

Statement of Dr. Michael C. MacCracken
to the Subcommittee on Delivering on Government Efficiency (DOGE)
of the Committee on Oversight and Accountability
of the United States House of Representatives

Hearing on
“Playing God with the Weather – A Disastrous Forecast”
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Chair Greene, Ranking Member Stansbury, honorable committee members, thank you for inviting me here today. My name is Michael MacCracken. After earning my Ph.D., most of my career was spent leading climate change research programs at the Lawrence Livermore National Laboratory, mostly using computer models to analyze how natural and human-induced factors might affect the climate. My last nine years with Livermore were on assignment as the senior climate change scientist with the interagency Office of the US Global Change Research Program here in Washington, including for four years heading the coordination office for preparing the first national assessment of the impacts of climate change and variability, an assessment called for in the Global Change Research Act of 1990.

Since retiring, I have served in a number of positions on a *pro bono* basis, including as Chief Scientist for Climate Change Programs with the Climate Institute, president of the International Association and Meteorology for four years, and a participant in various other national and international activities. I am currently serving on the steering circle of the Health Planet Action Coalition and on two groups seeking to make energy more affordable. The views I express today are my own and not associated with any commercial entity or special interest group.

A primary lesson from my research career is that climate has changed in the past and so can be expected to change in the present and future. What scientific research is increasingly showing is that significant changes in climate have occurred for a reason—they are not just random. In the past, the forcing factors have mainly been due to natural influences like volcanic eruptions, changes in the Earth’s orbit around the Sun, changes in atmospheric composition, changes in land cover and more. Research is now indicating that global warming over the last two centuries is primarily due to human-caused influences.

With respect to the Subcommittee’s interest in weather modification, research has made clear that changing a major *specific* weather situation, whether a hurricane, a drenching rain, or a drought, is way beyond human capabilities. As the EPA Web site notes, however, there are attempts being made to wring a bit more rain or snow out of days with clouds that are blowing by. As the other panelists have said there is not convincing evidence that cloud seeding can do this, possibly helping farmers in places in

very dry places like Texas and Arizona, nor is there convincing evidence it is of no benefit. This is exactly why so little weather modification is taking place—it is just not clear that the investment provides any net benefits.

With respect to the Subcommittee's interest in theoretical "geoengineering," the notion is to explore if there are viable approaches to offsetting the increasing incidence of extreme weather conditions and impacts resulting from climate change. My views in support of research on geoengineering are diametrically opposed to the views of the other members of today's panel. Approaches to offsetting global warming are generally designed to imitate natural cooling processes, but in optimized ways. A growing number of climate model simulations suggest it is likely possible to have a net beneficial effect, but there are a host of questions for research to consider, particularly relating to relative positive and negative consequences and how to maintain cooler conditions over time. I would be happy to answer questions about this emerging field.

Finally, I want to emphasize three points regarding geoengineering:

- First, no governments, industries, or scientists are engaged in global-scale geoengineering of any type; there are, however, some localized efforts underway.
- Second, at present, computer simulations are the main way to evaluate potential effectiveness. This research is important to do to determine if the worst impacts of climate change can indeed be moderated if the need arises.
- Third, given the increasingly dire consequences being experienced around the world, the United States needs to understand geoengineering's strengths and weaknesses if more vulnerable nations feel forced to move forward. Banning research, as some cities and states are doing or proposing is not the way to get the information to determine if at least some global suffering can be alleviated.

Impacts from extreme weather and climate change are growing. We owe it to Americans, who for many reasons are also present around the world, to ensure that we have the facts we need to understand, predict, warn and perhaps one day moderate – to the extent we can – the impacts of extreme weather and sea level rise. I would therefore urge the Congress to continue its longstanding practice of supporting and overseeing transparent research.