



Public Health  
England

Protecting and improving the nation's health

First Global Forum for Heat and Health to take place in Hong Kong December 17-20,  
2018

# The Heatwave Plan for England

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**on behalf of Emer O'Connell,  
Interim Head of Extreme Events and Health Protection,  
Public Health England**

# Sendai Framework for Disaster Risk Reduction 2015-2030

1 Global Outcome

13 Guiding Principles

4 Priorities for Action at all levels

7 Global Targets

7 GLOBAL TARGETS

## Reduce

**Mortality/**  
global population

2020-2030 Average << 2005-2015 Average

**Affected people/**  
global population

2020-2030 Average << 2005-2015 Average

**Economic loss/**  
global GDP

2030 Ratio << 2015 Ratio

**Damage to critical infrastructure  
& disruption of basic services**

2030 Values << 2015 Values

## Increase

Countries with national  
& local DRR strategies  
2020 Value >> 2015 Value

**International  
cooperation**  
to developing countries  
2030 Value >> 2015 Value

**Availability and access  
to multi-hazard early warning  
systems & disaster risk  
information and assessments**  
2030 Values >> 2015 Values

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# National Risk Register of Civil Emergencies – 2017 Edition

The National Risk Register 2017 explains the risks of major emergencies that could affect the UK in the next five years and provides resilience advice and guidance.

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Published 14 September 2017

From: [Cabinet Office](#), [National security and intelligence](#), and [The Rt Hon Caroline Nokes MP](#)

<https://www.gov.uk/government/publications/national-risk-register-of-civil-emergencies-2017-edition>



Cabinet Office

# National Risk Register Of Civil Emergencies

2017 edition



[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/644968/UK\\_National\\_Risk\\_Register\\_2017.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/644968/UK_National_Risk_Register_2017.pdf)



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# UK all hazards approach includes

**Risks in foreign countries**

**Natural hazards** – flooding, severe weather including storms and gales, low temperature and heavy snow, **heatwaves**, drought, space weather, volcanic eruptions, poor air quality, earthquakes, wildfires

**Diseases** – human and animal

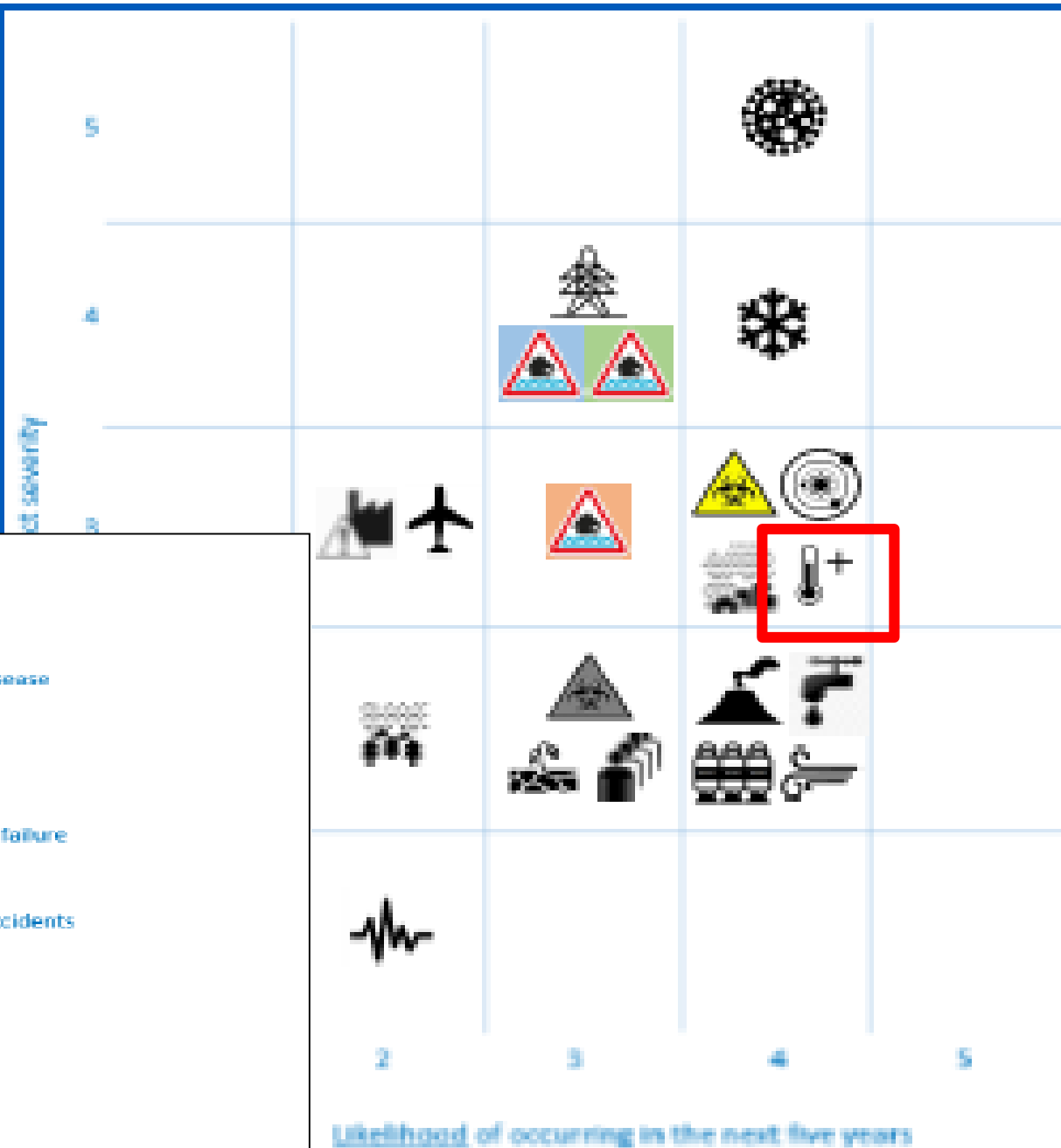
**Major accidents** – widespread electricity failure, system failures, transport accidents, industrial and urban accidents

**Societal risks** – industrial action, public disorder

**Malicious attacks** – attacks in crowded places, attacks on transport systems, attacks on infrastructure, cyber attacks, chemical biological, radiological and nuclear attacks

# Matrix A - Hazards, diseases, accidents, and societal risks

Nation  
Of Civ



## KEY

### Natural hazards

- Coastal flooding
- River flooding
- Surface water flooding
- Storms and gales
- Cold and snow
- Heatwave
- Brought
- Space weather
- Volcanic eruptions
- Poor air quality
- Earthquakes
- Wildfires

### Diseases

- Pandemic influenza
- Emerging infectious disease
- Animal disease

### Major accidents

- Widespread electricity failure
- Transport accidents
- Industrial and urban accidents
- System failures

### Societal risks

- Industrial action
- Public disorder





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## Country: United Kingdom

### United Kingdom's approach to national risk assessment

<b>Identify</b>		<b>Assess</b>		<b>Prioritise</b>	<b>Sign-off</b>	
1. Lead assessors review existing risks and suggest new ones		3. Health specialists sense checks casualty & fatality figures	4. Sector chief economists validate economic impact figures	7. Chief scientists network evaluates risk matrix	9. Cross-gov. steering group provides policy lead clearance	10. Senior civil servants provide strategic oversight
2. Expert groups; chief scientists & cross-gov. steering group provide challenge		5. Social disruption scoring is checked in a cross-gov. policy leads workshop	6. Psych. impact assessment is validated by external experts from academia	8. Cross-gov. steering group evaluates risk matrix	11. Senior Gov. Ministers provide ministerial clearance	12. Prime Minister considers the full document and provides final sign-off

Words into Action Guidelines

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# National Disaster Risk Assessment

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Governance System, Methodologies,  
and Use of Results

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**2017**



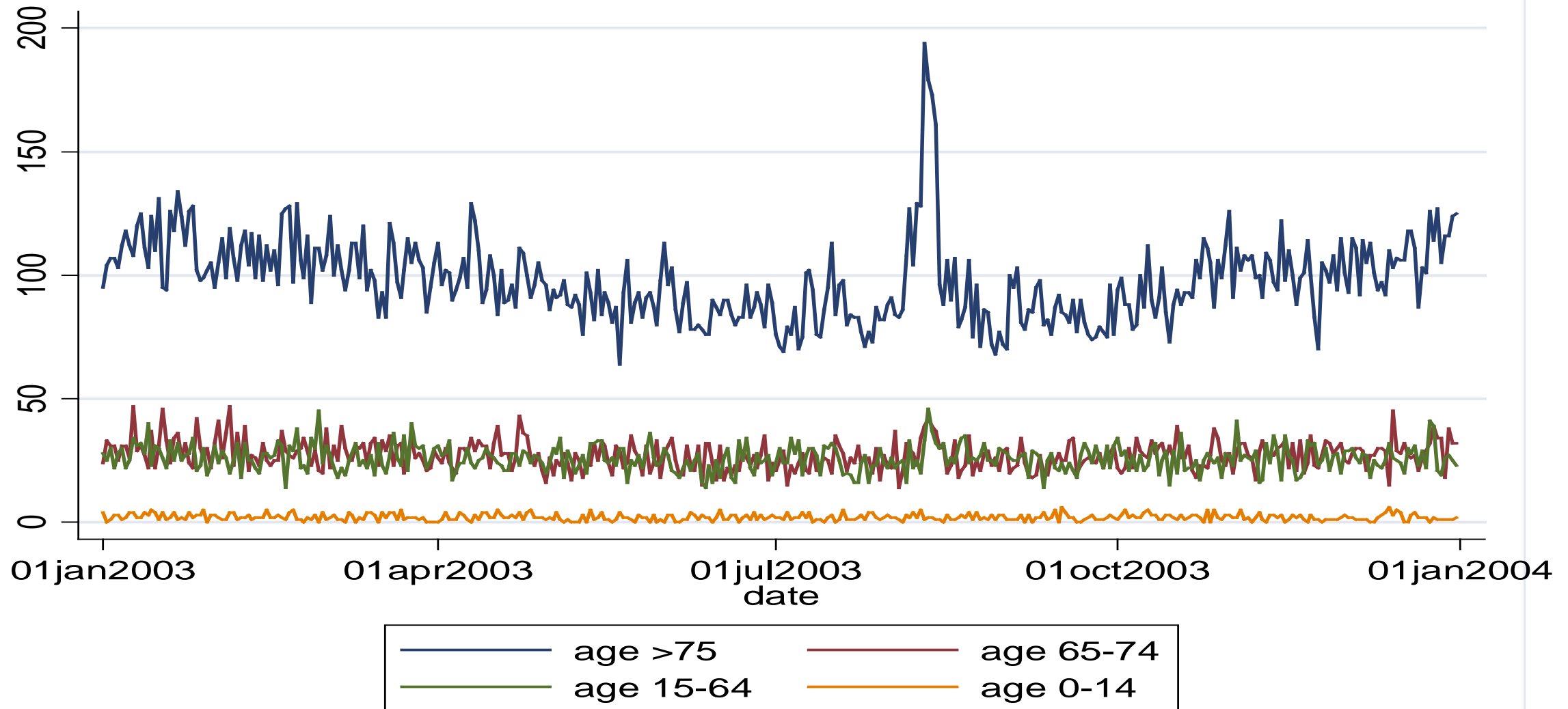






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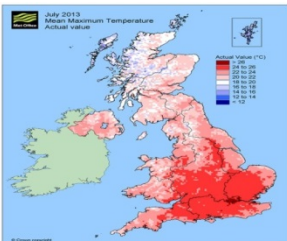
# Daily mortality in London, 2003





# Heatwave Plan for England

- Objective is to protect population from heat-related harm to health. It recommends a **series of steps**, to be taken throughout the year by:
  - the National Health Service, local authorities, social care, and other public agencies
  - professionals working with people at risk
  - individuals, community and voluntary sector
- **Heatwave Plan for England** is an **important component of long term and emergency planning**, which will become increasingly relevant in adapting to the **impacts of climate change**.







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# Heatwave Plan for England



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Protecting and improving the nation's health



## Heatwave plan for England

Protecting health and reducing harm from  
severe heat and heatwaves



May 2015



### Making the case: the impact of heat on health - now and in the future

PDF, 350KB, 21 pages

This file may not be suitable for users of assistive technology. [Request a different format.](#)



### Advice for health and social care professionals: supporting vulnerable people before and during a heatwave

PDF, 264KB, 18 pages

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### Advice for care home managers and staff: supporting vulnerable people before and during a heatwave

PDF, 264KB, 14 pages

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### Looking after yourself and others during hot weather

PDF, 328KB, 7 pages

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Scottish Environment  
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UK SPACE  
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Llywodraeth Cymru  
Welsh Government

Working together

## Daily Hazard Assessment

Issued 13:52 on Saturday, 13 July 2013

The Daily Hazard Assessment is intended for guidance only. You are advised to seek detailed information from the relevant Partner Organisation before taking any action.

**Hazards Five Day Summary: AERO ALLERGENS: AMBER, EXTREME TEMPERATURES: AMBER, AIR QUALITY: YELLOW, WILDFIRE: YELLOW.**

**AERO ALLERGENS:-** The Pollen Count is forecast to be HIGH or VERY HIGH over many parts of the UK for the next few days.

**EXTREME TEMPERATURES:-** Temperatures are forecast to be high over the next few days, for many parts of England. Heat Health Level 3 threshold, AMBER, is likely to be reached today and tomorrow in Yorkshire and Humberside.

**AIR QUALITY:-** MODERATE pollution levels are forecast today for parts of the UK.

**WILDFIRE:-** There continues to be an elevated risk of wildfires across parts of England and Wales through the next few days.

### Hazards Five Day Summary Detail

**AERO ALLERGENS:-** Over the next few days, the Pollen Count is forecast to be HIGH or VERY HIGH for many parts, except for parts of northern Scotland.

For further details on the Aero Allergens forecast, please refer to the Met Office's Pollen Forecast webpage:

- Met Office – Pollen Count Map  
<http://www.metoffice.gov.uk/public/weather/forecast/#?tab=map>
- Further Information on the Pollen Forecast  
<http://www.metoffice.gov.uk/health/public/pollen-forecast>

**EXTREME TEMPERATURES:-** The Met office has issued a Heat Health Watch Level 3 for today, for Yorkshire and Humberside. There is also an ongoing Heat Health Watch Level 2 in place for other areas of England, with forecast temperatures expected to rise close to heatwave thresholds in many

Figure 1: Heat Health Watch Level 3 Alert, Issued at 1134 on Fri 12th Jul 2013

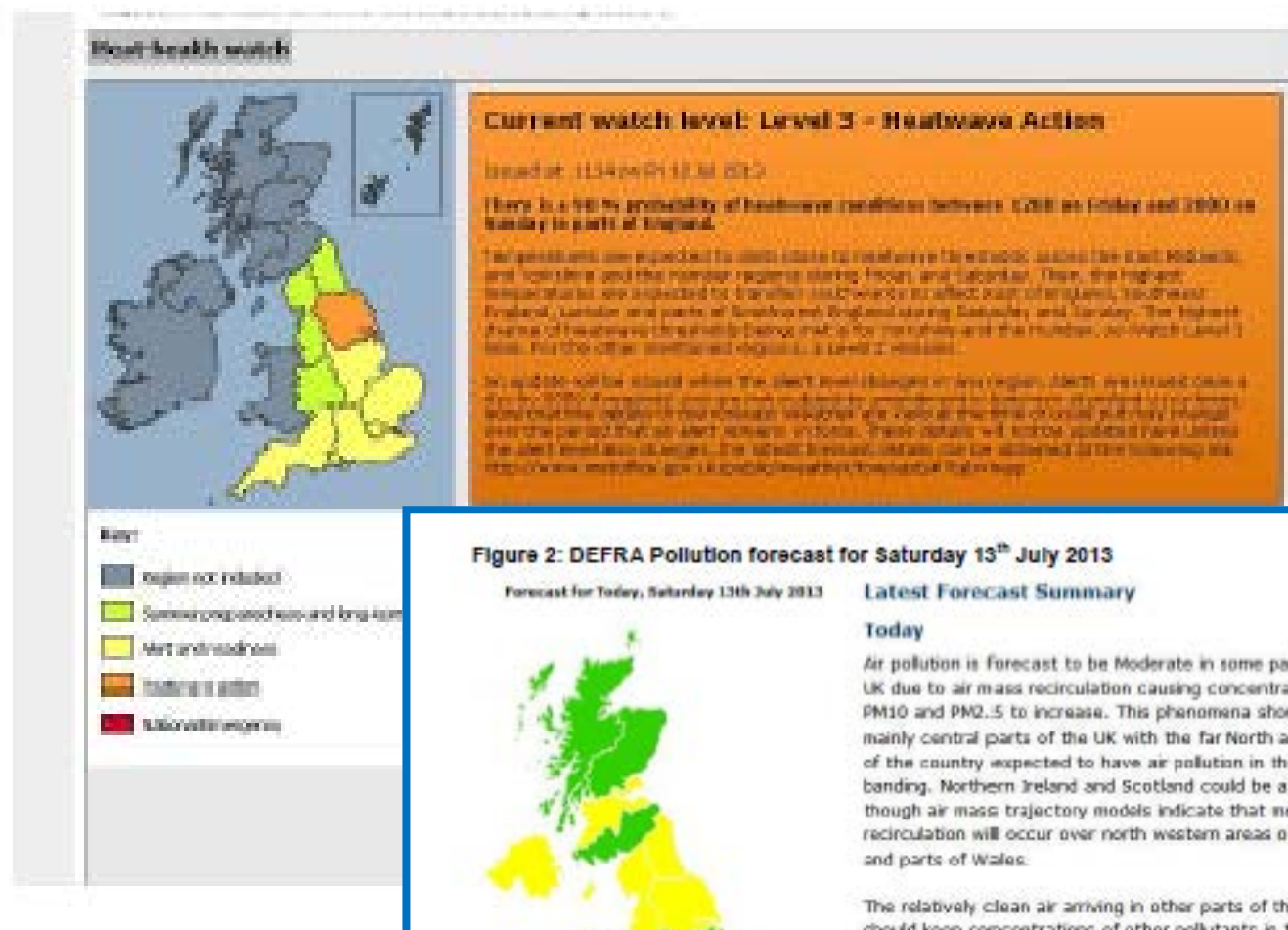


Figure 2: DEFRA Pollution forecast for Saturday 13<sup>th</sup> July 2013



# UK NHP Daily Hazard Assessment Colour State Matrix

Colour State	5-day UK (unless otherwise stated) Hazard Impact Assessment			5-day UK (unless otherwise stated) Hazard Forecast						UK Reported only Hazards		
	Weather - Rain, wind, ice, snow, fog, lightning, hail	Flooding - River, tidal, coastal, surface water, groundwater (England, Wales & Scotland only)	Volcanic Ash	Space weather (Earth impact forecast)	Landslide (24-hour forecast)	Wildfire	Extreme Temperatures (Public Health England only)	Air Quality	Aero Allergens	Earthquake	Drought	Space Object Re-entry or Near Earth Objects
Green	Disruptive weather not expected or low likelihood of minor disruption.	Disruptive flooding not expected or low likelihood of minor disruption.	Disruptive volcanic ash not expected or low likelihood of minor disruption.	No significant space weather event(s) expected.	Landslides are not likely and there are no reports of landslides.	Elevated wildfire conditions not forecast (low risk of wildfires).	Threshold conditions not forecast to be reached.	Low air pollution levels or isolated areas of moderate air pollution levels forecast.	Low / medium and/or areas of high aero allergen levels forecast.	No reports of significant earthquake(s).	No reports of drought conditions.	No reports of: possible space object(s) re-entry into earth's atmosphere; or near Earth object(s).
Yellow <sup>1</sup>	Low likelihood of significantly disruptive weather or minor disruption expected.	Low likelihood of significantly disruptive flooding or minor disruption expected.	Low likelihood of significantly disruptive volcanic ash or minor disruption expected.	Strong space weather event(s) expected.	Likelihood (or report) of isolated landslides.	Elevated wildfire conditions (likelihood of manageable wildfires) forecast.	Moderate likelihood of threshold conditions being reached or exceeded.	Widespread moderate air pollution levels or isolated areas of high air pollution levels forecast.	Widespread high and/or area(s) of very high aero allergen levels forecast.	Reports of significant earthquake(s).	Drought conditions declared.	Reports received of: likely space object re-entry into earth's atmosphere; or near Earth object(s).
Amber <sup>2</sup>	Likelihood of significantly disruptive weather.	Likelihood of significantly disruptive flooding.	Likelihood of significantly disruptive volcanic ash.	Severe space weather event(s) expected.	Increased likelihood (or reports) of multiple landslides.	Severe wildfire conditions (likelihood of difficult to control wildfires) forecast.	High likelihood of threshold conditions being reached or exceeded.	Widespread high air pollution levels or isolated areas of very high air pollution levels forecast.	Severe aero allergen event expected.	Reports of significantly disruptive earthquake(s).	★	★
Red <sup>3</sup>	High likelihood of severely disruptive weather.	High likelihood of severely disruptive flooding.	High likelihood of severely disruptive volcanic ash.	High confidence of extreme space weather event(s).	High likelihood (or reports) of major landslide events.	High confidence of severely disruptive wildfire(s).	Severe or prolonged period of threshold conditions reached or exceeded.	Widespread very high air pollution levels forecast to continue for more than 2 days.	High confidence of severe, large scale aero-allergen impact(s).	Reports of major earthquake(s).	★	★

★ Ongoing hazard assessment recorded under "Ongoing Issues" or updated as appropriate.

<sup>1</sup> Limited/localised hazard impact or low confidence in assessment of severity/location of hazard event

<sup>2</sup> Significant potential for hazard event impacting large numbers of people

<sup>3</sup> Hazards impacting large numbers of people across multiple sectors and high confidence in assessment of severity/location of hazard event



# Heat health watch alerting system

- Hot weather alerts are issued by the Met Office in collaboration with Public Health England.
- **Alerts are cascaded via email local community and nationally (e.g. central government departments, PHE centres, NHS England, Local Authorities, the media).**
- **Local Resilience Forums, Local Health Resilience Partnerships, and Health and Social Care organisations** have developed this into a specific cascade system that is appropriate for their local area

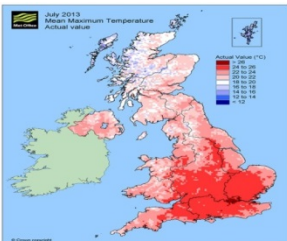
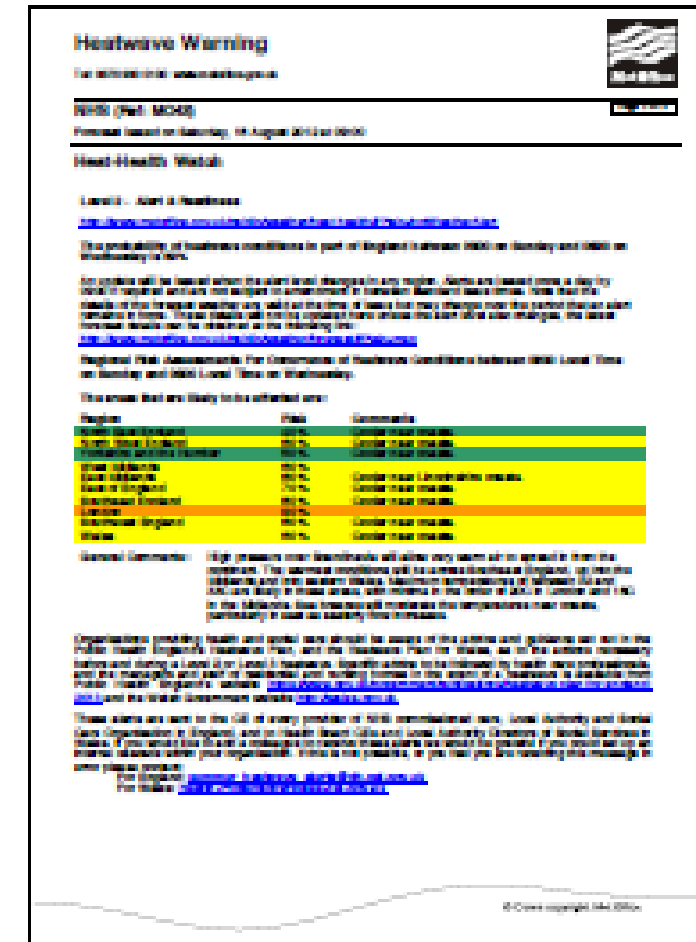


Figure 2.3: Example of a Heat-Health Watch





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# Heat health watch alerting cascade

## Met Office service and notifications

Service	Distribution	Timing
Heatwave warning	E-mail	Alert issued as soon as agreed threshold has been reached and when there is a change in alert level. Issues between 1 June and 15 September.
Heatwave planning advice	E-mail	Twice a week (9am each Monday and Friday from 1 June to 15 September).
National Severe Weather Warning Service	E-mail, web, SMS, TV, radio	When required
General weather forecasts	Web, TV, radio	Every day





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# Heatwave Alert Levels

Level 0	<b>Long-term planning</b> <i>All year</i>
Level 1	<b>Heatwave and Summer preparedness programme</b> <i>1 June – 15 September</i>
Level 2	<b>Heatwave is forecast – Alert and readiness</b> <i>60% risk of heatwave in the next 2–3 days</i>
Level 3	<b>Heatwave Action</b> <i>Temperature reached in one or more Met Office National Severe Weather Warning Service regions</i>
Level 4	<b>Major incident – Emergency response</b> <i>Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health</i>



# Example of heatwave plan levels and actions

## Level 3: Heatwave action

Group	Example actions
<b>Commissioners</b>	Issue media alerts about keeping cool; support organisations to reduce unnecessary travel; review safety at public events; mobilise community and voluntary support.
<b>Providers</b>	Visit/phone high-risk people; reconfirm public health messages; activate plans to maintain business continuity – including a possible surge in demand.
<b>Community &amp; voluntary sector</b>	Activate community emergency plan; check those you know are at risk; follow public health messages; check those you know are at risk.
<b>National level</b>	Met Office will continue to monitor and forecast temperatures; NHS England will muster mutual aid when requested by local services; continued syndromic and mortality surveillance.

Audience specific action cards are available in the [Heatwave Plan for England](#)

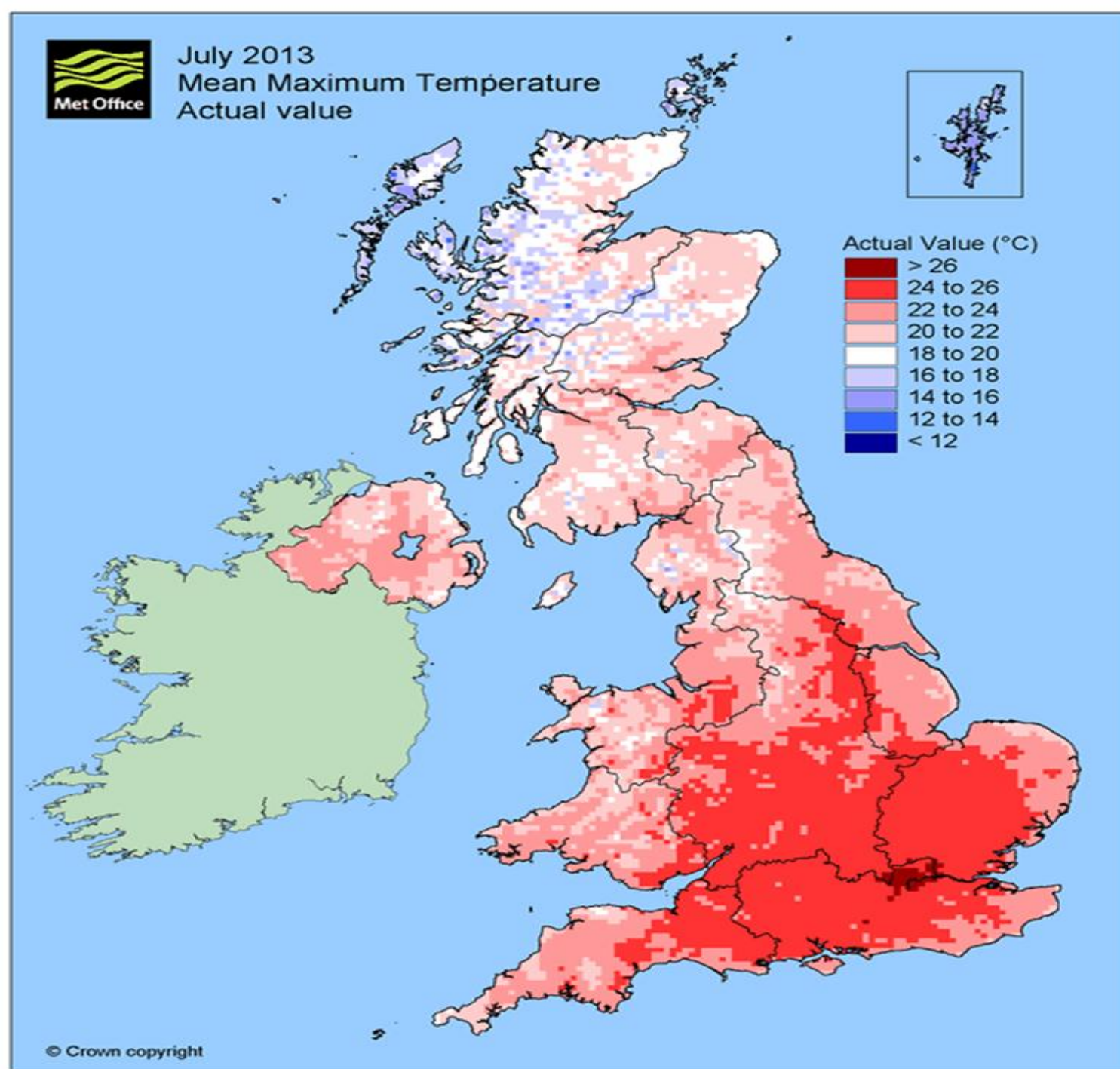


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Courtesy of the Met Office

# July 2013 Mean Maximum Temperature

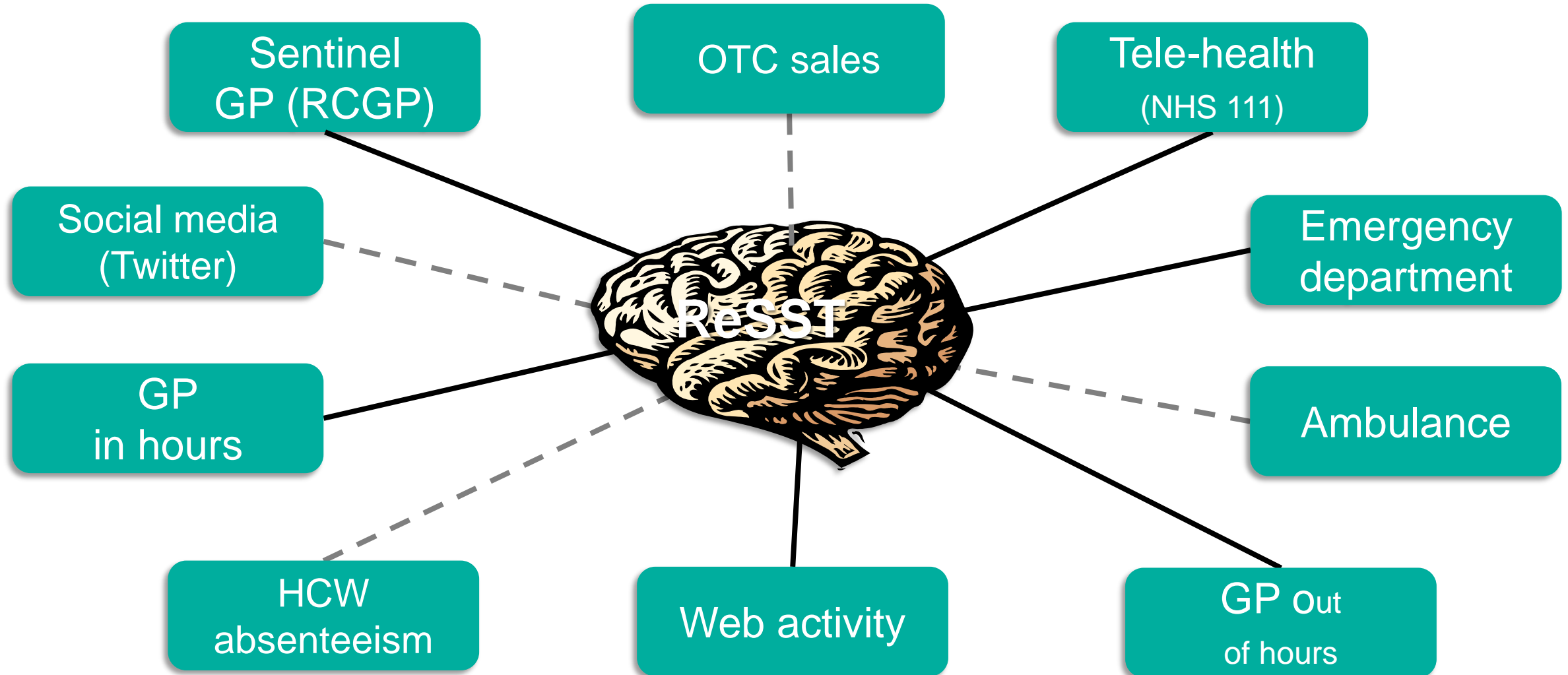
<http://www.metoffice.gov.uk/climate/uk/summaries/anomacts>

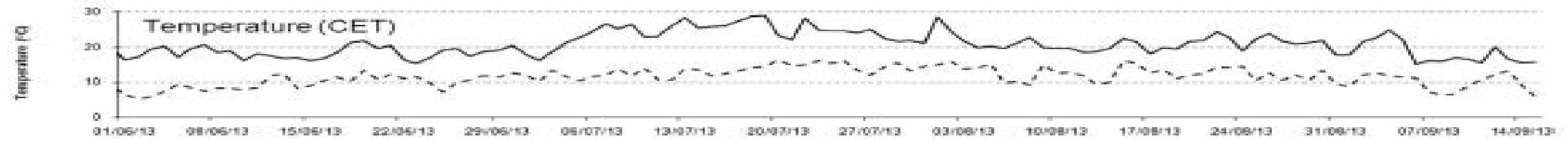




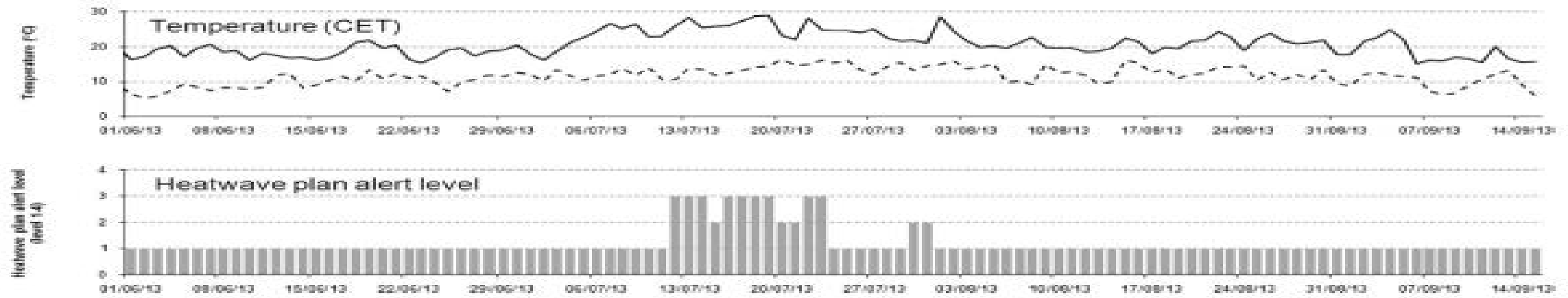
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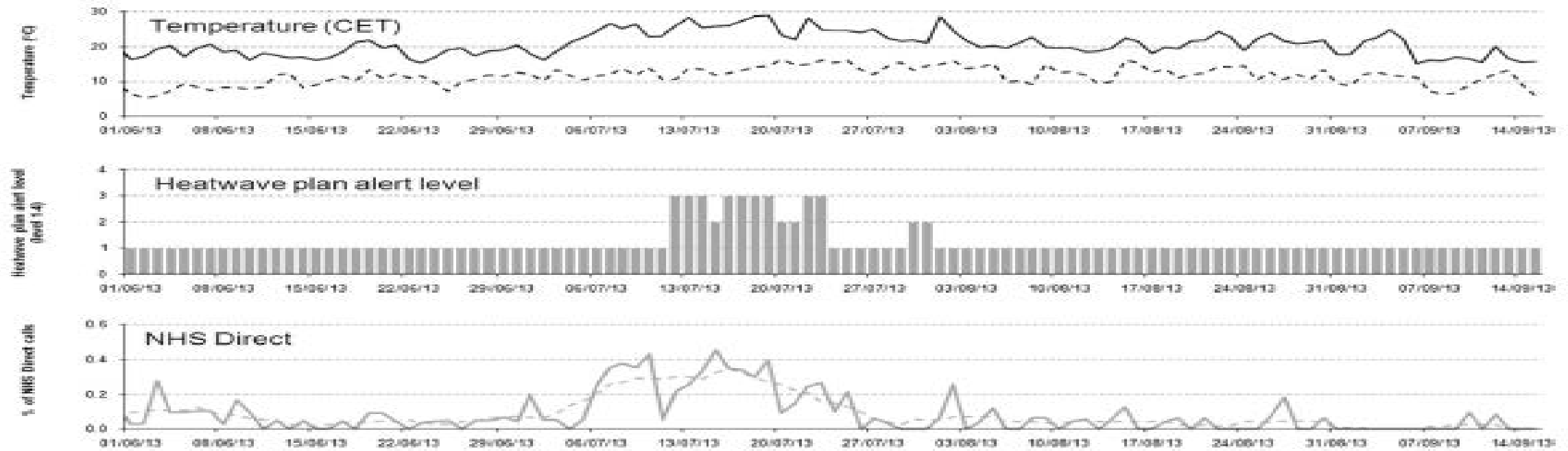
# Current PHE syndromic system data sources

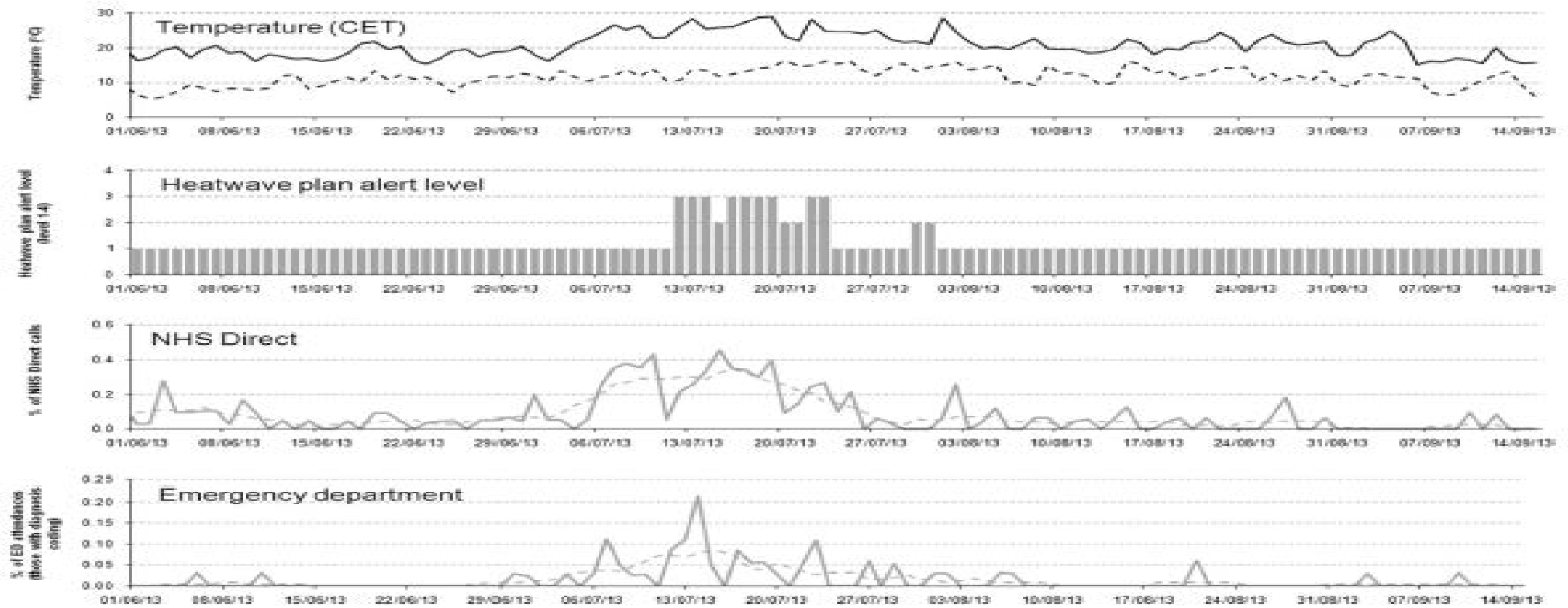


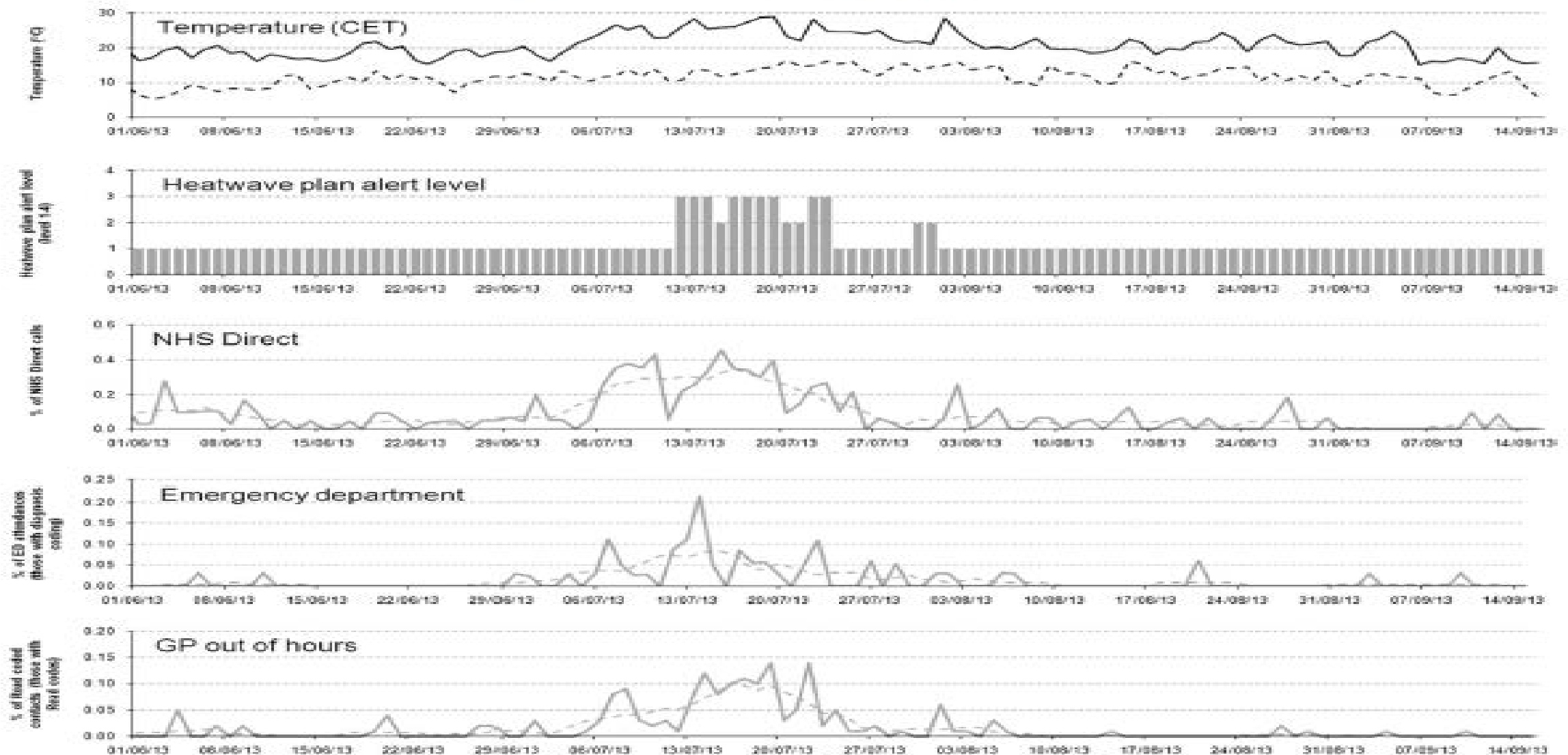


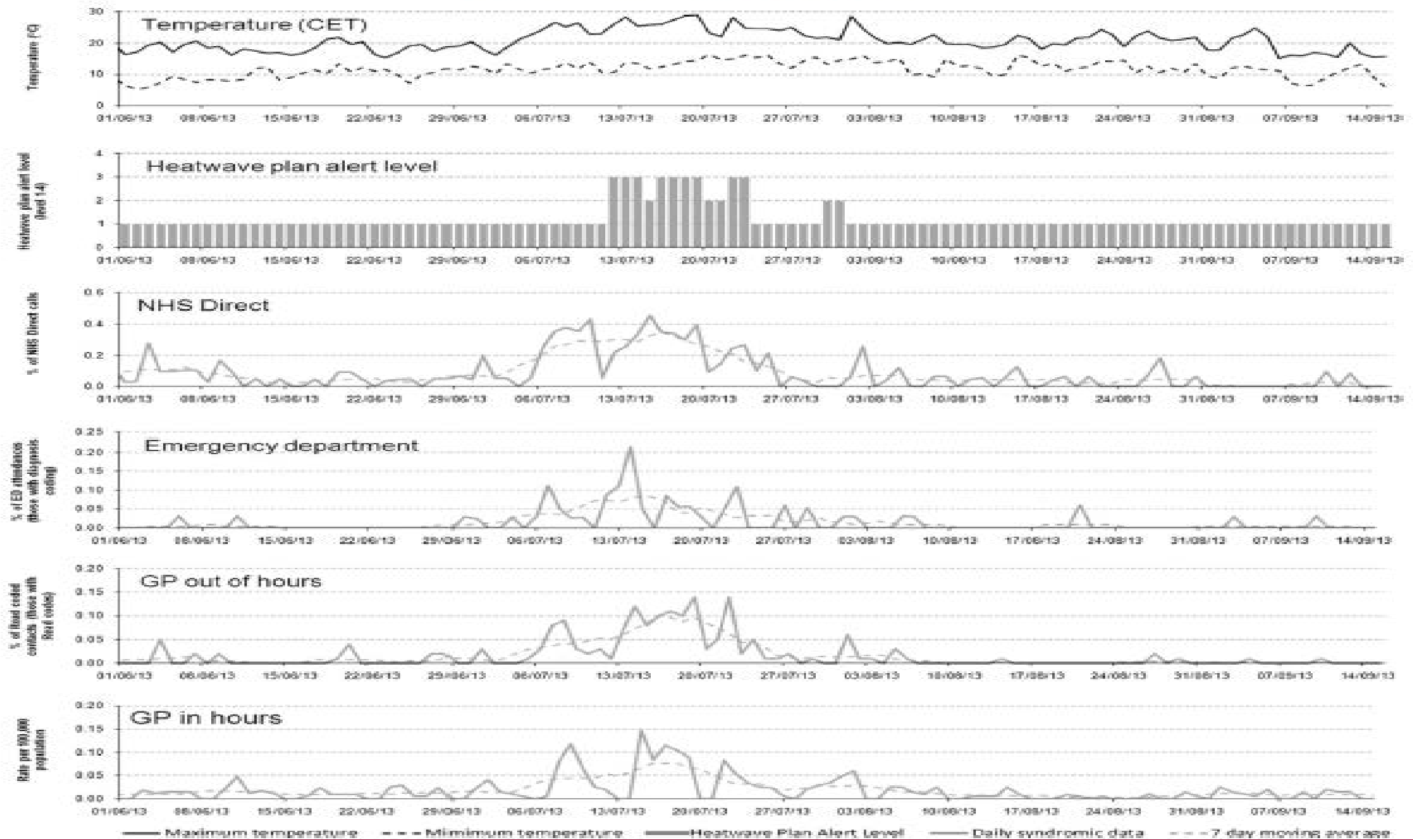




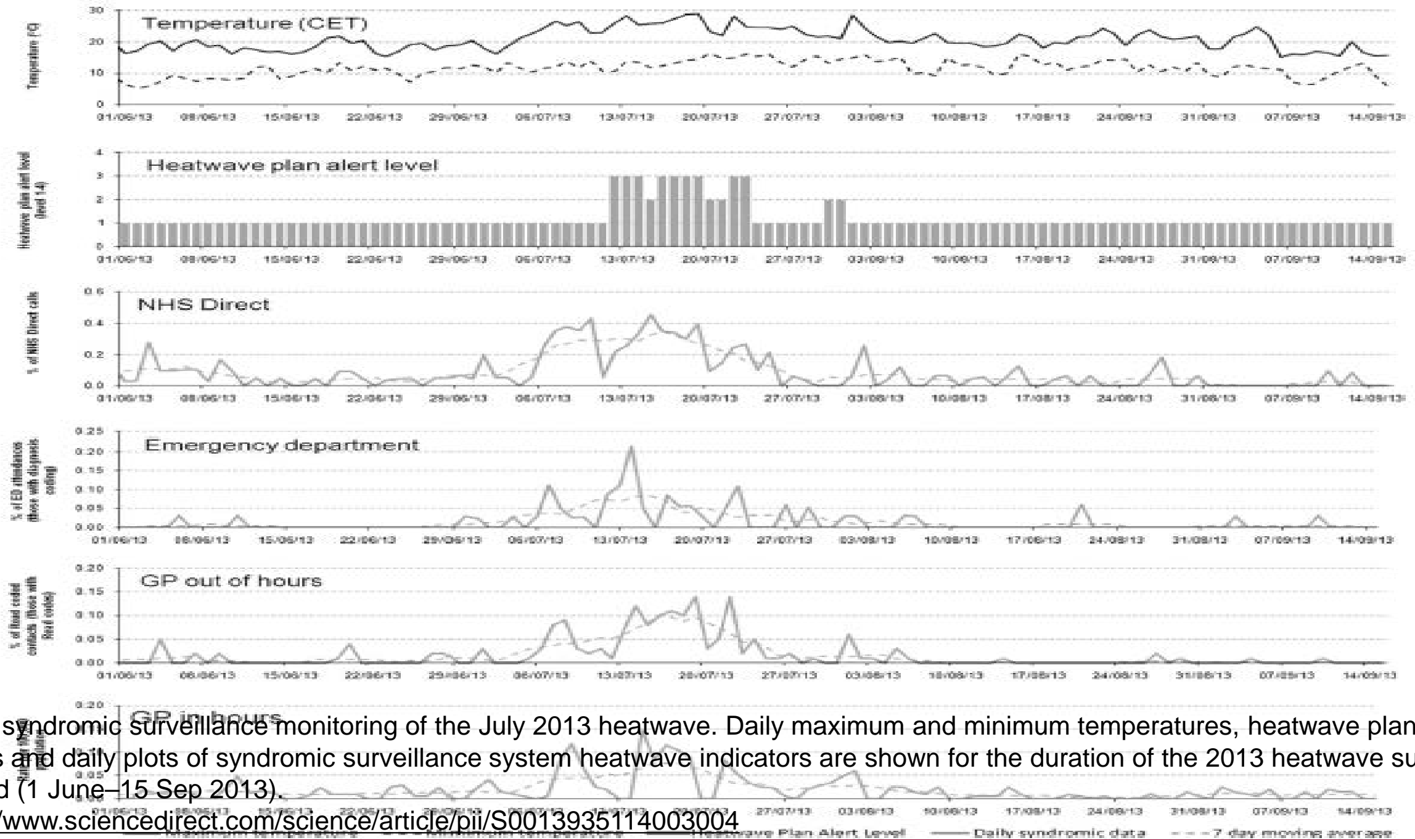












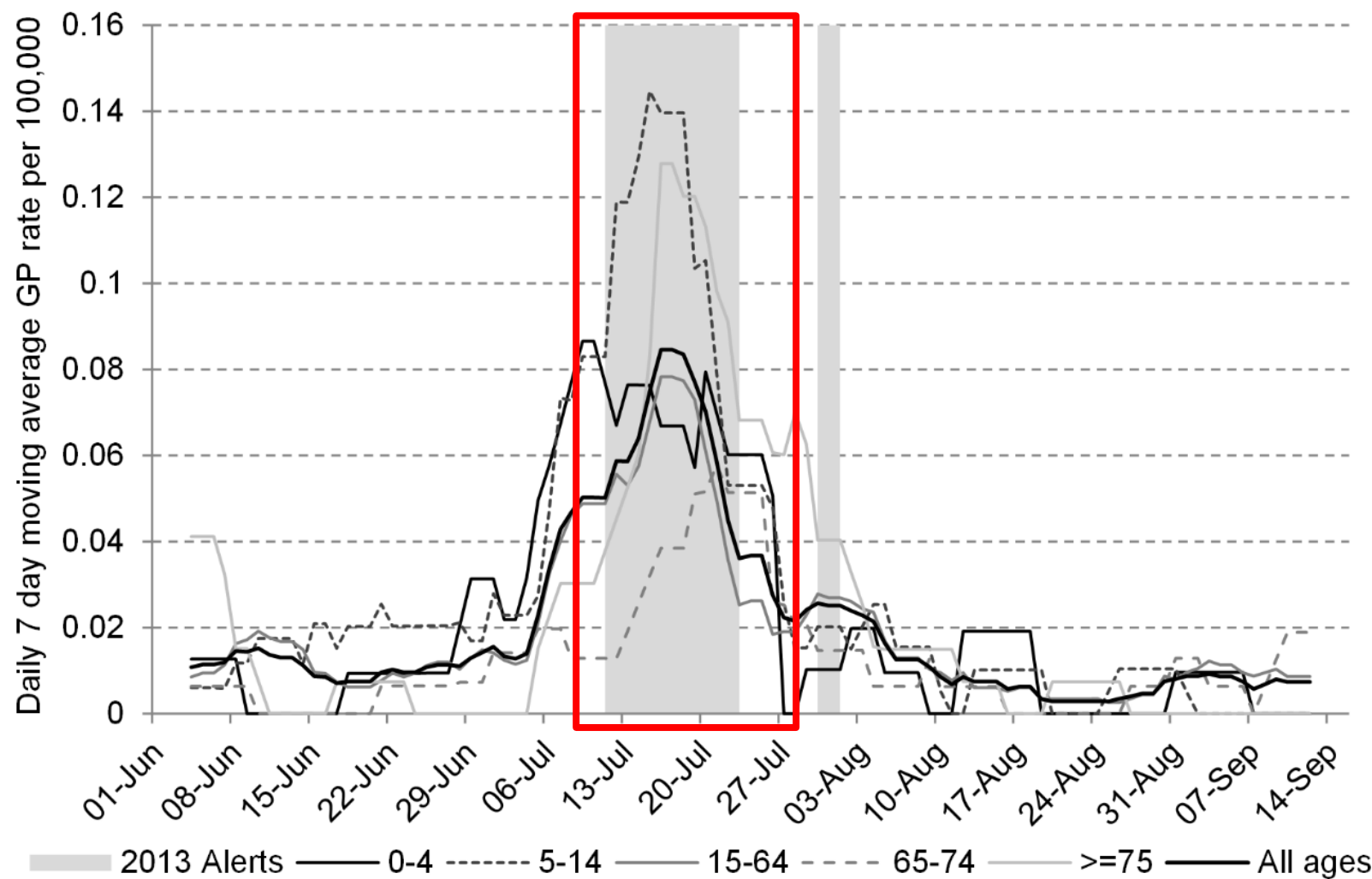
Daily syndromic surveillance monitoring of the July 2013 heatwave. Daily maximum and minimum temperatures, heatwave plan alert levels and daily plots of syndromic surveillance system heatwave indicators are shown for the duration of the 2013 heatwave surveillance period (1 June–15 Sep 2013).

<http://www.sciencedirect.com/science/article/pii/S0013935114003004>



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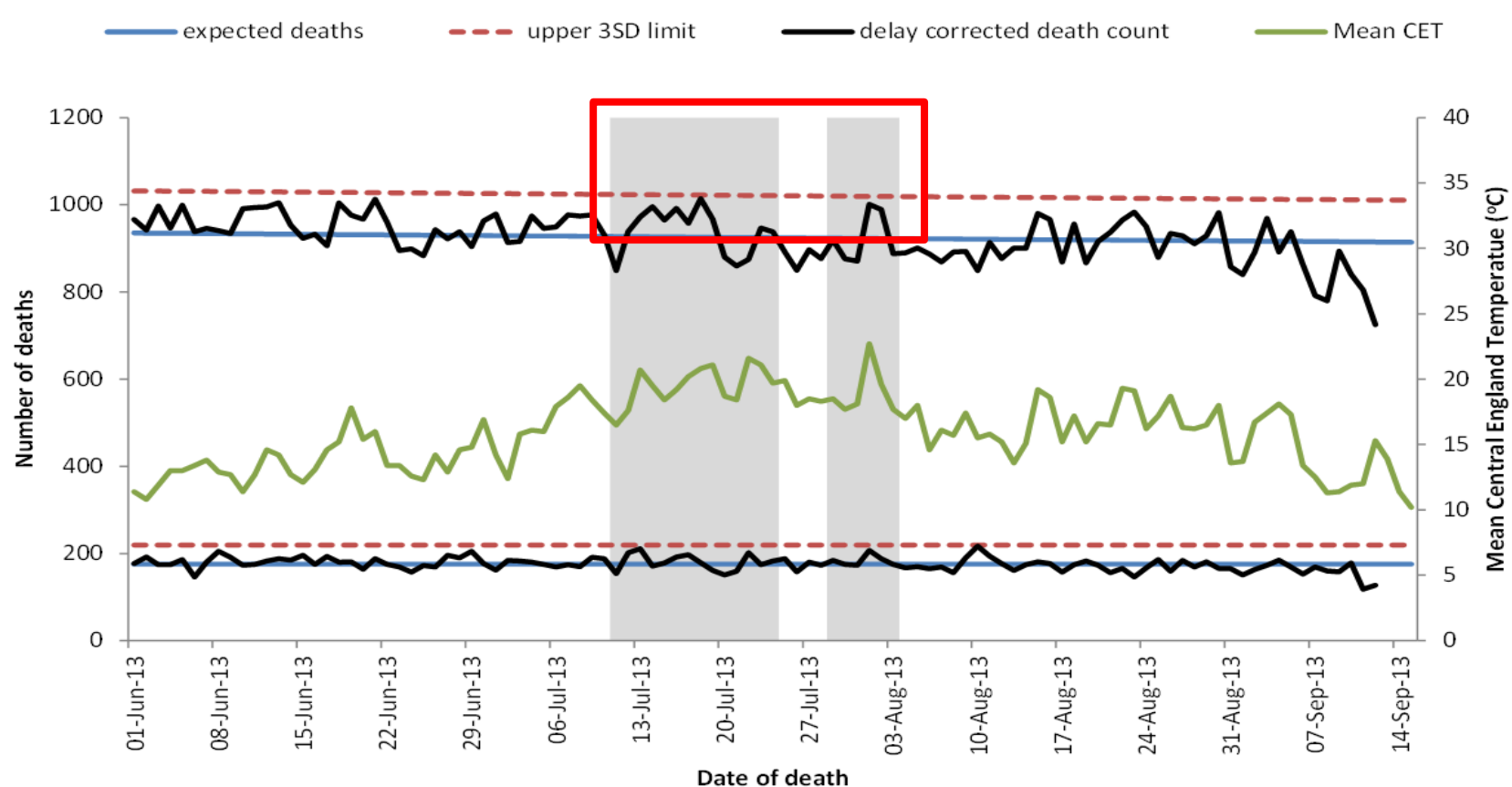
# GP daily heat/sun stroke consultations



GP in hours daily heat illness consultations (7-day moving average) by age group during the 2013 Heat-Health Watch period (1 June–15 September 2013). Heat alert periods (heat health alert levels 2/3) for 2013 are indicated by hashed grey bars; weekends are indicated by solid grey bars. GP, general practitioner Smith S, Elliot AJ, Hajat S *et al.* (2016)



# Daily Mortality (June 2013 to September 2013)



Daily number of deaths in <65yr olds and 65+yr olds compared to expected number (blue line) and upper 3SD significance limit (red line) with daily maximum Central England Temperature (°C, green line), England, 2013. Grey shading: heatwave defined as Met office alert or mean CET >20degC (Green et. al., 2016).



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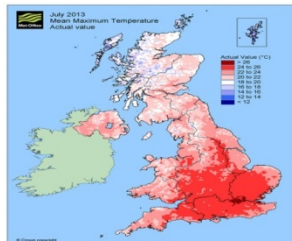


Department  
for Environment  
Food & Rural Affairs

## The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting

Making the country resilient to a changing climate

July 2018





House of Commons  
Environmental Audit Committee

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## Heatwaves: adapting to climate change

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Ninth Report of Session 2017–19

*Report, together with formal minutes relating  
to the report*

*Ordered by the House of Commons  
to be printed 18 July 2018*



House of Commons  
Environmental Audit Committee

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## Heatwaves: adapting to climate change: Government Response to the Committee's Ninth Report

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Tenth Special Report of Session  
2017–19

*Ordered by the House of Commons  
to be printed 23 October 2018*



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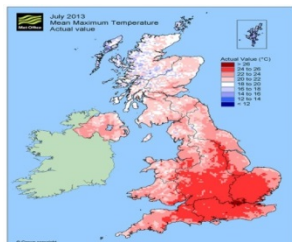


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# Acknowledgements

- Graham Bickler, Mike Gill, Pat Troop and members of the Department of Health and the Health Protection Agency
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- Sari Kovats and our many academic partners
- Cabinet Office colleagues including Steve Barnes and Owen Jackson
- And many others

