MMM SEMINAR SERIES

Mesoscale & Microscale Meteorology
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LABORATORY

Quantifying the Influence of Climate Change on Economic Risk from Hurricanes in the United States

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Hurricanes are one of the costliest natural disasters, imparting over $50 billion in losses per year in the U.S. alone. Because each event can cause significant immediate damage, as well as long-lasting negative impact, the resilience of coastal regions depends crucially on quantifying the present and future risk of hurricane-driven economic losses. In this study, we construct and apply an open-source, physical-econometric catastrophe model that directly simulates high-resolution storm surge and wind from >100,000 real and synthetic storm events, accounting for probabilistic local sea level rise. We merge this hazard model with a property sale price dataset for all U.S. properties and insurance claims data from historical storms to empirically derive a damage function for both of these hazards. We then project damages from 1980-2100 using seven climate models, two emissions scenarios, and 100 stochastic realizations of each hurricane season. We use the distribution of realized losses to quantify how hurricane risk has changed across the Atlantic and Gulf coastlines over the past 35 years and how it may change over the next century. Preliminary results suggest that the U.S. economic risk from hurricanes may have grown by as much as 100% relative to a 1980s baseline and may further grow another 300% by the end of the century, under RCP 8.5. These results have informed reports and regulation from Blackrock Investment Institute, the First Street Foundation, the American Flood Coalition, and the Bank of England, each of which seek to better account for changing hurricane patterns in assessing risk to their assets and/or population.

Thursday, 6 February 2020, 3:30pm
Refreshments 3:15pm
NCAR-Foothills Laboratory, 3450 Mitchell Lane, FL2-1022-Large Auditorium

This seminar will be webcast live at:
http://ucarconnect.ucar.edu/live

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