

Review of the Climate Impacts of Sulphate Aerosol Injection

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Solar Radiation Management (SRM) Climate Engineering (CE) has been proposed as a means to reduce some of the risks posed by rising greenhouse gas (GHG) concentrations. Numerous studies have shown that whilst no SRM technique can reverse all the effects of elevated GHG concentrations in the atmosphere, they may be able to offset changes in key climate variables, such as temperature and precipitation, thus potentially reducing climate risks. Whilst there is a growing understanding of the climate response to various SRM techniques, very little work has been done to determine what the climate impacts response to these techniques would be. Whether SRM ought to be considered a partial substitute for mitigation and adaptation efforts, a potential supplement to existing climate policies, an emergency response only, or dangerously hubristic, is contested. However, central to such considerations of SRM is the question of whether and to what extent it could reduce the risks of climate change.

To investigate this question a group of climate impacts experts with a wide range of expertise were brought together with a small number of SRM experts on the 9th and 10th of March to evaluate the climate response to SRM. This presentation will summarize the findings of this workshop addressing such questions as:

- 1) What can be inferred about the climate impacts response from current climate model results on SRM?
- 2) Which uncertainties in the climate response to SRM are the most significant in terms of shaping climate impacts?
- 3) What can be known and what cannot be known in advance about the climate impacts of SRM?
- 4) What are the most pressing research questions on the climate impacts of SRM?