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Representing storylines with causal networks to support decision making

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Physical climate storylines, which are physically self-consistent unfoldings of events, have been powerful tools in understanding regional climate impacts. We show how embedding physical climate storylines into a causal network framework allows user value judgments to be incorporated into the storyline in the form of probabilistic Bayesian priors, and can support decision making through inspection of the causal network outputs.

We exemplify this through a specific storyline, namely a storyline on the impacts of tropical cyclones on the European Union Solidarity Fund. We outline how the constructed causal network can incorporate value judgments, particularly the prospects on climate change and its impact on cyclone intensity increase, and on economic growth. We also explore how the causal network responds to policy options chosen by the user. The resulting output from the network leads to individualized policy recommendations, allowing the causal network to be used as a possible interface for policy exploration in stakeholder engagements.