

Improving urban land-atmosphere climate models

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The climate of cities is different to the natural climate around them.

Climate impacts on health, infrastucture and energy use. Cities hold the majority of the world's population and infrastructure, so modelling environmental change within them is useful.

However, the complexity and variety of urban landscapes presents a modelling challenge.

Cities are complex.



Models must be simple.



We are developing more efficient, accurate and flexible urban climate models.

Clever abstractions improve efficiency, although some important processes are poorly captured; one such process is the storage and release of heat within urban materials.

We have developed a new heat conduction representation that improves performance.



Our model, the Australian Town Energy Budget (aTEB), now ranks highly compared with others used internationally when evaluated for a site in Melbourne, in part from the new conduction scheme.

We are now developing modules to better represent thermal processes inside buildings.

These improvements will allow large scale modelling of building energy use under different urban development and global climate change scenarios.



An efficient, accurate and flexible model will help plan better cities for the future.

