

From the IAUC President

Dear Colleagues, welcome to the March 2012 edition of *Urban Climate News*.

One of the items that is covered in some detail in this edition is the update on ICUC8, which is to be held in Dublin from August 6th-10th. At this stage, all of those that submitted abstracts should have been contacted – emails to this effect were sent out over a month ago. If anyone has yet to receive notification, please contact abstracts@icuc.org.

Currently, over 500 abstracts have been accepted for ICUC8, 80% of which are oral presentations. The preliminary programme will be published on the conference website (www.icuc8.org) this week so that individuals can see when their presentation is scheduled. A 'skeleton' programme is published here (see [page 18](#)). Currently, registration for ICUC8 is open and the lower rate of payment is available until the end of April.

There will be a limited number of bursaries to aid delegates to attend. Owing to the delay in formulating the programme, applications for these will be accepted until the end of April. These will be used to support registration and/or accommodation and/or travel and will be directed to those in disadvantaged circumstances - details are on the conference website www.icuc8.org.

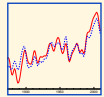
Just as ICUC8 approaches, the process of selecting a host for ICUC9, which is to be held in 2015, will begin soon. Typically, proposals to select a site for ICUC events are presented to the Board at the preceding conference. Hence, a call for proposals will go out in

Inside the Spring issue...

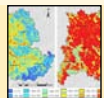
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the next month with a view to obtaining expressions of interest for ICUC9 that can be evaluated at ICUC8 in Dublin.

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ICUC8 DUBLIN



6th-10th August 2012

Reducing the UHI: Bright is the new black as New York roofs go cool

March 2012 — On the hottest day of the New York City summer in 2011, a white roof covering was measured at 42 degrees Fahrenheit cooler than the traditional black roof it was being compared to, according to a study including NASA scientists that details the first scientific results from the city's unprecedented effort to brighten rooftops and reduce its "urban heat island" effect.

The dark, sunlight-absorbing surfaces of some New York City roofs reached 170 degrees Fahrenheit on July 22, 2011, a day that set a city record for electricity usage during the peak of a heat wave. But in the largest discrepancy of that day, a white roofing material was measured at about 42 degrees cooler. The white roof being tested was a low-cost covering promoted as part of Mayor Michael Bloomberg's effort to reduce the city's greenhouse gas emissions 30 percent by 2030.

On average through the summer of 2011, the pilot white roof surface reduced peak rooftop temperature compared to a typical black roof by 43 degrees Fahrenheit, according to the study, which was the first long-term effort in New York to test how specific white roof materials held up and performed over several years.

Widespread installation of white roofs, like New York City is attempting through the NYC CoolRoofs program, could reduce city temperatures while cutting down on energy usage and resulting greenhouse gas emissions, said Stuart Gaffin, a research scientist at Columbia University. Gaffin is lead author on a paper detailing the roof study, which was published online in *Environmental Research Letters*.

The urban landscape of asphalt, metal, and dark buildings absorbs more energy from sunlight than forests, fields or snow- and ice-covered landscapes, which reflect more light. The absorption leads to what scientists call an "urban heat island," where a city experiences markedly warmer temperatures than surrounding regions. New York City's urban heat island has a more pronounced effect at night, typically raising nighttime temperatures between 5 and 7 degrees Fahrenheit relative to what they would be without the effect, according to Gaffin's previous research.

"Cities have been progressively darkening the landscape for hundreds of years. This is the first effort in New York to reverse that. It's an ambitious effort with real potential to lower city temperatures and energy bills," said Gaffin. "City roofs are traditionally black because asphalt and tar are waterproof, tough, ductile and were easiest to apply to complex rooftop geometries. But from a climate and urban heat island standpoint, it makes a lot of sense to install bright, white roofs. That's why we say, 'Bright is the new black.'"

With climate change, the urban heat island problem will likely intensify in coming decades, said Cynthia Rosenzweig, a scientist at NASA's Goddard Institute for Space Studies in New York City and a co-author on the paper.

"Right now, we average about 14 days each summer above 90 degrees in New York. In a couple decades, we could be experiencing 30 days or more," Rosenzweig said.



A new study compared the performance of different white roofing materials "in the field" in New York City over multiple years. Source: [ScienceDaily](http://www.sciencedaily.com/releases/2012/03/120307185111.htm)

The study found similar temperature reduction when all the surfaces were first installed, but that the professionally installed membranes maintained their reflectivity better over multiple years.

The citywide program is in effect an "albedo enhancement" program. In addition to measuring rooftop surface temperature, the study also looked at how the reflectivity and emissivity of the white surfaces held up over time. Both the reflectivity and emissivity of the professionally installed white membrane coverings (which cost about \$15 to \$28 per square foot) held up remarkably well after even four years in use. These surfaces continued to meet Energy Star standards, set by the EPA's Energy Star Reflective Roof program. The effectiveness of the white coating (which only costs about 50 cents per square foot) was about cut in half after two years, ultimately falling below the Energy Star standard. However, Gaffin said, the low-cost surface improved albedo markedly over typical black, asphalt roofs.

"It's the lowest hanging fruit. It's very cheap to do; it's a retro-fit. You don't need a skilled labor force. And you don't have to wait for a roof to be retired," said Gaffin referring to the DIY acrylic method. "So if you really talk about ways in which you brighten urban albedo, this is the fastest, cheapest way to do it."

NASA studies the urban heat island effect to better understand and model how urban surfaces and expanding urbanization might impact regional and global climate, said Marc Imhoff, a biospheric scientist at NASA Goddard Space Flight Center, Greenbelt, Md.

"We're trying to build a capability where we can expand our knowledge with data on more locations, and ultimately develop computer models that would allow us to predict urban heat islands and urban temperatures on a town level," Imhoff said. "Eventually, we could incorporate our findings into large-scale, global climate models." Source: <http://www.sciencedaily.com/releases/2012/03/120307185111.htm>



Spectacular “cloud tsunami” rolls over Florida high-rise condos

This incredible weather phenomenon was spotted along the coast of Panama City Beach, Florida. It is only in very specific weather conditions that this beautiful effect occurs. While the online community has dubbed this a “cloud tsunami,” it is not a natural disaster. The event, while it can form quickly, moves gently and slowly. Cool air offshore was very nearly at the saturation point at the time of the photos, with a temperature near 20°C and a dew point of about 19.5°C. Source: <http://photoblog.msnbc.msn.com/>



“SimCity” game rebuilt for age of climate change

March 2012 — Climate change is coming to SimCity.

A new version of the city-building computer game that factors in real-world consequences of energy choices has won endorsements from Twitter co-founder Biz Stone and the director of the Academy Award-winning documentary “An Inconvenient Truth.”

“We are updating SimCity with technology of today and introducing it to a new generation of gamers,” Maxis studio senior vice president Lucy Bradshaw said at this year’s Game Developers Conference in San Francisco.

“It gets under your skin; exposes you to the idea of cause and effect and that choices you make have repercussions,” she said.

Millions of people have played SimCity since the computer game designed by Will Wright was first released in 1989.

The original title won a broad, devoted following and led to a successful franchise of “Sims” strategy games in which players manipulate worlds and animated characters in simulations of real life.

“Sims 3 Showtime” software, released on Tuesday as an addition to the latest version of the game, lets players act out fantasies of becoming famous singers, acrobats, magicians or DJs.

The \$40 expansion pack adds a host of features, including one allowing players to send their characters into other people’s games via the Internet with a capability called “SimPort.”

While the franchise has thrived, it has been nearly a decade since the release of the last version of SimCity for desktop or laptop computers. A Maxis team will have a fresh SimCity title ready in 2013, according to Bradshaw.

Along with rich 3-D graphics, the game will have a new simulation engine that enhances its realism and extends ramifications of urban design decisions past borders to affect neighboring cities.

“In ‘SimCity’ resources are finite, you struggle with de-



Will Wright, creator of computer game hits such as SimCity. Source: [AFP](#)

cisions people are struggling with today in the real world and your decisions can have a global impact,” Bradshaw said. “Be a polluter and you are ultimately going to affect your friends’ cities... Will you have the wealthiest, fittest, greenest city ever or the sludgiest, most yikes-worthy SimCity ever?”

Maxis collaborated on the title with Games For Change, a group devoted to the creation of games that combine fun with learning about social issues.

“I love the game,” said “Inconvenient Truth” director Davis Guggenheim, who played an early version with his son.

“Climate change is the biggest crisis of our time, but there is a disconnect because it is not in front of us,” he added.

“When you play ‘SimCity’ it is in your face; if you build a coal power plant you feel the consequences -- smog in the city, water table getting dirty, and your people getting angry.”

Twitter co-founder Stone is also among the early fans of the new “SimCity,” which he said was in tune with his new initiative to support systems that help make “better humans, a smarter world and a healthier planet.”

Stone left his day-to-day role at Twitter last year to devote time to Obvious Corporation, which he established with fellow Twitter co-founder Evan Williams and Jason Goldman.

“While I’m not a gamer I understand the learning power of play,” Stone said.

“Learning the cause and effect and the impact you could have as an individual or a corporation is huge... The ‘SimCity’ overview puts us in that frame of mind.”

Bradshaw noted that ‘SimCity’ has always blended realism and fantasy, “so you never know when a giant lizard might trundle around a corner and blow your buildings down.” Source: [AFP](#)



Another view of the “cloud tsunami” (see [page 3](#)).

London air pollution at record high

Traffic fumes, weather and dirty air from northern England and France add up to worst air pollution since 2008's more stringent monitoring

March 2012 — On March 15 air pollution in London hit record levels, due to a combination of traffic fumes, relatively still weather and an influx of dirty air from the north of England and northern France. Poor conditions were affecting a swath of the country as far north as Leeds and York.

Official monitoring stations in the capital showed that particles, nitrogen dioxide, sulphur dioxide and other pollutants have reached levels not recorded since stringent new measurements were introduced in 2008. Pollution levels in London were even higher than last Easter, when the government was forced to issue a smog alert. The record high will worry officials preparing for the arrival of the world's best athletes and hundreds of thousands of spectators for the Olympics in four months time.

Health advice from the Department for Environment, Food and Rural Affairs (Defra) says that adults and children with lung problems, adults with heart problems and all older people should not take any "strenuous physical activity" while pollution is at the recorded levels. The general population is advised to reduce exercise too.

Recirculated dirty air from Europe and the north of England is partly to blame, along with a lack of wind, said Gary Fuller, senior lecturer in air quality measurement at King's College London. "Still conditions mean that the pollution from the cars and lorries on the roads today is simply not blowing away. On top of this, the air over England today was in northern France yesterday and in northern England on Tuesday where it picked up a lot of air pollution from coal burning industries, domestic heating and traffic."

He added that poor air quality was affecting as far north as Leeds and York, and his forecasts suggested the high levels of pollution would continue into tomorrow.

The Met Office said that winds would be light on Friday morning but would be picking up by lunchtime with gusty winds of 25mph, followed by further winds on Saturday which should bring pollution levels down.

This month, a report suggested that the 2012 Olympics would have no significant impact on air quality in London.



The view of smog covering central London from Hampstead Heath in April 2011. Source: [The Guardian](#)

Changes to road management during the Games are likely to have "broadly neutral impact on air quality," Transport for London said.

Since December 2008, air quality stations in London have been monitoring smaller particles (PM_{2.5}), which are able to enter the bloodstream more easily and cause more respiratory damage than larger particles, such as PM₁₀. Fuller said the levels on Thursday were the highest since the new regime was introduced.

A Defra spokeswoman said: "We want to keep improving air quality and reduce the impact it can have on human health and the environment. Our air quality has improved significantly in recent decades and is now generally very good, and almost all of the UK meets EU air quality limits for all pollutants.

"There are some limited areas where air pollution remains an issue, but that's being dealt with by the air quality plans, which set out all the important work being done at national, regional and local levels to make sure we meet EU limits as soon as we can."

Last month, the environment secretary, Caroline Spelman, was criticised by an influential group of MPs for rejecting their recommendations to cut pollution on the grounds that it was too costly. Poor air quality has been linked to nearly one in five deaths a year in London. The capital's poor air quality, caused largely by traffic, has seen the UK facing £300m in fines for breaching EU targets. The government has successfully lobbied Europe to push back the deadline for meeting the targets. Source: <http://www.guardian.co.uk/environment/2012/mar/15/london-air-pollution-record-high>

"Urban Microclimate" reviewed in *Journal of Urban Studies*

A recently published book by Evyatar Erell, David Pearlmuter and Terry Williamson, entitled "Urban Microclimate: Designing the Spaces Between Buildings" is reviewed in the current issue of the journal *Urban Studies* by Robert D. Brown of the Department of Landscape Architecture, University of Guelph, Canada. The full review can be seen at: <http://usj.sagepub.com/content/49/5/1157.full.pdf+html>

Professional smeller Liu Yong sniffs out pollution

March 2012 — Her friends think she is a police sniffer dog, while her family thinks she is a fool who has to visit garbage sites and other stinky locations every day. She sees herself as a scientist who uses a unique tool.

For 35-year-old Liu Yong, her nose is her rice bowl. As one of around 15 licensed professional smellers with the Laboratory of Odor Pollution Control, under the Ministry of Environmental Protection, she is smelling her way to cleaner air in China.

Liu had to give up perfumes and flavored cosmetics herself after she first took up the job 11 years ago, since the odors might affect her sense of smell. "That's something I have to sacrifice as a woman, but this job is meaningful and important. I am proud of myself," she told the *Global Times*.

China started using human senses to detect pollution in the late 1990s. Liu was one of the first trained professionals. Now there are many like her working in polluted metropolises like Beijing, Shanghai, Tianjin and Chengdu. In the laboratories, they expose themselves to various odors that they have collected from garbage sites and compost fields and use their noses to determine the presence of pollutants.

The reason to use a human sense of smell instead of electronic devices is that some gases can only be detected by people through human's physical reactions to the odors, Liu explains. "If someone reports that there are odors coming from a plant, but the machine fails to detect anything, then it is our noses that tell what is really going on," she said.

In a quiet laboratory in Tianjin, the only sound is sniffing. Six smellers sit together with a tester who smells the original samples of the odor and dilutes them. Then each sniffer takes three bags of three liters of odor, one of which is mixed with the sample collected, while the other two are just clean air. The sample is diluted in each round until all of them are no longer able to smell anything.

Then the density of the odor is calculated by the level of dilution involved and a report will be handed to the local environmental protection bureau. Some original samples smell like rotten eggs while others like disinfectant. It's not pleasant. But after they've been diluted, Liu said it is less strong than a used bathroom.

"At first I was worried that smelling too many bad odors might be harmful to my health, especially those noxious gases from the plants," she said. "But after rounds of diluting the odors we smell are pretty much harmless, they're less smelly than vinegar or oranges."

There are no professional qualifications to be a smeller. But anyone who wants to join the profession has to go through a strict test and live under near-monastic rules.

Scientists estimate there are more than 1 million smells in nature. Humans can only detect about 10,000 odors, far less than many animals. But not everybody detects them the same way, and the sense of smell affects the ability to taste.

In general, the left nostril catches more smells than the right one, and women have a better olfactory sense than



The CCTV building in Beijing shrouded in fog. Chronic air pollution has prompted municipal officials to take tough measures. Source: [The Global Times](#)

men. Most people can distinguish between only a limited number of smells, while those who work in the perfume industry can distinctly recognize about 800. The olfactory surface of human noses is about 10 square centimeters, 15 times less than that of dogs.

You don't need to have a dog's nose to apply for Liu's job. But you have to be a non-smoker, non-drinker, aged between 18 and 45, with no conditions that might damage your sense of smell. The salary for new graduates is about 3,000 yuan (\$475) a month.

Just like wine tasters, many of the smellers do not go directly to collect the samples, as they worry that their impressions of the scene might influence the test results. Instead, they spend a long period of time in the laboratory, exposing themselves to various odors to learn how to tell the difference.

The sense of smell in humans can be sharpened by training. Each professional smeller has to go through a series of tests to create a more intense reaction to smells. They can't get the license until they distinguish the odors of flowers, sweat, fruit and the stink of pollution. Besides, they have to take a test every three years to make sure their noses are still functioning at full capacity.

Many of them live a very strict lifestyle. As Liu says, they are the "cleanest people" in the world. "Before testing, we have to smell each other to make sure we are odor-less," she told the *Global Times*.

As well as avoiding many cosmetics, the day before tests, the smellers can't eat spicy food such as onions that might leave strong flavors in the mouth. Once Liu got a perfume as a present from a friend, but the perfume remained untouched for years. Moreover, any professional smeller who catches a cold has to be replaced while he or she is sick.

"I am a very optimistic person, I don't think this job is boring," Liu said. "Instead, it is a very responsible vocation to make sure people breathe clean air." Source: <http://www.globaltimes.cn/NEWS/tabid/99/ID/701849/Professional-smeller-Liu-Yong-sniffs-out-pollution.aspx>

How much do urban heat islands influence estimates of observed large-scale climate change?



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Resumé of observational studies

Parker (2010) reviewed the effects that urban heat islands may have on estimates of global near-surface air temperature trends. These effects can be reduced by avoiding (Jones *et al.*, 1986a, b; Peterson *et al.*, 1997; 1999; Brohan *et al.* (2006)) or adjusting (Hansen *et al.*, 1999; 2001; 2010) urban air temperature measurements. Comparisons of windy-weather with calm-weather air temperature trends for a worldwide set of observing sites (Parker, 2006) suggested that global near-surface air temperature trends have not been greatly affected by urban heat islands; this is supported by comparisons between trends averaged over rural sites and trends from the full observing network (Peterson *et al.*, 1999; Hansen *et al.*, 2010) and by comparisons with marine surface temperatures (Efthymiadis and Jones, 2010). Accordingly, some analyses (e.g. Smith and Reynolds, 2005) do not exclude or amend urban data but, like Brohan *et al.* (2006), include urbanisation-related uncertainties.

Hansen *et al.* (2010) used satellite-observed nighttime lighting to estimate the worldwide influence on land surface air temperature of local urban development down to a scale of about 1 km. Adjustment of trends in lit areas to match those in neighbouring dark areas only reduced the global 1900–2009 temperature change by a hundredth of a degree. Over the contiguous USA the temperature change was reduced by only 0.07°C. In some regions, however, urban influences are greater, and Yang *et al.* (2011)'s summary of studies for China suggests that about a quarter of the observed warming in east China since the early 1980s has been urban.

Reanalyses

Because regional temperature trends may have been impacted by urban heat islands, even if the global influence is small, dynamical-model-based reanalyses have been used to estimate urban influences on trends. Atmospheric reanalyses are made by numerical weather prediction models which assimilate historical data: if these data do not include surface air temperature, then the model outputs of surface air temperature are independent of the observed surface air temperatures and

may be used to estimate urban influences on them. However the input data and model formulations may introduce time-varying biases into the reanalyses, so care is needed. Earlier work in this field is reviewed by Parker (2010). Subsequently, Fall *et al.* (2010) found that the North American Regional Reanalysis (NARR) generated overall surface air temperature trends for 1979–2003 similar to the U.S. Historical Climatology Network over the USA; the geographical pattern of observations-minus-reanalysis trends was in qualitative agreement with Hansen *et al.*'s (2001) nightlights-based adjustments. Simmons *et al.* (2010) compared observed surface air temperatures for 1973–2008 from Brohan *et al.* (2006) with collocated temperatures from the European Centre for Medium-Range Weather Forecasts 40-Year Reanalysis Project (ERA-40) and ERA-interim reanalyses, which only use observed surface air temperatures indirectly through the soil thermodynamics, and found that observations-minus-reanalysis trends on continental scales were typically about 10% of the observed trends. The potential for this application of reanalyses has been increased by the development of the 20th Century Reanalysis (20CR; Compo *et al.*, 2011) because 20CR is driven only by observed sea surface temperatures and sea ice, atmospheric CO₂ concentrations, solar and volcanic forcings, and surface pressure data. So Parker (2011) compared land surface air temperature trends observed during 1979–2008 with those simulated by 20CR. On a global annual average, 20CR simulated a little more than 80% of the observed trend, but with substantial regional and seasonal variations. The remainder of the trend was ascribed tentatively to land use changes including urban development, aerosol increases and decreases, and changes in minor greenhouse gases not accounted for in 20CR. The combination of the non-CO₂ greenhouse gas changes and a probable overall aerosol reduction or "global brightening" (Wild *et al.*, 2009) is very likely to represent positive forcing trends missing from 20CR, leaving well under 20% of the near-surface temperature trend to be ascribed to urban influences.

Comparison of near-surface air temperatures observed at individual sites with those simulated by 20CR

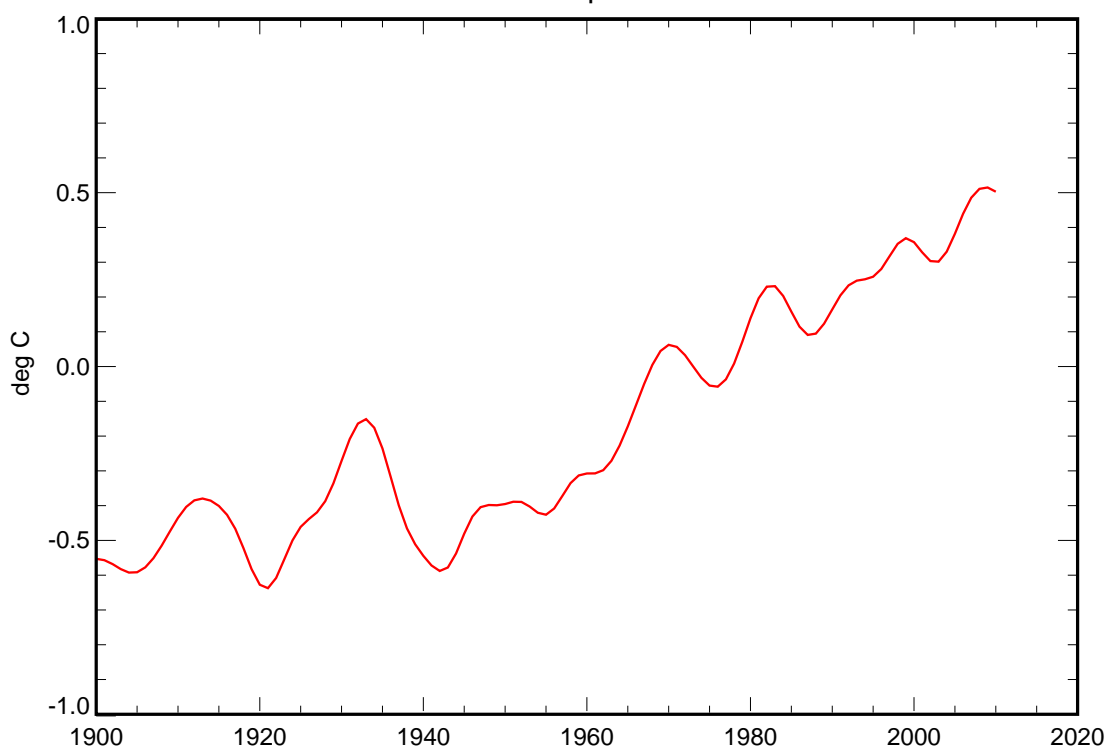


Figure 1. Smoothed annual-average anomalies, relative to 1961-90: Paris-Montsouris minus 20CR temperature at 2m averaged over the area 46°N – 49°N, 1°E – 6°E, 1900-2010. The smoothing uses a 21-point binomial filter.

can highlight urban warming trends, as shown in Figure 1 for Paris-Montsouris observations obtained from the European Climate Assessment dataset (Klein Tank *et al.*, 2002). Long-term urban warming would be expected at this city site. In contrast, the Central England temperature record (Parker *et al.*, 1992), which is adjusted for minor urban influences, has trends very similar to those of 20CR (Figure 2).

Acknowledgements

D. E. Parker is supported by the Joint DECC/Defra Met Office Hadley Centre Climate Programme (GA01101). Support for the Twentieth Century Reanalysis Project data set is provided by the U.S. Department of Energy, Office of Science Innovative and Novel Computational Impact on Theory and Experiment (DOE INCITE) program, and Office of Biological and Environmental Research (BER), and by the National Oceanic and Atmospheric Administration Climate Program Office.

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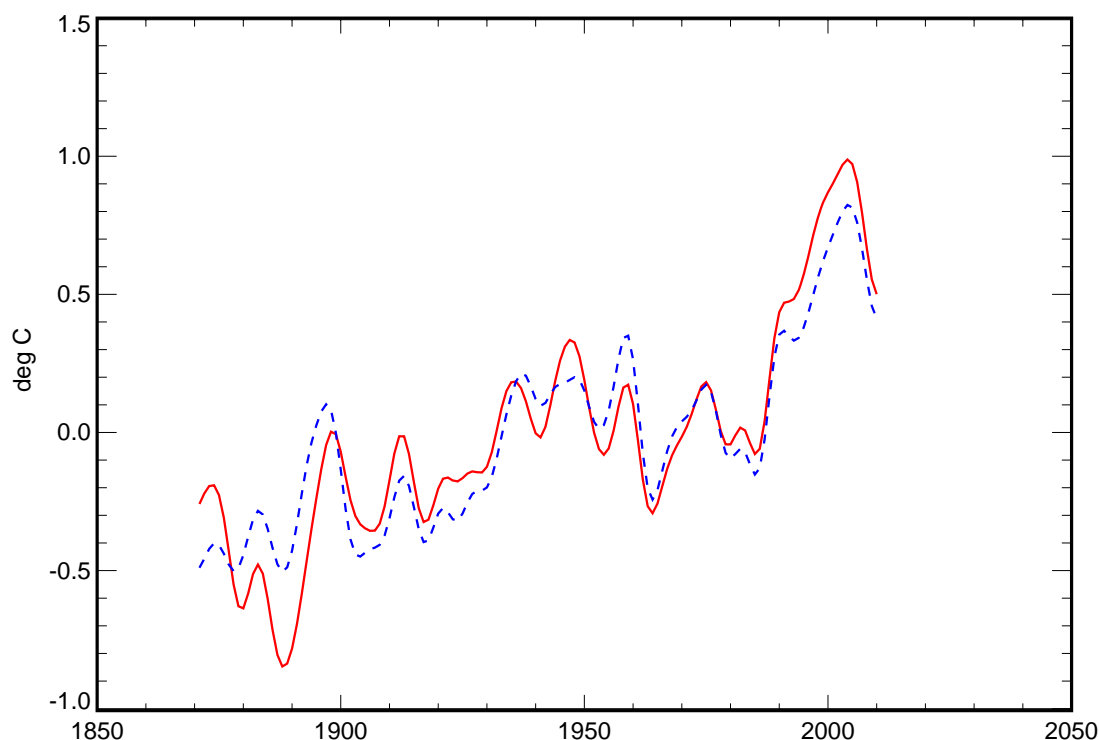


Figure 2. Smoothed annual-average anomalies, relative to 1961–1990: Central England temperature (solid) and 20CR temperatures at 2m at 52.4°N, 1.8°W (dashed), 1871–2010. The smoothing uses a 21-point binomial filter.

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European UHI Project Targets Strategies for Heat Island Mitigation and Adaptation

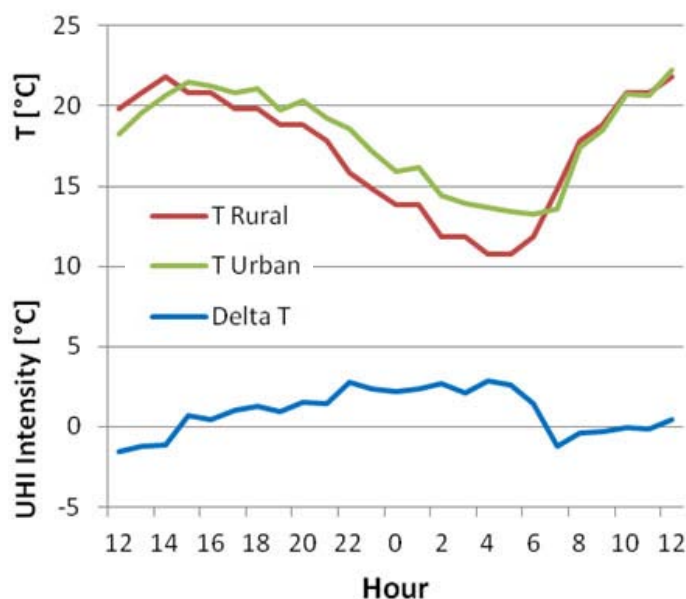
Introduction

The urban heat island (UHI) is a microclimatic phenomenon of metropolitan areas. Its intensity grows proportionally to the size and population of the urban area; consequently, it is doomed to become more severe in the coming years due to the constantly growing number of people living in urban areas. In addition, UHI effects are directly related to (and worsened by) climate change phenomena, where it is expected that an increase of the average temperature has a considerable and immediate effect on the health of people living in cities, in particular for already handicapped persons.

The CENTRAL EUROPE project 3CE292P3 "Development and application of mitigation and adaptation strategies and measures for counteracting the global Urban Heat Islands phenomenon – UHI" has recently been approved and will be funded for the period May 2011 to April 2014. The project is designed to both develop mitigation and risk prevention/management strategies for urban heat islands. CENTRAL EUROPE is a European Union programme that encourages cooperation among the countries of Central Europe to improve innovation, accessibility and the environment and to enhance the competitiveness and attractiveness of their cities and regions. CENTRAL EUROPE provides funding to transnational cooperation projects involving public and private organisations from Austria, the Czech Republic, Germany, Hungary, Italy, Poland, the Slovak Republic and Slovenia. The programme is financed by the European Regional Development Fund.

Mitigation strategies will consist of the adoption of urban and land planning models that prevent the establishment of UHI, while risk prevention/management strategies aim at reducing the impact of the phenomena related to UHI, such as summer bioclimatic discomfort. The general objective of the project is to establish transnational attention, as well as policies and practical actions for the prevention, adaptation and mitigation of the natural and man-made risks arising from the urban heat island phenomenon. In particular, the project is intended to:

- raise the awareness for risks coming from UHI at transnational, national, regional and local levels, with a communication and sensitization strategy specifically tailored both to the general public and to policymakers;
- implement transnational networks between research groups directly involved in the UHI investigation and public authorities directly committed to improving their instruments for public health pro-



Urban Heat Island Intensity for a Summer-Day in 2008 in the area of Stuttgart: Temperature correction of 0.8°C/100m due to topographic effects. (Data Source: Environmental Agency Stuttgart)

tection and their models of urban development, ensuring more effective communication and coordination across national, disciplinary and institutional borders;

- provide a deeper knowledge of the man-made risk of UHIs and their interactions with global climate change;
- implement common methods to evaluate risks coming from UHI phenomenon;
- establish a common standard for monitoring the phenomenon and its development: a permanent, continuously updated, transnational database of micro-climate monitoring parameters;
- chose/develop a shared model to reproduce/predict UHI within different characteristic urban area scenarios, in order to support policy-makers to define mitigation strategies;
- set up suitable strategies for the mitigation and the adaptation to UHI, applicable in all Central Europe cities;
- improve land-use planning tools and civil management systems currently used by Central Europe cities' administrations, according to the identified mitigation and adaptation strategies

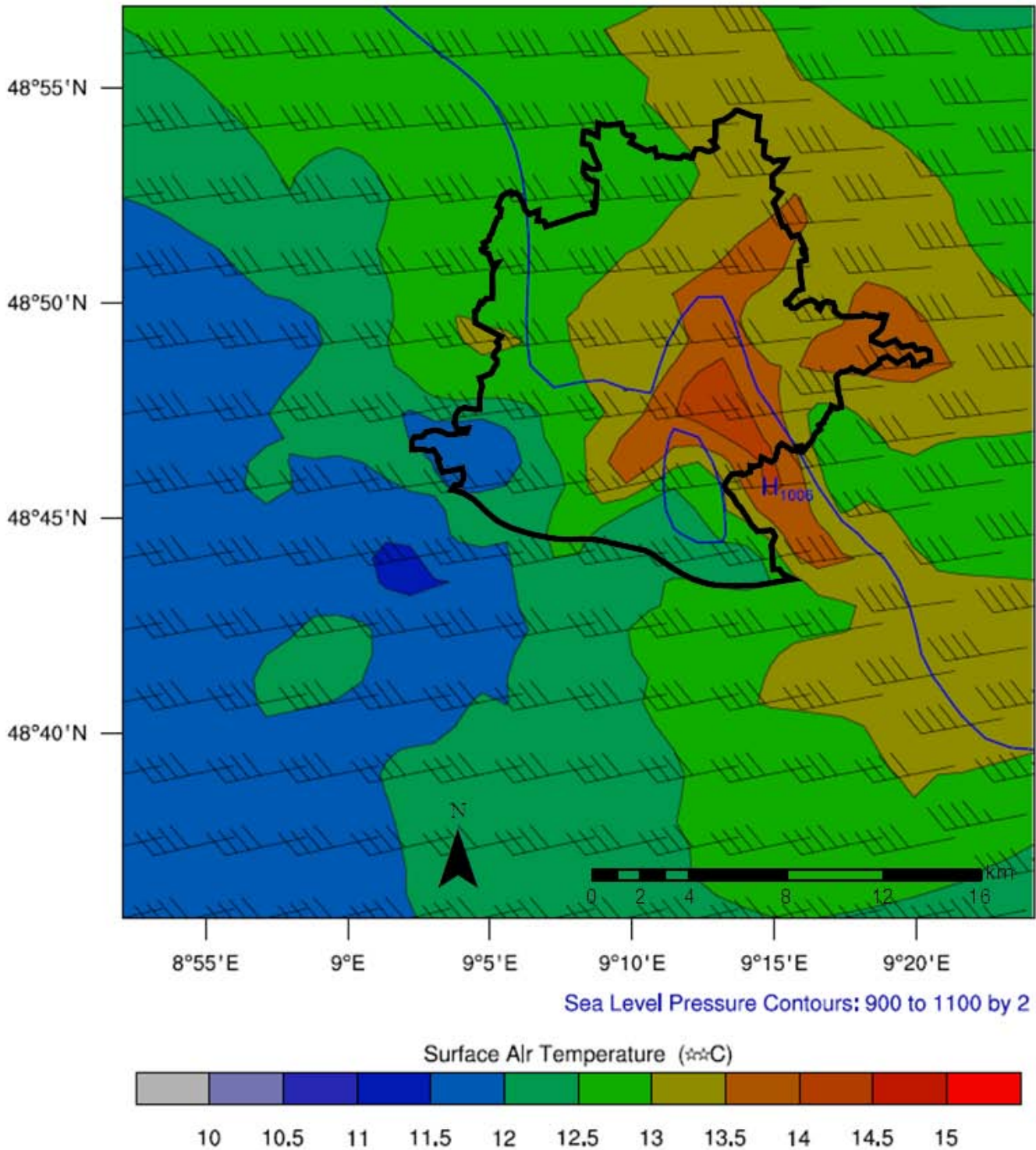
The UHI project will concentrate on eight of the most relevant metropolitan areas in the region of the Central Europe cooperation programme:

- the metropolitan cluster of Bologna – Modena and the urban corridor of Venice (Italy),

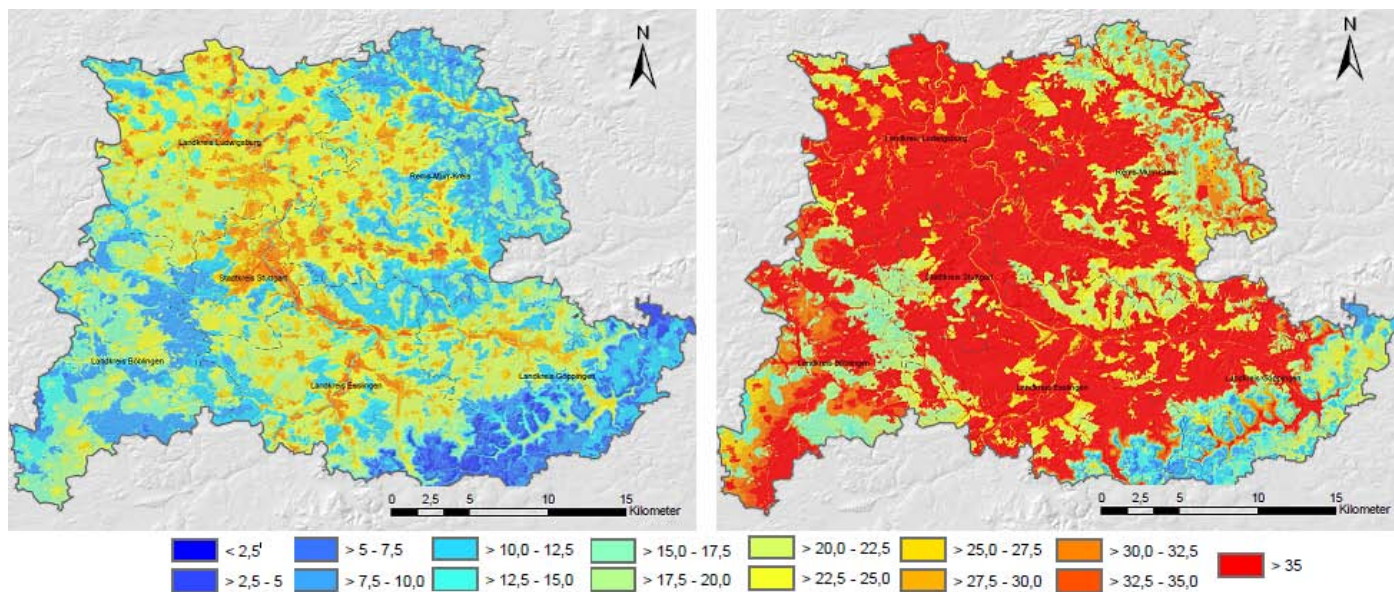
REAL-TIME WRF

Init: 2007-01-17_00:00:00
Valid: 2007-01-19_00:00:00

Surface Air Temperature (°C)
Sea Level Pressure (hPa)
WInd (kts)



Simulation of the Air Temperature close to the surface with WRF for 3rd nested domain with 1x1 km resolution (area of Stuttgart).



Days with thermal heat stress in the area of Stuttgart for period 1971-2000 – left and 2071-2100 - right (Source: Bioclimatic Model by Environmental Agency City of Stuttgart).

- Padua (Italy),
- Vienna (Austria),
- Stuttgart (Germany),
- Lodz (Poland),
- Ljubljana (Slovenia),
- Budapest (Hungary) and
- Prague (Czech Republic).

The UHI project brings together 18 partners under the leadership of the Regional Agency for Environmental Protection in Emilia-Romagna (Italy). The other partners are the Region of Emilia Romagna, the Veneto Region and the Consortium for Coordination of Research Activities Concerning the Venice Lagoon System (Italy), the Department of Atmospheric Environmental Research, Institute of Meteorology and Climate Research (IMK-IFU) of the Karlsruhe Institute of Technology (KIT) in Garmisch-Partenkirchen, the Municipality of Stuttgart and the University of Freiburg (Germany), the Institute of Geography and Spatial Organization, Polish Academy Of Sciences, Warsaw and the Nofer Institute of Occupational Health, Lodz (Poland), the Institute of Architectural Sciences,

Department of Building Physics and Building Ecology, Vienna University of Technology and the Municipal Department 22 in Vienna (Austria), the Hungarian Meteorological Service, the Faculty of Mathematics and Physics, Charles University in Prague, the City Development Authority of Prague and the Czech Hydrometeorological Institute (Czech Republic), the Scientific Research Centre of the Slovenian Academy of Sciences and Arts, Ljubljana and the Municipality of Ljubljana (Slovenia).

In Germany the IMK-IFU and the University of Freiburg cooperate with the Section of Urban Climatology within the Office for Environmental Protection of the municipality of Stuttgart. This section already exists for decades and is thus well acquainted with all administrative aspects of urban air quality and climatology. While the University of Freiburg will concentrate on human-meteorological aspects of UHI, IMK-IFU will focus on modelling the UHI of Stuttgart and other cities with WRF/chem. Apart from the abovementioned mitigation and adaptation issues, this will give information on the interaction of urban air quality with UHI.



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Urban Climate Session at the AAG Annual Meeting in New York City

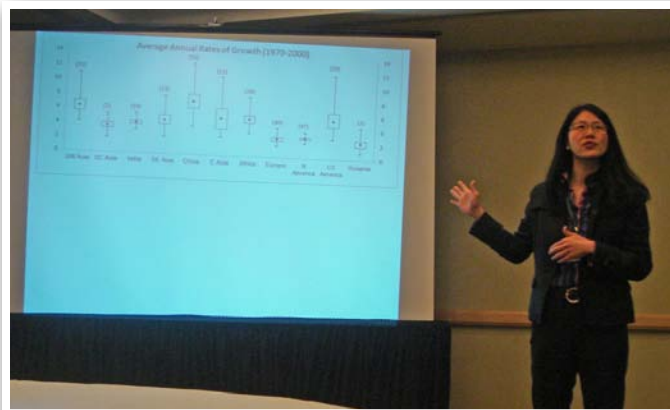


By Chandana Mitra
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Auburn University
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The uniqueness of the AAG (Association of American Geographers) annual meeting lies in its ability to bring together geographers and geography-related scholars, near and far, under the same roof. You get to meet people whom you always admired and wanted to meet, you get to discuss your research, and you get to know what new activity is going on in your field of research. AAG could be a path-changing event, where you can find a completely new avenue of research interest and new ideas. Just like every year, numerous sessions were organized in urban geography and climate science, but one session was unique in that it was devoted specifically to urban climate. With urban areas growing without bound, this area of research is gaining a lot of attention.

This AAG Annual meeting was held in downtown of the Big Apple, and the session which was dedicated to urban climate was one out of hundreds. It was organized by **Chandana Mitra** (Assistant Professor at Auburn University), bringing to the same podium some of the stellar researchers in urban climate and urban growth. The session consisted of **Tony Brazel** (Arizona State University), **Marshall Shepherd** (University of Georgia), **Karen Seto** (Yale University), **JoAnn Sullivan** (Hobart and William Smith Colleges) and **Tianna Bogart** (University of Delaware).

The first presentation of the session was an urban heat island study on Tampa City by **JoAnn Sullivan**. She used both sampling network studies and pure computer model studies to investigate the Tampa Bay Region UHI. One hundred temperature logging sensors spread over the city generated a detailed spatio-temporal map of the Tampa Bay Region UHI. Dr. Sullivan found that there was a significant relationship between the percentage of impervious surface and the intensity of the local UHI delta temperatures in the study area.



Karen Seto set the stage for the discussion of the influence of urban expansion on city climate by showing in her presentation how the megacities of Asia are at the juncture of high rates of urban expansion and higher risk of extreme weather events. She posed the questions of how Asian megacities have grown over the last thirty years, and how this growth has affected the vulnerability of urban areas and their populations to extreme weather. She approached this with a combination of historic demographic data, satellite imagery, and climate forecasts.

Following Dr. Seto's talk, **Tony Brazel** emphasized the pressing need to study UHI mitigation and adaptation measures in future planning and design for Singapore City. For this a thorough study of the UHI trends in Singapore should be conducted and their implications measured. **Tianna Bogart** in her presentation used a GCM (Global Climate Model) to access and understand the urban environment. She ran the model with three homogeneous urban types to observe the impact on climate.

Last but not least was **Marshall Shepherd's** talk, which stitched together the earlier presentations of the session into a neat package of the current and emerging perspectives on urban hydroclimate interactions. He discussed the most current scientific thinking and methodologies for studying urban effects on hydroclimate (e.g. rainfall, storms, snowfall, and flooding). He ended his presentation by highlighting the need to communicate scholarly research outcomes to planners and other stakeholders, in whose hands lie the future of urban sustainability.

Another paper session containing a number of papers on the Urban Heat Island was organized by **Chris Fuhrmann**. The session was focused on several UHI observational and modeling studies.

Altogether the AAG in the Big Apple saw the culmination of numerous presentations associated with urban expansion, urban climate, climate change and how to cope with their impacts in the future. We look forward to many more paper and panel sessions in the forthcoming AAG annual meetings.



Recent publications in Urban Climatology

Andreou, E. & Axarli, K. (2012), Investigation of urban canyon microclimate in traditional and contemporary environment. Experimental investigation and parametric analysis, *Renewable Energy* 43(0), 354 - 363.

Antonioni, G.; Burkhart, S.; Burman, J.; Dejoan, A.; Fusco, A.; Gaasbeek, R.; Gjesdal, T.; Jäppinen, A.; Riikonen, K.; Morra, P.; Parmhed, O. & Santiago, J. (2012), Comparison of CFD and operational dispersion models in an urban-like environment, *Atmospheric Environment* 47(0), 365--372.

Aoyagi, T. & Takahashi, S. (2012), Development of an Urban Multilayer Radiation Scheme and Its Application to the Urban Surface Warming Potential, *Boundary-Layer meteorology* 142(2), 305-328.

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Bergeron, O. & Strachan, I. B. (2012), Wintertime radiation and energy budget along an urbanization gradient in Montreal, Canada, *International Journal of Climatology* 32(1), 137--152.

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Cai, X. (2012), Effects of Wall Heating on Flow Characteristics in a Street Canyon, *Boundary-Layer meteorology* 142(3), 443-467.

Camilloni, I. & Barrucand, M. (2012), Temporal variability of the Buenos Aires, Argentina, urban heat island, *Theoretical and Applied Climatology* 107(1-2), 47--58.

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Chen, L.; Zhao, S.; Han, W. & Li, Y. (2012), Building detection in an urban area using lidar data and QuickBird imagery, *International Journal of Remote Sensing* 33(16), 5135-5148.

Cheng, V.; Ng, E.; Chan, C. & Givoni, B. (2012), Outdoor thermal comfort study in a sub-tropical climate: a longitudinal

In this edition a list of publications that have come out until February 2012 are presented. As usual, papers published since April 2012 are welcome for inclusion in the next newsletter and IAUC online database. Please send your references to julia.hidalgo@gmail.com with a header "IAUC publications" and the following format: Author, Title, Journal, Volume, Pages, Dates, Keywords, Language, URL, and Abstract.

Happy reading,

Julia Hidalgo



study based in Hong Kong, *Int J Biometeorol* 56, 43-56.

Choi, W.; Keuser, A. & Becker, S. (2012), Identification of mid-latitude regional and urban temperature variabilities based on regional reanalysis data, *Theoretical and Applied Climatology* 107(1-2), 87--98.

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Upcoming Conferences...

ENGINEERING LIFE QUALITY FOR THE FUTURE: Demographic and Climate Challenges in the City

Aachen University, Germany • April 18-20, 2012

<http://www.humtec.rwth-aachen.de/city2020>

15TH HARMONISATION CONFERENCE ON ATMOSPHERIC DISPERSION MODELLING

Madrid, Spain • May 6-9, 2013

<http://www.harmo.org/harmo15>

URBAN PHYSICS AND INTERACTIONS ACROSS THE SCALES

Limassol, Cyprus • May 13-18, 2012

<http://www.urbanphysics2012.org>

FIRST INTERNATIONAL CONFERENCE ON BUILDING SUSTAINABILITY ASSESSMENT

Porto, Portugal • May 23-25, 2012

<http://www.bsa2012.org>

THE 2ND URBAN ENVIRONMENTAL POLLUTION CONFERENCE (UEP)

Amsterdam, The Netherlands • June 17-20, 2012

<http://www.uepconference.com/>

THE 8TH INTERNATIONAL CONFERENCE ON URBAN CLIMATE (ICUC8)

Dublin, Ireland • August 6-10, 2012

<http://www.icuc8.org>

SESSION AT IGC: URBAN CLIMATE AND AIR POLLUTION IN A CHANGING CLIMATE

Cologne, Germany • August 26-30, 2012

<https://igc2012.org>

11TH URBAN ENVIRONMENT SYMPOSIUM – URBAN FUTURES FOR A SUSTAINABLE WORLD

Karlsruhe, Germany • September 16-19, 2012

<http://www.hues.se>

Report on ICUC8 in Dublin, Ireland on August 6th-10th, 2012

The total numbers of oral and poster presentations accepted for ICUC8 (www.icuc8.org) are as follows:

Oral **417**
Poster **146**

These numbers represent those that submitted abstracts that were evaluated by members of the scientific committee and were accepted. Registration for attendance at the conference is occurring over the next few months so I expect that the actual number of presentations will be smaller (perhaps 10% fewer). However, the organisation of the programme is based on the numbers in this table.

The broad programme details are listed in Table 1 below. Each day is sub-divided into four timetable slots for oral presentations, two in the morning and two in the afternoon. For poster presentations, the days are sub-divided into morning and afternoon slots. Separating the morning and afternoon sessions are plenary events that provide an overview of some aspect of the field of urban climate studies. Currently, the plenary topics include presentations on Carbon emissions, on the Urban

Boundary Layer, on the History of Urban Climate Studies, on morphometric descriptions of the urban surface and on Multi-scale modelling.

Oral Presentations: Based on 5-6 papers per 90 minute session, there are 75 potential sessions. There are a maximum of five parallel sessions but the norm is four parallel sessions that fall broadly into the categories of: urban temperature effect; urban design; urban modelling; bioclimates and urban fluxes.

Poster Presentations: The posters have been divided into seven groupings and are allocated to either the morning or afternoon periods (Tuesday, Wednesday & Thursday) and to the Friday morning period.

Bursaries: For many, attendance at the conference is provisional on the level of financial support that they receive. We hope to support a limited number (about 25 persons) in terms of registration and/or accommodation and/or travel. There is a section of the ICUC8 website (www.icuc8.org) that has instructions for the submission of materials for consideration.

Table 1: ICUC8 Programme Overview

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:30-10:00	Registration	Oral Sessions	Oral Sessions	Oral Sessions	Oral Sessions
10:30-12:00	Oral Sessions	Oral Sessions	Oral Sessions	Oral Sessions	Oral Sessions
08:30-12:00		Poster Sessions	Poster Sessions	Poster Sessions	Poster Sessions
12:00-13:00	Plenary	Plenary	Plenary	Plenary	Plenary
14:00-15:30	Oral Sessions	Oral Sessions	Oral Sessions	Oral Sessions	Oral Sessions
16:00-17:30	Oral Sessions	Oral Sessions		Oral Sessions	Close
14:00-17:30		Poster Sessions	Poster Sessions	Poster Sessions	
19:15 pm	Opening Ceremony	City Centre Event		Conference Dinner	

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- Tim Oke (University of British Columbia, Canada): President, 2000-2003; Past President, 2003-2006; Emeritus President 2007-2009*
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Newsletter Contributions

The next edition of *Urban Climate News* will appear in late June. Items to be considered for the upcoming issue should be received by **May 31, 2012** and may be sent to editor David Pearlmutter (davidp@bgu.ac.il) or to the relevant section editor:

News: Winston Chow (wchow@asu.edu)

Conferences: Jamie Voogt (javoogt@uwo.ca)

Bibliography: Julia Hidalgo (julia.hidalgo@ymail.com)

Projects: Sue Grimmond (Sue.Grimmond@kcl.ac.uk)

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