

Possible Global Warming Futures, an Imprecise Probability Theory Approach

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This presentation is about IPCC scenarios and precaution. We do not assume that precise probabilities are known about future states of the world, but more imprecisely. That information is represented by a set of probability distributions. This allows to exhibit a risk-neutral precautionary decision-making criteria, and to present uncertainty using possibility distributions, a notion introduced in Economics by Shackle in 1954. I used these tools to analyze model results from the IPCC SRES database, and expert opinions from the Keith-Morgan elicitation survey, ultimately assessing a possibility distribution of global warming in 2100. Next, we examine how to communicate rationally these results, to solve the existing IPCC controversy about climate change scenarios. To bridge the gap between forecasts and scenarios we suggest representing futures when the information is given as a possibility level. The conclusion is that the least surprising global warming by 2100 is 2.4 degree C, but this is no more probable than either the low or high figure of 1.1 and 4.0 degrees warming. In SRES terms, this information is best supported using scenarios (B2, A1B, A1F).

Abstract for the International Energy Workshop
jointly organized by the
Energy Modeling Forum (EMF), International Energy Agency (IEA) and IIASA.
24-26 June 2003 at IIASA Conference Center, Laxenburg, Austria