

## INTISARI

### **IDENTIFIKASI SEBARAN BATUAN ANDESIT DAERAH KALISONGGO MENGGUNAKAN METODE GEOLISTRIK DAN METODE VLF (*VERY LOW FREQUENCY*)**

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Penelitian tentang identifikasi sebaran batuan beku andesit telah dilakukan di daerah Kalisonggo dengan menggunakan metode geolistrik dan very low frequency (VLF). Penelitian ini dilakukan untuk mengetahui arah penyebaran dan sumber intrusi batuan beku andesit yang termasuk dalam Formasi Andesit Tua berdasarkan variasi nilai resistivitas dan nilai rapat arus ekuivalen bawah permukaan. Luas area 1 km<sup>2</sup> dilakukan pengukuran dengan menggunakan metode geolistrik sebanyak 6 titik pengukuran dengan panjang bentangan pengukuran adalah 400 m dan juga dilakukan pengukuran metode VLF sebanyak 5 lintasan yang berarah Barat Daya – Timur Laut dan 2 lintasan berarah Tenggara – Barat Laut.

Hasil pengolahan data Geolistrik menunjukkan nilai variasi resistivitas bawah permukaan adalah 19,8 Ohm.m – 89,5 Ohm.m merupakan resistivitas soil, 143 Ohm.m – 207 Ohm.m merupakan resistivitas batuan beku andesit, 12,3 Ohm.m – 20 Ohm.m merupakan resistivitas batu pasir, 10,5 Ohm.m – 26,5 Ohm.m merupakan resistivitas lempung, dan 15 Ohm.m – 44,5 Ohm.m merupakan resistivitas napal. Sedangkan untuk metode VLF yang sensitive terhadap benda konduktif, pada lintasan 6 terdapat anomali sebesar 120% - 180% yang diindikasikan sebagai sumber intrusi batuan beku andesit. Berdasarkan hasil korelasi antara penampang resistivitas dan penampang rapat arus ekuivalen diperkirakan bahwa sebaran batuan beku andesit berarah Barat Laut – Tenggara dan diperkirakan sumber intrusi dangkal dari batuan beku andesit berada pada jarak 300 m kearah Barat laut dari batuan beku andesit berstruktur kekar tiang yang tersingkap di sungai Kalisonggo.

**Kata Kunci:** Resistivitas, Batuan beku andesit, Konduktivitas, Formasi andesit tua

## ABSTRACT

### ***IDENTIFICATION OF ANDESITE DISTRIBUTION IN KALISONGGO AREA USING GEOELECTRIC AND VLF (VERY LOW FREQUENCY) METHODS***

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Research on identification of andesite distribution has been conducted in Kalisonggo area using geoelectric and very low frequency methods. This research purposed to determine of intrusion source and andesite distribution that included in Old Andesite Formation based on variations of subsurface resistivity and equivalent current density values. There are 5 lines VLF measurement with Southwestern - Northeast direction and 2 lines with Southeast – Northwest direction. Resistivity measurement are 6 points with half-current electrode separation ( $AB/2$ ) are 200 meters in 1 km<sup>2</sup> measuring area.

Resistivity data processing results showed that the value of subsurface resistivity variations were 19.8 Ohm.m – 89.5 Ohm.m identified as soil resistivity, 143 Ohm.m – 207 Ohm.m indicated as andesite resistivity, 12.3 Ohm.m – 20 Ohm.m identified as sandstone, 10.5 Ohm.m – 26.5 Ohm.m indicated as clay and 15 Ohm.m - 44.5 Ohm.m identified as napal resistivity. Very low frequency processing result showed that at line 6 there are equivalent current density anomaly about 120% - 180% that indicated as andesite intrusion source. Based on the cross-correlations result between equivalent current density section with resistivity section was estimated that andesite intrusion source sited in 300 m from columnar joint that disclosed in Kalisonggo River with Northwest direction.

**Keywords:** resistivity, Andesite, Conductivity, Old Andesite Formations