

SARI

GEOLOGI DAN ANALISIS POLA TEGASAN UTAMA DAERAH KENALAN DAN SEKITARNYA, KECAMATAN BOROBUDUR, KABUPATEN MAGELANG, JAWA TENGAH

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Daerah penelitian yang berada di Desa Kenalan dan sekitarnya, yang merupakan bagian dari gunung Menoreh yang berada di bagian utara kubah Kulon Progo memiliki struktur geologi yang khas karena memiliki pola struktur yang dihasilkan dari kegiatan tektonik dan pola struktur yang dihasilkan dari kegiatan vulkanisme sepanjang Miosen Akhir-Plistosen. Kajian struktur geologi di daerah penelitian dilakukan guna mengetahui pola yang merupakan hasil dari tektonik dan vulkanik, maka dilakukan pemetaan geologi dan analisis struktur geologi berupa analisa tipe tensor tegasan yang kemudian dilakukan inversi tegasan menggunakan perangkat lunak "Win Tensor 4.0.4." Data yang digunakan dalam inversi tegasan berupa data *shear fracture* yang didapat dari hasil pemetaan. Stratigrafi daerah penelitian dimulai dari pengendapan litologi breksi piroklastik berumur Miosen Akhir, yang kemudian diendapkan endapan lempung hitam, breksi laharik Merapi muda dan aluvial berumur Kuartar. Geomorfologi daerah penelitian mengacu pada aspek morfogenesis, dijumpai tiga bentangalam genetik utama yang berkembang yaitu, bentang alam asal struktural, satuan bentang alam asal vulkanik dan satuan bentang alam asal fluvial. Hasil inversi tegasan menunjukkan 4 urutan tegasan dalam peristiwa deformasi tektonik dan vulkanik, yaitu fase I (NW-SE) dengan Sh_{max} N117°E bertipe *trans-tensive*, fase II (NNW-SSE) dengan Sh_{max} N162°E bertipe *pure strike-slip*, fase III (W-E) dengan Sh_{max} N102°E bertipe *pure extensive*, dan fase IV (NE-SW) dengan Sh_{max} N29°E bertipe *pure strike-slip*. Fase I dipengaruhi oleh vulkanisme kala Miosen Akhir, fase II dipengaruhi oleh tektonisme saat Miosen Akhir sampai Pliosen Awal, fase III dipengaruhi oleh fase *extensive* kala Plistosen, dan fase IV dipengaruhi tektonik gravitasi vulkanisme Gunung Merapi.

Kata kunci : Menoreh, inversi tegasan, struktur geologi, tektonisme, vulkanisme

ABSTRACT

GEOLOGY AND ANALYSIS MAIN STRESS PATTREN IN KENALAN AND SURROUNDINGS, BOROBUDUR DISTRICT, MAGELANG REGENCY, CENTRAL JAVA

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The research area in the kenalan village and its surroundings, which is part of Menoreh mountain in the northern part of the dome of Kulon Progo, has a geological structure which is typical because it has a structural pattern that resulted from tectonic activities and the structure pattern that resulted from volcanic activities throughout the late miocene-plistocene period. The study of geological structure in the study area was conducted to know the pattern which is the result of tectonic and volcanic activities. Thus, geological mapping and analysis of geological structure was conducted in form of analysis of stress tensor type. Then, stress inversion was done by using a software "Win Tensor 4.0.4.". Data used in stress inversion was in form of Shear Fracture taken from geological mapping result. The stratigraphy of the study area was started from late miocene aged pyroclastic breccia lithology which then deposited by black clay deposits, lava breccia of young Merapi and quarter aged aluvial. Geomorphology of the study area refers to the morphogenetic aspect. It is found three main genetic landscapes which develop, namely, the strcutural origin landscape, the unit of volcanic origin landscapes and the unit of fluvial origin landscapes. The result of the stress inversion shows 4 sequences of stress in tectonic and volcanic deformation activity, namely, phase I (NW-SE) with Sh_{max} N117⁰E trans-tensive typed, phase II (NNW-SSE) with Sh_{max} N162⁰E pure strike-slip typed, phase III (W-E) with Sh_{max} N102⁰E pure extensive type and phase IV (NE-SW) with Sh_{max} N29⁰E pure strike-slip typed. Phase I was influenced by late miocene volcanism, phase II was influenced by tectonism during the late miocene to the early pliocene, phase III was influenced by the extensive phase of the plistocene and phase IV was influenced by volcanic gravitational tectonics of mount merapi.

Keywords : *Menoreh, stress inversion, geological structure, tectonism, volcanism*