Liveable Cities Tool

Building Height Estimation Tool

No. 11

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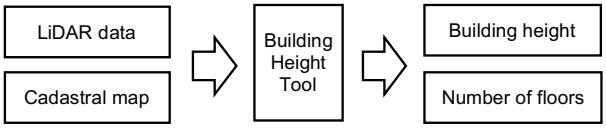
Building height data are crucial for a wide range of building-related studies such as energy consumption simulation and house market modelling. Such data are currently missing in the UK for researchers or planners to understand the individual building height for all buildings in a city. This tool is able to estimate the height and number of floors of individual buildings at city scale using freely available LIDAR data. It bridges a current gap in building data availability, providing essential information for building energy simulations.

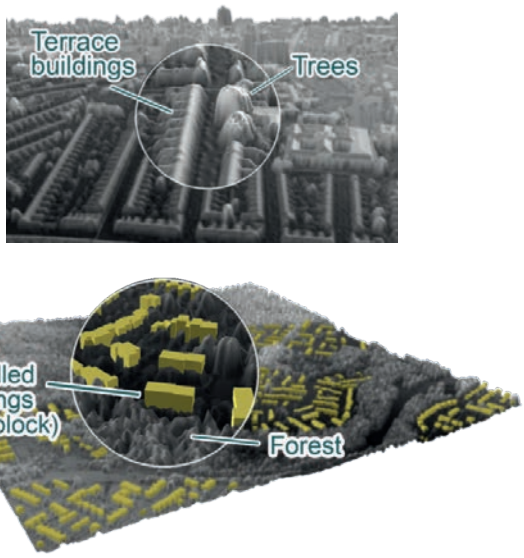
Tool Contents

This tool uses computer programs included under the ArcGIS® suite and requires Building outlines from MasterMap® from Ordnance Survey and Light Detection and Ranging (LiDAR) data from Environment Agency UK. It creates a 3D model consisting of all buildings and environmental objects in a city (image on top right corner) and produces: 1) Roof height of each building, and 2) Number of floors



How has it been delivered?

An online application containing results from this tool has been made available from 25th October 2017 on: www.energyandcities.org/building-height.



3D Models of an example area in Southampton

Where has it been published?

Methodology, validation, and results of this tool have been submitted to journal, Future Generation Computer Systems.

Who participated?

University of Southampton; Southampton City Council; Engineering and Physical Sciences Research Council (grant ref: EP/J017698/1, EP/N010779/1, and EP/K012347/1). Data provided by Environment Agency, Digimap, and Ordnance Survey.

Levels of Usability/Testability

This tool is directly applicable in cities in the UK as well as other regions. Validation results can be found in the Ph.D thesis of Yue Wu (2017), available from ePrints, University of Southampton.

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