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Projecting Extreme Precipitation in a Changing Climate

#precipitation #natural hazards #climate change

Extreme precipitation events can be incredibly destructive to life and property. It is therefore essential that we better understand where and when the severity of these events are projected to increase in a warming climate. The Clausius-Clapeyron (C-C) relationship defines the expected change in moisture availability in a column of air as a function of the air temperature. The C-C scaling rate states that with each degree of warming, the air can potentially hold another ~7% more moisture, and hence precipitation extremes can experience comparable increases. Some researchers argue that sub-daily to daily C-C scaling rates turn negative at higher temperatures, while others claim instances in which the precipitation scaling rates exceed C-C. This talk discusses some of the difficulties associated with interpreting C-C scaling rates. By improving our understanding of precipitation extremes in a warming world, we can better predict natural hazard events such as hurricanes and floods.

Matt Switanek grew up and studied in the state of Arizona in the southwestern United States. He received a Master of Science in Hydrology and a PhD in Hydrometeorology from the University of Arizona. Since then, he has worked as a PostDoc at the Wegener Center here in Graz, and as a research scientist at the National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colorado (USA). His work has primarily focused on seasonal climate forecasting and extreme events. For this talk, he draws on his current research as a PostDoc at the Department of Geography and Regional Science at Uni Graz, funded by the California Department of Water Resources.

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