Which Months do New Yorkers Need an Umbrella in the City?

A HIRES research project in the Booth Climate/Weather Research Group

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Summary:

This research will examine the annual cycle of precipitation and precipitation extremes in the greater region of New York City. Weather station data and satellite data will be used to examine precipitation and its variability over the course of the year. The project will involve writing computer code using Matlab to analyze the precipitation data. The students will learn some coding techniques, but the focus of the project will be on understanding atmospheric physics and statistics. The specific tasks of the project will include creating histograms of precipitation, binned by month and averaged over multiple years. The work will examine average rain rates and extreme rain rates. Additionally, we will explore the relationship between precipitation and temperature and test how it relates to one of the fundamental concepts of atmospheric physics: the Clausius-Clapeyron relationship. Depending on the progress of the students, the project could also be expanded to include analysis of satellite-derived estimates of precipitation.