POST ERUPTIVE VOLCANIC MATERIAL MODEL USING GEOGRAPHIC INFORMATION SYSTEM : A QUANTITATIVE ASSESSMENT AT THE MERAPI VOLCANO SOUTHERN FLANK

Rona Mentari Kusuma Hati1, Diyan Prabandaka2 and Dhoni Wicaksono3

1 Universitas Gadjah Mada (UGM), Bulaksumur, Yogyakarta 55281,
ronamentari39@yahoo.com

2 Universitas Gadjah Mada (UGM), Bulaksumur, Yogyakarta 55281,
diyan.prabandaka@mail.ugm.ac.id

3 Universitas Gadjah Mada (UGM), Bulaksumur, Yogyakarta 55281,
dhoni_wicaksono@yahoo.com

Abstract : Merapi volcano (2965 m) in Central Java has 66 historical reported eruptions since mid-1950s until now with a cycle of 2-4 years between eruptions. The eruption activity happens when the Merapi Volcano dome crushes, and it produces piroclastic material flow. “Lahar” comes from indonesian word meaning the general term for a rapidly flowing mixture of rock debris and water (other than normal streamflow) from a volcano and refers to the moving flow. The constant eruptions pose a risk for the people who live in the surrounding area, as they are vulnerable to the environmental conseqences. They require a system to mitigate the volcano′s hazard after it has erupted. Modelling of the post eruptive volcano shows that the area affected by Merapi′s piroklastic material includes its volume, and relfecting on the trend of the spread is one way to mitigate the volcano hazard. The satellite sub-images will be extracted from all the GIS data sets and subjected to radiometric and geometric corrections prior to future projection of volcanic activity on piroclastic material. The result shows that post-eruptive model will be different in its dissemination for each eruption occurrence through 2-4 years cycle. The Model of the post eruptive volcano merapi can decrease the impact of physical, social, economic for the people who settle in eruption hazard zone. Beside that, the model can be used as a reference to make evacuation path.

Keywords : eruption, piroklastic material, mitigation, vulnerable, GIS