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Searching the deep earth

A vision for exploration geosciences in Australia

Presentations and summaries from the UNCOVER Summit and UNCOVER Workshop, Adelaide Convention Centre 31 March to 2 April 2014. Presentations should be referenced by author, title, *Preview* **172**, The Australian Society of Exploration Geophysicists, October 2014.

SUMMARY DOCUMENTS

- UNCOVER (2014), UNCOVER Summit: unfolding the vision for exploration Geoscience towards a brighter mining future in Australia, Summit 2014 and Next Steps
- Geoscience Australia (2014), UNCOVER: cover-thickness mapping technical workshop summary and outcomes

PRESENTATIONS
Monday 31 March 2014

Session 1

- Paul Heithersay (DMITRE) What is the future for government geoscience initiatives in Australia?
- Jonathan Law (CSIRO) Minerals down under flagship
- Stephen McIntosh (Rio Tinto) Leveraging investment in the Earth sciences to meet future mineral discovery challenges
- Chris Pigram (Geoscience Australia) Making Australia competitive: undercover mineral discovery
- Sue O'Reilley (Macquarie University) A national trajectory for geoscience research in Australia and some historical perspectives towards UNCOVER

Session 2

- Charles Funk (Newcrest) Industry requirements for undercover exploration
- Joe Cucuzza (AMIRA) Minerals industry challenges: unlocking Australia's potential through collaboration
- Richard Schodde (Minex Consulting) Challenges and opportunities for under-cover exploration in Australia
- John Holliday (Independent) What's needed, and what's not

Session 3

- James Cleverley (CSIRO) Innovation to support the UNCOVER business
- Steve Hill (DMITRE) The cover: love thy enemy
- Ravi Anand (CSIRO) Transported cover: friend not an enemy

Quickfire session 1 – geological surveys

- Andy Barnicoat (Geoscience Australia) Unlocking Australia's hidden mineral resource potential: GA's national projects
- Steve Hill and Miles Davies (GSQ) Mineral system 'haystacks' in South Australia's deep cover exploration frontiers: from impediment comes opportunity
- Paul McDonald (GSV) Victoria's Earth resources under cover
- Jamie Robinson (GS NSW) Constraining thickness of transported cover and basement geology: tasmanides undercover in NSW
- Vladimir Lisitsin (GSQ) Intrusion-related mineral systems of north-east Queensland
- Vladimir Lisitsin (GSQ) Metallogenic analysis: defining and mapping mineral systems
- Adrian Fabris (GS SA) Mapping mineral systems under cover; using drill rigs instead of geological hammers
- Tania Dhu (NT GS) Uncovering the Greater McArthur Basin, Northern Territory
- (a) Dr Ian Tyler (GS WA) The Geological Survey of Western Australia: what does a state geological survey do in 2014?
  (b) Dr Ian Tyler (GS WA) Western Australia's Exploration Incentive Scheme
- Dr Mark Duffett (MRT) The Tasmanian UNCOVER perspective

Tuesday 1 April 2014

Session 4

- Richard Blewett (Geoscience Australia) Australia's lithospheric architecture: imaging for under cover mineral discovery
- Bill Griffin (Macquarie University) Archean SCLM: what do we (think we) know?
- Mark Jessell (UWA-CET) Next generation 3D modelling and inversion: what you don't know can help you

Session 5

- Steve Beresford (First Quantum) Theory of constraints applied to mineral systems
- Chris Kirkland (GSWA) Isotope geology through space and time: a tool for understanding crustal evolution
- John Miller (UWA-CET) Resolving the 4D geodynamic and metallogenic evolution of (west) Australia: towards better prediction

Session 6

- Peter Winterburn (UBC) Sizing up the footprint: concepts in regional scale undercover geochemistry
- Peter Bewick (Encounter Resources) Footprints in the Great Sandy Desert
- Matt Greenwood (GSQ) Regional 3D mineral potential modelling using geology and geophysics
- Bruce Gemmell (CODES) Metal dispersion around porphyry Cu-Mo-Au deposits: implications for fluid flow and exploration
- Shaun Barker (University of Waikato) Teaching and old dog new tricks: stable isotopes in mineral exploration

Quickfire session 2 – innovations in technology

- Mathew Murphy (Bluestem P/L) Trace element chemistry of sulphides and its potential as an indicator in gold deposit exploration
- Kim Frankcombe (ExploreGeo) Chasing Volkswagons at 2 km with IP
- Lynn Pryer, Timothy Debacker, Karen Connors and Jane Blevin (FrogTech) OZSEEBASE™: basement uncovered

- Elena Belousova, William Griffin, Norman Pearson, Suzanne O'Reilly and Yoann Greau (GEMOC, Macquarie Univ) TerraneChron®: remote sensing with detrital samples
- Don Pridmore & Greg Turner (HiSeis Pty Ltd) Seismic and mineral exploration under cover? Time for a new relationship
- Graham Heinson (Univ Adelaide) Deep imaging and monitoring with magnetotellurics
- Ivan Belouov, Sebastien Meffre, Dan Gregory, Jeffrey Steadman and Ross Large (CODES Univ Tas) Pyrite geochemistry as a proven vector to ore
- Zhen-Xiang Li (Curtin University) Greenfield identification: big picture matters
- Helen Williams (MMG) Overcoming ground disturbance issues with alternative electrical imaging techniques
- Nick Smith (OZ Minerals) Passive seismic for mineral exploration under cover
- Theo Aravanis (Rio Tinto) The regolith – a proposal for regional airborne EM surveys to supplement gravity gradiometer surveys
- Dave Giles (Univ Adelaide) Mineral Systems Drilling – DET CRC's strategy to UNCOVER deep prospectivity

Wednesday 2 April 2014

Session 7

- Joe Cucuzza (AMIRA) What exploration companies want from UNCOVER
- Richard Hillis (DETCRC) Round table summary and grand challenge

Session 8 – The need for a Geoscience Committee and a Communications Committee

- Michael Asten (Monash University) UNCOVER stakeholders
- Theo Aravanis (Rio Tinto) Priorities in UNCOVER initiatives

UNCOVER: cover-thickness technical workshop

Aim of the workshop

Develop practical solutions for mineral explorers to determine the depth of cover at the tenement scale by identifying the optimal trade-off between accuracy and data acquisition costs for the range of Australian cover materials.

SUMMARY DOCUMENT

- Geoscience Australia (2014), UNCOVER: cover-thickness mapping technical workshop summary and outcomes

PRESENTATIONS

- Andy Barnicoat (Geoscience Australia) Introduction
- Steve Hill (Geological Survey SA) Nature of Australian Regolith
- John Wilford (Geoscience Australia) Remote sensing and radiometric
- Clive Foss (CSIRO) Magnetics
- Des FitzGerald (Intrepid Geophysics) Gravity
- Kim Frankcombe (ExploreGeo) Ground electric (IP/resistivity)
- Graham Heinson (University of Adelaide) Magnetotellurics
- Jim Macnae (RMIT University) Airborne electromagnetic
- Michael Asten (Monash University) Passive shallow seismic
- Milovan Urosevic (Curtin University) Active source shallow seismic