



**Source: Direct Gov March 2010**

### **Causes of climate change human - Met Office review**

A Met Office review of the latest climate research has confirmed our planet is changing rapidly and man-made greenhouse gas emissions are very likely to be the cause.

### **Observed changes bear the 'fingerprint' of human influence**

Long-term climate changes have been observed across the globe. The changes follow the pattern of expected climate change and bear the 'fingerprint' of human influence, providing the clearest evidence yet that human activity is impacting our climate.

### **What changes have been observed?**

- global temperature increase: +0.75°C over the past century with 2000-2009 the warmest decade on record
- rainfall patterns: wet regions of the world are getting wetter, and dry regions getting drier
- humidity: increases over the last two to three decades make extreme rainfall and flooding more likely
- warming oceans: temperature increases in the last 50 years in the Atlantic, Pacific and Indian oceans are not linked to natural variations
- salinity: increased evaporation is making the Atlantic saltier in sub-tropical latitudes
- sea-ice: summer Arctic sea-ice is declining by 600,000 km<sup>2</sup> per decade (the area of Madagascar), a long-term trend only explicable by human influences

### **How the evidence stacks up**

Scientists have used sophisticated methods to identify these long-term changes, and to then consider:

- are these changes due to natural variability? (changes in energy from the sun, volcanic eruptions, or natural cycles such as El Niño)
- if not, is there evidence that human activity could be to blame?

Peter Stott, Head of Climate Monitoring and Attribution at the Met Office, said: "The science reveals a consistent picture of global change that clearly bears the fingerprint of man-made greenhouse gas emissions.

"This shows the evidence of climate change has gone beyond temperature increases — it is now visible across our climate system and all regions of the planet."





## Conclusions

The review's conclusions show the climate system is changing in a number of ways which follow the pattern of climate change predicted by computer models.

The only plausible explanation is that changes are happening as a result of human activity, including man-made greenhouse gas emissions.

There is also some evidence that changes in rainfall patterns could be happening faster than expected. More work is needed to understand why and whether this implies future changes in rainfall could be greater than models predict.

