

GLASGOW CLIMATE CHANGE

The Science

What affects Glasgow's weather?



Temperature – Glasgow is warmer than much of inland Scotland due to the effects of the sea. The city's comparable temperature comes from the fact it is a low lying river basin, but also because of the urban heat island effect.



Wind direction – The strongest winds are observed from the SW. The mountains that surround the city - particularly the Grampians to the N and Southern Uplands to the SE, give shelter and the wind is lightest from these directions.



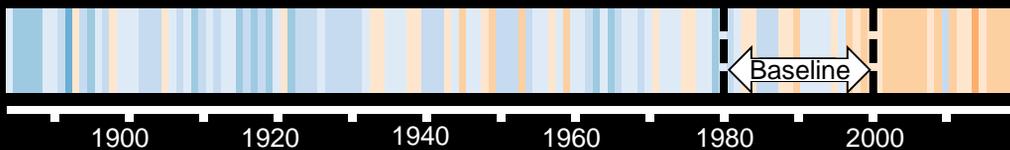
Rainfall – Glasgow is one of the wettest cities in the UK. Much of this rain comes from Atlantic depressions which affect Scotland year round, but most frequently during the autumn and winter.



Fog occurs most frequently during late Autumn to early Spring. The river Clyde provides a moisture source in favourable conditions for fog to form in situ, however fog can notably move in from the Firth of Forth to the NE.

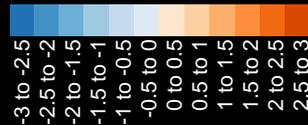
How has Glasgow's climate changed?

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



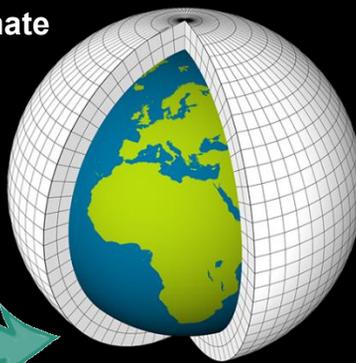
*Based on HadUK-Grid data

Scale: Temperature difference in °C



Calculating Glasgow'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.

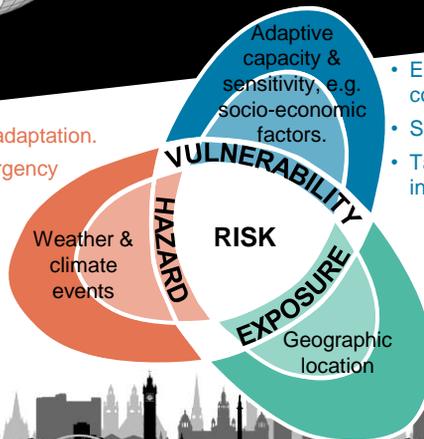


However, the climate is complex and small changes in global temperature can cause large changes to the weather patterns that we experience at a local level. To provide the best available information, multiple variations of the Met Office's latest global climate model are used to simulate the plausible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

OpenStreetMap

- City maps provided by OpenStreetMap under Open Database Licence, see www.openstreetmap.org/copyright or www.opendatacommons.org/licenses/odbl for further details.

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