



Characterization of tropical volcanic hydrogeology based on temperature and electrical conductivity analysis: Mt. Ciremai, West Java, Indonesia

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In tropical volcanic areas, groundwater flow path are controlled by various volcanic deposits, in form of lavas, laharic breccias, and pyroclastic breccias. The three lithological units form porous and fractured aquifer system.

Mt. Ciremai is a 3075 masl high strato volcano, lies in Kuningan Regency West Java province, Indonesia. It consists of 22 layers of volcanic deposits: lavas, laharic and pyroclastic breccias. As many as 140 groundwater springs have been identified and measured for their physical and chemical properties to understand the role of volcanic rocks as productive aquifer.

In Ciremai area, typical conduit flow and diffuse flow drainage patterns have been successfully separated by combination of groundwater temperature and electrical conductivity analysis, coupled with precipitation data. The two parameters show large variations in groundwater flowing in conduit flow systems and low variations in groundwater water flowing in diffuse flow systems. The variation of groundwater and environment (air) temperature shows the difference of open system unconfined aquifer and most likely close system of more deeper aquifer.