

## From the IAUC President

Colleagues, this is my last piece in *Urban Climate News* as President. As of the beginning of the year Prof. James Voogt (University of Western Ontario) is the newly elected President of the IAUC. Jamie will be well known to many of us from conferences and his published work. His academic training was based in what has been a major incubation centre for urban climatology at the University of British Columbia under the guidance of Tim Oke; graduates of this institution have now provided three of the five IAUC Presidents. Jamie is a physical geography by training and his current research combines surface and boundary layer meteorology and climatology with remote sensing and GIS, with a strong focus on the urban surface. The IAUC will continue to evolve and I have no doubts that it will make major strides under his leadership.

There are a number of people I have to thank for their work on behalf of the IAUC over the last few years. I am indebted to Rohinton Emmanuel, who acted as secretary during my term and ensured that much of the work of the IAUC was accomplished.

The Board of the IAUC provided a great deal of support, particularly when it is time to organise the ICUC events. I also relied a good deal on advice from Sue Grimmond, Matthias Roth and Tim Oke, each of whom were Presidents and had comprehensive views of the field. I would also like to single out the work of David Pearlmuter who produces *Urban Climate News*, and sustains the IAUC until we can all meet at ICUC. The fact that we have reached this **50th edition** is a tribute to his commitment.

I am grateful to many others who made my period in office memorable. Kumar Kolli of the WMO gave the IAUC the opportunity to run a course on Urban Climatology at the WMO training centre in Pune, India. Edward Ng organised a superb meet-

### Inside the special Winter issue...

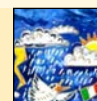
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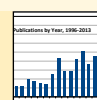
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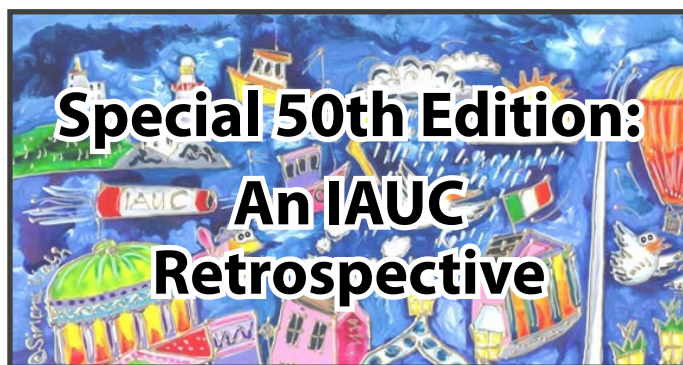
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ing in Hong Kong which brought together a great number of urban climatologists in a convivial atmosphere that allowed for great conversations. Finally I have to thank Maeve O'Connell who supported me over the last four years and gave much of her time and skills to the running of ICUC8.

I wish Jamie well in his tenure. For myself, I greatly enjoyed the experience which has been the highlight of my career.

Gerald Mills  
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## Urban Climate in the news media: A retrospective review

By Winston Chow ([winstonchow@nus.edu.sg](mailto:winstonchow@nus.edu.sg))

Department of Geography, National University of Singapore

Sometime in June 2008, I was having a *prata*<sup>1</sup> lunch with IAUC Past President Matthias Roth during a fieldwork run in Singapore, and he asked me “How would you like to be the news editor for the IAUC newsletter?” After figuring out what the role entailed<sup>2</sup>, I agreed to volunteer for the job and I’ve been fortunate enough to contribute to *Urban Climate News* since Issue 28(!). During this time I’ve had the pleasure of picking out articles in news (and popular) media that have appeared in my newsfeed, as well as receiving interesting media submissions from the IAUC community, one of which was [this](#); You know that your research field is making it big when it’s the title of a decent Indie R&B album...

On a more serious note, as issues from global extreme weather events, developments in climate change science, and the ensuing politics have come to the media forefront over the past five years, it is very heartening that related aspects and themes of our discipline have also garnered a fair bit of interest from both traditional (newspapers and print magazines) and new media (blogs, online-only magazines). Several of these themes have been more apparent than others, and I’ve highlighted a number of these after having taken a look at all the news articles published in the newsletter since I volunteered for this gig (NB: links to relevant *Urban Climate News* issues are [underlined](#)):

1) There has been much coverage on detrimental impacts of climate change affecting urban health and safety, as well as on the municipal-level attempts to implement policies and measures towards mitigating (or adapting to) these issues – especially in the lamentable absence of concrete measures at international levels (24 articles in total). More pronounced heat waves ([31](#)), extreme precipitation ([35](#)) and storms ([39](#)) and their impacts on cities have been featured ([46](#), [47](#)), as was the view that cities are notable foci for these climate change impacts ([40](#)).



Several policy-related articles were also published; these included summary meeting reports of international city/municipal organisations that deal with urban climate and sustainability issues, such as the C40 Cities Climate Leadership Group meetings ([34](#), [40](#)) and the ICLEI – Local Governments for Sustainability ([37](#)). Several profiles of cities that hosted UNFCCC Conference of the Parties (e.g. Copenhagen - [34](#), Cancun - [38](#), Durban - [42](#)) were also highlighted, in which these cities displayed and applied mitigation/adaptation measures towards sustainable climates. These articles were also complemented by features on specific sustainable urban climate policies, ranging from calls for “less zealous” use of air conditioning in tropical cities ([40](#)), greater use of electric vehicles in cities ([28](#), [31](#), [32](#)), as well as recent policies that promote car-unfriendly cities that favour more pedestrian traffic and public transportation ([40](#)).

2) Articles that examined the thematic convergence of building and urban climatologies, particularly through the application of heat island mitigation techniques, were also fairly common (16 articles). Extensive coverage was given towards several examples of cities that



<sup>1</sup> *Roti Prata*, or *Roti Canai* as it is known in neighbouring Malaysia. It’s a pancake dish eaten with curry that is one of the most beloved local foods here in Singapore.

<sup>2</sup> As well as being bribed by having my lunch generously paid for...

facilitated dedicated urban green spaces and rooftop gardens (30, 41, 43, 45, and 46), including an in-depth profile of the extent of New York City's green roofs in The New York Times (44). Rooftop farms (i.e. green roofs that enabled small-scale urban agriculture) were also featured (47, 49). Case studies of other heat island mitigation techniques were also highlighted (e.g. albedo modification of building roofs – 32; ice shields (!) to combat the heat island in the Mongolian capital of Ulan Bator – 42), although there were articles that questioned the efficacy of some of these methods (35, 49).

3) With recent local and trans-boundary air pollution being an extremely topical subject, it is therefore no surprise that the popular media have greatly focused on this aspect of urban meteorology (13 articles). News coverage of high levels of air pollution in major metropolitan areas throughout Asia (29, 30, 34, 37, 43, 46, and 48), Europe (33, 43) and N America (36) were an unfortunate regular staple of the newsletter. There was, however, one optimistic article of sorts that celebrated the 40th anniversary of the Clean Air Act's passing in the U.S. as Federal Law, and its success in improving domestic air quality (37).



4) As technology rapidly progresses in terms of invention and innovation, there has been a profusion of tools enabling the modelling, mapping, visualisation and analysis of urban climate problems by various agencies (11 articles). These include fine-scale and user-friendly digital inventories of urban CO<sub>2</sub> in selected cities (31, 33); changes in the spatial extent of the heat island within

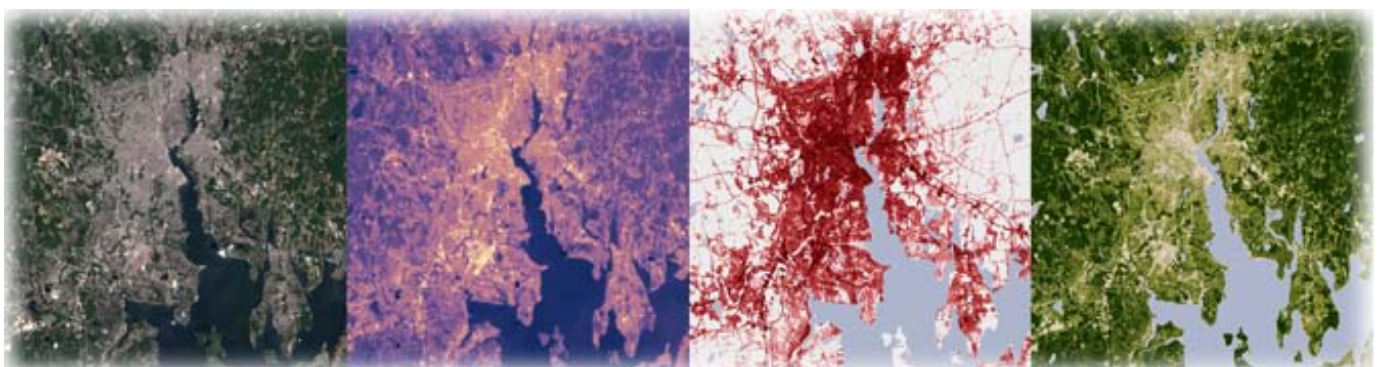


the United States through remote sensing (38, 44); as well as in monitoring urban air pollution (39, 46). "Virtual" climates and climate change were also featured, with an intriguing article about the latest version of SimCity which shows how inefficient (or unsustainable?) urban design of a player's city would have environmental ramifications towards other user cities within the game (43).

5) Other news article staples included several cogent urban climate-themed meeting summaries (31, 33, 45) and welcome news of deserved award winners in our field (28, 46). There were also (offbeat!) features pertaining to sports and urban climate, with articles on the Beijing Olympics and the range of measures utilised to control air pollution prior to the games (29), as well as updates from research examining the efficacy of such controls after its conclusion (30, 36, 42). Prior to the 2010 World Cup in South Africa, there was also a review of the influence of microclimates on several sports, such as football, cricket and baseball (36).

In closing this brief review, I'd like state (for the record) my gratitude to David Pearlmutter for being an excellent newsletter editor; undoubtedly, it's been fun collating relevant media articles for *Urban Climate News* on a regular basis, but it's even more enjoyable to have an editor-in-chief who is receptive of quirky ideas and submissions. The fact that a consistently high quality of the newsletter has been maintained during his tenure speaks volumes of the editor's excellence. Thanks, David!

— Winston Chow, December 2013.





## IAUC: Reflections on Whom and What we are

By Tim Oke ([toke@geog.ubc.ca](mailto:toke@geog.ubc.ca))

*IAUC Founder and President, 2000-2003*

These reflections are prompted by the appearance of this 50th issue of the *Urban Climate News* – a remarkable achievement. Let me tell you how the Association began, leading up to the turn of the millenium.

Just after the momentous 1968 WMO/WHO Symposium on Urban and Building Climatology in Brussels, Helmut Landsberg, the President of the WMO Commission on Climatology, and an ardent urban climate (UC) enthusiast, invited me to make regular reports about activities in the fledgling field. It was a privileged vantage point I occupied for the next 30 years that enabled me to see and interact with several pockets of UC activity in international organizations like IFHP, CIB, AMS ISB and IGU. These groups operated in parallel, with considerable overlap, often sharing the same core of members, but none of the groups was able to sustain the full scope of debate at the cutting edge. Occasionally there was a joint meeting – these were enjoyable and fruitful affairs. Interestingly, most groups were not able to sustain their activities over the long haul. This was partly because their parent bodies changed priorities and even disbanded them.

Several colleagues, especially Sue Grimmond and John Arnfield, Bob Bornstein and Yasuto Nakamura gave me the courage to proceed with an audacious notion. The idea was to form a low key forum for UC scientists through which they could exchange views without the costs and politics associated with more formal societies. The heart of the proposal was to have meetings that attracted a critical mass of others with similar interests and needs. We wished to be a separate organization, fully international, all volunteer and probably mainly virtual based around the internet. The most audacious part was to take over organization of the occasional joint meetings and to do so in a not-for-profit way. Moreover we rather cheekily situated the meetings as part of a continuing series – the International Conference on Urban Climate (ICUC) (a name coined by Wilhelm Kuttler for the 1996 Essen meeting).

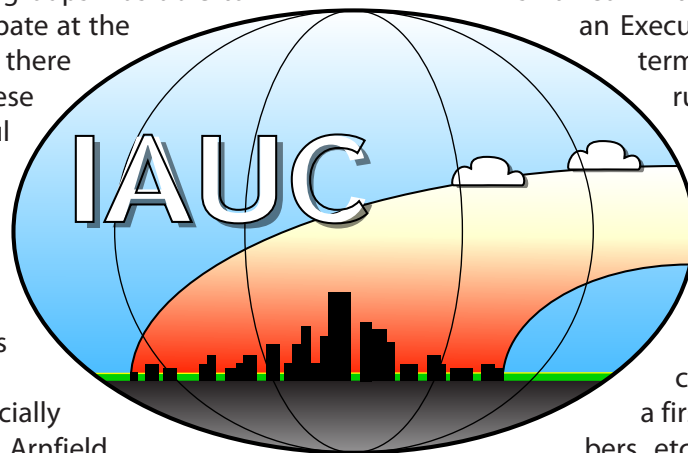
The idea was to establish an international group (lat-

er to become the Association) that had the authority to seek bids from interested parties to host a comprehensive UC meeting. There were to be several understandings: the host must have direct knowledge of the nature and aims of ICUCs; that there is a robust organization to back the bid; and there is an organizer who can give stable leadership to run an international scientific meeting. The successful host is subject to oversight by the Association. They must aim to be self-supporting, make no great profit and the host has the resources and authority to assume any losses. A poll of attendees at ICUC4 in Sydney confirmed support for the general idea of a new stand-alone organization and the existing international organizations with UC interests did not object to us taking the lead.

A small committee fleshed out the ideas and an Executive was appointed to write terms of reference and simple rules of democratic governance. A web presence was established which enabled us to conduct polls of the membership on issues like the name of the new Association, select a logo, establish a list of members, communicate via e-mail, elect a first President and Board members, etc. In short order we issued a

call for ICUC proposals and chose the location of the first ICUC under the auspices of the new Association (IAUC). Our start was absolutely ideal: the City, and the University of Łódź gave us wholehearted support. The first Organizer was Prof. Kazimierz Klysik, who together with his departmental resources, colleagues and staff came through in spectacular manner. Frankly it remains one of the best meetings I've ever attended. The conference programme was balanced: it included attention to science but also to the special cultural values, history and geography of the place. It set the tone we sought: intimate, friendly, culturally enlightening, qualities that I think have carried through all subsequent ICUCs.

Goodwill, generosity and good science characterize the Association. The primary example is the extraordinary service many colleagues have given in so many



ways: serving on IAUC committees, operating the web site and e-mail list, editing *Urban Climate News*, compiling the *Urban Climate Bibliography*, hosting the *Urban Flux Network*, assisting with ICUC planning and arrangements, offering themselves for service on the Board or as an Executive, judging student presentations, building a meeting proposal, the list goes on. This is the lifeblood of an organization such as ours, where the only reward is the satisfaction gained from contributing to an organization that promotes and facilitates the health of the field that is your passion. Members do that because it is a worthy endeavour in its own right and because it holds promise to make modest contributions to a better world.

We should also be aware and grateful for external support from individuals and organizations that share our vision and help to facilitate our operations. Examples include: donations to establish awards (the Lowry family, the Japan Fund), the universities whose servers have hosted our web functions (Indiana, British Columbia, Western, Reading, King's College London), the San Jose State University Foundation who offered bank-like services, the university departments who allow use of their facilities and staff to support ICUC meetings (University of Łódź, University of Göteborg, Tokyo Institute of Technology, University College Dublin), the World Meteorological Organization with whom we have a formal agreement and who underwrite compilation and archival of the *Bibliography of Urban Climate*, and who have generously always co-sponsored the series of ICUC meetings and provided travel funds for deserving students from Less Developed nations. We also thank our other co-sponsoring partners, especially the American Meteorological Society, occasionally other national Societies, research agencies and private industry.

On this special occasion we celebrate the outstanding achievements of the *Urban Climate News*. The pioneer was Gerald Mills, he had both the vision, enormous talent and fortitude to create and produce this remarkable publication. David Pearlmutter has carried the same high quality forward. Again it is driven entirely by volunteers and operates without funding. Yet every quarter another issue arrives packed with a variety of

topical articles and interesting news items from around the world, all well-edited and beautifully illustrated to a high standard. While the *News* is not to be confused with a refereed publication, its appeal and appearance are thoroughly professional. The members are justifiably proud of the quality of the *News* – it is the envy of similar organizations.

At this juncture I am delighted to see the Association has preserved the qualities with which we started. Namely, a friendly, relatively non-competitive atmosphere in an Association that is free from discrimination of any kind, and one that endeavours to be supportive of young members and those for whom

English is not their first language. We

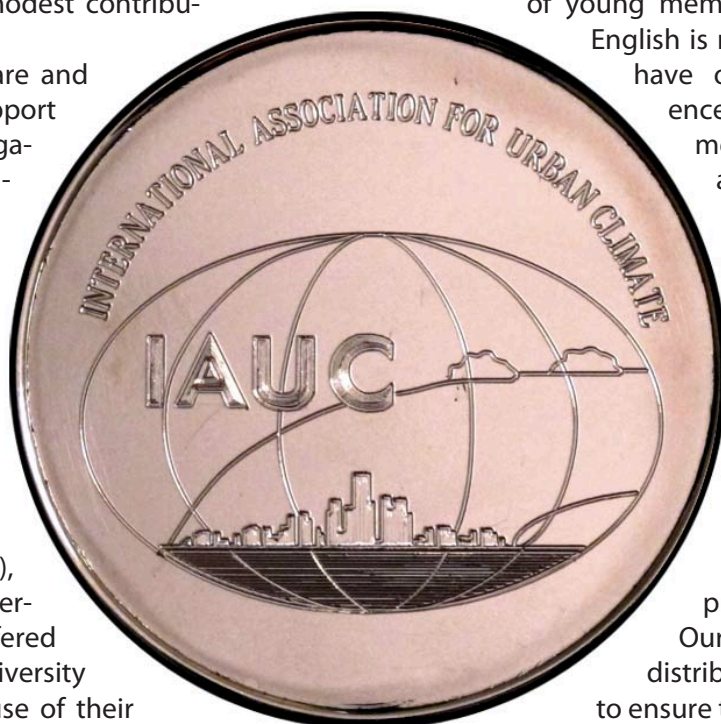
have opposed political interference in our affairs and we try to meet where travel restrictions are minimal. We prefer locations for ICUC where the combined costs of travel, living and registration are not extravagant. We value good science, high standards of presentation and open debate but recognize the realities of global disparity. Meetings are in English, unless simultaneous translation is provided to all participants.

Our members are not uniformly distributed geographically, we try to ensure that this clustering does not result in disenfranchisement.

I feel the Association has more than fulfilled my dreams for it. IAUC has earned a

place in the array of respected scientific societies. Naturally the future direction of IAUC lies in the hands of the incoming Executive and Board. My position is now as a non-voting observer and occasional source of ideas, a role I much appreciate and will not abuse. I limit my writing as health permits, but I hope always to be in close contact with IAUC.

I take this occasion to express my deep gratitude to the Association for the singular honour of receiving the Founder's Medal. This award was presented at the ICUC8 banquet in Dublin. I include a photograph of the medal here, because very few had the opportunity to see it in Dublin. It is solid silver and coincidentally it features the IAUC logo which I designed. You cannot know how deeply I feel and appreciate this recognition. Undoubtedly the founding of this Association has been one of the proudest achievements of my life. Its welcoming nature and healthy vigour is a great satisfaction.



**The Founder's Medal**

(Photo: M. Roth)



## Thoughts on the state of urban climatology and the IAUC

By Matthias Roth ([geomr@nus.edu.sg](mailto:geomr@nus.edu.sg))

*IAUC President, 2007-2009*

### Context

We live in an urbanized world, and the struggle for global sustainability will likely be won or lost in cities. Anthropogenic climate modifications brought about by urbanization often lead to undesirable local effects, and greenhouse gas emissions resulting from production or consumption within cities can alter the climate at the global scale. At the same time, cities and their inhabitants are vulnerable to climate change, which in many cases will worsen access to basic urban services and the quality of life in cities. But cities are also part of the solution – as they have the ability, capacity and will to lead. The way they are built and run further provides a crucial contribution to efficient global resource use and waste disposal.



### Significance of urban climatology

Given the large and ever-increasing fraction of the population living in cities, the growth of urban climatology as a discipline and its wider significance is not surprising. It is virtually impossible not to notice the linkages between urban climate research and many of the most potent issues of the day: global climate change, air pollution and health, sustainable design and planning, energy production and consumption. Consequently the climates of cities have been studied by many disciplines and from different viewpoints. Urban climate science has benefited profoundly from conceptual developments in boundary-layer climatology, enhancing our capability to observe and predict urban atmospheric processes across a range of spatial scales: from the scale of the street and the neighborhood to the scale of cities and entire regions. Over the past years urban climate science has progressed greatly, providing tools for conducting meaningful observations and developing models to deal with real-world issues applicable across places.

During recent years, urban climatology has also attracted attention from other atmospheric science disciplines. I now regularly meet colleagues at urban climate conferences who until a few years ago I would have only met at more specialist meetings such as a boundary-

layer or biogeosciences conference. The increased profile of urban climatology within the scientific community is further evident from two urban-themed AMS Annual Meetings: “Urban Weather and Climate” was the theme for the 89th AMS Annual Meeting, held in Phoenix in 2009, and the upcoming 94th AMS Annual Meeting in Atlanta in 2014 runs under the theme “Extreme Weather – Climate and the Built Environment: New Perspectives, Opportunities and Tools”.

Research by the urban climate science community has also elevated the significance of urban climatology within society at large. The advancements made provide the scientific underpinning actions to allow cities to contribute to the mitigation of, and become more resilient in adapting to, local climate change caused

by cities themselves and to the consequences of global climate change. A wide range of applications now use urban meteorological information related to architectural design of the individual building or entire urban areas, human comfort and health, forecasting urban weather and hazards or developing air pollution control and emissions strategies, to name a few.

### Challenges and opportunities

Looking ahead, I see much potential for the application of the available urban climate science knowledge in inter-disciplinary research – in fact this should be an immediate focus. Although cross-fertilization is starting to appear, a holistic urban climate science which connects science knowledge with applications has not yet emerged. As governments galvanize efforts and make available funding to catalyze research and for the development and deployment of innovations and solutions that could have a significant impact on a place’s environmental sustainability and livability, a diverse group of academics and practitioners in a range of disciplines have become experts in urban climatology. While this increase in visibility of urban climatology has to be welcomed, terminology and practices used in urban climate science are unfortunately often misused in the process.

Let's take the ubiquitous urban heat island (UHI) as an example. On the surface the UHI is an easy to understand and visualize result of urbanization. We know, however, that the UHI is a multi-faceted phenomenon whose proper definition and physical basis is more complex. Because of its seeming simplicity, the UHI now has a reach well beyond urban climatology and is often used as a starting point to resolve a number of urban environmental problems and hazards. Proper understanding of the definition and types, dynamics and underlying physical processes of the UHI, however, is key to formulating mitigation measures – and not all intervention methods are equally effective, a point often overlooked by practitioners.

Looking forward, IAUC could play a leading role in a number of community projects:

(i) Integration of urban climate knowledge with city planning has not been particularly successful, in part because urban climatology has advanced slowly around issues of communication between researchers with different backgrounds and between researchers and planners or architects. There is a role for IAUC to develop tools to assist in climate-sensitive design and to assist the interdisciplinary transfer

of urban climate knowledge.

(ii) Developing cities need to be represented in international research. Greater collaboration between well-resourced urban climate experts in developed countries and local ones is necessary. IAUC could and should take an active role here. IAUC has the knowledge and experience, global outreach and linkages with major international bodies such as WMO, which would enable it to be the organizing and coordinating body for a global initiative, organize research programs and provide resources.

(iii) Regarding education there is a potential role for IAUC as a coordinating organization to develop standardized measurement protocols or hold training workshops. Dissemination of knowledge and best practice could be via web-based resources which can support teaching and training of urban meteorologists and integrate an understanding of climate and climate changes into the training curricula of urban planners and designers. My wish for IAUC is to be known as the one-stop information hub for scientists and practitioners looking for urban climate knowledge.

It has never been a better time to be an urban climatologist!



Beijing, January 2014. (Photos: D. Pearlmutter)



## Four years as IAUC President: summing up and looking ahead

By Gerald Mills ([gerald.mills@ucd.ie](mailto:gerald.mills@ucd.ie))

*IAUC President, 2009-2013*

I am the most recent of the IAUC Presidents and will have stepped down by the time this is read. I took over from Matthias Roth in 2009 and my term ended in December 2013. In the four years I have greatly enjoyed my time. It was an opportunity for me to see the field as a whole and realize its potential. In terms of specific accomplishments by the IAUC in the last few years, I would draw attention to a couple:

- *IAUC Bank account:* Although this is a prosaic 'accomplishment' it is significant nonetheless. As a relatively young organization we are subject to stringent banking laws that have been designed to prevent money laundering; this makes it difficult to establish a bank account on behalf of an organization. Yet we needed an account to conduct business, including receiving financial support from affiliate organizations for the ICUC events. Moreover, as the IAUC develops it needs income to pay for various services, such as the Luke Howard award presentations, website hosting, etc. Currently, the bank account is located in Ireland and to allow this to occur, the IAUC is registered as a limited company. This process took a great deal longer than expected, especially as the IAUC is an international body and the officers that control the account may not be in the state.

- *WMO:* The IAUC has a long-standing working relationship with the WMO, which has seen our involvement in a variety of events including the WCC3 conference on global climate services. A significant development in this relationship was the joint organization of a training workshop in Pune, India on Urban Climatology (6-10th Sept. 2010). I am still editing the lecture materials for this event and will endeavor to bring them to a professional level for distribution via the IAUC next year.

The highlight of my period in office was ICUC8, which was held in my home town of Dublin. Elsewhere, I have written briefly about the planning for the event, which I hope followed the ICUC tradition of being convivial events that are as much about creating an intellectual community as a place for presenting research. It is clear to me that the potential for the ICUC is growing and the IAUC will have to decide soon on the desirable size of the event and its frequency. The former is an issue as, with increased numbers, the potential for interaction decreases. Currently, the three-year cycle is ideally suited to mark significant steps in the field but this may change if the numbers engaged in research grow significantly.

At ICUC8 I had the opportunity to present the Luke

Howard Award to John Arnfield who is well known to many in the field and was central to the development of the urban climatology community. John was my PhD supervisor at the Ohio State University so the presentation had a particular significance for me. I also had the great pleasure of presenting Tim Oke with The Founders Medal, which signified his unique contribution to the creation of IAUC.

Broadly speaking, I think we can be happy with the current state of IAUC. Frankly, I think that *Urban Climate News* is one of our most successful initiatives. David Pearlmutter has brought a level of professionalism to its production that I do not think has a parallel in equivalent organizations. It was designed as a means of allowing members to share information on ongoing projects in an informal context and it has proved to be a core component of the IAUC mission; more so than any other component, it has matched the maturation of the IAUC as an organization.

There are other areas of the IAUC that need some investment in effort, I think:

- *Membership:* One of our strongest attributes is that membership is free to all those interested. As a result we have a diverse make-up and many have affiliations to other national and international organizations in allied fields, such as architecture and meteorology. It also means that we have a large membership from economically developing countries. Consequently, we have a capacity for global debate on urban climate issues (in the broadest sense) that is unmatched. However, membership is not defined in any formal sense; all of those who participate in the ICUC events and/or receive notifications from the urban climate mailing list is a member. One of the main challenges I see is to create a formal membership list through the IAUC website, which has been restructured to separate out the 'front page' from the other pages, which will contain much of the body of materials that IAUC has created. These currently include the core texts (e.g. Howard's *Climate of London*) and will include the Proceedings of ICUC events. The IAUC will remain open to all but we do need a way of tracking our members as they move through their careers.

- *Website:* The IAUC website was redesigned to allow membership but the numbers that have joined are a fraction of those that attend ICUC meetings. In its current form, the website allows members to engage in online discussions on topics of interest. There is no doubt



that the website has tremendous potential for providing cohesion to our field. One area of the AMS website that I think we could duplicate for our field is the online dictionary where terms that have a specific meaning to urban climate (such as 'urban canopy layer') are defined unambiguously. Another area that I would like to see develop is the teaching materials. One of my goals when I step down as President is to develop these into a fit state for distribution. In fact, Bob Bornstein has suggested that we develop a certification system for those that have done coursework on urban climate topics, which I think is a marvelous initiative.

One of the challenges faced by any newly established body is to maintain its vigour. Fundamentally, the IAUC is a volunteer organization that runs on the goodwill of its members. It will be important that all aspects of the IAUC (the committee in particular) are continuously refreshed by new members; many other organizations have 'run out of steam' following a period of initial enthusiasm. However, we are in a good place: cities and their effects are a topic of increasing global interest; the population of urban climate researchers is growing, and we have a structure in place that could co-ordinate activities and provide cohesion to the field.

**1996**  
**ICUC'96**  
 International Conference on Urban Climatology  
 June 10 - 14, 1996  
 Essen, Germany

**1999**  
 Proceedings of the 15<sup>th</sup> International Congress of Biometeorology & International Conference on Urban Climatology  
 ICUC B 99  
 Wesley Conference Centre  
 Sydney, Australia  
 8-12 November 1999

**2003**  
**PROCEEDINGS**  
 Fifth International Conference on Urban Climate  
 1-5 September, 2003  
 Łódź, Poland

**2006**  
**PREPRINTS**  
 6<sup>th</sup> INTERNATIONAL CONFERENCE ON URBAN CLIMATE  
 June 12-16 2006  
 Göteborg Sweden

**2009**  
 The 7<sup>th</sup> International Conference on Urban Climate  
**ICUC-7**  
 Yokohama, Japan 2009  
 June 29 (Monday) - July 3 (Friday), 2009

**2012**  
**ICUC8 DUBLIN**  
 6th-10th August 2012

Over the years, ICUC has become the premier event of the worldwide urban climate community (continued...) >>



The International Conference on Urban Climates was last held in August 6-10 in Dublin Ireland. This was the eighth international

conference dedicated to the topic of urban climates; the urban conference in Kyoto in 1989 was the first ICUC event. While other events had taken place prior to this, this was the first to be supported by the main climate organisations, including the WMO. This was followed by conferences in Dhaka, Essen, Sydney, Lodz, Gothenburg and Yokohama. It was at the Sydney conference in 1999 that the International Association for Urban Climates (IAUC) was formally established and it has undertaken the task of organizing subsequent events at regular intervals. Now, each ICUC occurs each three years and the decision on the host city is made following a competitive process in which institutions (and individuals) make proposal bids to the Board of the IAUC.

At ICUC-7 (Yokohama, Japan) I presented a proposal to the Board, which decided upon which of the bids met the criteria (facilities, cost, transportation, etc.) for ICUC8. Those that were selected from this group were voted on by the IAUC members and this was used by the Board to make the final decision. Following this process, Dublin was selected and I had two and a half years to prepare for the event. I had participated in organizing conferences previously but these were national in character and smaller in size.

The first issue that had to be considered was the make-up of the potential delegates; traditionally, those from Japan, US and Europe (especially Germany, UK and France)

## The road to Dublin

comprise the largest numbers of attendees at urban climate conferences. The AMS Board of the Urban Environment (BUE) organizes a Symposium on an 18-month cycle and it happened that the 10th event was to occur in 2012, in the same year as ICUC8. The BUE (through the Chair, David Sailor) generously agreed to jointly sponsor ICUC8 with IAUC so that there was one international conference in 2012 on the topic of urban climatology.

The first year of the planning was mainly taken up with organizing the infrastructure. This included setting up the website to take care of the registration of delegates and the submission of abstracts. The process of costing and booking a range of accommodation and organizing appropriate places for the social events was also begun. ICUC8 was organized as a 5-day event to take place on a university campus during the summer period when the classrooms are not in use. This has obvious advantages: there is campus accommodation, the conference rooms are in proximity to allow for easy movement between sessions and; the cost of hiring is generally lower. However, it also presents some obstacles: many of the restaurants are not open and hotels and other facilities may not be nearby. As it turned out, the UCD campus was also scheduled for major building work during the event, something that was not scheduled at the time of planning.

Initially, I had thought that I could organize the preparation process without recourse to a conference organizer. The first part of the process had begun (the registration system was set up and the basic skeleton of the event was

established) but once the initial registration was complete over 750 abstracts had been submitted. The numbers and diversity of abstracts meant that some considerable effort was needed to process the materials, including evaluating each for acceptance. After this step there was over 600 abstracts (and over 45 countries) accepted for ICUC8, which I considered to be a healthy number. At this stage I decided to bring in conference organizers who could handle the amount of correspondence that would ensue, work with the various suppliers on costs and seek funding.

One of the advantages of holding the conference in Dublin at that time was the depressed state of the economy, which meant that we were able to strike good deals on costs. Ultimately however, the registration fees are critical to a successful ICUC; as the financial responsibility for the event lies with the local organization this naturally causes some worrying times. Although, there were 700 that registered interest and submitted abstracts there was no guarantee of attendance. In fact, it is not until very close to the event itself that you are sure of attendance (and payment). As much as possible other sources of funding are needed to cover any potential shortfall and to broaden the spectrum of attendees.

One of the disadvantages of the recession was that few local organizations were prepared to sponsor the event. In the end, much of the sponsorship came from multiple, small sources. The first contribution came from Failte Ireland, the national tourism body; this was used primarily to publicise the event through posters and fliers. The biggest single contribution was from Science Foundation Ireland (€25,000) that supported international delegates. Combined with funding from the WMO (€6000) and the Japan Prize (€3000) we were able to support over 30 delegates to ICUC8 in the form of accommodation and/or flights and/or registration. Other funding from ARUP (Ireland), the EPA and Alliance Francais made up the sponsorship. Applying for funding proved a frustrating task that produced lots of rejection letters.

Closer to ICUC8 the abstracts had to be structured into logical groupings of papers, linked to a time table and to lecture halls of varying sizes. The plenary lectures were used as the 'spine' for the conference; each was scheduled in the largest lecture theatre. The topics for the plenaries was based on a discussion between the local organizing committee and both the BUE and the Board of the IAUC. Based on the number of papers in a given category, we attempted to ensure that the papers and posters on a similar topic were placed in the same or nearby sessions. Once this decision had been made, we proceeded to assemble the abstract book using templates that I thought would work. Given the number of changes that had to be made in the months prior to the conference, I decided to do this myself. This was a time consuming and iterative process; any alterations affect the entire programme. By comparison, gath-

ering the extended abstracts was a much simpler affair.

Once this step was complete the only issue was to ensure that delegates registered formally. Until this was complete, there was always a worry that ICUC8 would not be a financial success. By this stage all the various pieces of the conference were in place (the social events, the programme, the catering, etc.) and it was just a matter of letting it happen.

In retrospect, I was happy with a number of elements of the conference, including the overall timing of events. One of the best decisions we made, I think, was to ask an artist to complete a design that I could use to represent ICUC8 (see preceding page). This was used for the cover of the Abstract book and I had limited prints made for each of the plenary speakers. I also think that the programme of events for partners and family attending with the delegates was very successful; I am immensely grateful to my friends who volunteered to provide fieldtrips. Of course there are things that I would have improved but I don't know that I could have spotted the problems in advance. One of the issues that future ICUC events should consider is how best to incorporate posters into the conference. In part, this depends on the number of delegates, which has grown considerably and will continue to do so. ICUC8 had about 450 delegates and ran 4-5 parallel sessions from morning to evening. Larger events means less time allocated to presentations, more parallel sessions or both. This will make the event more profitable perhaps but may inhibit interaction between different parts of the developing community.

The cycle for an ICUC event, which includes the production of the Proceedings and the publication of a special issue of an international journal, is about to end. The book of proceedings is now published on the IAUC website and an issue of *Urban Climate* on ICUC8 will be published in February, 2014.

I had undertaken to host ICUC8 for a number of reasons, one of which was to promote the study of urban climate in my home country. Frankly, I don't know that I was successful in this but it did provide opportunities for me to showcase research in this area, which has largely been ignored in Ireland. As a final thought, I would say that it is impossible to run such an event without the goodwill and co-operation of a great number of individuals. In my case, I relied greatly on Maeve O'Connell (my wife) who co-managed the event and for many, she was the 'face' of the event, sending emails and ensuring that visa applications were dealt with in a timely fashion. I am still reminded of the occasion close to the start of ICUC8 when I brought her breakfast in bed at 7:00am along with a laptop computer to start work!

I wish ICUC9 the best in their preparations. For me, it was a career highlight.

– Gerald Mills.



## Urban Climate News: Looking back 18 months and beyond

By David Pearlmutter ([davidp@bgu.ac.il](mailto:davidp@bgu.ac.il))

Editor, *Urban Climate News*

This edition of *Urban Climate News* marks the 50th edition of the IAUC's online newsletter. Gerald Mills pioneered this project ten years ago, and it has been exactly six years since I began editing it in its current quarterly format.

Producing the newsletter has been gratifying for me in many ways. From the beginning, even before I was asked to take on this responsibility, I was enamored by the newsletter's "home-made" style which somehow befitted an organization based entirely on volunteering and good will. The cooperation I've received from the many, many contributors during this time is a reflection of the culture within this community – there is a great willingness to share one's work with others, even with the knowledge that the articles here are not in any way creditable as refereed publications.

At the same time, the IAUC is a thoroughly professional group of people, and the academic rigor embodied in the articles I receive is quite remarkable. This is indeed important, because in recent years phenomena such as the Urban Heat Island have penetrated the consciousness of architects and urban planners, and the impact of urbanization on

our health and our climate has climbed the agenda of more and more municipal and national leaders. There can be no doubt that urban climatologists deserve credit for bringing this scientific knowledge to an ever-widening audience, and are occupying a more and more vital position in society.

This vitality is reflected in the contents of *Urban Climate News*. Every 18 months I have been summarizing the contributions to the newsletter over the preceding six issues, and previous summaries can be seen online in Issues [32](#), [38](#) and [44](#).

The accompanying tables show the range of feature articles (below) and urban project reports ([page 14](#)) which have appeared in the last year and a half. In addition to the title and authors, each listing includes a link to the issue in which the piece appeared. My thanks go out to all the contributors of these articles, as well as those who filed special reports on conferences and other urban climate events. Key among these is Rohinton Emmanuel, who documented ICUC8 for the newsletter and who has been a dedicated and amiable liaison with the IAUC Board.

\* \* \*

Feature Articles	Author(s)	Issue
Framework for an international community urban morphology database to support meso-urban and climate models	Jason Ching	<a href="#">September 2012</a>
Classification of Local Climate Zones from multitemporal remote sensing data	Benjamin Bechtel	<a href="#">December 2012</a>
A multi-layer radiation model for urban neighbourhoods with trees	Scott Krayenhoff, Andreas Christen, Alberto Martilli, Tim Oke	<a href="#">March 2013</a>
An experimental investigation of the role of urban greening in reducing heat stress inside buildings	Tobi Eniolu Morakinyo, Ahmed A. Balogun	<a href="#">June 2013</a>
A Summary of Urban Heat Island and Outdoor Comfort Studies in Glasgow, UK	Eduardo Krüger, Rohinton Emmanuel	<a href="#">September 2013</a>

I would also like to mention a number of people who have been especially generous with their time, and whose contribution can be seen in these very pages.

Matthias Demuzere, and before him Julia Hidalgo, have faithfully and meticulously compiled the bibliographic lists which contain dozens of new publications on urban climate-related topics every quarter. The actual gathering of these listings has been done by members of the Bibliography committee, who have until now gone largely uncredited, but who certainly deserve to be recognized: Kathrin Haeb, Ashley Broadbent, Bharathi Boppana, Hendrik Wouters, Rafiq Hamdi, Rohinton Emmanuel, Janos Unger, Julia Hidalgo, Lilly Rose Amirtham, Abel Tablada, Martina Petralli, Bruno Bueno, Julien le Bras are the current members, and past members include Evyatar Erell, Corinne Frey and Gregoire Pigeon. An extraordinary effort was made by Jennifer Salmond in initiating and developing the Urban Climate Bibliographical database, which can be accessed online and is continually updated based on the quarterly lists here.

A huge debt of gratitude goes to Winston Chow, who has kept us in the news by scouring the web for scintillating urban tales of a climatological nature. Once every three months, with great zeal, creativity, and never a complaint, he delivers the goods – sometimes with a bonus. Thanks Winston!

It was Matthias Roth who originally invited me to take on this role, and who lent his support and inspiration each and every time a new issue approached. This was especially in evidence before, during and after ICUC7 in Yokohama, which thanks to his work together with Manabu Kanda, was one of the true highlights of the past few years. Many thanks to Matthias for leading the way.

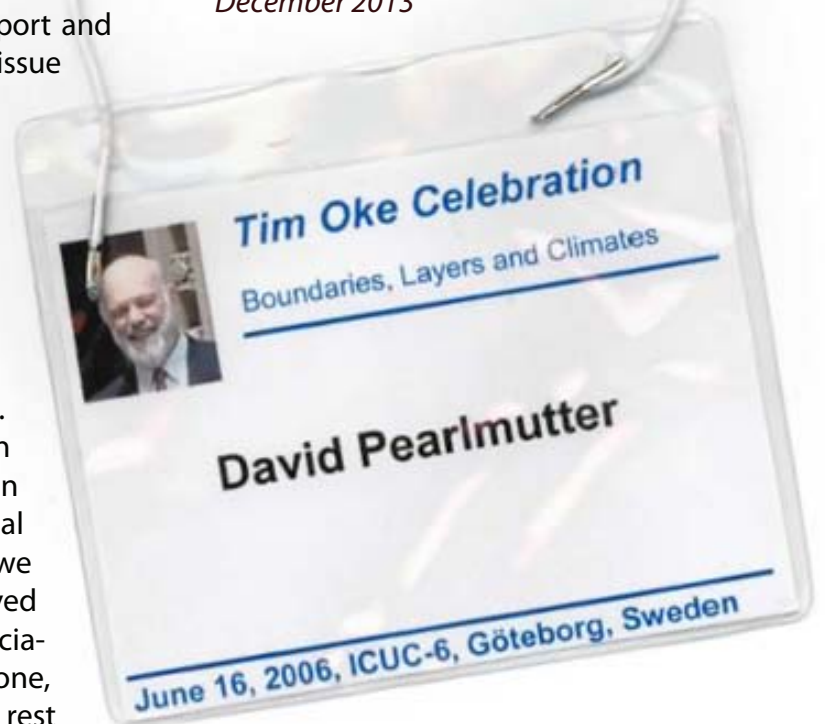
Of course it is Gerald Mills who has been leading the show for the last few years. Along with organizing a successful ICUC in Dublin and setting the tone for the urban climate community, he has taken a special interest in this newsletter – which is what we would expect of the person who conceived and incubated it to begin with. My appreciation is great not only for what Gerald has done, but also for his appreciation of what the rest

of us have done. Thank you Gerald, for your never-ending encouragement!

Finally, a word of appreciation to Tim Oke – who has inspired not only me, but, I dare say, a generation of like-minded people with an interest in the built environment. *Boundary Layer Climates* was not just a textbook, it was a bridge that allowed architects and planners to cross into the informed world of physical geographers and climatologists. More to the point, though, Tim has built this human bridge by way of the IAUC, an organization whose inclusiveness and sense of community seem to be a genuine reflection of his own worldview. I can only hope that this spirit is reflected in the newsletter.

I recall several years ago, following ICUC6 in Göteborg, having the privilege of attending a celebration in Tim's honor. In an unusual twist, the main event consisted of a series of tributes not to him, but by him – to the many students whom he had mentored over the years. Among a host of others, these included Sue Grimmond, the first to follow Tim as President of the IAUC, and Jamie Voogt, who will be taking the reins of the organization now. All told, this was a group of individuals whose collective contribution to the young field of urban climatology is difficult to overstate. I can understand why he would be proud of having them, and the IAUC, as his legacy.

— David Pearlmutter  
December 2013



Urban Project Reports	Author(s)	Issue
Thermal comfort comparisons at ICUC8: Towards a common language?	Donna Hartz	<a href="#">September 2012</a>
Assessment of urban climate conditions in a hot humid tropical city	Ifeoluwa A. Balogun, Ahmed A. Balogun	<a href="#">December 2012</a>
Transmissivity of solar radiation through the crowns of single urban trees	Janina Konarska, Fredrik Lindberg, Annika Larsson, Sofia Thorsson, Björn Holmer	<a href="#">December 2012</a>
Characteristics of the UHI in a high-altitude metropolitan city, Ulaanbaatar, Mongolia	Gantuya Ganbat, Ji-Young Han, Jong-Jin Baik	<a href="#">December 2012</a>
Flux observations in London – Energy, water and carbon dioxide exchange in a dense European city centre	Simone Kotthaus, Sue Grimmond	<a href="#">December 2012</a>
On the road to a universal equation for the UHI	Natalie Theeuwes	<a href="#">December 2012</a>
Impact of urban microclimate in street canyons on building cooling demand predictions	Jonas Alegrini	<a href="#">March 2013</a>
Green roofs for cities: modelling within TEB	Cécile de Munck, A. Lemonsu, R. Bouzouidja, V. Masson, R. Claverie	<a href="#">March 2013</a>
Climatic planning according to Vitruvius and its application in the Holy Land	Jaime Young, Oded Potchter	<a href="#">March 2013</a>
A Study of Climate Change in Hong Kong by Extending Past Temperature Record from 1971 to 2010	Ka-Lun Lau, Edward Ng, Chao Ren	<a href="#">March 2013</a>
Optimizing Natural Ventilation Performance in Subtropical Cities by CFD and Morphometric Methods	Yuan Chao	<a href="#">March 2013</a>
Influence of isoprene on ozone formation in an urban environment	Patrick Wagner	<a href="#">March 2013</a>
Urban heat impacts on the elderly in Vienna: Stakeholder views and coping behaviors of elderly residents	Arne Arnberger, Brigitte Alex, Renate Eder, Hans-Peter Hutter, Michael Kundi, Peter Wallner, Franz Kolland, Anna Wanka, Beate Blättner, Henny A. Grew	<a href="#">June 2013</a>
Meteorological effects of the urban forest “Parco Nord” (Milano, Italy)	Simone Gabriele Parisi, Gabriele Cola, Giuseppe Colangelo, Raffaele Laforteza, Luigi Mariani, Giovanni Sanesi	<a href="#">June 2013</a>
Climate Science in Urban Design : A historical and comparative study of applied urban climatology	Michael Hebbert	<a href="#">September 2013</a>
No building is an ‘energy’ island: The cautionary tale of the Fryscraper	Julie Fatcher, Gerald Mills	<a href="#">September 2013</a>

## Taking stock: the Urban Climate Bibliography and online database

The IAUC online Bibliographic database was launched in June 2008, and since then is regularly updated after each Newsletter edition. At present, approximately 3150 publications by more than 6000 authors are accessible through the following link: <http://www.urban-climate.org/resources/urban-climate-bibliography/>.

Following this link, one can also find two links to a reference database compiled by Jennifer Salmond from 1996 to 2004. In order to login to the *aigaion* online system, one should use "user" for both the login and password. Some users reported issues when using Internet Explorer; until we manage to fix this issue, please use Firefox to explore the site.

The number of references identified increased significantly after 2002, with an almost continuous growth until 2013. At present, 72 journals are regularly and meticulously consulted by 14 collaborators. The list of journals is systematically surveyed and the number of urban climate-related articles each year is shown in Figure 1 below. This Figure and Table 1 show that the continuous efforts of all collaborators remains effective in collecting urban-climate related papers from a diverse range of journals, covering the range of fundamental urban climate physics over model development to societal issues and impacts in a variety of applications.

All researchers are invited to send any peer-reviewed references for inclusion in the newsletter and the online database to [matthias.demuzere@ees.kuleuven.be](mailto:matthias.demuzere@ees.kuleuven.be), with a header "IAUC publications" and the following format: Author, Title, Journal, Volume, Pages, Dates, Keywords, Language, Url, and Abstract. If possible, please send it as a .bib format.

— Matthias Demuzere, December 2013

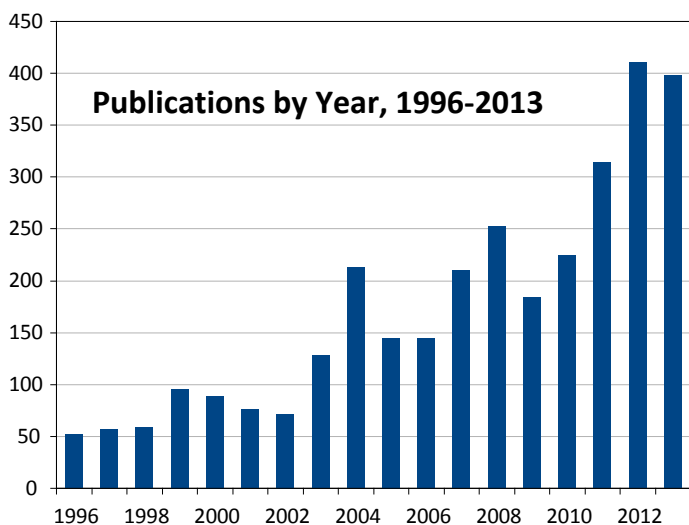


Figure 1: Overview of the number of publications in the online database, grouped per year.

Table 1: List of selected Journals systematically surveyed and their rates per time period.

Journal	2011	2012	2013
Advances In Atmos. Sciences	1		6
Advances in Meteorology			1
Agricultural and Forest Met.			1
Applied Energy		1	3
Architectural Design			1
Atmospheric Chem. & Physics	1	22	20
Atmospheric Environment	30	18	53
Atmospheric Research	29	15	7
Boundary Layer Meteorology	19	24	35
Building and Environment	35	27	14
Bulletin of the AMS		3	4
Chinese J. of Atmos. Sciences		7	2
Climate Research		3	2
Climatic Change	3	5	11
Energy and Buildings	14	11	3
Env. Impact Assessment Rev.			1
Env. Monitoring & Assessment		23	3
Environmental Research		1	1
Env. Science & Pollution Res.	8	8	11
Geophysical Research Letters	2	4	6
Geoscientific Model Develop.		2	1
Habitat International		1	3
Int J Biometeorol	1	3	4
Int. J. App. Earth Obs. & Geoinf.	7	13	11
Int. Journal of Biometeorology		13	11
Int. Journal of Climatology	25	16	9
Int. Journal of Remote Sensing		6	20
J. Applied Met. & Climatology	1	17	10
Journal of Arid Environments		1	2
J. Atmos. & Oceanic Technology		2	1
J. Geophys. Res: Atmospheres	9	7	6
J. Wind Eng. & Ind. Aerodynam.		4	13
Landscape and Urban Planning	1	11	11
Meteorologische Zeitschrift	4	1	8
Meteorology & Atmos. Physics	1	2	8
Nature Climate Change		2	3
Progress in Physical Geography	1		2
Quart. J. Royal Met. Society		23	5
Remote Sensing of Environ.		20	10
Renewable Energy	5	1	2
Russian Meteor. & Hydrology	3	1	6
Science		2	1
Science of the Total Environ.	33	12	14
Solar Energy	4	4	8
The European Physical J. Plus			1
Theoretical & App. Climatology	14	23	15
Transport. Res. D: Trans. & Env.	3		8
Urban Climate			15
Urban Forestry & Urb. Greening		25	2
Water Resources Research			1

## Recent publications in Urban Climatology

Almazroui, M.; Islam, M. & Jones, P. (2013), Urbanization effects on the air temperature rise in Saudi Arabia, *Climatic Change* 120(1-2), 109-122.

Andreou, E. (2014), The effect of urban layout, street geometry and orientation on shading conditions in urban canyons in the Mediterranean, *Renewable Energy* 63, 587 - 596.

Bandi, E. K.; Tamura, Y.; Yoshida, A.; Chul Kim, Y. & Yang, Q. (2013), Experimental investigation on aerodynamic characteristics of various triangular-section high-rise buildings, *Journal of Wind Engineering and Industrial Aerodynamics* 122(0), 60-68.

Blecic, I.; Cecchini, A.; Falk, M.; Marras, S.; Pyles, D. R.; Spano, D. & Trunfio, G. A. (2013), Urban metabolism and climate change: A planning support system, *International Journal of Applied Earth Observation and Geoinformation* 26, 447-457.

Borge, R.; Lumbreras, J.; Pérez, J.; de la Paz, D.; Vedrenne, M.; de Andrés, J. M. & Rodríguez, M. E. (2014), Emission inventories and modeling requirements for the development of air quality plans. Application to Madrid (Spain), *Science of The Total Environment* 466-467(0), 809-819.

Chelani, A. & Rao, P. (2013), Temporal variations in surface air temperature anomaly in urban cities of India, *Meteorology and Atmospheric Physics* 121(3-4), 215-221.

Gonzalez-Aguilar, J. I.; Pardo, A.; Cesar Chapa, S.; Gonzalez-Aguilar, J. & Romero, M. (2013), Optical performance of vertical heliostat fields integrated in building facades for concentrating solar energy uses, *Solar Energy* 97(0), 447-459.

Habilomatis, G. & Chaloulakou, A. (2013), Ultrafine particles dispersion modeling in a street canyon: Development and evaluation of a composite lattice Boltzmann model, *Science of The Total Environment* 463-464(0), 478 -487.

Hallegatte, S.; Green, C.; Nicholls, R. J. & Corfee-Morlot, J. (2013), Future flood losses in major coastal cities, *Nature Climate Change* 3(9), 802-806.

Haupt, S.E.; Annunzio, A.J. & Schmehl, K. J. (2013), Evolving turbulence realizations of atmospheric flow, *Boundary-Layer Meteorology* 149, 197-217.

Heidrich, O.; Dawson, R.; Reckien, D. & Walsh, C. (2013), Assessment of the climate preparedness of 30 urban areas in the UK, *Climatic Change* 120(4), 771-784.

Heist, D.; Isakov, V.; Perry, S.; Snyder, M.; Venkatram, A.; Hood, C.; Stocker, J.; Carruthers, D.; Arunachalam, S. & Owen, R. C. (2013), Estimating near-road pollutant dispersion: A model inter-comparison, *Transportation Research Part D: Transport and Environment* 25(0), 93-105.

Inagaki, A.; Kanda, M.; O. S. K. H. (2013), Thermal Image Velocimetry, *Boundary-Layer Meteorology* 149, 1-18.

Kenjeres, S. & ter Kuile, B. (2013), Modelling and simulations of turbulent flows in urban areas with vegetation, *Journal of*

In this edition a list of publications are presented that have come out until the end of November 2013. As usual, papers published since this date are welcome for inclusion in the next newsletter and IAUC online database. Please send your references to the email address below with a header "IAUC publications" and the following format: Author, Title, Journal, Volume, Pages, Dates, Keywords, Language, Url, and Abstract. If possible, please send it as a .bib format.

Enjoy!

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*Wind Engineering and Industrial Aerodynamics* 123, Part A(0), 43-55.

Keramitsoglou, I.; Kiranoudis, C.; Maiheu, B.; De Ridder, K.; Daglis, I.; Manunta, P. & Paganini, M. (2013), Heat wave hazard classification and risk assessment using artificial intelligence fuzzy logic, *Environmental Monitoring and Assessment* 185(10), 8239-8258.

Lee, H.; Holst, J. & Mayer, H. (2013), Modification of Human-Biometeorologically Significant Radiant Flux Densities by Shading as Local Method to Mitigate Heat Stress in Summer within Urban Street Canyons, *Advances in Meteorology* 2013, 1-13.

Li, X.-X.; Koh, T.-Y.; Entekhabi, D.; Roth, M.; Panda, J. & Norford, L. K. (2013), A multi-resolution ensemble study of a tropical urban environment and its interactions with the background regional atmosphere, *Journal of Geophysical Research: Atmospheres* 118(17), 9804-9818.

Lin, B.-S.; Yu, C.-C.; Su, A.-T. & Lin, Y.-J. (2013), Impact of climatic conditions on the thermal effectiveness of an extensive green roof, *Building and Environment* 67(0), 26--33.

Liu, C.-H. & Wong, C. C. (2014), On the pollutant removal, dispersion, and entrainment over two-dimensional idealized street canyons, *Atmospheric Research* 135-136(0), 128 - 142.

Marcio, E. (2013), Variability of energy fluxes in relation to the net-radiation of urban and suburban areas: a case study, *Meteorology and Atmospheric Physics* 121(1-2), 17-28.

Miao, Y.; Liu, S.; Chen, B.; Zhang, B.; Wang, S. & Li, S. (2013), Simulating urban flow and dispersion in Beijing by coupling a CFD model with the WRF model, *Advances in Atmospheric*



*Sciences* 30(6), 1663-1678.

Moreno, J. C. & Sciutto, S. (2013), Characterization of the atmospheric depth profile using the ground-level temperature: The case of Malargüe, Argentina, *The European Physical Journal Plus* 128(9), 104.

Ndetto, E. L. & Matzarakis, A. (2013), Basic analysis of climate and urban bioclimate of Dar es Salaam, Tanzania, *Theoretical and Applied Climatology* 114(1-2), 213-226.

P. Mouzourides, A. Kyprianou, M. K.-A. N. (2013), A Scale-Adaptive Approach for Spatially-Varying Urban Morphology Characterization in Boundary Layer Parametrization Using Multi-Resolution Analysis, *Boundary-Layer Meteorology* 149, 455-481.

Pani, S. & Verma, S. (2014), Variability of winter and summertime aerosols over eastern India urban environment, *Atmospheric Research* 137(0), 112-124.

Pateraki, S.; Assimakopoulos, V.; Maggos, T.; Fameli, K.; Kotroni, V. & Vasilakos, C. (2013), Particulate matter pollution over a Mediterranean urban area, *Science of The Total Environment* 463-464(0), 508-524.

Pathirana, A.; Deneke, H. B.; Veerbeek, W.; Zevenbergen, C. & Banda, A. T. (2014), Impact of urban growth-driven land use change on microclimate and extreme precipitation – A sensitivity study, *Atmospheric Research* 138(0), 59-72.

Pingale, S. M.; Khare, D.; Jat, M. K. & Adamowski, J. (2014), Spatial and temporal trends of mean and extreme rainfall and temperature for the 33 urban centers of the arid and semi-arid state of Rajasthan, India, *Atmospheric Research* 138(0), 73-90.

Radhi, H. & Sharples, S. (2013), Quantifying the domestic electricity consumption for air-conditioning due to urban heat islands in hot arid regions, *Applied Energy* 112, 371-380.

Redweik, P.; Catita, C. & Brito, M. (2013), Solar energy potential on roofs and facades in an urban landscape, *Solar Energy* 97(0), 332-341.

Rodríguez, R.; Casas, M. & Redaño, A. (2013), Multifractal analysis of the rainfall time distribution on the metropolitan area of Barcelona (Spain), *Meteorology and Atmospheric Physics* 121(3-4), 181-187.

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Sakoi, T. & Mochida, T. (2013), Concept of the equivalent wet bulb globe temperature index for indicating safe thermal occupational environments, *Building and Environment* 67(0), 167-178.

Santiago, J. L.; Coceal, O. & Martilli, A. (2013), How to Parametrize Urban-Canopy Drag to Reproduce Wind-Direction Effects Within the Canopy, *Boundary-Layer Meteorology* 149, 43-63.

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Sergey N. Vecherin, Vladimir E. Ostashev, C. F. D. K. W. L. B. (2013), Sonic Anemometer as a Small Acoustic Tomography Array, *Boundary-Layer Meteorology* 149, 165-178.

Skelhorn, C.; Lindley, S. & Levermore, G. (2014), The impact of vegetation types on air and surface temperatures in a temperate city: A fine scale assessment in Manchester, UK, *Landscape and Urban Planning* 121(0), 129-140.

Smith, B. K.; Smith, J. A.; M. L. B. G. V. D. B. W. (2013), Spectrum of storm event hydrologic response in urban watersheds, *Water Resources Research* 49, 2649-2663.

Sonntag, D. B.; Gao, H. O. & Holmén, B. A. (2013), Comparison of particle mass and number emissions from a diesel transit bus across temporal and spatial scales, *Transportation Research Part D: Transport and Environment* 25(0), 146--154.

Steenefeld, G.; Koopmans, S.; Heusinkveld, B. & Theeuwes, N. (2014), Refreshing the role of open water surfaces on mitigating the maximum urban heat island effect, *Landscape and Urban Planning* 121(0), 92-96.

Takano, Y. & Moonen, P. (2013), On the influence of roof shape on flow and dispersion in an urban street canyon, *Journal of Wind Engineering and Industrial Aerodynamics* 123, Part A(0), 107-120.

Taleghani, M.; Tenpierik, M.; van den Dobbelsteen, A. & de Dear, R. (2013), Energy use impact of and thermal comfort in different urban block types in the Netherlands, *Energy and Buildings* 67(0), 166-175.

Theeuwes, N. E.; Solcerová, A. & Steeneveld, G. J. (2013), Modeling the influence of open water surfaces on the summertime temperature and thermal comfort in the city, *Journal of Geophysical Research: Atmospheres* 118(16), 8881-8896.

Trail, M.; Tsimpidi, A. P.; Liu, P.; Tsigaridis, K.; Hu, Y.; Nenes, A. & Russell, A. G. (2013), Downscaling a global climate model to simulate climate change over the US and the implication on regional and urban air quality, *Geoscientific Model Development* 6(5), 1429-1445.

Vaccari, F. P.; Gioli, B.; Toscano, P. & Perrone, C. (2013), Carbon dioxide balance assessment of the city of Florence (Italy), and implications for urban planning, *Landscape and Urban Planning* 120(0), 138-146.

Villaraigosa, M. A. R.; Sivaram, V. & Nichols, R. (2013), Powering Los Angeles with renewable energy, *Nature Climate Change* 3(9), 771-775.

Wang, M.; Yan, X.; Liu, J. & Zhang, X. (2013), The contribution of urbanization to recent extreme heat events and a potential mitigation strategy in the Beijing-Tianjin-Hebei metropolitan area, *Theoretical and Applied Climatology* 114(3-4), 213-226.

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## Yair Goldreich Joins Honored List of Luke Howard Award Winners

The latest recipient of IAUC's Luke Howard Award is Professor **Yair Goldreich** of Bar-Ilan University in Israel.

Prof. Goldreich is well known as one of the key scientists in the field of urban climatology, and this is reflected in his numerous publications and multi-faceted work over the span of his 50-year career.

It was in 1963 that Yair received his MA from the Hebrew University in Jerusalem, having specialized in physical geography, meteorology and geology during his undergraduate and graduate studies. By 1965 he was already working as a consulting climatologist, and in 1970 he completed his PhD at the University of the Witwatersrand in Johannesburg, South Africa.

His research over the years was carried out both in Johannesburg and in Israeli cities, focusing on the characteristics of the urban heat island and the wind regime over urbanized terrain. These studies included both near-ground and upper-air analyses, as well as observations using remote sensing techniques. Prof. Goldreich also examined the urban "rainfall island", and pursued methods to distinguish between the effects of urbanization and the yield produced by cloud seeding.

Prof. Goldreich is also well known for his scientific work on regional climatology. His book *The Climate of Israel: Observation Research and Application* (2003) is not only a textbook, but rather a comprehensive in-depth review for climatologists and meteorologists.

In 2005 Prof. Goldreich officially retired and was awarded Professor Emeritus status, but since then has continued his research and his active participation in international conferences. To this day he teaches courses at



**Yair Goldreich was recently presented with the Luke Howard Award by Hadas Saaroni, in a ceremony at Bar-Ilan University in Israel.**

Bar-Ilan University, where he has been a fixture of the academic staff for over four decades. He has been the President of the Israel Geographical Society since 2011, and until March 2009 he served as the Chairman of the Israel Meteorological Society. Goldreich continues his work as Editor of the on-line journal *Meteorologia Be'Israel*.

On behalf of the IAUC and its Awards Committee, a warm congratulations to Yair, his wife and five children, and his 27 grandchildren – Mazal Tov!

– Hadas Saaroni and David Pearlmutter

The Luke Howard Award is given by the IAUC to an individual who has made outstanding contributions to the field of urban climatology in a combination of research, teaching, and/or service to the international community of urban climatologists. The recipients of the award to date are shown here.



Prof. **Timothy R. Oke** (2004)  
University of British Columbia, Canada



Prof. **Robert Bornstein** (2008)  
San Jose State University, United States



Prof. **Ernesto Jáuregui** (2005)  
National University of Mexico



Prof. **Sue Grimmond** (2009)  
King's College London, UK



Prof. **Arie Bitan** (2006)  
Tel Aviv University, Israel



Prof. Emeritus, **John Arnfield** (2010)  
Ohio State University, United States



Dr.Sci. **Masatoshi Yoshino** (2007)  
University of Tsukuba, Japan



Prof. **Yair Goldreich** (2012)  
Bar-Ilan University, Israel

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### Board Members & Terms

- Tim Oke (University of British Columbia, Canada): President, 2000-2003; Past President, 2003-2006; Emeritus President 2007-2009\*
  - Sue Grimmond (King's College London, UK): 2000-2003; President, 2003-2007; Past President, 2007-2009\*
  - Matthias Roth (National University of Singapore, Singapore): 2000-2003; Secretary, 2003-2007; Acting-Treasurer 2006; President, 2007-2009; Past-President 2009-2011\*
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  - Jennifer Salmond (University of Auckland, NZ): 2005-2009; Secretary, 2007-2009
  - James Voogt (University of Western Ontario, Canada), 2000-2006; Webmaster 2007-2009; 2009-2013
  - Manabu Kanda (Tokyo Institute of Technology, Japan): 2005-2009, ICUC-7 Local Organizer, 2007-2009.\*
  - Andreas Christen (University of British Columbia, Canada): 2012-2016
  - Rohinton Emmanuel (Glasgow Caledonian University, UK): 2006-2010; Secretary, 2009-2013
  - Jason Ching (EPA Atmospheric Modelling & Analysis Division, USA): 2009-2013
  - David Pearlmutter (Ben-Gurion University of the Negev, Israel): Newsletter Editor, 2009-\*
  - Alberto Martilli (CIEMAT, Spain), 2010-2014
  - Aude Lemonsu (CNRS/Meteo France), 2010-2014
  - Silvana di Sabatino (Univ. of Salento, Italy), 2010-2014
  - Hiroyuki Kusaka (Univ. of Tsukuba, Japan): 2011-2015
  - David Sailor (Portland State University, USA): 2011-2015
- \* appointed members

### IAUC Committee Chairs

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 Bibliography Committee: Matthias Demuzere  
 Nominating Committee: Tim Oke  
 Chair Teaching Resources: Gerald Mills  
 Interim-Chair Awards Committee: Jennifer Salmond  
 WebMaster: James Voogt

### Newsletter Contributions

The next edition of *Urban Climate News* will appear in late March. Items to be considered for the upcoming issue should be received by **February 28, 2014** and may be sent to Editor David Pearlmutter ([davidp@bgu.ac.il](mailto:davidp@bgu.ac.il)) or to the relevant section editor:

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Submissions should be concise and accessible to a wide audience. The articles in this Newsletter are unrefereed, and their appearance does not constitute formal publication; they should not be used or cited otherwise.