



## Probabilistic Forecast for 21st Century Climate Based on Uncertainties in Emissions

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Probabilistic projections of climate change from present to 2100 using large ensembles of runs of the MIT Integrated Global System Model (IGSM) assuming no policy and four stabilization targets will be reviewed, and their implications for risk assessment and decision-making discussed. The IGSM links detailed sub-models of economics, climate processes and ecosystem functioning. These new projections by Sokolov et al (2009) and Webster et al (2009) are considerably warmer than the earlier Webster et al (2003) projections. The leading causes for the warmer predictions include taking into account the cooling in the second half of the 20th century due to volcanic eruptions and use of an improved method for projecting GDP growth that eliminates many low emission scenarios. By examining by how much and why the odds for dangerous amounts of warming and sea level rise are decreased by lowering the stabilization targets, arguments can be made to justify the expenditures necessary to achieve these targets.