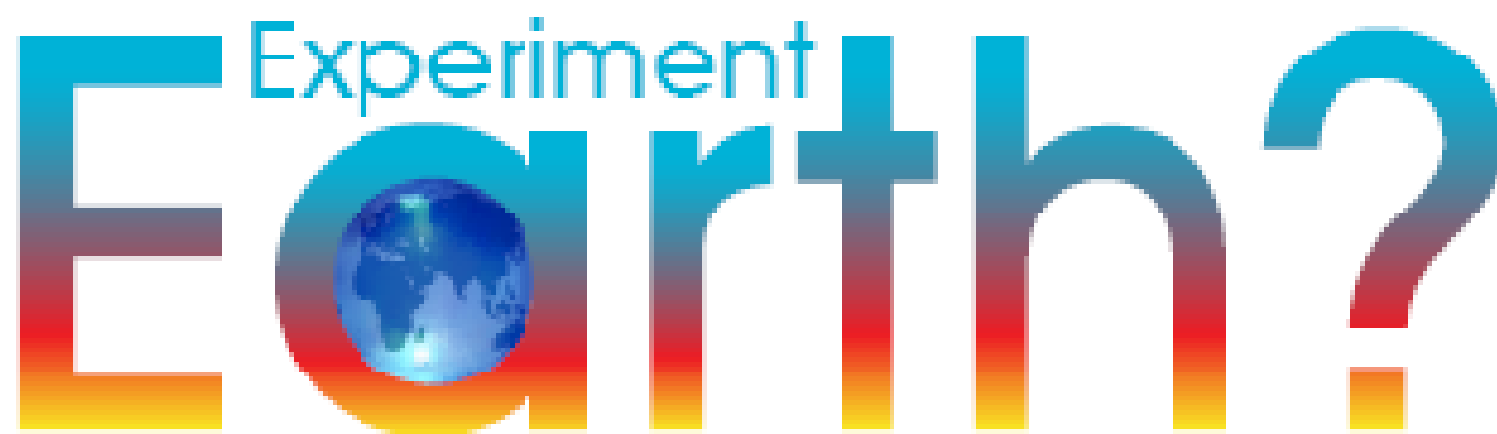


Experiment
Eo**ar**th?



Public Dialogue on Geoengineering

Hello and welcome

Today's big question:

Geoengineering: Does it have a part to play in tackling climate change?



Risks and benefits of:

- Investing in research into geoengineering
- Deploying geoengineering



Thinking about:

- Your own views
- Others in society (grandchildren, people outside UK)
- Plants and animals
- The environment overall

What are we talking about today?

Geoengineering – countering or reversing climate change

Two different types:

1. Ways of taking CO_2 out of the atmosphere once it's there
2. Trying to stop the planet heating up so quickly, by stopping some of the sun's energy hitting us.



***What's the
problem?***

Greenhouse gases warm us up

Greenhouse gases such as Carbon dioxide in the Earth's atmosphere absorb heat leaving the Earth's surface.



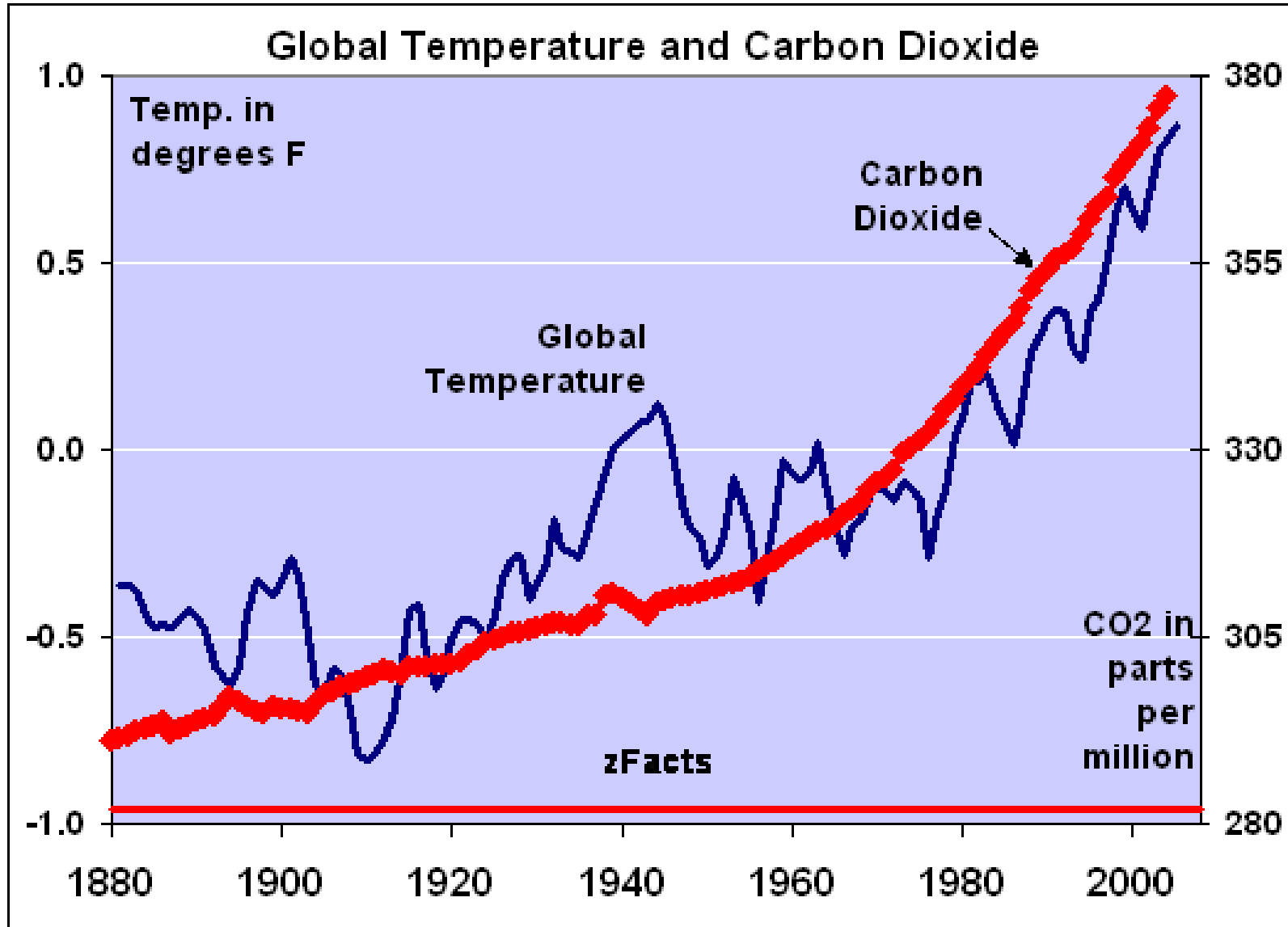
We need Carbon dioxide...

It occurs naturally in the atmosphere and without it, plants couldn't grow and the Earth would be too cold to live on - without CO₂, we wouldn't be here.



**But what if we
have too much?**

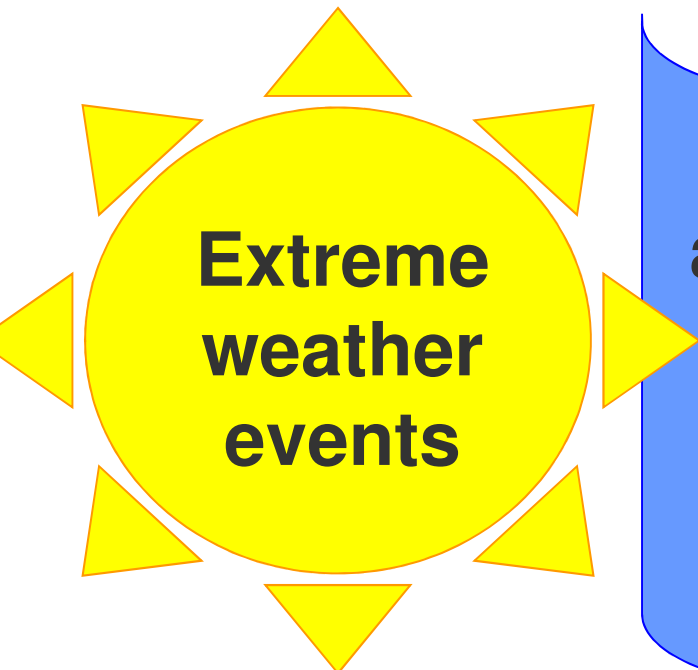
CO₂ causes changes in climate




Source:
zfacts.com

Scientists are 90% sure this is due to human activity

A future with too much CO₂...



**Extreme
weather
events**



**Rise in sea levels
affects how much
land we have to
live on and grow
crops**



**Countries
may fight
over food,
land and
water**

A future with too much CO₂...

Oceans become
more acidic,
harming coral
and sea
creatures



Probably
other
unexpected
effects too

How serious is it?

Scientists are doing research to find out how critical the climate change situation is.

What will be the impacts on natural systems?

What is the potential for sudden and/or irreversible change?

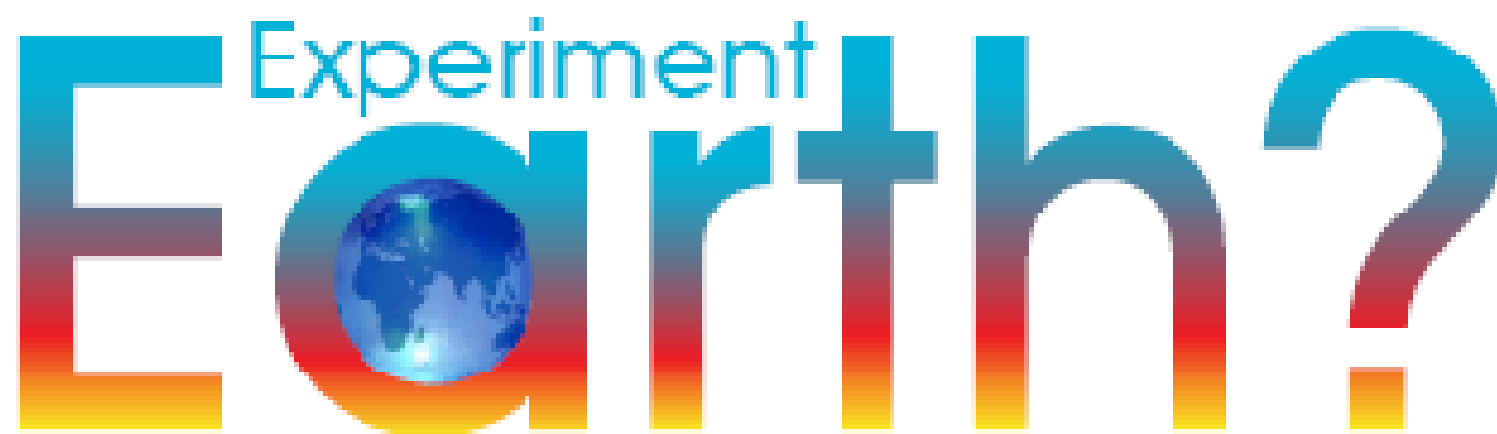
What will the impacts on us be?

How far along the road are we?

But most scientists think that we should try and keep temperatures to a maximum of 2°C above preindustrial ...to avoid some of the biggest changes



Experiment
Eo**ar**th?

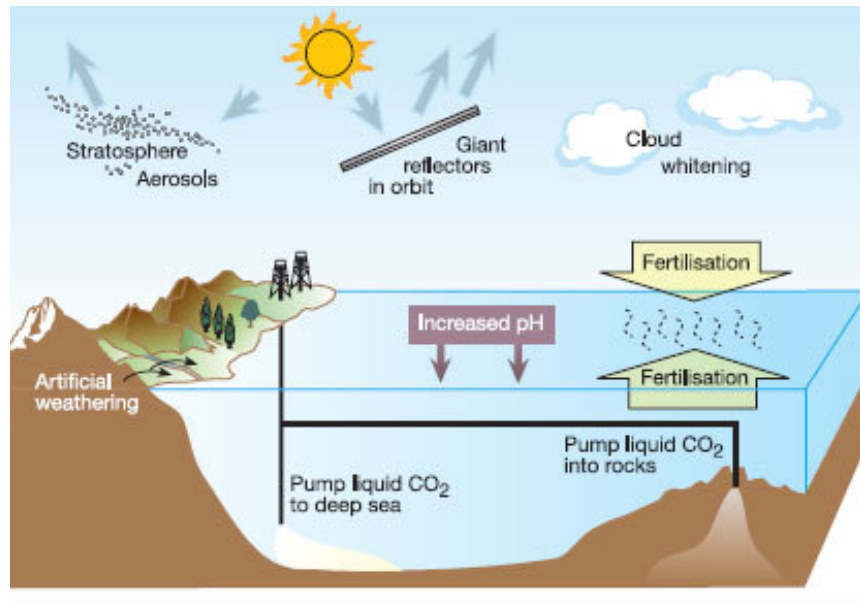


Public Dialogue on Geoengineering



***So what can
we do?***

At the moment, 3 approaches



Geoengineering –
countering or
reversing climate
change

Mitigation: reducing emissions



International agreements



National

Low carbon energy generation – wind, tidal, solar

Emission trading schemes

Taxing carbon and fossil fuels

Waste minimization/landfill regulations

Energy standards for appliances, housing and transport

Carbon Capture and Storage

Individual

Flying and driving less – insulating our homes – turning off appliances – using energy saving light bulbs and appliances – buying local



Reducing emissions is a challenge

It's the preferred option

But we will need to cut
back a lot

**Is it fair on
poorer /
more rural
nations?**

**Is it fair on
developing
economies?**

**Could make
a real
difference to
our way of
life in the UK**

Why not just adapt to change?

There is a limit to our ability to adapt

UK and other highly industrialised countries contribute most to emissions, and are best able to adapt.



Poor, less educated, or more isolated communities could find it harder



And adaptation could involve 20-30% of species on Earth going extinct

Alongside these options we have...

Geoengineering – countering or reversing climate change

Two different types:

1. Ways of taking CO₂ out of the atmosphere once it's there
2. Trying to stop the planet heating up so quickly, by stopping some of the sun's energy hitting us.

Why we are here today

NERC is considering how to approach research on geoengineering, and want to understand your viewpoints.

Questions NERC are considering include whether to invest in geoengineering research, and if so...

- Which areas to prioritise?
- On what timescale?
- What factors should we take into account?

NERC is working with the Royal Society, EPSRC and Sciencewise-ERC to carry out this project.



How your views make a difference

Your views will:

- help NERC to consider the ethical, moral and societal implications of geoengineering research funding
- inform NERC priorities for 2010-2011, as well as NERC's strategy, which is currently being reviewed

The results will be available to other organisations with an interest in geoengineering. Government departments and agencies are involved in the process - some are also on the Steering Group.




***This
morning's
task***



***Thinking about
two sorts of
geoengineering***

Ways of taking carbon out of the atmosphere



“Carbon Dioxide Removal” (CDR)

Removes **carbon dioxide** from the atmosphere to address the cause of climate change.

Takes a long time to have a noticeable effect

Helps protect marine life. CO₂ dissolves in the surface waters of the sea, making them more acidic and harmful to sea life and coral reefs – removing CO₂ from the atmosphere reduces acidification

Stopping some of the sun’s energy hitting us



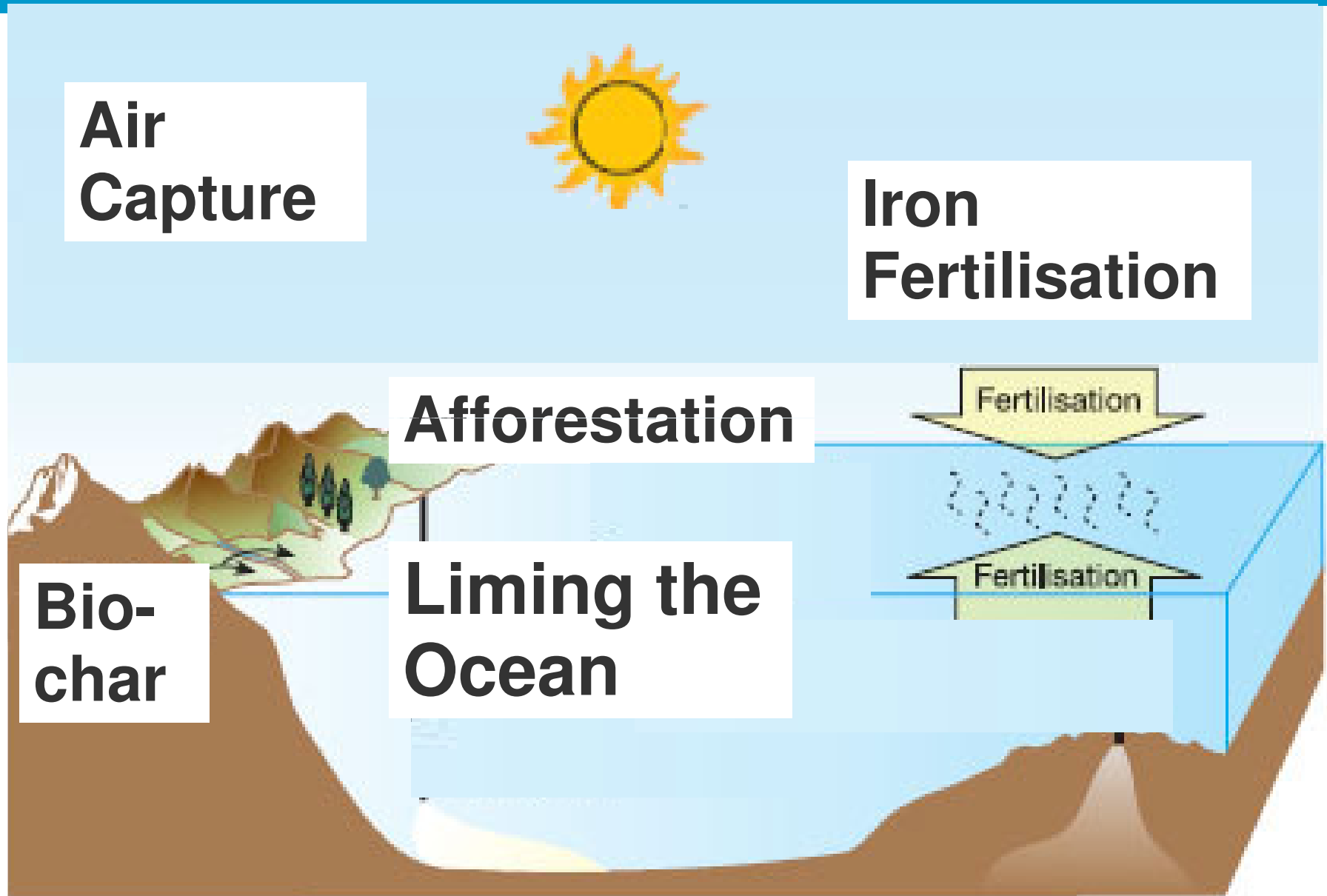
“Solar Radiation Management” (SRM)

Offsets the effects of increasing greenhouse gas concentrations by causing the Earth to absorb less solar radiation.

Can reduce temperatures relatively quickly

Prevents the Earth warming up, however will not help protect ocean life – as CO₂ is still present at high levels in the atmosphere

Carbon Dioxide Removal



Solar Radiation Management

