

Multi-hazards Risk of Tropical Cyclones in a Changing Climate

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Tropical cyclones (TCs) cause tremendous damage worldwide due to their associated strong winds, heavy rainfall and storm surge. As the climate warms, these TC hazards may intensify, making their societal impacts an increasing concern. Recent events, including Hurricane Katrina of 2005 and Hurricane Sandy of 2012, have revealed the vulnerability of the U.S. to severe TCs. To prevent such TC disasters in the future, major advances in TC risk assessment and management are urgently needed. In this talk, we review our recent studies that take a physically-based approach to better assess and manage TC risk, incorporating information on current and projected future climates, as well as exposure and vulnerability. Such a methodology includes three components: estimating the storm climatology, modeling land-falling hazards, and characterizing damage and losses.