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## Using spatial data to predict tsunami evacuation participation rate and trip generation

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E vacuating populations from areas at risk of a possible tsunami is a critical task since the time between the generation of a tsunami wave and its arrival to coastal areas is limited. There are several factors that affect the evacuation process such as the magnitude of the tsunami, its estimated time of arrival, the available road network for evacuation, and the given population's response to an evacuation order. In addition to having an accurate picture of road-network capability, an effective evacuation depends on having knowledge of how people at risk of a specific tsunami threat may react to an evacuation order. A telephone survey for the population's behavioural responses in each scenarious (10-ft, 20-ft, and 30-ft) in Orange County was conducted to collect the population's behavioural responses in each scenario. The aim of this research is to identify the socioeconomic and physical variables that contribute to the evacuation intention in the survey using logistic regression. Prediction models for each scenario were built using the highly statistical significant variables identified in the logistic regression models. The US Census 2010 data and the DEM (Digital Elevation Model) were used in the prediction models to predict the evacuation participation rate from each block group in the area at risk of tsunami. The number of the evacuating vehicles was calculated for the purpose of trip generation. Predicting the evacuation participation rate in addition to estimating the number of evacuating vehicles will assist emergency managers and transportation planner to better plan for tsunami evacuation.

## Biography

Khameis M Alabdouli is an Assistant Professor at the Geography and Urban Planning Department. He attended the United Arab Emirates University where he received a BS in Geographical Information Systems and Remote Sensing in 2006. He continued his graduate studies and earned his Master's from University of Arkansas in 2010. He joined NASA DEVELOP Internship program in NSSTC (The National Space Science Technology Centre) at NASA Marshall Space Flight Centre, Huntsville, AL, in summer 2012 where he worked closely with NASA scientists on different projects. He earned his PhD from Florida State University in 2015. His research focuses on the interactive relationship between human and environment specifically disaster management and evacuation.

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