The International ENVIRONMETRICS Society - TIES

Newsletter

Volume 11, No. 2, May 2006

Editors: Sylvia Esterby, Alessandro Fassò, Paul Sampson

In This Issue:

1. A Message from the President,

Anders Grimvall (angri@mai.liu.se)

Environmetrics and the roles of the statistician

During the past decades the amount of data generated in various fields related to the environment has increased at an unprecedented rate. A substantial fraction of this data originates from environmental monitoring programs. Other data is generated by process-based, usually deterministic, models. One could have expected that this abundance of data would have rendered statisticians a key role in environmental assessment and management. However, with relatively few exceptions, this has not been the case. On the contrary, statisticians have repeatedly missed the boat. New methods and concepts, such as neural networks, data mining and data warehousing, have emerged outside the discipline of statistics, and many statisticians are very sceptical about such novelties. Sometimes, this scepticism is nourished by the lack of statistical theory behind the new procedures for data analysis and management. More often, it seems to be an easy way to avoid a badly needed self-criticism. Making inference from a given set of data has been and will be a key task for statisticians, but data sets do not appear by themselves. Someone has raised the underlying scientific or management issue. Others have collected or generated data. Yet others have thought of how to organize data and make them easily available. A statistician cannot be an expert on

everything, but he or she could and should be more aware of the context in which the statistical inference is done.

The International Environmetrics Society has a core of statisticians but it is not a purely statistical society. In fact, it is the cross-disciplinarity that motivates its existence. Moreover, environmental science and management should be an almost ideal field for the integration of various types of quantitative methods. In comparison to other societal issues, the handling of environmental problems has a strong tradition of both measuring and modeling, and considerable efforts are made to create environmental databases. Last but not least, environmental science and management has attracted a large number of talented people from many different disciplines. When we meet in Kalmar in June, I hope that many of you will take the opportunity to attend some sessions on topics you normally drop. Quantitative methods that have been developed in one context may have important applications in other contexts. Process-based modelling can give input to statistical modelling and vice versa. Uncertainty that has a specific meaning for some scientists can have a completely different meaning for other scientists. Our annual meeting will hopefully show that TIES members have many things in common, but also are sufficiently different to stimulate fruitful discussions.

2. TIES News

2.1. New Members

Daniela Cocchi

Welcome to the new members who have joined TIES between June and November 2005. Conferences, the web page, and the promotion of TIES by current members continue to be the major means by which individuals are learning about the Society.

Aldrin, Magne	Norway
Aleman, Gladys M.	Japan
Al-Mula Hiwaish, Akeel Noori	Malaysia
Anuwattana, Rewadee	Thailand
Baffetta, Federica	Italy
Bellier, Edwige	France
Braun, Willard J.	Canada
Franceschi, Sara	Italy
Furukawa, Kyoji	Japan
Ghellini, Giulio	Italy
Gonzalez Becerra, Cristian Manuel	Switzerland
Guenter, Lang	Germany
Hao, Zhiwei	China
Hirunpraditkul, Samorn	Thailand
Hodgkinson, Kenneth C.	Australia
Hrdlickova, Zuzana	Czech Republic
Huang, Jinhui	Canada
Jing yu Zhu, Zoe	Canada
Jitto, Ponlakit	Thailand
Kruaysawat, Somkiat	Thailand
Laowansiri, Sunantha	Thailand
Li, Yongfeng	China
Lin, Jing	Canada
Liu, Xin	Germany
Ma, Liyun	USA
Ma, Renjun	Canada
Marcheselli, Marzia	Italy
Monestiez, Pascal	France
Nourbakhsh, Farshid	Iran
Panjai, Saueprasearsit	Thailand
Pasukphun, Nittaya	Thailand
Pelletier, Bernard	Canada
Pluch, Philipp	Austria
Romsaiyud, Angsana	Thailand
Rootzén, Helle	Denmark
Ryden, Jesper	Sweden
Shao, Quanxi	Australia
Sheppard, Lianne	USA
Steenhof, Paul	Canada
Tang, Lin	China
Turner, T. Rolf	Canada

Waewsak, Chaiwat	Thailand
Wang, Xin	Japan
Yanagawa, Takashi	Japan
Yu, Hao	Canada
Yun, Li	Australia
Zhang, Hao	USA
Zhang, Lifeng	Singapore
Zhou, Hongde	Canada
Zhu, Jun	USA

2.2. Member's News

David Brillinger, Professor of Statistics, University of California at Berkeley, has been elected a Foreign Member of the Norwegian Academy of Science and Arts and a Foreign Member of the Brazilian Academy of Science.

Ali S. Hadi, Professor of Statistics and Director of the Actuarial Science Program at the American University in Cairo and Professor Emeritus at Cornell University, has been appointed Vice Provost at the American University in Cairo. Dr. Hadi served as a co-editor (with Liliana Gonzalez) of TIES Newsletter from 1996-2000. Also, he created TIES E-mail list in 1997 and has been managing it ever since.

Andrew B. Lawson, Epidemiology and Biostatistics, University of South Carolina, with 2 co-PIs, has been awarded a large R01 grant from National Institute of Environmental Health Sciences (NIEHS), October 2005-October 2008 for *Medical and Environmental Exposures Associated with Mental Retardation and Developmental Delays in Young Children*. This work focuses on the analysis of the link between environmental exposures and the residential histories of mothers during their pregnancy cycles. The analysis involves the development of novel methods for the analysis of mobile populations and their environmental experiences. It also involves the novel development of spatial cluster modeling of data which includes residential histories for pregnant women related to mental retardation outcomes.

The Graduate Programs in Public Health at the Tufts University School of Medicine, Boston MA USA, announced in October 2005 the **Ian MacNeill Award.**

This award honours and recognizes the work of a Tufts' health sciences or public health student who, in the opinion of the faculty, has demonstrated an outstanding ability to analyze, interpret, display, and communicate critical information derived from research data. This Award honours the work of mentor and colleague, Dr. Ian MacNeill, Emeritus Professor in Statistics who, through his academic career, has set the standard for research and scholarship in applying analytical tools in the public health sciences.

Dr. Ian MacNeill is a native of Saskatchewan, Canada and did his undergraduate work at the University of Saskatchewan. He subsequently earned a MA in mathematics at Queen's University and a PhD in statistics at Stanford University. For most of his academic career, Dr. MacNeill has been a faculty member at the University of Western Ontario, and was the founding Chair of the Department of Statistical and Actuarial Sciences. He is now Professor Emeritus in that Department. Dr. MacNeill's academic specialty is time series analysis and forecasting. He is co-founder of **The International Environmetrics Society** and the journal ***Environmetrics.*** Equally important, Dr. MacNeill has developed and applied statistical methodologies in various areas of public health. He is well known for his significant contributions to modeling and forecasting of infectious and chronic diseases and for his international work on enhancing analytical tools for disease surveillance.

The Ian McNeill Award is given annually to a health sciences or public health student whose work, as judged by the selection committee, satisfies at least two of the following three criteria:

1. Demonstrates an innovative application of analytic techniques to public health data thereby leading to new insights and conclusions;
2. Makes effective use of unusual data sources (i.e. those not traditionally cited in the literature) to highlight important public health issues and concerns;
3. Demonstrates the use of innovative communication tools and data visualization techniques to successfully deliver public health information to a particular audience.

The Selection Committee will consist of:

- Elena Naumova, PhD Tufts University School of Medicine, Chair

- James Hyde, MA SM Tufts University School of Medicine
- Janet Forrester, PhD Tufts University School of Medicine
- Farzad Mostashari, MD MSPH New York City Department of Health

The Award will be announced in May of each year. For information contact: Elena Naumova at enaumo01@granite.tufts.edu

2.3. Society News

TIES 2005 Student Paper Competition

Abdel H. El-Shaarawi

During the August 21-26 2005 TIES Conference in Beijing China, the Student Paper Competition took place. The Committee members were: Abdel El-Shaarawi (Chair), National Water Research Institute, Canada; Ivana Horova, Masaryk University of Brno, Czech Republic; Ian McLeod, University of Western Ontario, Canada; Geoff Laslett, CSIRO Mathematical and Information Sciences, Australia; and Claudia Libisller, Linköping University, Sweden.

There were 21 competitors. The committee wishes to congratulate each of the students for the achievement of the results presented in their papers. The papers were evaluated based on presentation, research content, and environmental relevance. The committee agreed unanimously that the TIES 2002 student paper prize should be awarded to Jing Lin, McMaster University, Canada, for her paper entitled *Water Chemistry Changes in Canadian Acid Rain Monitoring Lakes*.

TIES 2006 Annual General Meeting

The Annual General Meeting of The International Environmetrics Society will be held during TIES 2006, Kalmar, Sweden, June 18-22, 2006. It is currently scheduled for 19:00 Monday June 19th.

http://www.mai.liu.se/ties2006/schedule.htm

3. Environmetrics Conferences

3.1. Forthcoming TIES Conference

TIES 2006, The annual meeting of the International Environmetrics Society, Kalmar, Sweden, 18-22 June 2006.

The venue is the medieval town of Kalmar in southern Sweden. The conference site is situated in the harbour of Kalmar, with the plenary sessions in the conference building Kalmarsalen and afternoon sessions at the University of Kalmar nearby. The programme will consist of presentations under the major themes, invited paper sessions, and contributed oral and poster sessions.

Major Themes

- Are extreme weather events becoming more common?

Speakers**:** Hans von Storch, Germany; Giuseppe Arbia, Italy; Armin Bunde, Germany; Rick Katz, USA; Markku Rummukainen, Sweden; Jef Teugels, Belgium; Hans Wackernagel, France

- Can we attribute environmental effects to actors and activities?

Speakers: Myles Allen, UK; Bo Bergbäck, Sweden; Peter Brimblecombe, UK; Susanne Kytzia, Switzerland; Richard Lord, UK

- Can we monitor the abundance of a multitude of species?

Speakers**:** Loveday Conquest, USA; Antti Penttinen, Finland; Don Stevens, USA; Werner Wosniok, Germany

Invited Sessions to Date:

Statistical Quality Measures of Environmental Standards. Organizer: Peter Guttorp. Speakers: Montserrat Fuentes, USA; Sofia Åberg, Sweden; Jan Heffernan, UK

Sustainable Development. Organizer: Daniela Cocchi. Speakers: Thierry Brechet, Belgium; Enzo Tiezzi, Italy; Valentina Bosetti, Italy; Alejandro Caparros, Spain; Abdelhakim Hammoudi, France; Michaela Saisana, Italy

Genetically Modified Crops and Food (SPRUCE invited session). Organizer: Marian Scott.

Statistical Methods for Censored Trace Contaminants. Organizer: Dennis Helsel. Speakers: Robert Lyles, USA; Song Qian, USA; Katrin Grunfeld, Sweden; Haitao Chu, USA; Michael Ginevan, USA; Dennis Helsel, USA

Spatial Methods in Environmental Assessment. Organizer: Abdel El-Shaarawi. Speakers: Michael Dowd, Canada; Hao Zhang, USA; Abdel El-Shaarawi, Canada.

Contributed Sessions Include:

Climate Variability and Climate Change, Extreme Value Theory and its Applications, Air Pollution Modeling, Environment and Health, Environmental Management and Decision Making, Monitoring Biodiversity, Control Charts and Measurement

For up to date information and **to register**, please see: http://www.mai.liu.se/ties2006/index.htm

Contact information:

Claudia Libiseller
TIES 2006
Dep. of Mathematics, Div. of Statistics
Linköpings Universitet
SE- 58183 Linköping
Sweden
E-mail: ties2006@mai.liu.se

3.2. Report on TIES 2005 Conference, Beijing

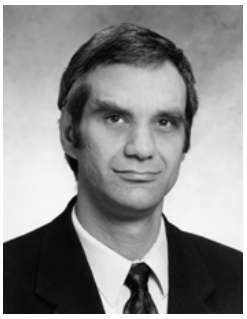
Alessandro Fassò

The 16th Annual Conference of The International Environmetrics Society was held in Beijing, August 24-26, 2005. The conference venue was the Friendship Hotel, one of the largest garden-style hotels in Asia, which was built in 1954, with a combination of classical elegance and traditional Chinese architecture. Unfortunately its outdoor 50-meter-long swimming pool was under renovation, maybe in preparation for the 2008 Olympic Games. So, after the hot visit to the magnificent Forbidden City or after the amazing scientific tour to the Great Wall, delegates and companions opted for indoor refreshment before having dinner at the palatial Hotel restaurants or at the cheap Chinese-style restaurants in the neighbourhood.

The Conference was successfully organized by Quanxi Shao, Conference Chairman; Ray Correll, Conference Coordinator; and Yongguan Zhu, Local Coordinator. Special thanks to the secretariat, in particular to Ms. Cuiling Lan and Mr. Bo Wang.

The scientific program, built around the major conference theme of "Quantifying how our environment affects us", resulted in some one hundred contributions. These were organized into three special invited lecture sessions with two speakers each, three invited sessions, seventeen contributed sessions, and one poster session with ten presentations. The special invited sessions were:

- The Presidents Invited Lecture, Tony Jakeman, *Integration Frameworks and Methods for Water Resource Management.*
- Geoffrey Laslett, *How destructive is prawn trawling?*
- The Keynote Address, Xia Jun, *Hydrological science opportunities and challenges in China: discussion on observation, process and uncertainty.*
- Anders Grimvall, *Towards Efficient Handling and Assessment of Material Flow Data in Industrial Ecology*.
- The John Stuart Hunter Lecture, Michael Stein, *Wandering through space-time.*
- Yun Li and Ian Smith, *Downscaling large-scale MSLP circulation modes to local winter rainfall over Southern Australia*.



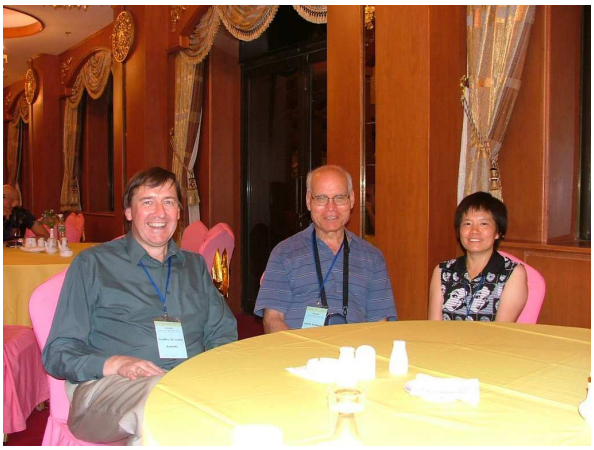
Hunter Lecturer, Michael Stein

Keynote Lecturer, Xia Jun

Tony Jakeman giving the President's Invited Lecture at the Multifunction Hall

Bronwyn Harch, TIES Treasurer, speaking at the Conference Banquet

The sessions covered a broad range of topics including: environmental technology, agricultural ecology, rangeland statistics, computationally intensive methods, spatial temporal modelling, monitoring, air quality, hydrology, risk assessment, environmental policy, environmental epidemiology and public health. A large number of students, many from the region, participated in TIES Student Paper competition and this is reported on elsewhere in the Newsletter. The program and abstracts can be found at http://www.cmis.csiro.au/ties2005/.



Geoffrey Laslett, Abdel El-Shaarawi and Jing Lin at the Reception.

Some Delegates before the Science Hall at the Friendship Hotel

3.3. Other Forthcoming Conferences and Schools

The **Summit on Environmental Modelling and Software, or iEMSs 2006,** will be held July 9-12, 2006 in Burlington, Vermont, USA.

This is the 3rd Biennial meeting of the International Environmental Modelling and Software Society and aims at *"enhancing sustainability outcomes and decision processes"* by:

- Establishing the state-of-the-art in Environmental Modelling and Software theory and practice for integrated assessment and management
- Identifying research needs for advancing the requisite knowledge base and tools

- Initiating and consolidating research partnerships for systematic studies that acquire, capture, and generate knowledge platforms

The conference themes are: Integrated Modelling, Adaptive Management, Decision Making Models and Public Participation, Decision Support Tools and Software, Policy and Institutional Analysis, Ecosystem Management.

For more information: www.iemss.org/iemss2006

The School on **Hierarchical modelling approaches for spatial data in environmental and health sciences, ABS06,** will be held in Bertinoro, Italy, July 17-21, 2006.

This School, on state-of-the-art Bayesian applications, is organized by CNR-IMATI (Istituto di Matematica Applicata e Tecnologie Informatiche at Consiglio Nazionale delle Ricerche) and the University of Pavia (DEPMQ), in cooperation with BAYSTAT, the Department of Statistics at the University of Bologna, and the GRASPA group (www.graspa.org).

The lecturer will be Sudipto Banerjee (University of Minnesota, USA), assisted by Fedele Greco (University of Bologna, Italy) and Luca La Rocca (University of Modena and Reggio, Italy).

The school will make use of lectures, practical sessions, software demonstrations, informal discussion sessions and presentations of research projects by school participants.

For more information:
www.mi.imati.cnr.it/conferences/abs06.html

The **International Conference on Statistical Latent Variable Models in the Health Sciences**, a satellite Meeting of Compstat 2006, will be held September 6-8, 2006 at the University of Perugia, Italy.

The primary objective of the conference is to bring together statisticians from academia as well as other research institutions working on different theoretical aspects and relevant applications of latent variable models to the health sciences and to provide a forum to share ideas, problems and methodologies.

The topics include: Latent Variable, Latent Class, Frailty Models in Survival Analysis, Medical Diagnostic, Latent Regression, Multiple Outcomes, Surrogate Variables, Mixed Models, Genetic Data, Quality of Life, Censoring Methodology, File Linkage, Spatial Modelling, Scale Validation, Item Response Theory Models, Rasch Models, Multidimensional IRT Models, Missing Data, Joint Analysis of Survival and Quality of Life, Factor Analysis, Graphical Models.

Organized by:

Mounir Mesbah, University of Pierre et Marie Curie, Paris, France, mesbah@ccr.jussieu.fr

Antonio Forcina, University of Perugia, Perugia, Italia, forcina@stat.unipg.it

Mei-Ling Ting Lee, Harvard University, Boston, USA, stmei@channing.harvard.edu

For details see:
www.stat.unipg.it/forcina/shlav/shlav.html

The Workshop, **Spatial Data Methods for Environmental and Ecological Processes,** will be held in Foggia, Italy, September 14-15, 2006.

This is an interdisciplinary conference (with statisticians, agronomists, biologists, ecologists etc.) fostering the exchange of experience among researchers working on spatial problems and the use of spatial statistics in real world problems. It will be organized in plenary sessions with general interest contributions and invited speakers, parallel sessions of specific interest, and a poster session.

Submitted contributed papers will be subject to referees. Those accepted and revised according to referees indications will be published in the "Spatial Data Methods for Environmental and Ecological Processes" proceedings.

For more information: www.unifg.it/spatial

The **International Workshop on Spatio-Temporal Modelling, METMA3**, will be held in Pamplona, Spain, September 27-29, 2006.

The purpose of this workshop is to promote the development and application of spatial, temporal, and mainly spatio-temporal statistical methods to different fields related to the environment. In recent years, spatio-temporal modelling has become a crucial area of research related to the statistical analysis of natural processes, and especially processes involved in environmental studies.

The workshop is organized every two years to bring together practitioners and researchers of different areas and countries all over the world. The scientific

programme is characterized by having special invited sessions covering theory, methods, and applications, as well as contributed papers and posters. The main emphasis this year is on illustrating statistical procedures with real data when possible. Some key lectures on spatio-temporal modelling in disease mapping will be included.

Preliminary program and info:
www.unavarra.es/metma3

Secretary: Ana Fernandez Militino.

Contact: Lola Ugarte
Phone: 34 948169202
Fax: 34 948169204
Email: metma3@unavarra.es

The **Multivariate Methods in Environmetrics Conference** will be held October 26-28, 2006 at the Holiday Inn, 300 East Ohio Street, Chicago, Illinois.

The conference is being organized by the Statistics and Environment Section (ENVR) of the American Statistical Association (ASA) and the Center for Integrating Statistical and Environmental Science (CISES) at the Department of Statistics, University of Chicago. There will be a short course on October 26th. A workshop will begin Friday, October 27th, and extend until mid-afternoon Saturday, October 28th. Papers will be given on recent advances in multivariate approaches to the analysis of environmental data. The workshop will consist of a series of invited presentations on applied research topics at the interface of statistics, multivariate analysis, and environmental applications. Ample time will be provided for a thorough discussion of the topics. A limited number (20) of poster presentations will be available for those wishing to contribute to the conference. Please submit an abstract for potential poster presentation. Registration information will be forthcoming.

For further information or poster submission, please contact Marc G. Genton at genton@stat.tamu.edu.

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4. Young Environmetricians

The Editors have invited the recipient of the Best Student Paper Award at TIES 2005 to write this article. We invite graduate students to submit contributions to the Section on topics that are of particular interest to students and are not covered by other Sections of the Newsletter.

I would like to begin by expressing my appreciation to my supervisor Prof. Abdel El-Shaarawi for suggesting my research subject and supervising my work. I also would like to thank TIES for establishing the Student Paper Award to encourage young Environmetricians. Last but not least, I express my thanks to the Newsletter Editor, Dr. Sylvia Esterby, for inviting me to make this contribution.

I was born in China where I received my education in physics and obtained a Masters degree in High Energy Physics from Shandong University. Afterwards, I was appointed as a lecturer in the Department of Physics at the same university. During my research and work I realized the importance of the proper design of scientific experiments and the analysis of empirical data. So I decided to study statistics since it is the field which is concerned with developing methods for inferences based on models and measurements. I was encouraged by my professors to study in the United States. In 1998, I was sent to the University of North Carolina as a visiting scholar in the department of Physics and Astronomy. I decided to immigrate to Canada in 2002 and was accepted by the Department of Mathematics and Statistics, McMaster University to study Statistics in the fall of 2003 where I obtained my Masters Degree in Statistics in 2005.

At McMaster I was lucky to interact with and take courses from very helpful professors who are very much interested in teaching their students not only the theoretical aspects of statistics but to show them how to apply such methods in real applications. In particular, I am very much indebted to Professors Peter Macdonald, Roman Viveros-Aguilera, and Angelo Canty for their guidance and help while I was at McMaster.

My interest in Environmetrics began when I took a course from Professor El-Shaarawi, where I was very much impressed by the scope of statistical applications in understanding environmental changes and the assessment of anthropogenic impact on environmental quality. This led me to ask Professor El-Shaarawi if he would agree to supervise my Masters research. I worked on detecting and modeling trends in the acidity of water quality of Canadian

Lakes using monitoring data. The Turkey Lakes Watershed (TLW) monitoring system was established in 1980 to define the impact of acidic deposition on undeveloped aquatic and terrestrial terrain. In my research I used a subset of the data collected in the TLW study, concentrating mainly on the analysis of pH and SO_4, two of the most important variables in the acid rain problem. The objective is to study the evolution of acidity in the system of lakes, how it varies seasonally and from year to year. I used graphical methods and regression models with correlated errors in the investigation of changes in the model's regime. For this, the change point was assumed unknown and a likelihood-based method was used to estimate and make inferences about the point of change. Several multivariate methods were also employed to summarize the overall pattern in the monitoring data sets. Based on this work, it was shown that pH increased modestly while SO_4 showed a dramatic decrease during the study period (1980-1997). This showed that the efforts of the governments of Canada, the seven eastern Canadian provinces, and the United States to reduce the emission of sulphur dioxide have been successful. Currently I am continuing my Environmetrics research at the National Water Research Institute under the supervision of Dr. El-Shaarawi.

Jing Lin
Jing.Lin@cciw.ca

5. Environmetrics Forum

The Editors invite contributions from readers for the next issue of the Newsletter.

6. Research Projects and Programmes

Tufts University's Initiative for the Forecasting and Modeling of Infectious Disease

We are excited to announce the formation of the Tufts University Initiative for the Forecasting and Modeling of Infectious Disease (InForMID). Under the auspices of this Initiative, we will form new partnerships and foster interdisciplinary collaborations to focus on the complex problems involved in the study of infectious disease. Over the coming years, the Initiative will host interdisciplinary conferences and workshops, invite speakers from fields of research that are traditionally unattached to the study of disease, provide a forum for the conception of both experimental and theoretical collaborative investigations, and build a common language among the various disciplines. To achieve these ends, we are inviting researchers from a multitude of fields to help us in our endeavour. Computer scientists, applied mathematicians, and biostatisticians will be able to expand their research to areas of basic biological sciences and practical public health applications, while public health professionals, epidemiologists, medical researches and other 'life scientists' will be able to participate in the creation of novel analytical approaches and computational tools. In this way the Initiative will facilitate truly interdisciplinary collaboration among researchers and nurture a new generation of scientists with an integrative perspective.

We are hoping to find others interested in joining our Initiative either as a Member (one whose research is directly involved in the forecasting and/or modeling of infectious disease), or as an Affiliate (one whose research is necessary to, or benefits from such endeavours). In these roles, we are hoping individuals will propose new directions for investigation, organize meetings and publications, and recruit students. Members and affiliates will also be able to apply for funding through the Initiative for support of related work and for the training of students and post-doctoral researchers interested in broadening the scope of their research to related, but otherwise inaccessible, fields.

Additionally, we are looking for Institutional Partners and members who are willing to act as their institution's representative to and from our Initiative. Partner institutions will be able to host visiting researchers, train students and apply jointly for funding through the Initiative. We believe that the broader the involvement from the greater academic community, the more our Initiative will be able to accomplish and the more all of us will be able to push the study of infectious disease to new heights.

Please join us in this exciting enterprise and help us to build a strong and successful Initiative. We look forward to hearing from you by email at either of the address listed below.

Sincerely,

Elena N. Naumova, PhD
Initiative Director
elena.naumova@tufts.edu

Nina H. Fefferman, PhD
Initiative Co-Director
nina.fefferman@tufts.edu

7. Forthcoming papers in *Environmetrics*

Abdel El-Shaarawi, Editor-in-Chief

- **Orasi and G. Jona Lasinio**. Statistical aspects of rainfall fields in Southern Italy during a rain enhancement experiment.
- **M. Singh, T. Oweis, M. Pala, and A. Sarker**. Tempo-spatial covariance structure of lentil yield and water use efficiency from supplemental irrigation trials.
- **Fahimah Al-Awadhi and S. Al-Awadhi.** Spatial-temporal model for ambient air pollutants in the state of Kuwait.
- **Jorge M. Mendesy, K. F. Turkman, and J. Corte-Realx**. A Bayesian hierarchical model for local precipitation by downscaling large-scale atmospheric circulation patterns.
- **Jacob J. Oleson, Diane Hope, Corinna Gries, and Jason Kaye.** Estimating soil properties in heterogeneous land-usepatches: A Bayesian approach.
- **Christopher J. Paciorek and Mark J. Schervishpatial**. Modelling using a new class of nonstationary covariance functions.
- **Jade Freeman and Reza Modarress**. Estimating the bivariate mean vector of censored environmental data with Box-Cox transformations and E-M algorithm.
- **Mohammad Z. Raqab**. Nonparametric prediction intervals for the future rainfall record
- **Rahul Mazumder and B. S. Mazumder**. Statistical characterization of circulation patterns and direction of turbulent flow over a waveform structure.
- **Philip A. Bzdusek and Erik R. Christensen**. A sequential Monte Carlo approach for marine ecological prediction
- **E. Mills Flemming, C. A. Field, M. C. James, I. D. Jonsen, and R. A. Myers**. How well can animals navigate? Estimating the circle of confusion from tracking data.
- **Gangqiang Xia, Marie Lynn Miranda, and Alan E. Gelfand.** Approximately optimal spatial design approaches for environmental health data.
- **Ravindra S. Lokupitiya, Erandathie Lokupitiya, and Keith Paustian.** Comparison of missing value imputation methods for crop yield data.
- **Zhengyuan Zhu and Hao Zhang**. Spatial sampling design under the infill asymptotic framework.
- **Jan van de Kassteele and Alfred Stein**. A model for external drift kriging with uncertain covariates applied to air quality measurements and dispersion model output.

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, 2004, to August 31, 2006, except the 4-year terms of the regional directors.

President:

Anders Grimvall
(angri@mai.liu.se)

President-Elect:

David Brillinger
(brill@stat.berkeley.edu)

Secretary:

Daniela Cocchi
(cocchi@stat.unibo.it)

Treasurer:

Bronwyn D. Harch
(Bronwyn.Harch@csiro.au)

Publications Officer:

Paul D. Sampson
(pds@stat.washington.edu)

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

North America:

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

Jeanette O'Hara Hines (31/08/06)
(johara@uwaterloo.ca)

Europe:

Peter Challenor (31/08/08)
(P.Challenor@soc.soton.ac.uk)

Gudmund Host (31/08/06)
(gudmund.host@nr.no)

Other Regions:

Lelys Bravo de Guenni (31/08/08)
(lbravo@cesma.ub.ve)

Jacky Galpin (31/08/06)
(jacky@galpin.co.za)

TIES Newsletter is a publication of The International Environmetrics Society (TIES). It is published semi-annually, or whenever the need arises by The International Environmetrics Society and distributed to TIES members as part of their annual dues. Contact Anders Grimvall,

angri@mai.liu.se,

or Bronwyn Harch,

Bronwyn.Harch@csiro.au,

for questions regarding membership and other benefits.

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 (sesterby@exchange.ubc.ca), Alessandro Fasso (alessandro.fasso@unibg.it).

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.

TIES Webpage:
http://www.nrcse.washington.edu/ties