Optimisation of economic welfare under an uncertain climate guardrail

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We discuss a stylised portfolio of climate change mitigation options and ask the following question: what is the intertemporally optimal mix of these options under the boundary condition of a climate guardrail? We impose a guardrail that requires the increase of global mean temperature T to be limited to 2K and assume an uncertain link between carbon dioxide concentrations and T. After a short review of present-day knowledge on this uncertainty – in particular the role of climate sensitivity – we discuss ways to process the uncertainty in an economic optimisation procedure. Hereby the focus shall be on quantiles rather than moments of the associated probability distribution.