

Introduction

Auckland is built directly on the Auckland volcanic field (AVF) with expected future eruptions more likely to occur in a new and unknown location.

The city has congested transport network and is located on a narrow isthmus with a limited number of evacuation routes which makes it imperative that a proper evacuation plan can be implemented.

The aim of this research is to determine how Aucklanders will behave during an evacuation period (both during the warning phase and the evacuation phase).

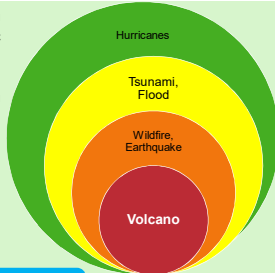
The study is conducted for scenario "1 km South of Mt Eden" which is the most critical as it is located in the middle of the Auckland Isthmus and probably will generate the maximum evacuees when erupted.

Literature Review

❑ Limited number of studies on evacuation during Volcanic eruptions and travel behaviour

❑ The influence of social media on risk perception

Risk perception plays a key role in shaping evacuation behaviour



Few studies investigate on the influence of social media in relation to the perception of risk

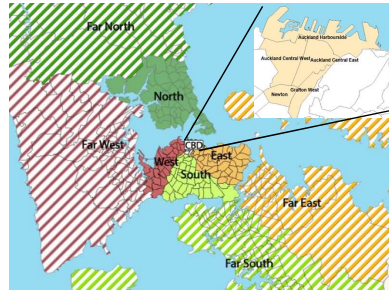
❑ Limited studies on travel behaviour studies during Volcanic eruptions

Questionnaire surveys and some descriptive statistics

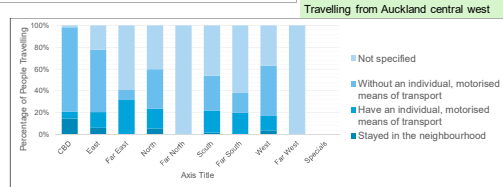
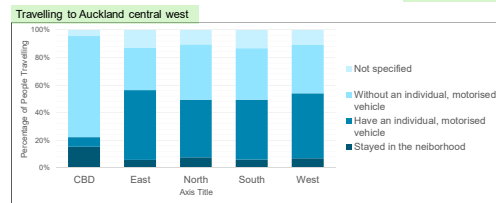
Protective Action Decision Model proposed (PADM) (Lindell, M. K., & Perry, R. W. 2012)

Conformity with the behavior of others can be a significant influence on people's evacuation decisions; there has been no PADM research that has explicitly addressed the subjective norm as it has been conceptualized in the TRA (Theory of Reasoned Action).

Auckland Region & CBD Mobility

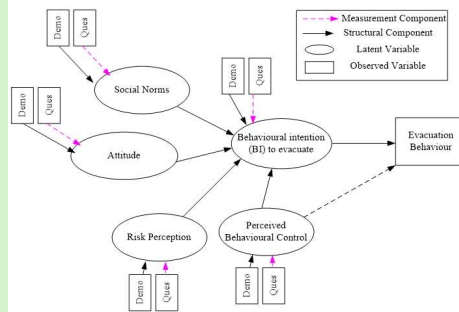


- OD matrix from NZ Census 2013
- Maximum number of people who are travelling within 9km are without vehicle ownership.
- Current study has developed a questionnaire focused on people without cars working/living in the CBD.



Methodology

- A model is proposed extending theory of planned behaviour
- Latent variables are used
- Structural Equation modelling Technique
- Ethics approval done
- Online pilot study to be conducted
- Use of Amos for analysis



Questionnaire Development

Risk Perception

- What will influence your decision to evacuate?
- Government information is sufficient. I will start planning to evacuate immediately.

Attitude

- I only follow instructions that are required by law.
- I generally do what I think is the best thing to do for my situation.

Perceived Behavioural Control

- I am confident in my ability that I can evacuate on my own.
- I would not evacuate until instructed.

Social Norms

- Will you observe others to help you make evacuation decisions?
- No Possibly Definitely

Behaviour Intension

- I intend to evacuate as soon as there is a warning.

➢ 36 questions

➢ Respondents are asked to rate the options given in 5 point Linkert scale (1 as completely Disagree to 5 as Completely Agree)

Future Research

Manual questionnaire survey for different groups of people which will add to the people's panel survey.

Engage with the Maori communities to learn about their evacuation plans and the cultural aspect during the warning and evacuation phase.

Determining decision-making factors during the warning and evacuation phase to develop a simulation model to determine route choices in Auckland's network during the warning phase.

The research aims to evaluate the current plan by Auckland Civil Defense and provide recommendations.

References

Barnett, J., & Breakwell, G. M. (2001). Risk perception and experience: Hazard personality profiles and individual differences. *Risk Analysis*, 21(1), 171-177. <https://doi.org/10.1111/0272-4332.211009>

Dominy-Hoewes, D., & Minos-Minopoulos, D. (2004). Perceptions of hazard and risk on Santorini. *Journal of Volcanology and Geothermal Research*, 137(4), 285-310. <https://doi.org/10.1016/j.jvolres.2004.08.002>

Perry, R. W., Lindell, M. K., & Greene, M. R. (1982). Threat perception and public response to volcano hazard. *Journal of Social Psychology*, 116(2), 199-204. <https://doi.org/10.1080/00224545.1982.9922721>