

## Regulation of Radiation Management: Uncertainty and Incentives

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Spreading sulfur into the stratosphere or brightening marine clouds to reject incoming sunlight are discussed as measures to counteract extreme or even catastrophic climate change. These measures are examples for radiation management (RM)---low-cost, high leverage measures with the potential to influence the climate within the time span of a year. However, such a potential application would not allow compensating all aspects of climate change equally at the global and in particular at the regional level and would imply an uneven distribution of cost and benefits. Accordingly, a compensation scheme would be an essential element to achieve an international consensus on RM application, however, would have to deal with the attribution problem resulting from the highly variable climate system with stochastic events. We show that the regulation of nonsource point pollution can be extended to regulate RM application and that basing the tax and subsidy payments not on the level of RM but on observed changes in climate variables achieves the first-best level of RM application. We derive a mechanism to implement the RM compensation scheme and provide a quantitative example of its application in the year 2100.