

BIOMETEOROLOGY BULLETIN

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**INTERNATIONAL SOCIETY OF
BIOMETEOROLOGY**

(<http://biometeorology.org>)

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Reports from Tromp Travel Fund Recipients

Report of TTF-supported travel to Viterbo, Italy, for a conference held Sept 4, 2003

At the invitation of the organizers of the EAAP Satellite Symposium on “*Interactions between climate and animal production*”, the ISB served as a joint participant. I attended as both a representative of the ISB and as a plenary speaker. The Symposium was held on Sept 4, 2003, in Viterbo, Italy, and consisted of 6 invited plenary presentations and 29 short communications presented in either oral or poster sessions. More than 80 registrants participated, and the proceedings of the Symposium have been published as an EAAP paperback publication (Technical Series No. 7 [2003], with the same title as the Symposium; the ISBN number is 9076998264). Other aspects of the Symposium are covered in the report by Silvia Valtorta (see report below).

This jointly-developed Symposium was under the leadership of Dr. Nicola Lacetera and colleagues of the Dipartimento di Produzioni Animali, Università della Tuscia, Viterbo, Italy. (Dr. Lacetera has become a very active member of the ISB, and was recently appointed a Field Editor of the IJB for papers submitted in the animal area of interest). At the evening banquet, there were discussions about continuing joint meetings between the EAAP and the ISB related to the field of animal biometeorology. The intent is to develop a workshop on a major topic of interest during the ICB2005 in Sept, 2005.

I very much appreciate the partial travel support provided by the ISB-TTF to permit my attending this Symposium.

Sincerely,
LeRoy Hahn

**Report on the “5th International Conference on Urban Climate”,
1st to 5th September 2003, Lodz, Poland**

As member and representative of the Executive Board of the ISB, I participated at the 5th International Conference on Urban Climate (ICUC5), Lodz, Poland from 1st to 5th September 2003. I attended many sessions of the 5th International Conference on Urban Climate and contributed with one poster and two oral presentations. I also attended the open forum plenary of the International Association of Urban Climate (IAUC) on Thursday, 4th September 2003.

About 170 oral presentations and 150 posters were announced in the program. The conference covered thirty-five oral sessions and eight poster sessions, ca. 210 participants attended. Five plenary sessions were held with ten presentations from urban climate topics. The sessions covered the following topics:

1. radiation – visibility, precipitation and humidity, measurements, remote sensing (thermal), airflow – thermal,
2. urban heat island – observations, urban heat island models, urban climate models (urban canopy layer, urban boundary layer, hardware),
3. air flow (canyon flows, transport), turbulent fluxes, energy balance, wind and buildings, road climate,
4. air quality in cities, vehicle pollution and ozone,
5. energy and buildings climate, concepts in urban climate (place, space and people),
6. climate effects (water, parks, tree, plants), bioclimate – comfort and urban spaces, bioclimate - methods, bioclimate – plants and animals, design - air quality, design and comfort,
7. GIS/surface description,
8. anthropogenic heat, global change and cities, long term records.

About thirty oral and more than twenty posters were in the field of biometeorological issues like bioclimate, thermal comfort, human energy balance, phenology, effect of trees, animal and plants, etc.

Points of discussion and presentations, strongly related to biometeorology, were the use of biometeorological methods and results in applied urban climatology. There was a strong relation to biometeorology in many presentations and an intensive discussion about the use of biometeorological methods and results in applied urban climatology. In detail, simple thermal indices based on air temperature and air humidity are no longer used in most studies, while the energy balance models of the human body and thermal indices derived from them were often used and their importance in urban climate studies is increasing. The use of steady state energy models and also instationary models for their application in urban climate studies was one of the main topics in the discussions. The spatial component of biometeorological results and their relevance in urban climate studies was also an issue in the presentations and discussions. There was a lack, however, of other important issues such as human health and the recreation component of biometeorology. Additional contributions have addressed the importance and impact of trees on urban climate, phenology and plants.

There is still an increasing demand for biometeorological and applied urban climatological approaches in urban planning in the future not only in Europe, the US and Japan but especially in the developing countries.

I met with the current president Tim Oke and president elect Sue Grimmond of the IAUC and offered them to participate and contribute actively with organized sessions at the 17th International Congress of Biometeorology (ICB2005) between 5-9 September 2005 Garmisch-Partenkirchen, Germany. Discussed was also cooperation between the IAUC and ISB. They show interest and promised to contact the organizers in the near future.

I see a great importance of cooperation with IAUC and mutual (IAUC and ISB) participation in future meetings of the members of IAUC and ISB. From my point of view, further deep and honest

cooperation and coexistence between the International Society of Biometeorology and the International Association on Urban Climate has to be one of the most important goals of the ISB, not only because of the strong interdisciplinarity of our Society. One possibility of a better understanding between both organizations would be sending permanent representatives to the Executive Boards based on corporate memberships. Many thanks to the organizers for hosting me as representative of ISB at the ICUC5 meeting in Lodz, Poland and many thanks for their hospitality. My thanks to the Tromp Travel Fund for covering travel expenses. It was greatly appreciated.

Dr Andreas Matzarakis, ISB Counselor

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Viterbo Symposium – Viterbo (Italy) September 4th 2003

The Symposium on **Interactions between climate and animal production**, held at Viterbo (Italy) on September 4th 2003, presented different aspects of this interaction. The following issues were addressed:

- Dr. L. Khalifa: Bioclimatology and adaptation of farm animals in a changing climate.
- Dr. G. L. Hahn: Perspectives for the development of a climate index for animal studies.
- Dr. N. Lacetera: Physiological and productive consequences of heat stress: The case of dairy ruminants.
- Dr. R. Collier: Novel approaches for the alleviation of climatic stress in farm animals.
- Dr. J. Hartung: Contribution of animal husbandry to climatic changes.
- Dr. G. Monteny: Strategies for reducing the effects of animal husbandry on climate.

The poster and oral sessions also covered different aspects of animal-climate interactions. Thus, during the poster sessions, the presentations addressed topics related to:

- Physiological responses to environmental stress in rabbits, beef cattle, buffaloes and dairy cows.
- Milk production and composition responses to environment in dairy cows.
- Shelter and cooling systems for different animals, including beef cattle, dairy cattle and sheep.
- Reduction of emissions from dairy cows and pig houses.

During the oral session, where I acted as co-chair, the papers selected were related to a range of topics, including: Genetic characterization of Nellore and Criolla cattle; Environmental effects on productive and physiological responses in cashmere goats; New approaches to categorize heat loads in beef cattle; and Floristic composition and forage quality as affected by elevated CO₂ in a Mediterranean grassland.

Important subjects have thus been discussed, from the highly important matter on finding a good index to evaluate environmental stress on animals, to aspects related to the genes involved in heat tolerance. Different strategies to improve animal productivity were also presented. An important issue was debated: the conflict of animal production and animal welfare.

I consider that it has been a very successful event, where it was possible to interact with researchers in different areas in the field of Animal Biometeorology.

Submitted by Dr. Silvia E. Valtorta

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Reports and Statements by Commissions and Study Groups

ISB Commission 1 (Phenology)

Annual Report for 2003

Submitted by Mark D. Schwartz, Chair

1. Members of the Commission planned and sponsored an international conference held in Wageningen, The Netherlands, 31 March – 2 April. The Conference was formally titled: “Challenging Times”, with the sub-title: “Towards an operational system for monitoring, modeling, and forecasting of phenological changes and their socio-economic impacts.” Approximately 100 participants from at least 20 countries listened to 10 keynote presentations and 34 papers, viewed many posters, and took part in several organized workshop sessions. The conference served as the second major meeting of the European Phenology Network (EPN), so the focus was on Europe. However, papers also addressed interconnections, applications, and implications for other continents, as well as global change. Detailed information about the talks, including the abstracts, can be viewed at the conference web page:

<http://www.dow.wau.nl/msa/e pn/challengingtimes/>

I was given the honor of officially opening the conference, where I was able to welcome all the participants on behalf of ISB and publicly thank the ISB for its support, comment on the discipline-diversity of the participants and the challenge-potential of phenological research, closing with thankfulness for the positive contribution of conferences like this one to international cooperation and future benefits for science and society.

I also served as editor of a new book entitled “*Phenology: An Integrative Environmental Science*” for Kluwer Academic Publishers which was published in October. The book is 592 pages long, and has 33 chapters, including contributions from 14 commission members. Additional detail can be viewed at:

<http://www.wkap.nl/prod/b/1-4020-1580-1>

In other activities, Commission members continue to promote phenological observations around the world through the Global Phenological Monitoring protocol, and through cooperation with the

GLOBE program. A new initiative within GLOBE, involving monitoring of selected plants in a “phenological garden” was launched by commission members from Germany. In the USA, I am also moving forward with a national phenological network plan that should become operational in 2004 or 2005.

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ISB Commission 5 (Climate, Tourism, and Recreation; CCTR)

Annual Report for 2003

Submitted by Andreas Matzarakis, Chris de Freitas, and Daniel Scott

The focus of the activities of ISB Commission 5 during 2003 were:

- Ongoing development of the earlier activities of ISB Commission 5
- Maintenance and update of ISB Commission 5 website
- Recruitment of new members
- Preparation for the 2nd Workshop on Climate, Tourism and Recreation, in June 2004
- Representation of ISB Commission 5 at various international workshops and conferences
- Production of new flyer and poster for Commission 5
- Facilitating research collaboration among ISB Commission 5 members

Scientific publications relating to ISB Commission 5:

de Freitas, C.R., 2002: Tourism climatology: the way forward. *Bulletin of the American Meteorological Society*, 83 (12), 1754-1755.

de Freitas, C.R., 2003: Tourism climatology: evaluating environmental information for decision making and business

planning in the recreation and tourism sector. *International Journal of Biometeorology*, 48 (1), 45-54.

D. Scott, G. Wall, G. McBoyle. 2004 (accepted). The Evolution of the Climate Change Issue in the Tourism Sector. In: *Tourism, Recreation and Climate Change*. M. Hall and J. Higham (eds). Channelview Press, UK.

Conferences and Workshops

The Chairpersons of Commission 5 presented papers focusing on Commission 5 themes at the following conferences and workshops:

- First International Conference on Climate Change and Tourism. World Tourism Organization. 9-11 April, Djerba, Tunisia.
 - “Climate change and tourism and the mountain regions of North America” – Daniel Scott
- European Science Foundation Workshop on Climate Change and Tourism held in Milan, Italy in June 2003
 - “Climate data for Tourism” - Andreas Matzarakis
- NATO-Advanced Research Workshop “Climate Change and Tourism” organized by Bas Amelung, David Viner, Krys Blazezyk and Andreas Matzarakis in Warsaw, Poland in November 2003
 - “Climate, human comfort and tourism” - Andreas Matzarakis
- BIOMET Conference of the German Meteorological Society in December 2003 in Dresden, Germany
 - “Thermal Bioclimate of Austria and Tourism” - Andreas Matzarakis
 - “The bioclimate of Cyprus” - Andreas Matzarakis

Cooperative research by ISB Commission 5 members:

- Christiane Brandeburg and Andreas Matzarakis on “Thermal Comfort of visitors in the Danube plains in Vienna”
- Ksenija Zaninovic and Andreas Matzarakis on “Climate Variability, Thermal Comfort conditions at the Adriatic Coast of Croatia”

- Tanja Cegnar and Andreas Matzarakis on “Tourism climatology and thermal bioclimate in Slovenia”
- Daniel Scott and Chris de Freitas “A New Generation Climate Index for Tourism and Recreation”

Projects:

ACTICE “Austria Climate Initiative 2000”, cooperative research project by the University of Freiburg, Central Institute for Meteorology and Geodynamics of Austria, University of Silviculture in Vienna, University of Vienna and the Austrian Association of Climate and Health Resorts. Financed by the Austrian Ministry of Finance.

Second International Workshop of the ISB Commission 5

Finally, the Second International Workshop on Climate, Tourism and Recreation was held in Kolimari Crete from 8 to 11 June 2004.

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ISB Commission 6 (Development of a "Universal Thermal Climate Index") Annual Report for 2003

Submitted by Gerd Jendritzky and Richard de Dear

Activities in 2003 focused on the UTCI development. The health impact of the heatwave in west and southwest Europe in terms of 25000-35000 extra deaths showed drastically the importance of appropriate assessment procedures to be applied by NMHSs in heat health warning systems on a routine basis. Specific topics include:

- I. As a reminder, it was agreed in the Freiburg workshop in 2001 that **UTCI**:
 - (1) will be a temperature index, i.e., the air temperature of a reference environment that provides the same heat exchange conditions as the actual environment under consideration,

- (2) should cover the whole continuum of thermoregulation. That implicates that there is a relative wide range of thermal conditions within which people theoretically are able to adapt by behavior (here: clothing) in order to keep comfort,
- (3) will deal with total body conditions as well as with bare skin problems to avoid frostbite risks,
- (4) will be based on the most advanced multi (65)- node models of human thermoregulation.
- II. a) ISB-Commission 6 came out with the following solution: wind calm (just 1.1 m/s in the height of the individual induced by walking), mean radiant temperature $T_{mrt} = T_a$, relative humidity $rh=50\%$, metabolic rate = 135 W/m^2 (4km/h), adaptation by variation of clothing (see b).
- b) It is assumed that people adapt by clothing more or less reasonable to the thermal environment in a wide range of heat exchange conditions in order to achieve thermal comfort (probably 0.5-2.0 clo). Outside the theoretical comfort range the clothing value will be kept fix.
- c) This requires at least a model that distinguish between bare skin and covered compartments. It seems reasonable to revert to an already published model. However, it is understood that everybody can use any model that fulfils demonstrably and sufficiently the model comparison (see d).
- d) The some thousand simulation results of Dusan Fiala's et al. 65-node model (combinations of T_a , T_{mrt} , v , rh , clo) available for comparisons as Excel files. Richard de Dear took care to manage comparable input conditions for the Japanese Tanabe 65-node model. The physiological data base is defined by the two mentioned model outcomes plus the findings of the Michel Ducharme/ Randall Oschewski institute for the very cold end.

- III. The next step will be (1) that the modelers compare the outcome of their models with the data provided by the simulations with the help of the multi-node models and (2) to discuss how to assess the physiological data in terms of a single index.
- IV. The UTCI development belongs also to the ToRs of the WMO-CCI Expert Team on "Health Related Climate Indices". During the annual meeting of the WMO EC LV in May 2003 the according activities were explicitly recognized and their importance was stressed.
- V. There was a change in the chair of ISB-Comm. 6. Abdel Maarouf resigned due to other projects and Richard de Dear agreed to take the position as co-chair.

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ISB Study Group I (Animal Biometeorology) Scope and Objectives

Contacts: Hesham Khalifa and Günther Schauburger

Scope:

- Solving problems of animal production under different environmental conditions especially in developing country and under harsh conditions.
- Recycling of animal wastes.
- Adverse effects of global environmental changes and animal production.
- Recent techniques (biotechnology, genetic engineering and modeling) for improving animal adaptation (survivability and productivity).
- Prevention of animal extinction.
- Factors affecting animal morbidity and mortality.
- Impact of environmental conditions on domestic animals' management (housing, nutrition, rearing. etc.).
- Improving modeling of environmental effects on animal responses.

- How do different animals (fishes, amphibians, reptiles, birds and mammals) cope with their environment?

Objectives:

- To develop some research projects involving a variety of environments.
- To prepare a comprehensive reference book on Animal Biometeorology for improved training and teaching.
- To organize Internet workshops and/or conferences for mechanisms of animal adaptation and improving animal production in developing countries.
- To foster interactions with other organizations concerned with animal biometeorology.

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ISB Study Group 2 Trace Gas Exchange with Ecosystems (TGEE)

Contacts: Monique Y. Leclerc, Kyaw Tha Paw U, Richard L. Snyder, Donatella Spano

Statement of interest and objectives

Biometeorology covers scales ranging from the microscopic and processes with time scales less than second, to processes at global scales stretching over evolutionary time. For example, it is postulated that the earth's atmosphere and biota interacted over evolutionary history, yielding a unique trace and non-trace gas composition, and benign surface temperature by an almost co-evolutionary process between the biotic and the abiotic components. Our general objective is to study the processes of gaseous interaction between ecosystems and the atmosphere, which are intimately connected to the energy flux interactions. We plan to have e-mail-based meetings and communications on a regular basis, to coordinate our research, and collaborate on projects.

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Upcoming Events

6th Conference on Agricultural and Forest Meteorology

16th Conference on Biometeorology and Aerobiology

13th Joint Conference on the Applications of Air Pollution Meteorology with the Air and Waste Management Association

Fifth Symposium on the Urban Environment

23 —27 August 2004, Vancouver, BC, Canada

For additional details see:

<http://www.ametsoc.org/meet/fainst/vancouver2004.html>

Please Note: There will be two ISB-related meetings at the Vancouver conferences:

Monique Y. Leclerc, Kyaw Tha Paw U, Rick Snyder, and Donatella Spano, along with the Study Group 'Trace Gas Exchange with Ecosystems' will be meeting at the Agricultural and Forest Meteorology Meetings in Vancouver (August 23-27th), for a luncheon (date and time to be determined).

In addition, Larry Kalkstein will be hosting a meeting to discuss issues associated with the revitalization of the ISB.

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Argentine and Latin-American Agrometeorology Conference

13 -15 October 2004, Mar del Plata, Argentina.

For additional details see:

<http://www.aada.com.ar>

*First Integrated Symposium on the Physiology and Pharmacology
of Thermal Biology and Temperature Regulation*

10 - 15 October 10-15, Rhodes, Greece

For additional details, see:

<http://www.ortra.com/pptr/>

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The Annual Congress of the Spanish Association of Climatology

2 -5 November 2004, Santander, Spain.

For additional details, see:

<http://www.aeclim.org/congrAEC.html>

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**17th International Congress of Biometeorology
(ICB2005)**

5-9 September 2005

Garmisch-Partenkirchen, Bavaria, Germany

Organized by:

International Society of Biometeorology (ISB)

<http://www.icb2005.de/>

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**ISB Announcement:
The ISB Adaptation Book.**

ISB members are invited to offer to make contributions to an ISB book on Adaptation and Biometeorology. The purpose of the book is to provide a synthesis of theory and practice on the topic of adaptation to weather, weather extremes, climate and climate change.

The book offers a timely opportunity for the members of ISB to communicate their knowledge more widely and effectively to the broader scientific community working on adaptation to atmospheric change and variability, and to the ongoing policy debates at national and international levels.

It is expected that the book will comprise a set of chapters on adaptation in specific areas of biometeorology such as public health, animal health, urban biometeorology, phenology, and the like. There should also be cross cutting chapters on topics such as tourism, infrastructure, biodiversity, agriculture and similar themes. There might also be contributions organized around weather and climate-related hazards such as heat waves, droughts, floods, tropical cyclones and so on.

It is proposed that each chapter will be the responsibility of one or two Convening Lead Authors and that others will be invited to contribute as Lead Authors and Co-Authors. Each chapter should provide a review of the existing literature, both theoretical and applied in the selected field. Brief case studies might be included to provide examples. Existing knowledge should be evaluated and assessed for its value to theory and practice. The chapter should go on to identify knowledge gaps and to suggest research needs and priorities.

Expressions of interest and suggestions for potential contributions should be sent to Ian Burton, President of ISB, the designated editor of the volume. A small Editorial Board will be established in due course. The address for correspondence is <Ian.Burton@ec.gc.ca>

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Biometnet Reminder

The Biometnet list server has been moved. Information, requests, etc. to Biometnet can now be sent to:
Biometnet List <biometnet-list@meridian.evac.ou.edu>

If you are a member of ISB and do not receive biometnet mailings, it is probably because I do not have your e-mail address. If you send it to me (jgreene@ou.edu) I will add it to the members database and enter your subscription to biometnet.

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In Memoriam

Dr. Imre Ormenyi, Hungary
Dr. John Griffiths, USA

International Society of Biometeorology Application for Individual Membership

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First Name _____

Title (e.g., Mr, Ms, Dr, Prof) _____

Address _____

Telephone _____

Fax _____

E-mail _____

Field of Interest in Biometeorology _____

Position (e.g., Lecturer, Assistant Professor, Postdoc, Head) _____

Academic or Professional Qualifications (degrees, specialization)

DECLARATION

I _____
hereby request membership in the International Society of
Biometeorology and I declare that I will uphold the scientific stature
of ISB by adhering to scientific methods in pursuit of truth and
wisdom in this field.

Date _____ Signature _____

