

## Abstracts of Additional Geothermal Session Papers

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### Geology and Geothermal Exploration, Southernmost Peru

**Harold J. Prostka**  
*Consulting Geologist*  
*Estes Park, Colorado*

**James L. Moore**  
**Joe La Fleur**  
*California Energy Company*  
*Santa Rosa, California*

The geothermal potential of a 1,350 sq mi (3,500 sq km) area in the Andes of southernmost Peru was studied using Landsat imagery, aerial photos, and published maps and reports. In the study area, andesitic stratovolcanoes of Pliocene to Holocene age are situated on a 16,400 ft (5,000 m) high plateau underlain

dominantly by Oligocene and Miocene silicic volcanic rocks and clastic sediments. The Tertiary section consists of E5,500 ft (E1,700 m) of permeable ignimbrites, lava flows, breccias, and tuffs capped by as much as 2,950 ft (900 m) of impermeable lacustrine sediments. Using satellite imagery and aerial photos, glaciated Pliocene and Pleistocene volcanoes were readily distinguished from those of Holocene age which probably are underlain by magmatic heat sources. Swarms of northwest-trending normal faults cut Quaternary volcanics and glacial deposits, and are coextensive with the belt of Holocene volcanism. Several elliptical structures 5 to 10 mi (8 to 32 km) across, defined by arcuate faults and chains of volcanic vents, may be traces of buried caldera sources for some of the older silicic volcanics. Surface hydrothermal features observed in the field (April 1980) include hot springs and geysers, fumaroles, altered areas, and extensive travertine and sinter deposits, many of them visible on Landsat imagery, but not shown on any published maps. The hydrothermal features occur near the main areas of Holocene volcanism and are

localized along linear and arcuate fault zones and especially at intersections of faults. Sampling of thermal waters for

geochemical thermometry and test drilling are planned for 1982, to assess the potential for geothermal power generation.

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