Uncertainty in climate impacts under stabilization scenarios

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This talk will present the uncertainty in future climate change projections from Earth model of Intermediate Complexity (EMIC), the MIT Integrated Global System Model (IGSM). We focus on the reduction in the probability of exceeding threshold values in key climate impacts, such as global mean temperature change and sea level rise, that result from global greenhouse gas stabilization scenarios. We will present results of a Latin Hypercube Sampling Monte Carlo simulation of the MIT IGSM, representing uncertainty in both socio-economic parameters and earth system model parameters. The reduction in the probability of extreme outcomes will be illustrated for CO_2 stabilization paths that converge to 750, 650, 550, and 450 ppmv. We will demonstrate that the reduction in risk is highly non-linear in stabilization level, and that tradeoffs exist with the risk of high economic costs.