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For the School of Geosciences, 2005 was dominated by moving – the Edgeworth David Building, home to Geology & Geophysics for almost 50 years was to be demolished. In 2007, the School will be consolidated in the Madsen Building, but Geology & Geophysics has to spend a year in temporary accommodation. Extensive planning, more planning and coping with a succession of delays in availability of the temporary accommodation preceded packing and arrangements established for the temporary storage of equipment. Much of the responsibility for this work fell on technical staff; they were required to find time for these tasks in addition to their normal duties. Late in the year, everyone was required to pack individual offices and wait for the scheduled November move date. As with moving house, the last minute issues seem endless and preparation for the relocation of much of the teaching material and equipment exhausted all involved at that late stage. Like the eye of a storm, the weekend initially scheduled for the move passed by due to another schedule delay. During all the planning and packing, a series of celebratory events lightened the burden. A final rooftop cocktail party, organized by post-graduate students, was enjoyed by many and developed a few sore heads.

When it did occur, two weeks late in early December, the relocation to the demountable village in Codrington St was chaotic and damaging, both to material and morale. The facility was incomplete, and the supposed accommodation was, in reality, still a construction site with all the danger such an environment presents. Staff were sent home, to come back several days later and seek misplaced equipment and furniture. Noise, equipment set-up and frustration dominated the next month. Ivan Teliatnikov and Abed Kassis, the IT staff, worked very long hours to establish the computer networks and server facilities that we all now take for granted. Whilst many staff were frustrated in attempting to complete normal duties, the Edgeworth David Building sat empty for several more weeks evoking various emotions.

Undergraduate students from school continue to enjoyed diverse and stimulating field excursions. Phil Hirsch took 22 senior geography students on a five week field school to Vietnam, Laos and Thailand. Working with their peers from Can Tho University, National University of Laos, Champassak Agriculture and Forestry College, Ubonratchathani University and Silpakorn University, the students undertook village-based field studies on a range of projects in the fields of natural resource management, development impacts and rural social change. February in New Zealand delivered unseasonably hot weather for a geology excursion, and after being sternly instructed to be properly clothed for alpine conditions some of the group flew back to Milford village with sunburnt tummies after a sensational helicopter-assisted day amongst the peaks. Similar heat was less welcome in December in New Caledonia, where another geology excursion attracted
participants from Macquarie and Australian National Universities. Once again, fine weather prevailed; the limited rain reduced the mosquito density and all participants enjoyed the mix of geology, mining and coral beach activities. In comparison, rain near the end of the annual third year mapping excursion to Broken Hill and Olary nearly isolated the group; the muddy access between Plumbago Homestead and bitumen of the Barrier Highway was briefly opened and enabled the planned homeward travel.

In 2005, the School had twenty full-time and thirteen part-time enrolled PhD students, three full-time and eight part-time enrolled MSc students and twenty-four Honours students. Ten PhD and two MSc research students graduated during 2005. Research grant income for the School in 2005 was $2.5 million, a substantial increase over the amount received in 2004 ($1.4 million). Most of this funding came from the Australian Research Council through the Discovery and Industry Linkage schemes. The School also welcomed four new post-doctoral appointments: Maria Sdrolias (ARC Research Fellow), Dan Penny (ARC ARF Research Fellow), John You (ARC QEII Research Fellow) and Adriana Dutkiewicz (ARC QEII Research Fellow). Elaine Baker received funding from the United Nations Environment Program GRID Arendal for the Limits of the Continental Shelf Program, and from the Toyota Foundation and Asia Pacific Network for Global Change Research for the Asia Pacific Floating University. The Floating University is aimed at capacity building in developing countries, by involving post-graduate students from such countries in research operations undertaken by first world nations.

The School welcomed Marlyn Horgan as Finance and Administrative officer, and farewelled our finance officer, Anu Ananda, who moved on to training University staff in the intricacies of corporate card management.

The College of Science and Technology sponsored a one-day showcase in October on Geoinformatics, convened by Dietmar Müller. The showcase drew together researchers from Brisbane, Melbourne and Sydney, examining methods that exploit the unprecedented volume of digital geodata and computing power available through electronic networks. Geoinformatics exploits the enormous potential of the World Wide Web and grid computing to organise the research community and link computing and data resources to allow users to turn observational and computational geodata into knowledge. The Earth Resources Foundation, together with PESA, presented the Esso Distinguished Lecturer, Dr Steve Creany, who ran a series of luncheon lectures and workshops on Integrated Basin Analysis and Well Log Geochemistry, over a three-week period in August, in Wellington, Melbourne, Canberra, Adelaide, Perth, Sydney and Brisbane. The workshop tour was generously sponsored by Esso Australia Pty Ltd, and well received by industry and academic participants. The Foundation, together with the Edgeworth David Society, also presented the eighteenth Annual Edgeworth David Day symposium on Edgeworth David’s View and Geoscience Today. The one-day symposium was held in October and addressed progress in the four key themes of David’s work centred on Antarctica, natural resources, methods of geological mapping and the geology of the west Pacific.

Due to the additional work burden imposed by relocation from the Edgeworth David Building, the end of the year brought with it a well-earned break for all staff of the School. I take this opportunity to thank all involved, but note that it will need to happen again in 2006!

Geoffrey Clarke
Head of School
Staff

Head of School
Geoffrey Clarke, B.Sc., Ph.D.
Metamorphic petrology, thermobarometry and field geology in East Antarctica and New Caledonia

Professors
John Connell, B.A., Ph.D, F.A.S.S.A.
Third world development (South Pacific), cultural geography
Andrew D. Short, M.A., Ph.D.
Coastal sedimentary environments and morphodynamics

Edgeworth David Professor of Geology and William Hilton Hovell Lecturer
Peter J. Davies, B.Sc., Ph.D.
Sea level change, reef growth in the southwest Pacific Ocean (especially the Great Barrier Reef)

Professor of Geophysics
Iain Mason, B.Sc Eng., M.A., Ph.D.
Development of geophysical technology, drilling and drill hole analysis

CRC Mining Professor of Geophysics
Peter Hatherly B.Sc., Ph.D.
Mining and engineering geophysics; seismic exploration and geophysical log analysis

Associate Professors
Source and fate of contaminant in catchments and estuaries; sediment toxicity, environmental geochemistry
Deirdre Dragovich, M.A., Ph.D.
Arid geomorphology, weathering, environmental geomorphology
Philip Hirsch, B.A., M.Phil., Ph.D.
Resource management, environment and rural development (SE Asia)
Dietmar R. Müller, M.Sc, Kiel Ph.D. Calif
Analysis of tectonic plate motions, continental margin tectonics, and seafloor mapping

Senior Lecturers
Eleanor Bruce, B.Sc, Ph.D.
Geographical Information Systems (GIS), Coastal Management
Peter Cowell, B.A., Ph.D.
Coastal Morphodynamics, GIS
Robert Fisher, Ba Dip. Ed., Ph.D.
(Part-time)
Stephen Gale, M.A., Ph.D.
Quaternary Environmental History, Sedimentary Geomorphology
Construction geology, environmental geology, reinforcement of soil slopes by vegetation
Michael Hughes, B.Sc., Ph.D.
Physical sedimentology in ancient and modern marine environments
Phil McManus, B.A., Grad. Dip., M.E.S., Ph.D.
Sustainability, Nature, Urban Geography
Bill Pritchard, B.A., Ph.D.
Economic Geography, Global Restructuring of Agriculture and Food Industries
Patrice Rey, B.Sc., Ph.D.
Structural geology and tectonics

Lecturers
Julie Dickinson, B.Sc, M.Sc., Ph.D.
Stratigraphy and Sedimentology
Kurt Iveson, B. Econ (Soc. Sci.), Ph.D.
Urban and Political Geography
Melissa Neave, B.A., Ph.D.  
Fluvial and Arid Zone Geomorphology  
Derek Wyman, B.Sc., Ph.D.  
Economic geology

Research Fellows  
Elaine Baker, Ph.D.  
Adriana Dutkiewicz, Ph.D.  
Carmen Gaina, B.Sc., Ph.D.  
Jonathan Hargreaves, B.Sc., D.Phil.  
Florence le Hebel, B.Sc., Ph.D.  
Elizabeth Moylan BAppSc(Hon), Grad Dip VET, PhD  
Jeffrey Neilson B.A., B.Sc., Ph.D  
Daniel Penny, B.A (Hons.), Ph.D.  
Maria Sdrolias, B.Sc., Ph.D.  
John You, Ph.D.

Honorary Professor  
Eric Waddell, B.A., M.Sc., Ph.D.

Honorary Associates  
David F. Branagan, B.Sc., Ph.D.  
David E M Chapman, M.Eng.Sc., B.A., Ph.D.  
Greg Crough, B.Ec.  
Donald Emerson, B.Eng., M.Sc, Ph.D.  
Wayne Erskine, B.A., Ph.D.  
Richard Facer, Ph.D.  
Stephanie Fahey, B.A., Ph.D.  
Robert Fisher, B.A., Ph D.  
Gabor Foldvary, Ph.D.  
James Gardner, B.Sc., Ph.D.  
Peter Hoare, M. Sc., Ph.D.  
Julie Hollis  
Henk Heijnis, Drs., Ph.D.  
Ronald Horvath, M.A., Ph.D.  
John Hudson, M.Sc.  
Mark Hutchinson, B.Sc., Ph.D.  
Jock B. Keene, B.Ag.Ec., B.Sc., Ph.D.  
Keith Klepeis, B.Sc., Ph.D.  
Gordon Packham, B.Sc., Ph.D.  
Graeme Philip, B.Sc., M.Sc., D.Sc., Ph.D.  
Peter Roy, B.Sc., Ph.D.  
Bruce Thom, BA, MA, Ph.D.  
Robin F. Warner, B.A., Ph.D.  
Keeva Vozoff, B Phys, M.Sc., Ph.D.  
Ted Wheelwright, DFC, M.A

Geosciences Administrative & Technical Staff

Administrative Staff  
Marilyn Horgan  
Finance and Administration Manager  
Emma Stewart  
Administration and Finance Officer  
Belinda McMillen  
Student Liaison Officer

Senior Technical Officers  
Nelson Cano  
Water, Sediment and Chemical Laboratories Manager  
Tom Savage  
Water, Sediment and Chemical Laboratories Manager  
Graham Lloyd  
Field Support Officer  
David Mitchell  
Field Support Officer  
Ivan Teliatnikov  
Senior Computer Systems Officer  
John Twyman  
Senior Computer Systems Officer

The Edgeworth David Building during demolition
Teaching Staff Profiles

Gavin Birch
Gavin Birch initiated Environmental Geology at Sydney University. His recent interests are in the source, fate and effects of contaminants in marine, estuarine and fluvial environments, mainly in the Sydney Harbor region. This work involves mainly the behaviour of heavy metals, but includes organic contaminants and nutrients in the aquatic environment. Gavin’s specialties are in the toxicity of marine sediments and in the chemistry and remediation of stormwater.

Eleanor Bruce
Eleanor Bruce’s research interests are in environmental spatial analysis and modelling. More specifically this research has focused on examining processes of habitat loss in urban coastal environments, the use of GIS and remote sensing in vegetation change detection and landscape heritage management, marine zone planning and evaluating the impact of spatial data uncertainty in environmental decision-making. Eleanor is currently working on a collaborative ARC Linkage funded research project with UNESCO and Department of Environment and Heritage.

Geoff Clarke
Geoff Clarke has contributed to all aspects of the textural analysis of high-grade metamorphic rocks. This field-based ARC research on high-P Cretaceous granulites integrates data from structural, petrologic and isotopic studies to study geological processes critical to the formation and modification of continental crust. Other ARC-funded research on the application of equilibrium thermodynamics has defined the P-T domains of common blueschist and eclogite facies assemblages, something that could not be done by direct experimentation, and established new approaches to the study of equilibrium during metamorphism. Clarke also has an ASAC-funded field programme examining lower crustal processes that formed high-grade rocks in MacRobertson and Kemp Lands, Australian Antarctic Territory.

John Connell
John Connell’s principal research interests are concerned with political, economic and social development in less developed countries, especially in the South Pacific region and in other small island states. Much of this research is currently oriented to issues of rural development, migration (especially of skilled health workers) and inequality. A second research theme is on decolonisation and nationalism, with particular reference to New Caledonia. More recently, he has been working on cultural geography, especially of music, food and tourism. He has recently published two books on the geography of music, both with Chris Gibson, now at UNSW, and formerly a PhD student in the School.

Peter Cowell
Peter Cowell’s research interests are in the geomorphology of coasts and continental shelves and specifically, the nature of change in coastal landforms and the processes responsible for such change (coastal morphodynamics). The research involves combined use of field data and computer modelling to yield information that is otherwise unattainable, with the application of formal methods for managing uncertainty. This approach is applied to estimation of sediment transport and coastal change relevant to coastal management and coastal impacts of climate change, as well as to geological exploration. Research is being undertaken on four continents in collaboration with other coastal scientists from Australia, Europe and the Americas. This has focused on coasts (involving clastic sand and mud deposits), but also includes behaviour of sand islands on coral atolls.
Peter Davies
Peter’s current research interests include the causes of sedimentary cyclicity, sea level change and reef growth in the South West Pacific, the Origin of the Great Barrier Reef, and the impacts of global climate change on reef growth. Seismic studies in carbonate sequences are related to the development of petroleum reservoirs and new ideas for exploration, while theoretical studies are examining the future interface of energy needs and possible climatic repercussions. A teaching module has been published on Salinity in new South Wales (Curse of an Ancient Land) for teachers and Secondary students. The Portable Remotely Operated Drill (PROD) - a major research innovation - is now operating commercially.

Julie Dickinson
Julie considers all aspects of sedimentary geology to be of interest, with particular emphasis on using field mapping, stratigraphy and sedimentary petrology to identify the dominant controls on basin evolution and sedimentation. More specifically her research includes the investigation of neotectonics evident in the Tertiary sedimentary basins of SE Australia, the formation of marine phosphate deposits, the influence of climate change on fluvial systems and the application of high-resolution marine surveying techniques for the investigation of depositional processes on continental shelves.

Deirdre Dragovich
Deirdre Dragovich’s current research in environmental geomorphology includes the development, persistence and dating implications of desert varnish, especially in relation to aboriginal rock engravings; and the nature and rate of deterioration of (stone) historical buildings in the urban environment, where surface loss may be accelerated by visitor impacts and pollution. Research is also continuing on dryland salinity and on erosion following bushfires in temperate and subalpine areas of NSW.

Bob Fisher
Bob Fisher is an anthropologist. His PhD research was a study of human ecology, focusing on strategies for adapting to drought in the Thar Desert in Rajasthan. He specialises in social and political ecological aspects of natural resource management, particularly involving community forestry. After working in Nepal with the then Nepal-Australia Forestry Project in the late 1980s, he taught at the University of Western Sydney, Hawkesbury, before becoming Deputy Director of the Regional Community Forestry Training Center in Bangkok from 1997 to 2001. He has done research or consultancies in a number of countries, including Mozambique, Iran, Kyrgyzstan, Nepal, India, Pakistan, Laos, Vietnam and Cambodia. Teaching interests focus on social and political aspects of natural resource management.

Stephen Gale
Stephen Gale has research interests in Quaternary environmental history, human environmental impact during the late Holocene, long-term geomorphic evolution and sedimentary geomorphology. He has worked in glaciated, karstic and alpine terrains, and, more recently, in semi-arid and lacustrine environments. He is currently using sedimentological techniques to shed new light on the early colonial history of Australia.

Peter Hatherly
Peter is an exploration geophysicist with research interests directed towards understanding the geological settings of ore deposits (coal and metalliferous) and how this information can be used to operate mines more safely and productively. His prime interests concern seismic and logging techniques but he has worked with many other geophysical techniques. Within CRC Mining, he coordinates a number of projects in mining geophysics which involve researchers from a number of universities and external organisations.
Philip Hirsch
Philip Hirsch has research interests in natural resource management, rural change and the politics of environment in Southeast Asia, notably Thailand, Cambodia, Laos and Vietnam and the wider Mekong Region. He is involved with collaborative field projects in each country.
Specific interests include water governance, river basin management, deforestation, environmental impact of development, rural social differentiation and agrarian change, the role of NGOs in development, resource tenure, changing relations between village and state, and community-based natural resource management. Recent and current research work includes projects supported by the Australian Research Council, Australian Water Research Facility, Australian Agency for International Development, International Development Research Centre, Asia Research Centre and Australian Centre for International Agricultural Research, and Social Sciences and Humanities Research Council (Canada).

Tom Hubble
Tom Hubble’s research has been mainly in the field of marine and riverine site investigation including a major regional geomorphic and sediment mapping projects on the Hawkesbury-Nepean. Current research projects include: the characterisation of the mass collapse mechanisms which are currently affecting the banks of the Hawkesbury-Nepean River in order to develop a remediation and prevention strategy; and, the evaluation the various stabilising mechanisms that trees and their root systems develop in soil slopes. He has also recently published a text book for the HSC Earth and Environmental Science course in collaboration with Iain Imlay-Gillespie and Chris Huxley.

Michael Hughes
Michael Hughes has research interests in coastal processes and seabed dynamics. This includes all coastal environments dominated by waves, tides and/or oceanic currents. Currently active research projects include beach morphodynamics, surf zone waves and runup, coastal response to climate change, tide-dominated continental shelves, bedform dynamics, sedimentary structures and palaeohydraulics. His research approach combines field and laboratory experimentation with model development and application.

Kurt Iveson
Kurt is primarily interested in the relationship between cities and citizenship. He is currently engaged in two research projects within this broad theme. The first project is concerned with the urban dimensions of being ‘public’. This research explores the ways in which activities such as ‘hanging out’, political protest, cruising, and graffiti writing have produced new styles of public discourse in and through the city. The second project is concerned with urban planning practice, and asks how it might better blend views about spatial equity with views of the worth of social diversity and the importance of encounter in urban life. This research is being conducted jointly with Prof Ruth Fincher (University of Melbourne).

Iain Mason
Iain Mason is involved in building borehole radars, seismic instruments and imaging software with which to map near planar, faulted ore bodies – Australian coal seams, North Sea reservoirs, South African platinum and gold reefs, and kimberlite diatremes and in using old maps and satellite images to model significant sites (e.g. Gallipoli) numerically in 3D.

Phil McManus
Phil McManus conducts research which integrates urban and environmental geography. His recent research has been in the area of sustainable cities, which combines a number of environmental and resource management issues, understandings of nature and concepts of sustainability. He is currently working on Industrial Ecology and Eco-Industrial Parks. His recent work also includes publications on urban environmental histories of transport and on food production (especially abattoirs) and a number of articles on forestry, including comparative forest histories and understanding how
unsustainable practices are perpetuated in this sector of the economy.

**Dietmar Müller**
Dietmar Müller’s research is focussed on global and regional Earth system problems by linking onshore and offshore observations based on geophysical/geological data and kinematic/dynamic process modelling, exploring the possibilities of the emerging area of e-geoscience. He founded the international EarthByte project (www.earthbyte.org) which aims at building the infrastructure for a virtual geological observatory through the GPlates software consortium. He has spearheaded the concept of “Exploration Geodynamics”, i.e., the use of geodynamic modelling as a resource exploration tool. Related work includes the modelling of current and palaeo-stress fields of the Indo-Australian Plate, linked to stratigraphy and fault analysis from seismic data, and tying basin-scale observations to models of mantle convection and lithospheric deformation.

**Melissa Neave**
Melissa Neave’s main area of interest is in the field of fluvial geomorphology with a focus on arid and semiarid hillslope processes. She has worked on the biogeomorphic influences of small mammals in a Chihuahuan desert ecosystem in the American southwest, used rainfall simulation to model the effect of surface crust formation on runoff and sediment generation and is currently investigating links between hillslope sediment transport and soil salinity levels.

**Bill Pritchard**
Bill Pritchard is an economic geographer with primary research interests in the globalization, especially as it relates to food and agriculture. During the past five years he has researched and published a number of sector-specific analyses (the global processing tomato sector, the NSW wine industry, the breakfast cereals industry and Australian supermarket restructuring) as well as on global institutions, foreign investment and Australian agri-food policy. He has additional research interests in Australian regional restructuring and northern Australia. He is currently the chief investigator on two ARC Discovery Projects dealing with issues of agri-food restructuring and development, as they apply to Indonesia and India; and from 2005-06 was Chief Investigator for the Building Institutional Capacity in Asia project funded by the Japanese Ministry of Finance. Recent publications include Agri-food Globalisation in Perspective (2003, Ashgate, with David Burch), Developing Regional Australia (2003, UNSW Press, with Andrew Beer and Alaric Maude) and Cross-continental Food Chains (2005, edited, Routledge, with Niels Fold). Bill is a member of the ARC Research Network on Spatially Integrated Social Science, and is convenor of the Australian and New Zealand Agri-Food Research Network.

**Patrice Rey**
Patrice is a tectonist interested in the evolution of the continental lithosphere through tectonic processes, and the evolution of tectonic processes through time. His research activities are therefore problem-driven and process-oriented, and supported by research strategies involving quantitative multidisciplinary approaches, based on field work, numerical modelling and physical modelling. Patrice produced work on the seismic reflectivity of ductile shear zones in the crust. In the last five years he has been investigating the tectonics processes that have shaped the surface of the early Earth in the Archaean era (4.03 to 2.5 Ga).

**Andrew Short**
Andy Short is interested in the processes and morphology of coastal systems. Present research focuses on all 11,000 Australia beach and dune systems, both in terms of the morphodynamics of representative systems in variable wave and tide environments, and in the nature, hazards and usage of all Australian beach systems. He is also examining the size, nature and stability of the nations 2500 coastal barrier systems, as well as local through regional barrier sediment budgets. Locally he continues long term beach monitoring, enhanced in 2004 with Linkage grant support for video imaging and regular DDPS surveys. Since 1991 he has been National Coordinator of the Australian Beach Safety and Management Program in co-operation with Surf

**Derek Wyman**

Derek’s research includes fieldwork in the Yilgarn Craton of Western Australia as part of studies designed to characterize common features in the mineral-rich volcanic belts of the Craton and similar rocks in Canada. Derek maintains strong links with national and international research teams as exemplified by his collaborative research with the Ontario Geological Survey. This work focuses on recently discovered 2.7 billion year old diamond deposits (the world’s oldest) that challenge conventional models of diamond formation. He supervises Honours and Postgraduate studies of granitic rocks and ore deposits which examine igneous processes associated with gold and other types of mineralization in the Lachlan Fold belt of eastern Australia. He is also undertaking studies of the regolith that have applications for mineral exploration and the mitigation of dryland salinity hazards. China sponsored a year-long visit by Dr Qiang Wang (Guangzhou Institute of Geochemistry) to establish collaborative research with Derek in 2005. As a result, several papers on Chinese Geology were submitted and accepted by major international journals during the year. Much greater collaboration is planned for the future, including joint field studies in Xinjiang, Tibet, and other parts of China in 2006, 2007, and beyond.

**Research Staff Profiles**

**Elaine Baker**

Elaine is the director of the UNEP Shelf Programme at the University of Sydney. This programme is an initiative of GRID Arendal in Norway and was established to assist coastal states in preparing submissions for extended continental shelf under the United Nations Law of the Sea. Elaine is working with colleagues from Geoscience Australia and SOPAC to assist countries in the South West Pacific with this task. Elaine is also the director of the University of the Sea Secretariat. The University of the Sea is a partnership between the University of Sydney, the University of New South Wales, the University of Technology Sydney, the Australian National University, the University of Tokyo, the Korean Ocean Research and Development Institute, Tongji University China, the Partnership for Observation of the Global Oceans Canada, the National Institute of Oceanography Goa, the Indonesian Research Centre for Marine Technology and the Intergovernmental Oceanographic Commission of UNESCO - http://www.usims.org.usyd.edu.au/floating.html

**James Boyden**

James is a software developer and mathematician with interests in computer graphics, signal processing, scientific visualisation and computational geometry [computer science] and geometry, topology and theoretical fluid dynamics [mathematics]. He also has a grounding in theoretical physics, with interests in kinematics, dynamics and electrodynamics. James is currently working as a developer and programmer for the GPPlates software as part of the EarthBytes project.

**James Clark**

James is a programmer and information model developer. He currently works within the EarthByte project to develop the GPPlates Markup Language (GPML), which is designed to become the cornerstone of a web-based virtual plate tectonic observatory. GPML will allow the integration of a plate tectonic Data Model into the international Geographic Markup Language standard.

**Adriana Dutkiewicz**

Adriana’s current research projects exploit Archaean and Proterozoic oil-bearing fluid inclusions and their geochemical compositions, including biomarkers, to constrain hydrocarbon-ore fluid interactions, the pressure-temperature conditions under which they co-exist, the diversity of the primordial biosphere and the nature of life’s earliest habitats. Biomarkers extracted from oil inclusions may even constrain the ages of
branch points on the phylogenetic tree of life. Her most recent research has focused on Precambrian basins in Australia, Canada and Africa.

**Joal Fitzherbert**
Joel's major interests are metamorphic petrology, geochemistry and thermodynamic modelling. Joel is currently employed as an ARC research assistant, working with Geoff Clarke and Dr Keith Klepeis on high-P Cretaceous granulites in the south island of New Zealand. His current research involves a combination of trace element and thermodynamic studies on Cretaceous arc related metagabbroic lithologies and Palaeozoic to Mesozoic metasedimentary lithologies of Fjordland. Pending ARC funding Joel hopes to begin a new project that combines work on high-pressure rocks from both New Caledonia and Norway.

**Jonothan Hargreaves**
Jonothan is developing borehole radar systems used to map Diamond, Platinum and Gold bearing orebodies in South Africa and Canada. His current research interests include high speed, low power electronics for downhole data acquisition systems, and synchronisation techniques to allow several receivers in different boreholes to record simultaneously.

**Jeff Neilson**
Jeff Neilson's main research interests are agriculture and export trade in South and Southeast Asia. These themes are explored through global value chain analysis and an institutional approach to economic geography. Jeff completed his doctoral dissertation in 2004 on the use and influence of geographical identities in the specialty coffee sector, involving extensive field research in Eastern Indonesia. Jeff’s current research interests include systems of traceability and developing countries’ agriculture, with research activities across sites of coffee, cocoa and tea production in India and Indonesia. This research agenda has been complemented by active industry engagement and involvement in various international development projects and industry stakeholder networks. Jeff possesses a broad interest in Indonesian environment, economy and society.

**Dan Penny**
Dan Penny's major research interests include long-term environmental change and variability in Indochina, particularly monsoon variability and plant biogeography. The interaction between people and the natural environment is a particular focus of interest. Dan is currently investigating the demise of Angkor, Cambodia, using micro-palaeontological techniques (pollen and spores from higher plants and ferns respectively, and algae, particularly diatoms). Angkor was capital to a sprawling medieval empire that encompassed much of the Indochinese peninsula between the 9th and sometime after the 15th Century AD. The research seeks to explore the timing of and reasons for Angkor’s decline and eventual collapse.

**Maria Sdrolias**
Maria is an EarthByte ARC research fellow who is working on global models and databases for the evolution of the ocean basins. She is particularly interested in subduction and back-arc basin processes, including deciphering the origin of major plate tectonic events and their manifestation in the geological record.

**John You**
John is an EarthByte ARC Senior Research Fellow. His primary interests are physical oceanography, paleoceanography and climate change over geological time periods. He has been the driving force behind porting the National Center for Atmospheric Research (NCAR) Community Land Model coupled to the NCAR Community Atmosphere and Ocean Model to the Australian Partnership for Advanced Computing (APAC) supercomputer. He is currently working on modelling the causes of past global temperature extremes such as the Miocene global climate optimum to improve our understanding of current and future global warming.
2005 Units of Study

Geography

GEOG 1001 BIOPHYSICAL ENVIRONMENTS (6cp)
Dr Stephen Gale and Dr Melissa Neave
This Unit of Study provides an introduction to the Earth’s biophysical environments. It begins by considering the earth’s place in the universe, its origin and its development, and the nature and evolution of the Earth’s structure. This is followed by an investigation of the evolution of the Earth’s physical environment and its development to its present stage over time. With this background, the Unit of Study goes on to examine the Earth’s hydrosphere and atmosphere and the major landforms produced by the interaction of atmospheric and ocean processes with the earth’s surface, including fluvial, arid, coastal and glacial systems.

GEOG 1002 HUMAN ENVIRONMENTS (6cp)
Professor John Connell and Dr Bill Pritchard
Human Environments develops understanding of processes and consequences of interactions among people and between people and their environments. Questions, challenges and issues that stem from the relationships and transformations in the built, natural, social and spatial environments are introduced and examined in the context of globalisation. Social structures are explored and developed in the context of local changes in Sydney, as it becomes a world city, regional Australia and also the Asian and Pacific island region.

GEOG 2311 LANDSCAPE PROCESSES (6cp)
A/Professor Deirdre Dragovich and Professor Andy Short
This unit of study is concerned with the morphology and evolution of landscapes and the processes that have formed them. Attention will be directed towards slopes, the basic units of landscapes, and the processes leading to slope development and change in different environments. Landscape features will be examined in relation to evidence of past and present process regimes, especially the way in which these regimes are influenced by climate. Field and practical work will involve interpreting landscapes in the Sydney Region. Other geomorphological environments to be considered are glacial landscapes, periglacial landscapes, karst landscapes, and aeolian (desert) landscapes.

GEOG 2321 FLUVIAL AND GROUNDWATER GEOMORPHOLOGY (6cp)
Dr Peter Cowell and others
This Unit of Study provides an introduction to the fundamentals of fluvial geomorphology (the study of surface water as an agent of landscape change) and groundwater hydrology. The fluvial geomorphology section of the unit will describe the movement of water in stream channels and investigate the landscape change associated with that movement. Topics to be covered will include open channel flow hydraulics, sediment transport processes and stream channel morphology. Practical work will focus on the collection and analysis of field data. The quantity and quality of the groundwater resources are closely linked to geology and fluvial geomorphology. The groundwater section of this unit is based around four common groundwater issues: contamination, extraction, dryland salinity and groundwater-surface water interaction. In the practical component, common groundwater computer models such as FLOWTUBE and MODFLOW will be used to further explore these problems.

GEOG 2411 ENVIRONMENTAL CHANGE AND HUMAN RESPONSE (6cp)
A/Professor Deirdre Dragovich and Dr Eleanor Bruce

Environmental change occurs at time scales from seconds to centuries or longer, from the sudden and catastrophic to gradual transformations barely noticeable at human time scales. Some kinds of environmental change are largely caused by humans, but in other cases humans are helpless before the uncontrollable forces of nature. Environmental change is explored in these categories, including land degradation and desertification, and salinity; and how humans are both implicated in these problems and respond to them. Included in the unit of study will be a variety of techniques for the analysis of environmental problems, especially the use of geographic information systems (GIS) as a way to organise, integrate and interpret spatial information. We will also consider some fundamental questions that emerge from the use of GIS techniques in spatial analysis including the representation of spatial features, handling data uncertainty and decision support.

GEOG 2421 RESOURCE AND ENVIRONMENTAL MANAGEMENT (6CP)
Dr Phil McManus and A/Professor Phil Hirsch

This Unit of Study forms an intermediate level treatment of Environmental Geography and Natural Resource Management. It is designed to evaluate human interaction with the biophysical environment and use of the Earth’s surface and its resources. Emphasis is upon human impacts on environments through social, economic and political processes and through deliberate decision making and management. Policy responses are considered at a range of scales. The Unit of Study examines the nature and characteristics of selected resource processes with reference to Australian and other national and international contexts, and on a more global and regional scale, focuses on the changing relationship between people and environments in tropical Asia and the Pacific. A field trip is integral to the Unit of Study.

GEOG 2511 ECONOMIC GEOGRAPHY (6cp)
Dr Bill Pritchard

In this Unit of Study, students will be introduced to questions and debates about spatial character of economic and political activities. This includes the issues of why economic development is uneven between places and regions, how entities such as large corporations spatially organize themselves in order to further their goals, and how to assess the impacts of globalisation. Lecture and practical material will be organized in such a way that students are encouraged to connect theories with contemporary ‘real word’ economic and political issues. These include debates on regional development planning, industrial clustering, the role of the global financial sector, trade liberalization and the World Trade Organisation. As a component of the Human Geography stream, this unit of study does not require assumed knowledge of economics. Rather, it uses the insights and perspectives of human geography to critically debate regional, national and global economic issues.

GEOG 2201 CULTURAL AND ECONOMIC GEOGRAPHY (8cp)
Dr Bill Pritchard

This unit of study is normally only available to students from the Faculty of Arts. It exists in 2005 because the Faculty of Science has moved to 6 credit point units but many students from the Faculty of Arts still require an 8 credit point unit to complement their overall degree structure. It is likely that this unit of study, as a separate offering, will be discontinued in 2006. Notwithstanding the slight difference in the name of this unit of study, its content is identical to GEOG2511 (Economic Geography). For information on that unit of study, see above. However, because this unit has an additional 2 credit point loading, students enrolled in GEOG 2201 will be expected to complete an extra assessment task compared to those enrolled in GEOG 2511.

GEOG2521 URBAN AND CULTURAL GEOGRAPHY (6Cp)
Professor John Connell and Dr Kurt Iveson

By their very nature, cities are full of different people doing all sorts of different things. These activities all have their own geographies people make the most of.
spaces available to them, and they shape and produce new kinds of urban space through their actions. But these geographies are neither stable nor uncontested. Sometimes, groups of people clash with each other and with urban authorities in trying to make space for different cultural practices. This unit of study examines the cultural dimensions of everyday life in cities. We will consider a range of different practices which use and shape urban space for example, shopping, eating, playing sport, listening to and making music, having sex, going out, worshipping, etc. By considering these various practices, the course seeks to understand how different groups of people perceive, construct and contest urban space, primarily in western contexts (and with particular attention to Australia). At the completion of this unit of study, students will possess a theoretical and practical understanding of how social and cultural processes shape everyday life in contemporary urban societies.

GEOG2202 URBAN AND POLITICAL GEOGRAPHY (8cp)
Professor John Connell and Dr Kurt Iveson
This unit of study is normally only available to students from the Faculty of Arts. It exists in 2005 because the Faculty of Science has moved to 6 credit point units but many students from the Faculty of Arts still require an 8 credit point unit to complement their overall degree structure. It is likely that this unit of study, as a separate offering, will be discontinued in 2006. Notwithstanding the slight difference in the name of this unit of study, its content is identical to GEOG2521 (Urban and Cultural Geography). For information on that unit of study, see above. However, because this unit has an additional 2 credit point loading, students enrolled in GEOG 2202 will be expected to complete an extra assessment task compared to those enrolled in GEOG 2521.

MARS2006 MARINE ECOSYSTEMS AND GEOMORPHOLOGY (6cp)
Dr Adele Pile, Assoc. Prof Roz Hinde and Dr Peter Cowell
This course is split into two sections: marine ecosystems and coastal geomorphology. The marine ecosystem section describes some of the ways that the properties of the oceans affect marine organisms. It also introduces coral reefs and other marine ecosystems, together with their productivity, biological oceanography, the reproductive biology of marine organisms, and marine biological resources. The second section provides an introduction to coastal geomorphology by examining the geographic variability of coasts as the sum effect of variations in terrestrial, climatic and oceanographic factors. These factors are introduced in terms of the main physical processes (geology, sea-level, waves, tides, winds) governing coastal geomorphology on a range of space-time scales. Geographic variation in the physical processes is illustrated by reference to the local coast: ie, Sydney. The illustration is amplified by drawing comparisons with other parts of SE Australia, and with overseas examples (especially from coastal environments very different to that of Sydney).

MARS2906 MARINE ECOSYSTEMS AND GEOMORPHOLOGY (Advanced) (6cp)
Dr Adele Pile, Assoc. Prof Roz Hinde and Dr Peter Cowell
This course is split into two sections: marine ecosystems and coastal geomorphology. The marine ecosystem section describes some of the ways that the properties of the oceans affect marine organisms. It also introduces coral reefs and other marine ecosystems, together with their productivity, biological oceanography, the reproductive biology of marine organisms, and marine biological resources. The second section provides an introduction to coastal geomorphology by examining the geographic variability of coasts as the sum effect of variations in terrestrial, climatic and oceanographic factors. These factors are introduced in terms of the main physical processes (geology, sea-level, waves, tides, winds) governing coastal geomorphology on a range of space-time scales. Geographic variation in the physical processes is illustrated by reference to the local coast: ie, Sydney. The illustration is amplified by drawing comparisons with other parts of SE Australia, and with overseas examples (especially from coastal environments very different to that of Sydney).
MARS3003 COASTAL DEPOSITIONAL ENVIRONMENTS (6cp)
Professor Andy Short
Coastal depositional environments dominate the coast of Australia and most shorelines. They are dynamic systems responding to input sediments and processes as well as boundary conditions. This course focuses on high energy wave and wind dominated depositional systems manifest as beaches, dunes and barrier systems. It examines the background to the study of these systems and their global variation, before systematically looking at the beach-surf zone, backshore, dunes and barriers, including their Holocene evolution. The impact of lower waves and tides, embayments, structures and other environmental parameters are also considered. The surface morphology and stratigraphy of representative systems is examined on the excursions and in the practicals. The practicals also introduce students to field and laboratory techniques used in core logging and analysis of sediments. One assignment is based on the excursion and practical work, the second is based on library research of a section of the Australian coast.

MARS3004 COASTAL MORPHODYNAMICS (6cp)
Dr Peter Cowell
Coastal Morphodynamics is an option in the modelling of complex environmental systems. Specifically, this option concerns the interactions between fluid dynamics and changes in coastal geomorphology over a wide range of scale in space and time. The coast is used for exploring development and application of computer models for simulating the behaviour of complex environmental processes. Such processes involve non-linear dynamical problems that go beyond the realm of classical mathematics and physics. Computer simulation of these problems provides practical insights into the application of chaos theory to the evolutionary behaviour of coasts. The option aims to provide: (1) skills in managing complex problems in general, (2) an analytical understanding of coastal processes in particular, and (3) experience in application of computer simulation programs and vocationally relevant, commercial software packages. Practical work involves extensive use of computers.

GEOG 3002 ENVIRONMENTAL GEOMORPHOLOGY (12cp)
A/Professor Deirdre Dragovich and Dr Stephen Gale.
The first part of this unit deals with the effects of weathering on the physical and the built environment, and considers the relationship between soil and landforms. The second part investigates the environmental changes that have taken place since the end of the last glacial, the time when the world’s climates and environments first took on a recognisably modern form. It deals specifically with changes to the Australian biophysical environment and will focus on human environmental impacts, both under pre-European and post-contact conditions.

GEOG 3101 CATCHMENT MANAGEMENT (12cp)
Dr Melissa Neave and A/Professor Phil Hirsch
The Unit of Study is concerned with understanding the functioning of river catchments from both natural science and social science perspectives, at a variety of scales. The catchment as a morphodynamic process-response system is addressed with an emphasis on the relationships between processes and landform entities. Similarly, relationships within social, economic, and political systems are explored within the catchment context, with particular emphasis on the interactions between the social system and bio-physical system. Empirical context for the unit will primarily be drawn form the Murray-Darling, Mekong, and Hawkesbury-Nepean catchments. Fieldwork in the latter is integral to the Unit of Study.

MARS3103 GIS SIMULATION MODELLING (6cp)
Dr Peter Cowell
Specific aims of the unit are to provide: i) an introduction to technical issues in Geographic Information Systems (GIS); ii) experience in using GIS techniques (‘hands on’); and, iii) insights in application of GIS to coastal studies. The lectures
illustrate how Geographic Information Systems can be applied by people working
in marine sciences, and provide an introduction to the nuts and bolts of GIS. The
technical lectures are based on a leading GIS text book. The practical work focuses
on application of GIS techniques to coastal management problems. Practical work
involves extensive use of computers.

MARS3104 COASTAL ZONE MANAGEMENT (6cp)
Dr David Chapman and Dr Eleanor Bruce
Aims of the unit: To assist you to identify significant problems in resource
management in the coastal zone, to enhance your understanding of the origins
of these problems at the interface between the natural and human environments,
and the nature of human responses to them. To equip you with some conceptual
models for the management of problems in resource management in the coastal
zone, and to teach you some of the fundamental skills in analysis of environmental
problems, including the use of remotely sensed information in resource
management.

GEOG 3201 ASIA-PACIFIC DEVELOPMENT (12cp)
Associate Professor Phil Hirsch
The Unit of Study builds on key human geographic principles from the sub-
disciplines of environmental, social, cultural and economic geography. The Unit of
Study constitutes a Field School run over a five-week period in January-February,
prior to the commencement of the semester. The Field School is held in Vanuatu
and Fiji (in 2005 the course will focus on Vietnam, Laos and Thailand). It is run in
close association with local universities, whose staff and students participate in
some components of the course. The unit involves intensive cultural interaction
and focuses on environmental and development issues in the context of rapid
rural change. Places are limited, and students interested in the 2005 Field School
should indicate expression of interest to Phil Hirsch p.hirsch@geosci.usyd.edu.au
before the end of June 2004. (Those interested in the 2006 Field School should
contact Phil Hirsch before the end of June 2005.)

GEOG 3511 SPATIAL CHANGE IN AUSTRALIAN SOCIETY (6cp)
Dr Bill Pritchard
The aim of this unit of study is to provide students with the conceptual, analytical
and technical skills to examine key debates relating to changing spatial patterns
in Australia’s population and economy. Through this focus, the unit will examine
social and economic sustainability, including topics such as the ‘triple bottom line’,
social capital, the impacts of de-industrialisation, ‘new economies’ of the service
sector, Indigenous rights, and the economic and social impacts of large resource
developments. Students have two choices for completing the practical component
of this unit of study. Option 1 is a field trip to Tasmania which will take place from
Tuesday 29 March to Sunday 3 April. The purpose of this field trip is to examine
regional development initiatives in the State. Students participating in the field
trip will prepare a field trip report, but apart from that, are not required to attend
practical classes for the remainder of the semester. The costs of the field trip are
expected to be borne by students and more details will be available early in 2005.
Places on the field trip may be limited. Option 2 is a group-based project that will
involve regular meetings with the unit of study coordinator.

GEOG3521 SUSTAINABLE CITIES (6cp)
Dr Phil McManus
Study on urban and regional sustainability analysis involves an integrated series
of lectures, practical work and field visits. It develops themes introduced in second
year geography, providing a set of conceptual and analytical tools for examining
the social, economic and environmental sustainability of ways in which we manage
urban and rural regions. The first part of the unit focuses on themes in urban
sustainability, including topics such as utopian visions for cities, urban history,
ecological footprint analysis, bioregionalism, transport options, urban form and
urban policy with reference to sustainable futures. The second part of the unit
examines debates on social and economic sustainability in the Australian context, including topics such as the ‘triple bottom line’, social capital, the impacts of de-industrialisation, ‘new economies’ of the service sector, Indigenous rights, and the economic and social impacts of large resource developments.

GEOG3522 GLOBALISATION AND REGIONS IN TRANSITION (6cp)
Dr Kurt Iveson
The aim of this Unit of Study is to examine theoretical debates and empirical evidence relating to spatial differences in the modern world. Issues to be considered include the role of globalisation as both an agent of change and a point of challenge; contestation over the future of the nation state, and the roles of geographical scale as an organising vehicle for social and economic processes. The unit will emphasize how these issues are being manifested both in Australia (with particular reference to Sydney) and in the Asia-Pacific. Practical classes will focus on the development of research consultancy skills, and will involve students preparing material for in-class presentations.

Geology/Geophysics

GEOL 1001 EARTH & ITS ENVIRONMENT (6cp)
Professor Peter J. Davies (coordinator)
The aim of this Unit of Study is to provide students with an understanding of how the Earth works, its origin, plate tectonics, surface processes, evolution of life and geologic time. The crises in resources and fossil fuel and implications for our economy will be discussed and an assessment made of our own impact on the Earth together with the role of geologists in protecting and monitoring the environment. Students will learn techniques and types of observations used to decipher the history and evolution of the Earth, and dating sediments and rocks. Laboratory classes and a one day field trip in the Sydney region will involve exercises in observing and describing Earth materials and in interpreting Earth history from geological information, including fossils and maps.

GEOL 1002 EARTH PROCESSES & RESOURCES (6cp)
Dr Geoff Clarke and Dr Tom Hubble
This unit will examine the chemical and physical processes involved in forming the Earth, ranging from those involved in mineral formation to those controlling the nature of the Earth’s interior, volcanoes and metamorphism. Lectures and laboratory sessions on mountain building processes and the formation of ore deposits will lead to an understanding of the forces driving our planet. Processes such as weathering, erosion and nature of sedimentary environments are related to the origin of the Australian landscape. In addition to laboratory classes there is a one-day field excursion to the Lithgow area.

GEOL1902 EARTH PROCESSES and RESOURCES (Advanced) (6cp)
Dr Geoff Clarke and Dr Tom Hubble
This unit has the same objectives as GEOL1002 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 or semester 1. This unit of study may be taken as part of the BSc(Advanced). NB: Departmental permission is required for enrolment; a UAI above 93 or a distinction in GEOL1001 is normally required for admission. This requirement may be varied and students should consult with the unit of study coordinator.

GEOL1501 ENGINEERING GEOLOGY (6cp)
Dr Tom Hubble (coordinator)
The aim of this Unit of Study is to provide Engineering students with an
understanding of how the Earth works, its origin, plate tectonics, surface processes, evolution of life and geologic time. The crises in resources and fossil fuel and implications for our economy will be discussed and an assessment made of our own impact on the Earth together with the role of geologists in protecting and monitoring the environment. Students will learn techniques and types of observations used to decipher the history and evolution of the Earth, and dating sediments and rocks.

GEOL2111 VOLCANIC HAZARDS AND SOLUTIONS (6cp)
Dr Derek Wyman (coordinator)
This unit expands upon the concepts introduced during the junior Units of Study in Geology and uses a problem solving approach to investigate geological processes and materials that are important in Asia, Australia, and the South-West Pacific. The main topic covered in the unit is the strategies used to identify, predict and mitigate the primary and secondary hazards associated with volcanism. The unit of study has an emphasis on developing a thorough knowledge of the analytical techniques and methods applied to evaluating the hazards associated with these phenomena as well as providing students with the fundamental geochemical and geological knowledge required to interpret the data collected during these investigations. The unit includes a two- to three-day field trip to study volcanic rocks in NSW.

GEOL2911 VOLCANIC HAZARDS and SOLUTIONS (Advanced) (6cp)
Dr Derek Wyman (coordinator)
This unit has the same objectives as GEOL2111 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced)

GEOL2112 ENVIRONMENTAL GEOLOGY AND CLIMATE CHANGE (6cp)
Dr Michael Hughes and Prof Peter Davies
The Earth sciences provide an essential framework for understanding environmental changes that arise from short-term and long-term geological processes. This Unit of Study introduces students to a range of geological phenomena that can impact detrimentally on society and the environment. As the welfare of much of the world’s population is sensitive to climate change, a component of the course will include an examination of global climate change over a variety of timescales ranging from millions of years to tens of years. The record of recent climate change and projections of future climate change will be reviewed in the context of their natural and human causes.

MARS2005 INTRODUCTION TO GLOBAL OCEANS (6cp)
This course is split into two sections: physical and geological oceanography. Major physical oceanography topics include the physical and chemical properties of ocean water, ocean circulation, waves and tides. Major geological oceanography topics include the origins and geological history of ocean basins, ocean volcanism, sediments and continental margins. Both the regional oceanography and continental shelf of Australia are emphasised. Although this is principally a lecture-based course, you will receive feedback on your understanding of the course content through regular assignments and six tutorials. The learning outcome you should expect at the end of the course is a broad knowledge of the fundamental concepts in physical and geological oceanography, and their particular relevance to the Australasian region. This provides the necessary background for senior-level Marine Science courses in which you will learn more advanced concepts, and also become involved in the practical and field-based aspects of marine science.
MARS2905 INTRODUCTION TO GLOBAL OCEANS (Advanced) (6cp)
Dr Michael Hughes, Dr Julie Dickinson
This unit of study is the Advanced version of the unit listed above and is available to meritorious students. To be eligible, students must attain a Distinction average (75+) in their performance in the First Year units (this is averaged over all units - you do not need a Distinction in all units).

GEOL 2123 GEOLOGICAL METHODS (6cp)
A/Prof Gavin Birch
This unit of study further develops the ability of students to perform geological investigations and expands their knowledge of the range of techniques available to collect and interpret geological and geophysical data. Students will enhance their understanding of some common geological environments and the basic physical, chemical and biological processes that form sedimentary rocks, metamorphic rocks, and natural resources. This knowledge and understanding will then be applied to developing three-dimensional geological models of particular sites and solving geological problems in the field and laboratory. The unit will include a five-day excursion to the Canberra area.

GEOL 2923 GEOLOGICAL METHODS (Advanced) (6cp)
A/Prof Gavin Birch
This unit has the same objectives as GEOL2123 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced).

GEOL 2124 FOSSILS AND TIME (6cp)
Associate Professor Dietmar Mueller, Dr Julie Dickinson
This palaeontology and stratigraphy Unit of Study is aimed at geoscientists, archaeologists, biologists, marine and environmental scientists who use fossils or stratigraphic data to determine ages, environments or evolutionary lineages. It provides an overview of fossil biodiversity, concentrating on invertebrate animals but also covering vertebrates, plants and microorganisms, with an emphasis on those groups that are most environmentally or stratigraphically useful. It also considers the main methods of stratigraphic correlation and age determinations, concentrating on litho- and bio-stratigraphy but also covering the more modern techniques of chemo-, magneto- and sequence-stratigraphy as well as radiometric age dating.

GEOS3003 STRUCTURAL GEOLOGY: THE DYNAMIC CRUST (6cp)
Dr Patrice Rey
The Earth's crust hosts mineral and energy resources that have sustained our civilisation over the past five thousand years. These resources are the by-products of dynamic and thermal processes that have affected the continental lithosphere since its formation in the Archaean. This unit focuses on understanding the thermal and mechanical aspects of lithospheric deformation. The main headlines of this module include: Heat transfer in the lithosphere; Isostasy and vertical motion of the earth's surface; Plate boundaries, body forces and the dynamic of the Earth's lithosphere; Rheology of the lithosphere; Continental break-up and the formation of continental margins; Thermo-mechanics of sedimentary basins; Thermo-mechanics of orogenesis; Thermal consequences and tectonic feedback of geodynamic processes. Practical classes are designed to enhance computational and communication skills as well as building a profound knowledge in Tectonics. Practicals focus on designing a number of electronic reports on specific topics. These reports will be posted on the Internet to be available to all students. Each report will be the
subject of an oral presentation based on PowerPoint.

GEOS3005 REGOLITH SEDIMENT GEOCHEMISTRY (6cp)
A/Prof Gavin Birch
This is a problem-based course where we follow contaminants from their primary sources through aquatic pathways and assess their effects on the adjacent receiving basin. Theoretical and conceptual information gained in lectures will be used to trace contaminants in the field and determine major processes controlling chemical behaviour. The course is underpinned by a GIS data analysis of relevant physical attributes of Port Jackson and its sub-catchments, which determine contaminant distributions. Remediation strategies will be considered. The course also examines the widespread development of deeply weathered Regolith terranes in Australia. Weathering processes and Regolith components will be examined in the context of long-term climate variation. Links between bedrock weathering and groundwater salinity will be evaluated along with resource management strategies.

GEOS3007 REMOTE SENSING: IMAGING THE EARTH (6cp)
Dr Geoff Clarke
This Unit of Study provides a comprehensive introduction to the computational manipulation and application of imaging techniques commonly used in the Earth Sciences, from the microscopic to macroscopic level. It includes an introduction to image analysis using mineral textures in common igneous and metamorphic rocks, and how this analysis can be used to understand the processes controlling their textural development. The application and interpretation of remote sensing techniques will also be covered in computer-based practical exercises that use a mixture of Landsat thematic mapper, airborne radiometric and magnetic databases. The application of processed images in mineral exploration and tectonic analysis will be covered through integrated lectures and laboratory exercises.

GEOS3907 REMOTE SENSING: IMAGING THE EARTH (Advanced) (6cp)
Dr Geoff Clarke
This unit has the same objectives as GEOL3007 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced)

MARS3005 MARINE GEOPHYSICAL DATA ANALYSIS (6cp)
A/Prof Dietmar Müller and Dr Michael Hughes
Exploring the sediments/rocks that make up the deep ocean floor and the continental shelves requires the use of remote sensing techniques, and the analysis of geophysical data. This unit teaches analytical and interpretive skills in both these areas, with a focus on: basic signal properties, convolution and correlation, numerical transforms, time series (harmonic and spectral) analysis, filtering, and image analysis. It covers a variety of data types including wave and current data, multibeam seafloor data, gravity, magnetic and heatflow data, seismic reflection data, video imagery, and satellite altimetry. All practical exercises are carried out in an integrated LINUX/Matlab computer environment. The unit is relevant to students interested in marine geophysics and geology, offshore engineering, as well as geological or physical oceanography.

MARS3006 DYNAMICS OF OCEAN BASINS AND MARGINS (6cp)
A/Prof Dietmar Müller
This module explores the processes that have shaped the abyssal plains, deep sea trenches, continental shelves and slopes of the ocean basins. Plate tectonic processes in the ocean basins and margins control the production of magma and the destruction of crust, which collectively lead to changes in
sea level, geochemistry and sedimentation, and drive the formation of basins and mountain belts with associated natural resources. This class introduces the basics of geodynamics as well as research sensing at sea. The physical mechanisms forming different types of basins are examined and their relevance for petroleum resources is explored, based on thermal and mechanical models for the evolution of sedimentary basins and continental shelves. All practical exercises are carried out in a Linux/Matlab computer environment, and require previous knowledge of Matlab and data analysis techniques based on Fourier transforms as covered in MARS3005. The class is relevant to all students interested in using computational methods to learn how the Earth works.

GEOS3004 GEOPHYSICS, IMAGING, OIL/ORE PRODUCTION (6cp)
Professor Iain Mason
This unit examines the use of computerised geophysical techniques to map high value sites. Sites of interest range from oil fields through mine sites to archaeological digs. Data sources include microgravity surveying, magnetism and aero-magnetism; radiometry, short-and long-range surveillance and tracking. The course is designed around the reality that while people, as much as data acquisition and reduction technology have influenced modern geophysics, recently, major strides have been made in digital data acquisition and reduction. Lectures deal with the creation, inversion and application of 2D and 3D potential and wave fields. Lab classes extend skills in computer aided image processing.

GEOS3904 GEOPHYSICS, IMAGING, OIL/ORE PRODUCTION (Advanced) (6cp)
Professor Iain Mason
This unit has the same objectives as GEOL3004 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced)

GEOS3006 MINERAL DEPOSITS AND SPATIAL DATA ANALYSIS (6cp)
Dr Derek Wyman
Mineral deposits will be examined in terms of their spatial distribution and related exploration strategies, their links to igneous rocks and hydrothermal fluids, and the impact of ore-forming processes on mines and mining techniques. Representative ore deposits from New South Wales, Australia and overseas will be included as case studies for a wide array of mineralisation types and ores including base metals, precious metals, high-tech commodities and gemstones. An integrated approach will relate tectonic processes through to time to the formation of mineral provinces, and the economic and environmental viability of ore extraction and processing. Practical components of the course will introduce specimens of ore deposits and associated rocks and the spatial analysis of geological data at the Global to district scale. In addition to laboratory classes there will be a four-day field excursion. The excursion will include visits to active and historic mining and ore-processing sites in NSW.

GEOS3906 MINERAL DEPOSITS and SPATIAL DATA ANALYSIS (Advanced) (6cp)
Dr Derek Wyman
This unit has the same objectives as GEOL3006 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to
meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced)

GEOS3008 FIELD GEOLOGY AND GEOPHYSICS (6cp)
Dr Patrice Rey, A/Prof Dietmar Müller
This unit is considered an essential component all Geology and Geophysics majors. All students will undertake a range of exercises, but concentrate on aspects that emphasise their chosen major: (1) field mapping and the analysis of geological objects in the field, in weakly to complexly deformed sedimentary and volcanic sequences; (2) field investigations of mineral deposits and their relationships to host rocks; and (3) the practical application of magnetic and electrical methods commonly employed in the search for mineral deposits. The field course complements other subject areas in Geology and Geophysics and will give students experience in the field identification of rocks and minerals, regional geology, stratigraphy, structure and rock relationships. Students will be required to pay the cost of hostel-style accommodation during field work, which may involve camping.

GEOS3908 FIELD GEOLOGY AND GEOPHYSICS (Advanced) (6cp)
Dr Patrice Rey, A/Prof Dietmar Müller
This unit has the same objectives as GEOL3008 and is suitable for students who wish to pursue aspects of the subject in greater depth. Entry is restricted and selection is made from the applicants on the basis of their performance to date. Students that elect to take this unit will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. Specific details for this unit of study will be announced in meetings with students in week 1 of semester 1. This unit of study may be taken as part of the BSc(Advanced)

MARS3105 COASTAL OCEANOGRAPHY AND SEDIMENT DYNAMICS (6cp)
Dr Michael Hughes
The scope of this Unit of Study is intended to have wide appeal: encompassing students with interests ranging from Earth systems modelling through to managing marine environments. You will learn about the fundamental principles that govern fluid and sediment movement in coastal waters, develop computational analysis and modelling skills that enable you to solve practical problems, and explore the wider application of this knowledge and skills base to environmental issues in the Australasian region.

The lecture program addresses a range of physical processes relating to waves, tides, nearshore currents, and their combined influence on coastal sediment transport. The practical program provides hands-on experience with coastal oceanographic data collection, and the use of a wide range of computational analysis and modelling techniques. The practical exercises use real data sets collected during recent research programs, and address issues specific to Australia’s coastal seas.

MARS3106 PHYSICAL MARINE HABITAT (6cp)
Dr Julie Dickinson

The aim of this Unit of Study is to provide the student with skills to analyse sea floor environments and their respective physical, chemical and biological processes. A variety of geological, geochemical, oceanographic and biological data will be used to interpret the sea floor, particularly in the Australian Exclusive Economic Zone. The Regional Marine Plans being set up under Australia’s Oceans Policy will receive particular attention. Marine survey data sets and computer simulation, including 3-D VisLab facilities, will be used to interpret the sea floor. Students will develop skills to analyse remote sensing images (sonar, swath-mapping) of the sea floor and seismic reflection profiles of the sub-sea floor. The practical content of the course will develop student’s skills in field experimentation and sampling, and the interpretation of physical processes from the study of sedimentary textures and structures. Samples from
the shelf, slope and deep-sea will enable examination of the role of plants and animals in modifying sediment texture and composition. Ocean Drilling Program data will be used to show how and why sedimentary environments have changed through time, particularly the past 100 million years. In seminars students will develop communication and presentation skills by critical analysis of current controversies in marine science and proposals to resolve them. There will be a oneday weekend field trip on Sydney Harbour.

MARS3008 ENERGY: SCIENCE, ENGINEERING AND ECONOMICS (6cp)
Prof. Peter Davies and A/Prof Gavin Birch
This unit is aimed at geoscientists, biologists, environmental and marine scientists who are interested in the energy resources, particularly in the context of the evolution of coral reefs and how they have been affected by changing short and long-term environmental conditions. The interdisciplinary unit provides an introduction to offshore energy and coral reefs and explores this complex system in relation to geology, biology and ecology as well as the oceanographic setting. The unit acquaints students with tools currently being used in the industry and is underpinned by modern concepts of basin architecture and sequence stratigraphy. Exploration techniques include the principals of electrical logging, source rock evaluation and reservoir quality assessment. The controlling influence of basin architecture is examined in terms of critical factors such as hydrocarbon source, migration and entrapment, whereas the modern concepts of sequence stratigraphy and seismic stratigraphy are used to demonstrate climatic and tectonic control. Students will also become familiar with the factors and processors that control the structure, morphology, sediments and distribution of coral reefs and how they function as part of larger ecosystems. The unit is based on problem solving by groups and underpinned by closely integrating geology, geophysics, marine science and economics. The theoretical base developed in course work will be used to solve a real-world exploration case study, using petroleum industry techniques and by simulating an economic competitive environment. The unit will include a 5 day field trip to the Great Barrier Reef. Students are required to meet associated travel and accommodation costs.

Fieldwork searching for biological marine samples
Grants

Research Grants

Birch, G., Determining the Toxicity of Sedimentary Organic Contaminants in the Marine Environment and its implications for Australia, ARC Discovery Grants, $87,219

Birch, G., Modelling contaminant dynamics in a well-mixed/stratified estuary, ARC Discovery Grants, $61,510

Birch, G., An innovative strategy for stormwater remediation and reduction of contaminant supply from catchments, Industry ARC Linkage Projects, $25,000

Dutkiewicz, A., Biosphere, hydrocarbon and ore fluid interactions in the Early Precambrian, ARC Linkage Projects, $65,712

Bruce E., Fletcher R., Johnson I., Living with Heritage: Integrating time, place and culture for World Heritage conservation, ARC Linkage Project/shared grant $75,000

Clarke, G.L., High-P partial melting and melt escape from the lower crust: the evolution of a Cretaceous island Arc, Fiordland, NZ, ARC Discovery Grants, $162,266

Davies, P., 3 year top up PhD scholarship with CSIRO, ARC Discovery Grants, $7,000

Dutkiewicz, A., George, S.C., Volk, H.H., Biosphere, hydrocarbon and ore fluid interactions in the early Precambrian, ARC Discovery Grants, $150,000.

Gaïna, C., Tectonic versus biological processes: what controls the long-term global carbon, ARC Discovery Grants, $10,115

Müller, R.D., Integrating Global Multidimensional Datasets to Underpin Subduction Process Modelling During the Past 60 million years, ARC Discovery Grants, $105,431

Müller, R.D., Simulating the evolution of the Southern Ocean and Australia’s Palaeo-environment over 40 million years, ARC Discovery Grants, $62,692

Müller, R.D., The EarthByte software and database system, ARC SRI, $112,310

Müller, R.D., Artificial Intelligence and Signal and Image Processing, Industry ARC Linkage Projects, $45,445

Müller, R.D., Moresi, L.:Norton, I., Petromaka 163395/S30 - Frontier Science and exploration: The Atlantic – Arctic, ARC Linkage Grant, $24,855

Müller, R.D., Moresi, L.:Norton, I., Thermo-mechanical interactive atlas of basin evolution, ARC Linkage Projects, $119,725

Pritchard, B., Indian agriculture in the 21st century: The political economy of market reforms, ARC Discovery Grants $111,137

Penny, D., Aust Inst Nucl Sci&Eng (AINSE), $3,492

Penny, D., Fletcher, R., Barbetti M., Pottier, C., Urban infrastructure, inertia and ecology: the growth and decline of Angkor, Cambodia (9th to 16th Century AD), ARC Discovery Grants, $80,000
Rey, P., Brugger, J., Dunlap, W., McLaren, S., From Synchrotron Characterisation of Single Fluid Inclusions to Archaean Geodynamics: An Integrated Study of Fluid-Rock Interaction in the Primitive Crust, ARC Discovery Grants, $128,352

Rey, P., Brugger, J., P. Philippot, Dunlap, W., McLaren, S., From Synchrotron Characterisation of Single Fluid Inclusions to Archaean Geodynamics: An Integrated Study of Rock Interaction in the Primitive Crust, ARC Discovery Grants, $128,352


Short, A., Large scale climatic control of coastal erosion and shoreline changes based on long term survey dataset and video monitoring technology, ARC Linkage Projects /shared grants, $2,600

**Other Grants**

Baker, E., Creating a Society with Pluralistic Values, Toyota Foundation, $87,220

Baker, E., Feasibility study for the development of a facility for continental shelf delineation, United Nations Environment Program, $93,672

Dragovich, D., Effects of catchment land use on sediment movement and sediment sources, CSIRO, $7,000

Dutkiewicz, A., J G Russell Award, Australian Academy of Science, $4,000

Hirsch, P., Property Rights and land Titling Project, Land Equity International P/L, $25,000

Hirsch, P., Enhancing community based natural Resource Management research and networking capacity of the national Univeristy of Laos, York University, $77,984

Hirsch, P., Mekong Resource Centre, Rockefeller Foundation, $157,608


Hirsch, P., Mekong Learning Initiative Phase 2: Community Based Natural Resources Management in the Mekong River Basin, Oxfam America, $82,295

Hirsch, P., National Interests and Transboundary Water Governance: The Mekong River, Royal Danish, $202,871


Hirsch, P., River Basin Management: a negotiated approach, Both Ends, $5,326

Mason, I., Research on geophysical imaging, ARCO Benefaction, $445,688

Muller, D., Grid Technology for Geosciences, APAC, $51,000

Wyman, D., Mountain Building and Gold Deposits: A Comparison of Ancient and Modern Adakites from Kalgoorlie and Tibet, USYD International Development Grant, $9,900
**Consultancies/Contract Research**

Peter Cowell, Belongil Creek Entrance Erosion Protection Works, Byron Shire Council

Peter Cowell, Prediction of coastal hazard, Napier Council NZ

Andy Short, Database on beach management, Surf Life Saving Australia

Andy Short, Military METOC Course 2005, Directorate of Oceanography & Meteorology, RAN

Andy Short, Report on beach conditions at Wanda Beach, Sutherland Shire Council

Andy Short, Review of reports for Dubai Beach Safety Study, Kay Consulting

Andy Short, Series of lectures at Garden Island, Royal Australian Navy

**Books**


**Book Chapters**


Branagan, D., 2005, Thomas, Mary (1787-1875), *Australian dictionary of Biography*, ISBN:0522852150


Connell, J. and Brown, R., 2005, Migration, Remittances and the South Pacific: towards investment against vulnerability, *Remittances, Microfinance and*
Development: building the links, ISBN:0958672873


Refereed Journal Articles


Birch, G. F., Fazeli, M. S. and Matthai, C., Efficiency of an infiltration basin in removing contaminants from urban stormwater, Environmental Monitoring and Assessment, v. 101, p. 23-38
Branagan, D. F. and Moelle K.H.R., Newcastle Memories: Lessons mainly from the

Branagan, D., An early view of Permo-Carboniferous glaciation and its implications,
from Australia (1906), *Episodes*, v. 28, no. 3, p. 205-208

Branagan, D., Seeking Hidden Millions - Metallurgists and the Broken Hill Lode,
*Journal of Australasian Mining History*, v. 3, p. 1-16

Bush, S and Hirsch, P., Framing fishery decline, *Aquatic Resources, Culture and
development*, v. 1, no. 2 p. 79-90

Carden, Y.R. and Gale S.J., Assessing the impact of human activity on the
groundwater chemistry of a small, hydrologically-simple tropical island: Sweers
10, p. 97-107

Chapman, D., It’s hot in the city! *Geodate*, v. 18, no. 2 p. 1-8

Clarke, D.B., Dorais, M., Berbarin, B., Barker, D., Cesare, B., Clarke, G.L.,
Baghdadi, S.E., Förster, H-J., Gaeta, M., Gottesman, B., Jamieson, R.A., Kontak,
D.J., Koller, F., Gomes, C.L., London, D., Morgan, G.B., Neves, L., Pattison,
D.R.M., Pereira, J., Pichavant, M., Rapela, C.W., Renno, A.D., Richards, S.,
Roberts, M., Rottura, A., Saavedra, J., Sial, A.N., Tosselli, A.J., Ugidos, J.M.,
H.H., Occurrence and Origin of Andalusite in Peraluminous Felsic Igneous Rocks,
*Journal of Petrology*, v. 46, p. 441-472

Clarke, G. L., Daczko, N. R., Klepeis, K. A. and Rushmer, T., Roles for fluid and/or
melt advection in forming high-P mafic migmatites, *Fiordland, New Zealand
Journal of Metamorphic Geology*, v. 23, no. 7, p. 557-567

Connell, J., A nation in decline? Migration and emigration from the Cook Islands,

v. 36, no. 3, p. 315-332

Connell, J. and Waddell, E., That most remarkable of outside men: Harold
Brookfield’s intellectual legacy, *Asia Pacific Viewpoint*, v. 46, no. 2, p. 129-133

Cook, D. E. and Gale, S. J., The curious case of the date of introduction of leaded
fuel to Australia: Implications for the history of Southern Hemisphere atmospheric

Dyksterhuis, S., Albert, R. A. and Müller, R. D., Finite-element modelling of
contemporary and palaeo-intraplate stress using ABAQUS(TM), *Computers and
Geosciences*, v. 31, no. 3, p. 297-307

Dyksterhuis, S., Müller, R. D. and Albert, R. A., Paleostress field evolution of the
Australian continent since the Eocene, *Journal of Geophysical Research B: Solid

Emerson, D.W. and Branagan D.F., The Petrophysics of the Sydney Basin Triassic
Narrabeen Group - Preliminary results, *Preview: Australian Society of Exploration
Geophysicists*, no. 117, p. 23-25

Finn, C. A., Müller, R. D. and Panter, K. S., A Cenozoic diffuse alkaline
magmatic province (DAMP) in the Southwest Pacific without rift or plume origin,
*Geochemistry, Geophysics, Geosystems - G (super 3)*, v. 6, no. 1, p. Q02005,
doi:10.1029/2004GC000723
Fitzherbert, J. A., Clarke, G. L. and Powell, R., Preferential retrogression of high-P metasediments and the preservation of blueschist to eclogite facies metabasite during exhumation, Diahot terrane, NE New Caledonia, Lithos, v. 83, p. 67-96


Gale, S. J. and Haworth, R. J., Catchment-wide soil loss from pre-agricultural times to the present: Transport- and supply-limitation of erosion, Geomorphology, v. 68, p. 314-333


Harris, P. T., Heap, A., Passlow, V., Hughes, M., Daniell, J., Hemer, M., Anderson, O., Tidally incised valleys on tropical carbonate shelves; an example from the northern Great Barrier Reef, Australia, Marine Geology, v. 220, p. 181-204

Hatherly, P., Medhurst, T., Sliwa, R. and Turner, R., A rock mass assessment procedure based on quantitative geophysical log analysis of coal measure sequences, Exploration Geophysics (Melbourne), v. 36, no. 1, p. 112-117

Heine, C. and Müller R. D., Late Jurassic rifting along the Australian North West Shelf: Margin geometry and spreading ridge configuration, Australian Journal of Earth Sciences, v. 52, no. 1, p. 27-39


Kelly, N. M., Clarke, G. L. and Fanning, C. M., Archaean crust in the Rayner Complex of East Antarctica; Oygarden Group of islands, Kemp Land, Transactions of the Royal Society of Edinburgh: Earth Sciences, v. 95, no. 3-4, p. 491-510


Müller, R.D., Cande, S.C., Stock, J.M., Keller, W.R., Crustal structure and rift flank uplift of the Adare Trough, Antarctica, *Geochemistry, Geophysics, Geosystems - G (super 3)*, v. 6, no. 11, p. 1-16


O’Neil, C., Müller, R.D., Steinberger, B., On the Uncertainties in hot spot reconstructions and the significance of moving hot spot reference frames, *Geochemistry, Geophysics, Geosystems - G (super 3)*, v. 6, no. 4, p. 1-35


Penny, D., Cook, G., Sok, S. I., Long-term rates of sediment accumulation in the Tonle Sap, Cambodia: A threat to ecosystem health?, *Journal of Paleolimnology*, v. 33, no. 1, p. 95-103

Pritchard, B., Unpacking the neoliberal approach to regional policy: A close reading of John Freebairn’s ‘economic policy for rural and regional Australian’, *Geographical Research*, v. 43, no. 1, p. 103-112

Pritchard, B., Beyond the resource enclave: Regional development challenges in northern remote Australia, *Journal of Australian Political Economy*, v. 55, 1/06/2005, p. 77-93


Suh, J., Birch, G.F., Use of grain-size and elemental normalisation in the interpretation of trace metal concentrations in soils of the reclaimed area adjoining


Volk, H; George, SC; Dutkiewicz, A and Ridley, J Characterisation of fluid inclusion oil in a Mid-Proterozoic sandstone and dolerite, Roper Superbasin, Australia, *Chemical Geology, v. 223*, p. 109-135


**Refereed Conference Publications, Conference Papers, Conference Abstracts and/or Presentations**


Hatherly, P.; Zhou, B.; and Poole, G., 2005, Borehole controlled sismic depth
conversion for coal mine planning, Bowen Basin Symposium 2005 The Future For Coal – Fuel For Thought


Medhurst, T. and Hatherly, P., 2005, Geotechnical Strata Characterisation using Geophysical Borehole Logs, 24th International Conference on Ground Control in Mining


Neilson, J., 2005, Industry responses to research and extension in the Sulawesi Cocoa industry, Malaysian International Cocoa Conference 2005


Postgraduate Research

Geography

PhD Theses completed 2005

Simon Bush (PhD) A political ecology of living aquatic resources in Lao PDR (A/Prof Phil Hirsch)

Aaron Coutts-Smith (PhD) The significance of mega-rips along an embayed coast (Professor Andy Short)

Minh Quan Hua (PhD) Radiocarbon and the carbon cycle during the last 15,000 years (A/Prof Deirdre Dragovich/ Dr Mike Barbetti/ Dr David Chapman)

Anucha Leksakundilok (PhD) Community participation in eco-tourism in Thailand (A/Prof Phil Hirsch)

Tran Dong Phuong (PhD) Port development and environmental decision making (Professor Andy Short/ Dr David Chapman)

Krishna Shrestha (PhD) Collective action and equity in Nepalese community forestry (Dr Phil McManus)

Nicola Williams (PhD) The environmental reconstruction of the last glacial cycle at Redhead Lagoon in coastal, eastern Australia (Dr Stephen Gale)

Timothy Wong (MSc) Environmentalism, ideology and stereotypes: a community ethnography in a Thai national park (A/Prof Phil Hirsch)

Yusheng Zhang (MSc) Political ecology of mining in China: Lanping Mine as a case study (A/Prof Phil Hirsch)

Students enrolled in 2005 (who have been awarded degree in 2006)

Duncan Cook (PhD) A 2000 year record of environmental change from Tocal Homestead Lagoon, eastern Australia (Dr Stephen Gale)

Tira Foran (PhD) Rivers of contention: Pak Mun Dam, electricity planning, and state-society relations in Thailand, 1932-2005 (A/Prof Phil Hirsch)

Riko Hashimoto (PhD) Morphostratigraphy and evolution of estuarine-deltaic lowlands on embayed wave-dominated coasts: Holocene examples from southeastern Australia (Professor Andy Short)

Cameron McAuliffe (PhD) Multicultural futures: the negotiation of identity amongst second generation Iranians of Muslim and Baha’i background in Sydney, London and Vancouver (Professor John Connell)

Elizabeth Moylan (PhD) Influence of the temporal component in landscape history studies (Dr Peter Cowell)

Kaviphone Phouthavongs (MSc) Employing GIS in fisheries management in the Mekong River Basin: a case study of Lao PDR (A/Prof Phil Hirsch/ Dr Eleanor Bruce)

Tanya Schindler (MSc) Cyclogenesis in the Coral and Tasman Seas (Professor Andy Short)
Students enrolled in 2005 (research continuing)

Paula Brown (PhD) Fisheries co-management in Vietnam (A/Prof Phil Hirsch)

Joanna Burston (PhD) Coastal inundation hazard along the New South Wales coast (Dr Michael Hughes/ Professor Andy Short)

Rowena Butland (PhD) Perceptions of place in the management of heritage space (Dr Eleanor Bruce)

Michelle Dominis (PhD) Sensitivity of landscapes to the development of dryland salinity (A/Prof Deirdre Dragovich)

Alison Gates (PhD) Acclimatisation as environmentalism: the idea and practice of plant introductions in southeastern Australia before 1900 (Dr Phil McManus)

Josephine Gillespie (PhD) World heritage obligations and local communities: land law and justice at Angkor, Cambodia (Dr Eleanor Bruce)

Phil Holmes (PhD) Economic and environmental viability of pastoralism in Australian arid rangelands (A/Prof Deirdre Dragovich)

Georgina Houghton (PhD) Community participation in forestry in Vietnam (A/Prof Phil Hirsch)

George Kaminsky (PhD) Shoreface sedimentation patterns along a high-energy active margin coast (Dr Peter Cowell)

Max Kwiatkowski (PhD) Nostalgic landscapes, identity and photography among Sydney’s Polish community (Professor John Connell)

Leah Lui-Chivizhe (MSc) Movement on the margin: identity construction and Torres Strait Islanders in Sydney (Professor John Connell)

Jessica McLean (PhD) Indigenous water values in the Ord: a political ecology analysis (Dr Bill Pritchard)

Daniel Montoya (PhD) Water management in the Murrumbidgee: community-government relations (Dr Phil McManus)

Young Ng (PhD) Geoparks and geotourism: management approaches to geological heritage in China (Dr Phil McManus)

Thanh Phuong Nguyen (PhD) Shoreline change in the Red River mouth, Vietnam, using remote sensing and GIS (Professor Andy Short/ Dr David Chapman)

Viliam Phraxayavong (PhD) Changing geopolitics of aid to Laos (A/Prof Phil Hirsch)

Kevin Prakoonheang (PhD) Skilled return migration and development in Laos (Professor John Connell)

Hugh Smith (PhD) Sediment dynamics and water yield of Flyers Creek catchment, eastern Australia (A/Prof Deirdre Dragovich)

Darren St-Georges (MSc) Organic foods in Sydney (Dr Bill Pritchard)

Sushma Raj (MSc) Employment networks of Fijian Indians in Sydney (Professor John Connell)

Annie Sutton (PhD) The Fijian Indian community in Sydney (Professor John Connell)
Ann Turner (PhD) The evolution of institutional arrangements in railway administration, NSW and Queensland (Dr Bill Pritchard)

Geology

PhD Theses completed 2005

Brown, Belinda (PhD) The early tectonic evolution of the central and southeast Indian Ocean

Deen, Tara (PhD)

Rowling, Jill (MSc) Cave Aragonites of New South Wales

Sdrolias, Maria (PhD) Mechanisms behind back-arc basin formation

Simmat, Carina (PhD) Improving the resolution and information gain from geophysical data

PhD Theses submitted 2005 a/o Accepted 2006

Dyksterhuis, Scott (PhD) Finite Element Modelling of Lithospheric Stress and Deformation

Schroeter, Florian (PhD) Mineral Trace Element Distribution in Amphibolite to Granulite Mafic Rocks

Golding, Chris (PhD) Estuarine health indicator based on macrobentic sensitivity ranking

Students enrolled in 2005 (who have been awarded degree in 2006)

Halpin, Jacqueline (PhD) The metamorphic evolution of Kemp and MacRobertson Lands (Rayner Complex), east Antarctica

Heine, Christian (PhD) The formation and evolution of accretionary crust

Weir, Felicia (PhD) Berm building processes on high-energy beaches

Thebaud, Nicolas (PhD)

Students enrolled in 2005 (research continuing)

Apostolatos, Carmen (MSc)

Austen, Felicity (PhD) Biogeochemical Processes & Stormwater Remediation

Bridge, Thomas (MSc)

Clarke, Stuart (PhD) Mantle convection and the effect of dynamic topography on the crust

Daniel, James (PhD) Sediment Dynamics on a Tide-Dominated Inner Shelf, Torres Strait

Davis, Brett (PhD) Contaminant Sources in Urban Catchments

Dicaprio, Lydia (PhD) The dynamic history of the Australian Region since the Mesozoic
Duclaux, Guillame (PhD) Characterization of energy and mass transports in the continental lithosphere at the Archaean-Proterozoic transition: Insights from Terre AdÉlie (East Antarctica) and Gawler Craton (South Australia)

DePaoli, Matthew (PhD) High-Pressure Granulite To Eclogite Facies Metamorphism: Mechanisms Of Formation And Tectonometamorphic Implications, Fiordland, New Zealand

Frank Fu (PhD) Application of U-Pb-He thermochronology to the reconstruction of thermal and exhumation histories of ore districts

Hunt, James (MSc) Investigation of volatile organic hydrocarbon biotoxicity

Lee, Sareena (MSc) Modelling contaminant transport in the Port Jackson Estuary

Olmos, Marcos (MSc) Heavy Metal Contamination in NSW Estuaries

Rochford, Louisa Margaret (MSc) Stormwater Inputs of Trace Elements to Port Jackson

Thornborough, Kate (PhD) Effects of Climate Change on Reef growth & Development of the southern GBR

Whittaker, Joanne (PhD) Reconstruction of plate movements in and around the Indian Ocean

Geology student, Ingrid, kitted out for underground
Honours Research

Geography

The Honours program in Geography is an additional one-year period of study taken following the completion of an undergraduate degree. The purpose of the program is to pursue in depth research on a specific topic—providing skills for those wanting an academic career, to advance potential employment opportunities, or simply to allow students to further explore the intricacies of a topic about which they are enthusiastic. In 2005 12 students successfully completed Geography Honours degrees in the Faculties of Science (B.Sc., B.Sc. (Marine Science) and B.Sc. (Environmental Science)), Arts (B.A. and B.Lib.Stud.) and Economics and a number of these have continued on to pursue postgraduate studies. Other students have obtained employment in a variety of exciting fields, doing important work for government agencies, private companies and for Non-Government Organizations.

Geography Honours theses completed in 2005

Burfitt, Bronwen: Professional women, inner city living and declining fertility: Should women be having more sex in the city? (Dr Bill Pritchard).

Daley, Marc: Effects of rock truncation on shoreface profile geometry (Dr Peter Cowell).

Egan, Matthew: Desalination of Sydney sandstone: A case study into treatment of weathered sandstone blocks of the Sydney Hospital and the Australian Museum (A/Prof Dragovich).

Fortune, Rob: Beach Curvature: A valve for alongshore sand transport (Dr Peter Cowell).


Glover, Jasmine: Ethical or invisible trade? The effects of ethical trade initiatives on the garment manufacturing industry in Sydney (Dr Bill Pritchard).

Godwin, Michelle: Mystified success? An investigation of community economic development in Dorset, Tasmania (Dr Bill Pritchard).

Honour, Natalie: A geographical analysis of applied memetics (Dr Kurt Iveson).

Howard, Edwina: Competing perspectives in planning: Urban consolidation in Ku-ring-gai (Dr Kurt Iveson).

Sutton, Nicholas: Surfability at Narrabeen Beach (Prof Andy Short).

Toohey, Josh: Constructions of community and place: New masterplanned estates on Sydney’s urban fringe (Dr Kurt Iveson).

Williams, Evan: Public participation and the metropolitan strategy for Sydney (Dr Kurt Iveson).
Geology & Geophysics

Geology & Geophysics Honours is a fourth year program that introduces students to the process of research. In 2005 a total of eight students completed their honours degree by research thesis supervised by staff in the discipline of Geology & Geophysics. The students were enrolled in the following degree programs: B.Sc., B.Sc. (Marine Science) and B.Sc. (Environmental Science). Several of these students have successfully found employment in the mineral, geophysical exploration or petroleum industries and one was selected for the graduate program at Geoscience Australia.

Geology & Geophysics Honours theses completed in 2005

de Paoli, Matt The mechanism of corona formation under high-P granulite to high-P amphibolite conditions, Western Fiordland (A/Prof. Geoff Clarke)

Hutson, Phillip The use of sediment risk and ecological/conservation value assessments to provide more effective and strategic management of estuarine environments: Port Jackson (Australia ) a case study (A/Prof. Gavin Birch)

List, Adam Remote sensing of the Olary Block (A/Prof. Geoff Clarke)

Moseley, Adrienne Wave-swash interactions and saturation in the swash zone (Dr. Michael Hughes)

Saliba, Lucy The Cretaceous tectonometamorphic evolution of the Arthur River complex and relation to Palaeozoic wall rock, Northwestern Fiordland, New Zealand (A/Prof. Geoff Clarke)

Sato, Takeshi An investigation into the effect of stress fields and fractures on seismic wave propagation as detected by a Vertical Seismic Profiling survey (Prof. Peter Hatherly)

Thornborough, Kate Biological Reef Growth at One Tree Reef (Great Barrier Reef), and Taiping-dao (South China Sea) (Prof. Peter Davies)

Towel, Rachel Reef destruction: An evolutionary phase in coral reef growth at One Tree Reef Great Barrier Reef and Taiping-dao Spratly Islands South China Sea (Prof. Peter Davies)
School Units

AMRC

The Australian Mekong Resource Centre is a University Centre based at the School of Geosciences and is engaged in outreach-oriented research on environmental, natural resource management and social issues associated with development in the Mekong Region. AMRC works with NGOs, government and a range of research partners in Australia and the countries of the Mekong Region. AMRC receives core support from the Rockefeller Brothers Foundation and project support from a wide range of sources. AMRC has ongoing work on fisheries, forestry and other resource and environment issues, but recent work has been increasingly focused on water in an international development context, for example:

- AMRC is running a three year Discovery Project funded by the Australian Research Council on risk construction and distribution associated with water resource infrastructure in the Mekong Basin
- AMRC is conducting a research project for the Australian Water Research Facility on Water Governance in Context: Issues for Development Assistance
- AMRC Director Associate Professor Philip Hirsch is a lead writer on the International Water Management Institute's river basin management chapter for its global Comprehensive Assessment on freshwater.
- AMRC is conducting a study of water governance in the Mekong Basin and the role of the Mekong River Commission

In addition, AMRC is involved in a range of projects and other activities, for example:

- AMRC coordinates the Mekong Learning Initiative, a curriculum sharing and collaborative research program on natural resource management involving nine universities in five countries of the Mekong Region (supported by Oxfam America and the Open Society Institute). In 2004, ran two regional workshops under this program.
- AMRC is the Australian Partner organisation for a number of Youth Ambassador placements in the Mekong Region
- AMRC serves as a base for a range of postgraduate and Honours thesis projects
- AMRC also helps run the Southeast Asia Field School, which in January 2006 took 22 geography students to Vietnam, Laos and Thailand for five weeks.

The Administrator is Dr Doug Bailey. Further information on AMRC can be found at:

Marine Science

There were a number of developments in the teaching of Marine Science at Sydney during 2005. All units were standardized to a 6 credit point size, during 2004 and the Intermediate units “came on-line” during 2005, meaning all units are now worth 6 credit points. This required some change in content, particularly since the loss of the Marine Techniques unit meant the incorporation of this content within the remaining 3 Intermediate units, and the inclusion of tutorials into the teaching where previously only lectures were given. The tutorials have been approvingly accepted by the students. The inception of Advanced units also required some changes to the teaching. Student numbers were similar to 2004 across the board but there was a significant decrease in non-Science students taking Intermediate MARS units due to the fact that the Faculty of Arts had withdrawn Marine Science as a Science subject that their students could take. Measures have been taken
to redress this issue with the Faculty of Arts and it is hoped that 2006 will see a reversal of this policy.

In the postgraduate coursework program, Applied Science (Coastal Management), student numbers enrolling specifically in this program remain low (~8), although numbers in the individual units (~15) are reasonable due to intake from other programs such as Environmental Science.

**USIMS**

2005 has been a successful year for USIMS, both in terms of several prestigious awards to USIMS staff members as well as publications, funded research grants and publicity. Both Drs. Stefan Williams (School of Aerospace, Mechanical & Mechatronic Engineering) and Tracy Rogers (Australian Marine Mammal Research Centre) have been awarded NSW Young Tall Poppy Awards in October 2005. The Young Tall Poppy Awards, inaugurated in 1999, are part of the Tall Poppy Campaign of the Australian Institute of Political Science. The Awards, which aim to recognise the achievements of Australia’s outstanding young researchers, are made on a state-by-state basis. Dr. Adriana Dutkiewicz, (QEII Fellow, School of Geosciences) received the CSIRO Medal for Scientific Achievement in a ceremony held in Canberra in October 2005. Adriana contributed to the team’s success during her employment at CSIRO between 1996 and 2000 and her current QEII fellowship is a collaborative project with CSIRO. See pages 5 and 7 for more details on awards and prizes. USIMS staff published over 70 papers and book chapters in 2005, and was successful in obtaining grants for 13 projects. Highlights include Prof. Tony Underwood’s success in securing a professorial fellowship for a project entitled “Connecting ecological processes controlling variation across spatial scales”. Dietmar Müller initiated an e-research project entitled EarthByte, aimed at connecting observations to dynamic earth models. EarthByte represents an international e-research effort including 15 centres for e-research, marine research and geodynamics www.geosci.usyd.edu.au/research/earthbyte. USIMS achieved prolific media coverage in 2005, including the Aceh Tsunami and offshore sand mining. The University of the Sea (UOS), coordinated by Dr. Elaine Baker through its USIMS-based Secretariat, has raised over $70,000 in funding in 2005. One Tree Island Research Station has had a busy year with the launch of its new research vessel Linckia II, opening new avenues for research and teaching. The Ocean Technology Group hosted the first Australian Chinese Ocean Science & Technology Meeting last month. The meeting allowed 30 engineers & scientists to develop links for collaboration.

**CRC Mining Geophysical Imaging Group**

The aim of the Cooperative Research Centre for Mining is to significantly enhance mining industry performance in terms of economics, safety and environmental impact. This is to be achieved by working on:

- reducing short-range geological uncertainty,
- advanced monitoring and control of machines,
- characterising and controlling the overall mine production system, and
- introducing radically new mining methods.

The Geophysical Imaging Group at the University of Sydney undertakes research for the CRC’s Geological Sensing Work Area. For the past year, work has focused on development of seismic, wireline logging, borehole radar and interactive visualisation and interpretation tools.
Field work continues to be undertaken in mines in Australia, South Africa and Canada. There is close collaboration with the mining industry professionals in those countries. The Australian Coal Association Research Program also supports our activities with grants in borehole log analysis and seismic inversion. Close collaboration continues with the University of Stellenbosch in South Africa with reciprocal visits being made by postgraduate students and research fellows from both groups.

In 2005 the group was made up of the following staff and students from the School of Geosciences.

- Prof Peter Hatherly,
- Prof Iain Mason,
- Dr Jonathan Hargreaves,
- Dr Carina Simmat,
- Mr Tim Sindle,
- Mr Phillip Manning,
- Ms Margarita Pavlova,
- Mr Takeshi Sato.

In addition, for many of our projects we worked closely with Dr Binzhong Zhou of CSIRO Exploration and Mining, Brisbane.

**Environmental Science**

Environmental Science is a teaching program for both undergraduate and postgraduate students that is run through the Faculty of Science but which draws upon the resources of other faculties within the university. Unfortunately, as part of moves within the university to streamline undergraduate degree options, a decision was taken in the upper echelons to scrap the specialist undergraduate degree in Environmental Science and offer instead a major in Environmental Studies that can be taken within the general BSc. This major combines the ENVI units with Geography units to provide a program that is compatible with all other Science majors, thus attempting to provide a mechanism to students allowing them to complete a double major (one in a Science discipline and one in ENVI) that is equivalent to the specialist program. The demise of the undergraduate degree was also due to a perception that the subject was unpopular, although given that the Senior level ENVI units had 40+ students this was clearly a misconception. However, be that as it may, the last intake into the undergraduate degree is to be 2006. Use of ENVI units in the major in Environmental Studies is also due to begin in 2006.

The School of Geosciences is a major contributor to the Environmental Science program, providing content and the part-secondment of the Director of Environmental Science from geology. There are between 20 and 35 students in each year of the specialist undergraduate program, with approximately half of the undergraduate students going on to take Honours in various Schools around the university, but the majority study with supervisors within Geosciences. The undergraduate program also provides units which service other degrees such as the Bachelor of Land and Water Science, the Bachelor of Resource Economics and the Bachelor of Science (Marine Science). As a result, the ENVI units have student numbers in the order of 60, 30, and 50 at the Junior, Intermediate and Senior levels respectively. The School of Geosciences provides all of the Junior level content and teaching, half of the Intermediate contributions and currently one quarter of the Senior contributions.

There are three postgraduate programs: a research-based Masters of Science (Environmental); a coursework program called Applied Science (Environmental
Science) which contains three levels (Graduate Certificate, Graduate Diploma and Masters); and a Master of Environmental Science and Law. The postgraduate programs are proving popular and are attracting increasing numbers of students. In 2005, there were 30 postgraduate students enrolled at any one time during the year in the program. During the year, the postgraduate coursework program was reorganized somewhat to remove now unavailable units and to formally include the units of the Coastal Management program.

University of the Sea 2005

The University of the Sea is dedicated to building marine science capacity in the Asia Pacific region. It aims to bring together senior researchers and young local scholars to address marine science issues of direct interest to the region. The programme endeavours to give these students the opportunity to gain the skills and knowledge required for participation in the global debate on the use of the ocean.

The first “University of the Sea” training program took place in the Coral Sea – Arafura Sea region onboard the French research vessel Marion Dufresne between June 24 and July 8, 2005. The ship sailed from Port Moresby (PNG) to Darwin (Australia).

During this two-week period, twenty students representing ten countries [Australia, P.R. China, East Timor, Indonesia, Japan, Malaysia, New Zealand, Papua New Guinea, the Philippines and Sri Lanka] got “hands on” practical experience in both marine data collection and marine research problem solving. The students were under the supervision of Professor Patrick De Deckker (Australian National University) and Assoc. Professor Jock Keene (The University of Sydney).

The University of the Sea worked in conjunction with a previously planned research program. This program was formulated and funded by university scientists from France, USA and Japan. They, along with their post-doctoral and postgraduate students and technicians, formed the official scientific party for the cruise. The cruise was under the auspices of the international paleoceanography scientific program known as IMAGES http://www.images-pages.org/HOME.html

The two principal research aims of the expedition, named MD148 PECTEN, were:
1. to analyse past climate change and ocean conditions as recorded in sediment cores from the continental shelf, slope and abyssal sea floor in the Gulf of Papua (northern Coral Sea) and Arafura Sea, and,
2. to determine the processes and rates of sedimentation at the critical interface on the sea floor between sediments from Papua New Guinea and the corals of the northern Great Barrier Reef so that adjacent buried systems bearing hydrocarbons can be better modelled.

This unique opportunity for practical training enabled University of the Sea students to gain skills in navigation, multibeam mapping, seismic profiling, plankton sampling, and seafloor sampling using box, piston and gravity coring. Students learned how to map and sample both the shallow shelf (<200 metres) and deep sea floor.

We must congratulate our first group of students. They displayed great enthusiasm and commitment to improving our understanding of the ocean. We look forward to a continuing relationship as we build an extensive regional marine science research network.
The establishment of the University of the Sea was made possible by a grant from the Toyota Foundation of Japan. We are particularly grateful to the Toyota Foundation for their support of the University of the Sea office. The University of the Sea research and training programme would not be possible without a modern research vessel. For this we are exceptionally grateful to the French Polar Institute and thank the Director, Dr Gérard Jugie, for providing access to the wonderful research vessel the Marion Dufresne. We would also like to acknowledge the contribution of Mr Yvon Balut, the ships Operations Manager for his tireless assistance in facilitating the inaugural University of the Sea cruise. In addition we are extremely thankful to the following institutions for their financial support: The Asia Pacific Network for Global Change Research, The Australian National University and the ARC Network for Earth System Science.

Further information is available on our website:

Seminars

Mekong Discussion Group

The AMRC hosts a fortnightly seminar series, known as the Mekong Discussion Group, during the University semester. Students, researchers and others are invited to present seminars on contemporary issues related to the Mekong Region. The group provides participants with the opportunity to meet and network with researchers and groups involved in a wide range of initiatives in the Mekong Region and Australia. A notable highlight in 2004 was a discussion of Thai-Burma border issues by Maung Maung Nyo, a former official in the Burmese government, and two former Burmese student activists. Other presentations included topics as diverse as HIV-AIDS, the fate of Thai language teaching, community economies and ancient Cambodian water management systems.

Time: 4:00-5:00pm on the advertised dates
Where: The Conference Room (Rm 474), Madsen Building, University of Sydney

1 March The role of the Australian Federal Police in Southeast Asia. Presented by, John McFarlane, Visiting Fellow, Strategic and Defence Studies Centre, ANU

8 April Donor-government relations in Cambodia. Presented by Dr. Stephen FitzGerald, former Ambassador to China

22 April Fish markets in the Mekong. Presented by Simon Bush, School of Geosciences, Sydney University

6 May Terrorism in Thailand and Malaysia: causes and connections. Presented by John Funston, Director, National Thai Studies Centre

13 May Mobility and vulnerability in northern Laos. Presented by Chris Lyttleton, Department of Anthropology, Macquarie University

20 May Forest issues in Southeast Asia, with special reference to Indonesia. Presented by Lesley Potter, Visiting Fellow, Department of Human Geography, Research School of Pacific and Asian Studies, ANU

3 June Bird flu in Southeast Asia/Vietnam. Presented by Prof. Peter Curson, Director Health Studies Program, Division of Environmental and Life Sciences, Macquarie University

17 June Socio-economic impacts of the tsunami. Presented by Prof. Stephanie Fahey, Director, Research Institute for Asia and the Pacific (RIAP) & Bob Fisher, School of Geosciences, Sydney University

26 August Social movements in the Asia-Pacific: contexts, transformations? Presented by James Goodman, Faculty of Humanities & Social Sciences, UTS

2 September People of the Pak Mun: negotiators and civil politics. Presented by Kanokwan Manorom, Faculty of Liberal Arts, Ubon Ratchathani University, Thailand
TGIF

The TGIF (Thank God it’s Friday) Presentation Series continued its long history with a plethora of fabulous talks held at Friday lunchtimes during 2005. For the last year the seminar series was held in the Branagan Room, Edgeworth David Building until moving preparations suspended proceedings from November. As ever the TGIF seminars provided a relaxed environment for the discussion of current research being undertaken by local and visiting academics and students.

To encourage attendance at the weekly talks by a broad audience colour posters were displayed in both the Madsen and Edgeworth David Buildings and undergraduate students were included in the TGIF mailing list. After a couple of unsuccessful trials at a 4.30pm time slot (the traditional time prior to 2004) the TGIF talks returned to and stabilised at a 12.30pm session time to allow more people to attend during their lunch break.

The TGIF series in 2005 covered a wide range of topics including results from Australian and overseas field-work. For example, Chris Golding gave a presentation on his memorable and educational time cruising from Port Morsbey to Darwin, and Felicia Weir filled us in on her work on berm development and lagoon closure from studying beaches north of Sydney. Visiting academics presented recent findings. For example, visiting Hawaiian academic Paul Wessel spoke about his research into absolute plate motions using the hotspot track delineated by the Hawaiian island chain; and Willem Sijp explained how the opening of the Drake Passage influenced global climate.

There were also presentations on topics chosen by the presenter for their general appeal. Michael Hughes convinced us that Titan (Saturn’s largest moon) was a great place for your next holiday and Christian Heine enlightened us on some European geology such as the similarities between NW Germany and Texas.

In October, Honours students gave a series of presentations at TGIF on their research, as an opportunity to practice public speaking and get feedback on their research.
Presentations / Prizes

Earth Foundation Scholarships and Company Awards

1st Year entering 2nd Year
Nilru Priyanka Vitharana
Vashti Singh
Louise Adine Willink
Hannah Lane

2nd Year entering 3rd Year
Sarah Jo Marshman
Samantha Clarke
Lachlan O’Brien

Coffey Geosciences Scholarship
Halina Kuczma

3rd Year entering Honours
URS Scholarship
Bride Cruickshank

Fugro Geophysics Prize
Andrew Bray

4th Year
Ken Richards Memorial Scholarship
Glyn Jones

University and School Awards

Undergraduate Awards
CE Marshall Scholarship (shared)
Vashti Singh
University Prize for Geology
Nilru Vitharana
Jack Mahoney Memorial Prize
D. Sutherland
Olga Marion Browne Prize for Field Work
Lachlan O’Brien
Slade Prize for Practical Geology
Mark Gigli
Deas-Thomson Scholarship in Mineralogy
Glyn Jones
Prospectors Supplies Pty Ltd - Sunto Prize
Scott Keenan
Quodling Testamomial Prize
Anita Roediger
Leo A Cotton Prize in Exploration Geophysics
Andrew Bray
Sheila Mitchell Swain Memorial Prize
Scott Keenan
Edgeworth David Prize in Paleontology
Hannah Power
Professor Griffith Taylor Prize for Geography
Amanda Hale
Professor James McDonald Holmes Prize for Geography
Jade Clark
Slade Prize for Geography 1 Practicals
Mark Gigli
WH Maze Prize for Intermediate Geography
Brad Ruting
GS Caird Scholarship for Geography 3
Tamsin Lloyd
Rev AS McCook Memorial Scholarship for Geography
Claire Brittain
Geological Society of Australia
Scott Keenan

Edgar Ford Memorial Scholarship for Geography
Larry McGrath

Postgraduate Awards
George Harris Scholarship
Joanne Whittaker
Deas-Thomson Scholarship in Geology
Matt DePaoli