

# Climate Change

FACTSHEET 8  
August 2006



## What is Climate Change?

Climate Change refers to the variation in the Earth's global climate or regional climates over time. It can describe the changes in variability, the average state of the atmosphere or the average weather over time scales that could start from decades to millions of years. Generally though today 'climate change' describes the shifts in temperature over the last 100 years and includes predictions for the next 100 years or so.



## The Difference between Global warming and Climate Change

Global warming refers to the gradual increase in global temperatures caused by the emission of gases that trap the sun's heat in the Earth's atmosphere. Gases that contribute to global warming include carbon dioxide, methane, nitrous oxides, chlorofluorocarbons (CFCs), and halocarbons (the replacements for CFCs). However some areas of the earth, like the UK, the temperature could fall hence the term Climate Change is used as temperatures everywhere won't necessarily increase.

## Current Attitudes towards Climate Change

- Survey results show that only a minority of people understand what causes climate change
- Only half the population think they will be directly affected whilst the remainder think that it is confusing and cannot see how it will directly affect them
- Climate change was ranked at the bottom of a list of key challenges facing the UK in a recent survey
- Barely half of all individuals do not see how their actions can make any difference
- Many people feel that Climate Change is a depressing and negative issue
- Many British people think that it is a more important issue for the world than it is for Britain

*[source: [www.climatechallenge.gov.uk](http://www.climatechallenge.gov.uk)]*

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## Key Facts

- The amount of Carbon Dioxide (CO<sub>2</sub>) in the atmosphere has increased by **30%** since the Industrial Revolution in the 1850s
- Atmospheric CO<sub>2</sub> levels have risen from 280 parts per million (ppm) in pre-industrial times to **370 ppm**
- Man-made greenhouse gases have **accelerated** what was a wholly natural process
- In the past century, the average near-surface global temperatures have increased by **0.7°C**
- Since 1990, the ten warmest years have occurred, six of which were between 1995 and 2004. The August 2003 heat-wave was reported as being the hottest, with temperatures reaching upto **38.5°C** in Brogdale, Kent
- The floods that occurred in the UK in the Autumn and Winter of 2003 were the worst seen in 270 years. Farm-land flooding cost the industry almost **£500 million**
- Arctic sea ice has reduced by about **40%** in recent decades
- Ice sheets in Antarctica and, to a lesser extent, Greenland are **retreating**
- Frequency of extreme weather (floods, droughts, storms) is **increasing**
- Populations, ranges, migration patterns, and seasonal and reproductive behaviour of animals and plants, on land and in the sea, are changing
- January-June 2002 was the **warmest start to a year** in the northern hemisphere
- The total number of cold days (where the average temperature was under 0C) has fallen from between 15 and 20 per year prior to the twentieth century, to around **10** per year in recent years
- Sea levels are rising globally, arctic sea ice is thinning and rainfall is becoming heavier in some parts of the World. Average global sea levels have increased by **between 0.1 and 0.2 metres** over the last 100 years



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## General Effects of Climate Change

Climate Change can not be resolved instantly. There is a time lag between when emissions occur and when the effects become evident. In other words we have yet to see the impacts from greenhouse gas emissions from the last 30-40 years.

The warming that is observed can have various effects on the climate;

### *Rainfall - possibilities dependent on regions*

- Extreme rainfall

### *Water*

- Less rain
- Reduced availability for irrigation and drinking
- Rising sea levels, therefore salt contaminating ground water in coastal areas
- More frequent droughts likely
- Areas such as N. Africa, Middle East and the Indian sub-continent likely to suffer water shortages by 2080

### *Harvest*

- Temperature increase and change of rainfall patterns can affect crop yields, e.g. Cereal in India

### *Sea Level*

- Could rise by more than 40cm. This is due to water expansion (as water warms up it expands) and/or ice from polar caps or glaciers melting into the sea

### *Disease*

- Due to temperature increase, areas that harbour disease are likely to shift, thus increasing exposure.
- It is expected that 280 million additional people will be exposed to malaria by the 2080s (China and Central Asia at greatest risk)

### *Rainforests*

- Higher temperatures and reduced rainfall, therefore rainforests likely to be lost in addition to those being destroyed by human activity

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## A Local Perspective

- Mean sea levels in the Humber Estuary and along the Yorkshire coast have risen at a average rate of 2.55mm per year over the last 80 years
- In January 2005 the highest tidal surge in four decades hit Hull. Water levels rose to about 90cm above normal levels

## Potential Effects in Yorkshire & The Humber

- Winters will be wetter, and summers, springs and autumns will be drier
- Overall there will be a reduction in average annual rainfall of up to 10%
- Loss of inter-tidal habitats in the Humber Estuary
- Increased pressure of water resources in urban areas, such as South and West Yorkshire and Hull
- Sea levels could rise between 6 and 82cm by the 2080s, with greatest increases in the Humber Estuary
- Increased solar radiation and reductions in cloud cover of between 10 and 20% along the coast

## Potential Effects on Local Businesses

- Threats of flooding/flash flooding
- Heat stress for employees causing a reduction in concentration and thus a reduction in productivity
- Increased cost in parks and gardens maintenance
- Increased costs for cooling business premises in the summer
- Damage to property from warmer, wetter winters and hotter, drier summers
- Impact on local business practices/opportunities
- Increased likelihood of drains becoming blocked



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## Possible Solutions

- Need to change people's attitudes, awareness and understanding about Climate Change
- Reduce energy consumption in businesses and at home
- Provide services for businesses to help make them more energy efficient
- Action to prepare for increased flood risks
- Provide case studies of 'success stories' to encourage other businesses to follow suit
- Reduce waste disposal—increase recycling
- Home/Business improvement and maintenance to mitigate and adapt to the Climate Change that will occur



## Useful Links

- The Department for Environment Food and Rural Affairs (DEFRA)  
<http://www.defra.gov.uk>
- Tomorrow's Climate, Today's Challenge <http://www.climatechallenge.gov.uk>
- <http://www.bbc.co.uk/insideout/yorkslincs/series7/weather.shtml>
- <http://www.bbc.co.uk/climate/>
- Responding to Climate Change 2006 <http://www.rtcc.org/2006/html/index.html>
- Climate Change - The UK Programme 2006  
<http://www.defra.gov.uk/ENVIRONMENT/climatechange/uk/ukccp/pdf/ukccp06-all.pdf#search=%22Climate%20Change%20the%20uk%20programme%202006%22>
- Envirowise - Practical Environmental Advice for Businesses  
<http://www.envirowise.gov.uk/>

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