

Compass Points

Geography
@ Massey
University
Newsletter



Welcome to the Geography Programme Newsletter!

Kia ora, the first semester of 2009 is now coming to a close, and staff, and students have been kept very busy indeed, but many of us have still found time to carry out research, undertake fieldwork, and attend the odd conference or two. Others are also planning for fieldwork trips and imminent conferences, such as the International Conference on Geomorphology in Melbourne (July). Congratulations are in order for one of our staff, Dr Juliana Mansvelt who is part of two successful teams that have been awarded a total of \$700,000 in FRST funding, for ageing and consumption research. Congratulations also to Clare Robertson, awarded a 3-year PhD scholarship from the Sasakawa Foundation for her project on glaciers in Aoraki/Mt Cook National Park. Have a great break between semesters, and a successful Semester 2, and please contact me for any information about studying Geography @ Massey. Dr Matt Henry, Geography Programme co-ordinator, m.g.henry@massey.ac.nz

Massey Geographers working on Easter Island/Rapa Nui!

Emeritus Professor John Flenley and David Feek, the Geography field technician joined two other New Zealand-based scientists on a fieldtrip to Easter (*Rapa Nui*) Island in March and April to try and solve the mystery of the sudden collapse of the population on Easter Island in pre-European times. The group was led by environmental scientist Troy Baisden of GNS Science and plant ecologist Mark Horrocks of Microfossil Research Ltd, and tested the hypothesis that the Easter Island population over-shot the carrying capacity of their aged and weathered volcanic soils. If the same situation occurred today, the group think the population would either migrate from the island or top dress with industrial fertilisers! But the Polynesian inhabitants didn't have that luxury and paid a heavy price. Prof Flenley and the group won funding of \$770,000 over three years from the Marsden Fund to undertake the project. The project is entitled '*Was collapse inevitable on Easter Island (Rapa Nui)? Reconstructing a civilisation's failure*'. Often, the most valuable possession of ancient civilisations was their soil - Easter Island developed a remarkable agricultural civilisation that was capable of erecting stone statues weighing up to 80 tonnes each.

However, while the clans on Easter Island were competing to build the most impressive statues, the group think their populations overshot the carrying capacity of their fragile soils. Prof Flenley and colleagues believe it is possible that soil nutrient depletion coincided with the Island's population reaching a maximum. The group is using a range of scientific techniques to reconstruct the "biogeochemistry" of population collapse to see if it occurred at the same time as soil nutrient depletion. In craters where settlement occurred, the group, led in the field by David Feek and his coring equipment, collected about a dozen sediment cores for analysis in New Zealand. The aim is to precisely determine the timing of changes in plant, animal, and human populations, as well as soil fertility. The group will next examine plant microfossils such as pollen and starch grains, nitrogen isotopes, the DNA of native forest species, and steroid biomarkers from humans, animals, and plants. Troy Baisden developed the project because he was inspired by the 2005 best-selling book *Collapse: How Societies Choose to Fail or Succeed*, by Californian academic Jared Diamond. The group wants to know if Easter Island's collapse holds lessons for modern society. If the Easter Islanders overshot the carrying capacity of their soils, there's a strong parallel to the current financial crisis, in which Wall Street overestimated the returns from the housing market. Photographs of the team, and their exploits on Easter Island are pictured to the left.



Easter Islanders built impressive Moai, created by the Rapanui people, yet were unable to prevent the collapse of their society in pre-European times. It is a world heritage site with much of the island protected within the Rapa Nui National Park.



Descending into the bottom of Rano Kau crater. John Flenley has always been struck by the microclimate in the crater and its potential for agriculture.



Landslides and slope failures along the crater rim near Orongo. Coring here was particularly important, as former village of Orongo became the focus of activity after "collapse".

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Greetings to Prof. Keith Bennett, Queen's University, Belfast!

In April the Geography department played host to Professor Keith Bennett of Queen's University of Belfast in Northern Ireland. Keith was visiting Massey to learn about the AutoStage automated palynology system that has been developed jointly between the Massey School of Engineering and Technology and the Geography programme. Keith is set to purchase a Mark III prototype of the AutoStage and his April visit was aimed at learning how the Mark I and II systems located here at Massey operate. Keith spent much of his time with Dr Kat Holt, who has been testing out the Mark I prototype in the Geography pollen laboratory on fossil pollen samples. Keith and Kat also spent time with other members of the 'Pollen research group' from the School of Engineering and Technology (see picture), and much discussion was had on the future of the AutoStage project. The AutoStage system counts and identifies pollen grains mounted on slides and has the potential to save the human palynologist countless hours staring down the microscope. The development of the system over the past few years is the realisation of a 50 year dream of Professor John Flenley, who has published extensively on the subject of automated palynology. For more information on the project, visit <http://autopollen.massey.ac.nz>. Keith currently resides in the School of Geography, Archaeology and Palaeoecology at Queen's, where he is the Head of School. His research interests are strongly focussed around Quaternary palaeoecology, palynology, methods of computerised pollen counting, and the evolution of plants and animals in response to environmental change during the Quaternary. He has carried out research on Quaternary vegetation and environmental change in a variety of locations around the world, the most recent being Tierra del Fuego in Chile, and Kamchatka. Keith gave two lectures while here in Palmerston North. The first was for the local branch of the Royal Society, entitled: 'Fossils and Molecules: evolution in the Quaternary'. Keith discussed the timing of evolutionary events in relation to climate change events, habitat fragmentation and humans, with considerable reference to molecular evidence of evolution. Despite fears of technological failure, the talk was a success and was well received with many stimulating discussions following. Keith also gave a presentation for the Geography department seminar series, entitled 'Refugia revisited: the behaviour of tropical organisms during glacial-interglacial transitions'. Keith discussed the hot topic of the role of 'glacial refugia' in contributing to species richness in tropical regions, which again was well received. Below are Keith (with long beard) & Kat.



David Feek, Geography Field Technician, Massey University

David Feek was the final member of the Easter Island research team. David is the highly regarded and well respected technician in the Geography Programme here at Massey. He has a wide range of skills, including coring in bogs and beneath lakes, installing equipment high up on glaciers, and keeping staff and postgraduates afloat when working in water. David grew up in and around the Manawatu and landed himself in a "tech" job at Massey that has gone on for over two decades. David and John Flenley have worked together all over New Zealand and the Pacific, sampling various wetlands to obtain cores for pollen analysis and radiocarbon dating. Prof. Flenley reckoned that including David in the Easter Island project was essential, and research team leader Troy Baisden can see why: "David has been a godsend for efficiently pulling together the gear to sample here despite airline baggage regulations. His best trick so far has been leaving a good stash of gear of on the island. The other day we found it, minus a couple long rods that may have been separated from the rest due to their length".



Congratulations to Rob Dykes, Jane Richardson and Sheryl Paine, pictured above with Dr Ian Fuller. All graduated in May with first class honours in Geography, a tremendous achievement for Geography at Massey!

Left: Keith Bennett with members of the Pollen Research Group. Prof. Bob Hodgson, Gary Allen, Keith; Ken Mercer, Kat.Holt.

Recent Conference Presentations

The early part of 2009 has seen a variety of postgraduate and staff research presented at international conferences at home and abroad. The following are some of the presentations that have been made recently:

- Brook, MS & Dykes, R.** Neoglacial activity on Mt Taranaki, New Zealand. Poster presented at Australasian INTIMATE Past Climates Workshop, Te Papa, Wellington, 15-17 May 2009.
- Fuller, IC, Richardson, J, Basher, L & Dykes, R.** Responses to river management? Geomorphic change over long and short timescales in two gravelly rivers. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Fuller, IC, Marden, M & Massey, C.** Connectivity in steepland environments: complex gully-fan interactions in the Tardale system, Waipaoa catchment, New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Basher, L, Hicks, DM, **Fuller, IC**, Phillips, C & Fenemor, A. Application of geomorphology to integrated catchment management, Motueka River, New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Massey, C, **Fuller, IC** & Marden, M. Slope-channel coupling – the Tardale fluvio-mass movement complex, New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Procter, J, Cronin, S, **Fuller, IC**, Manville, V & Lube, G. Using LiDAR to Quantify the Geomorphic Impacts of a Lake-Breakout Lahar from Mt. Ruapehu, New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Clement, AJH, Fuller, IC** & Sloss, CR. Late Quaternary geomorphic evolution of the lower Manawatu River valley, North Island, New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Clement, AJH, Sloss, CR & Fuller, IC.** Reconstructing Holocene eustatic sea-level change in New Zealand. 7th International Conference on Geomorphology, Melbourne, Australia, 6-11 July 2009.
- Macklin, MG, **Fuller, IC** & Jones, AF. In-phase or out-of-phase? The synchronicity of NZ Holocene river activity with global and regional climate based on meta-analysis of alluvial histories. Poster presented at Australasian INTIMATE Past Climates Workshop, Te Papa, Wellington, 15-17 May 2009.
- Holt, K, Marden, M** and Palmer, A. (2009) Vegetation history in the Waipaoa catchment, East Coast Region and the relationship to post-glacial downcutting: a preliminary investigation from two sites in the Waimata River valley. Presented at the MARGINS Source to Sink Workshop, held in Gisborne, 5th to 9th May 2009.

CONGRATULATIONS\$ JULIANA!....

Congratulations to Dr Juliana Mansvelt, who for the second year running, has been awarded substantial amounts of government research funding. Indeed, in April, Juliana was part of two successful team bids for 2009 Building Inclusive Societies Federation of Research, Science & Technology (FRST) funding, both related to ageing and consumption research. The two projects are Living Standards Index for Elders, led by Mary Breheny (Massey University), for \$350,000, and for a project entitled Engaging Senior Stakeholders, led by Waikato University academic, Ted Zorn. This project has also received \$350,000 of funding. Juliana is especially pleased as the two projects merge two of her most passionate research interests, consumption and aging (particularly the Massey-led project). Funding commences in October 2009, which will keep Juliana busy over the summer.

& well done Martin!

Dr Martin Brook and colleagues Dr Rochelle Stewart-Withers (University of Queensland), and Mirriam Dogimab at Family Health International in Port Moresby, have been awarded \$40,000 from NZAid to study rugby league as a development tool in Papua New Guinea. This is a slight departure for Martin, who usually undertakes fieldwork on a glacier, but this time, it will be in Port Moresby, interviewing key stakeholders in rugby league. Rugby League is the national sport in PNG, and shows promising signs of becoming a pathway of developing positive role models and health awareness, especially among young urban males.

Notes from the Archive – Dr Matt Henry

Unlike some of my colleagues who spent their summer in various exotic places like the Chatham Islands, Fox Glacier or even Easter Island, I spent a good proportion of my time at Archives New Zealand (ANZ) and the Alexander Turnbull Library (ATL) in Wellington. While I was there I was working on a couple of meteorological projects under the guise of the 'geographies of science'. One of these projects involved extending my understanding of the extension of meteorological services by the New Zealand Meteorological Service to help foster the development of trans-Pacific aviation. In 1935 the New Zealand Government began negotiating with Pan American Airways about a trans-Pacific service using flying boats between Auckland and Honolulu. Meteorological support was essential for such a route, and Edward Kidson, New Zealand's Director of Meteorology, was asked to report on how such services could be provided. What is interesting is that Kidson did not restrict himself to a technical report but rather discussed the geopolitics of aviation in the South Pacific. Kidson argued that was essential that the New Zealand government control the meteorological networks in the South Pacific based in Samoa and Fiji to prevent the United States from developing its own networks and thereby controlling aviation in the Pacific. Reports such as this, point to the geopolitical awareness of scientific administrators such as Kidson, and the importance of tracing their role in the shaping of New Zealand's presence in the South Pacific.

If you have a project it is worth spending a few minutes searching on the catalogues of either the ATL (<http://tapuhi.natlib.govt.nz/>) or ANZ (<http://archway.archives.govt.nz/>). The ATL is useful if you are chasing an individual, while ANZ is the repository of the government's records.

If you want to use either the ATL (<http://www.archives.govt.nz/>) or ANZ (<http://www.archives.govt.nz/>) a good place to start is with their respective websites. If you want some practical advice either Mike (m.m.roche@massey.ac.nz) or myself (m.g.henry@massey.ac.nz) have spent considerable time delving into both archives.

Semester 2 Geography Seminars Wednesdays, 1pm

- 22 July Dr Ian Fuller (Geography, Massey)
Slope-channel coupling in steepland terrain.
- 2 Sept. Dr Juliana Mansvelt (Geography, Massey)
- 16 Sept Dr Liz Kiata (University of Auckland)
- 30 Sept Dr Aisling Gallagher (University of Bristol)
- 14 Oct 145.705 Graduate Student presentations

Gallipoli & National Imaginations

As the only New Zealand speaker on the programme at the Second International Gallipoli Symposium hosted by the Centre for Arab & Islamic Studies at the Australian National University in mid April, I found myself under more than normal pressure to perform. Listening to Turkish academics talk about the Gallipoli campaign from the defender's perspective was a valuable experience. If nothing else it tended to dispel the notion that the Anzacs were facing a badly equipped and poorly trained force. Recent efforts at transcribing the Ottoman archives relating to the Gallipoli campaign were both fascinating in their own right and suggestive of further rewriting of the military history of this theatre of the Great War. Equally it was an interesting meeting that combined the military historians interpreting the campaign with other social historians, cultural studies, art historians and one lone geographer interested in the place of Gallipoli in national imaginations. **Prof. Mike Roche**

Below is a Bronze relief map of Gallipoli Battle sites, part of the Lone Pine Memorial, Australian War Memorial ACT 2009.



PhD student John Appleby has commenced geophysical work on Fox Glacier. Clare Robertson, below, assisted with fieldwork. They assure us the weather is always like this in the Fox névé!



Recent Staff Publications

- Purdie, HL, **Brook, MS, Fuller, IC & Appleby, JR** (2008). Recent changes and dynamics of 'Te Moeka o Tuawe' Fox Glacier, South Westland, New Zealand. *New Zealand Geographer* 64(1): 5-19.
- Purdie, HL, **Brook, MS & Fuller, IC** (2008). Seasonal variation in ablation and surface velocity on a temperate maritime glacier: Fox Glacier, New Zealand. *Arctic, Antarctic & Alpine Research* 40(1):140-147.
- Mansvelt, J.** (2009). Geographies of Consumption: The unman(age)able consumer. *Progress in Human Geography* 33, 264 - 274.
- Entwistle, NS. & **Fuller, IC.** (2009). Terrestrial laser scanning to derive surface grain size facies character of gravel bars. In Heritage, G.L., Large, A.R.G. & Charlton, M.E. (Eds.) *Laser Scanning for the Environmental Sciences*, Blackwell, 102-114.
- Fuller, IC.** & Marden, M. (2008). Connectivity in steep-land environments: gully-fan coupling in the Tarndale system, Waipaoa catchment, New Zealand. In: *Sediment Dynamics in Changing Environments*, IAHS Publ. 325, 275-282.
- Roche, M.** (2008). The Commodity Chain at the Periphery – The Spar Trade of Northern New Zealand in the early 19th Century, in Stringer C and Le Heron, R (eds.) *Agri-Food Commodity Chains and Globalising Networks*, Ashgate, Aldershot, chapter 18. pp. 201-214.
- Roche, M.** (2008). Historical Geography in New Zealand, 1987-2007. *History Compass*, 6(4): 1037-1065.
- Roche, M & Dargavel, J** (2008). Imperial Ethos, Dominions Reality. Forestry Education in New Zealand and Australia, 1910-1965. *Environment and History* 14, 523-543.
- Roche, M.** (2008). Ashburton remembers: Celebration and Commemoration in a New Zealand town 1903-1928'. In L. Finch (ed) 'Seachange; New and Renewed urban landscapes' 9th Australasian Urban History/Planning History Conference Proceedings, Caloundra, February 2008, University of the Sunshine Coast Maroochydore (CD).
- Campbell, H. Burton, R. Cooper, M. Henry, M. Le Heron, E. Le Heron, R. Lewis, N. Pawson, E. Perkins, H. **Roche, M.** Rosin, C. and White, T.(2009). From Agricultural Science to 'Biological Economies'? *New Zealand Journal of Agricultural Research*, 52, 91-97.
- Roche, M.** (2009). Latter day 'imperial careering': L.M. Ellis - a Canadian forester in Australia and New Zealand, 1920-1941. *Environment and Nature in New Zealand*, 4(1) 58-77.



Emeritus Professor John Flenley (Geography, Massey), explaining something important to Mark Horrocks (right) at Rano Raraku, Easter Island.