CURRICULUM VITAE

Stephen Geoffrey Tims

Academic Qualifications

1994	Ph.D (Physics) University of Melbourne; Thesis title: Cross-section measurements on iron group metals
1985	B.Sc (Hons) University of Melbourne

Present Position

Since January 2009	Fellow, Department of Nuclear Physics, Australian National University

Previous Appointments

2000 – 2008	Research Fellow, Department of Nuclear Physics, Australian National University
1995 – 2000	Professional Officer 2, Environmental Research Institute of the Supervising Scientist, Jabiru, Northern Territory, (Federal Department of the Environment)
1994	Medical Imaging Scientist, Austin Hospital, Melbourne, Victoria

Scholarships

1988 – 1991	Melbourne University Postgraduate Scholarship

Society Memberships

1986 – Present	*Member*, American Physical Society
1996 – Present	*Member*, South Pacific Environmental Radioactivity Association
2004 – Present	*Member*, Australian Institute of Physics

Scientific Journal Referee for

Journal of Environmental Radioactivity

Nuclear Instruments and Methods in Physics Research Section B: Beam interactions with materials and atoms

Environmental Science and Technology

Applied Radiation and Isotopes

External Grants

Australian Research Council, Discovery Grant DP0557122

S.G. Tims, L.K. Fifield, G.J. Hancock, R. Bartley and P. Wallbrink

Plutonium – A new tracer of sediment transport into the Great Barrier Reef Lagoon

2005: $50,000, 2006:$50,000, 2007: $50,000

CURRICULUM VITAE

Stephen Geoffrey Tims

Australian Research Council, Discovery Grant DP0986185

L.K. Fifield, D.L. Parry, S.G. Tims, R.J. Wasson

Assessing soil formation and erosion balances in the Top End with an expanded toolkit

2009: $110,000, 2010: $90,000, 2011: $90,000

Australian National University (ANU) Grants

Vice Chancellor's Fieldwork Funding Supplement: 2005: $ 3,350

Vice Chancellor's Fieldwork Funding Supplement: 2006: $ 2,000

Ph.D Student Supervision at the ANU

L.G. Gladkis	Ph.D	Commenced 2002	Completed 2006
	Thesis title: Development of AMS techniques for ^{53}Mn and ^{236}U		
K.M. Wilcken	Ph.D	Commenced 2003	Completed 2006
	Thesis title: Accelerator Mass Spectrometry of Natural ^{236}U and ^{239}Pu with emphasis on nucleogenic isotope production		
S.R. Winkler	Ph.D.	Commenced 2003	Submitted 2007
	Thesis title: Accelerator Mass Spectrometry of Hf-182		
S.E. Everett	Ph.D	Commenced 2005	
	Thesis title: Assessment of Pu as a tracer of soil and sediment using Accelerator Mass Spectrometry		
W.T. Hoo	Ph.D	Commenced 2007	
	Thesis title: Plutonium as an environmental tracer		
R. R. Lal	Ph.D	Commenced 2009	
	Thesis title: Assessing soil formation and erosion balances in the Top End with ultra-sensitive isotope tracing		

Recent collaborations

CSIRO Land and Water, Canberra, Australia

CSIRO Land and Water, Brisbane, Australia

Norwegian University of Life Sciences, Ås, Norway

Nanjing University, Nanjing, China

Peking University, Beijing, China

Most Significant Contributions and evidence of impact on my research field

I am a Nuclear Physicist with over 12 years of experience in the measurement of radionuclides in environmental samples, and 7 years of experience with Accelerator Mass

Spectrometry (AMS) measurements. I have played a major role in numerous research projects on the movement of radioactive material through the environment, particularly in tropical Australia. Studies include:

- Measurement and modeling of the transport of uranium, thorium and actinium decay series radionuclides through the river, billabong and floodplain areas in the Alligator Rivers region in the Northern Territory, Australia.
- Mapping the source, movement and distribution of radioactive materials within the flood zone region of the major rivers within Kakadu National Park, Northern Territory, Australia.
- Using plutonium and caesium isotopes to investigate soil and sediment movement within the Herbert River catchment, Northern Queensland, and out into the Great Barrier Reef lagoon. I was the lead CI on this ARC funded project, which used AMS to measure plutonium isotope concentrations and ratios.
- I have established an international collaboration with Nanjing University in China to explore using plutonium as a tracer of sediment build up in the Yangtze delta.

I have been actively involved with the AMS measurements of a wide variety of isotopes and with the development of the ANU AMS system to exploit new isotopes as tracers of environmental processes. In particular, this has seen the development of AMS measurements with ^{226}Ra and ^{228}Ra isotopes, and the measurement of fallout ^{239}Pu and ^{240}Pu in soils and sediments from across the Australian mainland. In 2007, I was invited to visit Nanjing and Peking Universities in China to discuss collaborations that exploit my experience with plutonium as an environmental tracer, and to present seminars.

I have written a series of reports for the Environmental Research Institute of the Supervising Scientist that focus on mapping the movement of radioactive material, the dispersal mechanisms responsible for the movement, and on the impact that the dispersed material has on the environment. In particular, my report on exposed uranium mine tailings at an abandoned mine site influenced a federal government decision to decontaminate and rehabilitate the affected area. The data and analysis in the report (see report 5 in the "unpublished reports" section below) led to my provision of advice to the Australian Radiation Protection and Nuclear Safety Agency on rehabilitation and decontamination of the area in question, and underpinned the decision by the government.

I am currently the secretary of the "South Pacific Environmental Radioactivity Association", a major regional organisation for providing a forum specifically to discuss the application of radionuclides to aid the understanding of natural processes. The association has strong ties with most of the regional, and many international, bodies interested in radioactivity in the environment. Its members include representatives from over a dozen nations, and more than thirty independent research organisations.

Refereed Journal Publications

All of the papers below are multiple author. I have classified my contribution to each paper as *Major Contributor*, *Significant Contributor* or *Contributor*. In the first category I made major/leading contributions to the planning, sample/target preparation and running of the experiment, to the data analysis and interpretation, and to manuscript preparation. In the second category I made significant contributions to at least two of the above areas, but not necessarily a leading role, and in the third category my input will have been less substantial and to only one or two of the above areas.

CURRICULUM VITAE

Stephen Geoffrey Tims

1. Actinides AMS at CIRCE and ^{236}U and Pu measurements of structural and environmental samples from in and around a mothballed nuclear power plant. M. De Cesare, L.K. Fifield, C. Sabbarese, S.G. Tims, N. De Cesare, A. D'Onofrio, A. D'Arco, A.M. Esposito, A. Petraglia, V. Roca, F. Terrasi. Nucl. Instr. and Meth. B, *in press (2012). doi: 10.1016/j.nimb.2012.05.020*
Major Contributor: planning, sample preparation and experimental measurements, data analysis and interpretation, manuscript preparation.

2. Late Pleistocene glaciation of the Mt Giluwe volcano, Papua New Guinea. Timothy T. Barrows, Geoffrey S. Hope, Michael L. Prentice, L. Keith Fifield, **Stephen G. Tims**. Quaternary Science Reviews, **30** 19-20 (2011) 2676-2689.
Contributor: involved in data collection and manuscript preparation.

3. Ultra-trace analysis of ^{36}Cl bu accelerator mass spectrometry: an interlaboratory study. S. Merchel, W. Bremser, V. Alfmov, M. Arnold, G.Aumaitre, L. Benedetti, D.L. Bourles, M. Caffee, L.K. Fifield, R.C. Finkel, S.P.H.T. Freeman, M. Martshini, Y. Matsushi, D.H. Rood, K. Sasa, P.Steier, T. Takahashi, M. Tamari, **S.G.Tims**, Y. Tosaki, K.M. Wilcken, S.Xu. Anal. Bioanal. Chem. **400** (2011) 3125-3132.
Significant Contributor: this was an international interlaboratory comparison. I managed the ANU component which involved sample preparation, experiment planning and measurement, analysis of data, manuscript preparation and liaison with the organizers.

4. The potential of New Zealand kauri (Agathis australis) for testing the synchronicity of abrupt climate change during the Last Glacial Interval (60,000-11,700 years ago). Chris S.M. Turney, L. Keith Fifield, Alan G. Hogg, Jonathan G. Palmer, Konrad Hughen, Mike G.L. Baillie, Rex Galbraith, John Ogden, Andrew Lorrey, **Stephen G. Tims** and Richard T. Jones. Quaternary Science Reviews, **29** 27-28 (2010) 3677-3682.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

5. Using fallout plutonium as a probe for erosion assessment. W.T. Hoo, L.K. Fifield, **S.G. Tims**, T. Fujioka and N. Mueller. J. Environ. Radioact., **102** (2011) 937-942.
Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

6. Concentration and characterisation of plutonium in soils of Hubei in central China. W. Dong, **S.G. Tims**, L.K. Fifield and Q. Guo. J. Environ. Radioact., **101** (2010) 29-32.
Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

7. ^{137}Cs, $^{239+240}$Pu concentrations and the ^{240}Pu/^{239}Pu atom ratio in a sediment core from the sub-aqueous delta of Yangtze River estuary. S.M. Pan, **S.G. Tims**, X.Y. Liu and L.K. Fifield. J. Environ. Radioact., **102** (2011) 930-936.

Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

8. Plutonium as a chronomarker in Australian and New Zealand Sediments: A comparison with ^{137}Cs. G.J. Hancock, C. Leslie, S.E. Everett, **S.G. Tims**, G.J. Brunskill and R. Haese. J. Environ. Radioact., **102** (2011) 919-929.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

9. Chlorine-36 in Seawater. D.C. Argento, J.O. Stone, L.K. Fifield and **S.G. Tims**. Nucl. Instr. and Meth. B, **268** (2010) 1226-1228.
Contributor: involved in data collection

10. *In situ* cosmogenic ^{53}Mn production rate from ancient low-denudation surface in tropic Brazil. T. Fujioka, L.K. Fifield, J.O. Stone, J. Chappell and **S.G. Tims**. Nucl. Instr. and Meth. B, **268** (2010) 1209-1213.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

11. Accelerator Mass Spectrometry with the 14UD accelerator at the Australian National University. L.K. Fifield, **S.G. Tims**, T. Fujioka, W.T. Hoo and S.E. Everett. Nucl. Instr. and Meth. B, **268** (2010) 858-862.
Major Contributor: planning, data analysis and interpretation, manuscript preparation.

12. Progress in AMS measurement of natural ^{32}Si for glacier ice dating . U. Morgenstern, L.K. Fifield and **S.G. Tims**. Nucl. Instr. and Meth. B, **268** (2010) 739-743.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

13. Plutonium AMS measurements in Yangtze River estuary sediment. **S.G. Tims**, S.M. Pan, R. Zhang, L.K. Fifield, Y.P. Wang and J.H. Gao. Nucl. Instr. and Meth. B, **268** (2010) 1155-1158.
Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

14. Plutonium as a tracer of soil and sediment movement in the Herbert River, Australia. **S.G. Tims**, S.E. Everett, L.K. Fifield, G.J. Hancock and R. Bartley. Nucl. Instr. and Meth. B, **268** (2010) 1150-1154.
Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

15. Nucleogenic ^{36}Cl, ^{236}U and ^{239}Pu in uranium ores. K.M. Wilcken, L.K. Fifield, T.T. Barrows, **S.G. Tims**, L.G. Gladkis. Nucl. Instr. and Meth. B**, 266** (2008) 3614-3624.

Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

16. Comparison of Pu and ^{137}Cs as tracers of soil and sediment transport in a terrestrial environment. S.E. Everett, **S.G. Tims**, G.J. Hancock, R. Bartley, L.K. Fifield. J. Environ. Radioact. **99** (2008) 383-393.
Major Contributor: planning, sample collection, experiment leader, data analysis and interpretation, manuscript preparation.

17. Towards a radiocarbon calibration for Oxygen Isotope Stage 3 using New Zealand Kauri (Agathis australis). C.S.M. Turney, L.K. Fifield, J.G. Palmer, A.G. Hogg, M.G.L. Baillie, R. Galbraith, J. Ogden, A. Lorrey and **S.G. Tims**. Radiocarbon **49** (2007) 447-457.
Contributor: involved in data collection

18. AMS of natural ^{236}U and ^{239}Pu produced in uranium ores. K.M. Wilcken, T.T. Barrows, L.K. Fifield, **S.G. Tims** and P. Steier. Nucl. Instr. and Meth. B, **259** (2007) 727-732.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

19. L-X-ray production cross-sections for PXAMS: Target and energy dependence for 50–200 MeV hafnium ions. S. Winkler, L.K. Fifield, **S.G. Tims** and J. Fernandez-Niello. Nucl. Instr. and Meth. B, **259** (2007) 260-264.
Significant Contributor: advice on sample preparation, involvement in data taking and some contribution to manuscript preparation.

20. Improving the detection limit for ^{182}Hf. S. Winkler, L.K. Fifield, **S.G. Tims** and C.R. Morton. Nucl. Instr. and Meth. B, **259** (2007) 256-259.
Significant Contributor: advice on sample preparation, involvement in data taking and some contribution to manuscript preparation.

21. Manganese-53: Development of the AMS technique for exposure-age dating applications. L.G. Gladkis, L.K. Fifield, C.R. Morton, T.T. Barrows and **S.G. Tims**. Nucl. Instr. and Meth. B, **259** (2007) 236-240.
Significant Contributor: planning and preparation, experimental measurements, manuscript preparation.

22. ^{26}Al measurements with ^{10}Be counting statistics. L.K. Fifield, **S.G. Tims**, L.G. Gladkis and C.R. Morton. Nucl. Instr. and Meth. B, **259** (2007) 178-183.

Significant Contributor: planning and preparation, experimental measurements, analysis of data, manuscript preparation.

23. Transport of low $^{240}Pu/^{239}Pu$ atom ratio plutonium-species in the Ob and Yenisey Rivers to the Kara Sea. Ole Christian Lind , Deborah H. Oughton, Brit Salbu, Lindis Skipperud, Morten A. Sickel, Justin E. Brown, L. Keith Fifield, **Steven G. Tims**. Earth and Planetary Science Letters **251** (2006) 33–43.
Contributor: involved in setting up and tuning of AMS system, participation in data taking, some contribution to manuscript preparation.

24. Characterization of the NIST seaweed Standard Reference Material. I. Outola, J. Filliben, K.G.W. Inn, J. La Rosa, C.A. McMahon, G.A. Peck, J. Twining, **S.G. Tims**, L.K. Fifield, P. Smedley, M.P. Anto´n, C. Gasco´, P. Povinec, M.K. Pham, A. Raaum, H.-J. Wei, G.C. Krijger, P. Bouisset, A.E. Litherland, W.E. Kieser, M. Betti, L. Aldave de las Heras, G.H. Hong, E. Holm, L. Skipperud, A.V. Harms, A. Arinc, M. Youngman, D. Arnold, H. Wershofen, D.S. Sill, S. Bohrer, H. Dahlgaard, I.W. Croudace, P.E. Warwick, T.K. Ika¨ heimonen, S. Klemola, S.M. Vakulovsky, J.A. Sanchez-Cabeza. Appl. Radiat. Isot. **64** (2006) 1242–1247.
Significant Contributor: this was an international interlaboratory comparison. I managed the ANU component which involved sample preparation, experiment planning and measurement, analysis of data, and liaison with the organizers at NIST.

25. Geographic variability in radon exhalation at a rehabilitated uranium mine in the Northern Territory, Australia. A. Bollhöfer, J. Storm, P. Martin, and **S. Tims**. Environ. Monitor. Assess., **114** (2006) 313-330.
Significant Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.

26. Use of airborne γ-ray spectrometry for environmental assessment of the rehabilitated Nabarlek uranium mine, Australia. P. Martin, **S. Tims**, A. McGill, B. Ryan and K. Pfitzner. Environ. Monitor. Assess, **115** (2006) 531-553.
Major Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.

27. ^{14}C-AMS as a tool for the investigation of mercury deposition at a remote Amazon location J.A. Barbosa , R.C. Cordeiro, E.V. Silva, B. Turcq, P.R.S. Gomes, G.M. Santos, A. Sifedinne, A.L.S. Albuquerque, L.D. Lacerda, P.A. Hausladen, **S.G. Tims**, V.A. Levchenko and L.K. Fifield. Nucl. Instr. and Meth. B, **223-224** (2004) 528-534.
Contributor: joint responsibility for AMS setup and data taking.

28. Developments in AMS of ^{99}Tc. L. Wacker, L.K. Fifield and **S.G. Tims.** Nucl. Instr. and Meth. B, **223-224** (2004) 185-189.

Significant Contributor: planning, experimental measurements, data analysis, preparation of paper.

29. Measurements of Pu and Ra isotopes in soils and sediments by AMS. **S.G. Tims**, G.J. Hancock, L. Wacker and L.K. Fifield. Nucl. Instr. and Meth. B, **223-224** (2004) 796-801.
Major Contributor: planning, sample preparation, experiment leader, data analysis and interpretation, manuscript preparation.

30. Plutonium isotope ratios in the Yenisey and Ob estuaries. L. Skipperud, D.H. Oughton, L.K. Fifield, O.C. Lind, **S. Tims**, J. Brown, M. Sickel. Appl. Radiat. Isot. **60** (2004) 589-593.
Contributor: joint responsibility for AMS setup and data taking.

31. A Radon and meteorological measurement network for the Alligator Rivers Region, Australia. P. Martin, **S. Tims**, B. Ryan and A. Bollhöfer. *J.* Environ. Radioactivity, **76** (2004) 35-49.
Major Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.

32. Measurement of radium isotopes with the ANU AMS Facility. **S.G. Tims** and L.K. Fifield. ANA 2003 Fifth conference on nuclear science and engineering in Australia. Australian Nuclear Association. ISBN 0 949188 14 X.
Major Contributor: planning, sample preparation, experimental measurements, data analysis and interpretation, manuscript preparation.

33. Novel Matching lens and spherical ionizer for a cesium sputter ion source. D.C. Weisser, N.R. Lobanov, P.A. Hausladen, L.K. Fifield, H.J. Wallace, **S.G. Tims** and E.G. Apushkinsky. Pramana **V59** (2002) 997-1006.
Significant Contributor: planning, analysis of data, manuscript preparation.

34. Radon exhalation rate from the rehabilitated Nabarlek surface. P. Martin, **S. Tims**, and J. Storm. Environmental Research Institute of the Supervising Scientist, Research Summary 1995-2000. Australian Government Publishing Service, Canberra. ISBN 0 642 243727.
Major Contributor: experiment planning and measurement, analysis of data, manuscript preparation.

35. Cross Sections and Reaction Rates Relevant to Silicon Burning. V.Y. Hansper and **S.G. Tims** and A.J. Morton and A.F. Scott and C.I.W. Tingwell and D.G. Sargood. Nucl. Phys. **A621** (1997) 285c-288c.

Significant Contributor: planning and experiment, analysis of data.

36. The $^{50}Cr(\alpha, n)^{53}Fe$ and $^{50}Cr(\alpha, p)^{53}Mn$ Cross Sections. A.J. Morton, AF. Scott, **S.G. Tims**, V.Y. Hansper and D.G. Sargood. Nucl. Phys. **A573** (1994) 276-290.
Significant Contributor: planning, experiment planning and measurement, analysis of data, manuscript preparation.

37. Cross sections of the reactions $^{58}Fe(p, \gamma)^{59}Co$, $^{58}Fe(p, n)^{58}Co$, $^{55}Mn(\alpha, n)^{58}Co$, $^{55}Mn(\alpha, p)^{58}Fe$ and $^{57}Fe(p, n)^{57}Co$. **S.G. Tims**, A.F. Scott, A.J. Morton, V.Y. Hansper and D.G. Sargood. Nucl. Phys. **A563** (1993) 473-493.
Major Contributor: Part of my Ph.D Thesis: planning, target preparation, experiment leader, data analysis and interpretation, manuscript preparation.

38. The $^{34}S(\alpha, \gamma)^{38}Ar$, $^{34}S(\alpha, n)^{37}Ar$ and $^{34}S(\alpha, p)^{37}Cl$ cross sections. A.F. Scott, A.J. Morton, **S.G. Tims**, V.Y. Hansper and D.G. Sargood. Nucl. Phys. **A552** (1993) 363-377.
Significant Contributor: experiment planning and measurement, analysis of data, manuscript preparation.

39. Cross sections and thermonuclear reaction rates for $^{51}V(\alpha, n)^{54}Mn$ and $^{51}V(\alpha, p)^{54}Cr$. V.Y. Hansper, A.J. Morton, **S.G. Tims**, C.I.W. Tingwell, A.F. Scott and D.G. Sargood. Nucl. Phys. **A551** (1993) 158-172.
Significant Contributor: experiment planning and measurement, analysis of data, manuscript preparation.

40. The $^{48}Ti(\alpha, n)^{51}Cr$ and $^{48}Ti(\alpha, p)^{51}V$ Cross Sections. A.J. Morton, **S.G. Tims**, A.F. Scott, V.Y. Hansper, C.I.W. Tingwell and D.G. Sargood. Nucl. Phys. **A537** (1992) 167-182.
Significant Contributor: planning, experiment planning and measurement, data analysis, manuscript preparation.

41. The $^{54}Fe(\alpha, n)^{57}Ni$ and $^{54}Fe(\alpha, p)^{57}Co$ Cross Sections. **S.G. Tims**, A.J. Morton, C.I.W. Tingwell, A.F. Scott, V.Y. Hansper and D.G. Sargood. Nucl. Phys. **A524** (1991) 479-494.
Major Contributor: Part of my Ph.D Thesis: planning, target preparation, experiment leader data analysis and interpretation, manuscript preparation.

42. Cross Sections and Thermonuclear Reaction Rates for $^{41}K(\alpha, n)^{44}Sc$ and $^{41}K(\alpha, p)^{44}Ca$. A.F. Scott, A.J. Morton, C.I.W. Tingwell, **S.G. Tims**, V.Y. Hansper and D.G. Sargood. Nucl. Phys. **A523** (1991) 373-385.

Significant Contributor: experiment planning and measurement, analysis of data, manuscript preparation.

43. The $^{45}Sc(\alpha, p)^{48}Ti$ and $^{45}Sc(\alpha, n)^{48}V$. Cross Sections, V.Y. Hansper, C.I.W. Tingwell, **S.G. Tims**, A.F. Scott and D.G. Sargood. Nucl. Phys. **A504** (1989) 605-620.
Significant Contributor: experiment planning and measurement, analysis of data, manuscript preparation.

44. The $^{60}Ni(p, \gamma)^{61}Cu$ and $^{62}Ni(p, \gamma)^{63}Cu$. Cross Sections, C.I.W. Tingwell, V.Y. Hansper, **S.G. Tims**, A.F. Scott, A J. Morton and D.G. Sargood. Nucl. Phys. **A496** (1989) 127-140.
Significant Contributor: measurement and analysis of data, manuscript preparation.

45. The $^{59}Co(\alpha, p)^{62}Ni$ and $^{59}Co(\alpha, n)^{62}Cu$ Cross Sections. **S.G. Tims**, C.I.W. Tingwell, V.Y. Hansper, A.F. Scott and D.G. Sargood. Nucl. Phys. **A483** (1988) 354-370.
Major Contributor: Part of my Ph.D Thesis: planning, target preparation, experiment leader, data analysis and interpretation, manuscript preparation.

46. Cross Sections of Proton Induced Reactions on ^{61}Ni. C.I.W. Tingwell, V.Y. Hansper, **S.G. Tims**, A.F. Scott and D.G. Sargood. Nucl. Phys. **A480** (1988) 162-174.
Contributor: experiment planning and measurement, manuscript preparation.

47. $^{39}K(\alpha, p)^{42}Ca$ Cross Section and Thermonuclear Reaction Rate. A.F. Scott, C.I.W. Tingwell, V.Y. Hansper, **S.G. Tims** and D.G. Sargood. Nucl. Phys. **A475** (1987) 548-556.
Significant Contributor: planning and experiment, analysis of data.

Book Chapter

2007 Unstable atoms as detectives. M. Dasgupta and **S. Tims**, in: **e***co***s***cience* – The 34th Professor Harry Messel International Science School. ISBN: 978-1-86487-891-2

Conference Proceedings

1. A study of soil formation rates using ^{10}Be in the wet-dry tropics of northern Australia. R. Lal, L. K. Fifield, S.G. Tims, R.J. Wasson and D. Howe.
EPJ Web of Conferences V35 (2012) 01001.
DOI: http://dx.doi.org/10.1051/epjconf/20123501001

2. Actinides, accelerators and erosion. S.G. Tims and L.K. Fifield.
EPJ Web of Conferences V35 (2012) 01002.
DOI: http://dx.doi.org/10.1051/epjconf/201235010012

Unpublished reports (not refereed)

While not refereed, these are internal reports provided directly to the Supervising Scientist and are expected to be of journal quality. Where time permits reports can lead to journal publications (eg publications 7 and 8 below), but the primary role of the research is to provide up-to-date studies of direct relevance to the Supervising Scientist. The Supervising Scientist relies on reports such as these to make informed recommendations to the Australian federal government on matters concerned with the impact of uranium mining on the environment.

1. High sensitivity airborne radon concentration measurements in the Alligator River Region: rehabilitated Nabarlek uranium mine. A. Bollhöfer, P. Martin, **S. Tims** and B. Ryan. Internal Report 469, (2004), Supervising Scientist, Canberra. Unpublished paper.
Significant Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.
2. Geographic variability in radon exhalation at the rehabilitated Nabarlek uranium mine, Northern Territory. A. Bollhöfer, J. Storm. P. Martin and **S. Tims**. Internal Report 465, (2003), Supervising Scientist, Canberra. Unpublished paper.
Significant Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.
3. Operation and calibration of the *eriss* radon detectors. **S. Tims**. Internal Report 359, (2001), Supervising Scientist, Canberra. Unpublished paper.
Major Contributor: planning, experiment, data analysis and interpretation, manuscript preparation.
4. γ radiation survey of exposed tailings in the area around Rockhole mine. **S. Tims**, B. Ryan and P. Waggitt. Internal Report 332, (2000), Supervising Scientist, Canberra. Unpublished paper.
Major Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.
5. Progress of revegetation at the former Nabarlek Uranium Mine. J.B. Prendergast, R.J. Williams, K.E. Evans, B. Ryan, M. Saynor, **S. Tims** and J. Boyden. Internal Report 325, (1999), Supervising Scientist, Canberra. Unpublished paper.
Significant Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.
6. Bioavailabilities of radionuclides and non-radiological contaminants in sediment containing uranium mine tailings. D. Klessa, **S. Tims**, C. Hunt and E. Rennex. Internal Report 317, (1999), Supervising Scientist, Canberra. Unpublished paper.
Major Contributor: planning, experiment, data analysis and interpretation, manuscript preparation.

7. Aerosol size distribution measurements in Jabiru Town and Gimbat: July 1998. S. Thomas, F. Quintarelli, R. Akber, P. Martin, **S. Tims** and B. Ryan. Internal Report 314, (1999), Supervising Scientist, Canberra. Unpublished paper.
   Significant Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.

8. γ radiation surveys of El Sherana camp site and Sliesbeck pit and waste rock piles. **S. Tims** and B. Ryan. Internal Report 284, (1998), Supervising Scientist, Canberra. Unpublished paper.
   Major Contributor: planning, experiment deployment, data analysis and interpretation, manuscript preparation.

Invited presentations

2010	Invited Seminar to the Department of Environmental Sciences and INNOVA, Second University of Naples, Italy: "Recent studies of soil movement using Pu AMS at the ANU"
2008	Invited presentation at "SPERA 2008" Biennial conference, Christchurch, New Zealand: "From the River to the Sea – using fallout plutonium to investigate erosion and sediment transport"
2007	Invited seminar to the Department of Coastal Ocean Science, Nanjing University: "Plutonium in the Marine Environment"
2006	RSPhysSE School Colloquium: "Accelerator Mass Spectrometry: Some Environmental Applications"
2005	Founders Day talk: "A Silver Lining to the Nuclear Test Cloud?"

Conference presentations and workshops

2012 12th Conference of the South Pacific Environmental Radioactivity Association, Sydney, Australia.

2011 17th Australian conference on nuclear techniques of analysis, Canberra, Australia.

2011 12th International conference on accelerator mass spectrometry, Wellington, New Zealand.

2010 11th Conference of the South Pacific Environmental Radioactivity Association, Gold Coast, Australia.

2009 16th Australian conference on nuclear techniques of analysis, Sydney, Australia.

2008 10th Conference of the South Pacific Environmental Radioactivity Association, Christchurch, New Zealand.

2008 11th International conference on accelerator mass spectrometry, Rome, Italy.

2006 17th National Congress of the Australian Institute of Physics, Brisbane, Australia.

2006 9th Conference of the South Pacific Environmental Radioactivity Association, Melbourne, Australia.

CURRICULUM VITAE

Stephen Geoffrey Tims

2005 14th Australian conference on nuclear techniques of analysis, Wellington, New Zealand.

2005 16th National Congress of the Australian Institute of Physics, Canberra, Australia.

2003 13th Australian conference on nuclear techniques of analysis, Sydney, Australia.

2003 5th Conference on nuclear science and engineering in Australia, Canberra, Australia.

2001 7th Australasian conference on isotopes in the environment, Robertson, Australia.

2001 9th International conference on accelerator mass spectrometry, Nagoya, Japan.

2001 15th International conference on Ion Beam Analysis, Cairns, Australia.

1998 5th Conference of the South Pacific Environmental Radioactivity Association, Christchirch, New Zealand.

1996 4th Biennial workshop of the South Pacific Environmental Radioactivity Association and Radiological aspects of the rehabilitation of contaminated sites workshop, Darwin/Jabiru, Australia.

1994 1st Australian Image registration workshop, Darwin, Australia.

1992 10th Australian Institute of Physics Congress, Melbourne, Australia.

1990 13th AINSE Nuclear Physics Conference, Canberra, Australia.

1988 8th Australian Institute of Physics Congress, Sydney, Australia.

1986 11th AINSE Nuclear Physics Conference, Melbourne, Australia.

Grant Assessor

Queensland University of Technology Researcher Development Grant

F. Quintarelli: Development of a lightweight instrument for measuring airborne radioactivity in remote locations. 2000 Application.

PhD Thesis Examiner

Thesis examiner for M. de Cesare, CIRCE, Department of Environmental Sciences and INNOVA, Second University of Naples, Italy.

Thesis Title: "Accelerator Mass Spectrometry of Actinides at CIRCE"

Masters Project Examiner

Thesis examiner for G. Godwin, University of Technology School of Physics.

Thesis title: "Development of a low level radionuclide analysis facility for the measurement of naturally occurring radionuclides in soil, rock, water and biota using HPGe gamma spectroscopy"

Technical Skills

CURRICULUM VITAE

Stephen Geoffrey Tims

I have been involved in research since 1986, when I enrolled for a Master of Science degree with the School of Physics at the University of Melbourne. The degree was transferred to a Doctor of Philosophy in 1987. In 1994 I was involved with a six month image manipulation project at the Austin Hospital, Melbourne, Victoria, and in 1995 I accepted a two year appointment as a professional officer at the Environmental Research Institute of the Supervising Scientist (***eriss***), Jabiru, Northern Territory. This was subsequently extended to four years, and then to a total of five years, at the conclusion of which I moved to Canberra to take up my current position as a research fellow in the Department of Nuclear Physics within the Institute of Advanced Studies at the Australian National University. My research is at the forefront of radioisotope tracing studies and I am now an expert with Accelerator Mass Spectrometry systems as well as with gamma-ray, neutron, and charged particle detectors, and their associated electronics. Furthermore I have extensive experience with environmental sampling for radionuclide analysis and with the specialised field equipment needed to conduct a coordinated sampling program.

General Background

At the completion of my Ph.D I was employed at the Austin Hospital, Heidelberg, on a six month contract as a Medical Imaging Scientist in the Centre for Positron Emission Tomography (PET). The goal of the contract was develop the techniques to co-register (i.e. map) 3-D images from other scanning modalities onto 3-D images from the PET scanner. This was satisfactorily achieved for CT, NMR and PET images on time.

At the conclusion of the above contract I was employed as a Professional Officer Level 2 at the Environmental Research Institute of the Supervising Scientist, which is based at Jabiru, Northern Territory and is within Kakadu National Park. In addition to my normal research functions at the Institute I was the radiation safety officer, helped in the organisation of the 4th Biennial workshop of the South Pacific Environmental Radioactivity Association and the Rehabilitation of contaminated sites workshop, and was on the Institute's relocation committee (the Institute has now moved to Darwin, and the committee organised the design and construction of new Laboratory facilities).

I left the Institute to become more involved with research development, taking up a position as a Research Fellow with the Accelerator Mass Spectrometry group at the Australian National University in late 2000. Shortly after arriving at the ANU I joined the committee responsible for the design and construction of new purpose-built chemistry and clean room laboratories for the AMS group. I have had a major role in the laboratory’s ongoing maintenance and operation since they first commissioned. I take part in almost every facet of the AMS program operated on the 14UD accelerator, including sample preparation, AMS measurements and analysis, instruction of students and visitors to the lab on matters concerning the above and development of new components and measuring techniques. In 2009 I was promoted to the position of Fellow in the department of Nuclear Physics.