

SECTION 1

CONFERENCE PROGRAM



Australian Society of
Exploration Geophysicists



PESA
Petroleum Exploration
Society of Australia



**AUSTRALIAN
INSTITUTE OF
GEOSCIENTISTS**



The power of **PARTNERSHIP**

Oil Search, working closely with its joint venture partners, operates all of PNG's currently producing oil fields, as well as the Hides Gas-to-Electricity Project.

The Company has a 29% interest in the PNG LNG Project, operated by ExxonMobil PNG Limited. The Project is performing well above nameplate capacity, delivering incremental value to stakeholders and demonstrating that the co-venture partners and PNG are capable of delivering a world-class LNG development.

Oil Search recently acquired world-class oil interests in the prolific Alaska North Slope, USA, complementing its PNG portfolio, which is primarily gas.

Oil Search has an unrivalled understanding of how to operate successfully and safely in PNG. By promoting a cooperative agenda with key stakeholders, we are well positioned to deliver the next wave of growth opportunities. We believe there is sufficient gas, in the NW Highlands in the P'nyang gas field and in the Elk-Antelope gas fields in the onshore Gulf Province, to support more than 8 MTPA of additional LNG capacity, unlocking significant value for PNG. With exploration and appraisal success, such as the Muruk gas discovery, a third expansion train is possible.

We are committed to ensuring our impact in Papua New Guinea goes well beyond our position as the country's largest non-government employer and investor. By working closely with joint venture partners, regulators, the PNG Government, landowners and communities, we have built mutually beneficial partnerships that deliver real, long-term benefits to PNG.

As a Papua New Guinean company, Oil Search is a PNG specialist and a partner of choice.

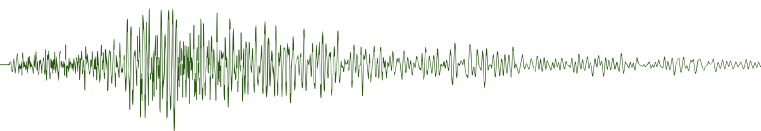
That's what sets us apart.

That's what makes us Oil Search.



Oil Search

www.oilsearch.com



Program at a glance

Saturday 17 February	Sunday 18 February	Monday 19 February	Tuesday 20 February	Wednesday 21 February	Thursday 22 February
Pre Conference workshops	0700–1800 <i>Blue Mountains field trip</i>	0820–0940 Opening ceremony			Post Conference workshops
	Pre Conference workshops	Plenary 1	Session 4	Session 8	
		1010–1040 <i>Morning tea (Exhibition The Gallery)</i>			
		Session 1	Session 5	Session 9	
		1220–1320 <i>Lunch (Exhibition The Gallery)</i>			
	Pre Conference workshops	1320–1345 Poster sessions <i>Pymont Theatre Foyer</i>			
		Session 2	Society plenaries	Session 10	
		1500–1530 <i>Afternoon tea (Exhibition The Gallery)</i>			
		Session 3	Session 6	Closing ceremony	
			Session 7		
		1710–1840 Drinks <i>(Exhibition The Gallery)</i>	1710–1840 Drinks <i>(Exhibition The Gallery)</i>	1630–1800 Closing drinks	
	1800–1930 Welcome reception <i>(Exhibition) The Gallery @ ICC</i>	1800 <i>Rocks geology, history and pub tour</i>	1800 Student trivia night <i>Pymont Bridge Hotel</i>	1800 <i>Rocks geology, history and pub tour</i>	
			1930–2330 Conference dinner <i>Parkside Ballroom @ ICC MC: Tom Gleeson</i>		

RioTinto

Discover the job, the challenge Exploration in Rio Tinto

Rio Tinto is a leading international business involved in each stage of metal and mineral production. The Group combines Rio Tinto plc, which is listed on the London Stock Exchange, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Within Rio Tinto, the Exploration group is tasked with providing growth opportunities to the company by discovering or acquiring new mineral resources. It has been delivering value for more than 50 years.

Exploration involves the identification, prioritization and testing of geological, geochemical and geophysical targets. The exploration process ends when a discovery is handed over to studies team in G & I for detailed evaluation.

Our objective is to safely discover “Tier 1” deposits. This is a deposit that contributes disproportionately to global production of a commodity due to its size and character.

Rio Tinto’s exploration strategy brings us sustained success in a highly competitive environment. We have maintained our commitment to exploration over the years and the consistency of expenditure and activity has produced extraordinary results.

We have an exceptional set of assets and growth opportunities, both in advanced projects and early stage prospects. Our multi-commodity

exploration portfolio is composed of the best opportunities and is rigorously prioritised globally.

We set ourselves apart from the rest of the mining industry by having a clear focus on finding and mining only the best resources. These resources must be profitable in all parts of the price cycle and deliver long-term economic value to Rio Tinto, the communities we work with and the countries we operate in.



Drill Rig at Hidden Treasure project



Micro-analytical facility, Bundoora, Melbourne

Pioneering in Exploration

Rio Tinto Growth & Innovation operates a dedicated micro-analytical facility in Bundoora, Melbourne for RTX utilising Laser Ablation Microprobe (LAM) and Mineral Liberation Analyser (MLA) technology linked in a unique configuration. We have developed the world's first automated Kimberlitic Indicator Mineral (KIMs) analytical facility as well as having in-house U-Pb geochronology capability.

Using this equipment RTX have also developed innovative new exploration techniques using Resistate Indicator Minerals (RIMs).

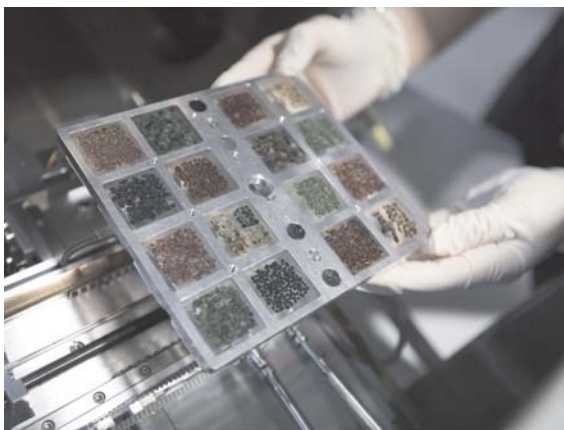
The MLA generates large volumes of quantified mineralogy and high quality mineral chemistry at very low cost (in excess of 1 million major element analyses a year).

The LAM can analyse up to 500 trace element analyses a day on target mineral grains.

These datasets are interpreted by a dedicated team who combine mineralogy expertise with data analytics and research outcomes from industry collaborative projects to support exploration programs globally.



Mineral Liberation Analyser:
Quantitative mineralogy and major element chemistry



KIMs facility Bundoora



Laser Ablation Microprobe (LAM):
Trace Element Mineral Chemistry

Our commitment

Rio Tinto Exploration is an integral part of the sustainable development equation for Rio Tinto.

Our strategy of investing in large, long-life mines and businesses means that we operate on extended time horizons. Some of our projects last 40 years or more from mineral discovery through to closure, representing large-scale, long-term investments.

These long-term commitments provide opportunities for us to plan and implement projects in such a way that they deliver sustainable contributions to social wellbeing, environmental stewardship and economic prosperity.

The Exploration group's core objective of finding Tier 1 resources is the starting point for the wider Rio Tinto Group's efforts in sustainable development. These discoveries can become the

catalyst for local economic diversification, skills development in the local workforce and improvements to infrastructure.

Each of the countries and regions in which we explore has different cultures, peoples, laws and expectations. Our exploration teams are often the first contact we have with communities who may be our neighbours for generations. We respect the diversity and concerns of local communities and engage in a manner that is open, personal and tailored to the specifics of each region, village or individual stakeholder.

On a day-to-day basis our Exploration group contributes to local communities by employing local people and introducing improvements in local health and safety practices.

We actively encourage community engagement, striving to establish trust at an early stage so that we can bring about mutual benefits through the development of high-quality mineral resources.

There is no room in Rio Tinto Exploration for anything but the most value-creating opportunities, the most constructive, collaborative and adaptable behaviours; and a personal commitment to sustainable development from



Communities engagement at an Exploration project



Demonstration of muster point at Exploration project



For 140 years, we've been discovering safer, more effective and more sustainable ways to find, mine, and process the minerals and metals essential for everyday life.

Our purpose is to be a company that is admired and respected for delivering superior value, as the industry's most trusted partner. Our operations give us the opportunity to create mutual benefit with the communities, regions and countries in which we work.

Using the latest in technology and innovation, Rio Tinto Exploration is focused on smarter ways to find the mines of tomorrow.

We are currently seeking high quality opportunities to add to our growing exploration

Exploring 8 different
commodities across 15
countries.

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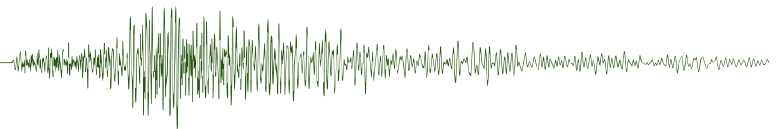
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Sunday 18 February 2018									
1800–1930	Welcome Reception, The Gallery at the ICC (Exhibition)								
Monday 19 February 2018									
0730–0830	Registration								
0830–0940	Conference Welcome and Opening, Pyrmont Theatre Foyer								
0940–1010	Plenary Speaker 1 Peter Botten, Managing Director, Oil Search, Pyrmont Theatre								
1010–1040	Morning tea (Exhibition The Gallery)								
	SESSION 1								
	A	B	C	D	E	F	G	H	
	Coal	West Australian Basins Symposium	East Australian Basins Symposium	Geology Case History	IP From EM Surveys	Inversion Modelling Methods	Regional Tectonic	Geotechnical and Environmental	
Room	E3.10	C2.2 / C2.3	C2.1	Pyrmont Theatre	C2.5 / C2.6	E3.2	C2.4	E3.1	
	Chair: Max Williamson	Chair: Phillip Cooney	Chair: Malcolm Bocking	Chair: Phillip Hellman	Chair: Steve Collins	Chair: David Pratt	Chair: Graham Heinson	Chair: Simon Williams	
1040–1105	Keynote Presentation Coal in NSW Kevin Ruming	Keynote Presentation High impact data creates high impact opportunities Peter Baillie	Tectonics and geodynamics of the eastern Tethys and northern Gondwana since the Jurassic Sabin Zahirovic		Modelling IP effects in airborne time domain electromagnetics Dave Marchant	Cooperative inversion: A review Brett Harris	Palaeomagnetic test of orodinal rotation in the Dundas Trough, Tasmania Robert Musgrave	Tracking the Diprotodon – microtremor passive seismic profiling as a tool for location of megafauna bone beds Michael Asten	
1105–1130			Predicting and detecting carbonate cemented zones within Latrobe Group reservoirs of the Gippsland Basin Mark Bunch		A thorough synthetic study on IP effects in AEM data from different systems Andrea Viezzoli	Application of geologically conditioned petrophysical constraints in joint inversion: A case study Jeremie Giraud	Mapping metasomatised mantle by integrating magnetotelluric, passive seismic and geochemical datasets – SE Australia Karol Czamota	An integrated analysis of geophysical data for landslide risk assessment Koya Suto	
1130–1155	Discovery through the ages – a journey of coal resource discovery in Queensland's Bowen Basin from the 1960's and the 2000's Darren Walker	Mapping northern Australia's present day stress field: The Canning Basin Adam Bailey	Impact of sequence stratigraphy on static and dynamic reservoir models: Examples from the Precipice–Evergreen succession, Surat Basin, Queensland Andrew La Croix	Lithogeochemistry of pegmatites at Broken Hill: An exploration vector to mineralisation Glenn Colaniz	Keynote Presentation Airborne EM and IP below 10 Hz Jim Macnae	Constraining an inversion to follow curving trends in an image Andrew King	Geoscience Australia's contribution to AusArray – Passive seismic imaging of Australia Alexei Gorbatov	The application of VSP in the Pilbara Ashley Grant	
1155–1220	The use of FWI in coal exploration Mehdi Asgharzadeh	Regional Jurassic sediment depositional architecture, Browse Basin: Implications for petroleum systems Nadege Rollet	Organic geochemistry and petroleum potential of Permian outcrop and core samples from the southern Sydney Basin Simon George	Ore and gangue minerals of the Hera Au-Pb-Zn-Ag deposit, Cobar Basin, NSW Angela Lay		Exploring inversion solution space: A case study over a Cu-Ag deposit in the Kalahari copper belt Robert Ellis	Coordinating and delivering a 1.8 million line kilometre magnetic and radiometric survey – a state government perspective Laszlo Katona	Application of the passive seismic Horizontal-to-Vertical Spectral Ratio (HVSR) technique for embankment integrity monitoring Regis Neroni	
1220–1320	Lunch (Exhibition The Gallery)								
1320–1345	Poster Session (Pyrmont Theatre Foyer)								



SESSION 2									
	A	B	C	D	E	F	G	H	
	Coal	West Australian Basins Symposium	East Australian Basins Symposium	Geology Case History	EM & Deep Radar	Exploration	Regional Tectonic	Geotechnical and Environmental	
Room	E3.10	C2.2 / C2.3	C2.1	Pymont Theatre	C2.5 / C2.6	E3.2	C2.4	E3.1	
	Chair: Kevin Ruming	Chair: Tom Bernecker	Chair: Barry Smith	Chair: Doug Menzies	Chair: Keith Leslie	Chair: Regis Neroni	Chair: Robert Musgrave	Chair: Andrew Spyrou	
1345–1410	Seismic diffraction imaging for improved coal structure detection in complex geological environments Binzhong Zhou	Evolution of ‘Tres Hombres’ – a large mid-crustal dome structure within the northern Beagle Sub-basin Western Australia: An integrated geophysical investigation Gerry O’Halloran	Targeting core sampling with machine learning: Case study from the Springbok Sandstone, Surat Basin Oliver Gaede	Keynote Presentation Richard Hillis	2.5D vs 1D AEM forward and inversion methods at a survey scale: A case study Desmond Fitzgerald		Evolving 3D lithospheric resistivity models across southern Australia derived from AusLAMP MT Kate Robertson	How to build your own simple, low-cost, seismic system Tim Dean	
1410–1435	Integration of downhole geophysical and lithological data from coal exploration drillholes Brett Larkin	Controls on Mesozoic rift-related uplift and syn-extensional sedimentation in the Exmouth Plateau Hayley Rohead-O’Brien	The influence of reverse-reactivated normal faults on porosity and permeability in sandstones: a case study at Castle Cove, Otway Basin Natalie Debenham		Otze – airborne EM inversion on unstructured model grids Carsten Scholl	Understanding geology and structure: An essential part of mineral resource estimation Bert De Waele	Imprints of tectonic processes imaged with magnetotellurics and seismic reflection Tom Wise	Feasibility study of near-surface dispersion imaging using passive seismic data M. Javad Khoshnavz	
1435–1500	Quantifying gas content in coals using borehole magnetic resonance Tim Hopper	Shelf-margin architecture and shoreline processes at the shelf-edge: Controls on sediment partitioning and prediction of deep-water deposition style Victorien Paumard	High frequency refraction/reflection full-waveform inversion case study from North West Shelf offshore Australia Xiang Li	Pathfinder exploration techniques targeting porphyry and epithermal alteration systems in the Temora copper-gold belt Bruce Hooper	Realistic expectations for deep ground penetrating radar performance Jan Francke	Building 3D model of rock quality designation assisted by co-operative inversion of seismic and borehole data Duy Thong Kieu	Identifying lithospheric boundaries and their importance for mineral discovery Stephan Thiel	Refraction Microtremor method for delineation of layers and lenses, and assessing liquefaction potential within an alluvial setting – Morobe Province, Papua New Guinea Aaron Tomkins	
1500–1530	Afternoon tea (Exhibition The Gallery)								
SESSION 3									
	A	B	C	D	E	F	G	H	
	Coal	West Australian Basins Symposium	East Australian Basins Symposium	Geology Case History	Airborne Gravity	Electrical Methods	Regional Gawler Isa Halls Creek	Groundwater	
Room	E3.10	C2.2 / C2.3	C2.1	Pymont Theatre	C2.5 / C2.6	E3.2	C2.4	E3.1	
	Chair: Kevin Ruming	Chair: Tom Bernecker	Chair: Barry Smith	Chair: Glenn Colaniz	Chair: Clive Foss	Chair: Jim Macnae	Chair: Jim Austin	Chair: Aaron Tomkins	
1530–1555	Cooper Basin deep coal – the new unconventional paradigm: Deepest producing coals in Australia Bronwyn Camac	Influence of Permian and Carboniferous extensional history on the northern Carnarvon basin and its influence on Mesozoic extension Amy I’Anson	Petroleum plays of the Bowen and Surat basins Alison Troup	Cargo Porphyry Cu-Au deposit – where is the high grade core? David Timms	Validating the Gedex HD-AGG™ airborne gravity gradiometer David Hatch	Laboratory confirmation of non-linear electrical effects in mineralised rocks Alan Oertel	A hidden Palaeoproterozoic ocean-continent transition in the northern Gawler Craton Tom Wise	Using microgravity to characterise water storage and usage at Kings Park, Perth, WA Alan Attkin	

1555–1620	Predicting structural permeability in the deep coal play, Tirrawarra-Goonarie fields, Cooper Basin Cameron Bowker	Interpretation of a Permian conjugate basin margin preserved on the outer northwest shelf of Australia Christopher Paschke	Borehole gravity in horizontal wells Andrew Black	Implicit modelling of the Las Bambas deposits, Peru Anthony Reed	Airborne gravimetry takes off in the Western Australia 'Generation 2' reconnaissance gravity mapping project David Howard	Field trials of the Biased Heterodyne method of exploration for sulphide minerals Steve Collins	Thermochronological history of the northern Olympic Domain of the Gawler Craton; correlations between cooling ages and mineralising systems James Hall	Microgravity surveys on the Nullarbor Philip Heath
1620–1645	Towards understanding phosphorus distribution in coal: A case study from the Bowen Basin Brooke Davis	New insights into early Triassic rifting in the NW shelf help explain regional structural styles and associated deposition model Malcolm MacNeill	The stratigraphic significance of paralic deposits in the Precipice–Evergreen succession, Surat Basin, Queensland Andrew La Croix	What is down plunge of the Dobroyde Hill high-sulphidation epithermal deposit, near Junee, NSW? Glen Diemar	Gravity gradiometer design comparison by three different methods James Brewster	Getting a better control of IP acquisitions with GDD's new IP post-processing software Circe Malo-Lalande	Tectonic framework of the southern Mount Isa Province Janelle Simpson	Uncertainty analysis of faulting and folding on near surface aquifers Titus Murray
1645–1710	Evidence for glacial and polar impacts in the Permian coal measures of the Sydney basin Malcolm Bocking	Modelling reservoir deliverability within the northern Beagle Sub-basin, Western Australia Christopher Hurren	Next generation reservoir engineering Klaus Regenerauer-Lieb	The discovery of the Edna Beryl Deposit – A journey with a destination! Rob Bills	An overview of tensors, gradient and invariant products in imaging and qualitative interpretation Matthew Zenger	The effective use of forward modelling and petrophysical analyses in the application of induced polarisation surveys to explore for disseminated sulphide systems in the Paterson province, Western Australia Nikhil Prakash	Magma evolution in the Halls Creek Orogen; insight from geodynamic numerical modelling and geochemical analysis Fariba Kohanpour	

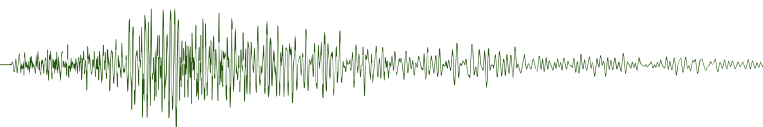
Tuesday 20 February 2018

0700 From Faxes to FaceTime: Building intergenerational relationships through networking and mentoring (C3.4 @ ICC Sydney)

SESSION 4

	A	B	C	D	E	F	G	H
	PNG and NZ	West Australian Basins Symposium	Non Conventional	Geophysics Technology	Strategic and Industrial	Magnetotellurics	Regional Mapping	Groundwater Case Studies
Room	C2.1	C2.2 / C2.3	E3.10	E3.2	C2.4	Pymont Theatre	C2.1 / C2.2	E3.1
	Chair: Scott Keenan	Chair: Marita Bradshaw	Chair: Malcolm Bocking	Chair: Alan Oertel	Chair: Steve Collins	Chair: Kim Frankcombe	Chair: Ian Roach	Chair: David Allen
0830–0855	Keynote Presentation Innovative exploration in Papua New Guinea: past, present and future Kevin Hill	Onshore inventory – targeting new basins (Officer, Perth, Canning Basins) Lidena Carr	Integrated Seismic (IS) for shale gas exploration and management Shastri Nimmagadda	Mathematical properties and physical meaning of the gravity gradient tensor eigenvalues Carlos Cevallos	Keynote Presentation Strategic and industrial minerals leading the next production revolution Richard Flook	Particularities of 5-component magnetotelluric soundings application for mineral exploration Igor Ingerov	Keynote Presentation National mineral exploration strategy: A vision for unlocking Australia's hidden mineral wealth Richard Blewett	Characterizing the Spiritwood Valley Aquifer, North Dakota, using helicopter time-domain EM Jean Legault
0855–0920		Linear trends of paleo-pockmarks and fluid flow pipes in the Jurassic and Triassic sediments of offshore northwest Australia Tayallen Velayatham	Using multiazimuth seismic data for anisotropy estimation in an unconventional reservoir Surabhi Mishra	Application of frequency domain induction EM soundings with controlled source (FDEMS method) for precise tracing of boundaries in geoelectrical sections Igor Ingerov		Sferic signals for lightning sourced electromagnetic surveys Lachlan Hennessy	Sponsored by AUSTRALIA MINERALS REALISE THE OPPORTUNITY	Reinterpretation of wireline log data in the eastern Galilee Basin, Queensland: stratigraphic and hydrogeologic implications James Hansen

Conference program



0920–0945	4D characterisation of PNG's Petroleum Systems John Warburton	The effect of flexural isostasy on delta architecture: Implications for the Mungaroo Formation Sara Moron-polanco	A new computational model to predict breakdown pressures in cased and perforated wells in unconventional reservoirs Mohammed Asad Pirzada	Application of passive seismic in determining overburden thickness: North West Zambia Nikhil Prakash	The Pilgangoora Lithium-Tantalum Deposit – Geological overview and evolution of discovery John Holmes	Keynote Presentation What is new in magnetotellurics? Graham Heinson	An integrated approach to mapping crustal geology and structures in the NE Capricorn Orogen, Western Australia: Implications for uranium exploration Ashley Laurence Uren	Keynote Presentation Katarina David
0945–1010	Structural and reservoir development of the western Papuan Basin gas and condensate fields Michelle Spooner	Mesozoic to Cenozoic depositional environments & fluid migration within the Caswell Sub-basin: Key insights from new interpretation & modelling of the Schild phase 2 3D Jarrod Grahame	An optimised hydraulic fracturing treatment on challenging Ritz Field Muhammad Asad Pirzada	Scintillators for PGNA in mineral exploration Anton Kepic	Evaluating Rare Earth Deposits Phil Hellman		Archean controls on basin development and mineralisation in the southern Capricorn Orogen Sandra Occhipinti	
1010–1040	Morning tea (Exhibition / The Gallery)							
	SESSION 5							
	A	B	C	D	E	F	G	H
	PNG and NZ	West Australian Basins Symposium	Non Conventional	General Geology	Strategic and Industrial	EM Inversion Modelling	Regional Mapping & Thomson Orogen	Groundwater Case Studies
Room	C2.1	C2.2 / C2.3	E3.10	Pyrmont Theatre	C2.4	E3.2	C2.1 / C2.2	E3.1
	Chair: Scott Keenan	Chair: Marita Bradshaw	Chair: Malcolm Bocking	Chair: Bruce Hooper	Chair: Richard Flook	Chair: Dave Annetts	Chair: Dave Robson	Chair: Trent Bowman
1040–1105	Plio-pleistocene river drainage evolution in New Guinea Gilles Brocard	Canning Basin – petroleum systems analysis Andrew Murray	New method for monitoring steam injection for Enhanced Oil Recovery (EOR) and for finding sources of geothermal heat Gordon Stove	Keynote Presentation Geophysical detection of the hydrothermal alteration footprints of ore deposits John McGaughey	Industrial minerals – evaluation and profitability David Turvey	Trans-dimensional Monte Carlo inversion of short period magnetotelluric data for cover thickness estimation Wenping Jiang	AusAEM; acquisition of AEM at an unprecedented scale Alan Ley-Cooper	Rate of success for a groundwater drilling program planned from AEM, Gascoyne River, WA Aaron Davis
1105–1130	Geophysical and geological characterisation of dredge locations from RV Southern Surveyor voyage ss2012_v06 (ECOSAT): Hotspot activity in northern Zealandia Maria Seton	The Ungani oil field, Canning Basin – evaluation of a dolomite reservoir David Long	A new system for efficiently acquiring vertical seismic profile surveys Tim Dean	Creating a new frontier in detection and data integration for exploration through cover Robert Hough	Mineral deposits in the Ontario Cobalt Belt Ian Pringle	Comparative analysis and joint inversion of MT and ZTEM Data Wolfgang Soyer	Application of AEM for cover thickness mapping in the southern Thomson Orogen Ian Roach	Geophysical investigation to support characterisation of structurally controlled groundwater flow into an open pit mine Michael Carroll
1130–1155	Compressional evolution of the PNG margin from an orogenic transect from Juha to the Sepik Kevin Hill	Depositional, diagenetic and mineralogical controls on porosity development in the Ungani Field, Canning Basin June Then	What we know, what we don't know, and things we do not know we don't know about hydraulic fracturing in high stress environments Raymond Johnson		The Sinclair Zone Caesium Deposit, Pioneer Dome, WA David Crook	1, 2.5 and/or 3D inversion of airborne EM data – options in the search for sediment-hosted base metal mineralisation in the McArthur Basin, Northern Territory Timothy Munday	Estimating cover thickness in the southern Thomson Orogen – a comparison of applied geophysics estimates with borehole results James Goodwin	Uncovering the Musgrave Province in South Australia using airborne EM Camilla Soerensen



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1155–1220	Tectonic and geodynamic evolution of the northern Australian margin and New Guinea Joanna Tobin	Laurel gas play, Canning Basin – recent stratigraphic learnings Simon Sturrock	The role of diagnostic fracture injection testing to improve reservoir evaluation and stress characterisation in compressive stress regimes Raymond Johnson	Episodic mineralising fluid injection through chemical shear zones Thomas Poulet	Spatially and conductivity log constrained AEM inversion Alan Ley-Cooper	Increasing prospectivity in a covered terrain – the southern Thomson Orogen, northwestern NSW Rosemary Hegarty	A multidisciplinary study of groundwater conditions in sedimentary strata at Thirlmere Lakes (NSW) Katarina David
1220–1320	Lunch (Exhibition The Gallery)						
1320–1345	Poster Session (Pyrmont Theatre Foyer)						
1345–1410	SOCIETY PLENARIES						
	SESSION 6						
	A	B	C	D	E	F	G
	PNG and NZ	International	Non Conventional	Geochemistry	Industrial – Sands	EM Inversion Modelling	Regional Cobar
Room	C2.1	C2.2 / C2.3	E3.10	Pyrmont Theatre	C2.4	E3.2	C2.1 / C2.2
1410–1435	Chair: Kevin Hill A method for assessing earth model uncertainty in the Taranaki Basin, New Zealand Edward Lewis	Chair: Mark Taylor On the geothermal potential of the Heyuan Fault, South China Lisa Tannock	Chair: Bruce McKay The use of coring-induced petal fractures in coal to supplement and ground truth the interpretation of image logs David Titheridge	Chair: David Cohen Keynote Presentation 21st century exploration geochemistry – the good, the bad and the ugly Ryan Noble	Chair: David Turvey Frac sand supply and demand Australia Murray Lines	Chair: Mike Asten Large scale 3D airborne electromagnetic inversion – Recent technical improvements Mike McMillan	Chair: Ian Neuss Metamorphism and skarn mineralisation in the Cobar Basin: Implications for exploration Joel Fitzherbert
1435–1500	Modelling and visualising distributed lithospheric deformation of Australia and Zealandia using GPlates2.0 Dietmar Müller	The discovery and development of oil rim fields in the Beibu Gulf, China Andrew Fernie	Automatic fracture identification using X-ray images Ankita Singh		High-grade silica sands in the Eastern Murray Basin NSW Graham Lee	3D time-domain airborne EM inversion with finite-volume method Xiuyan Ren	Cobar deposits – structural control Vladimir David
1500–1530	Afternoon tea (Exhibition The Gallery)						
	SESSION 7						
	A	B	C	D	E	F	G
	PNG and NZ	International	Non Conventional	Geochemistry	Brine Deposits	New Airborne EM Techniques	Regional Mapping Methods
Room	C2.1	C2.2 / C2.3	E3.10	Pyrmont Theatre	C2.4	E3.2	C2.1 / C2.2
1530–1555	Chair: Kevin Hill Investigation of possible shallow gas accumulations associated with pockmarks on the Otago slope southeast of New Zealand Jasper Hoffmann	Chair: Mark Taylor Shelf-margin architecture and shoreline processes at the shelf-edge: Controls on sediment partitioning and prediction of deep-water deposition style Victorien Paumard	Chair: Bruce McKay Fracking onshore Australia Maxwell Williamson	Chair: Neal Rutherford A new blasthole xrf probe for mining grade control Phil Hawke	Chair: Murray Lines Lithium: fundamental supply/demand, the lithium brines of South America and exploration/development methodologies Steve Promnitz	Chair: Tim Munday Sub-Audio Magnetics (SAM) – Ground-based and HelisAM FLEM trials at the Forresteria EM test range Malcolm Cattach	Chair: Vladimir David Characterising the subsurface architecture and stratigraphy of the McArthur Group through integrated airborne EM and gravity inversion Teagan Blaikie
1555–1620	Chair: Andrew Gorman Characterisation of focused gas hydrate accumulations from the Pegasus Basin, New Zealand, using high-resolution and conventional seismic data	Chair: Zhao Ning Sedimentary characteristics and lithological trap identification of distant braided river delta deposits: A case study on the Upper Cretaceous Yagou Formation of Termit Basin, Niger	Chair: Matthieu Cauchefert Impact of artificially matured organic matter on the dielectric and elastic properties of compacted shales	Chair: Walid Salama Cassiterite and rutile as indicator minerals for exploring the VMS system	Chair: Tom Neville Evaluating brine deposits using borehole magnetic resonance	Chair: Andrew Pethick Sub-Audio Magnetics (SAM) – Ground-based and HelisAM FLEM trials at the Forresteria EM test range	Chair: Andrew Pethick Self organising maps – a case study of Broken Hill

Conference program

1620–1645	Comparing shale gouge ratio and juxtaposition analysis using stochastic trap analysis: Examples from Gippsland, Taranaki, Otago and Southern North Sea Basins Titus Murray	Airborne gravity gradiometer survey over the Pelarang Anticline onshore Kutai Basin Indonesia Asbjorn Norlund Christensen	The stratigraphic architecture, distribution and hydrocarbon potential of the organic rich Kyalaa and Velkerri shales of the Upper Roper Group (McArthur Basin) Mattilda Sheridan	Can geophysics and geochemistry combine to detect mineralisation under transported cover? David Cohen	CGG's new Helitem-C AEM systems Adam Smiarowski	The utility of machine learning in identification of key geophysical and geochemical datasets: a case study in lithological mapping in the Central African Copper Belt Stephen Kuhn	Groundwater assessment in a coal measures sequence using borehole magnetic resonance Benjamin Birt
1645–1710	New regional data and advances in understanding of the stratigraphy, tectonics, structure and prospectivity of the Gulf of Papua (Papua New Guinea) Dariusz Jablonski	The effect of deep burial and folding on sandstone reservoirs in Giant Gas Fields, South America Gregory Smith	Geomechanical prestack depth migration of the Kraken 3D (Browse Basin, Australia) Jarrod Dunne	Field analysis of low ppb gold using pXRF and new detectORE technology Melvyn Lintern	Passive EM processing of megatem and helitem data Daniel Sattel	Terrain correction correction Tasmania – results and implications Mark Duffett	Geologically-constrained interpretation of airborne electromagnetic data for groundwater resources, Albany Hinterland, Western Australia James Reid

Wednesday 21 February 2018							
SESSION 8							
	A	B	C	D	E	F	G
	New Technology Seismic	New Technology CO2	Central Australian Basins Symposium	History	Geophysical Case History	Hardrock Seismic	Groundwater
Room	C2.2 / C2.3	E3.10	C2.1	Pymont Theatre	C2.5 / C2.6	C2.4	E3.2
0830–0855	Chair: Phillip Cooney Andrew Long	Chair: Max Williamson Anton Egorov	Chair: Amandeep Kaur Johann Soares	Chair: Steve Collins Ross Large	Chair: Robert White Ben Patterson	Chair: Andrew King Stanislav Glubokovskikh	Chair: Simon Williams Jared Abraham
	Broadband least-squares wave-equation migration	Rock-physics based time-lapse inversion in Delivery 4D: Synthetic feasibility study for CO2CRC Otway Project	Evolving exploration methods in the hydrocarbon play within the Patchawarra Formation on the Western Flank, Cooper Basin	Keynote Presentation Ocean and atmosphere chemistry drive cycles of basin-hosted ore deposits through time	Constrained 3D modelling and geochemical analyses of the Horseshoe Range BIF: tools for evaluating magnetic signatures under cover	Potential of full waveform inversion of vertical seismic profile data in hard rock environment	Impact of airborne electromagnetic (AEM) surveys in groundwater management in the Lower Platte South natural resources district, Nebraska, USA
0855–0920	Methods for reducing unwanted noise (and increasing signal) in passive seismic surveys Tim Dean	Application of time-lapse full waveform inversion of vertical seismic profile data for the identification of changes introduced by CO ₂ sequestration Anton Egorov	Stromatolite construction, biofacies and biomarkers in the Lower Cambrian Hawker Group, Arrowie Basin, South Australia Bronwyn Teece	Comparing responses from different AEM systems and derived models at the Sunnyside Nickel Project, Botswana Andrea Viezzoli	The rise of 3D seismic in hardrock mineral exploration Frank Bilki	The 'exploring for the future' groundwater program: a multi-physics, inter-disciplinary systems approach for de-risking investment in agriculture in northern Australia Narelle Neumann	Aquifer delineation using the tempest AEM system Adam Smiarowski

0920–0945	Quantitative Interpretation: Use of seismic inversion data to directly estimate hydrocarbon reserves and resources James Shadlow	3D vertical seismic profiling acquired using fibre-optic sensing DAS – results from the CO2CRC Otway project Julia Correa	Reservoir modelling, structural history and volumetrics of the Jerboa Area, Eyre Sub-Basin Jordan McGlew	Quest for the Holy Grail; BHP's Geophysical Research Program 1985–2005 Ken Witherley	What is ZTEM seeing over this tropical porphyry? Chris Wijns	Fast-tracking gold exploration below 300m – 3D seismic case history from Darlot gold mine Greg Turner	Resolving changes to freshwater lens systems in a 'sea of salinity' using multi-date airborne EM Timothy Munday	An integrated hydrogeophysical approach to exploring for groundwater resources in southern Northern Territory Christian Seiler
0945–1010	Solid substitution: Theory versus experiment Stanislav Glubokovskikh	Geochemistry of storing CO ₂ and NO _x in the deep Precipice Sandstone Julie Pearce	Tertiary deep-water coral supports cold seeps in the Ceduna Sub-Basin Laurent Langhi	Ten years in the wild: The P223 experiment David Annetts	Airborne geophysics over the Dolly Varden VMS and low sulphidation epithermal silver deposits, northwestern BC, Canada Jean Legault	Distributed acoustic sensing for mineral exploration: Case study Andrej Bona	Stretching AEM near-surface resolution limits related to low- and very high resistivity contrasts Andi Pfaffhuber	Using AEM and GMR methods for non-invasive, rapid reconnaissance mapping and characterisation of groundwater systems in the Kimberley region, northern Australia KokPiang Tan
1010–1040	Morning tea <i>(Exhibition The Gallery)</i>							
	SESSION 9							
	A	B	C	D	E	F	G	H
	New Technology Seismic	New Technology CO ₂	Central Australian Basins Symposium	Exploration Strategy	Geophysical Case History	Petrophysics	Groundwater	Groundwater
Room	C2.2 / C2.3	E3.10	C2.1	Pyrmont Theatre	C2.5 / C2.6	C2.4	E3.2	E3.1
	Chair: Phillip Cooney	Chair: Peter Gunn	Chair: Amandeep Kaur	Chair: Ken Witherly	Chair: Keith Leslie	Chair: Phil Schmidt	Chair: David Allen	Chair: Andrew Spyrou
1040–1105	Keynote Presentation Multi-component seismic: Applications and new developments Natasha Hendrick	Feasibility of Seismic monitoring of CCS in Perth Basin Stanislav Glubokovskikh	Regional migration and trapping frameworks in the frontier Ceduna Sub-Basin: New insights from stratigraphic forward modelling and 'triangle juxtaposition' diagrams Laurent Langhi	Keynote Presentation Mike McWilliams	Imaging high quality conductors at Golden Grove Neil Hughes	The use of petrophysical data in mineral exploration: A perspective Michael Dentith	The use of airborne EM to investigate a coastal carbonate aquifer, seawater intrusions and sustainable borefield yield at Exmouth, Western Australia Karen Gligallon	Comparative evaluation of 1D, 2.5D and 3D inversions for resolving tectonic elements in floodplains and near-surface inverted sedimentary basins Ken Lawrie and Donna Cathro
1105–1130	A double double-porosity model for wave propagation in patchy-saturated tight sandstone with fabric heterogeneity Mengqiu Guo		Could the Mesoproterozoic Kyalla Formation emerge as a viable gas condensate source rock reservoir play in the Beetaloo Sub-Basin? Carl Altmann		Woodlawn revitalised by DHEM Kate Hine	Practical considerations and good protocol for the interpretation of ultramafic and mafic rock physical property data Cameron Adams	Developing water supplies from Sapprolite Regolith Kevin Morgan	
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CONFERENCE PROGRAM

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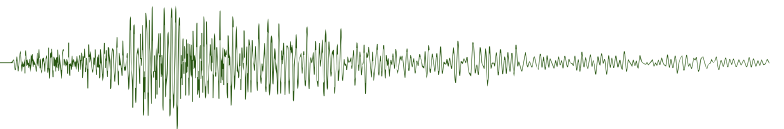
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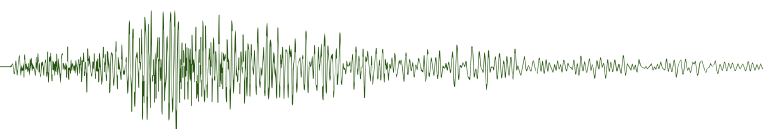


Monday 19 February 2018

Poster number	First name	Last name	Paper title	Theme
P001	Mohinudeen	Faiz	Carbon isotope fractionation in coal and marine source rocks and implications for exploration	Energy
P002	Lian	Jiang	Biomarker signatures of Upper Cretaceous to Paleogene hydrocarbon source rocks from the Latrobe Group, Gippsland Basin	Energy
P003	Mitchell	Levy	Identification of clay minerals within the Springbok formation, Surat Basin	Energy
P004	Marina	Pervukhina	VTI anisotropy in the Browse Basin: case study of Torosa-6 well	Energy
P005	Romain	Beucher	The structural evolution of the North West Shelf: a thermomechanical modelling approach using stratified lithospheric rheologies and surface processes	Energy
P006	Chris	Elders	Multiphase deformation of the Northern Carnarvon Basin	Energy
P007	Megan	Lech	Triassic provenance analysis of the Roebuck Basin, North West Shelf of Australia	Energy
P008	Shastri	Nimmagadda	The North West Shelf (NWS), a digital petroleum ecosystem (PDE) in a big data scale	Energy
P009	Victorien	Paumard	Full-volume interpretation methods: applications for quantitative seismic stratigraphy and geomorphology of the Lower Barrow Group, Northwest Australia	Energy
P010	Tegan	Smith	Recalibrating Australian Triassic palynostratigraphy to the international geologic timescale using high resolution CA-IDTIMS dating	Energy
P011	Ruken	Alac	Surface process models of the Lake Eyre Basin using Badlands software	Mineral Geoscience
P012	Bradley	Cave	U-Pb geochronology of apatite and calcite at the Ernest Henry Deposit, NW Queensland; implications for hydrothermal evolution and ore genesis	Mineral Geoscience
P013	John	Davidson	3D mapping of NSW Project: Sydney-Gunnedah Basin	Mineral Geoscience
P014	Xuesong	Ding	Modelling rifted sequence stratigraphy coupled with surface process and thermo-mechanical modelling	Mineral Geoscience
P015	Rhiannon	Garrett	Constraining upland erodibility in catchments delivering sediment to the Gulf of Papua	Mineral Geoscience
P016	Ben	Kay	Data visualisation and integration: an undergraduate perspective on the Frank Arnott Award	Mineral Geoscience
P017	Irena	Kivior	Improved imaging of the subsurface geology in the Mowla Terrace, Canning Basin using gravity gradiometry data	Mineral Geoscience
P018	Jean	Legault	Groundfloor EM: a new adaptation	Mineral Geoscience
P019	Chris	Van Galder	Enhancing the RL Smith Test Range – a demonstration of improved processing and noise results using full spectrum Falcon data	Mineral Geoscience
P020	Xiuyan	Ren	Research on DC resistivity for an arbitrarily anisotropic Earth using circular scanning measurement	Mineral Geoscience
P021	Meng	Zhaohai	Acceleration of 3D potential field data inversion using a BB iterative algorithm	Mineral Geoscience
P022	Nikolce	Aleksieski	Trace elements and naturally occurring radioactive material associated with produced waters in coal seam gas and shale gas resources and the mechanisms that influence fluid migration	Near Surface and Groundwater
P023	Tim	Dean	The use of geophysics as an aid for cricket umpires	Near Surface and Groundwater
P024	Anthony	Finn	Use of electrical geophysics to delineate shallow groundwater pathways	Near Surface and Groundwater
P025	Timothy	McMillan	Structural evolution of the Thirlmere and Mount Toma monoclines Southern Sydney Basin NSW – a groundwater perspective	Near Surface and Groundwater

Tuesday 20 February 2018

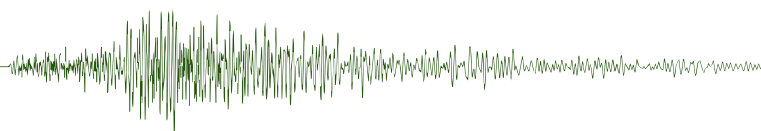
Poster number	First name	Last name	Paper title	Theme
P026	Hasbi	Fikru Syabi	Determining upflow/outflow zone and fluids flows in geothermal prospect area based on geoinicator comparison value: a case study of Mt Telomoyo, Central Java, Indonesia	Energy
P027	Hasbi	Fikru Syabi	Soil and fluids geochemistry analysis to determine non-volcanic geothermal potential, case study of Bayah, Banten, Indonesia	Energy
P029	Rifqi Alfidhillah	Sentosa	Structural geology analysis using remote sensing method and its correlation to geothermal occurrence in Bayah District, Banten	Energy
P030	Carmen	Braz	Geodynamic and surface process evolution of New Guinea since the Jurassic	Energy
P031	Aurio	Erdi	New perspective of mesozoic hydrocarbon prospectivity within West Timor	Energy
P032	Guillaume	Sanchez	Unravelling deep structures along a passive-transform margin: insights from an integrated geophysical study of the Northern Perth Basin	Energy
P033	Chris	Southby	Structural characteristics of the Northern Houtman Sub-basin, Perth Basin	Energy
P034	Chris	Southby	Tectono-stratigraphic development of the Northern Houtman Sub-basin, Perth Basin	Energy
P035	Jade	Anderson	Towards a U-Pb age map for northern Australia	Mineral Geoscience
P036	Casey	Blundell	Interpreting geology from geophysics in polydeformed terranes: The Otago Schist, New Zealand	Mineral Geoscience
P037	Astrid	Carlton	How to access New South Wales geophysical data	Mineral Geoscience
P038	Magdel	Combrinck	Using representative synthetic data to analyze effects of filters when processing full waveform airborne TEM data	Mineral Geoscience
P039	Graham	Heinson	Electrical resistivity maps of the Australian lower crust	Mineral Geoscience
P040	Graham	Heinson	Why do we need to know the electrical resistivity structure of oceanic lithosphere?	Mineral Geoscience
P041	Andrew	King	Constraining airborne electromagnetic regolith mapping with landscape evolution	Mineral Geoscience
P042	Alison	Kirkby	Development of the MTPy software package for magnetotelluric data analysis	Mineral Geoscience
P043	Laura	Phillips	Detrital zircon analysis from the Galilee Basin, Queensland	Mineral Geoscience
P044	Daniel	Sattel	Square-wave processing of MEGATEM data	Mineral Geoscience
P045	Rifqi Alfidhillah	Sentosa	Mercury and soil carbon dioxide analysis to determine geothermal resources in Mt Telomoyo, Central Java, Indonesia	Mineral Geoscience
P046	Janelle	Simpson	Exploring magnetotelluric model space	Mineral Geoscience
P047	Janelle	Simpson	Using downhole resistivity to better understand magnetotelluric inversion	Mineral Geoscience
P048	Huang	Xin	3D airborne EM anisotropic effect and identification modeling by SE method	Mineral Geoscience
P049	Gilles	Brocard	Transcontinental cenozoic paleovalleys of Western Australia	Near Surface and Groundwater
P050	Shigeo	Okuma	Magnetic imaging of ultramafic bodies on the site of the Ohi nuclear power station, central Japan	Near Surface and Groundwater
P051	Laura	Gow	Using hydrogeophysical techniques to characterise and map sea water intrusion and preferential flow paths in Howards East Aquifer, Darwin Rural Area, Northern Territory	Near Surface and Groundwater



Wednesday 21 February 2018

Poster number	First name	Last name	Paper title	Theme
P052	Andrew	Kelman	Middle Ordovician conodonts and fish from the Stairway Sandstone, Amadeus Basin	Energy
P053	Alison	Kirkby	The conductivity structure of the Georgina-Arunta region from magnetotellurics	Energy
P054	Julie	Pearce	Metal mobilisation during water reaction of the Roseneath and Murteree shales of the Cooper Basin	Energy
P055	Shakil	Ahmed	Drained pore modulus determination using digital rock technology	Energy
P056	Zubair	Ahmed	Optimum image resolution of a micro-CT image to characterise shape descriptors and microstructure of an unconsolidated sand	Energy
P057	Roman	Beloborodov	Coupled measurements of hydraulic permeability and full stiffness tensor compaction trends in artificial shales	Energy
P058	Julia	Correa	A comparison of conventional borehole tools and distributed acoustic sensing at a dedicated field laboratory	Energy
P059	Se	Gong	Carbon isotope fingerprinting palaeo fluid inclusion gases using a crushing-trapping technique	Energy
P060	Lance	Holmes	Integrated Earth data interpretation workflow - a recipe for success in onshore frontier hydrocarbon exploration	Energy
P061	Mosayeb	Khademi Zahedi	Volcanics: a commonly underestimated part of petroleum exploration	Energy
P062	Shastri	Nimmagadda	Are an upstream business data, big data? Does the size matter in the data and business analytics	Energy
P063	Wenhui	Tan	Analysis on brittleness characteristics of tight oil siltstones	Energy
P064	Chris	Van Galder	Full spectrum gravity – high quality gravity data for all applications	Energy
P065	Chitra	Viswanathan	A cloud-based well log database prototype	Energy
P066	Alexey	Yurikov	Experimental and theoretical study of water retention effect on elastic properties of opalinus shale	Energy
P067	Dmitry	Popik	Time-lapse surface seismic processing for stage 2C of CO2CRC Otway Project	Energy
P068	Tim	Dean	The seismic signature of rain	Energy
P069	Tim	Dean	Noise in urban land seismic surveys	Energy
P070	Boris	Gurevich	Seismic signatures of fractured reservoirs: theory versus numerical simulations	Energy
P071	Dave	Marchant	3D inversion of large scale marine controlled-source electromagnetics	Energy
P072	Vassily	Mikhailitsevitch	The impact of water saturation on the elastic anisotropy dispersion in the Wellington shale at seismic frequencies	Energy
P073	Nazanin	Nourifard	Effect of amplitude on wave propagation	Energy
P074	Michel	Nzikou	Forward and inversion modelling of the ultrasonic wave in a homogeneous medium using p-wave transducers	Energy
P075	Abdulwaheed	Öğünşami	Permeability and seismic-frequency elasticity of cracked glass	Energy
P076	Jacob	Smith	Interpretation using explicitly encoded phase, amplitude and fault data	Energy

P077	David	Clark	Borehole measurements within highly magnetic bodies – corrections of measured magnetic fields and gradients	Mineral Geoscience
P078	Clive	Foss	Magnetic field surveys with a source of known magnetisation	Mineral Geoscience
P079	Adouley	Guirou	Petrophysical characterisation of South East Dome copper gold deposit, Northwestern Zambia	Mineral Geoscience
P080	Matthew	Hutchens	Depth estimate of a remanently magnetised source using multi-level magnetic data	Mineral Geoscience
P081	Matthew	Hutchens	Depth estimation of source bodies using 2D magnetic gradient ratios	Mineral Geoscience
P082	Harrison	Jones	Geophysical signature of the southern-Gurubang base metal occurrence in southeastern NSW	Mineral Geoscience
P083	Duy Thong	Kieu	Integration of borehole data in geophysical inversion using fuzzy clustering	Mineral Geoscience
P084	Tom	Neville	Continuous hydrogeological characterisation in iron ore deposits using borehole magnetic resonance	Mineral Geoscience
P085	Tim	Hopper	Continuous dry bulk density evaluation using borehole magnetic resonance and density measurements	Mineral Geoscience
P086	Shastri	Nimmagadda	Digital opencast mining ecosystem (dome) for managing the Australian mining industry in a big data scale	Mineral Geoscience
P087	Anastasia	Pirogova	Effect of finely-layered stiff carbonates on a seismic response, Carnarvon Basin synthetic study	Mineral Geoscience
P088	Xiaodi	Tan	Application of image processing methods in edge detection of potential field data	Mineral Geoscience
P089	Dailei	Zhang	Fast three dimensional density inversion based on multi-scale analysis of wavelet	Mineral Geoscience
P090	Craig	Annisson	The new generation tempest system	Near Surface and Groundwater
P091	Alexander	Costall	Rapid estimation of volumetric groundwater recharge in the vadose zone via ground penetrating radar	Near Surface and Groundwater
P092	Laura	Gow	Assessing aquifer compartmentalisation in the Daly River Basin, Northern Territory: a hydrogeophysical approach	Near Surface and Groundwater
P093	Tania	Ibrahimi	Developing regional-scale hydrogeological frameworks for remote parts of Australia – the role of digital terrain data coupled with fine-scale geophysical and geological data	Near Surface and Groundwater
P094	Kevin	Morgan	Structural analyses aiding identification of water conductive fracture zones in crystalline rock	Near Surface and Groundwater
P095	Bibirabea	Sedaghat	Magnetotelluric, basin structure and hydrodynamic; south west of Western Australia	Near Surface and Groundwater
P096	KokPiang	Tan	Application of magnetic resonance data for groundwater prospectivity in the Fitzroy Basin, Western Australia	Near Surface and Groundwater
P097	Donna	Cathro	Utilisation of AEM methods for cost-effective mapping of shallow neogene intra-plate fault systems in Eastern Australian coal seam gas basins	Near Surface and Groundwater



Saturday 17 February 2018

Title:	Epithermal Au-Ag and porphyry Cu-Au exploration (1)
Date:	3 days: 17–18 and 22 February 2018
Presenter(s):	<i>Greg Corbett and Stuart Hayward</i>
Venue:	ICC Sydney
Room:	E3.1

Title:	Vectoring to mineralisation: exploration geochemistry workshop (@UNSW)
Date:	Saturday 17 February 2018
Presenter(s):	<i>David Cohen, Neil Rutherford, Anita Andrew and Graham Carr</i>
Venue:	UNSW

Title:	Using geology and geophysical data to interpret models for mineral exploration
Date:	Saturday 17 February 2018
Presenter(s):	<i>Tim Chalke, Glenn Pears and James Reid</i>
Venue:	Novotel Sydney Darling Harbour

Sunday 18 February 2018

Title:	Epithermal Au-Ag and porphyry Cu-Au exploration (2)
Date:	3 days: 17–18 and 22 February 2018
Presenter(s):	<i>Greg Corbett and Stuart Hayward</i>
Venue:	ICC Sydney
Room:	E3.1

Title:	Practical geological interpretation of potential field data sets and the importance of basement
Date:	Sunday 18 February 2018
Presenter(s):	<i>Lynn Pryer</i>
Venue:	ICC Sydney
Room:	E3.2

Title:	Structural interpretation in exploration geology, extension, compression and salt
Date:	Sunday 18 February 2018
Presenter(s):	<i>Dr Kevin C. Hill</i>
Venue:	ICC Sydney
Room:	E3.3

Title:	Mining petrophysics: extending the value of borehole geophysics data in mineral exploration and mine development through integration
Date:	Sunday 18 February 2018
Presenter(s):	<i>Dr Tim Hopper and Tom Neville, NMR Services Australia and Dr Benjamin Birt, Kinetic Logging Services</i>
Venue:	ICC Sydney
Room:	E3.10

Title:	Find your voice – present with confidence
Date:	Sunday 18 February 2018
Presenter(s):	<i>Doug Knight</i>
Room:	Adina Apartment Hotel Spinnaker B Room Darling Harbour

Tuesday 20 February 2018

Title:	From Faxes to FaceTime: building intergenerational relationships through networking and mentoring
Date:	Tuesday 20 February 2018
Presenter(s):	<i>Dr Ali Burston</i>
Sponsored by:	BHP
Venue:	C3.4 @ ICC Sydney

Thursday 22 February 2018

Title:	AI/machine learning; opportunities and challenges for minerals exploration
Date:	Thursday 22 February 2018
Presenter(s):	<i>John Hart and Ken Witherly</i>
Venue:	ICC Sydney
Room:	E3.1

Title:	Multi-modal hyperspectral core logging for exploration
Date:	Thursday 22 February 2018
Presenter(s):	<i>Melissa A. Quigley (Spectral Geoscience Pty Ltd), Brigitte A. Martini (Corescan Pty Ltd), Jon F. Huntington (Huntington Hyperspectral Pty Ltd) and Andy Green (OOTB Pty Ltd)</i>
Venue:	ICC Sydney
Room:	E3.2

Title:	Epithermal Au-Ag and porphyry Cu-Au exploration (3)
Date:	3 days: 17–18 and 22 February 2018
Presenter(s):	<i>Greg Corbett and Stuart Hayward</i>
Venue:	ICC Sydney
Room:	E3.1

Exploring for the Future: Boosting exploration for resources in northern Australia

As part of a wider Australian Government initiative to boost exploration for resources in northern Australia, Geoscience Australia (GA) is leading the four-year *Exploring for the Future* program to help identify potential mineral, energy, and groundwater resources across the region.

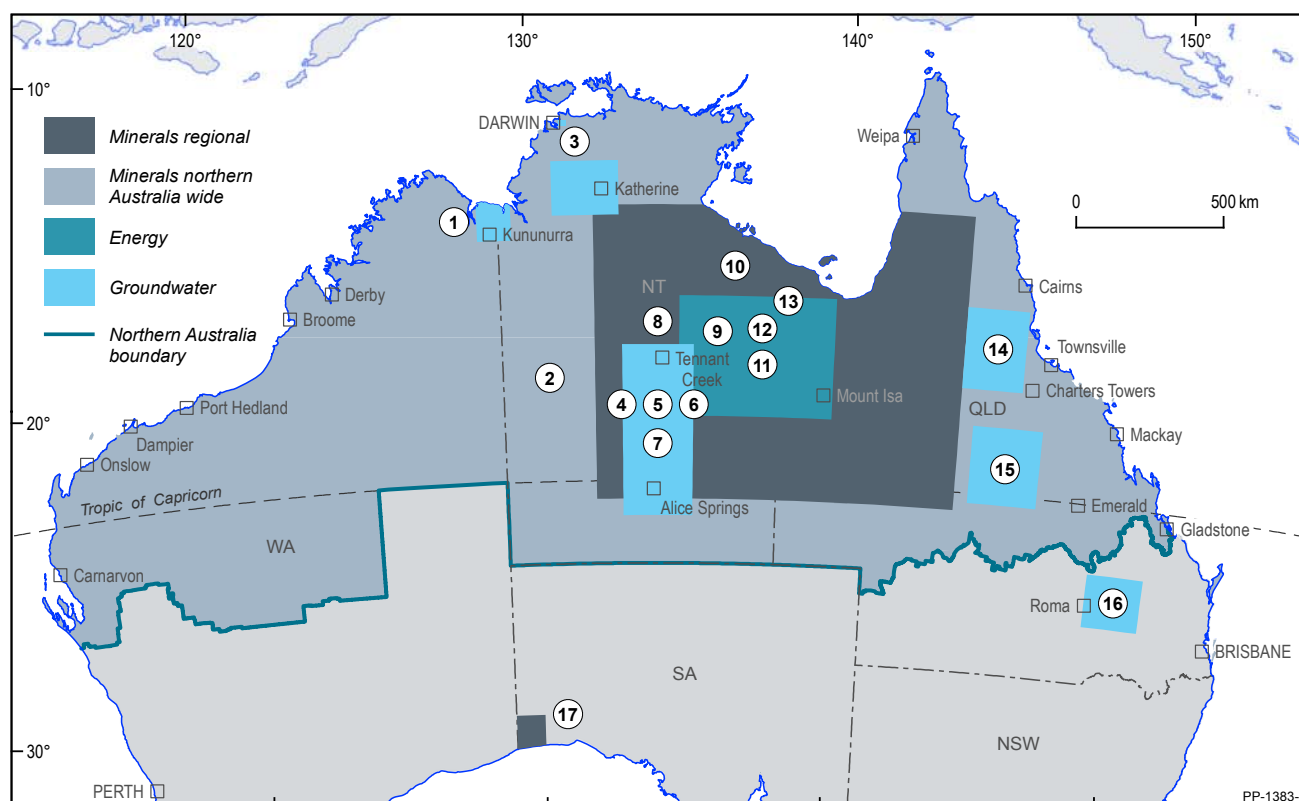
The program will deliver new pre-competitive data and information on minerals, energy and groundwater in collaboration with state and territory partners to guide and encourage investment in onshore resource exploration.

With the first year of field work now complete, our teams have collected a range of valuable research data and information across northern Australia and parts of South Australia.

Over the next three years, we will be collecting even more geoscientific data and then processing and compiling it to make it freely available for public use.

Our scientists and technicians are using innovative tools and techniques to gather new data using geophysical surveys, geochemical sampling, hydrological mapping and stratigraphic drilling.

An overview of current *Exploring for the Future* activities



- | | | |
|--|--|--|
| ① AEM survey, East Kimberley | ⑦ Southern Stuart Corridor AEM survey | ⑬ North Australia geochemistry survey |
| ② Solid geology map | ⑧ Hydrogeochemistry sampling, Tennant Creek | ⑭ Bore hole monitoring, Upper Burdekin |
| ③ AEM survey, Northern Stuart Corridor | ⑨ AusLAMP survey | ⑮ AEM survey, Galilee Basin |
| ④ AusAEM survey, Mt Isa to Tennant Creek | ⑩ Hydrogeochemistry sampling, McArthur Basin | ⑯ AEM survey, Surat Basin |
| ⑤ Onshore drilling assessment, Mt Isa to Tennant Creek | ⑪ South Nicholson gravity survey | ⑰ Coompana drilling program |
| ⑥ AusARRAY survey, Mt Isa to Tennant Creek | ⑫ South Nicholson seismic survey | |

Minerals

The minerals component of the *Exploring for the Future* program focuses on identifying geological provinces that have the greatest potential for various mineral deposits.

Our main aim is to characterise the geology of the northern part of the Australian tectonic plate from the surface down to its base through a multidisciplinary approach of data collection and synthesis, to unravel the fingerprints of ore-forming systems, which transect these scales.

An area between Tennant Creek and Mount Isa has been selected to carry out focused integrated studies for mineral potential assessments. These assessments will focus on copper, gold, lead, zinc and uranium and will involve additional geoscientific data acquisition and knowledge generation.

Image: Vibroseis trucks acquiring seismic data



Activities

- **AusAEM surveys:** a series of airborne electromagnetic (AEM) surveys will take place across a large region of northern Australia, using a broad line spacing of 20 km. It is the largest AEM survey of its kind ever undertaken. In the 2017 field season, 20 000 line-km were acquired. Public release of this data is expected by March 2018. An additional 40 000 line-km will be acquired in the 2018 field season.
- **South Nicholson gravity survey:** 2724 gravity stations collected at 4km spacing. The data was released October 2017.
- **AusLAMP surveys:** The \$3.1 million Australian Lithospheric Architecture Magnetotelluric Project (AusLAMP) commenced late in 2016, with instruments installed around Tennant Creek, and is continuing throughout regions of the NT and Queensland. The project will measure the electrical conductivity structure of the crust and upper mantle to detect ancient pathways of mineral-bearing fluids, thereby providing vectors to mineral deposits. Data from 160 sites have been acquired in northern Australia.
- **AusARRAY surveys:** The Australian Passive Seismic Array Project (AusARRAY) is a collaborative, national survey that acquires seismic velocity data. Launched in July 2017, data from 120 sites are being acquired in northern Australia. This first array will be installed for a year, spaced approximately 55 km apart in an area spanning the NT–Queensland border.

- **Hydrogeochemistry sampling:** 20 unique groundwater samples collected from sites around Tennant Creek and McArthur Basin.
- **North Australia geochemistry survey:** 782 overbank surface sediment samples were collected during a helicopter assisted program between May and June 2017. The data is currently being processed and interpreted.
- **Solid geology map:** A solid geology interpretation of the area from Mt Isa to Tennant Creek and Darwin which progressively strips off Cenozoic, Mesozoic and Palaeozoic rocks has been generated and is out for review with state and territory geological surveys. This is a first step towards a national 3D geology map.
- **Isotopic atlas:** Samples have been collected from drill core libraries and submitted for analysis to measure neodymium and lead isotopes to map the main crustal boundaries of northern Australia. A compilation of argon data has commenced.
- 25 new uranium-lead geochronological age dates of key rock types of northern Australia has been completed and delivered in three reports.
- **Coompana Drilling Program:** More than 1800 metres of high-quality drill core samples have been collected from eight stratigraphic drill holes in partnership with the Geological Survey of South Australia.
- **Onshore drilling assessment:** Desktop based investigations are underway to assess the potential of the Tennant-Isa region for iron oxide-copper-gold and basin-hosted mineral systems. This desktop assessment, in addition to geological interpretations arising from new data acquisition, will inform stratigraphic drill targeting for the 2019 dry season.



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Energy

The energy component of the *Exploring for the Future* program will concentrate on the evaluation of the oil and gas prospectivity and resource potential of sedimentary basins.

Historically, the most valuable data to predict oil and gas resources has been seismic reflection data to understand the architecture of the basins and corresponding well data to analyse the potential of an active petroleum system. These techniques will also be the primary acquisition techniques for the new data due to their effectiveness; however, they will be supplemented by a variety of innovative techniques and interpretations to ensure the best outcomes.

Activities

- **South Nicholson Basin:** seismic surveys were conducted over the South Nicholson Basin in 2017. The processed data will be available in early 2018. Stratigraphic drilling will take place over the next two years to collect rock samples that will provide information on the resource prospectivity.
- **Kidson Sub-basin:** Planning for geophysical data acquisition is underway for the 2018 field season and the interpretation of the data will inform the location of stratigraphic drilling to acquire rock samples. This activity will enable improved understanding of the sub-surface geology and provide detailed information on mineral and hydrocarbon prospectivity.

Groundwater

The groundwater component of the *Exploring for the Future* program will assess the location, quantity and quality of potential groundwater resources in five regional areas to underpin future opportunities for irrigated agriculture, mineral and energy development, and community water supply.

The program will comprise both targeted regional investigations and analysis of groundwater prospectivity more broadly across northern Australia. Five regional areas have been selected for new targeted geoscience studies:

- East Kimberley
- Northern Stuart Corridor (Howard East and Daly River Basin)
- Southern Stuart Corridor (Tennant Creek to Alice Springs)
- Upper Burdekin
- Surat and Galilee Basins.

Activities

- **Southern Stuart Corridor:** 9613 line-km airborne electromagnetic survey completed; 21 bores logged for induction and gamma geophysics.
- **Northern Stuart Corridor:** 5423 line-km airborne electromagnetic survey completed; 50 bores logged for induction and gamma geophysics.
- **East Kimberley:** 13 379 line-km airborne electromagnetic survey completed with financial contribution from NT Department of Environment and Natural Resources from the Commonwealth National Water Infrastructure Development Fund for the Ord Stage 3: Keep River Project; 7920 km² LiDAR elevation data acquisition completed; 1071 station passive seismic and gravity survey completed; 161 station surface nuclear magnetic resonance survey completed; 25 water samples collected and analysed.
- **Surat and Galilee Basin AEM surveys:** 4477 line-km of airborne electromagnetics completed.
- **Upper Burdekin:** eight new water bores drilled; water level loggers installed at 14 water bores; 56 water samples collected and analysed.

For Further Information:

Geoscience Australia

Website: www.ga.gov.au/efft

Email: efft@ga.gov.au

Ph: (02) 6249 9111

(Monday–Friday, 9am to 5pm AEST)

Sunday 18 February 2018**Welcome reception****Time:** 6:00 pm – 7:30 pm**Venue:** Exhibition in The Gallery @ The ICC Sydney*A ticket to the welcome reception is included with full delegate registration*

The welcome reception will be a cocktail style event held in the exhibition to welcome delegates to Sydney. It will be a time to catch up with old friends and meet new ones in a relaxed atmosphere, away from the hustle and bustle of the conference sessions.

Tuesday 20 February 2018**Conference dinner****Time:** 7:30 pm – 11:30 pm**Venue:** Parkside Ballroom @ ICC Sydney**Master of Ceremonies:** Tom Gleeson*A ticket to the Conference dinner is included with full delegate registration (where indicated 'including dinner').***Additional tickets:** AU\$130 per person (incl. GST).

Limited additional tickets are available for sale. Please visit staff at the registration desk for more information.

Other social functions*Please visit staff at the registration desk for more information about these social functions.***Monday 19 February 2018 and Wednesday 21 February 2018****Rocks geology, history and pub tour****Tickets:** \$50 per person per tour *Limited to 20 places

The AEGC Conference is providing a fantastic opportunity to learn about the geology of the Sydney City area, whilst also taking in some of its early history, as a British penal colony! The Rocks pub tour is 2–3 hour walking tour that will visit numerous sites in Sydney's historic Rocks district. We'll learn a bit about the geology, a bit about the history, eat kangaroo, emu and crocodile pizza, and visit some of Australia's best pubs along the way (see map and itinerary for details). Price includes tour guides, pizza and beer tasting paddle (or similar).

Tuesday 20 February 2018**Student trivia night****Time:** 6:00 pm**Venue:** Pyrmont Bridge Hotel**Tickets:** \$20 per person *Limited to 60 places

The AEGC Conference provides a fantastic opportunity to learn about the ever-evolving geoscience industry and network with not only professionals but also students! The student trivia night aims to bring together students in a relaxed environment to not only learn about what other students are studying, but also establish contacts and networks within the student community. The trivia will not be too technical, but rather fun, and discussed over food and drink with views over stunning Darling Harbour, at Sydney's iconic Pyrmont Bridge Hotel.



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