

How does flying compare with other modes of travel for its effect on climate change?"

Aviation has by far the greatest climate impact of any transport mode, whether measured per passenger kilometre, per tonne kilometre, per £ spent, or per hour. (T&E - European Federation for Transport & Environment, 2006).

Aviation is 2-10 times more climate-intensive than surface transport. A figure of 3.5 litres fuel per 100 passenger kilometres is often used, but this gives unrealistically low emissions. It assumes that a large aircraft is used, that it is full, and on a long-haul flight. It also ignores the impact of non- CO2 emissions.

A return trip for one person from London to Edinburgh might produce approximately 70 kilos of CO2 by train, 75 with 2 sharing a small car, 100 by coach, 150 with 2 sharing a large car, or 200 by plane (excluding radiative forcing, and 400 including it). (TransportDirect – using Defra June 2007 figures)

Roughly how much CO2 are the UK's main airports responsible for each year?

The World Development Movement estimates that with the introduction of a third runway, Heathrow's annual CO2 emissions from flying will increase by 9.8 million tonnes, which is about the same as Kenya emits in a year.

Each year, estimates WDM, the UK releases as much CO2 into the atmosphere through flying as the total annual CO2 emissions from the 15 poorest countries in the world. The London airports combined emit as much as Croatia, Gatwick emits as much as Tanzania, Malawi and The Gambia combined, and Manchester emits twice as much as Uganda (WDM, 2007). UK citizens on return flights from Gatwick each year are responsible for emissions equivalent to those produced by all industry, transport and buildings of Surrey and West Sussex, which in 2003 amounted to 13 million tonnes (Gatwick Area Conservation Campaign 2007).



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Airportwatch is an umbrella movement uniting the national environmental organisations, the airport community groups, and individuals opposed to unsustainable aviation expansion

Aviation Growth

- just how bad is it for the climate?



How much of human-induced CO2 emissions, globally, come from aviation?

Worldwide aviation is responsible for somewhere between 4 and 9% of the climate change impact of global human activity – an exact figure is difficult due to uncertainty surrounding the effect of cirrus clouds, and what multiplier to use. It makes up between 5 and 12% in the EU. CO2 emissions from international aviation increased 83% between 1990 and 2006 (*T&E, Clearing the Air 2006*).

The industry persists in claiming global aviation contributes just 2%, but this figure is out of date, and does not take account of the non-CO2 impacts. IATA, the International Air Transport Association, expect international passenger demand to rise from 760 million passengers in 2006 to 980 million in 2011, at an annual average growth rate of 5.1% (*IATA 2007*), and growth in passengers means growth in aviation emissions. The UK's Secretary of State for Transport, Ruth Kelly, has said that aviation emissions worldwide have been growing at 6-7% per year (*Financial Times, 2008*).

How much of the UK's climate change gases come from aviation?

Government figures show that in 2005 aviation accounted for 6.3% of UK CO2 emissions, which gives 13% of total UK climate change damage, when multiplied by 2 to take non-CO2 impacts into account. That is an understatement because it is based on departing flights only: if the calculation is based on return flights by UK citizens in 2007 the figure would be nearer 20%.

Between 1990 and 2006, UK emissions from aviation fuel use more than doubled (*Department for Environment, Food and Rural Affairs*).

Currently international aviation is not included in the UK's climate change accounts - only domestic flights are included.

What is the extra effect of aircraft emissions at altitude?

Aircraft emissions, because they mainly occur in the upper atmosphere and include other greenhouse gases, are more damaging than CO2 emissions at ground level. To take account of this, a radiative forcing index is sometimes applied. In the past a multiplication factor of 2.7 has been used by the Intergovernmental Panel on Climate Change.

Most scientists agree that aircraft emissions are at least twice as damaging to the climate as emissions from other ground-based industries, perhaps considerably more. UK government and IPCC calculations use a multiplier of 1.9. (*Aviation Environment Federation*)

How much is global aviation expected to grow by 2030?

By 2020 aviation emissions are due to increase by 50%, to three times their level in 1990. By 2040 – even after allowing for an (optimistic) 50% improvement in aircraft fuel efficiency – aviation emissions are due to be double the present level, four times the level in 1990 (*Department for Transport, 2004*).

By 2050 the UK is committed to cut its emissions by at least 60% of 1990 levels (*Climate Change Bill*). The Tyndall Centre for Climate Change Research has calculated that, with anticipated aviation growth, the UK's objective of stabilising at an atmospheric concentration of 550 ppm would mean that by 2050 aviation would account for 50% of all UK emissions. If the UK government follows the scientific consensus that a 450ppm stabilisation level is required, then the aviation sector would exceed the carbon target for all sectors by 2050 (*Tyndall Centre, 2005*).

How much of the UK's aviation emissions are from domestic and how much from international flights?

About 20% of passengers at UK airports in 2007 were on domestic flights. (CAA) These are the only emissions from UK aviation included in the national CO2 figures. International aviation emissions are still not due to be included in the Climate Change Bill. Almost 90% per cent of flights are for holidays or visiting friends and family. The number of people choosing to take their holidays abroad increased by 48% between 1995 and 2003.

How much might UK aviation emissions increase by 2030?

The Department for Transport published annual forecasts for UK aviation CO2 emissions in November 2007. There are high, central and low forecasts. The central ones are, in million tonnes CO2:

2005 - 37.5 2010 - 42.0 2020 - 50.0 2030 - 58.9

The DfT forecasts up to 2030 are reasonable, but figures from 2030 – 2050 are probably underestimates. (*Aviation Environment Federation*).