



ADVANCED CLIMATE TECHNOLOGY:  
URBAN ATMOSPHERIC LABORATORY

## FACT SHEET 1: URBAN HEAT ISLANDS

### What's an urban heat island?

The urban heat island effect describes the known phenomenon that surface air temperature is usually higher in cities and towns than in the surrounding countryside. The temperature difference is particularly clear during night-time hours.

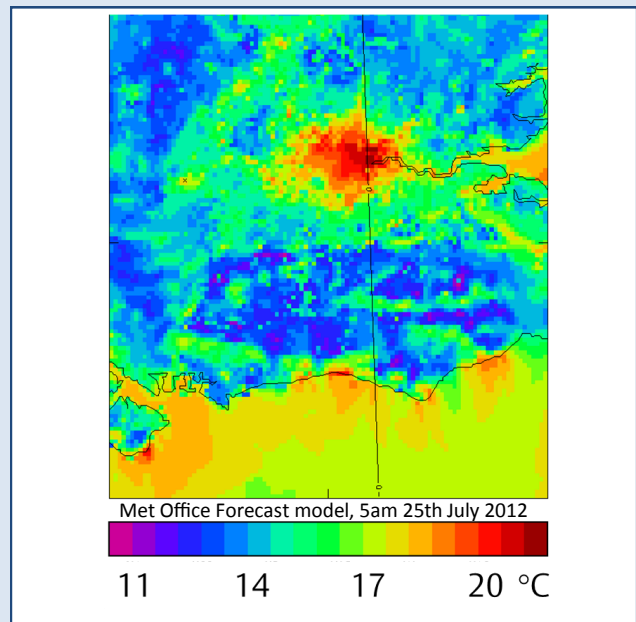
### What causes this effect?

The urban heat island is caused by a number of things including:

- Dark surfaces absorbing sunlight
- Man-made surfaces store heat for longer
- There are fewer trees to remove heat from the atmosphere by releasing water from their leaves
- There are numerous sources of heat such as heating and air conditioning exhaust
- Heat is trapped close to the surface as buildings restrict air flow

### Why should we take action?

The picture shows London surface temperature at 5am during a heatwave period in 2012. London is much hotter than its surroundings. By 2050, heatwaves are likely to happen more often because of climate change. In the winter the urban heat island may be considered a benefit. But during the hot summers, the heat in the city may become intolerable for the most vulnerable people; the elderly, pregnant or infirm.



### What can we do to help?

To combat the urban heat island effect some of the causes must be addressed. Greening the city with trees, lawns and green roofs and walls can bring multiple benefits in addition to reducing the urban heat island. Improvements to building design to adjust the heat balance of buildings, improve insulation and build using cool materials can reduce demand on air conditioning. We could also adjust how we behave; perhaps by using shutters on windows or by adopting a more Mediterranean working pattern (longer lunchbreaks, evening working).

*ACTUAL (Advanced Climate Technology Urban Atmospheric Laboratory) is funded by the UK Engineering and Physical Science Research Council (EPSRC.)*

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