Title: Stratospheric Aerosol Injection Research and Existential Risk

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Stratospheric Aerosol Injection Research and Existential Risk

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Highlights

- It is deeply uncertain whether Stratospheric Aerosol Injection (SAI) research is justifiable, but a plausible tentative case be made for a research programme initially primarily focused on the governance and security aspects of SAI.
- SAI would eliminate the arguable environmental existential risks of climate change; some lines of argument suggest that the probability of existential catastrophe-level warming is around 3%, though others suggest that the risk is below 1%.
- It is extremely unclear whether SAI would reduce willingness to mitigate, and extensive efforts should be made to reduce the risk of mitigation obstruction.
- Termination shock risk is overstated.
- The risk of unilateral deployment is overstated, but SAI introduces other serious security risks.

Climate change has been known to be a serious problem for decades but as yet very little has been done about it. The prospects of strong action in the future also appear slim, as states have incentives to pass on the costs to other states and to future generations. The Paris Agreement, widely seen to have been a watershed moment in climate negotiations, relies on unprecedented and unrealistic deployment of CO_2 removal technology (Williamson 2016), and state pledges and promises made in preparation for Paris, even taken at face value, violate the agreed <2°C target (Rogelj et al. 2016). With a climate sceptic now US President, pessimism seems even more justified. There is little evidence that there will be a serious course correction in global climate policy in the near future. From the point of view of the future of humanity, this is concerning. Some controversial lines of argument suggest that