

# **E** The International **ENVIRONMETRICS** Society - TIES **S**

## Newsletter

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### 1. A Message from the President, David Brillinger ([brill@stat.berkeley.edu](mailto:brill@stat.berkeley.edu))

Greetings from Berkeley, California.

Everyone has their environmental problem. Mine is probably the coming of a great earthquake. Luckily there is lots of official concern re the matter in the Bay Area, and seismic engineering knowledge increases steadily, so you can expect to see me at the TIES meetings listed below.

I wish to begin by both thanking and congratulating Anders Grimwall for his steady stewardship of our society. It was totally fitting that TIES 2006 was held in the magic city of Kalmar, Sweden. We even had a day of yellow jerseys – Sweden was playing England in the World Cup. I wish to thank the Kalmar meeting organizers Claudia Libiseller, Bo Berbäck, Anders Nordgaard, Kalle Wahlin as well as President Grimwall.

Anders has retired. So too have the other Board Members: Treasurer - Bronwyn Harch, Secretary - Daniela Cocchi, Publications Officer – Paul Sampson, Regional Representatives – Jeanette O’Hara Hines, Gudmund Host, and Jack Galpin. I thank them all.

Two returned immediately! Daniela as President-Elect and Bronwyn as a Regional Representative. The new Secretary is Kristina Voigt, Treasurer –

Quanxi Shao and Publications Officer – Mike Dowd. New Board Members are Ivana Horova and Don Stevens in addition to Bronwyn. Also Grace Chiu has become Webmaster, with the website moving from the University of Washington to the University of Waterloo in Canada.

There is a full slate of TIES meetings planned for the next year and a half.

19-21 June 2007. TIES North American Regional Meeting at the University of Washington, Seattle.

<http://www.stat.washington.edu/peter/TIESNA07.html>

The major theme is: “Climate change and its environmental effects: monitoring, measuring, and predicting.” The Organizer is Peter Guttorm.

16-20 August 2007. TIES 2007 in the Renaissance Chateau, Mikulov, Czech Republic

<http://www.math.muni.cz/ties2007>

The region is described as one of natural beauty, fairy-tale chateaus, ancient castles, excellent wine, and hospitable people. It is the warmest part of the Czech Republic, and has the title Garden of Europe. There are two reserves of world importance: the Pálava UNESCO Biosphere Reserve and the Lednice-Valtice Area. The major theme of the conference is: “Computational Environmetrics, Protection of Renewable Environment and Human and Ecosystem Health.” There are many buttons to click on at the web site. Ivana Horova is the Conference Chair.

22-29 August. The 56th Session of the ISI will take place in Lisbon, Portugal. TIES, really Anders Grimwall, has organized 9 sessions!

8-13 June. TIES 2008 will take place in Kelowna, British Columbia. The theme of the conference is “Quantitative methods of environmental sustainability”. The Okanagan Valley, where Kelowna is situated, is another Garden. It too is famous for wines and fine foods.

There are good air connections and pleasant drives. The Meeting Organizers are Sylvia Esterby and David Brillinger.

So much for travel, fine food, and science. There is a serious issue on the table, namely TIES becoming the Environmental Statistics Section of the ISI. Many of the senior members of TIES have put a great deal of energy into this happening. The ISI is in the throws of a major re-organization, but the joining

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discussions are bound to end soon. Information will be posted on the TIES website as it becomes available.

Best wishes,

David R. Brillinger

## 2. TIES News

### 2.1. New Members

Kristina Voigt

Welcome to the 43 new members who joined TIES between December 2005 and November 2006.

Åberg, Sofia	Sweden
Aldworth, Jeremy	USA
Bergbäck, Bo	Sweden
Bergstedt, Johan	Sweden
Bosetti, Valentina	Italy
Bréchet, Thierry	Belgium
Burauskaite-Harju, Agne	Sweden
Caparros, Alejandro	Spain
Carlsson, Annica	Sweden
Chu-Chih	Taiwan
Dacunha-Castelle, Didier	France
Dean, Charmaine	Canada
Elston, David	UK
Gusdorf, François	France
Harnos, Zsolt	Hungary
Helsel, Dennis	USA
Hines, Gordon	Canada
Hrebicek, Jiri	Czech Republic
Kallache, Malaak	Germany
Kang, Lei	USA
Lee, Duncan	UK
Lefebvre, Mario	Canada
Liu, Yong	China
Lorenz, Douglas J.	USA
Milberg, Per	Sweden

Nail, Amy J.	USA
Öberg, Tomas	Sweden
Parey, Sylvie	France
Pulselli, Federico Maria	Italy
Reich, Brian	USA
Rodriguez, Jhan	Venezuela
Saisana, Micaela	Italy
Shahsavani, Davood	Sweden
Sillmann, Jana	Germany
Sirisack, Sackmone	Sweden
Sysoev, Oleg	Sweden
Tonner, Jaromir	Czech Republic
Vesely, Vitezslav	Czech Republic
von Storch, Hans	Germany
Westerberg, Lars	Sweden
Weyhenmeyer, Gesa	Sweden
Wosniok, Werner	Germany
Zhou, Jardon F.	China

## 2.2 Society News

### Highlights of TIES 2006 Annual General Meeting (AGM), Kalmar, Sweden, 19 June.

*The ISI issue:* TIES President Anders Grimvall reviewed the background to the issue of TIES becoming a section of the International Statistical Institute (ISI), with the key dates being: 1) the authorization at TIES 2004 AGM for the TIES President to negotiate with ISI on basis of TIES/ISI statutes which were made available to TIES membership, 2) acceptance of TIES/ISI statutes by ISI council, and 3) invitation to TIES at ISI General Assembly (Sydney, April 2005) to join the ISI as the Environmetrics section. Anders presented two motions regarding the ISI.

Discussion of the issue included the following:

- (i) Advantages are possible increased influence on environmental policies and ease in reaching countries where we now have few members,
- (ii) Disadvantages are risking the loss of identity and the impact on TIES members who are not

statisticians.

(iii) Uncertainty about the retention of the autonomy of sections due to the restructuring of ISI which is underway.

(iv) A query arose (A. El-Shaarawi) regarding the use of the word "deconstruct" in motion as presented in the Agenda. Does TIES have to dissolve the Society or merely transfer the funds? P. Guttorm, past President, responded: Under Canadian law (where TIES is incorporated), we face a "corporate takeover". The TIES headquarters would move from Canada to the Netherlands. We would not lose the TIES name. TIES would pay fees to ISI, but they would merely handle our money.

(v) Other concerns were about how dues would be paid and the influence that TIES would have on the restructuring, especially regarding the relationship between TIES membership, ISI membership, and fees. It was noted that the President of TIES would immediately be invited to join the ISI Board of Directors, so that level of influence is assured.

(vi) Incoming President, D. Brillinger expressed the opinion that if TIES does not affiliate with ISI, TIES could eventually go out of business due to lack of membership. Also, TIES members should not have to be elected members of ISI. A. El-Shaarawi is on the ISI Council and agrees.

President A. Grimvall noted that TIES has already moved to the "ISI model" in terms of annual meetings: having the TIES meeting be a satellite meeting to ISI in odd-numbered years (e.g. Czech Republic August 2007 prior to the ISI Lisbon meetings), and having a non-satellite meeting in even numbered years (e.g., 2006 here in Kalmar). Anders did not think that TIES' autonomy would be threatened by being an ISI section.

The following revised motion was put forth for a vote by show of hands:

- a. The membership is invited to vote about authorizing the TIES Board of Directors to take the steps that are needed to change the corporate status of TIES to an ISI section.
- b. Providing that a majority of the votes are in favour of joining ISI, the membership is invited to grant the Board of Directors the authority to change TIES headquarters from Canada to the Netherlands and arrange for the transfer of funds. The motion was passed nearly unanimously, with 2

abstentions and 0 nays.

*Renewal of TIES contract with John Wiley & Sons for Environmetrics.* The current four year contract expires at the end of the year and TIES is negotiating with Wiley regarding terms of renewal, including fees for journal subscriptions. It was decided to accept the Wiley increase of \$15.00 in subscription for the journal and to renew the contract for two years, mindful of the upcoming changes with joining ISI.

*Report from the Secretary, Daniela Cocchi.* In late 2005 renewal notices for the year 2006 were mailed to TIES members, as well as to those who were members in 2004. Email messages, with a pdf renewal form attached were also sent to former members from 2003 or earlier. In June 2006, reminder notices were emailed to TIES members in 2005 and 2004 who had not yet renewed for 2006. A summary of membership was presented. With fluctuations, TIES has a membership base of about 200 members; membership is dominated by N. America and Europe.

*Report from the Treasurer and appointment of firm for 2006 Financial Report (prepared by Bronwyn Harch, reported by Daniela Cocchi in Bronwyn's absence).* The Treasurer's report was not quite ready and Bronwyn was still working with the accountants. It was moved, seconded, and passed that TIES appoint the firm of Scott, Batenchuk & Co. LLP, Burlington, Ontario, Canada to be the auditors for TIES for one more year.

*Membership dues for 2007,* Daniela Cocchi. The cost of the journal will rise by \$15 in 2007, so TIES will have to increase its dues. Currently, non-subscribers partially subsidize the journal for subscribers and therefore it was decided to increase the dues for members who do not take the journal to restore equity. After much discussion, the following dues structure was moved, seconded and passed: Regular TIES membership fee (no journal), \$30, with consideration being given to persons from developing countries; TIES membership including the journal, \$195; Retiree (no journal), \$20.

### *Future TIES meetings.*

2007: 19-21 June. Regional TIES meeting in Seattle, Univ. of Washington. "Climatic changes—statistics, policy, and effects."

2007: 16-20 August. Annual TIES meeting, Mikulov, Czech Republic. Satellite meeting prior to the ISI meetings in Lisbon.

2008: 8-13 June. Annual TIES meeting in Kelowna BC, Canada.

*New Board officers and members.* David Brillinger will assume the TIES Presidency as of September 1, 2006. The TIES board put forward nominations as follows:

President-elect, 2006-08,	Daniela Cocchi.
Treasurer, 2006-08,	Quanxi Shao.
Secretary, 2006-08,	Kristina Voigt.
N. American representative, 2006-10,	Don Stevens.
European representative, 2006-10,	Ivana Horova.
Other regions representative, 2006-10,	Bronwyn Harch.
Publications officer, 2006-08,	Mike Dowd.

There were no further nominations from the floor. It was moved, seconded, and passed unanimously that TIES is authorized to offer some support for officers (e.g., Treasurer) coming from Australasia to TIES meetings.

*Other business.* There was a hearty vote of thanks to Anders Grimvall for his work on TIES' behalf during his term as President, and also to Claudia Libiseller for her efforts on making a most successfull 2006 conference.

A. El-Shaarawi noted that TIES will have several sessions, about 10, at the ISI 2007 conference in Lisbon.

*Summary by S. Esterby of minutes recorded by Loveday Conquest, Acting Secretary.*

## Meet the in-coming members of TIES Board of Directors

New board members have been invited by the Newsletter Editors to provide a brief biography. Members of the current Board who held previous positions or whose terms were not up for renewal in 2006 were introduced in Volume 10 No. 1 of the Newsletter,  
[http://www.nrcse.washington.edu/ties/newsletter/Newsletter\\_May4-363.pdf](http://www.nrcse.washington.edu/ties/newsletter/Newsletter_May4-363.pdf).

### *Secretary*

*Kristina Voigt* graduated in food chemistry at the Technical University in Berlin in 1979. She received her Ph.D. in chemistry at the University of Erlangen-Nuernberg. From 1980 to 1983 she worked in the Environmental Chemicals Department at the German Environmental Protection Agency (UBA) in Berlin. Then she moved to the GSF - National Research Center for Environment and Health at Institute for Biomathematics and Biometry in Munich. She is working as a senior scientist in the research fields of chemometrics, environmetrics, chemoinformatics / enviromatics and information management.

She has published extensively in scientific journals, books, reports, and proceedings. She belongs to several international editorial boards and societies in most of which she holds important positions. She is a member of the editorial board of Online Information Review

(<http://www.emeraldinsight.com/info/journals/oir/oir.jsp>) as well as a member of the editorial board of the journal Environmental Modelling and Software ([http://www.elsevier.com/wps/find/journaldescription.cws\\_home/422921/description#description](http://www.elsevier.com/wps/find/journaldescription.cws_home/422921/description#description))

She is a member in organizing committees and refereeing boards of international conferences like the International Online Meeting in London, the ECO-INFORMA, and the EnviroInfo Conferences, Workshops on Multicriteria Decision Analysis in Environmental Sciences (Hasse Workshops), IEMSS - Summits on Environmental Modelling & Software. She was the Co-Chair of the EnviroInfo 2007 Environmental Informatics Meets Systems Research in Warsaw, September 12-14, 2007

(<http://www.enviroinfo2007.org/index1.html>).

Furthermore she is the Deputy Spokeswoman of the Special Interest Group "Informatics in Environmental Protection" in the German Society for Informatics (<http://www.iai.fzk.de/Fachgruppe/GI/welcome.eng.html>).

She is also a member of the Advisory Board of ACIS Associazione per la Cooperazione Industriale e Scientifica tra Italia e Germania [ACIS](http://www.acis-online.org/it/SID=75651d5c43209c280eb45f827988af42) (<http://www.acis-online.org/it/SID=75651d5c43209c280eb45f827988af42>). Since July 2006 she has been a member of the iEMSSs Board of Directors, the International Environmental Modelling and Software Society iEMSSs (<http://www.iemss.org/>).

Additionally Kristina is also very committed to the topic of Women in Science. Since May 2000 she has been in the position of the deputy head of the initiative Women in Science at the GSF.

Kristina is currently the Secretary of TIES. She is interested to intensify the collaboration of TIES with other societies and expert groups in related scientific fields. Kristina's Webpage is found under the URL: <http://ibb.gsf.de/homepage/kristina.voigt/>

### *Treasurer*

*Quanxi Shao* is a senior research scientist of CSIRO Mathematical and Information Sciences Division (CMIS). He graduated from Zhongshan (SunYat-Sen) University with B. Sc. in Mathematics (1984) and M.Sc. in Probability Theory and Theoretical Statistics (1987). After three-year teaching experience in Economics Department of the same university, Dr Shao pursued his further study in Australia in 1990, in Economics (University of Adelaide) and then Statistics (La Trobe University). He joined CSIRO in July 1995 after seven-month work as a research associate in the Royal Children's Hospital, Melbourne.

Dr Shao has worked on a wide variety of research areas in medical and environmental statistics, requiring broad statistical expertise. Over the last few years he has concentrated on statistical modelling in hydrology and water resources research, in particular,

the impact of climate and land use/cover changes on streamflows and finer scale spatial-temporal forecasting for water resources in gauged and ungauged basins. His working environment is multidisciplinary in nature and therefore needs close collaboration with scientists from other disciplines in both Australia and other countries. To meet the challenges in his projects, he focuses his statistical research on nonparametric methodology, model/variable selection and integration of stochastic methods and deterministic hydrologic models to enable uncertainty analysis.

Dr Shao has achieved Accredited Statistician status within Australia and holds several honour positions in university and research institutes. His webpage address is: <http://www.cmis.csiro.au/Quanxi.Shao>

#### *Public Relations Officer*

*Michael Dowd* is an assistant professor in the Department of Mathematics & Statistics at Dalhousie University in Halifax, N.S., Canada. Prior to that he worked as Research Scientist for Canadian Department of Fisheries & Oceans. He received his PhD at Dalhousie in 1997.

His research interests centre on environmental statistics and modelling for the marine sciences. A core interest is statistical data assimilation using state space models. This is concerned with improving ocean prediction by combining nonlinear stochastic marine models, based on differential equations, with available observations to produce optimal estimates of the system state and parameters. He also has a general interest in development of spatial/temporal data analysis methods to handle new and emerging marine environmental observations from ocean observatories, satellites and autonomous robotic observing platforms. Mike's webpage can be found at <http://www.mathstat.dal.ca/~mdowd/>

#### *Regional Representative, Europe*

*Ivana Horová* is a Professor of Applied Mathematics at Masaryk University, Brno, Czech Republic. Since 1997, she has been head of the Department of Applied Mathematics in the Faculty of Science, Masaryk University. She gained her Master's degree in Mathematics from J. E. Purkyně University, Brno

TIES NEWSLETTER, VOL. 12, NO. 1, January 2007 and her PhD degree in Applied Mathematics at Comenius University, Bratislava, Slovakia. Her current research interests include nonparametric methods in statistics, namely methods for kernel estimates of regression functions, densities and hazard functions. She is mainly focused on application of these methods in medicine, biology and environmetrics. Ivana closely cooperates with Masaryk Memorial Cancer Institute, Institute of Biostatistics and Analyses, and Laboratory of Optical Microscopy.

She is a guarantor of the Master's study program in Applied Mathematics which includes the study branches: Mathematics-Economics, Statistics and Data Analysis, Financial and Insurance Mathematics and is also a coordinator of the study branch Mathematical Biology. Since February 2006, she has been working as a director-coordinator of Jaroslav Hájek Centre of Theoretical and Applied Statistics. She is also responsible for the PhD study program in Probability and Mathematical Statistics and Scientific Computations.

Ivana Horová was also a member of the scientific committee and a local organizer of the workshops, Perspectives in Modern Statistical Inference I and II, held in Brno, 2002 and in Mikulov, 2005. She organized summer schools DATASTAT' 97, 99, 01, 03, 06. The programs of these summer schools were oriented to mathematical and statistical modeling, with application in economics, biology, medicine and environmetrics.

#### *Regional Representative, North America*

*Don Stevens* grew up in the Pacific Northwest and California. He received a BS degree in Mathematics from Antioch College and an MS degree, also in Mathematics, from the University of Dayton. After earning a PhD in Statistics from Oregon State University, he worked for Battelle Pacific Northwest Laboratories for ten years. There he worked on issues related to nuclear reactor safety, and quantifying the risk of chronic exposure to low-levels of toxicants and carcinogens.

After leaving Battelle, he joined the faculty at Eastern Oregon State University, where he was Area Coordinator for Mathematics and Computer Science.

He began working with the USEPA as a cooperating researcher on environmental sampling and spent over a decade engaged in developing the statistical sampling theory supporting the USEPA's Environmental Monitoring and Assessment Program's spatially balanced probability sampling. He is currently a Senior Research Associate Professor at Oregon State University. He teaches an occasional class, researches spatial sampling design, and consults on monitoring design issues. He has been a member of TIES since 1990

## TIES 2006 Student Paper Competition

Claudia Libiseller

At the TIES 2006 conference held 18-22 June in Kalmar Sweden, eight students competed for the Student Paper Award. The presentations were:

Sofia Åberg, Lund University, Sweden, "*How good are the air quality standards?*"; Agn   Burasukaite, University of Link  ping, Sweden, "*Analyzing trends in precipitation extremes for a network of stations*"; Francois Gusdorf, CIRED, France, "*Is fiscal harmonization an efficient tool on the mitigation of transportation greenhouse gas emissions ?*"; Malaak Kallache, Potsdam Institute for Climate Impact Research, Germany, "*Non-stationary extreme value statistics of river run-off data using point processes*"; Duncan Lee, University of Bath, UK, "*Estimating the effects of air pollution on public health using a time varying coefficient model*"; Jhan Rodriguez, Universidad Simon Bolivar, Venezuela, "*Bayesian modeling of population vulnerability to rainfall anomalies in Venezuela*"; Jana Sillmann, Max Planck Institution for Meteorology, Germany, "*Extreme events in climate change projections*"; Jaromir Tonner, Masaryk University, Czech Republic, "*Air pollution analysis based on sparse estimates from an overcomplete model*".

The committee, consisting of Abdel El-Shaarawi, Canada, Zuzana Hrdlickov  , Czech Republic, and Claudia Libiseller, Sweden with support from Francesca Bruno, Italy, had a hard time taking a decision, due to the high quality of all presentations, but decided finally to split the prize, announcing Sofia Åberg, Sweden, and Malaak Kallache, Germany, as the winners.

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## 3. Environmetrics Conferences

### 3.1. Forthcoming TIES Conference

**TIES 2007 The 18th annual meeting of The International Environmetrics Society, Mikulov, Czech Republic, 16-20 August 2007.**

*Theme: Computational Environmetrics: Protection of Renewable Environment and Human Ecosystem Health.*

Ivana Horov  

The conference will be held in the Renaissance chateau in Mikulov. Mikulov is located in Southern Moravia, on the Austrian - Czech border, close to Vienna and to Brno, with a convenient connection to both, and also to Prague. Approaching the historic town of Mikulov from any direction, you will be presented with a unique panorama and the silhouette of the chateau, Holy Hill and Goat Hill. The medieval historic centre was declared a protected town area in 1952. Dominating the skyline is the Renaissance chateau, which in its heyday, was the residence of the Olomouc bishop, Cardinal Franz von Dietrichstein. In those times, Mikulov was the virtual capital of Moravia. Mikulov is the starting point for the instructive wine trail, which takes visitors through P  lava and shows them the wine culture and traditions of Mikulov Wine District.

The conference is a satellite to the 56th Session of the International Statistical Institute, held in Lisboa, Portugal, August 22-29, 2007.

The conference will include plenary papers, invited paper sessions, contributed paper sessions, and poster sessions. Two special lectures will be given: the J. Stuart Hunter Lecture and the TIES President Invited Lecture.

Sessions will include the following topics (but will not be restricted to them)

- Computational biology
- Computational spatial processes
- Nonparametric methods in environmetrics
- Environmental and sustainable indicators
- Environmental monitoring (air, water, soil and biodiversity) and assessment
- Environmental health (human and the ecosystem health)
- Environmental sustainability
- Integration of environmental and biomedical data
- Analysis of extremes
- Environmental modelling (sensitivity and uncertainty analysis)
- Environmental and human risk assessment
- Computer intensive methods and/or computational problems for environmental statistics
- Renewable energy (wind, biomass, water, solar etc.)
- Spatio-temporal models to estimate disease risks (disease mapping)

For up to date information and to register, please see:

<http://www.math.muni.cz/ties2007>

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**First TIES North American Regional Meeting in Seattle June 19-21 2007**

Peter Guttorp

As government employees are seeing cuts and restriction in their travel budgets, the idea of regional rather than international TIES meetings has gathered momentum. The European region started having regional meetings in 2005, and in 2007 the North American region will have its first regional conference at the University of Washington campus in Seattle. The theme of the conference is "Climate change and its environmental effects: monitoring, measuring, and predicting."

Peter Guttorp of the University of Washington is chairing the program committee. The other members are Joel Reynolds, US Fish and Wildlife Service, Alaska; Elaine Rodrigues UNAM, Mexico City; Emily Silverman, University of Michigan; Ashley Steel, NOAA/NMFS Seattle, and Jim Zidek, UBC Vancouver.

Keynote speakers will be Paul Switzer, Stanford University, and the TIES president David Brillinger, UC Berkeley. Invited sessions cover:

- Agroclimate risk assessment
- Forests, fires and stochastic modelling
- The role of statistics in environmental policy
- Using large spatial datasets in ecology
- Paleoclimatic temperature reconstruction
- Monitoring the environment and biota on landscape to continental scales
- Assessing trends in extreme climate events
- Inference for mechanistic models
- Measuring biodiversity and species interactions

Since the meeting takes place on the West Coast, the plan is to start in the afternoon of Tuesday, June 19, 2007, and go through the afternoon of Thursday,

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June 21. Further details are available on the meeting web site,  
<http://www.stat.washington.edu/peter/TIESNA07.html>

**TIES 2008, the 19<sup>th</sup> Annual Conference of The International Environmetrics Society, Kelowna British Columbia Canada, June 08 -13, 2008**

*Theme: Quantitative Methods for Sustainability in the Sectors.*

The theme has been selected to coincide with a major theme of research at the site of the conference, the University of British Columbia Okanagan, in interior British Columbia. The Okanagan valley, with Lake Okanagan, orchards, vineyards, abundance of outdoor activities and a rich cultural life, is a great holiday destination. The conference is in the early stages of planning and a web site will soon be established and linked to TIES website.

**Conference Technical Topics include:**

Designs for monitoring, experimentation and computer simulations

Methods for extremes

Space-time modeling

Environmental risk assessment

Assessing status and trends

Environmental reporting and indicators

Environmental standards

Monitoring, modeling and managing environmental systems

Applications to biodiversity, climate change, sustainable agriculture, air quality, water quality, soil contamination, energy, environmental economics, ecosystem and human health

Conference co-chairs: Sylvia Esterby and David Brillinger

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**3.2. Report on TIES 2006 Conference, Kalmar, Sweden**

**A Summary of TIES Conference 2006, Quantitative methods for the environmental sciences, Kalmar Sweden 18-22 June 2006**

Gordon Hines and Jeanette O'Hara Hines

Workers in Environmetrics face important, and often vital, challenges, both in the needs of Society and in the methods needed from Statistics. As in the past, this conference addressed both of those needs, in a format that promoted interaction and education. Its organizers (Anders Grimvall, Chair of the Scientific Committee and Claudia Libiseller, Chair of the Conference Organizing Committee) are to be congratulated on its success.



Board members: David Brillinger, Lelys Geunni, Jeanette O'Hara Hines, Peter Guttorp and Daniela Cocchi

The conference had three primary focuses in the large morning sessions: “Are extreme weather patterns becoming more common? Can we attribute environmental effects to actors and activities? Can we monitor the abundance of a multitude of



Organizers Anders Grimvall, Claudia Libiseller and  
Anders Nordgarrd at the castle

species?” Talks on the first topic included discussions of the statistics of catastrophes, of the challenges of exploring trends in extremes in weather data records, and of the tendency of long term persistence of random effects to produce clusters of weather extremes – in the past as perhaps now. Papers on the second topic dealt with an evolving



Marian Scott, Hunter Lecturer

TIES NEWSLETTER, VOL. 12, NO. 1, January 2007 change in the Anglo-American legal philosophy that might well help discourage polluters and the increasing potential involvement of Statistics in doing so, the challenges of relating human activity to climate change, of communicating with politicians and the public and a case study of an environmental risk assessment. Contributors on the last topic, on monitoring a multitude of species, discussed topics as diverse as experience in monitoring bycatch of endangered seabirds, using space-filling curves to create master-sampling schemes for coordinated common use by different agencies, spatial point processes, resampling of abundance records, and the estimation of trends. The afternoons contained sets of three parallel sessions on a diversity of environmetrics-related research. Marion Scott (Glasgow), Joe Perry (Rothamsted) and Susanne Kytzia (ETH Zurich) gave keynote lectures on ‘Environmental change and statistical trends’, ‘Design of experiments and analysis of data concerning GM crops’, and ‘Understanding the human made systems means more than identifying the “polluter”’, respectively.

The conference took advantage of its setting in the Swedish city of Kalmar, with its mix of ancient walls and cobblestone streets, a castle, an old water tower now converted into apartments and an attractively located modern science complex. The opening reception and lunches were held in the Glasverandan, providing an attractive view of the harbor of Kalmar. On the free Tuesday afternoon, many of the attendees got to enjoy a semi-spontaneous 10 km hike during a bus tour of the near-by island of Oland – with ice cream for the speedy. Others enjoyed a visit to two glass-making factories. The social highlight was the mediaeval banquet (“forks banned because of their satanic nature, napkins as close as your neighbor’s clothing”) including a capella male quartet singing an enjoyable mix of classical Swedish and American songs (“Ba Ba Ba, Barbara Ann, ...”).

Next year’s conference in Prague, Czechoslovakia, followed by one in 2008 in Kelowna, BC, Canada should again provide a welcome mix of application, theory and socializing.

For more pictures of TIES 2006 by Alessandro Fasso see <http://www.graspa.org/varie/ties2006/>



Anders Grimvall with Susanne Kytzia,  
President's Invited Lecturer

### 3.3 Reports on Related Events

The 3rd biennial meeting of the **International Environmental Modelling and Software Society** was held in Burlington, VT last July. Among the declared aims there was the establishment of the state-of-the-art in Environmental Modelling and Software theory and practice for integrated assessment and management. We can say that such an aim has been attained, thanks to the attendance of 300 researchers, from all over the world, and from a wide range of environmental related disciplines. The conference, convened by Dr Alexey Voinov of University of Vermont, the hosting institution, was organised according to an innovative programme, which mixed traditional sessions of paper presentations, with more interactive and stimulating workshops. Very often the themes of a session were discussed in a workshop, providing a beneficial feedback between sessions and workshops. Dr Voinov stressed the role of open and collaborative research, in the spirit of open source software development, making science really accessible and re-usable. Such spirit is also to be found in a soon to be published edited book which collects a number of position papers, which have been produced as the outcome of the workshop discussions. Among the topics we find: creative and systematic model development, integrated modelling frameworks for environmental assessment, developing tools to support management and policy, uncertainty in

environmental systems management and policies, adaptive management for environmental systems, community modelling and information sharing culture, free and open source geospatial tools, and many others (more information can be found on the conference website <http://www.iemss.org/iemss2006>). During the biennial general meeting a new President of iEMSSs, Giorgio Guariso, was elected as successor of Tony Jakeman (also a member of TIES), who led the society since its foundation in 2000, and new fresh forces joined the iEMSSs board of directors. Also, a seat for the forthcoming iEMSSs 2008 conference has been selected: Barcelona (<http://www.iemss.org/iemss2008>).

The Applied Bayesian School 2006 (ABS06) on "*Hierarchical Modelling Approaches for Spatial Data in Environmental and Health Sciences*" was held in Bertinoro, a beautiful medieval Italian citadel, on 17-21 July 2006.

Information, program and lectures are available on the web (<http://www.mi.imati.cnr.it/conferences/abs06.html>).

The school was organised by CNR-IMATI and the University of Pavia (DEPMQ), in cooperation with BAYSTAT, with the Department of Statistics of the University of Bologna and the Italian GRASPA research group (<http://www.graspa.org>)..

Lectures were held by Dr. Sudipto Banerjee (University of Minnesota, USA) who is one of the most active researcher in the field of hierarchical Bayesian spatial modelling. Main issues of the lectures were statistical models for areal data and point data, both in the univariate and multivariate setting. The use of Bayesian approaches for spatial data in environmental and health sciences has been explored. All the theoretic topics were followed by practical classes in which the basic tools for spatial analysis in R and WinBugs were given. The school made use of practical sessions, software demonstrations and informal discussion sessions. Some of the participants presented their research projects and open problems in plenary sessions that opened stimulating discussions about recent advances in the field of Bayesian and spatial statistics.

Both scientific discussion and conviviality were facilitated by typical cuisine characterising the hosting Region, which merges the Mediterranean and the North Italian cooking and good wine. The school was animated by a friendly atmosphere enhanced by several social events, especially the social dinner, held in a wonderful medieval castle terrace.

On September 27-29, 2006, the **International Workshop on Spatio-Temporal Modelling** was held at the Public University of Navarra, Pamplona, Spain, to address the latest methodological developments and applications on spatio-temporal modelling. Chaired by Lola Ugarte, executive member of the Statistical Modelling Society, the workshop was composed of a panel of 14 experts in spatio-temporal modelling applied to a variety of fields. Other participants were delegates from more than twenty different countries, 120 delegates in total. The opening conference was given by Noel Cressie about "Processing Satellite Data". There were specific sessions on spatio-temporal disease mapping (with Sylvia Richardson, Ying MacNab, Andrew Lawson, Juanjo Abellán and Charmaine Dean –as a very alive discussant-) as well as sessions on geostatistics (with Marc Genton, Wenceslao González Manteiga, and Jorge Mateu), and point processes (with Eric Renshaw, among others). A very interesting application on counting seals in Alaska was presented by Jay Ver Hoef. María Durbán, Youngjo Lee and Lola Ruiz-Medina completed the list of invited speakers with very interesting talks.

Abstracts and detailed scientific programme can be found at: [www.unavarra.es/metma3](http://www.unavarra.es/metma3)

The workshop was sponsored by the Statistical Modelling Society and several Spanish organisms like the Public University of Navarra, the Spanish Ministry of Education and Science, the Government of Navarra (Departments of Education and Health Sciences), the Statistical Institute of Navarra, The Statistical Institute of the Basque Country – EUSTAT-, the City Council of Pamplona, the City Council of Viana, and the company Addlink Scientific Software.

### **3.4 Other Forthcoming Conferences and Schools**

The fifth **SERC School on Special Functions and Functions of Matrix Argument** will be held at the Centre for Mathematical Sciences, Pala Campus, Arunapuram, Kerala State, India from April 23 to May 25 2007

The topic of the Science and Engineering Research Council of the Department of Science and Technology, Government of India, School is Special Functions and Functions of Matrix Argument: Recent Advances and Applications in Statistics, Stochastic

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Processes, Wavelet Analysis and Astrophysics. Admission is limited to College/University teachers below 35 years of age, fresh M.Sc, M.Phil graduates in Mathematics/Statistics/Theoretical Physics below 30 years of age. Foreign participants must come with their own return air tickets. Classes start at 08.30 hrs and go until 18.00 hrs, Monday-Friday. Each day there will be two lectures from 08.30 to 10.30 hrs and 14.00 to 16.00 hrs, followed by problem sessions. Participation in every lecture and every problem session for five weeks is compulsory. There will be written and oral tests at the end of every week. All expenses of Indian citizens will be taken care of by Government of India. Foreign participants' local stay, food and study materials will be paid by the School. There is no admission or other fees.

Write on plain paper to the Director, Centre for Mathematical Sciences, Pala Campus, Arunapuram P.O., Pala-686574, Kerala State, India with the following details: Name, address including e-mail address, age, male/female, marital status, academic qualifications from Secondary School onwards (send copies of certificates, papers published etc but no original should be sent). Applications with full details must reach the Director **before January 31, 2007**. The Course Director is Dr.A.M. Mathai [Emeritus Professor of Mathematics and Statistics, McGill University, Montreal, Canada and Director, Centre for Mathematical Sciences, India]. The proposed main lecturers will be the following: Dr. R.K. Saxena (Jodhpur, India), Dr. S. Bhargava (Mysore, India), Dr.D.V. Pai (IIT, Bombay, India), Dr. Hans Haubold (UN, Office of Outer Space Affairs, Vienna, Austria), and supplementary lecturers and problem session leaders will be Dr. A. Sukumaran Nair, Dr. K.K.Jose, Dr. K.S.S. Nambooripad, Dr.R. Y. Denis Dr. P.R.Parthasarathy, Dr. K. Jayakumar, Dr. Joy Jacob, Dr. Sebastian George Total number of seats at the School will be 30 and the selection is done by a selection committee including the representatives of Government of India.

The conference **Interdisciplinary and Environmental Studies** will be held in Lecce, Italy, April 19-20, 2007.

This the final conference of three different Italian research projects on Environmental problems focusing on statistics, chemistry and physics.

This GRASPA2007 conference is co-organized by the Italian Research Group on Environmental Statistics (GRASPA), which is coordinated by

Daniela Cocchi, and is presenting the results on "**Statistical methods for handling complexity and uncertainty in environmental studies**" concerning multivariate and/or nonlinear spatio-temporal modelling with special reference to air pollution and PM10, health effects of air pollution and climate changes, water quality and Posidonia algae modelling.

The project on Environmental Physics is coordinated by Maria Rita Perrone and is concerned with optical and microphysical characterization of aerosols and the assessment of the influence of Sahara dust transport on Italian particulate matters distribution.

The project on Environmental Chemistry, which is coordinated by Paolo Bruno, is concerned with integrated study of airborne pollutants and, therefore, is particularly requiring an interdisciplinary approach.

For more information see

<http://www.graspa.org/lecce2007/>

The Department of Mathematical Sciences at the University of Arkansas is organizing the 32nd Annual Spring Lectures in the Mathematical Sciences on "**Spatial and Spatio-Temporal Statistics**", to take place April 12-14, 2007.

The main goal is to bring together leading experts, young researchers and graduate students in the area of Spatial and Spatio-Temporal Statistics. The conference will review recent developments, present the state of the art in the field and point to important challenges and open problems.

The conference will have a series of five one-hour lectures, nine one-hour talks delivered by invited speakers on topics that complement and expand the content of the lectures. The conference will also include contributed talks and a poster session, which provide the main avenue for active participation of graduate students and junior researchers.

The Principal Lecturer is Noel Cressie, delivering a series of five lectures on recent developments in spatial and spatio-temporal statistics. Invited Speakers are Alan Gelfand, Marc Genton, Gardar Johannesson, Richard Smith, Paul Switzer, Jay Ver Hoef, Christopher Wikle, Jun Zhu and James Zidek. Conference organizers: Victor De Oliveira, Giovanni Petris, and Joon Jin Song

Preliminary program and info:

<http://comp.uark.edu/~jjsong/SLS2007/>

The fifth **International Conference on Sensitivity Analysis of Model Output** (SAMO 2007) will be held on 18-22 June, 2007, at Eötvös University (ELTE), Budapest, Hungary.

The aim of the SAMO conferences is to bring together users of sensitivity analysis in all disciplines of science. Sensitivity analysis methods are powerful tools in physics, chemistry, biology, engineering, environmental science, nuclear and industrial safety, economics.

Invited lectures and topics are: Terry Andres (Syllabus for a graduate course in sensitivity analysis), Dan Gabriel Cacuci (Computational methods for data adjustment and assimilation), Michael Frenklach (System Analysis and Sensitivity using Data Collaboration), Douglas B. Kell (Sensitivity and information theoretic analyses of biochemical networks), Sergei Kucherenko (Application of global sensitivity indices for measuring the effectiveness of Quasi-Monte Carlo Methods and parameter estimation), Herschel Rabitz (Controlling and understanding chemical-physical phenomena with sensitivity analysis), Alison S. Tomlin (The use of global methods in the evaluation of non linear chemical kinetic models), Peter C. Young (From dominant mode analysis to dynamical meta-modeling).

More information: <http://samo2007.chem.elte.hu/>

#### 4. Environmetrics Forum

##### **Surveillance Geoinformatics of Hotspot Detection and Prioritization for Monitoring, Etiology, Early Warning and Sustainable Management**

G.P. Patil



##### **Short Courses and Case Studies Workshops Around the World**

1. Parma, Italy (March 30-31, 2006; October 1, 2006))
2. San Diego, USA (May 21-24, 2006)
3. Jalgaon, India (December 11-22, 2006)
4. New Delhi, India (December 26, 2006)

5. Bogor, Indonesia (December 27-30, 2006)
6. McCau, China (January 10-11, 2007)
7. Hiroshima, Japan (January 15, 2007)
8. Milan, Italy (April, 2007)
9. East Coast, USA (May 2007)

**Course Instructor / Workshop Leader: G. P. Patil**

Distinguished Professor and Director,  
Penn State Center for Statistical Ecology and  
Environmental Statistics  
Contact: [gpp@stat.psu.edu](mailto:gpp@stat.psu.edu)

**Administrative Information and Registration**

Registration fees will be reduced/waived for graduate research students, interested government scientists and acceptable case studies presenters.

**Contacts**

Orazio Rossi, Universita di Parma, Email: [orazio.rossi@unipr.it](mailto:orazio.rossi@unipr.it); G.P. Patil, The Pennsylvania State University, Email: [gpp@stat.psu.edu](mailto:gpp@stat.psu.edu); Principal A.G. Rao, Moolji Jaitha College, Email: [agrial\\_jal@sancharnet.in](mailto:agrial_jal@sancharnet.in), H.V.L. Bathla, Division of Sample Survey, Indian Agricultural Statistics Research Institute, Email: [Bathla@iasri.res.in](mailto:Bathla@iasri.res.in); Asep Saefuddin, Bogor Agricultural University, Email: [wakilrektor4@ipb.ac.id](mailto:wakilrektor4@ipb.ac.id); Tomasz Janowski, UNU-IIST, Email: [tj@iist.unu.edu](mailto:tj@iist.unu.edu); Phil Ross, Department of Statistics, Radiation Effects Research Foundation, Email: [ross@statlogic.net](mailto:ross@statlogic.net); Paola Annini, University of Milan, Email: [paola.annini@unimi.it](mailto:paola.annini@unimi.it).

*Motivation, Description, and Timeliness*

Geoinformatic surveillance for spatial and temporal hotspot detection and prioritization is a critical need for the 21<sup>st</sup> Century. A declared need is around for statistical geoinformatics and software infrastructure for spatial and spatiotemporal hotspot detection, prioritization, early warning, and sustainable management. A hotspot can mean an unusual phenomenon, anomaly, aberration, outbreak, elevated cluster, critical area. The declared need may be for monitoring, etiology, early warning, or management. The responsible factors may be natural, accidental, or intentional. The five year NSF DGP project has been

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instrumental to conceptualize surveillance geoinformatics partnership among several interested cross-disciplinary scientists in academia, agencies, and private sector across the nations.

Our efforts are driven by a wide variety of case studies of interest to agencies, academia, and private sector involving critical societal issues, such as public health, ecosystem health, ecohealth, biodiversity and threats to biodiversity, emerging infectious disease, water management and conservation, carbon sources and sinks, persistent poverty, environmental justice, crop pathogens, invasive species management, biosurveillance, biosecurity, disease biogeoinformatics, social networks, sensor networks, hospital networks and syndromic surveillance, video mining, early warning, tsunami inundation, and disaster management. Also space-time disease, poverty, pollution, object identification and tracking, early detection, early warning, hotspot trajectories and trends with examples of West Nile Virus, urban poverty patch dynamics, etc. The project emphasis is on development of geoinformatic hotspot surveillance system. The system has two methodological components: hotspot detection and prioritization.

Our methodology involves an innovation of the popular circle-based spatial scan statistic methodology. In particular, it employs the notion of an upper level set and is accordingly called the *upper level set scan statistic system*, pointing to the next generation of a sophisticated analytical and computational system, effective for the detection of arbitrarily shaped hotspots along spatio-temporal dimensions. We also propose a novel prioritization scheme based on multiple indicator and stakeholder criteria without having to integrate indicators into an index, using Hasse diagrams and partially ordered sets. It is accordingly called *poset prioritization and ranking system*.

We propose a cross-disciplinary collaboration to design and build the prototype system for surveillance infrastructure of hotspot detection and prioritization. The methodological toolbox and the software toolkit developed will support and leverage core missions of several agencies as well as their interactive counterparts in the society. The research advances in the allied sciences and technologies

The project will have a dual disciplinary and cross-disciplinary thrust. Dialogues and discussions will be particularly welcome, leading potentially to well considered synergistic case studies. The collaborative case studies are expected to be conceptual, structural, methodological, computational, applicational, developmental, refinements, validational, and/or visualizational in their individual thrust.

The proposed short courses will provide up-to-date instruction with live examples and illustrations. The proposed workshops will emphasize presentations of case studies from within the region of the workshops, using preferably the methodology and software of the short courses. The participants will be encouraged to be in contact with the course instructor before and after the course and the workshop to help formulate and finalize their case studies for presentation and publication.

Best case studies will be invited for presentation at an annual digital government research conference symposium on surveillance geoinformatics of hotspot detection and prioritization to be held in USA. Publications are planned for special issues of subject area journals and edited monographs.

*Technical, Scientific, and Reference Material*

1. Overview PowerPoint

[http://www.stat.psu.edu/%7Egpp/ppts/Atlanta\\_Overview.pdf](http://www.stat.psu.edu/%7Egpp/ppts/Atlanta_Overview.pdf)

2. Poster PowerPoint

<http://www.stat.psu.edu/%7Egpp/ppts/AtlantaPoster.pdf>

3. Poster Two Pager

[http://diggov.org/library/library/dgo2005/demosb/patil\\_upper.pdf](http://diggov.org/library/library/dgo2005/demosb/patil_upper.pdf)

4. Demo Two Pager

[http://diggov.org/library/library/dgo2005/postersb/patil\\_geoinformatic.pdf](http://diggov.org/library/library/dgo2005/postersb/patil_geoinformatic.pdf)

5. Project Highlights Two Pager

[http://diggov.org/library/library/dgo2005/alert/geoinformatic\\_patil.pdf](http://diggov.org/library/library/dgo2005/alert/geoinformatic_patil.pdf)

6. Center for Statistical Ecology and Environmental Statistics

<http://www.stat.psu.edu/~gpp>

7. Hotspots Project Initiatives

<http://www.stat.psu.edu/hotspots>

8. NSF Digital Government Research Program Online News

9. Networks and Infrastructure

[http://www.stat.psu.edu/%7Egpp/current\\_events.htm](http://www.stat.psu.edu/%7Egpp/current_events.htm)

10. Raster Map Analysis

[http://www.stat.psu.edu/%7Egpp/raster\\_map\\_analysis.htm](http://www.stat.psu.edu/%7Egpp/raster_map_analysis.htm)

11. Landscape Pattern Analysis for Assessing Ecosystem Condition (Johnson and Patil)

<http://www.springer.com/west/home/generic/search/results?SGWID=4-40109-22-173673812-0>

12. Pattern Based Compression of Multi Band Image Data for Landscape Analysis (Myers and Patil)

<http://www.springer.com/west/home/generic/search/results?SGWID=4-40109-22-173677709-0>

13. Article on the workshop program on hotspot geoinformatics

<http://www.dgrc.org/dgo2006/papers/workshops.jsp - hotspot>

14. Freeware for circular spatial scan program and information.)

<http://www.satscan.org>

15. Freeware for academia for Hasse program for Windows

<http://www.getsynapsed.de/>

The following are of some informative papers.

16. G. P. Patil and C. Taillie (2003). Geographic and network surveillance via scan statistics for

- critical area detection. *Statistical Science*, 18 (4), 457-465.
17. G. P. Patil and C. Taillie. (2004a). Upper level set scan statistic for detecting arbitrarily shaped hotspots. *Environmental and Ecological Statistics*, 11 (2), 183-198.
18. G. P. Patil and C. Taillie (2004b). Multiple indicators, partially ordered sets, and linear extensions: Multi-criterion ranking and prioritization. *Environmental and Ecological Statistics*, 11 (2), 199-228.
19. G.P. Patil, Raj Acharya, Amy Glasmeier, Wayne Myers, Shashi Phoha, and Stephen Rathbun (2006d). Hotspot Detection and Prioritization – Geoinformatics for Digital Governance, In: Digital Government: Advanced Research and Case Studies. Springer Publ., H. Chen. L. Brandt, V. Gregg, R. Traunmüller, S. Dawes, E. Hovy, A. Macintosh, C. Larson (Editors).
20. G.P. Patil, Raj Acharya, Wayne Myers, Shashi Phoha, and Rajan Zambre, Hotspot Geoinformatics for Detection, Prioritization, and Security (2006g). In: Encyclopedia of Geographical Information Science, Shashi Shekhar and Hui Xiong (Editors).

The following links are of some relevant methods and tools.

21. TeeraSeer Space-Time Intelligence System  
<http://www.terraseer.com/>
22. Salford Systems  
<http://www.salford-systems.com/>
23. CrimeStat  
<http://www.icpsr.umich.edu/crimestat>
24. Hierachial Modeling and Analysis for Spatial Data by Banerjee, Carlin, and Gelfand, CRC Press, 2003.  
[http://www.crcpress.com/shopping\\_cart/products/product\\_detail.asp?sku=C410X&parent\\_id=&pc](http://www.crcpress.com/shopping_cart/products/product_detail.asp?sku=C410X&parent_id=&pc)
- 
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## 5. Research Projects and Programmes

### New Environmetric Research Center in Pacific Northwest

Peter Guttorp

The Pacific Institute of Mathematical Sciences, one of three mathematical sciences institutes in Canada, recently awarded some 200,000 Canadian dollars to a consortium of universities planning a multi-site research center in environmetrics. The focus of the collaborative research group, funded for two years, is Georisk and Climate Change. The project starts with a joint workshop in Semiahmoo just south of the US-Canadian boarder on January 23-24, 2007.

The principal investigators of the proposal are Charmaine Dean, Simon Fraser University, Sylvia Esterby, University of British Columbia Okanagan, Peter Guttorp, University of Washington and Jim Zidek, University of British Columbia Vancouver. Other participants come from University of Victoria, Washington State University, and University of Calgary.

One of the goals of the project is to produce a certificate in environmetrics, which can be obtained at any of the universities, using courses offered jointly. Video-presentations of lectures, electronic communications, etc. will be utilized to make material available at campuses other than the campuswhere the course is given.

The research group will organize a variety of workshops, summer schools, and conferences. The timing of the proposal was set to coincide with the first North American Regional TIES meeting in Seattle in 2007 and the international TIES 2008 meeting in Kelowna.

Information about the projects under this umbrella will be found at the NRCSE web site, [www.nrcse.washington.edu](http://www.nrcse.washington.edu). The acronym now stands for Northwest Research Center for Statistics and the Environment.

## 6. Forthcoming papers in *Environmetrics*

Abdel El-Shaarawi, Editor-in-Chief

<http://www3.interscience.wiley.com/cgi-bin/jissue/93013115>

Hao Zhang: "Maximum-likelihood estimation for multivariate spatial linear coregionalization models"

John N. Haddad, Musa N. Nimah, Nadim Farajallah: "Modeling annual rainfall: a robust maximum likelihood approach"

V. K. Jandhyala and S. B. Fotopoulos: "Estimating the unknown change point in the parameters of the lognormal distribution"

Lee Fawcett and David Walshaw : "Improved estimation for temporally clustered extremes"

Michael L. Stein: "Seasonal variations in the spatial-temporal dependence of total column ozone"

Mario Francisco-Fernández, Montserrat Jurado-Expósito, J. D. Opsomer and Francisca López-Granados : "A nonparametric analysis of the spatial distribution of *Convolvulus arvensis* in wheat-sunflower rotations"

A. F. Militino, M. D. Ugarte, T. Goicoa: "Combining sampling and model weights in agriculture small area estimation"

Daniel A. J. Ryan: "Application of the beta-binomial model for the detection of rare marine benthos using point intercept techniques"

Zhulu Lin, M. Bruce Beck : "Understanding complex environmental systems: a dual approach"

Brooke L. Fridley, Philip Dixon: "Data augmentation for a Bayesian spatial model involving censored observations"

Abdel H. El-Shaarawi, Jing Lin: "Interval estimation

for log-normal mean with applications to water quality"

Jorge M. Mendes, K. F. Turkman, Ernesto Jardim : "A Bayesian hierarchical model for over-dispersed count data: a case study for abundance of hake recruits"

Wolfgang Bischoff, Mong-Na Lo Huang, Lei Yang: "Growth curve models for stochastic modeling and analyzing of natural disinfection of wastewater"

R. Gutiérrez, R. Gutiérrez-Sánchez, A. Nafidi and E. Ramos: "A diffusion model with cubic drift: statistical and computational aspects and application to modelling of the global CO<sub>2</sub> emission in Spain"

Abou El-Makarim A. Aboueissa and Michael R. Stoline: "Maximum likelihood estimators of population parameters from doubly left-censored samples"

A. Orasi and G. Jona Lasinio: "Statistical aspects of rainfall fields in Southern Italy during a rain enhancement experiment"

Lee Fawcett and David Walshaw: "Markov chain models for extreme wind speeds"

## 7. Books

### 7.1 Recently Published Books

Michael Dowd

- Andrienko, N. and Andrienko, G. *Exploratory Analysis of Spatial and Temporal Data*. 2006, Springer.
- Barnett, V. *Environmental Statistics: Methods and Applications*. 2006, Wiley.
- Balakrishnan, N., Castillo, E. and Sarabia, J.M. (editors). *Advances in Distributions, Order Statistics, and Inference*. 2006, Birkhauser Verlag.
- Clark, J.S. *Hierarchical Modelling For The Environmental Sciences: Statistical Methods And Applications*. 2006, Oxford University Press.
- Diggle, P.J. and Ribeiro, P.J. *Model-based Geostatistics*. 2006, Springer.
- Edwards, T.C. *The Analysis of Ecological Data Using R*. 2006, CRC Press.
- de Gruijter, J.J., Brus, D.J., Bierkens, M.F.P. and Knotters, M. *Sampling for Natural Resource Monitoring*. 2006, Springer.
- Evensen, G. *Data Assimilation: The Ensemble Kalman Filter*. 2006, Springer.
- Fortin, M-J. *Spatial Analysis: A Guide for Ecologists*. 2005, Cambridge University Press.
- Finkenstadt, B and Finkenstadt, F. *Statistical Methods for Spatio-Temporal Systems*. 2006, Taylor & Francis.
- Friedman, A. *Stochastic Differential Equations and Applications*. 2006, Dover.
- Gamerman, D. and Lopes H.F., *Markov Chain Monte Carlo*. 2006, CRC.

- Gelman, A. and Hill, J. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. 2006, Cambridge University Press.
- Härdle, W., Mori, Y. and Vieu, P. (editors). *Statistical Methods for Biostatistics and Related Fields*. 2006, Springer.
- Hoshmand, A.R. *Design of Experiments for Agriculture and the Natural Sciences*. 2006, Chapman & Hall/CRC.
- Le, N.D., Zidek, J.V. *Statistical Analysis of Environmental Space-Time Processes*. 2006, Springer.
- Manley, B.F.J. *Randomization, Bootstrap and Monte Carlo Methods in Biology*. 2006, Chapman & Hall/CRC.
- Maguire, D.J., Batty, M. and Goodchild, M.F. (editors). *GIS, Spatial Analysis, and Modeling*. 2006, ESRI.
- McBride, G.B. *Using Statistical Methods for Water Quality Management: Issues, Problems and Solutions*. 2005, Wiley.
- Piegorsch, W.W., Bailer, A.J. and van Harmelen, F. (editors). *Analyzing Environmental Data*. 2005, Wiley.
- Renard, P., Demougeot-Renard, H., and Froidevaux, R. (editors). *Geostatistics for Environmental Applications: Proceedings of the Fifth European Conference on Geostatistics for Environmental Applications*. 2005, Springer.
- Salvadori, G., De Michele, C., Kottekoda, N.T. and Rosso, R. *Extremes in Nature: An Approach Using Copulas*. 2006, Springer.
- Shaefer, S.J. and Theodore, L. *Probability and Statistics Applications for Environmental Science*. 2006, CRC.

- Stockwell, D. *Ecological Niche Modeling: Ecoinformatics in Application to Biodiversity.* 2006, CRC.
- Scott, D.W. *Multivariate Density Estimation: Theory, Practice, and Visualization.* 2006, Wiley.
- Shumway, R.H and Stoffer, D.S. *Time Series Analysis and its Applications.* 2006, Springer.

## 7.2 Book Review

**Statistical Analysis of Environmental Space-Time Processes** (2006) by Nhu D. Le and James V. Zidek. Springer, hardcover, XV, 341 p, ISBN 978-0-387-26209-3

Abdel El-Shaarawi, National Water Research Institute, Burlington, Canada

With the increased interest in environmental problems, statisticians have faced many methodological challenges in the analysis of environmental data, in a large part because of the complexity of environmental variability. The space-time processes (STP) methods are one of the prime tools developed to meet these challenges. It is not surprising then to see the rise in the number of published papers and conferences devoted to various aspects of STP. The continuous advances in computing power and software development have shortened the time between method development and the availability of the developed methods to the wider environmental community through scientific publication. Despite all of the progress made, there have been few books that cover the theoretical foundations of STP and their practical applications in real situations. This book is a step forward in addressing this limitation.

The book reflects the long teaching and research experience of the authors in STP. Although the examples used to motivate and illustrate methods were those encountered by the authors in their research work, the book will be of valuable to researchers, teachers and graduate students who are interested in the broader range of STP applications and methodologies. The book consists of 11 chapters and 4 appendices. The chapters are grouped into 4 parts: Environmental Processes; Space-Time

Modeling; Design and Risk Assessment; Implementation. Below is a brief summary of the distinguishing features of the book.

The book has several distinct features, namely, the writing style, topics covered, case studies used and guidance for numerical implementation. The book is well written and well structured. It is also self-contained and its material flows in a natural and systematic order. Each chapter starts with motivating examples, which help to orient the reader to the broader picture. Highly technical sections are starred so that less technical readers could avoid them at first reading. Appendices contain some of the mathematical results needed in the book.

The book begins with the elements of inductive inference pertinent to model building, measuring uncertainty and information content, and proceeds to approaches and technicalities of modeling, focusing on the major aspects of interest. In the process, the book does not ignore classical modeling and shows some deficiencies. The most important aspect is the Bayesian framework of inference and prediction which provides the unity of the book's topics. Another feature is the rationalization of sampling network designs, which includes the modification of an existing monitoring network through the addition or removal of sampling stations. Finally, the book gives a general modeling framework for risk assessment, a feature absent in the majority of books dealing with this subject.

The case studies covered reflect the broad experiences of the authors, and include examples which are often encountered in health related monitoring setups.

Sufficient material is given in Chapter 14 to provide a more-or-less self contained package for the numerical implementation of the methods of the book using R software.

In summary, I give the authors a very high mark for producing such an excellent book, one that will be of great service to the field of environmental statistics.

## 8. TIES Board of Directors

The following are the names of the elected members of TIES Board of Directors. All terms are from September 1, 2006, to August 31, 2008, except the 4-year terms of the regional directors.

**President:** David Brillinger  
(brill@stat.berkeley.edu)

**President-Elect:** Daniela Cocchi  
(cocchi@stat.unibo.it)

**Secretary:** Kristina Voigt (kvoigt@gsf.de)

**Treasurer:** Quanxi Shao (quanxi.shao@csiro.au)

**Publications Officer:** Michael Dowd  
(mdowd@mathstat.dal.ca)

**Regional Representatives:** (date term ends)

### North America:

Montserrat Fuentes (31/08/08)  
(fuentes@stat.ncsu.edu)

Don Stevens (31/08/10)  
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### Europe:

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## TIES NEWSLETTER, VOL. 12, NO. 1, January 2007

Objectives of the Newsletter include (but are not limited to):

- To keep TIES members informed of what is happening within the Society;
- To cover news in latest developments in theory and applications of environmetrics;
- To be a forum for discussion of a broad range of issues which are of interest to members of TIES and are consistent with the objectives of the Society.
- To facilitate communication between environmental scientists and statisticians about research problems of mutual interest.
- To provide details about upcoming conferences and workshops related to Environmetrics;
- To announce members' news that are worthy of notice or recognition (e.g., awards, prizes and honours received, promotions, appointments, etc.)

Communications, (e.g., contributions, comments and suggestions) regarding this publication should be addressed to the TIES Newsletter editors: Sylvia Esterby (sylvia.esterby@ubc.ca), Alessandro Fasso (alessandro.fasso@unibg.it) and Michael Dowd (mdowd@mathstat.dal.ca).

The Editors would like to encourage TIES members to submit items for publication in the Newsletter. We would like to have a very comprehensive publication that is of interest to our members by including items such as members' and regional news, Environmetrics and related conferences, research projects and programmes, book reviews, letters to the editor and articles of general interest.

We would like to thank the members who responded to our call and contributed to this issue. It is our hope that the Newsletter will be a valuable platform for discussion and exchange of ideas among us. We will be happy to hear your views about the contents and style of this issue. We hope that you will be a reader as well as a contributor.

<b>TIES Webpage:</b>	<a href="http://www.nrcse.washington.edu/ties">http://www.nrcse.washington.edu/ties</a>
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