

GLOBAL WARMING / CLIMATE CHANGE

Answering Scepticism

OBJECTION: *The climate changes naturally in cycles – it always has.*

ANSWER: True; due to changes in the strength of the sun, changes in the Earth's orbit, cycles of ocean currents and volcanic activity. But **we** can change it too! Our emissions have been described as "the largest uncontrolled scientific experiment in history".

OBJECTION: *It's the sun which is causing global warming.*

ANSWER: Researchers advise that the sun's irradiance has been roughly constant (apart from the 11-year sunspot cycle) during the last 40 years and that the global temperature increase can **only** be explained by our carbon emissions.

OBJECTION: *It was as warm or warmer in Britain during the Mediaeval Warm Period.*

ANSWER: Researchers disagree on this. But even if it *were* warmer (due to natural causes), this was probably limited to northern Europe, There is now 35% more carbon dioxide in the atmosphere - this has the potential to increase global warming substantially.

OBJECTION: *The world has been cooling since 1998.*

ANSWER: This is a bit of mischief from sceptics, based on the fact that 1998 saw a "spike" in the graph due to a very strong "El Nino" weather system – the most powerful natural effect. But the global temperature trend then continued upwards for several years. During the late 2000s, we were in a slightly cooler phase, due to a "La Nina" and an unusually deep trough in the sunspot cycle. The graph is always up and down as natural effects cause a warming or cooling, but the underlying trend is likely to continue upwards. The noughties decade has been the hottest on record.

OBJECTION: *Greenhouse gas is only a very tiny part of the atmosphere.*

ANSWER: True - the science was established 150 years ago that it is these trace gases which trap the heat!

OBJECTION: *Water vapour is a greenhouse gas and is much more abundant in the atmosphere.*

ANSWER: True – but water vapour acts to **amplify** the warming of the carbon-based gases, the amount in the atmosphere depending only on temperature.

OBJECTION: *But we want some warming in Britain!*

ANSWER: The concern is about the **average** warming **globally**; this results in increased extreme weather. Most of **us** may still be OK but people in many parts of the world are suffering badly from drought, floods, storms, wildfires, loss of water and arable land. And the UK is likely to suffer increasingly in future.

OBJECTION: *But we need to consume energy to live.*

ANSWER: After meeting our basic needs, there is enormous scope for **saving energy**.

OBJECTION: *There is no proof that human activity is the main cause of climate change.*

ANSWER: True, but the majority of researchers believe that it is, so let's not gamble with the wellbeing of other people and of future generations. There may **never** be cause-and-effect proof. After all, temperature rises from man-made carbon emissions, similar to current predictions, were foreseen as long ago as the **1890s** (by Arrhenius).

OBJECTION: *Not all climate scientists agree that climate change is mainly caused by our emissions.*

ANSWER: The majority do. Most of the prominent sceptics belong to organisations which receive funding from oil and mining companies – this is well documented, Exxon-Mobil being the worst culprit. Their attempts to spread doubt about the science have been assisted by ex-tobacco industry PR experts.

OBJECTION: *But during the 1970s, we were being warned that another ice age was due!*

ANSWER: This was because there had been a slight global cooling between approx. 1945 and 1965. This is believed to have been due to the amount of sulphur particle pollution in the atmosphere from the rapid increase in fossil fuel burning – the sulphur reflects the sun and has a cooling effect. But the sulphur washes out, whereas carbon emissions accumulate. And these have greatly increased since that time. Current estimates of the onset of an ice age are 16,000 years away - warming due to our emissions is probably here now and is expected to increase rapidly during the next few **decades!**

OBJECTION: This is *doom-mongering!*

ANSWER: But people are suffering now! And the risks are too great to be ignored.

OBJECTION: *I can't make any difference.*

ANSWER: Edmund Burke stated 200 years ago: "Nobody made a greater mistake than he who did nothing because he could only do a little". It's a matter of principle and moral responsibility to try. More and more people are now doing their bit to reduce their energy consumption and helping to increase the inertia. Governments and large businesses too are taking the problem more seriously – we must **all** work together.

OBJECTION: *It's too late already.*

ANSWER: It may be, but climate predictions are uncertain and nobody really knows for sure just what will happen or when. We should make every effort to reduce emissions in the hope that life will be tolerable and survivable for future generations.