



Newsletter

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Editor: Rosalba Ignaccolo

In This Issue:

1. A Message from the President.
2. TIES News.
3. Environmetrics Conferences.
 - 3.1. Forthcoming TIES Conferences.
 - 3.2. Meeting Reports.
4. Outstanding Environmetricians
5. Recently or soon-to-be Published Books
6. TIES Board of Directors.

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1. **A Message from the President,**
Daniela Cocchi (daniela.cocchi@unibo.it)
Dipartimento di Scienze Statistiche
"Paolo Fortunati", Università di Bologna
Italy

Dear TIES members

A number of very relevant facts occurred in 2010 which I will report on briefly here.

TIES link to ISI

Firstly, there is important news which arises due to the new status of TIES being an International Statistical Institute (ISI) Section. TIES is transferring many administrative duties to the ISI: you have surely noticed that most of the recent email messages from TIES are now sent through ISI, since the passage of our data base to ISI is almost completed. Also TIES has an account through ISI, that is jointly monitored by the ISI and the TIES President and Treasurer; TIES maintains its own bank account in Canada and still does not modify its Statutes and Bylaws.

Grace Chiu, TIES webmaster, is a member of the ISI Website Improvement Board. For the moment, TIES will not transfer its website to the ISI website, but will maintain its website with a link from the ISI website.

The ISI website has a new webpage that improves the structure and delivery of the former newsletter, <http://www.isi-web.org/>. Information about TIES is transmitted by the Editor of the TIES newsletter, Rosalba Ignaccolo.

Important World Bank funding was obtained through ISI to help support statisticians from developing countries attend the TIES 2010 conference. Lelys Guenni, the TIES 2010 conference organizer, managed the distribution of the US\$20,000 funds received with 8 applicants being funded. Lelys suggested that formal guidelines should be written

for the use of distributing future World Bank funds. The aim of such guidelines would be to aid those in a similar position to make an objective decision about worthwhile recipients of the funds by taking into account considerations such as variable participant costs due to travel distance to attend the conference, the quality of applications and what to do in case a recipient withdraws their conference attendance. Analogous World Bank funding for Dublin 2011 and TIES 2012 are still under negotiation.

ISI organised a Council Meeting on 22-23 July 2010 in Reykjavik, Iceland at which TIES was represented by the Treasurer Sylvia Esterby. After the 2009 ISI conference in Durban, South Africa, ISI President Jef Teugels asked TIES to suggest topics for environmental? statistics courses to be held in Africa; a list has been sent to ISI.

TIES is well represented on the ISI Publications committee: Don Stevens is a member and after Durban 2009 Abdel El-Shaarawi is the new President.

Finally, ISI will promote 2011 TIES membership to ISI members. The collection of TIES membership fees for 2011 will be conducted by ISI. The TIES 2011 membership fees will be unchanged from 2010.

TIES @ 2011 ISI Conference in Dublin

TIES is deeply involved in the activities planned for the Dublin 2011 ISI Conference. There will be 2 specialized contributed paper sessions and 6 invited sessions organized by TIES (with 2 of them organised jointly with other Sections). Bronwyn Harch, Abdel El-Shaarawi, Peter Guttorp and Marian Scott are the TIES delegates on the conference scientific program committee.

The organization of the full conference day on "Water - quantity and quality" is going well under the guidance of Abdel El-Shaarawi. Non-statisticians will be very welcome, while Eurostat and the United Nations will participate. TIES is also organizing a Satellite meeting to the 2011 ISI Conference on Visualisation problems with climate data. It is being organized by Peter Guttorp and Di Cook and will be held in Reykjavik, Iceland during the week before the Dublin conference).

Don Stevens is on the 2011 Dublin conference short course committee (chaired by Steve Heeringa) and two TIES courses are being organized: Bayes

methods and software (to be presented by Brad Carlin) and Space-time modelling (to be presented by Peter Guttorp et al.).

A meeting of Young Statisticians will be held at the 2011 ISI meeting in Dublin. Using leftover funds from the 2007 North American regional TIES meeting, TIES will contribute US\$4000 towards travel grants for this meeting.

TIES involvement in other conferences

TIES has been involved in several conferences recently. The METMA V conference, held at the end of June 2010, was a satellite meeting to TIES 2010; see <http://eio.usc.es/pub/METMA/index.php?lang=en> for details.

TIES also organised two sessions (one jointly with the French Statistical Society) at The International Society for Business and Industrial Statistics meeting ISBIS2010 (see <http://www.action-m.com/isbis2010/sponsors.php>), was involved in The International Association for Official Statistics meeting IAOS 2010 (<http://isi.cbs.nl/IAOS/Conferences/2010Chile.htm>) and in the Annual Meeting of the German Statistical Society (http://www.statistische-woche-nuernberg-2010.de/Beitraege/Jahrestagung_2010_Call_E_neu.pdf).

TIES annual conferences

With regards to TIES conferences, all attendees at our 2010 annual conference on "Sustaining our environment under changing conditions: quantitative methodological challenges" in Venezuela were very active and the scientific level of the conference was very high. The participation of researchers from developing countries was encouraged by the World Bank funding opportunity. I warmly thank the organizer Lelys Guenni and her young colleagues and students for the friendly and warm atmosphere at the Hesperia Isla Margarita resort where the conference was held. We all had a very good time in Venezuela and had the opportunity of attending a remarkably good conference program assembled by the Scientific Committee.

In 2011, we will not be holding an annual conference but instead TIES official meetings will take place during the ISI conference in Dublin. We also will have two regional meetings next year: a North

American regional meeting on “Quantitative Methods for the Analysis of Long-Term Monitoring Data” at La Crosse, WI, USA during 18 - 20 July 2011, and a European regional meeting on “Spatial Data Methods in Environmental and Ecological Processes” at Foggia and Baia delle Zagare, Italy on 1-2 September 2011.

The next annual conference will be held at the CR Rao Advanced Institute for Mathematics, Statistics and Computer Science in Hyderabad, India in early January 2012. This will be followed by TIES 2013 in Anchorage, Alaska (planned for June-July timing at this stage) and in an Australian location in 2014.

Environmetrics journal

Wiley informed us about the improvement of the impact factor (IF) for the Environmetrics journal. Thanks to Vijay Nair and his negotiation as ISI representative with Wiley, TIES members can use free tokens during 2011 to download single articles from the journal. The expiring contract between TIES and Wiley for the journal will be continued for 2011 using the old conditions with slight modifications.

Quantitative environmental analysis is currently performed by many institutions and researchers. TIES can be the liaison to the international statistical community for core projects concerning cutting-edge topics involving forums or commissions on large environmental data sets and their statistical analysis. I believe that the support of TIES members of these activities will contribute to improve statistical culture!

2. TIES News

Abdel El-Shaarawi Young Researcher’s Award 2010

The award was established through a motion of the Board of Directors in 2001 and subsequent definition of the nature of the award. The award winner will not yet have reached his/her 41st birthday at the time of nomination and is recognized for having made outstanding contributions to the field of

environmetrics (see TIES Awards at <http://www.environmetrics.org/>).

For the year 2010, the winner is Marc Genton, Department of Statistics Texas A&M University, with the following motivation.

“He is a world-leading statistician who has made fundamental contributions in statistical theory and practice, in teaching, and in service to the statistical community. He wrote an impressive number of theoretical and applied papers on several topics linked to environmetrics (climate science, paleoclimate reconstructions, precipitation analysis, pollutants studies, and wind power forecasting) and significantly contributed to disseminate knowledge with over 170 presentations at scientific conferences.”

The prize will be delivered at the 58-th ISI Session, Dublin 2011.

TIES members News

- Tilmann Gneiting will be the science co-editor of Annals of Applied Statistics.
- Montserrat Fuentes is now the editor in Chief of JABES.
- Bronwyn Harch is now Deputy Director of the CSIRO Sustainable Agriculture Flagship, Agri-Environment and Government Partnerships.

In memoriam

Professor Philip Chatwin died on 10 September 2010. He made seminal contributions to research into environmental fluid mechanics. He will be particularly remembered for his extensions to the theory of longitudinal dispersion (originally due to G.I.Taylor), and for advances to the basic understanding of turbulent diffusion.

He was particularly keen on fostering closer collaboration between applied mathematicians and statisticians, and played an active role in TIES from its inception. He was a regular participant in TIES

conferences from the first one in Cairo in 1989, and was co-chairman of TIES 2000 in Sheffield. He served as an Associate Editor of *Environmetrics* from 1991, and a Deputy Editor 1997-2003, as well as having a number of his own papers appear in the journal. He was also a Section Editor for the *Encyclopedia of Environmetrics* which was published in 2002.

Philip was born in Chester, England in 1942, and in 1959 he gained an Entrance Scholarship to Trinity Hall, Cambridge. He obtained a First Class degree in Mathematics, followed by a Distinction in Part 3 of the Mathematics Tripos. In 1967 he completed his PhD on 'Some Dispersion Problems in Fluid Mechanics', supervised by Professor G.K.Batchelor, FRS, in the Department of Applied Mathematics and Theoretical Physics at Cambridge.



Professor Philip Chatwin

Following a research fellowship at the University of Grenoble (1967-68), Philip was Lecturer and then Senior Lecturer in the Department of Applied Mathematics and Theoretical Physics at the University of Liverpool (1968-85). Thereafter he became Professor of Mathematics at Brunel University (1985-90) and Professor of Applied Mathematics at the University of Sheffield (1991-2003), in both of which institutions he served as Head of Department. After retirement he continued to teach fluid mechanics at Sheffield.

Philip is survived by his wife Luisella and daughters Diana and Simona, as well as four grandchildren, two brothers and a sister.

TIES New Members

Laurie Ainsworth
 Ayesha Ali
 Som Bohora
 Maritza Cabrera
 Petrutza Caragea
 Shojaeddin Chenouri
 Iliana Chollett
 Eva Colotti
 Marie-Pierre Etienne
 Yessica Fermín
 Freedy Flores
 Joseph M. Gani
 Yulia Gel
 Carmen Goítia
 Peter Green
 Serge Guillas
 Daniel Hall
 Ephraim Hanks
 Matthew Heaton
 Dennis Helsel
 Megan Higgs
 Michael Hutchinson
 Gabrielle Kelly
 Jan Kloppenborg Møller
 Bruce Lauckner
 Juxin Liu
 Freddy Lopez
 Thomas A. Louis
 Britt Maestroni
 David Makowski
 Laina Mercer
 Hugo Moises Montesinos
 Shadananan Nair
 Shannon Neeley
 Joseph Sebastian Paimpillil
 Gustavo Piñango
 Ramachandran Ramasamy
 Lilia Ramirez Ramirez
 Brian Reich
 Paulo Justiniano Ribeiro
 Sara Rodríguez
 Ramiro Ruiz-Cardenas
 Marisa Cristina Sagua
 Pedro Sequera
 Karan P. Singh
 Ingelin Steinsland
 Raquel Vasquez
 Jay Ver Hoef
 Desiree Villalta
 Edward Charles Waymire

Lin Wu
 Jesús Yerena
 Yanqing Yi
 Yang Zhao

Forthcoming papers in Environmetrics

For forthcoming articles to be published in the society journal *Environmetrics*, please visit the following link

<http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291099-095X/earlyview>

*TIES members have the opportunity to download *Environmetrics* papers for free from the Wiley webpage. A username and password are required to make use of this opportunity; please email m.deruitermolloy@cbs.nl to obtain these details.*

3. Environmetrics Conferences

3.1. Forthcoming TIES Conference

TIES 2011 - 3rd North American Regional Meeting - La Crosse, Wisconsin, July 18-20, 2011

The 3rd TIES North American Regional meeting will be held in La Crosse, WI, USA over 18 - 20 July 2011. The theme of the meeting will be "Quantitative methods for the analysis of long-term monitoring data."

Conference technical topics include:

- Air quality monitoring and assessment
- Analysis of extremes
- Assessing status and trends
- Design-adjusted models
- Ecological, natural resource and environmental monitoring
- Ecological, natural resource and environmental risk assessment
- Energy and the environment
- Environmental epidemiology

- Environmental standards
- Environmetrics in meteorology and climatology
- Model-assisted survey methods
- Modelling and managing ecological and environmental systems
- National ecological, natural resource and environmental statistics
- Network design and efficient data collection
- Nonparametric methods
- Space-time modelling
- Water quality monitoring and assessment

Program committee

Sylvia Esterby, University of British Columbia
 Brian Gray, US Geological Survey
 Ron McRoberts, US Forest Service
 Wayne Thogmartin, US Geological Survey
 Dale Zimmerman, University of Iowa

Local organizing committee

Brian Gray, US Geological Survey
 Jessica Hemenway, University of Wisconsin-La Crosse
 Patrick McKann, US Geological Survey
 Sherwin Toribio, University of Wisconsin-La Crosse

Further information is provided at <http://www.uwlax.edu/conted/ties2011/>

YSI 2011 - ISI Young Statisticians Meeting – Dublin, Ireland, August 19-21, 2011

As a satellite meeting to the 2011 ISI World Congress, and the first of its kind, the 2011 ISI Young Statisticians Meeting (YSI 2011) seeks to promote the active participation of early career statisticians in the epicentre of the ISI World Congress.

Further information is provided at

www.isi2011.ie/content/sat-meetings/ysi.html

ISI 2011 – 58th Congress of the International Statistical Institute - Dublin, Ireland, August 21-26, 2011

Water, food, energy, climate change, financial systems and urbanisation are all sources of substantial global challenges. Statistics is central to the understanding of these challenges and to the development of productive responses to them.

The World Statistics Congress – the biennial meeting of the International Statistical Institute (ISI) - is unique in bringing together statisticians and probabilists from across the disciplinary spectrum – official statistics, surveying and sampling, computational & mathematical statistics, probability and stochastic modelling and education. Moreover, it brings together statisticians from developing nations and from developed nations to share experiences, expertise and challenges.

The 2011 meeting is an opportunity for this broad community to demonstrate its relevance to addressing global challenges and the directions and quality of its research. It will include presentations on recent research and applications, training for statisticians on key topics and a forum to discuss opportunities for work on important topics. It will also be an opportunity for statisticians and probabilists to identify new research topics and possible new collaborators.

Further information is provided at <http://www.isi2011.ie/>

WTD at ISI 2011 - Water Theme Day – Dublin, Ireland, August 24, 2011

In 2011, the ISI World Statistics Congress will have one day devoted to sessions addressing the many statistical challenges that are associated with “Water – quality and quantity”. The Water Theme Day (WTD) is a new feature added to the traditional ISI meetings with the objectives of highlighting the important contributions statistics can make to the solution of water quality problems and quantity challenges facing the world, and identifying statistical research challenges that arise. The major water issues to be considered include:

- Water quality and human health
- Climate change, ecosystem health and environmental accounting
- Socio-economic issues, water security & water management
- Droughts, floods and the modelling of extremes

These issues create statistical challenges in sampling methods, new measurement technologies, modeling, forecasting, inference, risk assessment and decision making.

The WTD Steering Committee (chaired by Abdel El-Shaarawi) invites members to contribute to the planning of the program.

Further information is provided at <http://www.isi2011.ie/content/scientific-programme/water-day.html>

SPATIAL2 - Spatial Data Methods for Environmental and Ecological Processes , Foggia and Baia delle Zagare, Italy, September 1-2, 2011

Spatial Data Methods for Environmental and Ecological Processes – 2nd Edition – is the 2011 European Regional Conference of The International Environmetrics Society and will be held in Baia delle Zagare (Foggia) Italy, over 1 - 2 September 2011.

The conference is interdisciplinary (statisticians, agronomists, biologists, ecologists and more are encouraged to attend) and fosters the exchange of experiences between researchers working on spatial and spatio-temporal environmental problems.

The main scope of the conference is to create a space for the exchange of experiences and ideas among researchers from different scientific backgrounds working on spatial and spatio-temporal environmental problems.

Conference technical topics include:

- Groundwater pollution and hydrology
- Soil science, site remediation, industrial sites
- Environmental risk assessment
- Climatology and meteorology

- Ecology, conservation and natural resources management
- Agriculture and biodiversity
- Sampling designs for natural studies
- Disease mapping
- Air quality

Scientific Committee

Liliane Bel, Agroparistech, France
 Barbara Cafarelli, Università di Foggia
 Annamaria Castrignanò, CRA di Bari
 Daniela Cocchi, Università di Bologna
 Corrado Crocetta, Università di Foggia
 Alessandro Fassò, Università di Bergamo
 Giovanna Jona Lasinio, Università "Sapienza" di Roma
 Alessio Pollice, Università di Bari
 Marian Scott, University of Glasgow, UK

Organizing Committee

Francesca Bruno, Università di Bologna
 Barbara Cafarelli, Università di Foggia
 Rosalba Ignaccolo, Università di Torino
 Giovanna Jona Lasinio, Università "Sapienza" di Roma
 Alessio Pollice, Università di Bari

Deadlines

March 1, 2011: Title and abstract submission (oral presentations and posters)

March 15, 2011: Notification of title acceptance

May 15, 2011: Short paper submission for oral and poster presentation papers

June 15, 2011: Reviews sent to authors

Further information is provided at www.unifg.it/spatial

TIES 2012- 22nd conference of The International Environmetrics Society – Hyderabad, India, early January 2012

The 22nd Conference of The International Environmetrics Society will be held at the C.R. Rao Advanced Institute of Mathematics, Statistics and

Computer Science (<http://www.crraoaimscs.org/>) in Hyderabad, India.

The theme of the conference is "Environmental Challenges in a Globalized World: Quantitative Approaches to Comprehensive Solutions."

Scientific Organizers

Tata Subba Rao, University of Manchester
 Venkata Krishna Jandhyala, Washington State University
 S.B.Rao, C.R. Rao AIMSCS (Chairman of the Local Organizing Committee)

3.2 Meeting Reports

TIES 2010: the 21st annual conference of the International Environmetrics Society, Margarita Island, Venezuela, 20-25 of June, 2010

Lelys Guenni

The 21st annual conference of the International Environmetrics Society was held at the conference center of Hotel Hesperia Isla Margarita, located in Margarita Island, Nueva Esparta state, Venezuela. The theme of the conference was: "Sustaining our environment under changing conditions: quantitative methodological challenges".

The conference had a very diverse and exciting program with 3 plenary sessions, 16 invited sessions, 8 contributing sessions and 1 poster session. The conference had participants from 21 countries with 58 coming from the Americas, out of the 96 participants. Eight candidates from 6 different developing countries were funded from a World Bank grant provided through ISI, as a stimulus to promote developing countries participations in the ISI section meetings. These countries were Argentina, Benin, Brazil, India, Malaysia and Mexico. This is the first experience of this kind within in a TIES meeting.

On Sunday 20th of June, 20 participants attended the course "Modeling Spatial and Space-Time data" given by Peter Guttorp from the Department of Statistics, University of Washington, USA and the Norwegian Computer Center; Paul Sampson from the

Department of Statistics, University of Washington, USA and Johan Lindström from the Centre for Mathematical Sciences, Lund University, Sweden.

The conference was opened by the 2010 John Stuart Lecture award winner, Professor Anders Grimvall, from the Swedish Institute of Marine Environment and the Linköping University in Sweden, who gave a presentation, entitled “Environmetrics for a Data Rich World”. The TIES President’s invited lecture was awarded to Professor Bruno Sansó, from the applied Mathematics and Statistics Department of the University of California in Santa Cruz. He gave a presentation entitled “Hierarchical Bayesian Ocean Models”. A third plenary session had Professor José Rafael León from the Department of Mathematics, Universidad Central de Venezuela, as invited speaker. He presented the work “Transport of pollutants in lake of Valencia, Venezuela”.

The conference papers covered different topics related with methodological issues in space-time modeling, space-time analysis of extremes, methods for optimal environmental design, monitoring of large scale natural resources, hierarchical modeling of complex data, functional data analysis, model based geostatistics, change-point detection methods, models for count data, optimal sampling design. Applications papers covered the areas of biodiversity, agriculture, air and water quality, climate, forestry and fires, marine data, paleoclimatology and hydrology.

The annual general meeting was held on Wednesday 23rd of June. After this meeting followed the conference dinner which took place at the conference venue beach area, with an international food buffet and typical music and dances from the central coastal regions of Venezuela. Most of the participants were able to show their dancing skills.

As part of the social program two tours were organized on Tuesday 22nd during the afternoon: Historical Tour and La Restinga Tour. On the first one, the participants visited the main towns and cities of the island and its historical landmarks including the well known Juan Griego bay. On the second one, the participants visited La Restinga Lagoon National park, by taking a boat at the lagoon boat station, which allowed them to have a closer look of the natural vegetation and fauna of the park.

The conference finished on Thursday 24th, and on Friday a post conference course on “Sampling for Decision making” was given by Ray Correl from

Rho Environmetrics, Australia; Anders Nordgaard from the Department of Computing and Information Sciences, Linköping University, Sweden and Britt Maestroni from the International Atomic Energy Agency, Austria. Fourteen participants attended the course mostly from Venezuelan local institutions. The course was held at the Universidad de Margarita, located in a small village called El Valle del Espíritu Santo.

More information about the scientific program, social program and photos of the event can be found in the conference official Web site: www.cesma.usb.ve/ties2010



Some members of the local organizing committee for TIES 2010

TIES 2010 best student presentation and best poster

Paul Sampson

At the 21st Annual TIES Conference on Margarita Island, Venezuela, June 20-25, the presentation awards committee organized by Sudipto Banerjee and Paul Sampson selected winners for the best poster and the best student presentation competitions.

Eleven posters were displayed during the poster sessions on Monday and Wednesday afternoons. The committee emphasized clarity in the graphic design of the poster and succinct presentation of the scientific and statistical problem, the analyses and results, and the conclusions. Among a number of excellent posters, the committee could not decide on a single best poster and so awarded two prizes. The winning posters were submitted by Desireé Villalta and colleagues from the Universidad Simon Bolivar

on "Spatio-temporal models for risk mapping of malaria incidence in Sucre State, Venezuela" and by Yessica Fermin from the Instituto Venezolano de Investigaciones Cientificas on "Spatio-temporal covariance model estimation of the Caroni River Basin rainfall."

The committee was impressed by the statistical modeling and oral presentations of all six of the student contributions. The organization of the talk, the clarity of the slides and the oral presentation determined the winner, Carolyn Huston of Simon Fraser University in Canada for her talk on "Bayesian hierarchical modeling of salmon migration".

METMAV. International Workshop on Spatio-Temporal Modelling



Rosa Crujeiras

The V International Workshop on Spatio-Temporal Modelling (METMAV) has been held in Santiago de Compostela (Spain) from June 30th until July 2nd. The workshop has been organized by the Department of Statistics and Operations Research of the University of Santiago de Compostela as a satellite meeting to the TIES 2010 conference.

This is the fifth such workshop, with previous meetings being organised by other Spanish research groups. These meetings were established to recognise and promote the establishment of spatial and spatio-temporal statistics as disciplines in their own right with applications in epidemiology and ecology amongst others. The previous METMA were held in Benicassim (2001), Granada (2004), Pamplona (2006) and Alghero (2008, Italy), and both the number of participants as well as the quality of the scientific contributions have been improved over the years.

The scientific program of the conference included three plenary sessions given by Noel A. Cressie (The Ohio State University), Peter Diggle (Lancaster University) and Abdel El-Shaarawi (McMaster University). These plenary talks were devoted to the dynamical modeling of spatio-temporal random

fields, the prediction of epidemics and the evaluation of water quality based on microbiotic indexes, respectively. Among the invited and contributed talks, some of the most recent advances in spatio-temporal methods, such as extreme analysis or disease mapping, were presented.

The social program of METMAV included a welcome reception at Pazo de Fonseca, one of the outstanding buildings of the University of Santiago de Compostela, that has an impressive historical heritage. The conference dinner took place at San Francisco Monastery, near Praza do Obradoiro, in the heart of the old town. For the excursion the participants had the opportunity to visit The City of Culture of Galicia, designed by the American architect Peter Eisenman, rising on the top of mount Gaiás in Santiago de Compostela. This magnificent project hosts the best of our cultural expressions with the aim of Galicia's internationalization.

More than 130 participants from 19 different countries attended this workshop making it the most international meeting so far. This success confirms the recognition achieved by the present and former organizing research groups.



Participants of the V International Workshop on Spatio-Temporal Modelling (METMAV)

METMAV has been supported by SEIO (The Spanish society for statistics and operations research), SGAPEIO (the Galician society for the promotion of statistics and operations research), IAP Network (Interuniversity Attraction Pole, Belgian Science Policy) and TIES (The International Environmetrics Society), as well as INE (the national institute of statistics).

The best papers presented in METMAV will be published in a special issue of *Environmetrics* and another special issue of *Journal of Environmental Statistics*. A book of abstracts has been also edited, including all the invited and contributed papers.

More information about the event can be found on the conference website (<http://eio.usc.es/pub/metma>). A call for proposals to hold the next METMA will be made soon.

The Organizing Committee wants to thank all participants, sponsors and collaborators.

Hope to see you at the next METMA!

International Conference of the International Society of Business and Industrial Statistics, 2010, July 5 – 9, 2010, Portoroz, Slovenia

Simone Padoan

The biennial international Symposium of the International Society of Business and Industrial Statistics (ISBIS-2010) was held in Portoroz, Slovenia from the 5th to the 9th July, 2010. The ISBIS-2010 director was Nicholas Fisher (ValueMetrics Australia), while the chair of the International Scientific Program was Stefan Steiner (University of Waterloo, Canada).

The conference included two Keynote Sessions, 37 Invited Sessions, 12 Contributed Sessions and a y-BIS Development Workshop for young statisticians, in which more than 160 speakers from all over the globe contributed. A broad range of topics were presented, covering statistical issues associated with the improvement of quality, productivity and decision-making in business, industry, financial and health services, along with statistical issues related to the environment.

Many TIES members were involved in the conference, both as organizers and speakers. Daniela Cocchi and Alessandro Fassò formed part of the Session Organizers, while Simone Padoan (Ecole Polytechnique Federale de Lausanne) participated in an Invited Session entitled “Composite Likelihood for Random Fields: Rainfall Applications”, chaired by Francesco Finazzi (University of Bergamo), who was also a speaker in the Contributed Session “A Bayesian Approach to the Vectorization of Objects

Boundaries from Digital Images”.

4. Outstanding Environmetricians

Carolyn Huston: best student presentation at TIES 2010

In the summer of 2009 the 'disappearance' of Fraser River sockeye made headline news in the province of British Columbia (BC) and other parts of Canada. Of the over 10 million fish that the Canadian Department of Fisheries and Oceans (DFO) had predicted would return, fewer than 1.7 million were estimated as arriving.

Modeling sockeye salmon migration patterns is critical to understanding this keystone species on the Pacific West coast. In addition to maintaining the overall sockeye salmon population size, the Pacific Salmon Commission has also identified a goal of preserving genetically distinct stock groupings of sockeye that migrate through the river. Genetic differences between stocks reflect different source tributaries of the Fraser River where salmon are born and later spawn. Such tributaries can originate just kilometers from the coast, to thousands of kilometers away in northern BC. Genetic differences can reflect adaptations made by salmon to varied environmental conditions in such tributaries.

Data collection involves small samples of fish taken on approximately a daily basis. The response of interest is the proportion of fish coming from each stock on a daily basis. As is often the case with observational data on biological systems, our data presents challenges that are poorly addressed with standard statistical models. These challenges include sparse observations in some stocks, restrictive sample sizes at temporal sampling points, and numerous sampling points with missing data. Additionally, restrictions are imposed because the data are compositional, i.e. the daily response has components that sum-to-one. Finally, we have a belief that stock proportions on adjacent days are related.

In my presentation at TIES 2010 on Isla Margarita, Venezuela, I described how these data concerns can be addressed using a hierarchical Bayesian model. Each layer of our hierarchy allows us to address different aspects of our data and our knowledge about the migration process.

Our hierarchy consists of 3 main layers. For the first layer we used a multinomial observation model accounting for both the discrete and compositional nature of our data. In the second layer we use a Dirichlet prior which is conjugate with the multinomial observation model. As long as the parameters of the Dirichlet remain positive, the posterior will be proper and proportion estimates will be constrained to sum-to-one. At the top layer of the hierarchy we placed a multivariate conditional autoregressive (MVCAR) model on the parameters of the Dirichlet. The MVCAR structure allows information to be 'shared' between days. This allows us to smooth through days with missing data, and improves variance estimation on days with small sample sizes.

Presenting this at the TIES meeting and winning the Student Award was both a privilege and an honor. My research continues by considering how sampling strategies can be used to improve estimation in models such as mine. While working on this, I look forward to the next TIES meeting where I can learn about the exciting research being contributed by other members, and share my own new results.

Bruno Sansó: President Invited Lecture at TIES 2010

Bruno Sansó is Professor of Statistics and Chair of the Department of Applied Mathematics and Statistics of the University of California Santa Cruz, where he has been a faculty member since the Fall of 2001, as part of the department's founding group. Previous to joining AMS in Santa Cruz, Sansó was a founding member of the Center for Statistics and Mathematical Software as well as of the Department of Scientific Computing and Statistics of Universidad Simón Bolívar, Caracas, Venezuela. He worked at USB from 1987 to 2002, reaching the level of Full Professor.

Sansó obtained a PhD in mathematics at Universidad Central de Venezuela in 1992 with the dissertation Near Ignorance Classes for Bayesian Analysis written under the supervision of Luis Raúl Pericchi. After obtaining his PhD, his research activity focused on problems on robust Bayesian inference. Subsequently, he worked in problems related to model selection, meta-analysis and spatio-temporal

modelling for rainfall and other environmental variables, always from a Bayesian viewpoint. Currently his work is focused on Bayesian spatio-temporal modeling, environmental and geostatistical applications, modeling of extreme values and statistical assessment of climate variability.

At the 21st Annual Conference of The International Environmetrics Society, held from June 20 to 25, 2010 in Margarita Island, Venezuela, Professor Sansó presented his work on the use of hierarchical Bayesian models (HBM) for the study of ocean temperature variability.

HBM allow for the representation of complex systems in a layered fashion. The first layer considers a model to link the observed quantities to unobserved, underlying processes. The next step is to describe the evolution of such processes in space and time. The third is to input information about the parameters that regulate the evolution of the processes.

Within the model fitting process, estimation uncertainty is propagated at all levels of the hierarchy. Sansó's talk presented a review of the use of process convolutions as a general tool to obtain flexible, non-stationary processes in space for environmental data. It then focused on applications of HBM that use process convolutions for oceanic data. In particular, Sansó considered the estimation of ocean climatologies and the detection of long-term trends as well as the problem of merging information from different data sources at different spatial resolutions. The core of the work presented by Professor Sansó in his talk was based on the paper by Ricardo T. Lemos and Bruno Sansó "A Spatio-Temporal Model for Mean, Anomaly and Trend Fields of North Atlantic Sea Surface Temperature", published with discussion in the Journal of the American Statistical Association, 2009, 104, pp. 5–25. This paper was selected as the JASA A&CS Editor's invited talk at the Joint Statistical Meeting, Washington, DC, 2009. The paper won the 2009 Mitchell paper awarded jointly by the International Society for Bayesian Analysis and the Section on Bayesian Statistical Science of the ASA.

Sansó is an Editor for Bayesian Analysis, and an Associate Editor for Technometrics.

He has ongoing collaborations with researchers at USB, NOAA, LANL, LLNL, SAMSI, Univ. de Lisboa and Univ. of Rio de Janeiro. He has supervised the graduate work of twelve students and

is currently supervising three more. He is an elected member of the International Statistical Institute and a Fellow of the American Statistical Association.

Bronwyn Harch: winner of the Queensland Women in Technology award

Bronwyn's informatics research impacts over the past 15 years have been in the area of the statistical design of landscape scale sampling protocols and monitoring programs, as well as the spatio-temporal statistical modeling of complex landscape systems. Bronwyn has been involved in a number of major informatics-based projects within large multidisciplinary landscape-based studies including South-East Queensland (SEQ) Healthy Waterways, Port Phillip Bay dredging, water quality monitoring in the Great Barrier Reef catchments and lagoon, monitoring the territorial waters of Hong Kong and more recently adapting monitoring regimes for SEQ's dams. She has also led capability development with the CSIRO division of Mathematics, Informatics and Statistics where she was renowned for her passion and mentoring of staff through their personal development in the mathematics, informatics and statistical sciences.



Bronwyn at the Queensland Women in Technology Awards

In Bronwyn's current role as Deputy Director of the Sustainable Agriculture Flagship she is focused on the delivery of informatics and ICT research

outcomes as part of the innovation required to enhance Australia's agricultural and forest land productivity, whilst also ensuring greenhouse gas emission from these lands are reduced.

This agri-environmental informatics provides the robust knowledge, information and architectures base that enables the complex systems operating in landscapes to be monitored, their 'health' status reported, predictions made, and risks considered in terms of adaptation and mitigation options.

Bronwyn commenced her career in CSIRO in Adelaide 1995 as a postdoctoral fellow in environmental statistics. Prior to joining the Sustainable Agriculture Flagship she was Deputy Chief of CSIRO's division of Mathematics, Informatics and Statistics.

Queensland's Women in Technology awards focus on identifying individuals who set the stand to follow and have a commitment to continuous career development.

5. Recently or soon-to-be Published Books

"Spatial Statistics and Spatio-Temporal Data: Covariance Functions and Directional Properties" by Michael Sherman (expected Jan 25, 2011), Wiley

"Statistics for Earth and Environmental Scientists" by John Schuenemeyer and Larry Drew (expected Jan 25, 2011), Wiley

"Statistics for Spatio-Temporal Data" by Noel A. C. Cressie and Christopher Wikle (expected Jan 18, 2011), Wiley

"Non-standard Spatial Statistics and Spatial Econometrics" by Daniel A. Griffith and Jean H. Paul Paelinck (expected Dec 29, 2010), Springer

"Spatial Modelling Techniques to Improve Data Analysis of Field Trial" by Girma Taye Aweke (2010), LAP Lambert Academic Publishing

"geoENV VII Geostatistics for Environmental Applications (Quantitative Geology and Geostatistics)" edited by P. M. Atkinson and C. D. Lloyd (2010), Springer

“*Handbook of Spatial Statistics*” edited by Alan E. Gelfand, Peter Diggle, Peter Guttorp, Montserrat Fuentes (2010), CRC Press

“*Statistical Methods for Disease Clustering*” by Toshiro Tango (2010), Springer

“*Handbook of Applied Spatial Analysis: Software Tools, Methods and Applications*” edited by Manfred M. Fischer and Arthur Getis (2010), Springer

“*Principles of Modeling Uncertainties in Spatial Data and Spatial Analyses*” by Wenzhong Shi (2010), CRC Press

“*Spatial Statistics and Modeling*” by Carlo Gaetan and Xavier Guyon (2009), Springer

The Editors would like to encourage TIES members to volunteer for books’ review and to bring new publications to their attention.

6. TIES Board of Directors

The elected members of the TIES Board of Directors are:

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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 Alessandro Fassò at secretary@environmetrics.org for questions regarding membership and other benefits.

Objectives of the Newsletter include:

- 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 editor: Rosalba Ignaccolo (ignaccolo@econ.unito.it). The Editors would like to encourage TIES members to submit items for publication in the Newsletter. We would

like to thank the members who responded to our call and contributed to this issue.

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