

IMPROVING MODELING OF EARTH SYSTEM AND INTERSECTORAL DYNAMICS AT LOCAL SCALES: HURRICANE STORYLINES

Kevin A. Reed

Stony Brook University, Stony Brook, NY, USA

The production of actionable climate science relies on effective communication of regional climate information and its associated uncertainties across sectors. To be of value beyond academic circles, climate data must be sufficiently credible (i.e., physically grounded), understandable (communicated in the vocabulary of the decision-makers), and useful for the particular decisions that need to be made. Comprehensive assessment of both dynamical and statistical climate models adds substantial value to their outputs, particularly when the evaluation criteria are the product of a two-way dialogue between scientists and end-users. In this work, we provide an example of such efforts through the use of hurricane storylines. In particular, 7-day ensemble atmospheric model simulations are initialized in advance of Hurricane Irma's landfall in 2017 to explore characteristics of the storm's hazards. Additional simulations under future warming levels are completed to estimate the impact of global climate change on Hurricane Irma's hazards, particularly rainfall extremes. The work demonstrates the usefulness of storyline approaches, informed by interactions with water resource managers, to communicate climate risk at regional scales.

PRESENTER BIO: Dr. Reed is the Associate Dean for Research and an Associate Professor in the School of Marine and Atmospheric Sciences. Dr. Reed leads the Climate Extremes Modeling Group, which focuses on investigating how extreme events may change in the coming decades to better translate state-of-the-art science for climate adaptation applications.