



The New Zealand Statistical Association

nzsa.rsnz.org

Newsletter

Number 69

March 2009



NZSA 2009 Conference Victoria University of Wellington September 1- 3

You are warmly invited to attend the 60th Annual Conference of the New Zealand Statistical Association, to be hosted by the School of Mathematics, Statistics and Operations Research at Victoria University of Wellington, Wednesday 2 - Thursday 3 September 2009. The conference is immediately preceded by a one-day workshop on Semiparametric Regression (more details below), to be given on Tuesday 1 September by Prof Matt Wand (University of Wollongong).

Themes

Papers are invited from any area of probability and statistics; please submit an abstract now! Student presentations are especially welcome.

There will be a few plenary sessions, including one by Matt Wand on "Semiparametric Regression and Variational Approximations" and one as an information session on future developments for the Australian and New Zealand Journal of Statistics (ANZJS).

Among other topics, the implications of the Joint Venture publication model (between NZSA and SSAI) will be discussed in the latter session, which will be chaired by Ian Westbrooke (NZSA Publications Group member, and DOC, Christchurch, iwestbrooke@doc.govt.nz).

The ANZJS session will include a contribution from the new Managing Editor of the journal, Prof Steve Haslett (Massey University). Following the recent tradition, which was started when the NZSA Conference was last in Wellington in 2004, we will again be having a Statistical Education Session. This is being organised by Mike Camden (NZSA Education Committee, and Statistics New Zealand, Wellington, Mike.Camden@stats.govt.nz).

Travel Grant and Student Prizes

The NZSA has some funds available to support students at New Zealand Universities traveling to the conference. There will be financial awards for the best student presentations.

Abstract Submission

Abstracts will be able to be submitted online shortly, in plain text format via the conference website: <http://msor.victoria.ac.nz/Events/NZSA2009>.

Registration

See the conference website for more details. An early bird registration discount will be available and student registrations will receive a 50% discount. Members of the NZSA and SSAI will also receive a discount.

Conference Dinner

This will be on the evening of Wednesday 2 September at The Skyline restaurant (1 Upland Road, Kelburn), close to the conference venue and with great views over Wellington's city lights and the harbour.

Accommodation and Travel

Delegates are asked to make their own arrangements. An extensive list of suitable accommodation providers and travel/tourism information is provided on the conference website.

Other Details

Further (updated) details, including key dates (such as early bird registration deadlines, abstract submission deadlines, etc), online registration procedures, the full programme (including the time of the New Zealand Statistical Association AGM), will all be available shortly via the conference website: msor.victoria.ac.nz/Events/NZSA2009. Please bookmark that page.

Announcements will be emailed to NZSA members, and to the anzstat and allstat mailing lists, once a final version of the website is in place.

Following are some further details about the one-day pre-conference workshop on Tuesday 1 September. The workshop is separate from the NZSA 2009 Conference, and either event will be able to be booked alone, via the conference website. Of course, we encourage people to come along to both!

WORKSHOP

SEMPARAMETRIC REGRESSION

A short-course by Professor Matt Wand (University of Wollongong, Australia)

Tuesday 1 September 2009
Victoria University of Wellington

SHORT-COURSE OVERVIEW

Semiparametric regression is concerned with the flexible incorporation of nonlinear functional relationships in regression analyses. Assuming only a basic familiarity with ordinary regression, this short-course explains the techniques and benefits of semiparametric regression in a concise and modular fashion. Spline functions, linear mixed models and Bayesian hierarchical models are shown to play an important role in semiparametric regression. There will be a strong emphasis on implementation in R and BUGS. The short-course is based on the book 'Semiparametric Regression' by D. Ruppert, M.P. Wand and R.J. Carroll (Cambridge University Press, 2003).

SCHEDULE

The short-course is divided into six sessions. The average session length is about 45 minutes.

Session 1: Spline smoothing and generalised additive models

Session 2: Linear mixed model approach

Session 3: Bayesian hierarchical model approach

Session 4: Additive mixed models

Session 5: Bivariate smoothing

Session 6: Non-standard semiparametric regression

Matt Wand is a Research Professor in Statistics at the University of Wollongong, Australia.



He has held faculty appointments at Harvard University, Rice University, Texas A&M University and University of New South Wales.

Professor Wand is an elected Fellow of the Australian Academy of Science, American Statistical Association and the Institute of Mathematical Statistics and was awarded the P.A.P. Moran Medal for statistical research. He has served as an associate editor for the Journal of the American Statistical Association, Biometrika and Statistica Sinica.

John Haywood
john.haywood@vuw.ac.nz

NZSA 2009 Conference
Victoria University of Wellington
September 1- 3

msor.victoria.ac.nz/Events/NZSA2009

President's Column

This is my first column for the NZSA newsletter and like all good talks I will start off by saying it is a pleasure to be here. Being a member of the NZSA is a pleasure - it is a very supportive, welcoming group of professionals. The existence of the NZSA is very beneficial to statistics in NZ. Beyond the immediate statistics profession there is benefit to the wider community. Our revised constitution includes mention of wider community benefit and there are many tangible examples.



The most obvious example is the involvement of the NZSA in the development of teaching mathematics and statistics at schools. The education subcommittee do an excellent job with a group of dedicated members driving this. Thank you for your work.

Another example of the positive benefits from the NZSA is the development of linkages between NZ universities in statistics teaching and learning.

While at times we are encouraged to directly compete with each other for a finite number of students, the statistics community and NZSA work together in a more collaborative way. Again, thank you.

This column has a definite education flavour. This reflects my personal vision for this year to be focused on education. I saw the level of interest in, and commitment to, education at the NZSA 2008 conference with the large audience at the education sessions. Student numbers are up at universities in 2009, there are changes to syllabus at schools, and there are many opportunities with developments in E-learning.

Focusing on education this year seems sensible to me.

Jennifer Brown

New members

A warm welcome to new members of the NZSA who have joined since September 2008, taking our current membership to 391.

Regular members: Mark Holmes, Christopher Fonnesbeck, Chikako van Koten, Murray Black, Wendy Dobson, Min Liao, Lingyun Zhang, Paul Cowpertwait, Christian Vernon Mogol, Maoxin Luo.

Student members: Peter Green, Stephen Taylor, Gloria Teng, Cherif Aidara, Elena Tang, Rachel Holland, Xiang Weng.

Editorial

It seems like it has been an eventful six months in the statistics world, but perhaps this is because of all the information that comes my way as the new editor for the NZSA newsletter – information that I would normally flick over when I receive the final version of the newsletter. This year the task of collecting and compiling articles and contributions summarising recent events in the statistics community has become mine. I must admit I had been feeling quite daunted at the prospect, but I have not found the task too onerous! Here is the final version for your perusal.



There have been some sad and tragic events which have received notice in this edition of the NZSA newsletter. Pages 4, 5 and 6 contain tributes to several prominent and influential statisticians who have passed away in recent months. A number of individual contributions also contain mention of the Victorian fires in February, particularly in reference to the town of Marysville where several New Zealand and Australian GenStat users attended a conference in December 2008.

But, it is not all bad news. The Pickering Medal and RSNZ Fellowships have been awarded to various members of New Zealand's statistics community. There are weddings, team meetings, courses and trips overseas to find out about in later pages. We have new correspondents from AgResearch and the University of Canterbury, and Neil Binnie from AUT has entered the lists (entirely voluntarily I might add!). Jennifer Brown has contributed her first column as President of the NZSA, and has indicated a strong focus on education for 2009, which is reflected in this Newsletter.

Esther Meenken

Join the NZSA

A membership application / change of address form is available at <http://nzsa.rsnz.org/form.php>

NZSA Membership rates

April 2009 - March 2010 in NZ\$

	NZ	Overseas
Ordinary	80	85
Student & Retired	40	45

Electronic-only access to the journal reduces membership by \$5. The first year of membership is free for senior students at NZ universities or graduates of NZ universities studying overseas, and not in full-time employment.

Tributes

Keith Worsley (1951-2009)



Photograph of Keith by Peter Macdonald

Professor Keith Worsley died on 27 February 2009 in Chicago: he was 57. In November 2008 he was diagnosed with cancer. At the time of his death, Professor Worsley was Professor of Statistics at the University of Chicago and James McGill Professor of Mathematics and Statistics at McGill University in Montreal. He was a world leader in research on the geometry of random images in astrophysics and brain mapping and was recognized with the Gold Medal of the Statistical Society of Canada (2004), Fellowship of the Royal Society of Canada (2003), and Honorary Fellowship of the Royal Society of New Zealand (2008).

*George P. H. Styan & David B. Wolfson,
McGill University*

Professor Worsley was one of the world's leading statisticians. Over the last 20 or so years, he has made very significant contributions both to statistical theory and its applications, most importantly in the field of human brain mapping. He was a Fellow of the Royal Society of Canada and received the Gold Medal of the Statistical Society of Canada in 2004. Keith Worsley graduated from the University of Auckland with a BSc (1972), MSc (1973) and PhD (1978).

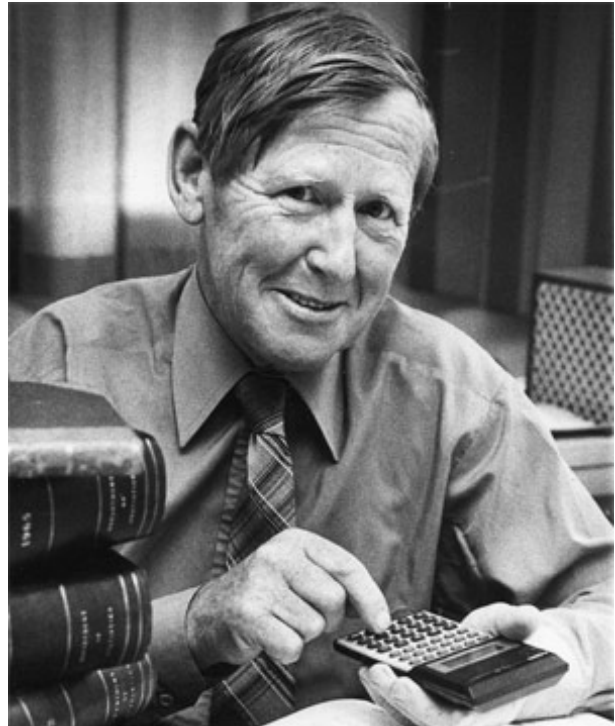
Professor Worsley's main research was concerned with smooth random fields which, for example, serve as models for the data collected by neuroscientists using Positron Emission Tomography or Functional Magnetic Resonance Imaging. His work has focused on inferential questions to determine which areas of the human brain are active while subjects perform a given task.

Professor Worsley's approach to these questions was a unique mix of probability theory, statistics and geometry. In his work on the maxima of smooth random fields, he uncovered elegant connections between smooth random fields and classical integral geometry.

In addition to his work on random fields, Professor Worsley has made important contributions to a number of other areas of statistics, including multiple testing and change point problems.

Royal Society of New Zealand

John Darwin (1923-2008)



John Darwin, a former Government Statistician and an Honorary Life Member of the NZSA, died on October 29 2008.

John served as Secretary-Treasurer of the NZSA from 1956-8 and as President from 1961-3.

John was born and raised in Christchurch graduating with an MSc with first class honours at Canterbury University College. In 1944 he joined the Radar Development Laboratory of the DSIR as a physicist then in 1947 went to Cambridge University in England on a Shirtcliffe Fellowship. He was a Trinity College Scholar and went on to Manchester University to complete two doctorates in Mathematics and English.

On his return to New Zealand he worked for the Applied Maths Division of the DSIR for 30 years and led a statistics section which strongly encouraged research into statistical methods and evaluation with a strong emphasis on user requirements. He published many papers utilising his strong mathematical and analytical skills.

But his main concern with probability and statistical theory was, in his own words, whether they were useful in particular problems of data analysis. In his time in the DSIR he excelled in getting alongside researchers from disciplines as diverse as, for example, paleobotany and criminology, always managing to achieve with the researcher a mutual understanding of the statistical content of the data.

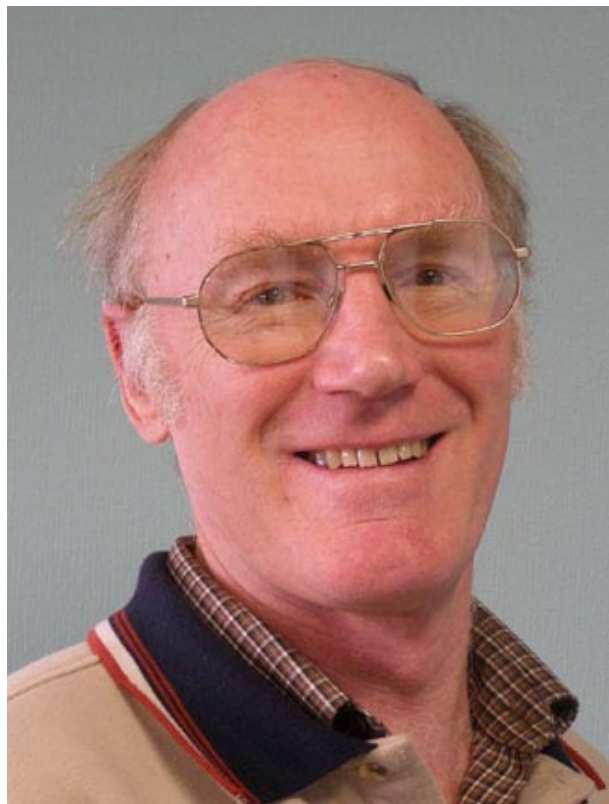
In 1978 he became Deputy Government Statistician and in 1980 he became Government Statistician, head of the Department of Statistics until he retired in 1984.

In 1985 he was appointed as a member of the Royal Commission into Electoral Reform to investigate and recommend possibilities for a new electoral system in New Zealand resulting in the present system of MMP.

John had a wide variety of interests including rugby and cricket first as a player and then as an avid Canterbury and New Zealand supporter, Competition Bridge with his wife of 50 years Helen, tennis, squash, travel, singing, chess, tramping, politics, home DIY projects, and family life with his three children and grandchildren.

Based on the Dominion Post Obituary contributed by Bruce Darwin, Len Cook and Gary Dickinson. The online newsletter has further contributions from Len Cook, Jean Thompson and Robert Davies.

Greg Arnold (1944-2009)



It is with great sadness that we mourn the passing of Greg Arnold, a long-time colleague and deeply respected friend to many at Massey University and,

in latter years, as a statistical consultant at Landcare Research. Greg was known as an excellent applied statistician. His greater interest was in the ideas themselves on which the statistical applications were based. One colleague noted that, "Greg always seemed able to get to the essence of the question and not get carried away by academic fancy."

Greg kept quite fit by regular tramping trips and riding his bike to work. It came as a shock to hear that he had contracted cancer which had spread through the liver. Although he was only given six months to live, his struggles continued for over a year but what a year it was. It was like being on a roller coaster as despair changed to hope and back to despair. A new treatment would seem to slow or halt the progress of the cancer but this would be followed by a relapse.

The amazing thing was how Greg and Barbara handled this illness. Instead of withdrawing into themselves, they were very open and shared their ups and downs with friends and family. After each regular visit to the specialist, they sent out an email outlining the good or bad of Greg's medical state so that we could rejoice or grieve together.

Greg carried on his statistical consulting at Landcare Research and Barbara with her work at Te Manawa, each for three days a week. One day was for themselves, and this left one day that they could spend time together. They did many things such as walking the Milford Track, travelled to India and, another time, to Australia. Greg had a number of other interests such as his lifelong involvement in church choirs and other choirs.

In the last few months, Greg and I met fortnightly at a café to drink coffee and chat about any and everything. Later, three friends joined us, namely Peter, Gordon and Mike, colleagues from the Mathematics Department of the seventies. Although he was always offered a ride to the café, Greg would politely refuse as he preferred to walk. At our last meeting, less than two weeks before he died, Greg again declined the offer of a ride even though the large doses of drugs made him extremely tired and a little unsteady on his feet.

There was a strong consensus from friends and colleagues that Greg was a gentle man, cheerful and positive with a ready smile. No-one could remember any time when he was nasty, irritable, rude or sarcastic. Yet, he was never weak but just got on with living a good and fruitful life.

Our condolences go out to Barbara and their three boys, Patrick, Malcolm and Richard.

Farewell Greg, you will always live on in our memory.

R J (Dick) Brook

John Baker (1913-2009)

It is with great sadness that we have heard that John (Jack) Baker, who was Government Statistician from June 1958 until July 1969, has passed away at the age of 96.

Known as “JVT” (John Victor Tuwhakahewa) around the office, John was born in Manunui in January 1913 and was educated at Waipara District High School and Victoria University of Wellington, where he obtained an MA (Mathematics), M.Com. (with Honours in Economics), and a Diploma of Public Administration. He was a Fellow of the NZ Society of Accountants, a part-time lecturer in statistics at VUW, author of numerous papers on economic and statistical subjects and of “The War Economy” (1965).

John represented New Zealand at international statistical conferences and was rapporteur of the United Nations Statistical Commission in New York in 1960 and 1962. He was Chairman of the 5th Conference of British Commonwealth Statisticians in Wellington in 1960 and Chairman of the ECAFE Seminar on Statistics in Wellington in 1962.

John was a foundation member of the NZ Association of Economists, formed in 1959, a member of the editorial committee set up to produce their first journal in 1965, and President from 1965 to 1967.

Statistics New Zealand Bulletin Board

JVT Baker was President of the NZSA in 1956-1957 and 1957-1958 (and John Darwin was Secretary-Treasurer in those years). He spoke at the 1951 conference on “New Zealand’s National Income”. It is unknown when he became a member of NZSA, but he wasn’t one of the 15 “Foundation members” who signed the incorporation document in 1951. (Source “A History of Statistics in New Zealand” (1999), edited by Stan Roberts.)

From Australian Economic History Review, 2002, Vol. 41, No. 2, P137: “The official war historian JVT Baker notes that a crucial concern was ‘to keep an acceptable relationship between wages and farm incomes’.” Referring to: “Official History of NZ in WW2 - War Economy” (also found as “The New Zealand People at War: War Economy”) by JVT Baker. 660 pages. Published 1965.

Contribution to the establishment of ACC: “Apparently the Royal Commission asked the Government Actuary to make estimates of the cost and then asked the Government Statistician (JVT Baker, who at an earlier time had been a student employed in the Government Actuary’s Office) for a second opinion. The Government Statistician’s figures were much lower.” Jessup (2007).

Mike Doherty

Submissions to the Newsletter

The Newsletter welcomes any submissions of interest to members of the NZSA. News about New Zealand statisticians, statistical meetings, statistical organisations, statistics in education, or statistical curiosities are suitable for inclusion. Letters that raise issues of importance to statistics in New Zealand are also welcomed. Photographs of recent gatherings and new appointees are of particular interest. Electronic submissions are preferred.

Next deadline 1 September, 2009

Advertising In the Newsletter

The Newsletter accepts advertising of interest to statisticians in New Zealand. Advertising is placed subject to space considerations. Personal advertising by NZSA members will be published free. Other advertising is \$250 per page, \$140 per half page, and \$75 per quarter page. Other sizes can be quoted on request. All advertising requests should be directed to the editor.

Editor

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Newsletter on Web

An online version of this newsletter is available at <http://nzsa.rsnz.org/Newsletter69/index.htm>
It will be regularly updated with information and your letters.
Email: meenkene@crop.cri.nz

Back Copies of NZ Statistician

A CD archive of "The New Zealand Statistician" is available from the NZSA. For details see http://nzsa.rsnz.org/archive_NZS.shtml.

Copies of this CD are available for

Current members \$5
Past members \$25
Non members and libraries \$55

To order a copy email Harold Henderson (Harold.Henderson@agresearch.co.nz).

Some links concerning Keith Worsley, John Darwin, Greg Arold and John Baker are available in the online version of the newsletter.

Editor

Review of Statistical Methods for Genetic Improvement Course

Rod Ball and Charlie Low (Scion) attended the recent workshop on statistical methods for genetic improvement (using ASREML) given by Brian Cullis, David Butler (QDPI; developer of the *asreml* R package) and Arthur Gilmour (developer of the original ‘stand-alone’ ASREML) at Lincoln in February.

The course, organised by Peter Alspach (Plant and Food) was attended by breeders, quantitative geneticists and statisticians from across New Zealand and also included several international participants including Keith Boldman (Pioneer, and developer of DFTREML) and Fernando Grignola (Monsanto Switzerland, and co-author of papers with Dan Gianola).

ASREML is a Fortran program developed by Arthur Gilmour (NSW Department of Agriculture, recently retired) over the last 40 years and now marketed commercially by VSN. ASREML uses sparse matrix methods and the average information criterion which enables fitting models with very large numbers of random effects, provided the inverse variance matrices are sparse. Use of the average information speeds computation because one of two terms appears in both the observed and expected information, but with opposite signs, and hence cancel when averaging.

This program is available either as part of GenStat, as an R package, or as a stand-alone program. ASREML seems to be widely used by breeders in Australasia.

There is an ASREML newsgroup and forum with many questions from users skilfully addressed by Arthur (along with Biblical quotes). However, one gets the impression that few others know what’s going on well enough to answer the questions, especially with the stand-alone version.

The R version was mainly used by Brian Cullis in the course, in conjunction with the emacs editor, and skilful use was made of R scripts for calculations and graphics pre- and post- model fitting.

Arthur gave presentations using the stand-alone version. An impressive array of examples was illustrated mainly on datasets contributed by participants, with ‘hands on’ participation by participants running the software on their own laptops. These covered incorporating pedigrees, multi-environment trials, multi-trait models, and including spatial analysis using mainly tensor products of AR1 variance structures (originally from the ‘2d’ package by Cullis and Gilmour). Arthur noted that the AR1 x AR1 residual covariance models seem to work well

for their (agricultural) data, and the calculations are efficient because the inverse variance matrix is sparse.

An approach to QTL mapping using ASREML was also demonstrated by Arthur. Open source aficionados will be interested to note that many of the analyses (or good alternatives) can be done using functions freely available on CRAN using the *nlme*, *mgcv*, *spatial* and *lmeSplines* (Ball 2003) R packages; though a few ‘tricks’ are needed e.g.:

- to handle singularities, or near singularities in the fixed effects (X-matrix) eliminate columns that are linearly dependent on previous columns (to within a small tolerance) using the *lindep* function written by John Maindonald;

- *lme* uses nested grouping structures; to handle non-nested random effects introduce a grouping called all (a vector of all 1’s), which can be repeated for multiple terms;

- to handle a pedigree (or any other fixed covariance structure), take the Choleski decomposition of the pedigree ‘A’-matrix (the A_{ij} being the genetic correlation between individuals, or the probability that the individuals are ‘identical by descent’, i.e. at a given locus, e.g. 0.5 for full sibs, 0.5 for parent offspring, 0.25 for half sibs etc), and incorporate that into the ‘Z’-matrix (a similar approach to the *lmeSplines* package) for random effects corresponding to individuals;

- to reduce the size of the pedigree matrix, calculate the A-matrix only for parents in the pedigree (known as the ‘reduced animal model’). Individual genetic values for the offspring need to be estimated with additional calculation;

- tensor product variance structures are not available in *lme*, although common tensor products with the identity often correspond to an *lme* model term within a grouping level;

- large spatial arrays (n_1 rows and n_2 columns) can be handled using 2d splines using *mgcv* (inverse variance computation scaling as $n_1 + n_2$);

- for the others you can write your own custom variance structure (‘pdMat class’) for *lme* and contribute it to CRAN.

We will be documenting some examples. This should be of interest also to ASREML users and developers since *lme* has a different algorithm and parameterisation to ASREML or standard REML — the ‘unconstrained parametrisation’ avoids problems with variance components approaching zero or becoming negative and the likelihood is analytically integrated over the random effects which should be more robust to convergence problems (Pinheiro and Bates 2003).

Rod Ball

Awards

Pickering Medal



Ross Ihaka (left) with Chris Triggs at the RSNZ Awards Dinner where Ross received the Pickering Medal

Ross Ihaka (University of Auckland) received the Pickering Medal for 2008 at the RSNZ Awards Dinner on 11 November. This celebrates his contribution as an originator of R.

Fellow of the Royal Society of New Zealand

The Academy of the Royal Society of New Zealand (RSNZ) announced the election of 10 new Fellows last November

www.royalsociety.org.nz/Site/news/media_releases/2008/fellowfulldetails.aspx.

Keith Worsley

galton.uchicago.edu/faculty/worsley.html (University of Chicago) has been elected an Honorary Fellow of the RSNZ. Sadly, Keith has recently passed away and a tribute to him is on page 4.

Mick Roberts (pictured above right) www1.massey.ac.nz/~wwiims/people/m.g.roberts/ (Massey University, Albany) has been elected a Fellow of the RSNZ. Mick is well-known in the New Zealand statistical community.

From the citation:

Professor Roberts has brought the rigorous mathematical tool of dynamical systems to mathematical epidemiology, and furthermore he has incorporated variability by using stochastic differential

equations. He has built physiological models which enable robust description and prediction of the rate and severity of both animal and human disease epidemics. Work done in conjunction with the New Zealand Ministry of Health averted a measles epidemic in New Zealand in 2001.



Earlier, when he was working in AgResearch, he began a significant programme to understand and predict the spread of bovine tuberculosis using the same powerful underpinning methodologies.

Professor Roberts has recently re-examined the old Kermack-MacKendrick theory of 1927 for the spread of infectious diseases. From this he has developed a successful approach for predicting the course of an outbreak of a newly-arrived disease, and finding means to control it. This is described in a recent paper published in the Proceedings of the Royal Society of London (Series B), which has been described as “the most important new development in mathematical epidemiology of infectious diseases”.

Royal Society of New Zealand

Campbell Estate Fund

The NZSA was the recipient of a very generous donation (\$48,000) from Professor Campbell’s estate.

There is roughly \$1500 funding available each year for special projects that are in the realm of Professor Campbell’s interests. Refer to nzsa.rsnz.org/funding.shtml for more details.

Applications are received twice a year (April/October) and are invited for funding for projects in 2009/10. There is no formal application process but please supply details of your project, the full project budget, the amount you are requesting, a short statement about why your project is within Professor Campbell’s interests, and your full contact details.

Please send your applications to the Secretary, Richard Penny (mpenny@stats.govt.nz), NZSA, PO Box 1731, Wellington.

For more details contact Roger Littlejohn (roger.littlejohn@agresearch.co.nz) or Harold Henderson (harold.henderson@agresearch.co.nz).

Roger Littlejohn

2009 Medals and Awards Administered by the Royal Society of New Zealand

The following suite of medals and awards is being offered in 2009 by the Royal Society of New Zealand.

* **Rutherford Medal** - for exceptional contributions to New Zealand society and culture through activities in the broad fields of science, mathematics, social science, and technology

* **Pickering Medal** - to recognise excellence and innovation in the practical applications of technology

* **Thomson Medal** - for outstanding and inspirational leadership in the management of science and outstanding contribution in the development and application of science and/or technology to wealth generation

* **New Zealand Science and Technology Medals** - to recognise and honour those who have made exceptional contributions to New Zealand society and culture through activities in the broad fields of science, mathematics, social science, and technology

* **Hector Medal** - Chemical sciences

* **Hutton Medal** - Earth sciences

* **R. J. Scott Medal** - Electrical, electronic, information and mechanical engineering

* **Te Rangi Hiroa Medal** - Historical approaches to societal transformation and change

* **Hamilton Memorial Prize** for beginners in scientific or technological research in New Zealand

* **Hatherton Award** for the best scientific paper by a PhD student at any New Zealand University in physical sciences, earth sciences and mathematical and information sciences.

The closing date for nominations for all the Medals and Awards listed above is 30 June 2009.

Electronic copies of the information and application forms are available from awards@royalsociety.org.nz; or on the Society's website www.royalsociety.org.nz/Site/funding/MedalsAwards/Default.aspx

I look forward to receiving nominations for these prestigious medals and awards.

*Judy Lyons
Administration Officer - Academy
Royal Society of New Zealand*

Conference Brief

See Gordon Smyth's Australasian conference list
www.statsci.org/conf/index.html

Young Statisticians Conference 2009

Hosted by SSAI

University of Technology, Sydney

25-26 September, 2009

www.statsoc.org.au/young-statisticians-conference.htm

NZSA 2009 Conference

Victoria University of Wellington

September 1- 3, 2009

and

Semiparametric Regression

A short-course by Professor Matt Wand

Tuesday 1 September 2009

msor.victoria.ac.nz/Events/NZSA2009

Biometrics on the Lake

The International Biometric Society

Australasian Region Conference

Suncourt Hotel & Conference Centre, Taupo

29 November -3 December 2009

www.biometrics.org.au

R Course

Centre for Continuing Education, ANU, Canberra

21 -22 April 2009

www.anu.edu.au/cce/featured.php

Introductory Statistics Courses

Dave Saville, a consulting agricultural research biometrician, will be running his annual winter statistics workshops at Lincoln in July/August:

(A) Basic statistics/analysis of variance,
Mon-Wed, July 27-29;

(B) Simple regression and analysis of covariance,
Tues-Wed, August 18-19.

Both are introductory/refresher courses which start "from scratch". The courses are especially designed for people involved in experimental or other applied research work.

For more information email Dave at savillestat@gmail.com or phone him at (03) 325 2520.

(North Island venue and dates are still to be decided, but may be sooner - please enquire.)

Focus on Education

Statistics Education News

International News

USCOTS 2009 – United States Conference on Teaching Statistics

25-27 June 2009, Ohio State University. Similar to the Australian OZCOTS, this conference is focusing on undergraduate level statistics education, targeting statistics teachers. Chris Wild is a plenary speaker. See: www.causeweb.org/uscots/



The Sixth International Forum on Statistical Reasoning, Thinking and Literacy. This Forum will be held in Brisbane July 10-16, 2009. The topic under study will be the role of context and evidence in informal inferential reasoning. Invitations to this conference have now closed. For more information see: www.stat.auckland.ac.nz/~iase/conferences.php

Sixth IASE Satellite Conference, South Africa, 14-15 August 2009. This conference will be held before the ISI-57 Conference. The theme of the conference is Next Steps in Statistics Education, with a focus on tertiary statistics teaching. For more information see: www.stat.auckland.ac.nz/~iase/conferences.php

The Eighth International Conference on Teaching Statistics will be held in Ljubljana, Slovenia, 11-16 July, 2010. John Harraway (Otago University) is Chair of the International Programme committee and John Shanks is webmaster so Otago is really running the show. There is a stunning list of plenary speakers for this conference (Hans Rosling, Gerd Gigerenzer, Cliff Konold, Jessica Utts, Anuska Ferligoj) and a plenary panel coordinated by Chris Wild. The “invited paper” sessions have now closed but it is still possible to offer a “contributed paper”. For more information see: <http://icots8.org/>

Local News

CensusAtSchool Project. This project, sponsored by the Department of Statistics of The University of Auckland, Statistics New Zealand, and the Ministry of Education, was launched on March 3, 2009. The project is directed by Rachel Cunliffe and aims to give 10 to 18 year-old students the experience of participating in a census.

CensusAtSchool has previously been run in 2003, 2005, and 2007 and this latest snapshot will enable students to compare themselves with data from the last three surveys. Over 2000 teachers registered their classes to take part. Pip Arnold is now leading the development of rich classroom resources for teachers and students using the CensusAtSchool data. New this year is an interactive data interface designed by Chris Wild and developed with Stephen Cope, who is the web genius behind the project.

CensusAtSchool is part of an international effort to boost statistical capability among young people, and is also conducted in the UK, Australia, Canada and South Africa. For more information, photos, press releases, news clips, exciting classroom resources see: www.censusatschool.org.nz

National Numeracy Conference, 16-19 February, Auckland At the annual numeracy conference Chris Wild and Maxine Pfannkuch gave a joint keynote address on “Building Students’ Inferential Reasoning” which is now on the CensusAtSchool website at: censusatschool.org.nz/2009/informal-inference/

Masters Theses in Statistics Education.

Two students at The University of Auckland have recently completed their Masters theses in statistics education.

Anne Blundell: An examination of Year 10 students’ statistical thinking.

Marina McFarland: Students’ statistical thinking behind graphical representations.

Maxine Pfannkuch



NZSA Education Committee

We're looking forward to an eventful year. The Maths and Stats learning area in the school Curriculum (<http://nzcurriculum.tki.org.nz/>) has three offshoots that we intend to keep an eye on. They are:

- The Glossary. The draft, double-sided, weighed in at 300 grams (it came without page numbers!). It will be electronically accessible from the Curriculum, and will be a magnificent aid for teachers of statistics, Year 1 to Year 13. It will both make sense in school Curriculum terms, and be statistically accurate. That's not easy to achieve.
- The "tier two exemplars". These will give teachers a lively view of how statistics can be presented actively.
- The NCEA Achievement Standards and Unit Standards for assessment in the last three years of school. These are being created by a NZ Association of Maths Teachers team. Many teachers are very keen for NZQA to have a broad set of statistics standards that can provide credit for their wide range of students.

We're also hoping to support conference organisers (NZSA, NZAMT, MERGA) in arranging for statistical education content.

The (Australian) National Forum on Building Networks in Statistics Education took place on 9 and 10 February, at Queensland University of Technology. Prof Helen MacGillivray hosted this as part of her Australian Learning and Teaching Council senior fellowship. She very kindly allocated three places to NZSA reps. These were filled by Lindsay Smith (Epsom Girls' Grammar), John Harraway, and Mike Camden (all Education Committee members). Also representing NZ and NZSA were Jennifer Brown, Sharleen Forbes, Irene David, and Murray Black. Our hosts tolerated us taking up quite a lot of the discussion time.

The primary focus was on the tertiary sector. Issues discussed included:

- A network of Australia and NZ Statistics educators. This will shortly exist in some electronic form, and may meet again at the NOZCOTS or similar event. Watch this space.
- Resource sharing
- Interactions with industry and employers
- Postgraduate support
- Service courses
- Engaging students in interdisciplinary research and study
- The SSAI review

- History and roles of IASE
- R (courtesy of John Maindonald)
- School Curriculum and support for teachers.

The Australian National Curriculum Board in December 2008 released the National Mathematics Curriculum Framing paper. The Forum produced a submission on this (see below). NZ reps have sent in an NZSA Submission on this. (See overleaf).

Forum members were in agreement about the issues facing statistical education. We could summarise them like this. In both tertiary and school statistics, all these skills are necessary:

*Mathematical thinking Mathematical methods
Statistical thinking Statistical methods*

They're all quite different in pedagogy. We agreed that the future for all of them is vibrant with exciting possibilities and applications to 21st century problems.

Education committee members made contact at last with our SSAI equivalents: the Statistical Education Interest Group. We look forward to closer statistical education relations.

Mike Camden

General principles for Statistics within National School Curriculum

The principles expressed here were formulated from discussion at the National Forum on Building Networks in Statistics Education, held on 9 - 10 February, 2009, as part of Professor Helen MacGillivray's ALTC (Australian Learning and Teaching Council) Senior Fellowship. More than 50 delegates from 17 Australian and 3 New Zealand universities, together with representatives from the Australian Bureau of Statistics and Statistics New Zealand, contributed to the formulation of these principles.

Statistics and probability should be included within the mathematics curriculum throughout all years of schooling.

1. The Subject should be called Mathematics and Statistics.
2. Mathematics and Statistics are needed throughout all years of schooling to develop:
 - numerical and statistical literacy for all
 - mathematical and statistical thinking
 - concepts and skills

- foundations for future learning across all capabilities
- 3. The emphasis in Mathematics and Statistics across all levels should be on developing student capabilities, concepts, skills, thinking and problem-solving.
- 4. Mathematics and Statistics should be developed as core learning. This core learning underpins, and is applied in, many other disciplines.
- 5. Mathematical and Statistical thinking and problem-solving are complementary, and together they provide full quantitative thinking and problem-solving. Mathematical and statistical knowledge, skills and thinking are needed in all disciplines, albeit to different extents.
- 6. Hierarchies of Mathematics and Statistics curricula at senior school level (and possibly middle school level) should avoid forcing early choices on students. In particular, there should be no separation or semi-separation of Mathematics and Statistics at senior school level as this can cause significant choice problems for students and the future majors at universities.
- 7. Relevant and appropriate expertise and experience should be involved to produce sound, developmental Statistics in conjunction with Mathematics. It is essential to have a special task force for the Statistics part of the Mathematics and statistics curriculum. The amount of content of Statistics within the curriculum at any level may vary, but statistical education expertise is essential in the framing of content and skills development across the curriculum levels.
- 8. Training of primary and middle school teachers must include training to teach Mathematics and Statistics at those levels. As well, the training of senior school teachers needs to include tertiary content in Statistics.
- 9. Teachers should not be required to teach Mathematics and Statistics without adequate training and support. This applies as much in middle school as in senior school. Statistics in curricula must be well-supported with resources and professional development.
- 10. Statistics and probability at the senior level can complement mathematical development for mutual benefit, particularly with calculus and introductory linear algebra.
- 11. The Statistics components should include emphasis on data investigations.
- 12. The development of modern and up to date skills

and thinking in Mathematics and statistics need support by relevant Information Technology. This should be acknowledged in any curriculum document.



*Professor Helen
MacGillivray
Australian Learning
and Teaching Council
(formerly Carrick)
Senior Fellow*

Response from NZSA and NZSA Education Committee

The National Mathematics Curriculum Framing paper of November 2008 invites 'feedback and advice' from 'all those interested'. We're very interested in Australia building a contemporary statistics component into its mathematics curriculum. We have been active in developments here, and would like to share some insights from our experiences. We're sure that much of what we say will be familiar to you already.

We are very impressed by your intention to create a 'futures-oriented curriculum', and by your high-level description of this. Everything that you have stated in there applies very strongly to statistics, such as the need for 'real-life connections'.

However, there are some ways in which the 'stochastic' side of mathematics differs from the more familiar 'deterministic' side. It is important that these differences are planned for in the design, writing and implementation of the curriculum. These are listed below:

1. Newness

The stochastic side is much less familiar to teachers (and parents and the whole community) than the deterministic side. Hence there is a need for very careful curriculum design, and for teacher support and resourcing.

2. Expertise

Design and writing of the statistics and probability needs to involve people with expertise in maths pedagogy, statistics pedagogy, and current professional practice in statistics. There are not many people with all these skills. Hence the team members need to be well chosen and well supported by their professional associations.

3. Expertise in Australia

Australia (and NZ too) contains a considerable number of people with expertise in statistical pedagogy. Many of these take leading roles in the International Association for Statistical Education, and the rest of the world community in statistical education. It makes sense to make use of this expertise.

4. International developments in statistical pedagogy

Statistical pedagogy has been through major transformations in the last two decades, and has been the subject of much fresh research (with plenty of this in Australia). The curriculum can build on these developments.

5. Newly accessible parts of professional practice in statistics

Professional practice in statistics is advancing in many directions. In some of these, the intuitive and visual sides of statistical investigation have been liberated by digital technology. One of these is 'data visualisation', and the dynamic and interactive sides to it. Another is the important area of 'resampling and randomisation' (which we gather originated in Tasmania!). The curriculum can take the bold step of including these, and being open to others.

As you say, 'digital technology can make previously inaccessible maths accessible'. This is very true throughout statistics and probability for school.

6. Differences summarised.

The stochastic side differs from the deterministic side in how it is used (by students and public), what can and needs to be learnt, how this is taught and learnt, how it is assessed, how teachers are supported, how it interacts with other subjects, and how it achieves intellectual rigor. Getting the curriculum to reflect all this is a challenge.

In conclusion, we agree with you that both mathematical (deterministic) thinking skills and statistical (stochastic) thinking skills are utterly essential for tomorrow's citizens and workers. To build the best curriculum for both these will involve the people and professional groups that can access the latest in research into the pedagogy, and the latest in professional practice.

We wish you a successful curriculum-building process.

*Mike Camden;
for NZ Statistical Association Education
Committee*

*Jennifer Brown;
President, NZ Statistical Association.*

VIRTUAL INSTITUTE OF STATISTICAL GENETICS

The Virtual Institute of Statistical Genetics is now underway. This has been keeping us busy sorting out details of inter-organisational agreements, and developing project plans for the first 2 projects, 'large datasets' and 'polyploids'.

In the polyploids project we are working with Yilin (Sammie) Jia, a biometrician who recently started at Plant and Food. Sammie has written functions to simulate data and is now working on simulating from the posterior distribution of markers in allopolyploids.

A number of important plant species are polyploids (including clover, wheat, kiwifruit, potato), i.e. have more than the 2 copies of each chromosome that diploids (like humans) have.

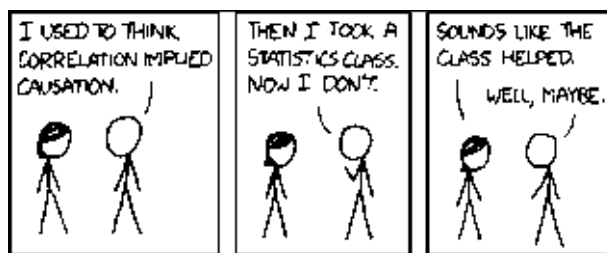
Allopolyploids have genomes like AABB (for a tetraploid), where the 'B' chromosomes are homologous (similar) to but never recombine with the A's. The A's and B's behave like separate diploid chromosomes, however, at any given locus we have 4 markers (4 alleles per parent) and marker alleles may be common among the A's and B's for one or both.

Compared to $ab \times aa$ (informative for the 1st parent) or $ab \times cd$ (fully informative for both parents) in diploids, we might have $abab \times ccdc$ in a tetraploid. A genotype like $abab$ looks the same in genotypic assays (same 'phenotype') as others such as $aaab$, $abbb$ etc because the repeats of the same allele give the same 'band', and number of repeats is not reliably estimated.

In statistical terms there is missing information, so our task is to simulate from the posterior distribution of a set of fully informative 'virtual markers'. It turns out this is similar to problems in linkage mapping in human genetics where the original Bayesian graphical model methods were developed. Although those authors used Bayesian methods for their pedigrees, they stopped with a likelihood ratio (frequentist inference). The 'virtual markers' will form the link enabling extension of diploid Bayesian model selection methods for QTL mapping to allopolyploids.

Sammie will be visiting Scion in late March.

Rod Ball



xkcd

ANZJS Corner

ANZJS Editors' Column



There have been major changes recently at ANZJS, and more are planned. Some are changes to the context in which ANZJS operates. Roger Littlejohn comments on these below.

We are looking forward to having a new, clear financial and governance structure as part of a joint venture agreement between the New Zealand Statistical Association and the Statistical Society of Australia.

The ANZJS editorial panel has also changed, now that Kerrie Mengersen has stepped down as Managing Editor. The new panel is Mervyn Silvapulle who is the new Theory and Methods Editor, Jeff Wood who remains Applications Editor, and Ken Russell who continues as Technical Editor. I have moved from being Theory and Methods Editor to Managing Editor.

Thanks are due to Kerrie for the efforts she has made to get the new structure in place, to represent the journal, and (in conjunction with the other ANZJS editors) to consider and implement editorial policy.

At present, with the changeover, our focus is less on editorial policy and more on operational matters. For example, the present paper-tracking system is essentially manual, despite submission by email, and not particularly straightforward. I ask for your patience over the next few months (especially from those of you who have or soon will be submitting papers to ANZJS) while we get information transfers completed and files updated, as part of the changeover of Managing Editor.

As a first step, ANZJS already has a new submission address, anzjs@statsoc.org.au. This change of contact point should make submissions simpler to track and archiving of (and access to) core correspondence very much simpler.

The Associate Editors and referees remain key to the operation of the journal. The AE list is now being updated and rechecked, to find out whether all existing AEs want to continue, and to include new ones where needed. I plan to contact those AEs on the existing list very soon – if the necessary information is available in time, this will happen before this column goes to press.

When ANZJS is able to decide on, pay for and implement an electronic tracking system, (which I would hope will be later this year), the journal will be in a much better position to monitor AE loads, and the time since first submission of papers, and (I think, particularly importantly) acknowledge all the ANZJS

referees explicitly in the journal. Of course, this will not be an immediate change, even then, as it will only be possible to implement the new system for new, not existing, submissions.

By early September, we should be able to focus better on editorial policy, and seek your views during the special session at the next NZSA Conference in Wellington. Look forward to seeing you there.



Stephen Haslett
Managing Editor, ANZJS
anzjs@statsoc.org.au

ANZJS - non-editorial management

First of all, congratulations to Steve Haslett on his appointment as Managing Editor of the journal. There have been ongoing discussions between NZSA and SSAI, and within NZSA, about developments with the journal. There are three main issues.

1. Electronic article tracking: It is becoming quite urgent to implement a system. There are seen to be two likely candidate systems, with quite different profiles. Please relate any experiences concerning online submission of papers in any context to: roger.littlejohn@agresearch.co.nz
2. Joint venture with SSAI: the first draft of the constitution for the Joint Venture has recently come to hand and is being scrutinised by members of the ANZJS workgroup.
3. NZSA 2009: We plan to have a session on ANZJS matters at our next conference.



Roger Littlejohn

Local Scene

University of Otago, Maths and Stats

David Fletcher visited the Ecology Centre in Brisbane in January this year, and gave a seminar on “Assessing Population Trends”. He also took time out to visit Malcolm Faddy (Adjunct Professor at QUT) at his home in Melany, a very pleasant town near the Sunshine Coast: one of the highlights of the visit being the leech-bites he experienced when walking in the local rain forest.

John Harraway attended Helen MacGillivray’s Forum “Building Networks in Statistics Education” in Brisbane in February for the NZSA. He took the opportunity to review recent ICOTS8 developments. When returning he spent a day in Auckland discussing CensusAtSchool. The set of productions for the second DVD on Case Studies involving the use of statistics in research is progressing with the help of the Campbell Fund Grant and it is hoped to have ten presentations ready for distribution to schools by the middle of this year.

Irene Goodwin

Plant & Food Research

On December 1st, Hort Research and Crop & Food merged to form <roll of drums> Plant & Food Research. So far the merger hasn’t had much effect on the biometricians.

For the former-HortResearch people at Mt Albert, a bigger impact was the departure of the two part-time biometricians based there: Arier Lee to a job with Elli Lilly, and Sweta Baldawa to continue full-time with her masters degree at Massey University, Albany. As their replacement we have Sammie Yilin Jia, who joined the Mt Albert biometrics team in January this year. He has previously done research on Bayesian multi species abundance modelling, and would like to bring the Bayesian philosophy into the biometrics team. He will be part of the Scion-led FRST project ‘Advanced statistical methods for advanced gene mapping’, implementing MCMC simulation on gene mapping in R.

The former-Crop & Food biometricians attended the GenStat conference in Victoria in December. It was a good conference, with discussions about mixed models and effective collaborations with scientists interspersed with field trips to the surrounding forest with ecologists from ANU (pictured below). We were all saddened to hear (and see) that the magnificent conference venue was destroyed in the February bush

fires, along with most of the rest of the township of Marysville.



GenStat Conference attendees on a field trip with ANU ecologists into the forest that surrounded the Victorian town of Marysville in December 2008

At the end of February, thirty participants from universities, CRIs and private industry (both NZ and overseas) attended a week-long workshop on Mixed Models for Genetic Improvement, at Plant & Food Lincoln, organised by Peter Alspach. The workshop was run by Brian Cullis, Dave Butler and Arthur Gilmour. Plant and Food Research were represented by seven breeders and five biometricians. The workshop, which was preceded by a one day ‘Introduction to R’ presented by Peter Alspach with assistance from Patrick Connolly, covered topics including experimental design, accommodating pedigree information, multi-environment trials and multi-variate analysis. The concepts were illustrated by analysis of data sent in by participants. Hence we are all a little wiser about hops, blackcurrants, mussels, wheat, clover and poultry.

Duncan Hedderley

Wellington Statistics Group

The Wellington Statistics Group (WSG), a local group of the New Zealand Statistical Association (NZSA), continues to meet quite regularly. The following are recent talks given to WSG:

2 February 2009: Brian Easton and Ryan You, Honorary Research Fellow & Statistician, SHORE, Massey University. “Measuring Gambling Experiences of New Zealanders”

20 October 2008: Jim Ridgway, University of Durham, UK. “The OECD Global Project – Measuring the Progress of Societies, Thoughts and Actions”

9 September 2008: Walter Zucchini, University of Goettingen. "Two applications of statistics in biology."

That last talk was a seminar organised jointly with the School of Biological Sciences, VUW; Walter actually gave three talks while he was in Wellington as the Shayle Searle Visiting Fellow in Statistics, all within a week or so.

In addition to the above, WSG members were invited along explicitly to the following seminars:

14 November 2008, at Victoria University: Thomas Lumley, University of Washington, Seattle. "Robustness of efficiency in semiparametric models for incomplete data"

7 November 2008, at Victoria University: Geoff Bascand, NZ Government Statistician. "Measuring New Zealand's Progress: An Integrated Approach to Official Statistics"

23 October 2008, at Victoria University: Byron Morgan, University of Kent, UK. "Recent Developments in Statistical Ecology"

We also have a talk coming up by Ross Ihaka (University of Auckland) in early April on "R: Past and Future History". Ross recently won the Pickering medal (for 2008) for being one of the originators of R (for more details on that story, see royalsociety.org.nz/Site/news/media_releases/2008/honours08full.aspx#90569-36).

Further details (abstracts, etc) of these and all previous talks can be found on the NZSA Local Groups web page: nzsa.rsnz.org/local_groups.shtml. That web page also contains contact details for WSG, names of sponsors, and details of forthcoming talks. In addition, a link can be found there so that people can add or delete their names from the mailing list.

If anybody is visiting Wellington at a time coinciding with a talk, then you are most welcome to attend. No registration is required. We are also keen to receive offers of talks from people who have something they would like to present. Many individuals work in isolation from other statisticians and often have little opportunity to discuss their work with others. WSG aims to provide a forum for such people too.

We'd very much like to hear from anyone in the Wellington region who would be keen to take over the WSG Convenor's role from David Harte. David will be in Japan for a few months in the middle of 2009, and it would be good to arrange for someone to take over from David soon.

Finally, we are grateful to all the WSG sponsors: Victoria University of Wellington, Statistics New Zealand, the Ministry of Social Development and Statistics Research Associates Ltd.

John Haywood

University of Auckland

Ross Ihaka has been reaping rewards from the unprecedented success of the statistical software R, which originated in the early 1990s from a conversation in the corridor between Ross and Robert Gentleman, and is now used by more than a million statisticians and scientists around the world. In November, Ross was awarded the Royal Society of New Zealand's Pickering Medal. In January, he was featured in the Technology section of the New York Times, catchily subtitled "R you ready for R?" The article, best found by googling "Ross Ihaka NYT", became the online Times's 10th most-forwarded story - a point quickly noted by the New Zealand Herald, who accoladed the "rock star status" of global technology's happy Westie. Oblivious to all the fuss, said the Herald, Ross was busy pottering among his tomatoes in Avondale. Watch this space for the release of the world's first GNU-licence tomatoes with lexical scoping...?



Ross Ihaka receiving the Pickering medal at the RSNZ Awards dinner

In February we said a reluctant farewell to Marti Anderson, who has taken up a chair in statistics at Massey. Marti has made huge contributions to the department over the last nine years, and she will be greatly missed. Of course, you never lose a colleague - you gain a department, and we are all looking forward to closer contact with our Albany colleagues as a result of Marti's appointment. We also bade reluctant farewells to two stars of the department office: Sharon Walker and Shobha Herle, both of whom have gone on to well-deserved promotions elsewhere in the university.

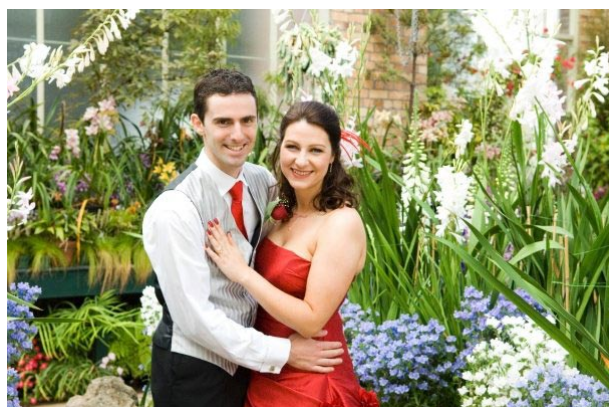
Paul Murrell is continuing the departmental tradition of creating free statistical software resources with the

publication of his second book: “Introduction to Data Technologies”, available for download under a Creative Commons licence from <http://www.stat.auckland.ac.nz/~paul/ItDT/>. The new book comes just three years after Paul’s immensely popular “R Graphics”. With all these books emerging from Paul’s office, George Seber is said to be looking over his shoulder...

Alan Lee is spending this year in the Science Faculty’s Top Office, where he is being kept busy in the role of Acting Dean. Luckily for us, he is keeping a strong hand in statistics, and in November was appointed to the Statistics New Zealand Advisory Committee on Official Statistics, where he joins the great and the good including the nation’s chief economist, together with other business and ministry chief executives.

Mark Holmes has been enticing some of the world’s top probabilists to the department. Before Christmas we were visited by Greg Lawler (Chicago), who gave a very accessible talk on work that ultimately contributed to a Fields Medal for one of the participants. Mark is currently working with Tom Salisbury, Past President of the Canadian Mathematics Society and former deputy director of the Fields Institute, who is visiting the department for 3 months till the end of March. Mark was also an invited speaker at the 7th World Congress in Probability and Statistics last year in Singapore. Thomas Yee is enjoying a brisk change of climate from his previous sabbatical in Singapore, battling snow storms in Massachusetts where he is spending his sabbatical at the Harvard Institute for Quantitative Social Science.

Congratulations are due to PhD candidate Jenny Wilcock, who has been awarded a Claude McCarthy Fellowship from the Public Trust and the NZVCC. Jenny will be using her fellowship to attend the Joint Statistical Meetings in Washington, DC, in August 2009, to present a paper on her PhD research. Congratulations also to Dr Sarah Song, the latest PhD graduate from our department.



Stephen and Stephanie on their wedding day

Finally, congratulations to our department’s expert programmer, photographer, and all-things-technical advisor Stephen Cope, on his marriage to Stephanie. Seizing the moment between showers and all the other people in the Auckland Domain, they somehow managed to get the Wintergardens to themselves for the wedding pics, demonstrating that Stephen’s photos even look great when he’s on the other side of the camera!

Rachel Fewster

Auckland University of Technology

Since this is our first entry in this newsletter, let me introduce some of our staff. The Statistics group is part of the School of Computing and Mathematical Sciences. We have a teaching role in the Bachelor of Mathematical Sciences and offer service teaching and consulting in all faculties of the University.

Professor Jeffrey Hunter, on his retirement from Massey University, joined the School of Computing and Mathematical Sciences as a part-time Adjunct Professor in Mathematical Sciences. Quite unbecoming for a professor of statistics, he has been instrumental in recommending the removal of a formal statistics major from the BMathSc degree. He has however reshaped the programme to introduce a new major in “Analytics” - a much more comprehensive, integrated linking of computing, mathematics and statistics aiming to provide students interested in pursuing careers in business and industry with appropriate quantitative and computing tools.

Jeffrey has also continued with his research activities presenting a paper on “Bounds on Expected Coupling Times in a Markov Chain” at the International Workshop on Matrices and Statistics held at Tomar, Portugal in July 2007. He has been on the International Organising Committee for this series of workshops for the past two years. He continues in this capacity, with the 2009 meeting being held in Smolenice, Slovakia in June and agreeing to Chair the IOC for the meeting to be held in Shanghai in 2010.

Murray Black is Associate Head of the School. He is currently working on a PhD from Deacon University on “Using Projects in the Teaching and Assessment of Statistics”. He presented papers at OZCOTS in Melbourne in July 08, Tertiary Assessment Conference Wellington Nov 08 and the National Forum in Building Networks in Statistics Education in Brisbane in Feb 09. The February forum seeks to improve networking and sharing of information between Universities and Industry.

Stuart Young has recently submitted his PhD thesis “The Relationship between Organizational Fitness and Business Performance: Specific Evidence for SMEs”.

Peter Watson presented at MERGA 08 in Brisbane, Rowena West and Brendan McLister attended the First Year in Higher Education conference in Hobart in July 08.

Helen Peterson and Neil Binnie have taught in the School for twenty years. Neil participates in a joint programme with Shanghai Institute of Technology where he teaches a data analysis paper each November. Farida Kachapova is currently on sick leave and we wish her a speedy recovery.

The School is looking forward to an interesting year with increased conference participation and new challenges in the changing tertiary sector.

Neil Binnie

Scion (NZ Forest Research Institute)

We have been 'reshaped' and now have 'matrix' management. Staff are now based in 'teams' (rows of the matrix) and may work in various 'projects' (columns of the matrix). Projects have responsibility for money but not people, while for teams (essentially) it is vice versa. There are 3 groups: New forests,



Sustainable design and Bioproduct development. Rod Ball (left) is in the 'Future Forests' team, and with the new funding for the Virtual Institute of Statistical Genetics starting will have most of

his time committed to statistical genetics. Mina Budianto, Mark Riddell, and Mark Kimberley are in the Forest Management Science Team of New Forests.

Mark Kimberley has recently been working with other Scion researchers on MFE contracts to estimate the total weight of carbon contained in our forests, both indigenous and exotic. The raw data consists of tree diameter and height measurements collected in recent years using a nationwide network of forest plots. Scion has developed a number of allometric relationships and growth models which can be used to estimate carbon and carbon change from these measurements. Here are a few results from the analysis of native forests. A typical hectare of native forest contains 200 tonnes of carbon (equivalent to 730 tonnes of CO₂). Nationwide, the species with the most carbon is Silver Beech with 19% of the total, followed in order by Red Beech, Kamahi, Mountain Beech and Southern Rata. Rimu ranks 7th and Kauri 35th.

Rod Ball

Massey University, Turitea

Steve Haslett and Geoff Jones have continued their work on poverty estimation for the UN World Food Programme, with trips to Bhutan (see photo), Cambodia and Timor Leste in the latter part of 2008. Not content with this, Steve took off overseas again in 2009, first for a UNICEF project evaluating baseline statistics for education in Vanuatu and Kiribati, then to Mentawai in Indonesia to review some aid programs for NZAID. Apparently Mentawai is one of the world's best surfing spots, but Steve was far too busy to go to the beach. (Yeah, right!).



Steve and Geoff with novice monks at a monastery in Bhutan

Wes Johnson from the University of California at Irvine visited Geoff Jones for two weeks in December to work on the Bayesian analysis of non-gold standard diagnostic testing, in particular for multiple repeated tests. Dimitris Ballas from the University of Sheffield visited Steve, Geoff and Alasdair Noble in January to provide some input into our Official Statistics Research project linking microsimulation, multiple imputation and small-area estimation methods.

A few more postgraduates have arrived. Katharina Parry has started a Marsden-funded PhD on new tools for statistical inference for network-based transportation models with Martin Hazelton, co-supervised by Danny Walsh at Albany. Mansour Aghababaei Jazi, a PhD student at the University of Isfahan in Iran, is visiting Chin Diew Lai for six months. Chin Diew is also involved in supervising new PhD student Aram Ter-Sarkisov, who is working on the application of genetic algorithms to phylogenetic tree optimization with Stephen Marsland and Barbara Holland. Tian Mao is studying for a Postgraduate Diploma. Emily Kawabata, a third-year Statistics student, inveigled her way into the postgrad room while working on a summer project on the statistical analysis of shape with Martin Hazelton and Stephen Marsland, and now we have to keep throwing her out.

Maris Isidro recently returned from a trip to the Philippines funded by a grant from the New Zealand Postgraduate Study Abroad Awards. She was there to conduct a validation study of the municipal-level poverty estimates from her PhD work on updating small-area poverty estimates, supervised by Steve Haslett and Geoff Jones. Ting Wang received a Postgraduate Student Travel Fund award from Massey's Institute of Fundamental Sciences to attend the Second International Conference on Information & Systems Sciences in Dalian, China 18/12/2008 - 21/12/2008 (where she gave a talk on 'A Comparative Study of Coherence, Mutual Information and Cross-Intensity Models') and to visit the China Earthquake Administration, Beijing, China and Tangshan Earthquake Administration, Tangshan, China. As you could probably guess, Ting is Mark Bebbington's student.

Jonathan Marshall has joined the Statistics group with a fractional appointment as lecturer in Mathematical Statistics, while maintaining his strong link with Massey's Epicentre.

Martin Hazelton is, at the time of writing, about to depart for Singapore to further collaborative work on monotonic splines with Berwin Turlach.

Geoff Jones

Massey University, Albany

We are very pleased to welcome Marti Anderson as our new Professor of Statistics.

Since February we have also welcomed Mat Pawley (Post-Doctoral Fellow working with Marti) and three new PhD students: Norazlina Ismail from Malaysia is working with Paul Cowpertwait in the area of spatial-temporal stochastic modelling of rainfall, with practical applications in urban hydraulic system studies; Adam Smith is working with Marti Anderson looking at modelling the effects of marine reserves on biodiversity at a number of different trophic levels and Katharina Parry who is working with Martin Hazelton (Manawatu campus) and Daniel Walsh on statistical inference for network-based transport models.

Preparations are underway for Marti's Marsden-funded deep-sea voyage to model distributions of fishes with depth in the area around White Island, with colleagues Vincent Zintzen, Clive Roberts and Carol Diebel from Te Papa in Wellington. Soon, another PhD student funded by this Marsden grant, Kirsten Rodgers, will also be joining us in the statistics group at IIMS.

Howard Edwards is on leave, working as a biostatistician for the Northern Rivers University Department of Rural Health in NSW for the first half of the year.

The last weekend in November Beatrix Jones attended the New Zealand Molecular Ecology conference. This is a fun, informal conference held each year at a beautiful, 'wild' location, featuring many short talks with high student representation. Beatrix presented a paper entitled "Blocks of Linked SNPs for Parentage Analysis." There was also an exciting optional excursion: rafting on the Kaituna river!

During the summer Paul Cowpertwait visited his colleague A/Prof Andrew Metcalfe in the School of Mathematical Sciences, University of Adelaide, to complete a book on using R for the analysis of time series.

In January, Marti was an invited plenary speaker at the International Temperate Reefs Symposium at the University of Adelaide, where she presented a talk entitled "When the plot gets muddy: models for environmental management in estuarine systems". Mat Pawley also spoke at the conference about long-term monitoring data from Long Bay, the results of contract research for the Auckland Regional Council.

Marie Fitch

Victoria University

Here's the first news contribution written from our new 'home': from 1 January 2009 the Statistics and Operations Research Group at VUW have been part of the new School of Mathematics, Statistics and Operations Research msor.victoria.ac.nz. Other than the new name, there has been relatively little impact for most of us, since we are nearly all in the same offices, doing more of the same things. However, Megan Clark did get a change of room, as well as a different job description: Megan is the inaugural Head of School. So now she has to keep an eye on what all the Mathematicians are doing (deterministically), as well as the rest of us in Statistics and Operations Research with our additional 'je ne sais quoi', to be modelled in a suitably stochastic way. Things seem to be running smoothly so far - thanks Megan!

One other exciting change of jobs, but not offices, also occurred on 1 January 2009: Nokuthaba Sibanda took up a post as a Statistics Lecturer in our Group, moving out of the consulting statistician role that she had been active in since joining us in mid September 2007. Nokuthaba has research interests in Statistical Genetics, Bayesian Statistics, Statistical Quality Control, and Biomedical Statistics.

It has been a busy few months for everyone in the group administratively, since we have had two separate reviews of our research, which each required considerable input, a quite lengthy workload assessment exercise, and a restructuring of all our

majoring requirements and individual courses, due to the revised structure of the new BSc degree that Victoria are introducing currently. To distract us from some of the administration, we have started meeting informally every week, to discuss current research problems that staff and postgrads are facing. One slightly bigger informal gathering was a research afternoon on Friday 20 February, when we had 16 ten-minute presentations from most of the staff and some of the postgrads, telling everybody else just a little bit about our current 'hot topics'. No one got burned, and everybody present enjoyed the afternoon, which was rounded off with a few drinks.

Dong Wang spent some of the summer working in Australia, and was in Melbourne around the time the bush fires struck. Dong said that the air felt almost unbelievably hot, and he was very glad to get back to Wellington's somewhat cooler (but pleasant!) summer. Richard Arnold had his first foray into television as the election night forecasting statistician for TVNZ (8 November 2008). Some of us were slightly disappointed that there was no sign of a big swingometer, but Richard had a great time and was relieved to have predicted the correct result. In fact he predicted it pretty early in the night; nice modelling, Richard!

Ivy Liu traveled through the US quite a bit over Christmas 2008 and through January 2009. Among other things, Ivy attended the winter workshop on Semiparametric Methodology held in Gainesville, Florida, 8-10 January 2009. Ivy's PhD student Thomas Suesse successfully defended his PhD on 4 March. This makes Thomas the first student who will obtain a PhD from the School of Mathematics, Statistics and Operations Research: no doubt the start of a long and distinguished line! Well done Thomas. In fact Thomas had started work as a postdoc, in Sydney, before getting his doctorate - he flew back over to NZ for the viva, and is enjoying the fact that he now gets paid for doing his research.

Some of our other Postgraduate students have been winning scholarships for financial support recently, with Vidette McGregor and Ray Tobler each winning awards. Vidette won a Ministry of Fisheries Postgraduate Scholarship in Quantitative Fisheries Science to support her thesis on Modelling of Fish Populations and Ray won a Victoria Graduate Award to support his studies in statistics and quantitative genetics. Congratulations to them both.

Ray was also in the Dominion Post newspaper recently, which carried a report about research on baboons that Ray did recently for his MSc in Ecology, prior to his further postgraduate study with us. Basically, Ray discovered that "female baboons have an appetite for random sex", with "some [of the]

females fooling their mates about when they were fertile, before sneaking off for monkey business with males from the other harem." The baboons welcomed a new baby recently, and Ray was quoted as saying that "the birth was almost certainly the result of a 'sneaky mating' as neither of the male harem leaders could father offspring after having vasectomies." For a longer report (and pictures), see www.stuff.co.nz/dominion-post/news/2130188/Baboons-up-to-monkey-business.

In other news from our students, Lisa Lankshear worked at Monitoring and Evaluation Research Associates (MERA) over the summer, between years 1 and 2 of her MSc. Andres Devoldere, who took a break from study after completing the coursework part of his MSc, won a Bank of New Zealand Chevron achievement award in 2008. In the last few weeks Andres has returned to VUW to continue with his degree, under supervision from Estate Khmaladze. In international sporting news, Clare McCaul is briefly away from her Applied Statistics postgraduate studies to represent New Zealand in the Black Jacks bowls team, contesting the Trans Tasman test series (March 11 to 15) against Bowls Australia. Go Clare (and NZ)!

Ted Ralphs from Lehigh University (USA) visited us for two talks in January 2009, which Mark Johnston organised. Ted was the ORSNZ Visiting Lecturer for 2009 and he took some amazing photographs during his trip around New Zealand in a campervan; see coral.ie.lehigh.edu/~ted/sabbatical. Mark recently received funding to offer a Vice Chancellor's Strategic Research Doctoral Scholarship for a PhD student to study 'Particle Swarm Optimization for Image Recognition' - Mark would be very pleased to receive applications for that funding, before 15 May - see msor.victoria.ac.nz/Main/MarkJohnston.

We hosted Professor Walter Zucchini as the Shayle Searle Visiting Fellow in Statistics in September 2008; this just missed making it into the September newsletter, unfortunately! Professor Zucchini, from the University of Goettingen, is well-known for his work on hidden Markov models, including his co-authorship of 'Hidden Markov and Other Models for Discrete-Valued Time Series' (I.L. MacDonald and W. Zucchini, 1997. London: Chapman and Hall). Walter has worked in many fields of application of statistics, including meteorology, ecology, finance, animal behaviour, physiology and forestry. While in Wellington, Walter gave three talks: two seminars at VUW and an invited talk (on 'Latent-state models with feedback - an extension of hidden Markov models') at the Hidden Markov Models Workshop held at the Royal Society rooms on Wednesday 3 September. (nzsa.rsnz.org/HMM3/)

[index.htm](#)). The Workshop was free for participants and was jointly sponsored by the NZ Statistical Association, Victoria University of Wellington and Statistics Research Associates. David Vere-Jones was the primary organiser of the workshop, which aimed to provide a follow-up meeting to the NZIMA-funded 2005 programme on 'Hidden Markov Models and Complex Systems', also coordinated by DVJ.

Estate Khmaladze had a visit from Professor Arnold Janssen (University of Duesseldorf) for three weeks in September and October 2008. Professor Janssen is a specialist on the theory of empirical processes and goodness of fit methods and his counter-intuitive result on the power of the Kolmogorov-Smirnov test ('no weighted K-S statistic can have good power against many alternatives') is now a classical result in the field. While visiting VUW, Arnold worked intensively with Estate, interacted with several postgraduate students and also gave a seminar.

Conferences, past and future, make up the remainder of our news for this issue. The 43rd Operational Research Society of New Zealand Conference (ORSNZ'08), was held at VUW on 24 and 25 November 2008. Mark Johnston chaired the organizing committee, with Stefanka Chukova and John Haywood (Proceedings Editor) making up the team, with administrative support from Ginny Whatarau. Generous sponsorship was received from ILOG Australia, DY Strategy Consulting, Orbit Systems, Hoare Research Software, Paragon Decision Technology, The Optima Corporation and Victoria University of Wellington.

Several academic staff and current or recently departed postgraduate students from the School gave talks or chaired sessions at ORSNZ'08: Richard Arnold, Chris Ball, Stefanka Chukova, John Haywood, Yuichi Hirose, Mark Johnston, Richard Marshall, Sarah Marshall, Nokuthaba Sibanda and Dong Wang. In total there were 47 talks (including 12 in the Young Practitioner Prize) slotted into 13 sessions over the two days, with speakers from Australia, Singapore, Scotland, China, Taiwan, Malaysia, Canada and New Zealand. The keynote speakers were Craig MacLeod (Orbit Systems, Wellington) and Professor Anita Schoebel (University of Goettingen). For further details, together with lots of photographs (thanks to Andrew Mason and Matthias Ehrhoff) and the full conference proceedings, please see the conference website:

secure.orsnz.org.nz/conf43. We confirmed that organisation of an Operations Research conference involves a lot of Operations Research: forecasting, break-even analysis, the old newspaper-vendor problem (with conference proceedings), project management, sensitivity analysis, and of course

constraints, costs, uncertainty and risk. A great payoff though, when it all came together so nicely!

Hot on the heels of ORSNZ'08, we will be hosting NZSA 2009: this year's New Zealand Statistical Association conference will be held at VUW on 2-3 September, with a one-day workshop, to be given by Prof Matt Wand (U Wollongong), preceding the conference on 1 September. Further details are given elsewhere in this Newsletter. Also, the conference website is still very much alive and being updated, so keep an eye on that, msor.victoria.ac.nz/Events/NZSA2009, and don't forget to submit your talks and register for the conference!

John Haywood

Statistics New Zealand

Statistics New Zealand Undergraduate Award Presentation:

Statistics New Zealand sponsors a prize for the best undergraduate student majoring in statistics at each New Zealand university as chosen by the statisticians at that university. In 2008 the value of the prize at each university was raised to \$1,000. Also provided is a certificate which provides the award winning student with a permanent memento of the occasion. Long term the award looks to encourage able students to consider the possibility of a career at Statistics New Zealand. Full details at

www.stats.govt.nz/about-us/awards-and-student-assistance/student-assistance-scheme

In late January the Government Statistician Geoff Bascand presented the certificates to the joint winners at the University of Canterbury in front of their families, fellow students and staff, at a function in the Mathematics and Statistics Department.



From left to right: Dominic Lee (Statistics Awards convenor), Shakira Suwan (co-winner), James Dawber (co-winner), Geoff Bascand (Government Statistician), John Hannah (Deputy HOD, University of Canterbury Maths and Stats Dept)

Richard Penny

University of Canterbury

Welcome to James Degnan (below), the newest member of our statistics team. James previously held postdoctoral positions at University of Michigan and Harvard University after obtaining a PhD from University of New Mexico in 2005. His research interests are in statistical genetics.



We also congratulate Carl Scarrott and his wife Tiye on the birth of their daughter Clover Alice.

There have been few recent presentations of members of the Stats group:

Jennifer Brown was a speaker at the Applied Statistics Education and Research Collaboration Conference, in December 2008, at Wollongong and presented her work on adaptive survey designs for monitoring animal and plant distributions. She and Meghan Williams (PhD student) have also presented at a Landcare Research Conference on Search and Detection, and more recently at the Statistics NZ annual methodologist meeting in Christchurch in March.

Raazesh Sainudiin presented the talk “Lumpings of a Kingman-Tajima n -coalescent” at the NZ Annual Phylogenetics Meeting held in Kaikoura in early February and later on presented the talk “Auto-validating Trans-dimensional Rejection Sampler” at the Workshop on High Dimensional Approximation in Sydney. While in Australia Raaz gave a seminar on “Statistical set-processing: Arithmetics over multi-dimensional data-structures” at the University of Wollongong.

Marco Reale was a discussant at the New Zealand Econometric Study Group held in Christchurch at the end of February.

Other travelling involved Marco and James visiting respectively Italy and US for ongoing research and Jennifer and Irene David who attended the Building Networks in Statistical Education forum at QUT in February, along with at least 5 others from NZ.

There have been few recent research initiatives in the department.

As a result of the NZIMA weed modelling programme hosted at UC, Jennifer is now involved in a collaborative project with AgResearch and others to set up a national weed database involving sharing of information among regional councils of spatial locations of weeds.

GIS has arrived at UC with the environmental statistics team. We have invested in a new computer for hosting GIS and there are now 3 PhD students working with Jennifer on spatial statistics.

As usual we have had a few visitors who stimulated our research environment.

We hosted a visiting ecologist, Frank D’Amico, from the University of Pau, Pyrenees in France in December who worked with Jennifer and Meghan on establishing a monitoring programme for a rare river mole.

Granville Tunnicliffe Wilson from Lancaster University, a regular visitor to our department, visited Marco and Carl to work on separate research projects from mid January to the end of February.

Professor Carey Priebe is visiting the University of Canterbury from 21st Feb to 5th Apr as an Erskine Fellow. Professor Priebe is from the Department of Applied Mathematics and Statistics at Johns Hopkins University. He is an expert in Computational Statistics, specializing in kernel and mixture estimates, statistical pattern recognition, statistical image analysis, and statistical inference for high-dimensional and graph data. Whilst at Canterbury, he is teaching a course on Bayesian Inference and will be giving a seminar on “Disparate information fusion: On the exploitation of multiple disparate dissimilarities”. The seminar is scheduled for 26th Mar at 3pm in room 446, level 4, Erskine Building, University of Canterbury.

Dominic Lee is involved in the organisation of the Seventh IEEE International Conference on Control & Automation, to be held in Christchurch on 9th - 11th Dec 2009. More information at ieee-icca.org

Students who have recently finished their PhD’s are Dr Jean Gong, Dr Bill Rea and Dr Kyoko Fukuda. Congratulations to all of them. Bill and Kyoko are now working at UC on different research projects. Congratulations also to Andrew Richens who completed his Masters.

Student numbers are well up at UC - perhaps the predictions are true that if there are fewer jobs available people enrol at Universities.

Marco Reale

AgResearch

Our statistics team has two new members: Dr Chikako van Koten, and Jing (Verina) Yuan.

Chikako will be based at our Lincoln campus following some initial orientation to the job from Peter Johnstone at Invermay. Chikako completed her PhD in an area of Applied Statistics and Information Science at University of Otago and was working as an Assistant Research Fellow in the department of Mathematics and Statistics at the university before coming to AgResearch. She hails from Tokyo, Japan and moved to NZ in 1989, married a Dutch Kiwi, and is now a New Zealand citizen (she calls herself a 'Kiwi Japonica'). She loves books, baking, music and movies.

Verina will be located at Invermay, and is also benefiting from the tutelage of Peter J as she learns what makes for a good statistical consultant. She writes: "I was born in Shanghai, an awesome city in China. I grew up as an inquisitive child about everything and my fundamental philosophy is to try out a bit about everything before I can find something that I truly like. I started with a Bachelor of Commerce in the University of Auckland but ended up with a stats degree. When I started doing my honours project with Associate Professor Brian McArdle, I knew my prospective employer was not going to be a bank. And here I am, in AgResearch."

She is a big fan of dancing and goes to different dancing classes and also enjoys watching movies, tramping and snorkelling.

Three of our group attended the Australasian GenStat conference at Marysville (Victoria, Australia) in December. Dongwen Luo, Roger Littlejohn and John Koolaard enjoyed a friendly and informative conference which had the general theme of "Biometrics in the Primary Industries and the Environment". One of the highlights was a session with talks about several ecological projects which ANU statisticians were involved with. This culminated in an evening walk in a Mountain Ash (i.e. the trees) forest to do some 'spotlighting' for various possum species. Present at the conference was also Professor Youngjo Lee, who has worked with Prof John Nelder developing 'Hierarchical generalised linear models'.

Alas, it was distressing to hear that just two months later, in one of the recent Black Saturday bushfires, just about the whole town of Marysville was destroyed with a great loss of life, and the beautiful venue for the conference, Marylands Country House is no more.

Our annual team retreat has just taken place in Palmerston North. We're happy to report that we are in good heart and still being appreciated in the company, on average! Here is a photo of AgResearch's Bioinformatics, Mathematics and Statistics Section.

AgResearch and Lincoln University are currently investigating a possible amalgamation which is proposed for 1 July 2009. It is not expected that this will affect the normal operations of the statistics groups in either organisation in the short term.

John Koolaard



AgResearch Bioinformatics, Mathematics and Statistics Section at their annual team retreat in Palmerston North

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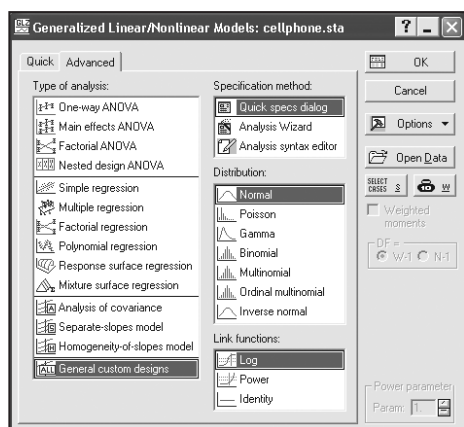
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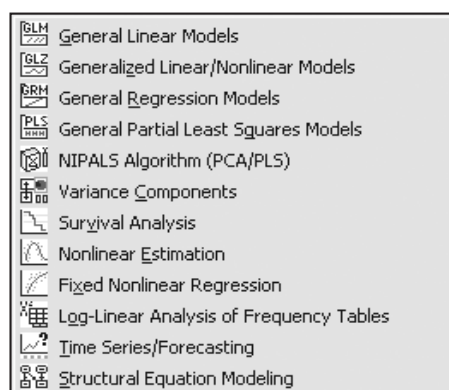


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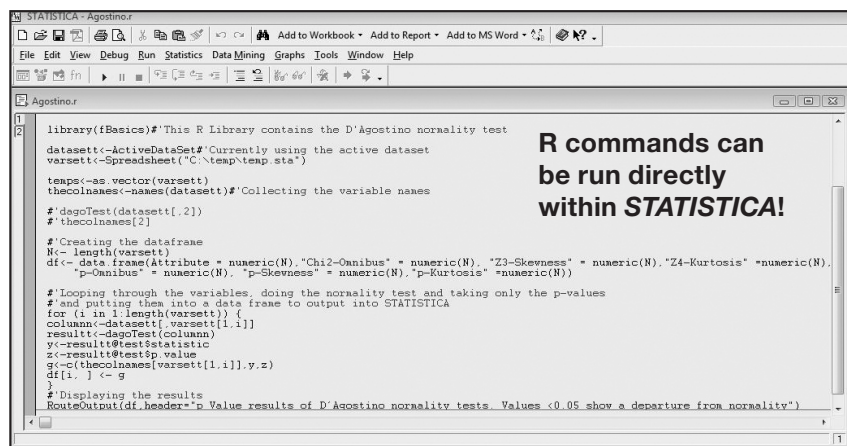
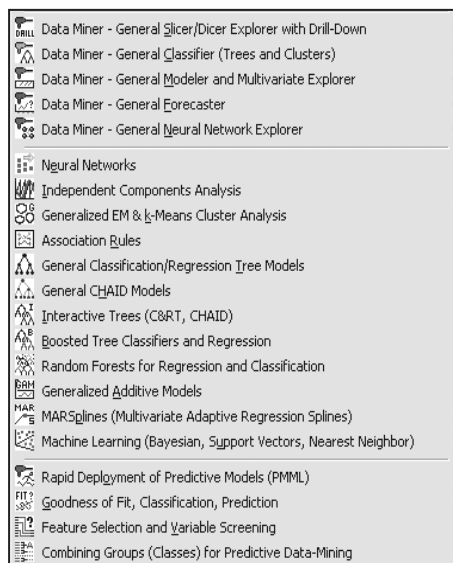
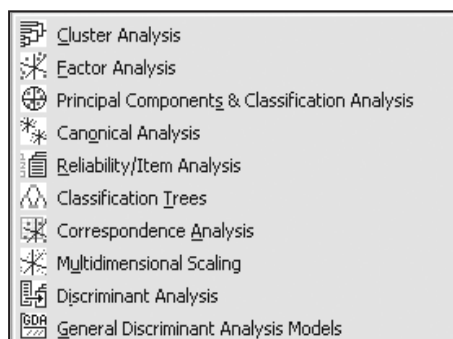


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