STRUCTURAL GEOLOGY ANALYSIS USING REMOTE SENSING METHOD AND ITS CORRELATION TO GEOTHERMAL OCCURENCE IN BAYAH DISTRICT, BANTEN

Rifqi Alfadhillah Sentosa[1], Hasbi Fikru Syabi[2], Agil Gemilang Ramadhan[3], Iyan Haryanto[4]*
Department of Geology Engineering, University of Padjadjaran,Indonesia[1,2,3,4]
rifqi14008@mail.unpad.ac.id[1]
hasbi14002@mail.unpad.ac.id[2]
agil.agr@gmail.com[3]
iyan.haryanto@unpad.ac.id[4]

ABSTRACT: Research area is located in Bayah District, Lebak Regency, Banten Province. The research location is located approximately 80 kilometers southwest of Jakarta. This area has a complex geological structure, as well as found many intrusive and metamorphic rocks. In this research area, geothermal manifestations were found in the form of four hot springs (APPC-1, APPC-2, APPC-3, and APC) as well as two cold springs (ADC-1 and ADC-2). This study aims to identify the relationship of geological structure control with the occurence of manifestations in the research area, as well as to determine the Bayah non-volcanic geothermal prospects. The method used is Fault and Fracture Density analysis for structural analysis of research area and magnetic map analysis for interpretation of geothermal prospect prospect. Structural analysis methods performed in the form of lineament delineation, determination of lineament density and major trends, and application of structural sequence model. The results of structural analysis will be correlated with the occurences of geothermal manifestations with the aim of identifying the most influential structural patterns as the pathway for geothermal fluid to reach surface in the study area. Magnetic data is also used to determine the possibility of Bayah non-volcanic geothermal prospects. The developing structure in the research area has NE-SW and NW-SE directions. The FFD analysis shows that high-density lineament is located in the southeast of research area where 3 hot springs manifestation APPC-1, APPC-2, APPC-3 are present. This manifestation appears in the lineament with NE-SW direction. Magnetic data also obtained negative magnetic anomalies in the southeast of the study area. It can be concluded that the lineaments with NE-SW direction influence the fluid outflow the most, and Bayah non-volcanic geothermal prospect areas are located around APPC manifestations.

Keywords: Non-Volcanic, Geothermal, FFD, Structural Geology, Bayah, Surface Manifestation