

# Searching for patterns in the Auckland Volcanic Field



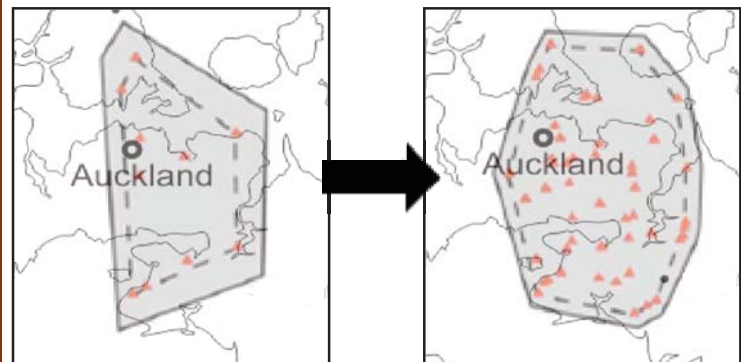
## Summary

Geologists use information from the past to predict future events. This groundbreaking study combined an examination of the timing, chemistry, and location of previous Auckland eruptions to predict future behaviour in the AVF. While the findings for Auckland using this new method are tentative, the DETERmining VOLcanic Risk in Auckland (DEVORA) project will use these results as a basis for further studies.

## Key Points

- The Auckland Volcanic Field (AVF) contains >50 volcanic centres spread across the city.
- Eruptions in the AVF began approximately 250 to 200 thousand years ago. The youngest volcano in the field is Rangitoto which erupted 600 years ago.
- This study calculated the average distance between the volcanic centres in the AVF to determine the area of the field through time. No definite pattern was noticed, and thus the field is thought to have stayed roughly the same size through time.
- The chemistry of the volcanic rocks varies across the AVF, between centres and even within centres during different stages of individual eruptions.
- Looking at patterns in volcano chemistry and location through time is a new approach to studying the AVF. The results suggest that the next eruption will probably be smaller in size than Rangitoto and will likely be located within the current field area.

## Volcanic Centres in Auckland



Volcanic centres present by 100 thousand years ago.

Volcanic centres present today.

10 km

Diagram showing the extent of the Auckland Volcanic Field through time. The AVF has remained relatively constant in area from early on in its formation. The next eruption could occur anywhere in the present field.

Diagram modified from Le Corvec et al. 2013 (Figure 3).

This DEVORA field note summarises the journal article: Age, distance, and geochemical evolution within a monogenetic volcanic field: Analyzing patterns in the Auckland Volcanic Field eruption sequence. By Le Corvec, N., Bebbington, M., Lindsay, J. and McGee, L. (2013) *G3: Geochemistry, Geophysics, Geosystems*. 14(9): 3648-3665.