SSAI

STATISTICAL SOCIETY OF AUSTRALIA INCORPORATED
NEWSLETTER

IN THIS ISSUE

Symposium in Honour of Chris Heyde

A symposium in honour of Chris Heyde was held at the University of Canberra on 29 August 2008. Professor Stephen Parker, Vice-Chancellor of the University, welcomed participants; the opening presentation was given by Dr Beth Heyde; and closing comments were made by Professor Alan Welsh, ANU. In between, the talks were unified by their connection to research Chris was involved in, or that he would have been interested in. A full list of speakers and topics is given below. Each speaker described their connection to Chris as well as presenting their research. In particular, Alice Richardson described Chris's contribution to the Canberra Branch of the Statistical Society including his service on Branch Council and as Branch President. There was also an extract of a talk by Chris Heyde himself, as a video was made of him giving a talk at the University of Virginia in 2005. A poster advertising that conference is included.

At least 40 people attended the workshop, including senior Statistics students from the University of Canberra, and statisticians employed in Government agencies. Many people commented on the warm atmosphere generated, and the appreciation shown by everyone present for the life and work of Chris Heyde.

Thankyou to Dr Shuangzhe Liu, University of Canberra, and Professors Alan Welsh and Joe Gani, Australian National University, for organising the workshop and bringing together so many interesting speakers in a single day.

WORKSHOP PROGRAM

Professor Joe Gani
ANU
A model for the spread of cholera.

Professor Peter Taylor
Australian Mathematics Trust / UC
An introduction to probability.

Dr Alice Richardson
UC
Seasonality in Chlamydia pneumoniae in Canberra.

Dr Richard Morton
CSIRO
Simultaneous prediction of toxicity of multiple chemicals to multiple species.

Dr Bob Anderssen
CSIRO
Causal integral equations.

Dr David Heath
ANU
A survey of numerical methods for exponential Lévy process models.

Professor Ross Maller
ANU (presented by Dr Shuangzhe Liu, UC)
A generalised skewness statistic with reference to financial applications.

Professor Alan Welsh (ANU), Dr Beth Heyde, Dr Alice Richardson (UC) and Dr Shuangzhe Liu (UC) all made presentations at the workshop.

December Editorial

Another year is drawing rapidly to a close, meaning that many experience a change in workload, for example, another cohort of students finishing their exams, or a rush to complete projects by year's end. The last newsletter for this year emphasises Branch reports, and they too wrap up an excellent set of activities that have occurred across all Branches.

By the time this newsletter reaches you, the silly season will be under way. The Editors would like to take this opportunity to wish all Society members a happy Christmas, and a pleasant New Year. We would also like to thank all those who have contributed to the newsletter, whether by writing reports, taking photos or entering competitions. Thankyou also to the organizations who have supported the activities of the Statistical Society and its members – your input into successful Society activities is much appreciated.

The deadline for copy for the next newsletter is 10 February 2009 - please consider making contributions to your Society's newsletter one of your resolutions for 2009. Enjoy the summer too!

MEMBER NEWS

Ross Darnell and Petra Kuhnert attended the International Biometrics Conference in Dublin in August, and presented a poster. This poster was subsequently awarded a prize. Congratulations Petra and Ross!

APOLOGY

We forgot to print an acknowledgement with the fantastic photos of ASC that appeared on the front page of the August newsletter The photos were taken by Adrian Baddeley, and the Editors would like to apologise for omitting the acknowledgment, and to thank Adrian very much for making the photos available to us.

Alice Richardson

Alice Richardson
Editor

Conferences

International Conference on Recent Development in Statistical Sciences Jointly Organized by Carleton University, Canada and North South University, Bangladesh
26-27 December 2008, North South University, Dhaka, Bangladesh Local
http://www.sci.usq.edu.au/staff/khans/stat-conf-2008.pdf

The Mathematics and Statistics in Industry Study Group
27-31 January 2009, Wollongong, NSW
http://www.uow.edu.au/informatics/maths/research/misg/index.html

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

Young Statisticians' Conference 2009
2-3 October 2009, Sydney
http://www.statsoc.org.au/young-statisticians-conference.htm

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/iccsx.htm   or http://www.isoss.com.pk

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

The Role of Statistics in Modelling and Simulation Collaborations

Collaboration is playing an increasingly important role in guaranteeing successful outcomes for modern research challenges such as sustainable development, conservation of water resources and global warming. The success of collaboration relates directly to the joint experimental-scientific-statistical-mathematical fire power that it brings to bear on the related research deliberations.

MODSIM (the biannual Modelling and Simulation Congress of the Modelling & Simulation Society of Australian & New Zealand) has a long tradition of bringing together researchers, working on practical real-world problems, who are using modelling and simulation tools to recover information from experimental data and/or identify the various scenarios that represent possible solutions to complex interconnected issues or networks. Examples include the development of decision support tools for prioritisation of investment in water quality management, modelling international financial markets, defence and homeland security applications and analysis of traffic control systems.

Within this framework, statistics has played and will continue to play a key role when matters revolve around the use of experimental design to define a protocol for the collection of data, sampling strategies, model parameterisation, testing and sensitivity analysis. As is clear from the following Table, statisticians and statistical science have contributed substantially to previous MODSIM Congresses and involvement in future Congress is critical to their continued success.

The next MODSIM Congress, MODSIM09, will be in Cairns, July 13-17, 2009. Its theme, which directly reflects the importance of collaboration, is "Interfacing the Mathematical and Computational Sciences with Modelling and Simulation Applications", with the statistical sciences being seen as a key discipline within the mathematical sciences. A major goal of the Congress is to bring together scientists, statisticians, mathematicians, computer scientists, engineers and industry professionals contributing to modelling and simulation endeavours, with particular emphasis on developing the science and practice of modelling and simulation, as well as environmental and industrial issues.

Fittingly, climate change and global warming will be major modelling and simulation issues discussed at MODSIM09 which is very appropriate for the Cairns location as a major departure point for tours of the Great Barrier Reef.

Numbers of Papers Mentioning a Specific Statistical Key Word at the MODSIM Congresses in 2001, 2003, 2005, 2007, and the Total Since 1995

Statistical Key Words	2001	2003	2005	2007	Total Since 1995
Distribution	71	318	305	324	1,340
Statistical	47	180	180	243	937
Regression	20	139	125	127	540
Stochastic	21	132	107	98	506
Sampling	27	91	89	107	395
Robust	19	85	96	114	392
Bias	18	55	59	73	265
Bayesian	5	41	51	40	170
Markov	13	30	38	37	139
Null Hypothesis	3	19	37	26	134
Clustering	4	28	28	25	113
Time series analysis	8	30	10	21	93
Linear model	2	19	18	20	77
Bootstrap	2	8	12	9	42

BOB ANDERSSEN,
CSIRO Mathematical and
Information Sciences, and
ROGER BRADDOCK, Griffith
University,

CO-Chairs of the Program
Committee for MODSIM09

The Role of Statistics in Modelling and Simulation Collaborations cont ...

The talks by the plenary speakers will highlight examples of successful collaboration with secondary industry, health care and water resources management.

The Streams for the MODSIM09 Congress are: Applied and Computational Mathematics; Biological Systems; Computer Sciences; Economic and Financial Systems; Engineering and Applications; Environment and Ecology; Global Change and/or Natural Hazards; Participatory Decision Making and Modelling Social Systems; and Water Resources.

More details about the Congress can be found at the following website: http://www.mssanz.org.au/modsim09/index.html

In order to enhance the impact of statistics on modelling and simulation collaborations, please consider proposing a session in one of the Streams or at least attending MODSIM09.

IMACS : International Association for Mathematics and Computers in Simulation

Modelling and Simulation Society of Australia and New Zealand

Looking for a job?

For a listing of current statistical vacancies in Australia and New Zealand visit:

http://www.statsci.org/jobs

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S S A I

Marc Raimondo

Marc Raimondo died suddenly on 10 August, 2008 after a very short illness. He was aged 39.

Marc completed his doctorate at the University of Paris VII in 1996 under the direction of Dominique Picard and came to Australia with his wife Apolline in 1996 as a post doc to work with Peter Hall at the ANU.

Marc followed his postdoc with Peter by a period at Stanford working with Iain Johnstone and David Donoho before taking up alectureship at the University of Sydney in 1999. Marc was promoted to Senior Lecturer in 2005.

Marc had a very productive research career which was gaining momentum.

He published over 20 papers in the general area of change point detection and wavelet deconvolution including a discussion paper (with Johnstone, Kerkyacharian and Picard) read to the Royal Statistical Society in December 2003. His major papers in the Annals of Statistics, JRSS B and Statistica Sinica have strong citation records. In 2007 Marc was invited to become an Associate Editor for the Journal of the Korean Statistical Society.

Marc had active collaborations with a number of colleagues scattered across 4 continents and regularly travelled to work with them. Many visited the University of Sydney over the past nine years. His principle colleagues overseas were Laurent Cavalier, Gerard Kerkyacharian and Dominique Picard in France; Ming-Yen Cheng in Taiwan; Aurore Delaigle in the UK; David Donoho and Iain Johnstone in the USA; Rafal Kulik in Canada and Nader Tajvidi in Sweden.

In the week before he died he was delighted to receive an invitation to be one of the Distinguished Lecturers at the next IMS Asia Pacific Rim conference planned for Korea in June 2009.

Marc had considerable success working with students in the Talented Students Program at the University of Sydney on quite applied projects such as Change-points analysis of hydrological data (with Hugh Miller); Describing fractal activities of financial data (with Max Skipper) and Statistical extreme values modelling by peaks over high thresholds (with David Abelson). Marc supervised two Honours students (Rob Franklin and Mark Donoghoe) and one PhD student Justin Wishart.

In Sydney Marc developed a love of surfing and was regularly found at the Sydney fish markets - his favourite shopping precinct. He was a keen photographer, enjoyed music and was actively involved in supporting and promoting indigenous art of the Maningrida community where Apolline is based.

Marc is survived by his wife, Apolline Kohen and parents Emilio and Chantal.

SCOTT FOSTER
AND
GEOFF LASLETT

Generalised Additive Smooth Modelling

On the 12th of August the Victorian branch held a meeting at the CSIRO Marine Laboratory in Hobart. The evening's presentation was given by Professor Simon Wood from the University of Bath, UK. He is the author of the MGCV package for R as well as the book `Generalized additive models: an introduction with R'. Simon gave an interesting and stimulating overview of generalised additive models (GAMs) from his perspective. I'm sure that many (all?) of the attendees will be looking for future opportunities to `be smooth.'

His talk started by introducing some motivating data sets and posing simple and flexible models for these data. The models were, of course, GAMs and Simon used this motivation to introduce general and specific aspects of GAMs. In particular, the GAMs presented were penalised regression spline models of one form or another.

An overview of some of the practical and mechanical aspects of fitting penalised splines was given using splines in one and two dimensions. The 2D case was expounded upon by initially introducing thin plate splines and showing some of their limitations, such as computational expense and lack of scale invariance. Simon presented a practical method to reduce computation by using a reduced rank representation of the smoothing basis. He introduced tensor product splines as a method to overcome the scale invariance problem. Unfortunately, tensor product splines are not applicable for all applications, such as when the function domain is an irregular and difficult shape. A novel spline, the `soap film' spline, was introduced for this purpose and Simon demonstrated the method using real and simulated data. Some computational issues for all penalised regression spline models, along with methods to choose the smoothing parameter or parameters, was then presented and it was illustrated (quite emphatically) that computational methods can, and do, have a severe practical effect: poorly chosen methods
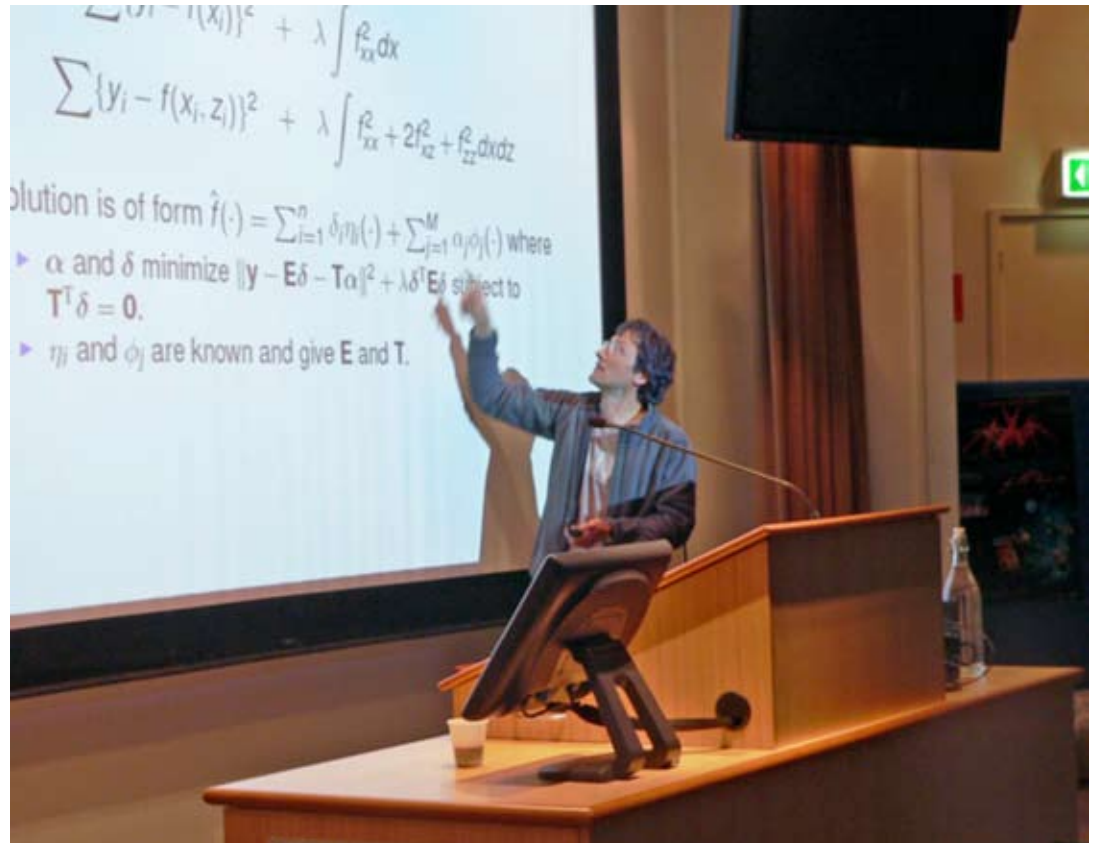
Prof Simon Wood getting up close to a 2D thin plate regression spline.

SCOTT FOSTER
AND
GEOFF LASLETT

sometimes can give truly bizarre results. The talk was rounded off by presenting the fitted models posed to the motivating data introduced at the beginning of the talk.

After dinner a contingent of statisticians gathered at a Greek restaurant, where good food, `smooth' wine and good conversation were enjoyed by all.

Scott Foster

On 26th August, Simon gave the same talk to the Victorian Branch at the University of Melbourne, and attracted an audience of about 30 people, rather larger than usual in recent years. It was an exhilarating presentation, given by someone in total command of his topic. I recommend that people take the opportunity to hear Simon speak if ever they get the chance. The talk may be found at http://www.maths. bath.ac.uk/~sw283/: see "GAM overview".

Geoff Laslett

Prof Simon Wood in Melbourne. Photo: Brian Phillips

CARO BADCOCK

2nd Workshop on Integrating Statistical Ideas into Mathematics

In 2007 the NSW Branch held a very successful workshop to bring secondary school mathematics teachers, curriculum developers and statisticians (university and any others interested) together to discuss the statistical components of the Stage 6 mathematics syllabus due for release in 2010. To continue the good work building the relationship between mathematics teachers and statisticians a second workshop was held this year (on August 6). The theme of the afternoon was to discuss the types of professional development mathematics teachers need to provide them with the skills to deliver the statistical topics and to investigate ways of providing these skills. As with last year's workshop a full report will be available on the Branch website.

As with 2007, we started at 12.30pm with light refreshments – a good inducement to get everyone there on time! Around 45, including the presenters, attended the day, with the majority of the teachers being heads of departments or equivalent indicating we were reaching the right target audience. Margaret Bigelow, Board of Studies provided an update of what had happened to the draft syllabi since she had presented in 2007 and then opened the floor to general questions. Apart from a few questions around the support documents for the syllabi the discussion centered round the use of the graphics calculators. No consensus was reached but the door has been left open for some continuing discussion around the use of technologies, in this case in the teaching of statistics.

Margaret was followed by Helen MacGillivray, Senior Fellow, QUT, winner of an ALTC (formerly Carrick) award and the plenary speaker. Helen attempted to summarise two decades of working with teachers and syllabi developers around the country into 30 minutes! Helen stressed that the way to develop good understanding of statistical methods is to work with and dig into complex data. Helen also emphasised that careful use of language is important in the teaching of statistics: in understanding the problem, investigating the data, and summarising and interpreting the results

David Griffiths, University of Wollongong, spoke about the history of the workshops the university has with mathematics teachers and their plans to continue the workshops on an annual basis.

Stuart Palmer, Mathematics Co-ordinator at PLC Sydney (Croydon), shared some of the ways he uses real data to build conceptual understanding. After the coffee break, David Keanan-Brown from MANSW shared some of the ideas the MANSW executive has been discussing regarding ways of providing professional education to mathematics teachers to assist them in confidently teaching the statistical topics in the new syllabi. He provided some starting points for the breakout session. The final speaker prior to the breakout session was Peter Howley, University of Newcastle who spoke on ways of making statistical ideas real and keeping students interested.

CARO BADCOCK

The aim of the breakout session was to discuss and evaluate different approaches to professional education in statistics for mathematics teachers and also to nominate other resources or kinds of support that participants thought would be useful. A full summary of the ideas from the breakout can be found in the report. The major threads were that teachers certainly will need support to be skilled in teaching statistical topics, the delivery of any professional development activities will need to be flexible enough for teachers to undertake the activities at their own pace, in their own time and that statisticians (the SSAI) can have a large part to play in ensuring the activities are appropriate and that the pool of reference material (e.g. worked examples) is strong.

In closing, the attention of workshop participants was drawn to the very recent publication online of the complete proceedings of an international conference, held in Mexico in July 2008, on the theme 'Statistics Education in School Mathematics'. The sponsors of the conference were the International Commission on Mathematical Instruction (ICMI) and the International Association for Statistics Education (IASE).

Full details may be found at http://www.ugr.es/~icmi/iase_study/

Notice to all SSAI Members:

The SSAI Executive Officer will be on annual leave from 24 December 2008 until 13 January 2009.

For very urgent matters, please send an email to eo@statsoc.org.au
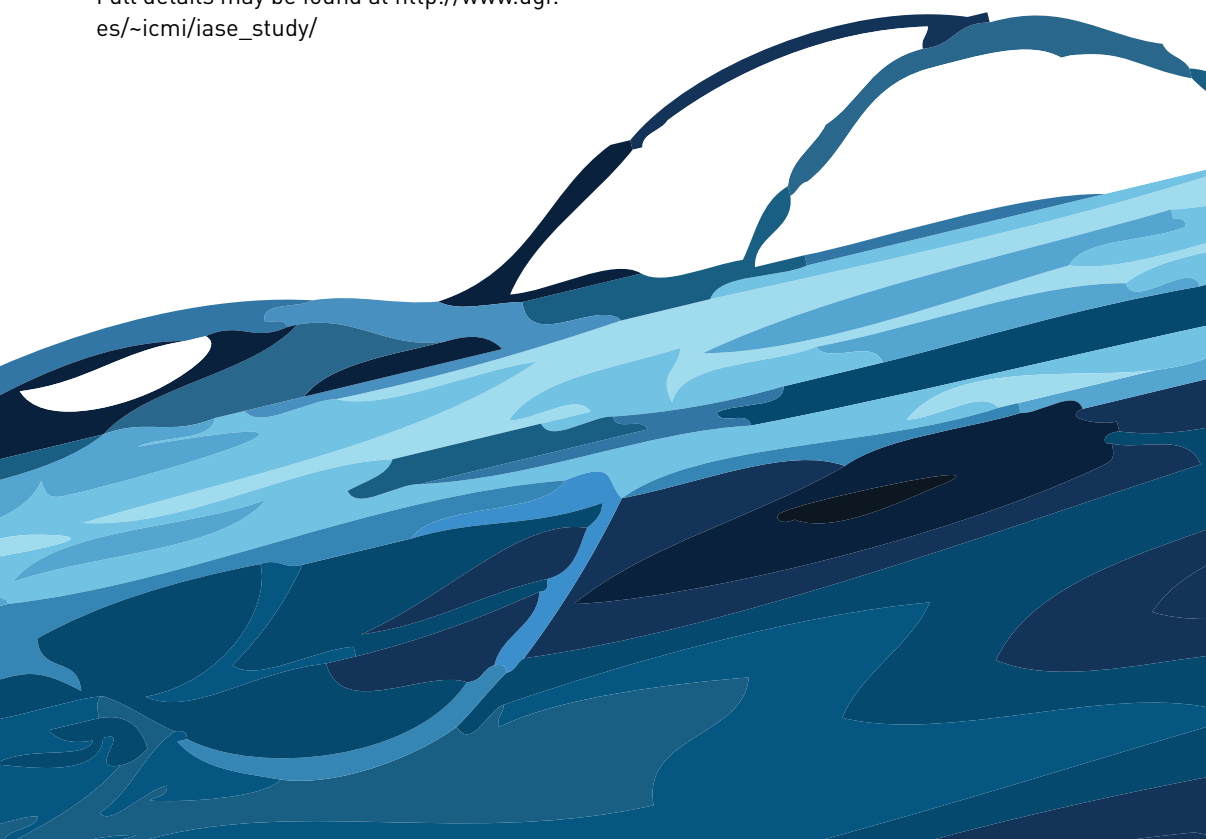
Quarantine Matters

PHILIP KOKIC

At the Canberra Branch meeting on 28 October, Veronica Boero Rodriguez, Bureau of Rural Sciences, gave an interesting talk on work she has been doing together with Bo Raphael, also from BRS, on "Using Bayesian belief networks to evaluate surveillance systems for screw-worm fly in the Torres Strait".

Veronica started with some background information on this fly (*Chrysomya bezziana*). Screw-worm flies (SWF) are parasitic as they breed in the wounds of mammals including humans (I'll leave the details to your own imagination). SWF occur in almost all tropical countries including Papua New Guinea, but they are currently not found in Australia. If they were to establish themselves on the mainland, then they would cost $500 million annually in lost production and control, mainly in the beef and sheep industries. Veronica and Bo were mainly concerned with the risk of their spread to the Torres Strait Islands, which is one of the main potential points of entry for SWF because of traditional trade by boat between New Guinea and the Torres Strait Islands.

There are quarantine restrictions in place to minimize this risk, and this is overseen by AQIS. Veronica and Bo were interested in the detection of the SWF if it enters, because then early eradication steps can be taken to eliminate it. There are four components to detection in the Torres Strait: surveys of domestic animals, feral animal surveys, public awareness campaign and the use of fly traps. Fly traps are currently in place on 4 islands – three of these are very close to New Guinea: Boigu, Dauan and Sabai Islands, and the fourth, Prince of Wales Island, is close to Cape York.

Veronica and Bo needed to address the question of whether the fly traps were worth maintaining and the number that should be in place, and so they visited the Torres Strait to gather relevant information from experts and observe how the fly traps are set. Some of the most important information they obtained was that no SWF had been detected in any trap over the last 20 years, the SWF can only travel short distances over water but long distance over land, and even if it was present the probability of catching a SWF in a given trap over a 1 year period was very low.

In the presentation Veronica illustrated how the situation could be modeled using Bayesian belief networks. These are graphical models which are used to model probabilities of events that depend on other events that occur at various points on the graph. In this case the graph was set up so that the nodes represented each of the four islands and Cape York, and sub nodes represented the traps on each island. The costs and benefits could also be determined in the model. Unfortunately, most of the parameters required for the model could not be estimated because of the lack of available data. Crucial among these was the probability, p_{ent}, of the SWF entering an island during a 1 year period. By essentially guessing the parameters in the model, and running several scenarios for p_{ent}, as well as scenarios for the conditional probability of trapping a SWF, Veronica was able to show that p_{ent} needed to be about 0.05 before it was cost-effective to have traps in place. On this basis she recommended that it was not worthwhile having traps on Prince of Wales and Dauan Islands because of their location relative to the other islands.

Veronica also recommended that traps be set up on coastal New Guinea as this would be important for estimating p_{ent}. Anecdotal evidence suggests that the other 3 components of SWF detection were probably more effective than the fly traps in most cases.

October Meeting of the WA Branch of the SSAI

BRENTON R CLARKE

The Tuesday 14th October 2008 Meeting of the WA Branch of the SSAI held was treated to an enlightening seminar by Professor Christine Müller visiting from the Universität Kassel in Germany. The title of her talk was "Outlier robust methods in image analysis". This was on work done in conjunction with co-workers Martin Hillebrand and Tim Garlipp. Beginning with a gentle introduction, including white geometrical shapes on a black background and noisy images of those shapes, her stated intention was to reconstruct from the noisy images the original geometric shapes. The reason these particular shapes were chosen is that most image processing techniques had trouble reconstructing images which had corners. To overcome this problem she described various local reconstruction methods which included use of kernel estimators, starting with a moving average, and going on to explaining kernel functions more generally. Christine then went on to generalize to two dimensional kernel estimators, and showed the reconstructions based on mean kernel estimators, and then demonstrated that mean kernel estimators neither preserve edges nor preserve corners.

Christine moved on to talk about kernel estimators based on outlier robust estimators, beginning with medians used within the window. These median based kernel estimators however preserve edges but not corners. We were then given a review of robust estimators and shown what combining redescending robust M-estimators with kernels could achieve, this was related to work by Chu et al. (1998). The question was asked: Is there a contradiction between outlier robust reconstruction and corner preserving reconstruction? Christine was able to show that this indeed was not the case, through the combination of trimming and using redescending M-estimators.

In a short last part of her talk, she also demonstrated how redescending M-estimators can be used for identification of geometrical objects such as lines and circles, and showed interesting applications of her work with botanists. The reconstruction of geometrical shapes was impressive. Questions were asked about whether one could reconstruct the noisy images in other ways, say reconstructing the white shapes on the black background and then reconstructing the black background a second time using conventional methods, in order to get back the corners? However the consensus was that this was not the case. She was asked if images of the galaxies involving spirals could be reconstructed in this way, though Christine was not aware of work in that area. A group of a half a dozen including the speaker carried on the conversation at a nearby Vietnamese restaurant.

MIRANDA MORTLOCK

Queensland Branch News

AUGUST

The August meeting was held on the 5th August at UQ. Professor Ritei Shibata, Keio University, Japan spoke on Statistics in Data Science. Prof Shibata outlined his view of the new paradigm of Data Science and its relationship to traditional statistics. He has an M.Sc. (Tokyo Institute of Technology, 1971), Ph.D. (Tokyo Institute of Technology, 1981) and is a Member of the Japan Statistical Society, Japan Mathematical Society, Bernoulli Society for Mathematical Statistics and Probability, International Association for Statistical Computing. He was awarded the Japan Statistical Society Award in 2006.

His scientific contributions include Statistical Model Selection, proving asymptotic efficiency of AIC (Akaike's Information Criterion) and the inconsistency as a method of model selection, typically selection of regression variables. He is interested in the environment for working with Data. He advocates a new paradigm Data Science and created DandD (Data and Description) environment for working with data as an infra-structure of Data Science.

SEPTEMBER

On Tuesday 23rd September, Professor Rodney Wolff presented a talk on "Risky Business: Getting the Copula You Want" at Queensland University of Technology.

A large turnout of over 50 people enjoyed refreshments provided by the School of Mathematics, QUT and jointly hosted by SSAI with The Brisbane Quant Forum.

A cupola is a beautiful dome-like structure which graces many celebrated architectural objects. A copula is a beautiful mathematical structure which graces many celebrated joint statistical distributions - as well as all of the uncelebrated ones - and it looks like a cupola, too, depending on your perspective. The ordinary multiplication rule in probability applies for independent components, but copulae creep into the rule when components are not independent. This has many applications, particularly in finance: where the components are risk factors in a financial portfolio, capturing their dependence is crucial for risk management. We illustrate flexible, semi-parametric methods for estimating copulae and associated risk, contrasting with current standard approaches which are generally fully parametric, using both simulation and market data. This is joint work with Dr Kohei Marumo, Bank of Japan.

Rodney Wolff read for an honours degree in mathematics at Univ Queensland, and for a doctorate on statistical aspects of chaos under the supervision of Sir David Cox at Univ Oxford. He has held academic posts at Univ Glasgow, Univ Oxford, Univ Queensland, and QUT, where he is professor of statistics. He is an affiliated researcher of the Centre d'Economie de la Sorbonne, Paris. His current research interests are in statistical risk management, weather-related finance, non-parametric modelling generally, and a new foray into applications of dynamics in genetics. He is moonlighting as a statistician while waiting for Broadway to recognise his thespian skills: critics' reviews suggest he will be moonlighting a very long time.

The Brisbane Quant Forum is an informal gathering of Brisbane-based individuals working across diverse industries in quantitative roles. Its goal is to provide a relaxed atmosphere to catch up and share ideas with colleagues past and present, and to network with people working in similar fields. Specifically, the group targets quantitative professionals working in a variety industries, such including Electricity, Finance, Banking, Risk, Investment Management, Actuarial, and includes students and researchers involved in Finance and Mathematical related degrees.

MIRANDA MORTLOCK

OCTOBER – MEETING HELD IN EARLY NOVEMBER

The branch meeting held on Monday 3rd November 2008 was addressed by Dr Brendan Sinnamon, who works as a liaison librarian at the QUT library, specialising in helping mathematicians and statisticians with research questions and information sources. The meeting was well attended by members from academia, CSIRO, DPI and a research student. Brendan spoke first about Google Scholar, a freely available academic search tool. Members who have access to an institutional library may use the "scholar preferences" to automatically enable full text acquisition where the relevant subscription exists. Google Scholar indexes widely in maths and statistics, and being free access provides a means for members who may not be affiliated with institutions to find research articles.(See http://scholar.google.com.au/.)

A tool that works very well with Google Scholar is "Zotero", a reference management system akin to end note, but open source and freely available. It requires the Firefox browser, for which it is an add-in. Brendan demonstrated how easily Google Scholar searches could be saved into Zotero with a click of a button, and exported in bibtex format, Endnote format (via a filter available from the UQ library pages), or inserted directly into Microsoft word or Open Office documents. Zotero, meanwhile, manages the database of citations, allowing custom annotations. (Zotero: http://www.zotero.

org/). Brendan then discussed the topic of bibliometrics, a topic of interest to the publish or perish members! In fact, free software called "Publish or Perish" performs bibliometric analysis on the results of a Google Scholar search. This may be helpful for stats people at QUT, for example, as Web of Science, the bibliometric service subscribed to at QUT, does not index all stats journals. (Publish or Perish: http://www.harzing.com/resources).

A NEW INITIATIVE FOR QUEENSLAND SSAI

The Queensland Branch has initiated a branch blog, and invite visitors to the site http://ssaqld.wordpress.com/.

The Christmas talk and dinner are planned for the 1st December.

LISA YELLAND

Research highlights of developing efficient designs in the investigation of gene behaviour

The August meeting of the SA branch was a meeting with a difference. Firstly, we were fortunate enough to have not one but two speakers; PhD student Penny Bennett and her supervisor Andrew Metcalfe from the University of Adelaide. Secondly, the meeting was targeted at both young statisticians and regular members of the Society. As an added incentive for young statisticians to attend, free dinner was offered to all young statisticians who are members of the Society. This was made possible by Penny who raised funds at a morning tea at Telstra where she works part time as a statistician.

Penny and Andrew gave an interesting and entertaining presentation on experimental design. They began with the basics, going back to the early work of Sir Ronald Fisher and the famous tea lady experiment. A woman who claimed she could tell whether the tea or the milk was put in the cup first was given eight cups of tea where either the tea or the milk had been poured first in random order. To understand the distribution of the number of correct responses if the woman was guessing, members of the audience were given a list of eight statements and were asked to indicate which four they thought were true. The statements were chosen such that it was highly unlikely that anybody would know whether the statement was actually true or not. For example, one statement was 'The weather at Kent Town at 8am this morning recorded by the Bureau of Meteorology was 8.8 as indicated on their website'. Not surprisingly, the distribution of audience responses was consistent with the distribution of the number of correct responses if people were guessing!

Having discussed the basic principles of experimental design, Penny and Andrew then moved on to discuss design issues that arise in the investigation of gene behaviour. They considered experiements involving two-colour microarrays which allows examination of the behaviour of many thousands of genes in a single experiment. In a simple 2x2 experiment involving two cell lines and two time points, many different designs are possible for a given number of microarray slides. Penny is currently working on an algorithm for identifying designs which are likely to be optimal in some respect.

The evening ended with an enjoyable pizza dinner at Café Amore which had a great turnout. It was a wonderful opportunity for young statisticians to mix with each other and with regular members of the Society.
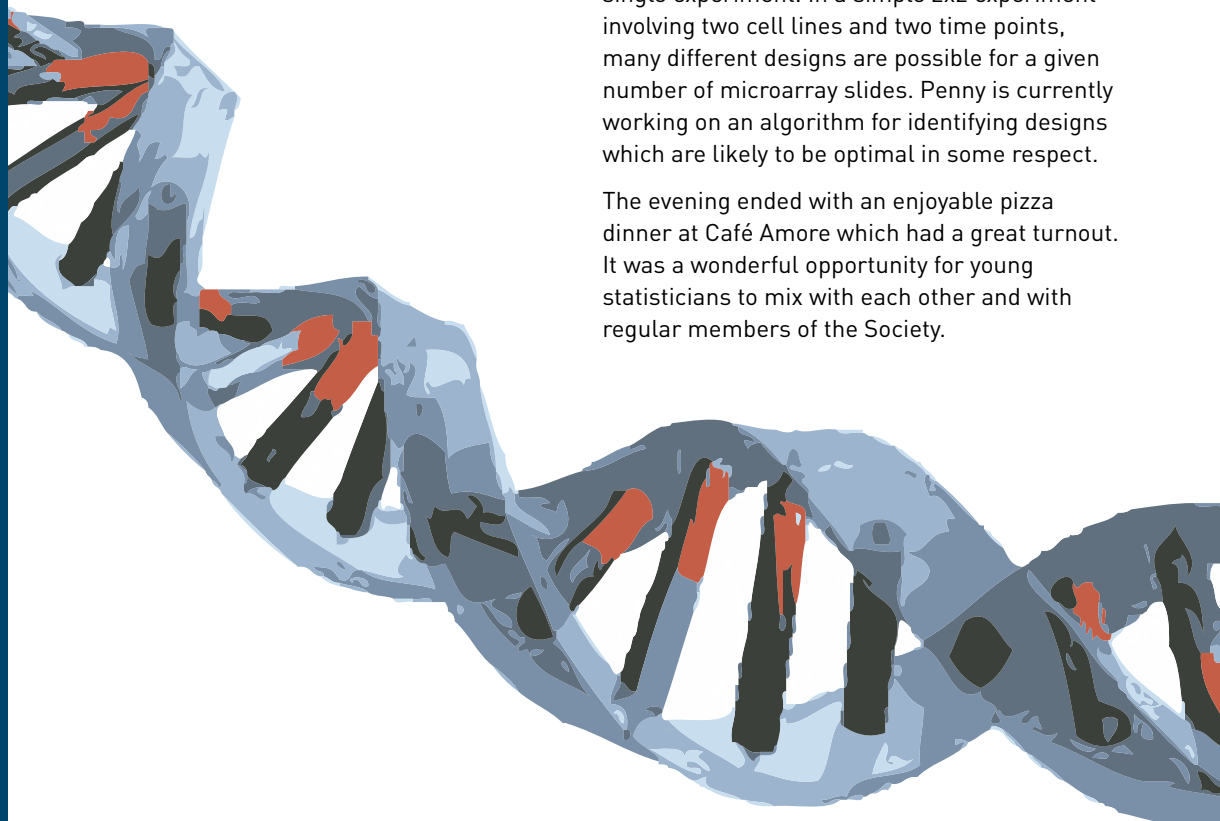
Modelling of Diffuse Solar Radiation with Multiple Predictors

PAUL SUTCLIFFE

John Boland, Dean of Research in the IT, Engineering and Environment Division of the University of South Australia gave a talk on work done with Barbara Ridley titled "Models of Diffuse Solar Fraction" at the September branch meeting.

For many locations, only global solar radiation is measured, or inferred from satellite data, while diffuse solar radiation is also measured in other locations. For modelling solar energy applications, the amount of radiation on a tilted surface is needed. There are regression relationships for estimating the diffuse solar radiation on a tilted surface from the diffuse solar radiation on the horizontal. Models for estimating the diffuse solar radiation from global solar radiation, developed in Europe or North America, have proven to be inadequate for Australia, and possibly other Southern Hemisphere locations. The number of sites in Australia that are recording diffuse solar radiation is dropping.

John presented data from Geelong which showed potentially spurious data which did not follow the inverse relationship between the clearness index and the diffuse fraction. There is an obvious disparity of data between different hemispheres with Adelaide, not surprisingly, showing more data at the higher end of the clearness index as compared to Bracknell (UK) in the northern hemisphere.

Previous modelling of Adelaide data relied on a piecewise linear fit or moving averages. The data can be transformed by standardising the clearness index, fitting a linear regression and back transforming the results. The shape of the fit suggests that a logistic function model would perform better.

Data were combined from all locations to develop a generic model for predicting diffuse solar radiation for any location. John presented comparisons of the fit for a number of locations: Adelaide, Darwin, Maputo, Bracknell, Lisbon, Uccle and Macau.
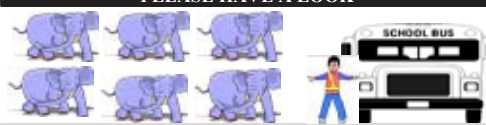
The work has demonstrated a parsimonious method for constructing a multiple predictor model for diffuse solar fraction. This logistic model performs much better for Southern Hemisphere locations than previous models and equally well for the Northern Hemisphere locations. John anticipates that the logistic model will become the industry standard since it is the only one derived using rigorous statistical techniques. A model for diffuse solar radiation is becoming increasingly needed due to among other things, the changeover from ground-based weather stations to satellite data collection.

MARIE-LOUISE RANKIN
AND
LIZ JERMYN

SSAI has a new website!

After months of hard work SSAI was proud to announce the launch of its new website last month. We have received a lot of positive feedback and some critical comments and we appreciate the fact that you took the time to tell us your views. We hope that by now a lot more of you have had the chance to log in and have a look around the "members' only" area of the website . We sent out the login details to all our current members, but about sixty of the emails were returned because there was a problem with the email address. So if you have not received any emails from SSAI recently, it could be because we do not have your current email address. If this is the case, would you please email SSAI at admin@statsoc.org. au with your new details and we will update the database for you and send you your login details.

Membership renewals were sent out the second half of November and we are very pleased to be able to offer online renewals and online payments. If you take advantage of the online payment facility you will hold your receipt in your hands within minutes of the renewal. For the first time we have also been able to take workshop registrations and payments online, which makes the whole registration process run much smoother for the workshop participants and the SSAI Office.

We are currently in the process of updating the details of our accredited members. We hope to have the updated list available again online by the end of November.

Thank you to all of you for your patience during the transition from the old website to the new website. Thank you as well to the branch webmasters and their representatives who have participated in the website training to learn how to update the branch pages.

If you are struggling with the login to the members' area, please let the SSAI Office know and we will do our best to help you.

Best wishes for a wonderful Christmas and a very happy New Year from us at the SSAI Office.

www.statsoc.org.au