



AESC

australian earth sciences
convention

UNCOVER EARTH'S PAST TO DISCOVER OUR FUTURE

26–30 JUNE 2016 | Adelaide Convention Centre
www.aesc2016.gsa.org.au



VERSION 4 – MAY 2016

Photo credit: Steve Hill, Coober Pedy SA

INVITATION TO ATTEND

The Geological Society of Australia invites you to participate in the Australian Earth Sciences Convention 2016. AESC 2016 will be held in the city of Adelaide in South Australia, an exciting city with a big 'country town' feel that is surrounded by prestigious wine regions. Adelaide is the gateway to a number of nationally significant geological regions including the Flinders Ranges, which is the location of the 'golden spike' for the Ediacaran Period and is the only such type section in the Southern Hemisphere, and the Gawler Craton, which is host to the world's largest iron oxide-copper-gold deposit, Olympic Dam. Adelaide is thus an ideal location to host our convention—Uncover Earth's Past to Discover Our Future.

The convention will address issues being faced by the geosciences today, including concerns about the resources and energy sector and impacts on Australia's future and economy, as well as about global geohazards, past and present climate change, and understanding the modern and ancient Earth. AESC 2016 will also include four symposia: 40th Anniversary of Olympic Dam; UNCOVER—The future of undercover exploration; The Sprigg Symposium: Earth's Evolving Climate; and an Early- to Mid-Career Geoscientists' Symposium.

AESC 2016 will showcase the latest geoscience research, provide opportunities for professional development and the space to connect and collaborate with your peers. We welcome you to participate in the AESC 2016 convention in Adelaide and look forward to seeing you there.

AESC Convention Secretariat

All Occasions Management

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INVITED SPEAKERS



Richard Goldfarb

Richard Goldfarb received his BS degree in geology from Bucknell University, an MS degree in hydrology from the MacKay School of Mines, and a PhD degree in geology from the University of Colorado. He was a research geologist with the Minerals Program of the U.S. Geological Survey for 35 years. Rich worked on the program's Alaskan resource assessment projects for three decades, leading the Survey's Alaska geochemical exploration research group during the late 1980s and 1990s.

Since the middle 1990s, he has been involved with many of the Survey's international metallogeny studies and was most recently chief of the Mineral Deposit Models project. As of the start of 2016, he divides his time as an adjunct professor at the Colorado School of Mines, University of Western Australia, and the China University of Geosciences, as well as serving as a consultant to the exploration industry. He continues to run many workshops on gold exploration for industry geologists.

Rich's major expertise is the geology of gold deposits. He has conducted studies on the distribution of gold deposits throughout the world, compiling some of the most comprehensive global descriptions of their spatial-temporal setting and evaluating their controlling factors as guides to exploration. His research has been focused on global metallogeny, geology of ore deposits in the North American Cordillera with emphasis on orogenic gold, and distribution and geology of lode gold deposits in China and elsewhere in Asia.

Rich has authored more than 200 papers on mineral resources, with many recognized as the authoritative research on orogenic gold and on aspects of regional metallogeny, as well as editing numerous books. Rich is Past-President of the Society of Economic Geologists and was past chief editor of *Mineralium Deposita*.



Paul Hoffman

Paul F. Hoffman is a research geologist formerly with the Geological Survey of Canada and Harvard University. His 55 years of ongoing field work are split between Paleoproterozoic basins and tectonics in northern Canada, and Neoproterozoic paleoceanography-paleoclimate in northern Namibia. In the 1970s and '80s, he successfully applied the new concepts of plate tectonics to the Precambrian. He established the paradigm that cratonic North America is a composite of six or more formerly independent Archean microcontinents, convulsively assembled as part of the supercontinent Nuna in geon 18 (1800-1899 Ma).

In 1992, sensing that deepsea and glacial ice-core proxy data were revitalizing paleoceanography-paleoclimate, just as paleomagnetism and marine geophysics had revolutionized tectonics thirty years earlier, he abruptly switched his research focus to the Neoproterozoic. In the 1990s and 2000s, he and geochemical oceanographer Dan Schrag were the leading advocates of the snowball Earth hypothesis for low-latitude Cryogenian glaciations and cap carbonates. Critical predictions of the snowball hypothesis, greatly elevated atmospheric CO₂ at deglaciation and synchronicity of glaciation and deglaciation globally at low latitudes, are increasingly supported by new data.

Hoffman's best known papers are, United plates of America: the birth of a craton (1987), Did the breakout of Laurentia turn Gondwanaland inside-out? (1991), and A Neoproterozoic snowball Earth (1998). A recipient of the Wegener Medal (European Union of Geosciences), Wollaston Medal (Geological Society of London), Bucher Medal (American Geophysical Union) and Penrose Medal (Geological Society of America), he lives in Victoria, British Columbia.



Professor Ken McClay

Ken McClay is Professor of Structural Geology, Department of Earth Sciences, Royal Holloway University of London. He graduated with a BSc Honours degree in Economic Geology from Adelaide University, has an MSc in Structural Geology and Rock Mechanics, a PhD in Structural Geology from Imperial College, University of London and a DSc from Adelaide University.

Since 1991 he has been Professor of Structural Geology and Director of the Fault Dynamics Research Group. Current major research projects include 'Tectonic and Structural Analysis of Deepwater Fold Belts' and STAR—'Structural Analogues for Reservoirs'. Ken has carried out wide-ranging research on all aspects of structural geology applied to both the mining and petroleum industries. This has included field-based research in NW Scotland, the Spanish Pyrenees, Indonesia, Yemen, Iran, Australia, Canada, USA, Chile, Argentina, Greenland, Norway, Turkey, Ethiopia and Gulf of Suez—Red Sea Egypt.

His research interests include extensional, strike-slip, thrust and inversion terranes. He runs a large experimental analogue modelling laboratory for the simulation of fault structures and sedimentary architectures at Royal Holloway.

Ken has written a book for mapping structures in the field, edited four major volumes on Thrust Tectonics, and has published widely on structural geology and tectonics. He is a consultant for the international mining and petroleum industries and has given many short courses to industry.

He is a Fellow of the Institution of Mining and Metallurgy, Chartered Engineer, and Fellow of the Geological Society of London. He was the 1994–1995 Bennison (USA) and the 1999 Roy M. Huffington (International) Distinguished Lecturer of the American Association of Petroleum Geologists.



Sandy Steacy

Sandy Steacy is an earthquake scientist who is particularly interested in stress interaction and time dependent seismic hazard. After graduating with a geology degree from the University of North Carolina at Chapel Hill, she went to the University of Southern California to complete a PhD with Professor Charlie Sammis. Sandy then moved to the University of Ulster in Northern Ireland where she became Professor of Earthquake Physics in 2007; she joined the University of Adelaide in January 2015.

Sandy's current research is in the general area of operational earthquake forecasting, in essence the determination of time dependent changes to earthquake probabilities. Her work focuses on the computation of Coulomb stress changes which affect earthquake likelihood in time and space, and in combining this physics based approach with geological and statistical models.

Sandy was a member of the expert elicitation panel on future seismic hazard in the Canterbury region whose work informed the revised building codes in Christchurch, New Zealand. She was also lead editor of a special issue of the Journal of Geophysical Research on 'stress transfer, earthquake triggering, and time-dependent seismic hazard', and is lead author of the review paper that introduces the volume.



SYMPOSIA

AuScope 10 Year Anniversary Symposium

For more information please refer to page 10.

40th Anniversary of the Olympic Dam Symposium

Kathy Ehrig, (BHPB), Symposium Director

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July 2015 marks the 40th anniversary of the discovery of the iconic Olympic Dam Fe-oxide Cu-U-Au-Ag deposit in South Australia. Olympic Dam is the world's largest uranium, 5th largest copper, and 3rd largest gold deposit. The genesis of this archetype IOCG type deposit remains controversial. The goal of this symposium is to present outcomes of ongoing geological research projects and the geological logging/assaying of over 2 million metres of diamond drilling across the deposit. Topics presented will include the discovery, geology, alteration/mineralisation, geochemistry, isotopic studies, age dating of events which have contributed to the formation of the world's largest accumulation of metals.

Abstract submissions for this symposium are not available.

Early-Mid Career Geoscientist

Juan Carlos Alfonso, (Macquarie University), Symposium Director

E juan.afonso@mq.edu.au

This symposium will bring together Australian Early and Mid-Career Geoscientists (EMCG) to discuss current and future challenges and opportunities for EMCGs in Australia, harness the potential of EMC geoscientists in Australia, and exchange scientific ideas to foster collaborative projects. This will be a perfect follow-up of the recent 1st Australian workshop for EMCG (<http://eps.mq.edu.au/emcg/>).

Abstract submissions for this symposium will be available. Please see 'Call for Abstracts' for further information.

Sprigg Symposium: Earth's Evolving Climate

Theme Convenors: Cesca McInerny, Jon Tyler, Juraj Farkas, (University of Adelaide), Symposium Directors

E jonathan.tyler@adelaide.edu.au / juraj.farkas@adelaide.edu.au

Earth's climate history, as recorded in geological archives, provides vital context for the planet's future, facilitating the development and testing of new hypotheses and models for forecasting future change. Even more fundamental, the history of Earth's evolving climate provides context for life itself, and the inherent transfer of energy and elements between the lithosphere, atmosphere and biosphere, from a planet devoid of gaseous oxygen, to one where life exerts a hitherto unfathomable control over the composition of the atmosphere. The importance of climate as an intermediary between life and Earth was recognised by Reg Sprigg, in his pioneering exploration and documentation of the Australian geological landscape from his recognition of the Ediacaran fauna—Earth's first multicellular life, to his mapping of stranded and submerged shorelines on the sea floor. Sprigg serves as inspiration for contemporary geoscientists, who are ideally placed to explore climate through the lens of the geological past.

The 2016 Sprigg Symposium, Earth's Evolving Climate, will present lectures on key elements of Earth's climate history, from origins through to present day. By going back to basics on the nature and causes of climate variability, the symposium hopes to shed new light on the future of our planet.

Abstract submissions for this symposium will be available. Please see 'Call for Abstracts' for further information.

UNCOVER Symposium: The future of under cover exploration

Steve Hill, (GSSA), Symposium Director

E Steve.Hill@sa.gov.au

Australia's economy is supported through exploitation of natural resource wealth. Discovery of new deposits has not kept pace with depletion of these resources, the end result of exploitation of easily discovered near-surface deposits. UNCOVER is an industry-academia-government cooperation intended to drive a step change in mineral exploration discovery rates at greater depth and under cover. This vision requires the coming together of groups on a scale never before attempted. This symposium will showcase some of the early work focused on undercover exploration.

If you have Symposia questions please contact Ros King.

E rosalind.king@adelaide.edu.au

Abstract submissions for this symposium are available. Please see 'Call for Abstracts' for further information.

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CALL FOR ABSTRACTS

Abstracts are invited for both oral and poster presentations for the Australian Earth Sciences Convention 2016, with the final date for electronic submission being 15 February 2016. All abstracts must be prepared according to the guidelines. Abstracts must be formatted according to a template and submitted via the online submission page on the [AESC website](#)

Important Dates

Closing date for submission of abstracts: 15 February 2016
Acceptance, allocation or rejection will be advised by Friday 18 March 2016.

THEMES

The program for the AESC2016 will be organised by means of a set of themes, with sessions running through the course of the meeting. The program will be arranged to minimise clashes between themes.

The main themes are:

Earth's Environment — Past to Present

Theme coordinator: John Tibby
Contact: john.tibby@adelaide.edu.au

Session: Scientific Results of the International Ocean Discovery Program (IODP) as the Australasian program intensifies [cross theme session]

Convenors: Neville Exon, Richard Arculus [ANU]

IODP is the world's largest academic geoscience program, involving scientists from around the world including Australia and New Zealand. The main elements of the IODP Science Plan are climate and ocean change, biosphere frontiers, Earth connections, and Earth in motion, and these are addressed largely by deep continuous coring and associated geophysical logging, and borehole instrumentation. The Adelaide AESC is an excellent venue at which scientists from around the world can present fascinating results from past expeditions, and outlines of exciting expeditions and proposals for the future. One IODP expedition will occur in our region in 2015, five more are approved for the next three years, and more strong proposals are expected to be approved and drilled in 2018.

Session: Biogeochemical cycling in the marine biosphere

Convenors: Toni Cox [UoM], Nicole Webster [AIMS]

The marine biosphere (from coastal to open ocean to the seafloor) hosts a wide variety of ecosystems that drive the biogeochemical cycling of vital elements, such as carbon, nitrogen, sulfur and phosphorus, on a global scale. In the case of carbon, for example, marine microorganisms convert

CO₂ to biomass through photosynthesis and chemosynthesis, respire and ferment organic C, and induce the removal of C by biomineralisation. Identifying niche-specific roles for marine biota in key processes in different biogeochemical cycles is vital for understanding their contributions to global elemental fluxes and residence times. This session welcomes submissions from the fields of marine biogeochemistry, environmental microbiology, metagenomics and ecogenomics, microbial ecology, biomineralisation or chemical/biological oceanography that focus on understanding biologically-influenced mechanisms for elemental cycling and fluxes in marine systems.

Session: Biogeochemistry of Earth's Critical Zone

Convenors: Matthias Leopold [UWA], Mathew Watts [UoM]

The 'Critical Zone' is Earth's highly permeable near-surface layer, extending from the atmospheric boundary layer above vegetation canopies to the bottom of shallow groundwater systems and the start of fresh bedrock. The interactions between rock, water, air, and biota in this zone shape ecosystems and underpin the sustainability of life on Earth; yet fundamental questions around the formation, function, and future evolution of the Critical Zone remain unanswered. In particular, coupling between physical, chemical, and biological processes in the Critical Zone are poorly understood across temporal and spatial scales. This session seeks contributions relating to the investigation of nutrient, contaminant and energy cycling processes across a range of terrestrial and aqueous environments, particularly those that focus on the role of biota in mediating geochemical processes.

Session: Sedimentary biosignatures and biomarkers: keys to unlocking the co-evolution of Earth and life through geologic time

Convenors: Marco Coolen, Kliti Grice [Curtin]

The record of evolutionary and environmental changes through deep time can be preserved by organic, mineral and isotopic biosignatures and biomarkers trapped within the rock record. Some of these proxies reflect major changes or events in palaeo-ocean and/or palaeo-atmospheric chemistry, and include unique signs of the contributions of living organisms to various biogeochemical cycles. In this session, we draw together experts in biogeochemistry, organic geochemistry, isotope geochemistry, geomicrobiology, geochemistry, mineralogy — working in natural, experimental or theoretical systems — to explore the topic of sedimentary biosignatures and biomarkers, and what they can tell us about where Earth has been, and where it may be going, in terms of the evolution of our environment and the nature of life on this planet.

Session: Holocene-Pleistocene evolution, dynamics and geomorphology of Australian dune systems and barriers

Convenor: Patrick Hesp [Flinders]

Many of the coastal barrier systems of Australia remain non- to poorly studied, and this is particularly true of the transgressive dunefield and parabolic dunefield dominated barrier types. There is growing recognition of the importance of coupled dynamics between dune systems and climate changes. The primary goal of this proposed topical session is to present state-of-the-art knowledge regarding the long-term evolution of, and past and future climate-change-drivers and sea levels to barrier evolution and their associated dune systems. Presentations which span, ecology, botany, climate, geology, geomorphology and dating (or similar fields) of coastal dune systems on barriers are encouraged. This session will also serve to bring together the field and modelling communities and promote enhanced and integrated collaboration, which is critically needed to address the scientific challenges of projecting barrier system response to future coastal change.

Session: Late-Quaternary coastal landscape evolution and human interaction in Australia

Convenors: Craig Sloss, [QUT], Sean Ulm [JCU], Patrick Moss [UQ]

Fluctuating sea-levels and climate during the late Quaternary have had a profound influence on coastal landscape evolution and as a result have influenced human habitation of coastal regions. As a result coastal and near-shore depositional environments offer an archive of changes in climate, sea-level fluctuations and human interaction with a dynamic environment. This session aims to bring together diverse research communities ranging from marine geosciences, coastal geomorphology and those working in working in coastal archaeological settings.

Session: Southern Hemisphere Quaternary palaeoenvironmental reconstructions and chronologies

Convenors: Lee Arnold, John Tibby [Adelaide], Jonathan Tyler

Well-constrained regional palaeoenvironmental records are critical for reconstructing Southern Hemisphere Quaternary climate histories, evaluating inter-hemispheric climate teleconnections, understanding landscape evolution, and assessing the climatic context of mass extinctions and human dispersals. Continued advances in dating methods and environmental proxy development have played a key role in ensuring reliable interpretation of Quaternary sedimentary archives. This session brings together these complementary fields of Quaternary research and provides a platform for showcasing palaeoenvironmental and geochronology studies being undertaken on a range of terrestrial, marine and cryosphere records across the Southern Hemisphere. We welcome presentations on a broad range of dating techniques (radiocarbon, luminescence, uranium-series, cosmogenic

nuclides, ESR, argon-argon, fission track, amino acid racemisation, palaeomagnetism etc) and a diverse array of environmental proxies (pollen, stable isotopes, organic content, XRF and ITRAX core data, grain size analysis, magnetic susceptibility etc). Palaeoenvironmental studies that attempt to integrate different chronological datasets and multi-proxy tracers are encouraged, as are studies that synthesise site-specific or regional-scale histories using advanced statistical approaches (e.g. Bayesian modelling).

Session: Groundwater and Environment- past and future

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA], Dioni Cendon [ANTSO]

Papers are invited that explore future climate impacts on groundwater systems, as well as those that advance the understanding of 'fossil' groundwater systems. Papers that examine the significance of these investigations for groundwater management are encouraged.

Tectonics of the Planet: Craton and Continental Formation and Evolution, Ocean Plate Tectonics, Plate Margin and Plate Interior Tectonism

Theme coordinator: Stijn Glorie

Contact: stijn.glorie@adelaide.edu.au

Session: Supercontinent Cycles and Global Geodynamics (IGCP648).

Convenors: Z.X. Li [Curtin], Alan Collins [Adelaide]

Rapid recent progress in supercontinent research indicates that Earth's history has been dominated by cycles of supercontinent assembly and breakup. New developments in geophysical imaging power and computer simulation have provided increasingly clearer views of the Earth's interior, and how the moving plates on the Earth's surface interact with the deep planetary interior. We invite contributions from a diverse range of geoscience expertise to harness these breakthroughs in order to explore the occurrence and evolution history of supercontinents through time, and the underlying geodynamic processes.

Session: Volcanism: modern to ancient, plate edge to plate interior

Convenor: Jessica Trofimovs [QUT]

Volcanism is a fundamental Earth process that has played a major role in the history of our planet and its resources, and continues to impact on life and human civilisation. As such, the study of volcanology has evolved to encompass a broad range of science disciplines. The session entitled "Volcanism: modern to ancient, plate edge to plate interior" appeals to a diverse range of contributors from across the field of volcanology. The focus will be on advancing our understanding

of modern or ancient volcanic successions and their associated emplacement mechanisms, volcanic geochemistry, provenance studies, volcano monitoring, volcanic hazards and mitigation, and natural resources. We invite contributions from remote sensing, field-, laboratory- and/or desktop-based studies of the terrestrial or marine realm. The LAVA specialist group of the GSA will host this session and will also hold their Annual General Meeting during the conference. All welcome.

Session: The origin, evolution and impacts of Cenozoic intraplate magmatism in Australia

Convenors: Peter Reynolds, Simon Holford,
John Foden [Adelaide]

Most magmatism on Earth takes place where tectonic plates collide or are torn apart, but plate tectonic theory does not satisfactorily account for the origin of intraplate, dominantly basaltic volcanic provinces, often of Cenozoic age, that are widely distributed across our planet. One of the world's great intraplate magmatic provinces is located in eastern Australia, though despite being intensely studied for decades, there is little agreement on the underlying driving geodynamic mechanisms responsible for this province. We invite submissions using geochemical, geophysical and field-based methods that seek to understand the genesis, products and implications of this magmatism in both onshore and offshore settings.

Session: The Australian Neotectonic Record: Insights from Geology, Geophysics and Geomechanics.

Convenors: Ros King, Simon Holford [Adelaide]

The rich record of Australian neotectonic deformation has been increasingly well documented over the past decade, but there are still outstanding questions regarding the relationship between these features and the contemporary and palaeostress fields, the timescales over which neotectonic activity has taken place, and the relative contributions of mantle and plate boundary dynamics to shaping the Australian landscape. This session will address these questions, with multidisciplinary contributions integrating geological, geophysical and geomechanical datasets particularly welcomed.

Session: Tectonics of the Tasmanides

Convenor: Gideon Rosenbaum [UQ]

The Tasmanides, an assembly of late Neoproterozoic to Triassic orogenic belts in eastern Australia, occupy approximately third of the Australian continent. Recent research in the Tasmanides, facilitated by a larger volume of geochronological databases and higher resolution geophysical data, have resulted in new discoveries that may lead to a paradigm shift in the way that Tasmanide tectonics is understood. This session will focus on new ideas and developments in research related to the Tasmanides, with an emphasis on contributions that will deal with the lithospheric structure of the Tasmanides, curvatures and oroclines, role of terrane accretion, tectonic mode switches, and provenance of

sedimentary successions.

Session: Timing Tectonic Processes

Convenors: Marnie Forster and Gordon Lister [ANU]

Critical to timing events during tectonism is the recognition of event sequences, and then working out ways to date when individual events took place and how long they endured.

Topics in this session will cover: i) dating ductile shear zones to time the movement of thrusts, strike-slip faults or detachments; ii) using geochronology to link modern geodetic observations into deeper time; iii) dating the growth of metamorphic minerals such as garnet and using various methods to determine how long individual growth events endured; iv) dating volcanic eruptions that deposit tephra over large regions, allowing constraint for the climatic record; v) using low temperature chronometers on coral or cave records to time the occurrence of events, e.g. in terraces; or vi) using diffusion to determine how long crystals sit in a magma chamber before eruption.

Session: Proterozoic orogens welding the West, South and North Australian Cratons

Convenors: Rian Dutch [GSSA], Chris Kirkland [Curtin],
Hugh Smithies [GSWA]

This session will explore new developments in our understanding of the evolution of the Proterozoic orogens separating the West, South and North Australian Cratons, the timing and processes involved in the Proterozoic amalgamation of these cratons, and the resulting crustal architectures. Advances in our understanding of these fields have come from a range of sources including geologically well-constrained whole-rock and in-situ geochronological, geochemical, isotopic, metamorphic, and geophysical datasets. Recent seismic and magnetotelluric deep crustal imagery coupled with stratigraphic drilling is providing insight into key localities beneath deep cover. Age-constrained isotopic data, in particular, is allowing us to fingerprint the ancestry and character of basement to the Proterozoic orogens. Interpretations of these new datasets present important constraints that are challenging previous ideas on the nature and timing of amalgamation along all of these cratonic margins. This session compliments the session "Exposing the Nullarbor basement: Interpretation of the Eucla-Gawler deep crustal reflection seismic line 13GA-EG1", which presents the first release of new seismic and magnetotelluric interpretations from the covered basement between the West and South Australian Cratons.

Session: The Wilson Cycle at 50: do we understand the role of structural inheritance?

Convenor: Myra Keep [UWA]

In 1966 J. Tuzo Wilson published his seminal paper "Did the Atlantic close and then re-open?". This became known as the 'Wilson Cycle,' the concept that repeated opening and closing of oceans occurred along old orogenic belts. Inherent in this

concept is the notion that tectonic processes weaken the crust and make them more susceptible to deformation during later orogenic events.

This session aims to examine the processes that cause continental weakening, the role of structural inheritance during continental deformation, our understanding of the processes that govern strain localization, and also assess advancements in our comprehension over the ensuing 50 years.

Session: Thermochronology of the continental crust — plate margins to plate interiors

Convenors: Andy Gleadow, Barry Kohn [Melbourne], Brent McInnes [Curtin]

A range of increasingly well-understood thermochronometers are now available for investigations of the evolution of the continental crust across a wide range of temperatures. These have found diverse applications at many scales in such areas as the evolution of orogenic belts, PTt paths in metamorphism, continental extension tectonics, the development of rifted continental margins, tectonism within plate interiors, the evolution of sedimentary basins and long-term landscape evolution. Researchers in Australia have contributed significantly to the development of many of the constituent methodologies including (U-Th)/He, fission track, Ar/Ar, and U-Pb thermochronology across various mineral systems, amongst others. The field continues to grow and contributions are invited across any of these areas.

Session: Gondwana to Asia: Accretion tectonics and intracontinental reactivation of Central Asia and Australia

Convenors: Stijn Glorie [Adelaide], Tom Raimondo [UniSA], Johan De Grave [Ghent]

This session aims to explore the tectonic evolution and intracontinental reactivation of Asia and Australia, focussing on (1) the break-up of Gondwana and its impacts on Australia; (2) the separation and accretion of Australia-derived terranes from Australia to Asia; (3) the Phanerozoic evolution of the Australian and Asian margins and (4) the intracontinental reactivation of Central Asia and/or Australia. We welcome contributions from several disciplines including but not limited to geochemistry, geo- and thermochronology, geophysics, structural geology and sedimentary geology.

Session: Groundwater Geodynamics

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA], Dioni Cendon [ANTSO]

This session will examine the links between geodynamics and groundwater systems, including the links between Neogene tectonics and the development (and hydrodynamics) of surface and groundwater systems from continental to basin and local scales. Contributions that examine the impacts of earthquakes on groundwater systems, and the links between groundwater/energy development and induced seismicity, will also be welcomed.

Session: Growth versus reworking of the Australian continent through time

Convenors: Pete Betts [Monash], Ross Cayley [Geol Survey Victoria]

The geological record of the Australian continent suggest at least two major episodes of continental accretion. Major accretionary events occurred during the Paleoproterozoic and during the Phanerozoic. Both these accretion episodes are characterised by protracted (100's millions of years) and complex orogenic and basin forming events along the edges of supercontinents. There remains significant debate and uncertainty as to the extent of crustal growth versus continental reworking during accretion. This session will explore the crustal architecture, reconstruction and geochemical signatures, and geodynamics of continental growth and reworking of the Australian continent through time.

Deep Earth Geodynamics: Core, Asthenosphere and Lithosphere Dynamics, Coupling the Dynamic Deep Earth with Surface Tectonics

Theme coordinator: Dietmar Muller

Contact: dietmar.muller@sydney.edu.au

Session: AuScope 10 Year Anniversary

Convenor: Helen Keogh [AuScope, Melbourne]

The AuScope Symposium will showcase research outcomes that have been made possible using AuScope national research infrastructure. The day will be broken up into four sessions focusing on the Earth and Geospatial science research areas that AuScope infrastructure investments have had the biggest impact over the past decade. The final session will be an open discussion on the future needs of Australian researchers and will inform AuScope's strategic planning to meet those needs over the next decade.

The four sessions will be:

1. Temporal architecture, led by Dr Christian Sippl, ANU
Christian.Sippl@anu.edu.au

Research into the evolution and geometry of the Australian Plate

2. Changes and Impacts, led by Dr. Lucia Plank, UTAS
lucia.plank@utas.edu.au

Research into the nature and state of the Australian region

3. Science Enablers, led by Mr Sabin Zahirovic, Sydney University, sabin.zahirovic@sydney.edu.au

Development and use of tools, software and data enabling world class research

4. AuScope, Future directions, led by Dr Tim Rawling, AuScope Acting CEO, tim.rawling@unimelb.edu.au

“Town Hall” style discussion

Session: From resistivity to geology: What can MT tell us about the Earth?

Convenors: Graham Heinson [Adelaide], Stephan Thiel [DSD SA], Janelle Simpson [GSQ]

Magnetotellurics has grown in popularity in the last decade as a geophysical imaging method to define the resistivity of Earth from the top few metres to hundreds of kilometres depth. With advances in 3D modelling and inversion techniques, resistivity images can be generated at finer scale than ever before. However, the link from resistivity to geology is still poorly understood, due to the inherent non-uniqueness of inversion and uncertainty as to the geological causes of electrical conduction. This session is aimed at bridging the gap between the MT method and geological interpretation.

Session: Superswells, Superplumes and Their Control on Tectonics

Convenors: Derrick Hasterok [Adelaide], Rhodri Davies [ANU], Juan Carlos Afonso [Macquarie]

Observations of two large topographic highs over Africa and the Southern Pacific are linked to two large seismic low velocity provinces within the mantle. Much discussion has surrounded the question of whether they are compositional or thermal anomalies, how they relate to deep mantle features, how they relate to heat loss across the core-mantle boundary, how long have they persisted in the geologic record, and their influence as a first-order global control on surface tectonics. We seek submissions investigating the current state of knowledge, recent geophysical and geochemical observations, geodynamic models of their evolution, and observations or models of associated global tectonic activity.

Session: Linking plate tectonics and mantle convection

Convenors: Joanne Whittaker [UTAS], Louis Moresi [Melbourne], Juan Carlos Afonso [Macquarie]

Some fifty years on from the plate tectonics revolution, we are still working towards a quantitative understanding of how and why the plates move. We are still working towards understanding how the deep seated circulation in the mantle gives rise to, and is driven by, the motions of the lithosphere. The fundamental challenge is creating a detailed dynamical understanding of our planet, tying together oceanic and continental deformation, modern and early Earth, deep interior and surface motions. This session will examine the integrated dynamics of plate tectonics and mantle circulation by combining contributions from a range of disciplines including plate tectonics, geodynamics, and geochemistry.

Session: Linking mantle convection and tectonics to surface processes

Convenors: Nicolas Flament [Sydney], Karol Czarnota [GA]

Earth's topography results from the operation of multiple dynamic processes that occur across a large range of overlapping spatial and temporal scales. Recent advances in integrating geophysical and geological data are improving our knowledge of the crust and lithosphere, and our understanding of the origin of surface topography. In parallel, advances in modelling the plate-mantle system and surface processes have increased interest in exploring the relationships between plate motions, mantle flow, surface topography, sea level, erosion and sedimentation, and basin formation. This session will be a forum to address questions related to the spatial and temporal nature of the surface expressions of mantle convection. We welcome contributions at all scales and from both a geological/observational and geodynamical/modelling perspective.

Mineral Endowment: Formation and Exploration of Mineral Deposits; Their Tectonic and Geochemical Environment and Significance

Theme coordinator: Richard Lilly

Contact: richard.lilly@adelaide.edu.au

Session: The Australian 1.5-1.6 Ga tectonic environment: origin and timing of world class ore systems

Convenors: Justin Payne [UniSA], Pete Betts [Monash]

This session aims to bring together researchers from a wide range of specialities in order to discuss one of the most significant ore-forming events in Earth's history. The Gawler, Curnamona and Mount Isa cratons share significant links between geodynamics and ore-deposit genesis during this period. Multi-disciplinary comparison between these areas will assist in the identification of key drivers for mineralisation and will have implications for regional prospectivity.

Session: Hyperspectral applications in economic geology

Convenors: Belinda Smith [NTGS], Alan Mauger [GSSA]

New technology has led to rapid developments in the application of mineral spectroscopy as an effective tool across the exploration to mine value chain. This new technology has the capacity to record and analyse hundreds of thousands of continuous measurements every day, leading to the creation of high resolution datasets. Geologists can maximise the benefit of this growing data bank of rich resources (collected from the surface by satellites and aircraft or from drillcore by hyperspectral scanners) by identifying mineral assemblages and spectral parameters that can be used as vectors for mineralisation and visualisation in three dimensions.

This symposium will be supported by the National Virtual Core Library community which comprises all State and Territory Geological Surveys, their downstream users and CSIRO. The opportunity to discuss technology will also be provided and

will cover the use of automated hyperspectral and imaging technologies as applied to extracting value from drill samples (core, chips, pulps, etc). New users can learn about these new techniques and existing users can share their experiences across diverse geological environments.

Session: Non-traditional isotopes in high- and low-temperature environments

Convenors: Juraj Farkas, John Foden [Adelaide]

New stable isotope tracers of heavy metals (Cr, Fe, Ni, Cu, Zn, Mo, Cd, Hg), alkaline earth metals (Ca, Mg, Sr, Ba) and lighter elements (Li, B, Cl) are being increasingly used to solve problems relevant to the origin and evolution of ore deposits and the earth system over geological time, as well as for practical applications involving mineral exploration and isotope tracing of metal contaminants in the environment. This session invites contributions that use non-traditional isotopes to advance our knowledge and understating of ore forming processes, earth system evolution and geochemical pathways of metals in both high- and low-temperature environments.

Session: Exposing the Nullarbor basement: Interpretation of the Eucla-Gawler deep crustal reflection seismic line 13GA-EG1

Convenors: Catherine Spaggiari [GSWA], Rian Dutch [GSSA], Michael Doublier [GA]

The Eucla-Gawler deep crustal seismic reflection line (13GA-EG1) and magnetotelluric (MT) surveys were conducted across the Nullarbor Plain of Western and South Australia to investigate the lithospheric architecture of hidden basement provinces under deep cover. The 870 km long west to east transect stretches from the eastern margin of the Yilgarn Craton and Albany-Fraser Orogen in Western Australia, across the Madura and Coompana Provinces and the South Australian border, and through to the Eastern Gawler Craton where it links with the GOMA seismic line at Tarcoola. The seismic and MT surveys are a national collaboration between Geoscience Australia (GA), the Geological Survey of Western Australia (GSWA), the Geological Survey of South Australia (GSSA) and AuScope Earth Imaging (part of the National Collaborative Research Infrastructure Strategy). Additional new information from these key hidden basement provinces include regional magnetic and gravity data, and mineral exploration and stratigraphic drilling, all providing important constraints on 3D architecture and 4D evolution interpretations, which will be presented in a series of talks by the collaborators (GSWA, GSSA, GA, and ANU). The Eucla-Gawler line fills a 'gap' in seismic coverage to complete a series of deep-crustal seismic transects stretching from west to east across the Australian continent, and is an important asset in reconstructing the tectonic evolution of Australia.

This session is run in conjunction with the session 'Proterozoic orogens welding the West, South and North Australian

Cratons', which will explore current developments in our understanding of how and when the North, South and West Australian Cratons amalgamated.

Session: Mining with microbes: harnessing microbial machinery to solve challenges in minerals and energy industries

Convenors: Talitha Santini [UQ], John Moreau [UoM]

Across the life-of-mine cycle, the augmentation or replacement of current exploration, processing, and remediation techniques with novel microbially-driven technologies can improve yields, decrease process costs, and reduce environmental impact. Microbially-based processes for discovery and extraction of minerals and energy resources offer opportunities to increase the efficiency of traditional methods and expand the range of ores to include those previously considered to be economically unviable. Microbial communities can also play key roles in addressing major environmental challenges posed by mine wastes and tailings by transforming the extreme chemical and physical properties of these materials to more closely resemble those of surrounding environments. This session seeks contributions relating to the investigation of coupled geochemical and microbiological processes in mining environments, including bioexploration, bioleaching, and bioremediation, at both laboratory and field scales.

Session: Exploration Through Cover: Recent advances in geochemical and biogeochemical exploration techniques

Convenor: Richard Lilly [MIM, Adelaide]

The continued demand for world-class ore discoveries and the decreasing chance of finding outcropping ore deposits increases the need to explore for potentially buried mineralisation in areas of thick overburden and cover sequences. The development of new geochemical and biogeochemical sampling methods designed to measure the surface geochemical expressions of buried and blind mineralisation in a range of regolith settings continues to advance the ability to geochemically explore in covered terrains. This session also welcomes submissions of case-studies from industry geoscientists involved in active exploration campaigns.

Session: New technologies in mineral exploration

Convenors: Caroline Forbes, Dave Giles [DET CRC, Adelaide], Yulia Uvarova [CSIRO]

The decline in economically significant mineral deposits and increase in global demand for metals over the last ~20 years signifies that we need to be innovative with the way we undergo mineral exploration. The major hindrance to discovery is primarily viewed as deposits exposed at the Earth's surface having mostly being discovered, forcing exploration into deeper, buried environments. Exploration through cover is

significantly more costly, slower and challenging compared to surface exploration. Samples that give critical information can only be returned through expensive drilling practices, and all sample media (cover and basement) needs to be utilised in a manner that will return maximum information. This session will present recent technological advances and case studies that will enable successful mineral exploration through deep, barren cover rocks.

Session: Industry Focus: The Next Generation of Economic Geologists

Convenor: Richard Lilly [MIM, Adelaide]

This session aims to bring together early career geoscientists from a cross section of the Australian minerals industry. Presentations and case studies on mining and exploration related in-house and collaborative applied geoscience research projects are encouraged. Submissions from all commodities including base metals, gold and coal are welcomed. The session will also involve discussion periods where geoscientists can express their views and opinions about the growing role of research in economic geology and how researchers from Australia's geoscience community can most effectively engage with industry.

Session: Critical Metals and Future Resources

Convenor: Richard Lilly [MIM, Adelaide]

Strategic metals, including Bi, Co, Ge, Ga, In, Li, Nb, PGE, REE, Ta, Te, Se and W are being increasingly used across a range of high-tech industrial and energy applications. Increasing demand worldwide has intensified research into the geology and geochemistry of these elements but has yet to extend into the exploration and mining implications. This session will incorporate innovative contributions to the understanding of their crustal cycles, and the factors controlling their concentration in minerals and their potential for practical economic future extraction. We encourage geological, geochemical, isotopic and experimental approaches as well as industry case-studies.

Session: Deposit to Camp Scale Ore Systems: Zonation in space and time

Convenor: Zhaoshan Chang [JCU]

Most exploration activities are at deposit- to camp-scale. This session intends to reveal near-ore to far-field signals of and vectors towards mineralisation to help increase exploration success rate and efficiency. The session will focus on the transition between different styles of mineralisation with genetic links, spatial zonation at various scales (meters to 10s of kilometres; within a deposit or between genetically linked deposits), zoning patterns in all possible geological features (e.g., mineralogy, texture, whole rock geochemistry, mineral chemistry, spectral features, isotope compositions, etc.), zonation at various paragenesis stages, and ore genesis to ensure the validity of the spatial zoning patterns.

Session: Groundwater in mineral exploration and mining

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA],
Dioni Cendon [ANTSO]

Papers are invited on the following sub-topics:

- The use of novel techniques, including hydrochemical methods, in mineral exploration.
- New insights into the role of groundwater processes in the formation of uranium and potash deposits.
- Groundwater and mining. Studies that explore the impact of mining on groundwater systems (groundwater flow, groundwater contamination and remediation, and subsidence), are welcomed.

Session: Integrating structure and geochemistry: Impact on ore fluids

Convenors: Steve Micklethwaite, Andy Tomkins [Monash]

How far do fluids migrate due to dynamic processes such as earthquakes or earthquake swarms, and how does this affect their chemistry? What is the impact of rapid fluid removal from rocks undergoing prograde metamorphic reaction? Earthquake sequences transiently increase permeability – are there circumstances where fluid chemistry suppresses the sealing of that permeability? Can we distinguish mineral zonation arising from fault-related fluid pulsing, relative to crystal-fluid interface effects? These questions and others like them are the topic of this session. We seek to bring together structural geologists and geochemists to share the latest insights of their respective fields, and explore the implications that each discipline has for the other.

Geoscience and Society: Education, Integration and Translation of Earth Sciences for Societal Benefit

Theme coordinator: Ian Clark

Contact: Ian.Clark@unisa.edu.au

Session: Field work for the future: Where to with the student field experience?

Convenor: Karin Barovich [Adelaide]

Field experiences are fundamental to the undergraduate student education, and academics and future employers around the world place great value on the learning outcomes of field teaching. There are substantial challenges in field instruction including but not limited to: OH&S developments, field trip costs and the need to rationalise budgets, the widening diversity of the student cohort resulting from the country's increased higher education participation rates. We invite talks that present strategies to meet these and other challenges. We also invite the speakers to include details of learning outcomes and associated logistical, safety and financial matters, so that others may benefit from shared wisdom.

Session: New developments in groundwater and environmental mapping, characterisation, assessment and modelling

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA, Dioni Cendon [ANTSO]

New approaches and technologies for the rapid cost-effective, mapping, characterisation, monitoring and visualisation of complex natural hydrological (surface and groundwater) systems. This session encompasses the following themes:

- a. Smart and big data approaches. This session welcomes papers that explore the current and future use of data fusion techniques, deterministic and stochastic methods, data mining, machine learning and self-organising mapping methods. The session also welcomes papers that deal with the use of novel techniques for assessing data redundancy (e.g. compressed inversions), and the calculation and assessment of uncertainties in data acquisition, measurement and integration.
- b. Water in the landscape: advances in the use of remote sensing technologies and advanced computational capabilities for mapping surface and groundwater systems. Papers that utilise new capabilities to map and measure surface water availability through time, landscape hydrological properties (including soil moisture and evapotranspiration), surface-groundwater interaction and groundwater-dependent ecosystems, will be particularly welcomed.
- c. Advances in the use of geophysical and hydrogeophysical techniques. This session welcomes contributions on a wide range of ground, borehole and airborne technologies, including electrical methods (e.g. airborne electromagnetics (AEM)), surface and borehole Nuclear Magnetic Resonance (NMR), magneto-tellurics (mT), seismic reflection and gravity techniques including satellite methods (GRACE), airborne gravity gradiometry, and ground gravity. Papers on the use of new borehole geophysical and visual logging technologies for aquitard, aquifer and fault damage zone characterisation will also be welcomed.
- d. New hydrochemical and hydrodynamic methods and technologies for the characterisation of groundwater systems, aquitards and aquifers. Papers documenting advances in new hydrochemical/isotopic tracers, the use of passive technologies (e.g. geological weighing lysimeters), and laboratory methods, are encouraged.
- e. Advances in the parameterisation, visualisation and modelling of groundwater systems. Papers are welcomed that demonstrate advances in the incorporation of geological heterogeneity (e.g. lithological, structural, hydrogeological), into groundwater system visualisation and modelling. The session will also examine the use of conceptual models and simulation techniques and the use of methods for predicting

data and knowledge gaps.

Session: Regional groundwater and Managed Aquifer Recharge (MAR) investigations and opportunities.

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA, Dioni Cendon [ANTSO]

This session encompasses the following themes in regional groundwater and MAR investigations

- a. Groundwater systems and MAR in northern and inland Australia. With recent announcements on the development of northern Australia, this session encourages papers examining the potential for the use of groundwater and MAR options to underpin agricultural development. Papers that highlight potential hazards (e.g. seawater intrusion, groundwater salinity, and broader hydrochemical issues), are encouraged.
- b. Groundwater systems in the SW Pacific. This session will encourage the submission of papers on the state of knowledge, vulnerability, and opportunities to build community resilience through the improved understanding and management of groundwater systems and MAR.
- c. Groundwater in arid zones. Papers that examine the groundwater in paleo-valley systems will be particularly welcomed.
- d. Groundwater in coastal zones. With the increasing development in many of the world's coastal zones, this session will deal with recent investigations that document water balance in coastal aquifers, and the threat posed by seawater intrusion and coastal inundation.

Session: War Records of Australian geologists

Convenor: Ian Withnall [GSQ]

In recognition of the ongoing remembrances marking the centenary of World War 1, this session will highlight the records of Australian geologists who served in that conflict and their contributions to geology before or after that service. Papers are therefore invited on such geologists, although papers of a more general nature such the geology of particular battlefields and its effects on the course of the war will be considered. It is anticipated that Edgeworth-David's service as a geologist on the Western Front will be a keynote address. Other papers already confirmed are on: Leslie Blake, who mapped Macquarie Island as part of Mawson's Australian Antarctic Expedition, and who as an Artillery officer, received a Military Cross for applying his surveying skills in mapping the British Lines while under fire during the battle of The Somme; and Walter Heywood Bryan, later Professor of Geology and Mineralogy at the University of Queensland, who also received a Military Cross for service in the Artillery in France.

Session: Recent advances in Geotourism in Australia and beyond?

Convenors: Bernie Joyce [Melbourne], Angus Robinson [Leisure Solutions]

In November 2014, the Geotourism Standing Committee <http://gsa.org.au/heritage/Geotourism.html> was established following a three year period formed as a subcommittee of the Geological Heritage Standing Committee and six years after the convening of the inaugural Global Geotourism conference held in Fremantle.

Geotourism is emerging as a new global phenomenon which is tourism focusing on an area's geology and landscape as the basis for providing visitor engagement, learning and enjoyment. Geotourism can be delivered within a wide range of both protected and non-protected areas including heritage mine sites, as exemplified overseas particularly within geoparks, and so far in Australia through Australian National Landscapes such as Flinders Ranges, Kangaroo Island and Australia's Red Centre. The concept of geotrails has provided an alternative and attractive approach to nurturing regional development by celebrating geotourism, geological and mining heritage.

This symposium explores recent developments in geotourism practice in Australia and overseas, geological heritage issues and opportunities for embracing earth sciences history as representing a key component of the overall visitor experience. Our invited international speaker, Professor Patrick McKeever, Chief of Section, IGCP Secretary, Section on Earth Sciences and Geo-Hazards Risk Reduction for UNESCO will open the sessions in Adelaide in 2016, and we now invite papers to consider past and current work on geotourism, including the relationship of work in Australia to international developments, and in particular the story since our major discussions at the IGC in Brisbane in 2012, and the AESC in Newcastle in 2014.

Session: Geoheritage

Convenor: Margaret Brocx [GSA National Heritage Convenor]

The scope of the session will be the reporting on the state-of-the-art of Geoheritage in Australia, as well as the challenges and opportunities for Geoheritage nation-wide. The scope of the session is intended to be broad, and authors are invited to present papers in the realm of geoheritage involving any of the disciplines such as palaeontology, mineralogy, stratigraphy, sedimentology, igneous, metamorphic, and structural geology, volcanic terrains, karst, coastal science, geodiversity, methodology, the identification and management of geosites and geoparks, and building stones & ornamental rocks: resource evaluation, technical assessment, geoheritage designation.

Session: Communicating for Social Acceptance

Convenor: Melissa Muller [SA Dept State Development]

There is no one unique formula for mining companies to gain social acceptance, however there are some necessary

principles to apply. These principles include the establishment of good relationships, which are based on mutual respect, open and ongoing communication, inclusion of all stakeholders, honesty, transparency and provision of information suitable to the audience. It is important to start engaging with stakeholders early for exploration and mining developments.

Earth Science for Energy: From Hydrocarbons to Renewables

Theme coordinator:

Peter McCabe Contact: peter.mccabe@adelaide.edu.au

Session: Australasia's petroleum systems

Convenor: Simon Holford [Adelaide]

Understanding petroleum systems is essential for exploration in frontier areas as well as looking for new plays in more mature basins. This session will examine petroleum systems around Australia and New Zealand, both onshore and offshore. It will look at all elements of petroleum systems including source rocks, maturation, migration, reservoirs and seals. It will also look at the tectonic evolution of the basins that host petroleum systems and discuss how that has influenced the petroleum systems.

Session: Gas from coal

Convenors: Carmine Wainman [Adelaide],
Tennille Crombie [Santos]

Coal seam gas from the Permian and Jurassic basins of Queensland has dramatically increased Australia's gas production and LNG from that area is now being exported to East Asia by LNG. The challenge is to ensure that Australia's coal seam gas remains cost competitive compared to other LNG on the international market. At the same time other coals are being explored as potential new major sources of gas. Of special interest are the deep coals of the Cooper Basin. This session will look at the coals and coal-bearing strata emphasizing the economic relevance of geologic studies.

Session: Shale gas/oil

Convenor: David Dewhurst [CSIRO]

Oil and gas from shale formations has radically increased North America's energy production. This has resulted in substantially lower gas prices in the United States and was a major cause of the marked fall in the price of oil in late 2014 and early 2015. The big question is when will the shale revolution go global? It is critical to understand Australia's true resource potential by better understanding the geologic nature of the region's shale formations. It is also important to understand early the environmental implication of any shale development to help preserve the environment and ensure the industry has a social license to operate.

Session: Reservoir analogues

Convenors: Kathryn AMOS [Adelaide],
Bruce Ainsworth [Chevron]

Both modern and ancient analogues are useful in the exploration and development of petroleum resources. The session will discuss the use of analogues that range from understanding the distribution of reservoirs on a basin-scale to understanding compartmentalization on a reservoir-scale. It will discuss the appropriate use of analogues and the challenges of applying lessons learned from modern sedimentary environments to understanding the architecture of ancient strata. Aspects to be discussed may include variations in source rock richness, reservoir geometry and seal integrity.

Session: Groundwater and Unconventional Energy

Convenors: Ken Lawrie, Ross Brodie, Steven Lewis [GA],
Dioni Cendon [ANTSO]

This session will explore new insights into the hydrogeology of groundwater systems related to coal seam gas, shale resources, CO₂ geosequestration and geothermal energy. It will encompass the hydrostratigraphy, tectonics, hydrochemistry and hydrodynamics of such systems. The session welcomes papers that examine the evidence for groundwater processes including inter-aquifer leakage, the recognition of natural fugitive emission zones, and the potential for near-surface impacts.

Session: Energy in 2050

Convenors: Elinor Alexander [SA Dept State Development],
Pete McCabe [Adelaide]

What will Australia's and the world's energy mix be in the year 2050? What percentage will come from fossil fuels? How much can the renewable energy industry expand over the next 35 years? Will nuclear energy become a more significant component of the energy mix? How might the demand for energy expand and what are the geopolitical implications? What will be the effect on greenhouse gas emissions? These are some of the important questions that will be addressed in this session. An emphasis will be on how best scientists can best engage the public and decision-makers in future debates about how the energy mix should evolve.

SYMPOSIA

Early-Mid Career Geoscientist

Authors will be required to submit an abstract for consideration of either an Oral or Poster presentation. Further information on how to submit your abstract online is detailed below.

Sprigg Symposium: Earth's Evolving Climate

Authors will be required to submit an abstract for consideration of either an Oral or Poster presentation. Further information on how to submit your abstract online is detailed below.

UNCOVER Symposium: The future of under cover exploration

Authors will be required to submit an abstract for consideration as a Poster presentation only. Further information on how to submit your abstract online is detailed below.

ABSTRACT SUBMISSIONS

Abstracts accepted to the themes or symposia will be organised by the Program Committee into appropriate oral and poster sessions.

Submission Details

Authors should submit abstracts online (via the AESC website), as early as possible, but no later than 15 February 2016. You will receive an email acknowledgement of the receipt of your abstract within 7 days of submission and you will be notified by email by the 18 March 2016 on the success of your submission and the required format.

The Organising Committee reserves the right to contact authors, if required, to clarify the nature of intended presentations prior to making decisions regarding their acceptance.

Abstract Guidelines

- Abstracts must focus on scientific results or their application in fields relevant to the convention's scientific themes or the symposia. The Scientific Program Committee may decline to consider abstracts with other focus.
- For each abstract, authors should indicate their preference for either an oral or poster presentation. However, the Scientific Program Committee reserves the right to reassign abstracts to the alternative format, subject to time-tabling considerations.
- Abstracts may be submitted to any of the themes or the symposia accepting abstract submissions listed above. When submitting an abstract for a symposium, please ensure you use the relevant Symposium template. Within the themes, authors may choose to nominate their submission within one of the pre-defined sessions, or may leave their submission ungrouped within the broad theme.
- Following the abstract deadline, submitted papers may be placed by the Program Committee, in a different, more appropriate session than the one to which they were submitted. Abstracts submitted to the broad themes will be grouped with other, similarly focussed abstracts into additional sessions devised by the Program Committee. Final decisions regarding placement of individual papers into sessions rests with the Program Committee.
- Within the thematic sessions, a limit of 1 oral presentation for the main conference and 1 oral presentation for a symposium may be submitted per presenter, who must be a registered delegate and should appear as the first author. There is no limit on poster presentation submissions.
- Presenting authors may appear as co-authors on other presentations, without limits.
- Plenary, keynote and invited oral or poster presentations will not be counted towards the oral or poster limit. Presentations submitted to any of the three symposia accepting abstract submissions will also not count towards the presentation limits for the thematic sessions.
- Only presenters will be listed in the program. All co-authors will be included in the abstract section of the convention handbook. By submitting an abstract the author(s) agree to publication of the abstract in the convention handbook and any other convention promotional material.
- Authors will be notified of acceptance/rejection before 18 March 2016.
- All abstracts are to be submitted online using the online abstract submission form. If you cannot view your abstract in

the speaker portal within 24 hours after submission, please contact the convention organisers.

- If you are unable to submit via the website or are experiencing difficulties please contact the Convention organisers.

Note: Abstracts submitted via fax, email or on disk/CD will not be accepted.

Format for Abstracts

The following format must be followed for all abstracts:

- Title: 12 point, bold typeface, Arial font, left aligned
Leave one blank line (12 point)
- Authors: 10 point, Arial font, Surname, First name, Presenting Author to be bold
- Affiliations numbered in superscript
- Leave one blank line (12 point)
- Affiliations: 10 point, Arial font, Italics, Affiliation, City, Country
- Leave one blank line (12 point)
- Abstract Text: 10 point, Arial font, left aligned, single spacing.
- Maximum of 500 words (does not include abstract title)

A copy of the abstract submission template will be available on the speaker portal when abstract submissions open on 3 November 2015.

Please note the following:

- Do not insert any tables or figures
- Do not include titles or degrees
- Check spelling and grammar. Submitted material will be published in the convention handbook—the abstract should, therefore, contain no errors.
- Standard scientific abbreviations may be used—non-standard abbreviations should be included in parenthesis after the first use of the full word.
- Do not indent paragraphs.
- Name the file with the first 8 characters from the surname of the first author (for example: wolf.doc).
- Present sufficient data to support conclusions—it is unsatisfactory to use statements such as “data will be presented” or “results will be discussed”.



AESC FIELD TRIPS

Given the recent trends away from the cost and time commitments of longer field trips, an array of one day to several day long field trips have been proposed to showcase the diversity of South Australian geology. From a brief walk down North Terrace to view the building stones of some of Adelaide's iconic buildings, an early morning trip to the seaside, day tours through some of SA's famous wine regions to multi-day trips to the Flinders Ranges and Gawler Ranges, there's something for everyone.

All field trips will depart and return from the Bus zone on North Terrace, in front of the Adelaide Convention Centre. Places on field trips will be strictly limited. Some field trips have a specified cut-off date, if minimum numbers are not reached by the 15th April 2016, the field trip will be cancelled: contact Rian Dutch, Rian.Dutch@sa.gov.au. (Details subject to change):

PRE-CONFERENCE FIELD TRIPS

Terroir of the Adelaide Hills Wine region

Date	Sunday 26th June, 2016
Duration	1 day
Cost	\$110 (lunch at winery not included in price)
Leader	Tom Mayer (Consultant Geologist)

This trip will travel to four wineries in the Adelaide Hills Wine Region to study aspects of the terroir of the various vineyards. We will be talking to the winemakers at each location to discuss the important contributors to terroir: geology, regolith, soil, altitude and microclimate, sun aspect, vine selection, trellising and pruning practices, picking parameters (baumé, acidity), picking technique and oenological practices.

The purpose of the tour is:

- To critically examine and discuss the terroir of several Adelaide Hills vineyards
- To appreciate some of the variations of terroir within a single wine region
- To taste and appreciate the fine wines produced at each location
- If desired, to purchase some fine wines.

Delamerian granites in the Adelaide Hills and NW Murraylands

Date	Sunday 26th June, 2016
Duration	1 day
Cost	\$130 (all inclusive)
Leaders	John Foden (University of Adelaide) Stacey McAvaney (Geological Survey of SA)

The Cambro-Ordovician Delamerian-Ross Orogen produced extensive contractional deformation in the Adelaide Fold Belt of South Australia, as well as Antarctica, western Victoria and Tasmania and marks the earliest stage in the development of the Tasman Orogen. In the southern Mount Lofty Ranges ~ 50 km E of Adelaide, where early Cambrian sediments of the Kanmantoo Group experienced compressional deformation and low P high T metamorphism accompanied by syn- and post-tectonic magmatism. This excursion will visit examples of syntectonic I- and S-type granites and granite gneisses and basement migmatites as well as post-tectonic S- and A-type granites and mafic intrusions.



IOCGs — Where it all began. The Moonta-Wallaroo region of the eastern Gawler Craton

Date Saturday 25th to Sunday 26th June 2016

Duration 2 days

Cost \$530 (all inclusive)

Leader Colin Conor (Consultant Geologist)

Trip will be cancelled if minimum numbers not reached by the 15th April 2016

The Olympic IOCG domain of the eastern Gawler Craton hosts the World's the greatest abundance of IOCG mineralisation. From discovery in 1860 the first deposits mined were within the Wallaroo-Moonta Cu-Au field, which for a time was the highest copper producer in the British Commonwealth, perhaps even the World (approximately 10mt ore @ 3.5% Cu & 0.5g/t Au). Although not large by today's standard the Wallaroo-Moonta region was the springboard from which WMC (Western Mining Corporation) launched its exploration northward to discover the famous Olympic Dam deposit below the 350m of Neoproterozoic cover of the Stuart Shelf in 1975. The rocks of Yorke Peninsula display the majority of features expected of an IOCG mineral system, such as early Mesoproterozoic timing, deeply penetrating shearing, extensive A&I-type felsic magmatism (Hiltaba Suite), widespread intense magnetite associated alkaline and calcsilicate alteration, brecciation, as well as a variety of iron oxide related Cu-Au mineralisation styles, including the skarn-related Rex Minerals Hillside deposit, that is currently awaiting mining.

The Hillside Project is the first of many fascinating sites intended to provide an understanding of the economic geology of this the southern part of the Olympic IOCG Domain; included also are coastal outcrops, which provide the most extensive field exposures of that Domain as well as cover relationships. Additionally visits will be made to historic mine sites, and also to view the hosting Palaeoproterozoic Wallaroo Group that is considered to have been a crucial component of the mineralising system.

Physical volcanology of the Mesoproterozoic Gawler Range Volcanics silicic large igneous province

PLEASE NOTE, MAXIMUM NUMBERS HAVE BEEN ACHIEVED

Date Tuesday 21st to Saturday 25th June 2016

Duration 5 days

Cost \$1200 (all inclusive)

Leader Jocelyn McPhie
(University of Tasmania, McPhie Consulting)

Trip will be cancelled if minimum numbers not reached by the 15th April 2016

The Gawler Range Volcanics are the volcanic part of the Mesoproterozoic Gawler silicic large igneous province, and are very well exposed in the northern Eyre Peninsula. We will complete a north-south traverse through the Gawler Range Volcanics, examining the best exposures of diverse lavas and pyroclastic facies in the lower GRV, and two of the three gigantic felsic lavas (each ~500 km³) in the upper GRV. We will also examine outcrops of the Hiltaba Suite granites which form the intrusive part of the Gawler SLIP. We will travel in 4wd vehicles and enjoy a fully catered camp each night under the stars. Most outcrops are within easy walking distance from tracks, and we will complete one or two 2-3 km-long walking traverses along ridges and creeks.





MID-CONFERENCE FIELD TRIPS

Hallett Cove Geological Wake-Up Call.

Date Tuesday 28th June 2016, 6am departure
Duration 3 hours
Cost \$60 (includes breakfast snack)
Leaders Carmen Krapf, Stacey McAvaney
 (Geological Survey of SA)

Visit Hallett Cove Conservation Park, situated along the coastline of Adelaide’s southern suburbs, and enjoy the sunrise on an early morning walk along the 2 km long Hallett Cove Geological Trail. This geological monument preserves Neoproterozoic marine and coastal sediments of the Adelaide Geosyncline folded during the Cambro-Ordovician Delamerian Orogeny, as well as evidence of glaciation during the Permian Period, including striated glacial pavements at Black Cliff, glacial lacustrine sediments at the Sugarloaf and erratics transported from southern Fleurieu Peninsula.

North Terrace Building Stones.

PLEASE NOTE, MAXIMUM NUMBERS HAVE BEEN ACHIEVED

Date 27th and 29th June 2016, During lunch break
Duration 90 minutes
Cost Free
Leader Barry Cooper (University of South Australia)

Following the recent release of the self-guided geological tour brochure (http://www.sa.gsa.org.au/Field_Guides.html), this fieldtrip provides a great insight into a range of geology from around the world, right on the doorstep of the convention venue.

POST-CONFERENCE FIELD TRIPS

Clare Valley Rocks - the earth beneath our vines.

Date Friday 1st July 2016
Duration 1 day
Cost \$110 (lunch at winery not included in price)
Leaders Mario Werner (Geological Survey of SA)
 Mick Roche (Stewardship Matters)

Discover the geology, wineries, scenery, breweries, gourmet foods and the gout de terroir of the Clare Valley.

Home of the finest Australian and International Rieslings, as well as mighty fine reds, boutique beers and an innovative earth science interpretative program called Clare Valley Rocks [CVR] — see www.clarevalleyrocks.com.au — the Clare Valley holds a unique position in the Australian Wine Industry.

The Cenozoic Willunga Basin: from Australo-Antarctic Gulf to Sprigg Orogeny, from vines and wines to shining sea.

Date Saturday 2nd July 2016
Duration 1 day
Cost \$140 (lunch at winery not included in price)
Leaders Brian McGowran (University of Adelaide)
 Jeff Oliver (Consultant Geologist)

The excursion begins with the great unconformity on the northern margin, Eocene over Cryogenian, and ends at the southern end in the deformations of the late Neogene Sprigg Orogeny. It will be punctuated by the wining and lunching for which the McLaren Vale district is well known. We will walk the coastal section illustrating: (1) the onset of tectonic modernity, in which the Australo-Antarctic Gulf was subsumed in the Southern Ocean; (2) the steps in the Eocene-Oligocene transition to environmental modernity, that is, the critical interval in the greenhouse-icehouse transition; and (3) stratigraphic parallels in sequence stratigraphy and profound environmental shifts between a neritic section at ~60°S and the global ocean.



Quarries and extractive minerals of the Adelaide region.

Date Friday 1st July 2016

Duration 1 day

Cost \$130 (all inclusive)

Leader Gus Harvey (Geological Survey of SA)

The Mt Lofty Ranges, extending from Victor Harbor in the south to The Barossa Valley in the north, has been the source area for both hardrock and sand construction materials for the greater metropolitan Adelaide region. Cambrian and Neoproterozoic Age rock units quarried include metasedimentary Dolomites, Dolomitic Siltstones, Quartzites, Sandstones, Arkoses and Marbles; each having individual characteristics appropriate to the variety of demands for concrete, asphalt, rail ballast, roadbase etc required for the construction industry. Relic Tertiary sand deposits uplifted with the basement rocks of the ranges have been worked for construction sand materials. The Riverview, Para Hills, Kapunda and Penrice Quarries and the Kalbeeba Sand Pit give a perspective of the source rock types as well as displaying some of the geological structure and features of the region.

Olympic Dam on site core display.

PLEASE NOTE, DUE TO LACK OF REQUIRED NUMBERS THIS FIELD TRIP HAS BEEN CANCELLED

Date Friday 1st July 2016

Duration 1 day

Cost \$550 (includes lunch, flights and transfers at OD). Transfers to/from Adelaide Airport not included.

Leader Kathy Ehrig (BHP Billiton)

Attendee Maximum: 30

Trip will be cancelled if minimum numbers not reached by the 15th April 2016

The Mesoproterozoic Olympic Dam deposit is Earth's largest known iron oxide copper-gold deposit. This trip will visit the Olympic Dam surface geological operations, and through a combination of lectures and inspections of the vast on-site core library, the current understanding of the geology and genesis of the deposit will be discussed. Major features to examine will be the different types of breccia and hydrothermal features, the recent recognition of larger proportions of altered mafic intrusive rocks in the breccias, and the nature of clastic sediment domains.

Participants will also have an opportunity to examine details of other prospects in the area, including Wirrda Well and Acropolis. All trip participants will be guests of BHP-Billiton and will need to abide by the occupational health and safety requirements of the operation while on site.

Rifts, Reverse Faults and Regolith: Neoproterozoic to Cenozoic geology in the mid-north of South Australia.

PLEASE NOTE, MAXIMUM NUMBERS HAVE BEEN ACHIEVED

Date Friday 1st to Saturday 2nd July 2016

Duration 2 days, overnighiting in Clare

Cost \$600 (all inclusive)

Leaders Wolfgang Preiss, Wayne Cowley (Geological Survey of SA)

Trip will be cancelled if minimum numbers not reached by the 15th April 2016

The rolling hills, wheat paddocks and vineyards of the Mid-North region of South Australia conceal a geological transition between the Adelaide Hills and the Flinders Ranges. The landscape is subtly controlled by the Neoproterozoic bedrock geology, Delamerian deformational structures, neotectonics and regolith development. Rifting at ~800 Ma produced regional north-south trending graben structures that filled with very thick siliciclastic and carbonate successions of the Callanna Group and Burra Group, with minor mafic magmatism. The Burra Group is unconformably overlain by widespread glaciomarine and fluvio-glacial deposits of Sturtian age. Subsequent Neoproterozoic sedimentation was less rift-controlled, and includes deposits of the Elatina glaciation of Marinoan age. Delamerian folding and thrusting in the mid-Cambrian involved northwest-directed transport and sinistral transpression, and set up the tectonic framework for neotectonic reactivation when the Australian continent became subject to east-west compression in the Cenozoic. Ancient weathering surfaces and regolith profiles were uplifted and dissected and terrestrial to marine Tertiary basins formed on both sides of the highlands, with Quaternary alluvial deposits flanking the ranges.

The excursion will visit representative sections of the Callanna Group and Burra Group, Sturtian and Marinoan glacial deposits, evidence of Delamerian thrusting and folding, neotectonic reverse faulting, Cenozoic marine and terrestrial sediments and regolith profiles, and two of South Australia's historic copper mines — Burra and Kapunda.



AESC WORKSHOPS

A diverse selection of workshops has been put forward for the AESC 2016, with workshops covering geochemistry to phase equilibria modelling, aeromagnetic interpretation to epithermal and porphyry mineral deposits. This year there will also be a number of thematic workshops linked with the UNCOVER symposium running as part of the AESC. All workshops will be located either within the Mawson Laboratories at the University of Adelaide or at the University of South Australia, city west campus, both a short walk from the conference venue.

PRE-CONFERENCE WORKSHOPS

THERMOCALC workshop

Date	Saturday 25th – Sunday 26th June 2016
Duration	1.5 days
Cost	\$55
Leader	Dr David Kelsey (University of Adelaide)
Venue	Mawson Laboratories, University of Adelaide

THERMOCALC is a program compiled and written by Professors Roger Powell (University of Melbourne) and Tim Holland (University of Cambridge) and is the pre-eminent thermodynamic forward modelling program for constraining the evolution of metamorphic rocks and mineral assemblages as a function of pressure, temperature and composition. An updated database of internally consistent thermodynamic data has recently been released, along with a new suite of thermodynamic mixing models for phases of petrological interest. This 1.5-day short course is aimed at new and interested potential users of THERMOCALC and will involve: 1) introduction to THERMOCALC: what is it, what does it do and how does it do it?; 2) coverage and examples of the types of phase diagrams calculable by THERMOCALC; 3) overview of the new dataset and new thermodynamic mixing models; 4) hands-on tutorials aimed at beginning to use THERMOCALC; 5) choosing an appropriate chemical composition for phase diagram calculations; and 6) examples of the use and application of phase diagrams calculated with THERMOCALC.

Highlights:

- Learn about how THERMOCALC works
- Learn to use THERMOCALC for application to metamorphic rocks
- Learn about how to select an appropriate 'bulk' composition for phase diagram calculations.

Short Course in Aeromagnetic Interpretation

PLEASE NOTE, DUE TO LACK OF REQUIRED NUMBERS THIS FIELD TRIP HAS BEEN CANCELLED

Date	Saturday 25th – Sunday 26th June 2016
Duration	1- and 2-day options
Cost	1 day option \$500 2 day option \$800
Leaders	Leigh Rankin (Geointerp) David Isles (Southern Geoscience)

This is a 2-day version of the internationally-recognised workshop that has been presented by David Isles and Leigh Rankin in over 15 countries over the past 20 years.

The workshop focuses on a well-tested methodology for qualitative geological interpretation of aeromagnetic data, and intends to:

- a) Demonstrate the addition of new geological information and understanding to project areas by the introduction, interpretation and integration of aeromagnetic data;
- b) Impart basic skills in observation, analysis, interpretation and integration of magnetic data with other geological and geophysical datasets, and;
- c) Develop familiarity and confidence in the use of aeromagnetic data.

Day 1 – Aeromagnetic interpretation 101

The first day will concentrate on the introduction of key subjects in aeromagnetic interpretation, including

- a) Physical and geological aspects of magnetisation;
- b) Appropriate processing and imaging of magnetic data;
- c) Key filtering processes, including Reduction to Pole, Analytic Signal, and Vertical Derivatives etc (when to use, and how to approach them).

Interspersed with the presentations, participants will work on producing a geological interpretation from a small-scale dataset from the Pine Creek Geosyncline. The exercise will involve participants working through careful recording of observations from a small magnetic dataset through integration with mapped geology and interpretation of the structural setting to outlining specific targets for prospect-scale gold exploration.

Day 2 – Interpretation and structural analysis

The second day will review further subjects including:

- a) Interpretation methodology;
- b) Structural analysis and aeromagnetic signatures of various structural regimes, and;
- c) “Unusual” forms of magnetisation and their effects on interpretation.

Participants will work on compilation of a geological interpretation of a larger dataset covering a significant section of the Kanmantoo Trough (eastern Adelaide Hills/Murray Basin area), and will examine the structural framework of the Delamerian Orogeny and emplacement of associated granitoid intrusions.

The workshop is suitable for all geoscientists involved with geological mapping and exploration.

The exercises are hand drawn — all materials will be provided, and computers are not required.

Participants may select either the 1-day or 2-day option.

New mineral characterisation techniques

Date	Sunday 26th June 2016
Duration	1 day
Cost	\$55
Leaders	Dr Margaux Le Vaillant, Dr Yulia Uvarova (CSIRO)
Venue	Mawson Laboratories, University of Adelaide

This workshop aims to deliver information on advancements in analytical techniques for detailed characterisation of geologic samples from micro to macro-scale. The techniques for discussion include Synchrotron X-ray Fluorescence Microscopy (SXRF), micro-X-ray Fluorescence (micro-XRF), Field Emission Gun Scanning Electron Microscopy (FEG SEM), x-ray computed tomography (CT), among those used for micro-characterisation of a geologic sample, and portable X-ray Fluorescence and portable X-Ray Diffraction (pXRD) for characterisation of bulk samples.

We will discuss techniques and applications of microprobe X-ray fluorescence mapping, using the Maia detector system at the Australian Synchrotron, the desktop Bruker Tornado(TM) micro-XRF system and FEG SEM, which all allow element mapping and documenting rare micron-scale

features in geologic samples, which provide important textural information for understanding the transport of elements. We will demonstrate application of 3D imaging using low- and high resolution x-ray tomography (CT) to ore genesis and characterisation studies.

We will also be presenting information on new-cutting edge developments in rapid portable XRF systems applied to core logging, characterisation and mineral processing. Newly emerged portable X-ray Diffraction (pXRD) will be discussed; and we will demonstrate how coupled pXRF-pXRD analyses can be performed on a large set of complex samples in near-real time delivering chemical and full mineralogical information to distinguish lithologies, alteration styles and mineralisation.

We will also discuss advancements in low-level Au detection.

Geoscience analytics with ioGAS and applied case studies – REFLEX

PLEASE NOTE, DUE TO LACK OF REQUIRED NUMBERS THIS FIELD TRIP HAS BEEN CANCELLED

Date	Saturday 25th – Sunday 26th June
Duration	2 days
Cost	\$520 (subject to minimum numbers being met by 1st May 2016)

This 2-day course covers practical, hands-on, advanced analytical techniques in ioGAS for anomaly enhancement, automated material characterisation and data segmentation, which will then be discussed in a range of applied case studies.

This course is ideal for exploration, production and geometallurgical geoscientists. No prior knowledge of ioGAS is required.

Topics on day one will include advanced analysis techniques applicable to exploration through to geometallurgical modelling; and will include; investigating cause and effect; supervised and unsupervised methodologies for anomaly identification, clustering without prior group membership, allocation of unknowns pre-defined groups using rules and wavelet analysis for domaining.

A variety of case studies will be presented on the second day that demonstrate how these methods are used to integrate geophysical and assay data for domaining, to determine rock type and quantify alteration and infer mineralogy from a variety of data types across different commodities including nickel, iron ore, gold, copper and rare earth elements.

Epithermal and porphyry Au-Cu-Ag ore deposits

**PLEASE NOTE, DUE TO LACK OF REQUIRED NUMBERS
THIS FIELD TRIP HAS BEEN CANCELLED**

Date	Saturday 25th – Sunday 26th June
Duration	2 days
Cost	Standard registration \$1000, Student/Unemployed \$500 (subject to minimum numbers being met by 1st May 2016)
Leader	Dr Greg Corbett (CGS)

These 2 days of lectures will focus upon the field aspects of mineral exploration for epithermal and porphyry ore deposits derived from Dr Corbett's 35 years field experience, and draws on earlier work with the late Terry Leach. It uses examples from over 20 Pacific rim countries and Tethyan arcs, to demonstrate the importance of understanding the controls to epithermal Au-Ag and porphyry Cu-Au mineralisation in order to enhance exploration programs. Similarly, some of the tools used by explorationists such as alteration, structure and breccias are considered, especially in the section on exploring in the geological environment above the crustal levels where economic mineralisation is developed. An updated short course manual, with colour graphics and rock photos, will be provided.



MID-CONFERENCE WORKSHOP

A tour through Data Metallogenica

Date	Tuesday 28th and Thursday 30th June 2016
Duration	3 hours
Cost	\$15 (Strictly limited places, subject to min. numbers)
Leaders	Georgina Gordon (Geological Survey of SA)
Venue	DSD's NEW Core Library at Tonsley Park

DATA METALLOGENICA IS THE GLOBAL ENCYCLOPAEDIA OF ORE DEPOSITS.

Data Metallogenica is the world's largest mineral deposit database, a unique technical information system made possible through the support of over one hundred and fifty international Foundation Sponsors from industry, government and professional societies. DM is a self-funding but not-for-profit enterprise, owned and operated by AMIRA International on behalf of the global minerals industry and associated institutions. DM can be used as a major reference, training and educational resource for all, as well as being a key repository of much transient and valuable information on ore deposits. The DM physical collection from about 3,000 deposits of all

types from around the world is composed of about 60,000 small "mini" samples (Lithotheque) in sets of 20, permanently bonded to aluminium sheets that fit into slotted shelves, and approximately 8000 hand-specimens (Macrotheque) arranged by geological setting (approximately 365 sets).

The physical collection has been photographed at high quality and can be accessed online as a global encyclopaedia of ore deposits at <http://www.dmgeode.com>, with much supporting data also available.

The physical collection is hosted by the Department of State Development, Mineral Resources at the new Core Storage Facility. The collection is available for inspection, under DSD supervision, for sponsors and professional geologists utilising the Core Library. The physical collection of samples (Lithotheque and Macrotheque), can be viewed twice during the conference, and will showcase the mineral deposits of South Australia and some key deposit types from around the world. If you have specific enquiries for your visit, please forward your request to Georgina Gordon (georgina.gordon@sa.gov.au).

POST-CONFERENCE WORKSHOPS

HyLogger™ Workshop. Learn the value of objective spectral results applied directly to core during manual logging and see the wealth of information available in the digital data.

PLEASE NOTE, MAXIMUM NUMBERS HAVE BEEN ACHIEVED

Date	Friday 1st July 2016
Duration	1 day
Cost	Free
Leaders	Dr Jonathan Huntington, Dr Carsten Laukamp (CSIRO)
Venue	DSD's NEW Core Library at Tonsley Park with a dedicated HyLogger facility.

The Geological Survey of South Australia (GSSA) successfully trialled the prototype HyLogger™ technology in May 2002 and since then, has worked to systematically scan the core collection maintained at the GSSA Drill Core Storage Facility. By 2009 75,000 metres had been logged with the proto-type machine. In May 2009 GSSA took delivery of an Auscope Funded HyLogger and by May 2015 over 200,000 metres of drillcore have been scanned with the latest technology – representing approximately one third of the diamond core collection. Open file data is available for download through SARIG.

The system uses automated core tray handling, continuous visible, shortwave infrared and thermal infrared spectroscopy, and digital imaging, to characterise and identify dominant mineral species on core and chips, at spatial resolutions of ~1cm (spectral data) and ~0.1mm (image data). The system can log up to 500 metres of core per day. Mineralogy is pre-interpreted using specialised identification software trained on a selected suite of minerals showing characteristic absorption features within the measured spectral range.

Techniques in regolith and landscape mapping

Date	Friday 1st July 2016
Duration	1 day
Cost	\$55
Leaders	Dr Carmen Krapf (Geological Survey of SA) Dr Paul Morris (Geological Survey of WA) Malcolm Sheard (Geological Survey of SA)
Venue	DSD-GSSA, Level 7, 101 Grenfell Street, Adelaide

With about 70% of Australia's land surface covered by transported regolith material a major challenge is exploring effectively and efficiently through regolith cover of various types and thickness. Regolith mapping is the basis for assisting in this challenge, provides a context for exploration in regolith-dominated terrains,

shows the distribution and abundance of various regolith materials available for soil surveys and geochemical sampling, helps in designing and interpreting geochemical surveys and interpretation of results, provides a first step to understanding landscape evolution of an area, and can be used as a powerful exploration tool in itself.

In this short course we will present two major regolith mapping techniques and procedures that are used by the Geological Surveys of South Australia and Western Australia as an integral part of their geological mapping programs. This will be accompanied with regolith mapping exercises featuring the Yilgarn and Gawler Cratons, the Tanami Desert and the Musgrave Province; an introduction to regolith formation and materials; an overview of useful data sources for regolith mapping, including spectral and geophysical data; and a display of world-class regolith hand specimens from South Australia will also be part of this short course.

Orogenic Gold Deposits: Geology, Geochemistry, Exploration Criteria, and Global Patterns

Date	Friday 1st July 2016
Duration	1 day
Cost	Standard registration \$200, Student/Unemployed \$55
Leaders	Dr. Richard J. Goldfarb (Colorado School of Mines & China University of Geosciences Beijing)
Venue	To be confirmed

Orogenic gold deposits, or gold deposits in metamorphic rocks, are the spatially and temporally most widespread gold deposit type, defining important exploration targets in Precambrian shields and in Phanerozoic orogenic belts. Detailed material for this globally important deposit type will be provided on tectonic and structural controls, geological characteristics, geochemical and geophysical signatures, geochronological relationships, and exploration strategies.

Examples of world class deposits and districts will be presented from throughout the world, particularly from well-studied accretionary orogens. Targeting of specific terranes in space and time will be detailed to better understand where to explore and where success for discovery is unlikely. Comparisons and contrasts with other major gold deposit types, including the Carlin-type and intrusion-related gold system ores, will be described. The course is aimed for geoscientists from both industry and academia, as well as students of economic geology, who desire a comprehensive understanding of modern concepts on the geology of gold deposits

UNCOVER THEMATIC WORKSHOPS

UNCOVER Isotope geology: a window into crustal evolution, fertility and the geodynamics of earth.

Date	Friday 1st July 2016
Duration	1 day
Cost	\$55
Leaders	Dr Justin Payne (University of South Australia) Dr Chris Kirkland (Curtin University) Dr Bruce Schaefer (Macquarie University)

The Australia's mineral resource-rich crust contains one of the most complete and continuous geological records on Earth, but the lack of exposure makes much of this record relatively inaccessible. Isotope geology is well suited to investigating the evolution of the Australian crust as a significant amount of information can be gathered from relatively limited material. Whole rock and mineral isotope systems provide the opportunity to constrain the timing of geological events, determine the source and tectonic setting of magmatism, provenance of sediments, identify the source of metals and infer the source and evolution of fluids in mineralised and non-mineralised systems. However, the rapid development of new analytical techniques for in-situ U-Pb, Lu-Hf, Re-Os and O isotope analysis and solution analysis of the heavy stable isotopes (e.g. Cu, Zn, Fe, Mg) has resulted in isotope geology becoming a somewhat specialised field with many of the strengths and limitations of these isotope systems not fully realised by the broader geoscience community.

This workshop is focused on exploring the strengths and limitations of modern isotope geology for characterising the Australian crust and its mineral systems. Discussion of the systematics and analysis of common radiogenic and stable isotope systems in the morning session will set the scene for a series of applied Australian case studies in the afternoon. The workshop will finish with a forum to address the future directions of isotope geology to inform the UNCOVER initiative to improve the success rates of mineral exploration under post-mineralisation cover. Recommendations from this workshop will be posted on the UNCOVER website:

www.uncoverminerals.org.au

UNCOVER Australian Lithospheric Architecture

Date	Saturday 2nd – Sunday 3rd July 2016
Duration	2 days
Cost	\$90
Leaders	Dr Karol Czarnota (Geoscience Australia) Dr Juan-Carlos Afonso (Macquarie University)
Venue	Mawson Laboratories, University of Adelaide

PLEASE NOTE, DUE TO LACK OF REQUIRED NUMBERS THIS FIELD TRIP HAS BEEN CANCELLED

There is a growing acceptance within the geoscience community that the distribution of magmatic and hydrothermal mineral deposits is controlled by lithospheric scale architecture. Nevertheless, outstanding questions remain as to the utility of lithospheric scale studies in mineral exploration. Under the auspices of the UNCOVER initiative this workshop aims to focus the geological, geochemical and geophysical lithospheric architecture community on three questions to facilitate mineral exploration under cover in Australia:

What are the critical lithospheric scale features that need to be identified?

What data sets, and at what resolution, are necessary to image these features?

What is the best way to integrate critical data sets?

This workshop will consist of a series of invited talks and multidisciplinary breakout groups with the aim of harnessing the knowledge of the geoscience community to inform the UNCOVER initiative. Recommendations from this workshop will be posted on the UNCOVER website (www.uncoverminerals.org.au).



CONVENTION VENUE

About Adelaide

Adelaide offers all of the benefits of a large international metropolis without the problems of a huge city. Add its Mediterranean climate, ease of access, affordability, quality accommodation, excellent shopping options, and it's easy to see why conference delegates refer to Adelaide as "the perfect conference city".

Upon arrival at the international airport, delegates can check into their hotel inside half an hour, and enjoy the benefits of being around the recently remodelled Victoria Square and only a short distance from beautiful beaches and famous wineries.

Adelaide is the perfect opportunity to relax and play. Discover the local gourmet food and famed regional wines. Enjoy fun social events and adventurous outings. The unique wildlife parks, clean beautiful beaches, vibrant cafés, great dining, riverboats and dolphin cruises make Adelaide a great family holiday destination.

About the Adelaide Convention Centre

The Adelaide Convention Centre opened its doors in 1987 with the twin aims of setting a new benchmark for convention facilities and services in Australia and contributing to the South Australian economy by attracting a high yield tourism sector to the State. We have succeeded on both counts. We have a global reputation for excellence, as reflected by a string of awards and a high rate of repeat business, and to date we have created more than \$1 billion in economic benefit for South Australia. We're very proud of that. Like all good convention facilities we are constantly evolving and improving. We've completed three major extensions in less than 30 years—the most recent the stunning new West Building—and a fourth is under way.

Venue Details

Adelaide Convention Centre
North Terrace, Adelaide, South Australia 5000
T 08 8212 4099



Photo credit: David Sievers



GENERAL INFORMATION

Weather

The average temperatures in Adelaide during July range between: Max 15.9°C, Min 8°C. For further information regarding weather in Adelaide, [please click here](#) for the Bureau of Meteorology.

In Adelaide, we have a very high Ultra Violet (UV) rating, throughout much of the year. For this reason it is very important to ensure you use a sunscreen of at least SPF 30+, wear a hat and protective clothing where possible when you are outside, and drink plenty of water to avoid dehydration especially when in the field.

Airport Transfers

The Skylink Airport Shuttle specialises in providing a regular scheduled bus service between Adelaide Airport and the Adelaide CBD. There are set-downs and pick-ups from most major city hotels.

For more information please visit skylinkadelaide.com.

Airport Bus Service

Adelaide Airport is situated 7km from the central business district and major hotels. Public transport buses—known as the JetBus Service—pick and drop off to and from the airport to the city. Tickets can be purchased from the driver, with a single trip ticket being approximately \$5.00.

Visit adelaidemetro.com.au/stops/view/17327 and look for the J1 and J2 route information.

Local Transportation

Adelaide CBD and Adelaide Airport is well serviced by public transport. Free tram and bus services are available within the CBD.

Bus

The Adelaide 99C City Loop bus services takes you on a loop around the City taking in the SA Museum, State Library, Art Gallery, Royal Adelaide Hospital, Botanic Gardens, Rundle Street (EastEnd), Tandanya Aboriginal Culture Gallery, the Central Markets, the Hindley Street precinct, UniSA and Adelaide Universities.

Taxis

A taxi from the airport to the city is approximately \$20.00.

Suburban Taxi – [131 008](tel:131008)

Yellow Cabs – [132 227](tel:132227)

Adelaide Independent Taxi – [132 211](tel:132211)

Tram

Adelaide Metro Trams run from Glenelg to the city (past the Hilton Adelaide Hotel/Victoria Square) and to the Adelaide Entertainment Centre, Port Road. Travel is free from South Terrace to the Adelaide Entertainment Centre. For more information please call [+61 8 8210 1000](tel:+61882101000) or visit the website: adelaidemetro.com.au

For further ideas and general tourism information, please visit southaustralia.com.

Photo credit: David Sievers



REGISTRATION

Each person attending the Convention needs to complete a registration form [online](#). For those without internet access, you can complete the form at the end of this brochure and email/fax/post it to:

All Occasions Management
12 Stirling St, Thebarton SA 5031
F: 08 8125 2233

A letter of confirmation will then be forwarded by email. Please ensure you read all information in this brochure carefully before completing the registration form.

Registration Fees	Early Bird	Standard	Late
Member	\$625	\$725	\$925
Non Member	\$1050	\$1150	\$1350
Full registration including membership of GSA for 2016 and 2017*	\$850	\$950	\$1150
Student/Retired Member	\$275	\$355	\$455
Student/Retired Non Member	\$400	\$480	\$580
One Day Only Member	\$350	\$410	\$410
One Day Only Non Member	\$560	\$620	\$620

Public Forum

Public Forum Single Ticket	\$15	\$15	\$15
Public Forum Family Ticket (2 Adults + 3 Kids)	\$25	\$25	\$25

* Full Registration, including membership of GSA for 2016 and 2017 is only available for non-members.

If you want to know more please contact the GSA by email: info@gsa.org.au

Members

A significant discount is available for all current members of the Geological Society of Australia (GSA). If you are a non-member and would like to join the GSA and be eligible for the discounted member convention rates, please contact the Geological Society of Australia on 02 9290 2194 or email info@gsa.org.au.

Inclusions for Registered Persons

Members, Non Members,
 Students/Retired/Unemployed:

- Attendance at all conference sessions
- Morning and Afternoon Teas and Lunches as scheduled in program
- All official conference documentation
- Ice Breaker
- Entrance to Exhibition
- Public Forum Ticket

Day Delegates

All entitlements for day of attendance only:

- Attendance at conference sessions
- All official conference documentation
- Morning and Afternoon Teas and Lunches as scheduled in program for day of registration
- Entrance to Exhibition
- Public Forum Ticket
(Monday Delegate Registrations Only)

Registration Conditions

Payment of early bird registration fees are required by Friday 22 April 2016 to qualify for the rate. After the early bird due date, all unpaid early bird registrations will automatically roll over and delegates will be charged at the standard rate.

Full payment is required prior to the commencement of the Australian Earth Sciences Convention. Admission to the conference and all social functions may be refused if payment has not been received. Late fees based on a sliding scale will apply to any outstanding invoices after the conclusion of the conference.

Payment of Registration Fees

Payment must accompany all registration forms and may be made by:

- Cheque or money order payable to 'All Occasions Management – AESC 2016 Conference';
- Credit card (MasterCard, Visa, American Express or Diners Club). A processing fee of 2.8% applies for Visa and MasterCard transactions, 3.6% for American Express and 4.95% for Diners Club.
- Electronic funds transfer: Commonwealth Bank, Trust Account 2: BSB 065 112, Account Number: 1016 3929

To allow us to identify your EFT payment, please enter your surname as the Statement reference. A remittance advice must also be forwarded by email or fax to All Occasions Management.

Confirmation of Registration

Registrations will be acknowledged by email to the address nominated on the registration form. A tax invoice will be attached to this email. If you have not received confirmation within seven days please contact aesc2016@aomevents.com.

Cancellation Policy

Registration cancellations must be sent in writing, mailed, faxed or emailed, to All Occasions Management. Registration cancellations received up to 30 days prior to the conference will receive a full refund, less a \$110.00 handling fee. Registration cancellations received less than 30 days and up to 7 days prior to the conference will receive a 50% refund. No refunds will be given for registration cancellations received within 7 days of the conference; however a substitute delegate may be nominated.

Accommodation Alterations and Cancellations

All cancellations and amendments must be made in writing to All Occasions Group at conference@aomevents.com. All cancellation terms and conditions are at the discretion of the hotel and the signed agreement.

Social Tickets

Regrettably, optional social function tickets will not be refunded if delegate participation is cancelled less than 48 hours prior to the function. Refunds from any deposits forwarded to hotels, tour companies or other related business will be at the discretion of the supplier.

Liability & Insurance

In the event of industrial disruptions or natural disasters the conference organising committee, associated organisations & individuals, and All Occasions Group cannot accept responsibility for any financial or other losses incurred by the delegates. Nor can the conference organising committee, associated organisations & individuals, and All Occasions Group take responsibility for injury or damage to persons or property occurring during the conference. All insurance including medical cover and for expenses incurred in the event of the cancellation of the conference is the individual delegate's responsibility. The policy should include loss of fees/deposits through cancellation of your participation in the conference, or through the cancellation of the conference itself, loss of airfares for any reason, medical expenses, loss or damage to personal property, additional expenses and repatriation should travel arrangements have to be altered. The conference secretariat will take no responsibility for any participant failing to insure.

Privacy Policy

The All Occasions Group complies with all legislation which is designed to protect the rights of the individual to privacy of their information, including the Privacy Act 1988 (Cth). All information collected with respect to your registration for participation in this conference will only be used for the purposes of planning, conduct of the event or communication regarding future events. These details may be made available to parties directly related to the conference including but not limited to the All Occasions Group, venues, accommodation and travel providers (for the purposes of room/ travel bookings and conference options), key sponsors (subject to strict conditions) and other related parties as deemed necessary. It is proposed to produce a 'Delegate List' of attendees at the conference and to include the individual's details in such a list.

By completing this registration form, you acknowledge that the details supplied by you may be used for the above purposes. It is your responsibility to ensure that all information provided to the All Occasions Group is accurate and kept up to date. To access or update your information, please email conference@aomevents.com or fax the All Occasions Group on 08 8125 2233.



ACCOMMODATION

All Occasions Management have made reservations at a number of local hotels for you to access during your stay. To take advantage of these special conference rates, please book through All Occasions Management during the registration process. Accommodation rooms are limited and allocation will be strictly on a first-come first served basis. Please book your accommodation as soon as possible to avoid disappointment. Accommodation is subject to availability. Please note that all reservations made without a delegate booking against them need to be released by 25 May 2016. After this date you will need to contact the hotel direct who will only be able to book a room subject to availability. Please ensure that you read the terms and conditions on this page carefully before completing your registration form as terms differ for each hotel.

Intercontinental Adelaide



North Terrace, Adelaide, SA 5000

T 08 8238 2400

4 minute walk to Adelaide Convention Centre

King Superior Room: \$190 per night

Cancellation Policy

Cancellations made 30-11 days prior to the check-in date incur the first night's accommodation as cancellation fee. Cancellations made 10 days prior to the check in date, or early departures or no-shows will incur a cancellation fee equivalent to the room rate for each night that is cancelled or reduced.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

The Playford Hotel



120 North Terrace, Adelaide, SA 5000

T 08 8213 8888

5 minute walk to Adelaide Convention Centre

Standard Guestroom (1 King Bed) \$175 per night

Playford Guestroom (1 King Bed
or 2 x Queen Beds) \$195 per night

Deluxe Guestroom (1 x King Bed) \$235 per night

Cancellation Policy

Cancellations made 30-8 days prior to the check-in date incur the first night's accommodation as cancellation fee. Cancellations made 7 days prior to the check in date, early departures or no-shows will incur a cancellation fee equivalent to the room rate for each night that is cancelled or reduced.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

The Stamford Plaza Hotel



150 North Terrace, Adelaide, SA 5000

T 08 8461 1111

6 minute walk to Adelaide Convention Centre

Premier City Room (Single)
\$165 per night

Cancellation Policy

Cancellations made outside of 31 days prior to check in will not be charged a cancellation fee. Within 30 days any cancellations or amendments which result in the reduction of any room nights, will be charged full cancellation fees for all room nights not utilised.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

Crowne Plaza Adelaide

★★★★ 1/2

16 Hindmarsh Square, Adelaide SA 5000
T 08 8206 8888

9 minute walk to Adelaide Convention Centre

King Standard Room: \$160 per night

Cancellation Policy

Cancellations made within 30–15 days prior to check-in will be charged 1 night's cancellation fee. Cancellations made within 14 days of check-in date will be charged for full accommodation booking.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

Mercure Grosvenor Hotel

★★★★

125 North Terrace, Adelaide, SA 5000
T 08 8407 8888

5 minute walk to Adelaide Convention Centre

Standard Room (1 x Queen Bed)
\$149 per night

Superior Room (1 x Queen Bed)
\$164 per night

Cancellation Policy

Cancellations made within 30–8 days will be charged one nights' cancellation fee per room cancelled. Cancellations made within 7 days will be charged for the full booking. All no-shows charged will be charged for full booking.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

BreakFree Adelaide

★★★★

255 Hindley Street, Adelaide SA 5000
T 13 20 07

10 minute walk to Adelaide Convention Centre

Studio Apartment (1 x Queen Bed)
\$145 per night

2 Bedroom Apartment (1 x Queen Bed
+ 2 Single Beds) \$195 per night

Cancellation Policy

Cancellations made between 30 and 15 days prior to check-in date will be charged one nights' accommodation. Cancellations made within 14 days prior to check-in will be charged full accommodation booking. No shows will also be charged for full accommodation booking.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.

Ibis Styles Adelaide Grosvenor Hotel

★★★★

125 North Terrace, Adelaide, SA 5000 (part of
Mercure Grosvenor Hotel)
T 08 8407 8888

5 minute walk to Adelaide Convention Centre

Classic Room (compact 3-Star,
1 x Queen Bed) \$119 per night

Cancellation Policy

Cancellations made within 30 - 8 days will be charged one nights' cancellation fee per room cancelled. Cancellations made within 7 days will be charged for the full booking. All no-shows charged will be charged for full booking.

Payment Policy

One (1) night's deposit is required at time of booking. The remaining nights will be charged upon arrival at the hotel.



ACCOMMODATION BOOKING AND DEPOSIT

Please refer to the payment and cancellation policy listed for each hotel above. A reservation will not be confirmed unless the required payment has been received. Your details, accommodation requirements and payment will be forwarded to the hotel to finalise the booking.

If only one night's deposit is required delegates will be responsible for paying the remainder of their accommodation charges direct to the hotel at check in. All delegates will be responsible for settling any incidentals with the hotel on check out. A tax invoice for the full amount inclusive of GST will be issued by the hotel on check out, not by All Occasions Management.

If you have any queries regarding your accommodation booking, please contact All Occasions Management, not the hotel at conference@aomevents.com. Any accommodation bookings that do not have payment by Friday 20 May 2016 may be released.

Arrival Time

Hotel check in time is from 2.00pm. If you arrive prior to this time your room may not be available. To guarantee a room to be available for an early arrival you will need to book for the night before.

Late Arrivals and No Show

Please indicate on your booking form or notify All Occasions Management in writing if you will arrive at your hotel after 6.00pm on the day of arrival. Failure to do so may result in your room being released. The accommodation payment will be forfeited should you not arrive on the date which you have booked. In this instance, your subsequent night's accommodation will be cancelled and may be re-sold without notice. In addition you must refer to the hotel's individual cancellation terms for any additional cancellation fees that may be incurred.

Check-Out

Check-out time is generally 10.00am. Please check your hotel's policy when you check in. Late check out may result in the hotel's daily rate being charged.

Rates and Terminology

All rates are in Australian dollars inclusive of GST and are for room only unless indicated otherwise. GST is not applicable on the deposit taken, however the full amount of GST on the booking will be shown on the tax invoice provided by the hotel upon check out. All rates refer to single, double or twin share unless otherwise indicated.

Accommodation Alterations and Cancellations

Alterations or cancellation of hotel accommodation must be sent in writing to All Occasions Management, not to the hotel. Cancellations with less than 30 days' notice may incur a penalty. This is at the discretion of the hotel. Please refer to each individual hotel's cancellation terms and conditions listed above.

Accommodation Terms and Conditions

The accommodation availability and prices shown are current at the time of publication however, they are subject to change without notice in accordance with the terms and conditions of each supplier. The Australian Earth Sciences Convention and All Occasions Management accept no responsibility for any additional costs or inconvenience incurred.

SOCIAL PROGRAM

Ice Breaker

- Date** Sunday 26 June 2016
Time 6.30pm - 8.30pm
Venue South Australian Museum
Dress Smart Casual
Cost Included in full registration types.
Additional Tickets \$60
-

Public Forum

- Date** Monday 27 June 2016
Time 7.00pm - 9.30pm
Venue Adelaide Convention Centre
Dress Smart Casual
Cost Included in all full registration prices. Additional tickets can be purchased through the online registration site or below in the registration form.
Single Ticket \$15
Family Ticket (2A + 3C) \$25
-

Student Night (inclusive in Student Registrations Only)

- Date** Tuesday 28 June 2016
Time 5.45pm - 6.45pm
Venue Adelaide Convention Centre
Dress Smart Casual
Cost Inclusive in student registrations only
-

Convention Dinner

- Date** Wednesday 29 June
Time 6.30pm for Pre- Dinner Drinks. 7.00pm start
Venue Panorama Ballroom, Adelaide Convention Centre
Dress Cocktail dress
Cost \$130 (not included in conference registration)

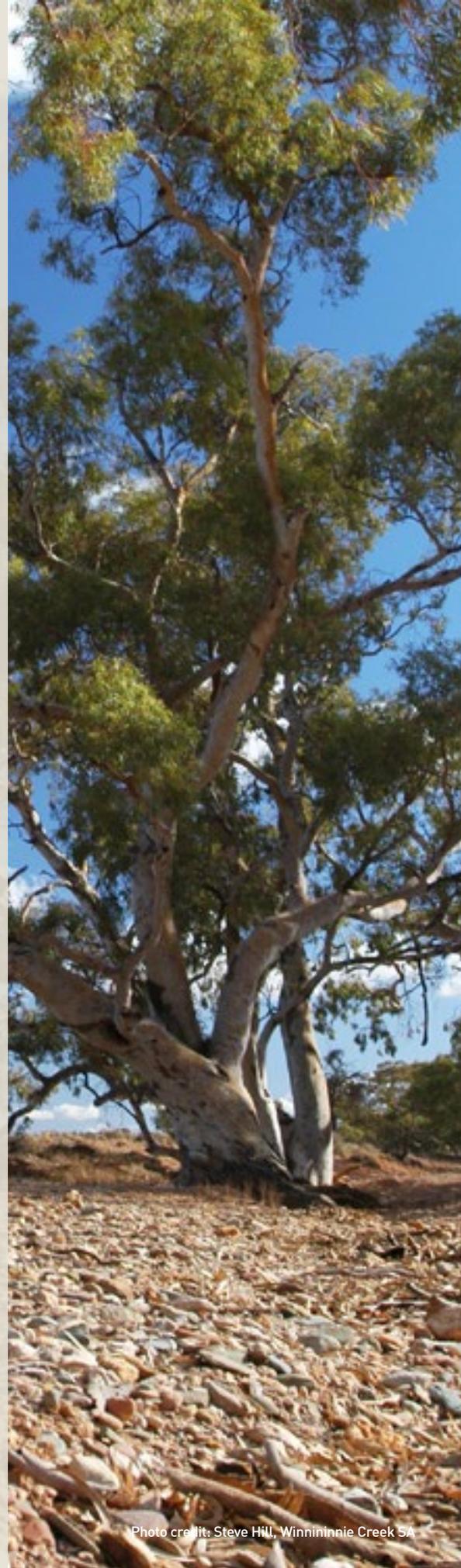


Photo credit: Steve Hill, Winnininnie Creek SA

REGISTRATION FORM

To register online please click [here](#). Alternatively, please complete this form and email to aesc2016@aomevents.com, fax to 08 8125 2233 or post to AESC 2016 C/- All Occasions Management, 12 Stirling Street, Thebarton SA 5031.

A. Delegate Details

Title: Given Name(s): Surname:

Position: Organisation:

Postal Address:

Suburb: State: Postcode:

Country:

Tel: () Mobile: ()

Email:

Special Requirements (dietary, mobility issues etc):

.....

If you do not want your details published in the delegate list, please tick

If you do not wish to be kept informed of conference, travel and accommodation specials or holiday prizes, please tick

B. Registration fees

Please circle:	Early Bird	Standard	Late
	On or Before 22 April 2016	On or Before 10 Jun 2016	On or After 11 Jun 2016
Member °	\$625	\$725	\$925
Non Member °	\$1050	\$1150	\$1350
Full registration including membership of GSA for 2016 and 2017*	\$850	\$950	\$1150
Student/Retired Member °	\$275	\$355	\$455
Student/Retired Non Member °	\$400	\$480	\$580
One Day Only Member °	\$350	\$410	\$410
One Day Only Non Member °	\$560	\$620	\$620

* Full Registration, including membership of GSA for 2016 and 2017 is only available for non-members.

If you want to know more please contact the GSA by email: info@gsa.org.au

All fees are shown in Australian Dollars and inclusive of GST.

°Please circle which day you would like to attend: Monday Tuesday Wednesday Thursday

SUB-TOTAL REGISTRATION FEE: A\$ _____

C. Symposia

- | | | |
|--|---|--|
| 40th Anniversary of the Olympic Dam Symposium | <input type="checkbox"/> No I will not be attending | <input type="checkbox"/> Yes I will be attending |
| Early-Mid Career Geoscientist | <input type="checkbox"/> No I will not be attending | <input type="checkbox"/> Yes I will be attending |
| Sprigg Symposium: Earth's Evolving Climate | <input type="checkbox"/> No I will not be attending | <input type="checkbox"/> Yes I will be attending |
| UNCOVER Symposium: The Future of Under Cover Exploration | <input type="checkbox"/> No I will not be attending | <input type="checkbox"/> Yes I will be attending |

D. Field Trips

	Cost	No. of Tickets	TOTAL
Hallett Cove Geological Wake-Up Call	\$60		
North Terrace Building Stones	Free	MAX. NUMBERS REACHED	
Terroir of the Adelaide Hills Wine Region	\$110		
Clare Valley Rocks: The Earth Beneath Our Vines	\$110		
Quarries and extractive minerals of the Adelaide region	\$130		
The Cenozoic Willunga Basin: From Australo-Antarctic Gulf to Sprigg Orogeny, from Vines and Wines to Shining Sea	\$140		
Delamerian Granites in the Adelaide Hills and NW Murraylands	\$130		
Olympic Dam On-Site Core Display	\$550	CANCELLED	
IOCGs—Where it all began. The Moonta-Walaroo Region of the Eastern Gawler Craton	\$530		
Rifts, Reverse Faults and Regolith Neoproterozoic to Cenozoic Geology in the Mid-North of South Australia	\$600	MAX. NUMBERS REACHED	
Physical Volcanology of the Mesoproterozoic Gawler Range Volcanics Silicic Large Igneous Province	\$1200	MAX. NUMBERS REACHED	
SUB-TOTAL FIELD TRIPS: A\$ _____			

E. Workshops

	Cost	No. of Tickets	TOTAL
THERMOCALC Workshop	\$55		
Short Course in Aeromagnetic Interpretation	\$500 (1 day) / \$800 (2 days)	CANCELLED	
New Mineral Characterisation Techniques	\$55		
Geoscience Analytics with ioGAS and Applied Case Studies	\$520	CANCELLED	
Epithermal and Porphyry Au-Cu-Ag Ore Deposits	Standard Reg \$1000 Student/Unemployed Reg \$500	CANCELLED	
A Tour Through Data Metallogenica	\$15		
HyLogger™ Workshop	Free	MAX. NUMBERS REACHED	
Techniques in Regolith and Landscape Mapping	\$55		
Orogenic Gold Deposits: Geology, Geochemistry, Exploration Criteria, and Global Patterns	Standard Reg \$200 Student/Unemployed \$55		
UNCOVER Isotope Geology	\$55		
UNCOVER Australian Lithospheric Architecture	\$90	CANCELLED	
SUB-TOTAL WORKSHOPS: A\$ _____			

F. ACCOMMODATION

Please indicate your preference below. All rates are shown in Australian Dollars, are GST inclusive and Room Only per night. One night's deposit upfront or credit card guarantee 30 days prior to arrival must be given to secure your booking.

I do not require the Secretariat to book accommodation for me.

Credit Card Deposit

Please debit my credit card for the one night deposit fee: \$.....

Mastercard VISA AMEX Diners Card

Card holder's name as it appears on the card.....

Card Number:...../...../..... Expiry Date:.....

Signature:.....

Hotel	Room Type / Cost per room per night
<input type="checkbox"/> Intercontinental Adelaide	King Superior Room – \$190
<input type="checkbox"/> The Playford Hotel	<input type="checkbox"/> Standard Guestroom (1 King) – \$175 <input type="checkbox"/> Playford Guestroom (1 King or 2 Queen) – \$195 <input type="checkbox"/> Deluxe Guestroom (1 King) – \$235
<input type="checkbox"/> The Stamford Plaza Hotel	Premier City Room (1 Single) – \$165
<input type="checkbox"/> Crowne Plaza Adelaide	King Standard Room – \$160
<input type="checkbox"/> Mercure Grosvenor Hotel	<input type="checkbox"/> Standard Room (1 Queen) – \$149 <input type="checkbox"/> Superior Room (1 Queen) – \$164
<input type="checkbox"/> BreakFree Adelaide	<input type="checkbox"/> Studio Apartment (1 Queen) – \$145 <input type="checkbox"/> 2 Bedroom Apartment (1 Queen + 2 Singles) – \$195
<input type="checkbox"/> Ibis Styles Adelaide Grosvenor Hotel	Classic Room (Compact 3 star, 1 Queen) – \$119

Check in date:..... Check out date:..... Estimated time of arrival:..... am/pm

Please tick: Single Twin Double Smoking Non Smoking

If applicable, please provide the name of the person you are sharing with:.....

Please note: The Convention Secretariat does not organise share accommodation. If you wish to share, you must find someone to share with.

Alterations or cancellation of hotel accommodation booked through All Occasions Management must be sent in writing to All Occasions Management, not to the hotel. Please refer to the cancellation policy of each hotel.

I have read and agree to the terms, conditions and cancellation policy of my selected accommodation provider.

If this box is not ticked, your accommodation will not be processed.

SUB-TOTAL ACCOMMODATION: A\$ _____

(Only complete if paying one night's deposit by cheque)

