



Hawaiian Cultural Influences on Lava Flow Hazard Mitigation Measures during the January 1960 Eruption of Kīlauea Volcano, Kapoho, Hawai‘i

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Volcanic landscapes and phenomenon have long been the focus of great cultural and spiritual identity. Uncertainty in how to integrate complex cultural factors, particularly with respect to indigenous groups, in hazard mitigation planning is proving one of the greatest obstacles in mitigation, rather than a lack of understanding of the hazards or of engineering design of mitigation measures. Hawaiian people have traditionally used prayer and offerings to pay respect to the volcano goddess Pele, and engineered attempts to control the lava flows that have long threatened their society were unknown prior to arrival of Europeans in the 18th century. No published studies have described public attitudes toward engineered mitigation, though cultural distinctions are widely assumed to produce contrasting views amongst Hawai‘i’s diverse ethnic groups.

Here we show from an extraordinary forgotten survey conducted in 1960 ($n = 638$) that there was widespread community support for engineering solutions to save Kapoho from lava flows, a community on Hawai‘i Island destroyed by lava flows from Kīlauea volcano. On average, nearly three-quarters (72%) favored earthen barriers as mitigation strategies compared to 33% who favored the use of bombs (explosives). Community participation in the mitigation process is inferred to have been a significant factor in community support of mitigation. Support for mitigation transcended ethnic boundaries.

Lava intervention measures include earthen barriers, bombs and water and they have been tried, with varying degrees of success, in Hawai'i, Iceland and Sicily. In recognition of a renaissance of Hawaiian values, a recent Hawai'i lava flow technical committee recognized that cultural sensitivity to engineered solutions to the threat of lava flows may alone preclude use of engineered solutions in future eruptions. Whether public support for these solutions exists today is unknown, but, the threat posed to Hawai'i by lava flows from Mauna Loa volcano, and renewed volcanic unrest at this volcano, suggests a modern comparative study is needed before the next damaging eruption.