Societal acceptance of unnecessary evacuation

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Uncertainties in forecasting extreme events force an unavoidable tradeoff between false alarms and misses. The appropriate balance depends on the level of societal acceptance of unnecessary evacuations, but there has been little empirical research on this. Intuitively it may seem that an unnecessary evacuation would make people less likely to evacuate again in the future, but our study finds no support for this intuition. Using new quantitative (n=800) and qualitative evidence, we examine individual- and household-level evacuation decisions in response to the strong 11-Apr-2012 earthquake in Aceh, Indonesia. This earthquake did not produce a tsunami, but the population had previously experienced the devastating 2004 tsunami. In our sample, the vast majority of people (86%) evacuated in the 2012 earthquake, and nearly all (94%) say they would evacuate again if a similar earthquake happened in the future. Self-reported level of fear at the moment of the 2012 earthquake explains more of the variance in evacuation decisions and intentions than does a combination of perceived tsunami risk and perceived efficacy of evacuation modeled on protection motivation theory. These findings suggest that the appropriate balance between false alarms and misses may be highly context-specific. Investigating this in each context would make an important contribution to the effectiveness of early-warning systems.