

EGU22-3384, updated on 13 Aug 2022

<https://doi.org/10.5194/egusphere-egu22-3384>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Mapping subsurface structural lineament and geothermal potential areas in Southern Thailand using GOCE gravity data

Theethach Phiranram¹ and Piyaphong Chenrai²

¹Department of Geology, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand
(6132765523@student.chula.ac.th)

²M.Sc. in Petroleum Geoscience program, Chulalongkorn University, Bangkok 10330, Thailand (piyaphong.c@chula.ac.th)

The Gravity field and steady-state Ocean Circulation Explorer (GOCE) is the European Space Agency's (ESA) satellite gravity mission and is a revolutionary tool to reveal geologic information from the Earth. Geothermal energy is heat energy within the earth's interior that can be developed for a low carbon energy in the future. We use the GOCE satellite integrated with other data to extract geophysical information that are related to geothermal such as boundaries of the subsurface structures and plutonic rocks. The study area is in southern Thailand where a large plutonic rock associated major faults in the area playing an important role in geothermal system.

In this study total horizontal derivative, tilt derivative, and improved logistic were applied to emphasize the subsurface structural lineament and lithology. The result shows that the geological characteristics in southern Thailand are well correlated with gravity model from GOCE's data.