

Contrails / Chemtrails

What are contrails?

These are ice crystal clouds that form at high altitudes from the exhaust products of aircraft when atmospheric conditions of temperature and humidity favour this. The nuclei of some of the ice crystals in a contrail will contain minute products of combustion but they are essentially pure ice.

According to some reports contrails contain barium or compounds of aluminium and silicon (often called aluminosilicates). Is this correct?

We understand from the Department of Environment Food and Rural Affairs (DEFRA) that measurements undertaken in the UK since 2004 have shown no significant increase in concentrations of barium in rainwater measured at rural sites across the UK. Moreover alumina-silicates are common in clay soils and a wide range of other minerals, therefore measurements in air and soils are dominated by the ground level sources of aluminosilicates rather than any that might come from contrails.

Are DfT aware of chemtrails?

In the UK the Department is not aware of any other matter or aerosol being ejected from aircraft (known as chemtrails), other than the normal exhaust products from the aircraft.

We are aware that other countries have on occasions used weather modification techniques such as hurricane suppression and cloud seeding, which causes precipitation by introducing substances into cumulus clouds that cause condensation. More information on this can be found in a House of Commons Select Committee on Science and Technology issued a report in 2010 entitled "The Regulation of Geoengineering" This is available at <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmsctech/221/22102.htm>

Why do contrails seem to form grid like patterns in the sky and why are they long lasting? Should they not disappear within a few minutes?

Aircraft often follow similar routes separated by altitude, time or lateral distance and that is why you see grid like patterns in the sky. There is now widely accepted scientific evidence that contrails can mix and persist in the sky to form a larger denser cloud. The Committee on Climate Change report "Meeting the UK aviation target- options for reducing emissions to 2050", states that "depending on meteorological conditions, the flight of aircraft can also cause formation of linear ice clouds (contrails) and can lead to further subsequent aviation-induced cloudiness".

Are there any ill health effects caused by contrails?

There is no evidence that contrails cause health problems. The main impact of aviation on ground local air quality relates to emissions during the landing and take-off phase up to about 3000 feet. Above this height the oxides of nitrogen and particulate matter which can cause respiratory problems, get dispersed.

Are there any climatic implications from Contrails?

We are interested in understanding the formation and coverage of contrails from a climate change perspective. DfT has a contract with Manchester Metropolitan University (MMU) lead by Professor David Lee to provide evidence, technical modelling and scientific expertise covering areas of climate change and air quality in aviation. This includes the non CO2 climate effects of aviation to which contrails and contrail cirrus will likely have a major role. Professor David Lee works closely with Reading and Leeds University who are also involved into climate change caused by contrail cirrus. The contribution from anthropogenic (man-made) cirrus remains the most uncertain component from aviation. However, current scientific understanding is that they cause an additional warming of the atmosphere. Further information can be found in the MMU Report "DfT Aviation Environment and Atmospheric Expert Technical Support" This can be found at http://www.dft.gov.uk/pgr/aviation/research/researchreport/finalreport/DfT_FinalReport_250310.pdf