
Socioeconomic impacts of space risks

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Résumé

Space phenomena have been studied in detail in the peer-reviewed scientific literature. However, there has arguably been scant analysis of the potential socioeconomic impacts of space risks, despite a growing grey literature of national studies with different degrees of methodological rigour. Variance in the estimates of economic impacts from different studies ranges from trillions of dollars to almost negligible, providing little confidence to decision makers in industry or government. In this lecture, an introductory overview of the existing state-of-the-art in space weather socioeconomic impact assessment will be presented. This will include consideration of the direct and indirect impacts to infrastructure from space risks, by taking a systems-based engineering approach, driven largely by the fact everything is increasingly connected by electricity and the internet. A brief overview of the role of government and the insurance industry will be provided, as they bear the main risks, and it is important to be aware of the purpose they serve in this context. A basic introductory presentation of economic impact assessment methods will also be provided as quantitative economic tools like cost-benefit analysis are a foundation stone of decision making in industry and government. Finally, a discussion will be held on the inherent uncertainty in the quantification of space weather risks, and how large inaccuracies in physics and engineering have downstream impacts on our estimation of potential socioeconomic effects.

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