation	Optical Sensing for Advanced Mineral Characterisation for Exploration and mining	Composition And Evolution Of The Earth	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
0950						
1010						
1030	MORNING TEA - CONCERT HALL & BANQUET ROOM					
	POSTER VIEWING - BANQUET ROOM					
1100	Scientific Results Of The Integrated Ocean Drilling Program (IODP)	CO <sub>2</sub> Geological Storage – Locked In For The Long- Term	Magnetic anomalies and geological interpretation	Optical Sensing for Advanced Mineral Characterisation for Exploration and mining	Composition And Evolution Of The Earth	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1120			Reconstructing Precambrian geological processes, palaeogeographic and geodynamic settings, and ore deposits			
1140						
1200						
1220	LUNCH - CONCERT HALL & BANQUET ROOM					
	POSTER VIEWING - BANQUET ROOM					
1320	Scientific Results Of The Integrated Ocean Drilling Program (IODP)	CO <sub>2</sub> Geological Storage – Locked In For The Long- Term	Reconstructing Precambrian geological processes, palaeogeographic and geodynamic settings, and ore deposits	The 3rd National Virtual Core library Symposium	Composition And Evolution Of The Earth	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1340			Multiscale characterisation of ore forming processes			
1400						
1420						
1440	AFTERNOON TEA - CONCERT HALL & BANQUET ROOM					
	POSTER VIEWING - BANQUET ROOM					
1510	Scientific Results Of The Integrated Ocean Drilling Program (IODP)	CO <sub>2</sub> Geological Storage – Locked In For The Long- Term	Multiscale characterisation of ore forming processes	The 3rd National Virtual Core library Symposium	Composition And Evolution Of The Earth	39 <sup>th</sup> Symposium On The Advances In The Study Of The Sydney Basin
1530					Mantle, Deep And Shallow	
1550						
1610						
1630	POSTER VIEWING & DRINKS - BANQUET ROOM					
1730	GSA AWARDS					
1930	MAWSON LECTURE - Early vertebrate evolution – some contributions from the rocks of East Gondwana (Australia–Antarctica) - <i>Gavin Young</i>					

KEY:	City Hall: Cummings Room	City Hall: Mulubinba Room	City Hall: Newcastle Room	City Hall: Hunter Room	Civic Theatre: Auditorium	Civic Theatre: Playhouse
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## WEDNESDAY 9 JULY

0815	PLENARY 3: National and international groundwater issues - <i>Craig Simmons</i>					
	ENVIRONMENT	ENERGY	INFRASTRUCTURE, SERVICE & COMMUNITY	RESOURCES	DYNAMIC PLANET	SYMPOSIUM
0930	Coal Seam Gas And Groundwater	Terrestrial Sequestration Of CO <sub>2</sub> – Advantages Of The Biosphere	Australian Geological Heritage And The National Heritage List; Are We Being Over Run By The Biologists?	UNCOVER – Searching the Deep Earth	Fluids And Melts From Core To Crust	Comparisons & Contrasts In Circum-Pacific Orogens Symposium
0950			Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History			
1010						
1030	MORNING TEA - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1100	Coal Seam Gas And Groundwater	Terrestrial Sequestration Of CO <sub>2</sub> – Advantages Of The Biosphere	Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History	UNCOVER – Searching the Deep Earth	Fluids And Melts From Core To Crust	Comparisons & Contrasts In Circum-Pacific Orogens Symposium
1120		Petroleum Prospectivity, Exploration And Modelling Of Proven And Frontier Basins				
1140						
1200						
1220	LUNCH - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1320	Coal Seam Gas And Groundwater	Petroleum Prospectivity, Exploration And Modelling Of Proven And Frontier Basins	Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History	UNCOVER – Searching the Deep Earth	Fluids And Melts From Core To Crust	Comparisons & Contrasts In Circum-Pacific Orogens Symposium
1340				3D Geoscience: Methods, Applications and Challenges in Imaging and Analysing Solid Earth systems at different scales		
1400						
1420						
1440	AFTERNOON TEA - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1510	Coal Seam Gas And Groundwater	Coal – An Old Resource In A New Age	Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History	3D Geoscience: Methods, Applications and Challenges in Imaging and Analysing Solid Earth systems at different scales	Fluids And Melts From Core To Crust	Comparisons & Contrasts In Circum-Pacific Orogens Symposium
1530						
1550						
1610						
1630	POSTER VIEWING & DRINKS - BANQUET ROOM					
1830	CONVENTION DINNER - Fort Scratchley & Civic Auditorium					

## THURSDAY 10 JULY

0815	PLENARY 4: Developing understanding about Australia's past, present and future from research into the World Heritage fossil deposits of Riversleigh - <i>Mike Archer</i>					
	ENVIRONMENT	ENERGY	INFRASTRUCTURE, SERVICE & COMMUNITY	RESOURCES	DYNAMIC PLANET	LIVING EARTH
0930	Coal Seam Gas And Groundwater	Coal – Advances In The Multiple Facets Of Coal Geosciences	Geological Challenges On Major Engineering / Infrastructure Projects	Geomicrobiology, The Nexus Between Geoengineering And Biotechnology	Precambrian Geochronology	Advances in geochronology - shedding new light on Earth surface processes and the Quaternary environment
0950						Recent Advances In The Evolution Of Life Through The Archean
1010			Rock Art In Australia			General Contribution
1030	MORNING TEA - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1100	Coal Seam Gas And Groundwater	Coal – Advances In The Multiple Facets Of Coal Geosciences	Developing Geological Models For Engineering Projects	Geomicrobiology, The Nexus Between Geoengineering and Biotechnology	Precambrian Geochronology	General Contribution
1120			Rock Art In Australia	Geological mapping: its power and future		
1140						
1200						
1220	LUNCH - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1320	Coal Seam Gas And Groundwater	Coal Seam Gas – Insights Into A Rapidly Expanding Resource And Industry	Rock Art In Australia	Geological mapping: its power and its future	Plate Kinematics And Dynamics	General Contribution
1340	General Contributions		Geoscience Education: The Evolving Role Of Geoscience Outreach And Education			The Australian Neogene: Prelude To The Present
1400	Understanding Australia's Coastal Environment					
1420						
1440	AFTERNOON TEA - CONCERT HALL & BANQUET ROOM POSTER VIEWING - BANQUET ROOM					
1510	Understanding Australia's Coastal Environment	Coal Seam Gas – Insights Into A Rapidly Expanding Resource And Industry	Geoscience Education: The Evolving Role Of Geoscience Outreach And Education	Tectonics and Metallogeny in the Late Archaeaen	Archaean & Proterozoic Gondwana	General Contribution
1530		Petroleum Reservoir Characterisation And Modelling – Towards Booking Accurate Reserves				
1550						
1610						
1630	POSTER VIEWING & DRINKS - BANQUET ROOM					

<b>KEY:</b>	City Hall: Cummings Room	City Hall: Mulubinba Room	City Hall: Newcastle Room	City Hall: Hunter Room	Civic Theatre: Auditorium	Civic Theatre: Playhouse
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# DETAILED PROGRAM

MONDAY 7 JULY

PLENARY 1 - Civic Auditorium						
0800 - 0815	Opening					
0815 - 0915	Between a rock and a hard place: communicating contested geoscience <b>Iain Stewart</b>					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	01EVA <b>ENVIRONMENT</b> <i>Hydrogeology, The Water Within</i>	01EGA <b>ENERGY</b> <i>Overview</i>	01DPA1 <b>DYNAMIC PLANET</b> <i>Oroclines In The Tasmanides</i>	01REA <b>RESOURCES</b> <i>Mineralogical Exploration - A session in honour and memory of Keith Scott</i>	01DPA2 <b>DYNAMIC PLANET</b> <i>Moon And Planets</i>	01SBA <b>39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN</b>
0930 - 0950	Neogene-to-recent tectonics: a keystone element of many hydrological/groundwater systems in Australia <b>Ken Lawrie</b>	Energy in Australia - an overview <b>Alex Wonhas</b>	The Giant Lachlan Orocline: Where? When? How? Why? And some economic implications for eastern Australia <b>Ross Cayley</b>	The concept of mineralogical exploration and the contribution of Keith Scott <b>Kenneth McQueen</b>	Similarities and differences between the compositions of the Earth's mantle and the Moon, and their implications for the Moon's origins <b>Hugh O'Neill</b>	Welcome <b>Brad Mullard</b>
0950 - 1010	Rainfall isotope ( <sup>2</sup> H, <sup>δ</sup> <sup>2</sup> H and <sup>δ</sup> <sup>18</sup> O) input to groundwater in Australia <b>Cath Hughes</b>			Mineralogical exploration, an industry perspective <b>Michael Whitbread</b>		The employment cycle for geoscientists: Where to next? <b>Geoff Sharrock</b>
1010 - 1030	Groundwater systems in northern Australia - are they suitable for a northern food bowl: evidence from residence times and geochemical analyses of ground and surface waters in the Lawn Hill region, north-west Queensland <b>Mira van der Ley</b>	01EGB <b>ENERGY</b> <i>Nuclear Energy</i> Mapping the architecture of sandstone-hosted uranium mineral systems in the Callabonna Sub-basin, Lake Frome region, using regional-scale airborne electromagnetic (AEM) data <b>Ian Roach</b>	Testing the Tasmanide Oroclines <b>Robert Musgrave</b>	Can pyrite chemistry betray pyrite origin? Application of discrimination function analysis to ore deposit hydrothermal pyrite populations <b>Garry Davidson</b>	Is there a window for plate tectonics in terrestrial planet evolution? <b>Craig O'Neill</b>	
1030 - 1100	MORNING TEA - Concert Hall & Banquet Room					
	POSTER VIEWING - Banquet room					

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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# DETAILED PROGRAM

# MONDAY 7 JULY

	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	01EVB ENVIRONMENT <i>Hydrogeology, The Water Within</i>	01EGC ENERGY <i>Nuclear Energy</i>	01DPB1 DYNAMIC PLANET <i>Oroclines In The Tasmanides</i>	01REB RESOURCES <i>Mineralogical Exploration - A session in honour and memory of Keith Scott</i>	01DPB2 DYNAMIC PLANET <i>Tectonics Of The Tasmanides</i>	01SBB 39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN
1100 – 1120	Vertical permeability of aquifers - core tests to basin scale modelling <b>Douglas Anderson</b>	The future for nuclear power in Australia <b>Tony Irwin</b>	A positive test for the Nambucca Orocline? <b>Glen Phillips</b>	Role of graphite in modifying the redox environment for low-temperature mineral alteration on southern Eyre Peninsula <b>John Keeling</b>	Mechanisms of continental growth along Eastern Gondwana during the Paleozoic: alternating periods of terrane accretion and continental magmatic flare-ups <b>Solomon Buckman</b>	A character set in stone: landscape, geology and the 1788 settlement at Sydney cove <b>Tony Webster</b>
1120 – 1140	Uncertainty in effective hydraulic conductivity due to geological heterogeneity <b>Sanjeev Kumar Jha</b>		Why the Manning and Hastings (Nambucca) oroclines do not exist <b>Paul Lennox</b>	The formation of precious opal in central Australia <b>Patrice Rey</b>	Geochemical evidence for provenance of Ordovician cherts in south-eastern Australia <b>Michael Bruce</b>	Coal exploration - 1830 style <b>Russell Rigby</b>
1140 – 1200	Estimating diffusion in heterogeneous groundwater systems using short-lived radio-isotopes and stable isotopes of iodine or bromine <b>Mark Peterson</b>	01EGD ENERGY <i>Clean Energy</i>  Going deeper and hotter for cleaner, unconventional energy and mineral resources <b>Klaus Regenauer-Lieb</b>	01DPC1 DYNAMIC PLANET <i>Earthquakes And Volcanoes In The Not-So-Stable Plate</i>  Twenty (+) potential sites for Australia's next volcano: based on < 3 Ma volcanic areas (lat 9° – 41°S), volcanic trends, dynamic plate-settings and deep thermal upwelling mantle areas <b>Lin Sutherland</b>	Soil carbonate: putting the fizz back into gold exploration <b>Mel Lintern</b>	Kinematic reconstruction of the Hastings Block, southern New England Orogen <b>Jie Yan</b>	Lithology and engineering behaviour, Newcastle Coal Measures <b>Greg McNally</b>
1200 – 1220	A hydrogeochemical study of shallow saline groundwater in south west Sydney, Australia <b>Sarah Taylor</b>		New faults in the barrow sub-basin: accommodation of present-day strain through reactivation, inversion and discrete new fault zones <b>Toby Colson</b>		Geochemistry of metasomatised and subducted mafic rocks in the Narooma Accretionary Complex – clues to their tectonic setting? <b>Robin Offler</b>	A gold-bearing alkaline intrusion in the southern Sydney Basin <b>Ray Binns</b>
1220 – 1320	LUNCH - Concert Hall & Banquet Room - Sponsored by Geoscience Australia					
	POSTER VIEWING - Banquet Room					

KEY:	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	01EVC ENVIRONMENT <i>Hydrogeology, The Water Within</i>	01EGE ENERGY <i>Shale Gas And Tight Gas</i>	01DPD1 DYNAMIC PLANET <i>Earthquakes And Volcanoes In The Not-So-Stable Plate</i>	01REC RESOURCES <i>Mineralogical Exploration - A session in honour and memory of Keith Scott</i>	01DPC2 DYNAMIC PLANET <i>Tectonics Of The Tasmanides</i>	01SBC 39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN
1320 – 1340		Unconventional gas prospectivity of the Cooper Basin <b>Lisa Hall</b>	Do earthquakes happen on faults? <b>David Love</b>	Landscape evolution and regolith architecture as critical elements for surface geochemical interpretation in Greenfields mineral exploration: the Albany-Fraser Orogen case <b>Ignacio Gonzalez-Alvarez</b>	The Narooma Terrane on the New South Wales continental slope and a connection with central Victoria <b>Gordon Packham</b>	CA-IDTIMS dating in Australia: the past, present and future <b>Robert Nicoll</b>
1340 – 1400	Groundwater requirements for a mining or coal seam gas gateway application <b>George Gates</b>	Petrophysical characterization of Cooper Basin shale and adaptability of traditional fracturing technologies <b>P. Navinda K. De Silva</b>	Using studies of the physical features of young monogenetic volcanic fields, including the newer volcanic province of south-eastern Australia, to help explore relationships between volcanism, earthquakes and tectonic setting <b>Bernie Joyce</b>	01RED RESOURCES <i>Gold Mineral Deposits Of Siberia And Far East Russia</i>	01DPD2 DYNAMIC PLANET <i>The Thomson Orogen In Queensland And Northwestern NSW</i>	Revising stratigraphic correlations in the Sydney-Gunnedah Basin – Does recent tuff bed geochronological data justify it? <b>Kevin Ruming</b>
1400 – 1420		Changes in microstructure and elastic properties of organic-rich Mancos and Kimmeridge shales after pyrolysis <b>Maxim Lebedev</b>	01DPE1 DYNAMIC PLANET <i>Archean And Proterozoic Hot Orogens</i>	Mesozoic gold deposits of eastern Russia <b>Nickolay Goryachev</b>	Neoproterozoic to Devonian Thomson Orogen, northeastern Australia: implications for Rodinia assembly and Gondwana paleo-Pacific passive to active margin tectonics <b>Chris Fergusson</b>	Permian stratigraphy and tuff bed geochronology of the southern Sydney basin <b>Erin Holmes</b>
1420 – 1440	01EVD ENVIRONMENT <i>Groundwater Quality Implications Of Changes In Physical Water Management</i>	Application of hyper-spectral cathodoluminescence to study quartz overgrowth in sandstones and gas shales <b>Zhongsheng Li</b>	From Archaean lid tectonics to modern plate tectonics: the role of early continents <b>Patrice Rey</b>	The Darasun, Kariisky and Baley large gold ore deposits of Trans-Baikal region <b>Alexandr Budyak</b>	Interpreting basement geology in the southern Thomson Orogen <b>David Purdy</b>	From whence cometh the rain: source of the middle to late Permian ashfall tuffs of the Sydney and Gunnedah Basins <b>Phillip Blevin</b>
		Groundwater modernisation and associated chemical changes in a Hawkesbury sandstone aquifer (Kulnura-Mangrove Mountain, NSW, Australia) <b>Dioni Cendon</b>				

## KEY:

Plenary speaker

Keynote speaker

Invited speaker

Poster session

1440 – 1510	AFTERNOON TEA – Concert Hall & Banquet Room					
	POSTER VIEWING – Banquet Room					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	01EVE <b>ENVIRONMENT</b> <i>Groundwater Quality Implications Of Changes In Physical Water Management</i>	01EGF <b>ENERGY</b> <i>Enhancing Recovery And Understanding Fugitive Emissions</i>	01DPF1 <b>DYNAMIC PLANET</b> <i>Archean And Proterozoic Hot Orogens</i>	01REE <b>RESOURCES</b> <i>Organic Geochemistry Of Mineral Systems</i>	01DPE2 <b>DYNAMIC PLANET</b> <i>The Thomson Orogen In Queensland And Northwestern NSW</i>	01SBD <b>39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN</b>
1510 – 1530	Linking groundwater dynamics and estuarine wetland restoration <b>William Glamore</b>	Description of a CO <sub>2</sub> enhanced coal bed methane field trial using a multi-lateral horizontal well <b>Luke Connell</b>	Linking mineral systems with geodynamics and tectonics – a 'whole of geology approach' to the geological history <b>Laurie Hutton</b>	Organic matter metal interaction in the formation of ore deposits <b>Lorenz Schwark</b>	Pre-competitive minerals activities in the southern Thomson Orogen: unlocking the region's hidden resource potential <b>Richard Blewett</b>	Physical volcanology and xenolith petrology of a dyke intruding the Gerrigong Volcanics, southern Sydney Basin: associated with proximal mid Permian volcanoes <b>Glen Bann</b>
1530 – 1550		The effect of residual water on CH <sub>4</sub> - CO <sub>2</sub> dispersion in consolidated rock cores <b>Vahab Honari</b>	Structure and geometry of the Fraser Zone, east Albany–Fraser Orogen <b>Lucy Brisboud</b>		Deciphering the structural framework of the central and southern Thomson Orogen, Australia <b>Michael Doublier</b>	Recalibrating the Permian and Triassic palynostratigraphic scheme via U–Pb zircon CA-IDTIMS dating of tuffs in eastern Australian basins <b>John Laurie</b>
1550 – 1610	Using contaminant mass flux and mass discharge to support groundwater remediation at Barangaroo, Sydney, Australia <b>Graham Hawkes</b>	Direct measurement of fugitive gas emissions from open cut coal mines <b>Abouna Saghafi</b>	Magnetotelluric survey across Central Australia: new constraints on lithospheric architecture <b>Stephan Thiel</b>	Combined sulfur, carbon and redox budget constraints on genetic models for clastic-dominated base- metal sulfide deposits: Examples from the Here's Your Chance Pb- Zn Deposit, Australia <b>Jeffrey Dick</b>	Exhumation of the Thomson Orogen within basement-cored structures of eastern Queensland <b>Charles Verdel</b>	Age of the Yarrabee Tuff Member and its significance towards regional stratigraphy of the Fort Cooper Coal Measures <b>Syeda Areeba Ayaz</b>
1610 – 1630	Riparian zone processes and implications for water quality and management of connected water systems – a case example of arsenic geochemistry <b>Martin Sogaard Andersen</b>	The complexities of continuous air monitoring in attributing methane to sources of production <b>Charlotte Iverach</b>	From the surface to the MOHO and back in a few MYRS: particle's flow path in a sagduction system <b>Patrice Rey</b>	Organic Matter in orogenic gold (Au) systems <b>Aileen Robert</b>	The fate of the Mount Wright Arc and development of the Southern Thomson Orogen: evidence from the Koonberry Belt of northwest NSW <b>John Greenfield</b>	Dating of shallow brittle faults within the Sydney Basin – new constraints on the breakup of Gondwana <b>Horst Zwingmann</b>
1630 – 1730	POSTER VIEWING & DRINKS – Banquet Room (Cash bar for beverages)					
1930 – 2130	PUBLIC FORUM – Civic Auditorium					

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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PLENARY 2 - Civic Auditorium						
0815 - 0915	Australia's big challenges – the role of geoscience <b>Chris Pigram</b>					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	02EVA <b>ENVIRONMENT</b> <i>Groundwater Quality Implications Of Changes In Physical Water Management</i>	02EGA <b>ENERGY</b> <i>CO<sub>2</sub> Geological Storage – Locked In For The Long-Term</i>	02REA1 <b>RESOURCES</b> <i>Magnetic Anomalies And Geological Interpretation</i>	02REA2 <b>RESOURCES</b> <i>Optical Sensing for Advanced Mineral Characterisation For Exploration And Mining</i>	02DPA <b>DYNAMIC PLANET</b> <i>Composition And Evolution Of The Earth</i>	02SBA <b>39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN</b>
0930 - 0950	Groundwater quality in a coastal aquifer - A case study of water quality changes due to the degradation of organic matter <b>Ivona Maric</b>	Geological CO <sub>2</sub> storage - a solution for deep emission cuts in Australia? <b>Matthias Raab</b>	Magnetic minerals, phase interfaces and magnetic anomalies <b>Suzanne McEnroe</b>	Applications of Visible and Near Infrared Spectroscopy in Studies of Metamorphic and Hydrothermal Systems <b>Edward Duke</b>	Innovation in Australian geochronology and thermochronology <b>Andrew Gleadow</b>	Small fault identification through seismic diffraction imaging <b>Binzhong Zhou</b>
0950 - 1010	Managed aquifer recharge and strategic aquifer storage in northern Australia: challenges and opportunities <b>Ken Lawrie</b>					Integrated analysis and modelling of geophysical logs from coal measure strata <b>Peter Hatherly</b>
1010 - 1030	Investigating the origin of salinity and aquifer interaction in a seasonally pumped confined aquifer system in southeast Australia (Western Port Basin) <b>Stephen Lee</b>	Multi-scale imaging of Precipice Sandstone core plugs and cross property correlations <b>Pieter Botha</b>	Peculiarities and problems in the remanent magnetization of rhombohedral Fe-Ti oxides <b>Peter Robinson</b>	Towards quantifying lateritic nickel composition: application of reflectance spectroscopy <b>Martin Wells</b>	Zircon production, U-Pb geochronology and Hf-O isotope characteristics of the Middledale Gabbroic Diorite: implications for the TEMORA zircon reference material <b>Kieran Iles</b>	Moving window power spectrum analysis of potential field data : new tools for imaging basement topology and stratigraphy in the Sydney Basin <b>Philip McClelland</b>
1030 - 1100	<b>MORNING TEA - Concert Hall &amp; Banquet Room</b>					
	<b>POSTER VIEWING - Banquet Room</b>					

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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# DETAILED PROGRAM

# TUESDAY 8 JULY

	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	02EVB ENVIRONMENT <i>Scientific Results Of The Integrated Ocean Drilling Program (IODP)</i>	02EGB ENERGY <i>CO<sub>2</sub> Geological Storage – Locked In For The Long-Term</i>	02REB1 RESOURCES <i>Magnetic Anomalies And Geological Interpretation</i>	02REB2 RESOURCES <i>Optical Sensing for Advanced Mineral Characterisation for Exploration And Mining</i>	02DPB DYNAMIC PLANET <i>Composition And Evolution Of The Earth</i>	02SBB 39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN
1100 – 1120	The Australian and New Zealand role in scientific ocean drilling <b>Neville Exon</b>	Mineral character of sedimentary facies associations, lower Jurassic, Surat Basin, Queensland <b>Michaela Grigorescu</b>	The first national-scale mapping of magnetisation direction <b>Clive Foss</b>	Vibrational spectroscopy of calc-silicate minerals and its potential in mapping low-grade regional metabasites <b>Monica leGras</b>	Building national infrastructure using TerraneChron® and lithosphere mapping <b>Norman Pearson</b>	A geological review of the Cobbora area, NSW <b>Sarah Jardine</b>
1120 – 1140		Time series imaging and conventional experimental studies of Chinchilla-4 well samples to measure geochemical reactivity and dissolution trapping capacity of core material using supercritical CO <sub>2</sub> <b>Silvano Sommacal</b>	Giles, complex, magnetism <b>James Austin</b>	How hyperspectral sensing is improving productivity in BHP Billiton iron ore exploration <b>Maarten Haest</b>	The enigma of crustal zircons in upper mantle rocks: Insights from U-Pb ages, Hf-O-isotopes and trace-element signatures (Tumut region, SE Australia) <b>Elena Belousova</b>	Sedimentary and coal seam stratigraphy in the Maules Creek Sub-basin - an update <b>Mark Dawson</b>
1140 – 1200	A 5 million year history of reefs, ocean and climate on the northwest shelf of Australia: International Ocean Discovery Program Expedition 356 (2015) <b>Stephen Gallagher</b>	CO <sub>2</sub> -water-rock interactions: mineral reactivity under CO <sub>2</sub> storage conditions <b>Jay Black</b>	02REC1 RESOURCES <i>Reconstructing Precambrian Geological Processes, Palaeogeographic And Geodynamic Settings, And Ore Deposits</i>	South Australia's heavy mineral resources: models, geology and exploration of deposits <b>Baohong Hou</b>	Performance of the Helix-MC multi-collector noble gas mass spectrometer – resolution of argon isobaric interferences <b>Masahiko Honda</b>	Overview of groundwater responses to longwall coal mining in the Sydney Basin, Australia <b>Katarina David</b>
			Formation of a 2.7 Ga large igneous province by progressive crustal contamination of two pulses of komatiitic magmatism: a lithological and geochemical study of the Agnew Greenstone Belt, Kalgoorlie Terrane, Yilgarn Craton <b>Patrick Hayman</b>			

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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1200 – 1220	<p>Geochemistry and source of ash layers in Bering Sea sediment at IODP Site 323–U1341</p> <p><b>Kelsie Dadd</b></p> <p><b>Irina Borissova</b></p>	<p>Selection of potential sites for the geological storage of CO2 in the offshore Vlaming Sub-Basin, southern Perth Basin</p> <p><b>Irina Borissova</b></p>	<p>A new palaeomagnetic study of the Warakurna large igneous province: the Giles Complex, Musgrave ranges, central Australia, and Euro area, Yilgarn Craton, Western Australia</p> <p><b>Phillip Schmidt</b></p>	<p>Mapping alteration minerals and structural features associated with IOCG mineralization from ASTER data: a case study in the Saveh area, Central Iran</p> <p><b>Hooshang Asadi Haroni</b></p>	<p>New developments in <sup>40</sup>Ar/<sup>39</sup>Ar geochronology from multi-collector mass spectrometry</p> <p><b>David Phillips</b></p>	<p>An event horizon in the Sydney Basin: passage of a forebulge?</p> <p><b>Martin Van Kranendonk</b></p>	
1220 – 1320	<b>LUNCH – Concert Hall &amp; Banquet Room</b>						
	<b>POSTER VIEWING – Banquet Room</b>						
	<p>Cummings Room</p>	<p>Mulubinba Room</p>	<p>Newcastle Room</p>	<p>Hunter Room</p>	<p>Civic Auditorium</p>	<p>Civic Playhouse</p>	
	<p>02EVC</p> <p><b>ENVIRONMENT</b></p> <p><i>Scientific Results Of The Integrated Ocean Drilling Program (IODP)</i></p>	<p>02EGC</p> <p><b>ENERGY</b></p> <p><i>CO<sub>2</sub> Geological Storage – Locked In For The Long-Term</i></p>	<p>02RED1</p> <p><b>RESOURCES</b></p> <p><i>Reconstructing Precambrian Geological Processes, Palaeogeographic And Geodynamic Settings, And Ore Deposits</i></p>	<p>02REC2</p> <p><b>RESOURCES</b></p> <p><i>The 3rd National Virtual Core Library Symposium</i></p>	<p>02DPC</p> <p><b>DYNAMIC PLANET</b></p> <p><i>Composition And Evolution Of The Earth</i></p>	<p>02SBC</p> <p><b>39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN</b></p>	
1320 – 1340	<p>“Chikyu” riser drilling results and her future challenges</p> <p><b>Kyaw Moe</b></p>	<p>Authigenic carbonates in the great artesian basin as natural analogues of mineralisation trapping in CO<sub>2</sub> sequestration</p> <p><b>Suzanne Golding</b></p>	<p>Genesis of the Central Zone of the Nolans Bore rare earth element deposit, Northern Territory</p> <p><b>Louise Schoneveld</b></p>			<p>There and Back Again: A Mineral Habit’s Tale</p> <p><b>Phil Harris</b></p>	
	<p>“Chikyu” riser drilling results and her future challenges</p> <p><b>Kyaw Moe</b></p>	<p>Authigenic carbonates in the great artesian basin as natural analogues of mineralisation trapping in CO<sub>2</sub> sequestration</p> <p><b>Suzanne Golding</b></p>	<p>Genesis of the Central Zone of the Nolans Bore rare earth element deposit, Northern Territory</p> <p><b>Louise Schoneveld</b></p>	<p>There and Back Again: A Mineral Habit’s Tale</p> <p><b>Phil Harris</b></p>	<p>An evaluation of apatite fission track dating by LA-ICP-MS</p> <p><b>Christian Seiler</b></p>	<p>Changes to the Australian coal guidelines</p> <p><b>David Arnott</b></p>	
1340 – 1400	<p>Exploration of Miocene biomarkers in cored sedimentary rocks from IODP Expedition 317, Canterbury Basin, New Zealand</p> <p><b>Sophia Bratenkov</b></p>	<p>Mineral trapping capacity in reservoirs with variable mineralogies – a mass balance approach</p> <p><b>Ralph Haese</b></p>	<p>Geochronology and lithostratigraphy of a major Birimian sedimentary basin: insight into the tectonostratigraphic evolution and gold mineralisation controls of the Siguiri Basin, Guinea (West Africa)</p> <p><b>Erwann Lebrun</b></p>	<p>Changes in global magmatism and the limitations of Hf-O isotope data in zircon</p> <p><b>Norman Pearson</b></p>			<p>Resource classification in coal - it’s time to stop going around in circles</p> <p><b>Monica Davis</b></p>

**KEY:** Plenary speaker Keynote speaker Invited speaker Poster session

1400 – 1420	Highlights of IODP research and future outlook <b>Dick Kroon</b>	Characterisation of potential CO <sub>2</sub> -water-rock dynamics during geological sequestration in a low salinity, silicate reservoir system <b>Kyle Horner</b>	02REE1 <b>RESOURCES</b> <i>Multiscale Characterisation Of Ore Forming Processes</i>	Maximising the value of NVCL HyLogger data: understanding automated mineralogical interpretation <b>Belinda Smith</b>	Dating movement through microstructure <b>Marnie Forster</b>	Can new standards improve coal resource estimation and reporting practice? <b>Sue Border</b>
1420 – 1440		Assessment framework for the interaction between CO <sub>2</sub> geological storage and earth resources in Australian sedimentary basins <b>Karsten Michael</b>	Metal release from biotite during prograde metamorphism as a source for Pb-Zn ore deposits <b>Carl Spandler</b>	Skarn style alteration & inversion modelling at Red Lake, South Australia <b>Georgina Gordon</b>	The AUSCOPE AGOS GEOHISTORY Facility: A novel instrument suite for laser microanalytical in-situ U-Th-Sm-Pb-He geochronology and thermochronology <b>Brent McInnes</b>	Coal exploration data integrity and management <b>Brett Larkin</b> The coal quality data exchange (CQDX) project - ramifications for reporting according to JORC <b>Jared Armstrong</b>
1440 – 1510	AFTERNOON TEA - Concert Hall & Banquet Room POSTER VIEWING - Banquet Room					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	02EVD <b>ENVIRONMENT</b> <i>Scientific Results Of The Integrated Ocean Drilling Program (IODP)</i>	02EGD <b>ENERGY</b> <i>CO<sub>2</sub> Geological Storage – Locked In For The Long-Term</i>	02REF1 <b>RESOURCES</b> <i>Multiscale characterisation of ore forming processes</i>	02RED2 <b>RESOURCES</b> <i>The 3rd National Virtual Core Library Symposium</i>	02DPD <b>DYNAMIC PLANET</b> <i>Composition And Evolution Of The Earth</i>	02SBC (Cont) <b>02SBD</b> <b>39TH SYMPOSIUM ON THE ADVANCES IN THE STUDY OF THE SYDNEY BASIN</b>
1510 – 1530	IODP expeditions 343 and 343T, the Japan Trench Rapid Drilling Project (J-FAST) yield new insights into the mechanics and structure of subduction thrust faults <b>Virginia Toy</b>	Seabed structures, sediments and habitats in Joseph Bonaparte Gulf, northern Australia: seabed mapping in support of potential offshore CO <sub>2</sub> storage options <b>William Anthony Nicholas</b>	Multiscale controls on gold mineralisation at Plutonic gold mine, Marymia Inlier, Western Australia <b>Michael Gazley</b>	Targeting iron ore in banded iron formation using the HyLogging system <b>Paul Duuring</b>	High precision <sup>40</sup> Ar/ <sup>39</sup> Ar dating of <100 ka basalts from south-eastern Australia using an ARGUSVI multi-collector mass spectrometer <b>Erin Matchan</b>	Coal Seam Gas in NSW - 35 years of discovery in a nutshell <b>Malcolm Bocking</b>

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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<b>1530 – 1550</b>	Insight into the Eocene: marine sedimentary sequences from IODP Expedition 342 <b>William Bonney</b>	Impurity effects in O <sub>2</sub> -SO <sub>2</sub> -CO <sub>2</sub> -water-rock reactions relevant to CO <sub>2</sub> storage in the Surat Basin <b>Julie Pearce</b>	Quartz geochemistry in ore genesis: Merlin (Mongrel), Cloncurry <b>Joshua Greene</b>	HyLogging wet core from Broken Hill managed aquifer recharge project <b>Alan Mauger</b>	Fe isotopes and the contrasting petrogenesis of a-, i- and s-type granite <b>John Foden</b>	Observations on the distribution of coal seam gas in the Sydney Basin and the development of a predictive model <b>Scott Thomson</b>
<b>1550 – 1610</b>	Slow sliding of gas-hydrate-bearing landslides on the Hikurangi Margin, New Zealand <b>Ingo Pecher</b>	Eddy Covariance's role as a monitoring technique for geological storage of CO <sub>2</sub> <b>Ivan Schroder</b>	Tectono-stratigraphic evolution of the Sadiola gold camp, Mali, West Africa: defining the framework of a world-class gold province <b>Quentin Masurel</b>	Exploring for rare earth elements using reflectance spectroscopy <b>Sidy Morin-Ka</b>	<b>02DPE DYNAMIC PLANET</b> <i>Mantle, Deep And Shallow</i>	Sydney Basin gas layering - the hydrochemical link <b>Agi Burra</b>
<b>1610 – 1630</b>	A Comparative Multiproxy Approach To Address Paleo-Redox Change At The Paleocene-Eocene Boundary, New Jersey Continental Margin <b>Amy Chen</b>	Understanding of the geomechanical stability of CO <sub>2</sub> containment at the South West Hub, Western Australia: a coupled geomechanical-fluid flow modelling approach <b>Yanhua Zhang</b>	The timing and controls on the formation of the Yandera deposit <b>Oleg Koudashev</b>	Chlorite compositional changes in response to mineralisation; examples from the Nymagee Mine and Great Cobar Deposit, NSW <b>David Tilley</b>	Multi-anvil high-pressure technology and mineralogy of the deep mantle <b>Tetsuo Irifune</b>	Gas penetration into fine pores of coals: comparing Sydney Basin and North American coals <b>Richard Sakurovs</b>
<b>1630 – 1730</b>	<b>POSTER VIEWING &amp; DRINKS - Banquet Room (Cash bar for beverages)</b>					
<b>1730 - 1900</b>	<b>GSA AWARDS - Hunter Room</b>					
<b>1930 - 2030</b>	<b>MAWSON LECTURE - Early vertebrate evolution – some contributions from the rocks of East Gondwana (Australia–Antarctica) - Gavin Young</b>					

**KEY:** Plenary speaker Keynote speaker Invited speaker Poster session

PLENARY 3 - Civic Auditorium						
0815 - 0915	Groundwater and the geosciences: miles to go before we sleep <b>Craig Simmons</b>					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	03EVA ENVIRONMENT <i>Coal Seam Gas And Groundwater</i>	03EGA ENERGY <i>Terrestrial Sequestration Of CO<sub>2</sub> - Advantages Of The Biosphere</i>	03ISCA INFRASTRUCTURE, SERVICE & COMMUNITY <i>Australian Geological Heritage List; Are We Being Over Run By The Biologists?</i>	03REA RESOURCES <i>UNCOVER - Searching The Deep Earth</i>	03DPA DYNAMIC PLANET <i>Fluids And Melts From Core To Crust</i>	03CP0A COMPARISONS & CONTRASTS IN CIRCUM-PACIFIC OROGENS SYMPOSIA
0930 - 0950	Hydrogeological management and research for a major CSG project <b>Andrew Moser</b>	Terrestrial sequestration of CO <sub>2</sub> - moving toward solutions <b>Judy Bailey</b>	Geological heritage around Canberra - a template for national recognition <b>Douglas Finlayson</b>	'Prospecting Drilling': A technology-enabled revolution in mineral exploration <b>Richard Hillis</b>	Was the early Earth stagnant? <b>Craig O'Neill</b>	Do orogenic processes differ from west to east? A comparative analysis of Circum-Pacific Orogens <b>Gordon Lister</b>
0950 - 1010						
1010 - 1030	The law and reality of the coal seam gas industry in New South Wales and Queensland <b>Adam Edwards</b>	Mineral carbonation as a reliable, safe and permanent means to sequester CO <sub>2</sub> ; Carbonic acid dissolution of silicates and CO <sub>2</sub> degassing as mechanisms in an integrated mineral carbonation scheme <b>Tim Oliver</b>	03ISCB INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History</i>	The crust beneath the Nullarbor: first images of the Eucla-Gawler deep seismic reflection line [13GA-EG1] <b>Richard Blewett</b>	A mantle xenolith perspective on kimberlite petrogenesis <b>Andrea Giuliani</b>	Neoproterozoic global geodynamic rearrangement recorded by Hf isotopes in zircon: birth of the Circum-Pacific and dawn of the Phanerozoic <b>Erin Martin</b>
1030 - 1100	MORNING TEA - Concert Hall & Banquet Room					
	POSTER VIEWING - Banquet Room					

KEY:	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	03EVB ENVIRONMENT <i>Coal Seam Gas And Groundwater</i>	03EGB ENERGY <i>Terrestrial Sequestration Of CO<sub>2</sub> – Advantages Of The Biosphere</i>	03ISCC INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History</i>	03REB RESOURCES <i>UNCOVER - Searching The Deep Earth</i>	03DPB DYNAMIC PLANET <i>Fluids And Melts From Core To Crust</i>	03CP0B COMPARISONS & CONTRASTS IN CIRCUM-PACIFIC OROGENS SYMPOSIA
1100 – 1120	Impacts of coal seam gas extraction on water resources and water-related assets in eastern Australia <b>David Post</b>	Mineral carbonation employing ultramafic mine waste <b>Gordon Southam</b>	A vision for the National Rock Garden <b>Brad Pillans</b>	The character of the lithosphere-asthenosphere transition beneath the Australian continent <b>Brian Kennett</b>	How supercontinent cycles affect the vigour of oceanic hydrothermal circulation and seawater chemistry <b>Dietmar Müller</b>	Zealandia's 0.5 Ga subduction history <b>Nick Mortimer</b>
1120 – 1140	Propagating uncertainty from geological to ecological models <b>Luk Peeters</b>	Formation of weathering-derived magnesite deposits in the New England Orogen, New South Wales, Australia: Implications from mineralogy, geochemistry and genesis of the Attunga magnesite deposit <b>Hans Oskierski</b>		Recognising significant regional metallogenic controls with subtle signatures <b>Vladimir Lisitsin</b>		Pre-Cretaceous basement of Chatham Island: stratigraphy, deformation, metamorphism, age and crustal heritage <b>Peter Robinson</b>
1140 – 1200	Groundwater modelling in the bioregional assessment projects <b>Russell Crosbie</b>	03EGC ENERGY <i>Petroleum Prospectivity, Exploration And Modelling Of Proven And Frontier Basins</i>	Geotourism and Geoheritage - compelling lessons from Scotland <b>Suzanne Miller</b>	Crustal electrical resistivity heterogeneity: a vector to mineralisation? <b>Graham Heinson</b>	Accretion of andesitic crust along a high-temperature oceanic detachment fault in the Oman Ophiolite (Bahla Massif) <b>Benedicte Abily</b>	Australian crust in a Pacific island arc <b>Janrich Buys</b>
1200 – 1220	Geological and hydrogeological data analyses to support bioregional assessments in the Clarence-Moreton Basin <b>Tao Cui</b>	Fossil fuels for the future <b>Peter McCabe</b>		Investigating the electrical lithosphere of the Flinders Ranges using magnetotellurics <b>Kate Robertson</b>	How deformation affects reaction rates: new insights from phase transformation experiments in the KBr-KCl-H <sub>2</sub> O system <b>Liene Spruzeniece</b>	Orogens of southeast Asia and their link to Tethyan and (proto-) Pacific tectonic evolution <b>Sabin Zahirovic</b>

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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1220 – 1320	LUNCH - Concert Hall & Banquet Room						POSTER VIEWING - Banquet Room	
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse		
	03EVC <b>ENVIRONMENT</b> <i>Coal Seam Gas And Groundwater</i>	03EGD <b>ENERGY</b> <i>Petroleum Prospectivity, Exploration And Modelling Of Proven And Frontier Basins</i>	03ISC <b>INFRASTRUCTURE, SERVICE &amp; COMMUNITY</b> <i>Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History</i>	03REC <b>RESOURCES</b> <i>UNCOVER - Searching The Deep Earth</i>	03DPC <b>DYNAMIC PLANET</b> <i>Fluids And Melts From Core To Crust</i>	03CPOC <b>COMPARISONS &amp; CONTRASTS IN CIRCUM-PACIFIC OROGENS SYMPOSIA</b>		
1320 – 1340	Permian and Triassic hydrogeology of the southern Sydney Basin: implications for coal seam gas development <b>Nicola Fry</b>	Why are conjugate passive margins often asymmetric? - a new answer to an old question <b>Sascha Brune</b>	Promoting Australia-China relationship through geoparks <b>Young Ng &amp; Angus M Robinson</b>	Geochemistry expands the exploration fairway for the mineralised copper porphyries in Western Victoria <b>David Taylor</b>	Metal sources and transport mechanisms at crust-mantle boundary conditions: new search space for deep-seated magmatic mineral systems <b>Marco Fiorentini</b>	Control of subduction zone size on slab rollback, style of mantle flow and overridding plate deformation <b>Wouter Schellart</b>		
1340 – 1400	Baseline hydrochemical and isotopic studies of groundwater and surface water in the Gloucester Basin, NSW <b>Carolina Sardella</b>	The spatio-temporal evolution of surface dynamic topography driven by deep mantle processes since the Cretaceous <b>Michael Rubey</b>	Australian geoheritage: priceless geotourism potential - available and ready to use <b>Patricia Erfurt-Cooper</b>	Geomicrobiological pathways to mineral exploration in the deep <b>Frank Reith</b>				
1400 – 1420	Assessment of aquifer/aquitarid connectivity in the Galilee and Eromanga Basins using geology, hydrochemistry and <sup>87</sup> Sr/ <sup>86</sup> Sr isotopes <b>Claudio Moya</b>	Tectonic controls on oil and gas seeps and shale gas accumulations, onshore Timor-Leste <b>Myra Keep</b>	Geotourism and Australian national landscapes <b>Angus M Robinson &amp; Ross Dowling</b>	Meat ants ( <i>Iridomyrmex purpureus</i> ) are better metal prospectors than termites <b>Ian Pringle</b>	Archean lithospheric mantle: the fount of all ores? <b>Suzanna O'Reilly</b>	Evolution of the long-wavelength topography of South America since 150 Ma in response to eastern Pacific subduction <b>Nicolas Flament</b>		
1420 – 1440	Interpreting groundwater chemistry to frame water risks of CSG development <b>Charles Brooking</b>	Source rock potential in an active continental margin: Myall Trough, south-eastern Australia <b>Angelos Maravelis</b>	Jenolan Caves - an evolving geotourism location <b>Steve McClean</b>	<b>03RED RESOURCES</b> <i>3D Geoscience: Methods, Applications And Challenges In Imaging And Analysing Solid Earth Systems At Different Scales</i>	Evolution of Earth's early crust - coupling petrological and 2D numerical modelling <b>Tim Johnson</b>	Tectonic evolution of the North American cordillera: a western Pacific perspective <b>Bill Collins</b>		

## KEY:

Plenary speaker

Keynote speaker

Invited speaker

Poster session

				3D earth imaging of regions and continents: the challenge of data fusion across multiple scales <b>Anya Reading</b>			
1440 – 1510	AFTERNOON TEA - Concert Hall & Banquet Room						
	POSTER VIEWING - Banquet Room						
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse	
	03EVD ENVIRONMENT <i>Coal Seam Gas And Groundwater</i>	03EGE ENERGY <i>Coal – An Old Resource In A New Age</i>	03ISCE INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geotourism - Enhancing Public Appreciation Of Geoheritage And Earth Sciences History</i>	03REE RESOURCES <i>3D Geoscience: Methods, Applications And Challenges In Imaging And Analysing Solid Earth Systems At Different Scales</i>	03DPD DYNAMIC PLANET <i>Fluids And Melts From Core To Crust</i>	03CPD COMPARISONS & CONTRASTS IN CIRCUM-PACIFIC OROGENS SYMPOSIUM	
1510 – 1530	Fault seal characterisation for CGS-aquifer interaction <b>Jim Underschultz</b>	Ashford Coal Measures, once a valuable local resource, now internationally isolated and a geological enigma <b>Brian Roach</b>	Kanawinka Geopark - latest developments and building an Australian model for geoparks <b>Ian Lewis &amp; Bernie Joyce</b>	High-resolution X-ray computed tomography: application to igneous petrology and ore deposits <b>Belinda Godel</b>	Tibetan chromitites: to the transition zone and back? <b>Nicole McGowan</b>	The Tasmanide Benambran line: a reference for historical interpretation of orogenic zone development in eastern Australia <b>Robert Henderson</b>	
1530 – 1550	Hydrogeological field investigation of a fault zone in the Gloucester Basin, NSW: implications for assessing regional groundwater impacts <b>Stuart Brown</b>	Inorganic matter in Victorian brown coals <b>Mihaela Grigore</b>	Quality information - The basis for successful geotourism <b>Bruce Leaver</b>	Using synchrotron X-ray microtomography to image structure and porosity in sheared Neoproterozoic granite, Yilgarn Craton, Western Australia <b>Klaus Gessner</b>	Transition-zone metamorphism in “ophiolitic” chromitites: insights into collision-zone dynamics <b>William Griffin</b>	Mid Permian - mid Triassic flat subduction In the southern New England Orogen <b>Jeff Brownlow</b>	
1550 – 1610	Assessing the role of faulting on groundwater impacts from coal seam gas: local-scale numerical modelling in the Gloucester Basin, NSW <b>Becky Rollins</b>	A new sub-surface fracture height prediction model for longwall mines in the NSW coalfields <b>Steven Ditton</b>	Mining geoheritage activities in the AusIMM <b>Sandra Close &amp; Geoff Sharrock</b>	3D crustal architecture of the east Albany-Fraser Orogen in Western Australia from passive seismic data <b>Christian Sippl</b>	Subduction refertilization of orogenic lithosphere detected by trace elements in olivine <b>Stephen Foley</b>	Geochemistry and geochronology of the igneous rocks within the Lorne Basin, southern New England Orogen, NSW, Australia <b>Joshua John Richardson</b>	

**KEY:** Plenary speaker Keynote speaker Invited speaker Poster session

# DETAILED PROGRAM

# WEDNESDAY 9 JULY

1610 – 1630	Aquitard hydraulic properties estimation from wireline logs analysis: an application to the Surat Basin, Queensland <b>Ludovic Ricard</b>	Advances in assessing coke oven feed samples by coal grain analysis (CGA) <b>Karryn Warren</b>	Geotourism around Canberra - based on a geoheritage website catalogue <b>Douglas Finlayson</b>	Insights into the structure of the McArthur Basin using the implicit 3D modelling method: preliminary results <b>Pierre-Oliver Bruna</b>	Sulfur dioxide degassing during Archean komatiite volcanism <b>Boswell Wing</b>	Rapid advance from hydrous to biotite-dehydration melting of a metasedimentary source in the formation of the Jiufteng Pluton, southern China: a result of basaltic underplating during slab foundering? <b>Huiqing Huang</b>
1630 – 1730	POSTER VIEWING & DRINKS - Banquet Room (Cash bar for beverages)					
1830 - 2300	CONVENTION DINNER - FORT SCRATCHLEY & CIVIC THEATRE					

## KEY:

Plenary speaker

Keynote speaker

Invited speaker

Poster session

PLENARY 4 - Civic Auditorium						
0815 - 0915	Developing understanding about Australia's past, present and future from research into the World Heritage fossil deposits of Riversleigh <b>Mike Archer</b>					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	04EVA ENVIRONMENT <i>Coal Seam Gas And Groundwater</i>	04EGA ENERGY <i>Coal – Advances In The Multiple Facets Of Coal Geosciences</i>	04ISCA INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geological Challenges On Major Engineering / Infrastructure Projects</i>	04REA RESOURCES <i>Geomicrobiology: the Nexus Between Geoengineering and Biotechnology</i>	04DPA DYNAMIC PLANET <i>Precambrian Geochronology</i>	04LEA LIVING EARTH <i>Advances In Geochronology - Shedding New Light On Earth Surface Processes And The Quaternary Environment</i>
0930 - 0950	The use of simple hydrochemical indicators to identify CSG groundwaters and delineate groundwater flow paths within and between aquifers <b>Daniel Des Owen</b>	A new look at an old fuel: Advanced technologies for evaluating mineral matter in coal <b>Colin Ward</b>	The use of multiple hypotheses and geological thinking in identifying and addressing geological problems on engineering projects <b>John Braybrooke</b>	From little things big things grow - what about gold nuggets? <b>Frank Reith</b>	Alec Trendall: an appreciation <b>Ian Tyler</b>	Reliable Earth-surface temperatures <b>Allan Chivas</b>
0950 - 1010	Developing an improved monitoring approach for springs potential impacted by coal seam gas development in the Surat cumulative management area, Queensland <b>Jon Fawcett</b>				Growing ancient Australia: Hafnium and neodymium isotope constraints from the Yilgarn and Pilbara Cratons <b>Tony Kemp</b>	04LEB LIVING EARTH <i>Recent Advances In The Evolution Of Life Through The Archean</i>
1010 - 1030	Hydrochemical characterisation of interconnectivity between Walloon Coal Measures and major aquifers in the Surat CMA <b>Dhananjay Singh</b>	The Application of using the HyLogger hyper-spectral data for a chemostratigraphy framework of the Rangal and Fort Cooper Coal Measures, Bowen Basin <b>Rhiannon Lord</b>	04ISCB INFRASTRUCTURE, SERVICE & COMMUNITY <i>Rock Art In Australia</i> Rock surface processes and mineralised coatings associated with rock art in northern Australia <b>Andrew Gleadow</b>	Characterisation of the microbial communities in two Bowen Basin coal mines, Queensland, Australia <b>Maija Raudsepp</b>	Smelly old lakes: facies dependence of extremely-depleted Neoproterozoic <sup>13</sup> C <sub>org</sub> values <b>David Flannery</b>	04LEC LIVING EARTH <i>General Contributions</i>
						A thriving Proterozoic biosphere at the rise of atmospheric oxygen: evidence from the c. 2.3 Ga Turee Creek Group, Western Australia <b>Martin Van Kranendonk</b>

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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1030 - 1100	MORNING TEA - Concert Hall & Banquet Room						
	POSTER VIEWING - Banquet Room						
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse	
	04EVB <b>ENVIRONMENT</b> <i>Coal Seam Gas And Groundwater</i>	04EGB <b>ENERGY</b> <i>Coal – Advances In The Multiple Facets Of Coal Geosciences</i>	04ISCC <b>INFRASTRUCTURE, SERVICE &amp; COMMUNITY</b> <i>Developing Geological Models For Engineering Projects</i>	04REB <b>RESOURCES</b> <i>Geomicrobiology: the Nexus Between Geoengineering and Biotechnology</i>	04DPB <b>DYNAMIC PLANET</b> <i>Precambrian Geochronology</i>	04LED <b>LIVING EARTH</b> <i>General Contribution</i>	
1100 – 1120	Improving local hydrogeological understanding at springs; informing the future assessment of risks to springs in the Surat Basin, Queensland <b>Steven Flook</b>	Formation of furnace deposits during coal combustion: production of synthetic magmas during coal utilisation <b>Robert Creelman</b>	Developing geological models for engineering projects <b>Tim Sullivan</b>	Biodegradation of thiocyanate by Burkholderia at neutral PH <b>Hong Phuc Vu</b>	Rapid Mesoproterozoic cooling and transpressional exhumation in the western Albany-Fraser Orogen, Western Australia <b>Elisabeth Scibiorski</b>	The nature and geological setting of the Red Crust - a widespread Lower Cambrian (Series 2) ferrimicrobialite horizon, west-central Flinders Ranges, South Australia <b>Nick Langsford</b>	
1120 – 1140	The role of the Office of Groundwater Impact Assessment in predicting and managing the impact of CSG water extraction in Queensland <b>Sanjeev Pandey</b>	The characterization of coal and coal utilization products using scanning electron microscopy image analysis <b>David French</b>	04ISCD <b>INFRASTRUCTURE, SERVICE &amp; COMMUNITY</b> <i>Rock Art In Australia</i>	04REC <b>RESOURCES</b> <i>Geological Mapping: Its Power And Its Future</i>	Formation and alteration history of detrital chromites from Jack Hills sediments, Western Australia <b>Svetlana Tessalina</b>	Severe selenium depletion in the oceans in the Phanerozoic as a plausible factor in three major mass extinction events <b>John Long</b>	
1140 – 1200		Study of mineral matter in coal from the late Permian Bowen Basin by Qemscan and optical microscopy <b>Sandra Rodrigues</b>		The digital era in geology: how to make the most of it – from field work to databases, to finding new mineral deposits <b>John Greenfield</b>	Age constraints from the Rocky Cape Group: putting Tasmania on the Mesoproterozoic map <b>Jacqueline Halpin</b>	Similarities between several major extinctions and preservation of life: biomolecules to geomolecules: an interdisciplinary approach <b>Kliti Grice</b>	
			Kimberley rock art paints - archaeological implications of geochemistry and mineralogy <b>Jillian Huntley</b>	The contribution of 'manual' and 'digital' geological mapping strategies in mine-scale structural analysis: an example from Hill End, NSW <b>Colin Wilkins</b>			

<b>KEY:</b>	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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1200 – 1220	Environmental tracer measurements along north-south transects in the Hutton Sandstone <b>Axel Suckow</b>	Detailed profiling of inorganic elements in coal seams using core scanning XRF techniques <b>Colin Ward</b>	Petroglyph monitoring on the Burrup Peninsula - Part 1 <b>Tracey Markley</b>	Towards automatic geological map legends: GSWA's explanatory notes reporting system <b>Angela Riganti</b>	U-Pb systematics of zircon from the Acraman impact structure <b>Eric Tohver</b>	
1220 – 1320	LUNCH - Concert Hall & Banquet Room					
	POSTER VIEWING - Banquet Room					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	04EVC ENVIRONMENT <i>Coal Seam Gas And Groundwater</i>	04EGC ENERGY <i>Coal Seam Gas – Insights Into A Rapidly Expanding Resource And Industry</i>	04ISCE INFRASTRUCTURE, SERVICE & COMMUNITY <i>Rock Art In Australia</i>	04RED RESOURCES <i>Geological Mapping: Its Power And Its Future</i>	04DPC DYNAMIC PLANET <i>Plate Kinematics And Dynamics</i>	04LEE LIVING EARTH <i>General Contribution</i>
1320 – 1340	Hydrochemical and isotopic fingerprinting of the Walloon Coal Measures and adjacent aquifers in the Clarence-Moreton and eastern Surat basins in southeast Queensland <b>Matthias Raiber</b>	Populating the container-approaches to characterising the Walloon Subgroup and their coal measures in the Surat Basin <b>Joan Esterle</b>		The importance of regolith mapping and regolith science for understanding South Australia's geology from cover to bedrock - the way forward <b>Carmen Krapf</b>	Are subduction zones inherently weak? <b>Joao Duarte</b>	An Antipodean Palaeospondylus? <b>Carole Burrow</b>
1340 – 1400	04EVD ENVIRONMENT <i>General Contributions</i>	04ISCF INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geoscience Education: The Evolving Role Of Geoscience Outreach And Education</i>		Tectonic geomorphology mapping and analysis of the Lower Darling Valley and Northern Murray Basin, N.S.W.: new insights into hydrological and palaeo-hydrological processes, with implications for exploration sampling strategies <b>Ken Lawrie</b>	Quantifying the energy dissipation of overriding plate deformation in three-dimensional subduction models <b>Zhihao Chen</b>	
	Rare earth and other element patterns in the soils of Cyprus <b>David Cohen</b>	The Mars Lab - a context for Earth Sciences education <b>Craig Browne</b>				The utility of survivor taxa for microvertebrate biostratigraphy and chemostratigraphy in Devonian and Carboniferous sections, Canning Basin Western Australia <b>Kate Trinajstić</b>

KEY:	Plenary speaker	Keynote speaker	Invited speaker	Poster session
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1400 – 1420	04EVE ENVIRONMENT <i>Understanding Australia's Coastal Environment</i>	Estimation of volumetric fraction of coal in the stack of coal seams from seismic anisotropy parameters: Feasibility study <b>Roman Pevzner</b>	Landscapes around Canberra - a focus for geoscience education <b>Douglas Finlayson</b>	Regional AEM surveys benefit mineral exploration, geological mapping and groundwater resource management <b>Ian Roach</b>	Early Cenozoic Australian plate motion changes linked to New Guinea subduction zone <b>Wouter Schellart</b>	04LEF LIVING EARTH <i>The Australian Neogene: Prelude To The Present</i>
	Conceptual and actual changes of coastal dunes due to sea level and climate change <b>Patrick Hesp</b>	Differential wettability to CO <sub>2</sub> for sub-bituminous and bituminous coals: effect on CO <sub>2</sub> storage and migration in coal <b>Kaydy Pinetown</b>	Improving student engagement in the Earth Sciences using Minecraft <b>Steven McClean</b>	Evaluation of digital field mapping tools -the future is here <b>Stuart Smith</b>	Reconstructing ancient ocean basins and evolving plate boundary configurations - a key to understanding solid Earth evolution <b>Dietmar Müller</b>	A fluvial approach to constraining Neogene surface uplift in south Western Australia <b>Nicolas Barnett-Moore</b>
1420 – 1440						
1440 – 1510	AFTERNOON TEA - Concert Hall & Banquet Room					
	POSTER VIEWING - Banquet Room					
	Cummings Room	Mulubinba Room	Newcastle Room	Hunter Room	Civic Auditorium	Civic Playhouse
	04EVF ENVIRONMENT <i>Understanding Australia's Coastal Environment</i> <i>Chair: James Goff &amp;</i>	04EGD ENERGY <i>Coal Seam Gas – Insights Into A Rapidly Expanding Resource And Industry</i>	04ISCG INFRASTRUCTURE, SERVICE & COMMUNITY <i>Geoscience Education: The Evolving Role Of Geoscience Outreach And Education</i>	04REE RESOURCES <i>Tectonics And Metallogeny In The Late Archaean</i>	04DPD DYNAMIC PLANET <i>Archaean &amp; Proterozoic Gondwana</i>	04LEG LIVING EARTH <i>General Contributions</i>
1510 – 1530	The comprehensive Australian tsunami database - just when you thought it was safe to go back in the water <b>James Goff</b>	Sensitivity of reservoir parameters to coal type and rank, examples from Permian age coal, Bowen Basin, Australia <b>Anastasia Dmyterko</b>	The inaugural Australian earth and environmental science Olympiad: an Australian science innovations initiative <b>Greg McNamara</b>	Formation of horizontally layered Archean crust: examples from the Pilbara, Kaapvaal, and Yilgarn Cratons <b>Martin Van Kranendonk</b>	When did the WAC whack the NAC? Docking of the West and North Australian cratons <b>David Maidment</b>	Miocene basalt, tectonics, and evolution of Murrumbidgee River drainage of the Burrijuick-Jugiong area, southern NSW highlands <b>Max Brown</b>

## KEY:

Plenary speaker

Keynote speaker

Invited speaker

Poster session

<b>1530 – 1550</b>	Estimating the inundation limits of small historical tsunamis <b>Karina Judd</b>	<b>04EGE ENERGY</b> <i>Petroleum Reservoir Characterisation And Modelling – Towards Booking Accurate Reserves</i>	Immersive digital visualisation of geological exposures - a vision for a digital atlas of Australian geology <b>Michael Roach</b>		A mesoarchaean terrane boundary in the southern pilbara craton? <b>Ashlie Coates</b>	Cemented in time: formation of the 20,000 year old Willandra fossil trackway <b>Ian Graham</b>
		Next generation modelling of rift basins and continental margins <b>Dietmar Müller</b>				
<b>1550 – 1610</b>	Holocene record of long- and short-term environmental changes in a coastal wetland, New Zealand <b>Catherine Chague-Goff</b>	Coal contribution to oil and gas accumulations in the Bonaparte and Gippsland Basin: new insights from molecular and bulk kinetic data <b>Soumaya Abbassi</b>	Geoscience education for a changing world: the ESWA example <b>Joanne Watkins</b>	Archean and esites in the East Yilgarn Large Igneous Province, Australia: the case for their origin by plume/crust interaction <b>Steve Barnes</b>	Sedimentation synchronous with ~ 1590 Ma felsic and mafic volcanism in the Gawler Range Volcanics at Roopena, NE Eyre Peninsula, South Australia <b>Stacey McAvaney</b>	Palyno-assemblages indicative of sclerophyllous and xeromorphic plant communities in the Late Eocene of southern Western Australia <b>Charlotte Mack</b>
<b>1610 – 1630</b>	The 'Lake Mannum' Muds: a lacustrine origin for the lower Murray River gorge's uppermost valley fill <b>Tom Hubble</b>	Facies architecture of a dryland river convex bar, Umbum Creek, Lake Eyre, Central Australia <b>Carmen Krapf</b>	Petroglyph Monitoring on the Burrup Peninsula - Part 2 <b>Deborah Lau</b>	Zircon multi-isotopic mapping-a potentially robust pathfinder to large-scale targeting for gold mineral systems <b>Yong-jun Lu</b>	Basin formation by orogenic collapse: zircon U-Pb-Hf isotope evidence from the Kimberley and Speewah Groups, northern Australia <b>Julie Hollis</b>	Rare earth element, Sr/Ca, and Mg/Ca ratios in larger benthic foraminifers from Heron Reef, Great Barrier Reef <b>Gregory Webb</b>
<b>1630 – 1730</b>	<b>POSTER VIEWING &amp; DRINKS - Banquet Room (Cash bar for beverages)</b>					

## KEY:

Plenary speaker

Keynote speaker

Invited speaker

Poster session



# POSTERS

Located in the Banquet Room (Ground Floor, City Hall)

Ordered by day and theme

MONDAY 7 JULY			
NUMBER	PRESENTER		POSTER TITLE
01DP-P01	KEVIN	MCCUE	AUSTRALIAN EARTHQUAKES: WHEN, WHERE, WHY?
01DP-P02	GARY	GIBSON	EARTHQUAKE HAZARD IN AUSTRALIA AND THE NEED TO UNDERSTAND TECTONIC PROCESSES
01DP-P03	MICHAEL	TETLEY	PALAEOMAGNETICS OF THE PALAEOZOIC LACHLAN OROGEN: IMPLICATIONS FOR ITS TECTONIC EVOLUTION AND THE EXISTENCE OF AN OROCLINE
01DP-P04	DAVID	BOUTELIER	BUCKLING OF RIBBON CONTINENTS AND MAGMATIC ARCS: RESULTS FROM ANALOGUE MODELLING EXPERIMENTS
01DP-P05	IAN	TYLER	TECTONIC LINKS BETWEEN PROTEROZOIC SEDIMENTARY CYCLES, BASIN FORMATION AND MAGMATISM IN THE ALBANY- FRASER OROGEN, WESTERN AUSTRALIA
01DP-P07	KLAUS	GESSNER	WHAT DOES THE DEEP CRUSTAL STRUCTURE OF THE YILGARN CRATON TELL US ABOUT MESOARCHEAN GEODYNAMICS?
01DP-P08	REDDY	TALUSANI	PETROGENESIS OF GABBRODIORITE-DIORITE-GRANODIORITE INTRUSION FROM THE MAHAKOSHAL GREENSTONE BELT, CENTRAL INDIA
01DP-P09	SIQI	ZHANG	THE EVOLUTION OF EARLY MARS: DOES MOBILE-LID EXIST IN ITS EARLY AGE?
01DP-P10	JONATHON	WASILIEV	MODELLING PLANETARY INTERIORS IN ASPECT: VISCOSITY, VOLATILES AND VARYING MASS.
01DP-P11	HELEN	BRAND	MODELLING GEOLOGICAL PROCESSES ON ICY SATELLITES
01DP-P12	HUIQING	HUANG	LA-ICP-MS ZIRCON AND TITANITE U-PB DATING OF THE MOONBI GRANITE AND THE AGE OF MOVEMENT ON THE PEEL-MANNING FAULT SYSTEM, SOUTHERN NEW ENGLAND OROGEN
01DP-P13	HARRISON	ATTON	EPISODIC CRUSTAL GROWTH PATTERNS IN THE LACHLAN OROGEN: WHY DOES MAGMATISM SWITCH OFF IN THE MIDDLE-LATE DEVONIAN?
01DP-P14	RYAN	MANTON	RELATIONSHIPS BETWEEN THE CAMBRIAN OPHIOLITIC WERAERAI AND DEVONIAN ISLAND ARC GAMILAROI TERRANES AT BARRY STATION, SOUTHERN NEW ENGLAND OROGEN, N.S.W., AUSTRALIA.
01DP-P15	DAVID	DURNEY	GEOLOGICAL EVIDENCE FOR MULTIPLE THERMAL EVENTS IN THE POST-INTRUSION HISTORY OF A CIRCUM-PACIFIC TYPE GRANITE, LFB, NSW
01DP-P16	LIANN	DEYSSING	CONTROLS ON MINERALISATION AND ARCHITECTURE OF THE SOUTHERN GOULBURN BASIN
01DP-P17	LORRAINE	CAMPBELL	MAPPING NYNGAN-BOURKE-COBAR - A REGIONAL APPROACH
01DP-P18	SARAH	KACHOVICH	SIGNIFICANCE OF RADIOLARIAN BIOSTRATIGRAPHY OF THE SOUTHERN NEW ENGLAND OROGEN, NEW SOUTH WALES
01DP-P19	DOMINIC	BROWN	NEW ISOTOPIC DATA FROM THOMSON OROGEN BASEMENT CORES: A POSSIBLE LINK WITH THE CENTRALIAN SUPERBASIN.
01DP-P20	PATRICK	CARR	PEEKING UNDER THE COVERS; UNDERCOVER GEOLOGY OF THE THOMSON OROGEN
01EG-P01	MICHAEL	DELLO-IACOVO	HEAT FLOW IN SOUTHERN AUSTRALIA: IMPLICATIONS FOR GEOTHERMAL ENERGY, RADIOGENIC DEPOSITS AND LITHOSPHERIC MAPPING
01EG-P02	JANE	HODGKINSON	RENEWABLE ENERGIES: THE MAGNITUDE OF THE PROBLEM
01EG-P03	SOPHIA	BRATENKOV	PRELIMINARY RESULTS ON THE ORGANIC COMPOSITION AND THERMAL MATURITY OF THE CARBONIFEROUS NAMOI FORMATION, NORTHERN NSW, AUSTRALIA: A POSSIBLE SHALE GAS PROSPECT?

01EG-P04	MICAELA	GRIGORESCU	GAMMA-RAY RESPONSE AND TOC CONCENTRATIONS WITH RESPECT TO MINERALOGICAL COMPOSITION, TOOLEBUC FORMATION, WESTERN QUEENSLAND
01EV-P02	DIONI	CENDON	'AGE', RECHARGE RATES AND CONNECTIVITY OF GROUNDWATER IN DEEPER AQUIFERS OF THE SYDNEY BASIN
01EV-P03	MOHAMMADREZA	KESHAVARZI	UNDERSTANDING RIVER - GROUNDWATER INTERACTIONS IN A KARST SYSTEM, WELLINGTON, NSW
01EV-P04	GRAHAM	HEINSON	GEOPHYSICAL IMAGING OF GREAT ARTESIAN BASIN MOUND SPRINGS
01EV-P05	ELLEN	KWANTES	ASSESSMENT OF THE HYDRAULIC CONNECTION BETWEEN GROUNDWATER AND SURFACE WATER USING LONG-TERM AQUIFER PUMPING TESTS
01EV-P06	KEN	LAWRIE	HYDROGEOPHYSICAL DATA ACQUISITION STRATEGIES FOR NEAR-SURFACE HYDROGEOLOGICAL INVESTIGATIONS IN THE AUSTRALIAN LANDSCAPE CONTEXT
01EV-P07	MICHAEL	SHORT	CONSTRAINING HYDROCHEMICAL PATHWAYS IN A SMALL INTERNALLY DRAINING BASIN (LAKE GEORGE BASIN, NSW) USING ISOTOPES OF THE WATER MOLECULE
01EV-P08	STEWART	FALLON	MULTI-ISOTOPE ANALYSIS COUPLED TO RADIOCARBON MEASUREMENTS
01EV-P09	CHRIS	WARING	HOW WEATHER AND CLIMATE INFLUENCES SPELEOTHEM GROWTH AND PALAEO-CLIMATE ISOTOPIC RECORDS
01EV-P11	JOHN	TRIAANTAFILIS	SCOPE TO PREDICT SOIL PROPERTIES AT FIELD SCALE FROM SMALL SAMPLES USING PROXIMALLY SENSED $\gamma$ -RAY SPECTROMETER AND EM INDUCTION DATA
01EV-P12	EMMA	COHEN	USE OF FIELD-PORTABLE XRF ANALYSIS OF VEGETATION FOR EXPLORATION AND ENVIRONMENTAL GEOCHEMISTRY
01EV-P13	KARINA	JUDD	SURFACE SOIL SURVEY IN AN ARCHAEOLOGICAL CONTEXT: THE KAZANLAK GEOSCIENCE PROJECT, BULGARIA
01EV-P14	SANJEEV KUMAR	JHA	METHODS FOR ADDRESSING NONSTATIONARITY IN CLIMATE SCIENCE, SURFACE HYDROLOGY, AND GEOPHYSICS
01EV-P15	HELEN	BRAND	THERMAL EXPANSION OF DEUTERATED MONOCLINIC NATROJAROSITE: A COMBINED TIME-OF-FLIGHT NEUTRON AND SYNCHROTRON POWDER DIFFRACTION STUDY
01EV-P16	KONSTANTINOS	KOTZAKOULAKIS	BIOAVAILABILITY AND FATE OF TOXIC AROMATIC HYDROCARBONS IN FUEL SPILLS IN THE ANTARCTIC MARINE ENVIRONMENT
01EV-P17	RANJITH	SUBASINGHE	MAPPING PARTICLE-SIZE FRACTIONS (PSFS) AS A COMPOSITION
01EV-P18	FERNANDO ACACIO	MONTEIRO SANTOS	SALINITY MAPPING WITH DEPTH USING EM SIGNAL DATA AND INVERSION SOFTWARE
01RE-P01	EMMA	COHEN	WHERE HAS ALL THE COBALT GONE? REGOLITH GEOCHEMISTRY OF COBALTFEROUS PYRITE DEPOSITS AT BROKEN HILL, NSW
01RE-P02	CLAIRE	ORLOV	NEW INSIGHTS INTO THE MINERAL DEPOSITS OF THE MOLE RIVER REGION, NE NSW
01RE-P03	MIKE	CURTIS	MINERAL INCLUSIONS IN RUTILE AND MAGNETITE
01RE-P04	ANDREW	MERDITH	TOWARDS A PREDICTIVE MODEL FOR OPAL EXPLORATION USING A SPATIO-TEMPORAL DATA MINING APPROACH
01RE-P05	JAMIE	LAIRD	RAPID TRACE ELEMENT MAPPING WITH PIXE-MAIA ON THE CSIRO NUCLEAR MICROPROBE
01RE-P06	WALID	SALAMA	SIGNIFICANCE OF SILCRETE FOR GEOCHEMICAL EXPLORATION: INSIGHTS FROM THE ALBANY-FRASER OROGEN MARGIN, WESTERN AUSTRALIA
01RE-P09	MIKHAIL	GELMAN	SIBERIAN NORTH-EAST AND WESTERN AUSTRALIA: COMPARISONS BETWEEN MAIN GOLD-BEARING AREAS IS A FEASIBLE WAY TO NEW CONCLUSIONS IN THE GOLD METALLOGENY
01RE-P10	ALEXANDR	BUDYAK	GEOCHEMICAL FEATURES OF GOLD ORE DEPOSITS OF BLACK SHALE TYPE EXEMPLIFIED BY SUKHOY LOG AND GOLETS VYSOCHAISHYI DEPOSITS

01RE-P11	SIYU	HU	CARBONACEOUS MATERIALS DISTAL TO MACRAES GOLD DEPOSIT, NEW ZEALAND
<b>TUESDAY 8 JULY</b>			
02DP-P01	STIJN	GLORIE	EPISODES OF RAPID EXHUMATION FOCUSSED IN CENTRAL ASIAN FAULT ZONES WITHIN THE TIEN SHAN, ALTAI AND SAYAN
02DP-P02	IAN	JACKSON	THE ELASTIC-ANELASTIC TRANSITION IN OLIVINE AT HIGH TEMPERATURE AND ITS SEISMOLOGICAL IMPLICATIONS
02DP-P03	SONG	LU	THERMOTECTONIC EVOLUTION OF THE SOUTHWESTERN YILGARN CRATON, WESTERN AUSTRALIA
02DP-P04	CHARLOTTE M	ALLEN	CONTRASTING DETRITAL RUTILE AND ZIRCON AGE SPECTRA FROM AN ACTIVE RIVER SAND EXAMPLE, KLAMATH RIVER, CALIFORNIA
02DP-P05	SAMUEL	BOONE	EVALUATION OF AN INTRACRATONIC APATITE FISSION TRACK ANOMALY IN THE GAWLER CRATON
02DP-P06	SHAHID	RAMZAN	TOWARDS A BETTER UNDERSTANDING OF THE RHEOLOGY OF SERPENTINE BEARING ROCKS IN SUBDUCTING SLABS
02DP-P07	EMMA	JOHNSON	U-PB DATING OF RUTILE ON A LOCAL AND GLOBAL GEOLOGIC SCALE
02DP-P08	NOREEN	EVANS	COMPARISON OF ZIRCON U-TH/HE AND RADIATION DAMAGE AGES FOR STANDARD ZIRCONS
02DP-P09	NICOLAS	FLAMENT	CONTINENTAL EMERGENCE IN THE LATE ARCHEAN RECONCILES EARLY AND LATE CONTINENTAL GROWTH MODELS
02DP-P10	JARRED	LLOYD	TESTING THE EXISTENCE AND EVOLUTION OF THE CEDUNA RIVER USING ZIRCON U/PB AGE AND LU/HF ISOTOPE DATA
02DP-P11	SANDRA	PIAZOLO	HOW MELT MOVES THROUGH THE CRUST: EVIDENCE FOR REACTIVE DIFFUSE POROUS MELT FLOW UNDER STATIC CONDITIONS IN THE HOT LOWER CONTINENTAL CRUST.
02EG-P01	JULIE	PEARCE	SULPHATE FORMATION AS A POTENTIAL CO <sub>2</sub> STORAGE SELF-SEALING MECHANISM IN WET SUPERCRITICAL CO <sub>2</sub> -CAPROCK REACTIONS.
02EG-P02	SAMUEL	MATTHEWS	TRACKING OF CO <sub>2</sub> GEOSEQUESTRATION USING DOWNHOLE GRAVITY GRADIOMETRY, OTWAY BASIN, VIC.
02EV-P01	LIZ	WEBB	HYDROGEOLOGY BASELINE DATA- GETTING IT RIGHT
02EV-P02	STUART	HANKIN	DEEP METEORIC LEACHING AND ITS IMPLICATIONS FOR GROUNDWATER RESIDENCE TIME IN A DISSECTED HAWKESBURY SANDSTONE PLATEAU (KULNURA-MANGROVE MOUNTAIN AQUIFER, NSW, AUSTRALIA)
02EV-P03	GARETH	DAVIES	MODELLING COASTAL SALINITY USING A DUALEM-421 AND INVERSION SOFTWARE
02EV-P04	NUR SYAHIZA	ZAINUDDIN	ARSENIC RELEASE AND MOBILITY AND ITS RELATION TO ORGANIC SOURCE REACTIVITY AND QUALITY
02EV-P05	ALICE	WALKER	SUBMARINE GROUNDWATER DISCHARGE AND ITS CORRELATIONS TO SEAGRASS MEADOW DISTRIBUTIONS IN SALAMANDER BAY (AUSTRALIA)
02EV-P07	RITA	SUSILAWATI	METHANOGEN PROPENSITY OF SELECTED LOW RANK COAL FROM AUSTRALIA, INDONESIA AND JAPAN
02EV-P09	MARTA	VEGA FAUNDEZ	ROCK MAGNETIC SIGNATURE OF GAS HYDRATE IN DEEP MARINE SEDIMENTS OF THE PERUVIAN MARGIN
02EV-P10	SEAN	JOHNSON	IODP EXPEDITION 347 (BALTIC SEA): A HIGH-RESOLUTION TEST OF THE PYRITE TRACE ELEMENT SEAWATER PROXY
02RE-P01	CLIVE	FOSS	THE AUSTRALIAN REMANENT ANOMALIES DATABASE - A RESOURCE FOR THE INVESTIGATION OF REGIONAL MAGNETIZATION EVENTS
02RE-P02	BOB	MUSGRAVE	REMANENCE ANOMALIES IN THE WESTERN TASMANIDES
02RE-P03	RAJAT	MAZUMDER	PALEOPROTEROZOIC SEDIMENTATION AND CONTEMPORARY BASIN TECTONICS IN THE LOWER WYLOO GROUP, WESTERN AUSTRALIA
02RE-P04	MARGARET	HAWKE	AGE CONSTRAINTS OF THE DEGRUSSA CU-AU-AG VOLCANIC HOSTED MASSIVE SULFIDE DEPOSIT AND ASSOCIATED MINERALISATION OF THE YERRIDA, BRYAH AND PADBURY BASINS, WESTERN AUSTRALIA.
02RE-P05	ELIZABETH	JAGODZINSKI	THE AGE OF MAGMATIC AND HYDROTHERMAL ZIRCON AT OLYMPIC DAM.

02RE-P06	YORAM	TEITLER	STYLES AND CONTROLS ON BIF-HOSTED IRON ORE IN ARCHEAN TERRANES, COMPARISON BETWEEN THE PILBARA AND YILGARN CRATONS
02RE-P07	RITIPURNA	DAS	RECONSTRUCTING THE FACIES ARCHITECTURE, PHYSICAL VOLCANIC PROCESS AND EMPLACEMENT OF THE HOST ROCK SUCCESSION OF THE ARCHEAN TEUTONIC BORE, JAGUAR AND BENTLEY VOLCANIC MASSIVE SULPHIDE DEPOSIT, YILGARN CRATON, WESTERN AUSTRALIA.
02RE-P08	JAMES	WARREN	THE STRUCTURAL STYLE OF A NEW GOLD DISCOVERY IN AN OLD GOLDFIELD: CASTLE HILL GOLD CAMP, YILGARN CRATON, WESTERN AUSTRALIA
02RE-P09	JOANNA	PARR	DO THE OCEANS PROVIDE A REALISTIC ALTERNATIVE MINERAL RESOURCE?
02RE-P10	FARID	KHORSHIDIAN	INVESTIGATING IRON MINERALIZATION IN CHOGHART AND CHADORMALU IRON DEPOSITS, BASED ON MINERALOGICAL AND GEOCHEMICAL CHARACTERISTICS OF APATITE IN BAFQ MINING DISTRICT, YAZD PROVINCE, IRAN.
02RE-P11	BRYCE	KELLY	IMPUTATION OF LEFT CENSORED GRADE DATA OF THE KULUMADAU EPITHERMAL GOLD DEPOSIT AND IMPLICATIONS FOR SUBSEQUENT MULTIVARIATE ANALYSIS
02RE-P12	JUNE	HILL	GEOCHEMICAL ZONATION AT MICRON- TO METRE-SCALE AT THE SUNRISE DAM GOLD MINE
02RE-P13	CARL	SPANDLER	THE PETROLOGY, GEOCHEMISTRY AND ORE GENESIS OF THE ALKALINE REE TOONGI DEPOSIT, DUBBO NSW
02RE-P14	MITCH	FURNASS	CONSTRAINING SOURCE AND DURATION OF TIN MINERALIZATION AT ARDLETHAN, NSW: AN EXAMPLE OF MULTI-MILLION YEAR TIME-SCALES FOR MAGMA-DRIVEN HYDROTHERMAL SYSTEMS FROM U/PB DATING OF CASSITERITE
02RE-P15	ALEXANDER	CRUDEN	ENTRAINMENT, ASCENT AND BACKFLOW OF SULFIDE LIQUIDS AND THE FORMATION OF MAGMATIC NI-CU-PGE SULFIDE DEPOSITS
02RE-P16	MARK	PEARCE	MICROSCALE CONTROLS ON GOLD DEPOSITION
02RE-P17	JAMIE	LAIRD	HIGH SENSITIVITY MAPPING OF MICRO-GALVANIC METAL TRAPPING JUNCTIONS IN MIXED SULFIDES USING MECHANICAL FREE SCANNING LASER MICROSCOPY AT CRYOGENIC TEMPERATURES
02RE-P18	PHIL	GILMORE	EXHALATIVE HORIZONS AND VOLCANIC-ASSOCIATED MASSIVE SULFIDE (VMS) DEPOSITS IN THE ORDOVICIAN GIRILAMBONE GROUP, NEW SOUTH WALES
02RE-P19	IAN	GRAHAM	GEOLOGY, MINERALISATION AND ALTERATION OF THE KULUMADAU EPITHERMAL DEPOSIT, WOODLARK ISLAND, PAPUA NEW GUINEA
02RE-P20	ROBERT	HEWSON	INTERPRETATION OF SILICATE MINERALOGY USING THE ASTER TIR SPECTRAL LIBRARY AND ASSOCIATED DATABASE
02RE-P21	SASHA	PONTUAL	INFRARED REFLECTANCE AND GEOCHEMICAL DATA: COMPLEMENTARY DATA SETS FOR EXPLORATION AND MINING APPLICATIONS
02RE-P22	RON	BERRY	NON-DESTRUCTIVE GEOMETALLURGICAL LOGGING FOR PROSPECT EVALUATION
02RE-P23	JUNE	HILL	USING GEOCHEMICAL DATA TO DISTINGUISH WASTE ROCK IN NUGGETY GOLD DEPOSITS, AN EXAMPLE FROM THE GIANT SUNRISE DAM DEPOSIT, WESTERN AUSTRALIA.
02RE-P24	LEANDRO	VOISIN	APPLICATION OF THE HYLOGGER 3 TO MINERAL AND METALLURGICAL RESIDUES
02RE-P25	BELINDA	SMITH	USING THE HYLOGGER IN MAPPING STRATIGRAPHIC BOUNDARIES IN SEDIMENTARY BASINS; EXAMPLES FROM THE MCARTHUR BASIN, NORTHERN TERRITORY.
02RE-P26	TONY	ROACHE	HYPERSPECTRAL IN THE DOMAINING OF RESOURCE MODELS
02RE-P27	GEORGINA	GORDON	LOGGING THE REGOLITH PROFILE OF COOPER PEDY, SOUTH AUSTRALIA



02RE-P28	ANDREW	JENKINS	MAPPING ALTERATION AND DELINEATING ORE SHOOTS WITH HYPERSPECTRAL CORE IMAGING AT THE SUNRISE DAM GOLD DEPOSIT
02RE-P30	SURAJ	GOPALAKRISHNAN	SPECTRAL PROFILING OF MINERALS IN THE ETHERIDGE PROVINCE, NORTH QUEENSLAND, USING HYPERSPECTRAL CORE LOGGING.
02RE-P31	SIMON	VAN DER WIELEN	REGIONAL 3D MINERAL MAPS FROM HYLOGGER DATA – EXAMPLES FROM THE EASTERN GAWLER CRATON IOCG PROVINCE
02RE-P32	CARSTEN	LAUKAMP	SKARN GANGUE MINERAL ASSEMBLAGE CHARACTERISATION USING SWIR-TIR-SPECTROSCOPY
02RE-P33	BRIDGET	AYLING	INTEGRATION OF HYLOGGING DATA WITH GEOCHEMICAL, WELL LOG AND BIOSTRATIGRAPHIC DATA IN THE GEORGINA BASIN, QUEENSLAND AND NORTHERN TERRITORY, AUSTRALIA
<b>WEDNESDAY 9 JULY</b>			
03DP-P02	IAN	JACKSON	THE FREQUENCY-DEPENDENT SEISMIC PROPERTIES OF CRACKED AND FLUID-SATURATED ROCKS: INSIGHTS FROM THE LABORATORY AND MODELLING
03DP-P03	ANGELA	LAY	TECTONIC SIGNIFICANCE OF PODIFORM CHROMITITES WITHIN THE MANATUTO DISTRICT, TIMOR LESTE
03DP-P05	ANDREA	GIULIANI	40AR/39AR DATING OF PHLOGOPITE AND AMPHIBOLE IN METASOMATISED MANTLE XENOLITHS: THE “CLOCK” CHRONOMETER OF MANTLE EVENTS
03DP-P06	WILLIAM	GRIFFIN	DIAMOND FLUIDS AT WORK – NANOSCALE INSIGHTS FROM POLYCRYSTALLINE DIAMOND AGGREGATES
03DP-P07	ASHTON	SOLTYS	CARBONATE METASOMATISM COEVAL WITH KIMBERLITE MAGMATISM IN THE LITHOSPHERIC MANTLE BENEATH KIMBERLEY (SOUTH AFRICA)
03DP-P08	ROMAIN	TILHAC	HOW MANTLE HETEROGENEITIES CONTROL SUPRA-SUBDUCTION METASOMATISM: CONSTRAINTS FROM THE CABO ORTEGAL COMPLEX, SPAIN
03DP-P09	YU	WANG	LAWSONITE ACTS AS A TRACE ELEMENT SPONGE IN SUBDUCTION ZONES OF THE ALPINE-HIMALAYAN OROGENIC BELT: EVIDENCE FROM TAVŞANLI BLUESCHIST (TURKEY)
03DP-P10	MICHELLE	COOPER	AUSTRALIAN MAFIC-ULTRAMAFIC MAGMATIC EVENTS: A GIS FRAMEWORK FOR SYSTEMS ANALYSIS
03DP-P11	RAUL	BRENS JNR	LITHIUM ISOTOPIC COMPOSITION OF THE TONGA-KERMADEC ARC AND ITS CONSTRAINTS ON SUBDUCTION RECYCLING
03EG-P02	CARMEN	KRAPF	FACIES ARCHITECTURE OF A DRYLAND RIVER CONVEX BAR, UMBUM CREEK, LAKE EYRE, CENTRAL AUSTRALIA
03EG-P03	GILBY	JEPSON	IN-SITU STRESS AND NATURAL NETWORKS IN THE CARNARVON BASIN, NORTH WEST SHELF, AUSTRALIA.
03EG-P04	ADAM	BAILEY	IN-SITU STRESSES OF THE CARNARVON BASIN, NWS, WESTERN AUSTRALIA
03EG-P05	EMMA	FLANNERY	ASSESSING THE SYNGENEITY AND INDIGENEITY OF HYDROCARBONS IN THE ~1.4 GA VELKERRI FORMATION, MCARTHUR BASIN, USING SLICE EXPERIMENTS
03EG-P06	ROMANA	DEW	STRATIGRAPHY OF DEFORMED PERMIAN CARBONATES REEFS, THAILAND
03EG-P07	SYEDA AREEBA	AYAZ	REGIONAL VARIATION IN STRATIGRAPHIC ARCHITECTURE OF FORT COOPER AND EQUIVALENT COAL MEASURES, BOWEN BASIN.
03EG-P08	GRANT	DAWSON	ORIGINS AND CONTROLS UPON CALCITE AND SULFIDE MINERALISATION OF COAL FRACTURES IN A SURAT BASIN COAL MINE
03EV-P01	LUCIENNE	MARTEL	IRRIGATION BORE WATER IN THE CONDAMINE CATCHMENT: BASELINING GROUNDWATER QUALITY AND ASSESSING PATHWAYS OF HYDRAULIC CONNECTIVITY
03EV-P03	WENDY	MCLEAN	HYDROGEOCHEMICAL CHANGES IN CSG PRODUCED WATERS DURING THE LIFE OF A GAS WELL - A ISOTOPE FORENSIC STUDY
03EV-P04	BRUCE	NAPIER	ASSESSING THE ROLE OF FAULTS AS POTENTIAL AQUIFER INTER-CONNECTIVITY PATHWAYS IN THE SOUTHERN RICHMOND RIVER CATCHMENT, NEW SOUTH WALES, AUSTRALIA.

03EV-P07	MARNIE	ATKINS	A BASELINE GROUNDWATER METHANE SURVEY IN THE RICHMOND RIVER CATCHMENT; A POTENTIAL COAL SEAM GAS EXPLORATION AREA.
03EV-P08	MATTHIAS	RAIBER	THREE-DIMENSIONAL GEOLOGICAL AND CONCEPTUAL MODELS AS A FRAMEWORK FOR NUMERICAL GROUNDWATER MODEL DEVELOPMENT: AN EXAMPLE FROM THE CLARENCE-MORETON BASIN
03EV-P09	CATHERINE	MOORE	PROBABILITIES OF APPORTIONED IMPACTS OF GROUNDWATER ABSTRACTIONS USING WAVELETS AND THEIR BASIS FUNCTIONS
03EV-P10	SREEKANTH	JANARDHANAN	INVERSION BASED UPSCALING OF GROUNDWATER MODELS FOR REGIONAL GROUNDWATER HEAD PREDICTION
03EV-P11	BEN	CAIRNS	REGIONAL GROUNDWATER MONITORING NETWORK FOR ASSESSMENT AND MANAGEMENT OF CUMULATIVE IMPACTS IN THE SURAT AND SOUTHERN BOWEN BASIN IN QUEENSLAND
03EV-P12	CHRIS	TURNADGE	OPTIMISATION OF OBSERVATION WELL NETWORKS TO BEST IDENTIFY CAUSES OF AQUIFER IMPACTS
03ISC-P01	ANDREAS	SCHAEFER	STATE-OF-THE-ART REVIEW OF EARTHQUAKE FORECASTING ALGORITHMS
03ISC-P02	HELEN	BRAND	TAKING IT TO THE LIMIT: IN SITU X-RAY POWDER DIFFRACTION AT THE AUSTRALIAN SYNCHROTRON
03ISC-P03	GREG	MCNAMARA	THE TEACHER EARTH SCIENCE EDUCATION PROGRAMME: 2008-2014: WHERE TO FROM HERE?
03ISC-P04	SAMANTHA	CLARKE	MORPHOLOGY OF AUSTRALIA'S EASTERN CONTINENTAL SLOPE AND RELATED TSUNAMI HAZARD
03RE-P01	EVANS ONOJASUN	OKAN	ON THE POSSIBILITY OF USING SEISMIC REFLECTION SURVEY TO DETECT COPPER GOLD DEPOSIT IN THE GAWLER CRATON
03RE-P02	IAN	ROACH	REGIONAL AEM SURVEYING FOR UNCOVER MAPPING
03RE-P03	MARTIN	HAND	HOT BODIES: EXPLORING FOR IOCGU DEPOSITS IN THE OLYMPIC DOMAIN, GAWLER CRATON, SOUTH AUSTRALIA
03RE-P04	MARTIN	HAND	HEAT FLOW IN THE NORTHERN OFFICER BASIN, CENTRAL AUSTRALIA
03RE-P05	ANDREW	MERDITH	TOWARDS AUSTRALIAN METALLOGENIC MAPS THROUGH SPACE AND TIME
03RE-P06	CLIVE	FOSS	THE ADVANTAGES OF A NATIONAL APPROACH TO MAPPING DEPTH BENEATH COVER FROM MAGNETIC FIELD INTERPRETATION
03RE-P07	IGNACIO	GONZALEZ-ALVAREZ	A GEOLOGICAL PERSPECTIVE ON AEM INTERPRETATION FOR MINERAL EXPLORATION IN A REGOLITH-DOMINATED TERRAIN: THE SE YILGARN CRATON MARGIN/ALBANY-FRASER OROGEN, WESTERN AUSTRALIA
03RE-P08	NITA	SEBASTIAN	RECEIVER-BASED PASSIVE SEISMIC PROBING OF THE AUSTRALASIAN LITHOSPHERE
03RE-P09	DERECKE	PALMER	IMAGING THE REGOLITH WITH FULL WAVEFORM REFRACTION SEISMOLOGY
03RE-P10	DAVID	LOVE	IMPROVED EARTHQUAKE MONITORING - ADELAIDE'S STORY
03RE-P11	HUGH	ANDERSON	FOURTH DIMENSIONAL MODELLING, A TOOL FOR 3D GEOLOGICAL MODEL VALIDATION
03RE-P12	HUGH	ANDERSON	GUIDELINES AND STRATEGIES FOR MODEL BUILDING AND INTERPRETATION IN 3D SPACE
<b>THURSDAY 10 JULY</b>			
04DP-P01	JULIE	HOLLIS	ZIRCON U-PB-HF-O ISOTOPE EVIDENCE SUGGESTS THAT MESOARCHEAN CRUST FORMATION DOMINATED EARLY GROWTH OF THE NORTH AUSTRALIA CRATON
04DP-P02	IRINA	TRETIAKOVA	ZIRCONS FROM YAKUTIAN KIMBERLITES REVEAL ARCHEAN CRUST UNDER THE EASTERN SIBERIAN CRATON
04DP-P03	HORST	ZWINGMANN	K-AR DATING OF FAULT GOUGE AND SLICKENSIDES TO RESOLVE THE PRECISE AGES OF LOW-GRADE BASIN INVERSION AND COAXIAL EVENTS DEFORMING PROTEROZOIC METASEDIMENTARY ROCKS.
04DP-P04	LINDA	IACCHERI	GEOCHEMICAL CHARACTERISATION OF GRANITIC ROCKS IN THE GRANITES-TANAMI OROGEN

04DP-P05	VINCENT	STRAK	EVOLUTION OF 3-D SUBDUCTION-INDUCED MANTLE FLOW AROUND THE LATERAL SLAB EDGES: INSIGHTS FROM ANALOGUE MODELS
04DP-P06	ZHIHAO	CHEN	OVERRIDING PLATE DEFORMATION IN DYNAMIC LABORATORY MODELS OF SUBDUCTION WITH VARIABLE FAR-FIELD KINEMATIC BOUNDARY CONDITIONS
04DP-P07	SALLY	WATSON	GEOCHEMICAL CONSTRAINTS ON THE SEAFLOOR SPREADING HISTORY BETWEEN AUSTRALIA AND INDIA
04DP-P08	MARAL	HOSSEINPOUR	TECTONIC EVOLUTION OF THE WESTERN TETHYS FROM JURASSIC TO PRESENT DAY COUPLING GEOLOGICAL AND GEOPHYSICAL DATA WITH MANTLE CONVECTION MODELS AND TOMOGRAPHY
04DP-P09	JOAO	DUARTE	SUPERCYCLES, WILSON CYCLES AND THE FUTURE OF THE EARTH OCEANS
04DP-P10	MERCEDES	BELICA	A PALEOMAGNETIC TEST OF THE COLUMBIA SUPERCONTINENT AT 1.88 GA; CONSTRAINTS FROM RADIATING MAFIC DYKE SWARMS IN THE DHARWAR CRATON, INDIA
04DP-P12	KARIN	ORTH	THE CARSON VOLCANICS: EVIDENCE FOR A BROAD, SHALLOW MARGINAL MARINE SETTING FOR A PALEOPROTEROZOIC LARGE IGNEOUS PROVINCE, NORTH WESTERN AUSTRALIA
04DP-P13	DAVID	STEVENSON	THE GRANITES-TANAMI OROGEN SUBSURFACE GEOMETRY AS REVEALED BY AN INTEGRATED POTENTIAL FIELD GEOPHYSICAL AND GEOLOGICAL STUDY
04DP-P15	JIA-URRN	LEE	DATING MICROSTRUCTURES IN THE GREATER HIMALAYA, NW INDIA
04DP-P15	KIERAN	MEANEY	STRATIGRAPHY AND GEOCHRONOLOGY OF THE BAROSSA COMPLEX, EASTERN GAWLER CRATON, SOUTH AUSTRALIA
04DP-P16	ROWAN	HANSBERRY	A SHALE DETACHMENT IN THAILAND: EVIDENCE OF BRITTLE DEFORMATION FROM STRUCTURAL OBSERVATIONS AND LABORATORY ANALYSIS
04DP-P17	ABBAS	BABAAHMADI	LATE MESOZOIC AND CENOZOIC WRENCH TECTONICS IN EASTERN AUSTRALIA: INSIGHTS FROM THE NORTH PINE FAULT SYSTEM (SOUTHEAST QUEENSLAND)
04DP-P18	ABBAS	BABAAHMADI	LATE CENOZOIC DEFORMATION IN THE EASTERN GONDWANA PASSIVE MARGIN: EVIDENCE FROM DEFORMED VOLCANIC ROCKS IN EASTERN AUSTRALIA
04DP-P19	LACHLAN	RICHARDS	BRITTLE VS DUCTILE DEFORMATION IN SALT DETACHMENTS: A STUDY FROM THE SALT RANGE, PAKISTAN
04DP-P21	CHENGXIN	JIANG	3D CRUSTAL STRUCTURE IN NORTH TIBET FROM AMBIENT NOISE TOMOGRAPHY: IMPLICATIONS FOR THE GROWTH OF THE TIBETAN PLATEAU
04DP-P22	JOSIP	STIPCEVIC	MULTI-ARRAY, MULTI-FREQUENCY PROBING OF THE EARTH'S HETEROGENEITY
04DP-P23	BEN	MATHER	3D NUMERICAL MODELLING OF THE STEADY-STATE TEMPERATURE DISTRIBUTION IN VICTORIAN CRUST, CONSTRAINED BY SURFACE HEAT FLOW DATA
04DP-P24	NICK	MORTIMER	HIGH-LEVEL LITHOSTRATIGRAPHIC SCHEME FOR NEW ZEALAND ROCKS
04DP-P25	LUKE	MONDY	A DIGITAL WORKBENCH FOR UNDERSTANDING THE STRATIGRAPHIC EVOLUTION OF RIFT BASINS AND CONTINENTAL MARGINS
04DP-P26	ROBERT	THORNE	FERRUGINOUS PISOLITHS IN THE EXTENSIVE PALEOCHANNELS OF THE YILGARN CRATON, AUSTRALIA; IMPLICATIONS FOR THE PALEOENVIRONMENT
04DP-P27	ADAM	NORDSVAN	DEPOSITIONAL ENVIRONMENTS AND STRATIGRAPHY OF AN EXTENSIONAL SETTING: MYALL TROUGH, SOUTH-EASTERN AUSTRALIA
04DP-P28	BENJAMIN	COOKE	A THERMOBAROMETRICAL AND PETROLOGICAL STUDY OF A CUMULATE XENOLITH SUITE FROM AN OXIDISED, VOLATILE-RICH ARC VOLCANO
04DP-P29	FUN	MEEUWS	UNVEILING IGNEOUS ACTIVITY ALONG AUSTRALIA'S SOUTH-EASTERN CONTINENTAL MARGIN

04EG-P02	NATALYA	TAYLOR	HYPERSPECTRAL CORESCAN APPLICATIONS FOR COAL
04EG-P03	DAVID	COHEN	MAPPING BURIED STRUCTURES USING IN SITU MEASUREMENTS OF SOIL HELIUM
04EG-P05	EMANUELLE	FRERY	MULTISCALE GEOMODELLING IN THE COAL-BEARING GLOUCESTER BASIN, NSW
04EV-P01	LEN	MARTIN	COASTAL WETLANDS REVEAL A NON-SYNCHRONOUS ISLAND RESPONSE TO SEA-LEVEL CHANGE AND A PALAEOSTORM RECORD FROM 5.5 KYR TO PRESENT
04EV-P02	CLAIRE	KAIN	ASSESSING TOPOGRAPHIC CONTROL ON SEDIMENT DEPOSITION PATTERNS IN COASTAL DEPOSITS
04EV-P03	BENJAMIN	VAN LEEUWEN	MORPHOLOGICAL CONTROLS ON RIP CURRENT ESCAPE STRATEGIES
04EV-P04	STACY	OON	A RECORD OF HOLOCENE SEA LEVEL CHANGE FROM BEACH RIDGES AT RED BEACH, FAR NORTH QUEENSLAND, AUSTRALIA
04EV-P05	LILIANA	STOIAN	PALYNOLOGICAL EVIDENCE FOR THE EXTENSION OF MARINE INFLUENCE IN THE SOUTHERN FLINDERS RANGES, SOUTH AUSTRALIA, DURING LATE MIOCENE – EARLY PLIOCENE TIME
04EV-P07	VANESSA	WONG	MAPPING SOIL SALINITY AND PH ACROSS AN ESTUARINE AND ALLUVIAL PLAIN
04LE-P01	MAGDY	EL-HEDENY	TAPHONOMY AND PALAEOECOLOGY OF CENOMANIAN OYSTERS FROM THE MUSABAA SALAMA AREA, SOUTH WESTERN SINAI, EGYPT
04LE-P02	TARA	DJOKIC	THE RISE AND FALL OF LIFE IN THE C. 3.5 GA DRESSER FORMATION, NORTH POLE DOME, PILBARA CRATON, WESTERN AUSTRALIA
04LE-P03	EDWIN	WILLEY	K(C)ALAMINA GORGE ODDITIES REVISITED
04RE-P01	SVETLANA	TESSALINA	RE-OS AGE FOR ARCHEAN MOLYBDENITE AND 40AR/39AR DATING OF SERICITE FROM GOLD PROSPECTS IN THE YAMARNA TERRANE, FAR EASTERN PART OF YILGARN CRATON, WESTERN AUSTRALIA
04RE-P02	STEVEN	HOLLIS	PROSPECTIVITY ANALYSIS OF FELSIC VOLCANIC ROCKS FROM THE ARCHEAN YILGARN CRATON, WESTERN AUSTRALIA: IMPLICATIONS FOR VOLCANIC-HOSTED MASSIVE SULFIDE (VHMS) MINERALIZATION
04RE-P02.01	JANE	THORNE	MAGMATIC NI-PGE MINERAL SYSTEMS FRAMEWORK FOR AUSTRALIA: MAGMATIC EVENTS AND THEIR PROSPECTIVITY
04RE-P04	GLEN	PHILLIPS	SEAMLESS GEOLOGY OF NEW SOUTH WALES
04RE-P05	GREGORY	O'CONNELL	THE AUSTRALIAN STRATIGRAPHIC UNITS DATABASE – MAINTAINING QUALITY DATA BEHIND THE SCENES
04RE-P06	STUART	SMITH	GUIDING FIELD MAPPING WITH INTEGRATED DIGITAL MAPPING AND MODEL BUILDING
04RE-P08	EMMA	GAGEN	BIOGEOCHEMICAL CYCLING OF IRON IN CANGA ECOSYSTEMS
04RE-P09	JEREMIAH	SHUSTER	THE BIOGEOCHEMICAL CYCLING OF GOLD: IMPLICATIONS FOR SUPERGENE PROCESSES
04RE-P10	IAN	PRINGLE	DID BACTERIA IN AN ANOXIC BRINE BASIN FORM PALEOPROTEROZOIC COBALT-PYRITE DEPOSITS NEAR BROKEN HILL?
CPO-P01	SARAH	EDWARDS	GEODYNAMIC MODELS OF TETHYAN STYLE OPHIOLITE OBDUCTION
CPO-P02	DAVID	LINDLEY	STRUCTURES ALONG THE SOUTHERN BOUNDARY OF THE PAPUAN ULTRAMAFIC BELT, EASTERN PAPUA
CPO-P03	BERNADETTE	PHU	FILLING THE GAP: THE TECTONIC SIGNIFICANCE OF THE AYR CONGLOMERATE IN THE NEW ENGLAND OROGEN
CPO-P04	NICKY	WRIGHT	REVISION OF RELATIVE PACIFIC PLATE MOTIONS AND IMPLICATIONS FOR THE HAWAIIAN-EMPEROR BEND
SBS-P01	COLIN	COXHEAD	GEOLOGICAL CHALLENGES AT ROCGLLEN OPEN CUT COAL MINE
SBS-P02	RUSSELL	RIGBY	COAL EXPLORATION REPORTING - 1830 STYLE



# EXHIBITION

The organising committee is pleased to be able to present, in association with this year's convention, an exhibition of technology and services available to the Earth Sciences sector. It is located in the Concert Hall on the first floor of Newcastle City Hall.

## EXHIBITORS

### Geoscience Australia



**Australian Government**  
**Geoscience Australia**

Geoscience Australia is Australia's national geoscience agency and exists to apply geoscience to Australia's most important challenges. Geoscience Australia provides geoscientific advice and information to the Australian Government to support it to deliver its priorities. The Agency also provides information to industry and other stakeholders where it supports the achievement of Australian Government objectives.

Contact: Jeanette Holland or Vicki Pow  
Phone: 02 6249 9111  
Email: Jeanette.holland@ga.gov.au or Vicki.pow@ga.gov.au  
Website: www.ga.gov.au

### The Geological Survey of Queensland



The Geological Survey of Queensland (GSQ) within the department of Natural Resources & Mines, acquires, interprets, provides and promotes geoscience and resource information for the state of Queensland. This information is used to improve understanding of the states geology and the mineral & energy resource potential.

Contact: Sarah Sargent or Mark Thornton  
Phone: 07 3035 5235  
Mobile: 0408 075 816  
Email: sarah.sargent@dnrm.qld.gov.au

### IODP



**Australian and New Zealand**  
**IODP Consortium**

ANZIC is the Australian and New Zealand International Ocean Discovery Program Consortium, part of the 27 nations engaged in deploying state-of-the-art ocean drilling technologies for the sole purpose of research. IODP advances the scientific understanding of the Earth and unifies the international research community to explore Earth's last frontiers. ANZIC now incorporates 23 Australian and New Zealand research organisations including universities and government agencies. Membership of ANZIC allows scientists access to IODP drilling activities, planning and governance panels. IODP workhorse, the JOIDES Resolution will be operating in the region through until 2018.

Researchers at member institutions are encouraged to consider the opportunities available; more information is available at [www.iodp.org.au](http://www.iodp.org.au).

Contact: Catherine Beasley  
Phone: 02 6125 5131  
Email: [iodpadministrator@anu.au](mailto:iodpadministrator@anu.au)  
Website: [www.iodp.org.au](http://www.iodp.org.au)

### The Rafter Radiocarbon

**GNS Science**  
**Rafter Radiocarbon**



The Rafter Radiocarbon lab is the world's oldest continuously operating lab providing services to client worldwide for more than 60 years. As a department within New Zealand's Earth Science Research Institute, GNS Science, along with our water dating, stable and cosmogenic labs, our focus is the quality of the result. We also make high quality thin sections

Contact: Mike Sim  
Phone: 0457 044 123  
Email: [m.sim@gns.cri.nz](mailto:m.sim@gns.cri.nz)  
Website: [www.gns.cri.nz](http://www.gns.cri.nz)

# Geological Survey of New South Wales



## The Geological Survey of New South Wales

(GSNSW) is the state's premier geoscience agency, and is part of Mineral Resources, NSW Resources & Energy. GSNSW provides information to government, exploration and mining industries as well as the community about the state's geology, and mineral, coal and petroleum resources. The booth exhibits posters of our recent research, as well as maps, publications, and digital geological and geophysical data sets. Maps and publications are available for purchase. Geoscientists at the booth are available to discuss the geology and mineral resources of NSW

Contact: Dave Robson  
 Phone: 02 4931 6717  
 Mobile: 0419 236 293  
 Email: david.robson@trade.nsw.gov.au  
 Website: www.trade.nsw.gov.au

## Velseis



Velseis Pty Ltd is a highly experienced Australian seismic contractor, offering fully integrated seismic services to the coal, petroleum & mineral industries locally and overseas.

Providing comprehensive 2D & 3D seismic data acquisition services, Velseis utilises dynamite, Mini-SOSIE and Vibroseis techniques. Through its Seisdrill division, Velseis provides a specialised shot hole drilling service. With an experienced seismic processing and interpretation division, Velseis delivers quality 2D & 3D onshore, transition and marine, processing and interpretation services to the coal and petroleum sectors. Velseis maintains its competitiveness with a proactive commitment to research & development, and is Australia's leading provider of high resolution seismic services.

Contact: Karel Driml  
 Phone: 07 3376 5544  
 Email: kdriml@velseis.com.au  
 Website: www.velseis.com.au



The Australian Institute of Geoscientists (AIG) is the leading professional institute representing geoscientists employed in all sectors of industry, education, research and government throughout Australia. AIG is a not for profit organisation, run by members for members, which aims to advance the skills, status and public perception of more than 3,000 members both within Australia and overseas. The broad base of the AIG encourages transfer of technical expertise, experience and awareness of issues affecting all aspects of professional geoscience practice. AIG members agree to comply with a strong and enforceable Code of Ethics as a condition of Institute admission. The Code of Ethics is supported by fair and transparent complaints investigation and resolution processes. Members have access to an extensive range of continued professional development opportunities through AIG organised technical talks, seminars and conferences and structured, self-paced on-line training through a dedicated Edumine campus. AIG talks, seminars and conferences double as excellent networking opportunities where members can interact and share experiences and ideas with their peers.

Phone: 08 9427 0820  
 Email: aig@aig.org.au  
 Website: www.aig.org.au

## Geological Society of Australia



Geological Society of Australia (GSA) is Australia's premier geoscience society and represents all Earth Sciences with membership categories tailored to different career stages and interests. Whether geoscientists are studying, early careerists or well-established the GSA is the Society that can connect all geoscientists in Australia.

Visit the GSA booth to learn more about the GSA and how to connect with other geoscientists.

GSA recognises you through our four major activities: Events, Achievements, Science and Community.

Events: Talks, lectures, conventions, symposia & field trips  
 Achievements: Awards & Recognition

Community: Connect with other geoscientists

Science: Peer-reviewed journals *Australian Journal of Earth Sciences (AJES)* and *Alcheringa*, plus other publications and magazines

Contact: Sue Fletcher  
 Phone: 02 9290 2194  
 Email: info@gsa.org.au  
 Website: www.gsa.org.au

## National Rock Garden

Celebrating Geological Heritage of Australia  
[www.nationalrockgarden.org.au](http://www.nationalrockgarden.org.au)

The National Rock Garden (NRG) is located on the western shore of Lake Burley Griffin in Canberra. The first NRG exhibit, the Federation Rocks Display, featuring one large, iconic rock from each state and territory, was opened in October 2013. When completed, the NRG will display hundreds of significant rocks, from around Australia, extending across a 6 hectare landscaped site. Would you like to suggest a rock for the NRG? Visit our booth to meet an NRG representative and view the NRG masterplan.

Contact: Brad Pillans  
 Mobile: 0427 662 112  
 Email: [brad.pillans@anu.edu.au](mailto:brad.pillans@anu.edu.au)  
 Website: [www.nationalrockgarden.org.au](http://www.nationalrockgarden.org.au)

### Ultramag Geophysics



Ultramag Geophysics Pty Ltd is an Australian company specialising in remote sensing and geophysical surveys. We provide a complete service from data acquisition to interpretation and develop custom instrumentation, data acquisition, processing and interpreting software for turnkey solutions.

Ultramag has a robust research and development program that enables us to meet our client's specific survey needs.

Founded in 1988, Ultramag has 26 years' experience providing geophysical surveys to Australian and international clients.

Contact: Carol Chapman  
 Phone: 02 4948 8100  
 Email: [carol@ultramag.com](mailto:carol@ultramag.com)  
 Website: [www.ultramag.com](http://www.ultramag.com)



Dr Phillip Schmidt is the Principal of Magnetic Earth Pty Ltd and is an expert and consultant in palaeomagnetism, magnetic interpretation and petrophysical properties. Dr Schmidt obtained his PhD at ANU in 1977, where he completed his thesis on 'The Late Palaeozoic to Mesozoic Palaeomagnetism of Australia'. After a post-doctoral position in Ottawa with the Earth Physics Branch studying magnetic properties of Precambrian rocks, he returned to Australia in 1978 to take up a position with CSIRO Mineral Physics. Since then he has collaborated with colleagues in research organisations and industry on many magnetic exploration projects, developing instruments and software tools for geological interpretation.

Contact: Dr Phillip Schmidt  
 Phone: 0410-456-495  
 Email: [phil@magneticearth.com.au](mailto:phil@magneticearth.com.au)  
 Website: [www.magneticearth.com.au](http://www.magneticearth.com.au)

### International Association Of Hydrogeologists New South Wales Chapter



The mission of the International Association of Hydrogeologists (IAH) is to further the understanding, wise use and protection of groundwater resources throughout the world. IAH endeavours to raise awareness of groundwater issues and work with national and international agencies to promote the use of groundwater to ensure ready access to safe drinking water. World-wide efforts towards our aims are made by around 4000 members, our National Chapters, our topic/science-based international Commissions and Networks, our global Council team members. IAH NSW branch is actively providing professional development through technical talks and sessions, supporting education in groundwater, and supporting groundwater students in less developed countries.

Contact: Katarina David  
 Email: [katarinadavid@hotmail.com](mailto:katarinadavid@hotmail.com)

## Exhibition Passport

In your convention satchel you will find an exhibition passport which is your passport to some fabulous prizes. All you have to do is:

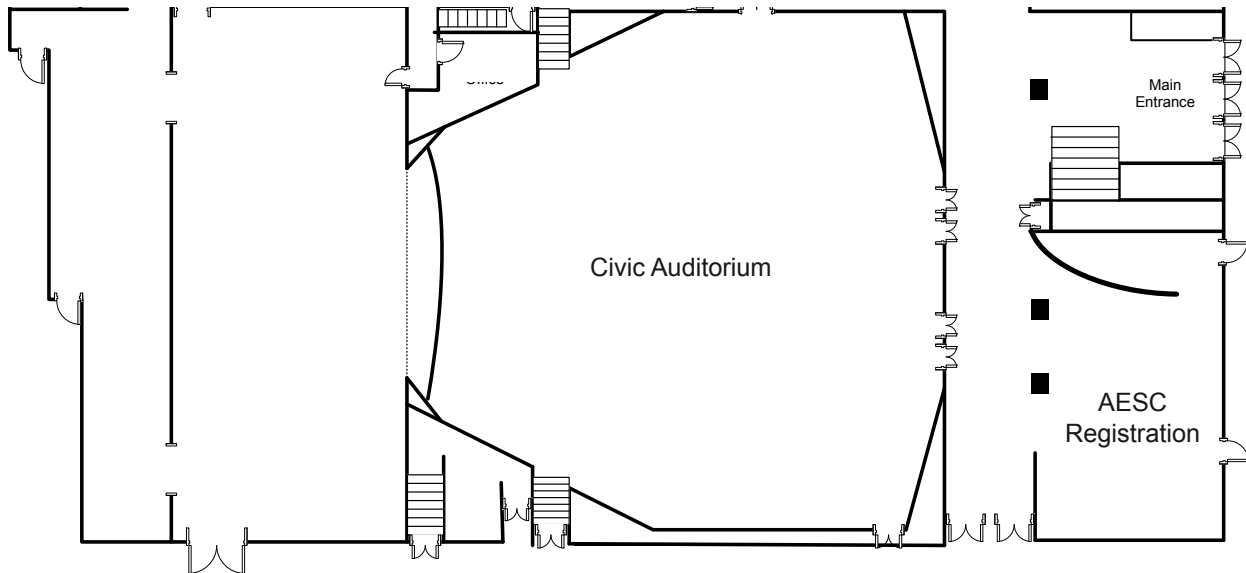
1. Visit each stand during the convention and collect a sticker with the company's logo on it
2. When you have all stickers, fill in your name on the front of the passport and drop it in to the box at the registration desk by **1730 on Wednesday 9<sup>th</sup> July**.
3. The winners will be drawn in the Plenary Session on Thursday 10<sup>th</sup> July. You must be in the room to win a prize.

NB: Exhibitors and their staff are NOT eligible to enter

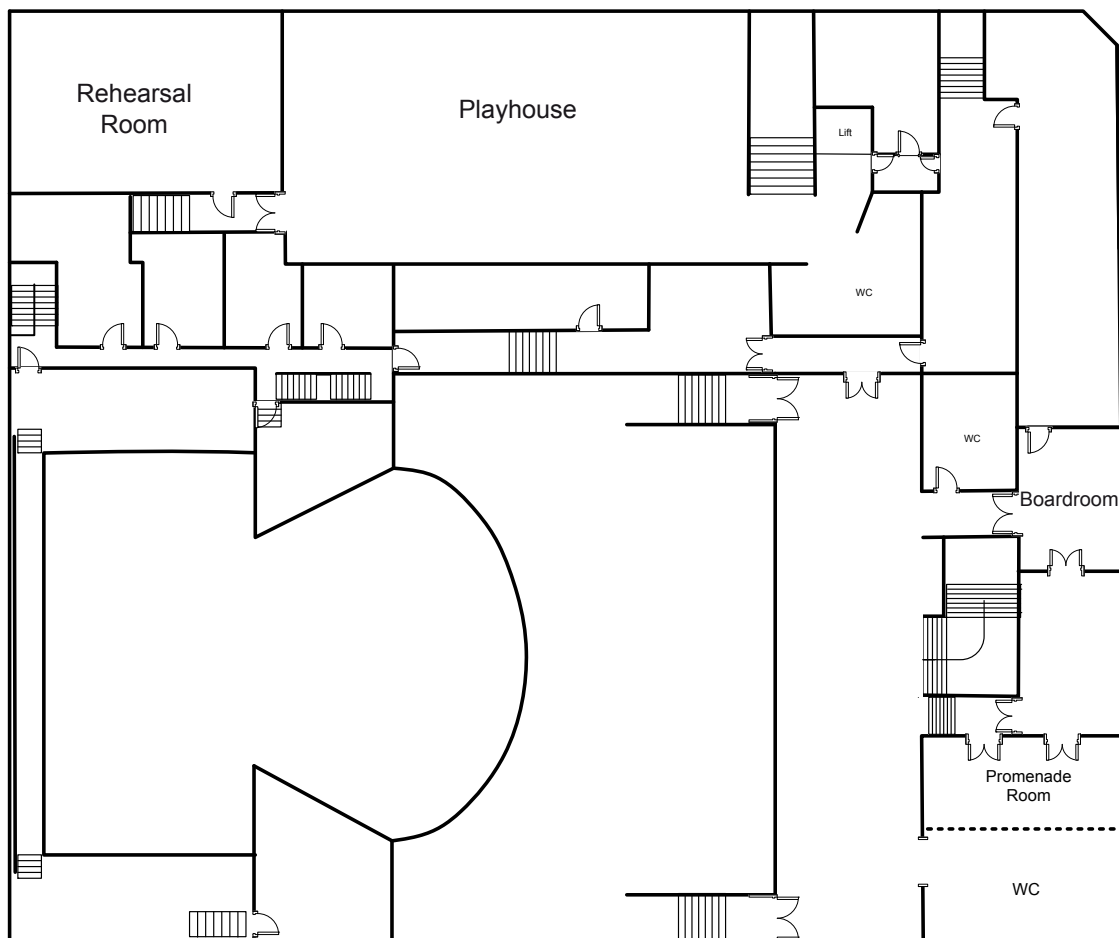
# VENUE LAYOUT

## Civic Theatre

Ground Floor



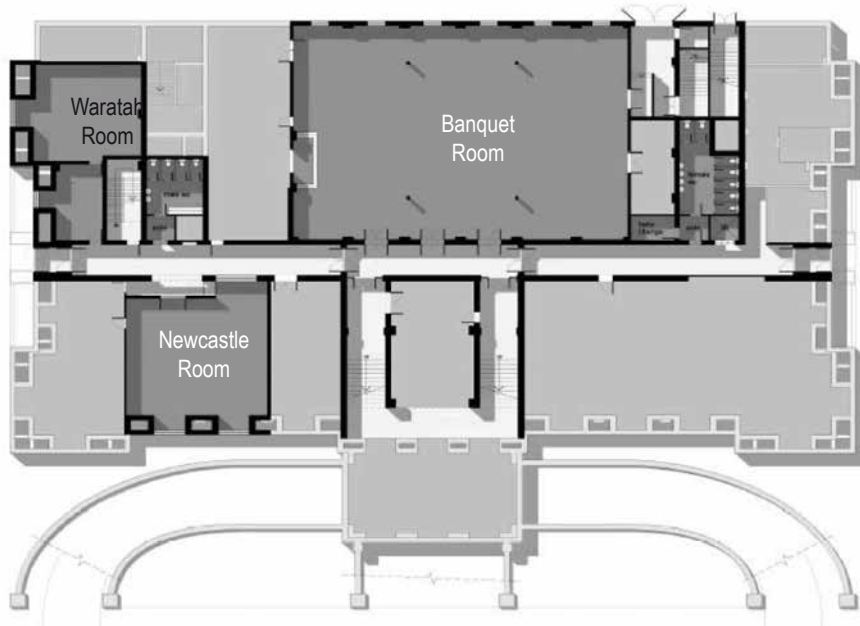
First Floor



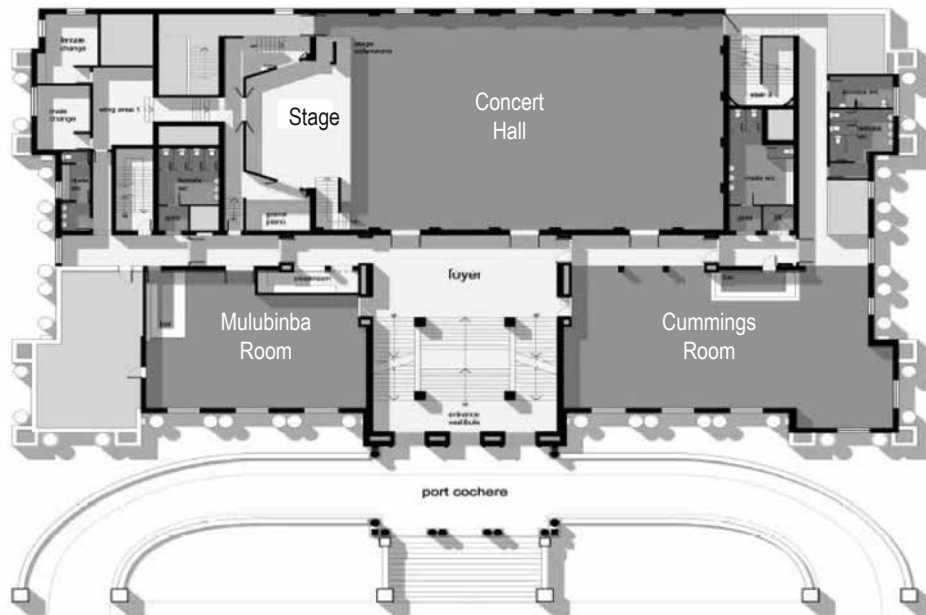


# City Hall

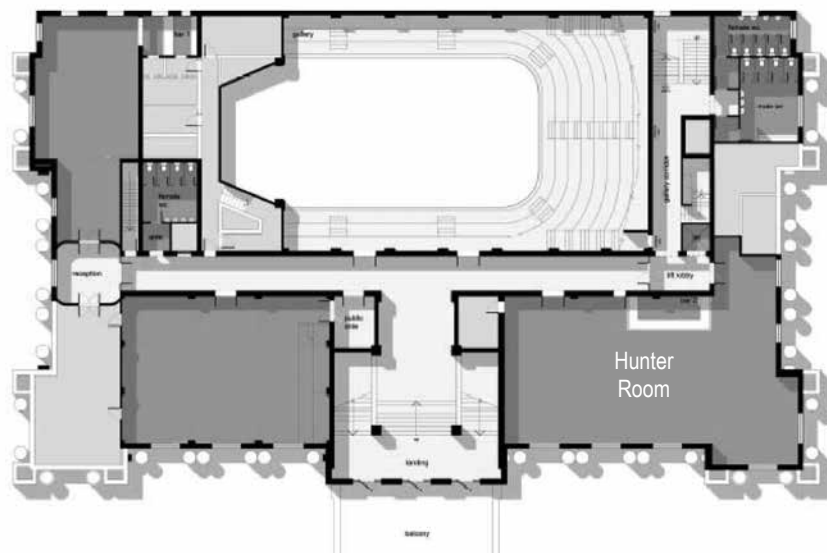
First Floor



Ground Floor



Second Floor



# EVACUATION AND SAFETY PROCEDURES

## CITY HALL

The Newcastle City Hall is a multi-purpose venue that contains functions rooms on three floors of the building. All floors can be accessed via the central marble staircase leading from the front entry, or by the elevator located at the Eastern end of the building in the main corridor. Facilities for mobility impaired people are provided on the 1st floor of the building. Emergency exit routes exist at the rear of the building at either end of the main corridor on all upper floors.

The City Hall Commissionaire staff are trained in First Aid techniques and local ambulance facilities are located within 3 minutes City Hall.

- City Hall is equipped with an integrated warning and sprinkler system.
- City Hall staff are trained in emergency evacuation techniques.
- In the case of an emergency, follow the directions of City Hall Staff and evacuate to the designated assembly points and remain there until advised otherwise.
- When evacuating, only take personal belongings that will not hamper evacuation if safe to do so.
- The City Hall lift should not be used in cases of emergency.
- In the event of a Bomb Threat, do not use electronic devices such as mobile phones and 2-way radios.
- Please take the time to familiarise yourself with the exit signage in the City Hall.

## CIVIC THEATRE/PLAYHOUSE

The Newcastle Civic Theatre consists of a 1500 seat auditorium, 200 seat playhouse theatre, foyer and bar areas as well as the Civic Theatre Brasserie.

The Civic Theatre front of house and technical staff are trained in First Aid techniques, and St John Ambulance staff are present when there is an audience in the auditorium.

- Civic Theatre is equipped with an emergency public address and sprinkler system.
- Civic Theatre staff are trained in emergency evacuation techniques.
- In the case of an emergency, follow the directions of Civic Theatre staff and evacuate to the designated assembly points as directed, and remain there until advised otherwise.
- When evacuating, only take personal belongings that will not hamper evacuation if safe to do so.
- The Playhouse lift should not be used in cases of emergency.
- In the event of a Bomb Threat, do not use electronic devices such as mobile phones and 2-way radios.
- Please take the time to familiarise yourself with the exit signage in the Civic Theatre.





# APPLYING GEOSCIENCE TO AUSTRALIA'S MOST IMPORTANT CHALLENGES

Image courtesy of Australian Emergency Management Institute

Geoscience Australia provides geoscience information, services and capability to all levels of Australian government, private industry and the broader Australian community, to inform decision-making.

We aim to achieve enhanced potential for the Australian community to obtain economic, social and environmental benefits by focusing on key objectives, including:

- Building Australia's resource wealth
- Ensuring Australia's community safety
- Securing Australia's water resources
- Managing Australia's marine jurisdictions
- Providing fundamental geographic information
- Maintaining geoscience capability



**Australian Government**

**Geoscience Australia**

Visit our booth to discover more about our work, products, services and job opportunities.

**[www.ga.gov.au](http://www.ga.gov.au)**

**Geoscience Australia is proud to be a supporter of AESC 2014**