

Determination of Geothermal Power Plant Site from Geological Data and Digital Elevation Models

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Abstract

The growing energy needs of human civilization are also getting bigger. There is a need of alternative energies so that the existing energy needs can be met. One of these alternative energy is geothermal. Mount Lamongan district, Tiris district, Probolinggo is thought to have the potential of geothermal energy is large enough. In determining the location of geothermal energy generation should pay attention to the state of the environment and land forms of the area's potential as an area of Mount Lamongan production forests, protected forests, conservation forests and mountains are areas which have a high slope differences. Determination of the area of land cover derived from Landsat 7 ETM+ image processing to get an idea of the condition of land cover and land surface temperature, where the land surface temperature anomalies can be used as a manifestation of geothermal energy.

Landform depiction of the area of Mount Lamongan using ASTER GDEM image to find areas that have a low slope differences that PLTP is relatively safe and has no negative impact on the surrounding environment. Depiction of land cover and land form then processed further to determine a good location for a geothermal power plant was built with attention to the existing geological data analysis using geographic information systems (GIS).

Keyword: Geothermal, Digital Elevation Model, Land Surface Temperature