Mar 31st, 1:00 PM - 2:00 PM

Spatial and Temporal Variation in Drownings on the Great Lakes: 2010-2016

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Drownings on the Great Lakes are increasingly recognized as a public health issue in both Canada and the United States. Rip currents and other surf hazards are difficult to predict in both time and space, and few beach users understand how to identify and avoid the hazard. This study examines the spatial and temporal variation of drownings on the Great lakes between 2010 and 2016. A total of 270 drownings occurred on the Great Lakes between 2010 and 2016, with the majority of drownings on Lake Michigan in 2012 and 2016. In this study, I examine the specific weather patterns at the time of drowning events and in the hours leading up to each drowning, in addition to the demographics of the victim, with the purpose of identifying common factors among drowning events that can be used to improve rip and surf forecasts. Specifically, GIS is used to show the spatial and temporal variation in the drownings, as well to served as an important database for future research. Preliminary evidence suggests that water temperatures, wind speed and direction are important predictors of whether particular user groups (based on age, gender and location) are at risk of drowning. Results of this study will be used to determine the conditions that increase the risk of drowning in the Great Lakes, which will in turn serve as a basis for the development of an improved warning system and intervention strategies to reduce the number of drownings.