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The contribution of urban green spaces to the improvement of environment in cities: Case study of Chania, Greece

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abstract

This paper investigates how vegetation, mainly through evapotranspiration, affects the improvement of microclimatic conditions in urban areas and, more specifically, it examines the case for the city of Chania in Crete. The objectives of this study are to examine the bioclimatic role of green areas in urban sites as they affect the thermal comfort of residents, and to study the cross-correlation of factors that participate in this process.

To achieve these objectives, we have examined the parameters that contribute to the microclimate of a space and consider how it is influenced by vegetation. In addition, we have analyzed the effect of vegetation with respect to evapotranspiration, and have recorded the existing vegetation of Chania city and the relationship with the geomorphologic and urban characteristics of the city. This has involved calculating the evapotranspiration of various plant species, and collecting measurements at various places in Chania. These studies are designed to determine the cause of the changes of thermal comfort in different parts of the city, and to examine the differentiation of thermal comfort that is observed between different plant species with respect to the evapotranspiration measure that has been calculated for each of them. The intention of this work is to aid efforts to improve the environment of Chania through better planning and the appropriate choice of the species used for planting open spaces. Finally, it is hoped that the results of this work will be of use in planning the environments of spaces in other cities that have similar characteristics.