19th Annual Conference of The International Environmetrics Society

# Invited Sessions

John Braun & David Brillinger: Fire Spread Modelling

William Christensen: Pollution Source Apportionment

Charmaine Dean: Modelling Mountain Pine Beetle Spread

Michael Dowd: Marine Ecology

Abdel El-Shaarawi: Spatio-Temporal Modeling I

Abdel El-Shaarawi: Spatio-Temporal Modeling II

Alessandro Fasso: Spatio-Temporal Models for Air Quality and Epidemiology

Montserrat Fuentes: Spatial-Temporal Analysis of Environmental Health Data I

Montserrat Fuentes: Spatial-Temporal Analysis of Environmental Health Data II

Paramjit Gill: Monitoring, Modelling and Managing Environmental Systems

Paramjit Gill: Ecological Sampling

Peter Guttorp: Communication of Risk and Uncertainty

Bronwyn Harch: Landscape Level Risk Assessment

Ulla Host: Spatial Modelling

Venkata Jandhyala: Statistical Methods for Environmental Data Analysis

Daniela Jaruskova: Changes in Environmental Data

Jason Loeppky: Application of Computer Models

Renjun Ma: Modelling of Covariates in Environmental Studies

McLeod A.I.: Trend Analysis

Nathaniel Newlands: Ecosystem Models: Windows into an Uncertain Future

Don Stevens: Sampling and Analysis Issues in Monitoring Salmonid Populations

Don Stevens: Sampling Sustainable Resources

David Walshaw: Extremes

Hao Zhang: Sustainability and Point Processes

June 8-13, 2008, Kelowna, British Columbia, Canada
The University of British Columbia Okanagan

John Braun & David Brillinger Fire Spread Modelling

Cordy Tymstra, John Braun, Alberta Government Sustainable Resources Development
*Incorporating Stochasticity in the Prometheus Fire Growth Simulation Model*
Francis Fujioka, US Forest Service
*Mapping Wildfire Spread Probabilities - a Hot Topic*
Mike Wotton, U of Toronto/Canadian Forest Service
*Factors Influencing the Spread of Forest Fires and the Canadian Forest Fire Behaviour Prediction System*

William Christensen Pollution Source Apportionment

William F. Christensen, Matthew J. Heaton, Shane C. Reese, Brigham Young University
*Integrating Diverse Sources of Airshed Information in Pollution Source Apportionment*
Thomas Lumley, University of Washington
*Source Apportionment and Health Effects*

Charmaine Dean Modelling Mountain Pine Beetle Spread

Jiguo Cao, Charmaine Dean, Dave Martell, Doug Woolford, SFU, U of Toronto
*Investigating for climate change signals in fire ignitions and area burned*
Richard A. Fleming, Jean-Noël Candau, Allan Carroll, Canadian Forest Service
*Will mountain pine beetle (Dendroctonus ponderosae Hopk. (Coleoptera: Scolytidae)) spread into eastern Canada? A module for the local population dynamics*
Jun Zhu, Yanbing Zheng, Brian Aukema, U of Wisconsin, U of Kentucky, Canadian Forest Service and U of Northern British Columbia
*Spatial-Temporal Statistical Modeling of Mountain Pine Beetle Outbreak*

Michael Dowd Marine Ecology

Joanna Mills Flemming, Dalhousie University
*Variable Selection in Additive Models with an Application to Logbook Data on Blue Sharks*
Ruth Joy, University of British Columbia Fisheries Centre
*The decline of the Steller sea lion: Challenges to addressing a dramatic signal in the dynamics of a marine ecosystem*
Grace Chui, University of Waterloo
*Food Web Modelling: Why Consider Longitudinal Social Networks and Bayesian Melding?*

| Abdel El-Shaarawi | Spatio-Temporal Modeling I |
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Cliff Spiegelman, Soumen Lahiri, Justice Appiah, Larry Rilett, Eun Sug Park, Texas A&M University
*Evaluating Uncertainties for Receptor Modeling Estimates using the Jackknife and Gapped Bootstrap*
Mark Kaiser, Iowa State University
*Modeling at the Source of Pollution*
A. Ian McLeod, M.S. Islam,
*Testing for Periodicity in Short Time Series*

| Abdel El-Shaarawi | Spatio-temporal modeling II |
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Lieven Clement, Olivier Thas, Ghent University
*A Spatio-Temporal State-Space Model for River Network Data*
Lieven Clement, Olivier Thas, Ghent University
*Spatio-Temporal State-Space Models for River Network Data: Two Extensions*
Yulia Gel, University of Waterloo
*Producing Statistical Ensembles of Weather Forecasts Using Geostatistical Output Perturbation (GOP) method: A Move Toward Non-Stationarity*

| Alessandro Fasso | Spatio-temporal models for air quality and epidemiology |
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Alessio Pollice, Giovanna Jona Lasinio, Serena Arima,
*A multivariate approach to the analysis of air quality in a high environmental risk area*
Rosaria Ignaccolo, Stefania Ghigo, Stefano Bande,
*Functional zoning on corrected air quality model output*
Monica Chiogna, Carlo Gatean,
*Spatio-temporal models for count data*
Francesca Bruno, Daniela Cocchi, Fedele Greco,
*Modelling particulate matter vertical profiles*

| Montserrat Fuentes | Spatial-temporal analysis of environmental health data I |
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Sudipto Banerjee, Andrew O Finley, Patrik Waldmann, Tore Ericsson, University of Minnesota
*Hierarchical spatial modeling of additive and dominance genetic variance for large spatial trial datasets*
Montse Fuentes, B. Reich and A. Herring, North Carolina State University
*Bayesian variable selection for spatially-varying coefficient regression: application to physical activity in pregnant women*
Tilmann Gneiting, University of Washington
*Mean, median, mode, more*

| Montserrat Fuentes | Spatial-temporal analysis of environmental health data II |
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Catherine A. Calder, Peter, F. Craigmile, Hongfei Li, Rajib Paul, Noel Cressie, Ohio State University
*Spatial Data Assimilation for Regional Environmental Exposure Studies*
Hedibert Lopes, Alexandra Schmidt, Esther Salazar, Mariana Gómez, Marcel Achkar, IM-UFRJ, Brazil
*Spatially Hierarchical Factor Models: building a social-environmental vulnerability index for Uruguay*
Gavin Shaddick,
*Changes in long-term geographical associations of pollution with mortality*

| Paramjit Gill | Monitoring, modelling and managing environmental systems |
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Bruce Smith, Swarna Weerasinghe, Dalhousie University
*Modeling Nova Scotia Groundlevel Ozone Concentrations*
Farouk Nathoo, University of Victoria
*Joint Spatial Modeling of Recurrent Tree Infection and Growth with Processes under Intermittent Observation*
Jean-François Angers, Felix Labrecque-Synnott, University of Montreal
*Effect of the Northern Atlantic oscillation index on precipitation in Northern Québec*
John Braun, Qiang Fu, Yu Han, University of Western Ontario
*Stochastically Modelling Forest Fire Spread*

| Paramjit Gill | Ecological Sampling |
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Carl Schwarz, Simon Fraser University
*Designed experiments in Mark-Recapture*
Steve Thompson, Simon Fraser University
*Adaptive web sampling for spatially uneven populations*
Subhash Lele, Monica Moreno, Erin Bayne, University of Alberta
*Site occupancy and detection error: What can we do with single survey?*

| Peter Guttorp | Communication of risk and uncertainty |
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Abdel El-Shaarawi, Environment Canada
*Some examples of water pollution risk assessment and communication in Canada*
David Brillinger, U of California Berkeley
*"An estimate without a standard error is practically meaningless" H. Jeffreys*
Bronwyn Harch, CSIRO
*Managing and Communicating Uncertainty by Providing Innovation in the Environmental Services Economy*

| Bronwyn Harch | Landscape Level Risk Assessment |
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Jeff Dambacher, CSIRO Hobart

*Linking Threats to Assets in Complex Ecological and Socio-Economic Systems: Qualitative Modelling for Tourism Development in Northwest Australia*

Brent Henderson, CSIRO Canberra

*Estimation of nonlinear trends in water quality: An improved approach using generalized additive models*

Quanxi Shao, CSIRO Perth

*Streamflow prediction using functional-coefficient Regression models with Periodic Variation*

| Ulla Host | Spatial Modelling |
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Paul D. Sampson, Adam Szpiro, Lianne Sheppard, University of Washington

*Spatial Scales and Spatial Regression Models of Air Quality Exposure from Complex Spatio-Temporal Monitoring and GIS-Based Land Use Covariates*

Johan Lindström, Finn Lindgren, Lund University

*Spatio-Temporal Modeling of Precipitation using Gaussian Markov Random Fields*

Johan Lindström, Eric Gilleland, Finn Lindgren, National Center for Atmospheric Research

*The Image Warp for Evaluating Gridded Weather Forecasts*

| Krishna Jandhyala | Statistical Methods for Environmental Data Analysis |
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Daniela Jaruskova, Czech Technical University

*Methods for detecting changes in temperature series - application to Prague Klementinum temperature series*

Hyune-Ju Kim, Syracuse University

*Multi-phase regression with applications*

Hao Zhang, Purdue University

*Analysis of Massive Spatial Data*

| Daniela Jaruskova | Changes in environmental data |
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Edit Gombay, University of Alberta

*Change detection in the distribution of data described by time series*

Venkata K. Jandhyala, Jing You, and Stergios B. Fotopoulos, Washington State University

*Change-Point Analysis of Annual Rainfall from Tucumán, Argentina*

J. Antoch, Charles University

*On piecewise linear modelling of temperature time series*

Jason Loeppky — Applications of Computer Models

Jason L. Loeppky, Jerome Sacks, William J. Welch, University of British Columbia
*Choosing the Sample Size of a Computer Experiment: A Practical Guide*
Shane C. Reese, William F. Christensen, Basil Williams, Brigham Young University
*A dispersion Model Based Approach for the Identification of Pollution Source Directions*
Dave Higdon, Los Alamos
*Combining detailed computer simulations and experimental data*

Renjun Ma — Modelling of Covariates in Environmental Studies

Rong Zhu, Abdel El-Shaarawi, McMaster University
*Model clustering and its application to Water Quality Monitoring*
Yanan Fan, University of New South Wales
*Towards automating model selection for a mark-recapture-recovery analysis*
Liqun Wang, University of Manitoba
*Statistical inference in nonlinear systems with mismeasured covariates*

McLeod A.I. — Trend Analysis

Noakes, Donald, J.; Beamish, Richard J.; Sweeting, Ruston M.; Neville, Chrys-Ellen M., Thompson Rivers University; Fisheries and Oceans Canada
*Trends in the Marine Survival of Hatchery and Wild Coho Salmon (Oncorhynchus kisutch) in Relation to Shifts in Climate and their Ecosystem*
Rob McAlpine, Ou Feng, A. Ian McLeod, David A. Stanford,
*Predicting Fire Fighting Costs in the Province of Ontario*
Theodoro Koulis, Mary Thompson, Ellsworth LeDrew, Centre Hospitalier de l'Universit de Montral, University of Waterloo
*A spatio-temporal model for Antarctic sea ice formation*

Nathaniel Newlands Ecosystem Models: Windows into an Uncertain Future

Henry Janzen, AAFC-Lethbridge

*Understanding farms as ecosystems: the role of models*

Denise Neilsen, Ted Van der Gulik, Scott Smith, Bill Taylor, Alex Cannon, AAFC-Summerland

*Integration of multiple datasets for regional water supply-demand modeling in the Okanagan region of British Columbia*

Scott Mitchell, Carleton University

*"Keep it simple" versus "But it's complicated!"; modeling dilemmas in predicting native grassland primary productivity*

Hong Wang, AAFC-Swift Current

*Using the DSSAT-CSM framework to study agriculture-environment relationships in western Canada*

Ward Smith, Brian Grant, Con Campbell, Ray Desjardins, Brian McConkey and Changsheng Li,

*Estimating the effect that climate has on crop biomass production at long-term experimental sites in Canada*

Brian McConkey, Stephen Smith, Suren Kulshreshtha, Cecil Nagy, Darrel Cerkowniak, Bentham Murray, Ravinderpal Gill, Marie Boehm, Bob MacGregor, AAFC-Swift Current

*Integration of Economic and Biophysical Models for Determining Impact of Future Energy Demands of Greenhouse Gas Emissions and Fossil Fuel Use for Canadian Agriculture*

Xiaoyuan Geng, AAFC-Ottawa

*Interoperable web service and ecosystem modelling: a distributed hydrological model use case*

Nathaniel Newlands, Ward Smith, Grant Clark, Scott Mitchell, Abid Shah, AAFC-Lethbridge

*A review of ecosystem models and their validation in agricultural applications*

Zhong Liu, Statistics University of British Columbia

*Combining Measurements with Ensemble Model Outputs by Bayesian Melding Model*

Xin Chen, Concordia University

*Transient dynamics and ecosystem response to environmental perturbations*

Nathaniel Newlands, Zhong Liu, AAFC-Lethbridge, Statistics University of British Columbia

*Stochastic time-delay model of nitrous oxide emission: validation with Canadian data*

| Don Stevens | Sampling and analysis issues in monitoring salmonid populations |
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Julie Firman, Kelly Burnett, Ashley Steel, Dave Jensen, Blake Feist, Kelly Christianse, Phil Larsen, Erin Gilbert, Kara Anlauf, Oregon Department of Fish and Wildlife, USDA Forest Service, NOAA Fisheries, United States Environmental Protection Agency

*The good data paradox: Lessons in landscape modeling for coho salmon in western Oregon*

Kara Anlauf, William Gaeuman, Oregon State University,Oregon Department of Fish and Wildlife

*Monitoring aquatic habitat status and trend in coastal watersheds of Oregon, USA*

Don L. Stevens, Jr., Oregon State University

*Efficient Spatially-Balanced Designs for Monitoring Status and Trends of Salmonid Populations*

| Don Stevens | Sampling sustainable resources |
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Bianca Eskelson, Hailemariam Temesgen, Tara Barrett, Oregon State University, USDA FS

*Estimating status of forest attributes from paneled inventory data using nearest neighbor imputation approaches*

H. Temesgen, A. R. Weiskittel, D.S. Wilson, Oregon State University, University of Maine

*Efficiency of some sampling alternatives to estimate tree- and stand-level foliage biomass*

Manuela Huso, Oregon State University

*Estimating bird and bat fatality at wind power generation facilities*

| David Walshaw | Extremes |
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Eric Gilleland,

*Spatial Extremes in Atmospheric Problems*

Lee Fawcett, David Walshaw,

*A Hierarchical Model for Extreme Wind Speeds*

| Hao Zhang | Sustainability and Point Processes |
|---|---|

Bo Li, NCAR

*Past Temperature Reconstruction Using a Bayesian Hierarchical Model*

Bryan Pijanowski, Purdue

*Sustainability, Climate Change and Uncertainty*

Tonglin Zhang, Purdue

*Process Convolution Approximation for Large Spatial Dataset*