

Heat data & vulnerability:

Social Vulnerability & Climate Change

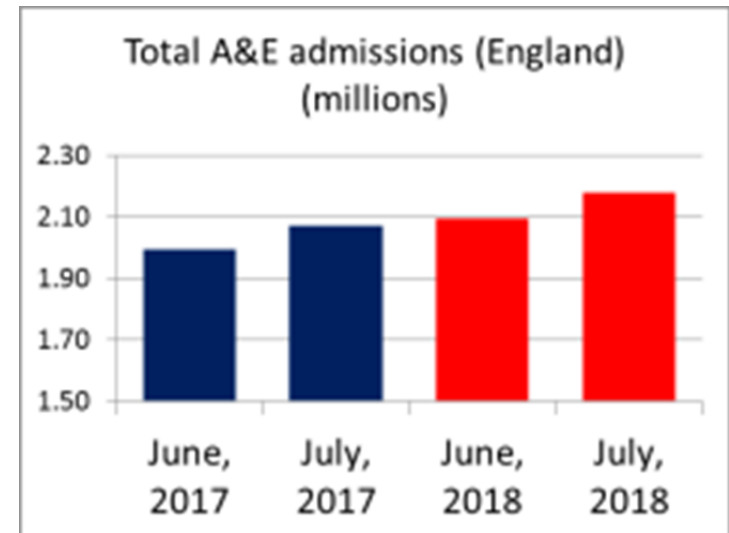
Sarah Lindley, University of Manchester
Space4Climate & London Climate Change Partnership,
29 November 2019

www.climatejust.org.uk



Heatwaves – greatest cumulative death rates from extreme weather-related hazards in Europe

- 129.0 people per million 1991-2015¹
- Many analyses on causes and influencing factors:
 - UK evidence that **cardiovascular causes** result in the largest number of deaths²
 - **Especially the very old, very young and people with pre-existing illness**
 - ‘Social autopsy’ → wider reasons³



By the 2050s, a summer like 2018 has a 50% probability and we will also have an older population

¹ European Environment Agency (2017) <https://www.eea.europa.eu/themes/sustainability-transitions/urban-environment/about-urban-environment>
 Arbuthnott K G, Hajat S (2017) The health effects of hotter summers and heat waves in the population of the United Kingdom: a review of the evidence. Environmental Health, 16 (Suppl 1)(119), pp. 1-1
 Klinenberg, E. (2002; 2015) Heat wave: A social autopsy of disaster in Chicago. University of Chicago Press.

OVERVIEW

Socially vulnerable groups sensitive to climate impacts



FIND OUT MORE

People on low incomes



FIND OUT MORE

People in poor health



FIND OUT MORE

Older people



FIND OUT MORE

Tenants in social or private rented housing



FIND OUT MORE

Neighbourhoods without much greenspace



FIND OUT MORE

People who are socially isolated



FIND OUT MORE

People with low personal mobility



FIND OUT MORE

Young children and babies



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Some of these characteristics tend to cluster explaining higher mortality rates in some areas than others

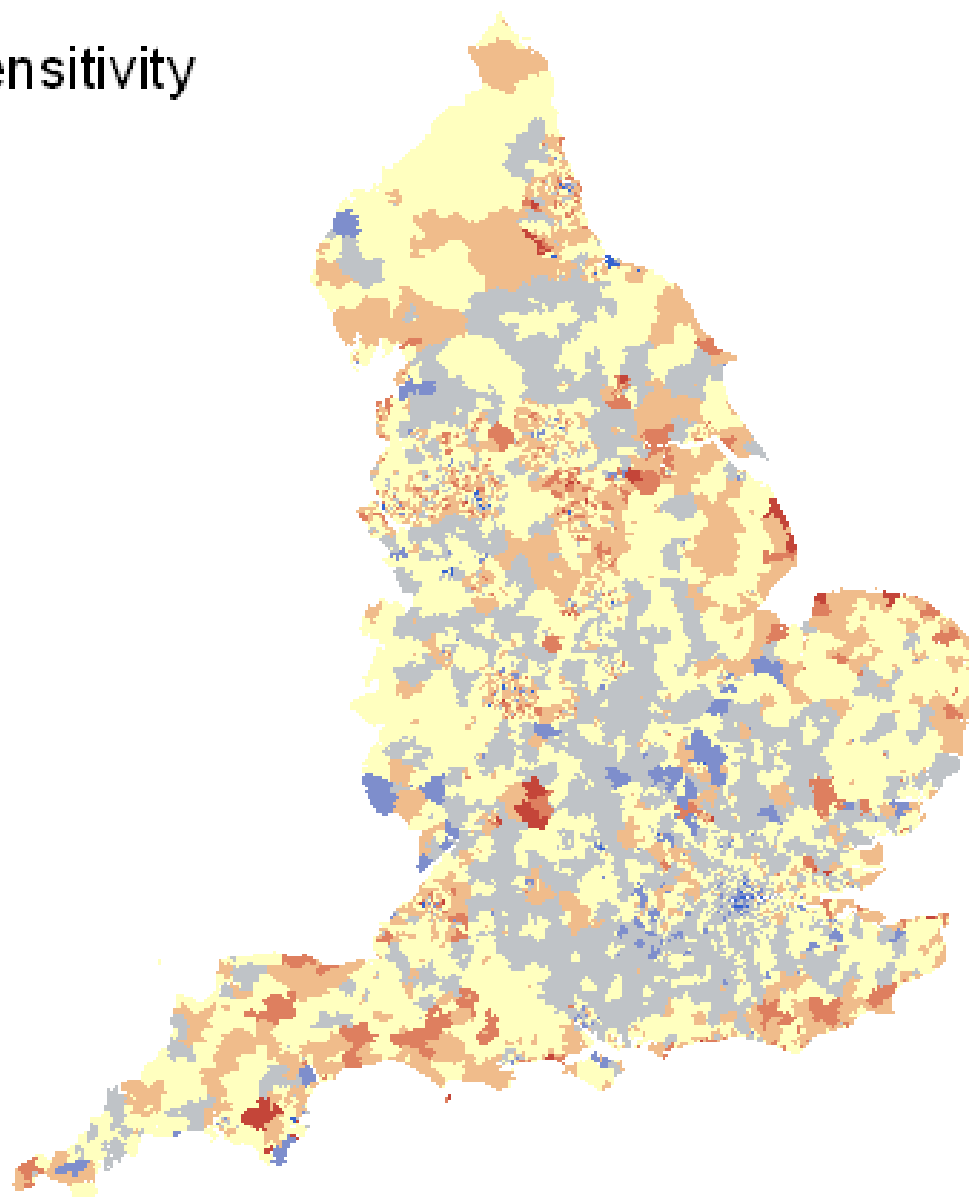
Five dimensions
of social
vulnerability to
heat

Legend



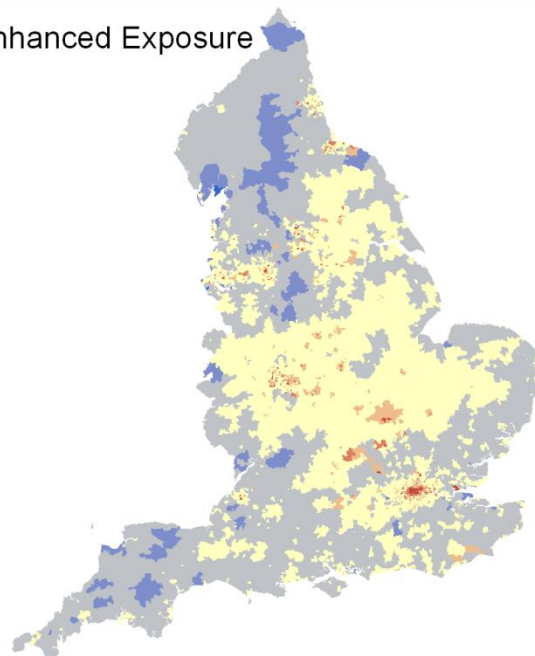
0 50 100 200 300
Kilometers

(a) Sensitivity

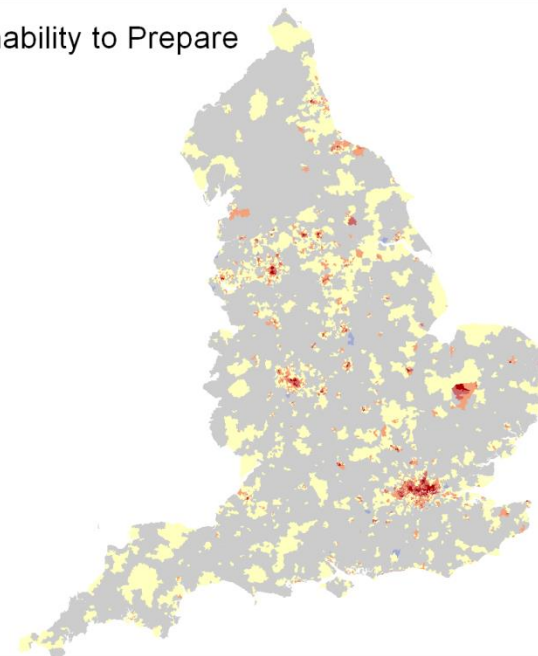


Five
dimensions
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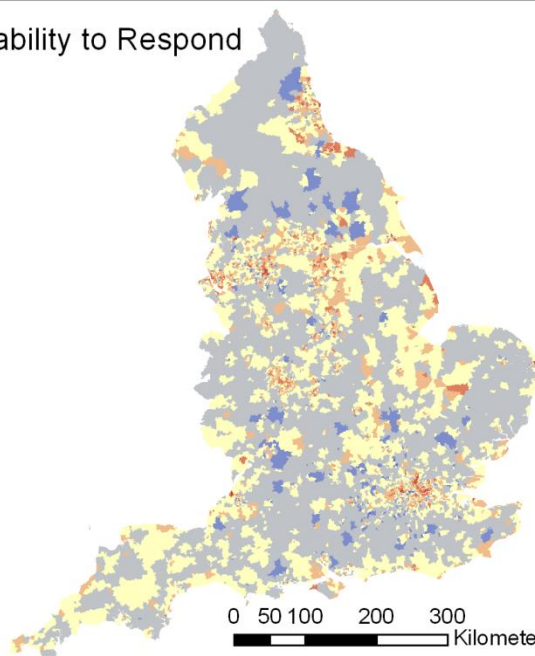
(a) Enhanced Exposure



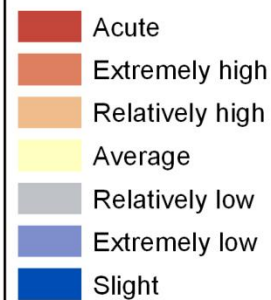
(b) Inability to Prepare



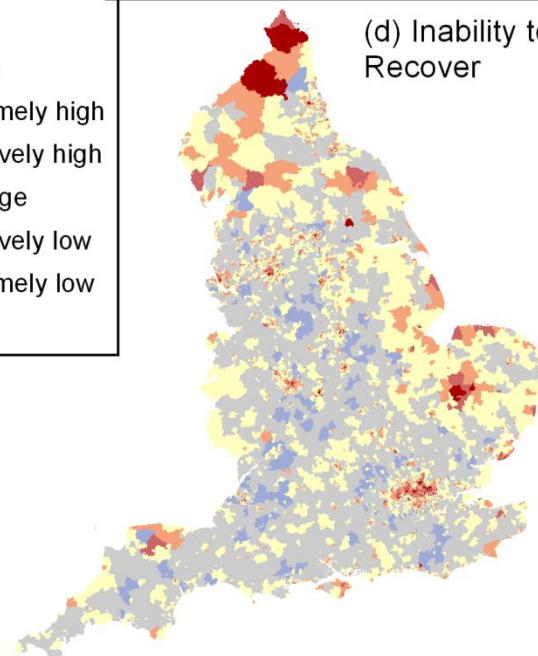
(c) Inability to Respond



Legend



(d) Inability to Recover



0 50 100 200 300
Kilometers

Heat disadvantage =
exposure + vulnerability

Highlight neighbourhoods where
climate disadvantage is highest

Explain the factors involved and
help you decide what actions to
take

UKCP18 fine scale
spatially coherent
maps provide the basis
for updating the coarser
map data in UKCP09

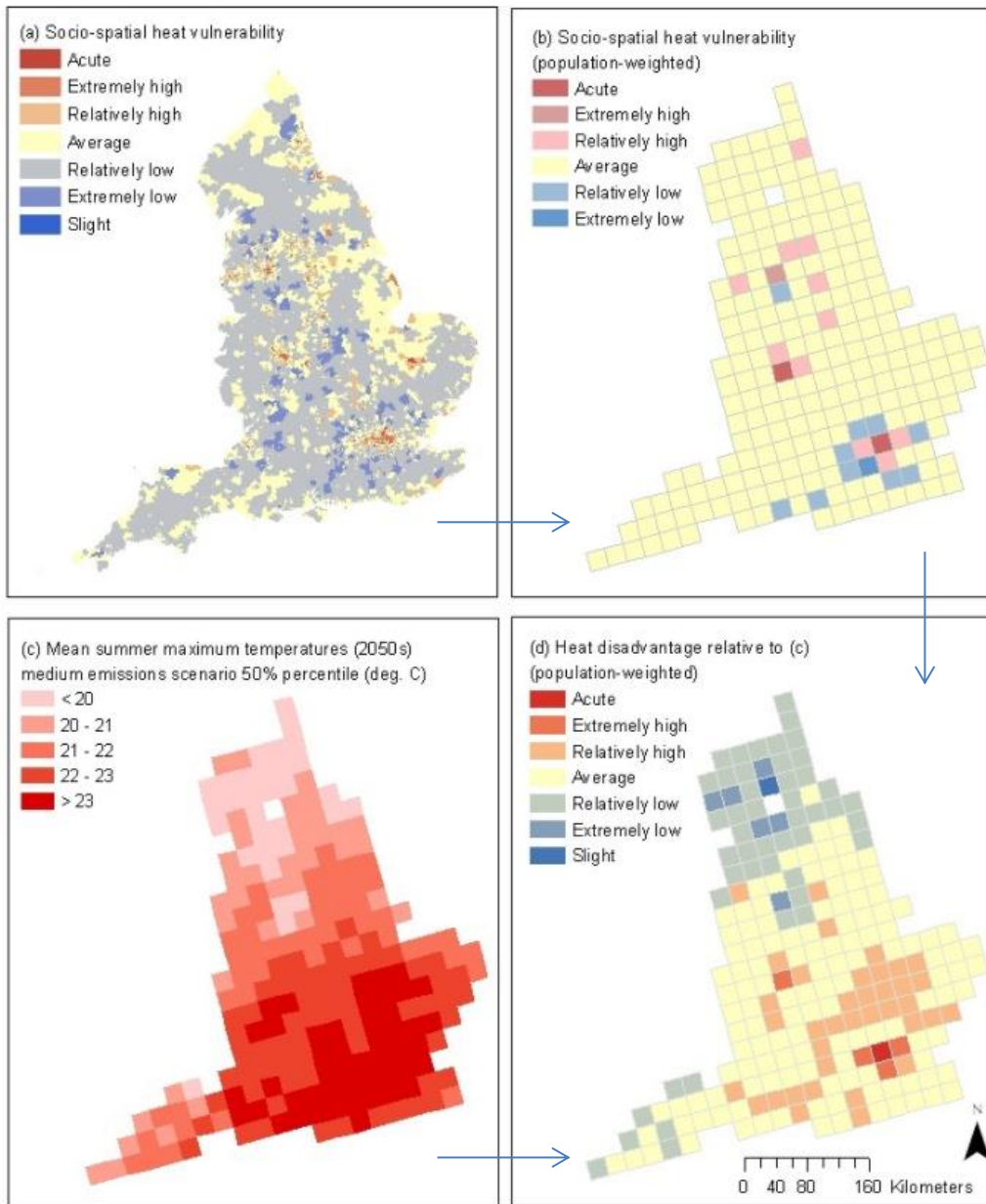
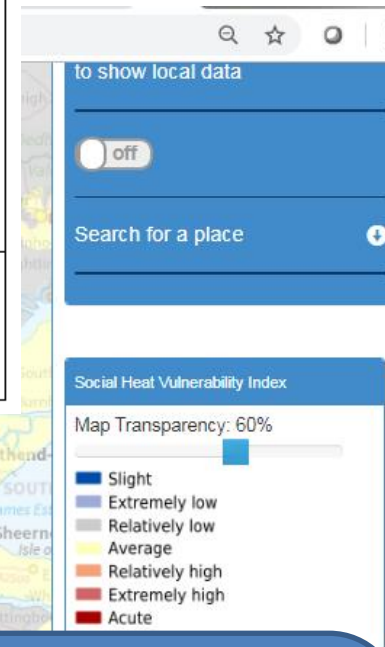
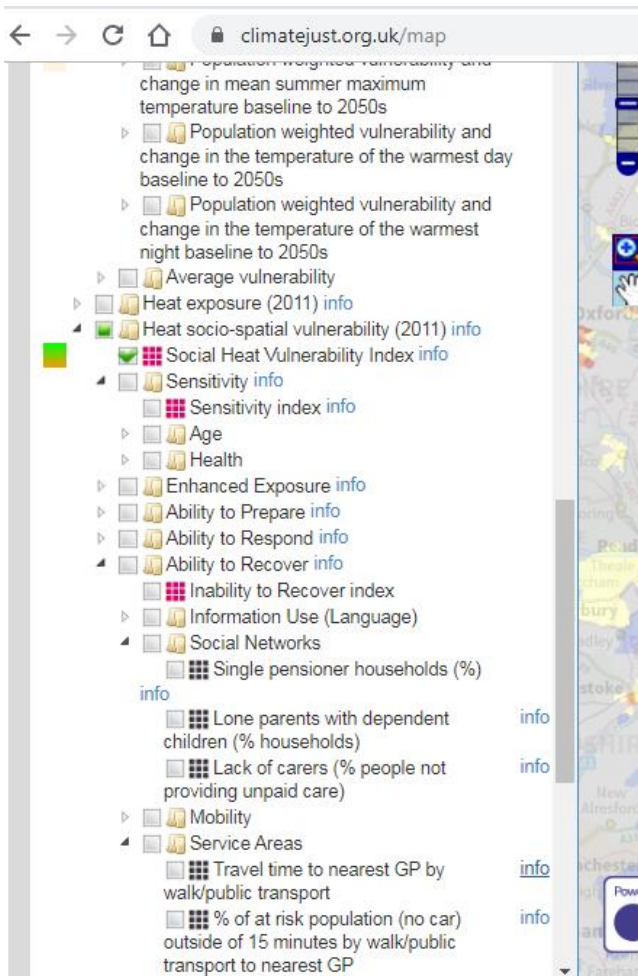


Figure 9: (a) Socio-spatial heat vulnerability in England: by neighbourhood (b), expressed as a population-weighted (c), heat hazard-exposure measured as the medium emissions scenario 50% percentile mean summer maximum temperatures in the 2050s (d) and heat disadvantage relative to (c).

Item	Description
Reference	AT1_23, AT2_18
Theme	Vulnerability
Hazard reference	Heat
Dimension	Ability to Respond and Ability to Respond
Domain	Social networks
Indicator	Single pensioner households (%)
Assumption	Areas with higher proportions of single pensioner householders are more likely to have socially isolated people and therefore higher social vulnerability compared to areas with lower proportions of single pensioner households.
Confidence level	Medium
Guidance for the use of this indicator	Adaptation needs to address the specific challenges associated with places with a higher proportion of single pensioner households (as is measured by this indicator), but more specifically places where communities are likely to have socially isolated individuals with poor social networks. However, it is also important to develop actions to target places where there may be fewer single pensioner households but where individuals might still be socially or physically isolated, perhaps within areas which otherwise have low social vulnerability. Responses in places with high concentrations of single pensioner households may differ from those in places with low concentrations, for example, if there are more intermediary organisations or networks such as community organisations who can work with older people with particular needs. See the separate message on social isolation for more evidence and possible responses. Additional, more refined, data on older people, their relative sensitivities and other characteristics which tend to make them more or less vulnerable may be available at the local level.
Data Source	Census, 2011, QS113, % Single pensioner household Office for National Statistics, 2011 Census: Aggregate data (England and Wales) [computer file]. UK Data Service Census Support. Downloaded from: http://infuse.mimas.ac.uk . This information is licensed under the terms of the Open Government Licence [http://www.nationalarchives.gov.uk/doc/open-government-licence/version/2]. Office for National Statistics, 2011 Census: Digitised Boundary Data (England and Wales) [computer file]. UK Data Service Census Support. Downloaded from: http://edina.ac.uk/census



Which elements of vulnerability are most important?
What does this mean for action which could be taken?

What actions support resilience?

It is widely acknowledged that preparing for climate change needs to involve local communities to be fully effective, but there are a number of complex reasons why local engagement can be challenging and difficult to achieve. There is much that can be learned from what is already being done to address the social impacts of climate change and to build more resilient communities. Developing and implementing plans of early actions can do much to avoid the most extreme impacts on communities. Actions are often not new or onerous and can be taken alongside existing activities.

This resource outlines the types of actions which can be undertaken to build community resilience, and resilience more widely. You can find out more details by following the links below. Many actions cut across different roles and responsibilities inside and outside local authorities, and are associated with a range of professional roles. Other actions are more specific to particular groups and the professionals who work with them. There are links to examples of what is being done already, and ideas about how you can replicate these activities in your local area.



Connections

<p>OVERVIEW</p> <p>What actions can be taken?</p> <p>📄</p>	<p>FIND OUT MORE</p> <p>Using existing tools and guidance</p> <p>📄</p>	<p>FIND OUT MORE</p> <p>Benefits of working in partnership</p> <p>📄</p>
<p>FIND OUT MORE</p> <p>Adapting buildings</p> <p>📄</p>	<p>FIND OUT MORE</p> <p>Building resilience through adaptation planning</p> <p>📄</p>	<p>FIND OUT MORE</p> <p>Community engagement and awareness raising</p> <p>📄</p>



Neighbourhoods without much greenspace

Section 1

What are we concerned about?

Section 2

Why is it important to act?

Section 3

What can be done?

Section 4

How can we do it?

Section 5

Further Resources

Green infrastructure is multi-functional and provides a wide range of benefits for local communities¹



Credit: Climate UK

References



1. UK National Ecosystem Assessment [publications](#)
2. The Mersey Forest [Little Book of Messages](#)
3. Natural England (2014) [Microeconomic Evidence for the Benefits of the Investment in the Environment 2](#)
4. Defra (2010) [What nature can do for you: A practical introduction to making the most of natural services, assets and resources in policy and decision making](#)
5. DCLG (2006) [Planning Obligations: Practice Guidance](#)
6. Jones, S. and Somper, C. (2014) The role of green infrastructure in climate change adaptation in London. *The Geographical Journal*, Vol. 180, No. 2, pp. 191-198
7. Chartered Institution of Water and Environmental Management (CIWEM) (2010) [Multi-Functional Urban Green Infrastructure: Briefing Report](#)
8. Natural England (2010) ['Nature Nearby' Accessible Natural Greenspace Guidance](#)

Data & resources used in many different ways

- To **raise awareness**
 - National Health Service
- To **engage** voluntary groups
 - Importance of social impacts
- To **inform strategic decisions**
 - e.g. building facilities for older people)
- To **inform community resilience** approaches
 - Emergency responders
- **Replicable model** and example of good practice
 - European Environment Agency

