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## **Volcanic eruption scenarios for the Auckland Volcanic Field, New Zealand**

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The monogenetic Auckland Volcanic Field (AVF) poses a serious risk to Auckland City, New Zealand. Depending on the eruption style, a wide range of hazardous phenomena are associated with AVF eruptions, such as tephra fall, base surge, edifice formation, lava flow, and ballistic impact. A previously established scenario in Auckland has investigated the impacts of an eruption demonstrating phreatomagmatic and magmatic phases. This work found Auckland's urban functionality would be highly disrupted by such an event (see Deligne et al this session). However, the geologic record shows that eruption size, location, and style can vary considerably within the AVF. Environmental conditions (e.g. water availability) of the substrate are thought to have a strong influence on eruption style, hence the importance of vent location. Additionally, assets (e.g. electricity and transportation networks, residential buildings) are not evenly distributed across Auckland, and different land use typologies and infrastructure 'hotspots' could considerably influence the disruption caused by such an eruption. This suggests that societal impacts from a future AVF eruption could vary considerably depending on eruption size, location, and style. Here, we build upon previous work by developing seven additional scenarios that aim to cover the spectrum of plausible eruption possibilities within the Auckland Volcanic Field. Scenarios are developed using the latest research on the AVF and analogous eruptions from around the world. As with the previous work, the additional scenarios will consider both the spatial and temporal facets of an eruption. The suite of scenarios will be used to assess and compare effects and management requirements of different volcanic hazards on critical infrastructure, including damage and functionality, clean-up requirements, and evacuation and urban recovery.