

Report on:

45th Actuarial Research Conference

July 26-28, 2010

Simon Fraser University

Marks the 20th Anniversary of our Actuarial Program



Overview:

The Actuarial Research Conference is an annual event jointly sponsored by the Education and Research Section of the Society of Actuaries. SFU hosted the 45th Edition of this conference in July 2010.

It is the most important conference in North America for academic and graduate students. It is open to all areas of actuarial practice and promotes education, research and interaction with industry. It attracts a large proportion of actuarial academics in Canada and the U.S.

The conference was well supported by the professional associations, research centers and the local industry.

The conference featured three keynote presentations. Dan Young talked about actuarial accounting and professionalism. He reviewed the cases against AIG and Gen Re and reminded the audience of the actuaries' legal obligations to the public. Stuart Klugman presented recent and planned education activities by the Society of Actuaries. He talked about curriculum and examination changes as well as academic initiatives. Charmaine Dean and one of her collaborator, Doug Woolford, talked about spatio-temporal survival analysis. The talk used illustrative examples to demonstrate the impact these models had in a number of practical areas and discussed how these survival models can be useful in actuarial science. The comments from the participants were all very positive. The range of topics and the quality of the speakers were greatly appreciated.

In addition to the keynote speakers, Mark Phillips of ICBC, was a invited guest for the Forum held on the last day of the conference. Mark shared his views on the role of the universities in the education of actuaries from an employer's perspective as well as discussing other topics brought up during the Forum.

The conference was attended by 95 registered participants and a number of actuarial graduate and undergraduate students from SFU. Parallel sessions were scheduled to allow 30-minute presentations for the 40 contributed papers.

Of the 28 practitioners attending the conference, 7 of them presented a paper. The papers covered different areas of actuarial practice and helped promote interaction with industry.

The poster session was not as popular as expected. A total of 4 posters were displayed during the conference, 3 posters were submitted by graduate students and 1 from a faculty member.

The papers presented at the conference were reviewed for suitability by the scientific committee. They have been published as conference proceedings by the Actuarial Research Clearing House.

The Education and Research Section offered 5 cash prizes for best presentations by graduate students. Winners from the 2010 conference at Simon Fraser University were:

Brian Hartman (\$500) - Texas A & M University, "Bayesian Methods for Fitting Regime-Switching Models"

Barbara Sanders (\$400) - Simon Fraser University, "Analysis of Variable Benefit Plans"

Maciej Augustyniak (\$300) - Université de Montréal, "Inference for a Family of Statistical Distributions with Heavy Tails"

Ping An (\$200) - China Institute for Actuarial Science, Central University of Finance and Economics, "Forecasting Mortality in the Presence of Missing Data: An Application to Chinese Population"

Ya Fang Wang (\$100) - Concordia University, "Distribution of Discounted Compound Sums when the Mean of Inter-arrival Time is Small"

The success of the conference enhanced the reputation of SFU's actuarial program in North America and internationally.

The Canadian Institute of Actuaries and the Society of Actuaries are working on initiatives to accredit actuarial programs in Canadian and U.S. universities. The conference will be an occasion for actuarial staffs of those professional associations to evaluate our program both in terms of teaching and research. We are proud to report that since hosting the ARC conference, SFU has been awarded the Center of Actuarial Excellence designation by the Society of Actuaries. Being recognized as a CAE is crucial for the growth of our graduate program.



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PROGRAM

45TH ACTUARIAL RESEARCH CONFERENCE

TALKS WILL BE HELD IN:

SESSION A: SAYWELL HALL 10081

SESSION B: BLUSSON HALL 10011

Sunday, July 25th

17:30 – 20:30 Registration/Cocktail Reception (Halpern Centre #126)

Participants can register, pick up conference materials and network.

Monday, July 26th

8:00 – 8:45 Registration/Continental Breakfast (outside Room 10081)

8:45 – 9:00 Opening Remarks (Room 10081)

9:00 – 10:15 Actuarial Accounting--A Cautionary Report (Room 10081)

Invited Talk: Dan R. Young

Moderator: Gary Parker

10:15 – 10:45 Break

10:45 - 12:15 Session 1A – Mortality Risk (Room 10081)

Moderator: Margie Rosenberg

José Garrido: **Mortality Improvement: An Actuarial Perspective**

Albina Orlando: **Solvency appraisal for life annuities: demographic risk measures**

Cary Tsai: **Actuarial Applications of the Linear Hazard Transform in Mortality Fitting and Prediction**

Session 1B – Reinsurance (Room 10011)

Moderator: Ron Gebhardtsbauer

Beatriz Balbás-Aparicio: **Optimal Reinsurance Problems Involving Risk Measures**

Jianfa Cong: **Optimal Multi-period Proportional Reinsurance Strategy**

Wei Wei: **Optimal Reinsurance Strategy in Two Dimensional Risk Model**

12:15 – 13:45 Lunch (E&R Meeting: Room ASB 10940 – IRMACS)

13:45 – 14:45 Society of Actuaries Education Update (Room 10081)

Invited Talk: Stuart Klugman

Moderator: Samuel Cox

14:45 – 15:45 Session 2A – Actuarial Education (Room 10081)

Moderator: Arnold Shapiro

Margie Rosenberg: **Technology Enhanced Learning for Actuarial Science Education**

Barry McKeown: **Diversity In The Actuarial Profession - Why College Summer Programs For High School Students Can Make A Difference**

Session 2B – Mortality Projections (Room 10011)

Moderator: Bruce Jones

Louis Adam: **The Canadian Pensioners Mortality Table: some results on mortality level and trends**

Ping An: **Forecasting Mortality in the Presence of Missing Data: An Application to Chinese Population**

15:45 – 16:15 Break

16:15 – 17:45 Session 3A – Risk Theory I (Room 10081)

Moderator: Étienne Marceau

David Landriault: **Ruin Theory with Parisian Delays**

Tianxiang Shi: **Finite-time ruin problems in Sparre Andersen models with arbitrary interclaim times**

Yi Lu: **The expected discounted penalty at ruin for a risk model with two-sided jumps**

Session 3B – Pension Valuation (Room 10011)

Moderator: Curtis Huntington

Arnold Shapiro: **Fuzzy Post-Retirement Financial Strategies**

Patrick Mignault: **How Phased Retirement Affects Defined Benefits**

Barbara Sanders: **Analysis of Variable Benefit Plans**

Tuesday, July 27th

8:00 – 9:00 Registration/Continental Breakfast (outside Room 10081)

9:00 – 10:00 Spatio-Temporal Models for Rates and Survival Analysis (Room 10081)

Invited Talk: Charmaine Dean

Moderator: José Garrido

10:00 – 10:30 Break

10:30 – 12:00 Session 4A – Loss Reserving and Forecasting (Room 10081)

Moderator: Sarah Christiansen

Glenn Meyers: **The Technical Provisions in Solvency II. What EU Insurers Could Do if They Had Schedule P**

Andrew Loach: **Claim Forecasting Using Econometric Stepwise Regression**

Wu-Chyuan Gau: **Loss reserving with random selection**

Session 4B – Finance and Risk I (Room 10011)

Moderator: Mary Hardy

Daniel Dufresne: **Changes of Measure for the Square-root Stochastic Volatility Process**

Ken Seng Tan: **Pricing and hedging with discontinuous functions: quasi-Monte Carlo methods and dimension reduction**

Joseph Kim: **Measuring and managing systemic risk**

12:00 – 13:30 Lunch (CKER Meeting: Room ASB 10901 – IRMACS)

12:30 – 1:30 Poster Session (outside Room 10081)

13:30 – 15:00 Session 5A – Model Fitting (Room 10081)

Moderator: Glenn Meyers

Louis Doray: **Inference for the Discrete Stable Distribution with the Probability Generating Function**

Eric Vaagen: **Measuring Supplier Performance Using Generalized Linear Modeling**

Brian Hartman: **Bayesian Methods for Fitting Regime-switching Models**

Session 5B – Risk Theory II (Room 10011)

Moderator: David Landriault

Hélène Cossette: **Ruin Related Quantities in a Risk Model Based on Time Series for Count Data**

Ya Fang Wang: **Distribution of discounted compound sums when the mean of inter-arrival time is small**

Ghislain Léveillé: **Discounted Compound Renewal Sums with a Stochastic Force of Interest**

15:00 – 15:30 Break

15:30 – 17:00 Session 6A – Statistical Methods (Room 10081)

Moderator: David Scollnik

Jay Vadeloo: **Replicated Stratified Sampling – A Practical Approach to Financial Modeling**

Brant Wipperfurth: **Premium Forecasting Using Principal Components Analysis**

Maciej Augustyniak: **Inference for a Family of Statistical Distributions with Heavy Tails**

Session 6B – Risk Measures and Optimal Insurance (Room 10011)

Moderator: Alejandro Balbás

Etienne Marceau: **TVaR-based Capital Allocation with Dependence**

Jacques Rioux: **Evaluation of Parameter Risk via First Order Approximation of Distortion Risk Measures**

Mostafa Mashayekhi: **A Note On Optimal Insurance Under Ambiguity**

18:00 – 21:00 Conference Dinner (Diamond Alumni Centre, SFU)

Wednesday, July 28th

8:00 – 9:00 Continental Breakfast (outside Room 10081)

9:00 – 10:30 Session 7A – Life Insurance (Room 10081)

Moderator: Yvonne Chueh

Jaap Spreeuw: **Estimation and Nonparametric Testing of Heterogeneous Life Data Models**

Min Ji: **A Multiple State Model for the Joint-life Reverse Mortgage Termination Speed**

Ruowei Zhou: **Actuarial and Financial Valuations of Guaranteed Annuity Options**

Session 7B – Finance and Risk II (Room 10011)

Moderator: Daniel Dufresne

Emmanuel Thompson: **Valuation of Segregated Funds in India**

Richard Joss: **Investment Forecasting Using Conditional Probabilities**

Raquel Balbás: **Compatibility Between Prices and Risks**

10:30 – 11:00 Break

11:00 – 12:00 Forum (Room 10081)

Moderator: Gary Parker

12:00 – 12:15 Closing Remarks (Room 10081)

12:15 Lunch Box

Committee Members

<u>No.</u>	<u>Last Name</u>	<u>First Name</u>	<u>Committee</u>	<u>Affiliation</u>
1	Parker	Gary	Chair	Simon Fraser University
2	Tsai	Cary	Program Committee	Simon Fraser University
3	Lu	Yi	Program Committee	Simon Fraser University
4	Chueh	Yvonne	Program Committee	Central Washington University
5	Sanders	Barbara	Local Organizing Committee	Simon Fraser University
6	Garrido	José	Local Organizing Committee	Concordia University
7	Minogue	Camille	Local Organizing Committee	The Insurance Corporation of British Columbia

Invited Speakers

<u>No.</u>	<u>Last Name</u>	<u>First Name</u>	<u>Affiliation</u>
1	Dean	Charmaine	Simon Fraser University
2	Klugman	Stuart	Society of Actuaries, U.S.A.
3	Young	Dan	Law Offices of Dan R. Young, U.S.A.

Participant List (including Committee Members & Invited Speakers)

<u>No.</u>	<u>Last Name</u>	<u>First Name</u>	<u>Gender (M/F)</u>	<u>Title</u>	<u>Affiliation</u>
1	Adam	Louis	M	Faculty	Canadian
2	An	Ping	F	Student	Non Canadian
3	Augustyniak	Maciej	M	Student	Canadian
4	BALBÁS	Alejandro	M	Faculty	Non Canadian
5	BALBÁS	Beatriz	F	Faculty	Non Canadian
6	BALBÁS	Raquel	F	Faculty	Non Canadian
7	Ban	Chunsheng	M	Faculty	Non Canadian
8	Barrett	Joan	F	Non-Academic	Non Canadian
9	Beckley	Jeff	M	Faculty	Non Canadian
10	Bilodeau	Claire	F	Faculty	Canadian
11	Bridgeman	James	M	Faculty	Non Canadian
12	Chan	Michael	M	Non-Academic	Canadian
13	Christiansen	Sarha	F	Non-Academic	Non Canadian
14	Chueh	Chin-Mei	F	Faculty	Non Canadian
15	Collings	Bruce	M	Faculty	Non Canadian
16	Cong	Jianfa	M	Student	Canadian
17	Cossette	Hélène	F	Faculty	Canadian
18	Cox	Samuel	M	Faculty	Canadian
19	Cummings	David	M	Non-Academic	Non Canadian
20	Dean	Charmaine	F	Faculty	Canadian
21	Doray	Louis	M	Faculty	Canadian
22	Dufresne	Daniel	M	Faculty	Non Canadian
23	Edwalds	Tom	M	Faculty	Non Canadian
24	Failor	Michael	M	Non-Academic	Non Canadian
25	Falkenberg	Jill	F	Student	Canadian
26	Fuhrer	Charles	M	Non-Academic	Non Canadian
27	Garrido	Jose	M	Faculty	Canadian
28	Gau	Wu-Chyuan	M	Non-Academic	Non Canadian
29	Gebhardtshauer	Ron	M	Academic	Non Canadian
30	Hardy	Mary	F	Faculty	Canadian
31	Hartman	Brian	M	Student	Non Canadian
32	Hashemieh	Payam	M	Student	Canadian
33	Herzog	Thomas	M	Faculty	Non Canadian
34	Hua	Lei	M	Student	Canadian
35	Hudak	David	M	Faculty	Non Canadian
36	Huntington	Curtis	M	Faculty	Non Canadian
37	Iverson	Burce	M	Non-Academic	Non Canadian
38	Ji	Min	F	Student	Canadian

39	Jones	Bruce	M	Faculty	Canadian
40	Joss	Richard	M	Non-Academic	Non Canadian
41	Kim	Joseph	M	Faculty	Canadian
42	Klugman	Stuart	M	Faculty	Non Canadian
43	Landriault	David	M	Faculty	Canadian
44	Leveille	Ghislain	M	Faculty	Canadian
45	Liu	Junjie	M	Student	Canadian
46	Loach	Andrew	M	Non-Academic	Canadian
47	Lockhart	Richard	M	Faculty	Canadian
48	Lu	Yi	F	Faculty	Canadian
49	Lynch	James	M	Non-Academic	Non Canadian
50	Marceau	Etienne	F	Faculty	Canadian
51	Mashayekhi	Mostafa	M	Faculty	Non Canadian
52	Masset	Kevin	M	Student	Canadian
53	McKeown	Barry	M	Non-Academic	Non Canadian
54	Menard	David	M	Non-Academic	Canadian
55	Meyers	Glenn	M	Non-Academic	Non Canadian
56	Mignault	Patrick	M	Student	Canadian
57	Minogue	Camille	F	Non-Academic	Canadian
58	Orlando	Albina	F	Non-Academic	Non Canadian
59	Pai	Jeffrey	M	Faculty	Canadian
60	Parker	Gary	M	Faculty	Canadian
61	Parsa	Rahul	M	Faculty	Non Canadian
62	Penney	Richard	M	Faculty	Non Canadian
63	Phillips	Mark	M	Non-Academic	Canadian
64	Reilly	Norman	M	Faculty	Canadian
65	Rioux	Jacques	M	Non-Academic	Non Canadian
66	Rosenberg	Margie	F	Faculty	Non Canadian
67	Sanders	Barbara	F	Student	Canadian
68	Scollnik	David	M	Faculty	Canadian
69	Seng Tan	Ken	M	Faculty	Canadian
70	Shapiro	Alexander	M	Non-Academic	Non Canadian
71	Shapiro	Arnold	M	Faculty	Non Canadian
72	Shi	Tianxiang	M	Student	Canadian
73	Spreeuw	Jaap	M	Faculty	Non Canadian
74	Strizhkova	Olga	F	Student	Canadian
75	Swanson	David	M	Faculty	Non Canadian
76	Teplitz	Paul	M	Non-Academic	Non Canadian
77	Thompson	Emmanuel	F	Student	Canadian
78	Tsai	Cary	M	Faculty	Canadian
79	Vaagen	Eric	F	Non-Academic	Canadian
80	Vadiveloo	Jay	M	Faculty	Non Canadian
81	Vassilev	Mick	M	Non-Academic	Canadian
82	Venetiaan	Ilemele	F	Non-Academic	Non Canadian
83	Vermette	Richard	M	Student	Canadian
84	Wall	Lisa	F	Non-Academic	Non Canadian
85	Wan	Zhong	F	Student	Canadian
86	Wang	Ya Fang	F	Student	Canadian
87	Wanner	Gregory	M	Non-Academic	Non Canadian
88	Wei	Wei	F	Student	Canadian
89	Wipperman	Brant	M	Non-Academic	Canadian
90	Xia	Chaoxiong	F	Student	Canadian
91	Xia	Yu	F	Student	Canadian
92	Young	Dan	M	Non-Academic	Non Canadian
93	Zhang	Ting	F	Student	Canadian
94	Zhou	Ruowei	F	Faculty	Non Canadian
95	Zhou	Yuling	F	Non-Academic	Canadian

Actuarial Research Conference
SFU, July 26-28, 2010
Final Budget

Revenue	
Registration Fees	\$13,800.00
VP Academic	\$4,000.00
MITACS	\$4,000.00
PIMS	\$4,000.00
Local Companies	\$3,000.00
SOA Sections	\$3,020.00
E&R Section, Society of Actuaries ¹	\$1,500.00
CKER, Society of Actuaries ²	\$5,000.00
Deposits for excursion	\$850.00
Total Revenue	\$39,170.00
Expenses	
Facilities Rental, Lunches & Coffee Breaks	\$13,697.98
Receptions/Banquet	\$1,885.05
SFU Events - Service Fees	\$1,511.47
Honoraria - Guest Speaker	\$787.50
Staffing Costs	
External (2 students)	\$360.00
Internal Staff	\$5,982.09
Internal Students (4 undergraduates)	\$400.00
Prizes for Best Presentation ¹	\$1,500.00
Travel Grants for Grad Students ²	\$5,000.00
Bookstore (bag, clipboard, pen for participants)	\$1,592.36
Chapters (Books purchased for participants)	\$1,950.90
Gifts for Speakers	\$245.46
Excursion	\$1,174.33
Entertainment-Speakers	\$106.15
Parking/Mileage to P/U guest speakers	\$286.28
Conference Materials:	
Printing Costs	\$426.08
Events Board/Sign Holders	\$57.06
Misc.	\$21.28
(Tax Rebate on Expenses)	-\$292.61
Transfer to the Actuarial Program Fund	\$2,478.62
Total Expenses	\$39,170.00

¹ E&R sponsored the prizes for best presentations

² CKER sponsored travel costs for graduate students presenting a paper at the conference.

Notes

\$74.00 of printing and mailing costs were paid by the Statistics & Actuarial Science Department which is not included in the above budget.

Actuarial Research Conference

SFU, July 26-28, 2010

Final Budget

The Society of Actuaries covered some expenses directly (one invited speaker, staff, promotion) that are not included in this budget. Only the funds sent to the local organizers are included here.

VP Academic, PIMS, MITACS sponsorships/funds were used to cover part of the cost of facilities, service and staff fees and one invited speaker. These funds were also used to subsidize Faculty members and students by offering them a discount on registration fees.

Registration Fees:

General \$250

Academic \$200	Subsidy: \$50 x "45 Academic"	\$2,250.00
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Students \$150	Subsidy: \$100 x "22 Students"	\$2,200.00
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Discount for early registration \$50

The funds received from SOA sections and local companies were intended for miscellaneous expenses of the conference as well as for supporting the Actuarial Program in general.