

Antarctica New Zealand Science Update (33) July 2008

1. **Manager Science & Information Vacancy:** Dean's former position was advertised on 12 July with a closing date for applications of Monday 28 July. A new person is expected to be in the role by October and in the interim Lou is the Acting Manager Science & Information. He is very happy to provide his undivided attention to any issue that you would have previously contacted Dean for, over the next two months. He can be reached at l.sanson@antarcticanz.govt.nz or 03 358 0209. He looks forward to assisting you in any way possible.
2. **International Economic Situation:** The National Science Foundation issued a press release last week highlighting that they will need to make reductions of approximately \$36 million US across the entire US Antarctic Programme. This is an approximately 15% cut to their 2008/09 programme as a result of rapidly increasing fuel prices and a weakening US dollar. They have advised us that we will need to budget on a further 60-70% fuel price increase for all fuel delivered from Athens this year (it will be March 2010 before we get any significant fuel savings offset from our wind turbines). This will require us to cut \$400-\$500K of operational expenditure from our 2008/09 programme. We are currently reviewing where to make these savings and projects such as our planned increase in computer bandwidth speed to Scott Base are likely to be deferred as a result. It is also likely that NSF will reduce the number of US Air Force C-17 flights to Antarctica and we will see greater use of LC-130's and NZ Air Force C-130's. This is likely to considerably impact intercontinental airlift capacity in the December-January period.

We are also ourselves facing rapidly rising logistics costs in supporting science in Antarctica and are estimating the following actual costs for the 2008/09 season:

- Intercontinental Flights – Christchurch to McMurdo \$4,000 per person
- HNZ Bell 212 helicopter \$4,000/hour
- HNZ Bell 212 helicopter at the Darwin Glacier \$6,000/hour
- Twin Otter \$5,000/hour

We trust you understand the unusual situation we are facing, which is shared by every other national Antarctic programme. We will however do our utmost to ensure that all your projects are fully supported to the best of our ability within the operational constraints we have.

3. **Board Chair Retirement:** Paul Hargreaves steps down as Antarctica New Zealand Board Chair on 31 August 2008 to be replaced by Rob Fenwick. Rob was formerly Chair of Landcare Research for 9 years and Chair of the Antarctic Heritage Trust. Paul did a considerable amount of work to gain the \$10.5 million of new Government IPY research funding and will be sorely missed. We will farewell him at a function in Christchurch on 12 August. If any of you who are from out of Christchurch, happen to be in town on that date, do let Shulamit know and we will ensure we get you along.
4. The **2008 Antarctic Conference** hosted by the University of Otago and its Polar Environments Research Theme from 30 June to 2 July was a great success. 130 participants (half students) attended the 2 ½ day conference. In particular the workshop held by the Association of Polar Early Career Scientists was a great hit with useful tips shared on how students can become postdocs and principal investigators. Links to a transcription of this workshop (and maybe even a podcast!) will be circulated once these are available. The conference schedule and workbook can be downloaded from : <http://www.antarcticanz.govt.nz/article/6973.html#10429>. Our thanks to all the sponsors, helpers and participants who made this conference such a success.
5. **The SCAR/IASC Open Science Conference in St Petersburg** was attended by Shulamit and Dean and an impressive contingent of 25 scientists (9 of whom were students) from our New Zealand Antarctic community. With up to 12 concurrent sessions, it was a very busy meeting, and a great

opportunity to meet with old and new contacts. Dean gave a presentation on interdisciplinary research using the Latitudinal Gradient Project (LGP) as an example. Shulamit presented a poster on 5 years of integrative research with the LGP (can be downloaded from: <http://www.lgp.aq/downloads/LGPStPeteFinal08.pdf>) , convened a workshop for the SCAR programme Evolution and Biodiversity in the Antarctic, and was elected as co-Deputy Chief Officer of the Joint Committee on Antarctic Data Management.

6. **SCAR Biology Travel Award:** An outcome of the VII Scientific Committee on Antarctic Research (SCAR) Biology Symposium held in Christchurch in 1998 was the establishment of the SCAR Biology Student Travel Award Scheme, set up specifically to help NZ-registered postgraduate students to attend SCAR symposia. The award is administered by a group of executors set up under the auspices of the Royal Society of New Zealand's Committee on Antarctic Science. Applications are now called for travel awards to allow currently registered postgraduate students to attend the Xth SCAR International Biology Symposium to be held in Sapporo, Japan between 26-31 July 2009. The Committee reserves the right to make up to three awards based on the merit of the applications received. Students must be registered at a New Zealand Tertiary Institution and pursuing biological research in Antarctica and/or the Southern Ocean. Priority will be given to students who intend to present a paper or poster at the symposium. The awards will cover the full cost of an economy return airfare (NZ-Japan) and the full cost of the registration fee. Accommodation costs will not be covered. Application forms are available from Eddie Davis at eddie.davis@rsnz.org. The final date for receipt of written applications is Wednesday 19 November 2008 and should be sent by mail to Mr E R Davis, Royal Society of New Zealand, P O Box 598, Wellington. Decisions will be advised by 19 December 2008.
7. **The June SCAR Newsletter** can be found at:
<http://www.scar.org/news/newsletters/issues2008/jun08.html>
8. **ROYAL SOCIETY TRAVEL GRANTS CALL FOR APPLICATIONS:** Realising the importance to early career scientists of the opportunity to travel overseas and present the results of their work at an international scientific conference, the Royal Society established a fund to enable it to assist students undertaking PhD degrees at New Zealand universities to attend their first overseas scientific conference (this includes summer schools and workshops). Following the March 2008 funding round the Royal Society of New Zealand is helping to send 25 PhD students to attend their first overseas scientific conference. Applications are now being called for the September funding round. The closing date is: 1 September 2008. The guidelines and application form are available on the Society's website, <http://www.rsnz.org/awards/travel/>. For further information please email: TravelGrants@rsnz.org

2007 and 2008 Publications submitted to the NZ Antarctic Bibliography this month:

Aislabie, J. Ryburn, A. Sarmah, A.

Hexadecane mineralization activity in ornithogenic soil from Seabee Hook, Antarctica.

Polar biology 31(4): 421-428, 2008.

Arenz, B.E. Held, B.W. Jurgens, J.A. Farrell, R.L. Blanchette, R.A.

Fungal diversity in soils and historic wood from the Ross Sea Region of Antarctica.

Soil biology and biochemistry 38: 3057-3064, 2006.

doi:10.1016/j.soilbio.2006.01.016

Atkins, C.B. Dickinson, W.

Landscape modification by meltwater channels at margins of cold-based glaciers; Dry Valleys, Antarctica.

Boreas 36(1): 47-55, 2007.

doi: 10.1080/03009480600827306

Bradshaw, M.A. Harmsen, F.J.

The paleoenvironmental significance of trace fossils in Devonian sediments (Taylor Group), Darwin Mountains to the Dry Valleys, southern Victoria Land.

In: Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Raymond C.R. eds. Washington DC: National Academy Press. 2007. 5pp.

USGS Open-File Report 2007-1047, Extended abstract 133.

Claridge, G.G.C. Campbell, I.B.

The "Golden Shale": An indicator of coastal stability for Marble Point, McMurdo Sound, over the last four million years.

In: Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Campbell I.D. eds. Washington DC: US Geological Survey. 2007. 4pp.

USGS Open-File Report 2007-1047, Short research paper 087.

DOI: 10.3133/of2007-1047.srp087

Cockrem, J.F.

Stress, corticosterone responses and avian personalities.

Journal of ornithology supplement 2 148: 169-178, 2007

Doi 10.1007/s10336-007-0175-8

Crundwell, M. Scott, G. Naish, T.R. Carter, L.

Glacial–interglacial ocean climate variability from planktonic foraminifera during the Mid-Pleistocene transition in the temperate Southwest Pacific, ODP Site 1123.

Palaeogeography, palaeoclimatology, palaeoecology 260: 202-229, 2008.

doi:10.1016/j.palaeo.2007.08.023

Davis, L.S.

Popularizing Antarctic science: impact factors and penguins.

Aquatic conservation: marine and freshwater ecosystems supplement 17: S148-S164, 2007.

DOI: 10.1002/aqc.916

Dunbar, G.B. Naish, T.R. Barrett, P.J. Fielding, C.R. Powell, R.D.

Constraining the amplitude of late Oligocene bathymetric changes in Western Ross Sea during orbitally-induced oscillations in the East Antarctic Ice Sheet: (1) Implications for glacial-marine sequence stratigraphic models.

Palaeogeography, palaeoclimatology, palaeoecology 260: 50-65, 2008.

doi:10.1016/j.palaeo.2007.08.018

Duncan, S.M. Minasaki, R. Farrell, R.L. Thwaites, J.M. Held, B.W. Arenz, B.E. Jurgens, J.A. Blanchette, R.A.

Screening fungi isolated from historic Discovery Hut on Ross Island, Antarctica for cellulose degradation.

Antarctic science, 2008.

doi: 10.1017/S0954102008001314

Fielding, C.R. Whittaker, J. Henrys, S.A. Wilson, T.J. Naish, T.R.

Seismic facies and stratigraphy of the Cenozoic succession in McMurdo Sound, Antarctica: Implications for tectonic, climatic and glacial history

Palaeogeography, palaeoclimatology, palaeoecology 260(1-2): 8-29, 2008.

doi:10.1016/j.palaeo.2007.08.016

Fielding, C.R. Whittaker, J. Henrys, S.A. Wilson, T.J. Naish, T.R.

Seismic facies and stratigraphy of the Cenozoic succession in McMurdo Sound, Antarctica: Implications for tectonic, climatic and glacial history .

In: Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Campbell I.D. eds. Washington DC: US Geological Survey. 2007. 4pp.

USGS Open-File Report 2007-1047, Short research paper 090.

DOI: 10.3133/of2007-1047.srp090

Franklin, C.E. Davison, W. Seebacher, F.

Antarctic fish can compensate for rising temperatures: thermal acclimation of cardiac performance in *Pagothenia borchgrevinki*.

Journal of experimental biology 210(17): 3068-3074, 2007.

doi: 10.1242/jeb.00313

Griffith, G.

The photoprotective xanthophyll cycle in Southern Ocean phytoplankton and Antarctic sea-ice algae. Ph.D., University of Otago, 2007.

Hall, J. Wilson, T. Henrys, S.

Structure of the central Terror Rift, western Ross Sea, Antarctica.

Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Campbell I.D. eds Washington DC: US Geological Survey. 2007. 5pp.

USGS open-file report 2007-1047, Short research paper 108.

DOI: 10.3133/of2007-1047.srp108

Henrys, S.A. Wilson, T.J. Whittaker, J.M. Fielding, C.R. Hall, J.M. Naish, T.

Tectonic History of Mid-Miocene to Present Southern Victoria Land Basin, Inferred from Seismic Stratigraphy in McMurdo Sound, Antarctica.

In: Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Raymond C.R. eds. Washington DC: National Academy Press, 2007. 4pp.

USGS Open-File Report 2007-1047, Short research paper 049.

doi:10.3133/of2007-1047.srp049

Hopkins, D.W. Sparrow, A.D. Shillam, L.L. English, L. C. Dennis, P.G. Novis, P. Elberling, B.

Gregorich, E.G. Greenfield, L.G.

Enzymatic activities and microbial communities in an Antarctic dry valley soil: Responses to C and N supplementation.

Soil biology and biochemistry 40, 2008.

doi:10.1016/j.soilbio.2008.03.022

Johnston, L. Wilson, G.S. Gorman, A.R. Henrys, S.A. Horgan, H. Clark, R. Naish, T.R.
Cenozoic basin evolution beneath the southern McMurdo Ice Shelf, Antarctica.
Global and planetary change 62(1-2): 61-76, 2008.

Lockett, G.M. White, J.D.L.
Coal-fragment rank and contact relationships of debris avalanche and primary pyroclastic deposits in the Mawson Formation, Ferrar LIP, Allan Hills, Antarctica.
Journal of volcanology and geothermal research 172: 61-74, 2008.

McKay, R.M. Dunbar, G.B. Naish, T.R. Barrett, P.J. Carter, L. Harper, M.
Retreat history of the Ross Ice Sheet (Shelf) since the Last Glacial Maximum from deep-basin sediment cores around Ross Island.
Palaeogeography, palaeoclimatology, palaeoecology 260(1-2): 245-261, 2008.
doi:10.1016/j.palaeo.2007.08.015

Martin, A. Hall, J.A. O'Toole, R. Davy, S.K. Ryan, K.G.
High single-cell metabolic activity in Antarctic sea ice bacteria.
Aquatic microbial ecology 52: 25-31, 2008.
doi: 10.3354/ame01205

Naish, T.R. Wilson, G.S. Dunbar, G.B. Barrett, P.J.
Constraining the amplitude of Late Oligocene bathymetric changes in western Ross Sea during orbitally-induced oscillations in the East Antarctic Ice Sheet: (2) Implications for global sea-level changes.
Palaeogeography, palaeoclimatology, palaeoecology 260(1-2): 66-76, 2008.
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Naish, T. Powell, R. Levy, R. Niessen, F. Kuhn, G. Florindo, F. Talarico, F. Wilson, G. Harwood, D.
Examining Antarctica.
Geotimes 52(10): 30-33, 2007.

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Record of Antarctic climate and ice sheet history uncovered.
Eos Transactions AGU 88(50): 557-558, 2007.

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Late Cenozoic climate history of the Ross Embayment from the AND-1B drill hole: Culmination of three decades of Antarctic margin drilling.
In: Antarctica: A Keystone in a Changing World – Online Proceedings of the 10th ISAES X. Cooper A.K. Raymond C.R. eds. Washington DC: National Academy Press. 2008.
USGS Open-File Report 2007-1047, Keynote paper 07.
DOI: 10.3133/of2007-1047.kp07

Niederberger, T.D. McDonald, I.R. Hacker, A.L. Soo, R.M. Barrett, J.E. Wall, D.H. Cary, C.
Microbial community composition in soils of Northern Victoria Land, Antarctica
Environmental microbiology 10(7): 1713-1624, 2008.
doi:10.1111/j.1462-2920.2008.01593.x

Palinkas, L.A. Reedy, K. Shepanek, M. Smith, M. Anghel, M. Steel, G.D. Reeves, D. Case, H.S. Do, N.V. Reed, H.L.
Environmental influences on hypothalamic-thyroid function and behavior in Antarctica.
Physiology and behaviour 92(5): 790-799, 2007.

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Psychoneuroendocrine effects of combined thyroxine and triiodothyronine versus tyrosine during prolonged Antarctic residence.

International journal of circumpolar health 66(5): 401-417, 2007.

Ross, P.-S. White, J.D.L. McClintock, M.

Geological evolution of the Coombs-Allan Hills area, Ferrar large igneous province, Antarctica: Debris avalanches, mafic pyroclastic density currents, phreatocauldrons.

Journal of volcanology and geothermal research 172: 38-60, 2008.

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Physical volcanology of large igneous provinces.

Journal of volcanology and geothermal research special issue 172(1-2), 2008.

Siegert, MJ. Barrett, P. DeConto, R. Dunbar, R. Cofaigh, C.O. Passchier, S. Naish, T.

Recent advances in understanding Antarctic climate evolution.

Antarctic science 20: 313-325, 2008.

doi:10.1017/S0954102008000941

Siegert, M.J. Behar, A. Bentley, M. Blake, D. Bowden, S. Christoffersen, P. Cockell, C. Corr, H. Cullen, D.C. Edwards, H. et al.

Exploration of Ellsworth Subglacial Lake: a concept paper on the development, organisation and execution of an experiment to explore, measure and sample the environment of a West Antarctic subglacial lake.

Reviews in environmental science and biotechnology 6(1-3): 161-179, 2007.

Wharton, D.A. Wilson, P. Mutch, J. Marshall, C. Lim, M.

Recrystallization inhibition assessed by splat cooling and optical recrystallometry.

CryoLetters 28: 61-68, 2007.

Williamson, B. Kreutz, K.J. Mayewski, P.A. Bertler, N.A.N. Sneed, S. Handley, M. Introne, D.

A coastal transect of McMurdo Dry Valleys (Antarctica) snow and firn: marine and terrestrial influences on glaciochemistry .

Journal of glaciology 53(183): 681-691, 2007

DOI: 10.3189/002214307784409225