Climate variables in urban developing areas: assessment procedure applied to the district of Belvedere III, Belo Horizonte city, Brazil
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Abstract

This study aims to analyze the impact of an urban development on the variables of climate. Air temperature and relative humidity were related with two urban fabric variables, the construction mass and the sky view factor, in order to study the effects of the thermal inertia and urban geometry on the local climate change. An urban area surveyed by street mobile measurements and some fixed measure points during clear sky and weak wind situations in 2006. Data of air temperature and humidity were collected. These data were used to build empirical equations relating the climatic and urban fabric variables. Using the techniques of scenarios, the local urban development was projected to 2016 and the new values of the urban fabric variables were then calculated. So, new estimates of temperature and humidity could be made using the empirical equations. These new data were plotted on the 2016 map showing that the increase of construction density and the geometry arrangement among the new buildings might lead to changes on the local spatial distribution of the air temperature and humidity. It was also noticed that geometry arrangements might have more influence than construction mass in this tropical climate.