

SGEG Newsletter

Number 2**November, 2006****Chair: Dr. Frank Bierlein.**

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This Issue!

Message from the Chair Frank Bierlein	1
Economic Geology Research The predictive mineral discovery CRC (pmd [®] CRC) Ms Helen Clark	3
Membership News	4
Call for Papers SGA Meeting, Dublin	4

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FROM THE CHAIR

Season's Greetings! Well, we're not quite into the silly season just yet but I'd like to take this opportunity to thank our members for their support in 2006 and wish you all a safe and relaxing Year's end. May 2007 be a successful, prosperous and, above everything, healthy and peaceful one for all of you.



Our second Newsletter for 2006 (coming less than 3 months after the last one!) won't be another bumper issue – instead, it is intended as a brief update on recent activities and highlights relevant to SGEG members. Congratulations to Paul Hodkiewicz and his co-authors for being awarded the AB Edwards Medal for 2005 – their outstanding paper on "Complexity gradients in the Yilgarn Craton: fundamental controls on crustal-scale fluid flow and the formation of world-class orogenic-gold deposits" (AJES vol. 52, pp. 831-842) is a deserved winner that perfectly combined topicality, impact and presentation. This Newsletter issue also contains an excellent review and update on activities

undertaken by the predictive mineral discovery Cooperative Research Centre (*pmd**CRC) – thanks, Helen! Many of our members have been involved in one or even several of the numerous projects that the *pmd**CRC has initiated and, to an increasing extent, completed in the last 5 years. As more and more of this cutting-edge research activity is coming out of confidentiality, the real impact of the *pmd**CRC on mineral exploration in Australia will become measurable and recognised.

As most of you would be aware of, the Geological Society's Head Office has made a strong commitment to improving communication with all members via, for example, a more user-friendly, informative and topical web site, as well as more frequent email updates and of course the all-new and improved TAG Newsletter. These initiatives are a great way to reach out to the entire membership base it is hoped that they will engage more members to actively participate in, and contribute to, the development of the SGA. We need to constantly remind ourselves that it is our Society and what we make of it. The SGEG Committee has happily adopted Sue's and Jess' great example and hence, this second Newsletter is, above all, intended to illustrate the SGEG Committee's resolution to communicate with our members on a more regular basis. And to remind our members that it is THEIR Specialist Group!



Frank Bierlein (centre left) presents the AB Edwards Medal to Paul Hodkiewicz (centre right), framed by Marco Fiorentini (far right) and Oliver Kreuzer (far left).

An item of note in this context is the invitation by the Sydney Mineral Exploration Discussion Group to all members of the SGEG to present talks of their choice when next in Sydney, and for the two groups to collaborate more closely. For more information on this, please read the note by SMEDG's Kim Stanton in this Newsletter issue, and we suggest you also check out the web site of this incredibly active and dynamic discussion group (www.smedg.org.au). We are also discussing ways of collaborating more closely with the AIG and MEGWA; this includes the coordination and staging of joint monthly seminars in Perth in 2007.

Another major item on our agenda for 2007 is to support Australia-based post-graduate students to attend the 9th Biennial SGA Meeting in Dublin in August. The SGEG will commit a total of up to \$5,000 to assist students who will present papers (oral or poster) on aspects of their economic geology research at this meeting. We urge students to take advantage of this opportunity, and hope that supervisors will encourage their students to attend this high-profile event (did I mention that the venue of the meeting is a mere 500 metres from the Guinness brewery?!). Feel free to contact me or other members of the Committee regarding details, and see also the conference announcement and call for papers in this Newsletter.

Finally, we hope that you will continue to support our Specialist Group in 2007 and renew your membership together with that of the Geological Society. Remember, at (still!) \$2.20 – incl. \$0.20 GST – we are the least expensive Specialist Group around! And as always, we welcome your comments and feedback.

Frank P. Bierlein
Chair, SGEG
Perth, November 2006



The predictive mineral discovery CRC – An Overview

Ms Helen Clark (Research Delivery and Communication)

Science for Discovery

The predictive mineral discovery CRC (*pmd*CRC*) is in the sixth year its seven-year life. It is a Cooperative Research Centre involving earth science departments of James Cook University, Monash University, the University of Melbourne and the University of Western Australia (CET), plus CSIRO Exploration and Mining, Geoscience Australia and AMIRA International.

The *pmd*CRC* was conceived by industry in partnership with the geological research community to focus research on issues that are of critical importance to ore discovery. The CRC is funded jointly by the Commonwealth Government's CRC Programme, Core Research Partners, along with Industry and State Government geoscience agencies. A sponsorship model through AMIRA International provides confidential access to research outcomes for industry sponsors prior to release to the wider industry sector.

The Centre is focussed on making significant shifts in our understanding of mineralising processes and gaining a 4D understanding of the geological evolution of mineralised terrains. Much of the research to date has concentrated on well-endowed Australian terrains and the development and application of numerical simulation of geological processes.

The Centre's objectives over the seven year term are to:

- Contribute to the resolution of the key areas of uncertainty in current models for the formation of major economic mineral deposit types through building 3D and 4D images and histories of well-known mineralised systems.
- Conduct research to enable simulation of 4D evolution of mineral systems.
- Ultimately create a commercial computational and visualisation framework to allow companies to access leading edge simulation systems for application to exploration targeting and discovery.

The Centre's research is structured into two integrated streams (Terrains and Enabling Technologies) to enhance the linkages between research projects and research partners. The Terrains Program is currently focussed on gold and basemetal deposits in the Yilgarn Craton, the Mt Isa Inlier and the Tasmanides in Victoria and NSW. The Enabling Technology Program develops and tests new analytical techniques and technologies to provide answers to some of the problems identified by the Terrains Program. These new generation tools are transferred to industry for use by mineral explorers.

The Centre has successfully completed and delivered outcomes from Stage 1 research (Years 1 to 3) to sponsors and the second stage of research program will conclude by December 2007. A large component of the second stage is to integrate the wide-ranging results from the terrains and draw them towards real predictive exploration outcomes. A plan is

in place for the delivery of the Centre's research outcomes to industry sponsors in the final year of the Centre.

The most exciting recent developments have arisen in the area of numerical modelling. The development and application of a new generation of numerical modelling techniques and work-flows are aspects of the Centre's research that have made significant advances – both in science and practical applicability over the life of the *pmd**CRC. The development of a more efficient work-flow and access to super-computing facilities have transformed the future for the application of numerical modelling simulations and it is now possible to simulate of a range of geomechanical regimes and reactive transport scenarios in time frames that are compatible with exploration time frames. Recent advances now allow coupled

mechanical-thermal simulations of hydro-thermal systems in 3D space.

The industry is beginning to reap the benefits of this approach, with the ability to test scenarios for ore formation and deposition at a range of scales from mine-scale through to the terrain-scale.

The use of numerical simulation to guide exploration thinking has already paid off for a number of the Centre's sponsors, with the success of numerical modelling given credit in the discovery of new mineralisation at Wildwood and Kewell to the north of the Stawell Gold Mine (Leviathan Resources) as well as generating new targets for PIRSA to promote exploration in the Gawler Craton around Tarcoola and Tunkillia.

www.pmdcrc.com.au

SGEG Membership News

We welcome the following new members:

Dr Steve Barnes, CSIRO; **Dr Nick Timms**, Curtin University of Technology; **Mr. David Phillips**, University of Melbourne; **Mr Douglas**

Kirwin, Ivanhoe Mines; **Mr. Matthew James Crowe**, BHP Billiton; **Mr Mohammad Lotfolah Hamedani**

Call for Papers – SGA Meeting, Dublin

Potential speakers are invited to submit an Extended Abstract for consideration by the Convenors of each session. The deadline for the receipt of Abstracts is Friday 2nd February 2007. The submission of an Extended Abstract does not necessarily imply that the paper will be selected for delivery at the Conference. The selection of papers to be presented will be made by the convenors for each Thematic Session

and their decision will be final. The Abstract should be submitted electronically as a *.doc document to the Chairman of Technical Sessions, Colin Andrew, at candrew@iol.ie



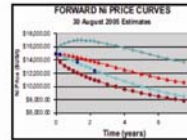


FINANCIAL RISK ANALYSIS: EXPLORATION TO FEASIBILITY

A THREE-DAY, HANDS-ON, EXCEL-BASED COURSE

- Focused on investment decisions under uncertainty and advanced project evaluation methodologies (e.g., Real Option Valuations) tailored to mineral exploration and mining
- Ideal for professionals in the mineral exploration, mining and the securities industries

COURSE PRESENTERS: A/Prof Pietro Guj, Dr Oliver Kreuzer
DATE: 26-28 March, 2007
VENUE: The University Club of Western Australia



LEARNING OBJECTIVES

OPTIONAL DAY 1: DISCOUNTED CASH FLOW (DCF) MODELLING AND EVALUATION OF MINING PROJECTS

- Conversion of geological / technical factors into financial measures
- Revision of basic DCF modelling techniques
- Prevention of errors and pitfalls common in financial modelling

DAYS 2 AND 3: FINANCIAL RISK ANALYSIS

- Identification and quantification of risk using sensitivity analysis and Monte Carlo simulation
- Construction of decision trees to visualize, analyse and value complex decisions
- Consideration of attitudes to risk and risk-aversion in decision-making
- Application of advanced financial risk management evaluation methodologies, e.g. Modern Asset Pricing (MAP) and Real Options Valuation (ROV)

COURSE PRICE

Optional Day 1: 'DCF Modelling and Evaluation of Mining Projects'\$525* + GST
Day 2 and 3: 'Financial Risk Analysis: Exploration to Feasibility'\$975* + GST
Full 3-Day course:\$1,250* + GST

*20% CET Corporate Member discount applies



To register call now! Phone: (08) 6488 2636 Fax: (08) 6488 1178
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