

Relationship Between Traffic Crashes and Crimes

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Abstract

Miami-Dade County has both high crime rate and high risk of traffic accidents. In my research, I use geospatial technology to show the traffic crash and crime data on the map. The results show that the crime rate on the map is positively related to the traffic accident rate

Introduction

Traffic crashes and crimes are closely related to the safety of all communities. Some researches have already found that there are some overlaps of areas where there are high risk of crimes and where there are high risk of traffic accidents. In addition, some researchers find that traffic enforcement can increase road safety and decrease criminal activities. This research aims to visualize these areas. Moreover, police department can use the visualized maps to help them take actions to prevent criminal activities and reduce traffic accidents.

Materials & Methods

- Data Sources
 - Traffic Crash data from the Florida Department of Transportation
 - Crime data from Miami Dade County
 - No data in Miami Beach, City of Miami, Hialeah, and City of Coral Gables
- Methods
 - Use Point Density tool to make the density rasters of crime data and traffic crash data
 - Use ArcScene to display the 3D maps of traffic crash and crime data

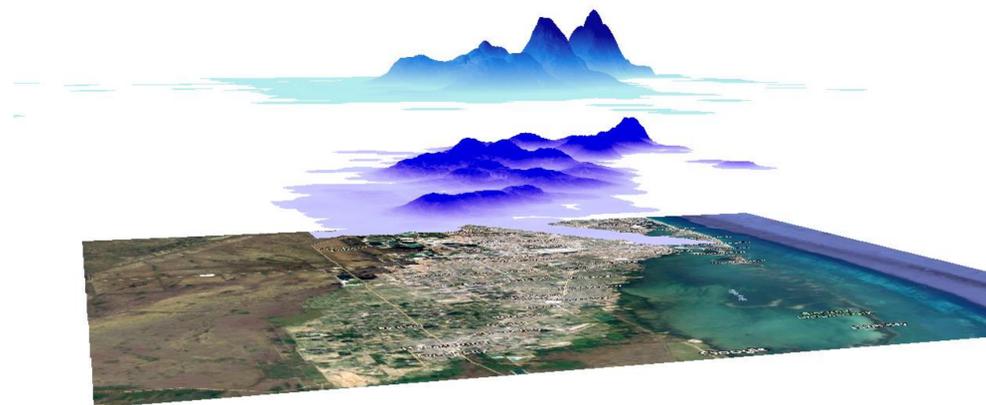
Crime Density Map



Traffic Crash Density Map

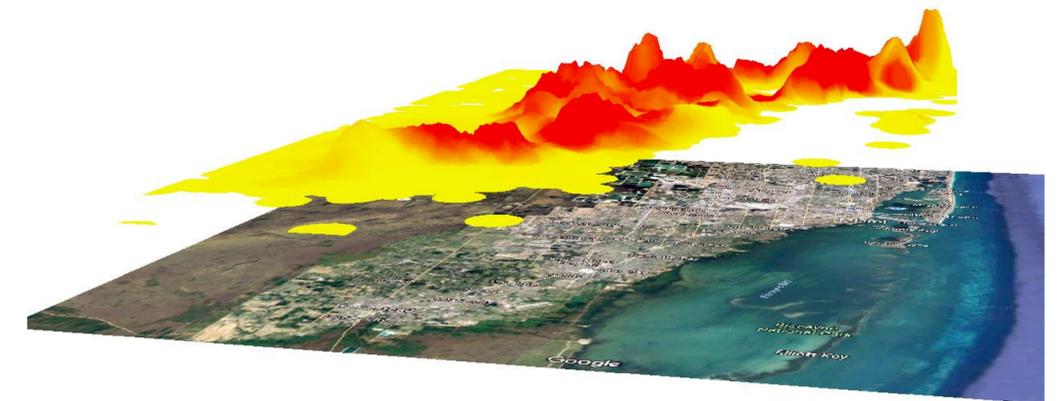


Crime Density and Traffic Crash Density Layer Offset Map



Legend
Traffic Density
Low  High
Crime Density
Low  High

Combined Map of Traffic Crash Density and Crime Density



Legend
Crime Density
Low  High
The elevation shows the traffic density, high elevation means high density, low elevation means low density.

Results

- There are some areas in Miami-Dade County where there are both high risk of traffic crashes and crimes
- The crime rate on the map is positively related to the traffic accident rate, such as areas in Brownsville and North Miami

Discussions

Police department can take actions in the overlapped areas as shown in the map to solve the problems more efficiently. The actions can include checking driver licenses randomly, monitoring speed limits, checking illegal drugs, checking DUI, and so on.