

Proposed NZSA Award for Individual Achievement

Many societies in NZ and overseas have annual awards to recognise people's contributions to their professional field. Such an award is being considered for the NZSA. The purpose of the award would be to promote statistics within NZ and to recognise an individual's contribution to the development of statistics.

Proposed criteria for the award are:

- i) publishing the best, recent, original statistical research undertaken within NZ, or,
- ii) making an outstanding contribution to statistical education, or,
- iii) playing a key role in consulting on a major, innovative research project that has direct relevance to NZ, or,
- iv) making a significant contribution to promoting statistics within NZ.

It is proposed:

- The award would be known as the **NZSA Campbell Award**.
- One award would be given annually, at the NZSA annual dinner in conjunction with the annual conference.
- Nominations could be made by individuals or groups of individuals. Nominators may be non-NZSA members. Nominations would include a statement of support from the nominator and may include names of suitable referees.

- The award may only be given to fully paid up members of the NZSA. All membership categories are eligible.
- Normally the award would only be given to a member once in their lifetime.
- An award may not necessarily be given out each year, and in exceptional circumstances, more than one award may be given in a year.
- Each of the four criteria will have its own measures. In research, for example, the measure may be the personal publication record, and the

originality, applicability, impact of the research; in education such measures as innovative teaching/courses, development of curricula, development within other subjects, links with practice/practitioners may be used; in consulting the project size, profile, application in a new area, rigour and relevance to solving real problems are suitable measures; and in promotion, the appropriate use of statistics and demonstrating the relevance of statistics are measures.

If you have any comments or suggestions about an award please send them to Jennifer Brown, j.brown@math.canterbury.ac.nz, or by post to Department of Mathematics and Statistics, Canterbury University, Private Bag 4800, Christchurch.

I would like to receive your views before July, so we can ratify an award at the AGM, if there is support. Also, I would like to hear suggestions for what the award should actually be. So far suggestions have been: a medal or a parchment scroll that could be framed. More NZ-unique ideas have been a sigma sign carved in greenstone, a normal distribution in radiata pine (kauri is not as ecologically sound), a free copy of "Women in Maths" ... the possibilities are endless. To encourage you to reply there is a prize for the most innovative suggestion, and for any new suggestion that is adopted. Watch this space for what the prize will be!

Jennifer Brown

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President's Column



The Executive met by teleconference on March 6 to ensure that the activities of the Association continue to be coordinated. One item of interest is a recommendation that we establish an annual award, the NZSA Campbell Award, to recognise an individual's contribution to the promotion and development of Statistics within New Zealand. Dr Jenny Brown has been active in coordinating this proposal which will be put to the members at the AGM for ratification (see page 1).

The proposal that the NZ Statistician and the Australian Journal of Statistics merge, on January 1 1998, is now much closer to agreement. The Statistical Society of Australia, Inc. (SSAI) has had extensive discussions with various commercial publishers and, subject to our agreement, now look to be accepting the arrangement with Blackwell. Blackwell's expertise and exposure to the Statistical Community through their recent winning of the tender to publish all the RSS Journals, as well as their publication of the Scandinavian Journal of Statistics, will give us access to a journal with a much higher exposure. The proposed editorial structure returns to our original suggestion of an Applications Editor and a Methods Editor, one from SSAI and one from NZSA, with one of those positions holding Coordinating Editor (which will alternate between the two Societies). I am appreciative of the efforts put into this by Murray Jorgenson.

The Executive also suggested that we explore a commercial sponsorship to assist with the upgrading of the prizes that we offer at the local Science Fairs. We were approaching some local calculator distributors to see if they would be able to assist by allowing us to raise the present prize levels. Members may have some contacts that they may wish to suggest we approach for assistance.

Stan Roberts reminds us that 1999 is the 50th anniversary of the NZSA. Although Canterbury had volunteered to hold the 1999 Conference, Wellington, the Association's birthplace and where surviving founding members still live, might be a more appropriate location. Executive have yet to consider how we might celebrate this special occasion, so any ideas would be welcome (see also editor's column opposite).

On the national scene, I can report that at the April Council Meeting of the RSNZI was appointed to the Council, as the Convener of the Mathematical and Information Sciences Standing Committee (MISC). The Bill currently before the House of Representatives, when approved, will see a new Council structure with formal elections to be held later in the year.

Through my involvement in MISC I was recently approached by MoRST with a proposal to convene a Review of the Mathematical Sciences in New Zealand. The proposed terms of reference are quite comprehensive. I have been in contact with some potential members of a Working Party and been back to the Ministry with some recommendations. Firstly, they want the review completed by 31 July. I have advised them that we wish to do this review well and accord it the importance it deserves. However, because of the unavailability of some key personnel and the fact that some cannot be released from their current activities, I have requested that we be given an extension to 31 January 1998. Secondly, the proposed funding of \$25,000 will need to be increased and thirdly that the terms of reference be modified slightly.

The final two points do not appear to be a major problem but they are unhappy with the proposed delay for six months. Quite extensive consultation is required. This review, building on the area profiles in the Mathematical Sciences for the NZ Knowledge Base exercise, must be done well. To come up with recommendations that we could not substantiate with accurate well-collected data would be a disservice to the entire mathematical and statistical profession. The review is being based on the review conducted by the National Committee for Mathematics of the Australian Academy of Science whose 120 page report "Mathematical Sciences: Adding to Australia" came up with twenty recommendations directed to various groups, including Researchers, Heads of Departments, Deans, Research Councils, Professional Societies, the Vice Chancellors Committee, Chief Scientist, and Ministry Departments - Revenue, Research Science and Technology, and Education. It is proposed that the Review here will be conducted by a small Working Party assisted by a larger Advisory Committee. I would appreciate any offers of assistance to serve on the Working Party.

Members of the NZSA should be aware of the vision statements released recently by the Minister of Research, Science and Technology, the Hon. Maurice Williamson and published in the February issue of Sci-Tech, the Newsletter of MoRST. The

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NZSA Golden Jubilee (1949-1999)

Celebrating Our Jubilee

The NZSA was founded in 1949. Therefore 1999 will be our golden jubilee. Jubilees are a good time to document our memories of our past, our reflections on our present, and our plans for the future.

In the December *Newsletter* Stan Roberts asked for information about all aspects of the history of statistics in New Zealand. He has sent me some of the results of his research and I will be publishing them over the next two years, the first one is alongside. We are in the planning stage of a special *Newsletter* for 1999. Quite by coincidence the 50th edition of the *Newsletter* will be published in 1999, so it seems a good opportunity to record the past in a special 50th edition. The other editions that year will record the celebrations and the state of statistics in New Zealand, as well as some thoughts on where we are going.

We are fortunate that statistics is still such a new subject that many of the founders are still alive to reminisce about what was involved in bringing statistics to the stage it is today. Also much of our history should have photographic documentation available. I therefore ask that if you have photographs of NZ statisticians, or other statistically oriented material, please send them to me. I will arrange for them to be copied and the originals returned to you. If you have other items of historical interest (e.g. old syllabuses, books, exam papers, etc.) please send those also. Again we will photograph and return.

In particular I am looking for photos of Florence Harding, Professor D.M.Y. Somerville, Prof. H.D. Bedford, M.P. Wilson, E.H. Sealy, Theodora Marsh and H. Silverstone.

Richard Penny

Submissions to the Newsletter

The *Newsletter* welcomes any submissions of interest to members of the New Zealand Statistical Association. News about New Zealand statisticians, 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. Text files are the preferred mode of submission, unless a particular layout is required. Photographs of past and present statisticians and statistical gatherings are of particular interest. All photos will be copied, added to the NZSA photographic archives, and returned.

HISTORICAL NOTE No 1:

STATISTICS IN SCHOOLS

The earliest specific reference I have been able to locate concerning the teaching of Statistics in Schools, is included in the "Syllabus of Instruction for Public Schools" 1928, published by the Education Department, New Zealand. It is listed under the heading:

ARITHMETIC -STANDARD VII (FORM III)

Graphical Arithmetic Extension of the work of Standard VI, including thermographs, barographs, simple statistical graphs of different kinds.

Also, the 1913 Syllabus for the "Public Service Senior Examinations" states: - ARITHMETIC and ALGEBRA: Application of Graphical Methods to Arithmetical Problems. In addition, the 1919 Syllabus for the "Junior and National Scholarships" states "Graphical Methods Permitted". In view of the STANDARD VII Syllabus above, it is probable that some forms of Graphical Arithmetic would be regarded as simple statistical graphs. So I would regard the earliest teaching of statistics in New Zealand schools, is at least 1928, and possibly 1913. (Information gained from the Library of the Ministry of Education, and from the Turnbull Library.)

Stan Roberts

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.

Deadline for next Issue

All submissions for the next *Newsletter* to me by Friday 8 August.

Richard Penny rpenny@stats.govt.nz

Statistics New Zealand

Private Bag 4741

Christchurch, New Zealand

Phone (03) 374 8769

Fax (03) 374 8899

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Minister highlights that “we are entering an information age that will bring change, the likes of which no one has experienced for centuries.” “My vision, if you like, is to see that this country prepares itself educationally, commercially and socially for this change.” I suggest you read this article. What impact does this vision have for the statistical profession?

NZSA President:

Professor Jeffrey J. Hunter
Dean, Faculty of Information and Mathematical
Sciences, Massey University, Palmerston North,
New Zealand
Phone Office +64 6 350-5082
Home +64 6 354-7886
Fax +64 6 350-5611
Email J.Hunter@massey.ac.nz

Education Committee

We’ve had two meetings (in February and May) of our planned four for the year. We’re very pleased to have Alex Neill (now of NZCER) as part of the team.

On the NZAMT (Maths Teachers) Conference front, we’re planning to contribute one workshop on the process of doing investigations while wearing our NZSA hats, and we’re working on ensuring that several other statistical presentations take place.

On the NZSA Conference front, we hope to have a chance to air our views with members.

On the NZQA front, our two reps attended the Maths Advisory Group meeting. The Units in first-year tertiary Statistics were approved for registration on the Framework. Some Units are being taken up by Polytechnics which are running the new National Diploma in Science. The Maths and Statistics needs of the proposed National Diploma in Engineering (proposed to replace NZCE) were discussed.

A Green Paper (i.e., a discussion paper) on the Framework from the Coalition Government’s Tertiary Review is due any day, and may have important effects on the way qualifications are defined.

In fact there are several green papers in preparation, with these planned release dates:

National Qualifications Framework	May
Education Strategy for Maori	July
Teacher Education Review	July
Tertiary Education Review	August
National Assessment	September

The NZQA board has decided that Merit will be incorporated in General Education (conventional school subjects) Units, and that exams could count for Framework credit.

NZQA’s National Standards Body for Science and Technology met for the first time recently. The New Zealand Statistical Association nominee is Sharleen Forbes. Mathematicians are represented by Sylvia Bishton (another NZSA member). It is unfortunate that the tertiary sector does not have more representation. One of our first tasks is to get mathematics, at least, included in the title. Among the functions of the group are consulting (via our networks) on issues related to the framework, recommending to the NZQA Board areas and processes for the development and review of unit standards, and promoting the qualifications framework. The next meeting is 2-3 June so if there are any concerns they can be raised then.

Mike Camden and Sharleen Forbes.

Children’s Census a Hit

Do you remember the Children’s Census? It took place in 1990 as part of the NZSA’s activities to promote both the International Conference on Teaching Statistics (ICOTS) held at Otago University and the 1991 census. Those of us who collapsed with exhaustion at the end probably don’t want to remember, but it has a life of its own. I finally gave in and did an article for *Teaching Statistics* which was published in Vol. 18, No.3, Autumn 1996. It provoked the following e-mail from Italy:

Dear Sharleen,

I have read your very interesting article on Teaching Statistics “Rising Statistical Awareness” and we will translate it in Italian for “Induzioni demografia probabilita statistica a scuola”, an Italian educational review. I would like to know something more about Children’s Census in New Zealand, for instance to see the questionnaire and if you could send me some more information, I will be glad. You quote a History of Women through Statistics. Where can I ask for this book? I thank you for your help and with best regards, Enzo

Enzo Lombardo
Dip.to di studi geoeconomici e statistici
Via del Castro Laurenziano
900161 Roma

I’ve sent Enzo the requested material and a copy of our *History of Women through Statistics* publication and have asked for a copy of the translated article just in case any member of the association wishes to read it in Italian.

Sharleen Forbes

Science Fairs

Every year science fairs are held up and down the country. These are open to all students of intermediate schools and colleges - and in some cases primary schools as well. They are thriving affairs and usually attract up to 500 exhibits accompanied by very enthusiastic students more than willing to chat at length about their project.

I am always impressed by the range of subjects covered. Recent prizewinners from my area have included an experiment to see which fruit and vegetables possums actually prefer (for use in setting traps); a study of peak hour road traffic flows on one of the main routes in to Wellington (of immediate use to planners); and the amazing, but to my mind completely useless, discovery that most people have different length ears, and that most right handed people have a longer right ear while most left handers have a longer left ear!

Although there are no main statistical sections at the fairs, the NZSA offers special prizes for statistics at each fair. These are to encourage and promote good statistical thinking in schools, and to recognise that statistics is an integral part of good science.

The statistics prizes are judged by NZSA members like you, who give their time on a voluntary basis. Most judges have found talking to the enthusiastic youngsters about their project an enjoyable and rewarding experience. The NZSA would like to thank everyone who has judged in recent years, and also their employers, as in many cases the judges are given work time to perform this valuable and important task.

Most people who judged for us last year have agreed to continue this year, so again many thanks to them. However, we are in need of judges for the fairs in Whangarei, Napier, Gisborne and Dunedin. Most fairs are held at some stage between July and October, and it would involve between half and one day, depending on the number of entrants. If you may be able to help in one of these fairs please contact me.

Jenny Mason
jenny_mason@stats.govt.nz
(04) 495-4747
Statistics New Zealand
P.O. Box 2922
Wellington

ISI Committee on Women in Statistics

The ISI Committee on Women in Statistics is trying to establish contact with as many women statisticians around the world as possible. An informational letter about the committee has been mailed to a limited number of recipients, consisting largely of women members of the ISI and its sections. They have asked that any women statisticians wishing to receive information about the committee's work contact them. Please send your name, address (including e-mail) to:

Mary H. Regier
mhr@po.cwru.edu
Case Western Reserve University
10900 Euclid Avenue
Cleveland, Ohio
U.S.A. 44106-7054

Statistics Learning Pack

IBM PC Shareware - DOS based

Designed as a self-teaching guide for 6th form to Stage I university students, it shows the steps necessary in solving problems from a variety of over twenty topics. While the package allows students to enter their own data, it is primarily designed as a teaching aid, showing students the necessary steps in performing calculations and draws graphs of the relevant theoretical distributions. The package is easy to use, being menu driven. Topics include: histograms, stem & leaf, box & whisker plots, binomial, Poisson & normal probabilities, t-distribution, chi-squared, ANOVA, regression analysis, mean & range plots, Type I & II errors . . .

Interested in a free demonstration copy? Send an e-mail message to:

scdas@twp.ac.nz

allowing me to send you a copy of the program - (It is a 400K ZIP file) - as an e-mail attachment or send a blank 3-1/2" IBM formatted disk to:

Jensay Software
14 Conway Place
Hamilton 2000
New Zealand

together with your name & return address. (People living outside NZ please include \$3 NZ for post and packaging.)

(Also, for teachers, is an exam package which makes up a statistics test/examination in very short time, complete with separate worked solutions.)

David Sedgwick

**New Zealand Statistical Association
48th Annual Conference
University of Auckland
Wednesday July 9 – Friday July 11
1997**

two months of the conference start date. Only single accommodation is available. A list of nearby motels may be found on the Conference Web page located at <http://www.stat.auckland.ac.nz/conf/conf.html> for those preferring other accommodation.

Conference Programme

Themes of the Conference are Statistical Ecology and Bayesian Statistics (including Markov Chain Monte Carlo). There will be sessions on Official Statistics, Biostatistics, Statistical Theory, Statistical Computing and Statistical Education. A highlight of the Statistical Education Programme will be a Panel Discussion organised by the Education Committee of the Association, focusing on input to education and assessment decisions.

The Conference lasts two and a half days, from Wednesday July 9th to midday Friday July 11. On Thursday afternoon (the 10th), and Friday morning there will be parallel sessions on the Statistical Ecology theme. On Thursday afternoon there will be invited and contributed papers on Statistical Ecology, and on Friday morning, Professor Steve Buckland will present a Workshop on *Line Transect and Distance Sampling for Estimation of Wildlife Populations*. Separate registration is available for the Ecology afternoon and Workshop.

Keynote Speakers

Keynote speakers who have accepted invitations to speak at the Conference are Peter Hall (ANU), Luke Tierney (Minnesota), Steve Buckland (St Andrews), Keith Worsley (McGill), Richard Huggins (La Trobe), and Dennis Trewin (Australian Bureau of Statistics).

Accommodation

Accommodation has been reserved for participants in the student residence, Grafton Hall which is close to the University. The adult rate for Bed and Breakfast is \$40.50 per night, (children under 16 years \$31.50). Full payment is required when the booking is made. An amount of \$35 per person will not be refundable if a cancellation is made within

Submission of Papers

Papers in any area of statistics are acceptable for the conference, but papers relevant to the conference themes are particularly welcome. Abstracts must be submitted in electronic form by June 13, 1997 to edmunds@stat.auckland.ac.nz

Abstracts must be prepared using a template available from the Conference Web page <http://www.stat.auckland.ac.nz/conf/conf.html>. Templates are available for LaTeX, plain TeX, and Microsoft Word. Those without Web access should send an email request to the above address for the template of their choice.

To encourage student presentations, up to 4 prizes of \$250 each will be awarded for the best student presentations. This is thanks to support from Hoare Research Software.

Social Programme

There will be a mixer on the Wednesday night of the conference, with a cash bar, to be held in the historic Old Government House. The Conference Dinner will be held at the *Port'O Call* Restaurant located on Devonport wharf, on Thursday, July 10. Devonport wharf is a five-minute ferry ride across the harbour from Downtown Auckland.

Australasian Mathematical Convention

The 5th Australasian Mathematical Convention, a joint meeting of the Australian Mathematical Society and the New Zealand Mathematics Colloquium is being held at Auckland University from July 7 to 11, and Peter Hall's talk is a joint session of that meeting with the Statistical Association Conference. For information concerning the Mathematics Convention, please contact the Barry Williams at b.williams@auckland.ac.nz.

Programme for Auckland Conference

Invited Speakers

The 48th Annual Conference of the NZSA to be held in Auckland from July 9 to July 11 has attracted an impressive array of overseas speakers.

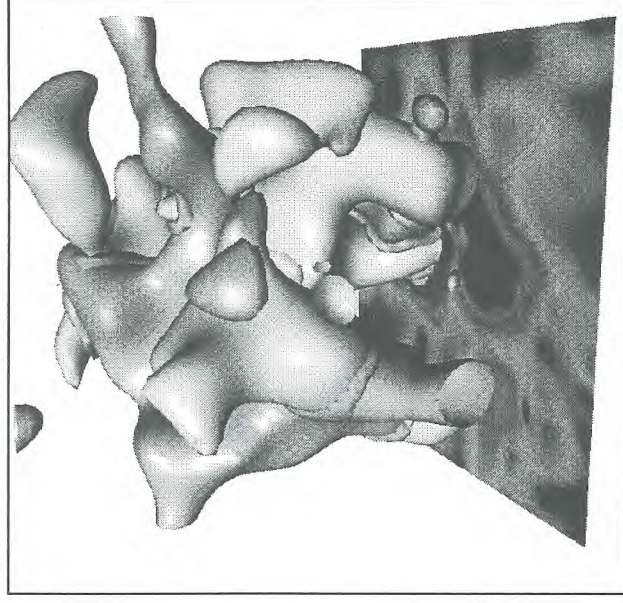
Peter Hall, of the Australian National University, whose individual research output outstrips most leading departments of statistics around the world, is to give a talk jointly with the Fifth Australasian Mathematics Convention entitled *Estimating a Boundary in an Image*. His abstract describes the problem: "Consider placing a smooth curve across a regular lattice, such as a square grid whose edge width is small. Colour black each vertex that lies above the curve, and white each vertex below the curve. Now remove the curve, and from the pattern of vertex colours, attempt to reconstruct it. This is an idealized, no-noise form of a variety of boundary detection problems that arise in image analysis."

Luke Tierney is a University of Auckland Foundation Visitor from the University of Minnesota. He is the creator of Lisp-Stat but has also made distinguished contributions to theoretical statistics, notably Bayesian statistics. He will give two talks, one on dynamic graphics in Lisp-Stat, and another on adaptive Monte Carlo methods in Bayesian inference.

Richard Huggins has done important work relevant to statistical ecology—on capture-recapture and also on variance components. He will give two talks: a general introduction to the field of capture-recapture, and a more specialist talk on the use of recent approaches to the problem including martingale methods and conditional likelihood.

Steve Buckland is the head of the Statistical Ecology Group at the University of St Andrews, Scotland. He will give a talk on research issues in wildlife population assessment and a half-day workshop on distance sampling for which an abstract is

given below. Steve is senior author of the book *Distance Sampling: Estimating Abundance of Biological Populations*, published by Chapman and Hall, 1993.



Keith Worsley from McGill University will speak on the geometry of random images. One of his pictures of a brain image is shown above—it is even more remarkable seen in full color. This work has fascinating applications in medical imaging and astrophysics.

There are two invited speakers heading the programme in Official Statistics. Dennis Trewin is Deputy Australian Statistician, Economic Statistics Group. His talk is entitled *Critical Issues in Economic Statistics—How Could Mathematical Statisticians Help?* Len Cook, the New Zealand Government Statistician, will speak on the effect of market liberalisation, globalisation, MMP and new technologies on government statistics.

Distance Sampling Workshop

Distance sampling methods for assessing wildlife abundance include line transect and point transect sampling, cue counting, trapping webs and migration counts. These methods will be described and their merits relative to other approaches discussed. The workshop will describe line and point transect methods in some detail, and discuss analysis options. Design and field methods will also be addressed.

NZSA 1997 Conference Registration and Fees

If more convenient, use the on-line registration form at the Conference Web site:
<http://www.stat.auckland.ac.nz/>

Name and Title _____
Address _____

Email _____

I wish to present a contributed paper Yes

Title of paper _____

Registration

Full Conference (2½ days)	\$150	\$	_____
Full Conference, (2½ days), Student	\$75	\$	_____
Full Conference and Workshop	\$210	\$	_____
Full Conference and Workshop, Student	\$105	\$	_____
One day, Wednesday/Thursday (Circle one)	\$90	\$	_____
One day, Student, Wednesday/Thursday (Circle one)	\$45	\$	_____
Ecology Afternoon and Workshop	\$90	\$	_____
Ecology Afternoon and Workshop, Student	\$45	\$	_____
Dinner	\$45	\$	_____
Late fee (after June 13, 1997)	\$20	\$	_____
Accommodation _____ Nights, @\$41.50 (Adult), or \$31.50 (Child) per night	\$	\$	_____
Total	\$	\$	_____

Accommodation

Number of rooms required _____ Nights required (Circle) 8th 9th 10th

Payment

Cheques to be made out to The University of Auckland. All prices are in NZ\$ and no GST needs to be added. Payment by cheque is preferred, but payment by credit card is also possible. For Credit Card payment (Mastercard or Visa only) please give:

Cardholder Name _____ Expires _____
Card Number _____ Date _____
Signature _____

Return to

NZSA 1997 Conference, Department of Statistics,
The University of Auckland, PB 92019, Auckland, New Zealand

Information and enquiries

Phone: +64 9 373 7599 Ext. 8741 Fax: +64 9 373 7018 Email: edmunds@stat.auckland.ac.nz

Electronic mail addresses for NZ Statisticians, etc

Version : 1997-04-22

Abbreviations used :

A = auckland.ac.nz
Agr = agresearch.cri.nz
Atx = actrix.gen.nz
C = canterbury.ac.nz
Chm = chmeds.ac.nz
Cr = cri.nz
Dri = nzdri.org.nz
F = forestry.govt.nz
Frc = frc.niwa.cri.nz
Fri = tawa.fri.cri.nz
Hort = hort.cri.nz
Hrs = hrs.co.nz
HV = hortvision.co.nz
Irl = irl.cri.nz
Kc = kcbbs.gen.nz
L = lincoln.ac.nz
Live = livestock.org.nz
Lt-ho=lt-ho.ltsa.postie.synet.net.nz Land Transport Safety Authority, Wellington
M = massey.ac.nz
Mrha = mrha.co.nz
Mqmr = ruakura.mqm.govt.nz
Mqmw = wellington.mqm.govt.nz
Niwa = niwa.cri.nz
O = otago.ac.nz
S = stats.govt.nz
Syn = postie.synet.net.nz
Tp = transpower.co.nz
Twp = twp.ac.nz
V = vuw.ac.nz
W = waikato.ac.nz
Wnm = wnmeds.ac.nz
Wnp = wnp.ac.nz
X = xtra.co.nz

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Actrix BBS, Wellington
University of Canterbury
Christchurch Clinical School, Univ. Otago
Crown Research Institute
Dairy Research Institute
Ministry of Forestry
Fisheries Research Centre
Forest Research Institute
Horticulture and Food Research Institute
Hoare Research Software [Systat, SPSS]
HortVision Ltd., 6 Drayton Place, CAMBRIDGE
Industrial Research Limited
Kappa Crucis BBS, Auckland
Lincoln University
Livestock Improvement Corporation Ltd
Massey University
Midland Regional Health Authority
MAF Quality Management, Ruakura
MAF Quality Management, Wellington
National Institute for Water & Atmospheric Sciences
University of Otago
Statistics New Zealand
Synet X.400 Mail Service
Transpower
Waikato Polytechnic
Victoria University of Wellington
University of Waikato
Wellington Clinical School, Univ. Otago
Wellington Polytechnic
Telecom Xtra ISP

Auckland

Andrew Balemi	balemi@stat.A	Alison Marshall	a.marshall@a
Kim Bannon	kimb@brak.co.nz	Roger Marshall	rmarshall@ccul.A
Steve Black	stevbl@kc	Brian McArdle	b.mcardle@a
Constance Brown	brown@stat.A	Barry McDonald	b.mcdonald@m
Steve Butt	sbutt@tmknov1.A	Lovina McMurchy	metcalf@stat.A
Patrick Connolly	pconnolly@Hort	Patrica Metcalf	d.h.meyer@m
James Curran	curran@stat.A	Denise Meyer	meyer@stat.A
Peter Danaher	p.danaher@a	Renate Meyer	r.millar@a
Marcus Davy	mdavy@Hort	Russell Millar	miller@stat.A
Sergei Dumnov	sergeid@ahsl.co.nz	Arden Miller	rmiller@Hort
Brian Eastwood	bje@stat.A	Melissa Miller	mullins@stat.A
Vera Eastwood	eastwood@stat.A	Peter Mullins	pfannkuc@math.A
Howard Edwards	h.edwards@m	Maxine Pfannkuch	mrregan@tmknov1.A
Roy Felton	rfelton@manukau.ac.nz	Matt Regan	reillyj@gagbmcnair.co.nz
Greg Gamble	greg@ctru.A	James Reilly	biostats@ccul.A
Robert Gentleman	rgentlem@stat.A	Elizabeth Robinson	seber@stat.A
Lynne Gilmore	lgilmore@tmknov1.A	George Seber	m_salehi@stat.A
Anne Gunson	agunson@Hort	Mohammad Salehi	schmidt@stat.A
Ross Ihaka	ihaka@stat.A	Werner Schmidt	scottt@stat.A
Alan Lee	lee@stat.A	Alastair Scott	d.scottt@a
John Lopdell		David Scott	

David Smith smith@stat.A
Murray Smith mh.smith@A
Wiremu Solomon solomon@stat.A
Alistair Stewart aw.stewart@A
Joanna Stewart biostats@ccul.A
John Thompson cotdeath@ccul.A
Chris Triggs triggs@stat.A
Stephen Van Der Hoorn stephen@ctru.A
Andrew van Dolleweerd vandoan@tasty.nzdbakl.Syn
Graeme Wake g.wake@A
Chris Wild wild@stat.A
Thomas Yee yee@stat.A
Ilze Ziedins ziedins@stat.A
Jia-fang Zhang jia-fang@ccul.A

Hamilton & Rotorua

Trevor Atkins trevor.atkins@HV
Rod Ball ballr@Fri
Sandra Baxendine sandrab@Mrha
Earl Bardsley web@W
Andy Begg a.begg@W
Rob Bell r.bell@Niwa
Ben Bolstad bmb@W
Bill Bolstad bolstad@W
Jaques Boubee j.boubee@Niwa
Mina Budianto budiantm@Fri
Catherine Cameron cameronc@Agr
Sue Carson carsons@Fri
Neil Cox coxn@Agr
Jocelyn Dale jocelynd@W
Barbara Dow bdow@Hort
Dave Duganzich duganzichd@Agr
Stephen Eichler eichlers@Agr
Michael Ford mford@iconz.co.nz
Mary Foster t.foster@W
Les Foulds l.foulds@W
Chido Gandanzara csgl@W
Andy Gordon gordona@Fri
Jenny Grace gracej@Fri
Harold Henderson hendersonh@Agr
Judi Hewitt j.hewitt@Niwa
Ray Hoare Ray_Hoare@Hrs
Michael Hong hong@Fri
Rhonda Hooper hooperr@dr.c.org.nz
Warren Hughes hugheswr@W
Lyn Hunt lah@W
Nye John nye@W
Dave Johnson dlj@lynx.Live
Murray Jorgensen maj@W
Mark Kimberley kimberlm@Fri
Gang Ling gling@W
Ray Littler littler@W
Sam Manda somm@W
Dimitri Margaritis d.margaritis@W
Graham McBride g.mcbride@Niwa
Martin McKenzie bsmjm@Twp
Judi McWhirter judi@W
David Miles milesd@baymilk.co.nz
Ian Pool i.pool@W
Rob Pringle pringler@Agr
Shapiee Abdul Rahman shapiee@W
Gareth Ridall grid@midland.co.nz

Kathy Ruggiero kr10@W
Kit Rutherford k.rutherford@Niwa
Terry Ryan RyanT@Mqmr
Kathryn Sanders ksanders@ccm.Live
David Scott nzdstats@matai.V
John Scott j.scott@W
Dave Sedgwick scdas@Twp
Fay Sharples fay@W
Martin Upsdell upsdellem@Agr
John Waller wallerj@Agr
David Wheeler wheelerd@Agr
David Whitaker whitaker@W
Max Whitaker mw2@W
Brian Wickham bwickham@ccm.Live
Bryan Williams b.williams@Niwa
Brent Wilson brentw@wairc.govt.nz
Anne Winkelman awinkelman@ccm.Live
Simon Woodward woodwards@Agr

Palmerston North & Levin

Robert Anderson r.d.anderson@M
Greg Arnold g.arnold@M
Paul Austin p.austin@M
Mark Bebbington m.bebbington@M
Dick Brook r.brook@M
Ruth Butler butlerr@crop.Cr
Robert Crawford crawford@Dri
Nihal De Silva ndesilva@Hort
Helen Dick dickh@Agr
Don Esslemont d.esslemont@M
Bob Fletcher fletcherb@Agr
S. Ganesalingam s.ganesalingam@M
Siva Ganesh s.ganesh@M
Alistair Hall halla@Hort
Steve Haslett s.j.haslett@M
Jeff Hunter j.hunter@M
Z. Kearns z.a.kearns@M
John Koolaard koolaardj@crop.Cr
Chin Diew Lai c.lai@M
Tony Lee
tonylee@tonylee.nzc.nzonline.ac.nz
Anthony Lewis a.lewis@M
Maree Luckman luckman@Dri
Mhairi McHugh m.mchugh@M
Terry Moore t.moore@M
Hugh Morton h.morton@M
Fred Potter potterf@crop.Cr
Bernard Robertson b.w.robertson@M
Secretary of NZSA nzsa@M
Maree Sleeman m.sleeman@M
Doug Stirling d.stirling@M
Gary Thomas thomasg@Agr
Ray Webster WebsterR@landcare.cri.nz

Wellington & Nelson

Peter Alspach palspach@Hort
Bronwyn Anderson bronwyn_anderson@S
Mark Arthur marthur@S
June Atkinson atkinsonp@Mqmw
James Barton bartonj@F

Bevan Blair	bevan@isor.v	Phillip Morrison	phiz4523@matai.v
Russell Boyles	r.boyles@Irl	Brett Mullan	B.Mullan@Niwa
Elizabeth Bradford	bradford@Frc	Nalin Patel	Nalin_Patel@ES
Lance Broad		Shirley Pledger	shirley@isor.v
Ray Brownrigg	ray@isor.v	Gordon Purdie	purdie@Wmm
Melanie Butler	butler@isor.v	Diane Ramsay	dramsay@ES
Mike Camden	mikec@director.ate.Wnp	Ross Renner	ross@isor.v
Barney Campbell	bkc@isor.v	Jim Renwick	J.Renwick@Niwa
Soo Cheng	soo.cheng@X	David Rhoades	d.rhoades@gns.cri.nz
Megan Clark	megan.clark@isor.v	Leigh Roberts	leigh.roberts@v
Len Cook	lcook@ES	Mick Roberts	robertsm@Agr
Patrick Cordue	plc@Frc	Clare Salmond	salmond@Wmm
Diane Craig		Tapas Sarkar	tapas@isor.v
Matthew Cronin	mathew_cronin@ES	Gurusingham Sathiyandra	sathi@isor.v
Stuart Crosbie	s.crosbie.3c@X	Harry Smith	Harry_Smith@ES
Richard Daines	Richard_Daines@ES	Peter J. Smith	jeff@isor.v
Robert Davies	robertd@netlink.co.nz	Jonathan Stone	
Brian Dawkins	brian@isor.v	Helen Stott	hstott@ES
Garry Dickinson	gdickinson@ES	Debra Taylor	dtaylor@wright.S
Mike Doherty	mdoherty@ES	Robert Templeton	rtempleton@ES
Ian Doonan	ijd@Frc	Craig Thompson	C.Thompson@Niwa
Brian Easton	eastonbh@Wmm	Jean Thompson	nzsa@isor.v
David Esterman	dbe@atlantis.AtX	Peter Thomson	peter@isor.v
Lew Evans	levans@matai.v	Michael Uddstrom	M.Uddstrom@Niwa
Sharleen Forbes	sdforbes@ES	David Vere-Jones	dvj@isor.v
Chris Francis	poccf@Frc	Liz Viggers	viggers.e@X
Dave Gilbert	podjg@Frc	Marianne Vignaux	Marianne@fib.co.nz
Tracey Gilmour	tgilmoure@ES	Tony Vignaux	vignaux@isor.v
Alistair Gray	alistair@isor.v	Ron Welply	rwelply@ES
Anthony Gomez	a.gomez@Niwa	Ian West	decision@AtX
Yuri Fradkin		Max Wigbout	mwigbout@ES
Malcolm Harrison	sard@nzonline.ac.nz	Kit Withers	c.withers@Irl
David Hart	david@isor.v	Karen Wong	
oug Harvie	doug@isor.v	Zheng Xiao Gu	zheng@isor.v
Yu Hayakawa	yu@isor.v	Xiaogu Zheng	X.Zheng@Niwa
John Haywood	john.haywood@v	Chris Zingel	cezingel@wright.S
Gary Houston	ghouston@isor.v ; _@AtX	Statistics NZ Circulation List:	
Pru Hyman	hyman@matai.v	nzsa-interest@ES	
Fraser Jackson	jackson@matai.v		
Rodney Jer	rjer@ES		
Steven Johnstone	Steven_Johnstone@ES		
Chris Johnstone	chrise@isor.v		
John Jowett	jowettj@Mqmw		
Michael Keall	mdk@lt-ho		
John Kidson	J.Kidson@Niwa		
Roger Kissling	kisslrc@corp-po.nzdb40.Syn		
Jacek Krawczyk	jacek.krawczyk@v		
Donal Krouse	d.krouse@Irl		
Frances Krsinich	Frances_Krsinich@ES		
Troy Kusabs			
Geoffrey Kuzmicich	Geoffrey_Kuzmicich@ES		
Peter Lee	leep@Mqmw		
Jonathan Lermit	lermitj@Tp		
Rodney Lewington	rlewington@ES		
Wilford Lie	liew@Agr		
Suzette Lizamore	suzette@isor.v		
Kelly Mara	kelly@AtX		
Jenny Mason	jamazon@ES		
Paul Maxwell	pmaxwell@ES		
David Mayes	mayesd@rbnz.govt.nz		
Anna Mclauchlan	Anna_Mclauchlan@ES		
eith Mcleod	Keith_Mcleod@ES		
Minoo Meimand			
Lillian Morrison	morrisonl@Agr		

Christchurch

David Baird	bairdd@Agr		
Penny Barber	pbarber@ES		
Richard Barker	barkerr@landcare.Cr		
Nigel Barlow	barlown@Agr		
Jennifer Brown	J.Brown@math.C		
Brian Bull	b.bull@math.C		
Christine Bycroft	cmbycrof@ES		
Pat Coope	pcoope@ES		
Easaw Chacko	e.chacko@math.C		
Gary Dunnet	gdunnet@ES		
Chris Frampton	c.frampton@L		
Patrick Graham	pgraham@Chm		
Philippa Graham	pmgraham@ES		
R. Harrison	r.harrison@C		
Peter Heffernan	p.heffernan@math.C		
Lyn Holland	holland@kea.L		
Anne Holwell	aholwell@ES		
John Horwood	jhorwood@Chm		
Irene Hudson	i.hudson@math.C		
Lesley Hunt	huntl@Agr		
Lisa Jones	lisa_jones@ES		
Hari Koesmarno	h.koesmarno@fore.C		

Overseas NZSA members

Ian Andrew iandrew@qcagsale.telecom.com.au
Judith Archibald
Paul Austin paulat@camcontrol.co
Ingrid Baade i.baade@qut.edu.au
Andrew Chasel andrew@statsci.edu.au
Janet Chasel j.chasel@ens.gu.edu.au
Colin Cryer pcc@seiph.umds.ac.uk
Gerald Cheang cheang@brandy.stat.yale.edu
Diane Craig
John Deely jdeely@stat.purdue.edu
Paul Dickman stpd@zeus.newcastle.edu.au
Deborah Donnell deborah@hivnet.fhcr.org
Vince Galvin Vince.Galvin@abs.telememo.au
Agnes Herzberg herzberg@qucdn.queensu.ca
Hans Hockey
Joseph Jonazi jbjonazi@unima.wn.apc.org
Byung-Soo Kim bskim@bubble.yonsei.ac.kr
Jeff Knowlton jeffk@mg.sp-eug.com
Charles Lawoko lawoko@pop.qut.edu.au
Ross Leadbetter mrl@stat.unc.edu
Kenneth Mah
John Maindonald
John@maths.newcastle.edu.au
Andrew McDougall mcdougall@stat.rutgers.edu
Gita Mishra whgm@cc.newcastle.edu.au
Warren Muller warren@canary.biom.csiro.au
Sifa Mvoi srm99@uow.edu.au
Nam-Ky Nguyen namky@forprod.csiro.au
Philip Pollett
Philip.Pollett@mailbox.uq.oz.au
Simo Puntanen sjp@uta.fi
John Rayner john_rayner@uow.edu.
John Reynolds reynoldsj@agvic.gov.au
Alice Richardson
alicer@ise.canberra.edu.au
Penny Risdon prlrisdon@ucdavis.edu
Ken Russell kgr@uow.edu.au
Shayle Searle biometrics@cornell.edu
Quanxi Shao shaoq@ccmar.csiro.au
Michael Steele M.Steele@ens.gu.edu.au
George Styan mt56@musica.mcgill.ca
William Warren warren@mrspock.nwafc.nf.ca
Bruce Weir weir@stat.ncsu.edu
Larry Weldon weldon@cs.sfu.ca
Graham Wood g.wood@ucg.edu.au
Keith Worsley keith@zaphod.math.mcgill.ca
Haji-Jubok Zainodin zhj@fsmk.ukm.my

Send additions, corrections and missing first names to Murray Jorgensen, maj@waikato.ac.nz.

Note: the official NZSA list of members is kept by Gary Dunnet, gdunnet@stats.govt.nz. If your Newsletter or *Statistician* is going astray, write to him c/- NZSA, PO Box 1731, Wellington

There is no necessary connection between the two lists and my own list is open to any NZ resident with an interest in statistics.

Carolina Kol
Frank Lad
Alison Lister
Alistair McKerchar
Peter McNaughton
Kirsten Nissen
Frank Nolan
James O'Malley
Charles Pearson
Richard Penny
Andrea Piesse
Steve Ranford
Bruce Robson
Michael Ryan
Tracy Savage
Dave Saville
Philip Schluter
Richard Sedcole
Mike Steel
Chris Stephens
Niki Thorne
Julian Visch
Andrew Wallace
Bert Ward
Robert Ware
Elisabeth Wells
Ian Westbrooke
Jim Young

ckol@es
f.lad@math.C
listera@kea.L
a.mkerchar@Niwa
p.mcnaughton@L
k.nissen@math.C
fnolan@S
a.omalley@math.C
c.pearson@Niwa
rnpenny@S
a.piesse@math.C
s.ranford@L
b.robson@ono.L
mpryan@S
tsavage@S
savilled@Agr
p.schluter@math.C
sedcole@kea.L
m.steel@math.C
c.stephens@math.C
niki_thorne@S
j.visch@math.C
wallacea@crop.Cr
ward@kea.L
r.ware@math.C
stats1@Cnm
iwestbrooke@S
young2@whio.L

Dunedin

Tony Aldridge tonya@deepsouth.co.nz
Johnathan Alsop jalsop@gandalf.O
Sarah Barry sarah.barry@stonebow.O
Austina Clark aclark@maths.O
Ken Dodds dodds@Agr
David Fletcher dfletcher@maths.O
Liliana Gonzalez liliana@O
John Harraway jharraway@maths.O
Peter Herbison pherbison@gandalf.O
Lisa Jones lisa.jones@stonebow.O
Peter Johnstone johnstone@Agr
Laimonis Kavaleris lkavaleris@maths.O
Fred Lam flam@maths.O
Roger Littlejohn littlejohnr@Agr
Joanne McKenzie jemckenzie@maths.O
Bryan Manly bmanly@maths.O
Stephanie McConnon smcconnon@maths.O
Brian Niven bniven@maths.O
Graham Price graham@O
Juliet Ruffell jlruffell@maths.O
Katrina Sharples katrina@O
Emma Shaw elshaw@maths.O
Stirling Smidt stirling.smidt@O
Hamish Spencer hspencer@rivendell.O
Caryn Thompson cthompson@maths.O
Sheila Williams sheila.williams@stonebow.O
Craig Wright wrightc@Agr

Hunter Workshop at Waikato

Prof. J. Stuart Hunter, Princeton University, gave a workshop on Statistical and Engineering Process Control on April 3 at the University of Waikato.



Group at Hunter workshop

Stu Hunter reviewed the recent work of George Box and his co-workers on the problems of active control of industrial processes. (See the soon to be published book *Statistical Control by Monitoring and Feedback Adjustment* by G. E. P. Box and A. Luceno (1997), Wiley.) Following a brief review of the classical Shewhart, Cusum and EWMA charting techniques both the theory and practice of the Box-Jenkins Manual Process Adjustment Chart were discussed. This work is based upon the premise that most sequentially recorded industrial data are non-stationary in character. Thus in addition to a review of sample autocorrelations the variogram is employed to check for non-stationarity. We find that the EWMA becomes the essential statistic for both forecasting and control. The process adjustment procedures proposed are remarkably robust to the choice of the EWMA parameter λ . The adjustment methodology bears a one-to-one correspondence to integral, and integral-differential control procedures.



Stu Hunter with Waikato graduate students (L to R) Ben Bolstad, Samuel Manda, Max Whitaker, Chido Gandanzara and Kathy Ruggiero at his one day workshop

CRISStat at Ruakura

CRISStat was held on April 4, the day after the Hunter workshop, at Ruakura. It was a meeting primarily of statisticians working in CRIs but others were welcome to attend. Talks presented were:

David Baird Statistical aspects of the Auckland Tussock moth eradication program

Peter Johnstone Interpreting comparative experiments on parasite burdens in animals using canonical variates

Neil Cox Repeated measures

Roger Littlejohn Periodogram analysis of replicated trials

David Baird Genstat demo and feedback

Neil Cox Exploratory analysis and presentation in Excel

Martin Upsdell Postgen - processing genstat output with Flexi

Harold Henderson Data Desk is now on Windows
Ken Dodds Tests for allele frequency differences between selection lines

Harold Henderson GLMMs for paired binomial data

Rod Ball BUGS

Murray Jorgensen MULTIMIX, a model-based approach to cluster analysis

Martin Upsdell FlexiAssay - Routine inverse calibration for laboratories



Mt Albert Hort Research statisticians (L to R) Melissa Miller, Marcus Davy, Anne Gunson with Chris Triggs (University of Auckland)



FRI statisticians (L to R) Mark Kimberley, Alex Hawke, Rod Ball, Abbey Straker and Michael Hong

Statistics for biology and health sciences

K. Lange

Mathematical and Statistical Methods for Genetic Analysis

(Statistics for Biology and Health)
1997. Approx. 290 pages.
Hardcover DM 84,-
ISBN 0-387-94909-7

This book will enable graduate students in the mathematical sciences to understand and model the epidemiological and experimental data encountered in genetics research. Mathematical, statistical, and computational principles relevant to this task are developed hand in hand with applications to gene mapping, risk prediction, and the testing of epidemiological hypotheses. The book begins with an introductory chapter on population genetics and ends with a brief appendix on molecular genetics.

P.J. Brockwell, R.A. Davis

Introduction to Time Series and Forecasting

(Springer Texts in Statistics)
1996. XIII, 420 pages. 122 figures and diskette.
Hardcover DM 98,-
ISBN 0-387-94719-1

This book is aimed at those who wish to gain a working knowledge of time series and forecasting methods as applied in economics, engineering, and the natural and social sciences. It assumes only a knowledge of basic calculus and elementary linear algebra. The emphasis is on methods and the analysis of data sets. Each book includes a copy of the program ITSM which runs on DOS, Windows, or Windows 95 platforms.

J.P. Klein, M.L. Moeschberger

Survival Analysis

(Statistics for Biology and Health)
1997. Approx. 520 pages.
Hardcover DM 94,-
ISBN 0-387-94829-5

The use of counting process methodology has allowed for substantial advances in the statistical theory to account for censoring and truncation in survival experiments. This book makes these complex methods more accessible to applied researchers without an advanced mathematical background. The authors present the essence of these techniques, as well as classical techniques not based on counting processes, and apply them to data.



M. West,
J. Harrison

Bayesian Forecasting and Dynamic Models

(Springer Series in Statistics)
2nd ed. 1997. Approx. 725 pages.
Hardcover DM 88,-
ISBN 3-387-94725-6

The second edition of this book includes revised, updated, and additional material on the structure, theory, and application of classes of dynamic models in Bayesian time series analysis and forecasting. In addition to wide ranging updates to central material in the first edition, the second edition includes many more exercises and covers new topics at the research and application frontiers of Bayesian forecastings.

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Rob Pringle CEO Dairying Research Corporation



Rob Pringle becomes the Chief Executive Officer of the Dairying Research Corporation Ltd (DRC) on 21 July. He is the second statistician to hold this position. The first was Ken Jury, who retired last year. Rob holds a PhD in biometrics from the University of Natal and his distinguished career in statistical research was highlighted by his election at a young age to the International Statistical Institute.

In his formative years Rob was a bit of a matrix nut. His PhD thesis was on generalized inverses, which led to his 1971 book with Arthur Rayner (a NZer by birth) *Generalized Inverse Matrices with Applications to Statistics*, which became a standard reference on the subject.

Rob spent twelve years in Natal, first as Regional Biometrician for the Department of Agricultural and Technical Services, then as researcher and lecturer at the University of Natal. In 1977 Rob and his family moved to New Zealand. Rob lectured in statistics at Massey University before joining MAF in 1980, as a biometrician based in Palmerston North. He soon became involved in science management and has held a number of senior positions. He moved to Hamilton in 1993 as AgResearch Corporate Science Manager. He is currently Acting CEO of AgResearch.

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Local News

AgResearch

At Corporate Office, Rob Pringle is acting CEO for three months until June 3.

At Lincoln, David Baird continues to work on the Windows version of Genstat, intermingled with frequent flights to Auckland in connection with the tussock moth spraying programme. Lesley Hunt takes a special interest in the summer students who work on campus, running her annual seminar explaining statistical concepts by way of a study of "Murphy's Law: the toast always lands honey side down." Dave Saville enjoyed a week-long visit from Graham Wood in November, when they made good progress on a trio of papers expounding their new angle on the t-test, its universality throughout linear models, and the light it sheds on whether normality is really necessary.

Ruakura hosted a one-day meeting of statisticians working in CRIs and others with similar interests on April 4, the day after the Hunter workshop on Statistical and Engineering Process Control (see item on page 13).

At Grasslands, Ken Louie *et al.* have a new MSc student, Tracey Flux, starting on a thesis titled "Dynamical Systems Models of Plant Growth". This is a joint project between AgResearch and the Maths Dept. of Massey University (supervisor is Robert McKibbin). Robert Fletcher continues rewriting the Vital Statistics package for Windows, using Delphi and Paradox.

Rowland Kao, Mick Roberts and Kumar Vetharaniam attended the ANZIAM*97 conference at Lorne, Victoria and gave contributed papers. Simon Woodward gave a seminar on 24 January at the Dairying Research Corporation in Hamilton, describing some work in progress on the modelling of pasture photosynthesis and growth in spring pastures. In February Simon spent two days in Australia discussing this work with Dr Ian Johnson, one of the world's foremost modellers of pasture growth. Dr Johnson has a consultancy based in Armidale, and is also developing research software for the study of pasture processes.

Mick Roberts participated in the RSS Workshop on Stochastic Modelling and Statistical Data Analysis for Epidemics, held from March 31 to April 12 on the Isle of Skye. The workshop was organised by Denis Mollison and Valerie Isham, the recent NZMS lecturer (see December 1996 *Newsletter*).

Mick Roberts and Harold Henderson

Applied Maths Centre, Industrial Research Limited

Kit Withers has been overseas since March 1 visiting Statistics departments at the University of North Carolina, Harvard and the University of Washington. In addition to working on extreme value statistics, Kit managed to squeeze in a well-earned holiday in Peru.

Russell Boyles (Portland, Oregon) and Rod Ball (FRI) continue to do contract research for us on a number of specialist topics. Russ is developing model-based methods for statistical process control and Rod is applying the Gibbs sampler to model selection.

Rob Willink continues his work in "coloured" noise, most recently with application to a problem in thermometry.

Donal Krouse attended Professor Stuart Hunter's workshop on Statistical and Engineering Process Control (University of Waikato, April 3) as well as the CriStat meeting hosted by AgResearch. Many thanks to the organisers of both meetings.

Donal Krouse

Auckland

There have been a number of changes since the last newsletter. Alan Lee is the new head of the Statistics Department, having been appointed for a three year term after being acting HoD for the last semester of 1996. Peter Danaher has been appointed to the second Chair of Marketing and is also the Associate Dean (Research) for the Faculty of Commerce. Alan Lee and Chris Triggs were both promoted to Associate Professor and Brian Eastwood to Senior Lecturer in the most recent promotion round.

There have also been some new appointments. Murray Smith has moved from Canterbury to take up the newly created position of Senior Lecturer in Engineering Statistics, located in the Department of Engineering Science. Thomas Yee and Geoffrey Pritchard have been appointed to lectureships in the Statistics Department. They will both be based at the Tamaki campus and will take up their appointments at the beginning of the second semester. Thomas has a PhD in Statistics from Auckland and is interested in environmental statistics and additive models. Geoffrey has a PhD in Mathematics from Wisconsin and is interested in probability and stochastic processes.

Recent visitors have had a strong Quebec flavour. Herve Morin from Laval University in Quebec City was here for the second semester last year, Francois Perron from the University of Montreal has been visiting for the past few months and Keith Worsley

from McGill University in Montreal is visiting for the first semester this year. In addition, Brian McArdle from the School of Biological Sciences is spending most of his sabbatical year located in the Statistics Department.

There have been a number of comings and goings on leave. Ilze Ziedins, Arden Miller and Alastair Scott have all recently returned and Chris Triggs and Brian and Vera Eastwood are all about to depart.

Alastair Scott

Massey University

Restructuring is absorbing most of Massey University's energy at the moment. Our hard won Faculty of Information and Mathematical Sciences is to be absorbed into a grand agglomeration of sciences, applied sciences and technology labelled "College C".

We do have a new staff member. Geoff Jones lived in Britain long enough to complete a Sheffield Masterate, but has since taught in Malaysia, and completed a PhD at UC Davis.

The following seminars have been presented this year:

Geoff Jones The statistics of multiple immunoassay

Alasdair Noble A hands-on session with an internet testing program

Francois Perron (University of Montreal) A

MCMC approach to nonparametric regression

Masaaki Kijima (Japan) Hazard rate and reversed hazard rate monotonicities

Greg Arnold

VUW/ISOR

It's been a long time since the last ISOR news and in the words of Winston Churchill: "It's good to be back and purple wildebeest".

So what's new, what's unchanged and how long is a piece of string? Structurally, the big development is that ISOR is no longer a separate entity but an Institute within the School of Mathematical and Computing Sciences. This has already resulted in a reorganisation of support services including administration and computing. Yet to happen is any substantive change in the academic set-up, although we now have a Head of School with a convener for ISOR reporting on behalf of the Institute to the Head. In terms of bricks and mortar (read wood and plasterboard) we have a new centralised office and an Olympic-sized School tea room. The Institute currently runs at a loss of around \$900,000 if various arcane figures are to be believed. Being good with numbers, the Institute has developed a deceptively

simple plan to cancel this deficit. Let the profit from 6 lamingtons be one dollar and let the population of ISOR be 13.5. Then a little algebra gives a target of $9 \cdot 10^5 \cdot 6 / 13.5$ lamingtons per staff member. At an average sale time of 2 hours per pack of 6 and 40 hours per week, each staff member should take a sabbatical of 64 years and when we return the school will be solvent.

On a less serious note we have been lucky to host a sequence of excellent visitors who have added greatly to our activities over the last year. These include Jim Zolman (University of Kentucky), Herman Senter (Clemson University), Jim Durbin (LSE), Geoff Watson (Princeton University), Tohru and Valerie Ozaki (Institute of Statistical Mathematics and Sophia University in Tokyo), Murad Taqqu (Boston University), Valerie Isham (University College), Li Dong Feng (Beijing University) and Masaaki Kijima (University of Tsukuba, Tokyo).

In addition there has been great activity in the statistical seismology research group led by David Vere-Jones, David Harte and Mark Bebbington (Massey). Visitors to collaborate in this research programme include Ma Li (State Seismological Bureau (SSB) in Beijing), Zhuang Jiancang (SSB), Liu Jie (SSB), Shi Yaolin (Academia Sinica), Lu Chunsheng (ISOR postdoctoral fellow), Feng Deyi (SSB). Support for these projects stems from successful FRST, Marsden and ASIA 2000 bids. This work forms part of a joint China/New Zealand scientific cooperation project.

A flurry of PhDs came through over the last summer. Congratulations to Hongsheng Gao (Statistical analysis of cellular radio systems), David Harte (Multifractals theory and applications), and John Sansom (Rainfall at Invercargill airport), who all graduated at the May ceremony. Other notable events include two births (Mithunan, who is Sathi's son, and David, who is Peter Smith's son), and a few promotions (well done Alistair Gray, Sathi, and Peter Smith). On the social side we won and then lost the prestigious sports cup against the Auld Enemy: Statistics New Zealand. Jim Zolman's wife kindly made and donated a set of ISOR coffee mugs to the tea room. There was a "team building" attack on Mt Matthews and an inaugural staff vs student soccer match for the new School.

On the sabbatical front there have been a variety of overseas jaunts, including the following destinations: Chester, UK (Megan Clark), London (Brian Dawkins on the Artis Conjectandi trail and Tony Vignaux), Calcutta (Tapas Sarkar), Chicago (Peter Thomson and Alistair Gray), China (David Vere-Jones, David Harte and Ray Brownrigg), Japan (David Vere-Jones and David Harte).

Administratively, ISOR is semesterizing several courses for 1998. Peter Thomson took over the Chairperson role from Tapas Sarkar and later became the ISOR Convenor within the School. Alistair Gray became Director in External Consulting. Victoria hosted the first NZVCC Subject Conference in Statistics. Finally, Ross Renner has taken on the responsibility for running the timetable software for the whole university. Ross is using powerful space management tools, which derive from both statistical and operations research methodologies.

David Harte

Canterbury

The department is looking forward to the arrival of Irene Hudson in July. She is joining us from Australia. We are currently advertising for a Professor Statistics. When the Professor's position is filled the department size will be up to 5, but with student numbers on the increase hopefully we will continue to expand.

Jennifer Brown has been busy out at Akaroa watching Hector dolphins for her ongoing research. Rumour has it she even arranged for some keen mathematics students to do some field work - although counting dolphins is hardly onerous.



Our department's first official field trip, was lead by Jennifer, when she took 37 Biostats students to Ahuriri reserve to sample trees. This turned out to be quite an experience for some who had never been out in the bush before, especially considering some of the large insect life that happened to be in the area at that time.

Easaw Chacko has been busy teaching some of the stage 3 students Inference (which used to be taught by Murray Smith) and is keeping them enthralled for when Irene takes over in July.

Frank Lad is in Sicily participating in a work shop on "Conditioning and Inference in Intelligent Systems" at the International School of Mathematics. There he will be presenting three lectures entitled "The Fundamental Theory of Prevision as a structure for a unified conception of partial knowledge systems, probability and statistics", "What's Exchangeability Got to do with it?" and "Critical Comments on Causality Presumptions and the Conditional Independence proposed as central to the operation of Bayesian Networks".

Since Murray Smith left the department for the humid temperatures of Auckland, the department needed to find a replacement safety officer. In the end the department assigned three lecturers to the job, one for the whole building, and one for each of the two floors. Which just goes to show that it takes three mathematicians to do the work of one statistician.

Andrea Piesse, who got the results of her PhD thesis a few months ago, is now working at Statistics New Zealand in Christchurch. SNZ is quickly becoming the ex-students association of our department with at least half a dozen of our ex-postgrads now working there.

Julian Visch, who began working in the department last year soon after finishing his masters thesis, will be finishing work in mid-May when his contract with the department will end.

The new building is progressing well with the floors going up at an amazing rate.

Julian Visch

Waikato

The Hunter workshop (page 13) in April was very successful. Other visitors giving seminars have been Jim Durbin, Keith Worsley and Ken Russell, who also visited for December to March. Hans Hockey visited from December to May before taking up a 6 month contract with Pfizer in the UK. Visitors for June and July include: Kaye Basford and John Eccleston (Queensland), Emyln Williams (Canberra).

Ray Littler is Acting Dean of the School of Computing and Mathematical Sciences until October. Chido Gandanzara (pictured on page 13) has come from Zimbabwe to do a masters in industrial statistics. David Whitaker is taking sabbatical leave at the University of Queensland and then at Lancaster. Joan Woods has completed her DPhil entitled "Student centred timetabling for secondary schools".

Otago

Bryan Manly and David Fletcher have been involved in the recent work looking at the effects of squid fishing on the Hooker's sealions around the Auckland Islands. They have been involved in interminable meetings in Wellington, and have learned quite a bit about the politics of fishing and conservation! Much of their input has been to provide estimates of population size and fishing-related mortality, as well as to help decide how many sealions might be killed without unduly affecting their population.

David Fletcher has been working with the Otago Regional Council on ensuring that the protocols for the monitoring of pests, such as rabbit and possums, are statistically defensible. Key concepts such as random sampling and adequate replication have been

at the heart of this, as well as producing simple guidelines for calculating estimates and confidence limits.

Caryn Thompson, Bryan Manly and David Fletcher will be running a new course on Environmental Statistics later this year, as part of Otago's new M.Sc. in Environmental Science. Partly the new course comes about because a survey of potential employers indicated the importance that they attach to quantitative skills. It will cover topics like impact assessment, testing whether a site has been cleaned up, and risk analysis.

Bryan Manly has been officially on leave for a year since 1 July last year. So far he has spent one month at conferences and workshops in Europe and the USA, a month in Argentina running two workshops and working with an ecologist in a government research laboratory, a month in New Mexico and Wyoming giving talks and workshops, and the first part of April in the Alaska Wildlife Center in Anchorage, Alaska.

Bryan Manly

Limerick Contest

An increase of 50% in the number of people entering the December contest. Mrs de Point, who I got to judge this as I'm not Irish, thought the limericks showed promise, but the statistical ones weren't great limericks, and the great limericks weren't particularly statistical. So she decided on two prizes of Facts NZ.

The first was to Kit Withers. Mrs de Point thought it was very statistical, and would have been useful for her in STAT 101, but the first line didn't really catch the right rhythm (te dum te dum te dum te DUM).

There was a statistician with halitosis
who went round the bend with thrombosis:
"the camel's big hump
is more than a lump:
it illustrates leptokurtosis!"

The other winner is Ken Russell. Many of you will not be surprised as you will have heard Ken's limericks at his seminars. Nice limericks, though not particularly statistical.

A silly young lass named Felicity
Attracted much raucous publicity
For she'd thought what it was
If she'd preferred Rob to Roz
Was hetero-scedasticity

Name Contest - Set by Mr Ree

The next contest is to come up with a likely or unlikely name for a statistician (Dr. Bayes is not allowed - either likely or unlikely). For example, K. Tosis, P. Chart. Usual rules, usual prize. Entries to editor by August 8.

Education

The Education Committee aims to improve the quality of statistical education for New Zealand students. It participates in advisory groups related to curriculum matters and helps organise conferences and courses for the benefit of those teaching statistics at all levels. With the support of some of our corporate members, the association sponsors prizes for statistical excellence at each of the regional Science Fairs.

Special Projects

The association has pursued a number of special projects in recent years. The focus for 1993, our Suffrage Centennial Year, was on a series of initiatives culminating in a book celebrating the role of women in statistics, and an associated display.



The Australian Journal of Statistics and the New Zealand Statistician are to merge in 1998. Pictured are Murray Jorgensen (Editor NZS), Helen MacGillivray (President SSAJ), Ian James (Editor AJS) and Jeff Hunter (President NZSA)

Officers of the New Zealand Statistical Association

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Young Statistician Employment Workshop in 1996

Application to join NZSA

I wish to join the New Zealand Statistical Association

Name:.....

Address:.....

.....

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.....

Phone:.....

Fax:.....

Email:.....

Occupation:.....

Employer:.....

Areas of Interest: eg, Experimental Design, Time

Series, Stochastic Processes, Official Statistics, etc

.....

.....

.....

Please circle membership category and enclose cheque

made out to NZ Statistical Association.

Ordinary members NZ \$30, Overseas \$35

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(NOTE: First year free for students)

Signature:.....

Date:.....

Post to NZSA, PO Box 1731, Wellington

For more information contact:

Siva Ganesh

Department of Statistics

Massey University

Private Bag 11 222

Palmerston North

Phone (06) 350 4258 Fax (06) 350 2261

Email nzsa@massey.ac.nz

The New Zealand Statistical Association (Inc) PO Box 1731 Wellington

The NZ Statistical Association, founded in 1948, is New Zealand's only association for professional statisticians. The association has about 400 individual members and is growing strongly. Many of its members are employed by universities, government departments, or research institutes, with growing participation by senior students, who are offered free membership for their first year.

The constitutional aims and objectives of the association are *the encouragement of theoretical and applied statistics in New Zealand*. In 1992 the association agreed on a more comprehensive set of vision and mission statements including the short description:

The mission of the NZSA is to lead New Zealand to value and make intelligent use of statistical thinking and good statistical practice.

(The complete vision and mission statement, which serves to guide the executive and membership in planning and decision-making, is available from the secretary.)

Services to Members

Members receive the official journal *The New Zealand Statistician* twice yearly and are kept up to date on statistical happenings within New Zealand and interesting overseas developments with regular newsletters. A feature of the New Zealand statistical year is the annual three-day conference, normally held in mid-year. In addition to invited and contributed papers on a wide range of topics, there are often special sessions with panel discussion on topics of current concern to the profession.



Ken Jury at the Flexi poster paper with David Wheeler. Martin Upsdell is demonstrating on the PC.



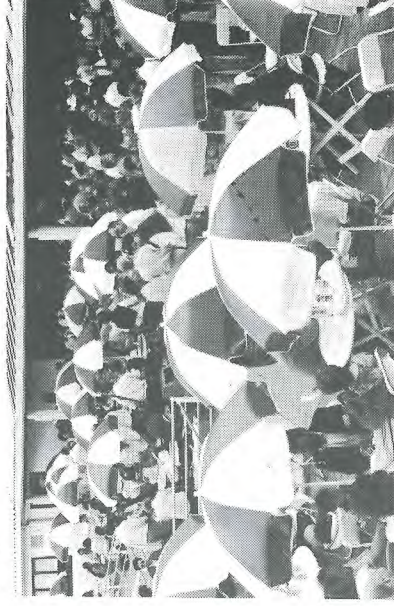
Professional Standards

At the 1995 annual conference the association adopted a 'Code of Ethics'. Particular attention was paid to the positions adopted by kindred organisations in Australia, UK, and USA on the question of formal accreditation of statisticians. No immediate action will be taken on a formal accreditation scheme but work is continuing on the preparation of guidelines of good practice.

Links with other Bodies

The association is an affiliated organisation of the International Statistical Institute and maintains close relations with a number of statistical societies around the world. It is also a member body of the Royal Society of New Zealand and is part of the Mathematical Sciences Council of New Zealand.

Cooperation with related societies sometimes leads to joint conferences such as the International Biometric Conference (IBC) held in Hamilton at the end of 1992.



On the terrace at the IBC

Survey Appraisals and Public Questions

The Survey Appraisals and Public Questions Committee aims to raise the standard of statistical practice and the level of public understanding of statistics in New Zealand by conducting independent appraisals of sample surveys, opinion polls and other statistical statements in relation to the statistical validity of their results. It is regularly called upon to comment on contentious polls and surveys.