

FUTORES II

PROGRAM

DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit Understanding


SYMPOSIUM
New Technologies and Approaches in Mineral Exploration

SYMPOSIUM
Tectonics, Basins and Resources

SUNDAY 4 JUNE, RYDGES SOUTHBANK TOWNSVILLE

3.00 to 6.00 pm REGISTRATION
 5.30 to 7.30 pm ICEBREAKER FUNCTION

DAY 1: MONDAY 5 JUNE 2017

	Opening Address Professor Iain Gordon Deputy Vice Chancellor, JCU, Tropical Environments and Societies		
8:30 - 8:50			
8:50 - 9:00	Introduction to David Groves Richard Goldfarb		
9:00 - 9:45	<i>Plenary Presentation</i> Dick Sillitoe Exploration in and under lithocaps		
9:45 - 10:20	MORNING TEA		
10:20 - 10:40	 Richard Goldfarb <i>SEG Keynote Address</i> Gold deposits in metamorphic rocks: new insights or steps backwards since FUTORES I?	Arianne Ford Fit for purpose: A case study on the use of open file data vs closed file data for GIS-based prospectivity analysis	Alan Collins <i>Keynote Address</i> Tectonic geography and provenance of the Mesoproterozoic petroleum-bearing Roper Group, McArthur Basin
10:40 - 11:00	Jerry Dunga The mineralogy and geochemistry of porphyry stocks and dykes and their significance to hydrothermal alteration and gold mineralisation at the Mt. Percy gold deposit, Golden Mile, WA	Vladimir Lisitsin (<i>invited speaker</i>) Mineral system analysis and prospectivity modelling for exploration targeting – current state and challenges	Teagan Blaike Geophysical interpretation and modelling of the 3D structural architecture of the Batten Fault Zone, south-eastern McArthur Basin
11:00 - 11:20	Nick Oliver Early gold introduction in two carbonaceous phyllite-hosted giants: Obuasi (Ghana) and Paracatu (Brazil)	Travis Murphy Augmenting prospectivity analysis with mining criteria: a test for viability	Mark Hinman Deep mining Queensland: a new view of structural-stratigraphic-magmatic, Cu-Au-Mo prospectivity in the southern Cloncurry Belt
11:20 - 11:40	Ioan Sanislav Intrusive centres and Archean gold systems – an example from Geita Greenstone Belt	Antonio Arribas (<i>invited speaker</i>) Early-stage porphyry Cu-Au exploration: adding value to regional stream sediment surveys by studying fluid inclusions	John McLellan Regional to local scale linkage of deformation events and IOCG mineralisation in the Eastern Mt Isa Block
11:40 - 12:00	Paul Dirks Tectonic setting of a giant Archean gold system – Geita, Tanzania	Roric Smith <i>Keynote Address</i> Exploration strategy, Business Planning and Successful Execution to Compress Timeframes of Discovery	Sarah Sargent (Laurie Hutton) Characterising detrital zircon spectra across the Eastern Succession, Mount Isa and links to mineralisation
12:00 - 12:20			
12:20 - 1:20	LUNCH		



PROGRAM

DAVID GROVES SYMPOSIUM New Insights in Mineral Deposit Understanding

SYMPOSIUM New Technologies and Approaches in Mineral Exploration

SYMPOSIUM Tectonics, Basins and Resources

DAY 1: MONDAY 5 JUNE 2017

1:20 - 1:40

Marco Fiorentini (Crystal Laflamme)
Atmospheric sulfur in the orogenic gold deposits of the Archaean Yilgarn Craton

Carsten Laukamp (invited speaker)
Remote sensing for mineral exploration

David Giles

Keynote Address

Tracing Australia's metallogenic provinces under cover: unwrapping the tectonics and releasing the value

1:40 - 2:00

Alex Parker
Modelling of hydrothermal fluid compositions in the crust and upper mantle

Lee Robson
Accuracy of remotely sensed mineral maps for exploration: hyperspectral vs multispectral

Laurie Hutton

Tectonic setting, geochemistry, and mineralisation linked to mafic rocks in the Mount Isa Inlier

2:00 - 2:20

Steve Cox
Keynote Address
The dynamics of fluid pathways during injection-driven failure in high fluid flux regimes: insights from ore deposits, seismicity and numerical simulations

Matthew van Ryt
Short-wavelength infrared spectroscopy as a tool for characterising hydrothermal alteration at the Geita Hill gold deposit, Tanzania

Robbie Coleman

Geology of the Tommy Creek Domain and associated rare earth element mineralisation

2:20 - 2:40

Mamady Cisse
Mineralization and textural controls on primary gold deposits in the Siguiiri Basin, Guinea

Rui Wang
White mica as a hyperspectral tool in exploration for Sunrise Dam and Kanowna Bell gold deposits, WA

John McLellan

Targeting epithermal systems by structural response

Peter Betts (invited speaker)

What do continental reconstruction tell you about mineral systems?

3:00 - 3:30

AFTERNOON TEA

3:30 - 3:50

David Cooke
Keynote Address
Porphyry Cu-Au-Mo deposits

Clare Baxter
How can implicit modelling assist in speeding up the geological modelling process.

Simon Johnson (invited speaker)

Metallogeny of the Capricorn Orogen, Western Australia

3:50 - 4:10

Mike Nugus (Nick Oliver)
Controls on gold predominance at the La Colosa porphyry giant, Colombia

Stefan Vollgger
Ore shoot formation in an orogenic gold deposit

Joshua Guiliamse

Is there an unrecognised ca. 1800 Ma mineral system in the northern Capricorn Orogen, Western Australia?

4:10 - 4:30

Isaac Corral
The Capsize prospect, NE Queensland, Australia: geology, geochronology and geochemistry of a porphyry and associated lithocap

Steve Micklethwaite (invited speaker)
Supercharging field geology - drones and artificial intelligence for ore deposits and structural mapping

Jo Whelan (invited speaker)

Correlating basement terranes in the North Australian Craton, implications from a new study in the Arnhem Province, Northern Territory

4:30 - 4:50

Angela Escolme
Productora Cu-Au-Mo deposit - a porphyry-related magmatic-hydrothermal breccia complex with local magnetite-apatite and porphyry mineralisation

Jeremy Cook (invited speaker)
Application of high resolution seismic reflection to delineate low sulphidation epithermal vein systems - insights from Cracow

Teimoor Nazari-Dehkordi

The Browns Range Metamorphics, Tanami region, Western Australia: A record of Mesoarchean crust within the North Australian Craton

4:50 - 5:10

Fredrik Sahlstrom
Geology of the Mt Carlton high-sulfidation epithermal deposit, NE Queensland, Australia

Joe Dwyer
Application of modern reflection seismic in gold and base metal mines

Matt McGloin

Broadening Paleoproterozoic tectonic and metallogenic models for the proto-Australian continent: examples from the Aileron Province, NT

7:00 for 7:30

Conference Dinner: The Brewery - Banquet Centre, 252 Flinders Street, Townsville city



PROGRAM

DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit Understanding

SYMPOSIUM
New Technologies and Approaches in Mineral Exploration

SYMPOSIUM
Tectonics, Basins and Resources

DAY 2: TUESDAY 6 JUNE 2017

8:30 - 8:50	Minister's Address Honourable Dr Anthony Lynham MP Minister for State Development and Natural Resources and Mines		
8:50 - 9:35	Plenary Presentation Dan Wood Mining Industry Overview: Growth in resources demand post-WW2 & future exploration implications		
9:35 - 9:55	Poster highlights Short presentations from poster authors		
9:55 - 10:20	MORNING TEA		
10:20 - 10:40	Jingwen Mao (Yanbo Cheng) <i>Keynote Address</i> Tungsten and tin deposits in China	Jeremy Richards <i>Keynote Address</i> Magma fertility indicators	Annette George <i>Keynote Address</i> Australian carbonate systems: conventional and unconventional hydrocarbon accumulations
10:40 - 11:00			
11:00 - 11:20	Jaime Poblete The Watershed scheelite skarn deposit, Far North Queensland, Australia	Helge Behnsen Cu-Au fertility of arc volcanic rocks - a case study of the early Permian Lizzie Creek volcanics, NE Qld	Tiannan Yang The Jinding Zn-Pb deposit: In the view of a field geologist
11:20 - 11:40	Yanbo Cheng The volcanic-plutonic connection and fertility of highly evolved magma systems: a case study from the Herberton Sn-W-Mo mineral field, Qld	Isaac Corral Fertility assessment for Au-Cu of late Carboniferous - Early Permian volcanic rocks of the Townsville-Bowen region, NE Qld	Kasia Sobczak (invited speaker) Reassessing the cyclicity of volcanism and sedimentation in the Devonian-Carboniferous Drummond Basin, central Queensland
11:40 - 12:00	Kairan Liu Wolfram Camp W-Mo-Bi deposit, NE Queensland, Australia	Bob Loucks The effect of magmatic oxidation state, hydration state and temperature on incorporation of cerium in zircon: bad news for Ce-in-zircon oxybarometry	Christopher Todd Detrital zircon geochronology of Late Palaeozoic to Mesozoic sandstones from Northern Queensland (Hughenden Region): implications for the evolution of eastern Australian basins
12:00 - 12:20	Cornel de Ronde <i>Keynote Address</i> Seafloor hydrothermal systems of intraoceanic arcs: cradles for the formation of massive sulfide Cu-Au mineralization?	Phil Blevin Timing, evolution and sources of magmatism associated with the Ardlethan Tin Mine, NSW Australia: a zircon based U-Pb, O, Hf and trace element study	Valeria Bianchi (invited speaker) High-resolution facies analysis and an unusual paleogeography for the Precipice Sandstone (Early Jurassic, Surat Basin)
12:20 - 12:40		Yanbo Cheng Zircon trace element as a magma fertility discriminator and its application in NE Queensland	Prince Owusu Agyemang Tectonics, paleogeography and drainage evolution of Jurassic-Cretaceous deposystems across central Africa: New insights based on an extensive detrital zircon data set
12:40 - 1:40	LUNCH		



PROGRAM

DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit Understanding

SYMPOSIUM
New Technologies and Approaches in Mineral Exploration

SYMPOSIUM
Tectonics, Basins and Resources

DAY 2: TUESDAY 6 JUNE 2017

1:40 - 2:00	Nicholas Dyrw The nature of the volcanic edifice associated with a modern SMS deposit: insights from the Solwara 1 Cu-Au ore deposit
2:00 - 2:20	Larry Meinert <i>Keynote Address</i> Exploration for Skarn Deposits - Major deposits and new strategies
2:20 - 2:40	
2:40 - 3:00	Stephanie Mrozek The Antamina deposit, Peru: U-Pb and Re-Os age constraints on magmatic-hydrothermal activity
3:00 - 3:20	Geoff Derrick Double skarns and triple breccias – Geological evolution of the Mary Kathleen skarn system, NW Qld
3:20 - 3:40	Peter Illig Breccia controls on the Red Dome Au-Cu-Ag Skarn Deposit, Chillagoe District, Far North Queensland, Australia

Bob Loucks Calibration of a new magmatic oxybarometer using uranium, cerium and titanium in zircon as a pathfinder to Cu-fertile arc igneous complexes
Tony Christie Evolving exploration models for epithermal Au-Ag deposits in the Hauraki goldfield, NZ
Jim Morrison NE Qld revisited: using new and old tools to generate targets in mature exploration areas
Paul Dirks Insights into the Mt Carlton Au-Cu mine (North Queensland) based on detailed structural mapping of the pits
Doug Kirwin <i>Keynote Address</i> Fifty years of looking at rocks

Bob Henderson Tectonic controls on mineralization in northeast Queensland
Zhaoshan Chang Geodynamic setting of epithermal-porphyry mineralisation in northern Bowen Basin, NE Queensland, Australia
Gavin Clarke Age-dating of igneous rocks embedded with, and later intruding, the Rangal Coal Measures at Hail Creek Coal Mine, north-east Bowen Basin
Gregg Morrison (Vladimir Lisitsin) The relationship between orogenic gold and intrusion-related gold systems in the Permo-Carboniferous of northeast Queensland
Zhaoshan Chang Sn-W-Mo mineralisation in NE Queensland, Australia
Courteney Dhnaram The Early Permian gold mineral system of Cape York, North Queensland, Australia

3:40 - 4:10

AFTERNOON TEA

4:10 - 5:30

POSTER SESSION
 (with complimentary refreshments)



PROGRAM

DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit Understanding

SYMPOSIUM
New Technologies and Approaches in Mineral Exploration

SYMPOSIUM
Tectonics, Basins and Resources

DAY 3: WEDNESDAY 7 JUNE 2017

8:30 - 8:50

Noel White

Keynote Address

Low and intermediate-sulfidation epithermal deposits

8:50 - 9:10

9:10 - 9:30

Roger Skirrow

Keynote Address

Iron oxide Cu-Au deposits: products of two tectonic settings and two fluids?

9:30 - 9:50

Michael Fuss

Sr, C and O isotope compositions of carbonates in the Ernest Henry deposit, Queensland, Australia: implications for genesis and exploration

9:50 - 10:10

Xinfu Zhao

Tectonic evolution and formation of the Proterozoic IOCG deposits in Kangdian, southwest China

10:10 - 10:30

10:30 - 11:00

11:00 - 11:20



David Leach

SGA Keynote Address

New insights into the relationships of evaporites with Mississippi Valley-Type Zn-Pb ores: a paradigm shift for exploration

11:20 - 11:40

Wenhong Qiu

Sulfur isotopic constraints on the origin of the Dajiangping SEDEX-type pyrite deposit, South China

11:40 - 12:00

Caroline Perring

New evidence for controls on martite – microplaty hematite mineralisation at Mt Whaleback, Hamersley Basin, Western Australia: a holistic 3D approach

12:00 - 12:20

Harilaos Tsikos

Palaeoproterozoic banded iron formation (BIF)-hosted manganese deposits: myth or reality?

12:20 - 12:40

12:40 - 1:40

Chris Torrey

Litho-geochemistry of pegmatites at Broken Hill: an exploration vector to mineralisation

Joshua Phillips

Geochemistry of PGE enriched Proterozoic dolerites of the southwestern United States

Ravi Anand *(invited speaker)*

Future trends in geochemical exploration through transported cover

Richard Lilly *(invited speaker)*

Geochemistry through cover: defining geochemical exploration parameters for the Cloncurry Mineral District, Queensland

Eline Baudet

Geochemical footprint of the Bulldog Shale, Eromanga Basin, Australia: the tyranny of cover

Chris Cuff *(invited speaker)*

Does underground coal gasification (UCG) have a place in clean coal technology?

MORNING TEA

Benjamin Andrew

3D mapping of fluid/rock interaction using oxygen stable isotopes, Mount Isa, Northwest Queensland

Alex Brown

Aspects of practical implementation of portable XRF in exploration

Richard Lilly

Pyrite variation within the Mount Isa copper system

Huiqing Huang

Accurate and precise zircon U-Pb dating by LA-ICP-MS and SIMS

Dexian Zhang

LA ICP-MS trace element analysis of pyrite from Dabaoshan poly-metallic deposit of North of Guangdong Province: Implications for ore genesis

LUNCH

David Huston *(invited speaker)*

Spatial variations in the distribution of lead isotopes in the Tasmanides, eastern Australia: implications for tectonics,

Tristan Wells

Geochronological and geochemical evidence for two ore-forming events in the Northparkes district, NSW

Dominic Brown

GSQ-GSNSW-GA Southern Thomson drilling program

Joel Fitzherbert

Southern Cobar-type Cu-Au-Pb-Zn-Ag mineralisation: turbidite-hosted intrusion-related mineralisation in central New South Wales

Ross Cayley *(invited speaker)*

Advances in Tasmanide tectonics – the giant Lachlan Orocline, a new predictive concept for eastern Australian mineral exploration under cover

Julie Rowland

Inherited faults: their reactivation and influence on the localisation of arc-related epithermal systems

Chris Leslie

British Columbia metallogeny and exploration overview

Rob Holm

Tectonics and metallogenesis of Papua New Guinea and Solomon Islands

Xue Gao

Lithospheric architecture of the Yidun Terrane and its control on metal assemblages related to granitoid system in SE Tibet Plateau

Yitian Wang

Tectonic controls on regional metallogenesis in the Fengxian-Taibai polymetallic mineralization zone, Central China



PROGRAM

**DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit
Understanding**

**DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit
Understanding**

**SYMPOSIUM
Tectonics, Basins and Resources**

DAY 3: WEDNESDAY 7 JUNE 2017

1:40 - 2:00

Zhiming Yang
Magmatic Au mineralization at the Bilihe Au deposit, China

Yasushi Watanabe
Keynote Address
Rare metal mineralization in the Khaldzan Burgedei peralkaline complex in western Mongolia

Ross Large
Keynote Address
Cycles of ore deposits and mass extinction events - are they controlled by atmosphere oxygenation?

2:00 - 2:20

Joel Brugger
Keynote Address
Transport of metals in hydrothermal fluids

Robin Wilson
Rare earth mutants - Wolverine and other hydrothermal xenotime deposits, Browns Range, NW Australia

John Walshe (*invited speaker*)
Volato-thermal Au systems in the Late Archean - core to the crust

2:20 - 2:40

Xiangkun Zhu
Fe-Mg-B-isotopic constraints on the genesis of large-scale Paleoproterozoic B-(Fe) mineralization in NE China

Paul Slezak
The Yangibana LREE deposit of the Gascoyne Province, Western Australia

Jose Piquer
Porphyry Cu-Mo systems emplaced under contrasting tectonic regimes: examples from central Chile and SE China

2:40 - 3:00

Jose Veracruz
Gilberton District: An example of an intrusion-related gold system in North Queensland

Carl Spandler
Geology and evolution of the Toongi rare metal deposit, central NSW

Christa Placzek
Climatic and tectonic controls on exhumation patterns and abundance of porphyry and supergene copper deposits: insights from millennial scale erosion rates

3:00 - 3:20

3:20 - 3:50

AFTERNOON TEA

3:50 - 4:10

Ross Large
FUTORES Wrap Up



PROGRAM

DAVID GROVES SYMPOSIUM
New Insights in Mineral Deposit Understanding

SYMPOSIUM
New Technologies and Approaches in Mineral Exploration

SYMPOSIUM
Tectonics, Basins and Resources

POSTERS

POSTERS

POSTERS

TUESDAY 6 JUNE

9.35 - 9.55 am

Short presentations from poster authors

4.10 - 5.30 pm

Poster session with complimentary refreshments

Bradley Cave

U-Pb Geochronology of apatite and calcite at the Ernest Henry Deposit, NW Queensland; Implications for hydrothermal evolution and ore genesis

Arianne Ford

A GIS-based prospectivity analysis case study for Sn-W mineralisation in north-east Qld

Peter Downes

Pb-isotope signatures of the high sulfide Ag-Pb veins in the Broken Hill region: implications for metallogenesis

Yanbo Cheng

Geology and Mineralization of the Mt Carbine Tungsten Deposit, Australia

Dave Holwell (Sally Worbey)

Future by-product recovery of speciality trace metals from IOCGs

Thomas McCourt (Valeria Bianchi)

Dynamic simulation for gas injection with varied grid geometries

James Hewett

The association between gold and pyrite trace element geochemistry at the Ernest Henry deposit, NW Queensland

Richard Lilly

The National Exploration Undercover School (NExUS)

Jack Maughan

Geochemical evolution of the mafic volcanic sequences in the Cloncurry District, Queensland: implications for crustal accretion and prospectivity

Jan Marten Huizenga

Hydrothermal Au mineralisation caused by fluid decompression and cooling in dilatational cavities

Sandra Rodrigues

Hyperspectral techniques applied to coal characterisation

Jargalan Sereenen

Copper porphyry mineralization in South Mongolia: metallogenesis and magmatism

Cassandra Lintvelt

Mineralogy and trace element geochemistry of Ag and Co in the Mount Isa copper orebodies, NW Queensland, Australia

Christopher Todd

Resolution of Permian & Triassic stratigraphic problems in Porcupine Gorge, Queensland

Teimoor Nazari-Dehkordi

Petrography and mineralogy of the Wolverine HREE deposit, Browns Range, Western Australia

Paul Slezak

What's in your apatite? Using cathodoluminescence to determine the apatite composition at the Yangibana LREE deposit, Western Australia

Yuling Xie

New understandings of rare metal deposits in China

R
A
F
F
L
E
S

C
O
N
F
E
R
E
N
C
E

R
O
O
M