A climatic and bioclimatic assessment of the compact city:
A case study of “Melbourne 2030” – Australia
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Abstract

Global population trends project that people living in urban areas will increase to 60% by 2030 (UN, 2006) yet only 0.2% of the earth’s surface is covered by urban areas (WHO, 2004). As a result of urbanisation pressures, many cities worldwide including Melbourne, Australia have adopted the compact city planning approach. Although viewed as a sustainable urban form, compact cities promote high diurnal temperature variations as a result of the “Urban Heat Island” UHI effect. The UHI effect is also superimposed upon projected global climate change and the combination of these modifies the urban micro-climate as well as altering human thermal stress. This study will assess the micro-climatic impacts and associated outdoor human thermal environmental impacts resulting from proposed changes in urban morphologies (i.e. high density mixed used activity centers) as highlighted in the Melbourne 2030 compact city plan. This will be achieved by simulating micro-climatic information via the EXVimet three dimensional microscale numerical modelling suite and validated against fieldwork measurements. The expected outcome of this study may potentially assist in developing policy suggestions for improving Melbourne’s urban micro-climate, an aspect which is have not yet been considered in Melbourne’s planning policy initiatives.