Title: Uncertain science, policy and public action: communicating the science of climate change through robustness indicator maps

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Abstract: The integration of science with policy and public action offers the potential to support more informed decisions. When faced with complex societal questions, such as the possible impacts of climate change on society, human health and the environment, uncertain scientific results often serve as the foundation for public understanding of, and to some level engagement with, proposed policies and solutions. Translating scientific research into usable information requires that these often complex and inherently uncertain results be transformed into easily consumable findings and recommendations. This poses a significant challenge with complex, often abstract scientific data, and a diverse audience of information consumers.

While scientists are often comfortable working with and interpreting the uncertainties inherent in climate science, policy makers and the public tend to struggle with this uncertainty. Science communication that engages the intended audience so that the information is both usable and useful has the potential to support the search for solutions that limit the magnitude (mitigation) and impact (adaptation) of climate change. This research presents *Robustness Indicator Maps* as a method for communicating climate change science and its associated uncertainty in a manner that supports an understanding of the relationship between science, policy and public action. Robustness indicator maps summarize how well the results of a policy or public action meet user-defined goals for uncertain future conditions. In this paper, we illustrate how robustness indicator maps can be used to communicate uncertain climate change science through a case study that looks at the impact of land use on nutrient pollution and water quality.

Key Words: visualization, climate change communication, uncertainty, public policy