Geoengineering in climate negotiations

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Résumé

Geoengineering is the intentional modification of the Earth's climate (to counteract global warming), and little is known about the entire consequences that it entails, which might prove dramatic. Our game theoretic model shows that, if some countries face moderate impacts of a low level of mitigation but fear the uncertain consequences of geoengineering, they could agree for a high mitigation policy in order to avoid the deployment of geoengineering by countries facing disastrous damages of climate change. Thus, the (unused) option of geoengineering helps reaching a welfare-improving subgame perfect equilibrium as compared to the low mitigation one that would prevail without this possibility. Consequently, if research on geoengineering reduces uncertainty and dismisses (resp. confirms) the catastrophic scenario, so that no country fears geoengineering anymore, the equilibrium that prevails is geoengineering (resp. low mitigation), even if this could be suboptimal for aggregate welfare. Thus, our model brings an original argument against research on geoengineering, as the uncertainty that surrounds it can act as a commitment device in climate negotiations.

Mots-Clés: Geoengineering, negotiations, climate change, solar radiation management, deterrence

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