

## **Hidrothermal Alteration Study of Tangkuban Perahu Craters, and Its Implication to Geothermal Conceptual Model**

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**Abstract :** Tangkuban Perahu is located in West Java, Indonesia. It is active stratovolcano type and still showing hidrothermal activity. The main purpose of this study is to find correlation between subsurface structure and hidrothermal activity on the surface. Using topographic map, SRTM images, and field observation, geological condition and alteration area was mapped. Alteration sample analyzed trough petrographic analysis and X-Ray Diffraction (XRD) analysis. Altered rock in study area showing white-yellowish white colour, and texture changing variation from softening to hardening because of alteration by silica and sulphur. Alteration mineral which can be observed in petrographic analysis and XRD analysis consist of cristobalite, anatase, alunite, and pyrite. This mineral assemblage showing advanced argillic alteration type with West-East alteration area orientation. Alteration area have correlation with manifestation occurrence such as steam vents, solfatara, and warm to hot pools. Most of manifestation occurred in main crater like Ratu Crater and Upas crater, and parasitic crater like Domas Crater and Jarian Crater. This manifestation indicates permeability in subsurface which can be created trough structural process with same orientation. For further study geophysics method such as Magneto Telluric (MT) and resistivity can be required to find permeability zone pattern in Tangkuban Perahu subsurface.

**Keywords :** alteration, advanced argillic, Tangkuban Perahu, XRD, cristobalite, anatase, alunite, pyrite

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