

Volcanostratigraphy of Malabar Volcano, West Java, Indonesia and their magma evolution

Y. ROHIMAN^{1*}, I.G.B.E. SUCIPTA¹, M. ABDURRACHMAN¹, S.R.A. SUGIONO²

¹Department of Geological Engineering, Bandung Institute of Technology, 40123, Bandung, Indonesia (*correspondence: yepi.rohiman@gmail.com)

²Star Energy Geothermal (Wayang Windu) Ltd, 11410, west Jakarta, Indonesia (shanti.sugiono@starenergy.co.id)

Malabar, Gambung and Bedil are trench side Quaternary volcanic complex located in West Java, Indonesia. Although much data from previous studies has been reported, their detailed volcanostratigraphy and the process that influence the eruption are still unclear. Our Morphology analysis, field observation, petrological and geochemical studies were used to understand the detail of volcanostratigraphy and their magma evolution. Morphological characteristics were analyzed by areal and linear analysis using perspective view of DEM. Sample data from Malabar, Gambung, and Bedil volcanoes were collected as well and compared each other. From these data, we concluded that this volcanic complex have 12 lithological units, consist of lava and pyroclastics that have been erupted from 4 different vents. Petrological (petrography, analysis of minerals, and glass composition) and geochemical studies of Malabar, Gambung and Bedil lava show different An content of plagioclase composition, mineral abundance (olivine, pyroxene, hornblende, quartz), and textures (porphyritic, sieve, pyroxene rim, flow, embayment, and zoning) with range of levels SiO₂ from 58.9 - 64.0 wt.% and K₂O 1,26 - 1,63 wt.% (medium-K series). We conclude that the eruption of Malabar Volcano was influenced by magma mixing and differentiation of magma, in Gambung Volcano influenced by magma differentiation, and Bedil Volcano influenced by differentiation and assimilation.