

HISTORY AND RESULTS OF SURFACE EXPLORATION IN THE KILAUEA EAST RIFT ZONE

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ABSTRACT

Government-funded surveys of the Kilauea East Rift Zone have resulted in a wealth of geophysical and geochemical data from an active volcanic area. All data are clearly of academic interest; Hawaii was used as a testing ground for various geophysical methods in the early days of geothermal exploration. Some surveys, such as gravity and magnetic, are useful from a regional perspective for determining broad structural trends and grossly identifying magmatic intrusions. Seismic data are currently being used for a more site-specific purpose: to determine fault locations and geometries. Only a few methods have been found to be useful for the very specific tasks of identifying and quantifying geothermal resources and siting productive geothermal wells in areas such as the Rift Zone. These are self-potential (SP) surveys, possibly resistivity soundings, and soil gas surveys.

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