3D Modeling From Induced Polarization Method for Indentification of Gold Deposit Exploration in North Minahasa, North Sulawesi, Indonesia

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According to North Sulawesi's Mining Agency and Ministry of Energy and Mineral Resources, North Minahasa Regency have at the very least 14 Million Tons of gold deposit resource. The research area was conducted in Tatelu District, North Minahasa Regency within an extensive area of 700m^2. Geologically, the research area is in gold mineralization zone that have already been mined by both local people or legal mining company. This area is composed from quarter volcanic rocks such as lava, lapili, and ash as a results from Klabat Volcano's eruption. This research was conducted in order to know the distribution of gold mineralisation in low-sulphidation ephitermal environment up until 75 meter beneath the ground. The approach in this research is using Induced Polarization (IP) in five measurement line with each length of the measurement line is 700m. Mineralization zone could be detected by IP shown by the chargebility value >280ms. IP method could detect gold deposit near the surface. Meanwhile, the value of resistivity anomaly reach >300 ohm.m indicating rocks with low porosity like igneous rocks and lava. Following that, the integration of both IP and Resistivity data is used to make a 3D model of gold mineralization zone that can estimate the distribution of gold mineralization underground by detecting gold's gangue mineral. The zonation that has been done can be one of the basic method for the identification of gold deposit exploration and with the construction of this model, the success ratio of gold deposit exploration are expected to rise higher.

Biography

Ismail Halim is an undergraduate student in Faculty of Geological Engineering, Padjadjaran University, Indonesia. He is currently joining Geophysics Laboratory in Faculty of Geological Engineering as a laboratory assistant and serving as a current President of American Association of Petroleum Geologists Padjadjaran University Student Chapter. He has conducted a geological surface mapping 5x5km, a paper publisher, and represent Padjadjaran University as a delegation in several geological competition held in Indonesia.

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Category: Poster presentation