

What's happening at the Centre for Exploration Targeting...



## CET "Meet-and-Greet" luncheon

The Centre for Exploration Targeting (CET) held a 'Meet-and-Greet' luncheon on Tuesday July 24th at the Curtin University St. Georges Terrace venue in the heart of Perth's CBD. The iconic little brown sandstone building is actually Perth's oldest educational landmark, the Old Perth Boys' School. The luncheon was attended by about 60 corporate members, friends, and staff of the CET, who heard a 15 minute presentation on the CET 'relaunch' by Steve Rowins the new CET Director and Professor of Mineral Geoscience at UWA. The audience was given an outline of the revamped administrative and governance structure, and a brief overview of new CET projects three years out. The event provided a welcome opportunity for new and old friends to meet and 'talk rocks'. Stayed tuned for further CET events and activities.



'A 30 year legacy. Past and present 'Centre' Directors. David Groves (1988-2005), Cam McCuaig (2005-2016), and Steve Rowins (2018-present)'



## CET update

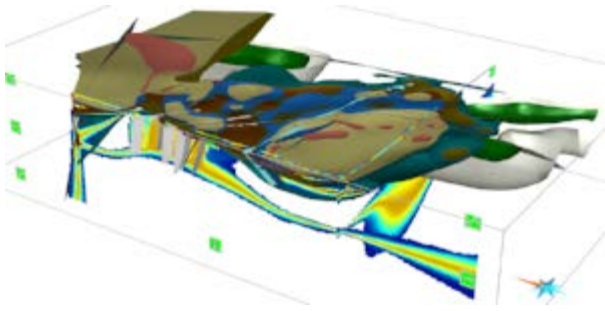
Laure Martin: Working with Marco Fiorentini

Tom Horrocks: Working with EJ Holden

Heta Lempinen: Working with Mark Fiorentini and Sandi Occhipinti

Tasman Gillfeather-Clark : PhD student with EJ Holden

Bob Loucks is visiting the CET from the 6 August to mid December.



## Time-aware 3D structural geology simulator

The project aims to develop technologies to mitigate 3D geological risk in resources management. The project is expected to create new knowledge and methods in the field of 3D geological modelling through the innovative application of mathematical methods, structural geology concepts and cutting-edge probabilistic programming.

The expected outcomes are an enhanced capability to model the subsurface, characterise model uncertainty and test multiple geological scenarios. This enhanced capability is extremely important for the future of Australia's subsurface management; including urban geology and our continuously growing sustainable resources industry (including water).

The new methods developed in this project will enable 3D geological modelling in all types of geological environments from urban geology, to basins to poly-deformed terranes as well as assessing and mitigating geological uncertainty. The innovative methods will facilitate decision making regarding the management of Australia's subsurface resources (including water) for government organisations as well as the resources industries.

This project will be undertaken as part of a collaboration between two major new geoscience consortia. The "Loop" OneGeology (with Australian Research Council support) brings together geological surveys and research institutions in Australia, Canada, France, Germany and the UK to found a new Open Source initiative to build the next generation of 3D geological modelling tools. In parallel the Australian Government recently announced the formation of a new \$215M industry and government-funded Cooperative Research Centre (the MinEX CRC) focussed on 3D drilling for discovery and definition of mineral deposits.

We have PhD projects and staff positions available.

For more information, contact [Mark Jessell](#)



## Events & ...

### [SES Seminar Series](#)

16 August - Patrice Rey and Sandy Cruden

### [CET Breakfast](#)

Every last Thursday of the month - from 7 to 8.30 am - Julio's Sage Hotel West Perth. All welcome

**Gordon Research Conference - 5 to 10 August 2018**

**IAGOD Symposium - Salta - 28 to 31 August 2018**

**Geological Society of Australia Earth Sciences Student Symposium (GESSS-WA) - 29 November 2018**

**Tectonics and Metallogenesis of NE South America Conference - Paramaribo, Suriname - 19 to 20 February 2019**

L4	<b>Data Integration</b> redundancy & interdependency
L3	<b>Data Attributes</b> substance & characteristics
L2	<b>Data Quality</b> relevance & precision
L1	<b>Data Presence</b> density & distance

## A role for data richness mapping in exploration decision making

Exploration success hinges upon three fundamental decisions, what to explore for, where to explore for it, and how to explore for it. The quantity, quality and relevance of geoscience data are fundamental to providing opportunities to make better decisions, and in so doing promote more effective exploration. Data richness can be defined as the opportunity provided by data to gain useful knowledge for a specific purpose, e.g. exploration. Compared with data poor regions, data rich regions allow the explorer a stronger opportunity to know what resources may exist, and also a better understanding of where to find them and how. Therefore, a direct and quantitative treatment of data richness in exploration programs has the potential to support more knowledgeable decision making, and helps explorers to make better decisions more easily, especially when combined with other measures of exploration potential. Work completed by CET researchers as part of the Capricorn Distal Footprints study has focused on defining the role for data richness mapping in exploration decision making. Published this month in *Ore Geology Reviews* this work describes methods to quantify and map data richness and demonstrates techniques to use it to assist ground selection and data collection decisions.

## CET and UQ win another Australia Awards – Africa tender

CET, in partnership with the University of Queensland (UQ), have been successful in winning an Australia Awards – Africa tender for the provision of a course on 'Planning, monitoring and implementing extractive investments' over the period 2019-2022.

This program will run in parallel with the 2018-2021 Australia Awards – Africa 'Mineral and energy economics' course which is currently being managed and conducted by the CET in Johannesburg in partnership with the University of Witwatersrand and later in the year in Perth.



**Corporate Members' Day**  
Tuesday 27 November 2018

## ...Courses

[Structural Geophysics](#)

8-12 October - Ivory Coast

[Advanced Applied Structural Geology](#)

17 - 24 October - Ghana

### **Multiple Sulfur Isotope Workshop - UWA - 28 November 2018**

The Centre for Exploration Targeting at the University of Western Australia, in collaboration with Curtin University and Université Laval (Canada), invites you to attend a multiple sulfur isotope workshop on the 28th of November 2018 at UWA. The day is designed around informing researchers and industry about the latest advances on the characterisation of multiple sulfur isotopes as robust and indelible tracers of ore-forming processes. Experts from around the world will discuss the latest advances in the field and highlight future challenges and applications. Numerous case studies from Archean and Proterozoic mineral systems will be presented. Stay tuned for more details on the venue as well as on the program and list of speakers on the CET website.

## **CET-WB Transfer Pricing in Mining book launched at Chatham House, London**

The World Bank – CET book “Transfer Pricing in Mining with a Focus on Africa – A Reference Guide for Practitioners” was launched in London’s Chatham House on 7 June 2018 as part of an international session on “Making the Most of Africa’s Resources: Addressing Transfer Pricing in Extractive Industries”.

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## **Mining Taxation: Reconciling the Interests of Government and Industry**

Mining taxation policy and administration has become a critical international issue, particularly for mineral-rich developing and emerging economies, in an increasingly globalised mining industry. As Carlos Vilhena succinctly pointed out at the 2017 International Bar Association Conference ‘The truth is that Governments never believe that they are taxing too much, companies rarely agree that they pay too little and the public in most cases doesn’t believe the benefits from royalty payments are what they should be’.

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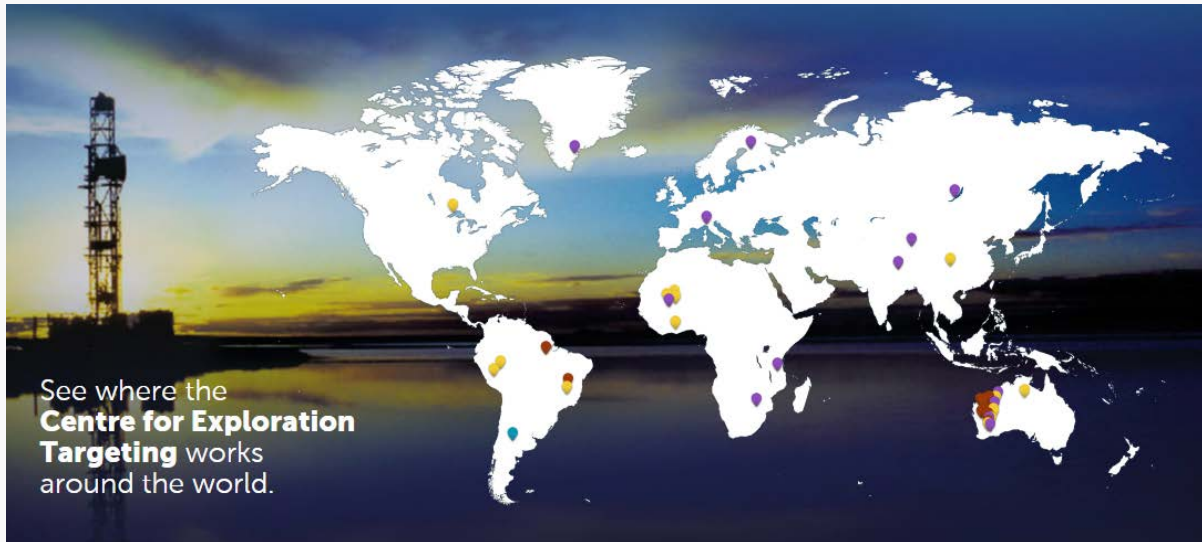
## **CET Profile**

**Mark Lindsay**



Mark was born in Melbourne and spent most of his life there until moving to France for a year during his PhD and then moving to Perth in 2013. He did his undergraduate studies at Monash University, and his PhD at Monash and Université Paul Sabatier (Toulouse III) in 2013. Mark came to the CET because it has well-recognised researchers working in wide range of fields, from economic geology, geochemistry and geophysics to minerals systems and computer science. Being able to draw on these

various disciplines to solve problems was very appealing to him, and his constant spamming of people to get a position here seems to have worked. Perth weather and lifestyle was also a massive drawcard. Once at the CET, he worked on the Exploration Incentive Scheme project in collaboration with the Geological Survey of Western Australia (GSWA), which focused on structural geophysical interpretation, mineral systems and prospectivity modelling. This took him to the Kimberley region, and later the Capricorn as part of the larger Capricorn Distal Footprints project. His current work is in the Yamarna Terrane eastern Yilgarn, MRIWA funded project in collaboration with the GSWA and Gold Road Resources, where he is using a variety of geophysical and geological data sources to develop an integrated and multi-scale model that aims to inform us about mineralisation processes and their geophysical expression. He has maintained his interest in modelling uncertainty, geodynamics, data science and structural geology through supervision of related PhD projects. Mark hopes to continue in these research domains in the future within the recently awarded MinEx CRC where I will co-lead a module in automated 3D modelling.



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