



read

Natural Hazards

The Causes and Effects of Climate Change



quiz



The Big Picture



Causes of Climate Change

Human activities increase the volume of greenhouse gasses in the atmosphere leading to the enhanced greenhouse effect because increased greenhouse gases trap more of the infrared heat reflected by the surface of the Earth. Average global temperature increases due to this causing climate change.

Human Causes of Climate Change

There are a number of human causes of climate change, including:



Burning fossil fuels - When coal, oil and gas are burned, carbon dioxide is released into the atmosphere.



Agriculture - Increased pastoral (animal) farming leads to more methane being released into the atmosphere.



Deforestation - Trees absorb carbon dioxide during photosynthesis. When trees are cut down, less carbon dioxide will be absorbed, leading to increased concentrations in the atmosphere.

Natural Causes of Climate Change

Human action is widely accepted as the current cause of climate change by scientists and experts. However, there are some historical natural contributors including:



Orbital changes - Milankovitch cycles are variations in the tilt/orbit of the Earth around the Sun, causing natural warming and cooling periods.



Volcanic activity - Carbon dioxide is released into the atmosphere during eruptions.



Solar output - The amount of radiation emitted by the Sun fluctuates. High levels of radiation lead to an increase in Earth's temperatures.



Key Terms



Climate Change – A long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature.



Milankovitch Cycles – The three ways the Earth's orbit of the Sun changes over the course of tens of thousands of years.



Evidence of Climate Change



Weather records - Thermometers have been used to measure temperature since the 1850s accurately. This provides reliable, short-term data on climate change.



Tree Rings – Each year a tree grows, it forms a new ring. The width of the ring indicates the climatic conditions for the year. The thicker the ring, the warmer and wetter the climate for that year giving an indication of climatic conditions over time.



Ice Cores – Taken from ice caps by drilling into the ice. They can go back over 800,000 years. Trapped air bubbles tell use the temperature it was in each year.



Effects of Climate Change

Social effects

- Increased risk of disease such as skin cancers
- Crop yields affected – maize will decrease by up to 12% in South America.
- Drought reduces food and water supplies in sub-Saharan Africa. Water scarcity in the south and southeast of the UK.
- Flood risk increases, 70% of Asia at increased risk of flooding e.g. 2022 Pakistan floods.
- Extreme weather events become more intense e.g. tropical storms

Environmental effects

- Increased drought and risk of forest fires.
- Sea level rise includes flooding and erosion.
- Change in climate affects ecosystems.
- Coral bleaching and decrease in biodiversity.