Análisis de componentes principales de la morfología urbano edilicia del Área Metropolitana de Mendoza, Argentina [

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text (article)

Analítica

Cities located in arid areas are facing several risks that threaten their sustainability due to the effects of climate change and urbanization, and the resulting consumption inequality and depletion of natural resources. There are many variables that determine the urban-building form, which, in turn, affects energy consumption in cities. Therefore, the goal of this work is to condense the information provided by the urban-building morphological variables into just a few variables or combinations for the urban blocks located in the six departments of Mendoza's Metropolitan Area (MMA). Methodologically, quantitative data of the spatial distribution of urban-building variables were considered, their correlations were calculated, and a Principal Component Analysis was applied to synthesize the number of variables. The results identify the Building Density, Building Separation, and Normalized Difference Vegetation Index (NDVI) as the main variables of the first principal component, in five of the six departments of the MMA. The first two are related to the built environment, and the third is to vegetation. By including data on urban tree cover, available only for the Capital department, the results include the tree-cover magnitude, completeness, and transmissivity variables, together with those already identified in the first three components. The findings of the work provide information on the representative urban-building variables of the oasis city that will allow, in the future, establishing intervention priorities considering a reduced number of synthetic variables, to propose efficiency and energy generation strategies
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