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2008 represents the first year in which the School of Geosciences was no longer physically divided between two buildings.
After the refurbishment of the Madsen Building was completed Geology and Geophysics staff and students, who were previously located in the Demountable “Baxter” Buildings in Codrington Street, moved into the Madsen Building while the Madsen Library relocated to the new SciTech Library in the Jane Foss Russell Building.

2008 also saw several staffing changes within the School. Dr. Jody Webster took up a senior lectureship in Marine Geosciences and Sedimentology. This position is funded for 3 years under the New Appointment Scheme. A/Prof. Peter Cowell, A/Prof. Phil McManus and Dr. Kurt Iveson were successful in their academic promotion applications in 2008 and Professor Dietmar Müller was appointed as Head of School.

Dr. Ana Vila Concejo became Chief Investigator of a major ARC Linkage grant – researching the Port Stephens Flood Delta ($458,000 over four years). International research grants were awarded to Dr. Jeff Neilson by ACIAR (Australian Centre for International Agricultural Research) in enhancing farmer links with specialty coffee chains in Indonesia ($330,000 over two years) and A/Prof. Bill Pritchard was awarded a grant by RIRDC (Rural Industries Research & Development Centre) on the environmental impact of farm consolidation and fragmentation ($880,000 over four years). Dr. Patrice Rey and Dr Adriana Dutkiewicz received an International Development Program award for research into the emergence of the continent and the Earth’s primitive environment.
Teaching Improvement Fund grants were awarded to Dr. Rey and Dr. Dutkiewicz (for a digitally-enabled optical microscope laboratory) and Dr. Melissa Neave (for field survey equipment for shallow water).

The University of the Sea program coordinated by Dr. Elaine Baker received major industry sponsorship for research students ($97,000).

The School hosted an AgriFood Conference in September and a Climate Change Monitoring Symposium was hosted in December. A financial review of the School resulted in a restructuring of administrative resources and facilities, including the creation of a new marketing position. Technical field and laboratory support staff were reduced from 4 to 2; the School embraced shared ICT services and the School teaching and research fleet was reduced to 2 vehicles.

The Student Prizes evening was hosted by the Earth Resources Foundation as part of their annual commemorative Edgeworth David Day dinner – bringing industry representatives together with School staff and students.

The research of School staff and students attracted media attention dozens of times in 2008. Highlights include topics such as “Why Sydney families are off to the bush”, “The end of flat Earth”, “Reconstructing vanished oceans”, “Sea-level rise ignored amid other factors”, “Graffiti Talkback”, “Krimi am Meeresgrund” and “Le fond des océans forgé après l’éclatement du supercontinent Pangée”. Details for these stories can be found at www.geosci.usyd.edu.au/news_events.

In 2008 the School had a total of 56 full time and part-time postgraduate students. 4 PhD and 44 MSc (42 coursework and 2 research) students graduated in 2008. Total enrolments reached 695 in junior units, 275 in intermediate units, 255 in senior units and 28 in fourth year honours units.

Total research income for the School in 2008 was $1.749 million with funding coming from a variety of sources.

Prof Dietmar Müller
Head of School
2008 Staff List

Head of School
R. Dietmar Müller, M.Sc, Kiel Ph.D. Calif
Analysis of tectonic plate motions, continental margin tectonics, and seafloor mapping

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

John Connell, B.A., Ph.D, F.A.S.S.A.
Third world development (South Pacific), cultural geography

Philip Hirsch, B.A., M.Phil., Ph.D.
Resource management, environment and rural development (SE Asia)

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

R. Dietmar Müller, M.Sc, Kiel Ph.D. Calif
Analysis of tectonic plate motions, continental margin tectonics, and seafloor mapping

Bill Pritchard, B.A., Ph.D.
Economic Geography, Global Restructuring of Agriculture and Food Industries

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

Phil McManus, B.A., Grad. Dip., M.E.S., Ph.D.
Sustainability, Nature, Urban Geography
Staff list

Patrice Rey, B.Sc., Ph.D.
Structural geology and tectonics

Derek Wyman, B.Sc., Ph.D.
Economic Geology, Igneous Petrology, Geochemistry

Jody Webster, Ph.D.
Atmospheric processes and climate change

Lecturers

Kurt Iveson, B. Econ (Soc. Sci.), Ph.D.
Urban and Political Geography

Melissa Neave, B.A., Ph.D.
Fluvial and Arid Zone Geomorphology

Deanne Hickey
Physical Geography, GIS

Anne Louise Semple
Urban Geography, Contemporary and global geographies, Sustainable Cities and Sustainable Development

Edwina Tanner
Earth, Environment and Society

Research Fellows

Elaine Baker, Ph.D.

Adriana Dutkiewicz, 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 Seton, B.Sc., Ph.D.

Ana Vila-Concejo, M.Sc., Ph.D.

Honorary Associates

David Branagan, B.Sc., Ph.D.

David Chapman, M.Eng.Sc., B.A., Ph.D.

Deirdre Dragovich, M.A., Ph.D.

Robert Fisher, B.A., Ph D.

Gabor Foldvary, Ph.D.

Peter Hoare, M.Sc., Ph.D.
Staff list

Ronald Horvath, M.A., Ph.D.
John Hudson, M.Sc.
Jock Keene, B.Ag.Ec., B.Sc., Ph.D.
Iain Mason, B.Sc Eng., M.A., Ph.D.
Stephanie McCready, Ph.D.
Gordon Packham, B.Sc., Ph.D.
Roshanka Ranasinghe, Ph.D.
Peter Roy, B.Sc., Ph.D.
Andrew Short, M.A., Ph.D.
Bruce Thom, MA, Ph.D.
Robin Warner, B.A., Ph.D.
Keeva Vozoff, B Phys, M.Sc., Ph.D.
Eric Waddell, B.A., M.Sc., Ph.D.
John You, Ph.D.
Thomas Zeng, Ph.D.

Geosciences Administrative & Technical Staff

Administrative Staff

Marlyn Horgan Finance and Administration Manager
Grace Lei Zhang Administration and Finance Officer
Belinda McMillen Student Liaison Officer
Terence Jennings Executive Assistant to the Head of School

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
James Boyden Research Assistant
John Cannon Auscope Software Developer
James Clark Database Administrator for GPlates Project
# Staff list

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<tr>
<th>Name</th>
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<tr>
<td>Phil Manning</td>
<td>Senior Technical Officer for Geophysics</td>
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<td>Peter Zeller</td>
<td>Technical Officer - Microscopes</td>
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<tr>
<td>Ivan Teliatnikov</td>
<td>Senior Computer Systems Officer</td>
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<td>John Twyman</td>
<td>Senior Computer Systems Officer</td>
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Teaching Staff Profiles

Gavin Birch
Gavin moved from the petroleum industry to initiate Environmental Geology at Sydney University. He has five major, ongoing research projects: Assessing the ability of natural processes to effectively disperse contaminants on high-energy continental margins, Studying the role of stormwater in contamination of estuarine environments and the inability of conventional devices to effectively remediate stormwater; Research on the effects of sedimentary toxicants on benthic animals, The results of a decade of research into estuarine processes are being used to construct a contaminant model of complex estuarine systems and developing a new biological-effects based assessment scheme to categorise estuaries in New South Wales. Gavin’s specialities 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. Current research projects include examining coastal wetland response to changes in intertidal sedimentation rates in Sydney Harbour and investigating links between spatio-temporal pattern and processes of landscape change to facilitate longer-term vegetation monitoring in Angkor, Cambodia. Eleanor is currently working on collaborative research projects with the Sydney Olympic Park Authority, Ku-ring-gai Council, Department of Environment and Climate Change, APSARA and UNESCO.

Geoff Clarke
Prof. Clarke has contributed to all aspects of the textural analysis of high-grade metamorphic rocks. Field-based ARC-funded research on high-P Cretaceous granulites (with Klepeis & Rushmer, USA, and Tulloch & Mortimer, IGNS, New Zealand) integrates tightly data from structural, petrologic and isotopic studies to study geological processes critical to the formation and modification of continental crust. Other ARC-funded research (with Powell, University of Melbourne) 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 has also had ASAC-funded field programme examining lower crustal processes that formed high-grade rocks in MacRobertson and Kemp Lands, Australian Antarctic Territory.

Peter Cowell
Peter Cowell’s research interests are in the geomorphology of coasts and continental shelves; or more specifically, the nature of change in coastal landforms and the processes responsible for such change (known formally as the field of coastal morphodynamics). The research involves the combined use of field data and computer modeling 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 work has focused on clastic coasts (sand and mud deposits), and was expanded recently to include the morphodynamics of coral atolls.

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 and inequality. A second research theme is on decolonisation and nationalism. More recently he has worked on the cultural geography of music and food. He is presently working on the impact of tourism and festivals on rural and regional development, and the global migration of skilled health workers. He has written books on migration and development issues, especially concerning Papua New Guinea and New Caledonia and urbanisation in the Third World.
Deirdre Dragovich
Deirdre Dragovich’s current teaching and research relates mainly to rock weathering in different environments, including work on monumental stone, desert varnish and arid environments generally; patterns of dryland salinity; sediment transfer on hillslopes and to streams, especially in post-fire landscapes; and management of soil erosion including mine rehabilitation and pathway erosion in national parks.

Robert 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. Robert aims to combine theoretical and applied interests and has a strong interest in action research and documentary video production. Bob is a Senior Lecturer in the School with a primary role as Senior Researcher with the Australian Mekong Resource Centre.

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 investigated the behaviour of hydrological systems, particularly in response to human activity. He has worked in glaciated, karstic and alpine terrains, and, more recently, in arid and lacustrine environments. He has undertaken research in Canada, the USA, the United Kingdom, Ireland, Spain, Greece, Libya, Malaysia and in many parts 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.

Deanne Hickey
Deanne Hickey is a physical geographer, specialising in GIS. Her research utilises spatial methods to examine changes in the landscape, focusing on vegetative habitats. Deanne is involved in a four year project investigating processes of farm consolidation and fragmentation within Australia’s rural regions. This study, in its pilot year established a spatial approach to identify changes in rural farm holdings. Stage two of the project sees the expansion of this analysis to all NSW rural LGAs.

Philip Hirsch
Philip Hirsch has research interests in natural resource management, rural change and the politics of environment in Southeast Asia, notably Thailand, Laos and Vietnam and the wider Mekong Region. He is involved with collaborative field projects in each country and is the director of the Australian Mekong Resource Centre. Specific interests include 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 research work includes projects supported by the Australian Research Council, Australian Agency for International Development, International Development Research Centre, Australian Centre for International Agricultural Research. He is a co-researcher in a Major Collaborative Research Initiative on Agrarian Transitions in SE Asia supported by Canada’s Social Sciences and Humanities Research Council.

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 project on the Hawkesbury-Nepean River for Sydney Water. 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.
Kurt Iveson
Kurt is primarily interested in the question of how social justice can be achieved in cities. Within this broad interest, his research has focused on two main areas. First, he has examined the significance of the urban public realm for citizenship and democracy. This has included looking at contests over different uses of urban public space, including the politics of protest, graffiti writing, cruising, hanging, and outdoor advertising. Second, he has explored how urban planning might work better to achieve social justice in cities. In particular, he has considered the ways in which planners should conceptualise, and respond to, different forms of diversity in the city. Kurt is also interested in geographies of music. He has previously researched hip hop in Sydney, and is currently working on a project with David Theak (Sydney Conservatorium) looking at the geography of the Sydney jazz scene.

Phil McManus
Phil McManus’ current research focuses on sustainable cities, urban forestry and representations of nature in the construction of a range of environmental issues. Within the area of sustainable cities he is researching the potential to develop Industrial Ecology, the use of metrics such as Ecological Footprints and migration issues such as the tree-change phenomenon in Australia. Phil’s research on nature includes thoroughbred breeding and the uses of nature. Phil’s work combines urban environmental history with policy and planning research that is future-oriented.

Dietmar Müller
Dietmar Müller is an earth scientist with interests in marine geophysics, tectonic plate motions, geodynamics, continental margin tectonics, petroleum exploration, paleoclimate and seafloor imaging. Dietmar’s research is focused on global and regional Earth system problems by linking onshore and offshore observations based on geophysical/geological data and kinematic/dynamic process modelling. Dietmar 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” the use of geodynamic modelling as a resource exploration tool.

Melissa Neave
Melissa Neave’s main area of interest is in the field of biophysical interactions in fluvial systems with a focus on arid/semi-arid hillslope processes. She has worked on the biogeomorphic influences of small mammals in a Chihuahuan desert ecosystem in the American southwest and is currently using rainfall simulation to model the effect of surface crust formation and soil salinity levels on runoff and sediment generation in western NSW, Australia.

Bill Pritchard
Bill Pritchard is an economic geographer. His research and teaching addresses the ways that economic, social and cultural processes intermesh with one another to create the specificities of place and space. Within this broad agenda, he focuses on the geographies of global change in agriculture, food and rural places: the ways that the emerging global economy in food and agriculture is transforming places, industries and people’s lives. These questions have been pursued through a series of Australian-based and international studies into the global value chains of specific industries (wine grapes, dairy, beef, tomatoes, tea, coffee), complemented by in-depth examination of the policies, rules and institutions that have guided the globalisation project.

Bill Pritchard is Chief Researcher in two Australian Research Council Discovery Projects relating to food and globalisation in South and Southeast Asia. The first of these focuses on the global value chains of tropical commodities (tea, coffee, spices and cocoa), using detailed field-based research from the Western Ghats in India and various sites in Indonesia. It considers the fate of smallholders and plantation estates at a time of difficult global conditions within these industries. The second project involves a broad-ranging study into the liberalization of Indian agriculture, using various case studies from the southern states of Tamil Nadu, Karnataka and Andhra Pradesh. Closer to home, he is also Chief Researcher on the “Heartlands” Australian Research Council Discovery Project, which seeks to document the regional economic restructuring of the Australian farm sector, and a project on the consolidation and fragmentation of ownership within Australian agriculture, funded by the Rural Industries Research and Development Corporation.
Patrice Rey

Patrice is a tectonicist interested in (1) the evolution of the continental lithosphere through tectonic processes, and (2) the evolution of tectonic processes through time. His research activities are therefore problem-driven and process-oriented. They are supported by research strategies involving quantitative multidisciplinary approaches, based on field work, numerical modelling and physical modelling. In the past Patrice has been working on the seismic structure of the continental crust and its relation to mountain building processes. He has produced work on the seismic reflectivity of ductile shear zones in the crust. In Europe he has worked on the evolution of the Variscan belt and its tectonic relationships with the Caledonides. 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). Patrice Rey has acted as main Chief Investigator in three successive ARC-funded research projects. The most recent, titled “From synchrotron characterization of single fluid inclusions to Archaean geodynamics: An integrated study of fluid-rock interaction in the primitive crust.”

Anne Louise Semple

Edwina Tanner

Edwina Tanner’s main area of research is in the field of marine science with a focus on climate change. Edwina is interested in geographic information systems for the management and visualisation of marine data. Edwina is currently working on a project funded by the Australian Partnership for Sustainable Repositories to develop a data model for the better management of research information.

Jody Webster

Jody Webster’s research in sedimentology and stratigraphy focuses on carbonate sedimentology, climate change, and tectonics. Jody is particularly interested in coral reef and carbonate platform systems, both modern and ancient, and their associated sedimentary systems; as tools to address fundamental questions in paleoclimate variability and tectonics, and in turn the influence of these factors on the geometry, composition and evolution of these sedimentary systems. His research is multidisciplinary nature, encompassing traditional elements of sedimentology and stratigraphy, combined with the novel use of marine geology and geophysics, GIS, paleobiology, paleoecology, and geochemistry (stable isotopes, trace elements, radiometric dating). Jody is also heavily involved in several large international research programs including the Integrated Ocean Drilling Program (IODP) which is focused on recovering sediment cores from the sea bed to understand past sea level and climate changes.

Derek Wyman

Derek Wyman’s research includes studies in Western Australia’s Yilgarn Craton and similar well-mineralised rocks in Canada. He also supervises Honours and Postgraduate students in studies of granitic rocks, gold deposits and other types of mineralization in eastern Australia. Derek maintains strong links with national and international research teams, as exemplified by his collaborative research with P. Hollings and R. Mitchell (Lakehead University, Canada) and the Ontario Geological Survey. This work focuses on the world’s oldest in situ diamond deposits (2.7 billion year old) that challenge conventional models of diamond formation. He is also undertaking studies of the regolith that have applications for mineral exploration and the mitigation of dryland salinity hazards.
Research Staff Profiles

Elaine Baker
Elaine Baker is the Director of the UNEP Shelf Programme at the University of Sydney. The Programme headquarters are located at UNEP-GRID Arendal in Norway. UNEP Shelf aims to assist coastal states with submissions to secure sovereign rights to continental shelf beyond 200 nautical miles under article 76 of the United Nations Convention on the Law of the Sea (UNCLOS). Currently Elaine is working with colleagues from Geoscience Australia, South Western Pacific Coastal States and SOPAC to determine the areas of potential legal extended continental shelf in the region. Elaine is also the co-ordinator of the Asian Neighbours Network “University of the Sea”. The “University of the Sea” is a partnership between the University of Sydney, the University of NSW, 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. The aim of the “University of the Sea” is to enable senior researchers from the region to work with young local scholars on marine issues of direct interest to the Asia – Pacific region. Students will address specific regional problems (including those unique to tropical and sub-tropical countries) through a program of targeted research.

Elizabeth Moylan
Elizabeth is a Research Associate in the School of Geosciences at the University of Sydney. She is currently working on the “Living with Heritage” Australian Research Council grant involving research at the world heritage site at Angkor in Cambodia. Her research interests include spatio-temporal mapping of landscape change and the spatial representation of cultural landscapes for Heritage and Conservation management.

Jeffrey Nielson
Jeff Nielson’s research focuses on the geography of tropical agriculture and commodity trade. This interest is explored through the application of global value chain analyses to rural products grown by communities in the Global South. Jeff is currently working on various research projects in India and Indonesia. Essentially, these projects seek to understand the relationship between local institutional settings and global markets, and the implications of this relationship for poverty reduction. In addition, Jeff possesses a broad interest in Indonesian economy and society, and has been involved in numerous research and consultancy projects in that country, including such areas as farmer empowerment, the social and environmental impacts of large-scale mining activities, customary land tenure systems, and indigenous resource management.

Adriana Dutkiewicz
Adriana Dutkiewicz’s current research interest is focused on Precambrian oil and its role in the formation of the world’s largest hydrothermal ore deposits. The research exploits recently discovered early Precambrian 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. Adriana is also interested in the development of novel techniques to solve some of the outstanding problems in Earth science such as the composition of the early biosphere and direct dating of oil deposits.

Daniel Penny
Daniel 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 C AD. His research will seek to explore the timing of and reasons for Angkor’s decline and eventual collapse. Dan is co-Director of the Greater Angkor Project, a multi-disciplinary international research group co-ordinated by University of Sydney Department of Archaeology.
**Maria Seton**

Maria Seton is currently focusing on an ARC-funded project related to subduction process modelling and is also a part of the Earthbyte group. Maria’s research interests are in the field of marine geophysics and geodynamics specifically looking at the kinematic controls on subduction and back-arc basin formation and linking these kinematic constraints to subduction modelling. Maria is also interested in examining the relationship between tectonics and palaeo-climate, palaeo-topography and bathymetry and ore-deposit formation.

**Ana Vila-Concejo**

Ana Vila-Concejo is interested in the processes and morphology of coastal systems. Ana’s career started in Spain, where she did her undergraduate and MSc studying urban beaches; and Portugal, where she completed her PhD investigating the short and medium term evolution of tidal inlets in a barrier island system. At present, Ana is looking into the morphodynamics of flood-tide deltas in wave-dominated coasts within the framework of an ARC funded linkage project. Other areas of interest are coastal erosion and hazards including consequences of climate change.
2008 Units of Study

GEOS1001 Earth, Environment and Society
GEOS 1901 Earth, Environment and Society (Advanced)
Dr Tom Hubble, Dr Mel Neave, Dr Bill Pritchard
This is the gateway unit of study for Human Geography, Physical Geography and Geology. Its objective is to introduce the big questions relating to the origins and current state of the planet: climate change, environment, landscape formation, and the growth of the human population. The first module investigates the system of global environmental change, specifically addressing climate variability and human impacts on the natural environment. The second module presents Earth as an evolving and dynamic planet, investigating how changes take place, the rate at which they occur and how they have the potential to dramatically affect the way we live. Finally, the third module, focuses on human-induced challenges to Earth’s future. This part of the unit critically analyses the relationships between people and their environments, with central consideration to debates on population change and resource use.

GEOS1002 Introductory Geography
GEOS 1902 Introductory Geography (Advanced)
Dr Mel Neave, Dr Kurt Iveson
This unit of study provides an introduction to the ways that human and physical landscapes are produced. It begins with an investigation of Earth’s surface features, exploring the distribution of landforms across Earth and interpreting their evolutionary histories. Several landscapes will be examined including those formed by rivers, wind, oceans and glaciers. But physical landscapes evolve under the influence of and affect human operations. Therefore, the unit of study will also consider the political, economic, cultural and urban geographies which shape contemporary global society. Each of these themes will be discussed with reference to key examples, in order to consider the ways in which the various processes (both physical and human) interact in the shaping of places. The unit of study will also include short field trips to localities surrounding the university to observe processes of spatial change and conflict.

GEOS1003 Introduction to Geology
GEOS 1903 Introduction to Geology (Advanced)
Dr Tom Hubble, A/Prof Clarke, Dr Julie Dickinson
The aim of this unit of study is to examine the chemical and physical processes involved in mineral formation, the interior of the Earth, surface features, sedimentary environments, volcanoes, and metamorphism. Lectures and laboratory sessions on mountain building processes and the formation of mineral deposits will lead to an understanding of the forces controlling the geology of 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 two-day excursion to the western Blue Mountains and Lithgow to examine geological objects in their setting.

GEOL1501 Engineering Geology
Dr Tom Hubble
The objective of this course is to introduce basic geology to civil engineering students. Students should develop an appreciation of geologic processes as they influence civil engineering works and acquire knowledge of the most important rocks and minerals and be able to identify them. Syllabus summary: Geological concepts relevant to civil engineering and the building environment. Introduction to minerals; igneous, sedimentary and metamorphic rocks, their occurrence, formation and significance. General introduction to physical geology and geomorphology, structural geology, plate tectonics, and hydrogeology. Associated laboratory work on minerals, rocks and mapping. will participate in alternatives to some aspects of the standard unit and will be required to pursue independent work to meet unit objectives. This unit may be taken as part of the BSc (Advanced).

GEOG2321 Fluvial and Groundwater Geomorphology
Dr Melissa Neave
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.

GEOS2112 Economic Geography of Global Development
GEOS 2912 Economic Geography of Global Development (Advanced)
Dr Bill Pritchard, A/Prof Phil Hirsch

In this unit of study, students will be introduced to the sub-discipline of economic geography by way of debates on the spatial character of global development. We focus on questions relating to who are the winners and losers from contemporary patterns of global economic change. This includes the analysis of relevant conceptual approaches to these questions (including comparative advantage, global commodity chain theory, regionalism, economic governance etc), plus ‘hands-on’ examination of the key institutions (such as the WTO and ADB) driving these changes. In general, issues are tailored to themes being played out in Asia-Pacific countries. Students are expected to participate in a variety of practical class exercises throughout the semester, which will include presenting the fruits of independent research activities. This unit provides an especially relevant feeder-unit into GEOS3053/ GEOS3054, the Asia-Pacific Field School.

GEOS2113 Making the Australian Landscape
Dr Stephen Gale

The shifts in the nature of the Earth’s environment over time and the resultant changes in process regimes have had dramatic impacts on the way the Australian physical landscape has evolved. We consider here the effects of these changes on the broad pattern of the landscape, focusing particularly on slopes and soils. We follow this by investigating the environmental changes that have taken place since the end of the last glacial, the time when the continent’s climates and environments first took on a recognisably modern form. We deal specifically with the impact of human activity on the Australian biophysical environment, emphasising both pre-European impacts ranging from nuisance to disastrous. The discussion of each hazard focuses on: (1) the process mechanics, (2) hazards and risk, and (3) methods for mitigation. Geographic Information Systems (GIS) are used by scientists, planners, policy-makers and the insurance industry alike to address many issues relating to natural hazards. This unit of study will introduce students to the major concepts relating to GIS and provide practical experience in the application of GIS techniques to hazard mapping, risk assessment and mitigation.
and those changes that have taken place since European contact.

**GEOS2114 Volcanoes, Hot Rocks and Minerals**
**GEOS 2914 Volcanoes, Hot Rocks and Minerals (Advanced)**
**Dr Derek Wyman, Dr Patrice Rey, Prof Geoff Clarke**

This unit of study relates the plate tectonics of subduction zones to a) volcanoes and their hazards; b) geological processes in the deep crust; and c) the formation of precious metal and gemstone ores around the Pacific Rim. A problem solving approach is used to develop the skills required to understand the history of individual volcanoes and predict their future activity and hazards. The unit includes a two to three day field trip to study an extinct volcano in NSW. Practical work includes independent study of igneous systems, rocks and minerals employing both microscope-based techniques and computer modeling. The unit provides relevant knowledge for GEOS3006/3906 - Mineral Deposits and Spatial Data Analysis.

**GEOS2121 Environmental and Resource Management**
**GEOS2921 Environmental and Resource Management (Advanced)**
**Dr Phil McManus**

This unit of study explores cultural constructions of nature and resources, the evolution of environmental thought and the debates about sustainable development. It integrates environmental, economic, cultural and social considerations, with particular regard to water, mining, forestry and fishing industries in Australia and other countries. The unit includes a fieldtrip to the Hunter Valley to look at geological and geographical issues pertaining to mines, wines and the thoroughbred breeding industries in this region. The unit of study enables students to learn about the economics of resource extraction and the social, cultural and environmental considerations that must be taken into account when developing and implementing environmental and resource management policies.

**GEOS2122 Urban Geography**
**GEOS2922 Urban Geography (Advanced)**
**Prof John Connell, Dr Kurt Iveson**

Cities are full of different people doing all sorts of different things. Developing an understanding of these processes necessitates attention to the geographical principles that underlie varied social practices (work, leisure, sport, music etc) and social categories such as ethnicity, gender, sexuality and race. We will investigate how different people perceive space and construct space, primarily in Western contexts and thereby seek to understand the cultural and political dimensions of everyday life in cities.

**GEOS2124 Fossils and Tectonics**
**GEOS2924 Fossils and Tectonics (Advanced)**
**Dr Adriana Dutkiewicz, A/Prof Dietmar Müller , Dr Patrice Rey, Prof Peter Hatherly**

The unit aims to convey how fossils, stratigraphic and structural data are used together to determine ages and environments and the deformation history of rock layers. It covers an introduction to historical geology and the evolution of the major fossils groups. Methods of stratigraphic age determination include litho-, bio-, chemo-, magnetostratigraphy, as well as radiometric geochronology and the stratigraphic characteristics of the main geological time intervals. Structural methods are focused on brittle deformation in the upper crust and sediments. Students will gain familiarity with the most important fossil groups and how to identify them, and with the most important types of faults and folds. The formation of fossil fuels such as coal, oil and gas will also be covered in an earth history and resource exploration context. The simultaneous use of fossils, stratigraphy and structure to unravel the geological history of a set of exposed rock layers is demonstrated during a field excursion to Yass.

**GEOS3008 Field Geology and Geophysics**
**GEOS3908 Field Geology and Geophysics (Advanced)**
**Dr Patrice Rey, Prof Peter Hatherley, Dr Geoff Clarke**

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 & Geophysics and will give students experience in the field identification of rocks and minerals, regional geology, stratigraphy, structure and rock relationships.
Australian coastal environments are dynamic systems responding to input sediments and processes as well as solid boundary conditions. The unit focuses on high-energy wave and wind dominated coastal systems that include the beach-surf zone, dunes, barriers, carbonate (coral reef) environments and their Holocene/Quaternary evolution. The regional impact of waves, tides, embayments, and other environmental parameters in controlling morphology and deposits are addressed. The practical program uses real data sets collected during recent research programs and during two field excursions which address issues specifically relevant to Australia’s coastline. The excursions include one 2 day weekend field trip and one 5 day field trip to the Great Barrier Reef in the mid semester break.

Coastal Management is about how scientific knowledge is used to support policy formulation and planning decisions in coastal environments. The course links coastal science to policy and practice in management of estuaries, beaches and the coastal ocean. The principles are exemplified through specific issues, such as coastal erosion, pollution, and impacts of climate-change. The issues are dealt with in terms of how things work in nature, and how the issues are handled through administrative mechanisms. These mechanisms involve planning strategies like Marine Protected Areas and setback limits on civil development in the coastal zone. At a practical level, the link between science and coastal management is given substance through development and use of ‘decision-support models’. These models involve geocomputing methods that entail application of simulation models, remotely sensed information, and Geographic Information Systems (GIS). The course therefore includes both principles and experience in use of these methods to address coastal-management issues. (It thus also involves extensive use of computers.) Although the focus is on the coast, the principles and methods have broader relevance to environmental management in particular, and to problem-solving in general. That is, the course has vocational relevance in showing how science can be exploited to the benefit of society and nature conservation.

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 episode, 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.

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 from the Murray-Darling, Mekong, and Hawkesbury-Nepean catchments. Fieldwork in the latter is integral to the unit of study.

Regional difference in Australia is becoming more acute. This has major implications for the life chances and economic prospects of people across Australia. Thus unit of study examines these issues, using extensive case study material and introducing students to new approaches in regional development theory to account for and explain this state of affairs. Specific topics to be addressed include the concept of the triple bottom line,
the future of family farming, population change across Australia, Indigenous rights over land, and how rural Australia fits within our ‘national imagination’. This unit provides students with a solid grounding for graduate employment or further studies in the field of regional development.

GEOS3512 Contemporary Global Geographies
GEOS3912 Contemporary Global Geographies (Advanced)
A/Prof Philip Hirsch
This unit of study provides students with detailed exposure to contemporary thematic areas of human geography research. It seeks to apply the conceptual material introduced in intermediate human geography units of study to ‘real-life’ research problems, as a platform for engaging students with research issues, frameworks, conceptual debates, methods, and problem-solving techniques. In 2007, this unit of study examines thematic and regional geographies of environment and development in the Asia-Pacific region. It also provides experience of dealing with issues around multi-stakeholder negotiation, natural resource management and development decision making. The unit is “hands-on”, framed around an award-winning electronic simulation/role play exercise (eSim). Using past and current research by human geography academic staff in the School of Geosciences, the unit engages students with research issues, frameworks, conceptual debates, methods, and problem-solving techniques. Specifically, the unit focuses on multiple issues around environment and development in the Mekong region of Southeast Asia. Lectures and tutorials cover relevant conceptual and methodological issues related to research on this subject area, including that of the Australian Mekong Resource Centre (www.mekong.es.usyd.edu.au).

GEOG3521 Sustainable Cities
GEOG3521 Sustainable Cities (Advanced)
Dr Phil McManus
Are cities sustainable? Why or why not? This unit of study develops themes introduced in Intermediate units in Geography relating to sustainability, focusing on the ways we manage urban regions. This involves discussion of topics including utopian visions for cities, urban history, ecological footprint analysis, bioregionalism, transport options, urban form and urban policy, with reference to sustainable futures. The unit of study looks at different Australian cities and includes practical work on a current sustainability issue in Sydney.

GEOS3522 Cities and Citizenship
GEOS3922 Cities and Citizenship (Advanced)
Dr Kurt Iveson
What does it mean to be a ‘citizen’, and what has this got to do with cities? This unit explores the urban dimension of contests over the meaning of citizenship. The first half will consider historical configurations of urban citizenship, from the Greek city-states of antiquity through to imperial, colonial and industrial cities. The second half will then focus on contemporary globalising cities. A series of case studies will consider the production of new configurations of urban citizenship across a range of cities in the world, looking at issues such as: asylum-seekers and the city; children and the city; homelessness in the city; ‘culture jamming’ and new forms of urban protest; trans-national social movements. The module will involve a substantial practical component, encouraging students to draw on their own experiences of city life to reflect on the meanings of citizenship.

GEOS3101 Earth’s Structure and Evolution
GEOS3801 Earth’s Structure and Evolution (Advanced)
Dr Patrice Rey, Prof Geoff Clarke
The Earth’s crust and upper mantle, or lithosphere, are a consequence of dynamic and thermal processes operating since the beginning of the Archaean. This unit focuses on information and techniques that enable an understanding of these processes. The main topics presented in this unit include: the formation and evolution of oceanic and continental lithosphere; structural deformation, magmatism and metamorphism at plate boundaries; and the mesoscopic and microscopic analysis of igneous and metamorphic rocks. Practical classes are designed to enable students to competently and independently identify the common crystalline rocks in hand-specimen; and to gather and interpret the structural field data which enables the determination of the structural style and deformational history presented in particular tectonic settings. The concepts and content presented in this unit are generally considered to be essential knowledge for geologists and geophysicists and provide a conceptual framework for their professional practice. Students wishing to specialise in the field and become professional geologists will normally need to expand upon the knowledge gained from this unit and either complete an honours project or progress to postgraduate coursework in this field.
GEOS3102 Global Energy and Resources  
GEOS3802 Global Energy and Resources (Advanced)  
Dr Derek Wyman and A/Prof Gavin Birch

This unit examines the processes that form energy and mineral resources, outlines the characteristics of major fossil fuel and metal ore deposits and introduces the principles that underpin exploration strategies used to discover and develop geological resources. The unit will focus on a variety of topics including: coal; petroleum formation and migration, hydrocarbon traps and maturation; precious metal, base metal and gemstone deposit types; and exploration strategies. An integrated approach will relate tectonic processes through time to the formation of fossil fuel and mineral provinces. Practical exercises will introduce students to the techniques used to identify economically viable geological resources using a variety of exercises based on actual examples of resource exploration drawn from both the petroleum and minerals industry. An excursion to active and historic mining sites in NSW will complement the practical studies.

GEOS3103 Environmental & Sedimentary Geology  
GEOS3803 Environmental and Sedimentary Geology (Advanced)  
Dr Tom Hubble and Dr Adriana Dutkiewicz

Sediments and sedimentary rocks cover most of the Earth’s surface, record much of the Earth’s geological history and host important resources such as petroleum, coal, water and mineral ores. The aim of this unit is to provide students with the skills required to examine, describe and interpret sediments and sedimentary rocks for a variety of different purposes. Specific focuses of the unit will be on identifying the recent or ancient environment in which sedimentary materials were deposited; the techniques used to identify anthropogenic pollution of modern sediments; and an assessment of natural hazards commonly associated with the formation of sediment bodies such as landslides and deep marine slides. On completion of this unit students will be familiar with the natural processes that form, modify, pollute and lithify sediments and the recognition and management of the environmental hazards associated with sediment bodies. A variety of sedimentary settings will be examined including fluvial, alluvial, lacustrine, marginal marine and deep marine environments. The various controls on the sedimentary record such as climate and sea-level change, as well as diagenesis and geochemical cycles will also be discussed. Practical exercises will require students to examine global datasets, determine the properties of sedimentary rocks, as well as collect and interpret their own field data. The course is relevant to students interested in petroleum or mineral exploration, environmental and engineering geology as well as marine geosciences.

GEOS3104 Geophysical Methods  
GEOS3804 Geophysical Methods (Advanced)  
Prof Peter Hatherly and A/Prof Dietmar Müller

This unit introduces the common geophysical methods used to investigate the interior of the Earth and focuses on the techniques used for mineral and hydrocarbon exploration and production. Applications of these methods to problems in global geophysics will also be examined with an emphasis on their use in marine and terrestrial environments. On completion of this unit students will have developed a thorough understanding of the commonly used geophysical methods and will be able to evaluate and critically assess most forms of geophysical data as well as be able to actively participate in geophysical explorations. The unit is aimed at students with interests in land-based and marine resource exploration, plate tectonics, internal earth structure, and near-surface investigations of groundwater resources and environmental pollution. Students wishing to specialise in the field and become professional geophysicists will normally need to expand upon the geophysics knowledge gained from this unit and either complete an honours project or progress to postgraduate coursework in this field.

GEOS3053 Asia-Pacific Field School-Assessment A  
GEOS3953 Asia-Pacific Field School-A (Advanced)  
A/Prof Phil Hirsch

The unit of study can be taken only in coincidence with GEOS 3054 and with prior permission from the unit of study coordinator. It constitutes a Field School run over a five-week period in January-February, prior to the commencement of the semester. In 2006 the Field School will be held in Thailand, Laos and Viet Nam. In other years it may be held in the South Pacific (Vanuatu and Fiji). It is run in close association with local universities, whose staff and students participate in some components of the course. It focuses on environmental and development issues in the context of rapid social change.

GEOS3054 Asia-Pacific Field School-Assessment B  
GEOS3954 Asia-Pacific Field School-B (Advanced)  
A/Prof Phil Hirsch
The unit of study can be taken only in coincidence with GEOS3053 and with prior permission from the unit of study coordinator. It constitutes a Field School run over a five-week period in January-February, prior to the commencement of the semester. In 2006 the Field School will be held in Thailand, Laos and Viet Nam. In other years it may be held in the South Pacific (Vanuatu and Fiji). It is run in close association with local universities, whose staff and students participate in some components of the course. It focuses on environmental and development issues in the context of rapid social change.

ENVI2111 Conservation Biology and Applied Ecology
ENVI2911 Conservation Biology (Advanced)
Dr C Taylor, Dr Clare McArthur
This topic examines the role of conservation biology and applied ecology in environmental science, examining pattern and process in natural systems and evaluating how these are being affected by pervasive anthropogenic impacts. Focusing on the conservation, assessment of impacts and the restoration of natural systems, we consider the range of ecological issues environmental scientists must address. We examine the extent of environmental problems; derive explanations of why and how they are occurring and address management options for resolving them. We will derive general principles for these by addressing case studies, chosen from Australian examples when possible. The aim of this unit is for you to understand the processes that go into solving environmental problems from an ecological perspective and how to identify management options.

ENVI3111 Environmental Law and Ethics
Dr Gerry Bates, Dr Rachel Ankeny
This unit of study covers topics in environmental law and ethics. The environmental law component provides an overview of all laws in Australia pertaining to environmental matters and looks at a number of environmental issues at the various levels of analysis, policy making, implementation of policy, enforcement, and dispute resolution. It also provides a broad background to the political and economical issues as they relate to the legal issues involved. It also examines international environmental law, particularly examining how these influence and affect our local policies. The ethics component helps students develop thoughtful and informed positions on issues in environmental ethics using arguments derived from traditional ethics as well as environmentally specific theories. Ethical conflicts are often inevitable and difficult to resolve but using the resources of philosophical ethics and regular reference to case studies, students can learn to recognize the values and considerations at stake in such conflicts, acknowledge differing viewpoints and defend their own well considered positions.

ENVI2112 Atmospheric Processes and Climate
This unit of study investigates the physical and chemical characteristics of our atmosphere, as well as the natural processes that occur within it and how these contribute to the climate we live in. Topics such as atmospheric structure, photochemical processes, and weather will be examined. The effects of ocean circulation are investigated, particularly examining the ocean’s importance as a source/sink for atmospheric constituents and as a heat regulator. The impact of glaciation is also examined, including sources, quantity, magnitude of threat, and the potential impact to our climate, are then explored. Finally, the unit examines issues surrounding climate change and the modeling of these changes.
ENVI3112 Environmental Assessment  
Dr John Dee Dr Scott Kable  
This unit of study is composed of two components: environmental impact assessment and risk assessment. The former is generally concerned with issues related to environmental impact assessment and builds toward the process of producing an EIS/EIA. More specifically it seeks to establish a critical understanding of the theory and practice of environmental impact studies/statements (EIS) and environmental impact assessment processes (EIA) from both the positive (scientific) and normative (value) perspectives. Emphasis is placed on gaining skills in writing and producing an assessment report, which contains logically ordered and tightly structured argumentation that can stand rigorous scrutiny by political processes, the judiciary, the public and the media. The risk assessment component considers a more chemical approach to the assessment of risk and issues of safety with respect to chemicals, ecotoxicology and the environment.

ENVI3113 Environmental Economics and Planning  
Dr Tihomir Ancev, Dr John Dee  
This unit of study covers topics in environmental economics and planning. The economics component will provide a general introduction to theoretical concepts and empirical work in natural resource and environmental economics. The basic economic concepts of consumption, choice, utility, production, costs, property rights, market failures, externalities and government institutions will be defined and discussed. A set of tools and methods that are used in resource and environmental economics practice will be introduced. These comprise optimisation, econometric and simulation models, as well as more specific methods such as benefit-cost analysis and non-market valuation methods. The concepts and tools will be applied to specific problems related to land and water. In particular, discussions will be focused on some of the following problems: agricultural and urban water supply and demand, water quality, land use, sustainable development. The planning component introduces the field of urban and regional planning and its application in Australia. The lectures cover a broad range of topics including urbanization, the scope of plan making, policy and implementation, development control measures, principles of environmental sustainability, indigenous development issues, and planning in regional and urban settings relevant to both the built and natural environment. The implications for planning in a liberal-pluralist political environment and the need to reconcile a wide range of competing interests in land use and natural resources will also be investigated.

ENVI3114 Energy and the Environment  
Dr Chris Dey  
This unit covers the following aspects of energy and the environment: energy use; electrical power generation including alternate methods such as wind turbines; the environmental impact of energy use and power generation including the enhanced greenhouse effect; transportation and pollution; energy management in buildings; solar thermal energy, photovoltaics, and nuclear energy; and, socio-economic and political issues related to energy use and power generation.

NTMP3005 Coastal Management  
Prof Andy Short  
This unit examines the impacts of human activities on coastal and marine environments. It explores the complex relationships among the ecological and social values of these environments and outlines strategies and tools for their management. This is an intensive unit that will be held at the Moreton Bay Research Station.
Grants

Research Grants: Australian Research Council

Birch, G.F., An innovative strategy for stormwater remediation and reduction of contaminant supply from catchments, Australian Research Council, Linkage Grant, $4,057

Fletcher, R., Johnson, I., Bruce, E., Living with Heritage: integrating time, place and culture for World Heritage conservation, Australian Research Council, Discovery Grant, $54,477

Fletcher, R., Penny, D.A., Barbetti, M.F., Pottier, C., Urban infrastructure, Inertia and Ecology: the growth and decline of Angkor, Cambodia (9th to 16th Century AD), Australian Research Council Discovery Grant, $74,884

Connell, J., Re inventing rural places: the extent and impact of festivals as regeneration strategies, Australian Research Council, Discovery Grant, $2,500

Dutkiewicz, A., George, S.C., Volk, H.H., Biosphere hydrocarbon and ore fluid interactions in the Early Precambrian, Australian Research Council, Discovery Grant, $136,906

McManus, P.A., Albrecht, G.A., Constructing nature, tradition and thoroughbreds, Australian Research Council, Discovery Grant, $93,659

Martin, J., Pritchard, W.N., McManus, P.A., Baum, S., Sorenson, T., Walmsley, J., Argent, N., Bourke, L., Australia’s Rural Heartlands: Declining Economic Fortune or declining regional adjustment, Australian Research Council, Discovery Grant, $25,000

Pritchard, W.N., Indian Agriculture in the 21st Century: the political economy of market reforms, Australian Research Council, Discovery Grant, $58,323


Other Grants

Baker, E., Feasibility study for the development of a facility for continental shelf delineation, United Nations, $198,326

Baker, E., University of the Sea project, UNESCO, $7,521, Geosciences Australia, $75,000

Birch, G.F., Determining of the Chronology of Contamination in Lake Macquarie Sediments, Lake Macquarie Council, $6,118

Birch, G.F., Urban Stormwater Monitoring program, Leichhardt Municipal Council, $7,500

Birch, G.F., Construct a chronologic contaminant framework for central NSW estuaries using dated sediment core and contaminant analyses, Australian Institute of Nuclear Science and Engineering (AINSE), $11,073


Cato, D., Beaked Whale Research Survey and Modelling, Defence Science and Technology Organisation of the Department of Defence (DSTO), $120,000

Gale, S.J., European Impact on the natural environment of Kangaroo Island, AINSE, $10,365

Gale, S.J., Human environmental impact and the Aboriginal abandonment of Kangaroo Island, Australia and Pacific Science Foundation (APSF), $6,000

Hatherly, P., Chair in Mining Geophysics to build research strength in the field, CRC Mining, $65,412

Hirsch, P., MRC Study – Mekong mainstream dams, Oxfam Australia, $13,144

Hirsch, P., Challenges of the Agrarian Transition in Southeast Asia, Social Science & Humanities Research Council of Canada (SSHRC) via University of Montreal, $34,485


Mason, I., Hatherly, P., CRC Mining Research Project, CRC Mining, $155,863

Mason, I., Geophysical Imaging, ARCO Geophysics, Oxford University, $221,229

Müller, R.D., World class research infrastructure to characterise the structure and evolution of the Australian continent in a global context from surface to core in space and time, Commonwealth National Collaborative Research Infrastructure Scheme, Auscope Limited, $200,000

Müller, R.D., Research and Modelling of Tectonic Plates in the Indian Ocean, StatoilHydro, $217,000

Neilson, J., Enhancing Farmer Engagement with specialty coffee chains in Eastern Indonesia, Australian Centre for International Agricultural Research (ACIAR), $168,115

Neilson, J., Improving cocoa production through farmer involvement in demonstration trials of potentially superior and pest/disease resistant genotypes and integrated management practices, ACIAR via La Trobe University, $15,398

Neilson, J., Farming at the forest frontier, Australian Agency for International Development (AusAID), $69,220

Penny, D.A., The use of sediment and palynological records to trace the decline of Angkor, Australian Institute of Nuclear Science & Engineering (AINSE), $4,866

Pritchard, W.N., The Productive and Environmental Implications of Farm Consolidation and Fragmentation, Rural Industries Research and Development Corporation, $125,000

Vila Concejo, A., Port Stephens Flood Tide Delta: Shoreline Management Issues, ARC Linkage Industry Partners: Great Lakes Council, $10,300, Port Stephens Council, $10,300, NSW Dept of Natural Resources, $11,000

Consultancies/Other:

Birch, G.F., Provide specialist equipment for sediment recovery and analysis, URS Australia, $4,000

Bruce, E., Wetland Workshop, Sydney Olympic Park Authority, $3,180

Cato, D and Blewitt, M., Review of the possible impact of the self elevating platform (Jackup barge) and drilling on humpback whale migration, Sydney Water, $9,953

Clarke, G.L., Electron Microscope analysis of Broken Hill core samples, NSW Department of Primary Industries, Geological Survey of NSW, $4,800

Hubble, T., eWater Project A2 – Laboratory Testing and Analysis, Faculty of Land and Food Resources, University of Melbourne, $6,364

Mitchell, D., Survey Iron Cove, Earth Technology Solutions Pty Ltd., $2,273

Müller, R.D., Data Facilitator - Bluenet Project, University of Tasmania, $22,619

Neilson, J., In the footsteps of Alfred Russel Wallace, Australian Geographic, $4,000

Tanner, E., ORCA support network, Australian National University, $8,500
Publications

Refereed Journal Articles


Neave, M., Rayburg, S., 2008, Assessing morphologic complexity and diversity in river systems using three-dimensional asymmetry indices for bed elements, bedforms and bar units, River research and applications: An international journal devoted to river research and management, 24, 1343-1361.


Schnell, A.K., Seebacher, F., 2008, Can Phenotypic plasticity facilitate the geographic expansion of the tilapia oreochromis mossmbicus?, Physiological and Biochemical Zoology, 81, 733-742.


McManus, P., Connell, J., 2008, Country Week: Bringing the city to the country?, Australian Humanities Review, 45,


Neilson, J., 2008, Environmental governance in the coffee forests of Kodagu, South India, Transforming Cultures, 3, 185-195.


Smith, H., Dragovich, D., 2008, Improving precision in sediment source and erosion process distinction in an upland catchment South Eastern Australia, Catena, 72, 191-203.


Rey, P., Coltice, N., 2008, Neoarchean lithospheric strengthening and the coupling of Earth's geochemical reservoirs, Geology (Boulder), 36, 635-638.


Dunlop, R., Noad, M., Cato, D., 2008, Non song acoustic communication in migrating humpback whales (Megaptera novaeangliae), Marine Mammal Science, 24, 613-629.


Maus, S., Yin, F., Luhr, H., Monoj, C., Rother, M., Rauberg, J., Michaelis, I., Stolle, C., Müller, R.D., 2008, Resolution of direction of oceanic magnetic lineations by the sixth generation lithospheric magnetic field model from CHAMP satellite magnetic measurements, G3: Geochemistry Geophysics Geosystems: An Electronic Journal of the Earth Sciences, 9, Q07021.


McManus, P., 2008, Their grass is greener but ours is sweeter: Thoroughbred breeding and water management in the Upper Hunter Region of New South Wales, Australia, Geoforum, 39, 1296-1307.


Books

Iveson, K., Fincher, R., 2008, Planning and Diversity in the City: Redistribution Recognition and Encounter.


Connell, J., Rugendyke, B., 2008, Tourism at the Grassroots: Villagers and visitors in the Asia Pacific.


Neilson, J., Pritchard, W., 2008, Big is not always better: Global value chain restructuring and the crisis in South East Indian tea estates, Agri-Food Commodity Chains and Globalising Networks (Dynamics of Economic Space), 35-48.


Book Chapters


Conferences


Seton, M., Müller, R.D., 2008, Reconstructing the junction between Panthalassa and Tethys since the Early Cretaceous, PESA Third Eastern Australasian Basins Symposium, 263-266.

## Honours Research

The Honours program 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.

### Geography Honours theses completed in 2008

<table>
<thead>
<tr>
<th>Student</th>
<th>Title</th>
<th>Supervisor</th>
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<tbody>
<tr>
<td>Marita Cuomo</td>
<td>“Why move to woop woop? Internal migration in rural NSW” (John Connell supervisor)</td>
<td>Brad Ruting</td>
</tr>
<tr>
<td>Neill Dorrington</td>
<td>“A Dip In The Needle’: changes in magnetic inclination during the Holocene in southeastern Australia” (Stephen Gale supervisor)</td>
<td>Alice Smith</td>
</tr>
<tr>
<td>Bronwyn Isaacs</td>
<td>“Supermarket ships and traditional rips: Changing cultures of consumption in Chiang Mai, Thailand” (Bill Pritchard supervisor)</td>
<td>Justin Thompson-Laing</td>
</tr>
<tr>
<td>Jen Li</td>
<td>“The Enduring Booksellers: The tale of the independent bookshop in Australia” (Bill Pritchard supervisor)</td>
<td>Claire Tucker</td>
</tr>
<tr>
<td>Kylie McKillop</td>
<td>“Gone fishing or Fishing’s Gone? Sustainability in NSW fisheries” (Phil McManus supervisor)</td>
<td>Karen Wicking</td>
</tr>
<tr>
<td>Amelia Roberts</td>
<td>“An Island Home? Space and Place in Christmas Island” (John Connell supervisor)* University Medallist</td>
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“Travel to the Old Country: Transnational engagements and the Estonian diaspora” (John Connell supervisor)* University Medallist

“Urban Water Management in Toowoomba and Goulburn: Models for Sustainability” (Phil McManus supervisor)

“Floodplain-water connection. Is it important? An investigation of inundation influence on floodplain soils” (Melissa Neave supervisor)

“Breaking down the barriers: The communication of climate change information of Gippsland dairy farmers” (Bill Pritchard supervisor)

“A Remote Sensing Approach to Estimating Coffee Production in Toraja, Indonesia” (Eleanor Bruce & Jeff Neilson supervisors)
## Geology and Geophysics Honours theses completed in 2008

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Supervisor/Co-Supervisors</th>
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<tbody>
<tr>
<td>Kellie Adlam</td>
<td>Shoreface dilation in response to sea level rise - Tiber delta reference site</td>
<td>Peter Cowell</td>
</tr>
<tr>
<td>Genoveffa Pezzimenti</td>
<td>Tide and wave-induced longshore transport on a low energy estuarine beach within a tide-dominated estuary: Port Stephens, NSW</td>
<td>Ana Vila-Concejo</td>
</tr>
<tr>
<td>Jason Carr</td>
<td>Restoration of Reactivated Deep Seated Basement Faults: An Explanation for the Present Day Geometry of the Lapstone Structural Complex</td>
<td>Patrice Rey and Titus Murray co-supervisors</td>
</tr>
<tr>
<td>Gemma Roberts</td>
<td>Underwater Compressional Aure fold and thrust belt: Sequential Structural evolution of the Pliocene mountain front</td>
<td>Patrice Rey</td>
</tr>
<tr>
<td>Patric Horne</td>
<td>Geochemical and Petrological signatures of the 1130 Prospect Metasediments, Broken Hill</td>
<td>Geoff Clarke co-supervisor</td>
</tr>
<tr>
<td>Michael Rothbery</td>
<td>Post Mid-Cretaceous Sequence Stratigraphy of Western Papua New Guinea</td>
<td>Patrice Rey and Kevin Hill co-supervisors</td>
</tr>
<tr>
<td>Michaele Kartun</td>
<td>Investigating the use of the Resistivity log in Quantitative Geophysical log analysis to better define the subsurface intersected by boreholes: Southern Coalfields, NSW</td>
<td>Peter Hatherly supervisor</td>
</tr>
<tr>
<td>Vashti Singh</td>
<td>Oil Migration in the Mesoproterozoic Roper Superbasin, Northern Australia: An Assessment of Fluid Inclusions and Solid Bitumen</td>
<td>Adriana Dutkiewicz supervisor</td>
</tr>
<tr>
<td>Hannah Lane</td>
<td>The Breakup of Australia and Antarctica: Understanding the Nature of the Transitional Zone</td>
<td>Dietmar Müller and Peter Cowell co-supervisors</td>
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<tr>
<td>Sian Smith</td>
<td>Sequence Stratigraphy of the Central Eastern Eucla Basin, Great Australian Bight, South Australia.</td>
<td>Dietmar Müller and Peter Cowell co-supervisors</td>
</tr>
<tr>
<td>Rhiannon Mckeon</td>
<td>Evaluation of the Multichannel Analysis of Surface Waves, against the Refraction Seismic Method</td>
<td>Peter Hatherly supervisor</td>
</tr>
</tbody>
</table>
Postgraduate Research

Candidates awarded their degrees in 2008

Lydia DiCaprio (PhD)  The dynamic history of the Australian region since the Mesozoic (Müller, D.)
Deanne Hickey (MSc)  Relationship between wetland hydrology and fine scale vegetation distribution (Bruce, E.)
James Hunt (MSc)  Environmental risk assessment of contaminated groundwater discharge to an estuarine embayment (Birch, G.)
Jessica McLean (PhD)  Indigenous water values in the Ord: a political ecology analysis (Pritchard, W.)
Louisa Rochford (MSc)  Stormwater inputs of trace elements to Port Jackson (Birch, G.)
Joanne Whittaker (PhD)  Reconstruction of plate movements in and around the Indian Ocean (Müller, D.)

Candidates continuing research in 2008

Farshad Amirislani (PhD)  Modelling of indicators for management of degraded arid environments (Dragovich, D.)
Carmen Apostolatos (PhD)  Spatial and temporal change in heavy metal concentrations in the Port Jackson estuary using the Sydney Rock Oyster (Saccostrea glomerata) (Birch, G.)
Tim Austin (PhD)  Morphodynamics of the Port Stephens flood tide delta (Short, A./Cowell, P)
Sunil Bajpai (MSc)  Erosion of access tracks in Royal National Park: the Coast Walk, its Condition and Use (Dragovich, D.)
Robin Branson (PhD)  Assessment procedures for sustainable reuse of industrial waste (Mcmanus, P)
Andrew Bray (PhD)  Integrated geophysical and geological analysis for resource planning and development (Hatherly, P.)
Paula Brown (PhD)  Fisheries co-management in Vietnam (Hirsch, P.)
Virginia Brunton (PhD)  The environmental history and future of sustainable agriculture in the Sydney Basin (McManus, P)
Rowena Butland (PhD)  Perceptions of place in the management of heritage space (Bruce, E.)
Phalla Chem (PhD)  Integrated catchment management in the context of irrigation development: the role of hydrological analysis in managing conflict, maximising benefit-sharing and promoting social equity (Neave, M.)
Marc Daley (PhD)  Shoreface equilibrium and consequences for climate change impact predictions (Cowell, P.)
James Daniel (PhD)  Sediment dynamics on a tide-dominated inner shelf, Torres Strait (Hughes, M.)
Brett Davis (PhD)  Primary sources of stormwater contaminants in a highly urbanised catchment of Sydney Harbour, Australia (Birch, G.)
Matthew DePaoli (PhD)  High-pressure granulite to eclogite facies metamorphism: mechanisms of formation and tectonomorphic implications, Fiordland, New Zealand (Clarke, G.)
Michelle Dominis (PhD)  Sensitivity of landscapes to the development of dryland salinity (Dragovich, D.)
Olivia Dun (PhD)  Migration and environmental change in Vietnam (Connell, J.)
Gareth Edwards (PhD)  Construction, experience and management of water scarcity in NSW and implications for social equity and environmental sustainability (McManus, P)
Salette Figueiredo (PhD)  Risk-based forecasts of sea level rise impacts on the Brazilian Coast (Short, A/Cowell, P)
Nicolas Flament (PhD, cotutelle)  Freeboard evolution, crustal evolution and the 2.7Ga late-Archean geological and biological crisis (Rey, P.)
Renee Fulton (PhD)  Green resources in coastal peri-urban environments (Dragovich,D.)
Ana Gibbons (PhD)  Tectonic evolution of the Indian Ocean (Müller, D.)
Josephine Gillespie (PhD)  World heritage obligations and local communities: land law and justice at Angkor, Cambodia (Bruce, E.)
Jasmine Glover (PhD)  South Indian supply chains in the globalisation of the ornamental cut flower industry (Pritchard, W.)
Raewyn Graham (PhD)  Horse festivals: place, production and performance of thoroughbred horses in Scone, New South Wales and Georgetown, Kentucky (McManus, P.)
Kate Griffiths (MSc)  Aid cultures in Cambodia (Hirsch, P.)
Nick Herold (PhD)  Trends and quantification of processes contributing to two major Cenozoic warming events (Müller, D.)
Deanne Hickey (MSc)  Relationship between wetland hydrology and fine scale vegetation distribution (Bruce, E.)
Phil Holmes (PhD)  Economic and environmental viability of pastoralism in Australian arid rangelands (Dragovich, D.)
Angela (Wenping) Jiang (PhD)  Numerical Modelling of Flood-tide Delta Morphodynamics at Port Stephens, New South Wales. (Cowell, P)
Michael Kinsela (PhD)  Morphokinematic response of the shoreface profile to changing sea level and implications for the deposition and preservation of systems tracts. (Cowell, P/Vila-Concejo, A)
Daravy Khiev (MSc)  Institutional arrangements for water governance in the context of catchments in Cambodia (Hirsch, P.)
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Gina Koczberski (PhD)</td>
<td>Smallholder agriculture in New Britain, Papua New Guinea (Connell, J.)</td>
</tr>
<tr>
<td>Serena Lee (MSc)</td>
<td>Modelling contaminant transport in the Port Jackson estuary (Birch, G.)</td>
</tr>
<tr>
<td>Fiona McKenzie (PhD)</td>
<td>Fostering decision and innovation: towards agriculture that maintains or improves the natural resource base (McManus, P.)</td>
</tr>
<tr>
<td>Daniel Montoya (PhD)</td>
<td>Water management in the Murrumbidgee: community-government relations (McManus, P.)</td>
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<tr>
<td>Young Ng (PhD)</td>
<td>Geoparks and geotourism: management approaches to geological heritage in China (McManus, P.)</td>
</tr>
<tr>
<td>Tuong Huy Nguyen (PhD)</td>
<td>Poverty and livelihoods in coastal fisheries communities around Nha Phu lagoon, Vietnam (Hirsch, P)</td>
</tr>
<tr>
<td>Marco Olmos (PhD)</td>
<td>Heavy metal contamination in NSW estuaries (Birch, G.)</td>
</tr>
<tr>
<td>Surin Onprom (PhD)</td>
<td>Critical investigation of the collaborative management approach to protected areas governance in Thailand (Hirsch, P)</td>
</tr>
<tr>
<td>Kevin Prakoonheang (PhD)</td>
<td>Skilled return migration and development in Laos (Connell, J.)</td>
</tr>
<tr>
<td>Ken Serey Rotha (PhD)</td>
<td>The role of social capital in community based natural resource management in Cambodia (Hirsch, P)</td>
</tr>
<tr>
<td>Edwina Tanner (MSc)</td>
<td>The effect of global warming on upwelling and adaptation of artesian fisheries (Hubble, T.)</td>
</tr>
<tr>
<td>Kate Thornborough (PhD)</td>
<td>Effects of climate change on reef growth and development of the southern GBR (Davies, P)</td>
</tr>
<tr>
<td>Judy Tong (PhD)</td>
<td>Modelling of the energy balance in the ocean for addressing climate change (Müller, D.)</td>
</tr>
<tr>
<td>Ann Turner (PhD)</td>
<td>The evolution of institutional arrangements in railway administration, NSW and Queensland (Pritchard, W.)</td>
</tr>
<tr>
<td>Nathan Wales (PhD)</td>
<td>Investigating the relationship between spatio-temporal patterns of vegetation change and forest management practices within the Angkor World Heritage Site (Bruce, E.)</td>
</tr>
<tr>
<td>Dong Xing (PhD)</td>
<td>Making Green Roof Policy in China: A comparative study between Beijing and Chicago (McManus, P.)</td>
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</table>
Australian Mekong Resource Centre (AMRC)

The Australian Mekong Resource Centre (AMRC) is located in the School of Geosciences and is a Centre of the University of Sydney. The Centre is devoted to research, education and community engagement. AMRC has achieved a reputation as the leading centre of expertise on development in the Mekong Region, particularly with regard to the implications of development for people, the environment and the links between them.

AMRC is committed to research that supports action, policy and advocacy for equitable and sustainable approaches to development in the Mekong Region. It works on principles of engaged research that also supports the building of independent and critical research capacity within the region. The Centre is a focal point for information, data, local studies and policy-oriented research relating to the Mekong.

AMRC undertook four key programs during 2008:

- Cambodia water project, running over five years 2006-2011, is supported by a $3 million grant from AusAID, administered through the Cambodia Development Resource Institute. The grant supports School of Geosciences and Agricultural Economics staff (Hirsch, Bruce, Neave, Santos) to work with Cambodian researchers and also includes five research student scholarships. The project seeks to develop capacity in water resources management research in the context of irrigation development and catchment management in Cambodia. Partners include AMRC, Cambodia Development Resource Institute and Royal University of Phnom Penh.

- ChATSEA is a CAD$2.5 million five year collaborative initiative (2005-2010) funded by the Social Science and Humanities Research Council of Canada, involving over 16 universities studying rural change in Southeast Asia. The funding to AMRC for research activity on agrarian transitions in SE Asia includes postgraduate student support. To date, five School of Geosciences postgraduate students have been supported through ChATSEA.

- Mekong Learning Initiative, coordinated by AMRC and funded by Oxfam, is a collaboration between eight universities in the Mekong Region for teaching and learning in the social sciences of natural resource management. To date this project has attracted approximately $300,000 in funding support.

- A study of land titling in Laos is being carried out in collaboration with the Faculty of Agriculture, Food and Natural Resources with funding from AusAID’s Australian Development Research Awards scheme.

The Director of AMRC is Professor Philip Hirsch. AMRC also employs a senior researcher: Dr Robert Fisher, and two research assistants: Kate Griffiths and Natalia Scurrah. In addition, several postgraduate students are associated with AMRC. In 2008, these students were Paula Brown, Kate Griffiths, Nguyen Tuong Huy, Phalla Chem, Rotha Ken Serey, Surin Onprom, Daravy Khiev and Sopheak Chann.

Further information on AMRC can be found at www.usyd.edu.au/mekong.
School of Geosciences 2008 Annual Report

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. Work is focussed on development of seismic, wireline logging, borehole radar and interactive visualisation and interpretation tools.

Field work has been undertaken in mines in Australia, South Africa and Canada. There is close collaboration with mining industry professional and research scientists in those countries. The Australian Coal Association Research Program also supports our activities with grants for research on geotechnical analysis from wireline logs and seismic inversion.

In 2008, the group included the following staff and associates from the School of Geosciences.

Prof Peter Hatherly
Prof Iain Mason
Dr Jonathon Hargreaves
Mr Tim Sindle
Mr Phil Manning
Mr Steve Owens
Mr Andrew Bray

would like to congratulate the winners and thank the sponsors of our scholarship awards, particularly those that sponsor each and every year.

Prof. Peter Hatherley completed his term as Director of the Foundation, and at the end of 2008 we are seeking a new Director. Prof. Dietmar Müller is the University’s responsible officer on the Foundation, and is a strong advocate for our work. The ERF thanks Peter for his considerable energy and commitment during his term as Director and look forward to working with Dietmar and the new Director in 2009.

Over the coming year it is our intent to continue to focus our attention on the School and the opportunities that it offers to students and their prospective employers. The Foundation is working with industry to arrange relevant vacation work for some of its senior students. This will be an opportunity for our students to gain useful experience and for the School to enhance its interaction with companies and government organisations.

The Foundation continues to support the Teacher Earth Science Education Program (TESEP), which is an initiative of Australian Science Teachers Association. We have undertaken to provide financial support over three years. The Foundation has also agreed to provide through the school a venue and other support for the February and August 2009 TESEP workshops for school teachers. This will be our opportunity to assist in explaining the relevance of the geosciences to society and to engage with high school students and their teachers.

Adam Wheatley
President, Earth Resources Foundation

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Adam Wheatley
President, Earth Resources Foundation
Scholarships and Prizes

Earth Foundation Scholarships and Company Awards

ERF 2nd Year Scholarship in Geology (shared) – Iris Bleach, Megan Holdt, William Dunlop, Isabelle Whitehead
ERF 3rd Year Scholarship in Geology or Geophysics – Floyd Howard
Prospectors Supplies Pty Ltd - Sunto Prize – Daniel Cronin
Coffey Geosciences Scholarship – Rebecca Hamilton
URS Scholarship – Jacqueline Murray
Ken Richards Memorial Prize – Katherine Silversides
Fugro Ground and Airborne Geophysics Prize – Kara Matthews

University and School Awards

Undergraduate Awards

Slade Prize for Practical Geography – Isabelle Whitehead
Professor James McDonald Holmes Prize for Geography – Isabelle Whitehead
Jack Mahoney Memorial Prize in Geology – Megan Holdt
Professor Griffith Taylor Prize for Geography – Felicity O’Neill
CE Marshall Scholarship for Geology – Iris Bleach
Slade Prize for Intermediate Geography Practical – Aedon Talsma
WH Maze Prize for Intermediate Geography – Anna Helfensdorfer
Olga Marion Browne Prize for Field Work – Bridget Ashton
G S Caird Scholarship for Geography – Carlos Blanco
Edgeworth David Prize – Floyd Howard
Leo A Cotton Prize – Grace Sheppard
Rev A S McCook Memorial Scholarship for Geography – David Oberthur
Deas -Thomson Scholarship in Mineralogy – Grace Sheppard
Sheila Mitchell Swain Memorial Prize for Geology Fieldwork – Jacqueline Murray
Edgar Ford Memorial Scholarship for Geography – Jessica Wickenden
Quodling Testimonial Prize for Crystallography and Petrology in Geology – Sabin Zahirovic

Postgraduate Awards

Deas-Thomson Scholarship in Geology – Rhiannon McKeon
L A Richardson Memorial Prize – Rhiannon McKeon
George Harris Scholarship – Nicholas Herold
Seminars

Southeast Asian Seminar Series

Report by Kate Griffiths

The Australian Mekong Resource Centre (AMRC) Southeast Asian seminar series is run in conjunction with the Chair of Southeast Asian Studies in the Faculty of Arts. It is held fortnightly at 1:00pm on Fridays in the Madsen Conference Room, with speakers from the AMRC and the wider community and is designed to bring together those with interests in Mekong Region environment and development issues.

Semester One

Dr Tim Forsyth, London School of Economics
Are environmental movements socially exclusive? An historical study from Thailand

A/Prof. Catherine Waldby, University of Sydney
Singapore Biopolis: Bare life in the City-State

Dr Holly High, University of Sydney
Mapping bombing raids over Indochina

Dr Stephen Duthy
Nam Theun 2 Watershed Management and Protection Authority - integrated conservation and development project

Bambang Harymurti
State of Indonesian media

Huy Tuong Nguyen, University of Sydney
Poverty and livelihoods in fisheries communities around Nha Phu lagoon of Vietnam

Semester Two

Paul Cohen, Macquarie University
The Post-Opium Scenario and Rubber in Northern Laos: Alternative Western and Chinese Models of Development

Nathan Wales, University of Sydney
The use of a mixed-methods approach in understanding the influence of World Heritage zoning on subsistence forest practices

John Dore, Water Advisor - AusAID Mekong Region Water and Infrastructure Unit, Australian Embassy, Laos and Program Director – M-POWER (Mekong Program on Water Environment and Resilience)
The Mekong Region Hydropower Explosion

Simon Bush, Wageningen University
Herding catfish in the Mekong: Governing Pangasius for sustainable rural livelihoods and environmental performance.

Phil Hirsch, University of Sydney
Land issues in Laos

Bob Fisher, University of Sydney
Carbon sequestration, REDD, forests and human rights

Thank God It’s Fursday (TGIF) Seminar Series

Report by Nicholas Herold

TGIF underwent some changes in 2008. Mainly, it moved from Friday’s to Thursday’s and from 4pm to 1pm. The former change was due to the organiser’s personal schedule and the latter change occurred as it was determined that the new time slot was more practical for more people in the school, allowing attendees to eat their lunch while listening to presentations from visiting and local academics. It must be noted that profit from food and drink sales would have decreased compared to the previous year with people bringing their own lunch. Also, beer sales disappeared due to the 1pm time slot, however, the selling price of beer did not allow any contribution to profits and thus profits continued to be derived solely from soft drinks sales.

Researchers from a wide variety of disciplines spoke at TGIF in 2008, including those from such organisations as the United States Geological Survey (USGS), Harvard University, the Geological Survey of Norway, the University of Southampton, Geoscience Australia and more. Such a variety of speakers was largely possible due to the contacts kindly provided by staff from within the school.
Semester two of TGIF focused on local postgraduate students as it was considered useful that staff and students have a better idea of new and upcoming research being conducted by the School.

The list of 2008 presentations follows;

**Semester One**

- **Patrice Rey**, University of Sydney - Neoarchean Lithospheric Strengthening and the Coupling of the Earth’s Geochemical Reservoirs.
- **Carmen Gaina**, Geological Survey of Norway - The Arctic: Tectonic and political boundaries.
- **Patricia McCrory**, United States Geological Survey - The fiery consequences of dying mid-ocean ridges.
- **David Och**, NSW Department of Primary Industries - Reviving maps of the Greater Sydney Region.
- **Peter Atkinson**, University of Southampton - Super-resolution mapping for remote sensing.
- **Giampiero Iaffaldano**, Harvard University - Hypothesis testing with global geodynamic models.
- **Jock Keene**, University of Sydney - Going, going, gone....: Submarine landslides off Sydney: tsunami threat?
- **Gavin Birch** and **Serena Lee**, University of Sydney - Catchment-estuarine processes under high-precipitation conditions.
- **Vladimir Popov**, Far East Branch Russian Academy of Sciences - Finding the Source - Archaeological Patterns of Volcanic Glass Procurement and Use in Far East Russia.
- **Tracy Rushmer**, Macquarie University - Partial melting, bulk composition and orogenesis or what to make of the jelly sandwich.
- **Sue Border**, Geos Mining - Quality - the missing ingredient in mineral exploration.

**Semester Two**

- **Marco Olmos**, University of Sydney - Sediment-bound heavy metals as estuary health indicators.
- **Tim Austin**, University of Sydney - Delta morphodynamics and implications for shoreline management.
- **Marc Daley**, University of Sydney - Risk based sea-level rise predictions of climate-change impacts for Bondi and the South-East Australian coast.
- **Nathan Wales**, University of Sydney - Multiple methods for understanding the influence of World Heritage zoning on subsistence forest practices.
- **Brett Davis**, University of Sydney - Building a pollutant pathway model for urban catchments.
- **Andrew Bray**, University of Sydney - The integration of geological and geophysical datasets for improved mine planning.
- **Nicholas Herold**, University of Sydney - Constructing boundary conditions for use in climate models.
- **Deanne Hickey**, University of Sydney - A GIS approach to examine processes of farm consolidation and fragmentation.
- **Serena Lee**, University of Sydney - Investigations of Infrequent High Precipitation Events in Sydney Harbour.
- **Ana Gibbons**, University of Sydney - How I survived seven weeks as a stowaway on the German research vessel Sonne, and other adventures in the NE Indian Ocean...

HONORS TALKS: **Hannah Lane, Jason Carr, Patric Horne**.

HONORS TALKS: **Vashti Singh, Michael Rothery, Gemma Roberts**.

**Harald Sund**, GEOCAP - GEOCAP - a programmable 3D modeling and visualization tool for geology, geophysics and world domination.
Field Trips

The School of Geosciences prides itself on the field-based education offered to its students. Following is a selection of reports from a cross section of field trips offered within the School.

**GEOG2121 Field Trip to the Hunter Valley**

‘Mines, Wines and Thoroughbreds’
Phil McManus

This is a field trip to Murrurundi and the Upper Hunter Region for GEOG2121 *Environmental and Resource Management* students. The field trip was held for the second time in 2008. Mines, Wines and Thoroughbreds explores the ecological, socio-cultural and political-economic bases of three major industries in the Upper Hunter Region – coal mining, viticulture and thoroughbred breeding. Students had tours of various establishments (including a winery, thoroughbred stud and bulk sample coal mining site), heard many presentations and completed a report that required them to apply their knowledge and ideas of sustainability to make recommendations about a hypothetical coal mining proposal near Scone.

**GEOS3008 Field Trip to Broken Hill and Olary**

Geoff Clarke

The 2008 Broken Hill – Olary excursion began with a line. It started near the kitchen, then ran clockwise around the interior perimeter of the Plumbago shearer’s quarters to the girls’ showers and beyond. Serving took longer than usual, and then the cleaning and washing up, mixed with the dregs of first day unpacking, stretched into the second day. The mischievous and hungry found adventurous ways to try and cheat the system. Larger undergraduate student numbers brought proportionally more characters, and pushed staff beyond their comfort. Morning field group drops were arranged using software algorithms. Our noble camp manager David Mitchell powered through long days and longer nights helped by Rachael and Inkeri.

Rock identification, interpretation, and mapping filled the day and the nightmare of stereonets had to be finished before bedtime. The tent village next to the shearer’s quarters had its own rules, but the campfire yielded the 12 commandments of Plumbago lifestyle, including commandment five that rules could not be changed. Fortunately, the weather was kind and a threat of heavy rain and a muddy un-tented diaspora did not eventuate. During the middle days of the excursion, the students settled into a steady pattern of work and campfire high jinks. The resupply of essential beverages was stymied by lack of space in the vehicles coming back from the mid-trip shopping in Broken Hill. Honours students arrived to a camp with its own culture and stretched facilities even further.

A medivac followed a tumble from a rock outcrop, but turned out as well as possible after a long drive, which preceded the usual wait in casualty and a return long drive. Suddenly, it was time to shift focus from the comfort of daily mapping to in-field tests and in-bus multiple-choice questions. Then, drawing a poster, compiling the final map and off to the campfire and into the last, long night at Plumbago.

Getting back to Broken Hill was even harder than getting
a meal on the first night, as bags crammed the bus aisles, students crammed the seats and departed with flags waving. Several staff stayed behind to clear the inevitable mess and pack the vehicles. Damage accidentally inflicted to a camera and laptop, demonstrably which softer than a Toyota 4WD, briefly brought sad faces to the stylish valedictory dinner. Despite the justified legends of Broken Hill, there were no cosy campfires to be had after midnight and an industrious few were left to decorate the accommodation. What seemed a good idea for brightening the dim orphanage fared less well in daylight. Letters were written to high places, as the 12 commandments had been ephemerally forgotten and not obeyed.

The excursion also ended with a line, as tired bodies and minds filed on to the train and off down the steel tracks to Sydney. New friends, long memories and sleep in comfort.

GEOS3009 Field Trip to Hawks Nest
Ana Vila-Concejo

Between the 2nd and the 4th of May 2008 we travelled to Hawks Nest to examine the Quaternary coastal deposits and contemporary coastal processes of the Hawks Nest-Myall Lakes region including:

- Holocene regressive and transgressive barrier systems (beaches and surf zones, foredunes, foredune ridges, transgressive dunes, back barrier deposits)
- Beach processes on exposed and estuarine beaches.

The students were divided in three groups and undertook different activities every half day. One group went with Ana to observe different coastal environments: (1) Winda Woppa sand spit; (2) Yacaaba sandwave and barrier and Bennet’s beach; and (3) Dark Point. Simultaneously, students in the other groups undertook different measurements with Dave Mitchell, Mike Kinsela, Tim Austin and Gen Pezzimenti. They used state-of-the-art surveying equipment such as the Real Time Kinematic Global Navigation Satellite System (RTK-GNSS). Students also used the new Total Stations that were purchased with the TIES grants. They took hydrodynamic measurements using acoustic current meters and pressure transducers to record currents and waves respectively.
For more information
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