

CITY OF LONDON CLIMATE CHANGE

The Science

What affects London City's weather?



Source: City of London 2020



Tides – The River Thames is tidal and can be subject to storm surges. The Thames Barrier protects the City when storm surges are forecasted during high tides.



Temperature – London is affected by the Urban Heat Island effect, with the built environment of the City retaining heat after sunset. This results in generally warmer temperatures.



Showers and thunderstorms can develop in situ over the city or be enhanced due to the urban heat island effect. Severe thunderstorms can develop on occasion as air is drawn northwards from the continent during summer.



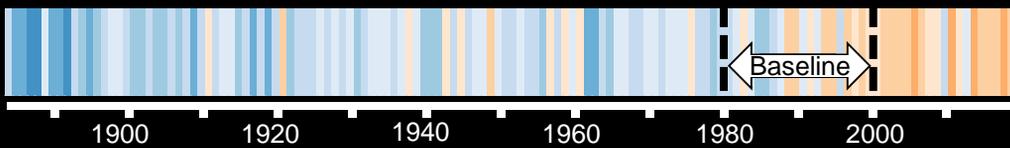
Wind direction – The wind prevails from the WSW and SW year round. Wind gusts can occasionally be strong due to building induced wind funnelling and turbulence.



Mist and fog affect London mostly during the late autumn and winter. Easterly winds can bring moisture into the city aiding the formation of low cloud, and possibly mist and fog.

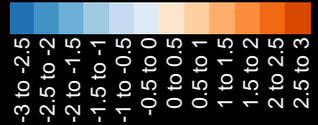
How has London's climate changed?

The London climate stripes show how annual average temperature has changed since 1884, compared with a baseline average between 1981 and 2000.



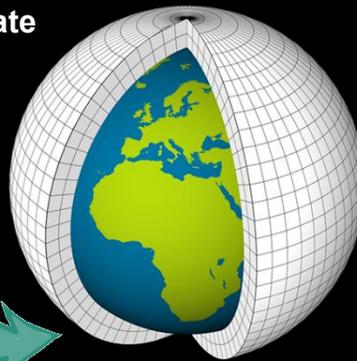
*Based on HadUK-Grid data

Scale: Temperature difference in °C



Calculating London's future climate

The Met Office uses computer models to simulate decades into the future. These models tell us that increasing greenhouse gas concentrations in the atmosphere leads to an increase in global temperature – the basis for climate change.

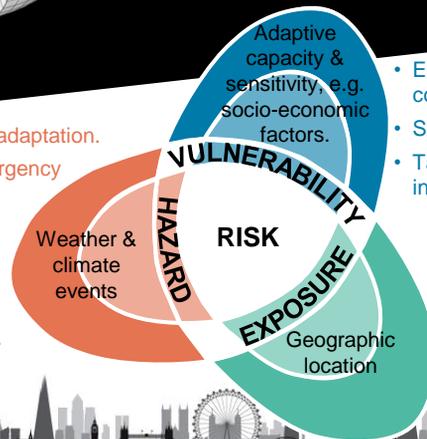


However, the climate is complex and small changes in global temperature can cause large changes to the weather patterns that we experience at a local level. To provide the best available information, multiple variations of the Met Office's latest global climate model are used to simulate the plausible future climate outcomes - this is known as a climate model ensemble.

Turning data into a decision:

The impact of a changing climate depends on three key factors - the hazard itself, exposure levels and vulnerability. Actions to reduce these could, for example, include...

- Mitigation & adaptation.
- Climate emergency declaration.
- Global emissions reductions.
- UK carbon neutral 2050.



- Empowered & engaged communities.
- Supporting livelihoods.
- Tackling health inequalities.

- Long-term & integrated planning.
- Nature-based solutions.
- Flood defence schemes.

This factsheet is part of a set of prototype products, aimed at building a foundation of shared understanding and promoting robust use of the available UKCP climate change information.

The Climate Change series includes: (sample city shown)

1 The Science

2 The Results Explained

3 UKCP Results

- Find out more about ...**
- UK Climate Projections (UKCP)**
 - <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp>
 - Factsheets headline findings for the wider UK**
 - <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-infographic-headline-findings-land.pdf>
 - <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/factsheets>
 - How to download and use the UKCP data using the Climate Projections User Interface (UI)**
 - <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home>
 - <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---how-to-use-the-land-projections.pdf>
 - The historical data used to produce the climate stripes**
 - <https://www.metoffice.gov.uk/research/climate/maps-and-data/data/haduk-grid/haduk-grid>
 - Representative Concentration Pathways (RCPs)**
 - <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---representative-concentration-pathways.pdf>
 - https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter12_FINAL.pdf
 - City of London Map**
 - City map obtained from City of London (2020): <https://www.cityoflondon.gov.uk/about-the-city/about-us/Pages/default>

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