

PhD Scholarship at Australian Centre for Space Engineering Research

Required Background:	Bachelor/Masters in Physics or Mathematics
Keywords:	L-band, synthetic aperture radar (SAR), forestry, phenomenology, coherent change detection
Preferred Experience:	Knowledge of the interaction of RF EM radiation with inhomogeneous dielectric structures, fluent knowledge and use of Maxwell's equations in complex inhomogeneous dielectric structures, understanding of polarization and its interaction with complex inhomogeneous dielectric structures, programming skills. Knowledge of synthetic aperture radar would be helpful.
Application Deadline:	31/03/2012
Supervisors:	Robert Middleton, Prof Andrew Dempster
Contact:	Robert Middleton (r.middleton@unsw.edu.au)

L-band synthetic aperture radar phenomenology of forests

Investigate the L-band synthetic aperture radar phenomenology of forested areas in order to develop and understand coherent change detection techniques for monitoring deforestation.

The research could include modelling of the interaction of polarized L-band electromagnetic radiation with foliage, modelling the effect of foliage on reflected signal phase, amplitude and polarization. This knowledge would then be used to develop techniques for detecting changes in the foliage. Work would also be done to understand and compensate for the errors introduced by the atmosphere and the radar hardware.

There is potential for fieldwork to gather data and test techniques.

The project would yield an understanding (and perhaps demonstration) of the methods, requirements, performance and theory of coherent synthetic aperture radar change detection in forestry at L-band.

ACSER and the Garada Project will be providing scholarships for some students. All prospective students should, however, apply for:

- Australian Postgraduate Award (APA; for Australian citizens) OR an
- International Postgraduate Research Scholarship (IPRS; International students).

Suitability for the ACSER and Garada scholarships will be assessed in the same way as applicants for APA and IPRS. For more information about these scholarships please go to

<http://research.unsw.edu.au/postgraduate-research-scholarships>.

Further Information on the project may be obtained from Robert Middleton (r.middleton@unsw.edu.au)