

COOPERATIVE RESEARCH CENTRE FOR LANDSCAPE ENVIRONMENTS AND MINERAL EXPLORATION

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LEME PROGRAMS IN MINEX

Dr R Dennis Gee

CRC LEME

LEME's objective is apply regolith science to the problems facing Australia in the areas of mineral exploration and natural resource management. The two main research priorities are:

1. Understanding regolith architecture and processes in the third dimension
2. Making geochemistry work through transported regolith.

LEME has four core research programs which are, in effect, management units which allow considerable scientific interaction.

Program 1: Regolith geoscience

Leader: Ms Lisa Worrall (Geoscience Australia)

Objectives:

- Understand the nature and timing of regolith processes,
- characterise regolith materials,
- map 3D regolith architecture and
- integrate with landscape evolution models

Program 2: Mineral exploration in areas of cover

Leader: Dr Ravi Anand (CSIRO Exploration and Mining)

Objectives:

- Understand the chemical, biological and physical processes in anomaly formation, in order to provide better tools for mineral exploration in areas of regolith - especially transported regolith.

Program 3: Environmental application of regolith geoscience

Leader: Dr Steve Rogers (CSIRO Land and Water)

Objectives:

- Develop environmental applications for regolith science, including regional geochemical baseline datasets, mechanisms in acid-sulfate soils
- Provide geo-micro-biological input to minerals focussed projects.

Program 4: Salinity Mapping and Hazard Assessment

Leader: Dr Ken Lawrie (Geoscience Australia)

Objectives:

- Salinity and water - includes salinity mapping, hydrodynamic aquifer modelling, salt and metal mobility and AEM - of value of MINEX research

Program 5: Education and Training

Leader: Dr Steve Hill (Adelaide University)

Objectives:

- Ensure fundamental regolith geoscience knowledge and skills are used by the minerals industry and by the natural resource managers, now and by later generations. This is achieved through PhD and Honours student scholarships linked to LEME research projects, Minerals Tertiary Education Council courses, conferences and symposia.

LEME has a suite of integrated multi-disciplinary, multi-party, regionally based MINEX projects that span the programs and centres of activity and these all address the research themes.

LEME MINEX projects can be considered as

- generic process projects
- regional focus projects
- technology development

but the objective is for integrated, multi-party, multi-disciplinary projects across the country.

LEME research themes are:

- Regional mineral exploration
- Making geochemistry more effective
- Regolith Processes
- Landscape evolution
- Geophysical mapping and modelling
- Acid sulphate soils
- Salinity systems
- Regolith geoscience and urban Australia
- Environmental geochemistry

LEME research portfolio for 2004-2005 is currently being set. Details of our research projects will be on the web site by the 1 July 2004 - <http://crcleme.org.au>