

SEPT. 29, 2023 COMBINED REPLY (with some highlighting included for relevant parts):

From: Media@ec.gc.ca

Hi Dan,

Thank you for your patience and apologies for the delay.

As previously mentioned, please find Environment and Climate Change Canada's response to both your requests below:

Weather Modification Information Act and Regulations and Cloud Seeding Activities

In the past five years, between 2019 and 2023, Environment and Climate Change Canada (ECCC) has received five notices of intent and four reports, further to the requirements of the *Weather Modification Information Act* (WMIA). Notices of intent and reports received are not posted publicly at this time; however, they are available upon request by the public. For your reference, attached is a .zip file that contains the notices of intent and reports received in the last 5 years.

Cloud seeding by airplane, for the purposes of hail suppression, is the only type of weather modification activity that has been reported in Canada to date. Since 1996, Weather Modification International has conducted cloud seeding in central Alberta from June to September, in the area between Red Deer and Calgary. This activity is conducted on behalf of the Alberta Severe Weather Management Society with the goal of reducing damages and losses caused by hail. While it is difficult to quantify the impact of this hail suppression activity, hail damage is known to cause considerable damage to crops and private property. According to the Institute for Catastrophic Loss Reduction, from 2008 to 2020, hail damage insurance claims in Canada totalled \$8.12 billion, \$5.96 billion of which was for property damage in Alberta. [1] A single hailstorm in Calgary on June 13, 2020 resulted in \$1.3 billion in insurable damages [2], making it the costliest hailstorm in Canada's history. Cloud seeding activities in Alberta are done in an effort to reduce such damages by introducing seeding agents that aim to reduce the size of hailstones.

The seeding agent used in cloud seeding activities in Alberta is silver iodide, which is released through flares attached to aircraft. The use of silver iodide as a seeding agent is considered to have negligible environmental or human health impacts. ECCC and Health Canada have conducted a screening assessment evaluating the effect of silver and its compounds on the environment and human health [3]. Their

assessment determined that silver and its compounds (including silver iodide used in cloud seeding) are “not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health” .

To date, no reprimands, punishments, or penalties have been issued to parties for non-compliance with the WMIA or its regulations.

Geoengineering and Climate Change

SRM is one form of climate engineering in which some intervention is made to enhance the reflection of sunlight back to space, thereby cooling the climate (offsetting some or all of human-caused warming). One such approach would be to inject aerosols (microscopic particles) into the stratosphere to mimic the known cooling effect of large explosive volcanic eruptions. At this point, SRM research is entirely done via computer simulations, and there are no large-scale implementations of SRM, nor plans to do so either in Canada or elsewhere.

It is important to note that cloud seeding for weather modification should not be confused with geoengineering. Weather modification activities, as defined in the WMIA are localized activities whose intended purpose is to increase, decrease or redistribute precipitation, decrease or suppress hail or lightning, or dissipate fog or cloud. This is most commonly done by means of “cloud seeding”. Such activities do not, and are not intended to, affect climate. Under the WMIA, any weather modification activity undertaken in Canada must be officially reported to ECCC, following the guidelines set out in the WMIA and its Regulations.

At this time, geoengineering concepts, or potential technologies, are still in their relatively early stages, with significant further study and consideration still needed. This is a complex topic that is gathering more attention both domestically and internationally in recent years. As a department, ECCC will continue to track and monitor developments on this emerging topic.

References

1 <https://www.iclr.org/hail-2/>

2 <https://www.insurance-canada.ca/2021/01/18/ibc-severe-weather-2020-insured-damage/>

3 <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/screening-assessment-silver-compounds.html>

Regards,

Nicole Allen (she/her/elle)

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