刊首语

风景园林与城市微气候

我们生活的环境，我们每天的活动，无时无刻不受到气候的影响。

从尺度来看，气候可大致分为大气候和小气候（微气候）两类。前者是由多种宏观因素综合决定的，包括太阳辐射、地理纬度、大气环流、距海洋远近、大面积地形等。大气候在地球表面基本呈现地带性分布，而且每个气候区表现出具有一定稳定性的气候特征。大气候影响生物的生存和分布，形成生物群系。人类也不能摆脱大气候的影响。现存的不同气候区的传统民居、园林中都可以找到人类主动适应大气候的智慧。几乎可以肯定地说，面对大气候，我们只能适应。

微气候与大气候区别显著。从成因来看，如果说大气候由天定，微气候则由地生。微气候主要受到局部地形、植被、土壤类型、建构筑物等因素的调节。这些因素可能是自然形成的，也可能是人类有意识的改造性活动的产物。所以，我们虽然不能改变大气候，却总能调节微气候。我们所处的微气候环境的选择者或塑造者是我们自己。从影响来看，微气候直接影响我们的生活。我们不仅生活在大气候中，更生活在局地的微气候中。微气候对我们生活的意义甚至要重于大气候。由此可见，微气候更需要我们的关注和研究。

从古至今，人类栖居环境的建设活动始终都离不开微气候。现存优秀的传统村落和园林，之所以成为人居环境的典范，拥有较舒适的微气候环境往往是必备条件之一。我们的古人常择地于微气候舒适的山林地、江湖地、郊野地等。如果不能择佳地，也会通过院落布局、建筑组合、掇山理水、栽植花木等手法塑造出舒适的微气候环境。由此可见，传统人居环境对大气候的适应，在很多情况下是通过调节微气候来实现的。

而现在我们的城市建设活动，在大多数情况下，却并未对气候予以足够的重视，既不主动地适应地带性大气候，也不考虑其对城市微气候的影响。城市化建设造成的下垫面特征的改变，包括建筑、道路、广场等硬质下垫面的增多和绿地、水体等软质下垫面的减少等，对城市局地的热环境、风环境等都产生了显著影响，衍生出特有的城市微气候。城市热岛效应正是城市微气候恶化的突出表现之一。而且，在全球变暖和高温、热浪等极端天气事件突显的大背景下，城市微气候的改善无疑将面临更大的挑战。值得深思的是，城市热岛效应等现象的影响不仅包括城市微气候舒适性的下降，同时还涉及人类健康、环境污染、能源危机等更多层面的问题。因此，以改善城市微气候为导向的研究对城市发展很可能产生一举多得的效果，有助于探索更加健康的、可持续的城市发展模式。

近些年来，城市微气候已经成为风景园林学的研究热点之一。风景园林学的研究对象和专业特点决定了我们在改善城市微气候方面必然扮演不可取代的角色。本期主题正是探讨风景园林与城市微气候的关系。论文研究地点涉及中国建筑气候区划中分布最广的 3 个气候区，严寒地区、寒冷地区和夏热冬冷地区。研究时间集中在舒适性较低的冬季和夏季。论文研究对象包括现代城市中的街道、居住区、城市广场和公园绿地 4 种与人们居住、出行、休闲、娱乐等日常活动息息相关的户外空间类型，还包括蕴含丰富生态智慧的京西传统村落和中国古典园林。另外，城市微气候既关乎环境，更关乎人。所以论文的研究内容既包括山水格局、街道形态、广场和公园空间、植被结构等物质性环境元素，也包括对特定人群的关注，如老人户外活动的微气候适应性研究。希望对读者有所启发。

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PREFACE

Landscape Architecture and Urban Microclimate

Both the environment in which we live and our daily activities are affected by the climate, at all times.

The climate is dimensionally divided into macroclimate and microclimate. The macroclimate condition is determined by generic factors such as solar radiation, geographic latitude, atmospheric circulation, distance from the ocean and wide topography. The macroclimate is basically zonal on earth surface with relatively stable climatic features. Macroclimate affects the survival and distribution of the life to form biota. Humans are no exception of the impact of climate. The existing traditional houses, gardens of different climatic zones demonstrate the human wisdom in adapting to local climate. It is almost certain that in the face of the climate, humans can only adapt.

Macroclimate differs significantly from microclimate. By origin macroclimate is delimitated by heaven while the microclimate by earth. Microclimate is mainly regulated by local topography, vegetation, soil types, and structures etc. that are naturally formed or human consciously transformed. To this end, we cannot change macroclimate but can always adjust microclimate. Humans are the shapers and choice makers of the microclimatic environments. From the perspective of influence, microclimate has direct impact on mankind whose habitats are both macroclimatic and microclimatic. Microclimate has higher significance than macroclimate to human residence so often deserves our immediate attention.

From ancient times the construction activities of human habitats have never been separable from the microclimate. The existent elites of traditional villages and gardens have become models of human habitat for their more comfortable microclimatic environments. Our ancestors mostly resided on hilly woodlands, riparian grounds, countryside areas with friendly microclimate conditions. If the ideal habitat was unavailable, a homely microclimate would be created by the layout of courtyard, combination of houses, landform reclamation, and planting of flowers and trees. Therefore the adaptation of the traditional human habitats to the macroclimate is largely achieved by regulating microclimate.

However most urban construction activities nowadays do not pay adequate attention to the climate neither by actively adapting to zonal climate nor by considering the impact on the urban microclimate. Changes to the nature of the underlying surface by urbanization including the increases of hard surfaces of buildings, roads, squares and decreases of soft surfaces of green spaces and water bodies, have had significant impact on site thermal and wind conditions resulting in specialized urban microclimates. The urban heat island effect is one of the outstanding manifestations of the deterioration of urban microclimate. Moreover, in the context of global warming and extreme weather events such as high temperatures and heat waves, the improvement of urban microclimate will undoubtedly face greater challenges. It is worth pondering that urban heat island effects etc. lead to the decline of urban microclimate comfort level as well as problems of human health, environmental pollution, energy crisis and so on. Therefore, researches to improve urban microclimate are likely to have multifaceted contributions in exploring healthy sustainable urban development models.

Urban microclimate has become one of the research hotspots of landscape architecture in recent years. The research objects and professional features of landscape architecture determine that we shall play an irreplaceable role in improving urban microclimate. The theme of this issue is to explore the relationship between landscape architecture and urban microclimate. The research locations cover the three most widely distributed climate zones of China Building Climate Demarcation namely the severe cold region, the cold region and the hot summer and cold winter region. The research time is concentrated on winter and summer with low comfort levels. The research objects cover outdoor space types of street, residential area, city square and park green space of modern cities that are closely related to people's daily activities of residing, traveling, leisure and entertainment as well as traditional western Beijing villages with abundant ecological wisdom and Chinese classical gardens. In addition, considering the higher significance of urban microclimate to the people than that to the environment, the researches cover both the physical environment elements of landscape patterns, street formations, square or park spaces, vegetation structure and humanistic attention to special groups such as the elderly for their microclimate adaptability in outdoor activities. I hope all these can combine to offer inspirations to the reader.

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