*Forecasting the weather
- ensemble techniques
in probabilistic weather prediction*

Thermal Bioclimate as factor in urban and architectural planning in tropical climates – The case of Campinas, Brazil

L. V. Abreu (1,2) and A. Matzarakis (2)

(1) School of Civil Engineering, Architecture and Urban Design of State University of Campinas, Brazil, (2) Meteorologisches Institut of Albert-Ludwigs-Universität Freiburg, Germany

Urban expansion and modification without climate responsive guidelines can provide progressively falling short of sustaining outdoor and, also, indoor life of cities in the Tropics. Although the energy consumption has been increase unintentional at building level as consequence of climatic modifications, this has lead to a remarkable demand on the urban energy resources. The motivation for developing a thermally desirable outdoor ambience in this context has implications that go beyond the requisites of urban design and well into the design of buildings. In order to re-establish and sustain life inside and outside, it is important to define the thermal bioclimatic of outdoor and, consequently, to make urban spaces comfortable as far as the ambient climate permits. This paper presents thermal bioclimatic analyses of air temperature and physiologically equivalent temperature conditions at Campinas, Brazil, as factor to guidelines in urban and architectural planning in tropical climates. The thermal parameter data, air temperature, relative humidity, wind and solar radiation, were available from 2003 to 2010. The physiologically equivalent temperature was computed by RayMan. The results show that the solar radiation, typical of tropical cities, can influence thermal comfort. The comfortable ambient climate leads to comfortable indoor environment particularly with regard to free running buildings. Consequently, the conditions definition of outdoor thermal comfort is an important step towards achieving sustainability of the urban space. An awareness of these issues would be valuable to architects, planners and urban designers, not by the way of limiting possible solutions, rather by enriching the design possibilities.