

Appendix 1: Participants

GEMOC PARTICIPANTS 2005/2006

MACQUARIE UNIVERSITY

Department of Earth and Planetary Sciences

Academic and GEMOC Managerial Staff

(Teaching and Research)

Dr Kelsie Dadd (Physical vulcanology, geochemistry, tectonics)
Dr Nathan Daczko (Structural and metamorphic geology, tectonics, geodynamics)
Dr Richard Flood (Volcanic geology, application of magnetic fabrics to reconstruction of volcanic terrains)
Professor W.L. Griffin, Program Leader (Technology development and industry liaison)
Dr Simon Jackson (Trace element geochemistry, metallogeny)
Dr Mark Lackie (Rock magnetism, paleomagnetic reconstructions)
Professor Suzanne Y. O'Reilly, Director (Crust and mantle evolution, lithosphere modelling)
Dr Norman Pearson (Manager GAU)
Professor Simon Turner (Isotopic Geochemistry)
Professor Bernard Wood (Experimental Petrology)

Research Staff

Dr John Adam
Dr Olivier Alard
Dr Debora Araujo
Dr Elena Belousova
Dr Alex Corgne
Ms Tara Deen

Dr Anthony Dosseto
Dr Rhiannon George
Dr Kevin Grant
Emeritus Professor Trevor Green
Dr Oliver Kreuzer
Dr Vladimir Malkovets
Dr Laure Martin
Dr Sune Nielsen
Dr Lev Natapov
Dr Craig O'Neill
Dr Yvette Poudjom Djomani
Emeritus Professor John Veevers
Emeritus Professor Ron Vernon
Dr Kuo-Lung Wang
Dr Helen Williams
Dr Ming Zhang

Professional Staff

Ms Manal Bebbington (rock preparation)
Dr Eloise Beyer (Geochemist)
Mrs Nikki Bohan (Administrator from May 2005)
Mr Stephen Craven (Rock preparation)
Ms Suzy Elhlou (Geochemist)
Dr Oliver Gaul (Research Officer)
Ms Sally-Ann Hodgekiss (Research Officer, Design consultant)
Dr John Ketchum (Geochemist)
Ms Carol Lawson (Technical Officer)
Ms Maureen McMahon (Research Officer)
Dr Norman Pearson (Manager, GAU)
Dr William Powell (Research Officer)
Dr Ayesha Saeed (Geochemist)
Dr Kirsty Tomlinson (Geochemist)
Mr Peter Wieland (Geochemist)
Ms Tin Tin Win (Geochemist)

Adjunct Professors

Professor Bruce Chappell (Granite petrogenesis, geochemistry)
Professor Nicholas Fisher
Professor Mike Etheridge
Dr Richard Glen
Professor W.L. Griffin
Dr Jingfeng Guo
Dr John Hronsky (BHP-Billiton)
Professor Paul Morgan (University of Northern Arizona, Geophysics and tectonics)
Professor Else-Ragnhild Neumann
Professor Xisheng Xu

Visiting Professors

Professor Tom Andersen (University of Oslo)
Professor Jean-Yves Cottin (University Jean-Monnet, St Etienne)
Dr Phil Schmidt

Visiting Fellows

Associate Professor Ian Metcalfe (Tectonics, Asian terrain reconstructions, Gondwana breakup)

Honorary Associates

Professor Tom Andersen
Dr Kari Anderson
Dr Anita Andrew
Dr Sonja Aulbach
Dr E.V.S.S.K. Babu
Dr Graham Begg
Ms Kim Berlo
Dr Yerraguntia Bhaskar Rao
Dr Phillip L. Blevin
Ms Rosa Maria Bomparola
Professor Hannes Brueckner
Dr Robert Bultitude
Dr Gilles Chazot
Mr David Clark (CSIRO)

Professor Massimo Coltorti
Professor Kent Condie
Dr Jean-Yves Cottin
Dr Karsten Gohl
Dr Michel Grégoire
Dr Bram Janse
Dr Mel Jones
Dr Felix Kaminsky
Dr Oliver Kreuzer
Dr Bertrand Moine
Dr Geoff Nichols
Dr Boris Panov
Dr Mark C. Pirlo
Dr Peter Robinson
Ms Sonal Rege
Dr Chris Ryan (CSIRO)
Dr Stirling Shaw
Dr Simon Shee
Dr Zdislav Spetsius
Dr Nancy van Wagoner
Dr Steve Walters
Professor Xiang Wang
Mr Bruce Wyatt
Ms Chunmei Yu
Professor Jin-Hai Yu
Professor Jianping Zheng

FORMAL COLLABORATORS

University of Wollongong

Professor Allan Chivas (DEST
Systemic Infrastructure partner)

Monash University

Dr Bruce Schaefer (LIEF and
Research partner)

University of Newcastle and James Cook University

Professor W. Collins (DEST
Systemic Infrastructure partner)

University of Sydney

Dr G. Clarke (DEST Systemic
Infrastructure partner)

Dr Dietmar Muller

University of Western Sydney

Professor Peter Williams (DEST
Systemic Infrastructure partner)

CSIRO Division of Exploration and Mining

Dr N. Evans (PGE geochemistry
and Re/Os systematics)

Dr Brent McInnes (Cu/Au
metallageny)

Dr C.G. Ryan (Proton microprobe,
fluid analysis)

Dr P. Schmidt (Rock magnetism,
terrane evolution)

Australian National University (Research School of Earth Sciences)

Professor Geoff Davies

Professor Brian Kennett

Professor Gordon Lister

GA

Dr L. Wyborn (Crustal evolution,
metallageny through time,
implementation of GPS/GIS)

PIRSA (South Australian Geological Survey)

Dr Anthony Reid

Dr Justin Gum

OTHER COLLABORATORS ON PROJECT BASIS

Dr Bernard Bingen (Geological
Survey of Norway, Trondheim)

Professor J.-L. Bodinier (Université
Montpellier, France)

Professor Chen-Hong Chen,
(National Taiwan University)

Professor Chen Daogong (University
of Science and Technology of
China, Hefei)

Professor Sun-Lin Chung (National
Taiwan University)

Professor Massimo Coltorti
(University of Ferrara, Italy)

Dr Yuriy Erinchek (VSEGEI)

Professor Weiming Fan (Resource
and Environment Department,
Chinese Academy of Sciences)

Professor A. Giret (Université Jean
Monnet, St Etienne)

Dr L.M. Larsen (Greenland
Geological Survey)

Dr J.-P. Lorand (Museum National
d'Histoire Naturelle)

Professor Fengxiang Lu (China
University of Geosciences at
Wuhan)

Professor Ma Hongwen (China
University of Geosciences at
Beijing)

Professor S.R. Paterson (University
of Southern California)

Dr Patrice Rey (University of
Sydney)

Dr Csaba Szabo (Eotvos University
Budapest)

Professor O.T. Tobisch (University
of California, Santa Cruz)

Professor P. F. Williams (University
of New Brunswick)

Professor Yuan Xuecheng (China
Geological Survey)

Professor Zhou Xinmin (Nanjing
University)

Technology Partners

Agilent Technologies (Hewlett
Packard)

New Wave Research

Spectro Instruments

Nu Instruments

Appendix 2: Publications

A full list of GEMOC Publications is available at
<http://www.es.mq.edu.au/GEMOC/>

Reid, A.J., Wilson, C.J.L., Belousova, E. and Pearson, N.J. 2006. Mesozoic plutons of the Yidun Arc, SW China: U/Pb geochronology and Hf isotopic signature. *Ore Geology Reviews*. (in press).

Poudjom Djomani, Y., O'Reilly, S.Y., Griffin, W.L., Natapov, L.M., Pearson, N.J. and Doyle, B.J. 2005. Variations of the effective elastic thickness (Te) and structure of the lithosphere beneath the Slave Province, Canada. *Exploration Geophysics*, 36, 266-271.

Veevers, J.J., Saeed, A., Belousova, E.A. and Griffin, W.L. 2005. U-Pb ages and source composition by Hf-isotope and trace-element analysis of detrital zircons in Permian sandstone and modern sand from southwestern Australia and a review of the palaeogeographical and denudational history of the Yilgarn Craton. *Earth Science Reviews*, 68, 245-279.

Prendergast, K., Clarke, G., Pearson, N.J. and Harris, K. 2005. Genesis of pyrite-Au-As-Zn-Bi-Te zones associated with Cu-Au skarns: Evidence from the Big Gossan and Wanagon Gold deposits, Ertsberg District, Papua, Indonesia. *Economic Geology*, V100, 1021-1050.

Moore, A. and Belousova, E. 2005. Crystallization of Cr-poor and Cr-rich megacryst suites from the host kimberlite magma: implications for mantle structure and the generation of kimberlite magmas. *Contributions to Mineralogy and Petrology*, 149, 462-481.

Zheng, J.P., Zhang, R.Y., Liou, J.G., Griffin, W.L. and O'Reilly, S.Y. 2005. Heterogeneous and metasomatised mantle recorded by trace elements in minerals of the Donghai garnet peridotites, Sulu UHP terrane, China. *Chemical Geology*, 221, 243-259.

Karmalkar, N.R., Rege, S., Griffin, W.L. and O'Reilly, S.Y. 2005. Alkaline magmatism from Kutch, NW India: Implications for plume-lithosphere interaction. *Lithos*, 81, 101-119.

Choukroun, M., O'Reilly, S.Y., Griffin, W.L., Pearson, N.J. and Dawson, J.B. 2005. Hf isotopes of MARID (mica-amphibole-rutile-ilmenite-diopside) rutile trace metasomatic processes in the lithospheric mantle. *Geology*, 33, 45-48.

Halpin, J.A., Gerakiteys, C.L., Clarke, G.L., Belousova, E.A. and Griffin, W.L. 2005. In-situ U-Pb geochronology and Hf isotope analyses of the Rayner Complex, east Antarctica. *Contributions to Mineralogy and Petrology*, 148, 689-706.

Stevenson, J.A., Daczko, N.R., Clarke, G.L., Pearson, N. and Klepeis, K.A. 2005. Direct observation of adakite melts generated in the lower continental crust, Fiordland, New Zealand. *Terra Nova*, 17, 73-79.

Andersen, T. 2005. Detrital zircons as tracers of sedimentary provenance: Limiting conditions from statistics and numerical simulation. *Chemical Geology*, 216, 249-270.

Griffin, W.L., Natapov, L.M., O'Reilly, S.Y., van Achterbergh, E., Cherenkova, A.F. and Cherenkov, V.G. 2005. The Kharamai kimberlite field, Siberia: Modification of the lithospheric mantle by the Siberian Trap event. *Lithos*, 81, 167-187.

Xu, X., O'Reilly, S.Y., Griffin, W.L., Deng, P. and Pearson, N.J. 2005. Relict Proterozoic basement in the Nanling Mountains (SE China) and its tectonothermal overprinting. *Tectonics*, 24, TC2003, doi:10.1029/2004TC00165.

Smith, D. and Griffin, W.L. 2005. Garnetite xenoliths and mantle-water interactions below the Colorado Plateau, southwestern United States. *Journal of Petrology*, 46, 1901-1924.

Zheng, J.P., Griffin, W.L., O'Reilly, S.Y., Liou, J.G., Zhang, R.Y. and Lu, F. 2005. Late Mesozoic-Eocene mantle replacement beneath the eastern North China Craton: evidence from the Paleozoic and Cenozoic peridotite xenoliths. *International Geology Review*, 47, 457-472.

Griffin, W.L., Belousova, E.A., Walters, S.G and O'Reilly, S.Y. 2006. Archean and Proterozoic crustal evolution in the Eastern Succession of the Mt Isa District, Australia: U-Pb and Hf-isotope studies of detrital zircons. *Australian Journal of Earth Sciences*, (Mt Isa Special Volume), 53, 125-149.

Bingen, B., Griffin, W.L., Torsvik T.H. and Saeed, A. 2005. Timing of Late Neoproterozoic glaciation on Baltica constrained by detrital zircon geochronology in the Hedmark Group, Southeast Norway. *Terra Nova*, 17, 250-258.

Xiong, X.L., Adam, J. and Green, T.H. 2005. Rutile stability and rutile/melt HFSE partitioning during partial melting of hydrous basalt: Implications for TTG genesis. *Chemical Geology*, 218, 339-359.

Daczko, N.R., Mosher, S., Coffin, M.F. and Meckel, T.A. 2005. Tectonic implications of fault-scarp-derived volcaniclastic deposits on Macquarie Island: Sedimentation at a fossil ridge-transform intersection? *Geological Society of America Bulletin*, 117, 18-31.

McDermott, F., Delfin, F.G., Defant, M.J., Turner, S. and Maury, R. 2005. The petrogenesis of volcanics from Mt. Bulusan and Mt. Mayon in the Bicol arc, the Philippines. *Contributions to Mineralogy and Petrology*, 150, 652-670.

George, R., Turner, S., Morris, J., Plank, T., Hawkesworth, C. and Ryan, J. 2005. Pressure-temperature-time paths of sediment recycling beneath the Tonga-Kermadec arc. *Earth and Planetary Science Letters*, 233, 195-211.

Adams, C.J., Campbell, H.J. and Griffin, W.L. 2005. Isotopic microanalysis of seawater strontium in biogenic calcite to assess subsequent rehomogenisation during metamorphism. *Chemical Geology*, 220, 67-82.

Yu, J., Zhou, X., O'Reilly, S.Y., Zhao, L., Griffin, W.L., Wang, R., Wang, L. and Chen, X. 2005. Formation history and protolith characteristics of granulite facies metamorphic rock in Central Cathaysia deduced from U-Pb and Lu-Hf isotopic studies of single zircon grains. *Chinese Science Bulletin*, 50, 2080-2089.

Yu, J., O'Reilly, S.Y., Xu X. and Wang, R. 2006. Element diffusion ability in metasomatic agents and its effect on chemical characteristics of metasomatized peridotites. *Science in China*. (in press).

Baker, T., Mustard, R., Brown, V., Pearson, N., Stanley, C.R., Radford, N.W. and Butler, I. 2005. Textural and chemical zonation of pyrite at Pajingo: A potential vector to epithermal gold veins. *Geochemistry - Exploration, Environment, Analysis*, 5, 1-11.

Condie, K.C., Beyer, E., Belousova, E., Griffin, W.L. and O'Reilly, S.Y. 2005. U-Pb Isotopic Ages and Hf Isotopic Composition of Single Zircons: The Search for Juvenile Precambrian Continental Crust. *Precambrian Research*, 139, 42-100.

McInnes, B.I.A., Evans, N.J., Fu, F.Q., Garwin, S., Belousova, E., Griffin, W.L., Bertens, A., Sukarna, D., Permanadewi, S., Andrew, R.L. and Deckart, K. 2005. Thermal history analysis of selected Chilean, Indonesian and Iranian porphyry Cu-Mo-Au deposits. In Porter, T.M. (ed), *Super porphyry copper and gold deposits: a global perspective*. PGC Publishing, Adelaide, V1, 27-42.

Belousova, E.A., Griffin, W.L. and O'Reilly, S.Y. 2006. Zircon crystal morphology, trace-element signatures and Hf-isotope composition as a tool for petrogenetic modelling: examples from eastern Australian granitoids. *Journal of Petrology*, 47, 329 - 353.

Rege, S., Jackson, S., Griffin, W.L., Davies, R.M., Pearson, N.J. and O'Reilly, S.Y. 2005. Quantitative trace-element analysis of diamond by laser ablation inductively coupled plasma mass spectrometry. *Journal of Analytical Atomic Spectrometry*, 20, 601-611.

Pearson, N.J., Griffin, W.L., Alard, O. O'Reilly, S.Y. 2006. The isotopic composition of magnesium in mantle olivine: Records of depletion and metasomatism. *Chemical Geology*, 226, 115-133.

O'Reilly, S.Y. and Griffin, W.L. 2006. Imaging global chemical and thermal heterogeneity in the sub-continental lithospheric mantle with garnets and xenoliths: Geophysical implications. *Tectonophysics*, 416, 289-309.

Kaminsky, F.V., Zakharchenko, O.D., Khachatryan, G.K., Griffin, W.L. and Der Channer, D.M. 2006. Diamond from the Los Coquitos area, Bolivar State, Venezuela. *The Canadian Mineralogist*. (in press; corr proof online)

Alard, O., Luguet, A., Pearson, N.J., Griffin, W.L., Lorand, J.-P., Gannoun, A., Burton, K.W. and O'Reilly, S.Y. 2005. *In-situ* Os isotopes in abyssal peridotites bridge the "isotopic gap" between MORB and their source mantle. *Nature*, 436, 1005-1008.

Odegard, M., Skar, O., Schiellerup, H. and Pearson, N. 2005. Preparation of a synthetic titanite glass calibration material for *in situ* microanalysis by direct fusion in graphite electrodes: A preliminary characterization by EPMA and LA-ICP-MS. *Geostandards and Geoanalytical Research*, 29, 197-209.

Vevers, J.J. 2005. Edge tectonics (trench rollback, terrane export) of Gondwanaland-Pangea synchronized by supercontinental heat. *Gondwana Research*, 8, 449-456.

Poudjom Djomani, Y.H., Griffin, W.L., O'Reilly, S.Y. and Doyle, B.J. 2005. Lithospheric domains and controls on kimberlite emplacement, Slave Province, Canada: evidence from elastic thickness and upper mantle composition. *Geochemistry, Geophysics and Geosystems*, 6, Q10006, doi 10.1029/2005GC000978.

Yu, J.-H., O'Reilly, S.Y., Zhang, M., Griffin, W.L. and Xu. X. 2006. Roles of melting and metasomatism in the formation of the lithospheric mantle beneath the Leizhou Peninsula, South China. *Journal of Petrology*, 47, 355-383.

Klein, E.L., Moura, C.A.V., Krymsky, R.S. and Griffin, W.L. 2005. The Gurupi Belt, northern Brazil: lithostratigraphy, geochronology and geodynamic evolution. *Precambrian Research*, 141, 83-105.

Appendix 2: Publications

Veevers, J.J., Belousova, E.A., Saeed, A., Sircombe, K., Cooper, A.F. and Read, S.E. 2006. Pan-Gondwanaland detrital zircons from Australia analysed for Hf-isotopes and trace elements reflect an ice-covered Antarctic provenance of 700-500 Ma age, T_{DM} of 2.0-1.0 Ga, and alkaline affinity. *Earth-Science Reviews*, 76, 135-174.

Veevers J.J. 2006. Updated Gondwana (Permian-Cretaceous) earth history of Australia. *Gondwana Research*, 9, 231-260.

Powell, W. and O'Reilly, S.Y. 2006. Metasomatism and sulfide mobility in lithospheric mantle beneath eastern Australia: implications for mantle Re-Os chronology. *Lithos*. (in press)

Nielsen, S.G., Rehkämper, M., Norman, M.D. and Halliday, A.N. 2005. Thallium isotopic evidence for ferromanganese sediments in the mantle source of Hawaiian basalts. *Nature*, 439, 314-317.

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Zhang, M. and Pearson, N.J. 2006. Granulite xenoliths and their zircons, Tuoyun, NW China: Insights into southwestern Tianshan lower crust. *Precambrian Research*, 145, 159-181.

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Zhang, M., Pearson, N.J. and Pan, Y. 2006. Widespread Archean basement beneath the Yangtze craton. *Geology*, 34, 417-420.

Deen, T., Griffin, W.L., Begg, G., O'Reilly, S.Y. and Natapov, L.M. 2006. Thermal and compositional structure of the subcontinental lithospheric mantle: Derivation from shear-wave seismic tomography. *Geochemistry, Geophysics and Geosystems*, 7, Q07003, doi:10.1029/2005GC001120.

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Zhang, M., Pearson, N.J. and Luo, Z. 2006. The lithospheric mantle beneath the southwestern Tianshan area, NW China. *Contributions to Mineralogy and Petrology*, 151, 457-479.

Nielsen, S.G., Rehkämper, M. and Halliday, A.N. 2006. Large thallium isotopic variations in iron meteorites and evidence for lead-205 in the early solar system. *Geochimica et Cosmochimica Acta*, 70, 2643-2657.

Beyer, E., Griffin, W.L. and O'Reilly, S.Y. 2006. Transformation of Archean lithospheric mantle by refertilisation: evidence from exposed peridotites in the Western Gneiss Region, Norway. *Journal of Petrology*, 47, 1611-1636.

Downes, P.J., Griffin, B.J. and Griffin, W.L. 2006. Mineral chemistry and zircon geochronology of xenocrysts and altered mantle and crustal xenoliths from the Aries kimberlite pipe: Constraints on the composition and age of the central Kimberley Craton, Western Australia. *Lithos* (in press, March 2006)

Griffin, W.L., Pearson, N.J., Belousova, E.A. and Saeed, A. 2006. Comment: Hf-isotope heterogeneity in zircon 91500. *Chemical Geology* (in press; corr proof online)

Adam, J. and Green, T. 2006. Trace element partitioning between mica- and amphibole-bearing garnet lherzolite and hydrous basanitic melt: 1. Experimental results and the investigation of controls on partitioning behaviour. *Contributions to Mineralogy and Petrology*, 152, 1-17.

Lackie, M.A. and McMahon, K.L. 2006. Seismic Reflection Studies of the Amery Ice Shelf, East Antarctica. *Geophysical Journal International*, 166, 757.

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Yang, J.S. and Zhang, R.Y. 2006. A refractory mantle protolith in younger continental crust, east-central China: Age and composition of zircon in the Sulu UHP peridotite. *Geology*. (in press)

Paterson, S.R., Vernon, R.H. and Zak, J. 2005. Mechanical instabilities and physical accumulation of K-feldspar megacrysts in granitic magma, Tuolumne Batholith, California, USA. *Journal of the Virtual Explorer*, 18, 1-20.

Kruhl, J.H. and Vernon, R.H. 2005. Syndeformational emplacement of a tonalitic sheet-complex in a Late-Variscan thrust regime: fabrics and mechanism of intrusion, Monte's Senes, Northeastern Sardinia, Italy. *The Canadian Mineralogist*, 43, 387-407.

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Zhang, M. and Pearson, N. 2006. Zircons in mantle xenoliths record the Triassic Yangtze-North China continental collision. *Earth and Planetary Sciences*, 247, 130-142

Andersen, T., Griffin, W.L. and Sylvester, A.G. 2006. Sveconorwegian underplating in southwestern Fennoscandia: LAM-ICPMS Hf isotope evidence from granites and gneisses in Telemark, southern Norway. *Lithos*. (in press)

Dosseto, A., Turner, S.P. and Douglas, G.B. 2006. Uranium-series isotopes in colloids and suspended sediments: Timescale for sediment production and transport in the Murray-Darling River System. *Earth and Planetary Science Letters*. (in press)

Zheng, J., Griffin, W.L., O'Reilly, S.Y., Yang, J., Li, T., Zhang, R.Y. and Liou, G.J. 2006. Mineral Chemistry of Garnet Peridotites from Paleozoic, Mesozoic and Cenozoic Lithosphere: Constraints on Mantle Evolution beneath Eastern China. *Journal of Petrology*. (in press).

Appendix 3: Visitors/ GAU users

GEMOC VISITORS 2005 (Excluding Participants in Conferences and Workshops) Macquarie

Dr Chris Adams (Institute of Geological & Nuclear Sciences, Lower Hutt NZ)
Dr Olivier Alard
Mr Phil Baker (WMC Resources)
Dr Graham Begg (BHP-Billiton)
Dr Steve Beresford (BHP-Billiton)
Ms Kim Berlo (Dept of Earth Sciences, University of Bristol, UK)
Ms Mai-Fei Chu (Taiwan National University)
Professor Sun-Lin Chung (Taiwan National University)
Professor Massimo Coltorti (University of Ferrara)
Dr Craig Cook (Waikato University, Hamilton, NZ)
Professor Jon Davidson (Durham University, UK)
Andy Du Frane (University of New Mexico)
Professor Jim Gill (Santa Cruz University, California)
Dr Alan Goode (AMIRA International)
Mr Rabea Haredy (School of Earth and Environmental Sciences, University of Wollongong)
Dr Jeff Harris (Department of Geographical and Earth Sciences, University of Glasgow and De Beers)

Dr Chris Hatton (DeBeers Johannesburg)
Ms Adriana Heimann (Dept of Geological and Atmospheric Sciences, Iowa State University)
Mr Jim Hill (RSI, Colorado, USA)
Dr Jon Hronsky (BHP-Billiton)
Dr Martin van Kranendonk (Geological Survey of Western Australia)
Ms Yu-Hsuan Liang (Taiwan National University)
Dr Geordie Mark (Dept of Geological Sciences, Monash University)
Mr Paul Montague (Kennelec Scientific P/L)
Dr Michael Palin (Department of Geology, Otago University, NZ)
Dr Chris Ryan (CSIRO)
Professor Mike Sandiford (University of Melbourne)
Dr Simon Shee (DeBeers Australia)
Dr Keith Sircombe (Geoscience Australia)
Mr Darren Stephens (BHP Billiton)
Mr Fraser Tabear (WMC Resources)
Dr Tadashi Usuki (Institute of Earth Science, Academia Sinica, Taipei)
Dr Esmé van Achterbergh (Rio Tinto)
Professor Bernard Wood (Dept of Earth Sciences, University of Bristol, UK)
Professor Jianping Zheng (China University of Geosciences, Wuhan)

Appendix 3: Visitors/ GAU users

EXTERNAL USERS OF THE GEOCHEMICAL ANALYSIS UNIT FACILITIES IN 2005

(Note: this does not include
commercial or contract work
through AccessMQ)

Dr Chris Adams (Institute of
Geological and Nuclear Science,
New Zealand)

Dr Manish Arora (Faculty of
Dentistry, University of Sydney)

Dr Dioni Cendon (School of
Geosciences, University of
Wollongong)

Professor Alan Chivas (School
of Geosciences, University of
Wollongong)

Professor Massimo Coltorti
(Università di Ferrara, Italy)

Dr Craig Cook (University of
Waikato)

Mr Andy Du Frane (University of
New Mexico)

Dr Marco Fiorentini (University of
Western Australia)

Professor Jim Gill (University of
California, Santa Cruz, USA)

Dr Peter Grave (School of
Human and Environmental
Studies, Archaeology and
Palaeoanthropology, University
of New England)

Mr Rabea Haredy (School of
Geosciences, University of
Wollongong)

Ms Adriana Heimann (Dept of
Geological and Atmospheric
Sciences, Iowa State University,
USA)

Dr Brian Jones (School of
Geosciences, University of
Wollongong)

Dr Florence Le Hebel (School
of Geosciences, University of
Sydney)

Dr Geordie Mark (School
of Geosciences, Monash
University)

Dr Terry Mernagh (Geoscience
Australia)

Ms Marianne Sandstrom
(University of Adelaide)

Dr Giovanna Sapienza (Università
degli Studi di Bologna, Italy)

Dr Bruce Schaefer (School
of Geosciences, Monash
University)

Dr Qiang Wang (School of
Geosciences, University of
Sydney)

Dr Derek Wyman (School of
Geosciences, University of
Sydney)

Dr Oskar Thalhammer (University
of Leoben)

Appendix 4: Abstract titles

TITLES OF ABSTRACTS FOR CONFERENCE PRESENTATIONS IN 2005

Full abstracts available at
<http://www.es.mq.edu.au/GEMOC/>

COLLOQUIUM AND ANNUAL GENERAL MEETING OF THE ATLANTIC GEOSCIENCE SOCIETY (AGS), SAINT JOHNS, NEW BRUNSWICK, CANADA, FEBRUARY 4-6 2005

Phreatomagmatism of the Silurian Passamaquoddy Bay Subbelt, Maine and New Brunswick

R.W.D. Lodge¹, N. Van Wagoner¹ and
K. Dadd²

1. Acadia University, Geology
Department, Wolfville, Nova Scotia,
Canada, 2. GEMOC, Macquarie

JOINT MEETING OF THE GEOLOGICAL ASSOCIATION OF CANADA, THE MINERALOGICAL ASSOCIATION OF CANADA, THE CANADIAN SOCIETY OF PETROLEUM GEOLOGISTS AND THE CANADIAN SOCIETY OF SOIL SCIENCES (GAC/MAC), HALIFAX, NOVA SCOTIA, CANADA, MAY 15-18 2005

Origin and Evolution of the Lithospheric Mantle beneath the Central Slave Craton (Canada)

S. Aulbach¹, W.L. Griffin¹, N.J. Pearson¹,
S.Y. O'Reilly¹ and K. Kivi²
1. GEMOC, Macquarie, 2. Kennecott
Canada Exploration Inc., Thunder Bay,
ONT, Canada

Evolution of the Makkovik Province, Labrador, Canada: tectonic processes during 200 Ma at a Paleoproterozoic active margin

N. Culshaw¹, J. Ketchum², and S.M. Ball
1. Department of Earth Sciences,
Dalhousie University, Halifax, Canada,
2. GEMOC, Macquarie

Restite in S-Type Granites of the Lachlan Fold Belt, SE Australia

R.H. Vernon
GEMOC, Macquarie

Late Ordovician to Silurian arc and back-arc sequences: southwestern New Brunswick and eastern Maine

N. Van Wagoner¹, M. McLeod², K.
Dadd³ and M. Leybourne⁴

1. Acadia University, Geology
Department, Wolfville, Nova
Scotia, Canada, 2. New Brunswick
Department of Natural Resources,
Geological Surveys Branch, Sussex,
New Brunswick, 3. GEMOC,
Macquarie, 4. Department of Geology,
Department of Geosciences, University
of Texas at Dallas, Richardson, Texas,
US

Comparative volcanology of the Silurian Passamaquoddy Bay Subbelt, Maine and New Brunswick: Implications for correlation and Volcanic Setting

N. Van Wagoner¹, K. Dadd²
1. Acadia University, Geology
Department, Wolfville, Nova Scotia,
Canada, 2. GEMOC, Macquarie

15TH ANNUAL V. M. GOLDSCHMIDT CONFERENCE, UNIVERSITY OF IDAHO, MOSCOW, IDAHO USA, MAY 20-25 2005

The eclogite mantle reservoir: $^{176}\text{Hf}/^{177}\text{Hf}$, Nb/Ta and Zr/Hf of rutile

S. Aulbach¹, W.L. Griffin^{1,2}, N.J.
Pearson¹ and S.Y. O'Reilly¹
1. GEMOC, Macquarie, 2. CSIRO
Exploration and Mining, North Ryde,
Australia

Os-Hf-Nd Isotope Constraints on Subcontinental Lithospheric Mantle Evolution, Slave Craton (Canada)

S. Aulbach¹, W.L. Griffin^{1,2}, N.J.
Pearson¹, S.Y. O'Reilly¹ and K. Kivi³
1. GEMOC, Macquarie, 2. CSIRO
Exploration and Mining, North Ryde,
Australia, 3. Kennecott Canada Expl.
Inc., Thunder Bay, ONT, Canada

The isotopic composition of subduction fluid: High-, low-, or normal $\delta^{18}\text{O}$?

I. Bindeman^{1,2}, S. Turner³, J. Eiler² and
M. Portnyagin⁴

1. Geological Science, University of
Oregon, Eugene, OR, USA, 2. GPS,
Caltech, Pasadena, CA, USA, 3.
GEMOC, Macquarie, 4. GEOMAR,
Kiel, Germany

Mantle and crustal metasomatism of garnet-bearing peridotite in the Western Gneiss Region of the Norwegian Caledonides

H. Brueckner^{1,2}, D.A. Carswell³,
W.L. Griffin⁴, L.G. Medaris Jr. and E. Beyer⁴
1. Queens College and The Graduate
Center of CUNY, USA, 2. Lamont-Doherty
Earth Observatory of Columbia University,
USA, 3. Department of Geography,
University of Sheffield, UK, 4. GEMOC,
Macquarie, 5. Department of Geology and
Geophysics, University of Wisconsin-
Madison, Wisconsin, USA

Rapid response of erosion to recent climatic changes: New insights from uranium-series

A. Dosseto¹, B. Bourdon², J. Gaillardet²,
C.J. Allegre², and N. Filizola³
1. GEMOC, Macquarie, 2. Laboratoire
de Geochimie et Cosmochimie, ICPG,
Paris, France, 3. IRD-LMTG, Universite
Paul Sabatier, Toulouse, France

Understanding radioactive disequilibrium in river-borne material: dependence on colloid/ particle size

A. Dosseto¹, G.B. Douglas² and S. Turner¹
1. GEMOC, Macquarie, 2. CSIRO Land
and Water, Wembley, WA, Australia

Magma differentiation and storage at Katmai-Novarupta 1912: comparing U-series time scales with thermal models

R.M. George¹, S. Turner¹, M. Reagan²,
M. Sandiford³, C. Hawkesworth⁴ and
W. Hildreth⁵
1. GEMOC, Macquarie, 2. Department
of Geoscience, University of Iowa, Iowa
City, USA, 3. School of Earth Sciences,
University of Melbourne, Victoria,
Australia, 4. Department of Earth
Sciences, Bristol University, Bristol,
UK, 5. US Geological Survey, CA, USA

Appendix 4: Abstract titles

***In-situ* U-Pb geochronology and Hf isotope analyses of the Rayner Complex, east Antarctica**

J.A. Halpin¹, C.L. Gerakiteys¹, G.L. Clarke¹, E.A. Belousova² and W.L. Griffin^{2,3}

1. School of Geosciences, University of Sydney, Sydney, Australia, 2. GEMOC, Macquarie, 3. CSIRO Exploration and Mining, North Ryde, Australia

Laser ablation MC-ICP-MS: shedding new light on *in-situ* isotope ratio measurement

N. Pearson, W.L. Griffin and S.Y. O'Reilly
GEMOC, Macquarie

^{210}Pb - ^{226}Ra - ^{230}Th implications for timescales of island arc magma degassing

S. Turner¹ and K. Berlo²
1. GEMOC, Macquarie, 2. Department of Earth Sciences, University of Bristol, UK

Proterozoic mantle lithosphere beneath the East African Rift (Southern Ethiopia): In situ Re-Os evidence

K.L. Wang^{1,2}, S.Y. O'Reilly¹, W.L. Griffin¹, N. Pearson¹, R. Matsumura³ and R. Shinjo³
1. GEMOC, Macquarie, 2. Department of Geosciences, National Taiwan University, Taipei, Taiwan, 3. Department of Physics and Earth Sciences, University of the Ryukyus, Nishihara, Okinawa, Japan

Early J2 basalts in SE China: The incipience of large-scale late Mesozoic magmatism

X. Xie¹, X. Xu¹, H. Zou², S. Jiang¹, M. Zhang³ and J. Qiu¹
1. State Key Laboratory of Mineral Deposit Research, Department of Earth Sciences, Nanjing University, Nanjing, China, 2. Department of Earth and Space Sciences, University of California, Los Angeles, USA, 3. GEMOC, Macquarie

EUROPEAN GEOSCIENCES UNION GENERAL ASSEMBLY 2005 VIENNA, AUSTRIA, APRIL 24-29 2005

***In-situ* Os isotopic compositions in sulfides from Kerguelen mantle xenoliths (Indian Ocean): Proterozoic subcontinental mantle fragments under the Kerguelen Archipelago?**

G. Delpech^{1,2}, M. Grégoire^{2,3}, J.P. Lorand⁴, S.Y. O'Reilly² and J.Y. Cottin^{1,2}
1. University of Jean Monnet, Saint-Etienne, France, 2. GEMOC, Macquarie, 3. Observatoire Midi-Pyrénées, Toulouse, France, 4. Muséum d'Histoire Natuelle, Paris, France

The age of Os isotope reason in the sub-continental lithospheric mantle

N.J. Pearson¹, W.L. Griffin¹, O. Alard^{1,2} and S.Y. O'Reilly¹, 1. GEMOC, Macquarie, 2. CNRS, Université de Montpellier, Montpellier, France

AGU 2005 JOINT ASSEMBLY, NEW ORLEANS, LA, USA, MAY 23-27 2005

A sharp continent-ocean transition in the area of the Canary Islands: Evidence from upper mantle and lower crustal xenoliths

E.-R. Neumann¹, R. Vannucci^{2,3}, M. Tiepolo³, W.L. Griffin⁴, N.J. Pearson⁴ and S.Y. O'Reilly⁴
1. Physics of Geological Processes, University of Oslo, Oslo, Norway, 2. Dipartimento di Scienze della Terra, Università di Pavia, Pavia, Italy, 3. CNR - Istituto di Geoscienze e Georisorse, sezione di Pavia, Pavia, Italy, 4. GEMOC, Macquarie

AOGS, ASIA OCEANIA GEOSCIENCES SOCIETY 2ND ANNUAL MEETING, SINGAPORE, JUNE 20-24 2005

Magma differentiation and storage at Katmai-Novarupta 1912: comparing U-series time scales with thermal models

R.M. George¹, S. Turner¹, M. Reagan², M. Sandiford³, C. Hawkesworth⁴
1. GEMOC, Macquarie, 2. Department of Geoscience, University of Iowa, Iowa City, USA, 3. School of Earth Sciences, University of Melbourne, Victoria, Australia, 4. Department of Earth Sciences, Bristol University, Bristol, UK

Consequences of U-series disequilibria for thermal maturation models for silicic magma production and the time scales involved

S. Turner¹, A. Dosseto¹, R. George¹, K. Berlo²
1. GEMOC, Macquarie, 2. Department of Earth Sciences, Bristol University, Bristol, UK

IUGS-SECE, THE ORIGIN, EVOLUTION AND PRESENT STATE OF SUBCONTINENTAL LITHOSPHERE CONFERENCE, CHINA, JUNE 25-30 2005

Mapping the Lithospheric Mantle: Tomography meets Geochemistry and Geothermics

W.L. Griffin^{1,2}, S.Y. O'Reilly¹, T. Deen¹, G. Begg³ and Y. Poudjom Djomani¹
1. GEMOC, Macquarie, 2. CSIRO Exploration and Mining, North Ryde, Australia, 3. WMC Resources Ltd., Belmont, WA, Australia

Persistence of ancient lithospheric mantle: consequences for geodynamics and basalt geochemistry

S.Y. O'Reilly¹, W.L. Griffin^{1,2}, M. Zhang¹ and Y. Poudjom Djomani¹
1. GEMOC, Macquarie, 2. CSIRO Exploration and Mining, North Ryde, Australia

Re-Os isotopes in mantle xenoliths from SE China: age constraints and evolution of lithospheric mantle

X. Xu^{1,2}, W.L. Griffin², S.Y. O'Reilly², and N.J. Pearson²

1. State Key Laboratory for Mineral Deposits Research, Department of Earth Sciences, Nanjing University, Nanjing, China, 2. GEMOC, Macquarie

Secular (136 to 0 Ma) chemical variation of mantle-derived mafic magmas in the Sino-Korean Craton: constraints on mantle evolution

M. Zhang¹, W. Fan^{1,2}, S.Y. O'Reilly¹, J. Zheng^{1,3} and W.L. Griffin^{1,4}

1. GEMOC, Macquarie, 2. Lab of Lithospheric Tectonic Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China, 3. Faculty of Earth Sciences, China University of Geosciences, Wuhan, China, 4. CSIRO Exploration and Mining, North Ryde, NSW, Australia

Late Mesozoic-Eocene mantle replacement beneath the eastern North China Craton: evidence from the Paleozoic and Cenozoic peridotite xenoliths

J. Zheng¹, W.L. Griffin^{2,3}, S.Y. O'Reilly² and F. Lu¹

1. State Key Laboratory of Geological Processes and Mineral Resources, Faculty of Earth Sciences, China University of Geosciences, Wuhan, China, 2. GEMOC, Macquarie, 3. CSIRO Exploration and Mining, North Ryde, NSW, Australia

Mineral chemistry of garnet peridotites from Paleozoic and Cenozoic lithosphere and Mesozoic UHP terrain: constraints on lithospheric evolution, east China

J. Zheng¹, W.L. Griffin^{2,3}, R.Y. Zhang⁴, S.Y. O'Reilly² and J.G. Liou⁴

1. State Key Laboratory of Geological Processes and Mineral Resources, Faculty of Earth Sciences, China University of Geosciences, Wuhan, China, 2. GEMOC, Macquarie, 3. CSIRO Exploration and Mining, North Ryde, NSW, Australia, 4. Department of Geological and Environmental Sciences, Stanford University, CA, USA

GEOLOGICAL SOCIETY OF SOUTH AFRICA, DURBAN, SOUTH AFRICA, JULY 4-7 2005

Structural aspects of igneous cumulates (invited lecture)

R.H. Vernon
GEMOC Macquarie

SPECIALIST GROUP IN GEOCHEMISTRY, MINERALOGY AND PETROLOGY (SGGMP) GEOLOGICAL SOCIETY OF AUSTRALIA FIRST BIENNIAL CONFERENCE, PORT MACQUARIE, JULY 13-15 2005

Plutonism and metamorphism at the root of a Cretaceous magmatic arc

S.A. Carroll and N.R. Daczko
GEMOC, Macquarie

High-pressure mafic migmatites, Fiordland, New Zealand: does migmatisation promote recrystallisation to garnet granulite?

N.R. Daczko¹ and G.L. Clarke²
1. GEMOC, Macquarie, 2. School of Geosciences, University of Sydney, Sydney, Australia

Tracking crustal differentiation and assimilation processes at arc volcanoes: a Uranium series isotope perspective

R.M. George¹, S.P. Turner¹, R. Price², C. Cook² and B. Finney³
1. GEMOC, Macquarie, 2. School of Science and Technology, University of Waikato, Hamilton, New Zealand, 3. Department of Earth Sciences, University of Bristol, Bristol, UK

Insights into magma generation and evolution at White Island, New Zealand

Z. Hayworth¹, R.M. George², B.F. Schaefer¹ and S.P. Turner²
1. School of Geosciences, Monash University, ACT, Australia, 2. GEMOC, Macquarie

Thermobarometry of Early Cretaceous high-pressure contact metamorphic aureole near Resolution Island, Fiordland, New Zealand

L.A. Milan¹, N.R. Daczko¹, I. Turnbull², and A. Allibone²

1. GEMOC, Macquarie, 2. Institute of Geological and Nuclear Sciences, Dunedin, New Zealand

Thallium isotopic evidence for ferromanganese sediments in the mantle source of Hawaiian basalts

S.G. Nielsen^{1,2}, M. Rehkamper^{1,3}, M. Norman⁴ and A. Halliday^{1,5}

1. Department of Earth Sciences, ETH Zurich, Zurich, Switzerland, 2. GEMOC, Macquarie,

3. Imperial College, London, United Kingdom, 4. Research School of Earth Sciences, Australian National University, Canberra, ACT, Australia, 5. Department of Earth Sciences, University of Oxford, Oxford, United Kingdom

Facies analysis, geochemistry and tectonic setting of the Frampton Volcanics, southeastern New South Wales

A.C. Plioplis and K.A. Dadd
GEMOC, Macquarie

Systematics in two phase REE and Y partitioning coefficients in mafic granulites

F.C. Schroter¹, G.L. Clarke¹, R.W. White² and N.J. Pearson³
1. School of Earth Sciences, University of Sydney, NSW, Australia, 2. School of Earth Sciences, University of Melbourne, Victoria, Australia, 3. GEMOC, Macquarie

Tectonic significance of low-grade mineralization of seafloor spreading-related faults, Macquarie Island

J-Y. Talbot and N.R. Daczko
GEMOC, Macquarie

Time scales of magmatic processes: a review of recent U-series results

S. Turner
GEMOC, Macquarie

Appendix 4: Abstract titles

Iron Isotopes as a potential new tool in igneous geochemistry and cosmochemistry

H.M. Williams^{1,2}, A.N. Halliday³, C.A. McCammon⁴, A.H. Peslier⁵, N. Teutsch¹, S. Levasseur¹ and J.-P. Burg¹
1. Department of Earth Sciences, ETH-Zurich, Switzerland, 2. GEMOC Macquarie, 3. Department of Earth Sciences, University of Oxford, Oxford, UK, 4. Bayerisches Geoinstitut, Universitat Bayreuth, Bayreuth, Germany, 5. Texas Centre for superconductivity and Advanced Materials, University of Houston, Houston, TX, USA

Where do high-level granite magmas come from?

R.H. Vernon
GEMOC, Macquarie

8TH BIENNIAL SGA MEETING, MINERAL DEPOSIT RESEARCH: MEETING THE GLOBAL CHALLENGE, BEIJING, CHINA, AUGUST 18-21 2005

Upper mantle composition: tools for smarter diamond exploration

W.L. Griffin^{1,2} and S.Y. O'Reilly¹
1. GEMOC, Macquarie, 2. CSIRO Exploration and Mining, North Ryde, Australia

The evolution of lithospheric domains: a new framework to enhance mineral exploration targeting

S.Y. O'Reilly¹, J. Hronsky², W.L. Griffin^{1,3} and G. Begg²
1. GEMOC, Macquarie, 2. WMC Resources Ltd., Belmont, WA, Australia, 3. CSIRO Exploration and Mining, North Ryde, NSW

SPECIALIST GROUP IN TECTONICS AND STRUCTURAL GEOLOGY CONFERENCE ("STOMP"), TOWNSVILLE, QUEENSLAND, AUGUST 29 - SEPTEMBER 2 2005

Structural evidence for identifying granite cumulates

R.H. Vernon
GEMOC, Macquarie

WEST ANTARCTICA ICE SHEET INITIATIVE (WAIS) WORKSHOP, STERLING, VIRGINIA, USA, SEPTEMBER 28 - OCTOBER 1 2005

Seismic studies of the Amery Ice Shelf, East Antarctica

K. McMahon
GEMOC, Macquarie

INTERNATIONAL CONFERENCE IN HONOUR OF RON H. VERNON ON "SHEARED MAGMAS IN NATURE AND EXPERIMENT: BRIDGING THE BRITTLE AND DUCTILE FIELDS", KLOSTER SEEON, BAVARIA, GERMANY, OCTOBER 4-7 2005

Problems of extraction and sources of felsic magma

R.H. Vernon¹ and S.R. Paterson²
1. GEMOC, Macquarie, 2. Earth Sciences, University of Southern California, Los Angeles, USA.

2005 AGU FALL MEETING, SAN FRANCISCO, CA, USA, DECEMBER 5-9 2005

Campbell Plateau, New Zealand: Seismic Analysis and Models From a Rifted Submarine Plateau of Continental Origin

J. Grobys¹, K. Gohl¹, G. Uenzelmann-Neben¹, B. Davy², D. Barker² and T. Deen³
1. Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany, 2. GNS Science, Lower Hutt, New Zealand, 3. GEMOC, Macquarie

Runaway growth of Mars and implications for core formation relative to Earth

A.N. Halliday¹, B.J. Wood² and T. Kleine³
1. University of Oxford, Earth Sciences, Oxford, United Kingdom, 2. GEMOC, Macquarie, 3. ETH Zentrum, Earth Sciences, Zurich, Switzerland

Deciphering multistage crystal histories in arc magmas

R. George¹, S. Turner¹, K. Berlo² and N. Pearson¹
1. GEMOC, Macquarie, 2. Department of Earth Sciences, University of Bristol Wills Memorial Building, United Kingdom

Transitional melt flow in downwelling arc mantle

N. Petford¹ and S. Turner²
1. Kingston University, Centre for Earth and Environmental Science Research, London, United Kingdom, 2. GEMOC, Macquarie

Mass transfer in subduction zones: an elemental and isotopic perspective

S. Turner and R. George
GEMOC, Macquarie

Kelvin revisited: Cooling and core formation after the giant impact

B.J. Wood¹ and A.N. Halliday²
1. GEMOC, Macquarie, 2. Oxford University, Department of Earth Sciences, Oxford, United Kingdom

Core formation and the oxidation state of the Earth

B.J. Wood¹, J. Wade² and M.J. Walter³
1. Department of Earth and Planetary Sciences, Macquarie University, Sydney, Australia, 2. University of Bristol, Department of Earth Sciences, Bristol, United Kingdom, 3. Australian Centre for Astrobiology, Macquarie University

Appendix 5: Funded research projects

GRANTS AND OTHER INCOME FOR 2005

Funding Source	Investigators	Project Title	Amount
ARC Discovery	Alard	Toward the use of metal stable isotopes in geosciences	\$115,073
ARC Discovery	Belousova	Crustal evolution in Australia: Ancient and young terrains	\$106,348
ARC Discovery	Daczko	A new approach to understanding the mechanisms and deep crustal controls of continental rifting	\$51,050
ARC Discovery	Jackson	Isotopic fractionation of the ore minerals (Cu, Fe, Zn): A new window on ore-forming processes	\$102,100
ARC Discovery	O'Reilly, Griffin, Gohl, Morgan, Cottin, Neumann, Xu	How has the continental lithosphere evolved? Processes of assembly, growth, transformation and destruction	\$279,073
ARC Discovery	Turner, Hawkesworth, Reagan, Kirchner	The time scales of magmatic and erosional cycles	\$88,816
ARC Linkage International	O'Reilly, Griffin, Cottin, Grégoire, Xu	How has the continental lithosphere evolved? Processes of assembly, growth, transformation and destruction	\$41,796
ARC Linkage Projects	O'Reilly, Griffin, WMC	Global lithosphere architecture mapping (including industry contribution)	\$196,734
ARC LIEF Grant	Turner, Schaefer, Brierley, O'Reilly, Griffin, Haydon	A ThermoFinnigan Triton high-sensitivity thermal ionisation mass spectrometer for constraining geoscience rates and environmental processes via Ra and Os analysis	\$495,000
ARC LIEF Grant (MU contribution)	Turner, Schaefer, Brierley, O'Reilly, Griffin, Haydon	A ThermoFinnigan Triton high-sensitivity thermal ionisation mass spectrometer for constraining geoscience rates and environmental processes via Ra and Os analysis	\$175,000
ARC Federation Fellowship	Turner	The time scales of geochemical cycles and Earth processes	\$310,325
ARC Federation Fellowship (MU contribution)	Turner	The time scales of geochemical cycles and Earth processes	\$92,243
ARC Federation Fellowship	Wood	Origin and evolution of Earth's chemical reservoirs	\$310,325
ARC Federation Fellowship (MU contribution)	Wood	Origin and evolution of Earth's chemical reservoirs	\$180,000

Appendix 5: Funded research projects

Funding Source	Investigators	Project Title	Amount
MU capital equipment	DEPS	Alpha counting system	\$25,000
Dept. Earth and Planetary Sciences	O'Reilly, DEPS	GAU Maintenance contribution	\$30,000
Industry partner sponsorship BHP-Billiton, Codelco, Tech Cominco, Gold Fields, Newmont, Placer Dome, Etheridge WMC Resources, Geoinformatics Exploration, Jackaroo Exploration		Improving mineral exploration performance by superior management of risk, uncertainty and value	\$179,928
MU DEST RIBG	Turner et al	Facility for the study of short-lived isotopes in mid-ocean ridge basalt glasses	\$65,064
MU DEST RIBG	Wood et al	New Wave Micromill	\$48,059
MUECRG Scheme	Belousova	Developing a geochronological framework for the Gawler Craton, South Australia	\$20,000
MUECRG Scheme	Belousova	Developing a geochronological framework for the Gawler Craton, South Australia (Industry contribution)	\$20,000
MUECRG	O'Reilly	Links between plume-mantle interaction, mantle sulfides and Ni-PGE endowment in large igneous provinces	\$40,000
MUECRG WMC	O'Reilly	Links between plume-mantle interaction, mantle sulfides and Ni-PGE endowment in large igneous provinces (industry contribution)	\$40,000
MURDG	Malkovets	Age and evolution of the upper mantle beneath the Siberian Craton and Siberian Platform	\$21,920
MURF	Malkovets	Age and evolution of the upper mantle beneath the Siberian Craton and Siberian Platform	\$72,695
MURDG Safety Net Scheme	Veevers	Zircon analysis of Cretaceous and Eocene sediments of Lambert Graben-Prydz Bay, Antarctica	\$17,706
MU Safety Net Scheme	George	Timing and mechanisms of melt migration and interaction at mantle, lithospheric and crustal levels	\$20,000
MU New Staff Scheme	Belousova	Enhancing the use of zircon in crustal studies and mineral exploration: trace-element and statistical approach	\$19,208
MU New Staff Scheme	Malkovets	Structure and evolution of the upper mantle beneath the Siberian Craton	\$19,906

Funding Source	Investigators	Project Title	Amount
MU New Staff Scheme	Williams	The oxidation state of the early Earth mantle: new clues from iron isotopes	\$19,978
PGRF	McMahon	Fracturing and deformation along the Amery Ice Shelf: A Seismic Study	\$4,000
PGRF	Murgulov	Crust-mantle evolution and metallogeny, E. Australia	\$4,000
APA	Murgulov	Crust-mantle evolution and metallogeny, E. Australia	\$18,837
IPRS and iMURS	Chevret	Gabbroic rocks from the Kerguelen Island (Indian Ocean): a petrologic, geochemical and isotopic investigation of their origin	\$40,837
IPRS and iMURS	Cunningham	A U-series isotope study of magma residence times, degassing and petrogenesis of Rabaul Caldera, Papua New Guinea	\$40,837
IPRS and iMURS	Hartman	Tofua Volcano in Northern Tonga: U-series Isotope and Melt Inclusion Studies Along the Tonga-Kermadec Island Arc	\$40,837
IPRS and iMURS	Mwandu	The origin of kimberlites from the Kundelungu region (D.R. Congo) and the nature of the underlying lithospheric mantle	\$40,837
IPRS and iMURS	Nikolic	Evolution of crust-mantle systems near a young rift: NW Spitsbergen, Norway	\$40,837
IPRS and iMURS	Rege	Trace elements in diamonds: genetic and forensic implications	\$30,627
RAACE	Carroll	The mechanisms and deep-crustal controls on continental rifting	\$18,837
RAACE	Milan	The emplacement, pressure-temperature-time path and structural evolution of lower crust gneisses in Fiordland, New Zealand	\$18,837

FUNDED RESEARCH PROJECTS FOR 2006

Funding Source	Investigators	Project Title	Amount
ARC Discovery	Alard	Toward the use of metal stable isotopes in geosciences	\$121,378
ARC Discovery	Daczko	A new approach to understanding the mechanisms and deep crustal controls of continental rifting	\$36,414
ARC Discovery	Daczko	Spreading ridge sedimentation processes: a novel approach using Macquarie Island as a natural laboratory	\$61,140
ARC Discovery	Jackson	Isotopic fractionation of the ore minerals (Cu, Fe, Zn): A new window on ore-forming processes	\$62,424

Appendix 5: Funded research projects

Funding Source	Investigators	Project Title	Amount
ARC Discovery	O'Reilly, Griffin, Gohl, Morgan, Cottin, Neumann, Xu	How has the continental lithosphere evolved? Processes of assembly, growth, transformation and destruction	\$284,375
ARC Discovery	Turner, Hawkesworth, Kirchner	The time scales of magmatic and erosional cycles	\$90,503
ARC Discovery	Nielsen	Thallium isotopes: a novel geochemical tracer to map recycling in Earth's mantle	\$105,000
ARC Discovery	Wood	The behaviour of geochemical tracers during differentiation of the Earth	\$150,000
ARC Linkage International	O'Reilly, Griffin, Cottin, Grégoire, Xu	How has the continental lithosphere evolved? Processes of assembly, growth, transformation and destruction	\$42,590
ARC Linkage Projects	O'Reilly, Griffin, WMC	Global lithosphere architecture mapping (including industry contribution)	\$199,711
ARC Federation Fellowship	Wood	Origin and evolution of Earth's chemical reservoirs	\$316,222
ARC Federation Fellowship (MU contribution)	Wood	Origin and evolution of Earth's chemical reservoirs	\$180,000
ARC Federation Fellowship	Turner	The time scales of geochemical cycles and Earth processes	\$316,222
ARC Federation Fellowship (MU contribution)	Turner	The time scales of geochemical cycles and Earth processes	\$168,390
Dept. EPS	O'Reilly, DEPS	GAU Maintenance contribution	\$30,000
MQERCG	O'Reilly, Griffin	Trace-element analysis of diamonds	\$50,000
MQERCG (Rio Tinto)	O'Reilly, Griffin	Trace-element analysis of diamonds	\$102,000
MQERCG	Griffin, O'Reilly	Lithosphere evolution across a craton margin, southern Africa	\$50,000
MQERCG (de Beers)	Griffin, O'Reilly	Lithosphere evolution across a craton margin, southern Africa	\$81,000
MURF	O'Neill	Episodicity in mantle convection: effects on continent formation and metallogenesis	\$18,400
MURF	O'Neill	Episodicity in mantle convection: effects on continent formation and metallogenesis	\$66,136

Funding Source	Investigators	Project Title	Amount
MU Safety Net	Turner	Mantle melting dynamics and the influence of recycled components	\$19,700
Capital equipment	Lackie	Ground penetrating radar system	\$64,550
Capital equipment	Flood	Rocklab grinding mill	\$19,500
Capital equipment	Flood	Portable computer laboratory upgrade	\$23,100
LIEF	Kennett, Heinson and O'Reilly	Instrumentation for combined seismic and electromagnetic Earth sounding	\$350,000
PGRF	Milan	The emplacement, pressure-temperature-time path and structural evolution of lower crustal gneiss in Fiordland, New Zealand	\$4,000
PGRF	Nikolic	Evolution of crust-mantle systems near a young rift: NW Spitsbergen, Norway	\$4,000
APA	Murgulov	Crust-mantle evolution and metallogeny, E. Australia	\$19,231
IPRS and iMURS	Caulfield	Tofua volcano- Tonga Arc, Eruption history and timescales of Magma Chamber Processes	\$42,231
IPRS and iMURS	Chevret	Gabbroic rocks from the Kerguelen Island (Indian Ocean): a petrologic, geochemical and isotopic investigation of their origin	\$42,231
IPRS and iMURS	Cunningham	A U-series isotope study of magma residence times, degassing and petrogenesis of Rabaul Caldera, Papua New Guinea	\$42,231
IPRS and iMURS	Kobussen	Composition, structure and evolution of the lithospheric mantle beneath Southern Africa	\$42,231
IPRS and iMURS	Li	Stable metal isotope geochemistry of the Cadia and Northparkes porphyry Cu-Au deposits	\$42,231
IPRS and iMURS	Mwando Batumike	The origin of kimberlites from the Kundelungu region (D.R. Congo) and the nature of the underlying lithospheric mantle	\$42,231
IPRS and iMURS	Nikolic	Evolution of crust-mantle systems near a young rift: NW Spitsbergen, Norway	\$42,231
IPRS and iMURS	Portner	Spreading ridge sedimentation processes: a novel approach using Macquarie Island as a natural laboratory	\$42,231
RAACE	Milan	The emplacement, pressure-temperature-time path and structural evolution of lower crust gneisses in Fiordland, New Zealand	\$19,231

ARC Research Projects initiated prior to 2005 are available at our website: <http://www.es.mq.edu.au/GEMOC/>
Follow the Annual Report Link to Appendix 5 of the previous Annual Reports.

Appendix 6: Flowsheets for courses in geology and geophysics

Bachelor of Science ENVIRONMENTAL GEOLOGY

Other variations available. Approximate load of 24 credit points per year.

Are you interested in:

- Earth's Environment
- Contaminated Land Remediation
- Geochemistry
- Groundwater Contamination

Environmental geology explores the interaction of people and the geologic environment. This field covers the movement of toxins into the ground and through the groundwater system; the identification of these toxins and the remediation of the site. Environmental Geology combines the classic observation skills of geology with those of geochemistry, geophysics, land use planning and government policy implementation.

FIRST YEAR

Units: GEOS115 Planet Earth
GEOS114 Global Environmental Crises
GEOS115 Earth Dynamics, Materials and the Environment
GEOS224 Introduction to Field Geology (vacation unit)
CHEM103, BIOL114

SECOND YEAR

Units: GEOS230 Field and Laboratory Studies in Geoscience
GEOS260 Marine Depositional Environments
GEOS265 Introduction to Resource and Environmental Management
GEOS266 Earth Surface Processes
GEOS268 Introduction to Geophysics
GEOS251 Minerals, Energy and the Environment

THIRD YEAR

Units: GEOS315 Environmental and Groundwater Geophysics
GEOS377 Environmental Geology
GEOS399 Surface Geology
GEOS437 Geochemical Applications
GEOS398 Applied Geomorphology or
GEOS307 Field Geology and Mapping or
GEOS328 Land Management

FOURTH YEAR (HONOURS)

1. **HONOURS:** The honours year consists of an 8 or 16 credit point research thesis and 8 or 16 credit points of coursework, generally at 400 or 800 level.
2. **MASTERS PROGRAM:** A research MSc is undertaken over a two year period; this may include up to 4 units and a major research project. A coursework program is possible.

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details.
The offering of Units may change from year to year.

For more information please contact: The Executive Officer, Earth and Planetary Science
Ph. 61-2-9850 8373 Fax. 61-2-9850 6904
Email: eps@mq.edu.au

Earth and Planetary Sciences

Bachelor of Science or Arts GEOLOGY MAJOR

Other variations available. Approximate load of 24 credit points per year.

Are you interested in:

- Volcanoes
- Earthquakes
- Seismology
- Exploration
- Earth History

Geologists aim to understand the way the earth works and how it has evolved over the 4-6 billion years since its formation. Geology can be combined with geophysics, biology, archaeology, history, chemistry, maths, physics and law. Employment can be found in areas such as Mining and Exploration companies, teaching, public service, law, conservation and environment, stock market, engineering and research.

FIRST YEAR

Core: GEOS115 Earth Dynamics, Materials and the Environment
GEOS112 Planet Earth or GEOS116 Marine Geosciences and
GEOS224 Introduction to Field Geology (vacation unit)

Plus additional units from:
BIOL, CHEM, MATH, PHYS140 or PHYS, COMP, or other.

SECOND YEAR

Core: GEOS235 Palaeontology
GEOS230 Field and Laboratory Studies in Geoscience
GEOS260 Marine Depositional Environments
GEOS268 Introduction to Geophysics

Optional: GEOS251 Minerals, Energy and the Environment
GEOS272 Earth's Evolving Environment
GEOS266 Earth Surface Processes
GEOS237 Natural Hazards
GEOS324 Geographic Information Systems

THIRD YEAR

Core: Geos307 Field Geology and Mapping

And at least 3 units from:
GEOS308 Structural and Metamorphic Geology
GEOS312 Invertebrate Palaeontology
GEOS314 Magmas, Fluids and Ores Deposits
GEOS385 Global Tectonics
GEOS397 Applied Palaeontology and Biogenic Sediments

Suggested additional units: GEOS373 Volcanic Geology Fieldwork
GEOS328 Coral Reef Environment

FOURTH YEAR (HONOURS)

1. **HONOURS:** The honours year consists of an 8 or 16 credit point research thesis and 8 or 16 credit points of coursework, generally at 400 or 800 level.
2. **MASTERS PROGRAM:** A research MSc is undertaken over a two year period; this may include up to 4 units and a major research project. A coursework program is possible.

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details.
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Bachelor of Science GEOPHYSICS MAJOR

Other variations available. Approximate load of 24 credit points per year.

Are you interested in:

- How the Earth Works
- Earthquakes
- Earth's Environment
- Exploration

Geophysics is the study of the physics of the Earth. The field of geophysics can be split into two broad areas "Global" — the study of the Earth's structure and evolution, and "Exploration" — with near surface study in the fields of mineral, petroleum, environmental, groundwater and engineering geophysics.

FIRST YEAR

Core: GEOS115 Earth Dynamics, Materials and the Environment

Optional: GEOS112 Planet Earth
GEOS116 Marine Geoscience
GEOS224 Introduction to Field Geology (vacation unit)
MATH130, MATH135, MATH136, PHYS140, PHYS143
COMP115 or ISYS123 or COMP125, CHEM101

SECOND YEAR

Core: GEOS268 Introduction to Geophysics

Optional: GEOS330 Marine Depositional Environments
GEOS351 Minerals, Energy and the Environment
GEOS230 Field and Laboratory Studies in Geoscience
GEOS272 Earth's Evolving Environment
MATH235, MATH236, PHYS201, COMP238

THIRD YEAR

Core: GEOS315 Environmental and Groundwater Geophysics or
GEOS385 Global Tectonics
GEOS420 Data Image and Processing in Geophysics and Exploration

Optional: Appropriate Geology, Atmospheric Science or Maths,
Physics and Computing units, depending on individual interest.

FOURTH YEAR (HONOURS)

1. **HONOURS:** The honours year consists of an 8 or 16 credit point research thesis and 8 or 16 credit points of coursework, generally at 400 or 800 level.
2. **MASTERS PROGRAM:** A research MSc is undertaken over a two year period; this may include up to 4 units and a major research project. A coursework program is possible.

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details.
The offering of Units may change from year to year.

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Email: eps@mq.edu.au



Bachelor of Technology EXPLORATION GEOSCIENCE - Geochemistry Strand

72 Credit points required

Are you interested in:

- Exploration and Technology
- Environment
- Mining
- Earth's Internal Processes

Exploration geoscientists seek to apply modern techniques that interface between geology, geophysics and geochemistry to assist in targeting major prospective areas on or near the surface and ensuring environmental best practice in developing such areas. This is vital to Australia's future export earnings. Employment can be found in mining exploration and environmental consultancy companies, geoanalytical laboratories, government advisory bodies, research and teaching.

FIRST YEAR

Core: GEOS115 Earth Dynamics, Materials and the Environment
GEOS116 Marine Geosciences and
GEOS224 Introduction to Field Geology (vacation unit)
CHEM101

And one of: PHYS140, PHYS143, MATH135, MATH136, COMP115

SECOND YEAR

Core: GEOS260 Marine Depositional Environments
GEOS268 Introduction to Geophysics
GEOS230 Field and Laboratory Studies in Geoscience
CHM207

Optional: GEOS266 Earth Surface Processes
GEOS272 Earth's Evolving Environment
GEOS315 Environmental and Groundwater Geophysics or
GEOS316 Exploration Geophysics
STAT170 or STAT171

THIRD YEAR

Core: GEOS307 Field Geology Mapping
GEOS314 Magmas, Fluids and Ore Deposits
GEOS377 Environmental Geology
GEOS437 Geochemical Applications and Techniques
MPC360

Optional: GEOS315 Environmental and Groundwater Geophysics or
GEOS316 Exploration Geophysics
GEOS373 Volcanic Geology Fieldwork
COMP238

FOURTH YEAR (HONOURS)

HONOURS: Honours year consists of a thesis of 16 credit points based on research using the latest equipment and 8 credit points of coursework, generally at 400 or 800 level.

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details. The offering of Units may change from year to year.

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Earth and Planetary Sciences



Bachelor of Technology EXPLORATION GEOSCIENCE - Geophysics Strand

72 Credit points required

Are you interested in:

- Exploration and Technology
- Environment
- Mining
- Earth's Internal Processes

Exploration geoscientists seek to apply modern techniques that interface between geology, geophysics and geochemistry to assist in targeting major prospective areas on or near the surface and ensuring environmental best practice in developing such areas. Employment can be found in mining, exploration and environmental consultancy companies, geoanalytical laboratories, government advisory bodies and teaching.

FIRST YEAR

Units: GEOS115 Earth Dynamics, Materials and the Environment
GEOS116 Marine Geosciences and
GEOS224 Introduction to Field Geology (vacation unit)
PHYS140, PHYS143, MATH135, MATH136, COMP115
And one of CHEM101, CHEM103

SECOND YEAR

Core: GEOS260 Marine Depositional Environments
GEOS268 Introduction to Geophysics
MATH235, MATH236, ELEC166
GEOS315 Environmental and Groundwater Geophysics or
GEOS316 Exploration Geophysics

Optional: GEOS230 Field and Laboratory Studies in Geoscience
PHYS201, PHYS202

THIRD YEAR

Core: GEOS385 Global Tectonics
GEOS420 Data and Image Processing in Geophysics and Exploration
GEOS315 Environmental and Groundwater Geophysics or
GEOS316 Exploration Geophysics
GEOS460 Solid Earth Geophysics
MPC360 Technology Management

Optional: GEOS314 Magmas, Fluids and Ore Deposits
GEOS307 Field Geology and Mapping
GEOS373 Volcanic Geology Fieldwork
COMP238, ELEC274

FOURTH YEAR (HONOURS)

HONOURS: Honours year consists of a thesis of 16 credit points based on research using the latest equipment and 8 credit points of coursework, generally at 400 or 800 level.

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details. The offering of Units may change from year to year.

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Email: eps@mq.edu.au

Earth and Planetary Sciences



Bachelor of Marine Science MARINE GEOSCIENCE MAJOR

Are you interested in:

- Origin and evolution of the ocean basins
- Ocean circulation and global climate
- Evolution of the marine biosphere
- Sediments and lavas of the ocean basins
- Marine fossil fuels
- Marine Ore deposits

Marine geoscientists aim to understand how and when the present ocean basins, the water that fills them and the biota that inhabit them were generated. Oceans are intimately connected with the atmosphere; circulation in each affects the other. The atmosphere and oceans exert a vital influence on global climate. A knowledge of the oceans is vital as the present oceans influence the redistribution of solar energy away from the equator, supply a significant amount of the world's food, act as sinks for carbon dioxide and modern and ancient oceans have produced still more effectively derived and even more interestingly managed in an environmental sense. Scientists who understand this huge part of the Earth's surface are needed to conduct research and to advise the increasing number of private and public groups who use the marine environment.

FIRST YEAR

Core: GEOS115 Earth Dynamics, Materials and the Environment
GEOS116 Marine Geoscience
GEOS117 Biophysical Environments
BIOL114 Evolution and Biodiversity

One from each line: CHEM102 or CHEM103
ATH130 or MATH135 or MATH136
GEOS112, PHYS140, PHYS143, PHYS159, STAT170, STAT171

SECOND YEAR

Core: GEOS216 The Atmospheric Environment
ELS201 Marine Science
GEOS260 Marine Depositional Environments

Plus at least 10 credit points from:
GEOS224 Introduction to field geology
GEOS235 Palaeontology
GEOS264 Geographic Information Systems
GEOS266 Earth Surface Processes
And any 200 level physics, chemistry or mathematics unit

THIRD YEAR

Core: ELS3YY Oceanography
ELS3XX Advanced Marine Science

Plus at least 12 credit points from:
GEOS301 Global Climates
GEOS312 Invertebrate Palaeontology
GEOS371 Geographic Information Systems: technical Issues
GEOS397 Applied Palaeontology and Biogenic Sediments
GEOS428 Coral Reef Dynamics
And any 300 level mathematics unit

These notes are only intended to guide your selection, and you should seek Academic advice and read the Calendar's Unit descriptions and coherencies for details. The offering of Units may change from year to year.

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Email: eps@mq.edu.au

Earth and Planetary Sciences



Appendix 7: GEMOC postgraduate opportunities

Postgraduate scholarship information as well as a list of Scholarships currently open for application is available at: [www.ro.mq.edu.au/
HDRU/scholar.htm](http://www.ro.mq.edu.au/HDRU/scholar.htm)

POSTGRADUATE OPPORTUNITIES

GEMOC has a flourishing postgraduate research environment with postgraduate students from many countries (including France, Germany, China, Russia, USA and Australia). Scholarships funding tuition fees and a living allowance are available for students with an excellent academic record or equivalent experience. These include:

- **Australian Postgraduate Awards (APA):** available for Commonwealth citizens to cover tuition fees and living allowance, with a closing date in late October annually
- **Research Areas and Centres of Excellence (RAACE) scholarships:** available for Australian citizens who wish to undertake a postgraduate program in a Centre of Excellence at Macquarie University (eg GEMOC)
- **International Postgraduate Research Scholarships (Endeavour Scholarships):** available to overseas students to cover tuition fees with a closing date in late August annually
- **International Macquarie University Research Scholarships (iMURS):** that can provide a living allowance and which can be applied for at any time if the applicant has been accepted for enrolment in a higher degree

Macquarie University also provides research funding through a competitive internal scheme and GEMOC's funded projects (see *Appendix 5*) provide further resources to support postgraduate research projects.

Postgraduate projects are tailored to your expertise and interests within the framework of GEMOC's research goals. GEMOC carries out interdisciplinary research across the boundaries of petrology, geochemistry, tectonics, metallogenesis, geodynamics and geophysics to explore the nature and evolution of the lithosphere and global geodynamics. Current funded projects are based in Australia, Antarctica, Canada, China, Taiwan, Italy, France, Siberia, Norway, North America, South America, Africa, Kerguelen Islands and other global locations (see the section on GEMOC's *Research Program*).

GEMOC postgraduate programs have opportunities through access to our outstanding analytical facility (see *Technology Development* section) with currently unique technologies and instrumentation configurations to tackle exciting large-scale problems in the Geosciences.

Examples of broad PhD project areas include:

- Lithosphere structure and geochemistry: mantle provinciality and tectonism
- Granitoid and mineralised provinces along western Pacific convergent margins
- Fluid-vapour transfer of elements in the crust and mantle
- Heat production and evolution of the crust: crust-mantle interaction
- Geophysical applications to lithosphere studies
- Isotopic and trace element geochemistry: mantle and crustal systems
- Metal isotopes: applications to ore formation
- Magma genesis and crustal evolution: includes trace elements of accessory minerals, isotopic fingerprints
- High-pressure experimental studies

Potential applicants should discuss possible projects with a potential supervisor and the Director of GEMOC before applying.

Appendix 8: Goldschmidt Advertisement



16th Annual V.M. Goldschmidt Conference



27 August – 1 September 2006
Melbourne Exhibition & Convention Centre, Australia

Conference themes:

- Techniques
- Mineral Deposits/Ore Geochem
- Solar System Formation
- Convecting Mantle
- Lithosphere Evolution
- Subduction Processes
- Geochemical Constraints on Timescales and Mechanisms of Tectonic Processes
- Biogeochemistry and the Origin and Evolution of Life
- Aquatic Geochemistry and Fluids in the Crust
- Surface Processes, Low Temperature Systems and Landscape Evolution

- Ocean Chemistry and Circulation/Climate and Environment

All submissions of abstracts
to be submitted online at:
www.goldschmidt2006.org

Deadline for receipt of abstracts:
13 April 2006

For the first time, the Goldschmidt Conference comes to the southern hemisphere, in Melbourne, Australia in 2006. Australia's unique, plate-scale natural laboratory has driven a rich tradition of geochemical, experimental, cosmochemical and isotope research, from the extraordinary archives of past climate of the Great Barrier Reef to the oldest known terrestrial materials of Mount Narryer and Jack Hills. The conference is to be held in the state-of-the-art facilities of the Melbourne Convention Centre. We hope that you will be able to join us Down Under for the Goldschmidt 2006.

Expected delegates will comprise of: Geologists • Geochemists • Cosmochemists • Hydrogeologists • Geochronologists • Biogeochemists

www.goldschmidt2006.org

Contact Details: Goldschmidt 2006 Conference Managers
GPO Box 128 Sydney NSW 2001 Australia
Tel: + 61 2 9265 0700 Fax: + 61 2 9267 5443
Email: goldschmidt2006@tourhosts.com.au

Sponsored by:
European Association for Geochemistry
Geochemical Society
Geological Society of Australia



Appendix 9: Goldschmidt Pre-Meeting Workshop 2006



16th Goldschmidt 2006 – Pre-Meeting Workshop at GEMOC,



Department of Earth and Planetary Sciences, Macquarie University, Sydney

Geochemical Fingerprinting of Lithosphere and Deep Earth Processes

- * 1-day session (invited speakers, discussions, demonstrations) on advanced methodologies and techniques for trace-element and isotopic analysis

using:

- LAM ICPMS
- MC-ICPMS
(Nu Instruments)
- LAM MC-ICPMS
- TIMS (Triton)

Including:

- ✓ In-situ Re-Os, Hf isotopes,
TerraneChron[®]
- ✓ Stable metal isotopes
- ✓ U-series
- ✓ Laser ablation techniques
- ✓ Database mining
- ✓ GLITTER data reduction system
for LAM-ICPMS

- * 1-day of invited and volunteered presentations on applications of geochemical datasets to explore:

- Composition, structure and timing of processes of the Earth's lithosphere
- the nature, evolution and geodynamic consequences of the convecting and deep mantle as revealed through geochemical and geophysical datasets
- insights on geophysical datasets from geochemistry

- * Harbour Cruise

Ideal base for exploring Sydney (the Harbour City) –
and Blue Mountains (scenery) and Hunter Valley (wine) day-trips before Melbourne

Contact details

<http://www.es.mq.edu.au/GEMOC/>
gemoc@mq.edu.au

GEMOC

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GLOSSARY

ACILP	Australia China Institutional Links Program
AGU	American Geophysical Union
AMIRA	Australian Mineral Industry Research Association
ANU	Australian National University
APA (I)	Australian Postgraduate Award (Industry)
APD	Australian Postdoctoral Fellowship
ARC	Australian Research Council
ARC LIEF	Australian Research Council Linkage Infrastructure Equipment and Facilities
ASAC	Antarctic Science Advisory Committee
CNRS	French National Research Foundation
CORES	Concentrations of Research Excellence
CRC	Co-operative Research Centre
CSIRO (EM)	Commonwealth Scientific Industrial Research Organisation (Exploration and Mining)
DEST (SII)	Department of Education, Science and Training (from 2002) (Strategic Infrastructure Initiative)
DIATREEM	Consulting company within AccessMQ
EMP	Electron Microprobe
(D)EPS	(Department of) Earth and Planetary Sciences
EURODOC	The council for postgraduate students and junior researchers in Europe
FIM	Facility for Integrated Microanalysis
GA	Geoscience Australia (formerly AGSO)
GAU	Geochemical Analysis Unit (DEPS, Macquarie University)
GIS	Geographic Information System
GLITTER	GEMOC Laser ICPMS Total Trace Element Reduction software
GPS	Global Positioning System
HIAF	Heavy Ion Analytical Facility
ICESAT	Ice, Cloud and land Elevation Satellite
ICPMS	Inductively Coupled Plasma Mass Spectrometer
iMURS	International Macquarie University Research Scheme
IPRS	International Postgraduate Research Scholarship
JCU	James Cook University
LAM-ICPMS	Laser Ablation Microprobe - Inductively Coupled Plasma Mass Spectrometer
MC-ICPMS	Multi-Collector ICPMS
MOUs	Memoranda of Understanding
MRL	Macquarie Research Limited
MUECRG	Macquarie University External Collaborative Research Grants
MUIPRA	Macquarie University International Postgraduate Research Award
MURAACE	Macquarie University Research Award for Areas and Centres of Excellence
MURDG	Macquarie University Research Development Grant
MURF	Macquarie University Research Fellowship
NASA	National Aeronautics and Space Administration
NSF	National Science Foundation
PIRSA	Primary Industries and Resources, South Australia
RAACE	Research Areas and Centres of Excellence Postgraduate Scholarships
RIBG	Research Infrastructure Block Grant
RSES	Research School of Earth Sciences at ANU
SGA	Society for Geology Applied to Mineral Deposits
UN'cstle	University of Newcastle
UNE	University of New England
USYD	University of Sydney
UW'gong	University of Wollongong
UWS	University of Western Sydney
XRF	X-Ray Fluorescence

**ARC National
Key Centre for the
Geochemical Evolution and
Metallogeny of Continents**