



January 2012 Newsletter

Executive Summary

Contact Anna Porter (annaporter@detcrc.com.au) for copies of papers or for further information on any items.

Index to join DET CRC as Participant-Level Supplier.

Annual Conference at Hahndorf, 20-24 November.
Stephanie McLennan wins PhD student prize.

Brukungu Drilling Research and Training Facility launched by SA Premier, the Hon. Jay Weatherill.

Key Dates set for 2012:

Annual Conference: 18-21 Nov (Adelaide area)

SSC Meeting: 29-30 May (Brisbane area)

Researchers & PhD Workshops: 31 May-1 June.

DET CRC finalised Communications Plan:

DET CRC TV, project-level telecons and affiliate telecons to be rolled out.

DET CRC to exhibit at PDAC 2012 and present at PDAC Keynote Session and Innovation Forum.

Videos of 2010-2011 Annual Report Summary & Brukungu Drilling Research and Training Facility available:

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35 attend DET CRC field trip to Rex Minerals' Hillside copper-gold discovery and to examine coastal exposures of weathered mineralised profiles.

'A feasibility study on adopting coiled tubing drilling technology for deep mining explorations' & 'Adapting oil and gas downhole motors for deep mineral exploration drilling' Review papers available.

Christian Dupuis interim Program 2 Leader.

Gary Cavanaugh moves to Project 1.1 Leader

Andrew Olsson takes over Project 1.3 Leadership

Martin Fairclough returns to Project 3.4 Leadership.

Know Your DET CRC Researcher: Brett Wilkinson.

Updated DET CRC highlights slides available for company presentations.

Seismic data collected at Rex Minerals' Hillside copper-gold discovery. Geology inferred from drilling overlain onto migrated seismic image. Sub-vertical bodies appear to be well indicated in seismic data.

Top Ten Project Highlights Q4 2011

Percussion rig commissioned at CSIRO QCAT (overcome sound proofing issues) for fundamental research and for developing new drill bits.

Results from lab tests on core bits confirm conclusions from cutting tests on single segments and highlight effect of control parameters (e.g. WOB, RPM) on vibrations which in turn increase wear rate.

World First: successful minex drilling (at 30% loading) with carbon fibre HQ drill rod at Brukungu.

NQ carbon fibre rod with embedded core orientation electronics successfully lab tested.

Prototype vision system for automating rod alignment successfully bench tested and being fitted to Brukungu rig for field trials.

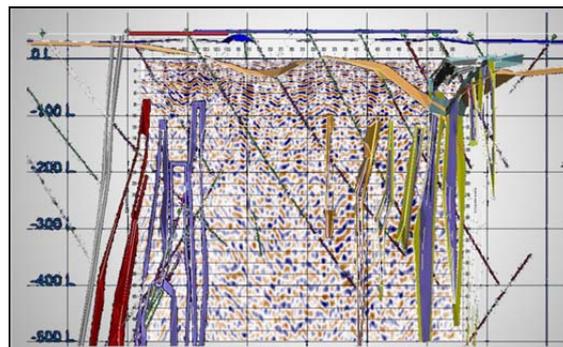
Real-time, remote rig monitoring system developed at Brukungu being installed on a rig at Telfer for Newcrest.

Electromagnetic (EM) wave attenuation lab tested for typical drilling fluids. All samples have same EM dielectric response as water (from 100MHz to 1GHz). Important for implementing borehole radar techniques in real-time imaging (mud-filled holes).

Exemplar workflow for cloud-based geophysical modelling developed.

Experimental seismic survey completed at Rex Minerals' Hillside copper-gold discovery: sub-vertical bodies known from drilling appear to be well indicated in seismic data.

Geochemical anomalies discovered in cover flanking Hillside copper-gold discovery: base of cover is gold-rich and palaeo-redox interfaces are copper-, uranium- and REE-rich.





NO carbon fibre rod with embedded core orientation electronics.

Imdex to Join DET CRC as Participant-Level Supplier.

We are delighted that Imdex (www.imdex.com.au) will be joining DET CRC. Imdex's focus areas are drilling fluids (AMC) and down hole instrumentation (Reflex). Imdex have requested to join DET CRC and been approved by a Special Majority Vote of existing Participants. We are now working on final legal matters.

Imdex's Participant contact is Derek Loughlin (General Manager, Minerals Division). We are particularly pleased that a second supplier has joined DET CRC. As such, Imdex share with Boart Longyear the first right to submit a commercialisation plan to the Board regarding DET CRC Project IP. Similarly to Boart Longyear, Imdex will be contributing both cash and in-kind to the DET CRC with in-kind focused in Project 1.1 developments in mud cleaning and cuttings analysis (including use of lab facilities) and downhole motors, both critical to the development of a coiled tubing drilling system for hard rock mineral exploration.

DET CRC seeks new participants and affiliates to:

- expand its funding base and thereby maximise financial support to its research activities;
- expand the expertise base inputting to project prioritisation, design and monitoring, and;
- maximise the uptake of its outputs.



PhD student prize winner, Stephanie McLennan, at the conference dinner.

Annual Conference at Hahndorf, 20-24 November. Stephanie McLennan Wins PhD Student Prize

DET CRC's first annual conference 'Uncovering the Future I' was run at Hahndorf and surrounding venues. The conference was extremely successful with 170 attendees (85 from industry including 25 open day attendees, 70 CRC researchers & PhD students and 15 from the geological surveys).

If you didn't take the chance to download the presentations, please contact DET CRC administration (annaporter@detcrc.com.au) for a copy of the presentations.

Attendees enjoyed some combination of the Hillside Field Trip, seismic workshop, project presentations, project breakout sessions, Brukunga Launch, conference dinner at the Bird-in-Hand winery and a keynote talk from Dan Wood (former Executive General Manager Exploration, Newcrest). A highlight for many were the presentations on technologies outside of the CRC such as developments in photonics and coiled tubing drilling in the coal seam gas industry.

The DET CRC's PhD students presented one minute summaries of their projects and posters and Stephanie McLennan (University of Adelaide, supervised by Steve Hill) was awarded the prize for the best PhD presentations amongst very stiff competition.



Attendees at the first DET CRC Annual Conference, Hahndorf (Adelaide Hills), 20-24 November 2011.



Launch of the Brukunga Drilling Research and Training Facility by SA Premier the Hon Jay Weatherill on 21 November 2011.

Brukunga Drilling Research and Training Facility launched by SA Premier, the Hon. Jay Weatherill

The Brukunga Drilling Research and Training Facility was launched by SA Premier, the Hon Jay Weatherill on 21 November 2011. One important point noted by the Premier was that success in DET CRC research will help link the mining boom to Australia's manufacturing sector because commercialisation of DET CRC IP will be by manufacturing companies such as Boart Longyear, Imdex and Affiliates such as Globaltech Corporation and Teakle Composites.

Key Dates set for 2012:

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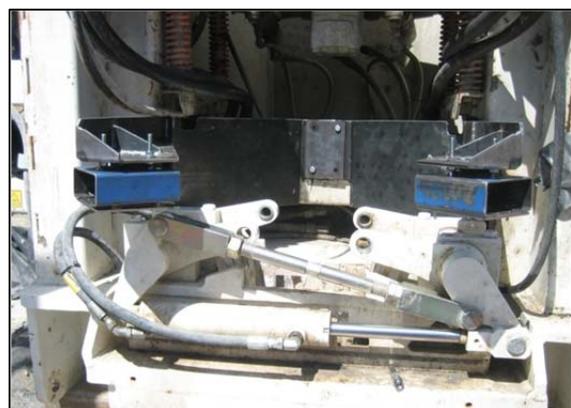
SSC Meeting: 29-30 May (Brisbane area)

Researchers & PhD Workshops: 31 May-1 June.

After a good deal of discussion, the DET CRC's second Annual Conference will again be held in the Adelaide region with access to the Brukunga Drilling Research and Training Facility. We may again base ourselves in Hahndorf, or we may locate ourselves somewhere else

with easy access to Brukunga. Feel free to lobby the CEO if you have a preference!

The mid-year Science Steering Committee meeting will be back-to-back with the Researchers Workshop and a new PhD Students Workshop (to minimise travel costs and maximise overlap). These will all take place in the Brisbane region at a location yet-to-be decided.



Mount for prototype vision system for automating rod alignment.



Attendees on the DET CRC field trip to Rex Minerals' Hillside cooper-gold discovery and examining coastal exposures of weathered mineralised profiles, 20 November 2011.

DET CRC finalised Communications Plan: DET CRC TV, project-level telecons and affiliate telecons to be rolled out.

DET CRC has finalised its communications plan with the assistance of Fuller consultants. This work started with a workshop and phone interviews of stakeholders and a comprehensive document and plan has resulted. Recent outputs based on the new communications plan include the hardcopy promotional material (DET CRC Overview Brochure and the Brukunga and Highlights Postcards) and recent video clips. Video will be developed into a significant means of communications via the to-be-launched DET CRC TV.

In response to comments at the conference, Project Leaders will be holding two project-level telecons annually for their project review panels, in late February (midway between the Annual Conference and the mid-year SSC meeting) and late August (midway between the mid-year SSC meeting and the Annual Conference). The invitees to these project telecons will be project review panels, so Participants should ensure that they have the right people on those panels. The dates and times will be finalised and advised soon, along with an invitation to ensure your company's representation on project review panels is current. These telecons will ensure that technical staff of Participants and Affiliates can easily engage with projects on a quarterly basis.

Also in response to comments at the conference, the CEO will hold a two telecons with affiliates: 2pm SA summer time Fri 23 March and 2pm SA standard time Friday 27 July to complement the November Conference.

DET CRC to exhibit at PDAC 2012 and present at PDAC Keynote Session and Innovation Forum.

DET CRC will be well represented at PDAC 2012, both in talks and the exhibition. Stephanie McLennan's PhD prize awarded at the Annual Conference is an expenses paid trip to PDAC and she will help represent DET CRC at its exhibition booth.

Videos of 2010-2011 Annual Report Summary & Brukunga Drilling Research and Training Facility available:

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www.youtube.com/watch?v=nfg0P_Goifl

35 attend DET CRC field trip to Rex Minerals' Hillside cooper-gold discovery and to examine coastal exposures of weathered mineralised profiles.

The pre-conference field trip to Hillside attracted 35 delegates and included the following:

- overview of the geology of the deposit and core display;
- overview of hypogene and surficial geochemistry;
- DET CRC's 3D seismic data over the deposit;
- coastal exposures of weathered mineralised profiles (Pine Point to Deadhorse Bay and Rock Point), and;
- pXRF demonstration and discussions.

I'd like to thank Steve Hill and James Cleverley and their teams for running the trip and Rex Minerals for their collaboration with this field trip and providing access to the site and cores for CRC Participants and Affiliates.



Conference Dinner at the Bird-in-Hand Winery, 22 November 2011

Annual

'A feasibility study on adopting coiled tubing drilling technology for deep mining explorations' & 'Adapting oil and gas downhole motors for deep mineral exploration drilling' Review papers available.

The above papers, both by Curtin PhD student Amir Mokaramian, his supervisor Vamegh Rasouli and CSIRO's Gary Cavanough have been accepted for the 'Deep Mining 2012' Conference in Perth in March. Copies are available from Anna Porter (annaporter@detcrc.com.au).

Christian Dupuis interim Program 2 Leader.

I was remiss in omitting from the last newsletter that Christian Dupuis (Curtin University) is interim Program 2 Leader whilst Anton Kepic is on sabbatical leave. Thanks for the terrific job you are doing Christian.



Interim Program 2 Leader, Christian Dupuis.



New Project 1.3 Leader, Andrew Olsson.

**Gary Cavanough moves to Project 1.1 Leader
Andrew Olsson takes over Project 1.3 Leadership
Martin Fairclough returns to Project 3.4 Leadership.**
With Project 1.1 moving to its implementation phase and involving more CSIRO funding and resources, Gary Cavanough (who is also Program 1 Leader) is taking over Project 1.1 leadership. Andrew Olsson is replacing Gary Cavanough as Project 1.3 Leader. Martin Fairclough has returned from a year's placement at the IAEA (International Atomic Energy Association) and is taking over the reins again as Project 3.4 Leader. Thanks Brian Evans for your leadership of Project 1.1 and John Keeling for your leadership of Project 3.4.

Know Your Researcher: Brett Wilkinson Globaltech Corporation, Projects 1.3 and 2.2.



Projects 1.3 & 2.2 Researcher Brett Wilkinson.

Brett completed his Bachelor of Engineering degree (Electronic Systems Hons) in 1999 at Edith Cowan University. He has been with Globaltech for 11 years and is their Chief Technical Officer. His role involves managing R&D engineering teams and developing original design products, including survey instruments, from concept to commercialisation. Brett is proud father to a 5 year old daughter and a 13 month old son. Work (and perhaps being located in Perth?) prevent him snow skiing as much as he would like.

Brett is involved with Projects 1.3 and 2.2. With Project 1.3 his focus is on embedded sensors and the associated circuits within the drill string, concentrating on circuit embedding and miniaturization. In Project 2.2 he is dealing with the autonomous shuttle sonde, which will perform logging by multiple sensors while drilling. Brett's involvement with the CRC primarily focuses on the design engineering hardware, mechanicals and operational firmware required to facilitate the production of commercially viable products.

Brett says "one of the major benefits of these projects is that logging data will be acquired as part of the drilling process, without a separate wireline mobilisation and permitting such data to be analysed real-time and remotely".

Updated DET CRC highlights slides available for company presentations



DET CRC Background

- DET CRC will develop more cost-effective, safer and more environmentally-friendly methods for deep mineral exploration
- incorporated entity with independent board
- \$53M cash & \$62M in-kind support over 8 years from Australian government and participants
- participants include miners, research providers and service companies
- DET CRC head office is co-located with Boart Longyear's new Asia Pacific office in Adelaide
- 12 projects scoped by industry have commenced and are contracting over 100 researchers in 9 different organisations
- unique model of commercialisation of IP through the service sector
- participants: \$450k pa (~31x leverage)
- affiliates: \$10k pa with colleges for juniors, service providers and geological surveys

DET CRC will deliver revolutionary new technology such as coiled-tubing drilling systems with logging-while-drilling capability. Drilling and logging results will be fed real-time to remote geological modelling capability in order to plan immediate (within 24 hours) follow-up drilling.



DET CRC Quarterly Update: Jan 2012

- Imdex to join DET CRC as second Participant-Level Supplier (Anglo American confirmed as new Participant)
- existing projects ongoing for 12-15 months at end 2011
- percussion rig commissioned at CSIRO QCAT for fundamental research and developing new drill bits
- core bit tests show effect of control parameters (e.g. WOB, RPM) on vibrations which in turn increase wear
- World First: successful minex drilling with carbon fibre HQ drill rod at Brukunga Drilling Research & Training Facility
- NQ carbon fibre rod with embedded core orientation electronics successfully lab tested
- prototype vision system for automating rod alignment bench tested and being fitted to Brukunga rig
- real-time, remote rig monitoring system developed at Brukunga is being installed on a rig at Telfer for Newcrest
- cloud-based geophysical modelling workflow developed
- seismic survey at Rex Minerals' Hillside IOCG discovery successfully indicates sub-vertical bodies
- geochem. anomalies discovered in Hillside cover: base is Au-rich & palaeo-redox interfaces Cu-, U- and REE-rich

Coiled tubing drilling will permit cheaper, faster and safer drilling of more stable holes because pipe connections are not required. Logging-while-drilling will remove or greatly reduce need for core and lengthy core analysis. Combined with real-time geological modelling, these will permit follow-up drilling without rig de-mob and re-mob.

Richard Hillis
January 2012