

With the depressing news that the Senate will not go forward on a climate bill, I thought it worth revisiting a question I [posed](#) a year and a half ago: is geoengineering inevitable? If we assume that U.S. leadership is crucial to cutting greenhouse gas emissions by 80 percent over the next forty years, and if the U.S. Senate can't act even with a 60-40 Democratic majority and even in the face of the worst oil spill in U.S history, well, the answer seems closer than ever to yes. So what's the state of geoengineering research?

In a new and very interesting [study](#), Carnegie Mellon climate physicist Kate Ricke and colleagues modeled what would happen if we injected reflecting aerosols in the stratosphere. These aerosols, Ricke concludes, could in fact stabilize global temperatures at lower levels. But there's of course a catch. Actually there are two catches. One is that the reflecting aerosols (sulfur compounds) would also reduce overall precipitation. And the second is that the changes the aerosols would produce would result in uneven changes across the planet so that, for example, China's temperatures could be stabilized at close to the baseline using levels of sulfates that would cause India to be colder and wetter than is normal. And vice versa. Ricke [acknowledges](#) that the results are based only on one model and that regional results could vary in different models but the overall point is the right one: sulfates can't return the globe to its normal baseline state. They would succeed in cooling the planet and the results might even be better than an overheated planet but they're no substitute for cutting carbon emissions dramatically.

The modelling results also demonstrate how difficult it would be to decide how to engage in such geoengineering. If one level of sulfates brings China to relative normalcy but does so at the expense of India's climate and so forth who decides and under what circumstances how much should be injected, when and by whom? The global community can't currently agree on who should be responsible for cutting emissions and by how much even in the face of overwhelming scientific agreement that the globe is heating and that havoc awaits us.

Hard to imagine gaining consensus that we should monkey with the stratosphere in a way that will produce new and potentially unpredictable weather patterns in some parts of the planet but not others.