

## 1.3 Regolith Mapping

### *Two day course and workshop*

**Date:** 17-18<sup>th</sup> September 2005 (Sat and Sun before the IGES)

**Place:** Perth Sheraton (provisionally)

**Course Presenters:** Mike Craig, Ravi Anand, Bob Gozzard and Tom Cudahy

**Course Registration** A\$396

Regolith materials, regolith geology, landscapes and regolith mapping will be demonstrated with lectures and practical exercises using both large- and small-scale regolith investigations. Presenters will draw from available case histories and their experience. Remotely sensed imagery, geophysical and topographic data will be used to map the broad and specific distribution of the regolith. Gathering, collating, storing, retrieving and working with regolith data in a modern digital GIS environment requires organisation. This is an important learning component throughout the workshop. Exercises will strengthen, test and extend the regolith knowledge of the participants.

### Contents

- Philosophies of regolith geology and regolith mapping;
- Significant issues linking regolith and exploration environment
- Mechanics of maps making - strengths and weaknesses, GIS, multidata sets, and analysis with GIS
- Mapping styles and presentation - 2D and 3D
- Driving this new style of map and why the rules are not the same as they are for traditional geology maps
- What regolith maps can and cannot tell you
- Getting the exploration advantage from a regolith map
- A chance to make a map for yourself.



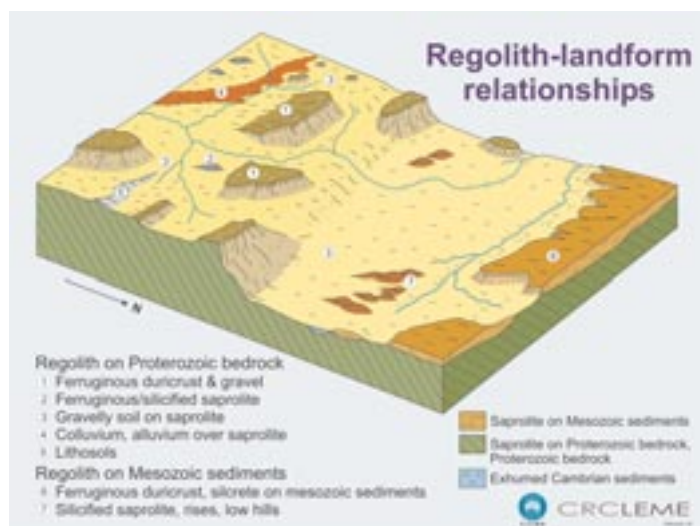
### Presenters:

**Mike Craig (B.App.Sci, M.Sc) (Course leader)**

*Senior Research Scientist, Geoscience Australia, Canberra, Australia*

*Email: Mike.Craig@ga.gov.au*

Mike Craig has been a regolith specialist since the 1980s and now works in Geoscience Australia's Minerals and Geohazard Division and in CRC LEME. Mike has spend most of the 1990s developing regolith mapping techniques, mapping the regolith of much of the Australian Yilgarn and parts of the Gawler cratons. He has been involved in a wide range of AMIRA regolith-related projects with CRC LEME and CSIRO. Mike has a special interest in large, regional regolith mapping projects. He is currently leading a CRC LEME project that is mapping the regolith, and evaluating landscape history of the whole of the Northern Territory.



**Ravi Anand (Ph.D.)**

*CRC LEME and CSIRO Exploration and Mining, Perth, Australia*

*Email: Ravi.Anand@csiro.au*

Ravi's PhD was in in regolith geology and geochemistry from the University of Western Australia. He joined CSIRO in 1987 and has been a leader of industry-funded projects since 1990. These projects have included multidisciplinary, multi-client projects through AMIRA and projects with individual companies. He has published over 100 scientific papers and reports. The outcomes of his research have been major contributors to the discovery of many gold deposits (particularly in Western Australia). Ravi

has presented short courses and field workshops to Australian companies and foreign industry consortia in Brazil, South Africa and Canada; and has been an invited speaker and workshop and field excursion leader at national and international conferences in Australia, Canada, South Africa and Brazil. He has supervised 27 industry-sponsored Honours students and 6 PhD students.



**Thomas Cudahey (BSc Hons. PhD)**

*Research Scientist, CSIRO Exploration and Mining  
Western Australia*

*Email: thomas.cudahy@csiro.au*

Thomas Cudahey is a geoscientist specialising in the development of operational hyperspectral sensing technologies for enhanced minerals exploration and mining. Tom's BSc is from Macquarie University and his PhD is in Applied Geology from Curtin University. He has been involved in remote sensing research with CSIRO since 1984 and is currently leading a number of international collaborative research projects, especially on thermal infrared mineral mapping. He is currently championing the next generation of mineral mapping in Australia.

**Bob Gozzard (Degrees)**

*Geological Survey of Western Australia, East Perth, Western Australia*

*Email: bob.gozzard@doir.wa.gov.au*

Since joining GSWA in the early 1980s, Bob has been involved in regolith and geomorphological mapping projects throughout Western Australia, from the coastal belt to the arid interior, and has collaborated in the development of techniques for mapping the regolith. In the late 1980s, Bob was involved with CSIRO in a number of industry-sponsored research projects to develop techniques for using remotely sensed data for regolith-landform mapping and mineral exploration in the Yilgarn Craton. These projects were followed by his involvement in a Cooperative Research Centre, where he used modelling of multi-source geoscientific datasets for improved 2D and 3D geological mapping. Bob is presently using remotely sensed data for identifying and mapping detailed surface mineralogy with operational multispectral and hyperspectral datasets from which maps of potential host rocks, alteration assemblages, and regolith characteristics can be generated.

