Uncertain Remedies to Fight Uncertain Consequences: The Case of Solar Geoengineering

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Abstract

Solar geoengineering can cool our planet and counteract the warming caused by greenhouse gas emissions. Given current emission trajectories, solar geoengineering has the potential to save lives, reduce severe impacts on economic production, and save ecosystems and island states. Deterministic integrated assessment models tend to show major benefits from solar geoengineering, but are highly sensitive to the assumed and highly uncertain damages from solar geoengineering as well as the effectiveness of cooling the planet. We analyze how uncertainties and the anticipation of learning change the case for solar geoengineering in a world with an uncertain temperature response to carbon dioxide emissions.

JEL Codes: Q54, H23, H43, E13, D80, D61

Keywords: geoengineering, climate change, integrated assessment, uncertainty, learning, social cost of carbon

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