

The increasingly stark political division that characterizes the current social climate of the United States has brought into focus the country's predilection to engage with and prescribe to conspiracy theories. While the percentage of US citizens who believe in them may not necessarily be greater than it was in the first half of the twentieth century, the rapid and pervasive nature of the internet and social media platforms has effectively broadened the reach of conspiracy theories and made them more accessible than ever before (Butter, 2020). One of the most prominent and persuasive of these conspiracy theories is the belief in "chemtrails"—that the contrails (a portmanteau of "condensation" and "trail") produced by jet aircraft are actually harmful chemical agents being deliberately dispersed over the population in a secret government operation for the purpose of either population control, weather control, or mind control (Cairns, 2014; Corbett, 2020; Mazon et al., 2017; Steiger et al., 2022; Tingley & Wagner, 2017; Xiao et al., 2021).

The chemtrails conspiracy theory is somewhat new (though conspiracy-minded individuals did occasionally disclose suspicions about aerial spraying in the late 1970s, it first gained traction from an online article published in 1999 by environmental journalist William Thomas) and so academic research into the phenomenon is relatively scarce (Cairns, 2014; Corbett, 2020; Steiger et al., 2022; Tingley & Wagner, 2017). There have, however, been a handful of scientific polls and studies concerned with the population's attitude toward the chemtrail theory, and most of the scholarship and articles cited in this essay examine one or more of them and expand on their implications. In his essay for the *Missouri Law Review*, Charles Corbett (2020) points out that these studies on chemtrails reveal that there is no discernable difference in percentage of believers for those who identify as belonging to either

political party, even for those with extreme political beliefs. Mazon et al. (2018) cite an international study from 2016 that determined nearly 17% of the world's population believe in the existence of secret chemtrail projects on a global scale. An article by Xiao et al. (2021) as well as one by Tingley & Wagner (2017) both reference a national poll from 2016 indicating that 10% of the US population believes the chemtrails conspiracy theory is "definitely true" while a whopping 20-30% more believe it is at least "somewhat true," revealing that thirty to forty percent of the US population may be embracing problematic views that run counter to scientific consensus.

The chemtrail conspiracy theory does not align with principles that have been firmly established about jet aircraft, aerodynamics, atmospheric physics, and chemistry. Experts have thoroughly debunked countless claims and photographic evidence produced by chemtrail believers. Most of the time these refutations are easily explained, as when anomalous cloud and contrail patterns are determined to be the very ordinary results of aircraft flight patterns or everyday weather phenomena (Corbett, 2020). Mazon et al. (2017) note that in 2000, several authoritative scientific organizations including NASA and the NOAA jointly published a document as a rebuttal to chemtrail conspiracy theories, though these theories have only spread more widely and grown in popularity since then. Authoritative sources of information have been largely unsuccessful in stemming the flow of chemtrail misinformation.

There are two aspects of the chemtrail conspiracy theory which make it particularly troublesome in terms of stifling its unchecked growth and dissemination. The first is that it has as one of its foundations an enormous kernel of validity—there exists an active, legitimate scientific subject called geoengineering that explores theoretical projects and speculative

studies that closely align with the ideas chemtrail believers claim. Geoengineering involves cloud-seeding, atmospheric chemical dispersal, and other engineering endeavors as a means of potentially combating climate change. While chemtrail enthusiasts claim these projects have been occurring for years and continue to be carried out on a huge scale, and while they might insist that the goal is something nefarious such as unsolicited pharmaceutical testing or mind-control, geoengineering has yet to be conducted on any significant scale, and its intended purpose is for the lessening of atmospheric greenhouse effects (Corbett, 2020; Tingley & Wagner, 2017).

Due to the frequency of either the mistaken or intentional conflation of geoengineering scholarship and online chemtrail conspiracy theory content, the legitimate field of study that is geoengineering suffers undeserved setbacks and marginalization. Mere association with the popular conspiracy theory prevents it from advancing at a pace commensurate with its validity (Corbett, 2020; Mazon et al., 2017; Tingley & Wagner, 2017). Further complicating matters, as Rose Cairns (2016) astutely points out, is the fact that both the mainstream science of geoengineering and the chemtrail conspiracy theory groups employ very similar “emergency rhetoric,” buzzwords and phrases like “tipping point” and “threshold.” Through no fault of their own, legitimate solar geoengineering scientists and researchers can sometimes look a lot like chemtrail believers.

The second aspect of the chemtrails theory which hinders attempts to slow its spread and influence is that because of the “invisible” nature of many chemicals, assertions that the visible contrails from aircraft are nothing more than water and exhaust particles can be unconvincing (Xiao et al., 2021). In other words, the fact that any number of potentially harmful

chemicals might to the naked eye be indistinguishable from particulate water and jet exhaust is sufficient justification for chemtrail believers to dismiss claims that nothing underhanded is going on (Mazon et al., 2017). It would be unrealistic to point at a contrail in the sky, explain that it occurs naturally because of well-understood processes, and subsequently expect a chemtrail believer to change their mind.

There has been a steady, gradual increase in chemtrail-related online activity over much of the last two decades. Philemon Bantimaroudis (2016) cites Google search metrics from 2004 through 2015, wherein, on average, instances of “chemtrails” being searched for increase steadily from one sample period to the next. This upward trend demonstrating increasing public interest as measured by internet activity is also reflected in data collected regarding YouTube videos (Corbett, 2020). The advent of social media has played an enormous role in the growth and propagation of the chemtrails conspiracy theory and its importance cannot be overstated.

Individuals from similar or disparate walks of life but of a similar, conspiratorial mind can congregate in online groups created for the express purpose of discussing chemtrails. And because the chemtrails conspiracy theory involves a certain measure of ambiguity in some regards (actors, goals, scale, logistics), those chemtrail discussion groups often engage in what Xiao et al. (2021) call “collective sensemaking”—a situation in which the social support mechanisms coupled with a lack of dissenting viewpoints tend to fill in—or paper over—gaps in logic or causality. They further state that the group structure effectively encourages the outright dismissal of debunking information. Charles Corbett (2020) explains that these groups become echo chambers in which the “illusory truth effect” materializes, which can be explained as the repetition of false information increases the probability that it will be believed.

Furthermore, a false sense can develop that pro-chemtrail evidence and information is abundant when the community members perceive so much gathered and shared material as a collective (Xiao et al., 2021). Bantimaroudis (2016) calls these instances “group-mediated delusions,” explaining that “group delusions influence different forms of perceptions as well as individual and social behaviors” (p.29).

In their book *Conspiracies and Secret Societies*, Steiger et al. (2022) draw connections between the chemtrails conspiracy theory and the New World Order, saying that many believers see chemtrails as a shadowy government project bent on mass mind-control. Other sources were focused instead on far more realistic analyses, like Alexandra Bakalaki’s essay (in *Visual Anthropology Review*) *Chemtrails, Crisis, and Loss in an Interconnected World* (2016), in which she explains the connection between a steep uptick in public interest in the chemtrails conspiracy theory in Greece and that country’s 2009 economic crisis. No matter the specific focus of the text, each of the works examined seemed to explore the human reaction to isolation, perceived injustice, marginalization, paranoia, uncertainty—these themes and others that relate in one way or another to feelings of powerlessness. As society is pulled into the future and people continue to experience these outcomes, the chemtrails conspiracy theory will continue to attract new believers.

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