SSAI

STATISTICAL SOCIETY OF AUSTRALIA INCORPORATED

NEWSLETTER

June 2009
Number 127

Statistics in the 21st Century

SOME PERSPECTIVES FROM A RETURNING EXPAT

IN THIS ISSUE

It seems only yesterday that I finished my honours degree at Macquarie Uni, packed my bags and headed to the Harvard Stats Department for my PhD. Now, a mere 29 years later, I am home again, back on the Macquarie campus, but now working for the CSIRO. Faced with the exciting challenge of leading the diverse and talented group of 150 scientists who comprise CSIRO's Division of Mathematical and Information Sciences (CMIS), I find myself thinking often and hard about our profession and what it takes for us to thrive. I'm grateful for this opportunity to lay out a few thoughts, abstracted from a presentation given recently at NSW Chapter meeting.

We live in data-rich times. Exponentially increasing computational power, the genetics revolution and advances in information and other technologies are combining to produce data at a rate

Louise Ryan, Chief, CSIRO Mathematical and Information Sciences

that far exceeds the capacity of theorists and experimentalists to interpret the results. Gone are the days when the statistical challenge was to assess the impact of treatment in a clinical trial, taking account of a few key patient characteristics such as age, sex, and the presenting symptoms of disease. Now the data are also quite likely to include complex genomic biomarkers, often of a dimension far exceeding the number of patients in the trial. Australia is presently in the running to host the Square Kilometre Array project (www.ska.gov.au) which will collect petabytes of data per day! With data analysis as its cornerstone, the field of statistics should be flourishing. Most of us are now familiar with the quote from Google's Chief Economist, Hal Varian, who said at a presentation to the 2008 Almaden Institute, *Innovating with Information,"*... with data in huge supply and statisticians in short supply, being a statistician has to be "the really sexy job for the 2010s". In Australia, however, the trend seems to be in the opposite direction, with declining student enrolments in the mathematical disciplines and shrinking University departments (see the recent report, A National Strategy for Mathematical Sciences in Australia, by Professor Hyam Rubinstein). Employers often encounter difficulties in locating suitably qualified candidates for open positions. How can this be? More importantly, what can be done to reverse these trends?

I believe that key to our success is the flexibility to close to the inherently interdisciplinary roots of our profession. The early giants of our field (Bayes,

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June

Editorial

We would like to start by thanking those members who have provided feedback about the new online presentation of the Newsletter. Your suggestions are welcome, particularly about the format on screen as opposed to on paper, and we hope to be able to take your views into account as the new format settles down over the next few issues.

Now that the newsletter is online, the choice is yours as to whether you read it on screen or print it out for perusal with a cup of coffee, or to place in the tea room at work. We do however strongly encourage you to at least print out and display the ad for the Young Statisticians Conference. You could even enlarge it for maximum impact! Let's support the Young Statisticians Section in this important venture.

We'd also like to take this opportunity to thank the New Zealand Statistical Association for their kind thoughts in the wake of the Victorian bush fires. The Genstat conference in late 2008 was held in Marysville, and many New Zealand Association members who came over for that conference were shocked to discover that the town they had visited had been burnt to the ground not long afterwards.

Perhaps the best thing the Society can do is to use the skills of our members to ensure such an event does not occur again. If anyone is involved in research on bushfires, please feel free to write a piece about it – we're always keen to print stories about topical research that members are doing.

Alice Richardson *Michael Adena*

Alice Richardson
Editor

Michael Adena
Editor

SSAI

OFFICE MOVE

The SSAI Office has moved!
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ADVERTISING

Advertising will be carried in the Newsletter on any matters which the Editors feel are of interest to the members of the Society. For details of advertising rates, etc.

Contact the SSAI Executive Officer at eo@statsoc.org.au

DEADLINE FOR NEXT ISSUE:
10 August 2009

CONFERENCES

ISBIS-2010, International Symposium for Business & Industrial Statistics
5-9 July 2009, Croatia
http://www.action-m.com/isbis2010/

18th IMACS World Congress, MODSIM 09 International Congress on Modelling and Simulation with Mathematical and Computational Sciences
13-17 July 2009, Cairns, QLD
http://www.mssanz.org.au/modsim09/downloads/MODSIM09.pdf

IMST 2009-FIM XVIII: International Conference on Mathematical and Statistical Techniques
2-4 August 2009, Waknaghat/ Shimla, India
http://www.juit.ac.in/IMSTFIM2009/imst_fim_2009.htm

New Zealand Statistical Association Conference
1-3 September 2009, Wellington, New Zealand.
http://msor.victoria.ac.nz/Events/NZSA2009

Young Statisticians' Conference 2009
25-26 September 2009, Sydney
http://www.statsoc.org.au/young-statisticians-conference.htm

20th National Conference of the Australian Society for Operations Research
27-30 September 2009, Gold Coast
http://www.asor.org.au/conf2009/index.php?page=1

25th International Methodology Symposium, Statistics Canada "Longitudinal Surveys: from Design to Analysis"
27-30 October 2009, Gatineau, Qc, Canada
http://www.statcan.ca/english/conferences/symposium2009/

Australasian Region of the International Biometric Society Conference
29 November-3 December 2009, Taupo, New Zealand
http://www.biometrics.org.au/conferences.html

Tenth Biennial Islamic Countries Conference on Statistical Sciences (ICCS-X)
20-23 December 2009, The American University in Cairo (AUC), New Cairo, Egypt
http://www.isoss.com.pk/conference/info_conf.php

International Biometrics Conference
5-10 December 2010, Florianopolis, Brazil
http://www.tibs.org/Interior.aspx

Australian Statistical Conference 2010
6-10 December 2010, Perth, WA
http://www.promaco.com.au/2010/asc/index.htm

58th Session of the International Statistical Institute
21-26 August 2011, Dublin, Ireland
http://www.isi2011.ie/

Statistics in the 21st Century

SOME PERSPECTIVES FROM A RETURNING EXPAT (Cont.)

Galton, Gauss, to name a few) were all subject-matter scientists who developed statistics and probability theory on the side, motivated by the real-world questions that impassioned them. Much of the early and mid-20th century was taken up with fleshing out the distributional theory started by scholars like Fisher and others. For a while, we experienced something of a golden era where it was easy enough to pick up enough science to engage in meaningful collaborations and there were plenty of good inference problems to work on. But by the late 20th century, the scientific world started to change and the new generation of data-rich science was starting to emerge. These days, science tends to be complex enough that a cursory knowledge is no longer adequate to sustain a meaningful collaboration. Furthermore, young applied scientists these days are typically computer savvy and have at least some basic statistics training. While it has become more challenging to argue the "value added" that a well-trained statistician can offer, it is more important than ever that our profession stay vibrant so that we can bring the rigours of sound inference to the modern scientific arena.

These challenge play out on a daily basis at CSIRO where I see part of my new job as being a constant advocate for the importance of statistical rigour in all the organization's science. The statistician must be seen not as a consultant, but as a key and equal partner, engaged from the very formulation of a project through to its successful conclusion. At the same time, it is critical to articulate the importance of allowing our statisticians time to push the boundaries of the methods being used. I believe statisticians also need to take the time to invest in a specialty area of application. I like to talk about the ideal collaborative model as involving a synergistic interplay between disciplinary and interdisciplinary research, methods development and application. Too little time for methods and the applications lose their cutting edge. Too much time on methods can lead to losing touch with the real questions and the work becoming abstract and irrelevant. Finding the right balance requires constant adjustment and calibration, since science is ever changing and evolving.

What are some of my other priorities? I am eager to help prime the pipeline of students who are well-trained in quantitative methods. We are about to launch our new Graduate Fellows Program which will provide an on-the-job training opportunity for students who have just finished up an honours degree. We don't expect our Fellows to be trained in statistics or mathematics, but we'll be looking for people with strong quantitative skills. By engaging them in exciting projects, we hope that many of them will decide to pursue PhD training in statistics after a couple of years.

What else? I am eager to see CMIS operating as a permeable network throughout the statistics and mathematics communities in Australia. The Division is already active in terms of our Vacation Scholars Program, as well as providing PhD and honours scholarships. But I'd like to see these activities expanded. I'd also love to have more joint appointments with the universities, more productive collaborations and shared visitors. I'd also love to see CMIS scientists more actively involved in the society. I'm open to ideas and would love to hear from you!

Thanks for the opportunity to express some of my thoughts.

Louise Ryan (louise.ryan@csiro.au)

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June

President's Message

This is my last column as President before I swap roles with Geoff Lee who is President elect and current Vice-President.

The SSAI continues to face significant financial challenges, with an immediate objective of settling the outstanding debt arising from the ASC 08 conference so that the Society can continue to operate, and with a long term objective of increasing membership numbers as well as increasing short courses and workshops for members. Members were approached in late May by the Branches to seek their views about how much the Branches should contribute to assisting with the short term debt problems. A summary of future financial plans, prepared by Central Council, was circulated when members were consulted. At the time of writing it is not clear what the outcome will be, but I'm sure that by the time you receive this newsletter the SSAI's future will be clearer.

Positive developments are taking place. Paul and Alana Sutcliffe and Murray Cameron have agreed to play a substantial role in developing short course and workshop programs. This is critical if the forward budgets prepared by Central Council are to be met. Announcements about plans for this year will start to emerge in June and thereafter. Also heartening is the increased effort by Branches and SSAI centrally to improve retention and recruitment of members. A corporate membership proposal is under further development. Planning for ASC 2010 is well advanced and the financial controls sought by Central Council have been agreed to by the Local Organizing Committee and the conference organizing firm. Planning for the Young Statisticians Conference later this year in Sydney is well advanced, and sponsorship targets are well on track. Support for the continued operation of the SSAI is coming from a number people and organizations.

I welcome Geoff as the new President. He and I have worked very closely over the last year and will continue to do so over the next twelve months until the financial position of the Society is stabilized. I wish Geoff all the best for his Presidency.

In closing I would like to thank the Executive Committee, Central Council and all members for their advice and support during the past 2 years. In particular, I would like to give a huge thanks to Marie-Louise, our Executive Officer, for her continuing loyalty to the SSAI over the past very difficult 12 months and for her willingness to contribute so much hard work to the efficient and effective running of the SSAI Office.

William Dunsmuir

Tenth Islamic Countries Conference on Statistical Sciences (ICCS-X)

STATISTICS FOR DEVELOPMENT AND GOOD GOVERNANCE

Conferences
Shahjahan Khan

The 10th Islamic Countries Conference on Statistical Sciences (ICCS-X), organized by the Islamic Society of Statistical Sciences (ISOSS) and cosponsored by the American University in Cairo (AUC) and the Egyptian Cabinet Information and Decision Support Center (IDSC), will be held during the period December 20-23, 2009 at the brand new state-of-the art campus of AUC in New Cairo, Egypt. The biennial ISOSS conference, which brings together researchers and practitioners in statistical sciences from all over the world, is open to all people interested in the development of statistics and its applications regardless of affiliation, origin, nationality, gender or religion.

The theme of the conference is "Statistics for development and good governance" but papers from all areas of Statistics and its applications are welcome. Papers will be accepted for presentation after peer-review. The proceedings of the conference including all papers presented in the ICCS-X will be published.

Professors Jim Berger and Edward Wegman have confirmed to be among the keynote speakers in the ICCS-X. Several other prominent Statisticians are expected confirm their participation soon.

Three committees have been form to manage various activities of the conference smoothly. The Local Organising Committee (LOC) is headed by Magued Osman, Head of Egyptian Cabinet Information and Decision Support Center, Ali S Hadi (Cornell University, USA & AUC, Egypt) is the Chair of the Scientific and Programs Committee (SPC) and ISOSS President Shahjahan Khan (University of Southern Queensland, Australia) is leading the International Organising Committee (IOC). The members of the committees represent a wide range of geographical/national diversity and expertise in diverse areas of Statistics from all over the world.

To know more about the conference, please visit the official conference website at http://www.iccs-x.org.eg The information include (1) various invited sessions and keynote speakers, (2) procedure to submit abstracts/papers along with deadlines, (3) registration information and form, (4) accommodation, (5) city tours, (6) Nile cruise, and much more. For any further information, contact the Co-Chair of the LOC, Zeinab Amin on iccs-x@aucegypt.edu

ISOSS conferences are held in Islamic Countries to promote Statistics and its wide range of application among the member states of the Organization of the Islamic Conference (OIC), an international group of 57 nations. It provides an opportunity for interaction and networking among Statisticians of all origin and background to promote Statistical research and application of Statistics in various Governmental and non-Governmental organizations. In the past ISOSS conferences attracted many leading Statisticians and representatives of various professional agencies including the International Statistical Institute (ISI).

Egypt's fascinating history and ancient culture, and modern Egypt have much to offer modern travellers. Professional tourist operator Karnak Travel is organising various tour programs for the participants of ICCS-X. Interested people may make bookings directly with Karnak Travel by filling this form and forwarding to events@karnak.egyptair.com

In the past significant ISOSS activities were reported in various leading Bulletins and Newsletters published by the ISI, RSS, IMS, ASA, SSAI etc to develop wider understanding and cooperation among Statistical organizations to achieve the common goal of promoting the discipline of Statistics and secure its rightful place in the scientific community.

Reported by Shahjahan Khan, President of ISOSS, email: khans@usq.edu.au

IASS Invited Paper Meetings

The 58th Session of the International Statistical Institute (ISI) will be held in Dublin, Ireland in 2011. The Invited Paper Meeting topics for this conference will be discussed and finalised at the 2009 ISI Conference being held in Durban, South Africa on 16-22 August. Invited Paper Meeting sessions generally consist of two to three papers on a particular topic followed by a presentation by a discussant who is an expert in the topic being discussed.

Geoff Lee, from the Australian Bureau of Statistics (you may also know him as the current Vice President of SSAI), has agreed to chair the International Association of Survey Statisticians (IASS) Sub-committee for the 2011 session of ISI. Geoff Lee is seeking suggestions for topics that are current and interesting for the IASS Invited Paper Meeting program. The IASS Programme Committee will be aiming to develop a preliminary list of proposed topics by the middle of May.

If you would like to suggest any topics, please email them, along with a description of the issues that you think should be covered by this topic, to Geoff Lee (geoff.lee@abs.gov.au) or Alan Herning (alan.herning@abs.gov.au) You may also include suggestions for session organisers for your proposed topics.

The list of topics for 2011 will be formally approved at the 2009 ISI meeting which is being held in Durban, South Africa in August. For further information about the 2009 ISI meeting, see http://www.statssa.gov.za/isi2009/.

Conferences

Young Statisticians Conference (YSC) 2009

YSC 2009 on Friday 25th September, and Saturday 26th September 2009, at the University of Technology, Sydney (UTS). Registration and abstract submission are now open.

All are welcome to attend the conference and support the future leaders of our profession. In addition, young and early career statisticians are also encouraged to submit abstracts for talks. That is, you are encouraged to present if you are a student, or are within five (5) years of graduation.

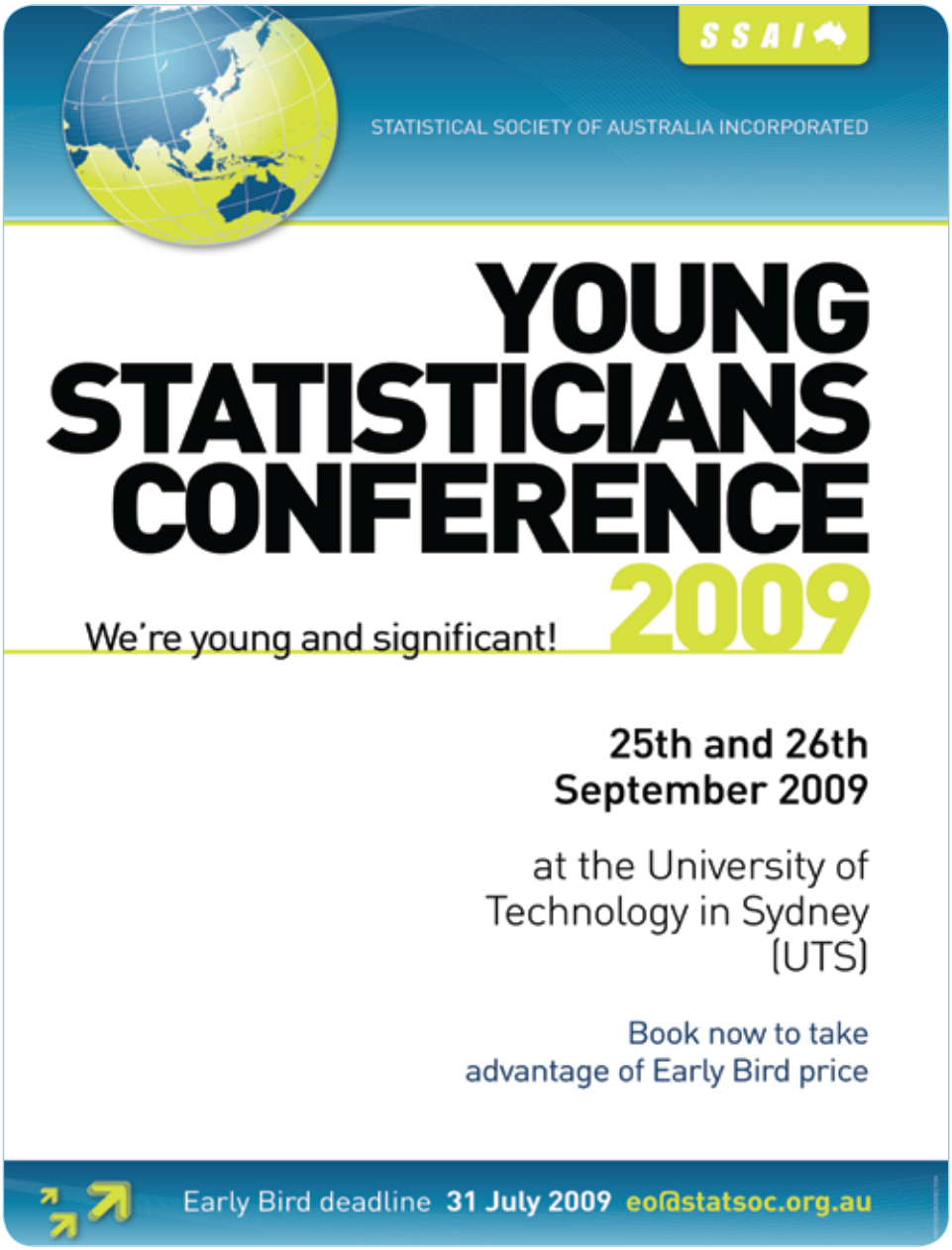
Expressions of interest in presenting close on 31st July 2009. Abstracts of accepted presentations will need to be submitted by 14th August 2009 to ensure they are included in the material distributed at the conference.

Sessions will cover the major areas of statistics, and we have three keynote speakers:

- Louise Ryan, Chief, CSIRO Mathematical and Information Sciences
- Prof John Croucher, Macquarie Graduate School of Management, Macquarie University
- Dr Chris Barnes, Australian Institute of Sports Performance Analysis

Special sessions are also planned, including some with a careers focus.

Kevin Wang, Steve Bush & Richard Hutchinson
YSC 2009 Organising Committee



Australian Statistical Conference 2010

Conferences
Brenton R Clarke

The next Australian Statistics Conference in December 2010 to be held in Fremantle, Western Australia will have a diverse program with a number of high profile plenary speakers. The streams in the program have been chosen so that there will be significant content for statisticians of all type and working in all areas. In a series of articles in the Newsletter, we are introducing the plenary speakers for each of these streams. This article is devoted to the medical and biostatistics stream for which the plenary speaker is our own home grown (Western Australian) Gordon Smyth.

Gordon Smyth is highly thought of in the Australian Statistics Community for his contributions to biostatistics but more importantly for his work in bioinformatics. He is a laboratory head at the Walter and Eliza Hall Institute of Medical Research in Melbourne. When I spoke to Gordon he was obviously excited about the prospect of disseminating his recent research at ASC2010. The research of his group focuses on the analysis of gene expression data from a variety of genomic technologies including microarrays and RNA-seq Next Generation sequencing. His current interests include molecular pathway identification and Gene Set Enrichment Analysis for the sort of small but complex microarray experiments which arise in experimental medicine. His work blends theory and application in equal measure, and he has been a member of the Bioconductor core development team, providing a key open source software tool for bioinformatics. Currently Gordon and colleagues are working to identify the "Cell of Origin" for the most dangerous types of breast cancer and to find possible gene targets for drug intervention. Other projects include using gene expression signatures for individual patient prognosis in ovarian cancer and the molecular characterization of early multiple sclerosis.

Gordon created and maintains the StatSci.org website, which includes announcements of Statistics Jobs in Australian and New Zealand and many more things including information about his bioinformatics research (http://www.statsci.org/smyth/research.html).

We look forward to Gordon's plenary presentation in 2010, highlighting progress in one of the most exciting areas of medical and biostatistics.

Brenton R Clarke

CHAIR PROGRAM COMMITTEE ASC2010

The ASC 2010 will be held at the Esplanade Hotel on the corner of Marine Terrace and Essex St in Fremantle. The Esplanade Hotel is one of Fremantle's iconic heritage listed buildings. It first opened in 1896 when the Gold Rush and an increase in agricultural output generated unprecedented wealth in WA. Because of its harbour and port facilities which were linked to outlying rural areas by the new railway system, Fremantle had become the funnel through which most of that wealth entered the state. The Esplanade was a family hotel and it became a favourite holiday venue for people from the goldfields and farming areas. In November 1902 the Swan Brewery bought the Esplanade Hotel as part of a process of buying and building hotels across the state in order to secure and protect the Brewery's market, and in 1903 the Esplanade was renovated and redesigned by Joseph Herbert Eales who also designed the Fremantle Markets. Perhaps the most significant addition he made was the dome shaped corner turret, that is still one of the main features of the Esplanade Hotel today.

By the end of the nineteen twenties Fremantle possessed a strong working class element, and in response to that change, the Esplanade Hotel began to adapt and cater for the many shipyard workers and trade union representatives who drank in the hotel's bars. However by the nineteen sixties the working class atmosphere that had dominated Fremantle society for so long was beginning to change and the number of waterside workers in Fremantle had dropped from two thousand to four hundred. The prosperity from the iron ore mining in the state's NorthWest that had a profound effect on the city of Perth did not filter through to Fremantle and as a result, it retained many of its old style buildings and architectural heritage.

Due to Fremantle's economic slump and high rates of unemployment, the cost of housing was relatively cheap, and this had the effect of attracting a variety of artists, most of whom were young and fairly poor. But the event that contributed most to the change of Fremantle from being purely an industrial, working class city was the 1987 America's Cup Yacht Race which was held on the waters in Gage Roads, off Fremantle. In anticipation of the population explosion the Cup would bring to Fremantle, the owners of the Esplanade Hotel renovated and extended the hotel which reopened in December 1985 with a four star rating. In August 2002 a new owner expanded the hotel's convention and accommodation facilities so that it could become Fremantle's premier focus for major local, national and international conferences.

ANZJS

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. For example, 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 also changed in mid-February, when Kerrie Mengersen 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.

Our current 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 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 being updated and rechecked. Existing AEs have been contacted to find out whether they want to continue. Once this assessment is complete, and the range of topics covered is better formalised, new AEs will be appointed where needed.

When ANZJS is able to decide on, pay for, and implement an electronic tracking system (which I would hope will be able to be later this year), the journal will be in a much better position to monitor AE loads, 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 other broader issues. We will need a replacement for Jeff Wood at the end of 2009, and currently we need a book review editor. If you are interested in either of these positions, or know someone who is, please contact me through the new ANZJS email address.

Stephen Haslett
Managing Editor, ANZJS
anzjs@statsoc.org.au
13 March 2009

ANZJS Jobs

ANZJS – APPLICATIONS EDITOR

Expressions of interest from members of SSAI and NZSA for the position of Applications Editor for the Australian and New Zealand Journal of Statistics (ANZJS) are requested.

The term of the current ANZJS Applications Editor, Dr Jeff Wood, will finish at the end of this year. Although this sets a timeframe, there is no fixed closing date for expressions of interest. The position will be filled at the discretion of the ANZJS Management Committee, to which the current ANZJS editors will make recommendations.

To seek further information, or to express interest in the position by providing a CV and brief statement outlining why you seek the position, please contact the ANZJS Managing Editor, Prof Stephen Haslett at anzjs@statsoc.org.au

ANZJS - BOOK REVIEW EDITOR

Expressions of interest from members of SSAI and NZSA for the position of Book Review Editor for the Australian and New Zealand Journal of Statistics (ANZJS) are requested.

Responsibilities will include maintaining contact with publishers, finding suitable reviewers, monitoring reviews, and ensuring a steady stream of high quality book reviews for each issue of ANZJS.

There is no fixed closing date for expressions of interest. The position will be filled at the discretion of the ANZJS Management Committee, to which the current ANZJS editors will make recommendations.

To seek further information, or to express interest in the position by providing a CV and brief statement outlining why you seek the position, please contact the ANZJS Managing Editor, Prof Stephen Haslett at anzjs@statsoc.org.au

Statistician Meets Parliament

FASTS
David Warton

FASTS — Federation of Australian Scientific and Technological Societies

Science Meets Parliament is an annual event organised by the Federation of Australian Science and Technological Societies (FASTS) to aid science communication and improve connections between the science community and government. About 200 scientists each year are invited to participate, and typically about 140 parliamentarians participate in face-to-face meetings with groups of two or three scientists. I was invited to go this year by the Australian Research Council, who sent five early to mid career researchers as a career development opportunity.

David Warton.

The event was held on March 17-18 this year. At the first day, Briefing Day, we found out a bit about politicians and how to effectively communicate your message to them. The second day was devoted to meetings between scientists and parliamentarians. There was also a Parliamentary dinner, which was a good opportunity to meet parliamentarians in an informal setting, and a chance to hear Chief Scientist Penny Sackett speak.

I learnt a lot about politicians at this event. Here's a quick summary:

- They have long and difficult working days when Parliament is sitting. They typically start work about 5am, dictated by the media cycle, and they are often kept in parliament until late at night. They are "on-call" most of the day – having to respond to a "division bell" by getting into Parliament within three minutes for a vote.
- They genuinely want to help – they are particularly keen to discover mutually beneficial opportunities.
- They eat well!

We were given a few tips on how to best get across your message to politicians:

- Embed your message in a personal *story*, because stories have resonance.
- Don't just present a problem, present a *solution* which they can implement. Preferably an ambitious and attention-grabbing solution.
- Develop a catchy *one-liner* which captures the issue.

I used this strategy to develop a pitch for Federal funding towards the establishment of statistical consulting units in Australian universities:

Story: I originally studied biology and mathematics, and wanted to find a way to use my maths skills in a biological context. I soon found a significant opportunity in data analysis – data analysis is fundamental to the applied sciences, but scientists often do not have the skills base they need in this important area, which constrains the type of research questions that they can answer. For example, I'm currently working on developing methods for understanding ecological effects of climate change at the ecosystem level – an important problem, but a difficult one in desperate need of statistical methodology.

Solution: If we put a statistical consulting centre in every Australian university, this would provide a means for applied scientists to access expert statistical advice, and provide a means for them to gain training to improve their skills base in data analysis.

One-liner: In modern science, most *"Eureka moments" happen in front of a computer*, looking at a graph or some other form of data analysis – we need to make sure all scientists have access to the data analysis skills they need for their Eureka moments.

I put this idea to Senator Christine Milne, the Greens climate change spokesperson. Christine was generous with her time, and she showed genuine interest in my research and in the consulting unit idea. She said the Greens recognise the importance of statistics and recently negotiated with the Government to ensure that the ABS was given increased funding. She asked for further details on the consulting scheme, and the Executive Summary of the 2005 SSAI Review, which had recommended establishing a statistical consulting unit in all universities. Thanks to William Dunsmuir (UNSW) and Ian Gordon (U Melbourne) who helped me prepare the follow-up information for Christine. Her level of engagement with the idea was very encouraging.

These efforts are a small part of a broader push for the establishment of statistical consulting centres in Australian universities – Rob Hyndman recently was invited to address the Australian Council of Deans and Directors of Graduate Studies on this same issue. Few Australian universities currently employ staff specifically for consulting purposes, despite the obvious benefits of doing so. Hopefully we can build on the current momentum towards a good outcome for statistics and for the scientific community!

David Warton

SSAI Biotatistics Section

SSAI Biostatistics Section Enters a New Era

The SSAI is proud to announce the re-formation of the Biostatistics Section (formerly known as the Medical Statistics Section). The major focus of this section will be to bring together medical statisticians and related health scientists from the pharmaceutical industry, government and academia working on clinical trials and epidemiology. The Section is also eager to work closely with organisations with similar interests, such as the Biostatistics Collaboration of Australia and the Australian Pharmaceutical Biostatistics Group. Initial conversations have been held with Dr Philip McCloud (Roche, BCA and APBG), Dr Graham Hepworth (University of Melbourne, Australasian Region of the International Biometrics Society), Professor William Dunsmuir (UNSW, SSAI), and Dr Mark Griffin (UQ, incoming Chair for the SSAI Biostatistics Section) concerning potential activities for 2009 and 2010. We would love to hear from SSAI members who are interested in presenting seminars or helping run other activities and events for the biostatistics section. Dr Griffin can be contacted at m.griffin[at]uq.edu.au.

Queensland Branch – Building Networks in Statistics Education

Queensland
Helen MacGillivray

On 9 – 10 February a forum on Building Networks in Statistics Education was held as part of Professor Helen MacGillivray's ALTC (Australian Learning and Teaching Council) Senior Fellowship programme. The New Zealand Statistics Association (NZSA) and each state branch of the Statistical Society of Australia (SSAI) were invited to nominate two delegates with expenses paid by the Fellowship. Support was also provided for nominees from the International Association for Statistical Education. Approximately 60 delegates from 17 Australian and 3 New Zealand universities, together with representatives from the Australian Bureau of Statistics and Statistics New Zealand attended the forum.

Apart from a few reports from the Fellowship, the IASE, SSAI and NZSA, the forum aimed to be a discussion and working forum. Topics for discussion were:

- Tertiary curricula commonalities
- Roles and links with and between professional societies
- Statistics in school and the national curriculum
- Models for building a network
- Interactions with other disciplines
- Postgraduate support across disciplines
- Interactions with employers
- Building on the SSAI review
- Support for school teachers
- Ways forward

A key part of the forum was discussion about how to construct a network in statistics education. Some suggested a website, possibly to be located on the International Association for Statistics Education website. Others suggested a blog, looking somewhat like the statistics blog Fishing in the Bay. The importance of regular face to face meetings such as OZCOTS was affirmed, along with the need for developing strong links between Statistics Education Sections and with national and international organisations.

Principles for statistics in school syllabi were developed during the forum. Following further input and review by participants, the ABS, SSAI, NZSA and Statistics NZ, these principles were endorsed and submitted to the national curriculum committee. Forum participants also wrote and submitted individual input to the national curriculum.

Other breakout sessions discussed learning support and other disciplines, interaction with employers, and the SSAI review. The group discussing the SSAI review decided to encourage SSAI to act on the recommendations of the 2005 review, and to offer some helpful advice to the New Zealand delegates whose Statistical Association may be about to go through a similar exercise themselves. The group discussing interaction with employers split into those representing statistics educators and those representing employers. The educators focused on issues such as making contact with employers and university recognition of the effort. The employers focused on issues such as relevance, competence and ensuring a win-win situation. The group discussing learning support and other disciplines covered issues such as postgraduate course, service courses and engaging students in interdisciplinary research and study.

Helen had opened the Forum by adapting a phrase from a song from The Sound of Music, saying "What are we going to do about Statistics?" While this question was not (and could not be!) completely answered in the course of two days, the delegates came away with re-invigorated personal networks and re-invigorated interest in possible ways forward in developing and maintaining more formal networks.

Helen MacGillivray

Queensland
Miranda Mortlock

Queensland Branch Events in 2008

2008	Program of Events Qld SSAI 2008
26 February	**Professor Murray Aitkin** and Dr Irit Aitkin from the University of Melbourne. The talk was titled *'Multilevel analysis of item response models in clustered and stratified survey designs for the US National Assessment of Educational Progress'*.
15 April	AGM- appointment of new branch members. **Dr James McGree** *'Probability-Based Optimal Design'* from the University of Queensland
13 May	Committee Meeting - Planning Meeting. For 2009 events, recruitment, website and strategic planning.
10 June	UQ students **Leesa Wockner** and **William Probert** were awarded a travel scholarship to assist travel to ASC 2008 Talks by both students and Dr Rob Reeves who will also l attend the ASC 200 statistics Conference – UQ
30 June – 3 July	30 June – 3 July Conference, Melbourne Various Qld SSAI members presented
14 July	**Public Lecture** on Monday at UQ by Prof Peter Guttorp, University of Washington, entitled *"Gasp – I can't breathe! How statistics can be used to study environmental pollution control"*.
15 July	1. **Vijay Nair**, Department of Statistics, Ann Arbor *Statistical Inverse Problems in Network Tomography*, 2. **Prof Fiona Steele**, Uni of Bristol: *Multilevel event history analysis with examples from fertility and family research*, 5pm, University of Queensland.
5 August	**Professor Ritei Shibata**, Keio University, Japan *Statistics in Data Science*.
23 September	**Prof Rodney Wolff**, QUT. *Getting the Cupula you want* QUT joint meeting with Brisbane Quant Forum
3 November	**Brendan Sinnamon**, QUT Liaison Librarian (Science). Meeting on *New Technology for Statisticians and Networking*
1 December	Xmas event Restaurant City. **Professor Chris Wild**, Department of Statistics, University of Auckland spoke on *'Applied Statistics as a growth engine for statistics programmes'*.

Queensland Branch – Using Baseline Data in Problem Solving

Queensland
Miranda Mortlock

Riverside in Brisbane.

APRIL

The AGM was held at the University of Queensland on 28th April 2009.

The following officers were elected:

President: Dr Miranda Mortlock, Past president: Dr Ross Darnell, Secretary: Dr Helen Johnson, and Treasurer: Dr James McBroom. Returning councilors Dr Rob Reeves, Dr Helen Thompson and Dr Peter Baker were elected. Two new councilors were elected and are warmly welcomed for 2009, Dr Nancy Spencer from Queensland Government Department of Communities, and Dr William Probert from University of Queensland.

Stefan Steiner is an Associate Professor in the Department of Statistics and Actuarial Science, University of Waterloo and provided us with an interesting talk *'Using Baseline Data in Problem Solving'*. He described the use of statistics to improve quality in an industrial setting. By reducing variation in a critical process output a sequence of investigations was followed, guided by an algorithm. The purpose of the initial investigation is to establish the problem baseline. A plan was proposed using a systematic sampling scheme for the baseline investigation to quantify the full extent of output variation and to determine how the output changes over time. The main goal of this talk was to demonstrate the critical role of this baseline information in the planning and analysis of subsequent (observational and experimental) investigations needed to find a way to improve the process.

Associate Professor Steiner's research interests are in the areas of industrial statistics and operations research. More specifically, much of his work involves the design and analysis of innovative process monitoring and quality improvement techniques for use in industry. Recently his work has revolved around a step by step algorithm for process improvement & variation reduction, called Statistical Engineering.

Miranda Mortlock

Canberra
Phil Kokic

Canberra Branch
Issues of Quality in Linked Data

Parliament House in Canberra.

Glenys Bishop from the Australian Bureau of Statistics (ABS), in her final day as president of the Canberra branch, gave a very interesting presentation on quality issues in linked census data. Currently ABS does not link individuals in population census from one census to the next. If census data is linked a much richer panel data is formed, which can be used to answer questions that cannot be addressed by cross-sectional analysis alone. For example, what characteristics of individuals lead to them moving?

As part of the Census Data Enhancement Project, the ABS plans to link a 5 percent sample of individuals from the 2006 population census with the 2011 and subsequent censuses, referred to as the Statistical Longitudinal Census Dataset (SLCD). Because the ABS has a policy of not retaining name and address, linking to form the SLCD will have to be done without using these variables. Glenys described and presented the results of a study ABS had performed to evaluate the potential quality of the SLCD, where data from the 2005 census dress rehearsal was linked to the 2006 census data. This study was conducted during the Census processing period when name and address were available.

For this particular study name and address as well as mesh-blocks and other variables such as age, sex, country of birth could be used. Mesh-blocks are very small geographic regions containing approximately 30 to 60 dwellings each. Three types of linking were undertaken. A 'gold' standard where all information available was used for linking, a 'silver' standard where names were mapped into about 12,000 hash codes and used with mesh-blocks and other variables for linkage, and a 'bronze' standard where no name or address was used for linking, as will be the case when linking the SLCD.

The probabilistic linking method has been used. It has the ability to handle a variety of linking variables and record comparison methods and produce a single numerical measure of how well two particular records match. This allows ranking of all possible links and optimal assignment of the link or non-link status. For each link a weight was computed which measures the degree of conformity of any link. The weight is based on a variable by variable agreement probability that takes into account the fact that different variables have different distinguishing power. Cutoffs were then used to define which units were linked.

Taking the gold standard as true, the quality of the bronze and silver links were assessed using the match-link rate (% of correct matches identified as links) and linking accuracy (% of links that were correct). As the link accuracy rose match-link rate fell, the silver standard outperformed the bronze standard, and it was found that if too high cutoffs were used certain subpopulations were severely under-represented in the linked data (e.g. young people). Models were fitted to explain the change in the number of hours worked and whether persons moved between 2005 and 2006. It was found that models fitted to bronze and silver linked data more closely resembled the models fitted to gold standard data as the cutoff was lowered and that the silver standard was somewhat better than the bronze standard, and both methods performed well.

Finally Glenys summarised all the methods that have been used to assess the quality of the linked data and noted that a framework for advice to users of linked data needed to be developed.

Phil Kokic

Canberra Branch – How Boeing Keeps a Statistician Off the Streets

Canberra
Anatoli Lightfoot
and Ray Lindsay

At its April meeting the Canberra Branch heard a very interesting talk by Dr Virginia Wheway of Boeing Research and Technology Australia (formerly Phantom Works Australia). An article in The Australian newspaper (March 2008) had prompted our initial invitation[1]. Boeing has about 4000 people in Australia with about 30 being part of the Research and Technology Division.

Virginia's talk had three themes. In the first she described the system reported in the newspaper article above – this uses the aircraft 'black box' data in real time to convey information back to a ground station where analysts use the technology to monitor aircraft health. Thousands of pieces of binary information are relayed to the ground both before takeoff and in the air. Of particular concern are those that can be used to predict 'Flight Deck Effects', which equate to go/go no situations. In order to build the system, Virginia and her team used data from 5 million 747 and 777 flights from a mix of airlines. The system can help in 'go/no go' decisions, or suggest a swapping of aircraft in flight schedules to ensure aircraft needing maintenance are in a major hub or at an airport with maintenance infrastructure. As the costs associated with delays can be large, this can result in significant savings to airlines. While she could not go into much detail, she did say that 'bubble' plots in SAS and hypergeometric distributions where important in the analysis. This work has been patented and is available for routine use by airlines around the world[2].

Virginia then described a system which can considerably speed the examination of F111 wings. A device scans the wing surface and its output is examined by human operators to detect features which may indicate a required repair. Traditionally this is a very resource intensive task. She has developed an algorithm using Matlab and in particular its image processing ability to automatically search for such changed features. The process can now be completed in 5 minutes rather than the 3 days required to perform the same task manually. However, because the F111 is due to be retired soon, this system is more likely to see application in other aircraft, or in composite structures.

She is also working with environmental and financial professionals in the aviation industry to examine the proposed Carbon Pollution Reduction Scheme, in particular how the price of carbon might impact on both air travel and the business activities of aviation-related companies within Australia. Her background in risk analysis and modelling uncertainty is allowing her to develop probabilistic models of the CPRS's impact.

Until recently she has been the only statistician in the organization and described the importance of having as a sponsor, an engineer who has worked with statisticians before.

Anatoli Lightfoot and Ray Lindsay

Parliament House in Canberra.

1 "System predicts future jet faults" http://www.theaustralian.news.com.au/story/0,,23440932-23349,00.html%3Ffrom%3Dpublic_rss

2 http://www.boeing.com/commercial/ams/mss/brochures/airplane_health.html

http://www.wipo.int/pctdb/en/wo.jsp?wo=2006052619&IA=US2005039722&DISPLAY=STATUS in particular the Description tab.

New South Wales
Eric Beh

New South Wales Branch Events

Opera House in Sydney.

The past six months has proved to be a busy period for the NSW branch and the next six months will be just as eventful.

On the 26th of November we had the 9th annual J. B. Douglas Awards and Dinner at the Macquarie Graduate School of Management Conference Centre. These awards are competitive and pit students enrolled in research masters or PhD statistics degrees from universities across the state against one another. On the night we had seven excellent student speakers and the Peter Wright Prize was jointly awarded to Gareth W. Peters (UNSW) and Damian Collins (Wollongong). I would like to thank John Robinson (USYD) and Richard Walton (Eli Lilly Aust PL) for being part of the judging panel. Prior to the dinner John Robinson was our guest speaker and discussed "Student's-t: in 1908 and Today". To celebrate the 100th anniversary of the publication of "The probable error of the mean", John gave an excellent overview of the history and subsequent development of W. S. Gossett's "Student" t statistic. We are now about five months away from the 10th annual J. B. Douglas Awards – a cause for special celebration - so I would like all supervisors of postgraduate students to seriously consider nominating them to take part in the event. Information about the date and location of the Awards and dinner will be advertised as the time draws nearer. Although, in celebration of the award's first decade we are planning to host the event at UNSW, where Jim Douglas hailed from and after whom the awards are named.

In March (the 23rd) we were proud to announce Dr Richard Gerlach as the new incoming vice-president of the branch at our AGM. However we are sorry to see Caro Badcock leave. Caro has served many years on the council and was our former president. Following the AGM we had the pleasure of Dr Louise Ryan presenting the H. O. Lancaster lecture titled "Statistical Sciences in the 21st century – perspectives from a returning ex-pat" Louise was Professor in Biostatistics at Harvard University and in February took up her post as Chief of the CSIRO Mathematical and Information Sciences division. So it was a wonderful opportunity to have Louise talk about her experiences as a world leading biostatistician at Harvard and her transition to the CSIRO.

On Wednesday the 29th of April, the Young Statisticians network and the NSW branch ran a careers evening at UTS. This event saw an impressive turnout, with an official count of 57, mainly young statisticians, attending. We heard from seven speakers across a wide range of industries, including

- Eric Beh – University of Western Sydney
- Samantha Reading – Commonwealth Bank of Australia
- Ben Cusack – Australian Bureau of Statistics
- Kevin Wang – Eli Lilly
- Nick Scheuer – Eli Lilly
- Phil Hughes – AC Nielsen and University of Wollongong
- Vignesh Kannan - Price Waterhouse Coopers

Each speaker gave us a fascinating insight into the types of projects that they work on, the types of statistical methods that they use on a daily basis and the things that motivate them to work where they do. After the talks, attendees had the opportunity to mingle with the speakers over pizza. Further details of the evening are available on the branch website. Given the success of the event we are seriously considering making it an annual event for our calendar – for me it highlighted that there is keen interest amongst the younger statisticians about the development of the profession as well as the activities of the branch.

This unique event was then followed by another first for the branch – a debate. On May 20 the branch held a debate titled "Bayesian and Non-Bayesian Statistics – A Debate" at the University of Sydney. On the Bayesian side we saw Professor Kerrie Mengersen (QUT) and Dr Richard Gerlach (USYD) speak on behalf of the Bayesian side, while Professor Matt Wand (UOW) and Dr Robert King (UNewcastle) represented the non-Bayesian side. Since, at the time of writing this account, the event has not happened yet (but now that you are reading it, it has) I'm happy to say that it was (will be) an energetic and entertaining discussion which raised some very interesting points from both sides as well as from the audience (I'm sure).

Now that it's June the upcoming months will also prove busy. Our regular series of monthly presentations will continue – so far Professor Pieter Kroonenberg, School of Behavioural Sciences at Leiden University (The Netherlands), has indicated that he is interested in speaking before the branch in July on issues concerned with multiway data analysis (this follows the publication of his book "Applied Multiway Data Analysis" with Wiley in January this year). Ian Marschner, Professor of Statistics at Macquarie University from July, has also agreed to speak, but at the August meeting. The Branch is also helping to support and encourage the Young Statistics Conference to be held at UTS on the 25th and 26th of September.

Eric Beh

South Australia Branch Travels in Statistics

South Australia
Paul Sutcliffe

Adelaide in South Australia.

It was a pleasure to have Dr Brenton Clarke from the School of Chemical and Mathematical Sciences, Murdoch University, as our guest at the AGM in March 2009. Apart from giving an entertaining talk about teaching and research in statistics, Brenton was also an excellent returning officer. Brenton drew on his experience of teaching at Flinders University, Adelaide University, several overseas posts and twenty five years at Murdoch University in Western Australia.

In his presentation he talked about teaching and research in statistics. In the seventies statistical subjects had attractive titles such as Statistical inference I, II and III! The approach in statistics was mainly theoretical with the intent of being able to use "efficient methods" and "most powerful methods" and computing was learnt in numerical analysis. In some universities, such as Flinders University, students were given the opportunity to undertake reading courses which helped them to develop the confidence to read and comprehend parts of Feller Volume II.

Brenton gave examples where undertaking research forced him to learn new things. In particular, he learnt about time series ARIMA modelling through doing research, and FORTRAN and recursive estimation through the study of a paper by Brown, Durbin and Evans (1975 in JRSSB). This provided him with confidence to branch out further into the unknown.

Brenton also presented a little history, regarding classical statistics and subsequent divides such as robust versus classical statistics. While his former colleagues from the continent argue a case for integrating the teaching of robust methods into the undergraduate courses, Brenton's feeling is that this should be kept at the honours level. He reasoned that a large number of users of statistics are not au fait with robust methodology and a proper appreciation is only offered by teaching it along with a reasonable amount of mathematics.

The talk was a refreshing look into statistics training and research.

Paul Sutcliffe

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