

# NEWSLETTER

## Department of Mathematics & Statistics

Issue No. 9/03

Friday, 30 May 2003

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### PhD COMPLETED

Alistair Smith successfully defended his PhD on "Optimal Marine Farm Structures" last Friday 23rd May, and the final version of his thesis is now being bound and deposited in the Library etc. Congratulations from us all Alistair. This is the first PhD to be completed at Canterbury in Computational and Applied Mathematics. Alistair is now working as a researcher in NIWA, and he and Amanda depart on 3 months OE next week. On his return in September he will resume his position there as a Postdoctoral Fellow.

*Graeme Wake*

### CONGRATULATIONS

Congratulations and luck to:

Michelle Dalrymple who on Tuesday 20th May submitted her PhD thesis.

The results of this PhD research shed important insights and identify new climatic factors which significantly impact on the incidence of sudden infant death (SIDS). Historically Canterbury has one of the highest SIDS rates in NZ, and NZ still has one of the highest SIDS rates in the Western world.

The focii of the work are mathematically modelling stochastic systems, testing for latent structure and structural shifts and modeling

discrete time series as mixtures or extended Poisson stochastic processes.

This is the first study, to date, to:

- (1) model discrete SIDS time series as mixture models and as stochastic systems. In this way we have accounted for the propensity for the SIDS series to contain many times of zero counts.
- (2) identify structural shifts in the SIDS time series - derived novel block bootstrap discriminating statistics and survival analytic methods to identify change points in SIDS counts
- (3) systematically create, test and model climatic impact factors (lagged and non lagged) at multiple temporal scales i.e. daily, monthly, yearly etc.

Have enjoyed the journey with M.

Michelle - wish you well in your future postgraduate course and teaching directions. Glad to hear that you shall continue to be involved here with writing up papers and keeping me and Julie D "in order"!!

*Irene Hudson*

## DEPARTMENTAL RESEARCH GRANTS

Congratulations to Qui Bui who is awarded \$1300 to support his participation at ICIAM in Australia in July, and to David Byatt who is awarded \$800 towards his attendance at the International Symposium on Mathematical Programming in Denmark, August 18-22.

*Mike Steel*

## PAPER IN PRESS

Cyclic permutations and evolutionary trees. Charles Semple and Mike Steel *Advances in Applied Mathematics*.

*Mike Steel*

Brown, J.A. with Thomas, M.D., Maddigan, F.W and Sessions, L.A. 2003. Comparison of trap-catch and bait interference methods for estimating Possum densities. *NZ Plant Protection*, 56:00-00.

Brown, J.A. with Thomas, M.D., Maddigan, F.W and Trotter, M. Optimising possum control using encapsulated cyanide (Feratox(r)). *NZ Plant Protection*, 56:00-00.

*Jennifer Brown*

## APPOINTMENT OF POSTDOC

Stefan Grunewald has been appointed to a 6 month postdoc with us from Nov. 1 to April 30th. This postdoc is funded by the NZIMA under our 'phylogenetic genomics' programme. Stefan will be working with Charles Semple and Mike Steel.

*Mike Steel*

## DEPARTMENTAL VISITORS

Next week we welcome Susan Wright, who is the business manager for the Allan Wilson Centre. Susan will be visiting on the 4th and 5th of June to meet with us and the DVC Research (Bob Kirk). This is her first excursion to the South Island.

*Mike Steel*

| <u>Current Visitors</u>            | <u>Organisation</u> | <u>Room No.</u> | <u>Ext. No.</u> |
|------------------------------------|---------------------|-----------------|-----------------|
| Dr. Wim <b>Hordijk</b>             | Santa Fe Institute  | 720             | 8337            |
| Assoc. Prof. Peter <b>Lockhart</b> | Massey University   | 616             | 8876            |

## CONGRATS FOR RESEARCH AWARDS

Congratulations to Bill Baritompia who has been awarded \$2314 of departmental research funds to support a research visit here by Prof. Graham Wood and David Bulger from late June to mid-July.

*Mike Steel*

## RESEARCH AND LECTURE TRIP

Frank Lad has been invited for a session of lecturing and research in Italy. He will present an invited lecture in Naples to a Conference on Science and Democracy. It is entitled "Probability: the language of the people! -- the language of science?" and is accessible as a department research report. Following these days he will spend two weeks at the universities of Rome, Perugia and Bologna working on some research projects. He will also lecture on the results of last year's work: "Learning from the probability assertions of experts." It is also available as a research report. The final week he will lecture at the Asti Summer School on Applied Statistics in Anthropology and Biology.

*Frank Lad*

## AWARDS

Dominic Lee is awarded \$1200 departmental research funds to presenting a talk at the 54th NZSA at Massey University July 2-4.

*Mike Steel*