

SENATOR LUGAR REPLIES

The following reply to the protest letter available on www.carnicom.com has been recently received by a citizen. This letter posted with permission on July 10 2000.

The letter is also available from the source at : <http://www.terrehauteweb.com/lugarsletter.html>

Dear Mr. #####,

Thank you for writing to me to express your concern about airborne condensation trails (contrails) and reports of possible chemical spraying that create lines in the sky. I appreciate knowing your concern on this issue.

I have contacted the relevant government agencies, including the Department of Defense (DOD), the National Air and Space Administration (NASA), the Environmental Protection Agency (EPA), the Federal Aviation Administration (FAA) and the National Oceanographic and Atmospheric Administration (NOAA) with your concerns. Each of the agencies verified that contrails occur quite naturally in the wake of aircraft, as they have done since World War II when aircraft began to fly at higher altitudes.

I also asked my Legislative Assistant for Military and Veterans Affairs to research this issue further. He is a former naval aviator with over

2000 hours of flight time and has significant training in meteorology and physics.

The trails seen behind aircraft are formed by condensation. This is caused by the same physical principles that cause us to see our breath or car exhaust on a cold day. As a aircraft climbs, it will encounter temperatures approximately five degrees colder every one thousand feet (this is called the lapse rate). Most aircraft operate at altitudes above 30,000 (approximately six miles), where temperatures are well below the freezing level even on the most seasonal of days.

For engine exhaust contrails to form, it is necessary for the aircraft to fly through very cold air, usually about minus forty degrees fahrenheit. The exhausted moisture and heat saturate the air and condensation takes place almost immediately. The length of time for which a contrail will be visible depends upon the relative humidity of the surrounding air. If low, the contrail may not form or will disappear very quickly. In humid air, contrails can persist for many hours and have been known to trigger the formation of a thin overcast of cirrus clouds.

As many have pointed out, another cause of why contrails might appear peculiar in appearance is the patten in which they appear in the sky. Air traffic flows on "highways in the sky," referred to as airways. Just like roads on a map, airways intersect at airfields or navigational checkpoints that are represented on navigational charts and defined by a latitude

and longitude or by a range and bearing to an airport beacon. Therefore, contrails will often appear in parallel or criss-crossed.

Finally, reports on the Internet and elsewhere claim links to a myriad of illnesses and injuries; however, no data exists to back up these claims. The FAA, NOAA and the EPA, as well as professors in universities around the country have examined these claims only to find out that they were made by disreputable sources, who upon challenge have provided no evidence or back up data.

I hope this information is of interest to you. Thank you again, for bringing your concerns to my attention.

Sincerely

Richard G. Lugar
United States Senator
RGL/pgp

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