



## **PROGRAM 5: EDUCATION AND TRAINING** **PROJECT SUMMARIES 2006- 2007**

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**Project name:**  
MTEC SHORTCOURSE PROGRAMME

**Abbreviated title:** MTEC

**Type of project** Centre *(Centre or Industry/Commercial):*

**Themes:** Minerals Exploration Education & Training

**Project Leader:** Dr Ian Roach

**Start date and duration:** 1 July 2006, 1 year

**Participants:** Dr Ian Roach (ANU)  
Dr Steven Hill (UA)  
Dr Mehrooz Aspandiar (CUT)  
Dr Patrice de Caritat (GA)  
Dr Dirk Kirste (ANU)  
Dr Sue Welsh (ANU)  
Dr Alan Mauger (PIRSA)  
Dr Ravi Anand (CSIRO)  
Dr Ken McQueen (ANU)  
Dr Ian Robertson (CSIRO)  
Dr D.C. McPhail (ANU)  
Others as required

**Brief project description:**

These funds enable CRC LEME's participation in MCA's MTEC program. The MTEC program is designed to deliver better graduates to Australia's minerals industry, and CRC LEME is an important contributor, delivering 5 Honours-level courses and one postgraduate-level course each academic year. CRC LEME's latest research is taught to students and industry personnel in face-to-face field- or classroom-based courses.

**Deliverables (outputs) and expected impacts of research (outcomes):**

1. Undergraduate (Honours) and postgraduate courses delivered on-site at core party universities, MTEC member universities and in-field;
2. On-site E&T to minerals industry partners;
3. Uses materials developed in Regolith TT project.
4. Reports and articles as LEME Reports, Regolith Symposium papers, journal papers, press releases, radio interviews, etc.

Outcomes will be measured in terms of uptake of the Centre's research by industry professionals, and regolith-trained graduates entering the minerals and NRM industries.

**Milestones:** *(dates of significant events marking scientific progress)*

Milestones are as written in the table below, where existing courses are listed with approximate date of delivery:

<b>FY 2006-2007</b>			
Feb	Regolith Geology and Geochemistry (Melbourne)	Honours, 5 days	Aspandiar, Hill, Roach
Apr	Regolith Mapping and Field Techniques (Fowlers Gap)	Honours, 5 days	Hill, Roach
Apr	Introduction to Hydrogeochemistry (Melbourne)	Honours, 5 days	De Caritat, Kirste, Welsh
Jun	Advanced Remote Sensing (Adelaide)	Honours, 5 days	Mauger
Jun	Environmental Mineralogy (Canberra)	Honours, 5 days	Aspandiar

<b>FY 2007-2008</b>			
Feb	Regolith Geology and Geochemistry (Melbourne)	Honours, 5 days	Aspandiar, Hill, Roach
Apr	Regolith Geology and Mineral Exploration (Fowlers Gap)	Masters, 11 days	Roach, Hill plus CRC LEME staff as required
Apr	Regolith Mapping and Field Techniques (Fowlers Gap) (concurrent with above)	Honours, 5 days	Hill, Roach
Apr	Introduction to Hydrogeochemistry (Melbourne)	Honours, 5 days	De Caritat, Kirste, Welsh
Jun	Advanced Remote Sensing (Adelaide)	Honours, 5 days	Mauger
Jun	Environmental Mineralogy (Canberra)	Honours, 5 days	Aspandiar

Courses listed are those currently offered into the MCA shortcourse program. Courses or sub-sets may also be repeated each year targeted specifically to industry participants. Subsets of the Masters course will be offered for delivery as two-day modules in MCA's Pathways Program. Courses may be cancelled or rescheduled with appropriate notice if fee-paying or incentive-earning enrollments fall below a threshold, nominally 5 participants.

**Confidentiality requirements:**      **None**

## REGOLITH TEACHING AND TRAINING MATERIALS

**Abbreviated title: Regolith TTM**

**Type of project**      Centre      (*Centre or Industry/Commercial*):

**Themes: Education & Training**

**Project Leader:** Steve Hill

**Start date and duration: July 2006 onwards**

### Participants:

AU: Steve Hill, Graham Heinson, Karin Barovich, Andreas Schmidt-Mumm, John Joseph

ANU: Ian Roach, Bear McPhail, Dirk Kirste, Sue Welch, John Field

CUT: Mehrooz Aspandiar

### Brief project description:

This project includes outputs and outcomes that previously became the refocus of ‘Virtual Regolith Worlds’, but because of a change in outputs the project name has been changed. The main emphasis on this project is for the provision of regolith teaching and training materials, used in the delivery of undergraduate, Honours and external client courses. This includes the writing and presentation of lecture, practical and field-teaching materials; remote sensing and basemap imagery and presentation; and undergraduate student mapping and sampling programs. The quality of these teaching materials ensures that CRC LEME science is an integral part of teaching courses, particularly within university undergraduate courses and the MTEC shortcourse program. This project enables for the provision of high-quality teaching materials (ie. the content) for 2 of the 3 of the major objectives of CRC LEME’s E&T program:

- “Provide workshops, seminars and training courses on regolith geoscience and related disciplines, directed at students, industry, government and institutional professionals”; and,
- “Contribute regolith content to university” courses

Presently there is a major deficit in the provision of quality teaching materials for regolith geoscience. This is necessary for the delivery of courses via the core party universities but also for providing materials for other teaching requirements in regolith geoscience.

**Deliverables (outputs) and expected impacts of research (outcomes):**

Outputs:

- Quality teaching content for the delivery of under-graduate courses in regolith geoscience;
- Quality teaching content for the delivery of MTEC shortcourses
- Regolith geoscience and remote sensing digital data package for Fowlers Gap Arid Zone Research Station (first edition). This will include a compilation of remote sensing, maps and analytical results derived from previous CRC LEME courses at this much utilised regolith teaching site

- Production of teaching materials to contribute to regolith geoscience text-book

**Publications:**

- Roach, I.C. & Hill, S.M. Fowlers Gap Regolith Geoscience Research and Teaching Data Compilation. *Preliminary CD compilation, CRC LEME*
- Hill, S.M. & Roach, I.C. Regolith geoscience research and teaching at Fowlers Gap, western NSW. *BHEI conference poster and abstract.*
- Roach, I.C. & Hill, S.M. South Sandstone Paddock 1:25k regolith-landform map. *CRC LEME*
- Hill, S.M. & Roach, I.C. Connors Paddock 1:25k regolith-landform map. *CRC LEME*
- Hill, S.M. & Roach, I.C. Regolith geoscience research and teaching at Fowlers Gap, western NSW. *2006 Regolith Symposium refereed abstract.*
- Hill, S.M., Roach, I.C. Greenwood, D & Greenwood, D. Long-term regolith and landscape evolution of the Sandy Creek catchment, WNSW. *Geomorphology*

**Outcomes:**

- The legacy of this work includes the increased skill and knowledge in regolith geoscience of graduates in Earth Sciences; continued recruitment of Honours and PhD students; and greater industry skill and knowledge.
- Impressive content for contributions of regolith geoscience to teaching and training courses
- Production of “industry-ready” graduates with regolith geoscience skills and knowledge

**Milestones:** (*dates of significant events marking scientific progress*)

- July 8-14, 2006: Joint AU/ANU undergraduate regolith geology fieldtrip to Fowlers Gap (SH, IR, GH, JF)
- July – November, 2006: Delivery of teaching materials in undergraduate courses at AU, ANU and CUT (All listed staff)
- September, 2006: Complete *Sth Sandstone regolith-landform map* (IR & SH)
- September, 2006: Complete *Connors regolith-landform map* (SH & IR)
- September 16-22, 2006: AU 3<sup>rd</sup> year regolith fieldtrip to Murray Basin (SH)
- November compilation of preliminary draft of Fowlers Gap Regolith Geoscience teaching materials CD (IR & SH)
- February 2007: Regolith Geology & Geochemistry Shortcourse, Wilsons Promontory (SH, IR, MA)
- April 2007: Regolith mapping & Field techniques shortcourse. Fowlers Gap (SH, IR)

**Confidentiality requirements**

None