



THE UNIVERSITY OF CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Quantile Curve Estimation and Visualization to Study Trends of Global Warming

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ABSTRACT

There is an increasing interest in studying time-varying quantiles, particularly for environmental processes. Thousands of extreme weather events worldwide bolster long-term trends of increasing heat waves, heavy precipitation, droughts and wildfires. A combination of observed trends, theoretical understanding of the climate system, and numerical modeling demonstrates that global warming is increasing the risk of these types of events today. In this article we have tried to explore and visualize trends of Global Warming using quantile curve estimation technique which provides a statistically reliable and computationally efficient graphical tool. Implementation of nonparametric quantile curve estimates give asymptotic results and propose a data-driven procedure for the selection of smoothing parameters.