



## **Local Climate Zones Classification to Urban Planning in the Mega City of São Paulo – SP, Brazil**

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Tropical megacities have presented a strong trend in growing urban. Urban management in megacities has as one of the biggest challenges is the lack of integration of urban climate and urban planning to promote ecologically smart cities. Local Climatic Zones (LCZs) are considered as important and recognized tool for urban climate management. Classes are local in scale, climatic in nature, and zonal in representation. They can be understood as regions of uniform surface cover, structure, material and human activity that have to a unique climate response. As an initial tool to promote urban climate planning, LCZs represent a simple composition of different land coverages (buildings, vegetation, soils, rock, roads and water). LCZs are divided in 17 classes, they are based on surface cover (built fraction, soil moisture, albedo), surface structure (sky view factor, roughness height) and cultural activity (anthropogenic heat flux). The aim of this study is the application of the LCZs classification system in the megacity of São Paulo, Brazil. Located at a latitude of 23° 21' and longitude 46° 44' near to the Tropic of Capricorn, presenting humid subtropical climate (Cfa) with diversified topographies. The megacity of São Paulo currently concentrates 11.890.000 inhabitants is characterized by large urban conglomerates with impermeable surfaces and high verticalization, having as result high urban heat island intensity. The result indicates predominance in urban zones of Compact low-rise, Compact Mid-rise, Compact High-rise and Open Low-rise. Non-urban regions are mainly covered by dense vegetation and water. The LCZs classification system promotes significant advantages for climate sensitive urban planning in the megacity of São Paulo. They offers new perspectives to the management of temperature and urban ventilation and allows the formulation of urban planning guidelines and climatic.

Key words: Local Climatic Zones; Urban Panning; Megacities; São Paulo.