



## **Impacts of Aerosols on UHI and Hydrological Variables**

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With the objective of improved climate variability predictions, this study will investigate the influence of urban aerosols on UHI and hydrological variables, such as cloud and precipitation formation. UHI and cloud and precipitation variability will be predicted with respect to aerosols and climate changes. Some of the factors considered are the source of aerosols, topography, and meteorological variables. The proposed approach explores the impacts of air particles and land-based pollutants on temperature, cloud formation, and precipitation as well as climate changes, particularly over urban regions. Aerosol data from AERONET ground stations and weather station data from NCDC will be utilized in this analysis to track relationships between aerosol optical depths, UHI, and rainfall. Downwind studies will also be conducted, which take into consideration the movement of aerosols from their original sources. The study area is a 5x5 degree region centered around New York City. The time period is limited to the summer months of June through August of 2005. Periods of high aerosol levels coincide with suppressed rainfall downwind of the source region, while UHI regions may be associated with more rainfall episodes.