

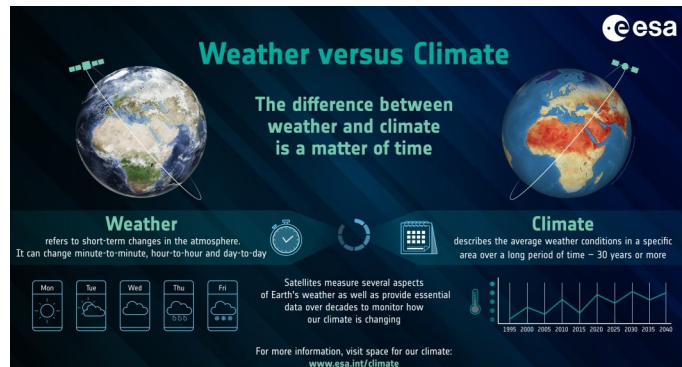
Climate Change 101



This fact sheet has been developed by the Walsall Energy Action Project to help give a better understanding of climate change, its causes and effects. For more information please visit one of our partner community hubs, where you can find help and support and access one of our libraries of inspiration.

What is the difference between the climate and the weather?

The European Space Agency have produced the infographic to the right which illustrates the main difference between the climate and the weather; **Time**.



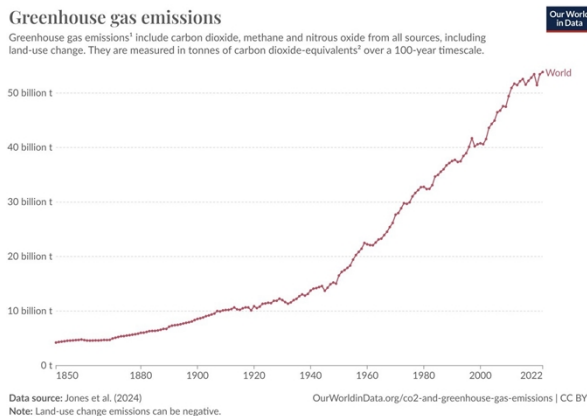
Infographic explaining the difference between weather and climate.

Courtesy of the European Space Agency - ESA .⁽¹⁾

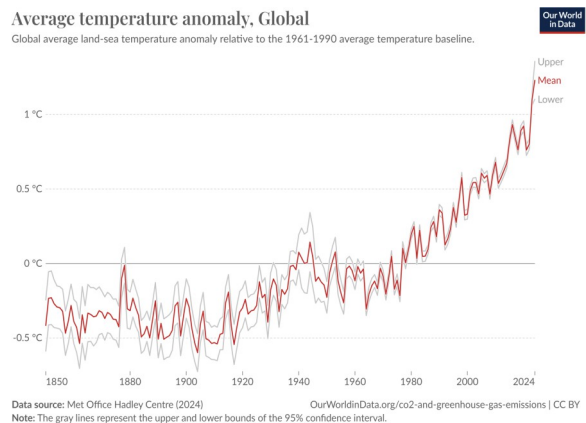
What is Climate Change?

Climate change refers to **long-term shifts in temperatures** and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. But since the 1800s, **human activities** have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas. When fossil fuels are burnt they release gases into the atmosphere and these gases are called greenhouse gases. ⁽²⁾

The graph below to the left shows the greenhouse gas emissions from 1850 to 2022.

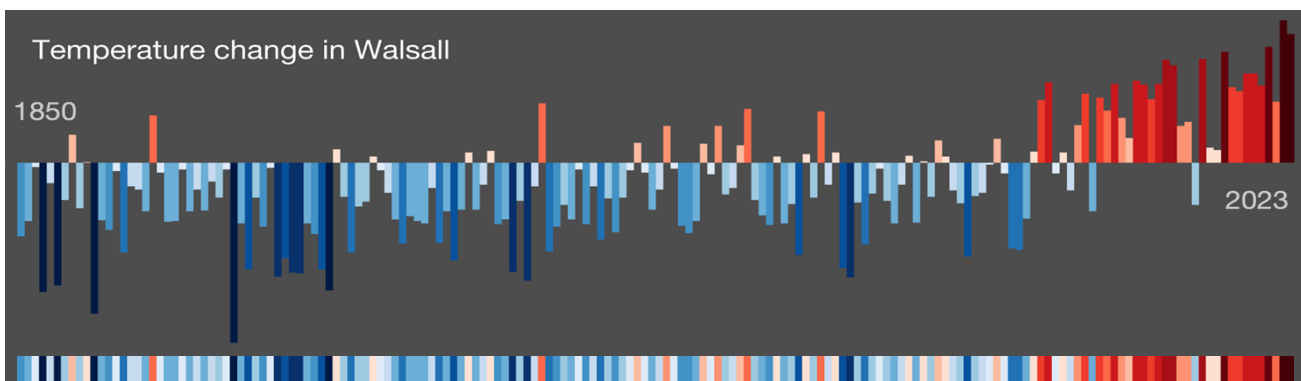


The graph below shows the average temperature globally from 1850 to 2024.⁽³⁾



Walsall is getting warmer

The image below are warming stripes, created by Professor Ed Hawkins. They illustrate the **temperature change** in Walsall **from 1884 to 2023**. Each stripe represents the average temperature for a single year. Shades of blue indicate cooler-than-average years, while red shows years that were hotter than average. The stark band of deep red stripes on the right-hand side of the graphic show the rapid heating in recent decades⁽⁴⁾. What the above graphs and infographic below shows is that as greenhouse gases have increased, so have temperatures across the globe and here in Walsall too. This is due to the **greenhouse gas effect**.



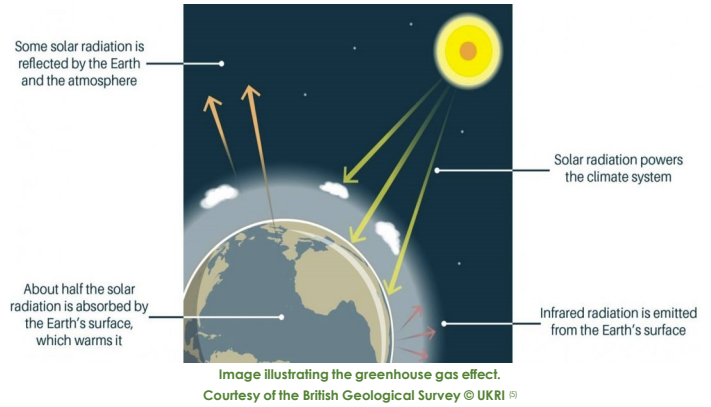
4. Climate Stripes. Ed Hawkins, National Centre for Atmospheric Science, University of Reading.

What is the greenhouse gas effect?

Greenhouse gases (also known as GHGs) are gases in the earth's atmosphere that trap heat.

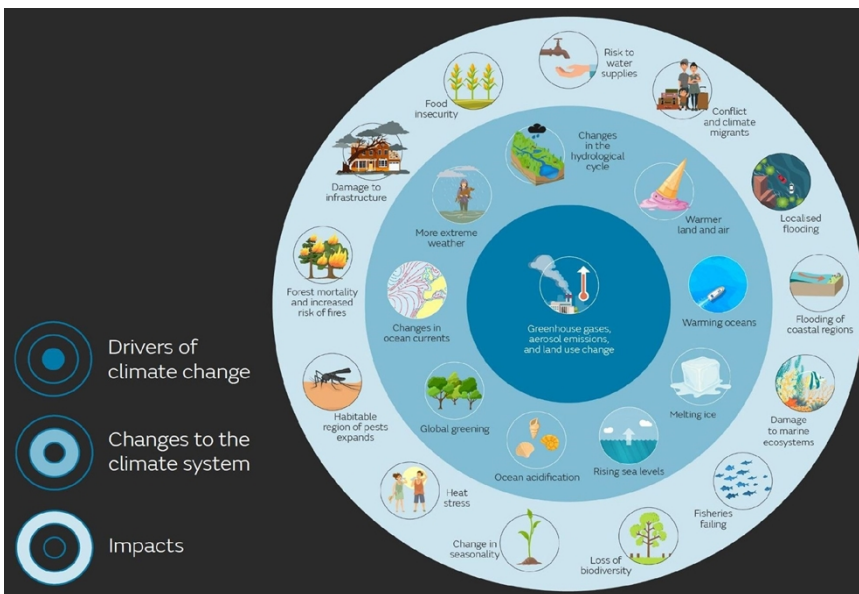
During the day, the sun shines through the atmosphere, warming the earth's surface. At night the earth's surface cools, releasing heat back into the air. But some of the heat is trapped by the greenhouse gases in the atmosphere. That's what keeps the earth's temperature at an average 14°C (57°F).

But human activities are changing earth's natural greenhouse effect with a dramatic increase in the release of greenhouse gases. Scientists agree greenhouse gases are the cause of global warming and climate change.



Since the Industrial Revolution, humans have been releasing larger quantities of greenhouse gases into the atmosphere. In the past century that amount has increased dramatically, with the knock-on effect of global warming. Global temperatures have accelerated in the past 30 years and are now the highest since records began. (6)

What are the impacts of climate change?



The image to the left has been produced by the Met Office and illustrates the drivers, changes and impacts that we can expect to see from climate change.

The centre circle represents the drivers of climate change, an increase in greenhouse gases.

The inner ring highlights some of the changes that are happening to the climate.

The outer circle gives some examples of the impacts these changes will have on our lives and environment.

'We are the first generation to feel the impact of climate change and the last generation that can do something about it.'

– Barack Obama (8)

Find out more

Our aim for the WEAP is to build a sustainable, climate-resilient and net-zero Walsall **together**. We are offering free 1-2-1 Energy and Climate Advice sessions and free Home Energy Advice visits.

If you would like to find out more about ways you can reduce your carbon footprint and save energy at home, please contact your nearest partner hub below.

WEAP Partner Community Hubs

Ryecroft Community Hub, WS3 1TR

Tel: **01922 626693**

Darlaston All Active, WS10 8AA

Tel: **0121 568 6144**

Aaina Community Hub, WS1 3BS

Tel: **01922 644006**

Nash Dom CIC, WS1 4AL

Tel: **01922 616444**

Brownhills Community Association, WS8 7JS

Tel: **01543 452119**

Bloxwich Library / Launchpad, WS3 2DA

weap@walsall.gov.uk

Sources

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2. www.un.org/en/climatechange/what-is-climate-change
3. GHG emissions and average temperature graphs. ourworldindata.org/co2-and-greenhouse-gas-emissions
4. Climate Stripes. Ed Hawkins. National Centre for Atmospheric Science, University of Reading, National Centre for Atmospheric Science, UoR. Data: Berkeley Earth & ERA5-Land, NOAA, UK Met Office, MeteoSwiss, DWD, SMHI, UoR & ZAMG-showyourstripes.info/b/europe/unitedkingdom/walsall
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6. Greenhouse gas effect explained. National Grid. www.nationalgrid.com/stories/energy-explained/what-are-greenhouse-gases
7. Met Office. www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change
8. Remarks by President Obama at the First Session of COP21, 2015. obamawhitehouse.archives.gov/the-press-office/2015/11/30/remarks-president-obama-first-session-cop21

