

## LEME information dump

February 2006 report to LEMERs

*The Information Dump is a series of monthly reports designed to keep Centre staff informed about what is happening at CRC LEME. Many thanks to the Program Leaders and the Assistant Director for their contributions to this document.*

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### CHIEF EXECUTIVE OFFICER REPORT:

#### STEVE ROGERS

First up, welcome back everyone and Happy New Year. I look forward to working with you all and having a productive 2006.

We already have a major run on the board for 2006 with the completion of the NT Regolith Project (see P1 report). I would just like to add my personal appreciation to Lisa and the Project Team, Mike Craig, Ravi Anand, Ian Robertson, Tony Eggleton for a very thorough internal scientific review of the document, and the VRU guys, Angelo and Travis at ARRC, for putting together an excellent high-profile product.

We are very much getting into the budget and project planning phase for the 06-07 financial year. By the time you read this, all the pre-proposals you were working on will have been sent to the Land Use and Minerals Advisory Councils for comment.

I'd like to give you an update on the Annual CRC LEME Regolith Symposium. We have now booked the Hahndorf Resort, Hahndorf, Adelaide Hills – about 30 minutes from Adelaide CBD. The Symposia will commence late afternoon on Sunday 5 November and conclude around lunchtime on Thursday the 9 November. The size of the venue will allow us to accommodate up to 140 people. All airfares, accommodation and meals will be covered by Head Office. The symposium will be fully residential (including Adelaide people), and I have extended an invitation to Board members to attend. I am also considering making the symposium an e-mail and mobile phone 'free zone'!

Finally, a reminder that nominations are open for the 2006 Butt-Smith Medal, go to [http://crcleme.org.au/NewsEvents/News/Butt-Smith\\_Medal\\_Nomination\\_Form%20Jan%202006.pdf](http://crcleme.org.au/NewsEvents/News/Butt-Smith_Medal_Nomination_Form%20Jan%202006.pdf)

Cheers  
Steve

## **PROGRAM 1 – REGOLITH GEOSCIENCE**

### **LISA WORRALL**

#### **Highlight**

The Northern Territory Regolith Project activities are now drawing to a close and are in the final stages of product delivery and reporting. The Regolith Map and the Atlas are being fine tuned ready for release at the Northern Territory Geological Survey's AGES meeting in Alice Springs on 28th and 29<sup>th</sup> March 2006. The Atlas will be released by The Hon. Kon Vatskalis, NT Minister for Mines and Energy. Mike Craig will contribute to the AGES program with a brief presentation reporting on the project's achievements.

#### **New business**

- Northern Territory Regolith: NTGS has indicated, through its Director, that it wishes to hold discussions following the AGES event regarding opportunities and options for further collaboration between CRC LEME and NTGS.
- Northern Territory Regolith: A regolith workshop program is planned for either March or April 2006 and is currently being developed for CAMECO.
- Thomson Orogen: Two new University of Adelaide honours students will be working in the Thomson Orogen Project. Dave McAveny will be attempting to unravel neotectonic processes that have offset mineralisation and influenced landscape evolution. Layla Tucker will be testing biogeochemical responses in areas of known mineralisation and comparing these results with standard soil sampling geochemistry.
- Curnaminox: Michael Nemainis has accepted a University of Adelaide Ph.D. scholarship and will study the uranium biogeochemistry and plant biogeochemical expression of uranium mineralisation in the Curnamona.
- Curnaminox: Jess Davey has accepted an APA Ph.D. scholarship at the University of Adelaide and will study sub-Mesozoic regolith interfaces and paleosurfaces in SA. Jess will focus some of her research in the Curnamona.

#### **Discussions with outside agencies**

- Lachlan Fold Belt: Ken McQueen has had brief discussions with NSW DPI staff to update them on project activities.
- Tanami: Lisa Worrall and other project staff are engaged in ongoing discussions with Tanami Gold NL and Newmont Australia. A project meeting which will involve these companies, as well as GSWA, GA and NTGS will be held in Perth in March 2006.
- Eucla Margins: Mark Paine, Luisa Ruperto and other project staff are engaged in ongoing discussions with Iluka Resources.
- Weipa: Project staff met with CSIRO entomologists about influence of invertebrates on regolith.
- Physiographic regions: Discussions were held with the Victorian DPI Geomorphology Reference Group concerning landform regions of Victoria.

## **Exciting new science**

- Tanami: A new understanding about the history of the Tanami landscape based on CRC LEME research is having a significant impact on company exploration strategies in the area.
- Thomson Orogen: Mark Dawson has completed version 2 of the Thomson Orogen GIS package using the ARCGIS platform. This GIS is now available to project members, and will be available via internal release in July 2006. NSWGS may fast track a public release of the GIS if any interesting numbers come out of the geochemistry.

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## **PROGRAM 2 - MINERAL EXPLORATION IN AREAS OF COVER**

### **RAVI ANAND**

#### **New business**

- WA Wheatbelt Uranium Anomalies: A new project incorporating scientists from CSIRO CLW and CEM has begun to examine the source of uranium anomalies identified in surface, drain and groundwaters in the WA Wheatbelt during 2005 as part of a risk assessment project for acid, saline waters. Exploration company, Mindax Ltd, (\$100K external funding) has been engaged as a commercial partner to assist in the assessment of these anomalies and their potential economic significance.
- Yilgarn Laterite Atlas: Additional funds (\$45k) will be made available by GSWA for helicopter-based sampling this financial year in order to cover difficult-to-access parts of the SW and NW quadrants.
- HydroMinex: Discussions with Anglo-American regarding two new projects are underway with a meeting/presentation planned for May 2006.
- Metal transfer mechanism: Following the Synchrotron visit to Chicago in November, Rob Hough and Chris Ryan, were successful in attracting funding from the Australian Synchrotron Research Program for a further experiment in March. CRC LEME was successful despite a large number of proposals submitted to use the same beamline. This time, Rob and Chris will be mapping the in-situ trace element distribution of selected vegetation samples.

#### **Discussions with outside agencies**

- Hychips logger: To trial the Hychips logger in a commercial setting, the CRC LEME Hychips logger will be relocated to the Perth offices of Genalysis where it will be trialled over a month on a Goldfields project. In that time, CRC LEME aims to process some 60,000 samples. This will provide us with an opportunity to gain experience in the application of this technology in an exploration workflow environment.

- Further work associated with other industry funded projects is also being considered which could see the logger employed on site in Ernest Henry and Cadia amongst other deposits (Objective Logging project).
- HydroMinex: Initiated discussions for two further reports for Anglo-American.
- Judy Eastham (Plant Physiologist; CSIRO Division of Forests and Forestry Products) is to participate in AMIRA project (Metal Transfer Mechanism Project).
- Discussions are underway to collaborate with Dr Brian Townley, University of Chile (Metal Transfer Mechanisms Project).
- Ravi Anand gave an invited presentation to Inco on 6 January 2006 regarding the Metal Transfer Mechanism Project.

### **Exciting new science**

- Boomerang Study Final Report (Metal transfer mechanism project) was completed and is currently with reviewers.
- Interesting results on metals distribution in plants growing on gold and base metals tailings dams near Laverton (Metal transfer mechanism project) following the sampling of vegetation, soils and regolith at Rose Dam and Jaguar.
- Metal adsorption by plants experiment underway (hydroponics and in pots) (Metal transfer mechanism project).
- A very rich specimen of supergene gold was found to contain ultra thin plates of gold triangles and hexagons, so thin in fact the SEM electron beam rendered them transparent. These plates occur with iron oxides, sulphates and salt on a weathered fracture surface in a quartz vein from the Parker Range in Western Australia. Interestingly, there is much evidence of biological activity on the surface as well (Metal Transfer Mechanism Project).
- Soil gas sampling completed at Rose Dam, Jaguar, Kalkroo and Goulds Dam (Metal transfer mechanism project).
- Electron microprobe and laser ablation ICP MS analyses were completed on dated mottled material from the New Cobar Deposit. Some manganese oxides have been sampled and identified from the New Cobar deposit and the CSA gossan. These are suitable for Ar-Ar dating (Metal Transfer Mechanism Project).
- A second report on groundwater geochemistry at Calama (Chile) is almost complete (HydroMinex Project).
- A successful field trip carried out between 11-16 December 05 to Cobar (The Peak Gold Mines) where six monitoring bores and three exploration drill holes were sampled. Field chemistry is complete and now waiting on full water composition results (HydroMinex Project).
- Using geochemical indices from groundwater samples has enabled the determination of ultramafic from non-ultramafic, and mineralised from barren geological units on a regional and local scale for nickel exploration in the Yilgarn Craton. The findings have also identified a few confirmed targets in the research areas that require further investigation (HydroMinex Project; Ni hydrogeochemistry).

- Work has started on a new collaborative project with Placer (now Barrick) for some 50 plus drill holes through Lake Carey. The intent is to produce a “3D” mineralogical mapping case study which addresses the role and application of spectral mineralogy in exploration through these complex regolith settings (Objective Logging Project).
- Experimental determination of hemimorphite solubility at 25-80°C and pH 4.5-6 (Metal Mobility Project).
- Completion of experimental studies on Au (III) halide and hydroxy complexes by Alistair Usher. First manuscript drafted. Thesis in preparation (Metal mobility project).
- Development of experimental facilities such as:
  - Reactive transport columns fitted with in-line electrical conductivity and pH electrodes to monitor output continuously; and
  - Installation and testing of incubator for studying metal release and uptake from and in ferruginous regolith (Metal Mobility Project).
- Laterite Atlas: The first batch of data (SW quadrant of the Yilgarn Craton) and an interim CRC LEME report will be released soon. The release date will be announced on the CRC LEME webpage (Yilgran Laterite Atlas Project).
- Frank Reith submitted his Ph.D. thesis ‘The Geomicrobiology of Gold: Interaction of bacteria with gold in Australian soils and deeper regolith materials.’
- Paper accepted by *Geochimica et Cosmochimica Acta* (15 Nov 2005) ‘Effect of Resident microbiota on the solubilisation of gold in soil from the Tomakin Park Gold Mine, New South WALES, Australia’ by Reith and McPhail.
- Paper submitted to *Geochimica et Cosmochimica Acta* (January 2006) ‘Mobility and microbially mediated mobilization of gold and arsenic in soils from two gold mines in semi-arid and tropical Australia’ by Reith and McPhail.
- Paper submitted to *Science* (February 2006) ‘Biominalisation of Gold - Biofilms on bacterioform gold from Australia’ by Reith, Rogers, McPhail and Webb.
- Completion of Honours thesis (1<sup>st</sup> class Honours) by Jennifer de Livera ‘Copper mobility in iron-rich regolith: Reactive transport experiments’ (31 October 2005).
- Several manuscripts prepared for IGES
  - (i) Anomaly formation at Barnes (Lintern);
  - (ii) Use of biota and soil, Yilgran Craton (Anand and others); and
  - (iii) Soil and biogeochemical signatures, Aripuna base metal deposit (Cornelius and others).

### **PROGRAM 3 – ENVIRONMENTAL APPLICATIONS OF REGOLITH**

**Please note: A call has gone out for nominations for a new Program Leader for P3. See LEME intranet for details of position and how to nominate.**

**STEVE ROGERS (Interim Leader)**

## **New business**

- WA Wheatbelt Acid Drainage: The Project Team has been successful in obtaining funding for a project on 'Treatment of Acid Drainage Discharge' from the Avon Catchment Council. The three year project will be a partnership between the WA Engineering Evaluation Initiative, who will manage the project, Agriculture Department WA, and LEME. Significant engineering works will involve the construction of 'pilot' acid drainage disposal basins where a range of treatments and geochemical responses will be studied. 'In drain' treatments are also planned aiming to reduce acidity and precipitate minerals and trace elements out of the aqueous phase.
- WA Wheatbelt Uranium Anomalies: As a result of high solution phase uranium concentrations observed in the early stages of the WA Acid Drainage geochemistry project, a collaborative project has been entered into with a junior uranium exploration company in WA – the new project will sit in Program 2 (See Program 2 Section for more information).

## **Discussions with outside agencies**

- Sebastien Lamontagne is currently discussing the continuing partnership between LEME and DWLBC in the Loveday Basin wetland restoration project.
- Rob Fitzpatrick and his NatCASS colleagues will be presenting the outcomes to date of the National Atlas for Acid Sulfate Soils to the Federal Natural Resource Management Standing Committee.

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## **PROGRAM 4 – SALINITY MAPPING AND HAZARD ASSESSMENT**

### **KEN LAWRIE**

#### **New business**

- Ken Lawrie represented CRC LEME in discussions in Bendigo in late January 2006 on the \$20m BRS managed, NAPSWQ-funded Community Stream Sampling and Salinity Mapping Program. Next workshop to identify potential study areas in Victoria will be held in Bendigo on 7 March 2006. This program has more than \$6m allocated to Victoria. A further \$4m is being held in reserve for future projects Murray-Darling Basin-wide. All projects must be completed within next 2.5 years. To what extent LEME staff will be invited to participate in these projects is not clear yet but involvement in this program should perhaps be considered a high priority.
- A meeting to develop a detailed project plan for an extension to MDBC contract work in Central-West NSW (Pilot study \$60k- to be funded by Central-West CMA; possible participation in \$300k multi-agency Stage 2 Project thereafter) will be held on 21 February 2006. Extension to work in Victorian catchments will be discussed in Bendigo and Wagga in late February 2006 (Ken Lawrie and team).

Discussion will also involve CMAs, MDBC, consultants, private industry and DNR.

- A meeting to develop a new project proposal for in Sunraysia District, initially with Goulburn-Murray Water, was held in Adelaide in December 2005 with Tim Munday, Ken Lawrie, Andrew Fitzpatrick and KP Tan attending. Tim Munday is to submit a new project proposal. CRC LEME is now awaiting the outcome of broader discussions with the Federal Government's BRS AEM program.
- Ken Lawrie received an invitation from AgWA (Richard George) to develop a project proposal for \$0.5m AEM-related project in WA.
- Revised project schedule for SA Murray Floodplain developed (Tim Munday). Additional funds identified and ministerial sign-off gained in February 2006.
- Small consultancy offered to LEME for review and editing of Dave Allen's review of geophysical techniques for salinity mapping for Land & Water Australia. Paul Wilkes and Richard Lane likely to take this on (value of contract \$8k).
- An Angas Bremer Plains in the NAP-funded Community Stream Sampling and Salinity Mapping Program Project was developed by Richard Cresswell. This adds value to existing datasets and earlier LEME-BRS-CLW projects. External funds total \$400K, although not all these will be for CRC LEME services. (details to follow). Principal agencies involved will be CSIRO, DWLBC and BRS together with the local community groups.
- Ord Project: CRC LEME invited to participate in Ord Stage 2 proposal meetings at in Kununurra in March 2006.
- Workshop to develop Stage 3 proposal for Burdekin delayed due both to science funding in Stage 2 (and need for further evaluation), and delays in funding. Meetings put back until March-April 06.
- Business case for Eyre Peninsula study developed (Tim Munday). Awaiting outcome of deliberations within community.
- Curtin University (Paul Wilkes and Anton Kepic) in discussion with Water Corp. on new project opportunities in WA. New project identified, but some discussion over whether this will be a CRC LEME project.
- Richard Cresswell has identified a further \$200k in external funds for projects in the Salinity Dynamics Project for 2006-07 for projects in Queensland and Victoria.
- Joint project proposals developed with CRC Salinity and CRC SI for sharing of project data and collaboration in Victoria. New project proposal developed jointly with them for work in WA Wheat Belt (dependent on State and Federal funds).
- DPI Victoria is now using MDBC project outputs in Loddon catchment to underpin their various research programs within the catchment including a new detailed soil-landscape map. Strong interest in project products from local landowners, especially in the Lexton area where there has been valuable participation by farmers.

### **Discussions with outside agencies**

- Discussions on new project proposals have been held with BRS, AgWA, CMAs and State agencies in NSW, SA, WA, Qld., and Victoria; the Water Corp in WA; and Goulburn-Murray Water, the Queensland Murray Darling Committee Inc and the University of Queensland.

- Positive discussions had with BRS on the NAPSWQ-funded Community Stream Sampling and Salinity Mapping Program regarding what roles LEME might be offered.
- Good feedback from QDNRM regarding the progress in product development from the Salinity Dynamics projects in Queensland.
- Continuing good feedback from MDBC. Discussions on make-up of current and new projects with MDBC which is hampered by loss of key staff. Discussions continuing with Bob Newman, but future directions look like having to await appointment of new staff, and budget deliberations within the Commission.
- CRC Salinity has identified LEME uplands science (further development of MDBC project outputs) and work on hostile regolith materials, as key science required in their re-bid workshops. Intense discussion with individual core parties is on-going. P3 science also seen as valuable in WA.

### **Exciting new science**

- Overall, work on many externally-funded projects is still either at an early stage, or entering a new phase of work in new areas. Many of these projects are delivering high quality 'routine' products at this stage, with the exciting new science to follow. These projects include SA Murray Floodplains, Chowilla, Eyre Peninsula, Southern River, Wallatin Creek, Yarra Yarra and Rural Towns.
- Progress on projects since the last report has been modest given the Christmas-New Year holiday break. The main highlights from other projects are stated below.
- Results from MDBC projects (three new draft reports delivered for comment and feedback in December) continue to gain a high level of interest, good feedback on the implication for salinity mapping and prediction in upland landscapes, and is growing new opportunities for us. New regolith data layers are being incorporated for the first time in hydrogeological models by CRC Salinity/DPI Victoria.
- Salinity Dynamics Project:
  - Salt accession from rainfall is being reviewed in project areas in South Qld, and results to date suggest caution needs to be applied to models using rainfall chloride, or EC, as the sole comparison to stream salinity and salt output: input ratio evaluations.
  - Chlorine-36 data indicate the possibility of a bomb pulse in the Bland Creek catchment sediments at a depth of 4m.
  - BC2C and 2Csalt models for salt and water transport through Hodgson Creek have been calibrated and will now undergo sensitivity and parameter importance and bounds. Key to this appears to be the variability induced by weathering of the basaltic flows and the nature of the interface between near-surface and deeper groundwaters.
  - Airborne magnetics, combined with LiDAR (DEM) and radiometrics have proved effective in distinguishing individual basaltic flows across the Corangamite region of the Victorian Volcanic Plains (VVP) (Gibson, et al 2005. CRC LEME Report 223).
  - The Corangamite Project exposed the limitations of using the Groundwater Modelling System (GMS) in such a complex and large dataset. Instead a combination of using Surfer to create surfaces and MODFLOW to model groundwater movement will be used.



- Ord Project. Ground and borehole EM geophysical surveys combined with studies of the regolith and bedrock materials have identified significant variations in the main aquifers in the Ord Irrigation Area. This pilot study has demonstrated the ability of the techniques to map palaeochannel, soil and sub-soil materials in the area. Another finding is unusual in having demonstrated that the depositional sediment lies directly on un-weathered bedrock materials in both the surface and sub-surface.
- Salinity Communication:
  - AESC 2006: 20 abstracts received from LEME staff for Hazards and Risks Symposium (KL convenor). Conference organisation well advanced, two field trips organised. Program to be announced by end of February 2006. Meeting dates 3<sup>rd</sup>-6<sup>th</sup> July 2006.
  - ISF 2008: Meetings of the International Steering Committee and Technical Committee (KL is LEME's rep on both) have been held a program drafted. Venue is Adelaide, 30 March – 4 April 2008. CRC LEME to play a prominent role in conference and field trip organisation. Detail to follow in coming weeks.
  - MODSIM 2005: Three papers presented- excellent feedback. A presentation by Colin Pain, based on results of the Landscape Analysis Project, was well received by the audience. On the strength of his presentation, Colin Pain was invited to edit a volume of papers on digital elevation models. A much more comprehensive review of digital elevation models and their application to geomorphology and regolith, especially in relation to landscape processes is now in progress, with the intension of publishing in a review journal such as *Progress in Physical Geography*.
  - SAGEEP 2006: Seven papers accepted from LEME, but due to funding limitations not all papers can be presented in the USA.

## **OH & S issues**

- Two minor vehicle accidents at the Ord project. In first incident, a wheel fell off an AVIS 4WD hire vehicle shortly after being hired. In the second incident, a second AVIS 4WD hire vehicle, driven by Jon Clarke, rolled at slow speed in a single vehicle accident. All procedures worked well, and no serious injuries were incurred. GA organising additional 4WD and first aid courses for LEME staff.

## **Significant delays, problems**

- Most projects are on track with milestones and outputs requirements..
- Official approval for the SA Murray Floodplains project had been delayed (6 months), but ministerial approval now received (early Feb 06). Work had progressed regardless, underwritten by SA Govt.
- Delays encountered in MDBC and Salinity Dynamics projects due to problems with drilling rigs, and the lack thereof, and winter weather. MDBC drilling now complete (three months later than initially planned), and drilling for Salinity Dynamics project being planned for later this financial year.
- The Upland Landscapes Project is running 4-6 weeks late due to flow-on from MDBC project write-up.

- Ord project is running two months late due to failure to receive suitable data layers and GIS from project partners. Data now received from alternative sources.
- Burdekin project report delayed due to technical difficulties (not clear whether there has been equipment malfunction or some important ground effects- further work required in order to finalise recommendations on whether and/or how to proceed to next phase).
- Component of aquifer parameterisation project delayed due to loss of equipment in transit to North Queensland.

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## PROGRAM 5 – EDUCATION AND TRAINING

### STEVE HILL

#### New business

- Honours 2005 grades:
  - ANU
    - Jennifer de Livera (H1), Fern Beavis (H1), Michael Nemainis (H1)
  - Adelaide University
    - Jess Davey (H1), Sarah Gibbons (H2A), Anna Mayo (H2A)
  - CUT
    - Cameron Jones (H2A), Jacob Paggi (H2A)
- New PhD students scholarships:
  - Adelaide University
    - Jess Davey (APA scholarship, supervised by Steve Hill): Mesozoic regolith interfaces along southern Eromanga Basin margins, SA.
    - Michael Nemainis (AU scholarship, supervised by Steve Hill): Uranium Biogeochemistry.
    - Kristy Bewert (FJ Sandoz Scholarship, supervised by Steve Hill): Silcrete evolution and regolith geology.
    - David Haberlah (international scholarship, supervised by Steve Hill & Martin Williams): SA regolith and landscape evolution.
  - ANU
    - Fern Beavis (ANU scholarship): Topic TBA.
- CRC LEME summer scholarships at ANU:
  - Gabrielle Yates (supervisors Sue Welch/Bear McPhail): Acid sulphate soils/Hydrogeochemistry in mineral exploration.
  - Vidura Jayaratne (supervisors Bear McPhail/Dirk Kirste): Development of reactive transport experimental facilities: Solubility of hemimorphite.
- CRC LEME Honours scholarships at ANU and CUT for 2006:
  - Two Honours scholarships at ANU:

- Patrick Moody (supervisor Sara Beavis): Determination of the historical extent of dryland salinity.
    - Jason Raappana (supervisors John Field and Richard Greene): Mineral exploration under cover.
  - Two Honours scholarships applicants at CUT:
    - Jacob Smith (Exp Geophysics – Seismic to image vertical structure).
    - David Schaffer (App Geology – Regolith hydrogeology).
- New Honours students at AU and ANU (non-LEME scholarships)
  - Adelaide University
    - Layla Tucker (supervised by Steve Hill): Thomson Orogen biogeochemistry.
    - David McAvaney (supervised by Steve Hill): New Bendigo Inliers landscape evolution, Thomson Orogen.
  - ANU
    - Helen Byrne (supervisor Ian Roach): Topic TBA.
    - Andrew Higgins (supervisor Sue Welch): Topic TBA.
- 2006 MCA course program finalised and distributed
  - The 2006 CRC LEME-MCA coursework program dates have been finalised. Copies of the VIEPS-MCA Honours Coursework Program book have been distributed to the three core party universities. Pre-planning of logistics for the 2006 program is underway.
- Anna Petts awarded Eric Rudd Travel Scholarship (\$5 k), from the University of Adelaide. Anna will be travelling to Africa later in 2006 to look at termitaria and regolith.
- 2005 Regolith Symposia volume compiled and printed, under Ian Roach's editorship.
- Course review for Adelaide University subject, Surficial Geology II, very successfully completed. Regolith teaching component and field trip to Fowlers Gap were seen as teaching highlights of the course. A course review outline is available from Steve Hill upon request.

### **Students finishing and taking positions**

- Frank Reith (ANU) submitted PhD thesis in November 2005; accepted post-doctoral position with CSIRO Exploration and Mining.
- Chris Gunton (PhD; ANU) accepted position with Stawell Gold Mines, Victoria.

### **Discussions with outside agencies**

- Minotaur to fund AU Honours student biogeochemistry project at Tunkillia, SA, commencing mid-2006.
- Teck Cominco to collaborate with CUT PhD project for Siriporn Soongpakhao.

## **Exciting new science**

- Student project work continues to be integrated and presented in amongst other research programs.

## **Future planning**

- New student commencements.
- Pre-project proposals due February 13 (VRW and MTEC projects).
- MCA courses (Regolith Geology & Geochemistry, February 20-24 2006, combined Regolith Geology and Mineral Exploration Masters course and Regolith mapping and Field Techniques Honours course 3-14 March).
- Undergraduate teaching program commences at core party universities.
- LEME Exec and Board meetings, 8-9 March 2006, Canberra.
- CRCA conference in Brisbane (May 17-19 2006). Education & Training workshop.

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## **ASSISTANT DIRECTOR CANBERRA:**

### **KEN MCQUEEN**

- Keith Scott visited EMS at ANU on the 1-2 February for discussions with LEME students and staff and to prepare his publication.
- Ken McQueen met with John Greenfield and Bill Reid from the Geological Survey of NSW between 6-8 February 2006 to discuss the latest results from the Thomson Orogen project. CRC LEME's proposal for the Thomson Orogen project into the next financial year was also discussed.
- The first Canberra LEME Connection for 2006 was held on the 9 February, with a very good turnout. This included a presentation by Kat Fitzsimmons on the work that she will be presenting at the Geomorphic Conference in New Zealand entitled 'Timescales in dunefield evolution: An optically stimulated luminescence chronology of the Strzelecki and Tirari Desert dunefields, South Australia'. Kat has also agreed to act as the student organiser for the LEME Connections in 2006, taking over from Luke Wallace.
- As of early February 2006, six new LEME Honours students have enrolled for 2006 at ANU.
- Fern Beavis has commenced her PhD studies.
- Planning is underway for the Canberra LEME 2006 project reviews to be held on the 16-17 March 2006.
- Ken McQueen was involved in field work at Cobar during 8-14 December and at Miandetta 19-22 January 2006.