

Mini-Conference “How do we tackle climate change uncertainty?”

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Uncertainties in climate models - from Earth System Models to (simple) climate emulators

Abstract:

I give a brief overview on global climate models, from comprehensive and complex Earth System Models (ESMs) to "simple" climate emulators (CEs). This spans a range from a key workhorse of climate science to a key component in linking climate and economy. It also spans a range from finer spatial and temporal scales and quite detailed physics to 'coarse but cheap' models.

Special emphasis is given to associated uncertainties, their sources - from assumptions about future society over physical aspects and their modeling to internal variability of the climate system - and their manifestations - in terms of spatial and temporal scale as well as climate variables. The later question, about scales and variables, relates to how and to what degree uncertainties of 'coarse but cheap' CEs and ESM uncertainties are linked. Also, given the context of the workshop, one may ask what scales need to be captured from the point of view of damage- / economy-models.