

## **ABSTRACT**

*The increasing energy demand in Indonesia, coupled with the depletion of fossil fuel reserves, highlights the urgency of utilizing alternative energy sources, such as geothermal energy. Mount Papandayan, located in West Java, is one of the regions in Indonesia with considerable geothermal potential, estimated at approximately 195 MW. Surface manifestations including hot springs, solfatara, fumaroles, and altered rocks indicate the presence of this potential. This study aims to construct a two-dimensional (2D) subsurface model based on the variation in rock density. The gravity data used in the modeling were obtained from the GGMPlus satellite, comprising 2050 measurement points. The modeling process was carried out using Grablox software, with the Complete Bouguer Anomaly data serving as input. The results show that the subsurface rock density ranges from 1.75 g/cm<sup>3</sup> to 3.25 g/cm<sup>3</sup>, with an average value of 2.14 g/cm<sup>3</sup>. Furthermore, interpretation of the Second Vertical Derivative (SVD) results suggests the existence of a fault structure trending northwest–southeast, indicated by a contrast in rock density between 2.25 g/cm<sup>3</sup> and 2.55 g/cm<sup>3</sup>. These rocks are interpreted as intrusive igneous rocks, such as andesite, and sedimentary rocks like clay.*

**Keywords:** Mount Papandayan, rock density, gravity method, grablox, GGMPlus, geothermal, SVD.