

The History of Geysers Area Exploration And Shown By Four-Dimensional Seismic Tomography And EGS Demonstration Project

Advisor WANG CHIEN-YING

Reporter HUANG CHIA-CHI

Since 1960, is the site of the largest geothermal electricity generating operation in the world.

1991-1998, used three-dimensional Vp and Vs and Vp/Vs anomalies structure to survey the reservoir depletion, the most factor is stream flooding, decrease too fast cause the anomalies.

The decreases Vp by increasing compressibility, and increases Vs because of reduction in pore pressure and the drying of minerals, which increase the shear modulus.

The extensive low-Vp/Vs anomaly that occupies the reservoir grew in strength from a maximum of 9% to a maximum of 13.4% during the 7-year study period.

2007-2015, An Enhanced Geothermal System (EGS) Demonstration Project is currently underway in the northwest Geysers.

LBNL has also installed a total of 15 temporary three-component seismic stations in two campaigns:

(1) 2010: five stations distributed within about 1 mile of the EGS injection well (P-32).

(2) 2011: ten stations installed as a “focused array” to collect specialized data during the start-up of the stimulation.

References

1. OVERVIEW OF THE NORTHWEST GEYSERS EGS DEMONSTRATION PROJECT
2. Reservoir depletion at The Geysers geothermal area, California, shown by four-dimensional seismic tomography