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Methods and Applications of Geospatial Technologies

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Methods and Applications of Geospatial Technologies

Chair: Dr. Hua Liu

Department of Political Science & Geography

Assessing Hospitals, Population, and Mortality Rates in Ohio with Geospatial Technologies

By DANIEL FELARCA

This project attempts to determine how Ohio's mortality rate is increased or decreased by the amount of medical facilities it contains, as well as the amount of people who live there. ArcMap is used to create six maps: one for Ohio's population, another for its hospital count, and the third for its death rate. Regression maps are then created for all three in order to determine which had a higher effect on the Ohioan death rate.

Geostatistics of Tornadoes in Virginia

By KYLE COOLBAUGH

Despite Virginia's eastern location in the continental United States, tornadoes still play a major role in the meteorology of the state. Studying these severe weather events and the injuries and destruction they cause helps to further the understanding of what causes the impacts seen after these storms strike. Through the use of geostatistics it is possible to examine past events to find trends into the future. Tools such as mean and median centers, as well as directional distributions are used to show where these storms strike most frequently and to where they move. Clustering tools such as hotspot analysis and clusters and outliers break down the trends of the storms and the injury patterns therein. Spatial autocorrelation helps to look at the patterns of the storms.

Mapping Gaps in Virginia Beach Bus Service

By JACOB BRUNSWICK

The project objective is to identify areas in Virginia Beach that are lacking transit service using 203 points of interest including grocery stores, schools, churches, libraries, and tourist attractions to represent places people need to go. Current bus service are drawn and buffered to eliminate points already being serviced. Only points that have a neighbor within 2000 feet are remained. The results are 21 clustered points representing 8 heavily utilized areas that are lacking public transportation service in the city.

Earthquake Study East of the Mississippi River with GIS

By CHRISTOPHER JOHNSON

The objective of this research is to determine where the largest earthquakes east of the Mississippi River have occurred. A group of point shapefiles representing earthquake occurrences are created based on four time frames: USGS date of foundation (1879-1899), 1900-1949, 1944-1999, and 2000-present. A 200-mile buffer is created around each earthquake event to show where the effects of the earthquake might have been felt.