Report on the Symposium on Challenges in Applied Human Biometeorology

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Facing impacts of climate change and urbanization, adaptation and resilience to climate extremes have become important issues of global concern. A better understanding of the interaction between environmental changes and the responses to human health are particularly critical in both improving the built environment in urban areas, and establishing appropriate strategies on behalf of living quality and human welfare.

To discuss recent advances and future directions, the "Symposium on Challenges in Applied Human Biometeorology" organized by the Chair of Environmental Meteorology, Albert-Ludwigs-University Freiburg, in collaboration with Research Centre Human Biometeorology, German Meteorological Service, Freiburg, and the Society for the Promotion of Human Biometeorological Research in Germany has been held at Albert-Ludwigs-University Freiburg on 2 – 3 March 2020. More than 90 experts, researchers, and science officers from over 35 nations participated in this symposium and gave keynote speeches, presenting latest research results, and sharing the experiences on communicating science. The symposium demonstrated that to succeed in delivering services to society, we need an interdisciplinary scientific diagnosis, the establishment of universal criteria to assist and guide more concrete implementations, and professional communication.

The importance of networking researchers in different fields to collaborate and to engage were addressed by Gerhard Adrian, President of the World Meteorological Organization (WMO) and President of the German Meteorological Service (DWD) in the opening ceremony. Hans-Jochen Schiewer, the rector of Albert-Ludwigs-University Freiburg, addressed the participants and concluded that "Cities, societies and economies worldwide are affected by climate change on

Gerhard Adrian, President of the World Meteorological Organization and President of the German Meteorological Service addressed the conference participants in the historic lecture hall on 2 March 2020

Impressions from the Symposium.

various spatial and temporal scales and that many of the challenges represent a central theme in human biometeorology – heat stress, air quality, allergens, diseases" He encouraged the attendees to discuss how the field of Human Biometeorology can network, advance, and help to increase the quality of life in times of uncertainties.

The scientific program of the symposium opened with a keynote speech by Peter Höppe who presented an excellent historical perspective on "the long way from single-parameter indices to complex and universal thermal models of the human body". He introduced the development paths of different indicators and calculation methods for thermal comfort assessment over decades, and inspired all participants by mentioning the possibility in meticulous analysis and application. During the two days of the Symposium, important sessions regarding "Health", "Bioclimate in Urban Environments", "New methods and tools in Human Biometeorology", "Communication and warning", "Thermal indices", "Climate Change", and "Bioclimate, planning and design" provided a comprehensive and interdisciplinary coverage of interactions between climate change, human biometeorology and urban climate and stimulated interesting discussions. The symposium was closed by the organizers, Andreas Matzarakis and Andreas Christen who in their closing remarks reflected on future perspectives on modeling / communication and the intersection between urban climate and human biometeorology.

To encourage the participation of young and junior research fellows', the symposium was supported with travel grants available for participants from less developed countries. The Tromp Foundation supported three awards and two participants received travel awards from the International Association for Urban Climate

IAUC travel grant awardees Aditya Rahul (left) and Betty Adegebo receive their certificates from IAUC Secretary Andreas Christen (center).

Tromp traveling award and best oral presentation.

Andreas Matzarakis

– IAUC supported the participation of Betty Adegebo (Nigeria) and Aditya Rahul (India) who presented their research on "Vulnerability of poor urban populations to temperature-related health issues in Ibadan, Nigeria" and "Impact Analysis of Dynamic Bluespace on Human Biometeorology: Case of Roorkee", respectively.

In addition, two participants received a best oral presentation award (Si-Yu YU, Taiwan for "Assessment of thermal environment and air quality in compact Built Environment in Hot-Humid Regions." and Rohini Maunder Chakraborty for "Analyzing Outdoor Thermal Comfort with Proximity to Water Bodies in Tropical Humid Climate - Case Study of Kolkata, India". Best poster presentations went to Sebastian Schlögl, and co-authors for "High resolution meteorological station network in Swiss Cities: City Weather Monitoring and operational forecasts" and to Andreas Krein and co-authors for "Future heat waves along latitudinal transect across Europe based on climate change indicators".

The symposium gathered not only the international experts and researchers in different fields, but was well attended by young / junior generations interested in involving more. As Andreas Matzarakis mentioned in his closing remarks "Bringing in and helping more young people to join the field of human biometeorology is the most important challenge". This addressed the inheritance of research ambitions and also indicated the fact that research fellows working diligently at different positions/ organizations and still kept the close academic connection.