

**Combining geology, geophysics, and geochemistry: Clues on relationship of Cu-Au deposits between epithermal high sulphidation, skarn and porphyry type mineralization system at Pacitan district, East Java, Indonesia**

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The Southern Mountain Range on Central Java and East Java in Sunda-Banda magmatic arc systems has Oligo-Miosen age. Pacitan and the surrounding area is the part of Eastern Southern Mountain Range that has a lot of zones of alteration which appears on the surface, with some precious metal minerals were found. With the rise of the needs and metal prices in the world market today, research and exploration, increasingly, do and some of the prospect area identified mainly for precious and base metal already done mine although on a small scale. In the Southern Mountain of Eastern Java has encountered some type of economic ore deposits known as skarn, high sulfidation and intermediate sulfidation epithermal. Polymetallic veins type deposit (Zn-Pb-Zn- Au) are often found in areas such as Wonogiri, Ponorogo and Pacitan. In Java, especially in the Western part of Java, indication of the presence of this deposit type has not found. In the Southern Mountains Range (Central and East Java), recent studies have identified the presence of deposit type Cu (Au) porphyry in Wonogiri, such as in the area Selogiri and Ngrejo. While in the Pacitan area itself, the deposit type of Cu (Au) porphyry possible associated with granodiorite and diorite intrusions that formed a networking system (stockwork) of veins quartz-pyrite-copper oxide. Fluid inclusions show the presence of solid halite inclusions with formation temperature (homogenization temperature) of approximately 400 oC and salinity of 30 wt.% NaCl eq. From the results of the mapping, identification of alteration minerals by petrography and XRD analysis, and identification of petrography known that the alteration and mineralization that occurs in this area is closely related to the intrusion of magma with dacitic composition. Hydrothermal alteration in this area is divided into three zones: argillic, advanced argillic and silicification with quartz residual spotted encountered. Ore minerals occur as disseminated sulfide ore pyrite, arsenopyrite, chalcopyrite, enargite and malachite. From measurements of geomagnetic found high magnetic anomaly > 700 nT surrounded by a low magnetic values and form a circular pattern, it is an indication of the pattern of anomalies of the porphyry system that is closed by the argillic lithocap. Based on data integration of geological, geochemical and geophysical the mineralization in the Pacitan area in the interpretation were in the proximal part of the high sulfidation and suspicion leads to the porphyry deposits are still covered by the lithocaps.