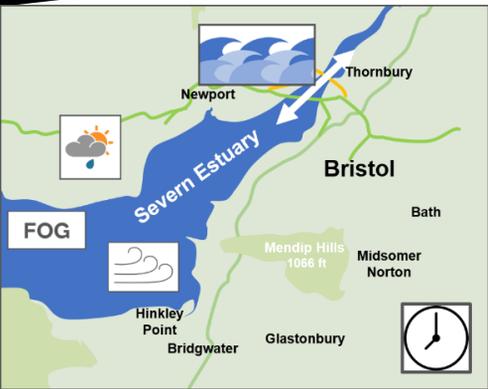


# BRISTOL CLIMATE CHANGE

## The Science

### What affects Bristol's weather?



**Time of day** – As temperatures cool overnight, the moist conditions around the Estuary can lead to fog.



**Wind direction** – Funnelling along the Estuary, between the Welsh Mountains and Exmoor can result in stronger WSW winds. The Welsh Mountains to the NW, can also provide shelter from low cloud and surface winds.



**Tides** – The Bristol Channel and Severn Estuary cause a funnelling of tides and consequently a high tidal range. Air pressure, wind speed and its direction can also influence the height and impact of a storm surge.



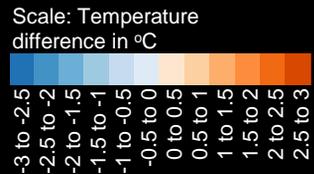
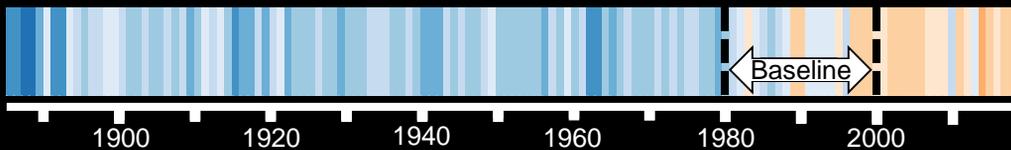
**Showers** – The Bristol Channel can create convergence, leading to heavy showers and thunderstorms.



The Bristol Channel and Severn Estuary provide suitable conditions for **low cloud or sea fog**. This can move inland, particularly in Winter.

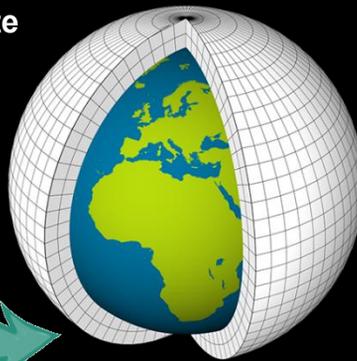
### How has Bristol's climate changed?

The Bristol climate stripes show how annual average temperature has changed since 1887, compared to a baseline average between 1981 and 2000.



### Calculating Bristol'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.

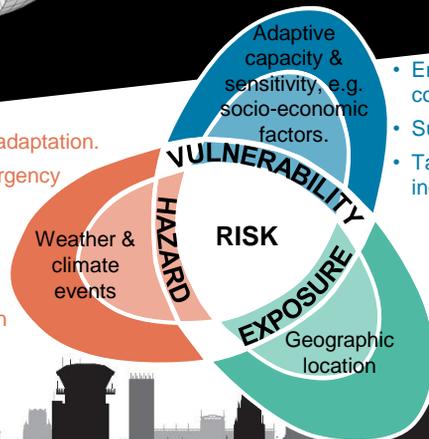


However, the climate is complex and small changes in global temperature can cause large changes to the weather patterns that we experience at a local level. To provide the best available information, multiple variations of the Met Office's latest global climate model are used to simulate the plausible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

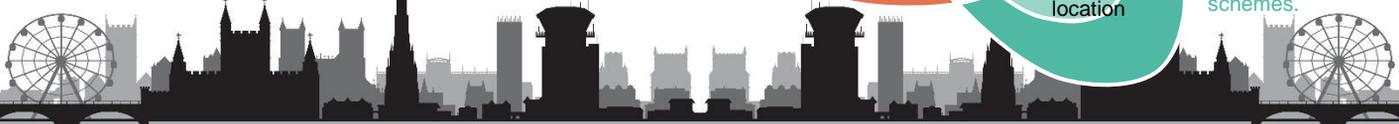
### Turning data into a decision:

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.
- Bristol carbon neutral 2030.



- 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 'Bristol Climate Change' series includes:

**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 for Bristol, used to produce the climate stripes**

- <http://www.bristolweather.org/Historical.htm>

**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](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter12_FINAL.pdf)

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