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Commitment to Environmental Excellence - Contrails

Contrails - An Introduction

The Air Force operates many aircraft and space systems that are constantly interacting with the environment. Atmospheric interactions such as exhaust gases forming contrails, chaff and flares deployment that produce smoke, aerial pest or weed control spraying, or in-flight emergency fuel releases usually have very minor environmental impacts over a very limited geographical area. This site provides basic information and links about contrails, aircraft and space launch exhaust emissions, chaff and flares, aerial spraying, in-flight emergency procedures, and related topics.

Aircraft, engines, chaff, and flares can produce a variety of condensation patterns (or contrails), exhaust plumes, vapor trails, or smoke patterns. The exhaust emissions produced by aircraft and space launch vehicles can produce contrails that look very similar to clouds which can last for only a few seconds or as long as several hours. Vapor trails are formed only under certain atmospheric conditions and create a visible atmospheric wake similar to a boat propeller in water and usually dissipate very rapidly. Chaff and flares produce unique smoke patterns that are visibly different than a contrail but have the same color and appearance as a cloud but which also typically dissipates very quickly. Aerial spraying for pest or weed control and fire suppression are the only Air Force activities which involve aircraft intentionally spraying chemical compounds (insecticides, herbicides, fire retardants, oil dispersants). In the case of an in-flight emergency, jet fuel may be released to lighten the landing weight and minimize the risk of fire if the aircraft should crash.

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