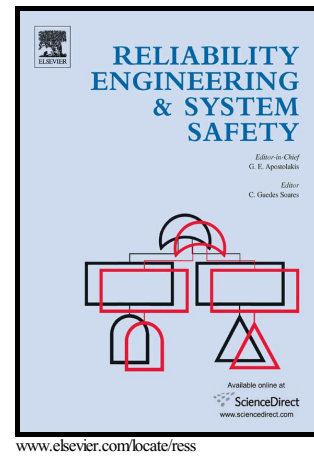


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Analysis of Transportation Networks Subject To Natural Hazards – insights from a Colombian case

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## Analysis of Transportation Networks Subject To Natural Hazards – insights from a Colombian case

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### Abstract

This study provides an applied framework to derive the connectivity reliability and vulnerability of inter-urban transportation systems under network disruptions. The proposed model integrates statistical reliability analysis to find the reliability and vulnerability of transportation networks. Most of the modern research in this field has focused on urban transportation networks where the primary concerns are guaranteeing predefined standards of capacity and travel time. However, at a regional and national level, especially in developing countries, the connectivity of remote populations in the case of disaster is of utmost importance. The applicability of the framework is demonstrated with a case study in the state of Antioquia, Colombia, using historical records from the 2010-2011 rainy season, an aspect that stands out and gives additional support compared to previous studies that considers simulated data from assumed distributions. The results provide significant insights to practitioners and researchers for the design and management of transportation systems and route planning strategies under this type of disruptions.

### Keywords

Transportation reliability, vulnerability, systems reliability

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