Title: Migrant deaths at the Arizona–Mexico border: Spatial trends of a mass disaster

Authors: Alberto Giordano, M. Katherine Spradley

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Migrant deaths at the Arizona-Mexico border: Spatial trends of a mass disaster

Alberto Giordano, PhD
Department of Geography, Texas State University
601 University Drive
San Marcos, TX 78666

M Katherine Spradley, PhD
Department of Anthropology, Texas State University
601 University Drive
San Marcos, TX 78666

Highlights

- Spatial data from migrant deaths at the Arizona-Mexico border are explored.
- GIScience was used to document how migrant death locations have varied over time.
- Uncertainty and positional inaccuracy is noted that impacts data interpretation.
- Standardized protocol for recording spatial data and meta-data is recommended.

Abstract: Geographic Information Systems (GIS) technology has been used to document, investigate, and predict patterns that may be of utility in both forensic academic research and applied practice. In examining spatial and temporal trends of the mass disaster that is occurring along the US-Mexico Border, other researchers have highlighted predictive patterns for search and recovery efforts as well as water station placement. The purpose of this paper is to use previously collected spatial data of migrant deaths from Arizona to address issues of data uncertainty and data accuracy that affect our understanding of this phenomenon, including local and federal policies that impact the USMexico border. The main objective of our study was to explore how the locations of migrant deaths have varied over time. Our results confirm patterns such as a lack of relationship between Border Patrol apprehensions and migrant deaths, as well as highlight new patterns such as the increased positional accuracy of migrant deaths recorded closer to the border. This paper highlights the importance of using positionally accurate data to detect spatio-temporal trends in forensic investigations of mass disasters: without qualitative and quantitative information concerning the accuracy of the data collected, the reliability of the results obtained remains questionable. We conclude by providing a set of guidelines for standardizing the collection and documentation of migrant remains at the U.S.-Mexico border.

KEYWORDS: GEOGRAPHIC INFORMATION SYSTEMS (GIS); MIGRANTS; MASS DISASTER;US-MEXICO BORDER; SPATIAL ANALYSIS