

Abstract

The Southern California region faces the constant threat of earthquakes due to the hundreds of faults that lie just beneath this region's surface. As earthquake prediction technology is limited, it is important that residents, including students at the University of Southern California, are prepared for an earthquake event. This project develops and assesses the impact of an interactive web-based Geographic Information Systems (GIS) application, titled USC Earthquake, as an educational tool for communicating information about earthquake preparedness on the University of Southern California University Park Campus.

This study incorporated previously conducted research regarding the use of GIS as a tool for emergency preparation, the implementation and assessment of educational programs for emergency preparation, and the description of other earthquake-related mapping applications. The application created for this project included data from the USC Department of Fire Safety and Emergency Management and the Los Angeles County GIS Data Portal to communicate information about the location of emergency supplies and assembly areas on campus. The author processed this data using Esri's ArcMap as well as ArcGIS Server and constructed the application using ArcGIS Web AppBuilder. This study assessed the educational impact of this tool by surveying two groups of undergraduate student participants: an experimental group, who were asked to use the application, and a control group, who were asked to view a stationary map. The data collected for this survey ultimately showed that both map visualizations are useful in communicating information about earthquake preparedness. However, analysis of the results demonstrated that users preferred the static map to the interactive visualization. The thesis concludes by providing recommendations regarding the use of this application as well as concerning future studies similar to this.